

# Waterbody Asset Management

## A Growing Concern

Darren Carlson, Karen Waite & Jonathan Whitcombe  
Drainage, Waterways & Coastal Planning

IPWEQ Presentation  
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# Overview

- Lakes, Ponds, Constructed Wetlands & Sediment Basins are functionally grouped together for Asset Management purposes
  - Lakes & Ponds (226)
  - Constructed Wetlands (56)
  - Sediment Basins (27)
- Largely donated assets from developments & prescribed WSUD treatment infrastructure in TWCMP and Planning Scheme to treat stormwater runoff from development
- Many receive untreated stormwater runoff impacting on their water quality & condition
- Provide Multiple Values for MBRC
  - Economic – Centre's for Activity / Tourism / Improved Property Values
  - Social – Recreation, Amenity & Aesthetics
  - Environmental – Water Quality / Habitat / Carbon Sequestration









**Deeper sediments: dense,  
highly plastic clay**

**Upper 10-20cm: High silt  
and organics**









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# Lake Management Planning

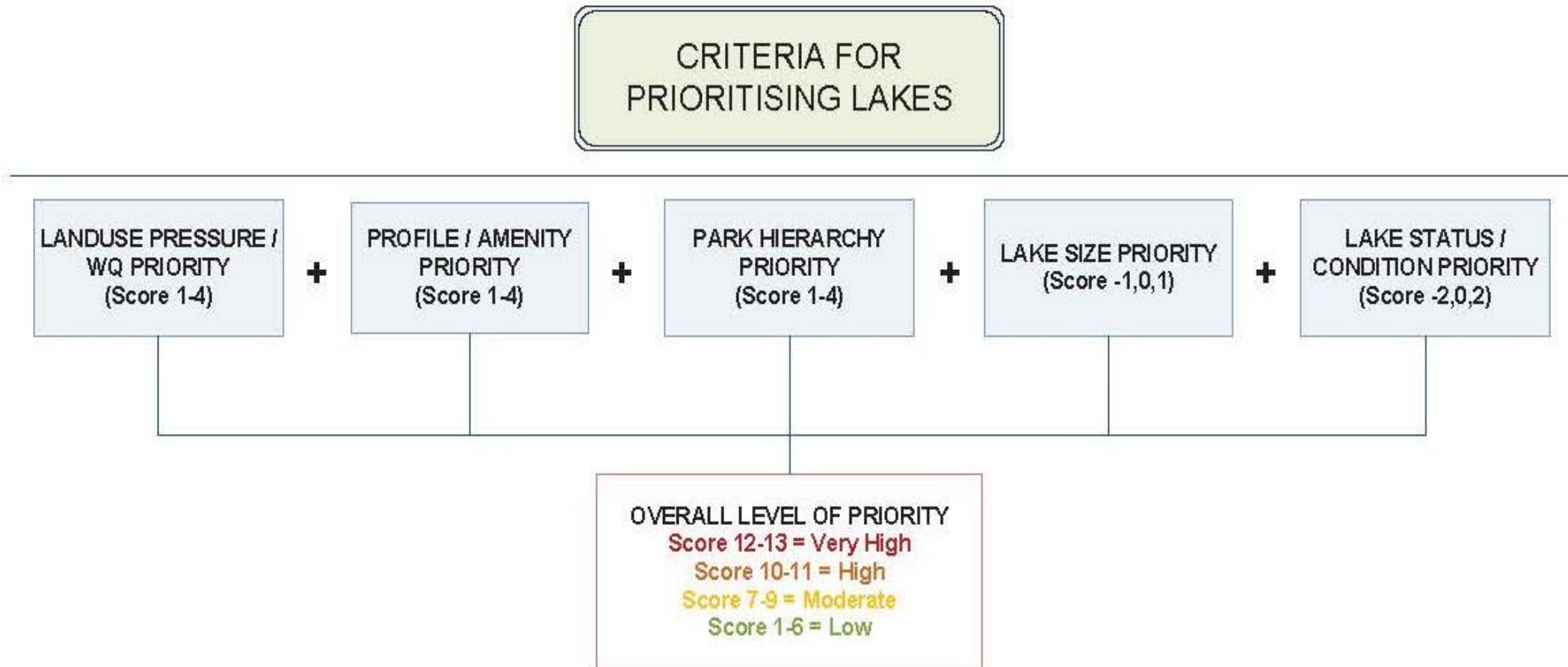
Council developed strategic framework for Lake Systems management:  
*Managing and Rectifying Lakes in Moreton Bay Regional Council Area*  
(DesignFlow, 2013)

This report:

- Established a **framework for prioritising** all Lake Systems in the region;
- Established a **comprehensive inventory** of Councils Lake Systems;
- **Quantified rectification and maintenance costs** for Councils entire inventory of Lake Systems;
- **Identified roles and responsibilities** within Council for their management; and
- Proposed a **business case** for effective Lake System management.



# Waterbody Prioritisation Criteria





# Extract from MBRC lake inventory

## APPENDIX 1. LAKE INVENTORY AND PRIORITISATION OUTCOMES

ID	Lake Name	Lake area	Lake System Number	Combined Area	PARK NAME	Division	Park Type	Catchment Pressure	Amenity	Size Pressure	Park Priority	Total	Modifier	Modifier Explanation	Grand Total	FINAL Priority
CAB_76	Beachmere Lake	22881	1	22881	Beachmere Lake	Division 2	Local Park	4	4	1	2	11	2	Fish Kill	13	Very High
CAB_71	Centenary Lakes - Lake 1	9204	4	28264	Centenary Lakes	Division 3	Regional Park	4	4	1	4	13	n/a		13	Very High
CAB_47	Centenary Lakes - Lake 2	4590	4	28264	Centenary Lakes	Division 3	Regional Park	4	4	1	4	13	n/a		13	Very High
CAB_46	Centenary Lakes - Main Lake	14470	4	28264	Centenary Lakes	Division 3	Regional Park	4	4	1	4	13	n/a		13	Very High
HAY_41	Black Duck 1A	16201	3	109743	Black Duck 1A	Division 7	Linear Linkage	4	4	1	2	11	2	Algae Bloom	13	Very High
HAY_38	Black Duck 1	29111	3	109743	Black Duck 1	Division 7	Linear Linkage	4	4	1	2	11	2	Algae Bloom	13	Very High
HAY_37	Black Duck 3	14926	3	109743	Black Duck 3	Division 7	Linear Linkage	4	4	1	2	11	2	Algae Bloom	13	Very High
HAY_36	Black Duck 4	19507	3	109743	Black Duck 4	Division 7	Linear Linkage	4	4	1	2	11	2	Algae Bloom	13	Very High
HAY_35	Black Duck 2	22876	3	109743	Black Duck 2	Division 7	Linear Linkage	4	4	1	2	11	2	Algae Bloom	13	Very High
HAY_16	Black Duck 2a	8122	3	109743	Black Duck 2a	Division 7	Linear Linkage	4	4	1	2	11	2	Algae Bloom	13	Very High
LPR_42	Pine Rivers Park - Lake 1	10621	21	22878	Pine Rivers Park	Division 9	Shire Park	4	4	1	4	13	n/a		13	Very High
LPR_41	Pine Rivers Park - Lake 2	12257	21	22878	Pine Rivers Park	Division 9	Shire Park	4	4	1	4	13	n/a		13	Very High
BUR_17	Norfolk Lakes	32763	16	32763	Norfolk Lakes	Division 11	District Sporting	4	4	1	3	12	n/a		12	Very High
CAB_09	Central Lakes - Lake 1	16307	6	29525	Central Lakes	Division 3	Neighbourhood Park	4	4	1	3	12	n/a		12	Very High
CAB_08	Central Lakes - Lake 2	13218	6	29525	Central Lakes	Division 3	Neighbourhood Park	4	4	1	3	12	n/a		12	Very High
HAY_70	Melaleuca Lakes	1358	17	34462	Melaleuca Lakes	Division 4	Neighbourhood	4	4	1	3	12	n/a		12	Very High
HAY_53	Lake Eden - Sediment pond 3	1240	16	93485	Lake Eden	Division 4	Town Park	4	4	1	3	12	n/a		12	Very High
HAY_52	Lake Eden - Sediment pond 1	2133	16	93485	Lake Eden	Division 4	Town Park	4	4	1	3	12	n/a		12	Very High
HAY_51	Lake Eden - Main Lake	50658	16	93485	Lake Eden	Division 4	Town Park	4	4	1	3	12	n/a		12	Very High
HAY_45	Lake Eden - Wetland 2	1544	16	93485	North Lakes Town Park	Division 4	Town Park	4	4	1	3	12	n/a		12	Very High
HAY_44	Melaleuca Lakes	2232	17	34462	Melaleuca Lakes	Division 4	Neighbourhood	4	4	1	3	12	n/a		12	Very High
HAY_43	Lake Eden - Sediment Pond 2	3289	16	93485	Lake Eden - Sediment Pond	Division 4	Town Park	4	4	1	3	12	n/a		12	Very High
HAY_42	Lake Eden - Wetland 1	1084	16	93485	North Lakes Town Park	Division 4	Town Park	4	4	1	3	12	n/a		12	Very High
HAY_34	Halpine Lake	46205	10	46205	Halpine Lake Reserve	Division 4	Neighbourhood Park	4	4	1	3	12	n/a		12	Very High
HAY_31	Melaleuca Lakes	2132	17	34462	Melaleuca Lakes	Division 4	Neighbourhood	4	4	1	3	12	n/a		12	Very High
HAY_30	Melaleuca Lakes	12626	17	34462	Melaleuca Lakes	Division 4	Neighbourhood	4	4	1	3	12	n/a		12	Very High
HAY_29	Melaleuca Lakes	7058	17	34462	Melaleuca Lakes	Division 4	Neighbourhood	4	4	1	3	12	n/a		12	Very High
HAY_28	Melaleuca Lakes	2864	17	34462	Melaleuca Lakes	Division 4	Neighbourhood	4	4	1	3	12	n/a		12	Very High
LPR_27	Mungara Lake 2	8613	14	12122	Mungara Reserve	Division 7	District	4	4	1	3	12	n/a		12	Very High
LPR_26	Mungara Lake 1	3509	14	12122	Mungara Reserve	Division 7	District	4	4	1	3	12	n/a		12	Very High
LPR_78	Warner - Lake 2	6079	22	112711	Warner Lakes	Division 8	Not Designated	4	4	1	1	10	2	Algae Bloom	12	Very High
LPR_77	Warner - Lake 3	16522	22	112711	Warner Lakes	Division 8	Not Designated	4	4	1	1	10	2	Algae Bloom	12	Very High
LPR_62	Warner - Lake 1	90110	22	112711	Warner Lakes	Division 8	Neighbourhood Park	4	4	1	3	10	2	Algae Bloom	12	Very High
PUM_13	Pebble Beach Lake	3964	75	3964	Pebble Beach Sportsgrounds	Division 1	District Sporting	4	4	0	3	11	n/a		11	High
PUM_12	Dewdrop Place Lake	96336	65	96545	Dewdrop Place park	Division 1	Linear Linkage	4	4	1	2	11	n/a		11	High
BRI_09	Bibimulva Wetland - Wetland 1	1893	2	11779	Bibimulva Wetland	Division 1	Local Park	4	4	1	2	11	n/a		11	High
BRI_07	Bibimulva Wetland - Main Lake	7258	2	11779	Bibimulva Wetland	Division 1	Local Park	4	4	1	2	11	n/a		11	High



# Waterbody Numbers and Priority

	VH	H	M	L	Total
Constructed Wetland	13	34	5	2	54
Lake	28	32	36	18	114
Pond	2	24	39	45	110
Sediment Basin	5	14	4		23
<b>Total</b>	<b>48</b>	<b>104</b>	<b>84</b>	<b>65</b>	<b>301</b>

Systems = 203

Total Area = 2,273,674 m<sup>2</sup>



# Strategic Framework – Recommendation Summary

- **Lake Management Plans (LMP's)** – 2 to 4 per year starting with the highest priority system (21 completed to date – 47 assets)
- **Rectification** – 1 Lake per year – starting with the Very High/High based on the LMP
- **Monitoring & Inspections** – Regular (twice yearly) scheduled condition assessments including and water quality monitoring across Very High and High priority Lakes
- **Maintenance** – Routine pro-active maintenance on all lakes
- **Policy/Development Controls for new lakes**
- **Staff resources** – for co-ordination and implementation
- **Funding** - \$3M to \$4M per year (combination of opex and capex)

Reference: Managing and Rectifying Lakes in Moreton Bay Regional Council Area - DesignFlow







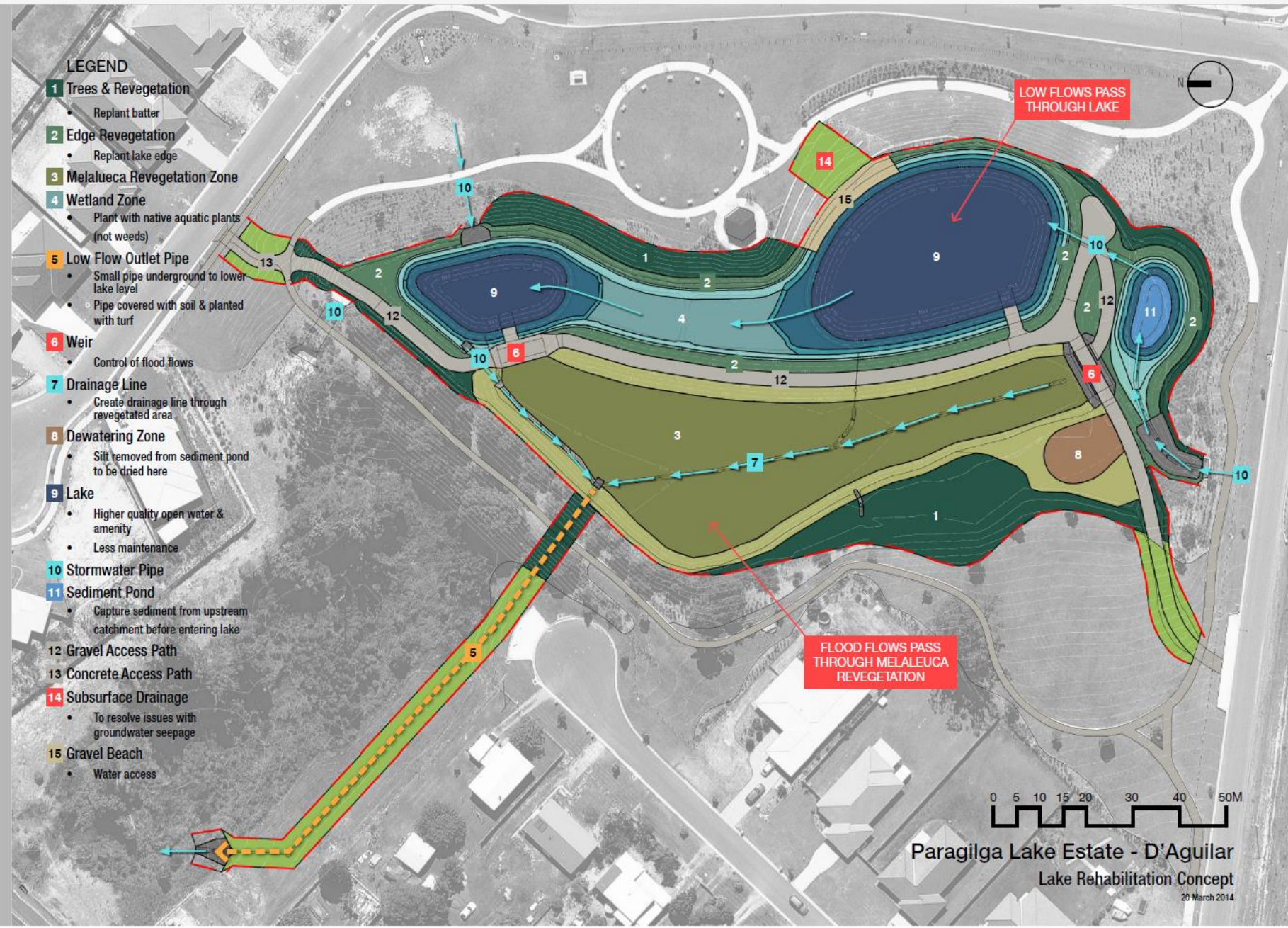


30 JAN 2013















# ~~Current~~ Previous Maintenance Regime

- Combined - Waterway & Waterbody Maintenance Budget \$250,000 introduced in 13/14 - ongoing
  - **\$125,000** annual budget for waterbodies
  - Used for **weed control & revegetation** only
  - Only enough \$ for minimal maintenance ~ **6 systems** yearly – usually spent on assets that have already been rectified (major rectification and rehabilitation)
- Some add hoc drainage maintenance (hard to track/action)
- Limited knowledge and resources for lake system maintenance
- Most lake system assets not maintained



# New Maintenance Contract

- Starting 19/20, two external contracts for WSUD Assets;
  - Waterbodies (Urban lakes/Wetland/Sed Basin) \$750k
  - Bioretention basins \$600k
- Based on Water by Design Waterbody Management Guidelines, discussions with GCCC & adapted to suit MBRC
- Monthly Inspections & Maintenance for urban lakes & WSUD assets
- Defects repaired as extra cost (rates set by contract)



# Routine Inspections

Waterbodies (Lakes, Ponds, Constructed Wetlands & Sediment Basins)

- Inlets and outlets (cleaning)
- Embankments
- Spillways
- Weirs
- Water Level control structures
- Erosion and scour
- Formation of isolated pools
- Vegetation including weeds and aquatic species
- Litter
- Blockages
- Bird and other animals
- Mosquitos



# Routine Maintenance Tasks

## Waterbodies (Lakes, Ponds, Constructed Wetlands & Sediment Basins)

- Cleaning of inlet/outlet zones
- Litter and debris collection
- Weed management
- Revegetation and infill planting
- Water level control
- Minor works - erosion and scour protection
- Desilting (5 - 10 Years)



# Future Steps

- Complete development of AM Plans for Water quality assets
- Improve Planning Scheme Policy and control of new WSUD Assets & Integration into Council's AM system
- Continue to innovate and improve design and construction of new Council built assets
- Monitor and evolve the maintenance contracts to drive efficient use of resources and deliver economic, social and environmental outcomes as per the TWCMP



Thankyou

