Moreton Bay Regional Council – Redcliffe City

Planning Scheme Policy

PSP4 Part 8.4.5 Development Contributions for Trunk Infrastructure – Water Supply

Moreton Bay Regional Council – Redcliffe City

PSP4 Part 8.4.5 Development Contributions for Trunk Infrastructure – Water Supply

ADOPTION
Moreton Bay Regional Council adopted this planning scheme policy on 28 November 2005.

COMMENCEMENT
This planning scheme policy took effect from 12 December 2005.

Amendment

ADOPTION OF AMENDMENT
Moreton Bay Regional Council adopted this amendment to the planning scheme policy on 8 September 2009.

COMMENCEMENT OF AMENDMENT
This amendment to the planning scheme policy took effect from 29 October 2009.

I, Daryl Hitzman, A/Chief Executive Officer, of the Moreton Bay Regional Council, hereby certify that this document is a true copy of the original.

Daryl Hitzman
A/Chief Executive Officer

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PSP4 Part 8.4.5 – DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE – WATER SUPPLY

Head Of Power

This document is a Planning Scheme Policy for the purposes of the *Integrated Planning Act 1997* (the Act) and is made in compliance with the process prescribed in Schedule 3 of the Act.

Objective

The objective of this policy is to apportion the cost of Water Supply Trunk Infrastructure over all benefiting development (existing and future) commensurate with the demand or load that existing and future development will place on existing and planned future infrastructure, while ensuring a reasonable and equitable distribution of the costs of Water Supply Trunk Infrastructure works between Council and developers of land in the former Redcliffe City.

Definitions / Application

Application

This policy applies to all applications for development which have been made assessable against the *Redcliffe City Planning Scheme* and which will utilise any part of the Water Supply Trunk Infrastructure Network. For the purposes of this policy, the extent of the Water Supply Trunk Infrastructure Network within the former Redcliffe City is shown in Schedule C.

The policy outlines the basis of Council's Infrastructure Contributions Regime for Water Supply Trunk Infrastructure in the former Redcliffe City. It is to be read in conjunction with Planning Scheme Policy PSP4 Part 8.4.1 Development Contributions for Trunk Infrastructure – Administration Policy.

Payment of any monetary contribution under this policy will in no way relieve the development proponent from any requirement under a condition of development approval to undertake non-trunk works or to connect the development to trunk infrastructure. Nothing contained in this policy precludes Council and the development proponent from entering into an infrastructure agreement in regard to the matters dealt with by this policy.

Definitions

The definitions of applicable terms are contained in PSP4 Part 8.4.1 Development Contributions for Trunk Infrastructure – Administration Policy. Where a term used in this policy is not defined in PSP4 Part 8.4.1, that term shall, unless the context indicates or requires otherwise, have the meaning assigned to it in the *Redcliffe City Planning Scheme* or in the *Integrated Planning Act 1997*.

Policy Statement

1 Scope

This policy sets out the basis for determining the amount of Development Contributions for Water Supply Trunk Infrastructure which Council will impose as conditions of development approval. The provisions of this policy shall apply to applications for development within the former Redcliffe City which, in the opinion of Council, may impact on its Water Supply Trunk Infrastructure either immediately or at some time in the future. This policy:

- is to be read in conjunction with Planning Scheme Policy PSP4 PART 8.4.1 Development Contributions for Trunk Infrastructure – Administration Policy;
- specifies the assumptions made in determining the rate of the contribution payable towards the cost of Water Supply Trunk Infrastructure within Council's Local Government Area;
- specifies the works, structures or equipment, which the Council determines to be Water Supply Trunk Infrastructure;
- establishes the estimated cost of construction and any required augmentation of the Trunk Water Supply Network in respect of which contributions are to be made; and
- lists the applicable Demand Factors and Schedules of Infrastructure Contribution Rates.

2 Background Information

The methodology used in establishing the amount of required Trunk Infrastructure Contributions under this policy is based on the methodology identified in the report by MWH Australia Pty Ltd (MWH), "Redcliffe ICS Study – Water Supply System Master Plan" (the Study Report). This Study Report comprises:-

(1) Executive Summary (March 2004);

(2) Main Report (March 2004); and

(3) Maps (March 2004);

The following additional reports for the former Redcliffe City were also used as a basis for this policy:

(4) Derivation of Water Supply & Sewerage Infrastructure Charges report by MWH, May 2004;

(5) Moreton Bay Water, 'Water Supply Network Master Plan", Draft, September 2008; and

(6) Council's 15 year capital works program - internal minute to Moreton Bay Regional Council Financial Department 23 December 2008.

3 Water Supply Methodology

3.1 Methodology

The methodology used for determining the rate of Infrastructure Contributions for Trunk Water Supply under this policy is based upon the approach set out in the Department of Local Government and Planning's IPA Guidelines 1/04 and 2/04 (dated 4th October 2004) and the Standard Infrastructure Charges Schedule Nov 2008.

In summary, Infrastructure Contribution Rates for the Water Supply Trunk Infrastructure Network have been derived in the following manner:-

(a) determine the service catchments for Trunk Infrastructure Delivery;

(b) estimate the amount of existing and new development, or the planned / ultimate population and its resulting demand on the network within each service catchment up to the planning horizon for the trunk water supply network;

(c) determine the Trunk Infrastructure likely to be needed to service that development or planned / ultimate population within each service catchment to deliver the Desired Standard of Service (DSS) outlined in Schedule D of this policy;

(d) determine the current replacement costs for existing Trunk Infrastructure, and the future establishment costs for required future Trunk Infrastructure in net present values for each service catchment; and

(e) derive the applicable Infrastructure Contribution Rates by dividing the total network costs in net present values by the total discounted 'ultimate' demand on the network for each service catchment, thereby producing a rate per selected demand unit.

The contribution rate, for each particular service catchment, was determined by applying the formula:-

$$CR_{Catchment} = (Asset\ Values)/(Demand)$$

Where:-

$CR_{Catchment}$	**=**	**Contribution Rate for an individual service catchment (expressed in $/EPW)**
Asset Values	**=**	**Value of Catchment's Assets ($)**
	=	**Σ(Current Replacement Cost of Existing assets at 01-01-2009 x proportion of the asset utilised by the service catchment) + Σ (net present value at 01-01-2009 of future assets x proportion of the asset utilised by the service catchment)**
Demand	**=**	**Σ(Existing Demand in the service catchment at 01-01-2009) + (Net Present Value at 01-01-2009 of the Future Demand to Ultimate Development) (expressed in EPW)**

This methodology applies an equitable distribution of trunk infrastructure costs between Council (on behalf of the existing community), and entities proposing new development. Each development proponent will only be responsible for meeting the establishment costs of that proportion of the water supply trunk infrastructure network planned to be consumed by that entity's development proposal.

3.2 Water Supply Service Catchments

The former Redcliffe City has been divided into the Trunk Water Supply service catchments shown in Table 3.2A.

Table 3.2A – Water Supply Service Catchments

Service Catchment
Rothwell
Margate

The extent of each of these Service Catchments is shown graphically on the maps contained in Schedule C.

3.3 Water Supply Demand Assumptions

Approach to Demand and Load Modelling

The reports referred to in Section 2 of this policy documented assumed demand across the City, the most cost effective servicing strategy and suggested Capital Works Programs aligning with assumed growth rates for all of the former Redcliffe City.

As part of the preparation of this policy, new Demand and Load Models for Water Supply were built, based on the *Redcliffe City Planning Scheme*, to full development of the City assuming densities consistent with the Planning Scheme – this being termed 'ultimate' development. The Hydraulic Models have been re-run to reflect the Desired Standards of Service adopted in this policy and the permanent water restrictions imposed for SEQ by the State. The updated Water Network information from this model run has been used for this policy.

The determination of demand and load for residential zoned land was based on population numbers assumed for the land. Demand and load for non-residential zoned land was derived from land use zoning and an assumed number of Equivalent Persons (Water) per hectare per zone as outlined in Table 3.3A.

Water Supply Demand Assumptions

The Demand Projections, Capacity Planning and Infrastructure Contribution Rates developed for the Water Supply Network are expressed in the Standard Demand Units of 'Equivalent Person (Water)' (EPW). One EPW equates to 230 litres per person per day, allowing for system losses and operational factors, in accordance with the permanent water restrictions in place in South East Queensland.

For each cadastral parcel in the former Redcliffe City, water demand was assigned by zoning for existing and anticipated future development. Geo-coded water billing data for the 2004 to 2008 first billing cycle has been used to determine existing demand on developed parcels in 2008. The Planning Assumptions outlined in PSP4 PART 8.4.1 Section 3, and the DSS shown in Schedule D were used to assign future water demand to each cadastral lot based on anticipated future land uses consistent with the Redcliffe City Planning Scheme.

The *Redcliffe City Planning Scheme* envisages a combination of different types of dwellings and development in all three residential zones. Therefore EPW assumptions had to be made for different sized lots and development characteristics within each of the residential zones. A similar process was then applied to non-residential zones. Careful screening of different types of development was done to assign specific EPW values to each cadastral lot. The assumptions shown in Table 3.3A have been used in doing so:

Table 3.3A - Water Demand Assumptions by Zone and Lot Type

Planning Scheme Zone	EPW's/ha
Low Density Residential Zone	
Lot Size **≤ 500m^2**	2.0 EPW/lot
Lot Size **501-1500 m^2**	2.6 EPW/lot
Lot Size **>1500 m^2**	30 EPW/Ha
Mixed Density Residential Zone	
Lot Size **≤ 500m^2**	2.0 EPW/lot
Lot Size **501-700 m^2**	2.6 EPW/lot
Lot Size **>700 m^2**	60 EPW/Ha
Medium Density Residential Zone	
< 3 Storeys	
Lot Size **≤ 500m^2**	2.0 EPW/lot
Lot Size **501-750 m^2**	2.6 EPW/lot

Planning Scheme Zone	EPW's/ha
Lot Size **>750 m^2**	60 EPW/Ha
3 Storeys	120 EPW/Ha
6 Storeys	175 EPW/Ha
8 Storeys	220 EPW/Ha
Retail Core Zone	
1-2 storeys	30 EPW/Ha
3 storeys	130 EPW/Ha
6 storeys	190 EPW/Ha
8 storeys	240 EPW/Ha
12 storeys	290 EPW/Ha
Frame Business Zone	
1-2 storeys	30 EPW/Ha
3 storeys	120 EPW/Ha
6 storeys	175 EPW/Ha
8 storeys	220 EPW/Ha
12 storeys	260 EPW/Ha
Industry Zone	30 EPW/Ha
Health services Zone	30 EPW/Ha
Community Purpose Zone	30 EPW/Ha
Natural value Zone	0
Open Space and Recreation Zone	5 EPW/Ha

Projected Water Supply Demand

Projected ultimate demand for the water supply trunk network is shown in Table 3.3B. To satisfy the discounted cash flow methodology requirements of calculating the infrastructure contribution rates, existing demand is added to the value of future demand indexed for anticipated fluctuations in construction costs (generally increases) and discounted for cost of capital, resulting in NPV Demand.

Table 3.3B –Demand in EPWs by Water Supply Service Catchment

Service Catchment	Ultimate Demand in EPWs	Total Ultimate NPV Demand in EPWs
Rothwell	8,607	8,425
Margate	75,167	74,556
	83,774	**82,981**

4 Water Supply Plan for Trunk Infrastructure

4.1 Water Supply Trunk Infrastructure Network

The following Infrastructure items as shown on the maps contained in Schedule C of this policy are deemed to be Trunk Infrastructure for the purpose of planning and funding of the Trunk Water Supply Network:-

(1) water mains with a diameter 300mm and above

(2) pumping stations

(3) storage reservoirs

The land on which these components are situated is also essential component of the water trunk infrastructure network. However, with the exception of the reservoirs and possibly some of the pumping stations, those assets are located on land which is road reserve, or public open space, or private land outside of Council's ownership. As such, the land content has been excluded from the calculation of infrastructure contribution rates for the trunk water supply network.

Assets are also grouped into '**Active'** and '**Passive'** Assets:

Active water supply infrastructure assets consist mainly of above ground visible assets such as pumping stations and reservoirs.

Passive water supply infrastructure assets consist of underground assets such as trunk mains, reticulation mains, pipe fittings and property connections.

The various elements of this Trunk Infrastructure are shown on the maps in Schedule C and are tabulated in Section 4.2.

4.2 Water Supply Trunk Infrastructure Valuations

Existing Asset Valuations

Valuations of existing water supply trunk infrastructure contained in this policy are based on the report titled "Derivation of Water Supply and Sewerage Infrastructure Charges" dated May 2004 prepared by MWH which, was subsequently supplemented by information on trunk assets recorded in the Redcliffe water asset data base with a creation date between January 2005 and December 2007 to recognise assets created since the May 2004 report. For a full Schedule of existing Water Supply Trunk Infrastructure Assets refer to Appendix B of that MWH report.

The valuations shown in Table 4.2A are higher than those contained in the above report due to escalation being applied to bring the costs to 01 January 2009 values, based on Rawlinson's Construction Index for Brisbane.

Costing Information for Planned Future Assets

Cost for Planned Future Assets have been taken from the estimates in Council's adopted Capital Works Program valued for, and current at, 01 January 2009, expressed in Net Present Values.

Table 4.2A Asset Costs allocated to Service Catchments

	Margate	Rothwell	Totals
Total Costs:			
Active-Existing (Jan 2009)	$13,475,301	$3,153,858	$16,629,159
Passive-Existing (Jan 2009)	$43,987,526	$9,562,543	$53,550,069
Future (Jan 2009)	$62,312	$652,725	$715,037
Total (Jan 2009)	**$57,525,139**	**$13,369,126**	**$70,894,265**

Table 4.2B Future Asset Schedule

Project ID	Project Name	Anticipated Timing of Works	Service Catchment	NPV - 01 January 2009
PUMP STATIONS				
RPIPWS0001	Emergency Power Supply for Rothwell Pumps	2010	Rothwell	$148,384
RPIPWS0002	Petrie Main Booster pumps upgrade	2009	Shared	$19,892
MAINS				
RPIPWS0003	Remaining work on Cathodic protection of Petrie Main	2010	Shared	$49,461
RPIPWS0004	Upgrade of Nathan Road Main up to Newport development connection (225mm pipe 700m and two section valves)	2009	Rothwell	$497,299
TOTAL				**$715,037**

SCHEDULE A: DEMAND FACTORS

Demand factors are calculated based on defined uses within the jurisdiction of each relevant planning scheme, and are therefore unique to each district within the Moreton Bay Regional Council shire area.

Table A - Demand Factors for Water Supply Infrastructure Contributions

	Demand Factor	Comment
Demand Factors For MCUs – by Land Use		
Accommodation unit	1.6 EPW/du	Water Planning Assumptions
Aerodrome		Assess Impact on Application
Business premises		Assess Impact on Application
Car park		Assess Impact on Application
Caravan park		Assess Impact on Application
Tent site	1.4 EPW/site	Per site
Caravan site	1.8 EPW/site	Per site
Caretaker's residence		As per appropriate dwelling house or multiple dwelling
Club		Assess Impact on Application
Community well-being facilities		Assess Impact on Application
Community well-being infrastructure		Assess Impact on Application
Display home /Estate sales office		Assess Impact on Application
Duplex dwelling	2.8 EPW/du	Per dwelling unit
Education centre		Assess Impact on Application
Employment related storage		Assess Impact on Application
Entertainment outdoor		
Swimming Pools	0.0100	Pool volume in cubic metres
Changing Rooms, Showers and Toilets (see note 1)		
▪ Water Closet	0.7000	Pedestal
▪ Urinal (Stall)	0.1250	Stall
▪ Urinal (Trough)	0.2500	metre
▪ Shower Bath	0.4000	shower
▪ Wash Basin	0.2000	basin
Drinking fountains and standpipes	0.2000	fountain/standpipe
Areas irrigated by potable water	0.1000	per 100 square metres under irrigation
Any other item identified elsewhere in this table		As per item
Food service		Assess Impact on Application
General industry		Assess Impact on Application
Government Infrastructure		Assess Impact on Application
Home based business		Assess Impact on Application
Hotel		
Single room (without kitchen facilities)	0.9000	room
Double room (without kitchen facilities)	1.3000	room
Suites or rooms with kitchen facilities		As Serviced Apartments
Restaurant		As Restaurant
Shop		As Shop
Bar and Gaming Areas	4.0000	100 square metres gross use area
Beer Garden	3.0000	100 square metres gross use area
Function Rooms	2.0000	100 square metres gross use area
Swimming Pools	0.0100	Pool volume cubic metres
Any other item identified elsewhere in this table		As per item
House		
lot area > 1000m^2	3.4 EPW/du	Per dwelling unit
lot area 501m^2 to 1000m^2	2.8 EPW/du	Per dwelling unit

	Demand Factor	Comment
Demand Factors For MCUs – by Land Use		
lot area < 501m^2	2.25 EPW/du	Per dwelling unit
Indoor entertainment, sport or recreation		
Cinema	0.05	seat
Licensed Clubs & Organisations		As Hotel
Swimming Pools	0.01	Pool volume in cubic metres
Gymnasiums and Fitness Centres		
▪ Water Closet	0.7	Pedestal
▪ Urinal (Stall)	0.125	Stall
▪ Urinal (Trough)	0.25	metre
▪ Shower/ Bath	0.4	Shower/ bath
▪ Wash Basin	0.2	basin
Commercial Clubs & Organisations		As Hotel
Community Service or not-for-profit Clubs and Organisations with no gaming or liquor licence	Assess Impact on Application	
▪ With facilities for the frequent provision of cooked food	1	100 square metres gross floor area
▪ Without facilities for the frequent provision of cooked food	0.5	100 square metres gross floor area
Other Types	Assess Impact on Application	Individual Basis
Industry with substantial impacts		Assess Impact on Application
Market		Assess Impact on Application
Multiple dwelling	1.6 EPW/du	Water Planning Assumptions
Outdoor sales premises		Assess Impact on Application
Park	5 EPW/Ha	Water Planning Assumptions
Relative's accommodation		Assess Impact on Application
Rural activities		Assess Impact on Application
Service station		Assess Impact on Application
Service trade		Assess Impact on Application
Shop		Assess Impact on Application
Showroom/super store		Assess Impact on Application
Special needs housing	1.6 EPW/du	Water Planning Assumptions
Sport and recreation outdoor		Assess Impact on Application
Stable		Assess Impact on Application
Transport interchange		Assess Impact on Application
Utility installation		Assess Impact on Application
Warehouse	0.9	100 square metres of gross use area
Demand Factors for RALs– *by Zone*		
Low Density Residential Zone		
Lot Size **≤ 500m^2**	2.0 EPW/lot	Water Planning Assumptions
Lot Size **501-1500 m^2**	2.6 EPW/lot	Water Planning Assumptions
Lot Size **>1500 m^2**	30 EPW/Ha	Water Planning Assumptions
Mixed Density Residential Zone		
Lot Size **≤ 500m^2**	2.0 EPW/lot	Water Planning Assumptions
Lot Size **501-700 m^2**	2.6 EPW/lot	Water Planning Assumptions
Lot Size **>700 m^2**	60 EPW/Ha	Water Planning Assumptions
Medium Density Residential Zone		
< 3 Storeys		
Lot Size **≤ 500m^2**	2.0 EPW/lot	Water Planning Assumptions
Lot Size **501-750 m^2**	2.6 EPW/lot	Water Planning Assumptions
Lot Size **>750 m^2**	60 EPW/Ha	Water Planning Assumptions
3 Storeys	120 EPW/Ha	Water Planning Assumptions
6 Storeys	175 EPW/Ha	Water Planning Assumptions
8 Storeys	220 EPW/Ha	Water Planning Assumptions

Demand Factors for RALs– *by Zone*		
Retail Core Zone		
1-2 storeys	30 EPW/Ha	Water Planning Assumptions
3 storeys	130 EPW/Ha	Water Planning Assumptions
6 storeys	190 EPW/Ha	Water Planning Assumptions
8 storeys	240 EPW/Ha	Water Planning Assumptions
12 storeys	290 EPW/Ha	Water Planning Assumptions
Frame Business Zone		
1-2 storeys	30 EPW/Ha	Water Planning Assumptions
3 storeys	120 EPW/Ha	Water Planning Assumptions
6 storeys	175 EPW/Ha	Water Planning Assumptions
8 storeys	220 EPW/Ha	Water Planning Assumptions
12 storeys	260 EPW/Ha	Water Planning Assumptions
Industry Zone	30 EPW/Ha	Water Planning Assumptions
Health services Zone	30 EPW/Ha	Water Planning Assumptions
Community Purpose Zone	30 EPW/Ha	Water Planning Assumptions
Natural value Zone	0	Water Planning Assumptions
Open Space and Recreation Zone	5 EPW/Ha	Water Planning Assumptions

SCHEDULE B: INFRASTRUCTURE CONTRIBUTION RATES

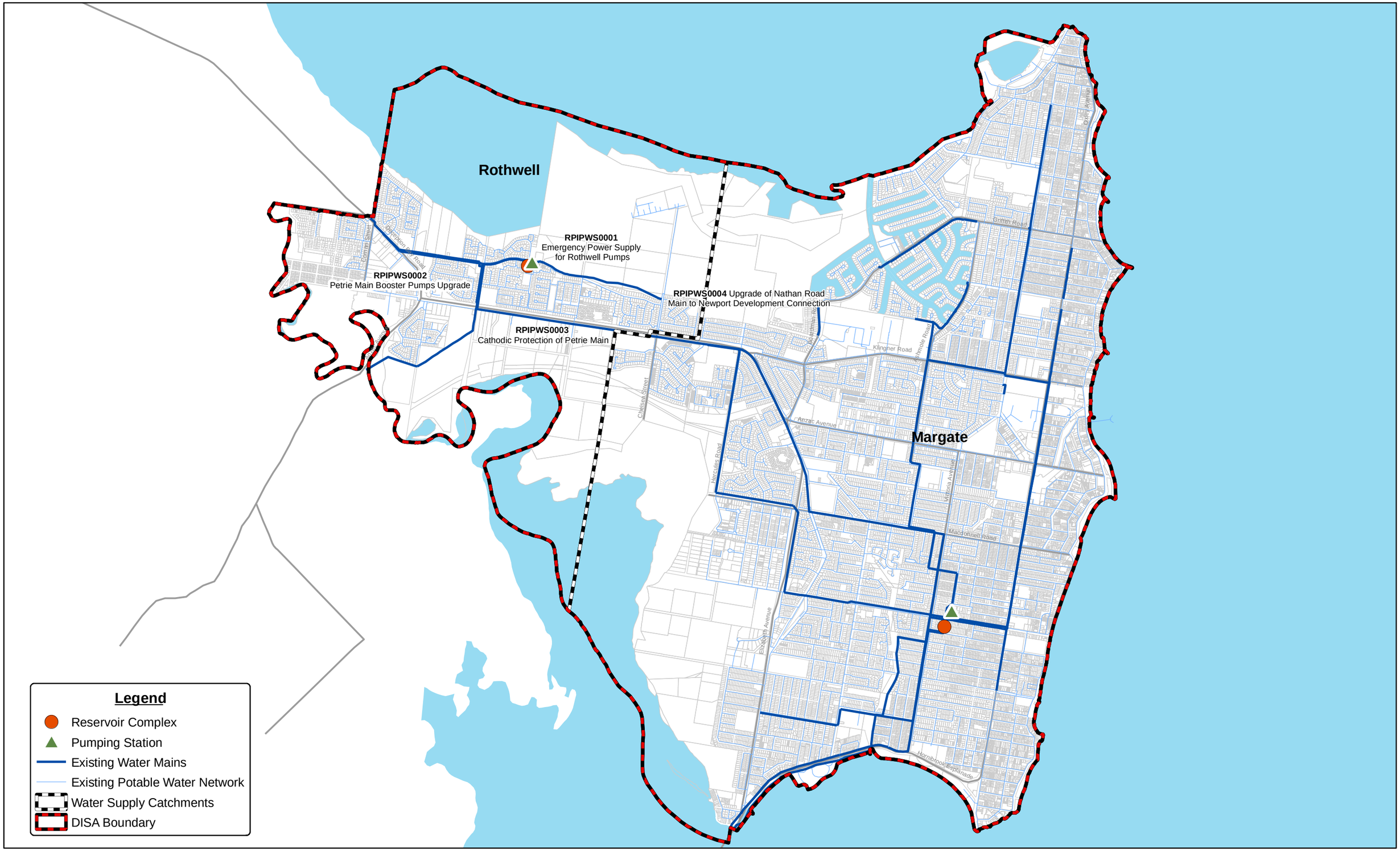
Table B shows the Infrastructure Contribution Rates for the network.

Table B – Trunk Water Supply - Infrastructure Contribution Rates (ICR's)

Service Catchment	ICR / ($EPW)
Rothwell	$1,587
Margate	$772

Schedule C: Service Catchments and Network Assets

Trunk Water Supply Network



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MORETON BAY REGIONAL COUNCIL
Redcliffe City

EFFECTIVE FROM 29 October 2009

Schedule D: Desired Standards of Service

The Desired Standards of Service (DSS) for water supply and sewerage trunk infrastructure within the Designated Infrastructure Service Area have been determined in accordance with the requirements of the Water Supply (Safety and Reliability) Act 2008. Moreton Bay Water's approved Strategic Asset Management Plan and Total Management Plan detail ongoing practice and future initiatives to achieve and maintain the published standards of service.

The Desired Standards of Service for water supply and sewerage infrastructure provision under this policy are expressed in terms of 'Operational Objectives' and 'Detailed Design Parameters'.

The 'Operational Objectives' and 'Detailed Design Parameters' are aimed at achieving the stated purpose of the Integrated Planning Act while satisfying the relevant requirements of the Environmental Protection Act. The detailed design parameters are the means by which the performance requirements of the operational objectives are achieved.

The Guidelines prepared by the Queensland Government for design of urban water supply and a survey of current practice of local governments in South-East Queensland have also been used in establishing the desired standards of service and design criteria for the water supply systems. Authorities that were consulted to confirm current practice in South-East Queensland included Ipswich Water, Redland Water, Brisbane Water, former CalAqua, former Cooloola Shire, Wide Bay Water, Logan Water and Gold Coast Water.

Operational Objectives for Trunk Water Supply Services

Each of the 'Operational Objectives' for the provision of water supply services in Moreton Bay Regional Council's local government area is examined in the context of corresponding user benefits and environmental effects. The Primary Objectives adopted for water services in this policy are set out in Table E1.

Table D1 – Water Supply Operational Objectives

Objective	User Benefit	Environmental Effect
• **Corporate / Business Objective**	• **Community and Customer Service** • **Quality and Safety**	• **Environmental Protection**
Drinking water will comply with the Australian Drinking Water Guidelines.	• Uniform quality of water monitored in relation to recognised standards. • Safe and reliable water supply.	• Improves community health.
Designs will comply with State Government Guidelines, and Council's Planning Scheme Policy *PSP 28 "Civil Infrastructure Design"*.	• System will be adequate in terms of; o day-to-day reliability, o long term continuity of supply; o delivery of high quality drinking water to the consumer ;and o minimum life cycle cost (i.e., optimum maintenance, replacement and operation costs). • Cost effective service for community.	• Maintains the health of the community. • Chemicals are stored and handled in accordance with relevant legislation to ensure safety of worker, public safety and to protect the environment. • Minimisation of Greenhouse gas emissions. • Optimum use of resources.
Minimise water loss.	• Extend asset life. • Defer system augmentation. • Conserve raw water supply. • Minimise energy consumption. • Optimise size of elements within water supply network.	• Improve environmental flows. • Minimisation of Greenhouse gas emissions.
Effective management of water consumption (Demand Management).	• Reduced cost of water. • Defer requirement for new water source. • Minimise energy consumption. • Optimise size of elements within water supply network.	• Improve environmental flows • Minimisation of Greenhouse gas emissions.
Implement environmental responsibilities with respect to water supply operations.	• Noise control. • No adverse visual impact. • Control of overflows from system. • Management of flushing water. • Maintain flows or storage in raw water. sources for environmental purposes.	• Improves community health. • Maintain amenity (e.g., visual and noise characteristics) of locality. • Reductions in discharges that have concentrations of free chlorine greater than 1 mg/l.

Objective	User Benefit	Environmental Effect
• **Corporate / Business Objective**	• **Community and Customer Service** • **Quality and Safety**	• **Environmental Protection**
		• Control of discharge of turbid water to stormwater drainage during construction of infrastructure and flushing or scouring operations. • Required environmental flows maintained.
System design will aim to minimise energy consumption and optimise the use of green energy.	• Reduced energy costs. • Cost effective service for community.	
The design of the water supply network shall provide fire fighting flow and specified water pressures and flow to the consumer.	• Reliable water supply. • Adequate supply for community services. • Adequate pressures and flow for fire fighting purposes.	• Maintains health and safety of the community.
Infrastructure will be designed, constructed and operated in accordance with Workplace Health and Safety Legislation.	• Minimisation of risk to workers and community (reduction in accidents and insurance premiums).	• Minimise risk of pollution events. • Safer work environment for staff and public.

Detailed Design Parameters – Water Supply

Following an examination of the Queensland Government Guidelines and a survey of current practice of local governments in South East Queensland, Moreton Bay Regional Council has adopted the parameters summarised in Table D2 for design and assessment of water supply systems.

These factors are applied in accordance with procedures detailed in the Queensland Government Guidelines.

The summary outlined in Table D2 must be interpreted in conjunction with the design and construction standards for water supply set out in other Planning Scheme Policies of the relevant planning scheme.

Table D2 - Water Supply Design Parameters

Item	Description	Adopted Design Parameter
Water Demand		
1	Average Day Demand (AD)	Existing and Future Demand – 296 L/EPW/d AD is calculated as follows: AD= (230 x 1.2) + System Losses Where: • 230 L/EPW/day is the demand target under SEQ 'permanent water conservation measures'; • 1.2 is an operational flexibility factor that provides sufficient capacity to maintain an adequate level of service in the event that an element of the trunk infrastructure fails; and • System Losses = 20 L/EPW/day
Peaking Factors		
2	Mean Day Maximum Month (MDMM/AD)	1.2 x AD (355.2 L/EPW/day)
3	Maximum Day (MD/AD)	1.6 x AD (473.6 L/EPW/day)
4	Maximum Hour (MH/AD)	4.3 x AD (53.03 L/hr/EPW)
System Pressure		
5	Minimum Operating Pressure	• At maximum hour demand the minimum pressure at the water meter shall not be less than 22m. • In isolated high level areas, the minimum operating pressure may be reduced to 16 m above the highest elevation on any lot with the water level in the reservoir not more than 1.0 m above reservoir floor level.
6	Maximum Operating Pressure	80 m at the property's water meter.
Fire Fighting Requirements		
7	System Pressure	12 m minimum pressure head at the hydrant/dedicated service location, and minimum 6m pressure head at any location in the water supply zone during the fire

Item	Description	Adopted Design Parameter
		event with model conditions as detailed in Items 8, 9 and 10.
8	Fire Flow	• Predominantly residential development not more than 3 storeys - 15 L/s simultaneous with background demand as defined in Item 9 for a period of 2 hours. • Predominantly commercial/industrial and residential buildings greater than 3 storeys - 30 L/s simultaneous with background demand as defined in Item 9 for a period of 4 hours. • Special risk/hazard land use – to be assessed.
9	Background demand	• Predominantly Residential Area - 2/3 of MH demand. • Predominantly Commercial/Industrial Area - MH demand (generally between 10 am to 4 pm).
10	Reservoir level	• At the commencement of the fire fighting event the reservoir level should be set at Mid-Water Level; where: Mid-Water Level = (Top Water Level + Floor Level) ÷ 2 (AHD). • The reservoir must not empty during the fire fighting event for the duration of the event specified in item 8 with supply pumps turned off.
Storage		
11	Design Condition	• Reservoirs must not empty in less than 3 consecutive MD demands. • During MDMM demand the reservoir shall have net positive inflow and shall be capable of continuous operation under this demand.
12	Ground Level Storage	Required Storage = [3 x (MD – MDMM)] + Fire Fighting Storage. Where: • Fire Fighting Storage = 4 hrs of MDMM demand or 0.5 ML whichever is the greater.
13	Elevated Storage	Required Storage Volume = Operating Volume + Fire Fighting Reserve Where: • Operating Volume = 6 x (MH – 1/12 MDMM). • Fire storage = 150 kL.
Pumping Capacity		
14	Duty pump capacity to serve ground level reservoirs.	Supply MDMM demand in 20 hours of operation in any 24 hour period.
15	Pumps serving elevated storage.	Pump must discharge not less than; [(6 x MH) – Operating Volume]/(6 x 3600) Where: Operating Volume is defined in item 13 above.
16	Standby Pump Capacity	Equal to the capacity of the largest pump.
Pipeline Design		
17	Trunk Main Capacity	Sized for MDMM flows.
18	Reticulation Capacity	Sized for Maximum Hour and Fire Flow.
19	Friction Default Values	Hazen Williams Coefficients of Friction: • C = 100 (diameters ≤ 150 mm). • C = 110 (150 mm> diameter < 300 mm). • C = 120 (diameter ≥ 300 mm).
20	Maximum Flow Velocity	2.5 m/s.
Pressure and Leakage Management		
21	District Meter Area (DMA)	• The sizes of the reticulation mains should be designed according to the planned DMAs. • Existing DMA boundary should not be breached.

REVIEW TRIGGERS

This policy is reviewed internally for applicability, continuing effect and consistency with related documents and other legislative provisions when any of the following occurs:

(1) The related documents are amended;

(2) The related documents are replaced by new documents;

(3) Amendments which affect the allowable scope and effect of a policy of this nature are made to the head of power; and

(4) Other circumstances as determined from time to time by a resolution of Council.

RESPONSIBILITY

This policy is to be:

(1) implemented by the Senior Manager Development Services; and

(2) reviewed and amended in accordance with the "Review Triggers" by the Senior Manager Strategic Direction and Sustainability in consultation with the Senior Manager Regional and Environmental Planning, Senior Manager Development Services and the Water Supply Infrastructure Provider.

VERSION CONTROL

CEO Approval Date	**15/09/2009**

Related Links:

ENDNOTES

Amendment	Date Adopted – 8 September 2009	Effective Date – 29 October 2009
Planning Scheme Policy Reference	**Description of Amendment**	
PSP 4 Part 8.4.5	▪ Update to reflect the intent of the draft Redcliffe Priority Infrastructure Plan ▪ Update to reflect the new Desired Standards of Service arising from the restructure of the management of Water Supply networks in SEQ ▪ Remove the sewerage component for consistency across Moreton Bay Regional Council	