Legible London System Architecture
1 What is Legible London?
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 guidance 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.

RULES

Predictable
Human scale
Seamless
Progressive disclosure
Inclusive
Don’t make me think
Name the places
Parsimony

Bus shelter maps
Underground maps
Paper Maps
On street signs
2 How does it work?
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.

- Where can I find help? / What is it?
- Where am I?
- Where am I heading?
- How can I get there? What’s on the way?

**Inclusive**

The explanation on this page supports the principle of inclusive.

**Don’t make me think**

The explanation on this page supports the principle of don’t make me think.

- Identify the sign
- Identify relevant zone/panel on sign
- Scan parts of sign for relevant information
- Find/acknowledge current location
- Understand orientation from current location
- Find/establish destination
- Estimate time to walk
- Choose a route – compare alternatives (including comparing modes)
- Plan progress along route (in greater detail)
- Find/identify specific elements along route or nearby
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 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.
How are they designed?
Key sign components 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.
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.
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.

I’m going to Hackney – Where can I get a bus?

Which bus takes me there?

Where’s the bus stop?

How long do I have to wait?

Bus Spider maps found on the Bus Shelters informs of the right bus to catch.

Mapping information on Bus Stops and shelters is focused on finding the right stop. The same visual language is used, this time with more detail.

The Bus blinds help to confirm the route.

Key supports understanding

Bus stops marked with roundels on Finder map link visually with bus flag roundels
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 the footway 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 pedestrian flow. For this reason, the midilith is sometimes used instead of the monolith as it has a smaller footprint. The miniilith 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 data
Sourcing 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 researched, 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
- Frontrunner development

Proposed implementation date: 2009

Probability of completion: 95%
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.
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
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 pedestrians along walking routes throughout London.

Model of pedestrian flows in Central London © Atkins 2010

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.

Thorough profiling, grading and databasing of assets.
Route hierarchy and sign locations
Developing a strategic placement strategy

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 initial strategic placement strategy are:

- Route hierarchy
- 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. Liaison with borough officers and engineers as appropriate enables the scheme to be tailored to ensure it is fit for purpose at specific sites.

Sign placement is drawn up on the scheme scale, placing signs at key arrival and route supporting locations.

The more precise road side and orientation are looked at on a finer scale and through on site visits.

The precise location is then plotted to ensure that the sign will be of optimal use to pedestrians whilst not adversely impacting the pavement width.
Planning strategy  
Where they go and how they work together

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 across borough and landowner borders will be crucial.

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

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

Legible London  
A description of the system architecture
Finder map
How are the maps designed?

The Finder map is the detailed walking picture of the city, intended to answer detailed orientation questions and to locate a final destination.
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 identification 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'.

<table>
<thead>
<tr>
<th>4 Star</th>
<th>5 Star</th>
<th>Other rated</th>
<th>Other rated</th>
</tr>
</thead>
<tbody>
<tr>
<td>50+ Beds – Included</td>
<td>50+ Beds – Included</td>
<td>150+ Beds – Included</td>
<td>&lt; 50 Beds – omitted</td>
</tr>
<tr>
<td>Thistle</td>
<td>Claridges</td>
<td>Strand Palace</td>
<td>Tony's House</td>
</tr>
<tr>
<td>Bloomsbury</td>
<td>Mayfair</td>
<td>Covent Garden</td>
<td>Sussex Gardens</td>
</tr>
<tr>
<td>138 Beds</td>
<td>203 Beds</td>
<td>783 Beds</td>
<td>20 Beds</td>
</tr>
</tbody>
</table>
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

For CentrePoint, the mapping polygon (left) provides the base for the 3D building – creating a symbol of one of London’s taller landmarks. These 3D depictions are rotated accurately when the map is rotated.
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.
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

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

South Bank & Bankside

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

Clear Zone

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.
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.
6 Maintaining Consistency
Maintaining Consistency
Design Standards

The visual appearance is fully documented in the Design Standard documentation which enables all Leigle 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 Legible London guidance documents please contact:

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