



WATER COMMITTEE MEETING

AGENDA

4 NOVEMBER 2015

Your attendance is required at a meeting of the Water Committee to be held in the Council Chambers, 232 Bolsover Street, Rockhampton on 4 November 2015 commencing at 12.30pm for transaction of the enclosed business.

A handwritten signature in black ink, appearing to be "R. [unclear]", written in a cursive style.

ACTING CHIEF EXECUTIVE OFFICER
28 October 2015

Next Meeting Date: 02.12.15

Please note:

In accordance with the *Local Government Regulation 2012*, please be advised that all discussion held during the meeting is recorded for the purpose of verifying the minutes. This will include any discussion involving a Councillor, staff member or a member of the public.

TABLE OF CONTENTS

ITEM	SUBJECT	PAGE NO
1	OPENING.....	1
2	PRESENT	1
3	APOLOGIES AND LEAVE OF ABSENCE	1
4	CONFIRMATION OF MINUTES.....	1
5	DECLARATIONS OF INTEREST IN MATTERS ON THE AGENDA	1
6	BUSINESS OUTSTANDING	2
6.1	BUSINESS OUTSTANDING TABLE FOR WATER COMMITTEE	2
7	PUBLIC FORUMS/DEPUTATIONS	5
	NIL	5
8	OFFICERS' REPORTS	6
8.1	WATER AND SEWERAGE ASSET MANAGEMENT PLANS	6
9	STRATEGIC REPORTS	229
9.1	FRW MONTHLY OPERATIONS AND ANNUAL PERFORMANCE PLAN AS AT 30 SEPTEMBER 2015	229
10	NOTICES OF MOTION	271
	NIL	271
11	URGENT BUSINESS/QUESTIONS	272
12	CLOSURE OF MEETING.....	273

1 OPENING

2 PRESENT

Members Present:

Councillor C R Rutherford
Councillor A P Williams
Councillor N K Fisher

In Attendance:

Mr R Holmes – General Manager Regional Services (Executive Officer)
Mr E Pardon – Chief Executive Officer

3 APOLOGIES AND LEAVE OF ABSENCE

The Mayor, Councillor Margaret Strelow has tendered her apology and will not be in attendance.

Councillor Greg Belz has been granted leave of absence from 3-5 November 2015 inclusive.

4 CONFIRMATION OF MINUTES

Minutes of the Water Committee held 7 October 2015

5 DECLARATIONS OF INTEREST IN MATTERS ON THE AGENDA

6 BUSINESS OUTSTANDING

6.1 BUSINESS OUTSTANDING TABLE FOR WATER COMMITTEE

File No: 10097

Attachments: 1. Business Outstanding Table for Water Committee

Authorising Officer: Robert Holmes - Acting Chief Executive Officer

Author: Robert Holmes - Acting Chief Executive Officer

SUMMARY

The Business Outstanding table is used as a tool to monitor outstanding items resolved at previous Council or Committee Meetings. The current Business Outstanding table for the Water Committee is presented for Councillors' information.

OFFICER'S RECOMMENDATION

THAT the Business Outstanding Table for the Water Committee be received.

BUSINESS OUTSTANDING TABLE FOR WATER COMMITTEE

Business Outstanding Table for Water Committee

Meeting Date: 4 November 2015

Attachment No: 1

Date	Report Title	Resolution	Responsible Officer	Due Date	Notes
4 June 2014	Rockhampton Regional Council High Priority Water Allocation Use	<p>THAT the Council receive the report and adopt the following recommendations to optimise the sustainable usage of Council's high priority water allocation being that:</p> <ul style="list-style-type: none"> • Information is disseminated to irrigators regarding the removal of the requirement for Land and Water Management Plans; • FRW's 'water market' is promoted more; • The Drought Management Plan (DMP) trigger levels for implementing restrictions are reviewed and changed; • Methods to increase efficient industrial water use are examined; and • A formal approach be made to the regulator to retain flexibility in future Resource Operations Plan (ROP). 	Jason Plumb	31/08/2015	Brief information notice to be sent to irrigators with billing mail-out at the end of July. Regional Water Supply Security Analysis discussions continuing with DEWS. Water source security modelling and demand management planning using new Barrage storage volume data currently in progress with completion expected within the next two months. Council workshop to be scheduled for August or September to present outcomes.
2 September 2015	Report on Leakage in the Rockhampton Network	THAT a report on leakages in the Rockhampton Water Supply Scheme including defining those areas in the Supply Scheme experiencing the greatest level of leakage and a comparison with the National Standard and other Local Governments be provided to the Committee.	Jason Plumb	16/09/2015	

7 PUBLIC FORUMS/DEPUTATIONS

Nil

8 OFFICERS' REPORTS

8.1 WATER AND SEWERAGE ASSET MANAGEMENT PLANS

File No:	5960
Attachments:	1. Asset Management Planning 2. Asset Management Plan Water Supply 2015 3. Asset Management Plan Sewerage 2015
Authorising Officer:	Robert Holmes - Acting Chief Executive Officer
Author:	Alicia Cutler - Acting General Manager Corporate Services

SUMMARY

Two workshops were held during October to take Council through the detail of the plans, however due to conflicting commitments they were not well attended. The Water and Sewerage Asset Plans are now presented to Committee for adoption.

OFFICER'S RECOMMENDATION

THAT in accordance with S 104 of the Local Government Act 2009, Council adopt the Water Asset Management Plan.

THAT in accordance with S 104 of the Local Government Act 2009, Council adopt the Sewerage Asset Management Plan.

BACKGROUND

S 167 of the Local Government Regulation 2012 stipulates the following:

1. A local government must prepare and adopt a long-term asset management plan.
2. The long-term asset management plan continues in force for the period stated in the plan unless the local government adopts a new long-term asset management plan.
3. The period stated in the plan must be 10 years or more.

The previous Asset Management Plan was adopted by Council in 2012 and there has been significant movement in the forward capital works in that time so therefore an update is required.

In addition, the Plan itself now meets requirements of ISO 55000 which was first launched in 2014.

The attached presentation (provided to the Council workshops during October 2015) shows the key information from the documents, however a full read of the document certainly will provide the reader detailed assurance around how the assets are managed and maintained.

It is important to note that the figures provided within the plan align with Councils long term financial plan and there are not any apparent gaps in funding. This plan does also does not limit Councils future discretion of reviewing the mix of renewal funding for these classes or a review of Customer service levels.

WATER AND SEWERAGE ASSET MANAGEMENT PLANS

Asset Management Planning

Meeting Date: 4 November 2015

Attachment No: 1

ASSET MANAGEMENT PLANNING

WATER & SEWER

BACKGROUND

- Last Asset Management Plans adopted on 2012 as part of regulatory process
- This review updates the current proposals in respect of alignment with Councils LTFF
- Goal of Asset Management Plan is that 1 document provides the overall landscape of the assets and how they will be managed moving forward.

COUNCILS WATER ASSET PORTFOLIO

Asset Type	Number/Length	Replacement Cost (\$)	Accumulated Depreciation (\$)	Fair value (\$)	Residual Value (\$)
Reticulation	816 km	288,824,574	103,552,279	185,272,295	
Storage	21 Reservoirs	47,300,827	16,124,725	31,176,102	
Valve complex		970,200	167,878	802,322	
Pump Stations	42	13,916,688	5,613,597	8,303,091	428,472
Storage (Raw Water)	No 7 Dam	48,993,570	9,179,092	39,814,478	3,239,400
Barrage		71,227,867	33,673,719	37,554,148	3,774,451
Ground Water Supply	Fletchers Creek	784,500	710,643	73,857	
Booster Pump Station (Raw Water)		3,082,040	2,247,648	834,392	
Effluent Reuse		1,180,370	245,011	935,359	102,400
Treatment	Glenmore	48,017,540	21,779,526	26,238,014	1,804,935
Treatment	Mt Morgan	1,835,015	525,598	1,309,417	186,550
Total		526,133,192	193,819,716	332,313,476	9,536,208

Conclusion:

- 55% of the asset portfolio are pipes, there are 816 km of water pipes that transfer water between the treatment plants and the end users
- Storage facilities (raw and treated) and the barrage accounts for 32% of the portfolio
- The treatment facilities in Glenmore and Mt Morgan accounts for 10%

SERVICE STANDARD TARGETS – WATER – DAY-TO-DAY CONTINUITY

CSS Reference	Performance Indicator	Rockhampton and Gracemere Water Supply Scheme (Target)	Actual 2013/14	Satisfactory Yes/ No	Mt Morgan Water Supply Scheme (Target)	Actual 2013/14	Satisfactory Yes/No
CSS1	Extent of unplanned interruptions – connections based (no. per 1000 connections per year)	< 80	48	Yes	< 80	166	No
CSS2	Extent of unplanned interruptions – incidents based (no. per 100 km of main per year)	< 30	54	No	< 30	39	No
CSS3	Time for restoration of service - unplanned interruptions (% restored within 5 hours)	> 90%	96 %	Yes	> 90%	99 %	Yes
CSS4	Customer interruption frequency: 1 interruption per year 2 interruptions per year 3 interruptions per year 4 interruptions per year 5 or more interruptions per year	12% 2% 1% 0.5% 0.25%	7.86 % 0.46 % 0 % 0 % 0 %	Yes Yes Yes Yes Yes	12% 2% 1% 0.5% 0.25%	24.51 % 0.67 % 0 % 0 % 0 %	No Yes Yes Yes Yes
CSS5	Relative incidence of planned and unplanned interruption incidents (% of planned versus total number of interruptions)	> 30%	14 %	Yes	> 30%	24 %	Yes

SERVICE STANDARD TARGETS – WATER – DAY-TO-DAY CONTINUITY

CSS Reference	Performance Indicator	Rockhampton and Gracemere Water Supply Scheme (Compliance Target)	Actual Compliance 2013/14	Satisfactory Yes / No	Mt Morgan Water Supply Scheme (Compliance Target)	Actual Compliance 2013/14	Satisfactory Yes/No
CSS6	Average interruption duration - planned and unplanned (hours)	3 hrs	1.45 hrs	Yes	3 hrs	3.31 hrs	No
CSS7	Response time Priority 1 – 1 hour response	95 %	82 %	No	95 %	75 %	No
	Priority 2 – 2 hours response	95 %	89 %	No	95 %	82 %	No
	Priority 3 – 24 hours response	95 %	97 %	No	95 %	91 %	No
	Restoration time Priority 1 – 5 hours restoration	95 %	89%	No	95 %	92 %	No
Priority 2 – 24 hours restoration	95 %	98 %	Yes	95 %	97 %	Yes	
Priority 3 – 5 days restoration	95 %	99 %	Yes	95 %	94 %	No	

STANDARDS OF SERVICE – WATER - ADEQUACY AND QUALITY OF NORMAL SUPPLY

CSS Reference	Performance Indicator	Rockhampton and Gracemere Water Supply Scheme	Actual 2013/14	Mt Morgan Water Supply Scheme	Actual 2013/14
CSS8	Minimum pressure standard at the water meter	220 kPa	220 kPa	220 kPa	220 kPa
CSS9	Minimum flow standard at the water meter	9 L/min	9 L/min	9 L/min	9 L/min
CSS10	Connections with deficient pressure and/or flow (% of total connections)	< 2.5%	0 %	< 2.5%	0 %
CSS11	Drinking water quality (compliance with industry standard)	> 98%	100 %	> 98%	100 %
CSS12	Drinking water quality complaints (number per 1000 connections)	< 5	1.59	< 5	8.23
CSS13	Drinking water quality incidents (number per 1000 connections)	< 5	0	< 5	0

SERVICE STANDARD TARGETS - WATER – LONG TERM CONTINUITY

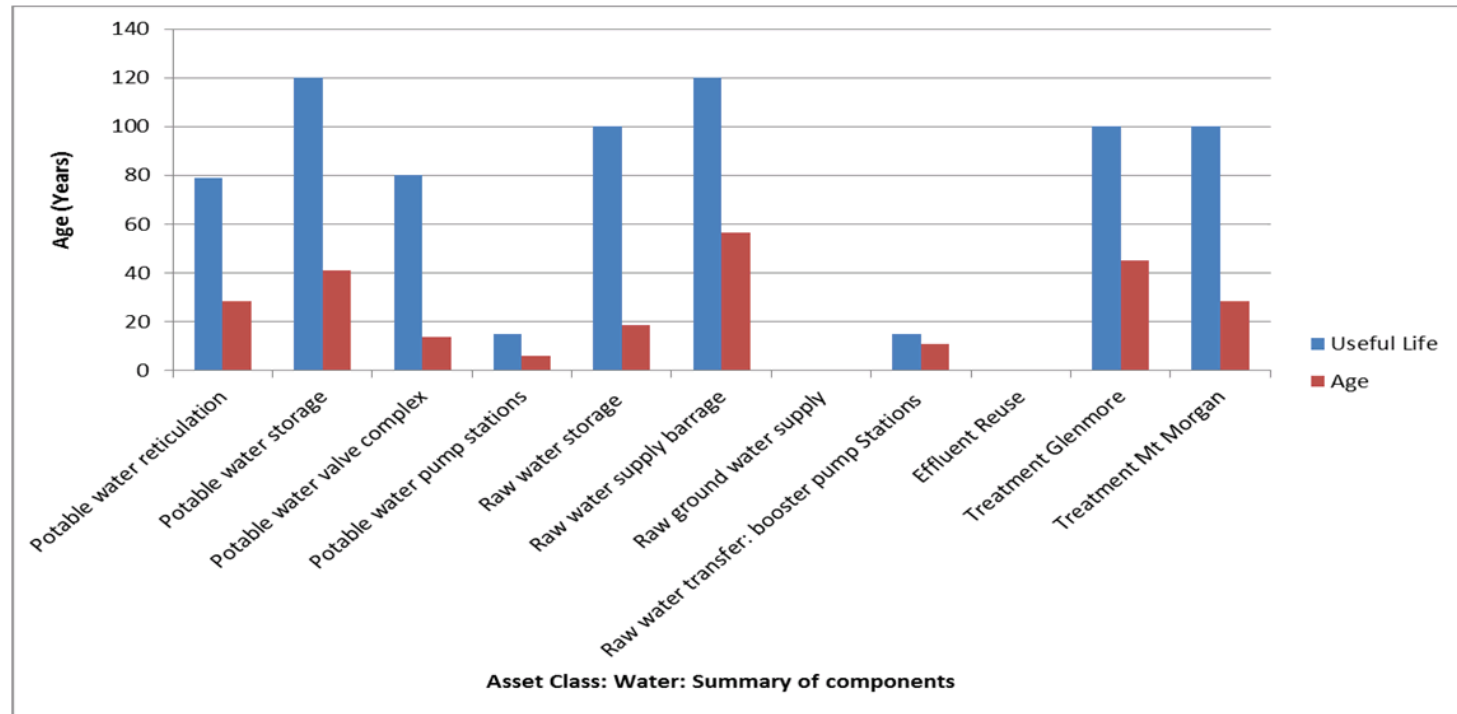
CSS Reference	Performance Indicator	Rockhampton and Gracemere Water Supply Scheme	Actual 2013/14	Mt Morgan Water Supply Scheme	Actual 2013/14
CSS14	Water main breaks (number per 100 km main)	< 40	23	< 40	32
CSS15	Water services breaks (number per 1000 connections)	< 40	21	< 40	18
CSS16	System water losses (Liter per connection per day)	< 200 L	226	≤ 130 L	140

WATER MAIN BREAKS BETWEEN 2010 AND 2013 (BREAKS PER 100 KM OF WATER MAIN)

- Asbestos cement pipes installed in the 1960's and 1970's, and cast iron pipes installed from 1920 in predominantly the Rockhampton area, have had high breakages in recent years. These two materials accounts for 75 % of all the water mains breakages recorded between 2010 and 2013.

Material	Length(km)	Value (\$m)	% total length	% breaks measured against the total breaks 2009-2015
Asbestos Cement (AC)	147	43	23	30
Cast Iron (CI)	110	37	17	45
Ductile Iron (DI)	15	16	2	0
Modified PVC (Blue)	161	45.5	25	6
Un plasticized PVC (White)	136	39	21	9
Poly Urethane	36	4.2	6	2
Mild Steel Cement Lined (MSCL)	35.5	35.5	6	0
Other	4.7	0.6	1	8

THE AGE OF OUR WATER ASSET PORTFOLIO



Notes:

1. The age are based on the average age of a group of different asset types e.g. the ages of different water main materials.
2. The age are calculated from the accumulated depreciation and the remaining lives obtained from the recent condition based revaluation.
3. Standard asset lives are estimates only and based on average industry supplied figures

WATER MAINS BREAKAGE INDUSTRY BENCHMARKS

Figure 8.4: A8 Water main breaks, 2010–11 to 2012–13 (per 100 km of water main)
 For utilities with between 20 000 and 50 000 connected properties

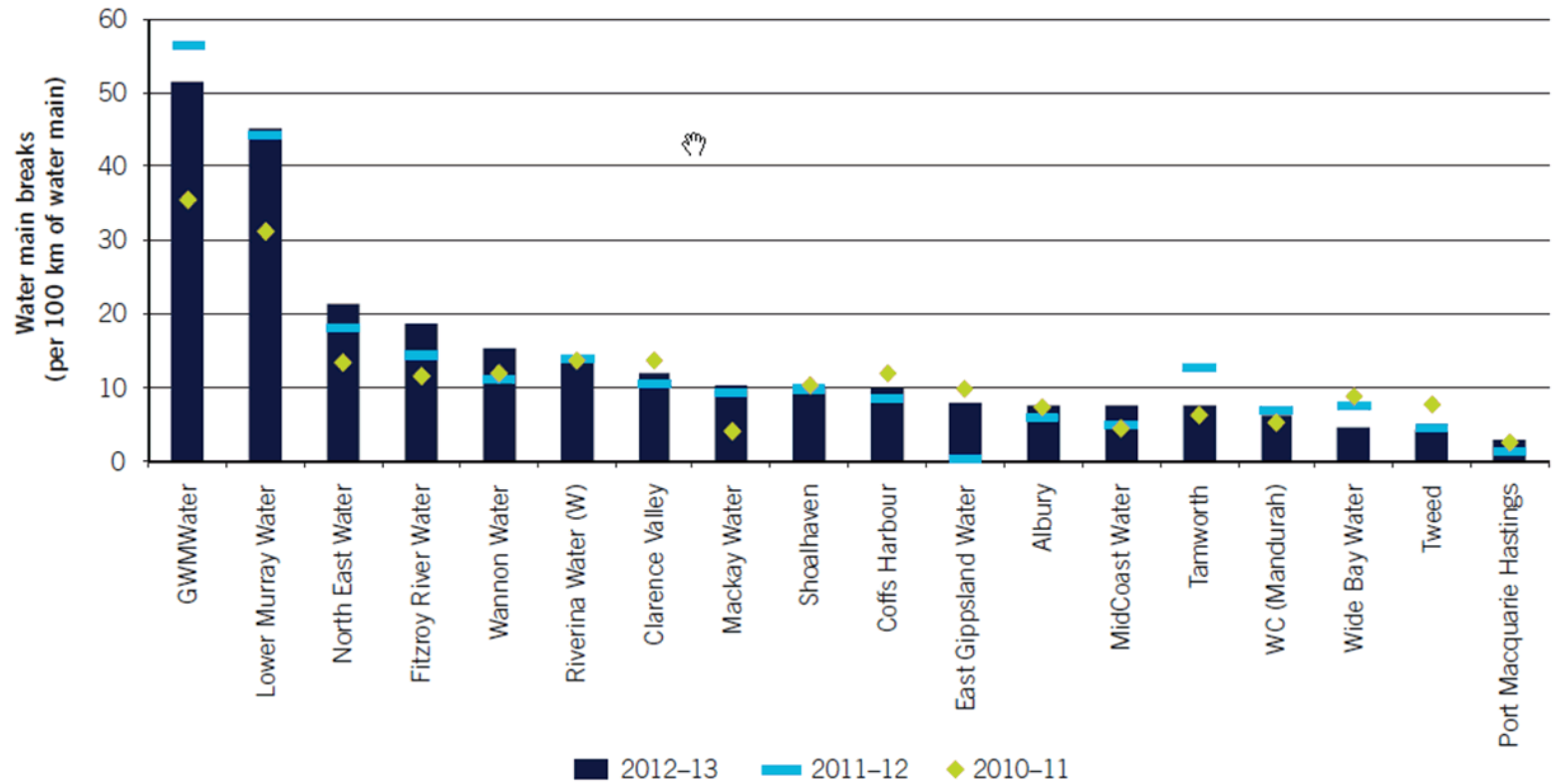
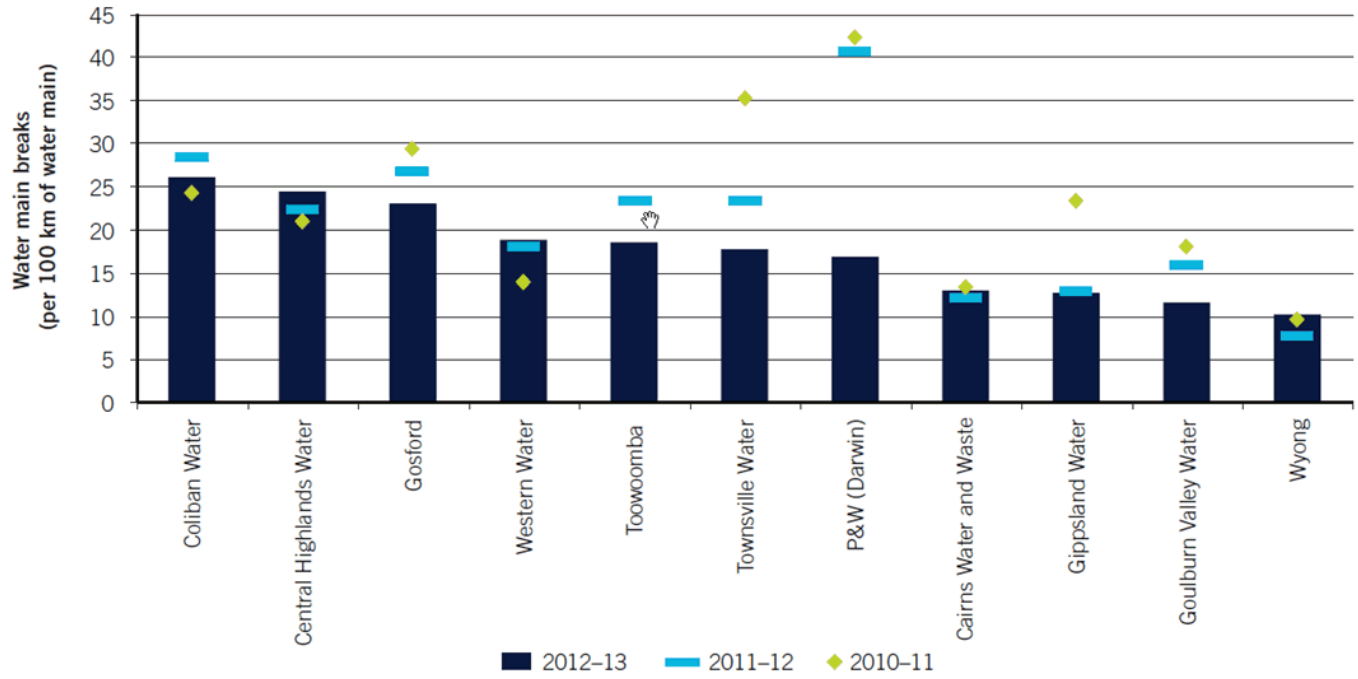


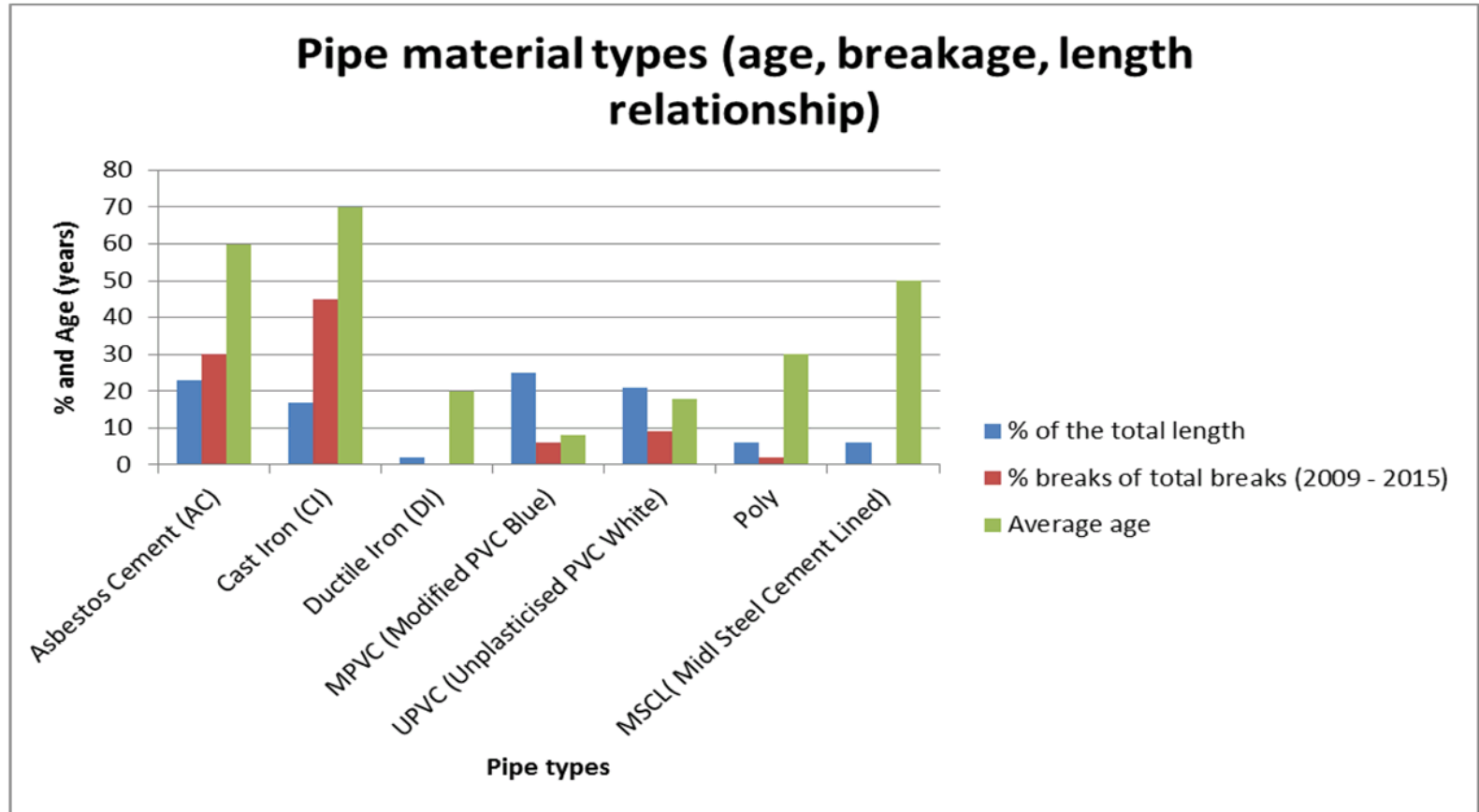
Figure 8.3: A8 Water main breaks, 2010–11 to 2012–13 (per 100 km of water main)

For utilities with between 50 000 and 100 000 connected properties



FURTHER ON OUR AGEING WATER ASSET PORTFOLIO

- The potable water reticulation network consist of the following types of pipe materials:



NB: Length of 100 dia AC Pipe = 96 km (65 % of AC material) and 81 % of AC breaks on 100 dia pipe.

HISTORICAL OPERATIONAL AND MAINTENANCE EXPENDITURE: WATER

- Operational and maintenance expenditure / connection have steadily declined with approximately 2.5% over the past three years.

Utility	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
RCC (\$/property)	329	329	250	339	335	326

- The mix of maintenance expenditure between Unplanned (reactive) and Planned (pro-active) is 47% versus 53%. Most of the planned maintenance expenditure is associated with regulatory compliance which seems to be for ever increasing.

	2010/11	2011/12	2012/13	2013/14	2014/15
Capital expenditure Asset Class: Water (\$/property)	544	476	300	365	N/A

Managing Risks around Water Assets

- In summary, the following risk mitigation measures:
- Planned and programmed maintenance of all assets
 - Mechanical components
 - Identify inspection and maintenance regime for these components, and program maintenance and service requirements
 - Ensure mechanical components are renewed when required
 - Ensure mechanical components are upgraded when due
 - Electrical components
 - Identify inspection and maintenance regime for these components, and program maintenance and service requirements
 - Ensure electrical switchgear and related components are renewed and upgraded when required
- Ensure all maintenance and services are conducted as per the operation manual for the asset
- Competent staff and operators
- Ensure the assets can withstand natural disasters to the likes of floods, bushfires etc.
- Reactive maintenance conducted in a non-compromised manner, ensuring:
 - Maintenance reaction timeframes are met at all times
 - Reactive maintenance scenario with well-trained and staff prepared for it.
-
- Effective and efficient asset management is one of the most important risk mitigation factors.

FUTURE DEMAND FOR SERVICES

- The future demand for services are generated by:
 - Population growth
 - Economic growth and associated investment
 - Governance and other regulatory requirements to provide services
 - Council's social responsibility
 - Environmental restrictions, requirements and duty of care
 - Cultural contribution and needs
 - Changes in standards and specifications required for compliance

- Demand drivers for capital and maintenance works include:
 - Increase in services provided
 - Increased age of the assets
 - Increased community expectations
 - Remaining useful lives of the buildings
 - Exponentially increasing maintenance demands due to deferring of essential maintenance and maintenance backlogs in combination with deferred renewal and rehabilitation capital works.

- Demand Forecast

Demand factor	Present position	Projection	Impact on Built Infrastructure
Population	76330	Population projection 2016 – approx. 80,000 people 2021 – approx. 84,000 people	Increase Assets and demand on existing assets will have a follow on impact on maintenance and renewal costs

- Projects to meet the future demand (New and Upgrade)

Area	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Gracemere	\$1,259,000	\$950,000	\$1,099,000	\$1,500,000	\$2,000,000	\$1,265,000
Rockhampton	\$15,000	\$0	\$430,000	\$425,000	\$0	\$0

What does FRW do to Manage Demand?

METHOD	EXAMPLE
Leakage Control	District Meters in Rockhampton
Pressure Reduction	Supply pressure reduction in Rockhampton/Mt Morgan
Education	School groups visit the Glenmore Water Treatment plant and are given a tour of the plant and reminded of conserving water
Billing	Council has a 3 tiered Water tariff every quarter, when consumption per quarter is over 150 kL a higher rate is charged

PROJECTED CAPITAL WORKS (RENEWAL & NEW) – 10 YEAR PROGRAM

- Capital works projection for the water reticulation network

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton reticulation Renewals : \$25 m worth of AC/CI reticulation assets expiring next 10 yrs, \$27 m worth of replacements planned for next 10 yrs										
Renewals	3,180,000	2,814,300	2,979,300	3,144,300	3,149,300	2,389,200	3,159,200	3,164,100	3,169,000	3,174,000
New and Upgrade	165,000	470,000	430,000	925,000						
Total	3,345,000	3,284,300	3,409,300	4,069,300	3,149,300	2,389,200	3,159,200	3,164,100	3,169,000	3,174,000

- Capital works projection for the Barrage

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Barrage renewals, constructed 1970, Corrosive environment at fresh/salt water interface, Projects to protect against corrosion and rehabilitate to prevent operational failure										
Renewals	755,000	415,000	250,000	250,000	448,000	250,000	150,000	150,000	150,000	630,805
New and Upgrade	150,000	50,000	1,000,000							
Total	905,000	465,000	1,250,000	250,000	448,000	250,000	150,000	150,000	150,000	630,805

- Capital works projections for pump stations

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton Pump Station Capital works; Failure modes include capacity/performance, obsolescence failure, reliability effecting meeting LOS, condition indicates at end of life										
Renewal	130,000	100,000	102,500	570,000	429,300	24,200	8,250	46,300	33,000	0
New & upgrade	135,000	500,000								
Total	265,000	600,000	102,500	570,000	429,300	24,200	8,250	46,300	33,000	0

- Renewal projections for reservoirs

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton Reservoir capital works										
Renewals	20,000	0	0	50,000	123,000	500,000	500,000	30,000	0	451,000
New and Upgrade	125,000	50,000	0	0	4,000,000	4,000,000				
Total	145,000	50,000	0	50,000	4,123,000	4,500,000	500,000	30,000	0	451,000

- Renewal projections for the Glenmore Water Treatment Plant

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
GWTP Capital works, Plant was commissioned in 1971 and some original mechanical / electrical assets at end of physical life and at high risk of failure effecting reliability										
Renewals	2,878,487	2,040,000	1,960,000	535,973	20,000	100,000	270,000	0	0	532,000
New and Upgrade	520,000	50,000	125,000	1,000,000						
Total	3,398,487	2,090,000	2,085,000	1,515,973	20,000	100,000	270,000	0	0	532,000

A SUMMARY OF PROPOSED CAPITAL WORKS FOR WATER (RENEWALS, UPGRADES, NEW)

Area	Asset	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Total
Summary of all Capital Works ie Renewals, New and Upgrades (\$000)												
Rockhampton	Reticulation Renewals	3,180.0	2,814.3	2,979.3	3,144.3	3,149.3	2,389.2	3,159.2	3,164.1	3,169.0	3,174.0	
	Reticulation New / Upgrades	165.0	470.0	430.0	925.0	0	0	0	0	0	0	
	Barrage Renewals	755.0	415.0	250.0	230.0	448.0	230.0	150.0	150.0	150.0	630.8	
	Barrage New / Upgrades	150.0	50.0	1,000.0	20.0	0	20.0	0	0	0	0	
	WP Stn Renewals	130.0	100.0	102.5	456.0	429.3	24.2	8.3	46.3	33.0	0	
	WP Stn New / Upgrades	135.0	500.0	0	114.0	0	0	0	0	0	0	
	Res Renewals	20.0	0	0	40.0	123.0	400.0	400.0	30.0	0	451.0	
	Res New / Upgrades	125.0	50.0	0	10.0	4,000.0	4,100.0	100.0	0	0	0	
	GWTP Renewals	2,878.5	2040.0	1960.0	484.9	20.0	100.0	220.0	0	0	532.0	
	GWTP New / Upgrades	520	50.0	125.0	1,051.0	0	0	50.0	0	0	0	
TOTAL		8,058.4	6489.3	6846.8	6,475.20	8169.6	7,263.40	4,087.50	3,390.4	3,352.0	4,787.8	58,920.40
Gracemere	Reticulation Renewals	55.0	5.4	5.7	6.0	6.4	6.7	7.0	7.3	7.6	8.0	
	Reticulation New / Upgrades	1,259	950.0	1099.0	0	500.0	1265.0	2,000	2,000	0	0	
	WP Stn Renewals	0	0	0	0	48.0	0	0	6.6	0	0	
	WP Stn New / Upgrades	0	0	0	0	0	0	0	0	0	0	
	Res Renewals	0	0	0	0	0	0	0	0	0	0	
	Res New / Upgrades	0	0	0	1,500	1,500	0	0	0	0	0	
		1314.0	955.4	1104.7	1,506	2054.4	1,271.7	2007.0	2013.9	7.6	8.0	12242.7
Mt Morgan	Reticulation Renewals	522.2	522.5	522.9	523.2	523.5	523.9	524.2	524.5	524.9	525.2	
	Reticulation New / Upgrades	0	0	0	0	0	0	0	0	0	0	
	WP Stn Renewals	23.0	88.0	0	0	0	0	0	0	0	0	
	WP Stn New / Upgrades	92.0	72.0	0	0	0	0	0	0	0	0	
	Res Renewals	0	0	0	0	0	0	65.0	0	0	35.0	
	Res New / Upgrades	60	0	0	0	0	0	0	0	0	0	
	Mt Morgan WTP Renewals	64	40	0	0	0	0	0	11.0	0	22.0	
	Mt Morgan New / Upgrades	531	60	0	0	0	0	0	0	0	0	
Total		1292.2	782.5	522.9	523.2	523.5	523.9	589.2	535.5	524.9	582.2	6400.0
Overall Total (000)		10,664.6	8227.20	8,474.40	8,504.4	10,747	9,059.00	6,683.70	5,939.80	3,884.50	5,378.00	77,563.20

PRIORITISATION OF EXPENDITURE: WATER

- Assets needs to ensure the Asset structure is:
 - Consistent and functional.
 - Programed with planned maintenance actions and inspections (Fred’s detailed maintenance schedule).
 - Review the maintenance schedule and rationalise where possible (use the bathtub principal to rationalise)
- Assets have to be prioritized to ensure risk is reduced , and resources are optimally utilised
- The prioritization count would be: **Priority (out of 100)= (Col. A + Col. B + Col. C + ½ (Col. D) + Col. E + ½ (Col. F)) / 5**

	A	B	C	D	E	F
	Potential impact on life, community and property	Number of customers effected and location	Reactive maintenance history	Cost of failure	Existing condition of the asset	Remaining life of the asset
Critically out of 500	100	100	100	100	100	100
10	No risk to community and property	Less than 10	No orders raised	Less than \$25,000	Very good > 80%	More than 20 years
30	Minimal risk to public health, isolated property damage	10-1000	1-5 orders raised for the past year	\$25,000 - \$100,000	Good 60% - 80%	Between 15 and 20 years
50	Possible health risk, minor damage to property	1000-5000	5-10 orders raised	\$100,000 - \$500,000	Average 40% - 60%	Between 10 and 15 years
70	Likely public consequences, moderate property damage	5000 - 10000	10-15 orders raised	\$500,000 - \$1m	Poor 20% - 40%	Between 5 and 10 years
100	Widespread public health consequences likely, serious property damage	more than 10000	More than 15 orders raised	Greater than \$1m	Very Poor < 20%	Less than 5 years

THE NEW SEWER ASSET MANAGEMENT PLAN

COUNCILS SEWER ASSET PORTFOLIO (WHAT DO WE HAVE?)

Asset Type	Number/Length	Replacement Cost (\$)	Accumulated Depreciation (\$)	Fair value (\$)	Residual Value (\$)
Reticulation	696 km	201,806,640	99,137,179	102,669,461	
Pump Stations	54	20,891,731	9,089,961	11,801,771	
Treatment (NRSTP)		25,088,526	8,626,023	16,462,503	2,079,000
Treatment (SRSTP)		22,530,777	8,337,066	14,193,711	1,109,563
Treatment (WRSTP)		8,269,019	5,267,491	3,001,528	
Treatment (Gracemere)		7,850,370	2,431,082	5,419,289	1,861,908
Treatment (Mt Morgan)		1,343,670	285,000	1,058,670	156,000
Total		287,780,734	133,173,801	154,606,932	5,206,471

Conclusion:

Reticulation makes up 70 % of the Value of sewer assets, Treatment assets make up 22 % of the value.

Rockhampton Sewer Asset Ages and Remaining Lives

Reticulation	Length km/no	Replacement Cost (\$)	Age (Yrs)	DRC	Remaining Life
Concrete	161	65,552,916	44-65	20,295,889	2-16
EW	156	39,428,880	65-78	7,061,141	2-12
PVC	150	38,174,909	0-44	26,728,961	40-80
DI/CI	1	299,375	1-15	221,121	65-80
Relining	89	22,142,569	0-10	20,979,436	65-70
Rising Mains	20	7,352,104	2-76	4,427,704	4-79
Pumps/Treatment					
North Rockhampton STP		25,088,526	28	16,462,503	2-80
West Rockhampton STP		8,269,019	53	3,001,528	2-80
South Rockhampton STP		22,530,777	32	14,193,711	2-80
Pump Stations	39	17,636,083	1-78	9,274,875	1-80
Total		246,475,158		122,646,869	

- Conclusion : Original concrete and EW pipe materials limited remaining life
- West Rockhampton STP Consumption ratio 30 % indicating has depreciated 70 %. Will need investment in near future. Plan to decommission

GRACEMERE SEWER ASSET AGES AND REMAINING LIVES

Asset	Length/No (km/no)	Replacement Cost (\$)	Age (Years)	Fair Value	Remaining Life (Years)
Reticulation					
AC Pipe (Gravity)	3.5	1,081,155	31	543,243	30
PVC (Gravity)	94.7	21,656,670	0-31	17,437,709	40-70
mPVC/uPVC (Rising Mains)	13.3	3,818,505	2-30	2,950,975	50-57
Pumps/Treatment					
Pump Stns	13	2,283,246	2-30	1,711,681	50-57
Treatment	1	7,850,370	31	5,419,289	10-71
Total \$		36,689,946		28,062,897	

MT. MORGAN SEWER ASSET AGES AND REMAINING LIVES

- The sewer network and associated assets were installed in 2005, the assets are therefore relatively new with long remaining lives.
- The network is currently being expanded

Asset	Length/No (km/no)	Replacement Cost (\$)	Age (Years)	DRC (\$)	Remaining Life (Years)
Reticulation					
PVC (Gravity)	9.7	2,118,556	9	1,859,810	61
DICL (Rising Mains)	0.96	181,002	9	162,472	71
Pumps/Treatment					
Pump Stns	2	972,402	9	815,215	11-79
Treatment	1	1,343,670	9	1,058,670	11-71
Total \$		4,615,630		3,896,167	

MEASURING THE ASSET PERFORMANCE

The performance of the sewer assets are measured in terms of:

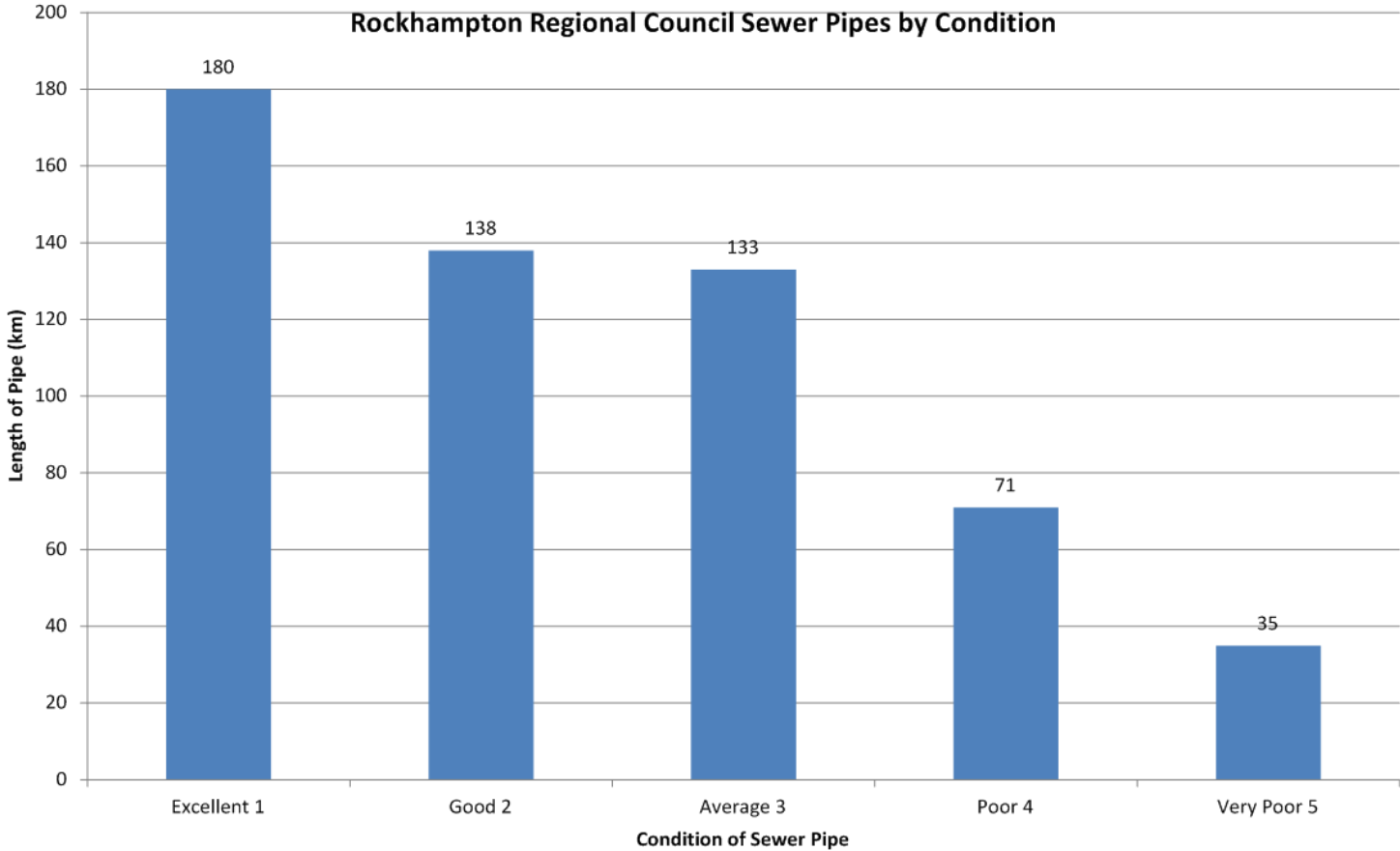
- The number of defects recorded during asset inspections.
- The age of the asset components.
- The remaining life of the asset and its components.
- The asset's present, past and anticipated future maintenance requirements.
- The assets planned and reactive maintenance history.
- Benchmarking performance against similar sized Councils
- The long term performance requirements of the assets.
- Compliance with safety requirements and standards.
- Particular failure modes evident in Mtce history

Component	Useful life (Yrs)	Failure Modes	Monitoring
Structure (building, dry well)	100	Cracking foundations, concrete/reinforcing degradation, excess rust in roof	Assets current building inspections
Pump	20	Failures analysed include :Mechanical failure as indicated by overhaul, Hydraulic failure , Fatigue failure (cracks developing in body, Structural failure eg erosion, corrosion. Reliability failure ie excessive mtce	6 monthly inspections, reactive mtce history
Wet Well / Storage Well	60	Excess infiltration, spalling of concrete, cracking.	Yearly Cap Vac pump out and inspection of wet wells.
Electrical (includes pump controls, switchboard and telemetry)	20	Forewarning of imminent failure may be in the form of increased loss of service and increased mtce, Reliability failure ie excessive maintenance, suseptable to obsolescence, Inspections indicate potential electrical failures eg thermogaphy, insulation testing	Reactive <u>mtce</u> history Yearly Inspections

MEASURING THE CONDITION OF COUNCIL'S SEWER ASSETS PORTFOLIO (IN WHAT CONDITION ARE THE SEWER ASSETS IN OUR PORTFOLIO?)

- Council Assets staff use the 1 – 5 system across all Asset classes where:
- Condition 1 is very good or 'as new' and,
- Condition 5 is very poor and approaching being unserviceable.
- The criteria used to grade asset classes is as set in tables for different asset classes as set out in the IPWEA Condition Assessment and Asset Performance Guidelines. Sewer gravity mains are graded from 1-5 according to the WSA Sewer Inspection Reporting Code of Australia.

THE CONDITION OF OUR 696 KM SEWER MAINS



Service Standard Targets - Effective Transportation

CSS Reference	Performance Indicator	Service standard: Rockhampton and Gracemere Sewerage Scheme	Actual Service standard 2013/14	Service Standard: Mt Morgan Sewerage Scheme	Actual Service standard 2013/14
CSS17	Sewage overflows – total (number per 100 km main)	< 30	51.8	< 10	0
CSS18	Sewage overflows to customer property (number per 1000 connections)	< 10	8.28	< 5	0
CSS19	Odour complaints (number per 1000 connections)	< 1	1.07	< 1	0
CSS20	Response time : Priority 1 – 1 hour response Priority 2 – 2 hours response Priority 3 – 24 hours response	> 95 % > 95 % > 95 %	87 % 85 % 98 %	> 95 % > 95 % > 95 %	100 % 100 % 100 %
CSS20	Restoration time : Priority 1 – 5 hours response Priority 2 – 24 hours response Priority 3 – 5 days response	> 95 % > 95 % > 95 %	96 % 97 % 99 %	> 96 % > 97 % > 95 %	100 % 100 % 100 %

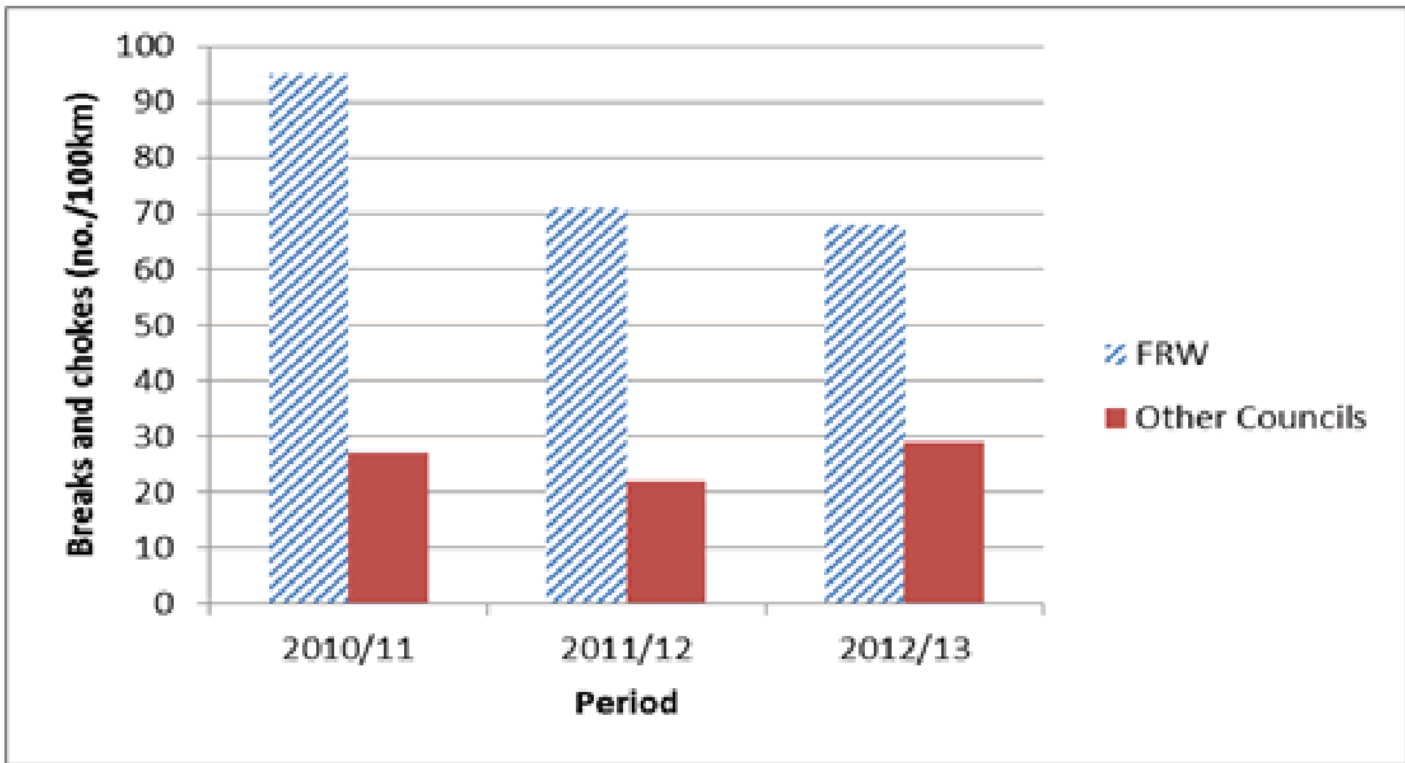
Service Standard Targets - Sewage - Long Term continuity

CSS Reference	Performance Indicator	Service standard: Rockhampton and Gracemere Sewerage Scheme	Actual Service standard 2013/14	Service standard: Mt Morgan Sewerage Scheme	Actual Service standard 2013/14
CSS21	Sewer main breaks and chokes (number per 100 km main)	< 50	85.69	< 20	0
CSS22	Sewer inflow and infiltration (ratio of Peak Day Flow to Average Day Flow)	< 5	2.76	< 5	1.42

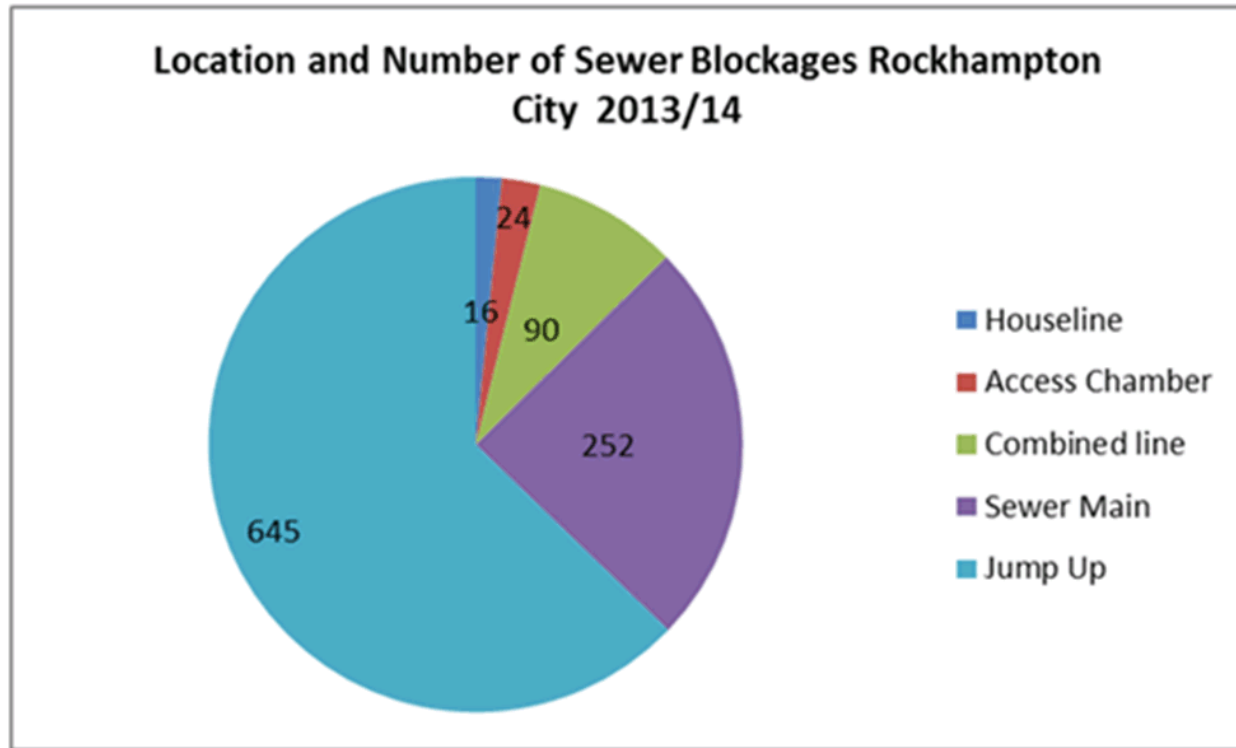
Service Standard Targets- Sewage - Customer Service

	Performance Indicator	Target Service standard	Actual Service standard % within target 2013/14
CSS23	Installation of new water connections (within the water service area)	15 working days	81 %
CSS24	Installation of sewerage connections (within the area with sewer area)	15 working days	47 %
CSS25	Complaints – (excluding maintenance of water and sewerage services) – advise outcome	20 working days	100 %

Breaks and Chokes/100KM of Sewerage Mains



Sewer Blockages



SYSTEM PERFORMANCE

- A major problem in the network is the performance during heavy rain. In 2013 the extreme rainfall event associated with ex Tropical Cyclone Oswald resulted in 70 properties experiencing sewage surcharges.
- The network also experiences a lot of blockages outside of rain events. FRW's service standard target for sewer main breaks and chokes per 100 km of main is < 50. In 2013/14 the actual was 85.69 exceeding the target (includes both wet and dry weather overflows).
- FRW also experiences high incidences of blockages occurring in the jump connection to the mainline due to being poorly connected to the sewer main.

HISTORICAL CAPITAL WORKS EXPENDITURE

Table 5.40 below sets out historical sewer capital expenditure for Rockhampton Regional Council per property.

It consists of renewal, new and upgrade works. RCC has invested considerably in the rehabilitation of sewer mains in Rockhampton including relining pipes, raising manholes and replacing jump ups over the last 8 years and in the last 2 years has invested large amounts in new sewer reticulation in Gracemere to meet future demand.

Criteria looked at in prioritising sewer relining are history of blockages, inflow and infiltration rates after rainfall events, material type and age and criticality of the main

Table 5.40 Historical Capital Works Expenditure (\$/property) (Budgets prior to 2014/15 included a portion for Livingstone Shire Council)

Utility	2010-11	2011-12	2012-13	2013-14	2014/15 (budget)
RCC (\$/property)	520	496	311	432	343
RCC total expenditure (\$000)	14,857	14,182	8,899	12,367	9,811
RCC Expenditure Reticulation Rehabilitation	8,809	7,134	2,250	2,491	3,766

SUMMARY OF PROPOSED CAPITAL WORKS PROGRAM : SEWER (RENEWAL, NEW AND UPGRADE)

Area	Asset	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Summary of all Capital Works i.e. Renewals, New and Upgrades (\$000)											
Rockhampton	Reticulation Renewals	1,920	1,200	1,600	1,600	1,600	1,600	1,600	1,600	1,600	2,000
	Reticulation New / Upgrades	0	1,554.10	0	917	0	3,431.16	635.2	0	1,650	0
	NRSTP Renewals	720	2,445	330	630	0	260	0	173.75	0	0
	NRSTP New / Upgrades	179	84	0	500	1,500	9,250	9,250	9,760.67	9,760.67	9,760.67
	SRSTP Renewals	281	361	205	0	0	250	0	631.8	0	0
	SRSTP New / Upgrades	1,145	1,750	1,230	0	0	0	0	0	0	0
	SPSTn Renewals	666.5	210	450	1,272.70	350.15	196.34	20	0	15.84	29.7
	SPSTn New Works	440	80	230	80	0	0	0	0	0	0
TOTAL		5,352	7,684	4,045	5,000	3,450	14,988	11,505	12,166	13,027	11,790
Gracemere	Reticulation Renewals	0	0	0	0	0	0	0	0	0	0
	Reticulation New / Upgrades	355.25	0	0	700	320	1,991.00	0	0	0	0
	SPSTn Renewals	90	0	19.25	13.2	90	0	0	20.9	0	0
	SPSTn New / Upgrades	0	0	0	0	0	0	0	0	0	0
	GSTP Renewals	0	0	0	0	0	0	0	0	0	205
	GSTP New / Upgrade	500	150	1,900	1,500	400	0	0	0	0	0
TOTAL		945.25	150	1919.25	2213.2	810	1991	0	20.9	0	205
Mt Morgan	Reticulation Renewals	0	0	0	0	0	0	0	0	0	0
	Reticulation New / Upgrades	510	500	620,505	500	500	0	0	0	0	0
	SPSTn Renewals	25	0	0	0	0	0	0	0	0	0
	SPSTn New / Upgrade	70	0	0	0	250	0	0	0	0	0
	MTMSTP Renewal	80	0	0	0	0	0	0	0	0	0
	MTMSTP New / Upgrade	150	20	0	500	0	0	0	0	0	0
TOTAL		835	520	620,505	1,000	750	0	0	0	0	0

IMPROVEMENT PLAN

- Accurate historical Water and Sewer Asset data in Asset Register for Asset Management Planning
- One Asset database for GIS and Conquest (Corporate Asset Mgmt system)
- Utilise ADAC (automated process of checking accuracy of asset information and then updating GIS) for internal projects
- Detailed and accurate Asset Mtce information collected during inspections and maintenance to aid Asset Management Planning
- Update of benchmark data

Key Performance Indicators

Ratio	Water	Sewer	Calculation	Description
Asset sustainability ratio	65.0%	100.3%	Avg capital renewal (10yrs) / Annual depreciation.	A measure of the extent to which assets are being replaced as they reach the end of their useful lives. Target greater than 90% (on average over the long term).
Asset Consumption	63%	54%	DRC/CRC	A measure of the aged condition of assets. The average proportion of as new value remaining in the asset. Target 50% or greater.
Rate of Annual Upgrade/expansion	38.3%	103.3%	Avg capital new/upgrade (10yrs) / Annual depreciation	A measure of the rate at which assets are being upgraded/expanded per annum expressed as a % of annual depreciation
Annual Consumption of Assets	\$ 7,513	\$ 4,955	Current annual depreciation ('000)	Annual depreciation
The 10 year sustainability index is	1.25	0.97	10 year renewal budget / assets expiring next 10 yrs	Target is 1

WATER AND SEWERAGE ASSET MANAGEMENT PLANS

Asset Management Plan Water Supply 2015

Meeting Date: 4 November 2015

Attachment No: 2



Asset Management Plan Water Supply 2015

Rockhampton Regional Council
Registered Service Provider No. SP 493



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TABLE OF CONTENTS

1.	<u>EXECUTIVE SUMMARY</u>	1
1.1	<u>SCOPE</u>	1
1.2	<u>COUNCIL'S WATER ASSET PORTFOLIO (WHAT DO WE HAVE)</u>	1
1.3	<u>LEVELS OF SERVICE (LOS) (WHAT ARE THE EXPECTED SERVICE REQUIREMENTS?)</u>	2
1.4	<u>MEASURING THE ASSET PERFORMANCE (WHAT DO WE MEASURE TO KNOW HOW OUR SEWER ASSETS ARE PERFORMING?)</u>	2
1.5	<u>MEASURING THE CONDITION OF FRW'S ASSET PORTFOLIO (HOW DO WE MEASURE THE CONDITION OF OUR ASSETS PORTFOLIO?)</u>	2
1.6	<u>HOW WILL AN ASSET BE MANAGED THROUGH ITS LIFECYCLE?</u>	3
1.7	<u>COUNCIL'S FINANCIAL STRATEGY FOR WATER ASSETS</u>	3
2	<u>INTRODUCTION</u>	8
2.1	<u>BACKGROUND</u>	8
2.2	<u>PURPOSE OF PLAN</u>	9
2.3	<u>REGULATORY ROLE AND RESPONSIBILITY</u>	9
2.4	<u>ASSETS COVERED</u>	10
2.5	<u>ASSET VALUATIONS</u>	10
2.6	<u>GOAL AND OBJECTIVES OF ASSET MANAGEMENT</u>	11
2.7	<u>PLAN FRAMEWORK</u>	11
2.8	<u>CORE AND TRANSITION INTO ADVANCED ASSET MANAGEMENT</u>	12
2.9	<u>MANAGEMENT RESPONSIBILITY</u>	12
3.	<u>LEVELS OF SERVICE</u>	14
3.1	<u>INTRODUCTION</u>	14
3.2	<u>LEVELS OF SERVICE</u>	14
3.2.1	<u>Water Service Standards</u>	14
3.2.2	<u>GAP Analysis</u>	19
4	<u>FUTURE DEMAND</u>	20
4.1	<u>DEMAND AND DEMOGRAPHIC CHANGE FORECASTING</u>	20
4.2	<u>DEMAND FORECAST</u>	20
4.3	<u>DEMAND MANAGEMENT</u>	23
5.	<u>LIFECYCLE MANAGEMENT PLANS</u>	24
5.1	<u>ROCKHAMPTON WATER SCHEME</u>	24
5.1.1	<u>Asset Information</u>	24
5.1.2	<u>Levels of service Performance</u>	28
5.1.3	<u>Asset Valuation 2014</u>	31
5.1.4	<u>Operations and Maintenance Plan</u>	33
5.1.5	<u>Risk Management</u>	38
5.1.6	<u>Capital Works Plan</u>	40
5.2	<u>THE GRACEMERE COMPONENT OF THE ROCKHAMPTON WATER SUPPLY SCHEME</u>	55
5.2.1	<u>Asset Information</u>	55
5.2.2	<u>Levels of service Performance</u>	56
5.2.3	<u>Asset Valuation 2014</u>	57
5.2.4	<u>Operations and Maintenance of the Gracemere network</u>	57
5.2.5	<u>Capital Works Plan</u>	57
5.3	<u>MOUNT MORGAN WATER SUPPLY SCHEME</u>	61
5.3.1	<u>Asset Information</u>	61
5.3.2	<u>Levels of Service Performance</u>	64
5.3.3	<u>Asset Valuation</u>	64
5.3.4	<u>Operations and Maintenance Plan</u>	65
5.3.5	<u>Capital Works Plan</u>	66
	<u>Renewal / Replacement Plan</u>	66
6.	<u>FINANCIAL SUMMARY</u>	69
6.1	<u>CAPITAL EXPENDITURE</u>	69
6.2	<u>OPERATING REVENUE AND EXPENDITURE</u>	69

6.3	FUNDING FOR SEWERAGE CAPITAL EXPENDITURE	69
6.4	HISTORICAL CAPITAL WORKS EXPENDITURE	73
6.5	CAPITAL WORKS BENCHMARKING AGAINST OTHER COUNCILS	73
6.6	HISTORICAL OPERATIONS AND MAINTENANCE EXPENDITURE	73
6.7	OPERATIONS AND MAINTENANCE BENCHMARKING AGAINST OTHER COUNCILS	74
7	ASSET MANAGEMENT PRACTICES	75
7.1	ASSET MANAGEMENT SYSTEMS	75
7.2	ACCOUNTING/FINANCIAL SYSTEMS, EXPENDITURE TYPES AND STANDARDS	76
7.3	STANDARDS, GUIDELINES AND PLANS	78
8	IMPROVEMENT PLAN	79
	APPENDIX A: SUSTAINABILITY RATIOS	81
	APPENDIX B: WATER REFERENCES	82
	APPENDIX C: ACRONYMS AND ABBREVIATIONS	83

1. Executive Summary

1.1 Scope

The purpose of this Asset Management Plan (AMP) is to provide a long-term strategy for the management of the water supply scheme (all assets and resources from the source to the end user). A key objective of the plan is to provide a service at the agreed level in the most effective and efficient manner, for present and future generations.

This Asset Management Plan follows on from the 2013 Strategic Asset Management Plan (SAMP). The contents of the SAMP comply with the requirements of the Local Government Act 2010, which require all Councils to develop Long Term Asset and Infrastructure plans for at least the next 10 years. The Long Term Asset Infrastructure Plan shall meet the requirements of Division 2 of the Local Government Regulation 2012 that requires a Local Government to prepare and adopt these Plans to ensure the sustainable, efficient and effective management of all its infrastructure assets.

1.2 Council's Water Asset portfolio (What do we have)

This Asset Management Plan addresses the management of two (2) water supply schemes owned by Rockhampton Regional Council (RRC) and operated by Fitzroy River Water (FRW), a business unit of RRC.

The Fitzroy River is the source of water supply for Rockhampton and Gracemere, while the main source of supply for Mt Morgan is the No 7 dam on the Dee River.

Table 1.1 FRW's Water Portfolio

Asset Type	Number/Length	Replacement Cost (\$)	Accumulated Depreciation (\$)	Fair value (\$)	Residual Value (\$)
Reticulation	816 km	288,824,574	103,552,279	185,272,295	
Storage	21 Reservoirs	47,300,827	16,124,725	31,176,102	
Valve complex		970,200	167,878	802,322	
Pump Stations	42	13,916,688	5,613,597	8,303,091	428,472
Storage (Untreated Water)	No 7 Dam and Fitzroy River Barrage Storage	48,993,570	9,179,092	39,814,478	3,239,400
Barrage	1	71,227,867	33,673,719	37,554,148	3,774,451
Pump Station (Untreated Water)		3,082,040	2,247,648	834,392	
Effluent Reuse		1,180,370	245,011	935,359	102,400
Treatment	Glenmore	48,017,540	21,779,526	26,238,014	1,804,935
Treatment	Mt Morgan	1,835,015	525,598	1,309,417	186,550
Total		525,348,691	193,109,073	332,239,618	9,536,208

In summary, the values are (2014 Revaluation):

Current Replacement Cost **\$525,348,691**

Fair Value **\$332,239,618**

Accumulated Depreciation expense **\$193,109,073**

FRW's assets have depreciated to 37 % of the overall replacement value

1.3 Levels of Service (LOS) (What are the expected service requirements?)

This AMP defines FRW's Level of Service (LOS) performance targets in regards to these service standards. The service levels relate to Public Health/Environmental considerations, System Performance and Service Delivery. The LOS targets have been set in accordance with industry practice, and the Water Supply (Safety and Reliability) Act 2007 requires FRW to report how they have performed against the LOS targets.

The following types of levels of service apply:

- Community (Customer LOS)
Are from the perspective of how the customer receives the service. FRW has a number of water day-to-day continuity levels of service targets it endeavours to meet in order to provide a quality LoS to the customer.
- Technical LOS
Are technical performance measures FRW use to monitor its own performance relating to the reliability, quality and adequacy of supply. Where gaps occur in meeting LOS, existing resources will be reviewed, and amended.

1.4 Measuring the Asset Performance (What do we measure to know how our sewer assets are performing?)

The performance of the assets is measured in terms of:

- The amount of defects identified during asset inspections
- The age of the asset components
- The remaining life of the asset and its components
- The assets present, past and anticipated future maintenance requirements
- The assets maintenance history
- Maintenance expenditure
- Maintenance requirements and the associated expenditure benchmarked against similar assets (both within and outside the organisation)
- Comparison of the life cycle expenditure for specific assets (FRW versus other authorities)
- Assets being able to meet long term performance requirements
- Compliance with safety requirements and standards

1.5 Measuring the condition of FRW's Asset Portfolio (How do we measure the condition of our assets portfolio?)

Council Assets staff use the 1 – 5 system across all Asset classes where:

- Condition 1 is very good or 'as new' and,
- Condition 5 is very poor and approaching being unserviceable.

All water assets are rated in accordance with the IPWEA Condition Assessment and Asset Performance Guidelines.¹

1.6 How will an asset be managed through its lifecycle?

When making initial investment, operation and renewal decisions, the asset lifetime costs are considered from planning to disposal. The objective of managing the assets in this manner is to

¹ Condition Assessment & Asset Performance Guidelines, Practice Note 7, Water Supply & Sewerage; IPWEA

accurately assess the long term cost associated with a particular water asset. The cost associated with providing and maintaining the asset is part of the cost of providing the service the asset is used for.

Figure 1.6 below shows the stages an asset passes through in its life cycle.

Figure 1.2: Typical Asset Life Cycle



1.7 Council's financial strategy for Water Assets

Key outputs from this plan are projected Operating Costs (Table 1.3), projected Capital Costs (Table 1.4) and revenue to fund the operating expenditure (Table 1.7).

Operating Expenditure is the sum of Maintenance, Funding Costs (interest), Depreciation (providing for renewals) and Management and Administration costs (Corporate overheads).

Total Capital Expenditure includes New, Upgrade and Renewal work. The Capital Expenditure is funded from a combination of loans, transfers from reserves and development contributions. Table 1.5 sets out the renewal component of the capital expenditure for each area, and also sets out expired (end of life) asset values in the next 10 years that were identified as part of the 2014 revaluation. Assets identified were expired because either they were at the end of their lives or the asset could no longer meet LoS. The 10 year plan has budgeted a further \$12M over and above assets expired for underperforming assets identified by FRW operations staff. Table 1.6 sets out the New/Upgrade component of capital expenditure according to individual projects.

Table 1.3 Water Operating Expenditure (\$000)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
EXPENDITURE										
Operations Expense	7,581	7,975	8,390	8,826	9,285	9,768	10,276	10,810	11,372	11,963
Management and Administration	4,029	4,238	4,459	4,691	4,935	5,191	5,461	5,745	6,044	6,358
Depreciation	7,605	7,959	8,294	8,648	9,017	9,442	9,856	10,244	10,634	10,996
Interest Expense	1,703	1,405	1,287	1,140	951	751	540	339	290	273
TOTAL	20,918	21,577	22,430	23,305	24,188	25,152	26,133	27,138	28,340	29,590

Table 1.4 Summary Capital Works Expenditure Water (\$000)

		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
Rockhampton	Renewal	6,159.4	4908.3	4,883.8	4,355.3	4,077.6	3,143.4	3,937.5	3,390.4	3,352.0	4,787.8	
	Upgrade	1,217.0	621.0	773.0	395.0	92.0	120.0	150.0	0	0	0	
	New	682.0	960.0	1,190.0	1,725	4,000.0	4,000.0	0	0	0	0	
Total		8058.4	6,489.3	6,846.80	6,475.3	8,169.60	7,263.4	4,087.5	3,390.4	3,352.0	4,787.8	
Gracemere	Renewal	124.5	5.4	5.7	6.0	54.4	6.7	7.0	13.9	7.6	8.0	
	Upgrade	89.5	0	280.0	0	0	0	0	0	0	0	
	New	1,100.0	950.0	819.0	1,500.0	2,000.0	1,265.0	2,000.0	2,000.0	0	0	
Total		1,314.0	955.4	1,104.7	1,506.0	2,054.4	1271.7	2007.0	2,013.9	7.6	8.0	
Mt Morgan	Renewal	609.2	650.5	522.9	523.2	523.5	523.9	589.2	535.5	524.9	582.2	
	Upgrade	219.0	82.0	0	0	0	0	0	0	0	0	
	New	464.0	50	0	0	0	0	0	0	0	0	
Total		1292.2	782.5	522.9	523.2	523.5	523.9	589.2	535.5	524.9	582.2	
Total (000)		10,664.60	8,227.20	8,474.40	8,504.50	10,747.50	9059.0	6,683.70	5939.80	3,884.50	5378.00	77,563.20

Table 1.5 Renewal Expenditure Water (\$000)

Location		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Total
Major Renewal Projects ;\$ 27.6M over 10 years on Rockhampton water mains, \$5.2M on Mt Morgan Water mains over 10 years, Original Electrical and Control assets at GWTP installed 45 yrs ago are to be upgraded in next 3 yrs at a cost of \$2.2 m (Hi lift and plant wide), GWTP Hi Lift Pumps Stn \$2.6 in 15/16.												
Rockhampton	Renewal	6,159.4	4,908.3	4,883.8	4,355.3	4,077.6	3,143.4	3,937.5	3,390.4	3,352.0	4,787.8	
Gracemere	Renewal	124.5	5.4	5.7	6.0	54.4	6.7	7.0	13.9	7.6	8.0	
Mt Morgan	Renewal	609.2	650.5	522.9	523.2	523.5	523.9	589.2	535.5	524.9	582.2	
Total		6,893.1	5,564.20	5,412.40	4,884.50	4,655.50	3,674.0	4,533.7	3,939.80	3,884.5	5,378.0	48,819.7
Expired Water Assets in next 10 yrs (Avg)		3,890.2	3,890.2	3,890.2	3,890.2	3,890.2	3,890.2	3,890.2	3,890.2	3,890.2	3,890.2	38,901.8

Table 1.6 Summary of Capital Works New /Upgrade Projects (\$000)

Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
(Rok) Water Pump Stns; New / Upgrades ; Improve Capacity and Performance	176.0	520.0	300.0	114.0	72.0	0	0	0	0	0
(Rok) Reservoir New / Upgrades ; Key infrastructure Athelstane Res future strategy and upgrade of reservoirs approx 100 yrs old	117.0	50.0	0	10.0	4000.0	4100.0	100	0	0	0
(Rok) Reticulation New/Upgrades ; Meet present / future demand	150.0	470.0	130.0	925.0	0	0	0	0	0	0
(Rok) Barrage New / Upgrade; Major Project Cathodic Protection	200.0	103.0	1,020.0	20.0	20.0	20.0	0	0	0	0
(Rok) GWTP New/Upgrades; Major project Filtration Capacity Upgrade, Hi Lift Upgrade and Electrical Upgrade	1,256.0	438.0	513.0	1,051.0	0	0	50	0	0	0
(Gce) Retic, meet Future LoS in GIA	0	0	0	0	500.0	1,265.0	0	0	0	0
(Gce) Retic Meet Future and Present LoS due to growth	1,079.5	950.0	1,099.0		0	0	2,000.0	2,000.0	0	0
(Gce) Res Meet future demand, Major Project 2018 Lucas St Res Duplication	110.0			1,500.0	1,500.0					
(Mt M) WPS/Res Improve Performance	152.0	72.0	0	0	0	0	0	0	0	0
(Mt M) WTP Improve performance	481.0	60.0	0	0	0	0	0	0	0	0
(MT M) Reliable long term Water Supply	50.0	0	0	0	0	0	0	0	0	0
Total	3,771.5	2,663.0	3,062.0	3,620.0	6,092.0	5,385.0	2,150.0	2,000.0	0	0

Table 1.7 Water Revenue (\$'000)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
REVENUE										
Water Rates and Charges	29,941	31,482	33,104	34,809	36,601	38,486	40,468	42,552	44,744	47,048
Income from other commercial services	1,323	1,378	1,436	1,496	1,559	1,625	1,693	1,764	1,838	1,915
Interest revenue	137	190	198	228	261	267	288	414	669	1,085
Community Service Obligations & Competitive Neutrality Agreements	73	76	79	82	86	89	93	97	101	105
Non – Capital Grants and Subsidies	0	0	0	0	0	0	0	0	0	0
Other Revenue	154	158	162	166	170	175	179	183	188	193
Bulk Water Sales	3,619	3,746	3,877	4,012	4,153	4,298	4,449	4,604	4,765	4,932
Total	35,247	37,030	38,856	40,793	42,830	44,940	47,170	49,614	52,305	55,278

2 Introduction

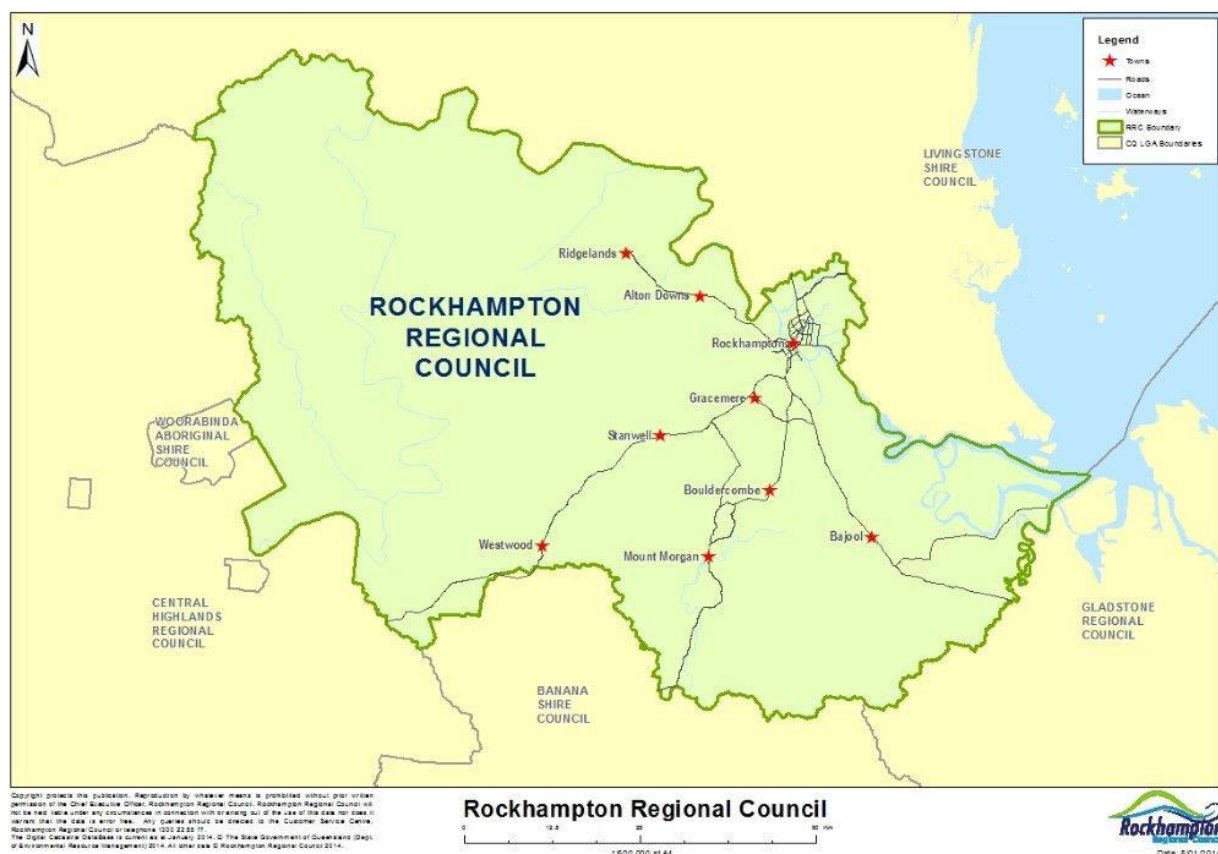
2.1 Background

Rockhampton Regional Council (RRC) was established on 15 March 2008, through the amalgamation of Rockhampton City Council, Livingstone Shire Council, Fitzroy Shire Council and Mount Morgan Shire Council as part of the Local Government Reform in Queensland.

On 1 January 2014, Livingstone Shire Council de-amalgamated from Rockhampton Regional Council. This plan covers the Rockhampton Regional Council de-amalgamated area as shown in the figure below. The plan sets out the management of the two (2) water supply schemes owned and operated by Rockhampton Regional Council. Fitzroy River Water (FRW) is a commercial business unit of RRC, which is responsible for the operation and maintenance of water assets totalling approx. \$526M (Revalue replacement value as at March 2014), including the Fitzroy River Barrage, one dam, two weirs, two water treatment plants, twenty one reservoirs, forty six water pump stations and bores and all associated underground infrastructure.

FRW is responsible for providing water services to a population in excess of 80,000 residents together with commercial and industrial customers. FRW does not have a role in urban stormwater or flood plain management of local streams and creeks but is responsible for the Fitzroy River Barrage.

Figure 2.1 Rockhampton Regional Council area



2.2 Purpose of Plan

This first AMP (formerly SAMP) has been prepared to meet the legislative requirements introduced through the *Local Government Act Queensland 2009*.

The purpose of this plan is to provide a short, medium and long-term strategy for the management of the Water Supply. The key objective of the strategy is to provide the desired levels of service in the most cost effective manner for present and future customers.

This Asset Management plan follows on from the 2013 Strategic Asset Management Plan.

RRC as a licensed service provider under the *Water Supply (Safety and Reliability) Act* was required to prepare a Strategic Asset Management Plan (SAMP), which includes:

- Service and systems overview;
- Standards for appropriate customer service and performance indicators for the service;
- Operations, maintenance and renewals strategy; and
- Financial requirements associated with the implementation of the Strategic Asset Management Plan.

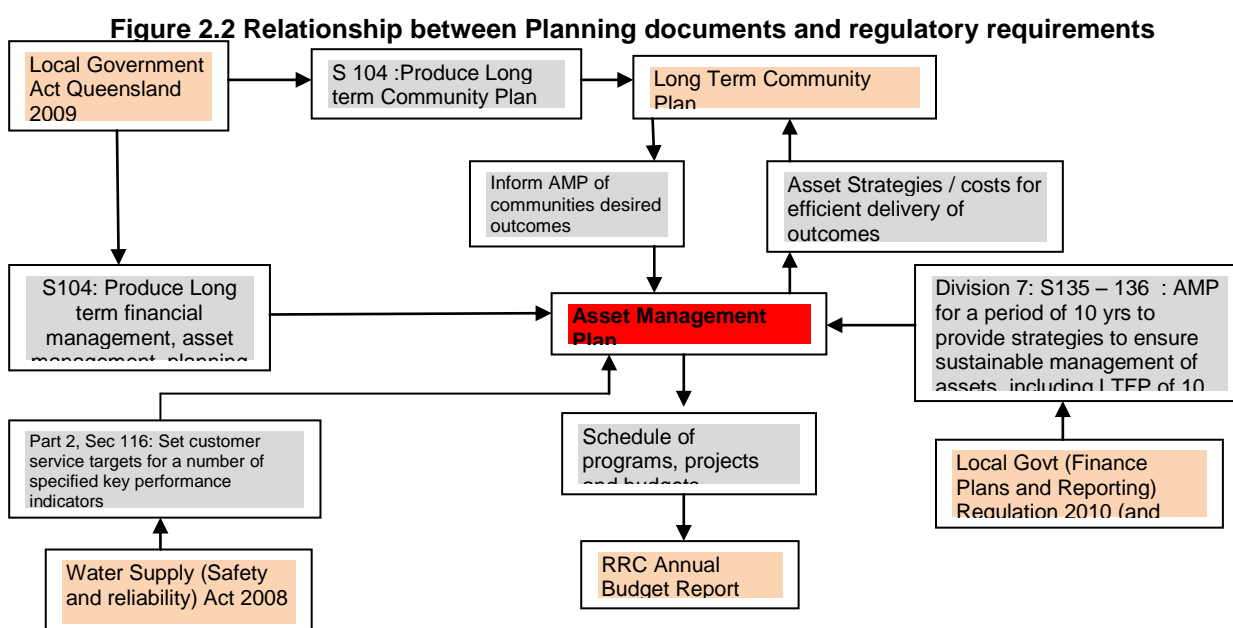
On 13 May 2014, specific changes to the *Water Supply (Safety and Reliability) Act 2008* were enacted. These changes removed the need for service providers to produce multiple management plans including SAMPs. Service providers instead will be required to:

- Collect data on a predetermined list of key performance indicators
- Prepare a new customer service standard that states target levels of service for specific customer service standards KPI's and
- Submit a performance report about each of these KPI's each financial year.

2.3 Regulatory Role and Responsibility

The *Local Government Act 2009* requires Council to produce a Long Term Community Plan that sets out community desired outcomes from Council managed assets. The Act also requires Council to produce AMP's that will dictate how assets shall be managed to meet community outcomes. The Local Government (Finance Plans and Reporting) Regulation 2010 dictates that AMPs shall be developed for a period of 10 years to set out strategies that ensure the sustainable management of assets.

Figure 2.2 below sets out the planning documents produced by Council and the regulatory Acts/Regulations requiring Council to produce the documents.



2.4 Assets Covered

This AMP covers all assets that make up the water supply scheme.

Assets have been assessed at a component level. The Infrastructure Asset Guidelines describe components as specific parts of an asset having specific attributes such as different life expectancy maintenance regimes, risk or criticality. In-ground assets are treated differently from above ground assets because of their different characteristics. In-ground pipe life expectancies are much longer than mechanical items such as pumps.

2.5 Asset Valuations

The governing standard for the valuation of Council infrastructure assets is set out in AASB 116 Property Plant and Equipment produced by the Australian Accounting Standard Board.

The following is key considerations of AASB 116:

Paragraph 31

After recognition as an asset, an item of property, plant and equipment whose fair value can be measured reliably shall be carried at a revalue amount, being its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

Revaluations shall be done with sufficient regularity to ensure that the carrying amount does not differ materially from that, which would be determined using fair value at the end of the reporting period.

Paragraph 36

If an item of property, plant and equipment is revalued, the entire class of property, plant and equipment to which that asset belongs shall be revalued.

Water is an Asset Class and so according to Paragraph 36 of AASB 116 all assets whether reticulation, pump station or treatment assets must be revalued at the same time.

In accordance with AASB 116, Paragraph 34, Councils policy is to engage professionally qualified valuers (internal or external) to undertake a comprehensive revaluation for each class of property, plant and equipment at least every 5 years. To ensure compliance with materiality requirements detailed in AASB 116, Paragraph 31, between comprehensive revaluations Council monitors the Producer Price Indexes for Queensland provided by the Australian Bureau of Statistics (ABS). For the Water Asset Class this index is Index No 3020 Non Residential building construction Queensland.

In assessing materiality, Council is guided by the treasurer's Non-Current Asset Policies Chapter 3, which states:

An agency has the option of choosing only to account for the impact of indexation if the cumulative change in the index results in a 5 % or greater (either positive or negative) change in the reported asset balances.

Notwithstanding any known and quantifiable localised price influences, where the indexation provided by the ABS exceeds 5% annually, Council will apply the index to the value of its assets in a year where there is no comprehensive revaluation.

In 2014 /15 Council assessed, the price movement for water assets to be 2.98% therefore the index was not applied. In assessing Active assets, the ABS Producer Price Index non-residential construction was applied. For passive reticulation assets, the price movement for the material MPVC (100 and 150 dia) in Councils contract SO9243 Prequalified suppliers for supply and delivery of plumbing pipes was assessed.

The current replacement value of water assets covered by this plan is set out below:

Table 2.3 FRW Assets

Asset Type	Number/Length	Replacement Cost (\$)
Reticulation	816 km	288,824,574
Storage	21 Reservoirs	47,300,827
Valve complex		970,200
Pump Stations	42	13,916,688
Storage (Untreated water)	No 7 Dam and Fitzroy Barrage Storage	48,993,570
Barrage structure		71,227,867
Pump Stations (Untreated water)		3,082,040
Effluent Reuse		1,180,370
Treatment	Glenmore	48,017,540
Treatment	Mt Morgan	1,835,015
Total		525,348,692

2.6 Goal and Objectives of Asset Management

An important function of Council is to supply services that meet the demands of its customers. This is done by the creation, operation, maintenance and rehabilitation of assets. The decision as to what services are provided, and how, is a response to the needs and wants of the community and to satisfy legal requirements.

The objectives of this AMP are to enable the asset operator (FRW) to utilise existing and future assets to:

- Provide high quality, safe, reliable and cost effective water services
- Operate in an efficient and financially sustainable manner and provide Council with an appropriate rate of return,
- Ensure assets are utilised to their full potential to provide optimal service
- Respond to changing customer needs,
- Meet performance targets,
- Optimise Replacement costs; ensure when replacing an existing asset the replacement asset is a modern equivalent asset offering the same LoS at minimum cost.
- Protect the environment, encourage water conservation and effluent reuse to maximise water security.

2.7 Plan Framework

Key elements of the Asset Management Plan are:

Section 3, Levels of Service

This section defines the levels of service that are provided and the basis of the decision to provide this level of service. Performance targets to monitor the level of service delivery are also linked to each defined level of service.

Section 4, Future Demand

This section provides details of demand forecasts, which affect the management and utilization of assets and dictate the resulting capital works program.

Section 5, Lifecycle Management Plan

This is the main part of the plan as it identifies each scheme, and what is planned to keep the assets operating at the agreed levels of service while optimising the lifecycle costs. Other items covered in this section are:

- Any gaps in LOS, and capital works budgets to address the gaps.
- Future maintenance budgets and efficiencies that will minimise maintenance costs.
- Historical maintenance and capital works expenditure.
- Capital works to address present and future LOS requirements.

Section 7, Asset Management Practices

This section sets out current Asset Management Processes and Systems used to make Asset Management decisions. It identifies targets and practices, which Council is working towards to improve Asset Management decision making.

Section 8, Improvement Plan

This section outlines proposed improvements to Asset Management systems and processes where a gap is identified between the current and target practices set out in Section 7.

2.8 Core and Transition into Advanced Asset Management

This plan builds on the 2013 FRW Strategic Asset Management Plan.

This Asset Management Plan is a “first principle” approach. The rehabilitation decision making in the plan is based on the best available data in asset registers. Some of the asset attribute data e.g. date installed, material is inaccurate and updated when maintenance work is carried out in the field. As this register becomes more accurate the AMP will transition into an advanced version, and decision making will be based on accurate and detailed asset data.

Some areas of the plan and associated documents are already at an advanced level and Levels of Service have been reviewed. FRW has a draft Maintenance Strategy Manual that sets out the reactive, planned (preventative and Health and Safety) and condition maintenance strategies plan for treatment and supply active assets.

2.9 Management Responsibility

Asset Owner

The responsibilities of FRW as the water asset owner and operator are:

- Delivery of service that meet the agreed Levels of Service (LoS).
- Operation and Maintenance of all the assets that are in the water asset portfolio. Assets owned by separate Council owned business units are maintained by FRW through a negotiated commercial arrangement where the scope of works and the delivery cost are agreed upon between the two parties.
- Financial and cost control

Corporate Asset Management Responsibilities

- Management of asset information across all asset classes in Asset Management and Geographical Information systems.
- Condition assessment and inspection of all assets (in the case of specialist assets (air conditioners, some electrical switch gear etc.) programmed inspections will be executed by the Operational Manager (or as per sub-contract if maintenance resources are limited), and outcomes recorded in the asset management system.
- In conjunction with Asset Owner, development of planned and cyclic maintenance requirements and associated compliance verification with the Operational Manager.
- In conjunction with Asset Owner, development of renewal, upgrade, replacement and new capital programs with the Operational Manager.

- Provide financial information, and report on financial compliance to Finance and Auditors.
- Develop and update Asset Management Plans across all the asset classes.
- Provide information on the performance of assets when required.
- Identify and investigate opportunities for improvement and change across all asset classes, submit and provide direction, implement when required.

3. Levels of Service

3.1 Introduction

In accordance with the *Water Supply (Safety and Reliability) Act*, Fitzroy River Water has developed Customer Service Standards to address the:

- Range and levels of service provided by FRW;
- Obligation of FRW to its customers e.g. provide a minimum pressure at meter
- Processing of service connections, charges, metering, accounts and customer consultation, requests and complaints.

LOS were developed with reference to industry standards, in house technical standards and legislative requirements. Targets at different times have been refined by Asset Managers to ensure they are realistic and achievable. On 13 May 2014 changes to the Water Supply (Safety and reliability) Act 2008 required Council to set customer service standards for the following key performance indicators. All the indicators below are in the SWIM reporting database with modifications set up as Customer Service Standards (CSS) below. The first performance report is due 1 October 2015.²

Table 3.1 Key Performance Indicators

CSS Indicator code and title	NPR/SWIM/CSS code
QG 4.5; Total water main breaks (S)	A8/AS8/CSS14
QG 4.7; Incidence of unplanned interruptions – water (S)	C17/CS17/CSS5
QG 4.8; Average response time for water incidents (bursts & leaks) (S)	-/CS37/CSS7
QG 4.10; Water Quality complaints (S)	C9/CS9/CSS12
QG 4.11; Total water and sewerage complaints (S)	C13/CS13

3.2 Levels of Service

3.2.1 Water Service Standards

FRW's Levels of Service (LOS) set out below include both Community (Customer) and Technical LOS. Customer LOS is from the perspective of how the customer receives the service. FRW has a number of water day-to-day continuity levels of service targets to meet in order to provide a quality LOS to the customer. The LOS below also includes technical performance measures FRW uses to monitor its own performance such as providing a minimum pressure to customers. LOS were reviewed when Councils amalgamated in 2008 as all had their own targets. As part of the review process, the decision was made to set targets that are more consistent across the schemes that were both achievable and cost effective.

FRW provides water supply services to two separate schemes, designed to provide water 24 hours per day, seven days per week, however under certain circumstances the need may arise to interrupt or limit this service for essential repairs or maintenance works to be completed. Continuity of supply

² Regulated by the Queensland Water Supply Regulator, Department of Energy and Water Supply

may also be interrupted by acts that are outside of FRW's control such as vandalism, sabotage, drought, fire or flood.

FRW will ensure that the quality of drinking water supplied complies with the Australian Drinking Water Guidelines. The following tables show the relevant service standards targets.

Table 3.2 – Service Standard Targets - Water - Day to Day Continuity

CSS Reference	Performance Indicator	Rockhampton and Gracemere Water Supply Scheme (Target)	Actual 2013/14	Satisfactory Yes/ No	Mt Morgan Water Supply Scheme (Target)	Actual 2013/14	Satisfactory Yes/No
CSS1	Extent of unplanned interruptions – connections based (no. per 1000 connections per year)	< 80	48	Yes	< 80	166	No
CSS2	Extent of unplanned interruptions – incidents based (no. per 100 km of main per year)	< 30	54	No	< 30	39	No
CSS3	Time for restoration of service - unplanned interruptions (% restored within 5 hours)	> 90%	96 %	Yes	> 90%	99 %	Yes
CSS4	Customer interruption frequency: 1 interruption per year 2 interruptions per year 3 interruptions per year 4 interruptions per year 5 or more interruptions per year	12% 2% 1% 0.5% 0.25%	7.86 % 0.46 % 0 % 0 % 0 %	Yes Yes Yes Yes Yes	12% 2% 1% 0.5% 0.25%	24.51 % 0.67 % 0 % 0 % 0 %	No Yes Yes Yes Yes
CSS5	Relative incidence of planned and unplanned interruption incidents (% of planned versus total number of interruptions)	> 30%	14 %	Yes	> 30%	24 %	Yes

Table 3.2 – Service Standard and Targets – Water – Day to Day Continuity

CSS Reference	Performance Indicator	Rockhampton and Gracemere Water Supply Scheme (Compliance Target)	Actual Compliance 2013/14	Satisfactory Yes / No	Mt Morgan Water Supply Scheme (Compliance Target)	Actual Compliance 2013/14	Satisfactory Yes/No
CSS6	Average interruption duration - planned and unplanned (hours)	3 hrs	1.45 hrs	Yes	3 hrs	3.31 hrs	No
CSS7	Response time Priority 1 – 1 hour response	95 %	82 %	No	95 %	75 %	No
	Priority 2 – 2 hours response	95 %	89 %	No	95 %	82 %	No
	Priority 3 – 24 hours response	95 %	97 %	No	95 %	91 %	No
	Restoration time Priority 1 – 5 hours restoration	95 %	89%	No	95 %	92 %	No
	Priority 2 – 24 hours restoration	95 %	98 %	Yes	95 %	97 %	Yes
	Priority 3 – 5 days restoration	95 %	99 %	Yes	95 %	94 %	No

Table 3.3 – Standards of Service – Water - Adequacy and Quality of Normal Supply

CSS Reference	Performance Indicator	Rockhampton and Gracemere Water Supply Scheme	Actual 2013/14	Mt Morgan Water Supply Scheme	Actual 2013/14
CSS8	Minimum pressure standard at the water meter	220 kPa	220 kPa	220 kPa	220 kPa
CSS9	Minimum flow standard at the water meter	9 L/min	9 L/min	9 L/min	9 L/min
CSS10	Connections with deficient pressure and/or flow (% of total connections)	< 2.5%	0 %	< 2.5%	0 %
CSS11	Drinking water quality (compliance with industry standard) ³	> 98%	100 %	> 98%	100 %
CSS12	Drinking water quality complaints (number per 1000 connections)	< 5	1.59	< 5	8.23
CSS13	Drinking water quality incidents (number per 1000 connections)	< 5	0	< 5	0

Table 3.4 - Service Standard Targets - Water – Long Term Continuity

CSS Reference	Performance Indicator	Rockhampton and Gracemere Water Supply Scheme	Actual 2013/14	Mt Morgan Water Supply Scheme	Actual 2013/14
CSS14	Water main breaks (number per 100 km main)	< 40	23	< 40	32
CSS15	Water services breaks (number per 1000 connections)	< 40	21	< 40	18
CSS16	System water losses (Liter per connection per day)	< 200 L ⁴	226	≤ 130 L	140

³ FRW's Drinking Water Quality Management Plan identifies the following key water quality parameters as reference indicators for customer service purposes: Physical and Chemical Water Quality Parameters – Target: >99% of all samples tested compliant with Australian Drinking Water Guidelines; E. coli — Target: None detected in >98% of all samples tested

⁴ Litres per connection per day

3.2.2 GAP Analysis

Any gaps that exist between the adopted LOS and the current LOS are summarised below:

Day-to-Day Continuity LOS:

Both the Rockhampton and Mt Morgan water supply networks have unplanned interruption rates per 100km of water main greater than the target (CSS2). The 2014/15 capital water mains replacement budget allocation, will assist in meeting targets for both Rockhampton and Mt Morgan. In Mt Morgan the water supply reliability target of less than 12% of customers having one interruption per year was exceeded in 2013/14 (CSS4, actual amount of customers 24%). In most cases, interruptions were caused by water main breaks.

The 2014/15 budget allocation allows for mains to be replaced as part of the Mt Morgan capital water mains replacement program. Both Rockhampton and Mt Morgan had excessive rates of unplanned interruptions compared with planned interruptions in 2013/14 (CSS5 target > 30% and Rockhampton network 14% and Mt Morgan 24%). Many of the unplanned interruptions relate to water/service breaks that will be addressed in the 2014/15 capital water main replacement program. In both Rockhampton and Mt Morgan networks priority 1 and 2 actual response times (CSS7) were slightly greater than target response times. FRW is to continue to monitor response times in order to find areas for improvement.

Water Adequacy and Quality of Normal Supply LOS:

In Mt Morgan a number of discoloured water complaints led to the target for drinking water quality complaints being exceeded (CSS12). Follow-up actions to help prevent further similar events have been identified by FRW.

Long Term Continuity LOS:

System water loss rates in Rockhampton at 226 litres/conn/day were slightly higher than the annual target of 200 litres/conn/day in 2013/14. Flow meters have been installed at reservoir outlets in order to quantify particular areas with high loss rates and target water loss reduction in these areas.

4 Future Demand

4.1 Demand and Demographic Change Forecasting

The environment in which Council operates is subject to many changes that impact on the nature of the services it provides, and the frequency at which they need to be provided.

Some of the key factors influencing the demand for new water assets that are considered include:

- Growth in industrial, commercial and residential areas;
- Changes in land use;
- Population growth or decline;
- Environmental awareness;
- Government policy; and
- Local Government boundary realignments
- Changes of business drivers and economic influences (e.g. agriculture to industry etc.)
- Demographic changes and associated services drivers
- Social change

Demand factor trends and impacts on service delivery are summarised in Table 4.1.

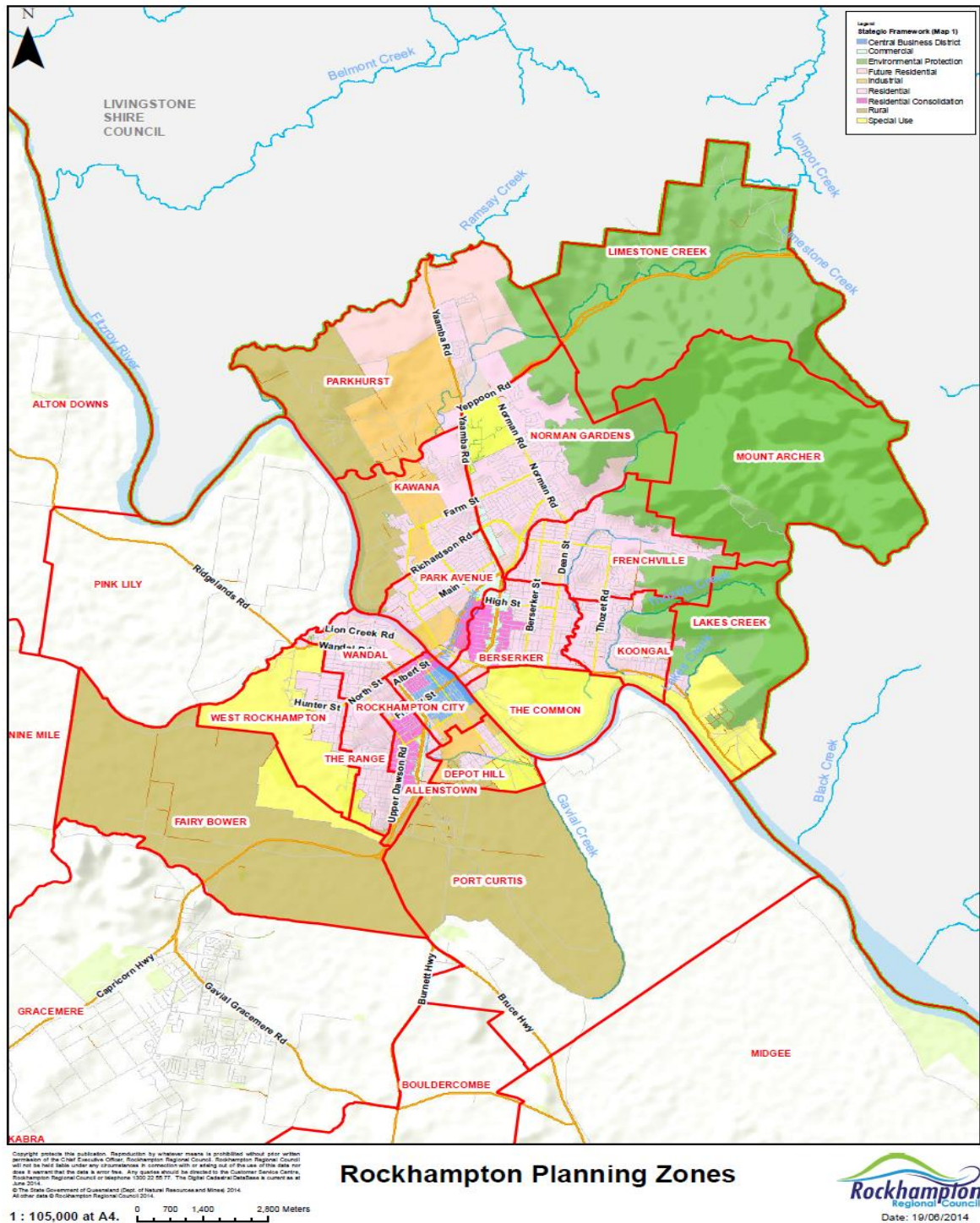
Table 4.1. Demand Factors, Projections and Impact on Services

Demand factor	Present position	Projection	Impact on Built Infrastructure
Population	76330	Population projection 2016 – approx. 80,000 people 2021 – approx. 84,000 people	Increase Assets and demand on existing assets will have a follow on impact on maintenance and renewal costs

4.2 Demand Forecast

This section outlines the predicted future demand for water in the Rockhampton Regional Council area. Figure 4.2 below shows the residential zones within Rockhampton City. The only residential areas left for development within the Rockhampton Metropolitan area are around Parkhurst and small areas around Norman Gardens. Table 4.3 reflect on the capital works budgets over the next 3 years, and how that will meet the extra demand in the Parkhurst area. This work will be funded from development contributions.

Figure 4.2 Residential Zones in Rockhampton



The township of Gracemere has experienced rapid growth in the last few years and to cater for this there has been industrial development along the Stanwell corridor, a number of development projects are set out in Table 4.3. Figure 4.2 below sets out the residential zones in Gracemere and the Gracemere/Stanwell Industrial area.

Figure 4.2.2 Residential Zones Gracemere

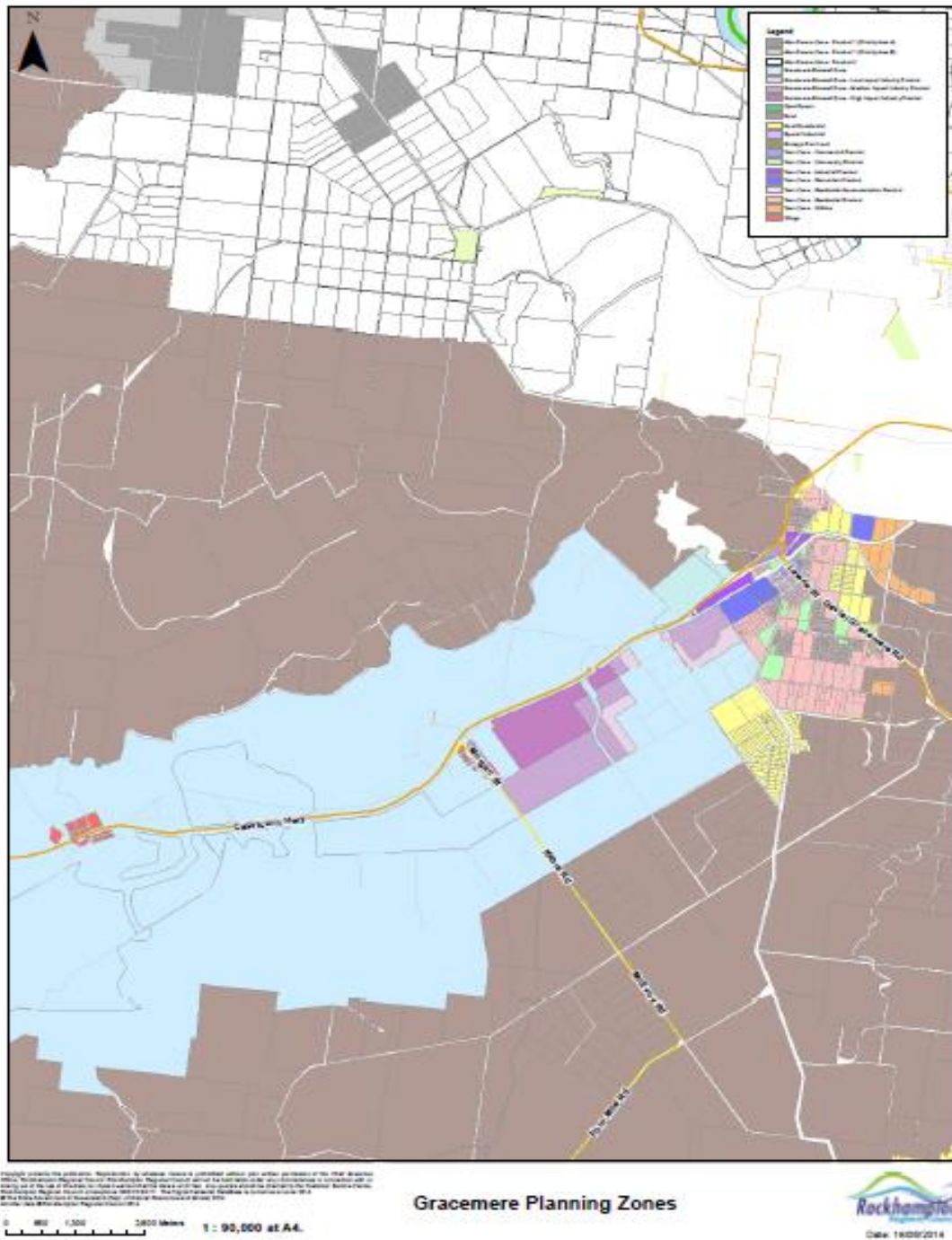


Table 4.3 Projects to meet future demand

Area	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Gracemere	(N) R-GIA Stg 2 – W Main (Trunk) 300 mm Douglas St between MacQuarie and Stewart St						765,000
Gracemere	[N] G-GIA Stg 4-Wmain (Trunk) 200 & 300 mm Ring main extn (Plan) Wat 3 & Wat 5					500,000	500,000
Gracemere	[N] R- R W main (Trunk) 375 mm Athelstone to Gracemere duplication	1,000,000	800,000	589,000			
Gracemere	[U] G WPS Old Cap Hgway Mech & Elec UG			350,000			
Gracemere	[N] G – W Main 150 mm Johnson Road			160,000			
Gracemere	[N] G-W Main 200 mm Lawrie St Gce		150,000				
Gracemere	[N] G-WPS Lucas St (Gce) Upgrade pump capacity and isolators	159,000					
Gracemere	[N] G W Res 5 ML Lucas St Reservoir duplication				1,500,000	1,500,000	
Gracemere	[N] G W Res Kabra (Gce) Potable Water Supply agreement	100,000					
Rockhampton	(N) R-W main (Trunk) 450 mm Yaamba Rd to western boundary of Lot 5 SP238731 Wat 45 (Stockland Infrastructure Agreement)				425,000		
Rockhampton	(N) R W Rosewood Dr 150 Water main duplication			130,000			
Rockhampton	[U] R WPS Ramsay Creek Capacity Planning study (Ass ID 1032547) Op	15,000					
Rockhampton	[U] R WPS Ramsay Creek Mech and Elec upgrade (Ass ID 1032574)			300,000			

4.3 Demand Management

Demand Management involves intervention in the supply to influence demand. The demand management methods being applied in the Rockhampton Region are set out in Table 4.4 below:

Table 4.4 Demand Management Rockhampton

METHOD	EXAMPLE
Leakage Control	District Meters in Rockhampton
Pressure Reduction	Supply pressure reduction in Rockhampton/Mt Morgan
Education	School groups visit the Glenmore Water Treatment plant and are given a tour of the plant and reminded of conserving water
Billing	Council has a 3 tiered Water tariff every quarter, when consumption per quarter is over 150 kL a higher rate is charged

5. Lifecycle Management Plans

This section outlines Maintenance and Capital Works plans to keep the assets managed and operating at the agreed levels of service while optimising Lifecycle costs. It contains the Management Plan for each Water Scheme:

- General Asset Information on the scheme
- The current Asset Capacity, Performance of assets and service delivery issues relative to the LoS defined in Section 3.
- Asset Valuation 2014
- Operations and Maintenance Plan
- Historical Operations and Maintenance Investment
- Reactive and Planned Maintenance (Treatment and Supply)
- Reactive and Planned Maintenance (Network Services)
- Reactive Maintenance Process
- Planned Maintenance Process
- Capital Works Plan

5.1 Rockhampton Water Scheme

5.1.1 Asset Information

Rockhampton City Council began providing treated water from Mt Charlton in 1926. Water was pumped from Yamba (40km north of the city) because it was above the tidal influence, to the Mt Charlton treatment plant and was then fed by gravity along a buried 600mm main to Rockhampton. In 1955, this main was rehabilitated with a cement mortar lining, coated on the outside and re-laid with welded collars above ground.

In 1970, the Fitzroy River Barrage was opened and the decision was made to build the Glenmore Water Treatment Plant to replace the Mt Charlton Water Treatment Plant. In 1971, the present Glenmore Water treatment plant was commissioned.

The source of water for Rockhampton and Gracemere is the Fitzroy River Barrage storage. The Fitzroy River is located in the very large Fitzroy River basin catchment, and provides a reliable supply.

Demand is met through the Glenmore High Lift pump station pumping water through a network of trunk distribution mains to fill reservoirs, which in turn gravity feed water to surrounding networks.

Operational Parameters

Population: 63398⁵

Connections: 24671⁶

Max Daily Consumption: 90ML

Table 5.1 Summary of Water Supply Infrastructure for Rockhampton

⁵ Source : 2011 Census data and 2013 projections from Australia Bureau of Statistics

⁶ Source ; Pathways file of all water connections March 2014

Rockhampton, Gracemere and The Caves Water Supplies (supplied from Glenmore Water Treatment Plant)	
Source	Fitzroy River 50,383 ML/annum
Treatment Plant	Process: coagulation, flocculation, sedimentation, filtration, pH correction and disinfection Treatment Capacity = 120 ML/d
Scheme Name	Rockhampton (including Gracemere)
Reservoirs	Rockhampton 15 (includes 2 x contact reservoirs at GWTP), Gracemere 4
Capacity	103 ML (includes Boundary Reservoir)
Pump Stations	29 (Rockhampton) 3 (Gracemere)
Length of Mains and Common Services	Rockhampton 645.3 km Gracemere 98.9 km
No. of connections	Rockhampton 24671, Gracemere 3861
Population Serviced	Rockhampton 63398, Gracemere 9799
Average Water Consumption per day (kL/d)	47,916
Asset Type	Asset Parameters
Treatment Plant	<i>Glenmore Water Treatment Plant (Treatment Capacity 120 ML/day, Inst 1971)</i>
Inlet Works	<ul style="list-style-type: none"> River Intake (Fitzroy River) 4 course mesh screened inlets 4 x Low lift pumps (1 x 200 kW, 2 x 75 kW, 1 x 150 kW)
Treatment	<ul style="list-style-type: none"> Coagulation (Flash mixer) Flocculation (3 x Bays with horizontal paddle mixers) Sedimentation (2 x tanks with mechanical sludge scrapers) Tube settlers (maximise sedimentation of fine floc particles) Finger Weirs (clarified top water collected and transferred to the filters) Filters (10 x rapid gravity sand filters, produce < 0.1 NTU water) Disinfection (chlorine gas, residual set point 1.1 mg/L) pH correction (7.8 target)
Outlet Works	<ul style="list-style-type: none"> 2 x 2.25 ML Reservoirs 5 x Hi lift Pumps (3 x 356 kW, 1 x 830 kW, 1 x 700 kW) <p>NB: See Treatment Plant layout diagram below for chemical addition details, Fluoridation in diagram is not operational, but is available for use when required.</p>
Booster Pump Stations	<ul style="list-style-type: none"> Agnes St (WP03); Pumps 1 x 150 kW, 1 x 55 kW, 1 x 75 kW; Inst 1974 & 86 Lakes Creek Rd (WP05); Pumps 2 x 22 kW; Inst 1992

	<ul style="list-style-type: none"> • Forbes Ave Res; WR06, 4.5 ML, Inst 1976 • Yaamba Rd Res; WR07, 13.7 ML, Inst 1974
--	--

Figure 5.2 GWTP Treatment Processes (NB: Fluoride treatment disconnected)

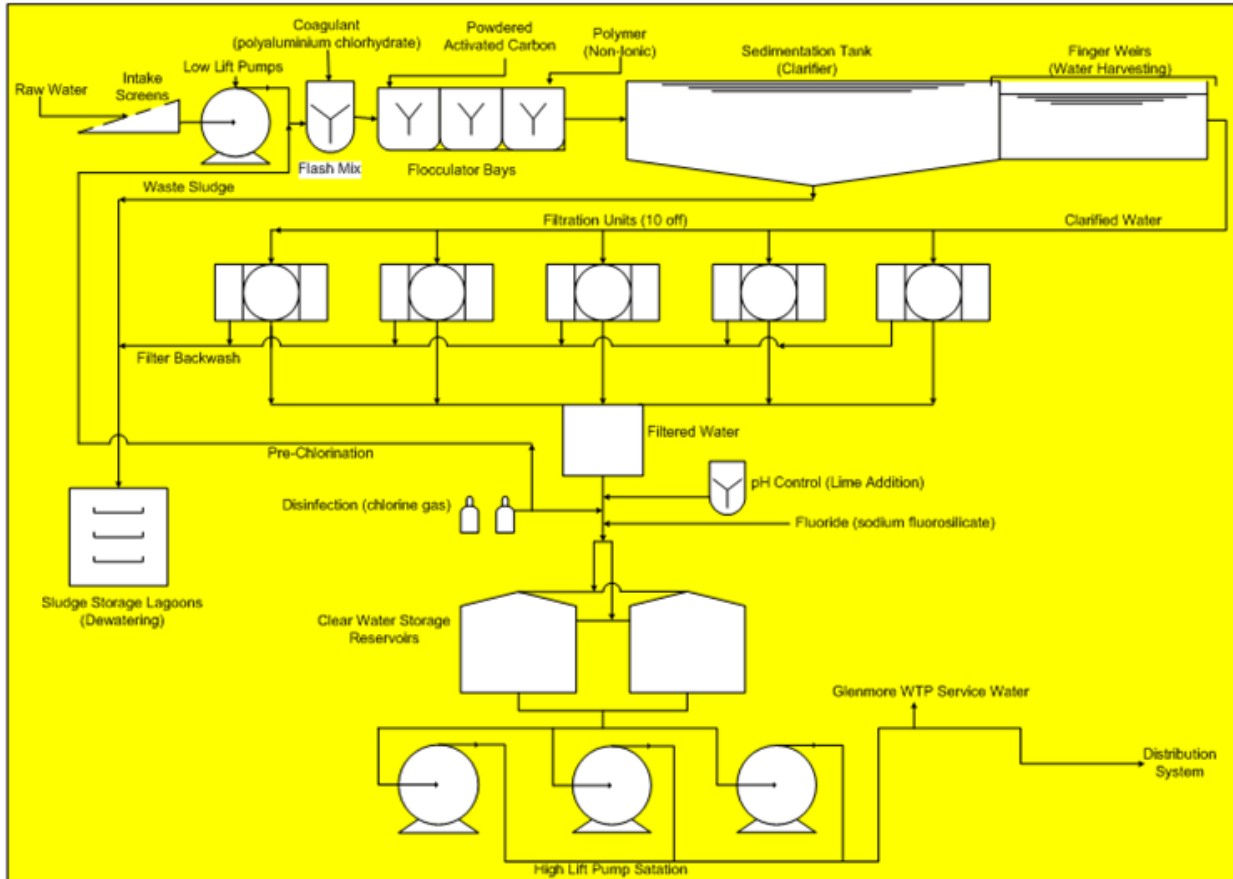
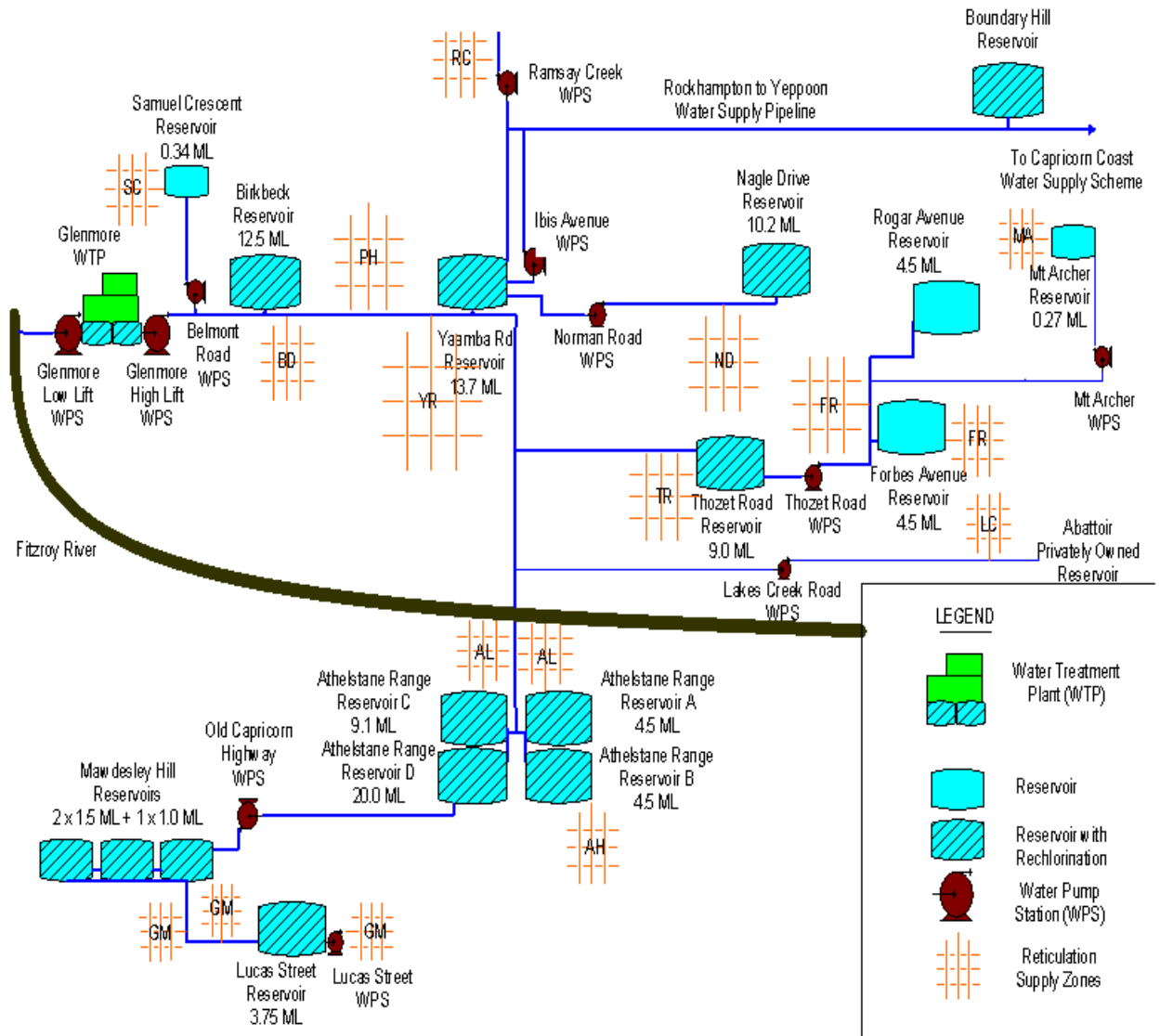


Figure 5.3 Rockhampton Water Supply Scheme (boundary with Livingstone Shire at Ramsay Creek WPS)



5.1.2 Levels of service Performance

Treatment Capacity

Rockhampton’s Water Supply system has no problems meeting demand. The large Fitzroy Basin catchment (140,000 km²) provides historically reliable flows to the Fitzroy River system. Multiple high level intake structures allow raw water to be pumped for treatment during flood events.

Peak consumption since water meters were installed in 2002/03 has been 90 ML/day. The treatment plant is able to provide this without water restrictions. The treatment plant capacity is 120 ML/day.

Pressure / Flow

There are no areas in Rockhampton City where properties receive less than the standard minimum water supply pressure of 220 kPa.

Fire Hydrant performance

Some streets on the south side in the CBD area are serviced by 100 diam. unlined Cast Iron (CI) mains. These mains installed in the 1920's have tuberculised up with corrosion, which effects the flow and capacity. A program has been in place for a number of years to replace these mains with 150 diam. mains. Figure 5.4 below shows 1920 CI pipes replaced (purple colour).

Water Quality

High raw water turbidity (measure of clarity of water) occurs due to flow events in the Fitzroy River. Values in excess of 2000 NTU have been recorded (predominantly after a flood). The average value for treated water turbidity is 0.41 NTU. Occasionally when turbidity is low cyanobacteria (blue green algae) can increase to high numbers in the raw water but this does not have a significant impact on drinking water quality.

Drinking water produced by GWTP meets drinking standards.

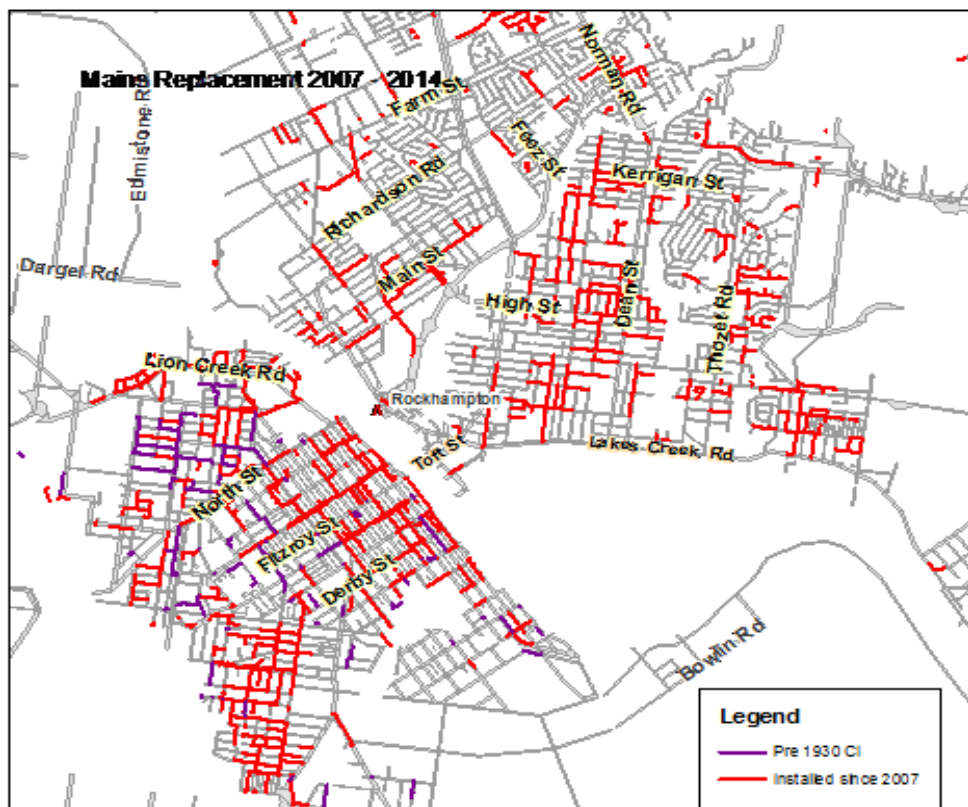
Reticulation Asset Condition

Since 2007, FRW has had an accelerated water main replacement program in order to provide a reliable water supply and meet levels of service.

The accelerated program has allowed FRW to keep breakage rates relatively steady.

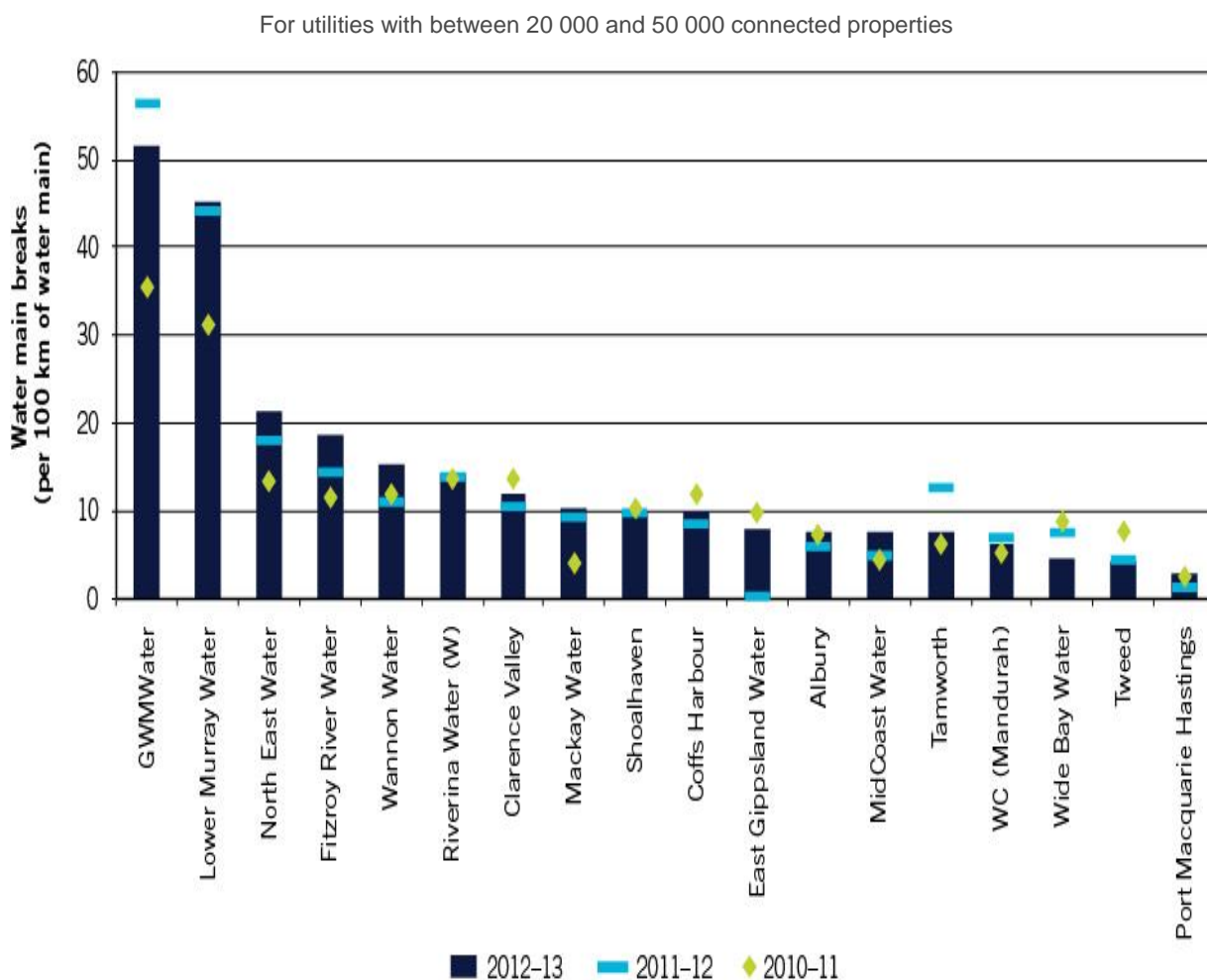
Figure 5.4 shows mains replaced as part of the renewals program since 2007.

Figure 5.4 Mains Replacement 2007-2014



In the Rockhampton network, unplanned supply interruptions per 100km in June 2013 to June 2014 exceeded the LoS target (CSS2: Target 30, actual 54). The accelerated program also looks to address water main break rates that are higher than many other like sized councils. Figure 5.5 below shows the recorded water main FRW breaks per 100km per year compared with other like sized Councils as published by the National Water Commission in their National performance report. A number of factors including soil type, rainfall, pipe material and the age and condition of the network influence the number of breaks. In 2013/14 Rockhampton's City breaks per 100 km were 23.

Figure 5.5: Water main breaks, 2010–11 to 2012–13 (per 100 km of water main)



Asbestos Cement (AC) pipe installed in the 1960's/1970's and CI installed from 1920 in Rockhampton have recorded high breakage rates in recent years. Table 5.6 below sets out the lengths of different materials in Rockhampton City as of January 2015. The two (2) materials accounted for 75% of water main breaks from 2009-2015.

Table 5.6 Rockhampton City Pipe Materials

Material	Length(km)	Value (\$m)	% total length	% breaks 2009-2015
Asbestos Cement (AC)	147	43	23	30
Cast Iron (CI)	110	37	17	45
DI	15	16	2	0
mPVC	161	45.5	25	6
uPVC	136	39	21	9
Poly	36	4.2	6	2
MSCL	35.5	35.5	6	0
Other	4.7	0.6	1	8

NB: Length of 100 dia AC Pipe = 96 km (65 % of AC material) and 81 % of AC breaks on 100 dia pipe.

Water Main Replacement Program Methodology

FRW uses mains breaks, water pressure and flow as indicators of pipe condition. The water mains replacement programme utilises records kept of customer complaints and maintenance as well as the physical characteristics of the pipes. Maintenance records indicate the nature and location of the works carried out.

A series of steps identify those sections of mains requiring replacement. In the first instance, a full list of expired water mains is extracted from Conquest. The criteria for replacement involve looking at the physical characteristics of the pipe such as the age and materials as well as the maintenance history. If the physical characteristics are combined with a history of mains breaks the mains are programmed for replacement. Further prioritising of the list is carried out by looking at the criticality of the asset. Trunk distribution mains to essential services are classified as an extreme risk in the event of failing while 100 to 200 diameter water mains are assessed as a low criticality. In order to weigh criteria in order of importance a priority index formula is applied as follows: Priority Index = 1 x [(0.1 x Age/Material) + (0.5 x Breaks) + (0.4 x Criticality)]. The highest weighting is given to mains that have multiple breaks. Once the list is prioritised, it is sent to the strategic group for review and to add mains replacements with strategic objectives such as fire supply issues, planned road works, future development plans and network scheme amendments.

Since 2007 FRW has also replaced pre 1930 unlined mainly 100/75 mm diameter mains in the South Rockhampton reticulation network in order to increase the hydraulic capacity in the network. To date most of the mains particularly around the CBD area have been replaced and upsized to 150 dia. A small amount remains as shown in Figure 5.4 above, they will be replaced as it meets mains criteria set out above. Refer to file Final Water Main Replace ProgramNov2014⁷ for a list of Water main replacements from 2015/16 and file 140508 WMR Program Procedure⁸ for the full criteria for mains replacement.

5.1.3 Asset Valuation 2014

Description of Asset Valuation method

The 2014 revaluation valued assets according to a modern equivalent construction method to recreate the current asset. When the Glenmore Water Treatment Plant is replaced, it may incorporate different processes and technology, the valuation did not factor in any improvement to the current processes or associated assets. Assets have been valued at a component level. The Infrastructure Asset valuation and Depreciation Guidelines define a component as *Specific parts of an asset having specific attributes such as different life expectancy, maintenance regimes, risk or criticality.*

Valves, hydrants and service connections are replaced at the time of the pipe renewal, their economic useful lives are dependent on the pipe. These assets are included in the replacement cost of the pipe, while water meters are valued separately.

Basis for determining effective lives used for valuation

Base asset lives adopted for the 2014 valuation were based on Councils asset lives, and have been developed through Councils experience with similar assets and their associated standard lives, and are annually reviewed.

The lives used in the 2014 revaluation for approx. 95 % of assets are set out below:

Type	Material/Type	% of total assets	Life (Yrs)
Water Mains	AC/PE	8.6	60
Water Mains	PVC	15.7	80
Water mains	DICL	6.5	100
Small Pumps		0.1	15
Water Meters		0.8	30
Switchboards		0.3	30
PRV		0.1	40
Electrical (cable)		0.4	40-50
Mechanical		0.6	40
Water Pipework (Active)	Most Bolted		80

⁷ File saved O/FinBus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/5.Reports/2012-13/FinalWatermainReplaceProgramNov2014.xls

⁸ File saved O/FinBus/Finance/Assets/Water & Sewer/5.Reports/140508 WMR Program Procedure.doc

Sites)			
Water Treatment Structures	Concrete		100
Reservoir Structures			120

Key assumptions made in preparing the valuation

- Unit rates from the 2014 revaluation were based on a Greenfields approach and do not include brownfield costs such as temporary diversions, road reinstatement, under boring and out of hours restrictions to works.
- Residual Values; Components such as earth embankments on Ponds where with maintenance there life is indefinite and they will not be replaced, a residual value is appropriate. For these assets, the residual value is the same as the current replacement cost. Hence, there is no depreciation expense for these components. Residual values also apply where the component is renewed or replaced, but the cost in doing so is less than the current replacement cost. An example of this is a large pump where the internal components are replaced while the original body of the pump is retained.

Asset Replacement Valuation Summary Rockhampton

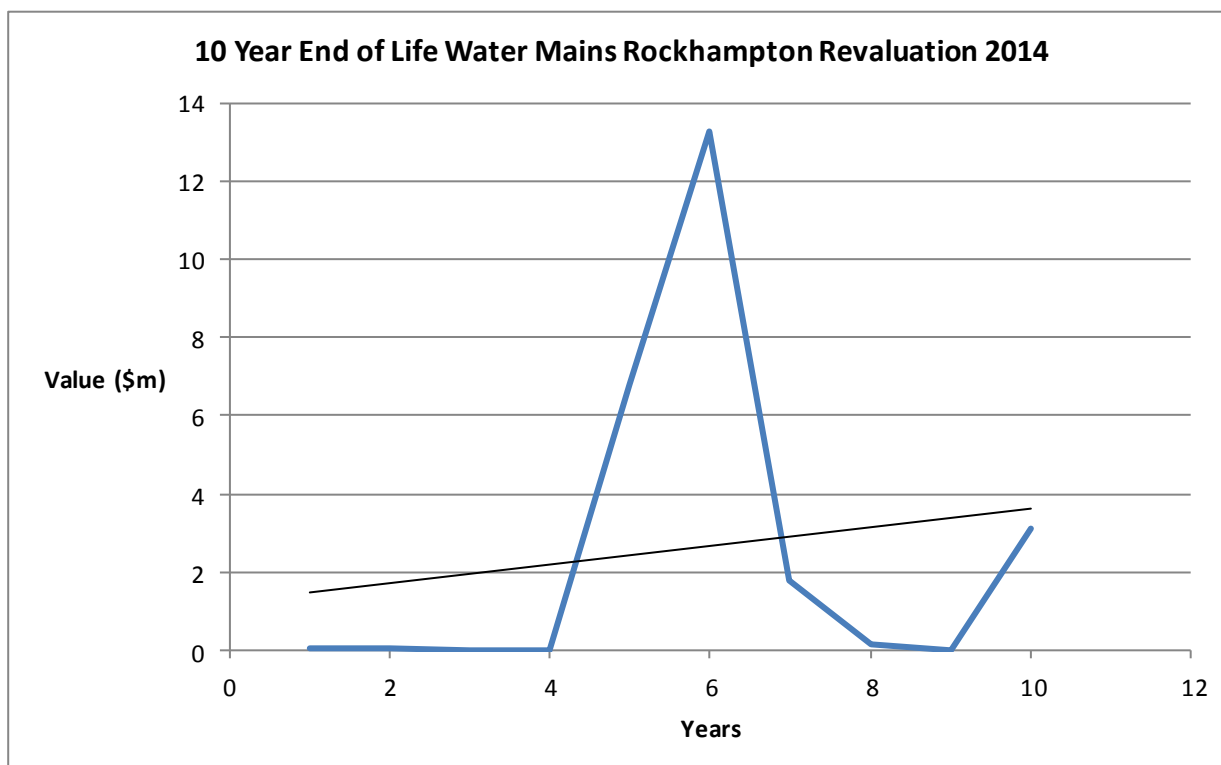
Table 5.7 below sets out the replacement costs of asset types in Rockhampton where assets will reach the end of their life in the next 10 years. The remaining lives of each asset were calculated after a site inspection and condition grading from 1 – 10 for active assets or an assessment based on the age of the asset for reticulation assets.

Table 5.7 Rockhampton Expired Assets in next 10 years

Asset Type	Length/No	Replacement Cost (\$)	Notes
Water meters	54	\$ 66,900	20-100 mm dia
Water mains	38.64 km	\$11,600,258	AC pipe
Water mains	41.36 km	\$13,741,477	CI/Galv Iron
Pump Stations		\$2,501,540	Mech / Elec assets
Reservoir		\$974,032	Elec / Mech assets
Glenmore WTP		\$5,229,805	
Total		\$34,114,012	

Figure 5.8 below shows when water mains expire in the next 10 years and the replacement costs from the 2014 revaluation. There are significant expired assets in Year 5 and Year 6. The trend line shows smoothed expenditure over the next 10 years to replace the assets. Capital works budgets for Water mains replacement for the next 10 years closely follow the smoothed trend line.

Fig 5.8 : 10 year Renewal Profile Rockhampton Water Mains



5.1.4 Operations and Maintenance Plan

Table 5.9 sets out the projected Operations and Maintenance Expenditure for the Rockhampton (including Gracemere) water scheme over the next three (3) years by activity. The major components of operating cost are:

- Salaries and Wages
- Overheads on salaries and wages
- Materials
- Electricity and other services
- Sub - contractors
- Items expensed rather than capitalised

Operating expenditure is increasing 5.2% per year to allow for new contributed assets.

Table 5.9 Three year projected Rockhampton Water Operational Expenditure (3 Yrs)

	2015/16	2016/17	2017/18
Activity			
Reticulation	1,906,812.29	2,005,966.53	2,110,276.79
Pump Station	1,874,335.57	1,971,801.02	2,074,334.67
Treatment	2,519,175.22	2,650,172.33	2,787,981.29
Reservoir	438,782.85	461,599.56	485,602.74
Untreated water sources	77,374.05	81,397.50	85,630.17
Other	115,129.20	121,115.92	127,413.95
Total	6,931,609.18	7,292,052.86	7,671,239.61

5.1.4.1 Reactive and Planned Maintenance (Treatment and Supply)

Due to the varying nature and age of the assets, varying levels of planned (includes preventative and health and safety compliance activities) and reactive maintenance is necessary. FRW is developing the optimal mix of reactive and preventative maintenance for treatment and supply assets that minimises maintenance costs and maintains levels of service. FRW monitors the mix and Figures 5.10 and 5.11 below sets out numbers of Planned and Reactive Maintenance Work orders completed and in progress for the period May 2014 to March 2015. Figure 5.11 below shows for March 2015 the mix of reactive (including reactive, callouts) was 47% and planned maintenance (including safety/compliance) was 53%. Safety and compliance maintenance is mandatory so the numbers of work orders completed will not vary but overtime expecting reactive maintenance jobs come down as planned maintenance increase, resulting in a lower operational cost.

Figure 5.10 Planned Maintenance Treatment and Supply Work Orders August 2014 – August 2015

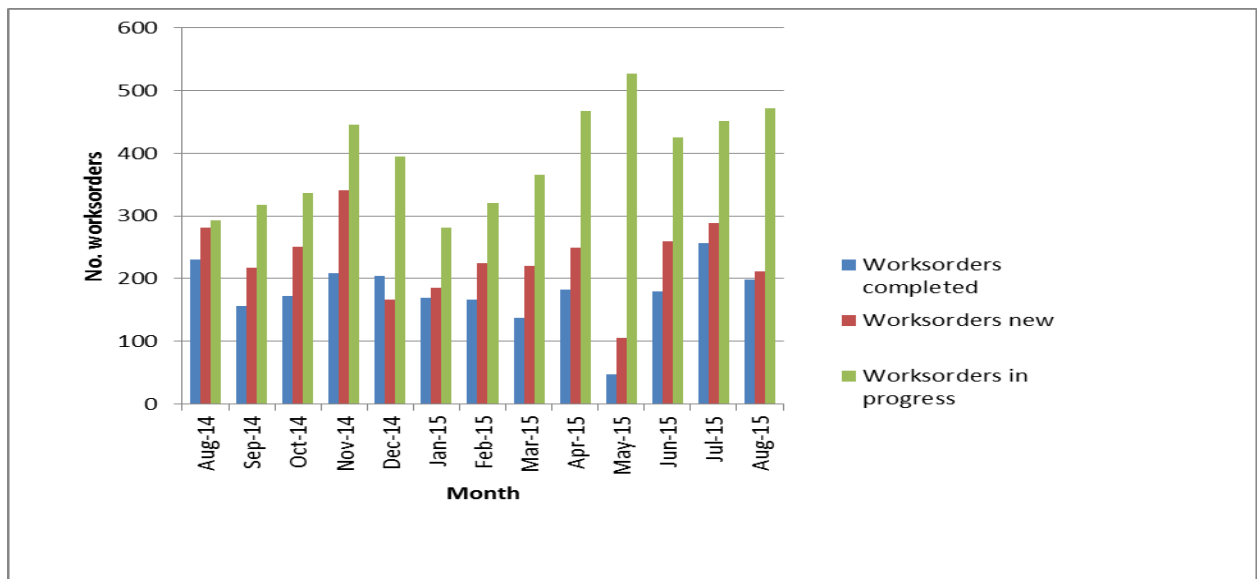


Figure 5.11 Reactive Maintenance Treatment and Supply Work Orders August 2014 – August 2015

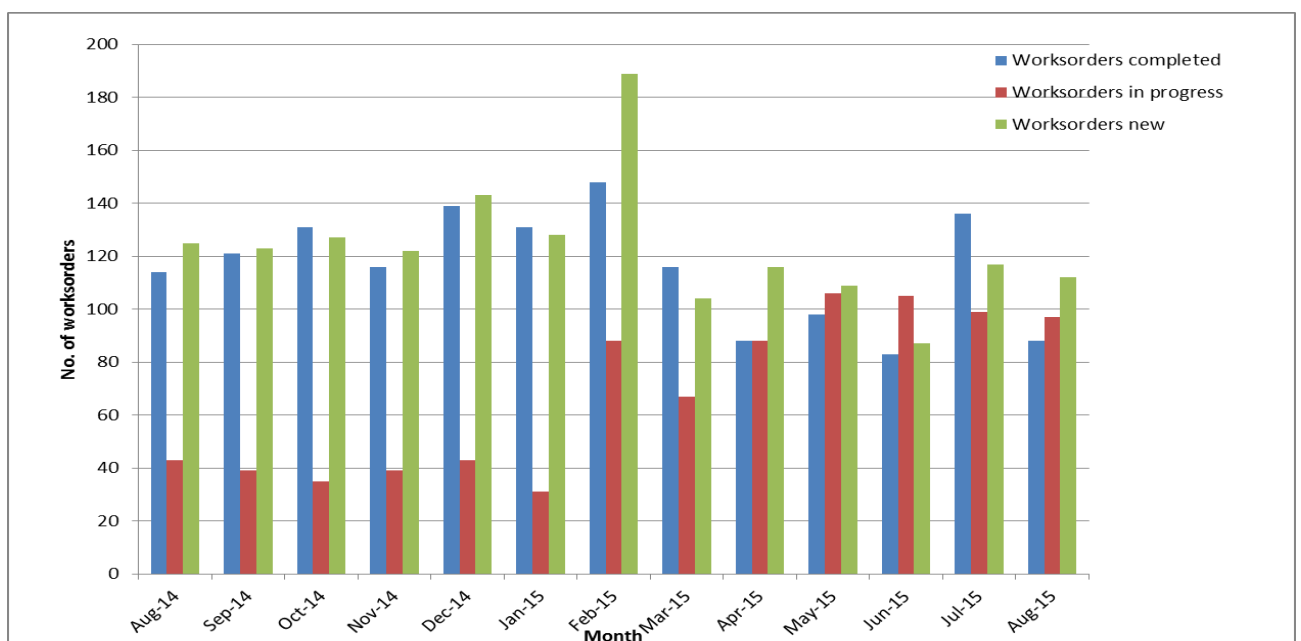
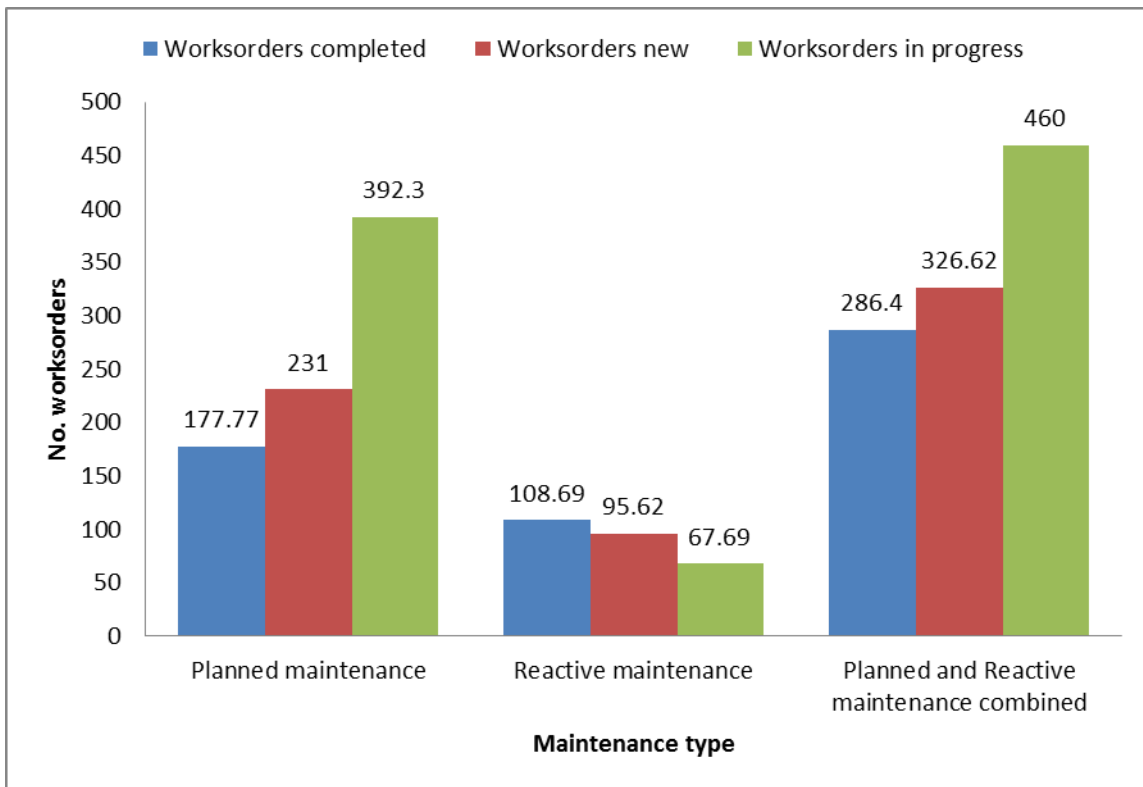


Figure 5.12 Average combine Reactive / Planned Maintenance Treatment and Supply Work Orders per month for period August 2014 to August 2015



5.1.4.2 Reactive and Planned Maintenance (Network Services)

The network services group maintains the reticulation network where there is much less scope for carrying out planned maintenance in order to lower rates of reactive maintenance. FRW has recently started planned inspections of hydrants in critical areas such as bushfire, schools and hospital areas, and air valves forms part of these inspections. In March 2015 for Network Services 48 % of completed maintenance was planned while 52% was reactive / unplanned.

Figure 5.13 Planned Maintenance Network Services Work Orders August 2014 – August 2015

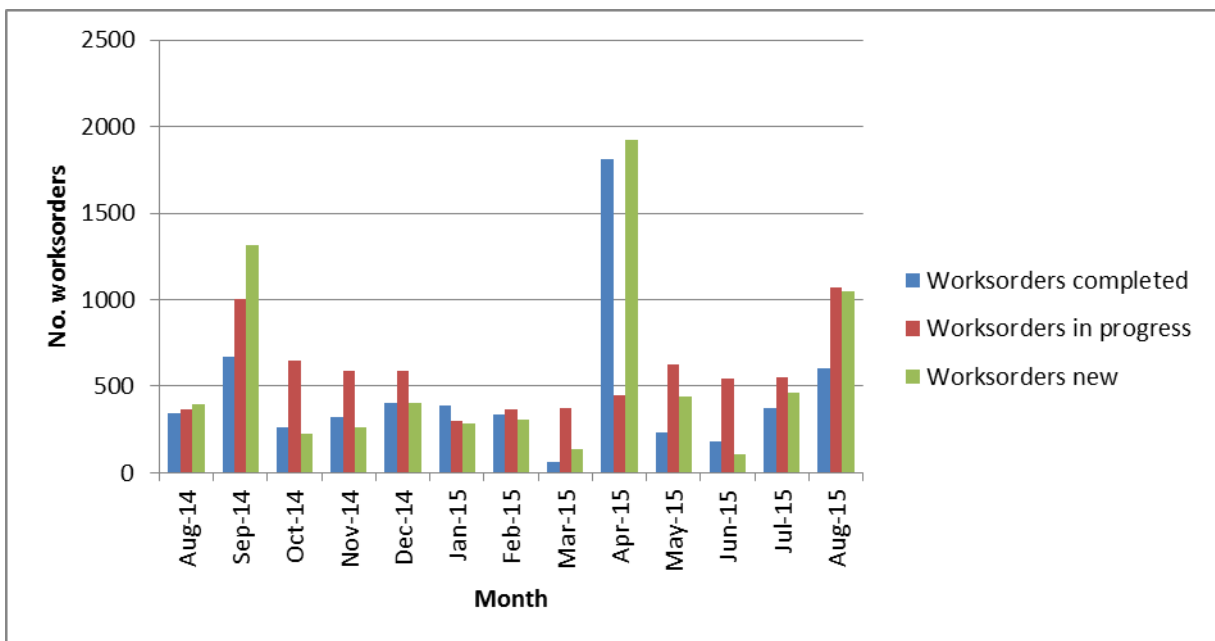


Figure 5.14 Reactive Maintenance Network Services Work Orders August 2014 – August 2015

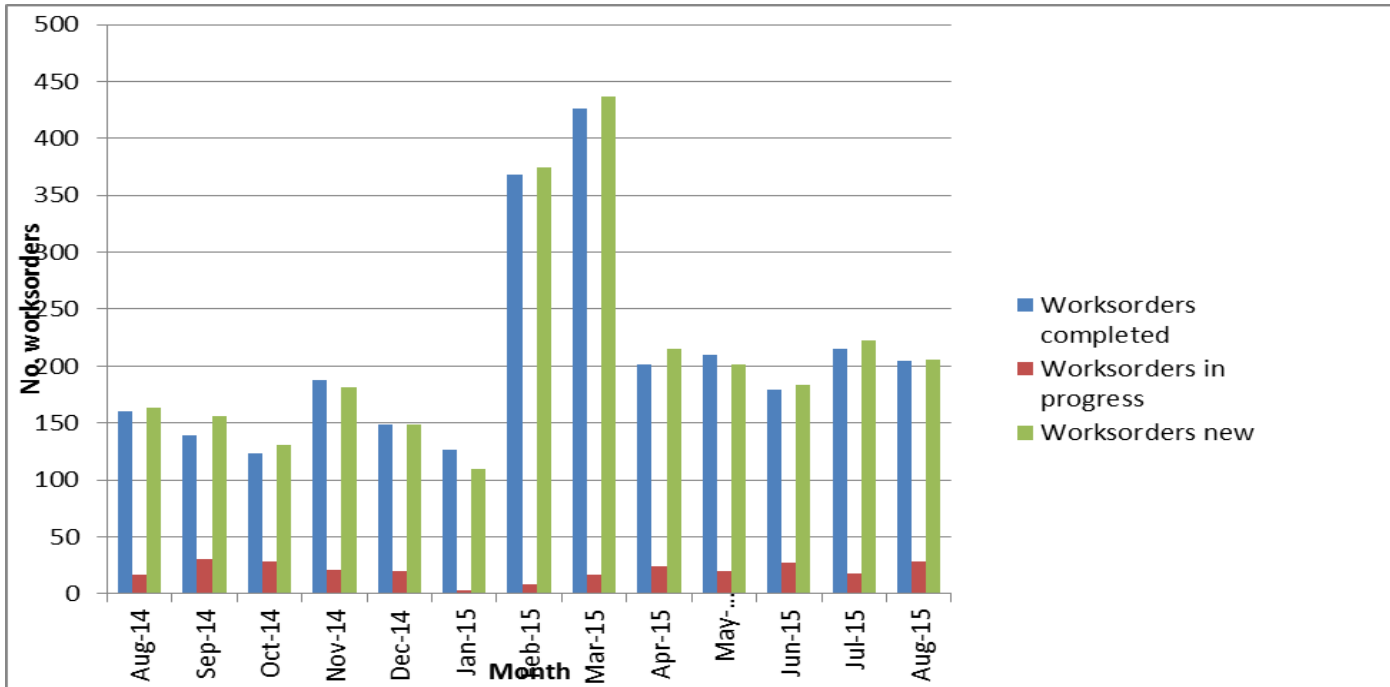
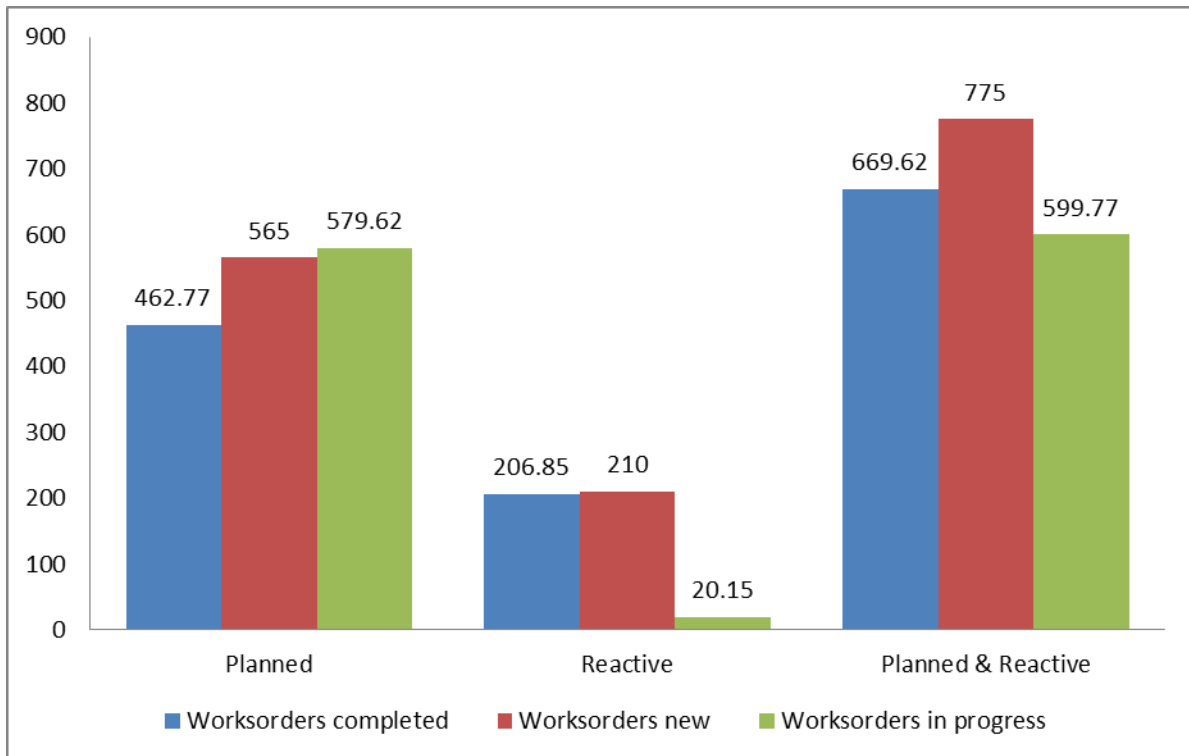


Figure 5.15 Combined Reactive / Planned Maintenance Network Services Work Orders March 2015



FRW has recently completed a draft Maintenance Strategy Manual for Treatment and Supply⁹. The document sets out the reactive, planned (Preventative and Health and Safety) and condition maintenance strategies for treatment and supply active assets. The plan includes a full list of Treatment and Supply planned maintenance activities.

⁹ Document saved O:\FinBus\Finance\Assets\Water & Sewer\5.Reports\Maintenance StrategyRev0001Rich.doc

5.1.4.3 Reactive Maintenance Process

FRW carries out general reticulation, pump and treatment maintenance work in Rockhampton. Reactive maintenance is unplanned maintenance required to correct a problem. Complaints from Customers are recorded in Pathways, and sent to the FRW Dispatch team for action when required. The dispatch teamer generates a customer request in Conquest for action and assigns a priority for the work. The priority assigned is according to a priority-rating matrix. Those jobs with the greatest potential impact and risk are assigned a high priority (P1) as per table 5.16 below. When day work sheets are returned from the field an action against an asset is completed in Conquest. The details on the action allow FRW to report on their compliance with Levels of Service (refer to Levels of Service).

Table 5.16 FRW Priority Response times

Priority Rating	Response Time to Site	Rectification Time	Maximum Tolerable Outage
P1	1 hour	5 hour	5 hour
P2	2 hours	24 hours	24 hours
P3	24 hours	5 days	5 days

5.1.4.4 Planned Maintenance Process

Planned Maintenance work undertaken on treatment and supply assets can come from a number of sources:

- A succeeding action derived from previous reactive maintenance.
- Site inspections.
- Information from SCADA.
- Servicing or replacing equipment based on manufacturers recommendations.
- Servicing or replacing equipment from a safety compliance point of view.

Site inspections, monitoring of SCADA and site instrumentation allows FRW staff to collate information on the performance of assets based on operational parameters and schedule maintenance if any problems arise.

The FRW Maintenance strategy includes a list of preventative / planned maintenance activities for all treatment and supply active asset types. For each active asset type the list sets out the frequency and tasks for completing the maintenance. All these activities are documented into the Conquest Asset Management System. A list of planned and preventative maintenance actions for pump stations and treatment plants can be found in Conquest through querying FRW assets with a Planned Maintenance Action category or a Safety Compliance Maintenance Asset category.

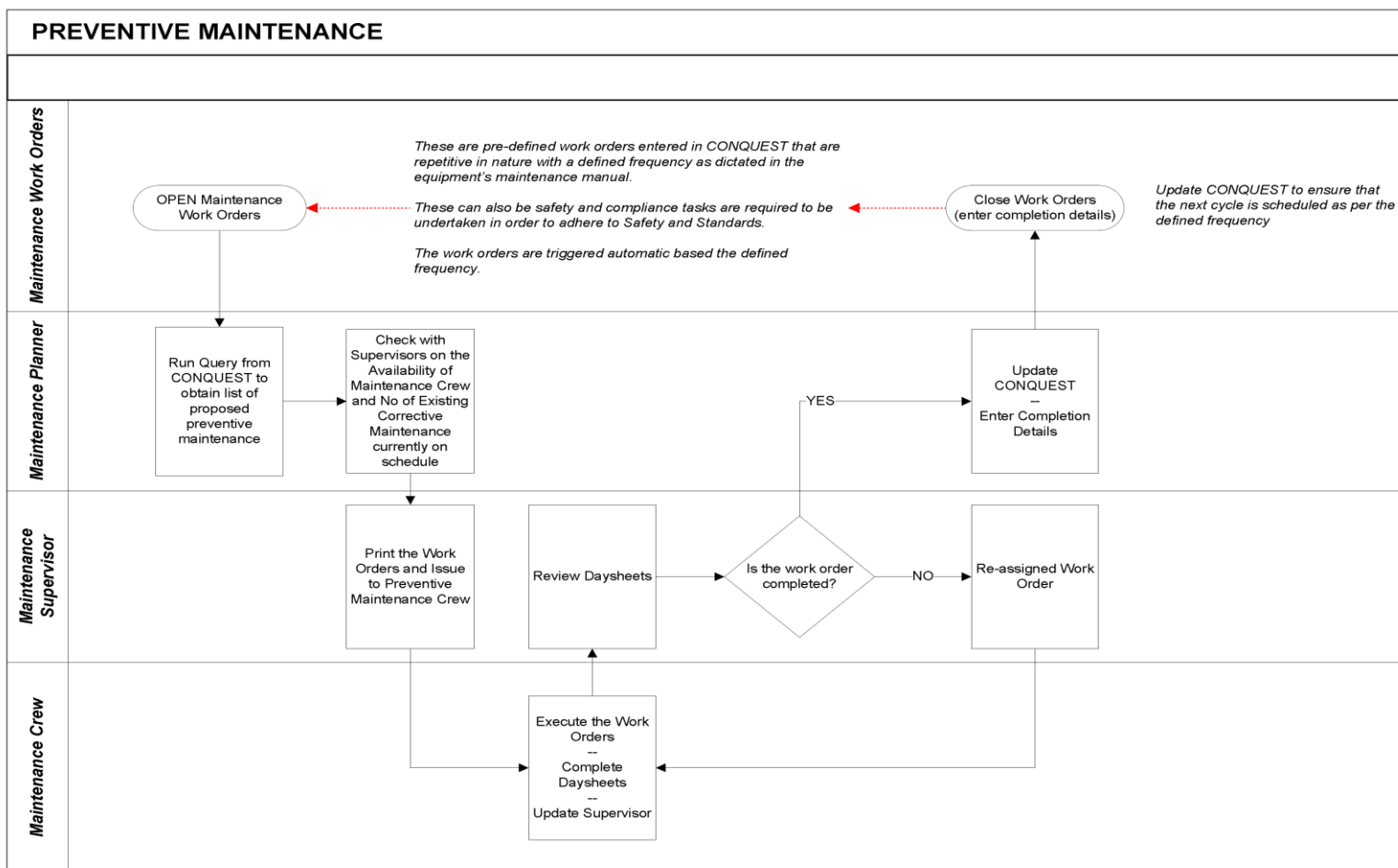
Examples of Preventative Maintenance undertaken in Rockhampton on assets:

- Monthly Reservoir Inspection (monthly) (check security, roof, stairs, free chlorine level)
- Water Pump station and Reservoir Inspection (3 monthly) (Check valve operation, check pressure in Pressure tanks, Grease motors/pumps, check pump seals)
- Generator Servicing (Yearly)
- Daily Inspection Greasing and lube (GWTP)
- Hi lift Greasing / Oil Checks (monthly)
- Hi lift Electrical Mtce (6 monthly)
- Hi lift Yearly Mtce Motors 1,3 & 5
- Fire Hydrant Inspections in Hi risk areas
- Air Valve Inspections

- RPZ testing (annually)

The flow chart below (Table 5.17) sets out the process for managing preventative maintenance for treatment and supply assets.

Table 5.17 FRW Preventative Maintenance Process Flow Chart



5.1.5 Risk Management

The objective of FRW is to provide water to the broader Rockhampton Region, the following are major risks that impact on the supply of water and the associated service levels:

- No or inadequate supply of water to the treatment plant, due to:
 - Mechanical failure of pumps due to:
 - Inadequate maintenance of existing assets
 - Pumps not regularly tested
 - Supply not able to meet demand
 - Electrical failure, inability to provide power
 - Electrical switch gear not properly maintained
 - Not being able to meet energy demands of the supply pumps
 - There may not be enough untreated water available to meet the demand
 - Supply and “take off” points may be silted up and unable to supply untreated water
 - Pump station, electrical switchgear etc. may be flooded, and not be operational
 - Poor contingency planning for disaster events.

- Water treatment plant may not be operational or only able to operate in a much reduced manner, due to:
 - Treatment plant could be at risk of being flooded
 - Mechanical equipment not functioning or ability to provide treated water could be compromised
 - Electrical equipment not functioning, and unable to supply the mechanical equipment with power
 - Chemicals used for treatment may not be available
 - Structural components of plant may fail, or its functionality may be compromised
- Supply of treated water to reservoirs may be compromised
 - High lift pumps may not be able to operate as intended, not being able to supply the reservoirs
 - Supply network not able to sustain supply water pressure
 - Reservoirs may be structurally compromised
- Supply network including booster pump station cannot supply treated water to end user
 - Water network aged and not able to withstand supply pressures
 - Mechanical equipment not being able to operate as intended due to lack of maintenance or inability to meet demand
 - Electrical equipment not able to supply power.

In summary, the following risk mitigation measures:

- Planned and programmed maintenance of all assets
 - Mechanical components
 - Identify inspection and maintenance regime for these components, and program maintenance and service requirements
 - Ensure mechanical components are renewed when required
 - Ensure mechanical components are upgraded when due
 - Electrical components
 - Identify inspection and maintenance regime for these components, and program maintenance and service requirements
 - Ensure electrical switchgear and related components are renewed and upgraded when required
- Ensure all maintenance and services are conducted as per the operation manual for the asset
- Competent staff and operators
- Ensure the assets can withstand natural disasters to the likes of floods, bushfires etc.
- Reactive maintenance conducted in a non compromised manner, ensuring:
 - Maintenance reaction timeframes are met at all times
 - Reactive maintenance scenario us well trained and staff prepared for it.

Effective and efficient asset management is one of the most important risk mitigation factors.

5.1.6 Capital Works Plan

Introduction

- What is an Asset Renewal

The assets in the renewal/replacement plan below shall be renewed in order to restore levels of service standards. They are not meeting the required level of service due to a number of different failure modes ascertained by Asset Management and operations staff. Failure modes include:

- Structural failure where the physical condition of the asset has deteriorated to the point the asset is at the end of its life
- Capacity failure, where the level of under capacity means levels of service are not being met
- Levels of service failures, where the assets reliability is effecting performance and
- Obsolescence failure, where technological change or lack of replacement parts is rendering assets uneconomic to operate or maintain.

Particular failure modes are set out in brackets by Project Descriptions below.

- What is a Capital Upgrade?

Includes works to upgrade or improve an existing asset beyond its original capacity or performance in response to changes in future needs.

- What is New Capital works?

It is work involved in the creation of new assets.

The 10-year plans below have come from Asset Management, Operations and Planning staff. The project description is set out as follow:

[R] (R: Renewal, U: Upgrade, N: New) **R** (location: Rockhampton, Gracemere, Mt Morgan) **W** (Water / Sewer) **Smith St water main** (Project Description) **(AM)** (Source: AM: Asset Management, Plan: Planning Op: Operations)

5.1.6.1 Reticulation

Renewal/Replacement Plan

Renewal work involves providing a modern equivalent asset without improvement to replace assets that have depreciated beyond their useful life.

The water main renewal program are driven by the condition and performance of the asset. Performance issues relate to fire fighting, water quality and system capacity. Capacity issues in Rockhampton are dealt with by the upgrade of existing or the installation of new trunk mains. Water mains identified through a condition assessment for replacement are upsized from 100 diameter to 150 diameter in many cases to provide extra capacity and for increased fire flows.

In order to replace water mains in the Rockhampton network as they reach the end of their useful life in the next 10 years an average of \$2.5M per year is required. There is also a further 72km of 100 dia AC water main due for replacement in the following 10 year period but it is likely a proportion of this pipe will require replacement in the next 10 years due to excessive breakages. The water main replacement program will assist with meeting reliability and water main breakage LOS. FRW has budgeted to spend \$27.6M over the next 10 years on water main replacements

The earliest water meters were installed in Rockhampton in 1994. The majority of meters were installed from 2003 and some are nearing the end of their physical life. As meters fail they are replaced. Individual meters are below the threshold for capitalisation but are treated as network assets and values combined for capitalisation purposes.

The trunk mains in the reticulation are critical to the operation of the network and involve significant expenditure to replace. In 2015/16 a condition assessment is to be undertaken on a 3.4km length of above ground trunk main on Yamba Rd from Limestone Creek to Ramsay Creek Pump station to ascertain its condition to allow planning to be put in place for the future maintenance / replacement of the line.

New/Upgrade Works

The remaining residential areas for development within the Rockhampton City Boundary are Parkhurst and certain small areas of Norman Gardens. In 2014/15 a new 450mm trunk main is to be installed from Yamba Rd to the Western Boundary of lot 5 SP238731 for future demand. This work is funded from development contributions.

In 2016/17, new mains are to be installed on Gladstone Rd and Maloney St in order to improve fire flows to the areas.

Table 5.18 Rockhampton Water Reticulation Capital Works Expenditure (10 year Plan)

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton reticulation Renewals : \$25 m worth of AC/CI reticulation assets expiring next 10 yrs, \$27.6 m worth of replacements planned for next 10 yrs											
0580999	[R] R-W-Water Main Replacement Program (AM)	2,770,000	2,580,000	2,740,000	2,900,000	2,900,000	2,135,000	2,900,000	2,900,000	2,900,000	2,900,000
0581081	[R] R-W- Water Meter Replacement (AM)	30,000	34,300	39,300	44,300	49,300	54,200	59,200	64,100	69,000	74,000
0988096	[R] R-W- Valve and Hydrant Renewal (Op)	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
1017148	[R] R W- Property Service Replacements (Op)	200,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
	[R] R WMR Reaneys Xing	40,000									
1017157	[R] R -W- Main Condition Assessment (600 mm MSCL Mt Charlton) (AM)	90,000									
Total		3,180,000	2,814,300	2,979,300	3,144,300	3,149,300	2,389,200	3,159,200	3,164,100	3,169,000	3,174,000
Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton New Reticulation Projects to meet present / future demand											
	[N] R – W- Main 150 mm Gladstone Rd (Plan)		150,000								
	[N] R- W- Main 150 mm Maloney St (Plan)		170,000								
	[N] R- W- Main 200 mm North St (Campbell – Victoria St) (Plan)				500,000						
	[N] R W Main Trunk 450 mm Yamba Rd to Western boundary of Lot 5 SP238731 WAT 45 (Plan)				425,000						
	[N] R-W Rockhampton Rosewood Dr 150 Water main Duplication (Plan)			130,000							
	[N] R-W Water System leakage & Pressure Management (AM)	150,000	150,000								
	[U] R WPS Ramsay Creek Capacity Planning study (Ass ID 1032547) (Op)	15,000									
	(U) R WPS Ramsay Creek Mech and Elec upgrade (Ass ID 1032574)			300,000							
Total		165,000	470,000	430,000	925,000						

5.1.6.2 Barrage 10-Year Capital Works Plan

The Barrage installed in 1970 is located on the Fitzroy River and provides a raw water supply for the city. It is within the tidal zone and prevents seawater from entering the reservoir. The barrage is a 'low' concrete gravity weir structure with 18 steel vertical gates, mounted between concrete piers above the weir. The 18 gates are raised or lowered independently by electric motors and cable winches mounted on the bridge and operated from a control house.

The barrage is in a corrosive environment at the freshwater/saltwater interface. Many of the capital works projects set out below are to protect against corrosion or rehabilitate corrosive areas to prevent operational failure. A barrage visual inspection is carried out regularly to identify any safety and maintenance issues. These regular asset inspections ensure remedial works are undertaken on a planned and regular basis to maintain the civil, mechanical and electrical assets in good condition and enhance their useful lives.



Barrage view along bridge towards right bank. Shows gate lifting hoists

Renewal / Replacement Plan

In 2015/16, the barrage gate seals are to be refurbished to prevent gates becoming immovable due to corrosion. From 2015/16 onwards, the gates are to be refurbished to protect against corrosion through painting and ensuring their wheels and seals are in good working condition. Over 6 years the electrical and mechanical gear that controls the raising of the 18 barrage gates is to be renewed. Also in 2015/16, the barrage control room switchboard will be renewed as it has reached the end of its physical life effecting reliability.

Upgrade plan

The physical and electronic security at the barrage will be upgraded in 2015/16 to protect against unauthorised entry and potential damage and theft effecting the operation of the barrage.

New plan

A consultancy report due at the end 2015/16 will be used to determine the required actions to preserve the Barrage civil structures to ensure longevity. Cathodic protection was trialled unsuccessfully a few years ago and a review of options was required. A budget has been allowed in 2017/18 for the further investigation of alternative ways to protect and preserve the Barrage infrastructure.

Table 5.19: Rockhampton Barrage Capital Works Expenditure (10 Year plan)

Project ID	Asset	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Barrage renewals, inst 1970, Corrosive enviro at fresh/salt water interface, Projects to protect against corrosion and rehabilitate to prevent operational failure											
	[R] W-R Rock filled wire mats below hi tide mark (Ass ID 1032577) (AM)					198,000					
	[R] W-R Supply/installation of light standards (Ass ID 512423) (AM)										234,000
	[R] W-R Bitumen surfacing road pavements (Ass ID 512378) (AM)										34,169
	[R] W-R Supply/installation of guard rail (Ass ID 512421) (AM)										212,636
	[R] W-R –Water Barrage Gate Seal Rehab (Op)	300,000									
	[R] W-R- Water Barrage Civil Preservation Works (Op)	150,000	15,000								
	[R] W-R – Water Barrage Gate Winch M&E renewal (Op)	100,000	100,000	100,000	100,000	100,000	100,000				
	[R] W-R Barrage Control Room Switchboard Upgrade (Op)		150,000								
	[R] R Water Barrage Crane Restore	55,000									
	[R] W-R Barrage Gates Maintenance (Op)	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000
Total		755,000	415,000	250,000	250,000	448,000	250,000	150,000	150,000	150,000	630,805
Project ID	Asset	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Barrage New / Upgrade Works , Earlier cathodic protection unsuccessful, major project in 2017/18 to protect against corrosion											
	[N] W – R – Water Barrage Cathodic Protection Installation (Op)	50,000		1,000,000							
	[U] W-R Barrage storage levelling, monitoring upgrade (Op)	50,000									
	[U] W-R- Barrage Physical and Electronic Security Upgrade (Op)	50,000	50,000								
Total		150,000	50,000	1,000,000							

5.1.6.3 Water Pump Stations 10-Year Capital Works Plan

Rockhampton City has 29 water pump stations. Criteria used for the 10 year capital works plan include age, criticality, capacity, failure modes and population projections. Each project has its own failure mode, the modes are:

Renewal Replacement Plan

Over the next 2 years, the mechanical and electrical assets to the three (3) Mt Archer pump stations will be replaced. At 40 years old, the assets are at the end of their physical life effecting reliability. At the Everingham Ave pump station, the VSD will be upgraded in order for the capacity of the pump to better match demand. At the Lakes Creek Rd Water pump station the obsolescent electrical assets are to be replaced with more technologically advanced assets. At Ibis No 1 pump station the control system has been very unreliable resulting in high costs to maintain and is to be replaced.

Upgrade Plan

The Braddy St pumps are to be upgraded. The Redhill area continues to develop and to manage demand, 2 pumps increasingly operate. The pumps are to be upgraded to meet demand and provide redundancy. All pump stations are to have a physical and electronic security upgrade.

New Works

A new VSD is to be fitted to the Norman Rd second pump. Growth in the area has resulted in insufficient capacity from the pumps to match demand. The installation of the new VSD will result in the pump adjusting flow output to meet demand. The Parkhurst area has undergone growth and in 2015/16 planning is to be undertaken to develop future works at the Ramsay Creek Pump Station to meet demand in the Northern parts of Rockhampton and Livingstone Shire.

Table 5.20 Water Pump Station Capital Works Expenditure (10 Year plan)

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton Pump Stn Renewals; Failure modes include capacity/performance, obsolescence failure, reliability effecting meeting LoS, condition indicates at end of life											
	[R] R WPS Yaamba Rd WPS (Parkhurst) Pump 1 (Ass ID 498279) Pump leaking (AM)			27,500							
	[R] R WPS Thozet Rd Res WPS Valves (Ass ID 1032776) (AM)			75,000							
	[R] R WPS Thozet Rd Res WPS Pump No 2 Motor (Ass ID 1032654) (AM)					69,300					
	[R] R WPS Norman Rd WPS Electric Switchboard (Ass ID 498291) (AM)						24,200				
	[R] R WPS Bloxom St WPS Pump (Ass ID 498369) (AM)							8,250			
	[R] R WPS Samuel Cres WPS Pump (Ass ID 498379) (AM)									24,750	
	[R] R WPS Belmont Rd WPS Pump (Ass ID 498388) (AM)									8,250	
	[R] R WPS Lakes Creek Rd WPS Pump No 1 (Ass ID 498273) (AM)								23,100		
	[R] R WPS Lakes Creek Rd WPS Pump No 2 (Ass ID 1032648) (AM)								23,200		
	[R] R WPS Mt Archer No 3 M & E Renewal (Ass ID 1032796) (Physical end of life) (Op)					120,000					
	[R] R WPS Mt Archer No 2 M & E Renewal (Ass ID 1032791) (Physical end of life) (Op)					120,000					
	[R] R WPS Mt Archer No 1 M&E Renewal (Ass ID 1032787) (Physical end of life) (Op)					120,000					
	[R] R WPS Thozet Rd Mech & Elec renewal (Ass ID 1032653) (Physical end of life) (Op)				250,000						
	[R] R WPS Agnes St Generator Renewal (Ass ID 1032769) (Physical end of life) (Op)				100,000						
	[R] R WPS Agnes St Pump No 1 Renewal (Ass ID 498254) (Physical end of life) (Op)				100,000						
	[R] R WPS Agnes St Pump No 2 Renewal (Ass ID 1032773) (Physical end of life) (Op)				100,000						
	[R] WPS Agnes St Pump No 3 renewal (Ass ID 498256) (Physical end of life) (Op)		100,000								
	[R] R WPS Ibis Ave No 1 control renewal (Ass ID 639307) (Levels of service reliability) (Op)				20,000						
	[R] R WPS Lakes creek Rd Electrical and control upgrade (Ass ID 498276) (Obsolescence due to technological change) (Op)	90,000									
	[R] R WPS Braddy St Pump Upgrade (Ass ID 498310) (Capacity Performance) (Op)	40,000									
Total		130,000	100,000	102,500	570,000	429,300	24,200	8,250	46,300	33,000	0
Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25

Rockhampton Water Pump Stations, New Works/Upgrades ; Capacity/Performance Upgrades (NB: Ramsay Creek WPS upgrades under Reticulation due to growth)										
	[N] R WPS Norman Rd VSD installation on second pump (Ass ID 1032780) (Capacity Performance) (Op)	50,000								
	[U] R WPS Physical and Electronic Security Upgrade (Op)	50,000	50,000							
	[U] R WPS Wehmeier Ave sun protection for switchboard (Ass ID 498403) (Levels of service reliability) (Op)	10,000								
	[N] R WPS Thozet Rd generator installation (New) Op		450,000							
	[U] R WPS Everingham Ave VSD install and control upgrade (Ass ID 498383) (Capacity Performance) (Op)	25,000								
Total		135,000	500,000							

5.1.6.4 Reservoir 10-year Capital Works Plan*Renewal / Replacement Plan*

There are no water reservoir assets planned for replacement in the next three (3) years.

In the next 10 years, mechanical and electrical assets are to be replaced at the Yamba Rd reservoir. At Nagle Drive, Athelstane and Thozet Reservoirs electrical and control assets are to be replaced. In 2020/21, the asbestos roof on Athelstane Res C is to be replaced.

In 2015/16, a report is to be commissioned on the Athelstane Reservoirs to plan for upgrades and to ensure the continued reliability of the system. The reservoirs are a key component of the Rockhampton water supply scheme and service both Rockhampton South and Gracemere. Reservoirs A and B are nearing the end of their life at over 100 years old while Res C is approximately 80 years old. In 2019/20 and 2020/21 a budget for the replacement of Reservoirs A and B has been allowed subject to the recommendations of the report.

Upgrades

In 2015/16 the Samuel Crescent access hatch is to be upgraded in order to provide safe access for maintenance and inspections. Also in 2015/16, all reservoirs are to have physical and electronic security upgrades to improve security.

Table 5.21 Rockhampton Reservoir Capital Works expenditure (10 year Plan)

Project ID	Asset	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton Reservoir renewals											
498180	[R] R WRes Nagle Dr Res Elec/Control (AM)					33,000					
639322	[R] R WRes Agnes St Res Elec/Control Res C(AM)					30,000					
639319	[R]R WRes Agnes St Res Elec/Control Res B (AM)					30,000					
	[R] R WRes Thozet Rd Res Elec/Control (Ass ID 639345) (AM)					30,000					
	[R] R WRes Agnes St Res Elec/Control Res A (Ass ID 639321) (AM)								30,000		
	[R] R WRes Agnes St Res A telemetry (Ass ID 1032633) (AM)										33,000
	[R] R WRes Agnes St Res B telemetry (Ass ID 1032631) (AM)										33,000
	[R] R WRes Agnes St Res A Mech (Ass ID 639324) (AM)										90,000
	[R] R WRes Agnes St Res C Mech (Ass ID 639326) (AM)										130,000
	[R] R WRes Yaamba Rd Res Mech (Ass ID 639349) (AM)										165,000
	[R] R W Reservoir Samuel Cres Roof access renewal (Ass ID 1032756) (Op)	20,000									
	[R] R W Reservoir Yaamba Rd roof refurbishment (Ass ID 1032750) (Op)							500,000			
	[R] R W Reservoir Athelstane Res C Roof Renewal (Ass ID 1032630) (Op)						500,000				
	[R] R W Reservoir Yaamba Rd Mechanical and Electrical renewal (Ass ID 639349) (Op)				50,000						
Total		20,000	0	0	50,000	123,000	500,000	500,000	30,000	0	451,000
Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton Reservoir Athelstane Upgrade; key component for Rockhampton/Gracemere, 2 x Res 100 yrs old and other 80, subject to strategy Report on future requirements from reservoirs											
	[U] R W Reservoir Physical and electronic security upgrade (Op)	50,000	50,000								
	[N] W Reservoir Rogar Ave rechlorination	60,000									
	[R] R W Reservoir Athelstane Strategy report (A, B and C Res) (Op)	15,000									
	[N] R W Reservoir Athelstane New 20 ML Reservoir (Op)					4,000,000	4,000,000				
Total		125,000	50,000	0	0	4,000,000	4,000,000				

5.1.6.5 Glenmore Water Treatment Plant

The Glenmore Water Treatment Plant (GWTP) was commissioned in 1971, and is generally in a sound serviceable condition with evidence of planned maintenance and regular upgrades being carried out as they fall due. There are a number of structural, planned and preventative maintenance activities carried out, including cleaning out the clear water reservoirs, removing weeds from sedimentation tanks, emptying flocculation and sedimentation tanks for inspection and checking Cathodic protection of structures. Overall, there are 60 repetitive planned maintenance electrical tasks and 59 mechanical tasks scheduled in Conquest for the GWTP.

Renewal / Replacement Plan

Assets set out for renewal below are at the end of their physical life. The plant was commissioned in 1971 and assets in their original condition are now 45 years old. Mechanical assets of this age have a high risk of failure effecting reliability and some have been scheduled for replacement. Included in this are the mechanical equipment for the flocculation tanks, Lime dosing equipment, polymer-dosing unit, 2x backwash pumps, Mechanical drives to the sludge scrapers in sediment tanks and the ultrasonic flow meter between the low Lift Pump Station and inlet channel. In 2016/17 a major upgrade is planned of plant electrical and control assets to improve performance in line with electrical and control upgrades carried out on the high lift and low lift pump stations.

While the plant are generally in good condition there are areas where works are required to rehabilitate areas in order to restore the functional condition of the asset and extend its life. Years of contact with corrosive water have led to the deterioration of concrete and metal structures. Rehabilitation work is to be carried out on the concrete floor ways around the filter gallery, the flocculation tank walls, walkway to river intake and the tube settler supports.

Pump Station Renewal

Major works are to be completed on both the low lift and high lift pump stations at the GWTP. Many of the components are original, were installed in 1971, and require replacement and updating to improve performance. In 2015/16, the High lift pump station is to have an electrical and mechanical upgrade. In 2016/17 Pumps 2 and 3 in the low lift Pump station are to be upgraded. Several other renewal projects are listed in Table 5.21: GWTP Capital Works Expenditure

Upgrade Plan

In order to improve performance, reliability and security a third Coagulant dosing pump is to be installed. The third pump will make the dosing system fully automated and provide security should one pump be off line. The physical and electronic security at the GWTP is to be upgraded to guard against vandalism and attack. A major upgrade to be implemented in 2018/19 is increasing the capacity of the filtration plant. The benefits of the capacity upgrade of the high lift and low lift pump stations are limited by the current capacity of the filtration plant.

New Plan

New Works to be carried out at the GWTP include widening the access road to improve safety for big trucks that deliver to the plant.

Table 5.21 Rockhampton GWTP Capital Works Expenditure (10 Year Plan)

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
GWTP Renewals, Plant was commissioned in 1971 and some original mech/elec assets at end of physical life and at hi risk of failure effecting reliability											
	[R] R GWTP Compressor 01 (Asset ID 498486) AM										22,000
	[R] R GWTP Backwash VSD (Asset ID 1032716)										60,000
	[R] R GWTP Process Instrumentation (Asset ID 1032723)										450,000
	[R] R GWTP Electrical and Control Upgrade Planning (Ass ID 1032725) (Op)	30,000									
	[R] R GWTP Electrical and Control Renewal (Ass ID 1032725) (Op)		1,000,000	1,200,000							
	[R] R GWTP Backwash Drain Valves (Ass ID 1027657) (Op)		100,000								
	[R] GWTP Backwash Pumps Renewal (Asset ID 1027657) (Op)				80,000						
	[R] R GWTP Coagulant Tanks Renewal (Ass ID 1027654) (Op)						100,000				
	[R] R Tube Settlers Support Structures (Ass ID 1032617) (Op)	100,000									
	[R] R GWTP Poly Dosing Plant Renewal (Ass ID 1032620) (Op)			60,000							
	[R] R GWTP Flocculation tank Wall structures (Ass ID 1027655) (Op)		300,000	300,000							
	[R] R GWTP Lime Dosing Refurbishment (Ass ID 1032742) (Op)				150,000						
	[R] R Flocculation tank in-tank mechanicals (Ass ID 687166) (Op)			300,000							
	[R] R GWTP River Intake structure Renewal (Ass ID 1027653) (Op)							250,000			
	[R] R GWTP River Intake Walkway Bridge Renewal (Ass ID 1027653) (Op)	50,000									
	[R] R GWTP Sludge Scraper Mechanical Renewal (Asset ID 1032605 and Asset ID 1032721) (Op)	40,000									
	[R] R GWTP Inlet Flow Meter Renewal (Op)				25,000						
	[R] GWTP Instrumentation room upgrade		30,000								
959009	[R] R-W GWTP High lift Pump Station (Op)	2,528,487									
	[R] R-W GWTP Low lift hi level Intake structure refurbishment (Op)				200,000						
	[R] R-W GWTP Low lift Pump No 2 and 3 renewal (Op)		300,000								
	[R] R-W GWTP Low lift valves renewal (Op)		80,000	80,000							

	[R] R – GWTP Low lift suction pipes condition assessment & remedial works (Op)	30,000									
	[R] R- GWTP Low lift rising main condition assessment & remedial works (Op)		30,000								
	[R] R- GWTP Hi Lift Gantry Crane renewal (Op)		100,000								
	[R] 34 Belmont Rd Building Renewal Program			20,000	20,000	20,000		20,000			
989614	[R] GWTP Glenmore Concrete Refurbishments (Ass ID 925747) (Op)	100,000	100,000		60973						
Total		2,878,487	2,040,000	1,960,000	535,973	20,000	100,000	270,000	0	0	532,000
Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton GWTP New/Upgrades; Filtration Capacity upgrade in order to get extra capacity benefits from Hi lift, lo lift upgrades											
	[N] R GWTP Filtration Capacity Upgrade Planning	12,000									
	[U] Widening of access road to rear of site			125,000							
	[U] GWTP Physical and electronic security upgrade	50,000	50,000								
	[U] R GWTP Coagulant Dosing Pumping Upgrade	50,000									
	[N] R GWTP Filtration Capacity Upgrade	3,000			1,000,000						
1045358	[N] R GWTP Install 3 rd Chlorination process	300,000									
	[R] R Glenmore Low lift WPS Switchboard U	105,000									
Total		520,000	50,000	125,000	1,000,000						

5.1.6.6 Other Operational Programs

Valve and Hydrant Replacement Programme

In 2014/15 planned inspections were completed on hydrants in high risk bushfire, commercial, school and hospital areas, air valves also form part of these inspections. The program is to continue and be completed in in 2015/16. The locations and operational abilities of valves and hydrants have been updated in GIS to provide users with a mobile access through Geocortex when fully rolled out.

Leak Detection Programme

A System Leakage Management Plan (SLMP) is a legislative requirement for all Councils. Rockhampton Regional Council's SLMP was approved by DERM on 10 November 2011. The proposed works in the plan includes zone metering to identify the water usage patterns and associated leakage in each area of the City. FRW is currently undertaking a detailed review of the existing SLMP, which will be continued in 2015/16 with a budget of \$150,000.

Dead End Removal Programme

Long water reticulation lines that are not networked can create problems with water quality at the customer supply point. Where these have been identified, the end of the line is looped or connected into another point in the network, if possible. This work is carried out as part of the water renewals programme. In cul de sacs a scour hydrant along with a valve are being installed at the end of the fire main in order to aid flushing of the line.

Water Asset Disposal Plan

No major disposals or service removals are proposed for the planned horizon of 10 years.

Water mains (along with their associated fittings) that are replaced will be abandoned and will not be removed. Their status will be recorded in the database. It is of the utmost importance to identify which lines is active or not, to assist staff during emergencies.

Table 5.22 Summary of Rockhampton Water Capital Works by Area Activity

Area	Asset	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Total
Summary of all Capital Works ie Renewals, New and Upgrades (\$000)												
Rockhampton	Reticulation Renewals	3,180.0	2,814.3	2,979.3	3,144.3	3,149.3	2,389.2	3,159.2	3,164.1	3,169.0	3,174.0	
	Reticulation New / Upgrades	165.0	470.0	430.0	925.0	0	0	0	0	0	0	
	Barrage Renewals	755.0	415.0	250.0	230.0	448.0	230.0	150.0	150.0	150.0	630.8	
	Barrage New / Upgrades	150.0	50.0	1,000.0	20.0	0	20.0	0	0	0	0	
	WP Stn Renewals	130.0	100.0	102.5	456.0	429.3	24.2	8.3	46.3	33.0	0	
	WP Stn New / Upgrades	135.0	500.0	0	114.0	0	0	0	0	0	0	
	Res Renewals	20.0	0	0	40.0	123.0	400.0	400.0	30.0	0	451.0	
	Res New / Upgrades	125.0	50.0	0	10.0	4,000.0	4,100.0	100.0	0	0	0	
	GWTP Renewals	2,878.5	2,040.0	1,960.0	484.9	20.0	100.0	220.0	0	0	532.0	
	GWTP New / Upgrades	520	50.0	125.0	1,051.0	0	0	50.0	0	0	0	
TOTAL		8,058.4	6,489.3	6,846.8	6,475.20	8,169.6	7,263.40	4,087.50	3,390.4	3,352.0	4,787.8	58,920.40
Gracemere	Reticulation Renewals	55.0	5.4	5.7	6.0	6.4	6.7	7.0	7.3	7.6	8.0	
	Reticulation New / Upgrades	1,259	950.0	1,099.0	0	500.0	1,265.0	2,000	2,000	0	0	
	WP Stn Renewals	0	0	0	0	48.0	0	0	6.6	0	0	
	WP Stn New / Upgrades	0	0	0	0	0	0	0	0	0	0	
	Res Renewals	0	0	0	0	0	0	0	0	0	0	
	Res New / Upgrades	0	0	0	1,500	1,500	0	0	0	0	0	
		1,314.0	955.4	1,104.7	1,506	2,054.4	1,271.7	2,007.0	2,013.9	7.6	8.0	12,242.7
Mt Morgan	Reticulation Renewals	522.2	522.5	522.9	523.2	523.5	523.9	524.2	524.5	524.9	525.2	
	Reticulation New / Upgrades	0	0	0	0	0	0	0	0	0	0	
	WP Stn Renewals	23.0	88.0	0	0	0	0	0	0	0	0	
	WP Stn New / Upgrades	92.0	72.0	0	0	0	0	0	0	0	0	
	Res Renewals	0	0	0	0	0	0	65.0	0	0	35.0	
	Res New / Upgrades	60	0	0	0	0	0	0	0	0	0	
	Mt Morgan WTP Renewals	64	40	0	0	0	0	0	11.0	0	22.0	
	Mt Morgan New / Upgrades	531	60	0	0	0	0	0	0	0	0	
Total		1,292.2	782.5	522.9	523.2	523.5	523.9	589.2	535.5	524.9	582.2	6,400.0
Overall Total (000)		10,664.6	8,227.20	8,474.40	8,504.4	10,747.50	9,059.00	6,683.70	5,939.80	3,884.50	5,378.00	77,563.20

5.2 The Gracemere component of the Rockhampton Water Supply Scheme

5.2.1 Asset Information

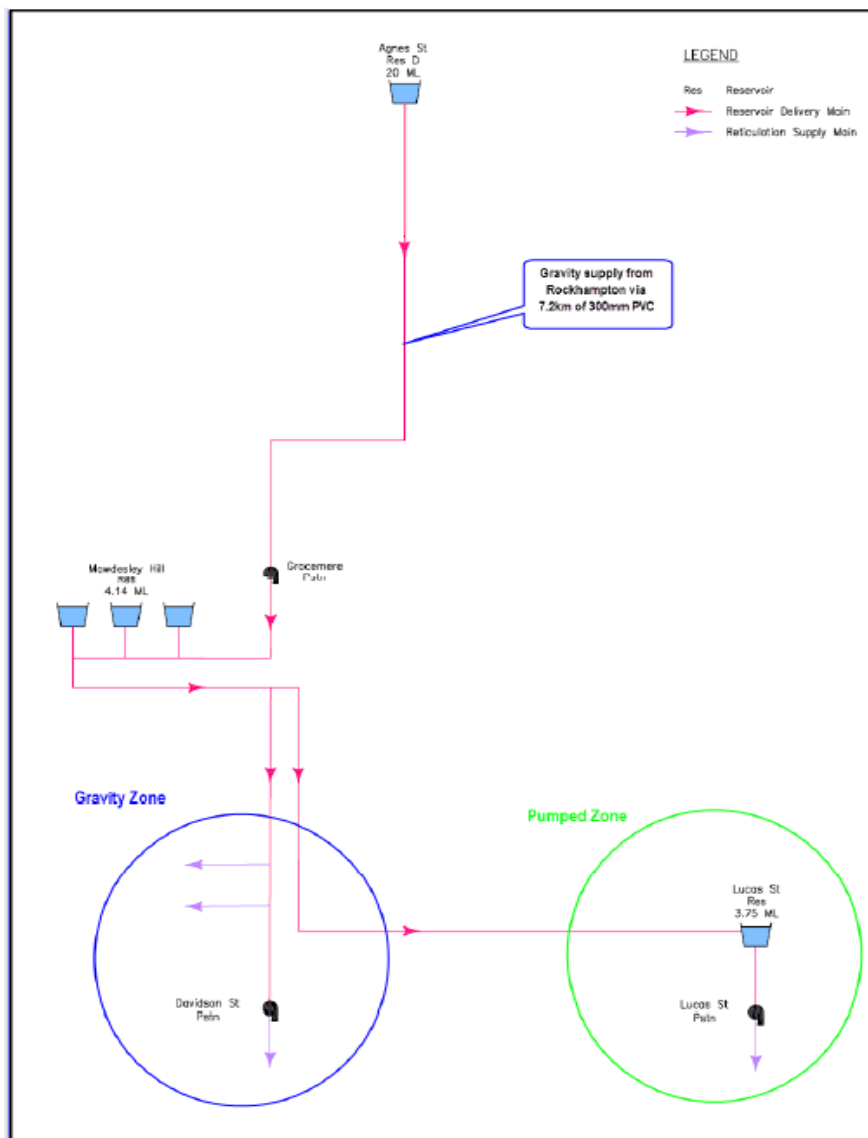
The Gracemere component of the Rockhampton Water Supply Scheme was created in 1972. Treated water is supplied from the Rockhampton Athelstone Reservoir D and gravity feeds a distance of approximately 7km to Gracemere where it is then pumped into three (3) reservoirs located on Mawdesley Hill. These reservoirs provide a gravity service to approximately half of the town and also supply the Lucas St reservoir, that provides a pumped service to the remaining part of the town.

Over the last 6 years the area has undergone significant growth, increasing from 1700 properties to approx. 3700 today, resulting in the expansion and upgrading of the network to meet the extra demand.

Table 5.23 Gracemere Assets Information

Asset Type	Asset Parameters
Treatment Plant	<i>Glenmore Water Treatment Plant (Treatment Capacity 120 ML/day, Inst 1971)</i>
Pump Stations	<ul style="list-style-type: none"> • Davison St (WP41), Pumps 1 x 7.5 kW, 2 x 2 kW, Inst 2001 • Lucas St (WP43), Pumps 4 x 22 kW, Inst 2004 • Old Capricorn Hgway (WP42), Pumps 2 x 22 kW, Inst 1990
Reservoirs	<ul style="list-style-type: none"> • Mawdesley Hill Res x 3 (WR 1, 1 ML Inst 1972; WR2, 1.5 ML Inst 1986; WR 3, 1.5 ML Inst 1993) • Lucas St Res, (3.75 ML, Inst 2004)
Pop Served	<ul style="list-style-type: none"> • 9799
Length of Retic	<ul style="list-style-type: none"> • 98.9 km

Figure 5.24 Gracemere Water Network Plan



5.2.2 Levels of service Performance

Pressure / Flow

Gracemere’s rapid growth has resulted in some parts of the network not having sufficient capacity to meet current flow and pressure LOS, an extension of the network has been planned and features in the LTFP.

Reticulation Asset Condition

The reticulation network was installed from 1972, and can thus be considered as new, only a few breaks were recorded to date. The earliest mains are programmed for replacement in 2030.

5.2.3 Asset Valuation 2014

The summary table below sets out replacement costs for asset types in Gracemere where assets will reach the end of their life in the next 10 years. The remaining lives of each asset were calculated after a site inspection and condition grading from 1-10 or an assessment based on the age of the asset.

Table 5.24 Asset Valuation 2014 Expired Assets next 10 years

Asset Type	Length/No	Replacement Cost (\$)	Notes
Water meters	1	\$ 500	20 mm dia
Pump Stations		\$21,600	Mech/Elec assets
Reservoir		\$63,000	Elec/Mech assets
Effluent reuse		\$30,000	
Total		\$115,100	

5.2.4 Operations and Maintenance of the Gracemere network

Reactive Maintenance

FRW is responsible for the required reticulation, pump and treatment maintenance work in Gracemere. Reactive or unplanned maintenance is conducted for the Gracemere network in exactly the same way as for the other networks FRW is responsible for.

Planned Maintenance Process

FRW is responsible for planned maintenance works undertaken on the reticulation, treatment and supply assets in Gracemere, and these works are conducted in the same way as for the other networks FRW is responsible for.

5.2.5 Capital Works Plan

Introduction

The capital works plan applies to new assets to be acquired, assets to be upgraded and assets that have reached the end of its service potential, and now requires replacement. Refer to table 5.3.2 Summary of Renewal Expenditure below. Water pipes in Gracemere are relatively new with a large amount of Class D AC pipe installed in 1972. Based on the useful life of the pipe, significant expenditure is not required until 2030. Assets to be replaced in the next 10 years are meters, pump and control assets. Water meters were installed from 2001 and a budget has been allowed to replace them as they fail.

Gracemere has experienced rapid growth in the last few years and future capital works demand have been calculated based on growth in township water connections of 5% pa and the Gracemere Industrial area developing at the rate of five ha per year¹⁰. Table 5.3.3 Summary of New Capital Works below sets out New Works required improving the current capacity and performance of the network to meet current and future demand, security of supply, fire flow and minimum pressure levels of service.

Reticulation

Major new works required to improve the capacity of the scheme involve providing additional supply from Rockhampton to the existing 300-diameter water main and alleviating the limited existing storage in Gracemere. Over the next 2 years the Athelstone Reservoir to Gracemere, and the 300-diameter water main duplication will be completed to provide capacity for present and future needs. In 2016/17 a new main is to be installed in Johnson Rd in order to provide capacity to meet existing LOS. In the next 10 years, there are also a number of new reticulation mains to be laid to service the Gracemere Industrial area (GIA).

¹⁰ Refer to Gracemere Water Supply Scheme: Planning Document

Pump Stations

Upgrades are planned over the next 3 years to meet extra demand at two (2) pump stations. The pump stations at Lucas Street and Old Cap Highway are to have electrical and mechanical upgrades to increase their capacity. Old Cap Highway currently requires two (2) pumps going to meet current peak demand leading to problems if one requires maintenance. The upgrade addresses the security issue along with providing increased capacity.

Reservoirs

In 2017/18 work is to begin on a new duplicate 5 ML reservoir at Lucas St to alleviate the current limited storage capacity of 7.89 ML

Table 5.26 Gracemere Water Renewal Expenditure (10 - year plan)

Project ID	Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Gce Water Renewals; assets to be replaced at end of physical life											
	[R] Gce Meter Replacement	5,000	5,400	5,700	6,000	6,400	6,670	7,000	7,300	7,600	8000
	[R] Gce Old Capricorn Highway WPS Chlorine analyser (Asset ID 462553) AM					15,000					
	[R] Gce Davison St WPS Pumps x 2								6,600		
	[R] Gce Reservoir St Instrumentation/telemetry (686547)					33,000					
	[R] G W Reservoir Mawdesley Hill Roof Access Upgrade (Ops)	50,000									
	Total Expenditure	55,000	5,400	5,700	6,000	54,400	6,670	7,000	13,900	7600	8000

Table 5.27 Gracemere Water New / Upgrade Expenditure (10 – year plan)

Project ID	Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Gracemere Reticulation New, meet future and present levels of service due to growth											
	[U]-G WPS Old Cap Hgway mech & Elec upgrade			350,000							
	[N] G- W Main 150 mm Johnson Rd			160,000							
	[N] G W Main (Trunk) 300 mm Mawdesley Hill Res to Lucas St Res							2,000,000	2,000,000		
	[N] G – W- Main 200 mm Lawrie St Gce		150,000								
	[N] R- W Main (Trunk) 300 mm Athelstane to Gracemere duplication	1,000,000	800,000	589,000							
	[U] - G WPS Lucas St (Gce) Upgrade pump capacity and isolators	159,065									
	[N] –G W Res 5ML Lucas St Reservoir duplication				1,500,000	1,500,000					
	[R] – G W Res Kabra (Gce) Potable Water Supply agreement	100,000									
Total		1,259,065	950,000	1,099,000	1,500,000	1,500,000	0	2,000,000	2,000,000	0	0
Gracemere Reticulation New, meet future levels of service in Gracemere Industrial area											
	[N] – R GIA Stg 2 – W Main (Trunk) 300 mm Douglas St between Macquarie and Stewart (Plan) Wat 2						765,000				
	[N] G-GIA Stg 4 – Wmain (Trunk) 200 mm & 300 mm Ring main extn (Plan) WAT 3 & WAT 5					500,000	500,000				
Total		0	0	0	0	500,000	1,265,000	0	0	0	0

5.3 Mount Morgan Water Supply Scheme

5.3.1 Asset Information

The Mount Morgan Water Supply Scheme was constructed in 1948. In 1952 the Fletchers Creek water supply system was developed and was at that time Mt Morgan's sole source of water supply. The Mt Morgan Gold mining company in 1900 constructed a concrete dam across the Dee River. In 1992, ownership of the dam was transferred to the Mt Morgan Shire Council and became the Council's primary water supply. In order to secure a more reliable and sustainable water supply for the township of Mt Morgan the No 7 dam was raised 4.5 m in 1999.

Table 5.28 Summary of Water Supply Infrastructure for Mount Morgan

Scheme Name	Mount Morgan Water Supply Scheme
Source	Dee River – Allocation 584 ML/annum (Total with Fletcher Creek) Fletcher Creek Weir – Order in council (06/02/1986) to take 700 ML/annum
Treatment Plant	Process: AQUAPAC Package Plant that incorporates coagulation, flocculation and gravity filtration in a single tank system: further, pH correction and disinfection Capacity = 2.6 ML/d
Reservoirs	Qty 2 Capacity 5.0 ML
Pump Stations	10 (Conquest) plus 6 bore pumps at Fletcher Creek
Length of Mains and Common Services	74.15 km (incl. effluent mains)
No. of connections	1459
Population Serviced	3133
Average water Consumption per day	1398 kL/day

Figure 5.29: Schematic Representation of the Treatment Process at the Mount Morgan WTP.

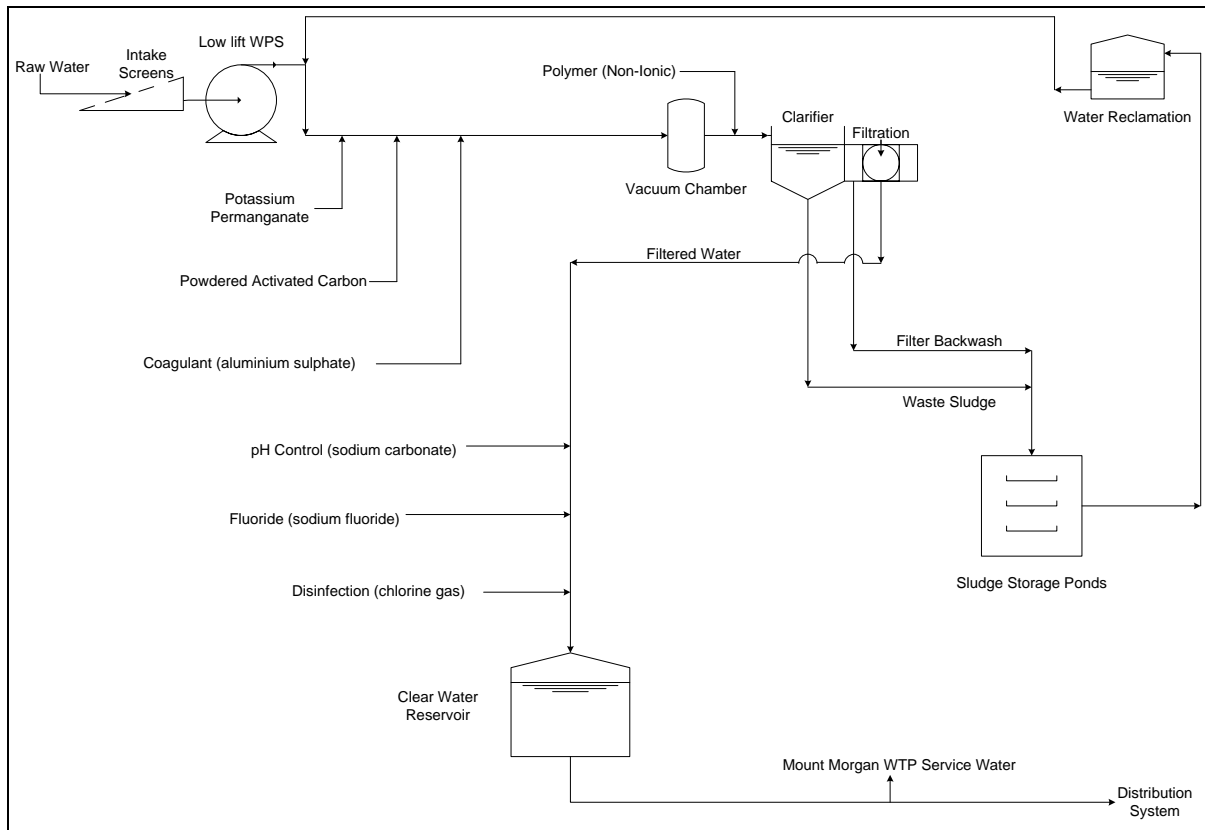
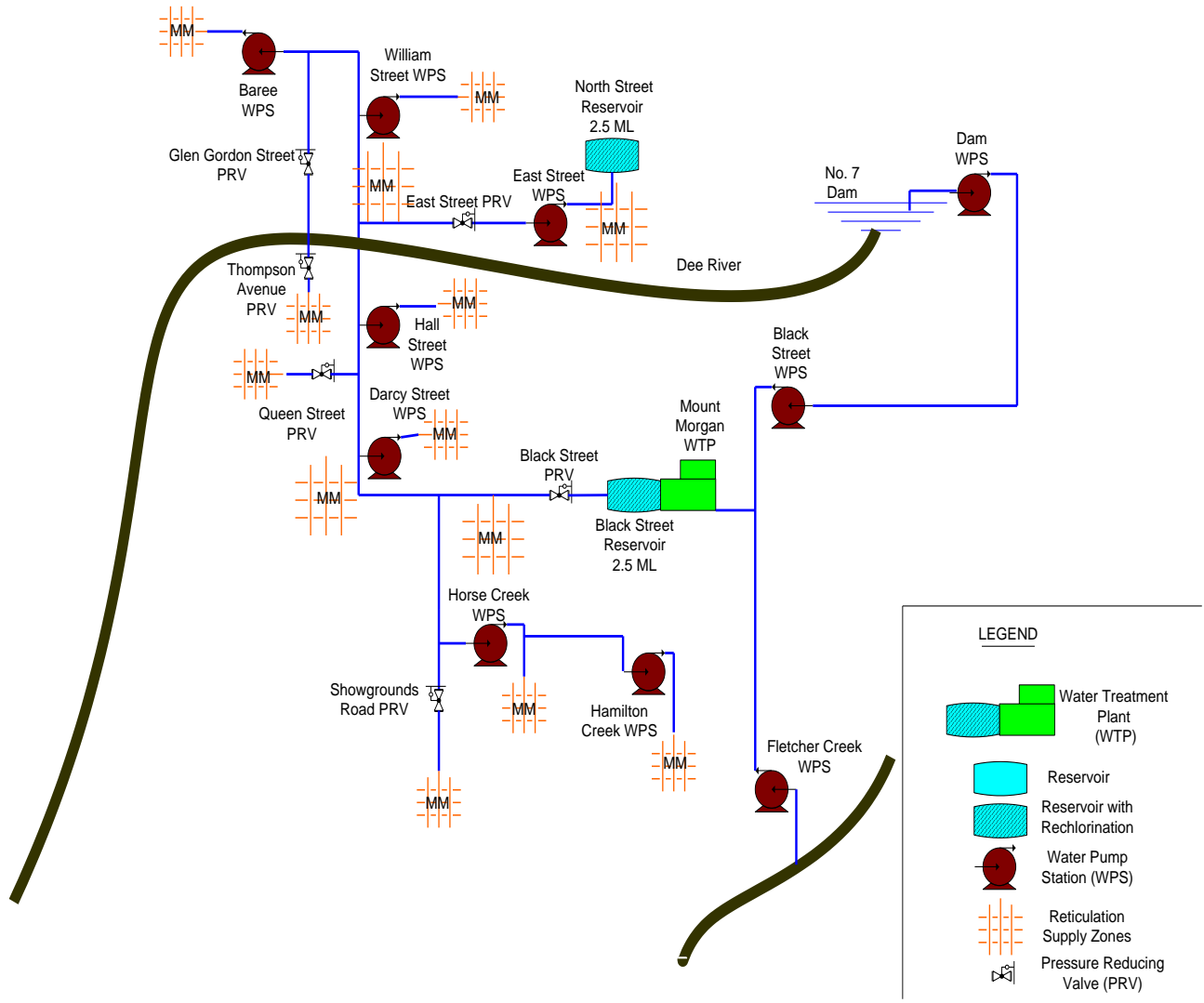


Figure 5.30 Mount Morgan Water Supply Scheme Schematic



5.3.2 Levels of Service Performance

Reticulation

In Mount Morgan the water supply reliability target of less than 12% of customers having one interruption per year was exceeded in 2014/15 (CSS4, actual amount of customers 24%). In many cases, interruptions were caused by water main breaks. Mt Morgan also had excessive rates of unplanned interruptions compared with planned interruptions in 2013/14 i.e. % of planned vs. total interruptions (CSS5 target > 30 % and Rockhampton network 14% and Mt Morgan 24% indicating low planned interruptions when compared with higher unplanned).

Many of the unplanned interruptions relate to water/service breaks that will be addressed in the 2015/16 capital water main replacement program. One of the reasons for the high number of unplanned interruptions in the network is the Class B AC water mains (17 km remaining), which was laid in 1948/49 and is now in poor condition. The AC pipes have been laid in clay soils with little or no bedding material leading to bending stresses on the pipe due to soil movement and frequent breaks.

The number of recent breaks on these pipelines indicates the condition is such that they have reached the end of their useful lives and their asset lives have reduced. In 2013/14 the LOS target for number of unplanned incidents per 100km of main in Mt Morgan was exceeded (target < 30, actual 39). While the LOS target for water main breaks per 100km of main was not exceeded (target < 40, actual 32) the number per 100km exceeded the Rockhampton / Gracemere figure per 100km.

Table 5.31 Mt Morgan Water main materials

Material	Length (km)	Installation Period
AC	16.848	1948
M PVC	14.9	2009-current
CICL	9.631	1948-52
Galv	1.301	1975
MSCL	7.394	1952
PE	8.698	1980-2012
PVC	11.941	1992-2006

Treatment

The Mt Morgan Water Treatment plant was commissioned in 1994. The Mount Morgan WTP produces drinking water of a slightly lower quality than the Glenmore WTP although the Australian Drinking Water Guidelines are consistently met, the plant can also meet demand.

Source

Mt Morgan has two (2) supply sources. The main one is the No 7 dam. The dam has had a very infrequent and unreliable supply, that necessity a backup supply source, which is Fletchers Creek, which is not utilised now, but has been maintained such that in an emergency it could be re commissioned.

5.3.3 Asset Valuation

The summary table 5.32 below sets out replacement costs for asset types in Mt Morgan where assets will reach the end of their life in the next 10 years. The remaining lives of each asset were calculated after a site inspection and condition grading from 1-10 or an assessment based on the age of the asset.

Table 5.32 Mt Morgan Asset Valuation 2014

Asset Type	Length/No	Replacement Cost (\$)	Notes
Water mains	13,821	3,760,229	AC pipe
Pump Stations		182,480	Pumps / Elec assets
Reservoir		100,000	Mech assets
Fletcher Creek Bore system		597,000	
Treatment		33,000	Chemical dosing
Total		4,672,709	

The register identified 13.8km (actual total of all AC in register is 16.8 km) of AC pipe requiring replacement in the next 10 years at a cost of \$3,760,229. \$5,200,000 have been allocated over the next 10 years to replace this part of the network.

5.3.4 Operations and Maintenance Plan

Table 5.33 below is the projected Operations and Maintenance Expenditure for the Mt Morgan Water network over the next 3 years by activity. The major components of operating cost are:

- Salaries and Wages
- Overheads on salaries and wages
- Materials/Chemical/energy
- Contracts
- Accommodation
- Items expensed rather than capitalised and pensioner remission costs

Operating expenditure is increasing 5.2 % per year to allow for new contributed assets.

Table 5.33 Mt Morgan Water Operational Expenditure (3 Yrs)

Activity	2015/16	2016/17	2017/18
Reticulation	170,487.99	179,353.37	188,679.74
Pump Station	89,600.94	94,260.19	99,161.72
Treatment	279,104.25	293,617.67	308,885.79
Reservoir	31,167.20	32,787.89	34,492.86
Supply sources	78,847.95	82,948.04	87,261.34
Other	0	0	0
Total	649,208.33	682,967.16	718,481.45

Reactive Maintenance

Reactive maintenance is conducted by FRW, and is done the same as for all the other networks.

Planned Maintenance

Planned Maintenance work undertaken on treatment and supply assets is completed in the same manner as for all the other networks.

Examples of inspections and Planned maintenance undertaken for the Mt Morgan supply scheme assets are:

- Monthly Reservoir Inspection (monthly) (check security, roof, stairs, free chlorine level)
- Water Pump station and Reservoir Inspection (3 monthly) (Check valve operation, check pressure in Pressure tanks, Grease motors/pumps, check pump seals)
- Dam safety inspection programme (regular condition and safety inspections are undertaken at No 7 dam. These regular asset inspections ensure remedial works are undertaken on a planned and regular basis.

5.3.5 Capital Works Plan

Renewal / Replacement Plan

Water Mains

Since the 2008/09 financial year, approx. 15km of AC pipe has been replaced with mPVC. In order to improve the reliability, comply with Service level requirements and reduce pipe breakage rates, the program of replacement of all AC water lines will continue over the next 10 years. The program has been going for a few years, and AC pipes will be replaced over the next 10 years at a rate of 1.7km (the replacement cost is approx. \$300/m). House services will be renewed at the time the mains are replaced. In 2015/16, a further 1.7km will be replaced at a cost of \$520,000.

Priority is given to mains where modelling indicates improvements to flow rates and fire capacity in the network through the upgrade.

Water Meters

Water meters were installed in Mount Morgan in 1997. Refer to Table 5.35 below Summary of Renewal Expenditure. The LTFP has an ongoing funding allocation (for the 2015/16 financial year onwards) for the replacement of water meters as they fail.

Water Treatment Plant

The Mt Morgan Water Treatment Plant was commissioned in 1994. Assets to be replaced over the next three (3) years have either reached the end of their physical life and require replacement or are not performing to the required standard.

The chemical dosing pumps are to be replaced with pumps that offer more reliability and will be able to be monitored trended and controlled remotely if required. Other assets to be replaced include the inlet flow meter and the media in the filtration system.

New / Upgrades Plan

Table 5.36 Summary of New Works Expenditure sets out New Works required to improve existing assets beyond their current capacity or performance due to an anticipated future need.

Water Treatment Plant

The current water treatment plant does not minimise the risk posed by Giardia and Cryptosporidium protozoa and in 2015/16 a UV disinfection unit will be installed to minimise the risk. Also in 2015/16, the sludge and backwash lagoons are to be modified and lined to provide more capacity and performance from the lagoons.

Water Pump Stations

In the next three years there are critical water pump station assets that require upgrades in order to ensure their reliability. The No 7 dam switchboard is to have a security upgrade and the Fletcher Creek WPS is to have an electrical and mechanical upgrade in the event it is required in the future. The Black St WPS shed is to be replaced in 2016/17. The current shed is an old shipping container with inadequate flooring and ventilation resulting in operational issues such as overheating of components.

Table 5.35 Summary of Renewals Expenditure – Mount Morgan Water Supply

Project ID	Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Mt Morgan Watermain Renewals; AC Watermains installed 1948, condition poor and regular breaks effecting reliability LoS											
0581020	[R] M-Water Main Replacement Program	520,000	520,000	520,000	520,000	520,000	520,000	520,000	520,000	520,000	520,000
0581074	[R] M-Water Meter Replacement	2,200	2,500	2,900	3,200	3,500	3,900	4,200	4,500	4,900	5,200
	[R] M WTP Inlet Flow Meter Renewal	10,000									
	[R] M WTP Chemical Dosing Pump and Pipework Upgrade	30,000									
	[R] M WTP Filter Refurbishment and media replacement	40,000									
	[R] M WTP Clarifier Structural Refurbishment		50,000								
	[R] M WPS Fletcher Creek Electrical Re-commissioning		50,000								
	[R] M WPS Barea WPS Electrical Upgrade		60,000								
	[R] M Mt Morgan Res 2 Mech (Ass ID 1032687) (AM)							65,000			
	[R] M WTP Chemical tank agitator (Ass ID 1032681)								11,000		
	[R] M Mt Morgan Res 1 Mech (Ass ID 1032571)										35,000
	[R] M WTP Chemical Dosing Pumps (Ass ID 1032680)										22,000
Total		602,200	682,500	522,900	523,200	523,500	523,900	589,200	535,500	524,900	582,200
Project ID	Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Mt Morgan New Works; Reliable long term Water Supply, Currently No 7 Dam and back up Fletchers not able to meet demand in a drought period (NB Moved outside 10 yr financial plan											
	[N] M W Long Term Water Supply Construction (Plan) Moved outside 10 yr period										
	[N] M W Long Term Water Supply Design, survey, land acquisition (Plan)	50,000									
Total		50,000									

Table 5.36 Summary of New Works Expenditure – Mount Morgan Water Supply

Project ID	Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Mt Morgan WTP New / Upgrade Works; UV installation to protect against protozoa, improve performance capacity at sludge lagoons , improve performance at WTP											
	[N] M WTP UV Disinfection Installation	150,000	-								
	[N] M WTP Sludge and backwash pond modification and lining	100,000									
	[N] M WTP Clarifier Access upgrade	40,000									
	[N] M WTP Filter to waste function installation		50,000								
	[N] M WTP Installation of clarifier sludge blanket level sensor	15,000	-	-	-	-	-	-	-	-	-
	[U] M WTP Site Physical Security Upgrade (Op)	100,000									
	[N] M WTP Site Access and drainage upgrade (Op)	100,000									
Total		505,000	50,000	0	0	0	0	0	0	0	0
Project ID		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Mt Morgan New / Upgrades Work Res / WPS; improve performance											
	[U] M W Reservoir South Roof access upgrade (Op)	60,000									
	[U] M WPS No 7 Dam Switchboard Security UG (Op)	15,000									
	[U] M WPS Black St WPS Shed Renewal (Op)		50,000								
	[N] M WPS East St Ext Electrical and Comms UG (Op)	60,000									
Total		135,000	50,000								

6. Financial Summary

6.1 Capital Expenditure

The total expenditure for the next 10 years for water is set out below in Table 6.1. The total expenditure consist of Renewal, Upgrade and New Works. The Capital Expenditure is funded from a combination of loans, transfers from reserves and development contributions.

6.2 Operating Revenue and Expenditure

Operating expenditure is set out in Table 6.2 and is made up of Operations, Maintenance Management and Administration (corporate overheads), Depreciation (providing for renewals) and interest expenses. Revenue to fund operational expenditure is also set out in Table 6.2.

6.3 Funding for Sewerage capital Expenditure

The funding sources for sewerage capital expenditure are set out in Table 6.3 below.

Table 6.1 Summary Capital Works Expenditure Water (\$000)

		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
Rockhampton	Renewal	6,159.4	4908.3	4,883.8	4,355.3	4,077.6	3,143.4	3,937.5	3,390.4	3,352.0	4,787.8	
	Upgrade	1,217.0	621.0	773.0	395.0	92.0	120.0	150.0	0	0	0	
	New	682.0	960.0	1,190.0	1,725	4,000.0	4,000.0	0	0	0	0	
Total		8058.4	6,489.3	6,846.80	6,475.3	8,169.60	7,263.4	4,087.5	3,390.4	3,352.0	4,787.8	
Gracemere	Renewal	124.5	5.4	5.7	6.0	54.4	6.7	7.0	13.9	7.6	8.0	
	Upgrade	89.5	0	280.0	0	0	0	0	0	0	0	
	New	1,100.0	950.0	819.0	1,500.0	2,000.0	,1265.0	2,000.0	2,000.0	0	0	
Total		1,314.0	955.4	1,104.7	1,506.0	2,054.4	1271.7	2007.0	2,013.9	7.6	8.0	
Mt Morgan	Renewal	609.2	650.5	522.9	523.2	523.5	523.9	589.2	535.5	524.9	582.2	
	Upgrade	219.0	82.0	0	0	0	0	0	0	0	0	
	New	464.0	50	0	0	0	0	0	0	0	0	
Total		1292.2	782.5	522.9	523.2	523.5	523.9	589.2	535.5	524.9	582.2	
Total (\$'000)		10,664.60	8,227.20	8,474.40	8,504.50	10,747.50	9,059.0	6,683.70	5,939.80	3,884.50	5,378.00	77,563.20

Table 6.2 Operating Revenue and Expenditure (\$'000)

	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
REVENUE										
Water Rates and Charges	29,941	31,482	33,104	34,809	36,601	38,486	40,468	42,552	44,744	47,048
Income from other commercial services	1,323	1,378	1,436	1,496	1,559	1,625	1,693	1,764	1,838	1,915
Interest Revenue	137	190	198	228	261	267	288	414	669	1,085
Community Service Obligations & Competitive Neutrality Agreements	73	76	79	82	86	89	93	97	101	105
Non-Capital Grants and Subsidies	0	0	0	0	0	0	0	0	0	0
Other Revenue	154	158	162	166	170	175	179	183	188	193
Bulk Water Sales	3,619	3,746	3,877	4,012	4,153	4,298	4,449	4,604	4,765	4,932
Total Operating Revenue	35,246	37,030	38,855	40,793	42,831	44,940	47,170	49,615	52,305	55,278
EXPENDITURE										
Operations Expense	7,581	7,975	8,390	8,826	9,285	9,768	10,276	10,810	11,372	11,963
Maintenance Cost	0	0	0	0	0	0	0	0	0	0
Management and Administration	4,029	4,238	4,459	4,691	4,935	5,191	5,461	5,745	6,044	6,358
Depreciation	7,605	7,959	8,294	8,648	9,017	9,442	9,856	10,244	10,634	10,996
Total Operating Expenditure	19,215	20,173	21,143	22,164	23,237	24,401	25,593	26,799	28,050	29,318
EBIT (Excl Capital adj)	16,031	16,857	17,712	18,629	19,594	20,539	21,577	22,815	24,255	25,961
Interest Expense	1,703	1,405	1,287	1,140	951	751	540	339	290	273
Net Operating Profit (Loss)	14,328	15,452	16,425	17,488	18,643	19,788	21,037	22,476	23,965	25,687
ABNORMAL/CAPITAL RELATED REVENUE										
Capital Grants and Subsidies	0	0	0	0	0	0	0	0	0	0
Developer Contributions (Infrastructure charges)	851	878	1,156	1,185	1,214	1,245	1,276	1,308	1,340	1,374
Donated assets	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091
Funds from Disposal of Non current assets	0	0	0	0	0	0	0	0	0	0
Total Abnormal/Capital related Revenue	1,942	1,968	2,246	2,275	2,305	2,335	2,366	2,398	2,431	2,464
Total Operating Profit (EBIT + Inf Charges)	16,882	17,735	18,868	19,813	20,808	21,784	22,852	24,123	25,596	27,334
Taxable Income	15,179	16,329	17,581	18,673	19,857	21,033	22,312	23,784	25,305	27,061
Income Tax Payable	3,740	4,899	5,274	5,602	5,957	6,310	6,694	7,135	7,592	8,118
Operating Profit (After Tax, before abnormals)	10,589	10,553	11,151	11,886	12,686	13,478	14,343	15,341	16,373	17,569
Profit (Loss) after tax and incl. abnormals	12,530	12,521	13,397	14,162	14,990	15,814	16,709	17,739	18,804	20,033
Distributed Profit (Dividend Paid from Operating Profit)	9,044	7,882	7,502	7,171	6,811	6,454	6,065	5,619	5,157	4,624

Table 6.3 Funding for Water Capital Expenditure (\$'000)

	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
New Capital Works (2015 AUD):	3,683	2,170	2,654	3,425	6,000	5,265	2,000	2,000	0	0
New Capital Works (Indexed for CCI at 5.2% pa):	3,683	2,283	2,937	3,988	7,349	6,784	2,711	2,852	0	0
New capital works constructed	3,683	2,283	2,937	3,988	7,349	6,784	2,711	2,852	0	0
Donated assets	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091
TOTAL	4,773	3,373	4,028	5,078	8,439	7,874	3,801	3,942	1,091	1,091
Funded by:										
1. Subsidies & grants in relation to these works	0	0	0	0	0	0	0	0	0	0
2. Constrained Works Reserve	1,182	15	32	51	72	96	122	152	0	0
3. Donated assets	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091	1,091
4. Other reserves for the purpose	0	0	0	0	0	0	0	0	0	0
5. Loans raised	956	0	0	0	0	0	0	0	0	0
6. Internal loans	0	0	0	0	0	0	0	0	0	0
7. Depreciation funds from current & previous years	0	0	0	0	0	655	0	2,581	0	0
8. Revenue from current year used for capital purposes	1,544	2,268	2,905	3,937	7,277	6,033	2,589	119	0	0
TOTAL	4,773	3,373	4,028	5,078	8,439	7,874	3,801	3,942	1,091	1,091
	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Replacement Capital Works (2015 AUD):	6,982	6,057	5,820	5,079	4,748	3,794	4,684	3,940	3,885	5,378
Replacement Capital Works (Indexed for CCI at 5.2% pa):	6,982	6,372	6,441	5,914	5,815	4,888	6,349	5,618	5,827	8,487
Replacement capital works constructed	6,982	6,372	6,441	5,914	5,815	4,888	6,349	5,618	5,827	8,487
Loan redemption's	2,847	3,104	3,307	3,509	3,699	3,898	4,109	2,045	382	399
TOTAL	9,829	9,476	9,749	9,423	9,513	8,787	10,458	7,663	6,209	8,887
Funded by:										
1. Subsidies & grants in relation to these works	0	0	0	0	0	0	0	0	0	0
2. Disposal proceeds from non-current assets	0	0	0	0	0	0	0	0	0	0
3. Depreciation funds from current & previous years	7,605	7,959	8,294	8,648	9,017	8,787	9,856	7,663	6,209	8,887
4. Constrained Works Reserve	0	0	0	0	0	0	0	0	0	0
5. Loans raised	2,224	1,113	711	0	0	0	0	0	0	0
6. Shareholder equity/Contributions/Internal transfers	0	0	0	0	0	0	0	0	0	0
7. Revenue from current year used for capital purposes	0	403	743	775	496	0	602	0	0	0
TOTAL	9,829	9,476	9,749	9,423	9,513	8,787	10,458	7,663	6,209	8,887

6.4 Historical Capital Works Expenditure

Table 6.4 below is the historical water capital expenditure for Rockhampton Regional Council per property. It consists of renewal, new and upgrade works. RCC has invested considerably in replacing water mains over the last 8 years and in the last 2 years has invested large amounts in replacing original Water Treatment assets at the end of their life.

Table 6.4 Historical Capital Works Expenditure (\$/property)

Utility	2010-11	2011-12	2012-13	2013-14	2014-15	% change from 2012/13
RCC (\$ / property)	544	476	300	365		+ 17 %
RCC (total exp. \$'000)	14,857	14,182	8,899	12,367		

6.5 Capital Works Benchmarking against other Councils

Table 6.5 below is how RCC's capital works spending compares with other similar sized Councils in the surrounding area. RCC in 2013/14 spent more on capital works per property than other Councils. This is due to aging infrastructure requiring replacement and new works to meet growth. The level of investment is planned to remain the same for the next 10 years due to the amount of aged infrastructure remaining in the Water supply reticulation network. The level of investment and timing of New Works for the future is unknown as growth slows down.

Table 6.5 Benchmarking Capital Expenditure (\$/property)

Utility	2012-13	2013-14
FRW	300	365
MacKay Water	500	350
Wide Bay Water	310	300
Townsville Water	280	100
Livingstone Shire Council		90
Gladstone		80

6.6 Historical Operations and Maintenance Expenditure

Table 6.6 below is the historical Operational and Maintenance (includes administration) expenditure for Rockhampton Regional Council per property. Operational spending has been steady over the years with a 2.7% reduction in operating costs per property in 2013-14.

Table 6.6 Historical Operational Expenditure (\$/property)

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14 ¹¹	% change from 2012/13
FRW (\$ per property)	329	329	250	339	335	326	-2.7%

6.7 Operations and Maintenance Benchmarking against other Councils

Table 6.7 below is how RCC's operational expenditure compares with other similar sized Councils. FRW spends less than other Councils in the area on operations do. Water service providers with cost reflective pricing, supported by more effective and efficient systems will have lower operating costs and thus provide better value for money to their customers. However, it is difficult to compare Councils as a number of factors such as the topography and location of the water supply, density of connected properties and age and condition of assets all have an effect on operational costs.

¹¹ From Queensland Urban Potable Water and Sewerage Benchmarking report 2013/14

Table 6.7 Benchmarking Operational Expenditure (\$/property)

Utility	2012-13	2013-14¹²
FRW	335	326
Mackay Water	600	700
Wide Bay Water	400	400
Townsville Water	420	530
Livingstone Shire Council		635
Gladstone		1250

¹² From Queensland Urban Potable Water and Sewerage Benchmarking report 2013/14

7 Asset Management Practices

7.1 Asset Management Systems

The main data to assist with Asset Management decisions is documented in Councils Asset Management system Conquest. Conquest is the corporate wide asset management system, and contains the Water and Sewer register for renewal planning, valuation and maintenance management. Capital Works projects for different Asset classes are also stored in Conquest. The Asset hierarchy in Conquest for Active assets has been set up for reporting purposes and to guide Maintenance Management.

Table 7.1 Water Pump Station Treatment Plant Hierarchy in Conquest

Asset Type	Process Level Asset	Component	Sub Component	
Water Pump Station	General Site	Perimeter Fence		
		Gates		
		Access Roads		
		External valves		
		Pipework		
		Building		
		Chamber		
	Power Supply	Ext Power Supply		
	Water Pumping	Pump Set 1		Pump1
				Non Return valve
				Isolation Valve
			Isolation Valve	
		Pump Set 2		Pump 2
				Non Return valve
			Isolation Valve	
			Isolation Valve	
			Switchboard	
			Pressure Tank	
		Mag Flo meter		
	Control and Instrumentation		Pump Control 1	
			Pump Control 2	
			Telemetry	SCADA
				PLC
			Antenna	
			VSD	
		Switchboard		
Water Treatment Plant	Raw Water Process			
	Coagulation Process			
	Flocculation Process			
	Sedimentation Process			
	Filtration Process			
	Chemical Process			
	Pumping Systems			
	General Site			

Water Reticulation Assets in Conquest are the Water Mains and Water Meters. Hydrants, service connections and valves are maintenance assets in Conquest. Hydrants and valves are being populated from GIS to Conquest to allow inspections to be loaded against them. Meters have been valued at a high level according to quantity, diameter and year installed. Individual meters will be loaded as maintenance assets under the valuation parent. This is in the improvement plan below. Once populated all service connection maintenance information for the property will be documented against the meter.

Other sources of Asset management data are:

- GIS (ArcMap) has all reticulation assets shown spatially as well as point assets for all structures such as pump stations and treatment plants.
- FRW utilises Experion software in Rockhampton and RS View software in Mt Morgan (to be replaced with Experion in 2015/16) as its SCADA system software to monitor and control the network.
- Council's corporate customer service system is Pathways. Pathways stores FRW's Customer service data and is used to report on Customer Service Key Performance indicators.
- When planning renewals information such as, expiry date (from valuation) and breakage records stored in Conquest against assets to be utilised for planning
- Maintenance actions are saved against assets in Conquest and provide a maintenance history for planning works. Each month FRW reviews a report showing completed reactive/planned actions and uncompleted actions. The reports allow them to measure the mix of planned and reactive maintenance and also monitor resources to ensure there are adequate resources to deal with all the maintenance requirements.

7.2 Accounting/Financial Systems, Expenditure types and Standards

- *Accounting Systems:* Councils corporate financial system is Finance 1. Capital Works job numbers are created in Conquest. The Asset ID of the capital job in Conquest becomes the job number. Capitalisations are carried out in Conquest against component assets and total values journal in Finance 1 against the financial function e.g. Water mains. Valuations are also stored in Conquest against assets and reconciled with Finance 1 values against Financial Functions.
- *Expenditure Types:* Renewals and new works expenditure is capitalised when the value is above the capitalisation threshold set out in Table 7.2 below from Section 224 (8) Local Government Regulation 2012.

Small value assets below the capitalisation threshold can be capitalised as network assets by combining them into one significant asset. Valves and hydrants for valuation purposes are valued as part of the water main.

Table 7.2 Capitalisation Thresholds

Asset Class	Capitalisation Threshold
Land	\$1
Buildings	\$10,000
Plant and Equipment (including Information Technology Equipment)	\$5,000
Road Infrastructure	\$10,000
Stormwater Drainage	\$10,000
Bridge Assets	\$10,000
Water Infrastructure	\$10,000
Sewerage Infrastructure	\$10,000
Airport Infrastructure	\$10,000
Site Improvements	\$10,000
Heritage and Cultural Assets	\$10,000
Intangible Assets	\$10,000

- *Financial Standard:* The standard that is most appropriate to Infrastructure assets is the Australian Accounting standard for Property, Plant and Equipment (AASB 116). Its main aim is to ensure that all assets are appropriately recognised and valued in asset registers in order to ensure that the carrying amounts are accurate, depreciation charges are determined as are any impairment losses.
- *Types of data/information on assets to help AM decision-making:* Criteria used for pump stations and treatment plant component replacements are age, material and maintenance history obtained from Conquest.¹³ Criteria used for water main replacement is age, blockage history and condition data from CCTV records.

The levels of service in section 3 of this plan have targets of performance for FRW. These Levels Of Service are measured from information in Pathways and Conquest in order to obtain actual performance.

FRW operates two Scada systems to monitor and control water supply and sewerage schemes. Set alarm values on the normal operating conditions on assets provide indicators on whether equipment is about to fail, has failed or had been deteriorating.

- *The quality/reliability/adequacy of data:* The reticulation data in Conquest was in 2013/14 reconciled with GIS (Arc GIS). Sewer gravity main and rising main assets from Conquest had a one to one match with assets in GIS. All assets for these two (2) types in GIS have a Conquest ID (Asset ID field) and in Conquest the GIS ID and Layer name for the corresponding asset has been populated. As part of the reconciliation, the spatial length from GIS has been adopted as the length for both databases and they have been updated. The accuracy checking of other key attributes is ongoing. There are inaccuracies in key attributes such as material, diameter and date of installation.

Assets have been assigned a data and object integrity rating according to the source of the data e.g. highest object/data integrity would go to surveyed objects with an As-constructed drawing. Inaccuracies in the database are picked up in a number of different ways. When mains repairs are carried out day works sheets are filled in the field with existing material, diameter details. These are then put into the action against the asset allowing a comparison with what is in the databases. Details of material and diameter are also recorded as part of the CCTV of sewers allowing a comparison between databases. The process of adding new and replaced assets to both databases is now robust enough to ensure assets do not get out of alignment. Refer to GISConquestReconciliation.doc for process details.¹⁴

¹³ Refer to document saved in O\FinBus\Finance\Assets\Asset Management\AM\Assets\Water & Sewer\7 Final Documents\Water Sewer Pump Stn Replace Program Procedure

¹⁴ Saved O\FinBus\Finance\Assets\Asset Management\AM\Assets \Water & Sewer \GISConquestReconciliation.doc

- *What processes are used to make decisions on AM, replacements/renewals and acquisitions?* The renewal/replacement program in this Asset Management Plan has come after a review from both the Operational and Asset Management teams. The Asset Management team developed a list of assets due to expire in the next 10 years from Councils asset register (see Councils adopted useful lives in valuation section above).

The next factor looked at is the condition of the expired assets through analysing the components maintenance and inspection history to identify particular failure modes that will indicate if the component is at the end of its useful life. Next, the criticality is considered in order to prioritise the replacements¹⁵. Finally, the list is then provided to Operations staff to include Projects where the Performance of the asset is not meeting levels of service and the asset requires replacement earlier than its adopted useful life.

Life Cycle costing is taken into consideration when making capital works decisions involving a number of different options.

7.3 Standards, Guidelines and Plans

- The Capricorn Municipal Development Guidelines have standard drawings for water and sewer construction and allowable materials and standards for water and Sewer construction in the Rockhampton Region.
- Asset Design As Constructed (ADAC) specifications has been implemented to manage the populating of Council Asset Registers with Contributed Assets. The process will also be applied to future internal projects in the near future. The process involves developers providing water and sewer asset data from subdivisions in an XML file format that can also be used to populate Conquest and GIS asset tables. The data provided is accurate through inbuilt checking and is consistent through developers providing specified data.
- The operating procedures, standards and specifications followed by the Operational Manager (FRW) features in Table 7.3

Table 7.3: Operational policies, strategies, and procedures

Document	Date Completed	Date Updated	Status	Comment
Drinking Water Quality Management Plan	2011	2011 submitted	Updated annually	Plan dated, water quality targets to be replaced by KPI's
Maintenance Management Strategy Plan for Treatment and Supply	2005	Draft 2014	Is implemented and utilised, pending a few changes it can be implemented as an Operational direction	Contains reactive, planned and condition maintenance strategies. Also includes a list of preventative maintenance activities for all treatment and supply active asset types.
Water Asset Management Plan	2005	2015	Draft plan to be completed in 2015	
Sewer Asset Management Plan	2005	2014	Draft to be completed in 2015	
Operating and Maintenance Manual NRSTP	1986		Plan is current	

¹⁵ Refer to document saved O / FinBus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/7 Final Documents/Water Main Replacement-Program Development and Water Sewer Pump Stn Replace Program Procedure

Document	Date Completed	Date Updated	Status	Comment
Operating and Maintenance Manual SRSTP Screenings System	1999		The plan is current but are in process of reviewing the plant with a number of changes likely to happen necessitating a new maintenance manual	
Operating Manual MMWTP	1993	2012	Update Completed	
Operating Manual MMSTP	2007	2012	Update Completed	

8 Improvement Plan

This section outlines the current Asset Management practices and systems used by FRW to support the recommendations in this plan, and also sets out target practices and systems that FRW are working towards.

The current and targeted practices are detailed under the following two functions.

- Information Systems and data: The data gathered shall support current Asset Management processes and information systems.
- Processes: The necessary processes, analysis and evaluation techniques needed to support effective lifecycle AM.

Table 8.1 Current Practices and Improvements

Activity	Current Practice	Target Practice
Conquest / GIS	Water mains, Water meters entered into GIS/Conquest and one to one match	
	GIS ID of asset entered into Conquest are not unique to the asset	GIS ID's are not unique, and GIS is working on one table with unique ID's for all assets
	Asset entered into GIS and then Conquest	Annually check that there is a one to one match
	ADAC process are used for contributed assets. Checked and XML data provided by developer for ease of entry into GIS	Utilise ADAC for both internal and contributed assets
	2 separate databases for Conquest and GIS	Link Conquest / GIS with one database
	Any differences in valuation attributes found on assets e.g. length, date of installation and then financially accounted for	Where change not material make change in GIS/Conquest and recognise financially at next revaluation
	Private works jobs entered into GIS / Conquest e.g. meter installed etc.	A backlog of private works to process
	Maintenance Assets entered as required into Conquest	Enter all Valves and Hydrants from GIS to Conquest
	Existing Attributes updated e.g. material, diameter when field work carried out e.g. fix a leak and detail comes back on day works sheets	
Works Management	Reactive Maintenance e.g. water main breaks comes in on day works sheets and then action created against asset. Same types of maintenance have unique action type for reporting. Action Attributes are filled in on day works sheet for putting in action e.g. break type, response times etc.	Accurate location of maintenance and ensure day works sheets have all fields filled in for inputting into Conquest

	Maintenance on service connections entered against service asset. Service connection database is incomplete in GIS	When meters entered into Conquest/GIS all service history to be saved against meters
	Planned Maintenance is scheduled in Conquest, and have an assigned action category e.g. Planned, Health and Safety for reporting. Description and notes from jobs are saved in action.	Inspection sheets scanned but not attached to action.
Valuation	Valuation data entered into Conquest against assets. Contributed assets annually added at unit rates. Internal jobs annually added at cost.	
	Any valuation assets found that have not been previously recognised are added to the register at their depreciated replacement cost.	
	Capitalising internal work for reticulation get As cons and RTK data. For active assets request information from Asset Manager	Close out reports from Asset Managers as projects are completed
Condition assessment	Use leakage history as an indicator of condition	Ensure get location of break right and provide details of type of
Renewals	Data for renewal planning from Conquest e.g. maintenance history, expired assets, material, age	

APPENDIX A: SUSTAINABILITY RATIOS

Ratio	Result	Calculation	Description
Asset Consumption	63 %	DRC/CRC	A relatively high ratio indicates assets overall condition is good (Looking for over 50%)
Rate of Annual Asset renewal	0.95 %	Average Capital Renewal Expenditure (10 Yrs) / DA	A measure of the rate at which assets are being renewed per annum expressed as a % of depreciable amount
Rate of Annual Upgrade/expansion	0.6 %	Average Capital New/Upgrade Expenditure (10 years) / DA	A measure of the rate of which assets are being upgraded/expanded per annum expressed as a % of depreciable amount
Annual Consumption of assets	\$9,419	DRC/Remaining Life	Measures how much need to fund annually for depreciation of assets
Asset Sustainability ratio	1.77	Yr1 Renewal Budget / Average expired assets	Ratio indicates weather are replacing assets at the same rate that asset stock is wearing out.
The 10 year sustainability index is	1.25	10 year Renewal Budget/Sewer assets expiring next 10 yrs	

Budget Expenditure	Total (\$000)
10 Year Renewal LTFP Budget	48,820
10 Year Upgrade/New LTFP Budget	28,743
10 Year Operations LTFP Budget	248,771
Total 10 Year Required Expenditure	326,334

Current Asset base	Total (\$000)
Current Replacement Cost (CRC)	526,133
Accumulated Depreciation	193,820
Fair Value (DRC)	332,313
Residual Value	9,536
Depreciable Amount (DA)	516,597
Annual Depreciation	9,419
Sewer Assets expiring in next 10 years	38,901

APPENDIX B: Water References

Documents (Saved O/FinBus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/7. Final Documents

- a) Water Sewer Pump Station Replace Program Procedure.doc (outlines process for generating 10 year program of Water/Sewer Pump Station replacement)
- b) Scope of Works Building Inspections FRW.doc (scope of works and schedule of FRW buildings inspected by Assets)
- c) Asset Register GIS-AMS Updating Process Final June 2012.doc (Process for updating FRW assets in GIS and then linking to Conquest)
- d) MaintenanceStrategyRev0001Rich.doc (Strategy for FRW Planned and Reactive Maintenance)
- e) 2014 Final Water Sewer Revalue Process and Future.doc (2014 Revalue Process for developing revaluation register and Capitalisation Process for updating register).
- f) Fitzroy RW Drinking Water Quality Management Plan Sep2011.doc
- g) FRWRegionalAssetsAug14final.xls (summarised detail on FRW assets e.g. length of mains, no of pump stations etc.
- h) FinalFRWRegionalPumpStnReplaceNov14.xls (Spread sheet with workings for pump station replacement)
- i) Surcharge Strategy Rocky.doc (surcharge strategy after ex Tropical cyclone Oswald flood, June 13)
- j) PopForecastsSept2014 – Based on 2011 Census data from Regional profile on Council website.
- k) State_Benchmarking-2013-14-Final (report compiled from SWIM data provided by Councils)
- l) Gracemere Water Supply Scheme Planning Reports 2007
- m) Copy of Copy of FinalWatermainReplaceProgramNov2014
- n) Draft Asset Management Policy 06022015V2Final (3) Jaco
- o) Water Main Replacement-Program Development
- p) GSIS Water and Sewer Study (Gracemere Stanwell Industrial Corridor Planning)

APPENDIX C: Acronyms and abbreviations

AC	Asbestos Cement (Pipes)
AMP	Asset Management Plan
MH	Manhole
ADWF	Average Dry Weather Flow
AMTD	Adopted Middle Thread Distance
BNR	Biological Nutrient Removal
BOD ₅	5-day Biochemical Oxygen Demand
CCTV	Closed Circuit Television
CI	Cast Iron (Pipes)
CICL	Cast Iron – Concrete Lined (Pipes)
CIUL	Cast Iron – Unlined (Pipes)
Cl ₂	Chlorine (elemental)
CPI	Consumer Price Index
CSO	Community Service Obligation
CSS	Customer Service Standard
dia.	Diameter
DICL	Ductile Iron – Concrete Lined (Pipes)
DN	Diameter Nominal
DO	Dissolved Oxygen
E. coli	Escherichia coli
EP	Equivalent Person
EPA	Environmental Protection Agency
FC	Faecal Coliforms
FCP	Full Cost Pricing
FCR	Full Cost Recovery
FRW	Fitzroy River Water
GRP	Glass Reinforced Plastic
GSTP	Gracemere Sewage Treatment Plant
GWTP	Glenmore Water Treatment Plant
HDPE	High Density Polyethylene
kg	Kilogram
kL	Kilolitre (1,000 L)
kL/d	Kilolitres per day
km	Kilometre (1,000 m)
kPa	Kilopascal (1,000 Pa)
L	Litre
L/s	Litres per second
m	Metre
MDPE	Medium Density Polyethylene
mg/L	Milligrams per litre
ML	Megalitre (1,000,000 L)
mL	Millilitre
ML/d	Megalitres per day
mm	Millimetre

MMSTP	Mount Morgan Sewage Treatment Plant
MMWTP	Mount Morgan Water Treatment Plant
mPVC	Modified Polyvinyl Chloride
MSCL	Mild Steel – Concrete Lined (Pipes)
N	Nitrogen
NRSTP	North Rockhampton Sewage Treatment Plant
NRW	Department of Natural Resources and Water
NTU	Nephelometric Turbidity Unit
oPVC	Oriented Polyvinyl Chloride
P	Phosphorous
Pa	Pascal
PAC	Powdered Activated Carbon
PBA	Public Benefit Assessment
pH	Power of Hydrogen
PLC	Programmable Logic Controller
Pstn	Pump Station
QCA	Queensland Competition Authority
QTC	Queensland Treasury Corporation
Res	Reservoir
RoC	Return on Capital
RRC	Rockhampton Regional Council
SAMP	ASSET MANAGEMENT PLAN
SCADA	Supervisory Control And Data Acquisition
SRSTP	South Rockhampton Sewerage Treatment Plant
SS	Suspended Solids
STP	Sewage Treatment Plant
uPVC	Unplasticised Polyvinyl Chloride
VSD	Variable Speed Drive
WRSTP	West Rockhampton Sewage Treatment Plant
WTP	Water Treatment Plant

WATER AND SEWERAGE ASSET MANAGEMENT PLANS

Asset Management Plan Sewerage 2015

Meeting Date: 4 November 2015

Attachment No: 3



ASSET MANAGEMENT PLAN SEWERAGE 2015



Rockhampton Regional Council
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TABLE OF CONTENTS

1.	<u>EXECUTIVE SUMMARY</u>	5
1.1	<u>SCOPE</u>	5
1.2	<u>COUNCILS SEWER ASSET PORTFOLIO (WHAT DO WE HAVE?)</u>	5
1.3	<u>LEVELS OF SERVICE (WHAT ARE THE EXPECTED SERVICE REQUIREMENTS?)</u>	6
1.4	<u>MEASURING THE ASSET PERFORMANCE (WHAT DO WE MEASURE TO KNOW HOW ARE SEWER ASSETS PERFORMING?)</u>	6
1.5	<u>MEASURING THE CONDITION OF FRW'S ASSET PORTFOLIO (HOW DO WE MEASURE THE CONDITION OF OUR ASSETS PORTFOLIO?)</u>	6
1.6	<u>HOW WILL THE ASSETS BE MANAGED THROUGH ITS LIFECYCLE?</u>	7
1.7	<u>COUNCILS FINANCIAL STRATEGY FOR SEWER ASSETS</u>	7
2.	<u>INTRODUCTION</u>	12
2.1	<u>BACKGROUND</u>	12
2.2	<u>GOAL AND OBJECTIVES OF ASSET MANAGEMENT</u>	15
2.3	<u>PLAN FRAMEWORK</u>	16
2.4	<u>CORE AND TRANSITION INTO ADVANCED ASSET MANAGEMENT</u>	16
2.5	<u>MANAGEMENT RESPONSIBILITY</u>	17
2.5.1	<i>The Asset Owner</i>	17
3.	<u>LEVELS OF SERVICE</u>	18
3.1	<u>INTRODUCTION</u>	18
3.2	<u>LEVELS OF SERVICE</u>	18
3.3	<u>LEGISLATIVE REQUIREMENTS</u>	18
3.4	<u>GAP ANALYSIS</u>	22
4.	<u>FUTURE DEMAND</u>	23
4.1	<u>DEMAND AND DEMOGRAPHIC CHANGE FORECASTING</u>	23
4.2	<u>DEMAND FORECAST</u>	24
4.3	<u>DEMAND MANAGEMENT</u>	25
4.4	<u>CHANGES IN TECHNOLOGY AND FORECAST EFFECT ON SERVICE DELIVERY</u>	26
5.	<u>LIFECYCLE MANAGEMENT PLANS</u>	27
5.1	<u>ROCKHAMPTON SEWERAGE SCHEME</u>	27
5.1.1	<i>Asset Information</i>	27
5.1.2	<i>Levels of Service Performance</i>	32
5.1.3	<i>Asset Valuation 2014</i>	35
	<i>Description of asset valuation Method</i>	35
	<u>COMPONENTS</u>	35
	<u>BASIS FOR DETERMINING EFFECTIVE LIVES USED FOR VALUATION</u>	36
	<u>KEY ASSUMPTIONS MADE IN PREPARING A VALUATION:</u>	36
	<u>SEWER MAINS REPLACEMENT PROGRAM METHODOLOGY</u>	37
5.1.4	<i>Operations and Maintenance Plan</i>	37
5.1.5	<i>Risk Management</i>	44
5.1.6	<i>Capital Works Plan</i>	48
5.1.6.1	<i>Capital Works activity types</i>	48
5.1.6.2	<i>Reticulation</i>	49
5.1.6.3	<i>North Rockhampton Sewage Treatment Plant</i>	53
5.1.6.4	<i>South Rockhampton Sewage Treatment Plant</i>	56
5.1.6.5	<i>West Rockhampton Sewage Treatment Plant</i>	59
5.1.6.6	<i>Sewer Pump Stations</i>	59
5.2	<u>GRACEMERE SEWERAGE SCHEME</u>	64
5.2.1	<i>Asset Information</i>	64
5.2.2	<i>Levels of Service Performance</i>	67
5.2.3	<i>Asset Valuation</i>	68
5.2.4	<i>Operations and Maintenance Plan</i>	68
5.2.5	<i>Capital Works</i>	69
5.2.6	<i>Summary of Expenditure – Gracemere Sewerage System</i>	71
5.3	<u>MOUNT MORGAN SEWERAGE SCHEME</u>	73
5.3.1	<i>Asset Information</i>	73

5.3.2	<u>Levels of Service Performance</u>	75
5.3.3	<u>Asset Valuation</u>	76
5.3.4	<u>Operations and Maintenance Plan</u>	76
5.3.5	<u>Capital Works Plan</u>	78
6.	<u>FINANCIAL SUMMARY</u>	80
6.1	<u>CAPITAL EXPENDITURE</u>	80
6.2	<u>OPERATING REVENUE AND EXPENDITURE</u>	80
6.3	<u>FUNDING FOR SEWERAGE CAPITAL EXPENDITURE</u>	80
6.4	<u>HISTORICAL CAPITAL WORKS EXPENDITURE</u>	84
6.5	<u>CAPITAL WORKS BENCHMARKING AGAINST OTHER COUNCILS</u>	84
6.6	<u>HISTORICAL OPERATIONAL AND MAINTENANCE EXPENDITURE</u>	84
6.7	<u>OPERATIONAL EXPENDITURE BENCHMARKING AGAINST OTHER COUNCILS</u>	85
7.	<u>ASSET MANAGEMENT PRACTICES</u>	86
7.1	<u>ASSET MANAGEMENT SYSTEMS</u>	86
7.2	<u>ACCOUNTING/FINANCIAL SYSTEMS, EXPENDITURE TYPES AND STANDARDS</u>	87
7.3	<u>INFORMATION FLOW REQUIREMENTS AND PROCESSES</u>	87
7.4	<u>STANDARDS, GUIDELINES AND PLANS</u>	88
8.	<u>IMPROVEMENT PLAN</u>	90
	<u>APPENDIX A: SUSTAINABILITY RATIOS</u>	92
	<u>APPENDIX B: SEWER REFERENCES</u>	93
	<u>APPENDIX C: ACRONYMS AND ABBREVIATIONS</u>	94

1. EXECUTIVE SUMMARY

1.1 Scope

The purpose of this AMP is to provide a long-term strategy for the management of the Sewerage network. A key objective of the plan is to provide a service at the agreed level in the most effective and efficient manner, for present and future generations.

This Asset Management plan follows on from the 2013 Strategic Asset Management Plan (SAMP). The contents of the SAMP complies with the requirements of the Local Government Act 2009, which require all Councils to develop Long Term Asset and Infrastructure plans for at least 10 years, and also to meet the requirements of S135-136 that requires a local government to prepare and adopt a long term Asset Management Plans to ensure the sustainable, efficient and effective management of all its infrastructure assets.

1.2 Councils sewer asset portfolio (What do we have?)

This AMP covers the Rockhampton, Gracemere and Mount Morgan Sewerage Schemes operated by FRW.

Table 1.1 FRW Sewer Asset Portfolio

Asset Type	Number/Length	Replacement Cost (\$)	Accumulated Depreciation (\$)	Fair value (\$)	Residual Value (\$)
Reticulation	696 km	201,806,640	99,137,179	102,669,461	
Pump Stations	54	20,891,731	9,089,961	11,801,771	
Treatment (NRSTP)		25,088,526	8,626,023	16,462,503	2,079,000
Treatment (SRSTP)		22,530,777	8,337,066	14,193,711	1,109,563
Treatment (WRSTP)		8,269,019	5,267,491	3,001,528	
Treatment (Gracemere)		7,850,370	2,431,082	5,419,289	1,861,908
Treatment (Mt Morgan)		1,343,670	285,000	1,058,670	156,000
Total		287,780,734	133,173,801	154,606,932	5,206,471

Fitzroy River Water (FRW) is a commercial business unit of Rockhampton Regional Council (RRC). FRW is responsible for the operation and maintenance of sewerage assets totalling approx. \$288M (replacement value March 2014) servicing a population in excess of 76,330.

In summary, the values are (2014 Revaluation):

- Current Replacement Cost : \$287,780,734
- Depreciated Replacement Cost : \$154,606,932
- Accumulated Depreciation expense : \$133,173,801

FRW assets have depreciated to 46% of the replacement value overall. Asset types that have depreciated the most are reticulation and treatment assets. These Asset Types have significant Capital Works planned in the next 10 years.

The earliest reticulation pipes installed in Rockhampton City dates back to 1936. The original pipe installed was Earthenware (EW), which is near the end of its physical life due to high blockage rates and infiltration problems. To date approx. 120km's were relined and a further 120km of EW pipe expires in the next 10 years. The standard of discharge from the West Rockhampton Treatment Plant has resulted in an investigation into alternative treatment options which have not been completed yet. The Gracemere network is relatively new and was installed from 1984. The Mt Morgan Sewerage Scheme was commissioned in 2006 and currently services an area around the CBD on the south side of the river. FRW is undertaking a prioritised extension of the sewer network to target those critical

properties with failing collection systems that would ultimately enable FRW to provide reticulated sewerage services to approximately 450 properties when completed.

1.3 Levels of Service (What are the expected service requirements?)

This AMP sets out FRW's LoS and performance targets in regards to these service standards. The service levels relate to Public Health/Environmental considerations, System Performance and Service Delivery. The LoS that are outlined in this Plan have been set in accordance with industry practice. The Water Supply (Safety and Reliability) Act 2008 requires FRW to report on its LoS annually and set out how it has performed against the LoS.

The following types of levels of service apply:

- **Community (Customer Levels of Service)**
Are from the perspective of how the customer receives the service. FRW has a number of water day to day continuity levels of service targets it endeavours to meet in order to provide a quality LOS to the customer.
- **Technical Levels of Service**
Are technical performance measures FRW uses to monitor its own performance relating to the reliability, quality and adequacy of supply. Where gaps occur in meeting LoS a capital works project may need to be implemented.

1.4 Measuring the asset performance (What do we measure to know how are sewer assets performing?)

The performance of the assets is measured in terms of:

- The amount of defects identified during asset inspections
- The age of the asset components
- The remaining life of the asset and its components
- The assets present, past and anticipated future maintenance requirements
- The assets reactive and planned maintenance history
- The long term performance requirements of the asset
- Compliance with safety requirements and standards
- Particular failure modes evident in maintenance history
- Benchmarking performance against similar sized Councils

1.5 Measuring the condition of FRW's asset portfolio (How do we measure the condition of our assets portfolio?)

Council Assets staff use the 1 – 5 system across all Asset classes where:

- Condition 1 is very good or 'as new' and,
- Condition 5 is very poor and approaching being unserviceable.

Asset classes are graded against the criteria in the IPWEA Condition Assessment and Asset Performance Guidelines.¹⁶ Sewer gravity mains are graded from 1-5 according to the WSA Sewer Inspection Reporting Code of Australia.

¹⁶ Condition Assessment & Asset Performance Guidelines, Practice Note 7, Water Supply & Sewerage; IPWEA

1.6 How will the assets be managed through its lifecycle?

When making initial investment, operation and renewal decisions the asset lifetime costs are considered from planning to disposal. The objective of managing the assets in this manner is to accurately assess the long-term cost associated with a particular sewer asset and ensure funding is available and sustainable. The cost associated with providing and maintaining the asset is part of the cost of providing the service the asset is required for.

Figure 1.6 below shows the stages an asset passes through in its life cycle.



1.7 Councils Financial Strategy for Sewer Assets

Key outputs from this plan are the Projected Operating Expenditure (Table 1.2), Projected Capital Expenditure (Table 1.3) and revenue to fund the operating expenditure (Table 1.7).

Operating expenditure is the sum of Maintenance, Funding Costs (interest), Depreciation (providing for renewals), Management and Administration costs (Corporate Overheads).

Total Capital Expenditure includes New, Upgrade and Renewal work. The Capital Expenditure is funded from a combination of loans, transfers from reserves and development contributions. Table 1.4 sets out the renewal component of the capital expenditure for each area. The table also sets out expired asset values in the next 10 years that were identified as part of the 2014 revaluation. Assets identified as expired were because either they were at the end of their lives or the asset could no longer meet the required service levels. Over the next 10 year period Council is spending approx. \$49.5M on renewals, which is just below the \$51.5M value of assets expiring. Table 1.5 sets out a summary of all Capital Works by Facility Network. Table 1.6 sets out the New/Upgrade component of capital expenditure according to individual projects.

Table 1.2 Sewerage Operating Expenditure (\$000)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
EXPENDITURE										
Operations expense	4,292	4,516	4,750	4,997	5,257	5,531	5,818	6,121	6,439	6,774
Maintenance Cost	0	0	0	0	0	0	0	0	0	0
Management and Administration	4,029	4,238	4,459	4,691	4,935	5,191	5,461	5,745	6,044	6,358
Depreciation	5,047	5,314	5,614	5,898	6,225	6,505	7,049	7,505	8,001	8,546
Interest Expense	1,133	967	976	854	764	627	866	730	679	647
TOTAL	14,501	15,035	15,799	16,440	17,181	17,854	19,194	20,101	21,163	22,325

Table 1.3 Summary Capital Works Expenditure Sewerage (\$000)

		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	TOTAL
Rockhampton	Renewal	3,279	3,648	2,445	3,399	2,690	6,838	6,241	7,286	6,496	6,910	
	Upgrade	412	795	295	684	760	4,638	4,629	4,880	4,880	4,880	
	New	1,660	3,241	1,305	917	0	3,431	635	0	1,650	0	
Total		5,351	7,684	4,045	5,000	3,450	14,907	11,505	12,166	13,026	11,790	88,924
Gracemere	Renewal	72	0	19	13	72	0	0	21	0	205	
	Upgrade	18	120	1,500	1,500	18	0	0	0	0	0	
	New	855	30	400	700	720	1991	0	0	0	0	
Total		945	150	1919	2213	810	1991	0	21	0	205	8,254
Mt Morgan	Renewal	84	0	0	0	0	0	0	0	0	0	
	Upgrade	85	0	0	0	0	0	0	0	0	0	
	New	666	520	621	1,000	750	0	0	0	0	0	
		1,335	1,270	621	500	0	0	0	0	0	0	3,726
New Total		7,131	8,354	6,585	8,213	5,010	16,898	11,505	12,187	13,026	11,995	100,904

Table 1.4 Summary of Renewal Capital Works by Facility / Network (\$000)

Area	Asset	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	TOTAL
Rockhampton	Reticulation Renewals	1,920	1,200	1,600	1,600	1,600	1,600	1,600	1,600	1,600	2,000	
	NRSTP Renewals	576	1,956	264	754	750	4,805	4,625	5,054	4,880	4,880	
	SRSTP Renewals	253	308	205	0	0	250	0	632	0	0	
	SPSTn Renewals	530	184	376	1,045	340	183	16	0	16	30	
Gracemere	Reticulation Renewals	0	0	0	0	0	0	0	0	0	0	
	SPSTn Renewals	72	0	0	0	72	0	0	0	0	0	
	GSTP Renewals	0	0	19	13	0	0	0	21	0	205	
Mt Morgan	Reticulation Renewals	0	0	0	0	0	0	0	0	0	0	
	SPSTn Renewals	84	0	0	0	0	0	0	0	0	0	
	MTMSTP Renewal	0	0	0	0	0	0	0	0	0	0	
TOTAL		3,435	3,648	2,464	3,412	2,762	6,838	6,241	7,307	6,496	7,115	49,718
Expired sewer assets in next 10 yrs. (Avg.)		5,147	5,147	5,147	5,147	5,147	5,147	5,147	5,147	5,147	5,147	51,470

Table 1.5 Summary of Capital Works by Facility/Network (\$000)

Area	Asset	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton	Reticulation Renewals	1,920	1,200	1,600	1,600	1,600	1,600	1,600	1,600	1,600	2,000
	Reticulation New / Upgrades	0	1,554	0	917	0	3,431	635	0	1,650	0
	NRSTP Renewals	576	1,956	264	754	750	4,805	4,625	5,054	4,880	4,880
	NRSTP New / Upgrades	323	573	66	376	750	4,625	4,625	4,880	4,880	4,880
	SRSTP Renewals	253	308	205	0	0	250	0	632	0	0
	SRSTP New / Upgrades	1,173	1,803	1,230	0	0	0	0	0	0	0
	SPSTn Renewals	530	184	376	1,045	340	183	16	0	16	30
	SPSTn New Works	576	106	304	308	10	13	4	0	0	0
TOTAL		5,351	7,684	4,045	5,000	3,450	14,907	11,505	12,166	13,026	11,790
Gracemere	Reticulation Renewals	0	0	0	0	0	0	0	0	0	0
	Reticulation New / Upgrades	0	0	0	700	320	1,541	0	0	0	0
	SPSTn Renewals	72	0	0	0	72	0	0	0	0	0
	SPSTn New / Upgrades	373	0	0	0	418	450	0	0	0	0
	GSTP Renewals	0	0	19	13	0	0	0	21	0	205
	GSTP New / Upgrade	500	150	1900	1500	0	0	0	0	0	0
TOTAL		945	150	1919	2213	810	1,991	0	21	0	205
Mt Morgan	Reticulation Renewals	0	0	0	0	0	0	0	0	0	0
	Reticulation New / Upgrades	510	500	621	500	750	0	0	0	0	0
	SPStn Renewals	84	0	0	0	0	0	0	0	0	0
	SPStn New / Upgrade	41	0	0	0	0	0	0	0	0	0
	MTMSTP Renewal	0	0	0	0	0	0	0	0	0	0
	MTMSTP New / Upgrade	200	20	0	500	0	0	0	0	0	0
TOTAL		835	520	621	1000	750	0	0	0	0	0
OVERALL TOTAL		7,131	8,354	6,585	8,213	5,010	16,898	11,505	12,187	13,026	11,995

Table 1.6 Summary of New/Upgrade Capital Works Projects (\$000)

Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	TOTAL
(Rock) Future Demand Parkhurst	0	1,554	0	917	0	3,431	635		1,650		8,187
(Rock) NRSTP Upgrade	323	573	66	376	750	4,625	4,625	4,880	4,880	4,880	25,978
(Rock) Options investigation outcomes implementation WRSTP	1,015	1,750	400								3,165
(Rock) Recycled Water Scheme SRSTP			830								830
(Rock) SRSTP Upgrade/New Works(Augmentation moved beyond 10 yrs)	158	53									211
(Rock) Pump Stn New/Upgrade Projects (incl New Jetrodder, Ferguson St SPS Upgrade and safe access covers to install at all SPS)	576	106	304	308	10	13	4				1321
(Gce) Future Demand Gce	373			700	738	1,198					3009
(Gce) Future Demand GIA						792					792
(Gce) Gce STP Augmentation	500	150	1,900	1,500							4,050
(Mt M) Mt Morgan Sewer Expansion	751	520	621	1,000	750						3,642
TOTAL	3,696	4,706	4,121	4,801	2,248	10,059	5,264	4,880	6,530	4,880	

Table 1.7 Sewer Revenue (\$000)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
REVENUE										
Sewer Rates and Charges	23,688	24,908	26,191	27,540	28,958	30,449	32,017	33,666	35,400	37,223
Income from other commercial services	714	744	775	808	842	877	914	952	992	1,034
Interest Revenue	103	244	262	284	297	355	375	281	170	65
Community Service Obligations & Competitive Neutrality Agreements	472	492	512	534	556	580	604	630	656	684
Non Capital Grants and Subsidies	0	0	0	0	0	0	0	0	0	0
Other Revenue	79	81	83	85	87	89	91	94	96	98
Bulk Sewer Charges	0	0	0	0	0	0	0	0	0	0
Total	25,056	26,469	27,823	29,251	30,740	32,350	34,001	35,623	37,314	39,104

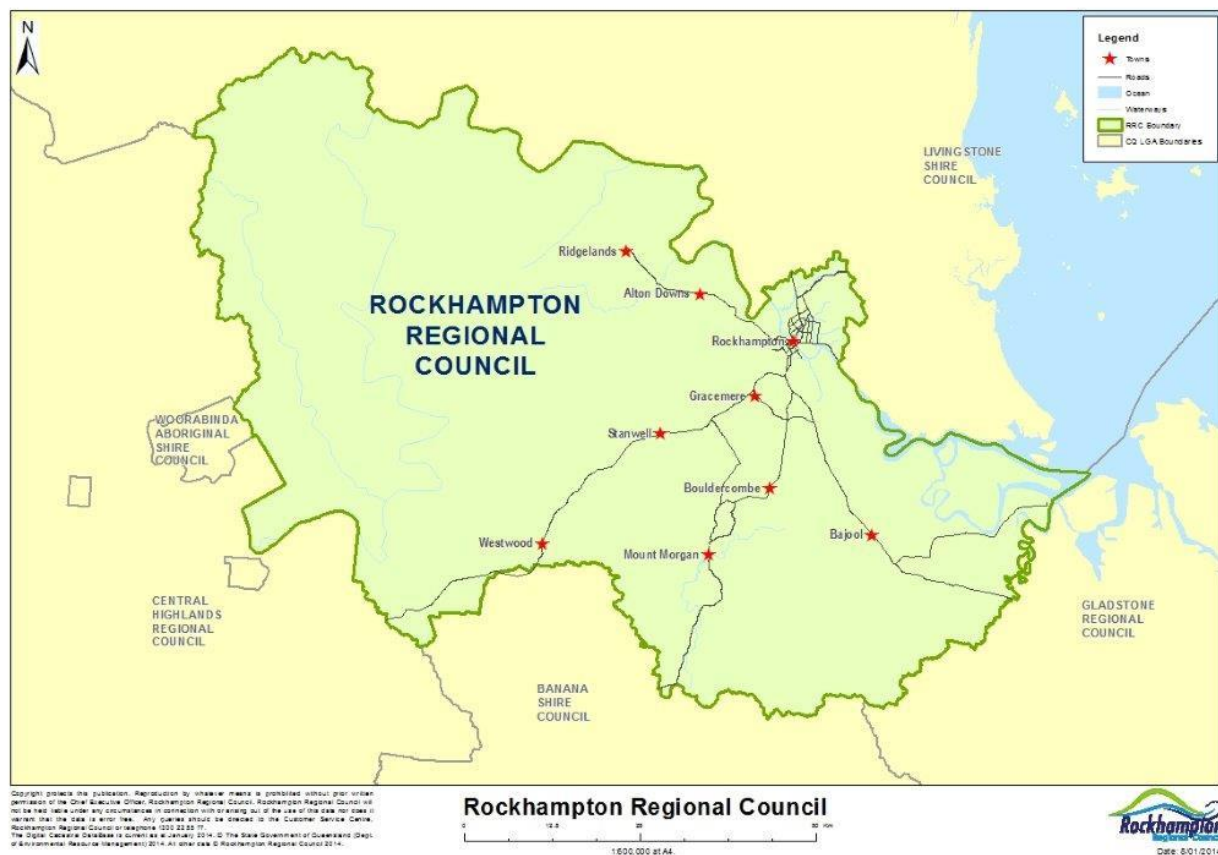
2. INTRODUCTION

2.1 Background

Rockhampton Regional Council (RRC) was established on 15 March 2008, through the amalgamation of Rockhampton City Council, Livingstone Shire Council, Fitzroy Shire Council and Mount Morgan Shire Council as part of the Local Government Reform in Queensland.

On 1 January 2014, Livingstone Shire Council de amalgamated from Rockhampton Regional Council. This plan covers the Rockhampton Regional Council de amalgamated area as shown in the plan below. This plan sets out the management of three (3) sewerage schemes at Rockhampton, Gracemere and Mt Morgan, which is owned and operated by Rockhampton Regional Council.

Figure 2.1 Rockhampton Regional Council Area



Purpose of Plan

This first AMP (formerly SAMP) has been prepared to meet the legislative requirements introduced through the *Local Government Act Queensland 2009*.

The purpose of this plan is to provide a long term strategy for the management of the sewer network. The key objective of the strategy is to provide the desired levels of service in the most cost effective manner for present and future customers.

This Asset Management plan follows on from the 2013 Strategic Asset Management Plan.

RRC as a licensed service provider under the *Water Supply (Safety and Reliability) Act* was required to prepare a Strategic Asset Management Plan (SAMP), which includes:

- Service and systems overview;
- Standards for appropriate customer service and performance indicators for the service;
- Operations, maintenance and renewals strategy; and
- Financial arrangements for the implementation of the SAMP.

On 13 May 2014, specific changes to the *Water Supply (Safety and Reliability) Act 2008* were enacted. These changes removed the need for service providers to produce multiple management plans including SAMP's. Service providers instead will be required to:

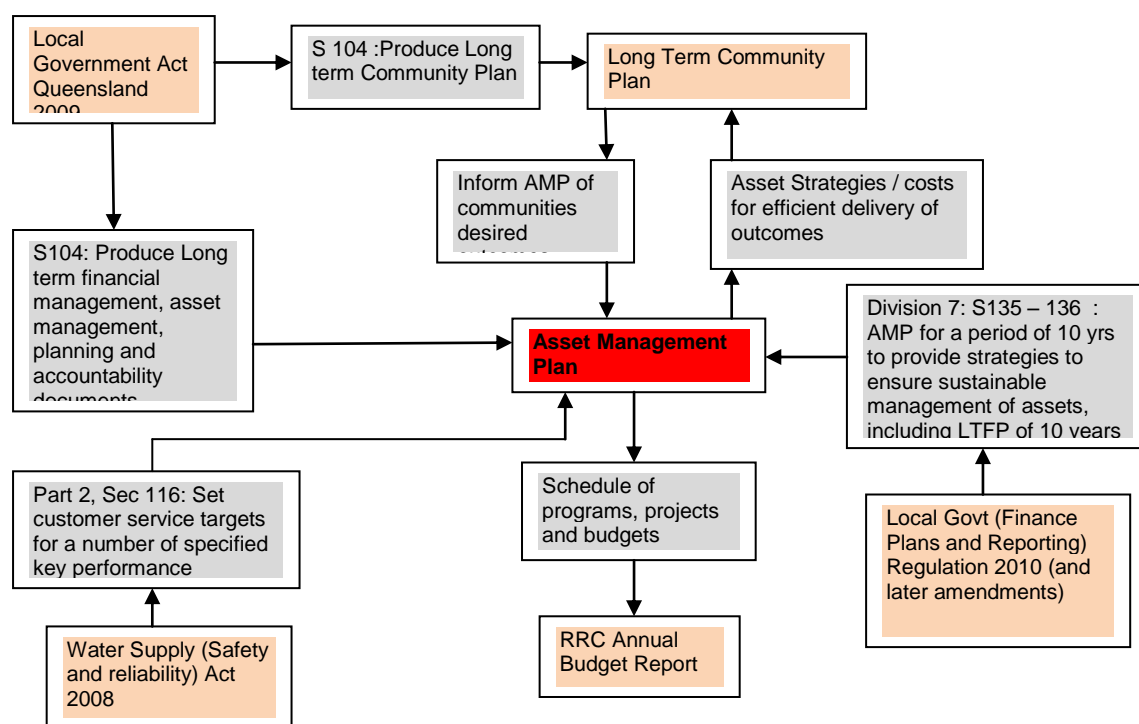
- Collect data on a predetermined list of key performance indicators
- Prepare a new customer service standard that states target levels of service for specific customer service standards KPI's and
- Submit a performance report about each of these KPI's each financial year.

Regulatory Role and Responsibility

The Local Government Act 2009 requires Council to produce a Long Term Community Plan that sets out community desired outcomes from Council managed assets. The Act also requires Council to produce Asset Management Plans to establish how to manage assets to meet community outcomes. The Local Government (Finance Plans and Reporting) Regulation 2010 (Division 7), calls for the development of long term Asset Management Plans for a period of 10 years to set out strategies to ensure sustainable management of assets.

Figure 2.2 below sets out the planning documents produced by Council and the regulatory Acts/Regulations requiring Council to produce the documents.

Figure 2.2 Relationship between Planning documents and regulatory requirements



Assets Covered

This plan covers all assets that make up the wastewater system.

Assets have been assessed at a component level. The Infrastructure Asset Guidelines describe components as specific parts of an asset having specific attributes such as different life expectancy maintenance regimes, risk or criticality. Existing under the ground assets are treated differently from above ground assets because of their different characteristics. In ground pipe life expectancies are much longer than that of mechanical items such as pumps.

Asset Valuation

The governing standard for the valuation of Council infrastructure assets is set out in AASB 116 Property Plant and Equipment produced by the Australian Accounting Standard board.

The following is key considerations noted in AASB 116:

Paragraph 31

After recognition as an asset, an item of property, plant and equipment whose fair value can be measured reliably shall be carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

Paragraph 36

If an item of property, plant and equipment is revalued, the entire class of property, plant and equipment to which that asset belongs shall be revalued.

Sewerage is an Asset Class and according to Paragraph 36 of AASB 116 all assets weather reticulation, pump station or treatment assets must be revalued at the same time.

In accordance with AASB 116, Paragraph 34, Councils policy is to engage professionally qualified valuers (internal or external) to undertake a comprehensive revaluation for each class of property, plant and equipment at least every 5 years. To ensure compliance with materiality requirements detailed in AASB 116, Paragraph 31, between comprehensive revaluations Council monitors the Producer Price Indexes for Queensland provided by the Australian Bureau of Statistics (ABS). For the Sewerage Asset Class this index is Index No 3020 Non Residential building construction Queensland.

In assessing materiality, Council is guided by the treasurer's Non-Current Asset Policies Chapter 3, which states:

An agency has the option of choosing only to account for the impact of indexation if the cumulative change in the index results in a 5 % or greater (either positive or negative) change in the reported asset balances.

Notwithstanding any known and quantifiable localised price influences, where the indexation provided the ABS exceed 5% annually Council will apply the index to the value of its assets in a year where there is no comprehensive revaluation.

In 2014 /15 Council assessed the replacement value of sewer assets to have increased by 4.4% therefore the index was not applied. In assessing active sewerage assets, the ABS Producer Price Index non-residential construction was applied. For passive reticulation assets the price movement for the material 150 PVC SHE in Councils contract SO9243 Prequalified suppliers for supply and delivery of plumbing pipes and the relining rates in Tender No 8672 Rehabilitation of sewer mains was assessed.

The current replacement value of the sewerage assets to which this plan applies is:

Table 2.1 FRW Assets

Asset Type	Number/Length	Replacement Cost (\$)
Reticulation	696 km	201,806,640
Pump Stations	54	20,891,731
Treatment (NRSTP)		25,088,526
Treatment (SRSTP)		22,530,777
Treatment (WRSTP)		8,269,019
Treatment (Gracemere)		7,850,370
Treatment (Mt Morgan)		1,343,670
Total		287,780,734

Key stakeholders in Plan

Stakeholders in the plan are both internal and external.

Internal stakeholders are Councillors, Assets Staff, Finance Staff, FRW staff and Asset managers. These internal stakeholders utilize the plan for such things as financial expenditure forecasts,

upcoming projects and an overview of sewerage systems, challenges and how the challenges will be managed.

Challenges facing the Sewerage Schemes

The challenges facing the sewer network include:

- High number of sewer main chokes compared with other like sized Councils.
- High amounts of inflow and infiltration in the Rockhampton scheme
- Maximising effluent reuse in Mt Morgan and Gracemere.
- Ageing infrastructure
- Failure of onsite wastewater treatment systems in Mt Morgan
- Size of North Rockhampton STP may not meet demand when new areas are developed
- Upgrading treatment plants to meet Effluent standards
- West Rockhampton STP not being able to remove Nitrogen

External stakeholders are Rockhampton Regional Council residents and businesses, the Fire Service, Public Health Authorities and Regulatory and Environmental organisations. The plan provides details on such things as water sources, levels of service, funding and drinking water quality for external stakeholders.

2.2 Goal and Objectives of Asset Management

An important function of Council is to supply services that meet the needs of its customers. This is achieved through the creation, operation, maintenance and rehabilitation of assets. The decision as to what services are provided, and how, is not only in response to the needs of the community but also to meet legal requirements.

The objectives of this AMP are to enable the asset operator (FRW) to utilise existing and future assets to:

- Provide high quality, safe, reliable and cost effective sewerage services
- Operate in an efficient and financially sustainable manner and provide Council with an appropriate rate of return,
- Ensure assets are utilised to their full potential to provide optimal service.
- Respond to changing customer needs.
- Meet performance targets
- Optimise Replacement costs ; ensure when replacing an existing asset the replacement asset is a modern equivalent asset offering the same LoS at minimum cost
- Protect the environment and encourage effluent reuse.

2.3 Plan Framework

Key elements of this Asset Management Plan are:

- **Ensuring Levels of Service are defined and consistently met.** Section 3 defines the expected levels of service, performance targets to ensure that these service levels are met, are then continuously assessed.
- **Future Demand:** Forecast future demand, which affect the management and utilization of assets and outline the resulting capital works program are dealt with in Section 4.

- **The Asset Lifecycle Management Plan:** Outlines for each scheme what the requirements are to keep the assets managed and operating at the agreed levels of service while optimising lifecycle costs. Other items addressed in this section are:
 - Any gaps in LOS and capital works budgets to address the gaps.
 - Future maintenance budgets and ways to minimise future maintenance costs.
 - Historical spending on Operations and Capital Works
 - Capital works to address present and future LoS requirements
- **Asset Management Practices:** Section 7 sets out current Asset Management Processes and Systems utilised to make Asset Management decisions. It outlines target practices, which Council is working towards that will improve Asset Management decision making.
- **Improvement Plan:** Section 8 outlines proposed improvements to Asset Management systems and processes where gaps are identified between the current and target practices.

2.4 Core and Transition into Advanced Asset Management

This plan uses the 2013 FRW Strategic Asset Management Plan as a basis, and follows a ‘core’ principles approach.

The rehabilitation decision making in the plan is based on the best available data in asset registers. Some of the asset attribute data e.g. date installed, material is inaccurate and updated from CCTV data when work is carried out in the field. As this register becomes more accurate, the plan will be able to provide advanced data, based on accurate and detailed asset data.

Some areas of the plan and associated documents are at an advanced level, levels of service for example have been extensively reviewed. FRW has a draft Maintenance Strategy Manual that sets out the reactive, planned (preventative) and condition maintenance strategies plan for treatment and supply active and passive assets.

2.5 Management Responsibility

2.5.1 The Asset Owner

The responsibilities of FRW as the sewerage Asset Owner and Operator are:

- Delivery of a service compliant with the Levels of Service (LoS).
- Operation and Maintenance of all assets that are in the sewer asset portfolio. Assets owned by separate Council owned business units are maintained by FRW through a negotiated commercial arrangement where the scope of works and the delivery cost are agreed upon between the two parties.
- Budget control relating to maintenance and capital projects and programs.

Corporate Asset Management Responsibilities:

- Management of asset information across all asset classes in Asset Management and Geographical Information systems.
- Condition assessment and inspection of all assets, except in the case of specialist assets to the likes of electrical switch gear, control systems, dosage systems etc. where programmed inspections will be executed by the Operational Manager (or as per sub contract if maintenance resources are limited), Inspection outcomes and corresponding documentation are recorded in the asset management system.
- In conjunction with Asset Owner and Operational Manager, the development of planned and cyclic maintenance requirements and associated compliance verification.
- In conjunction with Asset Owner, development of renewal, upgrade, replacement and new capital programs with the Operational Manager.

- Provide financial information, and report on financial compliance to Finance and Auditors.
- Develop and update Asset Management Plans across all the asset classes.
- Provide information on the performance of assets when required.
- Identify and investigate opportunities for improvement and change across all asset classes, submit and provide direction, implement when required.

3. LEVELS OF SERVICE

3.1 Introduction

In accordance with the *Water Supply (Safety and Reliability) Act*, Fitzroy River Water has developed Customer Service Standards to address the:

- Range and levels of service provided by FRW;
- Obligation of FRW to its customers e.g. provides a minimum pressure at the house connection.
- Processing of service connections, charges, metering, accounts and customer consultation, requests and complaints.
- LOS have been developed with reference to industry standards, in house technical standards and legislative requirements. Performance targets have been refined by Asset Managers to ensure that they are realistic and achievable. On 13 May 2014, changes to the Water Supply (Safety and reliability) Act 2008 required Council to set customer service standards for the following key performance indicators. All the indicators below are in the SWIM reporting database with modifications set up as Customer Service Standards (CSS) below. The first performance report is due 1 October 2015.¹⁷

CSS Indicator code and title	NPR/SWIM/CSS code
QG 4.6; Total sewerage main breaks and chokes (S)	A14/AS39/CSS21
QG 4.9; Average response time for sewerage incidents (including main breaks and chokes) (S)	-/CS33/CSS20
QG 4.11; Total Water and sewerage complaints (S)	C13/CS13/

3.2 Levels of Service

FRW's Levels of Service (LOS) set out below include both Community (Customer) and Technical LOS. Customer LOS is from the perspective of how the customer receives the service. FRW has a number of water day-to-day continuity levels of service targets to meet in order to provide a quality LOS to the customer. The LOS below also includes technical performance measures FRW uses to monitor its own performance such as target sewer inflow and infiltration rates. LOS were reviewed when Councils amalgamated in 2008 as all had their own targets. As part of the review process, the decision was made to set targets that are more consistent across the schemes that were both achievable and cost effective.

3.3 Legislative Requirements

2.

3. FRW must carry out its responsibilities and associated operations in accordance with the requirements of (but not limited to) the following:

4.

5. • *Local Government Act 2009*

6. • *Local Government Regulation 2012*

• *Water Supply Services Legislation Amendment Bill 2014*

○ *The Bill contains the following requirements:*

- *Customer service standards*
- *Drinking water Quality Management Plans*

- *Recycle Water Management Plans*
- *Local Government Asset Management Plans*

7.

8. • *Water Supply (Safety and Reliability) Act 2008*

9. • *Petroleum and Gas (Production and Safety) Act 2004*
Environmental Protection Act 1994

• *Environmental Protection (Water) Policy 2009*

• *Environment Protection and Biodiversity Conservation Act 1999*

• *Sustainable Planning Act 2009*

• *Work Health and Safety Act 2011*

• Other relevant Council Local Laws

10. The primary environmental legislation applying to FRW operations is the *Environmental Protection Act 1994*, with Developmental Approvals (DA's) issued under the Act by the Queensland environmental regulator, the DEHP. These are for the Environmentally Relevant Activities (ERAs) of operating four STPs and the associated infrastructure (including collection infrastructure), and three pump stations.

Table 3.1 – Service Standard Targets - Sewage - Effective Transportation

CSS Reference	Performance Indicator	Service standard: Rockhampton and Gracemere Sewerage Scheme	Actual Service standard 2013/14	Service Standard: Mt Morgan Sewerage Scheme	Actual Service standard 2013/14
CSS17	Sewage overflows – total (number per 100 km main)	< 30	51.8	< 10	0
CSS18	Sewage overflows to customer property (number per 1000 connections)	< 10	8.28	< 5	0
CSS19	Odour complaints (number per 1000 connections)	< 1	1.07	< 1	0
CSS20	Response time : Priority 1 – 1 hour response	> 95 %	87 %	> 95 %	100 %
	Priority 2 – 2 hours response	> 95 %	85 %	> 95 %	100 %
	Priority 3 – 24 hours response	> 95 %	98 %	> 95 %	100 %
CSS20	Restoration time : Priority 1 – 5 hours response	> 95 %	96 %	> 96 %	100 %
	Priority 2 – 24 hours response	> 95 %	97 %	> 97 %	100 %
	Priority 3 – 5 days response	> 95 %	99 %	> 95 %	100 %

Table 3.2 – Service Standard Targets - Sewage - Long Term continuity

CSS Reference	Performance Indicator	Service standard: Rockhampton and Gracemere Sewerage Scheme	Actual Service standard 2013/14	Service standard: Mt Morgan Sewerage Scheme	Actual Service standard 2013/14
CSS21	Sewer main breaks and chokes (number per 100 km main)	< 50	85.69	< 20	0
CSS22	Sewer inflow and infiltration (ratio of Peak Day Flow to Average Day Flow)	< 5	2.76	< 5	1.42

Table 3.3 - Service Standard Targets- Sewage - Customer Service

	Performance Indicator	Target Service standard	Actual Service standard % within target 2013/14
CSS23	Installation of new water connections (within the water service area)	15 working days	81 %
CSS24	Installation of sewerage connections (within the area with sewer area)	15 working days	47 %
CSS25	Complaints – (excluding maintenance of water and sewerage services) – advise outcome	20 working days	100 %

Table 3.4 – Service Standard Targets - Sewage – From Operational Plan 2014/15

Indicator	Target	Reporting Frequency
Compliance with Customer Service Request	100 %	Quarterly
Compliance with statutory and regulatory requirements including safety, risk and other legislative matters	100 %	Quarterly
Achievement of Capital Projects within adopted budget and approved timeframes	100 %	Quarterly
Achievement of Operational Projects within adopted budget and approved timeframes	100 %	Quarterly
Delivery of services and activities in accordance with Councils adopted Service levels	100 %	Quarterly

3.4 Gap Analysis

In the Rockhampton/Gracemere network both the sewerage overflow total per 100 km (CSS17) at 51.8 (< 30) and the sewer main breaks and chokes per 100km (CSS21) at 85.69 (target < 50) exceeded LoS targets. In 2015/16, the Sewer Rehabilitation program will continue. From 2013/14, the focus of the program has been to investigate and repair if necessary areas of the sewer network that have a history of blockages/breaks.

In the Rockhampton/Gracemere network odour complaints per 1000 connections (CSS19) at 1.07 slightly exceeds the target of one. Improved management of wet season events may help to reduce the number of odour complaints that are associated with high sewerage inflow events.

Priority 1 and Priority 2 response times (CSS20) performance is slightly below the target response times in the Rockhampton/Gracemere network. Network Service supervisory staff continue to work with staff on improving performance.

4. FUTURE DEMAND

4.1 Demand and Demographic Change Forecasting

The environment in which Council operates is subject to many changes that impact on the nature of the services it provides, and the frequency at which they need to be provided.

Some of the key factors influencing the demand for new sewerage assets and changes to existing assets within the Rockhampton Region include:

- Growth in industrial, commercial and residential areas;
- Changes in land use;
- Population growth or decline;
- Environmental awareness;
- Government policy; and
- Local Government boundary realignments
- Changes of business drivers and economic influences (e.g. agriculture to industry etc.)
- Demographic changes and associated services drivers
- Social change

Demand factor trends and impacts on service delivery are summarised in Table 4.1.

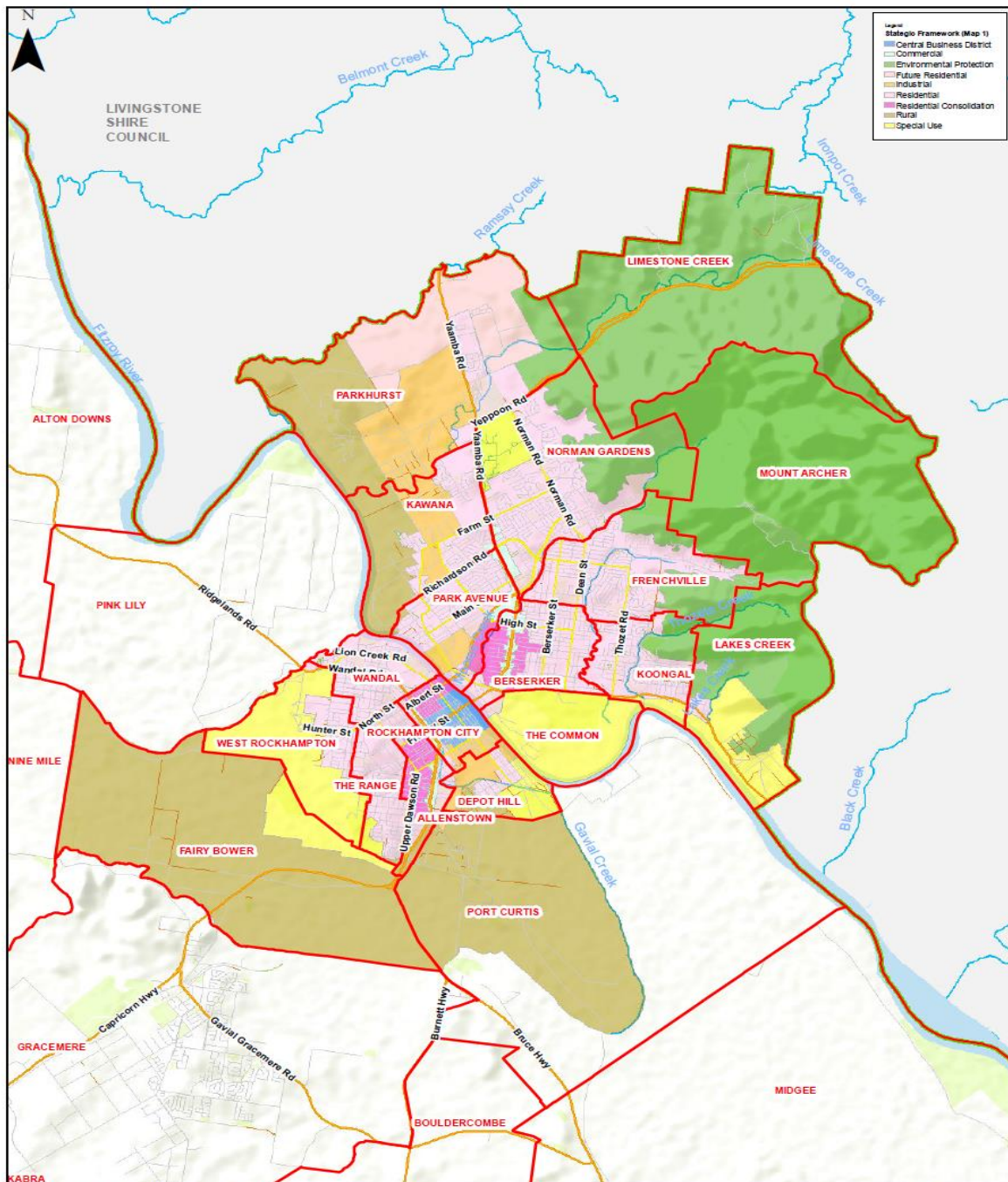
Table 4.1. Demand Factors, Projections and Impact on Services

Demand factor	Present position	Projection	Impact on Sewer Infrastructure
Population	76330	Population projection 2016 – approx. 80,000 people 2021 – approx. 84,000 people	Increase in new assets and demand on existing assets will have a follow on impact on maintenance and renewal costs

4.2 Demand Forecast

This section outlines the predicted future demand for sewerage in the Rockhampton Regional Council area. Figure 4.2 below shows the residential zones within Rockhampton City. The only residential areas left for development within the Rockhampton Metropolitan area are Parkhurst and some small areas around Norman Gardens. Table 4.2 below sets out capital works budgets over the next 3 years to meet the extra demand in the Parkhurst area. This work will be funded from development contributions.

Figure 4.2 Rockhampton Residential Development Areas



Rockhampton Planning Zones

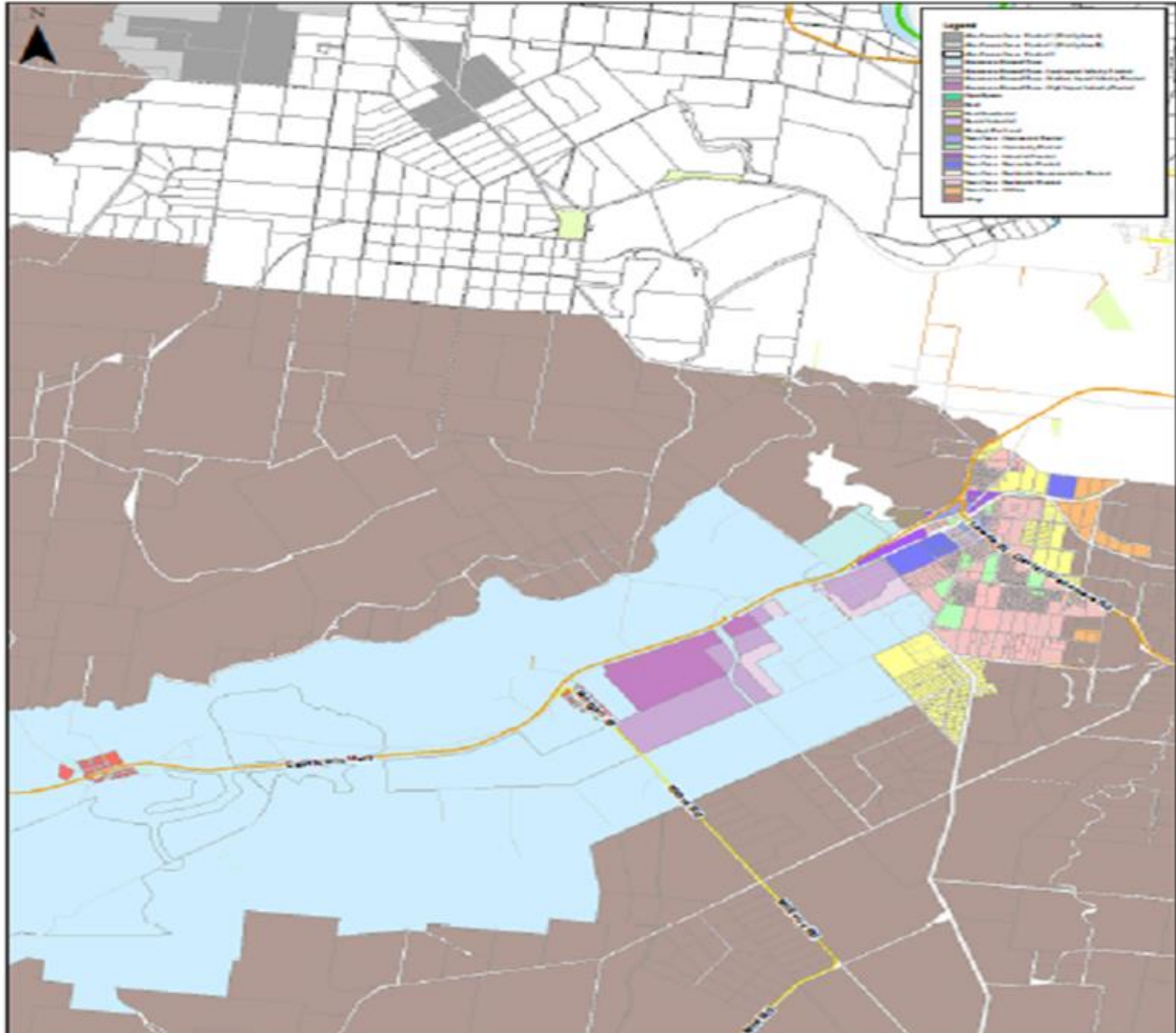


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Figure 4.3 below sets out the residential zones in Gracemere and the Gracemere/Stanwell Industrial area. There are residential areas south of Gracemere where residential development is still to happen (yellow). An area to the west of Gracemere is being developed as an industrial area (purple area) and the Gracemere projects in Section 6 Lifecycle Management Plans Gracemere are to meet the extra demand in this development.

Figure 4.3 Gracemere/Stanwell Development Zones



4.3 Demand Management

Alternatives to asset-based solutions for overcoming existing and anticipated sewer deficiencies include the following non-asset solutions.

- Reduce Inflow and Infiltration: FRW is carrying out a number of programs including relining, raising manholes, repairing faulty jump ups and relining manholes to correct infiltration and inflow problems. The primary purpose of the programme is to control the frequency and magnitude of overflows.

A successful inflow/infiltration program can defer or cancel the need for capital projects that would otherwise be necessary to increase a system (or treatment works) capacity.

- Controlling the location of new industries with a high sewage wastage volume.

Council can control the areas that industrial development could occur through setting aside areas for different types of industry. The Gracemere Industrial area (GIA) has been set up with the reticulation capacity to cater for wet industries.

- Controlling sewage discharge.

FRW has Trade Waste regulations in place to control the quantity and characteristics of wastewater discharged to the sewerage system.

4.4 Changes in Technology and Forecast Effect on Service Delivery

Technology changes may result in the improvement of treatment efficiencies, and thus reducing the cost to provide a service without compromising service levels. It is always dangerous and short-sighted to believe current processes will remain effective and economical for an indefinite time without considering new and improved means with the same outcomes.

Table 4.4 Technology changes and effect on service delivery

TECHNOLOGY CHANGE	EFFECT ON SERVICE DELIVERY
Treatment Process Improvement	Improved environmental outcomes from higher quality effluent allowing increased reuse and reducing impact on receiving environments
Trenchless pipeline techniques	Reduce cost of pipeline maintenance and renewal. Lessen the impact of works on the community and the environment
Telemetry System	Improved response to service issues, and increased reliability of data to be used in future planning and asset renewal requirements
Installation of storage vessels at Sewer Pump Stations as a Development condition.	The installation of storage vessels can reduce flow peaks and allow for a more consistent process. The service delivery will not change merely the cost of treatment as the peak flows are spread, and better managed.
Implementing Controlled Pressure Systems as an alternative to gravity sewer.	<p>A Sewerage Pressure system consists of a pump and tank at individual properties pumping into reticulation of a much smaller diam. and depth than a gravity system. The controlled design of pressure systems involves individual pumps being free to operate based on inflows and water levels in each tank.</p> <p>The technology is now available to control the operation of a network of pressure pumps in a controlled manner from one control box. The one box control allows pumping to be set up to a desired peak volume and flow clear of peak use periods and enables utilising power at off peak periods.</p> <p>Such a technology on a large scale could postpone the need for sewer treatment plant augmentation works.</p>

5. LIFECYCLE MANAGEMENT PLANS

This section outlines future plans in order to manage and operate the assets at the agreed levels of service while optimising Lifecycle costs. It also contains the management plan for each sewerage scheme, describing:

- General Asset Information on the scheme
- Levels of Service Performance
- Asset Valuation 2014
- Operations and Maintenance Plan
- Historical Operations and Maintenance Investment
- Reactive and Planned Maintenance (Treatment & Supply)
- Reactive and Planned Maintenance (Network Services)
- Reactive Maintenance Processes
- Planned Maintenance Processes
- Risk Management
- Capital Works Plan

5.1 Rockhampton Sewerage Scheme

5.1.1 Asset Information

A Sewerage Scheme for the city was first constructed in 1935 and completed in 1978. Between 1936 and 1949 approximately 200km of Earthenware (EW) pipe was installed. The oldest Earthenware pipes have now reached the end of their lives, and are being relined as part of a relining program.

The scheme consists of 39 pump stations and 3-sewer treatment Plants. All three sewer treatment plants due to their proximity to the Fitzroy River are susceptible to flooding (above 7m), which then compromise the treatment process and increase the risk of contamination and environmental breaches.

Table 5.1 Rockhampton Sewer Network Information

Scheme Name	North Rockhampton	South Rockhampton	West Rockhampton
Total Population Served	43923 ¹⁸	12076	6799
Treatment Plant Capacity ¹⁹	48,000 EP	18,000 EP	Nil
Treatment Plant Utilisation ²⁰	50,430 EP	18,700 EP	6,160 EP
Treatment Plant Process	Extended Aeration / Activated Sludge	Activated Sludge	Trickle Filter
Current ADWF (ML/d) ²¹	9.44	5.11	1.05
EPA Effluent Standards	BOD₅ <20 mg/L DO >6 mg/L SS <30 mg/L pH 6.5 - 8.5 Residual Cl₂ <0.7mg/L Faecal Coliforms <1000 FC/100 mL median; <4000 FC/100 mL 80th percentile Combined calculated mass release rates: Total P 1000 kg/week Long term 50th percentile; 3000 kg/week maximum Total N 1380 kg/week Long term 50th percentile; 4140 kg/week maximum		
No. of Pump Stations	39 (23 North catchment, 10 South catchment, 6 West catchment)		
Mains Access Chambers Connections	577.2 km ²² 12,390 West (2576) South (7940) North (18504) – From GIS 2015		

Table 5.2 Rockhampton Sewerage Characteristics

Asset Type	Asset Parameters
Treatment	<p><i>Discharge to Fitzroy River</i> <i>West Rockhampton (Design Population 11,000 EP, inst 1962)</i></p> <ul style="list-style-type: none"> Inlet works with a step screen, a manually raked bar screen and 2 x grit channels 2 x 13.5 m diameter x 2.5 m SWD primary sedimentation tanks with half bridge sludge scrapers Duty/standby primary sludge pumps 2 x 34 m diameter x 1.5m deep rock trickling filters 2 x 12 m diameter x 2 m SWD secondary sedimentation tanks with half bridge sludge scrapers Sludge Pump stations with duty / standby primary sludge pumps and duty stand by humus recirculation pumps A 51 m³ x 1.4 m deep single train contact tank with chlorine gas disinfection 450 mm diameter outfall to Fitzroy River An 0.85ML open digester (Clarigester) with bottom sludge scraper

¹⁸ Based on 2011 census figures and projections to August 2013 from Australian Bureau of Statistics

¹⁹ From SKM Report, Aug 2013, capacities determined for their ability to meet mass load licence requirement of 20BOD / 30SS / 7TN / 5 TP

²⁰ 2011 lads from SKM report, Aug 2013, all STP's fully loaded

²¹ 2011 ADWF from SKM report, Aug 2013

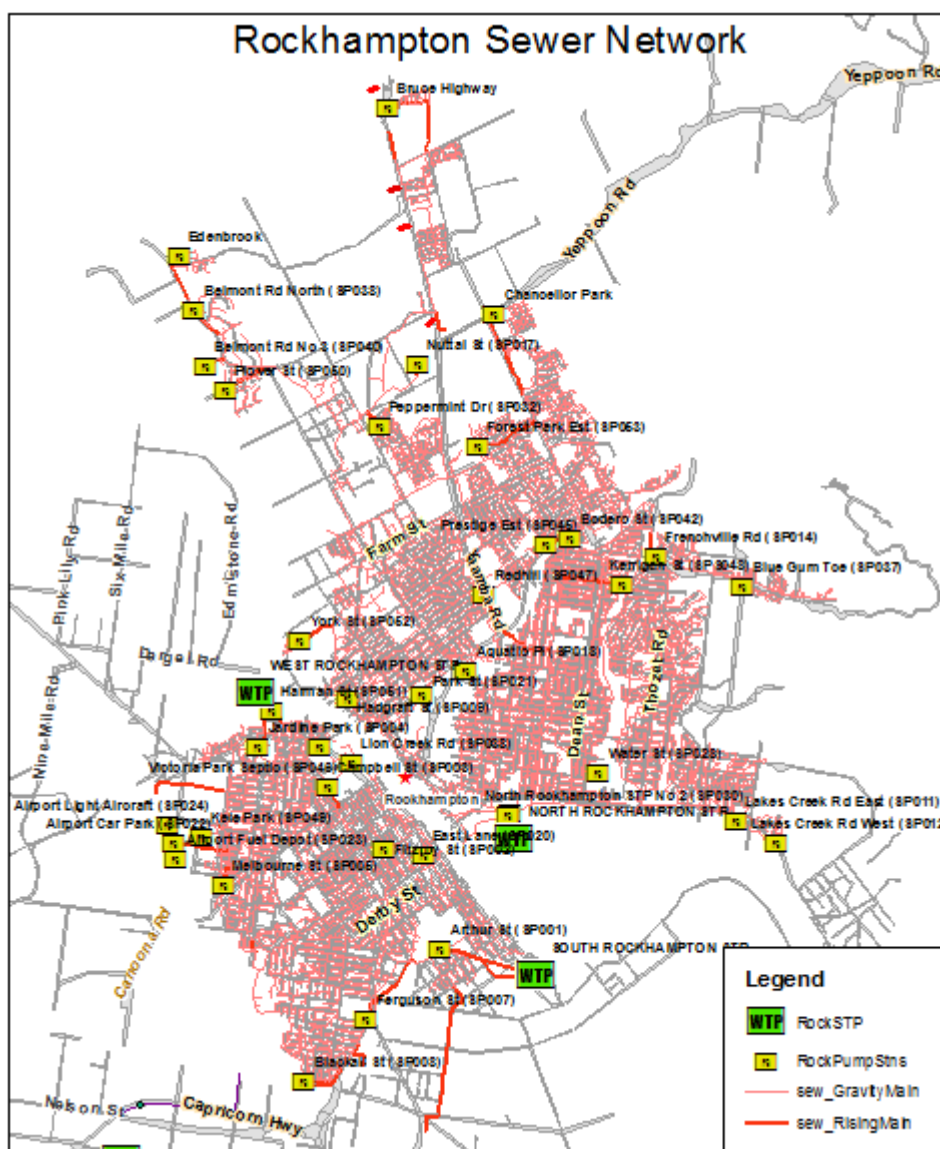
²² Refer to March 2014 file at O / Finance/Assets/Asset Management/AM/Assets/Water and Sewer/Registersval2014/Copy of FINAL Consolidated list Water Sewer 14-03-14

	<ul style="list-style-type: none"> • 8 x 81 m² sludge sand drying beds <p><i>South Rockhampton, Modified Ludzack - Ettinger Process (Design Population 34,000 EP, installed in 1983)</i></p> <ul style="list-style-type: none"> • Inlet works with a 10 mm step screen, a manual bypass screen, 2 x grit settling channels • 2 x 22 m diameter x 2.15 m SWD primary sedimentation tanks with half bridge sludge scrapers • 2 1.02ML x 3.4m deep activated sludge aeration tanks with 3 x 15 kW submersible jet aerators • 2 x 22 m diameter x 3.0 m SWD secondary sedimentation tanks each with half bridge suction lift scrapers • A wet well / dry well type sludge transfer pump station with 2 duty/assist RAS pumps (45 L/s one pump, 135L/s 2 pumps), 2 x duty / assist primary sludge pumps (25 L/s one pump, 40 L/s 2 pumps), Part of RAS is returned to inlet • 1 x 0.32ML twin train chlorine contact tank with chlorine gas disinfection • 600 mm diameter outfall to Fitzroy River • 2 fixed cover (unheated) 1.2 ML anaerobic digesters with biogas compressors and sparger mixing combined with mechanical mixing • 4 x 4.8 ML x 3 m deep sludge lagoons with supernatant return to the sludge transfer pump station <p><i>North Rockhampton, (Design population 47,000 EP, installed 1986)</i></p> <ul style="list-style-type: none"> • Inlet structure and venturi flume (with 10 mm duty / stand by step screens, screening conveyors, screenings bin • 2 x aerated spiral flow grit chambers • 2 x 5.5 ML x 3.6 m max depth, vertical wall oxidation ditches (each with 3 horizontal surface aerators) • 2 x 32 m diameter x 4 m side wall depth secondary clarifiers • Decanter Centrifuge 55 kW (including Polymer Dosing system, 2 x dewatering sludge conveyors, Waste Liquor return pump) • RAS pumps • 880 ID RC gravity outfall to Fitzroy river • 5 x 15 ML sludge lagoons
Pump Stations	<ul style="list-style-type: none"> • Arthur St SPS (SP001), 3 x Forrers 8DW360.4(dry well), 55 kW, 110 L/s duty capacity, installed 1998, 1 x Flygt (submersible), 75 kW, 202 L/s duty capacity, installed 2012 • Fitzroy St SPS(SP002), Pump 1 : 1 x Flygt NP3127.181,5.9 kW 38L/s duty capacity , Installed 2009,Pump 2: 1 x Flygt NP3127.181.1872MT, 7 kW, Installed 2011 • Campbell St SPS (SP003), 2 x Flygt N3153.HT 454,7.5 kW, 34 L/s duty capacity ,installed 2009/10 • Jardine Park SPS (SP004), 2 x Forrers K200 - 360 NP, 30 kW,110 L/s duty

	<p>capacity, Installed 1996</p> <ul style="list-style-type: none"> • Melbourne St SPS (SP005), 2 x Flygt 3127.180, 5.9 kW, 12.8 L/s duty capacity, Installed <p>2000</p> <ul style="list-style-type: none"> • Pennycuick St SPS (SP006), 2 x Flygt 3127.180HT, 5.9 kW, 5.7 L/s duty capacity, installed 2000 • Ferguson St SPS (SP007), 1 x Lowara, 22.5 kW, inst 2000 • Blackall St SPS (SP008), 2 x Flygt 3127.18,6.0 kW, 15 L/s duty capacity, Inst 1990 • Hadgraft St SPS (SP009), 2 x Forrers (dry well), 55 kW, 227 L/s duty capacity, installed 1994 • Lakes Creek Rd East SPS (SP011), 2 x Flygt NP3102-18, 3.1 kW, 15 L/s duty capacity, installed 2000 • Lakes Creek Rd West SPS (SP012), 2 x Flygt 3127.180 HT, 6 kW, 3.8 L/s duty capacity, installed 2000 • Frenchville Rd SPS (SP014), 2 x Flygt, NP 3153.181HT, 13.5 kW, 15 L/s duty capacity, installed 2010 • Nuttal St SPS (SP017), 2 x Flygt NP 3102.18, 3.1 kW, 7 L/s duty capacity, Installed 2000 • Aquatic Place SPS (SP018), Pump 1 Grundfos, Pump 2 Flygt, 1.5 kW, 5 L/s duty capacity, Installed 2013 • East Lane SPS (SP020), 1 x Flygt CP3085.183HT,2.4 kW, 9.28 L/s capacity, Installed 2010 • Park St SPS (SP021), 2 x Flygt 3085.181, 1.3 kW, 2L/s duty capacity, Pump 1inst 1988, Pump 2 installed 1998 • Airport Car Park Pump Stn No 1 SPS (SP022), 2 x Flygt 3102.18, 5.9 kW, 25 L/s duty capacity, installed 2003 • Airport Fuel Depot SPS (SP023), 2 x Flygt 3085.181,1.3 kW, 3.8 L/s duty capacity, installed 2000 • Airport Light Aircraft SPS (SP024), 2 x Flygt 3127.180HT,5.9 kW, 2 L/s duty capacity, installed 2000 • Water St SPS (SP028), 2 x Flygt 3085.181, 1.3 kW, 7 L/s duty capacity, installed 1999 • North Rockhampton Treatment Plant SPS No 1 (SP029), 2 x Forrers 10T500/5, 55 kW, 185 L/s duty capacity, inst 1999 • North Rockhampton Treatment Plant SPS No 2 (SP030), 2 x Forrers 10T500/5, 55 kW, 185 L/s duty capacity, inst 1992 • Peppermint Dr SPS (SP032), 2 x Flygt NS3102.160MT 461,3.1 kW,inst 2013 • Blue Gum Tce SPS (SP037), 2 x Flygt 3102.18, 3.1 kW, 8 L/s duty capacity, inst 2000 • Belmont Rd SPS (SP038), 2 x Flygt 3127.180,7.4 kW, 11 L/s duty capacity,
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	<p>Pump 1 inst 1998, Pump 2 inst 2012</p> <ul style="list-style-type: none"> • Lion Creek Rd SPS (SP038), 2 x Flygt 3102.18, 3.1 kW, 5.8 L/s duty capacity, inst 2000 • Belmont Rd No 3 SPS (SP041), 2 x Flygt 3085.183HT, 2.4 kW, 10 L/s duty capacity, inst 2009 • Bodero St No 2 SPS (SP042), 2 x KSB Ajax K150-350,22.5 kW,75 L/s duty capacity, inst 2000 • Prestige Est SPS (SP045), 2 x Flygt 3018.2, 2 kW, Pump 1 inst 2014, Pump 2 Inst 2000 • Victoria Park Septic SPS (SP046), 2 x Flygt MF3068-170 HT, 1.5 kW,Pump 1 inst 2001, Pump 2 inst 2007 • Red Hill Pump SPS (SP047), 2 x Flygt 3171.18, 18 kW, Inst 2004 • Kerrigan St SPS (SP048), 2 x Flygt MP3153HT, 9 kW,Inst 2006 • Kele Park SPS (SP049), 2 x Flygt MP3085-172HT, 2.4 KW,Inst 2006 • Plover St SPS (SP050), 2 x Flygt 3127.182, 2.4 kW, Inst 2006 • Harman St SPS (SP051), 2 x Seg Ultraflow UAGN1500/32/1,1.2 kW,Inst 2014 • York St SPS (SP052), 2 x Flygt NP3102-181MT,3.1 kW, Inst 2006 • Forest Park Est SPS (SP053), 2 x Flygt 3171.091.181,22 kW, inst 2006 • Bruce Hgway SPS, 2 x Flygt 3153.181, 15 kW, Inst 2012 • Chancellor Park SPS, 2 x Flygt NP3153HT, 13.5 kW, 20 L/s duty capacity ,Inst 2007 • Edenbrook SPS, 2 x Flygt MP3102HT,4.4 kW,6 L/s duty capacity, Inst 2014
Reticulation	<p><i>Rising Mains</i> 20 km of rising mains</p>
	<p><i>Gravity Mains</i> 557 km of gravity mains</p>

Figure 5.3 Rockhampton Sewer Pump Stations and Treatment Plants



5.1.2 Levels of Service Performance

System Performance

A major problem in the network is the performance during heavy rain. In 2013 the extreme rainfall event associated with ex-Tropical Cyclone Oswald resulted in 70 properties experiencing sewage surcharges. Analysis of the rainfall at a number of pump stations showed pump well filled up with stormwater runoff, and overflows as the rainfall intensified²³. Rapid response stormwater inflow results when stormwater enters the sewerage network through sources such as downpipes, manhole covers and cross connections.

The network also experiences many blockages outside of rain events. FRW's service standard target for sewer main breaks and chokes per 100km of main is < 50. In 2013/14, the actual number was 85.69, which exceeds the target (includes both wet and dry weather overflows).

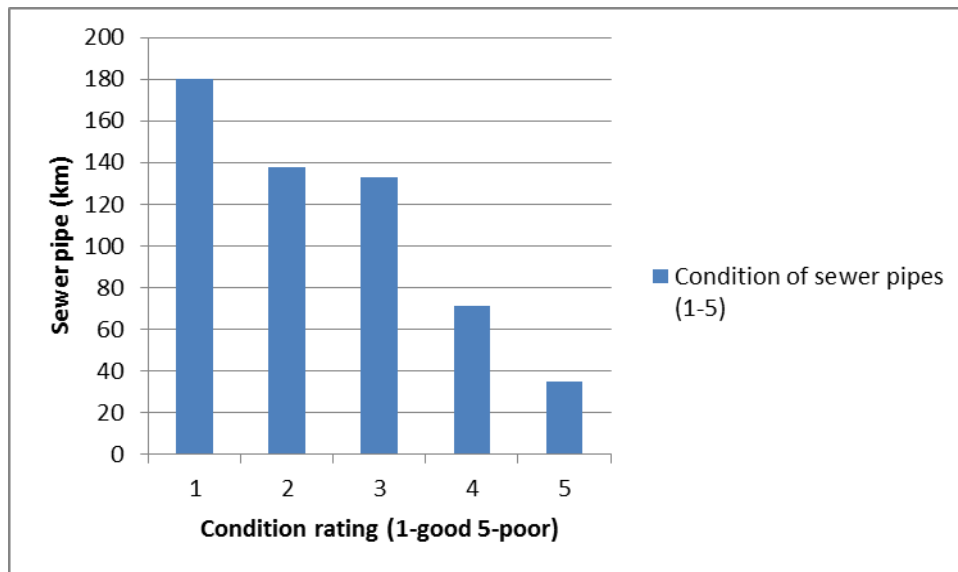
FRW have also experienced high incidences of blockages occurring in the jump connection to the mainline due to being poorly connected to the sewer main.

Network Condition

²³ Refer to file Pump Station Well levels ex Tropical Cyclone Oswald

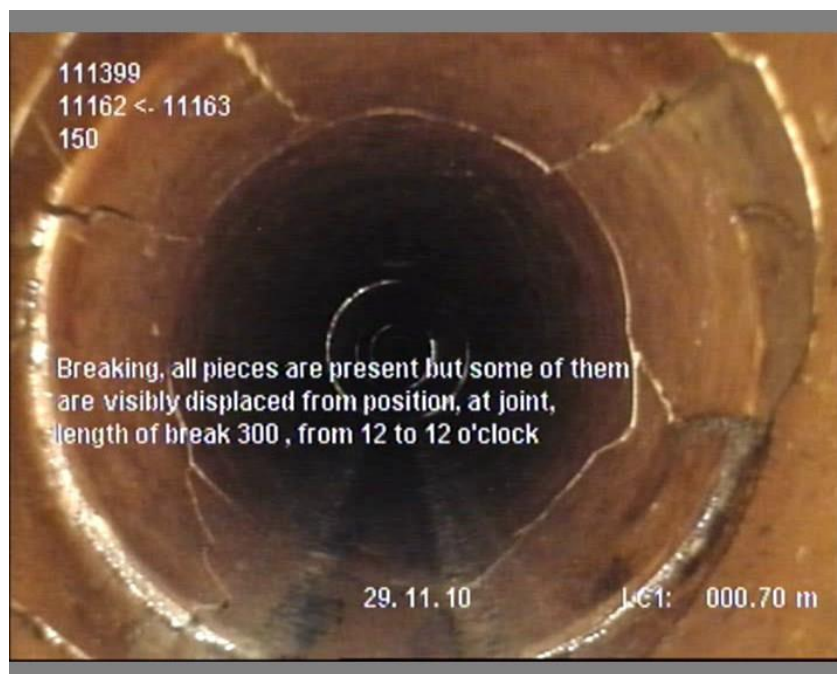
Figure 5.4 below sets out the proportion of the sewer pipe network in each condition. The data used has been obtained from sample CCTV investigations carried out on different pipe materials.

Figure 5.4 RCC Sewer Pipes Condition



The older Earthenware installed from 1935 is in a poor condition and makes up all of the 35 km of condition 5 sewer pipes in Figure 5.4. Figure 5.5 below shows a typical problem in a section of Earthenware (EW) pipe with numerous cracks some of which have developed into fractures and broken pipe.

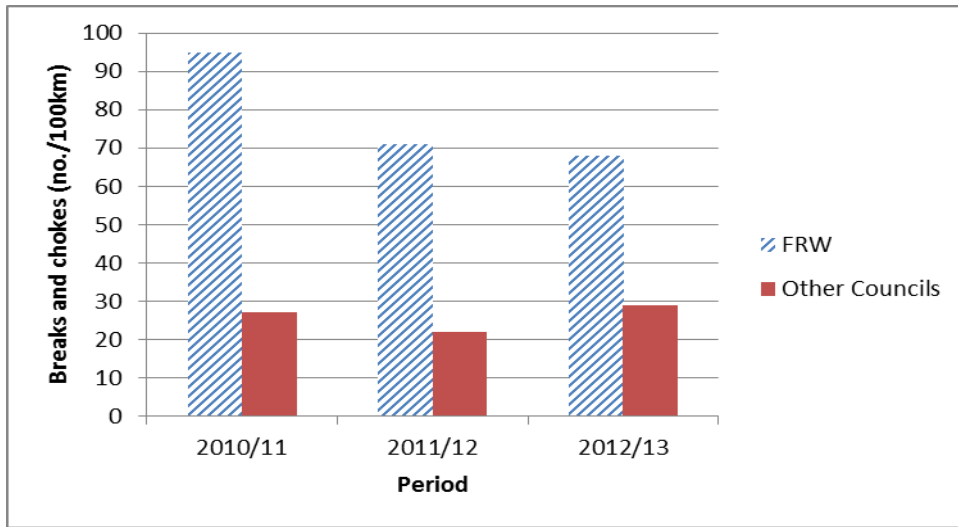
Figure 5.5 Typical EW Pipe Failures



The number of sewer main breaks and chokes in a network is an indicator of the condition of the network. Figure 5.6 below shows FRW’s yearly sewerage breaks and chokes per 100 km of sewer main compared with the average sewerage breaks and chokes for a number of like sized Councils as reported by the National Water Commission in there 2012/13 National Performance Reports. In 2010/11 FRW had the highest incidents for breaks and chokes per 100 km of sewer mains when compared with other Councils (blue). Since then it has trended downwards but as of 12/13 still has a

high number when compared with other Councils. FRW’s service standard target for Sewer main breaks and chokes per 100 km of main in Rockhampton is < 50 (The actual breaks and chokes for 2013/14 were 85.69).

Figure 5.6 Sewer Main Breaks and Chokes /100 km



FRW also has high incidents of blockages occurring in the jump up connection to the mainline due to poor connections to the sewer mains. Figure 5.7 below shows the proportion of blockages on jump ups compared with other sewer asset types for the 2013/14 period in Rockhampton.

Figure 5.7 Sewer blockages on different Sewer Assets

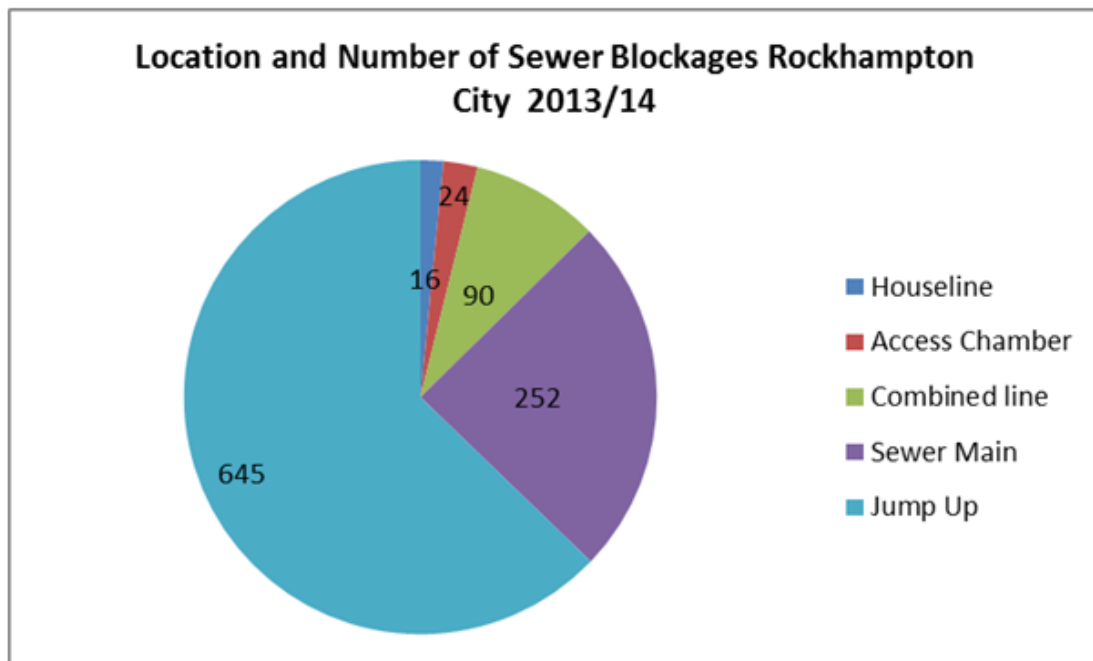
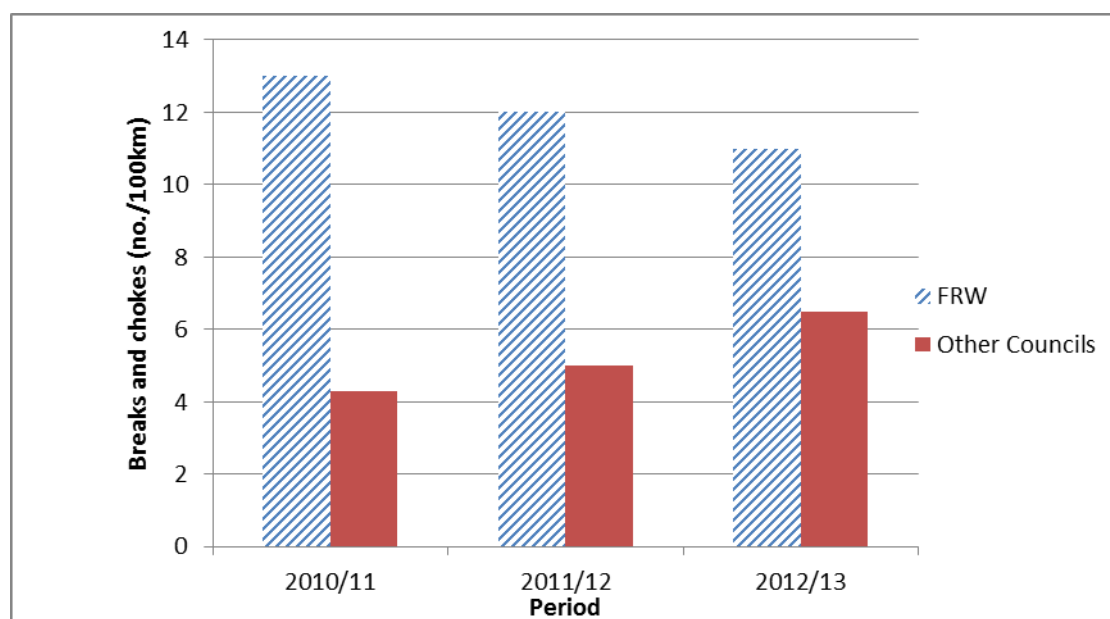


Figure 5.8 below shows property sewer breaks and chokes per 1000 properties. Again as in the sewer mains, FRW is trending downwards but still has sewer breaks and choke rates higher than many other like sized councils. FRW’s service standard target for Sewerage overflows to customer properties per 1000 connections is < 10 (The actual breaks and chokes per 1000 properties was 21 for the 2013/14 period).

5.8 Property Breaks and Chokes/100km



Sewage treatment and Disposal.

Three (3) sewage treatment plants service Rockhampton. Options for the mitigation of ongoing performance issues of the West Rockhampton STP are being investigated, and a marginal capital funding allocation has been made in this plan for the implementation of the most appropriated option.

Service Delivery

The network has been unreliable with a number of recorded dry weather overflows on sewer mains and jump ups. FRW's service standard target for Sewer main breaks and chokes per 100km of main in Rockhampton is < 50 (actual 85.69 in 2013/14). FRW's service standard target for Sewerage overflows to customer properties per 1000 connections is < 10 (The actual number of dry weather overflows on mains and jump ups during the 2013/14 period was 21).

5.1.3 Asset Valuation 2014

Description of asset valuation Method

The 2014 revaluation valued assets for a modern equivalent construction method to recreate the current asset. The sewerage treatment plants when they are replaced will likely incorporate new processes and technology but the valuation did not factor in any betterment to the current asset.

Components

Assets have been valued at a component level. The Infrastructure Asset valuation and Depreciation Guidelines define a component as *Specific parts of an asset having specific attributes such as different life expectancy, maintenance regimes, risk or criticality.*

Manholes and jump ups are replaced simultaneously with pipe renewals so their economic life is dependent on the life of the pipe. These assets are included in the replacement cost of the pipe.

Basis for determining effective lives used for valuation

Base lives adopted for the 2014 revaluation were based on Councils asset lives. These had been developed through Councils experience with assets. Annually Asset Managers review lives and sign them off.

The lives used in the 2014 revaluation for approx. 95% of assets are set out below:

Table 5.9: 2015 RRC Asset Lives

Type	Material/Type	% of total assets	Life (Years)
Sewer Gravity Mains	Earthenware	28.6	60
Sewer Gravity Mains	PVC	31.3	70
Sewer Rising Mains	DICL	0.4	80
Small Pumps		0.1	15
Sewer Pumps	Submersible	0.4	20
Water Meters		0.8	30
Switchboards		0.3	30
Electrical (cable)		0.4	40-50
Mechanical (Misc. Metalwork's)		0.6	40
Sewer Pipework (Active assets)	Most Bolted	0.3	60
Sewer Wet Wells		0.2	60
Sewer Dry wells			100
Sewer Treatment Structures			80

Key Assumptions made in preparing a valuation:

- Unit rates from the 2014 revaluation were based on a Greenfields approach and do not include brownfield costs such as temporary diversions, road reinstatement, under boring and out of hour's restrictions to works. In preparing estimates for sewerage reticulation work a brownfields rate is used.
- Residual Value for components such as earth embankments on Ponds where with maintenance there life is indefinite and they will not be replaced a residual value is appropriate. For these assets the residual value is the same as the current replacement cost. Hence, there is no depreciation expense for these components. Residual values also apply where the component is renewed or replaced, but the cost in doing so is less than the current replacement cost. An example of this is a large pump where the internal components are replaced while the original body of the pump is retained.

Asset Replacement Valuation Summary Rockhampton

Table 5.4 below sets out the replacement costs of asset types in Rockhampton where assets will reach the end of their life in the next 10 years. The remaining lives of each asset were calculated after either a site inspection or condition grading from 1 – 10 for active assets or an assessment based on the age of the asset for reticulation assets.

The Asset Valuation figures set out below in Table 5.10 are as calculated in the 2014 valuation. The method used to calculate the values are set out in Section 5, Renewals and Asset Valuation data.

The Conquest Asset Register as at October 2014 identified approx. \$50.6m worth of assets requiring replacement in the next 10 years in the Rockhampton Sewer network. Of this total \$44.1 m is for sewer gravity mains reaching the end of their life.

Table 5.10 Asset Revaluation Rockhampton Sewerage 2014

Reticulation	Length (km/no)	Replacement Cost (\$)	Age (Years)	Depreciated Replacement Cost (\$)	Remaining Life	Consumption Ratio %
Concrete	161	65,552,916	44-65	20,295,889	2-16	30
EW	156	39,428,880	65-78	7,061,141	2-12	18
PVC	150	38,174,909	0-44	26,728,961	40-80	70
DI/CI	1	299,375	1-15	221,121	65-80	74
Relining	89	22,142,569	0-10	20,979,436	65-70	95

Rising Mains	20	7,352,104	2-76	4,427,704	4-79	60
Pumps/Treatment						
North Rockhampton STP		25,088,526	28	16,462,503	2-80	66
West Rockhampton STP		8,269,019	53	3,001,528	2-80	36
South Rockhampton STP		22,530,777	32	14,193,711	2-80	63
Pump Stations	39	17,636,083	1-78	9,274,875	1-80	53
Total		246,475,158		122,646,869		

Sewer Mains Replacement Program Methodology

In developing, a renewal strategy for the water and sewerage assets, consideration has been given to risk, levels of service because of asset performance/condition, valuation information on remaining useful lives and FRW's adopted levels of service.

Asset revaluations as at June 2014 were carried out on the infrastructure of all Rockhampton Regional Council Water and Sewer assets. The replacement costs for assets are the minimum costs of replacing an asset by another asset offering the same level of service most efficiently. Materials and equipment costed are those Council would utilise today.

The remaining life of assets has been calculated according to the age of the asset as at June 2014 and the adopted useful life for the reticulation assets is set out in tables 5.1. In some asset classes, the valuer assessed the condition of assets in order to accurately calculate the assets remaining life. The renewal profile and expenditure developed for assets in this plan has been based on the replacement costs and remaining lives calculated in valuations. Where other condition and performance data was available for assets this has been used to refine the initial valuation estimate of useful life.

The useful life depends on a number of factors that takes into account the material, construction methods, design criteria, location, loading, pressure, environmental conditions and the level of maintenance.

Each year, in conjunction with the relevant Asset Manager, assets that have reached the end of their life, according to the valuation, are investigated to see if they require replacement or their useful life extended.

5.1.4 Operations and Maintenance Plan

Table 5.11 below sets out the projected Operations and Maintenance Expenditure for the Rockhampton Sewer network over the next three (3) years by activity. The major components of operating cost are:

- Salaries and Wages
- Overheads on salaries and wages
- Materials/Chemical/energy
- Contracts
- Accommodation
- Items expensed rather than capitalised and pensioner remission costs

Operating expenditure is increasing 5.2 % per year to allow for new contributed assets which require additional operational funding.

Table 5.11 Three year projected Rockhampton Sewer Operational Expenditure

	2015/16	2016/17	2017/18
Activity			
Reticulation	985,589.68	1,036,840.34	1,090,756.04
Pump Station	716,057.58	753,292.57	792,463.79
Treatment	1,560,587.41	1,641,737.96	1,727,108.33
Total	3,262,234.67	3,431,870.87	3,610,328.16

5.1.4.2 Reactive and Planned Maintenance Treatment and Supply

Due to the varying nature and age of the assets, varying levels of planned (includes preventative and health and safety compliance activities) and reactive maintenance is necessary. FRW is endeavouring to develop the optimal mix of reactive and preventative maintenance for treatment and supply assets that minimises maintenance costs and maintains levels of service. FRW monitors the mix and Figures 5.12 and 5.13 below show numbers of Planned and Reactive Maintenance Work orders completed and in progress for the period May 2014 to March 2015. Figure 5.14 below shows for March 2015 the mix of reactive (include reactive, callouts) was 47% and planned maintenance (include safety/compliance) was 53%. Safety and compliance maintenance is mandatory so the numbers of work orders completed will not vary but overtime its expected reactive maintenance jobs will come down as planned maintenance increase resulting in a lower operational cost. The figures below are from monthly reports provided to FRW management from the FRW Maintenance Planner.

Figure 5.12 Planned Maintenance Treatment and Supply Work Orders May 2014 – March 2015

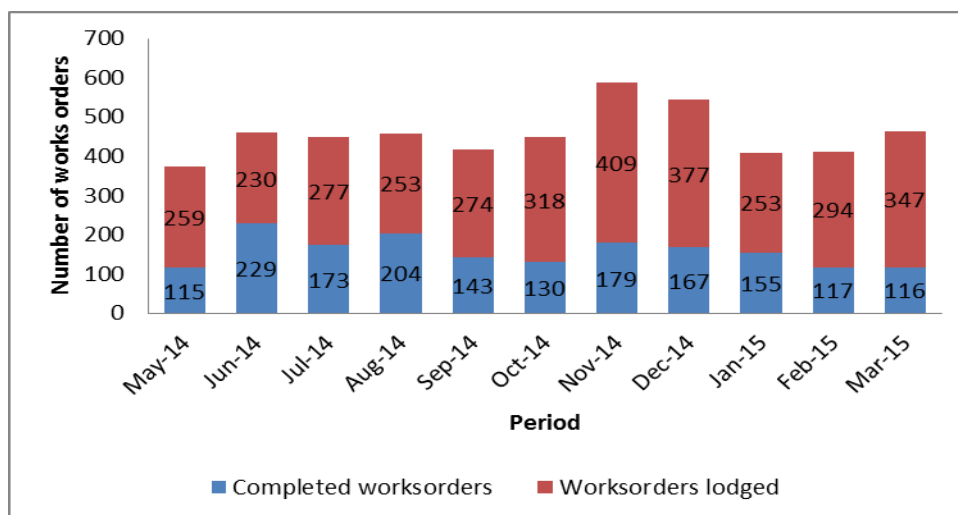


Figure 5.13 Reactive Maintenance Treatment and Supply Work Orders May 2014 – March 2015

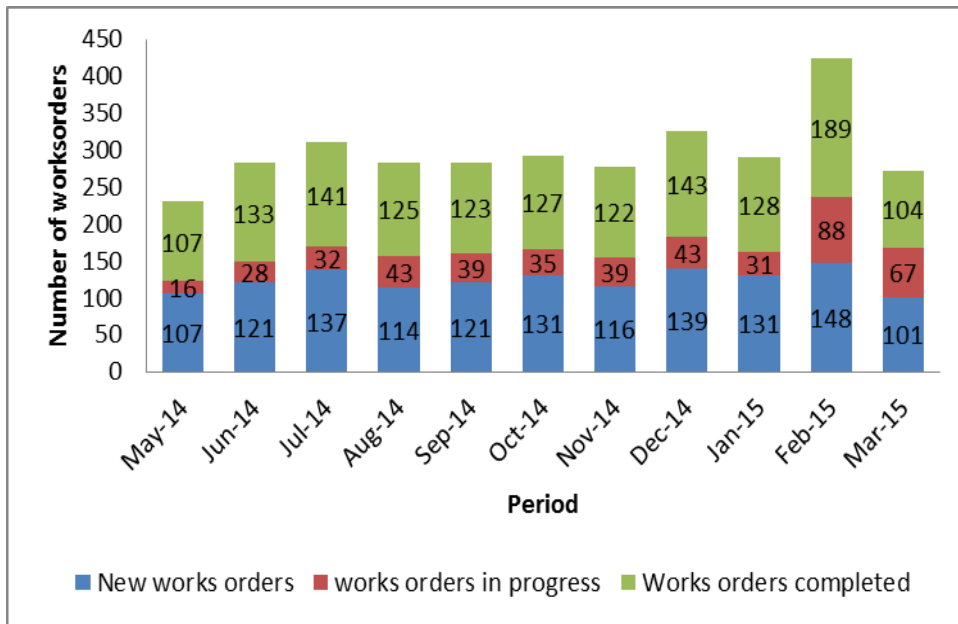
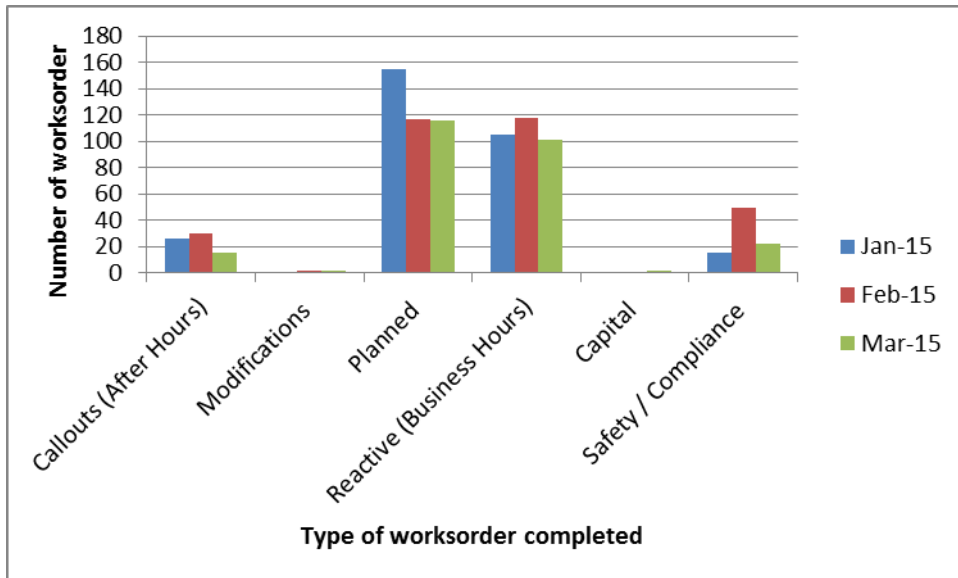


Figure 5.14 Completed workorders for January, February, March (2015)



5.1.4.4 Reactive and Planned Maintenance Network Services

The network services group maintains the reticulation where there is much less scope for carrying out planned maintenance in order to lower rates of reactive maintenance. FRW has recently started planned inspections of hydrants in critical areas such as bushfire, schools and hospital areas, and air valves forms part of these inspections. In March 2015 for Network Services 48% of completed maintenance was planned, while 52% was reactive / unplanned.

Figure 5.15: Planned Maintenance Network Services Work Orders May 2014 – March 2015

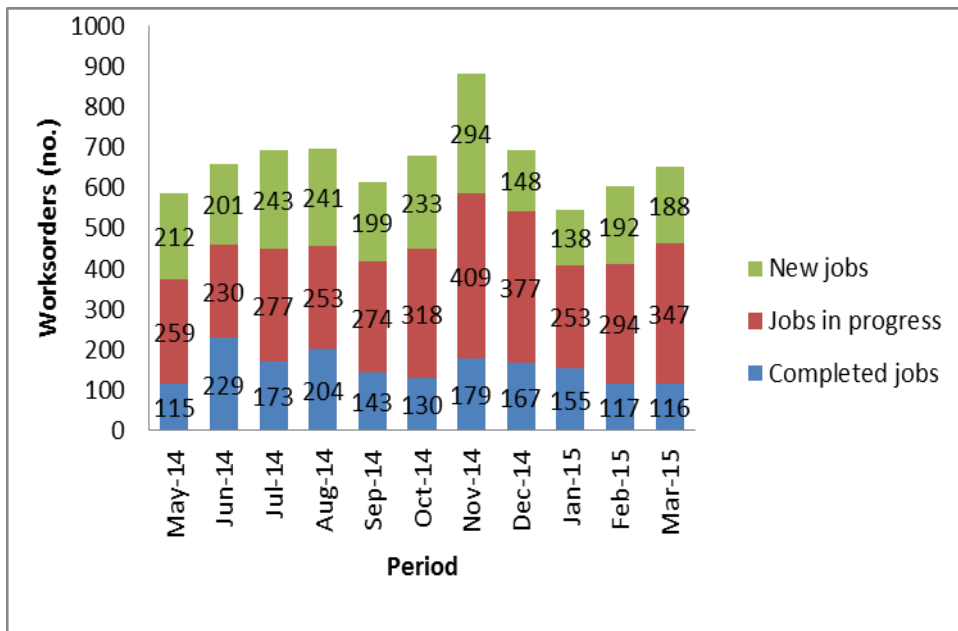


Figure 5.16 Reactive Maintenance Network Services Work Orders May 2014 – March 2015

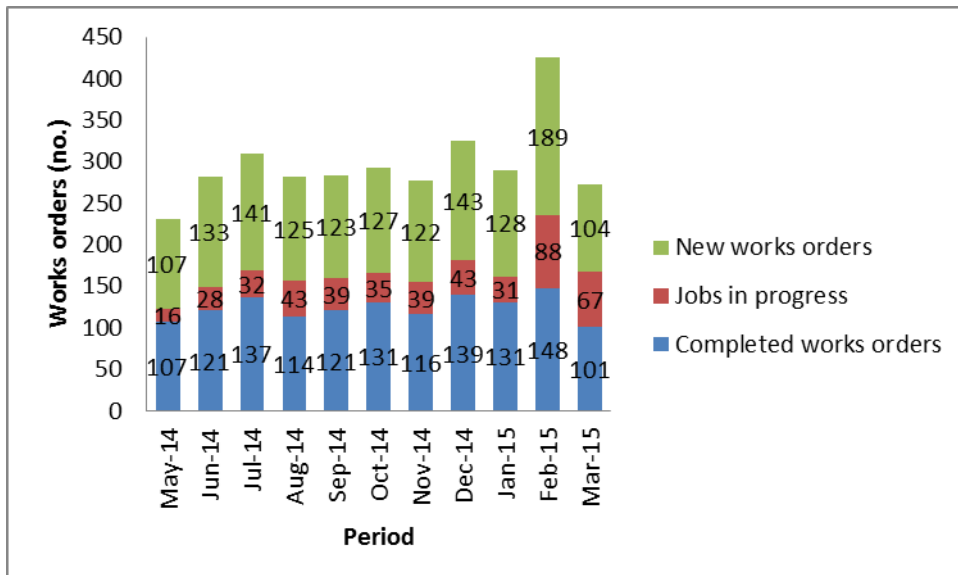
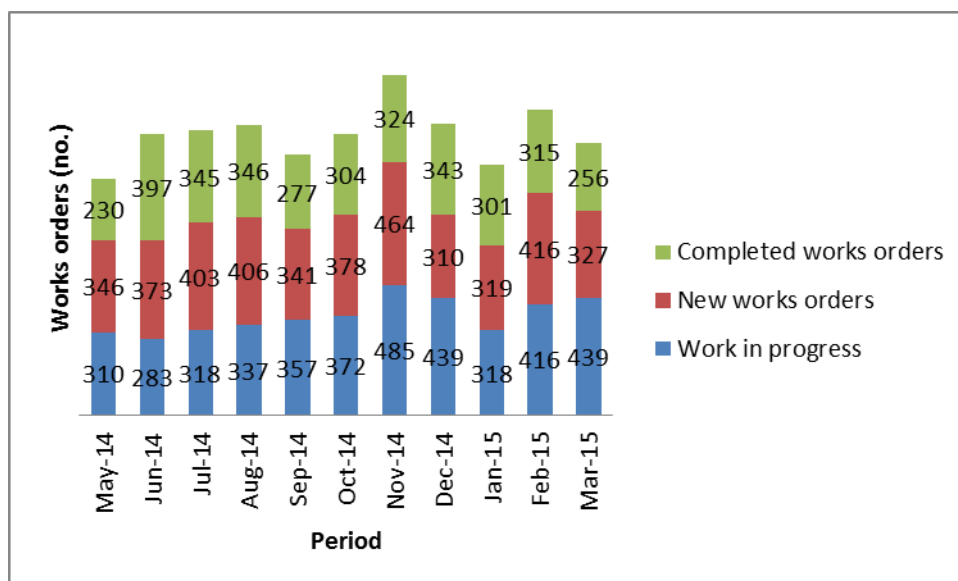


Figure 5.17 Combined Reactive, Planned Maintenance and Safety and Compliance Planned Maintenance May 2014 – March 2015



FRW and Assets have recently completed a draft Maintenance Strategy Manual for Treatment and Supply²⁴. The document address the reactive, planned (including preventative, compliance and safety) maintenance requirements and include maintenance strategies for treatment and supply active assets. This plan addresses the full spectrum of Treatment and Supply maintenance activities.

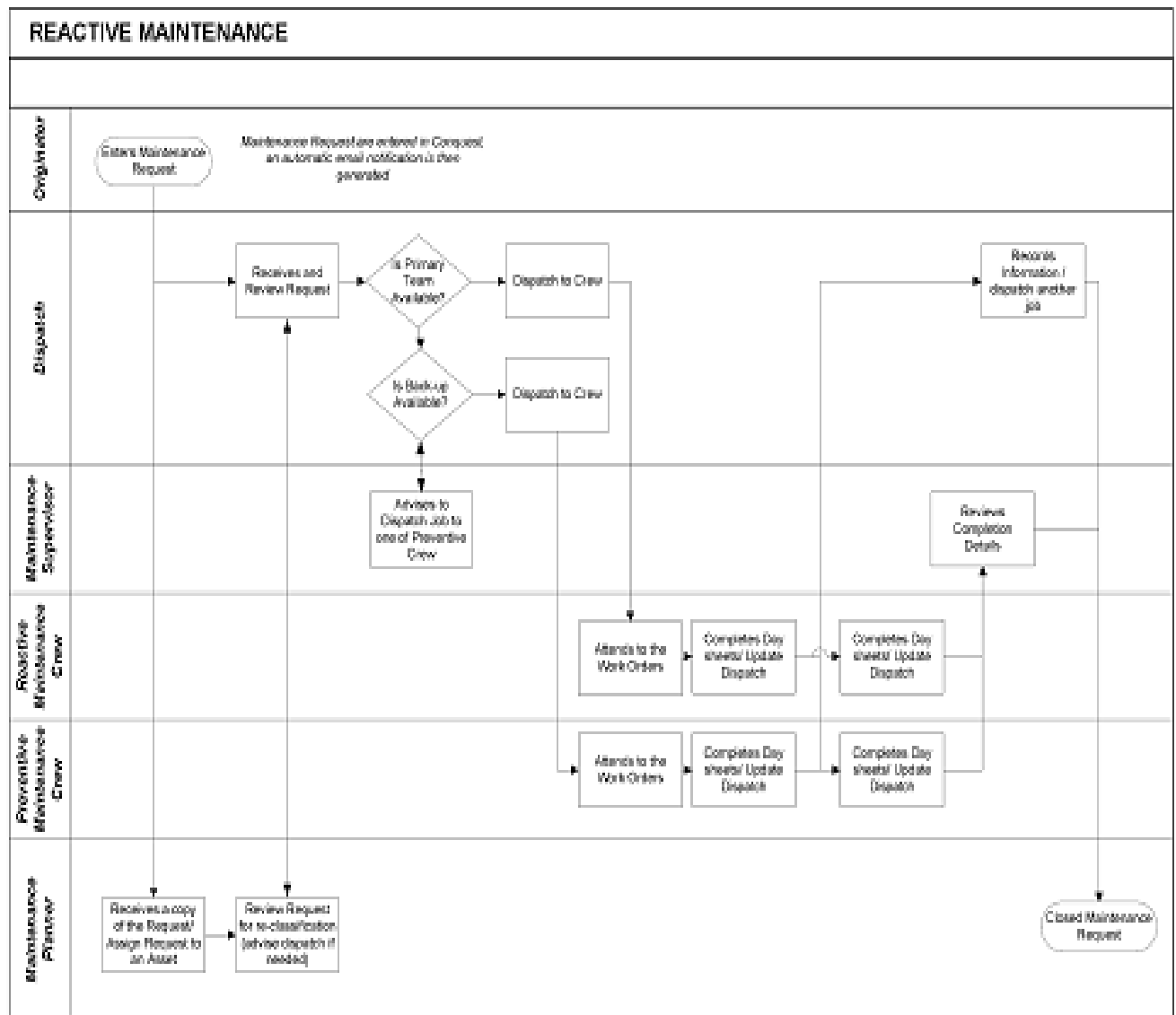
5.1.4.5 Reactive Maintenance Process

FRW’s staff carries out general reticulation, pump and treatment maintenance work in Rockhampton. The reactive process is set out below. Customers with a water or sewage complaint ring customer service who generate a customer request form in Conquest, the details of which are sent to FRW dispatch. FRW dispatch send the customer enquiry details to crews who return a day works sheet to dispatch when work is completed. Actions are generated using details in the day works sheets and stored in Conquest against assets. A list of reactive maintenance actions can be found for each Pump Station through querying FRW assets with an action category of Call Out Maintenance or Reactive Maintenance.

²⁴ Document saved O:\FinBus\Finance\Assets\Water & Sewer\5.Reports\Maintenance StrategyRev0001Rich.doc

Table 5.18 Reactive Maintenance Process

Reactive Maintenance Process Map



In order to ensure the more critical and urgent maintenance is attended first FRW dispatchers refer to a Priority Rating Matrix that enables them to assign a Priority Rating from P1 (Hi Priority) to P3 (Low Priority)²⁵. Table 5.19 below shows the Priority Rating Matrix with examples of the consequences of potential maintenance shown from less impact to high impact from left to right. Table 5.20 below shows the response and rectification time targets once the priority is assigned.

²⁵ Refer to FRW document Maintenance Strategy manual for treatment and Supply

Table 5.19: Reactive Maintenance Priority Rating Matrix

PRIORITY RATING MATRIX			
Consequences (always rate using consequence with greatest potential impact)			
	Negative public perception Prevention of normal operations Increased reactive maintenance Disruption to normal staff duties Loss of critical spares or supplies <\$10k cost incurred	Public complaint or environmental spill Reduction in service level Loss of normal design operating status Loss of preventative maintenance Unacceptable civil or site condition \$10 - 50k cost incurred	Public or environmental harm Loss of service or non-compliance Loss of SCADA control or monitoring Loss of whole treatment barrier Security or structural breach >\$50k cost incurred
Examples	Site left untidy or poorly signed Process shutdown required Increased need for fault resetting Normal planned tasks disrupted No spare parts or store chemicals	Sewer odour, sewer surcharge Reduced water pressure Low or high alarm, loss of duty standby Essential scheduled maintenance not done Site inaccessible due to vegetation	Reservoir contamination No water supply, STP licence breach No radio telemetry or local comms Chlorination failure Unauthorised access, unsafe structure
Likelihood			
Within 1 to 7 days	P2 – Moderate Impact/Risk	P1 – High Impact/Risk	P1 – High Impact/Risk
Within 7 to 28 days	P3 – Low Impact/Risk	P2 – Moderate Impact/Risk	P1 – High Impact/Risk
Not within 28 days	P3 – Low Impact/Risk	P3 – Low Impact/Risk	P2 – Moderate Impact/Risk

Table 5.20: Reactive Maintenance Response and Rectification Targets

Response and Rectification Time Targets

Priority Rating	Response Time to Site	Rectification Time	Maximum Tolerable Outage
P1	1 hour	5 hour	5 hour
P2	2 hours	24 hours	24 hours
P3	24 hours	5 days	5 days

Planned Maintenance Process

Planned maintenance (Preventative, Compliance and Health and Safety) is carried out on pump station and treatment plant assets in Rockhampton. Preventative maintenance activities for these asset types are addressed in the draft Maintenance Strategy Manual for Treatment and Supply²⁶. All these planned activities have been programmed into Conquest. A list of planned and preventative maintenance actions for each pump station can be found in Conquest through querying FRW assets with a Planned Maintenance Action category or a safety compliance Maintenance Asset Category. The majority of pump stations have a service scheduled every six (6) months. Some of the larger more critical pump stations have a three (3) monthly service while some smaller ones have a yearly service. A typical service consists of servicing the pump and changing the oil, checking the impellor, wears rings, valves, lids and ladders.

²⁶ Saved O/FinBus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/7.Final Documents/MtceStrategyRev0001.doc

Examples of Planned (also known as Preventative) Maintenance undertaken in Rockhampton:

- 3, 6, 8,12 month Pump station service (dependent on criticality) (service pump & change oil, check impellor and wear rings, check valves, lids and ladders.
- Electrical Maintenance (Yearly), checklist completed include Power, Communications, Pump/Motor and electrical
- Generator Service Mechanical (Yearly), Work Plan ; Change oil filter, check fuel filter, Check air filter and General check over
- Generator Testing (Monthly). Include Check Oil level, Coolant level, Battery Water level, Run hours and fuel level.
- Sewer Treatment Plant and Sewer Pump Stations Hazard Inspection. Checklist of hazards to check and comment on any risks.
- Ladder safety check (yearly) Yearly safety check of ladders and ladder safety system at Sewer wet wells and treatment plants.
- Sewerage Pump Inspection (weekly), visual checks of all Pump Stations.
- NQ Crane Service (Yearly) Service Hoist at Sewer Pump Stations
- Monthly – 12 months clean out of wet wells.
- Monthly odour control check

5.1.5 Risk Management

Major risk events that affect water and sewer assets in the Rockhampton Region are natural events such as cyclones, floods and bush fires. The major impacts of these natural events are the loss of power and telecommunications effecting the mechanical and electrical components in Pump stations and treatment plants. Consequences of power failures at pump stations can be significant causing sewer overflows, potential health impacts, and environmental breaches. Consequences from critical pump stations would be more severe. Table 5.21 below addresses Rockhampton Sewer Pump Stations in order of criticality. In the event of a complete loss of power, these critical pump stations are the ones that would have portable generators set up. At all other pump station sewerage levels are monitored and if they get close to overflowing they would be pumped down by a contractor or have a portable generator installed.

Table 5.21: Sewer Pump Station criticality

Table 5.21 Sewer Pump Stn Criticality		Pump Attributes				Pump Criticality Criteria								
Pump ID	Pump Stn	Pump Size	Manufacturer	Pump/Electrical installed	Expiry	Size as per KW	Avg kW rating	Size as parcels	Cost of failure (Mech/Elec) \$000	Inspection Frequency (mths)	Generator (Y/N)	Emergency Storage (m ³)	ADWF	PWWF
SP029	North Rockhampton Treatment Plant Pump Station No1	2 x 55 kW	Forrers	1999	2029	Extra Large	55	9252	483	3		139	27	5
SP030	North Rockhampton Treatment Plant Pump Station No 2	2 x 55 kW	Forrers	1999	2019	Extra Large	55	9252	473	3		148	57	11
SP001	Arthur St Pump Station	3 x 55 kW, 1 x 75 kW	Forrers & Flygt	1998	2018	Extra Large	60	7495	765	6		722	143	29
SP009	Hadgraft St Pump Station	2 x 55 kW	Forrers	1994	2014	Extra Large	55	4000	435	3		297	58	12
SP004	Jardine Park Pump Station	2 x 30 kW	Forrers	1995	2015	Extra large	30	2425	400	6		210	132	26
SP053	Forest Park Est Pump Station	2 x 22kW	Flygt	2006	2026	Large	18.5	403	200	6	Yes			
SP014	Frenchville Rd Pump Station	2 x 15 kW	Flygt	2000	2020	Large	15	443	159	6		8	53	11
SP002	Fitzroy St Pump Station	2 x 5.9 kW	Flygt	2009	2029	Medium	5.9	848	124	6		74.1	166	33
SP003	Campbell St Pump Station	2 x 7.5 kW	Flygt	2009	2029	Medium	7.5	564	186	6		100	434	87
SP048	Kerrigan St Pump Station	2 x 9 kW	Flygt	2006	2026	Medium	9	266	105	6				
SP047	Red Hill Pump Station	2 x 18.5 kW	Flygt	2004	2024	Large	18.5	204	93	6				
SP54	Chancellors Est Pump Stn	2 x 13.5 kW	Flygt	2007	2027	Medium	13.5	204	102	6				
SP008	Blackall St Pump Station	2 x 5.9 kW	Flygt	1990	2010	Medium	5.9	225	96	6		34	372	74
	Bruce Highway Pump Station	2 x 15 kW	Flygt	2012	2032	Large	15	64	128	6	Yes			
SP005	Melbourne St Pump Station	2 x 5.9 kW	Flygt	2000	2020	Medium	5.9	153	150	6		60	425	85

SP006	Pennycuick St Pump Station	2 x 5.9 kW	Flygt	2000	2020	Medium	5.9	136	118	6	47	539	108
SP050	Plover St Pump Station	2 x 2.4 kW	Flygt	2006	2026	Medium	5.9	104	117	12			
SP011	Lakes Creek Rd East Pump Station	2 x 3.1 kW	Flygt	2000	2020	Small	3.1	95	100	8	59	824	165
SP032	Peppermint Dr Pump Station	2 x 3.1 kW	Flygt	2013	2033	Small	3.1	152	45	6	7	201	40
SP038	Belmont Rd Pump Station	2 x 7.4 kW	Flygt	1998	2018	Medium	7.4	65	109	6	4	444	89
SP012	Lakes Creek Rd West Pump Station	2 x 5.9 kW	Flygt	2000	2020	Medium	5.9	45	64	8	11	377	75
SP042	Bodero St No 2 Pump Station	2 x 22.5 kW	KSB-Ajax	2000	2020	Large	22.5	17	188	6	17	29	6
SP037	Blue Gum Tce Pump Station	2 x 3.1 kW	Flygt	2000	2020	Small	3.1	64	52	6	13	431	86
SP052	York St Pump Station	2 x 3.1 kW	Flygt	2006	2026	Small	3.1	24	77	12			
SP049	Kele Park Pump Station	2 x 2.4 kW	Flygt	2006	2026	Small	2.4	19	73	6			
SP007	Ferguson St Pump Station	1 x 22.5 kW	Lowara	2000	2020	Large	22.5	Overflow pump	130	12	25	103	21
SP022	Airport Car Park Pump Station No 1	2 x 5.9 kW	Forrers + Flygt	2003	2023	Medium	5.9	1	119	6	11	436	87
SP024	Airport Light Aircraft Pump Station No 3	2 x 5.9 kW	Flygt	2009	2029	Medium	5.9	1 Commercial	75	6	15	896	179
SP023	Airport Fuel Depot Pump Station No 2	2 x 1.3 kW	Flygt	2000	2020	Very Small	1.3	2 Commercial	75	6	8	1512	302
SP018	Aquatic Place Pump Station	2 x 1.5 kW	Grundfos	2000	2020	Very Small	1.5	5 Commercial	56	6	10	362	72
SP040	Lion Creek Rd Pump Station	2 x 3.1 kW	Flygt	2000	2020	Small	3.1	3	59	6	9	714	143
SP020	East Lane Pump Station	1 x 1.3 kW	Flygt	2010	2030	Very Small	1.3	2	40	6	6	956	191
SP017	Nuttal St Pump Station	2 x 3.1 kW	Flygt	2000	2020	Small	3.1	2	77	8	9	2162	432

SP051	Harman St Pump Station	2 x 1.2 kW	Seg Ultraflow	2014	2034	Small	1.2	1	75	8			
SP046	Victoria Park Septic Pump Station	2 x 1.5 kW		2001	2021	Small	1.5	1	44	12			
SP041	Belmont Rd No 3 Sewage Pump Station	2 x 2.4 kW	Flygt	2000	2020	Small	2.4	1	75	6	7	247	49
SP028	Water St Pump Station	2 x 1.3 kW	Flygt	1999	2019	Very Small	1.3	1	75	8	5	1283	257
SP021	Park St Pump Station	2 x 1.3 kW	Flygt	1998	2018	Very Small	1.3	14	55	8	11	837	167
SP045	Prestige Estate Pump Station	2 x 2 kW	Flygt	2000	2020	Very Small	2	15	75	12	8	996	199

Examples of mitigation measures FRW have put in place to reduce the risk and impacts of loss of power are set out below

Robust design codes and practices; any new sewer pump stations must comply with specifications in the Capricorn Municipal Development Guidelines, specifically:

- Pump Station overflows to controlled area
- Knife gate valve at inlet to enable sewerage to be prevented entering the wet well.
- Bypass discharge pipe.
- Emergency storage at wet wells
- Pump stations accessible to Vac Trucks
- Plug in point for Mobile Generators
- Pumps designed for 5 times The Average Daily Dry Weather Flow (ADWF)

Sewer Main Rehabilitation:

- Relining mains to prevent infiltration of stormwater into sewerage networks.

Preventative Maintenance Strategies and Activities:

- Generator testing (monthly) (2 x generators at Bruce Highway and Forest Park estate)
- Wet well clean out by vac trucks (Yearly)
- Installation of overflow points in the reticulation from sewer to stormwater.
- SCADA to monitor wet well levels (run by solar, battery)

5.1.6 Capital Works Plan

5.1.6.1 Capital Works activity types

Capital Renewal Program

The assets in the renewal/replacement plan below are to be renewed in order to restore levels of service standards. They are not meeting the required level of service due to a number of different failure modes ascertained by Asset management and operations staff.

Failure modes include:

- Structural failure, where the physical condition of the asset has deteriorated to the point the asset is at the end of its life
- Capacity failure, where the level of under capacity means levels of service are not being met
- Levels of service failures, where the assets reliability is effecting performance and,
- Obsolescence failure, where technological change or lack of replacement parts is rendering assets uneconomic to operate or maintain.

A number of factors have been looked at in working out renewal / replacement projects, set out below. Firstly a list of assets expiring in the next 10 years is found in Councils asset register (see Councils adopted useful lives in valuation section above). The 2014 valuation identified \$51.5M worth of assets expiring in the next 10 years. FRW has budgeted to spend \$49.7M over the next 10 years. The shortfall in spending is due to Asset Management and Operations staff examining the expired list

and after looking at other factors such as condition and performance pushing some assets outside the 10 year period for replacement. In some cases Operations staff have identified assets where the performance of the asset is not meeting levels of service and the asset requires replacement earlier than its adopted useful life.

The whole process of identifying renewal projects in this plan has involved Asset Management staff reviewing the condition of the expired assets through analysing the components maintenance and inspection history, to identify particular failure modes that will indicate if the component is at the end of its useful life. Next, the criticality is reviewed in order to prioritise the replacements²⁷. Finally, the list is provided to Operations staff to add Projects where the Performance of the asset is not meeting levels of service and the asset requires replacement earlier than its adopted useful life.

Capital Upgrade Program

Includes works to upgrade or improve an existing asset beyond its original capacity or performance in response to changes in future needs.

New Capital Works Program

10-year plans below have come from Asset Management, Operations and Planning staff. The project description is set out as follows:

[R] (R: Renewal, U: Upgrade, N: New) **R** (Loc: Rockhampton, Gracemere, Mt Morgan) **W** (Water/Sewer) **Smith St Watermain** (Project Description) **(AM)** (Source: AM: Asset Management, Plan: Planning Op: Operations)

5.1.6.2 Reticulation

Renewal/Replacement Plan

The 2014 Revaluation identified \$44M worth of reticulation assets expiring in the next 10 years. A total of 120km of earthenware pipes and 44km of concrete pipes have been identified. To date approx. 120km of mainly Earthenware mains have already been relined. A significant proportion of the earthenware identified as being at the end of its life has been investigated (CCTV) in the last 5 years as part of the relining program and found to be in a sound structural condition not requiring immediate relining. The relining for many of the gravity mains can thus be extended beyond 10 years, it is however important to frequently monitor these lines in a planned manner. The Improvement Plan has a project to examine these lines and assess their remaining life, a sewerage gravity main assessed as a grade 2 or in good condition would have an estimated remaining useful life of 50% to 80% of its current life.²⁸ FRW has budgeted \$14.9M over the next 10 years to rehabilitate sewer reticulation.

Work is to continue on the rehabilitation of sewer mains over the next 10 years in order to meet reliability levels of Service (refer to 6.10.4 Service Delivery). Up to 2013/14 the focus of the sewer main rehabilitation program had been on the assessment (CCTV), and relining of older Earthen Ware pipes. From 2013/14 the focus has been on functional performance, targeting sewer mains based on various criteria including the history of blockages, inflow and infiltration after rainfall events, material type and functional criticality of the sewer main. The program involves the investigation (CCTV) of target areas and the relining of sewer mains to a structural grade of 4 or 5 specification compliant with the Conduit Inspection Reporting Code of Australia, WSA 05-2008 Version 2.2. This approach is to continue in 2015/16 along with internally repairing mainlines and jump ups.

New / Upgrade Plan

²⁷ Refer to Water Sewer pump Stn procedure document, location shown in Bibliography section of AMP.

²⁸ Table 9.3 Structural Condition Grading Estimated % Useful life Remaining-Sewerage, Condition assessment and Asset Performance Guidelines, Practice Note 7 Water Supply and Sewerage, IPWEA

The remaining residential areas for development within the Rockhampton City Boundary are Parkhurst and certain small areas of Norman Gardens. New reticulation and pump station projects in table 5.23 below are to meet future levels of service in the Parkhurst area. The projects are dependent on growth occurring in the area. This work is managed through Infrastructure agreements whereby Council designs and appoints contractors to do the work that is then funded from development contributions.

Table 5.23 Rockhampton Sewerage Reticulation Capital Works Expenditure (10-year plan)

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton Reticulation Renewals; \$44 m worth of Conc / EW reticulation assets expiring next 10 yrs, spending \$14.9 m over next 10 yrs on rehab program											
0581031	[R] R-S- Jump up & mainline priority (AM)	700,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
0581032	[R] R-S Access Chamber Raising (AM)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
0581107	[R] Sewer main Relining & Associated works (AM)	600,000	600,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,400,000
1030501	[R] Sewer Combined Lines Control (AM)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
	[R] S Main Trunk 375 mm Moores Creek crossing	420,000									
Total		1,920,000	1,200,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	1,600,000	2,000,000

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Rockhampton New Reticulation / Pump station Development Projects in Parkhurst Area to meet future demand in the area, subject to growth occurring											
1033792	[N] G – S Main (Rising) 250 mm EdenbrookEast (Sew 101) (Stocklands infrastructure)				418,000						
	[N] R – S Main (Gravity) 225 mm Ramsay Crk (Westco)				49,000						
	[N] R – S Main (Gravity) 200 mm Ramsay Creek – SEW11						264,600				
	[N] R-S Main (Gravity) 300 mm Ellida West (Stockland Infrastructure Agreement)							351,000			
	[N] R S Main (Rising) 300 mm Ellida West SPS to Mason St (Stockland Infrastructure Agreement)									1,500,000	
	[N] R SPS Ellida East second wet well (Stockland Infrastructure Agreement)									150,000	
	[N] R – S Main (Rising) 300 mm SPS Limestone to Norman & Nagle		880,000								
	[N] R – S Main (Gravity) 375 mm Olive St down Norman Rd						998,280				
	[N] R – S Main (Gravity) 375 mm Along Mason Ave to Norman Rd						998,280				
	[N] R – S Main (Gavity) 300 mm Boundary Rd – Yaamba Rd to Limestone SPS		224,100								
	[N] R – S main (Gravity) 225 mm Edenbrook East SEW 28 (Stockland Infrastructure Agreement)							284,200			
	[N] R – S Main (Rising) 200 mm from Ellida East SPS to Ellida West SPS						720,000				

	(SEW-27) (Stocklands Infrastructure Agreement)										
	[N] R-SPS Limestone Creek (SPS 2) Sew 3 Plan		450,000								
	[N] R SPS Elida East (Sew 6) (Stocklands infrastructure Agreement)						450,000				
	[N] R SPS Edenbrook East near Yaamba Rd (Sew 100) Stocklands Infrastructure Agreement				450,000						
Total			1,554,100	0	917,000	0	3,431,160	635,200	0	1,650,000	0

5.1.6.3 North Rockhampton Sewage Treatment Plant

The North Rockhampton STP currently serves a population of 37,300 persons plus a commercial and industrial component.

The plant in its existing configuration requires an upgrade in order to meet mass load effluent standard A (48,000EP capacity) and treated effluent standard B (42,500EP capacity). From 2018/19 a budget has been allowed for the improvement of the STP.

Renewal / Replacement Plan

The North Rockhampton treatment plant was constructed in 1986, it is now approaching 30 years, with some assets nearing the end of their physical life, which effects their operational performance and reliability. Major mechanical renewal works are planned for the North Rockhampton Sewer pump Station in 2015/16, and electrical renewal works for 2016/17.

Sewerage treatment plants operate in a very corrosive environment and many elements of the plant have short useful lives, structures require renewal as they have corroded to the point where they have become a safety hazard. Rehabilitation works is to be carried out on a number of corroded structures and pipes in the next 3 years including the inlet works floor coverings, oxidation ditch pipes, the aerator bridge walkway and the sewer pump station walkway.

Some mechanical assets are also at the end of their economic life, and has become unreliable and requiring excessive maintenance. Aerators on the oxidation ditch are to be progressively overhauled over the next 4 years with a range of electrical and mechanical works planned for 2016/17 for the secondary clarified.

New and Upgrade Plan

New Works to be carried out at the NRSTP include upgrading the Waste activated sludge pumps and replacing the ultrasonic level sensor at the inlet with a flow meter. Both assets will give a higher level of service performance.

In 2015/16 a new recycled scheme is to be installed to provide an irrigation supply to local parks.

Table 5.23 North Rockhampton Sewer Treatment Plant Renewals

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
NRSTP Renewals ; Treatment Plant Installed in 1986, Some Original mech/electrical assets at end of life effecting reliability, corrosive environment and some structures need replacing for safety reasons (NB: this is full budget for job, includes portion of works that may be classified as New/Upgrade works)											
	[R] S NRSTP Inlet Works Flooring Covers Renewal (Op)	50,000									
	[R] S NRSTP RAS Pump Station Renewal (Op)	25,000									
	[R] S NRSTP Complete Electrical Renewal (Op)		2,200,000								
	[R] S NRSTP Surface Protection for oxidation ditch Inlet pipes and other external pipework (Op)	35,000									
	[R] S NRSTP Oxidation ditch Tank Concrete Joint Renewal (Op)				50,000						
	[R] S NRSTP Odour Filter Unit Renewal (Op)		50,000								
	[R] S NRSTP Secondary Clarifier Mech & Elec renewal (Op)			250,000							
	[R] S NRSTP Outfall Pipe Condition Assessment-Relining (Op)		60,000								
	[R] S NRSTP Aerator Bridge Walkway Cover Renewal (Op)	30,000	25,000								
	[R] S NRSTP Sludge Lagoons supernatant Return Renewal (Op)		30,000								
	[R] S NRSTP SPS No 1 and No 2 Complete electrical renewal (Unlicenced) (Op)	500,000									
	[R] NRSTP SPS No 1 and No 2 Walkway Structure Renewal (Op)				300,000						
	[R] NRSTP SPS No 1 and No 2 Pump Renewal (Op)				200,000						
	[R] NRSTP renewal of oxidation ditch aerators (Op)	80,000	80,000	80,000	80,000						
	[R] S NRSTP Preliminary Works Grit Vortex 1 (Ass ID 1032478) (AM)(Valuers note is not working)						80,000				
	[R] S NRSTP Preliminary Works Grit Vortex 2 (Ass ID 1032479) AM (Valuers note is not working)						80,000				
	[R] S NRSTP Preliminary Works Auto sampler (Ass ID 1032480) AM						20,000				
	[R] S NRSTP Preliminary Works Grit Airlift blowers (Ass ID 1032476) AM (Valuation Condition 4)								50,000		
	[R] S NRSTP Sludge Pump Stn pumps (Ass ID 1032469) AM (Valuation Cond 4 and lot of mtce inclu overhauls)								57,750		
	[R] S NRSTP Site telemetry (Ass ID 1032819) AM								66,000		
	Total	720,000	2,445,000	330,000	630,000	0	260,000	0	173,750	0	0

Table 5.24 North Rockhampton STP New Works

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
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NRSTP New and Upgrade Projects ; requires upgrading to meet discharge std (mass load effluent Std A), Upgrade will also cater for anticipated growth to aprox 2040 (NB: This is full budget and includes portions of project for financial purposes that may be classified as Renewal work)

	[N] R NRSTP Rton North (requires upgrade in the future to meet discharge std (mass load effluent Std A) Upgrade will also cater for anticipated growth to 2040. Pushed out beyond 10 yrs	0	0	0	0	0	0	0	0	0	0
	[N] S NRSTP Inlet Flow Metering installation	40,000									
959061	[N] S NRSTP Effluent reuse scheme	100,000									
	[N]-S-NRSTP Inlet screen generator install	15,000									
	[U]-S-NRSTP WAS Pump Station Upgrade (Duty/Standby)		60,000								
	[U] S SRSTP Primary Sedimentation tanks M & E renewal	24,000	24,000								
	R STP North				500,000	1,500,000	9,250,000	9,250,000	9,760,668	9,760,668	9,760,666
	Total Expenditure	179,000	84,000	0	500,000	1,500,000	9,250,000	9,250,000	9,760,668	9,760,668	9,760,666

5.1.6.4 South Rockhampton Sewage Treatment Plant

The SRSTP currently serves a population of 34,000 plus a commercial and industrial component.

Civil and mechanical components at the plant have corroded and will require significant repair costs. The plant is affected by low return flood events and treatment capacity is lost at the 5 year ARI level²⁹

Renewal / Replacement Plan

The SRSTP was constructed in 1983 and some original mechanical, electrical, pipe, valve and structural assets are at the end of their useful lives.

A number of projects below are to rectify corrosion problem on valves, pipes and structures. Some of the steel walkway and handrails have corroded particularly at joints to the point they are a safety hazard. Repairs to address localised safety issues are planned for this year, while more comprehensive works are programmed for 2016/17.

Currently a major project has been underway to limit the release of hydrogen sulphide in the process and therefore limit rates of corrosion through the plant. In 2016/17, an odour treatment system is to be constructed in the sludge transfer station to prevent the release of hydrogen sulphide and reduce the corrosion of infrastructure.

Mechanical and electrical components that have reached the end of their useful lives, are to be replaced, these include the Biosolid mechanical components, and the biological treatment electrical and telemetry components.

New and Upgrade Plan

From 2019/20 onwards significant work is to begin on upgrading the South Rockhampton Sewerage treatment plant, and over the next 2 years a recycled water scheme is planned for the South Rockhampton Sewerage Treatment Plant.

²⁹ Refer to SKM report Rockhampton Regional Council / Fitzroy River Water, Sewage Treatment Plants Strategy Planning study, Final Aug 2013.

Table 5.25 South Rockhampton STP Renewals

Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
SRSTP Renewals, Plant installed 1983, over 30 yrs old and original mechanical/electrical components at end of life effecting reliability, corrosive environment and safety repairs required on walkways and handrails										
[R] S SRSTP Primary Sedimentation tanks M & E renewal	96,000	96,000								
[R] SRSTP Sludge Transfer Station refurbishment and Odour control		50,000								
[R] SRSTP Primary Digestors Internal Renewal	70,000	70,000								
[R] SRSTP Walkway and Handrailing renewals	25,000	25,000								
[R] SRSTP Primary and Secondary sludge pump renewals		120,000								
[R] S SRSTP Primary Valve Pit refurbishment	90,000									
[R] S SRSTP Primary Clarifiers Sludge Collection Auto Valves (Ass ID 1032520) AM (Valuer Poor overall condition)										
[R] S SRSTP Bioreactor Instrumentation (Ass ID 1032482) AM (Cond 3 Inst 1983)						80,000				
[R] S SRSTP Bioreactor Outlet Penstocks (Ass ID 1032482) AM (cond 3 inst 1983)						80,000				
[R] S SRSTP Biosolids- Mechanical Components (Ass ID 639589) AM (Valuer poor overall condition)			85,000							
[R] S SRSTP Digester Instrumentation (Ass ID 1032485) AM (Cond 3, install 1983)						90,000				
[R] S SRSTP Biological Treatment-Electrical & telemetry components (Ass ID 639597) AM (Valuer , very poor overall condition)			120,000							
[R] S SRSTP Main Pump Stn Supernatant pumps (Ass ID 1032498) AM (Cond 4 Inst 1983)								41,800		
[R] S SRSTP Primary Clarifier Sludge collection Well (Ass ID 1032519) AM (valuer , structurally unsound)										
[R] S SRSTP Secondary Clarifier Sludge Collection Well valves (Ass ID 1032519) AM (Inst 1983)								20,000		
[R] S SRSTP Primary Clarifier Sludge Collection well mechanical (Ass ID 1032517) AM (Inst 1983)								25,000		
[R] S SRSTP CAS Reticulation (Ass ID 1032528) AM (Inst 1983)								60,000		
[R] S SRSTP Main Pump Stn electrical (Ass ID 1032493) AM (Inst 1983)								80,000		
[R] S SRSTP Main Pump Station mechanical (Ass ID 1032494) AM (Inst 1983)								120,000		
[R] S SRSTP Sec Treatment-Mechanical Components (Ass ID 1032494) (Inst 1983)								160,000		
[R] S SRSTP Secondary Clarifier Sludge collection Well mechanical (Ass ID 1032524) AM (Inst 1983)								15,000		
[R] S SRSTP main Pump Stn Valves (Ass ID 1032503) AM)(Inst 1983)								110,000		

Total	281,000	361,000	205,000	0	0	250,000	0	631,800	0	0
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Table 5.26 SRSTP New / Upgrade Works

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
SRSTP New Upgrades ; West to be absorbed into South, assist in meeting consolidated load based discharge consent											
0640283	[N] R-SRSTP Rton South (pipeline from West Rton catchment) SEW 104	1,000,000	1,600,000	400,000							
	[U]-S- SRSTP Rton South Augmentation (moved beyond 10 years)					0	0	0	0	0	0
	[N] -S- SRSTP Construction of Recycled Water scheme			830,000							
	[N] S SRSTP Inlet Screen Duty Standby Upgrade	80,000									
	[N] S SRSTP Inlet Screens Generator installation	20,000									
	N] S SRSTP New Pipework from digestors to sludge lagoons	30,000									
	[U] R SPS Jardine Park Upgrade / Planning	15,000									
	[U] R SPS Jardine Park Mech & Elec Upgrade		150,000								
	Total Expenditure	1,145,000	1,750,000	1,230,000	0	0	0	0	0	0	0

5.1.1

5.1.6.5 West Rockhampton Sewage Treatment Plant

The West Rockhampton Sewerage Treatment Plant serves a population of 6,200 with a further small component attributable to industry and commerce in this catchment.

The Plant is dated, the effluent cannot meet modern discharge standards and Council is in the process of investigating alternative treatment options.

5.1.6.6 Sewer Pump Stations

There are 40 sewer pump stations in the Rockhampton Sewer network. A number of factors have been considered in prioritising the renewal of sewerage pump stations:

- The first priority is to identify a list of pump station assets that will expire in the next 10 years).
- The next consideration is to determine the condition of the expired assets through analysing the components maintenance and inspection history to identify particular failure modes that will indicate if the component is at the end of its useful life.
- Next, the criticality of each pump station is considered.
- A list is then provided to Operations staff to enable them to include Projects where the asset performance is not meeting levels of service and the asset requires replacement earlier than its adopted useful life.

Renewal / Replacement Plan

A number of Electrical and Control assets are to be replaced in order to improve safety, and increase reliability. Particular replacements are to occur at Park St SPS, Soundshell SPS, Blackall St SPS, Kele Park SPS, Melbourne SPS and Pennyquick SPS.

Also to be replaced are a number of sewer pumps, the useful lives of sewerage pumps is 20 years and a large number of these pumps have reached this age or their condition is such that their replacement has been brought forward. Particular pump replacements are to occur at Arthur St, Bodero, Brothers Club, Belmont Road and Blue Gum Tce.

New/ Upgrade Plan

Upgrade works for the Jardine Park SPS and the Arthur St SPS are programmed for 2016/17.

The remaining residential areas for development within the Rockhampton City Boundary are Parkhurst and some areas of Norman Gardens. New pump station projects below are to meet the additional development demand in the Parkhurst area. This work is managed through Infrastructure agreements whereby Council designs and appoints contractors to do the work that is then funded from development contributions.

Table 5.27 Sewer Pump Stations Renewals

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Sewer Pump Stn Renewals ; Pump, electrical, control assets at end of life due to condition/performance (NB: below are complete budgets for projects and include upgrade/new portions of the project)											
987927	[R] –R- SPS Arthur St electrical upgrade	111,500									
	[R] –R- SPS Arthur St dry well pump 1,2 & 3 renewal	125,000									
	[R] –R- SPS Belmont Road complete electrical Upgrade (unlicenced)	90,000									
	[R]-R-SPS Prestige Est Complete electrical Upgrade (unlicenced)	90,000									
	[R] – R – SPS Red Hill Pump No 1 & 2 renewal				25,000			20,000			
	[R]- R-SPS Arthur St Civil Structure Renewal				700,000						
	[R] R SPS Aquatic PI complete electrical and comms (unlicenced)				90,000						
	[R] R SPS Blue Gum Tce Complete Electrical and Comms (unlicenced)				90,000						
	[R] R SPS Bodero Complete Electrical and Comms (unlicenced)				90,000						
	[R] R SPS Hadgraft St electrical isolators and PLC renewal	60,000									
	[R] R SPS York St Comms Renewal (Unlicenced)		15,000								
	[R] R SPS Airport Carpark Complete Electrical upgrade				90,000						
	[R] R SPS Blackall St No 1 and 2 Pump Renewal		50,000								
	[R] R SPS Blackall St Complete electrical renewal			90,000							
	[R] R SPS Brothers Club Electrical and Comms renewal (unlicenced)			90,000							
	[R] R SPS Fitzroy St Electrical and Comms Renewal (unlicenced)			90,000							
	[R] R SPS Harman St Comms Renewal (unlicenced)		10,000								
	[R] R SPS Kele Park Comms Renewal (Unlicenced)		10,000								
	[R] R SPS Melbourne St Electrical and Comms Renewal (unlicenced)			90,000							
	[R] R SPS Prestige Est Pump No 1 and 2 renewal						20,000				
	[R] R SPS Bodero Pump No 1 and 2 renewal						20,000				
	[R] R SPS Brother Club No 1 and 2 Renewal					15,000					

	[R] R SPS Belmont Rd Pump No 1 and 2 renewal				20,000					
	[R] R SPS Blue Gum Tce Pump No 1 and 2 renewal					15,000				
	[R] R SPS Kalka shades Pump no 1 and 2 Renewal					20,000				
	[R] R SPS Airport Fuel Depot Pump 1 and 2 Renewal				25,000					
	[R] R SPS Airport Carpark Pump No 1 and 2 renewal						25,000			
	[R] R SPS Park St No 1 and 2 Pump renewal		20,000							
	[R] R SPS Pennyquick St Electrical and Comms Renewal (unlicenced)			90,000						
	[R] R SPS Kerrigan St Comms Renewal (unlicenced)	10,000								
	[R] R SPS Lakes Creek No 1 Complete electrical renewal	90,000								
	[R] R SPS Lakes Creek No 2 Comms and control upgrade		15,000							
	[R] R SPS Soundshell Complete Electrical Upgrade (unlicenced)		90,000							
	[R] R SPS Park St Complete Electrical and Comms (unlicenced)				90,000					
639707	Belmont Rd North SPS 1 (AM)									
639756	Pennyquick St SPS Pump 1 (AM)						14,300			
1032402	Pennyquick St SPS Pump 2 (AM)						14,300			
1032364	Ferguson St Overflow Pump (AM)						24,200			
1032196	Hadgraft St SPS Switchboard (AM)					110,000				
1032203	Hadgraft St SPS Valves (AM)					40,000				
639730	Hadgraft St SPS Pump 1 (AM)	45,000								
1032200	Hadgraft St SPS Pump 2 (AM)	45,000								
1032209	Lakes Creek Rd East SPS Valves (AM)				45,000					
1032205	Lakes Creek Rd East SPS Telemetry (AM)					13,200				
1032208	Lakes Creek Rd East SPS Pump 1 (AM)					5,500				
639740	Lakes Creek Rd East SPS Pump 2 (AM)					5,500				
639742	Lakes Creek Rd West SPS Pump 1 (AM)					14,300				
1032216	Lakes Creek Rd West SPS Pump 2 (AM)					14,300				
1032224	Frenchville Rd SPS Pump 2 (AM)					20,900				
639727	Frenchville Rd SPS Chemical Dosing (AM)					16,500				

639753	Nuttall St (Soundshell)SPS Pump 1 (AM)					5,500					
1032233	Nuttall St (Soundshell) SPS Pump 2 (AM)					5,500					
639718	East Lane SPS Pump 1 (AM)					3850					
1032367	East Lane SPS telemetry (AM)					13,200					
1030391	Water St SPS Pump 1 (AM)				3850						
1032250	Water St SPS Pump 2 (AM)				3850						
1032320	Nth Rockhampton No 1 SPS Telemetry (AM)									15840	
639744	Lion Creek Rd SPS Pump 1 (AM)					5,500					
1032353	Lion Creek Rd SPS Pump 2 (AM)					5,500					
1032286	Prestige Est SPS Pump 2 (AM)					4,400					
639722	Fitzroy St SPS Chemical Dosing (AM)						16,500				
1032372	Campbell St SPS telemetry (AM)						15,840				
639715	Campbell St SPS Chemical Dosing (AM)					16,500					
639746	Melbourne St SPS Pump 1 (AM)						14,300				
1032410	Melbourne St SPS Pump 2 (AM)						14,300				
1032439	Airport Carpark SPS Chemical Dosing (AM)										16,500
1032429	Airport Light Aircraft SPS telemetry (AM)						13,200				
1032441	Airport Carpark SPS Telemetry (AM)										13,200
639769	Victoria Park Septic Pump 1 (AM)						4,400				
Total		666,500	210,000	450,000	1,272,700	350,150	196,340	20,000	0	15,840	29,700

Table 5.28 Rockhampton Sewage Pump Stations New Works

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Sewer Pump stns: New and Upgrade											
	[N] Combination Recycling Jetrodder (used region wide for clearing sewer lines)	400,000									
	[U] R SPS Ferguson St site renewal			150,000							
	[U] R SPS Safe access covers installed at all SPS	40,000	80,000	80,000	80,000						
	Total	440,000	80,000	230,000	80,000						

5.2 Gracemere Sewerage Scheme

5.2.1 Asset Information

This section outlines what is planned in order to manage and operate the assets at the agreed levels of service (defined in the plan) while optimising Lifecycle costs. It contains the management plan for the scheme, describing:

- General Asset Information on the scheme
- The current Asset Capacity, Performance of assets and service delivery issues relative to the LoS defined in Section 3.
- Asset Valuation
- Operations and Maintenance Plan
- Capital Works Plan

The Gracemere Sewerage scheme was developed in 1984.

Over the last 6 years the area has undergone significant growth increasing from 1700 properties to approx. 3700 today resulting in the expansion and upgrading of the network to meet the additional demand.

The scheme consists of 13 pump stations that lift sewerage to mainly PVC gravity mains, 6 of the 13 pump stations are new and have been constructed in 2006 to accommodate the growth, SPS 1 Armstrong St, SPS 6 Rahima Court and SPS 10 Viney St discharge to the treatment Plant.

The Gracemere STP was developed in 1984 as an intermittent Pasveer channel Plant, and was upgraded to a capacity of 8100 EP by the addition of a secondary clarifier and by changing the oxidation ditch operation from intermittent decant to continuous flow in 2004. Treated effluent from the Plant is irrigated to pasture adjacent to the STP and the recycled effluent is also used to irrigate the Gracemere Golf club.

Table 5.29 Gracemere Sewerage Treatment Plant Information

Scheme Name	Gracemere Sewerage Scheme
Total Population Served	9799
Connections	3,768 (from GIS 2015)
Treatment Plant Capacity ³⁰	6,500 EP
Treatment Plant load ³¹	8,200 EP
Treatment Plant Process	Continuous Flow Extended Aeration
Average Dry Weather Flow (ML/d) ³²	1.22 ML
EPA Effluent Standards	BOD₅ <20 mg/L SS <30 mg/L pH 6.5 – 8.5 Residual Cl₂ <0.7 mg/L Faecal Coliforms <100 FC/100 mL median; <150 FC/100 mL 80 th percentile Total P 8 mg/L 80 th percentile Total N 20 mg/L 80 th percentile

Table 5.30 Asset Characteristics

³⁰ From SKM report, Aug 2013, based on ability to meet a mass load licence requirement of 20 BOD / 30SS / 7TN / 5TP

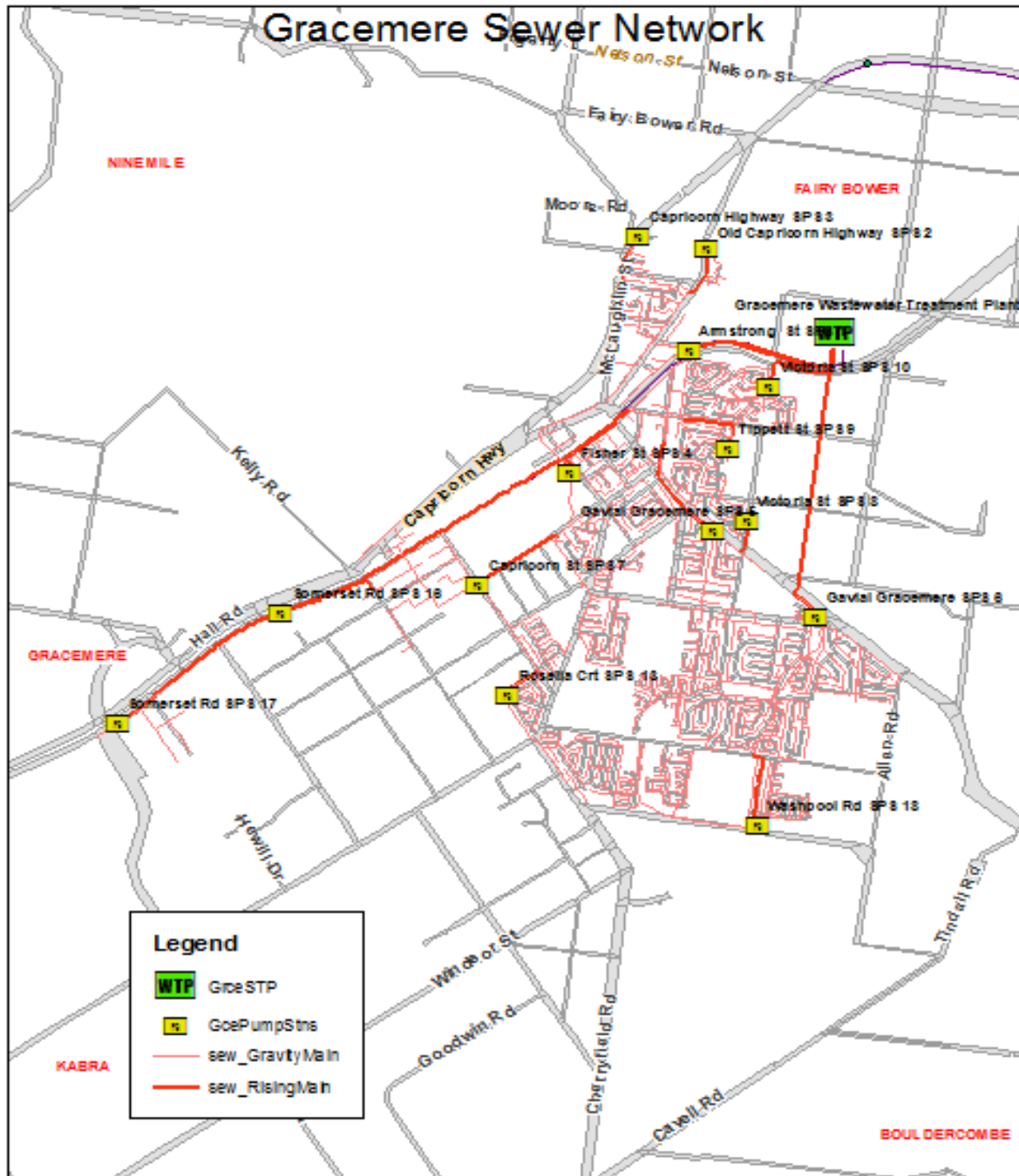
³¹ 2011 load from SKM report, Aug 2013, STP is fully loaded

³² 2011 figure from SKM Report, Aug 2013

Asset Type	Asset Parameters
Treatment	<p><i>All effluent reused</i></p> <ul style="list-style-type: none"> • An inlet works with spiral screen and two gravity grit settling channels • An extended aeration 1.2 ML x 1.56m max depth Pasveer channel with 3 x 2m = 2m TNO horizontal aerators on floats (15 kgO₂/hr SOTR each), 2 floating 7.5 kW surface aerators (11kgO₂/hr SOTR each) and an adjustable weir overflow, • A 16 m dia (assumed) x 3 m SWD (assumed) secondary clarifier with full bridge sludge scraper, • Duty / assist RAS/WAS pumps and duty / standby clarifier scum pumps • Duty / standby lift pumps to chlorine contact tank • A 28 m³ x 1 m deep (assumed) chlorine contact tank for NaOCl disinfection, • 53 ML of treated effluent storage • Duty / Standby 30L/s irrigation pumps • 3 sludge lagoons • 2/20m x 20m sludge drying pans
Pump Station	<ul style="list-style-type: none"> • Armstrong St SPS (No 1), 2 x Flygt NP 3202-180, 45 kW, 110 L/s duty capacity, installed 2005. • Capricorn Highway(No 3) SPS, 2 x Forrers 4Sx10/3TL,12 kW, 12L/s duty capacity. Pump 1 Inst 1984,pump 2 Inst 2010 • Capricorn St (No 7) SPS, 2 x Flygt NP 3153.181HT,13.5 kW, 13.5L/s duty capacity ,installed 1999 • Fisher St (No 4) SPS, 2 x Flygt NP 3153.181, 15 kW,20 L/s duty capacity, Pump 1 inst 2003, Pump 2 inst 2013 • Gavial Gracemere Rd (No 5) Lawrie St SPS, Pump 1 Grundfos GEF S1-104-AH1-513Z012, Pump 2 Flygt NP3171.181.453, 10 kW, 20 L/s duty capacity, Pump 1 inst 2005, Pump 2 inst 2010 • Old Capricorn Highway (No2) SPS, 2 x Flygt NP3102-181SH, 4.2 kW, 17 L/s duty capacity, inst 2009 • Gavial Gracemere Rd (No6) SPS, Pump 1 Grundfos GEF S1-174-H2-513Z012,Pump 2 Flygt NP3171 181 1180, 15 kW, 45 L/s duty capacity, Pump 1 inst 2005, Pump 2 2013 • Rosella Crt (No 13) SPS, 2 x Flygt 3102-181MT,3.1 kW, 17.3 L/s duty capacity, Inst 2006 • Tippet St (No 9) SPS, 2 x Grundfos SEV-80-80-40-A2-50B, 4.8 kW, 5 L/s duty capacity, inst 2006 • Victoria St (No 8) SPS, 2 x Flygt NP3102-181-9416MT, 3.1 kW, 8.35 L/s duty capacity, inst 2006 • Viney St (No 10) Victoria St, 2 x Flygt 3127.181, 6 kW, 14 L/s duty

	capacity, inst 2008 <ul style="list-style-type: none">• Somerset Rd (No 17) SPS, 2 x Flygt NP 3171.185, 15 kW, 25.3 L/s duty capacity, inst 2014• Washpool Rd SPS (No 18), 2 x Flygt NP 3153.181, 15 kW, 26 L/s duty capacity, Inst 2012
Reticulation	<i>Rising Mains</i> 13.3 km of rising main
	<i>Gravity Mains</i> 94.7 km uPVC 3.5 km AC

Figure 5.31 Gracemere Sewer Network



5.2.2 Levels of Service Performance

System Performance

The Gracemere Sewerage scheme is a conventional gravity system, and consists of thirteen pump stations discharging sewage to the Gracemere Sewerage Treatment Plant.

The sewerage scheme was constructed in 1984 primarily using PVC pipes, no infiltration or inflow is thus evident. Based on useful life, the pipes and access chambers will not require replacement in the next 20 years.

Sewerage Treatment and Disposal

The Sewerage Treatment Plant was constructed in 1984 and since then expanded in 2005 by converting the oxidation ditch to a continuously aerated process, and adding a clarifier and sludge lagoons. The original structures such as the oxidation ditch is in a poor structural condition and is due for replacement in 2024/25. The roof of the admin building is programmed for replacement in 2017/18.

All of the Gracemere STP effluent is currently reused by the Gracemere Golf club (24 ha) and an Irrigation area (18.7 ha). The high application rate and limited storage to the areas indicate the existing effluent irrigation scheme is overloaded. Deferring major treatment/transport investment at Gracemere depends on the ability to reuse the effluent locally³³. In 2014/15 work has begun laying a 200 diam. effluent line from Gracemere to the Rockhampton Golf club in order to provide a further opportunity for the reuse of treated effluent.

Service Delivery

The system is reliable with only six (6) blockages on sewer mains in 2014 and five (5) jump up blockages.

5.2.3 Asset Valuation

The Asset Valuation figures set out below in Table 5.32 are as calculated in the 2014 valuation. The method used to calculate the values are set out in Section 5, Renewals and Asset Valuation data.

The Conquest Asset Register as at October 2014 identified approx. \$0.87M worth of assets requiring replacement in the next 10 years in the Gracemere Sewer network. These assets are treatment and pump station assets.

Table 5.32 Asset Valuation, Gracemere Sewer

Asset	Length/No (km/no)	Replacement Cost (\$)	Age (Yrs)	DRC (\$)	Remaining Life (Years)	Consumption Ratio
<i>Reticulation</i>						
AC Pipe (Gravity)	3.5	1,081,155	31	543,243	30	50
PVC (Gravity)	94.7	21,656,670	0-31	17,437,709	40-70	80
mPVC/uPVC (Rising Mains)	13.3	3,818,505	2-30	2,950,975	50-57	78
<i>Pumps/Treatment</i>						
Pump Stns	13	2,283,246	2-30	1,711,681	50-57	75
Treatment	1	7,850,370	31	5,419,289	10-71	69
Total \$		36,689,946		28,062,897		

5.2.4 Operations and Maintenance Plan

Table 5.33 below sets out Operations and Maintenance Expenditure for the Gracemere Sewer network over the next 3 years by activity.

Operating expenditure is increasing 5% per year to allow for new contributed assets.

Table 5.33 Rockhampton Sewer Operational Expenditure (3 Years)

	2015/16	2016/17	2017/18
Activity			
Reticulation	141,002.13	148,334.24	156,047.62
Pump Station	288,988.60	304,016.01	319,824.84
Treatment	437,681.29	460,440.72	484,383.63
Total	867,672.02	912,790.97	960,256.09

³³ From Rockhampton Regional Council/Fitzroy River Water Sewage Treatment Plants Strategy Planning Study Final/Aug 13 By Sinclair Knight Merz

FRW carries out general reticulation, pump and treatment maintenance work in Gracemere. The reactive process is as set out under Rockhampton Operations and Maintenance Plan above. Customers with a water or sewage complaint contact customer service who generates a customer request form in Conquest, the details of which are sent to FRW dispatch. FRW dispatch send the customer enquiry details to crews who return a day works sheet to dispatch when work is completed. Actions are generated using details in the day works sheets and stored in Conquest against assets.

Planned maintenance (Preventative and Health and Safety) is carried out on pump station and treatment assets in Gracemere. Preventative maintenance activities for these asset types are set out in the draft Maintenance Strategy Manual for Treatment and Supply³⁴. All these planned activities are documented into Conquest.

Examples of preventative maintenance undertaken in Gracemere:

- 3,6,8,12 month Pump station service (dependent on criticality) (service pump & change oil, check impellor and wear rings, check valves, lids and ladders).
- Monthly generator testing.
- Monthly – 12 months clean out of wet wells.
- Monthly odour control check

5.2.5 Capital Works

Continued growth in Gracemere will necessitate an increase in the capacity of some gravity sewers, rising mains and pumping stations. The expansion of the existing scheme have been identified in the Financial Management Plan, and the Gracemere Water Supply and Sewerage schemes, and are documented in Table 5.20: Gracemere Sewer augmentation expenditure.

Renewal / Replacement Plan

Assets planned for replacement in the next 10 years are mostly pump station and treatment assets.

In 2015/16 the large Armstrong St pumps are to be replaced with smaller units. The construction of a new 300mm rising main (old main 200 white PVC) resulted in less head loss in the pipe causing the pump to operate at an inefficient point in its curve.

The Control systems at the Gavial Creek, Rosella, Tippett and Armstrong St are out dated and are to be replaced with the FRW standard Miri radio / PLC system, which will provide better performance.

In 2015/16 Pump No 1 at the Capricorn Highway (No 3) SPS is due for replacement. Over the next 10 years the telemetry and Pump No 1 at the Fisher St (No 4) SPS are to be replaced.

At the Sewer Treatment Plant several aspects of the building will be replaced.

New/Upgrade Plan

New and upgrade projects in table 5.36 Gracemere Sewer Augmentation are reticulation and Pump Station projects.

Work began in 2014/15 as part of the water main duplication project from Gracemere to Athelstane Res laying an effluent line. Eventually the effluent line will run from the Gracemere STP to the

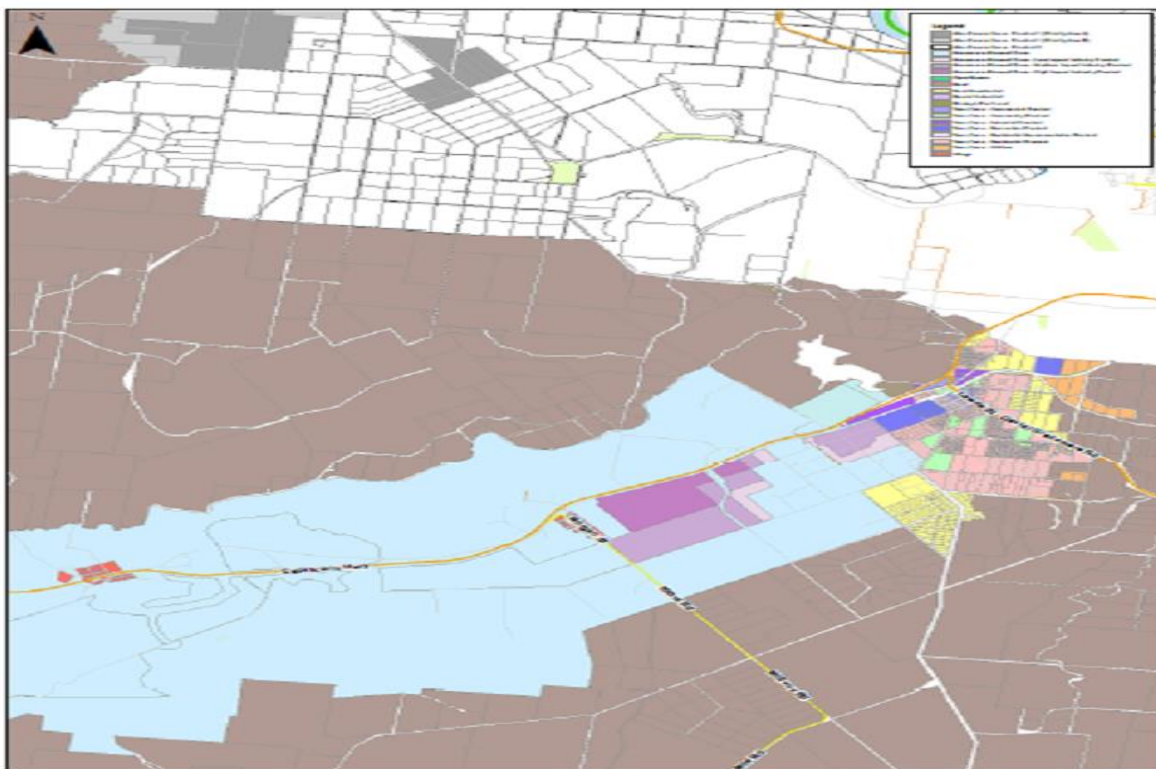
³⁴ Saved O/FinBus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/7.Final Documents/MtceStrategyRev0001Rich.doc

Rockhampton South Golf club and extend the Gracemere recycled scheme as the current scheme area nears full capacity.

Figure 5.34 below sets out the residential zones in Gracemere and the Gracemere/Stanwell Industrial area. There are residential areas south of Gracemere where residential development is still to happen (yellow). An area to the west of Gracemere is being developed as an industrial area (purple) and the Gracemere Industrial projects in Table 5.36 below are to meet the extra demand in this development. Other reticulation and pump station projects set out below in Table 5.36 are to increase the capacity of the system to cater for growth and meet both existing and future levels of service. Over the last 6 years the area has undergone significant growth increasing from 1700 properties to approx. 3700 today resulting in the original system struggling to meet levels of service. Projects have also been developed based on growth in township sewer connections of 5% pa and the Gracemere Industrial area developing at the rate of 5 ha pa³⁵.

A sewer augmentation project is to be continued in 2015/16 with a proposal to install a pipeline to transfer excess sewage to SRSTP being looked at among others.

Figure 5.34 Gracemere/Stanwell Development Zones



³⁵ Refer to Gracemere Water Supply Scheme: Planning Document

5.2.6 Summary of Expenditure – Gracemere Sewerage System

Table 5.35 Gracemere Sewerage Renewals Expenditure (10-year plan)

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Gce Sewer Renewals; Plant installed 1984, original electrical / mech / pump assets to be replaced due to condition/performance											
	[R] R SPS Armstrong St Pump No 1 and 2 renewal (Op)	60,000									
	[R] G SPS Gavial Ck Rd control upgrade (Op)	10,000									
	[R] G SPS Rosella St Control Upgrade (Op)	10,000									
	[R] G SPS Tippett St Control Upgrade (Op)	10,000									
	[R] G SPS Armstrong St Complete electrical renewal (Op)					90,000					
	[R] G GSTP Biosolids – Mech components (drying beds) (AM)										80,000
	[R] G- GSTP Preliminary – Mech components (Grit) (AM)										45,000
	[R] G- GSTP Replace Purlins, roofing iron and gutter to admin shed (AM) (facilities budget)										
	[R] G-GSTP Primary Treatment Mech (oxidation ditch) (AM)										80,000
	[R] G Capricorn Highway SPS (No 3) Pump No 1 (Ass ID 687383) (AM)			19,250							
	[R] G Fisher St (No 4) SPS Telemetry (Ass ID 1032120) (AM)				13,200						
	[R] G Fisher St (No 4) SPS Pump No 1 (Ass ID 687389) (AM)								20,900		
	Total Expenditure	90,000	-	19,250	13,200	90,000	-	-	20,900	-	205,000

Table 5.36 Gracemere Sewerage New / Upgrade Expenditure (10-year plan)

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Gracemere Reticulation New, meet future levels of service due to growth											
	[N] G – S Main (Gravity) 450 mm Armstrong St						176,814				
	[N] G – S main (Gravity) 375 mm Cedric Archer Park to Fisher St SPS				400,000						
	[N] R – S Main (Rising) 250 mm Breakspeare St - STP						300,000				
	[N] G – S Main (Rising) 250 mm from SPS 4 to James St				300,000						
	[N] G – SPS Breakspeare St (Gce) PS #6						450,000				
	[N] G – SPS Capricorn St PS # 7 to be replaced					400,000					
Total		0	0	0	700,000	400,000	926,814	0	0	0	0
Gracemere Industrial Area Reticulation New, Meet future Industrial levels of service due to growth											
	[N] G – S Main (Gravity) 225 mm Capricorn to Macquarie						271,950				
	[N] G – S Main (Rising) 200 mm Capricorn St to Cedric Archer Park gravity main					320,000					
1033789	[N] G – Smain (Gravity) 225 mm Sommerset Rd	355,250									
	[N] G- S Main (Gravity) 300 mm (Gce) Industrial (relates to SPS17) west of overpass						292,371				
	[N] G – S Main (Gravity) 375 mm Somerset Rd SEW 46						500,000				
Total		355,250	0	0	0	320,000	1,064,321	0	0	0	0
Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Gracemere STP Augmentation New and Upgrade ; Maximising reuse by expanding reuse scheme and option of upgrading existing or transferring to South											
959212	[U] R – S GSTP Augmentation			1,500,000	1,500,000						
	[U] G – GSTP RWPS upgrade for supply to Rton		150,000								
1030318	[N] R – S Gracemere STP – effluent return	500,000		400,000							
	Total (Sewer Treatment)	500,000	150,000	1,900,000	1,500,000						

5.3 Mount Morgan Sewerage Scheme

5.3.1 Asset Information

The Mount Morgan sewer scheme was constructed in 2005. In order to address continuing health related issues associated with failing septic tank systems particularly within the CBD area of Mt Morgan the Mt Morgan Shire Council at the time opted to install a reticulated sewerage system. The serviced area takes in about 420 properties on the Southside of the Dee River and includes critical community facilities such as the State Primary school, High School, Aged Care Facility and Hospital.

The scheme consists of two sewerage pump stations that lift sewage to PVC gravity mains.

Treatment consists of a continuous flow extended aeration package plant. The sewage effluent is treated to Class "A" standard for reuse in nearby sporting fields and school ovals.

Figure 5.37 : Mt Morgan Sewerage Treatment Plant



Table 5.38 Mt Morgan Asset Information

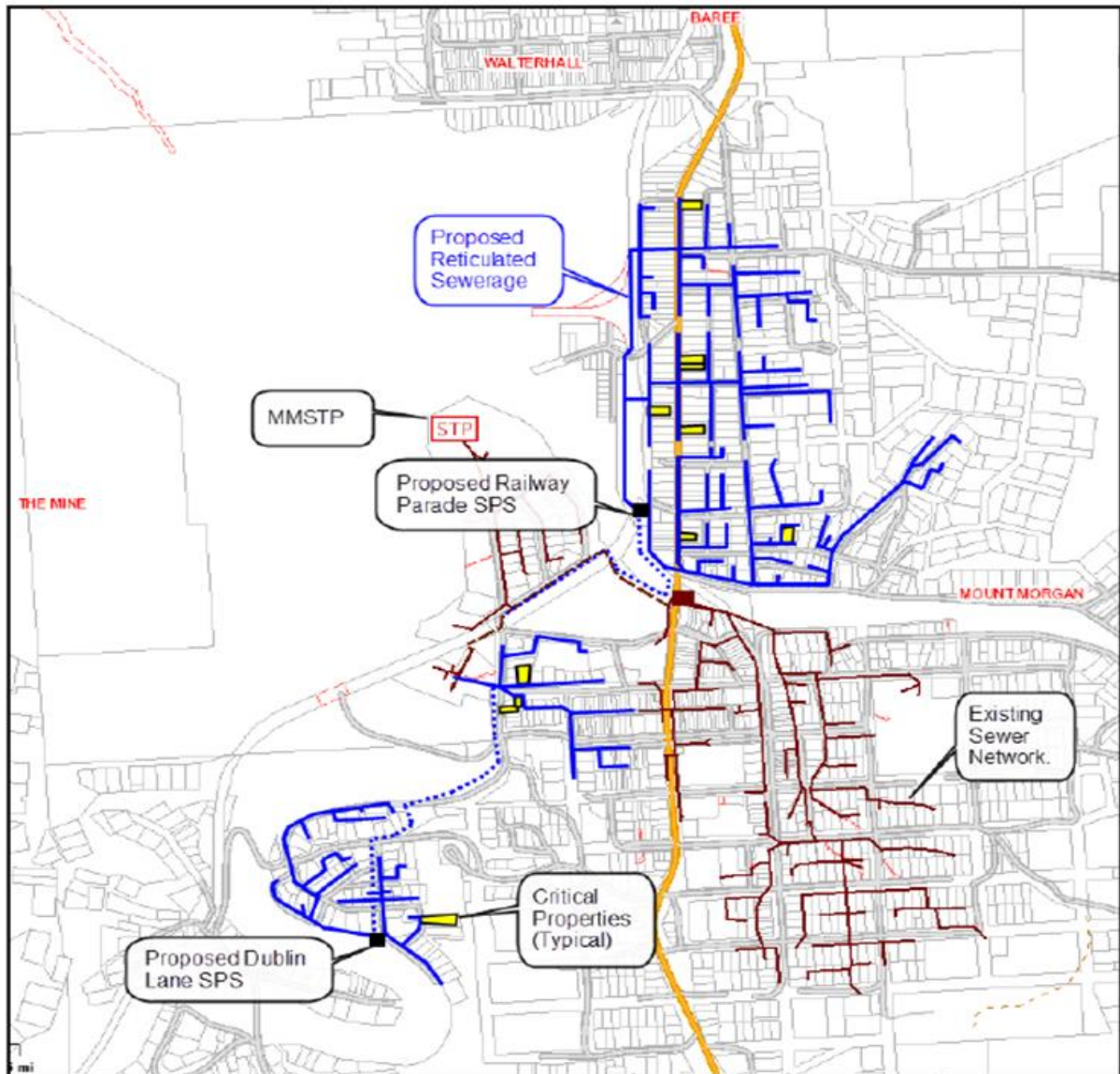
Scheme Name	Mount Morgan Sewerage Scheme
Total Population Served	1110
Connections	1,205
Treatment Plant Capacity (Design)	216 kL/d ³⁶
Treatment Plant Process	Continuous Flow Extended Aeration
Current loading (ADWF)	144 kL/d ³⁷
EPA Effluent Standards	BOD₅ <20 mg/L SS 30 mg/L pH 6.5 - 8.5 Residual Cl₂ < 1.0 mg/L Faecal Coliforms <10 CF/100 mL median; <20 CF/100 mL 80 th %ile Total P 2 mg/L 50 th %ile; 3 mg/L max Total N 5 mg/L 50 th %ile; 10 mg/L max
No. of Pump Stations	2

Table 5.39 Mt Morgan Asset Characteristics

Asset Type	Asset Parameters
Treatment (Extended aeration)	<p><i>Effluent reused and during wet weather discharged to Dee River Sewerage Treatment Plant</i></p> <ul style="list-style-type: none"> Inlet screen 2 Aeration tanks (mixing soda ash , alum) 1 x decant tank Tertiary Filters UV disinfection Effluent Storage dam (Wet Weather from 40 kL Holding tank) Drying Beds <p><i>Effluent Reuse</i></p> <ul style="list-style-type: none"> 40 kL Holding tank 2 x Grundfos CR15-7 multistage pumps
Pump Station	<ul style="list-style-type: none"> Carmody Bridge(Dee River) SPS (No 4), 2 x Flygt CP 3102-1700 148 210, 4.4 kW, 5 L/s duty capacity, installed 2005. Swimming Pool SPS, 2 x Flygt MP 3068 1700,1.7 kW, Inst 2011
Reticulation	<p><i>Rising Mains</i></p> <p>963 m of DICL rising main</p> <p><i>Gravity Mains</i></p> <p>9.7 km PVC</p>

³⁶ From Mt Morgan Sewerage strategy 17 Jan 2014³⁷ From Mt Morgan Sewerage strategy 17 Jan 2014

Figure 5.40 Proposed/ Existing Mt Morgan Sewer Network



5.3.2 Levels of Service Performance

System Performance

Reticulation

Mt Morgan sewer reticulation was installed in 2 stages from 2005 and has no significant inflow/infiltration problems. The reticulation network should last at least for additional 60 years.

Sewage treatment and disposal.

The Mt Morgan Sewer Treatment Plant was commissioned in 2005. The extended aeration package plant is designed for a population of 960 EP³⁸ while the design ADWF is 144 KL/d and the current plant Average Dry Weather Flow (ADWF) is 125KL/d. The STP produces class 'A' effluent suitable for irrigation. In 2014/15, work began on extending the network to include reticulation for critical properties (yellow lots in Figure above) where septic tanks have failed. In all reticulating the 11 properties will result in a further 88 properties having reticulation outside their property. The STP will not require an upgrade to accommodate the other 88 properties. In the longer term the network is to be extended to include 450 properties (blue area in Fig 5.40 above). At this point the STP will have to be upgraded. A duplication of the current plant will bring the design population up to 2000, which will be required.

The average dry weather flow from the treatment plant is irrigated on Newman Park and the High schools lower sporting fields. The higher flows during wet weather are discharged into the Dee River.

Service Delivery

The system has been reliable with no sewer main / jump up blockages recorded in Conquest.

5.3.3 Asset Valuation

The Asset Valuation figures set out below in Table are as calculated in the 2014 valuation. The method used to calculate the values are set out in Section 5, Renewals and Asset Valuation data.

Table 5.41 Asset Valuation, Mt Morgan Sewer

Asset	Length/No (km/no)	Replacement Cost (\$)	Age (Yrs)	DRC (\$)	Remaining Life (Years)	Consumption Ratio
<i>Reticulation</i>						
PVC (Gravity)	9.7	2,118,556	9	1,859,810	61	88
DICL (Rising Mains)	0.96	181,002	9	162,472	71	90
<i>Pumps/Treatment</i>						
Pump Stns	2	972,402	9	815,215	11-79	84
Treatment	1	1,343,670	9	1,058,670	11-71	79
Total \$		4,615,630		3,896,167		

5.3.4 Operations and Maintenance Plan

Table 5.42 below is an estimate of Operational and Maintenance Expenditure for the Mt Morgan Sewer network over the next 3 years by activity.

Operating expenditure is increasing 5% per year to allow for new assets.

Table 5.42 Mt Morgan Sewer Operational Expenditure (3 Yrs)

	2015/16	2016/17	2017/18
Activity			
Reticulation	500	526	553.35
Pump Station	27,786.08	29,230.96	30,750.97
Treatment	134,227.18	141,206.99	148,549.76
Total	162,513.30	170,964.00	179,854.10

³⁸ Refer to Technical Report amended -031222012MC

Fitzroy River Water is responsible for the general reticulation, pump and treatment maintenance work in Mt Morgan. The reactive process is as per the adopted Rockhampton Operations and Maintenance Plan, customers with water or sewage complaints contact customer service who generates a customer request form in Conquest, the details of which are sent to FRW dispatch. FRW dispatch send the customer enquiry details to crews who return a day works sheet to dispatch when work is completed. Actions are generated using details in the day works sheets and stored in Conquest against assets.

Planned maintenance (Preventative, Compliance and Health and Safety) is carried out on pump station and treatment assets in Mt Morgan, and preventative maintenance activities for these asset types are set out in the draft Maintenance Strategy Manual for Treatment and Supply³⁹. All these planned maintenance activities are documented in Conquest.

Examples of preventative maintenance undertaken in Mt Morgan:

- 3, 6,8,12 month Pump station service (dependent on criticality) (service pump & change oil, check impellor and wear rings, check valves, lids and ladders.
- Clean out of Wet Well Dee River/Swimming Pool 3 monthly.
- CapVac clean out of wet well Annually
- Electrical Mt Morgan run Dee R/Swimming Pool 6 monthly
- Thermography testing Dee R/Swimming Pool SPS Annually
- Electrical MM STP Yearly
- Thermography Testing MM STP Annually
- Housekeeping MM STP 6 monthly
- Service WAS Pumps MM STP 6 monthly

5.3.5 Capital Works Plan

The Mt Morgan sewerage network is only 10 years old and there are no major renewals planned for the next 10 years. The scheme must be expanded over the next few years to accommodate a further 450 properties. Most of the capital works projects, are for the new and upgrade works to improve the existing Sewerage treatment plant beyond its current capacity in order to meet the future needs.

Renewal Replacement Plan Sewerage Treatment Plant and Pump Stations

Asset renewals are to be carried out on the UV disinfection system at the STP and the pumps at the Dee River SPS. The UV disinfection system is at the end of its economic life due to maintenance being difficult and costly as the system is out-dated with a lack of replacement parts. The pumps at the Dee River pump station are to be replaced due to its reliability effecting LoS. The pumps will be upsized in order to avoid frequent dry/wet weather blockages.

New Works / Upgrade plan

In 2014/15 work began on the extension of the existing network to include reticulation for critical properties (yellow lots in Figure 5.40 above) where septic tanks have failed. In all reticulating the 11 properties will result in a further 88 properties having reticulation outside their property. Over the next 3 years the reticulation is to be extended north of the railway line and ultimately will result in 450 properties being added to the scheme (blue area in plan above).

³⁹ Saved O/FinBus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/7.Final Documents/MtceStrategyRev0001Rich.doc

To accommodate the growth the capacity at the treatment plant is to be expanded. In 2015/16 a floating wetland is to be attached to the final effluent storage lagoon. The treatment stage will provide additional treatment before effluent is reused. Also in 2015/16 an additional drying bed and inlet screen are to be installed for increase capacity. Upgrading works is to be undertaken on the SCADA system at the STP to provide remote control of the recycling pumps and also upgrade the plant to the Experian SCADA software to be consistent with the rest of FRW.

In 2015/16, a report on extensions to the irrigated area due to the increased capacity is to be put together with construction of new lines planned for 2016/17.

In 2016/17, a further report is to be developed on future upgrade requirements at the STP to meet future demand. The degree of polishing of effluent provided by the floating wetlands trial will have a bearing on future treatment upgrade requirements.

Table 5.43 Mount Morgan Sewerage Renewals Expenditure

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Mt Morgan Sewer Renewals; obsolescence and reliability effecting LoS failure mode											
	[R] MMSTP UV disinfection renewal (obsolescence failure) Op	80,000									
	[R] MMSTP SPS Dee River Pump No 1 and 2 renewal (reliability effecting LoS) Op	25,000									
	Total Expenditure	105,000	-	-	-	-	-	-	-	-	-

Table 5.44 Mount Morgan New Works

Project ID	Project Description	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Mt Morgan Sewer Extn ; some on site systems health & safety issue, expand retic to further 450 properties, Upgrading STP and expanding effluent re use scheme to accommodate expansion											
	[N] M-Retic-Sewer Stg 2 (Nth of railway line)	500,000	500,000	620,505	500,000	500,000					
	[N] MMSTP Recycled Water scheme extension plan	10,000									
	[N] MMSTP Recycled Water Scheme Extension construction					250,000					
	[N] MMSTP Install standby Inlet screen	40,000									
	[U] MMSTP SCADA additions for recycled Water Pumps	15,000									
	[U] MMSTP Local SCADA upgrade for consistency	25,000									
	[U] MMSTP Construct additional drying bed	40,000									
	[N] MMSTP Augmentation Works plan		20,000								
	[N] MMSTP Procure full list of critical spares	30,000									
	[N] M SPS Swimming Pool Comms installation	20,000									
	[N] MMSTP Augmentation construction				500,000						
	[N] MMSTP – Floating Wetland Trial	50,000									
	Total Expenditure	730,000	520,000	620,505	1,000,000	750,000					

6. FINANCIAL SUMMARY

6.1 Capital Expenditure

The total capital expenditure for the next 10 years for sewerage is set out below in Table 6.1. The total capital expenditure is made up of Renewal, Upgrade and New Works. The Capital Expenditure is funded from a combination of loans, transfers from reserves and development contributions.

6.2 Operating Revenue and Expenditure

Operating expenditure is set out in Table 6.2 and is made up of Operations, Maintenance, Management and Administration (corporate overheads), Depreciation (providing for renewals) and interest expenses. Revenue to fund operational expenditure is also set out in Table 6.2.

6.3 Funding for Sewerage Capital Expenditure

The funding sources for sewerage capital expenditure are set out in Table 6.3 below.

Table 6.1 Summary Capital Works Expenditure Sewerage (\$000)

		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	TOTAL
Rockhampton	Renewal	3,279	3,648	2,445	3,399	2,690	6,838	6,241	7,286	6,496	6,910	
	Upgrade	412	795	295	684	760	4,638	4,629	4,880	4,880	4,880	
	New	1,660	3,241	1,305	917	0	3,431	635	0	1,650	0	
Total		5,351	7,684	4,045	5,000	3,450	14,907	11,505	12,166	13,026	11,790	88,924
Gracemere	Renewal	72	0	19	13	72	0	0	21	0	205	
	Upgrade	18	120	1,500	1,500	18	0	0	0	0	0	
	New	855	30	400	700	720	1991	0	0	0	0	
Total		945	150	1919	2213	810	1991	0	21	0	205	8,254
Mt Morgan	Renewal	84	0	0	0	0	0	0	0	0	0	
	Upgrade	85	0	0	0	0	0	0	0	0	0	
	New	666	520	621	1,000	750	0	0	0	0	0	
		1,335	1,270	621	500	0	0	0	0	0	0	3,726
New Total		7,131	8,354	6,585	8,213	5,010	16,898	11,505	12,187	13,026	11,995	100,904

Table 6.2 Operating Revenue and Expenditure (\$000)

	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
REVENUE										
Sewer Rates and Charges	23,688	24,908	26,191	27,540	28,958	30,449	32,017	33,666	35,400	37,223
Income from other commercial services	714	744	775	808	842	877	914	952	992	1,034
Interest Revenue	103	244	262	284	297	355	375	281	170	65
Community Service Obligations & Competitive Neutrality Agreements	472	492	512	534	556	580	604	630	656	684
Non-Capital Grants and Subsidies	0	0	0	0	0	0	0	0	0	0
Other Revenue	79	81	83	85	87	89	91	94	96	98
Bulk Sewer Charges	0	0	0	0	0	0	0	0	0	0
Total Operating Revenue	25,056	26,469	27,823	29,251	30,740	32,350	34,001	35,623	37,314	39,104
EXPENDITURE										
Operations Expense	4,292	4,516	4,750	4,997	5,257	5,531	5,818	6,121	6,439	6,774
Maintenance Cost	0	0	0	0	0	0	0	0	0	0
Management and Administration	4,029	4,238	4,459	4,691	4,935	5,191	5,461	5,745	6,044	6,358
Depreciation	5,047	5,314	5,614	5,898	6,225	6,505	7,049	7,505	8,001	8,546
Total Operating Expenditure	13,369	14,068	14,824	15,586	16,417	17,227	18,328	19,371	20,484	21,678
EBIT (Excl Capital adj)	11,687	12,401	13,000	13,665	14,322	15,123	15,673	16,252	16,830	17,426
Interest Expense	1,133	967	976	854	764	627	866	730	679	647
Net Operating Profit (Loss)	10,554	11,434	12,024	12,811	13,558	14,496	14,807	15,522	16,151	16,779
ABNORMAL/CAPITAL RELATED REVENUE										
Capital Grants and Subsidies	746	0	0	0	0	0	0	0	0	0
Developer Contributions (Infrastructure charges)	851	878	1,156	1,185	1,214	1,245	1,276	1,308	1,340	1,374
Donated assets	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404
Funds from Disposal of Non current assets	0	0	0	0	0	0	0	0	0	0
Total Abnormal/Capital related Revenue	3,001	2,282	2,560	2,589	2,618	2,649	2,680	2,712	2,744	2,778
Total Operating Profit (EBIT + Inf Charges)	12,538	13,279	14,156	14,850	15,537	16,368	16,949	17,559	18,170	18,800
Taxable Income	12,151	12,311	13,180	13,996	14,772	15,740	16,083	16,829	17,491	18,153
Income Tax Payable	2,926	3,693	3,954	4,199	4,432	4,722	4,825	5,049	5,247	5,446
Operating Profit (After Tax, before abnormals)	7,628	7,740	8,070	8,613	9,126	9,774	9,982	10,473	10,904	11,333
Profit (Loss) after tax and incl. abnormals	10,629	10,022	10,630	11,201	11,745	12,422	12,662	13,185	13,648	14,111
Distributed Profit (Dividend Paid from Operating Profit)	5,649	4,895	4,648	4,418	4,200	3,924	3,838	3,630	3,448	3,267

Table 6.3 Funding Sources for Sewerage Capital Expenditures (,000's)

	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
New Capital Works (2015 AUD):	3,359	3,964	3,981	4,447	2,220	10,047	5,260	4,880	6,530	4,880
New Capital Works (Indexed for CCI at 5.2% pa):	3,359	4,170	4,405	5,177	2,719	12,946	7,130	6,959	9,796	7,702
New capital works constructed	3,359	4,170	4,405	5,177	2,719	12,946	7,130	6,959	9,796	7,702
Donated assets	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404
TOTAL	4,763	5,574	5,809	6,582	4,123	14,350	8,534	8,363	11,200	9,106
Funded by:										
1. Subsidies & grants in relation to these works	746	0	0	0	0	0	0	0	0	0
2. Constrained Works Reserve	522	25	528	983	0	2,605	97	120	364	175
3. Donated assets	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404	1,404
4. Other reserves for the purpose	0	0	0	0	0	0	0	0	0	0
5. Loans raised	112	1,300	0	0	0	3,500	327	0	0	0
6. Internal loans	0	0	0	0	0	0	0	0	0	0
7. Depreciation funds from current & previous years	0	0	455	0	252	0	971	0	1,978	0
8. Revenue from current year used for capital purposes	1,979	2,845	3,422	4,195	2,467	6,841	5,736	6,839	7,455	7,527
TOTAL	4,763	5,574	5,809	6,582	4,123	14,350	8,534	8,363	11,200	9,106
	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Replacement Capital Works (2015 AUD):	3,773	4,390	2,604	3,766	2,790	6,851	6,245	7,307	6,496	7,115
Replacement Capital Works (Indexed for CCI at 5.2% pa):	3,773	4,618	2,882	4,384	3,417	8,828	8,465	10,419	9,745	11,228
Replacement capital works constructed	3,773	4,618	2,882	4,384	3,417	8,828	8,465	10,419	9,745	11,228
Loan redemption's	1,949	2,079	2,277	2,399	2,556	2,693	3,109	1,779	703	735
TOTAL	5,722	6,697	5,159	6,784	5,974	11,521	11,574	12,198	10,448	11,963
Funded by:										
1. Subsidies & grants in relation to these works	0	0	0	0	0	0	0	0	0	0
2. Disposal proceeds from non-current assets	0	0	0	0	0	0	0	0	0	0
3. Depreciation funds from current & previous years	5,047	5,314	5,159	5,898	5,974	6,505	6,078	7,505	10,448	10,655
4. Constrained Works Reserve	0	0	0	0	0	0	0	0	0	0
5. Loans raised	674	1,384	0	882	0	5,016	0	0	0	0
6. Shareholder equity/Contributions/Internal transfers	0	0	0	0	0	0	0	0	0	0
7. Revenue from current year used for capital purposes	0	0	0	4	0	0	5,496	4,693	0	1,308
TOTAL	5,722	6,697	5,159	6,784	5,974	11,521	11,574	12,198	10,448	11,963

6.4 Historical Capital Works Expenditure

Table 6.4 below sets out historical sewer capital expenditure for Rockhampton Regional Council per property. It consists of renewal, new and upgrade works. RCC has invested considerably in the rehabilitation of sewer mains in Rockhampton including relining pipes, raising manholes and replacing jump ups over the last 8 years and in the last 2 years has invested large amounts in new sewer reticulation in Gracemere to meet future demand.

Table 6.4 Historical Capital Works Expenditure (\$/property)

Utility	2010-11	2011-12	2012-13	2013-14	2014/15 (budget)
RCC (\$ /property)	520	496	311	432	343
RCC total expenditure (\$'000)	14,857	14,182	8,899	12,367	9,811
RCC Expenditure Reticulation Rehabilitation (\$'000)	8,809	7,134	2,250	2,491	3,766

6.5 Capital Works Benchmarking against other Councils

Table 6.5 below sets out how RCC's capital works spending compares with other similar sized Councils in the surrounding area. RCC in 2013/14 spent more than other Councils in the area per property on capital expenditure. This is due to aging infrastructure requiring rehabilitation and new works to meet growth. The level of investment is planned to remain the same for the next 10 years due to the amount of aged infrastructure still remaining in the Sewer reticulation network and the need to upgrade sewer treatment plants. The level of investment and timing of New Works for the future is unknown as growth slows down.

Table 6.5 Benchmarking Capital Expenditure (\$/property)

Utility	2012-13	2013-14
RCC	311	432
MacKay Water	500	350
Wide Bay Water	310	300
Townsville Water	280	100
Livingstone Shire Council		90
Gladstone		80

6.6 Historical Operational and Maintenance Expenditure

Table 6.6 below sets out historical sewer operational expenditure for Rockhampton Regional Council per property. Operational Expenditure has decreased 22% over past 3 years

Table 6.6 Historical Capital Works Expenditure (\$/property)

	2009/10	2010-11	2011-12	2012-13	2013-14
RCC (\$ /property)	269	248	306	297	238

6.7 Operational Expenditure Benchmarking against other Councils

Table 6.7 below sets how RCC's operational spending compares with other similar sized Councils in the surrounding area. RCC spends less than other Councils in the area on operations do. Generally, Sewer service providers with cost reflective pricing, effective, and efficient systems will have lower operating costs and thus provide better value for money to their customers.⁴⁰ However, it is difficult to compare Councils as a number of factors such as the topography and location of the sewer networks, density of connected properties and age and condition of assets all have an effect on operational costs.

Table 6.7 Benchmarking Operational Expenditure (\$/property)

Utility	2012-13	2013-14
RCC	297	238
MacKay Water	660	740
Wide Bay Water	720	470
Townsville Water	280	460
Livingstone Shire Council		340

⁴⁰ From Queensland's Urban Potable Water and Sewerage Benchmarking Report 2013/14

7. ASSET MANAGEMENT PRACTICES

7.1 Asset Management Systems

The main data to assist with Asset Management decisions is stored in Councils Asset Management system Conquest. The Conquest AM system is the corporate wide asset management system. Conquest contains the Water and Sewer asset register for renewal planning, valuation and maintenance management. Capital Works projects for different Asset classes are also stored in Conquest. The Asset hierarchy in Conquest for Active assets has been set up for reporting purposes and to assist Maintenance Management and is shown below in Table 7.1.

Table 7.1 Sewer Pump Station Treatment Plant Hierarchy in Conquest

Asset Type	Process Level Asset	Component	Sub Component
Pump Station	General Site	Perimeter Fence	
		Gates	
		Access Roads	
		External valves	Inlet Valve
		Pipework	
		Building	
		Structure	Wet Well
			Monorail and hoist
			Dry Well
		Odour Control	
	Power Supply	Ext Power Supply	
	Sewerage Pumping	Pump Set 1	Submersible Pump 1
			Outlet reflux valve
			Outlet valve
		Pump Set 2	Submersible Pump 2
			Outlet reflux valve
			Outlet valve
		Switchboard	
	Control and Instrumentation		
		Electrical Starters	
		Telemetry	SCADA
			PLC
Sewer Treatment Plant			
	Inlet Works		
	Biological Treatment		
	Secondary Treatment		
	Biosolids Treatment		
	Disinfection		
	Sludge Dewatering		
	Site Works		

Other sources of asset management information are:

- GIS (ArcMap) has all reticulation assets shown spatially as well as point assets for all structures such as pump stations and treatment plants.

- FRW utilises Experion software in Rockhampton and RS View software in Mt Morgan (to be replaced with Experion in 2015/16) as its SCADA system software to monitor and control sewer networks.
- Council's corporate customer service system is Pathways. Pathways stores FRW's Customer service data and is used to report on Customer Service Key Performance indicators.
- When planning renewals information such as, expiry date (from valuation), blockage records and CCTV information is stored in Conquest against assets and utilised.

7.2 Accounting/Financial Systems, Expenditure types and Standards

- *Accounting Systems:* The corporate financial system used by Council is Finance 1. Capital Works job numbers are created in Conquest. The Asset ID of the capital job in Conquest becomes the job number. Capitalisations are carried out in Conquest against component assets and total values journalled in Finance 1 against the financial function e.g. Water mains. Valuations are also stored in Conquest against assets and reconciled with Finance 1 values against Financial Functions.
- *Expenditure Types:* Renewal and New Work expenditure is capitalised when the value is above the capitalisation threshold of \$5,000. Below this threshold, the value is expensed as operational expenditure. If the threshold is too high, the operational budget becomes distorted. If the threshold is too low unnecessary accounting, impacts occur with the need for depreciation to be calculated on immaterial levels of expenditure.

Small value assets below the capitalisation threshold can be capitalised as network assets by aggregating them together to become one asset of significant value.

Manholes for valuation purposes are valued as part of the sewer gravity main.

- *Financial Standard:* The standard that is most appropriate to Infrastructure assets is the Australian Accounting standard for Property, Plant and Equipment (AASB 116). Its main aim is to ensure all assets are recognised in asset registers, appropriately valued so that the carrying amounts are accurate, depreciation charges are determined as are any impairment losses.

7.3 Information Flow Requirements and Processes

- **Types of data/information on assets to help AM decision making:** Criteria used for pump station and treatment plant component replacement are age, material and maintenance history obtained from Conquest.⁴¹ Criteria used for sewer main replacement is age, blockage history and condition data from CCTV records.

The levels of service in section 3 of this plan have targets of performance for FRW. These are measured from information in Pathways and Conquest in order to obtain actual performance.

FRW operates two SCADA systems to monitor and control water supply and sewerage schemes. Set alarm values on the normal operating conditions on assets provide indicators on whether equipment is about to fail, has failed or had been deteriorating.

⁴¹ Refer to document saved in O/FinBus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/7 Final Documents/Water Sewer Pump Stn Replace Program Procedure

- **What is quality/reliability/adequacy of data:** The reticulation data in Conquest was in 2013/14 reconciled with GIS (Arc GIS). Sewer gravity main and rising main assets from Conquest had a one to one match with assets in GIS. All assets for these 2 types in GIS have a Conquest ID (Asset ID field) and in Conquest the GIS ID and Layer name for the corresponding asset has been put in. As part of the reconciliation, the spatial length from GIS has been adopted as the length for both databases and they have been updated. The accuracy checking of other key attributes is ongoing. There are inaccuracies in key attributes such as material, diameter and date of installation. Assets have been assigned a data and object integrity rating according to the source of the data eg highest object/data integrity would go to surveyed objects with as-construction information. Inaccuracies in the database are picked up in a number of different ways. When mains repairs are carried out day works sheets are filled in the field with existing material, diam. details. These are then put into the action against the asset allowing a comparison with what is in the databases. Details of material and diam. are also recorded as part of the CCTV of sewers allowing a comparison between databases. The process of adding new and replaced assets to both databases is robust, and ensure assets do not get out of alignment.
- **What processes are used to make decisions on AM replacements/renewals and acquisitions?** The renewal/replacement program in this Asset Management plan has come after a review from both Operational and Asset management teams. Firstly, the Asset Management team develops a list of assets expired in the next 10 years from Councils asset register (see Councils adopted useful lives in valuation section above). The next factor looked at is the condition of the expired assets through analysing the components maintenance and inspection history to identify particular failure modes that will indicate if the component is at the end of its useful life. Next, the criticality is reviewed in order to prioritise the replacements⁴². Finally, the list is provided to Operations staff for them to add Projects where the Performance of the asset is not meeting levels of service and the asset requires replacement earlier than its adopted useful life.

Life Cycle costing is taken into consideration when making capital works decisions. The critical Armstrong St rising main (200 white PVC) was to be replaced due to being unreliable from a number of bursts. The pumps also were to be upgraded. The options considered were larger rising main and smaller pumps or larger pumps and a smaller rising main. The best option when looking at life cycle costing was to install a larger rising main with a long life with little maintenance along with smaller pumps. Optimised decision-making is undertaken when making decisions on the materials to be used in reticulation replacement. The modern equivalent replacement asset for the old earthenware pipes is PVC SN 8 pipe.

7.4 Standards, Guidelines and Plans

- The Capricorn Municipal Development Guidelines have standard drawings for water and sewer construction and allowable materials and standards for water and Sewer construction in the Rockhampton Region.
- Asset Design and As Constructed (ADAC) specification has been implemented to manage the populating of Council Asset registers with Contributed assets. The process is to be run out for internal projects in the near future. The process involves developers providing sewer main asset data from subdivisions in an XML file format that easily populates GIS asset tables. The data provided is accurate through inbuilt checking and is consistent through developers providing specified data.

Table 7.2: Operational Policies, strategies and procedures

⁴² Refer to document saved O / Fin Bus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/7 Final Documents/Water Main Replacement-Program Development and Water Sewer Pump Stn Replace Program Procedure

Document	Date Completed	Date Updated	Status	Comments
Operations Management Plan	2005	2014/15	To be updated	
Drinking Water Quality Management Plan	2005	2011 submitted	Not to be updated,	Plan dated water quality targets to be replaced by KPI's.
Maintenance Management Strategy Plan for Treatment and Supply	2005	Draft 2014		Contains reactive, planned and condition maintenance strategies. Also includes a list of preventative mtce strategies. Also includes a list of preventative maintenance activities for all treatment and supply active asset types. Network assets not included.
Water Asset Management Plan	2005	2014	Plan to be completed in 2015	
Sewer Asset Management Plan	2005	2014	Draft to be completed in 2015	
Operating and Maintenance Manual NRSTP	1999		Plan is current	
Operating and Maintenance Manual SRSTP Screenings System	1999		The plan is current but are in process of reviewing the plant with a number of changes likely to happen necessitating a new maintenance manual	
Operating Manual MMWTP	1993	2012	Update Completed	
Operating Manual MMSTP	2007	2012	Update Completed	

8. IMPROVEMENT PLAN

This section outlines the current Asset Management practices and systems used by FRW to support the recommendations in this plan. It also sets out target practices and systems that FRW is working towards.

The current and target practice is detailed under the following two functions.

- Information Systems and Data: The information systems to support AM processes, and manipulate the data. Data available for manipulation by info systems.
- Processes: The necessary processes, analysis and evaluation techniques needed to support effective lifecycle AM.
- Council is currently investigating alternative options for the mitigation of effluent quality breaches at the West Rockhampton Sewerage Treatment Plant, the outcomes will feature in future updates of this AMP.

Table 8.1 Current Practices and Improvements

Activity	Current Practice	Target Practice
Conquest / GIS	Sewer mains, rising mains, manholes entered into GIS/Conquest	
	GIS ID of asset entered into Conquest	Is not unique in some cases. GIS working on one table with unique ID's for all assets
	Asset entered into GIS and then Conquest	Annually check that there is a one to one match
	ADAC process used for contributed assets. Checked and XML data provided by developer for ease of entry into GIS	Utilise ADAC for both internal and contributed assets
	2 separate databases for Conquest and GIS	Link Conquest / GIS with one database
	Any differences in valuation attributes found on assets e.g. length, date of installation and then financially accounted for	Where change not material make change in GIS/Conquest and recognise financially at next revaluation
	Private works jobs entered into GIS / Conquest e.g. new jump ups, meter installed etc	A backlog to process
Works Management	Reactive Mtce work e.g. water main breaks comes in on day works sheets and then action created against asset. Same types of Mtce have unique action type for reporting. Action Attributes are filled in on day works sheet for putting in action e.g. break type, response times etc	Accurate location of Mtce and ensure day works sheets have all fields filled in for inputting into Conquest
	Planned Mtce work is scheduled in Conquest. Has an assigned action category e.g. Planned, Health and Safety for reporting. Description and notes from job are saved in action.	Inspection sheets scanned and attached to action.
	Finalise Water/Sewer Pump Stn Replace Program Procedure Draft. Update failure modes to monitor for replacement	Inspection sheets contain sufficient information to allow assessment of failure modes
Valuation	Valuation data entered into Conquest against assets. Contributed assets annually added at unit rates. Internal jobs annually added at cost.	
	Any valuation assets found that have not been previously recognised are added to the register at their depreciated replacement cost.	
	For EW Sewer mains where have condition data from CCTV an 80 year life has been assigned	Work out remaining life for these assets based on condition rather than age
	Capitalising internal work for reticulation get As cons and RTK data. For active assets request information from Asset Manager	Close out reports from Asset Managers as projects are completed
Condition assessment	Extensive investigations (CCTV) carried out of sewer mains to ascertain condition	Extrapolate out portion of sewer pipe network in each condition i.e. 1 - 5
	Wet well pumped out once a year by Contractor	Carry out condition assessment of wet well
Renewals	Data for renewal planning from Conquest e.g. Mtce history, expired assets, material , age	

APPENDIX A: SUSTAINABILITY RATIOS

Ratio	Result	Calculation	Description
Asset Consumption	54 %	DRC/CRC	A relatively high ratio indicates assets overall condition is good (Looking for over 50%)
Rate of Annual Asset renewal	1.8 %	Avg. Capital Renewal Expenditure (10 Yrs) / DA	A measure of the rate at which assets are being renewed per annum expressed as a % of depreciable amount
Rate of Annual Upgrade/expansion	1.8 %	Avg. Capital New/Upgrade Expenditure (10 years) / DA	A measure of the rate of which assets are being upgraded/expanded per annum expressed as a % of depreciable amount
Annual Consumption of assets	\$16,372	DRC/Remaining Life	Measures how much need to fund annually for depreciation of assets
Asset Sustainability ratio	0.67	Yr1 Renewal Budget / Avg expired assets	Ratio indicates weather are replacing assets at the same rate that asset stock is wearing out.
The 10 year sustainability index is	0.97	10 year Renewal Budget/Sewer assets expiring next 10 yrs	

Budget Expenditure	Total (\$000)
10 Year Renewal LTFP Budget	49,718
10 Year Upgrade/New LTFP Budget	51,185
10 Year Operations LTFP Budget	179,593
Total 10 Year Required Expenditure	280,496

Current Asset base	Total (\$000)
Current Replacement Cost (CRC)	287,781
Accumulated Depreciation	133,174
Fair Value (DRC)	154,606
Residual Value	5,206
Depreciable Amount (DA)	282,575
Annual Depreciation	16,372
Sewer Assets expiring in next 10 years	51,470

APPENDIX B: SEWER REFERENCES

Documents (Saved O/FinBus/Finance/Assets/Asset Management/AM/Assets/Water & Sewer/7. Final Documents

- a) Water Sewer Pump Stn Replace Program Procedure.doc DRAFT (outlines process for generating 10 year program of Water/Sewer Pump Stn replacement)
- b) Scope of Works Building Inspections FRW.doc (scope of works and schedule of FRW buildings inspected by Assets)
- c) Asset Register GIS-AMS Updating Process Final June 2012.doc (Process for updating FRW assets in GIS and then linking to Conquest)
- d) MaintenanceStrategyRev0001Rich.doc (Strategy for FRW Planned and Reactive Maintenance)
- e) 2014 Final Water Sewer Revalue Process and Future.doc (2014 Revalue Process for developing reval register and Capitalisation Process for updating register).
- f) Fitzroy RW Drinking Water Quality Management Plan Sep2011.doc
- g) FRWRegionalAssetsAug14final.xls (summarised detail on FRW assets eg length of mains, no of pump stns etc)
- h) FinalFRWRegionalPumpStnReplaceNov14.xls (spread sheet with workings for pump stn replacement)
- i) Surcharge Strategy Rocky.doc (surcharge strategy after ex Tropical cyclone Oswald flood, June 13)
- j) SewTreat2014Final.xls(spread sheet with workings for Sewer treatment Plant asset replacement)
- k) Council Report – MM Low Pressure Sewer Systems – Mar2014
- l) PopForecastsSept2014 – Based on 2011 Census data from Regional profile on Council website.
- m) Mt Morgan Sewerage Strategy 17 Jan 2014.pdf , Strategy to extend Mt Morgan Sewer reticulation to a further 450 properties
- n) Technical Report amended -031222012MC, technical report on Sewer Treatment Plant Mt Morgan capacity
- o) Pump Stations Well levels ex Tropical Cyclone Oswald

Hard Copy Documents

M) Rockhampton Regional Council / Fitzroy River *Water Sewage Treatment Plants Strategy Planning Study* Final / Aug 2013 SKM Sinclair Knight Mertz

APPENDIX C: ACRONYMS AND ABBREVIATIONS

AC	Asbestos Cement (Pipes)
AMP	Asset Management Plan
MH	Manhole
ADWF	Average Dry Weather Flow
BNR	Biological Nutrient Removal
BOD ₅	5-day Biochemical Oxygen Demand
CCTV	Closed Circuit Television
CI	Cast Iron (Pipes)
CICL	Cast Iron – Concrete Lined (Pipes)
CIUL	Cast Iron – Unlined (Pipes)
Cl ₂	Chlorine (elemental)
CPI	Consumer Price Index
CSO	Community Service Obligation
CSS	Customer Service Standard
CBD	Central Business District
dia.	Diameter
DICL	Ductile Iron – Concrete Lined (Pipes)
DN	Diameter Nominal
DO	Dissolved Oxygen
E. coli	Escherichia coli
EP	Equivalent Person
EPA	Environmental Protection Agency
EW	Earthenware (Clay) (Pipes)
FC	Faecal Coliforms
FCP	Full Cost Pricing
FCR	Full Cost Recovery
FRW	Fitzroy River Water
GRP	Glass Reinforced Plastic
GSTP	Gracemere Sewerage Treatment Plant
GWTP	Glenmore Water Treatment Plant
HDPE	High Density Polyethylene
kg	Kilogram
kL	Kilolitre (1,000 L)
kL/d	Kilolitres per day
km	Kilometre (1,000 m)
kPa	Kilopascal (1,000 Pa)
L	Litre
L/s	Litres per second
m	Metre
MDPE	Medium Density Polyethylene
FRW	Fitzroy River Water
ML	Megalitre (1,000,000 L)
mL	Millilitre

ML/d	Megalitres per day
mm	Millimetre
MMSTP	Mount Morgan Sewerage Treatment Plant
MMWTP	Mount Morgan Water Treatment Plant
mPVC	Modified Polyvinyl Chloride
MSCL	Mild Steel – Concrete Lined (Pipes)
N	Nitrogen
NRSTP	North Rockhampton Sewerage Treatment Plant
NRW	Department of Natural Resources and Water
NTU	Nephelometric Turbidity Unit
oPVC	Oriented Polyvinyl Chloride
P	Phosphorous
Pa	Pascal
PAC	Powdered Activated Carbon
PBA	Public Benefit Assessment
pH	Power of Hydrogen
PLC	Programmable Logic Controller
Pstn	Pump Station
QCA	Queensland Competition Authority
QTC	Queensland Treasury Corporation
Res	Reservoir
RoC	Return on Capital
RRC	Rockhampton Regional Council
SAMP	Strategic Asset Management Plan
SCADA	Supervisory Control And Data Acquisition
SRSTP	South Rockhampton Sewerage Treatment Plant
SS	Suspended Solids
STP	Sewerage Treatment Plant
uPVC	Un Plasticised Polyvinyl Chloride
VSD	Variable Speed Drive
WRSTP	West Rockhampton Sewerage Treatment Plant
WTP	Water Treatment Plant

9 STRATEGIC REPORTS

9.1 FRW MONTHLY OPERATIONS AND ANNUAL PERFORMANCE PLAN AS AT 30 SEPTEMBER 2015

File No: 1466

Attachments:

1. **FRW Monthly Operations and Annual Performance as at 30 September 2015**
2. **Customer Service Standards as at 30 September 2015**
3. **Customer Service and Financial Targets as at 30 September 2015**
4. **Non Compliance Comments as at 30 September 2015**

Authorising Officer: Robert Holmes - General Manager Regional Services

Author: Jason Plumb - Acting Manager Fitzroy River Water

SUMMARY

Fitzroy River Water's performance against financial and non-financial targets and key strategies is reported to Council on a quarterly basis in accordance with the adopted 2014/15 Performance Plan. This report as at 30 September 2015 is presented for the Committee's information.

OFFICER'S RECOMMENDATION

THAT the Fitzroy River Water Monthly Operations Report and Annual Performance Plan quarterly report as at 30 September 2015 be received.

COMMENTARY

The monthly Operations and Annual Performance Plan Report for FRW are attached for Council's consideration.

FRW is required to provide a quarterly report on its performance against financial and non-financial performance targets and key strategies as adopted in the Annual Performance Plan for 2014/15.

FRW has legislative obligations to report to various external agencies and stakeholders. The data in these reports is presented based on water and sewerage schemes. The format of reporting actual non-financial performance against targets in accordance with the requirements of the Annual Performance Plan has been modified to be consistent with the external reporting requirements and is presented in Attachment 2.

**FRW MONTHLY OPERATIONS AND
ANNUAL PERFORMANCE PLAN
AS AT 30 SEPTEMBER 2015**

**FRW Monthly Operations and
Annual Performance
as at 30 September 2015**

Meeting Date: 4 November 2015

Attachment No: 1

MONTHLY OPERATIONS AND ANNUAL PERFORMANCE PLAN REPORT

FITZROY RIVER WATER

Period Ended 30 September 2015

MANAGER'S OVERVIEW

Fitzroy River Water's performance remained consistent through the first quarter and focus continues on staff safety, improving reliability and quality of services provided to customers. Particular attention is being given to the Capital program to ensure timely delivery of projects. A number of significant multi-year capital projects are now approaching completion.

VARIATIONS, ISSUES AND INNOVATIONS

Innovations

Commissioning of two new pumps at the Glenmore High Lift WPS commenced in mid-October. This work is part of a completed electrical and mechanical upgrade project that will see a significant increase in the capacity and reliability of this very important pump station. Once the performance proving period for the two new pumps is completed in early November, the additional two new pumps will be installed after the last of the remaining old pumps are removed. Once completed, the newly upgraded pump station will operate with significantly improved levels of energy efficiency and control which will lead to reduced operating costs. The additional pumping capacity of the new pump station is expected to meet the needs of the community for many years to come. The project is currently being completed by Aquatec Maxcon Pty Ltd and has a total project value of approximately \$9 million.

Improvements / Deterioration in Levels of Services or Cost Drivers

FRW recently completed the refurbishment of concrete structures at sewerage pump stations in Rockhampton. This refurbishment work involves the lining of sewerage pump station wet wells and access chambers using a synthetic liner that is sprayed on at a sufficient thickness to cover the rough and often deteriorated concrete surface. The application of this liner protects the underlying concrete from further deterioration, prevents possible leakage, aids in the cleaning of the wet well surfaces and helps to extend the life of these assets significantly. The lining of these structures is also expected to reduce the infiltration of groundwater into these sewerage structures. This work is being completed by a company called Orion Group Australia Pty Ltd which is currently contracted to complete further similar refurbishment work.

LINKAGES TO OPERATIONAL PLAN

1. COMPLIANCE WITH CUSTOMER SERVICE REQUESTS

The response times for completing the predominant customer requests in the reporting period for 30 September 2015 are as below:

	Balance B/F	Completed In Current Mth	Current Month NEW Requests		TOTAL INCOMPLETE REQUESTS BALANCE	Work Orders Issued	Under Long Term Investigation	Avg W/O Issue Time (days) 12 months	Completion Standard (days)	Avg Completion Time (days) Current Mth	Avg Completion Time (days) 6 Months	Avg Completion Time (days) 12 Months	Avg Duration (days) 12 Months (complete and	Avg Completion Time (days) Q1				
			Received	Completed														
Asset Enq/Jump up location/Wat/ Sew Invert Levels	0	0	0	0	0	0	0	0.00	2	●	3.00	●	2.35	●	2.38	0.67	●	2.83
Network Construction - Reworks (Reinstatement Proj	1	1	0	0	0	0	0	0.00	1	●	0.00	●	2.40	●	7.58	12.30	●	2.00
Network Construction - Planned Works (Scheduled Re	0	0	0	0	0	0	0	0.33	1	●	0.00	●	3.60	●	4.54	3.64	●	0.00
Customer Service - Rebate Residential	0	0	19	14	5	0	0	0.00	30	●	1.07	●	1.70	●	3.44	2.34	●	0.76
Customer Service - Rebate Undetected Leaks	23	7	12	4	24	0	0	0.00	120	●	6.25	●	15.18	●	21.04	24.17	●	16.67
Customer Service - Standpipe Enquiry/Read (Asset)	0	0	1	1	0	0	0	0.00	2	●	0.00	●	10.00	●	7.43	0.60	●	0.00
Customer Service - Water Exemption Request	0	0	0	0	0	0	0	0.00	5	●	0.00	●	0.00	●	0.00	0.00	●	0.00
Development - Applications	0	0	0	0	0	0	0	0.00	10	●	0.00	●	3.00	●	1.75	1.75	●	1.00
Development - Building Over Sewerline	1	1	5	5	0	0	0	0.00	7	●	2.20	●	2.04	●	2.33	1.55	●	1.60
Network Systems (Network Analysis Water or Sewer)	0	0	0	0	0	0	0	0.00	7	●	0.00	●	1.67	●	1.60	1.60	●	2.00
Development - Strategic Sewer	0	0	1	1	0	0	0	0.00	10	●	3.00	●	3.20	●	2.86	2.86	●	3.50
Development - Strategic Water	1	0	0	0	1	0	0	9.33	10	●	0.00	●	8.67	●	16.75	10.67	●	0.00
Environment and Water Conservation Enquiry	0	0	0	0	0	0	0	0.00	5	●	0.00	●	0.00	●	5.00	0.00	●	0.00
Finance - Irrigators/Water Allocations (Asset)	0	0	2	2	0	0	0	202.66	7	●	4.00	●	4.69	●	3.88	1.28	●	3.38
Network Services - No Water (Asset)	0	0	8	8	0	0	0	5.46	1	●	0.50	●	0.23	●	0.94	0.19	●	0.14
Network Services - Reactive Sewerage Block (Asset)	9	7	47	44	5	1	0	-10.84	1	●	0.92	●	5.36	●	8.76	9.38	●	3.78
Network Services - Sewer Reimbursements	1	1	4	3	1	0	0	20.07	7	●	1.75	●	6.89	●	3.94	3.45	●	1.90
Network Services - Sewer Inflow Inspection/Enquiry	2	0	2	2	2	0	0	26.95	7	●	0.00	●	2.80	●	3.35	16.86	●	1.14
Network Services - Water Leaks (Asset)	1	1	70	67	3	0	0	0.78	1	●	0.72	●	0.64	●	0.81	0.75	●	0.72
Network Services- Poor Water Pressure (Asset)	1	1	11	11	0	0	0	19.88	1	●	0.79	●	1.43	●	1.50	0.46	●	0.85
Process - Tradewaste	1	1	7	6	1	0	0	160.26	7	●	0.33	●	2.39	●	2.67	1.61	●	2.36
Network Services - Lids/Cover (Asset)	0	0	5	5	0	0	0	8.95	1	●	0.40	●	1.59	●	1.90	1.63	●	2.26
Network Services - Meter Maintenance (Asset)	75	68	39	36	10	3	0	1.36	1	●	1.33	●	1.43	●	3.19	3.57	●	1.20
Network Services Private Works/Standard Connection	0	0	4	4	0	0	0	0.00	5	●	1.50	●	1.90	●	2.43	1.53	●	1.14
Network Services - Reinstatements	3	1	8	6	4	1	0	4.66	1	●	3.29	●	5.36	●	5.43	8.86	●	4.47
Network Services Special Water Meter Read Enquiry	0	0	1	1	0	0	0	0.00	10	●	1.00	●	1.71	●	3.64	1.78	●	3.67
Network Services - Water Meter Reading Enquiry	0	0	16	13	3	0	0	27.02	10	●	3.29	●	3.71	●	4.73	3.51	●	3.78
Process - Odour (Sewer Only) (Asset)	0	0	1	1	0	0	0	0.38	1	●	2.00	●	1.85	●	2.00	2.08	●	2.57
Process - River Quality	0	0	0	0	0	0	0	0.00	2	●	0.00	●	0.00	●	0.00	0.00	●	0.00
Process - Drinking Water Quality (Asset)	0	0	8	8	0	0	0	18.37	1	●	0.20	●	0.35	●	0.78	0.16	●	0.11
Water Meter Read Search - "NOT FOR CSO"	25	22	97	79	21	0	0	0.00	90	●	3.22	●	4.29	●	4.60	4.67	●	4.02

Comments and Additional Information

FRW uses Pathway escalations to monitor service performance compliance to the Customer Service Standards. The last column is the best indicator of average completion times for standard jobs.

2. COMPLIANCE WITH STATUTORY AND REGULATORY REQUIREMENTS INCLUDING SAFETY, RISK AND OTHER LEGISLATIVE MATTERS

Safety Statistics

The safety statistics for the reporting period are:

	FIRST QUARTER 2015/16		
	July	August	September
Number of Lost Time Injuries	1	0	0
Number of Days Lost Due to Injury	6	0	0
Total Number of Incidents Reported	5	2	3
Number of Incomplete Hazard Inspections	4	4	5

Hazard inspections are being completed however FRW processing of any rectification actions can delay meeting the end of month cut-off date for HR reporting.

Treatment and Supply

- No lost time injuries for the month.
- No employees are currently on long term lost time injuries.
- Two safety incidents were reported for the month. One incident involved a minor injury being sustained and the other was a near miss with the potential for vehicle damage.

Network Services

- No lost time injuries for the month.
- No employees are currently on long term lost time injuries.
- Three safety incidents were reported for the month.

Operations and Planning

- No lost time injuries for the month.
- No employees are currently on long term lost time injuries.
- No safety incidents were reported for the month.

Risk Management Summary

Potential Risk	Current Risk Rating	Future Control & Risk Treatment Plans	Due Date	% Completed	Comments
Inadequate physical security resulting in disruption or loss of critical services and supply, serious injury or death, damage to assets, theft; and damage to reputation.	Moderate 5	<ol style="list-style-type: none"> 1. Conduct security audit of all sites and update as necessary. 2. Finalise and implement FRW Maintenance Strategy. 	30/9/15	90%	<p>Draft maintenance strategy completed.</p> <p>Queensland Police Service have increased patrols of FRW sites.</p> <p>External consultant security report completed with implementation of recommendations commencing.</p>

Legislative Compliance and Standards

All services were provided in accordance with the relevant standards as required by legislation and licence conditions for both water and sewerage activities.

3.

ACHIEVEMENT OF CAPITAL PROJECTS WITHIN ADOPTED BUDGET AND APPROVED TIMEFRAME

The following abbreviations have been used within the table below:

R	Rockhampton
G	Gracemere
M	Mount Morgan
WPS	Water Pump Station
SPS	Sewage Pump Station
STP	Sewage Treatment Plant
S	Sewerage
W	Water

Project	Start Date	Expected Completion Date	Completion Status	Budget Estimate	YTD actual/com mittals
NETWORK SERVICES CAPITAL WORKS PROGRAM					
Rockhampton Water					
Arnold Street (Archer – Fitzroy Street) 100mm water main replacement	August 2015	September 2015	100%	\$70,118	\$77,408
Comments: Construction Completed					
Gracemere Duplication (Athelstane) 300mm water main.	July 2015	June 2016	40%	\$1,000,000	\$576,833
Comments: On schedule. Stage 4					
Pennycuick and Caxton	July 2015	September 2015	100%	\$157,472	\$172,855
Comments: Construction Completed. Extra cost incurred due to redesign to replace a further 100 meters of 150mm A/C main.					
Lucius Street (Quay street) 100mm water replacement	September 2015	September 2015	100%	\$41,752	\$38,720
Comments: Construction Completed					
Meade Street (Jardine – Herbert Street. 100mm water replacement	September 2015	October 2015	60%	\$118,973	\$55,608
Comments: On Schedule					
Rockhampton Sewer					
Sewer rehabilitation program (including Building over Sewer)	July 2015	June 2016	46%	\$700,000	\$189,605
Comments: Rehabilitation and renewals annual program of works.					

Project	Start Date	Expected Completion Date	Completion Status	Budget Estimate	YTD actual/com mittals
Ramsay Creek, construct new 225mm gravity sewer main	April 2015	August 2015	100%	\$200,000	\$350,082
Comments: Construction Completed. Extra cost due to the water table this has impacted on the job by having to dewater, slower excavating and using 20mm stone for the base. Late August finish. Overall the Ramsay Creek project will be within budget when combined with the wet well project.					
Ramsay Creek, sewer wet well duplication	April 2015	September 2015	100%	\$500,000	\$359,162
Comments: Construction Completed					
Sewer Main Relining 2014/15 Stage 1 – (Carry over)	August 2014	September 2015	100%	\$527,505	\$532,805
Comments: Program of works completed on schedule and on budget.					
NRFM Access Chamber Refurbishment – (Carry over)	January 2015	September 2015	100%	\$70,000	\$43,364
Comments: Program of works completed on schedule and on budget. Awaiting final invoice for payment.					
Gracemere Sewer					
Gracemere Sewer Effluent Capricorn Highway	July 2015	June 2016	85%	\$700,000	\$194,120
Comments: On Schedule. Stage 4					
Mount Morgan (water mains replacement)					
Pattison street (Black and Norton) 100mm water main	August 2015	September 2015	98%	\$66,945	\$83,639
Comments: On Schedule					
Mount Morgan Sewer					
Railway Ave New 225mm Gravity Sewer	July 2015	June 2016	63%	\$700,000	\$283,074
Comments: On Schedule					
TREATMENT AND SUPPLY CAPITAL WORKS PROGRAM					
Pipeline from West to South STP – Design	July 2014	Dec 2015	60%	\$100,000	\$25,236

Project	Start Date	Expected Completion Date	Completion Status	Budget Estimate	YTD actual/committals
Phase					
Comments: Survey completed and detailed design underway.					
R SRSTP Primary Valve Pit Replacement	July 2014	Jan 2016	15%	\$90,000	\$3000
Comments: Delayed slightly due to complexity of design, with procurement now underway.					
R S Gracemere STP Augmentation Inlet Works Upgrade (Stage 1)	July 2014	December 2015	30%	\$1,500,000	\$62,538
Comments: Detailed design nearing completion with fabrication of steelwork commencing.					
N Water Rogar Ave Reservoir Rechlorination Facility	September 2014	May 2016	10%	\$70,000	\$0
Comments: Delayed due to TC Marcia. Project scope being rearranged to find affordable option.					
N Water Mt Archer Reservoir Online Chlorine Analysis	July 2014	Nov 2015	95%	\$20,000	\$17,237
Comments: SCADA commissioning commenced with completion expected by late November.					
R Water Barrage Gates Maintenance	Sep 2014	Sep 2015	100%	\$120,000	\$56,493
Comments: Completed.					
R Water Barrage Gate Seal Rehabilitation	November 2014	June 2016	2%	\$300,000	\$0
Comments: Deferred until completion of crane rail restoration.					
R WTP Glenmore Concrete Refurbishment	August 2014	March 2016	10%	\$25,000	\$0
Comments: Delayed slightly due to change in schedule of contractor, with work now planned for period of lower consumption in early 2016.					
M W Dam No 7 CCTV Installation	July 2014	Dec 2015	10%	\$30,000	\$1500
Comments: Delayed slightly due to TC Marcia. Currently working through site access agreement with Optus for access to their communications tower.					
M WTP CCTV Installation	July 2014	Dec 2015	10%	\$15,000	\$0
Comments: Delayed slightly due to TC Marcia. Currently working through site access agreement with Optus for access to their communications tower.					
M W Dam No 7 Raw Lift Pump Upgrade	July 2014	Nov 2015	60%	\$25,000	\$5,000
Comments: New impellers will be installed in early November.					

Project	Start Date	Expected Completion Date	Completion Status	Budget Estimate	YTD actual/committals
M W North Reservoir Roof Replacement	July 2014	Sep 2015	100%	\$210,000	\$204,533
Comments: Completed. Final invoices currently being processed.					
M STP Chlorination Upgrade	April 2013	Nov 2015	80%	\$15,716	\$8,250
Comments: Commissioning expected by end of November.					
R – S NRSTP Aerator Replacement	July 2013	Dec 2015	70%	\$91,071	\$54,228
Comments: Installation to commence following construction of a new aerator walkway bridge by external contractor.					
Barrage Crane and Rail Restoration	Dec 2013	Dec 2015	40%	\$333,247	\$120,202
Comments: Design completed with preparations being finalised for commencement of work.					
GWTP Highlift Pump Station Upgrade (Stage 1)	July 2013	Nov 2015	99%	\$3,366,922	\$3,208,854
Comments: Stage 1 works completed with finalisation of Operation and Maintenance Manuals underway.					
GWTP Highlift Pump Station Upgrade (Stage 2)	August 2014	March 2016	70%	\$3,510,000	\$1,714,381
Comments: New electrical switchboards now fully commissioned and energised with commissioning of pumps underway.					
Arthur Street SPS Electrical Upgrade	July 2014	Dec 2015	40%	\$700,000	\$338,302
Comments: Design completed and preparation for commencement of on-site works underway.					
Arthur Street SPS Dry Well Pump Renewal	July 2015	Jan 2016	30%	\$128,963	\$74,210
Comments: New pumps ordered with installation to commence in early 2016.					
MMWTP Coagulant Dosing Upgrade	January 2014	Dec 2015	60%	\$70,000	\$49,968
Comments: On schedule with increased budget due to new requirement for chemical tank bunding. Installation and commissioning work underway.					
R Reaney St Recycled WPS Renewal	July 2014	Nov 2015	80%	\$40,000	\$63,248
Comments: New electrical switchboard installed and connected to mains power with commissioning currently underway.					
G Lucas St WPS pump and electrical switchboard upgrade	January 2014	Nov 2015	40%	\$541,628	\$24,776
Comments: Delay in progress during completion of design. Design nearing completion with site works now underway.					

Project	Start Date	Expected Completion Date	Completion Status	Budget Estimate	YTD actual/com mittals
R – North Rockhampton SPS No. 1 and 2 electrical upgrade	July 2015	Jun 2016	5%	\$500,000	\$0
Comments: Tender documents finalised in readiness for advertising in early November.					
R – STP replace handrails at South Rockhampton STP	August 2015	Dec 2015	10%	\$25,000	\$0
Comments: Project contract awarded to successful contractor.					
MM – STP construct additional drying bed storage	August 2015	Dec 2015	30%	\$40,000	\$3,000
Comments: Three existing drying beds extended with design for the construction of the fourth underway.					

4. ACHIEVEMENT OF OPERATIONAL PROJECTS WITHIN ADOPTED BUDGET AND APPROVED TIMEFRAME

As at period ended 30 September 2015.

Project	Revised Budget	Actual (incl. committals)	% budget expended	Explanation
Nil				

5. DELIVERY OF SERVICES AND ACTIVITIES IN ACCORDANCE WITH COUNCIL'S ADOPTED SERVICE LEVELS

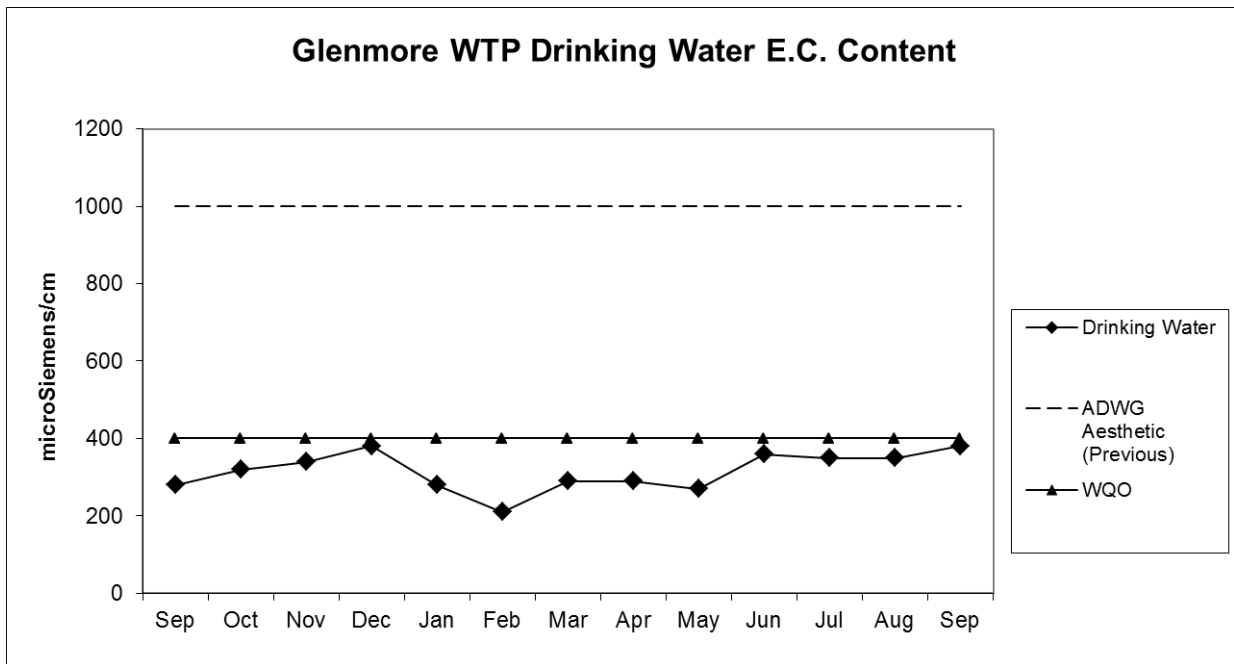
Service Delivery Standard	Target	Current Performance
<i>Drinking Water Samples Compliant with ADWG</i>	>99%	100%
<i>Drinking water quality complaints</i>	<5 per 1000 connections	0.24
<i>Total water and sewerage complaints</i>	N/A	174
<i>Glenmore WTP drinking water E.C Content</i>	<500 µS/cm	380 µS/cm
<i>Glenmore WTP drinking water sodium content</i>	<50 mg/L	32 mg/L
<i>Average daily water consumption – Rockhampton</i>	N/A	52.84 ML
<i>Average daily water consumption – Gracemere</i>	N/A	5.85 ML
<i>Average daily water consumption – Mount Morgan</i>	N/A	1.27 ML
<i>Average daily bulk supply to LSC</i>	N/A	8.67 ML
<i>Drinking water quality incidents</i>	0	0
<i>Sewer odour complaints</i>	<1 per 1000 connections	0.06
<i>Service Leaks and Breaks</i>	80	56
<i>Total water main breaks</i>	15	17
<i>Total sewerage main breaks and chokes</i>	32	19
<i>Incidence of unplanned interruptions – water</i>	N/A	23.3
<i>Average response time for water incidents (burst and leaks)</i>	N/A	143.0
<i>Average response time for sewerage incidents (including main breaks and chokes)</i>	N/A	50.70
<i>Rockhampton regional sewer connect blockages</i>	42	19

**Where there are no targets identified they will be set as part of the revised FRW Customer Service Standards.

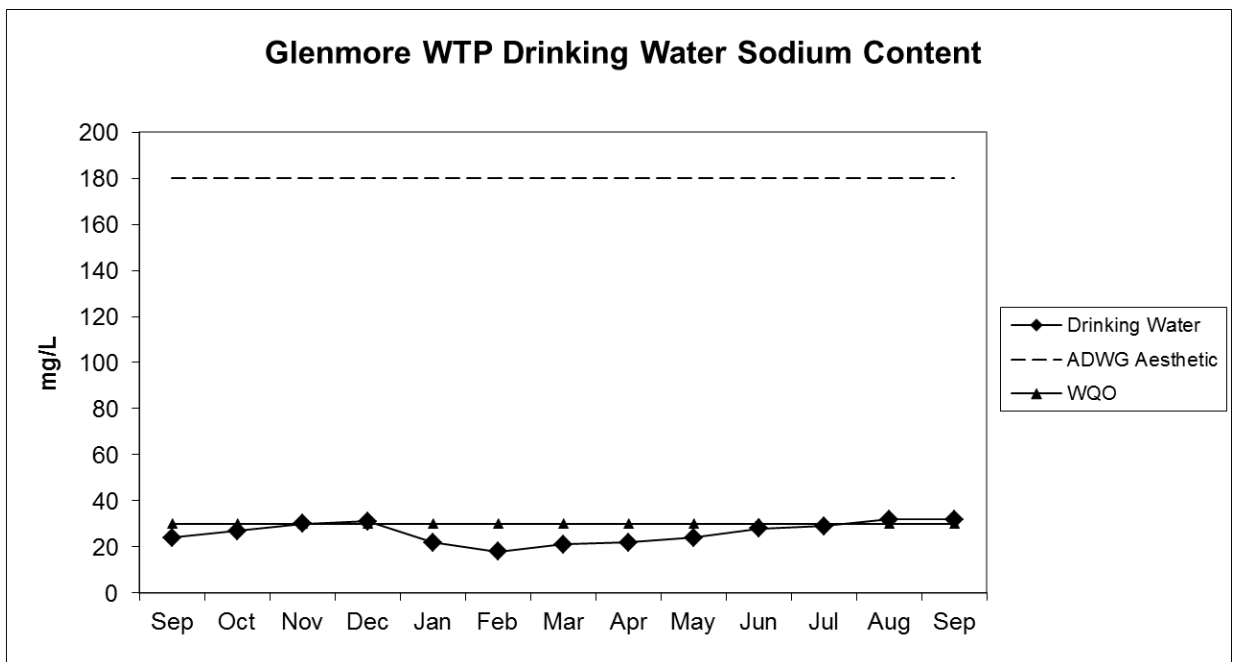
Refer to the individual graphs and information below.

TREATMENT AND SUPPLY

Drinking Water E.C. and Sodium Content



The level of E.C. in drinking water supplied from the Glenmore Water Treatment Plant (GWTP) during September increased slightly to be 380 µS/cm. The relatively low E.C. value is due to the lack of any significant inflow from the upper catchments. The level of E.C. is below the Water Quality Objective of 400 µS/cm and well beneath the previously used aesthetic guideline value of 1000 µS/cm. The E.C. reading is not expected to increase significantly within the next few months.



The concentration of sodium in drinking water supplied from the GWTP during September was unchanged at 32 mg/L. The relatively low sodium value is due to the lack of any significant inflow from the upper catchments. The current level of sodium is slightly above the Water Quality Objective value of 30 mg/L but is well beneath the aesthetic guideline of 180 mg/L for sodium in the Australian Drinking Water Guidelines. The sodium concentration is not expected to increase significantly within the coming months.

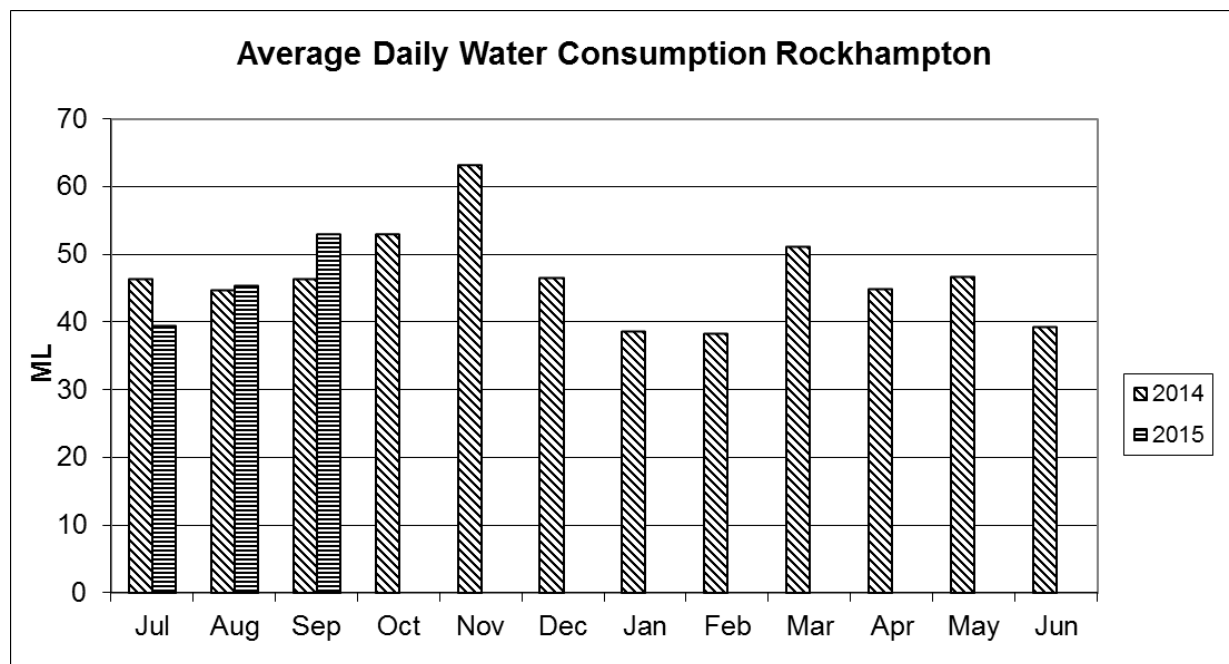
Drinking Water Quality as at 9 September 2015		
Parameter	Rockhampton	Mount Morgan
Total Dissolved Solids (mg/L)	240	190
Sodium (mg/L)	32	32
Electrical Conductivity (uS/cm)	380	260
Hardness (mg/L)	107	51
pH	7.67	7.40

The table above shows the results of drinking water testing in Rockhampton and Mount Morgan for selected water quality parameters.

Drinking Water Supplied

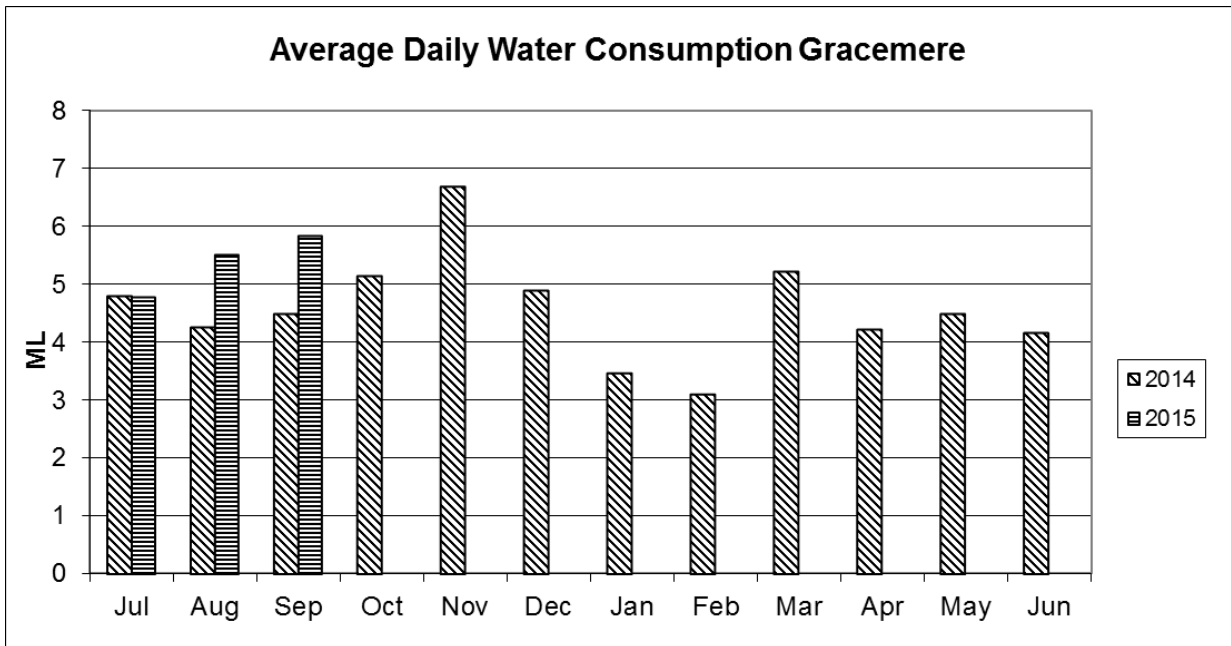
Data is presented in graphs for each water year (e.g. 2014 is the period from July 2014 to June 2015).

Rockhampton



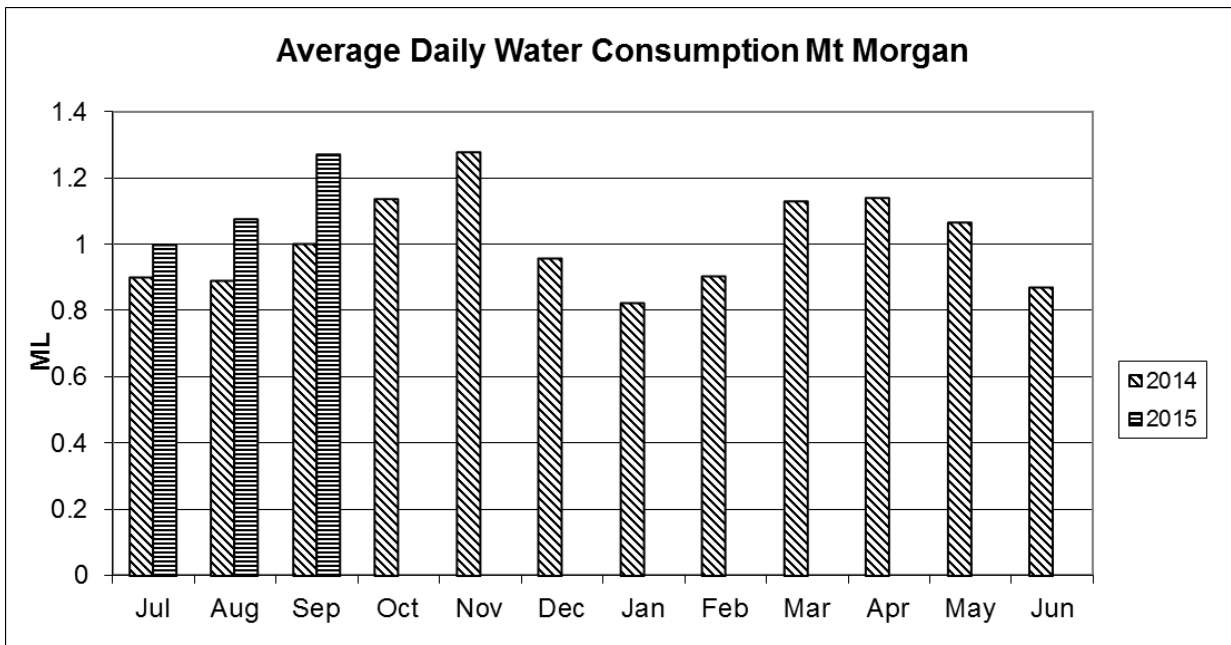
Average daily water consumption in Rockhampton during September (52.84 ML/d) increased from that reported in August and was much greater than that reported in the same period last year. The increased consumption was due to the warmer weather and limited amount of rainfall received during the month. The Fitzroy Barrage Storage is currently at 92% of accessible storage volume and is therefore well above the threshold in the Drought Management Plan used to trigger the implementation of water restrictions.

Gracemere



Average daily water consumption in Gracemere during September (5.85 ML/d) increased compared to that reported in August and was much greater than that reported in the same period last year. The increased consumption was due to the warmer weather and limited amount of rainfall received during the month. The Fitzroy Barrage Storage is currently at 92% of accessible storage volume and is therefore well above the threshold in the Drought Management Plan used to trigger the implementation of water restrictions.

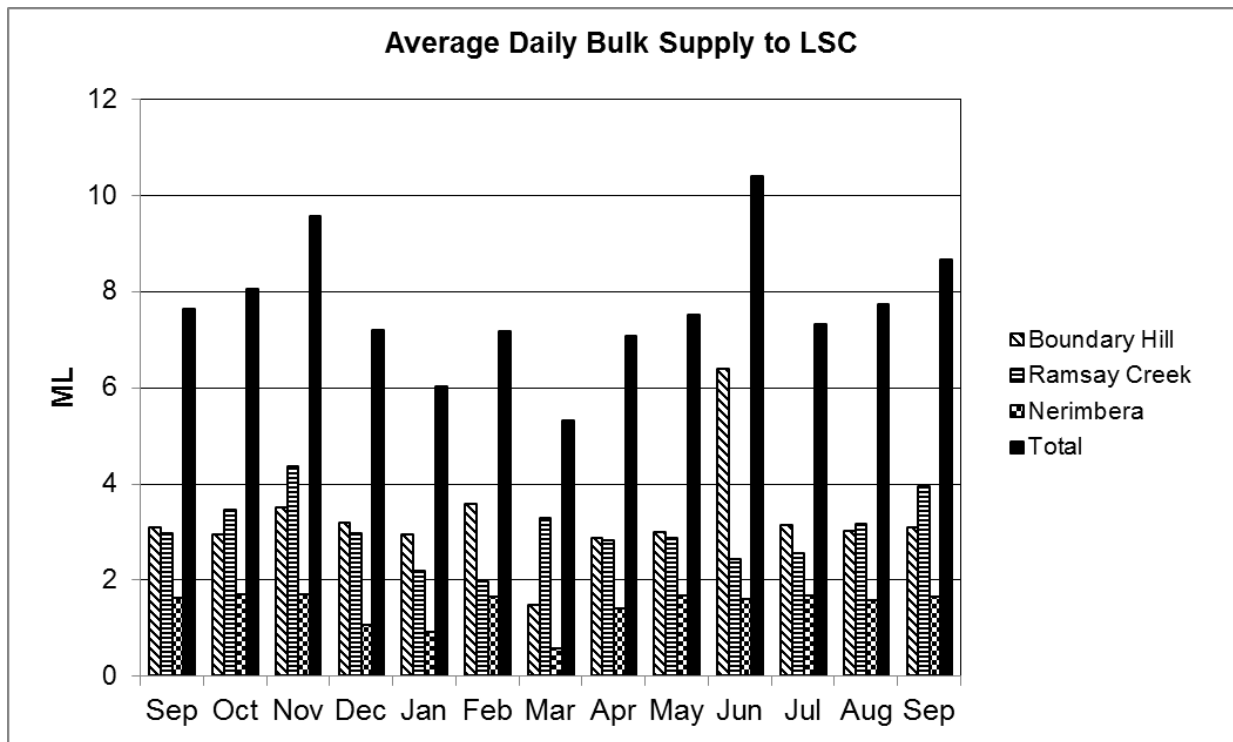
Mount Morgan



Average daily water consumption in Mount Morgan during September (1.27 ML/d) was greater than that reported in August and was much greater than that reported for the same period last year. The increased consumption was due to the warmer weather and limited amount of rainfall received during the month. The No. 7 Dam is currently at 78% of accessible storage volume, well above the 50% storage threshold value in the Drought

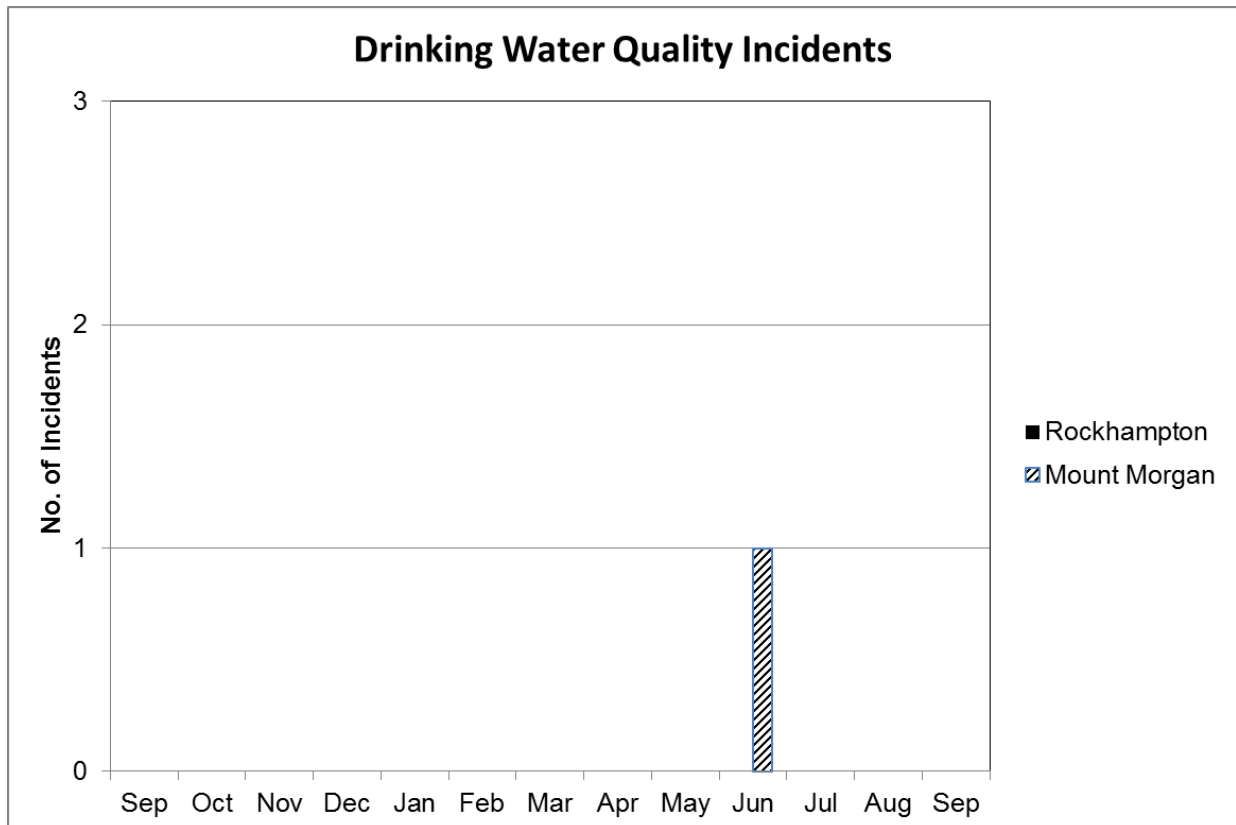
Management Plan that is used to trigger the implementation of water restrictions in Mount Morgan.

Bulk Supply to Livingstone Shire Council



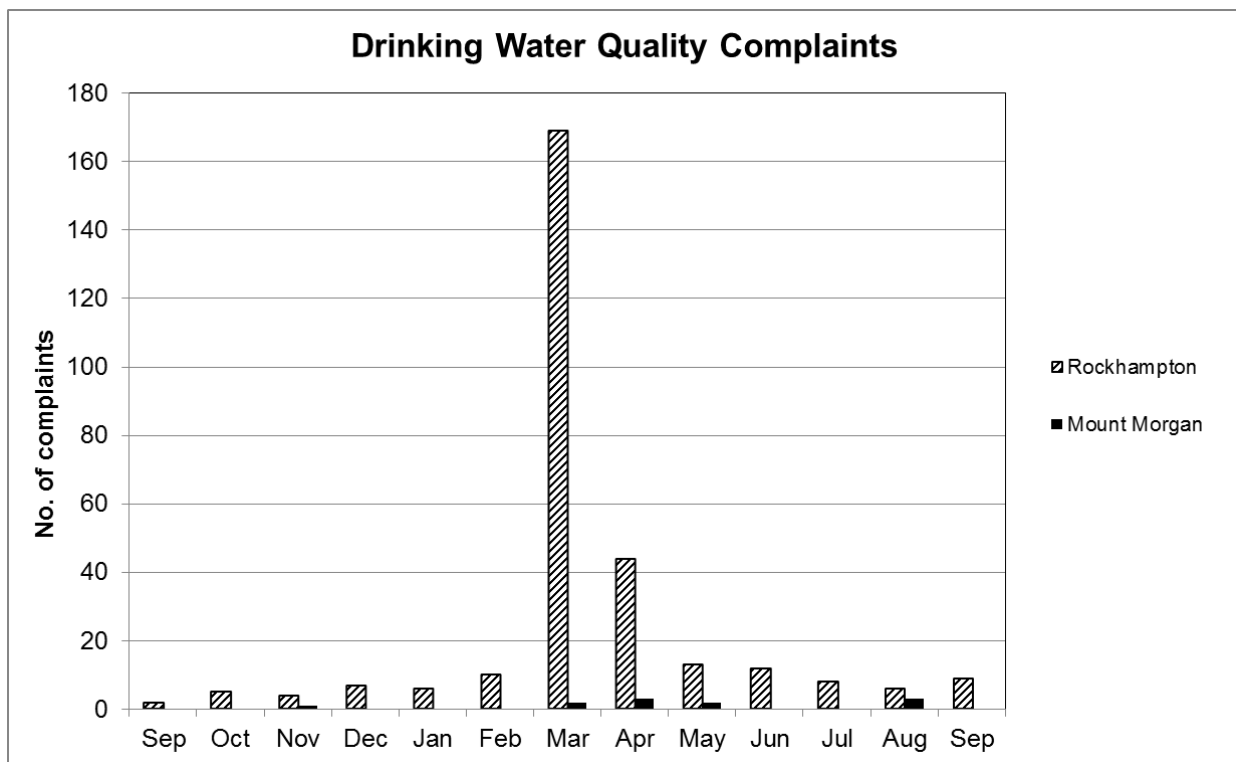
The average daily volume of water supplied to LSC increased during September compared to that recorded in August to be 8.67 ML/d. This volume is greater than the volume recorded for the same period last year. The recent increase was primarily due to an increase in the volume of water supplied from the Ramsay Creek site during this period.

Drinking Water Quality Incidents



No water quality incidents occurred during the month of September. Only one water quality incident has occurred in the last three years.

Drinking Water Quality Complaints

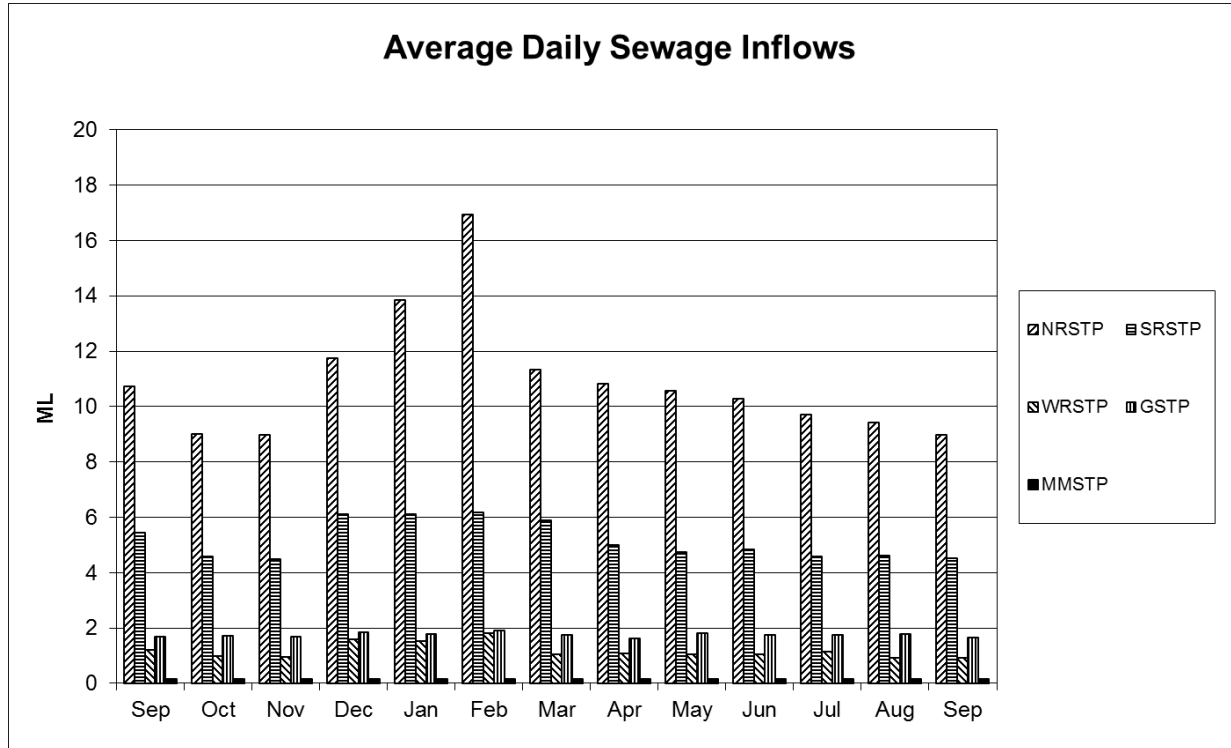


	Elevated Chlorine	Taste/Odour/Quality	Discoloured Water	Physical Appearance (e.g. residue or air)
No. Complaints	0	0	6	3

The total number of drinking water quality complaints (9 complaints) received during September remained unchanged from the number of complaints received in August.

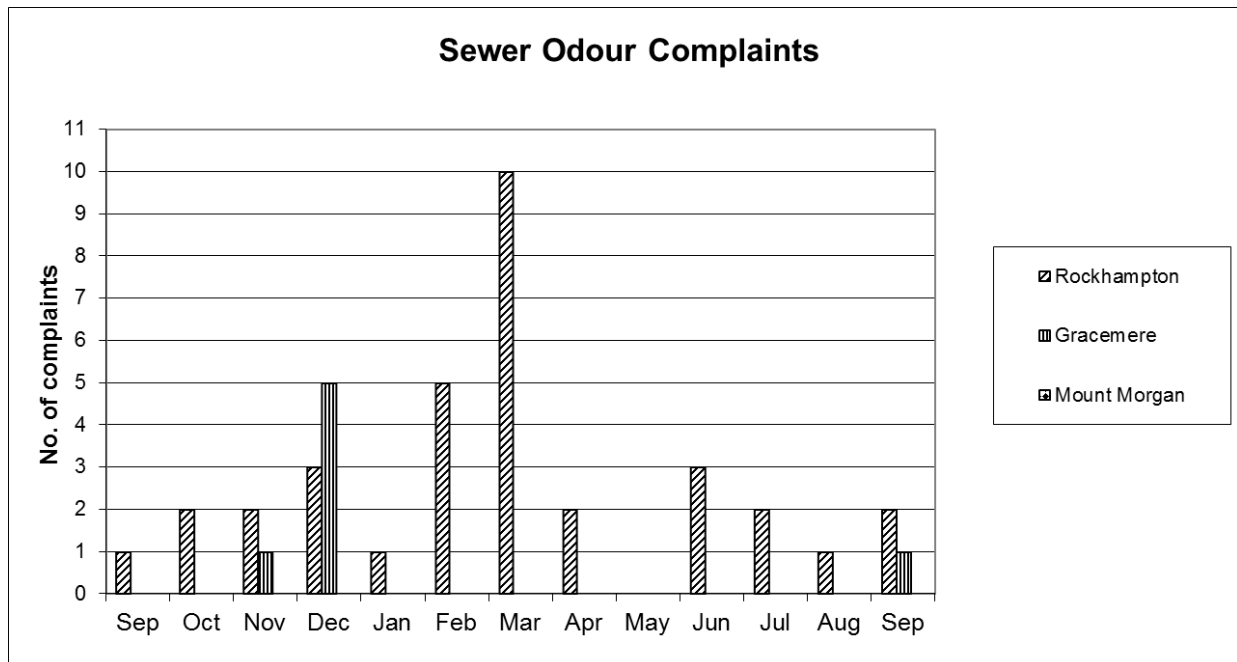
All complaints were received from customers in Rockhampton. Six of the complaints were associated with discoloured water and three were associated with the appearance of the water with either entrained air observed, or a fine residue after the water dried on surfaces. Most of the discoloured water complaints along with the two entrained air complaints were associated with some water mains breaks that occurred in early September. FRW took a range of actions to address the complaints including flushing mains, performing additional testing or providing information about the nature and cause of the water quality complaints.

Sewage Inflows to Treatment Plants



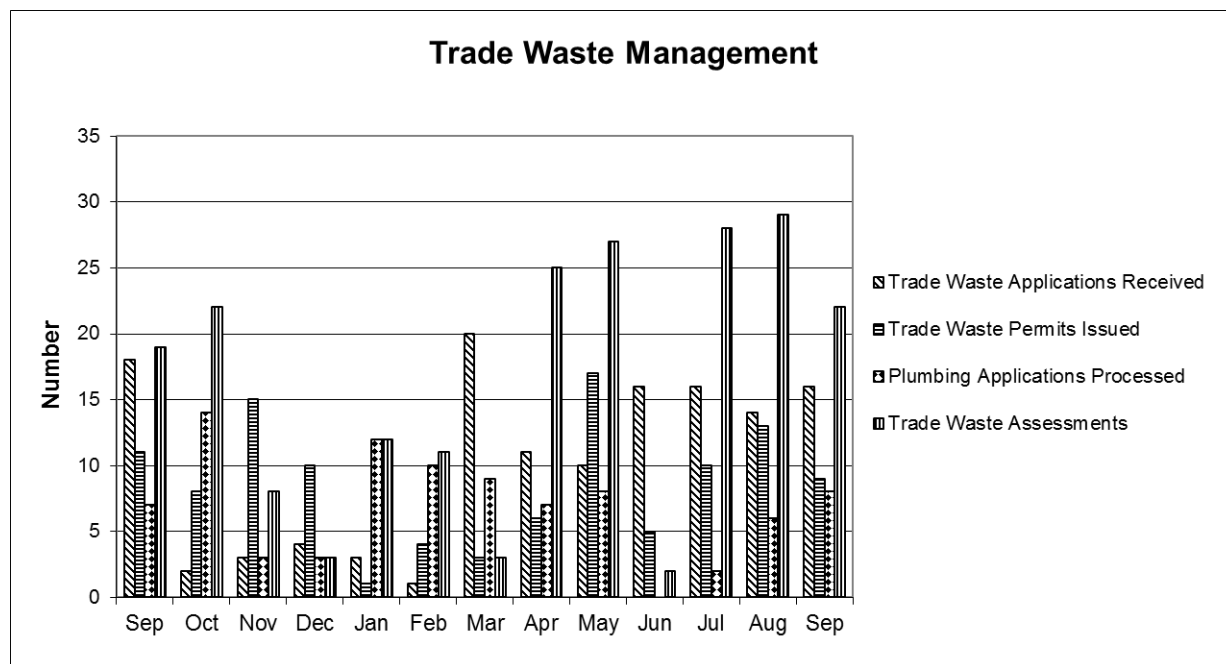
Average daily sewage inflows during September were slightly lower at each STP compared to that reported in August due to the relatively low amount of rainfall received during the month. The overall level of inflow is now at long term dry weather levels with groundwater infiltration negligible due to the recent dry weather.

Sewer Odour Complaints



Three sewer odour complaints were received during the month of September, an increase from the one complaint received in August. Two of the complaints were received from customers in Rockhampton and the other one from a customer in Gracemere. Each complaint was associated with an odour emanating from the sewerage network. In each case, FRW investigated the complaint and took action to resolve the odour issue.

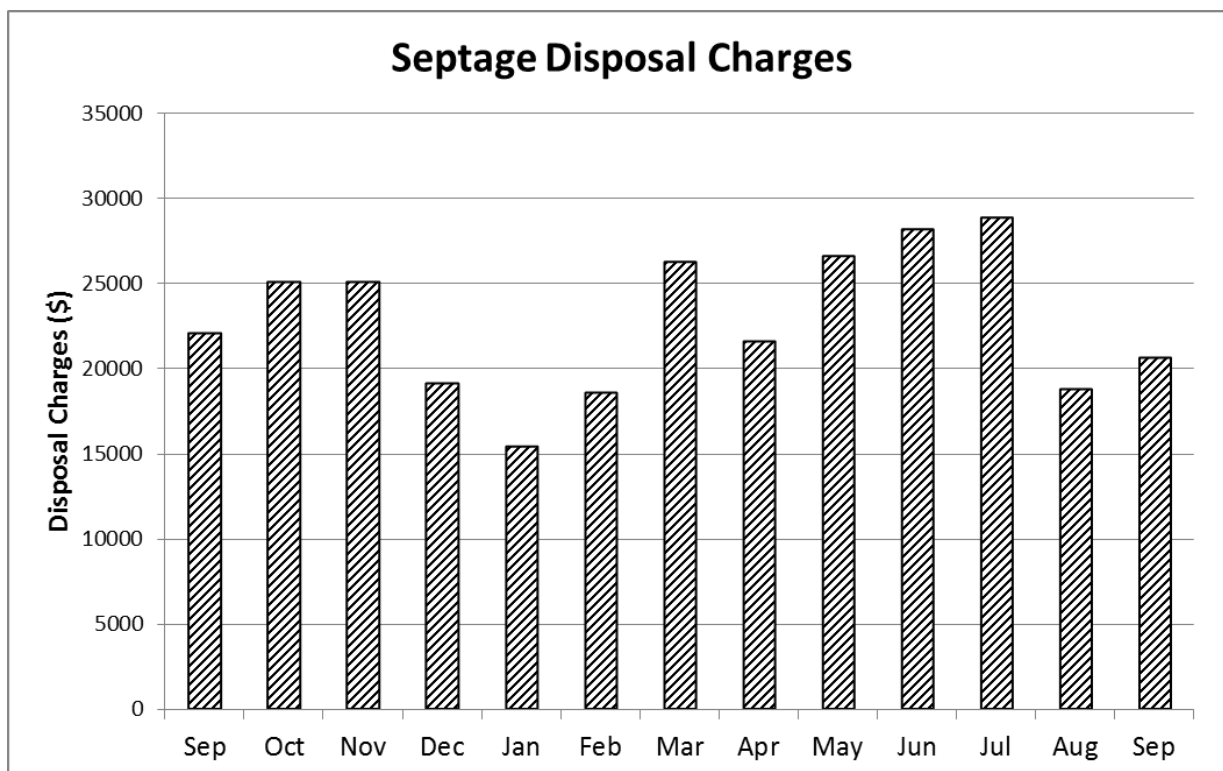
Trade Waste and Septage Management Activities



Sixteen Trade Waste applications were received and nine Trade Waste Permits were issued during September. Eight Plumbing Applications were processed and 22 Trade Waste Assessments were completed by the team.

The table below shows those Permits which contained a significant change either to their Category rating or due to the inclusion of a Special Condition in order to comply with Council’s Trade Waste Environmental Management Plan.

Industry/Trade	New or Renewal	Permit Category	Special Condition	Comments
Nursing Home	Renewal	From 1 to 2	Nil	Average TW discharge is 2823 kL/a; No grease trap installation required for the serveries
Hotel	Renewal	From 1 to 2	Install a grease trap	Average TW discharge is 312 kL/a
Takeaway	Renewal	1	Install a grease trap	The business was previously required to install a grease trap.
Motel	Renewal	From 1 to 2	Nil	Average TW discharge is 1144 kL/a
Equipment Hirer	Renewal	From 1 to 2	Nil	Average TW discharge is 398 kL/a

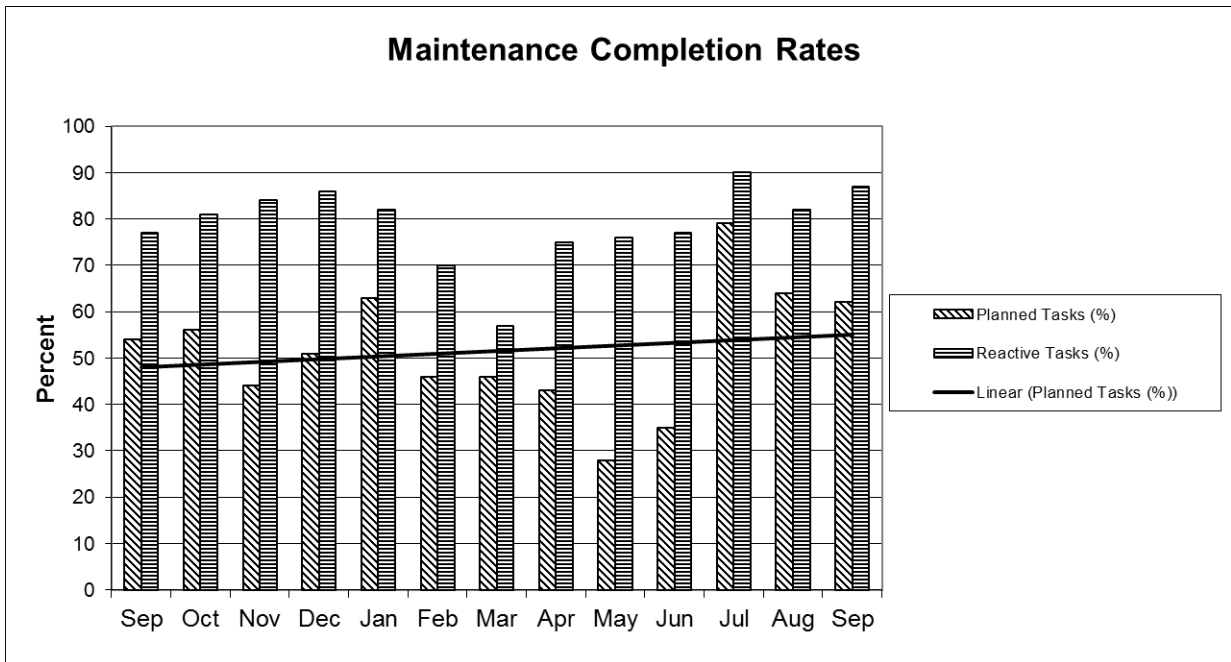


The above graph shows the income received each month for the last 13 months for the disposal of septage liquid waste at the North Rockhampton STP. The increase in charges received in September reflects the recommencement of military training exercises at Shoalwater Bay.

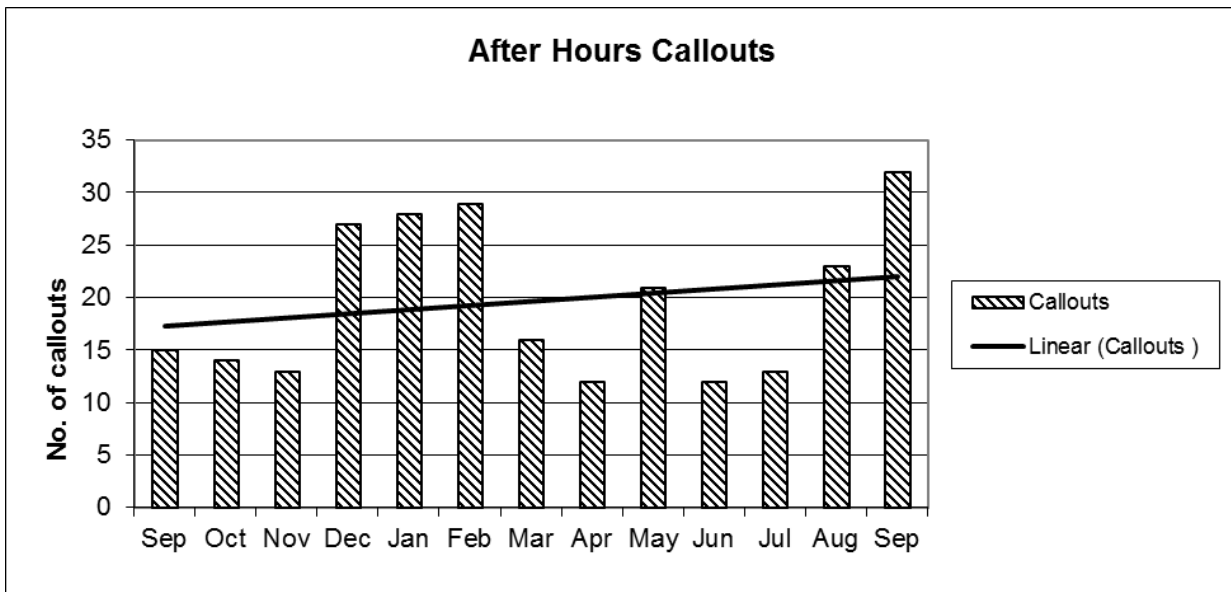
Treatment and Supply Maintenance Activities

The table below shows the breakdown of work completed based on the category of the work activity.

Maintenance Type	Work Category			
	Electrical	Mechanical	General	Operator
Planned	18	42	63	0
Reactive	51	32	0	0
After hours callouts	21	10	0	1
Capital	2	0	1	0
Safety and Compliance	0	1	0	0



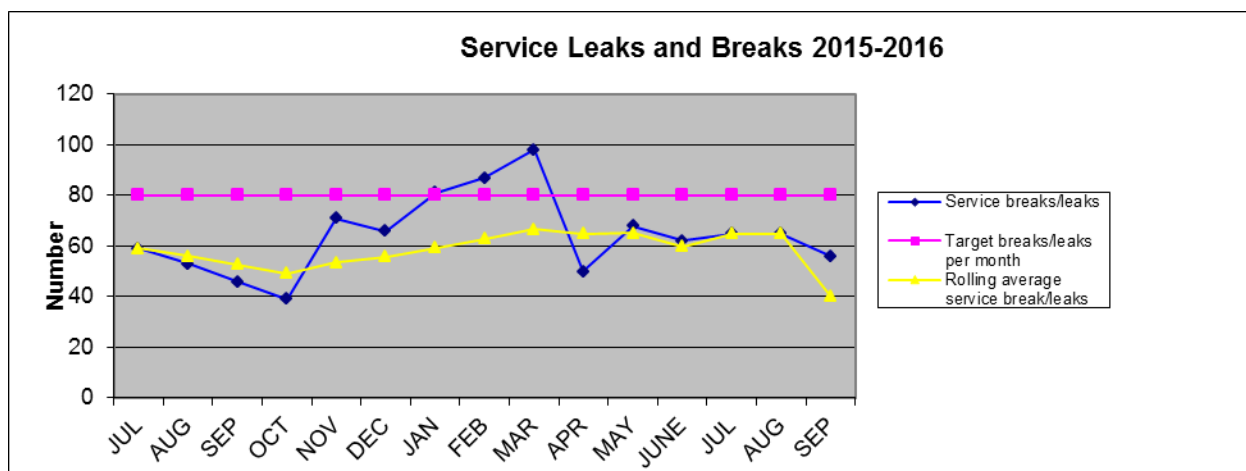
A total of 200 preventative maintenance activities were scheduled and 126 reactive maintenance activities were requested during the month of September. Completion rates for each type of maintenance activity by the end of the month were 62% and 87% respectively. The relatively high completion rate continues to reverse the decreasing trend reported in previous months.



The number of after-hours call-outs for electrical and mechanical reactive maintenance (32 call-outs) increased during September compared to August. The number of callouts was higher than the 12 month rolling average of 20 call-outs. The trend line in the graph indicates an overall increase in call-outs. A number of the call-outs were for faults with assets that are currently part of capital upgrade projects which are expected to decrease the need for future after hours call-outs. In the majority of cases, the faults were rectified within the targeted rectification time according to the Priority Ratings used to rank reactive maintenance events.

NETWORK SERVICES

Regional Service Leaks and Breaks



Performance

Target achieved.

Issues and Status

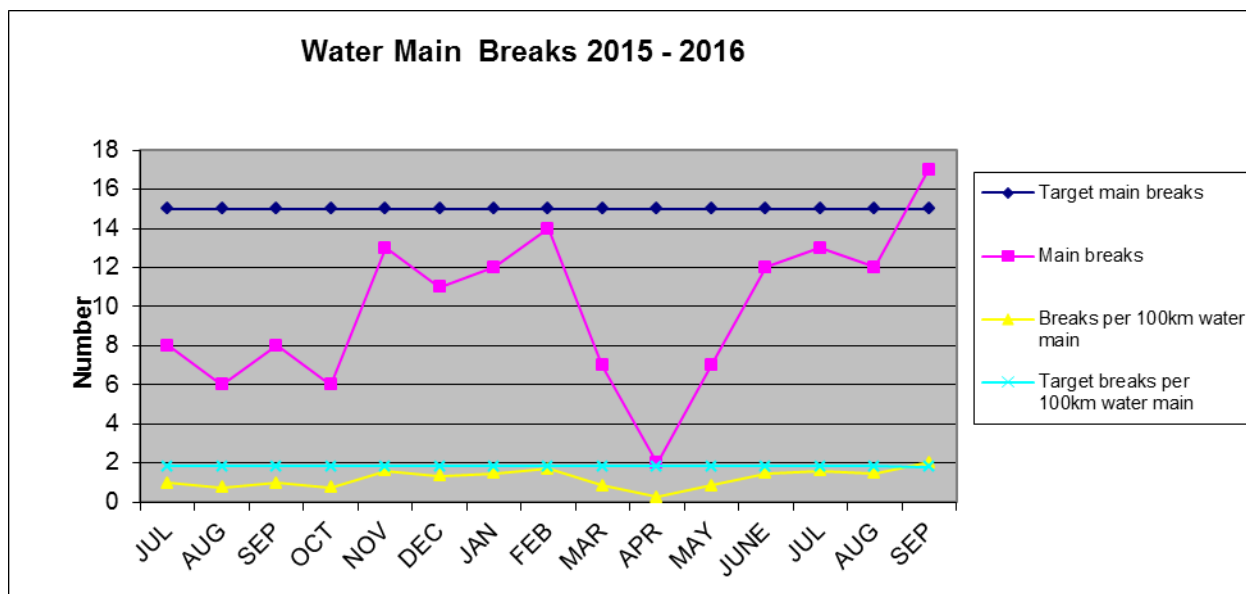
Maintenance records indicate a high percentage of service breaks and joint failures consistently occurring on poly services.

Response to Issues

Water services subject to two failures are being replaced under the capital replacement programme to minimise the risk of failure.

Locality	Service Leaks / Breaks
Rockhampton	51
Mount Morgan	5
Regional Total	56

Regional Water Main Breaks



Performance

Target not achieved.

Issues and Status

Four of the seventeen water main breaks were due to one ongoing interrelated event in the Agnes St High Zone.

The following table shows the number of breaks per month.

Water main type	July 2015	August 2015	September 2015
Cast Iron	3	2	3
AC	6	6	9
PVC	4	1	4
Mild Steel	0	0	0
Poly	0	3	1
TOTAL	13	12	17

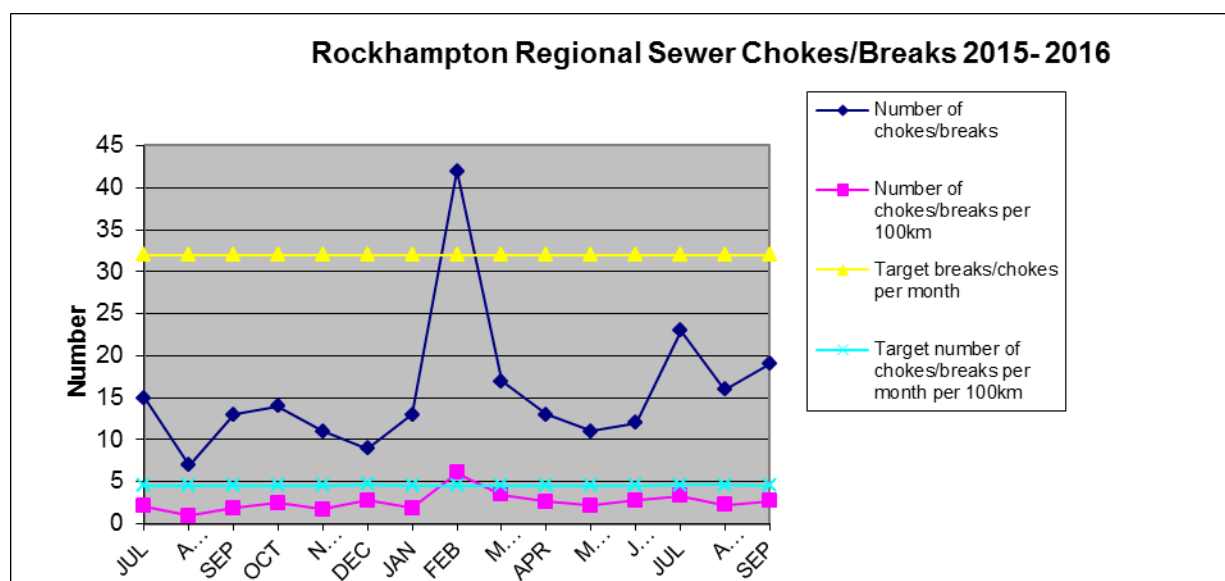
Response to Issues

Continued defect logging and rectification will reduce failure occurrences.

	Number of Main Breaks	Target Main Breaks	Breaks per 100 km	Target Breaks per 100 km	Rolling average per 100 km
September	17	15	2.04	1.80	0.68

Locality	Main Breaks
Rockhampton	17
Mount Morgan	0
Regional Total	17

Rockhampton Regional Sewer Chokes/Breaks



Performance

Target achieved.

Issues and Status

Data indicates that blockages / overflows have been caused by tree root intrusion.

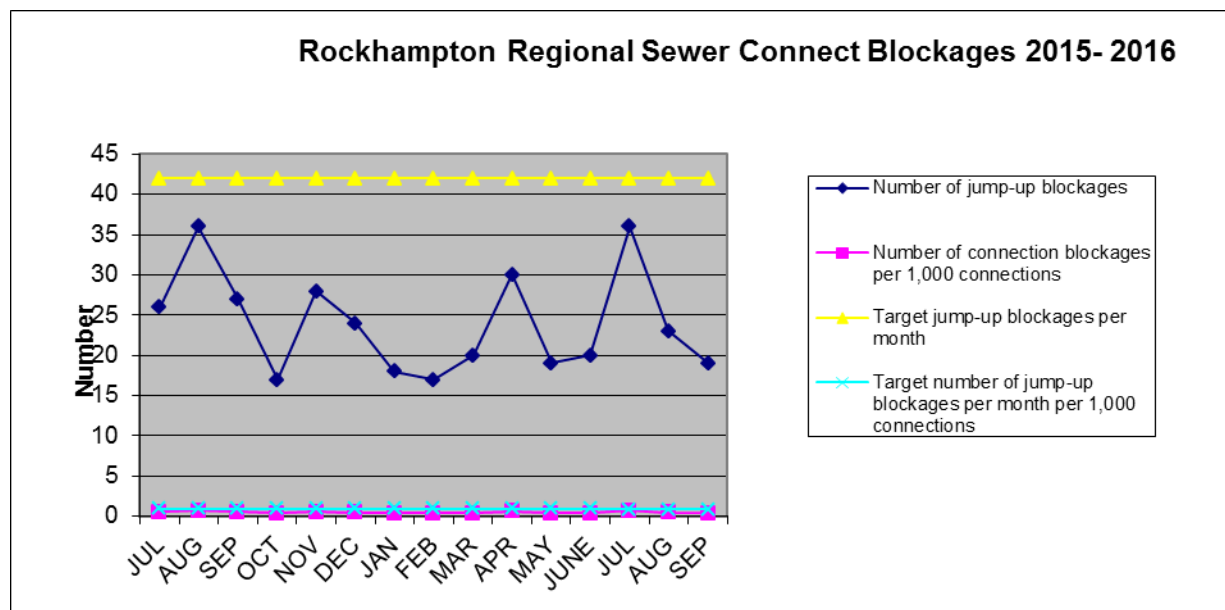
Response to Issues

Continue to log defects and monitor outcomes to ensure inclusion in the Capital Relining rehabilitation program.

	Number of chokes/breaks	Target chokes/breaks per month	Number of chokes/breaks per 100 km	Target number of chokes / breaks per month per 100km	Rolling 12 month average per 100 km chokes / breaks
September	19	32	2.7	4.58	1.64

Locality	Surcharges	Blockages
Rockhampton	7	19
Mount Morgan	0	0
Regional Total	7	19

Rockhampton Regional Sewer Connection Blockages



Performance

Target achieved

Issues and Status

Data indicate that blockages have been caused by broken pipes due to age, and tree root intrusion.

Response to Issues

Continue to assess properties with repeat breaks and chokes for inclusion in the capital sewer refurbishment programme.

	Number of connection blockages	Target connection blockages per month	Number of connection blockages per 1,000 connections	Target number of connection blockages per 1,000 connections	12 month average per 1,000 connections
September	19	42	0.38	0.84	0.59

Locality	Connection Blockages
Rockhampton	19
Mount Morgan	0
Regional Total	19

Sewer Rehabilitation Program

Work Location	Number completed for the month	Year to date totals
Access Chambers raised	2	22
Sewers repaired	16	37

Private Works

Table 1: New Water Connections:

Region	September	FY to Date 2015	FY to Date 2014	FY to Date 2013	FY to Date 2012
Gracemere	9	18	19	38	180
Rockhampton	13	33	71	49	50
Mount Morgan	N/A	N/A	N/A	N/A	N/A
Regional Total	22	51	90	87	230

This table and graph shows the water connection data, for September, for the past four years.

Region	September 2015	September 2014	September 2013	September 2012
Gracemere	9	9	10	47
Rockhampton	13	20	30	11
Mount Morgan	N/A	N/A	N/A	N/A
Total	22	29	40	58

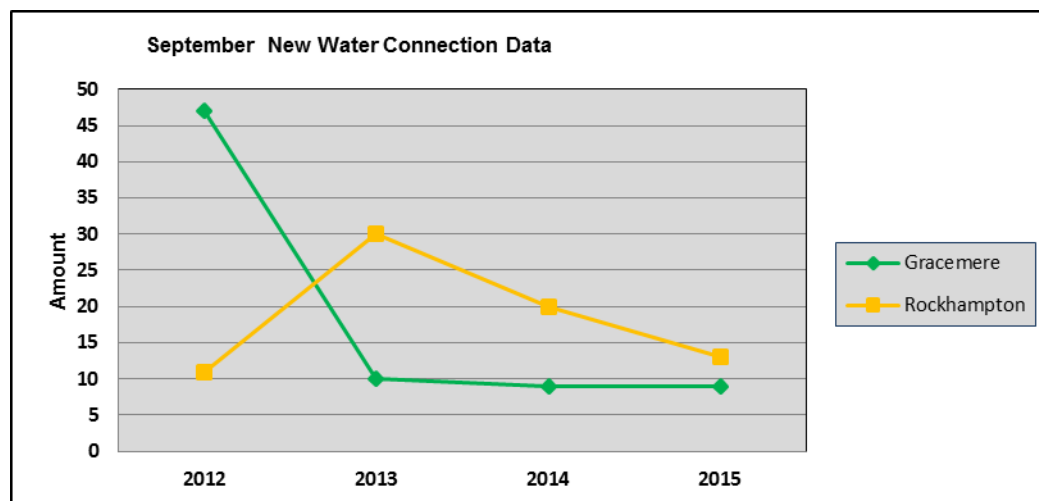


Table 2: Details on Private Works Jobs

Table 2 shows the quantity of private works jobs quoted and accepted during the reporting period and year to date. Jobs include both water and sewerage.

	September	Amount	YTD	Amount
Quotes Prepared	14	\$ 87,420.92	35	\$221,743.59
Quotes Accepted	8	\$49,884.63	28	\$184,906.05
Jobs Completed	11	\$50,395.36	35	\$202,808.56

Customer Enquiries - Pathways

Request Type	No. of Requests	Requests Outstanding
NSPWSC - Network Services – Private Works/Standard Connection Enquiry	4	0

Table 3: Undetected Leaks (Residential)

	September	FYTD
New requests	7	26
Number declined	0	1
Number approved	12	22
Require more info	0	4
Total KI rebated	8,329	16,152
Total value approved	\$16,152.91	\$30,717.08

Table 4: Undetected Leaks (Commercial)

	September	FYTD
New requests	1	0
Number declined	0	1
Number approved	2	0
Require more info	0	0
Total KI rebated	1502	1502
Total value approved	\$606.57	\$606.57

Table 5: Residential Rebates

	September	Total FYTD Applications	Total FYTD \$
Wash machines	14	30	\$3,000
Stand alone tank	0	0	\$0
Integrated tank	0	0	\$0
Dual flush toilet	0	0	\$0
Shower rose	0	0	\$0

Total	\$3,000	30	\$3,000
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Currently there are three unapproved applications pending further advice from the applicants, being for:

- The receipt does not show their name and residential address details (1).
- The receipt name does not match the application (1).
- The applicant is not registered with the AEC at the address on the application form (1).

There was one declined application relating to the washing machine not being four stars.

Water Meters

1st quarter 2015/16 meter reads were completed at the end of August 2015. No water meters were read during the month of August and approximately 15,300 accounts being in sectors 7, 8, 9, 10, 17 and 18 were issued to customers. The second quarter reads for 2015/16 commence on 13 October.

Sectors Read for September								Total
No. of meters in Sector								
No-Reads								
% Of No-Reads								

Special Water Meter Reads

Reading Type	No. of Reads	\$ Value
Water Account Search - Averaged Readings \$29 per read	66	\$1,914.00
Water Account Search - On-Site Readings \$152.00 per read	33	\$5,016.00
Total \$ Value for September		\$6,930.00
Total \$ Value Financial Year to Date		\$20,514.00

Customer Enquiries - Pathways

Request Type	No. of Requests	Requests Outstanding
NSWMRE - Network Services - Water Meter Reading Enquiry	16	0
NSSWMR - Network Services Special Water Meter Read Enquiry	1	0
FINIRR - Finance - Irrigators (Asset)	3	0

Building Over Sewers

The following summary is an overview of the core business activity that requires ongoing negotiations with the respective stakeholders and detailed investigations to determine location and condition assessments of the associated infrastructure.

Activity Summary

	September	FYTD
General enquiries	26	83
Site investigations	10	27
Approval Permits issued	0	3
Permits closed	1	1
Total	37	114

Building Over Sewer Permits in Progress

There is one permit in progress.

OPERATIONS AND PLANNINGNorth Rockhampton Flood Mitigation Project

The 2015/16 program of access chamber refurbishment works related to the North Rockhampton Flood Mitigation Project has been compiled and has now been issued to Orion Group Australia. This 2015/16 program of works will focus on the refurbishment of access chambers located on the outside of the proposed future levee up to and including the 8.5m flood level. This \$250,000 project will be funded from the 2015/16 Sewer Main Relining budget.

Sewer Main Relining Program

The 2015/16 sewer main relining program is currently being compiled. With a budget allocation of \$300,000, this program of works will target segments of sewer main which have experienced blockages in recent times, along with main lines identified through FRW's building over sewer assessments and ongoing CCTV inspection program. Unlined segments of sewer main associated with the North Rockhampton Flood Mitigation project will also be assessed for inclusion in the program of works.

Water Loss Tracking

A method of monitoring all metered, as well as quantifying all of FRW's unmetered water usage is currently being developed. This will allow for the correction of assumptions currently used in the calculation of FRW's reported water loss.

System Leakage Management

The 2015/16 financial year has already seen the commissioning of a number of key flow monitoring sites within the network. With the flow meter installations being completed in previous financial years, the focus will continue to be on the installation of telemetry required in order to receive information back through SCADA to the GWTP. There is also sufficient budget allocation to allow for the installation of a number of new flow meters within the Athelstone gravity supply zone, along with the refurbishment of existing sites. Key projects for inclusion in this program are currently being identified and additional projects may also be identified by Infrastructure Planning's ongoing review of the 2010 System Leakage Management Plan.

ADMINISTRATION MATTERSDial Before You Dig (DBYD)

The average number of requests received per day for August was 9.83.

	July 2015	August 2015	September 2015	FY Total
Requests Processed	196	227	295	718

Site Tours

There was one site tour of the Glenmore Water Treatment Plant (GWTP) held in September, this group being:

- 18 students from North Rockhampton State High School visited the GWTP on 10 September 2015.

Communication and Education*New Website Content and Navigation Review:*

The new look website has been launched. FRW's content has been reviewed, with required changes made. As well as updated content, the site now also features banners across each main page, including relevant images.

Media releases:

The Regional Communications team are attending the Management Team meetings; in aim of learning of FRW projects and being proactive with positive media opportunities. Proactive schedule being developed for media releases in conjunction with operational works program and planned campaigns.

A media release was distributed to all Regional media in September promoting the official unveiling of a plaque at the Fitzroy Barrage, commemorating the two boating accidents in the 1960s. This received a positive media response with coverage in the Morning Bulletin and Channel 7 and WIN news.

Other promotions:

A new publication is being collated by the Morning Bulletin – celebrating their 155th anniversary next year. This will be a keepsake booklet, featuring a range of histories for the Rockhampton Region. FRW have signed up as gold sponsors for this publication and will see four pages of the booklet dedicated to FRW, its history in the community and milestones during this time.

Customer Service Performance

FRW has an internal service level agreement with Finance and Business for the provision of customer service related functions including:

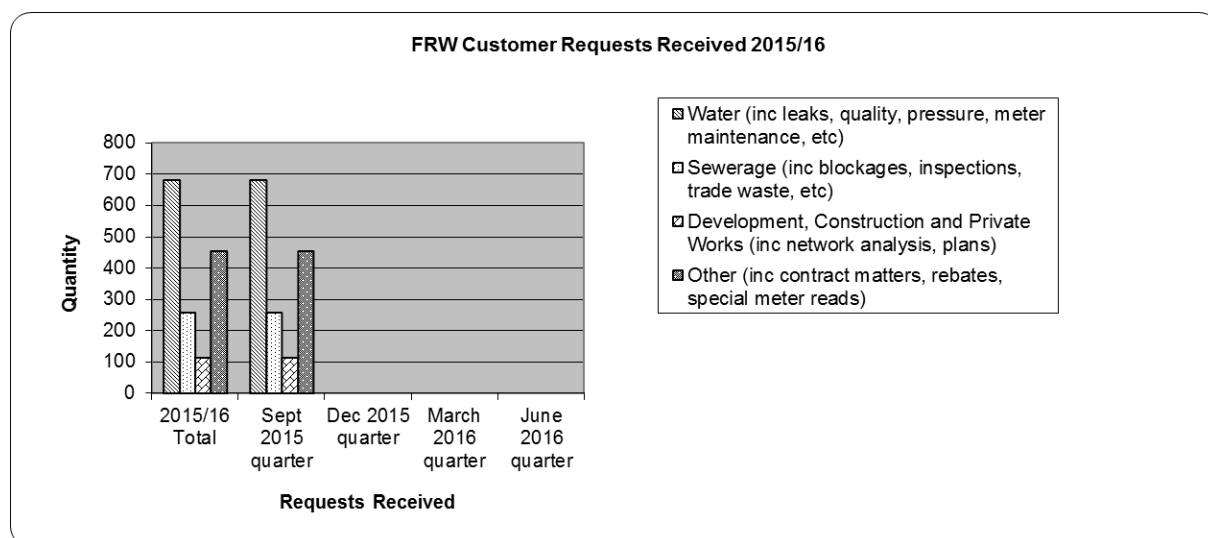
1. Face to Face Customer Support.
2. 24 Hour Telephone Contact Service.
3. Acceptance of Payment.

The following table summarises customer contacts made via the telephone and face to face at the Council Customer Service Centres. These customer contacts are then addressed by FRW.

Table 1: Customer Contact

1st quarter – 1 July to 30 September 2015

Customer Contact Type	1st Quarter 2015/16	1st Quarter 2014/15	Total 2014/15 Year	Total 2013/14 Year	Total 2012/13 Year
Water (incl. leaks, quality, pressure, water meter maintenance, etc)	681	666	3358	3075	3923
Sewerage (incl. blockages, trade waste etc)	257	223	845	917	1263
Development, Construction and Private Works	113	121	445	678	953
Other (incl. contract matters, rebate, special meter reads, etc)	453	604	1941	2939	3559
Total Customer Contacts	1504	1614	6589	7609	9698



INFRASTRUCTURE PLANNING

Sewer Network Investigations

Sewer Area Maps

Revisions to the draft water and sewer area maps for Rockhampton, Gracemere and Mount Morgan have now been completed for final review by the Strategic Infrastructure Planning section.

Gracemere Effluent Main Link

With Civil Design team.

North Rockhampton Flood Mitigation Investigation (NRFM)

Designer completed the final document and it is currently being reviewed by the Strategic Infrastructure Planning section.

The NRFM Stage 2 investigation by Designer focuses on the sewer and stormwater in the existing protected area that is bounded by the Ellis and Rodboro Streets temporary flood barrier. The raising of Water Street has been submitted to QRA as a NDRRA Betterment Application. If this application is successful it would allow the temporary flood barrier to be relocated from Ellis and Rodboro Streets to Water Street. This relocation would initiate a further review of the sewer network to access any potential implications.

Mt Morgan Sewerage Strategy

No further development.

West to South STP Transfer

With Civil Design team.

Parkhurst Sewerage Pump Station Implementation Strategy

No further development.

Gracemere – Fisher Street Sewerage Pump Station

The existing pump model details have still not been confirmed.

Water Network Investigations*Water Area Maps*

Revisions to the draft water and sewer area maps for Rockhampton, Gracemere and Mt Morgan have now been completed for final review by the Strategic Infrastructure Planning section.

Mt Archer – Fire Hydrant Installation

Private works quotation is being prepared.

Gracemere – Lucas Street Pump Station Augmentation

Concept designs have been reviewed and design has been further optimised to include construction staging.

Water Meter – Thematic Mapping of Consumption

No further development.

System Leakage Management Plan

A draft report was prepared for FRW to analyse leakage in the Rockhampton Water Supply Scheme including defining those areas in the Supply Scheme experiencing the greatest level of leakage and a comparison with the National Standard and other Local Governments be provided to the Committee. FRW are to finalise and present the report to Council in due course.

FINANCIAL MATTERSOperational

Revenue is currently 39.5% of the Adopted budget. Most revenue streams are on target.

Gross water consumption revenue is 21.61% of adopted budget with 100% of first quarter billed. At this juncture billed consumption is 2% below that of last financial year for the corresponding quarter. The commercial sector has decreased consumption by .6% compared to the same time in 2014/2015, whilst the residential sector has increased consumption by 3.5%. Gross water and sewerage access charges are marginally below target. General private works income is slightly below target. Bulk water sales are above target due to the impact of the advanced access charge and consumption is on target.

Expenditure year to date is 21.8% of the Adopted Budget. Most expenditure streams are on target with the exception of contractors and consultants, other expenses & administrative expenses. Overall Network Services and Operations & Planning are slightly above target mainly due to contractors and employee costs exceeding the percentage of year elapsed.

Contractors and consultants are above percentage of year elapsed due to project management costs to be reallocated to capital, quarterly and biannual safety and compliance costs, maintenance at Forbes Ave Reservoir and GWTP High Lift WPS, biosolids removal at sewage treatment plants and sewerage pump stations, emergency lighting work at sewage treatment plants, reactive maintenance Rockhampton water and sewerage mains and Gracemere property services and water mains. Administrative expenses are exceeding target due to the timing of the payment of annual licence fees. These areas will continue to be monitored.

There are no material exceptions to report.

Capital

Capital expenditure is below the percentage of year elapsed at 18.80% in comparison to the Adopted including carry forward budget. Expenditure during September has decreased in the order of \$500k compared to August. This large decrease in expenditure is attributed to a reduction in contractual payments for the Glenmore water treatment plant High Lift WPS upgrades.

Water YTD 27.06% and Sewer YTD 8.76%.

Networks YTD 23.70% and Treatment YTD 15.64%.

The areas of prominent activity are the Sewerage refurbishment program, Gracemere sewage treatment plant augmentation, Mount Morgan sewerage scheme Stage 2, Water trunk main duplication to Gracemere, GWTP Highlift pump station upgrade, Barrage gate restoration, Mount Morgan North Reservoir roof replacement and Water Main Replacement programs.

There are no material exceptions to report.

Sundry Debtors

Below is a summary of aged sundry debtor balances at the end of September 2015. The 90+ day balances are either on payment plans, the business is in administration or the debt is with Collection House.

	Balance	0-30 Days	30-60 Days	60-90 Days	90+ Days
No. of Customers	423	391	13	22	29
Total Value	\$198,861.06	\$126,567.78	\$12,594.48	\$4,944.16	\$54,754.64

Below is an explanation of the debtor types, being a mixture of standpipes, irrigators, emergency works and effluent usage.

90+ days	Comments
\$3,607.68	Trade Waste debts - Collection attempts unsuccessful, other avenues to be investigated
\$3,302.64	Septic disposal – Administrators appointed – recovery unlikely
\$664.72	Trade Waste debts to be written off
\$3,537.01	Irrigators – been to collection - unsuccessful
\$4,746.96	Long Term Payment Plans - Mt Morgan Sewerage Connections - Recovery will occur
\$6,457.00	Other Payment Plans – Private Works
\$2,347.71	Debtors currently at collection
\$30,090.92	Other Overdue Debt with no fixed arrangements – Trade Waste, Irrigators, Standpipes, Emergency works – Overdue letter issued
60-90 Days	Comments
\$3,604.73	Irrigators (includes \$1,721.04 from 7 debtors with 90+)
\$1,339.43	Septic disposal – Administrators appointed – recovery unlikely (same debtor as 90+ days)
30-60 Days	Comments
\$7,060.93	Standpipes (includes \$878.35 from 3 debtors that have 90+ days)
\$3,468.75	Septic disposal
\$2,064.80	Septic disposal – Administrators appointed – recovery unlikely (same debtor as 90+ days)

A summary of financial performance against budget is presented below:

End of Month General Ledger - (Operating Only) - REGIONAL SERVICES



As At End Of September 2015

Report Run: 09-Oct-2015 12:23:01 Excludes Nat Accs: 2802,2914,2917,2924

	Adopted Budget	Revised Budget	EOM Commitments	YTD Actual	Commit + Actual	Variance %	On target 100% of Year Gone
	\$	\$	\$	\$	\$		
FITZROY RIVER WATER							
<u>Treatment & Supply</u>							
Revenues	0	0	0	(305)	(305)	0%	✓
Expenses	9,326,060	0	1,147,925	2,098,317	3,246,242	35%	✓
Transfer / Overhead Allocation	309,767	0	0	95,891	95,891	31%	✓
Total Unit: Treatment & Supply	9,635,827	0	1,147,925	2,193,903	3,341,829	35%	✓
<u>Network Services</u>							
Revenues	(591,400)	0	0	(128,112)	(128,112)	22%	✗
Expenses	3,429,892	0	2,443,559	1,011,171	3,454,730	101%	✗
Transfer / Overhead Allocation	599,977	0	0	145,556	145,556	24%	✓
Total Unit: Network Services	3,438,469	0	2,443,559	1,028,614	3,472,173	101%	✗
<u>FRW Management</u>							
Revenues	(473,043)	0	0	(23,456)	(23,456)	5%	✗
Expenses	16,149,522	0	120,904	4,076,990	4,197,895	26%	✓
Transfer / Overhead Allocation	25,710,445	0	0	4,679,526	4,679,526	18%	✓
Total Unit: FRW Management	41,386,924	0	120,904	8,733,060	8,853,965	21%	✓
<u>FRW Admin</u>							
Revenues	(58,692,677)	0	0	(23,431,093)	(23,431,093)	40%	✗
Expenses	349,473	0	57,856	61,970	119,826	34%	✓
Transfer / Overhead Allocation	36,814	0	0	7,493	7,493	20%	✓
Total Unit: FRW Admin	(58,306,390)	0	57,856	(23,361,631)	(23,303,775)	40%	✗
<u>Operations & Planning</u>							
Expenses	322,185	0	68	91,236	91,304	28%	✓
Transfer / Overhead Allocation	0	0	0	733	733	0%	✗
Total Unit: Operations & Planning	322,185	0	68	91,969	92,037	29%	✓
Total Section: FITZROY RIVER WATER	(3,522,985)	0	3,770,313	(11,314,083)	(7,543,771)	214%	✓

**FRW MONTHLY OPERATIONS AND
ANNUAL PERFORMANCE PLAN
AS AT 30 SEPTEMBER 2015**

**Customer Service Standards as at
30 September 2015**

Meeting Date: 4 November 2015

Attachment No: 2

Fitzroy River Water Performance Plan - Customer Service Standards Year to Date Reporting as at 30 September 2015 (cont)

Customer Service Targets

Table Reference	Performance indicator	1st qtr	2nd qtr	3rd qtr	4th qtr	Target	Year to Date
Table 6	Installation of new water connections (within the water service area)	88%				15 working days	88%
	Installation of sewerage connections (within the sewered area)	58%				15 working days	58%
	Complaints – (excluding maintenance of water and sewerage services) – advise outcome	100%				20 working days	100%

Financial Performance Targets

Table Reference	Performance indicator	1st qtr date reported	2nd qtr date reported	3rd qtr date reported	4th qtr date reported	Target
Table 7	RRC Operational Plan Reporting Frequency: quarterly	21/10/2015				Initiatives successfully completed by year end
	Operating Budget Reporting Frequency: quarterly or when variations arise	30/09/2015				Conduct all activities in accordance with required timelines and budget
	Annual Revenue Reporting Frequency: quarterly or when variations arise	30/09/2015				Timely reporting of any significant variations to budget revenue and collection timing
	Capital Works Reporting Frequency: quarterly or when variations arise	30/09/2015				Completion of capital program in accordance with adopted timeframe and budget (within 3%)

Customer and Financial

**FRW MONTHLY OPERATIONS AND
ANNUAL PERFORMANCE PLAN
AS AT 30 SEPTEMBER 2015**

**Customer Service and Financial
Targets as at 30 September 2015**

Meeting Date: 4 November 2015

Attachment No: 3

Fitzroy River Water Performance Plan - Customer Service Standards Year to Date Reporting as at 30 September 2015 (cont)

Customer Service Targets

Table Reference	Performance indicator	1st qtr	2nd qtr	3rd qtr	4th qtr	Target	Year to Date
Table 6	Installation of new water connections (within the water service area)	88%				15 working days	88%
	Installation of sewerage connections (within the sewered area)	58%				15 working days	58%
	Complaints – (excluding maintenance of water and sewerage services) – advise outcome	100%				20 working days	100%

Financial Performance Targets

Table Reference	Performance indicator	1st qtr date reported	2nd qtr date reported	3rd qtr date reported	4th qtr date reported	Target
Table 7	RRC Operational Plan Reporting Frequency: quarterly	21/10/2015				Initiatives successfully completed by year end
	Operating Budget Reporting Frequency: quarterly or when variations arise	30/09/2015				Conduct all activities in accordance with required timelines and budget
	Annual Revenue Reporting Frequency: quarterly or when variations arise	30/09/2015				Timely reporting of any significant variations to budget revenue and collection timing
	Capital Works Reporting Frequency: quarterly or when variations arise	30/09/2015				Completion of capital program in accordance with adopted timeframe and budget (within 3%)

Customer and Financial

**FRW MONTHLY OPERATIONS AND
ANNUAL PERFORMANCE PLAN
AS AT 30 SEPTEMBER 2015**

**Non Compliance Comments
as at 30 September 2015**

Meeting Date: 4 November 2015

Attachment No: 4

Customer Service Standards - Non Compliance Comments for the 30 September 2015 Quarter

Table Reference	CSS Reference	Scheme	Comment
Table 1	CSS5	Rockhampton and Gracemere Water Supply Scheme	Due to the ageing infrastructure Rockhampton has had 22 unplanned versus 7 planned water shut downs. A water mains replacement program is in place.
Table 1	CSS7	Rockhampton and Gracemere Water Supply Scheme	Response P1 -29 requests and 26 responded to within 1 hour. Restoration P1 -29 requests and 24 restored within 5 hours. Network Service supervisory staff continue to work with staff on improving resource
Table 4	CSS17	Rockhampton and Gracemere Sewerage Supply Scheme	A total number of 158 blockages and 88 overflows.
Table 4	CSS20	Rockhampton and Gracemere Sewerage Supply Scheme	Response P1 - 40 requests and 35 responded to within 1 hour. P2 -124 requests and 116 responded to within 2 hours. Network Service supervisory staff continue to work with staff on improving resource

10 NOTICES OF MOTION

Nil

11 URGENT BUSINESS/QUESTIONS

Urgent Business is a provision in the Agenda for members to raise questions or matters of a genuinely urgent or emergent nature, that are not a change to Council Policy and can not be delayed until the next scheduled Council or Committee Meeting.

12 CLOSURE OF MEETING