MANNINGHAM

Integrated Water Management

A Tragedy of the Commons?

8 May 2013 – 2013 Stormwater Victoria Conference

Agenda

1. Introduction – Sarah Eggleton (MW)
2. Project Context – Lachlan Johnson (MCC)
3. IWCM Learnings – Lachlan Johnson (MCC)

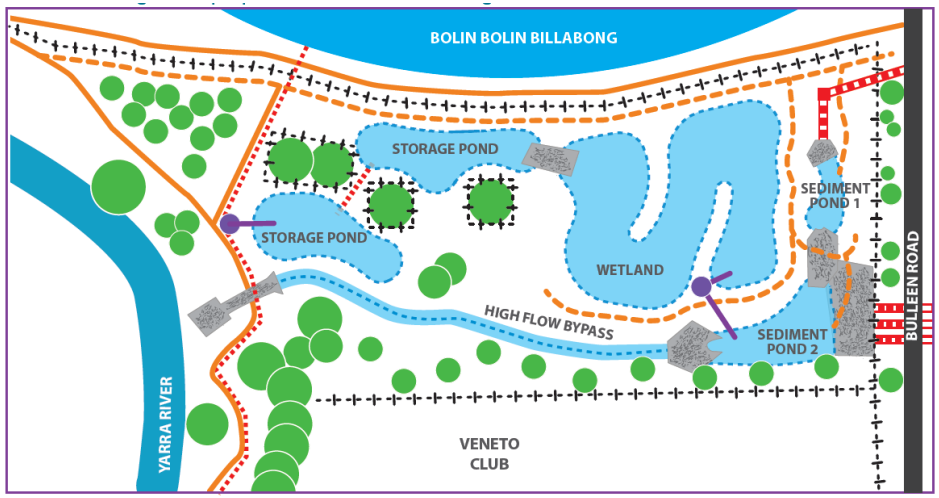
INTRODUCTION

Sarah Eggleton – Melbourne Water

Project Context (0.1)

- 3 objectives:
  - Bulleen catchment drainage outfall;
  - Improve the quality of stormwater; and
  - Provide alternative source of water for irrigation.
- Project Funding Partners:
  - Melbourne Water;
  - Manningham City Council;
  - The City of Boroondara;
  - Carey Grammar School; and
  - The Commonwealth Government of Australia (Melbourne WaSSH).
- Project was initiated approximately 6 years ago.

Learning 1 – Memorandum of Understanding (1.1)



Proposed Wetland & Storage Site

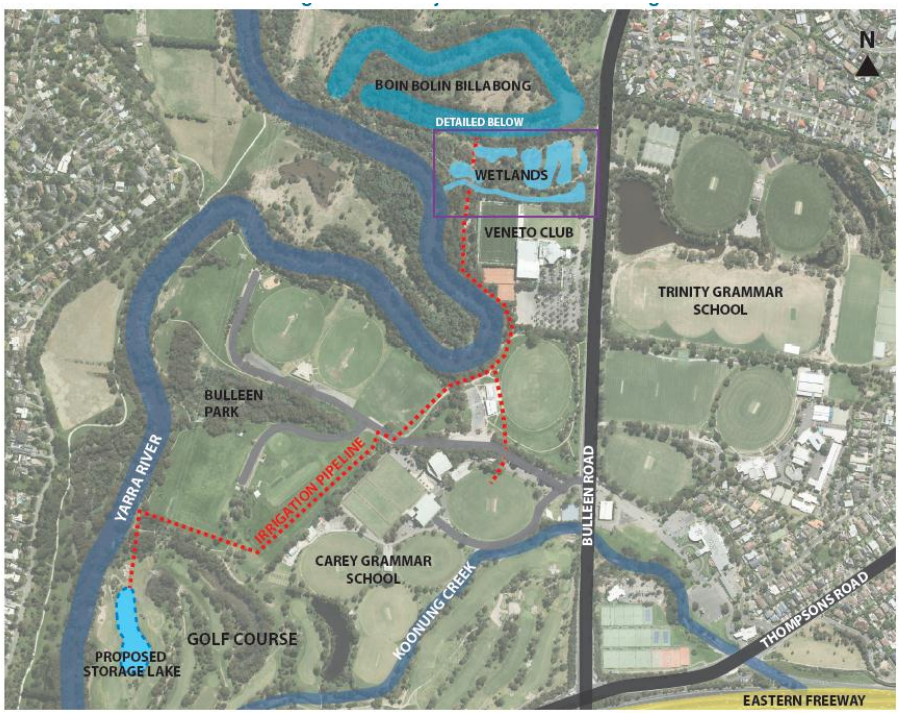
- Develop a Memorandum of Understanding (MoU) between the project partners;
- Needs to be put in place early in the project concept development;
- Ensures individual and collective objectives are documented and agreed;
- Can and should contain caveats, given the early stage of project development;
- It is the framework for progressing the project;

Learning 2 – Strong Business Case (2.1)

Irrigation (www.yuzuak.com)

- MoU should be supported by a strong business case and feasibility study;
- Feasibility study should build upon the principles agreed in the MoU;
- Forms the basis on which parties will assume risk and commit to short term and long term goals;
- Should contain realistic caveats reflective of the stage of project development;
- The business case is the lynch pin that enables parties to commit to the project; and
- Business case should reflect the savings that can be achieved through combined action, as opposed to individual solutions.

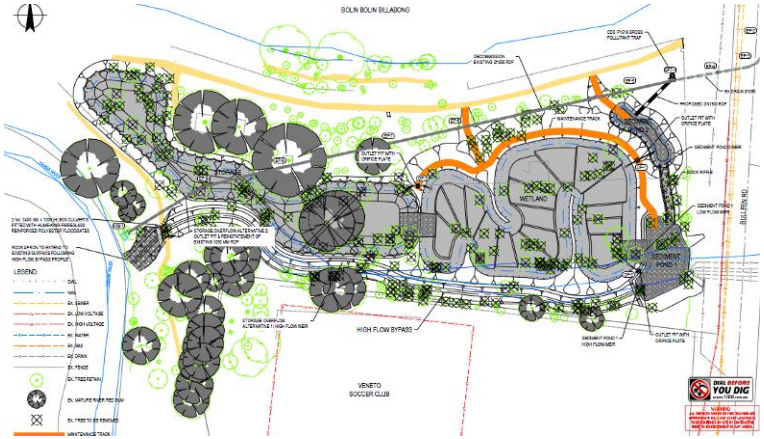
Learning 3 – Shared Risk Approach (3.1)



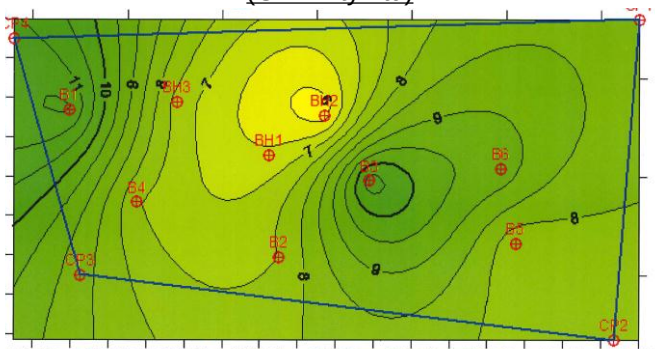
Proposed Irrigation Pipeline Alignment

- Business case should include a shared risk approach between project partners;
- There are significant risks and costs associated with the design of a project;
- Should include:
  - Construction risk allocation;
  - Design risks;
  - Funding risks – Capital & Operational;
  - Water quality risks;
  - Management arrangements;
- This approach assists in binding parties to the project and helps to foster inter-organisational trust;

Learning 3 – Shared Risk Approach (3.2)



Original Design Layout
(GHD Pty Ltd)



Sand Layer Contour Map (Coffey
Environmental Pty Ltd)

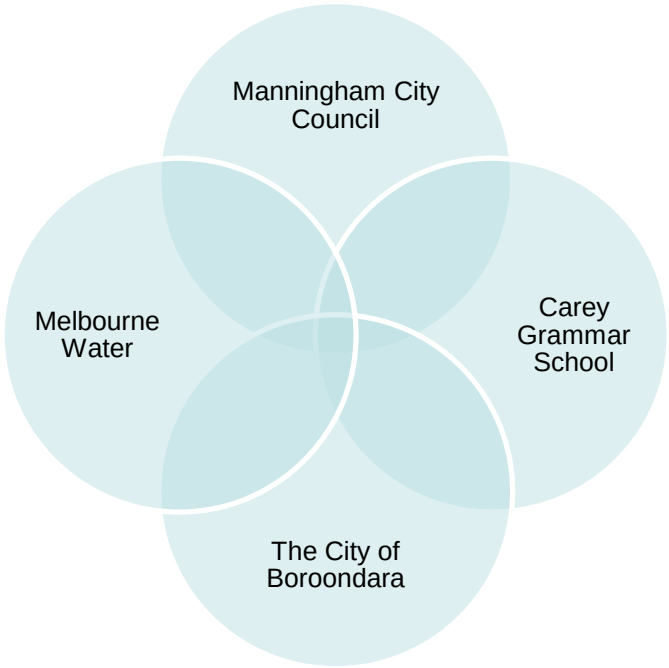
An example of the need to take a shared risk approach to project development was:

- During the design significant geotechnical issues were discovered;
- A large sand layer with high conductivity to the adjacent Yarra River was found to underlay the site;
- The sand layer meant that the proposed water bodies required raising to avoid conflict with the sand layer – hydrostatic pressure and water retention;
- Ultimately the geotechnical issues resulted in a large increase in costs, both design and construction;

Learning 3 – Shared Risk Approach (3.3)

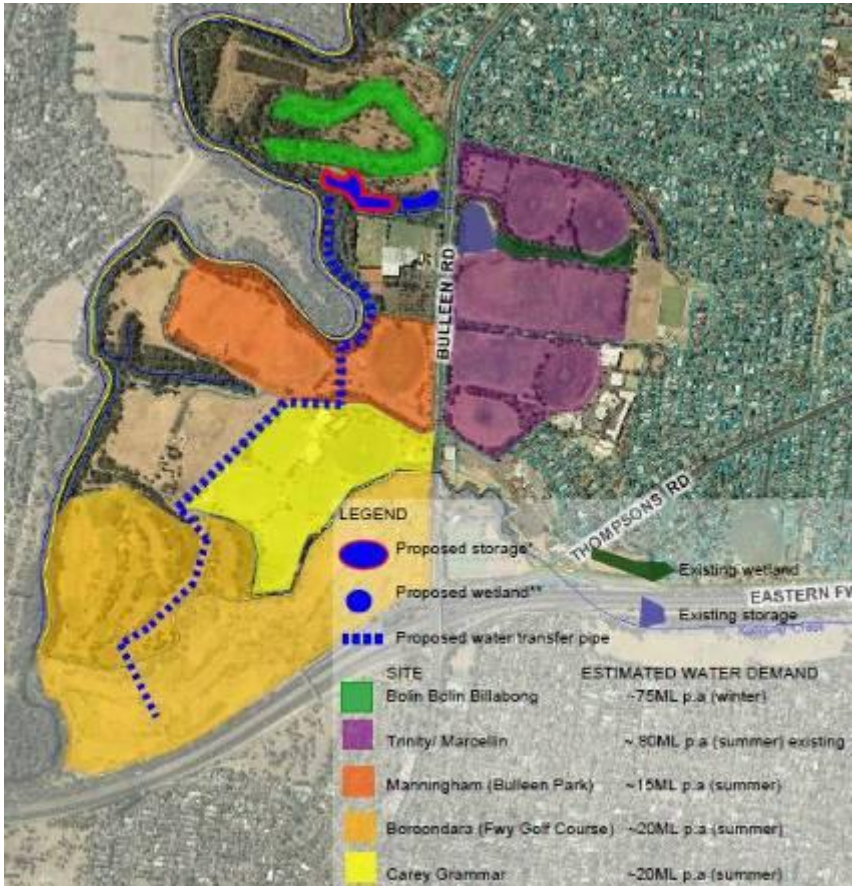
- Another example of the need to take a shared risk approach was encountered when the decision was made to exclude the supply of water to the Billabong;
- Parks Victoria/DSE was a non-capital funding partner, but would have contributed to the OM&R costs;
- The resulting shortfall in OM&R funding towards the project placed a greater burden on the other parties;
- The approach taken distributes this risk amongst all and it is not shouldered by a single entity.

Learning 4 – Development of Partnerships (4.1)



- IWCM projects do not fit neatly within many organisations ‘core business’ or regulated boundaries;
- This is particularly relevant when operational, governance and maintenance outcomes are being considered;
- The project involves:
  - Wetland;
  - Sedimentation Basins;
  - Pump Stations;
  - Reticulated Irrigation Mains;
  - Electrical & Telemetry Control Infrastructure; and
  - Public Open Space.

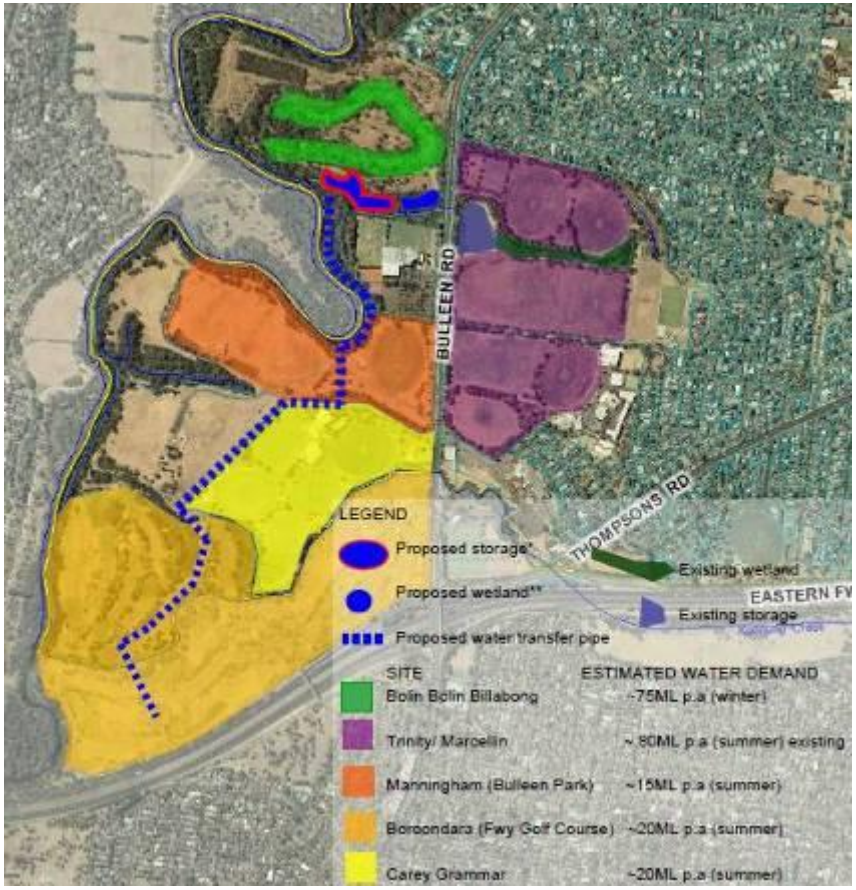
Learning 4 – Formalising Partnerships (4.2)



Other considerations:

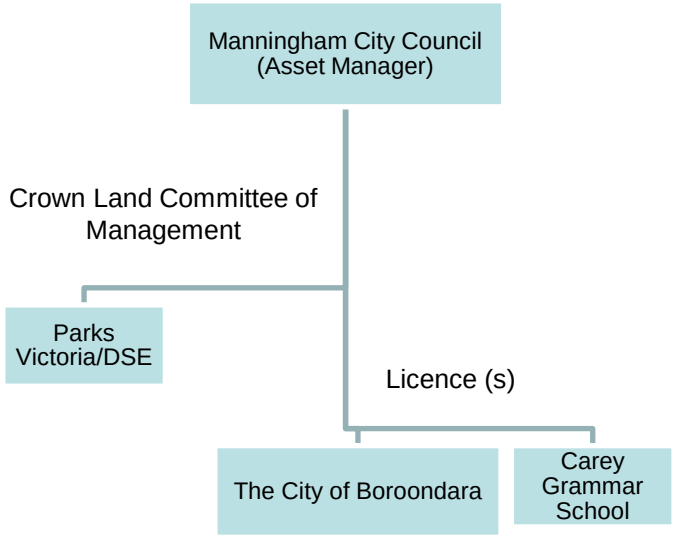
- Land tenure – Multiple owners, leases and directly assigned management responsibility;
- Eventual asset ownership;
- Maintenance access rights;
  - Leases, Licences or Crown Land Committee of Management (CoM);
- Legal liabilities;
- Financial arrangements;
- Administration and governance;
- Security of ongoing funds:
  - Deeds and/or traditional contracts;

Learning 4 – Formalising Partnerships (4.3)



- Arrangements between all the parties should be finalised and endorsed through a Binding Legal Agreement, including details on items such as:
  - Funding arrangements;
  - Governance arrangements;
  - Land tenure and access arrangements for maintenance;
  - Ongoing routine maintenance arrangements and replacement of assets at end of useful life;
  - Decommissioning asset

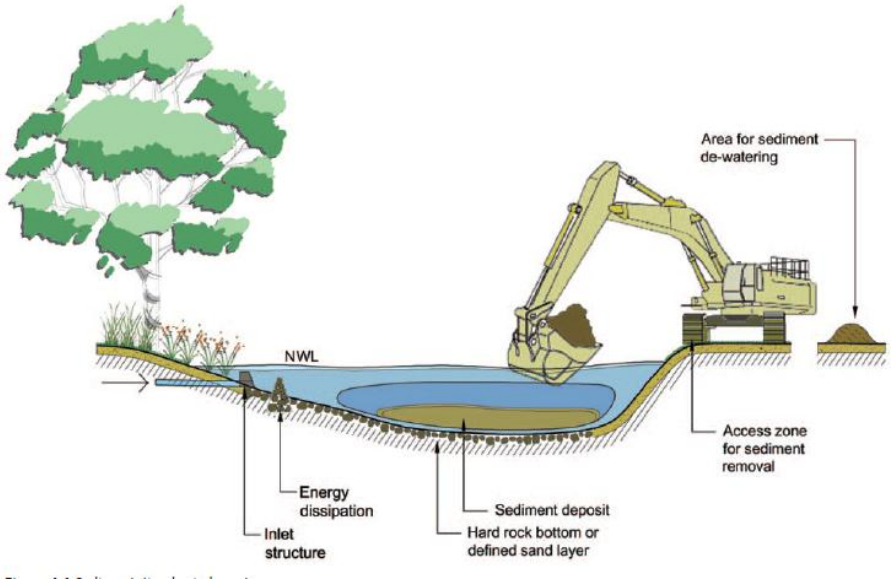
Learning 5 – IWCM Projects are Multifaceted (5.1)



Land Tenure/Governance Arrangements
(The Public Land Consultancy)

- In order to address these issues, a *Governance Options* paper was prepared;
- The starting point was based on the land and governance issues;
- The paper concluded that a single entity should manage the project operation and financial arrangements;
- The paper suggested a governance structure & land tenure/access arrangements:
  - Manningham City Council (MCC) – Asset Manager;
  - MCC enter into CoM arrangements to access Crown land;
  - MCC enter into licences with other parties to access assets built on their land

Learning 6 – Capital Commitments vs. Ongoing Operational Commitments (6.1)



Sedimentation Basin Maintenance
(WSUD Engineering Principals – CSIRO)

- The reality is that IWCM projects have many and wide reaching benefits, therefore their operational costs are likely to be higher than traditional approaches;
- In order to sustain a project throughout its useful life span, ongoing financial/in-kind contributions are required;
- An important principal of the proposed governance structure was that it would be cost neutral to Manningham City Council (ie. the Council only pays its contribution); and
- As the asset manager, Council, would collect funds from the project partners to fund the administration and operation of the assets.

Learning 6 – Capital Commitments vs. Ongoing Operational Commitments (6.2)

Bolin Bolin - O & M costs

desilt sed basin 1						
plant hire	0.1	2	days	$ 2,400.00	**$ 480.00**	once per 10 years
equipment hire - pump	0.1	2	days	$ 3,060.00	**$ 612.00**	
labour	0.1	3	days	$ 1,360.00	**$ 408.00**	
Silt storage and drying						
lab testing	0.2	1	item	$ 1,800.00	**$ 360.00**	for contamination screen
plant load and transport	0.2	40	hrs	$ 240.00	**$ 1,920.00**	EPA approved transport
disposal cost (low/Mod contamination)	0.2	250	m3	$ 120.00	**$ 6,000.00**	once per 5 years
Rock chutes and weir dressing						
	0.5	4	m3	$ 400.00	**$ 800.00**	after heavy storms

Capital Replacement Cost

Reuse transfer pump					
pumps	item	1	$ 6,500.00	3	$ 1,300.00
floats switches	item	2	$ 120.00	2	$ 240.00
switch gear	item	5	$ 100.00	10	$ 500.00
Wetland					
Reset Liner & dress	m2	7200	$ 25.00	20	$ 9,000.00
replant	m2	5040	$ 12.00	20	$ 3,024.00
Meters					
flow X 4	item	4	$ 2,500.00	10	$ 1,000.00

- After detailed design, a cost estimate for operation was prepared:
  - **Operational** – Electrical charges, telecommunication charges, accounts, auditing etc;
  - **Maintenance** – Pump servicing, wetland replanting, sedimentation basin desilting etc; and
  - **Renewal (Capital)** – Resetting of wetland, replacement of pumps etc.
- The purpose of the OMR schedule was to determine what contributions the project would require to function as an ongoing asset;
- The costs identified were separated into two categories and apportioned accordingly:
  - Drainage authority costs – Manningham City Council; and
  - Harvested stormwater supply costs:
    - Manningham City Council;
    - The City of Boroondara; and
    - Carey Grammar School.

Summary

- *Water leadership requires collective learning and collective commitment to common objectives and action*

- Lessons learnt:
  - Develop a memorandum of understanding at an early stage of project concept development;
  - Develop a strong, robust business case with realistic caveats to account for unknowns;
  - Take a shared risk approach through the design, construction and maintenance;
  - Develop partnerships with stakeholders with a clear understanding of individual requirements;
  - Formalise partnerships with a binding agreement;
  - IWCM is a multi-faceted endeavour;
  - Consider operational requirements from an early stage as they are often complex to fund/administer.