

3 Methodology

To create effective Neighbourhood Enhancement areas (NEAs) we will provide TfL with a team with detailed knowledge of air quality and transport in London and with additional skills in health, logistics, socio-economics and green infrastructure.

Arup has available in-house experts with detailed knowledge of transport in London having worked for TfL and others on numerous projects and an air quality team more than 100 years of collective experience of assessing and solving air quality issues. We will also provide expertise in green infrastructure; Arup is leading thinking in this area through our Cities Alive initiative¹. Coupled with the expertise of logistics and urban planning, and health impact teams, we can offer TfL an exemplary team with all the required capabilities to deliver a successful outcome for TfL. Given the limited time scales we propose that the work is carried out by a small core team calling on other experts as required. Our team is based in the same office and will work closely together with the client to deliver the project efficiently. The team will be led by a Project Director Dr [REDACTED] with experience of delivering work to demanding timescales and who is a leading air quality expert. Our proposed Project Manager James Bellinger has recent experience in the same role on the TfL Environmental Evaluation of Freight project and hence is familiar with the client requirements.

Identification of Neighbourhood Enhancement Areas

The LEN guidance and the tender documents provide the criteria for selection of the NEAs and lists the data the information that will be provided by TfL. In addition to data provided there is good existing information on current air quality levels in the area through the air quality mapping available on the LondonAir website, local authority LAQM documents and air quality monitoring. Appendix A shows examples of the high quality information available: modelled concentrations for 2013 in the area and TfL's air quality focus areas. The information provides a baseline of the current situation with some future projections. The Silvertown Tunnel proposal has also had a thorough air quality assessment and can be used to determine how air quality is likely to change in the future as a result of the scheme. Details of the sources of pollution in the area will also be obtained from the same sources and the LAEI. The Air Quality Focus Areas in Greenwich and Newham will provide guidance of where there is poor air quality and significant public exposure (although none are by the tunnel portals).

The transport and community data collected will provide a detailed understanding of how the study area currently operates. This will be crucial in helping us identify the main areas of activities and community groups, business activities in the area and whether people have an origin or destination in the LENs or are passing through the area (through traffic). We will also undertake a review of parking provision and examine morning, evening and inter-peak hour traffic model data which will be extracted for the NEAs.

This information will be combined together using GIS where appropriate and candidate areas for the NEAs selected. At this stage our proposed areas will be discussed with the client and possibly community groups to select the final NEA areas.

Data collection and identification of area activities

Our data analysis will examine data for the existing situation and for a future year (2021) with and without the scheme. Existing data provides a good reliable source of information based on measured data which will set the baseline for the assessment. Both traffic and air quality data can be expected to change with time and therefore future projections will be used to inform the assessment.

To develop an understanding of traffic conditions in the two NEAs, we will draw on readily available data from TfL and the appropriate London boroughs. This will include inter alia: traffic count data; origin/destination data either from origin-destination surveys or from TfL's LTS or

¹ http://www.arup.com/cities_alive/rethinking_green_infrastructure

London Highway Assessment Model (LoHAM)²; public transport usage through either Oyster/BODS/ODX data or TfL's Railplan model; delivery and servicing data for high streets/major development areas; data on cycling; local accident statistics and walk data drawn from PERS and other sources. We will aim for consistency with the modelled data used to support the 2016 Silvertown Tunnel Environmental Statement which we assume is drawn from LoHAM or one of its constituent sub-regional variants (for east London (ELHAM) or south London (SoLHAM)).

Observed traffic data will be drawn from data collected in the last 5 years and will be classified by vehicle type, enabling us to distinguish between commercial vehicles and other type of traffic. If not included in the above, we will also endeavour to source traffic data relating to major developments in the two NEAs including EXCEL, City Airport, O2/North Greenwich, Millennium Leisure Park and Greenwich Shopping Park. This will be through either count data approaching these developments or from a trip generation database such as TRICS. It will be crucial to understand how this changes with the Silvertown Tunnel in place in the future. Our assessment would be based on future model data from LoHAM or equivalent with the same methodology to convert from model periods to AADT. Similarly, future walk and cycle data would be factored in line with TfL growth estimates.

Analysis would take the form of identification of through traffic and traffic with an origin or destination in the area which will enable us to set the bounds of potential traffic reduction with potential measures designed to reduce the level of through traffic. Traffic with an origin or destination within one of the LENs will be classified into vehicle type to differentiate between commercial and non-commercial traffic, both of which would be in scope for potential reduction in vehicular traffic. We will classify traffic according to origin/destination and trip length to assess whether longer distance trips would be in scope for modal switch to public transport. Catchments will also be drawn up for potential mode switch to cycle and walk to quantify potential mode switch trips to these modes.

To provide details on the community and business activities in the NEAs we will draw upon our experience in socio-economic impact assessment and area-based analysis, and will make use of a range of data including (but not limited to):

- Existing local authority mapping to identify key land uses, including any vulnerable uses such as schools in the vicinity of the identified area;
- Business Register and Employment Survey (BRES) data, to establish the largest employment sectors in the area;
- Census 2011 and TfL origin/destination data to establish commuting patterns and travel to work areas;
- Census 2011 data on households in order to inform a demographic baseline;
- TfL Local public transport statistics to establish modal trends, with a particular focus on car use within and near the Neighbourhood Enhancement Area; and
- TfL PTAL data to assess the public transport connectivity level, which will be a key determinant of the feasibility of any measure to change future behaviours.

Drawing on our broad experience in planning research, Arup will undertake an analysis of local planning policy, any neighbourhood plans and any major recently consented schemes. This assessment will help us to establish the future plans for the area, including any aspirations for environmental enhancements. The review will include exploration of any recently published responses to consultations, which will help in understanding local responses to the key issues facing the area, and the level of local engagement around these topics.

Arup will undertake a stakeholder mapping exercise, informed by desk-based research into key local contacts and community groups such as: local councillors; resident associations;

² Arup is appointed to the TPIM framework and are accredited users of TfL's suite of strategic transport models comprising LTS, Railplan and the Highway Assignment Models (HAMs).

neighbourhood fora; business improvement districts (BIDs); housing associations; local employers; local landowners and local environmental groups. This list of stakeholders will be confirmed and supplemented through discussions with officers at the Local Authority and TfL to ensure all key groups have been captured.

We have expertise understanding the most suitable intervention or measure for implementation for the reduction of commercial traffic. In our experience it can be time consuming and difficult to introduce physical measures such as consolidation or loading bay controls, although we have experience of delivering them, for example the Regent St Retail Consolidation centre scheme, Figure 5. We are also specialist at the delivery of less intrusive, non-physical means to reduce vehicle numbers (New West End Company, Fitzrovia Partnership and Baker Street Quarter vehicle reduction schemes).

Options for freight include:

- the retiming of deliveries to avoid journeys in the AM peak. This reduces congestion, can reduce risk and thus make cycling/walking a more attractive option; and
- Virtual or procurement led consolidation. Use of businesses aggregated buying power to consolidate deliveries of common items (such as office supplies, cleaning products, etc) or collections of waste via collective procurement. Such services reduce vehicle movements both to specific buildings or areas and lend themselves to the introduction of requirements to use Low-emission vehicles, to route vehicles carefully and so forth as part of the tendering process.

We have familiarity with the delivery of delivery and servicing plans (DSPs) and also construction logistics plans (CLPs) – the construction equivalent of a DSP. TfL Planning acknowledges that construction activity can have a negative network management impact disproportionate to the number of vehicles involved; Arup has been commissioned to re-write the CLP guidance. Crucially we understand when and where these measures do and don't work!

Concepts and Potential Measures

The data collection and analysis exercise provides the basis for development of proposed measures for the NEAs as they must be directed at sources of air pollution that can be influenced within the study area. Traffic and emissions data will be systematically examined against the possible interventions detailed both in the guidance note and those considered elsewhere in other LENs. We will consider emerging experience from other LENs and Mini-Hollands to inform the selection of measures. Initial proposals for measures would be developed at an internal workshop attended by key Arup experts on air quality, transport, traffic management, logistics, green infrastructure and planning. We would build on our experience gained through projects such as the Wild West End and Cities Alive to provide innovative measures for consideration. We also propose that members of our landscape and transport team also undertake a rapid visual walkover survey of the proposed NEAs to identify opportunities for improving the public realm, installing green infrastructure and identifying candidate areas for traffic reduction and car parking reduction. This will enable the NEAs to include visibly transformative measures, which will encourage modal shift to walking and cycling.

With the client's agreement we propose to hold a charrette-type workshop with representatives from the client and the local community together with local stakeholders to discuss how particular interventions could be implemented within each NEA and develop options for other measures proposed by the local community. This charrette would provide stakeholders with a sense of ownership of the measures and an ability to contribute to the project.

Throughout the selection process we would ensure that any measure proposed meets the criteria of being visibly transformative, evidence-based, having a measurable impact and acceptable to the local community. Broad cost estimates for each of the measures would be estimated based on our experience and reported costs from other similar projects.

Figure: Image of Oxford Street from The Weave Project

Carried out for New West End Company, TfL and Westminster City Council, the project examined how the public realm in the West End needs to be adapted to cope with increased visitor numbers resulting from continued population growth, additional rail capacity and changing movement patterns with the arrival of Crossrail. In looking at enhancement of the area following a major

infrastructure change (Crosstall) this project experience is directly applicable the Silvertown Tunnel.

Once the NEA mitigation measures have been developed, we will make an assessment of the reductions in traffic resulting from the package by rerunning the HAM model to quantify the traffic changes which can then be used to estimate the pollutant emissions reductions using standard emission factors. These can then be used to estimate the likely level of reduction in pollutant concentrations arising from the totality of the LEN measures.

The project will be managed following Arup's company-wide management system (AMS), which combines health and safety, quality, and environmental management within a single, integrated system. The AMS is routinely audited by independent auditors, and is certificated to OHSAS 18001, ISO 9001 and ISO 14001. We will provide the deliverables, progress updates and attend up to five meetings with the local boroughs and community groups as described in the tender document.

We propose mostly fortnightly update meetings will be telecons, but have allowed for one face-to-face update towards the end of the data collection and identification of area activity phase. The charrette with stakeholders is planned for week 4, so that the input from the stakeholders can inform the development of concepts and potential measures.

Programme

	08 February 2017	13 February 2017	20 February 2017	27 February 2017	06 March 2017	13 March 2017	20 March 2017	27 March 2017	03 April 2017
Meetings									
Inception meeting									
Fortnightly update (telecon)									
Fortnightly update (face to face)									
Charette consultation(s)									
Meetings with stakeholders									
Final meeting									
Tasks									
Identification of Neighbourhood Enhancement areas									
Data collection and identification of area activities									
Identification of concepts and potential measures									
Report									
Work package management									
Key: Deliverable x									

4 Knowledge and Understanding

Air quality is a major public health issue in London contributing to nearly 9,500 premature deaths in the city each year. The Mayor of London, Sadiq Khan has made improving air quality one of his main initiatives and is increasing the funding for improvement measures, some large scale and some more local initiatives. £20 million has been allocated to LENs five of which are already under development, each defining an area where packages of measures are brought together with the aim of improving air quality and to improve the quality of life for the community. This project seeks to provide two Neighbourhood Enhancement areas (NEAs), based on the LEN concept, near to the portals of the proposed Silvertown Tunnel project located in the boroughs of Greenwich and Newham.

Transport emissions are the principal cause of poor air quality in the areas of Greenwich and Newham near to the Silvertown Tunnel proposal; mapping of NO₂ levels as shown in Figure 1 clearly shows the influence of major roads in the area. This is confirmed by examination of the emission inventory which shows that transport sources are responsible for over 80% of the NO_x emitted in parts of the area. Although the air quality assessment in the Environmental Statement shows that the air quality impacts of the scheme are predicted to be modest and in many cases the scheme will result in an improvement, community groups (e.g. Say No to Silvertown Tunnel) view this scheme as a proposal that will attract further traffic into the area and spread poor air quality. The community considers that the answer to improving poor air quality is the promotion of more public transport and a shift away from the use of road transport.

The Silvertown Tunnel project already proposes several measures to mitigate its impact and to reduce pollutant concentrations in the area. The new Mayor made further proposals to reduce the impact of the proposed scheme including encouraging bus and cycle use, using lower polluting construction vehicles and further pedestrian and cycle enhancements in the area. The proposed NEAs are part of that wish go further and to look for additional measures that are over and above those to make the scheme's impact acceptable to obtain DCO consent and to deliver enhancements to the affected neighbourhoods.

The Guidance³ notes that LENs should be focused in areas where there is higher exposure to air pollution which can be reduced by local measures. In addition, areas where there is high trip generation with the potential to reduce emissions over a wider network can be considered. LENs need to have local community support and should be considered as a partnership between the community, local businesses and the council to deliver the common goal of reducing exposure to air pollution.

We do not expect the NEAs to directly intervene in the operation of the tunnel and its approach roads, rather other measures will be implemented in areas nearby manner to improve air quality. We consider the proposed NEAs should, however, seek to separate themselves from the tunnel proposals and stand in their own right. They will be promoted not just as areas where measures are being implemented to improve air quality but to improve residents' health and to provide a better living and working environment through improvements in the urban realm.

The types of measures that are considered in LENs are mainly those aimed at achieving modal shift away from the use of motor vehicles and to avoid the use of more polluting vehicles. However it is important that the LEN result in visible changes to the local environment such as provision of walking and cycling routes but also through improvements to the urban realm. Whilst measures such as green walls may have only modest effects on local air quality, they provide a visible signal to the community that there is commitment to change and a visually

³ TfL Low Emissions Neighbourhoods Guidance Note

attractive feature in the urban landscape. A LEN should be considered as an integrated series of measures brought together holistically and not a set of separate individual approaches. One approach proposed in other LENs is the use of different zones within an LEN, within each zone there is an emphasis on a particular set of measures.

Community support is a key requirement for an LEN, the community must buy into the proposals and feel that they own the area. One issue may be that the local community see the proposed NEAs as potential restrictions on their movement introduced to facilitate the unwelcome tunnel. The NEAs should therefore be planned such that they are separated from the tunnel, they should be seen as transformational measures directed at the local community. Measures should therefore be focused on those that improve the quality of life for the local community and not simply affect traffic that is passing through the area to other destinations.

Local employers and businesses that operate in the NEAs (e.g. though deliveries) will also play a key role delivering measures. Having local low emission delivery hubs or schemes to consolidate purchasing and waste collection using low emission vehicles, are examples of how the dependence on the diesel vehicles can be reduced, working with employers to provide facilities that encourage their staff to use alternative modes of transport to travel to and from work and for work purposes is also important. To achieve a successful NEA also requires that business support and investment, and therefore it is crucial that they are involved in the development of the measures and can see they will results in improvement in the working environment for their staff and to provide a more sustainable business.

It can be seen that the NEA/LEN concept is one that encompasses many stakeholders in the area and requires their support and contribution to bring together a package of measures that results in tangible improvements in air quality. Bringing together their views and developing the right measures for the LEN is a challenge but one that can result in an improved environment for the local population.

Summary of Arup experience transforming the public realm to encourage model shift, improve local ecology and reduce freight. For further details see Appendix A.2.

Implementing a Weave movement and public realm strategy in the West End

Client: New West End Company, TfL and Westminster City Council

Key Services Provided: Landscape Architecture, Planning, Transport

Arup was commissioned by the New West End Company and its partners Westminster City Council (WCC) and Transport for London (TfL) to examine the public realm strategy for the West End in preparation for the arrival of Crossrail in 2018. The work involved close working with local key stakeholders including relevant Business Improvement Districts (BIDs), WCC, Camden Council & TfL. See Figure 3.

Green Infrastructure Audit – for The Fitzrovia Partnership

The Green Infrastructure Audit focused on the Fitzrovia Partnership's objectives: enhancing existing features; improving air quality; creating pedestrian friendly environments and identifying new green infrastructure features. See Figure 4.

Ecology Masterplan – The Crown Estate

Whilst London has significant pockets of green space, it is the connections between these spaces that are equally important for wildlife. Arup is supporting The Crown Estate to establish a green corridor through its portfolio in London's West End, connecting two major parks; Regents Park and St James Park. The primary objective is to enhance ecology and biodiversity, and also benefit the local environment and health and wellbeing of local tenants, visitors and workers.

Freight Consolidation for The Crown Estate and New West End Company

Arup was commissioned by the Crown Estate to develop a consolidation centre for retail deliveries destined for Regent Street. The award winning Regent Street Retail Consolidation Centre is now used by 34 shops (33% of the total on Regent Street) and deploys two electric HGVs for deliveries. See Figure 5.

Appendix A

Additional Documents

A1 Figures

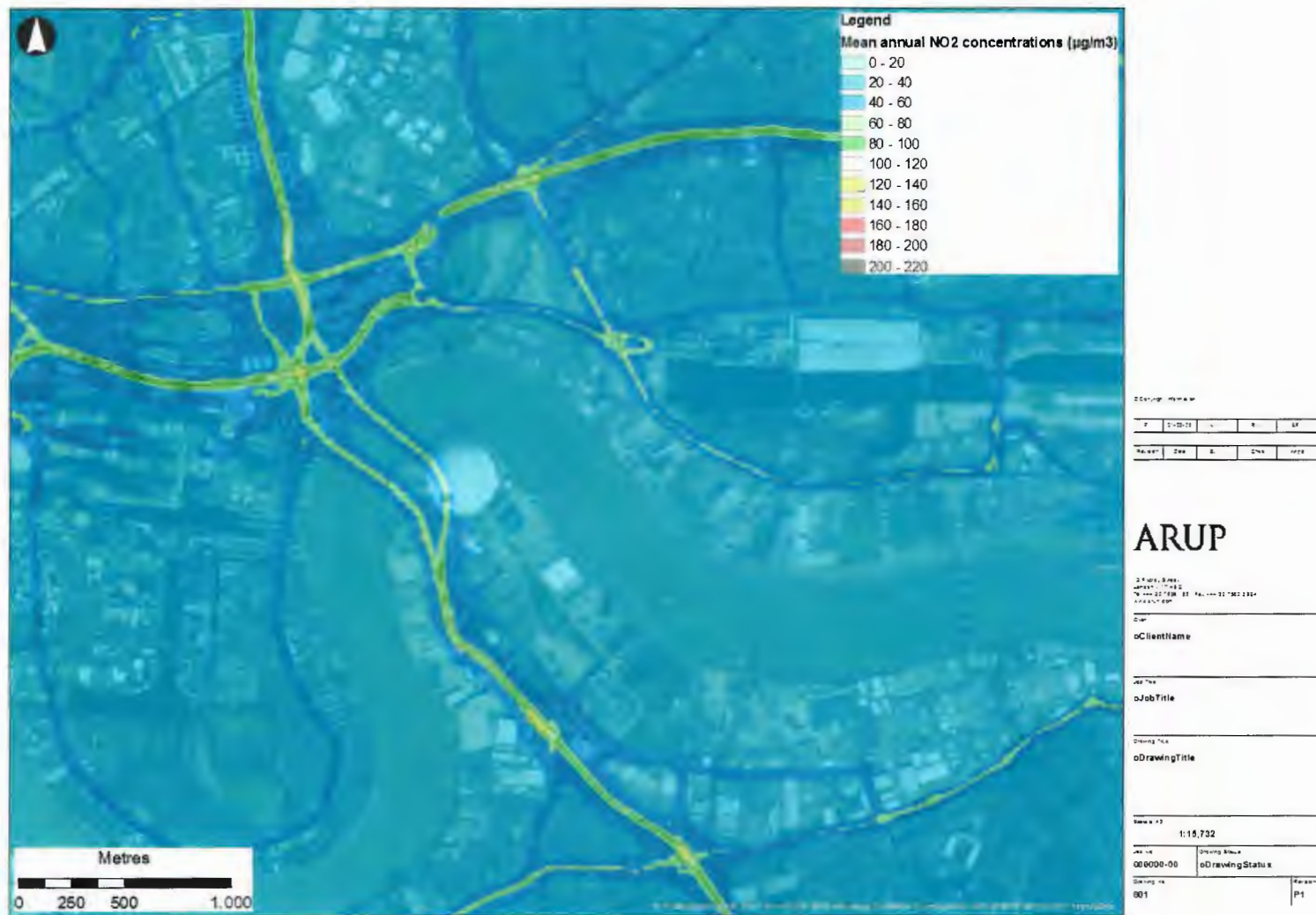
Figure 1: Predicted annual mean NO₂ concentrations (µg/m³) for 2013 in the Silvertown Tunnel area

Figure 3: Example Images from The Weave Project.
Top Image: Oxford Street. Bottom Image: Charlotte Square.



Figure 4: Fitzrovia Green Infrastructure Audit.
Top image: Green roofs; Bottom image: Windmill Street



Figure 5: Electric vehicles in use as part of the Regent Street consolidation scheme



Figure 6: Grosvenor - Invertebrate house in North Central Eaton Square Garden



A2 Project examples

Impact of Crossrail on the West End



tArup

The 'Weave'

Client:

New West End Company, TfL and Westminster City Council

Key Collaborators:

Publica

Key Facts:

The 'Weave' - an incremental framework able to deliver a transformation in the street and public realm network of the West End.

Key Services Provided:

Landscape Architecture

Planning

Transport

The public realm in the West End needs to be adapted to cope with increased visitor numbers resulting from continued population growth, additional rail capacity and changing movement patterns with the arrival of Crossrail, whilst also providing a world class environment that supports and promotes economic growth.

Arup were commissioned by the New West End Company and its partners Westminster City Council and TfL to examine the public realm strategy for the West End in preparation for the arrival of Crossrail in 2018. The study proposes the 'Weave' - an incremental and flexible framework that ensures the streets and spaces of the West End are ready for the additional volumes of people arriving and departing from Tottenham Court Road and Bond Street Crossrail Stations.

A multitude of different scaled public realm projects and recommendations are envisaged and it is intended that this will lead to a step change in the provision, quality, modal priority and the environmental performance of the streets and public space network ensuring the continued success of the West End for residents, visitors and businesses.

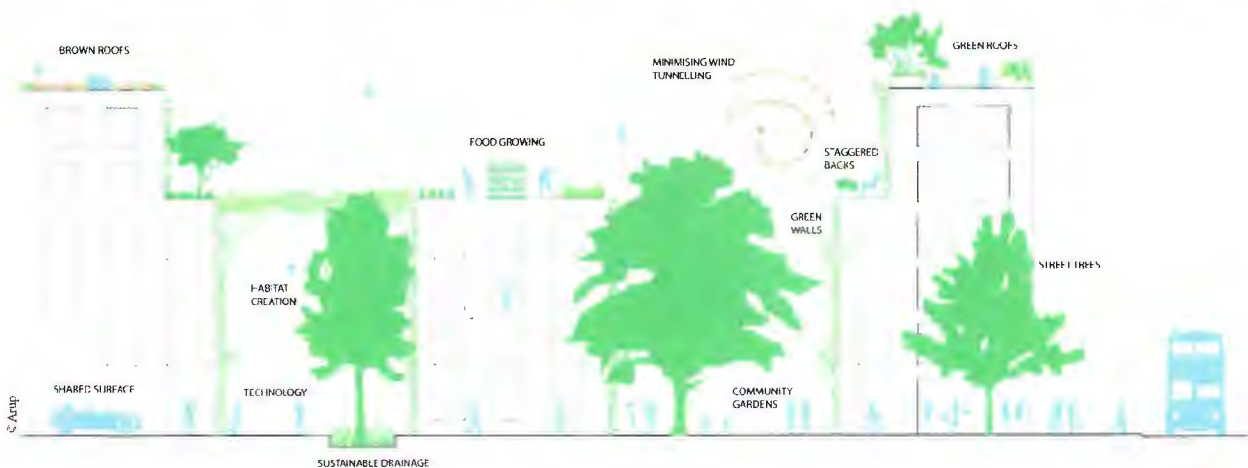
The Crown Estate Ecology Masterplan, London



Community roof garden concept



Public space concept



Regent Street green infrastructure strategy

Client:

The Crown Estate

Key Facts:

Aspiration: Significant area of green space every 100m (significant area of green space = 100m²)

Aspiration: 10,000 additional green spaces by 2025

Target: Increase recordings of bird and bat species compared to 2014 baseline survey

Key Services Provided:

Landscape Architecture
Ecology
Sustainability

Awards

CIEEM Best Practice Award for Innovation 2015

The objective of the masterplan is to create a green corridor along Regent Street comprising a network of multifunctional green spaces and interventions.

Arup have been commissioned to develop an ecology masterplan for the Crown Estate's Regent Street portfolio. The vision seeks to strengthen green infrastructure connections along Regent Street to create an ecological corridor between the Royal Parks (Regent's, St James and Green Park).

Through a series of interventions across the Estate, comprising roof gardens, public spaces, streets and courtyards the Masterplan seeks to enhance biodiversity, improve health of the local environment, attract tenants and visitors and contribute to the value of the portfolio.