

# Integrated water management – joining up the water cycle

## Workshop write-up

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## I. BACKGROUND

### I.1 Thamesmead

Thamesmead is part of the Thamesmead and Abbey Wood Opportunity Development Area as designated in the Greater London Authority's London Plan.

Thamesmead was originally planned as a town of the 21<sup>st</sup> century by the Greater London Council in the mid-1960s. The plans had high aspirations for architectural innovation to overcome floodplain challenges and provide high density communities. However a combination of the type of developments, lack of connectivity has resulted in a somewhat isolated community that suffers disproportionately from deprivation.

Thamesmead has a rich and interesting historical context and despite the challenges being faced in the area it has a number of assets that contribute to a strong sense of place and local identity. A number of regeneration initiatives are either underway or planned. However, for this potential to be realised a strategic approach to master planning is required.

The Peabody Group owns around 65% of the land and they have a major role in the re-development of the area. They have aspirations for Thamesmead to become London's Blue and Green New Town ([see Phil Askew's presentation from the IWM workshop](#))

### I.2 The opportunity

Thamesmead already has an extensive provision of blue and green infrastructure. In terms of assets it has:

- Five neighbourhood parks
- Five lakes
- 32 hectares of water
- 7km of canals
- 14 sites of nature conservation interest

A Green infrastructure strategy is being developed with the aspiration to make Thamesmead one of London's most biodiverse and sustainable urban living environments.

Another objective is that Thamesmead's landscape will provide a healthy living environment that is safe, well connected, well-used, distinctive, features biodiversity at scale and is well funded and managed.

### I.3 Green infrastructure strategy

There are six key objectives of the commission for the strategy, these are:

1. **Connected and integrated** – encouraging and supporting physical, social and ecological connectivity. This should be underpinned by community engagement, participation and capacity building.
2. **Active and healthy** – promoting active lifestyles that encourage physical recreation making the most of opportunities for water sports.
3. **Biodiverse and productive** – supporting the restoration of ecology and habitat diversity. Enhancing productivity through ecosystem services and waterscapes.
4. **Child and family friendly** – providing opportunities for play and better use of spaces.
5. **Education and skills** – opportunities for education including outdoor classrooms, forest schools and other skills development.
6. **Efficient and resilient** – defines resource requirements for landscape and waterscape maintenance. High quality environments will be promoted that are climate resilient, energy and resource efficient.

## 2. THE WORKSHOP

### 2.1 Outline of the task

Thamesmead was used as the context to consider the opportunities for integrated water management. Following Phil Askew's presentation, two scenarios were suggested to the workshop participants to consider what IWM functionality could be provided at Thamesmead, these were:

1. **Business as usual** – using a traditional grey infrastructure approach to regenerate Thamesmead
2. **A blue-green vision** – where no new significant grey infrastructure can be delivered, there are limited opportunities for new investment and there is a need to reduce carbon.

### 2.2 Possible outcomes

Workshop participants were asked to consider a set of outcomes, or functions of good integrated water management and the types of approaches, opportunities and interventions that could be provided. These are:

Functions	Considerations
Flood risk	<ul style="list-style-type: none"> <li>• Reducing volume of runoff</li> <li>• Reducing rate of runoff</li> <li>• Maximising capacity of sewers</li> </ul>
Water supply	<ul style="list-style-type: none"> <li>• Water efficiency measures</li> <li>• Rainwater harvesting</li> <li>• Surface water</li> <li>• Wastewater recycling</li> </ul>
Quality of place	<ul style="list-style-type: none"> <li>• Making Thamesmead a destination</li> <li>• Improving recreation</li> <li>• Improving education</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>• Types of vegetation</li> <li>• Types of planting etc</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• Managing water on surface</li> <li>• Developing corridors for people and biodiversity</li> </ul>
Health & wellbeing	<ul style="list-style-type: none"> <li>• Encouraging activities</li> <li>• Recreation passive/active</li> </ul>
Value	<ul style="list-style-type: none"> <li>• Social return on investment</li> <li>• Value for developers</li> <li>• Investment/employment opportunities</li> </ul>

## 2.3 Results

Sections 2.3.1 and 2.3.2 provide details of the responses from the workshop participants that correspond to blue-green vision and business as usual.

### 2.3.1 Blue-green vision

Functions	Considerations
Flood risk	<ul style="list-style-type: none"> <li>• Source control - green / blue roofs, swales rain gardens.</li> <li>• Implement GI SuDS to intercept surface water before it reaches the canal system</li> <li>• Manage surface water runoff in the canals</li> <li>• Dual water system – capture rainwater before it gets into water courses and use it as a water resource</li> <li>• Retrofit existing developments/proposals to provide increased capacity. Options include: <ul style="list-style-type: none"> <li>○ Green/blue roofs</li> <li>○ Use ‘dead space’ in cul-de-sacs to provide rain gardens</li> <li>○ Re-landscaping – use peripheral areas as flood control in extreme events</li> <li>○ Use road edges for attenuation - tree pits</li> <li>○ Re-design road spaces</li> <li>○ ‘Naturalising’ canal edges</li> </ul> </li> <li>• Marshland below tide level utilised and/or soften tidal defences</li> <li>• Implement Natural Flood Management upstream in woodland (outside of Thamesmead)</li> <li>• Innovative housing design – floating houses</li> <li>• Flood wardens, flood groups, community engagement officer</li> <li>• Unified flood management company (not EA, LLPA, TWUL – one single)</li> </ul>
Water supply	<ul style="list-style-type: none"> <li>• Implement non-potable supply (district wide) <ul style="list-style-type: none"> <li>○ Rain water harvesting (either community or plot scale)</li> <li>○ Re-use of treated black / grey water to irrigate green spaces</li> </ul> </li> <li>• Water conservation <ul style="list-style-type: none"> <li>○ Smart meters</li> <li>○ Telemetry to monitor leakage</li> <li>○ Behaviour change – public awareness</li> </ul> </li> <li>• Crossness to supply non-potable water into canal network (distribution) used for irrigation</li> <li>• Remove concrete lining of canal – natural recharge</li> </ul>
Quality of place	<ul style="list-style-type: none"> <li>• Include cultural interpretation-boards - Connecting with Royal Arsenal</li> <li>• Making Thamesmead a destination</li> <li>• Cycle routes</li> <li>• Water taxi to Thamesmead</li> <li>• Improve water quality <ul style="list-style-type: none"> <li>○ Water quality – ‘floating islands’ in canals</li> <li>○ Wetland areas connected to canals</li> </ul> </li> <li>• Behaviour change – ‘owning’ water – reconnecting people with water</li> <li>• Make nature a theme <ul style="list-style-type: none"> <li>○ Develop (urban) nature trials</li> <li>○ ‘Naturalising’ canal edges</li> <li>○ Natural play - public art</li> </ul> </li> <li>• Water ‘soundscape’</li> <li>• School engagement</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>• Delivering Environment Net gain should be the primary</li> </ul>

Functions	Considerations
	<ul style="list-style-type: none"> <li>objective.</li> <li>• Making GI work harder</li> <li>• Integrate GI with connectivity, provide networks/corridors rather than pockets of green space</li> <li>• Community engagement / ownership</li> <li>• Improve educational signage</li> <li>• Buffers to the existing garden / blue corridors</li> <li>• Habitat creation for key target species</li> <li>• Tree planting</li> <li>• Urban farming / community orchards</li> <li>• Include green walls and roof gardens/farms</li> <li>• Integrate with blue-green infrastructure to provide habitat corridors</li> <li>• 'Naturalising' canal edges</li> <li>• Bird / bat boxes</li> <li>• Consider wildlife bridges/tunnels to cross roads and link up green spaces</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• Water bus</li> <li>• Meet safe by design standard</li> <li>• Consider blue-green infrastructure corridors <ul style="list-style-type: none"> <li>○ Water routes alongside pedestrian routes</li> <li>○ Use canals – corridors</li> <li>○ Link walking / water corridors to habitat corridors</li> <li>○ Biodiversity / habitat 'stepping stones'</li> </ul> </li> <li>• Circulate routes / walks</li> <li>• Interpretation boards</li> <li>• Use water system as map / navigation aid</li> <li>• Link to wider Thames path network</li> <li>• Marked trails through area</li> <li>• Kayak share</li> <li>• Autonomous electric boats</li> </ul>
Health & wellbeing	<ul style="list-style-type: none"> <li>• Safe passages/footpaths to encourage walking</li> <li>• Continuous pathway along canal</li> <li>• Include a Park Run – 5/10km running routes</li> <li>• Cycle network - linking into routes out of Thamesmead</li> <li>• Locating facilities within greenspaces → Greater integration</li> <li>• Open up canals and lakes for water sports</li> <li>• Encourage wild swimming where appropriate</li> <li>• Green gyms</li> <li>• Sign posting / interpretation boards</li> <li>• Water sports</li> <li>• Maximising views onto water</li> </ul>
Value	<ul style="list-style-type: none"> <li>• Jobs created</li> <li>• Decreased carbon footprint</li> <li>• Capitalise on legacy infrastructure – sailing / rowing</li> <li>• Thamesmead should become synonymous with a valued destination</li> <li>• Objective – every household / resident connected to the community group</li> <li>• Reputational value for developers should drive the delivery of good practice.</li> </ul>

## 2.3.2 Business as usual

Functions	Considerations
Flood risk	<ul style="list-style-type: none"> <li>• Improve pumping regimes for surface and ground water</li> <li>• Raise flood walls/defences on river front</li> <li>• Provide a sewerage treatment works upgrade – increase the capacity of Crossness Sewage Treatment Works</li> <li>• Increase the amount of underground storage to reduce risks of sewer flooding</li> <li>• Rely more heavily on Property Flood Resilience to manage risks of flooding from sea and surface water.</li> <li>• Separate combined sewers</li> </ul>
Water supply	<ul style="list-style-type: none"> <li>• Improve existing infrastructure, fix leaks</li> <li>• More sustainable solutions can still be used in construction with grey infrastructure</li> <li>• Use canals as aqueducts to transport water</li> <li>• Use lakes as reservoirs to store water - dredge to increase capacity (for use or treatment)</li> <li>• Consider programmes to encourage water conservation/efficiency <ul style="list-style-type: none"> <li>○ Water efficient fixtures and fittings</li> <li>○ Include more smart metering</li> <li>○ Behaviour changes (reduced shower times)</li> <li>○ Surface water recycling using lake water</li> <li>○ Localised grey water recycling</li> <li>○ Membrane bioreactor for big scale WWT and reuse</li> <li>○ Non-potable network especially for commercial / industrial (large users)</li> <li>○ Smart optimisation, crossness discharge</li> </ul> </li> </ul>
Quality of place	<ul style="list-style-type: none"> <li>• Reduced green space could lower maintenance liabilities and costs.</li> <li>• Less green space could include more space for local car parking and other transport opportunities</li> <li>• Adoption responsibilities for grey infrastructure are clearer</li> <li>• With better and improved maintenance of existing infrastructure the area can be more pleasant to use (eg de-siltation of existing canals, provision of water features etc)</li> <li>• There could be greater opportunities for recycling facilities</li> <li>• Lower environmental impact by extending life of existing assets</li> <li>• Quality of place – cycle paths could be included</li> <li>• Include sculptures and art in places</li> <li>• Mental health can benefit from increased amenity</li> <li>• Improve land connectivity as development comes through paths</li> <li>• Provide a promenade</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>• Some species of plants and animals prefer grey infrastructure, eg Peregrine Falcons</li> <li>• Easier to create obstructions to isolate areas in the interests of promoting biodiversity</li> <li>• Enhancing links to existing habitats e.g. sign posting and access</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• Create clear straight lines of movement which forces people to connect</li> <li>• Manage water on surface – pipe system under roads</li> <li>• Restore the canals – tow paths to create connected routes</li> <li>• Cycle routes encouraging active travel</li> <li>• New river crossing from North Bank.</li> </ul>
Health & wellbeing	<ul style="list-style-type: none"> <li>• Provides canoes etc. for recreation on the existing hard-engineered water features</li> </ul>

Functions	Considerations
	<ul style="list-style-type: none"><li>• Easier running surface</li><li>• Education tool – canals</li></ul>
Value	<ul style="list-style-type: none"><li>• Easily quantifiable</li><li>• Cheaper implementation</li><li>• Tried and tested</li><li>• Easier to adopt</li><li>• Less maintenance</li><li>• Waterside living</li><li>• Promenade</li><li>• Making the most of the lakes</li><li>• Riverside shops, restaurants and bars</li><li>• Al fresco dining</li><li>• There is an attraction to brutalism</li></ul>