Olympic Delivery Authority

Olympic Park Waterspace Masterplan

22 July 2008

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Glossary and references

Glossary of terms

BAP	Biodiversity Action Plan
BW	British Waterways
CCHP	Combined Cooling Heat & Power
CCTV	Closed Circuit Television
CLM	ODA Delivery partner (CH2M Hill, Lang O'Rourke and Mace)
DCLG Govt.	Dept. of Communities & Local
DCMS	Dept. of Culture, Media & Sport
DDA	Disability Discrimination Act
EA	Environment Agency
EH	English Heritage
ES	Environmental Statement
EU	European Union
FRA 2	Revised Flood Risk Assessment May 2007
GLA	Greater London Authority
LDA	London Development Agency
LLV	Lower Lea Valley
LMF	Legacy Masterplan Framework
LOCOG	London Organising Committee for the Olympic Games
LTGDC	London Thames Gateway Development Corporation
LVRPA	Lee Valley Regional Park Authority
NE	Natural England
OAPF	Opportunity Area Planning Framework
Olympic Park	Olympic site as whole, including landscape, venues, back of house and loop road
ODA	Olympic Delivery Authority
Parkland	Landscape and public realm in Legacy.
PDT	Planning Decisions Team
PPR	Parklands & Public Realm
PPS25	Planning Policy Statement 25
RIBA	Royal Institute of British Architects
RoSPA	Royal Society for the Prevention of Accidents
TfL	Transport for London
UDLF	Urban Design & Landscape Framework
WFD	Water Framework Directive

Reference documents

London 2012 Olympic Park Documents

- Biodiversity Action Plan Framework (2007)
- Bridges - Architectural Requirements (DRAFT)
- Parklands & Public Realm RIBA Stage C, February 2008
- Sustainable Development Strategy, January 2007
- Vol 7A Revised Flood Risk Assessment May 2007 (FRA2)
- Vol 9B Environmental Statement Annex: Outline Water Strategy, May 2007
- Design and Access Statement (2007)
- Urban Design and Landscape Framework (2008)

Glossary and references

REFERENCE DOCUMENTS

Statutory Planning Policy

Regional Policy Guidance
- The London Plan
- Further Alterations to the London Plan

Local Policy Guidance
- LB Waltham Forest UDP
- LB Newham UDP
- LB Tower Hamlets UDP
- LB Hackney UDP

Other Material Considerations

National Planning Guidance

- Planning Policy Statement 1: Delivering Sustainable Development (January 2005)
- PPS1: Planning and Climate Change (2007)
- PPS9: Biodiversity and Geological Conservation (2004)
- PPG10: Planning and Waste Management (1999)
- PPG13: Transport (2001)
- PPG14: Development on Unstable Land (1990)
- PPG15: Planning and the Historic Environment (1994)
- PPG17: Planning for Open Space, Sport and Recreation (2002)
- PPS22: Renewable Energy (2005)
- PPS23: Planning and Pollution Control (2004)
- PPG24: Planning and Noise (1994)
- PPS25: Development and Flood Risk, (2006)
- Sustainable Communities: Building for the Future (2003)
- Water Framework Directive (2000)
- Waterways for Tomorrow (DETR 2000)
- Waterways and Development Plans (BW 2003)
- Planning a future for the Inland Waterways (IWAAC 2003)
- Under Lock and Quay (Met police and BW 2000)
- The Mayor's Draft Water Strategy, March 2007
- The Water Act 2003

Regional Planning Guidance

- London Biodiversity Strategy (2002)
- East London Sub-Regional Development Framework (May 2006)
- East London Green Grid (2008)
- Lea Valley Regional Park Authority Park Plan (2007)
- Lee Valley Regional Park Authority (LVRPA) Park Development Framework
- London Thames Gateway Development Corporation – LLV Vision Document
- Lower Lea Valley Opportunity Area Planning Framework (2007)
- LLV Flood Risk Assessment draft 2 (2005)
- LVRPA Biodiversity Action Plan (2002)

Local Planning Guidance

- LBN Local Development Scheme (2007)
- LBN Draft Preferred Options for the Core Strategy (2006)

Executive summary

The Lea Valley waterways in the Olympic Park are arguably its most important and unique feature. They are a fundamental part of the Park's landscape and infrastructure and will serve a range of functions throughout the development phases. Each waterway has its own distinct character and history that contributes to the visual appeal of the Olympic Park. They are at the heart of a sustainable Legacy development where people will live, work, relax and play.

The Waterspace Masterplan has been prepared by the Olympic Delivery Authority (ODA) in response to Conditions SP.0.10 and OD.0.10 of the Site Preparation and Olympic and Legacy Facilities planning permissions (2007). Along with the Urban Design and Landscape Framework (UDLF), the Biodiversity Action Plan (BAP), the Lighting Strategy and the Arts and Cultural Strategy, the Waterspace Masterplan is one of a suite of planning documents that have been prepared to inform the detailed design.

The Waterspace Masterplan has been developed with regard to a range of policy and guidance documents. A key reference is the Mayor's Blue Ribbon Network, which states that 'water must be the starting point' when considering waterside developments and that 'uses and activities that need a waterside location must be prioritised'. This approach is inherent within the Olympic Park Masterplan. Relevant Statutory Stakeholders have been consulted during the development of the Waterspace Masterplan.

In accordance with the approved brief, the format of the Waterspace Masterplan addresses the six 'key themes' of the Olympic Park waterways:

- Character
- Use
- Connectivity and Access
- Safety and Security
- Ecology
- Governance

These are principally considered in terms of the three development phases being implemented by the ODA: Construction, the Olympic Games and the Legacy Transformation. Opportunities for Legacy are also explored but it is important to recognise that proposals for this phase are being developed in parallel by the London Development Agency (LDA) through the Legacy Masterplan Framework (LMF).

Character

The landscape character of the Olympic Park is rooted in its industrial past and the waterways are the most distinctive feature. That character will become a mixture of both old and new, with key heritage features retained and combined with new development to form a dramatic landform shaping the relationship between land and the water's edge.

In the northern half of the Park the River Lea currently has steep, vegetated, irregular banks. These will be graded and planted as part of the Parklands and Public Realm development works. The new Wetland Bowl will support ecology on its western bank and recreation on its eastern bank, with significant improvements to waterside access through the ramps and pathways from the upper plateau level. Major improvements will also be carried out to Bully Point Pond and Channelsea Gorge to provide for leisure, ecology, recreation and flood water storage.

In the southern half of the Park, in keeping with the previous industrial use and the existing hard river edges, the character of the waterways will generally be more urban. Existing river walls will be retained where structurally sound and improvements undertaken to facilitate construction of the Olympic Stadium and Aquatics Centre. The western bank of the Old River Lea will be retained and safeguarded as an important ecological area. A new river wall, set back 8m from the existing river wall will be provided in front of the Aquatics Centre, facilitating the provision of a low level pathway adjacent to the Waterworks River, connecting to the public domain of the Aquatics Centre. The set back wall and marginal fringe provides an important ecological link between the north of the Olympic Park and the lower section of the River Lea and Thames. Also a section of the City Mill River on the western bank will be softened to improve ecological connectivity.

The western boundary of the Olympic Park is dominated by the busy and active waterway of the River Lee Navigation, which will be retained and improved as part of the development works.

Use

The Olympic Park waterways will continue to provide for a range of current uses alongside new ones, and will include navigation, freight, transport, recreation, education, flood relief and ecology. They also provide the context for a range of future development opportunities.

Executive summary

Navigation is currently possible along the River Lee Navigation and all waterways south of the North London Line. In Legacy there are opportunities for navigation infrastructure to be provided along all of these routes, subject to maintaining ecological connectivity and the flood risk impact being acceptable.

Links between the Olympic Park and the wider waterways network provide opportunities for freight movements and leisure boating (following the construction phase). During the construction phase the completion of Prescott Lock will facilitate movement of materials and waste into and out of the Olympic Park. Temporary loading and unloading facilities are currently being explored with British Waterways. The waterways could be similarly used in the Legacy transformation and Legacy development phases.

Subject to further studies, waterborne transport may be feasible both during the Games and in Legacy. The former will be determined through the ODA's Transport Plan, which is being developed in conjunction with LOCOG's operational management plan. The latter will be brought forward through the LDA in conjunction with the Boroughs and other key stakeholders. Improved access to the water's edge, combined with a host of other infrastructure delivered for the Games will support a range of future transport, leisure and boating opportunities.

Recreation and relaxation in their many forms will also be supported through the landscape and infrastructure provided by the ODA. During the Games, particularly in the north of the Park, there will be a range of areas open to visitors to relax and enjoy the waterways. In Legacy the waterways will be capable of hosting mixed recreational uses from fishing to kayaking to simply strolling along the water's edge.

The new landscape and infrastructure delivered by the ODA will improve **connectivity** throughout the Park. Both visitor and maintenance access to the water's edge will be provided. Existing towpaths will be upgraded and towpaths created providing access to and along the waterways.

Safety and security adjacent to the water's edge will be of paramount importance.

The Security Strategy during Construction and the Games has been developed in consultation with key stakeholders. During these phases the waterways will be appropriately secured as necessary to minimise threat.

Barriers and guardrails adjacent to waterways will be minimised wherever safety permits in order to encourage access to the water's edge and support navigation uses. Ecological and quiet areas will be designed as an integral part of the Park.

Lighting adjacent to waterways will be proposed in the Lighting Strategy and supported by the Legacy Masterplan Framework and the Park's Management Plan. It is not envisaged that there will be permanent lighting adjacent waterways in the northern half of the park; however, depending on the nature of the proposed Legacy development, lighting may be appropriate in the south and along the River Lee Navigation. Consideration of ecology and in particular bats will be crucial, as will safety and security associated with promoting night time use of the waterways.

The principal areas of waterspace **ecology** in the Olympic Park are: the Wetland Bowl, bank restoration on the Waterworks River and City Mill River, Bully Point Pond, Channelsea Gorgeand and along the western bank of the Old River Lea. The broad strategy is to create wetland habitats at the water's edge on at least one bank of each watercourse. This will provide a mosaic for ecological connectivity for a range of species as set out in the Biodiversity Action Plan. Detailed proposals for planting will be brought forward through the Stage D landscape design, which will be submitted for planning in Autumn 2008.

Governance

The governance of the Olympic Park in Legacy is key to securing the future for its waterways. Management of the park in Legacy is still to be determined. The ODA and LDA are currently in discussions over how this will be taken forward and a business plan has been commissioned to commence this process. The Legacy body responsible for the Olympic Park is likely to have responsibility for management, operation and maintenance. Statutory stakeholders, the Olympic host boroughs and local communities will play key roles.

For the purpose of this waterspace masterplan, the waterways within the Olympic Park have been considered in terms of four principal systems: the River Lee Navigation, the River Lea, the Waterworks River and the Bow Back Rivers. These systems have been explored with regard to the six key themes of the waterways.

Executive summary

River Lee Navigation

The River Lee Navigation is the busiest and most active of the waterways. It has excellent connections with the wider metropolitan and national waterways network. The River Lee Navigation will provide strong north-south links to the Park. Old Ford Locks, at its southern tip, is a key heritage feature. During the Games the use of the River Lee Navigation will be very much dependent on the security and operational requirements for the Games, which are still being developed. However, it is envisaged that the River Lee Navigation will be a vibrant spectacle for those accessing the Park from the west. In Legacy the northern part of the River Lee Navigation will be dominated by the transformed IBC/MPC buildings, and consequently the waterfront use will be driven by the Legacy Masterplan Framework. Further south, the large Legacy development plot to the east will be prevalent, also playing a key part in the waterfront use. In addition to waterborne transport there will be a range of opportunities for recreation and leisure use along this waterway, and the well connected Old Ford Lock could become a hub of activity.

River Lea and Channelsea Gorge

The River Lea, Channelsea Gorge and Bully Point areas make up the largest green areas of the permanent Olympic parklands. A network of new pathways and linkages from the upper plateau to the waterside will enable close interaction with the water's edge. Wildlife will thrive in these areas; detailed proposals based on the Biodiversity Action Framework will be proposed through the Stage D Parkland Public Realm proposals. Games access to the water's edge will be maximised wherever operational and security requirements permit. There may be big screens and seating areas where people can relax and enjoy the riverside environment. In Legacy there may be opportunities to increase access to the water, introduce trip boat operations, and promote recreational uses such as kayaking and canoeing may be well suited to this part navigable stretch of river.

Waterworks River

The Stratford City Legacy development plot to the north, the Aquatics Centre and Legacy development plots to the south combine on the east bank of the Waterworks River to provide principal urban waterside environment in the Park. The low-level waterside walkway in front of the new flood defence wall will create a pleasant waterside path combined with the marginal aquatic plants. On the western bank, the existing towpath will be retained and access provided by ramps down from the upper plateau. During the Games the Waterworks River has the potential to be a busy and active waterfront with barges, operational and transport uses. In Legacy the potential for activity along this waterway can be explored further, and subject to flood risk, there are opportunities for boating uses.

The Bow Back Rivers

The Bow Back Rivers around the new main stadium have a mixture of uses. The western bank of the Old River Lea has existing riparian planting, which is being retained and enhanced. The eastern bank has an existing towpath, which will be retained, upgraded and access provided to the Main Stadium via ramps. The City Mill River sits between the new Stadium and the former Thornton Fields. To the south of the City Mill River, a soft landscape and water edge on the west bank will replace the dilapidated existing river wall. During the Games there will be opportunities along all of the Bow Back waterways to maximise waterborne activity and boating uses, including hospitality barges and floating restaurants, which would be accessible via the towpaths and ramps. In Legacy the waterways could be used for navigational, operational, recreational and leisure activities.

Delivery

Over the next five years the ODA will continue to work closely with the LDA, statutory stakeholders and others to ensure the successful delivery of the Olympic Games on time and within the allocated budget.

After the Games, the LDA will continue to implement the integrated development of the waterways and adjacent land uses in order to deliver a prosperous and sustainable future for the Olympic Park and the Lower Lea Valley.

Executive summary

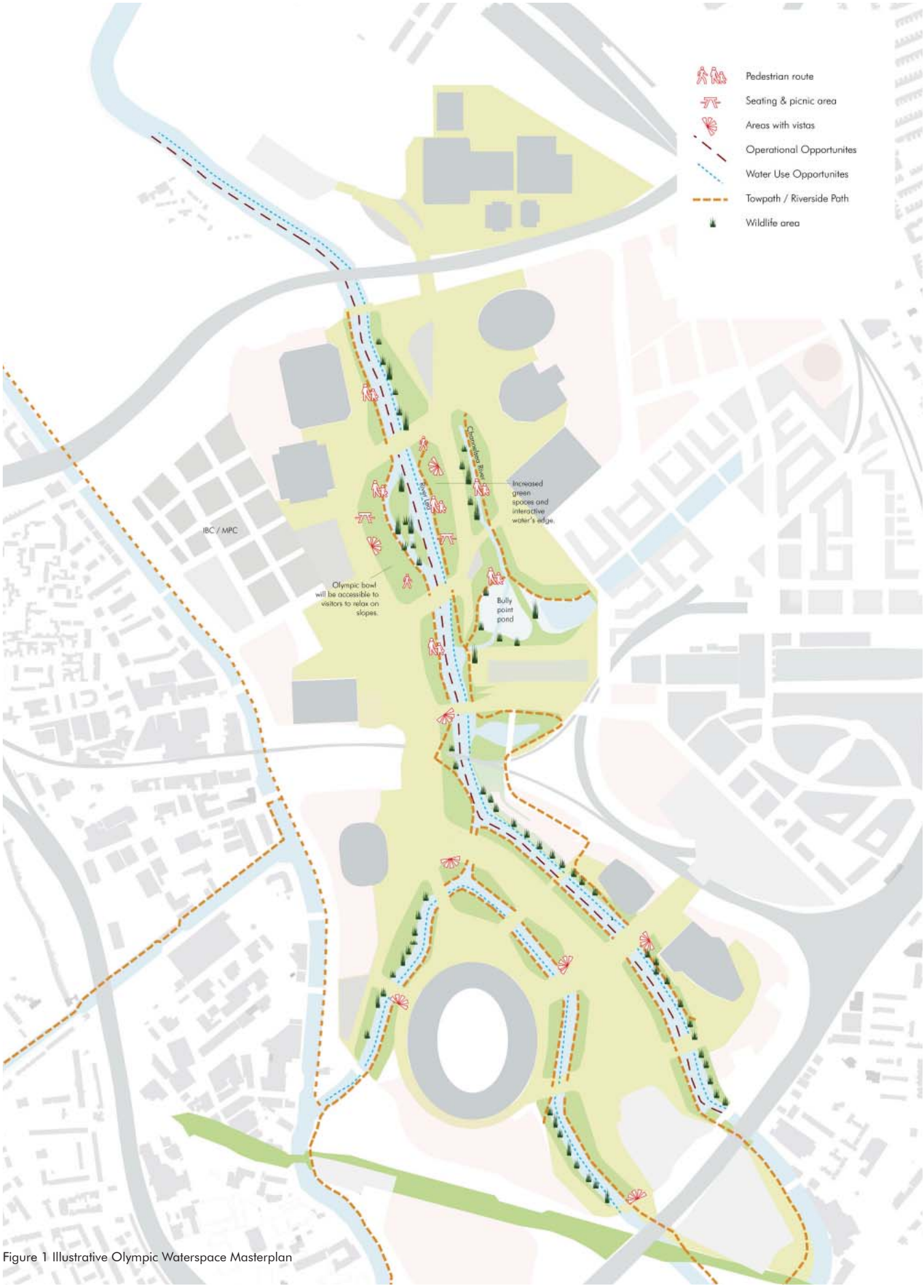


Figure 1 Illustrative Olympic Waterspace Masterplan

Executive summary

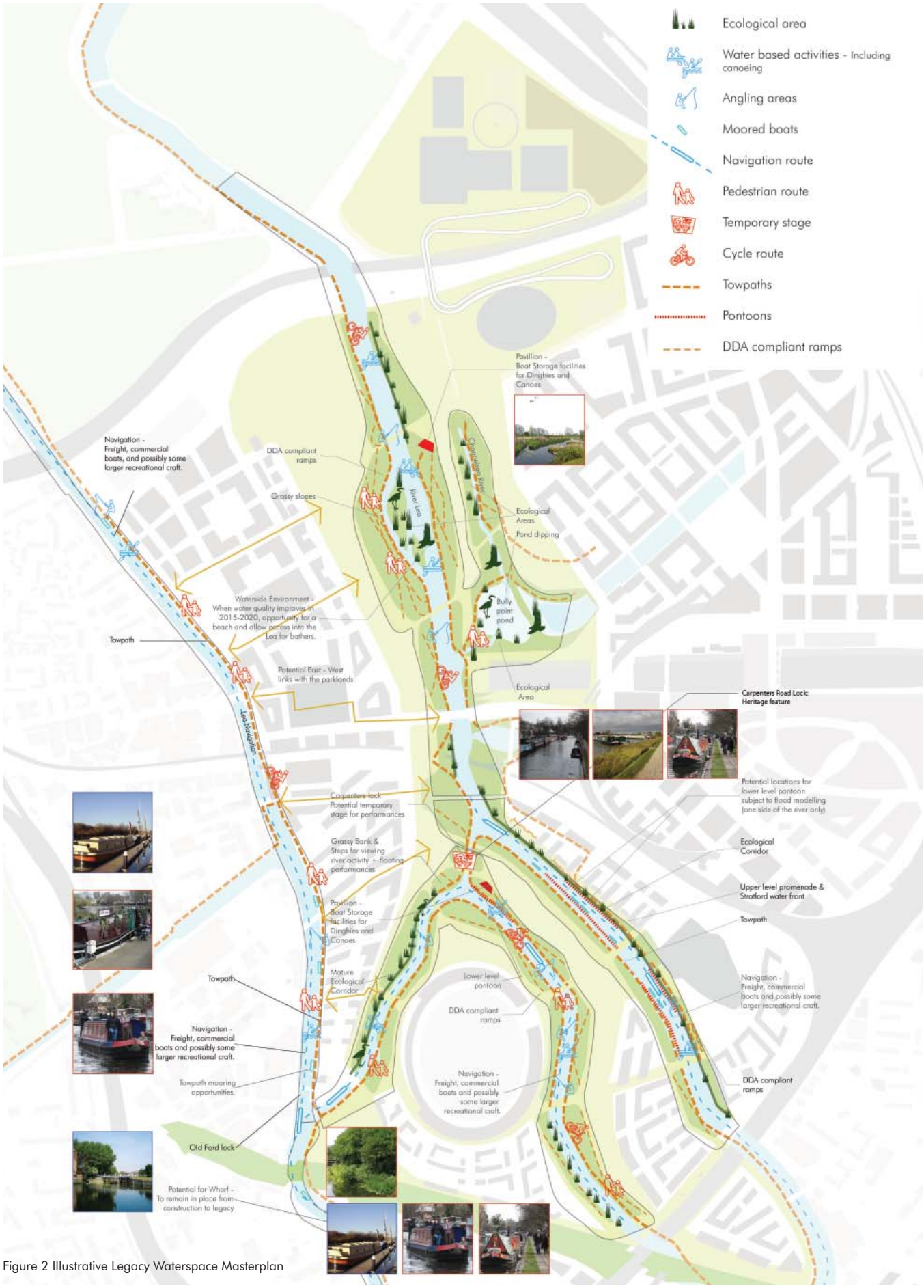


Figure 2 Illustrative Legacy Waterspace Masterplan

1 Introduction

1.1 Purpose

This Waterspace Masterplan has been prepared by the Olympic Delivery Authority (ODA) in response to Conditions SP.0.10 and OD.0.10 of the Site Preparation and Olympic and Legacy Facilities planning permissions.

The purpose of this Waterspace Masterplan is to address the role of the waterways and waterspace in the Olympic Park during the three development phases being implemented by the Olympic Delivery Authority:

- Construction of the Olympic Park;
- The Olympic Games; and
- The Legacy Transformation.

Together with the Urban Design and Landscape Framework (UDLF), this waterspace masterplan will provide a basis for detailed design of works in and alongside the waterways for the above phases.

After the Legacy Transformation has taken place, the Olympic Park will be handed over to the Legacy Authority for development. While firm proposals for the waterways in Legacy are yet to be developed, this Waterspace Masterplan considers potential opportunities for the Olympic Park Waterspace in Legacy. This includes examining the potential for integrated development of the waterways within the Olympic Park for commercial, environmental and recreational uses.

Detailed proposals for the waterways in Legacy will be submitted through the Legacy Masterplan Framework Planning Application, which will be prepared by the LDA.

1.2 Stakeholder consultation

The Waterspace Masterplan has been prepared in consultation with relevant statutory stakeholders, including:

- London Development Agency (LDA)
- London Thames Gateway Development Corporation (LTGDC)
- Lee Valley Regional Park Authority (LVRPA)
- British Waterways (BW)
- Environment Agency (EA)
- Natural England (NE)
- English Heritage (EH)
- Greater London Authority (GLA)
- London Organising Committee for the Olympic Games (LOCOG)
- London Waterways Commission (LWC)
- The four main Olympic Host Boroughs, namely:
  - Tower Hamlets
  - Hackney
  - Waltham Forest
  - Newham

The consultation process took place between October 2007 and March 2008 and included two stakeholder workshops in February and March 2008.

The first workshop focused on the six key themes of the waterways as set out in the agreed brief (character, use, access and connectivity, safety & security, ecology, governance). The purpose of this workshop was to obtain feedback from stakeholders on these key themes for the Waterspace Masterplan to be developed.

The second stakeholder workshop focused on the four principal water systems in the Olympic Park, with more detailed discussions taking place on the application of the six key themes on a site specific basis. Stakeholders were also consulted on the proposed actions.

1.3 Context

The Olympic Park will be a new piece of city in East London creating a world-class environment and destination that expresses the extraordinary diversity of the existing communities. It will be a major new asset for London and the United Kingdom and the catalyst for large-scale regeneration of an area which has been one of the poorest and most deprived in the UK. The Olympic Games will be a once-in-a-lifetime event. Thereafter, the area will continue to evolve and develop to create significant sporting, social, economic, cultural and environmental benefits for the local, metropolitan, national and international communities for decades to come. As set out in the Opportunity Area Planning Framework, the Olympic Park is also part of a wider vision to regenerate the Lower Lea Valley, East London and the Thames Gateway.

The Olympic Park will deliver social, economic and environmental value. Economic value will derive from the commercial and recreational use of the waterways, and Legacy development will benefit from the unique setting that the park and waterways provide. A range of commercial development opportunities will exist post-Games and these will be taken forward by the Legacy masterplanning team. Social value will derive from education, human experience, events, community engagement, local involvement, job creation, as well as from long-term benefits to health and well being. Environmental value will derive from the preservation and enhancement of natural resources and the contribution the parklands will make to ameliorate the effects of climate change, air quality and biodiversity in the city.

The Olympic masterplan has been developed to allow flexibility for Legacy development providing the basic infrastructure required for the Games, which can be transformed and added to in Legacy.

Central to the Olympic Park, and at its heart, are the Lea Valley waterways. They are a critical part of London staging an exceptional games; inspiring a spectacular visitor experience and developing a unified park.

In the northern half of the Olympic Park, the River Lea runs from north to south through the centre of the largest green space. The proposed Wetland Bowl will be linked to the Channelsea River and the proposed wetlands at Bully Point. South of Carpenter's Road, the waterways comprise the Waterworks River, City Mill River, and the Old River Lea. Forming a large stretch of the Olympic Park's western boundary is the River Lee Navigation, which provides connection between North London and beyond to Hertfordshire and Essex.

Each water system has its own distinct character that contributes to the Olympic Park's unique history and visual appeal. The waterways are a key part of the local landscape, heritage and environment and can provide a foundation on which to build a sustainable Legacy where people live, work, relax and play.

Figure 1.3.1. Aerial view of the Olympic Park during the Games, showing the River Lea and the Wetland Bowl

1.3 Context

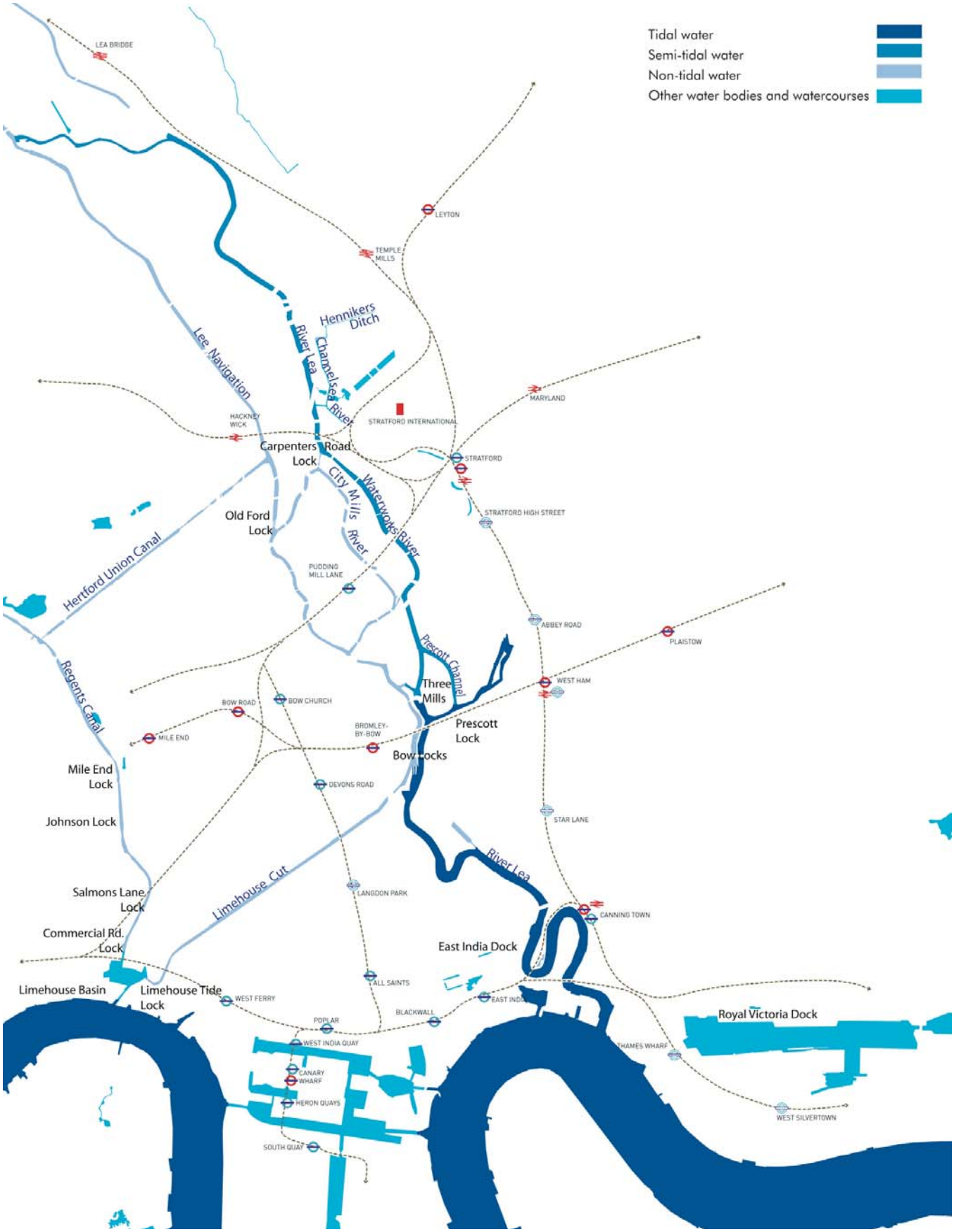


Figure 1.3.2. Lower Lea Valley Waterways Connections

1.4 Planning context

This Waterspace Masterplan has been prepared in response to Planning Conditions SP.0.10 and OD.0.10 of the Site Preparation and Olympic and Legacy Facilities Permissions, which state that:

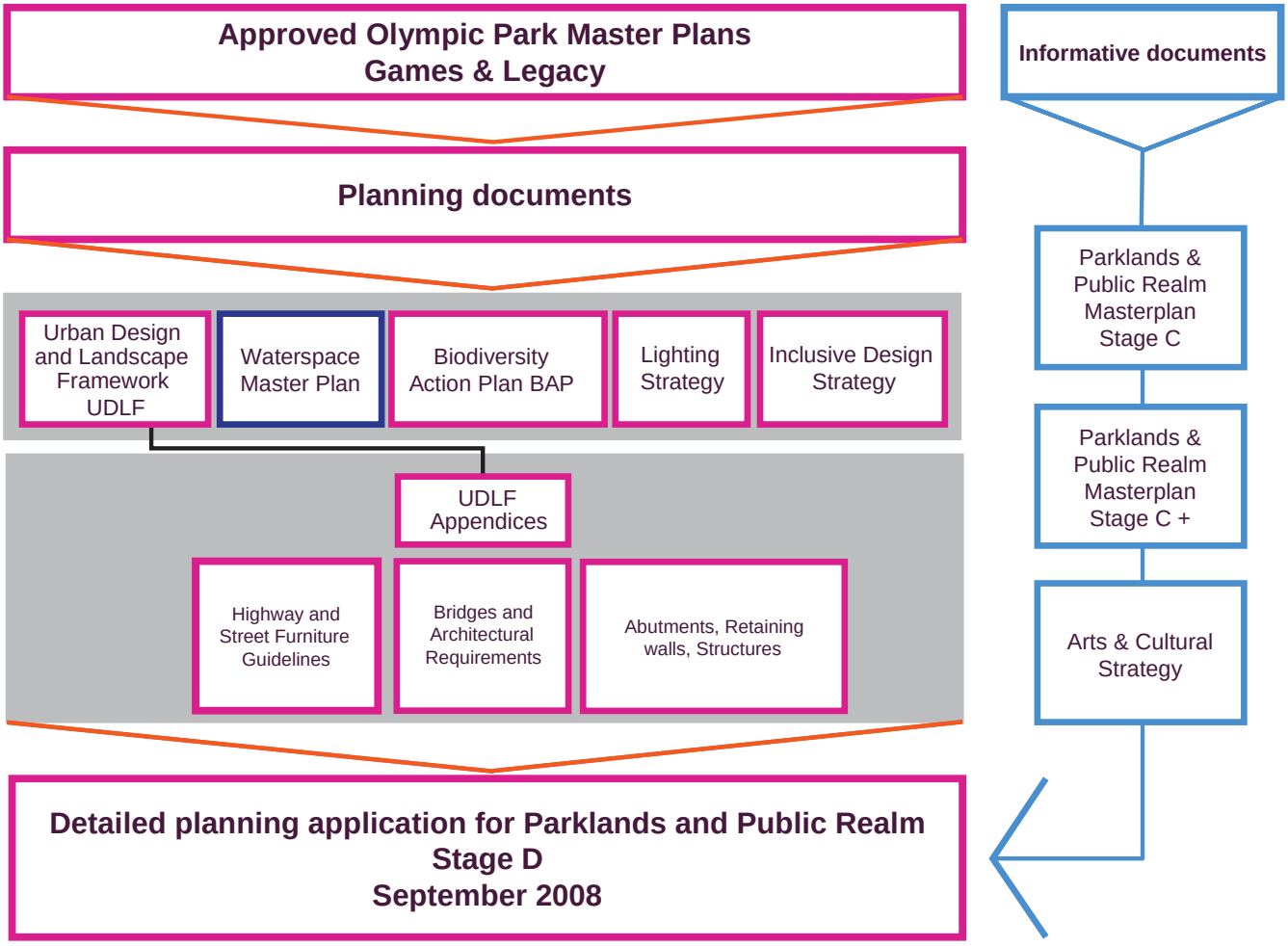
" Before 31 March 2008, a Waterspace Masterplan for the Olympic Development and Games shall be submitted to the Local Planning Authority for approval. Before 30 September 2007, a Brief for the Masterplan shall be submitted to the Local Planning Authority for approval. The Masterplan shall, at a minimum, examine the potential for integrated development of the waterways within the Site for commercial, environmental and recreational uses and, together with the Urban Design and Landscape Framework, provide a basis for detailed design of works in and alongside the waterways. This shall take account of the available surveys of river geomorphology and siltation, ecology and river works already approved."

The brief for the Waterspace Masterplan was submitted by the ODA to the Planning Decisions Team on 31 October 2007 and approved on 21 February 2008.

From the diagram shown below it can be seen that the Waterspace Masterplan is one of a suite of planning documents, which include the UDLF and its appendices, the Biodiversity Action Plan, and the Lighting Strategy, which will inform the planning application for the parkland and public realm. In parallel and separate to the planning process, the Parklands and Public Realm design is being developed to Stage D.

The planning documents will combine with the Parklands and Public Realm design in order to deliver the RIBA Stage D Parklands and Public Realm Reserved Matters Planning Application package in September 2008. Key Stakeholders will be consulted as part of the Stage D design process.

Figure 1.4.1. The diagram below illustrates how the Waterspace Masterplan relates to other Planning documentation for the Olympic Park.



1.5 Policy context

This Waterspace Masterplan has been developed with regard to a wide range of Policy and Guidance documents. (For a full list of relevant planning documents see Glossary and references).

Key documents which are described further in the following text include:

- The London Plan (2004) and Further Alterations to the London Plan (2008)
  - Policy 4C Blue Ribbon Network
- The four London Borough Development Plans
- National planning policy Guidance

- Regional planning Guidance
  - East London Green Grid
  - Lower Lea Valley Opportunity Area Planning Framework

In addition, the Waterspace Masterplan has taken into account the Olympic, Paralympic and Legacy Transformation Planning Permission.

The London Plan - Blue Ribbon Network

The Blue Ribbon network is included in Section 4C of the London Plan. It is a key document in establishing the parameters for the waterways in the Olympic Park and will be relevant to all aspects of the design.

The Blue Ribbon Network includes the Thames, the canal network, the other tributaries, rivers and streams within London and London's open water spaces such as docks, reservoirs and lakes. The broad principles of the Blue Ribbon Network can be summarised as:

- Protecting and enhancing the multi-functional nature of the Blue Ribbon Network to support uses and activities that require a water or waterside location;.
- Protecting and enhancing the Blue Ribbon Network as part of the public realm and London's open space network, and promoting sport, leisure and education.
- Exploiting the potential for water borne transport, leisure, tourism and waterway support industries, and capturing the investment potential of the network through appropriate waterside development and regeneration.
- Ensuring that the Blue Ribbon Network is accessible for everyone and its cultural and environmental assets are used to stimulate appropriate waterside development in areas of regeneration and need.
- Increasing use of the Blue Ribbon Network for transport of people and goods; and
- Protecting and enhancing the biodiversity and landscape of the Blue Ribbon Network and having regard to the need for water supplies, sewage disposal and the risk of flooding.

The Blue Ribbon Network strategy contains 34 policies aimed at meeting the above principles. The overall policy context is that 'water must be the starting point' when considering waterside developments, and 'uses and activities that need a waterside location must be prioritised'.

The policies set out in the Blue Ribbon Network have been instrumental in the development of the Olympic Park Masterplan to date and will continue to influence the development of the Legacy Masterplan Framework. The policies require high quality design adjacent to the canals and navigable rivers and also support moorings in appropriate locations.

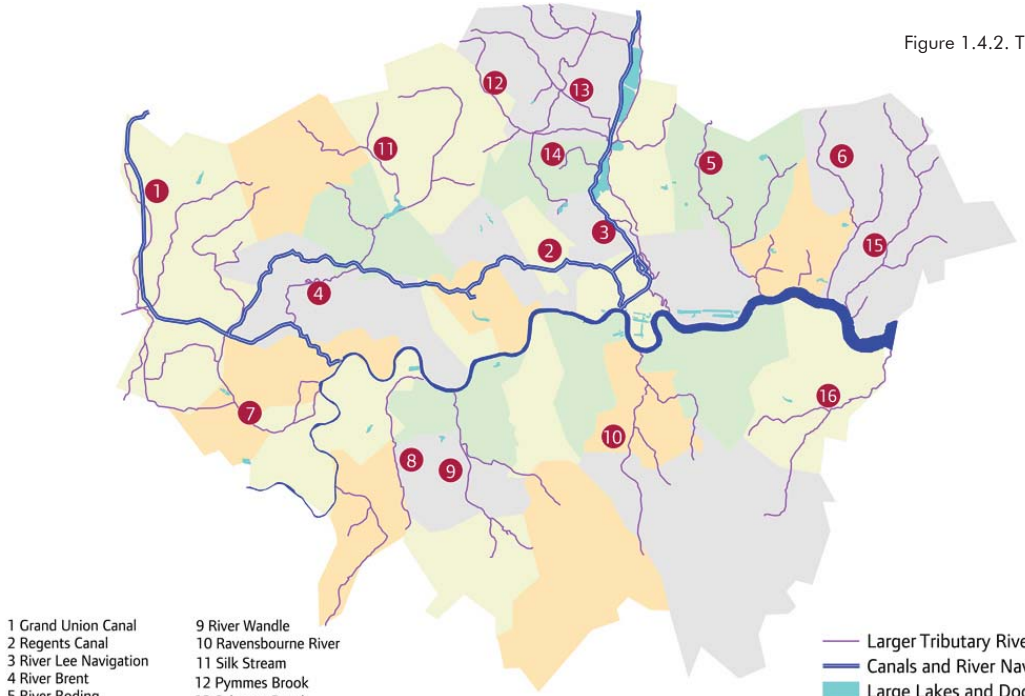


Figure 1.4.2. The Blue Ribbon Network's main waterways in Greater London

Source: Environment and Scientific Services, British Waterways
Note: Not all tributaries are shown

1.5 Policy context

Local Borough Policy

The Development Plan relevant to the proposals for the Olympic Park waterways comprises the development plans of four London Boroughs: Waltham Forest, Newham, Tower Hamlets and Hackney. There are a number of planning policies for each borough which relate to development on riverside and canal side development. Key waterways related policies for the boroughs are summarised below.

LB Newham UDP

Under the Newham UDP the Council will negotiate to secure along river and canal sites, a landscaped buffer strip along the water's edge, incorporating a public walkway and where appropriate a cycleway.

The council will secure enhancements to the environmental quality and local character of the Thames policy area and other waterside settings in the borough, by permitting development that:

- Addresses the waterway and its frontage and does not turn its back on it;
- Through its relationship with the waterway, open spaces and other buildings, provides focal points for public recreation;
- Contributes towards the improvement in the quality and provision of open space along the river;
- Contributes towards the conservation and enhancement of the ecology of the river and its environs; and
- Contributes to the vitality of the river and its frontage by including uses which help promote the use of the river for recreation and transport.

LB Tower Hamlets UDP

Under the Tower Hamlets UDP the Council will:

- Permit proposals for moored vessels and structures in or over river, canal or Dock areas if they are essential to the movement of goods or passengers by water, or lead to an increase in the recreational use of the Rivers, Docks, Canals or Basins, or are residential moorings;
- The Council will protect existing waterways and the river frontage for nature conservation, biodiversity, and appropriate recreation, transport and tourism purposes; and
- Promote transportation of freight by water and rail, and will encourage innovative measures to make freight movement more sustainable.

In addition, all development on or adjacent to the Blue Ribbon Network, including the Thames Policy Area, must respect its water location and should particularly:

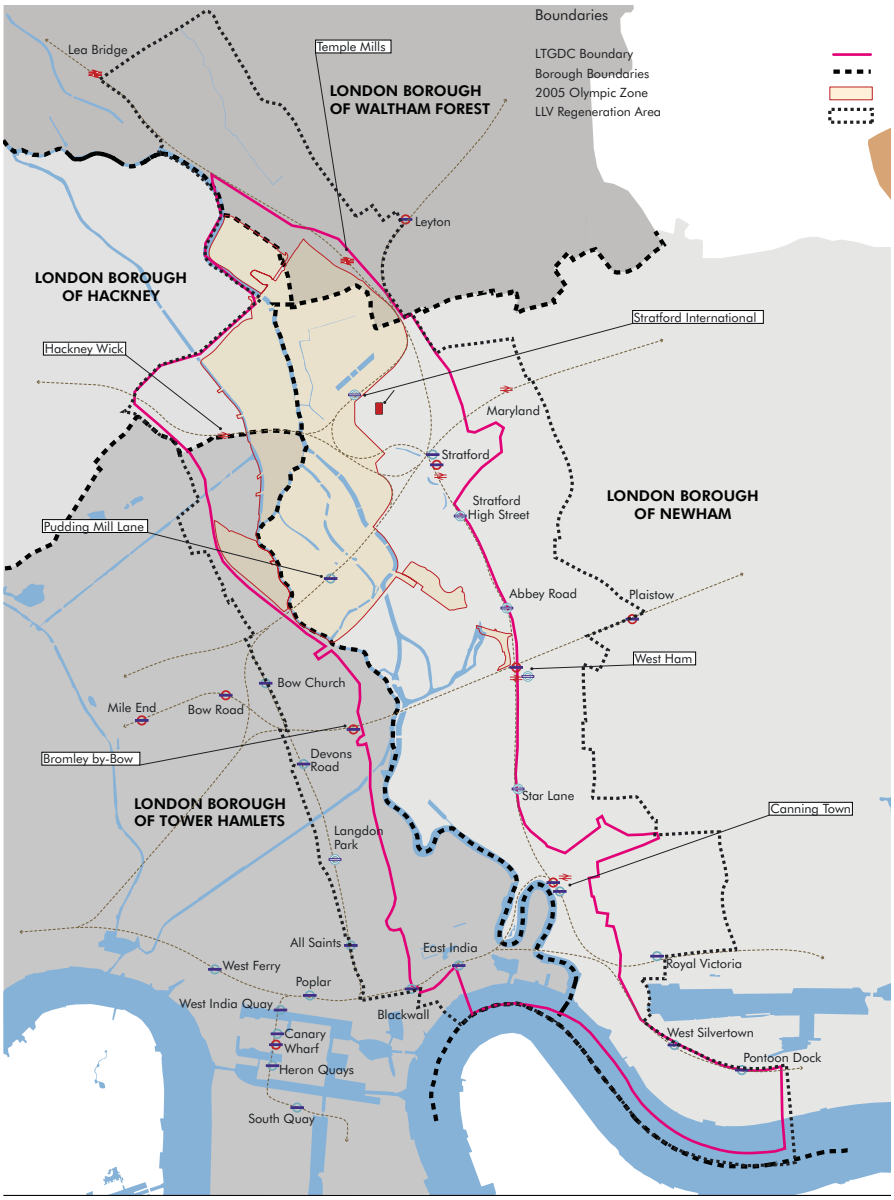
- Include a mix of uses appropriate to the water space, including public uses and open spaces;
- Respect waterway heritage;
- Enhance opportunities for views across and along waterways;
- Ensure appropriate access for all to the water and opportunities for enjoyment of the water; and
- Provide for suitable flood defences.

LB Hackney UDP

Under the Hackney UDP, the Council will take account of proposals that consider long distance and local views, wildlife habitats and opportunities created for public access.

The Council will support proposals for water-related uses which contribute to the traditional character of the Regent's Canal and River Lee Navigation

Figure 1.5.1. Opportunity Area Planning Framework



1.5 Policy context

The Council may permit residential moorings subject to other policies in the Plan if it is satisfied:

- That they are located on the non-towing side of the canal close to amenities and public transport; and
- That adequate and managed service facilities are provided for each mooring.

The council will favourably consider proposals which support leisure and freight movement on the Regents Canal and River Lee Navigation.

The council will not normally permit development which results in the loss of open water areas.

The council will pursue opportunities for public access to water-based and water-related leisure activities and will seek to maximise the potential of open water areas for leisure and/or nature conservation pursuits, commensurate with the need to safeguard the quality of water supplies.

LB Waltham Forest UDP

The small part of the Olympic Park which is in LBWF is in areas designated as Metropolitan Open Land (MOL), comprising Eton Manor Sports Ground and Temple Mills, and employment land to the north, adjacent to the Lea Valley Line. Policies ENV4 and ENV5 seek to protect the open character of the MOL for public and private open space, open-air recreational facilities, woodland and informal space, allotments and nursery gardens and nature conservation. These policies seek to retain the open nature of the areas of MOL as well as the diversity in their rural character.

The East London Green Grid

The image below shows the GLA's Green Grid Vision: a network of open spaces, river and other corridors connecting urban areas to the river Thames, the Green Belt and beyond to provide attractive, diverse landscapes and green infrastructure managed to the highest standards for people and wildlife. Development proposals in the LLV should help establish a green grid for the Lea Valley through:

- Providing new and/or enhancing existing public open spaces, reducing areas of deficiency;
- Providing public access along watercourse and green areas, linking to the wider path and cycle route network;
- Providing a range of formal and informal recreational uses and landscapes, promoting healthy living;
- Providing new and/or enhancing existing wildlife sites, reducing areas of deficiency;
- Managing water collection, cleansing and flood risk with multi-functional spaces; and
- Mitigating and adapting to the impacts of climate change.

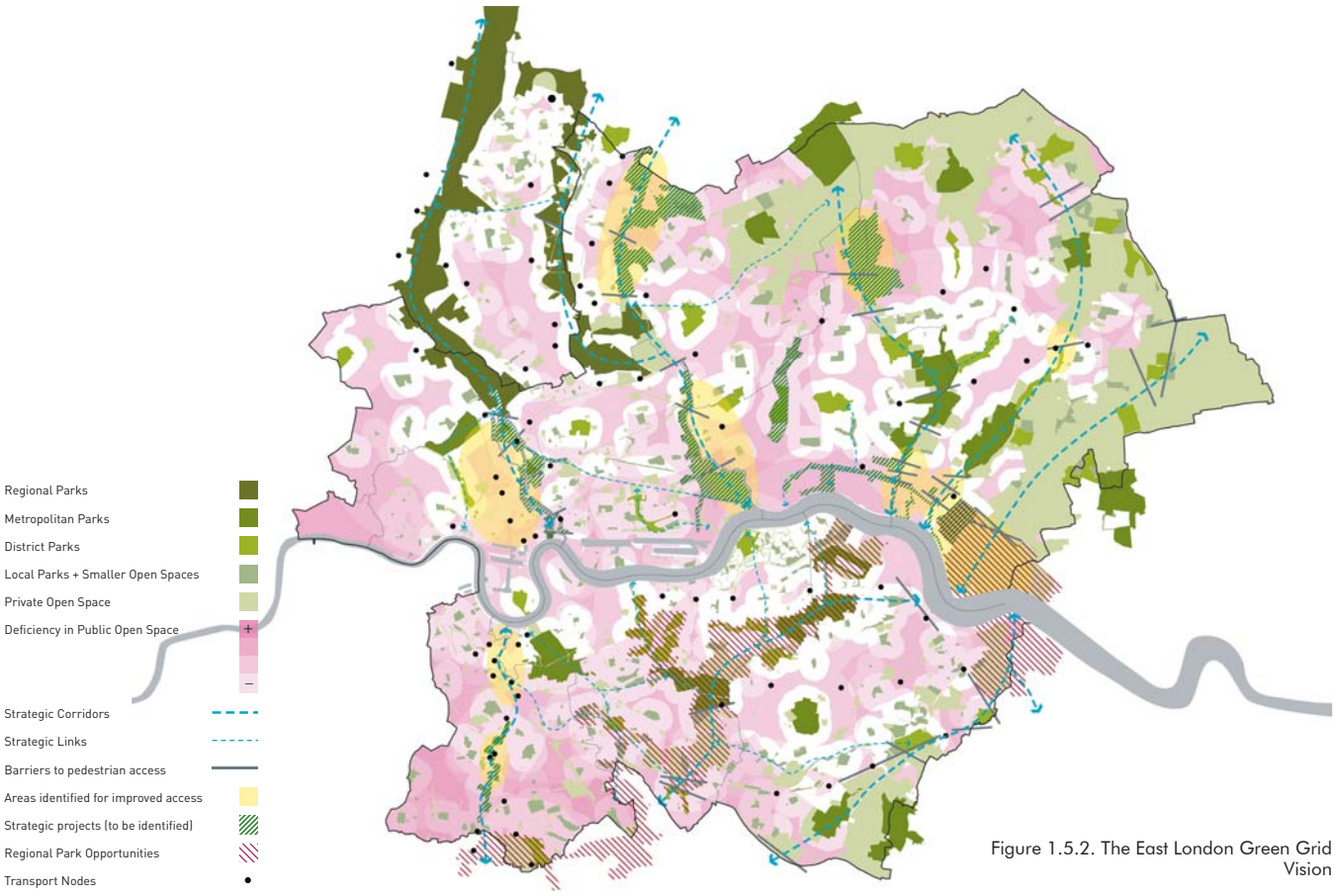


Figure 1.5.2. The East London Green Grid Vision

1.5 Policy context

Opportunity Area Planning Framework for the Lower Lea Valley.
The Opportunity Area Planning Framework (OAPF) provides strategic planning guidance for the Lower Lea Valley (LLV) and was prepared by the Greater London Authority in close consultation with the London Development Agency (LDA), Transport for London (TfL), the four London Boroughs of Hackney, Newham, Tower Hamlets and Waltham Forest, the London Thames Gateway Development Corporation (LTGDC) and the Olympic Delivery Authority (ODA). It covers the period to 2016.

The Framework is a tool to visualise the implementation of London Plan policy and to aid negotiation, consultation and implementation. It also establishes a strategic planning context for the sensitive management of land-use change in the LLV so as to promote and improve the profile of the area, and the quality of life for people who may travel through, use or visit or live or work across the Valley.

The Lower Lea Valley – A Vision for Change sets out the LTGDC's Regeneration Vision for the Lower Lea Valley, backed up by planning guidance in the OAPF. Part of this vision was for a Water City which can be summarised as follows

"The Water City: strengthening and adding to the network of waterways and parkland spine, creating an amazing new urban realm that will be unique in London. 250 ha of new and improved public open spaces linking the Lea Valley Park to the Thames "

Policies of relevance state that development proposals in the LLV should:

- Seek to realise the potential of the waterways and open spaces to create amazing places;
- Not compromise the flood defence role, transport potential, landscape character and ecological value of the river corridor and associated floodplain of the LLV should be supported;
- Help establish a green grid for the Lee Valley;
- Seek to protect and enhance important wildlife, biodiversity and ecological asset and character;
- Improve the network of road links, public transport links and cycle/ pedestrian networks running east-west and north-south through the Valley without compromising the value of the river and associated corridor;
- Promote sustainable urban drainage systems as one of the techniques for managing long-term flood risk;
- Protect and improve water quality and associated wildlife habitat;
- Seek to implement the Mayor's Air Quality Strategy and achieves reductions in pollutant emissions;
- Achieve an exemplary level of water efficiency;
- Be designed with sensitivity to its unique local environment, in particular its landscape character, environmental assets, and historic buildings and places; and
- Anticipate and ensure that suitable longer term management arrangements are put in place when new infrastructure is provided.

1.6 Framework

As set out in the approved brief, the Waterspace Masterplan seeks to address six key themes of the Olympic Park waterways, as described below:

- Character
- Use
- Access and Connectivity
- Safety and Security
- Ecology
- Governance

These themes have been developed through consultation with stakeholders and provide a mechanism for linking the broad range of issues associated with waterways into six simple categories.

For each key theme the three development phases being implemented by the ODA are considered, as well as the opportunities for Legacy, which will be explored in the Legacy Masterplan Framework.

Recognising that the Legacy opportunities listed in this report are not exhaustive, Games and Legacy transformation works are being framed to ensure that they support future Legacy development and uses.

Section 2 of this Masterplan provides a strategic overview of each key theme in relation to the Olympic Park waterways.

Section 3 of this Masterplan focuses on the four principal waterways within the Olympic Park on an area-by-area basis, describing proposals during the three ODA development phases (Construction, Games & Legacy Transformation) and potential opportunities in Legacy. The four principal waterways are illustrated by the plan to the right.

Section 4 explains how the content of this masterplan will be delivered.

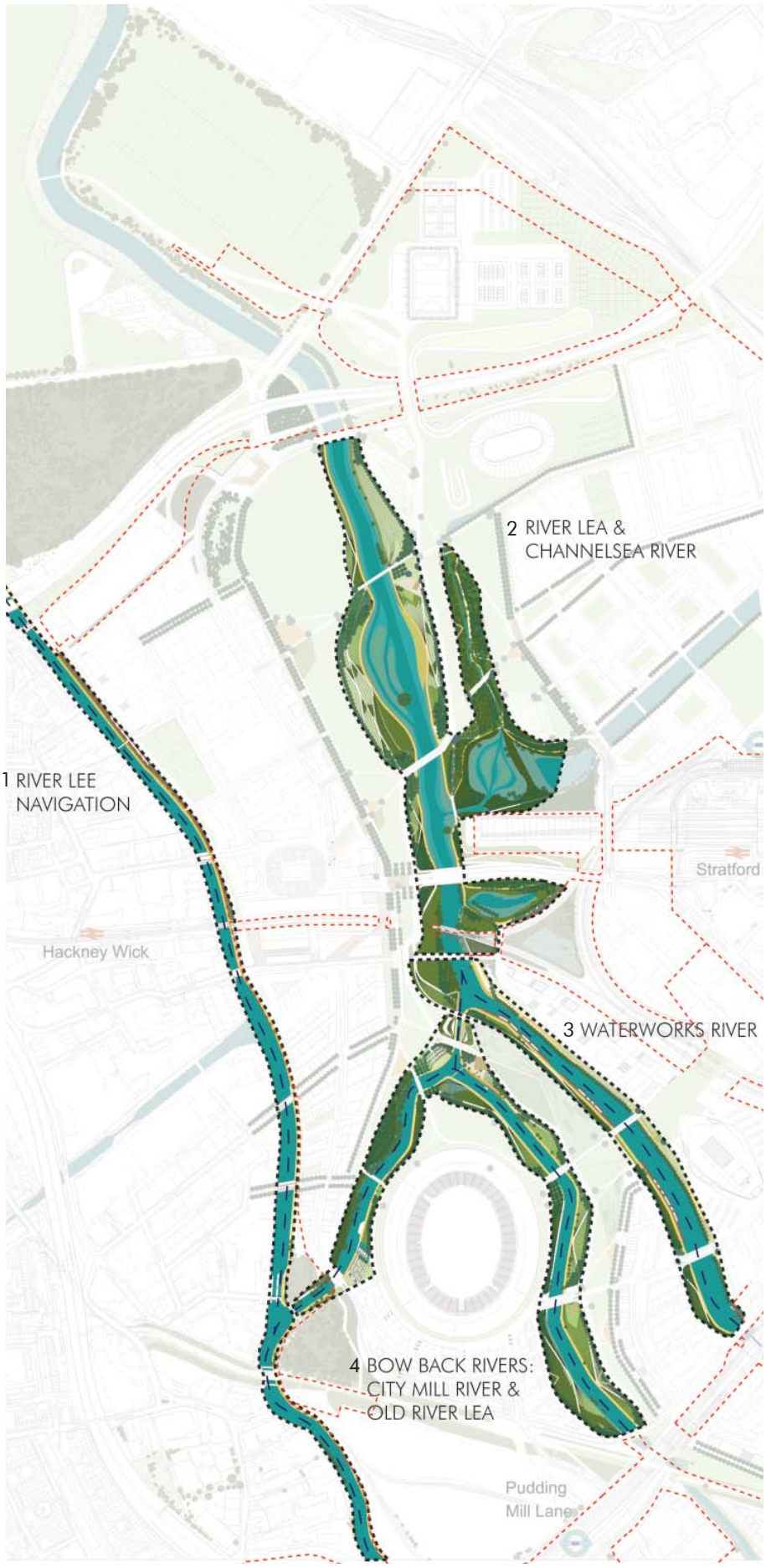


Figure 1.6.1. Plan showing the four principal waterways within and adjacent to the Olympic Park with the site boundary shown in red

2 Six key themes

2.1 Character

2. 1.1 Historic Character

The social, economic and environmental history of the Olympic Park provides an inspiration for the development under way. Its development is an opportunity to build on the sense of place that exists and create a new identity through a mix of past, present and future.

The Olympic Park is rich in industrial heritage and has supported centuries of human activity involving the manufacture and transportation of goods. These helped to form and subsequently left their mark on the site and the waterways. The area has also functioned as a hub for utilities serving London and as such has accumulated a complex network of pipes and cables. Since the end of the Industrial Revolution the site has been the home to a diverse range of businesses and users from circus workshops to wig makers. The plan opposite shows some of the historical uses and infrastructure which help to define the character.

The landscape character of the Olympic Park is clearly rooted in its industrial past and the waterways are its most distinctive feature. At present significant stretches of the waterways are inaccessible and travelling through the area offers only glimpses of the water. Running through the centre of the Park it is essential that they are restored and enhanced in order to provide access to the water's edge.

In the northern half of the site the River Lea has soft naturalised, steeply sloping banks. These banks are unstable (formed from centuries of dumping industrial and domestic waste and the Blitz rubble), contaminated and inaccessible. The old man-made drainage ditch, now known as the Channelsea River runs through a steep sided narrow valley, whose banks are thick with vegetation making it difficult for the public to access.

In the southern half of the Olympic Park the River Lea splits into the City Mill and Waterworks rivers, and the Old River Lea. The remaining industrial archaeological features date from 19th and 20th century, although many have become overgrown with vegetation from years of neglect. Artefacts such as cast iron bridges, abandoned weirs, locks, mooring posts and towpaths are some of the key items which will be retained (and restored where possible). Below are photographs of some of these artefacts that will be retained.

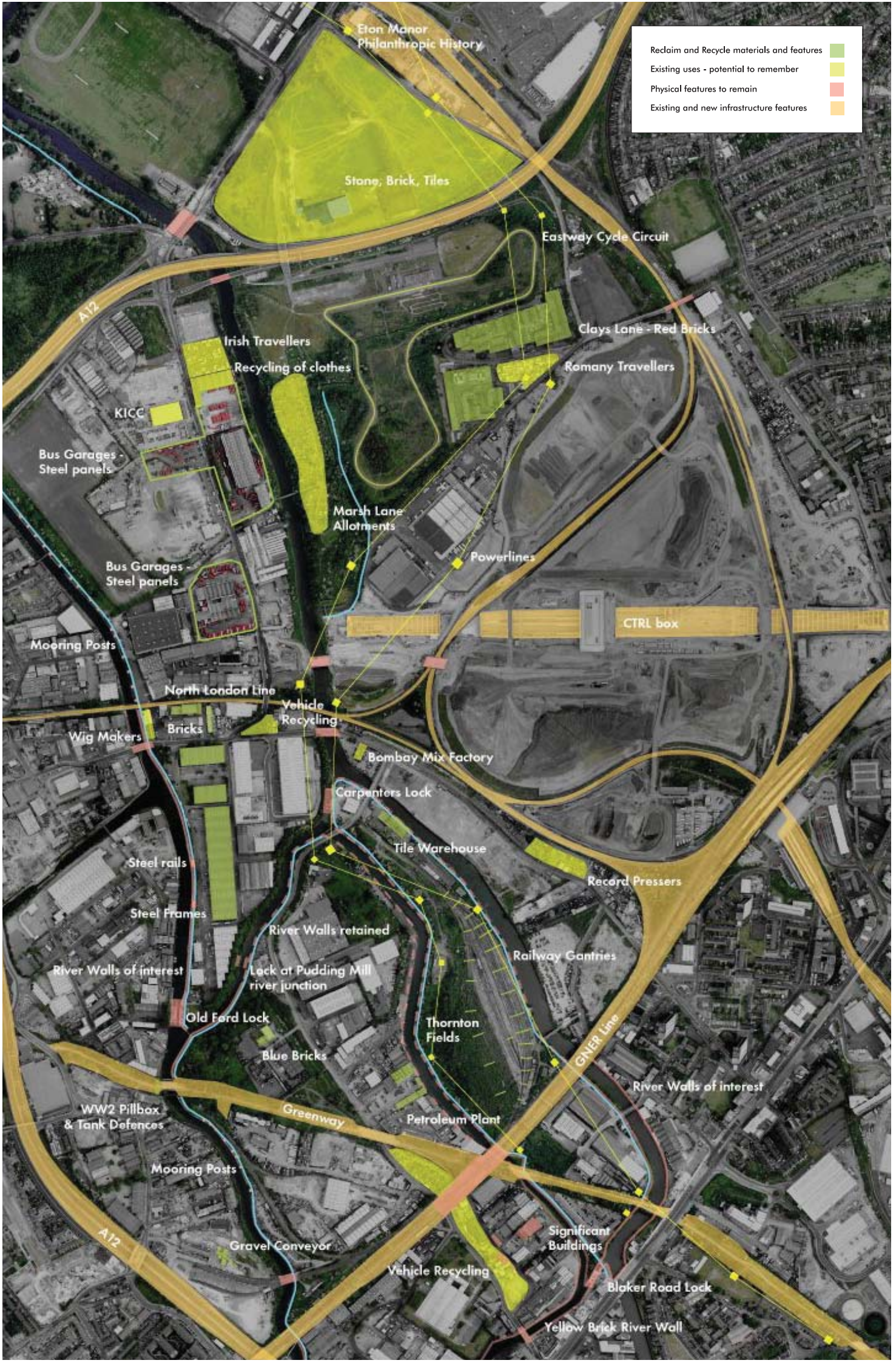
The two distinct north and south character areas will be enhanced to emphasise the transition from the canalised, urban, post-industrial waterways in the south to the more rural, open, naturalised waterways in the north.

The River Lea has also historically served a flood relief function. There have been a small number of reported flood events which have occurred since records began over 150 years ago. The greatest of these floods occurred in 1947. The flooding affected nearly all the main rivers in the south of England. It was caused by snowmelt followed by rainfall, unique in volume and persistence. Following the 1947 floods, flood mitigation measures were introduced to prevent a repeat event and defence structures were put in place in the Lower Lea.

Opposite:
Figure 2.1.4. Plan showing specific elements which influence the character of the Olympic Park.

Below:
Key Waterways Heritage artefacts to be retained

Left: Figure 2.1.1. Junction Lock on Old River Lea
Middle: Figure 2.1.2. Old Ford Lock
Right: Figure 2.1.3. Carpenters Lock


Reclaim and Recycle materials and features
Existing uses - potential to remember
Physical features to remain
Existing and new infrastructure features
Eton Manor Philanthropic History
Stone, Brick, Tiles
Eastway Cycle Circuit
A12
Irish Travellers
Recycling of clothes
Clays Lane - Red Bricks
Romany Travellers
KICC
Bus Garages - Steel panels
Marsh Lane Allotments
Powerlines
Bus Garages - Steel panels
CTRL box
Mooring Posts
North London Line
Vehicle Recycling
Wig Makers
Bricks
Bombay Mix Factory
Carpenters Lock
Tile Warehouse
Steel rails
Record Pressers
Steel Frames
River Walls retained
Railway Gantries
River Walls of interest
Lock at Pudding Mill river junction
Old Ford Lock
Thornton Fields
Blue Bricks
GNER Line
River Walls of interest
WW2 Pillbox & Tank Defences
Greenway
Petroleum Plant
Mooring Posts
A12
Gravel Conveyor
Significant Buildings
Vehicle Recycling
Blaker Road Lock
Yellow Brick River Wall

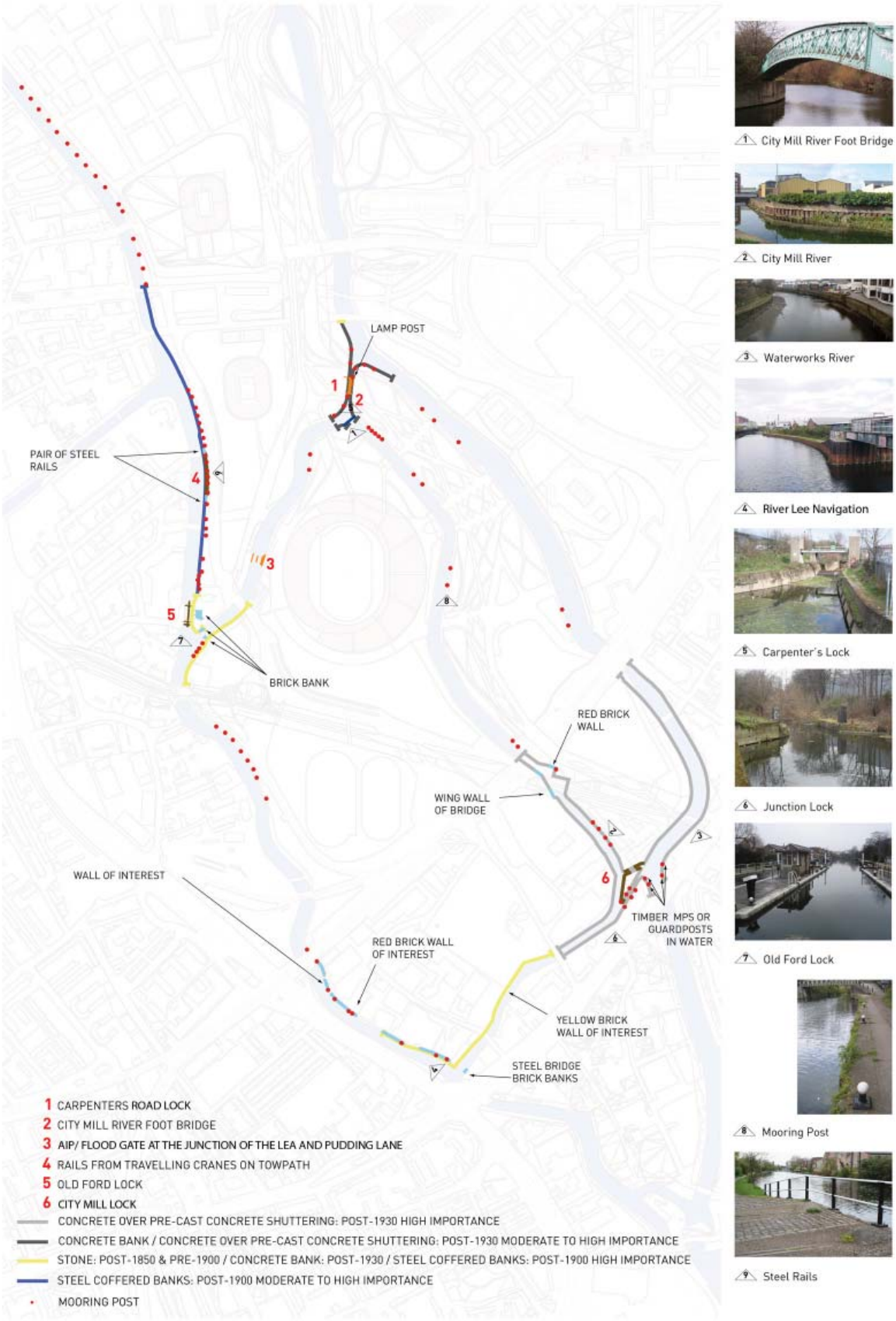


Figure 2.1.5. Plan showing waterways related heritage infrastructure to be retained

2.1 Character

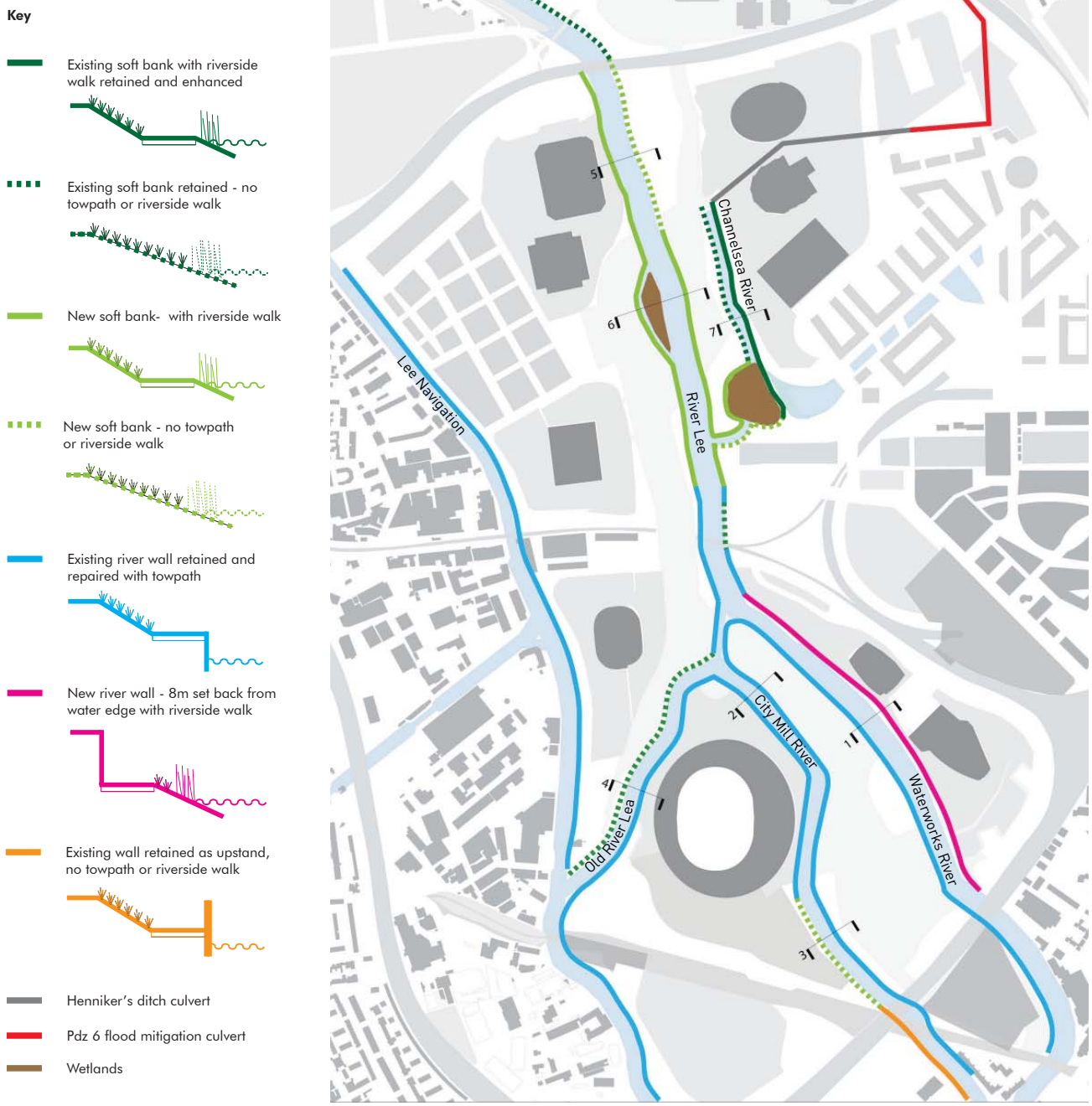
2.1.2 Design Proposals

The Olympic Games is a catalyst for change and regeneration in East London. The challenge for the ODA and its partners is to deliver such change quickly and to budget while retaining the historical character of the area, and in the process provide a permanent landscape for the Games that allows for Legacy development in the future .

The character of the waterways will be a function of their use, and visa-versa, during the Olympics and end use in Legacy. The former, including much of the permanent landscape and infrastructure through the centre of the Park, is being delivered by the ODA. The latter will be determined through the LDA's Legacy Masterplan Framework..

The Olympic Park masterplan as approved through planning in August 2007 was developed in consultation with statutory stakeholders to address a range of differing and sometimes

Figure 2.1.6. Plan and indicative sections showing proposed river edge treatments for the Olympics.



2.1 Character

conflicting priorities, expectations and objectives. The masterplanning process resulted in the following principal features as illustrated by the plan on the previous page:

North Park

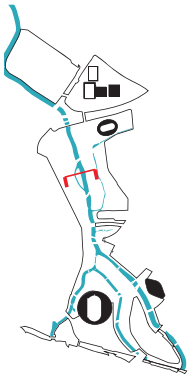
- Soft banks retained and enhanced on both sides of the River Lea opening up the landform and enabling access to the water's edge;
- Wetland Bowl carved out of the topography providing space for both ecology and recreation (refer to illustrative section below); and
- Bully Point Pond retained and re-landscaped for flood storage and ecology and to link in with the Stratford City surface water attenuation proposals.

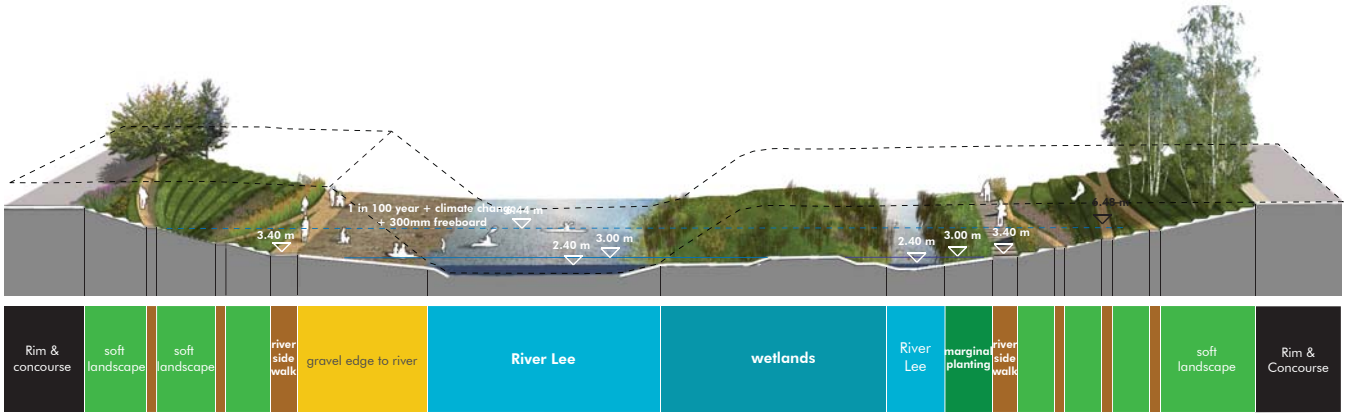
South Park

- New river wall set back 8m from existing river edge on the east bank of the Waterworks River;
- Existing hard river edges retained on the west bank of the Waterworks River, both banks of City Mill river and the east bank of Old River Lea, where structurally acceptable; and
- Existing soft edge retained to the north-west bank of Old River Lea.
- The softening of the edges on the western bank at the southern end of the City Mill River.

The design intent at the planning stage was to include a soft landscaped bank on at least one side of each watercourse, and a towpath on at least one side of navigable waterways in the south as exists currently. This approach was driven by the objectives to provide both ecological continuity down the watercourses and pedestrian connectivity along the towpaths. This broad approach is in keeping with consultation with British Waterways and the Environment Agency during the planning process.

A key feature of the Olympic Park and one that will create significant character change to the waterways, is the difference in topography between the upper concourse and the lower river edge level. This topography generates a connected, but two tiered landscape with the lower tier comprising a series of riverine valleys and the upper tier comprising the relatively flat platforms required to deliver the Olympic Games. This topography responds to a number of key design drivers such as bridge clearances, accessibility gradients and interfaces with existing infrastructure. The topography has been harnessed in





Below:
Figure 2.1.7. Illustrative section of the River Lea at the Wetland Bowl

2.1 Character

the emerging landscape proposals to achieve the distinctive character areas in the parklands.

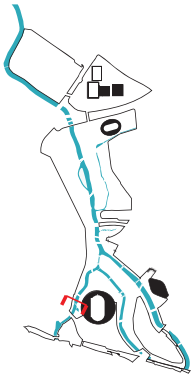
Since planning permission was granted the parklands and public realm proposals for the Olympic Park have been progressed to RIBA Stage C. Key stakeholders have been consulted on the development of the Stage C proposals. The principal features of the Stage C proposals are outlined in the UDLF and described in detail in the Stage C proposals report published in February 2008. Reference should be made to these documents for further details. However, in summary, these documents describe the current proposals for the following:

- The waterways running the length of the parklands;
- The dramatic existing and proposed topography;
- The Concourse, which is a vast hard landscape accommodating up to 250,000 visitors in Games mode but which is substantially reduced in Legacy;
- The Rim at the junction of the valley landscapes and the plateaus;
- The Promenade linking the Lee Valley Path through the parklands;
- The bridges and their abutments which blend with the landscape and provide the essential connectivity across the waterways, roads, railways and other infrastructure;
- The vegetation which combines with topography, aspect, soils and water to create a rich biodiversity;
- A network of fully accessible (DDA compliant) primary footpaths and cycle paths providing excellent connectivity to and through the parklands and connecting with a secondary and tertiary network; and
- A variety of potential uses and activities.

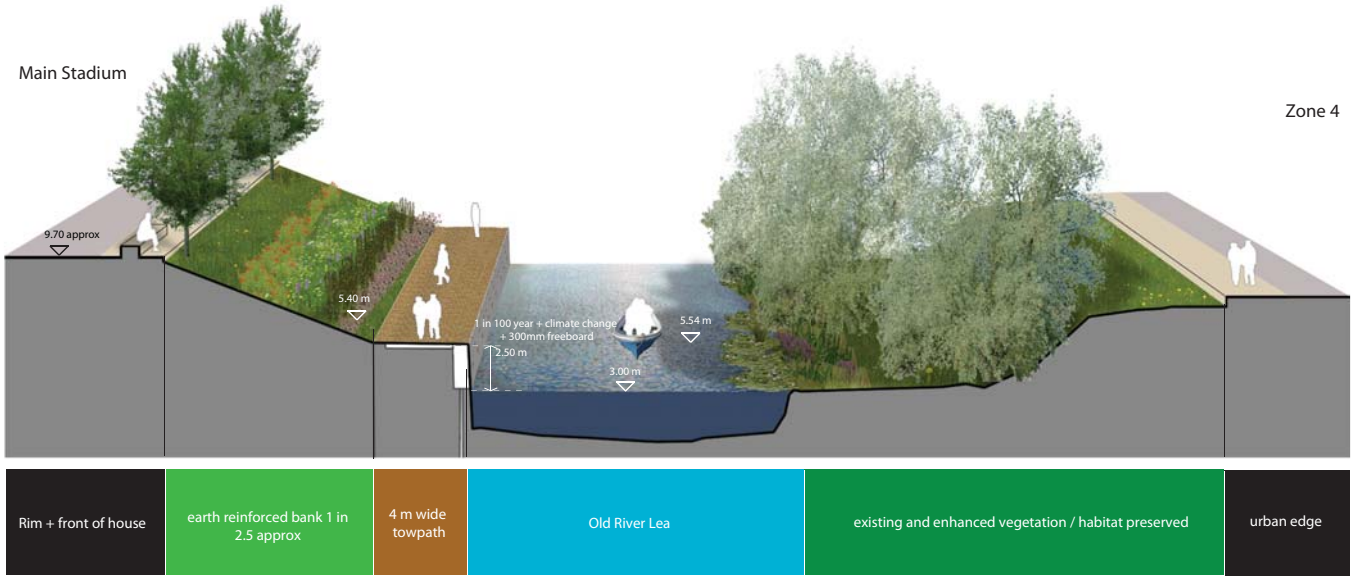
The riverside pathways set at low level in the north park and adjacent to the Aquatics Centre on the east bank of the Waterworks River will enable much closer interaction with the waterside in these areas. However, it is important to recognise that when high fluvial river flows combine with high tide levels, and even during periods of high fluvial flow and low tide, there is a risk that these pathways will flood. The detailed design of the pathways and hence their use and character will need to respond to this.

The towpaths are currently envisaged as self-bound gravel with granite setting around bridges and locks.

Proposals for the Olympic Stadium have integrated the need for steel sheet piling on the west bank of the City Mill River and the east bank of the Old River Lea. This is a change from the planning application proposal.



Below:
Figure 2.1.8. Illustrative section of Old River Lea



2.1 Character

Existing river walls to be retained will not generally be faced for the Games. However some localised improvement works may be carried out if necessary.

The character of the waterways will provide the setting for the spectacle of the Games and continue into Legacy.

The potential for vibrant, active waterways and water frontages is a key feature of the Olympic Park. Opportunities to use the waterways will be further explored and maximised as the operational arrangements are made for the Games and Legacy are finalised.

In Legacy the character of the River Lea and the wetland areas in the north of the park will be founded on the permanent park landscape delivered for the Games. In the south of the Olympic Park and along the River Lee Navigation the character will be dependent on the nature of the Legacy development undertaken along the river frontages, however, the valleys, towpaths bridges and abutments will remain in place retaining the waterways character created during the Games and Legacy.

The character of the four principal waterways are explained in more detail in Section 3 of this Waterspace Masterplan.

Below:
Figure 2.1.9. Artists impression showing how the Olympic Bowl could look in Legacy.

2.2 Use

The waterways within the Olympic Park serve a range of functions including:

- Navigation;
- Freight;
- Transport;
- Recreation;
- Education;
- Flood relief;
- Waterways related development; and
- Ecology.

As described in the following subsections, these uses will continue through the three phases of the Olympic Park development (construction, Games, transformation) and into the Legacy beyond. Ecology is covered separately in section 2.4 of this report.

The emphasis on waterways activity and use, encouraging people to use boats, and promoting navigational use of the rivers and canals, could offer a focus for a new local waterways economy.

More detailed descriptions of use for the four principal waterways are provided in section 3.

Left: Figure 2.1.10. Business Barges - a similar type could moor on the Navigable waterways of the Olympic Park.

Right: Figure 2.1.11. Combining moorings with an ecological strip. A similar arrangement could be used in the Olympic Park .

Source: British Waterways

Source: British Waterways

2.2 Use

2.2.1 Navigation

During Construction the waterways within the Olympic Park will be closed to general navigation for safety and security. However, the River Lee Navigation will remain open.

During the Games, the Olympic Park waterways will be secured and general navigation prohibited. Waterways leading into the Olympic Park will be secured and access controlled a few months in advance of the Games for security purposes. A specific risk assessment shall be carried out for navigation along the River Lee Navigation and depending on the outcomes of this it is possible that navigation may also be prohibited along this watercourse during the Games.

During the Legacy transformation, it is intended that the permanent park landscape and its waterways be opened for general navigation as quickly possible. However this will need to be managed in conjunction with the potential transport use of the waterways for Legacy transformation. The ODA will work closely with British Waterways during this period to explore opportunities for permitting navigation as soon as practically feasible after the Games.

In Legacy the Waterworks River will be navigable south of Carpenters Road Lock, benefiting from the range of new infrastructure such as towpaths, bridges and lighting provided by the Olympic Park development. Subject to construction, operational requirements and an appropriate flood risk assessment there may be opportunities for floating visitor moorings in Legacy.

Specific proposals for new moorings and other navigation infrastructure will be progressed by co-ordinating the construction transport and operational requirements of the Olympics with the emerging Legacy Masterplan Framework. Consultation with British Waterways and the LDA will be carried out during the course of the Olympics development to identify opportunities where navigation infrastructure required for the Games could be retained and utilised in Legacy.

Below: Figure 2.2.1. Photographs of houseboats moored in Springfield Marina. A similar arrangement may be possible on the Olympic Park waterways .

2.2 Use

2.2.2 Freight Transport

The Olympic Park is connected via its navigable waterways to the River Thames, west London and the north of England. This presents considerable opportunities in terms of freight movement as there is the ability to deliver goods to almost every part of the Olympic Site direct from the water. In line with the ODA's Sustainable Development Strategy and the Section 106 agreement associated with the planning permission for the Olympic Park, the ODA is seeking to achieve at least 50% of construction material by weight to be delivered by rail and/or water.

Transport of materials by water will be facilitated through completion of the Prescott Lock structure, which is currently under construction by British Waterways. Prescott Lock is due to become operable from Autumn 2008. The ODA is currently working closely with British Waterways and materials suppliers in order to promote deliveries by water and this will continue during the course of the construction phase.

Opportunities to use the waterways will be explored and maximised as the operational arrangements for the Games develop by LOCOG.

The infrastructure necessary to use the waterways for freight and materials transport during the construction phase is currently under consideration. Two potential wharfs have been identified, one on the River Lee Navigation and one on the Waterworks River. These are indicated on the plan below. Subject to further investigation it is expected that these would accommodate up to 100 tonne and 350 tonne barges respectively. The River Lee Navigation would not require significant dredging however investigations have shown that some dredging may be required along Waterworks River the details of which are still being reviewed.

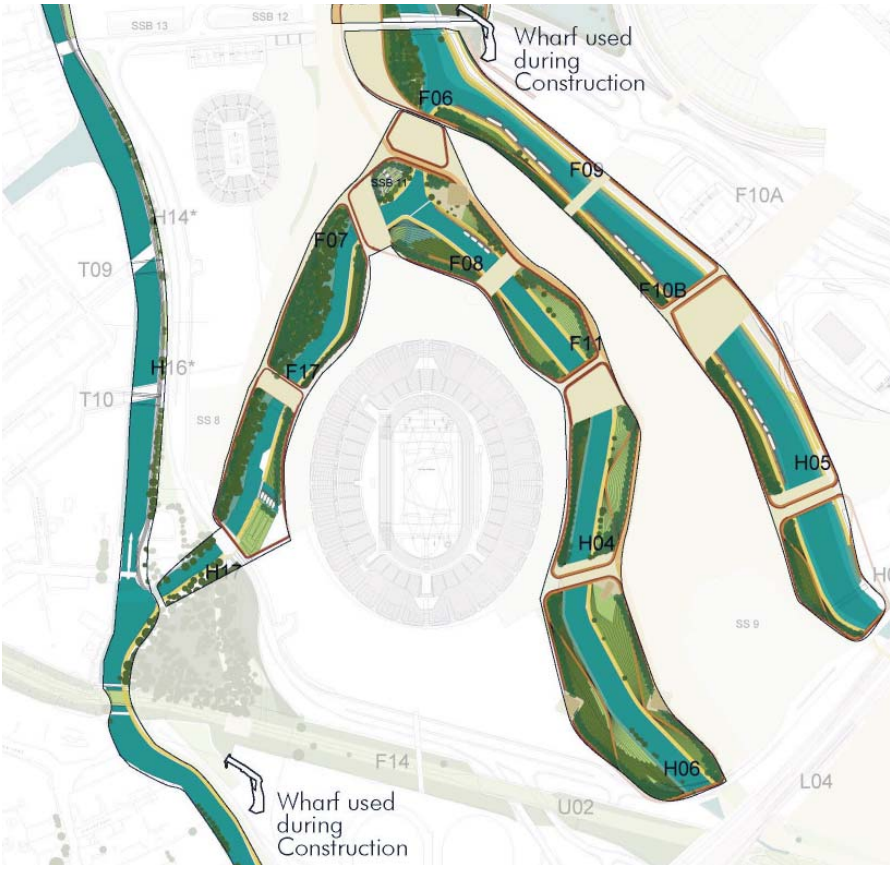
During the Legacy transformation it is envisaged that the waterways will be used for a range of purposes including the removal of temporary venues, bridges, structures and demolition material (where it cannot be used within the Olympic Park), as well as the delivery of materials for the transformation works.

The ODA and the LDA will work with British Waterways to identify opportunities where infrastructure for freight and material transport could be retained and utilised in legacy.

Opportunities for delivering biomass fuel to the CCHP are currently being considered.

Left: Figure 2.2.2. Construction barge in use on the Regents Canal.

Right: Figure 2.2.3. Plan showing possible locations for wharves during construction



2.2 Use

2.2.3 Passenger Transport

Promoting the Lea Valley waterways for transport is a key objective of the OAPF and other planning and policy documents. With the links to the Thames and national waterways there is significant potential for the waterways to be used for active transport purposes.

During the construction phase transport along the waterways will primarily be limited to freight and bulk materials as described in Section 2.2.2. However opportunities to transport construction personnel by water are also under consideration.

The role of the canal/waterway transport services to the Olympic Park during the Games is being reviewed by ODA Transport, British Waterways and LOCOG.

ODA Transport is working with TfL, British Waterways, the relevant local authorities and trade representatives to define the role that bus, coach, taxi and river and canal services will play to deliver the transport strategy.

The viability of four passenger transport routes to the park from the following locations is currently being considered:

- Limehouse Basin;
- Greenwich Pier;
- Tottenham Lock; and
- Kings Cross.

Games time opportunities must be considered as part of the internal transport strategies for the Games, which will be an integral part of the LOCOG operational planning.

Use of the waterways for transport during the Legacy transformation and in Legacy need to be linked to the forthcoming Legacy Masterplan Framework, and to local, regional and national transport initiatives. These are subject to ongoing discussion between key stakeholders and the boroughs and are beyond the scope of this report. However potential opportunities are covered in Section 2.3.

Figure 2.2.4. A waterbus moored at Little Venice

2.2 Use

2.2.4 Recreation

The Olympic Park waterways provide a wealth of opportunities for activity, relaxation and leisure. Promoting access to the waterways for navigational and recreational use are key objectives, however an integrated strategy is required to balance these needs against environmental objectives to provide areas for wildlife.

During construction only the River Lee Navigation will remain open and used for recreation and navigation. Local communities currently use the River Lee Navigation for canoeing and other boating activities. The channel is also well use by canal boats.

During the Olympic Games the waterways and their associated valley landscapes in the north of the Park could be used by visitors to relax, have picnics and enjoy the public realm outside the venues. It is expected that visitors will be able to walk along the riverside pathways around the Wetland Bowl and Bully Point and enjoy the landscape and ecology within these areas. In the south of the park, around the main stadium waterways, hospitality barges could be moored adjacent to the existing towpaths. Access to the towpaths in the south of the Park is likely to be controlled for crowd management and safety and security reasons due to the narrower towpath corridors and the 2-3m drop from the towpath to the water level. The towpaths may be appropriate for operational use such as moving staff and goods between the different venues.

For Legacy it is important to consider how the Olympic Park could support a wider range of recreational activities associated with its waterways including:

- Sport e.g. rowing
- Boating, canoeing, kayaking
- Angling
- Walking, Cycling
- Relaxing
- Socialising e.g. at riverside bars/ restaurants

There is significant potential in the Olympic Park for angling. The River Lea is in fact a historical fishery. Good angling facilities are not onerous and do not necessarily exclude other water users and are often complimentary to ecology through habitat and biodiversity. Potential angling sites could be provided at appropriate points along all the main waterways within the Park.

Water quality is a constraint to recreational use of the waterways and the successful implementation of the EU Water Framework Directive will be critical in facilitating human interaction with the water. Funding, leadership and engagement with the local communities will be essential in promoting formal recreational use of the waterways and these could be addressed through a park management strategy for example.

The waterways infrastructure and landform delivered by the ODA will provide a platform for a range of recreational activities to be realised and taken forward by the LDA and/or the Legacy body.

Possible recreational opportunities for the four principal water systems are presented in Section 3 of this report.

Left: Figure 2.2.5. Cafe over Little Venice Canal. There will be opportunities for waterside bars and cafes in Legacy.

Middle: Figure 2.2.6. Angler at Broxbourne - with improvements in water quality, more anglers are expected to use the waterways.

Right: Figure 2.2.7. Coracle on the River Lee Navigation - there are opportunities for similar small-scale boats in the Olympic Park.

Source: LVRPA

2.2 Use

2.2.5 Education

The waterways offer a huge opportunity for providing an educational resource in a range of areas, from ecology and nature based education, to learning about history, local heritage and waterways navigation.

The Wetland Bowl and Bully Point Pond wetlands offer many opportunities for pond dipping, bird watching and reptile spotting. These areas could be an educational resource for school children of many ages to come and learn about native flora and fauna.

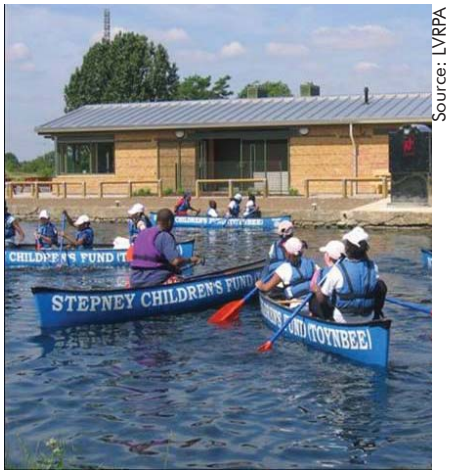
Many of the reclaimed materials and artefacts of the industrial heritage of the site will offer the opportunity to tell an important story about the history of the Lea Valley and its role within the Industrial Revolution and as a commercial trade centre during the height of the British Empire. The lock structures and reclaimed materials used in the landscape could each tell a story as part of an overall heritage education strategy.

The waterways could also provide a resource for waterways learning, for example through kayaking or skills within the waterways industry.

Below Left: Figure 2.2.8. Bird Watching would be possible in the wetland areas of the Olympic Park.

Below Centre: Figure 2.2.9. The Waterside Centre in Tottenham. There are opportunities for a similar type of water based community facility to be formed in the Olympic Park.

Below Right: Figure 2.2.10. Swans on the River Lee Navigation. Birds and animals offer engaging ways to educate children about nature.



Source: LVRPA

2.2 Use

2.2.6 Flood Conveyance

The Olympic Park serves a vital flood risk management role within the Lower Lea Valley.

In accordance with PPS 25 a flood risk assessment was submitted with the main planning application. This demonstrates that the Olympic Park development has no adverse impact on flooding within the assessment area. Overall there is a net benefit to the area due to the flood mitigations provided within the Olympic Park such as the wetlands and the Henniker's Ditch culvert which provides reduced flood risk as far as Canning Town.

During construction, flood risk will be dependent on the extent of works undertaken within the channels combined with any associated landform or infrastructure works. Such works are being monitored throughout the construction. An ongoing process of flood risk modelling is currently in operation, and communication with the EA is being carried out through the planning consultation process in line with the Code of Construction Practice. An objective of the construction programme is to construct the flood mitigations within the Olympic Park early as this will further reduce flood risk on and off site.

During the Legacy transformation and in Legacy flood risk will be managed through additional modelling and mitigation where necessary. A Strategic Flood Risk Assessment will be carried out as part of the Legacy Masterplan Framework.

Figure 2.2.11. Prescott Lock. The Prescott Lock structure is currently under construction by British Waterways..

2.2 Use

2.2.7 Legacy Development Platforms

As illustrated by the plan below, Legacy development plots adjacent to the waterways are located as follows:

- East of the River Lee Navigation;
- South of the main stadium;
- Zone 3
- South of Zone 2; and
- North of Zone 1.

Other areas adjacent to waterways are generally designated as parklands in Legacy, so any proposed waterside development needs to reflect this.

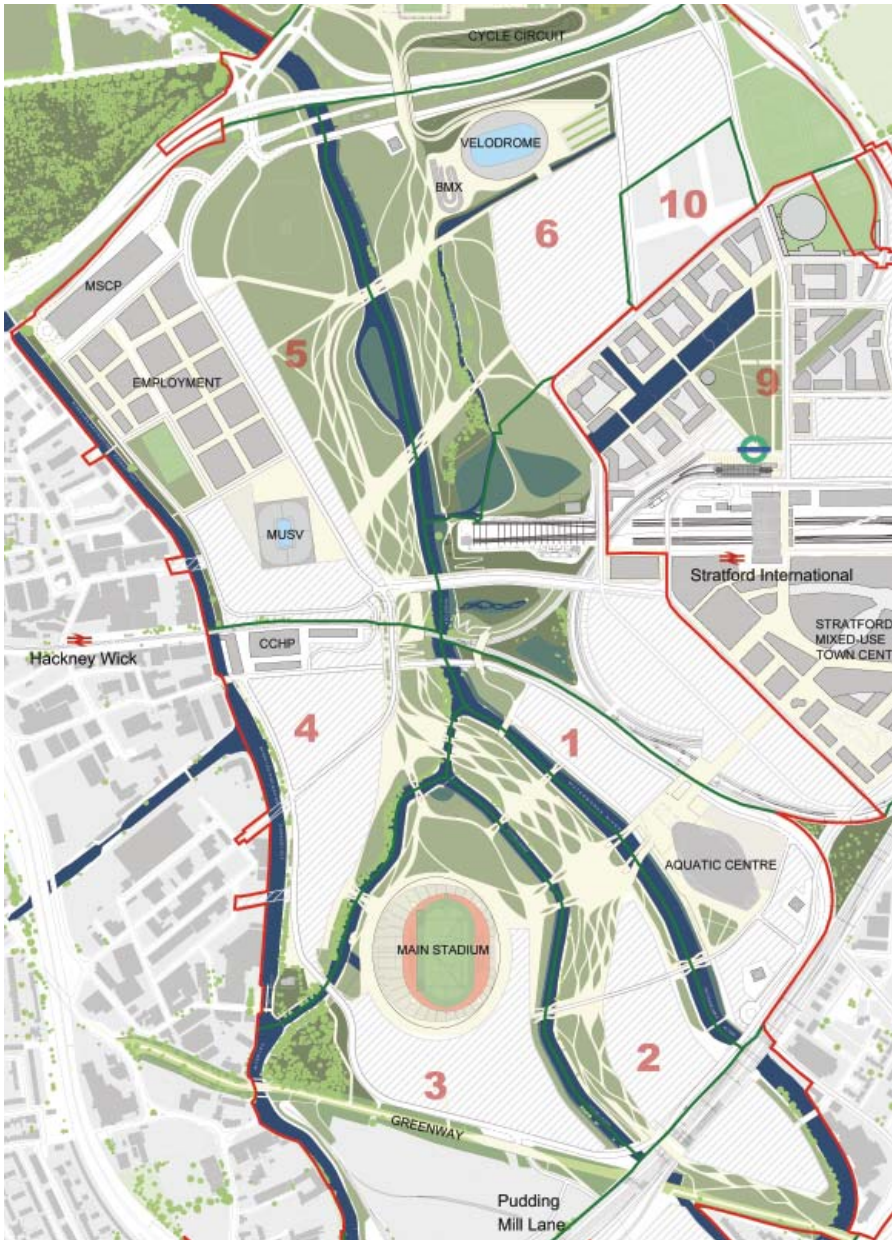
The OAPF sets out the planning policy compliant development density figures for the Olympic Park Legacy development plots. These were used in development of the Environmental Impact Assessment and Transport Assessment for the Olympic Games Planning Application.

As has been the case throughout the Olympic park masterplanning process, a key challenge will be to balance commercial considerations with stakeholder objectives at all levels of planning policy, in particular, the London Plan's Blue Ribbon Network.

The masterplan has flexibility to accommodate a range of opportunities for small waterside businesses in keeping with the potential uses identified in Section 2 of this document. These could include, amongst many others, boating yards, canoe hire, water taxis, ecological education centres, angling clubs, infrastructure for angling and cafes etc. Some of the opportunities and possible locations for these facilities are described in Section 3. However these will be tested through the Legacy. Masterplan Framework.

To promote water-based activity and transport, it will be important to provide the associated waterways related infrastructure required to supply and maintain watercraft. Such provision could include wharfs, slipways, moorings, riverside utilities, boatyards, chandleries, fuelling points, lighting and access points. Proposals for these will be brought forward as part of the Legacy Masterplan Framework.

Below: Figure 2.2.12. Olympic Park Legacy Transformation Planning Application Masterplan showing development plots as blank areas



2.3 Access and connectivity

New infrastructure delivered by the ODA will significantly improve connectivity along and across the waterways in this part of East London.

Fourteen new permanent bridges will be built over the Olympic Park waterways, dramatically improving pedestrian connectivity from west to east. Currently the waterways act as a barrier. Bridges have been designed with sufficient width between abutments to prevent adverse flood impact and with adequate clearance for navigation and towpath access.

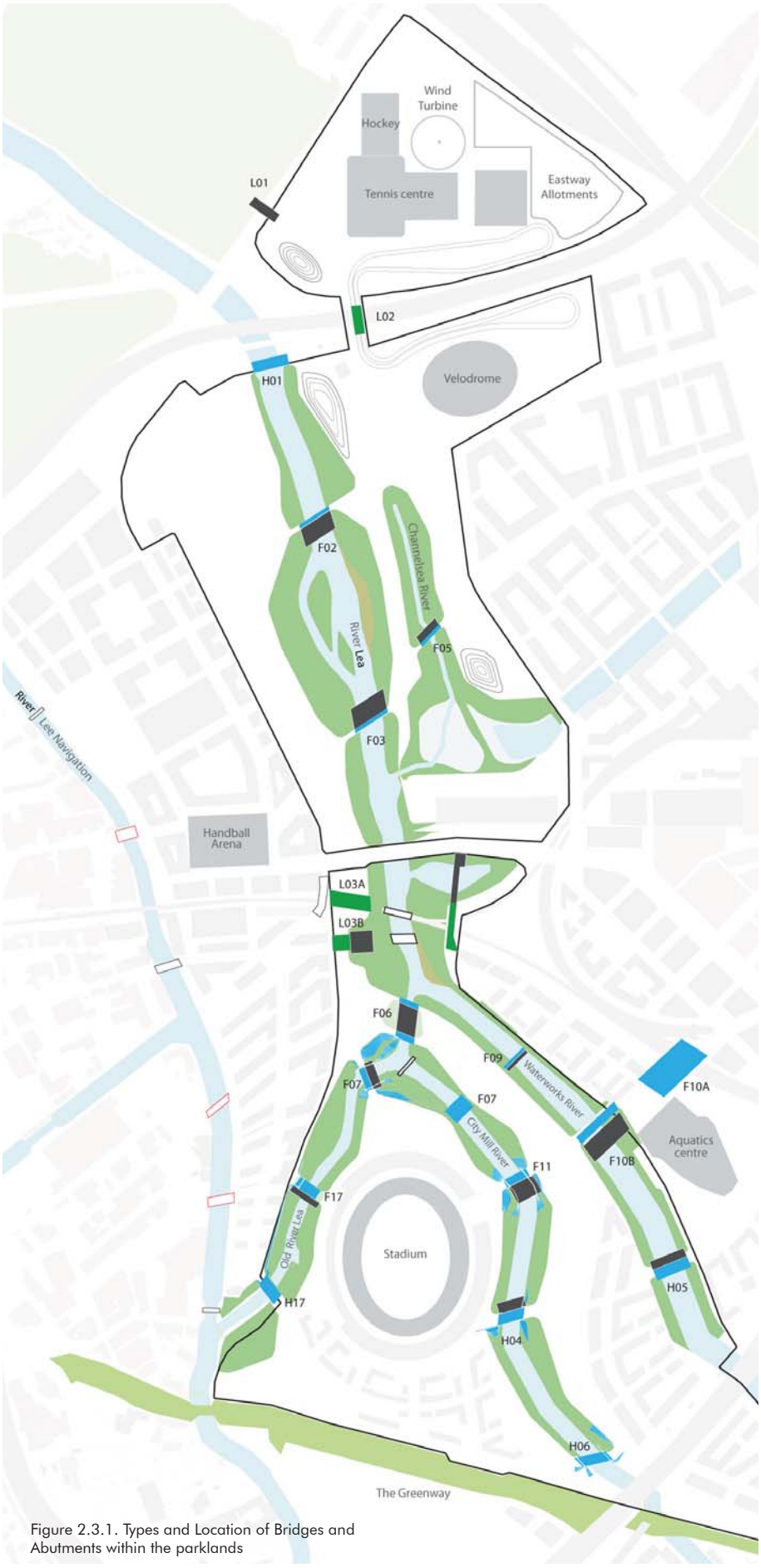


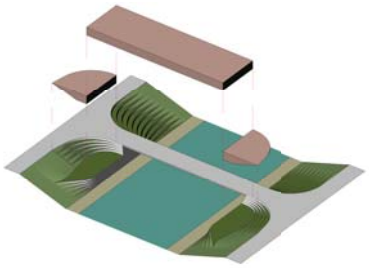
Figure 2.3.1. Types and Location of Bridges and Abutments within the parklands

Key

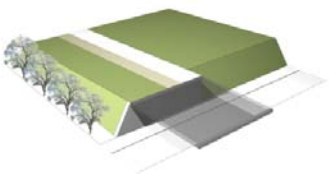
Temporary deck

Proposed bridge outside of parklands

Existing bridge



Single permanent bridge with temporary one side



Vertical Abutments

2.3 Access and connectivity

Temporary bridges required for construction of the Games will be removed. Wide bridges required to accommodate crowd movement during the Games will be reduced in width in Legacy transformation, and their abutments integrated into the adjacent parklands.

In addition to providing essential Park connectivity and functionality the bridges define boundaries, creating 'rooms' along the waterways. They will provide a means of way-finding for park visitors and navigation for those on the waterways. Each bridge has a unique relationship to its context with respect to its function, orientation, location and setting.

Bridge structures with steel box girders will receive a painted finish which may be illuminated. Each bridge will have its own name and number. It is recognised that the final decorative finish presents an opportunity for a variety of colour treatments, patterns and text, which should be conceived as the overall Park way finding and arts strategy.

Upgraded towpaths and new riverside paths provide continuous and varied access through the Park. These provide north – south connectivity adjacent to the waterways throughout the park. They provide sufficient widths (3m in the north and 4m in the south) for maintenance vehicles. The greater width in the south is in response to the greater number of bridges and structures, including river walls, that require maintenance. Sufficient headroom has been allowed under bridges for cyclists.

In the north park direct access to the water's edge pathways will be gained from the upper plateau level via ramps designed in accordance with the ODA's inclusive design standards. In the south park ramps from the upper plateau level will link into the network of towpaths which are approximately 3m above the normal impounded water level except, along the frontage to the Aquatics Centre, where the new towpath will be closer to the water.

During construction access along the waterways within the main site is prohibited for safety and security reasons. Access along the River Lee Navigation is however maintained.

During the Olympic Games, access and connectivity will be a function of the operational management plan, which

Figure 2.3.2. The River Lee Navigation is a key strategic route.

2.3 Access and connectivity

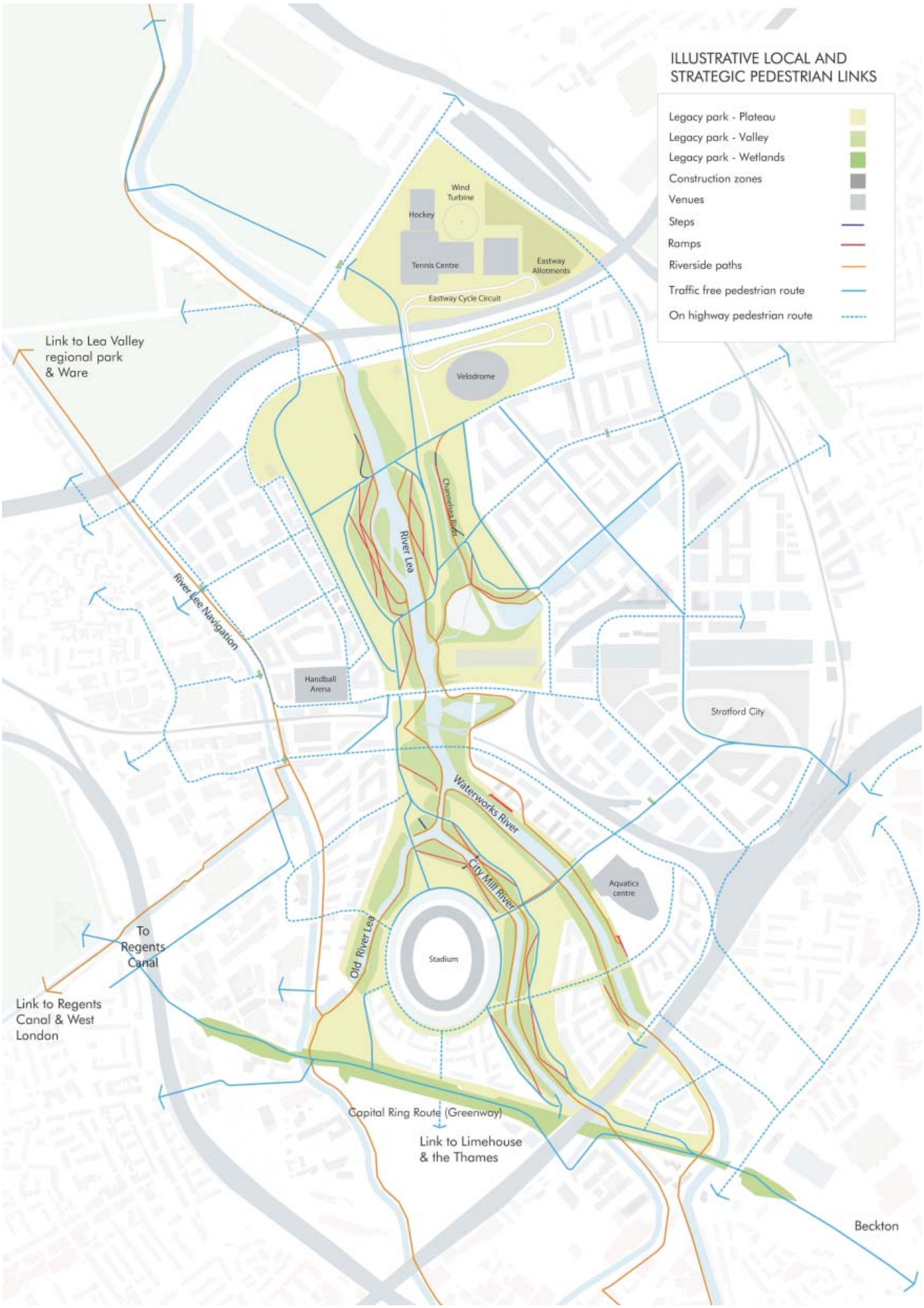


Figure 2.3.3. Local and strategic pedestrian links

2.3 Access and connectivity

is still under development by LOCOG. As noted in Section 2.2 there is a broad strategy to maximise access to the water's edge in the north of the park.

Due to the level difference between the concourse and the towpaths in the southern half of the Park, and the 4m width of these towpaths, there is also more limited potential for Games time use. However, it is still envisaged that these towpaths would still be active by operative teams. Athletes will be transported using the loop road rather than the waterways, although the possibility of using the waterways as a processional route is being explored.

During the Legacy transformation a key objective will be to re-open the waterways to the general public at the earliest opportunity. However the programme for re-opening the waterways will be dependent on the safe removal of Games time infrastructure including temporary bridges and the Olympic overlay. The detailed programme for the Legacy transformation is under development. Planning condition LT2 requires the removal of temporary infrastructure by 31 December 2013.

The waterways infrastructure provided for the Games has been designed to provide connectivity in the Legacy condition also. In the north park along the River Lea the pathways delivered for the Games will be permanent and, due to bridge infrastructure and topographical constraints, there will be limited scope for change. However, the Eastway Cycle Circuit and BMX trail will be added in Legacy, including possible new bridges over waterways, and the possible extension of pathways via the bridge over the A12.

In the south of the Park and along the River Lee Navigation there may be opportunities to alter access and connectivity in line with the emerging LMF.

2.4 Safety and security

2.4.1 General layout

Creating a safe and secure environment within and adjacent to the waterways is fundamental to the successful regeneration of the Olympic Park.

The masterplan has been developed with regard to safety and security in both Games and Legacy modes. Key layout principles to help design out crime included:

- Avoidance of dead ends and potentially threatening pathways adjacent to waterways
- Minimisation of hiding places
- Minimisation of voids
- Maximise visibility and security sightlines

These principles provide a robust platform for the developing Parklands and Public Realm proposals and the Legacy Master Plan Framework. Ongoing reviews of security will take place as designs process.

Particular requirements for the safety and security of potential Legacy waterside development options are still to be explored and will be brought forward as part of the LMF. For example, provision for residential boat owners.

The British Waterways document 'Under Lock and Quay' which has been referenced in the development of the Olympic masterplan will be a key design guide into Legacy.

During Construction and Games, access between the external waterways and the Bow Back Loop will be denied for security reasons. There is, however, some potential for managed access during construction for freight vessels.

Figure 2.4.1. Paddington Basin was designed with safety and security as a priority

2.4 Safety and security

2.4.2 Security Fencing

During the construction phase, the ODA will continue to work with key stakeholders to ensure that the site is safe and secure.

The construction site perimeter has already been secured by temporary boundary fencing. This will be replaced by the 5m high fence for the Olympic Games. Final planning to determine the position of this fence is currently underway and construction is due to start in summer 2008. The 5m high, 16.5km long security fence around the site will have an Intruder Detection System.

The process of installing temporary barriers across the waterways has already begun.

In addition to the security of the site itself the ODA is working closely with stakeholders including Metropolitan Police regarding the safety of routes around the perimeter that have been altered or closed off.

During the Games security will be of paramount importance. Security falls into four main areas:

- Crime
- Terrorism
- Interest Groups
- Disorder

These are currently being addressed through the security strategy being prepared by the ODA and will require each security threat to be risk assessed and appropriate security mitigation introduced.

The waterways represent a unique challenge in terms of security because it is possible to gain access over and through water. The approach to security on waterways will be the same as for roads involving slowing and checking boats and other vessels approaching the site. Off-site screening of lorries/ barges will be required to remove any threat before it arrives at the site. There may be screen barriers in the waterways, with mesh, to prevent submarines and swimmers but these would need to be removable to allow access and prevent increased flood risk; proposals for such barriers still need to be agreed with the EA and BW. The Metropolitan Police is likely to require access to the site by boat, but is likely to be based at their site in Wapping rather than within the Park. Some underwater lighting may be required during the Games but this will have to be offset against ecological considerations.

Figure 2.4.2. A coracle regatta taking place on the River Lee Navigation adjacent to the Olympic Park Security Fence.

2.4 Safety and security

2.4.3 Handrailing

Safety adjacent to waterways during the Games will be a function of the operability of the site, which is still under development by LOCOG.

In line with discussions with key stakeholders such as BW and the EA, the ODA's strategy is to limit permanent handrailing adjacent to waterways to those locations where safety considerations specifically require it. Minimising hand railing adjacent to waterways can deliver the following benefits:

- Reduced maintenance
- Easier access to the water
- Less land take due to street furniture
- Less visual impact

However, a risk analysis will need to be carried out for each development phase to determine where handrailing is required. The RoSPA (The Royal Society for the Prevention of Accidents) guidelines will be a key reference.

In the north of the park, along the River Lea, the gradual grade from the riverside path to the water's edge is likely to be fully aligned with the strategy to minimise handrailing.

Greater safety challenges exist in the south of the park, where there is a 3 - 4m vertical drop from the towpaths to the impounded water level.

Alternatives to handrailing could include frequent ladders, life buoys, chains or low level barriers. Ladders would also benefit access for navigation and general access/egress to the water.

2.4.4 Lighting

Lighting can be used adjacent to waterways to promote activity, safety and night time use. There will be a need to light the underpasses, both within the Park and under the railway lines. Generally, towpaths through urban areas either tend to have low level lighting often provided within bollards or are not lit at all, even where there are residential moorings. This approach means visitors are not encouraged to use routes that are infrequently used, may not have natural surveillance and consequently may not be as safe. It is envisaged that a similar approach will be taken to waterway lighting in the Olympic Park.

In terms of ecology, bats and some other forms of wildlife benefit from waterways being unlit. Bats, for example, use waterways as movement corridors and for foraging activities. These activities can be disrupted by lighting.

Left: Figure 2.4.3. Existing waterside handrailing in Olympic Park.

Centre: Figure 2.4.4. Regents Canal

Right: Figure 2.4.4. Ladder, chains and hand rails on a river wall on the Thames in Putney.

2.4 Safety and security

The lighting strategy for the Olympics phase is currently being prepared. It will respond to the operational activities associated with the waterways at night and with any special events. Temporary lighting may be used and removed after the Games in areas where lighting is inappropriate in Legacy.

The lighting strategy for the waterways in Legacy will need to respond to a range of factors including:

- Number of night-time users;
- Adjacent land use;
- Park management strategy;
- Ecology, including bats; and
- Safety.

Where lighting is proposed new technology should be considered that focuses light downwards thus minimising impact on ecology.

Consultation with stakeholders on lighting for Games, Legacy Transformation and Legacy will be carried out in conjunction with the LMF.

2.4.5 Surveillance / CCTV

CCTV is currently planned for the Olympic Park and specific proposals will be part of the LOCOG Olympic overlay proposals.

Any permanent proposals for CCTV will need to be agreed with the Legacy Park owner who will be responsible for upkeep and maintenance. There is a business plan for CCTV which allows for equipment post Games to be redeployed.

Any requirement for CCTV will be closely linked with the lighting, both of which are operational requirements.

2.4.6 Emergency Services

Access to the waterways for ambulances, the police and fire services will be from the upper plateau down the ramps and onto the riverside pathways and towpaths. British Waterways and the emergency services will be consulted during the course of the detailed design to ensure that their particular requirements are considered.

2.4.7 Flood risk

The design of the Olympic Park, and in particular its towpaths, bridge abutments, waterways structures and river edges will be developed through RIBA Stage D leading to a reserved matters planning application in September 2008. Proposals will take account of possible impacts of flooding and ensure that the risk of structural deterioration or failure is mitigated

Flood risk assessments of the impact of the construction works will be carried out on a quarterly basis as part of the Flood Risk Compliance Procedure, which in turn forms part of the Code of Construction Practice. These assessments will be reviewed in consultation with the EA.

Left: Figure 2.4.5. Lighting in the Limehouse Link tunnel. This type of low level lighting may be appropriate along canals and under bridges in the Olympic Park

Right: Figure 2.4.6. Bat friendly lighting should be considered where lighting is required next to waterways

Source: Bat Conservation Trust

2.4 Safety and security

The majority of the site is outside of the flood plain and will not be at risk of flooding during the Games. Areas vulnerable to flooding such as low lying areas of the Wetland Bowl and the low level pathway in front of the Aquatics Centre would need to be not used during flood events. The proposed southern access under U03 and U07 underpass would also need to be not used during a flood event greater than 1:20 years, however at the time of writing the design of this access is still in progress.

In Legacy management procedures will be necessary to manage access to these low level pathways in flooding events, and to maintain the pathways afterwards, removing silt and other debris.

In the south of the park towpaths on top of the high, vertical sided canals are no risk of inundation from events up to, and including, a 1 in 100 year frequency.

In the north of the park, along the River Lea, north of Carpenters Road Lock, and in the south park alongside the east bank of the Waterworks River adjacent to the Aquatics Centre, the towpaths will be lower relative to the waterways and a greater degree of interaction and recreational experience can be provided.

The low level towpaths along either side of the Old River Lea and along the eastern bank of the Waterworks River, by the Aquatics Centre, are expected to be inundated on a more frequent basis. The frequency of this inundation is still to be determined but it is anticipated to be somewhere between a 1 in 1 year and a 1 in 2 year event. This is not uncommon along many riverside towpaths throughout the country and is unlikely to represent a risk in terms of health and safety, as there is higher level access.

The waterways within the park are not subject to "flashy" flood events and so there is little chance of towpath users being caught out by rising levels in the waterways.

2.4.8 Water quality

Current water quality throughout the site is poor. All watercourses suffer from heavy metal and hydrocarbon pollution, while high levels of nutrients and low levels of Dissolved Oxygen are commonly recorded. The Olympics and Legacy development will lead to changes in the nature of the system, with beneficial effects on water quality.

The Environmental Statement for the Olympic Park identifies minor adverse impacts on water quality arising from construction works. The ODA Code of Construction Practice requires contractors to adopt good practice measures to protect watercourses throughout the construction sequence, to minimise these effects.

The construction of Prescott Lock will impound the currently tidal and brackish waters of the River Lea and Waterworks River. Water quality will be affected through the change from a saline to a freshwater environment and a decrease in the natural flushing capacity of the watercourses potentially resulting in the subsequent accumulation of contaminants and nutrients in the water. However, there will also be benefits from the impoundment as it will prevent discharges from the Abbey Mills sewage treatment works following periods of heavy rainfall being flushed back up the system. British Waterways will continue to monitor levels of Dissolved Oxygen within the channel prior to, during and after impoundment and dredging to determine appropriate mitigation.

Overall, the Environmental Statement for the Olympic Park identifies beneficial impacts on water quality after the Games, resulting from improvements in the drainage system, including the separation of foul water and surface water run-off, and the creation of wetland areas.

Further improvement in water quality can be expected in the medium to long term as points of discharge upstream of the Olympic Park are bought into line with improved discharge performance criteria in the Water Framework Directive.

2.5 Ecology

Proposals for creating habitats and providing for priority BAP species in the Olympic Park are set out in the Framework Biodiversity Action Plan (BAP) which was approved in outline with the planning application in 2007. Planning Condition OD.0.11 11 requires that a full BAP (to be based on the Framework BAP) be submitted by 30 September 2008. The full BAP is currently being prepared.

The restoration and enhancement of the waterways is at the heart of the Olympic BAP, which should be referred to for further guidance on action for habitat and species.

Guiding principles are:

- Increase in connectivity.
- Use of locally appropriate native species in planting where feasible;
- Access for people to enjoy wildlife; and
- The creation of refuges for wildlife.

To promote connectivity and to extend the marginal riverside aquatic habitats south from the Upper Lee Valley Regional Park towards the Thames, the intention is to establish marginal emergent aquatic habitat along at least one of the banks of each channel.

This habitat creation will help to improve water quality and provide habitat for Olympic BAP species including eel and water vole. Other Olympic BAP species including kingfisher, grey heron and bats will benefit from the increase in food associated with softer banks.

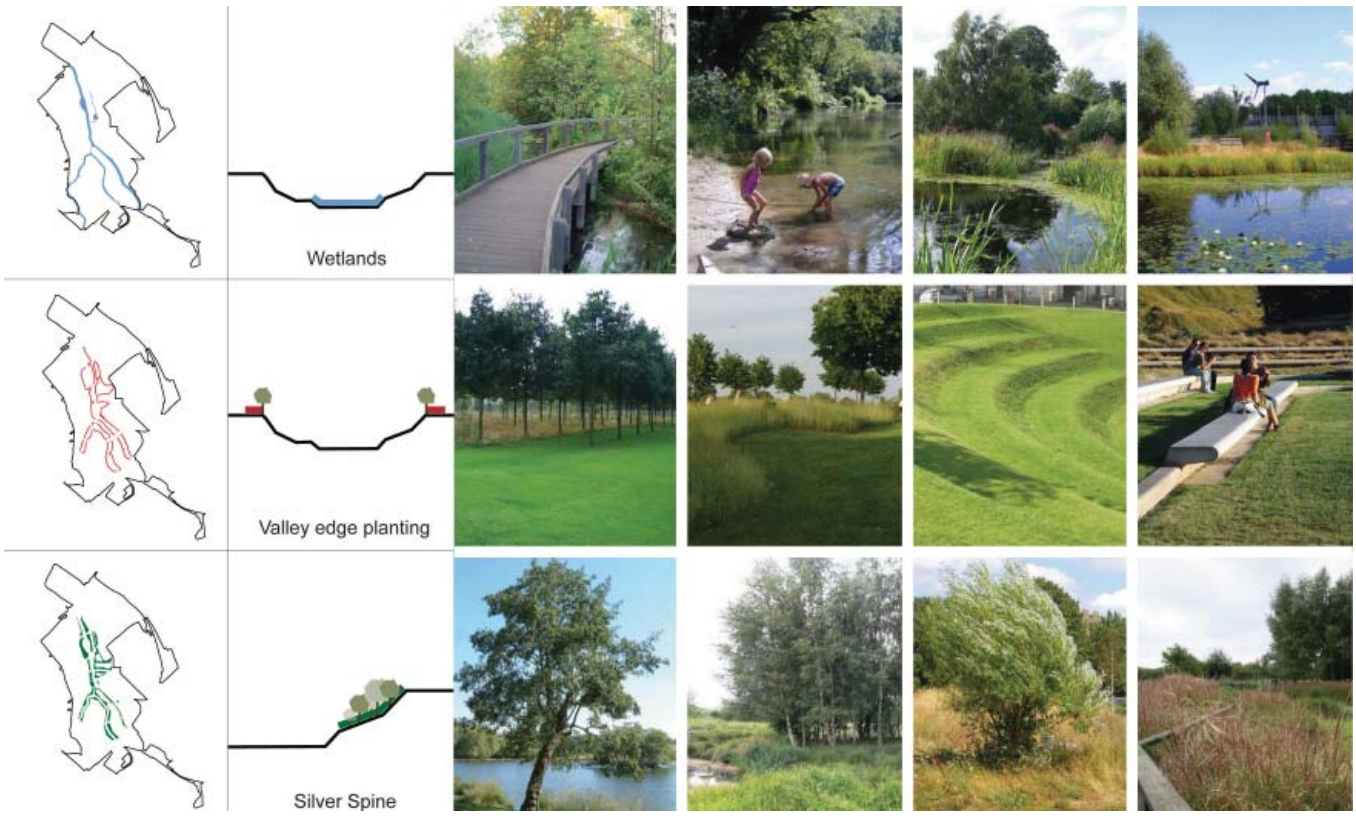
In order to maintain connectivity beneath bridges, landscape elements and features that may be included are;

- The establishment of a soft bank (mammal run underneath bridges where this is not viable), with planting mix that can tolerate low light levels;
- Abutments as "living walls";
- Parapet or vertical structures could include kingfisher/sandmartin boxes and banks. These could be integral or built on to the structural finish; and
- Bat roosting opportunities fixed to the underside of the bridge decks or other suitable places on the structures.

In some locations, particularly in the north of the park where the river valley will be remodelled, there will be opportunities to create substantial new areas of wetland habitat, including both wet woodland and reedbed, both UK BAP species which are also included in the Olympic BAP.

Terrestrial planting along the waterways could include Olympic BAP habitats including brownfield habitats (bare ground, pioneer communities and tall ruderal vegetation), species-rich grasslands (established on low fertility substrates) and planting of predominantly native trees and shrubs.

Below: Figure 2.5.1. Ecological areas within the Olympic Park



2.5 Ecology

The principal waterway areas where there will be a special emphasis on wetland nature conservation are:

- Soft banks on both sides of the River Lea.
- The Wetland Bowl.
- Bully Point .
- Channelsea Gorge; and
- Soft banks (normally facing hard banks) in the south of the park.

As described in the ES, the enhancement of marginal vegetation and the creation of wetland habitat along the Waterworks River, River Lea, City Mill River and Channelsea River will result in ecological benefits to the area.

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The RIBA Stage C landscape design for the Olympic Park sets out the initial proposals for planting along the waterways. These are outlined on an area basis in Section 4 of this report, and the parkwide locations indicated in the Figure 2.5.1 on the previous page. Along the waterways, native species will include alder, willow species, common reed, burr reed and yellow flag.

These marginal emergent aquatic, reedbed and wet woodland habitats will support a range of BAP species including eel, kingfisher, reed bunting, water vole and otter, amongst others. Flying insects with aquatic larval stages will provide a food source for other BAP species including sand martin, swift and various species of bat.

Stage D Parklands and Public Realm proposals will undertake studies to determine the design of the river edges and their adjacent planting. Considerations for these are set out in Figure 2.5.2 below.

There will also be opportunities to provide features (e.g. nesting or roosting boxes) to benefit BAP species. These include:

- Bat and bird boxes under and on bridges.
- Bird nesting holes in, on or near river walls; and
- Floating habitats (e.g. linear tethered rafts vegetated with reeds).

Part of the strategy for ecological enhancement will be to ensure that there are a number of quiet places identified where shy wildlife (e.g. otter – a BAP species) and nesting waterbirds can find refuge. These areas should be a safe distance (or screened) from paths and moorings and should be suitably vegetated with a dense undergrowth

Lighting can disrupt the natural behaviour of bats. Lighting can delay the emergence of bats to feed and disrupt social interaction. Bats may be discouraged from using potential roost sites that are well lit. Bats are an Olympic BAP species and are likely to continue to be strongly associated with the waterways in the Olympic Park.

It is therefore important that lighting is kept to a minimum necessary for public safety and that dark areas are maintained. Light spillage should be avoided. No lighting should be directed towards actual or potential roost sites (e.g. where bat boxes have been installed).

Detailed measures to protect the ecology and water quality of the waterways during construction are included in the Construction Ecology Management Plan.

Below: Figure 2.5.2. Ecological technical studies

Study	Scope	Reason
Shading	Assess shading impacts around waterways including at bridges	To determine suitable planting types and feasibility of planting under bridges
Hydraulic	Assess hydraulic impact of watercourses on river edges under normal and high velocity flow conditions	To determine suitable engineering details for the water course edge design. To determine suitable planting proposals that will be resilient to hydraulic effects
Flood	Assess flood model impact on waterways and adjacent land	To determine suitable planting types that will be resilient to flood model effects. To ensure that planting proposals do not adversely impact on the flood model. To determine where opportunities could exist for new habitat creation e.g. floating habitats

2.6 Governance

A management plan will be prepared for the Parklands and Public Realm to support the reserved matters application and in consultation with key partners. The plan will define the key criteria for the parklands including;

- A Welcoming Place;
- Healthy, Safe and Secure;
- Well Maintained and Clean;
- Sustainable;
- Address Conservation and Heritage;
- Promote Community Involvement;
- Access and Inclusion;
- Actively Marketed; and
- Well Managed.

"Towards an Outline Business Plan for the Olympic Legacy Park" provides high level scenarios for the likely financial resources required to adequately develop, manage and maintain the parklands in perpetuity. The Management Plan will also need to address the likely human resources required to manage and maintain the parklands. A management compound and administrative headquarters are under consideration.

The Legacy owner and manager of the parklands is not yet decided. A business Plan was jointly commissioned by the London Development Agency and the Olympic Delivery Authority, and provides a high level view of the options for governance and for funding the parklands in perpetuity. This will be developed by the LDA with the ODA and LOCOG through the LMF. It is important that the parklands are adequately funded and free from political funding rounds and cycles. This will ensure that the assets of the wider Olympic Park development are protected and values enhanced through time.

While the Park represents a wonderful opportunity for regeneration it also has a significant liability in terms of funding and appropriate funding is required to ensure adequate maintenance is provided. Funding for the park is likely to come from a number of sources and can be boosted by commercial ventures including moorings and other riverside activities. There is an intention that beneficiaries of the park should contribute to its funding.

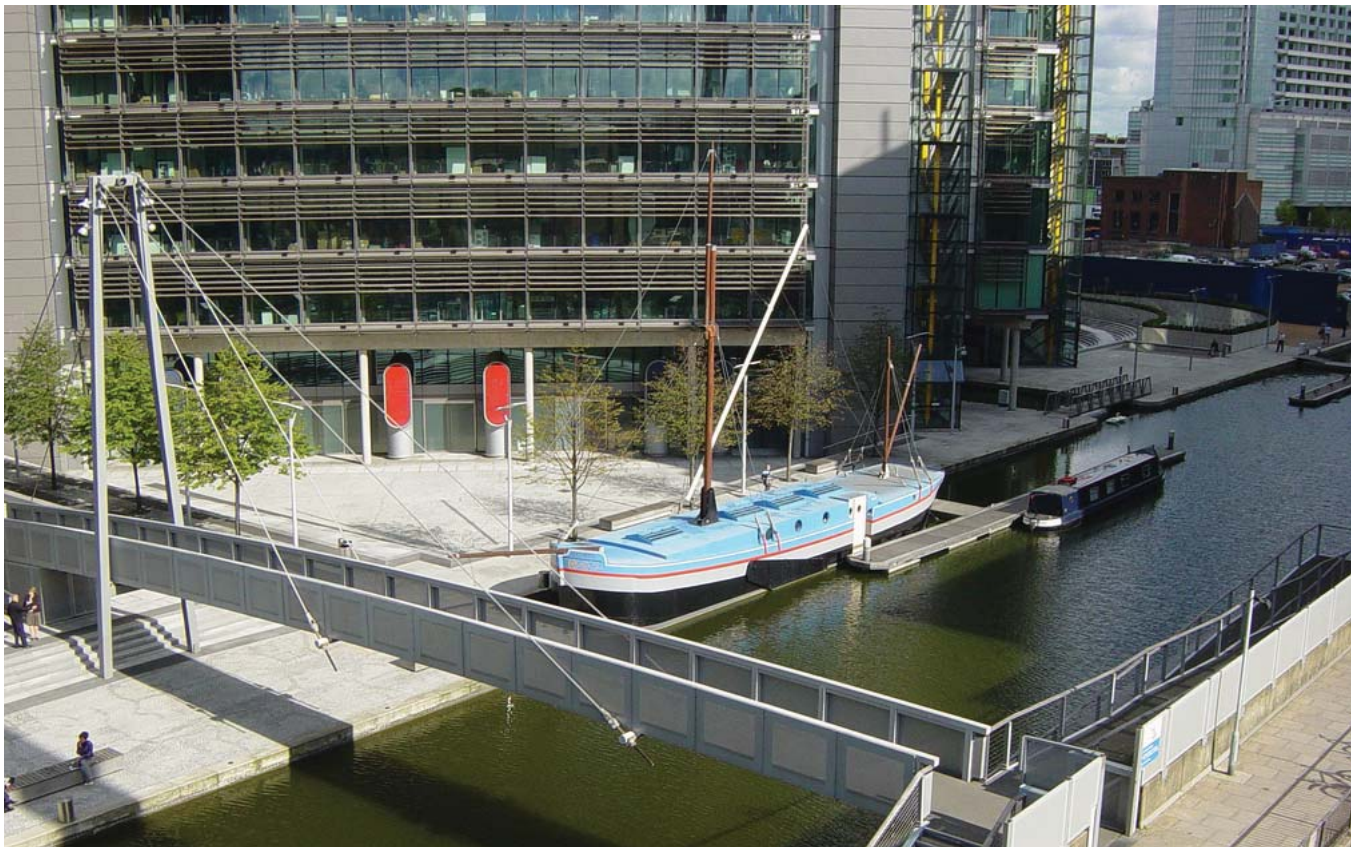
Figure 2.6.1. Carpenter's Road Lock has remained unused and unmaintained for years.

2.6 Governance

The Legacy body is likely to have responsibility for providing, managing, operating, maintaining and continuing to develop educational, sporting, leisure and recreational facilities including the parklands.

It is recognised that all of the external stakeholders will have a key role to play in terms of Governance and the long term management and maintenance of the Park including British Waterways, the Environment Agency, LVRPA, the DCMS, DCLG, Olympic Delivery Authority, London Development Agency, the Greater London Authority, Lee Valley Regional Park Authority, the Olympic boroughs, BW, Natural England as well as the local communities.

Figure 2.6.2. Paddington Basin is an example of a partnership between developer and British Waterways delivering a high quality canal community as part of a wider mixed use development.



3 Four water systems

3.1 River Lee Navigation

CHARACTER

Existing context

Defining the western edge of the site, the River Lee Navigation is where the Olympic Park and the existing communities on the west of the river come together. This watercourse is approximately 1300m long, from the A12 to Old Ford Lock, with an upstream width of 20m in the north increasing to 26m in the south.

The River Lee Navigation is currently the busiest of the four waterways in the park - with a towpath and soft green verge on the eastern side, and industrial buildings, which are relatively close to the waterway level. On its western side are a variety of existing residential and commercial buildings from scrap yards to boathouses and from modern residential apartments to Victorian warehouses. Some of these run adjacent to the water and other properties back on to the waterway.

The River Lee Navigation is an active waterway with excellent links to the wider London waterway network, used by commercial and leisure boats journeying from the west via Regents Canal; the Thames via Limehouse Basin and Bow Locks to upriver destinations of Springfield Marina and beyond. There is a tradition of recreational boat use on the river, supported by existing boathouses, marinas and clubhouses.

In 2007 annual boat usage on the lower section of the Lee Navigation was 139 boats passing through Bow Locks, and 1102 boats passing through the Hertford Union Canal.

There are currently very few pedestrian and vehicular crossing points so the canal ultimately restricts east–west connectivity. To the east of the eastern towpath runs a 42" Thames Water Utilities Limited (TWUL) water main which, in its current position, restricts development adjacent to it.

Post-Games context

In Legacy the canal will retain much of the existing character on the western

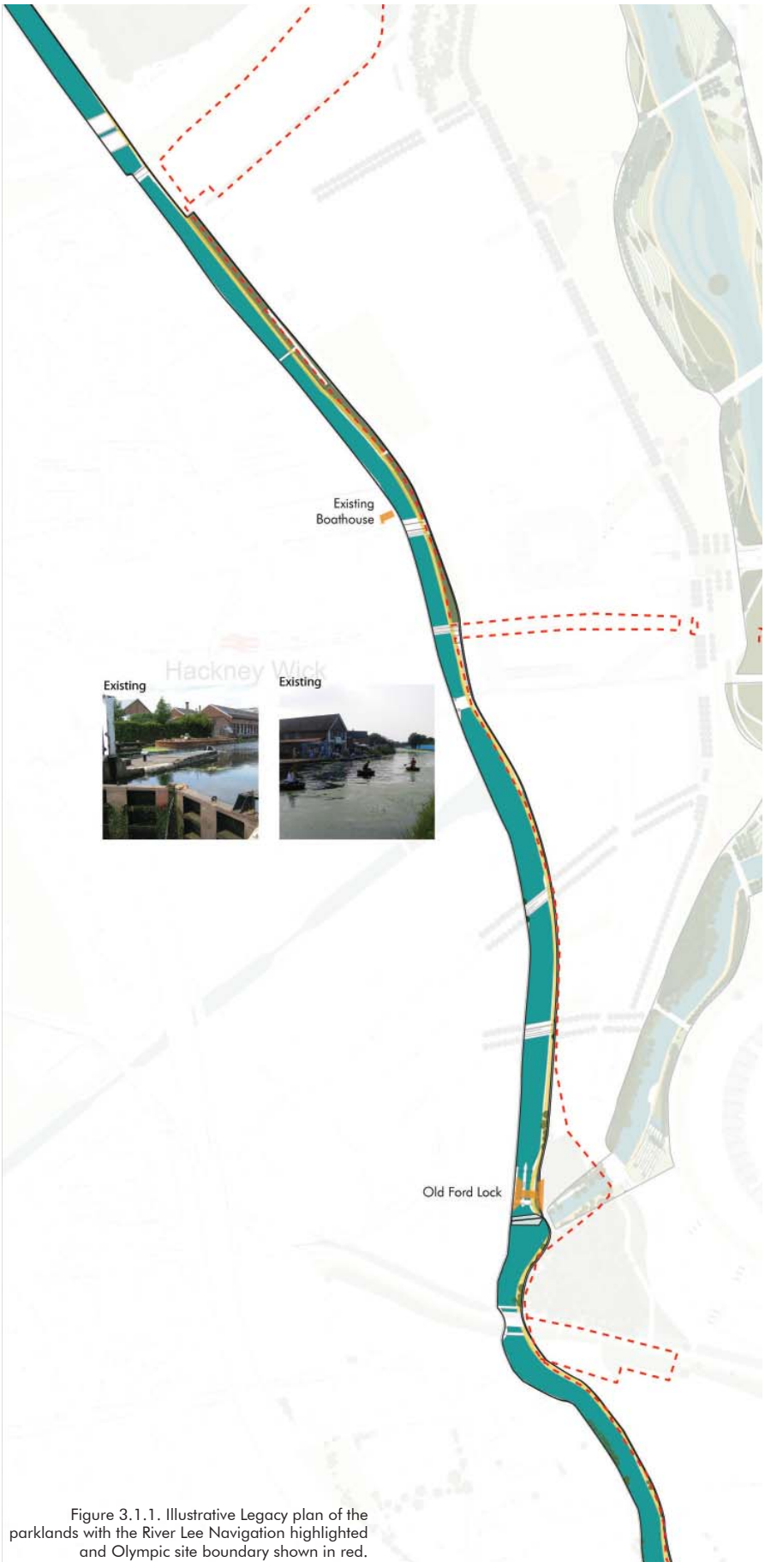


Figure 3.1.1. Illustrative Legacy plan of the parklands with the River Lee Navigation highlighted and Olympic site boundary shown in red.

3.1 River Lee Navigation

edge. The eastern edge towpath, existing river wall and the 42" TWUL water main will be retained. The topography will remain reasonably flat with towpath and water level relatively close. In the north, the waterside will be dominated by the IBC/MPC and in the south will be the Legacy development plots. The overall character of a busy waterway and active towpath will be retained into Legacy.

Old Ford Lock will be a key heritage area, as will some of the associated Victorian warehouses. Heritage artefacts related to waterways use, including mooring posts and rails on the towpath, will be retained as part of the overall character.

CONNECTIVITY

The existing towpath on the eastern bank will be retained as a strategic footpath/ cyclepath linking the Thames in the south to the Upper Lea Valley in the north, and the Regents Canal in the west.

In Legacy there will be opportunities to create east-west pedestrian links over the River Lee Navigation to the Olympic Parklands through to the new Legacy developments.

There is an aspiration to enhance the use of the canal as an active waterway with freight traffic connecting the Thames with the canal network and northern Lea Valley. The River Lee Navigation links to the Hertford Union Canal and Limehouse Cut and is part of British Waterways' network of 2,200 miles of canals and navigable rivers. These inland waterways are multi-functional assets, providing a combination of navigation, cycling and walking routes.

ECOLOGY

The River Lee Navigation adjacent to the Olympic Park area is part of the Lea Valley which is designated by the Greater London Authority as a Site of Metropolitan Importance for Nature Conservation.

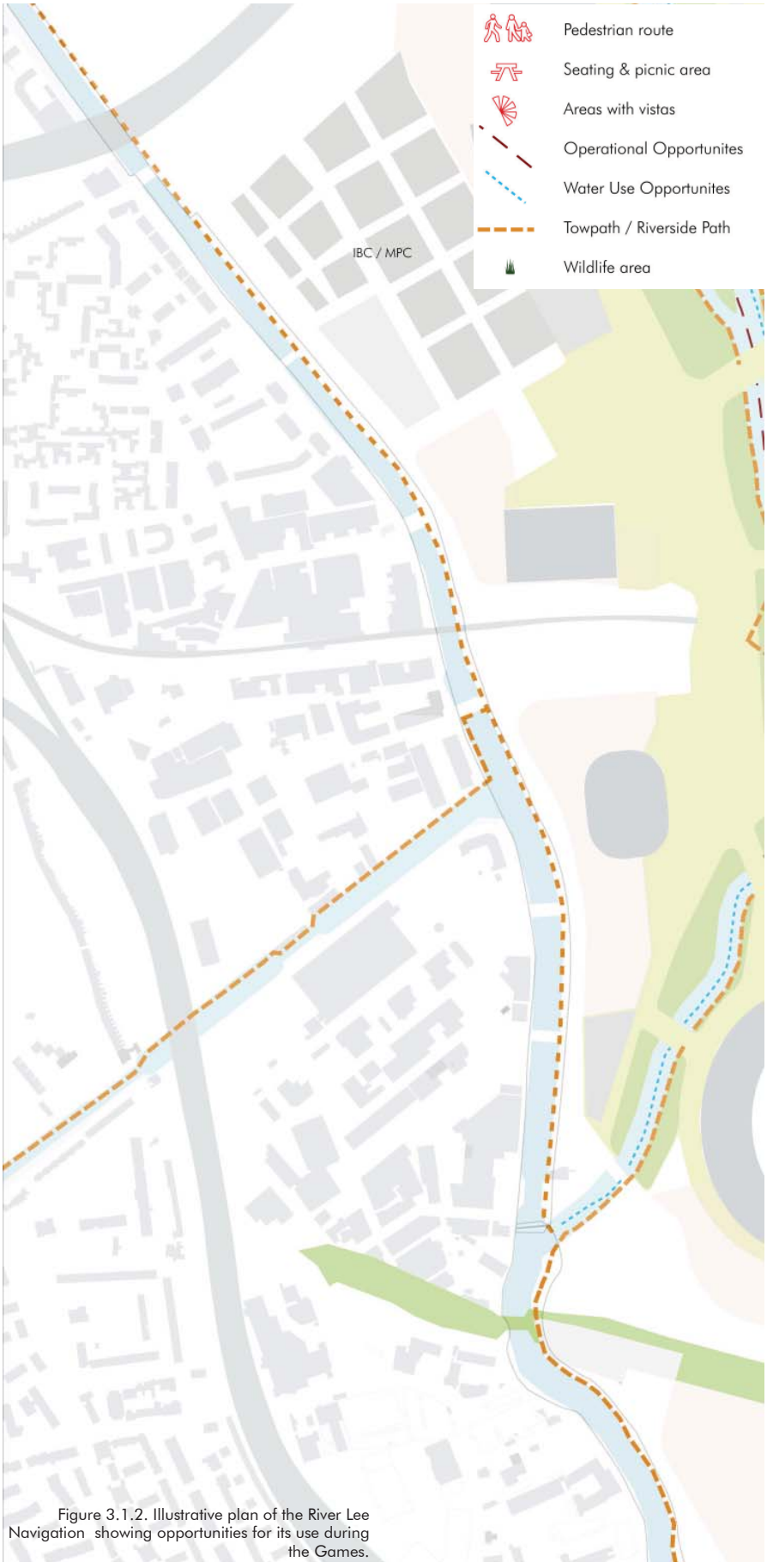


Figure 3.1.2. Illustrative plan of the River Lee Navigation showing opportunities for its use during the Games.

3.1 River Lee Navigation

The Lea Valley includes the River Lee Navigation, River Lea and associated watercourses downstream to the tidal limit in Tower Hamlets, Rommey Marsh, King George V and William Girling Reservoirs, Walthamstow Marshes and Reservoirs, and the new Middlesex Filter Beds Nature Reserve.

The section of the River Lee Navigation canal which runs alongside the western edge of the Olympic Park supports a range of aquatic flora including yellow water-lily nupha lutea which is abundant, tape grass vallisnaria spiralis, fool's water-cress apium nodiflorum various water starworts callitriche species and arrowhead sagittaria sagittifolia. The last species is uncommon in Greater London.

The canal banks are vertical and artificial but do harbour a sparse intermittent band of marginal aquatic vegetation including: gypsywort lycopus europaeus, skullcap (scutellaria galericulata), and marsh woundwort (stachys palustris).

A range of common water birds are found on the canal including tufted duck, mallard, great crested grebe, moorhen, coot and mute swan. Kingfisher occasionally forage along the canal. A number of dragonflies and damselflies can be seen by the canal (but are not particularly common) including broad-bodied chaser, red darter, common darter, southern hawker, common blue damselfly and blue-tail damselfly.

There are opportunities to continue the ecological corridor from the Lea Valley park in the north through the use of floating marginal habitats along the canal edges.

USE

Construction

As the River Lee Navigation is outside the boundary of the Olympic Park, the channel and towpath will remain open and the canal can continue to be used for navigation and recreation. The towpath can be used as a walking route.

There is also the potential for the eastern bank of the canal to be used as a wharf at Bow East rail freight terminus, which could also be used for waste removal during the Games.

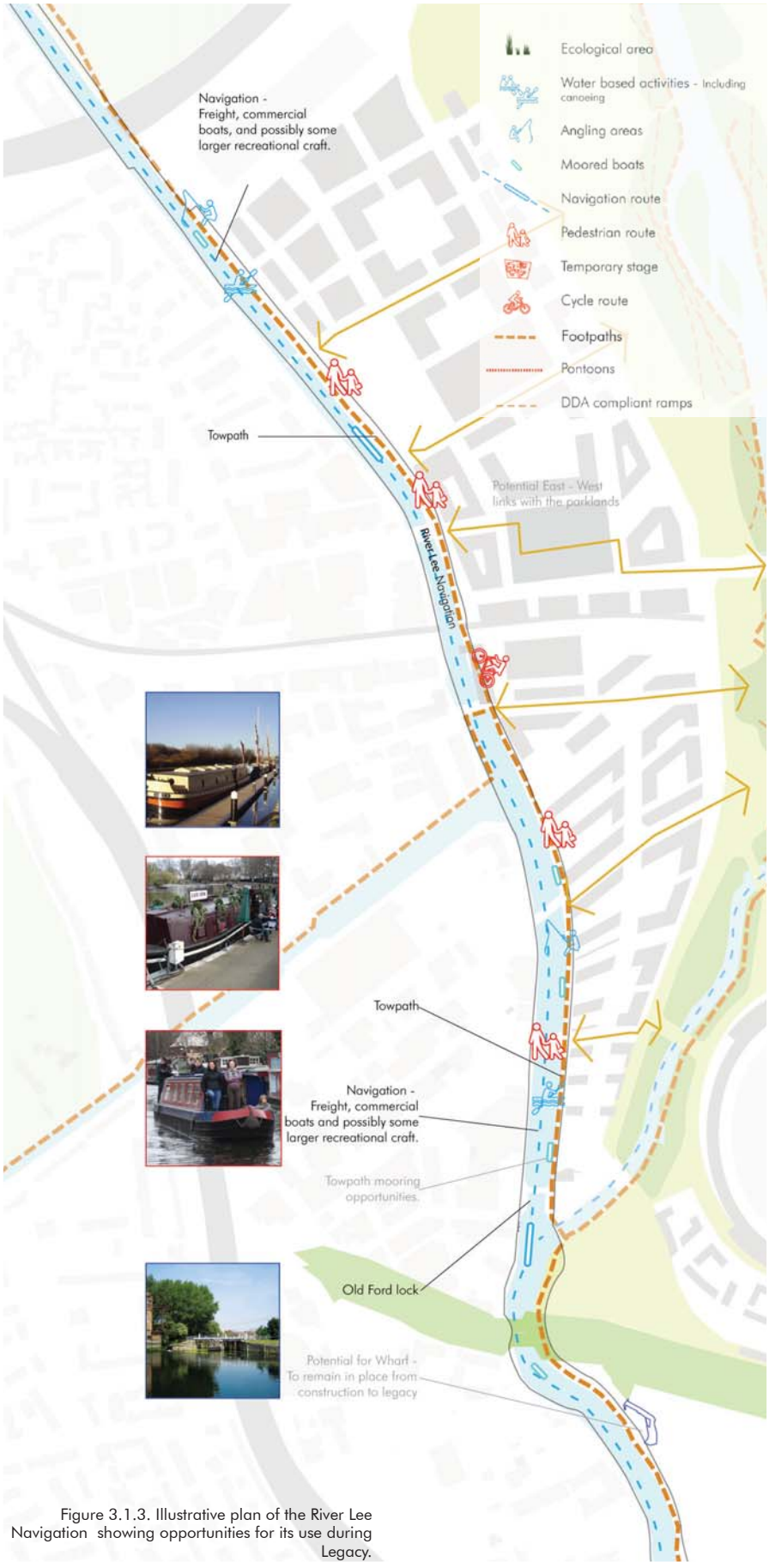


Figure 3.1.3. Illustrative plan of the River Lee Navigation showing opportunities for its use during Legacy.

3.1 River Lee Navigation

Local improvements to the flood defences at Kings Road in the form of demountable walls have been included as part of the planning application. These defences will provide security to the Energy Centre.

There may be opportunities to create entrances to the construction site for construction waste and/or materials to be removed and delivered by water. This will be co-ordinated with the fence installation.

Construction workers could be brought to site by waterbus, for example, via the Limehouse Cut or Regents Canal.

Games

It will be necessary to introduce controls on the towpaths, subject to a risk assessment for the duration of the Games and will then be fully re-opened during transformation as a strategic walking route. The channel may remain open for navigation, subject to the temporary bridge design and security risk.

Legacy

The towpath will be open for pedestrian use, and the channel will be open for navigation.

SAFETY AND SECURITY

During the construction phase, the security fence will be subject to on going risk assessments.

The electrification of the fence may need to be assessed to ensure it is not activated in areas that may prevent angling opportunities.

Figure 3.1.4. Existing boating activity centre on the River Lee Navigation

OLYMPIC DELIVERABLES

- Retention of existing river walls.
- Retention of heritage features including, rails, mooring posts, handrails and Old Ford Lock.
- Potential construction of Freight Wharves, subject to further feasibility studies.
- Installation of flood defence or demountable defences at Kings Yard.
- Decontamination of contaminated ground within the Olympic Site.
- News surface water drainage systems and outfalls.
- Lighting.

LEGACY OPPORTUNITIES (TO BE CONSIDERED IN THE LMF)

BOATING. The River Lee Navigation will continue to support a range of boating uses from freight to recreational / commercial boats to houseboats.

WATERSIDE DEVELOPMENT. The River Lee Navigation will be a key waterside development area and there will be a range opportunities to integrate water and land use.

OLD FORD LOCK. The area around Old Ford Lock could be used for a range of recreational and educational purposes.

WATER TAXIS. A water taxi stop could be provided as part of a wider network of water taxis.

NAVIGATION. Moorings alongside the eastern towpath could be provided. This would require additional utilities infrastructures to be provided.

Figure 3.1.5. Old Ford Lock heritage area could be a focus for waterfront activity

3.2 River Lea and Channelsea River

CHARACTER

Existing context

In the northern half of the site the River Lea provides a calm alternative to the other waterways within the Park.

The channel is wreathed in naturalised vegetation. Its steep, unstable banks, however, are formed from centuries of dumping industrial and domestic waste, as well as Blitz rubble and are therefore contaminated, inaccessible and provide poor habitat for flora and fauna.

The River Lea is currently tidal but this will change as the British Waterways impoundment structures at Prescott Lock and Three Mills Wall River become operational in Autumn 2008. The tidal influence and the low headroom at the North London Line railway bridge mean that there currently is very little boat use along this stretch of river.

A further impact of the tidal influence is the poor water quality of this waterway. This is due in part to the discharges from Abbey Mills Sewage Treatment Works that are flushed upstream to the River Lea after heavy rainfall events.

An important function of the River Lea is its role as a flood route providing conveyance for fluvial flows.

The river is approximately 1000m in length from the A12 to Carpenters Road Lock, with a typical width of 50m.

The Channelsea River is a quiet, steep-sided water course that has suffered for years from the influence of industry and tipping. Vegetation is dominated by invasive plants, much of which has been removed, and the waterways provides little in the way of valuable habitat. It discharges limited surface water flows to the River Lea.

Figure 3.2.1. Illustrative Legacy plan of the parklands with the River Lea and Channelsea River highlighted

3.2 River Lea and Channelsea River

Post-Games context

In Legacy the River Lea, Channelsea River and Bully Point will have been transformed into a place of leisure, recreation and education with diverse habitats for wildlife. It will be in contrast to the more urban and active waterways to the south of the park.

The Wetland Bowl will form the central, focal point of the northern half of the park, providing a balance of ecological habitat, landscape valley and flood storage.

The impoundment of the River Lea will increase opportunities for boat use north and south of Carpenters Road.

Channelsea River valley will be planted with woodland trees to create a dense canopy and a sense of enclosure.

The enlarged Bully Point wetlands area will be planted with reeds, sedges and grasses to provide rich new habitats for wildlife as well as an interesting experience for visitors. The wetlands will perform the function of providing protection against flooding. It will also perform a function in terms of improving the water quality. It is envisaged that there will also be productive landscapes on the plateaus including community gardens.

The riverside pathways on both the River Lea and Channelsea will be self bound gravel. The abutments of the bridges which cross the valleys will be formed using stone filled baskets which will integrate into the landscaped slopes.

Figure 3.2.2. Illustrative plan of the River Lea and Channelsea River showing opportunities for its use during the Games.

3.2 River Lea and Channelsea River

CONNECTIVITY

The riverside path and upper plateau levels are connected by DDA compliant ramps to the Wetland Bowl, Bully Point and to the south of the Bowl on the western bank. On the western bank to the north of the Bowl, there are also steps to supplement the ramps.

From the upper plateau there are direct connections to the rest of the park.

ECOLOGY

The two main wetland areas, the Wetland Bowl and Bully Point, offer tremendous potential for delivery of the wetland components of the Habitat Action Plans of the Olympic Park Biodiversity Action Plan (BAP) in advance of the Games. The Habitat Action Plans that will be targeted in these areas include reedbed, rivers and streams and wet woodland. The Wetland Bowl will include a new reedbed and further wet woodland planting will be undertaken at Bully Point. Grass snake, a BAP species, has been recorded in Bully Point and will continue to find suitable habitat there. These areas will be interlinked and ecologically diverse, providing rich and varied habitats for wildlife and plants. The combination of steep banks and invasive alien species currently limits the floral diversity of this section of the River Lea and Channelsea River.

Works are currently underway to destroy invasive alien species (including japanese knotweed and giant hogweed) growing close to the waterways.

In addition to the two main wetland areas there will be opportunities for marginal planting. The existing river banks will be re-profiled and softened with wetland planting, which will include a belt of wet woodland (with the silver-grey foliage of poplars and willows) and marginal emergent aquatic vegetation.

In the Wetland Bowl there will be a number of features designed to benefit

Figure 3.2.3. Illustrative plan of the River Lea and Channelsea River showing opportunities for its use in Legacy

3.2 River Lea and Channelsea River

fish and wetland birds in the BAP, including eel, reed bunting, grey heron and kingfisher. In this way the whole river corridor will be enhanced and will become suitable for water vole and likely to attract otter (water vole and otter also being BAP species). Flying insects with larval stages occurring in the river system will provide feeding opportunities for other BAP species including bats, sand martin and swift. Artificial nesting banks will be provided for kingfisher and sand martin.

The wetland design will need to be robust to withstand flood conveyance, it is also intended to have limited access by visitors to ensure it is protected. In order to achieve this, the footpath on the west bank of the Wetland Bowl may be further away from the water's edge.

Access may be restricted in the wetland areas on the River Lea and Channelsea River due to ecological impact.

USE

Construction

During construction the waterways will be closed to public boats and will not be used for freight, due to the draft of water under the North London Line Bridge.

Games

The Wetland Bowl is likely to be made accessible to visitors. The sloping green valley sides will provide space for them to sit and watch events unfold and get close to the water's edge. There may also be a stage, a big screen, and temporary spectator seating. It is unlikely there will be moorings along the River Lea and in the Wetland Bowl due to potential flood impacts and navigational constraints.

Bully Point Pond and Channelsea River areas are also likely to be accessible to visitors who will be able to interact with the water's edge and have a close up view of the wetlands.

There may be evening access restrictions in these areas due to crowd management and safety.

Within the river, the intention is to ensure that the waterways are as vibrant as possible during the Games. The waterways may also have security patrols operating during the Olympic Games.

Figure 3.2.4. Artists impression of Channelsea River looking north along the footpath

3.2 River Lea and Channelsea River

Legacy

Lea River

Footpaths on both sides of the river will be open for pedestrian use. Within the Wetland Bowl there will be gently sloping grassy banks for visitors to sit and enjoy the Lea and wetlands below.

Within the ecological areas on the western side, visitors could take part in pond dipping and enjoy a learning landscape. These areas will be carefully designed to respond to the ecological setting. Measures may need to be taken to prevent dogs from disturbing the wildlife within the wetlands. Access for people will also need to be managed to minimise ecological impact. On the eastern bank, the west facing waterside environment provides an area close to the waters edge, which could be used for relaxation, recreation and access to small boats.

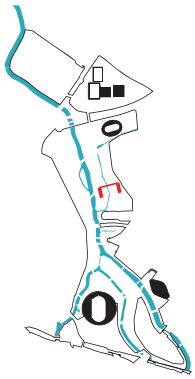
Detailed design of this area will take into account sedimentation caused by the fluctuations in river levels and occasional flood conveyance.

Channelsea River

There will be a footpath through the woodland on the eastern bank. The western bank will remain as an ecological corridor and no formal pathways will be provided.

Bully Point

Bully Point Pond will offer an expanse of open wetland and wildlife which can be viewed from a walkway encircling the ponds. From here, visitors will be able to look out for birds, animals and take part in pond dipping.



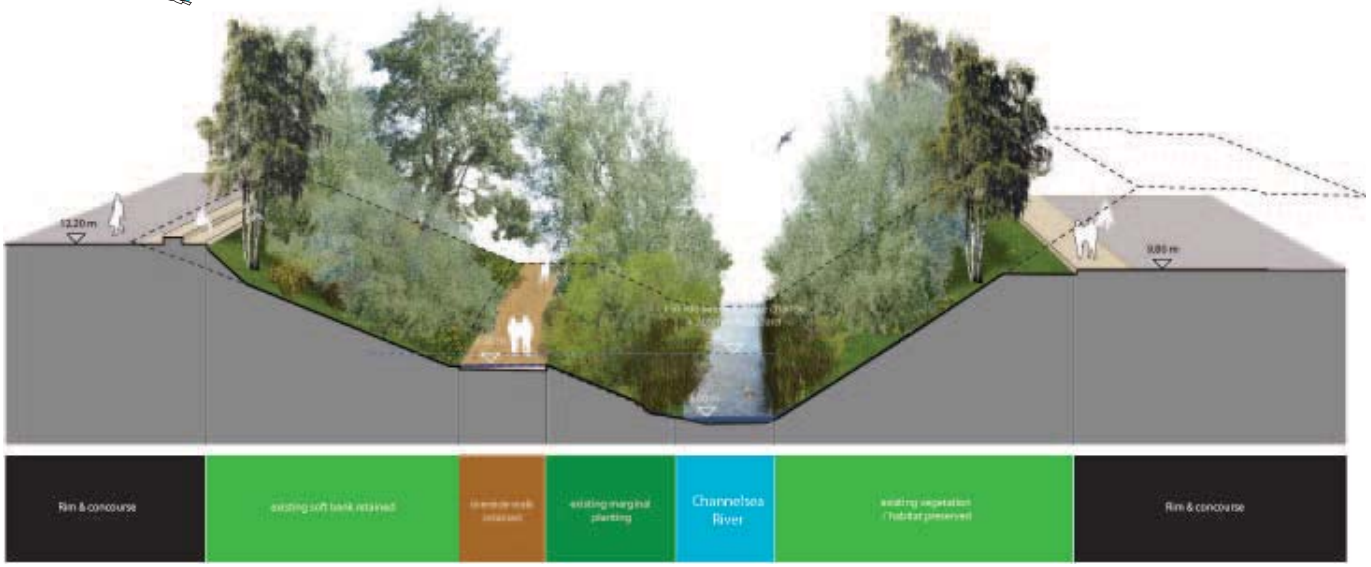


Figure 3.2.5. Illustrative section through Channelsea Gorge

3.2 River Lea and Channelsea River

OLYMPIC DELIVERABLES

- Naturalisation of east and west banks of River Lea and creation of 700m of marginal habitat.
- Creation of the Wetland Bowl providing flood storage and enhanced biodiversity.
- Approximately 1600m of new towpaths along east and west banks and widening of the existing towpath between Carpenters Road and Carpenters Lock to allow vehicular access.
- Creation of approximately 0.8 ha of wet woodland habitat in Bully Point, enhancing ecology and biodiversity for maintenance, safety and security.
- Retention of Channelsea River and existing trees and plants and formation of improved access to the river valley.
- Creation of waterside environment along the east bank of the River Lea providing access to water's edge.
- Formation of new bridges over the Lea and Channelsea Rivers providing improved connectivity for the parklands and wider areas.
- Removal of invasive plants.
- Creation of habitat for BAP species.
- Provision for leisure and recreation habitat in heart of parkland as well as a learning landscape.
- Decontamination of contaminated ground.
- New surface water drainage systems and outfalls.
- Lighting.

LEGACY OPPORTUNITIES (TO BE CONSIDERED IN THE LMF)

BOATING. Due to head clearance restrictions under the North London line access for large boats will continue to be restricted. However this presents other opportunities for waterborne activity such as canoeing and kayaking. A boating facility on the eastern bank of the Wetland Bowl could help promote this. There could be a business opportunity for an operator of small electric boats, rowing boats or pedalos.

ANGLING. With the improvement of the waterways , more anglers will be attracted to the area and this will be encouraged due to the socio-economic benefits attached.

ECOLOGY. Ecological enhancements could be carried out post 2012 as part of the Park management and maintenance strategy.

EDUCATION. An educational centre could be set up to promote understanding of the ecological areas.

WATERSIDE ACCESS. Boardwalks or other waterside access infrastructure could be provided.

3.3 Waterworks River

CHARACTER

Existing context

The Waterworks River is a vertical sided, man-made channel built in the 1930s for the purposes of navigation and conveying flood flows from the River Lea, a function that continues to this day.

Historically the waterway has supported heavy industry including chemical, engineering and candle making factories.

The tidal nature of this waterway has restricted its use for both commercial freight and leisure and recreational craft. However, there is a towpath along the west bank of the river. The tidal nature was previously controlled with a sluice at the entrance to Prescott Channel.

The river extends 775m from Carpenters Road Lock to the Great Eastern Line, with a typical width of 40m.

Post-Games context

The character of this waterway will be rich, vibrant and alive with activity on the water, alongside and overlooking the waterway.

The existing eastern bank of the Waterworks River has been cut back by around 8m, and will be replaced by a 4m wide marginal planting slope, which will continue the ecological link from the northern part of the park. A 4m wide towpath will provide access for maintenance as well as walking and cycling.

It is anticipated that the upper riverside walk level could eventually house bars, cafes and restaurants and be Stratford City's urban waterfront.

Subject to flood conveyance considerations, floating pontoons on one or both banks could provide moorings and increase connectivity between the river frontage, Stratford City and the waterways. However, additional access from towpath to water level would be required on the west bank.

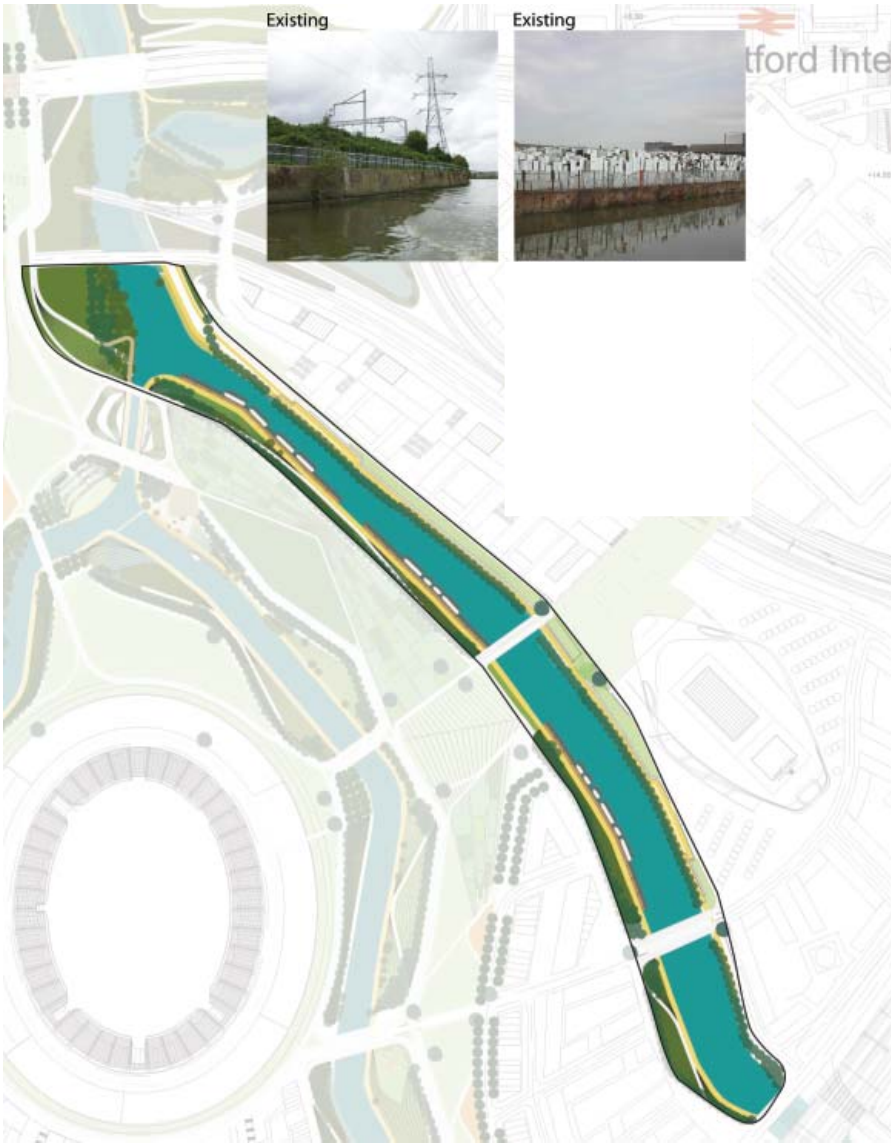


Figure 3.3.1. Illustrative Legacy plan of the parklands with the Waterworks River highlighted.

CONNECTIVITY

The towpath and upper concourse levels on the east side of the river are connected by two DDA compliant ramps. There may be opportunities in Legacy for additional stairways.

From the upper plateau at the northern end of the river, it is possible to walk to Bully Point and the northern part of the park. From the southern end of the upper level riverside walk, there is a pedestrian and vehicular link into the park, over the Waterworks River.

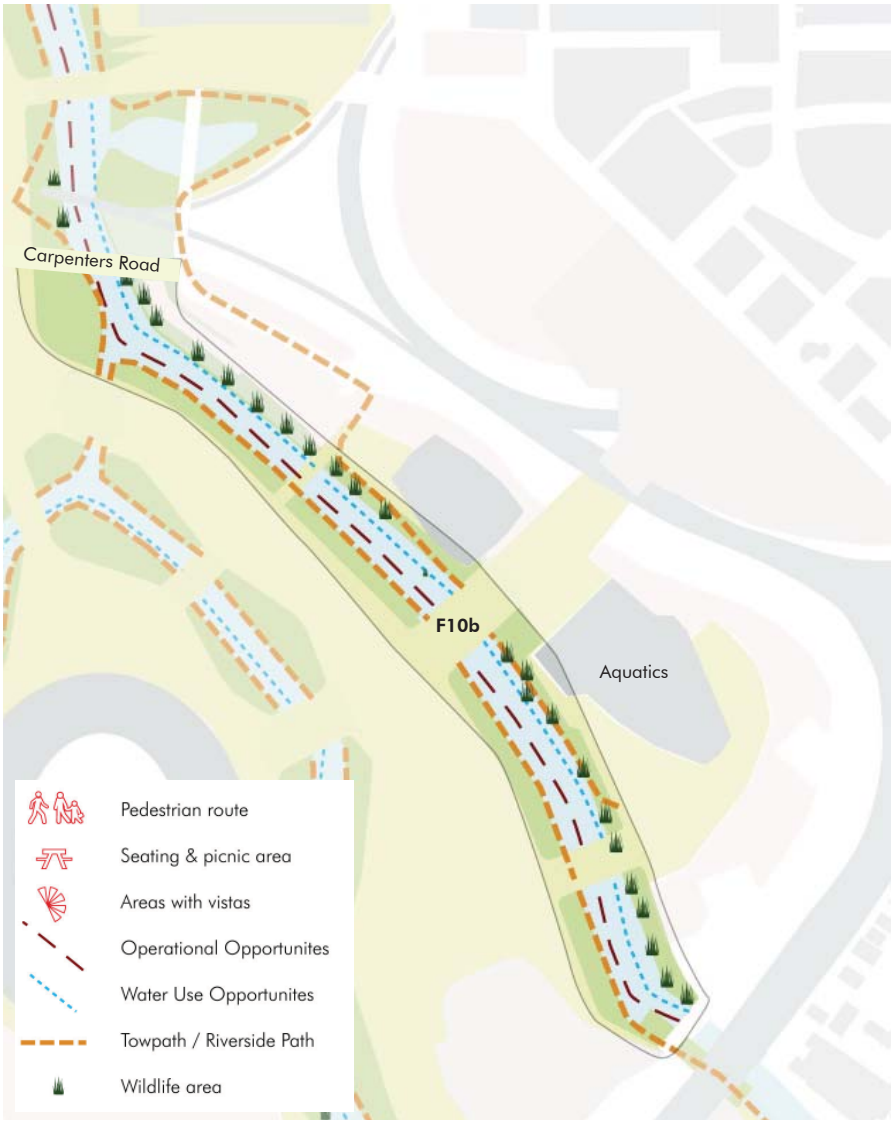
The main entrance to the parklands from Stratford City will be over bridge F10B which crosses the Waterworks River.

3.3 Waterworks River

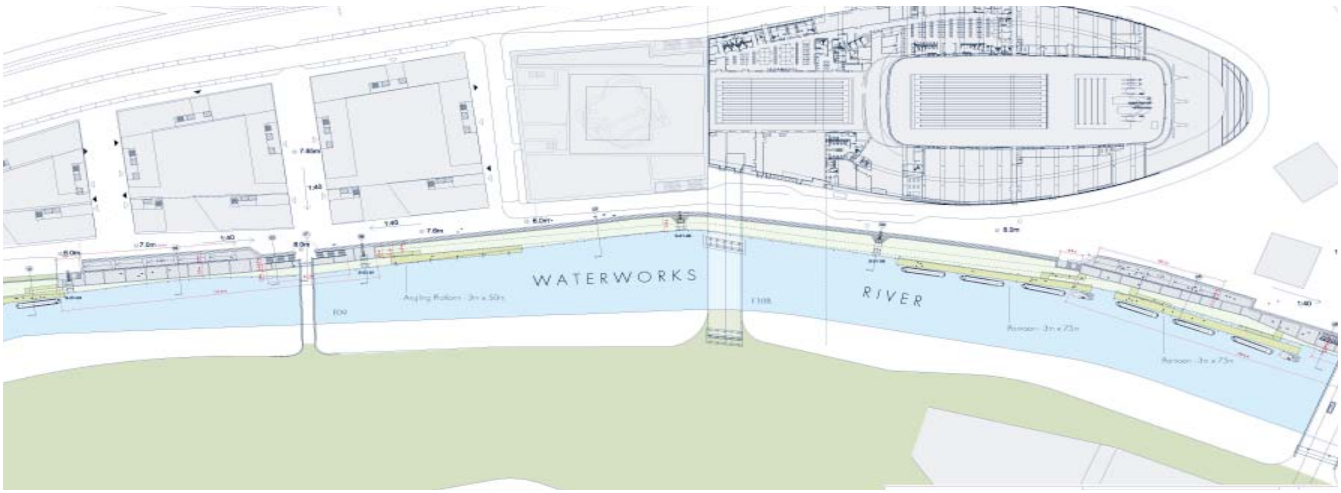
ECOLOGY

Eastern Bank

A bank-side belt of marginal emergent aquatic vegetation, dominated by common reed will be established to provide a habitat for a range of flora and fauna including water vole (a BAP species) and dragonflies. Sunny banks close to the river will tend to be open in character and will be able to support a range of terrestrial habitats from the Olympic Park BAP, including species rich grassland and brownfield habitat. There will be opportunities to build bat hibernation, roosting and maternity boxes into slopes, bridges and bridge abutments. The marginal habitat on the eastern bank will also enable the reed bed target within the Olympic BAP to be achieved. However, it will be important to limit the potential impact that moorings could have upon this habitat.



Right: Figure 3.3.2. Illustrative plan of the River Lea and Channelsea River showing opportunities for their use during the Games.



Below: Figure 3.3.3. Latest proposals for east bank of Waterworks River adjacent to Aquatics Centre. Note visitor moorings and ecological corridor as designed in consultation with the EA and BW

3.3 Waterworks River

Western Bank Valley Slopes

The slopes leading down from the upper plateau area will be vegetated with a range of terrestrial habitats including native woodlands (a BAP habitat), tall herbs and pioneer communities (stony meadows) (together equivalent to the Brownfield BAP habitat) on woodland edges and species-rich grasslands (also a BAP habitat).

USE

Construction

During construction the Waterworks River will be closed to public boats, however there are opportunities for use of the river for freight, and there is the potential for a wharf to be built on western bank.

Games

During the Games, subject to operational planning, the low level route alongside the eastern bank of the Waterworks River is likely to be used for operational purposes rather than by visitors.

The western bank towpath will also be used for operational purposes such as moving staff and goods between the different venues.

Barges moored along Waterworks River are not proposed due to crowd flow implications and the potential flood impact although there could be some navigation uses (as defined by LOCOG operational procedures)..

The waterways may also have security patrols operating during the Olympic Games.

A processional route through the north park and along the Waterworks River may be created. The southern end is currently envisaged to be mainly residential, in line with the 2004 masterplan to be reviewed in the LMF.

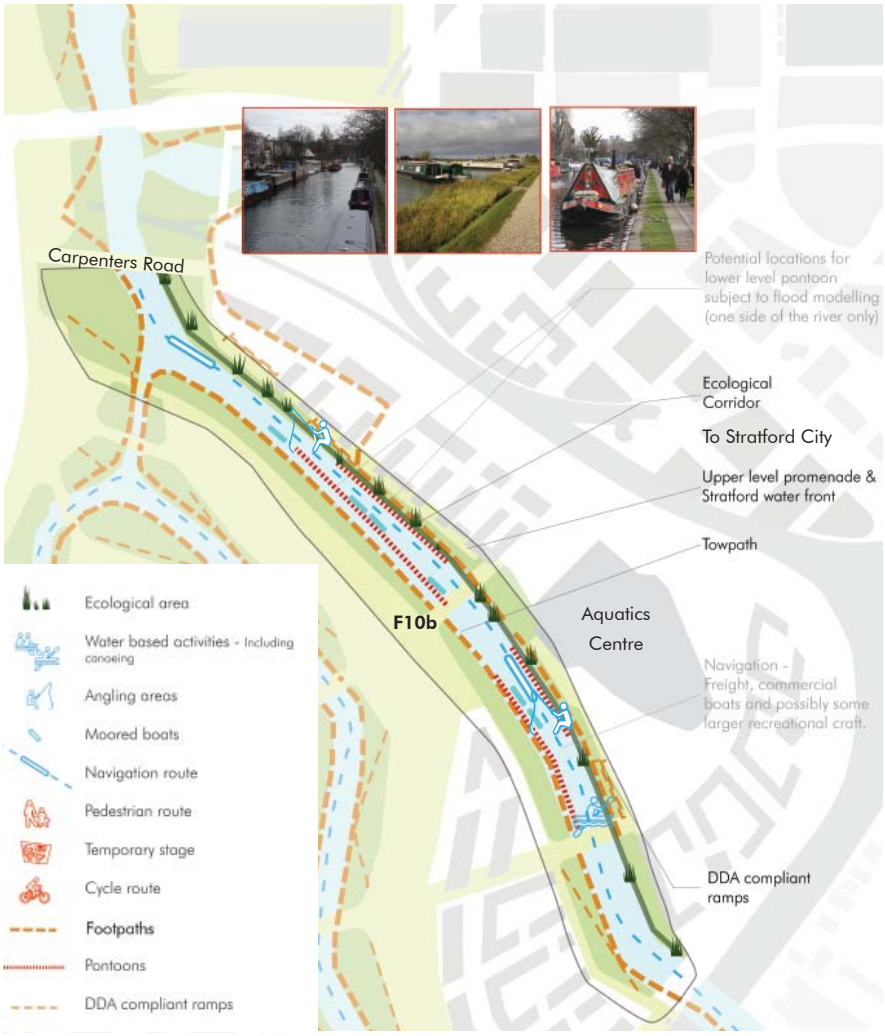


Figure 3.3.4. Illustrative plan of the Waterworks River showing opportunities for its use in Legacy

Transformation

In Legacy, the low level towpath along the eastern bank will be accessible to the public via two ramps. This will enable close interaction with the water's edge for walkers and other waterside activities. The upper level will be dependant on Legacy development in the north and south. It is currently envisaged that the northern end will be mixed use with an active waterfront. The southern end is currently envisaged to be mainly residential developments, in line with the 2004 Masterplans to be reviewed in the LMF. The Aquatics Centre will dominate.

Further design work is to be carried out on integrating the river wall with its planted margins to ensure that it is not a danger to navigation and health and safety and does not prejudice the provision of visitor moorings and a mooring point for trip boats/water taxis/ etc.

On the western bank the towpath, which is a few metres above water level, will be accessible to pedestrians and cyclists.

3.3 Waterworks River

OLYMPIC DELIVERABLES

- Existing flood defences retained and repaired on the western bank.
- New River wall built eight metres back from the existing river wall on the east bank.
- Creation of marginal planting strip and low level towpath on the east bank.
- Widened waterway for flood conveyance.
- Towpath improvements to west bank.
- Formation of new bridges providing improved connectivity from Stratford City to the parklands and wider areas.
- Potential construction of Freight Wharves, subject to feasibility studies.
- Removal of invasive plants.
- Localised lowering of the towpaths and river walls to allow clearance below bridges.
- Decontamination of contaminated ground.
- New surface water drainage systems and outfalls.
- Lighting.

LEGACY OPPORTUNITIES (TO BE CONSIDERED IN THE LMF)

BOATING. Following impoundment at Prescott Lock the river could support a range of boating uses from freight to recreational/commercial boats to houseboats.

NAVIGATION. A floating lower level pontoon could be created along the western edge for temporary moorings. This could be accessed from the upper level towpath by ramps or steps. The potential flooding impacts would however need to be checked.

LEISURE. Hospitality barges, business barges and floating restaurants could be considered similar to those at Hale Wharf, Tottenham. The potential flooding impacts would however need to be checked.

ANGLING. With the improvement of the waterways, angling shall be encouraged especially upon the eastern bank of the river.

WATER TAXIS. A water taxi stop could be provided as part of a wider network of water taxis.

WATERSIDE ACCESS. Additional access points could be provided from the upper level to the low level walkway on the east bank.

WATERSIDE CAFES. Waterside cafes could be provided on the east bank.

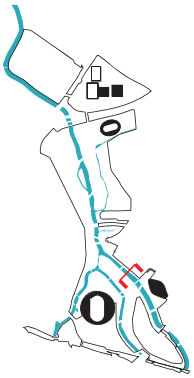


Figure 3.3.5. Illustrative section through Waterworks River

3.4 The Bow Back Rivers: Old River Lea and City Mill River

CHARACTER

Pre-Games Context

The Old River Lea and City Mill River, collectively known as the Bow Back Rivers, reflect the historical industrial character of the Olympic waterways. They have suffered from years of neglect and several sections of these waterways are in very poor condition.

The Old River Lea and City Mill River are 550m and 775m respectively and are both approximately 20m wide. The Old River Lea is formed by one vertical bank and one naturalised bank with marginal planting that provides a degree of ecological connectivity with the River Lea to the north. The City Mill River is formed by two vertical banks. Due to the decommissioned status of Carpenters Road Lock and City Mill Lock there is no water-borne connectivity between the Bow Back Rivers and the River Lea. British Waterways have recently restored the City Mill Lock and have plans to restore the mechanisms to make both locks fully navigable again.

Post Games Context

The Bow Back rivers, along with the Olympic Stadium, will be a hub for activities within the parklands. This could be the major destination within the park for boating, food, music, dance, culture, the arts and many other kinds of recreation. It could celebrate the diversity of existing and new communities, becoming a 21st Century version of Vauxhall and Tivoli Gardens.

The Stadium island is formed by dramatic slopes rising up from the Old River Lea and City Mill River. The Olympic Stadium sits on top of these slopes, and will be a central focus for the southern parklands during the Games. In its reduced size, in Legacy it will be much less of a focus.

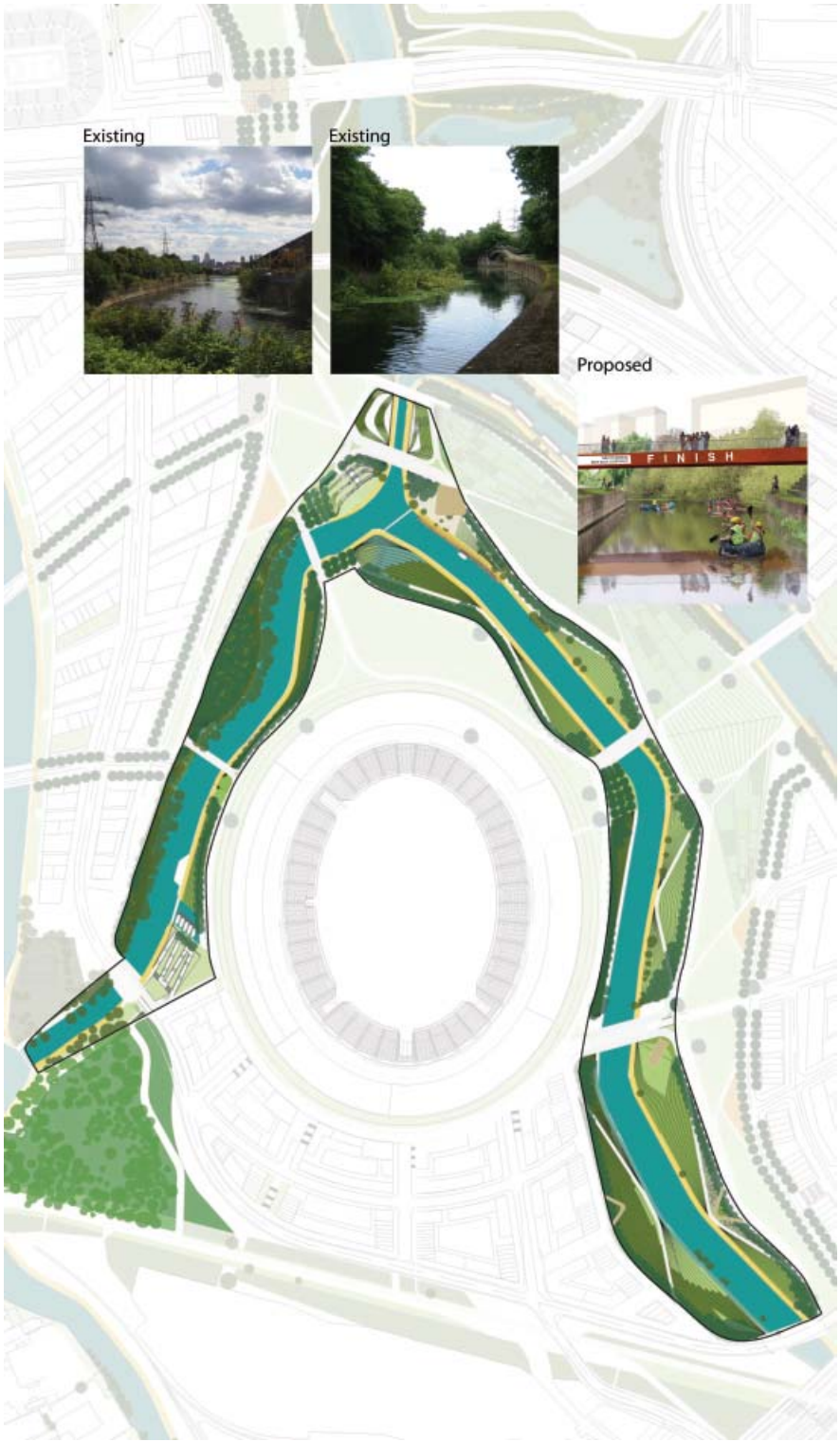


Figure 3.4.1. Illustrative Legacy plan of the parklands with the Bow Back Rivers highlighted.

3.4 The Bow Back Rivers: Old River Lea and City Mill River

Where possible, historical artefacts and materials salvaged from the site preparation will be integrated within the Parklands. Here the essence of the old industrial landscape will be revived and reconfigured for modern-day life and leisure. On the upper plateau levels will be the Olympic Stadium as well as old railway sidings at Thornton's Fields where new planting could echo the lines of the old rail tracks. This approach is anticipated to be reflected in the materials of the towpaths, with granite sett trim around bridges and locks, as is traditional, and self bound gravel elsewhere.

The Old River Lea will remain mostly unchanged from its current character of mature ecological corridor combined with the vestiges of industrial waterways infrastructure, the major change being the impressive backdrop of the Olympic Stadium to the east.

Towpaths will be provided along both banks of the City Mill River and along the eastern bank of the Old River Lea. Moorings in the form of floating pontoons could provide for business barges, visitor barges and restaurant and recreational facilities.

CONNECTIVITY

The towpath and upper plateau levels are connected by DDA compliant ramps. On the City Mill River there are opportunities in Legacy for additional staircases if required.

From the upper plateau at the northern ends of the rivers, there are direct connections to the rest of the park and surrounding communities over the seven new bridges, which cross these rivers.

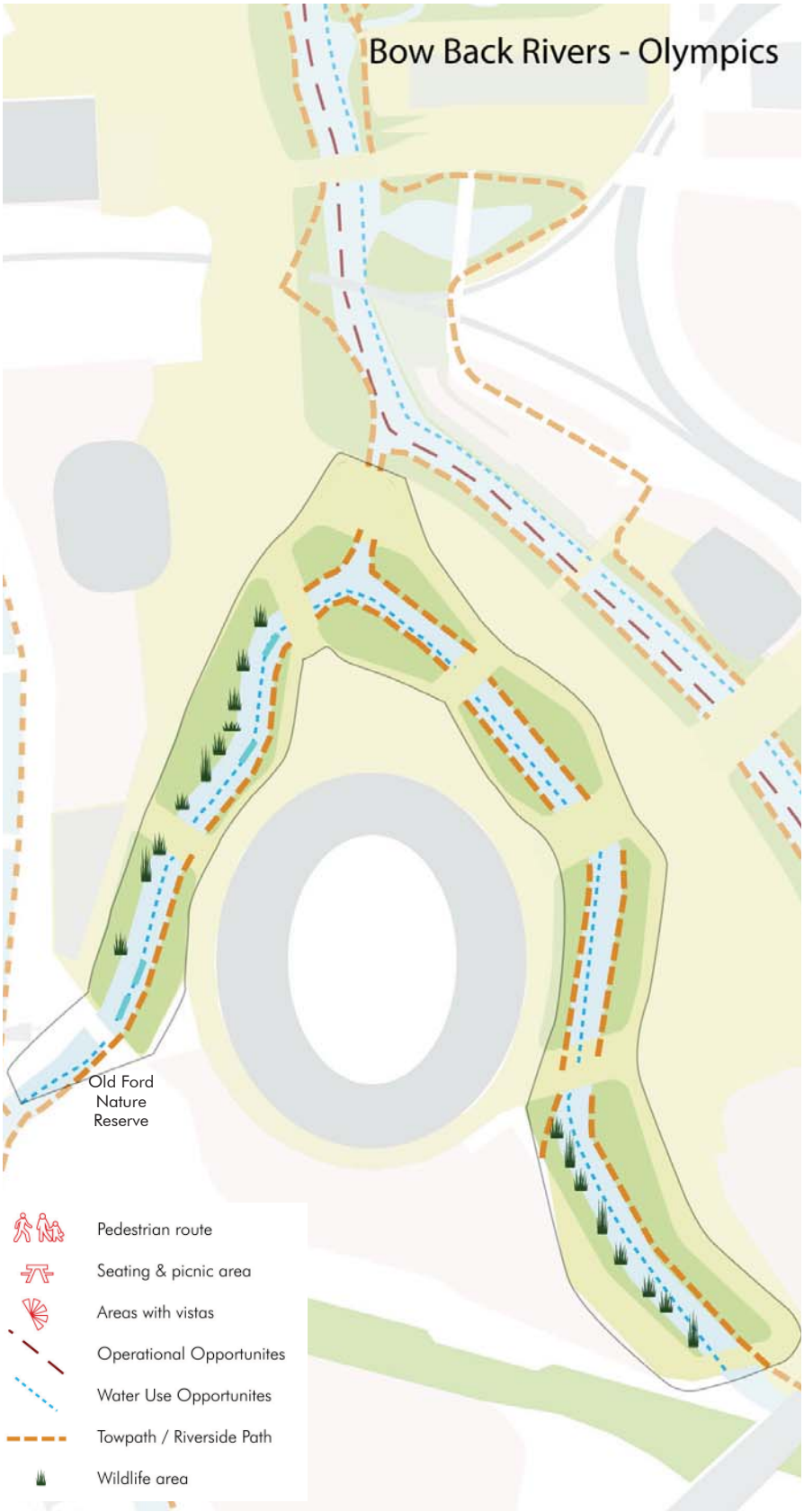


Figure 3.4.2. Illustrative plan of the Bow Back Rivers showing opportunities for their use during the Games.

3.4 The Bow Back Rivers: Old River Lea and City Mill River

ECOLOGY

Old River Lea eastern bank and City Mill River

As with the similar Waterworks River, sunny banks will tend to be kept open and will be able to support species-rich grasslands (A BAP habitat) and stony meadows (equivalent to the BAP Brownfield habitat), which will support BAP species, including the brown-banded bumble bee, toadflax brocade moth and common lizard.

As with the Waterworks River, these habitats will form part of a loose network of habitats extending wildlife from core areas in the north towards the more urban south. Here too, there will be opportunities to build bat hibernation, roosting and maternity boxes into slopes, bridges and bridge abutments.

The slopes leading down from the plateau area will be vegetated with a range of terrestrial habitats including native woodlands (a BAP habitat), tall herbs and pioneer communities (stony meadows) (together equivalent to the Brownfield BAP habitat) on woodland edges and species-rich grasslands (also a BAP habitat).

Old River Lea western bank

The existing wet (willow dominated) woodland with scattered reed will be retained . This mature habitat will be a source of flora and fauna which can colonise newly created areas of wetland habitat and it will continue to act as a valuable ecological corridor, linking with newly created areas

USE

Construction

During construction, the rivers will be closed to public boat use, but there are opportunities to use the channels for freight use. There are no wharves planned but boats could moor next to towpaths, and have cargoes of containers loaded and unloaded by crane.

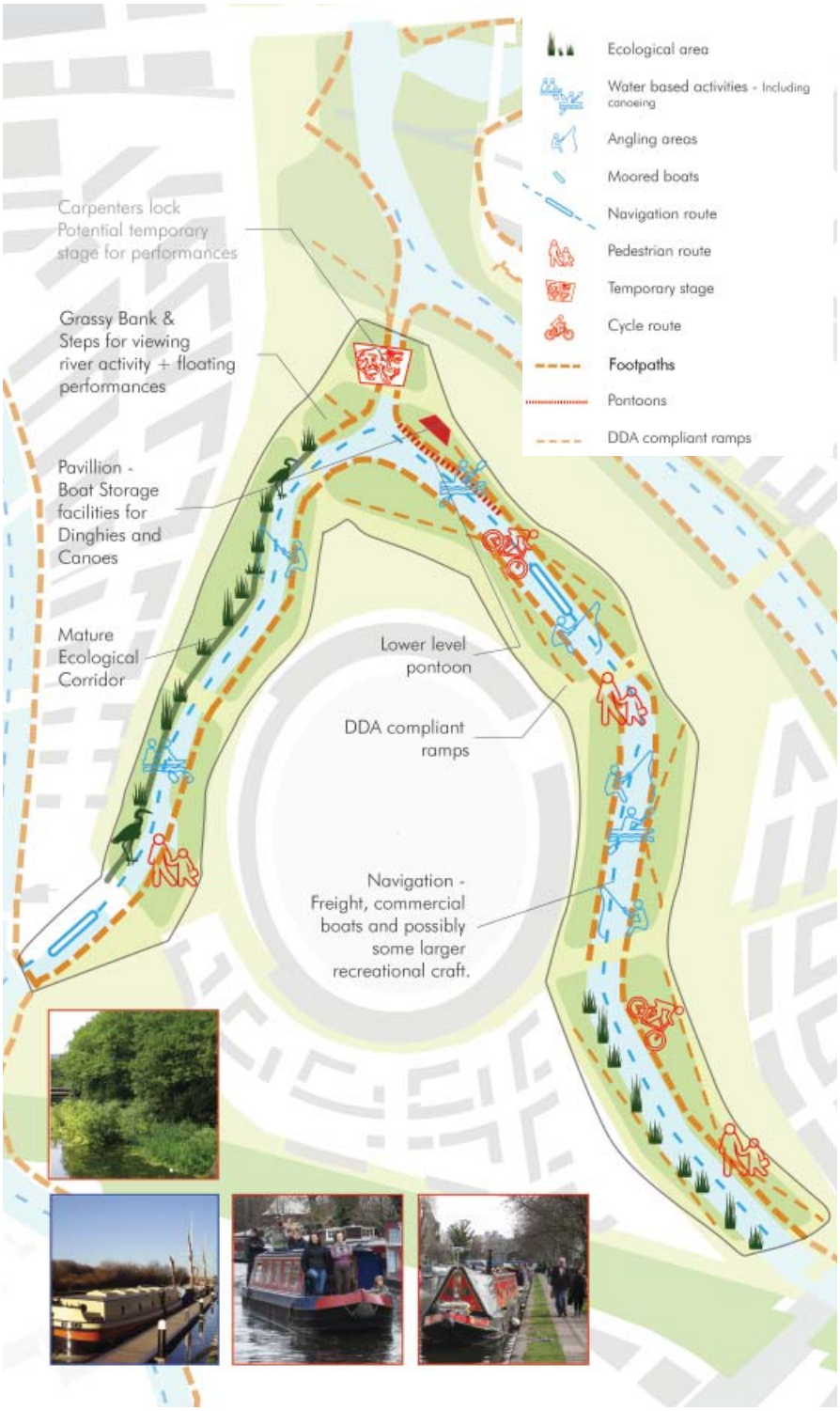


Figure 3.4.3. Illustrative plan of the Bow Back Rivers showing opportunities for its use in Legacy

3.4 The Bow Back Rivers: Old River Lea and City Mill River

Games

The Bow Back Rivers are likely to be less accessible to visitors due to the crowd management and safety implications of allowing people down to the towpaths. It will be critical to manage crowds efficiently during peak times and encouraging people down to the waterways, where there is limited access back up to concourse level, could compromise this.

The feasibility of using the U07 underpass (underneath the Great Eastern Line on City Mills River) as the primary southern gateway to the Olympic Park is currently being assessed.

The towpaths may be used for operational use.

These rivers, particularly to the west on the Old River Lea, are likely to be good locations for barges. Managed access would be required to get from concourse to watercourse level via the ramps. Moorings and pontoon access would be required due to the level difference between the towpath and the impounded water level (approx. 3m). These proposals would particularly need to be managed in terms of crowds, flood and security. The waterways will have security patrols operating during the Olympic Games.

Legacy

City Mill River towpaths on both sides of the river will be open for pedestrian use in Legacy.

On the western bank, just south of Carpenters Lock, a bowl between the bridges landscaped into wide grassy steps, could provide a spot for picnicking and watching the activity on the waterways below.

Old River Lea towpath on the eastern edge will be open for pedestrian use, and the western bank will remain as a mature ecological corridor.

There is potential to restore Carpenters Road Lock, offering opportunities for a hub of water and land-based activity. The lock also offers potential for the Bow Back Loop to connect into the River Lea, the Waterworks River and the wider network.

There are a range of opportunities for integrating land and water uses through special events around the Olympic Stadium. These could include processions, theatre and performances on boats.

Figure 3.4.4. Artists impression of recreation potential on the Bow Back Rivers in Legacy

3.4 The Bow Back Rivers: Old River Lea and City Mill River

OLYMPIC DELIVERABLES

- Retention of historic river walls around the Olympic Stadium, along with mooring posts and the disused Junction Lock structure in the Old River Lea.
- Formation of new bridges over the Rivers providing improved connectivity to the parklands and wider areas.
- Enhancement of existing mature habitats along the west bank of the Old River Lea.
- Retention of existing river walls, including repairs where necessary.
- Demolition of 290m of existing river wall on south-west bank of City Mills River and replacement with soft landscape.
- Creation of seven new bridges over the rivers providing improved connectivity with the parklands and wider areas.
- Decontamination of contaminated ground.
- New surface water drainage systems and outfalls.
- Lighting

LEGACY OPPORTUNITIES (TO BE CONSIDERED IN THE LMF)

BOATING. The Bow Back Rivers could support a range of boating uses from freight to recreational/commercial boats to houseboats and residential moorings. This could be balanced with opportunities for smaller recreational craft such as dinghies and canoes.

WATER TAXIS. A water taxi stop could be provided as part of a wider network of water taxis.

WATERSIDE ACCESS. The topography around the main stadium side could be transformed in Legacy to enhance access to the water for a range of uses.

WATERSIDE CAFES. Waterside cafes could be provided.

4 Delivery

4. Delivery

Alongside the Urban Design & Landscape Framework (UDLF), the Waterspace Masterplan will provide the local planning authority and other stakeholders with information on the design intent and design principles for the waterways during Games and Legacy Transformation stages and ensure a consistency of design approach across the Olympic Park. The UDLF and the Waterspace Masterplan will be used by designers, constructors and planners to inform and guide the content of reserved matters applications for the detailed designs of buildings, other structures such as bridges, works to river walls, and the landscape proposals for the parklands and waterways.

The Waterspace Masterplan focuses on the role of the waterways during the construction period, in the Games and Legacy Transformation stages whilst retaining the flexibility for further definition of Legacy uses and activities so as not to prejudice the Legacy Masterplan Framework process. The design principles outlined in the Waterspace Masterplan have been developed with the LDA, and the ODA will continue to work closely with the LDA as the Legacy Masterplan emerges, to ensure that the design decisions made for the Games and Legacy Transformation phases do not preclude development and operational choices that may be made in the future.

Each of the sections covering the four waterway areas clearly sets out what elements of waterways infrastructure and improvements are envisaged to be delivered for the staging of the Olympic Games, and potential legacy opportunities to be considered in the LMF. The following summarises the main responsibilities and mechanisms for each phase of delivery.

Construction (2008-2012)

Work is already underway to deliver improvements to the waterways with the clearance of invasive species, re-profiling of the river banks, replacement and repair of the river walls and the construction of surface water outfalls. Work on the wetland bowl will commence at the end of 2008. Once the engineering works are complete, the river edges and walls will be planted and faced in preparation for the Games.

An Environmental Management System, drawing on the Code of Construction Practice (along with Environmental Management Plans) is in place to ensure that the waterways are safeguarded during this phase. Moreover, consents for the works adjacent to waterways will be required from the Environment Agency and British Waterways as part of their statutory undertakings.

Table 4.1

	ODA			LDA
	CONSTRUCTION	GAMES	TRANSFORMATION	LEGACY
		Temporary	Permanent	
Character			➢ **Lighting Strategy** ➢ **BAP** ➢ **Streetscape Manual** ➢ **Parklands & Public Realm Stage D** ➢ **Inclusive Design Strategy**	
Use	Construction Management & Site logistics	• LOCOG Olympic overlay design • LOCOG Operational Management • Temp venue designs	• Permanent landscape design inc. waterways • Permanent bridge design	Construction Management & Site logistics
Connectivity		• Temp Infrastructure	• Permanent road	• Waterside development proposals • Waterside use • Access to water
Safety & Security		• Emergency services	• Permanent utilities	• Safety and security along the Waterways based on use
Ecology			• Permanent topography	• Additional ecology
Governance	**(CLM)**	**(LOCOG/ODA)**	**(ODA/LDA)**	**(CLM)** • Governance

4. Delivery

Games Time (2012)

The design of the waterways and platform for the Olympic overlay aims to celebrate the Games water side location by creating public access to the waterside, encouraging a vibrant waterside for activity and enjoyment subject to health, safety and security requirements.

The River Valleys will be landscaped and habitats created prior to the Games, and the River Valley 'Rim' will be installed as a permanent feature at the junction between the upper and lower levels of the parklands. The Rim is conceived as a location for permanent seating, lighting, signage and edge detailing put in place for the Games and retained for Legacy. The Rim will provide a viewing platform into the River Valley and facilitate public access for waterside activity and enjoyment.

The detailed design of the Olympic parkland areas, including the River Valleys and Rim, along with the surface treatment of front of house areas and the Olympic concourse will be submitted to the planning authority for approval in September 2008.

Planning submissions for the Olympic overlay will be brought forward subsequently by LOCOG. The Waterspace Masterplan has considered potential uses for the waterways during the Games. Much will depend on the development of operational management procedures which will be taken to conclusion after the Beijing Olympics. These will define the uses of the waterways during the Games and in turn any special requirements for infrastructure such as lighting, railing and security.

Legacy Transformation (2012-2014)

The valley landscape created within the heart of the Olympic Park in advance of the Games will remain very largely unaffected during post-Games transformation. The River Valleys will provide the heart of the legacy parklands and the aspiration is to open up as much of the River Valleys to the public as soon as possible after the Games. This is likely to include opening the riverside pathways, together with key east-west connections across the Upper Plateau areas, to encourage access through and across the valley level and to enable the management of the maturing landscape.

It is intended that the design of the waterways in Legacy Transformation will generally be retained as proposed for the Games phase with minimal changes. However, transformation work should:

- Further enhance the amenity, ecological value and flood mitigation effectiveness of the waterways through re-modelling of the waterways banks in selected locations, such as around the Main Stadium.
- Balance the navigation, public access and the ecological integrity of the river corridor and river valley.
- Deliver any further enhancement of the waterways to enable them to be open and accessible to the public (in agreed locations) as soon as possible after the Games phase.
- Install facilities to promote use of the waterways, as appropriate and in light of the emerging LMF.
- Where practical, provide access to waterways and enhance the visitor experience through the creation of pedestrian and cycle routes between the waterways and the Valley Rims.

The legacy owner and manager of the parklands is not yet determined. Further work to define options for governance and funding will be undertaken in parallel with the Legacy masterplanning process. As required by condition LTD.5 arrangements for the long term management, funding, public use and maintenance of open space and public realm will be submitted to the planning authority before 31 December 2012.

Legacy (2014+)

The Legacy of infrastructure, buildings, parklands and cleared development sites inherited from the London 2012 Olympic and Paralympic Games will form a platform for the long term further regeneration of the site, through the preparation of a Legacy Masterplan Framework (LMF), which will consider the physical, social, economic and environmental aspects of the future development plots.

The LDA is leading the LMF and the early stages of work have commenced. This work will continue during 2008, in consultation with stakeholders and local communities to ensure that proposals are informed by the aspirations, perspectives and experience of those with an interest in the long term sustainable regeneration of the Lower Lea Valley. An outline planning application is anticipated in the spring of 2009.

Table 4.2 below shows the key phases of the project:

Table 4.2
Project Key Phases

Year	Phase
2008-09	Development of Legacy Masterplan Framework and business plan/s
2009	Legacy planning application/s
2010-2012	Legacy planning permission/s
2012	The Olympic and Paralympic Games
2012-2014	Initial legacy conversion of Olympic Park and venues. Demolition, dismantling and redistribution of temporary venues.
2014 onwards	Legacy communities developments