Redland
CITY COUNCIL

AGENDA

GENERAL MEETING

Wednesday, 17 September 2014
commencing at 9.30am

The Council Chambers
35 Bloomfield Street
CLEVELAND QLD

Table of Contents

The Mayor is the Chair of the General Meeting. The following Portfolios are included in the General Meeting and Council's nominated spokesperson for that portfolio as follows:

	PORTFOLIO	SPOKESPERSON
1.	Office of the CEO (including Internal Audit)	Cr Mark Edwards
2.	Organisational Services (excluding Internal Audit and Emergency Management)	Mayor Karen Williams
3.	City Planning and Assessment	Cr Julie Talty
4.	Community & Cultural Services, Environment and Regulation	Cr Lance Hewlett
5.	Infrastructure & Operations	Cr Paul Gleeson
6.	Emergency Management	Cr Alan Beard

1 DECLARATION OF OPENING

On establishing there is a quorum, the Mayor will declare the meeting open.

Recognition of the Traditional Owners

Council acknowledges the Quandamooka people who are the traditional custodians of the land on which we meet. Council also pays respect to their elders, past and present, and extend that respect to other indigenous Australians who are present.

2 RECORD OF ATTENDANCE AND LEAVE OF ABSENCE

Motion is required to approve leave of absence for any Councillor absent from today's meeting.

3 DEVOTIONAL SEGMENT

Member of the Ministers' Fellowship will lead Council in a brief devotional segment.

4 RECOGNITION OF ACHIEVEMENT

Mayor to present any recognition of achievement items.

5 RECEIPT AND CONFIRMATION OF MINUTES

5.1 GENERAL MEETING MINUTES 3 SEPTEMBER 2014

Motion is required to confirm the Minutes of the General Meeting of Council held on 3 September 2014

6 MATTERS OUTSTANDING FROM PREVIOUS COUNCIL MEETING MINUTES

6.1 CLEVELAND AQUATIC CENTRE LEASE

At the General Meeting of 21 May 2014 (Item 16.1.1 refers) Council resolved "*That this item be deferred*".

This Item will be presented to a future General Meeting for consideration.

6.2 NOTICE OF MOTION – CR OGILVIE – INTERNET AND WIFI SPEEDS IN THE REDLANDS

At the General Meeting of 20 August 2014 (Item 14.2.1 refers) Council resolved as follows:

"That Council resolves to request a report on the following:

1. *The feasibility of utilising direct wireless technology to enhance internet speeds in the Redlands; and*
2. *The viability of provision of public wi-fi nodes in the Redlands business districts"*

A report will be presented to a future General Meeting for consideration.

6.3 COUNCILLORS' CODE OF CONDUCT

At the General Meeting of 3 September 2014 (Item 12.2.1 refers) Council resolved that this item 'lie on the table'.

This Item will be presented to a future General Meeting for consideration.

7 PUBLIC PARTICIPATION

In accordance with s.42 Redland City Council Meetings – Standing Orders:

1. Council may by resolution set aside a maximum of 15 minutes to permit members of the public to address the local government on matters of public interest relating to local government. The time given to each member of the public for their address will not exceed 5 minutes and the maximum number of speakers will be decided by the Chairperson.
2. A member of the public wishing to attend and address a meeting may either:
   (a) make a Written Application to address the meeting, which must be received by the Chief Executive Officer, no later than 4.30pm two days before the meeting; or
   (b) make a request to the Chairperson at the commencement of the public participation period, when invited to do so by the Chairperson.
3. The right of any member of the public to address the local government is at the absolute discretion of Council. Priority will be given to persons who have made a written application to speak at a meeting, in accordance with Council's Meetings Standing Orders.
4. If any address or comment made by a member of the public addressing a meeting is irrelevant, offensive, or unduly long, the Chairperson may require the person to cease their address.
5. Any person addressing a meeting will -
   (a) unless they are incapacitated or it is otherwise unreasonable for them to do so, stand; and
   (b) speak with decorum; and
   (c) frame any remarks in respectful and courteous language.
6. If a person is considered by the local government, Mayor or Chairperson to be unsuitably dressed, the person may be directed to immediately withdraw from the meeting. Failure to comply with a direction may be considered an act of disorder.

8 PETITIONS AND PRESENTATIONS

Councillors may present petitions or make presentations under this section.

9 MOTION TO ALTER THE ORDER OF BUSINESS

The order of business may be altered for a particular meeting where the Councillors at that meeting pass a motion to that effect. Any motion to alter the order of business may be moved without notice.

10 DECLARATION OF MATERIAL PERSONAL INTEREST OR CONFLICT OF INTEREST ON ANY ITEMS OF BUSINESS

Councillors are reminded of their responsibilities in relation to a Councillor's material personal interest and conflict of interest at a meeting (for full details see sections 172 and 173 of the *Local Government Act 2009*). In summary:

If a Councillor has a material personal interest in a matter before the meeting:

The Councillor must—

- *inform the meeting of the Councillor's material personal interest in the matter; and*
- *leave the meeting room (including any area set aside for the public), and stay out of the meeting room while the matter is being discussed and voted on.*

The following information must be recorded in the minutes of the meeting, and on the local government's website—

- *the name of the Councillor who has the material personal interest, or possible material personal interest, in a matter;*
- *the nature of the material personal interest, or possible material personal interest, as described by the Councillor.*

A Councillor has a ***material personal interest*** in the matter if any of the following persons stands to gain a benefit, or suffer a loss, (either directly or indirectly) depending on the outcome of the consideration of the matter at the meeting—

(a) the Councillor;
(b) a spouse of the Councillor;
(c) a parent, child or sibling of the Councillor;
(d) a partner of the Councillor;
(e) an employer (other than a government entity) of the Councillor;
(f) an entity (other than a government entity) of which the Councillor is a member;
(g) another person prescribed under a regulation.

If a Councillor has a conflict of interest (*a real conflict of interest*), or could reasonably be taken to have a conflict of interest (*a perceived conflict of interest*) in a matter before the meeting:

The Councillor must—

- *deal with the real conflict of interest or perceived conflict of interest in a transparent and accountable way.*
- *Inform the meeting of—*
  - *(a) the Councillor's personal interests in the matter; and*
  - *(b) if the Councillor participates in the meeting in relation to the matter, how the Councillor intends to deal with the real or perceived conflict of interest.*

The following must be recorded in the minutes of the meeting, and on the local government's website—

(a) the name of the Councillor who has the real or perceived conflict of interest;
(b) the nature of the personal interest, as described by the Councillor;
(c) how the Councillor dealt with the real or perceived conflict of interest;
(d) if the Councillor voted on the matter—how the Councillor voted on the matter;
(e) how the majority of persons who were entitled to vote at the meeting voted on the matter.

*A **conflict of interest** is a conflict between—*

(a) a Councillor's personal interests (including personal interests arising from the Councillor's relationships, for example); and
(b) the public interest;

that might lead to a decision that is contrary to the public interest.

11 REPORTS TO COUNCIL

11.1 PORTFOLIO 1 (CR MARK EDWARDS)

OFFICE OF THE CEO (INCLUDING INTERNAL AUDIT)

11.1.1 AUGUST 2014 MONTHLY FINANCIAL REPORTS

Dataworks Filename:	**FM Monthly Financial Reports**
Attachment:	**Monthly Financial Report August 2014**
Authorising Officer:	**Bill Lyon** **Chief Executive Officer**
Responsible Officer:	**Linnet Batz** **Chief Financial Officer**
Author:	**Deborah Corbett-Hall** **Service Manager Corporate Finance**

This report will be distributed when finalised.

11.2 PORTFOLIO 3 (CR JULIE TALTY)

CITY PLANNING AND ASSESSMENT

11.2.1 DECISIONS MADE UNDER DELEGATED AUTHORITY FOR CATEGORY 1, 2 & 3 DEVELOPMENT APPLICATIONS

Dataworks Filename: **Reports to Council - Portfolio 3 Planning and Development**

Attachments: **Decisions Made Under Delegated Authority 17.08.2014 to 30.08.2014**

Responsible Officer:

Louise Rusan
General Manager Community & Customer Services

Author: **Heather Turnham**
Business Support Officer

PURPOSE

The purpose of this report is for Council to note that the decisions listed below were made under delegated authority for Category 1, 2 and 3 development applications.

This information is provided for public interest.

BACKGROUND

At the General Meeting of 27 July 2011, Council resolved that development assessments be classified into the following four categories:

Category 1 – Minor Complying Code Assessments and Compliance Assessments and associated administrative matters, including correspondence associated with the routine management of all development applications;
Category 2 – Complying Code Assessments and Compliance Assessments and Minor Impact Assessments;
Category 3 – Moderately Complex Code & Impact Assessments; and
Category 4 – Major and Significant Assessments.

The applications detailed in this report have been assessed under:-

- Category 1 criteria - defined as complying code and compliance assessable applications, including building works assessable against the planning scheme, and other applications of a minor nature, including all accelerated applications.
- Category 2 criteria - defined as complying code assessable and compliance assessable applications, including operational works, and Impact Assessable applications without submissions of objection. Also includes a number of process related delegations, including issuing planning certificates, approval of

works on and off maintenance and the release of bonds, and all other delegations not otherwise listed.

- Category 3 criteria that are defined as applications of a moderately complex nature, generally mainstream impact assessable applications and code assessable applications of a higher level of complexity. Impact applications may involve submissions objecting to the proposal readily addressable by reasonable and relevant conditions. Both may have minor level aspects outside a stated policy position that are subject to discretionary provisions of the Planning Scheme. Applications seeking approval of a plan of survey are included in this category. Applications can be referred to General Meeting for a decision.

OFFICER'S RECOMMENDATION

That Council resolves to note this report.

Decisions Made Under Delegated Authority 17.08.2014 to 23.08.2014								
Application	**Description**	**Category**	**Applicant**	**Property Address**	**Application Type**	**Decision Date**	**Decision**	**Division**
Category 1								
BWP002488	Design & Siting - Patio Roof	Category1	Metropolitan Certification Services Pty Ltd	31 Bibury Street, Wellington Point QLD 4160	Concurrence Agency Response	21/08/2014	Approved	1
MCU013269	Dual Occupancy	Category1	Tipuana Investments Pty Ltd As Trustee	69 Tramican Street, Point Lookout QLD 4183	Code Assessment	21/08/2014	Development Permit	2
BWP002422	Domestic Outbuilding-Carport	Category1	Building Code Approval Group Pty Ltd	63 Mooloomba Road, Point Lookout QLD 4183	Code Assessment	20/08/2014	Development Permit	2
BWP002471	Building over/near relevant infrastructure - Dwelling House	Category1	The Certifier Pty Ltd	61 Princess Street, Cleveland QLD 4163	Concurrence Agency Response	19/08/2014	Approved	2
BWP002434	Domestic Outbuilding	Category1	The Certifier Pty Ltd	285-287 Redland Bay Road, Thornlands QLD 4164	Code Assessment	21/08/2014	Development Permit	3
BWP002446	Bulk Design & Siting - Dwelling - 144 lots	Category1	Place Design Group Pty Ltd	268 Redland Bay Road, Thornlands QLD 4164	Concurrence Agency Response	22/08/2014	Approved	4
MCU012557	Dwelling House (ADA)	Category1	Romeo Peter Bianchin	14 Carissa Street, Russell Island QLD 4184	Code Assessment	22/08/2014	Permissable Change - Development Permit	5
BWP002439	Design & Siting - Dwelling House and Pool	Category1	Building Code Approval Group Pty Ltd	10 Gray Street, Redland Bay QLD 4165	Concurrence Agency Response	18/08/2014	Approved	5
OPW001687	Advertising Device	Category1	TLC Supermarkets Pty Ltd	133-149 Broadwater Terrace, Redland Bay QLD 4165	Code Assessment	22/08/2014	Development Permit	5

Application	Description	Category	Applicant	Property Address	Application Type	Decision Date	Decision	Division
BWP002445	Domestic Outbuilding	Category1	The Certifier Pty Ltd	14 Bertram Road, Karragarra Island QLD 4184	Code Assessment	19/08/2014	Development Permit	5
BWP002470	Combined design and siting and build over sewer - outbuilding	Category1	Scott Alan O'Neill	222 School Of Arts Road, Redland Bay QLD 4165	Concurrence Agency Response	21/08/2014	Approved	5
BWP002473	Design and Siting - Dwelling House	Category1	Inspire Style And Living	28 Willis Close, Redland Bay QLD 4165	Concurrence Agency Response	22/08/2014	Approved	5
BWP002418	Domestic Outbuilding - Carport	Category1	ABC Certification Pty Ltd	84-94 Zipfs Road, Redland Bay QLD 4165	Code Assessment	19/08/2014	Development Permit	6
BWP002482	Design & Siting - Dwelling House	Category1	Henley Properties Qld Pty Ltd	7 Penda Circuit, Victoria Point QLD 4165	Concurrence Agency Response	19/08/2014	Approved	6
BWP002468	Design & Siting - Carport	Category1	Applied Building Approvals	299 Redland Bay Road, Capalaba QLD 4157	Concurrence Agency Response	21/08/2014	Approved	7
BWP002466	Design & Siting - Dwelling	Category1	Bartley Burns Certifiers & Planners	5 Parakeet Street, Birkdale QLD 4159	Concurrence Agency Response	18/08/2014	Approved	8
MCU013265	Dwelling House	Category1	Henley Properties Qld Pty Ltd	32 Guyana Court, Capalaba QLD 4157	Code Assessment	18/08/2014	Permissable Change - Development Permit	9

Application	Description	Category	Applicant	Property Address	Application Type	Decision Date	Decision	Division
Category 2								
MC010677	Multiple dwelling x 4	Category2	Michael John Playdon	42 Russell Street, Cleveland QLD 4163	Code Assessment	22/08/2014	Extension to Relevant Period - Approved	2
MC012102	Dual Occupancy	Category2	Delia May Wilson James Tovey Wilson	8 Scott Street, Cleveland QLD 4163	Code Assessment	20/08/2014	Extension to Relevant Period - Approved	2
OPW001694	Landscaping Works - Multiple Dwelling x 3 (Smart Eda)	Category2	Covey & Associates Pty Ltd	64 Haggup Street, Cleveland QLD 4163	Compliance Assessment	19/08/2014	Compliance Certificate	2
OPW001663	Operational Works for ROL 1 into 2 (SmartEda)	Category2	HCE Engineers Bradley John Stewart Tracey Louise Stewart	22 Acacia Street, Thornlands QLD 4164	Code Assessment	20/08/2014	Development Permit	3
OPW001698	Excavation and Fill	Category2	Hallmark Homes Pty Ltd Suncoast Building Approvals	2 Sycamore Street, Redland Bay QLD 4165	Code Assessment	22/08/2014	Development Permit	6
MC012144	Multiple Dwelling x 25 (originally lodged as 33 units)	Category2	Horizon Property Holdings Pty Ltd	171 Allenby Road, Wellington Point QLD 4160	Impact Assessment	20/08/2014	Permissable Change - Development Permit	8

Decisions Made Under Delegated Authority 24.08.2014 to 30.08.2014								
Application	**Description**	**Category**	**Applicant**	**Property Address**	**Application Type**	**Decision Date**	**Decision**	**Division**
Category 1								
MCU013274	Dwelling House and Swimming Pool	Category1	Heisig Constructions (QLD) Pty Ltd	202 Shore Street North, Cleveland QLD 4163	Code Assessment	28/08/2014	DEC060 - DevPermit1	2
ROL005779	Standard Format: 1 into 2 Lots	Category1	Bartley Burns Certifiers & Planners	106 Smith Street, Cleveland QLD 4163	Code Assessment	29/08/2014	DEC060 - DevPermit1	2
BWP002430	Design & Siting - Domestic other (Fence exceeding 2m)	Category1	Dale Butler	65 Waterville Drive, Thornlands QLD 4164	ConRef	29/08/2014	DEC060 - Approved	3
BWP002457	Domestic Outbuilding	Category1	Strickland Certification Pty Ltd	217-219 Fitzroy Street, Cleveland QLD 4163	Code Assessment	29/08/2014	DEC060 - DevPermit1	3
BWP002477	Design & Siting - Patio	Category1	Applied Building Approvals	15 Santagiuliana Parade, Thornlands QLD 4164	ConRef	27/08/2014	DEC060 - Approved	3
BWP002485	Design & Siting - Carport	Category1	Bartley Burns Certifiers & Planners	4 Herring Lane, Thornlands QLD 4164	ConRef	27/08/2014	DEC060 - Approved	3
BWP002495	Design & Siting - Dwelling House	Category1	Metricon Homes Qld	11 Nadine Crescent, Thornlands QLD 4164	ConRef	27/08/2014	DEC060 - Approved	3
ROL005715	Standard Format 1 into 2	Category1	Joan Marlene Heuston John Glen Heuston	29-35 Egret Drive, Victoria Point QLD 4165	Code Assessment	29/08/2014	DEC060 - DevPermit1	4
ROL005788	Standard Format 1 into 2 lots	Category1	Statcorp Pty Ltd	5 Base Street, Victoria Point QLD 4165	Code Assessment	29/08/2014	DEC060 - DevPermit1	4
MCU013284	Dwelling House	Category1	Alois G Helbling Susanna Helbling	55 Bay Drive, Russell Island QLD 4184	Code Assessment	25/08/2014	DEC060 - DevPermit1	5

Application	Description	Category	Applicant	Property Address	Application Type	Decision Date	Decision	Division
BWP002478	Design and Siting - Dwelling House	Category1	Jason Lul Ford	39 Canaipa Road, Russell Island QLD 4184	ConRef	25/08/2014	DEC060 - Approved	5
BWP002479	Design & Siting - Dwelling House	Category1	Building Code Approval Group Pty Ltd	43 Burmah Boulevard, Redland Bay QLD 4165	ConRef	25/08/2014	DEC060 - Approved	5
MCU013310	ADA DWELLING HOUSE	Category1	Bay Island Designs	7 Granadilla Street, Macleay Island QLD 4184	Code Assessment	29/08/2014	DEC060 - DevPermit1	5
BWP002447	Domestic outbuilding	Category1	Phillip Leonard Levenspiel	5 Jessie Close, Thornlands QLD 4164	Code Assessment ConRef	27/08/2014	DEC060 - DevPermit1	6
BWP002452	Domestic outbuilding	Category1	David John Clarkson	13 Woodlands Drive, Thornlands QLD 4164	Code Assessment	26/08/2014	DEC060 - DevPermit1	6
BWP002480	Design & Siting - Dwelling House	Category1	Metricon Homes Qld	86 Balthazar Circuit, Mount Cotton QLD 4165	ConRef	28/08/2014	DEC060 - Approved	6
BWP002442	Combined Design and Siting and Build Over or Near Underground Infrastructure - Outbuilding	Category1	The Certifier Pty Ltd	7 Chinnock Court, Alexandra Hills QLD 4161	ConRef	27/08/2014	DEC060 - Approved	7
BWP002451	Design & Siting - Dwelling (Stage 6 - 32 lots - refer to ROL005725)	Category1	Villa World Developments Pty Ltd	401-451 Redland Bay Road, Capalaba QLD 4157	ConRef	27/08/2014	DEC060 - Approved	7
BWP002453	Design & Siting - Dwelling (Stage 7 - 33 lots - refer to ROL005725)	Category1	Villa World Developments Pty Ltd	401-451 Redland Bay Road, Capalaba QLD 4157	ConRef	27/08/2014	DEC060 - Approved	7

Application	Description	Category	Applicant	Property Address	Application Type	Decision Date	Decision	Division
BWP002454	Design & Siting - Dwelling (Stage 5 - 32 lots - refer ROL005725)	Category1	Villa World Developments Pty Ltd	401-451 Redland Bay Road, Capalaba QLD 4157	ConRef	27/08/2014	DEC060 - Approved	7
BWP002455	Design & Siting - Dwelling (Stage 4 - 37 lots - refer ROL5725)	Category1	Villa World Developments Pty Ltd	401-451 Redland Bay Road, Capalaba QLD 4157	ConRef	27/08/2014	DEC060 - Approved	7
ROL005776	Standard Format 1 into 3 Lots	Category1	Site Town Planning	57 Barron Road, Birkdale QLD 4159	Code Assessment	26/08/2014	DEC060 - DevPermit1	8
BWP002476	Design & Siting - Dwelling House	Category1	Building Code Approval Group Pty Ltd	12 Radunz Place, Birkdale QLD 4159	ConRef	26/08/2014	DEC060 - Approved	8
Category 2								
ROL005732	Standard format: 1 into 7 lots	Category2	AJS Surveys Pty Ltd	262 Boundary Road, Thornlands QLD 4164	Code Assessment	29/08/2014	DEC060 - DevPermit1	3
MC012104	Dwelling SMBI Residential Zone	Category2	Coolum Design And Building Services	117 Coondooroopa Drive, Macleay Island QLD 4184	Code Assessment	28/08/2014	Extension to Relevant Period - Approved	5
MCU013281	Premises (Panel Beating and Spray	Category2	Kenneth R Dall Leeanne Dall	451 Boundary Road, Thornlands QLD 4164	Impact Assessment	26/08/2014	DEC060 - DevPermit1	6
OPW001702	Operational Works - Domestic Driveway Crossover	Category2	L J Home Builders Pty Ltd	91 Hanover Drive, Alexandra Hills QLD 4161	Code Assessment	27/08/2014	DEC060 - DevPermit1	7
MCU013264	Multiple Dwelling x 22	Category2	Hometown Villas	154 Finucane Road, Alexandra Hills QLD 4161	Code Assessment	25/08/2014	DEC060 - DevPermit1	8
MCU013229	Service Station	Category2	Woolworths Limited Attention: Rohan Vora	114 Birkdale Road, Birkdale QLD 4159	Impact Assessment	28/08/2014	DEC060 - DevPermit1	10

Application	Description	Category	Applicant	Property Address	Application Type	Decision Date	Decision	Division
Category 3								
MC012008	Veterinary Clinic, Shops, Refreshment Establishment & Commercial Offices	Category3	Jensen Bowers Group	110 Birkdale Road, Birkdale QLD 4159	Impact Assessment	25/08/2014	Permissible Change - DevPermit1	10

11.2.2 APPEALS LIST CURRENT AS AT 29 AUGUST, 2014

Dataworks Filename:	**Reports to Council - Portfolio 7 Planning and Development**
Authorising Officer	 **Louise Rusan** **General Manager Community & Customer Services**
Responsible Officer:	**David Jeanes** **Group Manager City Planning & Assessment**
Author:	**Chris Vize** **Service Manager Planning Assessment**

PURPOSE

The purpose of this report is for Council to note the current appeals.

BACKGROUND

Information on appeals may be found as follows:

1. Planning and Environment Court

a) Information on current appeals and declarations with the Planning and Environment Court involving Redland City Council can be found at the District Court web site using the "Search civil files (eCourts) Party Search" service: http://www.courts.qld.gov.au/esearching/party.asp

b) Judgements of the Planning and Environment Court can be viewed via the Supreme Court of Queensland Library web site under the Planning and Environment Court link: http://www.sclqld.org.au/qjudgment/

2. Department of State Development, Infrastructure and Planning (SDIP)

The DSDIP provides a Database of Appeals (http://services.dip.qld.gov.au/appeals/) that may be searched for past appeals and declarations heard by the Planning and Environment Court.

The database contains:

- A consolidated list of all appeals and declarations lodged in the Planning and Environment Courts across Queensland of which the Chief Executive has been notified.
- Information about the appeal or declaration, including the appeal number, name and year, the site address and local government.

ISSUES

1.	**File Number:**	Appeal 1963 of 2009 (MC010715)
Applicant:		**JT George Nominees P/L**
Application Details:		Preliminary Approval for MCU for neighbourhood centre, open space and residential uses (concept master plan). Cnr Taylor Rd & Woodlands Dve, Thornlands.
Appeal Details:		Applicant appeal against refusal.
Current Status:		The appellant has submitted amended plans to all parties. Council and co-respondents are considering the amended plans. The matter is listed for a determination on whether the amendments comprise a minor change.
Hearing Date:		Listed for review 1 October 2014.

2.	**File Number:**	Appeal 2675 of 2009. (MC010624)
Applicant:		**L M Wigan**
Application Details:		Material Change of Use for residential development (Res A & Res B) and preliminary approval for operational works 84-122 Taylor Road, Thornlands
Appeal Details:		Applicant appeal against refusal.
Current Status:		The appellant has submitted amended plans to all parties. Council and co-respondents are considering the amended plans. The matter is listed for a determination on whether the amendments comprise a minor change.
Hearing Date:		Listed for review 11 September 2014.

3.	**File Number:**	Appeal 4521 of 2013 (MCU012995)
Applicant:		**D Polzi and ML Polzi**
Application Details:		Material Change of Use for a Landscape Supply Depot
Appeal Details:		Submitter appeal against development permit approval.
Current Status:		Listed for review 5 November 2014.

4.	**File Number:**	Appeal 4564 of 2013 (ROL005669)
Applicant:		**Ausbuild Projects Pty Ltd**
Application Details:		Reconfiguration of Lots (6 into 259) and Material Change of Use (Dwelling Houses)
Appeal Details:		Applicant appeal against refusal.
Current Status:		Adjourned until 4 September 2014.

5.	**File Number:**	Appeal 1760 of 2014 (ROL005698)
Applicant:		**Ausbuild Pty Ltd**
Application Details:		Reconfiguration of Lots (8 lots) and Material Change of Use (Dwelling Houses)
Appeal Details:		Applicant appeal against refusal.
Current Status:		Mediation has been held. Next review date set for 5 September 2014.

6.	**File Number:**	Appeal 2630 of 2014 (MCU012906)
Applicant:		**Jackson & others**
Application Details:		Material Change of Use for a Cemetery
Appeal Details:		Submitter appeal against approval.
Current Status:		Appeal filed on 10 July 2014.

OFFICER'S RECOMMENDATION

That Council resolves to note this report.

11.2.3 STANDARD FORMAT RECONFIGURATION - ROL005741 - 223-231 WELLINGTON STREET ORMISTON

Dataworks Filename: **Reports to Coordination Committee - Portfolio 3 - City Planning and Assessment**

Attachment: **State Mapping, Overlays, Site Plan & Aerial**

Responsible Officer:

Louise Rusan
General Manager Community & Customer Services

Author: **Adam Webb**
Senior Planner Planning Assessment

PURPOSE

This category 4 application is referred to the General Meeting for determination.

BACKGROUND

Council has received an application seeking a Development Permit for Reconfiguring a Lot on land at 223-231 Wellington Street Ormiston for the purpose of a 1 into 24 lots plus public use land.

The application has been assessed against the relevant planning instruments and the proposed development is considered to comply, as detailed in the assessment under the issues heading of this report. The key issues identified in the assessment are:

- Traffic/access; and
- Existing vegetation.

The development is considered to comply with the relevant planning instruments and it is therefore recommended that the application be granted a Development Permit subject to conditions.

ISSUES

Development Proposal & Site Description

Proposal

The application is for a one (1) into 24 lot reconfiguration that will result in the creation of allotments with frontages greater than 10m and ranging in size from 503m^2 to 1146m^2 in area. Additionally, one public use land lot is proposed with an area of 4878m^2.

Site & Locality

The site is described as Lot 2 on RP1707 being 223-231 Wellington Street, Ormiston. The site has an area of 21904 square metres and is currently improved by two small shed structures associated with the keeping of horses. The site has frontage to

Wellington Street in the west and Tolson Terrace in the north. The site falls towards Moreton Bay to the east and adjoins Urban Residential zoned housing allotments to the north, south and west.

The site is predominantly clear of vegetation, apart from a line of 29 mature trees along the southern boundary of the site.

Application Assessment

Sustainable Planning Act 2009

The application has been made in accordance with the *Sustainable Planning Act 2009* Chapter 6 – Integrated Development Assessment System (IDAS) and constitutes an application for Reconfiguring a Lot under the Redlands Planning Scheme.

SEQ Regional Plan 2009-2031

The site is located within the Urban Footprint in the SEQ Regional Plan 2009-2031.

State Planning Policies & Regulatory Provisions

State Planning Policy / Regulatory Provision	**Applicability to Application**
SEQ Koala Conservation State Planning Regulatory Provision (SPRP)	The site is within a Priority Koala Assessable Development Area under the SEQ Koala Conservation SPRP. There are 20 koala habitat trees located on the development site. The applicant has submitted a Koala Assessment Report by Austecology which states that koalas appear to traverse through the site, while the evidence found suggests that koalas do not reside on this site and only use the site periodically. The SPRP Division 6, Table 6, Column 2 Point 2 states that *"site design must avoid clearing non-juvenile koala habitat trees in areas of high value rehabilitation habitat, and medium value rehabilitation habitat, with any unavoidable clearing minimised and offset in accordance with the Offsets for Net Gain of Koala Habitat in South East Queensland Policy at a ratio of five new koala habitat trees for every one non-juvenile koala habitat tree removed or an equivalent cash contribution."* Note:- offset ratio has been changed to 3:1 by Environmental Offsets (Transitional) Regulation 2014. The long term survival of the 20 koala habitat trees in their current location is very low due to the conflicts between vegetation and urban built form (domestic activities) pressures. It is therefore

State Planning Policy / Regulatory Provision	Applicability to Application
	recommended that the developer pay to remove the vegetation and pay to reinstate koala habitat vegetation along the foreshore public use land. Within a few years the Habitat Values of the locality will be substantially improved for the long term as a direct result of the increased offset ratio and the use of public use land that forms a linkage and is safe from edge effects.
SPRP (Adopted Charges)	The development is subject to infrastructure charges in accordance with the SPRP (adopted charges) and Council's adopted resolution. Details of the charges applicable have been provided under the Infrastructure Charges heading of this report.
State Planning Policy July 2014	**The state interactive mapping system identifies the following State interests.** **State interest - coastal environment** <u>Coastal management district.</u> As indicated via image 1 in attachment 1, the site is within a coastal management district. The proposal is considered to comply as an appropriate bio-retention basin will be constructed east of the proposed road to detain and treat stormwater to an appropriate quantity and quality before being released into the bay. Additionally, the foreshore area east of the proposed road is not being developed and is being revegetated. **State interest - natural hazards, risk and resilience** <u>Coastal hazard area – erosion prone area</u> As indicated via image 2 in attachment 1, the site is within the erosion prone area. The proposal is considered to comply as the erosion prone area is not being developed and is being revegetated. <u>Coastal hazard area – medium storm tide</u> As indicated via image 3 in attachment 1, the site is within the medium storm tide area. The proposal is considered to comply as the medium storm tide area is not being developed and is being revegetated.

State Planning Policy / Regulatory Provision	Applicability to Application
	Potential bushfire impact buffer As indicated via image 4 in attachment 1, the site is within the potential bushfire impact buffer area. Given the surrounding developed nature of the locality the bushfire risk is considered low. Additionally, the foreshore areas will be revegetated having regard to potential bushfire risks.

Redlands Planning Scheme

The application has been assessed under the Redlands Planning Scheme version 6.1.

Zone Code

The application is subject to code assessment and the following codes are applicable to the assessment:

- Urban Residential Zone code; and
- Open Space Zone code.

The proposed residential allotments are limited to the portion of the site zoned urban residential and the open space portion is proposed to be revegetated and dedicated as public use land.

The eastern part of the site was zoned open space as it adjoins the foreshore and provides a north-south link for pedestrians, cyclists and habitat. The open space zone seeks to create a high standard of amenity, enhance habitats, form corridors and meet the active or passive recreational needs of people. The proposed public use land dedication is considered to achieve this objective and complement the broader open space network by forming bicycle and habitat links between existing open space areas. Additionally, the dedication complies with specific outcome 1.3 of Open Space Zone code that states "*reconfiguration facilitates the dedication of open space land to Cou*ncil...".

The proposed stormwater basin in the open space zoned area is considered to comply with the environmental overall outcomes (e)(i)(f) of the zone code which states "*incorporate best practice stormwater management that minimises adverse impacts associated with run-off".* The stormwater basin will not conflict with the intended function of the open space area, as it will not prohibit pedestrian or bicycle movement and the basin will be partly vegetated adding to the habit values of the locality.

For the above reasons, the proposal is considered to be consistent with urban residential and open space zone intents.

Overlays

The following Overlays apply to the site:

1. Acid Sulfate Soils Overlay;

As indicated via image 1 in attachment 2, the subject site has potential for Acid Sulfate Soils. This can be appropriately managed at operational works stage when the extent of earthworks is known.

2. Bushland Habitat Overlay;

As indicated via image 2 in attachment 2, the residential allotments are located outside of the Bushland Habitat Overlay. Therefore, the proposed residential allotments will not impact on the objectives of the Bushland Habitat Overlay area. Furthermore, the foreshore area is proposed to be revegetated advancing the purpose of the Bushland Habitat Overlay.

3. Landslide Hazard Overlay.

As indicated via image 3 in attachment 2, the residential allotments are located outside of the Landslide Hazard Overlay. Furthermore, the foreshore area is proposed to be revegetated improving soil stability within the low landslide area.

4. Flood Prone, Storm Tide and Drainage Constrained Land Overlay; and

As indicated via image 4 in attachment 2, the Flood Prone, Storm Tide and Drainage Constrained Land Overlay is located through the site and along the foreshore. The proposal will not impact on the storm tide area along the foreshore area which will be revegetated. The central road and proposed underground stormwater system have been designed to cater for the stormwater flows identified within the flood prone area located central to the site. Detailed design of stormwater discharge will be finalised at operational works stage.

Other Codes and Policies

The following additional codes are applicable to the assessment:

- Reconfiguration code;
- Development Near Underground infrastructure code;
- Excavation and Fill code;
- Infrastructure Works code; and
- Stormwater Management code.

The allotments comply with the minimum lot areas of 400m^2 and 800m^2 for internal allotments and 10m frontages for small lots. The access ways to the internal lots exceed the minimum 4.5m width for single lots and 6m for shared access ways probable solution.

The proposal represents a net density of 14 dwellings per hectare which is consistent with the intended density for urban residential land.

Furthermore, the large lot sizes and frontage widths are considered to achieve the overall outcomes of the reconfiguration code that states "infill reconfiguration respects established lot sizes, frontage widths and streetscapes".

The development is also considered to be able to achieve the objectives of the Development Near Underground Infrastructure Code, Excavation and Fill code, Infrastructure Works code and Stormwater Management code. The details of matters related to these codes will be finalised at operational work stage.

Key Issue 1 - Traffic and Access

Community expectation

Tolson Terrace was constructed with a stub road. Therefore, it is not an unreasonable expectation for residents considering living within Tolson Terrace to expect that Tolson Terrace would be extended in the future to service the Urban Residential zoned vacant allotment to the south.

Road Design

The Redlands Planning Scheme Part 9 Schedule 6 Movement Network and Road Design seeks a pavement width of 6m lip to lip (i.e. the asphalt width is 6m).

The previous approval for Tolson Terrace approved a width of 5.1m from lip to lip. It is possible that in 1996 when the approval was issued that the road widths were measured from face of kerb to face of kerb which is 450mm on each side thus totalling a 6m wide road pavement (5.1m + 0.45m + 0.45m).

It would appear that during the construction process significant vegetation was found to be in a position which compromised the road width adjacent to Jolliffe Place. Instead of removing the vegetation or altering the alignment of the road, the road was narrowed and a retaining wall structure put up around the trees.

The existing road at its narrowest point is 4.4m of asphalt with 0.3m of channel leading to a mountable kerb. This results in a width of 5m (0.3m + 4.4m + 0.3m) for vehicles to pass without having to climb the mountable kerb.

The Redlands Planning Scheme – Part 11 – Policy 9 – Chapter 5 Road and Path Design refers to Complete Streets in relation to designing for passing. Section 2.5 states that a single carriage way is supported where the catchment is less than 50 lots.

East of the pinch point (being the intersection of Tolson Terrace and Jolliffe Place) are 4 existing allotments and 17 proposed allotments totalling 21. Although not proposed, a single carriage way (which is less than the existing road width) is therefore an acceptable design solution.

The RPS – Part 11 – Policy 9 – Chapter 5 Road and Path Design refers to Austroads which recommends a minimum of 3.3m wide lanes (measured to the face of the kerb) in low speed environments. The existing width of Tolsen Place at the pinch point measured to the face of the kerb is 5.3m (0.45 + 4.4m + 0.45)

The Redlands Planning Scheme Access and Parking Code refers to the Australian Standard AS2890.1 for minimum distance for passing. The Australian standard

provides a design vehicle width for 99.8% of vehicles called the B99 design vehicle. The dimensions for the B99 vehicle are 5200mm long x 1940mm wide (including side mirrors).

The width of the pavement in Tolson Terrace (at the pinch point) is 4.4m plus the channel (300mm on each side). This gives a "driveable" width of 5m (0.3m + 4.4m + 0.3m).

Two B99 vehicles side by side would be 3.88m (1.94m + 1.94m) giving a separation or safe passing distance of 1.12m (5.0m - 3.88m).

In order to maintain road safety it is recommended that a traffic control device (e.g. median island, rumble bars or kerb build out) be implemented at the intersection of Tolson Terrace and Jolliffe Place to cater for the additional catchment. This traffic control device would restrict the flow of traffic as only one vehicle will be able to pass at a time. Appropriate signs (give way), line marking and restricting parking at the intersection has also been included as a condition within the recommendation.

Tolson Terrace is a low speed environment due to the horizontal alignment of the road, limited catchment and residential access place location. The introduction of a speed control device will cater for the additional traffic movement associated with the proposal and ensure that road users can safely pass at the intersection (and pinch point) of Tolson Terrace.

For the above reasons, it is considered that the proposal complies with the overall outcomes of the access and parking code.

Road hierarchy

Wellington Street is a local collector road. The Redlands Planning Scheme Part 9 Schedule 6 Movement Network and Road Design Table 1 Functional Characteristics of Road Types states that the function of a local collector is to provide access to property and other roads and access to local neighbourhoods. Therefore, providing direct driveway access or a new road intersection to a local collector road is acceptable.

Connecting the proposed road to Wellington Street

Complete Streets specifies that opposing intersections must be a minimum of 40m apart measured from the centreline of the intersection. The closest intersection is Oak Street on the western side of Wellington Street. If the proposed road was projected onto Wellington Street this would result in an intersection separation distance of approximately 54m making this a possible option in relation to intersection separation.

However, this would result in:

- An additional intersection interrupting the flow of passing vehicles on a collector road;
- The bus stop needing to be moved away from the intersection and moved to a location which would enable the bus to stop and pull over safely without blocking the intersection;

- More land required to be dedicated as road reserve having regard to the downhill overland flow requirements for stormwater discharge. This would result in less Urban Residential land available for allotments making an inefficient use of the limited land resource;

- Higher road construction cost, increasing the cost of supplying the land;

- A through road or two turning facilities with unconstructed road reserve between the turning facilities. This would substantially increase the amount of land used for road reserve and would increase the amount of land used for road pavement (having regard to the additional turning facility); and

- Additional road pavement which results in additional road maintenance cost for Council and less stormwater being absorbed by the land. It also increases the stormwater that is captured and results in a larger quantity of water that needs to pass through the bio-retention facility. The bio-retention facility will need to be increased in size (at a cost to the developer impacting land supply costs) to cater for the additional flows. An increased bio-retention facility will result in an increase to the ongoing maintenance costs for Council.

For the above reasons providing a road extension onto Wellington Street is not preferred. Furthermore, Tolson Terrace is considered capable of accommodating the additional 17 residential allotments.

Key Issue 2 - Existing Vegetation

The site is in the Priority Koala Assessable Development Area and is categorised as Medium Value Rehabilitation within the Koala SPRP. Twenty nine (29) mature trees exist in the Urban Residential zoned portion of site along the southern boundary. This vegetation is not protected by any overlay within the Redlands Planning Scheme.

The details within Attachment 2 of the **austecology** Koala Habitat Report demonstrate that there are 20 trees that may meet the criteria of a non juvenile habitat tree which are defined as *Eucalyptus* species under the South East Queensland Koala (SPRP). The remainder of the trees on the site either do not meet the criteria of a non-juvenile habitat tree due to its species type or they have a smaller than 31.5 centimetre circumference.

The definition given within the *Koala (SPRP)* of a **non juvenile kola habitat tree** is a tree that has:

- A height of more than 4 metres; or

- A trunk with a circumference of more than 31.5 centimetres at 1.3 metres above the ground.

Additionally the definition of a Koala habitat tree is:

a. A food tree of the *Corymbia, Melealecua,* or *Lophostemon* or *Eucalyptus genera,* or

b. A preferred shelter species such as *Angophora*.

As the application is for reconfiguring a lot within a Priority Koala Assessable Development Area and is classified as *Medium Value Rehabilitation* the application triggers assessment against Table 6 – Development in a Priority Koala Assessable Development Area. Table 6 sets out six assessment criteria within Column 2. The criteria seek to avoid clearing non-juvenile koala habitat trees or where unavoidable clearing occurs that offsets are implemented in accordance with the Offset for Net Gain of Koala Habitat in South East Queensland Policy.

The applicant has not identified any trees for retention within the residential allotments. Due to the development potential of adjoining land, the zoning of the site and future conflicts between proposed dwellings and existing and proposed infrastructure, it is considered that the long term survival of this existing vegetation is very low. Therefore, it is recommended that the option of offsets (or the equivalent cash contribution) in land within habitat linkages and suitable for the long term survival of the habitat values be implemented.

Furthermore, the open space portion of the site is to be revegetated and dedicated as public use land improving the habitat values of the site and ensuring the long term survival of the proposed revegetation.

Infrastructure Charges

If approved, the proposed development is subject to infrastructure charges in accordance with the State Planning Regulatory Provision (adopted charges). The infrastructure charge applicable to this development is:

Redland Water:	$132,090.00
Redland City Council:	$496,910.00
Combined charge:	**$629,000.00**

This charge has been calculated as follows in accordance with Council's Adopted Infrastructure Charges Resolution (No. 2.1) July 2014:

((24 lots **X** $28,000) **–** $28,000 (existing lot credit) – $15,000 cycleway credit (100m x 2.5m x $60/$m^2$)) **X** 0.79 (RCC split) = $496,910

((24 lots **X** $28,000) **–** $28,000 (existing lot credit) - $15,000 cycleway credit (100m x 2.5m x $60/$m^2$)) **X** 0.21 (Redland Water split) = $132,090

Total combined charge: $629,000.00

S649(2) - creditable trunk infrastructure

Foreshore cycleway

Council's Priority Infrastructure Plan identifies a trunk cycleway along the foreshore. A distance of approximately 175m exists between the road reserves of Tolsen Terrace to the north of the site and Empire Vista turnaround stub (connecting to Ivory Lane) to the south of the site. This would equate to a planned establishment cost offset of $26,250 for a standard single lane concrete pathway [ie. 175m x 2.5m x $60/$m^2$ = $26,250] as per AICR2.1 rate for future cycleway P62 (Schedule 6).

The subject site has an angled width of approximately 100m. Therefore, a $15,000 offset is applicable. However, should the developer build the full pathway than a $26,250.00 offset is applicable.

State Referral Agencies

The application triggered State referral to the Department of State Development, Infrastructure and Planning via SARA. The trigger for referral is Schedule 7, Table 2, Item 14 – Coastal Management District.

The concurrence agency provided an approval with conditions which are attached to the recommendation.

Public Consultation

The proposed development is Code assessable and did not require public notification. However, Council did receive four (4) public comments regarding the proposal. The matters raised within these public comments have been taken into consideration as part of this assessment and are outlined below.

1.	**No park** There is no real park space proposed.
	Officer's comment The site is not identified within Council Priority Infrastructure Plan Public Parks and Community Facilities Network. However, 4878m^2 of public use land is proposed by the developer. This is consistent with the open space zone.
2.	**Lot sizes** The change in the planning scheme means that residents have no say in what size blocks are created.
	Officer's comment The recent change to the planning scheme related to the level of assessment linked to the open space zone. There was no change to lot size criteria.
3.	**Excess parking needs and traffic on the street – bus stop** The 500m^2 lots will result in excess parking and traffic on the street. Concern has been raised regarding the positioning of the bus stop on Wellington Street.
	Officer's comment. The allotment sizes comply with the Redlands Planning Scheme. Opportunity exists for a double garage and for visitor parking on the driveway. The Queensland Development Code requires two parking spaces to be provided on each allotment which can be achieved. In relation to the bus stop, adequate room exists in front of the common boundary of proposed lot 22 and 23 to accommodate the facility. The exact

	location will be finalised at operational work stage.
4.	**Traffic and Access - Tolson Terrace** Tolson Terrace is extremely narrow, there are no footpaths and it is a safety issue with blind corners. A number of children live and use the street, it is difficult to pass and large vehicles will have to ride the curb. The main access should be through Wellington Street. An access point to Wellington Street will not cost the developer additional land. If the access is to be Tolson Terrace speed bumps should be installed.
	Officer's comment. The narrow pavement (in parts) acts as a speed control device and therefore speed bumps (which Austroads stipulates is utilised for long straight roads) are not required. Tolson Terrace is an access place and is in the form of a cul-de-sac and is designed as a slow speed environment. However, in order to maintain road safety it has been recommended that a traffic control device and associated line marking (e.g. median island, rumble bars or kerb build out) be implemented at the intersection of Tolson Terrace and Jolliffe Place to cater for the additional catchment. In relation to the function of Tolson Terrace and providing access onto Wellington Street, see comments in the body of the report under Key Issue 1 - Traffic and Access. For the reasons identified in the body of the report access through Tolson Terrace is compliant with the planning scheme.

Deemed Approval

This application has not been deemed approved under Section 331 of the *Sustainable Planning Act 2009*.

STRATEGIC IMPLICATIONS

Legislative Requirements

In accordance with the *Sustainable Planning Act 2009* this development application has been assessed against the Redlands Planning Scheme V6.1 and other relevant planning instruments. The decision is due on 3 October 2014.

Risk Management

Standard development application risks apply. In accordance with the *Sustainable Planning Act 2009* the applicant may appeal to the Planning and Environment Court against a condition of approval or against a decision to refuse.

Financial

If approved, Council will collect infrastructure contributions in accordance with the State Planning Regulatory Provisions (adopted charges) and Council's Adopted Infrastructure Charges Resolution.

People

Not applicable. There are no implications for staff.

Environmental

Environmental implications are detailed within the assessment in the "issues" section of this report.

Social

Social implications are detailed within the assessment in the "issues" section of this report.

Alignment with Council's Policy and Plans

The assessment and officer's recommendation align with Council's policies and plans as described within the "issues" section of this report.

CONSULTATION

The assessment manager has consulted with other internal assessment teams where appropriate. Advice has been received from relevant officers and forms part of the assessment of the application.

OPTIONS

The development application has been assessed against the Redlands Planning Scheme and relevant State planning instruments. The development is considered to comply with the instruments and it is therefore recommended that the application be approved subject to conditions.

Council's options are to either:

1. Adopt the officer's recommendation to approve the application subject to conditions; or
2. Resolve to approve the application, without conditions or subject to different or amended conditions; or
3. Resolve to refuse the application.

OFFICER'S RECOMMENDATION

That Council resolves to issue a Development Permit for the Reconfiguring a Lot application for a 1 into 24 lots plus public use land on land described as Lot 2 on RP1707 and situated at 223-231 Wellington Street Ormiston, subject to the following conditions:

ROL CONDITIONS

ASSESSMENT MANAGER CONDITIONS	TIMING
1. Comply with all conditions of this approval, at no cost to Council, at the timing periods specified in the right-hand column. Where the column indicates that the condition is an ongoing condition, that condition must be complied with for the life of the development.	

Approved Plans and Documents	
2. Undertake the development in accordance with the approved plans and documents referred to in Table 1, subject to the conditions of this approval and any notations by Council on the plans.	**Prior to Council approval of the Survey Plan.**

Plan/Document Title	Reference Number	Prepared By	Plan/Doc. Date
Lot Calculations	3830-D Rev B	Philip Vassallo Pty Ltd	10/03/14
Stormwater Management Plan	33433-14CH-C-002 / B	Structerre Consulting Engineers	06/03/2014
Public Use Land Concept Plan	33433-14CH-C-002 / B	Structerre Consulting Engineers	06/03/2014

Table 1: Approved Plans and Documents

3. Submit to Council a Survey Plan for Compliance Certificate approval, in accordance with the approved plans, following compliance with all relevant conditions and requirements of this approval.	**Prior to expiry of the relevant period for the approved development.**
Existing Structures	
4. Demolish or relocate/remove all existing structures on site, including all slabs and footings, in accordance with the approved plan(s) and cap all services prior to demolition commencing.	**Prior to Council approval of the Survey Plan.**
5. Remove any existing fences and/or incidental works that straddle the new boundaries, or alter to realign with the new property boundaries or to be wholly contained within one of the new properties.	**Prior to Council approval of the Survey Plan.**
6. Remove the access restriction strip at the end of Tolson Terrace Ormiston being Lot 91 on RP907479.	**Prior to Council approval of the Survey Plan.**
Utility Services	
7. Relocate any services (eg water, sewer, electricity, telecommunications and roofwater) that are not wholly located within the lots that are being serviced.	**Prior to Council approval of the Survey Plan.**

8.	**Pay the cost of any alterations to existing public utility mains, services or installations due to building and works in relation to the proposed development, or any works required by conditions of this approval. Any cost incurred by Council must be paid in accordance with the terms of any cost estimate provided to perform the works.**	**At the time the works occur, or prior to Council approval of the Survey Plan, whichever is the sooner.**
9.	**Design and install underground electricity and telecommunication conduits to service lots 1 to 24 in accordance with the requirements of the relevant service providers and the Redlands Planning Scheme Infrastructure Works code and Planning Scheme Policy 9 – Infrastructure Works. Provide Council with written confirmation of the service provider agreements to the supply of electricity and telecommunication services.**	**Prior to Council approval of the** Survey **Plan.**
<u>Land Dedication and Design</u>		
10.	**Dedicate land to the State with Council as trustee as shown on Lot Calculations plan Drw No 3830-D Rev B prepared by Philip Vassallo Pty Ltd, for the following purposes:** **a) Public Use Land; and** **b) Road.**	**Prior to Council approval of the Survey Plan.**
11.	**Grant easements for the following and submit the relevant easement documentation to Council for approval. Once approved by Council, register the easements on the property title.** **a) Stormwater drainage purposes (overland flow) over proposed Lots 16 and 17 in favour of Redland City Council.** **b) Stormwater drainage purposes (inter-allotment drainage) 1.5m wide in accordance with QUDM (where required).** **c) Reciprocal access and services easement rights over proposed Lots 16 and 17.** **d) Access purposes in favour of Redland City Council to and over the sewer manholes. The easement must be a minimum width of 1m between a road/park and the sewer maintenance structures located in the rear of the proposed lots in favour of Redland City Council.**	**As part of the request for compliance assessment of the Survey Plan.**
<u>Split Valuation</u>		
12.	**Pay a contribution to Council for the purposes of paying the State Government Split Valuation Fees. The current value of the contribution is $32.95 per**	**Prior to Council approval of the**

	allotment (2014/2015 Financial Year). The amount of contribution must be paid at the rate applicable at the time of payment. A Split Valuation Fee is required for each allotment contained on the Plan(s) of Survey, including balance lots.	**Survey Plan.**
Access and Roadworks		
13.	**Design all roads in accordance with the provisions of Complete Streets, the Redlands Planning Scheme Infrastructure Works Code, Planning Scheme Policy 9 – Infrastructure Works and Schedule 6 – Movement Network and Road Design, unless otherwise stated as part of a specific condition of this approval.**	**Prior to Council approval of the Survey Plan.**
14.	**Construct Type B1 barrier kerb and channel along the entire Wellington Street frontage of the site (on the existing alignment) in accordance with the Infrastructure Works Code.**	**Prior to Council approval of the Survey Plan.**
15.	**Construct a minimum 2.5m wide concrete shared use path within the proposed public use land which links the existing public use land being Lot 90 on RP907479 with Lot 799 on RP886451 in accordance with the Redlands Planning Scheme Infrastructure Works Code and Council's Standard Drawing R-RSC-5.**	**Prior to Council approval of the Survey Plan.**
16.	**Reconstruct the existing 1.5m wide concrete footpath along the Wellington Street frontage of the site to achieve the standard verge profile in accordance with R-RSC-8.**	**Prior to Council approval of the Survey Plan.**
17.	**Construct a minimum 3.0m wide concrete driveway to service proposed rear Lot 16 and 17 in accordance with the Redlands Planning Scheme Reconfiguration Code.**	**Prior to Council approval of the Survey Plan.**
18.	**Lot 15 must have an access way that is a minimum of 4.5m wide with a 1m wide by 5m long truncation at the road frontage.**	**Prior to Council approval of the Survey Plan.**
19.	**Construct bollards, open pool type fencing or a solid fence with a maximum height of 1.2m along the eastern boundary of lot 15.**	**Prior to Council approval of the Survey Plan.**

20.	**Remove all redundant vehicle crossovers and reinstate kerb and channel, road pavement, service and footpaths as specified in accordance with the standards in the Redlands Planning Scheme Policy 9 – Infrastructure Works.**	**Prior to Council approval of the Survey Plan.**
21.	**Provide line marking in the vicinity of the intersection of Tolson Terrace and Jolliffe Place to restrict parking in this area in accordance with the MUTCD.**	**As part of an application for Operational Works.**
22.	**Provide traffic calming treatment (eg median island, pavement bars or kerb build out) including signs and line marking in accordance with the MUTCD at the intersection of Tolson Terrace and Jolliffe Place to control the flow of traffic.**	**As part of an application for Operational Works.**
<u>Stormwater Management</u>		
23.	**Convey roof water and surface water in accordance with the Redlands Planning Scheme Policy 9 Chapter 6 – Stormwater Management to:** • **A lawful point of discharge generally in accordance with Structerre Consulting Engineers approved concept drawing 33433-14CH-C-002/B dated 06/03/2014.** • **Where proposed lots 18-24 are unable to discharge to the kerb and channel in Wellington Street, design and construct inter-allotment drainage (with easements as required) to service these lots.**	**Prior to on maintenance or Council approval of the Survey Plan, whichever is the sooner.** **Ongoing condition.**
24.	**Submit to Council, and receive Operational Works approval for, a stormwater assessment that is generally in accordance with the Structerre Stormwater Management Plan drawing 33433-14CH-C-002 Rev B, and addresses both quality and quantity in accordance with the Redlands Planning Scheme Policy 9 Chapter 6 – Stormwater Management, and the following:** • **Submit detailed plans and cross sections of the proposed bioretention system and any associated swales. Designs are to be accordance with the Water Sensitive Urban Design – Technical Design Guideline for South East Queensland. Include the Design Assessment Checklists (as outlined in the Water By Design Technical Guidelines) for each facility proposed**	**As part of the application for Operational Works.**

on the site. • **Design the stormwater drainage system to cater for the existing upstream catchment (particularly the surface flows associated with Lots 130-132 on RP897820).**	
25. Manage stormwater discharge from the site in accordance with the Redlands Planning Scheme Policy 9 Chapter 6 – Stormwater Management, so as to not cause an actionable nuisance to adjoining properties.	**Prior to on maintenance or Council approval of the Survey Plan, whichever is the sooner. Ongoing condition.**
<u>Waste Management</u>	
26. Provide bin service bays for placement of waste and recycling bins for the purpose of emptying bins only (not for storage of bins) to serve proposed Lots 15, 16 and 17. Construct each bin bay of stamped concrete in accordance with the following: • **2m long x 1m wide on the road frontage adjacent to each lot.** • **Located so that the length is parallel to the road edge without impeding any swale drainage or existing/proposed driveway.** • **Marked 'bin service bay' in letters of 200mm height.**	**Prior to Council approval of the Survey Plan.**
<u>Water and Wastewater</u>	
27. Connect all lots to the existing reticulated sewerage and reticulated water systems. Submit to Council for approval an application for Operational Works showing the proposed works are in accordance with the Redlands Planning Scheme Policy 9 – Infrastructure Works and the SEQ Water Supply and Sewerage Design and Construction Code.	**Prior to Council approval of the Survey Plan.**
28. Construct a 100mm diameter water main and a 150mm diameter sewer line to service all lots. Submit to Council for approval an application for Operational Works showing the design of the works are in accordance with the Redlands Planning Scheme Policy 9 – Infrastructure Works and the SEQ Water Supply and Sewerage Design and Construction Code.	**Prior to Council approval of the Survey Plan.**

29. Remove any redundant sewerage connections within the site or servicing the development and provide documentary evidence to Council or its delegate that this has occurred.	**Prior to Council approval of the Survey Plan.**
Excavation and Fill	
30. Apply to Council and obtain Operational Works approval for earthworks associated with the reconfiguration. Design and construct all retaining structures in accordance with Australian Standard 4678-2002 Earth-retaining Structures, in particular the minimum 60 year design life requirements.	**As part of the application for Operational Works.**
31. Design all retaining walls on the northern and southern boundary of the subject site being Lot 2 on RP1707 to be stepped or terraced 1m for every 1m in height up to a maximum height of 2.5m in accordance with the Redlands Planning Scheme – Part 7 – Division 6 – Excavation and Fill Code. **The balance of the retaining walls are to be finalised at operational works stage in accordance with the Redlands Planning Scheme – Part 7 – Division 6 – Excavation and Fill Code.**	**As part of the application for Operational Works.**
Survey Control Information	
32. Submit Survey Plan(s) that include connections to at least two separate corners from two RCC control marks with a valid Department of Natural Resources and Mines Order or RCC Accuracy. These must be shown on the face of the Survey Plan(s) within the Reference Mark or Permanent Survey Mark tables. List the mark number and coordinate in the cover letter.	**As part of the request for compliance assessment of the Survey Plan.**
33. Survey and present all asset infrastructure in accordance with the Redlands Planning Scheme Part 11 Policy 9 – Infrastructure Works. The horizontal datum for all work must be Redland City Council Coordinates (RCC) and the vertical datum must be Australian Height Datum (AHD).	**As part of the request for compliance assessment of the Survey Plan.**
34. Supply a Permanent Survey Mark (PSM) Sketch with the Survey Plan for any new PSMs placed. Include the following on the PSM Sketch: • **the mark's AHD Reduced Level;**	**As part of the request for compliance assessment of the Survey Plan.**

• **the datum origin mark number; and** • **the datum RL adopted.** **Comply with the requirements of the *Survey and Mapping Infrastructure Act 2003*.**	
Environmental Management	
35. Remove all vegetation within proposed lots 1 to 24 and provide either offset planting (at a ratio of 3 new trees for every one tree removed) or offset payment (or a combination of both) for every koala habitat tree removed, in accordance with the South East Queensland Koala Conservation State Planning Regulatory Provision (Table 6, Column 2 Item 2) and the *Environmental Offsets Act 2014* (Koala Habitat). **The relevant trees are *Eucalyptus* species with DBH over 31.5cm. There were 20 identified in the austecology Koala Habitat Report dated 24 February 2014.** **If at plan sealing an offset contribution figure is not established by the Environmental Offsets Act 2014 the offset payment must be $920 for every koala habitat tree removed less offset planting carried out by the developer.**	**Prior to Council approval of the Survey Plan.**
Landscaping Works	
36. Submit a Landscape Plan, prepared in accordance with the Redlands Planning Scheme Policy 9 – Infrastructure Works Chapters 2, 10 and 11, to Council for Operational Works approval. Include the following items in addition to the requirements of the Policy: **a) Designs that are generally in accordance with the concept Public Use Land Concept Plan 33433-14CH-C-002/B.** **b) Revegetation of the Enhancement Link (excluding the bicycle way and stormwater facility) at a rate of 1 koala tree for every 50m^2 in accordance with Part 5, Division 7, Specific outcome S2.1(6)(c) of the Habitat Protection Overlay;** **Or** **Provide a report demonstrating compliance with the overall outcomes of the Habitat Protection**	**As part of the application for Operational Works.**

	Overlay and revegetate the Enhancement Link (excluding the bicycle way and stormwater facility) at the rate specified in the Council endorsed report. **c) All proposed planting including grasses in the open space areas must be selected from Council's Vegetation Enhancement Strategy, relevant Regional Ecosystem Lists or as agreed by Council.** **d) Details of bollards provided along all roads that adjoin public use land, plus one metal slide rail in the vicinity of open space area to allow access for maintenance vehicles.**	
37.	**Remove all weed species, as identified in Part B of Council's Pest Management Plan 2012-2016.**	**Prior to on maintenance or Council approval of the Survey Plan, whichever is the sooner.**
	Contaminated Land	
38.	**Submit further investigations including Stage 2 Detailed Site Investigation and Stage 3 Health and Environmental Assessment and Determination of Remediation Plan to Council. Provide a Stage 4 Implementation of Remediation Plan and Validation Sampling plan where remediation of the site is required.**	**As part of the application for operational works.**

ADDITIONAL DEVELOPMENT PERMITS AND COMPLIANCE PERMITS

The following further Development Permits and/or Compliance Permits are necessary to allow the development to be carried out.

- **Operational Works approval is required for the following works as detailed in the conditions of this approval:**
  - **Stormwater Drainage;**
  - **Roadworks;**
  - **Sewer Reticulation;**
  - **Water Reticulation;**
  - **Earthworks; and**
  - **Landscape works.**

- **Building works – demolition:**
  - **Provide evidence to Council that a Demolition Permit has been issued for structures that are required to be removed and/or demolished from the site in association with this development. Referral Agency Assessment through Redland City Council is required to undertake the removal works.**

- **Other Approvals**

  Please be aware that other approvals may be required for your development. This includes, but is not limited to, the following:

  - **Road Opening Permit – for any works proposed within an existing road reserve.**

REFERRAL AGENCY CONDITIONS

- **Department of State Development, Infrastructure and Planning (DSDIP)**
  Refer to the attached correspondence from the DSDIP dated 6 August 2014 (DSDIP reference SDA-0714-012470).

ASSESSMENT MANAGER ADVICE

- **Infrastructure Charges**
  Infrastructure charges apply to the development in accordance with the State Planning Regulatory Provisions (adopted charges) levied by way of an Infrastructure Charges Notice. The infrastructure charges are contained in the attached Redland City Council / Redland Water Infrastructure Charges Notices.

- **Live Connections**
  Redland Water is responsible for all live water and wastewater connections. Contact *must* be made with Redland Water to arrange live works associated with the development.

  Further information can be obtained from Redland Water on 1300 015 561.

- **Coastal Processes and Sea Level Rise**
  Please be aware that development approvals issued by Redland City Council are based upon current lawful planning provisions which do not necessarily respond immediately to new and developing information on coastal processes and sea level rise. Independent advice about this issue should be sought.

- **Hours of Construction**
  Please be aware that you are required to comply with the *Environmental Protection Act* in regards to noise standards and hours of construction.

- **Performance Bonding**
  Security bonds may be required in accordance with the Redlands Planning Scheme Policy 3 Chapter 4 – Security Bonding. Bond amounts are determined as part of an Operational Works approvals and will be required to be paid prior to the pre-start meeting or the development works commencing, whichever is the sooner.

- **Survey and As-constructed Information**
  Upon request, the following information can be supplied by Council to assist survey and engineering consultants to meet the survey requirements:

  a) A map detailing coordinated and/or levelled PSMs adjacent to the site.
  b) A listing of Council (RCC) coordinates for some adjacent coordinated PSMs.
  c) An extract from Department of Natural Resources and Mines SCDM database for each PSM.
  d) Permanent Survey Mark sketch plan copies.

  This information can be supplied without charge once Council received a signed declaration from the consultant agreeing to Council's terms and conditions in relation to the use of the supplied information.

  Where specific areas within a lot are being set aside for a special purpose, such as building sites or environmental areas, these areas should be defined by covenants. Covenants are registered against the title as per Division 4A of the *Land Title Act 1994*.

- **Services Installation**
  It is recommended that where the installation of services and infrastructure will impact on the location of existing vegetation identified for retention, an experienced and qualified arborist that is a member of the Australian Arborist Association or equivalent association, be commissioned to provide impact reports and on site supervision for these works.

- **Fire Ants**
  Areas within Redland City have been identified as having an infestation of the Red Imported Fire Ant (RIFA). It is recommended that you seek advice from the Department of Agriculture, Fisheries and Forestry (DAFF) RIFA Movement Controls in regards to the movement of extracted or waste soil, retaining soil, turf, pot plants, plant material, baled hay/straw, mulch or green waste/fuel into, within and/or out of the City from a property inside a restricted area. Further information can be obtained from the DAFF website www.daff.qld.gov.au

- **Cultural Heritage**
  Should any aboriginal, archaeological or historic sites, items or places be identified, located or exposed during the course or construction or operation of the development, the *Aboriginal and Cultural Heritage Act 2003* requires all activities to cease. For indigenous cultural heritage, contact the Department of Environment and Heritage Protection.

- **Fauna Protection**
  It is recommended an accurate inspection of all potential wildlife habitats be undertaken prior to removal of any vegetation on site. Wildlife habitat includes trees (canopies and lower trunk) whether living or dead, other living vegetation, piles of discarded vegetation, boulders, disturbed ground surfaces, etc. It is recommended that you seek advice from the Queensland Parks and Wildlife Service if evidence of wildlife is found.

- **Environment Protection and Biodiversity Conservation Act**
  Under the Commonwealth Government's Environment Protection and Biodiversity Conservation Act (the EPBC Act), a person must not take an action that is likely to have a significant impact on a matter of national environmental significance without Commonwealth approval. Please be aware that the listing of the Koala as vulnerable under this Act may affect your proposal. Penalties for taking such an action without approval are significant. If you think your proposal may have a significant impact on a matter of national environmental significance, or if you are unsure, please contact Environment Australia on 1800 803 772. Further information is available from Environment Australia's website at www.ea.gov.au/epbc
  Please note that Commonwealth approval under the EPBC Act is independent of, and will not affect, your application to Council.

Attachment 1

State interest - coastal environment

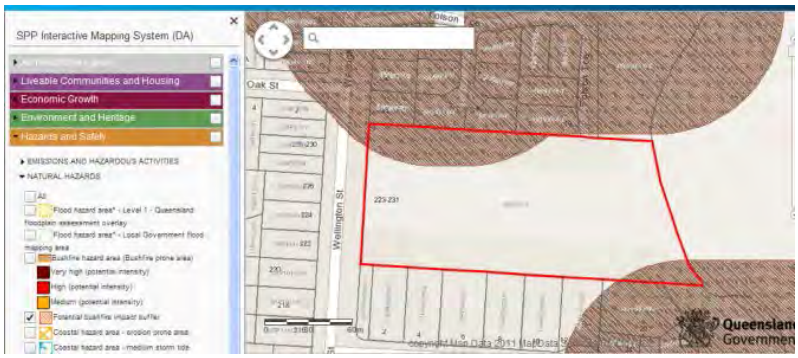
Image 1 Coastal management district.

State interest - natural hazards, risk and resilience

Image 2 Coastal hazard area – erosion prone area

Image 3 Coastal hazard area – medium storm tide

Image 4 Potential bushfire impact buffer



Attachment 2

Overlays

Image 1 - Acid Sulfate Soils Overlay;

Image 2 - Bushland Habitat Overlay;

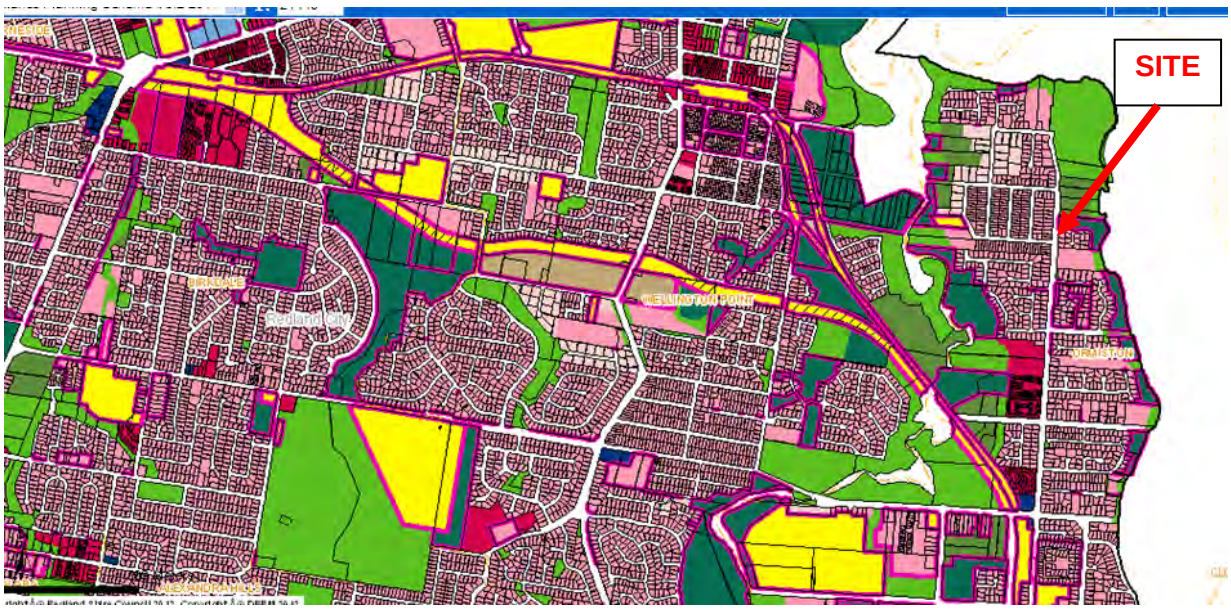
Enhancement Corridor

Image 3 - Landslide Hazard Overlay.

Image 4 - Flood Prone, Storm Tide and Drainage Constrained Land Overlay; and

Attachment 3

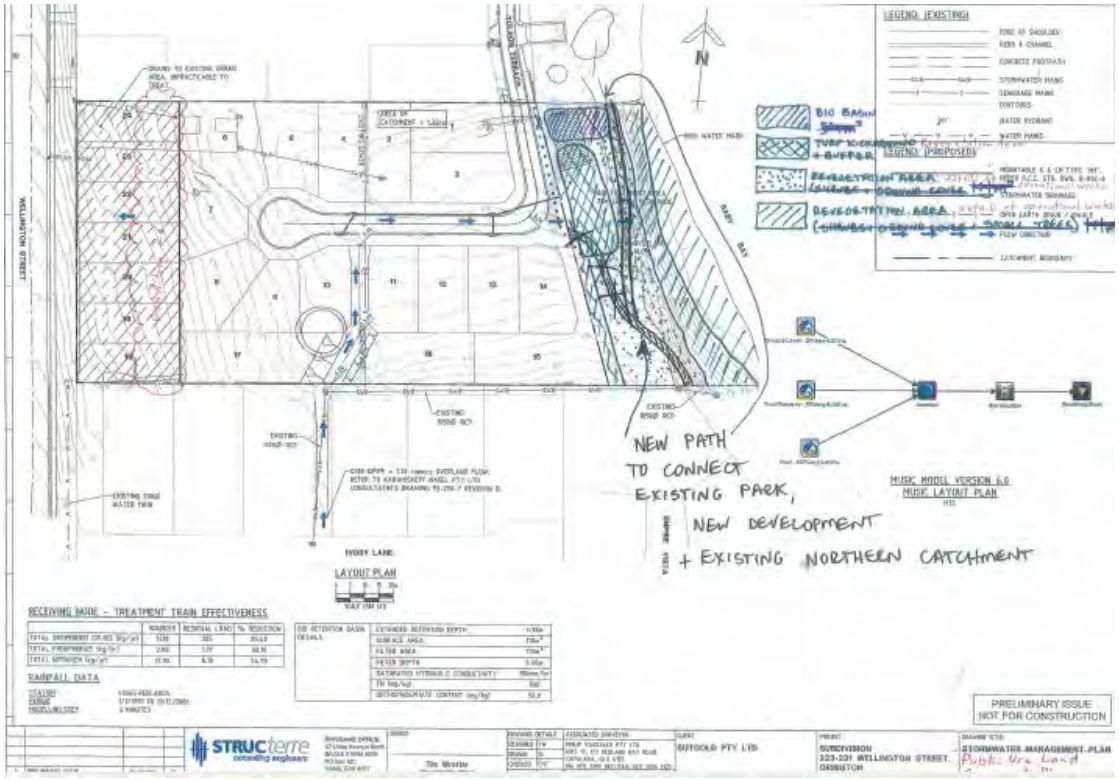
Locality Plan



Aerial Plan

Proposal Plan

Public Use Land Concept Plan



11.2.4 DRAFT PLANNING AND DEVELOPMENT BILL AND DRAFT PLANNING AND ENVIRONMENT COURT BILL

Dataworks Filename:	**Reports to Council – Planning & Development**
Responsible Officer:	 **Louise Rusan** **General Manager Community & Customer Services**
Responsible Officer:	**David Jeanes** **Group Manager City Planning & Assessment**
Author:	**Callan Langlands** **Strategic Planner**

PURPOSE

The purpose of this report is to:

1. Provide an overview of the proposed major changes to the QLD planning system to be introduced to parliament in the form of the draft Planning and Development Bill and draft Planning and Environment Court Bill;
2. Present Council with the opportunity to raise issues in regards to the proposed Bills that will be incorporated in a single submission to the Department of State Development, Infrastructure and Planning for their consideration before introducing the Bills to parliament.

BACKGROUND

Since 2012, the Queensland State Government has *"embarked on a 'once-in-a-generation' reform of its planning system, intent of delivering Australia's best planning system"* (DSDIP; 2014). On August 1st, the Queensland Government released a draft of the Planning and Development (PD) Bill and the Planning and Environment Court (PEC) Bill, a core part of the planning reform agenda. Both the PD and PEC Bills are intended to replace the current *Sustainable Planning Act (SPA) 2009*, and will result in some significant changes to the state's statutory planning system. It is critical that the implications for Council are clearly understood, as these changes will result in new assessment and approval processes, amendments to planning instruments, and some new compliance obligations.

The Queensland Government has invited community feedback on the draft bills prior to their introduction to Parliament, with both draft bills currently on public consultation through until 26 September 2014. The primary purpose of this report is to brief Councillors on the proposed changes to enable Council to make a submission to the Department of State Development, Infrastructure and Planning.

Whilst both Bills are proposed to replace the Sustainable Planning Act, the PD Bill will provide the function of the principal piece of legislation administering the QLD statutory planning system, with the Planning and Environment Court provisions included under SPA proposed to be legislated under a separate act in the form of the proposed PEC Act. Further, the PEC Bill is considered to be well resolved, with proposed changes seeking to solidify the establishment and jurisdiction of the

Planning and Environment Court to its own specific courts legislation outside of the primary planning act. The focus of this review will therefore primarily concentrate on the proposed changes to be introduced in the PE Bill.

CHANGES TO THE QUEENSLAND PLANNING SYSTEM

Introduction

Following 18 months of selective consultation with various industry representatives, DSDIP have released a consultation version of the PD Bill 2014. The proposed planning legislation will have a new purpose, being *"to facilitate Queensland's prosperity through the balancing of economic growth, environmental protection and community well being".* This represents a departure from SPA 2009, which has an overarching purpose to *"achieve ecological sustainability … by managing the effects of development"*. The new purpose of Queensland's planning legislation reflects in part the Government's focus on economic development, and provides a more succinct focus on process, rather than prescribing outcomes.

Despite the change in purpose, it is recognised that many concepts that underpin the current regime will remain, such as the Integrated Development Assessment System (IDAS), with the exception of various changes to terminology and removal of some sections that are underutilised or redundant. The PD Bill will also reflect a rearrangement of many of the current provisions to ensure that the structure of the legislation is more easily understood and user friendly. This has materialised in a significant reduction in the size of the planning Act from 727 pages under SPA to approximately 250 pages proposed in the PE Bill.

Importantly, unlike the prescriptive nature of SPA, the proposed Planning and Development Act will operate as a 'skeleton act', providing an overarching framework to be supported by the Planning and Development Regulations (to date, has yet to be released for public comment). It is proposed that the PD Regulations will contain the development assessment benchmarks and the mechanics for the operation and implementation of the planning and development assessment system, and a range of planning instruments. This sees the removal of many process and instructional provisions from the Act that are better attended to in the regulations or subsidiary guidelines.

It is seen that this approach to legislative drafting, whereby heads-of-power are incorporated in the Act and prescriptive material detailed in the associated regulations, allows for greater government flexibility, however has the effect of reducing certainty for stakeholders at this point in the consultation process. As the draft PD Regulation has not been released, it remains difficult to fully appreciate how the changes to the Queensland planning system will impact on a particular development or plan making.

The following sections to this report are provided as a summary of the key changes.

Planning

- *Simplified State Planning Instruments* – Only two state planning instruments are proposed to be retained, those being the Single State Planning Policy and Regional Plans. This sees the removal of State Planning Regulatory Provisions and Standard Planning Scheme Provisions (also known as the Queensland

Planning Provisions) which is intended to significantly simplify the current hierarchy and range of instruments. It is understood to be the State's intention to incorporate those matters that need to be regulated and mandated as part of the PD Regulations, with the balance of matters to be provided in guidance material.

In simplifying state planning instruments, it is intended to increase local government flexibility, particularly within the plan making process. Using QPP as an example, the level of detail and prescription was seen to reduce flexibility and constrain innovation. As part of the proposed changes, only those matters utilised for the purpose of maintaining consistency will be retained in the regulations (i.e. standard definitions), with a more flexible approach to the content advocated through guidelines. This change will allow Council greater flexibility in the drafting of the new City Plan to better reflect Redland specific matters.

- *Flexible approach to plan-making* – The Bill adopts a more flexible approach to plan making, with each step in the process to be devolved to a new instrument that will establish the principles (rather than process) upon which a scheme should be prepared. The aim is to move away from a focus on prescribed processes to more clearly articulated State expectations and interests.

- *Life of Temporary Local Planning Instruments (TLPI)* – TLPIs will have effect for up to two years from the day they are to have effect rather than the time frame of one year as provided for under SPA 2009. Additionally, TLPIs will be able to be amended as opposed to the current practice of having to prepare a new planning instrument.

- *Removal of 10 year review provisions* – The requirement for 10 yearly reviews of local planning schemes and state planning policies has been removed, reflecting the reality that this provision is often rarely complied with. Alternate measures remain available to the Department of State Development, Infrastructure and Planning to enforce the review of planning schemes and other relevant planning instruments where appropriate.

- *Simplified Infrastructure Designation* – Currently reflected under the provisions of 'Community Infrastructure Designation' in SPA, Infrastructure Designation supports the delivery of key state infrastructure. Changes to infrastructure designation under the PD Bill are aimed at providing for a simplified planning process, with the major change being the provision of a single assessment process, rather than the current requirement for separate state approvals. To avoid multiple processes, the Minister will be required to consider all relevant state interests as part of the single assessment process for the proposal.

  Provisions are also proposed to allow for the amending of existing infrastructure designations. This removes the requirement that a new infrastructure designation be made where amendments to an existing designation are proposed, which in effect acts to delay the provision of the infrastructure. In line with this change, current reference to 'public consultation' will simply be referred as 'consultation' to reflect the possibility that some designations, particularly amendments, may warrant targeted rather than broad scale consultation.

  Additionally, it is proposed to remove infrastructure designating powers from local government. DSDIP investigations have shown that local government do not

utilise the designation process, effectually rendering the provisions under SPA redundant (DSDIP, 2014).

Development Assessment

As previously noted, many of the key underpinning features of the current development assessment system remain in place, including:

- State and local instruments set assessment criteria, with local government retaining responsibility for establishing primary plan-making rules.
- Integrated assessment processes between the assessment manager and state agencies (SARA).
- Vertical integration of state, regional and local planning frameworks.
- Development categorised into risk based streams.
- Preliminary approvals and development permits will be retained.
- Public notification and third party appeal rights for some Development Applications.
- Development Approvals run with the land.
- Established timeframes/currency periods for development approvals.
- Negotiated decision notices.

There are however fundamental changes to the development assessment system that alter the Queensland development approval process. These changes are summarised as follows:

- *Simplified categories of assessment/development* – The Bill proposes to refine the current six categories of development (exempt, self-assessable, compliance, code, impact, and prohibited), with four new categories of assessment to be introduced, namely accepted, standard assessment, merit assessment and prohibited.

  Accepted development reflects the current category of 'exempt' and 'self assessable', being a simple means of determining when a development approval is required. The principle that all development is exempt (accepted) unless otherwise specified remains a fundamental tenet of the framework.

  Standard Assessment reflects the current category of 'code assessment' whereby development is only to be assessed against identified benchmarks (i.e. codes and standards etc.). The assessment manager must approve an application for standard assessment if it complies with the benchmarks and can only be refused if it does not comply and compliance cannot be achieved through conditions. This is intended to be a quicker, less complicated and more predictable assessment than the current Code Assessment process.

  Merit Assessment generally reflects the current category of 'impact' assessment. The merit assessment stream is a broader assessment against the assessment benchmarks and prescribed matters as well as consideration of discretionary matters to be outlined in the forthcoming regulations. It is intended that merit assessment would apply to more complex projects that provide for a stronger

departure from development anticipated under the planning scheme. Further, unlike the current provisions for impact assessment, public notification is de-coupled from the category of assessment and will not necessarily be required for all development subject to merit assessment. Rather, development subject to merit assessment that also requires public notification will be listed in a separate 'categorising instrument'. Submitter appeal rights would be available only to those whom made a properly made submission during the notification period for development requiring merit assessment (public notification).

Prohibited Development will continue to be limited to development identified in a state instrument. Planning schemes are not permitted to categorise development as prohibited.

- *Relocation of Development Assessment rules* – Much of the detailed processes governing the Development Assessment system currently included in SPA will be removed and incorporated in the accompanying PD Regulations and associated guidelines which are yet to be developed.

- *Owner's consent* – Owners consent will no longer be required for the lodgement of a development application, subject to the assessment manager's agreement. Rather, owner's consent will be required prior to the issuing of a decision notice or through the inclusion of a condition of approval requiring consent be provided to the assessment manager prior to the commencement of development.

- *Exemption Certificates* – Proposed new provisions are available to Council to issue exemption certificates for development requiring standard assessment in certain circumstances:

  - Development that is considered to result in minor/inconsequential effects;
  - When circumstances warranting assessable development change; or
  - When development has been categorised in error.

  In these instances, the development remains assessable, but no approval is needed. The certificate has effect for a period of 2 years or until withdrawn. Development commenced under the certificate is saved notwithstanding lapsing/withdrawal of the exemption certificate.

- *Changes to development approvals* – In accordance with SPA, changes to a development approval may be permitted where the proposed change is minor in nature, subject to subsequent approval by the assessment manager. It is proposed to carry over these existing provisions included under SPA for minor change applications to the PD Act, in addition to expanding change applications to include major changes to a development approval. Minor change applications will continue to be assessed in a similar manner provided for under SPA, while major change applications will be administered using development assessment rules as if the application for original development were made, including the proposed change. Assessment and decision rules however will only apply to the element of change.

- *Amendments to currency periods* – Where a development permit does not specify the currency period for a development approval, the Bill introduces new standard currency periods for a Material Change of Use (from 4 years to 6) and Reconfiguration of a Lot (from 2 years to 4) application. It is proposed however to

remove the related approval provision currently included under SPA whereby the currency period may be restarted from the point at which an additional approval associated with the development is obtained.

In addition to the extension of currency periods, assessment managers will be required to issue a reminder notice to developers/owners a minimum of 3 months prior to the lapsing of a development approval. Where a reminder notice is not issued 3 months prior to the lapsing of an approval, the currency period is taken to be extended to three months from the date a reminder notice is issued. It is recognised that this is a significant administrative change required to be administered by the relevant assessment managers and as such will have resource implications for Council.

- *Alternative assessment manager* – The assessment manager for development will be identified in the regulations. For development requiring standard assessment, if a local government or chief executive is identified as the assessment manager, these entities may keep a list of other entities who may be assessment managers for the application. An applicant may then choose to elect a listed person as the assessment manager for the particular development. The prescribed assessment manager may administer later change/extension applications if alternative assessment manager is no longer on the list.

- *Expansion of Minister Call-in powers* – The Minister continues to have direction and call-in powers, which may be exercised in relation to a matter of State interest. The definition of a 'State interest' under the draft Bill has been expanded so that it includes an interest that the Minister considers may affect the purpose of the legislation being is achieved. The Minister's ability to exercise these powers is less constrained than under the SPA.

  The call-in process has been simplified, with the removal of the two stage process under SPA. That is, the Minister may issue a call-in notice, without consulting about the decision to issue the call-in notice and the ability for an interested party to make a submission in relation to the proposed exercise of a power by the Minister has been removed. In deciding the call-in application, the Minister may consider anything the Minister considers relevant, including submissions received during consultation as part of the decision stage of the assessment process.

  The scope of the Minister's powers has also been widened so that the Minister may step-in and decide a change, extension or cancellation application, even if the application has already been decided. The Minister must be satisfied that the exercise of a step-in power in is accordance with a State interest and, once this determination has been made, the step-in power is to work in the same way as the call-in power.

Infrastructure

Provisions to be included in the draft PD Bill relating to infrastructure reflects the State Government’s previous announcements regarding the reform of Infrastructure Charges.

Dispute Resolution

A significant change between SPA and the draft Bills is the removal of the Planning and Environment Court's rules from the planning legislation and the creation of a standalone piece of legislation, being the draft Planning and Environment Court Bill. While the Planning and Environment Court's powers and jurisdiction are similar to those as provided for by the SPA, notable changes include the further expansion of the court's power to excuse non-compliance with a provision of the draft Bill (or the SPA to the extent it still applies to a proceeding before the court) and the widening of the powers of the ADR Registrar to hear and determine matters before the court.

Transitional Procedures

It is necessary to note that the transitional provisions reflected in the draft Bill are preliminary at this point in time and subject to further development as the draft Bill is refined, before being brought before Parliament. Generally, the proposed new legislation will seek to ensure that matters that were valid at the repeal of SPA will remain valid under the new legislation. Notwithstanding, specific transitional provisions of note include:

- *Development Applications* – Existing approvals previously issued under the Integrated Planning Act (IPA) and SPA will continue as approvals under the proposed new Act. Applications to change these existing approvals will be subject to the new Act arrangements.

  Development applications not decided at the commencement of the new Act are to be decided under SPA as if the new Act had not yet commenced. Subsequent development approvals issued in this manner are taken to be approvals under the new Act.

- *Development assessment process* – Transitional provisions are included in the draft Bill relating to levels of assessment where utilising planning schemes prepared in accordance with IPA/SPA. These transitional provisions include:

  - Exempt and self-assessable development (where compliant) under an IPA/SPA planning scheme directly translates to Accepted Development;
  - Compliance and Code Assessment under an IPA/SPA planning scheme directly translates to Standard Assessment;
  - Impact Assessment under an IPA/SPA planning scheme directly translates to Merit Assessment, requiring public notification.

  Notwithstanding the above, provision are included in the draft Bill for local government to 'fast track' amendments to local planning instruments so that development that was code assessable under a SPA instrument can be nominated as being subject to 'merit' as opposed to 'standard' assessment.

  Further guidance is still to be provided by DSDIP as to how categories of development and assessment under the Sustainable Planning Regulations will be transitioned so that existing planning instruments can continue to be used in assessment without the need for an immediate amendment to the planning scheme.

- *Planning Schemes* – Transitional provisions are yet to be finalised however DSDIP have advised Council that all schemes will be deemed P&D schemes at commencement of the Act via transitional arrangements. Specifically, proposed s244 of the PD Bill provides that *"if … a process under the repealed Act for making or amending a statutory instrument … had started but not ended… the instrument may continue to be made or amended as if this Act had not commenced".* This provision, together with advice provided by DSDIP confirms that Council can continue with the drafting of CityPlan 2015. Given the proposed timeframes for both the proclamation of the new Act and drafting of the new City Plan 2015, it is logical that the new planning scheme would be reformatted following proclamation to reflect new assessment categories before commencement.

ISSUES

A draft submission to the State has been prepared on the Draft PD and PEC Bills following Council's review and subsequent workshop and is included as an attachment to this report. Overall, Council is generally supportive of the proposed changes to Queensland's planning system to be introduced as part of the draft Bills. In principle, these changes are seen as a positive step forward in progressing the State's statutory planning system.

While supportive of the proposed new act, Council have identified a number of concerns with the draft Bills. The issues to be raised as part of the submission to the State are outlined below, including both general and specific comments on the proposed changes. Redland City Council have requested as part of its submission that further consideration and clarity be provided on each of the following matters:

1. *The absence of detail to be provided in the Regulations*

Much of the process detail included under SPA has been removed to ensure that the new PD Act will operate as the framework for planning and development assessment in Queensland. It is understood that this information and detail will be provided in the regulations and associated guidelines supporting the new Bill. However at this time, in the absence of the regulations and associated guidelines which have yet to be released, the opportunity for Council to understand and comment on the impact of the changes is severely limited.

It is the content of these instruments that are critical to the success of the proposed changes that will, to a large extent, impact upon the day to day functions of the QLD planning system and how it operates on the ground. Recognising these facts Council is strongly of the view that a similar consultation process as currently being undertaken on the draft Bills must also occur t as part of the regulation and guideline drafting process.

2. *Consultation changes to Infrastructure Designation*

Changes to the consultation process, particularly the removal of the term "public", is identified as a specific matter of concern. As stated in the Departments *Information Paper on the Consultation Draft*, the purpose for the removal of reference to "public" is to reflect the possibility that some designations, particularly amendment applications, may warrant a targeted rather than broad scale consultation process.

In reviewing these comments, it remains unclear as to whether the Department intends to identify certain cases that will require a targeted consultation process through the regulations or guidance material and whether the default position would then be to undertake public consultation where not explicitly stated otherwise. Whilst it is acknowledged that minor changes to an infrastructure designation may simply warrant a targeted consultation process, it appears that it would be the intent of the Department to include other infrastructure designations within this category of targeted consultation.

Further clarification from the department is sort as to the intent of targeted and board scale consultation, including under what circumstances would warrant either. It is acknowledged that this information may fall out of the proposed changes to the regulations which are yet to be released; however, in the absence of such material, Council is concerned with the proposed exclusion of public comment from the consultation process for Infrastructure Designations.

3. *Reminder Notice*

The introduction of the requirement for assessment managers to notify both the land owner and applicant for a development application regarding the lapsing of a development approval is raised as a matter of concern and considered to be fraught with potential administrative issues.

Council remains strongly of the opinion that the onus lies with the applicant in terms of administering project management responsibilities in monitoring the lapsing of a development application. Should assessment managers be required to enter this space in terms of providing a reminder notice, this would result in additional resource implications for Council.

Resulting from the need to issue notification certificates would be the subsequent increase in fees and charges for development applications to capture this additional administrative process built into the development assessment system. This is unlikely to be well received, considering that majority of development approvals are generally commenced within the relevant period, with this process therefore being redundant.

Additionally, it is unclear which entity is responsible for issuing a reminder notice in those instances for a standard assessment application where the assessment manager for the application was not the local government (i.e. where Council has established a list of other entities). Further, should it be resolved that the entity approved by Council to be the assessment manager is responsible for the issuing of a reminder notice in these instances, it is unclear who would be responsible for issuing the reminder notice should the assessment manager for the application no longer exist.

The monitoring of relevant periods and how this is achieved together with the issuing of reminder notices to the appropriate parties are two additional factors for further consideration. In relation to the latter, should the assessment manager issue a reminder notice but the owner not receive the notice due to a change in ownership details at the time the reminder notice was issued, how would this impact upon the currency period? Further clarification is needed in this aspect.

4. *Ministerial call-in*

Further clarification as to what constitutes a state interest is required to provide local government with greater certainty throughout the planning and development assessment process. It remains unclear whether an increased scope of state interest may result in reversing the devolution of power provided from the State to Local Government.

Additionally, it is recognised that the exclusion of pre-consultation for ministerial call-in applications removes a key community involvement aspect and opportunity for public submissions in relation to a call-in matter. Council questions removing this consultative step from the Ministerial call-in process.

5. *Owners consent*

Concern is raised regarding the removal of the requirement for owner's consent to be provided at the time of lodgement for a development application to be considered to be properly made. It is recognised that the removal of this provision may result in undue developer pressure being placed on land owners in some circumstances, particularly where the full extent of land values are not be realised for an owner for which a development approval is obtained (and thus potentially increasing the land value).

It is suggested that, rather than including a provision for owners consent to be obtained through a condition of consent, provisions be incorporated into the Act to allow an application for development to be received and progressed without owner's consent, however approval may not be granted until such time that owner's consent is obtained. This may be achieved through an additional information process without holding up the assessment of the application.

6. *Removal of SPRPs*

It is understood under SPRP's will be removed from the new planning framework with the provisions under the existing SPRP's reflected in the supporting Regulations and Guidelines. At this time a number of important SPRP's impact on Redland City including the SEQ Regional Plan SPRP and the SEQ koala SPRP. Recognising the broad impact of the current SEQ Koala SPRP on the City it is essential Council is adequately consulted and involved in the development of the Regulations/Guidelines proposed to replace the existing SPRP.

7. *Benchmarks associated with Standard Assessment*

It remains unclear as to what level of detail would constitute an assessment benchmark within a categorising instrument under the proposed Bill (i.e. performance outcomes or acceptable outcomes within a code of a local planning instrument). Should benchmarks be considered in terms of quantitative assessment criteria (i.e. acceptable outcomes) it is assumed that where a standard assessment application is unable to satisfy the benchmarks and is unable to do so through a condition of consent the application would be refused for non-compliance or would the level of assessment be elevated to merit assessable. .

Greater clarification on the interpretation of benchmarks is therefore required.

STRATEGIC IMPLICATIONS

Legislative Requirements

The draft bill will result in the repeal of the Sustainable Planning Act 2009 and associated Regulations and Guidelines, introducing new Acts, Regulations and guidelines including the proposed PD Act and PEC Act. Both the PD Bill and PEC Bill are currently open for public comment, with the consultation period ending 26 September 2014. An opportunity is now available for Council to make a submission to DSDIP regarding the draft Bills. There is no legislative requirement for Council to make a submission.

Risk Management

The risk of not making a submission to DSDIP regarding the bills is that Council's concerns and opinions is relation to the proposed changes to the QLD statutory planning system will go unheard.

Recognising that the proposed Act has a focus on being less prescriptive and will largely operate through a principle based legislative approach, the changes to the Regulations and the associated public consultation period will present a more appropriate opportunity for Council to make a submission to DSDIP regarding the changes to the QLD planning system. Notwithstanding, an opportunity remains available to Council at this point in time to make a submission regarding the draft Bills.

Financial

The proposed changes to the planning system are likely to have some financial implications for Council. Specifically, it is noted that changes to the planning system will result in practical, process and administrative changes within Council to ensure compliance, including:

- Staff training to ensure that appropriate staff are familiar with the changes;
- Administrative changes to Council's development application process;
- Staffing resources required to amend Council templates and electronic administration systems.

There are no financial implications associated with making a submission to DSDIP.

People

The staff resourcing required to make a submission to DSDIP has been drawn from the Strategic Planning Team of the City Planning and Assessment Group.

Environmental

The proposed bill will result in the removal of the SEQ Koala SPRP and the inclusion of these provisions in the supporting Regulations and Guidelines. Recognising the broad impact of the current SEQ Koala SPRP on the City it is essential Council is adequately consulted and involved in the development of the Regulations/Guidelines proposed to replace the existing SPRP. No other strategic environmental implications are identified at this time.

Social

The proposed changes to be introduced by the draft PD Bill and PEC Bill will see an overall simplification to the QLD statutory planning system, however details pertaining to the specific operational changes to the system will materialise in the associated regulations and guidelines which have yet to be released for public comment.

Notwithstanding, the changes towards a simplified and user friendly planning act is considered a step in the right direction for planning in QLD, a notion that is highly represented throughout the relevant planning and legal industry bodies. The changes will, to a large extent, remove redundant or cumbersome planning processes, reducing red tape and associated costs to the community.

Alignment with Council's Policy and Plans

The proposed changes to the QLD Planning system fall outside the scope of Council's policy and plans. Amendments to the planning scheme will be required to ensure that it reflects the changes to be introduced in the Planning and Development Act once it commences.

CONSULTATION

The Queensland Government has invited community feedback on the draft bills prior to their introduction to Parliament, with both draft bills currently on public consultation through until 26 September 2014. This provides Council the opportunity to review the proposed changes to the QLD statutory planning system and make a submission, should it so desire.

In reviewing the proposed legislation, the Strategic Planning Unit has consulted with other areas of Council that deal within the planning system, seeking their input and gauging opinion on the proposed changes. Council Officers are generally supportive of the proposed changes to simplify the State's primary planning legislation and providing increased flexibility for local government, as represented in the draft PD and PEC Bills. Notwithstanding, those matters raised throughout the internal consultation with Council officers has been addressed as part of this report.

OPTIONS

1. That Council resolves to:
    a. Note the proposed changes to the QLD planning system to be introduced in the Draft Planning and Development Bill and Planning and Environment Court Bill; and
    b. Make a submission to the Department of State Development, Infrastructure and Planning addressing the matters as outlined in the issues section of this report.
2. That Council resolves to:
    a. Note the proposed changes to the QLD planning system to be introduced in the Draft Planning and Development Bill and Planning and Environment Court Bill; and

b. Not make a submission to the Department of State Development, Infrastructure and Planning, recognising Council's support for the proposed changes.

OFFICER'S RECOMMENDATION

That Council resolves to:

1. **Note the proposed changes to the QLD planning system to be introduced in the Draft Planning and Development Bill and Planning and Environment Court Bill; and**

2. **Make a submission to the Department of State Development, Infrastructure and Planning addressing the matters as outlined in the issues section of this report.**

11.3 PORTFOLIO 5 (CR PAUL GLEESON)

INFRASTRUCURE & OPERATIONS

11.3.1 PARTIAL SURRENDER OF WELLINGTON POINT GIRL GUIDES LEASE

Dataworks Filename: **L.105487**

Attachments: **Wellington Point Girl Guides Site Plans**
Robert's Street Park Tree Management Layout

Responsible/Authorising Officer:
Gary Soutar
General Manager Infrastructure and Operations

Author: **Terri McDonald**
Acting Senior Property Officer

PURPOSE

The purpose of this report is to recommend that Council agree to the surrender of the Wellington Point Girl Guides lease and the issuing of a new 10-year lease over a smaller lease footprint.

BACKGROUND

Council approved a lease to Guides Qld for a term, 1 April 1998 to 31 March 2018, on Council freehold land at 15 Roberts Street, Wellington Point, described as Lots 6 and 7 and part of Lot 8 RP14151 as shown on the attached site plan.

Also in that vicinity are Council leases to Connect2Group Inc. and Wellington Point Respite Inc. Both of these groups have expressed a desire to undertake passive activities within the Wellington Point Girl Guides lease area.

Discussions were recently held with Guides Qld regarding the desire of various not-for-profit groups to occupy space in the precinct, and Guides Qld has generously agreed to reduce their lease area to a smaller footprint. The reduced footprint will still allow the Girl Guides to undertake their normal club activities.

ISSUES

Whilst it is possible for not-for-profit groups to approach Guides Qld directly to negotiate space within the Wellington Point Girl Guides lease area (only possible with Council consent), it is preferred that Council control development in the precinct to ensure best use of space and community benefit.

It is particularly important to provide community opportunities at this location due to the shortage of Council controlled land not subject to flooding in this vicinity.

Following consultation with the Divisional Councillor, a site plan was undertaken by Council officers to evaluate whether there is space to extend existing not-for-profit leases, accommodate new leases, or provide communal use by lessees.

Any proposed new lease will need a separate Council resolution, although permits to occupy may be issued providing temporary tenure as an alternative solution if no buildings are required.

Bayside Vehicle Restorers Club Inc. has erected a storage shed within the area being surrendered by Girl Guides, with the approval of Girl Guides and Council.

Once the surrender of Guides Qld's lease is executed, Bayside Vehicle Restorers Club will need tenure and Council can provide this in the form of a permit to occupy.

To reduce Wellington Point Girl Guides lease footprint requires cancellation of the existing lease and preparation, survey and registration of a new lease.

As this is expected to create further opportunities for community groups, it is recommended that Council bear these costs.

STRATEGIC IMPLICATIONS

Legislative Requirements

Under s.236 of the *Local Government Regulation 2012* – *'*Exceptions for valuable non-current asset contracts':

(1)(b)(ii) A local government may dispose of a valuable non-current asset other than by tender or auction if the valuable non-current asset is disposed of to a community organisation.

(2) An exception mentioned in subsection (1)(a) to (d) applies to a local government disposing of a valuable non-current asset only if, before the disposal, the local government has decided, by resolution, that the exception may apply to the local government on the disposal of a valuable non-current asset other than by tender or auction.

Risk Management

The existing and proposed new lease requires Guides Qld to provide evidence of property and public liability insurance annually and perform all structural and routine maintenance, electrical and fire safety checks etc for the premises.

Council's Facility Services Unit recently undertook a condition audit of the leased premises and Guides Qld are working to repair various items for safety, general maintenance and statutory compliance.

Financial

As reduction of the Wellington Point Girl Guides is expected to create further opportunities for the community, it is recommended that Council bear the cost of lease surrender, lease survey, new lease preparation and registration, estimated to be $2,500. Council's Facility Services Unit currently has budget to cover these costs.

Council will not be responsible for the cost of any new leases or modifications to existing leases in the precinct which may become possible as a result of the reduction of the Wellington Point Girl Guides lease footprint and Council's site plan.

The land surrendered by Guides Qld becomes the maintenance responsibility of the new occupiers, e.g. tree maintenance.

Lease rental of $1 per annum (if demanded) shall continue to apply in line with Council's Schedule of Fees & Charges.

People

There are no staff implications.

Environmental

The site plan takes into account the environmental values of the precinct.

Social

Reducing the Wellington Point Girl Guides lease footprint is intended to create further opportunities for the community within the precinct.

The scale of the site plan does not normally warrant public consultation, however the Divisional Councillor was consulted when preparing the site plan.

Alignment with Council's Policy and Plans

The proposed reduction in lease area is supported by Council's Policy POL-3071 Leasing of Council Land and Facilities which recommends that leases generally follow the footprint of the building/s.

CONSULTATION

The Acting Senior Property Officer consulted with:

- Service Manager Sports & Community Venues;
- Divisional Councillor;
- Service Manager Environment & Education;
- Service Manager Facilities Services;
- Coordinator Community Development; and
- Adviser Environment.

OPTIONS

Option 1

That Council resolves to:

1. Approve a surrender of the existing lease to Guides Qld for the Wellington Point Girl Guides Hall at 15 Roberts Street, Wellington Point described as Lots 6 and 7 and part of Lot 8 on RP14151;
2. Make, vary or discharge a new lease to Guides Qld for a reduced lease footprint as shown on the attached site plan for a term of 10 years; and

3. Delegate authority to the Chief Executive Officer under s.257(1)(b) of the *Local Government Act 2009* to sign all documents in relation to this matter.

Option 2

That Council resolves for the Wellington Point Girl Guides lease to remain as is until its expiry on 31 March 2018.

OFFICER'S RECOMMENDATION

That Council resolves as follows:

1. **To approve a surrender of the existing lease to Guides Qld for the Wellington Point Girl Guides hall at 15 Roberts Street, Wellington Point described as Lots 6 and 7 and part of Lot 8 on RP14151;**

2. **To make, vary or discharge a new lease to Guides Qld for a reduced lease footprint as shown on the attached site plan for a term of 10 years; and**

3. **To delegate authority to the Chief Executive Officer under s.257(1)(b) of the *Local Government Act 2009* to sign all documents in relation to this matter.**

Roberts Street Park tree management and proposed layout plan

CSSU 21/08/14


Roberts Street
Rye Street
Main Road
Chermside Street
Courtice Street
Valley Road
WELLINGTON POINT
N
0
Meters
Copyright Â© Redland Shire Council 2012, Copyright Â© DERM 2012

11.3.2 ADOPTION OF 'WATER NETSERV PLAN'

Dataworks Filename: WS Planning - Water Netserv Plan
WW Planning - Water Netserv Plan

Attachments:
1: Water Netserv Plan Part A
2: Water Netserv Plan Part B Overview
3: Water Netserv Plan Part B - Water Supply Asset & Service Management Plan
4: Water Netserv Plan Part B - Wastewater Collection Asset & Service Management Plan
5: Water Netserv Plan Part B - Wastewater Treatment Asset & Service Management Plan
6: Water Netserv Plan Part B Leakage Management Plan
7: Water Netserv Plan Part B - Overflow Management Plan
8: Water Netserv Plan Part B - Drinking Water Quality Management Plan
9: Water Netserv Plan Part B - Total Water Cycle Management Plan
10: Water Netserv Plan Part B - Ecological Sustainability Plan
11: Water Netserv Plan Part B - Trade Waste Management Plan
12: Water Netserv Plan Part B - Recycled Water Management Plan
13: Water Netserv Plan Part B - Demand Management Plan
14: Water Netserv Plan Part B - Workforce Development Plan

Responsible/Authorising Officer:

Gary Soutar
General Manager Infrastructure and Operations

Author: **Matthew Ingerman**
Principal Engineer - Water

PURPOSE

The purpose of this report is for Council to adopt the Redland Water 'Water Netserv Plan' (the Plan).

BACKGROUND

The South East Queensland Water (Distribution and Retail) Act 2009 requires Redland Water (RW) to have a Water Netserv Plan in place and publicly available from 1 October 2014.

At its meeting of 5 March 2014, Council resolved to endorse the Plan as being consistent with its planning assumptions and endorse the submission of the Plan to the Minister for State Development, Infrastructure & Planning (the Minister).

ISSUES

Council received advice from the Department of Energy & Water Supply (DEWS) on 1 July 2014 advising that once the Plan has been endorsed by the Minister, the Plan must be adopted by Council by 1 October 2014. As soon as practicable after adoption of the Plan, notice must be given to the Minister. Part A of the Plan must also be made publicly available by 1 October 2014.

It should also be noted that the revised legislative provisions for Water Netserv Plans also required the inclusion of 'Future Connection Area' maps. These maps have been added to the Plan previously endorsed by Council and are included in the attached version of the Plan.

STRATEGIC IMPLICATIONS

RW's Plan sets some of the overarching strategic direction for the water business over the next 5years. It has to be consistent with other Redland City Council (RCC) strategic documents such as the Corporate Plan, Redland Water Annual Performance Plan and the Total Water Cycle Management Plan.

It is expected that the first major review of the Plan will take place upon the adoption of the Redland City Plan 2015.

Legislative Requirements

RW is currently required to have a Plan in place by 1 October 2014 under the *South East Queensland Water (Distribution and Retail) Act 2009,* as amended.

Risk Management

The RW Plan incorporates risk management in various aspects, especially in some of the sub-plans of Part B such as the Asset and Service Management Plans. The Plan is listed as an existing treatment in the Risk Register against "RWW-4 – Asset Capabilities don't meet the needs of customers".

Financial

There should be no direct impact on the budget from the adoption of the Plan, however, it will be used to develop future budgets.

People

Key RW staff will be tasked with action items out of Part B of the Plan which will be aimed at improving the RW business.

Environmental

The Plan addresses key environmental issues including:

- ecological sustainability;
- Total Water Cycle Management; and
- sewerage overflow management.

Social

The Plan will set a direction for the RW business that aims to support and, in some areas, improve the levels of service that RW currently provides to the Redland community.

Alignment with Council's Policy and Plans

The Plan aligns with Council's Corporate Plan in respect to providing essential physical infrastructure that supports community well-being and manages Council's existing infrastructure assets to ensure current service standards are maintained or improved.

CONSULTATION

Consultation included:

- Part A public consultation (from 26 November 2012 to 14 December 2012);
- Part B internal RCC consultation - briefing with key RCC staff. Other invitees had an opportunity to view the documents.
- Part A sent to the Minister on 24 February 2014, for his endorsement. The Minister's letter of endorsement of Part A of the Plan was received by Council on 10 March 2014.
- Part A of the Plan will be made publicly available on the RCC website before 1 October 2014.

OPTIONS

1. That Council adopt the Plan, and ensure that Part A of the Plan is available on the Council website, and give notice to the Minister that Council has adopted the Plan.
2. That Council does not adopt the Plan, and give notice to the Minister that Council has not adopted the Plan.

OFFICER'S RECOMMENDATION

That Council resolves to:

1. Adopt the Water Netserv Plan;

2. Ensure that Part A of the Plan is available on the Council website; and

3. Give notice to the Minister that Council has adopted the Plan.

12 MAYORAL MINUTE

In accordance with s.35 *Redland City Council Meetings – Standing Orders*, the Mayor may put to the meeting a written motion called a 'Mayoral Minute', on any matter. Such motion may be put to the meeting without being seconded, may be put at that stage in the meeting considered appropriate by the Mayor and once passed becomes a resolution of Council.

13 NOTICES OF MOTION TO REPEAL OR AMEND RESOLUTIONS

In accordance with s.262 *Local Government Regulation 2012.*

14 NOTICES OF MOTION

14.1 NOTICES OF MOTION – CR OGILVIE

14.1.1 REQUEST FOR REPORT – PUBLIC VEHICLE ACCESS TO 'THE BASIN' AT AMITY

On 3 September 2014, in accordance with *s.7(3) Redland City Council Meetings – Standing Orders*, Cr Ogilvie gave notice that he intends to move as follows:

That Council resolves that a report be prepared for Council's consideration on the potential of facilitating public vehicle access to the area known as 'The Basin' at Amity on the parcel of land at 24-42 Claytons Road, Amity.

14.1.2 REQUEST FOR REPORT – SHARK NET ENCLOSURE, RABY BAY FORESHORE

On 3 September 2014, in accordance with *s.7(3) Redland City Council Meetings – Standing Orders*, Cr Ogilvie gave notice that he intends to move as follows:

That Council resolves to:

1. **Investigate the need and opportunity for a shark net enclosure to be installed on the Raby Bay (Masthead Drive) foreshore; and**
2. **That a report to Council include financial implications so that consideration can be given to possible inclusion in the Capital Works program.**

15 URGENT BUSINESS WITHOUT NOTICE

A Councillor may bring forward an item of urgent business if the meeting resolves that the matter is urgent.

Redland Water

Water Netserv Plan

PART A

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft – for public consultation	Matthew Ingerman	September 2012	Bradley Taylor Gary Soutar
Rev 1	Revisions following public consultation	Matthew Ingerman	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption & State endorsement	Matthew Ingerman	February 2014	Bradley Taylor Gary Soutar
Rev 3	Inclusion of future connection area mapping	Matthew Ingerman	August 2014	Bradley Taylor Gary Soutar

Redland City Council

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Table of contents

List of Figures

List of Tables

Executive summary

Redland Water (RW) recommenced operations on 1 July 2012 as a commercial business unit of Redland City Council (RCC). As a south-east Queensland (SEQ) service provider, the *South-east Queensland Water (Distribution and Retail Restructuring) Act 2009* requires RW to have a *Water Netserv Plan* from 1 March 2014. The *Water Netserv Plan* must be consistent with the SEQ Regional Plan 2009-2031 and with the planning assumptions for RCC. The *Water Netserv Plan* will be the key strategic document outlining the services RW provides and will guide the delivery and operation of its infrastructure. The *Water Netserv Plan* comprises the following two parts:

- **Part A** – contains public information concerning RW's water and wastewater services;
- **Part B** – comprises an internal planning document to inform RW's overall strategic direction.

RW is committed to providing its customers with highly efficient water and wastewater services. This *Water Netserv Plan – Part A* establishes the background and context for RW's business, together with the infrastructure planning and development activities which are critical to meeting its customer commitments. It provides an overview of the following:

- RW's vision, mission, role within the SEQ water grid and key stakeholders;
- the alignment between the *Water Netserv Plan* and RW's corporate strategies and goals;
- RW's core products and services, connection areas and service standards;
- the types of connections available and associated conditions of use;
- the demand management activities used to manage water consumption by the community;
- the charges to RW's customers in order to provide the products, services and infrastructure;
- planning activities employed to support growth and sustainability across the region;
- existing infrastructure, together with related key performance indicators; and
- the capital works program and major projects planned over the near future.

1. Redland Water

Redland Water is a commercial business unit of RCC and recommenced operations on 1 July 2012. Its primary functions are to provide its customers with safe, reliable and high quality water services, as well as to collect and treat wastewater. RW is also responsible for charging customers for water and wastewater services.

RW owns, operates and maintains assets currently valued at around $432 million. This will grow to approximately $460 million by 2015-16. This continued investment in water and wastewater infrastructure reflects the need to meet the requirements of a growing population, which is projected to be in excess of 180,000 people by 2031.

1.1 Redland City Council

RCC in SEQ consists of 537 square kilometres comprising mainland and island communities (with approximately 9,769 hectares of bushland under conservation). It is located on Moreton Bay and borders Brisbane City, Logan City and Gold Coast City Councils. Its economy consists of retail, health and community, education, manufacturing and tourism.

1.2 Redland City Council vision, mission, values and objectives

As a business unit of RCC, RW aligns with RCC's vision, mission and value statements as set out in the *Redland City Council Corporate Plan 2010-2015*[1] which provides the following vision, mission and value statements:

Vision

Enhancing community spirit, lifestyle and the natural environment

Mission

To be a sustainable and effective, organisation with clever and caring people

Values

- Strive to achieve sustainability in our organisation and our community
- Support community engagement and leadership
- Continuously improve our services
- Carefully manage our finances and deliver value for money
- Deliver excellent customer service
- Be an ethical and transparent organisation
- Treat people with respect and value diversity
- Listen to our community and engage effectively with them.

[1] Redland City Council Corporate Plan 2010-2015 – http://www.redland.qld.gov.au/AboutCouncil/CommunityPlan/Documents/Corporate_Plan/CorporatePlan2010-15.pdf

RCC's objectives are:

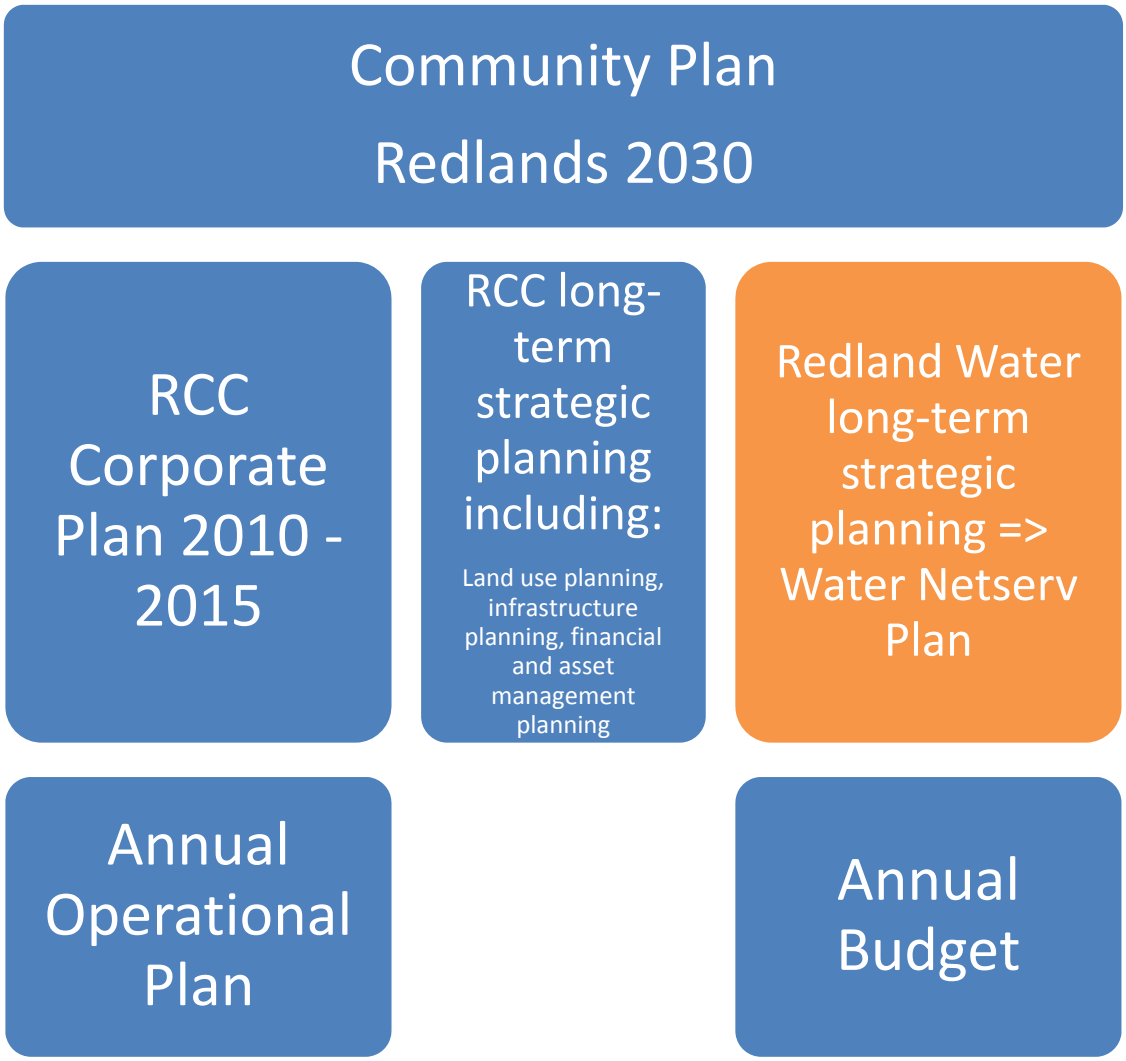
Objectives

- Healthy natural environment
- Green living
- Embracing the bay
- Quandamooka country
- Wise planning and design
- Supportive and vibrant economy
- Strong and connected communities
- Inclusive and ethical governance
- An efficient and effective organisation

1.3 Redland Water – strategic alignment

The RCC corporate plan is directly linked to all council's long-term, strategic planning documents. This ensures a clear link exists between community needs and expectations, corporate strategic direction and priorities, policy and day-to-day activities. The link is described in the corporate plan by the following diagram:

The re-establishment of RW will see the relationship between the RCC long-term strategic planning documents expand to include the *Water Netserv Plan* as indicated in the following diagram:



Although not shown above, the RW *Water Netserv Plan* will also be cognisant of RCC's *Total Water Cycle Management Plan (TWCM Plan)*.

In order to address key result areas within RCC's 9 corporate plan objectives, RW will strive to achieve the following goals:

- supply healthy water in an ecologically sustainable manner by planning, designing, constructing, operating and maintaining a high quality water distribution system; and
- process wastewater in an ecologically sustainable manner by planning, designing, constructing, operating and maintaining a system for the collection, treatment and disposal of wastewater and biosolids.

RCC strategies such as the *Asset Management Strategy*, (draft) *Local Growth Management Strategy/ future Redland Town Plan*, *TWCM Plan* and *Financial Strategy 2012-2022* will be key documents to drive RW towards achieving its goals.

1.4 Redland Water's stakeholders

RW places great importance on engaging with stakeholders, as well as maintaining and strengthening current relationships to improve the way it operates. Table 1-1 outlines a number of its key stakeholders and the associated requirements.

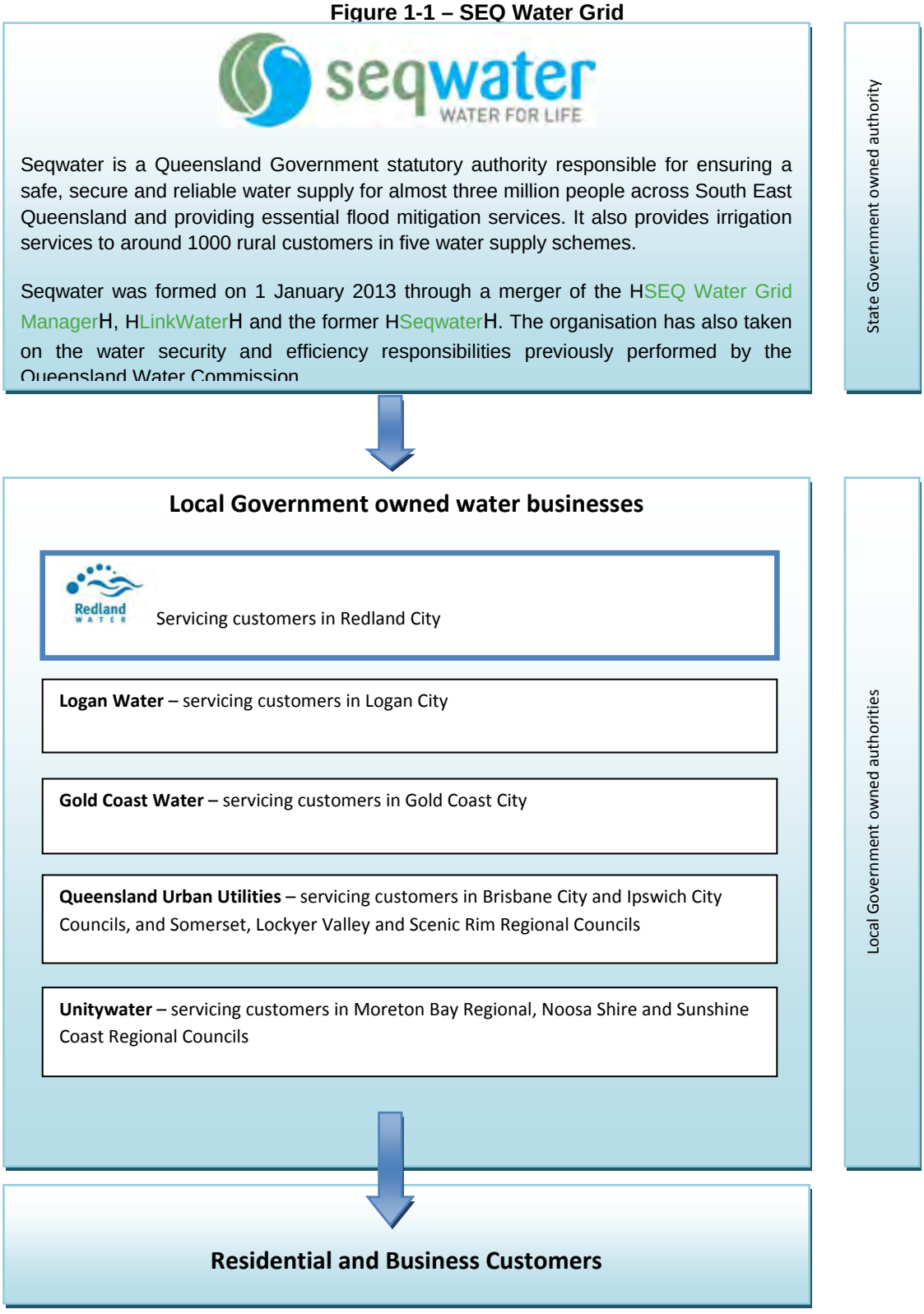
Table 1-1 – Key stakeholders and their requirements

STAKEHOLDERS	REQUIREMENTS
Redland City Council	Satisfying RCC's needs for returns on investment support for local economic development and growth, as well as providing safe, quality water and wastewater products and services.
Customers	The customer is at the core of everything RW does and delivering high standards of customer care is critical. This is reinforced through its decision-making and actions which focus on outstanding commitment to customer service through connectivity with the community.
State government	The Queensland government is looking for investments based on commercially sound decisions which will deliver infrastructure more efficiently, compliance with legislative and regulatory requirements and a balanced approach between meeting funding requirements for future investment and socially and economically sustainable price increases.
Industry	At a strategic level, RW's affiliation with local and state government departments will allow it to understand legislative and regulatory requirements to ensure it continually meets its responsibility to protect the environment and support sustainable practices. Within the industry, its relationship with participants of the SEQ water grid, fellow water businesses (Queensland Urban Utilities and Unitywater, Gold Coast Water and Logan Water), developers, suppliers, industry associations and community reference groups will allow it to collaborate to work towards achieving common goals.

1.5 Redland Water's role in the SEQ water grid

RW is one part of an extensive water grid operating in SEQ. Figure 1-1 shows its relationship with the other participants, in their roles, as they currently exist.

Figure 1-1 – SEQ Water Grid



[2] Sourced: http://www.seqwater.com.au/ accessed 15/01/13 at 10:09am.

2. Redland Water's products and services

RW is responsible for the provision of water and wastewater services to consumers throughout the Redland local government area. Its core products and services include:

- drinking water supply;
- non-Class A+ recycled water supply;
- wastewater collection and treatment; and
- trade waste management.

2.1 Drinking water

RW distributes drinking water to around 60,000 properties via a network of reservoirs, pump stations and mains. This water is sourced from Seqwater, which owns dams, water treatment plants and the Gold Coast desalination plant and bulk transport mains. Seqwater determines the applicable source to be used based on the overall water security requirements for the region.

To ensure water quality meets applicable standards and guidelines, all drinking water service providers, including Seqwater and RW are required to have an approved Drinking Water Quality Management Plan (DWQMP) in place. These plans are reviewed and approved by the regulator administering the *Water Supply Safety and Reliability Act*.

2.2 Special health needs

Customers have a right to register with RW if there is a need for water to maintain life support, such as a dialysis machine. Customers may also register other special medical needs.

RW maintains a register of residential properties and hospitals that operate dialysis machines. This information is available to our Operations personnel to ensure a continuous supply of drinking water is maintained (if necessary) at these locations. The water meter is coloured blue to denote these properties in the event of a burst water main or a planned shutdown of the water supply for maintenance purposes. Temporary alternative water supply may be provided from a drinking water tanker or by connecting the property to water supply from a nearby water main. If the situation becomes life threatening, emergency services should be called immediately on 000. To obtain a copy of RW's policy and guidelines[3] concerning the management of dialysis remissions or to register any special health needs, customers should contact Council's Customer Service team.

2.3 Recycled water

Recycled water is wastewater that has been filtered and disinfected. Capalaba and Victoria Point wastewater treatment plants (WWTPs) both have Class A.

Class B recycled water is supplied to the Redland Bay golf course from the Victoria Point WWTP. Cleveland and Capalaba WWTPs have the facilities to supply recycled water to customers via tanker filling stations.

Excess recycled water that is not re-used by RW's recycled water customers is released to the environment in accordance with development approval and release limits.

[3] Water Charge Remissions for Home Dialysis Machine Users

http://rcc/PGP/PGP/POL-0027%20Water%20Charge%20Remissions%20for%20Home%20Dialysis%20Machine%20Users.pdf

Table 2-1 – Allowable and non-allowable uses for non-Class A+ recycled water

ALLOWABLE USES	NON-ALLOWABLE USES
Irrigation of parks, gardens and ovals	Drinking
Irrigation of playing fields and golf courses	Cooking and kitchen purposes
Irrigation of roadside plants	Toilet flushing
Dust suppression on construction sites and roadworks	Fire fighting
	Personal washing (baths, showers, bidets, basins)
	Washing clothes
	Washing cars
	Swimming pools and spas
	Recreation (playing under sprinklers / water toys)
	Water source for pets and livestock
	Commercial or industrial food processing
	Filling ponds, lakes, water bodies and tanks

2.4 Wastewater collection and treatment

RW owns and operates 7 WWTPs which treat incoming wastewater collected from almost 50,000 properties across the existing wastewater connection area via a network of pump stations and mains. Each year, these treatment plants collectively process around 11,250 megalitres of wastewater. The majority of the treated wastewater is released to the environment in accordance with relevant development permit conditions. However, approximately 2.5% of the treated water is recycled and provided to customers as Class B recycled water.

RW operates its WWTPs in accordance with conditions of approval, relevant guidelines and policies and its general environmental obligations under the *Environmental Protection Act 1994*. Substantial equipment, systems and processes are used at each of the WWTPs to minimise the risk of wastewater overflows and to control odour. Comprehensive testing and analysis of wastewater is regularly undertaken to monitor quality. A stringent reporting regime is in place for identified non-compliances with quality requirements. Extensive incident management plans have also been established should an event occur which may impact on the environment and/or public health and safety.

2.5 Trade waste management

Trade waste is liquid waste generated from any business (commercial and industrial) other than normal domestic wastewater from toilets, hand basins and showers.

Wastes like cooking oil, grease and food solids are produced by thousands of food outlets within the RW connection area every day. Should this waste be illegally dumped or discharged directly into the wastewater network, it can block the system and cause overflows that have a negative impact on public health and the environment. To prevent this from happening, all businesses that discharge greasy wastewater must have a grease trap installed.

Trade waste may also contain a variety of toxic or harmful substances, such as heavy metals, organic compounds, solvents, oils and grease, explosive substances, gross solids and chlorinated organic compounds. Municipal WWTPs are not designed to treat these substances, which may also pose a health and safety risk to our staff working at the treatment plants. Businesses may only discharge waste to the wastewater network that complies with RW's wastewater admission standards. These

standards set limits on the allowable concentration of many potentially harmful substances and completely prohibit discharge of other substances.

Water Netserv Plan

The *South-east Queensland Water (Distribution and Retail) Act 2009* requires RW to have a *Water Netserv Plan* in place from 1 March 2014. The *Water Netserv Plan* must be consistent with the *South-east Queensland Regional Plan 2009-2031* and with the planning assumptions for RCC. It will be the key strategic document guiding the delivery and operation of RW's infrastructure and services.

3. Purpose (statement of intent)

The purpose of the *Water Netserv Plan* is to:

- ensure the provision of safe, reliable and secure water and wastewater services;
- provide for strategic planning for the operation of the business;
- provide infrastructure planning for water and wastewater services for at least 20 years;
- integrate land use planning and infrastructure planning for water and wastewater services;
- provide for the management of water and wastewater services in a way that seeks to achieve ecological sustainability.

4. Form and content

To meet legislative requirements, the Water Netserv Plan comprises the following 2 separate parts. The content of each part is outlined in Table 4-1.

- **Part A** – contains public information concerning RW's water and wastewater services
- **Part B** – comprises an internal planning document to inform its overall strategic direction.

Table 4-1 - *Water Netserv Plan* contents

PART A	PART B
Product and services Customer service standards Connections policy Demand management strategy Charges schedule relating to: • service usage; • connections; • infrastructure provision Assumptions about future development and infrastructure demand Desired standards of service Trunk network plans identifying existing and future trunk infrastructure Timeframes for the provision of future trunk infrastructure Mechanisms used to achieve effective outcomes Other matters prescribed under a regulation	Mechanisms used to meet performance targets and service standards for the operation, maintenance and replacement of existing infrastructure Planning of new infrastructure to meet expected future development and future growth Measures used to minimise system water leakage Measures used to minimise sewerage overflows Drinking water quality management measures undertaken to protect public health Total water cycle management information Mechanisms used to achieve ecological sustainability Trade waste management information Recycled water management information Other matters prescribed under a regulation

To assist with navigating this *Water Netserv Plan* relative to the requirements of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*, the following lookup (Table 4-2) is provided.

Table 4-2 - Legislation references

SECTION 99BO – Requirements of a Water Netserv plan		INCLUDED	WATER NETSERV PLAN LINK
(a)	state the relevant planning assumptions on which the plan is based	✓	Planning assumptions
(b)	include information outlining the SEQ service provider's infrastructure networks for its water service and wastewater service, including information about the capacity of each network to service existing and proposed customers	✓	Redland Water's networks Redland Water's network planning
(c)	include information outlining any proposed increases in the capacity of the infrastructure networks, including information about the areas into which the networks are to be extended and timeframes for increasing the capacity	✓	Redland Water's network upgrades
d)	state the desired standard of service for infrastructure used to provide the SEQ service provider's water service and wastewater service	✓	Desired standards of service
(e)	include information outlining the SEQ service provider's strategy for demand management for water	✓	Demand management
(f)	state the SEQ service provider's policy for connections to its infrastructure networks for its water service and wastewater service (connections policy), including: (i) the areas (each a connection area) in which the SEQ service provider guarantees to provide connections that comply with its connection criteria to its water service or wastewater service; and (ii) the areas (each a future connection area) in which the SEQ service provider intends to extend its infrastructure network; and (iii) the circumstances in which the SEQ service provider may approve connection outside a connection area; and (iv)the SEQ service provider's criteria for providing connection, with or without conditions, to its water service or wastewater service; and (v) if the SEQ service provider is a distributor-retailer—each matter stated in section 99BOA; and	✓	Connections policy Redland Water's connection areas 23.3 Premises outside the existing connection area Conditions of use
(g)	include a schedule (a charges schedule) containing details of: (i) charges to connect customers to the SEQ service provider's water service and wastewater service; and (ii) charges for a customer's use of the services; and (iii) charges relating to providing infrastructure for the services	✓	Redland Water's charges

SECTION 99BO – Requirements of a Water Netserv plan		INCLUDED	WATER NETSERV PLAN LINK
(h)	indicate how the SEQ service provider proposes to achieve effective outcomes for the provision of water services and wastewater services in: (i) the SEQ service provider's relevant area; and (ii) the SEQ region	✓	Redland Water's performance reporting
(i)	include any other matters prescribed under a regulation	✓	Development assessment

Redland Water's planning – supporting growth and sustainability

5. Redland Water's role in land use and infrastructure planning

Land use planning for the Redland local government area is performed by RCC, in conjunction with the state government. Infrastructure planning is undertaken by RCC's City Infrastructure group for the transport, stormwater and community facilities networks, whilst RW plans the water supply and wastewater networks. As a major infrastructure provider, RW plays an important role in achieving sustainable water and wastewater outcomes for the region. The *Sustainable Planning Act 2009* details the powers, processes, roles and responsibilities of the various parties involved in land use planning and for councils when undertaking infrastructure planning. The *South East Queensland Water (Distribution and Retail Restructuring) Act 2009* sets out the requirements for water businesses when undertaking infrastructure planning.

Prior to 1 July 2010, SEQ water businesses were subject to the same land use and infrastructure planning framework as councils. This framework has changed for water businesses following reform of the water industry. Acknowledging that it will take some time to establish new plans, systems and procedures, under the new framework, transitional arrangements have been implemented. This will mean that existing planning documents and council processes will form the basis of land use and infrastructure decision-making concerning water and wastewater infrastructure until Netserv plans come into operation.

6. South-east Queensland Regional Plan

The *South-east Queensland Regional Plan 2009-2031* is the state government's blueprint for managing regional growth, population change, economic development and for protecting the environment and infrastructure provision. The plan operates in conjunction with other statutory planning tools, including state planning polices, local government planning schemes, state regulatory provisions and development assessment processes.

6.1 SEQ Regional Plan – Redland 2009–2031

Table 6-1 - Projected population and dwelling forecasts

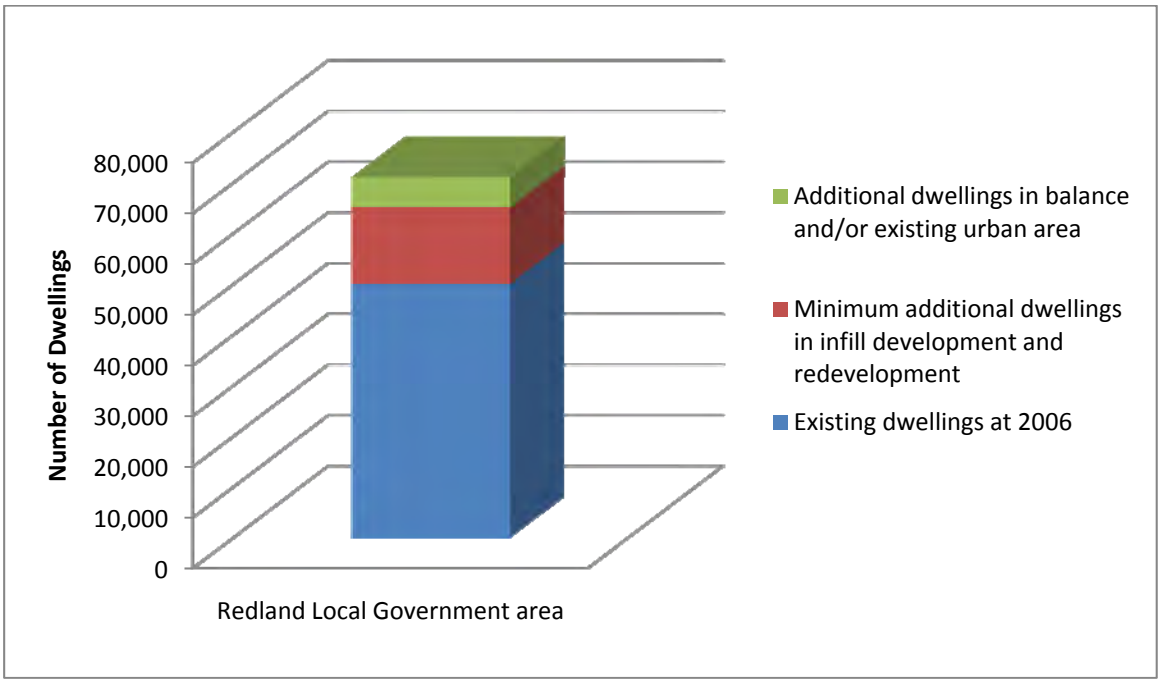
YEAR	POPULATION	ADDITIONAL DWELLINGS
2006	131,000	-
2031	169,000	21,000

The purpose of the *SEQ Regional Plan* is to manage regional growth and change in the most sustainable way to protect and enhance the quality of life in the region. The primary means for achieving this is through the identification of an urban footprint, as a means to control unplanned urban expansion. The *SEQ Regional Plan* is the pre-eminent plan for the SEQ region and reflects and informs state planning policy and priorities.

The *SEQ Regional Plan* was established in 2005 in response to rapid population growth and is reviewed every 5 years. The latest *SEQ Regional Plan* was published in 2009. Over the last 20

years, the population of SEQ has increased from 1.5 million to 2.8 million people. It is expected to reach 4.4 million people by 2031. To accommodate the additional 1.6 million people, it is estimated that an additional 754,000 dwellings will need to be constructed. The *SEQ Regional Plan* forecasts that almost 3% of this growth will occur in the Redland local government area. The following figure shows the existing and planned dwelling forecasts for the Redland local government area in graphical format.

Figure 6-1 - Existing and planned dwelling distribution to 2031



For more detailed and locally focussed population and dwelling projections, refer to the section titled **Redlands Planning Scheme**. That section also identifies reasons behind variations in the projections provided by different authorities.

6.2 Population and employment key growth areas

The following table provides a snapshot of key elements contained in the *SEQ Regional Plan* with regards to population and employment growth areas in the Redland local government area.

Table 6-2 – Population and employment growth areas – Redland

RESIDENTIAL AREAS	
Broadhectare	Kinross Road (Thornlands), south-east Thornlands and Victoria Point
Existing urban areas	Cleveland, Capalaba, Victoria Point, Redland Bay, Thorneside, Thornlands, Birkdale, Wellington Point, Alexandra Hills and Ormiston
REGIONAL ACTIVITY CENTRES	
Principal	Capalaba and Cleveland
Major	Victoria Point
EMPLOYMENT AREAS	
Enterprise	Cleveland Enterprise Area and Redlands Business Park

EMPLOYMENT AREAS	
Health, education & technology	Department of Employment, Economic Development and Innovation – Redland Research Station and Cleveland Hospital Precinct
IDENTIFIED GROWTH AREAS	
None	

By 2031 an additional 21,000 dwellings will be required to house Redland's expected regional growth.

Infill and redevelopment in existing urban areas will accommodate approximately 15,000 additional dwellings.

Infill development will be located around the regional activity centres of Cleveland, Capalaba, Victoria Point and other activity nodes on the public transport network stations and major bus routes. These centres could accommodate residential dwelling units through multi-storey, mixed-use development.

The development of the remaining supply of broadhectare land within the urban footprint will accommodate the remaining dwellings. Broadhectare land availability in Redland is restricted so that existing non-urban land can be enhanced to accommodate koala habitat.

Kinross Road and south-east Thornlands are in proximity to existing urban areas and infrastructure, and capable of accommodating urban development in the short-term. Kinross Road has capacity for a residential community in combination with additional employment opportunities, local retail and commercial functions, and community services. South-east Thornlands will accommodate a residential community with local retail and service functions.

The suburbs of Thorneside, Birkdale, Wellington Point and Ormiston are close to public transport and present opportunities for further development in the longer term, subject to detailed local planning.

Future development opportunities also exist at Cleveland and Redland Bay, and in the Weinam Creek marine area and environs, subject to detailed local planning and infrastructure upgrades.

Employment growth will be focused within Redland City's network of multi-purpose activity centres and in an integrated enterprise precinct at Redland Bay.

The principal regional activity centres of Cleveland and Capalaba will accommodate most of the expected centre-based employment growth. They will become locations for major retail, commercial, community, administrative and recreational activities. Victoria Point and other centres will accommodate the remaining centre-based employment growth.

As well as being consistent with the population projections of the *SEQ Regional Plan*, the *Water Netserv Plan* is also aligned with a number of key programs that are identified under the Desired regional outcome 11 – Water management (DRO 11). Table 6-3 below details the linkages between some of these key programs under DRO11 and this *Water Netserv Plan*.

Table 6-3 – SEQ Regional Plan – Water Management Programs

Desired regional outcome 11 – water management	SEQ Regional Plan Program	How does RW address this desired outcome
11.1 Total water cycle management Principle: Plan and manage water as a valuable and finite regional resource on a total water cycle basis.	11.1.3 Undertake sub-regional total water cycle planning for key development areas and where major water infrastructure is planned, to establish objectives, design parameters and a framework for works delivery. 11.1.4 Develop and implement local total water cycle plans to integrate water cycle management issues not addressed by regional and sub-regional planning.	We have actively participated in sub-regional total water cycle planning for Victoria Point and Redland Bay areas, in partnership with former Queensland Water Commission (QWC). RW is part of the internal stakeholder group for development of the RCC TWCM Plan. *Water Netserv Plan Part B contains RW's TWCM Plan.*
11.2 Water supply planning Principle: Supply sufficient water to support a comfortable, sustainable and prosperous lifestyle, while meeting the needs of urban, industrial and rural growth, and the environment.	11.2.6 Undertake detailed planning and assessment to meet the local water and sewage distribution needs for the region, within the context of regional, sub-regional, local land use and total water cycle plans. 11.2.8 Complete detailed investigations of potential sources of water supply, including centralised and decentralised sources.	Detailed planning and assessment of local water and sewage distribution needs is part of RW's core business. In-line with 11.1.3 above and detailed planning studies regarding the water cycle completed for development areas like south-east Thornlands. *Refer to section: **Redland Water's network planning** in this document.*
11.3 Efficient water use Principle: Achieve targeted reductions in water consumption to decrease pressure on water supplies and the environment.	11.3.4 Implement programs that facilitate non-residential users, including businesses, to move to best practice water use. 11.3.5 Implement demand management programs to meet the water use targets in the draft SEQ Water Strategy. 11.3.6 Design and manage water distribution infrastructure to meet efficiency and loss-reduction targets.	RW provides notifications for residential high users. *Refer to section: **Demand management** in this document.* RW completed a pressure and leakage management project (PLMP) in line with the *Water Act 2000 (Water Amendment Regulation (No. 6) 2006)*. *Water Netserv Plan Part B contains RW's System Leakage Management Plan.*
11.4 Waterway health Principle: Protect and enhance the ecological health, environmental values and water quality of surface and groundwater, including waterways, wetlands, estuaries and Moreton Bay.	11.4.9 Monitor environmental values and the achievement of water quality objectives to assess the health of waterways and the effectiveness of management actions. 11.4.10 Implement actions to achieve the targets in the SEQ Natural Resource Management Plan, including actions in the SEQ Healthy Waterways Strategy.	RW works in conjunction with RCC for regular monitoring of waterways in the local area. RW participates and supports the SEQ Healthy Waterways Strategy. *Water Netserv Plan Part B contains RW's Recycled Water Reuse and Release Management Plan.*

Desired regional outcome 11 – water management	SEQ Regional Plan Program	How does RW address this desired outcome
11.5 Drinking water catchment protection Principle: Manage risks in drinking water catchments to achieve acceptable water quality.	11.5.2 Manage risks to water quality from existing land uses in drinking water catchments. 11.5.3 Address management of catchment risks in drinking water quality management plans.	RW participates with its SEQ water grid colleagues in the preparation of risk-based DWQMPs. Bulk water supplier Seqwater has DWQMPs for their components of the supply network, as does RW. Risks from upstream suppliers are incorporated into RW's risk profile for assessment and determination of mitigation actions. *Water Netserv Plan Part B contains RW's DWQMP.*

7. Redlands Planning Scheme

Local planning is both informed by and must reflect the *SEQ Regional Plan*. Local governments must ensure that the vision, strategic directions and land use pattern specified in the regional plan for the region's future development are furthered by local planning. In this context, planning schemes must integrate these regional requirements whilst balancing the economic, social and environmental needs and aspirations of the local community to provide an orderly approach to land use and change. Overall, a planning scheme:

- outlines the desired outcomes sought for the local government area as a whole;
- allocates land for different uses (e.g. residential, commercial, open spaces etc.);
- coordinates and integrates community, state and regional needs and wants;
- coordinates and integrates infrastructure and land use planning;
- indicates the location of existing and proposed infrastructure;
- includes a priority infrastructure plan;
- includes a structure plan for any master planned areas within the local council area;
- identifies areas or places that constrain the use of land;
- identifies the kind of development that requires approval;
- specifies the standards or criteria for assessing the suitability of a development proposal.

By establishing the future land use pattern for an area, the *Redlands Planning Scheme* provides important input into the development of plans for the provision of water and wastewater infrastructure. In this regard, land use planning allows estimates of future demand for infrastructure to be made. Infrastructure is then planned and provided in response to this demand. Key areas of future development and their accompanying land use planning are elaborated upon as follows.

7.1 Key development areas

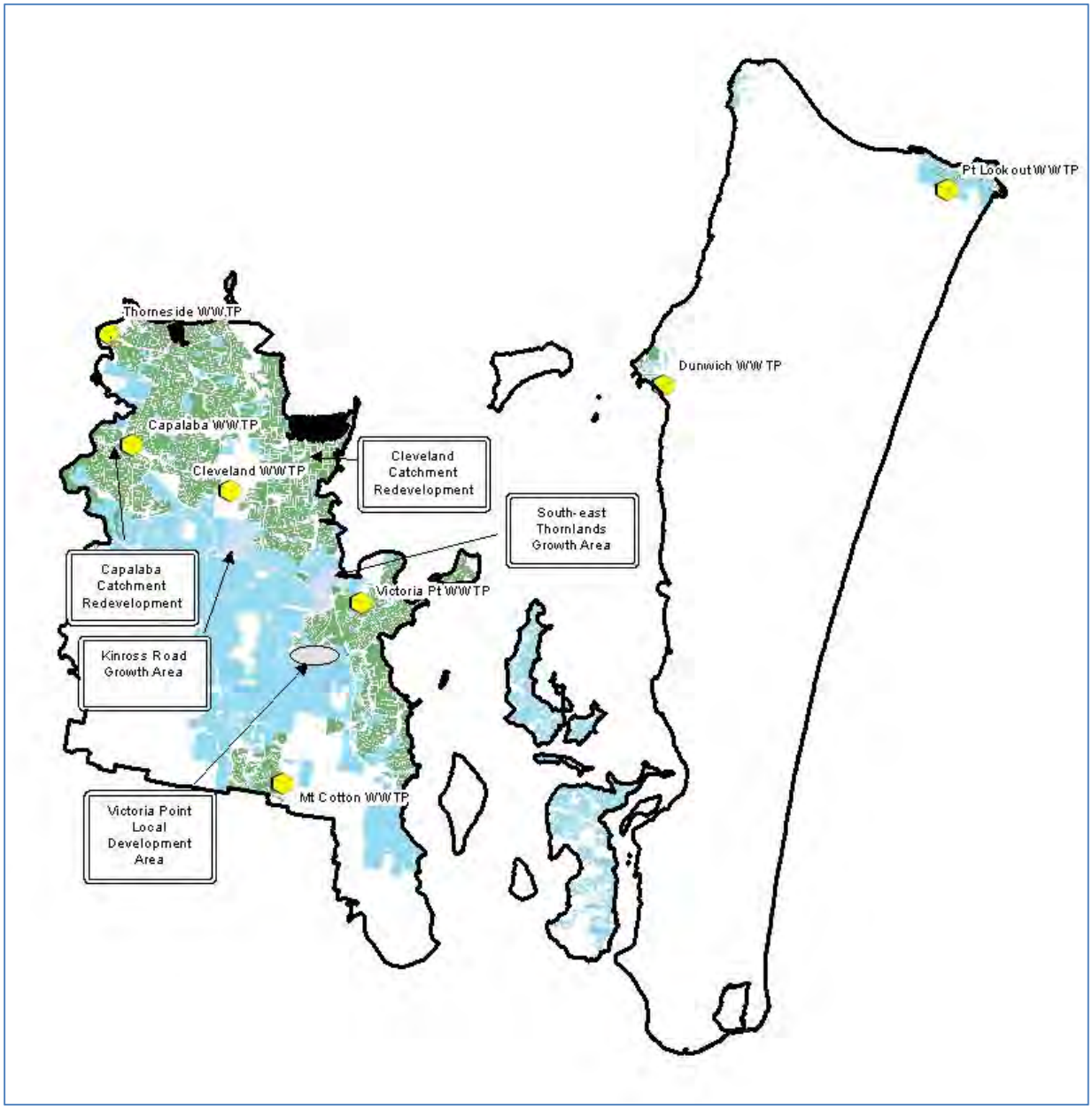
The following table outlines key areas of future development within the Redland local government area and the land use and infrastructure planning being undertaken in those areas. A map of these areas is provided below.

Table 7-1 – Key development areas

KEY DEVELOPMENT AREAS	LAND USE AND INFRASTRUCTURE PLANNING
South-east Thornlands growth area	A structure plan for this area has recently been approved which will see growth of approximately 1,458 dwellings. Development in the area will use spare capacity in the water supply network. Two trunk mains pass the frontage of the development, and developers in this area will be required to construct the reticulation utilising the mains. Wastewater from this area will be treated at the Cleveland WWTP. Trunk infrastructure leading to the Cleveland WWTP has sufficient capacity to service the development, however all pump stations and rising mains as well as any trunk gravity sewers will form part of an infrastructure agreement (IA) for this area.

KEY DEVELOPMENT AREAS	LAND USE AND INFRASTRUCTURE PLANNING
Kinross Road growth area	The state government declared this a master planned area in December 2010. RCC has now developed a structure plan for this area. RW has plans for the proposed networks required to service the area which have been captured in an IA with 2 developers signed in December 2010. The interaction of development in this area with Seqwater's operations between the Alexandra Hills reservoir complex and the Mount Cotton reservoir will require ongoing management, including revision of operating protocols and potentially some additional pipework inter-connection by Seqwater.
Capalaba & Cleveland catchment redevelopment	Areas of Capalaba and Cleveland have undergone significant redevelopment in recent years, mainly through the construction of residential unit blocks. There is scope in the *Redlands Planning Scheme* for this to continue. RCC has prepared master plans for this redevelopment.
Victoria Point	The Victoria Point local development area is contiguous with local services and can accommodate additional residential development subject to further investigation and amendments to the planning scheme.

Figure 7-1 Key development areas



7.2 Emerging land use planning issues

While the sections above detail growth areas where ultimate development extent, form and servicing strategy are relatively well understood, there are other issues in Redland City where RW is expecting to have input into decisions about future development extents, form and servicing strategy.

Two key issues are:

- wastewater collection and treatment for the Southern Moreton Bay Islands (SMBI); and
- North Stradbroke Island (NSI) land use planning investigations.

Wastewater collection and treatment for SMBIs

The SMBIs of Macleay, Perulpa, Lamb, Karragarra and Russell Islands have a costly infrastructure backlog for roads, sewerage and accessible transport services following their subdivision into small residential lots in the 1960s. Wastewater from these lots is treated through on-site systems such as septic tanks or on-site (on-lot) wastewater treatment plants. Regulation and compliance management of these systems is undertaken by RCC.

RCC has set down an action plan in its community plan for SMBI (December, 2011), in which goal 9.4 is to "investigate wastewater management options through: an economic and environmental feasibility investigation into providing an on-islands sewer network group systems for shared wastewater management across the islands as an interim or long term alternative to an on-islands sewer network".

Previous detailed planning studies into the provision of on-islands wastewater networks have determined that an on-islands wastewater network is not economically viable or prudent. RW will advocate for continued improvement of the management of septic tanks and on-site wastewater management systems as part of the long-term solution for wastewater management on the SMBIs.

NSI land use planning investigations

The Queensland Government has recently committed funding over 3 years to address land use planning issues on NSI arising from an Indigenous Land Use Agreement (ILUA) between the State and the Quandamooka People. The outcomes of these investigations may have implications for future service provision requirements on the island. When this work commences, RW will be an active stakeholder aligned with RCC desired outcomes at that time.

8. Redland Water's network planning

RW has undertaken master planning for its water supply and wastewater networks. These plans identify trunk and non-trunk infrastructure. Trunk infrastructure is higher order or shared infrastructure, which services a number of users. Table 8-1 identifies typical trunk infrastructure items within each of the RW networks.

Table 8-1 – Typical trunk infrastructure items

TRUNK NETWORK	ASSET CONFIGURATION
Water	Distribution mains: • Mainland and SMBI scheme: All mains ≥ 300mm diameter and specific mains of smaller diameter required to complete the interconnection of the trunk network; • NSI township schemes: Mains connecting water treatment plants to reservoir complexes or township boundaries, and mains connecting reservoir complexes and high level zones (either pump boosted zones or elevated reservoir zones). Reservoirs Associated pump stations and fittings Associated pressure reducing and sustaining valves Associated monitoring systems Associated disinfection systems Fire fighting devices
Wastewater	WWTPs Storage facilities Release systems Rising mains Gravity sewers generally ≥ 300mm diameter on the mainland and generally ≥ 225mm diameter on NSI Associated pump stations, manholes and fittings Odour and corrosion control systems Associated monitoring systems

RW has prepared trunk network plans that identify the existing and future trunk infrastructure required to service forecast growth. These trunk network plans have been prepared for its infrastructure networks based on a number of key inputs including:

- the demand for water and wastewater infrastructure generated by projected development in response to the land use provisions of the *Redlands Planning Scheme*; and
- the desired standard of service to be addressed by the network.

These inputs are elaborated upon as follows.

9. Planning assumptions

One of the key inputs to the planning of the RW networks is the demand for water and wastewater infrastructure generated by projected residential and non-residential development.

The projections of residential and non-residential development are referred to as the planning assumptions and have been prepared by RCC to provide a consistent basis for the planning of the following infrastructure networks:

- water;
- wastewater;
- stormwater;
- transport;
- parks and land for community facilities.

The planning assumptions prepared by RCC describe the type, scale, location and timing of future development and are based on the land use planning provisions of its planning scheme and the population and dwelling forecasts provided by the now Office of Economic and Statistical Research (OESR). In doing so, the outcomes desired by the *SEQ Regional Plan* and which are reflected in the planning scheme are given effect. To ensure this is the case, the planning assumptions must also be approved by the Minister as being compliant with the desired outcomes of the *SEQ Regional Plan*.

In terms of actual numbers in the forecasts, there are variations between ones used in the *SEQ Regional Plan* and OESR numbers used in the RCC priority infrastructure plan (PIP), which are due to the different parameters used and the level of detail in each agency in their analysis.

Use of the RCC planning assumptions for planning the water and wastewater networks will help to ensure that sufficient water is supplied to meet the needs of urban growth in accordance with the requirements of the regional plan.

The detailed planning assumptions are shown in RCC's PIP. The planning assumptions are also summarised in Table 9-1.

Table 9-1 – Planning assumptions summary

DESCRIPTION	DEVELOPMENT PROJECTIONS				
	2006	2011	2016	2021	ULTIMATE DEVELOPMENT
Population	132,972	148,878	164,772	172,166	180,851
Dwellings	49,797	56,850	63,894	67,330	71,454
Employees	32,095	36,394	40,335	43,918	50,009
Non-residential floor space (m^2 GFA)	1,423,560	1,614,240	1,789,042	1,947,964	2,209,074

9.1 Infrastructure demand

RW has converted the planning assumptions into demand for water and wastewater infrastructure where a premise is inside the area into which it is intended to extend the network. This typically

includes premises intended for urban development under the relevant local government's planning scheme.

The area into which RW plans to extend its networks is shown on the following maps:

- Appendix C – Water supply trunk network plans; and
- Appendix D – Wastewater trunk network plans

Demand for water and wastewater infrastructure is expressed in equivalent persons (EPs). An EP is defined as the average day (AD) water demand per person living in an average detached dwelling or the wastewater discharge per person living in an average detached dwelling. By definition – the relationship to average water consumption and/or average wastewater discharged, an EP is therefore not necessarily equal to a 'person' as defined in population projections.

The water demand projected for the area into which it is intended to extend the water network is summarised in **Table 9-2**. The wastewater demand projected for the area into which it is intended to extend the wastewater network is summarised in

Table 9-3. Note that there is a lower total number of wastewater demand (EPs) as not all areas serviced with water are provided a wastewater service.

Table 9-2 – Projected water demand

WATER SUPPLY ZONE	PROJECTED WATER DEMAND (EP)			
	2008	2013	2018	ULTIMATE DEVELOPMENT
Alexandra Hills	85,569	97,585	101,679	104,817
Heinemann Road	41,395	55,909	62,602	68,638
Mt Cotton	7,346	11,316	12,668	15,364
SMBI	7,865	15,730	21,180	21,573
Point Lookout	2,475	3,293	3,777	4,984
Amity Point	1,082	1,212	1,268	1,378
Dunwich	1,206	1,727	1,850	2,114
Total[4]	**146,938**	**186,772**	**205,024**	**218,869**

Table 9-3 – Projected wastewater demand

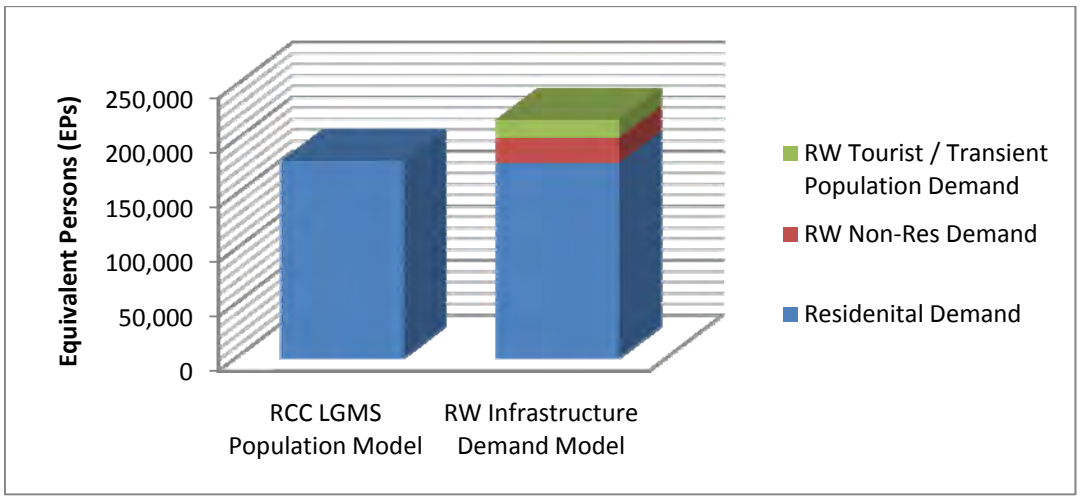
CATCHMENT	PROJECTED WASTEWATER DEMAND (EP)			
	2008	2013	2018	ULTIMATE DEVELOPMENT
Capalaba WWTP	26,652	27,350	28,114	29,662
Cleveland WWTP	32,063	36,272	39,787	46,644
Thorneside WWTP	40,930	43,347	45,452	47,572
Victoria Point WWTP	26,551	32,922	37,031	40,592

[4] Demand estimates include an allowance for tourist or transient population, especially on the islands of Redland City.

CATCHMENT	PROJECTED WASTEWATER DEMAND (EP)			
	2008	2013	2018	ULTIMATE DEVELOPMENT
Mt Cotton WWTP	3,029	3,703	4,600	5,520
Dunwich WWTP	641	1,425	1,574	1,864
Point Lookout WWTP	2,768	3,039	3,266	3,710
Total[5]	**132,634**	**148,058**	**159,824**	**175,564**

RW's alignment with the RCC population estimates is demonstrated in **Figure 9-1** which shows the ultimate population capacity as detailed in the RCC PIP, against the residential demand component of RW's infrastructure demand model. Note the inclusion of the non-residential demand and tourist of transient population demand contribution to the total demand for which RW caters.

Figure 9-1 - Alignment of demand projections



[5] Demand estimates include an allowance for tourist or transient population, especially on the islands of Redland City.

Redland Water's networks

RW operates 2 networks in Redland City as detailed in the following sections.

10. Existing water supply network

RW's existing water supply network comprises both trunk and non-trunk infrastructure extending from the connection points with the SEQ water grid through to the service connection and meter at each premise. Table 10-1 provides a summary of the water network as at 30 June 2012.

Table 10-1 – Summary of existing water network

INFRASTRUCTURE DESCRIPTION	AMOUNT
Water mains (km)	1,203
Water reservoirs (No.)	6
Water pump stations (No.)	7

The existing trunk water infrastructure is shown on Maps W2 to W8 in the RCC PIP, which can be found on the RCC website at:

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Pages/PIP-mapping.aspx

11. Existing wastewater network

RW's existing wastewater network includes both trunk and non-trunk infrastructure and includes WWTPs, pipes and wastewater pump stations. Table 11-1 provides a summary of the wastewater network as at 30 June 2012.

Table 11-1 – Summary of existing wastewater network

INFRASTRUCTURE DESCRIPTION	AMOUNT
Mains (km)	1,081
Pump stations (No.)	137
WWTPs (No.)	7

Table 11-2 provides a high-level overview of the WWTPs currently operating in the Redland local government area.

Table 11-2 – Summary of existing wastewater treatment plants

WASTEWATER TREATMENT PLANT	NOMINAL CAPACITY (EP)
Capalaba	30,000
Cleveland	38,000
Mt Cotton	6,400

WASTEWATER TREATMENT PLANT	NOMINAL CAPACITY (EP)
Thorneside	30,000
Victoria Point	34,000
Dunwich	1,000
Point Lookout	1,750
Total	**141,150**

The existing trunk wastewater infrastructure is shown on Maps S2 to S8 in the RCC PIP, which can be found on the RCC website at:

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Pages/PIP-mapping.aspx

Desired standards of service

The desired standard of service (DSS) is the standard of performance for an RW network stated in:

- for the water supply network, the *Water Supply Network Master Plan 2011* report (Redland Water, 2011);
- for the wastewater network, the *Desired Standards of Service Review - Sewerage* report (MWH, 2006).

The DSS are the technical criteria behind the design of RW's assets that allows RW to meet its customer service standards (CSS). In this respect, the DSS are not publicly reported in the same manner as our CSS are reported in our annual performance report.

This section summarises the key design criteria for the DSS for each of the RW networks.

The *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009* requires all SEQ water service providers to develop a uniform code, the *SEQ Design and Construction Code*, for the planning, design and construction of new water and wastewater infrastructure. This code is currently being prepared and once adopted, will replace the existing DSS. The review of RW DSS and subsequent network modelling will be undertaken in line the creation of the new Redland City Council town plan (expected in 2015).

12. Water supply DSS

Table 12-1 states the key DSS for RW's water supply network.

Table 12-1 – Key desired standards of service for the water supply network

DESCRIPTION OF STANDARD	STANDARD
Average day demand	(for ultimate demand): 300 L/EP/day
Minimum operating pressure	22m at the property boundary
Maximum operating pressure	60m at the property boundary
Fire flow	<u>General urban category</u> a) Residential (3 storeys and below): 15L/s (2hrs) b) Residential (>3 storey buildings): 30L/s (4hrs) c) Commercial / Industrial: 30L/s (4hrs) <u>Small community category:</u> a) Residential (up to 2 storeys): 7.5L/s (2hrs) b) Commercial / Industrial (up to 2 storeys): 15L/s (4hrs) c) All other buildings: refer to the General Urban category. <u>Background demands:</u> a) Predominately residential areas: 2/3 peak hour b) Predominately commercial / industrial: localised peak hour plus check of 2/3 peak hour

DESCRIPTION OF STANDARD	STANDARD
Maximum velocity pipeline design	2.5m/s
Drinking water quality	Comply with National Health and Medical Research Council's *Australian Drinking Water Guidelines – 2004.*

13. Wastewater DSS

Table 13-1 identifies the key DSS for RW's wastewater network.

Table 13-1 – Key desired standards of service for the wastewater network

DESCRIPTION OF STANDARD	STANDARD
Average dry weather flow (ADWF)	250L/EP/day
Peak dry weather flow (PDWF)	2 x ADWF
Peak wet weather flow (PWWF)	5 x ADWF
Gravity main flow equation and friction factor	Mannings, 'n' 0.013
Rising main flow equation and friction factor	Hazen-Williams, main diameter ≤ 300 mm, C =110 main diameter > 300 mm, C =130
Minimum velocity at PDWF	Gravity main: 0.7m/s Rising main: 0.75m/s
Maximum velocity at PWWF	Gravity and rising mains: 2.5m/s

Redland Water's network upgrades

14. Future water supply infrastructure

RW has identified future trunk infrastructure required to supply the projected water demand at the DSS. This future trunk infrastructure is consistent with regional and strategic planning undertaken by Seqwater.

Tables and maps detailing the future trunk water supply infrastructure can be found in the RCC PIP, which can be found on the RCC website at:

- PIP document including schedule of works and mapping:
  - http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/V6.1_Documents/10%2000.pdf
- PIP maps showing plans for trunk infrastructure, on Maps W2 to W8 are also shown at:
  - http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Pages/PIP-mapping.aspx

15. Future wastewater infrastructure

RW has identified the future trunk wastewater infrastructure required to service the projected wastewater demand at the desired standard of service.

Tables and maps detailing the future trunk wastewater infrastructure can be found in the RCC PIP, which can be found on the RCC website at:

- PIP document including schedule of works and mapping:
  - http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/V6.1_Documents/10%2000.pdf
- PIP maps showing plans for trunk infrastructure, on Maps S2 to S8:
  - http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Pages/PIP-mapping.aspx

Demand management

Demand management involves behavioural and technological approaches and techniques that reduce water consumption and manage wastewater sources. Key areas include the following:

- **Economic** – user pays pricing structures provide financial incentives for residents and businesses to save water;
- **Education** – community, industry and school education programs raise awareness about the need to conserve water;
- **Enforcement** – use of regulatory mechanisms and water use restrictions combined with appropriate compliance and enforcement regime to target water misuse;
- **Encouragement** – incentive schemes and targeted marketing persuade the public to increase the uptake of water-saving products;
- **Engineering** – new ways of planning and managing water and wastewater infrastructure.

16. Community relationships

Education and awareness is essential to achieve the change in attitudes and behaviours needed to reach and maintain sustainability. By creating interesting and engaging programs to empower students, teachers, residents and local businesses, the community will discover and appreciate the importance of living sustainably with water. The following table outlines a number of community education activities being undertaken by RW.

Table 16-1 – Community education activities

EDUCATION ACTIVITIES	DESCRIPTION
Linking water locally education program	This program aims to influence long-term sustainable behavioural change regarding water use through education programs that address the following aspects of water and water usage: • local water as a valuable resource; • local sources of water; • using water wisely (urban demand management). Water education curriculum for early childhood, primary schools, and middle and secondary schools. The program offers all early childhood centres and primary schools in RW's region the opportunity for a classroom presentation.
Business education program	The purpose of this program is to educate the non-residential sector on how they can save water in the workplace, meet industry standards and current legislation requirements, as well as encourage staff and visitors to engage in sustainable water use practices in their place of business. The program highlights local industries demonstrating innovation and eco-efficient water management practices via the website and at industry seminars enabling them to share ideas with others in their industry sector. The program has developed a range of brochures, stickers and fact sheets to assist businesses with water efficiency.

EDUCATION ACTIVITIES	DESCRIPTION
Community education program	The purpose of this program is to deliver messages, to raise awareness throughout the community and identify the water-saving activities that can be easily undertaken by Redlands' residents. *National Water Week* is an excellent opportunity for increasing water awareness and is a key event. Redlands' Redfest/ Indigi (world environment day) and national water week are national events to distribute RW's key messages. Another education initiative is the recycled water training program. This program provides RW staff, recycled water private irrigators and tanker drivers with training on all aspects of workplace health & safety (WHS) practices when working with recycled water.

17. Residential programs

Residential programs are aimed at assisting residential customers to become aware of their consumption and provide awareness of acceptable wastewater disposal practices. Programs are designed to provide both short and long term benefits. Key initiatives and programs include:

- residential high water users program (refer to **24.4 Residential high water users program**);
- leak awareness program;
- advisory field service program;
- providing additional educational information for residential customers.

These programs are subject to the water security situation in SEQ.

18. Commercial programs

Commercial programs are aimed at supporting mandatory and voluntary campaigns that influence the behaviour and technology practiced by non-residential customers in delivering best practices in water conservation and sustainability in commercial and industrial environments. Programs are designed to provide both short and long term benefits. Key initiatives and programs include:

- in-house capabilities for providing water conservation audit and consulting services;
- enhanced customer relationship management for non-residential customers;
- research and identification of industry based 'best practice' and technology;
- ongoing contribution and collaboration with the State Government in policy decisions.

These programs are subject to the water security situation in SEQ.

19. Compliance

RW works closely with regulatory bodies to protect its infrastructure and ensure the community is aware of the current water-saving initiatives and regulations in the region. RW carries out investigations and audits around the following matters:

- permanent water conservation measures;
- theft of water;

- misuse of fire services;
- illegal water connections;
- damage to service providers' infrastructure;
- auditing of recycled water carriers;
- auditing of potable water carriers;
- illegal discharge to wastewater.

20. Wastewater source management

Wastewater source management concerns the quality of influent entering the WWTPs. Such influent includes sources from trade waste generators, illegal discharges, seawater infiltration, stormwater infiltration, domestic contributions, tankering operations and any other sources that may pose a risk to infrastructure and the environment.

RW's wastewater source management is based on the Water Services Association of Australia (WSAA) *National Wastewater Source Management Guidelines (WSMG) 2008* and RW's existing environmental management plan.

Connections policy

RW is responsible for the provision of water and wastewater services to customers throughout the Redland local government area. This connections policy outlines the process of connecting to, disconnecting from, or changing a connection to an RW network.

Connecting to, or changing a connection to an RW network typically involves the following processes:

- obtaining all necessary approvals for development from Council;
- making an application to RW for a service connection.

It is recommended that prior to making an application for development, early discussion with RW be initiated to determine the feasibility and cost of providing a service connection. Costs may include infrastructure charges, network contributions and network connection charges. This is particularly relevant where the development to be connected is located outside of the network's existing connection area.

Subsets of this connection policy are:

- POL-3054 Water Main Extensions Request from Resident;
- POL-3055 Provision of Wastewater House Connection;
- POL-3058 Wastewater Main Extensions for Commercial Properties and Multi-Unit Dwellings at Point Lookout;
- POL-3059 Wastewater Main Extensions Request from Resident.

These policies can be found at the RCC website:

http://www.redland.qld.gov.au/AboutCouncil/Policies/Pages/Policies.aspx

21. Redland Water's connection areas

RW is responsible for the provision of water and wastewater services to consumers throughout the Redland local government area via the following infrastructure networks:

- water supply network;
- wastewater network.

RW guarantees a connection to premises located in the existing connection area for a particular network (either water supply or wastewater), where it is technically feasible. Connection to a network is not guaranteed for any premises inside the future connection areas. The existing connection area for a network includes all premises which are levied a network service charge. Under the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009,* RW must review the existing connection area for each of its networks on an annual basis.

As well as the existing connection area expanding as new properties are connected to RW's networks, the connection areas will expand as planning progresses which identifies areas of the city that are able to connect to the wastewater network using a low pressure sewerage system – refer to **23.6 Application for low pressure sewer system connections and** disconnections.

The following sections outline the existing connection area for each RW network.

21.1 Water network

The connection areas for the water network are identified on the following maps in Appendix A – Water supply connection area maps:

Maps 1 to 5 inclusive – Water Supply connection areas:

Within the existing water connection area most premises are provided with the standard level of service.

21.2 Wastewater network

The connection areas for the wastewater network are shown on the following maps in Appendix B – Wastewater Connection area maps:

Maps 1 to 5 inclusive – Wastewater connection areas:

Within the existing wastewater connection area most premises are provided with a connection to the RW gravity collection system. For some areas within the connection areas, a low pressure sewer connection will be permitted. For more information regarding the policy for connection to the low pressure sewer system, please refer to Section 23 below.

22. Obtaining approvals for development

22.1 Development requiring approval

Where a development to be connected is not an existing lawful use, self-assessable or exempt development, necessary development, building and plumbing approvals will need to be obtained from RCC prior to making an application to RW for a service connection.

The following types of development require approval:

- reconfiguring a lot;
- material change of use;
- carrying out operational work;
- carrying out of building work;
- regulated plumbing or drainage works.

22.2 Typical development conditions imposed by Redland Water

RCC will coordinate with RW to obtain its written consent for the development as part of the assessment process. RW will assess the application having regard to potential impacts on the water and wastewater networks. This may result in RW requesting conditions be included on the development approval or compliance permit. These conditions may require infrastructure to be provided at the applicant's cost to enable the development to be connected to the network. Typical conditions include the following:

- applicant to provide new and upgraded infrastructure for the purpose of connecting the development to an RW network. This may include the provision of infrastructure external to the premises;
- applicant to pay all costs associated with providing infrastructure required to connect development to an RW network – subject to the requirements of the subset policies referred

to above. This includes additional costs associated with extending, upgrading or re-aligning an RW network;

- applicant to pay the cost of RW connecting the new and upgraded infrastructure to the live network;
- applicant to pay the cost of RW installing new service connections and meters to the premises;
- applicant to design and construct any water and wastewater infrastructure in accordance with RW's DSS and *SEQ Design and Construction Code*, and its design and construction standards;
- applicant to seek further approvals from RW such as trade waste approval where relevant.

In order to fulfil these conditions of approval, the applicant will, in most instances, need to make a subsequent application for a service connection(s).

23. Making an application for a service connection

Application can be made to RW to connect to or change a connection to an RW network for development that is:

- an existing lawful use;
- an exempt development; or
- a development having the necessary development, building and plumbing approvals.

Where an application to connect or change an existing connection to an RW network does not require the extension or upgrading of network infrastructure, the applicant will only be required to make application for a service connection. Most minor development within the relevant existing connection area will only require this type of application.

However, where an application to connect requires the applicant to extend or upgrade network infrastructure, an application will also need to be made to connect this extended or upgraded infrastructure to the live network. This is necessary to ensure the infrastructure complies with RW specifications.

Table 23-1 provides a summary of the application forms to connect development to the water and wastewater networks.

Table 23-1 – Redland Water application forms

SERVICE TYPE	APPLICATION FORM LINK
Water supply	http://www.redland.qld.gov.au/FormsPermits/FormsDownload/Documents/Water/FCSRW004%20Water%20-%20Connection%20Relocation%20Disconnection.pdf
Wastewater	http://www.redland.qld.gov.au/FormsPermits/FormsDownload/Documents/Water/CSRW005%20Waste%20Water%20connection.pdf
Discharge of trade waste	http://www.redland.qld.gov.au/FormsPermits/FormsDownload/Documents/Water/CSRW003%20Trade%20Waste.pdf

23.1 General considerations

When considering an application for a service connection, regard will be had to any infrastructure agreement or conditions of development approval concerning infrastructure and whether that agreement or conditions of approval have been fulfilled. Regard will also be had to any outstanding infrastructure charges applicable to the premises.

A further important consideration for RW will be whether the premise is located inside or outside the existing connection area for that network. This concept is explained in the following subsections. The existing connection area for each network is identified in Section 21 of this *Water Netserv Plan*.

23.2 Premises inside the existing connection area

RW guarantees a service connection for premises within the existing connection area of that RW network, where it is technically feasible to be served. The process for making application for a service connection to each of the RW networks is discussed in the remainder of Section 23.

Subject to the provisions of RCC policies POL-3054, POL-3055, POL-3058 or POL-3059, the applicant will be required to pay all costs associated with the connection as part of the connection agreement.

For premises inside the wastewater network low pressure sewerage connection area, RW will allow a premise to connect a low pressure sewerage system to the existing gravity collection system.

23.3 Premises outside the existing connection area (including future connection areas)

RW may agree to a service connection for a premise located outside an RW network's existing connection area, including the future connection areas. The process for making an application is the same as that outlined in the remainder of Section 23, however in considering the application, RW will have regard to the following additional matters:

- the proximity of the premise to the RW network;
- the technical feasibility of providing a connection;
- the capacity of the RW network infrastructure to service the premise;
- any future RW infrastructure planned to be provided in that area and the timeframe for its provision.

If RW agrees to a service connection for the premises, and subject to the provisions of RCC policies POL-3054 (Water Main Extensions Request from Resident), POL-3055 (Provision of Wastewater House Connection), POL-3058 (Wastewater Main Extensions for Commercial Properties and Multi-Unit Dwellings at Point Lookout) or POL-3059 (Wastewater Main Extensions Request from Resident), the applicant will be required to pay all costs associated with the connection. This may include additional costs for the extension, upgrading and/or re-aligning of the RW network. Other matters may also be negotiated between the applicant and RW.

Where the premise is an existing lawful use outside the existing connection area and has not previously paid infrastructure charges or made an infrastructure contribution, RW may require a network contribution (infrastructure charge) to be made for the premise as part of the service connection charge.

23.4 Application for water connections and disconnections

Where a proposal does not involve the applicant extending, upgrading or re-aligning the water network, applications for connecting to, disconnecting from, or changing a connection to the water network can be made by lodging the relevant forms with RW – refer to **Table 23-1**. These forms are also available from Council's Customer Service team.

The applicant will be required to pay the cost of the connection upon lodgement of the application form. Information concerning the cost of the connection is provided in the "Redland Water's charges**"** section of this *Water Netserv Plan*. If RW agrees to a new service connection or a change to an existing service connection for the premise, the connection will be installed by RW in accordance with its DSS and the *SEQ Design and Construction Code.*

If a premise no longer requires a water connection, RW may agree to disconnect the existing service and remove the meter from the premise. Fixed water supply charges will still apply. A quotation for the disconnection may be obtained from RW by checking its fees and charges schedule or contacting Council's Customer Service team.

Where a proposal also involves the applicant extending, upgrading or re-aligning the water network, an application to RW for a connection of those works to the live network may also be required. The applicant will be required to pay the quoted costs for the connection upon lodgement of the application form (refer to **Table 23-1**). All infrastructure is to be constructed in accordance with RW's DSS and the *SEQ Design and Construction Code.*

23.5 Application for wastewater connections and disconnections

Where a proposal does not involve the applicant extending, upgrading or re-aligning the wastewater network, applications for connecting to, disconnecting from, or changing a connection to the wastewater network can be made by lodging a wastewater connection form with RW – refer **Table 23-1**. These forms are also available from Council's Customer Service team.

The applicant will be required to pay the cost of the connection upon lodgement of the application form. Information concerning the cost of the connection is provided in the "**Redland Water's** charges**"** section of this *Water Netserv Plan*. If RW agrees to a new service connection or a change to an existing service connection for the premise, the connection will be installed by RW in accordance with its DSS and the *SEQ Design and Construction Code.*

If a premise no longer requires a wastewater connection, the pipe connecting to RW's wastewater main must be disconnected. Property owners can request a quotation for RW to carry out this work by contacting RCC's Customer Service team. Fixed wastewater charges will still apply to the premise.

Where an application also involves the applicant extending or upgrading the wastewater network, an application for a connection of those works to the live network may also be required. The applicant will be required to pay the quoted costs for the connection upon lodgement of the application form.

23.6 Application for low pressure sewer system connections and disconnections

Where an application also involves the applicant extending or upgrading the wastewater network by connection of a property to the wastewater network by a low pressure sewer system, an application for a connection of those works to the live network including the provision of an approved discharge manhole plus the proposed low pressure sewer system extension will be required. The applicant will be required to pay the quoted costs (subject to the provisions of RCC policies POL-3055 (Provision of

Wastewater House Connection), POL-3058 (Wastewater Main Extensions for Commercial Properties and Multi-Unit Dwellings at Point Lookout) or POL-3059 (Wastewater Main Extensions Request from Resident), for the connection upon lodgement of the application form.

All infrastructure is to be constructed in accordance with RW's DSS and the *SEQ Design and Construction Code* – with particular reference to the low pressure sewer code Appendix G.

As part of the approval of the system, the applicant will need to gain RCC approval for the internal (inside property boundary) plumbing work. This approval will require submission of a 12-monthly audit program of the on-site infrastructure plus an annual call-out maintenance agreement.

If a premise no longer requires a wastewater connection, the pipe connecting to RW's wastewater main must be disconnected. Property owners can request a quotation for RW to carry out this work by contacting Council's Customer Service team. Fixed wastewater charges will still apply to the premise.

23.7 Filling stations

A permit to draw water in bulk from RW's water mains may be obtained by:

- *domestic water carriers* that operate potable water tankers for the delivery of water for domestic purposes. Domestic water carriers must be a registered business and hold a current permit to draw water under the *Food Act 2000* as well as a backflow certificate before they can obtain a permit. Domestic drinking water can only be obtained from an approved potable water filling location.

Permits will comprise a pre-paid swipe card for access to the authorised filling station locations. More details can be found on RCC's website or by contacting RCC's Customer Service team.

23.8 Metered standpipes

Under exceptional circumstances, metered standpipes may be hired to draw water in bulk directly from RW's water mains under the following conditions:

- *water users* use potable water directly from RW's water mains;
- *water users* must be a registered business;
- *water users* hold an approved RW permit;
- *water users* will require a backflow certificate for backflow protection.

Prior to applying for a metered standpipe, it is recommended that the applicant read RW's conditions which can be found at:

http://www.redland.qld.gov.au/FormsPermits/FormsDownload/Documents/Water/CSRW003%20Trade%20Waste.pdf

This document is also available from RCC's Customer Service team.

Applications to hire a metered standpipe can be made by lodging a permit to draw water form with RW.

http://www.redland.qld.gov.au/FormsPermits/FormsDownload/Documents/Water/CSRW007%20Permit%20to%20draw%20water.pdf

This form is also available from RCC's Customer Service team.

If the application is successful, RW will issue a permit to the applicant upon payment of the relevant hire rates and charges (see the "**Redland Water's charges**" section this *Water Netserv Plan*). RW

shall approve and control the access to customers for this purpose as well as ensuring its use will not have any detrimental effect on the water network or disadvantage other customers in any way.

23.9 Trade waste approvals

All businesses that generate trade waste and discharge it to the wastewater network must have a current trade waste approval from RW. Discharging waste to RW's wastewater network without approval is illegal and can incur penalties. The trade waste approval stipulates the conditions for discharging trade waste into the wastewater network. The approval is issued to the waste generator and property owner and is not transferable.

RW also operates a waste tracking program to monitor the regular removal and disposal of waste from grease traps and other industrial holding tanks. The trade waste approval granted by RW stipulates how often the grease trap must be cleaned out. Trade waste approval holders are issued with a docket book that must be given to the licensed liquid waste disposal contractor when the grease trap is emptied. These provide information back to RW to verify that the grease trap has been emptied and record the volume of waste that was disposed. All businesses that generate trade waste and discharge it to the wastewater network must have a current RW trade waste approval. Discharging waste to RW's wastewater network without approval is illegal and can incur penalties.

An application for a trade waste discharge approval can be made by lodging a discharge of trade waste form. Applicants must ensure that all development approvals (e.g. development application, plumbing and drainage approval etc.) have been obtained from RCC prior to lodging the application for approval to discharge trade waste with RW. The application form can be found at:

http://www.redland.qld.gov.au/FormsPermits/FormsDownload/Documents/Water/CSRW003%20Trade%20Waste.pdf

This form is also available from RCC's Customer Service team.

24. Conditions of use

Connection to the RW network is subject to a number of conditions concerning the conservation of water and the protection of RW's infrastructure. Customers are required to comply with these conditions. Penalties may be incurred if the conditions of use are not met.

24.1 Infrastructure construction standards

All infrastructure to be connected to RW networks is to be constructed in accordance with RW's DSS and the *SEQ Design and Construction Code*. The *SEQ Design and Construction Code*, is a uniform code for the planning, design and construction of new water and wastewater infrastructure across SEQ.

24.2 Water restrictions

In times of drought, water restrictions may be imposed across SEQ. RW residents and businesses are required to comply with any such restrictions that may come into force from time to time.

24.3 Permanent water conservation measures

The former QWC introduced permanent water conservation measures as of December 2009 for all SEQ council areas. Permanent water conservation guidelines for residents are as follows:

- existing gardens and lawns cannot be watered on Mondays or between 10am and 4pm on any other day as this is the hottest part of the day and the highest evaporation period;
- outside these hours, gardens and lawns can be watered using a bucket, watering can, hand-held trigger nozzle hose or an efficient sprinkler or efficient irrigation system;
- new gardens and lawns can be watered at any time on the day they are established;
- cleaning vehicles, buildings and equipment must be undertaken efficiently using a bucket, hand held trigger nozzle hose or a high pressure cleaner;
- town water cannot be used to clean paths and driveways, except where they are significantly dirty, or it poses a risk to health, safety or the environment;
- new swimming pools and spas can be filled with town water, but efficiency measures will continue to apply when topping up pools and spas;
- pets can be washed with a hand-held hose and town water can be used for drinking water;
- a hand-held hose, bucket or high pressure water cleaning unit can be used on residential construction sites;
- rainwater tanks cannot be filled or topped up with water from the tap or from a water tanker which has been filled using the town water supply (some exceptions apply).

These restrictions were lifted on 1 January 2013.

24.4 Residential high water users program[6]

RCC monitors high usage to help control domestic water consumption by issuing high consumption alert letters to Redland residents to help them monitor their consumption and alert households of leaks.

24.5 Water efficiency management plans

WEMPs assist businesses to:

- account for water use in a business or other non-residential premises;
- identify water-saving measures that can be readily applied to a business or other non-residential premises;
- prepare a plan for implementing the water-saving measures including timelines for their completion.

The requirement for a WEMP for large water using businesses was also lifted by the Queensland government on 1 January 2013.

24.7 Building near or over services

Protecting the integrity of the water and wastewater network, as well as being able to undertake repair and maintenance activities, is critical to our business operations. The *Queensland Development Code* called '*MP1.4 - Build Over or near relevant infrastructure*' came into force on 1 November 2013 and is intended to reduce the potential for adverse affects on our infrastructure.

In general RW requires:

[6] Information in Sections titled **24.4 Residential high water users** program and **24.5 Water efficiency management** plans is subject to change.

- building work near or over a water or wastewater main to not interfere with or adversely affect the function of the service or place any additional load on the service;
- adequate access must be provided to the mains for future maintenance;
- adequate access must be provided and maintained to access covers;
- adequate access must be provided and maintained to wastewater connection points.

24.8 Discharge of stormwater into the wastewater network

It is the property owner's responsibility to ensure that stormwater is not discharged into the wastewater network. This can cause flooding of the system during periods of rainfall leading to overflows of wastewater into properties further downstream. Possible sources of stormwater inflow can include:

- illegal connection of roof downpipes into the wastewater network (especially carports, patio covers and extensions added after the house was originally constructed);
- illegal connection of garden drains and "agi" pipes from behind retaining walls into the wastewater network;
- concreting, paving or turfing up to the level of the overflow relief gully (ORG) that allows stormwater runoff to enter the wastewater network;
- inadequate allotment drainage that leads to flooding of the allotment and inundation of the ORG during heavy rain.

RW regularly conducts smoke and dye testing in areas known to suffer from wet weather wastewater overflows.

24.9 Overflow relief gullies

An ORG is a drain-like fitting located outside the home, designed to release any wastewater overflow outside of the home in the event of a blockage in the wastewater main. If a blockage does occur, the ORG fitting should pop off to release the pressure and direct any wastewater away from the home.

The ORG must be installed at a level that is at least 150mm lower than the lowest drain inside the home, particularly the shower, toilet and any laundry or bathroom floor drains. The ORG must also be installed at least 75mm above the surrounding ground level to ensure stormwater does not flow into the wastewater network via the ORG. It is the property owner's responsibility to ensure that their home is fitted with a properly installed and operational ORG.

24.10 Wastewater reflux valves

A reflux valve is a one-way flap valve that is fitted to a property's private wastewater drainpipe to prevent any backflow from the wastewater mains due to overloading. RW's wastewater network is designed to cater for predicted normal wastewater flows, plus a margin for additional flow during wet weather conditions caused by stormwater finding its way into the system. Stormwater can enter the wastewater network via illegal connections, stormwater flooding over the top of manholes or infiltration of groundwater through cracks in the pipes.

RW installs reflux valves in properties that have experienced, or may experience problems with wastewater backing up from the mains and overflowing within the property during periods of heavy rain. If the wastewater main starts to back up, the flap valve will be pushed closed by the flow coming up the pipe to protect the property from an overflow.

It is important to note, however, that when the flap valve is pushed closed it cannot release any wastewater from the property until the back pressure has subsided. Occupiers of properties with reflux valves fitted must therefore avoid running showers, washing clothes or dishes, and flushing toilets during this period to prevent an overflow within the property. The installation of reflux valves is therefore a temporary measure to protect properties from wastewater overflows until RW can implement a long term solution.

Redland Water's charges

To provide its products and services, as well as to fund the development, operation, maintenance and replacement of infrastructure, RW collects the following charges from its customers:

- **residential and non-residential charges** are collected from customers within the existing connection areas (see the **Redland Water's connection areas** section of this *Water Netserv Plan*) regardless of whether they are physically connected to the network. These charges relate to the costs of providing the products and services, and for maintaining the networks;
- **connection charges** are collected from customers seeking a connection to, disconnection from, or a change to a connection to an RW network. These charges relate to the costs of constructing connection infrastructure between the existing network and the customer's property boundary. A connection charge may include a network contribution charge. This charge is collected from customers that seek connection of an existing lawful use located outside the existing connection area to either the water or wastewater network, and where no infrastructure charges have previously been collected for that development for the network;
- **infrastructure charges** are collected from customers undertaking development that creates an additional demand for water and wastewater infrastructure.

25. Residential charges

The following table outlines the charges to RW's residential customers.

Table 25-1 – Residential charges

COMPONENT	DESCRIPTION
Fixed water access charge	The fixed water access charge is levied on premises within the existing water connection area regardless of whether there is a physical connection to the water network. The charge is levied in advance and is a fixed price regardless of the volume of water consumed.
Water consumption charge	The water consumption charge is calculated on the number of kilolitres (1,000 litres) of water consumed and is based on a reading from the premise's water meter. Unlike the fixed water access charge, this charge is levied after the water is used, not in advance. The water consumption charge includes the cost of purchasing bulk water from the State Government's Seqwater and then delivering this water to customers.
Fixed wastewater access charge	The fixed wastewater service charge is levied on premises within the existing wastewater connection area regardless of whether there is a physical connection to the wastewater network. The charge is levied in advance and is a fixed price regardless of the volume of wastewater discharged.

The current service charges for residential customers, which apply until the end of the financial year, are detailed in RW's pricing fact sheets available from Council's Customer Service team or on the RCC website at:

http://www.redland.qld.gov.au/AboutCouncil/Budget/Documents/ScheduleOfFeesAndCharges2014-15.pdf; and

http://www.redland.qld.gov.au/AboutRedlands/FactSheets/Documents/Redland%20Water/FS506%20Residential%20Water%20and%20Wastewater%20Charges%202014-2015.pdf

http://www.redland.qld.gov.au/AboutRedlands/FactSheets/Documents/Redland%20Water/FS504%20Wastewater.pdf

RW will publish details of proposed charges for the next financial year in relevant newspapers and on the RCC website by 30 June. Fees and charges will be available on this page:

http://www.redland.qld.gov.au/EnvironmentWaste/Water/Pages/Redland-Water.aspx

26. Non-residential charges

The following table outlines the charges to RW's non-residential customers.

Table 26-1 – Non-residential charges

COMPONENT	DESCRIPTION
Fixed water access charge	The fixed water access charge is levied on premises within the existing water connection area regardless of whether there is a physical connection to the water network. The charge is levied in advance and is based on the size of the water meter (mm).
Water consumption charge	The water consumption charge is calculated on the number of kilolitres (1,000 litres) of water consumed and is based on a reading from the premise's water meter. Unlike the fixed water access charge, this charge is levied after the water is used, not in advance. The water consumption charge includes the cost of purchasing bulk water from the State Government's Seqwater and then delivering this water to customers.
Fixed wastewater access charge	The wastewater service charge is levied on premises within the existing wastewater connection area regardless of whether there is a physical connection to the wastewater network. The charge is levied in advance and is a fixed price regardless of the volume of wastewater discharged.
Wastewater pedestal charge	This charge is calculated based on the number of pedestals installed in each property.
Trade waste charge	This charge applies to customers that operate commercial premises, industry, trade or manufacturing businesses that discharge liquid waste to the wastewater network other than domestic wastewater. The charge will be calculated based on access, volume, strength and quantity considerations.
Metered standpipes	This charge applies to customers hiring metered standpipes. The metered standpipe charge comprises the following components: • monthly hire charge and security deposit; • water consumption charge.
Filling stations	This charge applies to customers using RW's designated filling stations. The charge comprises the following components: • annual permit fee; • regular top-up arrangement (similar to go-card).

The current service charges for non-residential customers are stated in RW's pricing fact sheets available from Council's Customer Service team or RCC website at:

http://www.redland.qld.gov.au/AboutRedlands/FactSheets/Documents/Redland%20Water/FS507%20Non%20Residential%20Water%20and%20Wastewater%20Charges%202014-2015.pdf

RW will publish details of proposed charges for the next financial year in relevant newspapers and on the RCC website by 30 June. Fees and charges will be available on this page:

http://www.redland.qld.gov.au/EnvironmentWaste/Water/Pages/Redland-Water.aspx

27. Rebates/remissions

RCC offers remissions in some situations as detailed below:

27.1 Remission for water leakage (concealed leaks)

RW is responsible for repairing leaks to the water mains up to and including the water meter which, in most cases, is located just inside the front boundary of the property. The property owner is responsible for repairing water leaks past the meter.

In cases where a concealed water leak has been found past the meter (within the property) and has been subsequently repaired by a licensed plumber, the property owner can lodge an application to RW to claim relief from the water consumption charges. The leakage relief is in the form of a partial refund of the charges. In all cases, the property owner is responsible for paying for the repairs.

Applications for leakage relief may only be lodged for leaks in the main supply pipe from the water meter to the building. Leaks found in internal plumbing, toilets, showers, hot water systems and swimming pools, in some cases, may be assessed on a case-by-case basis for water leakage rebates.

Please refer to RCC's policy on remissions for water leaks which can be found at:

http://www.redland.qld.gov.au/AboutCouncil/Policies/Documents/Concealed%20Leaks%20Policy%20-%20POL-2592.pdf

]27.2 Rebate for fire-fighting

The *Water Supply (Safety and Reliability) Act 2009* states that RW cannot charge for water used for fire-fighting purposes. In the event that water from a premise is used for fire-fighting purposes, the property owner can lodge an application in the form of a letter to RW for a rebate stating:

- name/s of the property owner/s;
- address of property owner/s;
- telephone numbers, home and work;
- real property description of the property for which the rebate is being claimed;
- address of property for which the rebate is being claimed;
- type of property, i.e. residential, commercial, industrial;
- details of the fire and its location;
- proof in accordance with RW's policy that a fire occurred such as:
  - written confirmation from the Fire Brigade;
  - a statutory declaration from the owner;
  - confirmation from an RW officer following a visual inspection;

- the type of installation from which the water was drawn, i.e. hose, fire hose, hydrant;
- the actual or estimated quantity of water that was used.

28. Connection charges

The section **Making an application for a service connection**, of this *Water Netserv Plan* outlines the process of connecting to, disconnecting from, or changing a connection to an RW network. For standard works such as short-side water connections, customers can refer to the following fees and charges schedule to determine the applicable cost.

http://www.redland.qld.gov.au/AboutCouncil/Budget/Documents/ScheduleOfFeesAndCharges2014-15.pdf

Alternatively, a quotation for these works may be obtained from RW by contacting Council's Customer Service team.

Where a customer seeks connection of an existing lawful use located outside an existing connection area to either the water or wastewater network, and no infrastructure charges or infrastructure contributions have previously been collected for that development for the network, the connection charge may also include a network contribution charge. A network contribution charge will be calculated having regard to the relevant adopted infrastructure charges resolution.

29. Infrastructure charges

RW may levy an infrastructure charge on any development that places additional demand on its water and wastewater networks. The amount of the charge levied must be in accordance with the relevant adopted infrastructure charges resolution. An adopted infrastructure charges resolution has been prepared for the Redland local government area. Further information regarding the adopted infrastructure charges resolution can be obtained from RCC's Customer Service team or RCC's website.

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Pages/Infrastructure-charges-2011.aspx

Redland Water's performance reporting

In order to achieve effective outcomes for the provision of water and wastewater services, RW sets high service standards that are consistent with RCC's corporate vision and commitment to its community.

30. Annual performance plan

RW's RCC-approved annual performance plan details how we plan to meet our customers' needs. It covers issues such as:

- customer service standards (including maintenance and service level goals);
- customer advice; and
- stakeholder feedback.

31. Key performance indicators

Key performance indicators (KPIs) in RW's performance plan are directly related to the quality and capacity of its network. Actual performance against these standards is presented in RW's annual report and is regulated by the appropriate authority. Details of RW's performance can be found in the annual reports located at:

http://www.redland.qld.gov.au/AboutCouncil/AnnualReport/Pages/default.aspx

32. Customer contact standards

RW has developed a Customer Service Charter which outlines its commitments to its customers, community and environment. A copy of the Customer Service Charter can be found at:

http://www.redland.qld.gov.au/EnvironmentWaste/Water/Documents/8206-rw-customer-charter.pdf

RCC operates a specialised Customer Service team for handling enquiries, faults and complaints in a prompt, knowledgeable, consistent and friendly manner. Customers can contact them via phone, email and in writing. The Customer Service team operates between 8:30am and 5.00pm on normal business days.

Customers are able to report service faults or concerns in relation to the water and wastewater networks (water quality, wastewater odours, system leakages, environmental overflows etc.) to Council's Customer Service team at any time 24 hours per day, 7 days per week. Calls made after normal business hours on weekdays, as well as those made on weekends and public holidays, are automatically routed to RCC's 24-hour after hours service.

RW also maintains a website which contains comprehensive information in relation to all facets of the business, as well as various forms required to be completed by customers.

33. Customer complaints

Customer complaints may include the provision of negative feedback or an expression of dissatisfaction in relation to business dealings, policy decisions, actions undertaken or the failure to perform certain actions. A complaint is not the same as a request for service, a request for

information or an enquiry seeking clarification of an issue. Examples of matters that are not classified as complaints include:

- a request for service or assistance with clarification on a matter;
- an enquiry into the progress of a water meter connection;
- a request to take action on a leaking water pipe or any other service fault;
- an inquiry to seek clarification or further information about a bill.

When customers contact RW with a complaint, they can expect to:

- be treated with courtesy and respect;
- receive appropriate support where special needs are identified, e.g. interpreters etc;
- be provided with a reference number for any future enquiry or follow-up;
- be kept informed of the process and outcome;
- have their complaint and personal details kept confidential;
- have the matter investigated thoroughly and objectively;
- receive an outcome for resolution within 10 to 20 working days, depending on the complexity of the complaint.

RW's approach when dealing with complaints allows for fair and detailed consideration. RW handles complaints based on the seriousness/complexity of the complaint. This allows a review process to occur should a complainant not be satisfied with the result. Performance targets require > 90% of complaints to be resolved by RW within 20 days.

Redland Water's bills

This section of the *Water Netserv Plan* outlines the billing arrangements in relation to service charges, connection charges and infrastructure charges.

34. Services

The following table outlines the key components in relation to bills issued for service charges for residential and non-residential customers.

Table 34-1 – Key bill components

COMPONENT	DESCRIPTION
Meter reading	Meter readings are used to calculate consumption charges that appear on the RW bill. Water meters are read quarterly. This is undertaken on a rolling basis across the city. In most cases the water meter is located inside the property and RW's meter reader will enter the property to take the reading. If their officers cannot read the meter (e.g. locked gates, a dog, etc.), RW will contact the customer via a self-read card to obtain a reading. Where a reading cannot be obtained, an estimate of the property's water consumption will be applied. Estimates are based on the property's historical water consumption. Meter accuracy reduces with age or usage. If the water meter is found to have stopped or is damaged, an estimate of the property's water consumption may be applied based on historical consumption. RW runs a program of meter replacement that accounts for the age of the meters they own and operate. When a water meter is replaced, the final reading is recorded for billing prior to the new meter being installed.
Water summary details	The following details will appear on an RW summary that accompanies the RCC rates notice: • the date of issue; • the customer's postal address, account number and the address of the property to which the charges apply; • the date the water meter was read, or if an estimate was made, a clear statement that an estimate was made; • the amount the customer is required to pay; • the date by which the customer is required to pay; • RW's telephone contact details; • the daily rate of drinking water usage at an individually metered property for the current reading period, including a graph showing current drinking water usage, as well as usage over each period of the previous 12 months and a comparison of usage for the same period for the previous year; • state government bulk water kilolitre usage.
Bill frequency	RW's billing occurs on a quarterly basis. Redland customers receive their water and wastewater bill as part of their rates notice.
Bill payment	There are many methods for accepting payment, including by mail, direct debit, BPAY and by telephone. The specific payment options can be viewed on the RCC website.

COMPONENT	DESCRIPTION
Late bill payment	RW will apply 11% interest per annum to all bills that have not been paid within 30 days of the date of issue. Interest is compounded daily.
Payment arrangements	RW recognises some customers may experience financial hardship (often due to circumstances beyond their control) which could affect their ability to meet the payment terms for their water and wastewater accounts. RCC provides assistance to customers experiencing difficulty in paying their account by way of a payment arrangement. A customer's eligibility to receive assistance under these provisions is contained within the current RCC hardship policies: http://www.redland.qld.gov.au/AboutCouncil/Policies/Documents/Collection%20of%20Rates%20and%20Charges%20and%20other%20Revenues%20-%20POL-2801.pdf http://www.redland.qld.gov.au/AboutCouncil/Policies/Documents/Council%20Pensioner%20Rebate%20-%20POL-2557.pdf http://www.redland.qld.gov.au/AboutCouncil/Policies/Documents/Exceptional%20Circumstance%20Waiver%20-%20POL-3114.pdf http://www.redland.qld.gov.au/AboutCouncil/Policies/Documents/Pensioner%20General%20Rate%20Deferral%20-%20POL-2556.pdf
Restriction of service	As a last resort, RW may restrict the water supply to a property when the property owner refuses to pay the required charges. By law, the water supply may be reduced to the minimum level required for the health and sanitation of the occupier but not completely shut off. We will not restrict your water supply: • without explaining alternative payment options; • without giving the chance to get benefit or concessions; • if there is a dispute about the amount owing; • if the customer is a tenant and the landlord is responsible for the debt; • if the customer has proven financial hardship; • if the customer needs water for a life support machine or other special needs; • if the restriction will cause a health hazard having taken into consideration any customer concerns. Resumption of unrestricted supply will be prompt when the reason for the restriction no longer applies.

Additional information concerning the following items can be obtained by contacting RCC's Customer Service team or can be downloaded from RCC's website:

- special meter readings;
- sub-metering of multi-unit developments;
- meter accuracy testing;
- water consumption advice notices;
- fee for service items, such as:
  - water and wastewater laboratory testing services;

- private works (installation and maintenance services).

35. Trade waste

Trade waste accounts are issued quarterly and include the base charge for the current financial year together with conveyance and treatment charges.

36. Metered standpipes and filling stations

A bond is required to be paid for short or long-term hire of a metered standpipe. Quarterly readings are obtained from the hirer. Metered standpipe hire and consumption charges are invoiced quarterly.

An annual permit fee is required for a filling station application. Potable water and recycled water consumption volumes are billed up front in order to issue an access card to tanker drivers. Potable water filling stations are located in 2 separate areas across the city and recycled water from a designated WWTP.

37. Connections

RW will provide a written quotation for connections to, disconnections from, or changes to a connection to an RW network. The applicant will be required to pay all charges associated with the connection including any network contribution charge prior to RW scheduling the works.

38. Infrastructure charges

Infrastructure charges may only be levied by giving a person an adopted infrastructure charges notice. RCC issues the infrastructure charges notice to the person with a development approval or compliance permit, inclusive of the charges for water and wastewater infrastructure.

Development assessment

Development assessment (DA) refers to the way RW receives, manages and decides development applications made under the *Sustainable Planning Act 2009*. This section of the *Water Netserv Plan* outlines how RW handles DA.

When this *Water Netserv Plan* comes into force, RW will maintain its delegation of DA functions to RCC's City Planning & Assessment Group. Close interaction between the assessment officers in the assessment teams and RW staff in both the planning and operational areas will be maintained through weekly application review meetings and constant involvement from RW staff in complex and large development applications.

This option provides better end results for the development applicants as legislated timeframes are more easily met and better coordination of essential service provision is maintained in developments approved in the RCC area.

The delegation of assessment tasks to RCC also extends to the calculating of infrastructure charges associated with trunk water and wastewater infrastructure provision. This enables efficient and accurate processing of all development responses under a "one-stop-shop" philosophy.

To summarise, the functions that RW as a water service provider delegates to RCC are:

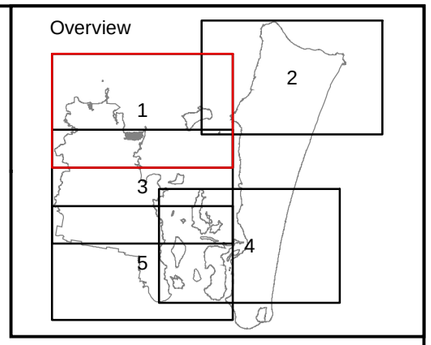
- DA receipting;
- information requests;
- DA decision making;
- negotiated decision requests;
- infrastructure charge notice preparation, collection and receipting;
- compliance inspections.

Appendices

Appendix A – Water supply connection area maps
Appendix B – Wastewater Connection area maps
Appendix C – Water supply trunk network plans
Appendix D – Wastewater trunk network plans

Appendix A – Water supply connection area maps

Water supply



THORNESIDE
WELLINGTON POINT
BIRKDALE
ORMISTON
ALEXANDRA HILLS
CAPALABA
CLEVELAND
THORNLANDS
PEEL ISLAND
DUNWICH
Rickertt Road
Quarry Road
Birkdale Road
Collingwood Road
Pitt Road
Main Road
Starkey Street
Old Cleveland Road East
Sturgeon Street
Allenby Road
Mcdonald Road
Old Cleveland Road
Moreton Bay Road
Finucane Road
Windemere Road
Shore Street West
Shore Street West
Passage Street
Long Street
Bloomfield Street
Wellington Street
Redland Bay Road
Ney Road
Vienna Road
South Street

Legend

- Property Boundaries
- Water Connection Area
- Future Water Connection Area

0 0.5 1 2 3 4 Kilometers

Scale: 1:60,000 @ A3

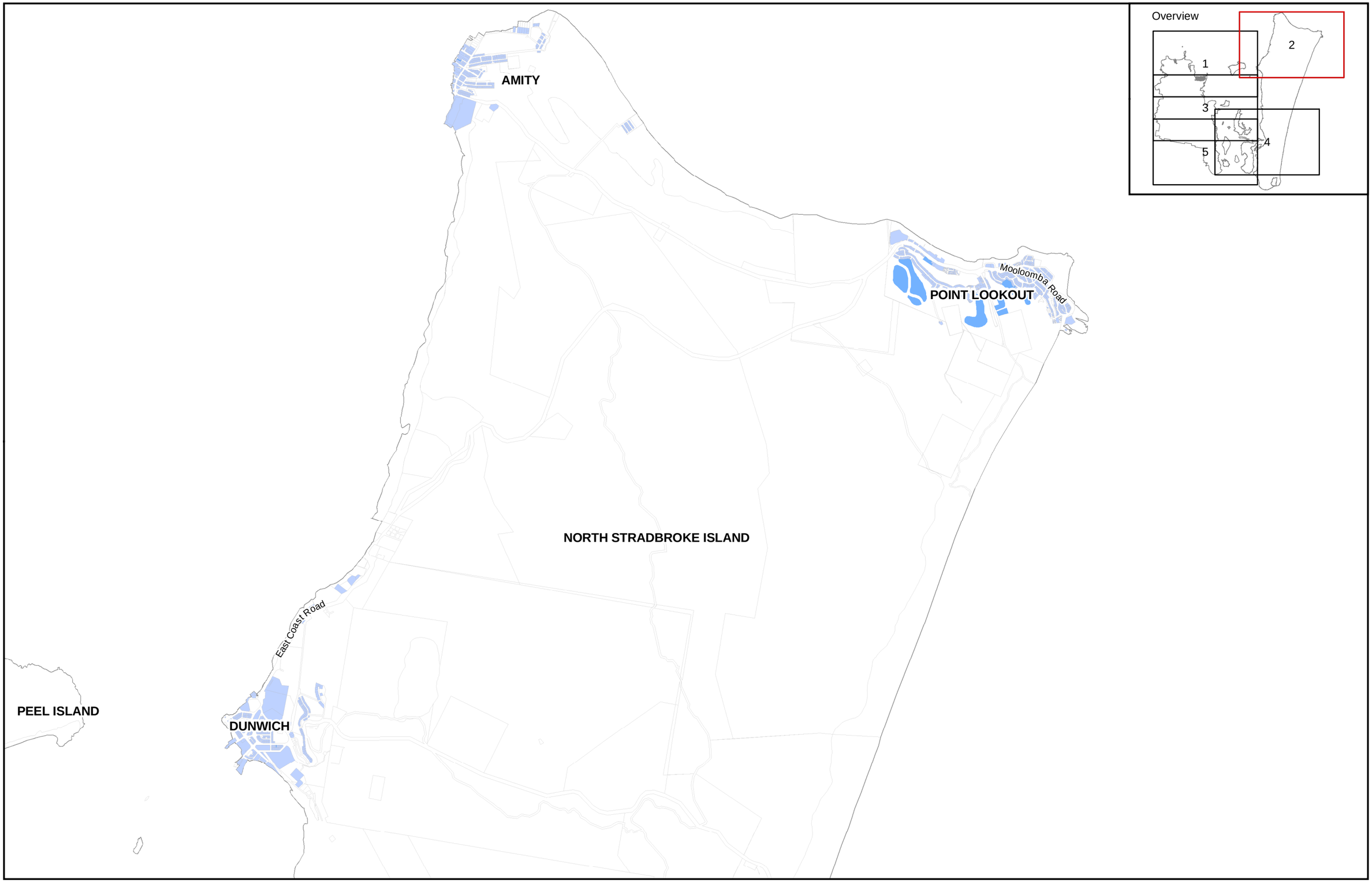
Map 1 of 5 Version: 1.0

Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

Redland WATER Water Netserv Plan

Water Supply Connection Areas

N W E S



Redland CITY COUNCIL

This map is approximate only and is intended to provide an indication of those premises included within the connection area. No warranty of any kind, express or implied including in relation to accuracy, completeness, correctness, currency or fitness for purpose is provided. Redland City Council takes no responsibility and accepts no liability for any loss, damage, costs or liability that may be incurred by any person acting in reliance on the information provided on the map.

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Legend

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- Future Water Connection Area

0 0.5 1 2 3 4 Kilometers

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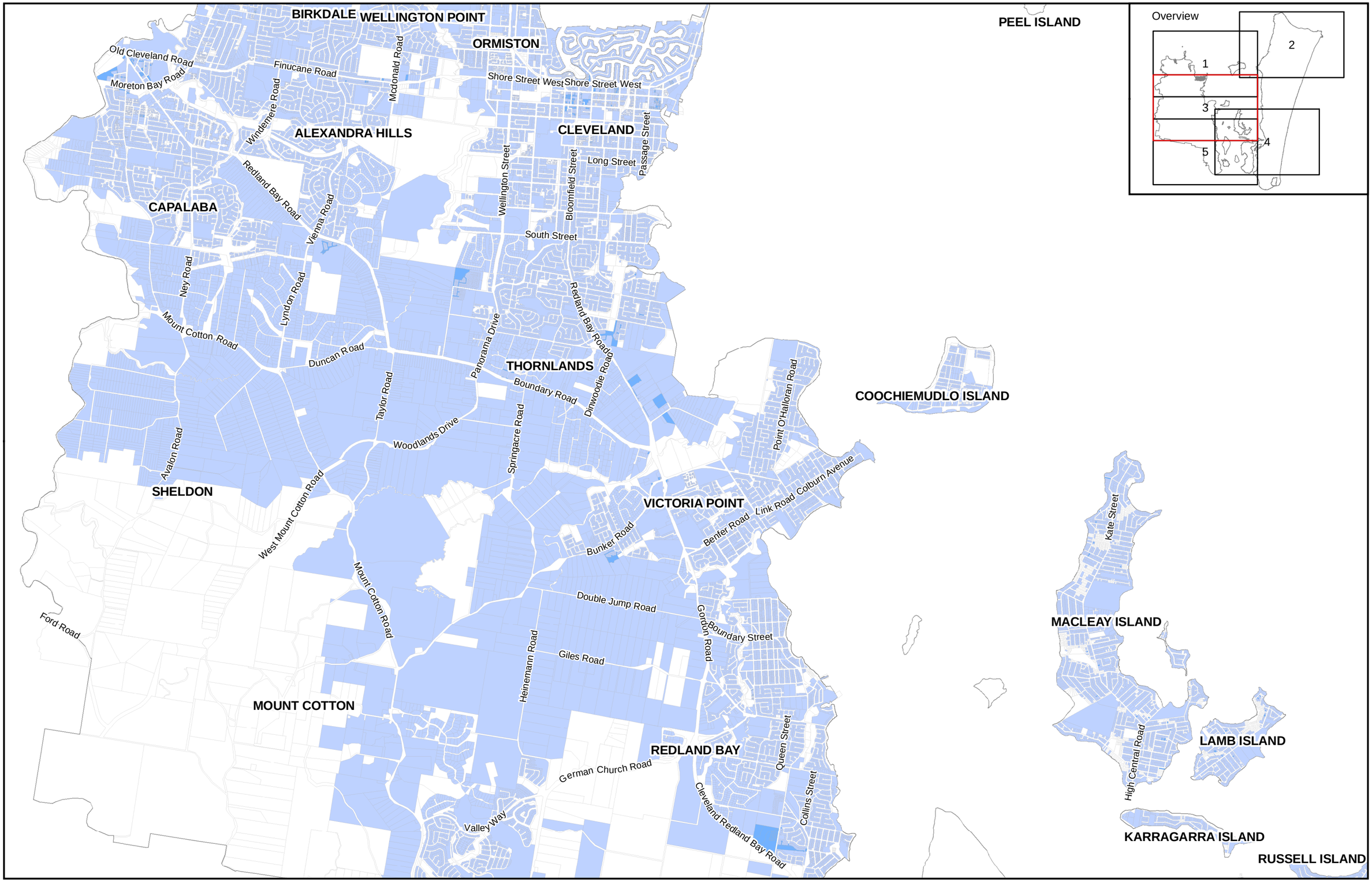
Map 2 of 5 Version: 1.0

Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

Redland WATER Water Netserv Plan

Water Supply Connection Areas

N W E S



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- Future Water Connection Area

0 0.5 1 2 3 4 Kilometers

Scale: 1:60,000 @ A3

Map 3 of 5 Version: 1.0

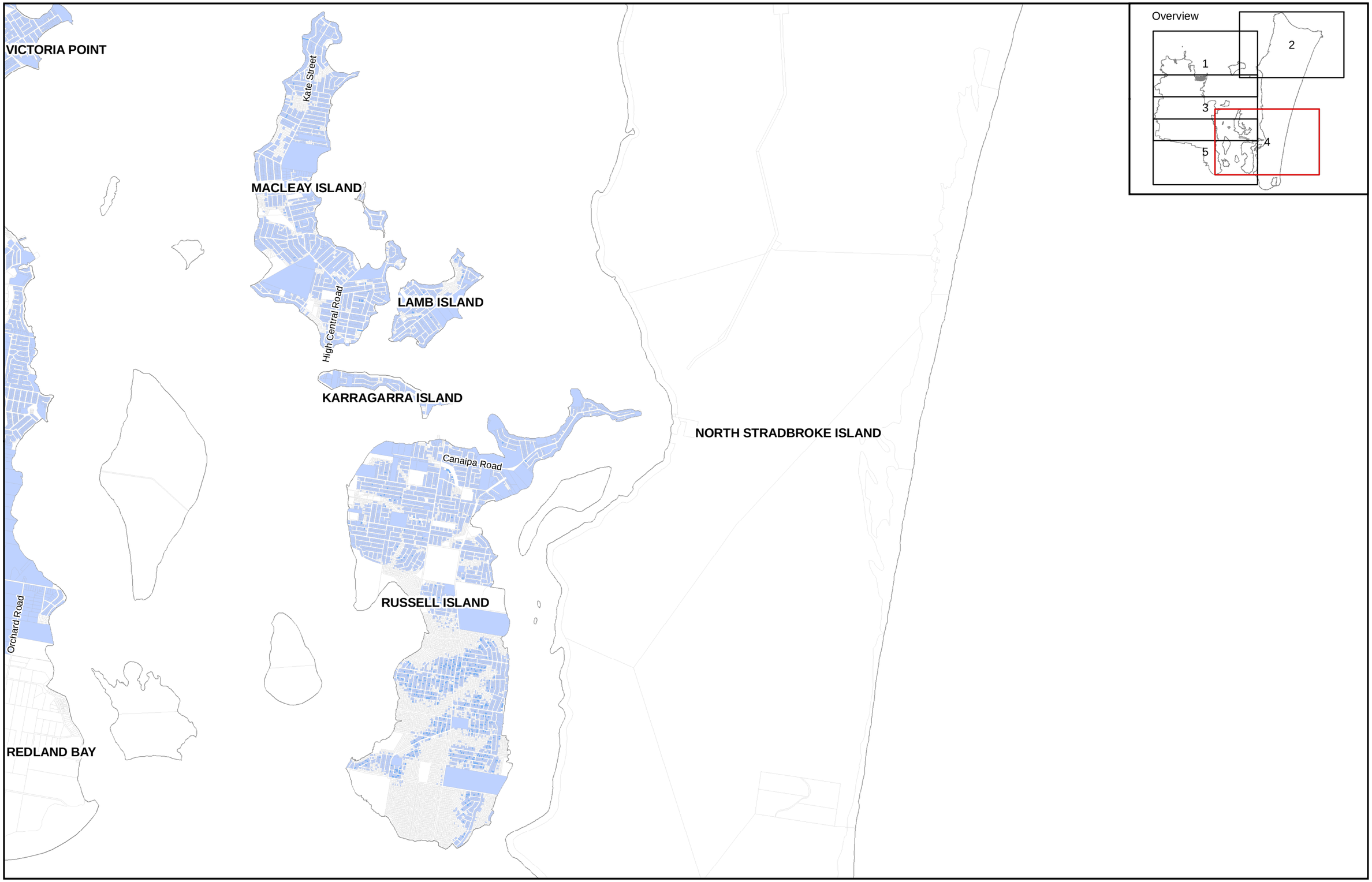
Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

Redland WATER

Water Netserv Plan

Water Supply Connection Areas

N W E S



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Scale: 1:60,000 @ A3

Map 4 of 5 Version: 1.0

Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

Redland WATER Water Netserv Plan

Water Supply Connection Areas

N W E S

SHELDON
MOUNT COTTON
VICTORIA POINT
REDLAND BAY
MACLEAY ISLAND
KARRAGARRA ISLAND
RUSSELL ISLAND
NORTH STRADBROKE ISLAND
Avalon Road
Mount Cotton Road
Heinemann Road
Giles Road
Double Jump Road
Boundary Street
Gordon Road
Queen Street
German Church Road
School Of Arts Road
Collins Street
Cleveland Redland Bay Road
Valley Way
Serpentine Creek Road
Orchard Road
Lagoon View Road
Longland Road
Canaipa Road
Overview
1
2
3
4
5

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- Water Connection Area
- Future Water Connection Area

0 0.5 1 2 3 4 Kilometers

Scale: 1:60,000 @ A3

Map 5 of 5 Version: 1.0

Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

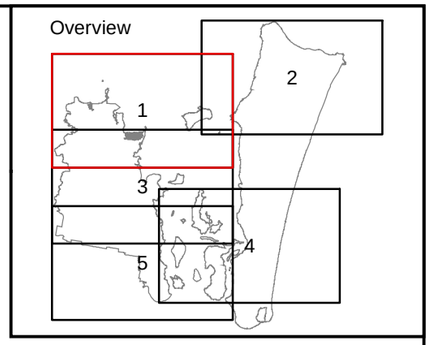
Redland WATER Water Netserv Plan

Water Supply Connection Areas

N W E S

Appendix B – Wastewater Connection area maps

Wastewater



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Legend

- Property Boundaries
- Wastewater Connection Area
- Future Wastewater Connection Area

0 0.5 1 2 3 4 Kilometers

Scale: 1:60,000 @ A3

Map 1 of 5 Version: 1.0

Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

Redland WATER Water Netserv Plan

Wastewater Connection Areas

N W E S

Legend

- Property Boundaries
- Wastewater Connection Area
- Future Wastewater Connection Area

0 0.5 1 2 3 4 Kilometers

Scale: 1:60,000 @ A3

Map 2 of 5 Version: 1.0

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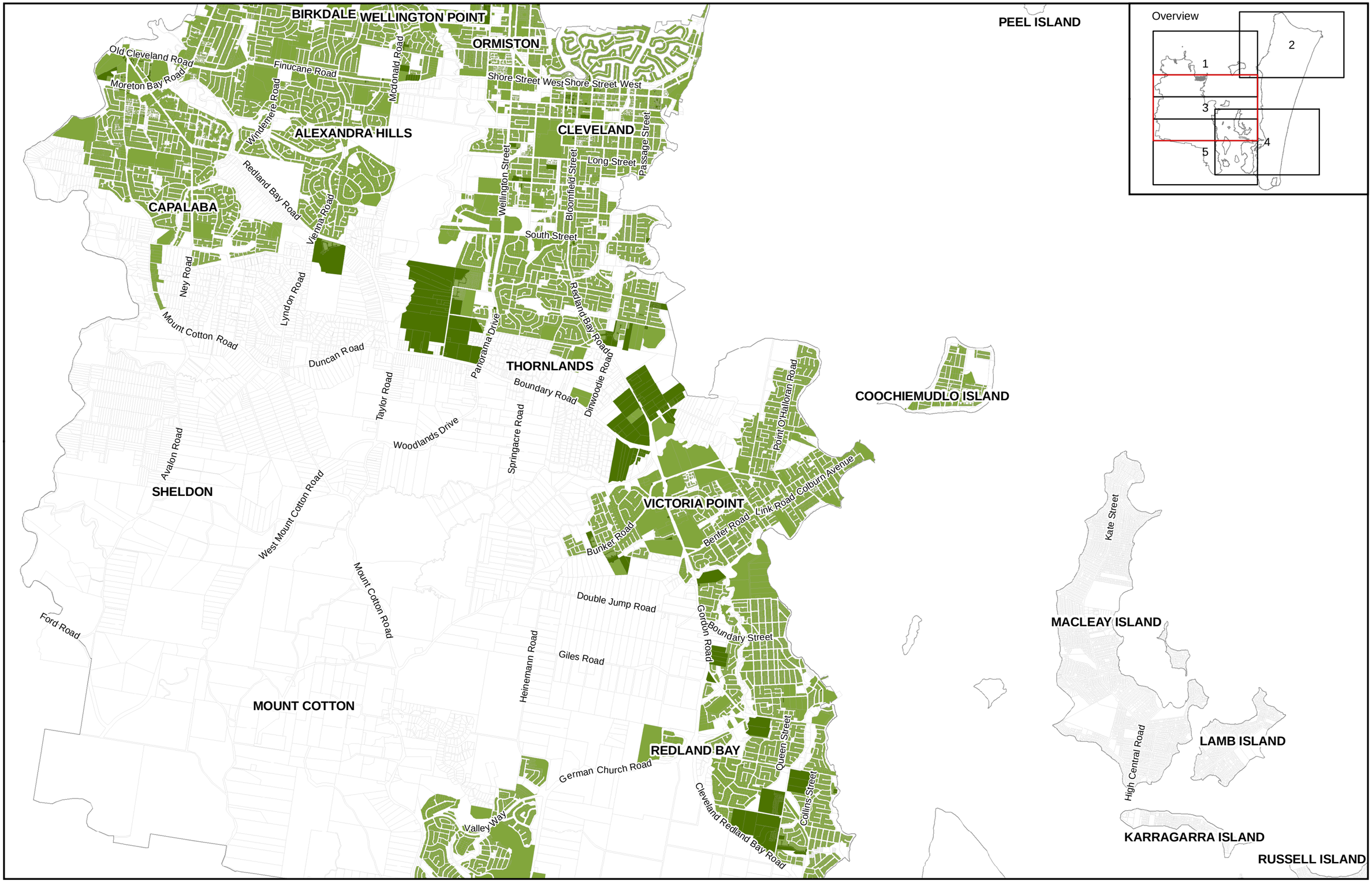
Redland WATER Water Netserv Plan

Wastewater Connection Areas

N W E S



Legend

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- Wastewater Connection Area
- Future Wastewater Connection Area

0 0.5 1 2 3 4 Kilometers

Scale: 1:60,000 @ A3

Map 3 of 5 Version: 1.0

Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

Redland WATER Water Netserv Plan

Wastewater Connection Areas

N W E S

VICTORIA POINT

Kate Street

MACLEAY ISLAND

High Central Road

LAMB ISLAND

KARRAGARRA ISLAND

Canaipa Road

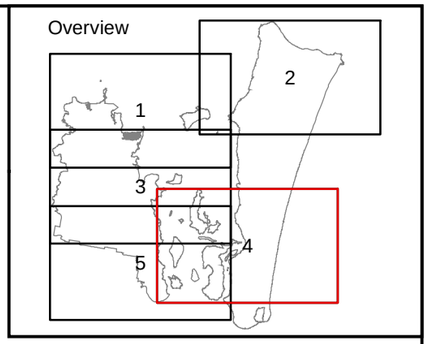
NORTH STRADBROKE ISLAND

RUSSELL ISLAND

Orchard Road

REDLAND BAY

Overview



Redland CITY COUNCIL

Legend

- Property Boundaries
- Wastewater Connection Area
- Future Wastewater Connection Area

0 0.5 1 2 3 4 Kilometers

Scale: 1:60,000 @ A3

Map 4 of 5 Version: 1.0

Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

Redland WATER Water Netserv Plan

Wastewater Connection Areas

N W E S

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REDLAND BAY
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Heinemann Road
Giles Road
Double Jump Road
Boundary Street
Gordon Road
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Valley Way
Serpentine Creek Road
Orchard Road
Lagoon View Road
Longland Road
High Central Road
Canaipa Road

Overview
1
2
3
4
5

Legend
- Property Boundaries
- Wastewater Connection Area
- Future Wastewater Connection Area

0 0.5 1 2 3 4 Kilometers

Scale: 1:60,000 @ A3

Map 5 of 5 Version: 1.0

Spatial Business Intelligence at Redland City Council 2014_08_J196_CP

Redland WATER Water Netserv Plan

Wastewater Connection Areas

N W E S

Appendix C – Water supply trunk network plans

Water supply

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/WaterNetwork-W2-12.pdf

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/WaterNetwork-W3-12.pdf

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/WaterNetwork-W4-12.pdf

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/WaterNetwork-W5-12.pdf

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/WaterNetwork-W6-12.pdf

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/WaterNetwork-W7-12.pdf

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/WaterNetwork-W8-12.pdf

Appendix D – Wastewater trunk network plans

Wastewater

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/SewerNetwork-S2-12.pdf

http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/SewerNetwork-S3-12.pdf

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http://www.redland.qld.gov.au/PlanningandBuilding/RPS/Documents/PIP/SewerNetwork-S8-12.pdf

Redland Water
Water Netserv Plan

PART B

OVERVIEW DOCUMENT

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Matthew Ingerman	January 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

ADWG	Australian Drinking Water Guidelines
ASMP	Asset and Service Management Plan
CSO	Community Service Obligations
DWQMP	Drinking Water Quality Management Plan
EWOQ	Energy and Water Ombudsman Queensland
IEMS	Integrated environmental management system
KRA	Key Result Area
RCC	Redland City Council
RW	Redland Water
RWQMP	Recycled Water Quality Management Plan
SBMP	Site Based Management Plan
SCADA	Supervisory Control and Data Acquisition
SEQ	South East Queensland
TWCM	Total Water Cycle Management
WWTP	Wastewater treatment plant

Executive Summary

Redland Water (RW) recommenced operations on 1 July 2012 as a commercial business unit of Redland City Council (RCC). As a south-east Queensland (SEQ) service provider, the *South-east Queensland Water (Distribution and Retail Restructuring) Act 2009* requires RW to have a *Water Netserv Plan* from 1 July 2013.

The purpose of the *Water Netserv Plan* is to:

- ensure the provision of safe, reliable and secure water and wastewater services;
- provide for strategic planning for the operation of the business;
- provide infrastructure planning for water and wastewater services for at least 20 years;
- integrate land use planning and infrastructure planning for water and wastewater services;
- provide for the management of water and wastewater services in a way that seeks to achieve ecological sustainability.

The *Water Netserv Plan* must be consistent with the SEQ Regional Plan 2009-2031 and with the planning assumptions for RCC, consequently it will become the key strategic document outlining the services RW provides and will guide the delivery and operation of its infrastructure. The *Water Netserv Plan* comprises the following two parts:

- **Part A** – contains public information concerning RW's water and wastewater services;
- **Part B** – comprises an internal planning document to inform RW's overall strategic direction.

While the *Water Netserv Plan – Part A* establishes the background and context for RW's business, together with the infrastructure planning and development activities which are critical to meeting its customer commitments, this *Water Netserv Plan – Part B* comprises an internal business planning document to inform the overall strategic direction for RW.

Table 1 - *Water Netserv Plan* contents

PART A	PART B
Product and services Customer service standards Connections policy Demand management strategy Charges schedule relating to: • service usage; • connections; • infrastructure provision Assumptions about future development and infrastructure demand Desired standards of service Trunk network plans identifying existing and future trunk infrastructure Timeframes for the provision of future trunk infrastructure Mechanisms used to achieve effective outcomes Other matters prescribed under a regulation	Mechanisms used to meet performance targets and service standards for the operation, maintenance and replacement of existing infrastructure (asset management including planning of new infrastructure to meet expected future development and future growth) Measures used to minimise system water leakage Measures used to minimise sewerage overflows Drinking water quality management measures undertaken to protect public health Total water cycle management information Mechanisms used to achieve ecological sustainability Trade waste management information Recycled water management information Other matters prescribed under a regulation

Section 4 of this plan includes a summary of the action plans from each of the Part B Management Plans.

1. Introduction

The *South-east Queensland Water (Distribution and Retail) Act 2009* requires RW to have a *Water Netserv Plan* in place from 1 July 2013. The *Water Netserv Plan* must be consistent with the *South-east Queensland Regional Plan 2009-2031* and with the planning assumptions for RCC. It will be the key strategic document guiding the delivery and operation of RW's infrastructure and services.

1.1 Form and content

To meet legislative requirements, the *Water Netserv Plan* comprises the following two separate parts.

- **Part A** – contains public information concerning RW's water and wastewater services
- **Part B** – comprises an internal planning document to inform its overall strategic direction.

To assist with navigating this *Water Netserv Plan* relative to the requirements of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*, the following lookup (Table 1-1) is provided.

Table 1-1 - Legislation references

SECTION 99BP – Requirements of a Water Netserv plan	INCLUDED	*WATER NETSERV PLAN* LINK
(a) include information outlining the SEQ service provider's existing and proposed infrastructure for providing its services, indicating how the SEQ service provider proposes— (i) to meet performance targets and service standards for assets relating to the operation, maintenance and replacement of existing infrastructure (ii) to provide new infrastructure to meet expected future development and growth in its relevant area, considering demand for the services based on low, medium and high population growth scenarios	✓	Appendix A
(b) indicate the measures proposed to minimise— (i) water losses caused by leakage from infrastructure for supplying the SEQ service provider's water service (ii) sewerage overflows	✓	Appendix B Appendix C
(c) include information outlining the drinking water quality management measures the SEQ service provider will take to protect public health	✓	Appendix D
(d) include information about how the plan provides for total water cycle management for water and wastewater in the relevant area	✓	Appendix E
(e) indicate how the SEQ service provider seeks to achieve ecological sustainability in undertaking its functions	✓	Appendix F
(f) include information about the management of trade waste entering the SEQ service provider's wastewater service	✓	Appendix G
(g) include information about the management of recycled water by the SEQ service provider under a recycled water scheme	✓	Appendix H
(h) include any other matters prescribed under a regulation, including, for example, matters included in a plan prepared by a service provider under the Water Supply Act.	✓	Appendix I Appendix J

2. Redland Water

RW recommenced operations on 1 July 2012. Its primary functions are to provide its customers with safe, reliable and high quality water services, as well as to collect and treat wastewater. RW is also responsible for charging customers for water and wastewater services.

RW owns, operates and maintains assets currently valued at around $613 million. This will grow to approximately $640 million by 2015-16. This continued investment in water and wastewater infrastructure reflects the need to meet the requirements of a growing population, which is projected to be in excess of 180,000 people by 2031.

As a commercial business unit of RCC, RW is committed to providing its customers with highly efficient water and wastewater services. RW is also committed to supplying healthy water in an ecologically sustainable manner and collecting and processing wastewater in an ecologically sustainable manner.

The following sub-sections are repeated from Part A to improve readability for Part B.

2.1 Redland Water's products and services

RW is responsible for the provision of water and wastewater services to consumers throughout the Redland local government area. Its core products and services include:

- drinking water supply;
- non-Class A+ recycled water supply;
- wastewater collection and treatment; and
- trade waste management.

2.1.1 Drinking water

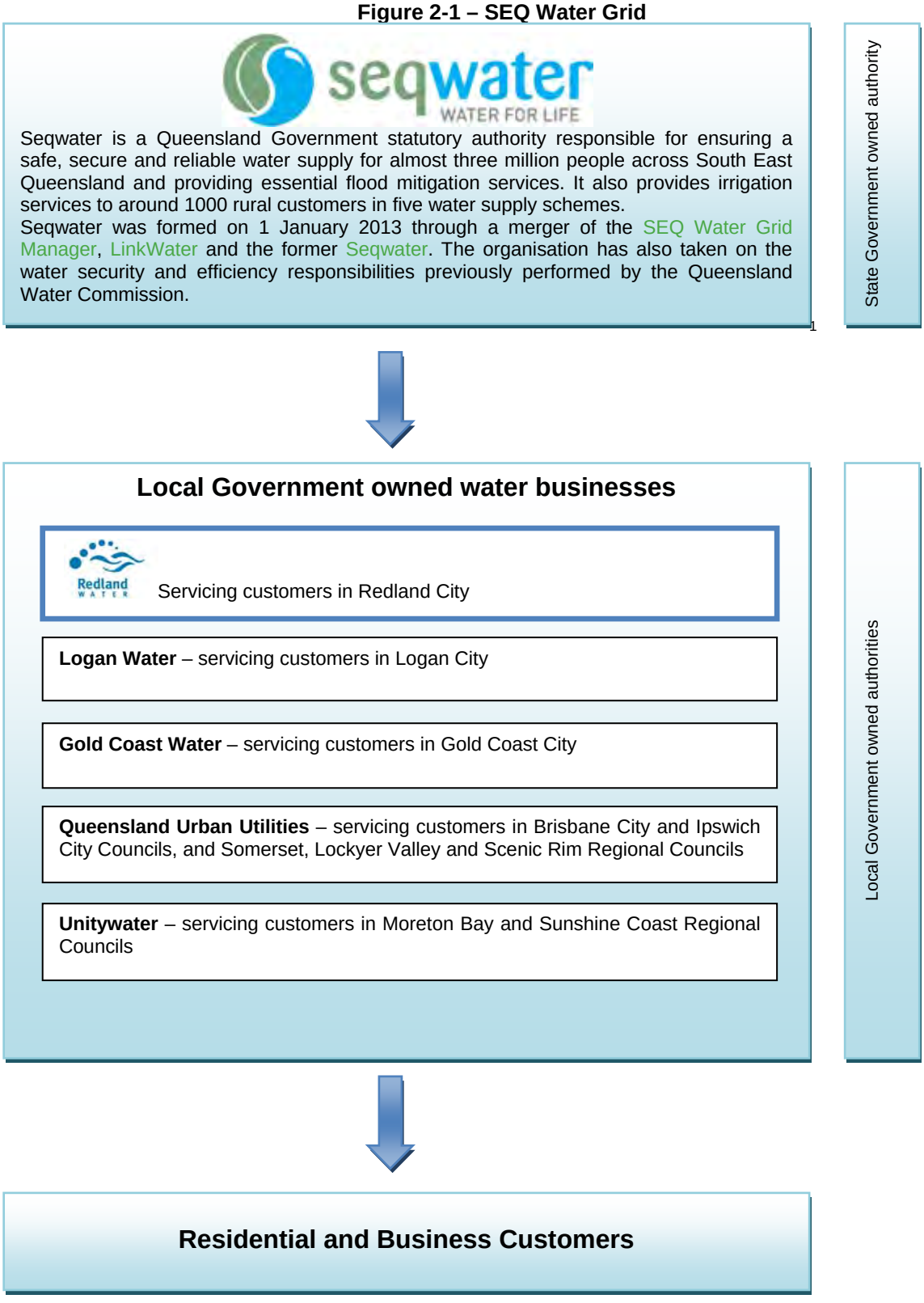
RW distributes drinking water to around 60,000 properties via a network of reservoirs, pump stations and mains. This water is sourced from Seqwater, which owns dams, water treatment plants and the Gold Coast desalination plant. The applicable source to be used is determined based on the overall water security requirements for the region. The water is transported from Seqwater sources to RW's distribution network via bulk mains also owned and operated by Seqwater.

To ensure water quality meets applicable standards and guidelines, all drinking water service providers, including Seqwater, and RW are required to have an approved Drinking Water Quality Management Plan (DWQMP) in place. These plans are reviewed and approved by the regulator administering the *Water Supply Safety and Reliability Act*.

2.1.2 Redland Water's role in the SEQ water grid

RW is one part of an extensive water grid operating in SEQ. **Figure 2-1** shows its relationship with the other participants, in their current roles, as they currently exist.

Figure 2-1 – SEQ Water Grid



[1] Sourced: http://www.seqwater.com.au/ accessed 15/01/13 at 10:09am.

2.1.3 Special health needs

Customers have a right to register with RW if there is a need for water to maintain life support, such as a dialysis machine. Customers may also register other special medical needs.

RW maintains a register of residential properties and hospitals that operate dialysis machines. This information is available to our Operations personnel to ensure a continuous supply of drinking water is maintained (if necessary) at these locations. The water meter is coloured blue to denote these properties in the event of a burst water main or a planned shutdown of the water supply for maintenance purposes. Temporary alternative water supply may be provided from a drinking water tanker or by connecting the property to water supply from a nearby water main. If the situation becomes life threatening, emergency services should be called immediately on 000. To obtain a copy of RW's policy and guidelines[2] concerning the management of dialysis remissions or to register any special health needs, customers should contact its Customer Contact team.

2.1.4 Recycled water

Recycled water is wastewater that has been further filtered and disinfected. RW aspires to be able to provide Class A recycled water from both Capalaba and Victoria Point wastewater treatment plants (WWTPs).

Class B recycled water is supplied to the Redland Bay Golf Course from the Victoria Point WWTP. Capalaba WWTP recycled water plant has facilities to supply recycled water to customers via tanker filling stations. Cleveland WWTP has the facilities to supply recycled water to customers via tanker filling stations, however supply has recently ceased.

Treated effluent from Mt Cotton WWTP is pumped directly into the Carbrook Golf Club Dam for irrigation purposes.

Excess recycled water that is not re-used by RW's recycled water customers is released to the environment in accordance with development approval and release limits.

Table 2-1 – Allowable and non-allowable uses for recycled water (non-Class A+)

ALLOWABLE USES	NON-ALLOWABLE USES
Irrigation of parks, gardens and ovals	Drinking
Irrigation of playing fields and golf courses	Cooking and kitchen purposes
Irrigation of roadside plants	Toilet flushing
Dust suppression on construction sites and roadworks	Fire fighting
	Personal washing (baths, showers, bidets, basins)
	Washing clothes
	Washing cars
	Swimming pools and spas
	Recreation (playing under sprinklers / water toys)
	Water source for pets and livestock
	Commercial or industrial food processing
	Filling ponds, lakes, water bodies and tanks

[2] Water Charge Remissions for Home Dialysis Machine Users

http://rcc/PGP/PGP/POL-0027%20Water%20Charge%20Remissions%20for%20Home%20Dialysis%20Machine%20Users.pdf

2.1.5 Wastewater collection and treatment

RW owns and operates 7 WWTPs which treat incoming wastewater collected from almost 50,000 properties across the existing wastewater connection area via a network of pump stations and mains. Each year, these treatment plants collectively process around 11,250 megalitres of wastewater. The majority of the treated wastewater is released to the environment in accordance with relevant development permit conditions. However, approximately 2.5% of the treated water is recycled and provided to customers as Class B recycled water.

RW operates its WWTPs in accordance with conditions of approval, relevant guidelines and policies and its general environmental obligations under the *Environmental Protection Act 1994*. Substantial equipment, systems and processes are used at each of the WWTPs to minimise the risk of wastewater overflows and to control odour. Comprehensive testing and analysis of wastewater is regularly undertaken to monitor quality. A stringent reporting regime is in place for identified non-compliances with quality requirements. Extensive incident management plans have also been established should an event occur which may impact on the environment and/or public health and safety.

2.1.6 Trade waste management

Trade waste is liquid waste generated from any business (commercial and industrial) other than normal domestic wastewater from toilets, hand basins and showers.

Wastes like cooking oil, grease and food solids are produced by thousands of food outlets within the RW connection area every day. Should this waste be illegally dumped or discharged directly into the wastewater network, it can block the system and cause overflows that have a negative impact on public health and the environment. To prevent this from happening, all businesses that discharge greasy wastewater must have a grease trap installed.

Trade waste may also contain a variety of toxic or harmful substances, such as heavy metals, organic compounds, solvents, oils and grease, explosive substances, gross solids and chlorinated organic compounds. Municipal WWTPs are not designed to treat these substances, which may also pose a health and safety risk to our staff working at the treatment plants. Businesses may only discharge waste to the wastewater network that complies with RW's wastewater admission standards. These standards set limits on the allowable concentration of many potentially harmful substances and completely prohibit discharge of other substances.

2.2 Redland Water's Organisational Structure

On return from Allconnex Water, RW was organised into 3 departments: Customer & Retail Services; Distribution & Treatment Services; and Infrastructure & Planning.

During 2013, further organisational restructures occurred and RW was absorbed into RCC. This included the transfer of the billing component to RCC's Financial Services group. RCC then expanded its Customer Service team to include a contact centre which removed the need for RW to have its own. This effectively removed Customer & Retail Services from the structure. The remaining 2 groups were renamed (Water & Waste Operations and Water & Waste Infrastructure) and joined 3 other RCC groups reporting to the General Manager Infrastructure & Operations (formerly General Manager Redland Water & RedWaste).

These organisational charts are shown below in Figure 2-2, Figure 2-3 and Figure 2-4.

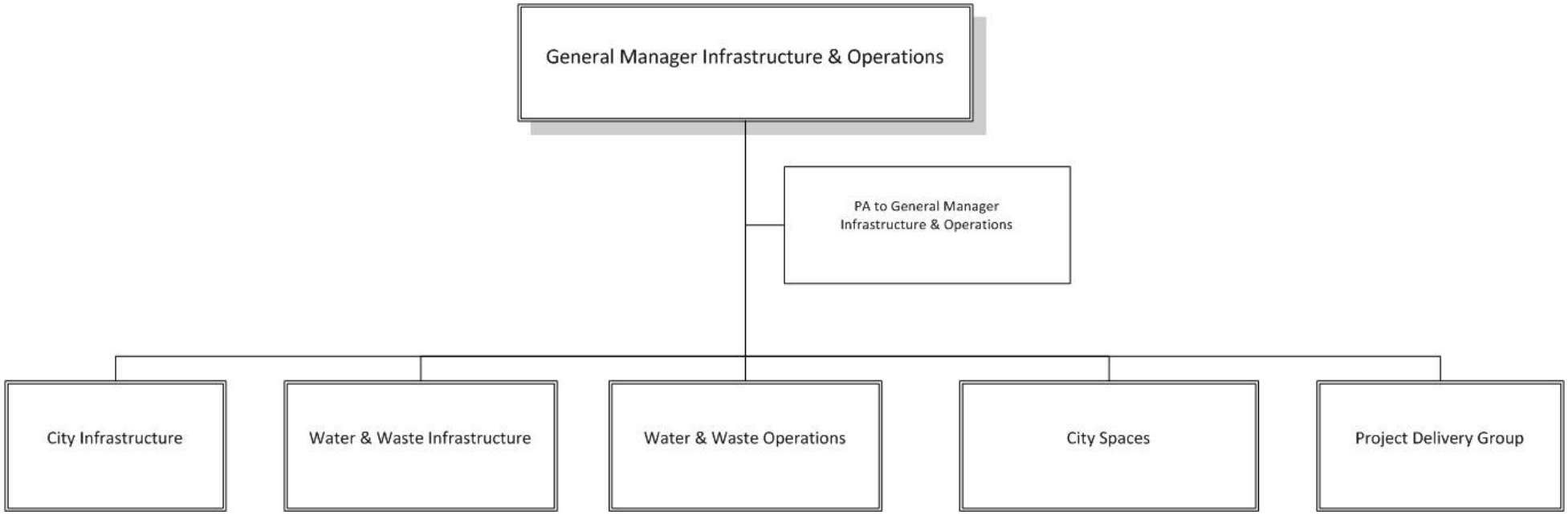


Figure 2-2 – Infrastructure & Operations leadership team

2.2.1 Water & Waste Operations

The functions of the Water & Waste Operations group are described in Table 2-3 below.

Table 2-2 – Distribution and Treatment Services Group Functions

	PORTFOLIO			
	WATER DISTRIBUTION	**WASTEWATER COLLECTION**	**TREATMENT OPERATIONS**	**MECHANICAL, ELECTRICAL CONTROL SYSTEMS**
FUNCTIONS	Water main construction	Sewer main construction	Wastewater treatment plant operations	Sewer pump station operations
	Water main maintenance - planned & reactive	Sewer main maintenance - planned & reactive		Sewer pump station mechanical & electrical maintenance - planned & reactive
	Water service construction	Sewer main relining		Switchboard operations
	Water service maintenance - planned & reactive	Sewer pump station cleaning		Switchboard maintenance - planned & reactive
	Water meter maintenance	Emergency operations		SCADA system operations
	Water pump station operations			SCADA system maintenance - planned & reactive
	Water pump station maintenance - planned & reactive			Emergency operations
	Emergency operations			

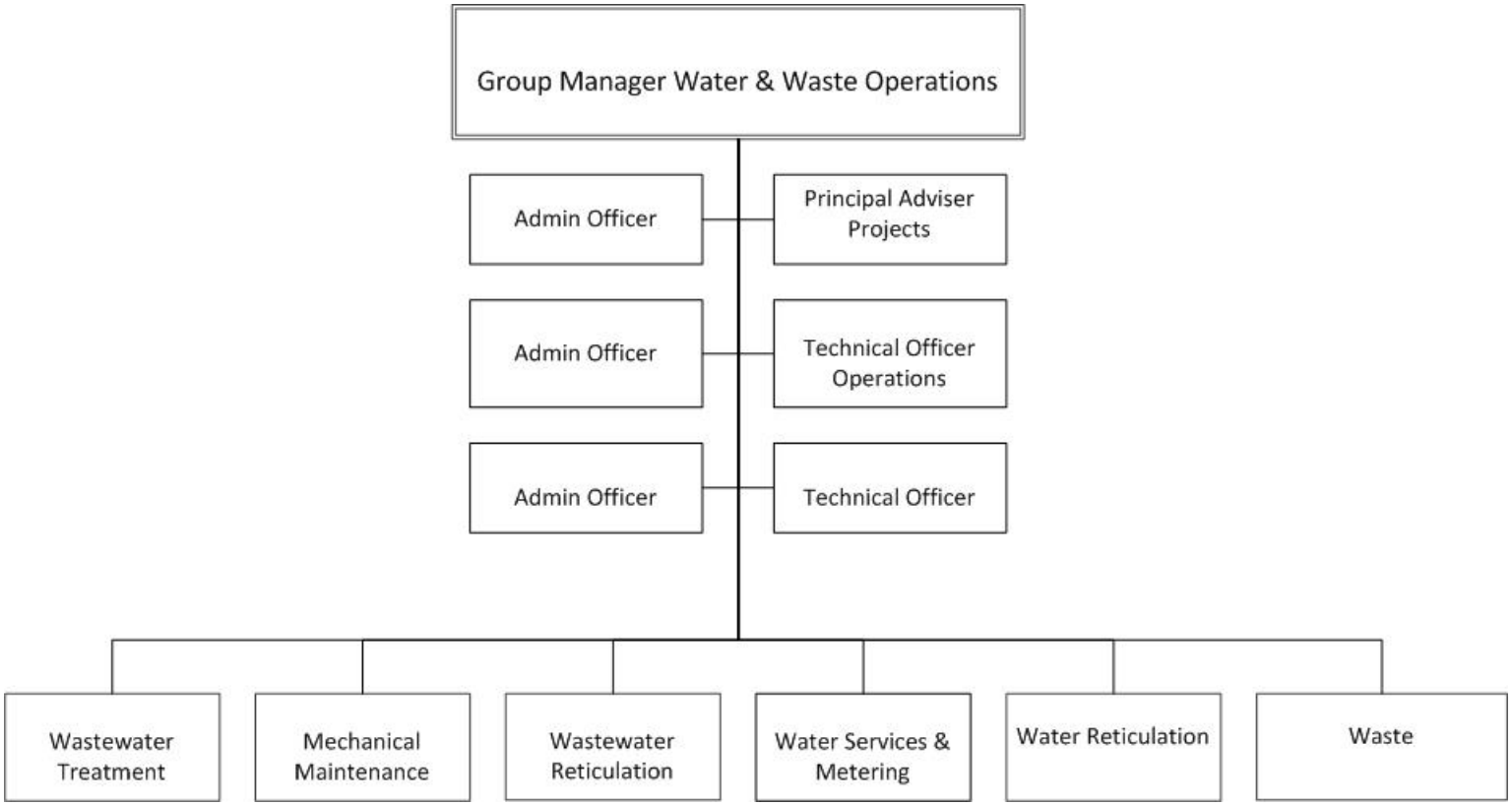


Figure 2-3 – Water & Waste Operations group organisational structure

2.2.2 *Water & Waste Infrastructure*

The functions of the Water & Waste Infrastructure group are described in Table 2-4 below.

Table 2-3 – Water & Waste Infrastructure group functions

	PORTFOLIO						
	WATER DISTRIBUTION	**WASTEWATER COLLECTION**	**WASTEWATER PROCESSES**	**WATER QUALITY**	**DEVELOPMENTS**	**ASSETS AND TECHNICAL DELIVERY**	**WASTE PLANNING AND LANDFILL REMEDIATION[3]**
FUNCTIONS	Network modelling	Network modelling	Process assessment	Product quality management	Infrastructure charges	SCADA management	Waste strategy & review
	Development assessment	Development assessment	Biosolids management	Water sampling	Development conditioning	Programming	Strategy implementation
	Feasibilities	Feasibilities	Feasibilities	Analysis	Donated asset acceptance	Mechanical & electrical integration	Major capital works planning & delivery
	Specifications	Specifications	Specifications	Water quality data	Standards	Project management	Research & policy development
	Infrastructure charges support	Infrastructure charges support	Odour management	Scientific support	Infrastructure agreements	Asset management	Closed landfill remediation
	Capital program	Capital program	Capital program	Quality systems	Appeals	Contract management	Risk assessment
	Technical support	Technical support	Technical support	Risk management SBMPs, IEMS	Developer communications	Program delivery	Site based management plans
	Project development	Project development	Licences	Water quality emergency management	Development compliance	Risk management	Feasibilities
	Netserv plan	Netserv plan	Project development	DWQMP & reporting	Assessment performance	Energy management	Project management
	Strategic plan	Strategic plan		RWQMP & reporting	Netserv plan coordination	Reliability management	Design
	Service improve water quality & pressure	Odour & noise		Environmental management	Total water cycle management coordination	Project safety	Environmental monitoring
		Inflow infiltration		Environmental monitoring			

[3] RedWaste functions are part of a separate commercialised business unit.

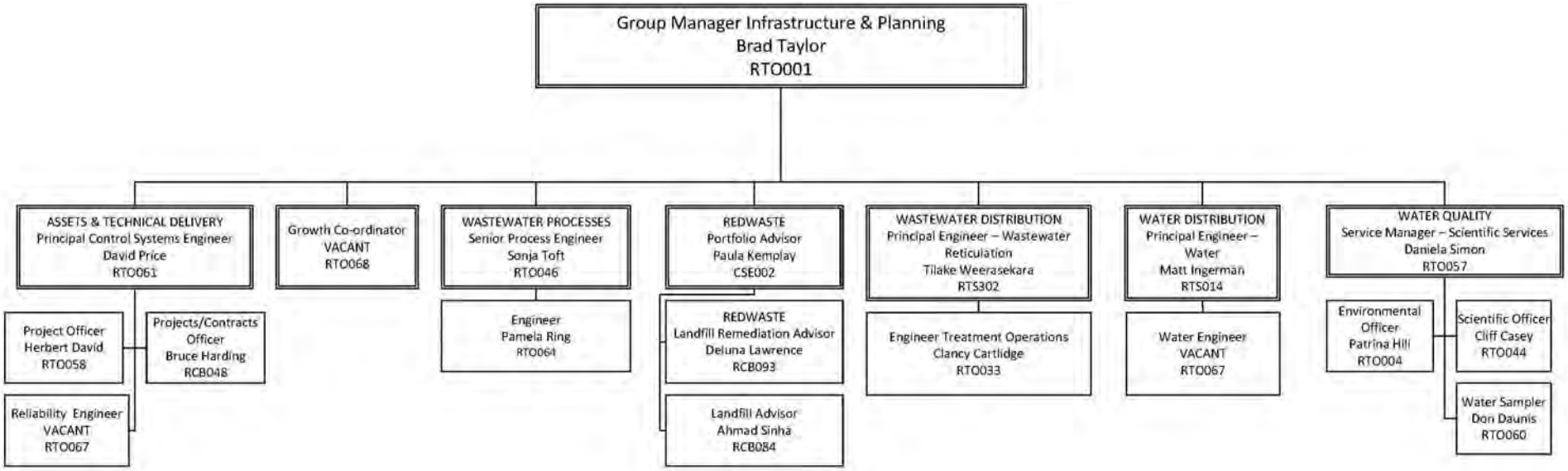


Figure 2-4 – Water & Waste Infrastructure group organisational structure

3. Strategic Alignment

RW is a commercial business unit of RCC. Redland City consists of 537km^2 comprising mainland and island communities (with approximately 9,769 hectares of bushland under conservation). It is located on Moreton Bay and borders Brisbane City, Logan City and Gold Coast City Councils. Its economy consists of retail, health and community, education, manufacturing and tourism.

3.1 Redland City Council vision, mission, values and objectives

As a business unit of RCC, RW aligns with RCC's vision, mission and value statements as set out in its corporate plan.

The *Redland City Council Corporate Plan 2010-2015*[4] provides the following vision, mission and value statements:

Vision

Enhancing community spirit, lifestyle and the natural environment

Mission

To be a sustainable and effective, organisation with clever and caring people

Values

- Strive to achieve sustainability in our organisation and our community
- Support community engagement and leadership
- Continuously improve our services
- Carefully manage our finances and deliver value for money
- Deliver excellent customer service
- Be an ethical and transparent organisation
- Treat people with respect and value diversity
- Listen to our community and engage effectively with them.

RCC's objectives are:

Objectives

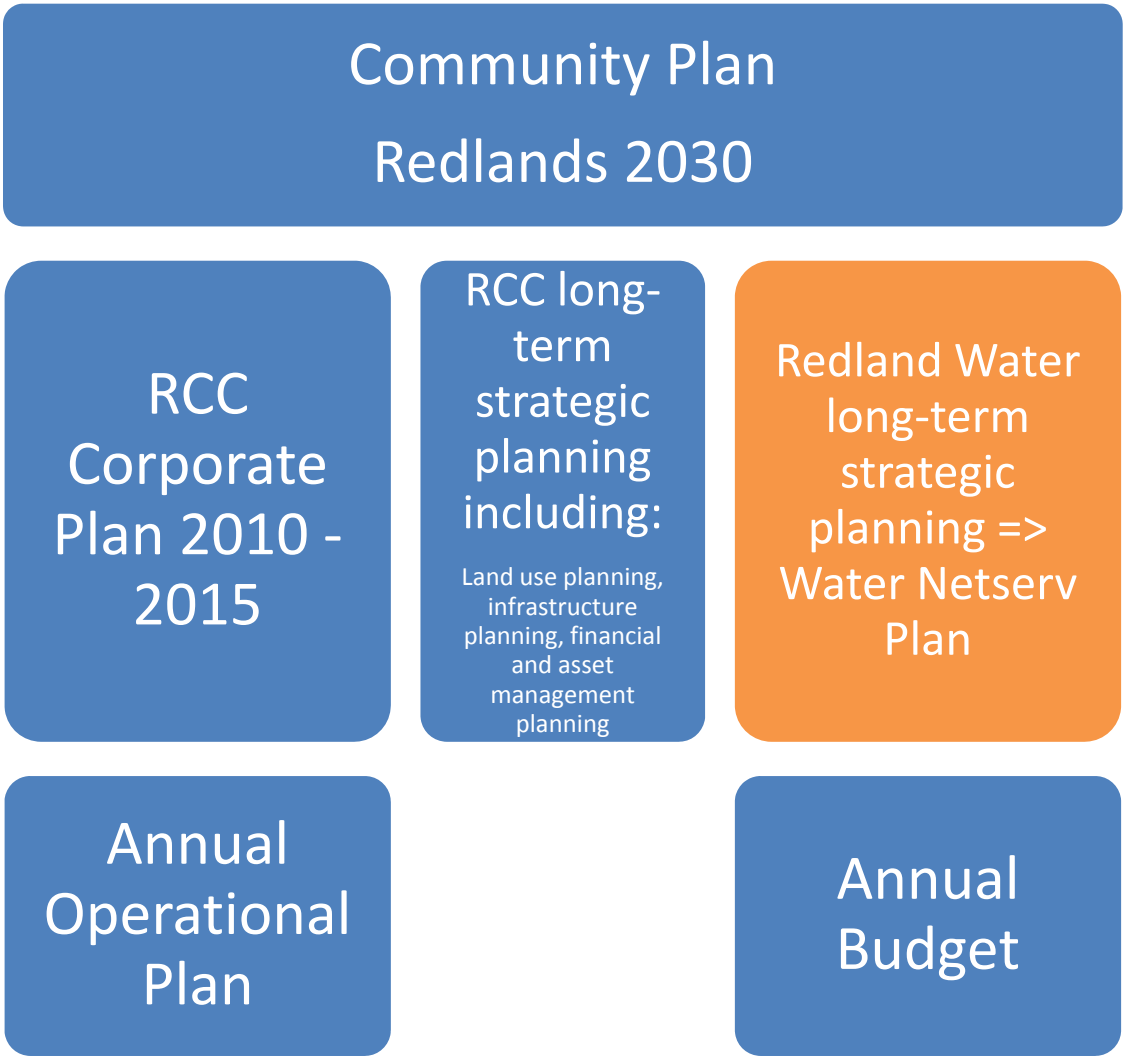
- Healthy natural environment
- Green living
- Embracing the bay
- Quandamooka country
- Wise planning and design
- Supportive and vibrant economy
- Strong and connected communities
- Inclusive and ethical governance
- An efficient and effective organisation

3.2 Alignment to RCC Corporate Plan

The RCC corporate plan is directly linked to all council's long-term, strategic planning documents. This ensures a clear link exists between community needs and expectations, corporate strategic direction and priorities, policy and day-to-day activities. The link is described in the corporate plan by the following diagram:

[4] Redland City Council Corporate Plan 2010-2015 – http://www.redland.qld.gov.au/SiteCollectionDocuments/Plans_Reports/Corporate/Corporate_Plan/CorporatePlan2010-15.pdf

The re-establishment of RW will see the relationship between the RCC long-term strategic planning documents expand to include the *Water Netserv Plan* as indicated in the following diagram:



Although not shown above, the RW *Water Netserv Plan* will also be cognisant of RCC's *Total Water Cycle Management (TWCM) Plan*.

In order to address key result areas within RCC's 9 corporate plan objectives, RW will strive to achieve the following goals:

- supply healthy water in an ecologically sustainable manner by planning, designing, constructing, operating and maintaining a high quality water distribution system; and
- process wastewater in an ecologically sustainable manner by planning, designing, constructing, operating and maintaining a system for the collection, treatment and disposal of wastewater and biosolids.

RCC strategies such as the *Asset Management Strategy*, (draft) *Local Growth Management Strategy*, *TWCM Plan* and *Financial Strategy 2012-2022* will be key documents to drive RW towards achieving its goals.

3.3 Annual Performance Plan

As a commercial business unit of RCC, RW must have an annual performance plan (for each financial year) stating the following:

- the unit's objectives;
- the nature and extent of the significant business that commercial business is to conduct;
- the unit's financial and non-financial performance;
- the nature and extent of the community service obligations the unit must perform;
- the cost of, and funding for, the community service obligations;
- the unit's notional capital structure, and treatment of surpluses;
- the unit's proposed major investments;
- the unit's outstanding, and proposed borrowings;
- the unit's policy on the level and quality of service consumers can expect;
- the delegations necessary to allow the unit to exercise autonomy in its commercial activities;
- the type of information that the unit's reports to the local government must contain.

Within the RW performance plan, the key result areas (KRA), and goals for the organisation are documented. These KRAs and goals are repeated below in Table 3-1.

Table 3-1 – KRA and goals

KRA	GOAL
Natural environment	Ensure the enhancement of koala and wildlife habitat including bushland, greenspace, waterways, catchments, air and coastal ecosystems.
Financial management	Ensure the long term financial viability of the city and provide public accountability in financial management.
Deliver essential services	Provide and maintain water, waste services, roads, drainage and support the provision of transport and waterways infrastructure to sustain our community.
People management	Development of organisational cultural values and people behaviours in order to meet agreed community expectations.

3.4 Redland Water's stakeholders

RW places great importance on engaging with stakeholders, as well as maintaining and strengthening current relationships to improve the way it operates. Table 3-2 outlines a number of its key stakeholders and the associated requirements.

Table 3-2 – Key stakeholders and their requirements

STAKEHOLDERS	REQUIREMENTS

STAKEHOLDERS	REQUIREMENTS
Redland City Council	Satisfying RCC's needs for returns on investment support for local economic development and growth, as well as providing safe, quality water and wastewater products and services.
Customers	The customer is at the core of everything RW does and delivering high standards of customer care is critical. This is reinforced through its decision-making and actions which focus on outstanding commitment to customer service through connectivity with the community.
State government	The Queensland Government is looking for investments based on commercially sound decisions which will deliver infrastructure more efficiently, compliance with legislative and regulatory requirements and a balanced approach between meeting funding requirements for future investment and socially and economically sustainable price increases.
Industry	At a strategic level, RW's affiliation with local and state government departments will allow it to understand legislative and regulatory requirements to ensure it continually meets its responsibility to protect the environment and support sustainable practices. Within the industry, its relationship with participants of the SEQ water grid, fellow water businesses (Queensland Urban Utilities and Unitywater, Gold Coast Water and Logan Water), developers, suppliers, industry associations and community reference groups will allow it to collaborate to work towards achieving common goals.

3.5 Redland Water's Key Drivers

Underpinning all of RW's corporate performance are the following key drivers:

- Customer Service
- Compliance with ADWG
- Business Efficiency
- Environmental Sustainability
- Good Governance (legislative)
- Staff – Skilled and Knowledgeable and Safe

Table 3-3 – Key Drivers

KEY DRIVER	DESCRIPTION
Customer Service	Customer expectations for a safe, reliable, high quality, value for money services need to be met. The Customer Service Standards outline the services and standards customers can expect to experience. There is a need to build and develop ongoing relationships with our customers. Quality products and services, with customer services including timely response to complaints and requests.
Compliance with ADWG	RW is facing increasing tightening and complexity of regulatory requirements and guidelines for public health and safety and the environment. This includes the requirements under the Water Supply (Safety and Reliability) Act 2008 and Public Health Act (2005) Amendment Regulation (No. 1) (2008). This is driving the need for improved drinking water quality and innovative technical solutions. With the loss of the control of water supply sources due to SEQ reform, the complexity of the water system is increasing with multiple relationships requiring management to ensure compliance requirements and customer standards for drinking water quality are achieved.
Business Efficiency	There is a need for improved financial performance driven by increases in input and compliance costs and the need for returns for RCC. This will be delivered through prudent and efficient management of the business. Efficient Service Delivery through Lifecycle Management of Assets.
Environmental Sustainability	Growing expectations from our community and more stringent environmental regulations mean we are driven to implement our operation and maintenance services to meet our environmental obligations and effectively manage our impact on the environment. Regular monitoring and reporting processes are maintained to

KEY DRIVER	DESCRIPTION
	ensure that all water and wastewater discharges and activities that impact on our environment are reported as public information.
Good Governance and compliance with Legislative Obligations	Ensuring that RW is controlled and governed in a way that it will achieve its strategic and operational objectives, while ensuring that we meet the requirements of the law, regulations, published standards, and community expectations of probity, accountability, and openness[5].
Staff – Skilled and Knowledgeable and Safe	To be able to deliver its services RW needs to ensure that its workforce is both skilled and knowledgeable. In addition, the need to provide a safe workplace is a key business driver.

Key drivers are used in the derivation of the management plans detailed in the appendices to this report which form the RW *Water Netserv Plan Part B*.

[5] Refer to RCC Corporate Policy POL-3002.
http://www.redland.qld.gov.au/SiteCollectionDocuments/Policies/POL-3002.pdf

The mapping of the KRAs and key drivers to their corresponding management plans is shown below. Note that some management plans overlap a number of KRA and key drivers as indicated by the shading in the table.

Table 3-4 – Management Plan Lookup

<table>
<tr><th>PERFORMANCE PLAN KRAs</th><th colspan="2">CORRESPONDING KEY DRIVER</th><th colspan="9">CORRESPONDING NETSERV PLAN MANAGEMENT PLAN/SUBSECTION/APPENDICES</th></tr>
<tr><td>Natural Environment</td><td>Environmental Sustainability</td><td rowspan="5">Legislative Compliance</td><td>Ecological Sustainability Management Plan</td><td rowspan="4">Leakage Management Plan</td><td></td><td>Sewerage Overflow Management Plan</td><td></td><td>Recycled Water Management Plan</td><td>TWCM Plan</td><td>Trade Waste Management Plan</td><td>Demand Management Plan</td><td></td></tr>
<tr><td rowspan="2">Financial Management</td><td>Business Efficiency</td><td rowspan="2"></td><td rowspan="3">Asset and Service Management Plan</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>Good Governance</td></tr>
<tr><td rowspan="2">Deliver Essential Services</td><td>Compliance with ADWG</td><td rowspan="2"></td><td rowspan="2">Sewerage Overflow Management Plan</td><td rowspan="2">DWQMP</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">Trade Waste Management Plan</td><td rowspan="2">Demand Management Plan</td><td rowspan="2"></td></tr>
<tr><td>Customer Service</td></tr>
<tr><td>People Management</td><td>Staff – Skilled, Knowledgeable and Safe</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Workforce Development Plan</td></tr>
</table>

4. Action Plan

The key output from each of the sub-plans (appendices to this document) as an action plan for RW over coming years. The live link can be found at: Consolidated_Task_List_Program.xlsx

Table 4-1 - Action Plan Summary

Project Name: Redland Water Netserv Plan Action Plan Summary

Project Start Date: 01-Jul-13

Project Schedule | **Gantt Chart**

Completion Tolerance 10%

Netserv Part B Appendix	Source Management Plan	Task #	Task Name	Due Date for completion	Start Date	End Date	Duration (days)	Responsibility	Percent complete for Task	Completed?	Forecast / Actual End Date	Performance
A	Asset & Service Management Plan		Netserv Part B - App. A - Asset & Service Management Plan		01/07/2013	30/06/2018	1305					
		1	Ensure continued alignment of infrastructure demand model with the current population estimates prepared by the Redland City Council for RPS 2	01/09/2013	01/07/2013	01/07/2015	261	Group Manager Water & Waste Infrastructure		No	31/07/2015	
		2	Continue to improve the hydraulic models of Redland Water's network	Ongoing	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Infrastructure		No		
		3	Improve the capex program risk assessment and prioritisation methodolo	Ongoing	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Infrastructure		No		
		4	Implement GIS Asset Condition dashboard mapping or a simple alarm system to highlight when an asset has had more than 2 fails	01/09/2015	01/07/2014	01/06/2015	240	Group Manager Water & Waste Infrastructure		No		
		5	Conduct annual Fire Hydrant performance testing (including co-ordination with DMA verification testing and network model verification wo	Annually	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Operations		No		
		6	Complete SEQ Design and Construction Code	01/09/2013	01/07/2013	01/07/2014	261	Group Manager Water & Waste Infrastructure		Yes	01/07/2015	
		7	Deliver capital renewal and growth prograr	Annually	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Infrastructure		No		
		8	Develop and update reliability (condition and criticality) based planned operations, maintenance and minor works prog	31/12/2014	01/07/2014	31/12/2014	132	Group Manager Water & Waste Infrastructure		No		
		9	Review operating protocols with Seqwate	Annually	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Infrastructure		No		
		10	Develop Emergency Response Plar	Annually	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Infrastructure		No	30/06/2018	
		11	Develop and document condition and performance assessment methodologies for all asset classes and key asset type	30/06/2014	01/07/2013	30/06/2014	521	Group Manager Water & Waste Infrastructure		No		
		12	Produce long term asset renewal plans for all asset classes, commencing with basic plans including recommendations from 2012 revaluati	30/06/2013	01/07/2012	30/06/2013	260	Group Manager Water & Waste Infrastructure		No	31/07/2015	
		13	Develop and document policies, processes and procedures for the main asset management practices (e.g. risk assessment, asset data integrity checks an	30/06/2014	01/01/2014	30/06/2014	129	Group Manager Water & Waste Infrastructure		No		
		14	Adopt a simplified project management methodology utilising earned value report	01/09/2014	01/10/2012	01/06/2014	495	Group Manager Water & Waste Infrastructure		No		
		15	With the input of the new planning assumptions, review previous master planning to cover 20 years planning horiz	01/09/2014	01/01/2014	01/06/2014	108	Group Manager Water & Waste Infrastructure		No		
		16	Alignment of program/project management methodology for infrastructure projects with corporate requiremen	01/09/2014	01/01/2014	01/06/2014	108	Group Manager Water & Waste Infrastructure		No		
		17	Maintain / gain understanding of the breakdown of the maintenance budget(i.e. Cyclic vs Planned vs React	Annually	01/01/2014	30/06/2018	1173	Group Manager Water & Waste Operations		No		
		18	Develop a reliable method of estimating the length or value of developer donated asse	01/09/2014	01/01/2014	01/06/2014	108	Group Manager Water & Waste Infrastructure		No		
B	Leakage Management Plan		Netserv Part B - App. B - Leakage Management Plan		01/07/2013	30/06/2018	1305					
		1	Water balance reporting - Conduct water balance assessment for whole of Redland Water distribution network – utilise the basic IWA best practice Annual Wa Balance - (adapted from SLMP worksheet).	Annually	01/07/2013	30/06/2018	1305	Principal Engineer – Water Supply		No		
		2	Asset Management/Audit tasks - Testing and calibration of bulk and district meters, reservoir drop tests, maintenance of loggers and PR	Annually	01/07/2013	30/06/2018	1305	Service Delivery Leader – Water Reticulation		No		
		3	Develop 'bottom-up' water balance methodology for Redland Water distribution netwo	30/06/2014	01/01/2014	30/06/2014	129	Principal Engineer – Water Supply		No		
		4	Determine what is economic level of leakag	30/06/2014	01/01/2014	30/06/2014	129	Principal Engineer – Water Supply in consultation with RW management		No		
		5	Set leakage targets per DMA	Annually	01/07/2014	30/06/2018	1044	Principal Engineer – Water Supply		No		
		6	Improvements to the water supply system operational efficiency (control of Real Losse	Ongoing	01/07/2014	30/06/2018	1044	Service Delivery Leader – Water Reticulation		No		
		7	Undertake review of flow modulated PRV in the syster	30/06/2014	01/01/2014	30/06/2014	129	Principal Engineer – Water Supply		No		
		8	Add data logger battery maintenance/replacement to Maximo scheduled maintenance li	30/06/2014	01/07/2013	30/06/2014	261	Service Delivery Leader – Water Reticulation		No		
C	Overflow Management Plan		Netserv Part B - App. C - Overflow Management Plan		01/07/2013	30/06/2018	1305					
		1	Coordinate and consolidate all aspects of overflow management undertaken by Redland Water over recent ye	30/06/2014	01/07/2013	30/06/2014	261	Principal Engineer Wastewater Collection		No		
		2	Finalise Pump Station Site Based Management Plan.	30/06/2013	01/07/2012	30/06/2013	260	Engineer Treatment Operations		No		
		3	Continue manhole rating program	Reviewed annually	01/07/2013	30/06/2018	1305	Supervisor Wastewater Reticulation		No		
		4	Emergency response/contingency plan sewage overflow & infrastructure failure' document to be reviewed, updated and adop	31/12/2014	01/07/2013	31/12/2014	393	Engineer Treatment Operations & Environment Systems Officer		No		
		5	Investigate the cost effectiveness of infiltration and inflow reduction program to reduce the number of wet weather overfl	30/06/2015	01/07/2014	30/06/2015	261	Principal Engineer Wastewater Collection		No		
		6	Continue the CCTV maintenance and condition monitoring progra	Annually	01/07/2013	30/06/2018	1305	Supervisor Wastewater Reticulation		No		
		7	Program the identification and rectification of system overflow poin	30/06/2015	01/07/2014	30/06/2015	261	Engineer Treatment Operations		No		
		8	Install generators at high risk pump station	30/06/2014	01/07/2013	30/06/2014	261	Principal Control Systems Engineer		No		
		9	Asset inspections of pump station civil and mechanical works and prepare associated renewal plz	Annually	01/07/2013	30/06/2018	1305	Reliability Engineer		No		
		10	Renewal of older electrical switchboards and radio telemetry systems	Annually	01/07/2013	30/06/2018	1305	Principal Control Systems Engineer		No		
D	Drinking Water Quality Management		Netserv Part B - App. D - Drinking Water Quality Management Plar		01/07/2013	30/06/2018	1305					
		1	Implementation of the Risk Management Improvement Programs included in the DWQN	3 to June 2015 dependin	01/07/2013	30/06/2015	522	As identified in the DWQMP		No		
		2	Redland disinfection improvement strateg	30/06/2015	01/07/2013	30/06/2015	522	Principal Engineer Water Supply		No		
		3	Capalaba disinfection by- product strateg	SEQ Water Project Plan	01/07/2013	30/06/2014	261	seewater		No		
		4	Targeted flushing programs	Ongoing	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Operations		No		
E	Total Water Cycle Management Plan		Netserv Part B - App. E - Total Water Cycle Management Plan		01/01/2013	30/06/2018	1956					
		1	Investigations to better define sustainable groundwater yields (North Stradbroke Island). High prio	2014	01/01/2014	31/12/2014	261	Seqwater		No		
		2	Investigate alternative sources of water for new developments, as per actions 5.3.1, 5.3.2 and 5.3.3 for sustainably managing water resou	2014	01/01/2014	31/12/2014	261	Seqwater & RCC through development approvals process				
		3	Undertake further detailed planning studies to investigate improved nutrient treatment processes at Victoria Point WWTP (TN capital upgrades, alum dosing for Eprapah Creek). High Priority.	2014	01/01/2014	31/12/2014	261	RW - Group Manager Water & Waste Infrastructure		No		
		4	Undertake further detailed planning studies to investigate improved treatment processes at other WWTPs (Mt Cotton, Capalaba, Thornside, Dunwich, Point Lookout)	2014	01/01/2014	31/12/2014	261	RW - Group Manager Water & Waste Infrastructure		No		
		5	Continue to implement RCC Trade waste Policy and Environmental Management Pl	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RW – Manager Scientific Services		No		
		6	Revise the Category 1 classification in the RCC Trade Waste Policy to be consistent with the Model Trade Waste EMP published by DNRM & EPA in 2004	01/07/2014	01/07/2013	01/07/2014	262	RW - Senior Tradewaste Officer		No		
		7	Implement recommended actions in Netserv Plan to minimise and manage trade was	2014	01/01/2014	31/12/2014	261	Refer Netserv Plan Part B - Appendix G Trade Waste Management Plan		No		
		8	Continue beneficial reuse of biosolids (currently 100% reuse	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RW - Group Manager Water & Waste Infrastructure		No		
		9	Undertake further detailed planning investigations to assess the viability of a centralised solar drying facility at Cleveland to reduce biosolids generation and assoc transport and disposal costs.	2014	01/01/2014	31/12/2014	261	RW - Group Manager Water & Waste Infrastructure		No		
		10	Implement recommended actions in Netserv Plan to minimise and manage biosolids generati	2014	01/01/2014	31/12/2014	261	Refer Netserv Plan Part B - Appendix F Ecological Sustainability Plan		No		
		11	Improve prevention of illegal stormwater inflow connections to sewer through increased compliance inspections and education campaigns (ALL catchments). H Priority.	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RW - Group Manager Water & Waste Infrastructure		No		
		12	Develop pump station EMPs and undertake pump station upgrades to reduce the likelihood of wet weather overflows (ALL catchments) for compliance with the ER code. High Priority.	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RW - Group Manager Water & Waste Infrastructure		No		
		13	Undertake detailed planning to investigate sewerage upgrades to improve storage/conveyance of wet weather flows. High Prio	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RW - Group Manager Water & Waste Infrastructure		No		
		14	Undertake detailed planning to investigate reducing wet weather infiltration to sewerage infrastructure through sewer rehabilitation / or installation of smart sewe greenfield areas (ALL catchments). High Priority.	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RW - Group Manager Water & Waste Infrastructure & RW - Group Manager Water & Waste Operations		No		
		15	Undertake further detailed planning studies investigating the provision of sewerage infrastructure for unsewered areas. High Priority catchments: SMBs Medium Priority: Hilliards, Eprapah, South East Creeks Develop policy and standards with regard to low pressure sewer systems, for example, connecting missing links in Ormiston.	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RW - Group Manager Water & Waste Infrastructure		No		
		16	Undertake detailed planning studies to investigate undertaking inspections and education to improve management of on-site wastewater systems. (ALL catchm excluding Tarradarrapin). High priority catchments: Cleveland and Thornlands, Eprapah, Upper Tingalpa, SMBs, NSI.	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RCC - Community Standards Group		No		
		17	Undertake detailed planning studies to further investigate sustainable wastewater treatment options for potential new development on NSI. High Priority.	2015	01/01/2015	31/12/2015	261	RW - Group Manager Water & Waste Infrastructure		No		
		18	Investigate the sustainability of on-site irrigation at Cleveland WWTP, as recommended by Water Strategies (20	01/12/2013	01/07/2013	31/12/2013	132	RW – Process Engineer		No		
		19	Investigate policy initiative for wastewater infrastructure rates to be charged on the basis of mains water consumption. (ALL catchmer	2014	01/01/2014	31/12/2014	522	RW - Group Manager Water & Waste Infrastructure		No		
		20	Continue funding flow and pressure monitoring and use to investigate and reduce leakage 'hotspot' from potable water infrastructure (all catchments, North Stradbr Island high priority to address key issue)	Ongoing (2013-2017)	01/07/2013	30/06/2017	1045	RW - Principal Engineer Water Distribution		No		
		21	Review and further investigate the potential for recycled water use (treated WWTP effluent). High priority for Lower Tingalpa, Hilliards Creek, Eprapah Creek, Sout Creeks, NSI.	2014	01/01/2014	31/12/2014	261	RW - Group Manager Water & Waste Infrastructure		No		
		22	Participate in year 4 reviews of TWCM plans	01/06/2013	01/07/2016	30/06/2017	261	RW - Group Manager Water & Waste Infrastructure		No		
		23	Participate in year 5 TWCM plan renewal	TBD (post June 2013)	01/07/2017	30/06/2018	260	RW - Group Manager Water & Waste Infrastructure		No		
		24	Undertake a comparison between WWTP mass pollutant loads per annum and stormwater related mass loads.	01/06/2014	01/07/2013	01/06/2014	240	RW – Senior Process Engineer		No		
F	Ecological Sustainability Management		Netserv Part B - App. F - Ecological Sustainability Management Pla		01/01/2015	30/06/2018	1434			No		
		1	Update the IEM1	2013-14	01/07/2013	30/06/2014	261	Environment Systems Officer & Customer Service Coordinator		No		
		2	Ongoing support and participation in the Healthy Waterways environmental monitoring progr.	N/A	01/07/2013	30/06/2018	1305	General Manager Infrastructure & Operations		No		
		3	Develop Long Term Recycled Water and Reuse and Release Strateg	2014-15	01/07/2014	30/06/2015	261	Group Manager Water & Waste Infrastructure		No		
		4	Develop standardised odour complaint management protocols	2012-13	01/01/2013	01/07/2013	130	Environment Systems Officer/S& Customer Service Coordinator		No		
		5	Odour upgrades at wastewater treatment plants and pump station	As required	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Infrastructure		No		
		6	Review of feasibility of dewatering options (for growth replacemer	2014-15	01/07/2014	30/06/2015	261	Group Manager Water & Waste Infrastructure		No		
		7	Ensuring biosolids quality management (including stabilisation grad	01/06/2013	01/01/2013	01/06/2013	109	Group Manager Water & Waste Operations		No		
		8	Wastewater pump station and WWTP switchboard program	Annually	01/07/2013	30/06/2018	1305	Principal Engineer Control Systems Engineer		No		
		9	Energy accounts reviewer, review of purchasing options	At renewal	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Infrastructure		No		
		10	WWTP sub-metering project	30/06/2015	01/07/2014	30/06/2015	261	Principal Engineer Control Systems Engineer		No		
		11	Implementation of the energy backup progran	30/06/2014	01/07/2013	30/06/2014	261	Principal Engineer Control Systems Engineer		No		
		12	Incorporate RCC energy management strategy and policies in the RW Busines	01/12/2013	01/01/2013	01/12/2013	239	Group Manager Water & Waste Infrastructure		No		
G	Trade Waste Management Plan		Netserv Part B - App. G - Trade Waste Management Plan		01/01/2015	30/06/2018	1434			No		
		1	Review of trade waste policies and procedures to ensure alignment with the *Australian Sewerage Quality Management Guideline*	2014-15	01/07/2014	30/06/2015	261	Senior Trade Waste Officer		No		
		2	Implement the targeted source management prograr	Annually	01/07/2013	30/06/2018	1305	Senior Trade Waste Officer		No		
		3	Catchment loading characterisation progran	30/06/2015	01/07/2014	30/06/2015	261	Group Manager Water & Waste Infrastructure		No		
		4	Monitor impact of salts and sulphides on infrastructur	As required	01/07/2013	30/06/2018	1305	Group Manager Water & Waste Infrastructure		No		
		5	Treatment plants loading capacity and capability investigatio	Annually	01/07/2013	30/06/2018	1305	Senior Process Engineer		No		
		6	Participation in research to detect wastewater that may impact on plant proces	30/06/2015	01/07/2014	30/06/2015	261	Group Manager Water & Waste Infrastructure		No		
		7	Develop and implement community awareness program	30/06/2013	01/01/2013	30/06/2013	129	Senior Trade Waste Officer				
H	Recycled Water Management Plan		Netserv Part B - App. H - Recycled Water Management Plan		01/01/2015	30/06/2018	1434			No		
		1	Prepare new recycled water agreements Carbrook Golf Club Redland Bay Golf Club	30/06/2013	01/01/2013	30/06/2013	129	Service Manager Scientific Services		No		
		2	Obtain exemptions for Class C schemes	30/06/2014	01/07/2013	30/06/2014	261	Service Manager Scientific Services		No		
		3	Recycled water users submit a RWMP	Ongoing	01/07/2013	30/06/2018	1305	Service Manager Scientific Services		No		
		4	The system to collect and track quantities of recycled water is improved so data can easily be obtained and analys	30/06/2014	01/07/2013	30/06/2014	261	Environment Systems Officer		No		
I	Demand Management Plan		Netserv Part B - App. I - Demand Management Plan		01/07/2013	30/06/2018	1305			No		
		1	Develop and delivery of education prograrr	31/12/2013	01/07/2013	31/12/2013	132	Group Manager Water & Waste Infrastructure		No		
		2	Participate in regional demand management initiative	N/A	01/07/2013	30/06/2018	1305	Business Services & Regulatory Compliance Coordinator		No		
J	Workforce Development Plan		Netserv Part B - App. J - Workforce Development Plan		01/07/2013	30/06/2018	1305					
		1	Understand and then aim in a legitimate way to lower the age of the external field operations workfo	01/07/2015	01/07/2014	01/07/2015	262	All Management Staff		No		
		2	Assess the metrics of the gender balance in the organisatio	01/07/2014	01/01/2014	01/07/2014	130	All Management Staff		No		
		3	Continue and foster excellent customer service ethi	Ongoing	01/07/2013	30/06/2018	1305	All Staff		No		
		4	Develop a culture of working efficiently to better developed procedur	Ongoing	01/07/2013	30/06/2018	1305	All Staff		No		
		5	Roll-out employee accountability management mod	01/07/2014	01/07/2013	01/07/2014	262	All Staff		No		
		6	Continue environmental awareness training for all sta	Annually	01/07/2013	30/06/2018	1305	All Management Staff		No		
		7	Lower the vacancy rate within the RW business	As needs arise	01/07/2013	30/06/2018	1305	All Management and Supervisory Staff		No		
		8	Continue sending staff on relevant training courses and programs eg WWTP operators cours	As needs arise	01/07/2013	30/06/2018	1305	All Management Staff		No		
		9	Ensure staff are appropriately trained for equipment that they opera	Annually or as licenses /	01/07/2013	30/06/2018	1305	All Management and Supervisory Staff		No		
		10	Benchmark safety performance of the RW business against other water industry businesse	Annually	01/07/2013	30/06/2018	1305	All Management Staff		No		

Appendix A – Asset and Service Management Plans

A.1 RCC Asset and Service Management Plans

Asset and Service Management Plans (ASMP) have been prepared by RW in line with other services provided by RCC, eg Transport ASMP. Services provided by RW have been broken down into the following three categories for preparation of the ASMP:

- Water Supply
- Wastewater Collection; and
- Wastewater Treatment.

A.2 Water Supply ASMP

The water supply ASMP can be found at:
Water Netserv Plan Part B - water supply asset & service management plan

A.3 Wastewater Collection ASMP

The wastewater collection ASMP can be found at:
Water Netserv Plan Part B - wastewater collection asset & service management plan

A.4 Wastewater Treatment ASMP

The wastewater treatment ASMP can be found at:
Water Netserv Plan Part B - wastewater treatment asset & service management plan

Appendix B – Leakage Management Plan

Water Netserv Plan Part B leakage management plan

Appendix C – Sewerage Overflow Management Plan

Water Netserv Plan Part B - overflow management plan

Appendix D – Drinking Water Quality Management Plan

Water Netserv Plan Part B - drinking water quality management plan

Appendix E – Total Water Cycle Management Plan

Water Netserv Plan Part B - total water cycle management plan

Appendix F – Ecological Sustainability Management Plan

Water Netserv Plan Part B - ecological sustainability plan

Appendix G – Trade Waste Management Plan

Water Netserv Plan Part B - trade waste management plan

Appendix H – Recycled Water Management Plan

Water Netserv Plan Part B - recycled water management plan

Appendix I – Demand Management Plan

Water Netserv Plan Part B - demand management plan

Appendix J – Workforce Development Plan

Water Netserv Plan Part B - workforce development plan

Getting back to basics




Wastewater Collection

Asset and Service Management Plan

Appendix A of Redland Water's

'Water Netserv Plan'

Redland CITY COUNCIL

Document Control	

Rev No	Date	Revision Details	Author	Reviewer	Approver
0	10 June 2013	Draft	LD	BT	BT
1	24 June 2013	RW Review	TW	-	-
2	28 June 2013	Final Draft	MI	BT	BT

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

WASTEWATER COLLECTION

The Portfolio

	Replacement Cost	Accumulated Depreciation	Depreciation Expense
Manholes	88,595,195	23,159,245	1,089,200
Pipelines - Wastewater Gravity	295,542,876	91,839,024	4,095,664
Pipelines - Wastewater Pressure	32,661,081	7,709,145	424,697
Wastewater Pumping Stations	37,970,900	17,636,887	1,453,960
	$454,770,051.76	**$25,346,031.53**	**$1,878,656.50**

Condition Summary

	% Poor	% Fair	% Good	% Very Good	% Excellent
Passive Assets					
Manholes	0%	0%	3%	65%	32%
Pipelines - Wastewater Gravity	0%	0%	10%	65%	25%
Pipelines - Wastewater Pressure	0%	0%	5%	47%	47%
Active Assets					
Wastewater Pumping Stations	12%	4%	39%	31%	14%
TOTAL - All Wastewater Collection Assets	1%	0%	11%	61%	27%

Keeping it Brief

Major Projects 2013/14

- ✓ Cleveland WWTP catchment – Pump Station 6 upgrade $3,930,560
- ✓ Switchboards ($100,600) and Control Systems ($30,700 & $41,000)
- ✓ Odour Control $30,700

Overall Condition and Critical Issues

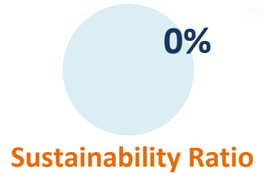
- ➢ Maintenance and renewal of wastewater collection assets is adequate to meet the desired service levels
- ➢ Renewal of underground assets is largely based on 'fix-on-fail' approach as asset base is still relatively young
- ➢ Continued investment is required to maintain levels of service for active assets (wastewater pump station)

Improvement Plan Focus

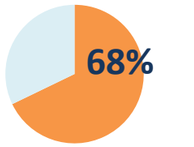
- ➢ Maintain / gain understanding of the breakdown of the maintenance budget (i.e. Cyclic vs Planned vs Reactive)
- ➢ Develop and document condition and performance assessment methodologies for all asset classes and key asset types
- ➢ Implement GIS Asset Condition dashboard mapping

The Final Word

The renewal program for this asset class is sufficient; however significant work is required to understand the remaining life of the AC reticulation mains. Continued funding of wastewater pump station renewals is required to maintain levels of services.

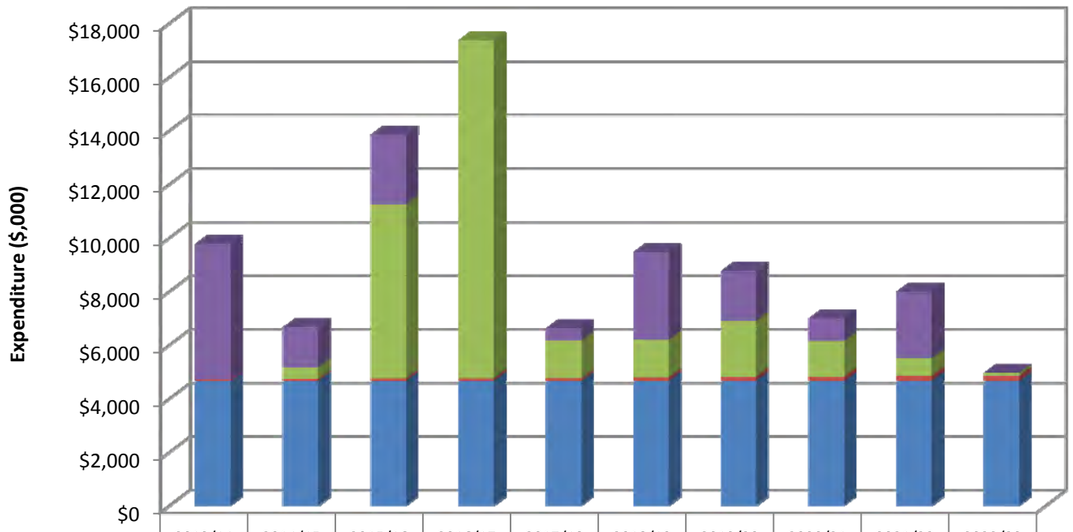


Sustainability Ratio



Consumption Ratio

Long Term Financial Plan Summary



	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Capital Upgrade	$5,060,560	$1,511,089	$2,604,512	$0	$450,951	$3,275,413	$1,865,473	$845,334	$2,484,709	$0
Capital Renewal	$0	$429,600	$6,495,900	$12,617,400	$1,410,500	$1,400,200	$2,083,900	$1,326,489	$653,737	$111,500
Maintenance New Assets	$51,838	$67,317	$93,996	$93,996	$98,615	$132,167	$151,276	$159,935	$185,387	$185,387
Maintenance Existing Asset Base	$4,658,437	$4,658,437	$4,658,437	$4,658,437	$4,658,437	$4,658,437	$4,658,437	$4,658,437	$4,658,437	$4,658,437

2 INTRODUCTION

2.1 SCOPE

This plan applies to all known wastewater collection infrastructure assets that Redland Water manages. The assets covered are primarily underground assets such as gravity and rising mains as well as above ground assets such pump stations and odour control equipment.

The plan is intended for the use of all staff who take on a role in the lifecycle of an asset. The plan will also form part of Redland Water's Water Netserv Plan as required under the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009.

2.2 PLAN FRAMEWORK

Key elements of the plan are:

- Existing asset base – clearly defines the assets value and condition covered by the plan
- Levels of service – specifies the services and levels of service to be provided by council.
- Future demand – how this will impact on future service delivery and how this is to be met.
- Life cycle management – how Council does and plans to manage its existing and future assets to provide the required services
- Financial summary – what funds are required to provide the required services.
- Monitoring and review– how the plan will be monitored to ensure it is meeting Council's objectives.
- Improvement action plan – the actions required to improve the management of the assets and allow progression of the plan from core to advanced.

2.3 KEY STAKEHOLDERS

TABLE 1 – KEY STAKEHOLDERS

Unit / Group/ Department	Contact Person	Responsibility / Lifecycle Phase
Redland Water	Brad Taylor	Primary ASMP Author
Wastewater Networks Unit / Infrastructure and Planning / Redland Water and RedWaste	Tilake Weerasekera	Strategic Planning – Expansion / Upgrade
Wastewater Networks Unit / Infrastructure and Planning / Redland Water and RedWaste	Tilake Weerasekera	Renewal Programming
Distribution & Treatment / Redland Water and RedWaste	Kevin McGuire	Maintenance (Programming and Execution)
Wastewater Reticulation / Redland Water and RedWaste	John Quinn	Construction/Maintenance

Unit / Group/ Department	Contact Person	Responsibility / Lifecycle Phase
Wastewater SCADA/ Redland Water and RedWaste	David Price	Construction
Wastewater Pump Stations/ Redland Water and RedWaste	Ian Finlayson	Construction/Maintenance
Infrastructure and Planning / Redland Water and RedWaste	Bradley Taylor	Disposal

2.4 CORE AND ADVANCED ASSET MANAGEMENT

This asset management plan is prepared as a 'core' asset management plan in accordance with the International Infrastructure Management Manual. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level.

This plan builds on the previous asset management work that Redland Water has completed, starting with the *Asset Management Procedure Manual, March 2006, Opus International Consultants Limited*. Subsequent work to this included the *Asset Management Improvement Plan, July 2006, Opus International Consultants Limited*.

That improvement plan set out prioritised improvements have been summarised into the following organisational goals:

- Robust asset information with information that is consistent and accurate which can be used for planning (understanding asset conditions and asset criticality)
- To better understand the cost of service
- Improved maintenance and renewal programming
- Asset creation is based on a minimised lifecycle cost approach for all major wastewater treatment infrastructure
- Accurately measure system performance on terms of treated effluent quality
- A robust Non-Current Asset Policy

Progress on achieving those goals has been limited by the reform that has occurred in the water industry in South East Queensland since the completion of the *Asset Management Improvement Plan*.

Other asset management work completed by Redland Water includes:

- Asset Criticality Framework, June 2007, Opus International Consultants Limited
- Asset Revaluation Manual, November 2007, Opus International Consultants Limited

The current asset management focus is a revaluation of the asset base that has been returned from Allconnex Water to Redland City Council using Council's revaluation procedures.

Moving forward, there are a number of strategic trends and issues in relation to asset management and the associated implications for Redland Water. Table 2 below details these issues.

TABLE 2 – STRATEGIC TRENDS AND ISSUES

Strategic Trend / Issue	Implications for Redland Water
Changing regulatory environment and focus on back to basics service delivery	Scrutiny of the prudency and efficiency of capital and operating costs mean that investment choices need to be made based on robust, commercial decisions which will deliver infrastructure more effectively providing a 'back to basics' delivery of service. Commercial imperatives will be applied to management of Redland Water's assets to ensure best value over the asset life.
Tightening and increasing complexity of regulatory requirements, guidelines and reporting	Redland Water is facing increasing tightening and complexity of regulatory requirements, guidelines and reporting in the areas of public health, safety and the environment.
Technological advancements	Technological advances in SCADA and CMMS offer opportunities to better integrate and manage Redland Water's assets.
Climate change / business resilience	Greenhouse gas legislation is undergoing major development and there are growing environmental legislative requirements. Given this context, optimising energy use and meeting environmental regulations are imperatives that will make Redland Water more sustainable.
Population growth	Redland Water has a central role in expanding the delivery of safe and reliable water and wastewater services that accommodates the anticipated growth in Redland City.
Customer expectations	Customer and community expectations are increasing and are reflected in issues such as value for money, greater transparency of costs of service provision, and minimisation of odours and overflows from the sewerage systems. The implications are the need for a lowest whole-of-life cost and proactive risk based approach to asset management.
Increasing accountability for the consequences of asset failure	The increasing accountability for the consequences of a wastewater treatment failure comes from both legal and corporate compliance and insurance cost pressures. This drives the need for Redland Water to possess a clear understanding of the risks and the consequences of asset failure and to ensure that appropriate mitigation measures are in place.

2.1 WATER NETSERV PLAN

This asset management plan also forms part of Redland Water's *'Water Netserv Plan'*, specifically Appendix A of Part B of the Netserv Plan. It aims to address the legislative requirement to:

> (a) include information outlining the SEQ service provider's existing and proposed infrastructure for providing its services, indicating how the SEQ service provider proposes—
>
> > (i) to meet performance targets and service standards for assets relating to the operation, maintenance and replacement of existing infrastructure
> >
> > (ii) to provide new infrastructure to meet expected future development and growth in its relevant area, considering demand for the services based on low, medium and high population growth scenarios

To assist with navigating this plan to the requirements of the Water Netserv Plan detailed above, the following table is provided.

TABLE 3 – NETSERV LEGISLATION REFERENCES

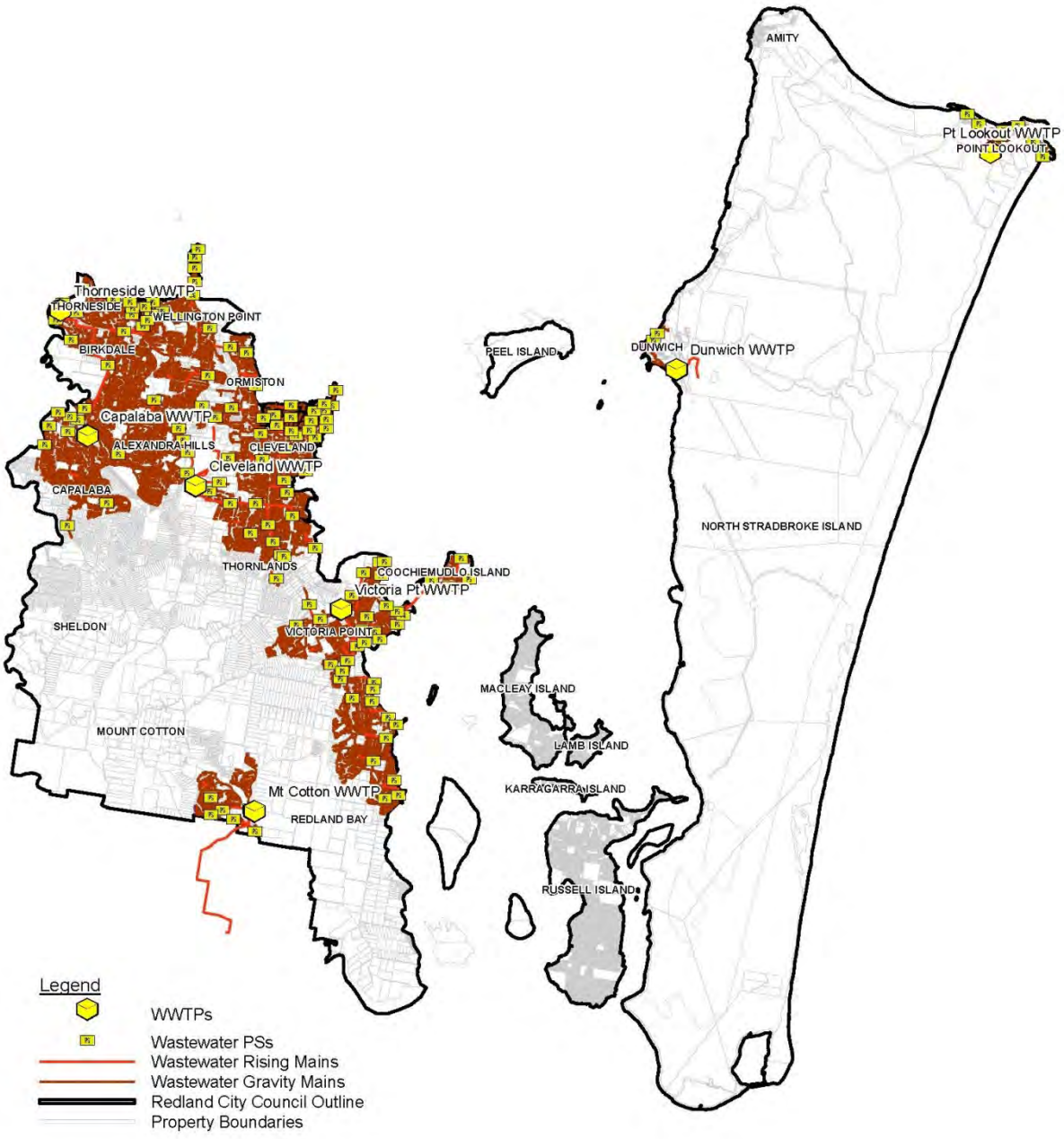
Section 99BP	Description	Link to Section
99BP (a) (i)	How … to meet performance targets and service standards for assets relating to the operation, maintenance and replacement of existing infrastructure	4 & 7.2
99BP (b) (ii)	How … to provide new infrastructure to meet expected future development and growth in its relevant area, considering demand for the services based on low, medium and high population growth scenarios	5 & 7.3

3 EXISTING ASSET BASE

3.1 OVERVIEW

The wastewater collection assets managed by Redland City Council include gravity sewers, rising mains, manholes and wastewater pump stations. Figure 1 below shows the geographic extent of the wastewater collection assets managed by Redland Water.

FIGURE 1 – REDLAND CITY COUNCIL SEWERAGE NETWORK



3.2 FINANCIAL PERSPECTIVE

The Table 2 existing asset information is sourced from the reports, *Redland Water Assets Revaluation 2012 Above Ground Assets, March 2013*, and *Redland Water Assets Revaluation 2012 Underground Assets March 2013*, prepared by GHD.

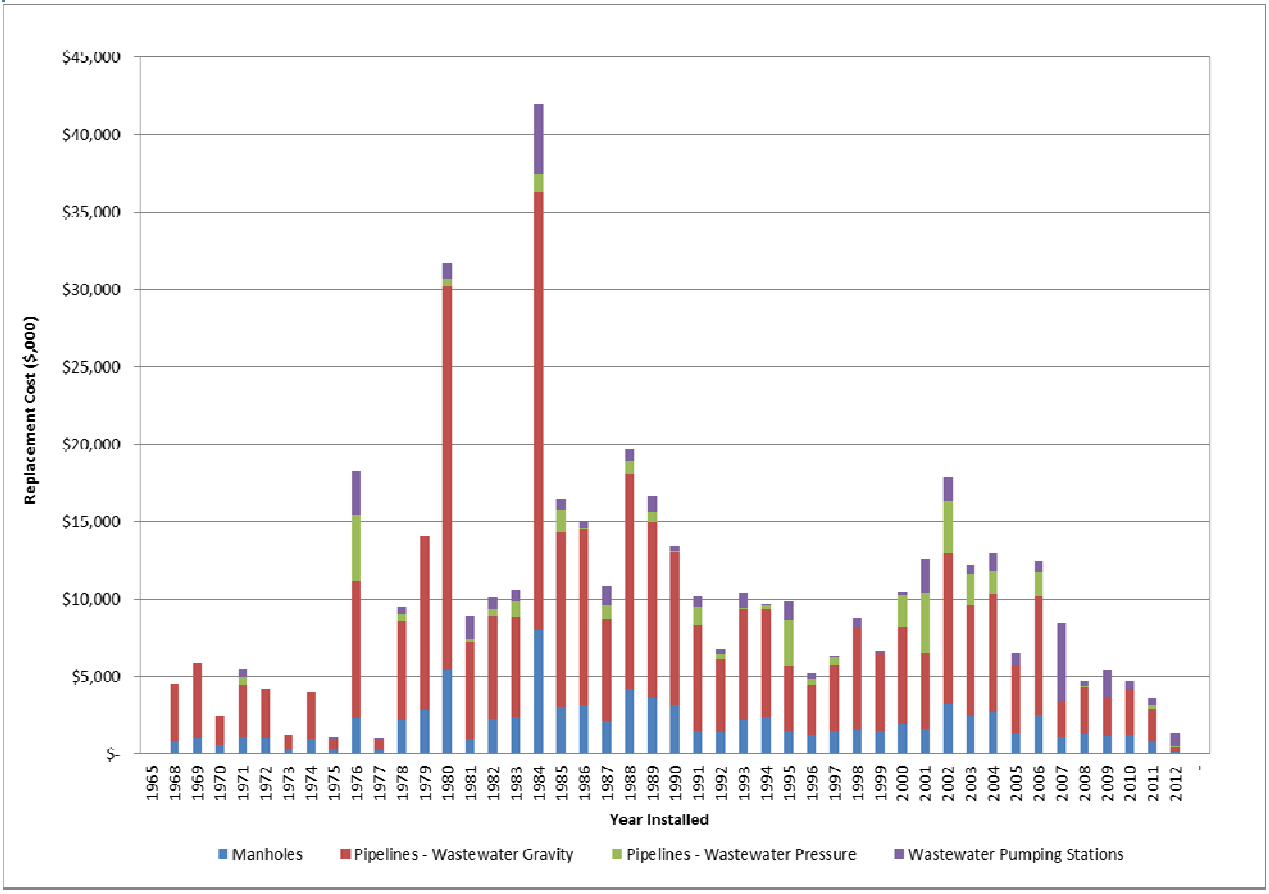
The purpose of these revaluation reports was to provide a revaluation of the assets that fell under the control of Redland Water as of 30 June 2012 following the transfer of these assets from Allconnex Water. The Asset Revaluation was based on the non-current asset values at 30 June 2012.

TABLE 4 – EXISTING ASSET DETAILS

Asset Category	Replacement Cost	Accumulated Depreciation	Written Down Value	Depreciation Expense
Manholes	$88,595,195	$23,159,245	$65,435,950	$1,089,200
Pipelines - Wastewater Gravity	$295,542,876	$91,839,024	$203,703,852	$4,095,664
Pipelines - Wastewater Pressure	$32,661,081	$7,709,145	$24,951,936	$424,697
Wastewater Pumping Stations	$37,970,900	$17,636,887	$20,334,013	$1,453,960
TOTAL	$454,770,052	$25,346,032	$45,285,950	$1,878,657

A pictorial view of the asset base (age versus value) is provided in the following Figure 2.

FIGURE 2 – AGE PROFILE



3.3 ASSET CONDITION

Generally, the Redland City Council's wastewater collection assets are in a very good condition. Nearly 90% of those assets are in Very Good or Excellent Condition. A further 11% are in Good condition, while only 1% are in a Fair or Poor condition. Figure 3 shows this information.

FIGURE 3 – ASSET CONDITION

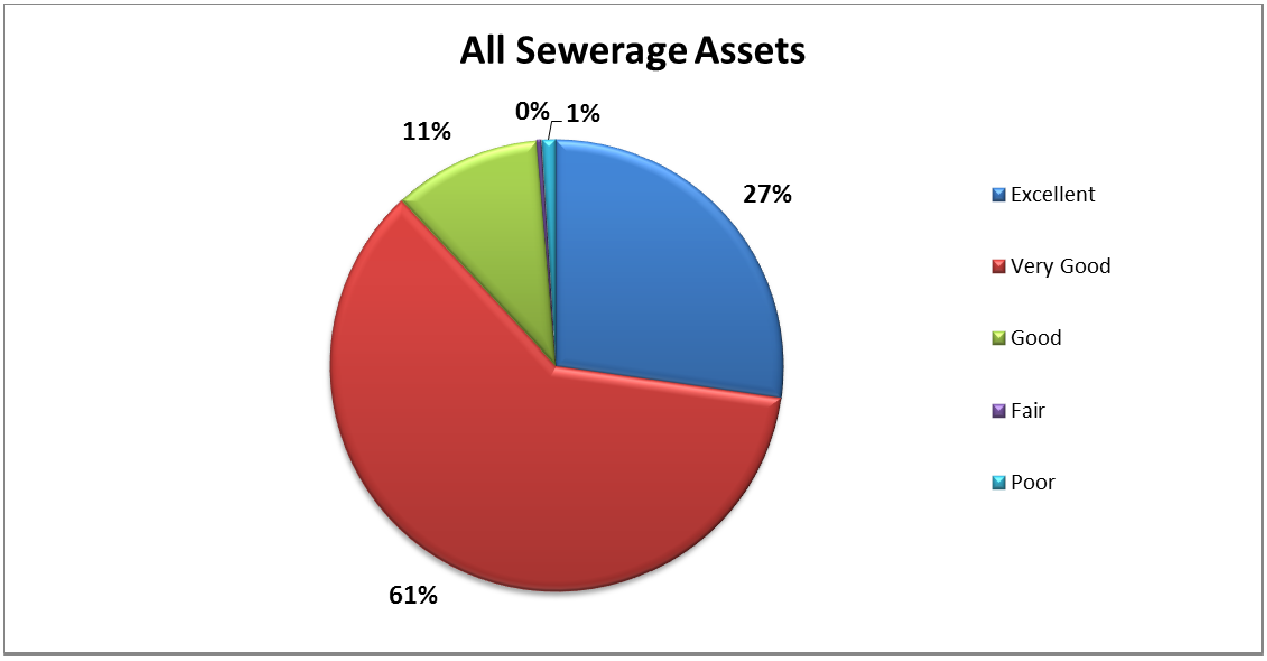


Figure 4 and Figure 5 provide separate condition profiles for Council's wastewater pipeline assets, i.e. sewers, manholes and pressure pipelines, and its sewage pump stations. It can be seen from those separated profiles that the sewage pumping stations, while representing less than 10% of the total sewerage asset value, have a much lower condition rating than the sewerage collection pipelines and manholes.

FIGURE 4 – ASSET (SEWERS AND MANHOLES) CONDITION

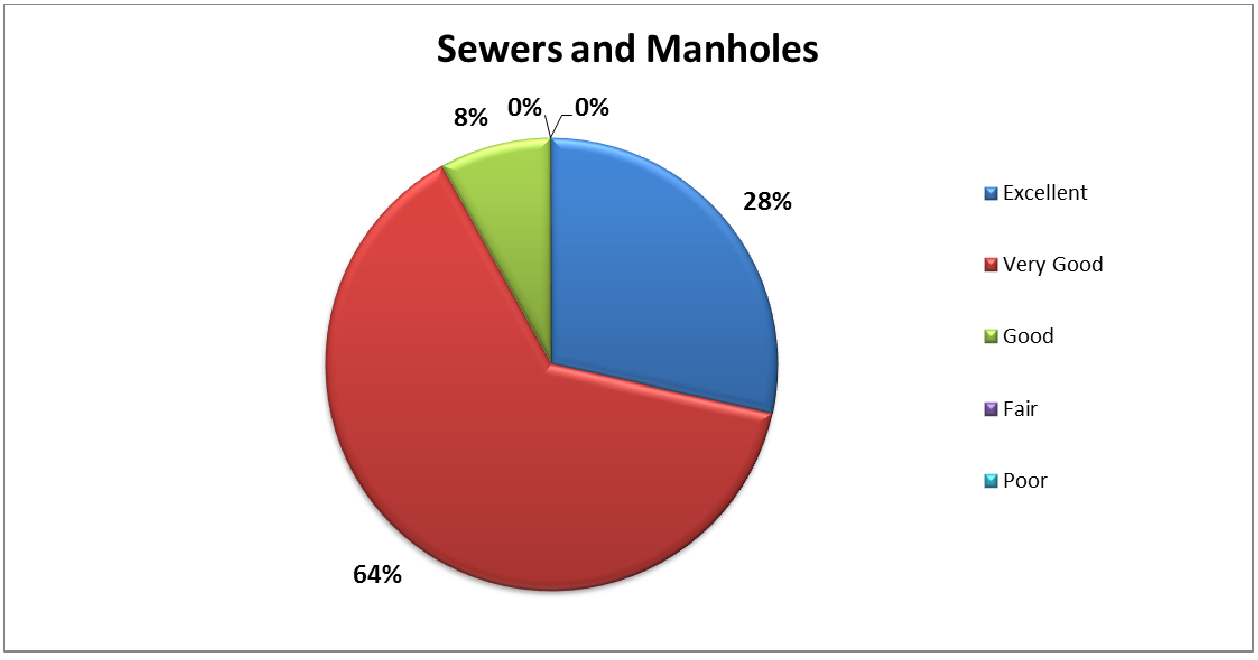
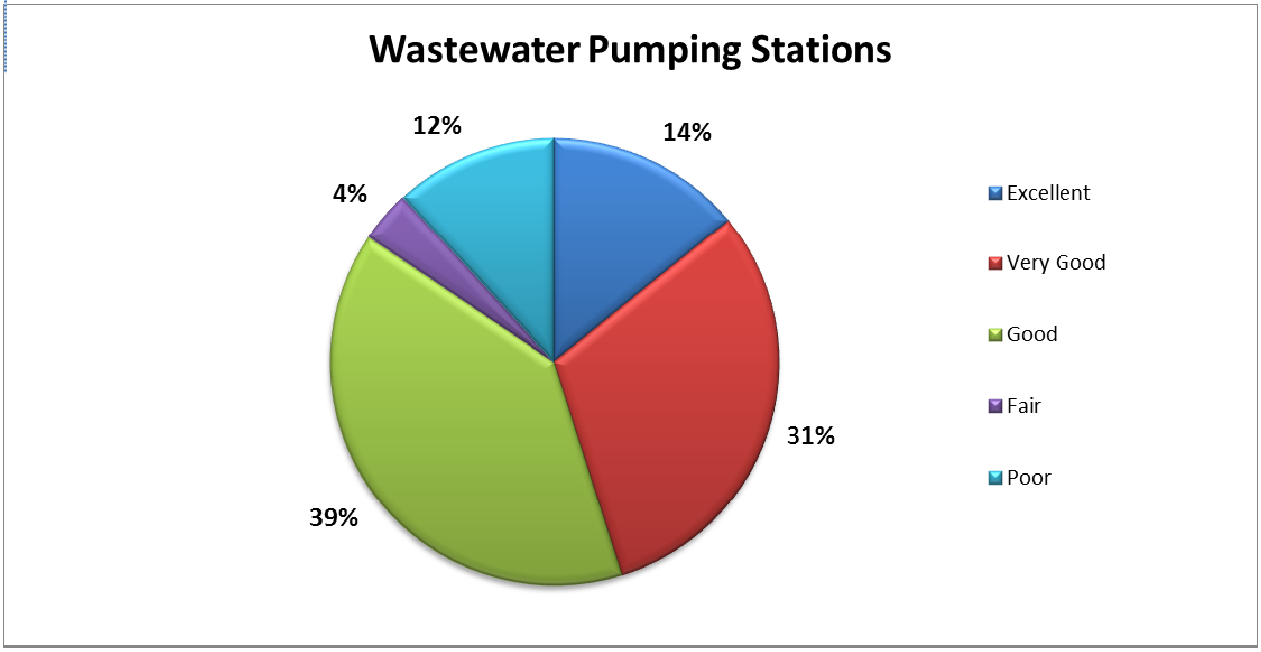


FIGURE 5 – ASSET (WASTEWATER PUMPING STATIONS) CONDITION



The above figures are based on the replacement cost value for sewerage supply assets. Condition is measured using a 1 – 5 rating system.

Rating	Description of Condition
1	**Excellent condition**: Only planned maintenance required.
2	**Very good**: Minor maintenance required plus planned maintenance.
3	**Good**: Significant maintenance required.
4	**Average**: Significant renewal/upgrade required.
5	**Poor**: Unserviceable.

4 LEVELS OF SERVICE

4.1 OVERVIEW

As a SEQ service provider, Redland City Council, through Redland Water, is required to comply with the customer service protection provisions in the South-East Queensland Water (Distribution and Retail Restructuring Act) 2009. One component of these requirements is the adoption, and publishing of a Customer Service Charter to communicate customers' rights in relation to water supply and wastewater collection services.

Redland Water outlines its commitments and responsibilities to its customers and standards of its services in its Customer Service Standards, as required under the Code. The current versions of Redland Water's Customer Service Standard can be found at:

http://www.redland.qld.gov.au/SiteCollectionDocuments/_Environment_Waste/Water/8206-rw-service-standards.pdf

These standards cover customers across all of Council's sewered areas on the mainland and including sewered areas in the North Stradbroke Island townships of Dunwich and Point Lookout.

4.2 CUSTOMER RESEARCH AND EXPECTATIONS

Currently the setting of levels of service for Redland Water has primarily been focused on meeting legislative requirements in terms of setting and monitoring customer service standards. There is limited consultation undertaken by Redland Water with the community in relation to the setting of these standards. The setting of levels of service has been driven by State Government agencies (e.g. the former Queensland Water Commission) over the last 5 years in South East Queensland.

Future changes to the levels of service will require an in-depth understanding of the cost of service and the impacts of change to levels of service on the service costs, before customer research and expectations can be gauged.

4.3 CURRENT LEVELS OF SERVICE

As identified above the current levels of service for Redland Water are largely driven by compliance with State Government requirements for Southeast Queensland.

These levels of Service relate to how the community receives the service in terms of safety, quality, quantity, reliability, responsiveness, cost/efficiency and legislative compliance.

Supporting the community service levels are operational or technical measures of performance developed to ensure that the minimum community levels of service are met. The current Redland Water levels of service are presented below in Table 5 below. The KPIs currently measured in the Redland Water monthly business unit report are identified with example performance trends in Table 5 below. The full monthly business unit report can be read at:

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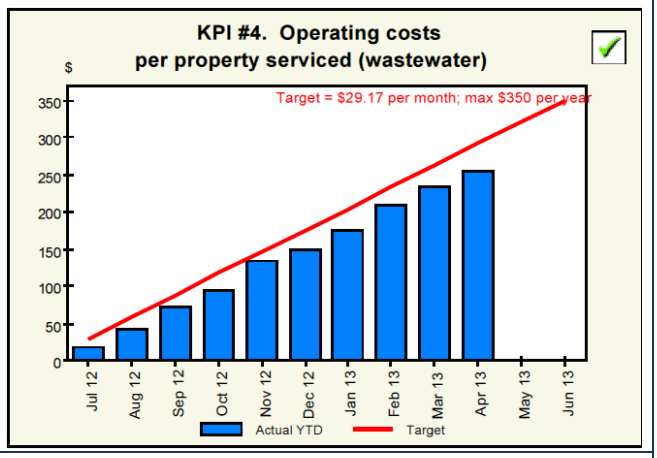
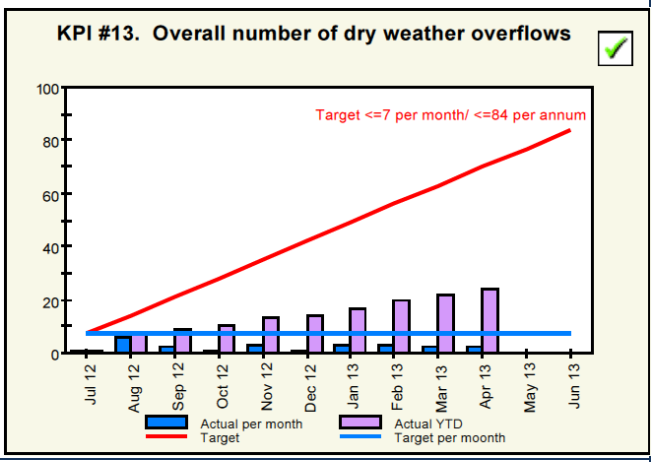
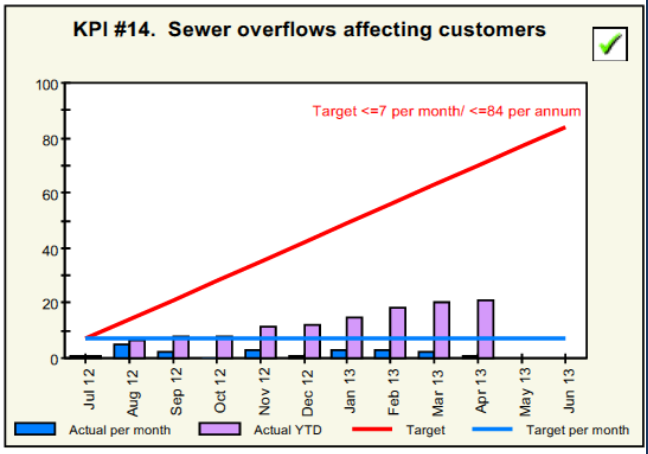
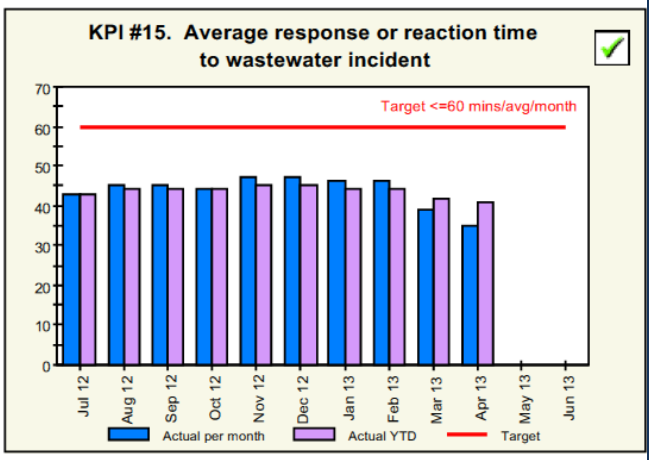
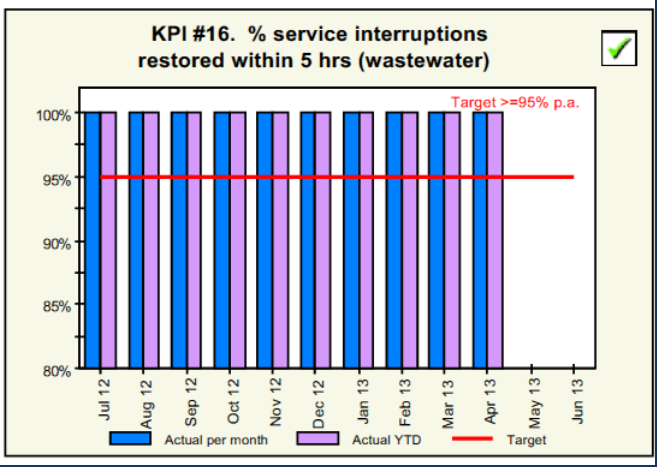
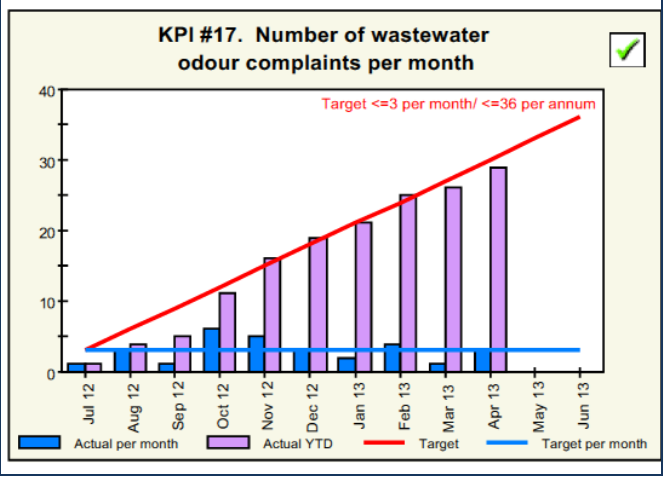
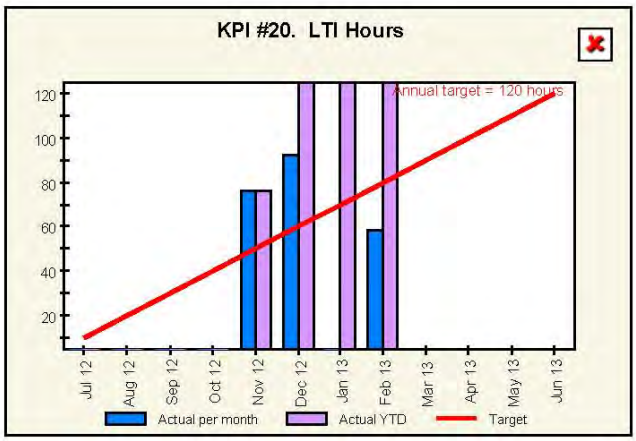
TABLE 5 – CURRENT SERVICE LEVELS

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Quality				
Function	Wastewater operating cost per property served	KPI # 4	< $350 per year	
	Dry weather sewage overflows	KPI # 13	<= 7 per month and <= 84 per year	
	Sewage overflows affecting customers	KPI # 14	<= 7 per month and <= 84 per year	

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
	Average response or reaction time to wastewater incident	KPI # 15	< 60 minutes per average incident per monthr	
	Percentage of interruptions restored within 5 hours	KPI # 16	>= 95 percent per annum	
	Wastewater odour complaints per month	KPI # 17	<= 3 per month and <= 36 per year	

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
Safety	LTI hours (lost time injury hours lost)	KPI # 20	< 120 hours	

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target
TECHNICAL LEVELS OF SERVICE			
Sewage Loading	Average Dry Weather Flow (ADWF)		250 L/EP/d
	Peak Wet Weather Flow (PDWF)		5 x ADWF
Gravity Sewer Design	Flow calculation approach		Mannings Equation
	Manning's "n"		0.013
	Minimum velocity @ PDFW		0.7 m/s
	Maximum velocity @ PWWF		2.0 m/s
	Depth of flow @ PWWF – Existing system		At least 1.0 m below MH cover level and no spillage through overflow structures.
	PWWF Depth of Flow– New sewers		Design for pipe full capacity

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target
TECHNICAL LEVELS OF SERVICE			
Pumping Station Design	Wet well volume excluding emergency storage		$\frac{0.9 \times Q}{N}$ Where N = 12 for pump power < 30 kW, 8 for pump power between 30 and 50 kW, and 5 for pump power > 50 kW
	Emergency storage		4 hours of ADWF
	Single pump capacity		C_1 X ADWF where > 1,000 EP ($C_1 = 15 \times EP^{-0.1587}$) 5 X ADWF where < 1,000 EP
	Total pumping capacity		5 X ADWF
Rising Main Design	Flow calculation approach		Hazen Williams
	Friction factors		110 for diameters ≤ 300 mm 130 for diameters > 300 mm
	Minimum velocity		0.7 m/s for single pump running
	Design velocity		1.0 to 1.5 m/s
	Maximum velocity		2.0 m/s for single pump running 2.5 m/s for all pumps running

4.4 DESIRED LEVELS OF SERVICE

Currently the setting of levels of service for Redland Water has primarily been focused on the meeting legislative requirements in terms of setting and monitoring customer service standards. There is limited consultation with the community in relation to the setting of these standards. Future revisions of, particularly the community and functional levels of service, will required more community consultation. A greater understanding of the operating costs of alternate levels of service will need to be presented.

The next iteration of the technical levels of service will incorporate the adoption of the SEQ-wide Design and Construction Code. Current drafts of the SEQ D&C code do not create any significant departures from the current levels of service.

As part of the development of the SEQ D&C code, a comprehensive Community Consultation period was undertaken between 8 June 2012 and 17 July 2012. The submissions were considered and the code amended as required. After adoption by the SEQ service providers, the adoption of the code will be notified by the gazette notice from the Minister responsible for the administering the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009.

The current version of the SEQ D&C code levels of service planning parameters can be found:

http://www.seqcode.com.au/storage/seq-standards-other/SEQ%20Water%20Supply%20and%20Sewerage%20Planning%20Guidelines.pdf

The SEQ D&C code is due for adoption and gazettal by 1 July 2013. Redland Water will need to participate in the review of the standards and the community consultation in order to ensure the best infrastructure solutions are available for Redland City Council. Redland Water will revise its desired levels of service to be in line with the SEQ D&C code as part of its next PIP revision.

4.5 SERVICE AND PERFORMANCE DEFICIENCIES

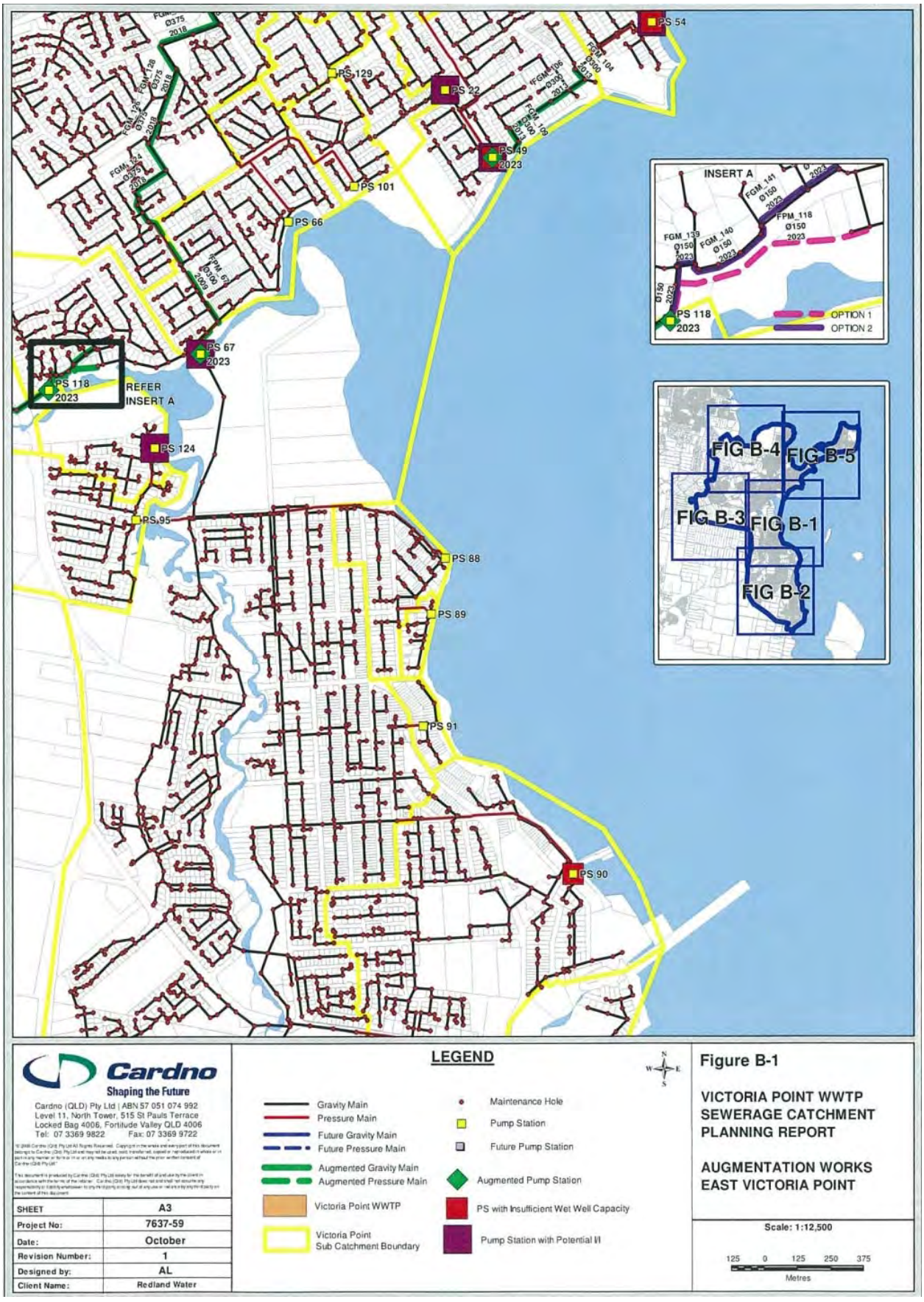
It is expected that the current levels of service will largely be sufficient in meeting community expectations of wastewater transport services.

Master planning studies for major sewerage catchments of Cleveland, Thorneside, Victoria Point and Mount Cotton were conducted in 2009 and in 2011 for Capalaba. These studies took into account the impact of growth within the catchments based on the then Redland Planning Scheme. Impact of major development areas of Kinross, South East Thornland and Double Jump Road areas were also considered, although there were no Structure Plans available for these areas.

These studies identified the locations, extents and appropriate sequencing of upgrade requirements of assets within each catchment. Upgrade requirements of wastewater gravity mains, rising mains and pumping stations were scheduled and capital cost estimates made. Development of a 30 year capital works programme was the end result of these investigations.

A typical map representing identified augmentation requirements appears in Figure 6.

FIGURE 6 –TYPICAL REDLAND CITY COUNCIL SEWERAGE NETWORK



5 FUTURE DEMAND

5.1 INFLUENCES ON DEMAND

The primary influences on demand for the sewerage network are:

- Sewer inflow and infiltration management
- Demographics of the Service Area (Land Development / Population Growth)

Sewer Inflow and Infiltration Management

Redland Water has recently completed sewer inflow and infiltration investigations for approximately 70% of its sewerage catchments. Those investigations have identified in which general areas illegal stormwater connections have been made to private house sewers. Smoke testing will now need to be carried out to locate the offending properties. A preliminary estimate of the cost of carrying out those smoke tests is in the order of $600,000 per annum for the next five years.

The investigations have also identified generally where Council's sewerage is suffering from groundwater infiltration. Detailed CCTV investigations will need to be carried to locate where the sewers are broken and cracked, and where sewer lining or sewer replacement works will need to be carried out. A preliminary estimate of cost for those remedial works is in the order of $1 million per annum for the next five years.

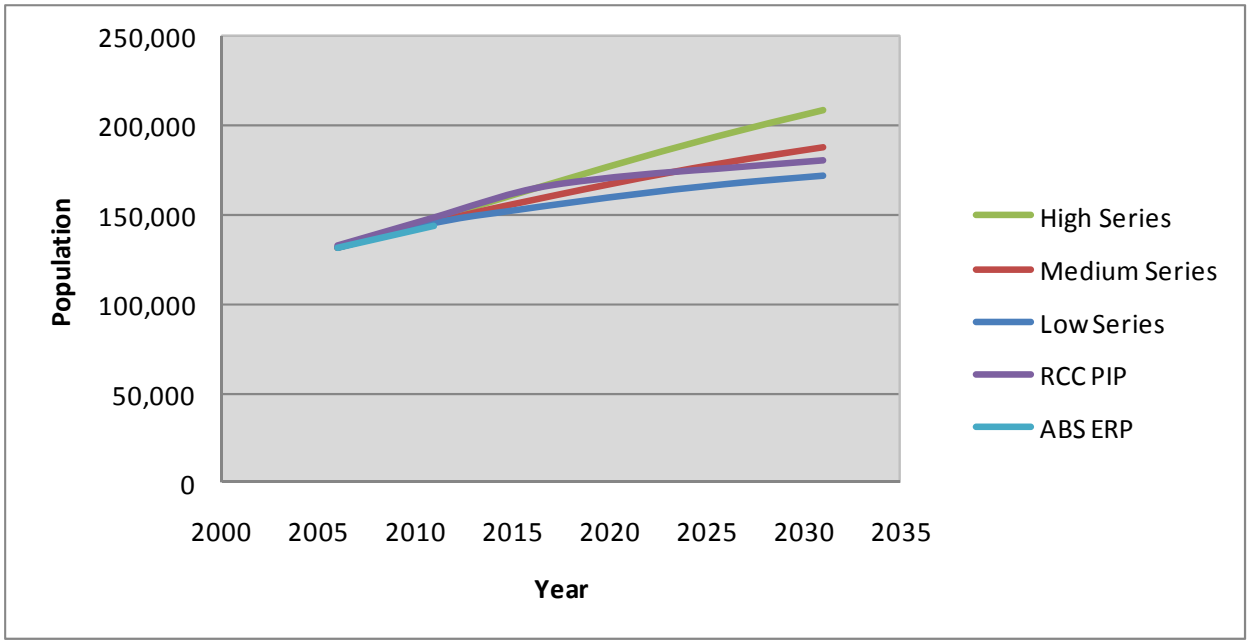
Land Development / Population Growth

New development areas in South East Thornlands and Kinross Road require extension of the wastewater network in order to provide wastewater services to future lots and customers. These new areas, along with continued land development in Redland Bay and Mt Cotton Village areas make up the bulk of the areas where new wastewater assets will be created.

The future Victoria Point development area is contiguous with local services and will also accommodate additional residential development with the extension of the water supply network. Infill development in other parts of the City will generally utilise existing network 'spare' capacity.

Demand projections used for the determination of new infrastructure required to meet expected future development and growth are built up from the projections of population and employment growth contained within the Redland City Council's Priority Infrastructure Plan (PIP). The PIP population projections are based on amended (2006) medium to high series projections of estimated resident population. The figure below demonstrates the envelope of population projections that we are currently operating in.

FIGURE 6 – POPULATION PROJECTION COMPARISONS



As can be seen from Figure 6, the RCC PIP projections, which form the basis for our infrastructure demand projections, starts off following the high series projection, then growth rates gradually taper to meet a projection somewhere between the medium and the low series projections. Note that all projections currently end at a 2031 planning horizon – this is consistent with RCC's recent planning work undertaken as part of the Redland Planning Scheme 2015 (RPS 2015). Redland Water employees undertake a process of continual monitoring and review of planned capital expansion programs in order to ensure that network expansion keeps pace with growth in demand, whether that demand matches Low Series, Medium Series or High Series Growth. Section 7.3 discusses this process in further detail.

Based on the assumption that the RCC PIP population projections represent the population that can be accommodated under the existing allowable uses in the planning scheme, then without changes to land use zonings in the RPS, then the only variance in the projections is the growth rate at which they occur. The declining growth rate in the later years of the RCC PIP projections give rise to a possibly wide range of years that ultimate RPS demand could be reached, i.e. potentially between 2021 and 2031 should there be a change to the growth rates. The variability of growth rates is highlighted by the lighter blue line on the graph for the ABS ERP data between 2006 (base year for projections) and 2011 (most recent census) – it is below all the projection lines including the low series projections. The current growth rate indicates that it is likely that the current planned ultimate demand will be reached at some time past 2031, i.e. outside the 20 year planning horizon requirement for the *'Water Netserv Plan'*.

To ensure appropriate infrastructure solutions are developed, the alignment of the Redland Wastewater Infrastructure Demand Model to the current Redland City Council population estimates (e.g. those prepared for the RPS 2015) is key. Once this key task has been completed, the reviews and updates of the current master plans to ensure coverage of the 20 year planning horizon will be required.

5.2 PRIORITY INFRASTRUCTURE PLAN AND DEVELOPER DONATED ASSETS

The 2012 Redland City Council Priority Infrastructure Plan (PIP) – Table 10.6.4, details the trunk infrastructure required to service the projected future demand. In some areas additional network augmentations will be required to maintain current desired standards of service.

A summary of Table 10.6.4 of the Priority Infrastructure forms Table 6 below.

TABLE 6 – PROJECTED FUTURE ASSETS

Type of work	Quantity	Establishment cost ($)
Wastewater Gravity Mains	11,600m	$7,617,230
Wastewater Rising Mains	6,170m	$2,117,248
Wastewater Pump Stations	40 No.	$11,936,926
Wastewater Pump Station Wells	13 No.	$1,111,148
Emergency Storages for Pumping Stations	42 No.	$8,819,378
	Total	**$31,601,930**

Note: # Includes Discounting and Escalation as per the Redland City Council discounting methodology.

** There is much more reticulation that needs to be constructed. This table only includes the pipework that needs to be constructed by a particular time to ensure the network continues to meet the DSS.*

As indicated in the *Master Plans* that inform the PIP, not all the developer constructed or future donated assets have been identified. Without detailed knowledge of the future road layouts that are likely to be used, an estimation of the length of future wastewater main assets is very difficult.

6 RISK MANAGEMENT

Redland Water undertook a detailed Asset Criticality Framework assessment in 2007. The report was undertaken in three (3) phases with each phase providing more detail as the review progressed from Asset Group Level to Asset Component Level. The complete report can be read at:

..\..\..\Reports\RWW_ScannedReports\251_RWW Asset Criticality Framework - Complete Report.pdf

Table 7 below shows the summary of the Phase 1 assessment of criticality at Asset Group level.

TABLE 7 – ASSET CRITICALITY PHASE 1 ASSESSMENT

Asset Group	Score	Criticality
Sensitive - Large Sewer Pump Stations	154	ESSENTIAL
Trunk Gravity Sewer Mains	145	ESSENTIAL
Trunk Pressure Sewer Mains	145	ESSENTIAL
Sensitive - Medium Sewer Pump Stations	134	ESSENTIAL
Submarine Trunk Pressure Sewer Mains	134	ESSENTIAL
Non-sensitive - Large Sewer Pump Stations	109	IMPORTANT
Sensitive - Small Sewer Pump Stations	93	IMPORTANT
Non-sensitive - Medium Sewer Pump Stations	93	IMPORTANT
MH on Trunk Transfer Sewer Mains	69	MINOR
Effluent	69	MINOR
Non-sensitive - Small Sewer Pump Stations	63	MINOR
Reticulation Pressure Sewer Mains	50	MINOR
Reticulation Gravity Sewer Mains	46	MINOR
Manholes on Reticulation Sewer Mains	45	MINOR

Table 8 below shows the critical risks and their associated risk rating along with the proposed mitigation measure. The worst risk rating is currently estimated to be H-24.

TABLE 8 – CRITICAL RISKS AND TREATMENT PLANS

Asset Group At Risk	What can Happen	Consequence	Likelihood	Risk Rating	Risk Treatment Plan
Sensitive - Large Sewer Pump Stations	Failure of pump station – environmental damage due to sewage discharge	Major	Possible	H-24	Regular condition monitoring
Trunk Gravity Sewer Mains	Failure of main – sewage discharge to environment	Major	Possible	H-24	Regular condition monitoring
Trunk Pressure Sewer Mains	Failure of main – sewage discharge to environment	Major	Possible	H-24	Regular condition monitoring
Sensitive - Medium Sewer Pump Stations	Failure of pump station – environmental damage due to sewage discharge	Major	Possible	H-24	Regular condition monitoring
Submarine Trunk Pressure Sewer Mains	Failure of main – sewage discharge to environment	Major	Possible	H-24	Regular condition monitoring
Non-sensitive - Large Sewer Pump Stations	Failure of pump station – environmental damage due to sewage discharge	Medium	Possible	M-18	Regular condition monitoring
Sensitive - Small Sewer Pump Stations	Failure of pump station – environemental damage due to sewage discharge	Medium	Possible	M-18	Regular condition monitoring
Non-sensitive - Medium Sewer Pump Stations	Failure of pump station – environmental damage due to sewage discharge	Medium	Possible	M-18	Regular condition monitoring

Asset Group At Risk	What can Happen	Consequence	Likelihood	Risk Rating	Risk Treatment Plan
MH on Trunk Transfer Sewer Mains	Failure of manhole	Low	Possible	M-12	Preventative maintenance program
Effluent	Failure of effluent outfall	Low	Unlikely	L-8	Regular condition monitoring
Non-sensitive - Small Sewer Pump Stations	Failure of pump station – environmental damage due to sewage discharge	Low	Possible	M-12	Regular condition monitoring
Reticulation Pressure Sewer Mains	Failure of main – sewage discharge to environment	Low	Possible	M-12	Regular condition monitoring
Reticulation Gravity Sewer Mains	Failure of main – sewage discharge to environment	Low	Possible	M-12	Regular condition monitoring
Manholes on Reticulation Sewer Mains	Failure of manhole	Low	Unlikely	L-8	Preventative maintenance program

As can be seen above, the risk based approach to asset management will need to be updated to take into account the assets currently operated by Redland Water. Updating the maintenance schedules based on the revised risk management schedules will then need to be undertaken.

7 LIFECYCLE MANAGEMENT PLAN

7.1 OVERVIEW

The majority of Redland City Council's wastewater collection infrastructure is relatively young and capital renewal expenditure has historically been relatively minor. Consequently there has not been a driver to develop a comprehensive asset evaluation and renewal strategy. To date Redland Water has adopted an informal process for determining (prioritising) the asset replacement strategies.

7.2 RENEWAL / REPLACEMENT PLAN

7.2.1 RENEWAL APPROACH

Renewals planning is still, to a large extent, undertaken by operations groups based on condition assessments and their experience with asset performance. Some condition and performance information is being captured.

As performance and condition information collection improves strategies relating to renewals can be developed. At this stage the length over which, and the quality of the older data, limit the extent to which conclusions can be drawn.

A renewal strategy for each asset, based on its criticality, condition and performance, can then be developed which:

- optimises expenditure on asset rehabilitation and maintenance;
- plans for funding asset replacement or rehabilitation; and
- reviews the existing assets to determine whether existing infrastructure as it approaches the end of its useful life should be:
    - replaced with a similar asset;
    - replaced with larger capacity infrastructure as part of an augmentation program;
    - replaced with smaller capacity infrastructure as customer demands have reduced; or
    - disposed of.

<u>Process for developing and updating an evaluation and renewal strategy</u>

Redland Water continually improves the manner in which it manages its assets. During the preparation of the 2005/06 – 2007/08 Total Management Plan, Redland Water identified the need to review its asset management practices. Since then the following strategic activities have been undertaken:

- Asset management manual (A comprehensive manual describing the roles and responsibilities for asset management activities was developed.)

- Asset management improvement plan (A review of current best practice (both locally and nationally) was undertaken and a gap analysis, with current business practice, undertaken. An improvement plan, identifying specific activities with corresponding responsibilities and setting future direction was developed. The improvement plan is being implemented with policies and procedures being developed and activities, some of which are described below, being undertaken.)

- Asset revaluation (There are a number of functions and activities undertaken by organisations during the course of normal business that can contribute significantly to the development of risk based strategic outcomes. One of these is the asset revaluation process which includes the requirement for condition and performance assessment in order to determine remaining useful lives. Redland Water undertook a revaluation of its entire asset base in 2007 and reviewed condition and assessed some aspects of performance where the information was available.)

- Criticality assessment (The criticality assessment essentially represents the consequence side of the risk equation. This assessment was undertaken in three parts detailed below:

  In Phase 1:

  - Identify asset groups for evaluation
  - Prepare a weighted criticality assessment criteria for asset groups
  - Assess criticality of asset failure within each group and assign a score
  - Rank asset groups based on criticality
  - Determine critical asset groups to be considered for Phase 2

  In Phase 2:

  - List the components of each critical asset group
  - Develop assessment criteria for key factors influencing component level criticality
  - Assess criticality of components using the developed criteria for key component factors
  - Determine critical components to be considered for Phase 3

  In Phase 3:

  - Develop methodology to estimate likelihood of failure
  - Determine likelihood of failure for those components
  - Determine potential risk (risk if no mitigation in place) of failure of critical components
  - Provide reference table for mitigation factors that will allow Redland Water to establish residual risk of critical components

- Risk assessment

  The assessment of remaining lives based on condition, if quantified appropriately, can also be used a surrogate for 'likelihood' in the risk equation. When combined with the criticality rating of an asset, the potential (unmitigated) risk of the asset can be evaluated. During the criticality assessment, the focus was

on identifying high criticality components and therefore the risk assessment undertaken will consequently focus on high risk assets.

The next step is to identify current risk, risk acceptability (appetite) and desired residual risks and then to develop and implement the specific additional 'tactical' programs and strategies for asset inspections, maintenance and renewals based on the identified risks.

- Tactical asset management

  This refers to the 'coal face" strategies and programs that are in-place or being developed. The development of these programs have run in parallel with the risk assessment but the intention in the medium term is to focus development of tactical programs that focus on developing reliability based plans for higher risk areas identified through the risk assessment. One of the key improvements that can be implemented is a GIS-based asset condition dashboard/map, which essentially is a simple alarm style system which will trigger if the asset has more than 2 failures.

  These strategies generally relate to on-going renewals and replacement programs and to date, strategies have been developed for manhole raising and unlined fitting replacements.

  In addition to this the following longer terms requirements have been identified:

  - The need to develop and document condition and performance assessment methodologies for all asset classes and key asset types
  - Long term asset renewal plans for all asset classes, commencing with basic plans including recommendations from 2012 revaluation
  - Develop and document policies, processes and procedures for the main asset management practices (e.g. risk assessment, asset data integrity checks and improvements).

In addition, the implementations of the recommendations from the recent asset revaluation need to be undertaken by Redland Water.

7.2.2 RENEWAL APPROACH

Based on the methodology outlined above, the renewal profile as prepared under the GHD Redland Water Assets Revaluation 2012 report is detailed below in Figure 7. The data in this figure is purely based on a replacement at the adopted end of useful life and has not been optimised.

Figure 8 shows the renewal profile for the sewer, manholes and pressure pipeline component of the total asset base. Figure 9 shows the renewal profile for the wastewater pump station component.

FIGURE 7 – PROJECTED AND PLANNED RENEWAL EXPENDITURE (ALL WASTEWATER ASSETS)

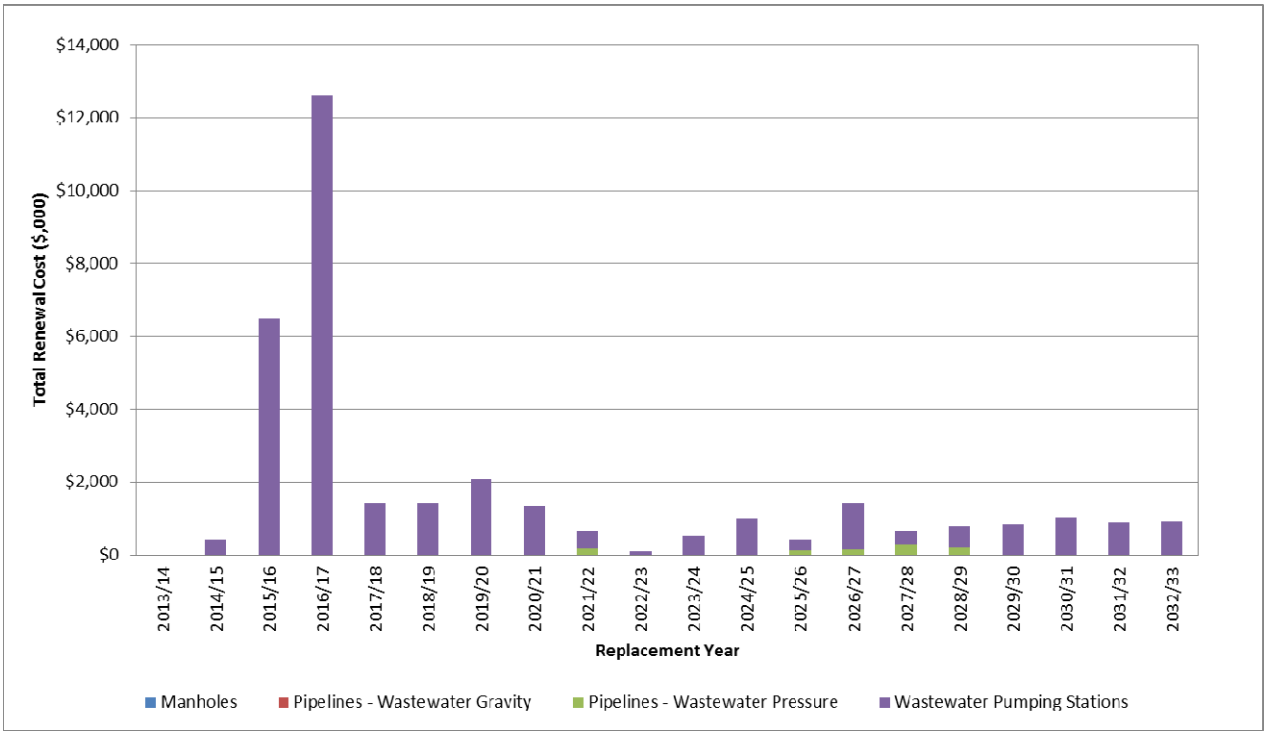


FIGURE 8 – PROJECTED AND PLANNED RENEWAL EXPENDITURE (SEWERS, MANHOLES AND PRESSURE PIPELINES)

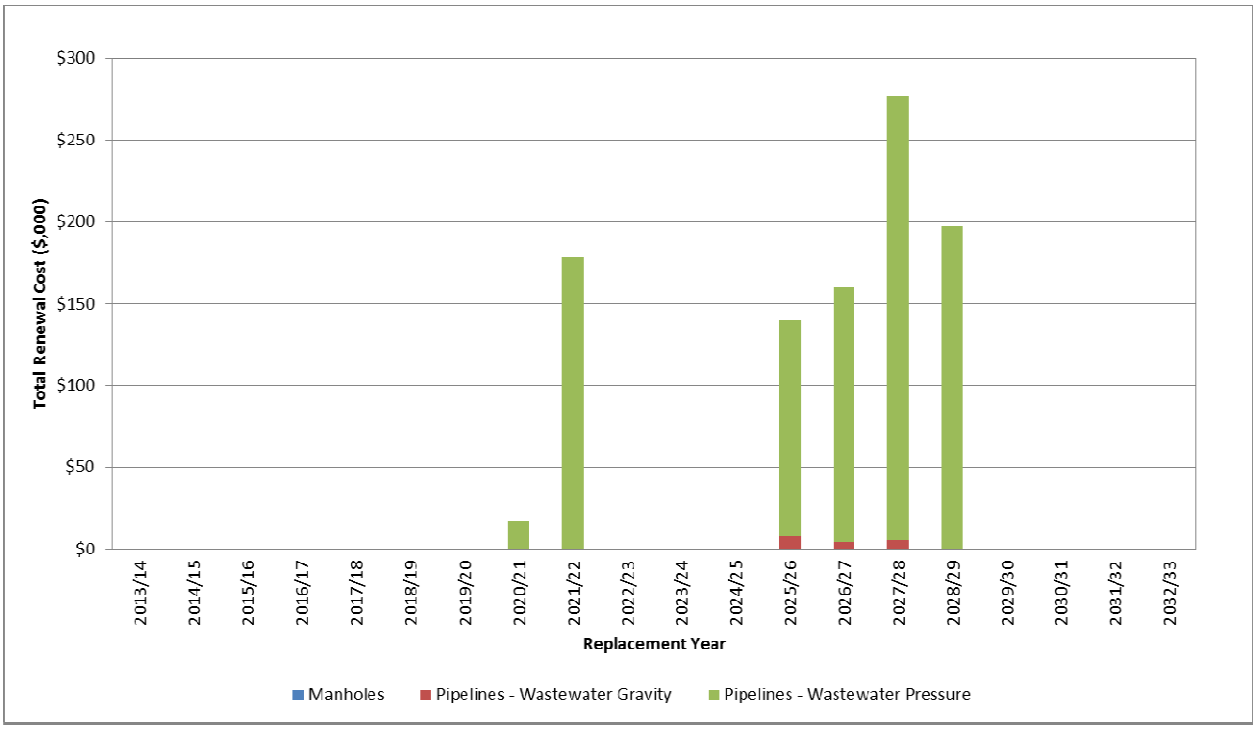
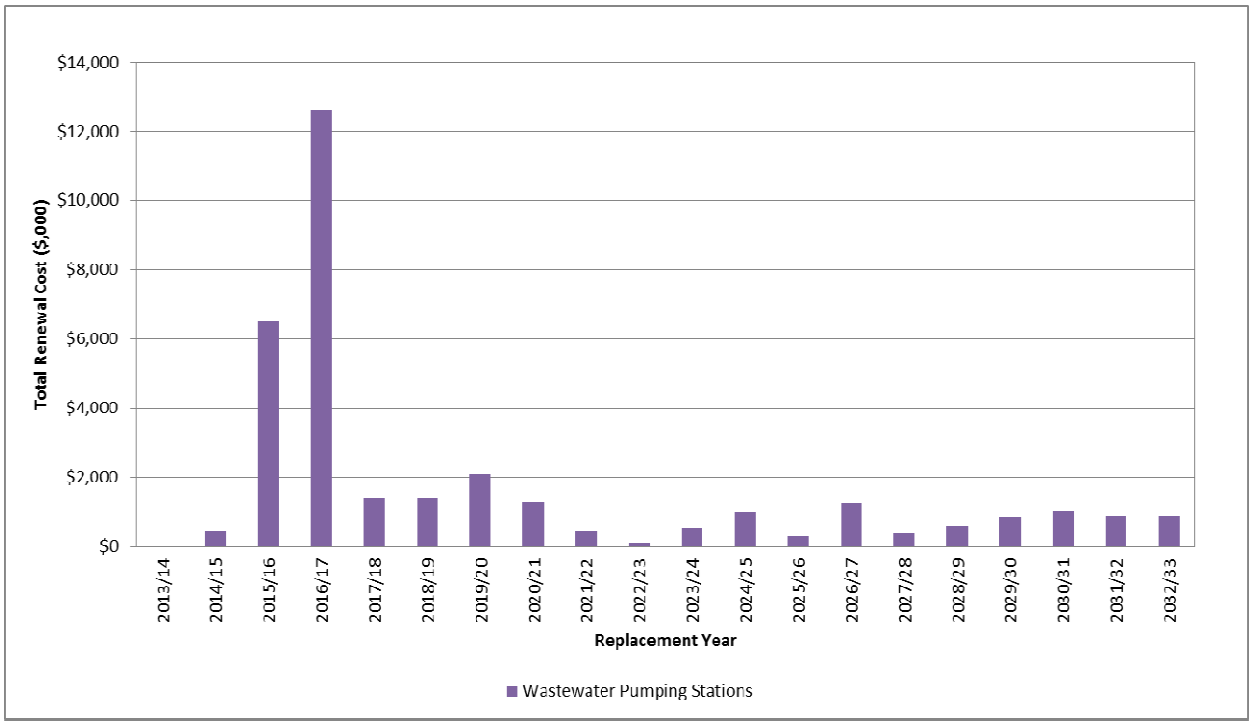


FIGURE 9 – PROJECTED AND PLANNED RENEWAL EXPENDITURE (WASTEWATER PUMP STATIONS)



There are two major issues for Redland Water with respect to the renewal of wastewater mains. One is dealing with property owners where easements have to be established to ensure access for sewer trunk main construction and future maintenance purposes. The other is the availability of space in road reserves for sewer trunk main construction due to the presence of other underground infrastructure services such as water, wastewater, stormwater, Telstra, gas, etc.

7.3 UPGRADE / EXPANSION PLAN

7.3.1 UPGRADE / EXPANSION APPROACH

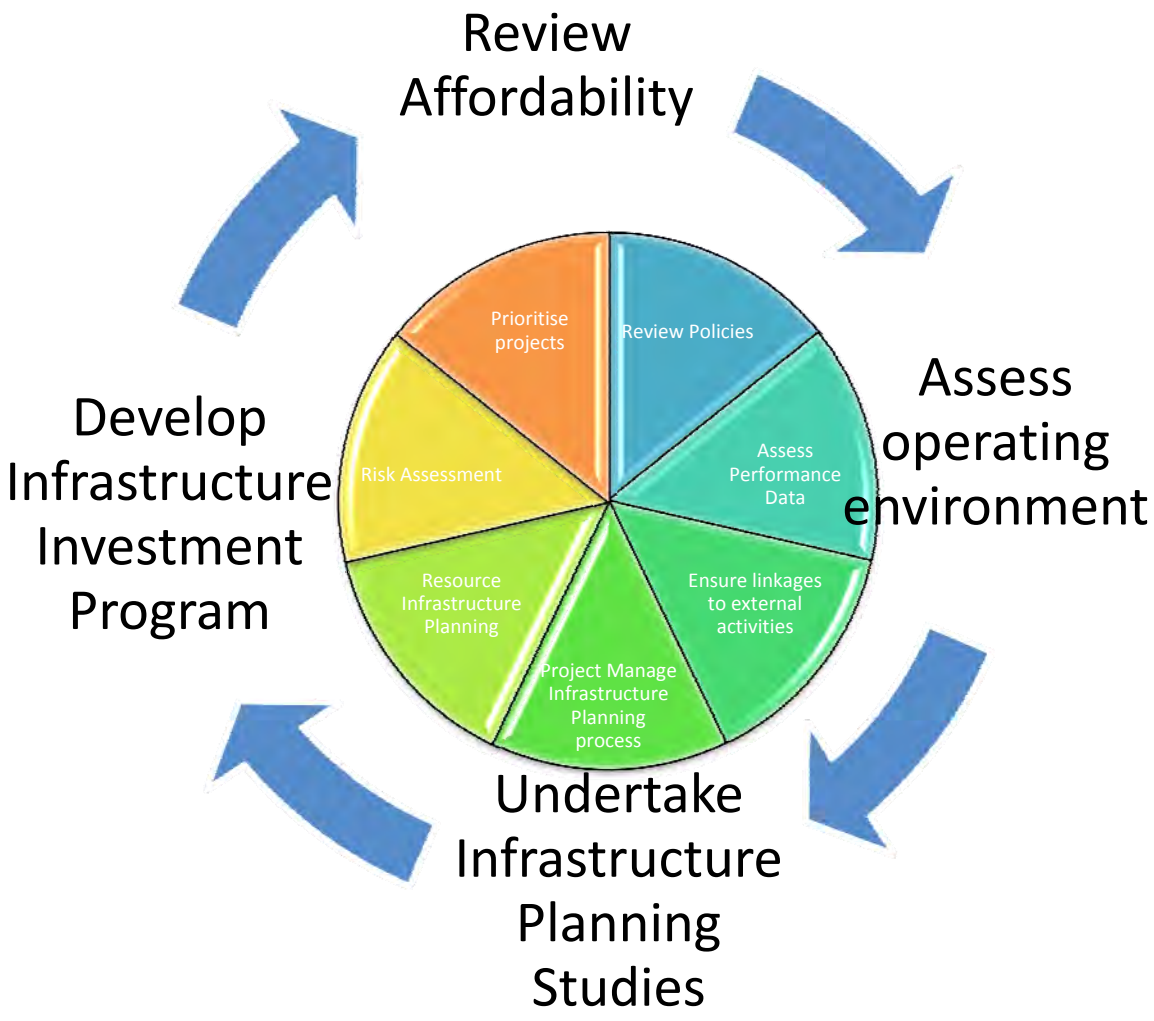
Redland Water's Infrastructure Planning Process (with respect to Upgrade/Expansion)

The Redland Water infrastructure planning process is described below. It relies on some key inputs namely allowable land uses under the RPS and population projections prepared for the service area.

The planning process is a dynamic one which involves the following key activities:

- Review background and operating environment
    - Developing, adopting and refining infrastructure planning policies
    - Collecting information and analysing supporting information
    - Ensuring linkages with other planning activities

- Undertake infrastructure planning studies
    - Project managing the infrastructure planning process
    - Undertaking infrastructure planning studies - resources
    - Documentation of outputs of planning studies (project evaluation)



<u>Developing, adopting and refining infrastructure planning policies</u>

There are a number of Council policies that influence infrastructure planning. In some cases, Council has committed to the provision of infrastructure on request by customers under specific circumstances, e.g. "*Water Main Extensions - Request from a Resident (POL-3054)".*

In other cases, policies influence the manner in which potential works are evaluated, as is the case with the *"Enterprise Risk Management (POL-2701)"* and *"Enterprise Asset and Services Management (POL-3118)"*.

The infrastructure planning process at Redland Water has, however, been substantially developed and implemented based on responding to the operating environment and experience.

Collecting and analysing supporting information

Effective information management is critical to effective infrastructure planning. Global water and wastewater planning information is generally contained in the key master planning documents for water supply and wastewater. These documents outline the major infrastructure requirements and inform the *'Water Netserv Plan'* which needs to be reviewed every 5 years.

Collection of planning information for specific projects is generally undertaken on a case by case basis. Information is accessed from Redland Water's records which are stored in G:\RedlandWater&Waste on Council's network, as well as corporate information systems such as the rates database and GIS database. Information is also obtained from the library, internet and other industry professionals, where necessary.

RCC has also implemented DataWorks, an electronic data management system (EDMS), which houses planning-related information. Redland Water also maintains a register of planning reports which can be found at:

G:\RedlandWater&Waste\Data\TechSup\Planning\Reports\RWW_ScannedReports

Redland Water has water supply and wastewater system hydraulic models which are a fundamental tool for analysing planning-related information. They allow Redland Water to test options and ascertain likely impacts on its water supply and wastewater reticulation systems. Developing and maintaining expertise in hydraulic modelling is fundamental to on-going water supply planning. Redland Water will need to continue to improve its hydraulic models of the wastewater network to ensure that they represent the most accurate picture of the actual asset base. While the networks are fairly accurately represented in the models, information for pumping stations need to be updated – particularly with regard to the pump characteristic curves, operating levels and to a lesser degree, pump motor data. No information is available about the impeller sizes of pumps which pauses the difficulty in obtaining, or verifying, characteristic curves. A methodology has to be developed to obtain this information.

Ensuring linkages with other planning activities

Engineers in Infrastructure and Planning facilitate consistency of water supply and wastewater planning with other RCC initiatives, such as the RPS, corporate plan and structure planning exercises such as those recently undertaken for Kinross Road and South-East Thornlands. It will also assist in ensuring that regional planning initiatives, such as the *"SEQ Regional Plan"*, and proposed changes to relevant legislation are reviewed and incorporated into infrastructure programs where required.

Project managing the infrastructure planning process

Planning studies will generally be scoped and project managed by Infrastructure and Planning engineers and project officers. On occasion, it may, however, be more practical for other officers within Distribution and Treatment to manage minor investigation works and forward those that identify infrastructure requirements to the Infrastructure and Planning group for prioritisation and incorporation into the infrastructure investment (Capex) plan.

Undertaking infrastructure planning studies - resources

Redland Water uses the RCC Engineering Consultancy Services Panel and the Local Buy consulting services' panel when outsourcing planning-related works. Briefs are prepared and issued to selected service providers by Infrastructure and Planning. The briefs are reviewed and the recommended consultant is awarded based on the overarching requirements of the Redland City Council procurement policy.

Document outputs of planning studies (project evaluation)

The level of detail required in a planning study is generally defined in accordance with Table 2 of the *"Guidelines for Implementing Total Management Planning - Asset Management - Infrastructure Plan Implementation Guide"*[1]. This table is repeated below for clarity.

TABLE 9 – LEVEL OF DETAIL IN PLANNING REPORTS

Infrastructure planning level	Output	Objectives
Preliminary/concept/ feasibility planning	Preliminary/Concept/ Feasibility Planning Report	• To assess the technical feasibility of a project (e.g. new scheme or scheme augmentation). • To determine whether the WSP should invest in more detailed investigations. • To provide indicative estimates of financial and non-financial returns from the project
Strategic/master level planning	Strategic/Master Planning Report	• To determine short-, medium- and long-term (50-year) strategies (infrastructure investment and non-asset solutions) in relation to major scheme components (e.g. sources, trunk mains, treatment plants). • To provide a linkage to regional planning. • To provide outputs to an Infrastructure Charges Plan.
Detailed level planning	Detailed Planning Report	• To provide detailed infrastructure investment strategies (short, medium and long term) at zone/sub-catchment level and for facilities such as pump stations and treatment plants.

The required infrastructure works may be identified as either operational or capital projects and within these categories as either a project (fixed-term) or an activity (on-going). Any assets identified through this process must be justifiable as either a service level deficiency, a high risk exposure, or an increase in demand requirement (growth, PIP, or developer driven).

[1] Sourced:
http://www.derm.qld.gov.au/water/regulation/pdf/guidelines/tmp/2001_guidelines/implementation/asset_03.pdf

Accessed 16/01/13 – 8:57am

The Portfolio Management Office (PMO) in the RCC Finance Department maintains the register of forms that are required for the submission of planning outcomes into the budget process. These forms are a general summary of the proposed project/activity and are completed by Infrastructure and Planning staff during the budget submission process.

The forms outline the project, link projects to legislative requirement, the corporate plan and management plans, identify risks associated with the project, consequences if the project were deferred or not undertaken, the alternatives considered, the impact on operational expenditure and the impact on existing assets. It also includes an assessment of eligibility for grants and subsidies.

The assessment described above encompasses many of the aspects of lifecycle asset management described in Council's asset management strategy. It may, however, be appropriate to undertake more detailed assessments which link to customer service standards (CSSs), incorporate risk aspects and both a financial and technical appraisal of options considered.

Developing and prioritising the infrastructure investment (capital works) program

The development of a capital works program requires input from a variety of sources. Redland Water uses a risk based assessment for the prioritisation the capital program. Risks are assigned based on the RCC corporate Risk Management Framework. Figure 10 shows an example of the risk assessment for some projects put forward for the 2012/13 financial year. Projects with the highest risk profile are put forward for funding. Once projects have been identified by Redland Water through the risk assessment, budget submission forms are prepared for the Portfolio Management Office (PMO) in the Redland City Council Finance Department. Continued refinement of this approach will improve the level of detail being submitted with projects for funding.

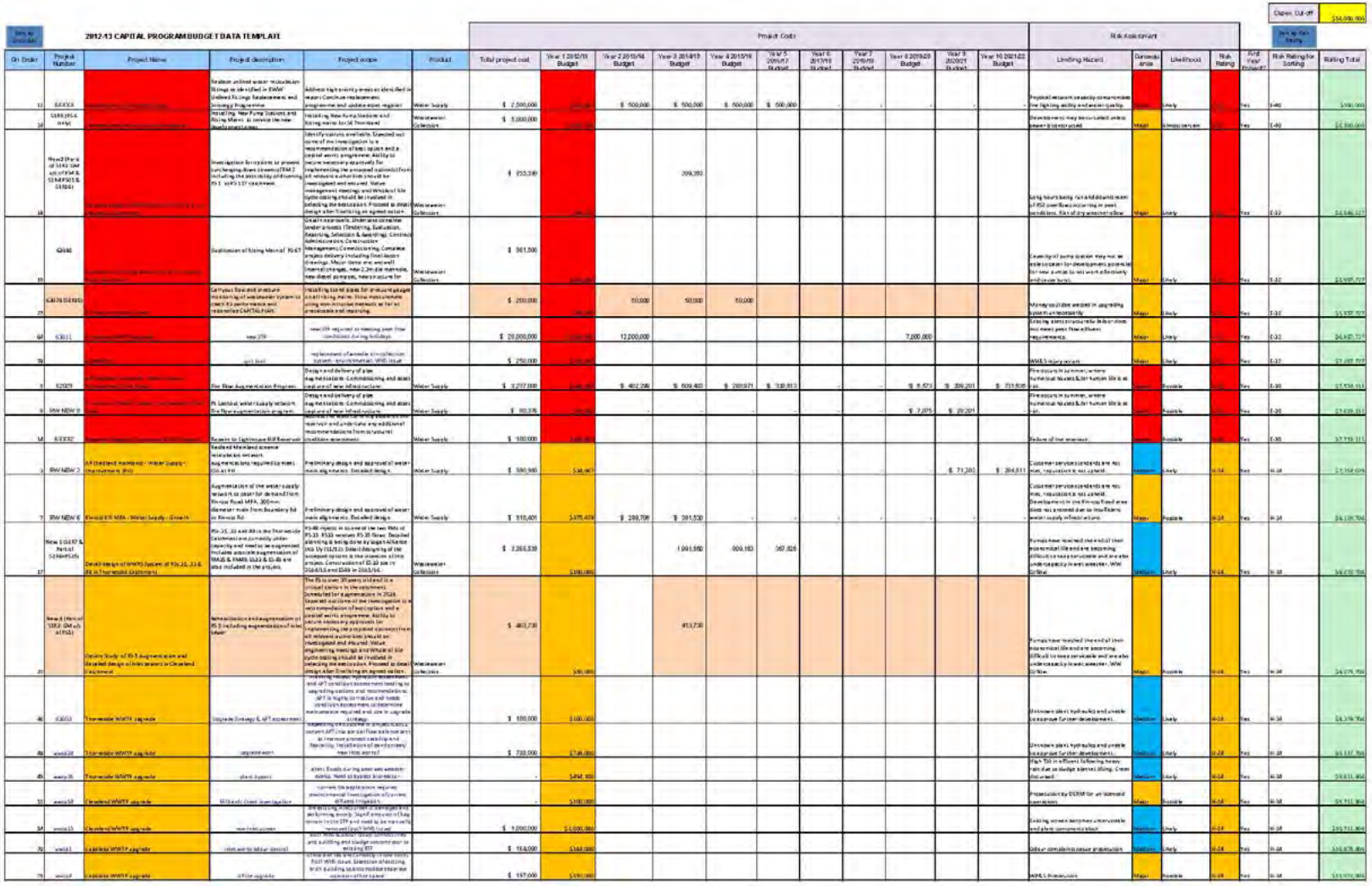
The PMO was established to provide project transparency, project prioritisation, strategic alignment, senior management decision support and centralised reporting for the council's portfolio of projects. The PMO operate in a Prince2 environment. PRINCE2 (PRojects IN Controlled Environments) is a process-based approach for project management, providing an easily tailored and scaleable project management methodology for the management of all types of projects. Redland Water will need to ensure that its program/project management methodology aligns with the corporate requirements being driven by the PMO.

Project initiation / feasibility stage

Redland Water's Infrastructure and Planning Group is responsible for the development of Redland Water's capital investment plan, defining the scope and timing of capital projects. From planning studies, capital projects are defined in terms of the scope of works, delivery timeframe, budget requirements and other information pertinent to ensuring project delivery.

Often consultants are utilised in the design phases of projects. Redland Water uses the RCC Engineering Consultancy Services Panel and the Local Buy consulting services' panel. Briefs are prepared and issued to selected service providers by Infrastructure and Planning. The proposals are reviewed and the recommended consultant is awarded based on the overarching requirements of the Redland City Council procurement policy.

FIGURE 10 – CAPEX PROJECT RISK ASSESSMENT



Project delivery

Redland Water utilises a number of methods to deliver its capital program, including RCC's Project Delivery Group and specialist project management consultants. The project delivery phase involves those activities from design, tendering, through to construction and commissioning.

Project delivery – project tracking and contract management

Traditionally most projects have been delivered by the sequential design and construct (D&C) method. Construction for major projects is generally outsourced, but Redland Water day-labour crews are sometimes used for projects like mains augmentations. Other delivery methods are being considered such as Early Contractor Involvement and registering of pre-qualified contractors.

In terms of project tracking and project controls, best practice project management focuses on a number of elements. Each of these elements can have either a direct or indirect influence on ultimate project performance and several are inter-related. For example, increases to scope often result in increased cost and lags in time of delivery. The elements recommended are:

- cost – project earned value is tracked and reported, with project expenditure linked to milestone delivery (as opposed to timing). In this way project cost control is managed as a function of work performed, rather than traditional budget vs actual cash-flow reporting;

- time – project milestones are tracked and managed according to the project plan. Milestone slippage and the impact of this on project completion are managed at a task level;

- quality – performance specifications are developed and project outputs continually reviewed to ensure adherence with the required level of quality;

- scope – scope creep is managed by continual review and clarification of current vs initial scope specifications. Where scope variances occur, the effect of these on all remaining elements of project management (including cost and integration) must be seriously considered prior to acceptance of scope changes;

- communications – effective project management requires involvement of key stakeholders and communication to interested/concerned parties and should be managed as part of the project;

- human resources – skills/competency/safety and quantities of resources are as important in project management as with any other business operation. As such, human resource management is considered a key component to effective project management;

- risk – project delivery risks should be continually assessed and reviewed to identify potential issues. Contingency allocation should be reflective of the risk level identified and the use of contingency should be reserved for these risk events;

- procurement – procurement options and the performance of the chosen procurement option should be controlled in accordance with project and corporate requirements. This requires identification of possible and the preferred procurement approach, as well as managing of contracts and review of performance to provide valuable information for future assessments;

- integration – as one of the most valuable and often lacking project controls, integration refers to the alignment between project delivery, business outcomes and related projects/activities. Periodically, it is necessary to review the value provided by the project on resolving the issue for which it was originally

established. This translates to conversion of project outputs to benefits realisation in accordance with the initial problem/opportunity that was identified by the business.

Note that depending on the nature of project, the tightness of the controls for each element may be different.

Figure 11 below indicates the project management reporting currently provided within Redland Water.

From the data updated in this spreadsheet monthly, tracking graphs are produced for the entire group's project performance as well as individual SGA based tracking graphs – refer to Figure 12 & Figure 13. Refinements of this tracking method will help ensure that Redland Water delivers its annual capital works program.

FIGURE 11 – EXAMPLE PROJECT MANAGEMENT REPORTING

Budget Code	Job Name	Water or Wastewater Capital	Class	Milestone	Description	Total Budget	Actual Expenditure To Date	Commited Expenditure	Task Completed?	COMPLETION DATE Quarter	Month	Financial Year	Comments
62029	**Backlog Fire Flow augmentation**	Water Capital	SGA292	1	Confirm contract novated	$ 569,871.00			Yes	Q1	July	12/13	
				2	Construct Anson Road augmentation				Yes	Q1	August	12/13	
				3	Comissioning Anson Road augmentation				Yes	Q1	September	12/13	
				4	Complete capitalisation and disposals				No	Q2	October	12/13	
				5	Engage PSC for Redland Bay Rd augmentation				No	Q2	November	12/13	
				6	Close tenders for Redland Bay Road augmentation					Q2	December	12/13	
				7	Construct Redland Bay Road augmentation					Q3	February	121/13	
				8	Commissioning of Redland Bay Road augmentation					Q3	March	12/13	
				9	Complete capitalisation and disposals					Q4	June	12/13	
62206	**Point Lookout reservoirs**	Water Capital	SGA292	1	Review recommended repair methods	$ 100,000.00			Yes	Q1	September	12/13	
				2	Procure goods & services					Q3	January	12/13	
				3	Complete capitalisation and disposals					Q4	April	12/13	
63049	**PS design Thorneside (PSs 33, 35 & 48)**	Pumpstations Capital	SGA314	1	Await LWA Project Report	$55,000			Yes	Q1	September	12/13	
				2	Prepare project brief				Yes	Q1	September	12/13	
				3	Complete Procurement Process				Yes	Q2	October	12/13	
				4	Appoint Consultant				Yes	Q2	October	12/13	
				5	Complete Consultancy project				Yes	Q3	March	12/13	
64005	**PS 5 options** (do Condition Assessment 1st)	Pumpstations Capital	SGA314	1	Do condition Assessment Report	$50,000			Yes	Q2	October	12/13	
				2	Prepare Design Consultancy Brief				Yes	Q2	November	12/13	
				3	Appoint Consultant					Q2	December	12/13	
				4	Complete design and specification					Q4	April	12/13	
				5	Review and agree design					Q4	May	12/13	
63002	**Cleveland WWTP Inlet Screen**	Wastewater Capital	SGA196	1	Review LWA Design	1000000			Yes	Q1	September	12/13	
				2	Determine Implementation Plan				Yes	Q1	September	12/13	
				3	Create Tender Documents					Q2	December	12/13	
				4	Award Successful Tenderer					Q2	December	12/13	
				5	Installation and Commissioning					Q4	April	12/13	
				6	Complete capitalisation and disposals					Q4	June	12/13	
64155	**SET Sewer**	Wastewater Capital	SGA314		Procurement Method Approved	$5,000,000			Yes		July		
					Preprare Design Brief				Yes		July		
					Engage Design Consultant				Yes		August		
					Prepare EOI for constructors				Yes		August		
					Shortlist Constructors				Yes		October		
					Finalise Design documents				Yes		November		
					Issue Tender documents				Yes		November		
					Award Tender						December		
					Purchase pipes and fittings						November		
					Prepare quote document for pumps						November		
					Award pumps						December		
					Prepare quote document for switchboard						November		
					Award switchboard						December		
					Prepare quote document for generator						November		
					Award generator						December		
					Installation and commissioning						June		
					Complete capitalisation and disposals						June		
63003	**Thorneside Bypass Design**	**wastewater**	SGA 196	1	Obtain LWA Project Report	$ 250,000.00			Yes	Q1	September	12/13	
				2	Prepare Project Brief and Scope Development (TOR)				Yes	Q2	October	12/13	
				3	complete Procurement Process					Q2	December	12/13	
		Appoint Consultant - Design and Tender Do		4	Project Implementation Planning					Q2	February	12/13	
		Award successful tenderer		5	Detailed design					Q3	April	12/13	
				6	Review and accept design					Q4	May	12/13	
				7	Tender documentation					Q4	June	12/13	

FIGURE 12 – EXAMPLE GROUP BASED PROJECT TRACKING CHART

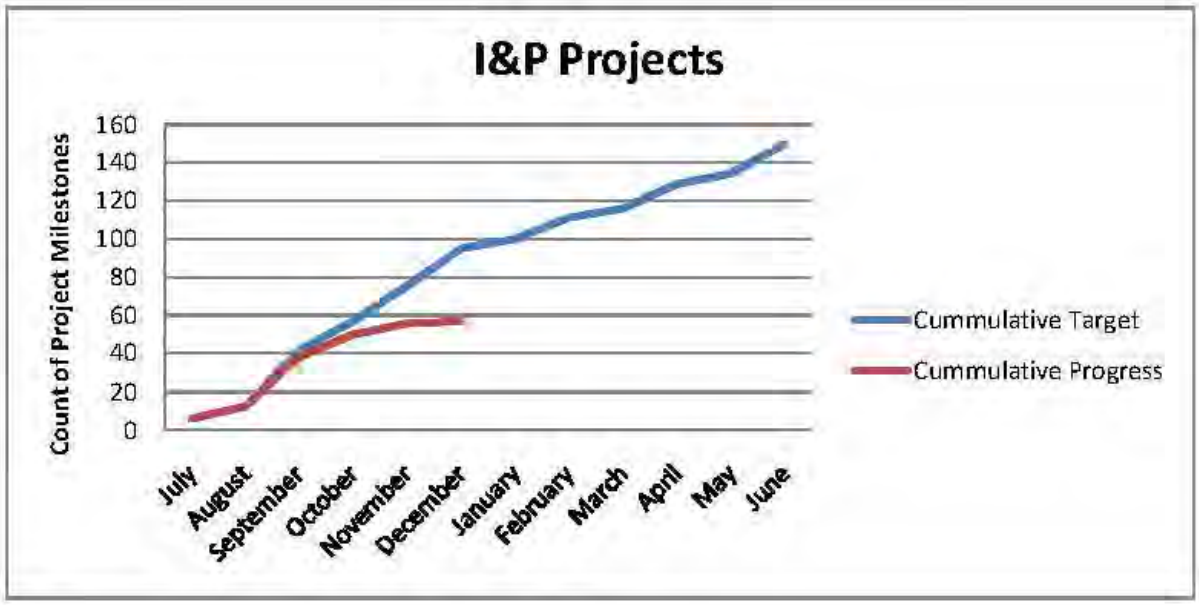
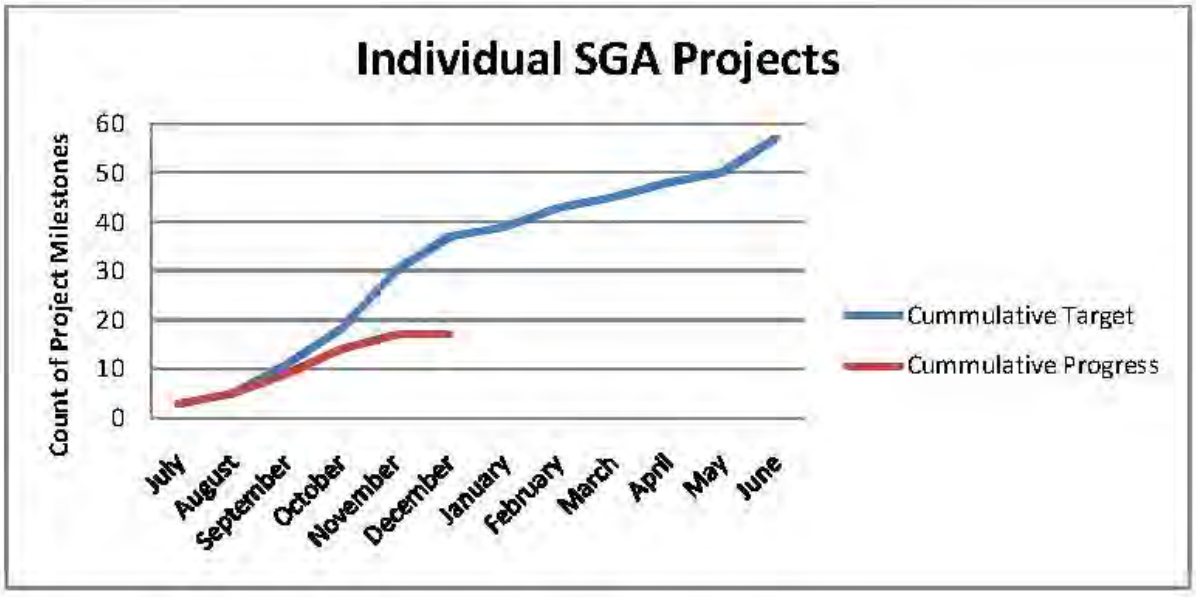


FIGURE 13 – EXAMPLE SGA BASED PROJECT TRACKING CHART



As can be seen, project controls exist on the completion of milestones in line with the programmed delivery timeframe. Further monthly reporting is undertaken through the financial management system of RCC (cash flow adherence). Cash-flow adherence itself does not promote continuous improvement of the project management process and does not truly reflect project financial performance. This is achieved through earned value. Internal controls exist for time management, though this can be unique to individual project managers and is not formalised and/or reported. Adopting a simplified project management methodology using earned value reporting will assist in the successful delivery of the capital works program.

Project completion – commissioning, review and benefits realisation

Formalised procedures are developed for commissioning and handing over infrastructure. Issues that are addressed include:

- asset inspection, condition and performance assessment;
- compliance tests;
- "as constructed" drawings, including digital copies;
- asset register (attribute and cost) information, including digital copies;
- operation and maintenance manuals;
- training of Redland Water's operation staff for specialist equipment/processes; and
- "maintenance period" procedures and final asset acceptance.

Overall performance of project management based on adherence to projected expenditure does not (in itself) demonstrate value. It needs to be demonstrated that the project was successful in meeting all aspects of performance including quality, scope, and delivery of benefits while still meeting time and cost constraints. This requires the overall review of project performance including the realisation and subsequent harvesting of benefits.

The project must be reviewed to evaluate the level of service provided and to determine opportunities for improvement. Issues to be considered include:

- achievement of project objectives such as:
    - required performance;
    - budget – capital, and operation and maintenance;
    - timeliness; and
    - quality of asset;
- appropriateness of consultants' briefs:
    - design performance;
    - project management/procedures; and
    - comparison of performance and project costs against similar facilities.

Procurement of products and services

Maintenance services are mainly co-ordinated and supervised internally by the service line managers, e.g. the Service Delivery Leader Water Reticulation, the Mechanical Maintenance Supervisor, the Treatment Plant Supervisor, the Supervisor Wastewater Reticulation and the Supervisor Water Services and Metering. However, actual maintenance services are carried out by external contractors.

The procurement of materials such as chemicals is also managed by Redland Water's Distribution and Treatment group.

Other Council departments provide services to Redland Water through service level agreements (SLAs). These services are listed in Table 10.

TABLE 10 – SERVICES PROVIDED BY OTHER COUNCIL DEPARTMENTS

Council Group / Team	Services Provided
Procurement Services Centre	Adminstration services of creating purchase orders
Fleet services	Fleet management
Facility services	Building management
Finance	Centralised budget process, finance management of revenue, asset supply services etc
Information management	IT services, electronic data management services (EDMS)
Communications	External communications services
Human resources	Human resources services, payroll etc
PDG	For selected projects, tendering, contract administration and handover of the project to operational staff

7.3.2 SUMMARY OF UPGRADE / EXPANSION PROJECTS

The current 10 year upgrade / expansion program is shown below in Figure 14. As can be seen there is a relatively steady increase in expenditure planned for the first four (4) years of the program which aligns with the development of the Kinross Road and Southeast Thornlands Structure Plan areas. Years 5 to 9 are relatively small based on meeting levels of service throughout the network. The final years of the program are higher due to some proposed additional trunk mains in the Redland Bay area.

FIGURE 14 – CAPITAL PROGRAM (UPGRADE / EXPANSION PROJECTS)

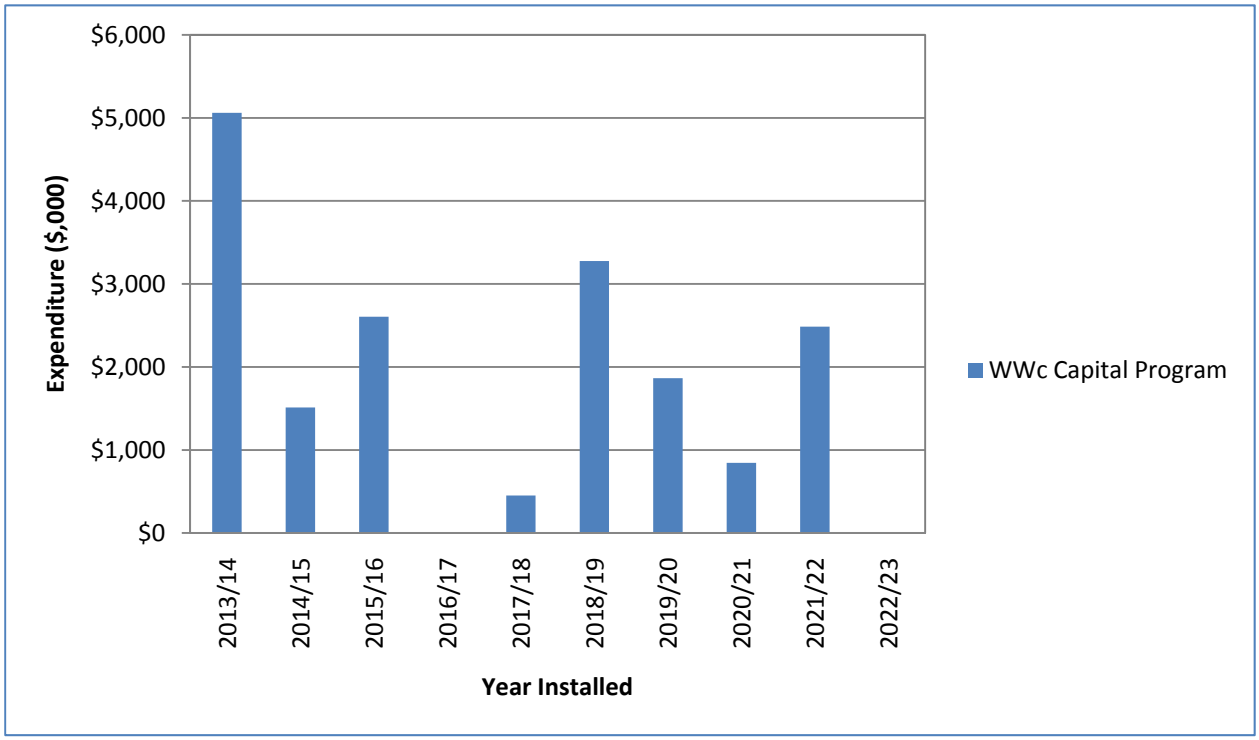
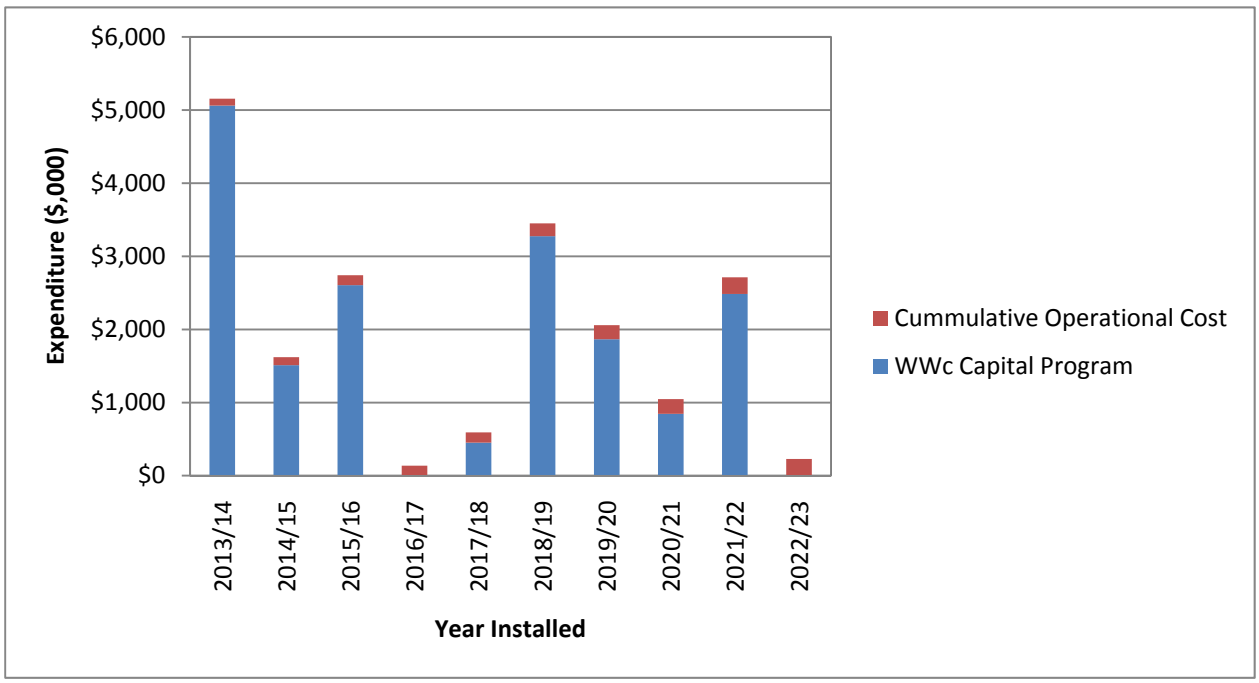


FIGURE 15 – ONGOING COSTS



7.4 MAINTENANCE PLAN

The bulk of the value of the wastewater assets sits in the underground assets (pipes). The approach to asset maintenance for these assets is currently a "fix when fail" or reactive approach. This maintenance regime is appropriate for the asset profile that is operated by Redland Water – i.e. the relative age of the underground pipe asset class is young, with remaining lifespan expected to be excess of 20 years for the bulk of the assets. Pipe failures are fixed as they occur but there is not currently an active process for assessing if a whole section of a particular pipe may need replacing due to regular repairs.

A more routine approach to maintenance is taken for other assets (generally the above ground "active" assets within the wastewater network) with planned maintenance identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Cyclic maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle such as cleaning pump wells, wastewater mains cleaning, switch board maintenance, etc. This work generally falls below the capital/maintenance threshold.

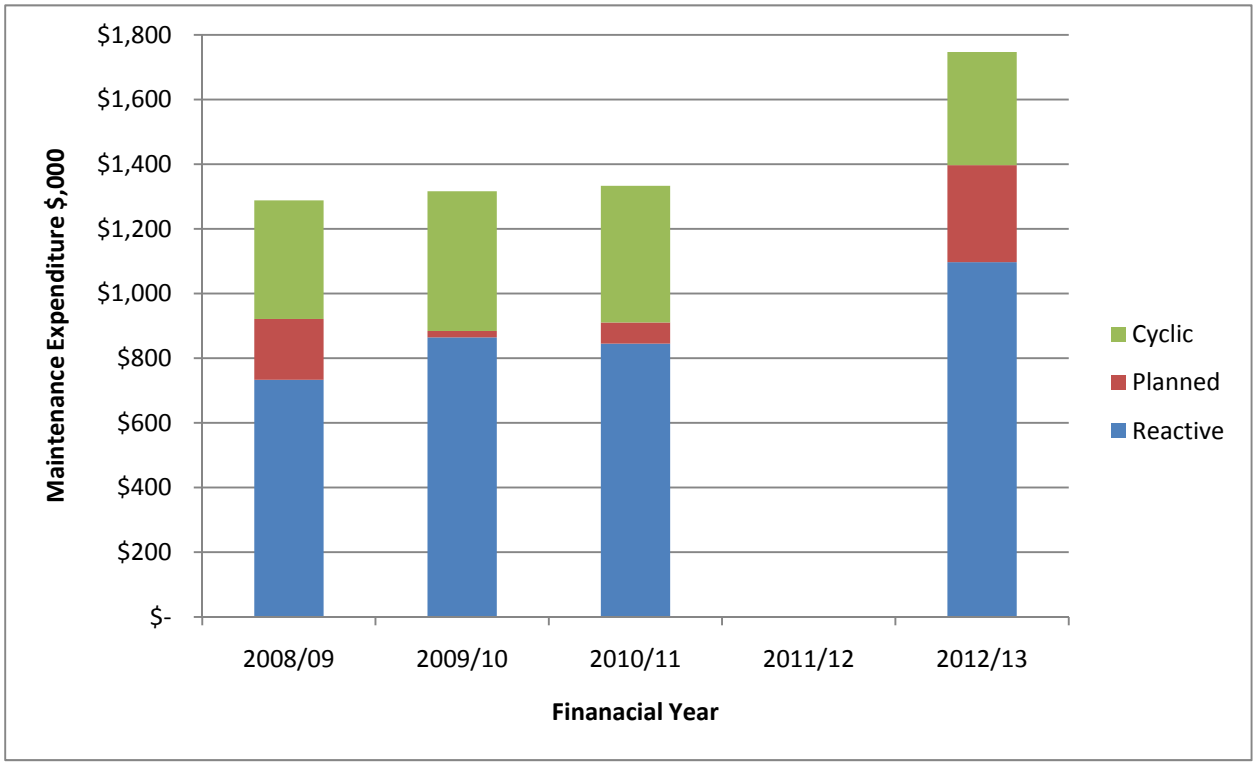
Maintenance trends over the last 5 years are shown below in Table 11 – Maintenance Expenditure Trends. The table has been generated from the budgets prepared for each financial year with an approximate percentage of expenditure relative to the classifications reactive, planned and cyclic applied. The information is also presented graphically in Figure 16.

TABLE 11 – MAINTENANCE EXPENDITURE TRENDS

Year	Maintenance Expenditure		
	Reactive	Planned	Cyclic
2008/09	$1,264,382.16	$627,856.13	$852,792.08
2009/10	$1,249,669.61	$734,918.45	$767,346.16
2010/11*	$1,315,900.85	$1,194,765.05	$1,023,014.10
2011/12*	$-	$-	$-
2012/13	$1,293,875.22	$871,477.62	$1,021,663.64

* 2010/11 & 2011/12 were Allconnex Water years. Data for these years, particularly 2011/12, is difficult to extract for the Redland CC area.

FIGURE 16 – MAINTENANCE EXPENDITURE TRENDS



The current maintenance program is generally sufficient for the present condition of the asset base.

The current asset expenditure profile has been used to generate the additional maintenance costs associated with the upgrade and expansion projects planned under the Capex Program. The future Capex Program is made up of additional underground assets. On this basis, the additional maintenance costs for the future network have been extrapolated based on the current value of the underground assets (as a surrogate for the length of the network as current value is calculated on a unit rate per length of main) – refer to Figure 15.

Greater understanding of this breakdown over coming years will help inform the ASMP in future revisions.

7.5 DISPOSAL PLAN

The only planned asset disposal relating to sewerage infrastructure is for the abandonment of Sewage Pump Station 128.

TABLE 12 – ASSETS IDENTIFIED FOR DISPOSAL

Asset	Reason for Disposal	Timing	Cashflow from disposal
SPS 128	SPS 128 is currently functioning as a booster station for Sewage Pumping Station 6. Ongoing upgrade work for Sewage Pump Station 6 to deliver sewage flow direct to the Cleveland Teatment Plant will make SPS 128 redundant.	2014/15	$0

8 FINANCIAL SUMMARY

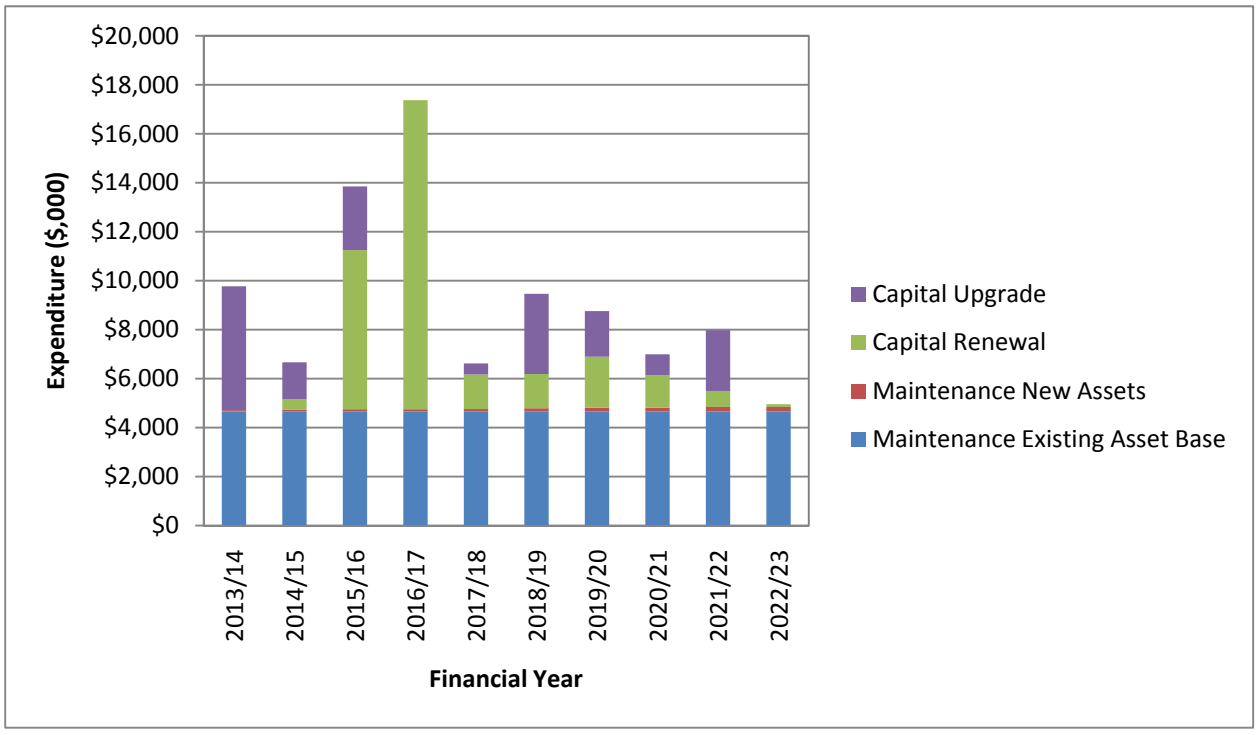
This section of the report brings together the financial elements of the plan and considers the sustainability indicators related to the assets. The capital programs for renewal and upgrade and expansion have already been documented and are reflected here in this summary.

This section of the plan is prepared for input to the Long Term Financial Plan and is assessed during budget time along with all other ASMP priorities and operational commitments. While the plan is based on a moderated expectation of budget allocation it should represent the expenditure required to maintain services and assets to the agreed service level standard and address high level risks. Where renewal cannot be met or service standards cannot be achieved there is a funding shortfall and this needs to be highlighted through the iterative ASMP process.

8.1 FINANCIAL PROJECTIONS

The financial projections are shown in Figure 17 for planned operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets).

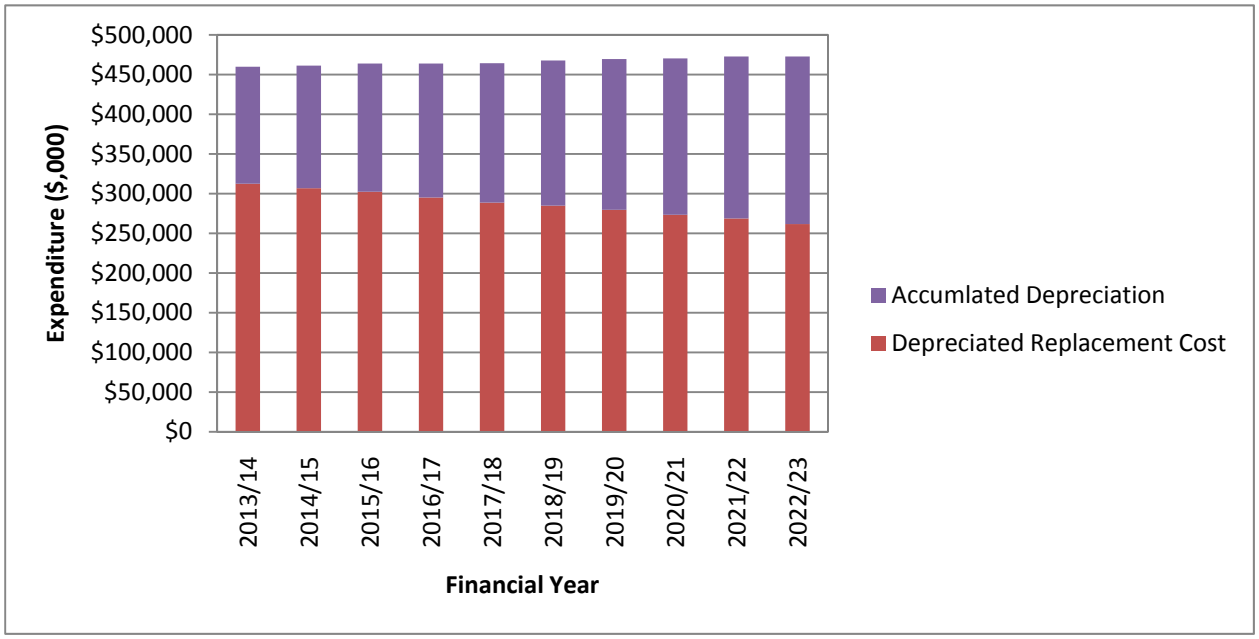
FIGURE 17 – TOTAL CAPITAL & OPERATING COSTS



Years 1 of the program has a relatively high projected expenditure on Capital Upgrade costs associated with the pump station and rising main upgrades including construction of new assets at Pump Station 6. In addition to this, Years 3 and 4 include significant projected renewal works at the wastewater supply pump stations. This situation should be further reviewed and revised after a condition assessment of the relevant assets.

Figure 18 shows the expected asset valuation and depreciation expense based on the renewal, expansion and upgrade projects presented in the plan. As expected the slight increase in asset base is matched with an increase in the accumulated depreciation.

FIGURE 18 – ASSET REPLACEMENT COST



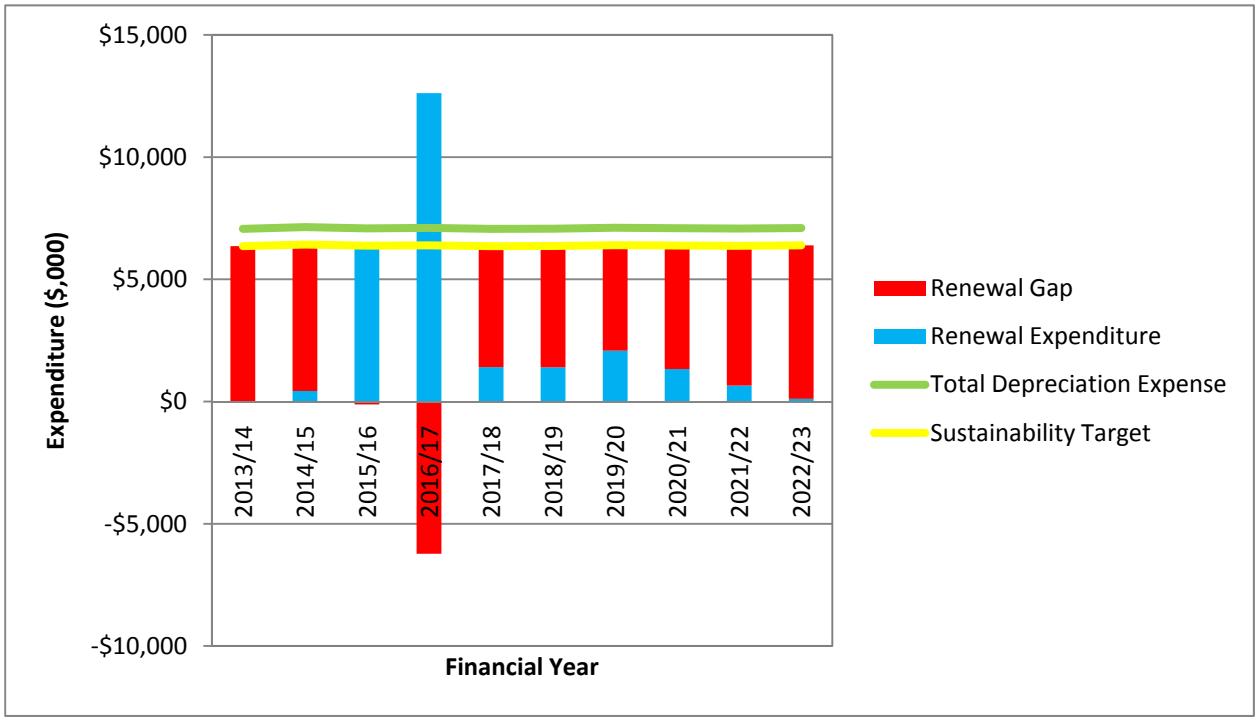
8.2 SUSTAINABILITY OF SERVICE DELIVERY

The Asset Sustainability ratio (Capital Expenditure on Renewal / Depreciation) provides an indication of whether assets are being replaced at the same rate they are wearing out. It is expected that over time to maintain the same level of service, renewal should equal depreciation.

If assets are relatively young the sustainability ratio would be less than 50%. However overall, if renewals are being planned in the ASMP and are being funded through the budget process it can be appropriate for the sustainability ratio to be much lower than the standard benchmark 90% of Depreciation.

As shown in Figure 19, a renewal gap exists between the current spending on renewals and the target of 90% of depreciation. The renewal program shown in Figure 19 is considered satisfactory for a young network as is currently the case with the bulk of the wastewater collection assets. It should be noted that there will be an expenditure spike coming that is due to a series of pump station asset replacement costs. Managing this spike will be the key asset management issue for wastewater collection.

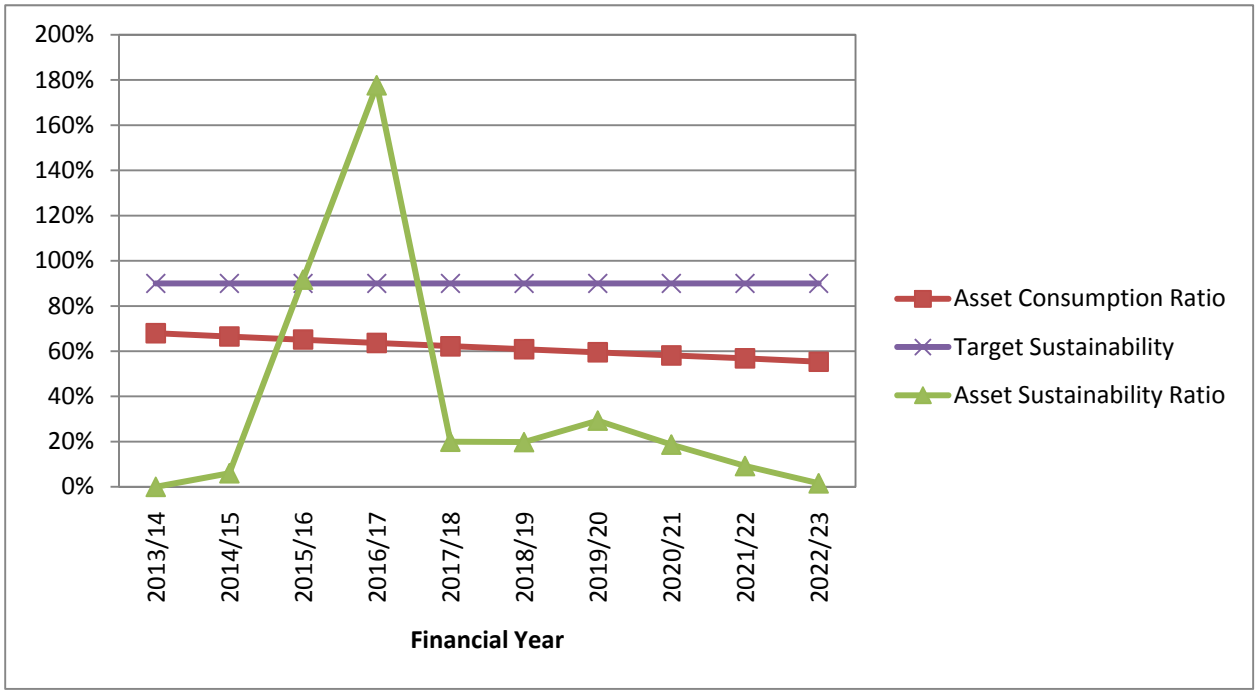
FIGURE 19 – ASSET SUSTAINABILITY



The sustainability ratio should be read in conjunction with the Asset Consumption Ratio. The Asset Consumption Ratio (Depreciated Replacement Cost / Replacement Cost) provides an indication of the aged condition of the assets. If the Asset Consumption Ratio is high, this indicates that the assets are in relatively good condition. In this case, the assets could either be relatively new or have been maintained in good condition. If the Asset Consumption Ratio is low, the assets are in relatively poor condition. In this case, the assets may not have been renewed at a time when the renewal was expected to occur. There will potentially be a backlog of capital works which will be required to be undertaken in order to bring the asset's condition to an acceptable standard if the Asset Consumption Ratio is to be improved.

Figure 20 shows the Asset Consumption Ratio. As previously stated, the spike occurring in 2016/17 needs to be revised with accurate estimation of renewal costs after condition assessments of the relevant assets.

FIGURE 20 – CONSUMPTION VS RENEWAL



9 IMPROVEMENT ACTION PLAN

9.1 IMPROVEMENT ACTIVITIES

This section of the report is aimed to improving the Asset Management functions related to the asset class. This is separate to the improvement activities of the assets themselves i.e. renewal, expansion upgrade, etc. as these are catered for in Section 7 of the plan.

The asset management improvement plan generated from this asset management plan is shown in Table 13.

TABLE 13 – IMPROVEMENT PLAN

Task No	Task	Responsibility	Resources Required	Timeline
1.	Ensure continued alignment of infrastructure demand model with the current population estimates prepared by the Redland City Council for RPS 2015	Group Manager Water and Waste Infrastructure	Consultants	June 2013
2.	Continue to improve the hydraulic models of Redland Water's networks	Group Manager Water and Waste Infrastructure	Consultants and internal resources	Ongoing
3.	Improve the capex program risk assessment and prioritisation methodology	Group Manager Water and Waste Infrastructure	Internal	Ongoing
4.	Implement GIS Asset Condition dashboard mapping or a simple alarm system to highlight when an asset has had more than 2 failures	Group Manager Water and Waste Infrastructure	Internal	June 2015
6.	Complete SEQ Design and Construction Code	Group Manager Water and Waste Infrastructure	External	June 2013
7.	Deliver capital renewal and growth program	Group Manager Water and Waste Infrastructure	Internal and External resources	Annually
8.	Develop and update reliability (condition and criticality) based planned operations, maintenance and minor works program	Group Manager Water and Waste Infrastructure	Internal	December 2014

Task No	Task	Responsibility	Resources Required	Timeline
9.	Develop and document condition and performance assessment methodologies for all asset classes and key asset types	Group Manager Water and Waste Infrastructure	Internal	June 2014
10.	Produce long term asset renewal plans for all asset classes, commencing with basic plans including recommendations from 2012 revaluation	Group Manager Water and Waste Infrastructure	Internal	June 2013
11.	Develop and document policies, processes and procedures for the main asset management practices (e.g. risk assessment, asset data integrity checks and improvements).	Group Manager Water and Waste Infrastructure	Internal	June 2014
12.	Adopt a simplified project management methodology utilising earned value reporting	Group Manager Water and Waste Infrastructure	Internal	June 2014
13.	With the input of the new planning assumptions, review previous master planning to cover 20 years planning horizon.	Group Manager Water and Waste Infrastructure	Internal and External resources	June 2014
14.	Alignment of program/project management methodology for infrastructure projects with corporate requirements	Group Manager Water and Waste Infrastructure	Internal	June 2014
15.	Maintain / gain understanding of the breakdown of the maintenance budget (i.e. Cyclic versus Planned versus Reactive)	Group Manager Water and Waste Infrastructure	Internal	Annually

9.2 MONITORING AND REVIEW PROCEDURES

This asset management plan will be reviewed during annual budget preparation and amended to recognise any changes in service levels and/or resources available to provide those services as a result of the budget decision process.

This asset management plan also forms part of the Redland Water's *'Water Netserv Plan'*. The action plan contained in this plan will be reviewed and actioned annually as part of business management activities guided by the *'Water Netserv Plan'*.

10 REFERENCES

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11 APPENDICES

Strategic	Operational	Activity	Priority	Consequence
> $5m recurrent reduction in Council budget (2%) > $10m one off loss (10% of current assets)	> 5% recurrent reduction in Group budget	> 10% recurrent reduction in Unit budget	**Severe**	**Legal and regulatory:** Serious breach resulting in significant prosecution and fines. **People**: Fatality(s), sustained and serious industrial action, loss of multiple key staff at once. **Operational:** Key services disrupted for over 60 days. **Environmental**: Significant environmental impact with long term effects. **Strategic**: Most Council objectives cannot be achieved. **Ethical:** Systemic fraud and corruption, major external investigation with adverse findings. **Reputation**: Significant and widespread public outcry, sustained negative metro or national media coverage.
$2.5m to $5m recurrent reduction in Council budget $5m to $10m one off loss	3% to 5% recurrent reduction in Group budget	5% to %10 recurrent reduction in Unit budget	**Major**	**Legal and regulatory:** Major breach resulting in significant legal action. **People**: Serious injury(s), hospitalisation of multiple people, staff turnover well above 20%, ongoing industrial action. **Operational:** Key services disrupted for between 20 and 60 days. **Environmental**: Significant impact on natural or built environment, external investigation. **Strategic**: Some important Council objectives cannot be achieved. **Ethical:** Major one off fraud and corruption by senior person. **Reputation**: Significant outcry from residents, significant negative state level media coverage.
$1m to $2.5m recurrent reduction in Council budget $2m to $5m one off loss	2% to 3% recurrent reduction in Group budget	3% to 5% recurrent reduction in Unit budget	**Medium**	**Legal and regulatory:** Breach resulting in investigation, ongoing legal issues not easily addressed. **People**: Minor medical treatment required, staff turnover slightly higher than 20%, one off industrial issues. **Operational:** Key services disrupted for between 2 and 20 days. **Environmental**: Medium term effects on environment from single incident. **Strategic**: Some Council objectives cannot be achieved. **Ethical:** Planned unethical action by one or more staff. **Reputation**: Concerns from cross section of residents, ongoing negative metro media coverage.
$100k to $1m recurrent reduction in Council budget $0.5m to $2m one off loss	1% to 2% recurrent reduction in Group budget	2% to 3% recurrent reduction in Unit budget	**Low**	**Legal and regulatory:** Minor legal issues or non-compliance easily remedied. **People**: Minor injuries treated by first aid, routine industrial issues. **Operational:** Key services disrupted for between 1 and 2 days. **Environmental**: Short term effect on built or natural environment easily remedied. **Strategic**: Minor setbacks that are easily remedied. **Ethical:** Opportunistic incident involving several people. **Reputation**: Heightened concerns from narrow group of residents; one off negative metro media coverage.
<$100k recurrent reduction in Council budget <$0.5m one off loss	<1% recurrent reduction in Group budget	<2% recurrent reduction in Unit budget	**Insignificant**	**Legal and regulatory:** Minor breach of standards or guidelines, one off minor legal matters. **People**: Minor incidents or issues dealt with according to routine procedures. **Operational:** Key services disrupted for less than 1 day, usual scheduled interruptions. **Environmental**: Minor breach of environmental guidelines or standards. **Strategic**: Negligible impact on Council objectives. **Ethical:** Minor opportunistic incident involving single person. **Reputation**: Insignificant adverse local media or public comment.

Redland City Council – Likelihood Table			
Likelihood	**Quantification**	**% Probability**	**Description**
Almost Certain	0-12 months	95% - 100%	Expected to occur in most circumstances.
Likely	1-3 years	65% - 95%	Will probably occur in most circumstances.
Possible	3-6 years	35% - 65%	Might occur at some time.
Unlikely	6-10 years	5% - 35%	Could occur at some time but it is improbable.
Rare	Beyond 10 years	< 5%	May occur only in exceptional circumstances.

RISK LEVELS							
Likelihood			Consequences				
			Level 1 Insignificant	Level 2 Low	Level 3 Medium	Level 4 Major	Level 5 Severe
Likelihood	5	Almost Certain	M-10	H-20	H-30	E-40	E-50
	4	Likely	M-8	M-16	H-24	E-32	E-40
	3	Possible	L-6	M-12	M-18	H-24	E-30
	2	Unlikely	L-4	L-8	M-12	M-16	H-20
	1	Rare	L-2	L-4	L-6	M-8	M-10

RCC 10 Year Capital Programme - Renewal Portion

Description		*Current Revised Budget 2012/13 $*	*Year 1 2013/14 $*	*Year 2 2014/15 $*	*Year 3 2015/16 $*	*Year 4 2016/17 $*	*Year 5 2017/18 $*	*Year 6 2018/19 $*	*Year 7 2019/20 $*	*Year 8 2020/21 $*	*Year 9 2021/22 $*	*Year 10 2022/23 $*
Class: Wastewater												
63023 - Minor Sewer Extensions	Expenditure	4,834	35,900	37,000	38,100	39,200	40,400	41,600	42,800	44,100	45,400	46,800
63027 - Cranes & Hoists	Expenditure	19,908	20,500	21,100	21,700	22,400	23,100	23,800	24,500	25,200	26,000	26,800
63069 - Control Systems	Expenditure	39,797	41,000	42,200	43,500	44,800	46,100	47,500	48,900	50,400	51,900	53,500
63026 - Switchboards	Expenditure	97,718	100,600	103,600	106,700	109,900	113,200	116,600	120,100	123,700	127,400	131,200
63052 - Renew existing Dunwich Gravity Sewers	Expenditure		468,000									
63035 - Minor P&E	Expenditure		10,200	10,710	11,246	11,808	12,398	13,018	13,669	14,352	15,070	15,824
63118 - Civil	Expenditure	49,759	51,300	52,800	54,400	56,000	57,700	59,400	61,200	63,000	64,900	66,800
63123 - Odour Control	Expenditure	29,853	30,700	31,600	32,500	33,500	34,500	35,500	36,600	37,700	38,800	40,000
64005 - Sewerage Pump Station #5	Expenditure	49,760	0	413,738	0	0	0	0	0	0	0	0
63049 - Design WWPS System Thorneside Catchment	Expenditure	99,501	0	317,838	2,127,066	0	0	0	0	0	0	0
63050 - Mains Relining	Expenditure	149,225	153,700	158,300	163,000	167,900	172,900	178,100	183,400	188,900	194,600	200,400
63067 - Pumps	Expenditure	348,200	358,600	369,400	380,500	391,900	403,700	415,800	428,300	441,100	454,300	467,900
63068 - Pipes & Valves	Expenditure	49,759	51,300	52,800	54,400	56,000	57,700	59,400	61,200	63,000	64,900	66,800
63120 - Switchboards	Expenditure	238,717	245,000	253,300	260,900	268,700	276,800	285,100	293,700	302,500	311,600	320,900
63122 - Lifting Gear	Expenditure	49,759	51,300	52,800	54,400	56,000	57,700	59,400	61,200	63,000	64,900	66,800
Works Program Expenditure		**1,226,790**	**1,618,100**	**1,917,186**	**3,348,412**	**1,258,108**	**1,296,198**	**1,335,218**	**1,375,569**	**1,416,952**	**1,459,770**	**1,503,724**

It is noted that the renewals costs in this table differ from those shown in Figure 6. These differences are yet to be resolved.

RCC 10 Year Capital Programme - Non-Renewal Portion

Description		*Current Revised Budget 2012/13 $*	*Year 1 2013/14 $*	*Year 2 2014/15 $*	*Year 3 2015/16 $*	*Year 4 2016/17 $*	*Year 5 2017/18 $*	*Year 6 2018/19 $*	*Year 7 2019/20 $*	*Year 8 2020/21 $*	*Year 9 2021/22 $*	*Year 10 2022/23 $*
Class: Wastewater												
63017 - Dunwich gravity sewers	Expenditure	0	1130000	1131000	0	0	0	0	0	0	0	0
63078 - PS Flow & Pressure	Expenditure	49759.54	0	0	0	0	0	0	0	0	0	0
63085 - Pump Station Number 67	Expenditure	359639.78	0	0	0	0	0	0	0	0	0	0
63085 - Pump Station Number 67	Reserves	-359639.82	0	0	0	0	0	0	0	0	0	0
63106 - Cleveland Gravity Sewer Design & Installation	Expenditure	50586.54	0	0	0	0	0	0	0	0	0	0
64001 - Sewerage Pump Station #1	Expenditure	46005.26	0	0	0	0	0	0	0	0	0	0
64006 - Sewerage Pump Station #6	Expenditure	99501.06	3930560	0	0	0	0	0	0	0	0	0
64006 - Sewerage Pump Station #6	Reserves	-99501.05	0	0	0	0	0	0	0	0	0	0
64047 - Capalaba Catchment SPS047 and Rising Main Upgrade	Expenditure	0	0	26923	180177	0	0	0	0	0	0	0
64061 - Sewerage Pump Station #61	Expenditure	59703.95	0	0	0	0	0	0	0	0	0	0
64134 - Mt Cotton Catchment Sewerage Pump Station #134	Expenditure	0	0	317838	2127066	0	0	0	0	0	0	0
64147 - Cleveland Catchment Sewerage Pump Station #147	Expenditure	0	0	35328	236425	0	0	0	90476	605495	0	0
64165 - Sewerage Pump Station #165	Expenditure	3475665.58	0	0	0	0	0	0	0	0	0	0
????? - Capalaba Pump Station Capacity Augmentation/ Upgrade	Expenditure	0	0	0	0	0	0	21008	241592	188994	1264806	0
????? - Cleveland Gravity Sewer Design & Installation	Expenditure	0	0	0	0	0	0	0	50845	50845	289425	0
????? - Thornside Gravity Pipe Installation	Expenditure	0	0	0	0	0	0	37219	148876	0	0	0
????? - Thornside Pump Station Augmentations continuing Projects	Expenditure	0	0	0	0	0	190541	1275159	0	0	0	0
????? - Thornside Pump Station Emergency Storage - 2014	Expenditure	0	0	0	0	0	0	0	0	0	930478	0
????? - Victoria Pt Gravity Mains	Expenditure	0	0	0	0	0	0	86558	579272	0	0	0
????? - Victoria Pt Gravity Mains	Expenditure	0	0	0	0	0	260410	1742741	0	0	0	0
????? - Vic Point Pump Station Capacity Augmentation/ Upgrade in 2018	Expenditure	0	0	0	60844	0	0	112728	754412	0	0	0
	Class Expenditure	**4,140,862**	**5,060,560**	**1,511,089**	**2,604,512**	**0**	**450,951**	**3,275,413**	**1,865,473**	**845,334**	**2,484,709**	**0**

Getting back to basics





Wastewater Treatment

Asset and Service Management Plan

Appendix A of Redland Water's

'Water Netserv Plan'

Redland CITY COUNCIL

Document Control	

Rev No	Date	Revision Details	Author	Reviewer	Approver
0	10 June 2013	Draft	LD	BT	BT
1	24 June 2013	RW Review	ST	-	-
2	28 June 2013	Final Draft	MI	BT	BT

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

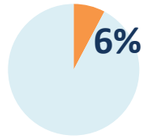
WASTEWATER TREATMENT

The Portfolio

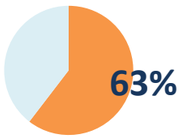
	Replacement Cost	Accumulated Depreciation	Depreciation Expense
VICTORIA POINT WWTP	$29,838,100	$6,688,851	$944,400
CLEVELAND WWTP	$26,131,700	$7,969,187	$800,198
THORNSIDE WWTP	$26,015,400	$9,800,553	$843,599
CAPALABA WWTP	$22,125,600	$10,483,184	$612,851
MT COTTON WWTP	$6,622,000	$2,565,435	$194,556
POINT LOOKOUT WWTP	$5,184,000	$2,921,581	$153,931
DUNWICH WWTP	$5,115,500	$1,532,096	$181,420
TOTAL	**$121,032,300**	**$41,960,886**	**$3,730,956**

Condition Summary

	CAPALABA WWTP	THORNESIDE WWTP	CLEVELAND WWTP	VICTORIA POINT WWTP	DUNWICH WWTP	MT COTTON WWTP	POINT LOOKOUT WWTP
Excellent	5%	13%	4%	10%	4%	4%	15%
Very Good	40%	49%	81%	69%	55%	58%	4%
Good	48%	24%	9%	20%	38%	30%	17%
Fair	5%	13%	6%	1%	3%	6%	15%
Poor	2%	1%	0%	0%	0%	1%	49%



Sustainability Ratio



Consumption Ratio

Keeping it Brief

Major Projects 2013/14

- ✓ Thorneside WWTP lime slurry dosing $130,000
- ✓ Victoria Point WWTP belt filter press upgrade $23,900
- ✓ Thorneside WWTP inlet works upgrade $346,000
- ✓ Mount Cotton WWTP inlet works upgrade $32,300
- ✓ Point Lookout WWTP $500,000

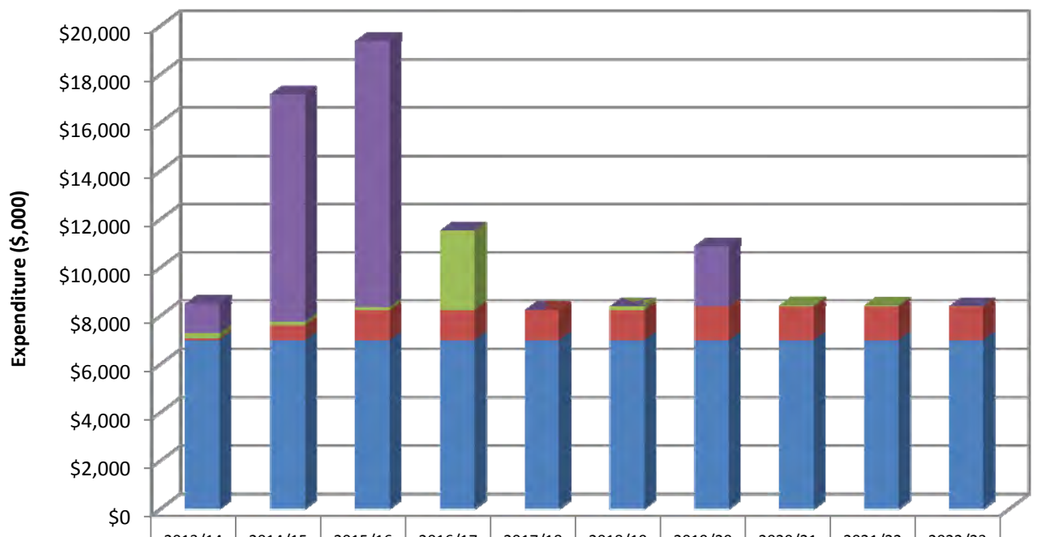
Overall Condition and Critical Issues

Generally, Redland City Council's wastewater treatment assets are of a young age and in a good condition. Two thirds of the treatment plant assets are in Very Good or Excellent Condition. However, the Point Lookout WWTP is in a very poor condition and is budgeted to be replaced with a new plant in the 2014/15 and 2015/16 financial years.

Improvement Plan Focus

- ✓ The Capalaba WWTP's capacity to cope with increasing population loads is being monitored and when required molasses dosing will need to be introduced to increase TN removal to maintain total effluent TN load within licence limits. This is expected to be required somewhere between 2015 and 2018. A Flow Balance Tank and/or additional aerator might also be required around 2015 because of possible high COD loading;
- ✓ The main priority at the Cleveland WWTP is the finalisation of the negotiations with DEHP for a Development Approval (DA) for the WWTP. Depending on the outcome of the DA negotiations, a Toxicity Assessment will be required to assess the potential impacts of toxicants present in the treated effluent (e.g. chlorine) on the receiving environment. This assessment will include the development of a Management Plan.

Long Term Financial Plan Summary



	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Capital Upgrade	$1,231,996	$9,404,004	$11,010,000	$0	$0	$0	$2,500,000	$0	$0	$0
Capital Renewal	$211,100	$157,200	$129,800	$3,290,400	$0	$153,300	$0	$51,800	$49,100	$11,900
Maintenance New Assets	$71,116	$613,953	$1,249,496	$1,249,496	$1,249,496	$1,249,496	$1,393,806	$1,393,806	$1,393,806	$1,393,806
Maintenance Existing Asset Base	$6,986,479	$6,986,479	$6,986,479	$6,986,479	$6,986,479	$6,986,479	$6,986,479	$6,986,479	$6,986,479	$6,986,479

2 INTRODUCTION

2.1 SCOPE

This plan applies to all wastewater treatment and recycled water infrastructure assets that Redland Water manages. The assets covered are a combination of civil structures such as tanks and pipework, mechanical equipment such as pumps and blowers, and electrical and control equipment such as switchboards, process instrumentation and programmable controllers.

The plan is intended for the use of all staff who take on a role in the lifecycle of an asset. The plan will also form part of Redland Water's *Water Netserv Plan* as required under the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*.

2.2 PLAN FRAMEWORK

Key elements of the plan are:

- Existing asset base – clearly defines the assets value and condition covered by the plan
- Levels of service – specifies the services and levels of service to be provided by council.
- Future demand – how this will impact on future service delivery and how this is to be met.
- Life cycle management – how Council does and plans to manage its existing and future assets to provide the required services
- Financial summary – what funds are required to provide the required services.
- Monitoring and review– how the plan will be monitored to ensure it is meeting Council's objectives.
- Improvement action plan – the actions required to improve the management of the assets and allow progression of the plan from core to advanced.

2.3 KEY STAKEHOLDERS

TABLE 1 – KEY STAKEHOLDERS

Unit / Group/ Department	Contact Person	Responsibility / Lifecycle Phase
Redland Water	Brad Taylor	Primary ASMP Author
Wastewater Treatment/Infrastructure and Planning / Redland Water and RedWaste	Sonja Toft	Strategic Planning – Expansion / Upgrade
Wastewater Treatment/Infrastructure and Planning / Redland Water and RedWaste	Sonja Toft	Renewal Programming

Unit / Group/ Department	Contact Person	Responsibility / Lifecycle Phase
Wastewater Treatment/Infrastructure and Planning / Redland Water and RedWaste	Daniela Simon	Monitoring
Recycled Water/Infrastructure and Planning / Redland Water and RedWaste	Patrina Hili	Monitoring
Wastewater Treatment/Infrastructure and Planning / Redland Water and RedWaste	Wes O'Brien	Maintenance (Programming and Execution)
Recycled Water/Infrastructure and Planning / Redland Water and RedWaste	Kevin McGuire	Maintenance (Programming and Execution)
Wastewater Treatment/Infrastructure and Planning / Redland Water and RedWaste	David Price	Construction
Recycled Water/Infrastructure and Planning / Redland Water and RedWaste	John Quinn	Construction
Wastewater Treatment/Infrastructure and Planning / Redland Water and RedWaste	Bradley Taylor	Disposal

2.4 CORE AND ADVANCED ASSET MANAGEMENT

This asset management plan is prepared as a 'core' asset management plan in accordance with the International Infrastructure Management Manual. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level.

This plan builds on the previous asset management work that Redland Water has completed, starting with the *Asset Management Procedure Manual, March 2006, Opus International Consultants Limited*. Subsequent work to this included the *Asset Management Improvement Plan, July 2006, Opus International Consultants Limited*.

That improvement plan set out prioritised improvements have been summarised into the following organisational goals:

- Robust asset information with information that is consistent and accurate which can be used for planning (understanding asset conditions and asset criticality)
- To better understand the cost of service
- Improved maintenance and renewal programming
- Asset creation is based on a minimised lifecycle cost approach for all major wastewater treatment infrastructure
- Accurately measure system performance on terms of treated effluent quality
- A robust Non-Current Asset Policy

Progress on achieving those goals has been limited by the reform that has occurred in the water industry in South East Queensland since the completion of the *Asset Management Improvement Plan*.

Other asset management work completed by Redland Water includes:

- Asset Criticality Framework, June 2007, Opus International Consultants Limited
- Asset Revaluation Manual, November 2007, Opus International Consultants Limited

The current asset management focus is a revaluation of the asset base that has been returned from Allconnex Water to Redland City Council using Council's revaluation procedures. Moving forward, there are a number of strategic trends and issues in relation to asset management and the associated implications for Redland Water. Table 2 below details these issues.

TABLE 2 – STRATEGIC TRENDS AND ISSUES

Strategic Trend / Issue	Implications for Redland Water
Changing regulatory environment and focus on back to basics service delivery	Scrutiny of the prudency and efficiency of capital and operating costs mean that investment choices need to be made based on robust, commercial decisions which will deliver infrastructure more effectively providing a 'back to basics' delivery of service. Commercial imperatives will be applied to management of Redland Water's assets to ensure best value over the asset life.
Tightening and increasing complexity of regulatory requirements, guidelines and reporting	Redland Water is facing increasing tightening and complexity of regulatory requirements, guidelines and reporting in the areas of public health, safety and the environment.
Technological advancements	Technological advances in SCADA and CMMS offer opportunities to better integrate and manage Redland Water's assets.
Climate change / business resilience	Greenhouse gas legislation is undergoing major development and there are growing environmental legislative requirements. Given this context, optimising energy use and meeting environmental regulations are imperatives that will make Redland Water more sustainable.
Population growth	Redland Water has a central role in expanding the delivery of safe and reliable water and wastewater services that accommodates the anticipated growth in Redland City.

Strategic Trend / Issue	Implications for Redland Water
Customer expectations	Customer and community expectations are increasing and are reflected in issues such as value for money, greater transparency of costs of service provision, higher treated effluent quality with reduced environmental impacts, and minimisation of odours and overflows of the wastewater treatment systems. The implications are the need for a lowest whole-of-life cost and proactive risk based approach to asset management.
Increasing accountability for the consequences of asset failure	The increasing accountability for the consequences of a wastewater treatment failure comes from both legal and corporate compliance and insurance cost pressures. This drives the need for Redland Water to possess a clear understanding of the risks and the consequences of asset failure and to ensure that appropriate mitigation measures are in place.
Treated wastewater and biosolids reuse	Treated wastewater has long been considered a potential resource but to date the economics of implementing reuse schemes have generally prevented their development. A number of factors are progressively driving reuse economics towards viability including rising Seqwater water costs and increasing demands on finite raw water sources. Redland Water needs to retain flexibility to reuse its treated wastewater as and when future opportunities arise.

2.1 WATER NETSERV PLAN

This asset management plan also forms part of Redland Water's *'Water Netserv Plan'*, specifically Appendix A of Part B of the Netserv Plan. It aims to address the legislative requirement to:

> (a) include information outlining the SEQ service provider's existing and proposed infrastructure for providing its services, indicating how the SEQ service provider proposes—
>
> > (i) to meet performance targets and service standards for assets relating to the operation, maintenance and replacement of existing infrastructure
> >
> > (ii) to provide new infrastructure to meet expected future development and growth in its relevant area, considering demand for the services based on low, medium and high population growth scenarios

To assist with navigating this plan to the requirements of the *Water Netserv Plan* detailed above, the following Table 3 is provided.

TABLE 3 – NETSERV LEGISLATION REFERENCES

Section 99BP	Description	Link to Section
99BP (a) (i)	How … to meet performance targets and service standards for assets relating to the operation, maintenance and replacement of existing infrastructure	4 & 7.2
99BP (b) (ii)	How … to provide new infrastructure to meet expected future development and growth in its relevant area, considering demand for the services based on low, medium and high population growth scenarios	5 & 7.3

3 EXISTING ASSET BASE

3.1 OVERVIEW

The seven wastewater treatment assets managed by Redland City Council are summarised as follows:

Mainland

- **Victoria Point** - 34,000 EP (nominal capacity), ADWF 7.8 ML/d treatment capacity. Services Victoria Point and Redland Bay. Treated effluent discharges to Eprapah Creek.
- **Cleveland** - 38,000 EP, ADWF 9.5 ML/d capacity. Services Cleveland and Thornlands. Treated effluent discharges to irrigation adjacent to treatment plant and then via overland flow to Hilliards Creek.
- **Thorneside** - 30,000 EP, ADWF 7.5 ML/d treatment capacity. Services Thorneside, Birkdale, Wellington Point and North Ormiston. Treated effluent discharges to Tingalpa Creek.
- **Capalaba** - 30,000 EP, ADWF 7.5 ML/d capacity. Services Capalaba and Alexandra Hills. Treated effluent discharges to Tingalpa Creek.
- **Mt Cotton** - 6,400 EP, ADWF 1.5 ML/d capacity. Services Mt Cotton (Bayview Estate). Treated effluent discharges to Carbrook Golf Course irrigation and the Logan River.

North Stradbroke Island

- **Point Lookout** - 1,750 EP, ADWF 0.4 ML/d capacity. Services part of Point Lookout Township. Treated effluent discharges to groundwater via infiltration ponds.
- **Dunwich** - 1,000 EP, ADWF 0.3 ML/d capacity. Services part of Dunwich Township. Treated effluent discharged via spray irrigation adjacent to treatment plant.

3.2 FINANCIAL PERSPECTIVE

The following Table 4 information is sourced from the reports, *Redland Water Assets Revaluation 2012 Above Ground Assets, March 2013*, and *Redland Water Assets Revaluation 2012 Underground Assets March 2013*, prepared by GHD.

The purpose of these revaluation reports was to provide a revaluation of the assets that fell under the control of Redland Water as of 30 June 2012 following the transfer of these assets from Allconnex Water.

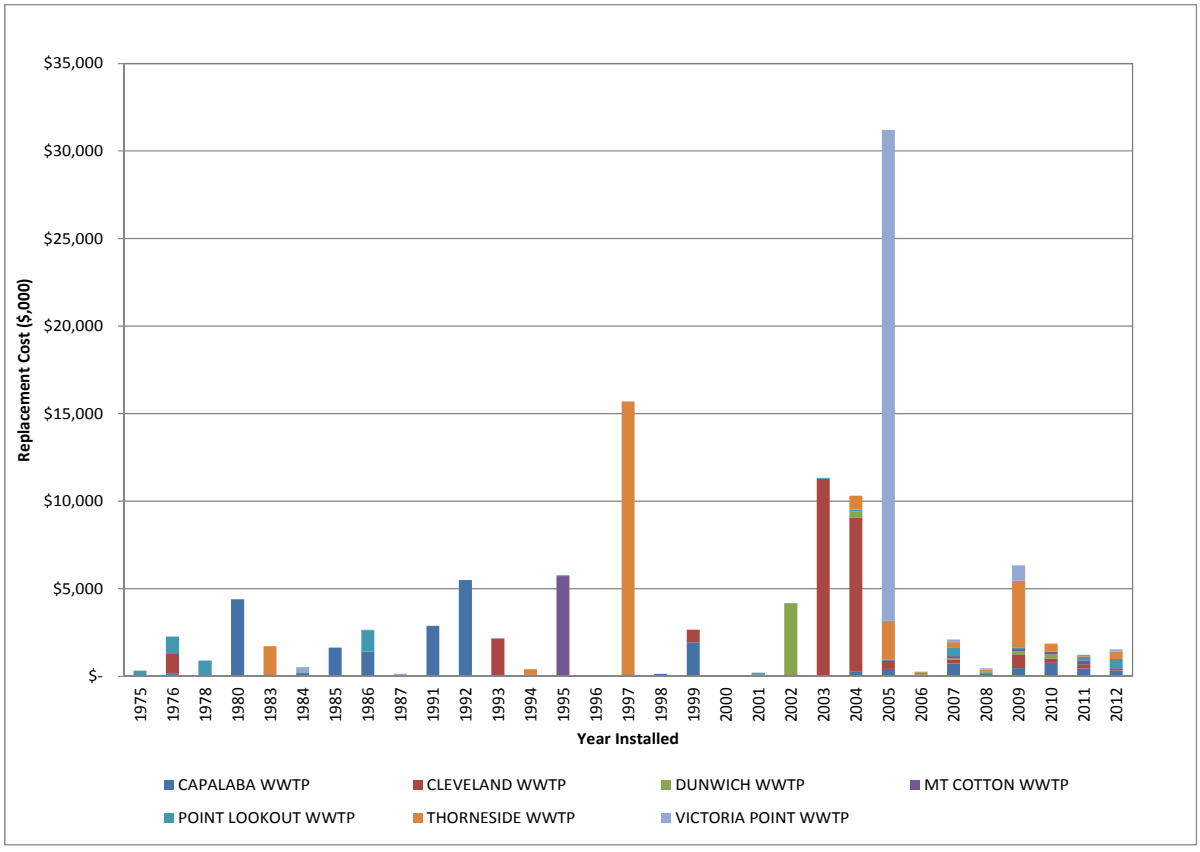
The Asset Revaluation was based on the non-current asset values at 30 June 2012.

TABLE 4 – EXISTING WASTEWATER TREATMENT ASSET DETAILS

Asset Category	Replacement Cost	Accumulated Depreciation	Written Down Value	Depreciation Expense
Victoria Point WWTP	$29,838,100	$6,688,851	$23,149,249	$944,400
Cleveland WWTP	$26,131,700	$7,969,187	$18,162,513	$800,198
Thorneside WWTP	$26,015,400	$9,800,553	$16,214,847	$843,599
Capalaba WWTP	$22,125,600	$10,483,184	$11,642,416	$612,851
Mt Cotton WWTP	$6,622,000	$2,565,435	$4,056,565	$194,556
Point Lookout WWTP	$5,184,000	$2,921,581	$2,262,419	$153,931
Dunwich WWTP	$5,115,500	$1,532,096	$3,583,404	$181,420
Wastewater Treatment Plants	**$121,032,300**	**$41,960,886**	**$79,071,414**	**$3,730,956**

The following Figure 1 indicates the combined age profiles of the Redland City Council wastewater treatment assets.

FIGURE 1 – WASTEWATER TREATMENT PLANT ASSETS – AGE PROFILE

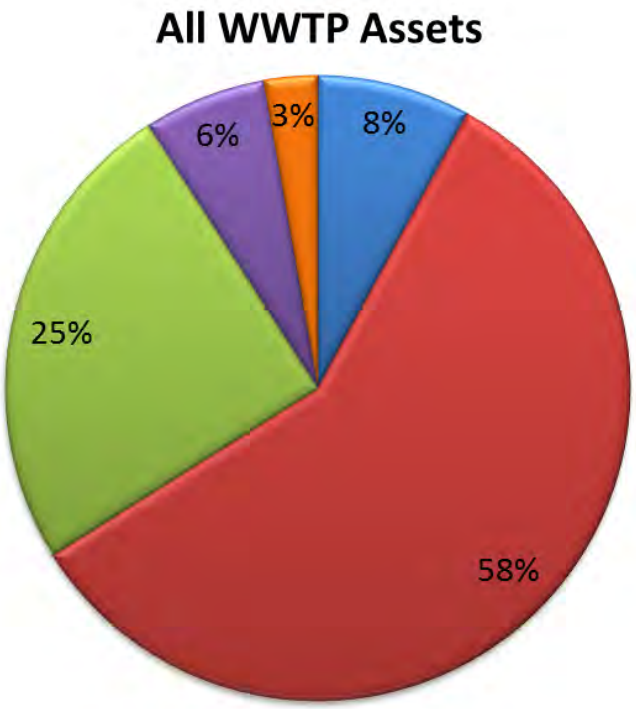


3.3 ASSET CONDITION

Generally, the Redland City Council's wastewater treatment assets are of a young age and in a good condition. Two thirds of the treatment plant assets are in Very Good or Excellent Condition. A further 25% are in Good condition, while 6% are in Fair condition and less than 3% in Poor condition.

Figure 2 shows this information. That figure includes an overall Redland City Council wastewater treatment plant asset condition profile, and separate condition profiles for each of Council's seven treatment plants. It can be seen from those individual profiles that the overall profile is generally representative of each individual plant except for the Point Lookout WWTP. That treatment plant is budgeted to be replaced with a new plant in the 2014/15 and 2015/16 financial years.

FIGURE 2 – WASTEWATER TREATMENT PLANT ASSET CONDITION



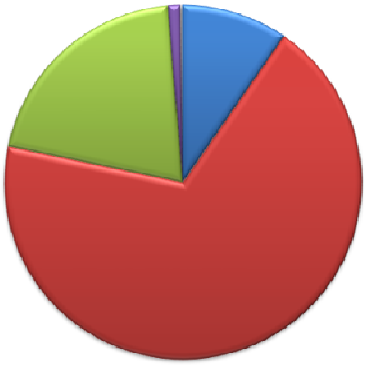
The Figure 2 percentages are based on the replacement cost value for sewage treatment assets. Condition is measured using a 1 – 5 rating system:

Rating		Description of Condition
	1	**Excellent condition**: Only planned maintenance required.
	2	**Very good**: Minor maintenance required plus planned maintenance.
	3	**Good**: Significant maintenance required.
	4	**Fair**: Significant renewal/upgrade required.
	5	**Poor**: Unserviceable.

Figure 2 continued over page

CAPALABA WWTP

VICTORIA POINT WWTP



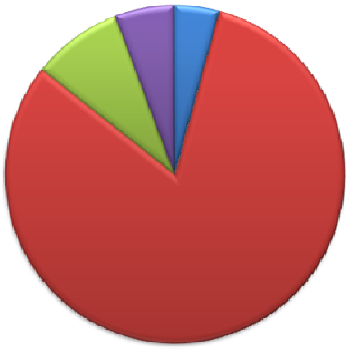
THORNESIDE WWTP

POINT LOOKOUT WWTP

MT COTTON WWTP

DUNWICH WWTP

CLEVELAND WWTP



4 LEVELS OF SERVICE

4.1 OVERVIEW

As an undertaker of Environmentally Relevant Activities under the Environmental Development Regulation 2008 (i.e. the operation of its wastewater treatment plants at Thorneside, Capalaba, Victoria Point, Cleveland, Mount Cotton, Point Lookout and Dunwich), the Redland City Council through Redland Water is legally required to comply with a number of operational and treated wastewater discharge conditions.

The Redland City Council is also required to operate its associated recycled water reuse activities at Victoria Point and Mt Cotton in accordance with Recycled Water Management Plans approved by the Office of the Water Supply Regulator within the Department of Energy and Water Supply.

4.2 CUSTOMER RESEARCH AND EXPECTATIONS

The main source of media reports relating to the performance of Council's wastewater treatment plants is through the annually published Healthy Waterways Report Cards. Council's mainland wastewater treatment plants discharge to the Tingalpa, Hilliards, Eprapah Creeks and the Logan River. The 2012 and previous report cards can be read at the following address:

http://www.healthywaterways.org/HealthyWaterways/Resources/Reports.aspx

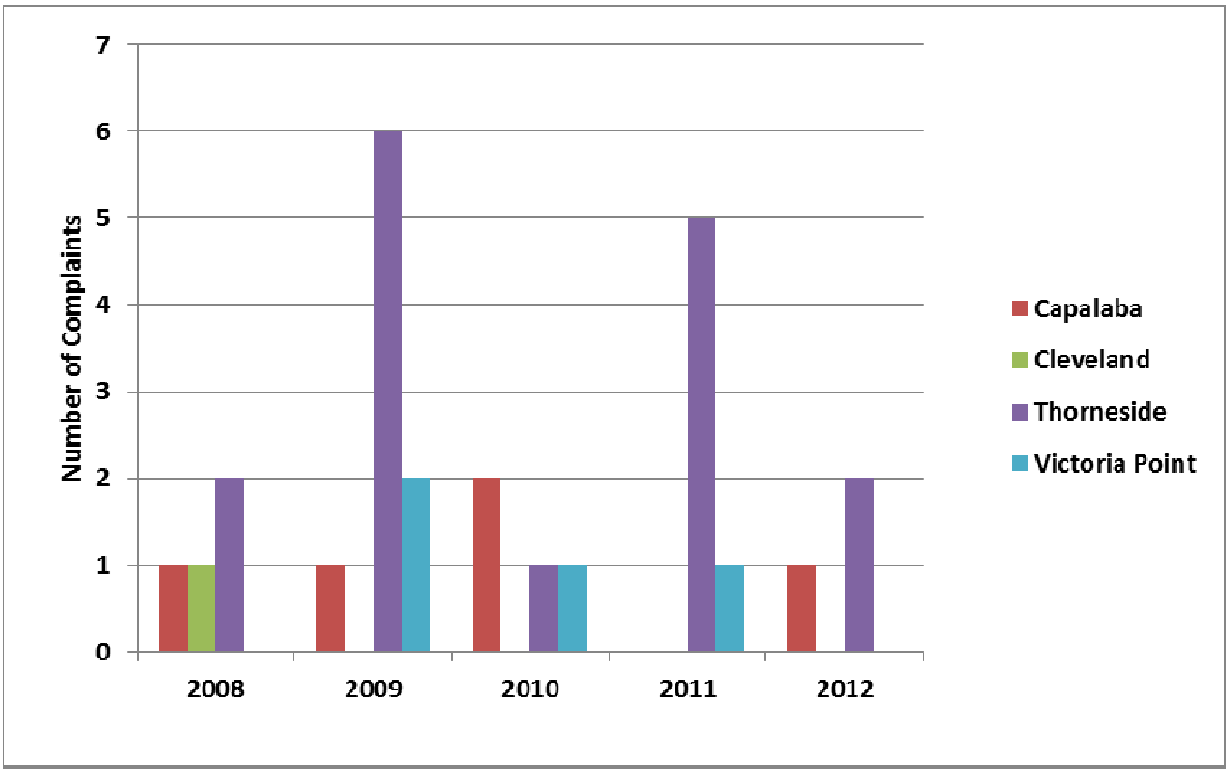
A historical comparison of the report cards indicates that water quality has improved in all waterways in 2012 with the exception of the Logan Estuary.

However, ratepayer knowledge of its wastewater treatment plants is largely driven by their personal interfaces with the plants and what they see and hear in the public media. Council's wastewater treatment plants are generally out the public sight and odour emissions are often the only interface that the public has with them.

The report *Wastewater Treatment Plant Strategy to 2025 (Draft)* (Water Strategies, February 2013), advises, *Review of odour complaints formally recorded by Council and specifically relating to the wastewater treatment plants shows that the main offenders have been Thorneside and Capalaba WWTP. Capalaba WWTP was provided with an Odour Control Facility (OCF) in 2007 and this was further upgraded in 2012. Thus odour complaints for the Capalaba WWTP have substantially reduced since 2007. Whilst Thorneside WWTP has had an OCF installed since its upgrade in 1997 this unit has been relatively ineffective. An upgraded unit has only been recently installed.*

The following Figure 3, reproduced from the Water Strategies report, indicates that wastewater treatment plant related odour complaints are being progressively contained.

FIGURE 3 – WASTEWATER TREATMENT PLANT RELATED ODOUR COMPLAINTS



4.3 CURRENT LEVELS OF SERVICE

The levels of service to be provided by each of Council's wastewater treatment plants are set out in Development approvals issued under the Environmental Protection Act 1994.

The 1994 Development Approval requirements for each of Council's wastewater treatment plants provided under the Environmental Protection Act 1994 can be read at:

G:\RedlandWater&Waste\Data\Environment\Development Approvals

These levels of service relate to how the community receives the service in terms of safety, quality, quantity, reliability, responsiveness, cost/efficiency and legislative compliance. Supporting the community service levels are operational or technical measures of performance developed to ensure that the minimum community levels of service are met. The current Redland Water levels of service are presented below in Table 5 below. The KPIs currently measured in the Redland Water monthly business unit report are identified with example performance trends in Table 5 below. The full monthly business unit report can be read at:

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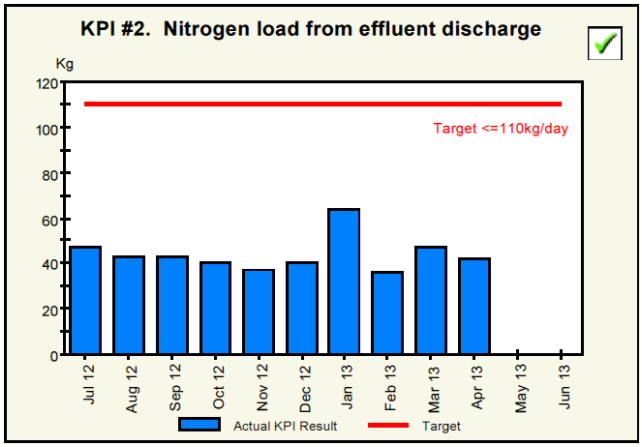
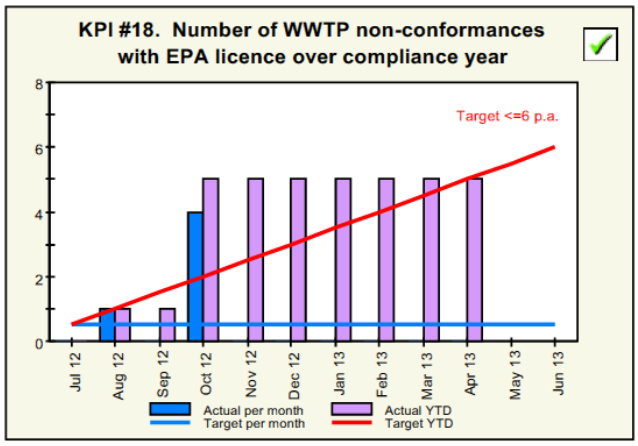
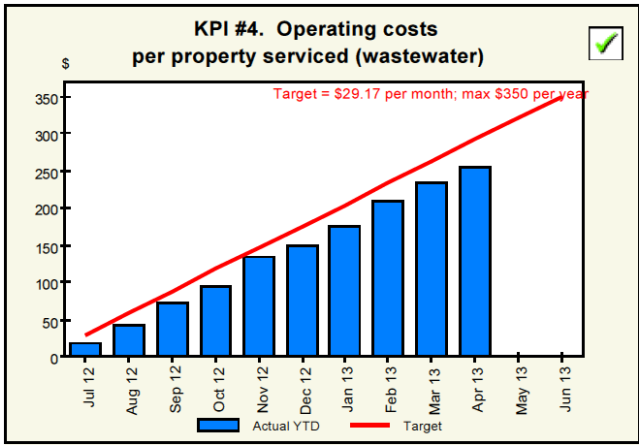
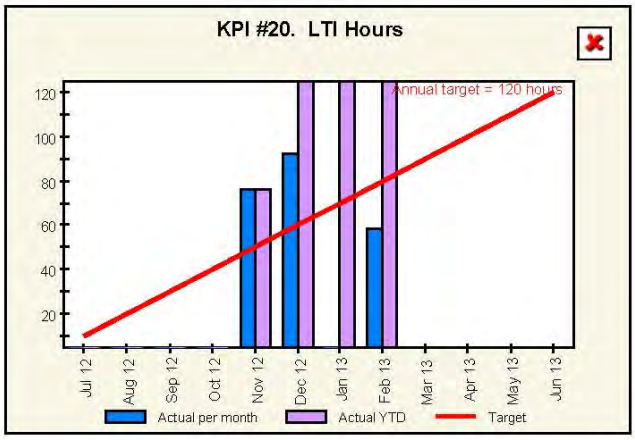
TABLE 5 – CURRENT SERVICE LEVELS

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Quality	Nitrogen in discharged treated sewage	KPI # 2	<= 110 kg per day	
Function	Wastewater treatment non-conformances with EPA licence	KPI # 18	< 6 per year	
	Wastewater operating cost per property served	KPI # 4	< $350 per year	

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Safety	LTI hours (lost time injury hours lost)	KPI # 20	< 120 hours	

4.4 DESIRED LEVELS OF SERVICE

The level of service requirements for each of Council's wastewater treatment plants provided under the Environmental Protection Act 1994 can be read at:

G:\RedlandWater&Waste\Data\Environment\Development Approvals

These levels are the regulatory minimum standards which Council needs to work towards. However, in many cases they are regularly being exceeded and Council's operational staff are continually working towards making further improvements.

4.5 SERVICE AND PERFORMANCE DEFICIENCIES

The Point Lookout WWTP is a treatment plant which needs to be upgraded to meet EPA requirements and funds have been budgeted for it to be replaced with a new plant in the 2014/15 and 2015/16 financial years. Otherwise it is expected that the current levels of service will continue to be sufficient in meeting community expectations for sewage treatment.

The report *Wastewater Treatment Plant Strategy to 2025 (Draft)* (Water Strategies, February 2013), advises that there are two areas where performance deficiencies with respect to current discharge approvals could potentially become problematic in future. Emphasis in this regard is placed on situations which require negotiation with the DEHP and the risk that those negotiations might lead to a more onerous discharge requirement:

- Victoria Point WWTP

The current plant load is estimated to be 32,922 EP, which compares with the nominal plant capacity of 34,000 EP. The population load is expected to increase to 40,592 at 2025. A review of the plant performance by GHD in 2009 (GHD, 2009b) has indicated that the plant should be able to continue to operate until beyond 2022 whilst still meeting effluent release limits with the implementation of molasses dosing for Total Nitrogen trimming and by operating the plant at a shorter sludge age of 20 days (currently in the range 22-23 days). The next step would be conversion to a 5-Stage Phoredox process. This would enable the plant to continue to meet Total Nitrogen limits beyond 2022. If COD loads are higher than anticipated it may be necessary to provide a balance tank to attenuate peak oxygen loads. Alternatively operating the three aerators in parallel may achieve the same outcome. For this option the purchase of an additional aerator to be held in store as a stand-by unit would be recommended. Raw sewage sampling should be carried out to verify the current per capita COD load. Provision of a third clarifier and upgrading of the Chlorine Contact Tank and filters will be required at some time after 2020.

It is recommended that the capacity of the treatment plant to cope with increasing population loads is monitored and when required molasses dosing is introduced to increase TN removal to maintain total effluent TN load within licence limits. This is expected to be required somewhere between 2015 and 2018. A Flow Balance Tank and/or additional aerator might also be required around 2015 because of possible high COD loading;

- Cleveland WWTP

The plant is comfortably meeting effluent licence requirements but the plant could exceed licence conditions for maximum dry weather flow releases at any time. New licence conditions including a revised dry day definition are currently being negotiated with DEHP. This has required an assessment of the sustainability of effluent disposal via overland irrigation and an assessment of the impacts of discharges on water quality in Hilliards Creek.

The main priority at the Cleveland WWTP is the finalisation of the negotiations with DEHP for a Development Approval (DA) for the plant. The draft DA indicates that a condition requiring a Toxicity Assessment to be developed and undertaken. Depending on the outcome of the DA negotiations, a Toxicity Assessment will be required to assess the potential impacts of toxicants present in the treated effluent (e.g. chlorine) on the receiving environment. This assessment will include the development of a Management Plan.

5 FUTURE DEMAND

5.1 INFLUENCES ON DEMAND

The primary influences on demand for sewage treatment services are demographics of the service area (i.e. land development / population growth).

Land Development / Population Growth

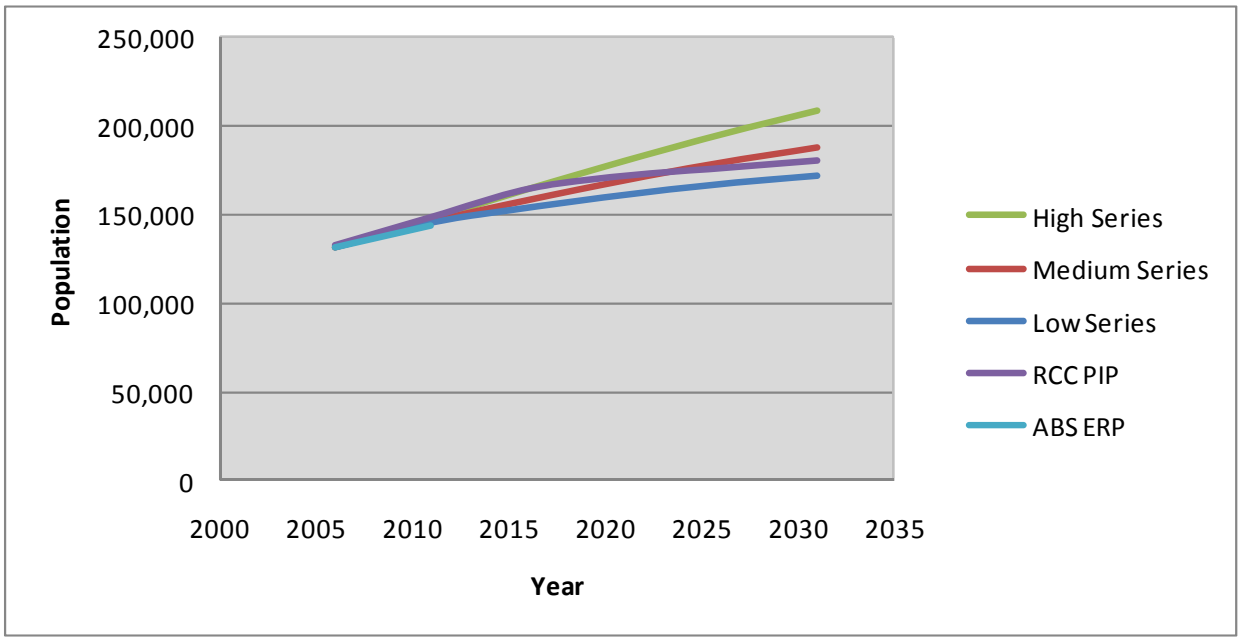
New development areas in South East Thornlands and Kinross Road require extension of the wastewater collection network in order to provide wastewater treatment services to future lots and customers. Both these development areas will be serviced by the Cleveland WWTP. The impacts these significant developments on the Cleveland WWTP are highlighted in Section 4.5. A full assessment of the impacts of this population increase on the Cleveland WWTP has not been undertaken. However, it has been proposed that to cater for the continuing growth in this catchment, a process upgrade (e.g. in terms of construction of a balance tank) will be required in approximately 2019/20.

The continued land development in the Redland Bay area and the future Victoria Point development area will be serviced by the Victoria Point WWTP. The impacts on the Victoria Point WWTP are highlighted in Section 4.5. To date a full assessment of the impacts of this population increase on the Victoria Point WWTP has not been undertaken. However, it has been proposed that to cater for the continuing growth in this catchment, a process upgrade (e.g. in terms of construction of a balance tank) will be required in approximately 2019/20.

There is also continued land development in the Mt Cotton Village areas which will be serviced by the second treatment train (now operational) of the Mt Cotton WWTP.

Demand projections used for the determination of new infrastructure required to meet expected future development and growth are built up from the projections of population and employment growth contained within the Redland City Council's Priority Infrastructure Plan (PIP). The PIP population projections are based on amended (2006) medium to high series projections of estimated resident population. Figure 4 below demonstrates the current operational envelope of population projections.

FIGURE 4 – POPULATION PROJECTION COMPARISONS



As can be seen from Figure 4 that the RCC PIP projections, which form the basis for our infrastructure demand projections, start off following the high series projection then the growth rates gradually taper to meet a projection somewhere between the medium and the low series projections. Note that all projections currently end at a 2031 planning horizon – this is consistent with RCC's recent planning work undertaken as part of the Redland Planning Scheme 2015 (RPS 2015).

Redland Water employees undertake a process of continual monitoring and review of planned capital expansion programs in order to ensure that network expansion keeps pace with growth in demand, whether that demand matches Low Series, Medium Series or High Series Growth. Section 7.3 discusses this process in further detail.

Based on the assumption that the RCC PIP population projections represent the population that can be accommodated under the existing allowable uses in the planning scheme, then without changes to land use zonings in the RPS, then the only variance in the projections is the growth rate at which they occur. The declining growth rate in the later years of the RCC PIP projections give rise to a possibly wide range of years that ultimate RPS demand could be reached, i.e. potentially between 2021 and 2031 should there be a change to the growth rates. The variability of growth rates is highlighted by the lighter blue line on the graph for the ABS ERP data between 2006 (base year for projections) and 2011 (most recent census) – it is below all the projection lines including the low series projections. The current growth rate indicates that it is likely that the current planned ultimate demand will be reached at some time past 2031, i.e. outside the 20 year planning horizon requirement for the *'Water Netserv Plan'*.

To ensure appropriate infrastructure solutions are developed, the alignment of the Redland Water Infrastructure Demand Model to the current Redland City Council population estimates (e.g. those prepared for the RPS 2015) is key. Once this key task has been completed, the reviews and updates of the current master plans to ensure coverage of the 20 year planning horizon will be required.

5.2 PRIORITY INFRASTRUCTURE PLAN AND DEVELOPER DONATED ASSETS

The Redland City Council Priority Infrastructure Plan (PIP) has identified the following WWTP asset augmentations (refer Table 6) are required to maintain current desired standards of service. There are no developer donated assets in the WWTP asset class by the very nature of the asset class (i.e. WWTP augmentations are most cost effectively built in large stages - (relative to individual development sizes)).

TABLE 6 – PROJECTED FUTURE ASSETS

WWTP	Type of Work	Establishment cost ($) #
Capalaba	New axial blower and pipework	$496,000
	Plant bypass	$350,000
	Use primary clarifier as secondary	$574,900
	Diffusers	$399,000
Cleveland	New inlet screen (currently underway)	$1,119,000
	Security gates	$180,000
	Odour control to inlet works	$681,000
	Replace Belt Filter Press	$329,000
	Balance tank	$4,744,500
	Plant bypass	$358,000
	RAS pumps	$548,000
Thorneside	Conversion of APT to balance tank	$738,000
	Inlet works – screening, grit removal and lime dosing	$3,170,000
	Odour control to inlet works	$796,000

WWTP	Type of Work	Establishment cost ($) #
	Plant bypass	$549,000
	RAS pumps	$499,000
	Replace Belt Filter Press	$1,396,700
	Plant bypass	$793,900
	Belt Filter Press	$238,900
	Sand replacement in filters	$50,000
Victoria Point	Backup screen	$397,000
	Balance tank	$7,141,000
Mt Cotton	Inlet works	$332,100
Point Lookout	Upgrade WWTP	$15,000,000

Notes:

1. *# Includes Discounting and Escalation as per the Redland City Council discounting methodology.*
2. *The costs in Table 6 are presented in December 2006 dollars in line with the base year for the Priority Infrastructure Plan.*

6 RISK MANAGEMENT

Redland Water undertook a detailed Asset Criticality Framework assessment in 2007. The report was undertaken in three (3) phases with each phase providing more detail as the review progressed from Asset Group Level to Asset Component Level.

The complete report can be read at:

..\..\..\Reports\RWW_ScannedReports\251_RWW Asset Criticality Framework - Complete Report.pdf

Table 7 below shows the summary of the Phase 1 assessment of criticality at Asset Group level.

TABLE 7 – ASSET CRITICALITY PHASE 1 ASSESSMENT

Asset Group	Score	Criticality
Capalaba WWTP	192	VITAL
Cleveland WWTP	192	VITAL
Thorneside WWTP	192	VITAL
Victoria Point WWTP	192	VITAL
Mount Cotton WWTP	132	ESSENTIAL
Point Lookout WWTP	118	IMPORTANT
Dunwich WWTP	118	IMPORTANT

Table 8 below shows the critical risks and their associated risk rating along with the proposed mitigation measure. The worst risk rating is currently estimated to be H-20.

TABLE 8 – CRITICAL RISKS AND TREATMENT PLANS

Asset Group At Risk	What can Happen	Consequence	Likelihood	Risk Rating	Risk Treatment Plan
Capalaba WWTP	WWTP fails - raw sewage spills to environment	Severe	Unlikely	H-20	Regular condition monitoring
Cleveland WWTP	WWTP fails - raw sewage spills to environment	Severe	Unlikely	H-20	Regular condition monitoring
Thorneside WWTP	WWTP fails - raw sewage spills to environment	Severe	Unlikely	H-20	Regular condition monitoring
Victoria Point WWTP	WWTP fails - raw sewage spills to environment	Severe	Unlikely	H-20	Regular condition monitoring
Mount Cotton WWTP	WWTP fails - raw sewage spills to environment	Severe	Unlikely	H-20	Regular condition monitoring
Point Lookout WWTP	WWTP fails - raw sewage spills to environment	Severe	Unlikely	H-20	Regular condition monitoring
Dunwich WWTP	WWTP fails - raw sewage spills to environment	Severe	Unlikely	H-20	Regular condition monitoring

As can be seen above, the risk based approach to asset management will need to be updated to take into account the assets currently operated by Redland Water. Updating the maintenance schedules based on the revised risk management schedules will then need to be undertaken.

7 LIFECYCLE MANAGEMENT PLAN

7.1 OVERVIEW

The majority of Redland City Council's sewage treatment infrastructure is relatively young and capital renewal expenditure has historically been relatively minor. Consequently there has not been a driver to develop a comprehensive asset evaluation and renewal strategy. To date Redland Water has adopted an informal process for determining (prioritising) the asset replacement strategies.

7.2 RENEWAL / REPLACEMENT PLAN

7.2.1 RENEWAL APPROACH

Renewals planning is still, to a large extent, undertaken by operations groups based on condition assessments and their experience with asset performance. Some condition and performance information is being captured. As performance and condition information collection improves strategies relating to renewals can be developed. At this stage the length over which, and the quality of the older data, limit the extent to which conclusions can be drawn. A renewal strategy for each asset, based on its criticality, condition and performance, can then be developed which:

- optimises expenditure on asset rehabilitation and maintenance;
- plans for funding asset replacement or rehabilitation; and
- reviews the existing assets to determine whether existing infrastructure as it approaches the end of its useful life should be:
    - replaced with a similar asset;
    - replaced with larger capacity infrastructure as part of an augmentation program;
    - replaced with smaller capacity infrastructure as customer demands have reduced; or
    - disposed of.

<u>Process for developing and updating an evaluation and renewal strategy</u>

Redland Water continually improves the manner in which it manages its assets. During the preparation of the 2005/06 – 2007/08 Total Management Plan, Redland Water identified the need to review its asset management practices. Since then the following strategic activities have been undertaken:

- Asset management manual (A comprehensive manual describing the roles and responsibilities for asset management activities was developed.)
- Asset management improvement plan (A review of current best practice (both locally and nationally) was undertaken and a gap analysis, with current business practice, undertaken. An improvement plan, identifying specific activities with corresponding responsibilities and setting future direction was developed. The improvement plan is being implemented with policies and procedures being developed and activities, some of which are described below, being undertaken.)

- Asset revaluation (There are a number of functions and activities undertaken by organisations during the course of normal business that can contribute significantly to the development of risk based strategic outcomes. One of these is the asset revaluation process which includes the requirement for condition and performance assessment in order to determine remaining useful lives. Redland Water undertook a revaluation of its entire asset base in 2007 and reviewed condition and assessed some aspects of performance where the information was available.)

- Criticality assessment (The criticality assessment essentially represents the consequence side of the risk equation. This assessment was undertaken in three parts detailed below:

  In Phase 1:

  - Identify asset groups for evaluation
  - Prepare a weighted criticality assessment criteria for asset groups
  - Assess criticality of asset failure within each group and assign a score
  - Rank asset groups based on criticality
  - Determine critical asset groups to be considered for Phase 2

  In Phase 2:

  - List the components of each critical asset group
  - Develop assessment criteria for key factors influencing component level criticality
  - Assess criticality of components using the developed criteria for key component factors
  - Determine critical components to be considered for Phase 3

  In Phase 3:

  - Develop methodology to estimate likelihood of failure
  - Determine likelihood of failure for those components
  - Determine potential risk (risk if no mitigation in place) of failure of critical components
  - Provide reference table for mitigation factors that will allow Redland Water to establish residual risk of critical components

- Risk assessment

  The assessment of remaining lives based on condition, if quantified appropriately, can also be used a surrogate for 'likelihood' in the risk equation. When combined with the criticality rating of an asset, the potential (unmitigated) risk of the asset can be evaluated. During the criticality assessment, the focus was on identifying high criticality components and therefore the risk assessment undertaken will consequently focus on high risk assets.

  The next step is to identify current risk, risk acceptability (appetite) and desired residual risks and then to develop and implement the specific additional 'tactical' programs and strategies for asset inspections, maintenance and renewals based on the identified risks.

- Tactical asset management

  This refers to the 'coal face" strategies and programs that are in-place or being developed. The development of these programs have run in parallel with the risk assessment but the intention in the medium term is to focus development of tactical programs that focus on developing reliability based plans for higher risk areas identified through the risk assessment. One of the key improvements that can be implemented is a GIS-based asset condition dashboard/map, which essentially is a simple alarm style system which will trigger if the asset has more than 2 failures.

  These strategies generally relate to on-going renewals and replacement programs and to date, strategies have been developed for manhole raising and unlined fitting replacements.

  In addition to this the following longer terms requirements have been identified:

  - The need to develop and document condition and performance assessment methodologies for all asset classes and key asset types
  - Long term asset renewal plans for all asset classes, commencing with basic plans including recommendations from 2012 revaluation
  - Develop and document policies, processes and procedures for the main asset management practices (e.g. risk assessment, asset data integrity checks and improvements).

In addition, the implementations of the recommendations from the recent asset revaluation need to be undertaken by Redland Water.

7.3 UPGRADE / EXPANSION PLAN

7.3.1 UPGRADE / EXPANSION APPROACH

Redland Water's Infrastructure Planning Process (with respect to Upgrade/Expansion)

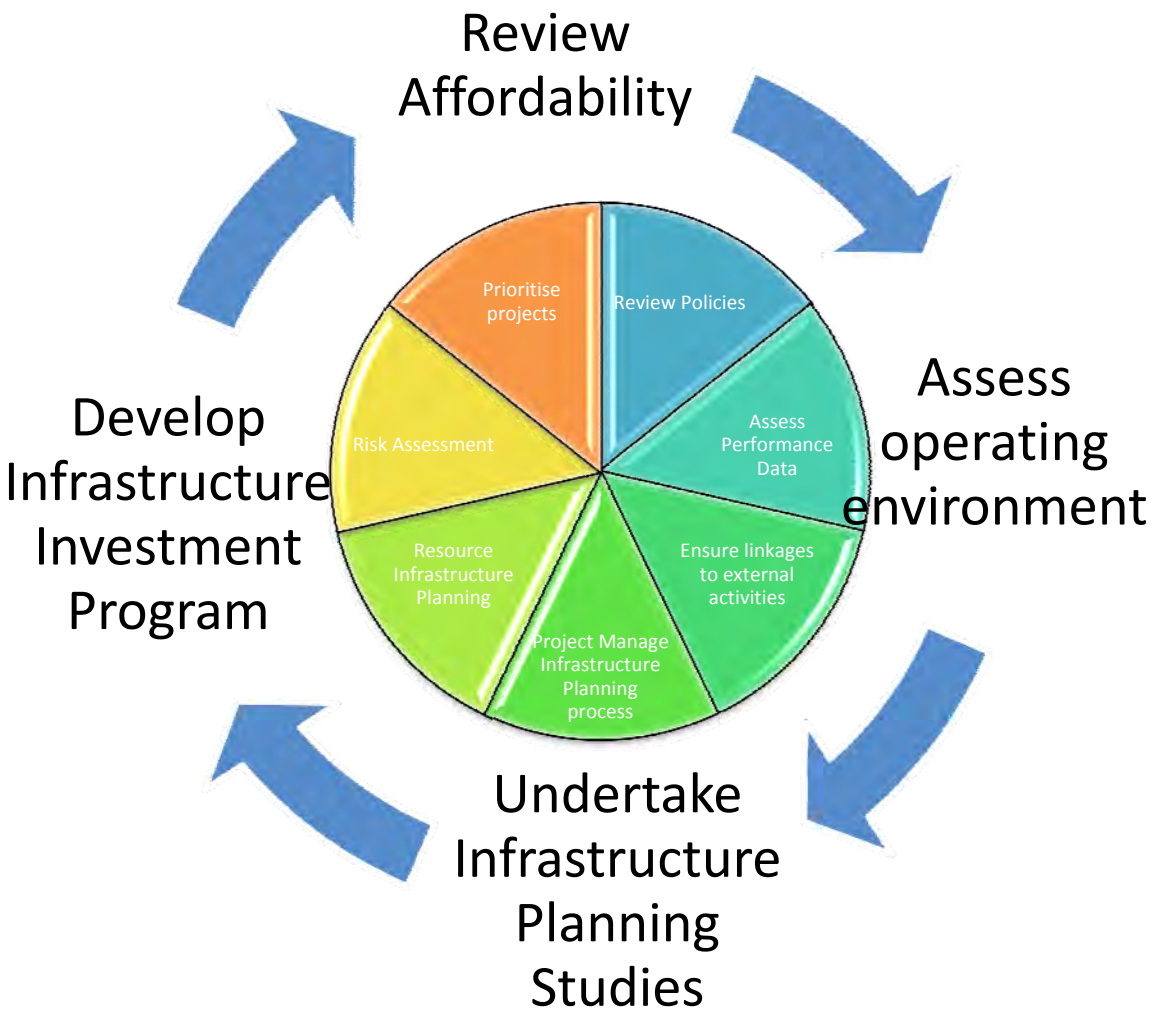
The Redland Water infrastructure planning process is described below. It relies on some key inputs namely allowable land uses under the RPS and population projections prepared for the service area.

The planning process is a dynamic one which involves the following key activities:

- Review background and operating environment
  - Developing, adopting and refining infrastructure planning policies
  - Collecting information and analysing supporting information
  - Ensuring linkages with other planning activities
- Undertake infrastructure planning studies
  - Project managing the infrastructure planning process
  - Undertaking infrastructure planning studies - resources
  - Documentation of outputs of planning studies (project evaluation)

Figure 5 refers.

FIGURE 5 – REDLAND WATER INFRASTRUCTURE PLANNING PROCESS



Developing, adopting and refining infrastructure planning policies

There are a number of Council policies that influence infrastructure planning. In some cases, Council has committed to the provision of infrastructure on request by customers under specific circumstances, e.g. "Water Main Extensions - Request from a Resident (POL-3054)".

In other cases, policies influence the manner in which potential works are evaluated, as is the case with the "Enterprise Risk Management (POL-2701)" and "Enterprise Asset and Services Management (POL-3118)".

The infrastructure planning process at Redland Water has, however, been substantially developed and implemented based on responding to the operating environment and experience.

Collecting and analysing supporting information

Effective information management is critical to effective infrastructure planning. Global water and wastewater planning information is generally contained in the key master planning documents for water supply and wastewater. These documents outline the major infrastructure requirements and inform the 'Water Netserv Plan' which needs to be reviewed every 5 years.

Collection of planning information for specific projects is generally undertaken on a case by case basis. Information is accessed from Redland Water's records which are stored in G:\RedlandWater&Waste on Council's network, as well as corporate information systems such as the rates database and GIS database. Information is also obtained from the library, internet and other industry professionals, where necessary.

RCC has also implemented DataWorks, an electronic data management system (EDMS), which houses planning-related information. Redland Water also maintains a register of planning reports which can be found at:

G:\RedlandWater&Waste\Data\TechSup\Planning\Reports\RWW_ScannedReports

Ensuring linkages with other planning activities

Engineers in Infrastructure and Planning facilitate consistency of water supply and wastewater planning with other RCC initiatives, such as the RPS, corporate plan and structure planning exercises such as those recently undertaken for Kinross Road and South-East Thornlands. It will also assist in ensuring that regional planning initiatives, such as the "SEQ Regional Plan", and proposed changes to relevant legislation are reviewed and incorporated into infrastructure programs where required.

Project managing the infrastructure planning process

Planning studies will generally be scoped and project managed by Infrastructure and Planning engineers and project officers. On occasion, it may, however, be more practical for other officers within Distribution and Treatment to manage minor investigation works and forward those that identify infrastructure requirements to the Infrastructure and Planning group for prioritisation and incorporation into the infrastructure investment (Capex) plan.

Undertaking infrastructure planning studies - resources

Redland Water uses the RCC Engineering Consultancy Services Panel and the Local Buy consulting services' panel when outsourcing planning-related works. Briefs are prepared and issued to selected service providers by Infrastructure and Planning. The briefs are reviewed and the recommended consultant is awarded based on the overarching requirements of the Redland City Council procurement policy.

Document outputs of planning studies (project evaluation)

The level of detail required in a planning study is generally defined in accordance with Table 2 of the *"Guidelines for Implementing Total Management Planning - Asset Management - Infrastructure Plan Implementation Guide"*[1] This table is repeated below as Table 9 for clarity.

[1] Sourced:

http://www.derm.qld.gov.au/water/regulation/pdf/guidelines/tmp/2001_guidelines/implementation/asset_03.pdf

Accessed 16/01/13 – 8:57am

TABLE 9 – LEVEL OF DETAIL IN PLANNING REPORTS

Infrastructure planning level	Output	Objectives
Preliminary/concept/ feasibility planning	Preliminary/Concept/ Feasibility Planning Report	• To assess the technical feasibility of a project (e.g. new scheme or scheme augmentation). • To determine whether the WSP should invest in more detailed investigations. • To provide indicative estimates of financial and non-financial returns from the project
Strategic/master level planning	Strategic/Master Planning Report	• To determine short-, medium- and long-term (50-year) strategies (infrastructure investment and non-asset solutions) in relation to major scheme components (e.g. sources, trunk mains, treatment plants). • To provide a linkage to regional planning. • To provide outputs to an Infrastructure Charges Plan.
Detailed level planning	Detailed Planning Report	• To provide detailed infrastructure investment strategies (short, medium and long term) at zone/sub-catchment level and for facilities such as pump stations and treatment plants.

The required infrastructure works may be identified as either operational or capital projects and within these categories as either a project (fixed-term) or an activity (on-going). Any assets identified through this process must be justifiable as a service level deficiency, a high risk exposure, or increase in demand requirement (growth, PIP or developer driven).

The Portfolio Management Office (PMO) in the RCC Finance Department maintains the register of forms that are required for the submission of planning outcomes into the budget process. These forms are a general summary of the proposed project/activity and are completed by Infrastructure and Planning staff during the budget submission process.

The forms outline the project, link projects to legislative requirement, the corporate plan and management plans, identify risks associated with the project, consequences if the project were deferred or not undertaken, the alternatives considered, the impact on operational expenditure and the impact on existing assets. It also includes an assessment of eligibility for grants and subsidies.

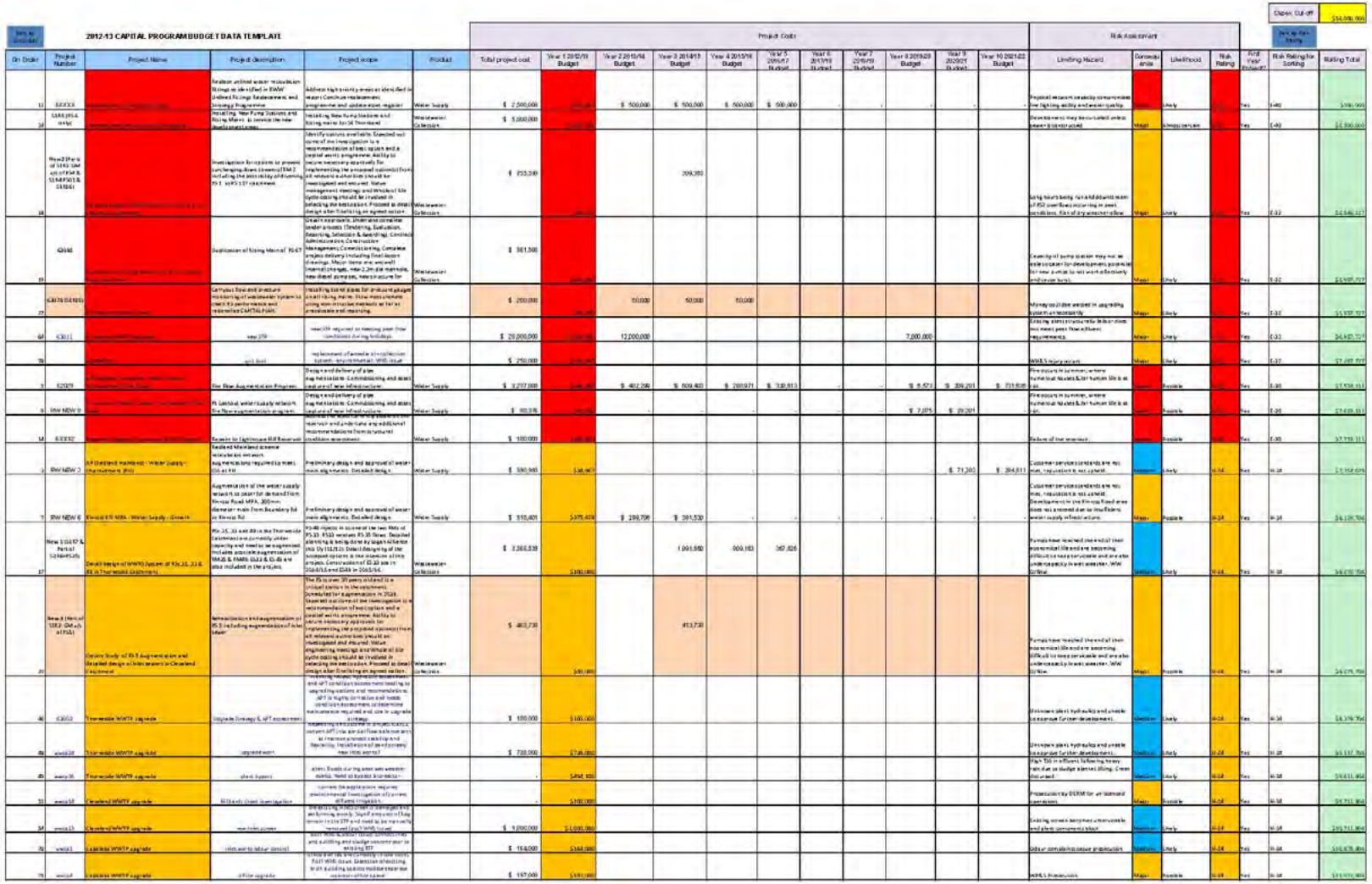
The assessment described above encompasses many of the aspects of lifecycle asset management described in Council's asset management strategy. It may, however, be appropriate to undertake more detailed assessments which link to customer service standards (CSSs), incorporate risk aspects and both a financial and technical appraisal of options considered.

Developing and prioritising the infrastructure investment (capital works) program

The development of a capital works program requires input from a variety of sources. Redland Water uses a risk based assessment for the prioritisation the capital program. Risks are assigned based on the RCC corporate Risk Management Framework. Figure 5 shows an example of the risk assessment for some projects put forward for the 2012/13 financial year. Projects with the highest risk profile are put forward for funding. Once projects have been identified by Redland Water through the risk assessment, budget submission forms are prepared for the Portfolio Management Office (PMO) in the Redland City Council Finance Department. Continued refinement of this approach will improve the level of detail being submitted with projects for funding.

The PMO was established to provide project transparency, project prioritisation, strategic alignment, senior management decision support and centralised reporting for the council's portfolio of projects. The PMO operate in a Prince2 environment. PRINCE2 (PRojects IN Controlled Environments) is a process-based approach for project management, providing an easily tailored and scaleable project management methodology for the management of all types of projects. Redland Water will need to ensure that its program/project management methodology aligns with the corporate requirements being driven by the PMO.

FIGURE 6 – CAPEX PROJECT RISK ASSESSMENT



Project initiation / feasibility stage

Redland Water's Infrastructure and Planning Group is responsible for the development of Redland Water's capital investment plan, defining the scope and timing of capital projects. From planning studies, capital projects are defined in terms of the scope of works, delivery timeframe, budget requirements and other information pertinent to ensuring project delivery.

Often consultants are utilised in the design phases of projects. Redland Water uses the RCC Engineering Consultancy Services Panel and the Local Buy consulting services' panel. Briefs are prepared and issued to selected service providers by Infrastructure and Planning. The proposals are reviewed and the recommended consultant is awarded based on the overarching requirements of the Redland City Council procurement policy.

Project delivery

Redland Water utilises a number of methods to deliver its capital program, including RCC's Project Delivery Group and specialist project management consultants. The project delivery phase involves those activities from design, tendering, through to construction and commissioning.

Project delivery – project tracking and contract management

Traditionally most projects have been delivered by the sequential design and construct (D&C) method. Construction for major projects is generally outsourced, but Redland Water day-labour crews are sometimes used for projects like mains augmentations. Other delivery methods are being considered such as Early Contractor Involvement and registering of pre-qualified contractors.

In terms of project tracking and project controls, best practice project management focuses on a number of elements. Each of these elements can have either a direct or indirect influence on ultimate project performance and several are inter-related. For example, increases to scope often result in increased cost and lags in time of delivery. The elements recommended are:

- cost – project earned value is tracked and reported, with project expenditure linked to milestone delivery (as opposed to timing). In this way project cost control is managed as a function of work performed, rather than traditional budget vs actual cash-flow reporting;
- time – project milestones are tracked and managed according to the project plan. Milestone slippage and the impact of this on project completion are managed at a task level;
- quality – performance specifications are developed and project outputs continually reviewed to ensure adherence with the required level of quality;
- scope – scope creep is managed by continual review and clarification of current vs initial scope specifications. Where scope variances occur, the effect of these on all remaining elements of project management (including cost and integration) must be seriously considered prior to acceptance of scope changes;
- communications – effective project management requires involvement of key stakeholders and communication to interested/concerned parties and should be managed as part of the project;
- human resources – skills/competency/safety and quantities of resources are as important in project management as with any other business operation. As such, human resource management is considered a key component to effective project management;

- risk – project delivery risks should be continually assessed and reviewed to identify potential issues. Contingency allocation should be reflective of the risk level identified and the use of contingency should be reserved for these risk events;

- procurement – procurement options and the performance of the chosen procurement option should be controlled in accordance with project and corporate requirements. This requires identification of possible and the preferred procurement approach, as well as managing of contracts and review of performance to provide valuable information for future assessments;

- integration – as one of the most valuable and often lacking project controls, integration refers to the alignment between project delivery, business outcomes and related projects/activities. Periodically, it is necessary to review the value provided by the project on resolving the issue for which it was originally established. This translates to conversion of project outputs to benefits realisation in accordance with the initial problem/opportunity that was identified by the business.

Note that depending on the nature of project, the tightness of the controls for each element may be different.

Figure 7 below indicates the project management reporting currently provided within Redland Water.

From the data updated in this spread sheet monthly, tracking graphs are produced for the entire group's project performance as well as individual SGA based tracking graphs – refer to Figure 8 and Figure 9. Refinements of this tracking method will help ensure that Redland Water delivers its annual capital works program.

FIGURE 7 – EXAMPLE PROJECT MANAGEMENT REPORTING

Budget Code	Job Name	Water or Wastewater Capital	Class	Milestone	Description	Total Budget	Actual Expenditure To Date	Commited Expenditure	Task Completed?	COMPLETION DATE Quarter	Month	Financial Year	Comments
62029	**Backlog Fire Flow augmentation**	Water Capital	SGA292	1	Confirm contract novated	$ 569,871.00			Yes	Q1	July	12/13	
				2	Construct Anson Road augmentation				Yes	Q1	August	12/13	
				3	Comissioning Anson Road augmentation				Yes	Q1	September	12/13	
				4	Complete capitalisation and disposals				No	Q2	October	12/13	
				5	Engage PSC for Redland Bay Rd augmentation				No	Q2	November	12/13	
				6	Close tenders for Redland Bay Road augmentation					Q2	December	12/13	
				7	Construct Redland Bay Road augmentation					Q3	February	121/13	
				8	Commissioning of Redland Bay Road augmentation					Q3	March	12/13	
				9	Complete capitalisation and disposals					Q4	June	12/13	
62206	**Point Lookout reservoirs**	Water Capital	SGA292	1	Review recommended repair methods	$ 100,000.00			Yes	Q1	September	12/13	
				2	Procure goods & services					Q3	January	12/13	
				3	Complete capitalisation and disposals					Q4	April	12/13	
63049	**PS design Thorneside (PSs 33, 35 & 48)**	Pumpstations Capital	SGA314	1	Await LWA Project Report	$55,000			Yes	Q1	September	12/13	
				2	Prepare project brief				Yes	Q1	September	12/13	
				3	Complete Procurement Process				Yes	Q2	October	12/13	
				4	Appoint Consultant				Yes	Q2	October	12/13	
				5	Complete Consultancy project				Yes	Q3	March	12/13	
64005	**PS 5 options** (do Condition Assessment 1st)	Pumpstations Capital	SGA314	1	Do condition Assessment Report	$50,000			Yes	Q2	October	12/13	
				2	Prepare Design Consultancy Brief				Yes	Q2	November	12/13	
				3	Appoint Consultant					Q2	December	12/13	
				4	Complete design and specification					Q4	April	12/13	
				5	Review and agree design					Q4	May	12/13	
63002	**Cleveland WWTP Inlet Screen**	Wastewater Capital	SGA196	1	Review LWA Design	1000000			Yes	Q1	September	12/13	
				2	Determine Implementation Plan				Yes	Q1	September	12/13	
				3	Create Tender Documents					Q2	December	12/13	
				4	Award Successful Tenderer					Q2	December	12/13	
				5	Installation and Commissioning					Q4	April	12/13	
				6	Complete capitalisation and disposals					Q4	June	12/13	
64165	**SET Sewer**	Wastewater Capital	SGA314		Procurement Method Approved	$5,000,000			Yes		July		
					Preprare Design Brief				Yes		July		
					Engage Design Consultant				Yes		August		
					Prepare EOI for constructors				Yes		August		
					Shortlist Constructors				Yes		October		
					Finalise Design documents				Yes		November		
					Issue Tender documents				Yes		November		
					Award Tender						December		
					Purchase pipes and fittings						November		
					Prepare quote document for pumps						November		
					Award pumps						December		
					Prepare quote document for switchboard						November		
					Award switchboard						December		
					Prepare quote document for generator						November		
					Award generator						December		
					Installation and commissioning						June		
					Complete capitalisation and disposals						June		
63003	**Thorneside Bypass Design**	**wastewater**	SGA 196	1	Obtain LWA Project Report	$ 250,000.00			Yes	Q1	September	12/13	
				2	Prepare Project Brief and Scope Development (TOR)				Yes	Q2	October	12/13	
				3	complete Procurement Process					Q2	December	12/13	
		Appoint Consultant - Design and Tender Do		4	Project Implementation Planning					Q2	February	12/13	
		Award successful tenderer		5	Detailed design					Q3	April	12/13	
				6	Review and accept design					Q4	May	12/13	
				7	Tender documentation					Q4	June	12/13	

FIGURE 8 – EXAMPLE GROUP BASED PROJECT TRACKING CHART

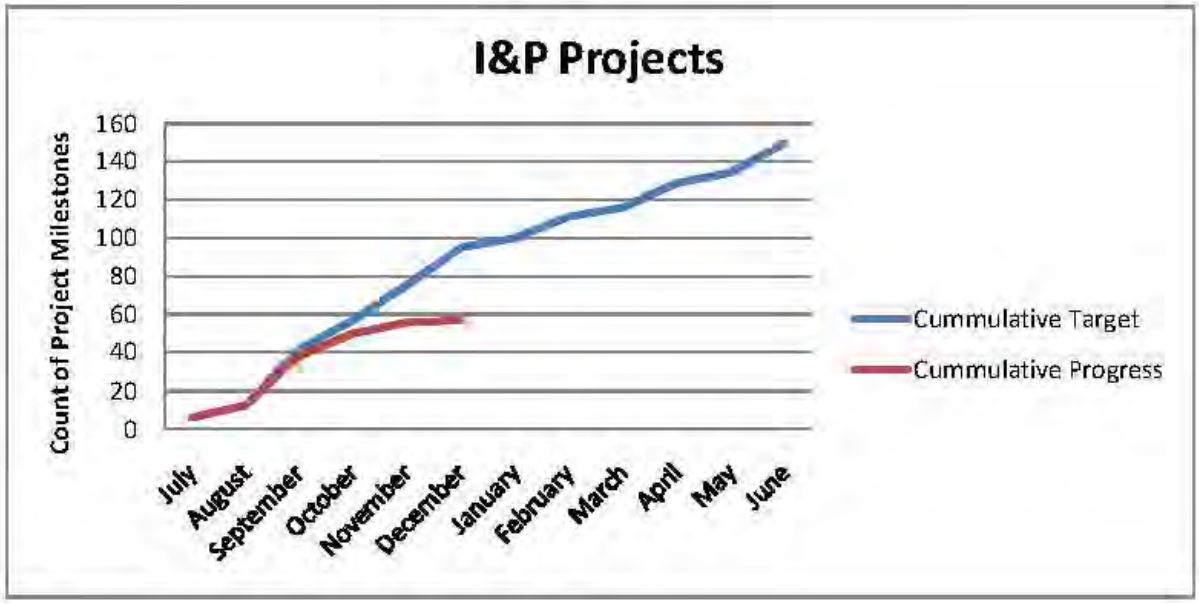
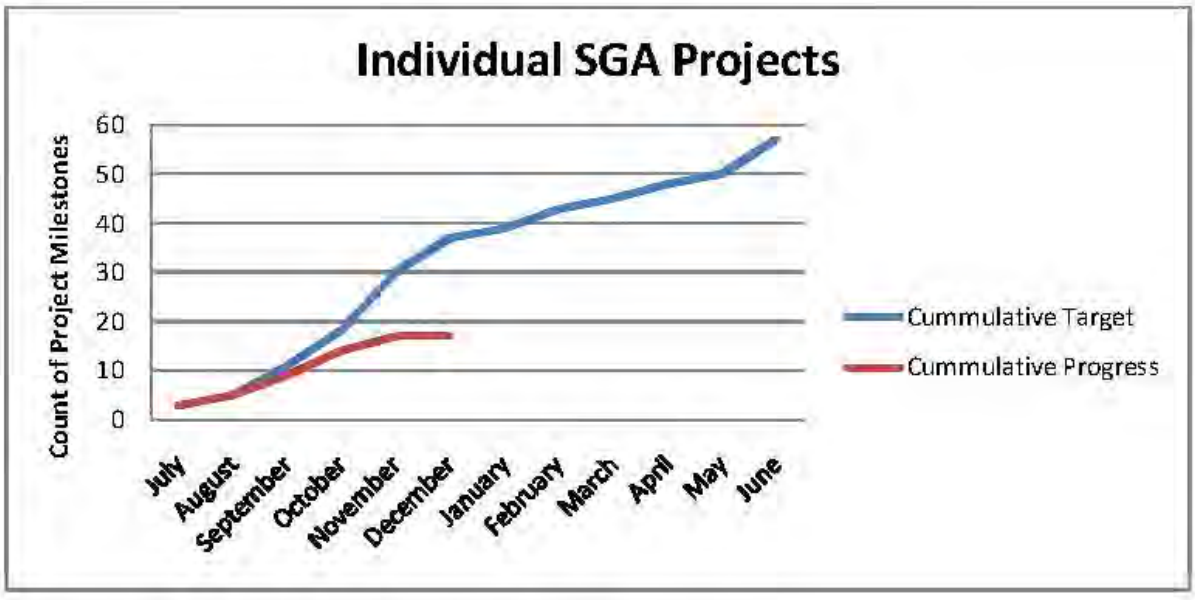


FIGURE 9 – EXAMPLE SGA BASED PROJECT TRACKING CHART



As can be seen, project controls exist on the completion of milestones in line with the programmed delivery timeframe. Further monthly reporting is undertaken through the financial management system of RCC (cash flow adherence). Cash-flow adherence itself does not promote continuous improvement of the project management process and does not truly reflect project financial performance. This is achieved through earned value. Internal controls exist for time management, though this can be unique to individual project managers and is not formalised and/or reported. Adopting a simplified project management methodology using earned value reporting will assist in the successful delivery of the capital works program.

Project completion – commissioning, review and benefits realisation

Formalised procedures are developed for commissioning and handing over infrastructure. Issues that are addressed include:

- asset inspection, condition and performance assessment;
- compliance tests;
- "as constructed" drawings, including digital copies;
- asset register (attribute and cost) information, including digital copies;
- operation and maintenance manuals;
- training of Redland Water's operation staff for specialist equipment/processes; and
- "maintenance period" procedures and final asset acceptance.

Overall performance of project management based on adherence to projected expenditure does not (in itself) demonstrate value. It needs to be demonstrated that the project was successful in meeting all aspects of performance including quality, scope, and delivery of benefits while still meeting time and cost constraints. This requires the overall review of project performance including the realisation and subsequent harvesting of benefits.

The project must be reviewed to evaluate the level of service provided and to determine opportunities for improvement. Issues to be considered include:

- achievement of project objectives such as:
    - required performance;
    - budget – capital, and operation and maintenance;
    - timeliness; and
    - quality of asset;
- appropriateness of consultants' briefs:
    - design performance;
    - project management/procedures; and
    - comparison of performance and project costs against similar facilities.

Procurement of products and services

Maintenance services are mainly co-ordinated and supervised internally by the service line managers, eg the Service Delivery Leader Water Reticulation, the Mechanical Maintenance Supervisor, the Treatment Plant Supervisor, the Supervisor Wastewater Reticulation and the Supervisor Water Services and Metering. However, actual maintenance services are carried out by external contractors.

The procurement of materials such as chemicals is also managed by Redland Water's Distribution and Treatment group.

Other Council departments provide services to Redland Water through service level agreements (SLAs). These services are listed in Table 10.

TABLE 10 – SERVICES PROVIDED BY OTHER COUNCIL DEPARTMENTS

Council Group / Team	Services Provided
Procurement Services Centre	Adminstration services of creating purchase orders
Fleet services	Fleet management
Facility services	Building management
Finance	Centralised budget process, finance management of revenue, asset supply services etc
Information management	IT services, electronic data management services (EDMS)
Communications	External communications services
Human resources	Human resources services, payroll etc
PDG	For selected projects, tendering, contract administration and handover the project to operational staff

7.3.2 SUMMARY OF RENEWALS AND UPGRADE / EXPANSION PROJECTS

The current 5 year renewals and upgrade / expansion program is shown below in Figure 10. The data in this figure is purely based on a replacement at the adopted end of useful life and has not been optimised. A break-down of the proposed expenditures follows:

Capalaba WWTP

There is a need for diffuser replacement ($50k) and blower replacement ($200k) in 2013/14 as part of the renewals program.

Cleveland WWTP

The preferred option for improving the toxicity of the WWTP's effluent is to provide a bio-filter prior to its discharge to Hilliards Creek. Three options have been identified as follows with indicative capital cost shown in brackets:

- Lagoon/bio-filters with direct discharge to Finucane Road ($1.3m);
- Lagoon/bio-filters and de-chlorinated discharge to Finucane Road ($1.3m plus);
- Lagoon/bio-filters and wet weather discharge to Finucane Road ($0.8m).

To cater for the continuing growth in the catchment, the Cleveland WWTP will require a process upgrade (e.g. the construction of a balance tank) is approximately 2019/20. A nominal $2.5 million allowance has been made for those works.

Thorneside WWTP

Three projects have been identified for the Thorneside WWTP in the coming five year period:

- Modifications to the inlet works to provide new band screens and new grit removal facilities (2014/2015-2015/2016);
- Installation of a lime slurry dosing system at the inlet works in lieu of the dry powder system currently used (2013/2014); and
- Provision of a bypass from the inlet works to the chlorine contact tank (2014/2015-2015/2016).

An amount of $1,010,000 has been allocated for the bypass, $130,000 for the lime slurry dosing system and $2,160,000 for the inlet works upgrade.

An upgrade to the plant effluent outfall is likely to be required in 2019/20 due to projected sea level rises. A nominal $3 million has been allocated for that work.

Victoria Point WWTP

An amount of $323,900 has been allocated for the replacement of the existing AJM gravity drainage deck and belt filter press with a new gravity drainage deck and belt filter press (2013/2014-2014/2015).

As discussed in Section 4.5, provision needs to be made for the possible need to provide molasses dosing somewhere between 2015 and 2018. A flow balance tank and/or additional aerator might also be required around 2015 because of possible high COD loading. A nominal allowance in 2015/16 of $2.5 million has been made for those works.

Mt Cotton WWTP

It is proposed to replace the existing inlet works with a new inlet works comprising screens and a grit removal facility in 2013/2014 – 2014/2015. An amount of $322,100 has been allocated for that purpose.

Dunwich WWTP

No upgrade works are proposed for the forward ten year period.

Point Lookout WWTP

It is proposed to replace the existing plant at Point Lookout with a new plant in 2013/2014-2014/2015. An amount of $15m has been allocated for that treatment plant replacement.

FIGURE 10 – CAPITAL PROGRAM (UPGRADE / EXPANSION PROJECTS)

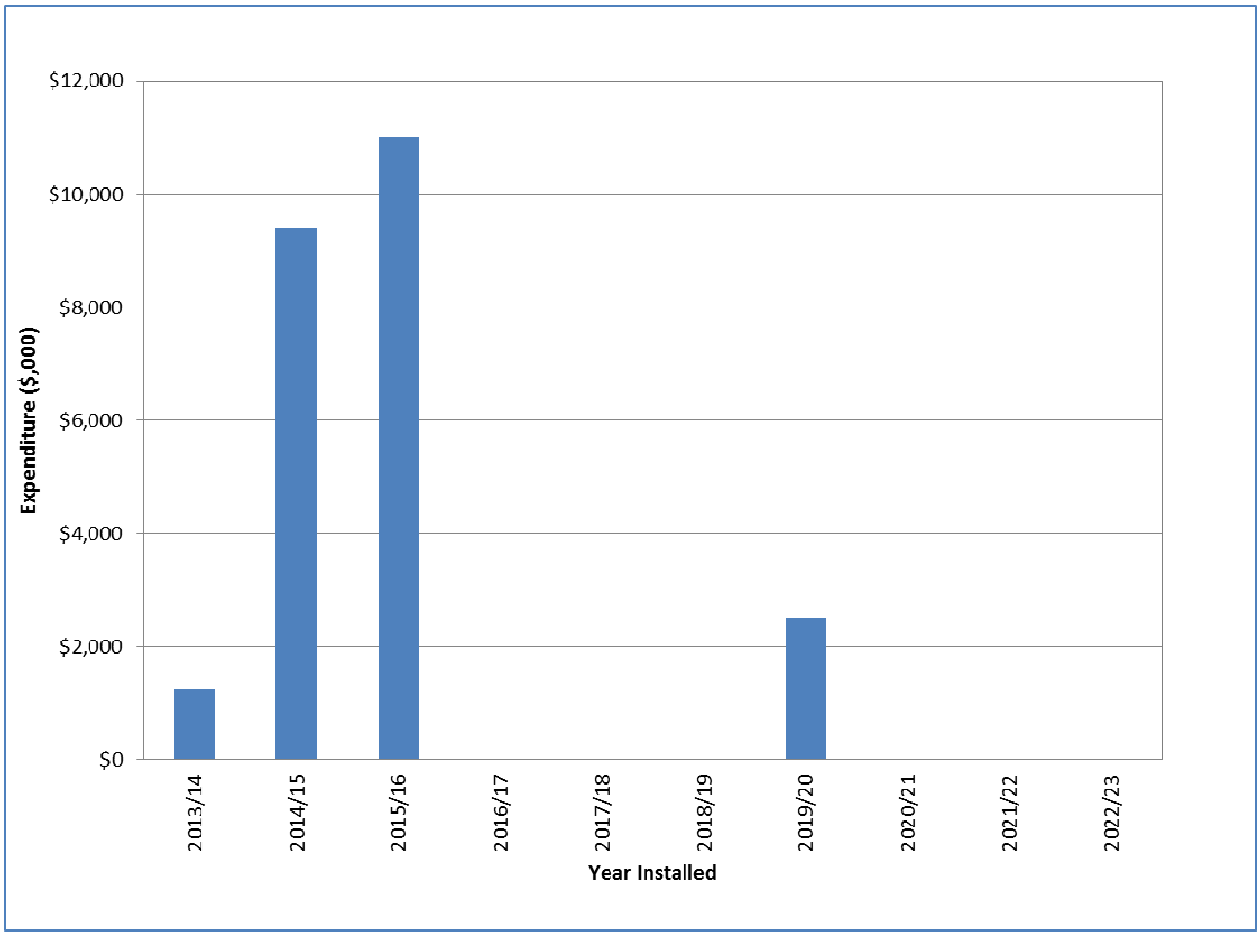
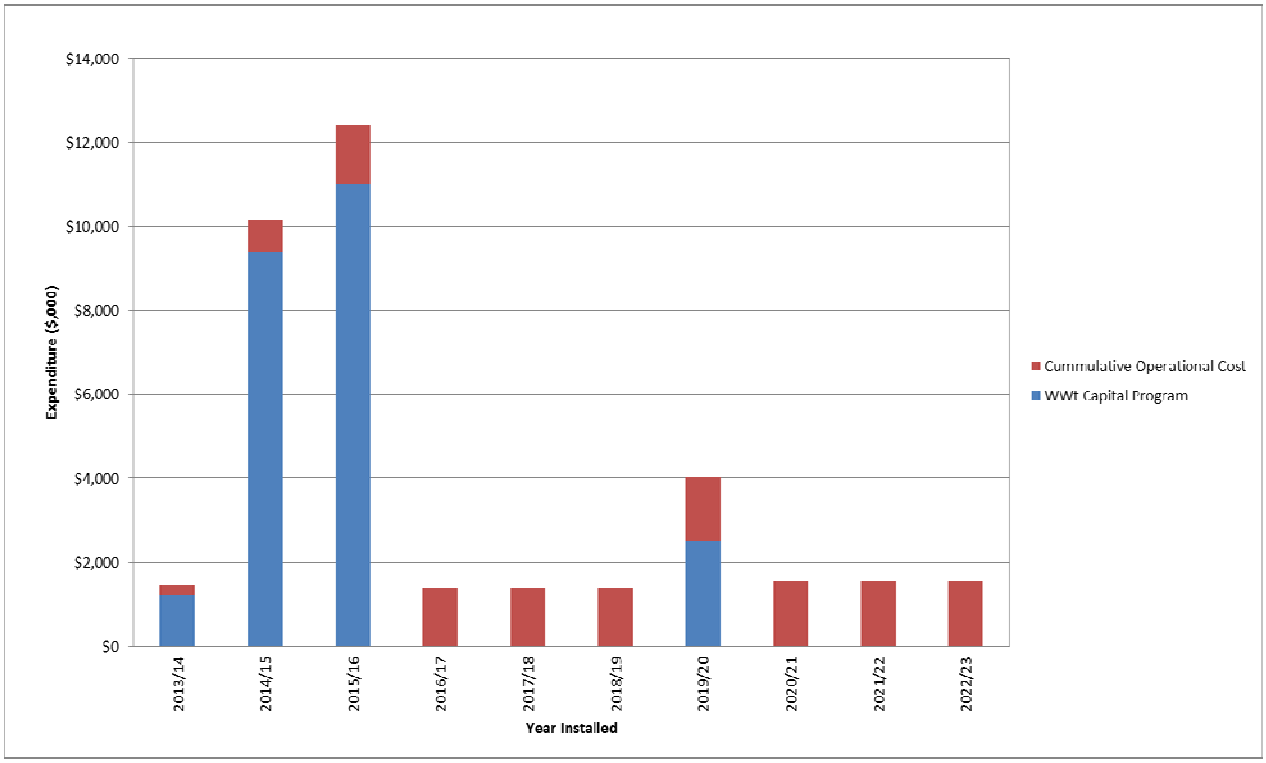


Figure 11 summarises capital upgrade, renewals, ongoing and maintenance and additional maintenance costs for Redland Water's capital assets.

FIGURE 11 – ONGOING COSTS



7.4 MAINTENANCE PLAN

The bulk of the value of the wastewater treatment assets includes the treatment plant infrastructure comprising civil, mechanical and electrical equipment (switchboards). The primary maintenance management system is Maximo. This program is used to develop planned/scheduled maintenance programs and to collect and store maintenance planning and condition monitoring data. Responsive maintenance and customer service activities are managed in RCC customer relationship management (CRM) via Proclaim.

Maintenance for wastewater treatment plant infrastructure is funded from Council's capital expenditure budget.

7.5 DISPOSAL PLAN

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relation. The only wastewater treatment plant assets considered for planned disposal would be the result of replacement or upgrade work that deems the equipment un-useful. An example of this would include when a treatment plant has an upgrade to its inlet works comprising the replacement of an existing step screen with a band screen. The decommissioned step screen and associated equipment would be disposed of.

Where possible decommissioned assets, e.g. odour control equipment at a treatment plant inlet works are redeployed elsewhere (e.g. at a pump station) rather than put up for disposal.

No assets have been identified for disposal at the time of preparation of this asset management plan.

8 FINANCIAL SUMMARY

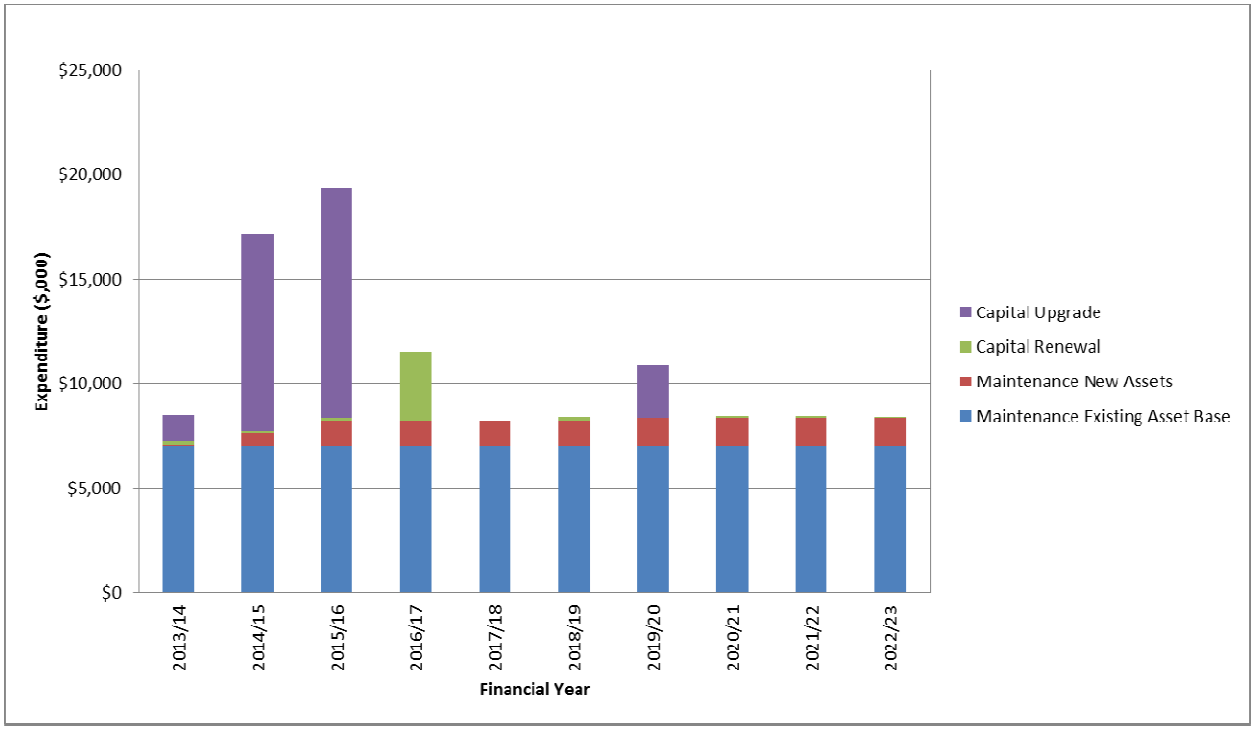
This section of the report brings together the financial elements of the plan and considers the sustainability indicators related to the assets. The capital programs for renewal and upgrade and expansion have already been documented and are reflected here in this summary.

This section of the plan is prepared for input to the Long Term Financial Plan and is assessed during budget time along with all other ASMP priorities and operational commitments. While the plan is based on a moderated expectation of budget allocation it should represent the expenditure required to maintain services and assets to the agreed service level standard and address high level risks. Where renewal cannot be met or service standards cannot be achieved there is a funding shortfall and this needs to be highlighted through the iterative ASMP process.

8.1 FINANCIAL PROJECTIONS

The financial projections are shown in Figure 12 – Total Capital & Operating Costs for planned operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets).

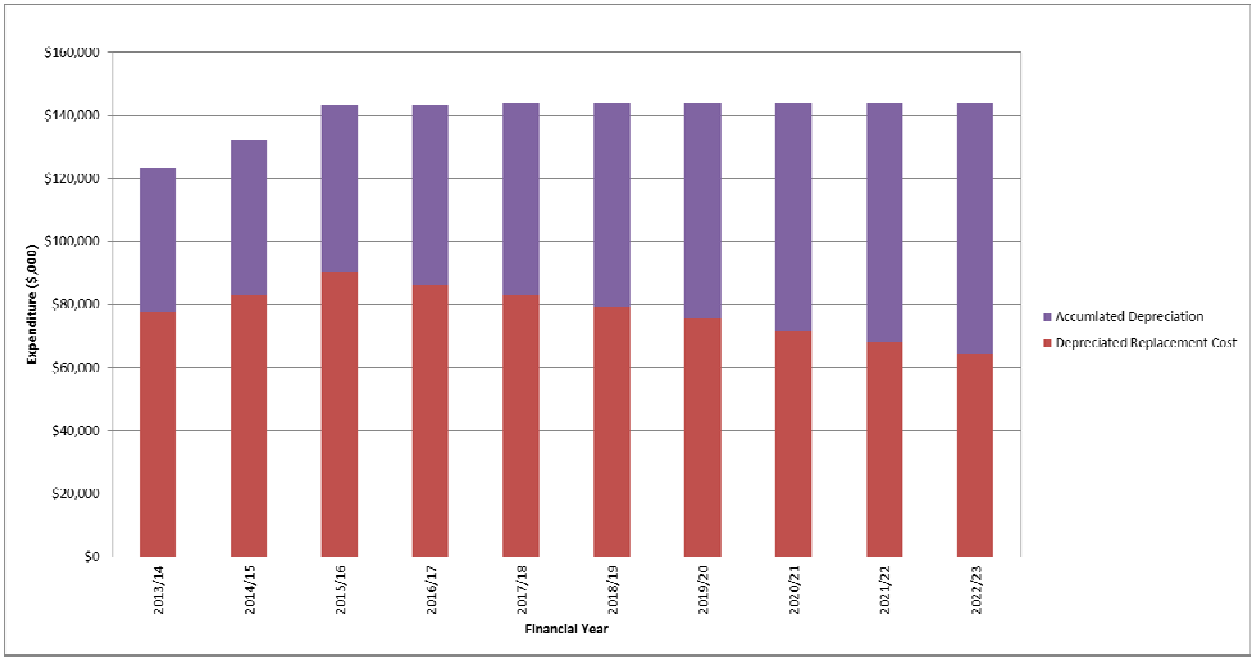
FIGURE 12 – TOTAL CAPITAL & OPERATING COSTS



There is a steady increase over the first three years of the projection which is primarily due to the Capital Upgrade costs associated with the new Point Lookout treatment plant.

Figure 13 shows the expected asset valuation and depreciation expense based on the renewal, expansion and upgrade projects presented in the plan. As expected the slight increase in asset base is matched with an increase in the accumulated depreciation.

FIGURE 13 – ASSET REPLACEMENT COST

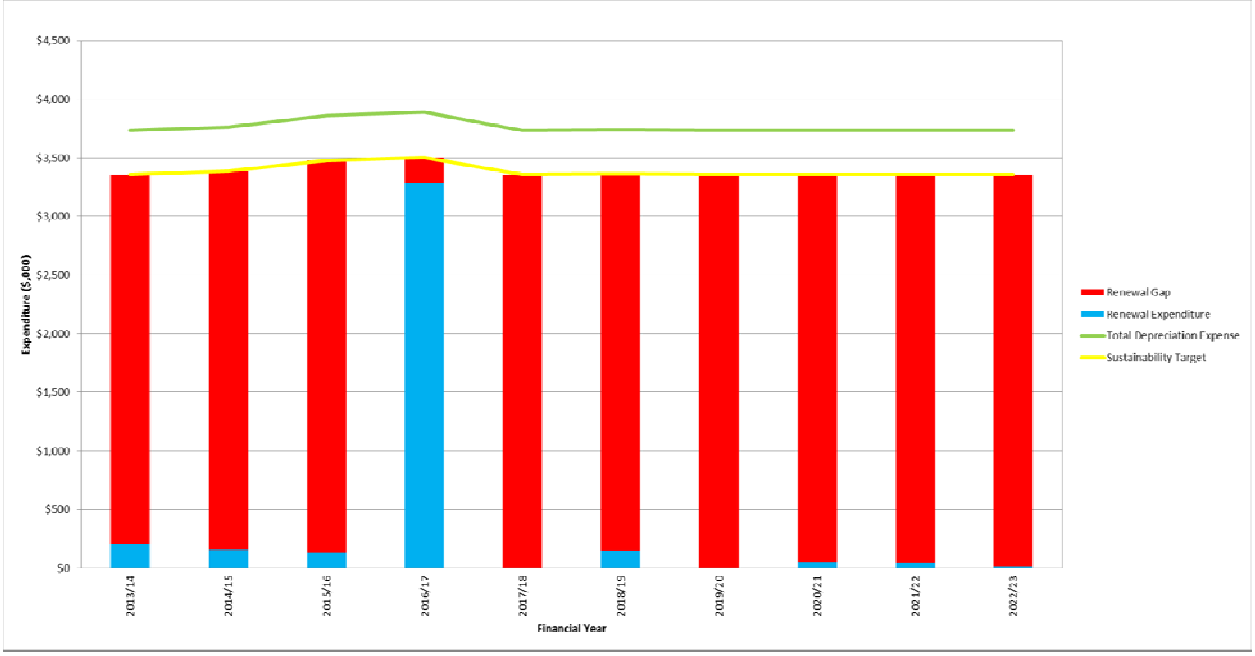


8.2 SUSTAINABILITY OF SERVICE DELIVERY

The Asset Sustainability ratio (Capital Expenditure on Renewal / Depreciation) provides an indication of whether assets are being replaced at the same rate they are wearing out. It is expected that over time to maintain the same level of service, renewal should equal depreciation. However if assets are relatively young the sustainability ratio would be less than 50%. However overall, if renewals are being planned in the ASMP and are being funded through the budget process it can be appropriate for the sustainability ratio to be much lower than the standard benchmark 90% of Depreciation. As shown in Figure 14 a renewal gap exists between the current spending on renewals and the target of 90% of depreciation.

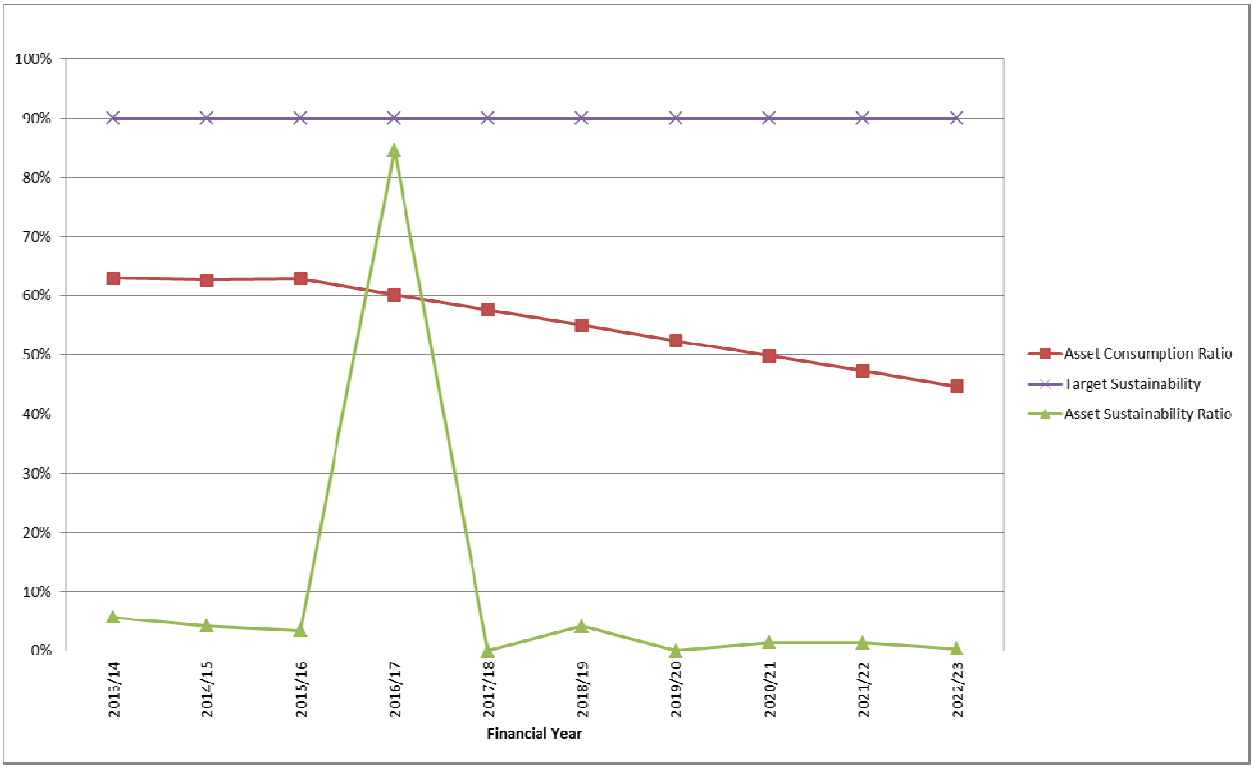
The renewal program shown in Figure is considered satisfactory for a young network as is currently the case with the bulk of the wastewater treatment assets. The sustainability ratio should be read in conjunction with the Asset Consumption Ratio. The Asset Consumption Ratio (Depreciated Replacement Cost / Replacement Cost) provides an indication of the aged condition of the assets. If the Asset Consumption Ratio is high, this indicates that the assets are in relatively good condition. In this case, the assets could either be relatively new or have been maintained in good condition.

FIGURE 14 – ASSET SUSTAINABILITY



If the Asset Consumption Ratio is low, the assets are in relatively poor condition. In this case, the assets may not have been renewed at a time when the renewal was expected to occur. There will potentially be a backlog of capital works which will be required to be undertaken in order to bring the asset's condition to an acceptable standard if the Asset Consumption Ratio is to be improved. Figure 15 shows the Asset Consumption Ratio with a declining trend over the 10 year forecast period highlighting the need to manage the asset renewal program going forward, especially as the renewal spike approaches in 2024/25.

FIGURE 15 – CONSUMPTION VS RENEWAL



9 IMPROVEMENT ACTION PLAN

9.1 IMPROVEMENT ACTIVITIES

This section of the report is aimed to improving the Asset Management functions related to the asset class. This is separate to the improvement activities of the assets themselves i.e. renewal, expansion upgrade etc. as these are catered for in Section 7 of the plan.

The asset management improvement plan generated from this asset management plan is shown in Table 11.

TABLE 11 – IMPROVEMENT PLAN

Task No	Task	Responsibility	Resources Required	Timeline
1.	Ensure continued alignment of infrastructure demand model with the current population estimates prepared by the Redland City Council for RPS 2015	Group Manager Water and Waste Infrastructure	Consultants	June 2013
3.	Improve the Capex program risk assessment and prioritisation methodology	Group Manager Water and Waste Infrastructure	Internal	Ongoing
4.	Implement GIS Asset Condition dashboard mapping or a simple alarm system to highlight when an asset has had more than 2 failures	Group Manager Water and Waste Infrastructure	Internal	June 2015
6.	Complete SEQ Design and Construction Code	Group Manager Water and Waste Infrastructure	External	June 2013
7.	Deliver capital renewal and growth program	Group Manager Water and Waste Infrastructure	Internal and External resources	Annually
8.	Develop and update reliability (condition and criticality) based planned operations, maintenance and minor works program	Group Manager Water and Waste Infrastructure	Internal	December 2014
10.	Develop Emergency Response Plan	Group Manager Water and Waste Infrastructure	Internal and External resources	Annually
11.	Develop and document condition and performance assessment methodologies for all asset classes and key asset types	Group Manager Water and Waste Infrastructure	Internal	June 2014

Task No	Task	Responsibility	Resources Required	Timeline
12.	Produce long term asset renewal plans for all asset classes, commencing with basic plans including recommendations from 2012 revaluation	Group Manager Water and Waste Infrastructure	Internal	June 2013
13.	Develop and document policies, processes and procedures for the main asset management practices (e.g. risk assessment, asset data integrity checks and improvements).	Group Manager Water and Waste Infrastructure	Internal	June 2014
14.	Adopt a simplified project management methodology utilising earned value reporting	Group Manager Water and Waste Infrastructure	Internal	June 2014
15.	With the input of the new planning assumptions, review previous master planning to cover 20 years planning horizon.	Group Manager Water and Waste Infrastructure	Internal and External resources	June 2014
16.	Alignment of program/project management methodology for infrastructure projects with corporate requirements	Group Manager Water and Waste Infrastructure	Internal	June 2014
17.	Maintain / gain understanding of the breakdown of the maintenance budget (i.e. Cyclic versus Planned versus Reactive)	Group Manager Water and Waste Infrastructure	Internal	Annually

9.1 MONITORING AND REVIEW PROCEDURES

This asset management plan will be reviewed during annual budget preparation and amended to recognise any changes in service levels and/or resources available to provide those services as a result of the budget decision process.

This asset management plan also forms part of the Redland Water's *'Water Netserv Plan'*. The action plan contained in this plan will be reviewed and actioned annually as part of business management activities guided by the *'Water Netserv Plan'*.

10 REFERENCES

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11 APPENDICES

Strategic	Operational	Activity	Priority	Consequence
> $5m recurrent reduction in Council budget (2%) > $10m one off loss (10% of current assets)	> 5% recurrent reduction in Group budget	> 10% recurrent reduction in Unit budget	**Severe**	**Legal and regulatory:** Serious breach resulting in significant prosecution and fines. **People**: Fatality(s), sustained and serious industrial action, loss of multiple key staff at once. **Operational:** Key services disrupted for over 60 days. **Environmental**: Significant environmental impact with long term effects. **Strategic**: Most Council objectives cannot be achieved. **Ethical:** Systemic fraud and corruption, major external investigation with adverse findings. **Reputation**: Significant and widespread public outcry, sustained negative metro or national media coverage.
$2.5m to $5m recurrent reduction in Council budget $5m to $10m one off loss	3% to 5% recurrent reduction in Group budget	5% to %10 recurrent reduction in Unit budget	**Major**	**Legal and regulatory:** Major breach resulting in significant legal action. **People**: Serious injury(s), hospitalisation of multiple people, staff turnover well above 20%, ongoing industrial action. **Operational:** Key services disrupted for between 20 and 60 days. **Environmental**: Significant impact on natural or built environment, external investigation. **Strategic**: Some important Council objectives cannot be achieved. **Ethical:** Major one off fraud and corruption by senior person. **Reputation**: Significant outcry from residents, significant negative state level media coverage.
$1m to $2.5m recurrent reduction in Council budget $2m to $5m one off loss	2% to 3% recurrent reduction in Group budget	3% to 5% recurrent reduction in Unit budget	**Medium**	**Legal and regulatory:** Breach resulting in investigation, ongoing legal issues not easily addressed. **People**: Minor medical treatment required, staff turnover slightly higher than 20%, one off industrial issues. **Operational:** Key services disrupted for between 2 and 20 days. **Environmental**: Medium term effects on environment from single incident. **Strategic**: Some Council objectives cannot be achieved. **Ethical:** Planned unethical action by one or more staff. **Reputation**: Concerns from cross section of residents, ongoing negative metro media coverage.
$100k to $1m recurrent reduction in Council budget $0.5m to $2m one off loss	1% to 2% recurrent reduction in Group budget	2% to 3% recurrent reduction in Unit budget	**Low**	**Legal and regulatory:** Minor legal issues or non-compliance easily remedied. **People**: Minor injuries treated by first aid, routine industrial issues. **Operational:** Key services disrupted for between 1 and 2 days. **Environmental**: Short term effect on built or natural environment easily remedied. **Strategic**: Minor setbacks that are easily remedied. **Ethical:** Opportunistic incident involving several people. **Reputation**: Heightened concerns from narrow group of residents; one off negative metro media coverage.
<$100k recurrent reduction in Council budget <$0.5m one off loss	<1% recurrent reduction in Group budget	<2% recurrent reduction in Unit budget	**Insignificant**	**Legal and regulatory:** Minor breach of standards or guidelines, one off minor legal matters. **People**: Minor incidents or issues dealt with according to routine procedures. **Operational:** Key services disrupted for less than 1 day, usual scheduled interruptions. **Environmental**: Minor breach of environmental guidelines or standards. **Strategic**: Negligible impact on Council objectives. **Ethical:** Minor opportunistic incident involving single person. **Reputation**: Insignificant adverse local media or public comment.

Redland City Council – Likelihood Table			
Likelihood	**Quantification**	**% Probability**	**Description**
Almost Certain	0-12 months	95% - 100%	Expected to occur in most circumstances.
Likely	1-3 years	65% - 95%	Will probably occur in most circumstances.
Possible	3-6 years	35% - 65%	Might occur at some time.
Unlikely	6-10 years	5% - 35%	Could occur at some time but it is improbable.
Rare	Beyond 10 years	< 5%	May occur only in exceptional circumstances.

RISK LEVELS							
Likelihood			Consequences				
			Level 1 Insignificant	Level 2 Low	Level 3 Medium	Level 4 Major	Level 5 Severe
Likelihood	5	Almost Certain	M-10	H-20	H-30	E-40	E-50
	4	Likely	M-8	M-16	H-24	E-32	E-40
	3	Possible	L-6	M-12	M-18	H-24	E-30
	2	Unlikely	L-4	L-8	M-12	M-16	H-20
	1	Rare	L-2	L-4	L-6	M-8	M-10

RCC 10 Year Capital Programme - Renewal Portion

Description		*Current Revised Budget 2012/13 $*	*Year 1 2013/14 $*	*Year 2 2014/15 $*	*Year 3 2015/16 $*	*Year 4 2016/17 $*	*Year 5 2017/18 $*	*Year 6 2018/19 $*	*Year 7 2019/20 $*	*Year 8 2020/21 $*	*Year 9 2021/22 $*	*Year 10 2022/23 $*
Class: Wastewater Treatment												
63010 - Pumps & Macerators	Expenditure	59,704	92,400	95,200	98,100	101,000	104,000	107,100	110,300	113,600	117,000	120,500
????? - Capalaba Diffusers	Expenditure			50,000								
????? - Victoria Point WWTP belt press	Expenditure			323,900								
63019 - Blowers & Compressors (incl. Capalaba WWTP blowers in 2014/15)	Expenditure	14,926	15,400	215,900	16,400	16,900	17,400	17,900	18,400	19,000	19,600	20,200
63020 - Dosing Pumps	Expenditure	29,852	30,700	31,600	32,500	33,500	34,500	35,500	36,600	37,700	38,800	40,000
63024 - Clarifiers	Expenditure	29,852	30,700	31,600	32,500	33,500	34,500	35,500	36,600	37,700	38,800	40,000
63025 - Control Systems	Expenditure	29,852	30,700	31,600	32,500	33,500	34,500	35,500	36,600	37,700	38,800	40,000
63013 - Aerators & Mixers	Expenditure	49,759	51,300	52,800	54,400	56,000	57,700	59,400	61,200	63,000	64,900	66,800
63046 - Flow Meters	Expenditure	59,704	61,500	63,300	65,200	67,200	69,200	71,300	73,400	75,600	77,900	80,200
63047 - Generators	Expenditure	39,797	441,000	42,200	43,500	44,800	46,100	47,500	48,900	50,400	51,900	53,500
63049 - Design WWPS System Thorneside Catchment	Expenditure	99,501	0	317,838	2,127,066	0	0	0	0	0	0	0
63050 - Mains Relining	Expenditure	149,225	153,700	158,300	163,000	167,900	172,900	178,100	183,400	188,900	194,600	200,400
63067 - Pumps	Expenditure	348,200	358,600	369,400	380,500	391,900	403,700	415,800	428,300	441,100	454,300	467,900
63045 - Pipes & Valves	Expenditure		61,500	64575	67804	71194	74754	78491	82416	86537	90864	95407
63120 - Switchboards	Expenditure	238,717	245,000	253,300	260900	268700	276800	285100	293700	302500	311600	320900
63027 - Cranes & Hoists	Expenditure		20,500	21525	22601	23731	24918	26164	27472	28846	30288	31802
Works Program Expenditure		**1,149,091**	**1,593,000**	**2,123,038**	**3,396,971**	**1,309,825**	**1,350,972**	**1,393,355**	**1,437,288**	**1,482,582**	**1,529,351**	**1,577,609**
Works Program Capital Revenue		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Works Program Loans		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Works Program Reserves		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Works Program Operating Costs		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

It is noted that the renewals costs in this table differ from those shown in Figure 12. These differences are yet to be resolved.

RCC 10 Year Capital Programme - Non-Renewal Portion

Description		*Current Revised Budget 2012/13 $*	*Year 1 2013/14 $*	*Year 2 2014/15 $*	*Year 3 2015/16 $*	*Year 4 2016/17 $*	*Year 5 2017/18 $*	*Year 6 2018/19 $*	*Year 7 2019/20 $*	*Year 8 2020/21 $*	*Year 9 2021/22 $*	*Year 10 2022/23 $*
63133 - Thorneside WWTP Inlet Works Upgrade	Expenditure	0	345796	1814204	1010000	0	0	0	0	0	0	0
63006 - Pt Lookout WWTP	Expenditure	0	500000	7000000	7500000	0	0	0	0	0	0	0
63018 - Thorneside WWTP Upgrade	Expenditure	198969.8	0	0	0	0	0	0	0	0	0	0
63021 - Pt Lookout Sewerage	Expenditure	243784.82	0	0	0	0	0	0	0	0	0	0
63117 - Security Gates WWTP	Expenditure	162683.16	200000	0	0	0	0	0	0	0	0	0
63129 - Thorneside WWTP Lime Slurry Dosing	Expenditure	0	130000	0	0	0	0	0	0	0	0	0
63132 - Victoria Point WWTP Belt Filter Press Upgrade	Expenditure	0	23900	300000	0	0	0	0	0	0	0	0
63135 - Mt Cotton WWTP Inlet Works Upgrade	Expenditure	0	32300	289800	0	0	0	0	0	0	0	0
63001 - Capalaba WWTP	Expenditure	289717.96	0	0	0	0	0	0	0	0	0	0
63002 - Cleveland WWTP	Expenditure	1143784.83	0	0	0	0	0	0	2500000	0	0	0
63003 - Thorneside WWTP Upgrade	Expenditure	410019.84	0	0	0	0	0	0	0	0	0	0
63089 - Victoria Point Upgrade	Expenditure	77540.74	0	0	2500000	0	0	0	0	0	0	0
	Class Expenditure	**2,526,501**	**1,231,996**	**9,404,004**	**11,010,000**	**0**	**0**	**0**	**2,500,000**	**0**	**0**	**0**
	Class Capital Revenue	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Loans	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Reserves	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Operating Costs	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Getting back to basics

Water Supply

Asset and Service Management Plan

Appendix A of Redland Water's

'Water Netserv Plan'

Redland CITY COUNCIL

Document Control	

Rev No	Date	Revision Details	Author	Reviewer	Approver
0	29 October 2012	Initial Draft	MI	BT	BT
1	5 April 2013	Redland Water internal review	MI	BT	BT
2	4 June 2013	Final Draft	MI	BT	GS

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

WATER SUPPLY

The Portfolio

	Replacement Cost	Accumulated Depreciation	Depreciation Expense
Water Supply Pipelines	402,441,377	152,829,058	5,842,178
Water Supply Reservoirs	4,393,900	2,058,275	79,914
Water Supply Pumping Stations	1,629,300	823,617	78,809
Water Supply Pressure Control Valves	394,900	232,652	26,366
SUB-TOTAL	408,859,477	155,943,602	6,027,267
Network Monitoring Equipment	763,400	522,454	76,592
	$409,622,877.29	**$229,685,453.43**	**$6,103,859.45**

Condition Summary

	% Poor	% Fair	% Good	% Very Good	% Excellent
Underground Assets					
Water Supply Pipelines	0%	8%	21%	48%	23%
Above Ground Assets					
Water Supply Reservoirs	2%	0%	27%	68%	2%
Water Supply Pumping Stations	3%	1%	8%	67%	21%
Water Supply Pressure Control Valves	38%	6%	25%	31%	0%
Network Monitoring Equipment	48%	0%	36%	16%	0%
Sub-total Underground Assets	9%	1%	24%	60%	6%
TOTAL - All WS Assets	0%	8%	21%	48%	23%

Keeping it Brief

Major Projects 2013/14

- ✓ Redland mainland Water Supply Scheme Network Upgrade program $810,000
- ✓ Kinross Road MPA Network Upgrade (trunk main construction) $470,000
- ✓ Unlined fittings replacement $470,000
- ✓ Minor renewal works at reservoirs, pump stations and in the network monitoring infrastructure $78,000

Overall Condition and Critical Issues

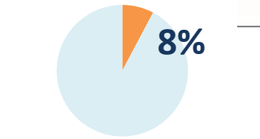
- ➢ Maintenance and renewal of water supply assets is adequate to meet the desired service levels
- ➢ Renewal of underground assets is largely based on 'fix-on-fail' approach as asset base is still relatively young
- ➢ Continued investment is required to maintain fire flow provision in the network

Improvement Plan Focus

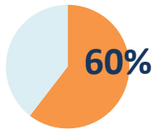
- ➢ Maintain / gain understanding of the breakdown of the maintenance budget (i.e. Cyclic vs Planned vs Reactive)
- ➢ Develop and document condition and performance assessment methodologies for all asset classes and key asset types
- ➢ Implement GIS Asset Condition dashboard mapping

The Final Word

The renewal program for this asset class is sufficient; however significant work is required to understand the remaining life of the small diameter AC reticulation mains

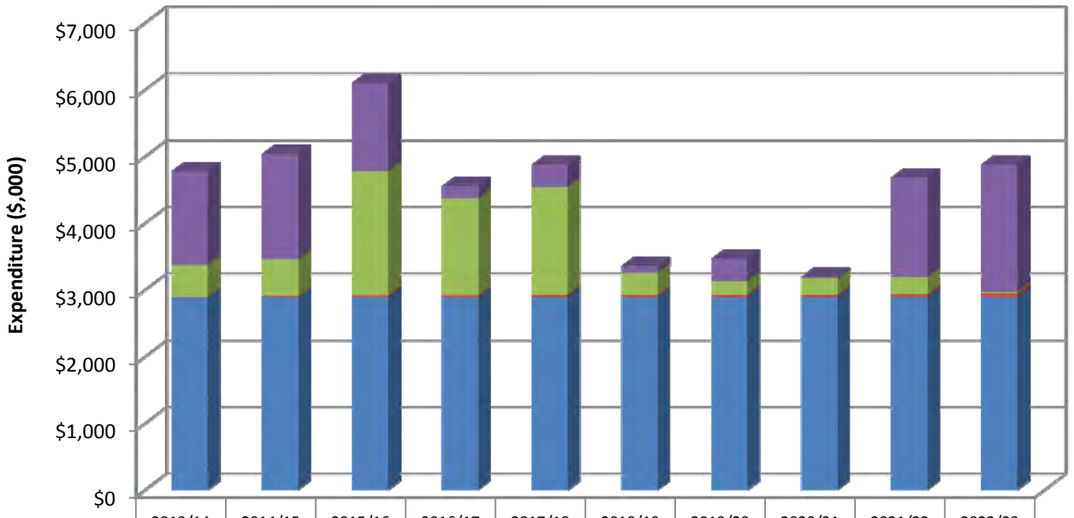


Sustainability Ratio



Consumption Ratio

Long Term Financial Plan Summary



	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Capital Upgrade	$1,411,287	$1,581,618	$1,329,163	$180,653	$335,413	$103,256	$342,795	$28,403	$1,492,342	$1,903,580
Capital Renewal	$472,550	$550,750	$1,856,150	$1,455,745	$1,620,856	$336,000	$204,093	$246,967	$259,200	$25,100
Maintenance New Assets	$9,940	$21,081	$30,443	$31,715	$34,078	$34,805	$37,220	$37,420	$47,931	$61,339
Maintenance Existing Asset Base	$2,885,206	$2,885,206	$2,885,206	$2,885,206	$2,885,206	$2,885,206	$2,885,206	$2,885,206	$2,885,206	$2,885,206

2 INTRODUCTION

2.1 SCOPE

This plan applies to all known water supply infrastructure assets that Redland Water manages. The assets covered are primarily underground assets such as pipelines and valves as well as above ground assets such as reservoirs and pump stations.

The plan is intended for the use of all staff who take on a role in the lifecycle of an asset. The plan will also form part of Redland Water's *'Water Netserv Plan'* as required under the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*.

2.2 PLAN FRAMEWORK

Key elements of the plan are:

- Existing asset base – clearly defines the assets value and condition covered by the plan
- Levels of service – specifies the services and levels of service to be provided by council
- Future demand – how this will impact on future service delivery and how this is to be met
- Life cycle management – how Council does and plans to manage its existing and future assets to provide the required services
- Financial summary – what funds are required to provide the required services
- Monitoring and review– how the plan will be monitored to ensure it is meeting Council's objectives.
- Improvement action plan – the actions required to improve the management of the assets and allow progression of the plan from core to advanced.

2.3 KEY STAKEHOLDERS

There are a number of key stakeholders for Redland City Council in relation to the provision of its water supply service. In terms of the asset management cycle there are external bodies such as the Department of Energy and Water Supply (DEWs), and the statutory authority responsible for bulk water provision (seqwater).

Table 1 below shows the internal stakeholders that input into the Asset and Service Management Plan (ASMP) for Water Supply.

TABLE 1 – KEY STAKEHOLDERS

Unit / Group/ Department	Contact Person	Responsibility / Lifecycle Phase
Water Networks Unit / Infrastructure and Planning / Redland Water and RedWaste	Matthew Ingerman	Primary ASMP Author
Water Networks Unit /	Matthew Ingerman	Strategic Planning – Expansion /

Unit / Group/ Department	Contact Person	Responsibility / Lifecycle Phase
Infrastructure and Planning / Redland Water and RedWaste		Upgrade
Water Networks Unit / Infrastructure and Planning / Redland Water and RedWaste OR Distribution & Treatment / Redland Water and RedWaste	Matthew Ingerman OR Kevin McGuire	Renewal Programming
Distribution & Treatment / Redland Water and RedWaste	Kevin McGuire OR Matthew Worrall	Maintenance (Programming and Execution)
Water Reticulation / Distribution & Treatment / Redland Water and RedWaste	James Beutel	Construction
Water Services Metering / Distribution & Treatment / Redland Water and RedWaste	Darren Smith	Construction
Infrastructure and Planning / Redland Water and RedWaste	Bradley Taylor	Disposal

2.4 CORE AND ADVANCED ASSET MANAGEMENT

This asset management plan is prepared as a 'core' asset management plan in accordance with the International Infrastructure Management Manual. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level.

This plan builds on the previous asset management work that Redland Water has completed, starting with the *Asset Management Procedure Manual, March 2006, Opus International Consultants Limited*. Subsequent work to this included the *Asset Management Improvement Plan, July 2006, Opus International Consultants Limited*. That improvement plan set out prioritised improvements have been summarised into the following organisational goals:

- Robust asset information with information that is consistent and accurate which can be used for planning (understanding asset conditions and asset criticality)
- To better understand the cost of service
- Improved maintenance and renewal programming

- Asset creation is based on a minimised lifecycle cost approach for all major infrastructure and pump stations
- Understand the impact of demand management through pressure and leakage management
- Accurately measure system performance
- A robust Non-Current Asset Policy

Progress on achieving those goals has been limited by the reform that has occurred in the water industry in South East Queensland since the completion of the *Asset Management Improvement Plan*.

Other asset management work completed by Redland Water includes:

- *Asset Criticality Framework, June 2007, Opus International Consultants Limited*
- *Asset Revaluation Manual, November 2007, Opus International Consultants Limited*

The current asset management focus is a revaluation of the asset base that has been returned from Allconnex Water to Redland City Council using Council's revaluation procedures.

Moving forward, there are a number of strategic trends and issues in relation to asset management and the associated implications for Redland Water. Table 2 below details these issues.

TABLE 2 – STRATEGIC TRENDS AND ISSUES

Strategic Trend / Issue	Implications for Redland Water
Changing regulatory environment and focus on back to basics service delivery	Scrutiny of the prudency and efficiency of capital and operating costs mean that investment choices need to be made based on robust, commercial decisions which will deliver infrastructure more effectively providing a 'back to basics' delivery of service. Commercial imperatives will be applied to management of Redland Water's assets to ensure best value over the asset life.
Loss of control of water supply sources	The loss of control of water supply sources as a result of the SEQ Water Reform program heightens the complexity of managing multiple relationships in pursuit of maintaining high product quality.
Tightening and increasing complexity of regulatory requirements, guidelines and reporting	Redland Water is facing increasing tightening and complexity of regulatory requirements, guidelines and reporting in the areas of public health, safety and the environment.
Technological advancements	Technological advances in SCADA, GIS and CMMS offer opportunities to better integrate and manage Redland Water's assets.
Climate change / business resilience	Greenhouse gas legislation is undergoing major development and there are growing environmental legislative requirements. Given this context, optimising energy use and meeting environmental regulations are imperatives that will make

Strategic Trend / Issue	Implications for Redland Water
	Redland Water more sustainable.
Population growth	Redland Water has a central role in expanding the delivery of safe and reliable water and wastewater services that accommodates the anticipated growth in Redland City.
Customer expectations	Customer and community expectations are increasing and reflected in issues such as value for money, greater transparency of costs of service provision, higher product quality, environmental sustainability, and minimisation of odours and overflows of the wastewater system. The implications are the need for a lowest whole-of-life cost and proactive risk based approach to asset management.
Increasing accountability for the consequences of asset failure	The increasing accountability for the consequences of asset failure comes from both legal and corporate compliance and insurance cost pressures. This drives the need for Redland Water to possess a clear understanding of the risks and the consequences of asset failure and to ensure that appropriate mitigation measures are in place.

2.5 WATER NETSERV PLAN

This asset management plan also forms part of Redland Water's *'Water Netserv Plan'*, specifically Appendix A of Part B of the Netserv Plan. It aims to address the legislative requirement to:

> (a) include information outlining the SEQ service provider's existing and proposed infrastructure for providing its services, indicating how the SEQ service provider proposes—
>
> > (i) to meet performance targets and service standards for assets relating to the operation, maintenance and replacement of existing infrastructure
> >
> > (ii) to provide new infrastructure to meet expected future development and growth in its relevant area, considering demand for the services based on low, medium and high population growth scenarios[1]

To assist with navigating this plan to the requirements of the *'Water Netserv Plan'* detailed above, the following table is provided.

[1] Reference – Section 99BP of the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*

TABLE 3 – NETSERV LEGISLATION REFERENCES

Section 99BP	Description	Link to Section
99BP (a) (i)	How … to meet performance targets and service standards for assets relating to the operation, maintenance and replacement of existing infrastructure	4 & 7.2
99BP (b) (ii)	How … to provide new infrastructure to meet expected future development and growth in its relevant area, considering demand for the services based on low, medium and high population growth scenarios	5 & 7.3

3 EXISTING ASSET BASE

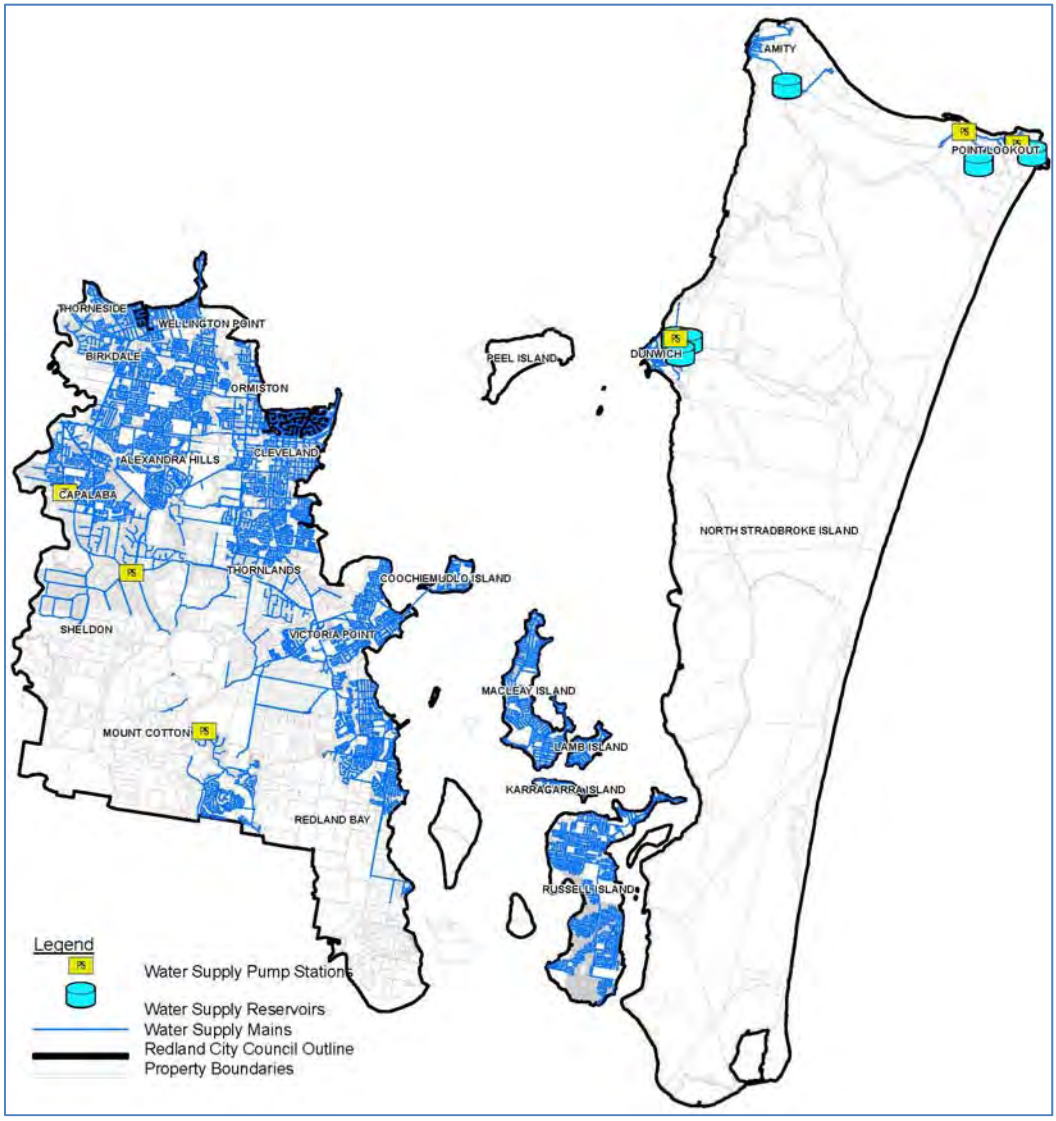
3.1 OVERVIEW

The water supply assets managed by Redland City Council include:

- Pipes (including all fittings such as bends, tees and hydrants);
- Valves (including control valves such as gate valves and pressure reducing valves);
- Pumps; and
- Reservoirs.

Figure 1 below shows the geographic extent of the water supply assets managed by Redland Water.

FIGURE 1 – REDLAND CITY COUNCIL WATER SUPPLY NETWORK



Note that Redland Water no longer owns Water Treatment Plants (WTPs) or some of the larger diameter bulk transfer or trunk mains in the City. These are now owned, operated and managed by the State Government.

Hence there may appear to be some disconnects on the above map as the State owned assets are not shown on this figure.

3.2 NETWORK OPERATIONS

With the split of the 'bulk water' assets the operation of the water supply network does not follow the lines of a traditional 'catchment to tap' provider. Seqwater provides water to Redland City Council under contract. In addition to the contractual document, there are various other management tools/systems/rules put in place. One of these requirements is operating under a document called 'operating protocols'. These protocols include issues such as location of bulk supply points, water quality notification triggers and operating levels for reservoirs etc.

At the recommencement of Redland Water, the operating protocols that we are using are those that were negotiated across the whole of the former Allconnex Water region. In order for the operating protocols to reflect Redland specific issues, a review should be undertaken (in line with the new requirements of the Bulk Water Code) to ensure that appropriate operating parameters are the Redland network.

Another plan that Redland Water is required to have as part of the SEQ Water Grid is an Emergency Response Plan (ERP). This plan outlines the process for incident management, governance and accountability of incidents and emergencies that may result from Redland Water's assets. The continual improvement of the ERP will be undertaken though an annual review cycle.

3.3 FINANCIAL PERSPECTIVE

The following information is sourced from the reports, *Redland Water Assets Revaluation 2012 Above Ground Assets, March 2013, and Redland Water Assets Revaluation 2012 Underground Assets March 2013, prepared* by GHD. The purpose of these revaluation reports was to provide a revaluation of the assets that fell under the control of Redland Water as of 30 June 2012 following the transfer of these assets from Allconnex Water.

The Asset Revaluation was based on the non-current asset values at 30 June 2012.

TABLE 4 – EXISTING ASSET DETAILS

Asset Category	Replacement Cost	Accumulated Depreciation	Written Down Value	Depreciation Expense
Water Supply Pipelines	$402,441,377	$152,829,058	$249,612,319	$5,842,178
Water Supply Reservoirs	$4,393,900	$2,058,275	$2,335,625	$79,914
Water Supply Pumping Stations	$1,629,300	$823,617	$805,683	$78,809
Water Supply Pressure Control Valves	$394,900	$232,652	$162,248	$26,366
SUB-TOTAL	$408,859,477	$155,943,602	$252,915,875	$6,027,267
Network Monitoring Equipment	$763,400	$522,454	$240,946	$76,592
TOTAL	$409,622,877	$156,466,056	$253,156,821	$6,103,859

A pictorial view of the asset base (age versus value) is included in the following figures.

FIGURE 2 – WATER SUPPLY ASSETS – AGE PROFILE (ALL ASSETS)

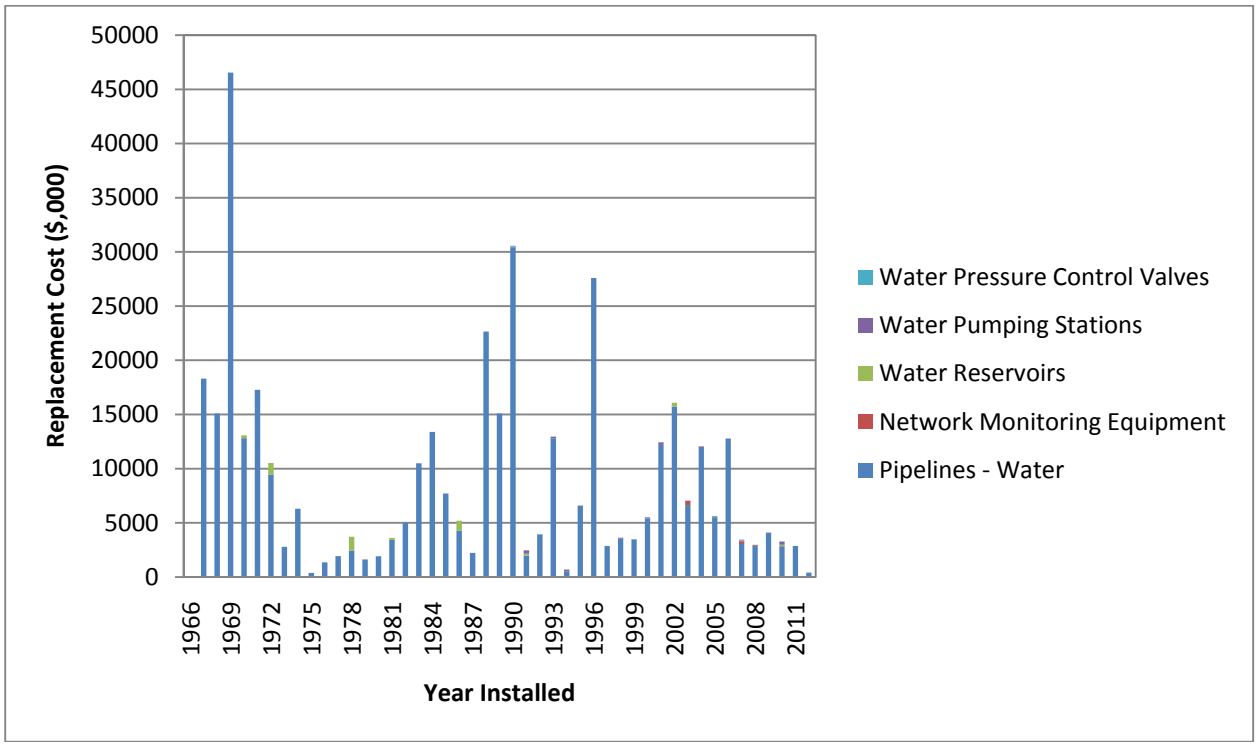


FIGURE 3 – WATER SUPPLY (UNDERGROUND) ASSETS – AGE PROFILE

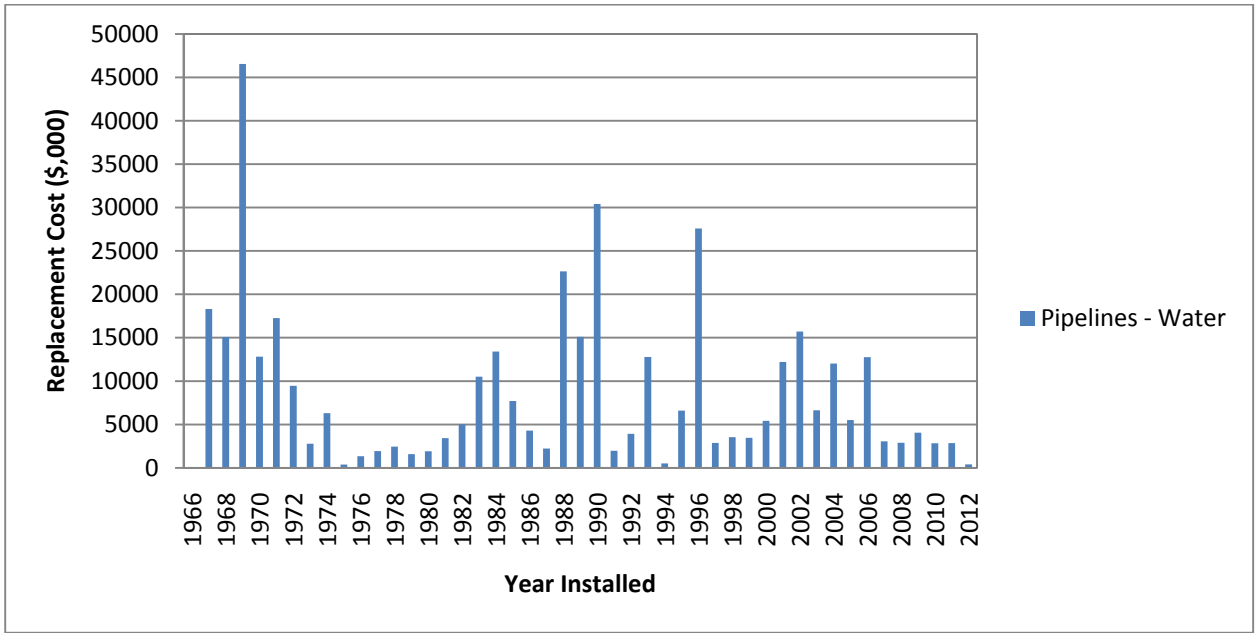
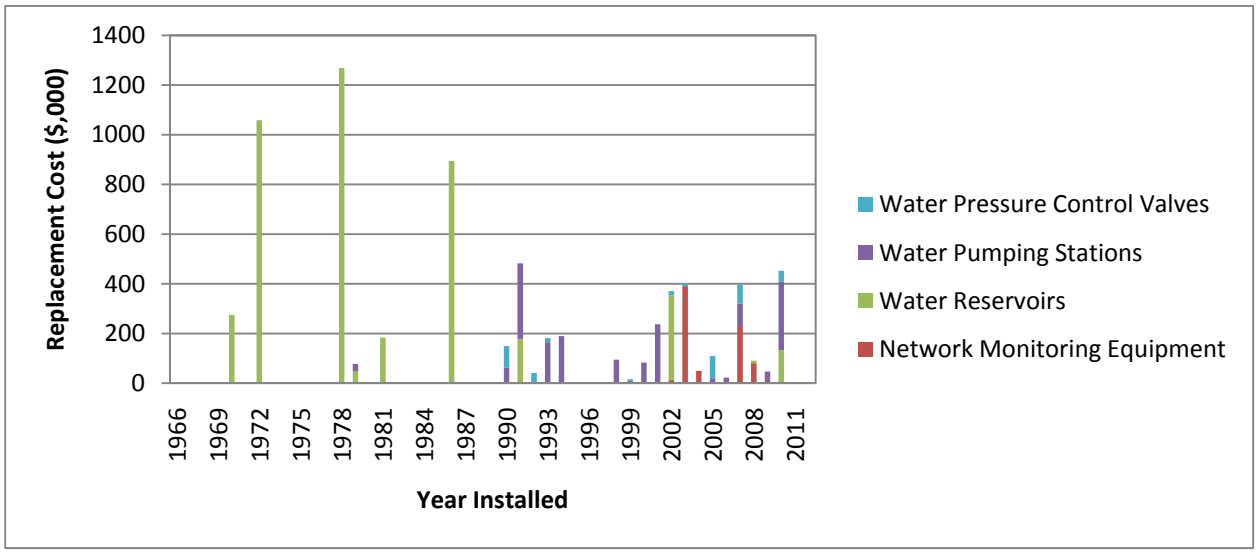


FIGURE 4 – WATER SUPPLY (ABOVE GROUND) ASSETS – AGE PROFILE



3.4 ASSET CONDITION

Generally, the Redland City Council's water supply assets are in relatively good condition. Just short of three quarters (70% by replacement cost) of the water supply assets are in Very Good or Excellent Condition. A further 21% are in Good condition, while 8% are in Fair condition and less than 1% in Poor condition. Figure 5, Figure 6 and Figure 7 below show this information.

A comprehensive condition assessment was not undertaken as part of the 2012 asset revaluation. However, 53% (by Replacement Cost) of the water mains are AC. The *Redland Water Assets Revaluation 2012 Underground Assets March 2013*, prepared by GHD, has indicated that 25% of these mains have approximately 20 years of remaining life, while 20% have a further 10 years (i.e. 20 – 30 years) remaining life. Further sampling of a wider range of the AC pipes will provide a more accurate forecast of the remaining life of these pipes.

In addition, 76% of pipe fittings installed pre-1976 remain unlined. Over the last 5 years there has been a regular program of replacement of these fittings with corrosion resistant ductile iron fittings under an operational renewal program. It is expected that this program of renewal will continue for 5 years at a cost of $472,550/year.

FIGURE 5 – WATER SUPPLY ASSETS – CONDITION PROFILE

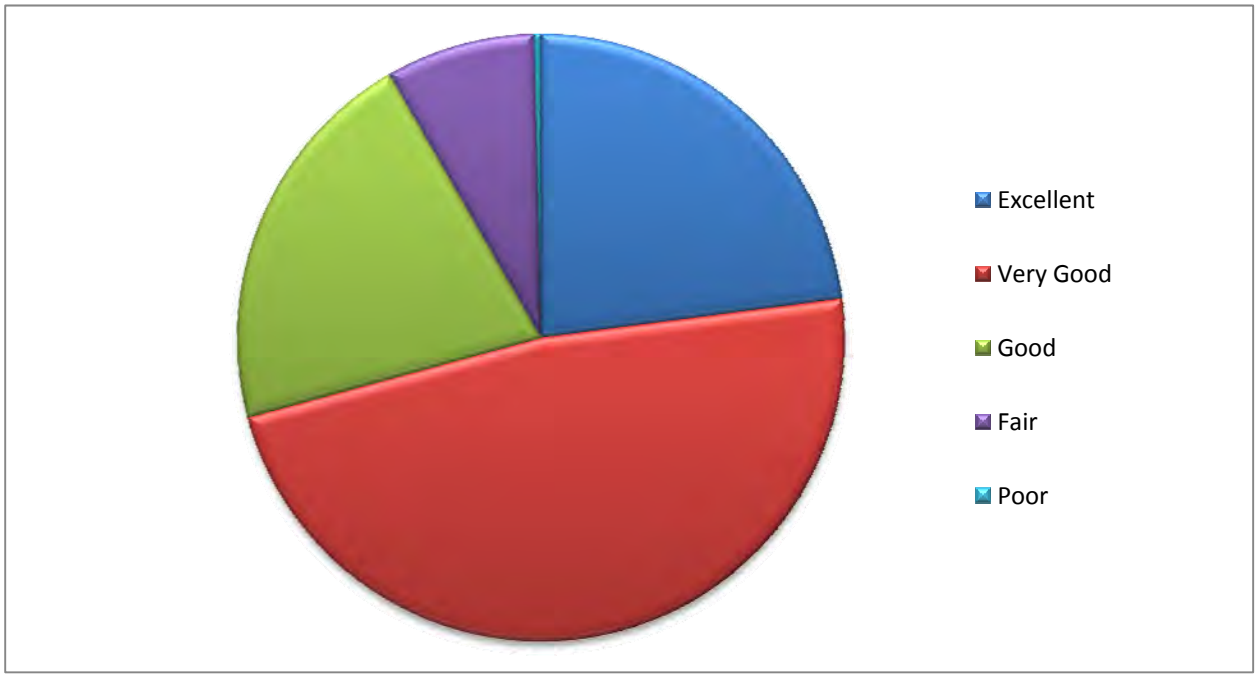


FIGURE 6 – WATER SUPPLY (UNDERGROUND) ASSETS – CONDITION PROFILE

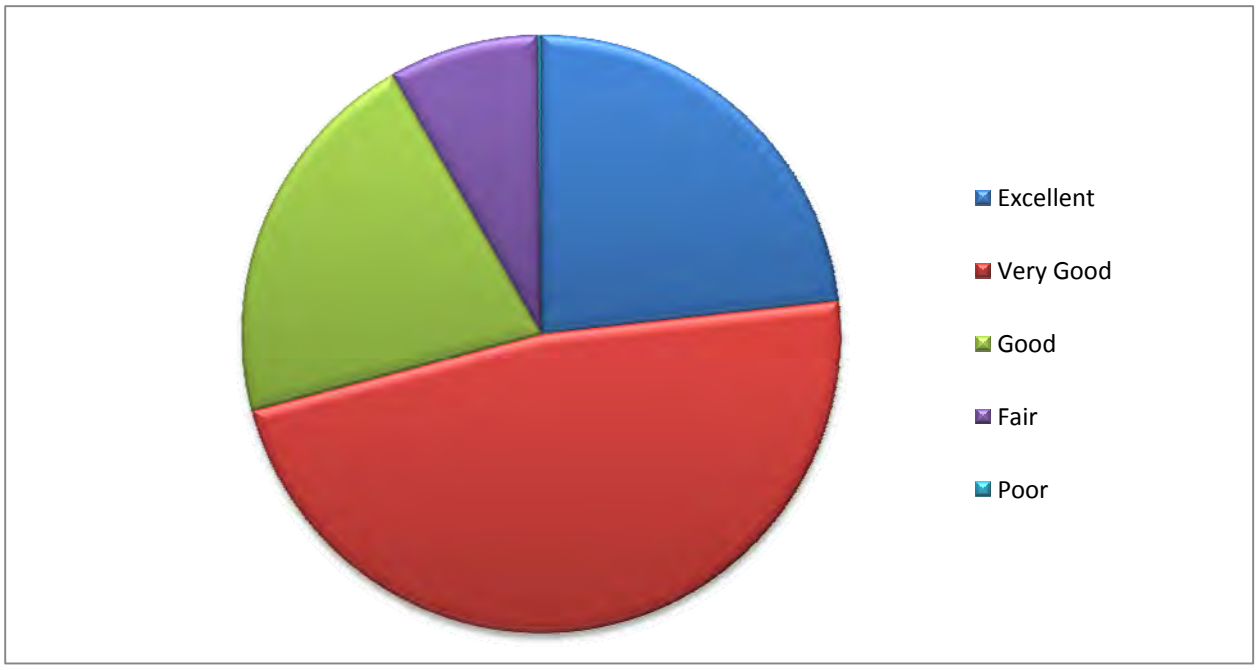
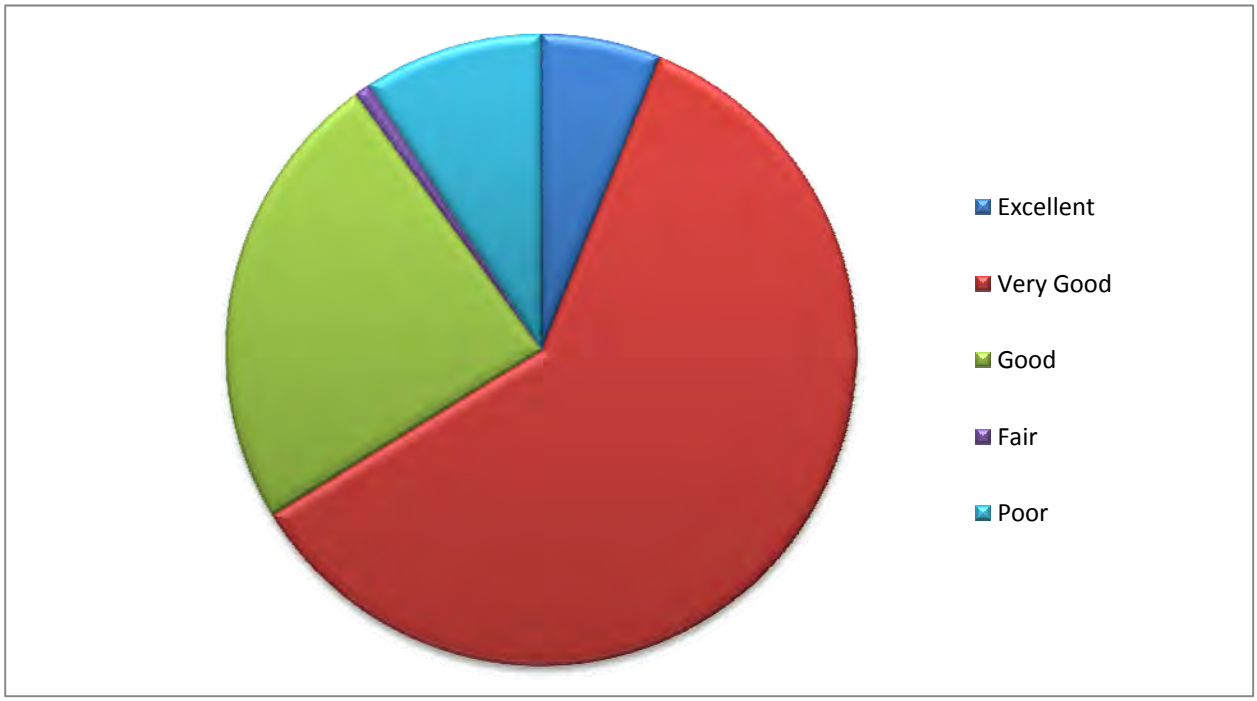


FIGURE 7 – WATER SUPPLY (ABOVE GROUND) ASSETS – CONDITION PROFILE



The above figures are based on the replacement cost value for water supply assets. Condition is measured using a 1 – 5 rating system.

Rating	Description of Condition
1	**Excellent condition**: Only planned maintenance required.
2	**Very good**: Minor maintenance required plus planned maintenance.
3	**Good**: Significant maintenance required.
4	**Average**: Significant renewal/upgrade required.
5	**Poor**: Unserviceable.

4 LEVELS OF SERVICE

4.1 OVERVIEW

As a SEQ service provider, Redland City Council, through Redland Water, is required to comply with the customer service protection provisions in the *South-East Queensland Water (Distribution and Retail Restructuring Act) 2009.* One component of these requirements is the adoption, and publishing of a Customer Service Charter to communicate customers' rights in relation to water supply and wastewater collection services. A further protection is the State Government's Customer Water and Wastewater Code. The primary role of the Code is to "provide some additional safeguards around the SEQ service providers' standards of service offered to their 'small customers', which under the Code is:

- A residential customer; or
- A non-residential customer who uses, or would use, if connected, no more than 100 kilolitres of drinking water and/or or reticulated recycled water per annum (special rules apply for those small non-residential customers with no consumption history)."[2]

Redland Water outlines its commitments and responsibilities to its customers and standards of its services in its Customer Service Standards, as required under the Code. The current versions of Redland Water's Customer Service Standard can be found at:

http://www.redland.qld.gov.au/SiteCollectionDocuments/_Environment_Waste/Water/8206-rw-service-standards.pdf

The standards cover customers across all of the water service area in the Redlands including North Stradbroke Island and the Southern Moreton Bay Islands.

4.2 CUSTOMER RESEARCH AND EXPECTATIONS

Currently the setting of levels of service for Redland Water has primarily been focused on the meeting legislative requirements in terms of setting and monitoring customer service standards. There is limited consultation undertaken by Redland Water with the community in relation to the setting of these standards. The setting of levels of service has been driven by State Government agencies (eg the former Queensland Water Commission) over the last 5 years in South East Queensland. The *South East Queensland Water Strategy 2010*, went through two (2) public consultation phases before its 2010 release. The strategy states that the majority of the demand related comments were focused on the 230L/person/day usage target, with the final strategy adopting a *'voluntary regional residential consumption target of 200 litres per person per day (Target 200)'*.

Future changes to the levels of service will require an in-depth understanding of the cost of service and the impacts of change to levels of service on the service costs, before customer research and expectations can be gauged.

4.3 CURRENT LEVELS OF SERVICE

As identified above the current levels of service for Redland Water are largely driven by compliance with State Government requirements for Southeast Queensland.

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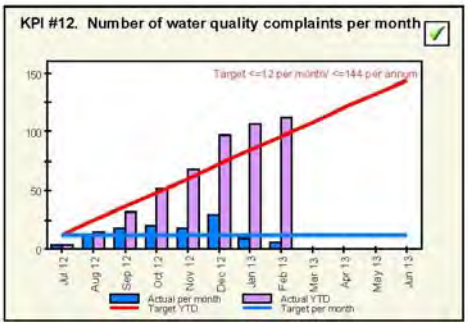
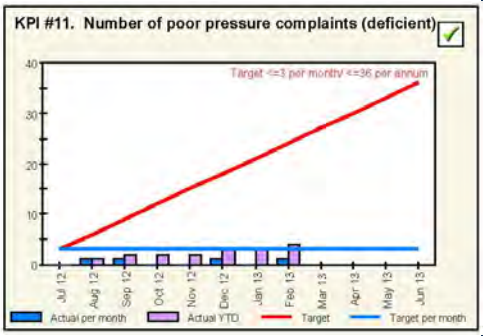
[2] Reference: http://www.qwc.qld.gov.au/reform/servicestandards/index.html, accessed 3:00pm 30/10/2012

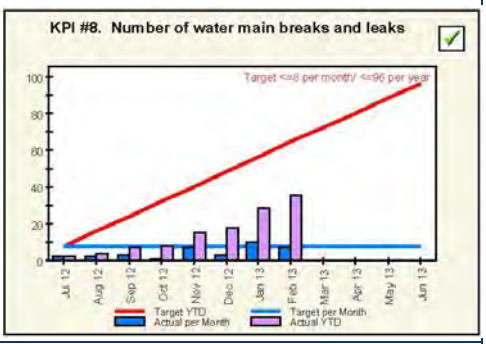
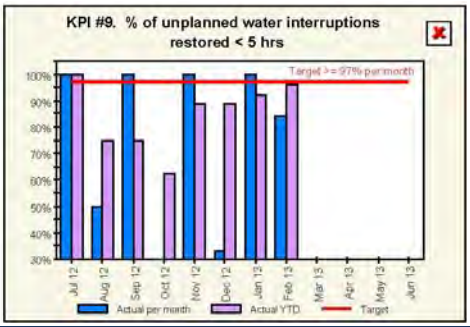
These levels of Service relate to how the community receives the service in terms of safety, quality, quantity, reliability, responsiveness, cost/efficiency and legislative compliance.

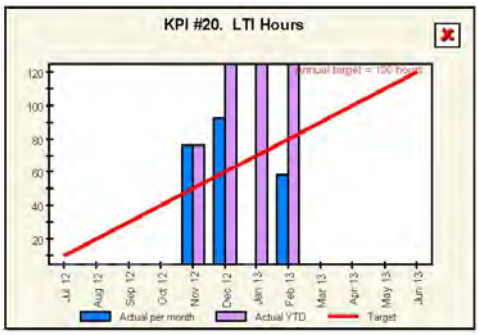
Supporting the community service levels are operational or technical measures of performance developed to ensure that the minimum community levels of service are met. The current Redland Water levels of service are presented below in Table 5 below. The KPIs currently measured in the Redland Water monthly business unit report are identified with example performance trends in Table 5 below. The full monthly business unit report can be read at:

G:\RedlandWater&Waste\Common\ COMMITTEE SUMMARY PAGES\Redland Water\completed BUR

TABLE 5 – CURRENT SERVICE LEVELS

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Quality	Response to discoloured water complaints	-	<4hrs (respond within)	-
	Water quality incidents caused by the distribution network each month	KPI # 12	<= 12 per month	
	Water quality complaints resulting from the distribution network for every 1000 properties	-	<= 4 per month	-
Function				-
	Properties, when tested, have a minimum 22 metres static head and flow to the atmosphere of at least 30 litres a minute at the meter	KPI # 11	>98% of properties when tested	
	Improve	-	within 28 days of a test	-

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
	inadequate water pressure and flow for water services otherwise we will let you know of actions needed			
	Incidents caused by unplanned interruptions in the distribution network for every 1000 connections	KPI # 8	no more than two	
	Response time for general requests	-	within five days	-
	Response to loss of supply	-	within one hour on the mainland	-
	Restore interruptions caused by disruptions in the distribution network	KPI # 9	97% of interruptions within five hours	
	Water main breaks and leaks each 100km of distribution main	-	make sure there are no more than eight	-
	Notification for planned works involving interruption of your water supply over an hour, and advise when we expect the supply to be restored	-	at least 48 hours notice	-

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
Safety	LTI hours (lost time injury hours lost)	KPI # 20		
TECHNICAL LEVELS OF SERVICE Note – for details of current performance for Technical Levels of Service, please refer to Section 4.5				
	Demand			
	Average Day Demand (AD) – Including NRW		300L/EP/day	
	Global Demand Peaking Factors			
	Mean Day Maximum Month / Average Day (MDMM / AD)		1.4	
	Peak Day / Average Day (PD / AD)		1.9 (all except Industrial & Point Lookout Residential) 2.4 (Point Lookout Residential – reference Allconnex Water, Feb 2011) 1.3 (Industrial)	
	Peak Demand Periods			
	Peak Period Duration		3 x Peak Day	
	System Pressure		System Pressure	
	Minimum Operating Pressure		22 m at property boundary	

<table>
<tr><th>Key Performance Measure</th><th>Level of Service</th><th>Performance Measure Process</th><th>Performance Target</th><th>Current Performance</th></tr>
<tr><td></td><td>Maximum Operating Pressure</td><td></td><td colspan="2">60 m at property boundary</td><td></td></tr>
<tr><td></td><td>Fire Fighting Requirements</td><td></td><td colspan="2"></td><td></td></tr>
<tr><td></td><td>Residual Pressure</td><td></td><td>Minimum Residual Pressure – In the main at the hydrant / dedicated fire service</td><td>12 metres head</td><td></td></tr>
<tr><td></td><td></td><td></td><td>Maximum Residual Pressure – In the main at the hydrant</td><td>65 metres head (> 65m requires QFRS consultation)</td><td></td></tr>
<tr><td></td><td></td><td></td><td>Minimum Pressure – Elsewhere in the supply zone during a fire event</td><td>6 metres head</td><td></td></tr>
<tr><td></td><td></td><td></td><td>Risk Hazard</td><td>Refer to ‘Risk Assessment’ provision below</td><td></td></tr>
<tr><td></td><td></td><td></td><td colspan="2">Positive residual pressure must be provided in the main at PH demand during a fire event.</td><td></td></tr>
<tr><td></td><td>Flow Provision
*
Consultation must occur between the service provider and the Rural Fire</td><td></td><td colspan="2">Flow Provision – General Urban Category</td><td></td></tr>
<tr><td></td><td></td><td></td><td>Residential building (3 storeys and below)</td><td>15 L/s for 2 hour duration</td><td></td></tr>
<tr><td></td><td></td><td></td><td>High</td><td>30 L/s for 4 hour duration</td><td></td></tr>
</table>

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target		Current Performance
	Service to determine the adopted flow provision. These specified flow rates represent the minimum allowable provision.		Density Residential building (greater than 3 storeys)		
			Commercial / Industrial building	30 L/s for 4 hour duration	
			Risk Hazard building	Refer to 'Risk Assessment' provision below	
			Flow Provision – Small Community Category		
			Residential buildings (up to 2 storeys)	7.5 L/s for 2 hour duration*	
			Non-Residential buildings (up to 2 storeys)	15 L/s for 4 hour duration*	
			Other buildings	Refer 'General Urban' category above	
	Background demand		Predominantly Residential Areas	▪ 2/3 PH ▪ Not to be less than AD ▪ Check for positive pressure at PH	
			Predominantly Commercial / Industrial	The assessment is to be conducted for the following	

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
			scenarios: ▪ PH for localised Commercial / Industrial area ▪ 2/3 PH for total zone The worst case scenario is to be used, which may vary from site-to-site.	
	Risk Hazard		▪ Risk areas to be identified ▪ QFRS to be consulted ▪ Mitigation measures to be utilised to reduce risk	
	Reservoir Storage			
	Ground Level Storage Capacity		Design case - 3 (MD-MDMM) x1.3 Minimum Operating Volume of 30% OR Dynamic Modelling shows no reservoir failure when 3MDMM (net positive inflow over each day) is followed by 3MD when the initial water level is set at 90% of the reservoir volume.	
	Elevated Storage Capacity		6 (PH – 1/12 MDMM) + Fire fighting reserve of 150 kL	
	Pumping Capacity			
	Duty Pump Capacity		24 hour operation with full standby	

<table>
<tr><th>Key Performance Measure</th><th>Level of Service</th><th>Performance Measure Process</th><th>Performance Target</th><th>Current Performance</th></tr>
<tr><td></td><td>Pumps serving Elevated Reservoirs</td><td></td><td>(6 PH – Operating Volume) /(6 x 3600)</td><td></td></tr>
<tr><td></td><td>Standby Pump Capacity</td><td></td><td>To match duty, except where more than one duty pump or as determined by risk assessment</td><td></td></tr>
<tr><td></td><td>Pipeline Design</td><td></td><td></td><td></td></tr>
<tr><td></td><td>Mains Capacity</td><td></td><td>MDMM for distribution

MDMM for mains supplying ground level reservoirs

PH for reticulation</td><td></td></tr>
<tr><td></td><td>Friction Default Values</td><td></td><td>Hazen Williams formula using

<table><tr><td>Diameter</td><td>‘C’ Value</td></tr><tr><td>≤ 150</td><td>100</td></tr><tr><td>200 – 300</td><td>110</td></tr><tr><td>> 300</td><td>120</td></tr></table></td><td></td></tr>
<tr><td></td><td>Maximum Velocity</td><td></td><td>2.5 m/s</td><td></td></tr>
</table>

4.4 DESIRED LEVELS OF SERVICE

As stated above, the setting of levels of service for Redland Water has primarily been focused on the meeting legislative requirements in terms of setting and monitoring customer service standards. There has been limited consultation with the community in relation to the setting of these standards. Future revisions of, particularly the community and functional levels of service, may require more community consultation. A greater understanding of the operating costs of alternate levels of service may need to be presented.

The next iteration of the technical levels of service will incorporate the adoption of the SEQ-wide Design and Construction Code (SEQ D&C Code). Current drafts of the SEQ D&C Code do not create any significant departures from the current levels of service. The only significant change is the reduction of the average day demand from 300L/EP/day to 260L/EP/day.

As part of the development of the SEQ D&C Code, a comprehensive Community Consultation period was undertaken between 8 June 2012 and 17 July 2012. The submissions were considered and the code amended as required. After adoption by the SEQ service providers, the adoption of the code will be notified by the gazette notice from the Minister responsible for the administering the South-East Queensland Water (Distribution and

Retail Restructuring) Act 2009. The SEQ D&C code is due for adoption and gazettal by 1 July 2013. Redland Water will need to participate in the review of the standards and the community consultation in order to ensure the best infrastructure solutions are available for Redland City Council.

TABLE 6 – DESIRED SERVICE LEVELS

Key Performance Measure	Desired Level of Service			Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE No change is proposed to the current 'Community Levels of Service'						
Quality	Refer to Table 5					
Function	Refer to Table 5					
Safety	Refer to Table 5					
TECHNICAL LEVELS OF SERVICE* Note – for details of current performance for Desired Technical Levels of Service, a future revision of the Redland Water - Water Supply Master Plan will need to be completed						
Average Day Demand (AD) per EP, excluding NRW (Note: EP/ET conversion rate provided in separate tables from Water Service Provider)	230 L/EP/d					
Estimated Non-Revenue Water (NRW)	30 L/EP/d					
Peaking Factors	Low and Med Density Res	High Density Res	Commercial/Industrial			
MDMM/AD	1.5	1.5	1.5			
PD/AD	2	2	2			
PH/PD	2	1.75	1.4			
PH/AD	4	3.5	2.8			
Pressure (minimum SERVICE pressure at property boundary Urban and Rural) – Operating conditions (PH)	22m					
In areas defined by the SP, properties with domestic private	12m at the suction side of private booster					

Key Performance Measure	Desired Level of Service	Performance Measure Process	Performance Target	Current Performance
booster pumps				
Maximum SERVICE Pressure	55m			
Emergency fire operating conditions (Minimum Residual Mains Pressures)	12m (in the main) at the flowing hydrant 6m on mains with customer connection Positive pressure throughout			
Fire Fighting Rural and Small Communities (Definitions as per Glossary of SEQ D&C code)	Rural Residential only: 7.5L/s for 2 hours Rural Commercial: 15L/s for 2 hours			
Urban	Detached Res (<= 3 stories): 15Ls for 2hrs w background Demand Multi story Res (=> 4 levels): 30L/s for 4 hours w background Demand Commercial/Industrial buildings: 30L/s for 4 hours w background Demand Risk Hazard Buildings – assessed on needs basis			
Background Demand	Res(Detached/ Multi story): Highest of 2/3 PH or AD Commercial/Industrial: PH demand (between 10am and 4pm) (single fire event only)			
Reservoir storage—operational capacity (Min Operating Storage – four consecutive hours of demand)	GROUND LEVEL RESERVOIR: 3 x (PD – MDMM) + Emergency Storage (Emergency Storage - Greater of 4 hrs at MDMM or 0.5 ML. For less than 1000 EP, 150 kL)			
	ELEVATED RESERVOIR: 6 x (PH – 1/12 MDMM)+150kL fire storage In supply zones where 8xPH is less than or equal to MDMM the following equation is used (2xPH)+150kL fire storage			
Reservoir Pump Servicing Requirements	MDMM over 20 hrs			

Key Performance Measure	Desired Level of Service	Performance Measure Process	Performance Target	Current Performance
Ground level reservoir – Duty Pump				
Elevated reservoir – Duty Pump	Capacity (L/s) = Peak Hour (L/s)			
Standby pump capacity	Match largest single pump unit capacity			
Pipeline Capacity Requirements	Transport MDMM in 20 hrs Reticulation mains; Maintain pressure for Peak Hour and fire flow performance			
Pipe Friction Losses Hazen Williams Friction Factors Based on the preferred material types outlined in the SEQ Water Supply Code (as amended). Any variation from these material types needs to be subject to further investigation.	<=150, C=100 >150 -300mm, C=110			
Maximum Allowable Headloss (PH) (m/km)	5m/km for DN<=150 3m/km for DN>=200			
Maximum allowable velocity	2.5m/s			

*- the current version of the SEQ D&C code levels of service planning parameters can be found at: http://www.seqcode.com.au

4.5 SERVICE AND PERFORMANCE DEFICIENCIES

It is expected that the current levels of service will continue to be sufficient in meeting community expectations for water supply.

Redland Water's *Water Supply Network Master Plan, May 2011*, identifies the performance of the network relative to the Desired Standards of Service described above. The network augmentations identified in the Master Plan form part of the Renewal / Upgrade Program shown in Section 7.2 of this ASMP.

An example of the assessment of the network performance is shown below in Figure 8.

Primary areas of focus for upgrade programs in relation to service standards currently revolve around upgrading the network to comply with fire flow provision and maintaining the minimum customer service standard of 22m at the customer meter. The other major works is the construction of the new Illawong Crescent Reservoir and the re-zoning of the high level areas of Dunwich also to improve operating pressures and fire flow provision.

FIGURE 8 – EXAMPLE NETWORK ASSESSMENT FROM MASTER PLAN

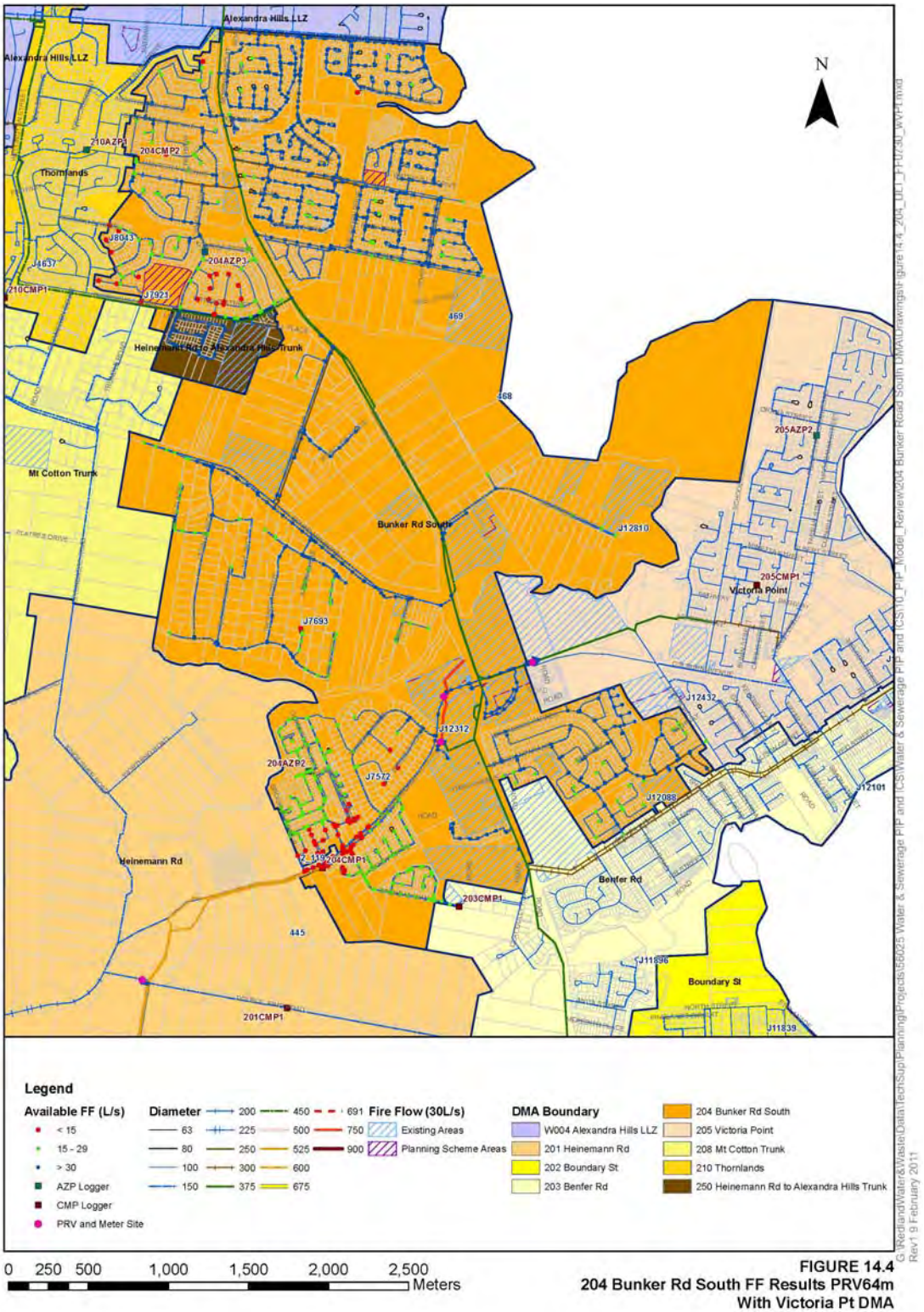


FIGURE 14.4
204 Bunker Rd South FF Results PRV64m With Victoria Pt DMA

5 FUTURE DEMAND

5.1 INFLUENCES ON DEMAND

The primary influences on demand for water supply network are:

- Demand Management Programs (as a service provider in Queensland, Redland Water is required to participate in Demand Management Programs)
- Demographics of the Service Area (Land Development / Population Growth)
- Climate / Weather
- Economic considerations such as Water Price.

Demand Management Programs:

Demand management involves behavioural and technological approaches and techniques that reduce water consumption. As a Water Service Provider in South East Queensland, Redland Water is required to have a demand management plan as part of its *'Water Netserv Plan'*. Information on Demand Management can be found in Part A of the Redland *'Water Netserv Plan'* at:

http://web01.redland.qld.gov.au/robo/Minutes_Agendas/Jul12-Jun13/Minutes/October/RW-16-Oct/Item-2.3-Redland-Water-Draft-Water-Netserv-Plan-Part-A.pdf

Demand management aims to provide a reducing trend on the demand profile on a per tenement basis. More information on demand management is also included in Section 5.3.

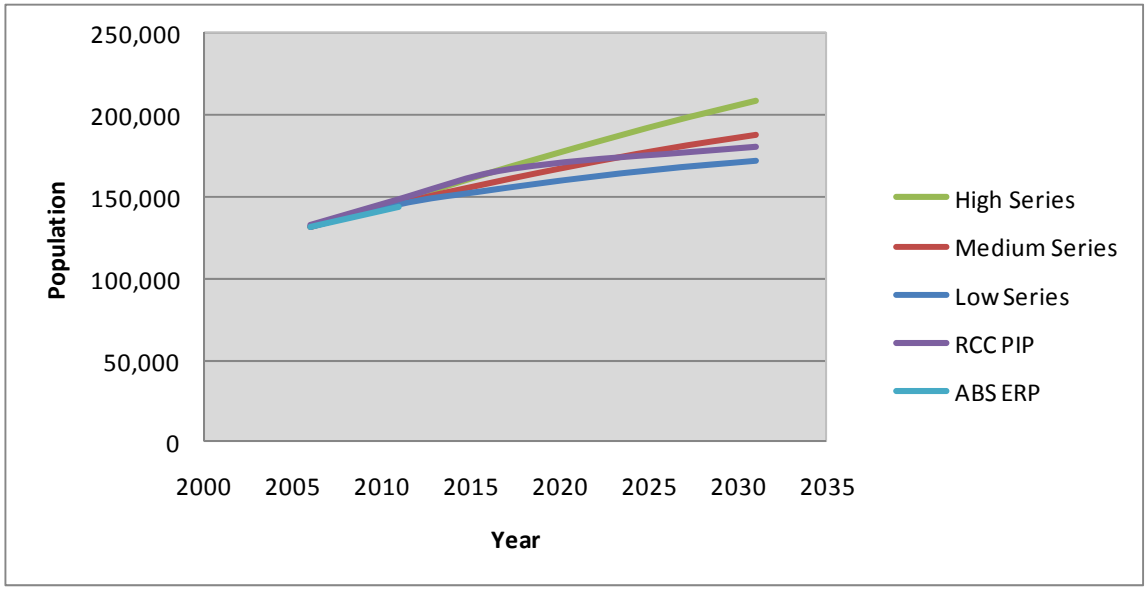
Land Development / Population Growth

New development areas in South East Thornlands and Kinross Road require extension of the water supply network in order to provide water supply services to future lots and customers. These new areas, along with continued land development in Redland Bay and Mt Cotton Village areas make up the bulk of the areas where new water supply assets will be created.

The future Victoria Point development area is contiguous with local services and will also accommodate additional residential development with the extension of the water supply network. Brownfield development in other parts of the City will generally utilise existing network 'spare' capacity.

Demand projections used for the determination of new infrastructure required to meet expected future development and growth are built up from the projections of population and employment growth contained within the Redland City Council's Priority Infrastructure Plan (PIP). The PIP population projections are based on amended (2006) medium to high series projections of estimated resident population. The figure below demonstrates the envelope of population projections that we are currently operating in.

FIGURE 9 – POPULATION PROJECTION COMPARISONS



As can be seen from Figure 9, the RCC PIP projections, which form the basis for our infrastructure demand projections, starts off following the high series projection, then growth rates gradually taper to meet a projection somewhere between the medium and the low series projections. Note that all projections currently end at a 2031 planning horizon – this is consistent with RCC's recent planning work undertaken as part of the Redland Planning Scheme 2015 (RPS 2015). Redland Water employees undertake a process of continual monitoring and review of planned capital expansion programs in order to ensure that network expansion keeps pace with growth in demand, whether that demand matches Low Series, Medium Series or High Series Growth. Section 7.3 discusses this process in further detail.

Based on the assumption that the RCC PIP population projections represent the population that can be accommodated under the existing allowable uses in the planning scheme, then without changes to land use zonings in the RPS, then the only variance in the projections is the growth rate at which they occur. The declining growth rate in the later years of the RCC PIP projections give rise to a possibly wide range of years that ultimate RPS demand could be reached, i.e. potentially between 2021 and 2031 should there be a change to the growth rates. The variability of growth rates is highlighted by the lighter blue line on the graph for the ABS ERP data between 2006 (base year for projections) and 2011 (most recent census) – it is below all the projection lines including the low series projections. The current growth rate indicates that it is likely that the current planned ultimate demand will be reached at some time past 2031, i.e. outside the 20 year planning horizon requirement for the *'Water Netserv Plan'*.

To ensure appropriate infrastructure solutions are developed, the alignment of the Redland Water Infrastructure Demand Model to the current Redland City Council population estimates (eg those prepared for the RPS 2015) is key. Once this key task has been completed, the reviews and updates of the current master plans to ensure coverage of the 20 year planning horizon will be required.

Climate / Weather

The primary influence on water use on a day-by-day basis and in turn yearly averages is the climate that we live in. Although demand management programs will drive the per tenement water use downward, there is also the

possibility that periods of significant rainfall will limit the average daily water use levels. Comparatively, the possibility of prolonged drought will see daily water use levels rise. This has the potential to affect levels of service (particularly minimum service pressures) on peak days when the network is most stressed.

Water Price

The continued rise of the cost to supply water will likely provide a negative influence on demand. The affect of this may however be limited with the combined effect of demand management programs and region wide restrictions possibly limiting the level to which a price signal will impact on demand.

Demand factor trends and impacts on service delivery are summarised below.

TABLE 7 – DEMAND INFLUENCES

Demand Influence	Projected Position and Impact on Services
Demand Management Programs	Likely to reduce demand on water supply assets
Land Development / Population Growth	Likely to increase demand on the water supply assets
Climate / Weather	Potential to affect demand on water supply assets in either direction
Water Price	Likely to reduce the demand on water supply assets

5.2 PRIORITY INFRASTRUCTURE PLAN AND DEVELOPER DONATED ASSETS

The *Water Supply Network Master Plan, May 2011*, which informs the 2012 Redland City Council Priority Infrastructure Plan (PIP), has identified that in addition to the trunk infrastructure required to service the projected future demand, additional network augmentations will be required to maintain current desired standards of service.

Table 25.6 from that report is reproduced below – note that the costs are presented in December 2006 dollars in line with the base year for the Priority Infrastructure Plan.

TABLE 8 – PROJECTED FUTURE ASSETS

Type of work	Quantity	Establishment cost ($)	Present value ($)#
Infrastructure charges pipe work	11,801m	$10,923,483	$8,806,975
Infrastructure charges reservoirs	1 x 0.25 & 1 x 2.75 ML	$2,082,148	$1,716,449
Infrastructure charges flow meters	4 No.	$383,636	$320,878
Infrastructure charges valves	9 No.	$512,931	$464,131

Type of work	Quantity	Establishment cost ($)	Present value ($)#
Sub-total	-	$13,902,198	$11,308,433
Augmentations	15,670m	$6,868,733	$5,632,896
Reticulation (developer to construct)*	3,321 m	$1,266,649	$1,038,163
	Total	**$15,168,847**	**$12,346,596**

Note: # Includes Discounting and Escalation as per the Redland City Council discounting methodology.

** There is much more reticulation that needs to be constructed. This table only includes the pipework that needs to be constructed by a particular time to ensure the network continues to meet the DSS.*

As indicated in the *Master Plan*, although a certain length of developer constructed reticulation has been identified, not all the developer constructed or future donated assets have been identified. Without detailed knowledge of the future road layouts that are likely to be used, an estimation of the length of future water main assets is very difficult. Note that in addition to the approximately $14M worth of trunk network upgrades required to meet future demands, there is approximately a further $7M worth of network upgrades to be undertaken in order for the current desired standards of service to be maintained.

In order to fully understand the future asset profile and its associated operating costs, Redland Water will need to develop a reliable method of estimating the length or value of developer donated assets contributed each year.

5.3 DEMAND MANAGEMENT

As indicated in Section 5.1, demand management is required as part of Redland Water's *'Water Netserv Plan'*. Details of demand management initiatives can be found in Part A of the *'Water Netserv Plan'* at:

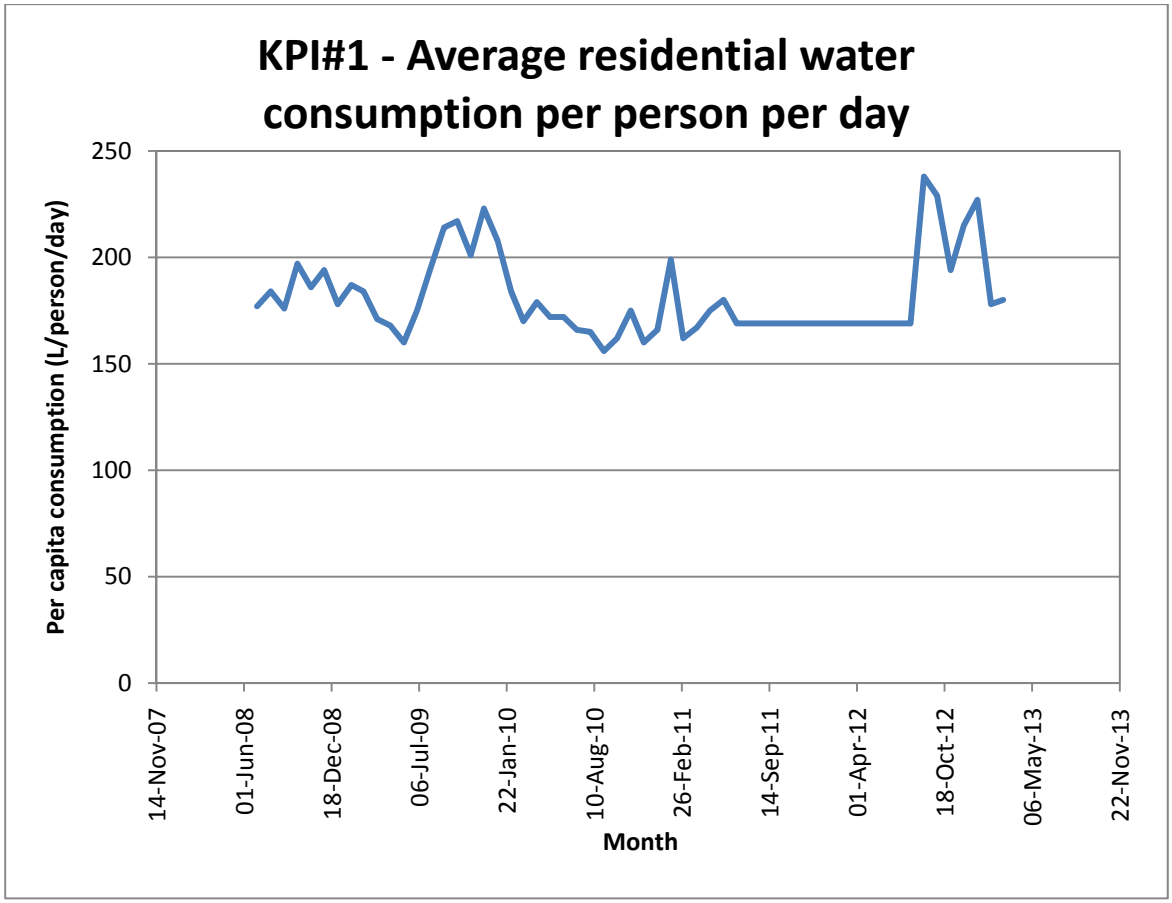
http://web01.redland.qld.gov.au/robo/Minutes_Agendas/Jul12-Jun13/Minutes/October/RW-16-Oct/Item-2.3-Redland-Water-Draft-Water-Netserv-Plan-Part-A.pdf

Demand management involves behavioural and technological approaches and techniques that manage water consumption so as to meet the regional water use targets (as included in the *South East Queensland Water Strategy, 2010*). Key areas include the following:

- Economic: user pays pricing structures provide financial incentives for residents and businesses to save water
- Education: community, industry and school education programs raise awareness about the need to conserve water
- Enforcement: use of regulatory mechanisms and water use restrictions combined with appropriate compliance and enforcement regime to target water misuse
- Encouragement: incentive schemes and targeted marketing persuade the public to increase the uptake of water saving products
- Engineering: new ways of planning and managing water and wastewater infrastructure.

Water use trends in Redlands over the last 5 years are shown in Figure 10. As can be seen in Figure 10, the average per capita consumption in Redlands is for the most part, under the *'voluntary regional residential consumption target of 200 litres per person per day (Target 200)'*. The average consumption for the period shown on Figure 10 is 183L/person/day. Historically, though, pre the *'Millennium Drought'* consumption in Redlands has been much higher.

FIGURE 10 – AVERAGE RESIDENTIAL WATER CONSUMPTION



6 RISK MANAGEMENT

Redland Water undertook a detailed Asset Criticality Framework assessment in 2007. The report was undertaken in three (3) phases with each phase providing more detail as the review progressed from Asset Group Level to Asset Component Level.

The complete report can be read at:

..\..\..\Reports\RWW_ScannedReports\251_RWW Asset Criticality Framework - Complete Report.pdf

Table 9 below shows the summary of the Phase 1 assessment of criticality at Asset Group level. Note that to ensure the context of the review is retained, assets that are no longer owned by Redland Water, eg the water treatment plants, have been included in the table as it demonstrates that these pieces of infrastructure remain vital to the integrity of water supply in Redland City.

TABLE 9 – ASSET CRITICALITY PHASE 1 ASSESSMENT

Asset Group	Score	Criticality	Current Asset Owner
Leslie Harrison Dam	223	VITAL	seqwater
Capalaba WTP	186	VITAL	seqwater
North Stradbroke Island WTP	186	VITAL	seqwater
Bulk Submarine Main	168	VITAL	seqwater
Herring Lagoon Facility	153	ESSENTIAL	seqwater
Trunk Submarine Water Mains	145	ESSENTIAL	seqwater
North Stradbroke Production Bores (15)	141	ESSENTIAL	seqwater
Alexandra Hills Reservoirs	135	ESSENTIAL	seqwater
Bulk Transfer Mains	135	ESSENTIAL	part seqwater part Redland Water
Heinemann Rd Reservoir	121	ESSENTIAL	seqwater

Asset Group	Score	Criticality	Current Asset Owner
Trunk Water Mains	117	ESSENTIAL	part seqwater part Redland Water
Point Lookout WTP	114	IMPORTANT	seqwater
Dunwich WTP	114	IMPORTANT	seqwater
Eprapah Creek Pump Station	114	IMPORTANT	seqwater
PRV on Bulk Water Mains	109	IMPORTANT	part seqwater part Redland Water
Valves on Bulk Water Mains	109	IMPORTANT	part seqwater part Redland Water
Valves on Water Reticulation	109	IMPORTANT	Redland Water
PRV on Trunk Water Mains	109	IMPORTANT	part seqwater part Redland Water
Valves on Trunk Water Mains	109	IMPORTANT	part seqwater part Redland Water
Rainbow Cres Reservoir	103	IMPORTANT	Redland Water
Light House Hill Reservoir (LLZ)	103	IMPORTANT	Redland Water
Howlett Rd Booster Pump Station	99	IMPORTANT	Redland Water
Mt Cotton Rd Reservoir	97	IMPORTANT	seqwater
Amity Point Reservoir	91	IMPORTANT	Redland Water
Booran St Booster Pump Station – HLZ	90	IMPORTANT	Redland Water

Asset Group	Score	Criticality	Current Asset Owner
Heinemann Rd Pump Station	88	IMPORTANT	seqwater
Mt Cotton Reservoir Booster Pump Station	88	IMPORTANT	Redland Water
Amity Point WTP	86	IMPORTANT	seqwater
Hydrant on Water Reticulation	84	IMPORTANT	Redland Water
Duncan Rd Pump Station	84	IMPORTANT	Redland Water
Hydrant on Trunk Water Mains	84	IMPORTANT	part seqwater part Redland Water
Donahue St Reservoir (HLZ)	70	MINOR	Redland Water
Tazi Rd Reservoir	68	MINOR	Redland Water
Tramican St Pump Station	67	MINOR	Redland Water
Dunwich Bores	63	MINOR	seqwater
Amity Bores	63	MINOR	seqwater
Pt Lookout Bores	63	MINOR	seqwater
Connectors on Bulk Water Mains	63	MINOR	part seqwater part Redland Water
Illawong Cres Reservoir	59	MINOR	Redland Water
Reticulation Water Mains	53	MINOR	Redland Water
Rainbow Crescent HLZ Pump Station	53	MINOR	Redland Water
Water House Connections	46	MINOR	Redland Water

Asset Group	Score	Criticality	Current Asset Owner
Connectors on Trunk Water Mains	44	MINOR	part seqwater part Redland Water
Valve Pit on Water Reticulation	40	MINOR	Redland Water
Connectors on Water Reticulation	36	MINOR	Redland Water

As can be seen above (identified by the orange shaded rows), the most critical infrastructure that Redland Water now operates are the trunk water mains that take the water from the State agencies' infrastructure to Redland Water's customers.

Table 9 below shows the critical risks and their associated risk rating along with the proposed mitigation measure. Note that this table only lists the Redland Water controlled assets. The worst risk rating is currently estimated to be H-30.

TABLE 10 – CRITICAL RISKS AND TREATMENT PLANS

Asset Group At Risk	What can Happen	Consequence	Likelihood	Risk Rating	Risk Treatment Plan
Bulk Transfer Mains	Failure of main – water not supplied to reservoirs and in turn customers	Major	Possible	H-24	Regular condition monitoring
Trunk Water Mains	Failure of main – water not supplied to reservoirs and in turn customers	Major	Possible	H-24	Regular condition monitoring
PRV on Bulk Water Mains	Failure of valve – water not supplied to reservoirs and/or customers. Excess pressure delivered to reticulation system initiating bursts / increases of leaks	Major	Possible	H-24	Annual preventative maintenance program
Valves on Bulk Water Mains	Failure of valve - Inability to shut main off in event of an emergency. Or leak between zones	Major	Possible	H-24	Valve exercise program

Asset Group At Risk	What can Happen	Consequence	Likelihood	Risk Rating	Risk Treatment Plan
Valves on Water Reticulation	Failure of valve - Inability to shut main off in event of an emergency. Or leak between zones	Medium	Possible	M-18	Valve exercise program
PRV on Trunk Water Mains	Failure of valve – water not supplied to reservoirs and/or customers. Excess pressure delivered to reticulation system initiating bursts / increases of leaks	Major	Possible	H-24	Annual preventative maintenance program
Valves on Trunk Water Mains	Failure of valve – water not supplied to reservoirs and/or customers. Excess pressure delivered to reticulation system initiating bursts / increases of leaks	Major	Possible	H-24	Valve exercise program
Rainbow Cres Reservoir	Failure of reservoir structure	Severe	Unlikely	H-20	Regular condition monitoring
Light House Hill Reservoir (LLZ)	Failure of reservoir structure	Severe	Unlikely	H-20	Regular condition monitoring
Howlett Rd Booster Pump Station	Failure of pump station – power / pump / controls	Low	Almost Certain	H-20	Preventative maintenance program
Amity Point Reservoir	Failure of reservoir structure	Severe	Unlikely	H-20	Regular condition monitoring
Booran St Booster Pump Station – HLZ	Failure of pump station – power / pump / controls	Low	Almost Certain	H-20	Preventative maintenance program
Mt Cotton Reservoir Booster Pump Station	Failure of pump station – power / pump / controls	Low	Almost Certain	H-20	Preventative maintenance program

Asset Group At Risk	What can Happen	Consequence	Likelihood	Risk Rating	Risk Treatment Plan
Hydrant on Water Reticulation	Inability to scour main, release air and inability to provide water for QFRS in event of emergency	Insignificant	Almost Certain	M-10	Hydrant replacement program
Duncan Rd Pump Station	Failure of pump station – power / pump / controls	Low	Almost Certain	H-20	Preventative maintenance program
Hydrant on Trunk Water Mains	Inability to scour main, release air and inability to provide water for QFRS in event of emergency	Medium	Almost Certain	H-30	Hydrant replacement program
Donahue St Reservoir (HLZ)	Failure of reservoir structure	Major	Unlikely	M-16	Preventative maintenance program
Tazi Rd Reservoir	Failure of reservoir structure	Medium	Unlikely	M-12	Regular condition monitoring
Tramican St Pump Station	Failure of pump station – power / pump / controls	Medium	Almost Certain	H-30	Preventative maintenance program
Connectors on Bulk Water Mains	Failure of connectors - loss of supply	Low	Possible	M-12	Regular condition monitoring
Illawong Cres Reservoir	Failure of reservoir structure	Medium	Unlikely	M-12	Regular condition monitoring
Reticulation Water Mains	Failure of water main - loss of supply to customers	Low	Likely	M-16	Unlined fittings replacement program
Rainbow Crescent HLZ Pump Station	Failure of pump station – power / pump / controls	Medium	Almost Certain	H-30	Preventative maintenance program
Water House Connections	Failure of connector – loss of supply to customers	Insignificant	Likely	M-8	Water meter replacment program allows regular inspection of water services
Connectors on	Failure of connector – loss of supply to	Medium	Possible	M-18	Regular condition monitoring

Asset Group At Risk	What can Happen	Consequence	Likelihood	Risk Rating	Risk Treatment Plan
Trunk Water Mains	customers				
Valve Pit on Water Reticulation	Difficulty to access valve to be able to control water loss in the event of a main break	Low	Unlikely	L-8	Regular condition monitoring
Connectors on Water Reticulation	Failure of connector – loss of supply to customers	Insignificant	Likely	M-8	Regular condition monitoring

As can be seen above, the risk based approach to asset management will need to be updated to take into account the assets currently operated by Redland Water. Updating the maintenance schedules based on the revised risk management schedules will then need to be undertaken.

7 LIFECYCLE MANAGEMENT PLAN

7.1 OVERVIEW

The majority of Redland City Council's water supply infrastructure is relatively young and capital renewal expenditure has historically been relatively minor. Consequently there has not been a driver to develop a comprehensive asset evaluation and renewal strategy. To date Redland Water has adopted an informal process for determining (prioritising) the asset replacement strategies.

7.2 RENEWAL / REPLACEMENT PLAN

7.2.1 RENEWAL APPROACH

Renewals planning is still, to a large extent, undertaken by operations groups based on condition assessments and their experience with asset performance. Some condition and performance information is being captured.

As performance and condition information collection improves strategies relating to renewals can be developed. At this stage the length over which, and the quality of the older data, limit the extent to which conclusions can be drawn.

A renewal strategy for each asset, based on its criticality, condition and performance, can then be developed which:

- optimises expenditure on asset rehabilitation and maintenance;
- plans for funding asset replacement or rehabilitation; and
- reviews the existing assets to determine whether existing infrastructure as it approaches the end of its useful life should be:
    - replaced with a similar asset;
    - replaced with larger capacity infrastructure as part of an augmentation program;
    - replaced with smaller capacity infrastructure as customer demands have reduced; or
    - disposed of.

<u>Process for developing and updating an evaluation and renewal strategy</u>

Redland Water continually improves the manner in which it manages its assets. During the preparation of the 2005/06 – 2007/08 Total Management Plan, Redland Water identified the need to review its asset management practices. Since then the following strategic activities have been undertaken:

- Asset management manual (A comprehensive manual describing the roles and responsibilities for asset management activities was developed.)
- Asset management improvement plan (A review of current best practice (both locally and nationally) was undertaken and a gap analysis, with current business practice, undertaken. An improvement plan, identifying specific activities with corresponding responsibilities and setting future direction was

developed. The improvement plan is being implemented with policies and procedures being developed and activities, some of which are described below, being undertaken.)

- Asset revaluation (There are a number of functions and activities undertaken by organisations during the course of normal business that can contribute significantly to the development of risk based strategic outcomes. One of these is the asset revaluation process which includes the requirement for condition and performance assessment in order to determine remaining useful lives. Redland Water undertook a revaluation of its entire asset base in 2007 and reviewed condition and assessed some aspects of performance where the information was available.)

- Criticality assessment (The criticality assessment essentially represents the consequence side of the risk equation. This assessment was undertaken in three parts detailed below:

  In Phase 1:

  - Identify asset groups for evaluation
  - Prepare a weighted criticality assessment criteria for asset groups
  - Assess criticality of asset failure within each group and assign a score
  - Rank asset groups based on criticality
  - Determine critical asset groups to be considered for Phase 2

  In Phase 2:

  - List the components of each critical asset group
  - Develop assessment criteria for key factors influencing component level criticality
  - Assess criticality of components using the developed criteria for key component factors
  - Determine critical components to be considered for Phase 3

  In Phase 3:

  - Develop methodology to estimate likelihood of failure
  - Determine likelihood of failure for those components
  - Determine potential risk (risk if no mitigation in place) of failure of critical components
  - Provide reference table for mitigation factors that will allow Redland Water to establish residual risk of critical components

- Risk assessment

  The assessment of remaining lives based on condition, if quantified appropriately, can also be used a surrogate for 'likelihood' in the risk equation. When combined with the criticality rating of an asset the potential (unmitigated) risk of the asset can be evaluated. During the criticality assessment, the focus was

on identifying high criticality components and therefore the risk assessment undertaken will consequently focus on high risk assets.

The next step is to identify current risk, risk acceptability (appetite) and desired residual risks and then to develop and implement the specific additional 'tactical' programs and strategies for asset inspections, maintenance and renewals based on the identified risks.

- Tactical asset management

  This refers to the 'coal face" strategies and programs that are in-place or being developed. The development of these programs have run in parallel with the risk assessment but the intention in the medium term is to focus development of tactical programs that focus on developing reliability based plans for higher risk areas identified through the risk assessment. One of the key improvements that can be implemented is a GIS-based asset condition dashboard/map, which essentially is a simple alarm style system which will trigger if the asset has more than 2 failures.

  These strategies generally relate to on-going renewals and replacement programs and to date, strategies have been developed for manhole raising and unlined fitting replacements.

  In addition to this the following longer terms requirements have been identified:

  - The need to develop and document condition and performance assessment methodologies for all asset classes and key asset types
  - Long term asset renewal plans for all asset classes, commencing with basic plans including recommendations from 2012 revaluation
  - Develop and document policies, processes and procedures for the main asset management practices (e.g. risk assessment, asset data integrity checks and improvements).

In addition, the implementations of the recommendations from the recent asset revaluation need to be undertaken by Redland Water.

7.2.2 SUMMARY OF RENEWAL EXPENDITURE

Based on the methodology outlined above, the renewal profile as prepared under the GHD Redland Water Assets Revaluation 2012 report is detailed below in Figure 11. The data in this figure is purely based on a replacement at the adopted end of useful life and has not been optimised.

The large expenditure in 2024 is due to the first of the asset replacements due for the 100mm diameter AC water mains that formed the initial roll-out of reticulated water supply in Redlands.

FIGURE 11 – WATER SUPPLY RENEWAL PROFILE (ALL ASSETS)

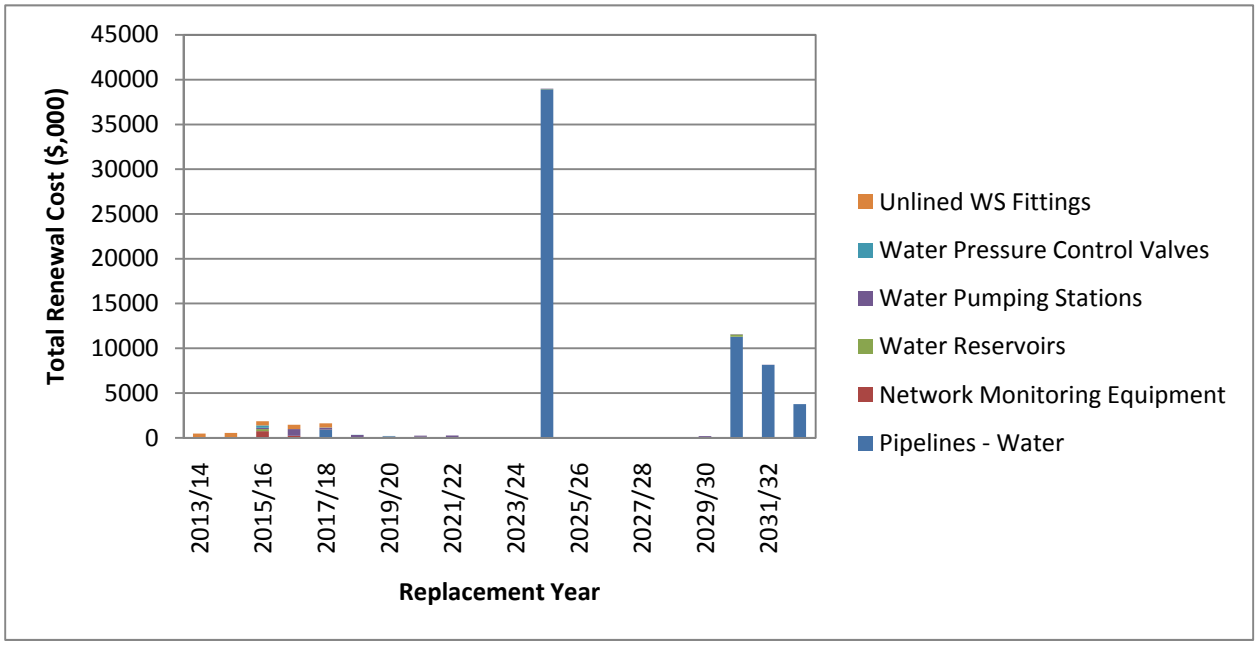


FIGURE 12 – WATER SUPPLY RENEWAL PROFILE (UNDERGROUND ASSETS)

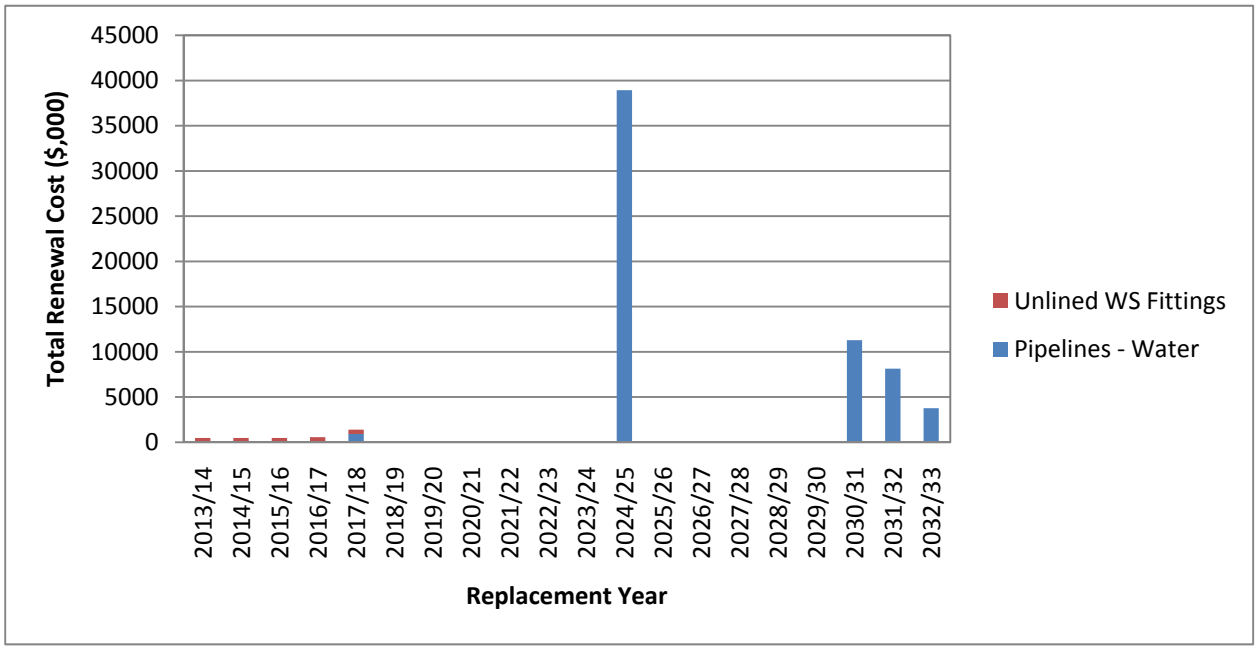
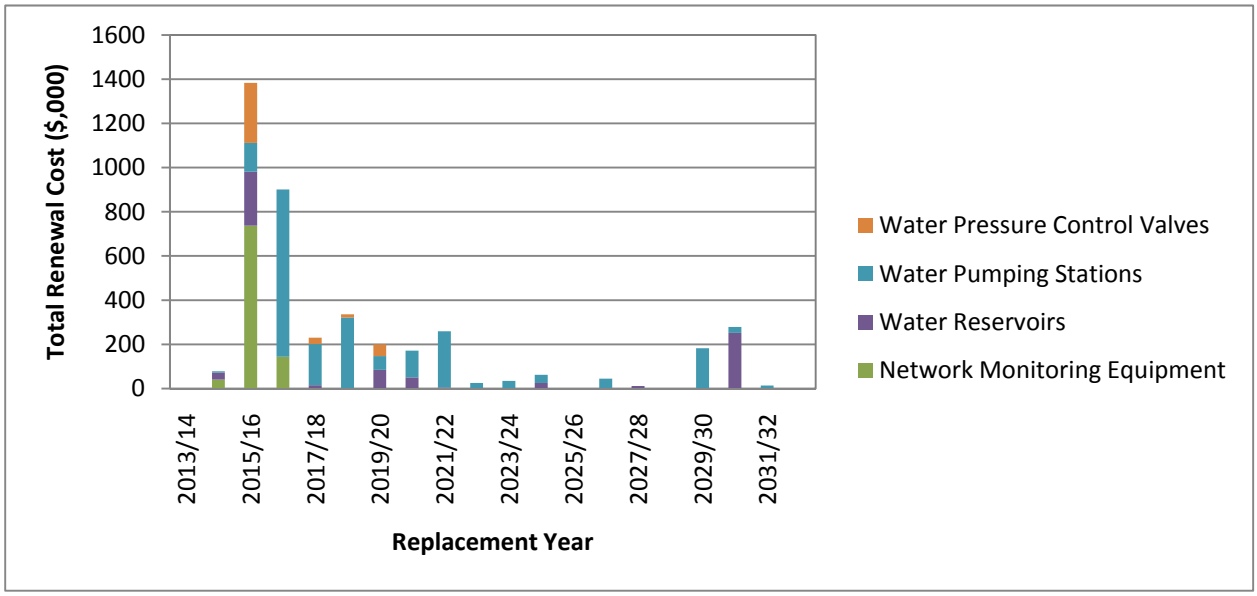
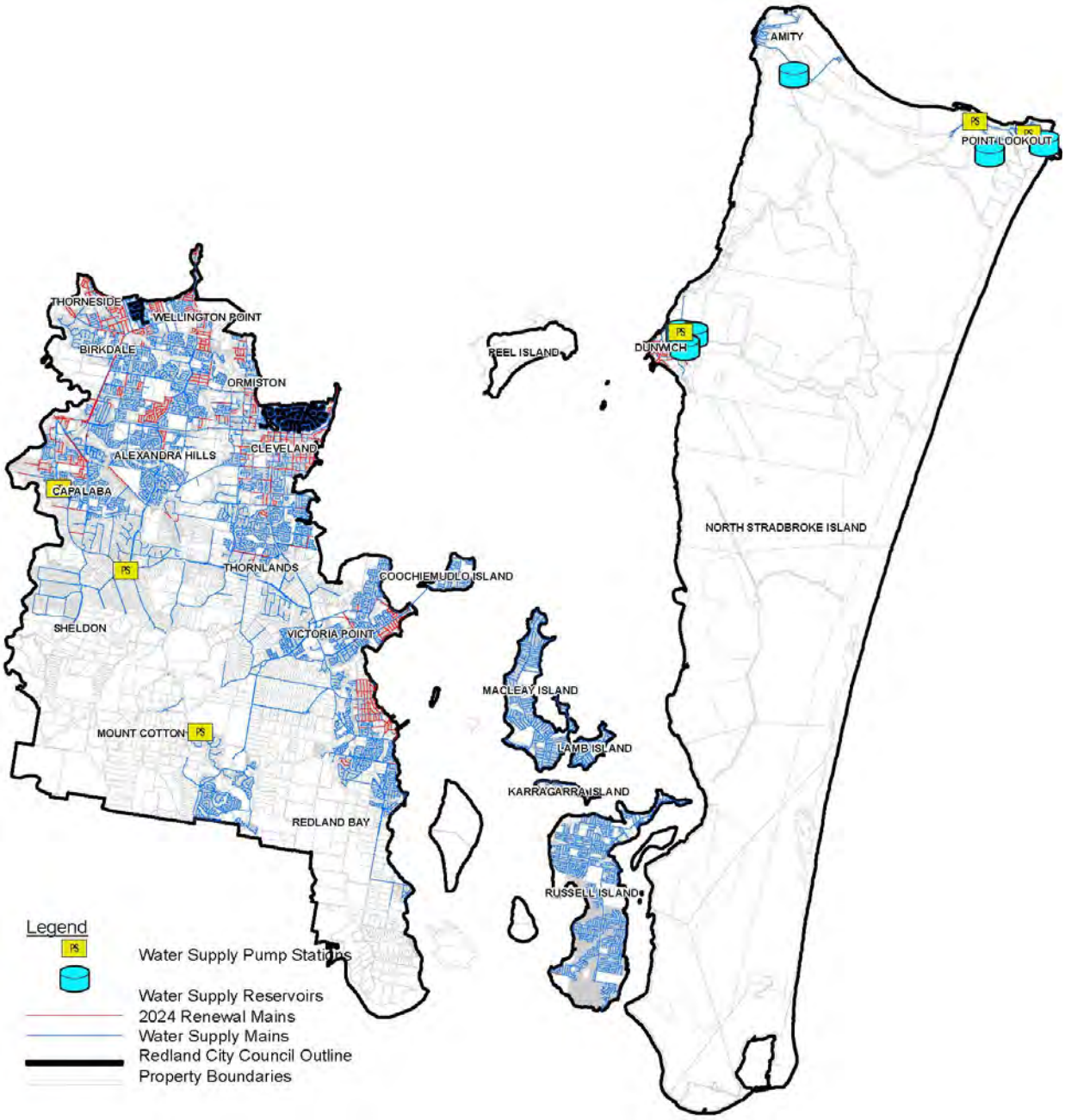


FIGURE 13 – WATER SUPPLY RENEWAL PROFILE (ABOVE GROUND ASSETS)



The major issue for Redland Water in the renewal program is the replacement of small diameter AC mains starting in 2024/25. Key aspects for Redland Water moving forward is understanding this asset class in more detail and determining the most efficient replacement method for this asset class. Figure 14 below shows the geographic extent of the mains expected to reach the end of the useful life in 2024/25.

FIGURE 14 – SMALL DIAMETER PIPES FOR REPLACEMENT IN 2024/25



7.3 UPGRADE / EXPANSION PLAN

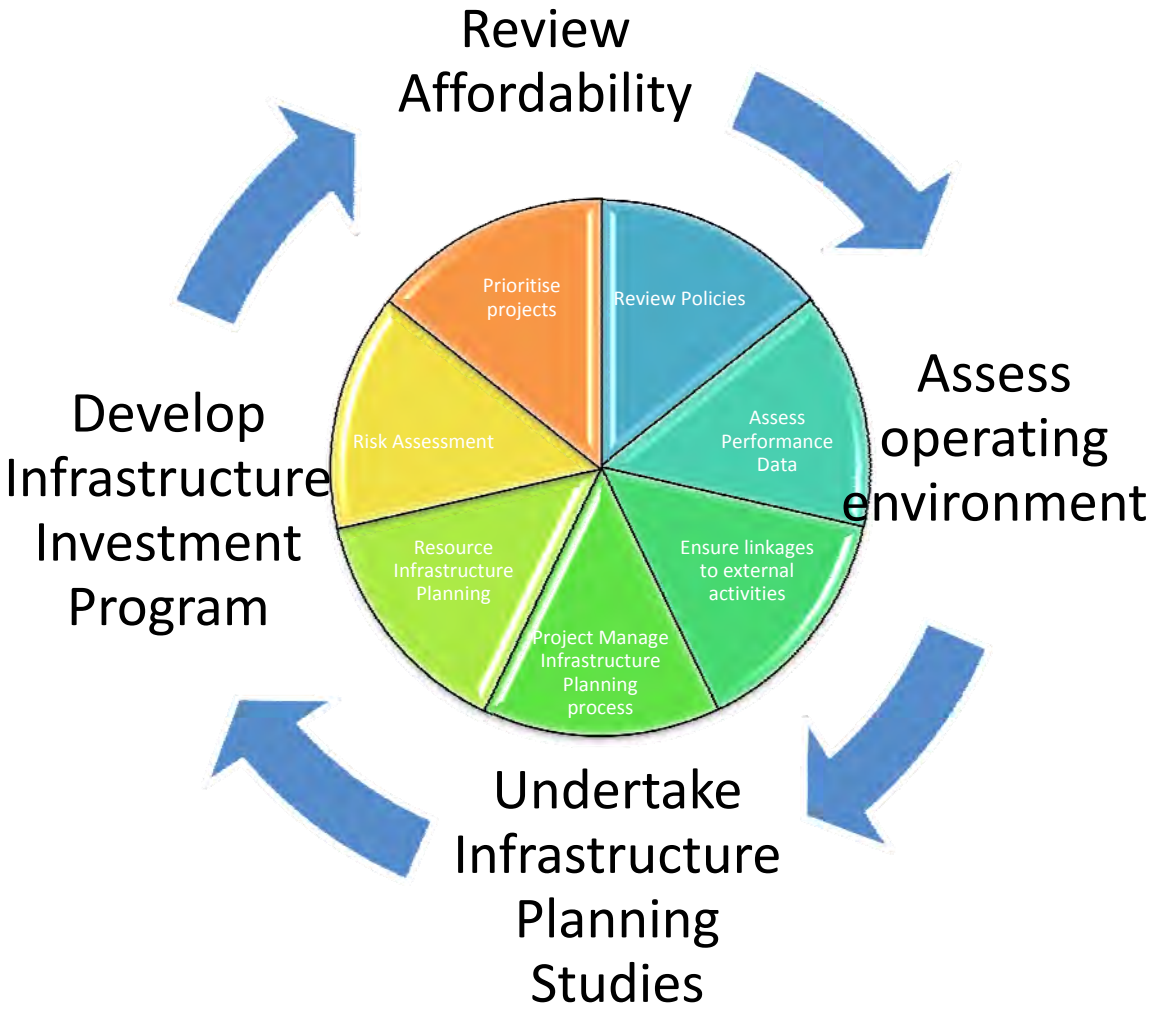
7.3.1 UPGRADE / EXPANSION APPROACH

Redland Water's Infrastructure Planning Process (with respect to Upgrade/Expansion)

The Redland Water infrastructure planning process is described below. It relies on some key inputs namely allowable land uses under the RPS and population projections prepared for the service area.

The planning process is a dynamic one which involves the following key activities:

- Review background and operating environment
    - Developing, adopting and refining infrastructure planning policies
    - Collecting information and analysing supporting information
    - Ensuring linkages with other planning activities
- Undertake infrastructure planning studies
    - Project managing the infrastructure planning process
    - Undertaking infrastructure planning studies - resources
    - Documentation of outputs of planning studies (project evaluation)



Developing, adopting and refining infrastructure planning policies

There are a number of Council policies that influence infrastructure planning. In some cases, Council has committed to the provision of infrastructure on request by customers under specific circumstances, e.g. "*Water Main Extensions - Request from a Resident (POL-3054)".*

In other cases, policies influence the manner in which potential works are evaluated, as is the case with the *"Enterprise Risk Management (POL-2701)"* and *"Enterprise Asset and Services Management (POL-3118)"*.

The infrastructure planning process at Redland Water has, however, been substantially developed and implemented based on responding to the operating environment and experience.

Collecting and analysing supporting information

Effective information management is critical to effective infrastructure planning. Global water and wastewater planning information is generally contained in the key master planning documents for water supply and wastewater. These documents outline the major infrastructure requirements and inform the *'Water Netserv Plan'* which needs to be reviewed every 5 years.

Collection of planning information for specific projects is generally undertaken on a case by case basis. Information is accessed from Redland Water's records which are stored in G:\RedlandWater&Waste on Council's network, as well as corporate information systems such as the rates database and GIS database. Information is also obtained from the library, internet and other industry professionals, where necessary.

RCC has also implemented DataWorks, an electronic data management system (EDMS), which houses planning-related information. Redland Water also maintains a register of planning reports which can be found at:

G:\RedlandWater&Waste\Data\TechSup\Planning\Reports\RWW_ScannedReports

Redland Water has water supply and wastewater system hydraulic models which are a fundamental tool for analysing planning-related information. They allow Redland Water to test options and ascertain likely impacts on its water supply and wastewater reticulation systems. Developing and maintaining expertise in hydraulic modelling is fundamental to on-going water supply planning. Redland Water will need to continue to improve its hydraulic models of the water supply network to ensure that they represent the most accurate picture of the actual asset base. One method that will assist the model development (as well as complete condition assessment of fire hydrants) will be to co-ordinate an annual program of fire hydrant testing that can be used to verify the results of the hydraulic model.

Ensuring linkages with other planning activities

Engineers in Infrastructure and Planning facilitate consistency of water supply and wastewater planning with other RCC initiatives, such as the RPS, corporate plan and structure planning exercises such as those recently undertaken for Kinross Road and South-East Thornlands. It will also assist in ensuring that regional planning initiatives, such as the *"SEQ Regional Plan"*, and proposed changes to relevant legislation are reviewed and incorporated into infrastructure programs where required.

Project managing the infrastructure planning process

Planning studies will generally be scoped and project managed by Infrastructure and Planning engineers and project officers. On occasion, it may, however, be more practical for other officers within Distribution and Treatment to manage minor investigation works and forward those that identify infrastructure requirements to the Infrastructure and Planning group for prioritisation and incorporation into the infrastructure investment (capex) plan.

Undertaking infrastructure planning studies - resources

Redland Water uses the RCC Engineering Consultancy Services Panel and the Local Buy consulting services' panel when outsourcing planning-related works. Briefs are prepared and issued to selected service providers by Infrastructure and Planning. The briefs are reviewed and the recommended consultant is awarded based on the overarching requirements of the Redland City Council procurement policy.

Document outputs of planning studies (project evaluation)

The level of detail required in a planning study is generally defined in accordance with Table 2 of the *"Guidelines for Implementing Total Management Planning - Asset Management - Infrastructure Plan Implementation Guide"*.[3] This table is repeated below for clarity.

TABLE 11 – LEVEL OF DETAIL IN PLANNING REPORTS

Infrastructure planning level	Output	Objectives
Preliminary/concept/ feasibility planning	Preliminary/Concept/ Feasibility Planning Report	• To assess the technical feasibility of a project (e.g. new scheme or scheme augmentation). • To determine whether the WSP should invest in more detailed investigations. • To provide indicative estimates of financial and non-financial returns from the project
Strategic/master level planning	Strategic/Master Planning Report	• To determine short-, medium- and long-term (50-year) strategies (infrastructure investment and non-asset solutions) in relation to major scheme components (e.g. sources, trunk mains, treatment plants). • To provide a linkage to regional planning. • To provide outputs to an Infrastructure Charges Plan.
Detailed level planning	Detailed Planning Report	• To provide detailed infrastructure investment strategies (short, medium and long term) at zone/sub-catchment level and for facilities such as pump stations and treatment plants.

[3] Sourced: http://www.derm.qld.gov.au/water/regulation/pdf/guidelines/tmp/2001_guidelines/implementation/asset_03.pdf

Accessed 16/01/13 – 8:57am

The required infrastructure works may be identified as either operational or capital projects and within these categories as either a project (fixed-term) or an activity (on-going). Any assets identified through this process must be justifiable as either a service level deficiency, a high risk exposure, or increase in demand requirement (growth, PIP or developer driven).

The Portfolio Management Office (PMO) in the RCC Finance Department maintains the register of forms that are required for the submission of planning outcomes into the budget process. These forms are a general summary of the proposed project/activity and are completed by Infrastructure and Planning staff during the budget submission process.

The forms outline the project, link projects to legislative requirement, the corporate plan and management plans, identify risks associated with the project, consequences if the project were deferred or not undertaken, the alternatives considered, the impact on operational expenditure and the impact on existing assets. It also includes an assessment of eligibility for grants and subsidies.

The assessment described above encompasses many of the aspects of lifecycle asset management described in Council's asset management strategy. It may, however, be appropriate to undertake more detailed assessments which link to customer service standards (CSSs), incorporate risk aspects and both a financial and technical appraisal of options considered.

Developing and prioritising the infrastructure investment (capital works) program

The development of a capital works program requires input from a variety of sources. Redland Water uses a risk based assessment for the prioritisation the capital program. Risks are assigned based on the RCC corporate Risk Management Framework. Figure 15 shows an example of the risk assessment for some projects put forward for the 2012/13 financial year. Projects with the highest risk profile are put forward for funding. Once projects have been identified by Redland Water through the risk assessment, budget submission forms are prepared for the Portfolio Management Office (PMO) in the Redland City Council Finance Department. Continued refinement of this approach will improve the level of detail being submitted with projects for funding.

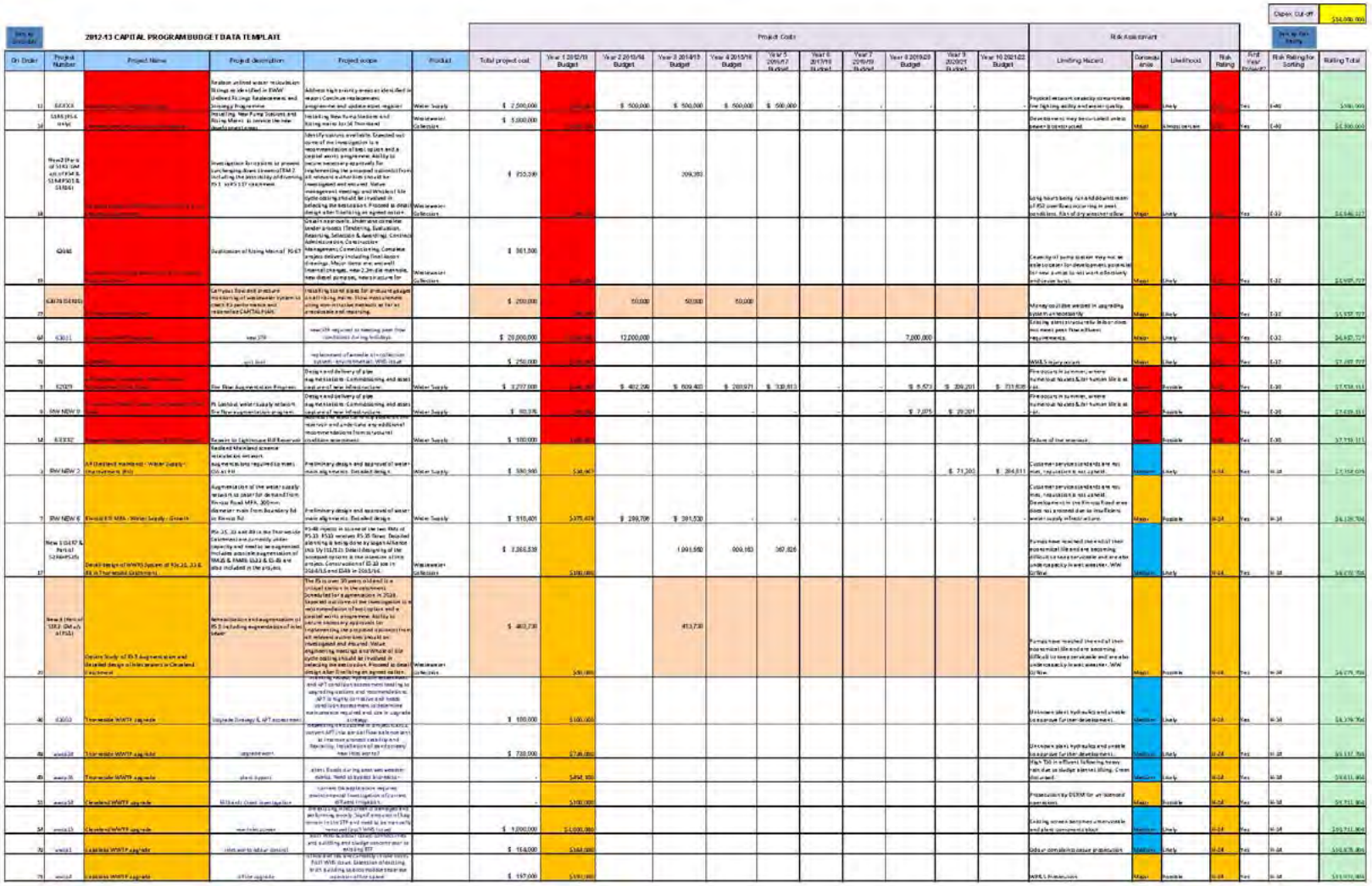
The PMO was established to provide project transparency, project prioritisation, strategic alignment, senior management decision support and centralised reporting for the council's portfolio of projects. The PMO operate in a Prince2 environment. PRINCE2 (PRojects IN Controlled Environments) is a process-based approach for project management, providing an easily tailored and scaleable project management methodology for the management of all types of projects. Redland Water will need to ensure that its program/project management methodology aligns with the corporate requirements being driven by the PMO.

Project initiation / feasibility stage

Redland Water's Infrastructure and Planning Group is responsible for the development of Redland Water's capital investment plan, defining the scope and timing of capital projects. From planning studies, capital projects are defined in terms of the scope of works, delivery timeframe, budget requirements and other information pertinent to ensuring project delivery.

Often consultants are utilised in the design phases of projects. Redland Water uses the RCC Engineering Consultancy Services Panel and the Local Buy consulting services' panel. Briefs are prepared and issued to selected service providers by Infrastructure and Planning. The proposals are reviewed and the recommended consultant is awarded based on the overarching requirements of the Redland City Council procurement policy.

FIGURE 15 – CAPEX PROJECT RISK ASSESSMENT



Project delivery

Redland Water utilises a number of methods to deliver its capital program, including RCC's Project Delivery Group and specialist project management consultants. The project delivery phase involves those activities from design, tendering, through to construction and commissioning.

Project delivery – project tracking and contract management

Traditionally most projects have been delivered by the sequential design and construct (D&C) method. Construction for major projects is generally outsourced, but Redland Water day-labour crews are sometimes used for projects like mains augmentations. Other delivery methods are being considered such as Early Contractor Involvement and registering of pre-qualified contractors.

In terms of project tracking and project controls, best practice project management focuses on a number of elements. Each of these elements can have either a direct or indirect influence on ultimate project performance and several are inter-related. For example, increases to scope often result in increased cost and lags in time of delivery. The elements recommended are:

- cost – project earned value is tracked and reported, with project expenditure linked to milestone delivery (as opposed to timing). In this way project cost control is managed as a function of work performed, rather than traditional budget vs actual cash-flow reporting;

- time – project milestones are tracked and managed according to the project plan. Milestone slippage and the impact of this on project completion are managed at a task level;

- quality – performance specifications are developed and project outputs continually reviewed to ensure adherence with the required level of quality;

- scope – scope creep is managed by continual review and clarification of current vs initial scope specifications. Where scope variances occur, the effect of these on all remaining elements of project management (including cost and integration) must be seriously considered prior to acceptance of scope changes;

- communications – effective project management requires involvement of key stakeholders and communication to interested/concerned parties and should be managed as part of the project;

- human resources – skills/competency/safety and quantities of resources are as important in project management as with any other business operation. As such, human resource management is considered a key component to effective project management;

- risk – project delivery risks should be continually assessed and reviewed to identify potential issues. Contingency allocation should be reflective of the risk level identified and the use of contingency should be reserved for these risk events;

- procurement – procurement options and the performance of the chosen procurement option should be controlled in accordance with project and corporate requirements. This requires identification of possible and the preferred procurement approach, as well as managing of contracts and review of performance to provide valuable information for future assessments;

- integration – as one of the most valuable and often lacking project controls, integration refers to the alignment between project delivery, business outcomes and related projects/activities. Periodically, it is necessary to review the value provided by the project on resolving the issue for which it was originally

established. This translates to conversion of project outputs to benefits realisation in accordance with the initial problem/opportunity that was identified by the business.

Note that depending on the nature of project, the tightness of the controls for each element may be different.

Figure 16 below indicates the project management reporting currently provided within Redland Water.

From the data updated in this spreadsheet monthly, tracking graphs are produced for the entire group's project performance as well as individual SGA based tracking graphs – refer to Figure 17 & Figure 18. Refinements of this tracking method will help ensure that Redland Water delivers its annual capital works program.

FIGURE 16 – EXAMPLE PROJECT MANAGEMENT REPORTING

Budget Code	Job Name	Water or Wastewater Capital	Class	Milestone	Description	Total Budget	Actual Expenditure To Date	Commited Expenditure	Task Completed?	COMPLETION DATE			Comments
										Quarter	Month	Financial Year	
62029	**Backlog Fire Flow augmentation**	Water Capital	SGA292	1	Confirm contract novated	$ 569,871.00			Yes	Q1	July	12/13	
				2	Construct Anson Road augmentation				Yes	Q1	August	12/13	
				3	Comissioning Anson Road augmentation				Yes	Q1	September	12/13	
				4	Complete capitalisation and disposals				No	Q2	October	12/13	
				5	Engage PSC for Redland Bay Rd augmentation				No	Q2	November	12/13	
				6	Close tenders for Redland Bay Road augmentation					Q2	December	12/13	
				7	Construct Redland Bay Road augmentation					Q3	February	121/13	
				8	Commissioning of Redland Bay Road augmentation					Q3	March	12/13	
				9	Complete capitalisation and disposals					Q4	June	12/13	
62206	**Point Lookout reservoirs**	Water Capital	SGA292	1	Review recommended repair methods	$ 100,000.00			Yes	Q1	September	12/13	
				2	Procure goods & services					Q3	January	12/13	
				3	Complete capitalisation and disposals					Q4	April	12/13	
63049	**PS design Thorneside (PSs 33, 35 & 48)**	Pumpstations Capital	SGA314	1	Await LWA Project Report	$55,000			Yes	Q1	September	12/13	
				2	Prepare project brief				Yes	Q1	September	12/13	
				3	Complete Procurement Process				Yes	Q2	October	12/13	
				4	Appoint Consultant				Yes	Q2	October	12/13	
				5	Complete Consultancy project				Yes	Q3	March	12/13	
64005	**PS 5 options** (do Condition Assessment 1st)	Pumpstations Capital	SGA314	1	Do condition Assessment Report	$50,000			Yes	Q2	October	12/13	
				2	Prepare Design Consultancy Brief				Yes	Q2	November	12/13	
				3	Appoint Consultant					Q2	December	12/13	
				4	Complete design and specification					Q4	April	12/13	
				5	Review and agree design					Q4	May	12/13	
63002	**Cleveland WWTP Inlet Screen**	Wastewater Capital	SGA196	1	Review LWA Design	1000000			Yes	Q1	September	12/13	
				2	Determine Implementation Plan				Yes	Q1	September	12/13	
				3	Create Tender Documents					Q2	December	12/13	
				4	Award Successful Tenderer					Q2	December	12/13	
				5	Installation and Commissioning					Q4	April	12/13	
				6	Complete capitalisation and disposals					Q4	June	12/13	
64195	**SET Sewer**	Wastewater Capital	SGA314		Procurement Method Approved	$9,000,000			Yes		July		
					Preprare Design Brief				Yes		July		
					Engage Design Consultant				Yes		August		
					Prepare EOI for constructors				Yes		August		
					Shortlist Constructors				Yes		October		
					Finalise Design documents				Yes		November		
					Issue Tender documents				Yes		November		
					Award Tender						December		
					Purchase pipes and fittings						November		
					Prepare quote document for pumps						November		
					Award pumps						December		
					Prepare quote document for switchboard						November		
					Award switchboard						December		
					Prepare quote document for generator						November		
					Award generator						December		
					Installation and commissioning						June		
					Complete capitalisation and disposals						June		
63003	**Thorneside Bypass Design**	**wastewater**	SGA 196	1	Obtain LWA Project Report	$ 250,000.00			Yes	Q1	September	12/13	
				2	Prepare Project Brief and Scope Development (TOR)				Yes	Q2	October	12/13	
				3	complete Procurement Process					Q2	December	12/13	
		Appoint Consultant - Design and Tender Do		4	Project Implementation Planning					Q2	February	12/13	
		Award successful tenderer		5	Detailed design					Q3	April	12/13	
				6	Review and accept design					Q4	May	12/13	
				7	Tender documentation					Q4	June	12/13	

FIGURE 17 – EXAMPLE GROUP BASED PROJECT TRACKING CHART

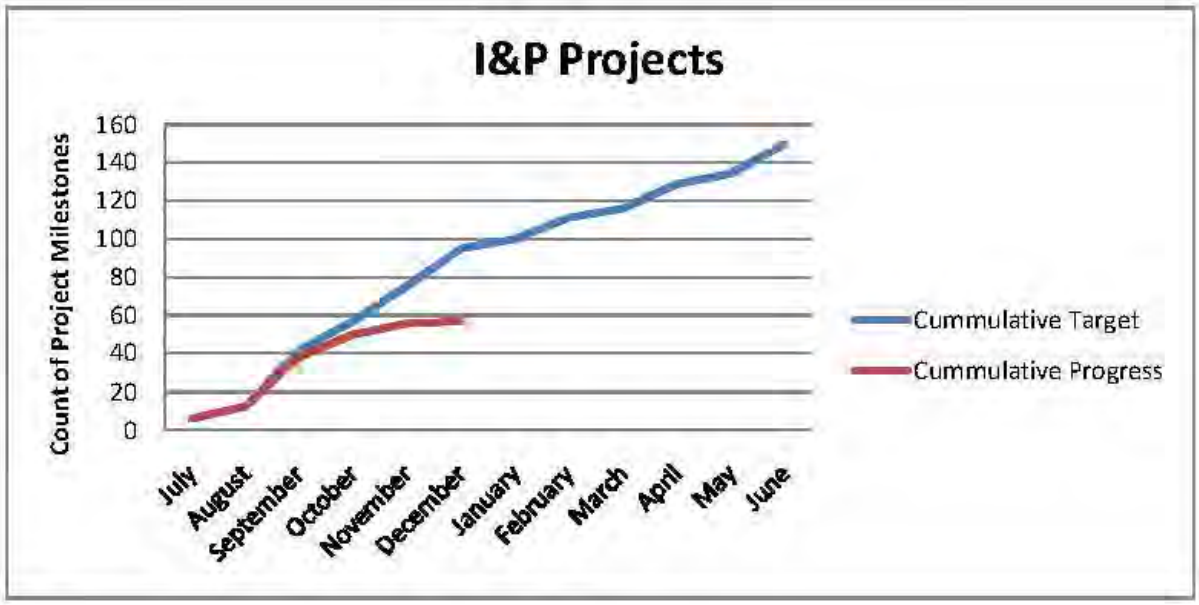
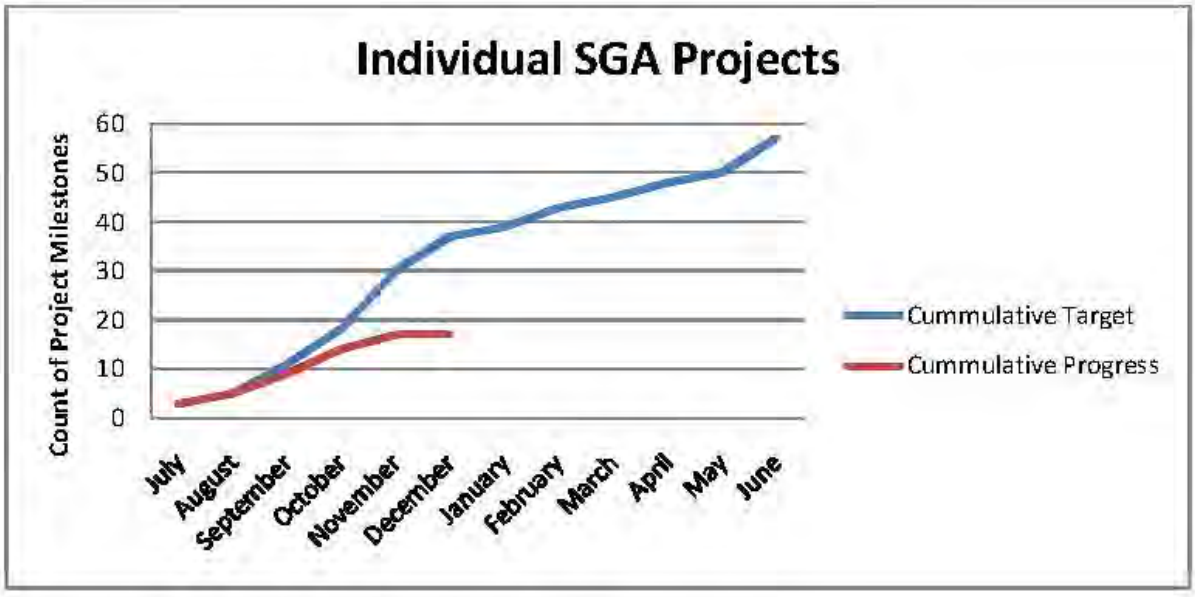


FIGURE 18 – EXAMPLE SGA BASED PROJECT TRACKING CHART



As can be seen, project controls exist on the completion of milestones in line with the programmed delivery timeframe. Further monthly reporting is undertaken through the financial management system of RCC (cash flow adherence). Cash-flow adherence itself does not promote continuous improvement of the project management process and does not truly reflect project financial performance. This is achieved through earned value. Internal controls exist for time management, though this can be unique to individual project managers and is not formalised and/or reported. Adopting a simplified project management methodology using earned value reporting will assist in the successful delivery of the capital works program.

Project completion – commissioning, review and benefits realisation

Formalised procedures are developed for commissioning and handing over infrastructure. Issues that are addressed include:

- asset inspection, condition and performance assessment;
- compliance tests;
- "as constructed" drawings, including digital copies;
- asset register (attribute and cost) information, including digital copies;
- operation and maintenance manuals;
- training of Redland Water's operation staff for specialist equipment/processes; and
- "maintenance period" procedures and final asset acceptance.

Overall performance of project management based on adherence to projected expenditure does not (in itself) demonstrate value. It needs to be demonstrated that the project was successful in meeting all aspects of performance including quality, scope, and delivery of benefits while still meeting time and cost constraints. This requires the overall review of project performance including the realisation and subsequent harvesting of benefits.

The project must be reviewed to evaluate the level of service provided and to determine opportunities for improvement. Issues to be considered include:

- achievement of project objectives such as:
    - required performance;
    - budget – capital, and operation and maintenance;
    - timeliness; and
    - quality of asset;
- appropriateness of consultants' briefs;
    - design performance;
    - project management/procedures; and
    - comparison of performance and project costs against similar facilities.

Procurement of products and services

Maintenance services are mainly co-ordinated and supervised internally by the service line managers, eg the Service Delivery Leader Water Reticulation, the Mechanical Maintenance Supervisor, the Treatment Plant Supervisor, the Supervisor Wastewater Reticulation and the Supervisor Water Services and Metering. However, actual maintenance services are carried out by external contractors.

The procurement of materials such as chemicals, is also managed by Redland Water's Distribution and Treatment group.

Other Council departments provide services to Redland Water through service level agreements (SLAs). These services are listed in Table 12.

TABLE 12 – SERVICES PROVIDED BY OTHER COUNCIL DEPARTMENTS

Council Group / Team	Services Provided
Procurement Services Centre	Adminstration services of creating purchase orders
Fleet services	Fleet management
Facility services	Building management
Finance	Centralised budget process, finance management of revenue, asset supply services etc
Information management	IT services, electronic data management services (EDMS)
Communications	External communications services
Human resources	Human resources services, payroll etc
PDG	For selected projects, tendering, contract administration and handover the project to operational staff

7.3.2 SUMMARY OF UPGRADE / EXPANSION PROJECTS

The current 10 year upgrade / expansion program is shown below in Figure 19. As can be seen there is a relatively steady increase in expenditure planned for the first four (4) years of the program which aligns with the development of the Kinross Road and Southeast Thornlands Structure Plan areas. Years 5 to 9 are relatively small based on meeting levels of service throughout the network. The final years of the program are higher due to some proposed additional trunk mains in the Redland Bay area.

FIGURE 19 – CAPITAL PROGRAM (UPGRADE / EXPANSION PROJECTS)

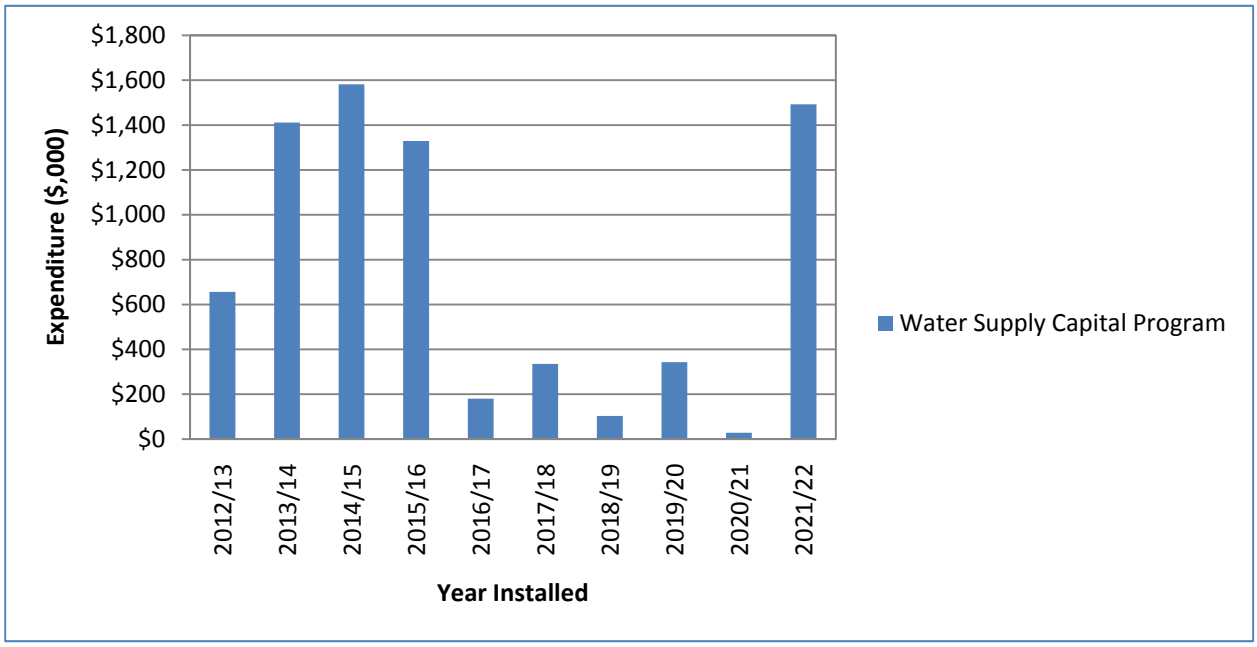
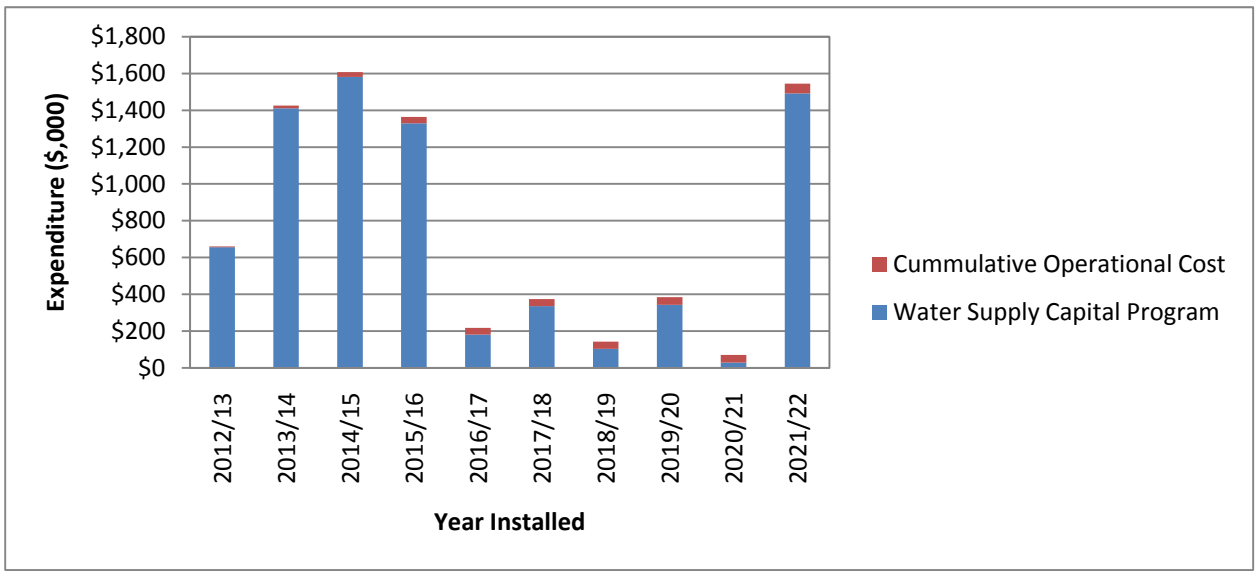


FIGURE 20 – ONGOING COSTS



7.4 MAINTENANCE PLAN

The bulk of the value of the water supply assets sits in the underground assets (pipes). The approach to asset maintenance for these assets in currently a "fix when fail" or reactive methodology. This is maintenance regime is appropriate for the asset profile that is operated by Redland Water – i.e. the relative age of the underground pipe asset class is young, with remaining lifespan expected to be excess of 20 years for the bulk of the assets. Pipe

failures are fixed as they occur but there is not currently an active process for assessing if a whole section of a particular pipe may need replacing due to regular repairs.

A more routine approach to maintenance is taken for other assets (generally the above ground "active" assets within the water supply system) with planned maintenance identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Cyclic maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting marker posts, reservoir roof replacement, etc. This work generally falls below the capital/maintenance threshold.

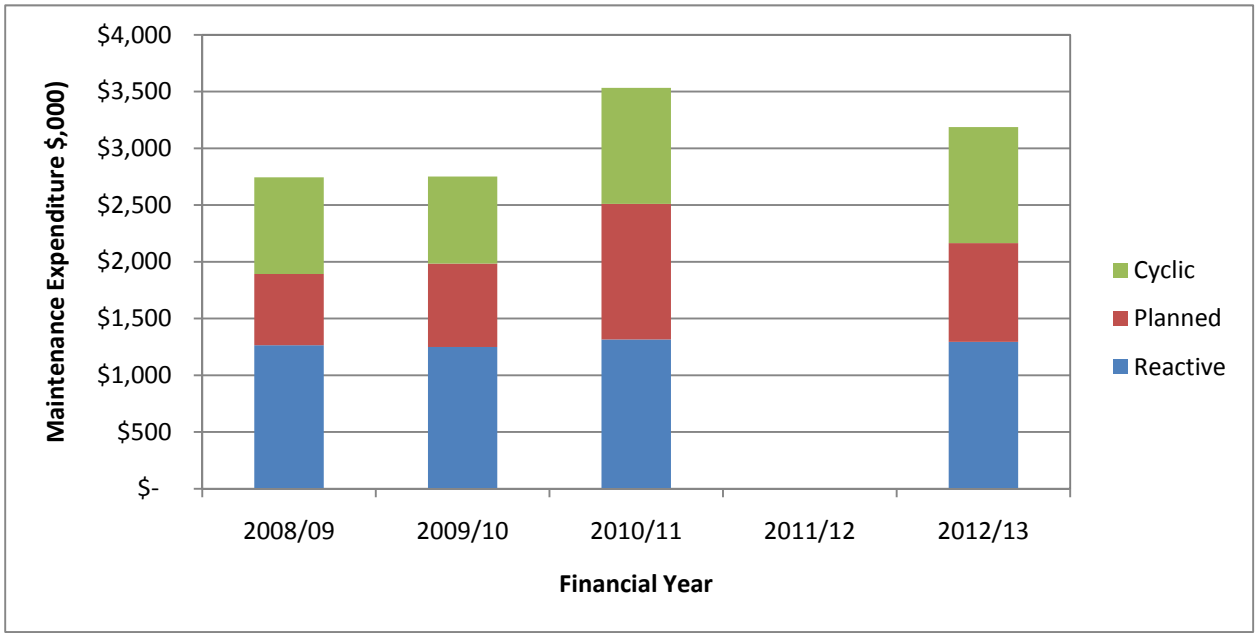
Maintenance trends over the last 5 years are shown below in Table 13. The table has been generated from the budgets prepared for each financial year with an approximate percentage of expenditure relative to the classifications reactive, planned and cyclic applied. The information is also presented graphically in Figure 21.

TABLE 13 – MAINTENANCE EXPENDITURE TRENDS

Year	Maintenance Expenditure		
	Reactive	Planned	Cyclic
2008/09	$1,264,382.16	$627,856.13	$852,792.08
2009/10	$1,249,669.61	$734,918.45	$767,346.16
2010/11*	$1,315,900.85	$1,194,765.05	$1,023,014.10
2011/12*	$	$	$
2012/13	$1,293,875.22	$871,477.62	$1,021,663.64

* 2010/11 & 2011/12 were Allconnex Water years. Data for these years, particularly 2011/12 is difficult to extract for Redland area.

FIGURE 21 – MAINTENANCE EXPENDITURE TRENDS



The current maintenance program is generally sufficient for the current condition of the asset base.

The current asset expenditure profile has been used to generate the additional maintenance costs associated with the upgrade and expansion projects planned under the Capex Program. The future Capex Program is made up of additional underground assets. On this basis, the additional maintenance costs for the future network have been extrapolated based on the current value of the underground assets (as a surrogate for the length of the network as current value is calculated on a unit rate per length of main) – refer to Figure 20.

Greater understanding of this breakdown over coming years will help inform the ASMP in future revisions.

7.5 DISPOSAL PLAN

The only plans for asset disposal relate to the reconfiguring of the water supply network for the elevated areas of Dunwich (residential customers off Rainbow Crescent and Illawong Crescent). The two reservoir structures have been identified below in Table 14.

TABLE 14 – ASSETS IDENTIFIED FOR DISPOSAL

Asset	Reason for Disposal	Timing	Cashflow from disposal
1018 – Illawong Crescent Reservoir	Poor condition & failure to meet Desired Levels of Service	2013/14	$0
1025 – Tazi Reservoir	Primarily failure to meet Desired Levels of Service plus condition assessments suggesting similar treatment as undertaken without success at Illawong Crescent reservoir will be required.	2013/14	$0

8 FINANCIAL SUMMARY

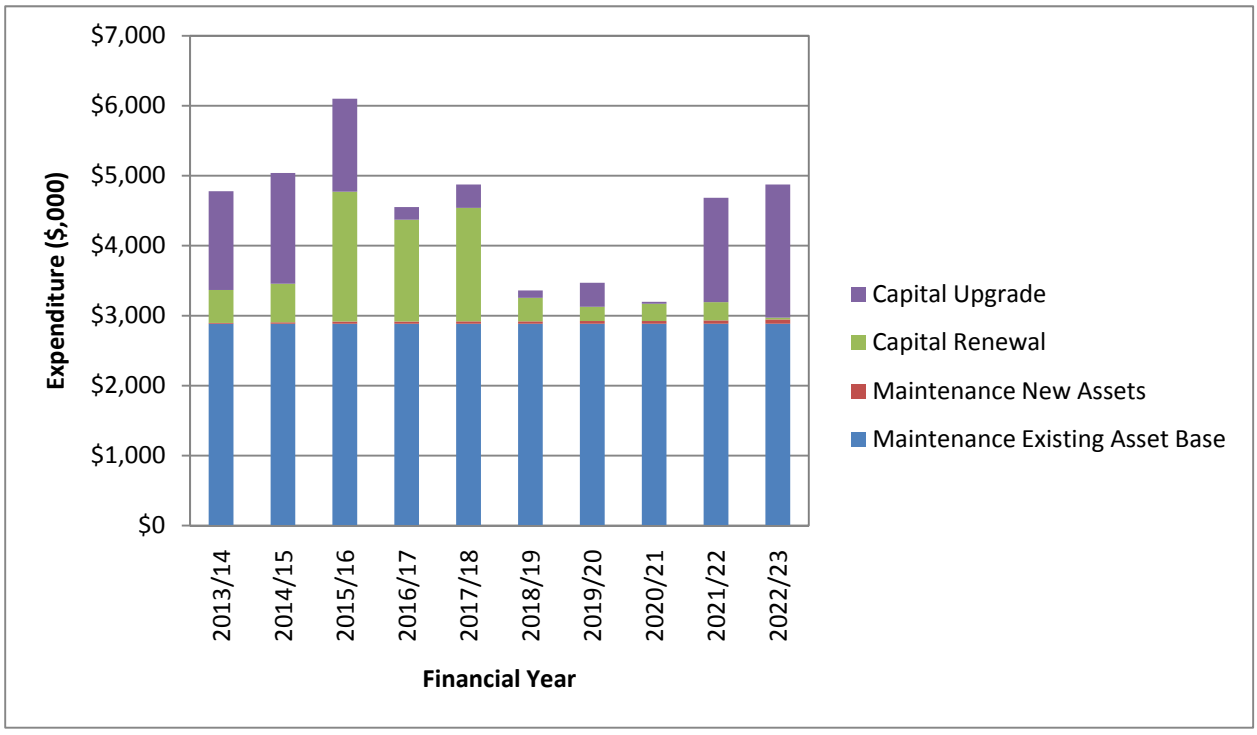
This section of the report brings together the financial elements of the plan and considers the sustainability indicators related to the assets. The capital programs for renewal and upgrade and expansion have already been documented and are reflected here in this summary.

This section of the plan is prepared for input to the Long Term Financial Plan and is assessed during budget time along with all other ASMP priorities and operational commitments. While the plan is based on a moderated expectation of budget allocation it should represent the expenditure required to maintain services and assets to the agreed service level standard and address high level risks. Where renewal cannot be met or service standards cannot be achieved there is a funding shortfall and this needs to be highlighted through the iterative ASMP process.

8.1 FINANCIAL PROJECTIONS

The financial projections are shown in Figure 22 for planned operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets).

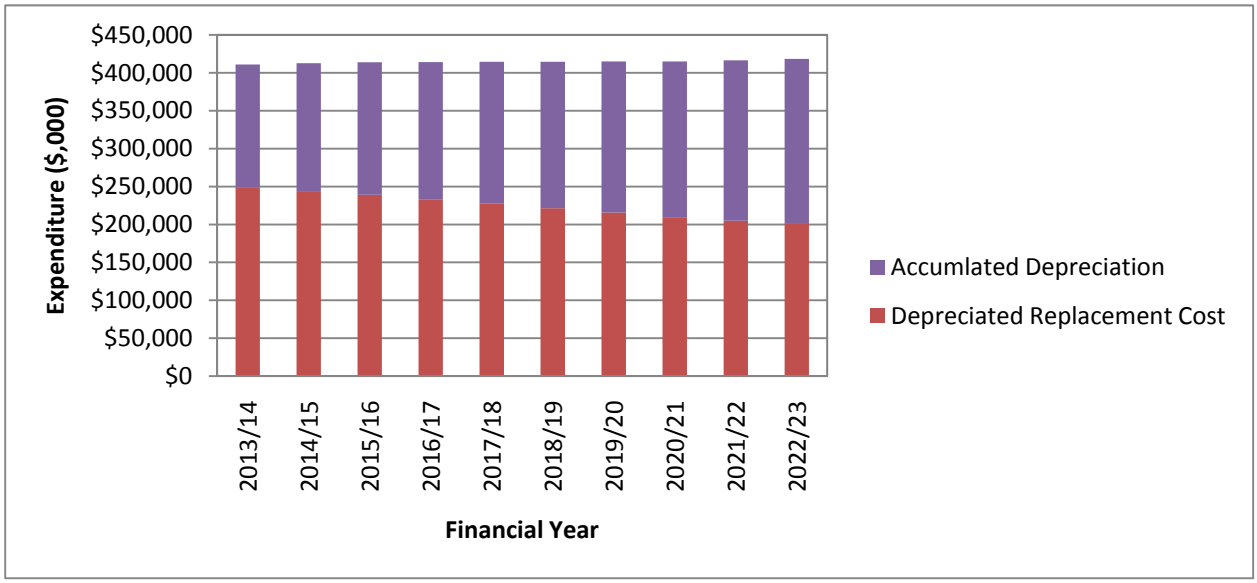
FIGURE 22 – TOTAL CAPITAL & OPERATING COSTS



There is a steady increase over the first three years of the projection which is primarily due to the Capital Upgrade costs associated with the fire flow and peak hour network upgrades and the construction of new trunk mains servicing the Kinross Road area. In addition to this, Years 3 to 6 include significant projected renewal works at the water supply pump stations. There is a further spike in renewal program in the last 2 years as some of the small diameter reticulation mains reach the end of the expected life.

Figure 23 shows the expected asset valuation and depreciation expense based on the renewal, expansion and upgrade projects presented in the plan. As expected the slight increase in asset base is matched with an increase in the accumulated depreciation.

FIGURE 23 – ASSET REPLACEMENT COST



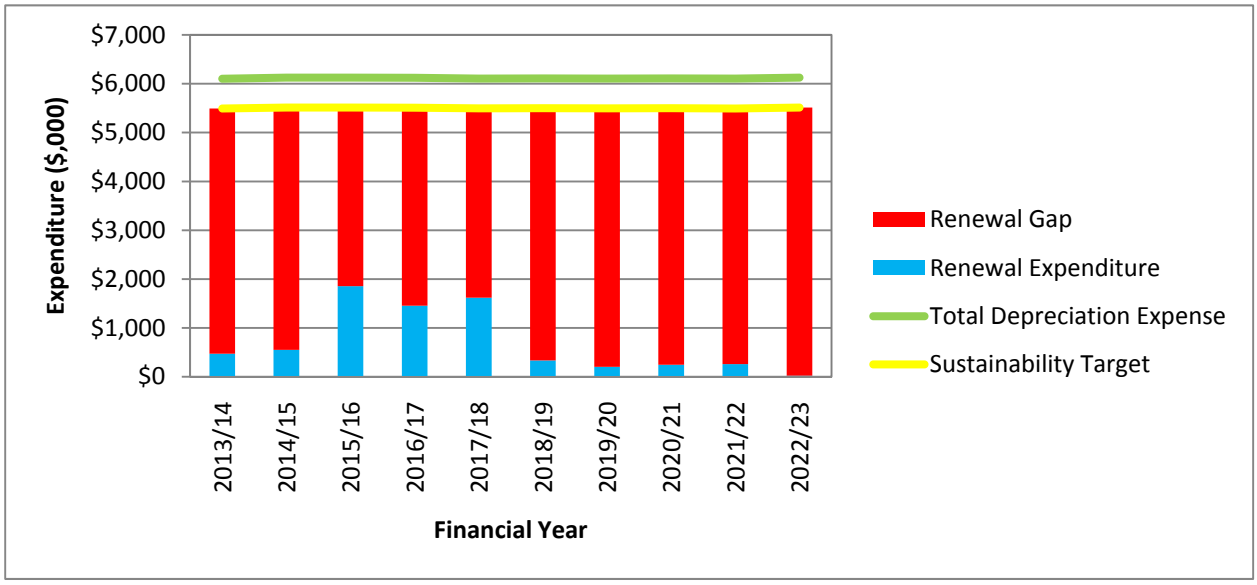
8.2 SUSTAINABILITY OF SERVICE DELIVERY

The Asset Sustainability ratio (Capital Expenditure on Renewal / Depreciation) provides an indication of whether assets are being replaced at the same rate they are wearing out. It is expected that over time to maintain the same level of service, renewal should equal depreciation.

However if assets are relatively young the sustainability ratio would be less than 50%. However overall, if renewals are being planned in the ASMP and are being funded through the budget process it can be appropriate for the sustainability ratio to be much lower than the standard benchmark 90% of Depreciation.

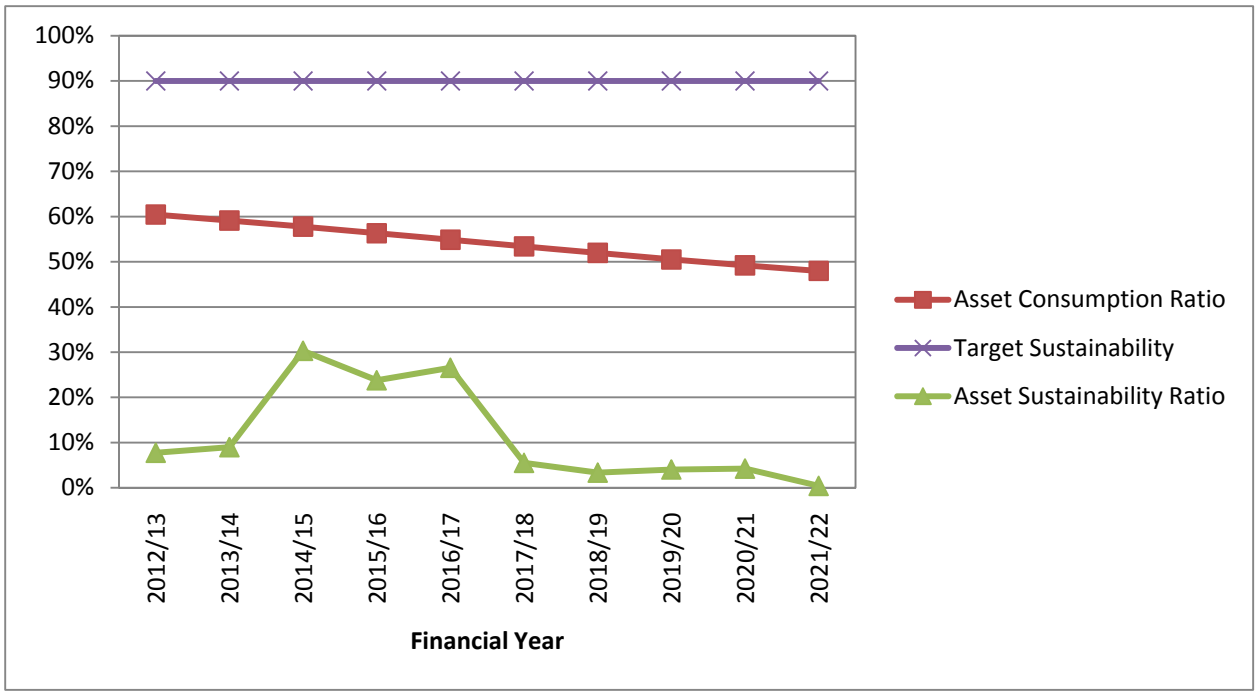
As shown in Figure 24, a renewal gap exists between the current spending on renewals and the target of 90% of depreciation. The renewal program shown in Figure 24 is considered satisfactory for a young network as is currently the case with the bulk of the water supply assets. It should be noted though that in 2024/25 there is an expenditure spike coming that is due to the original small diameter reticulation mains reaching the end of their life – it is how we manage that spike which will be the key asset management issue for water supply. There is no evidence of mass failure of these assets at the moment and the current 'fix-on' fail method will suffice until we gain a greater understanding of the actual condition (as opposed to age based life) of these assets.

FIGURE 24 – ASSET SUSTAINABILITY



The sustainability ratio should be read in conjunction with the Asset Consumption Ratio. The Asset Consumption Ratio (Depreciated Replacement Cost / Replacement Cost) provides an indication of the aged condition of the assets. If the Asset Consumption Ratio is high, this indicates that the assets are in relatively good condition. In this case, the assets could either be relatively new or have been maintained in good condition. If the Asset Consumption Ratio is low, the assets are in relatively poor condition. In this case, the assets may not have been renewed at a time when the renewal was expected to occur. There will potentially be a backlog of capital works which will be required to be undertaken in order to bring the asset's condition to an acceptable standard if the Asset Consumption Ratio is to be improved. Figure 25 shows the Asset Consumption Ratio with a declining trend over the 10 year forecast period highlighting the need to manage the asset renewal program going forward, especially as the renewal spike approaches in 2024/25.

FIGURE 25 – CONSUMPTION VS RENEWAL



9 IMPROVEMENT ACTION PLAN

9.1 IMPROVEMENT ACTIVITIES

This section of the report is aimed to improving the Asset Management functions related to the asset class. This is separate to the improvement activities of the assets themselves i.e. renewal, expansion upgrade etc as these are catered for in Section 7 of the plan.

The asset management improvement plan generated from this asset management plan is shown in Table 10.

TABLE 10 IMPROVEMENT PLAN

Task No	Task	Responsibility	Resources Required	Timeline
1.	Ensure continued alignment of infrastructure demand model with the current population estimates prepared by the Redland City Council for RPS 2015	Group Manager Water & Waste Infrastructure	Consultants	June 2013
2.	Continue to improve the hydraulic models of Redland Water's networks	Group Manager Water & Waste Infrastructure	Consultants and internal resources	Ongoing
3.	Improve the capex program risk assessment and prioritisation methodology	Group Manager Water & Waste Infrastructure	Internal	Ongoing
4.	Implement GIS Asset Condition dashboard mapping or a simple alarm system to highlight when an asset has had more than 2 failures	Group Manager Water & Waste Infrastructure	Internal	June 2015
5.	Conduct annual Fire Hydrant performance testing (including co-ordination with DMA verification testing and network model verification works)	Group Manager Water & Waste Operations	Internal	Annually
6.	Complete SEQ Design and Construction Code	Group Manager Water & Waste Infrastructure	External	June 2013
7.	Deliver capital renewal and growth program	Group Manager Water & Waste Infrastructure	Internal and External resources	Annually
8.	Develop and update reliability (condition and criticality) based planned operations, maintenance and minor works program	Group Manager Water & Waste Infrastructure	Internal	December 2014

Task No	Task	Responsibility	Resources Required	Timeline
9.	Review operating protocols with Seqwater	Group Manager Water & Waste Infrastructure	Internal and External resources	Annually
10.	Develop Emergency Response Plan	Group Manager Water & Waste Infrastructure	Internal and External resources	Annually
11.	Develop and document condition and performance assessment methodologies for all asset classes and key asset types	Group Manager Water & Waste Infrastructure	Internal	June 2014
12.	Produce long term asset renewal plans for all asset classes, commencing with basic plans including recommendations from 2012 revaluation	Group Manager Water & Waste Infrastructure	Internal	June 2013
13.	Develop and document policies, processes and procedures for the main asset management practices (e.g. risk assessment, asset data integrity checks and improvements).	Group Manager Water & Waste Infrastructure	Internal	June 2014
14.	Adopt a simplified project management methodology utilising earned value reporting	Group Manager Water & Waste Infrastructure	Internal	June 2014
15.	With the input of the new planning assumptions, review previous master planning to cover 20 years planning horizon.	Group Manager Water & Waste Infrastructure	Internal and External resources	June 2014
16.	Alignment of program/project management methodology for infrastructure projects with corporate requirements.	Group Manager Water & Waste Infrastructure	Internal	June 2014
17.	Maintain / gain understanding of the breakdown of the maintenance budget (i.e. Cyclic vs Planned vs Reactive)	Group Manager Water & Waste Operations	Internal	Annually
18.	Develop a reliable method of estimating the length or value of developer donated assets.	Group Manager Water & Waste Infrastructure	Internal	June 2014

9.2 MONITORING AND REVIEW PROCEDURES

This asset management plan will be reviewed during annual budget preparation and amended to recognise any changes in service levels and/or resources available to provide those services as a result of the budget decision process.

This asset management plan also forms part of the Redland Water's *'Water Netserv Plan'*. The action plan contained in this plan will be reviewed and actioned annually as part of business management activities guided by the *'Water Netserv Plan'*.

10 REFERENCES

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11 APPENDICES

Strategic	Operational	Activity	Priority	Consequence
> $5m recurrent reduction in Council budget (2%) > $10m one off loss (10% of current assets)	> 5% recurrent reduction in Group budget	> 10% recurrent reduction in Unit budget	**Severe**	**Legal and regulatory:** Serious breach resulting in significant prosecution and fines. **People**: Fatality(s), sustained and serious industrial action, loss of multiple key staff at once. **Operational:** Key services disrupted for over 60 days. **Environmental**: Significant environmental impact with long term effects. **Strategic**: Most Council objectives cannot be achieved. **Ethical:** Systemic fraud and corruption, major external investigation with adverse findings. **Reputation**: Significant and widespread public outcry, sustained negative metro or national media coverage.
$2.5m to $5m recurrent reduction in Council budget $5m to $10m one off loss	3% to 5% recurrent reduction in Group budget	5% to %10 recurrent reduction in Unit budget	**Major**	**Legal and regulatory:** Major breach resulting in significant legal action. **People**: Serious injury(s), hospitalisation of multiple people, staff turnover well above 20%, ongoing industrial action. **Operational:** Key services disrupted for between 20 and 60 days. **Environmental**: Significant impact on natural or built environment, external investigation. **Strategic**: Some important Council objectives cannot be achieved. **Ethical:** Major one off fraud and corruption by senior person. **Reputation**: Significant outcry from residents, significant negative state level media coverage.
$1m to $2.5m recurrent reduction in Council budget $2m to $5m one off loss	2% to 3% recurrent reduction in Group budget	3% to 5% recurrent reduction in Unit budget	**Medium**	**Legal and regulatory:** Breach resulting in investigation, ongoing legal issues not easily addressed. **People**: Minor medical treatment required, staff turnover slightly higher than 20%, one off industrial issues. **Operational:** Key services disrupted for between 2 and 20 days. **Environmental**: Medium term effects on environment from single incident. **Strategic**: Some Council objectives cannot be achieved. **Ethical:** Planned unethical action by one or more staff. **Reputation**: Concerns from cross section of residents, ongoing negative metro media coverage.
$100k to $1m recurrent reduction in Council budget $0.5m to $2m one off loss	1% to 2% recurrent reduction in Group budget	2% to 3% recurrent reduction in Unit budget	**Low**	**Legal and regulatory:** Minor legal issues or non-compliance easily remedied. **People**: Minor injuries treated by first aid, routine industrial issues. **Operational:** Key services disrupted for between 1 and 2 days. **Environmental**: Short term effect on built or natural environment easily remedied. **Strategic**: Minor setbacks that are easily remedied. **Ethical:** Opportunistic incident involving several people. **Reputation**: Heightened concerns from narrow group of residents; one off negative metro media coverage.
<$100k recurrent reduction in Council budget <$0.5m one off loss	<1% recurrent reduction in Group budget	<2% recurrent reduction in Unit budget	**Insignificant**	**Legal and regulatory:** Minor breach of standards or guidelines, one off minor legal matters. **People**: Minor incidents or issues dealt with according to routine procedures. **Operational:** Key services disrupted for less than 1 day, usual scheduled interruptions. **Environmental**: Minor breach of environmental guidelines or standards. **Strategic**: Negligible impact on Council objectives. **Ethical:** Minor opportunistic incident involving single person. **Reputation**: Insignificant adverse local media or public comment.

Redland City Council – Likelihood Table			
Likelihood	**Quantification**	**% Probability**	**Description**
Almost Certain	0-12 months	95% - 100%	Expected to occur in most circumstances.
Likely	1-3 years	65% - 95%	Will probably occur in most circumstances.
Possible	3-6 years	35% - 65%	Might occur at some time.
Unlikely	6-10 years	5% - 35%	Could occur at some time but it is improbable.
Rare	Beyond 10 years	< 5%	May occur only in exceptional circumstances.

RISK LEVELS							
Likelihood			Consequences				
			Level 1 Insignificant	Level 2 Low	Level 3 Medium	Level 4 Major	Level 5 Severe
Likelihood	5	Almost Certain	M-10	H-20	H-30	E-40	E-50
	4	Likely	M-8	M-16	H-24	E-32	E-40
	3	Possible	L-6	M-12	M-18	H-24	E-30
	2	Unlikely	L-4	L-8	M-12	M-16	H-20
	1	Rare	L-2	L-4	L-6	M-8	M-10

Water Supply Renewal

Description		Current Revised Budget 2012/13 $	Year 1 2013/14 $	Year 2 2014/15 $	Year 3 2015/16 $	Year 4 2016/17 $	Year 5 2017/18 $	Year 6 2018/19 $	Year 7 2019/20 $	Year 8 2020/21 $	Year 9 2021/22 $	Year 10 2022/23 $
Class: Water												
Works Program: Water Mains & Services												
Group: Infrastructure and Planning												
62033 - Retail water main construction	Expenditure	19,908	20,500	21,100	21,700	22,400	23,100	23,800	24,500	25,200	260,000	26,800
62038 - New Water Services (Mainland & SMBI)	Expenditure	89,225	91,900	94,700	97,500	100,400	103,400	106,500	109,700	113,000	116,400	119,900
62107 - Meter Replacement Program	Expenditure	298,521	307,500	316,700	326,200	336,000	346,100	356,500	367,200	378,200	389,500	401,200
62113 - Minor Water Retic Plant And Equipment	Expenditure	9,945	10,200	10,500	10,800	11,100	11,400	11,700	12,100	12,500	12,900	13,300
Group: Distribution and Treatment Services												
62033 - Retail water main construction	Expenditure	-19,900	0	0	0	0	0	0	0	0	0	0
62113 - Minor Water Retic Plant And Equipment	Expenditure	49,900	0	0	0	0	0	0	0	0	0	0
	Class Expenditure	**447,599**	**430,100**	**443,000**	**456,200**	**469,900**	**484,000**	**498,500**	**513,500**	**528,900**	**778,800**	**561,200**
	Class Capital Revenue	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Loans	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Reserves	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Operating Costs	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Water Supply — Upgrade / Expansion Program

Description		Current Revised Budget 2012/13 $	Year 1 2013/14 $	Year 2 2014/15 $	Year 3 2015/16 $	Year 4 2016/17 $	Year 5 2017/18 $	Year 6 2018/19 $	Year 7 2019/20 $	Year 8 2020/21 $	Year 9 2021/22 $	Year 10 2022/23 $
Class: Water												
Works Program: Water Mains & Services												
Group: Infrastructure and Planning												
62029 - Redland Mainland WSS Network Upgrade	Expenditure	447056.9	810355	282895	556427	180653	335413	19200	6573	28403	1016447	0
62063 - Kinross Rd	Expenditure	73063.93	0	0	0	0	0	0	0	0	0	0
62063 - Kinross Rd	Reserves	-73063.92	0	0	0	0	0	0	0	0	0	0
62204 - Point Lookout Water Supply Improvement	Expenditure	44778.26	0	0	0	0	0	0	0	0	0	0
62223 - Benfer Rd DMA Network Upgrade	Expenditure	0	0	193184	772736	0	0	84056	336222	0	475895	1903580
62225 - Kinross Rd MPA Network Upgrade	Expenditure	0	471011	585853	0	0	0	0	0	0	0	0
62226 - Pt Lookout WSS Network Upgrade	Expenditure	0	129921	519686	0	0	0	0	0	0	0	0
Works Program: Water Pumpstns, Reservoirs, bores etc												
Group: Infrastructure and Planning												
62052 - Illawong Cr Reservior	Expenditure	99476.17	0	0	0	0	0	0	0	0	0	0
62052 - Illawong Cr Reservior	Reserves	-99476.08	0	0	0	0	0	0	0	0	0	0
62121 - Eprapah Creek Second Pump Installation	Expenditure	29852.62	0	0	0	0	0	0	0	0	0	0
62206 - Point Lookout ICS - Reservoirs	Expenditure	99501.14	0	0	0	0	0	0	0	0	0	0
62074 - Mainland Water Supply Improvement	Expenditure	34800.78	0	0	0	0	0	0	0	0	0	0
	Class Expenditure	**828,530**	**1,411,287**	**1,581,618**	**1,329,163**	**180,653**	**335,413**	**103,256**	**342,795**	**28,403**	**1,492,342**	**1,903,580**
	Class Capital Revenue	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Loans	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Reserves	**-172,540**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Class Operating Costs	**0**	**345,796**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Redland Water
Water Netserv Plan

PART B

APPENDIX B – Leakage Management Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Kane Macready (Engineers Plus P/L)	February 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

DEHP	(Qld) Department of Environment and Heritage Protection
DMA	District Meter Area
ILI	Infrastructure Leakage Index
IWA	International Water Association
KPI	Key Performance Indicator
NPR	National Performance Report
PRV	Pressure Reducing Valve
RCC	Redland City Council
RW	Redland Water
SCADA	Supervisory Control and Data Acquisition

1. Introduction

This management plan outlines the direction and priorities for Redland Water's leakage management from its potable water system. This plan is part of 'Part B' of Redland Water's *Water Netserv Plan*.

1.1 Background

Redland Water's services and water supply infrastructure are described in Part A of this Water Netserv Plan. In this management plan, the current amount of water loss, recent measures undertaken to reduce water loss, financial considerations and a leakage management program for implementation are detailed.

Leakage management focuses on identifying and reducing leaks, conserving water and ensuring the security of uninterrupted supply through reduced unplanned interruptions. An additional benefit is prolonging the lifespan of the water supply network thereby delivering a more efficient lifecycle cost.

Effective leakage management plays a key role in ensuring we operate our business in a prudent and efficient manner through maximising the utilisation and economic value of our assets over their lifetime. It also contributes to ecological sustainability through minimising our impact on the environment.

Leakage management is also an integral part of delivering system reliability and contributes to effective demand management. These outcomes are critical in building our reputation as a 'back to basics' service provider.

1.2 Objectives

The objective of the *Leakage Management Plan* is to:

- Document the procedure for conducting a water balance to quantify the volume of water losses attributed to:
- apparent losses due to meter inaccuracies or unauthorised consumption, or
- real losses due to leakage within water main/service lines, fittings or break.
- effectively manage water losses through the management of system pressure, system leakage, unmetered water and unauthorised consumption;
- Benchmark the water losses against other authorities through the NPR program and the Infrastructure Leakage Index (ILI); and
- Highlight the economic benefits of managing system loss and determine the economic value of leakage.

1.3 Scope

The scope of this management plan covers water loss caused through:

- system leakage, caused by pressurised water within networks – leaks from storage tanks (including overflows), distribution mains and service connections, up to the point of connection;
- unmetered water, where water meters under measure water that is supplied to customers (or, much more rarely, where water consumption is approved but unmetered); and
- unauthorised consumption, where water is drawn out of the system without permission.

1.4 Responsibility

Overall responsibility for the *Leakage Management Plan* lies with the Principal Engineer Water Supply.

2. Context

Redland Water is operating in an environment that requires management of leakage to ensure that service standards are maintained and legislation, guidelines and policies are upheld.

2.1 Key Drivers

The key drivers relevant to the *Leakage Management Plan* are described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Customer Service	Customer expectations for a safe, reliable, high quality, value for money services need to be met. The Customer Service Standards outline the services and standards customers can expect to experience. There is a need to build and develop ongoing relationships with our customers. Quality products and services, with customer services including timely response to complaints and requests.
Business Efficiency	There is a need for improved financial performance driven by increases in input and compliance costs and the need for returns for RCC. This will be delivered through prudent and efficient management of the business. Efficient Service Delivery through Lifecycle Management of Assets.
Environmental Sustainability	Growing expectations from our community and more stringent environmental regulations mean we are driven to implement our operation and maintenance services to meet our environmental obligations and effectively manage our impact on the environment. Regular monitoring and reporting processes are maintained to ensure that all water and wastewater discharges and activities that impact on our environment are reported as public information.
Good Governance / Meeting Legislative Obligations	Ensuring that RW is controlled and governed in a way that it will achieve its strategic and operational objectives, while ensuring that we meet the requirements of the law, regulations, published standards, and community expectations of probity, accountability, and openness[1].

2.2 Relevant legislation, guidelines and polices

In terms of legislation, under the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009, RW needs to include a section in its Water Netserv Plan on water loss. With a Water Netserv Plan in place the water service provider is exempt from preparing a System Leakage Management Plan as required by the Water Supply (Safety and Reliability) Act 2008.

RCC also has a range of policies and guidelines which impact on leakage management. The relevant policies and guidelines are outlined below:

- RW Customer Service Standards
- RW Customer Service Charter
- Corporate Climate Change Policy - POL-3090;
- Corporate Environment Policy - POL-2644;
- Drawing Water from Redland City Council's Reticulated Water Network - POL-3038
- Corporate Sustainable Population Management Policy - POL-3093
- Water Charge Remissions for Concealed Leaks - POL-2592

[1] Refer to RCC Corporate Policy POL-3002 on RCC policy page
Hhttp://www.redland.qld.gov.au/AboutCouncil/Policies/Pages/Policies.aspx

The key Customer Service Standards relevant to water leakage are as follows:

- Make sure there are no more than 8 (eight) water main breaks and leaks each 100km of distribution main
- RW strives to ensure that 98% of properties, when tested, have a minimum 22 metres static head and flow to the atmosphere of at least 30 litres a minute at the meter;
- RW is responsible for repairing leaking meters and the meter fitting on the water main side of the water meter. The customer is responsible for leaks on the property side of the water meter or the property plumbing, or if the meter is damaged accidentally
- RW considers a concealed leak to be a burst pipe where you could not be expected to know of it (underground, within concrete or underneath a building). If the customer discovers a concealed leak and has it immediately repaired by a licensed plumber, then the customer may be eligible for some concession for the water loss under our Water Charge Remissions for Concealed Leaks - POL-2592

3. Current status

Redland Water reports monthly on its performance against set Key Performance Indicators (KPIs) as well as contributing to the Redland City Council Annual Report.

3.1 Current Performance

Redland Water's current performance relating to leakage management can be seen in KPI 1, 8 and 9 of the monthly business unit report which can be found at:

G:\RedlandWater&Waste\Common_COMMITTEE SUMMARY PAGES\Redland Water\completed BUR

Redland Water's performance trends over the last 3-4 years are shown below in Figure 1, Figure 2 and Figure 3 displayed below.

The *National Performance Report,* for water service providers that service similar sized populations, is a good indication of the current performance of any water authority. Relevant performance data is graphically presented below – refer to the legend on each graph to see the relative performance of Redland Water.

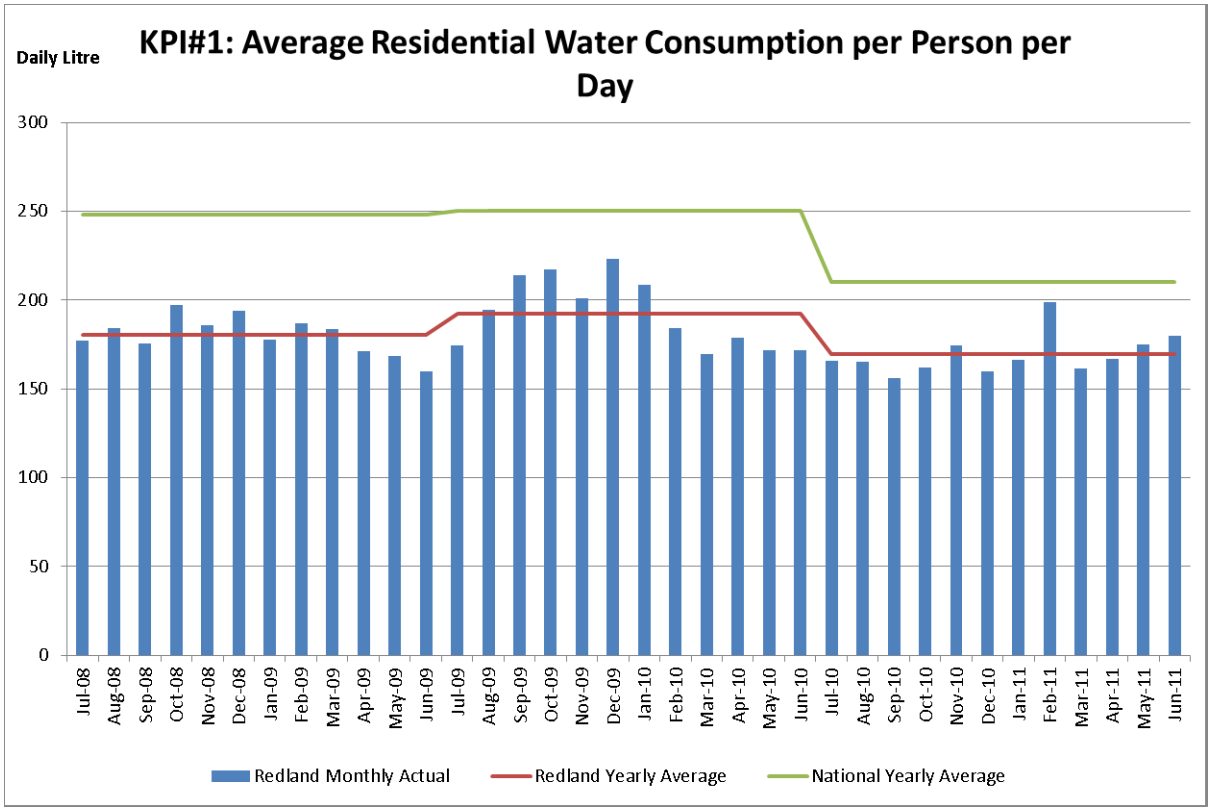

Figure 1 - KPI#1: Average Residential Water Consumption per Person per Day

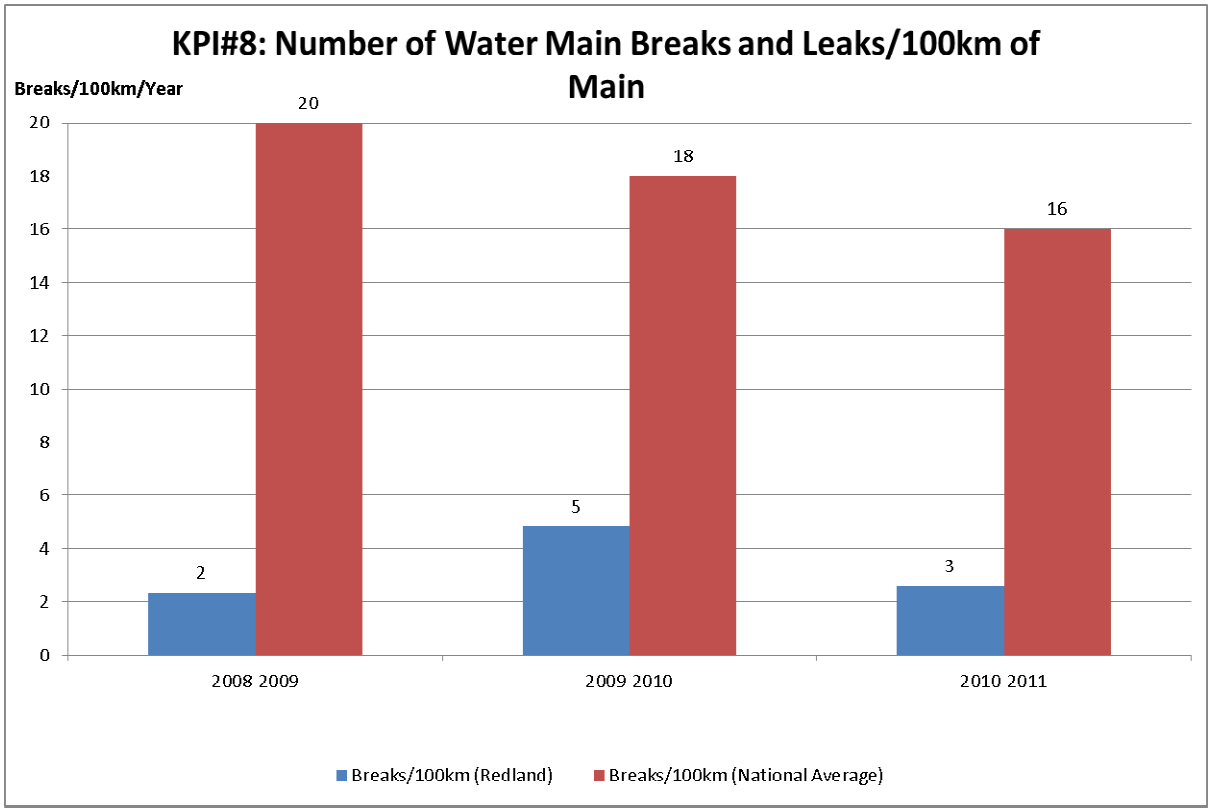

Figure 2 – KPI#8: Number of Water Main Breaks and Leaks/100km of Main

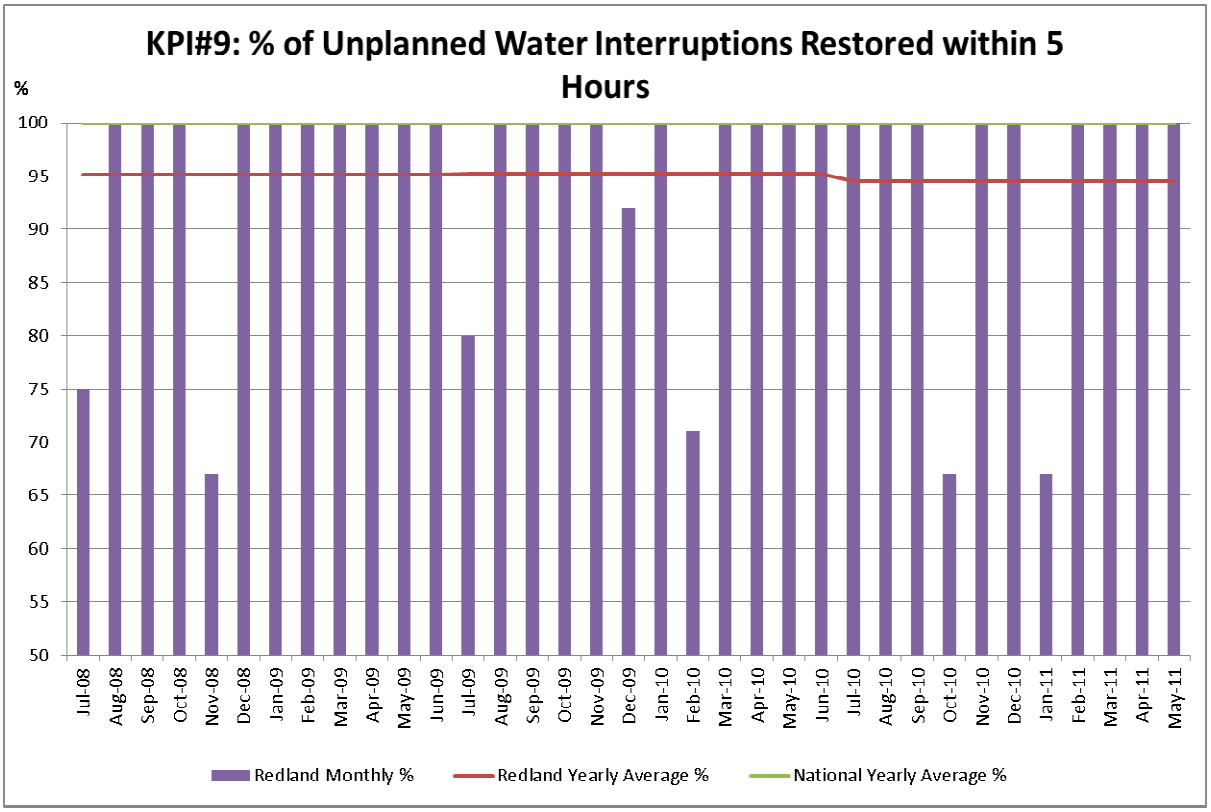

Figure 3 - KPI#9: % of Unplanned Water Interruptions Restored within 5 Hours

In addition to the monthly KPIs that Redland Water reports against, the information presented below in Figure 4 is the Redland Water Distribution networks water balance. Calculations made in this spreadsheet can then be used to compare internationally recognised measurements of leakage, as shown in Figure 5, Figure 6 and Figure 7.

Charge date	**1/7/2009**	**1/10/2009**	**1/1/2010**	**1/4/2010**
Date of issue	10/07/2009	09/10/2009	11/01/2010	12/04/2010
Consumption period	**200904**	**200907**	**200910**	**201001**
Determining the leakage volume using a basic IWA best practice Annual Water Balance - (adapted from SLMP worksheet)				
Water input to this system from WSP's own sources (ML)	0	0	0	0
Water Imported to this system from other WSP's (ML)	12117	12273	12557	13158
Water Exported from this system (ML)	0	0	0	0
SEQWGM allowable losses through the bulk water transport system (ML)				
Water Supplied to this system (ML)	12117	12273	12557	13158
Authorised consumption - Billed Retail Metered (ML)	10969	11305	11662	11868
Authorised consumption - Billed Un-metered (ML)	0	0	0	0
NRW: Non Revenue Water (ML)	1147	968	895	1290
Authorised unbilled consumption (of water supplied - ML)	61	61	63	66
Unauthorised Consumption (of water supplied - ML)	12	12	13	13
Retail Meter under-registration (of billed metered - ML)	224	231	238	242
Apparent Losses (ML)	236	243	250	255
Current System Leakage (water leakage - ML)	851	663	581	969
Current System Leakage Trend (ML - +ve = worse, -ve = improving)	-131	-187	-82	388
Number of connections	49233	49591	49868	49937
Mains length (km)	1272	1274	1277	1281
Average system pressure (m)	52.41	51.90	51.78	51.70
Length of water balance (days)	366	364	360	365
Unavoidable Annual Real Loss (UARL - ML)	1192	1186	1185	1189
UARL - litres/connection/day	66	66	65	65
Current System Leakage (litres/connection/day)	47	35	31	53
Infrastructure Leakage Index (ILI)	0.71	0.56	0.49	0.82
Check leakage relative to provisions of SLMP exemptions in Water Act	System Leakage is less than Water Act exemption level for large Water Service Providers	System Leakage is less than Water Act exemption level for large Water Service Providers	System Leakage is less than Water Act exemption level for large Water Service Providers	System Leakage is less than Water Act exemption level for large Water Service Providers
World Bank Institute Banding of ILI =>	WBI Band A	WBI Band A	WBI Band A	WBI Band A

Figure 4 – Redland Water Distribution Network Water Balance

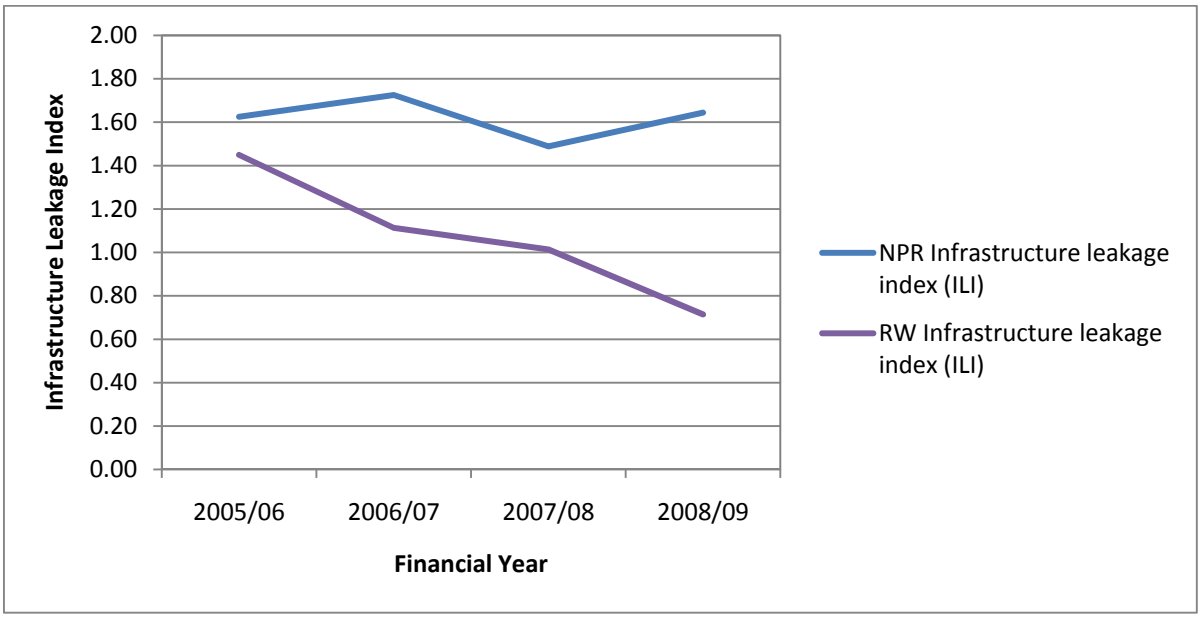

Figure 5 - Infrastructure Leakage Index Comparison

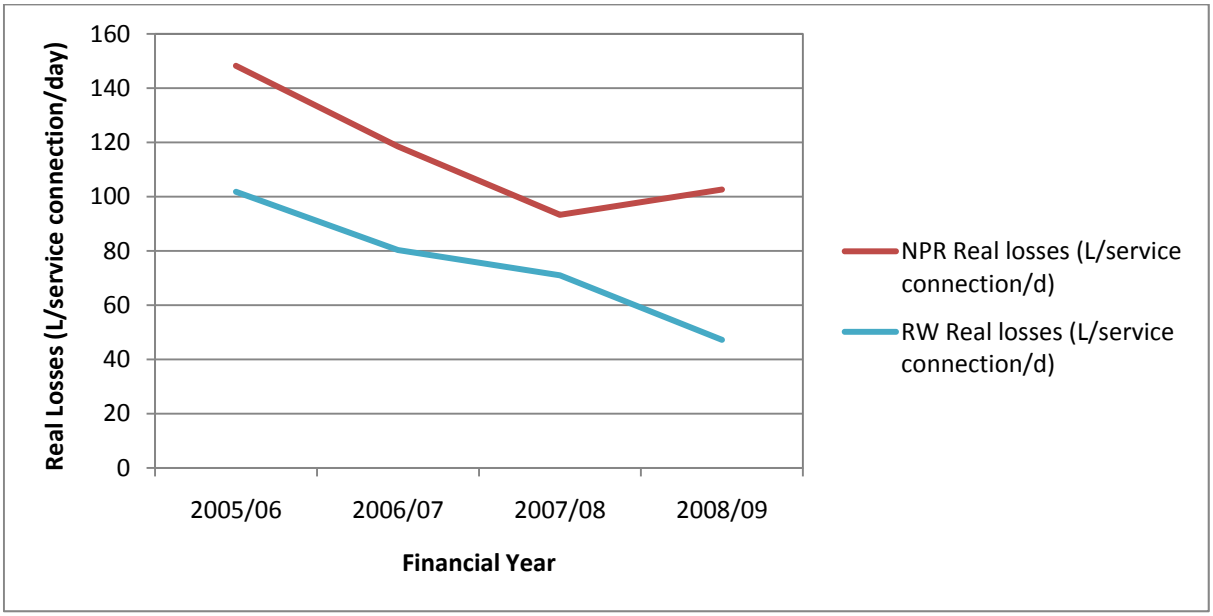

Figure 6 - Real Losses Comparison (as L/connection/day)

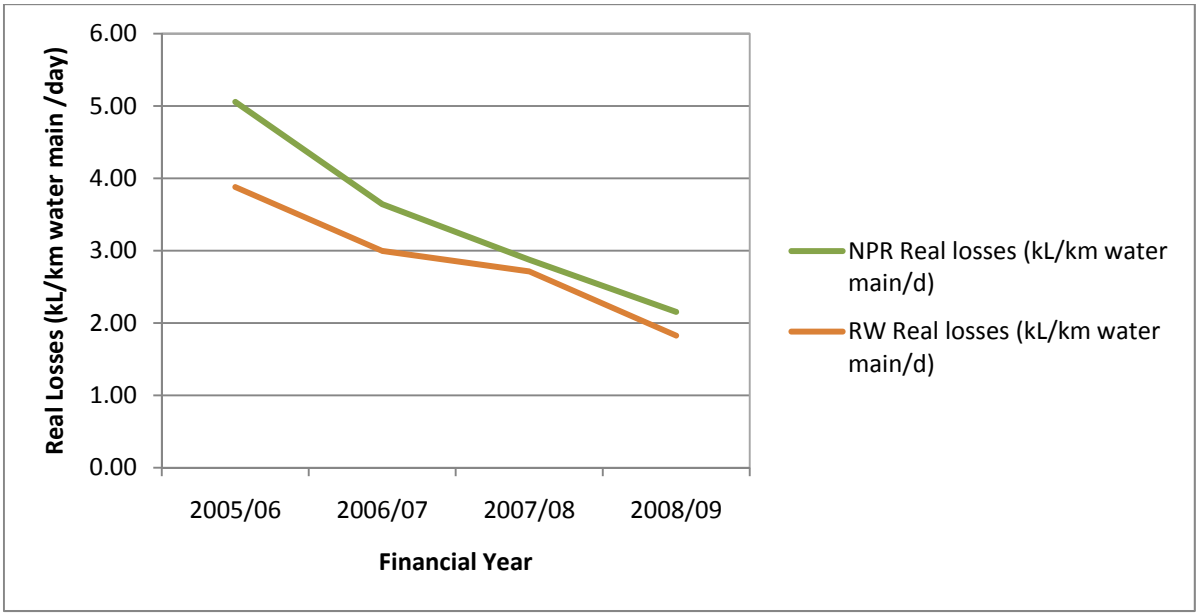

Figure 7 - Real Losses Comparison (as kL/km water main/day)

As can be seen above the Redland Water distribution network performs quite well when compared to current national trends and averages.

3.2 Recent measures

Reducing water losses in district metered areas can be achieved by either or a combination of both of the following:

- Leakage management - where minimum night flows from a flow meter supplying a District Metered Area (DMA) are assessed against an “allowable” night flow for that size area and then leak detection work is undertaken on the assets in that area.
- Pressure management - where in addition to the flow meter supplying a DMA, a Pressure Reducing Valve (PRV) is installed to better manage pressures entering that zone. With lower pressures, there should be less leakage in that zone.

The RW distribution network has been segmented into 31 DMAs to aid in the monitoring of leakage. Of these 31 DMAs there are 16 DMAs with an electromagnetic flowmeter installed and of those 16, 12 DMAs have a PRV installed. The 15 non-pure DMAs rely on other methods of data collection in order to verify system leakage, eg SCADA data such as pump run times, or reservoir level trends, and Seqwater bulk transfer flowmeters.

The primary driver for the installation of the district metered areas was the State Government’s Water Amendment Regulation (No.6) 2006 to implement water leakage and pressure management to achieve water loss savings of 60ML/day by 27 April 2009. To date this has been achieved, however ongoing management and monitoring of each DMA must continue to ensure this target continues to be achieved.

Each of the DMAs has a flow meter installed which is logged with a data logger. The data logger information is recorded and monitored periodically to aid in the early identification of leakage. The data loggers require regular maintenance to ensure adequate battery life.

3.3 Geographic extent of District Metered Areas

Figure 8 shows RW’s current DMAs. The shaded areas indicate the separate zones for water loss management.

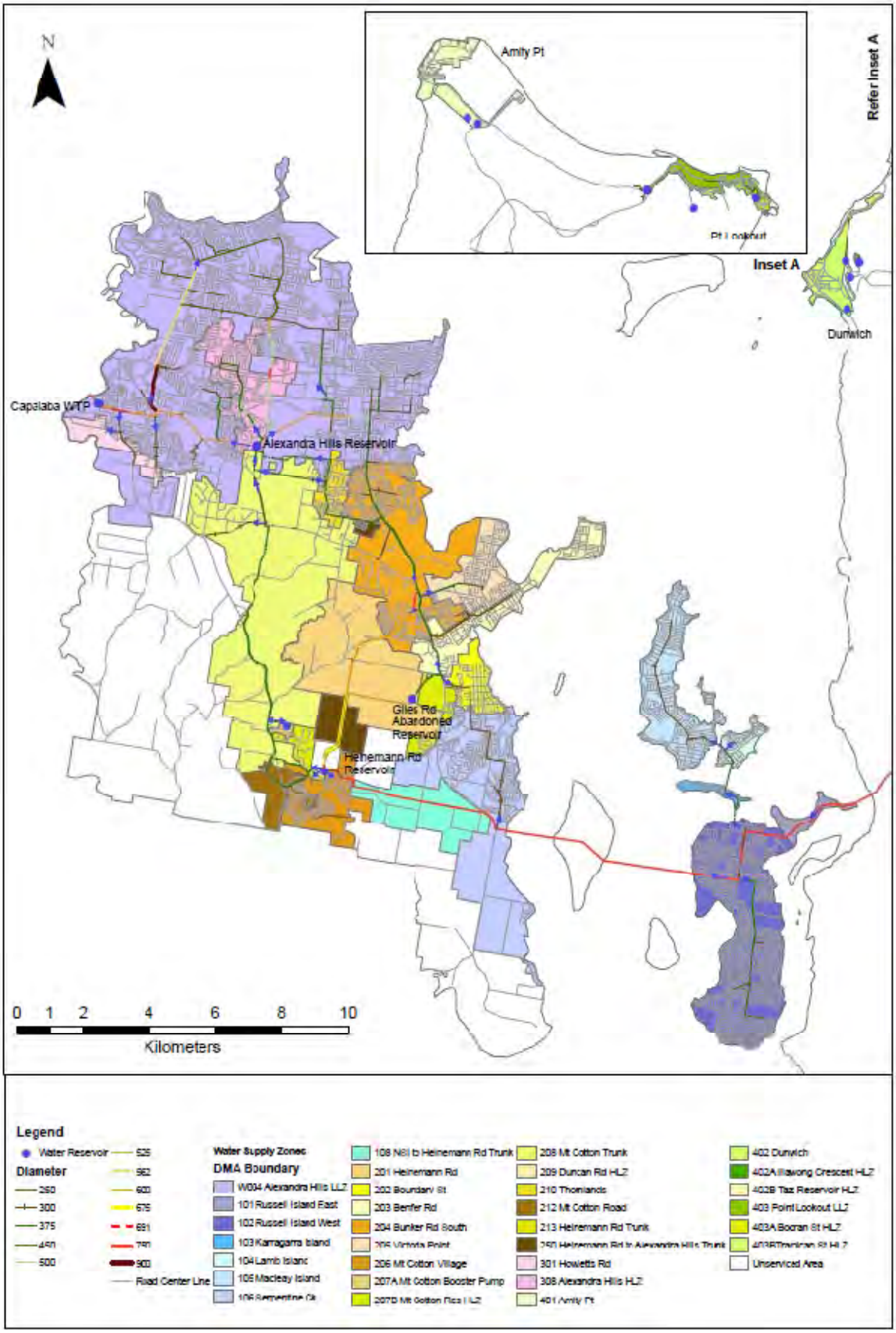

Figure 8 - Redland Water's DMAs

3.4 District Metered Area configurations

Table 3-1 provides a summary of the existing DMAs throughout the RW service area.

Table 3-1 – Summary of Redland Water DMAs

COUNT	DMA CODE	DMA NAME	DMA Type	PRV (Yes/No)	INSTALLED PRV CONTROL & TYPE	TOTAL CONNECTIONS	Critical Point Location/s	PRV Outlet Pressure (minimum[2] – in metres head)	2012 Demand (kL/day) (201210 Consumption Period)
1	101	Russell Island East	Urban	Yes	Palmer Flow Modulated	215	21-23 Patterson Street No UBD Ref	36	82
2	102	Russell Island West	Urban	Yes	Palmer Flow Modulated	1,302	3 Oxley Avenue Russell Is UBD 268 P8	50	479
3	103	Karragarra Island	Urban	Yes	Fixed Outlet	137	55 Noyes Parade UBD 248 E5	31	43
4	104	Lamb Island	Urban	Yes	Fixed Outlet	317	1 Lenard Street Lamb Is No UBD Ref	39	87
5	105	Macleay Island	Urban	Yes	Fixed Outlet	1,559	34 Eastbourne Terrace UBD 248 D1	35	521
6	106	Serpentine Ck East	Urban	Yes	Palmer Flow Modulated	3,419	11 Malcomia St Redland Bay UBD 246 G2	54	1,987
7	108	NSI to Heinemann Rd Trunk	Trunk	No	N/A	3	N/A	N/A	54
8	201	Heinemann Rd	Urban	No	N/A	180	Near 64 Double Jump Road	N/A	261
9	202	Boundary St	Urban	Yes	Palmer Flow Modulated	1,211	49 Pitt St Redland Bay UBD 226 K16	36	705
10	203	Benfer Rd	Urban	Yes	Palmer Flow Modulated	1,978	8 Barcrest Dr Victoria Pt UBD 226 C8	32	1,201
11	204	Bunker Rd South	Urban	Yes	Palmer Flow Modulated	4,875	98 Bunker Rd Victoria Pt No UBD Ref & 2-6 Margery St Thornlands (Park) UBD 205 L9	64	3,436

[2] Does not include the details of the modulation profile for flow modulated prvs.

COUNT	DMA CODE	DMA NAME	DMA Type	PRV (Yes/No)	INSTALLED PRV CONTROL & TYPE	TOTAL CONNECTIONS	Critical Point Location/s	PRV Outlet Pressure (minimum[2] – in metres head)	2012 Demand (kL/day) (201210 Consumption Period)
12	205	Victoria Point	Urban	Yes	Palmer Flow Modulated	2,112	8 Muscat Ave VPt UBD 206 K20	32	1,355
13	206	Mt Cotton Village	Urban	No	N/A	1,400	1675-1683 Mt Cotton Road	N/A	719
14	207A	Mt Cotton Booster Pump	Urban	No	N/A	22	(Pumped) End of Tallowwood Crt	N/A	22
15	207B	Mt Cotton Res HLZ	Urban	No	N/A	135	(Gravity) 68-70 Sanctuary Drive	N/A	127
16	208	Mt Cotton Trunk	Trunk	No	N/A	946	N/A	N/A	2,288
17	209	Duncan Rd Booster Pump	Urban	No	N/A	572	808-812 Mt Cotton Rd Sheldon UBD 224 N3	N/A	490
18	210	Thornlands	Urban	Yes	Palmer Flow Modulated	1,042	Cnr Panorama & Carlingford Dr UBD 205 G13	52	1,247
19	212	Mt Cotton Road	Urban	Yes	Fixed Outlet	172	Cycad Close Mt Cotton UBD 245 F7	50	97
20	213	Heinemann Rd Trunk	Trunk	No	N/A	8	N/A	N/A	4
21	250	Heinemann Rd to Alexandra Hills Trunk	Urban	No	N/A	26	N/A	N/A	40
22	300	Alexandra Hills LLZ	Urban	No	N/A	23,817	15 Ackworth Pl Alexandra Hills UBD 184 N18	N/A	16,449
23	301	Howletts Rd	Urban	No	N/A	447	Near 51 Howlett Rd	N/A	265
24	308	Alexandra Hills HLZ	Urban	No	N/A	3,418	Between 25 & 27 Hilltop Crs UBD 204 P3	N/A	2,044
25	401	Amity Pt	Urban	No	N/A	379	11 Mirimar St Amity UBD 334 Inset A L4	N/A	188
26	402	Dunwich	Urban	No	N/A	340	10 Guy Crst Dunwich UBD 334 Inset B N12	N/A	233
27	402A	Illawong Crescent HLZ	Urban	No	N/A	14	1 Illawong Crst Dunwich UBD 334 Inset B R10	N/A	16

COUNT	DMA CODE	DMA NAME	DMA Type	PRV (Yes/No)	INSTALLED PRV CONTROL & TYPE	TOTAL CONNECTIONS	Critical Point Location/s	PRV Outlet Pressure (minimum[2] – in metres head)	2012 Demand (kL/day) (201210 Consumption Period)
28	402B	Tazi Reservoir HLZ	Urban	No	N/A	91	(Tazi) Behind 120 Rainbow Crst UBD 334 Inset	N/A	42
29	403	Point Lookout LLZ	Urban	No	N/A	265	6 Pratt Crt (Tramican HLZ) UBD 334 Inset C J1	N/A	190
30	403A	Booran St HLZ	Urban	No	N/A	308	4 Grant Ave UBD 334 Inset C K18	N/A	203
31	403B	Tramican St HLZ	Urban	No	N/A	164	43 Yarrong Rd (Booran HLZ) UBD 334 Inset C M1	N/A	109
Summary	Redland Water All Distribution					50,874			34,984

The majority of data loggers and PRV controllers are approaching 5 years in service. Given that the minimum quoted battery life is only 3 to 5 years depending on settings adopted, then a program to replace the batteries should be implemented.

Currently a number of flow modulated PRVs are installed throughout the RW service area. A risk based assessment should be undertaken to review the effectiveness of flow modulation in relation to financial and operational performance.

4. Key Issues and Improvements

4.1 Legislated drivers

It is a requirement of the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009, that RW include a section on water loss in its Water Netserv Plan.

4.2 Business Drivers

The key business drivers summarised in Section 2.1 of this management plan highlight the overarching business drivers which fit into the Redland City Council's current 'back to basics' approach to service delivery. Ensuring that the amount of bulk water purchased by Redland Water is at a minimum, provides immediate benefit to the operational efficiency of the business. There are other long term benefits that pressure management (a tool in leakage management) can provide, namely maximising the life of assets that form part of the water supply network.

4.3 What is the extent of the problem?

While leakage reduction has obvious benefits for the business, a strategy (Leakage Management Strategy) about how this will be achieved needs to be detailed. Before a Leakage Management Strategy is developed, the business case drivers needs to be determined.

Current performance of individual components of the entire water supply network is difficult to determine. In order to help define the problem, a number of basic questions need to be answered including:

- What is the percent coverage of the network by DMAs? (refer Table 3-1)
    - Is it hydraulically and economically feasible to increase the coverage of DMAs across the network?
- Determine the order of accuracy in the gauging (to Australian standards) to determine if the losses are within the gauge accuracy (including the residential customer meters). Issues to consider include:
    - When was the district meter installed?
    - When was the district meter last calibrated?
    - What is the manufacturer's accuracy on customer meters?
    - Undertake some reliability of data analysis.
- What are the current system losses? – as a percent and as L/connection/day and as L/km of water main/day and ILI for each DMA, Water Supply Zone/Scheme and the entire service area (adopt a standardised method of calculating and reporting this information).
- Other questions which are subsets to the above include:
    - What are the minimum night time flows per DMA?
    - What are the current night time pressures?
    - What are the current day time pressures?
    - Are there any fire flow critical areas?

Consideration of the questions above will provide input into a Leakage Management Strategy. A key component of a Leakage Management Strategy will be understanding what the economic level of leakage (ELL) is for Redland Water. As seen in Figure 5, Figure 6 and Figure 7, the Redland Water distribution network compares relatively well, so one has to question how much money should be "thrown at" getting some of these numbers even lower, hence the requirement to understand what the economic level of leakage is for this network.

4.4 Other Impacts

An issue that will potentially impact on the success or otherwise of pressure management is the provision of fire flow for commercial properties, in particular the gap between the *Department of Environment and Heritage Protection (DEHP) planning guidelines for Water Supply and Sewerage* and the internal fire system design standard *AS2419*. There are on-going working groups with the State Government coordinating an interdepartmental committee to determine whether or not amendments to the DEHP guidelines will be made.

The other potential issue that may arise in the operation of the water supply networks in a DMA format is their success in maintaining water quality. There is theoretical evidence from neighbouring water service providers which pointed to an improvement, at least in terms of water age, throughout the DMA network as opposed to the open network. This theoretical work needs to be backed up with performance verification in the field.

4.5 Key Issues

There has been a vacuum of reporting of leakage management issues between 2009/10 and now. It is important that this void be filled as soon as possible to help inform the management of the network moving forward.

The lack of an adequately performing control system has the potential to impact on the ability of the operations and maintenance teams to effectively manage the network. The lack of use of internal resources in the planning, design and delivery of the DMA projects has also impacted heavily on the on-going success of the programs improvements.

All the project management plans and Total Management Plans dedicated to system leakage and the System Leakage Management Plans that precede this plan have some common themes regarding the on-going business improvement activities. These themes can be broadly described as:

- assessment of the extent of the problem via annual water balance plus audit;
- proposed ways to improve the water supply system's operational efficiency (control of real losses);
- asset management (longer term issues); and
- change management.

These tasks should remain under the control of the Infrastructure and Planning Group in order to maintain and improve knowledge of the system that we operate and improve our control over it.

5. Action Plan

The key output from each of the Water Netserv Part B sub-plans is an action plan for Redland Water over coming years. Table 5-1 below details that action plan in relation to Leakage Management.

Table 5-1 – Action Plan

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
Water-balance reporting Conduct water balance assessment for whole of Redland Water distribution network – utilise the basic IWA best practice Annual Water Balance - (adapted from SLMP worksheet).	Annually	Principal Engineer – Water Supply	Ongoing Note that missing data from 09/10 to now will need to be sourced and calculations done accordingly.
Asset Management/Audit tasks Testing and calibration of bulk and district meters, reservoir drop tests, maintenance of loggers and PRVs.	Annually	Service Delivery Leader – Water Reticulation	Ongoing
'Bottom-up' water balance Develop 'bottom-up' water balance methodology for Redland Water distribution network.	30/06/2014	Principal Engineer – Water Supply	Yet to be commenced
Determine what is economic level of leakage Assess what the trigger leakage level is for Redland before intervention works are commenced.	30/06/2014	Principal Engineer – Water Supply in consultation with RW management	Yet to be commenced
Set leakage target/s per DMA	Annually Commencing 1/07/2014	Principal Engineer – Water Supply	Yet to be commenced
Improvements to the water supply system operational efficiency (control of Real Losses)	Ongoing Commencing 1/07/2014	Service Delivery Leader – Water Reticulation	Yet to be commenced
Undertake review of flow modulated PRV in the system	30/06/2014	Principal Engineer – Water Supply	Yet to be commenced
Add data logger battery maintenance/replacement to Maximo scheduled maintenance lists	30/06/2014	Service Delivery Leader – Water Reticulation	Yet to be commenced

6. References

Department of Environment and Heritage Protection (DEHP) (formerly Department of Environment and Resource Management), *Planning Guidelines for Water Supply and Sewerage*, April 2010.

National Water Commission, *National Performance Report 2010-11 Urban Water Utilities*, April 2012.

Redland Water
Water Netserv Plan

PART B

APPENDIX C - Overflow Management Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Kane Macready Engineers Plus	March 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman, Tilake Weerasekara, Patrina Hili	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

CCTV	Closed Circuit Television
CRM	Customer Request Management (system)
DEHP	Department Environment and Heritage Protection
ERA	Environmentally Relevant Activity
GED	General Environmental Duty
KPI	Key Performance Indicator
NPR	National Performance Report
PIP	Priority Infrastructure Plan
PS	Pump Station
RCC	Redland City Council
RW	Redland Water
SBMP	Site Based Management Plan
SCADA	Supervisory Control and Data Acquisition
SEQ	South East Queensland
TMP	Total Management Plan

1. Introduction

This management plan outlines the direction and priorities for Redland Water's management of wastewater overflow. This plan is part of 'Part B' of Redland Water's Water Netserv Plan. It provides the current status and future opportunities and is a key part of wastewater infrastructure planning.

1.1 Background

The waters of South-East Queensland are an extremely important part of our environment. They contribute to both society and the environment by:

- providing raw drinking water (suitable for potable consumption following treatment)
- supporting the aquatic ecosystem and riparian flora and fauna
- supplying water for aquaculture, agriculture and industry
- contributing to public amenity
- supporting a wide range of recreational pursuits.

The activities supported by our waters include swimming, waterskiing, fishing, sailing and boating. Wastewater overflows are a potential source of pollutants that can jeopardise these uses.

Wastewater collection and distribution systems provide health and environmental benefits to communities. Wastewater infrastructure has been designed to overflow in a managed way as a safety feature that reduces wastewater backups and minimises public health impacts for residents. These overflows can occur under both dry and wet weather conditions due to a wide variety of causes. A release from a wastewater pumping station can be due to, for example, mechanical failure, power failure, blockages or stormwater infiltration or, particularly in wet weather, insufficient capacity. Managed wet weather overflows create a lower risk to the receiving environment than dry weather overflows because of dilution. The frequency and magnitude of overflows may be reduced through the adoption of whole-of-system management practices.

1.2 Objectives

The objective of the *Wastewater Overflow Management Plan* is to prevent and minimise the frequency and impacts of wastewater overflows, thereby meeting environmental obligations and customer expectations.

1.3 Scope

This management plan covers the planning cycle, responsibility and accountability for managing overflows, the key drivers, current status of overflow management, key issues and opportunities for improvement, prioritisation, future activities and implementation of the programs. It also highlights the relationship of the plan with other management plans.

1.4 Responsibility

Overall responsibility for the *Wastewater Overflow Management Plan* lies with the Principal Engineer Wastewater Collection.

2. Context

Redland Water is operating in an environment that requires management of wastewater overflows to ensure that service standards are maintained and legislation, guidelines and policies are upheld.

2.1 Key Drivers

The key drivers relevant to the Overflow Management Plan are described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Customer Service	Customer expectations for a safe, reliable, high quality, value for money services need to be met. The Customer Service Standards outline the services and standards customers can expect to experience. There is a need to build and develop ongoing relationships with our customers. Quality products and services, with customer services including timely response to complaints and requests.
Environmental Sustainability	Growing expectations from our community and more stringent environmental regulations mean we are driven to implement our operation and maintenance services to meet our environmental obligations and effectively manage our impact on the environment. Regular monitoring and reporting processes are maintained to ensure that all water and wastewater discharges and activities that impact on our environment are reported as public information.

2.2 Relevant legislation, guidelines and polices

Wastewater pumping stations are included as a category of sewage treatment under the *Environmental Protection Regulation (2008)* and are defined as an *Environmentally Relevant Activity (ERA)* when the activity consists of: "operating a wastewater pumping station with a total design capacity of more than 40kL in an hour, if the operation of the pumping station is not an essential part of the operation of wastewater treatment works". The 'Code of Environmental Compliance for ERA 63(3) – Sewage treatment', contains standard environmental conditions for carrying out the activities that meet the operation of a sewage pumping station with a total design capacity of more than 40kL in an hour. A development approval is required if an ERA 63(3) is not self-assessable under this code. In addition to the conditions in this code, the registered operator carrying out an ERA 63(3) must comply with other relevant Commonwealth, State or local government legislative requirements including holding a registration certificate issued by DEHP and taking all reasonable and practicable measure to prevent or minimise environmental harm, referred to as the 'general environmental duty'.

In managing pumping stations and other overflow structures of wastewater transfer networks, DEHP considers that some principles, when appropriately implemented, demonstrate compliance with the general environmental duty (GED). Refer to the link http://www.ehp.qld.gov.au/management/planning-guidelines/legislation/general_environmental_duty.html for the details of the principles and framework.

3. Current status

Redland Water reports monthly on its performance against set Key Performance Indicators (KPIs) as well as contributing to the Redland City Council Annual Report.

3.1 Current Performance

Redland Water's current performance relating to leakage management can be seen in KPI 13, 14 and 15 of the monthly business unit report which can be found at:

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The trend of the number of wastewater main breaks and chokes and resultant overflows have decreased in recent years (refer to Figure 3-1, Figure 3-2 and Figure 3-3).

Figure 3-1 - KPI #13 Overall number of dry weather overflows

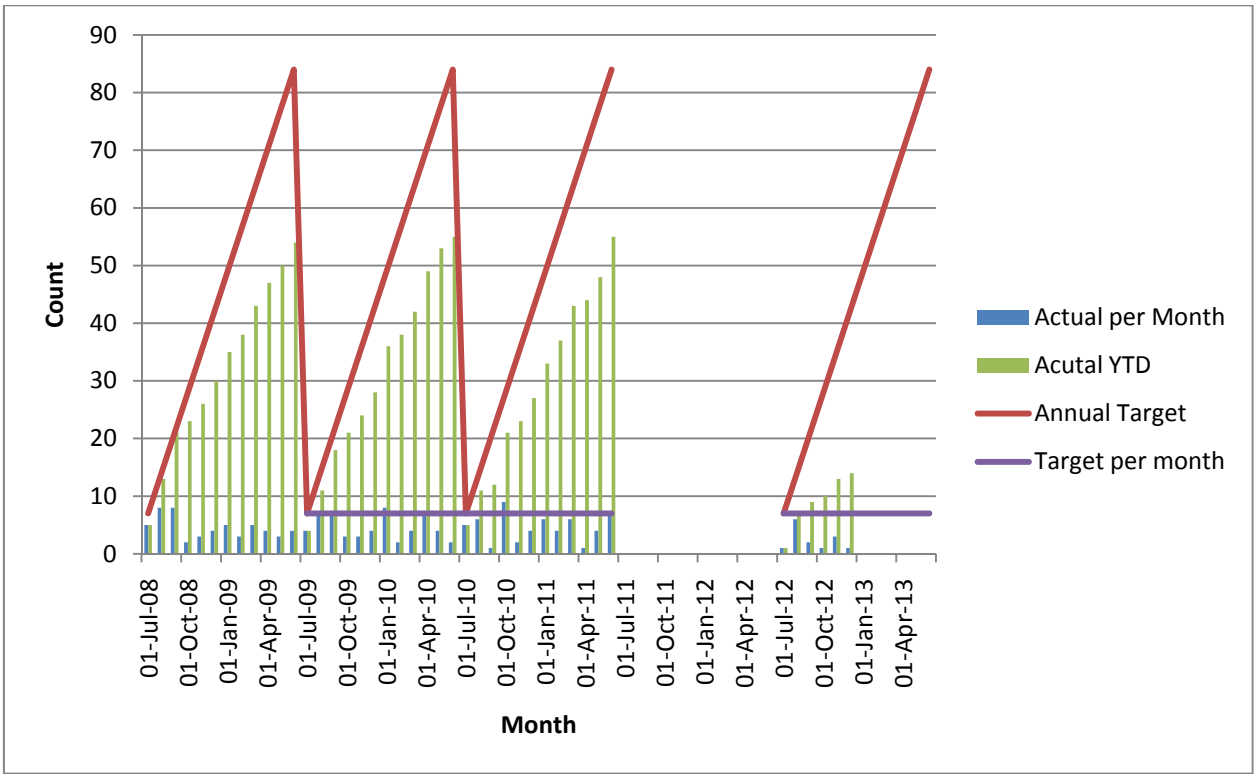

Figure 3-2 - KPI #14 Sewer overflows affecting customers

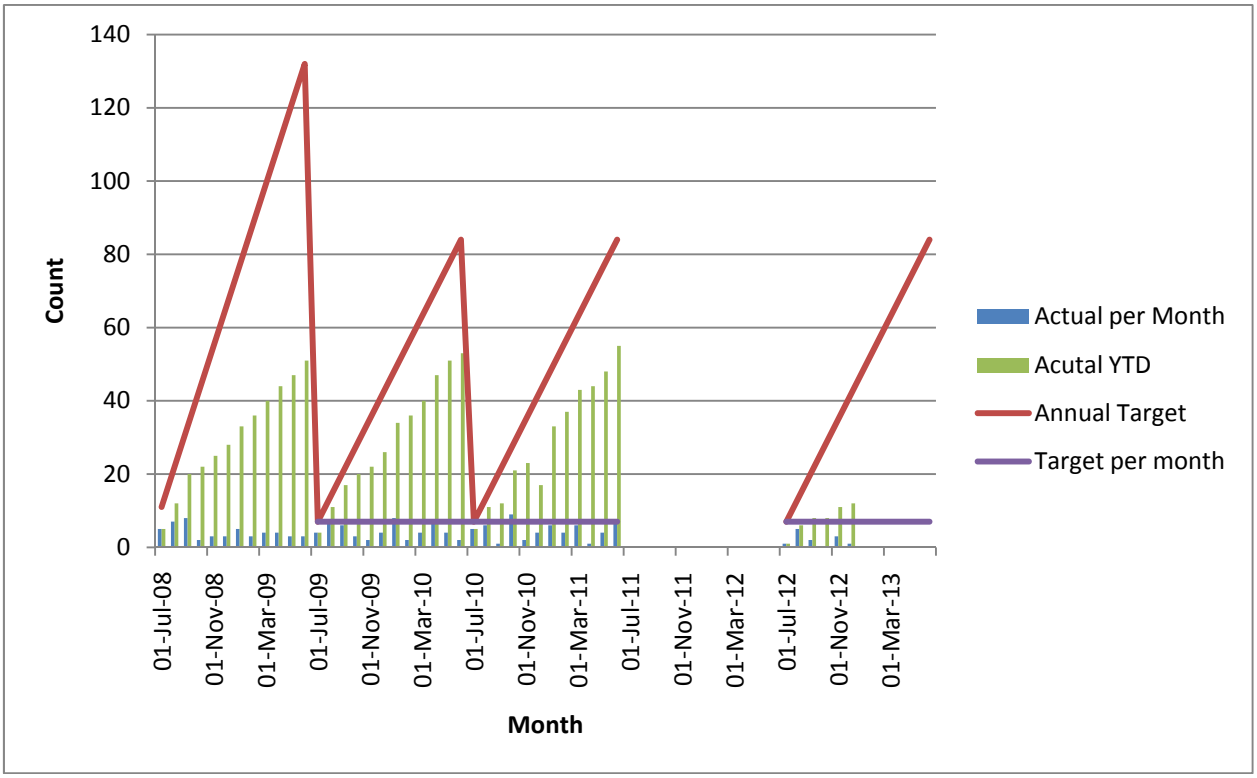

Figure 3-3 - KPI #15 Average response or reaction time to wastewater incident

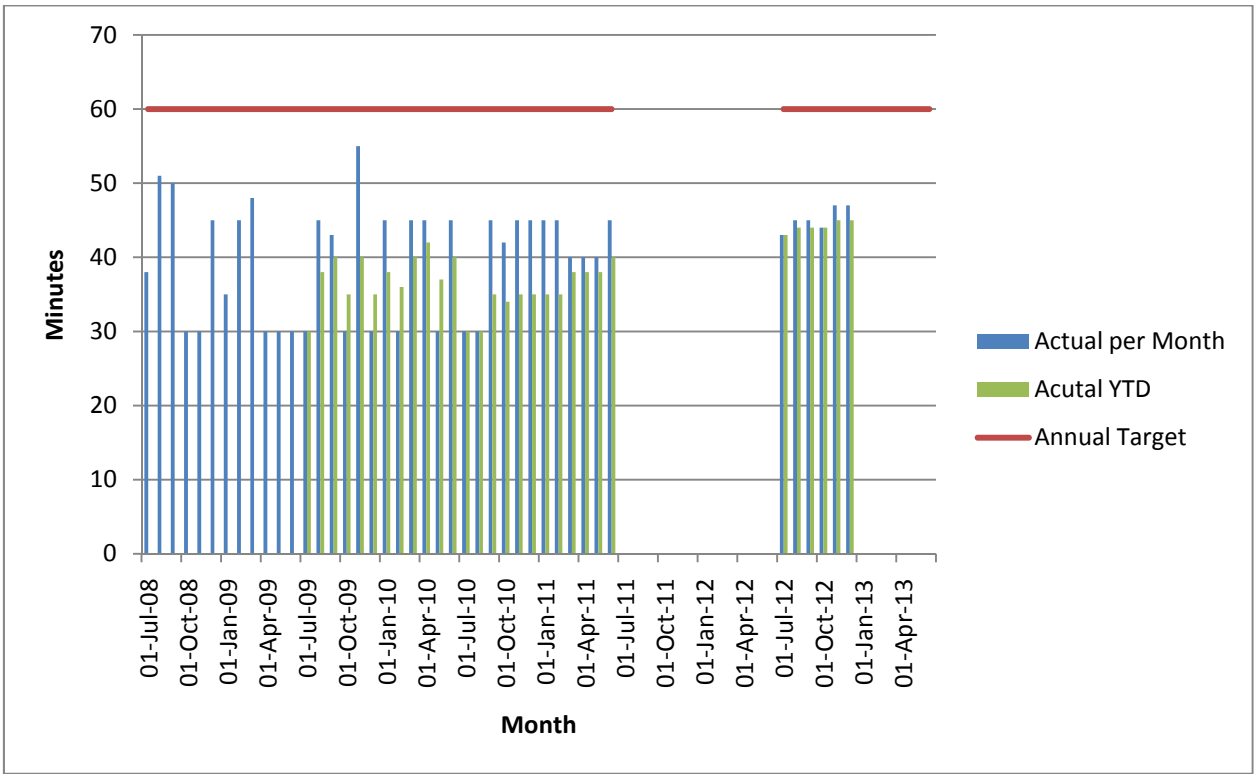

Figure 3-4 – NPR Comparison – E13 (Sewer overflows reported to the environmental regulator (No. per 100km of sewer main)

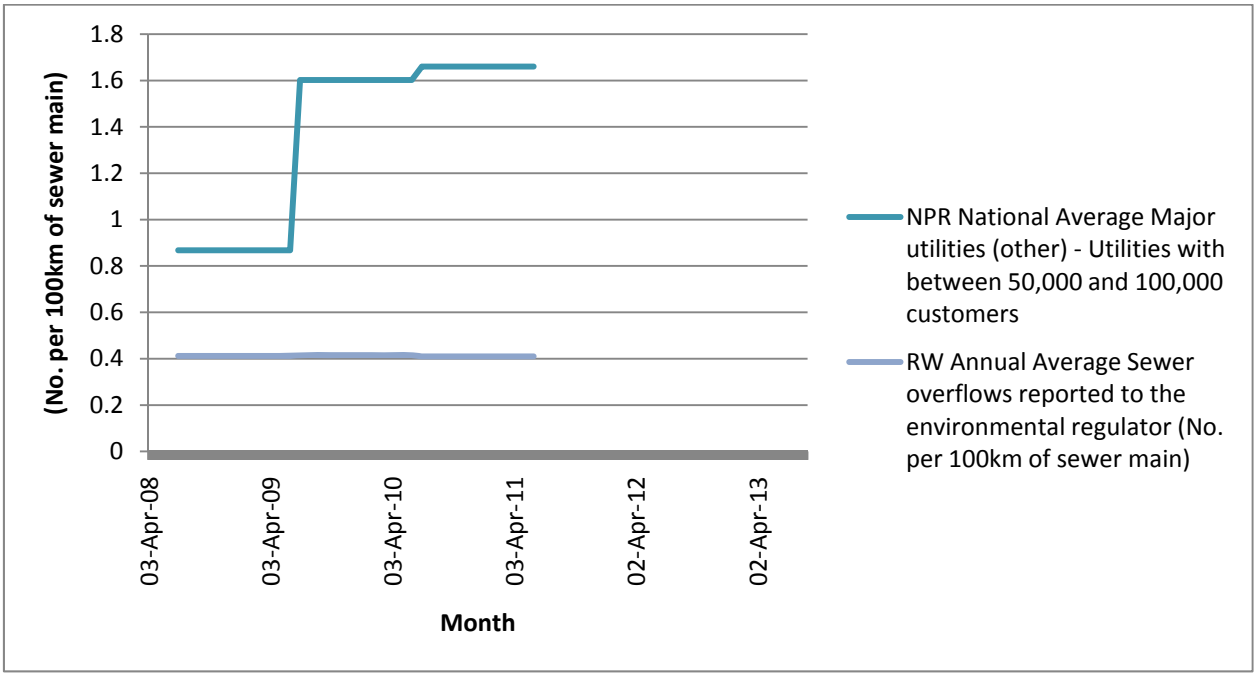

Figure 3-4 shows that in terms of current performance relative to the national average, Redland Water performs well. The data included in Figure 3-4 is derived from Redland Water's KPI # 13 which is only based on dry weather overflows, noting that only recently, since the severe flooding in Queensland, has it been a requirement to report all overflows.

3.2 Recent measures

Redland Water developed a *Wastewater Overflow Management Plan* in 2008 as part of its Total Management Plan (TMP). The objective of this plan was to provide an overview of current wastewater overflow management practices and direction for future initiatives in wastewater management; and to meet obligations under section 40 of the *Environmental Protection (Water) Policy 1997* for the preparation of an environmental plan for wastewater management. The TMP Sewer Overflow Management Plan identified 3 causes for overflows:

- Infiltration / Inflow
- Sewer blockages
- Pump failures

To address the issues identified in the TMP a number of actions were identified which have been progressed by RW. Some of these actions are described below:

- Under its DEHP licence requirements, Redland Water has developed site-based management plans (SBMPs) for its WWTPs and some associated pump stations. Some of these SBMPs are yet to be implemented. These plans include *'Emergency response/contingency plan sewage overflow & infrastructure failure'* documentation to deal with foreseeable risks which include overflows. A level of analysis has been conducted to reduce the impact of dry weather overflows. This is in the form of operational procedures to reduce the time to place pump stations back on line.
- As part of the master planning for development of priority infrastructure plans (PIPs), 'all pipes' sewerage hydraulic models have been developed for all mainland catchments. Further development work is planned for the collection systems at Dunwich and Point Lookout. These models have been used to assess the capacity of trunk infrastructure, including rising mains, trunk mains and pumping stations. Models have also been used to assess the dry weather emergency storage capacity in the network and determine additional emergency storage requirements to meet four-hour storage against power failures at pumping stations.
- Redland Water has undertaken a comprehensive investigation of available information on pumping station operations during both dry and wet weather conditions and assessed the risk associated with pumping station failures. Although the study, "Sewage Pumping Station Review", conducted in September 2006 identified a number of areas that required additional and/or more accurate information, it did provide a risk ranking of the pumping stations for which information was available. This information has guided the priority for future planning and investigations (i.e. data collection) including the data verification.
- Catchment specific investigations into inflow/infiltration have also been conducted in response to operational issues. These included the PS 33 and PS 41 catchment investigations.
- It has been identified that one of the causes of sewer infiltration is buried maintenance holes. It is currently estimated that 30% of maintenance hole covers are buried, subjecting them to rainwater infiltration. A comprehensive asset strategy including a program to address the issue of buried manhole covers has been run in Redland since 2008.
- In the event of any overflow, a comprehensive process (refer to procedures PR-RWENV-07 *Major Spill Management and clean-up* and PR-RWENV-09 *Environmental Incident Reporting*) to ensure that an immediate response is provided to fully contain and clean-up the overflow, to remove any health or environmental risks to the community.
- Most (~89%) of Redland Water's wastewater pumping stations are equipped with telemetry and connected to the SCADA system. This system not only provides valuable planning information but also provides an early warning system to minimise the likelihood of discharge to the environment.
- All overflow events are recorded and reported to relevant parties including DEHP, with a register of events maintained for historical analysis and continuous improvement purposes. The potential exists for additional information to be recorded within the existing systems, thus providing valuable information to support maintenance and operational prioritisation and decision-making, whilst streamlining the reporting process. This includes the recording of both wet and dry weather overflow events as reported by customers and the public.

4. Key Issues and Improvements

4.1 Key Issues

The key issue with respect to overflow management for RW is the bringing together of all the recent work under this Overflow Management Plan.

The three (3) key aspects that this plan needs to address are:

- Emergency Response
- Wet Weather system performance
- Dry Weather system performance.

Details of the current work in each of these areas is given below in Table 4-1.

Table 4-1 – Key Focus Areas for Overflow Management

KEY FOCUS AREA	DESCRIPTION
Emergency Response	Site based management plans are being developed for each pump station in the network which will included risk assessment, emergency/contingency/abatement plans, overflow management and clean up procedures.
Wet Weather system performance	Wet weather system performance is currently being reviewed for all pump stations in order to develop priority based mapping of areas within the network that need to be investigated in more detail.
Dry Weather system performance	Mapping and tracking of dry weather overflows with respect to the asset management system need to be improved so that improved system performance can be optimised and the balance between preventative, reactive and emergency maintenance be more readily determined. Opportunities exist for additional data to be recorded within the existing systems which provides valuable information to support maintenance and operational prioritisation and decision making.

4.2 Improvements

In order to effectively manage and continue to reduce the volume and incidence of overflows, the following areas where there is potential for improvement are discussed below:

- Develop a database in GIS for the historical records of overflows and spillages across the business – overflows are currently monitored / tracked via CRM (Proclaim) system, and Maximo as well as supervisors spreadsheets. By further understanding the contributory factors and developing asset and maintenance plans based on that information, future work will be better directed at reducing the likelihood and/or consequence of overflow events.
- Identify the areas of the network that have high of infiltration/inflow, and then rather than a use a reactive approach, develop effective infiltration/inflow rehabilitation programs.
- Identify the location of overflow points within the network. Review these overflow points and where required construct overflow points to manage overflows. Combined with this exercise should be review of the emergency storage within wastewater networks based on the SEQ Design & Construction sewerage design guidelines.

To improve immediate performance by reducing the quantity of overflow events, the following “first-step: activities are also recommended:

- Identify which manholes are suspected to be subject to infiltration and inflow, and then continue the program of locating and raising buried manholes to reduce the level of infiltration/inflows.
- Develop and implement a cost-effective program for infiltration and inflow reduction to reduce the number of wet weather overflow events.
- Reduce the number of dry weather overflow events caused by damaged sewers and tree root intrusion by continuing the identification and rectification of sewers in poor condition through CCTV maintenance and condition monitoring program.
- Undertaking a program to identify and rectify problems associated with designated system overflow points.
- Prioritise the supply of permanent generators to Pump Stations that are in the higher environmental and health risk category.

- Asset inspections of pump station civil and mechanical works and prepare associated renewal plan.
- Renewal of older electrical switchboards and radio telemetry systems.

5. Action Plan

The key output from each of the Water Netserv Part B sub-plans is an action plan for Redland Water over coming years.

Table 5-1 - Action Plan

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
Coordinate and consolidate all aspects of overflow management undertaken by Redland Water over recent years	30/06/2014	Principal Engineer Wastewater Collection	In Progress
Finalise Pump Station Site Based Management Plans	30/06/2013	Engineer Treatment Operations	In progress
Continue manhole raising program	Reviewed annually	Supervisor Wastewater Reticulation	In progress
Emergency response/contingency plan sewage overflow & infrastructure failure' document to be reviewed, updated and adopted.	31/12/2014	Engineer Treatment Operations Environment Systems Officer	In progress
Investigate the cost effectiveness of infiltration and inflow reduction program to reduce the number of wet weather overflows	30/06/2015	Principal Engineer Wastewater Collection	Not yet started
Continue the CCTV maintenance and condition monitoring program	Annually	Supervisor Wastewater Reticulation	In progress
Program the identification and rectification of system overflow points	30/06/2015	Engineer Treatment Operations	In progress
Install generators at high risk pump stations	30/06/2014	Principal Control Systems Engineer	Not yet started
Asset inspections of pump station civil and mechanical works and prepare associated renewal plan.	Annually	Reliability Engineer	Not yet started
Renewal of older electrical switchboards and radio telemetry systems.	Annually	Principal Control Systems Engineer	In progress

6. References

Redland Water, *Total Management Plan (TMP)*, 2005/06 to 2007/08.

Redland Water Integrated Environmental Management System, procedures *PR-RWENV-07 Major Spill Management*

Redland Water Integrated Environmental Management System, procedures *PR-RWENV-09 Environmental Incident Reporting*

Redland Water Water Netserv Plan

PART B

APPENDIX D – Drinking Water Quality Management Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Lara Harland	February 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman; Daniela Simon	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

DMA	District Meter Area
DWQMP	Drinking Water Quality Management Plan developed under the *Water Supply (Safety and Reliability) Act (2008)*
DNRM	Department of Natural Resources and Mines
DSS	Desired Standards of Service
EP	Equivalent Person

1. Introduction

This management plan outlines the direction and priorities for Drinking Water Quality Management.

It focuses on the distribution, treatment and supply of safe and reliable water in the Redland Water drinking water distribution system and is supplemental to the detailed Redland Water Drinking Water Quality Management Plan, developed under the *Water Supply (Safety and Reliability) Act (2008)*.

1.1 Background

Providing safe drinking water is a critical aspect of Redland Water's business. Water quality challenges are emerging with the introduction of new water sources and the increasing complexity of the South-East Queensland (SEQ) water grid. These challenges include managing a diverse range of water supply sources, varying standards, and increasing community expectations.

This management plan covers the current status of the Redland system, the key issues associated with supplying safe and reliable drinking water and the actions identified to improve the system.

The performance of Redland Water in terms of drinking water quality is measured as follows:

- Verification Monitoring within the distribution network.
- Complaints recording
- Water main breaks (increased risk of contaminated water entering the system)

Some measures which have a potential indirect effect on public health (eg dialysis patients) are:

- Unplanned water interruptions
- Response time to water main breaks

The measures included are those that Redland Water has control over. The measures which Redland Water has little or no control over are:

- Water source catchment characteristics and land-use
- Treatment Plant capacity and capability (water quality supplied to the distribution system by other service providers).
- Water Age

1.2 Objectives

The objectives of this management plan are to:

- Identify Drinking Water Quality improvement opportunities
- To optimise the provision of safe and reliable drinking water.

1.3 Scope

The scope of this management plan covers the entire Redland Water distribution network;

- The plan starts at the receiving point of bulk treated water and finishes at the point of supply of drinking water; and
- includes monitoring, analysis and maintenance of water quality in the water distribution system

1.4 Responsibility

The overall responsibility for drinking water quality in Redland lies with Service Manager Scientific Services.

2. Context

2.1 Key Drivers

The key drivers relevant to the Drinking Water Quality Management Plan are described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Customer Service	Customer expectations for a safe, reliable, high quality, value for money services need to be met. The Customer Service Standards outline the services and standards customers can expect to experience. There is a need to build and develop ongoing relationships with our customers. Quality products and services, with customer services including timely response to complaints and requests.
Compliance with ADWG	RW is facing increasing tightening and complexity of regulatory requirements and guidelines for public health and safety and the environment. This includes the requirements under the Water Supply (Safety and Reliability) Act 2008 and Public Health Act (2005) Amendment Regulation (No. 1) (2008). This is driving the need for improved drinking water quality and innovative technical solutions. With the loss of the control of water supply sources due to SEQ reform, the complexity of the water system is increasing with multiple relationships requiring management to ensure compliance requirements and customer standards for drinking water quality are achieved.

2.2 Relevant legislation, guidelines and polices

Key legislation, statutory documents and guidelines which impact on drinking water quality include:

- *South East Queensland Water (Distribution & Retail Restructuring) Act 2009*
- *Sustainable Planning Act 2009*
- *South East Queensland Regional Plan 2009-2031* (SEQRP) which provides a growth management framework and specifies high level population growth forecasts and broad landuse designations
- *South East Queensland Infrastructure Plan and Program 2008-2031* (SEQIPP) which outlines a prioritised investment program of infrastructure development to support the SEQRP
- *South East Queensland Water Strategy* (SEQWS) documents a new approach to water planning for the South East Queensland region designed to meet the region‘s water supply needs for the next 50 years.
- *Water Supply (Safety and Reliability) Act (2008),* states in Section 95(1) that each provider must prepare a Drinking Water Quality Management Plan.
- *Public Health Act (2005) Amendment Regulation (No. 1) (2008)*, sets specific standards for drinking water quality. Under section 57E of the Public Health Act (2005), it is an offence for a provider to supply drinking water that the provider knows, or reasonably ought to know, is unsafe.
- The following regulatory guidelines:
  - Australian Drinking Water Quality Guideline, 2011, NHMRC.
  - Drinking Water Quality Management Plan Guideline, 2010, QLD Government.
  - Water Quality and Reporting Guideline for a Drinking Water Service, 2010, QLD Government
  - Draft Drinking Water Quality Management Plan Review and Audit Guideline, 2012, QLD Government.
  - Bulk Water Supply Code, and
  - Bulk Water Supply Agreement
- RW also has a range of policies and guidelines which impact on drinking water quality. The relevant policies and guidelines are outlined below:

- Customer Service Standards
- Customer Service Charter
- Quality Assurance Procedures

3. Current status

Redland Water reports monthly on its performance against set Key Performance Indicators (KPIs) as well as contributing to the Redland City Council Annual Report.

3.1 Current Performance

Redland Water's current performance relating to drinking water quality is measured by the following KPI's.

- No. 7 - Water Samples Complying with ADWG
- No. 8 - Number of water main breaks and leaks
- No. 9 - % of unplanned water interruptions restored < 5 hrs
- No. 10 - Average response time to water main breaks
- No. 12 - Number of Water Quality Complaints per month

Redland Water's current performance to the KPI's listed above, can be seen in the monthly business unit report which can be found at:

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Redland Water's historical performance since July 2008 compared to the National Yearly Average and the Yearly Average of utilities who are a similar size to Redland Water (with 50 000 to 100 000 customers) are shown on Figure 3-1 to Figure 3-5.

The figures show that Redland Water is performing better than the National Average for all KPI's except for No. 9 (unplanned water interruptions restored within 5 hours) which are about 5% below average.

Figure 3-1 - KPI 7: Water Samples Complying with ADWG

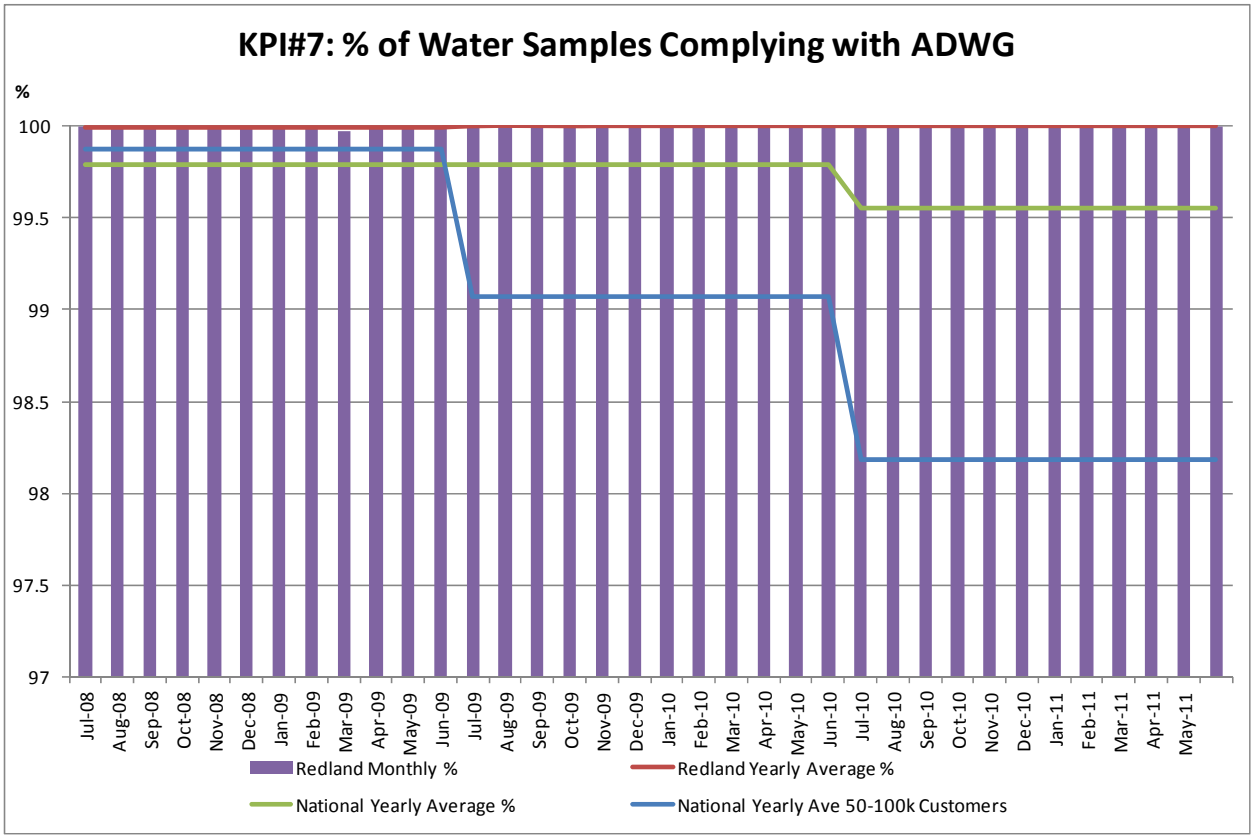


Figure 3-2 - KPI 8: Number of Water Main Breaks and Leaks/100 km of Main

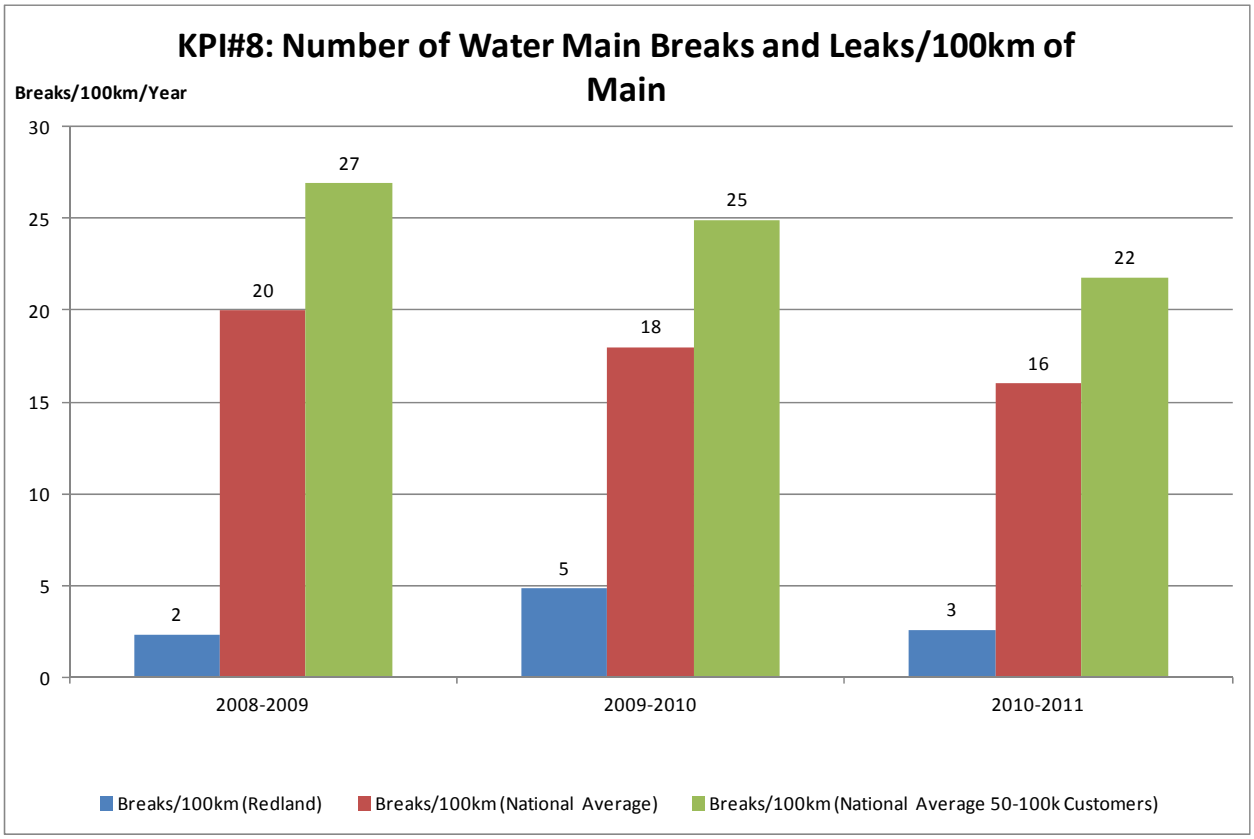


Figure 3-3 - KPI 9: % of unplanned water interruptions restored < 5 hrs

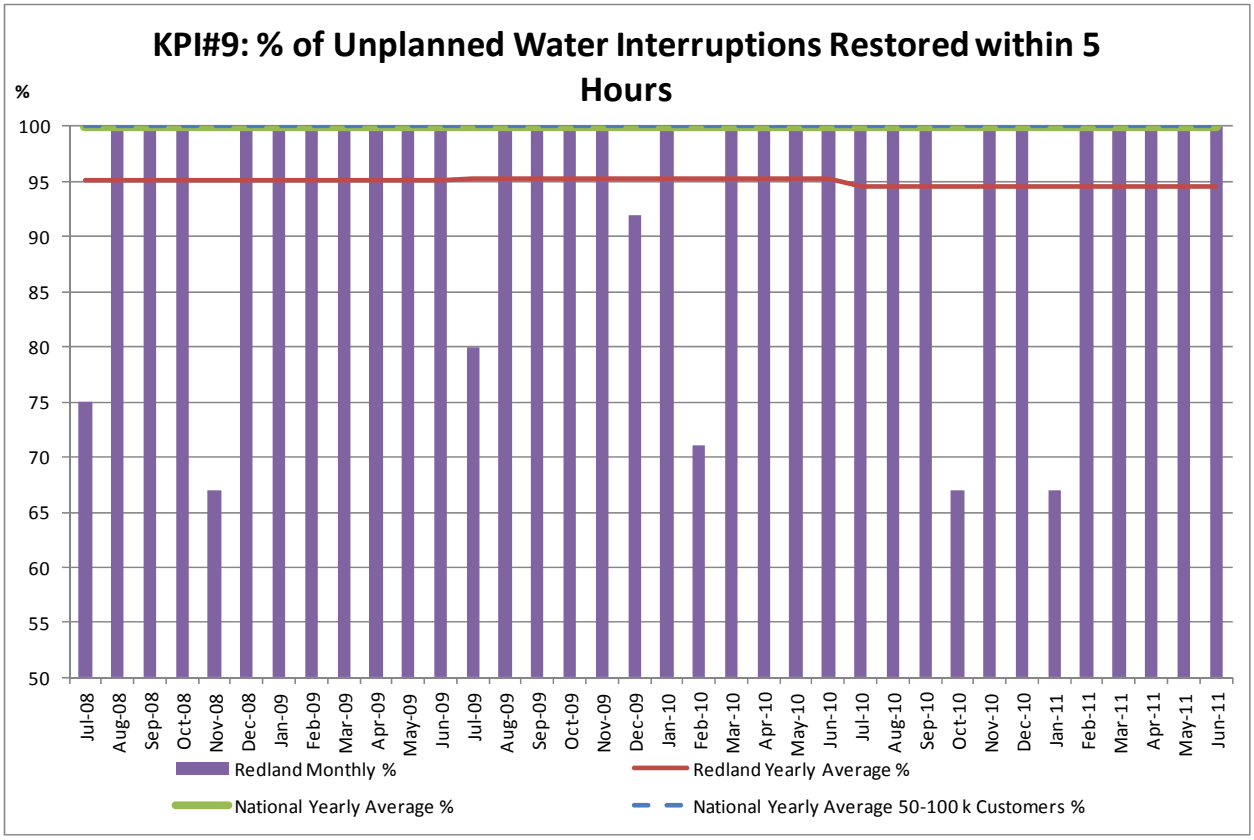
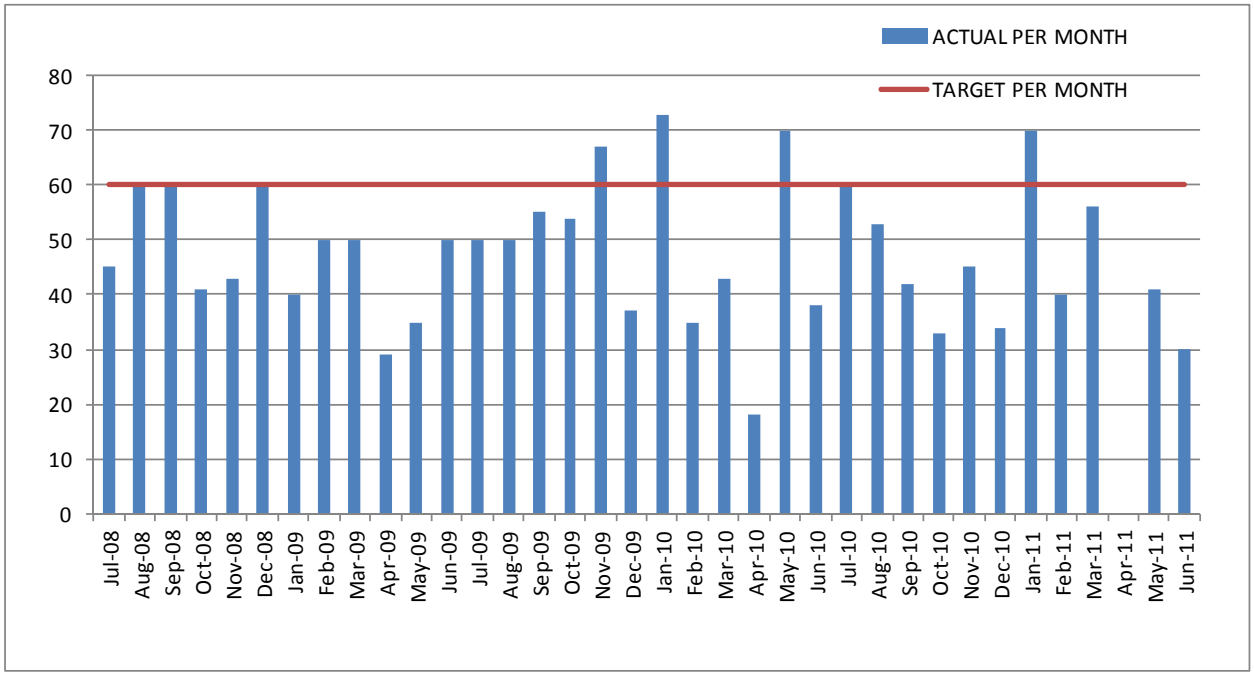
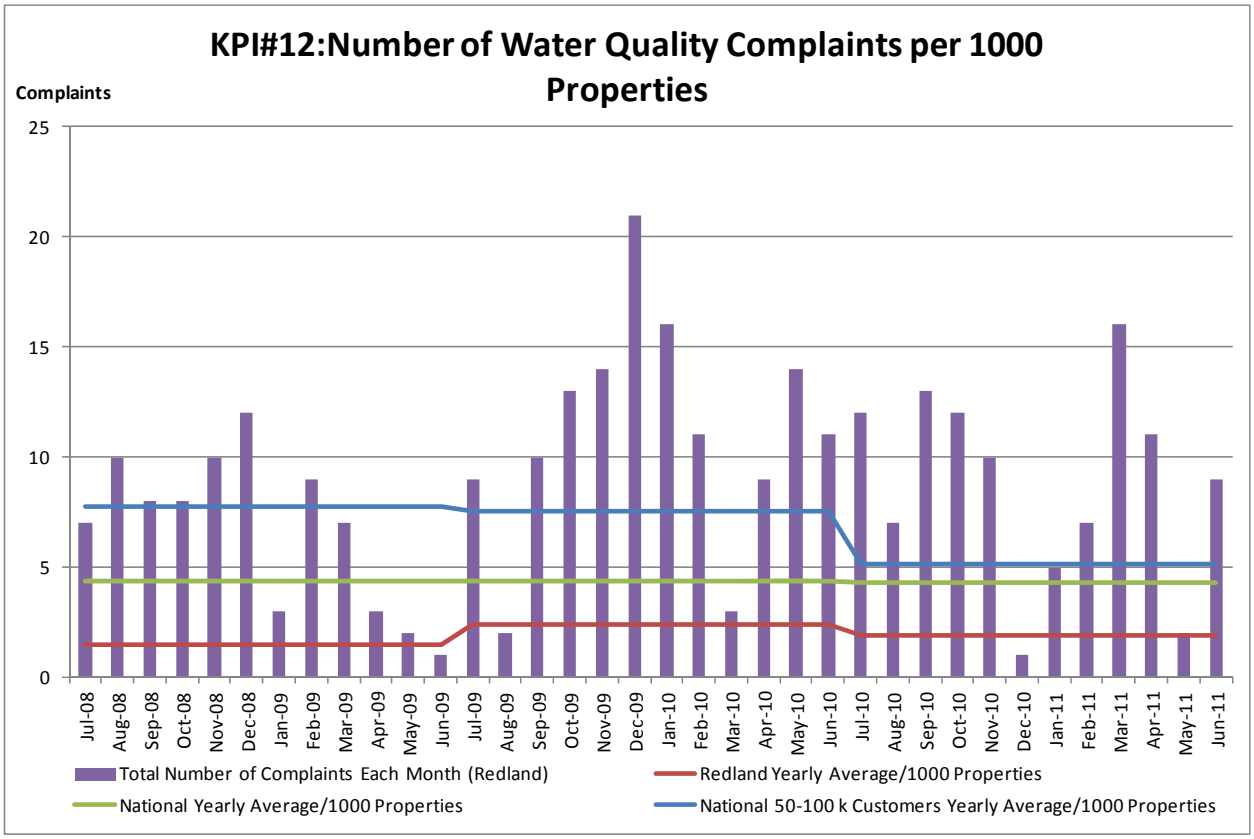


Figure 3-4 - KPI 10: Response time to water main breaks*



Note - National data not in a suitable format*

Figure 3-5 - KPI 12: Number of Water Quality Complaints per month



4. Key Issues and Improvements

4.1 Issues

The Key issues relating to the Drinking Water Quality in Redland as identified in the DWQMP are listed below.

- Low free chlorine at extremities of Redland potable water distribution system impacting upon water quality.
- High disinfection by-products (THMs) concentration in water received from the Capalaba Water Treatment Plant.
- Some DMA's are do not have water quality sampling.
- Internal procedures and documentation needs updating.
- A condition assessment of some smaller remote reservoirs needs to occur.

All these are addressed in DWQM Risk Management Improvement Program and will be required to be implemented as a condition of approval of the Drinking Water Quality Management Plan

In addition, there is currently an improvement opportunity in relation to the 'Unplanned water interruptions restored within 5 hours' KPI which has the potential to cause water quality issues for customers.

4.2 Improvements

Some of the improvements have been scoped out further since the approval of the DWQMP. These are summarised below.

4.2.1 Redland disinfection improvement strategy

The Redland disinfection improvement strategy will focus on:

- investigating operational changes to increase free chlorine in extremities of zones
- completing a planning study to determine if there is a cost effective means of increasing free chlorine to the extremities of the zones
- reviewing the reticulation in Russell Island West to see if any areas can be "valved off" where there are no demands.

4.2.2 Capalaba disinfection by-product strategy

The Capalaba disinfection by-product strategy will focus on:

- supporting the business case for Seqwater to get approval for an improved treatment process at Capalaba Water Treatment Plant.

4.2.3 Targeted flushing programs

As a result of the ongoing drought throughout much of the previous decade regular network flushing programs were ceased as part of a large scale water conservation strategy. As a result there is the potential for bio-film to build up in the areas of the network that in time may impact upon overall water quality.
A strategy, for a proactive, targeted flushing program needs to be developed along with measurable indicators for water quality improvements (i.e. turbidity, re-suspension potential etc).

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5. Action Plan

The action plan for Redland Water over coming years is as included in the DWQMP and is summarised below.

Table 5-1 - Action Plan

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
Implementation of the Risk Management Improvement Programs included in the DWQMP	June 2013 to June 2015 depending on Action	As identified in the DWQMP	In Progress
Redland disinfection improvement strategy	30/06/2015	Principal Engineer Water Supply	Not Started
Capalaba disinfection by-product strategy	SEQ Water Project Plan	seqwater	Ongoing
Targeted flushing programs	Ongoing	Group Manager Water & Waste Operations	Ongoing

6. References

Redland Water, *Redland Water Redland District - Drinking Water Quality Management Plan*, Rev 2, February 2012.

Redland Water Water Netserv Plan

PART B

APPENDIX E – Total Water Cycle Management Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Lara Harland	January 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption (Incorporating comments from internal RCC review)	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

DNRM	(former Qld government) Department Natural Resources & Mines
EMP	Environmental Management Plan
EPA	Environmental Protection Authority
ERA(63)	Environmentally Relevant Activity (ERA 63 = Sewage Treatment)
KPI	Key Performance Indicator
NSI	North Stradbroke Island
RCC	Redland City Council
RW	Redland Water
SEQIPP	South East Queensland Infrastructure Plan and Program
SEQRP	South East Queensland Regional Plan
SEQWS	South East Queensland Water Strategy
SMBI	Southern Moreton Bay Islands
TN	Total Nitrogen
TP	Total Phosphorous
TWCM	Total Water Cycle Management
TWCMP	Total Water Cycle Management Plan
ULDA	Urban Land Development Authority
WWTP	Wastewater Treatment Plant

1. Introduction

This management plan outlines the direction and priorities for the Total Water Cycle Management Plan (TWCMP). This plan is part of 'Part B' of Redland Water's *Water Netserv Plan*.

1.1 Background

Pressures associated with development, land use, industry, climate change and population growth has resulted in the steady decline in the ecosystem health of waterways in South-East Queensland. In response to these pressures the Queensland Government amended the *Environmental Protection (Water) Policy 2009* which requires local governments to have a TWCM Plan in place by 30 June 2013.

A local government's total water cycle management plan must include provisions about the collection, treatment and recycling of wastewater, stormwater, groundwater and other water sources and the integration of water use in its area.

Under Section 99BP(1)(d) of the *South East Queensland Water (Distribution and Retail Restructuring) Act 2009*, distributor-retailers are required to include in their Water Netserv Plans information on TWCM for water supply and wastewater.

Furthermore, under Section 99BP(1)(f) of the *South East Queensland Water (Distribution and Retail Restructuring) Act 2009*, 'trade waste management' and 'wastewater management' components of the withdrawn Council's TWCM Plans 'will be dealt with in their Water Netserv Plans'.

The South East Queensland Regional Plan 2009-2031 also highlights water cycle management as a key priority.

Redland City Council has developed a Total Water Cycle Management Plan (BMT WBM, Feb 13) which incorporates Redland Water's responsibilities.

1.2 Objectives

The objectives of this management plan are to:

- Identify TWCM improvement opportunities
- Effectively manage growth consistent with the principles of TWCM planning and the sustainable use of available resources

These objectives have been further developed in the RCC TWCMP and those relevant to Redland Water's activities are reproduced in Table 1-1.

Table 1-1 – RCC TWCMP Objectives

Long Term TWCM Strategy	Objective
Strategy 3 Plan and facilitate Sustainable Population Growth	3.1 Investigate and future proof water resources in the land through innovation.
	3.2 New development to meet alternative water supply targets set by Queensland Development Code MP 4.2 and 4.3.
	3.3 Plan and articulate our future water supply needs.
Strategy 4 Manage Wastewater Treatment Systems to protect receiving waters and public health	4.1 Meet and go beyond licence conditions by reducing effluent flows and pollutant loads within the wastewater system.
	4.2 Minimise trade waste.
	4.3 Sustainably manage biosolids, through beneficial reuse (i.e. agriculture).
	4.4 Reduce number of overflows caused by blockages, inflow and infiltration.
	4.5 To encourage waste minimisation and cleaner production, including waste prevention, recycling, and pre-treatment.
	4.6 To safeguard public health and the environment.
	4.7 To equitably recover the cost of services to commerce and industry including the cost of conveyance, treatment and disposal and, maintenance and repair of damage to the sewerage system.
Strategy 5 Sustainably Manage Water	5.1 Maximise efficient use of water through demand management measures and water saving devices.

Long Term TWCM Strategy	Objective
Resources to protect the environment and provide reliable, least cost supply	(Water conservation measures to target daily consumption of less than 200L/p/day as per SEQ Water Supply Strategy)
	5.2 Use water that's 'fit for purpose' i.e. using a quality of water no better than what is required (e.g. alternative source of water for landscape irrigation, toilet flushing, industry, construction).
	5.3 Investigate opportunities to use alternative water sources such as ground water, recycled water and stormwater (EPP Water s19).

1.3 Scope

Specifically the scope of this Total Water Cycle Management Plan includes:

- development of the strategic business framework for water cycle management and planning
- development of guiding principles of water cycle management and planning
- assist the TWCM management and planning process development and implementation

Out of scope of this Total Water Cycle Management Plan are:

- sub-regional TWCM plans by the bulk water supply entity and TWCM planning by the Economic Development Queensland (EDQ)
- amendment of Planning Schemes, Priority Infrastructure Plan and codes
- development control and compliance.
- urban stormwater quality (which is Redland City Council's responsibility).

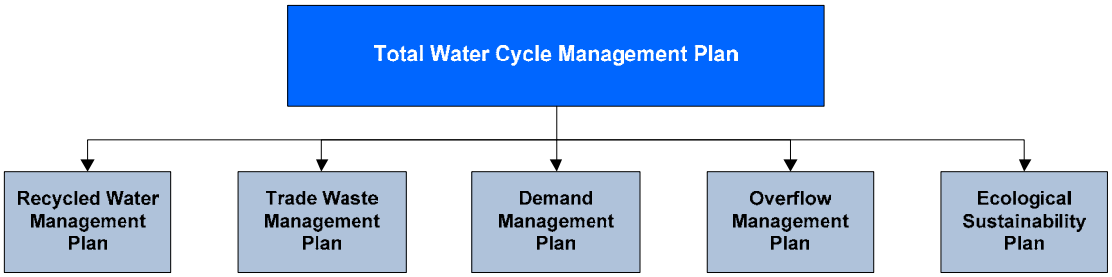
1.4 Responsibility

Overall responsibility for the Total Water Cycle Management Plan with in Redland City Council lies with the Group Manager City Infrastructure Group however, the Redland Water specific issues lie with the Group Manager Water & Waste Infrastructure.

2. Context

The Redland Water Netserv *Total Water Cycle Management Plan* incorporates other Water Netserv Management Plans. The relationship between the Water Netserv *Total Water Cycle Management Plan* and other management plans under Part B is included in Figure 2-1.

Figure 2-1 - Relationship between TWCM and other Netserv Management Plans



2.1 Key Drivers

The key driver relevant to the Total Water Cycle Management Plan is described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Environmental Sustainability	Growing expectations from our community and more stringent environmental regulations mean we are driven to implement our operation and maintenance services to meet our environmental obligations and effectively manage our impact on the environment. Regular monitoring and reporting processes are maintained to ensure that all water and wastewater discharges and activities that impact on our environment are reported as public information.

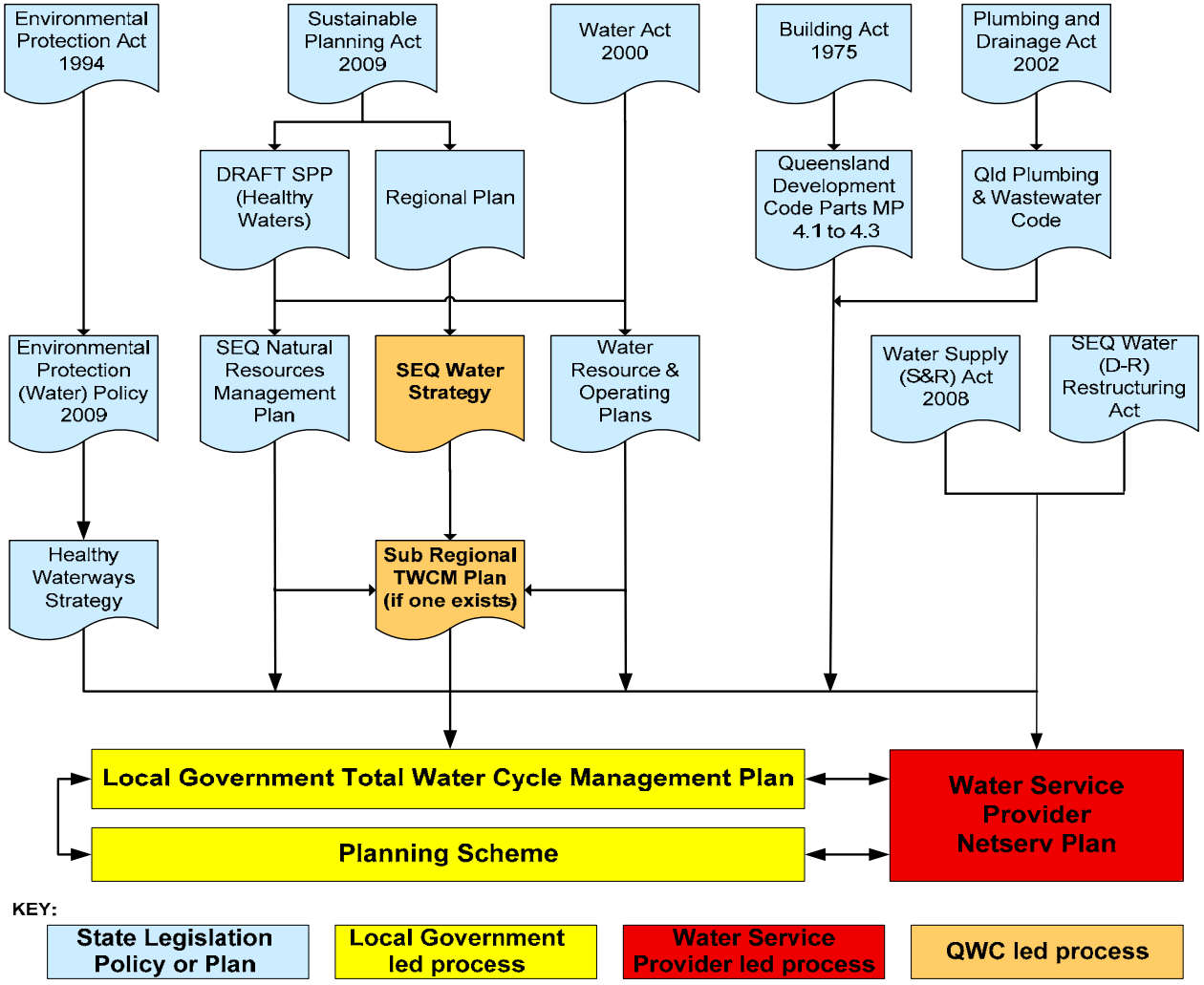
2.2 Relevant legislation, guidelines and polices

Legislation, policy and guidelines which relate (directly and indirectly) to the application of total water cycle management principles are listed below:

- *Environmental Protection (Water) Policy 2009* under the Queensland *Environmental Protection Act 1994*
- The statutory guideline under the *Environmental Protection (Water) Policy 2009* entitled *Total Water Cycle Management Planning Guideline for South-East Queensland*
- *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*
- *Sustainable Planning Act 2009*
- *The Water Supply (Safety and Reliability) Act 2008* and *Public Health Act 2005.*
- *South East Queensland Regional Plan 2009-2031* (SEQRP) which provides a growth management framework and specifies high level population growth forecasts and broad landuse designations. Policy 11.1.1 states that total water cycle management principles should be incorporated in land use and infrastructure planning.
- *South East Queensland Infrastructure Plan and Program 2008-2031* (SEQIPP) which outlines a prioritised investment program of infrastructure development to support the SEQRP
- *South East Queensland Water Strategy* (SEQWS) documents a new approach to water planning for the South East Queensland region designed to meet the region‘s water supply needs for the next 50 years.

The statutory and planning framework for TWCM in South East Queensland is shown in Figure 2-2 below.

Figure 2-2 - Statutory and planning framework TWCM in South East Queensland



Note that in Figure 2-2 above (adapted from the statutory guideline), Council TWCM plans and Redland Water's Water Netserv Plan has equal standing in accordance with legislative 'weight', however in reality the Redland Water Netserv Plan is a companion document to Councils TWCMP.

- RW also has a range of policies and guidelines which impact on the TWCMP. The relevant policies and guidelines are outlined below:
- Customer Service Standards
- Customer Service Charter
- Redland City Council Corporate Plan 2010-2015, Healthy Natural Environment, Green Living, Embracing the bay and Wise Planning and Design.

3. Current status

3.1 Key Issues

The existing and future condition of waterways has been identified as a key pressure throughout the Redlands region – with monitoring data showing that waterways are generally in poor condition and do not satisfy given water quality objectives.

Other water cycle issues identified within the Redlands region for further detailed planning studies include environmentally sensitive areas, population growth, sewage treatment plant capacity, water supply constraints, flooding, storm tide inundation, landfill leachate and sewage overflows.

The key water cycle management planning pressures identified for the Redlands region in the RCC TWCMP, which are relevant to Redland Water are summarised below:

Waterway Health

Both the existing and future condition of waterway health has been identified as a key pressure to be addressed in all catchments within the Redlands region, with EHMP monitoring and Council freshwater monitoring indicating all waterways require improvement to satisfy water quality objectives. No sustainable load estimates exist, however it is apparent that as receiving waters are currently in generally poor condition, any future increase in pollutant loads will only worsen compliance with water quality objectives. In particular, future increases in nutrient loads from Sewage Treatment Plants (WWTPs) will place significant additional pressure on receiving waters.

Environmentally Sensitive Areas

Within the Redlands region, there exist a number of environmentally sensitive receiving waters, including waterways of High Ecological Value (HEV) and wetlands of state and regional significance. These areas are important for several reasons including species richness and diversity, habitat quality, and aesthetic values. Waterways within the Redlands region provides habitat for the locally rare and potentially threatened Ornate Sunfish (*Rhadinocentrus ornatus*) as well as the vulnerable and nationally endangered Oxleyan pygmy perch (*Nannoperca oxleyana*). The Redlands region drains to and has islands located within the Moreton Bay Marine Park, which is listed as a Ramsar site with wetlands of international significance. All catchments within the Redlands region have been identified as having environmentally sensitive areas. The environmental values associated with these areas require protection from current environmental stressors and (in particular) potential impacts of future development and population growth.

Population Growth

Population growth pressures were identified for catchments where there was expected to be a significant increase in urban population by 2031. Table 3-1 outlines the key catchments identified as having population growth pressures.

Table 3-1 – Population Growth Pressures (Table E-1 from TWCMP)

Catchment	Population Growth Pressures
Hilliards Creek	Kinross Road development
Eprapah Creek	South East Thornlands development
South Eastern Creeks	Development around Double Jump Road, and subdivisions around Weinam Creek
Coochiemudlo & Southern Moreton Bay Islands (SMBIs)	Population growth on the SMBIs will be a significant pressure to manage, as the SMBIs are not sewered, and current on site wastewater management practices are unsustainable(1)
North Stradbroke Island	Significant population growth is expected within the small residential communities of Amity, Dunwich and Point Lookout(2)

Note: (1) Redland Water hasn't seen any evidence that on-site wastewater is unstainable on the SMBI's
(2) Population projections prepared for the RPS 2015 indicate <1% per annum growth in these communities.

Development pressures in these catchments will need to be carefully managed to ensure sustainable least cost provision of water supply, wastewater and stormwater infrastructure.

Wastewater Infrastructure

Redlands catchments in which WWTPs were identified to present key future management pressures and a short description of the key pressures are summarised in Table 3-2 below.

Table 3-2 – WWTP Management Pressures

Catchment	WWTP Management Pressures
Hilliards Creek	Cleveland WWTP licence is currently under renewal. It is likely that nutrient load limits will be imposed that reflect existing loads, which may require significant investment in

Catchment	WWTP Management Pressures
	additional treatment and/or reuse of wastewater to comply with licence conditions
Eprapah Creek	Victoria Point WWTP currently has licenced total nitrogen (TN) load limits. These limits may be exceeded as early as 2022, with future 2031 discharges predicted to significantly exceed licence limits. Investment in additional treatment and/or reuse of wastewater will be required to comply with licence conditions for TN loads.
North Stradbroke Island	Dunwich WWTP is currently exceeding TN licence conditions, which stipulate that concentrations must be within 10% of background levels (from groundwater monitoring). This issue and potential management measures are currently being investigated by Allconnex. Dunwich WWTP is also predicted to marginally exceed its licenced EP capacity by 2031. If required, a new licence may trigger new nutrient load limit conditions.(1)

Note: (1) The TN issue at Dunwich has been addressed

Sewage overflows, particularly during wet weather, were also identified to be a key pressure throughout the region. Sewage overflows pose potential pressures to the environment, public health, waterway use and amenity values as well as to Council's reputation.

In addition to the above specific WWTP operational issues, it is a common belief that WWTP discharges are currently placing significant pressure on waterway health. The impact of WWTP discharges should be confirmed with respect to a comparison to the total mass load per annum of pollutants generated from waterway assessment of dry and wet weather events.

Water Supply

Key pressures for the provision of water supply within the Redlands are identified in Table 3-2.

Table 3-3 – Water Supply Management Pressures

Catchment	Water Supply Management Pressures
Upper Tingalpa Creek Catchment	Drinking water quality was identified as an issue at Capalaba Water Treatment Plant (from Leslie Harrison Dam), with high organic loadings in the raw water source, and potentially elevated levels of Trihalomethanes in treated water. Upgrades to the treatment process are required to ensure public health is protected. This is the responsibility of seqwater.
North Stradbroke Island	Future security of water supply sources on NSI is a potential issue, as the implications of the indigenous land use agreement is unknown.

Despite the fact that water supply has not been identified as a significant pressure in most catchments, water conservation principles are considered a fundamental component of total water cycle management planning in all catchments.

3.2 Current Performance

Redland Water's current performance relating to Total Water Cycle Management is detailed below in Table 3-3 and Appendix A.

Table 3-4 – Objectives and Current Performance

Objective	Current Status
Strategy 3 - Plan and facilitate Sustainable Population Growth	
3.1 Investigate and future proof water resources in the land through innovation.	Redland Water will comply with the South East Queensland Water Strategy 2010
3.2 New development to meet alternative water supply targets set by Queensland Development Code MP 4.2 and 4.3.	Not in the control of Redland Water.
3.3 Plan and articulate our future water supply needs.	This is addressed by the Water Supply Network Master Plan Northern District (Redland City), Rev3, May 2011 (Allconnex, 2011).
Strategy 4 - Manage Wastewater Treatment Systems to protect receiving waters and public health	
4.1 Meet and go beyond licence conditions by reducing effluent flows and pollutant loads within the wastewater system.	Current Wastewater Treatment Plan Performance is included in Appendix A.
4.2 Minimise trade waste.	Included in Part B - Appendix G - Trade Waste Management Plan
4.3 Sustainably manage biosolids, through beneficial reuse (i.e. agriculture).	Currently preparing a biosolids contract with 100% beneficial reuse for award in June 2013
4.4 Reduce number of overflows caused by blockages, inflow and infiltration.	Included in Part B - Appendix C - Overflow Management Plan
4.5 Encourage waste minimisation and cleaner production, including waste prevention, recycling, and pre-treatment.	Redland Water has an Education Program specifically designed for Grade 1 right through to Grade 12. This resource is available to all teachers in the local area. Redland Water also runs Community Education Programs
4.6 Safeguard public health and the environment.	Ongoing through operational procedures and Environmental Management Plans
4.7 Equitably recover the cost of services to commerce and industry including the cost of conveyance, treatment and disposal and, maintenance and repair of damage to the sewerage system.	Ongoing through rates and charges policy
Strategy 5 - Sustainably Manage Water Resources to protect the environment and provide reliable, least cost supply	
5.1 Maximise efficient use of water through demand management measures and water saving devices. (Water conservation measures to target daily consumption of less than 200L/p/day as per SEQ Water Supply Strategy)	Included in Part B - Appendix I - Demand Management Plan
5.2 Use water that's 'fit for purpose' i.e. using a quality of water no better than what is required (e.g. alternative source of water for landscape irrigation, toilet flushing, industry, construction).	Included in Part B - Appendix H - Recycled Water Management Plan
5.3 Investigate opportunities to use alternative water sources such as ground water, recycled water and stormwater (EPP Water s19).	There have been a number of studies completed as follows: *Recycled Water* • Redland Recycled Water Study - Selection Process, KBR, 2006 • Reuse at Concrete Plants - Cleveland Industrial Estate - Concept Report - KBR, 2006 • Risk Assessment Health Effects of Indirect Potable Reuse Schemes - USW 2007 • Redland Recycled Water Project Planning Report

Objective	Current Status
	Addendum - KBR, 2007 • Health Risk Assessment of Fire Fighting from Recycled Water Mains - WSA, 2004 • RECYCLED WATER network Point Lookout Planning report - KBR, 2007 • Redland Water Effluent Reuse Strategy - Draft , KBR, 2000 • Redland Recycled Water Planning Report, KBR, 2006 *Ground Water* • Redland Water Supply North Stradbroke Island Groundwater Model Report, JWP, 1993 • Mainland Groundwater Investigation Report, KBR, 2006 *Stormwater* - Not applicable to Redland Water

4. Improvements

The improvements relating to this management plan have been identified in the RCC TWCMP. These are summarised in the next section.

5. Action Plan

The key output from the Redland City Council TWCMP is an action plan for Redland Water over coming years. This is included in Table 5-1.

Table 5-1 - Action Plan

TWCMP Action No.	ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
2.1.5	Investigations to better define sustainable groundwater yields (North Stradbroke Island). High priority.	2014	Seqwater	Unknown
3.2.2	Investigate alternative sources of water for new developments, as per actions 5.3.1, 5.3.2 and 5.3.3 for sustainably managing water resource.	2014	Seqwater RCC through development approvals process	Ongoing
4.1.2	Undertake further detailed planning studies to investigate improved nutrient treatment processes at Victoria Point WWTP (TN capital upgrades, alum dosing for TP) (Eprapah Creek). High Priority.	2014	RW - Group Manager Water & Waste Infrastructure	In Progress
4.1.3	Undertake further detailed planning studies to investigate improved treatment processes at other WWTPs (Mt Cotton, Capalaba, Thorneside, Dunwich, Point Lookout)	2014	RW - Group Manager Water & Waste Infrastructure	In Progress
4.2.1	Continue to implement RCC Trade waste Policy and Environmental Management Plan	Ongoing (2013-2017)	RW – Manager Scientific Services	Ongoing
4.2.2	Revise the Category 1 classification in the RCC Trade Waste Policy to be consistent with the Model Trade Waste EMP published by DNRM & EPA in 2004.	1/7/2014	RW - Group Manager Water & Waste Infrastructure	In Progress
4.2.3	Implement recommended actions in Netserv Plan to minimise and manage trade waste	2014	Refer Netserv Plan Part B - Appendix G Trade Waste Management Plan	n/a
4.3.1	Continue beneficial reuse of biosolids (currently 100% reuse)	Ongoing (2013-2017)	RW - Group Manager Water & Waste Infrastructure	Ongoing
4.3.2	Undertake further detailed planning investigations to assess the viability of a centralised solar drying facility at Cleveland to reduce biosolids generation and associated transport and disposal costs.	2014	RW - Group Manager Water & Waste Infrastructure	Commenced
4.3.3	Implement recommended actions in Netserv Plan to minimise and manage biosolids generation	2014	Refer Netserv Plan Part B - Appendix F Ecological Sustainability Plan	n/a
4.4.1	Improve prevention of illegal stormwater inflow connections to sewer through increased compliance inspections and education campaigns (ALL catchments). High Priority.	Ongoing (2013-2017)	RW - Group Manager Water & Waste Infrastructure	Commenced
4.4.2	Develop pump station EMPs and undertake pump station upgrades to reduce the likelihood of wet weather overflows (ALL catchments) for compliance with the ERA63 code. High	Ongoing (2013-2017)	RW - Group Manager Water & Waste Infrastructure	Commenced

TWCMP Action No.	ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
	Priority.			
4.4.3	Undertake detailed planning to investigate sewerage upgrades to improve storage/conveyance of wet weather flows. High Priority.	Ongoing (2013-2017)	RW - Group Manager Water & Waste Infrastructure	Commenced
4.4.4	Undertake detailed planning to investigate reducing wet weather infiltration to sewerage infrastructure through sewer rehabilitation / or installation of smart sewers in greenfield areas (ALL catchments). High Priority.	Ongoing (2013-2017)	RW - Group Manager Water & Waste Infrastructure RW - Group Manager Water & Waste Operations	Commenced
4.6.1	Undertake further detailed planning studies investigating the provision of sewerage infrastructure for unsewered areas. High Priority catchments: SMBIs Medium Priority: Hilliards, Eprapah, South East Creeks Develop policy and standards with regard to low pressure sewer systems, for example, connecting missing links in Ormiston	Ongoing (2013-2017)	RW - Group Manager Water & Waste Infrastructure	Commenced
4.6.2	Undertake detailed planning studies to investigate undertaking inspections and education to improve management of on-site wastewater systems. (ALL catchments excluding Tarradarrapin). High priority catchments: Cleveland and Thornlands, Eprapah, Upper Tingalpa, SMBIs, NSI.	Ongoing (2013-2017)	RCC - Community Standards Group	Ongoing
4.6.3	Undertake detailed planning studies to further investigate sustainable wastewater treatment options for potential new development on NSI. High Priority.	2015	RW - Group Manager Water & Waste Infrastructure	Commenced
4.6.4	Investigate the sustainability of on-site irrigation at Cleveland WWTP, as recommended by Water Strategies (2011)	Dec 2013	RW – Process Engineer	Commenced
4.7.1	Investigate policy initiative for wastewater infrastructure rates to be charged on the basis of mains water consumption. (ALL catchments)	2014	RW - Group Manager Water & Waste Infrastructure	Commenced
5.1.1	Prepare a Water Demand Management Strategy as part of Netserv Plan	2013	RW - Group Manager Water & Waste Infrastructure	Complete
5.1.2	Continue funding flow and pressure monitoring and use to investigate and reduce leakage 'losses' from potable water infrastructure (all catchments, North Stradbroke Island high priority to address key issue)	Ongoing (2013-2017)	RW - Principal Engineer Water Distribution	Ongoing
5.3.3	Review and further investigate the potential for recycled water use (treated WWTP effluent). High priority for Lower Tingalpa, Hilliards Creek, Eprapah Creek, Southern Creeks, NSI.	2014	RW - Group Manager Water & Waste Infrastructure	Ongoing
n/a	Participate in year 4 reviews of TWCM plans	01/06/2013	RW - Group Manager Water & Waste Infrastructure	Not Started

TWCMP Action No.	ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
n/a	Participate in year 5 TWCM plan renewals	TBD (post June 2013)	RW - Group Manager Water & Waste Infrastructure	Not Started
	Undertake a comparison between WWTP mass pollutant loads per annum and stormwater related mass loads.	June 2014	RW – Senior Process Engineer	Not started

6. References

Allconnex Water, *Water Supply Network Master Plan Northern District*, Rev 3, May 2011.

BMT WBM, *Total Water Cycle Management Plan for Redland City Council*, Final Report, February 2013.

Appendix A – Wastewater Treatment Performance

A.1 Current WWTP Performance

Redland Water has three KPI's which are directly related to Wastewater Treatment Plant Performance and the TWCMP which aren't covered by other Netserv plans. These are:

- No. 2 - Nitrogen Load from effluent discharge
- No. 18 - Number of WWTP non-conformances with EPA licence over one compliance year

Redland Water's current performance to the KPI's listed above can be seen in the monthly business unit report which can be found at:

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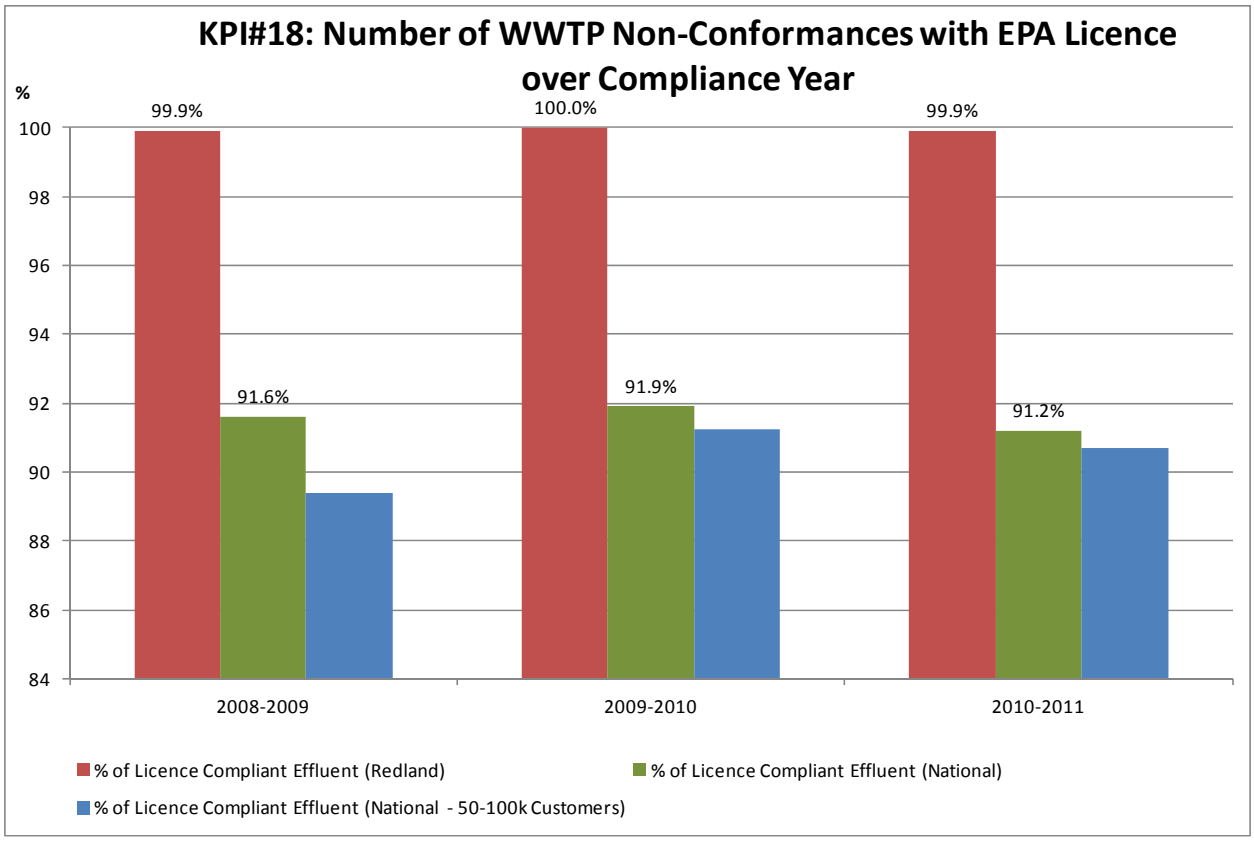
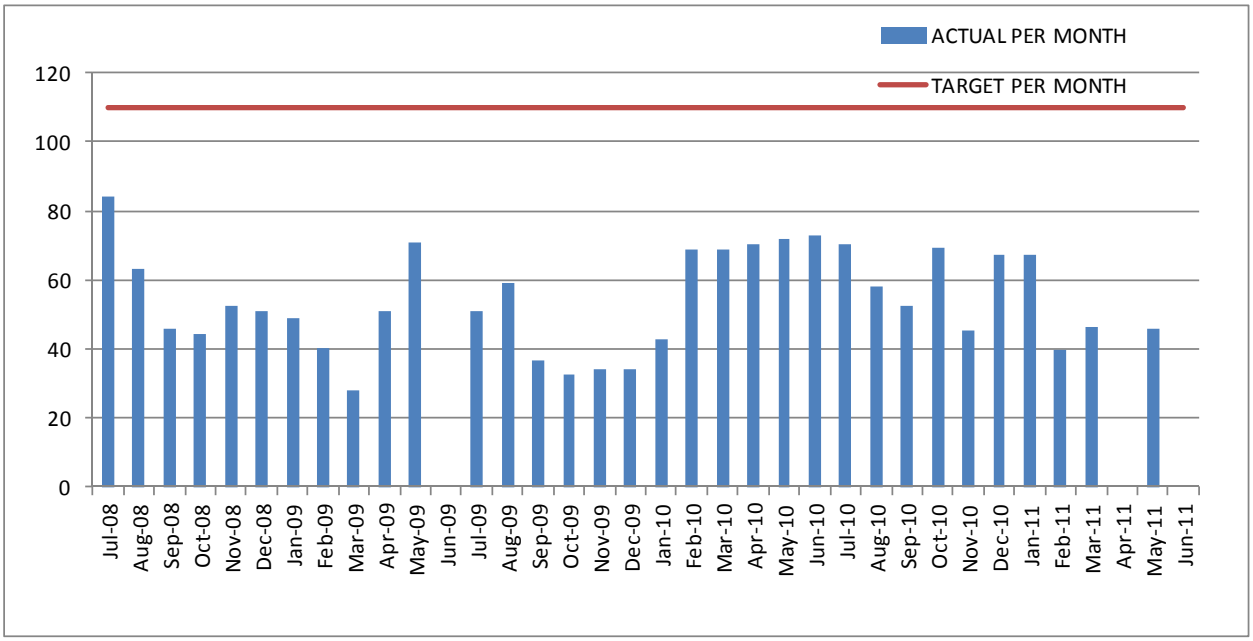
Redland Water's historical performance since July 2008 compared to the National Yearly Average and the Yearly Average of utilities who are a similar size to Redland Water (with 50 000 to 100 000 customers) for KPI No. 18 is shown on Figure A.1. The figure shows that Redland Water is performing better than the National Average.

Figure A.1 - KPI18: Number of WWTP non-conformances over a compliance year



There is no suitable data available to compare KPI No. 2 results with the national performance. The Redland Results of Actual Compared to Target are shown in Figure A.2. The figure shows that Redland is currently tracking better than target.

Figure A.2 - KPI2: Nitrogen Load from Effluent Discharge



Redland Water

Water Netserv Plan

PART B

APPENDIX F – Ecological Sustainability Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Lara Harland	February 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman; Sonja Toft; Patrina Hili	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

KPI	Key Performance Indicator
IEMS	Integrated Environmental Management System
ML	Megalitre
RCC	Redland City Council
RW	Redland Water
SCADA	Supervisory control and data acquisition
SCORe	Sewer Corrosion and Odour Research Project
TWCM	Total Water Cycle Management
WS	Water Supply
WWPS	Wastewater Pump Station
WWTP	Wastewater Treatment Plant

1. Introduction

This management plan outlines the direction and priorities for the Ecological Sustainability Plan.

1.1 Background

Sustainability is relevant to all aspects of any business. This management plan outlines how the key aspects of the Redland Water business relates to ecological sustainability and addresses issues which have not been covered in other Netserv plans.

The key sustainability issues related to Redland Water's business units are summarised in Table 1-1. These will be the focus of this Netserv Plan.

Table 1-1 – Key Sustainability Issues Related to Redland Water

Environmental Aspect	Water Business Unit		
	Customer and Retail Services	Distribution and Treatment	Infrastructure and Planning
Air	- Minimal	- Construction - WWTP Operation (Odour) - WWPS Operation including WW Reticulation (Odour)	- Feasibility Studies - Design
Energy and Greenhouse Gasses	- Meter Reading - Office Activities	- Maintenance Activities - WS & WW Network Operation (includes WWTP, WW PS & reticulation) - WWTP Operation - Office Activities	- Feasibility Studies - Design - Office Activities
Land	- Minimal	- Construction - WW Network (overflows)	- Feasibility Studies - Design
Water	- Minimal	- WWTP Discharges - WW Network (Overflows)	- Feasibility Studies - Design - Total Water Cycle Management
Resource Usage	- Office Activities - Demand Management	- WWTP Discharges - WWTP Biosolids - WS Leakage Management - Construction - Maintenance Activities - Office Activities	- Feasibility Studies - Design - Office Activities - Recycled Water Management - Demand Management

1.2 Objectives

The objectives of this management plan are to:

- Document current Ecological Sustainability initiatives

- Identify ecological sustainability improvement opportunities
- To optimise the operation of / the provision of ecological sustainability

1.3 Scope

The scope of this management plan covers the aspects shown in Table 1-2.

Table 1-2 – Key Sustainability Aspects included in this plan

Environmental Aspect	How the business process affects the environmental aspect
Feasibility and Design	
Air (odour)	System Detention times WWTP Design Odour control measures Design Criteria (WWPS overflows & WWTP by-passes)
Energy and Greenhouse Gases	Equipment Specified (VSD pumps etc) Capital Investment compared to energy usage requirements in option analysis. Embodied energy of adopted design
Land	Footprint of proposed works Location of proposed works
Water	Design Criteria - Volume (WWPS overflows & WWTP by-passes) Design Criteria - Quality (WWTP effluent quality)
Resource Usage and Waste	Capital Investment compared to chemical usage requirements in option analysis. Materials adopted in the design Design to minimise Water Leakage (Refer Part B, Appendix B - Leakage Management)
Construction	
Air (dust)	Dust created during construction
Energy and Greenhouse Gases	Energy consumed for construction activities
Land	Chemicals used for construction and how they are stored
Water	Erosion and Sediments from exposed soils Chemicals used for construction and how they are stored
Resource Usage and Waste	Construction wastes such as formwork, equipment shipping containers, scaffolding & demolition waste (if applicable) and the potential for reuse and recycling. Potential for recycling of general waste
Operations & Maintenance	
Air (odour)	WWTP Odour WWPS Odour Trade Waste Discharges (Refer Part B, Appendix G - Trade Waste Management Plan)
Energy and Greenhouse Gases	Vehicle Usage Biosolids Transport Effective maintenance of equipment (efficient operation)
Land	WWPS Overflows (Refer Part B, Appendix C - Overflow Management)

Environmental Aspect	How the business process affects the environmental aspect
	Storage of Chemicals on site and during maintenance
Water	WWPS Overflows (Refer Part B, Appendix C - Overflow Management) Storage of Chemicals on site and during maintenance WWTP Discharges Trade Waste Policy (Refer Part B, Appendix G - Trade Waste Management Plan)
Resource Usage and Waste	Potential for recycling of WWTP Wastewater (Refer Part B, Appendix H - Recycled Water Management) Potential for reuse of WWTP Biosolids Optimised operation of WWTP's to minimise chemical dosing Potential for recycling of general waste Design to minimise Water Leakage (Refer Part B, Appendix B - Leakage Management)
Meter Readings & Billing	
Energy and Greenhouse Gases	Vehicle Usage
Resource Usage	Water Demand Trends (Refer Part B, Appendix I - Demand Management)
Office Activities	
Energy and Greenhouse Gases	Vehicle Usage Computer usage Lighting Office Equipment (photocopiers, scanners)
Resource Usage and Waste	Potential for recycling of general waste Paper Consumption Disposal of biosolids and grit and screenings

Issues which are addressed in other Netserv plans and have not been considered further here are:

- Part B, Appendix B - Leakage Management Plan
- Part B, Appendix C - Overflow Management Plan
- Part B, Appendix E - Total Water Cycle Management Plan
- Part B, Appendix H - Recycled Water Management Plan
- Part B, Appendix I - Demand Management Plan

1.4 Responsibility

Overall responsibility for the Ecological Sustainability Plan lies with the Group Manager Water & Waste Infrastructure.

2. Context

Redland Water is operating in an environment that requires management of ecological sustainability to ensure that the business remains viable in the long term.

2.1 Key Drivers

The key driver relevant to the ecological sustainability management plan is described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Ecological sustainability	Growing expectations from our community and more stringent environmental regulations mean we are driven to implement our operation and maintenance services to meet our environmental obligations and effectively manage our impact on the environment. Regular monitoring and reporting processes are maintained to ensure that all water and wastewater discharges and activities that impact on our environment are reported as public information.

2.2 Relevant legislation, guidelines and polices

Key legislation, statutory documents and guidelines which impact on ecological sustainability include:

General Environment (Air, Land, Water & Resources)

- *Environmental Protection Act (EPA) (Queensland) 1994*
- *Environmental Protection Regulation (Queensland) 2008*
- *Environmental Protection (Waste Management) Regulation 2000*
- *Environmental Protection (Waste Management) Policy 2000*
- *Environmental Protection (Water) Policy 2009*
- *Environmental Protection (Air) Policy 2009*
- *National Environment Protection Council (Queensland) Act 1994*
- *DERM Operational Policy Management*- for beneficial reuse of biosolids from sewage treatment plants.
- *National Water Quality Management Strategy, NWQMS (2000) Guidelines for Sewerage Systems Sludge (Biosolids) Management.*
- *The NSW EPA Environmental Guidelines for the Use and Disposal of Biosolids Products, Oct 1997* adopted by DEHP as the QLD standard.
- *AS4454 Composts, Soil Conditioners and Mulches*
- *Beneficial Reuse Development Approvals* - All sites on which biosolids are applied are controlled by these approvals
- *Sustainable Planning Act 2009*
- *South East Queensland Regional Plan 2009-2031* (SEQRP) which provides a growth management framework and specifies high level population growth forecasts and broad landuse designations
- *South East Queensland Infrastructure Plan and Program 2008-2031* (SEQIPP) which outlines a prioritised investment program of infrastructure development to support the SEQRP
- *South East Queensland Water Strategy* (SEQWS) documents a new approach to water planning for the South East Queensland region designed to meet the region‘s water supply needs for the next 50 years
- *National Wastewater Source Management Guideline 2008*
- *Standard Plumbing and Drainage Regulation 2003*

- *ISO14001 - Environmental Management Systems*
- *DEHP WWTP Licences (Development Approvals) and Registration Certificate.*

Energy and Greenhouse Gases

- *National Greenhouse and Energy Reporting Act 2007*
- *Energy Efficiency Opportunities Act 2006*
- *National Carbon Offset Standard*
- *Securing a Clean Energy Future – The Australian Government's Climate Change Plan*
- *Clean Energy Act 2008*
- RW also has a range of policies and guidelines which impact on ecological sustainability. The relevant policies and guidelines are outlined below:
- Customer Service Standards
- Customer Service Charter
- Procurement Policy
- Environmental Policy
- Risk Management Framework

RCC also has the following policies which are relevant to ecological sustainability.

- Corporate Climate Change Policy - POL-309
- State of the Environment Summary 2009
- Confronting Our Climate Future**,** A Strategy to 2030 for Redland City to: reduce greenhouse gas emissions respond to climate change achieve energy transition August 2010
- Carbon Footprint 2010**,** A profile of Council's greenhouse gas emissions
- Confronting our Climate Future, Redland City Council Response to Climate Change, 2011

3. Current status

Redland Water has an Integrated Environmental Management System (IEMS) designed to manage and improve environmental and sustainability performance of Redland Water. While it is not certified, it is designed around ISO14001 which is fundamentally about continual improvement. RW has a dedicated Environment Systems Officer position to prepare and maintain the relevant IEMS documentation.

3.1 Current Performance

The environmental aspects identified in Table 1-2, can be consolidated into business processes. How each business process is currently managed in terms of Ecological Sustainability is included in Table 3-1.

Table 3-1 –Key Performance Indicators for Sustainability Issues (not included in other Netserv plans)

Environmental Aspect	Redland Water's Key Performance Indicator
Feasibility and Design	
Air (odour)	Number of Community Complaints about odour (KPI-17)
Energy and Greenhouse Gases	NGERS Inventory Spreadsheets
Land	Nil - A KPI for this is not feasible
Water	WWTP effluent quality monitoring (KPI – 18, Quarterly reporting through Point Source Database (now called WaTERS & EPA Annual Return) Part B, Appendix E - Total Water Cycle Management Plan
Resource Usage and Waste	Nil
Construction	
Air (dust)	As included in the Construction Environmental Management Plan
Energy and Greenhouse Gases	As included in the Construction Environmental Management Plan
Land	As included in the Construction Environmental Management Plan
Water	As included in the Construction Environmental Management Plan
Resource Usage and Waste	As included in the Construction Environmental Management Plan
Operations & Maintenance	
Air (odour)	Number of Community Complaints about odour (KPI-17)
Energy and Greenhouse Gases	WWTP - Bi-Annual Energy Audits Biosolids produced per ML ADWF (transport) Biosolids Truck Movements NGERS Inventory Spreadsheets Electricity Consumption Monitoring (by exception)
Land	Number of environmental incidents (sewage releases)
Water	Number of environmental incidents (release quality & quantity) WWTP effluent quality monitoring (KPI – 18, Quarterly reporting through Point Source Database (WaTERS) & EPA Annual Return) Part B, Appendix E - Total Water Cycle Management Plan
Resource Usage and Waste	Percent of Biosolids beneficially reused

Environmental Aspect	Redland Water's Key Performance Indicator
	Percent of Wastewater Recycled (Appendix H - Recycled Water Management Plan Grit and Screenings volumes disposed of
Meter Readings & Billing	
Energy and Greenhouse Gases	Nil
Office Activities	
Energy and Greenhouse Gases	Nil
Resource Usage and Waste	Nil

Environmental audits of the WWTPs are undertaken every 2 years and are due 2013. In addition, compliance inspections of the WWTPs are carried out by DEHP.

3.1.1 General

Redland Water's current performance to all the KPI's, can be seen in the monthly business unit report which can be found at:

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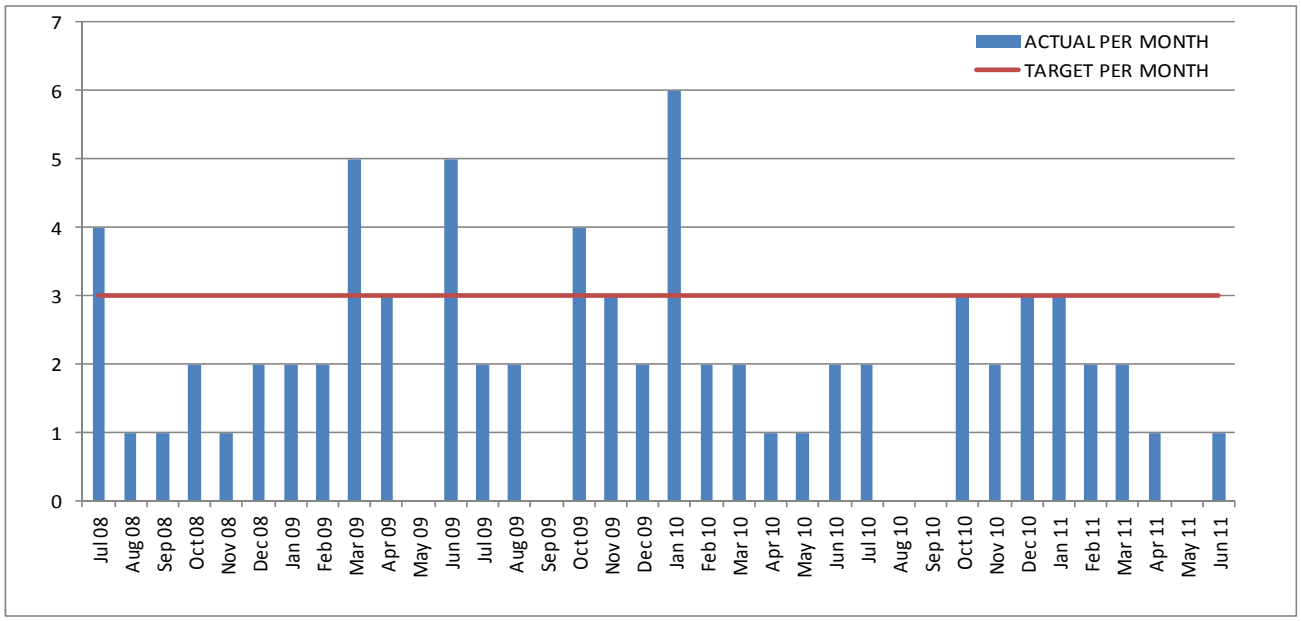
Environmental incidents and spills are reported under the Environmental management system and where appropriate reported to the DEHP pollution hotline.

3.1.2 Odour

Redland Water has a target of less than 3 odour complaints per month under *KPI 17 - Average number of odour complaints per month*. As shown on Figure 3-1, Redland Water has exceeded this target five times from 2008 to 2011. Most of these peaks in complaints were due to particular odour issues occurring at WWTPs or PSs.

Figure 3-1 - KPI 17: Average Number of Odour complaints per month

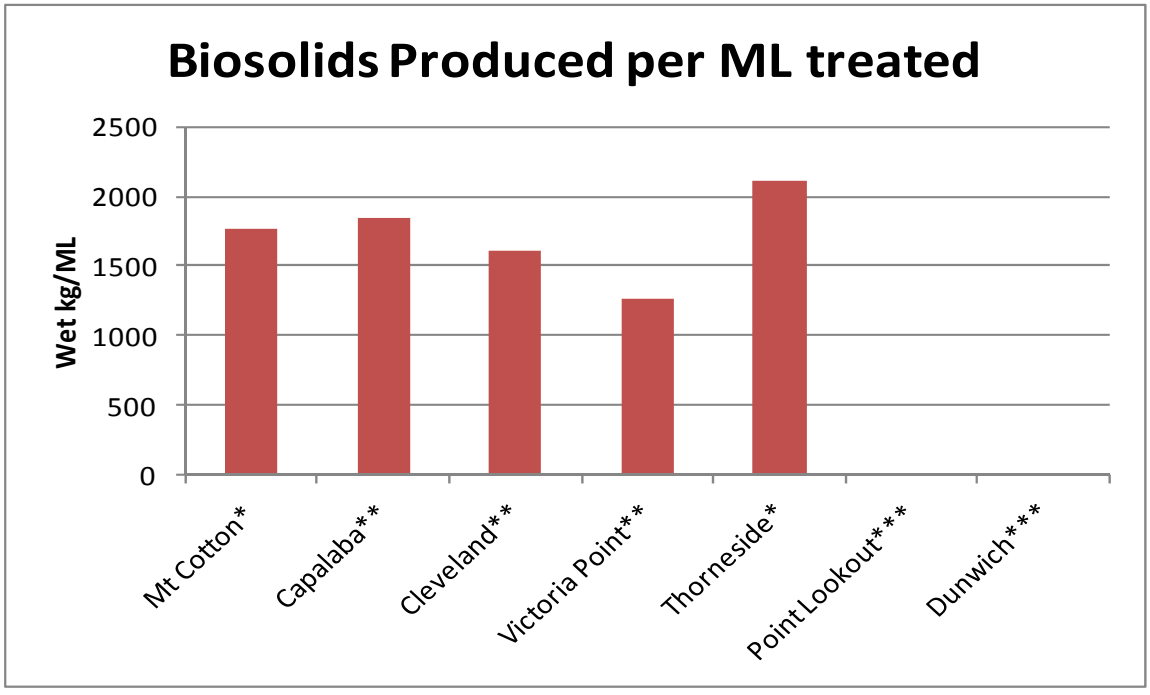


3.1.3 Resource Usage and Waste

Biosolids

The efficiency of the sludge stabilisation and dewatering practices can be seen in Figure 3-2 below. The graph shows the biosolids produced per megalitre (ADWF). The plant that is least efficient (i.e. produce the most sludge per megalitre) is Thorneside. The plants that get a better efficiency from smallest to largest are Victoria Point and Cleveland. Capalaba and Mt Cotton are considered average.

Figure 3-2 - Mass of Sludge produced Per ML of Wastewater treated



Note: **July 2009 to June 2010*
*** Jan 2010 to Dec 2010*
****There is no data available for Pt Lookout or Dunwich*

The impact of biosolids on greenhouse gases is related to the number of truck movements and kilometres travelled while disposing of the biosolids. The average kilometres travelled per year and per ML of wastewater treated for Redland's biosolids is included in Table 3-2.

Table 3-2 – Truck movements and km travelled for transporting biosolids

TRUCKS MOVEMENTS	KILOMETRES TRAVELLED (return)
460/annum	225054/annum
0.049/ML	24.01/ML

Note: Dunwich and Point Lookout have been excluded due to insufficient data
Based on 9373 ML/annum
Refer Table B.4 in Appendix B shows more detail on the calculation of these figures

Grit and Screenings

Table 3-3 – Grit and Screenings Disposal 09/10

WWTP	Number bins per month	Estimated Tonnage (kg per month)
Thorneside	106	10.6
Cleveland	72	7.2
Victoria Point	65	6.5
Capalaba	45	4.5
Mt Cotton	6	0.6
Point Lookout	3	0.3
Dunwich	1.5	0.15
Total	**298 bins per month**	**30 tonnes per month**

Grit and screenings are regulated waste and as such require collection and disposal by a suitable contractor. The current collection and disposal contract is due to expire in October 2013.

The step screen at Cleveland WWTP is currently being replaced by a band screen which has an improved screenings collection efficiency of double to three times the current. This will result in increased volumes of collection at this plant. .In the near future a band screen will also be installed at Thorneside WWTP.

3.1.4 Energy

There is currently no energy data collected for Redland Water. However Redland City Council has a number of initiatives relating to energy management including *Confronting Our Climate Future: A Strategy to 2030 for Redland City, 2010*. It is expected that now Redland Water is back with RCC that it will need to adopt the measures identified in RCC plan.

Energy is managed on an individual WWTP basis and by undertaking ad-hoc efficiency improvements where opportunities are identified. The major contributors of greenhouse gas emissions and energy costs for Redland Water are the four main wastewater treatment plants (Cleveland, Thorneside, Capalaba, and Victoria Point) as well as the wastewater pump stations (about 130).

Redland Water currently procures approximately $1.5 million of electricity per year.

3.2 Recent measures

The IEMS is currently being reviewed and updated after being split from the Allconnex Water System.

3.2.1 General

All staff have recently received Environmental Due Diligence Training.

3.2.2 Odour Management

The current odour complaint process is noted through customer request management (CRM) or Proclaim. All odours are meant (some complainants call the operators directly) to be lodged via CRM so that RW can accurately monitor/capture the odour complaints. All staff are aware that they need to document any odour complaints that they receive directly from the public and report to Customer service so that it is captured on the one system. There is currently no odour management plan written up, there is a process for monitoring (CRM), however it needs to be reviewed.

The current odour complaint process is : An odour complaint is received via customer service, it is lodged in CRM, the operator/supervisor is notified and they attend to the odour site. What happens after is what needs reviewing.

The following odour management initiatives have recently been initiated.

- Thorneside WWTP bio trickling and carbon unit
- Capalaba WWTP - Odour from inlet building piped to bio trickling filter for treatment
- Investigating the use of Calcium Nitrate and MgOH for odour control within the Thorneside WWTP PS catchment (as an alternative to ferric chloride dosing at PS 35)

3.2.3 Biosolids

Redland conducted an audit in 2010 of Arkwood/Thiess contractors to ensure environmental compliance and adherence to contract conditions. The current contract for biosolids collection and disposal will expire July 2013.

The recent commissioning of a new high rate decanter at Capalaba WWTP to improve sludge dewatering performance at the WWTP.

3.2.4 Energy Management

An energy audit of four of the WWTP's is being commissioned. An energy audit will be undertaken in 2013 (completed by 30 June 2013) to meet the requirements of the DA reporting.

4. Key Issues and Improvements

4.1 Key Issues

4.1.1 General

There are no significant issues relating to general environmental management.

4.1.2 Odour

The Redland Water key issues regarding odour management are:

- Reactive rather than proactive odour management based on customer complaints
- A number of the WWTPs and pump stations have been recording odour complaints from disgruntled customers. Odour mitigation is being considered at pump stations as required.
- There are a number of existing and emergent technologies on the market that can be used to reduce the formation or release of odorous gases in the wastewater network, or to treat the odorous gases once released. The life-cycle cost effectiveness (and also impact on corrosion) should be examined to ensure optimal management of odour across the business.

4.1.3 Biosoilds

Biosolids haulage and treatment is a large cost to the Redland Water business. Opportunities for cost reduction and improvement to the quality of biosolids produced have been identified. The improvements that could be made to address the key issues are discussed below:

- Potential for reduced sludge volumes from optimised dewatering. The dewatering practices at each of the plants could be examined to determine if optimisation is necessary/possible. Further analysis on the use of sludge drying beds to produce a dryer sludge should be initiated.

4.1.4 Energy Management

Consumption

Minimising energy consumption is critical to effective energy management. The key issues are:

- adequate sub-metering to understand where energy is used and to quantify the amounts for each major asset, site or process
- ongoing system optimisation projects where cost-effective

Costs

Redland Water currently procures approximately $1.5 million of electricity per year. The key issues are:

- ensuring cheapest available energy procurement
- back into the grid during peak demand periods where cost-effective opportunities exist

Renewable Energy

Redland Water currently relies almost exclusively on non-renewable energy. Redland City Council has a number of initiatives relating to climate change and the reduction of green house gases. Redland Water will need to adopt and implement the relevant council strategies.

4.2 Improvements

4.2.1 General

It is proposed to update the Integrated Environmental Management System to allow Redland Water to manage its environmental performance.

4.2.2 Odour

Redland Water needs to make a number of improvements to help manage odour in a sustainable and cost-effective way. Some improvements that are suggested include:

Development of response plans for dealing with odour complaints, and accessing historical odour complaint records. A complaint response protocol should be developed that includes:

- complaint logging (via CRM)
- assignment to investigators (via CRM)
- investigators actions and recommendations and (CRM but may require further work i.e. some complaints do not have all the necessary details)
- customer (complainant) follow-up notification. (CRM but may require further work with regards to recording the follow-up i.e. they follow up but sometimes this is not accurately noted in CRM)

Once the odour has been investigated with the relevant personnel, and depending on the findings, several further steps then need to be taken.

Investigation of the odour can be difficult and time intensive due to:

- difficulty identifying the odour source along with any points of emission
- difficulty in measuring the odour intensity
- potentially very expensive to implement a solution for a small number of affected receptors.

It is also sometimes difficult to separate serious odour complaints resulting from excessive odour emissions from odour complaints registered by disgruntled neighbours during non-odour events. An easy-to-follow chart should be developed that clearly outlines the reporting procedure.

Odour is listed in the aspects and impacts register for the wastewater treatment plant and will be in the Pump Station site based management plans. Information that may be included is:

- identification of odour sources
- minimisation of odour at the sources including management and control strategies
- monitoring and modelling of odorous emissions as appropriate; and
- a detailed complaints management procedure for nearby land users and residents affected by odour.

A greater understanding of potential odour control units and chemicals to ensure the right solution for the problem. Information from the Sewer Corrosion and Odour Research Project (SCORe) should be obtained and read, and if appropriate disseminated to the business.

4.2.3 Biosolids

Redland Water will commence the project Sludge Dewatering Options Assessment in early 2012 which will review the current sludge dewatering infrastructure at Cleveland, Thorneside, Mt Cotton and Victoria Point WWTPs. Options for dewatering performance improvement will be considered for the short-medium term.

A program to look for opportunities for dewatering optimisation should be initiated. To date polymer selection and BFP maintenance have been identified as key components to effective dewatering and capture rates.

Redland Water has identified the opportunity to decrease sludge trucking costs by installation of a sludge solar dryer. The feasibility of this concept needs to be investigated and costed.

4.2.4 Energy Management

Consumption

Wastewater pump station and wastewater treatment switchboard program

The switchboard replacement program involves renewal of old switchboards to a new standard to allow mobile generators to be quickly connected to minimise wastewater overflows.

Each new switchboard also features pump-station control logic and functionality that ensures pumps are run at the highest efficiency mode for the longest possible time during each operating cycle.

Various asset upgrade/refurbishment programs (e.g. WWTP, wastewater and water pump stations)

The asset upgrade or refurbishment program provides for new and improved assets at wastewater pump stations and treatment plants, which often result in more efficient system operations (reduced greenhouse gases and energy consumption).

Also, Wastewater pump stations (WWPSs) are continually being upgraded to facilitate the latest developments that enhance performance, reliability and energy efficiency.

Costs

Wastewater treatment plant sub-metering project

A project is currently programmed to identify the largest energy consuming machinery/process/plant within our highest single energy user asset group, the WWTPs.

Review and upgrade wastewater telemetry as follows:

- Upgrade Servers
- Get frequencies changed across mainland to suit ACMA
- Upgrade backbone radios from DR to JR series
- Investigate / modify / rewire repeater power supplies (from storm debrief)

Review and upgrade water telemetry as follows:

- Get our hardware installed and commissioned at SEQWater sites Amity, Dunwich, Point Lookout WTP
- Modify switchboard / take control of Tramican Street pump station
- Modify switchboard / take control of Rainbow Crescent pump station

Reviews of energy account data and purchasing options

Energy account data is received monthly and reviewed for gross errors and duplication. Minor over-reading errors are automatically accounted for by corresponding under-reading errors on subsequent accounts. As part of our KPI analysis and reporting it has been traditional to analyse in more detail any significant changes to energy consumption patterns of individual assets or groups of assets and action wherever a meaningful action could be determined.

As each energy supply contract approaches renewal, consideration of our energy supply and purchase options is undertaken to identify and procure the cheapest power available.

Increase in Renewable Energy

Redland Water is to adopt and implement RCC energy management policies.

Back up Energy Supply

The energy back up program involves the structured rollout and continued management of emergency fixed generators for critical major pump stations and emergency portable generators and corresponding connection points for other pump stations.

Energy Management Education

Redland Water needs to address awareness and educational issues related to energy management. It is likely that this will be led by RCC as part of their energy reduction programme.

5. Proposed Actions

The proposed actions to improve environmental and sustainability performance are included in Table 5-1.

Table 5-1 - Action Plan

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
General			
Update the IEMS	2013-2014	Environment Systems Officer & other system users/managers	Commenced
Ongoing support and participation in the Healthy Waterways environmental monitoring program	N/A	General Manager Infrastructure & Operations	Ongoing
Develop Long Term Recycled Water and Reuse and Release Strategy	2014-15	Group Manager Water & Waste Infrastructure	
Odour			
Develop standardised odour complaint management protocols	2012-13	Environment Systems Officer & Customer Service Coordinator	Commenced
Odour upgrades at wastewater treatment plants and pump stations	As required	Group Manager Water & Waste Infrastructure	Ongoing
Biosolids			
Review of feasibility of dewatering options (for growth replacement)	2014-15	Group Manager Water & Waste Infrastructure	Ongoing
Ensuring biosolids quality management (including stabilisation grade)	June 2013	Group Manager Water & Waste Operations	Ongoing
Energy			
Wastewater pump station and WWTP switchboard program	Annually	Principal Engineer Control Systems Engineer	Ongoing 10 Year Program
Energy accounts reviews, review of purchasing options	At renewal	Group Manager Water & Waste Infrastructure	Ongoing
WWTP sub-metering project	30 June 2015	Principal Engineer Control Systems	Not yet

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
		Engineer	started
Implementation of the energy backup program	30 June 2014	Principal Engineer Control Systems Engineer	Commenced
Incorporate RCC energy management strategy and policies in the RW Business	December 2013	Group Manager Water & Waste Infrastructure	Commenced

6. References

NSW Environmental Protection Agency, *Environmental Guidelines for the Use and Disposal of Biosolids Products*, Oct 1997.

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Appendix A – Background to Odour Issues

A.1 Odour Generation

Odours in wastewater generally arise from the biological conversion of organic matter under anaerobic conditions. Industrial wastewater may also contain odorous compounds, or compounds that react with other wastewater constituents to generate odour.

The main odorous compounds emitted from wastewater treatment plants include hydrogen sulphide, ammonia, di-methyl sulphide, mercaptans and a range of volatile organic compounds (VOCs).

The main determinants of the concentration of odorous compounds contained in wastewater are:

- the constituents of the wastewater
- the time taken for the wastewater to travel from the source (residences, commercial and industrial premises) to the treatment plant, and the exposure to oxygen during that time
- temperature

Unless there are specific design provisions to facilitate exposure of the wastewater within the reticulation network to oxygen, anaerobic conditions will usually predominate. Under those circumstances, the longer wastewater is retained within the wastewater network, and the warmer the temperatures, the more biological conversion that will take place. Warmer temperatures and longer retention times increase the production of hydrogen sulphide, in particular.

Odour release at treatment plants depends on the variation of flows during the day, the concentration of odorous compounds, the surface area of treatment process units, and the amount of turbulence in and between those units. The larger the surface area, and the more turbulence, the greater the amount of odour released.

Due to the variety of parameters affecting odour generation, it is very difficult to predict the concentration of odour that will be emitted from Redland Water assets. An understanding of odour emissions can be gathered using a number of monitoring techniques (e.g. hydrogen sulphide monitoring, dynamic olfactometry, odour modelling, odour complaints etc). The odour footprint of some Redland Water assets is unknown and more information is required in order to optimise operation to reduce emissions and prioritise spending on targeted mitigation measures.

A.2 Odour Capture and Treatment

Best practice odour control facilities at wastewater treatment facilities comprise the following elements:

- covering of odour sources to capture emissions
- transport of the captured air to an odour treatment facility
- treatment of the air to reduce the odour contour and
- release of the treated air through a stack.

Covers can never achieve a complete seal, but well constructed and installed covers, together with adequate negative or suction pressure, can limit the emissions from leakage and during maintenance (while hatches are open).

The magnitude of the negative pressure that can be sustained under odour control covers depends on a wide range of factors including:

- the negative pressure provided by the odour system fan at the extraction point
- the number of extraction points, and dispersal of the extraction points around the cover
- the type of cover, number of cover joints, equipment penetrations and cover flexibility
- the size of air inlets, and their configuration (weighted air inlet dampers lead to better negative pressure)
- the degree of interconnection of process areas under the covers
- the ventilation rate and
- the wind loading on the covers.

While good seals have been achieved at a number of plants throughout Australia, it is expected that the covers and seals will degrade over time, and the average negative pressure will slowly degrade.

The treatment options include activated carbon (A/C) filters, chemical scrubbers and several types of biological treatment.

A/C filters use carbon as the absorbing agent. They are considered a reliable means of achieving a high odour reduction rate. A/C filters do require periodic replacement of the filter media, and they can be a less cost effective where there is a high concentration of odorous volatile organic compounds (VOCs).

Chemical scrubbing systems bring the odorous air into contact with chemicals, which oxidise or absorb the odorous compounds. Chemical scrubbers are more favoured where VOCs predominate, but are operationally complex than activated carbon units and require the on-site storage and handling of dangerous chemicals.

In biofilters, the air is passed up through a filter media. The filter media provides a surface on which bacteria can grow, and the odorous gases are neutralised by bacterial action. Biotrickling filters work on a similar principle to biofilters, except that moisture is added to support the bacterial growth. Biofilters and biotrickling filters can cheaply treat odour, and are less operationally complex than chemical scrubbers. However, they are less able to withstand sudden changes in odour concentration and cannot provide as effective treatment for high odour loads as Odorgard chemical scrubbers and A/C filters.

Depending on the local conditions, combinations of these treatment options may be adopted.

Odour emissions can also be reduced by:

- decommissioning the odorous process units. However, unless other works are undertaken, this will usually lead to a reduction in the capacity or performance of the plant
- adding oxygen or oxygen rich compounds such as nitrates to the raw sewage to inhibit the production of hydrogen sulphide. However, these measures can adversely affect the treatment plant performance, and mis-dosing can inadvertently result in higher odour production and Workplace Health & Safety (WH&S) issues
- adding chemicals that help to keep the sulphide compounds in the solid or liquid phase (as opposed to the gaseous phase). Examples are ferric salts that bind the sulphide, or magnesium hydroxide that increases the pH and moves the hydrogen sulphide from H2S to HS-
- flushing out wastewater mains with recycled water, reducing the opportunity for the formation of sulphides
- chemical sprays have also been used to attempt to mask or eliminate odour with varying results

A.3 Determination of odour impacts

The effect of odours on surrounding environs ("odour sensitive places") varies according to odour concentration, wind direction, weather (windy days/nights or rainy days/nights versus hot, still days/nights) and the odour perception of individuals, which also varies to a great extent.

Aside from weather conditions though, the two main contributing factors are the quantity of odour released into the atmosphere, particularly at ground level where it is less easily dispersed, and the proximity of the closest odour sensitive places.

With effective odour capture and treatment measures in place, the level of impact usually depends on the strength of odour emitted from those sources which have not been covered, and the amount of emissions arising from leakage and during maintenance from those areas which have been covered.

The ability of Redland Water to capture odour complaints and assign them against an asset is often difficult.

The ability to review historical odour complaints is often problematic, however, it is a requirement of our environmental obligations and helps to determine the impact of our assets on the community.

Appendix B Background to Biosolids Issues

B.1 Legislative History

According to the Australasia and New Zealand Biosolids Partnership (ANZBP):

- *'In considering biosolids management, it needs to be recognised that there are only two options for long term biosolids management: (i) application to land in one form or another, with a range of stabilisation and dewatering/drying options; and (ii) incineration (energy from waste), with the residue to landfill or land. Landfill of biosolids is not generally accepted, or will not be accepted in the future, by regulators in Australia and New Zealand. The accepted waste management hierarchy is: avoidance, reuse, recycling, recovery of energy, treatment, containment and disposal (as a last resource).'*

Biosolids are regulated by the respective state government bodies using the guidelines that apply in that State or Territory, or by adopting those used in other States or National Guidelines. The overarching document in Australia is produced under the auspices of the *National Water Quality Management Strategy, NWQMS (2000) Guidelines for Sewerage Systems Sludge (Biosolids) Management*.' The ANZBP has recently completed a review of the relevant guidelines. DEHP has adopted the NSW EPA *Environmental Guidelines for the Use and Disposal of Biosolids Products, Oct 1997*.

DEHP encourages beneficial reuse of biosolids in their development approvals that indicate that each WWTP should have a waste management plan that includes: 'procedures for identifying and implementing opportunities to improve the waste management practices employed (e.g. opportunities for beneficial reuse of biosolids)'.

While such reuse of materials is consistent with the Waste Management Hierarchy, the use of these materials for nutrient enhancement of soils may create environmental problems such as odour and contaminant runoff to surface waters if not appropriately managed. Section 319 of the *Environmental Protection Act 1994 (EP Act)* requires compliance with the general environmental duty — a person must not carry out an activity that causes or is likely to cause environmental harm (under section 436 of the EP Act, an environmental nuisance is classified as environmental harm), unless the person takes all reasonable and practical measures to prevent or minimise the harm.

Persons carrying out biosolids application to land must, therefore, consider how they will comply with their general environmental duty under the Environmental Protection Act. The Australian Standard *AS4454 Composts, Soil Conditioners and Mulches* provides comprehensive guidelines for product quality and could be used to specify biosolids products and suitable management practices.

Other key legislative and policy requirements are outlined below:

- Biosolids, classified under 'Treatment tank sludges and residues (including sewage tank sludges and residues)' are a 'regulated waste' under the *Environmental Protection Regulation 1998*. All aspects of biosolids management are classed as Level 1 Environmentally Relevant Activities which must be covered by a licence(s) under the *Environmental Protection Act 1994*.
- Biosolids are also categorised as 'trackable waste' under the *Environmental Protection (Waste Management) Regulation 2000*.
- Under the *Environmental Protection (Waste Management) Policy 2000*, each local government must start implementing by July 2003 a waste (including biosolids) management strategic plan, and report annually to EPA on progress.

- DERM encourages the beneficial use of biosolids if quality standards are met and regulatory requirements complied with.
- DERM has issued an Operational Policy Management for beneficial reuse of biosolids from sewage treatment plants.
- DERM's operational policy recognises the *NSW Environmental Guidelines, Use and Disposal of Biosolids Products 1997* as interim measures for biosolids reuse.

B.2 Biosolids quality requirements

Biosolids are graded for quality on the basis of the DERM operational policy, which refers to the NSW EPA criteria for contaminants and stabilisation. The regulated contaminants are a range of metals and organic pesticides. The degree of stabilisation reflects likely pathogen and vector attraction levels. To beneficially apply to land the biosolids must achieve at least Restricted Use 2 (minimum of stability grade of B and a contaminant grade of C).

The NSW EPA criteria for stabilisation grade have been established to minimise the risks to human and animal health, and to reduce odour. Grades are established by treatment process and some measures of remaining organic matter. Stabilisation of Grade B biosolids involves reduction of pathogens, but substantial levels of pathogens remain in the product. Table B.1 (Table 3-3 from the NSW Guidelines) outlines the acceptable stabilisation pathogen reduction methods, and measures of vector attraction reduction.

Table B.1– Stabilisation Methods (Table 3-3 from NSW EPA Guidelines, 1997)

TABLE 3-3

Biosolids Stabilisation Requirements

*A biosolids product must meet at least one **pathogen reduction** requirement and at least one **vector attraction reduction** requirement.*

Pathogen Reduction Process	Vector Attraction Reduction Requirements
Stabilisation Grade A 1. Thermally treated biosolids a) Biosolids > 7% solids with temperature at least 50° C. The equation (1) for the time -temperature requirement is: $D = \frac{(131,700,000)}{(10^{0.1400t})}$ where D = time required in days, t = temperature in degrees celsius This option includes pasteurisation at 70° C for 30 mins;. b) Biosolids > 7% solids. This option includes composting at 55°C for 3 consecutive days. c) Biosolids > 7% solids that are small particles heated by contact with either warmed gases or an immiscible liquid. The temperature should be at least 50° C for at least 15 seconds using the equation above.This option includes biosolids in contact with a hot gas stream in a rotary drier or biosolids dried in a multiple-effect evaporator system. d) Biosolids < 7% solids and less than 30 minutes contact time. Use equation 1 for contact times > 15 seconds and < 30 minutes. e) Biosolids < 7% solids and > 30 minutes contact time at 50° C or higher use equation (2) below: $D = \frac{(50,070,000)}{(10^{0.1400t})}$ This option includes thermophilic aerobic digestion. 2. High pH—high temperature process The pH of the biosolids product is to be raised to greater than or equal to pH 12 and remain above pH 12 for 72 hours. During at least 12 hours of the 72-hour period, temperature of the biosolids product has to be greater than 52° C. After 72 hours biosolids product must be air dried to a solids content of more than 50%. 3. Biosolids from unknown processes For biosolids where the history of processing is not known, the product will be subject to a program of testing for the parameters contained in tables 3-4 and 3-5. The testing regime must be accepted by the EPA. This option includes stockpiles of "dewatered" or dried biosolids which have been stored for a minimum of three years.	1. Mass of volatile solids in the biosolids shall be reduced by a minimum of 38%. 2. Anaerobically digested biosolids which do not meet requirement 1. above must have no more than 17% further volatile solids reduction when incubated under anaerobic conditions in a bench scale reactor for an additional 40 days at 30-37° C. 3. Aerobically digested biosolids which do not meet requirement 1. above must have no more than 15% further volatile solids reduction when incubated under aerobic conditions in a bench scale reactor for an additional 30 days at 20°C (typically used for extended aeration processes). 4. Specific oxygen uptake rate for biosolids treated by an aerobic process shall be less than 1.5 mg O_2/hour/g total solids at 20° C. 5. The pH value of the biosolids shall be raised to 12 and without the addition of further alkali shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours. 6. For biosolids which contain stabilised solids only, the proportion of dry solids shall be at least 75%. 7. For biosolids which contain unstabilised solids generated in a primary wastewater treatment process the proportion of dry solids shall be at least 90%. 8. Biosolids shall be treated in an aerobic process for at least 14 days. During that time, the temperature of the biosolids shall be >40° C and the average temperature >45° C. This option relates primarily to composted biosolids.
Stabilisation Grade B 1. Anaerobic digestion 2. Aerobic digestion 3. Air drying 4. Composting 5. Lime stabilisation 6. Extended aeration 7. Other processes accepted by the EPA	One of the vector attraction reduction requirements from Stabilisation A above or one of the following requirements: Process Option (for Stabilisation B only) 1. At least 20 days continuous or intermittent extended aeration including aerobic digestion time followed by six (6) months storage of biosolids in a lagoon or equivalent process. Barrier Options (for Stabilisation B only) 2. Biosolids shall be injected below the surface of the land. 3. Biosolids applied to the land surface must be incorporated within six hours of application on the land.
Stabilisation Grade C Not meeting any of the above requirements	Not meeting any of the above requirements

The relevant biosolids stabilisation methods/requirements for Redland Water are shown in Table B.2 below.

Table B.2– Biosolids stabilisation methods/requirements

STABILISATION GRADE	PATHOGEN RESUCTION METHOD	VECTOR ATTRACTION REDUCTION MEASURES
Stabilisation Grade A	No relevant processes for Redland Water WWTP's	1. Mass of VS is reduced by >38% 2. Anaerobically digested biosolids – no more than 17% further volatile solids reduction when incubated at 40 days at 30-37 degrees C. 3. Aerobically digested biosolids – no more than 15% further volatile solids reduction when incubated at 30 days at 20 degrees C. 4. SOUR of <1.5mgO2/hr/g total solids at 20 degrees C.
Stabilisation Grade B	1. Anaerobic digestion 2. Aerobic digestion 3. Air drying 4. Composting 5. Extended aeration	1. At least 20 days extended aeration followed by 6 month storage in a lagoon 2. Biosolids applied to the land must be incorporated within 6 hours of application on the land

The contaminant grade is derived from the concentration of selected metals and organic pesticides in the biosolids. The lowest grade achieved (from A to E) for any particular contaminant defines the grade for the biosolids. For use in agriculture the required grade is contaminant grade C, and the grade thresholds can be found below in Table B.3 (Table 3-1 in the NSW EPA Guidelines).

Table B.3– Biosolids Containment Guidelines from (Table 3-1 - NSW EPA, 1997)

TABLE 3-1

Contaminant Acceptance Concentration Thresholds*

Contaminant	Grade A[1] (mg/kg)[3]	Grade B[2] (mg/kg)[3]	Grade C (mg/kg)[3]	Grade D (mg/kg)[3]
Arsenic	20	20	20	30
Cadmium	3	5	20	32
Chromium (total)	100	250	500	600
Copper	100	375	2,000	2,000
Lead	150	150	420	500
Mercury	1	4	15	19
Nickel	60	125	270	300
Selenium	5	8	50	90
Zinc	200	700	2,500	3,500
DDT/DDD/DDE	0.5	0.5	1.00	1.00
Aldrin	0.02	0.2	0.5	1.00
Dieldrin	0.02	0.2	0.5	1.00
Chlordane	0.02	0.2	0.5	1.00
Heptachlor	0.02	0.2	0.5	1.00
HCB	0.02	0.2	0.5	1.00
Lindane	0.02	0.2	0.5	1.00
BHC	0.02	0.2	0.5	1.00
PCBs	0.3	0.3	1.00	1.00

* Contaminant acceptance concentrations are **not** mean values. Refer to Schedule 2.

Notes:

1. The Grade A threshold for cadmium is under review and will be revised in 2 years. Subject to the outcome of this review, the standard for cadmium would be revised and then may become the same as the maximum allowable soil concentration for agricultural land, namely 1 mg/kg.

2. The Grade B threshold levels are under review and will be revised in 2 years.

3. Values are expressed on dry weight basis.

B.3 Biosolids Sources in Redland

The sources of biosolids in Redland City and haulage distances are summarised in Table B.4.

Table B.4 – Description of biosolids sources

WWTP SITE	DATA PERIOD	INFLUENT ADWF (ML/d)	WASTE ACTIVATED SLUDGE PRODUCED kg/d dry	BIOSOLIDS PRODUCED (FROM SLUDGE FLOWS) kg/d wet	Biosolids Produced wet kg/per ML treated	Approximate distance (km?) (google maps suburb to suburb)	Truck movements/ annum assuming 35 T truck	Return km/annum	Km.tonnes/ annum
Mt Cotton	July 09 to Jun 2010	0.60	147	1,058	1763	243	11	5362	2070739
Cleveland	Jan 2010 to Dec 2010	6.51	1,556	10,485	1611	246	109	53797	205882606
Thorneside	July 09 to Jun 2010	7.29	2,142	15,388	2111	244	160	78312	439847231
Victoria Point	Jan 2010 to Dec 2010	6.18	1,070	7,816	1265	250	82	40755	116267087
Capalaba	Jan 2010 to Dec 2010	5.10	1,342	9,394	1842	239	98	46828	160563451
TOTAL		**25.68**	**6257**	**44141**	**8592**	**1222**	**460**	**224944**	**924631114**
Point Lookout	Jan 2009 to Dec 2010	0.18	No data	No data	No data	No data	No data	No data	No data
Dunwich	Jan 2009 to Dec 2009	0.110	No data	No data	No data	No data	No data	No data	No data

Source: TYR Allconnex Group Memo 1 Biosolids Production Projection (July 2011)

Redland Water Water Netserv Plan

PART B

APPENDIX G – Trade Waste Management Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Kane Macready Engineers Plus	March 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman; Sonja Toft; Lee Williamson; Daniela Simon	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

Notation and Abbreviations

ASQMG	Australian Sewage Quality Management Guidelines
DA	Development Application
DEHP	Department of Environment and Heritage Protection
KPI	Key Performance Indicator
RCC	Redland City Council
RW	Redland Water
TWEMP	Trade Waste Environmental Management Plan
WWTP	Wastewater Treatment Plant

1. Introduction

This management plan outlines the direction and priorities for Redland Water's Trade Waste Management plan. This plan is part of 'Part B' of Redland Water's *Water Netserv Plan*.

1.1 Background

Wastewater source management is guided by the *Australian Sewage Quality Management Guidelines* (ASQMG), June 2012. This document provides best practice guidance for a utility in the management of inputs to their sewerage system based on a risk management approach.

Redland Water is proactive in its management of wastewater quality to ensure the influent at each wastewater treatment plant (WWTP) is as consistent as possible. The quality of wastewater is influenced by factors such as:

- quality of water used by customers
- asset management, including selection of materials, location and quality
- asset condition and maintenance, including cleaning and chemical dosing of wastewater and pump stations
- treatment plant operations
- domestic and non-domestic uses of water and
- customer waste management practices.

Source control and trade waste/discharge management offers opportunities to deliver improved financial performance through prudent and efficient management of the business. It an important source of revenue recovery for Redland Water, as well as providing a community least-cost approach to waste management.

1.2 Objectives

The objective of the *Trade Waste Management Plan* is to identify, assess and control inputs into the wastewater system to ensure the reliable, compliant and safe production of recycled water and biosolids. In addition, the plan aims to ensure community and employee safety and to protect wastewater network assets.

1.3 Scope

This management plan attempts to manage the quality and quantity of wastewater discharged to the wastewater system. As such, sources that are covered by the plan include:

- trade waste generators
- illegal discharges
- seawater ingress/infiltration
- stormwater inflow/infiltration
- tankering operations
- inputs from domestic premises and
- any other sources that may pose a risk to workers' safety, assets or products (recycled water and biosolids).

1.4 Responsibility

Overall responsibility for the *Trade Waste Management Plan* lies with the Manager Scientific Services.

2. Context

Redland Water is operating in an environment that requires management of trade waste to ensure that service standards are maintained and legislation, guidelines and policies are upheld.

2.1 Key Drivers

The key drivers relevant to the Trade Waste Management Plan are described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Customer Service	Customer expectations for a safe, reliable, high quality, value for money services need to be met. The Customer Service Standards outline the services and standards customers can expect to experience. There is a need to build and develop ongoing relationships with our customers. Quality products and services, with customer services including timely response to complaints and requests.
Business Efficiency	There is a need for improved financial performance driven by increases in input and compliance costs and the need for returns for RCC. This will be delivered through prudent and efficient management of the business. Efficient Service Delivery through Lifecycle Management of Assets.
Environmental Sustainability	Growing expectations from our community and more stringent environmental regulations mean we are driven to implement our operation and maintenance services to meet our environmental obligations and effectively manage our impact on the environment. Regular monitoring and reporting processes are maintained to ensure that all water and wastewater discharges and activities that impact on our environment are reported as public information.
Good Governance / Meeting Legislative Obligations	Ensuring that RW is controlled and governed in a way that it will achieve its strategic and operational objectives, while ensuring that we meet the requirements of the law, regulations, published standards, and community expectations of probity, accountability, and openness[1].
Staff – Skilled and Knowledgeable and Safe	To be able to deliver its services RW needs to ensure that its workforce is both skilled and knowledgeable. In addition, the need to provide a safe workplace is a key business driver.

More specifically, the following issues directly impact on *Trade Waste Management*.

2.1.1 Changes in customer behaviour (e.g. water consumption) and plumbing practices

Customer behaviour changes (e.g. water consumption patterns) and plumbing practices (e.g. storm water inputs) can impact on the sizing and cost of the wastewater infrastructure and also the capacity of the wastewater treatment plants (WWTP). Small amounts of trade waste discharges are less likely to cause treatment plant disruption, but can cause local disruptions to the operations of pump stations and put Redland Water's workers' safety at risk (e.g. biological hazards, flammable substances).

2.1.2 Illegal discharges to wastewater and catchments

All trade waste generators are required to have a trade waste approval document issued by Redland Water. It outlines the discharge limits, associated fees for connection to and use of the wastewater network, and describes obligations of the approval holder. Illegal discharges of trade waste or prohibited substances can have a significant impact on the environment, people's health and safety, Redland Water's assets and can compromise the quality of wastewater treatment by-products. Redland Water encourages waste minimisation and cleaner production practices and promotes the efficient and conservative use of water.

[1] Refer to RCC Corporate Policy POL-3002 on RCC policy page
http://www.redland.qld.gov.au/AboutCouncil/Policies/Pages/Policies.aspx

2.1.3 Environmental obligations and legislative compliance

The capacity of the treatment plant to produce high quality products is governed by hydraulic and biological constraints. Receipt of certain toxic substances can have adverse impacts on the biological processes upon which all of the treatment plants operate. After upsetting the biological processes in the WWTP, the plant may take weeks to recover to its optimal capacity and produce recycled water of acceptable quality. Hydraulically, the plants can be stressed at times of high flow throughput (e.g. due to storm water ingress), which can also impact plant performance. The WWTPs have a development assessment (DA) with the Department of the Environment and Heritage Protection (DEHP) that must be adhered to, and reported against. The plants must consistently operate within their DEHP limits to protect the receiving and surrounding environments (including odour and noise pollution). As well as producing water for discharge, the plants must consistently provide recycled water and biosolids of a specified composition and quality that is 'fit for purpose', to ensure no environmental harm is caused as a result of WWTP operation.

2.1.4 Protection of RW assets

Reduce potential impacts of discharges on pump stations, sewer networks and WWTPs.

2.1.5 People safety

Redland Water's source management program and trade waste limits must protect the health and safety of its employees, recycled water and biosolids customers and residents from exposure to hazardous materials that may enter the wastewater transport system. Such hazardous materials include flammable or explosive substances (e.g. fuels and gases), radioactive materials (e.g. potentially from hospital waste streams), and other toxic substances.

2.1.6 Financial drivers

When well managed, the trade waste program can be an important source of revenue recovery for Redland Water, as well as providing a community least-cost approach to waste management. However, if poorly managed, impacts caused by trade waste and other inputs can be a financial drain on the business through asset damage and increased treatment costs. Poor management frameworks can also cause significant impacts on trade waste generators and the broader community through inconsistent or inequitable requirements.

2.2 Relevant legislation, guidelines and polices

The following legislation and policies are relevant to trade waste management:

- Water Supply (Safety and Reliability) Act 2008
- Environmental Protection (Water) Policy 2009
- SEQ Water (Distribution and Retail Restructuring) Act 2009
- Waste Reduction and Recycling Bill 2011
- Environmental Protection Act (EPA) (Queensland) 1994
- Environmental Protection Regulation (Queensland) 2008
- Sustainable Planning Act 2009
- National Wastewater Source Management Guideline 2008
- Standard Plumbing and Drainage Regulation 2003

RW also has a range of policies and guidelines which impact on trade waste management. The relevant policies and guidelines are outlined below:

- RW Customer Service Standards
- RW Customer Service Charter
- Corporate Climate Change Policy - POL-3090
- Corporate Environment Policy - POL-2644

3. Current status

Details of Trade Waste management in relation to WWTP planning is contained within RW's *Wastewater Treatment Plant Strategy to 2025,* January 2010 (starting at Section 1.6).

3.1 Current Performance

Current performance in relation to Trade Waste Management is not currently measured and reported on by Redland Water, other than revenue raised and inspections undertaken. Ad-hoc reporting of illegal disposal is undertaken as required.

3.2 Recent measures

3.2.1 Trade waste policy

Section 41(1) of the *Environmental Protection (Water) Policy 1997* under the *Environmental Protection Act 1994* requires Councils to develop and implement an environmental plan about trade waste management. Key components of the *Trade Waste Environmental Management Plan* (TWEMP) are:

- a trade waste policy which outlines the overarching principles
- category classifications
- quality and quantity charges and related calculation methods
- sewer admission limits
- legislative requirements and
- risk assessment models.

Through the structure of trade waste charges and categorisation of customers, cleaner production is encouraged which in turn improves the quality and reduces the quantity of waste discharged to the wastewater system. Details of the trade waste discharge categories are found in Appendix A along with related customer numbers.

3.2.2 Trade waste generators

Trade waste is liquid waste generated from any business (commercial or industrial) such as restaurants, service stations, spray painters, butchers, commercial laundries, cafes and shopping centres. Redland Water accepts trade waste for disposal into the wastewater system on a commercial basis. To discharge trade waste into the wastewater system, a business must have approval from Redland Water and conform to set physical and chemical standards designed to protect the wastewater system and the environment from damage.

An application for a Trade Waste Approval must be made under the following conditions:

- when a building application is being processed for a new building
- when an application is being processed to extend an existing building intended for industrial or commercial usage
- when a tenancy changes
- when ownership changes
- during the fit-out stage
- when an application to strata title premises is being processed
- before generating trade waste at existing premises without a Trade Waste Approval
- where a change in process technology occurs that affects trade waste.

Once the application has been received and reviewed, a *Trade Waste Approval* may be issued/reissued. Where Redland Water considers the waste unsuitable for discharge to the sewer, it will not issue a *Trade Waste Approval* and the applicant will have to make alternative arrangements to dispose of the waste.

The following mechanisms are used to ensure trade waste generators are not missed:

- Council's Environmental Health section notification of new food preparation licences via Proclaim
- Council Plumbing Services section via Proclaim for new tenancy fit-outs

3.2.3 Illegal discharges

All wastewater discharged to Redland Water's wastewater system is required to comply with non-domestic wastewater admission standards unless otherwise specified in a *Trade Waste Approval*. Any substance not listed in the standard or identified as a prohibited discharge may not be discharged to Redland Water's wastewater system.

Monitoring and auditing of field activities and analysis of wastewater spill reports are undertaken to identify illegal discharges and their underlying causes. The investigation of a customer once it has been determined that they pose a significant risk is essential to ensure that the risk is managed to an acceptable level.

3.2.4 Seawater and stormwater inflow/infiltration

Seawater infiltration has impacts on Redland Water's infrastructure as well as recycled water quality and receiving environment. Conductivity is measured in the final effluent from WWTPs. Baseline trends of conductivity are monitored to assess instances of infiltration.

3.2.5 Tankering operations

Redland Water accepts chemical toilet waste at Cleveland WWTP, and holding tank pump outs at Dunwich WWTP (from the Dunwich State School and Amity Point Caravan Park).

3.2.6 Inputs from domestic premises

Although not classified as Trade Waste, operations staff provide feedback regarding blockages and increased frequency of maintenance of pumps caused by materials from domestic premises.

3.2.7 Any other sources that may pose a risk to workers' safety, assets or products (recycled water and biosolids)

Sources that pose a risk to people's safety, assets or products are investigated to understand the underlying cause(s) and appropriate action is taken to manage them.

3.2.8 Review of fittings and fixtures

A review on fittings and fixtures and implementation of consistent methodology for grease arrestor sizing calculations across Redland Water service area is ongoing.

4. Key Issues and Improvements

4.1 Key Issues

The following have been identified as key issues or improvement opportunities for trade waste management.

4.1.1 Ensure Best Practice Trade Waste Policies and Procedures

The *Australian Sewage Quality Management Guidelines,* June 2012 have replaced the *National Wastewater Source Management Guidelines 2008*. The updated guidelines help to:

- promote the safety of workers and the public
- manage wastewater system assets
- treat wastewater effectively
- meet environmental licences and regulations
- recycle treated effluent and biosolids.

These guidelines show utilities how to work towards best practice. Alignment with these guidelines will build consistency and ensure continual improvement in source control management practices.

4.1.2 Understanding Potential Sources of Contaminants and Impacts

Understanding potential sources of key contaminants and their impacts will enable the implementation of effective targeted source management programs, which will minimise impacts on the environment and protect the quality of biosolids and recycled water.

4.1.3 Maximising Infrastructure Life

Avoidance of corrosive substances in wastewater removes the risk of premature asset degradation. Well managed networks with reduced inflow/infiltration and will contribute to minimising capacity upgrades. Seawater and stormwater inflow/infiltration also has potential impacts on the quality of recycled water.

4.1.4 Educating the Community

Building community understanding of what not to flush is critical to influencing wastewater quality. Ensuring the appropriate disposal of hazardous and flammable substances is a priority. The proper disposal of fats, oils and greases also impacts on sewer blockages and odour generation in pump stations.

5. Action Plan

The key output from each of the Water Netserv Part B sub-plans is an action plan for Redland Water over coming years. Table 5-1 below details that action plan in relation to Trade Waste Management.

Table 5-1 - Action Plan

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
Review of trade waste policies and procedures to ensure alignment with the *Australian Sewage Quality Management Guidelines*	2014/15	Senior Trade Waste Officer	Ongoing
Implement the targeted source management program	Annually	Senior Trade Waste Officer	Ongoing
Catchment loading characterisation program	30 June 2015	Group Manager Water & Waste Infrastructure	Not yet started
Monitor impact of salts and sulphides on infrastructure	As required	Group Manager Water & Waste Infrastructure	Ongoing
Treatment plants loading capacity and capability investigation	Annually	Senior Process Engineer	Ongoing
Participation in research to detect wastewater that may impact on plant process	30 June 2015	Group Manager Water & Waste Infrastructure	Not yet started
Develop and implement community awareness program	30 June 2013	Senior Trade Waste Officer	Ongoing

6. References

Water Services Association of Australia, *Australian Sewage Quality Management Guidelines,* June 2012.

Water Strategies, *Wastewater Treatment Plant Strategy to 2025,* January 2010

Appendix A – Trade Waste Categorisation

Trade waste categorisation is made on the basis of organic and nutrient loading. Volume is not a categorisation criterion. The only volumetric requirement is that the receiving drainage system has adequate capacity. Table A-1 below shows the trade waste categorisation.

Table A-1 - Redland Water trade waste categorisation

CRITERIA	CATEGORY 1	CATEGORY 2
Biochemical Oxygen Demand (BOD5), mg/L	< 600	>600
Chemical Oxygen Demand (COD), mg/L	< 1500	>1500
Suspended Solids, mg/L	< 600	> 600
Total Oil & Grease mg/L	< 200	> 200
Total Nitrogen, mg/L N	< 150	> 150
Total Phosphorus, mg/L P	< 50	> 50
Volume, kL/annum	Subject to approved drainage design	Subject to approved drainage design.
Trade waste approval	Permit	Agreement

Customer numbers

Trade waste generator data (by category) is provided in Table A-2 below.

Table A-2 - Number of trade waste customers as of April 2013

TRADEWASTE CATEGORY TYPE	REDLAND WATER
Category 1	405
Category 2	356
No category as yet	0
Proposed all cat's	0
Total	761

Redland Water Water Netserv Plan

PART B

APPENDIX H – Recycled Water Management Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Lara Harland	January 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman; Daniela Simon; Sonja Toft	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

DA	Development Approval
DEHP	Department of Environment and Heritage Protection
KPI	Key Performance Indicator
RWMP	Recycled Water Management Plan as required under the *Public Health Regulation (2008)*
WWTP	Wastewater Treatment Plant

1. Introduction

This management plan outlines the direction and priorities for the management of recycled water supplied from wastewater treatment plants.

It is important to note that not all Redland Water Wastewater Treatment Plants (WWTP) supply recycled water for reuse and for those that do, not all the wastewater collected is recycled.

Effluent that is not recycled is discharged to an environmental release point that is specified in the individual Department of Environment and Heritage Protection (DEHP) Development Approval (DA) for the plant.

1.1 Background

Recycled water management encompasses the following aspects of Redland Water's business:

- Wastewater Treatment; and
- Wastewater/recycled water distribution – in this management plan distribution does not infer reticulation as is the case with water supply terminology.

This management plan covers the current status, current issues and proposed way forward.

The framework for the management of recycled water quality, as defined by the *Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1)*, has 12 elements:

- commitment to the responsible use and management of recycled water
- assessment of the recycled water system
- preventative measures for recycled water management
- operational procedures and process control
- verification of recycled water quality and environmental performance
- management of incidents and emergency management
- employee awareness and training
- community involvement and awareness
- validation, research and development
- documentation and reporting
- evaluation and audit
- review and continual improvement.

Section 3 contains more information on the current status of recycled water in Redlands.

1.2 Objectives

The overall objectives of this Recycled Water Management Plan are:

- to identify recycled water improvement opportunities *(increasing recycled water use will reduce effluent discharges into receiving environment and meet the DEHP hierarchy (and DA conditions) on recycled water. However the potential applications for Redland Water are limited).*
- to optimise the provision of recycled water; and
- to ensure recycled water is fit for purpose and is safe for use by the community and employees.

1.3 Scope

The following are included within the scope of this Recycled Water Management Plan:

- all classes of recycled water, as per water quality criteria stated in the Public Health Regulation (2008), produced and supplied by Redland Water for reuse and
- meeting Redland Water's regulatory obligations with regards to producing and supplying recycled water, as outlined in the Water Supply (Safety and Reliability) Act (2008).

Recycled water release is excluded from the scope of this Recycled Water Management Plan.

1.4 Responsibility

Overall responsibility for the Recycled Water Management Plan or an exemption lies with the Redland Water's Service Manager Scientific Services.

2. Context

2.1 Key Drivers

The key drivers relevant to the Recycled Water Management Plan are described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Customer Service	Customer expectations for a safe, reliable, high quality, value for money services need to be met. The Customer Service Standards outline the services and standards customers can expect to experience. There is a need to build and develop ongoing relationships with our customers. Quality products and services, with customer services including timely response to complaints and requests.
Environmental Sustainability	Growing expectations from our community and more stringent environmental regulations mean we are driven to implement our operation and maintenance services to meet our environmental obligations and effectively manage our impact on the environment. Regular monitoring and reporting processes are maintained to ensure that all water and wastewater discharges and activities that impact on our environment are reported as public information.
Good Governance / Meeting Legislative Obligations	Ensuring that RW is controlled and governed in a way that it will achieve its strategic and operational objectives, while ensuring that we meet the requirements of the law, regulations, published standards, and community expectations of probity, accountability, and openness[1].

2.2 Relevant legislation, guidelines and polices

Key legislation, statutory documents and guidelines which impact on recycled water management include:

- Water Supply (Safety and Reliability) Act (2008)

  The primary aims of the Water Supply (Safety and Reliability) Act (2008) in relation to recycled water are to ensure the protection of public health and reliability of water supply. This will be carried out through the development of a risk based management system for recycled water providers as part of a Recycled Water Management Plan (RWMP) or to seek an exemption by the regulator.

- Public Health Amendment Regulation (No. 1) (2008)

  This amendment was introduced concurrently with the Water Supply (Safety and Reliability) Act and it prescribes standards for the quality of particular types or 'classes' of recycled water. The provisions of this amendment complement the Water Supply (Safety and Reliability) Act 2008 in that if a water service provider fails to comply with the prescribed standards then they may be liable to a penalty under the Act.

- The following guidelines have been developed by DEHP:
  - Parts 1-3, 7&8 of the *Queensland Water Recycling Guidelines, (2005)* - Parts 4, 5 & 6 have been superseded by the *Public Health Regulation, Recycled Water Management Plan and Validation Guidelines* and the *Water Quality Guidelines for Recycled Water*.
  - *Recycled Water Management Plan and Validation Guidelines (2008)*
  - *Recycled Water Management Plan Exemption Guidelines (2008)*
  - *Water Quality Guidelines for Recycled Water Schemes (2008)*
  - *Annual Reporting Guideline for Recycled Water Schemes (2008)*
  - *Recycled Water Management Plan Audit Reporting Guideline (2008)*
  - *Incident Reporting Guidelines for Recycled Water Schemes (2011)*
  - *Manual for Recycled Water Agreements in Queensland (2005)*

[1] Refer to RCC Corporate Policy POL-3002 on RCC policy page
http://www.redland.qld.gov.au/AboutCouncil/Policies/Pages/Policies.aspx

- *Environmental Protection Act 1994*
- *Plumbing and Drainage Act 2002*
- *Public Health Act 2005 and Public Health Regulation 2005*
- *Workplace Health and Safety Act 1995.*
- *Environmental Protection (Water) Policy, 2009.*

RW also has a range of policies and guidelines which impact on recycled water management. The relevant policies and guidelines are outlined below:

- Customer Service Standards
- Customer Service Charter
- Fact Sheet 502 - Recycled Water for Industry (Dec 12)

3. Current status

3.1 Recycled Water planning in Redlands

Significant work has been undertaken to investigate possible wastewater reuse opportunities from Redland WWTPs. In general, findings to date include:

- The potential for industrial and commercial recycling applications is limited. Potential recycled water demand has been identified (in 2007) as less than 3% of total treated wastewater from all Redland WWTPs;
- The main existing potential recycled water users are schools and parks for irrigation water substitution. However, there are minimal parks and gardens available for irrigation by recycled water within Redland;
- Most Redland WWTPs produce treated wastewater of Class A (as per Qld Water Recycling Guidelines), however additional wastewater treatment including filtration and disinfection would be required at some WWTPs.
- Potential recycled water options that have been investigated (including for Victoria Point, Capalaba and Cleveland WWTP) have been found to be economically infeasible.

More details on the status of recycled water in Redlands can be seen in Section 8 of Redland Water's *Wastewater Treatment Plant Strategy to 2025, Water Strategies, January 2010*.

3.2 Current operational performance

Redland Water's WWTPs where recycling occurs are listed in Table 3-1, along with the current management practices in place.

Table 3-1 – Current Recycling Practices

WWTP	Quality	Type of Recycling	Management Practices
Cleveland WWTP	C	• Disposal as per licence conditions by on-site irrigation	• There is no public access to the site and it is not used for grazing or recreational purposes. • The irrigation management plan is currently being prepared.
		• Purchased for use by others	• The wastewater standpipe is located within the site. • This site is no longer used • There is no requirement for the recycled water management plan or an exemption.
Capalaba WWTP	B	• Purchased for use by others	• There is a recycled water plant (filtration and disinfection) at the WWTP with a metered standpipe is located outside the front gate • Recycled Water Training Manual and associated forms and permits. • People who want to use recycled water must: o Apply to Redland City Council for a permit and agree to the permit conditions. o Agree to the Recycled Water Carrier Agreement Conditions of Supply. o Complete the recycled water training and assessment. The training and assessment must be completed every 2 years. o Display appropriate signage. o Do so in accordance with a recycled water management plan. A management plan is designed to deal with specific issues relating to the use of recycled water. • Anyone supplying recycled water (recycled water carriers) to another party must supply their customer with a current recycled water product information sheet in accordance with the Workplace Health and Safety Act. Persons failing

WWTP	Quality	Type of Recycling	Management Practices
			to do so may incur prosecution.
Victoria Pt WWTP	B	• On-site irrigation (rarely)	• Rarely irrigate • As per licence conditions
		• Pumped to Redland Bay Golf Course for use	• There is an irrigation agreement with the Redland Bay Golf Course to ensure this requirement is addressed. • There is a standard agreement in relation to treated effluent between Redland City Council and the Effluent User by Freehill, Holligdale & Page dated 22 June 1999. It has a 20 year life. The agreement includes the 1996 Interim Guidelines for Reuse or Disposal of Reclaimed Wastewater as the management requirements.
Mt Cotton WWTP	C	• All the effluent goes to the Carbrook Gold Club Dam where the unused effluent goes through the Carbrook Wetlands and into the Logan River.	• There is an irrigation agreement with the Carbrook Golf Club to ensure this requirement is addressed. • There is a standard agreement in relation to treated effluent between Redland City Council and the Effluent User by Freehill, Holligdale & Page dated 22 June 1999. It has a 20 year life. The agreement includes the 1996 Interim Guidelines for Reuse or disposal of reclaimed wastewater as the management requirements.
Thorneside WWTP	-	• Nil	• Nil
Dunwich WWTP	-	• Onsite effluent irrigation	• Irrigation Management Plan prepared
Pt Lookout WWTP	-	• Nil	• Nil

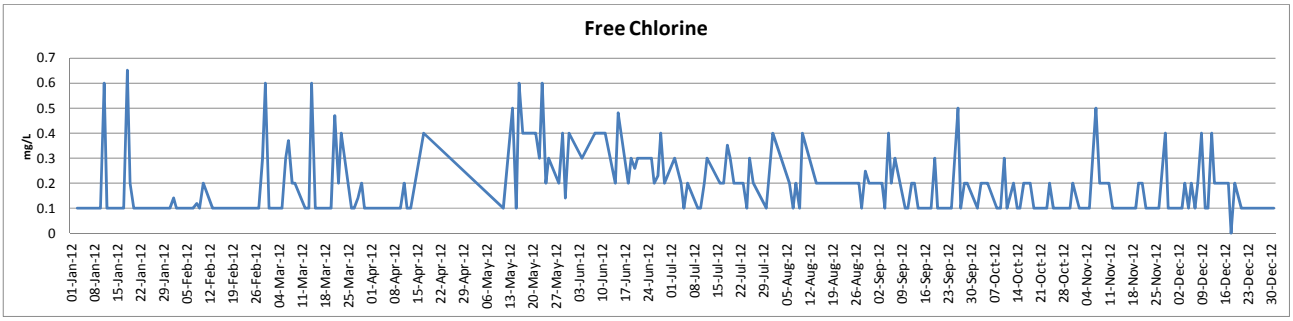
There are no KPI's relating to the recycling of wastewater. However microbiological monitoring of final effluent at these WWTPs includes weekly faecal coliform and E.Coli testing, daily free Chlorine testing and daily Turbidity (at Capalaba and Victoria Pt only) testing.

3.3 Current Performance

3.3.1 Water Quality

The recycled water quality results for 2012 for the three WWTPs are included in Figure 3-1 to Figure 3-3. The graphs show that E.Coli is generally very low with a spike in January 2012 at each of the three WWTPs due to the excessive rainfall.

Figure 3-1 - Mt Cotton WWTP Recycled Water Quality 2012



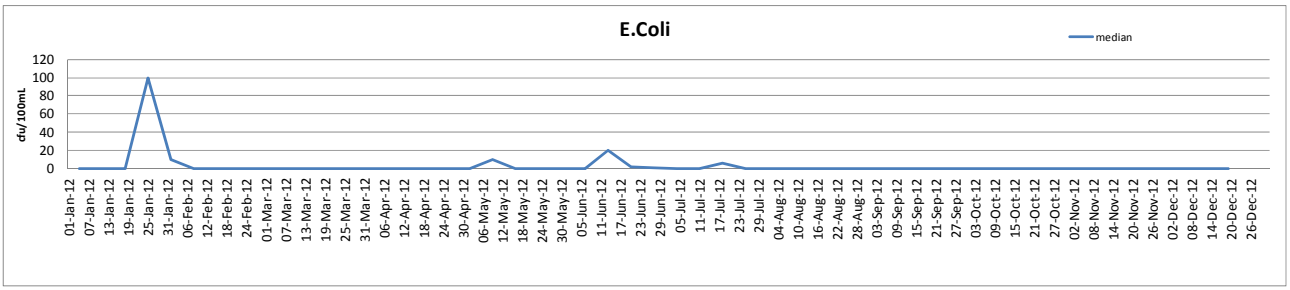
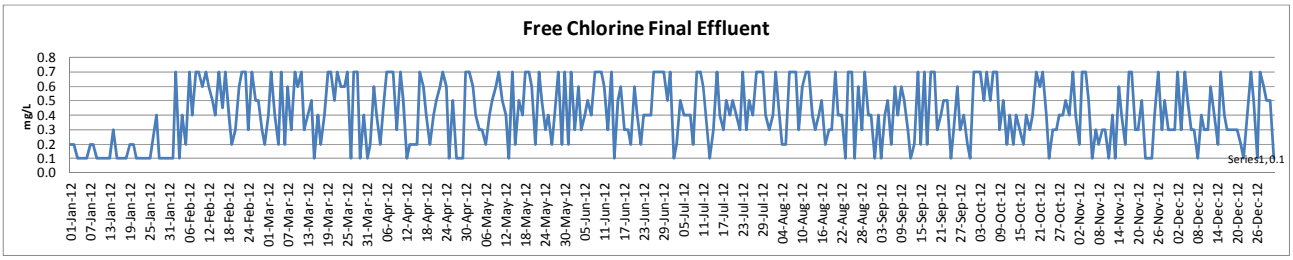


Figure 3-2 - Capalaba WWTP Recycled Water Quality 2012



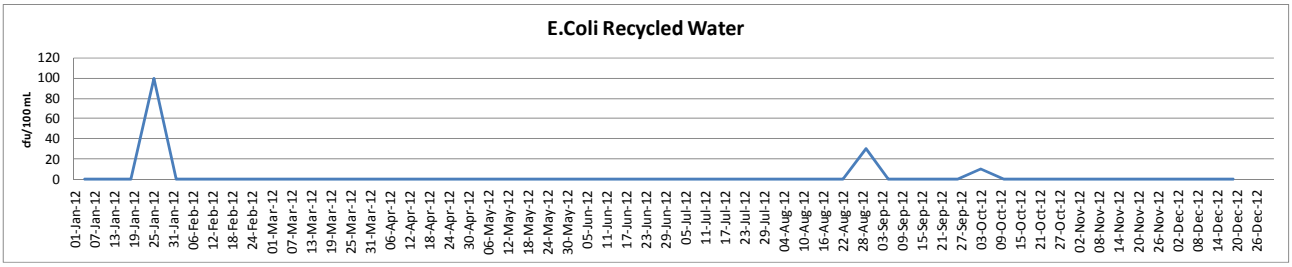
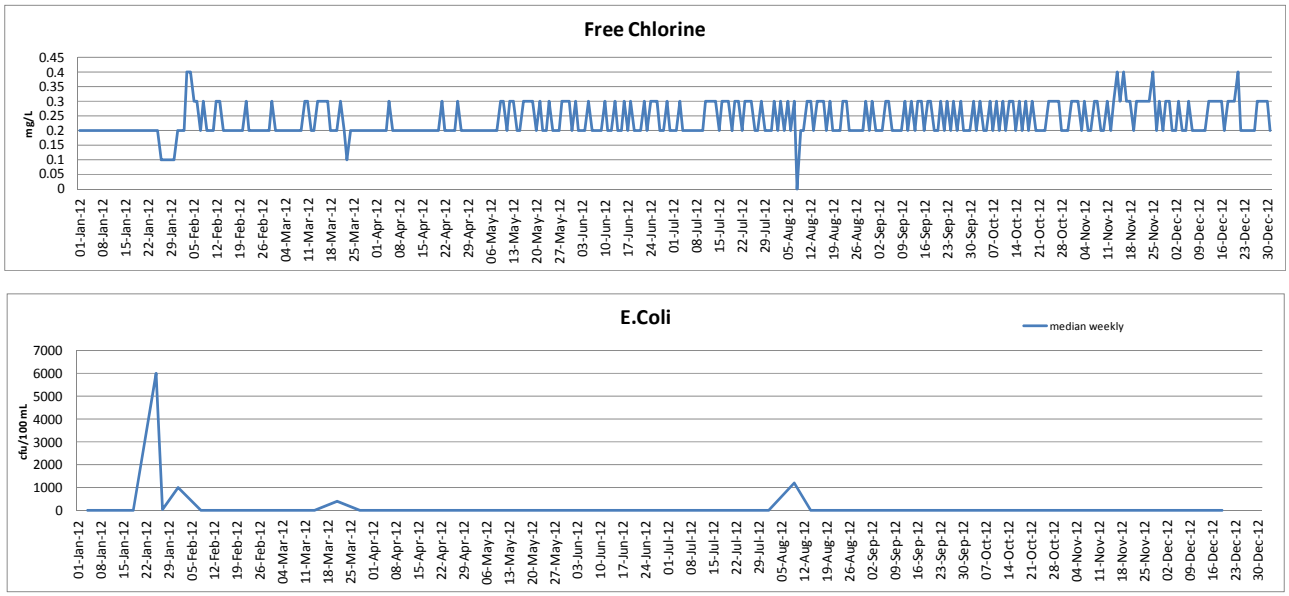


Figure 3-3 - Victoria Pt WWTP Recycled Water Quality 2012

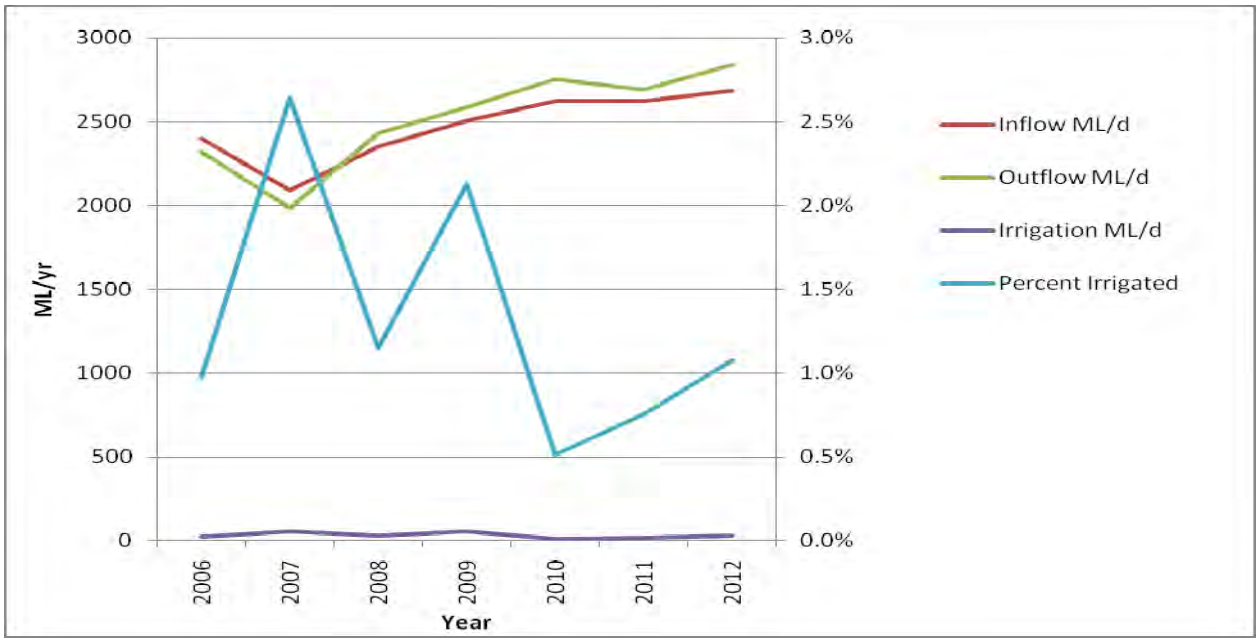


3.3.2 Volume Recycled

The volume of water recycled from Capalaba is not readily available and needs to be downloaded from the Standpipe system. Mt Cotton effluent all goes to the Carbrook Golf Club, however it is not known how much of this is discharged to the environment in wet weather.

The percentage of effluent recycled from the Victoria Pt WWTP is shown in Figure 3-4.

Figure 3-4 - Victoria Pt WWTP Recycled Water Percentage



4. Key Issues and Improvements

4.1 Current Environment

Redland Water has recently taken back the operation of the WWTP's from Allconnex Water and is in the process of developing appropriate systems to manage these WWTPs.

4.2 Legislated drivers

The *Water Supply (Safety and Reliability) Act (2008)* requires the development of a risk based management system for recycled water providers as part of a *Recycled Water Management Plan (RWMP)* or the water service provider seeks an exemption by the regulator. This submission is due by 30 June 2014.

4.3 Business Drivers

To encourage the prudent and efficient uses for recycled water and to facilitate industrial users of recycled water.

4.4 Key Issues and Improvements

The key issues identified for improvement in relation to recycled water quality management are:

Table 4-1 – Key Issues and Proposed Improvements

Issue	Proposed Improvement
RWMP's and/or exemptions have not yet been applied for	Develop exemptions (or RWMPs) for WWTPs that currently supply Class C recycled water, prior to 1 July 2014. This deadline is stated in the Water Supply (Safety and Reliability) Act (2008)
Customers who receive recycled water do not have RWMP's in place.	Recycled water customers submit a RWMP to Redland Water to make certain appropriate on-site controls and monitoring are in place.
The collection and tracking of recycled water quantities could be improved.	The system to collect and track quantities of recycled water is improved so data can easily be obtained and analysed.

5. Action Plan

The key output from each of the Water Netserv Part B sub-plans is an action plan for Redland Water over coming years. Table 5-1 below details that action plan in relation to Recycled Water Management.

Table 5-1 - Action Plan

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
Prepare new recycled water agreements: • Carbrook Golf Club • Redland Bay Golf Club	30/06/2013	Service Manager Scientific Services	In Progress
Obtain exemptions for Class C schemes	30/06/2014	Service Manager Scientific Services	In progress
Recycled water users submit a RWMP	Ongoing	Service Manager Scientific Services	-
The system to collect and track quantities of recycled water is improved so data can easily be obtained and analysed.	30/06/2014	Environment Systems Officer	In progress

6. References

Past planning reports relating to recycled water in the Redlands include the following:

Trees for Wealth, *Assessment of the suitability of revegetation land irrigated with treated sewerage from Victoria Point STP*, April 2009

KBR, *Redland Recycled Water Project Planning Report*, June 2006 and Addendum, (June 2007)

KBR, *Redland Recycled Water Study – Selection Process*, April 2006

KBR, *Reuse at Concrete Plants – Cleveland Industrial Estate – Concept Report*, June 2006

UNSW, *Risk Assessment Health Effects of Indirect Potable Reuse Schemes*, January 2007

Redland Water, *Thornlands Total Water Cycle Management*, May 2009

Water Strategies, *Wastewater Treatment Plant Strategy to 2025,* January 2010

Redland Water
Water Netserv Plan

PART B

APPENDIX I – Demand Management Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Kane Macready Engineers Plus	January 2013	Bradley Taylor
Rev 1	Redland Water internal review	Matthew Ingerman	April 2013	Bradley Taylor
Rev 2	Issue for Council adoption	Matthew Ingerman	June 2013	Bradley Taylor

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

KPI	Key Performance Indicator
QWC	Queensland Water Commission
RCC	Redland City Council
RW	Redland Water
SEQ	South East Queensland
WEMP	Water Efficiency Management Plan
WH&S	Workplace Health and Safety

1. Introduction

This management plan outlines the direction and priorities for Redland Water's *Demand Management Plan*. This plan is part of 'Part B' of Redland Water's Water Netserv Plan.

1.1 Background

Redland Water's services and water supply infrastructure are described in Part A of this Water Netserv Plan. In this plan, the current demand management program is detailed.

Demand management involves behavioural and technological approaches and techniques that manage water consumption so as to meet the regional water use targets (as included in the *South East Queensland Water Strategy, 2010*). Key areas include the following:

- Economic: user pays pricing structures provide financial incentives for residents and businesses to save water
- Education: community, industry and school education programs raise awareness about the need to conserve water
- Enforcement: use of regulatory mechanisms and water use restrictions combined with appropriate compliance and enforcement regime to target water misuse
- Encouragement: incentive schemes and targeted marketing persuade the public to increase the uptake of water saving products
- Engineering: new ways of planning and managing water and wastewater infrastructure.

The *South East Queensland Regional Plan 2009-2031* highlights efficient water use, ecological sustainability, and total water cycle management as key priorities for water management. Efficient water use focuses on achieving targeted reductions in water consumption to decrease pressure on water supplies and the environment. Demand management measures significantly reduced water consumption during the millennium drought and the key focus remains on ensuring consumption does not return to pre-drought levels, thereby ensuring long-term water security for the region.

> *Ecological sustainability is the capacity of ecosystems to maintain their essential functions and processes, and retain their biodiversity in full measure over the long-term. Ecologically sustainable development involves the conservation of ecosystems for future generations while attempting to meet its current economic needs.*

This management plan is also underpinned by the principles of total water cycle management. Total water cycle management acknowledges that all components of the water cycle are interdependent and should be considered separately and combined. Management of all components of the water system are integrated to ensure that water is used optimally. This optimisation will result in minimal impact on the water resource, other resources and users. The key principles of total water cycle management include:

- planning and managing water as a valuable and finite resource
- consideration of all water sources in water planning
- sustainable and equitable use of all water sources
- consideration of all water users
- integration of water use and natural water processes
- a whole of catchment use and management.

1.2 Objectives

The objective of the *Demand Management Plan* is to make it easy for our customers by:

- understanding and educating them to influence their demand management attitudes and behaviour
- supporting them to comply with water and wastewater regulations
- protecting our people and resources (infrastructure, environment, treatment process and products and services) while managing overall costs

1.3 Scope

This management plan focuses on the key areas of demand management of education, enforcement and encouragement. It excludes economic aspects and engineering aspects. Source control components of demand management are covered under the Trade Waste Management Plan.

This management plan interacts with a number of management plans, including:

- Total Water Cycle Management Plan
- Trade Waste Management Plan
- Leakage Management Plan

1.4 Responsibility

Overall responsibility for the *Demand Management Plan* lies with the Customer Service Coordinator.

2. Context

Redland Water is operating in an environment that requires management of demand to ensure that service standards are maintained and legislation, guidelines and policies are upheld.

2.1 Key Drivers

The key drivers relevant to the Demand Management Plan are described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Customer Service	Customer expectations for a safe, reliable, high quality, value for money services need to be met. The Customer Service Standards outline the services and standards customers can expect to experience. There is a need to build and develop ongoing relationships with our customers. Quality products and services, with customer services including timely response to complaints and requests.
Business Efficiency	There is a need for improved financial performance driven by increases in input and compliance costs and the need for returns for RCC. This will be delivered through prudent and efficient management of the business. Efficient Service Delivery through Lifecycle Management of Assets.
Environmental Sustainability	Growing expectations from our community and more stringent environmental regulations mean we are driven to implement our operation and maintenance services to meet our environmental obligations and effectively manage our impact on the environment. Regular monitoring and reporting processes are maintained to ensure that all water and wastewater discharges and activities that impact on our environment are reported as public information.
Good Governance / Meeting Legislative Obligations	Ensuring that RW is controlled and governed in a way that it will achieve its strategic and operational objectives, while ensuring that we meet the requirements of the law, regulations, published standards, and community expectations of probity, accountability, and openness[1].

2.1.1 South-East Queensland (SEQ) Water Strategy

The *Queensland Water Commission (QWC)* released the *South East Queensland Water Strategy, 2010* to ensure that water is managed on a sustainable and integrated basis and to provide secure and reliable supplies of acceptable quality for all users for the long-term. With the amalgamation of all State Government water agencies in SEQ into Seqwater, the low-level water restrictions (Permanent Water Conservation Measures) also ceased to exist. Seqwater, and specifically Redland Water in this region, will continue to monitor water use and where required impose water restrictions.

2.1.2 Legislative obligations

Compliance with legislative requirements is a key driver for all areas of Redland Water's business including demand management. Key legislative requirements related to demand management are found under the Environmental Protection (Water) Policy 1997, Water Act 2000 and Water Supply (Safety and Reliability) Act 2008. The ongoing changes in State legislation may dictate differing obligations on Redland Water than has been the norm over the last few years.

2.1.3 Water security

Managing water efficiently plays an important part in conserving water. Seqwater now handles that role in SEQ.

[1] Refer to RCC Corporate Policy POL-3002 on RCC policy page
Hhttp://www.redland.qld.gov.au/AboutCouncil/Policies/Pages/Policies.aspx

2.1.4 Increasing customer expectations

Customers' expectations regarding the level of service, their involvement in decision-making and the value for money they receive from their water business are increasing. Within the context of demand management there is also an expectation from customers (residential and non-residential) that they will receive advice, education and support to assist them in meeting their water conservation requirements. The programs that Redland Water has built up over the last few years will continue allow Redland Water the opportunity to support customers in relation to demand management.

2.2 Relevant legislation, guidelines and polices

As of 1 January 2013 the Queensland Water Commission and its associated permanent water conservation measures ceased to exist. The role of demand forecasting and demand management now primarily sits with Seqwater. Redland Water will continue to participate in the regional water security programs.

3. Current status

Redland Water reports monthly on its performance against set Key Performance Indicators (KPIs) as well as contributing to the Redland City Council Annual Report.

3.1 Current Performance

Redland Water's current performance relating to demand management can be seen in KPI 1, 8 and 9 of the monthly business unit report which can be found at:

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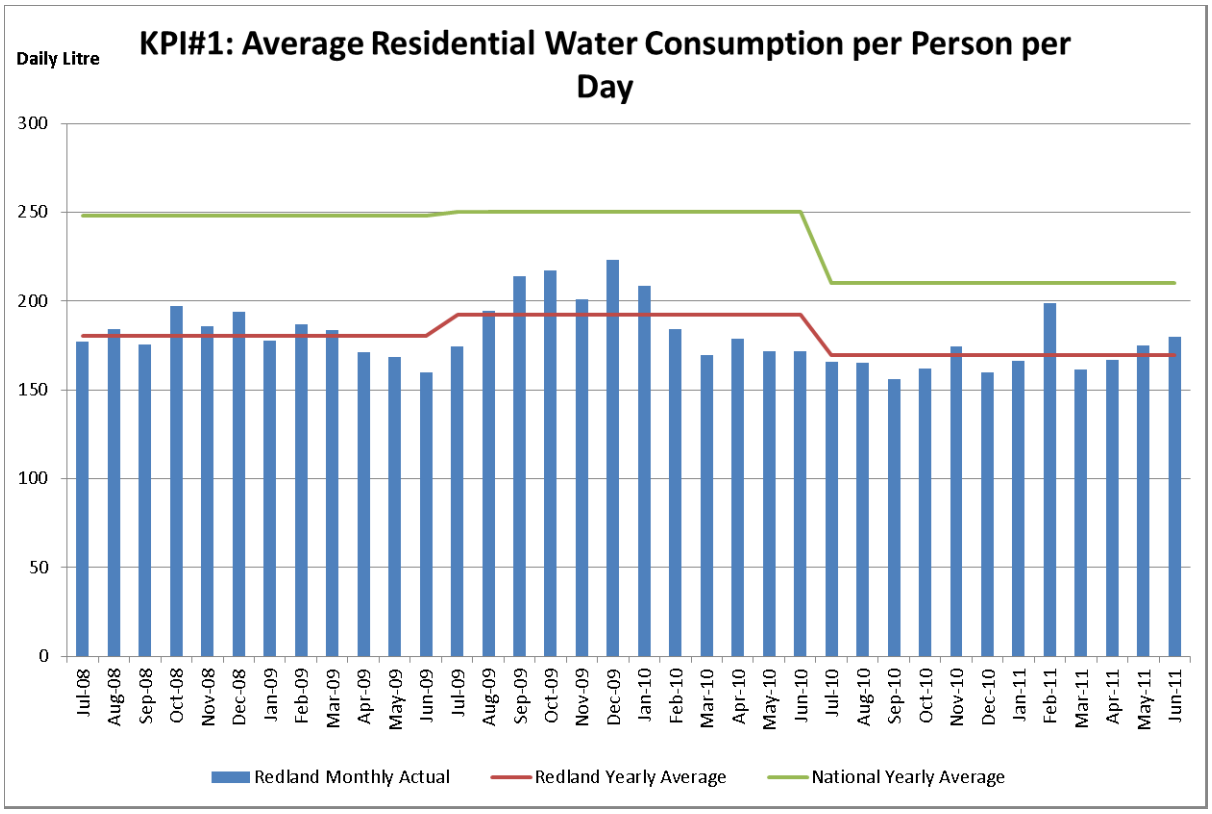
Redland Water's performance trends over the last 3-4 years are shown below in Figure 3-1Figure 3-1 below.

The *National Performance Report* for water service providers that service similar sized populations is a good indication of the current performance of any water authority. Relevant performance data is graphically presented below:

Figure 3-1 - KPI #1 Average Residential Water Consumption per Person per Day



3.2 Recent measures

3.2.1 Community relationships

Education and awareness is essential to achieve the change in attitudes and behaviours needed to reach and maintain sustainability. By creating interesting and engaging programs to empower students, teachers, residents and local businesses, the community will discover and appreciate the importance to live sustainably with water. Redland Water has been actively involved in water conservation education programs for schools, businesses and the community, aiming at influencing long-term, sustainable behavioural change towards water usage.

Redland Water has developed a Water/Wastewater Education Schools program.

3.2.2 Residential programs

Residential Programs are aimed at assisting residential customers to reduce drinking water supplied to their property and provide awareness of acceptable wastewater disposal practices. The programs are designed to provide both short and long term benefits and key initiatives and activities include:

- residential high water users program
- leak awareness program
- advisory field service program
- education program regarding efficient irrigation systems
- research/data analysis regarding rental properties and residential complexes
- investigating options for additional water saver programs
- providing additional educational information for residential customers
- enhancing accessibility for online information for customer interaction.

Redland Water will, in association with Seqwater, monitor the water use in the City and where required implement residential education programs.

3.2.3 Commercial programs

Commercial programs are aimed at supporting mandatory and voluntary campaigns that influence the behaviour and technology practiced by non-residential customers in delivering best practices in water conservation and sustainability in commercial and industrial environments. Programs are designed to provide both short and long term benefits. Key initiatives and programs include:

- ongoing assistance in the implementation and evaluation of WEMPs (as required)
- in-house capabilities for providing water conservation audit and consulting services
- enhanced customer relationship management for non-residential customers
- research and identification of industry based ‘best practice’ and technology opportunities
- provision of on-line ‘e Business’ newsletters
- ongoing contribution and collaboration with the State Government in policy decisions

Redland Water will, in association with Seqwater, monitor the water use in the City and where required implement residential education programs.

3.2.4 Compliance

Redland Water utilises the established Compliance Team within Redland City Council. Compliance is focussed on protecting our infrastructure and ensuring the community is aware of the current water saving initiatives and regulations. The Compliance Team deal with a wide range of issues, predominantly relating to legislative and regulatory requirements and proactively carry out investigations and audits around the following matters:

- water restrictions (when in place)
- theft of water
- misuse of fire services
- illegal water connections
- damage to service providers infrastructure
- auditing of recycled water carriers
- auditing of potable water carriers
- illegal discharge to wastewater

4. Key Issues and Improvements

4.1 Sustained customer behaviour change

Traditionally water has been viewed as an abundant low value commodity. The prolonged drought and its related water conservation measures have influenced customer behaviour positively with recognition that water is a scarce resource. The key challenge is to monitor this behaviour change to see if it is sustained.

4.2 Compliance requirements

Supporting customers in meeting their compliance requirements for water and wastewater management is an ongoing need. Critical to this is ensuring Redland Water's people and infrastructure are protected and non-compliance and illegal activity is minimised.

4.3 Bulk Water reform

The merger of the state agencies controlling water supply in SEQ on 1 January 2013 has resulted in realignment of the responsibilities for demand management. Participating and contributing to these new arrangements in relation to demand management will form the bulk of RW's demand management strategy moving forward.

5. Action Plan

The key output from each of the Water Netserv Part B sub-plans is an action plan for Redland Water over coming years. Table 5-1 below details that action plan in relation to Demand Management.

Table 5-1 - Action Plan

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
Develop and delivery of education programs	31/12/2013	Group Manager Water & Waste Infrastructure	Ongoing
Participate in regional demand management initiatives	N/A	Business Services & Regulatory Compliance Coordinator	As required

6. References

Queensland Water Commission, *South East Queensland Water Strategy,* July 2010.

Queensland Government, *South East Queensland Regional Plan 2009-2031.*

Redland Water
Water Netserv Plan

PART B

APPENDIX J – Workforce Development Plan

Redland WATER

Redland CITY COUNCIL

Version Control

Version Number	Description of Change	Author	Date	Approval
Rev 0	First draft	Matthew Ingerman	April 2013	Bradley Taylor
Rev 1	Comparisons added and key issues specific to Redland Water added	Bradley Taylor	April 2013	Gary Soutar
Rev 2	Issue for Council adoption	Bradley Taylor	June 2013	Gary Soutar

Table of Contents

List of Tables

List of Figures

Notation and Abbreviations

KPI	Key Performance Indicator
LTI	Lost Time Injury
LTFR	Lost Time Injury Frequency Rate
RCC	Redland City Council
RW	Redland Water
WIOA	Water Industry Operators Association

1. Introduction

This management plan outlines the direction and priorities for Redland Water's Workforce Development.

1.1 Background

Workforce development encompasses the following aspects of Redland Water's business:

- Skilled;
- Knowledgeable; and
- Safe Staff

1.2 Objectives

The objectives of this management plan are to:

- Identify Workforce Development improvement opportunities
- To optimise the operation of / the provision of our services

1.3 Scope

The scope of this management plan covers all of Redland Water's services, namely:

- drinking water supply,
- non-Class A+ recycled water supply,
- wastewater collection and treatment; and
- trade waste management

1.4 Responsibility

Overall responsibility for the Workforce Development Plan lies with the General Manager Infrastructure and Operations.

2. Context

Redland Water is operating in an environment that requires active workforce development to ensure that service standards are maintained and legislation, guidelines and policies are upheld.

2.1 Key Drivers

The key drivers relevant to the Workforce Development management plan are described below in Table 2-1.

Table 2-1 – Key Drivers

KEY DRIVER	DESCRIPTION
Staff – Skilled and Knowledgeable and Safe	To be able to deliver its services RW needs to ensure that its workforce is both skilled and knowledgeable. In addition, the need to provide a safe workplace is a key business driver.

2.2 Relevant legislation, guidelines and polices

Key legislation, statutory documents and guidelines which impact on Skilled, Knowledgeable and Safe staff generally revolve around two key areas namely:

- *Environmental Protection Act (EPA) (Queensland) 1994* (and its subordinate regulations and policies which are listed in the *RW Water Netserv Plan Part B Appendix F – Ecological Sustainability Plan*)
- *Work Health and Safety Act 2011* (and its subordinate regulations and policies)

RW also has a range of policies and guidelines which assist in providing Knowledgeable and Safe staff. The relevant policies and guidelines are outlined on the RCC's '*Safety First Redlands*' intranet site:

http://rcc/Worksites/corpser/PandC/safety/default.aspx

3. Current status

Redland Water reports monthly on its performance against set Key Performance Indicators (KPIs) as well as contributing to the Redland City Council Annual Report.

3.1 Current Performance

Redland Water's current performance relating to Skilled, Knowledgeable and Safe staff can be seen in KPI #20 of the monthly business unit report which can be found at:

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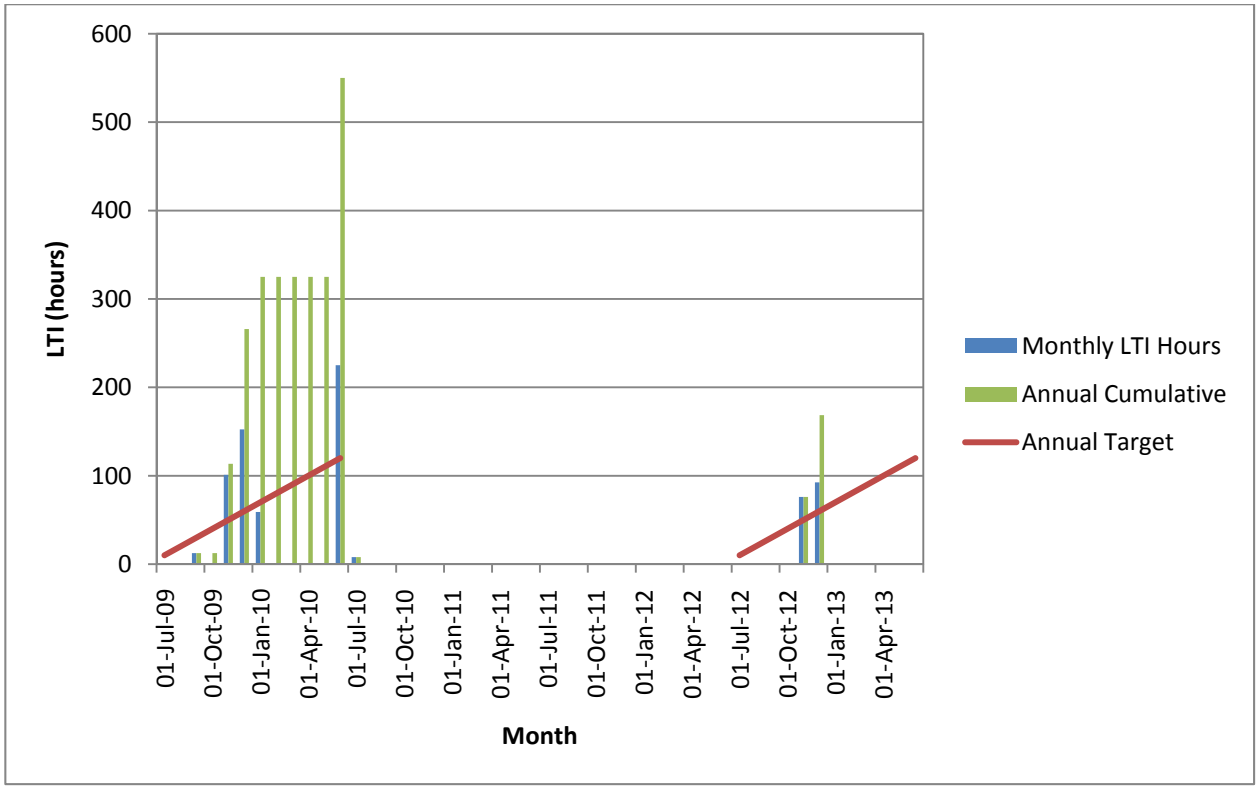
Redland Water's performance trends over the last 3-4 years are shown below in **Figure 3-1**. Note that there is some data that has not been collected and/or reported during the Allconnex Water years.

Figure 3-1 – KPI#20: Lost Time Injury Hours



Benchmarking this performance against other similar businesses will be crucial to the ability of Redland Water to measure improvement against this KPI. Utilising a KPI that normalises LTI against hours worked across the organisation such as LTIFR.

> *Definition and calculation of lost-time injury frequency rates (LTIFR)*[1]
>
> *Lost-time injury frequency rates are the number of lost-time injuries within a given accounting period relative to the total number of hours worked in the same accounting period. This is calculated as follows and results in a measure of the number of lost-time injuries per hour worked during the accounting period:*
>
> *(Number of lost time injuries in accounting period)*
> ---
> *(Total hours worked in accounting period)*
>
> *The number of lost-time injuries per hour worked is always a very small number. Therefore, for ease of interpretation, a multiplier of 1 million is used and LTIFRs are reported as the number of lost-time injuries per million hours worked. This is calculated as follows:*

[1] Sourced:
http://www.safeworkaustralia.gov.au/sites/swa/statistics/ltifr/pages/lost-time-injury-frequency-rates
Accessed: 15/04/13 2:50pm

(Number of lost time injuries in accounting period)

(Total hours worked in accounting period)

3.2 Recent measures

Current actions under way in respect to Skilled, Knowledgeable and Safe staff are:

Table 3-1 – Current Initiatives

DEPARTMENT	INITIATIVE
Across Redland Water	Skills Matrix – identifies all training requirements and qualifications for every position in Redland Water
	Ongoing corporate training – for example to Fire Evacuation Training, Safety First Training
Distribution and Treatment	Competency based training for all safety related tasks for specific to positions
	Wastewater Treatment Plant Operators Course
	Attendance at conferences such as Ozwater & WIOA
	Attendance at Contractual Management and Administration course
	Water Industry Worker Cert II, III, IV
Infrastructure and Planning	Wastewater Treatment Plant Operators Course
	Mike Urban users course
	AS2124 & AS4000 course
	Attendance at conferences such as Ozwater & WIOA

4. Key Issues and Improvements

4.1 Current Environment

The reform in the water industry in South East Queensland has potentially taken the number one focus away from safety for some workers. This appeared evident in the initial months of Allconnex Water where a concerted push had to be made to reinforce the importance of safety at work. There is a risk of "change fatigue" as this reform potentially continues.

4.2 Legislated drivers

Recent legislative changes for the water industry have fostered more stringent risk management, water quality management and safety requirements.

4.3 Business Drivers

Ongoing advancements in technology mean that our workforce skill levels need to keep pace with current "industry standard" solutions. The water industry is changing externally with respect to on-site accessibility to work orders and asset management systems which result in time saving and improved customer service methods. RW needs to adapt to new technology.

4.4 RCC People Strategy Key Issues

The RCC People Strategy 2012-2015: Our Workplace, Our Responsibility, is Redland City Council's vision for creating the best workplace conditions for our people to deliver outstanding performance.

Key issues identified in the people management strategy are:

- Maintaining a sustainable and skilled workforce
- Serving our community and managing increasing community expectations
- Managing change fatigue and building an adaptable and resilient workforce
- Managing electronic communication demands (email/social media)
- Increasing challenges for our people to balance the demands of their work and private lives
- Building stronger relationships internally, with other tiers of government and a variety of stakeholders
- Recognising and managing the need to do more with less budget (prioritising is critical)
- Building and supporting stronger leaders who are flexible and adaptable
- Ensuring employees are better informed about the big picture as well as day-to-day functional issues
- Ensuring employees are more involved in decisionmaking
- Ensuring employees have opportunities to grow
- develop their role and career

The RCC People Strategy 2012-2015 proposes to:

- To **Attract** the best people
- To **Keep** the best people
- To **Cultivate** the best leader
- To allow our people to **Thrive**

4.5 Business Unit Specific Key Issues

Specifically related to the RW business unit of RCC, the following issues have been identified as key issues moving forward:

- RW needs to understand the demographic profile of its workforce. With an ageing population in the wider community RW needs to be conscious of maintaining a workforce that is capable of continuing to deliver its services, particularly in relation to the labouring activities required by the outdoor workforce. While age is not the be all and end all of capability, it does provide an indication of the profile of the business.
- There is generally a growing trend in the expectation of customers of service provision on a 24/7 basis. While this is true of our core service provision (eg water supply and wastewater collection) it is not true of all RW services. RW needs to be mindful that with a relatively small workforce, full services over a 24/7 timeframe is not possible without the use of contractors.
- As technology advances there is a need to ensure that we keep up with industry standards and ensure that our workforce is able to deliver more, on the assumption of efficiencies due to the technological advancements, with less.
- In line with RCC's current direction, there is a need to develop a culture of employee accountability.
- One of the current strengths of RW is that there is a strong and positive sense of customer service. This "local people servicing local people" attitude was evident in the time of Allconnex Water. This culture needs to be maintained and fostered.
- There is a developing understanding within our operations department regarding our need to look after the environment. Regular environmental training and reinstatement of our Environmental Management System will assist with maintaining this growth in understanding.
- One thing that is noticeable in a government organisation is the number of vacancies at any one time. To limit the stress on remaining staff it is imperative that management commit to filling vacancies immediately when they arise.
- Measuring progress on safety will require benchmarking of RW against organisations in similar if not the same industry.

5. Action Plan

The key output from each of the Water Netserv Part B sub-plans is an action plan for Redland Water over coming years. Table 5-1 below details that action plan in relation to Workforce Development Plan.

Table 5-1 - Action Plan

ACTION DESCRIPTION	DUE DATE FOR COMPLETION	RESPONSIBILITY	STATUS
Understand and then aim in a legitimate way to lower the age of the external field operations workforce	1 July 2015	All Management Staff	Yet to be commenced
Assess the metrics of the gender balance in the organisation	1 July 2014	All Management Staff	Yet to be commenced
Continue and foster excellent customer service ethos	Ongoing	All Staff	Ongoing
Develop a culture of working efficiently to better developed procedures	Ongoing	All Staff	Ongoing
Roll-out employee accountability management model	1 July 2014	All Staff	Yet to be commenced
Continue environmental awareness training for all staff	Annually	All Management Staff	Ongoing
Lower the vacancy rate within the RW business	As needs arise	All Management and Supervisory Staff	Ongoing
Continue sending staff on relevant training courses and programs eg WWTP operators course	As needs arise	All Management Staff	Ongoing
Ensure staff are appropriately trained for equipment that they operate	Annually or as licences / competency to operate permits require renewing	All Management and Supervisory Staff	Ongoing
Benchmark safety performance of the RW business against other water industry businesses	Annually	All Management Staff	Yet to be commenced

6. References

Redland City Council, *People Strategy 2012-2015: Our Workplace, Our Responsibility, 2012*.

16 CLOSED SESSION

16.1 COMMUNITY & CUSTOMER SERVICES

16.1.1 RUNNYMEDE ACTIVATION

Dataworks Filename: **P&R Indigiscapes – The Runnymede Project**

Authorising Officer:

Louise Rusan
General Manager Community & Customer Services

Responsible Officer: **Greg Jensen**
Group Manager Community & Cultural Services

Author: **Frank Pearce**
Principal Adviser Strong Communities

EXECUTIVE SUMMARY

Council or Committee has a broad power under Section 275(1) of the *Local Government Regulation 2012* to close a meeting to the public where there are genuine reasons why the discussion on a matter should be kept confidential.

OFFICER RECOMMENDATION

That the meeting be closed to the public to discuss this matter pursuant to Section 275(1) of the *Local Government Regulation 2012.*

The reason that is applicable in this instance is as follows:

"(e) contracts proposed to be made by it."

17 MEETING CLOSURE