Legible London System Architecture

1 What is Legible London?

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What is Legible London?

Connected information for the travelling public

Legible London is a wayfinding project designed to provide better information throughout the Capital for people who want to walk. A study conducted two years ago on behalf of TfL found that the present multitude of pedestrian sign systems in central London are ineffective and often confusing, and that there was a consequent over-reliance on the Tube map to help people navigate above ground.

TfL has worked with the London Development Agency and in partnership with London Boroughs to develop a way of providing coordinated walking information across the capital, offering benefits for our transport system, for public health, the economy, tourism and the environment.

The purpose of this document is to provide an overview of the Legible London system structure, processes and applications.

Legible London is composed of Elements, Rules and Applications (ERA)

- Elements

Map and local area data

- Rules

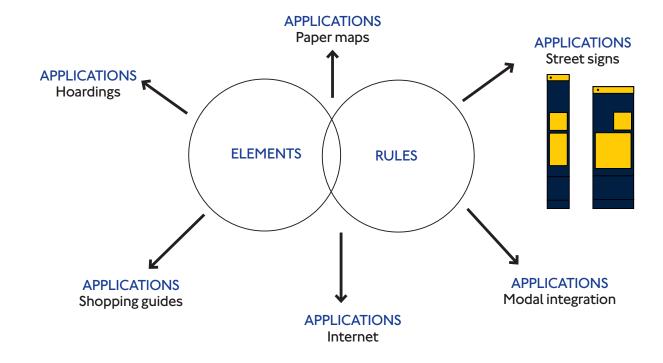
Way finding principles and design guideance documents

- Applications

Street signs, modal integration maps, paper maps, hoardings etc

Partner organisations provide the basis for ongoing applications.

The Legible London system uses an 'object-oriented' approach. Each element is applied according to rules and guidelines to create many applications. With this method, many applications can be run by different organisations and benefit from a single, higher-quality, consistent system.

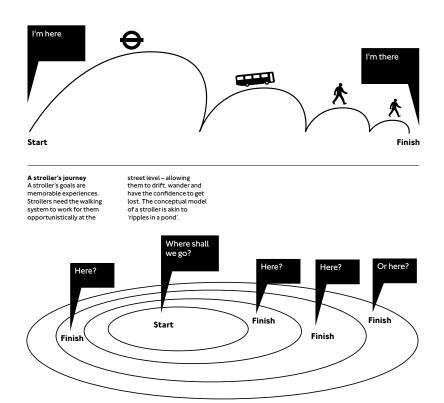


Legible London is applied to different applications to provide consistent walking information across the capital. This document will focus on the main application - on street furniture as an example.

What is Legible London? Responding to user needs

Legible London is for all of London's travellers, it is designed to be inclusive of all people, and for all parts of the capital. Whether that is someone with knowledge of an area or not, the system supports and enhances their understanding to enable better walking choices. A person's 'modus operandi' – their method by which they find their way – tells us a lot about how they may plan and carry out journeys; the methods identified in this document work with this understanding.

Different people have different goals at different times, and their journeys are many and varied. Goals may often change during a journey, for example when agreements to meet are altered, or when a toilet needs to be found. In these situations the availability of local knowledge becomes even more important. The system is devised to support as many of these goals and journeys as is possible.





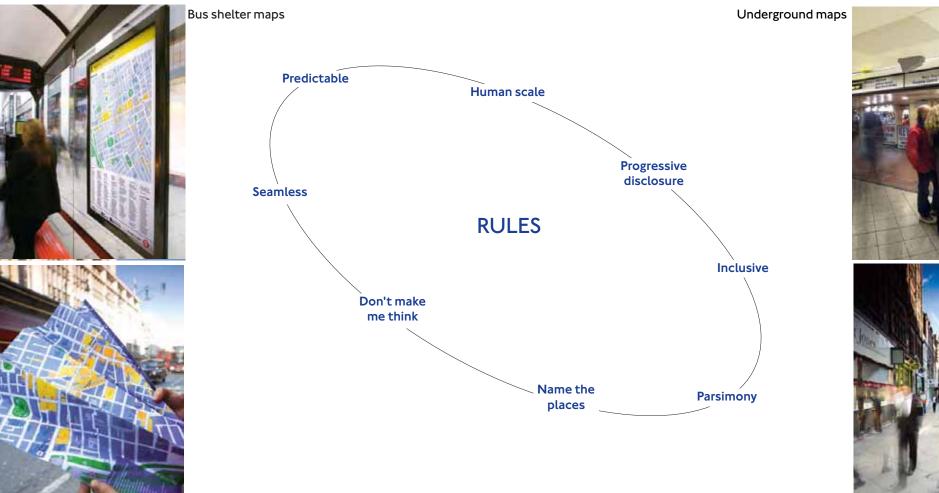
The way our brains mentally map areas means that when we encounter a new area, we start with specific arrival and destination points, which form our entry into the wayfinding system ('nodes'). From there, we find out routes between these points. We build up knowledge of the area surrounding the nodes ('locality') and, gradually, clusters of localities ('neighbourhoods'). Step by step, we build up our knowledge and increase our mental maps until we have as much information as we need. People new to London or a particular area often build up knowledge of 'localities', but not 'neighbourhoods'.

What is Legible London? Design principles

Legible London is based on a set of design principles (below) derived from end user research and way finding best practise. These principles have guided the development of solutions and make up the 'Rules' of the system application.

It has been designed to be in sync with the way we think and act when we're moving on foot from one place to another and to interact with our innate sense of spatial awareness, and how we naturally relate one place to another.

It uses accessible maps of different scales to convey quickly not only the immediate surroundings, but to show how the area connects to those around it. Simple 3D images of landmark buildings have been incorporated into the maps to fix given points in people's minds. A clear, easily understood hierarchy of place names has been developed so people can appreciate the general in relation to the particular.







On street signs

2 How does it work?

How does it work?

How the information is presented and provides answers

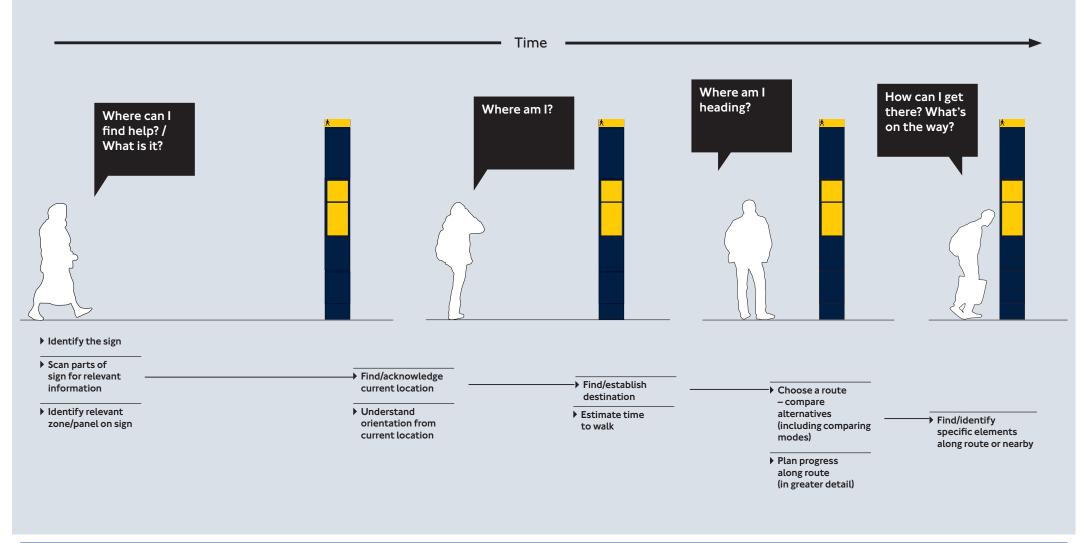
Don't make me think The explanation on this

page supports the principle of don't make me think.

The explanation on this page supports the principle of inclusive.

Inclusive

The sign system is derived from a set of wayfinding questions that are asked by pedestrians. These can be silent or subconscious, but what we know is that they are fundamental to getting around. The on street sign system is designed to respond to these basic, as well as sophisticated, questions. It is designed to provide answers in the right order so that the questioner can work out the answer they are seeking.



3 How are they designed?

How are they designed? Key sign components

Because of the density of destinations in London, a map-based system is the most appropriate and practical solution. It does away for the need to use many 'fingerposts' and in this context can alert the user to over 400 destinations. The Legible London scheme encourage street clutter reduction as a an integral part of any project. This looks at the existing signage in the area and removes any that become redundant as a result of the scheme.

The elements (maps, placenames, routes) are displayed on signs in a logical order using the principle of progressive disclosure. Mapping to allow people to better understand walks and where things are is central to the scheme. The map based system has mapping that is already orientated with respect to the environment and direction the user is facing. When used in situ, 'heads-up' maps offer a remarkably simple way of bridging the gap between the view ahead and its cartographic representation.

WEST END Oxford Street

↑ HYDE PARK

← MAYFAIR **Bond Street**

Marble Arch O

Edgware Road

MARYLEBONE -

Baker Street

Portman Square

Sign Address

The typography, colour coding and naming conventions are consistent with those on the Legible London printed walking maps and other elements of the system, so that they link up and work together as a coherent whole.

Directional Information

Directional information is used in two main ways: to show the way towards villages and neighbourhoods, and act as a homing beacon for attractions. These have an important role in London where major destinations are often obscured from view

Planner Man

The planner or 15-minute map is used to orientate the user and show how close the villages are to each other. It provides the user with the information needed to link areas of London and the confidence to attempt longer-



Beacon

All the signs are clearly identified by a yellow strip at the top and a 'walker' – the universal symbol for travelling by foot. They stand above head height so that they are clearly visible from a distance.



The Finder or 5-minute map is used to find a destination – the end point of the journey. It contains useful landmarks wihtin the immediate vicinity- effectively a map of landmarks - so the user can be memorably guided towards specific streets and attractions



This fills in the gaps. Most people are familiar with the convention of using alphabetically ordered street names and reference points to find individual streets on a map - it's a means of quickly realising what's just around the corner



How are they designed? Key sign componenets continued...

In addition to design elements on the more prominent sign faces, all map-based signs have information on one of the side panels with the information split across two separate tiles, as shown.



Transport information

Standard information supplied by TfL and consistent across all pilot areas

Tourism information

Collaboration with tourism organisation

Sign location

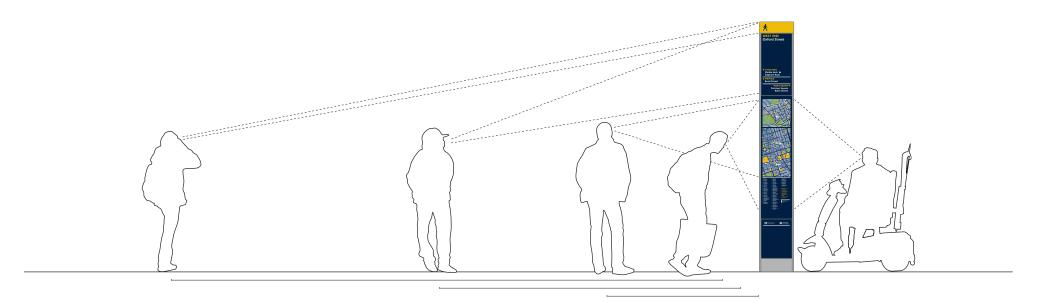
Walking messages

Variable messages up to a recommended maximum of 8 lines (including heading)



Information structure Logical sequence of information provision

This analysis of a Legible London minilith demonstrates how the information structure caters for different user tasks, reading strategies and physical distance from the sign. Average reading distances have been estimated with direct reference to data on the relationship between text size and reading distance published in sign and map design guidelines.



Reading strategies > Identification



Recognition of the sign and its function by physical features, notably the beacon at the top of the sign. Example: walking symbol



Good vision

at least 6/9 visual acuity

Registered partially sighted 6/60 visual acuity

Registered blind 3/60 visual acuity

12m average reading distance for 74mm symbol size

N/A

N/A

Passing glance

Establishing what information is shown, or quickly checking orientation. Example: addressing and directional panel



4m 80cm average reading distance for 100pt (24mm) text

64cm average reading distance for 100pt (24mm) text

N/A

Brief study

Scan of most salient information on maps. Example: place names



1m 20cm for 25pt (6mm)

15cm for 25pt (6mm)

10cm for 25pt (6mm)

In-depth use

Thorough reading and searching maps and index. Example: building labels



60cm for 12pt (3mm)

for I2pt (3mm)

5cm for I2pt (3mm)

References

Barker, P. and Fraser, J (2000) Sign Design Guide - a guide to inclusive signage. JMU and the Sign Design Society

Buckley, Dr A. (2008) Guidelines for minimum size for text and symbols on maps. esri.com Oxley, P. (2002) Inclusive mobility. Department for Transport, UK

Where is help needed?

Where Legible London fits into people's journeys

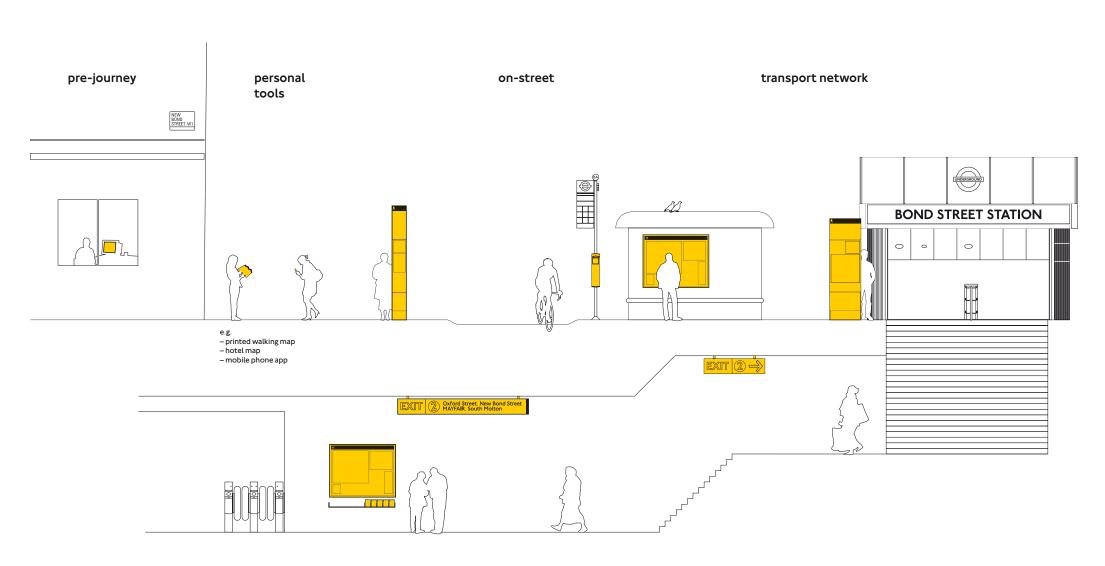
The Sign system is part of a set of tools that are used by travellers in the city. How well the information 'joins up' has a direct impact on the cognitive energy that needs to be expended by the individual.

The principle of 'don't make me think' shows that this limit is easily reached, so the 'system' has to work doubly hard to be useful. This page shows the information available to people at different points along a journey. It uses the underground as a modal integration example.

Seamless

The explanation on this page supports the principle of seamless.

For further detail, see 4.0 Design principles, IDS Version 1.1, March 2008.

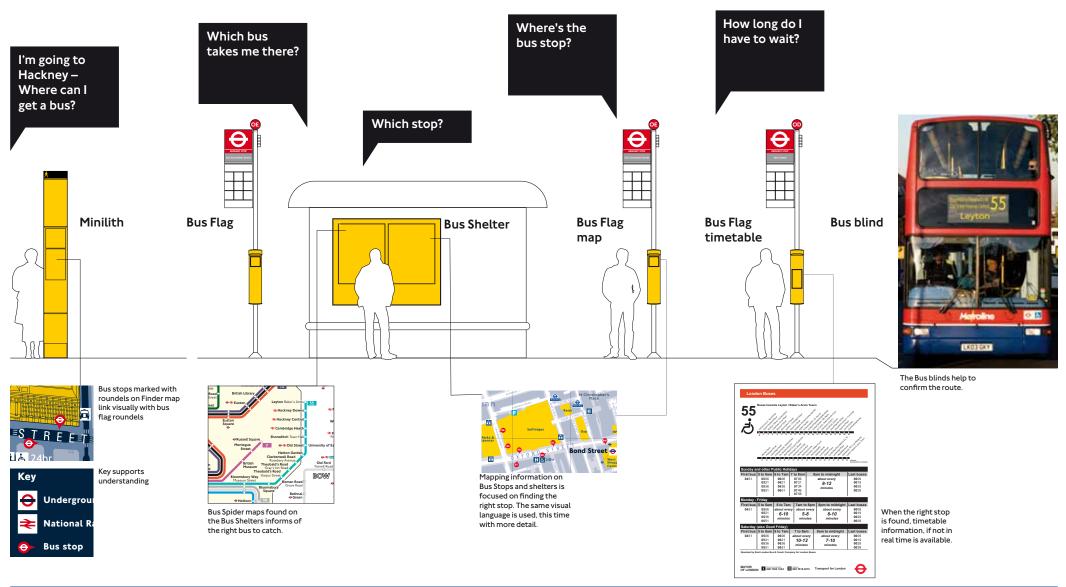


Progressive disclosure How it is applied

The system is built around the principle of 'progressive disclosure', providing enough information at the right time along a whole journey. This page shows how Legible London supports modal integration between walking and catching a bus.

Progressive disclosure
The explanation on this
page supports the
principle of progressive
disclosure.

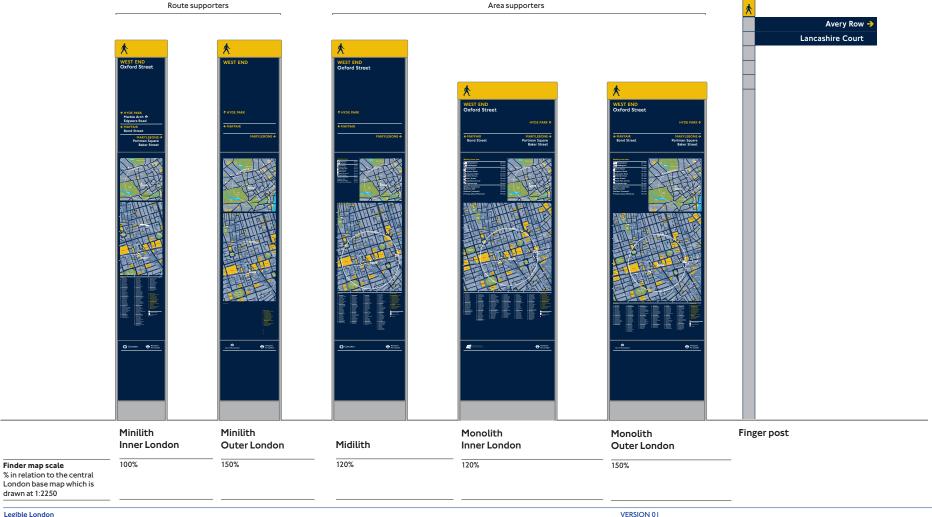
For further detail, see 4.0 Design principles, IDS Version 1.1, March 2008.



Legible London product family Signs to support specific needs

The Legible London product family comprises six sign types. They employ three different Finder map scales, which were systemised across the boroughs, fixed by a process of balancing density of urban form against map crop sizes available on the products. All feature the Planner map at the same scale.

The Monolith, the widest of the products is used at arrival points. This may be at rail or underground station exits, bus stations or entrances to specific areas or attractions. It provides way finding information over a wide area on the map and a walking table indicating walking times to nearby attractions and areas. It is important to ensure that thefootway widths are not obstructed by the signs. Pedestrian comfort guidance is referred to when choosing a product to ensure the footway capacity is sufficient to accommodate pedestrain flow. For this reason, the midilith is sometimes used instead of the monolith as it has a smaller footprint. The minilith is the slimest of the products and is designed to be used primarily as a route supporter. It contains heads up mapping to support the route ahead and to confirm the route and provide detailed mapping of the immediate area. The fingerpost is used as a final indication of an arrival point where an attraction or place may be hidden from view of the main walking route.



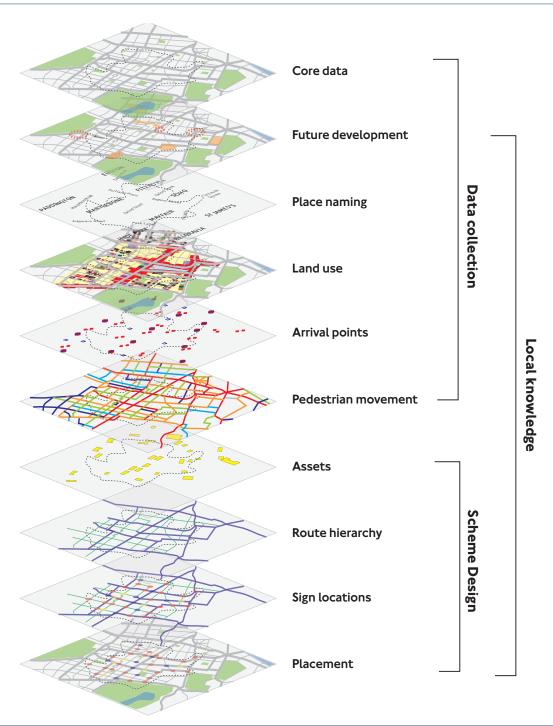
3 How is it applied to an area?

Placement strategy & map production An approach to sign placement

Working out what information goes where throughout the city, in many types of urban form and across borough boundaries requires research and a set of methods and guidance.

The Legible London placement strategy and base mapping is derived from a deep understanding of the locale, and connected guidelines for developing assets, hierarchies, routes and locations.

This work provides a robust reasoning to placement and a method for placing signs in the same manner in different places and this forms the elements and rules for applications. The result is a predictable system for the user.



Core dataSourcing the base map

The core geography is sourced and plotted to provide the basis for map production and understanding of the local area for sign placement.





Ordnance Survey mastermap (1:1250) base map data showing geographical composition of the area, road names and building numbers

Legible London base map outlines derived from OS mastermap base with colour scheme applied. Area naming, landmarks, icons and symbols are added through research from local boroughs and stakeholders and research. Map is scaled to 1:2250 for the base map and is applied to products at selected scales.

Future developments

Getting to know the local area

The area is fully reserached, uncovering future development plans and changes. The sign system is intended to last a long time, so the more is known about what will and could happen then better choices can be made for furniture/applications and placement.



South Molton Street

-Pedestrian priority

-Clutter

Maintaining emergency access and restricted loading conditions

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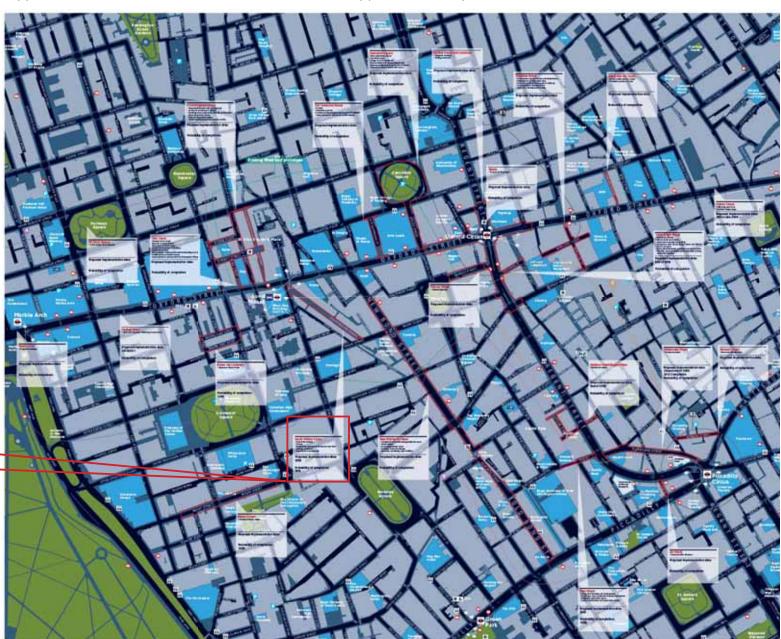
-Frontrunner development

Proposed implementation date:

2009

Probability of completion: 95%

Example

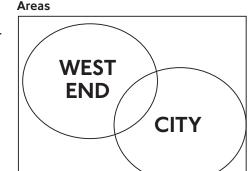


The explanation on this page supports the principle of name the places.

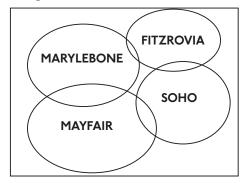
A central element of Legible London is to clearly name places, landmarks and areas in a way that users can relate to. Place names are important to identify where a place is in relation to the wider area. These can then be applied to different Legible London applications, and not just on the sign system.

- Areas These describe London in the broadest terms, dividing it into large but easily distinguished regions such as the West End and the City.
- **Villages** Areas, in turn, are made up of several 'villages'. The West End, for example, contains Soho, Mayfair and Covent Garden. These are familiar, commonly used names, which can help pedestrians quickly relate one place to another, and build the knowledge needed to assist in mental mapping.
- **Neighbourhoods** Within each 'village', there are many 'neighbourhoods'. For example, in Covent Garden, you will find Seven Dials, Neal's Yard, The Central Market, Aldwych and Long Acre. The more you visit a particular place, the more you can keep sub-dividing it into smaller, linked pieces, creating a more detailed mental map based on short walking distances.

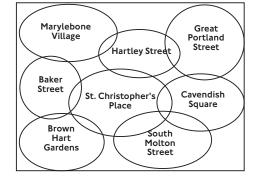




Villages

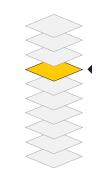


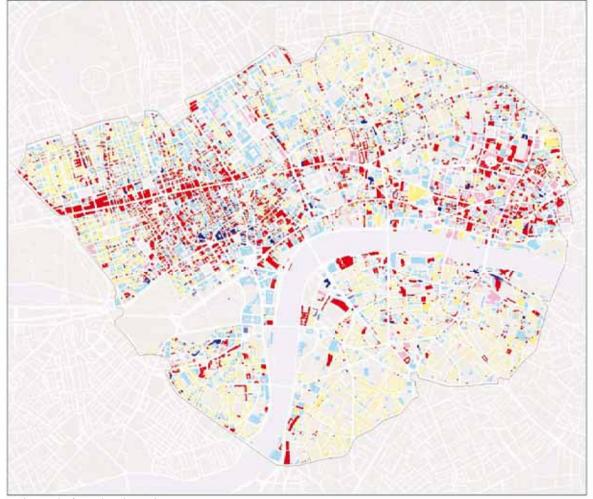
Neighbourhoods



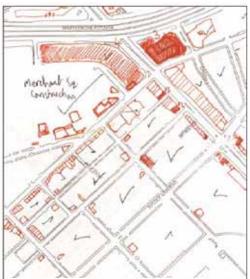
Land use Highlighting areas of interest

Land use and other data creates an understanding of how the area is being used. This 'planning' data, if sophisticated enough, can be used to provide public information. Legible London paper maps can use this information to provide detailed maps of concentrated locations such as the West End to highlight additional landmarks such as shops and restaurants to target users in particular areas.





Land use study of Central London © Atkins 2010



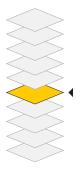
Example of Public Active Frontage field check used for a detailed survey of retail.

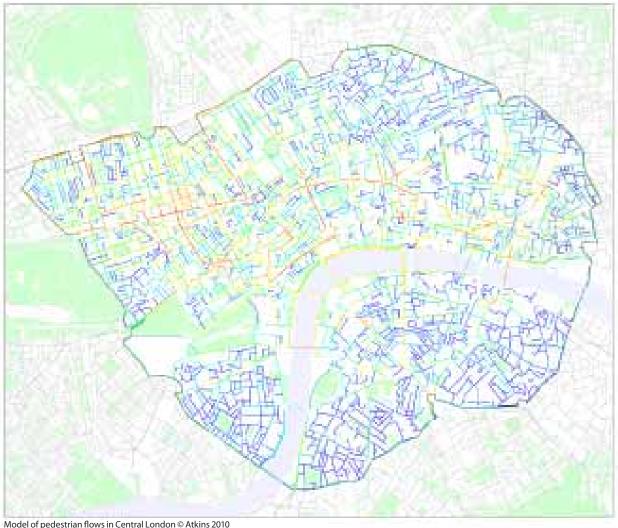


Land-use information used to create a 'shopping map'.

Pedestrian movement Identifying key routes

Pedestrian and public transport flow data provide an insight into where people are moving and volumes. These show that there are certain patterns of behaviour that can be responded to in coherent ways. This data can be used during the scheme design to place signs in locations that will provide optimal support for pedetrians along walking routes throughout London.





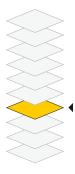
New Bridge 23% Black Friars 29% Queen Vic Tudor St > St Pauls Walk 29% Other BF Bridge

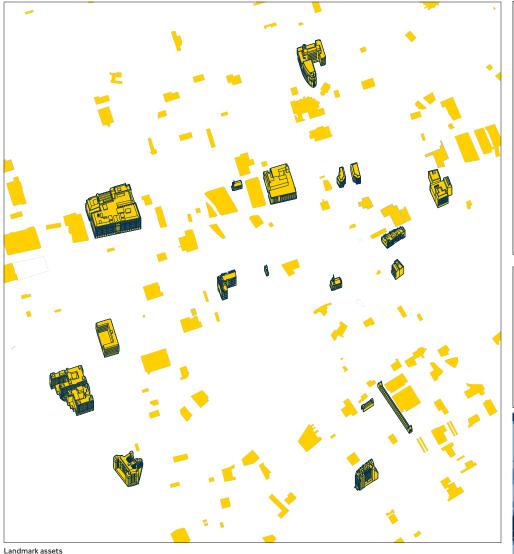
Pedestrian route choice behaviour study at Blackfriars station © Atkins 2010

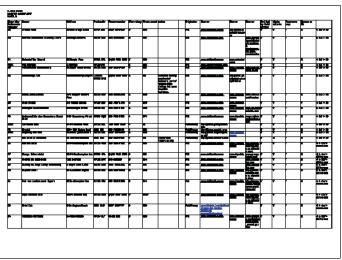
Assets

Selection criteria

The sign system places great importance on area names and landmarks, as these are used as wayfinding markers and are highlighted in yellow as 2D or 3D buildings. Buildings included on the map function both as landmarks and destinations. The importance placed on memorable landmarks by pedestrians justifies their prominence. A consistent and thorough selection of these assets is crucial to the system's integrity and are derived from a comprehensive audit and selection criteria.







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Bush House 3D

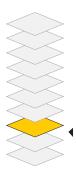
Route hierarchy and sign locations Developing a strategic placement strategy

Predictable

The explanation on this page supports the principle of predictable.

For further detail, see 4.0 Design principles, IDS Version 1.1, March 2008.

The route hierarchy and sign locations can be determined directly from knowledge of the geography, land-use, change and pedestrian flows. This is governed by sophisticated planning guidelines that create similar patterns of route networks and placements, so that the result for the pedestrian is predictable and seamless.



Key items to consider when developing the inital strategic placement strategy are:

- Route hierachy
- Decision Points
- Arrival Points
- Destinations/ Areas of Interest

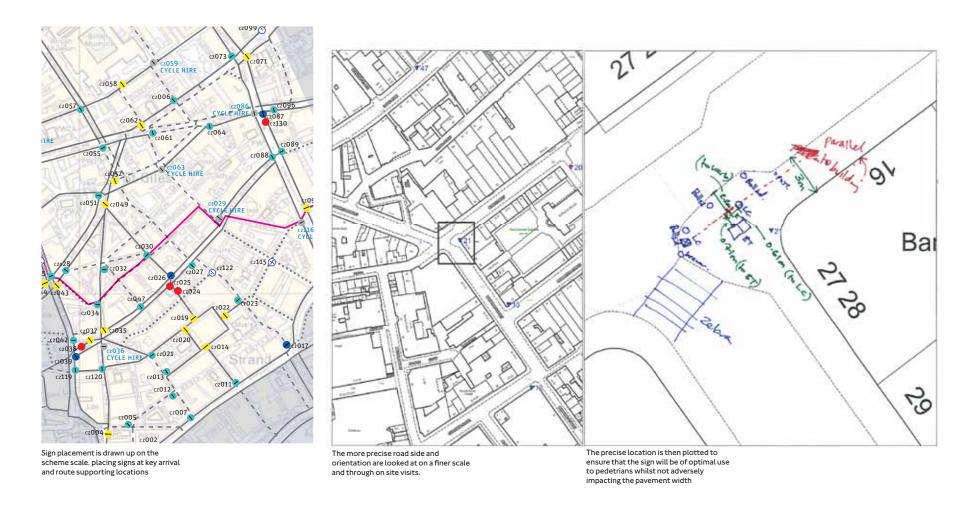


Placement

A Practical Approach

After drawing together the initial strategic placement strategy the situation in the street needs to be taken into account. Siting is very precise and governed by guidance but limited by what is practical. Precise siting plans need to take into account many factors such as sight lines, stats, pavement and building edge tolerances, available ambient lighting etc. Liason with borough officers and engineers as appropriate enables the scheme to be tailored to ensure it is fit for purpose at specific sites.





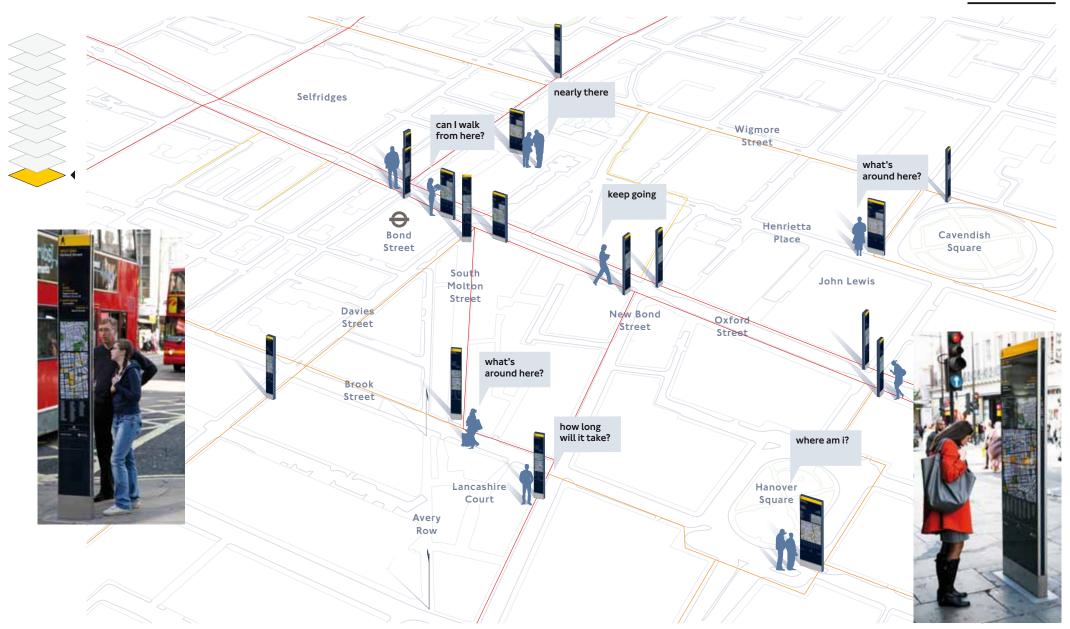
Planning strategy Where they go and how they work together

Human scale

The explanation on this page supports the principle of human scale.

For further detail, see 4.0 Design principles, IDS Version 1.1, March 2008.

A key to a successful system is to site information in effective and consistent locations. They need to connect and be predictable - ie where they are expected. How the system is delivered accross borough and landowner borders will be crucial.



Finder map How are the maps designed?



Rationalisation

Applying criteria to improve map legibility

A carefully considered set of criteria determines what appears on the maps. The general rule is the more important a landmark is for navigation or destination the more it will appear, and the more dense the map the more stringent the appearance criteria. All Live assets are open for discussion and fall into some or all of the following primary and secondary criteria:

Primary criteria:

- Wide appeal / attraction
- Transport
- Unique / specialist
- Internationally recognised
- Area of interest

Secondary criteria:

- Memorable and therefore easily identified en route
- Listed / architectural merit
- Defining the end of a vista / defining an area
- Prominent
- Located at or punctuating a busy or significant intersection

The live assets generally fall into one of the following categories, of which provide a basis for asset idetification and selection

Landmark retail
Visitor attraction
Theatre / Cinema / Venue
Hospitals / Clinics
Institutes / Education buildings
Places of worship
Open spaces
Car Parks
Embassies

Public toilets Civic

Police Stations Post Offices

Hotels & accommodation

Societies

Monuments, statues, sculptures,

River assets

Park Assets

Public Active Frontage

It's clear that for a map of this scale, all of the hotels cannot be marked. A criteria is applied to determine a selection. Of course, this can change if the map is a specific 'Hotel finder'.



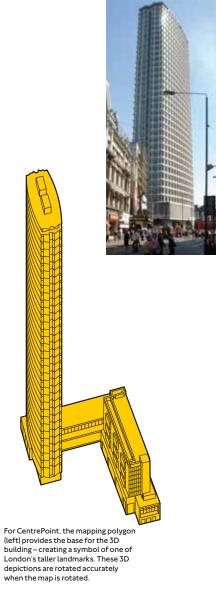
4 Star	5 Star	Other rated	Other rated < 50 Beds – omitted			
50+ Beds – Included	50+ Beds – Included	150+ Beds – Included				
Thistle	Claridges	Strand Palace	Tony's House			
Bloomsbury	Mayfair	Covent Garden	Sussex Gardens			
4 Star	5 Star	3 Star	2 Star			
138 Beds	203 Beds	783 Beds	20 Beds			

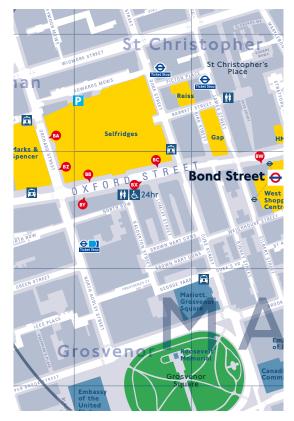
Rationalisation Depictions of Landmarks

A selection of important landmarks are mastered in 3D. These depictions support the use of the map in a number of ways:

3D Criterion:

- Wayfinding beacon
- Memorable
- Seeing yourself 'in' the map
- Adds visual interest to the map







By adding the Selfridges building, a major landmark becomes obvious and a sense of scale is provided.

Rationalisation Active frontage

Some streets are more interesting and 'active' than others. The aim of showing Active Frontage is to suggest general street activity of interest to the pedestrian, such as retail, services, galleries, food and drink that doesn't meet specific asset criteria. Active Frontage is a term used in planning referring to, in it's simplest explanation, activity visible from the street.





Oxford Street is shown to offer a number of types of shopping.

Different shopping sub-neighbourhoods are identified in Covent Garden.





Specific Design Challenges

How Legible London adapts to local urban form

Throughout London's urban form there are many features that are unique and many that are similar. The mapping design developed so far demonstrates how many of these are depicted within the pilot areas and how specific design challenges were met.

Richmond & Twickenham



In Richmond the hierarchy of landmark assets is very different to that in Central London. The system responds to the scarcity of landmarks in some areas as well as the saturation in others.

South Bank & Bankside



Multiple pedestrian levels have been defined by tackling the walkways along the South Bank.

Clear Zone



The sheer density and multiple-use of the area around Covent Garden has established how these feature-rich areas are depicted.

Planner map

A wider view of London

The Planner map is an overview of the city. It appears where planning questions are being asked. It shows the main walking routes that connect and dissect the villages as well as a selection of the most important landmarks across a 15 minute walking radius.



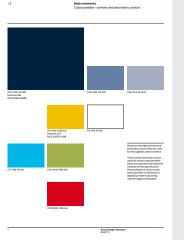
The current extent of the Planner map for central London. This is one map used for all the pilots and is being extended to cover the area surrounding zone one. Please note this has been derived from Ordnance Survey.

6 Maintaining Consistency

Maintaining Consistency Design Standards

The visual appearance is fully documented in the Design Standard documentation which enables all Leigble London products to maintain a consistent high quality appearance.





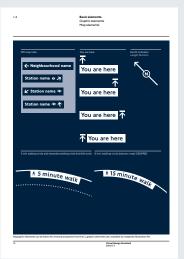












Maintaining Consistency Design Standards continued...



7 Managing Legible London schemes

Contacts Where to go from here

For scheme support and a copy of the Legbible London guidance documents please contact:

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