

# Integrated Holistic Approach to Planning and Collaborative Governance for More Climate-Resilient Cities

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Lindsay Bremner, University of Westminster [UK]  
Victoria Lawson, London Borough of Hounslow [UK]  
Shuaib Lwasa, Makerere University, Uganda [UGANDA]  
Francesco Musco, University IUAV of Venice [ITALY]  
Barbara Norman, University of Canberra [AUSTRALIA]  
Philip Rode, London School of Economics [UK]  
Giulio Verdini, University of Westminster [UK]

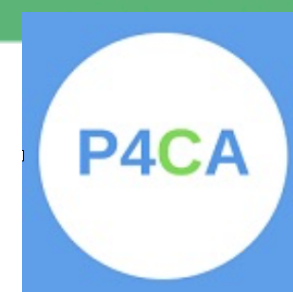


Roudaina ALKHANI  
University of Westminster [UK]  
Planners 4 Climate Action

# Integrated, Holistic Approach to Planning and Collaborative Governance for More Climate-Resilient Cities

## Experiences from the London Lab

Dr. Roudaina Alkhani  
Senior Lecturer in Planning and Urban Design  
University of Westminster  
London - United Kingdom



# Starting point

- Climate change impacts and risks have become threatening in many regions to the sustainability and resilience of communities, natural areas, biodiversity and resources.
- Climate change mitigation and adaptations have often be seen as costly measures.
- However, I argue that climate mitigation and adaptation can turn into drivers for innovation and shared benefit in cities. They can become part of how we create new opportunities for urban areas and more resilient places.



# Background

- Ph.d in Planning: Urban Regeneration & Harbourfront Planning and Management, DK.
- On-going climate research and article in 2020:

Article titled: Understanding Private-Sector Engagement in Sustainable Urban Development and Delivering the Climate Agenda in Northwestern Europe—A Case Study of London and Copenhagen. *Sustainability* 2020, 12(20), 8431; <https://doi.org/10.3390/su12208431>

The article aimed to understand the contribution of the private sector to closing the climate gaps. It explored policy, governance, and regulative frameworks for the private sector's involvement in urban development, sustainability, and climate efforts in two European cities; London and Copenhagen.

- Professional practice in local authority, government advisory and own practice.
- Teaching with a focus on sustainability and climate change, strategic planning, integrated and dynamic cities.





## My earlier research highlighted the following challenges:

- Challenges related to current planning approaches: lack of holistic visions.
- Challenges and differences in city practices related to governance and regulatory frameworks generally, and in London.
- Gaps in our knowledge about the exact role that public and private actors and communities play and can play in managing climate change. Hereunder the lack of methods for defining their roles.
- Knowledge gap around the implications of climate change for the different sectors.
- Challenges related to current patterns of involvement of private and public actors in urban regeneration leading many times to disconnected cities and wasted opportunities.

## My research highlights the importance of the following:

- Promoting **integrated approaches** that aim at the integration of sector goals in urban areas and across different scales. Integration is crucial at all stages of design, construction/implementation, and management.
- **Increasing collaboration** based on a clear understanding of the different contributions played by the public actors, private sector, communities and other organisations.
- The importance of expanding approaches from simple adaptations to include **holistic planning approaches** comprising urban areas. Area based approaches aiming at strengthening localities/places and anchoring climate measures/aims can be useful.
- The importance of **strengthening circular approaches**, and promoting new behaviours of organisations, groups and individuals.
- The need to **update regulatory framework** and collaboration forms.
- The importance of **data and smart approaches** to manage and monitor life-time impacts in the built mass and the urban areas generally.
- **City Leadership** to ensure synergies between actors and monitoring of impacts.

Through teaching activity, I have worked on the following:




## Ecological potentials and Challenges of the Thames River



**Brentford**  
**Zero Carbon Neighbourhood**  
**15 Min City**

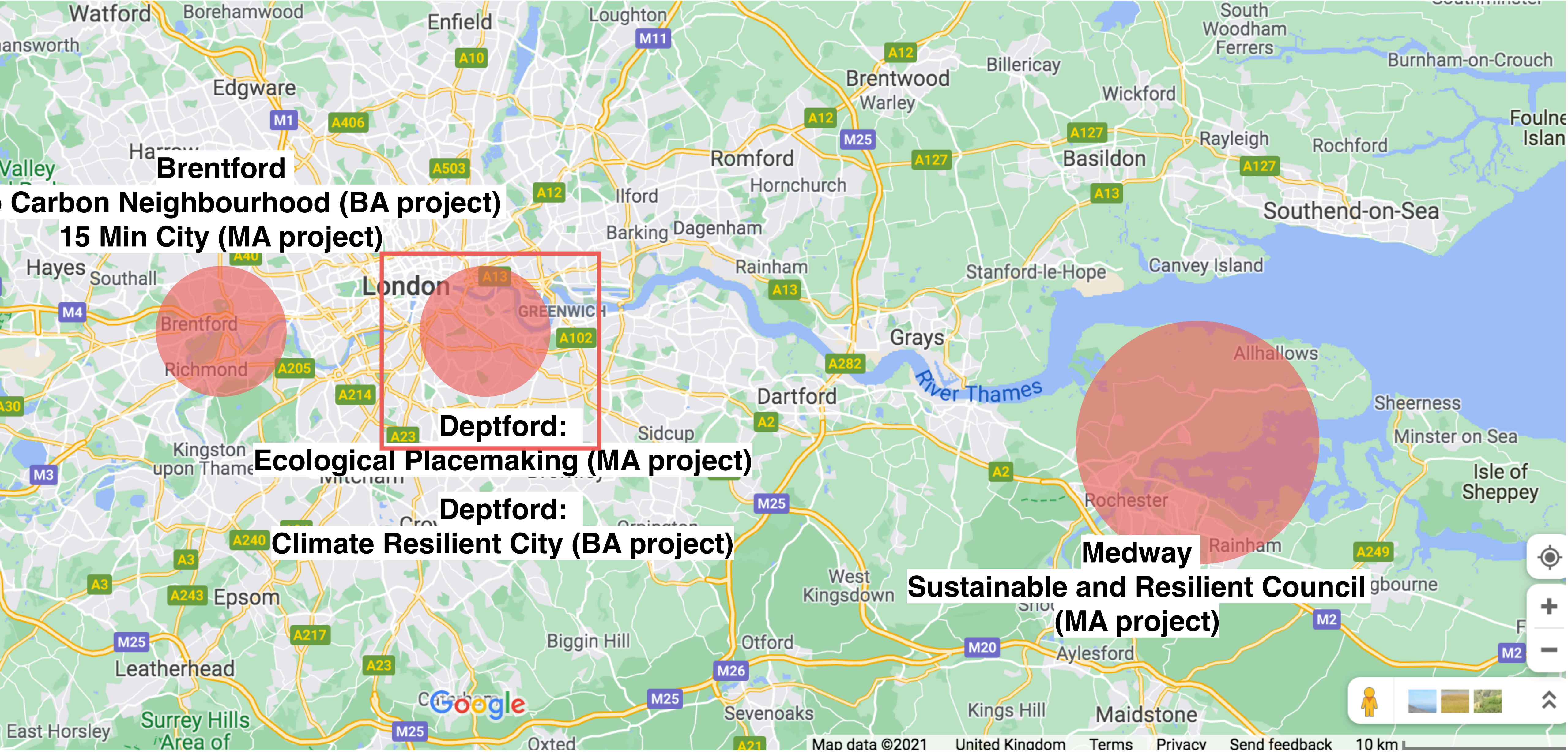
# Deptford: Ecological Placemaking

# Deptford: Climate Resilient City



**Medway**  
**Sustainable and Resilient Council**

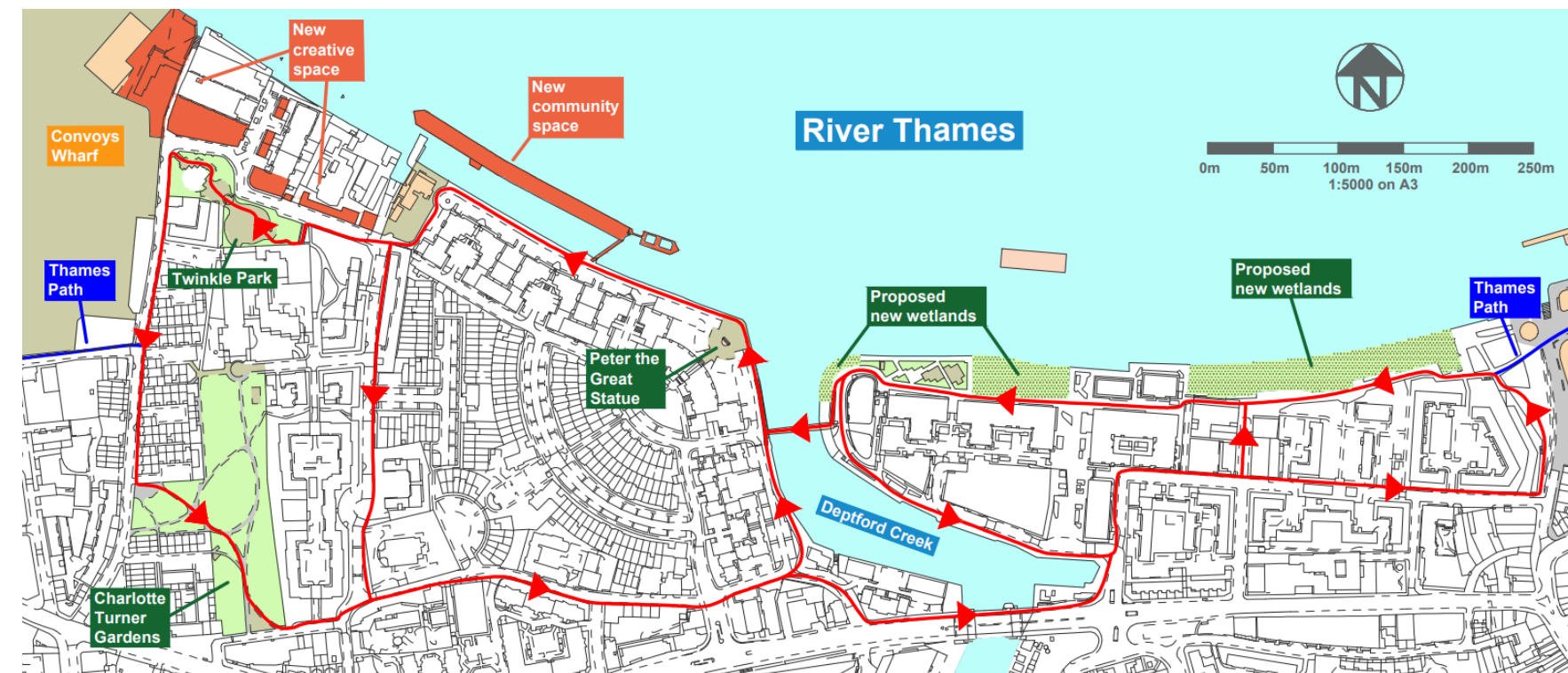




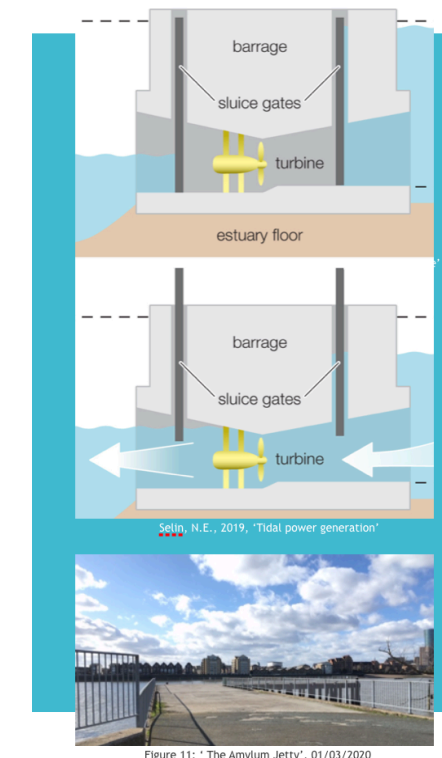


# Deptford - Ecological Place-Making

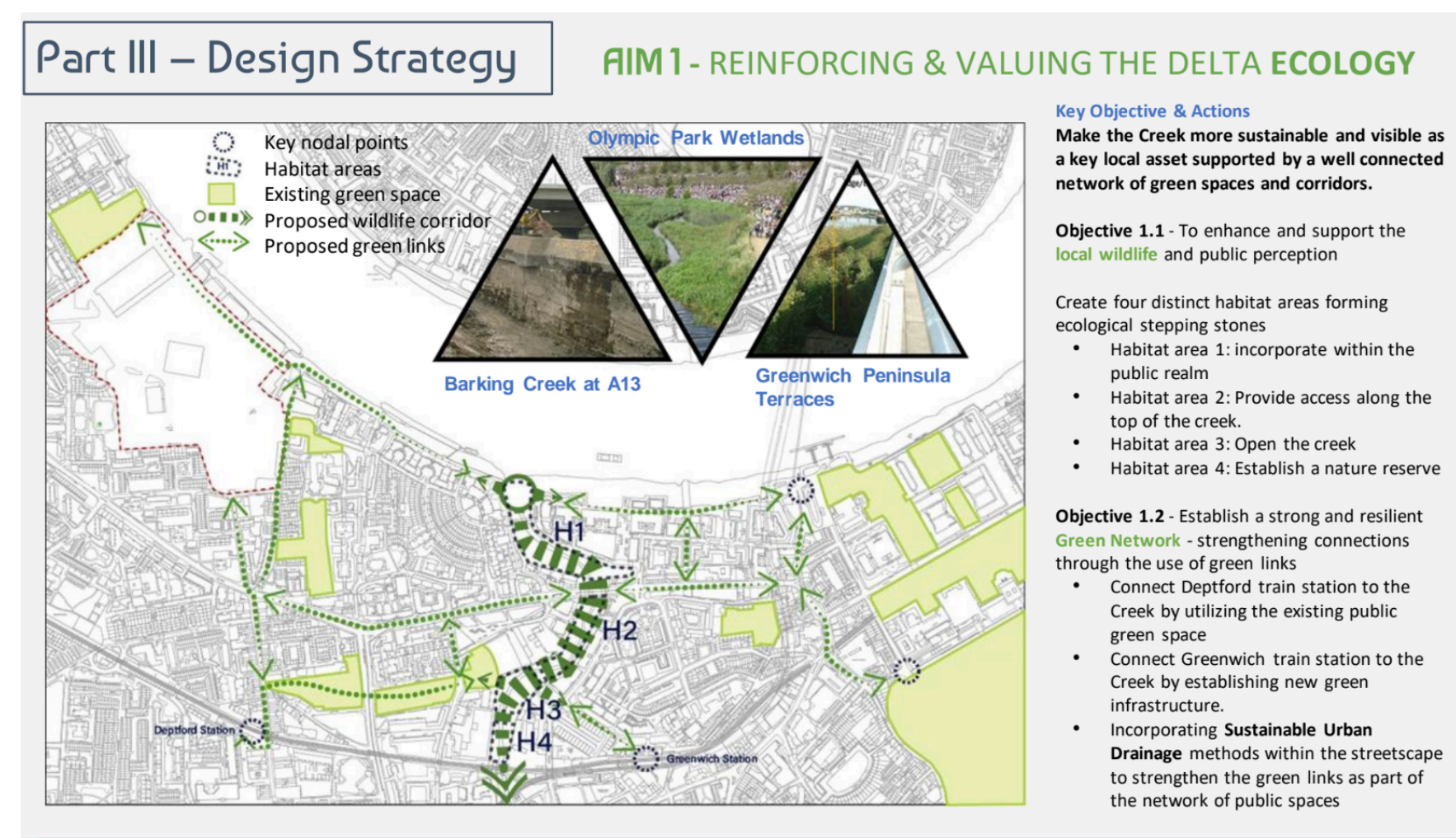
Work with the students in the MA Module Public Realm, MA Urban Design. Tutors: Dr. Roudaina Alkhani, Principal Lecturer Bill Erickson and Dr Krystallia Kamvasinou



Paul Budgen, The Deptford Mile 2019  
A resilient and socially sustainable strategy for Deptford Waterfront



- Enhancing the public realm and connectivity generally through the inclusion of blue-green infrastructure.
- Strengthening the high-street and more connection to the waterfront.
- Creation of Wetland areas.
- Safeguarding lands for future flood management
- Decentralised energy generation from power of rising and falling tide.
- Enhancing sustainable mobility to link main railway station and all other areas and increase connectivity between new areas and existing areas.
- Promoting interest in ecology.
- Promoting a culture of co-making and co-growing. Youth hubs and pop-ups - entrepreneurialism.
- Providing creative spaces for local businesses
- Strengthening the digital realm.
- Eco-learning.
- Other issues, strengthening ecological cultural and historic significance, safety, community sharing, night time economy, etc.

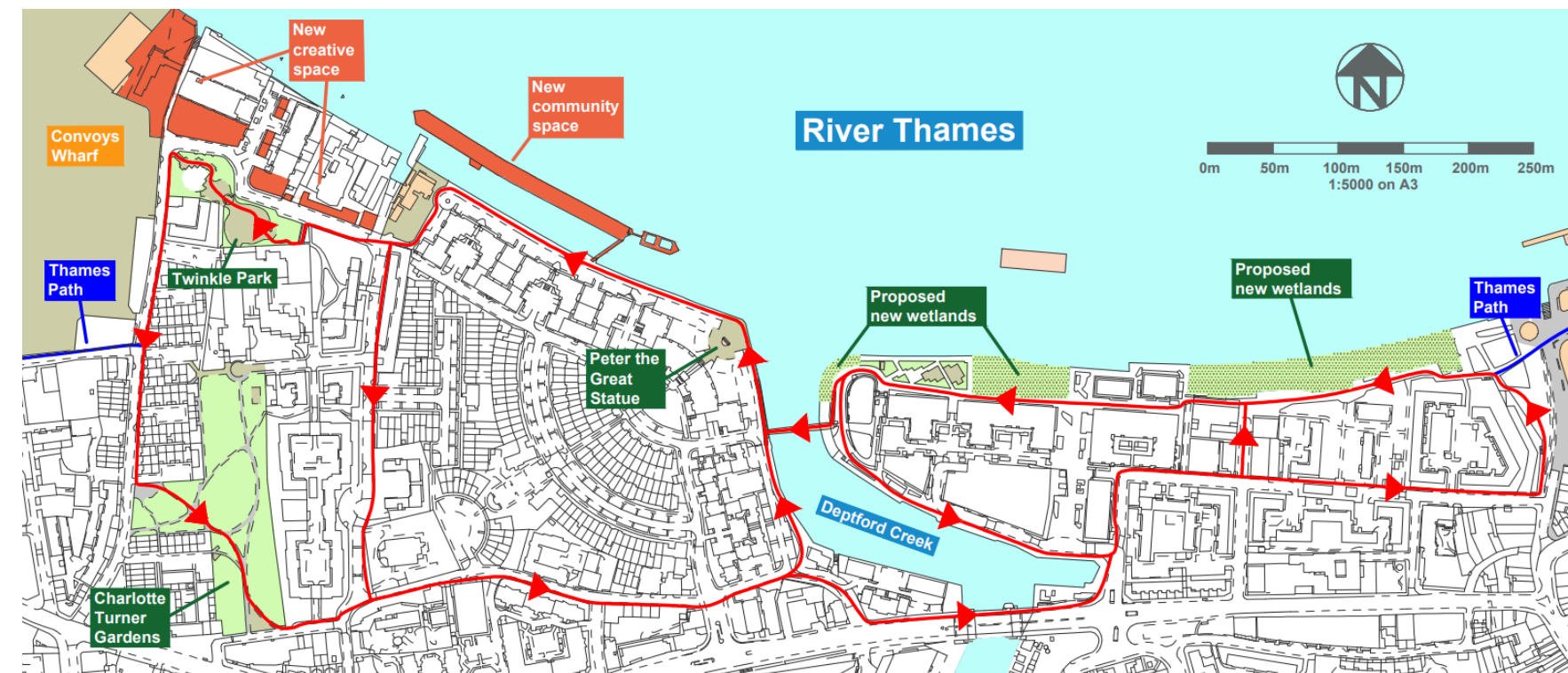


Cecile POullain, Yours Kherkashe, James Lawson, Emma Sharp, 2019  
The Depyford Delta - Where the Creek meets the River

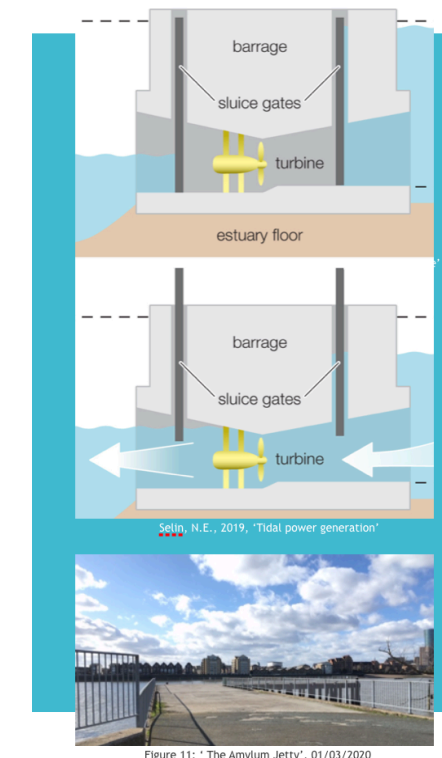


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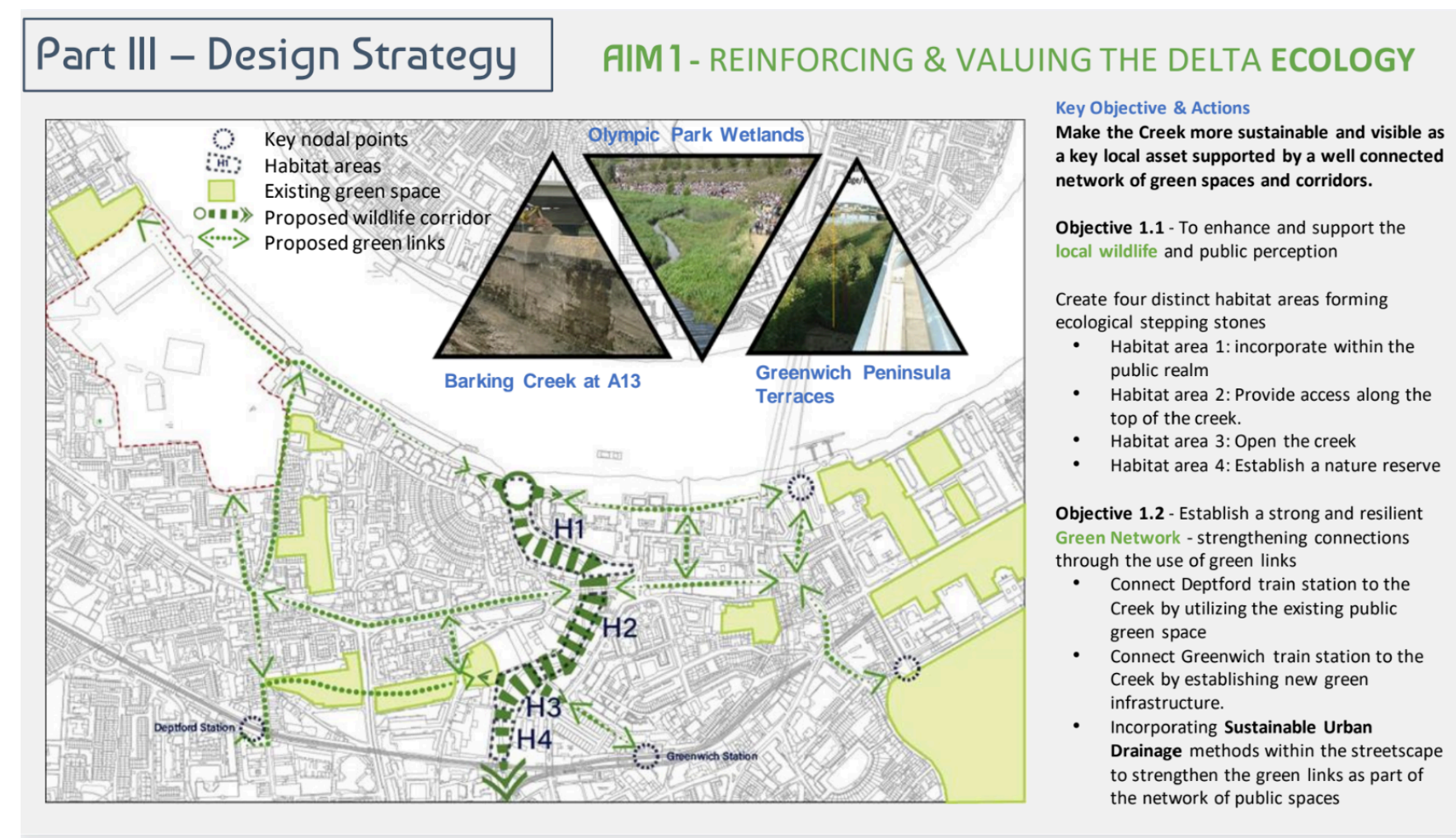
Paul Budgen, The Deptford Mile 2019  
A resilient and socially sustainable strategy for Deptford Waterfront



Collaboration with Deptford Communities at the occasion of their Neighbourhood Plan.

The work also involved:

- Developing Implementation plans proposing different stakeholders' and community engagement.
- Developing funding plans for the different proposals.
- Assessing impacts and opportunities of scaling up.

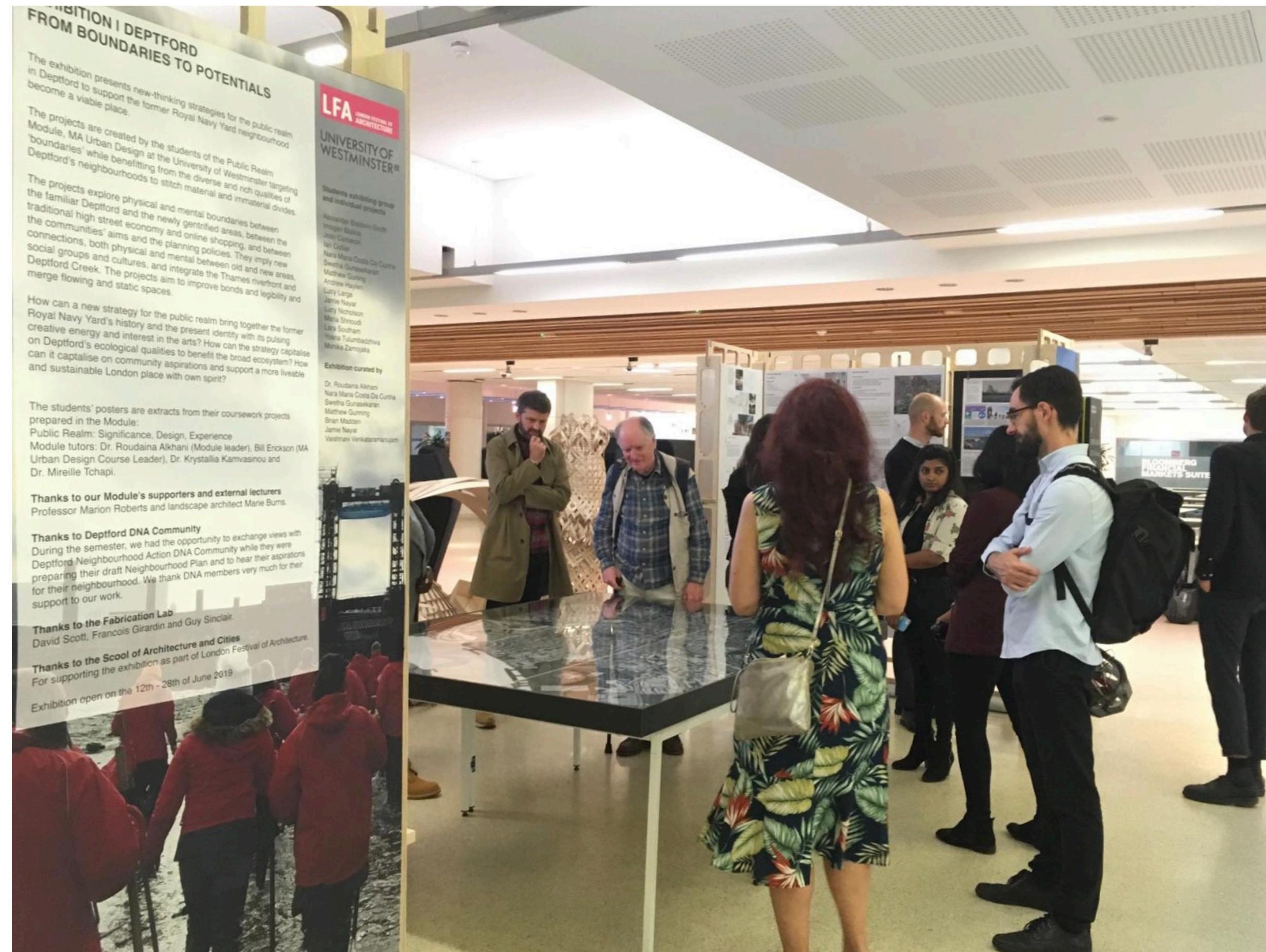


Cecile POullain, Yours Kherkashe, James Lawson, Emma Sharp, 2019  
The Depyford Delta - Where the Creek meets the River



# Deptford - Ecological Place-Making

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Exhibition under London Festival of Architecture

From Boundaries to potentials

By Roudaina Alkhani and the MA students







# Brentford - The 15 Min Place

Work with the students in the MA Module Dynamic City, MA Urban Design. Tutors: DR. Roudaina Alkhani and Principal Lecturer Bill Erickson

## KEY ISSUES & FOCUS ELEMENTS

KEY ISSUES

- Loss of sense of identity, no clear senses of place for locals and no reason for visitors to come to Brentford
- Risk of flooding due to human manipulation of canals and rivers
- Fragmentation of the green and blue spaces, connection is lost
- Lack of existing resilient infrastructure; nothing to prove Brentford can withstand the test of time given our current global climate crisis
- High emissions which result in poor air quality in the area



## FOCUS AREAS

- Sustainability
- Resilience
- Compactness
- Connectivity
- Inclusivity
- Community

## OUR PROPOSAL

Our proposal as shown below highlights the different intervention possibilities for Brentford under a strategy that focus' on the green and blue aspects of the 15 minute place.

The strategy uses the high street as the main East/West axis of Brentford to define nodes which connect North/South running blue/green corridors.

The blue/green corridors relate the high street to the river through urban stitching using green pockets that connect existing public green space in Brentford.

The green pockets are designed to use green infrastructure practices to mitigate the negative effects of stormwater runoff in an urban setting by collecting, cleaning and allowing infiltration in order to take pressure off already overwhelmed sewer systems. The goal is to mimic lost river, streams and creeks of Brentford's past.

By incorporating pathway systems for pedestrians and cyclists through these corridors, it enhances riverfront access from the high street creating a more cohesive and accessible environment that communities strive for in order to attain identity and a sense of place for its people.

The green corridors bring life back onto the high street with SUDS, incorporated bike transport and traffic calming techniques through greening which creates the notion of complete streets.

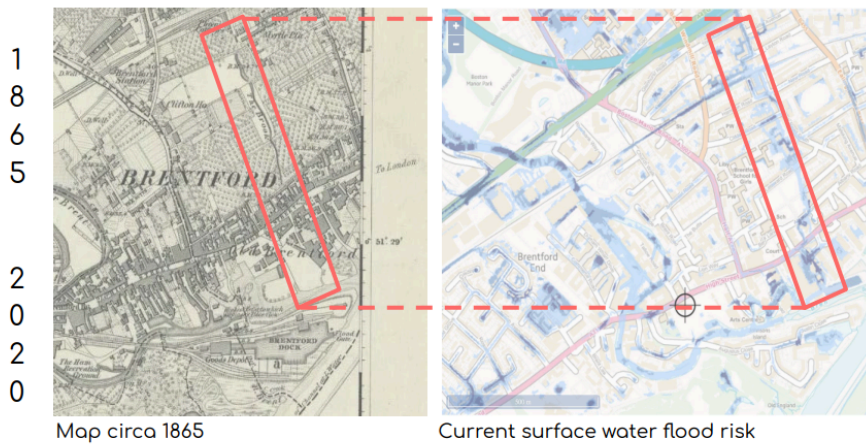
A comprehensive greening strategy as shown here can have great physical, ecological and social benefits for Brentford.

By defining these blue/green corridors we are able to create a new identity for Brentford, one that is connected, green, and future-ready.



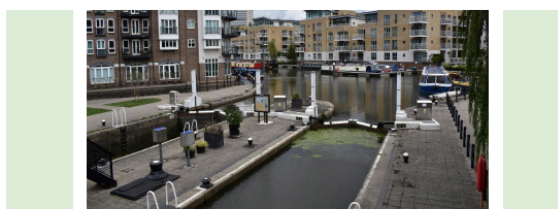
## Examples - Students' works

## BRENTFORD AND ITS RELATIONSHIP WITH WATER



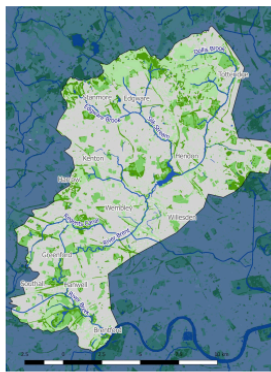
### Brentford Brook

The historical map on the left side of the page shows Brentford circa 1865 where a small Brook once ran through an orchard which is now residentially developed land and a recreation ground. Comparing the historical map to a current hydrology study in the area of surface water flooding and runoff shows the consequences of infilling waterways. In heavy rain events water continues to take over the area it once naturally ran. This can cause many hazards including property damage, extensive flooding, pollution transfer to larger and main bodies of water. The current global climate crisis only worsens the risks as time goes on. When we think about how we can unify hydrology and urban design we create safer and more dynamic cities.



### Brent Catchment Area

The River Brent is the outlet to the Thames for the entire Brent Catchment Area. The catchment area extends across 5 boroughs in west London before the combined waters join the River Thames at Brentford. The river captures and transports rain and surface drainage from surrounding built environments from an area of about 175 sq km. The rivers within the catchment area have been heavily modified by artificial embankments and river locks to manage navigation and river maintenance as well as flood risk. The River Brent failed its water quality test in 2019 due to sewage discharge from the combined sewer system and urban water runoff. Ultimately the river and canal systems that make up the catchment area are over engineered creating a much higher risk of pollution and flooding. Brentford, being the spillway of the Brent Catchment Area into the river Thames has a unique opportunity to make changes and green interventions to clean runoff before it reaches the Thames and onto larger bodies of water.



In 2009 it was estimated that 70% of London's 600km river network has been covered over or heavily modified only adding to ecological neglect and flood risk. The river networks are at the forefront of Brentford's history, this is why it is important to recognize those that have been lost (The Guardian).

## DELIVERING THE VISION

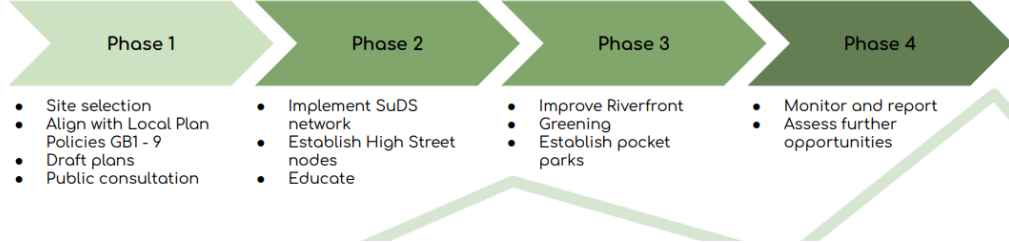
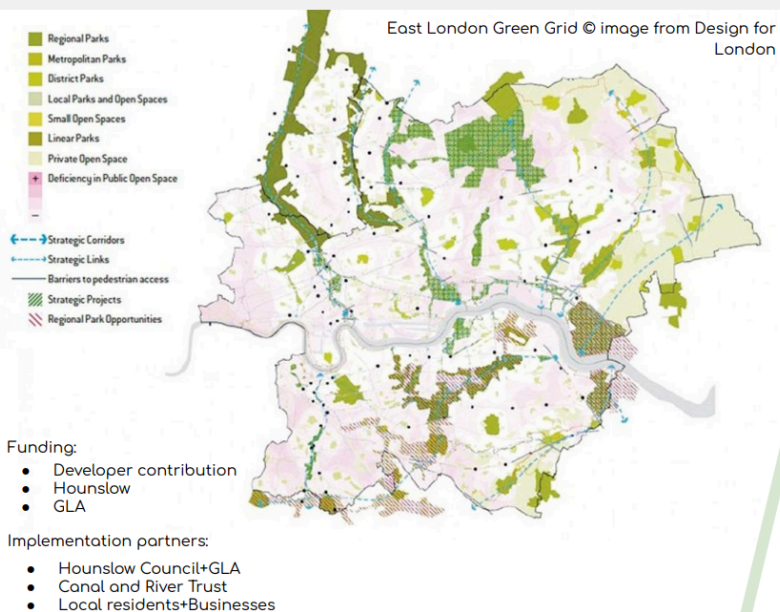
The proposed Blue-Green ideas combine current needs with long-term goals while supporting the goals set by Hounslow local plan, more specifically, chapter 7 on Blue-Green Infrastructure, Hounslow Biodiversity Action Plan as well as the Mayor of London's All London Green Grid framework.

Other policies that would affect the proposal include Policy 2.18 Green Infrastructure by The London Plan, 2011; The London rivers action plan, 2009; London Living Landscapes strategy by London Wildlife Trust, 2014; London's Natural Signatures The London Landscape Framework, 2011; Good Growth by Design The Mayor's Plan, 2017.

The implementation process is divided into 4 phases. Phase 1 focuses on developing the project, community engagement and approval, 2, focuses on the high street, increasing resilience, green aspect and the community, phase 3 – riverfront and more greening. Phase 4 would monitor and assess the improvements as well as seek further opportunities for development and improvement.

Expected impacts after delivering the vision are:

- Greater climate change resilience
- Reduced flood and drought risk
- Efficient use of water (recycling)
- Lower temperatures in summer (reduced heat island effect)
- Lower pollution levels
- Better biodiversity
- Improved health
- Reducing crime - a better living environment



Project by Daniel Johnson, Elina Mieme, Barbara Morrison Wise, 2020

Indepth Context appraisal.  
SWOT analysis  
Strategic Vision

Ecology, climate and health are important drivers of Place-making

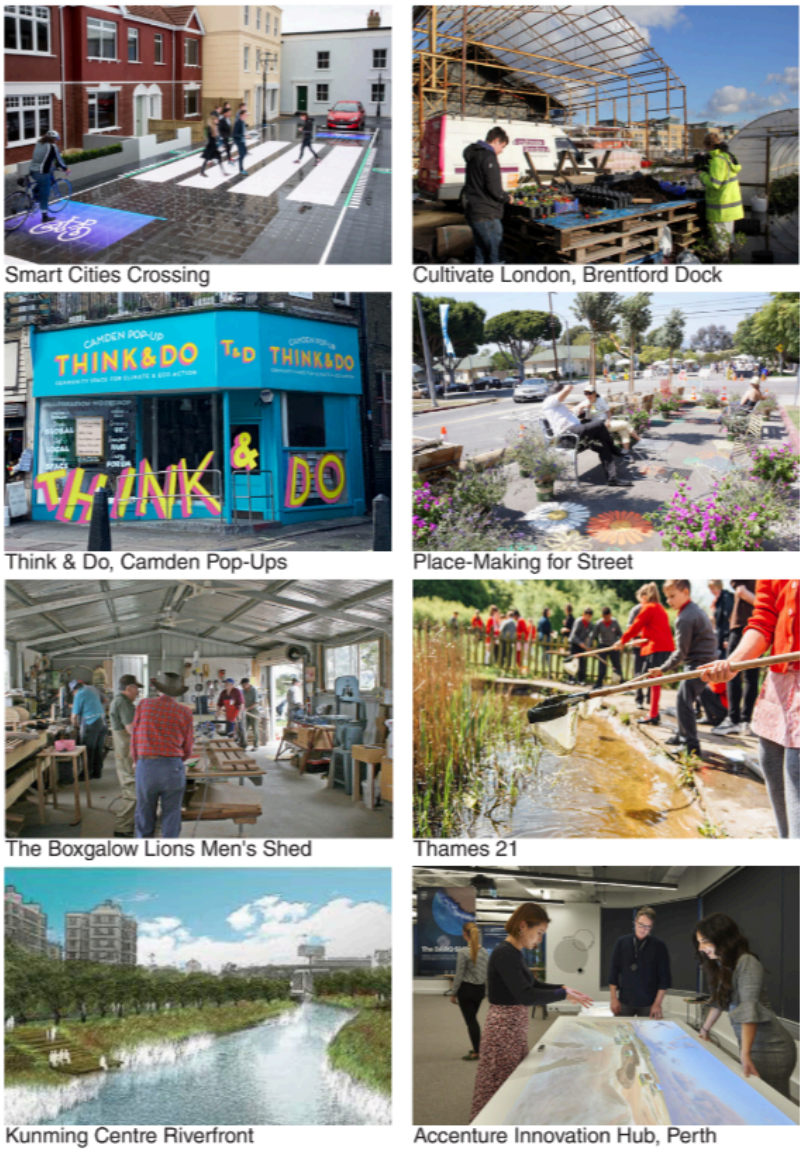
Public realm  
social hubs  
High-street health  
Connectivity



# Brentford - The 15 Min Place

Work with the students in the MA Module Dynamic City, MA Urban Design. Tutors: Dr. Roudaina Alkhani and Principal Lecturer Bill Erickson in collaboration with the London Borough of Hounslow under their Green Recovery

## 4.1 Strategies



Kunming Centre Riverfront

Accenture Innovation Hub, Perth

### Prioritised spatial and non-spatial projects and initiatives represented spatially and explained with reference to precedents

#### Spatial:

- Create more physical links from resi in north to water in the south
- Crossroads, safe walking points which accommodate social distancing
- The smart crossing uses computer visions to identify activity which the LED surface reacts to keep users safe. The digital crossings will protect pedestrians in emergency situations and it will give warnings to pedestrians
- Safe access points
- Community projects in public spaces to draw people into it
- repurpose space
- create opportunities for upskilling, training
- create space for small businesses
- Activate spaces for both daytime/nighttime economies such as ferry square to create links between old and new communities

#### Support and extend ecological and conservation infrastructure:

- Typical Development of Kunming Center Riverfront. In the center of Kunming, the hard edge of the riverfront are reconfigured with ecological engineering methods, shallow slopes that allow increased access to the water and with planting that mitigates flood risks
- Improve water quality through regular testing and river clean ups
- Educate local community and encourage sustainable choices
- Collaborate clean-up initiatives with other communities and boroughs located along the Thames
- Thames21
- Waterside Care are looking to rebalance the silt coming down the river and clean the habitats to encourage more wildlife to thrive in the river. In future, the project aims to do more rewilding downstream in the River Wye to help improve more habitats and reduce phosphates in the water

#### Revitalise and support local community throughout redevelopment projects

- Community gardening/workshop programmes
- Support and extend initiatives
- Work opportunities through new infrastructure
- Training and skills workshops
- Heritage artwork inspired/created by locals
- Incentivise entrepreneurship through grants & competitions to develop specialist skills
- Encourage healthy lifestyles by activating underutilised green spaces
- Mobile/adjustable elements in public spaces ie chairs, mobile libraries

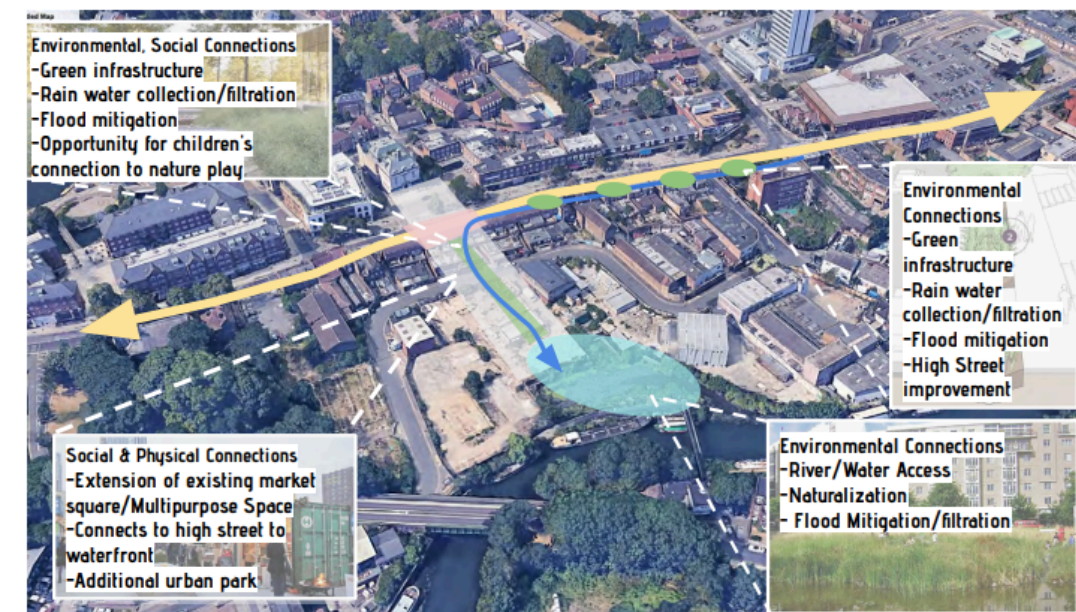
UNIVERSITY OF WESTMINSTER

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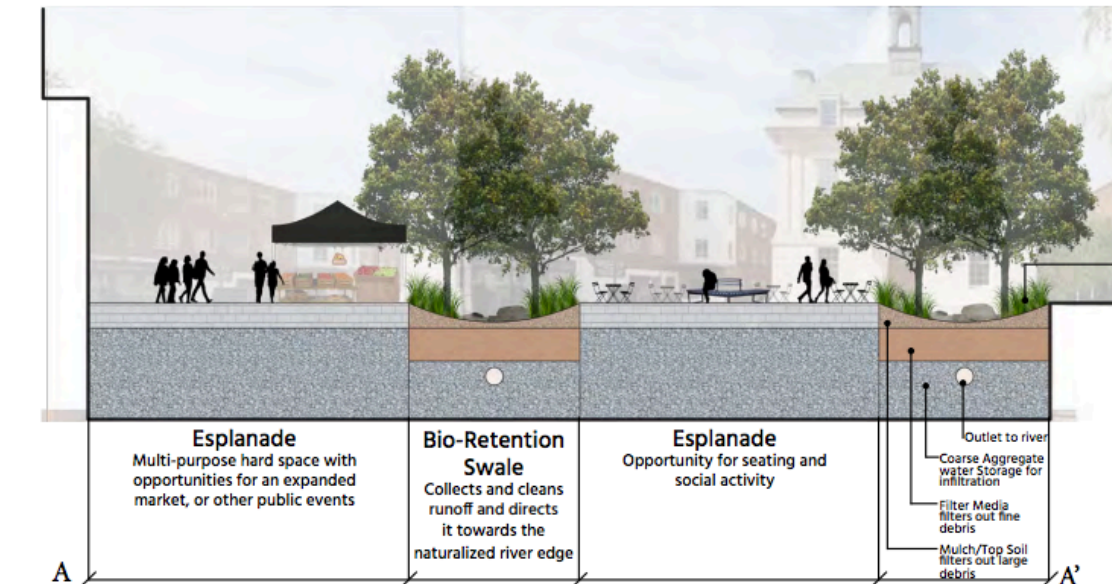
## connecting the site & the strategy

How does the proposed Brentford Blue/Green Strategy fit here?

In order to develop an integrated strategy for this site that ties in the 3 pillars of the strategy it is important to define different areas and understand what each area can contribute to the overall strategy. Shown here is a preliminary and conceptual plan that highlights the aspects of what could be 'The Brentford Axis'. Bringing the water closer to the high street is a main goal to connect the spaces to create a cohesive environment that would take advantage of Brentford's ecological connection. The overall plan is to create a network that works as a system, collecting stormwater from around Brentford, allowing it to infiltrate, and any extra could move along, be cleaned naturally and let out into the river. The urban ecosystem addresses environmental sustainability by encompassing biophilic principles and introducing biodiversity. Social and economic sustainability are addressed in extending accessible public space to the water that promotes interaction and community activity.



### Proposed Esplanade Section



9

Max Jones, Rachael Lishman, Tomo Namozi, 2020

Daniel Johnson, 2020

Examples - Students' works





# Brentford - The 0-Carbon Neighbourhood

BA Designing Cities/Year 3. Module taught by Dr. Roudaina Alkhani and Robin Crompton in collaboration with the London Borough of Hounslow under their Green Recovery

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## 1. Fluid, inclusive, zero emission transport

- Without hold ups as a network
- Accessible active transport, even for residents that typically couldn't use existing active infrastructure (children, elderly, disabled)
- Greenhouse-gas-free solution

## 2. Creation, enhancement, and connection of green and public spaces, in and out of the ward, by breaking barriers

- Physical Barriers created by hard infrastructure and social barriers rooted in mobility and economic deprivation.

## 3. Cater for night-time activity and strengthen its carbon neutral services

- Through safe active travel

# Key Objectives

# Why Active Transport?

Walking, cycling, scootering, running and kayaking are examples of active modes of transport, forms of transport relying on human power for propulsion' (Interreg, 2019). Alongside obvious health benefits, the list of other cycling benefits is compelling:

## Why Cycling?

- Farther than a private car for most journeys in London
- Extends the range of the zero carbon, 15-minute city
- Enjoyable: teaches a new skill and builds hobby-based (interest) communities
- A good quality bicycle, servicing and equipment costs less than a year's commuting from zone 4 to zone 4 or 3
  - Adult Brentford to Chiswick annual Travelcard: £1080.
  - Cycle Costs: Trek fu 2 2021: £460. Evans cycle gold service: £115. Riding Kit and kitbags: £300. Total: £875 (Evans Cycles, 2020)
- A more pleasant urban environment
  - Less cars on roads meaning less air, noise and visual pollution and less chance of pedestrian-car collisions
  - Entirely inclusive, through adapted bicycles, off-road routes and learning opportunities
- Large economic benefit, through £500 billion of global positive externalities (Fig. 12.1) (financial benefits to third parties) (European Cyclists' Federation, 2018) Nearly 80% of UK residents want to see more segregated cycle routes (Cyclist, 2017)
- Provides a zero carbon alternative for small deliveries, through cargo bikes.

Benefit	Estimated Value (billion euros)
CO2 emissions savings	0.6 - 5.6
Reduction of air pollution	0.435
Reduction of noise pollution	0.3
Fuel savings	4.0
Longer and healthier lives	75
Less sickness absence at the workplace	5
Bicycle market	13.2
Cycle tourism	44
Ending of road congestion	6.8
Saving on construction and maintenance costs for road infrastructure for motorised vehicles	2.9
<b>Total annual benefits</b>	<b>150 - 155 bn euros</b>

Fig. 12.1 Positive Externalities of active transport (European Cyclists' Federation, 2018)

## Why Brentford?

- Brentford already has a strong off-street cycling offer
  - Gunnersbury Park, Osterley Park and Boston Manor Park all provide moderate length perimeter paths
- Traffic calming measures are already in place to protect cyclists
- Dense nodes of employment on borders of parks
  - This allows for off-street, active commuting directly into offices
- 4 bike shops in the town, including a cluster to the south of the high street
- The High Street has potential for adaptation (Fig. 12.2)

Figure 12.2 shows two photographs of High Street in Brentford. The top photo shows a street with parked cars and a pedestrian crossing. The bottom photo shows a street with a cycle lane and a pedestrian crossing. Arrows point to specific features in both photos, such as the cycle lane, pedestrian crossing, and parked cars.

Fig. 12.2. Cycling Analysis of two points on the High Street

# Linking Strategic Locations

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The map shows the River Thames flowing through the center. Various icons represent strategic locations: a blue bicycle for Cycle Routes, green arrows for Green Links, a house with a graduation cap for Demos or Social Housing, a graduation cap for Education, a quill pen for Creative Studios, a building for Demos Offices, a hospital for Hospital/Care, a night venue for Late Night Venues, a street lamp for High Street, a football for Brentford F.C., and a clock for 24 Hour nodes. Red dots indicate Train Stations. Blue arrows show potential daytime routes, while green arrows show potential night-time routes. A large green arrow points from the top left towards the center, another from the bottom left towards the center, and a third from the bottom right towards the center. A fourth green arrow points from the top right towards the center. A text box in the top right corner states: 'An exact map of routes has not been made, in keeping with the previous explanation that the community should decide this. Some possible nodes have been identified using daytime and night-time routes on this abstract map.'

**BOROUGH**

An exact map of routes has not been made, in keeping with the previous explanation that the community should decide this. Some possible nodes have been identified using daytime and night-time routes on this abstract map.

## Examples - Students' works

### SUSTAINABILITY & ENVIRONMENT

**NARATIVE**


After summarising the SWOT analysis, community energy and blue/green infrastructure, I believe, are the key factors which will contribute to the O-Carbon Neighbourhood.

When combining these two factors and finding their common ground, I then established an interface based on community and ecology. This led me on to urban farming which will be the first stage in the implementation of this movement.

The national lockdown and the threat of global pandemic has turned many people who previously would have only relied just on supermarkets for their food - into gardeners that produce their own food. As there were food shortages, this triggered the need to have food supplies closer to home. Gardens and allotments became vital for future supplies of nutritious food and a place to escape and exercise.

Therefore, with population increasing, the need for local food production is needed more now than ever before.

### PORTFOLIO



**COMPANY LOGO**

**BSSCO**  
Bentford Sustainable Solutions Community Organisation

### STRATEGY

To set up a local community-based organisation that works in the best interest of Bentford.

Firstly allowing the process of citizen-led innovation on the ground which is catalysing change and unlocking untapped assets (bottom-up approach).

Secondly, the role that funders and support agencies can play by creating the programme-level conditions that encourage these ways of working to flourish through trial, error and collaboration.

The idea is to put the core foundations in place for the community to then take lead and thrive.

**INNOVATIVE APPROACH**

To inspire community-led innovation to create a new identity for the area.

This, along with green space and new technologies will create a positive impact on well-being, and the surrounding communities will feel obliged to co-operate towards this new O-Carbon neighbourhood character.

By looking at community participation from a different angle by collaborating it with energy production/reduction, this gives the local community incentive and motivation to carry on expanding.

KASEM ABBAS

BA DESIGNING CITIES - PLANNING & ARCHITECTURE

**SUSTAINABILITY & ENVIRONMENT**

**SITE LOCATION & PROPOSAL AIMS**

The site is strategically located at the north side of Syon park.

The site is placed directly south to the Grand Union Canal just before the Thames intersection.

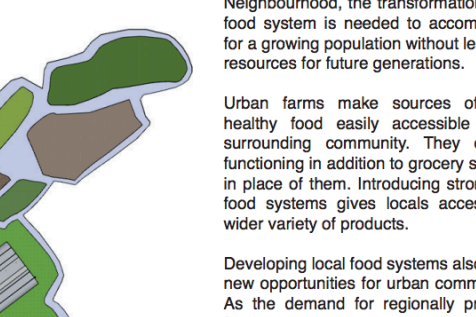
Its neighbour is the childrens play area 'Snakes & Ladders'. Schemes could be implemented to provide education through the farm site.

The site is in close proximity to the high street. This is so trade can easily be made to the local market through the linkage of 'The Brentford Project'. When determining the location for the site, it is very important to think about expansion. What will the operation look like in 5 or 10 years? Land should be available for additional agriculture space. Electricity, water, and environmental control systems should be installed with expansion in mind.

The original foot paths between the agriculture space will remain untouched. It may have to be widened in some areas to allow enough room for electric buggys to drive through.

1) Greenhouses      2-5) Allotment Space      6) Resource Space

### PROPOSAL - URBAN FARMING



This image helps to understand the vision of the project.

In order to make the shift into a 0-Carbon Neighbourhood, the transformation of our food system is needed to accommodate for a growing population without lessening resources for future generations.

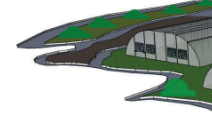
Urban farms make sources of fresh, healthy food easily accessible to the surrounding community. They can be functioning in addition to grocery stores or in place of them. Introducing strong local food systems gives locals access to a wider variety of products.

Developing local food systems also allows new opportunities for urban communities. As the demand for regionally produced food increases, so does the need for the infrastructure to process and supply the goods to local markets. Shortening the supply chain to consumers cuts out the CO2 created whilst transporting goods. As well as this, it brings more money and jobs back into the farming community.

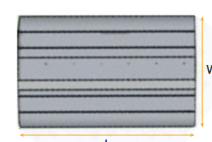
Solar and wind energy will be harnessed on the site. This will be used to power the irrigation pumps, lighting, and heating.

The canal water will be pumped up and treated through filters before being irrigated. Uniform irrigation is very important. A computerized boom system can be programmed to water different sections at different rates. This eliminates the need for most hand watering.

If this proposal were to be successful and reach the development stage, it would offer new skills and food security for Brentford.



On sub-site 1, three large greenhouses are located to accommodate for indoor growing to provide agricultural yield all year round. In terms of orientation, it is positioned well as solar light is very accessible and this is needed for photosynthesis to take place.



**MATERIALS**

The greenhouse will be sheltered with corrugated polycarbonate. This material has a life span of 20 years. Polycarbonate and acrylic structured sheet glazing provides greater insulation in order to keep the warmth in during winter months. Energy/shade screens can provide shading during the summer and can also reduce heat loss.



# Brentford - The 0-Carbon Neighbourhood

BA Designing Cities/Year 3. Module taught by Dr. Roudaina Alkhani and Robin Crompton in collaboration with the London Borough of Hounslow under their Green Recovery

## Key subjects

Climate adaptations

0-Carbon Neighbourhood

Public realm quality

Green-blue infrastructure, including green walls, roofs, urban farming, green links

Active travel, Safe travel

Connectivity

Community engagement in innovation, including energy production

Circular economy

Cycling and heritage routes

Tourism

Community projects and community/school education around ecology

Ecology hubs, community green hubs

High Street

Pop-ups, jobs, entrepreneurialism

**Missing:** Retrofitting of buildings

## Conclusions and reflections

- There is a great opportunity to address climate gaps through an integrated approach to planning and governance while benefiting communities. More evidence-based approach should be developed.
- It is important to clarify potential opportunities to address climate resilience in urban areas through an area-based approach.
- More in-depth understanding of climate gaps is needed.
- Need for indicators to assess performance and impacts and smart tools to monitor complex impacts in urban interventions
- Challenges (incl. financial) to implementation and scaling up across boundaries. Need to establish proper and adaptable data records acknowledged at the city and national levels
- Need for holistic pilot examples that can show case the benefit and prompt a bottom up change of policy and planning approaches.