Legible London

Yellow Book

A prototype wayfinding
system for London

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Transport
for London

Contents

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Developed by AIG for the London boroughs, Transport for London, London Development Agency, London's land-owners and its travelling, resident and visiting public.

This book is in two sections. The first half is an overview in the form of an essay outlining the background, research and development work that has culminated in the Legible London prototype wayfinding system for the West End.

The second half is a visual summation that shows the application of theories, concepts and findings that form the foundations of the wayfinding system.

AIG

Introduction

London is a great city for walking. The Mayor's vision is to make it one of the world's most walking friendly cities by 2015. Walking is an enjoyable, free and accessible activity and for most people, a necessary part of their everyday journeys.

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 Transport for London 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.

Transport for London 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.

This book tells the story of the initial design development of Legible London up to the installation of a prototype in the Oxford Street area, improving information for Christmas shoppers from November 2007.

MAYOR OF LONDON

Transport for London
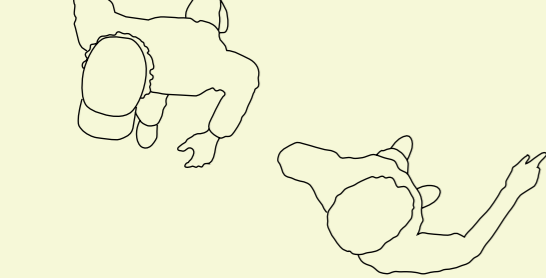
Which way to Christmas?

Twinkling lights, bristling streets, spectacular window displays, angst and anticipation. Somehow, Christmas shopping and London's West End go together like turkey and stuffing.

■ **An essay by Jim Davies.** Jim is an author and design commentator whose work has appeared widely in international design magazines and national newspapers.

In the run up to Christmas 2007, bustling, gift-laden Oxford Street shoppers have been helped along their way by a new wayfinding system. It allows them to quickly get their bearings – to locate shops and hotels, Tube stations and toilets, cinemas and museums, cafés and restaurants. This in the hustle-bustle of some of the busiest stretches of pavement in the world. Placed at strategic locations, and aimed fairly and squarely at the average pedestrian, the bright new wayfinding system presents information clearly, logically and succinctly – but in a way that has rarely been attempted before.

So what's new?

Mainly that it's been designed to be in synch with the way we think and act when we're moving on foot from one place to another.

For example, it cleverly taps 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 drawings of notable 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.

All this under the watchful eye of a pictorial 'walker' silhouetted on a yellow background who appears at the top of each pillar, denoting its function. The symbolic pedestrian in whose honour we've called this slim volume the 'Yellow Book'.

■ **Symbol**
The Legible London 'walker' – instantly recognisable and derived from the universal symbol to represent walking.

The Oxford Street scheme is a prototype for a project called 'Legible London'. This proposes a new pedestrian wayfinding system to help people travel around the capital on foot as part of the Mayor's wider commitment to making London a truly walkable city. Legible London is supported by the Mayor of London, Transport for London (TfL), the London Development Agency and many London local authorities, with know-how from information design consultancy AIG. It is a real joint effort, pulling together complementary work carried out by the different organisations.

The Oxford Street prototype was implemented to put the underlying principles of Legible London to the test, to learn lessons from the public's reaction and to identify areas where adjustments or improvements might be made.

As a means of guiding people on foot through one of the world's most organic and complex cities, Legible London is based on proven scientific research, particularly into the process of 'mental mapping'. But it also draws on examples of best practice around the world, and other systems that have stood the test of time, including Bristol Legible City and the UK Road Sign system, which has been proving its worth since 1964.

The Oxford Street prototype, in turn, is part of another ongoing London initiative, 'Oxford Street, Regent Street, Bond Street – An Action Plan for the Retail Streets' (more familiarly ORB), which aims to rejuvenate the West End shopping district. ORB's aim is simple, but ambitious. To safeguard the position of London's West End as one of the world's premier locations – making sure that it remains a wonderful place to live, an exciting place to visit, and a vibrant shopping destination that no other world city can match. The ORB Action Plan is sets its sights high and requires support from many different partners.

■ **West End facts**
200 million visitors
£4.7 billion spending each year
87% of visitors move on foot
41% don't wander off
the main roads.[1]

To achieve ORB's objectives over 100 'actions' seek to revitalise the public realm – these include reducing traffic congestion, the use of iconic lighting, and the introduction of oases areas. The ORB Action Plan recognises that improving the pedestrian navigation strategy in the area is vital to the continuing success of the three key retail streets and the immediate surrounding areas. This is where the Legible London system can begin to play a role in helping people expore the area on foot.

Oxford Street is a destination for shoppers in its own right. But it also acts as a conduit for several adjacent specialist shopping zones. Just off the western end of the street are St Christopher's Place and Marylebone High Street with their characterful niche stores. To the south there is Bond Street with its high-quality offer, and South Moulton Street, with its upmarket clothing, jewellery and accessories shops. Regent Street hosts many well-known global brands. Carnaby Street is re-establishing itself as a fashionable destination for younger shoppers. Tottenham Court Road is well known for its electrical goods and upmarket furniture stores. Helping people negotiate these busy retail points effectively is a key part of the ORB strategy.

Over 200 million people visit the West End each year, spending over £4.7 billion. Some 87 per cent of them choose to move around on foot. Towards Christmas, these figures bulge significantly. So Oxford Street in December is a demanding place and time to test out the Legible London wayfinding system. Enabling West End shoppers and tourists to get from A to B to Christmas in the most efficient

and enjoyable way was a real challenge. But one that will encourage them to come back to enjoy its many attractions time and time again.

And if the principles of this system can stand up to the extreme pressures of the West End at the busiest time of year, that bodes well for the roll out of a similar system across the capital as part of a wider programme to improve the legibility of London's streets and public spaces.

Legible London – how we got here
The Mayor's vision

■ **What the Mayor wants**
– Strong and diverse economic growth
– Social inclusivity
– Improvements in environmental management and use of resources

From the outside, London is seen as one of the world's greatest cities – and so it is, but of course there's more to it than that. People who regularly travel around the city recognise there will always be plenty to do to regenerate and improve the urban environment.

There's already pressure on London's transport infrastructure, and this is set to intensify. Over the next 20 years, it's estimated that London's population will grow by at least 800,000.[1] In many ways this is a great opportunity. The population increase and the economic potential that goes with it needs to be harnessed to make London a truly sustainable city.

The Mayor has set out a clear vision for London based on three complementary themes: strong and diverse economic growth; social inclusivity; and fundamental improvements in environmental management and use of resources. Change and renewal are already evident, with iconic contemporary landmarks like 30 St Mary Axe (aka 'The Gherkin') and Tate Modern on the South Bank breathing new life into our heritage. Many outer London town centres are growing and regenerating too. There is innovative development and building work going on throughout the capital, creating a real buzz and sense of expectation.

8.5 m

7.4 m

2012 and all that

And there's an imminent catalyst for change too. The London 2012 Olympics and Paralympic Games are just around the corner, giving a focus and urgency to the many and varied proposals for London's better, brighter future. Unprecedented numbers of people from the UK and all over the world will flock to the capital in 2012, so it's important that they feel welcome and can get around easily. There are tangible deadlines and targets to be met. Everyone is working together towards a common goal.
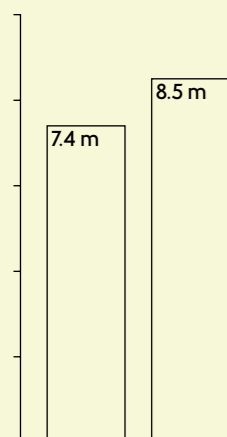
■ **London's population set to increase**
14.3% increase to 8.5 million people by 2029.[2]

2012, of course, is just the immediate spur. The legacy of the massive investment in facilities and infrastructure will be felt for decades to come. Which is why money needs to be spent wisely on schemes that will make a real difference to the everyday lives of Londoners.

■ **Where to next?**
As unprecedented numbers of people flock to London for the 2012 Games, it's crucial that measures are in place to help them navigate the city.

One of the Mayor's ambitions for London is to transform it into one of the most walking-friendly cities in the world by 2015. To date, provision for pedestrians has been patchy at best in towns and cities in the UK and abroad. London is taking the lead in what is set to become a major step change in urban transport, a programme that could radically improve citizens' quality of life. Encouraging people to walk where they can makes so much sense in terms of transport, public health, social inclusion and the environment. Legible London is a key element in a wider programme to support walking in the capital.

The case for walking

Legible London captures the spirit of our times. We find ourselves in the midst of a cultural shift, where people are receptive to embracing the positives of walking as the number one choice for short journeys in London. The public is becoming more sophisticated and aware about environmental responsibility, and there's a distinct shift to greener ways. Walking can play an important role in making London a healthier, more pleasant city, a less congested and polluted place.

It's hard to find anything negative to say about walking. As a mode of transport, it's incredibly inclusive and democratic – accessible to all social groups, ages, religions and cultures. Walking is safe, environmentally friendly and free. It's also one of the best forms of exercise known to man, and it encourages business and social interaction. More people on the streets makes for safer streets. Yet, despite all these plus points, walking often gives way to motorised travel for short trips.

Here are some of the proven benefits of walking:

Transport

Walking already accounts for 15.4 million daily trips in London[1]. For shorter trips, it is a highly efficient, reliable and enjoyable way of moving around the city, as the volume of people walking to, from and around the centre of London confirms. Enabling people to walk more can also help ease pressure on the public transport system, making it more efficient and less overcrowded. Road space can be freed up, easing congestion and helping essential traffic on its way.

Society

Walking creates a lively, often more friendly atmosphere on the street, as well as a sense of civic pride and local ownership. Street crime is reduced by having more populated streets, and people feel safer at large. Being free, walking is also highly socially inclusive. Designing and managing the street environment with the needs of people with mobility impairments in mind can significantly increase their independence. It also benefits those who are temporarily encumbered with buggies, shopping or luggage.

Environmental

Walking is a truly sustainable form of transport. It causes no air pollution, produces no CO_2 emissions, and has little environmental impact. If more people walked more often, we'd have less traffic and noise, and better air quality. A co-ordinated London wayfinding system can also reduce visual and physical clutter across the capital's streets.

Other trips
Walking trips
55%
45%

■ **Journeys per day**
Walking accounts for the majority of journeys in London already.

Walk A–B
Walk for pleasure
walk to access public transport
27%
36%
37%

■ **Walking trips**
Composition of the 15.4 million daily trips made on foot.[1]

■ Health benefits of walking
– reduces obesity
– lessens risk of heart disease
– lowers blood pressure
– reduces high cholesterol and body fat
– increases bone density
– enhances mental wellbeing[2]

Commercial

A walking-friendly city is a tourist-friendly city, and the local economy benefits directly. Retailers appreciate having people walking past their shops as it increases passing trade and impulse buying. For business people, walking to and from meetings provides time for thinking, planning – and just having a break and clearing the head. The Corporation of London, for example, has recognised the benefits of maintaining a high-quality walking environment in the City of London. Plus, less traffic means businesses can provide services and deliveries more efficiently.

Health

The Chief Medical Officer describes walking as "the nearest thing to perfect exercise". Among other things, it can reduce the risk of coronary heart disease, obesity and strokes, lower blood pressure, reduce high cholesterol and body fat, increase bone density, and enhance mental well being. A brisk two-mile walk burns off the calories contained in a chocolate bar.

We can all agree that walking is good for us, personally and collectively. The next step is to encourage significantly more of it through a programme of improvements in the conditions for walking including well-considered, coordinated public information systems. So how can we achieve this?
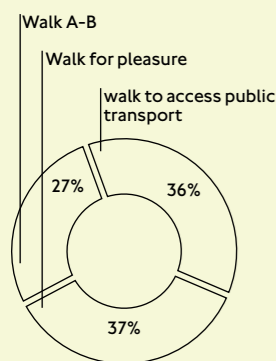
The Walking Plan for London

Walking is a means of really understanding and appreciating a city up close. London is blessed with rivers, canal paths, parks, woodlands, imposing squares, magnificent landmarks, local town centres, hidden architectural gems, world-class buildings and a rich cultural heritage. In other words, there's plenty to see and plenty of reasons to travel on foot.

Though walking is a fundamental part of our daily lives, walking environments can sometimes put people off. The Walking Plan for London recognises the need to create a safe, attractive and accessible environment that improves Londoners' experience on the street and their attitude to walking. This plan identifies all the key issues relevant to walking in London and suggests how they can be addressed in a practical and cost-effective way.
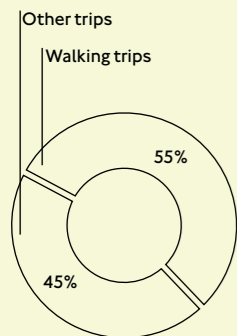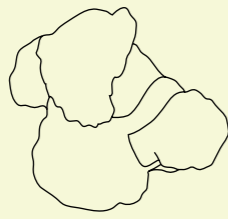
The Walking Plan for London aims to:

– Co-ordinate delivery and further develop the plan, making sure pedestrians' needs are being met

– Educate and inform the public via published material and campaigns

– Improve street conditions by drawing up guidelines, developing integrated pedestrian networks and implementing improvements

– Develop guidelines and measures to improve pedestrian conditions at new developments and interchanges

– Implement safety and security measures to help pedestrians

– Achieve the Mayor's vision within a realistic timeframe, which will require significant funding and resource at regional and local level.

By 2012, central London and the Olympic zone should have been reinvented as shining examples of pedestrian-friendly urban areas. To this end, the Mayor of London is working closely with Transport for London and the London boroughs, to make the streets far more amenable and attractive for walking, improving signage and reducing pollution, congestion and crime. The main aim of the Mayor's Vision is to make London one of the most walkable cities in the world by 2015 (compared to base level in 2000).

Walking currently accounts for 80 per cent of trips under a mile and is the main way in which public transport is accessed in London. As a mode of transport, walking is growing in line with population growth (for A to B trips), however, the growth is predominantly in central and inner London.[1] As well as A to B trips, walking plays an important role as a leisure activity – such as strolling in London's parks and public spaces.

Architects and urban planners, of course, have a central role to play in invigorating and refining the overall pedestrian infrastructure of London. A structure like the Millennium Bridge, for example, which links two points previously inaccessible to each other, opens up exciting new possibilities for travelling on foot. Ingenious ways of physically joining different areas, like bridges, walkways, and pedestrian-specific routes, will encourage people to walk rather than choosing other modes of transport.

These sorts of improvements to the built environment are part of a wider programme of investment in infrastructure and information designed to fulfil the Mayor's vision of London as one of the world's foremost walking-friendly cities. Over the next three years, the Mayor and TfL will continue to invest millions of pounds into its own schemes and by funding boroughs to encourage

walking. These range from high-profile improvements to the public realm (such as ambitious plans for Parliament Square) through to new road crossings. Better pedestrian safety, improved street lighting and traffic calming will all contribute to improving the pedestrian's lot.

Wayfinding is a key component of the wider programme for walking. It increases the general understanding of how the capital fits together and gives residents and visitors the confidence to walk and explore the city. Making wayfinding work for people means bringing boroughs, landowners and local communities together to support a move towards a more reliable and consistent system of walking information right across the city.

Mixed signals

■ **Where am I?**
One in seven Londoners can't find their way around the city easily. One in four worry about getting lost.[2]

London is unique. It's jam-packed full of landmarks and places of interest, but it's notoriously hard to find your way around when you're walking. Unlike the logical grid of New York, or the compact, canal-defined conurbation of Amsterdam, London has no structured delineation. The city is made up of a rich collection of neighbourhoods and boroughs, with an unplanned maze of streets, innumerable obstacles, and dense road traffic.

The mazy, interconnecting streets of inner London have evolved organically over the centuries, which may add to the city's charm and character, but makes it tricky for the pedestrian to navigate. Outer London is made up of many dispersed areas, often difficult to access without first travelling through the centre. Despite hundreds of maps and thousands of signs, studies show that one in seven Londoners have trouble finding their way around on foot, and around a quarter worry about getting lost.

The sheer volume of signs adds to the problem. In the original Legible London study funded by TfL and commissioned by the Central London Partnership, information design consultancy AIG identified at least 32 separate wayfinding systems for pedestrians in the central Congestion Charging Zone alone.[3] These systems come with sharp differences in information, design and quality. Destination names are inconsistent. So are indications of distance. Designs vary in colour, shape, typeface, materials and branding. Some aren't maintained properly, leading to graffiti and vandalism. There is no common standard for the positioning of street signs. By contrast, our road signage for motor vehicles is consistent, clear and accepted right across the country – it tackled these issues decades ago.

London is a complex city, and the current signage and wayfinding systems have

come about to service a wide variety of needs. This reflects the diversity of the bodies responsible for design and maintenance of the street environment in London. The London boroughs look after all roads other than the larger roads forming the Transport for London Road Network (TLRN). Network Rail manages the main railway stations. London Underground manages the Tube stations. In addition, there are many development, business and property groups dealing with specific areas. These include Business Improvement Districts, the Great Estates, and sub-regional partnerships of boroughs and local business organisations such as chambers of commerce and the South Bank Employers' Group.
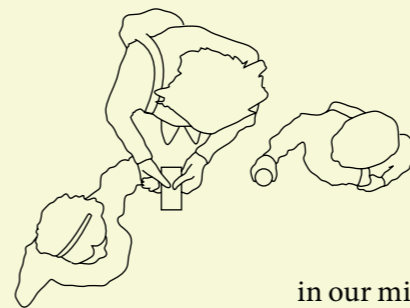
Many of these different organisations have developed their own information systems to suit their own purposes. Everything these systems are doing successfully needs to be carefully considered as part of any new programme – the baby mustn't disappear with the bathwater. But in many cases, it appears that signing and information systems have been developed back to front. To borrow a term from commerce, the current solutions are not 'customer led', but 'provider led'. From this point forward, we need to focus more on the needs of pedestrians, rather than thinking like providers promoting a particular route or destination.

The logical solution, of course, is to move towards a more coherent approach to pedestrian information for London as a whole. This needs to be based on a number of shared and agreed principles such as 'progressive disclosure' – that is, telling people what they need to know when they need to know it, and not bombarding them with irrelevant, potentially confusing information.

■ A Wayfinding Study
Identified the need and method for creating a more Legible London, and has gained in-principle support from central London Boroughs.

Developing the Legible London approach

In recent years, a number of local authorities in London and elsewhere in the UK have been working to develop co-ordinated pedestrian information and mapping systems. Transport for London's involvement in this process began in 2005 when it supported the commissioning of a research study through the Central London Partnership, a body which represents seven boroughs and a wide range of businesses from central London. The report, entitled Legible London- A Wayfinding Study, was published in March 2006. The central London boroughs endorsed the study and signalled their in-principle support for the project to go through to the next stage. A presentation in December 2006 to representatives from London boroughs garnered wider goodwill, paving the way for further investigation and full borough consultation.

At the heart of the Legible London approach to pedestrian information is the idea of 'mental mapping'. The more we travel a particular route, the clearer it becomes

■ The knowledge
Asked 'How much of the Greater London area do you think you know?', 45% of people answered 10% or less.[1]

in our mind's eye. Walkers instinctively build up what's called a 'mental map' of a town or city. Any successful wayfinding system needs to support people in building their mental maps (be they tourists or regular travellers in London).

Mental mapping

Cognitive science and research work in other related areas has shown we develop 'place cells' in the brain corresponding to points in the physical environment and gradually build them up into a mental map of places, routes and, eventually, areas. The mental map we build is not strictly geographic, but revolves around the relationship between memorable locations and routes insofar as they are relevant to our needs. This is a function of the hippocampus area of the brain which, it is said, is enlarged in London's black cab drivers.

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'.

But this is only a matter of time and familiarity. All parts of London have familiar areas and landmarks. In Central London, distinct areas (Soho, Camden Town, Covent Garden, Chinatown) landmarks (The London Eye, Big Ben, Tower Bridge, Canary Wharf), streets, stations and squares – can all assist the mental mapping process. Other parts of London have their own distinctive areas and landmarks, reflecting the city's evolution from a patchwork of buildings, streets, villages and towns that have gradually joined together as the city has grown. But the walker first needs to break these pieces of knowledge about the city's geography into manageable and relevant nodes, routes and areas. And this principle should be at the heart of planning wayfinding systems and walking maps for London.

The stronger a mental map we have, the more confident we are about walking to our destination and exploring new areas on foot. Legible London seeks to give people the prompts and building blocks to encourage and support the natural process of mental mapping.

From the theory and first line of research, the study moved into its next phase – building a business case for Legible London. This has involved digging deep to investigate the tangible benefits that a co-ordinated, London-wide pedestrian system would create.

To this end, a series of research programmes were commissioned. These included the AIG/LSE 'Walkable Journeys' report, covering central London, which showed that one in ten journeys across the Tube network in central London are less than 2km long, as are almost half of all bus trips. AIG's 'Walking Tube Study' timed Tube journeys between station entrances against the same distance walking above ground. Among other things, it found that 55 per cent or 109 journeys between pairs of stations in central London were quicker to walk. A TfL study of wayfinding indicated that at least 25 per cent of pedestrians used the Tube map and many carried an 'A-Z' to find their way around London – significantly, neither of these guides has been designed to serve the needs of walking.

Other TfL research reveals that attitudes to walking among Londoners is positive, mainly because of the associated health and environmental benefits. Two-thirds of Londoners were receptive to walking more over the next year – with a bias towards the younger population (under 35) and women. Six out of ten Londoners would be more motivated to walk if there were more local facilities or the pavements were cleaner. Half would be more motivated if there was more information on local walks/places of interest.

■ **Estimated benefit**
Reducing the numbers of people who get lost or take longer than necessary journeys could result in time savings per trip per person of between 5p and 7p.[1]

Quantified savings

Another TfL-commissioned report by transport economists Colin Buchanan, made positive findings in several key areas. This research is being developed alongside the prototype scheme and will need to be reviewed afterwards, but the initial findings are compelling.

To quantify potential journey time savings within the central London area, Buchanan interviewed 1,500 pedestrians to estimate the number of people who get lost or take a longer route than intended. Journeys were then mapped to find out whether or not respondents had taken the quickest route. After factoring the results of the surveys up to the number of total pedestrian trips inside Central London, it was estimated that time savings per trip per person would fall between five pence and seven pence if pedestrians had taken a quicker walking route.

Buchanan also assessed the potential benefits from improving the quality of the walking environment. Benefits included: greater walker confidence; confidence in finding their way; reduced clutter; improved maintenance; and more personal security.

Even using conservative assumptions, the benefits outweigh the costs. The initial appraisal therefore provides encouraging results, and presents Legible London as a worthwhile investment.
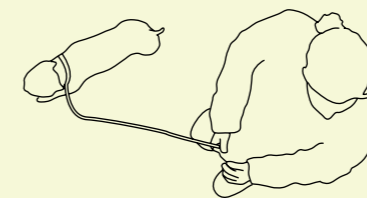
Feasibility studies

Alongside the studies outlined above, pilot feasibility studies were initiated in partnership with the South Bank Employers' Group and the London Borough of Richmond to test out the viability of the wayfinding system in two very different London environments.

The urban South Bank/Waterloo area is one of the key transport hubs of the city. It attracts significant visitor numbers – The London Eye is the number one tourist attraction in the country, drawing visitors along the river bank to other people-magnets like the Royal Festival Hall, Tate Modern and the Globe Theatre, which are close by. Central London will be a key area in 2012, with many people staying in the locality and travelling from there out to east London to watch the Games.

Issues in the Richmond, Twickenham and Kew area are quite different. These are more dispersed areas, with distributed centres, so the main challenge here is linking up these discrete hubs. The choice of two such contrasting localities is deliberate, helping to test what elements of the scheme work universally, and assessing where a more tailored approach may be necessary.

Pilot and feasibility studies are a pivotal part of making sure that Legible London works as it should. They provide a steady build up to going live, pin-pointing areas that do their job well and others that need further attention. These studies build on the experience of product and interactive design in other walks of life. In car design, for example, full-scale models in clay and wood are made and placed on the street to evaluate proportions and styling in a real context. Interactive design rigorously tests factors affecting the user's experience before committing to a final version. Similarly, with Legible London it's important to iron out potential glitches as part of a wider roll-out. Retrospective tinkering is costly and confusing to the public.

Other associated research which support the Legible London approach recommendations includes:

■ **Walking maps**
After being shown a walking map, 66% of travellers would consider walking instead of using public transport. Among tourists, this figure increases to 80 per cent.[2]

Research Business International 2002
Which found that 66 per cent of travellers would consider walking instead of using public transport, after being shown a walking map. Among tourists this figure is as high as 80 per cent, and even among city-wise commuters the figure is 60 per cent.

MORI study for the London Borough of Islington 2005
This reported that 49 per cent of respondents had seen and used map-based signs, and of these 83 per cent were satisfied that the signs had helped them find their way. Maps had assisted 66 per cent with their

journey, with 47 per cent saying that the maps had 'encouraged' them to walk. Only 5 per cent said that they did not find them useful.

Taken together, all this information supports the view that an integrated signage and information strategy for pedestrians in London can be expected to deliver substantial dividends. Journey time is a more important factor than distance when it comes to deciding whether to walk. Maps and signs can play an important part in forming these judgments.
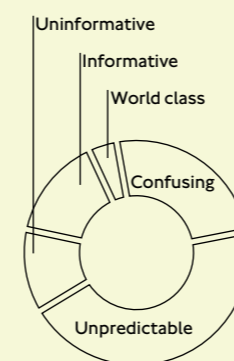

■ **Consultation**
Legible London has been discussed with many groups including:
– Transport for London
– The Mayor's Office
– Greater London Authority
– London Development Agency
– Design for London
– Visit London
– Central London Partnership
– Most of London's 33 Boroughs including:
– City of Westminster
– LB of Camden
– LB of Islington
– LB of Southwark
– RB of Kensington & Chelsea
– LB of Lambeth
– LB of Richmond-u-Thames
– LB of Hackney
– Corporation of London
– New West End Company
– South Bank Employers Group
– Major Landowners
– Department for Transport
– CABE
– Metropolitan Police
– Accessibility Groups
– RNIB
– The urban and information design communities
– The general public

Getting everyone involved

Transport for London funded the original study behind Legible London and has co-funded aspects of the subsequent research and development with the London Development Agency. But there are many other stakeholders who have been consulted, kept informed of progress, and played their part along the way. Interests and agendas surrounding issues of city wayfinding are unavoidably diverse, and to make sure everyone was on board with the general approach, it was important to engage all those who might be affected.

Legible London has provided a welcome opportunity for different London agencies to come together and work towards a common aim – creating an appealing, walking-friendly city that directly benefits the public at large. It represents a unified effort that combines the skills, knowledge and resources of Transport for London, the Mayor's Office, the London Development Agency, Central London Partnership, the London boroughs, the urban design and information design communities, the designers, as well as other agencies and stakeholders. It is proving a complex, but ultimately rewarding experience. Information sharing, co-ordination and co-operation are vital in moving the initiative successfully forward, but the weight of a joint venture like this creates more momentum and enthusiasm than is possible with a single agency working in isolation. It's also the means to achieve consistency and clarity – the cornerstones of a coherent wayfinding system.

Throughout the early development of Legible London, keeping the many interested parties informed and involved has been a key priority. To make certain this happened, a series of strategic initiatives were organised to disseminate and discuss the latest study findings and recommendations.

Back in December 2005, the Legible London study was presented at a meeting attended by the central London boroughs as well as representatives from many outer London boroughs. The report was positively received, and there was general approval of the concepts and principles behind it.

■ **Ask the audience**
Several consultation events, including an exhibition at New London Architecture, were organised to gauge public opinion and collect responses to add to the development process.

Uninformative
Informative
World class
Confusing
Unpredictable

■ **Confused?**
25% of people found current street signs in London confusing, while 4% thought they were world class.[1]

In June 2006, Central London Partnership organised a day-long workshop at Sadler's Wells Theatre, where architects, transport specialists, business partnerships, local authorities, government departments, the police, environmental groups and many others came together to discuss issues pertinent to the Legible London scheme. Workshops facilitated by experts in their respective fields explored branding, hardware and technology, sign placement, clearance of visual clutter and practical maintenance considerations. The event garnered wide enthusiasm for the project, with participants keen to know when the next stage would be going ahead.

The Legible London Exhibition

In October 2006, as an exercise in public consultation, the Legible London Exhibition was launched at New London Architecture on Store Street, London WC1. The instructive, interactive exhibition ran for six months, and was open to the general public. Through a series of installations and demonstrations, it showcased the main principles and proposals for pedestrian wayfinding through the complicated streetscape of London. Feedback forms from the exhibition showed that nearly 60 per cent of people who attended the exhibition had used a combination of the Tube or bus and walking to get there.

Timed to coincide with the exhibition, a web site and associated blog was launched at www.legiblelondon.info, explaining the rationale for Legible London, and inviting visitors to leave their feedback and take part in an online poll. The site attracted almost 3000 visitors during the first three weeks of the exhibition, with the poll showing that 45 per cent found London street signage 'unpredictable', while 54 per cent enjoyed walking and were prepared to do more of it. Other feedback showed that 35 per cent of respondents would be prepared to walk for up to an hour a day.

There was some interesting comment left on the blog too. Responding to the question 'What defines London's villages?', Peter commented: "Tube stations inform most people's perceptions of names for areas. Witness the number of people who talk about visiting 'High Street Kensington', when on the ground it is Kensington High Street, or Knightsbridge when they are heading to Harrods on Brompton Road." Jasmine made a point about street clutter: "I think London is a great city, but I cannot stand the funky signage – I understand the need to preserve history and character, but can't it still be people friendly? I know something like this would cost money… but imagine the decrease in confusion and even congestion."
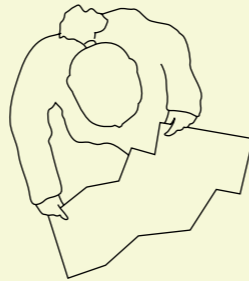
Two further consultation events hosted by Transport for London were arranged during the course of 2007. Held in June and October, these briefed the borough representatives on all the latest progress and developments and sought their advice on how to proceed.

The effort and organisation involved in keeping everyone fully briefed and enthusiastic about the Legible London programme since its inception has been substantial. But this activity is an essential part of the development of the project. Ultimately, the boroughs and other stakeholders need to be fully behind the development and roll-out of a wayfinding strategy for London.

Bringing it all together

As we've seen, there's a compelling case for a comprehensive and coherent pedestrian wayfinding system for London. Some of the underlying principles needed to make it work have been touched on:

– The system needs to be a developed as part of a wider strategy to remove the physical and mental barriers to walking and to create incentives for people to walk.

– The system needs to be based on a comprehensive understanding of what makes a town or city truly legible. Mapping and signing are an important part of this. But other elements are important too, such as building design and urban form, street layout, lighting, use of street furniture and public art.

– The system needs common characteristics wherever and however people encounter it. Pedestrians should be able to get to grips with the system quickly and remember how it works. This is an ideal opportunity to get rid of unnecessary clutter on the streets, by having as few signs as possible.

– It should also strike an appropriate balance between consistency and predictability on the one hand and the reflection of local character and diversity on the other.

– The system should use 'progressive disclosure' – just enough information and not too much.

– It should encourage 'mental mapping' by connecting areas, regions and transport systems.

– It needs to be an effective, high-quality system that engages the public. A London-wide programme would benefit from economies of scale in purchasing and maintenance.
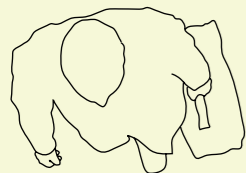
■ I read you
As well as mapping and signing, building design and urban form, street layout, lighting, street furniture and public art all play a part in creating a 'legible' city.

A consistent approach to pedestrian wayfinding and information throughout the capital – and not just in the centre – would need agreed conventions (naming and placement policies) and interventions (maps and signs).
Its core requirements include:

– Helping pedestrians plan journeys and find their way with ease and confidence.

– Helping pedestrians build and reinforce an effective mental map of London.

– Creating a common, constantly updated central information system flexible enough for everything from maps and signs to websites, and suitable for local implementation.

Structure and signage

To develop a coherent wayfinding system, there needs to be a core set of design principles or 'architecture' combined with public information interventions. The architecture governs the management and use of information throughout the system, and will need to be formed by a set of master guidelines and manuals. Public information interventions are intended to provide pedestrians with helpful information when needed, and to encourage the option of walking. These require consistency so that they are trusted and connected.

Both these aspects of the wayfinding system must follow from a detailed understanding of how pedestrians find their way around towns and cities, work alongside effective existing systems (like the tried-and-trusted Tube map), and be designed to a world-class standard.
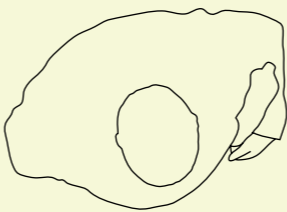
Living map

Maps are one of the oldest forms of geographical information we have, and are crucial in understanding street layout and the wider urban environment. They are referred to regularly to plan and navigate a journey. Legible London envisages the development of a single, co-ordinated mapping system. From the master, maps of varying scales and formats can be extracted for different purposes. The information and appearance would always be based on consistent design principles, but adjusted for scale and usage. Centrally authored, continually updated and digitally distributed, the system becomes a 'living map' for pedestrian information.

The conventions, policies, tools and methods that together comprise the system need to be brought together in a 'Walkers' Wayfinding Manual for London' that provides clear guidance for all agencies and stakeholders, but is still flexible enough to meet everyone's needs.

Some people can be sceptical about the need for maps, favouring a more minimalist approach, with no-nonsense, streamlined directional signage. But it is important to distinguish between the aesthetics and usability of an information system. While these are linked they are distinct. Maps are an efficient, straightforward way of communicating a wealth of information. They provide a rich experience, quickly answering questions relevant to the pedestrian – 'Where am I now?', 'Which direction do I need to travel', 'How long will it take me to get there?', 'How do I find the nearest...?' Accustomed to the Internet, people are more sophisticated consumers of information than ever, used to interpreting rich information and cherry-picking the answers they need.

On the street, AIG have found that people react positively to the use of maps. As an experiment, they mocked up a sign with bespoke pedestrian mapping on it, and just held it up on a pavement near their studio. In the space of an hour, around 40 people approached unprompted to check it out. The vast majority grasped its principles immediately and said they'd definitely make use of it.

The living map concept can be applied across many media. As well as street signage, it could provide walking information for a mobile phone or PDA, you could access it via the Internet, carry around a printed, folding pocket map, or it could be positioned the exit point of Tube stations showing you the best way to walk to where you need to be.

■ Image of the city
Harry Beck's London Underground map is used by 44.7% of people for planning a journey in London [1]. While it's extremely effective for navigating the Tube system, it is inadequate for pedestrian wayfinding.

■ Fit for purpose
Pedestrian-specific mapping is the way forward to encourage more walking.

Next steps

The Oxford Street prototype puts the Legible London pedestrian wayfinding system through its paces for the very first time, and provides a valuable opportunity to evaluate its performance. Pilots and feasibility studies are worthwhile exercises, but you can't beat having the system out on the street to establish its worth. Feedback and information on the prototype will be gathered to discover whether the system has increased the number of journeys walked and helped people get to their destinations more efficiently. It will also establish whether people feel more confident in getting 'lost', knowing they can find their way back to the beaten path quickly and easily. And it will find out what they think of the design of the maps and signs.

In the near future, other pilots and prototypes are set to get the green light, and AIG have been asked to develop a draft pilot design manual to help achieve consistency of application for the next tranche of larger-scale pilots. In addition to the studies in Richmond and the South Bank, Westminster and Camden Councils have been assessing feasibility in the Covent Garden area of London, and there is a need to build on the prototype with a wider roll-out of pedestrian wayfinding in the West End. Numerous other borough and private projects are always in progress all over London, and how these will co-ordinate with Legible London will be they key question if the project's potential is to be fulfilled.

After installation of the prototype, there will be a pause while further testing and evaluation takes place. Decisions on the development of the prototype to a full pan-London project are likely to be made in 2008. In the meantime, it's hoped that we have the beginnings of a world-class wayfinding system that could make a positive contribution to the London 2012 Games and help realise the Mayor's vision for a world-class walkable city.

Why not walk it?
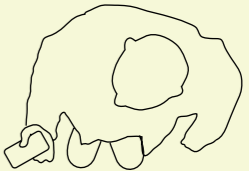
Thinking out loud
At this stage, Legible London is
a prototype – that is, a proposed
system that's still in the process
of being developed and refined.
The following pages present
a 'visual diary' of some of the
ideas, drawings and design
concepts that have influenced
the way Legible London has
evolved over the past months
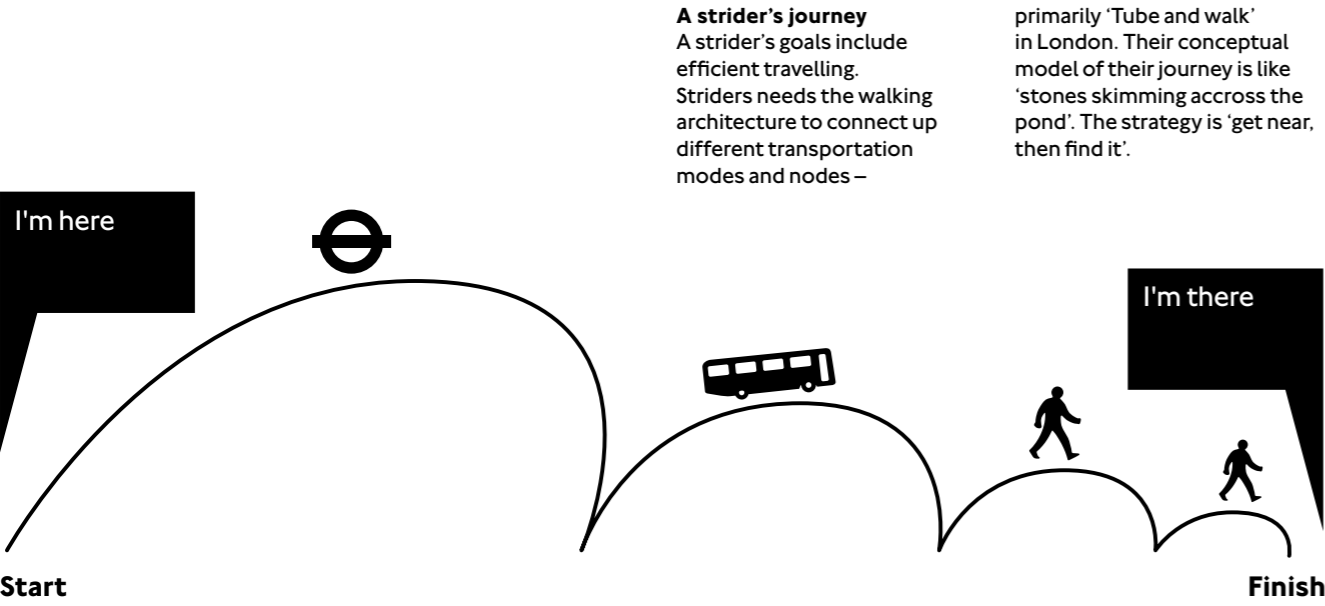and years.

Legible London
Yellow book
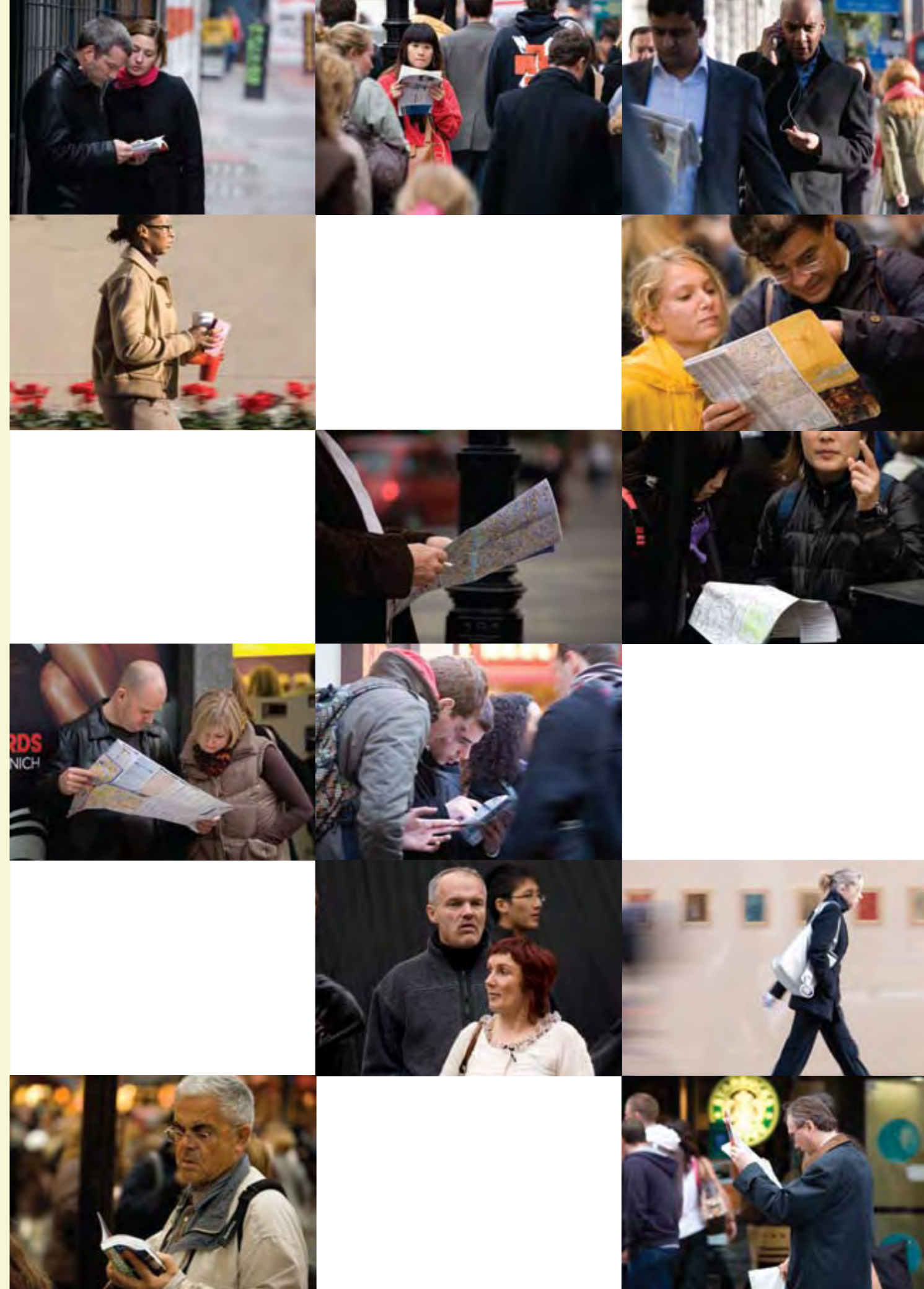
Who's it for?
Different people
Different goals
Different journeys

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 book work with this understanding.
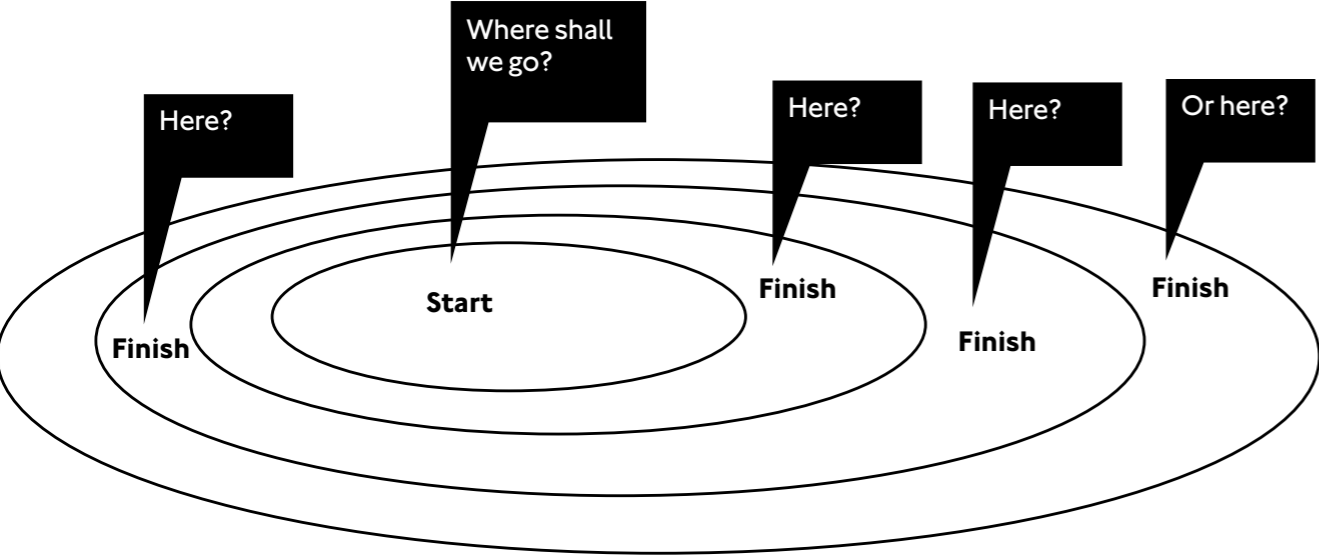
Different people have diffferent goals at different times, and their journeys are many and varied. Goals may often change during a journey, for example when agreements to meet are altered, or when a toilet needs to be found.

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.

A strider's journey
A strider's goals include efficient travelling. Striders needs the walking architecture to connect up different transportation modes and nodes – primarily 'Tube and walk' in London. Their conceptual model of their journey is like 'stones skimming accross the pond'. The strategy is 'get near, then find it'.

I'm here

Start

I'm there

Finish

A stroller's journey
A stroller's goals are memorable experiences. Strollers need the walking system to work for them opportunistically at the street level – allowing them to drift, wander and have the confidence to get lost. The conceptual model of a stroller is akin to 'ripples in a pond'.
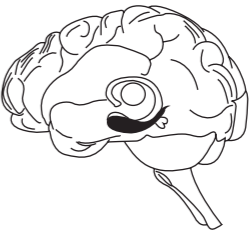

Here?

Where shall we go?

Here?

Here?

Or here?

Finish

Start

Finish

Finish

Finish

A learning journey
Novice strider
Has a specific destination in mind but doesn't know London too well. Interested in learning quicker ways from A to B.

An efficient journey
Expert strider
Has internalised just what is strictly necessary to fit with their daily routine.

A wandering journey
Novice stroller
Uses their intuition to explore and discover interesting places in the city.

An open-ended journey
Expert stroller
Has an idea of where places are in the city and uses that knowledge opportunistically.

Who's it for?
Ways of seeing – How people understand cities

The theory of 'mental mapping' is central to the way Legible London has been conceived and developed. Though it's clear we all build maps in our heads to navigate city streets, the way we do so depends on a host of factors. Not least is the way in which the city presents itself and the knowledge and ability of the traveller.

A successful pedestrian wayfinding system works with this understanding recognise this and finds a way to help everyone to build stronger, more sophisticated 'mental maps'.

At the Legible London exhibition at New London Architecture, guests were invited to draw a map from memory. The results, shown on these two pages, were highly revealing.

Using the hippocampus
The brain is like a muscle; the more we exercise certain parts of it, the more developed they become. Here we see the work of people with very different hippocampi – the area of the brain associated with mental mapping.

Transport
This drawing describes point-to-point journeys from a hub (Brixton) through vague spatial connections. The further away from Brixton it gets, the looser it becomes. The person who's drawn this instinctively divides London into distinct 'villages'.
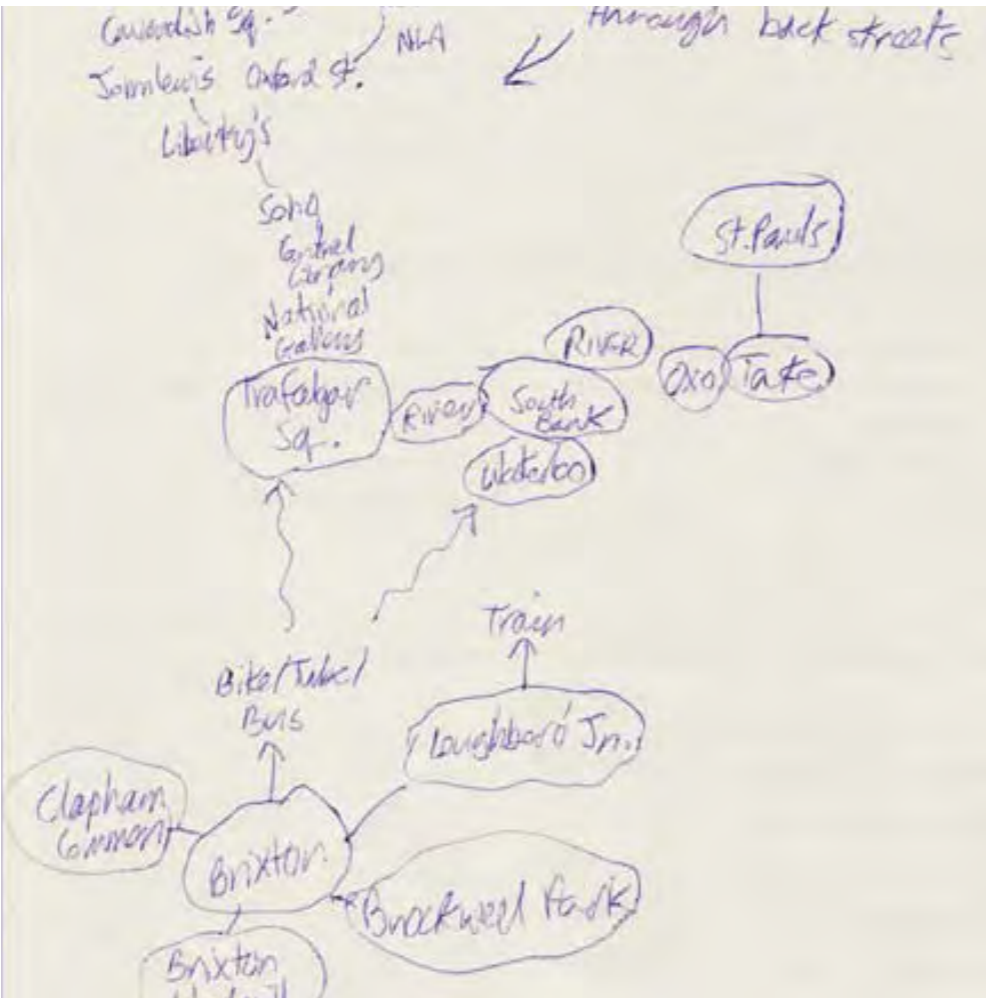
Misunderstandings
This area is typified by the strength of the linear villages of Oxford and Regent Streets, as drawn here. But knowledge doesn't seem to be strong, Piccadilly Circus has missed-out, along with many other landmarks. Interestingly, North does not seem to be important to this author.
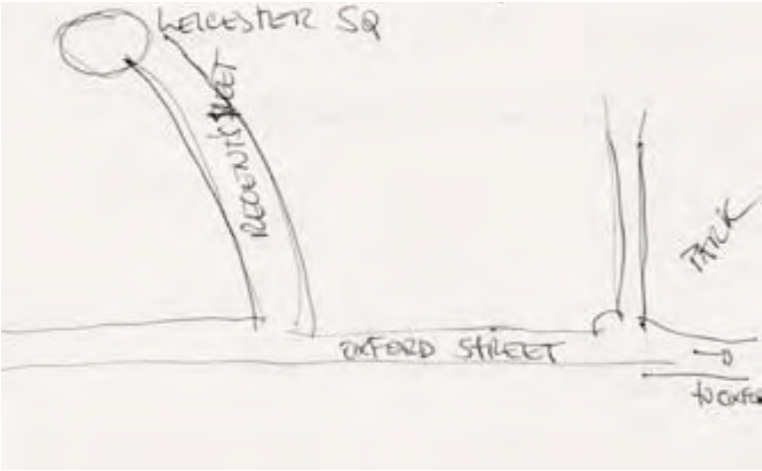
Linear
This mental map demonstrates the importance of backbone walking routes. Broad and reasonably straight, Fleet Street provides the perfect spine from which roads jut off to the north and south. Names are in the right order, but not geographically. The level of detail and familiarity with the street names suggests that the person responsible has worked in this area for some years.
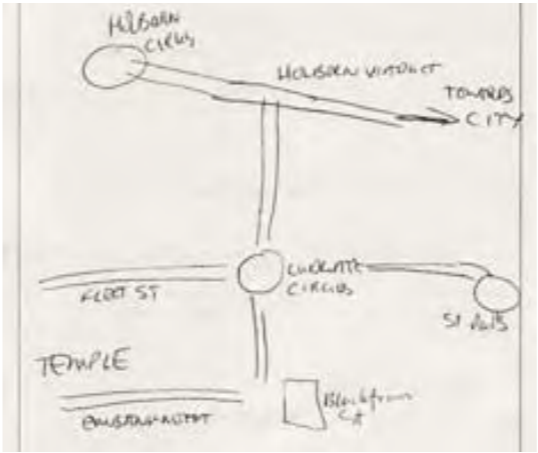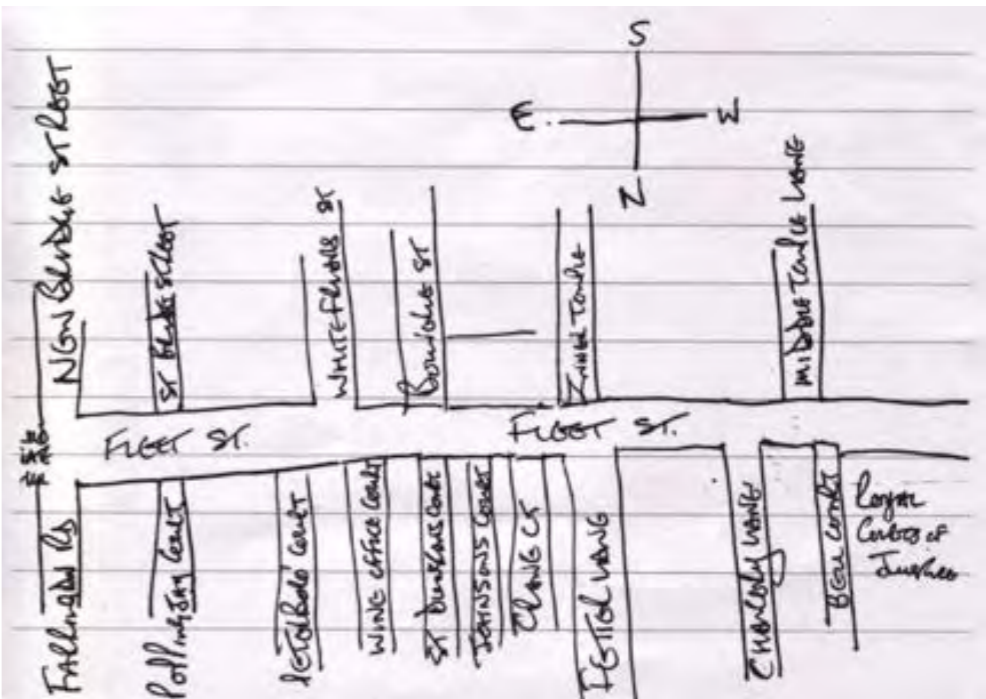
Stick and ball
This map is defined by destinations (drawn as circles and named) rather than the routes (drawn as parallel lines and left unnamed). It is probably influenced by the Tube map, and emphasises the arrival rather than the journey.
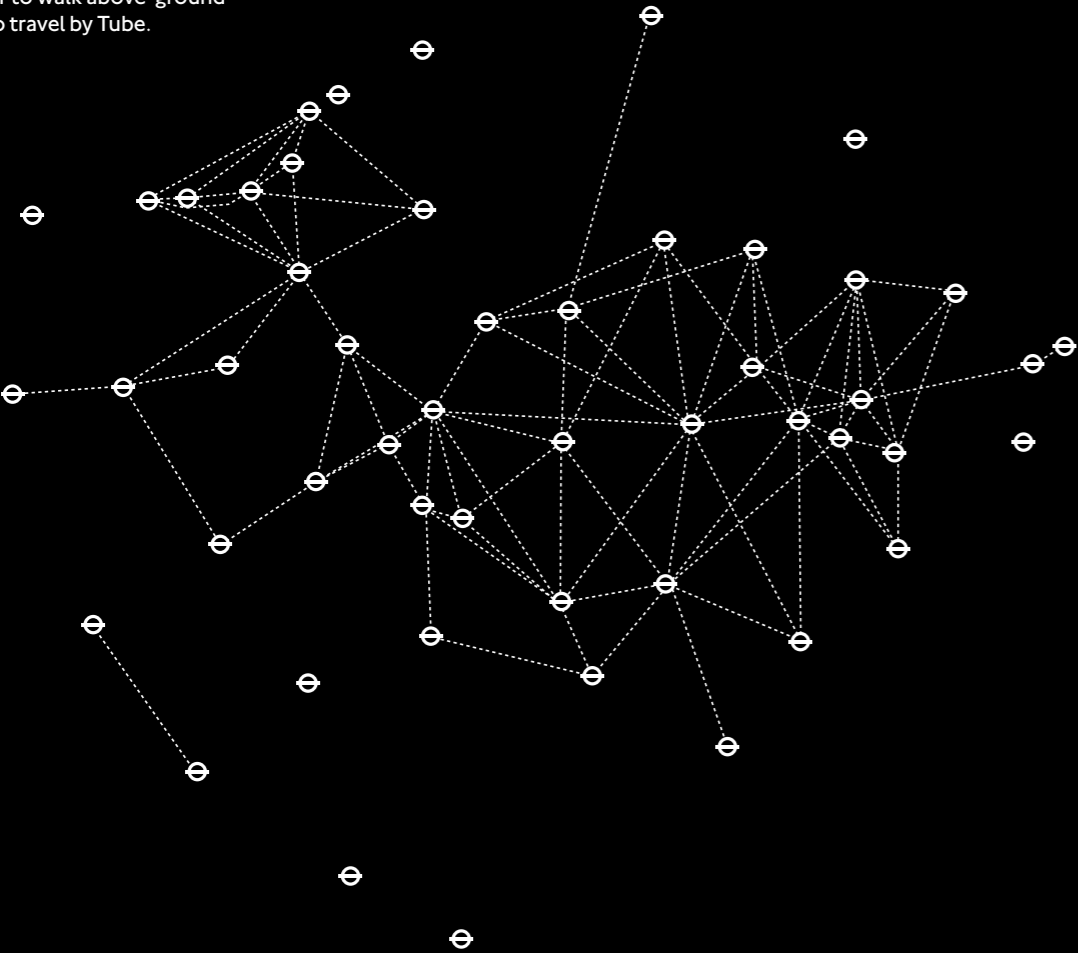
Human A-Z
Possibly the work of a professional. The level of detail is exceptional, with accomplished draftsmanship and a thorough understanding of geographical relationships. Note the number of important landmarks (to the author!)

Who's it for?
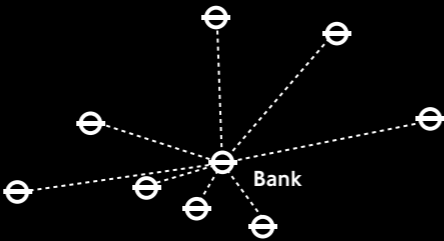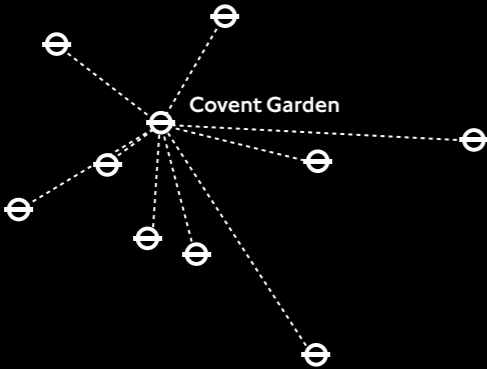Understanding 'above ground' as well as 'underground'

Reality can sometimes appear unusual. The modes of travel we trust can sometimes warp our sense of direction and distance. Many short journeys that could be walked are often taken using another form of transport. Armed with a fuller understanding of what is possible, the short walk could become a much more 'front-of-mind' choice for many of us.

The five-minute neighbourhoods that exist in London, provide stepping stones to support attempts to make these short journeys.

Walkable Tube Map
109 journeys between Tube Stations in Central London are quicker to walk above-ground than to travel by Tube.

Five-minute walks
The five-minute walk represents the natural size of an identifiable neighbourhood in London. This diagram represents a five-minute walk from every Tube station. Connections become more obvious.

Walkable stations
From Covent Garden nine out of ten adjacent stations are quicker to walk.

Covent Garden

Bank
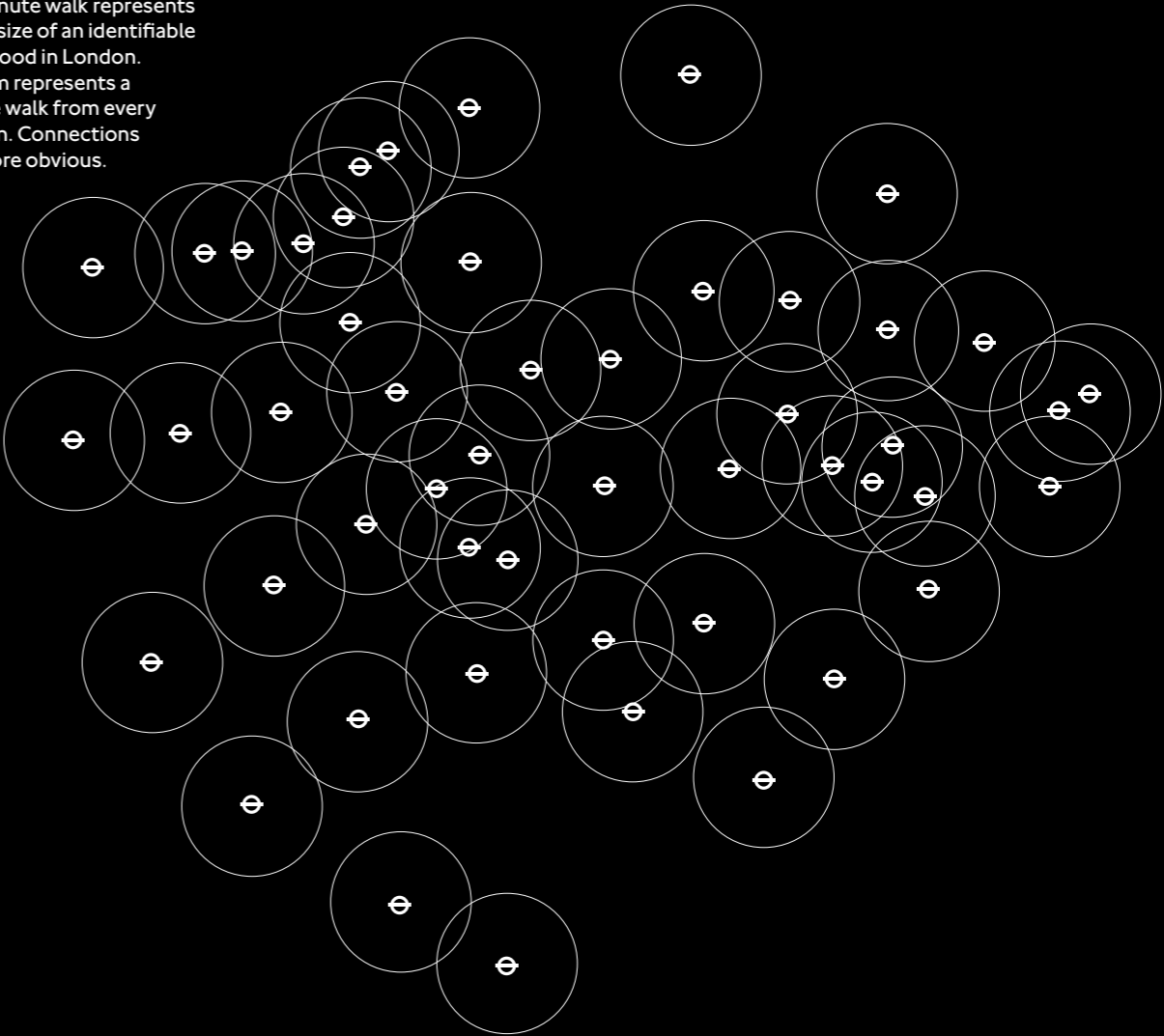
Stepping Stones
By loosely defining known areas in terms of a five-minute walk, or 400m, journeys between areas seem more easily walkable.

Equally important as the need to connect known areas is the need to refine people's knowledge of local and unfamiliar areas; this again will reduce people's reluctance to walk because of a lack of confidence. Result: making connections and solidifying local knowledge.

Berkeley   Savile

MAYFAIR   SOHO

Carnaby

Chinatown
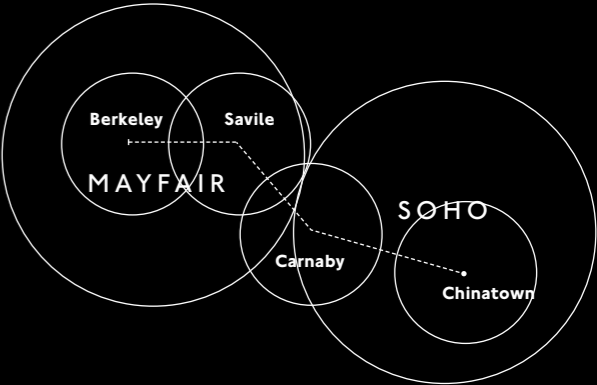
Guiding principles
The role of named places

As we know from school, the best way of processing huge swathes of information is to divide them into less-intimidating manageable chunks.

Similarly, successfully understanding the layout of London is a matter of creating a hierarchy of information that gradually and logically sub-divides areas into smaller and smaller chunks. These chunks represent historical, understandable and identifiable neighbourhoods. Initial definitions of the villages and nighbourhoods of the West End have been made for the purposes of evaluating in the prototype. The scales of named places represented here appear clearly thoughout the wayfinding information, from the tube exit information, on maps and on directional signs.

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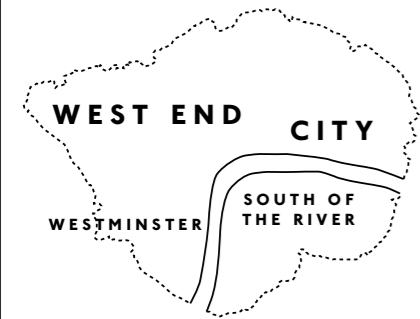
Villages
Areas, in turn, are made up of several 'villages'. The West End, for example, contains Soho, Mayfair and Covent Garden. Again, these are familiar, commonly used names, which can help pedestrians quickly relate one place to another, and build the knowledge needed to assist in mental mapping.
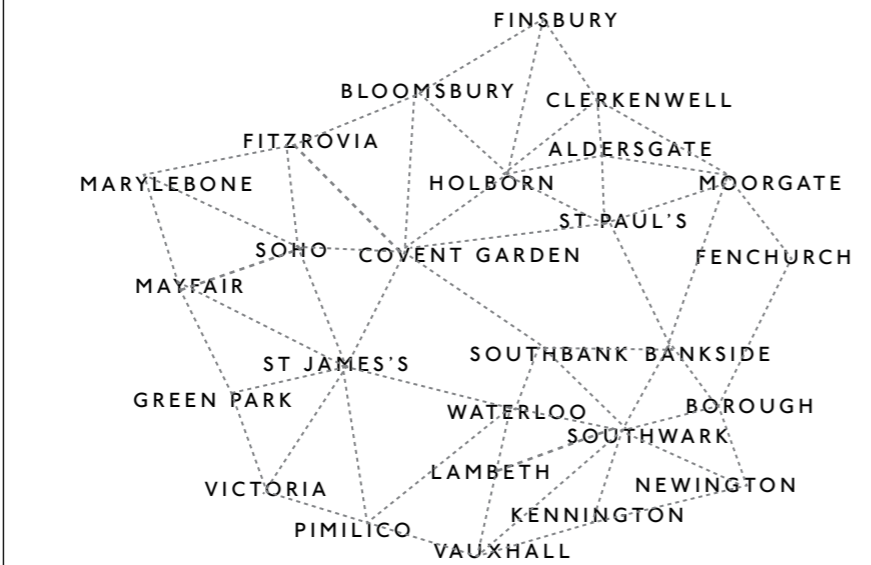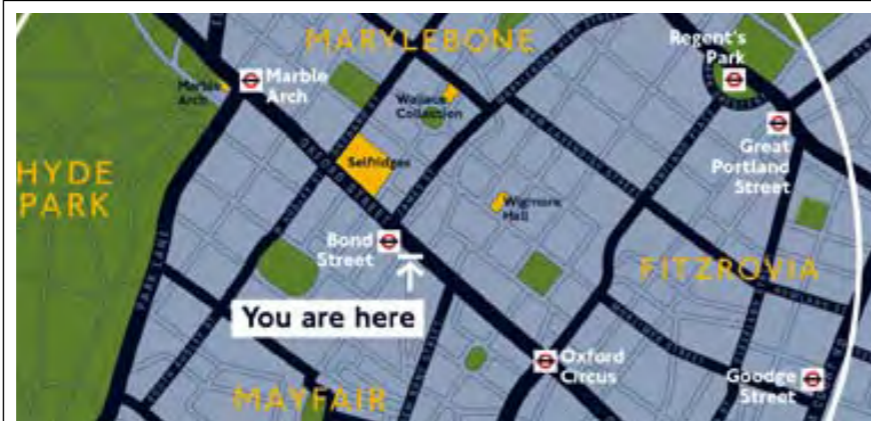
Neighbourhoods
Within each 'village', there are many 'neighbourhoods'. For example, in Covent Garden, you'll find Seven Dials, Neal's Yard, The Central Market, Aldwych and Long Acre. The more you visit a particular place, the more you can keep sub-dividing it into smaller, linked pieces, creating a more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

20 to 40 minute-walk

10 to 20 minute-walk
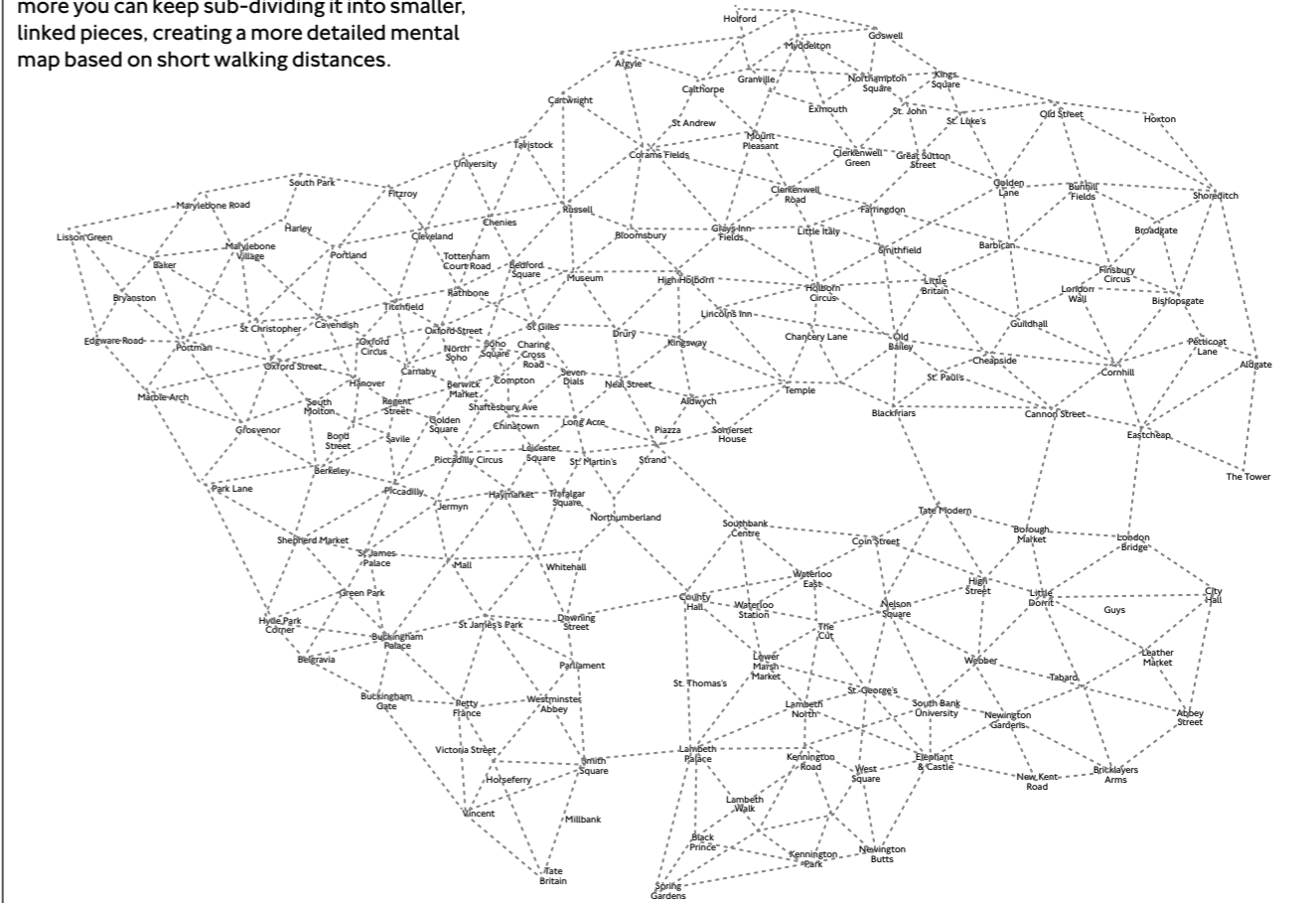
5 minute-walk

Guiding principles
Looking for clues – The role
of information in a journey

Any journey through central London is punctuated by countless examples of directional information coming at the pedestrian in many different contexts and media. As well as official street signage, we use notable architecture and incidental information to get our bearings and, along with our memory, show us the way. The problem is, more often than not, the available tools present different pictures, resulting in a gap in understanding.

Tube station
While the Tube map has proved its worth over many decades, directions for the onward journey on foot are inconsistent and better at some stations than others.

On the street
Yes, there are plenty of signs out there. In fact, an AIG study identified 32 separate wayfinding systems within the Central London Congestion Change Zone. The trouble is, there's no common standard, and information can be contradictory.

Existing printed maps
You can take your pick from hundreds of different maps of Central London aimed at motorists, tourists, shoppers or culture vultures. But very few of them answer questions that pedestrians need to know.

Road signs
The British road signage system is well-considered and has stood the test of time. However, signs are often positioned too high and provide information that's not particularly helpful to pedestrians.

Journey Planner
Before setting off, travellers might plan their journey online or using a printed street finder like the A-Z. These are available in many different formats, and aren't necessarily aimed at pedestrians.

Bus shelter
Though the information is clearly aimed at bus users, bus stands and shelters provide useful markers for pedestrians, and often feature small maps of the immediate streets.

Landmarks
Bridges, shops, intersections, notable buildings… all these instinctively help us identify where we are and the direction we need to take. But before they're any use, we need to build up knowledge and familiarity.

Final leg
Often we're looking out for a particular building or street number, but these vary widely, as does our experience of a particular area.
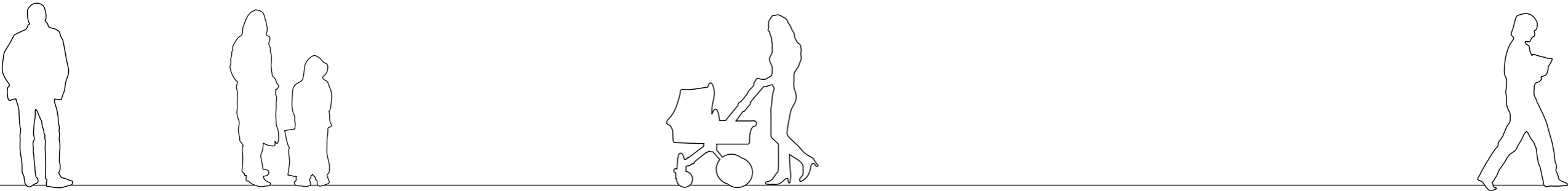
Guiding principles
Providing answers
to people's questions

An effective pedestrian wayfinding system needs to answer key questions at the appropriate time and place. 'Progressive disclosure' – giving people just the right amount of information just when they need it, is one of the key principles behind Legible London.

Listening to the questions when they arise, often unplanned, mostly unspoken, provides a structure to inform the detail of what information should be provided along the journey, and what shouldn't!

Ummm…not sure. Is this Oxford Street or Bond Street?

Covent Garden to Soho…can I walk that in ten minutes without busting a gut?

I need to get to John Lewis to order a new washing machine… but will there be drop kerbs along the way for my wheelchair?

If that's Liberty's over there, how do I cut through the back way to Piccadilly Circus?

I'm bursting! Where's the nearest ladies toilet?

Oops, we're late. We said we'd meet Sam outside Marble Arch Tube Station at 2pm. What's the quickest way?

After I've seen the Mummies at the British Museum, where can I grab a quick sandwich?

Prototype in the West End
Getting feedback from the street

Testing and refining. Testing and refining. Testing and refining. Making sure signage meets the needs of the man and woman on the street is an ongoing, cyclical process that takes insight, patience and rigour. The development of the Legible London West End trial signs is an example of rapid prototyping – a painstaking process that explores and adjusts solutions based on users' feedback at every turn.

Listening
Taking sketches and samples on to the street to garner immediate feedback is a key method in the design process

Exploring
Thomas Edison tried over 1000 different materials before he found the perfect one for the lightbulb. Never give up finding a way!

Testing
Trialling different options and appearances during development ensured solutions established a best trade-off between the conflicting constraints.

Options
Different options came from constant adjustments of the smallest details to find the right balance, or trade-off between appearance, function and level of production.

Mixing media
Accessing information designed for many types of people in varied media was considered from the start.

Prototype in the West End
Evolving the design

Legible London's prototype development takes its cue from both product and interactive design. In automotive design, for example, full-scale models in clay and wood are made, assessed and improved before co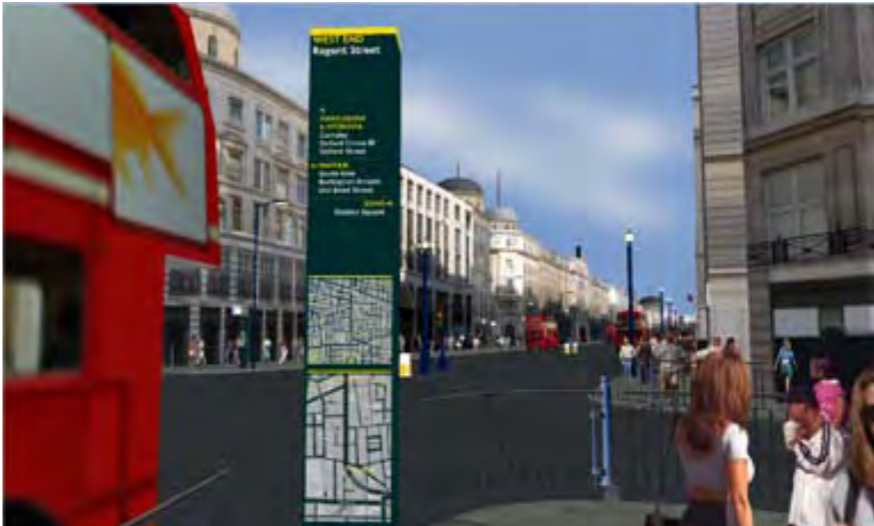mmitting to the real thing; interactive design rigorously tests factors affecting the user's experience before settling on a final version.

Initial designs are developed three times over, evolved, edited and adjusted to achieve the longest-lasting solution. Future expansion and a user-centric approach are key considerations. Designs are improved, checked with users and improved again. Over 300 iterations of parts of the design have gone into the launch of the prototype.

A virtual model of a full area was first created to test which concepts, designs and amount of information would work best. This pre-prototype was tested with people and informed further development.
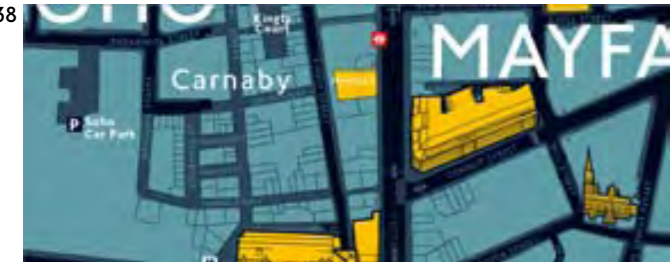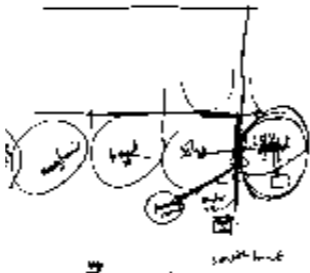
Evolutionary design
Many combinations of visual elements are considered and tried against each other; the 'fittest' design retains the most informative graphics, having weeded out less effective versions.

Rapid prototyping
The virtual model functioned both as a platform for draughting designs and as a visualisation tool for communicating the Legible London project.

Placement
One of the more influential outcomes of the pre-prototype was the selection of appropriate sign locations; it was found that a reduced provision of signs could be just as effective if placed thoughtfully.

Making the transition
The underground environment was reproduced accurately, providing the opportunity to explore how walkers could be guided to street level and oriented above ground effectively.

On-street integration
Additionally, the virtual model allowed for some early experimentation with extending the methodology and elements with other transport systems.

The system is devised for inclusion of everyone, no matter what level of knowledge or ability they have. People are all different. We all have trouble finding our way at some time, but some people need specific information to make a journey possible.

Many people need to plan a trip before travelling. Over time it is hoped that the system can expand to provide connected methods to better plan and then situate in the street.

PADDINGTON
Marble Arch ⊖

Marble Arch

MARBLE ARCH
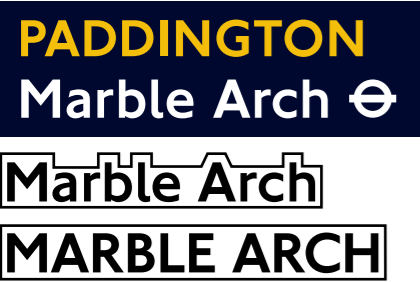
Typography
A clear and recognisable sans-serif typeface is common throughout the maps and signs. Where possible, upper and lower case characters are used for maximum legibility; however, the cartographic convention for capitalising important place names is also adopted.


Linked appearance
Uppercase typography can also be found in the street names; this reflects the unified style of street nameplates. An added benefit of working with existing systems in this way is that speakers of languages with a non-Roman alphabet may find it easier to relate streets on the map to street nameplates.

Useful detail
People with wheelchairs need to know if a route has steps or narrow pavements, and where to find adapted toilets. Similarly, those with visual impairments need to know where pedestrian crossing are as a safe place to cross the road.

Colour and contrast
The signs and maps use high contrast colours for optimum legibility; a dark blue background with white or yellow text is used in conjunction with black text on a yellow background.
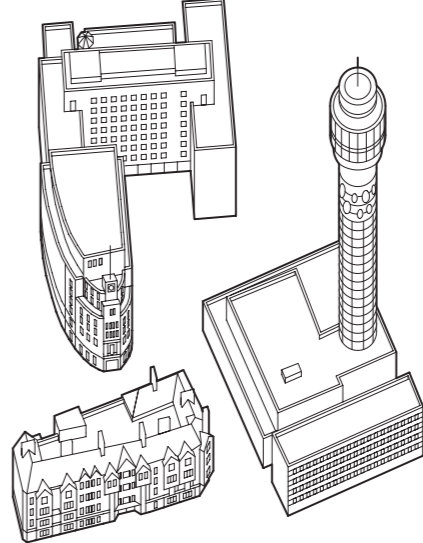
3D buildings
People who struggle to read maps, including people with learning disabilities, will find the 3D buildings useful. They provide both a literal representation of key landmarks, and make the reading of maps more intuitive.

Useful detail
People with limited mobility, including many older people, need to know how far it is to walk to a place, and if there will be any parks on the way in which they can find a seat to rest.

"You are on the south-west corner of Cavendish Square, in Marylebone, at the back of John Lewis department store and next to…"

Physically accessible
Important information is located on the signs between 900 and 1800mm above the ground

1800

900
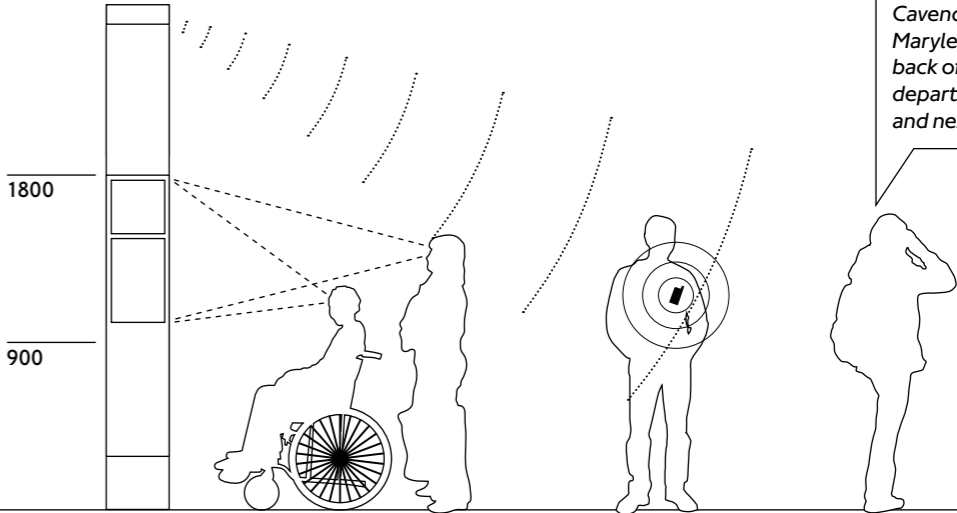
Awareness
A possible adaptation for the future is a system for helping the visually impaired to navigate by relaying their proximity to signs to a mobile device.

Connectivity
All kinds of supporting knowledge can be delivered to mobile devices through the signs; a 'listen to this sign' feature provides helpful hints for visitors.

An inclusive wayfinding system

No pre-journey planning, uses on-street information, out of interest and for reassurance on some journeys	Some pre-journey planning, but will look for on-street information for reassurance (so it needs to be consistent)	Detailed pre-journey planning required
– Resident – Commuter – Frequent visitor – Person who has some hearing loss – Person with some limit on their mobility but can still manage steps – Person with a slight visual impairment but can read on-street maps and signs using an aid	– Person who is deaf or hard of hearing (wants to avoid asking for directions) – Person with a visual impairment but has some vision – Person with a learning disability or a learning difficulty – Person whose first language is not English – Younger person, new or infrequent visitor, or an inexperienced city traveller	– Person using a wheelchair – Person who is blind or severely visually impaired.

Prototype in the West End
Sign locations

The prototype covers a small area around Bond Street Tube Station. The station is actually 180 metres from New Bond Street (there is no street named Bond Street) and the prototype goes some way to clear-up any confusion about how to find some of the capital's most prestigeous retail streets. Any prototype is a test, and this launch will be rigorously tested and surveyed to see what works best and what should evolve and adapt. Nineteen new signs are going in the ground and 46 existing objects are being taken out of the same area.

Clutter reduction
The replacement of redundant, unused information with a lesser number of useful signs will improve the image of the street whilst reducing distractions for walkers.

Selfridges

Wigmore Street

Bond Street

Henrietta Place

Cavendish Square

South Molton Street

John Lewis

Davies Street

New Bond Street

Oxford Street

Brook Street

Lancashire Court

Hanover Square

Avery Row

Prototype in the West End
A family of sign types for walkers

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, many 'fingerposts' and in this context can alert the user to over 400 destinations. The Legible London prototype uses two main types of sign, the 'monolith' and the 'minilith' – they act as both area identifiers and route supports, helping people to build their personal mental maps.

The 'walker'
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.

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.

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

Addressing
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.

Planner map
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-distance walking journeys.

Street finder
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.

Avery Row →
Lancashire Court
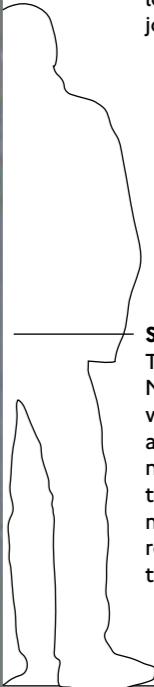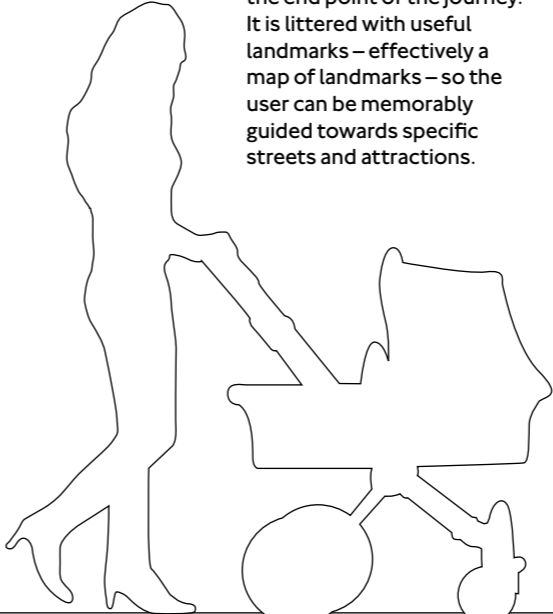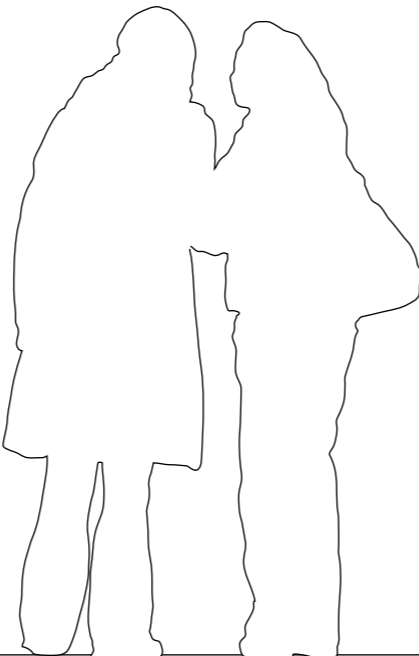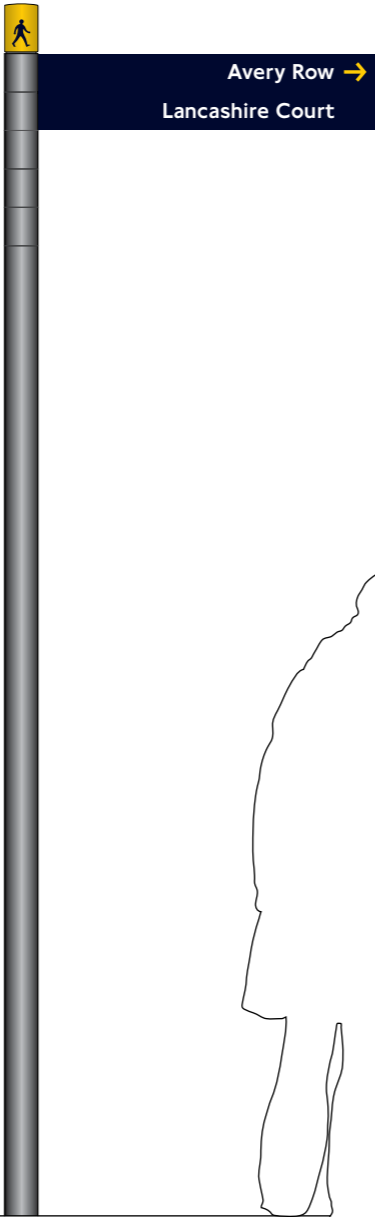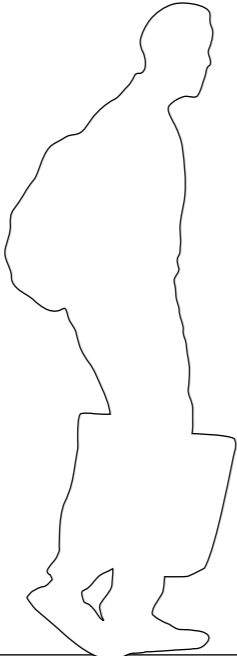
Prototype in the West End

'Heads up' mapping helps people to orientate themselves

Mapping to allow people to better understand walks and where things are is central to the scheme. Maps, firmly fixed on signs are already orientated with respect to the environment and direction the user is facing.

MAYFAIR
South Molton

↑ ST JAMES'S
Bond Street

← SOHO
FITZROVIA
Oxford Circus ⊖

Grosvenor ↗
Berkeley

Intuitive understanding
When used in situ, heads-up maps offer a remarkably simple way of bridging the gap between the view ahead and its cartographic representation.

Prototype in the West End
Product innovation – fitting the product to the place

Developing designs that complement their urban context is essential. The system needs to create a balance between fitting into the streetscape and having enough presence to be useful – the yellow beacon always visible in the distance. It also has to be flexible enough to work in contemporary and historically sensitive architectural settings.

The primary function of any sign system is to deliver information in the most legible and accessible way to the greatest number of people. The challenge has been to develop a range of components that can be quickly and seamlessly integrated into London's streets. Hence the ultra-slim 'minilith', which can deliver much more information than a traditional finger post sign, but impedes far less of the footway. The innovative design of the signs' bases ensures minimum disruption during installation.

Though prototypes, the proposed signs have been designed and built to last. Manufactured to impeccable standards from high-quality materials, they feature a system design that allows them to be easily maintained and updated. Longevity, form and function will help the signs become a familiar part of the streetscape.

Robust materials
Vitreous enamel panels and shot peened stainless steel have been used to make sure the signs are durable and easy to clean. Coated materials have been avoided because of gradual deterioration and the need for annual recoating.

Sustainability
Solar powered accent lighting is being developed to reinforce recognition at night. The need for mains power has been avoided but the signs have been constructed to allow for any future need of power or data required for the integration of other technologies.
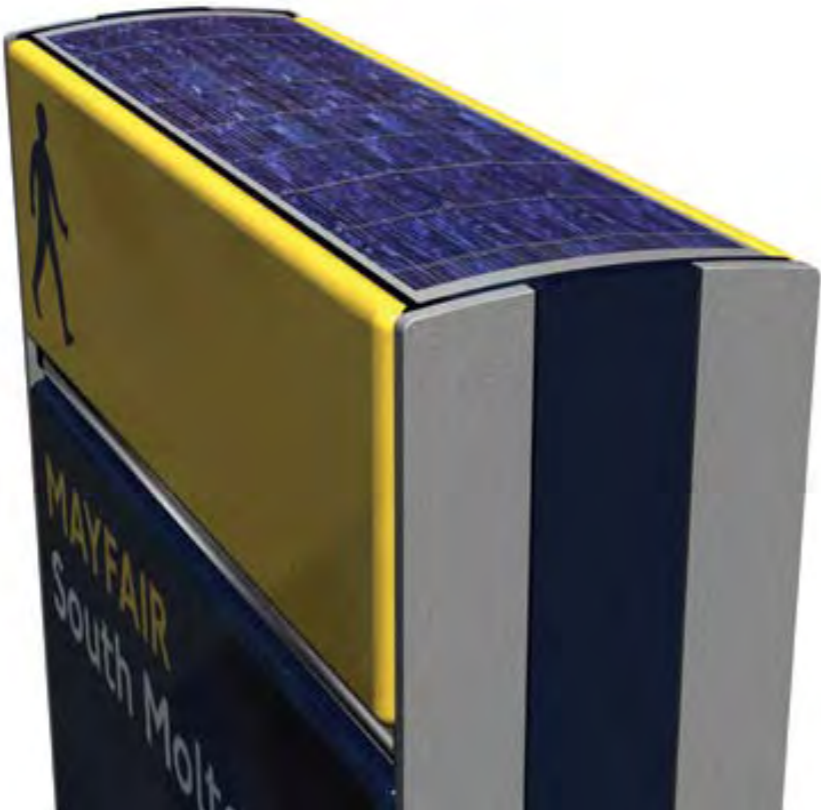
Vitreous enamel beacon panel

Acrylic lighting lens

Vitreous enamel graphic panel

Flexible system
The sign form presents the opportunity for elements of the cladding to be modified for local distinctiveness. Individual information elements are interchangeable and updatable. The map panels have also been designed so that they can be either vitreous enamel or print behind glass.

Peened stainless steel side channels

Optional vitreous or glass and digital graphical map panel

Aluminium powder coated side trim

Stainless steel base plates with adjustable north indiactor

Attention to detail
Though minimalist in form attention has been paid to every detail. The north indicator is adjustable to suit location, but along with the base plates and other cladding parts, is secretly fixed in place.

Homing beacon
A modular approach has been employed to maintain flexibility in use. The yellow finial helps ease of recognition and the design ensures fingers are sturdy and can not wbe rotated.

Prototype in the West End
Continuity of information above and below the streets

Legible London is far from just a new sign system for the West End. It is the continuation of the pulling together of travel information, exemplified by London's Bus and Tube networks working closely together. Legible London adds in a vital walker's level of detail to provide glue and choice of how to get around.

The scheme could eventually connect pre-planning, information on-the-go (increasingly delivered with hand-held devices) and connect this to signs in the street.

NEW
BOND
STREET W1

Predictability is required to maintain and improve a very strong addressing system

Signs on street corners provide familiar reassurance, the possibility to plan an alternative, and help build knowledge

BA

Bus shelters link bus routes with walking choices

Printed walking maps give users portable information in the pocket

Arrival signs on the street establishes orientation in a wider context and sets walkers off in the right direction

Mobile devices can situate a user in the street, providing a wider context and search capabilities

UNDERGROUND

BOND STREET

Arrival information underground provides initial orientation and journey planning

The language used on underground exit signs relates to that found above ground

EXIT ② →

EXIT ② Oxford Street, New Bond Street
MAYFAIR, South Molton

In preparing of a clear picture of the city, a set of formats emerge that be applied to a range of situations. The visual appearance of these formats, outlined below, is defined by the questions they answer along a journey, and the constraints of the media they

inhabit – on signs, in-print, spoken or on-screen. Evident below are the different visual interpretations of the same geographic location.

The result of the definition of these formats is a coherent array of maps, signs, indexes, lists and diagrams that

are connected by the consistent naming of places and the visual representation of content. This speeds up the reading and understanding of information across different types of media, it provides a common linking thread that supports the way people learn.

MAYFAIR
Bond Street

↑
MARYLEBONE
Oxford Street
Cavendish
Oxford Circus ⊖

← South Molton
Grosvenor
Bond Street ⊖

SOHO →
Hanover
Regent Street

Above: Directional information, maps for Underground stations, bus stops and shelters all make use of coherent terminology and destinations.
Right: Additional connections for mobile phone users.
Far right: Use of an index and printed maps.

London travel information
020 7222 1234

Listen to London
To hear about where you are call:
0870 240 6094
Location 220

Transport for London

Your local area
Street Finder

← Exit ❶ & ❷ MARYLEBONE, St Christopher, MAYFAIR, South Molton
For Oxford Street, New Bond Street

↑ Exit ❸ ❹ & ❺ MAYFAIR, South Molton, Grosvenor
For South Molton Street, Grosvenor Square

Above: Scales represented on signs in the street, diagrams of villages, shopping maps and Tube exit signs.
Left: Walking connections in short-hand.
Right: Future availability on mobile devices and online is possible.

Hyde Park ↑

Grosvenor

↟ **5 minute walk**

Canadian High Commission

Embassy of the United States

Grosvenor Square

Scale
The scale of Legible London is measured in time, which research shows is used more often for walking.

3D buildings
Illustrations of key buildings are included; these provide a clear sense of scale and strengthen the heads-up nature of the mapping.

Embassy of Italy

Lancashire Court

Argentine Embassy

Villages
The village names are (typographically) the most prominent visual element. Most maps of this kind show two villages.

Claridge's

UPPER BROOK STREET

Handel House Museum

Neighbourhoods
Contained within the villages, neighbourhoods are distinct clusters of a certain character or shared history.

BROOK STREET

MAYFAIR

Active frontage
Indication of clusters of buildings with street-level access for the public; in the West End, invariably shops.

South Molton

DAVIES MEWS

LEES PLACE

ST ANSELM'S PL

GEORGE YARD

PROVIDENCE COURT

BROWN HART GDNS

GREEN STREET

Named places
Buildings included on the map function both as landmarks and destinations. The importance placed on memorable landmarks by pedestrians justifies their prominence.

Station entrances/exits
Dashed lines leading to white roundels signify underground/interior subways for the Tube.

BROWN HART GDNS

South Molton Street

West One Shopping Centre

Building numbers
These are subtly shown for the benefit of users searching for a particular address.

Off-map destinations
Nearby prominent locations are signed; generally, these are only a few minutes away.

Next

NORTH ROW

Boots

Bond Street

Integrated transport
Bus shelters, Tube stations and taxi ranks are clearly and comprehensively marked.

Marble Arch ⊖

24hr

OXFORD STREET

OXFORD ST →

Tottenham Court Road ⊖

HMV

Relevant buildings
With many viable places to highlight, those shown are derived from a comprehensive audit and selection criteria.

Berkshire Hotel

Gap

Selfridges

Marks & Spencer

GRANVILLE PLACE

House of Fraser

Debenhams

St Peter's

Reiss

North marker
A prerequisite for heads-up mapping is an easily found north marker; these are found on all maps and the bases of signs.

N

You are here

BARRETT STREET

PICTON PLACE

Royal Society of Medicine

St Christopher

EDWARDS MEWS

↓ Baker Street ⊖

So here it is…
The prototype on the ground

On 27 November 2007, the Legible London prototype for the West End finally went live. Signs were erected in the streets, walking maps were made available, phone information points were switched on, a website was launched. Here at last, was a chance to put into practice months of ideas, theories and research, to gauge public reaction and evaluate the system. Hopefully too, it helped visitors have a more positive experience of the area, to enjoy its attractions without the frustration of getting lost along the way.
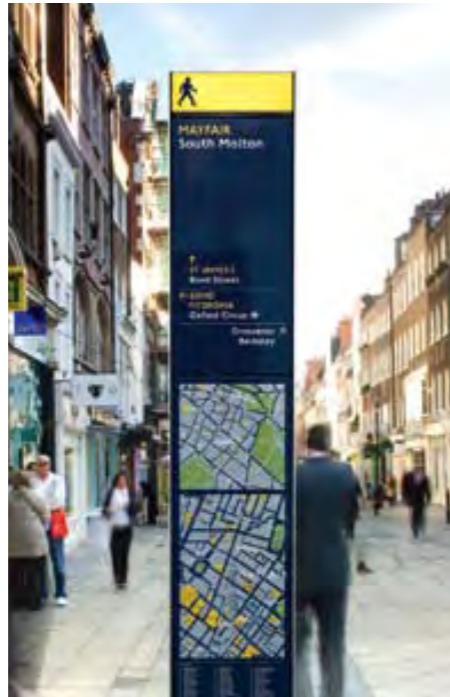
How was it for you?

We value your opinion and would like to know what you think about the Legible London prototype for the West End.

Did you find it useful?
Did it help you find your way around?
Was it easy to use?
How could we make it better?

Please visit www.legiblelondon.info to leave your comments or suggestions for improvements.

Glossary

Legibility
The degree to which a set of elements convey useful information. The traditional use of the word 'legibility' is used to describe how decipherable a set of characters are in typography. When referring to the 'legibility' of a city, it is used to describe the degree to which the urban environment is shaped in order to facilitate wayfinding.

Wayfinding
Using spatial and environmental cues to move from one place to another, and tools designed to help decision making before and during the journey. Wayfinding is broken into two distinct phases – planning and navigating.

Planning
(as part of wayfinding)
The act of analysing a journey before setting off. The analysis should help the traveller make the journey more efficiently.

Navigating
(as part of wayfinding)
The act of finding your way in the urban environment. This includes the use of wayfinding tools, landmarks, routes and nodes.

Map
eg A–Z
A document (either printed or on screen) representing the layout of an area. In this book, the term 'map' is used to define any document which represents the geography of an area with accuracy.

Diagram
(diagrammatic map)
eg the Tube map
A representation of an area which omits certain details in order to clarify the overall understanding of the information involved. Omissions may include geographic accuracy or finer levels of detail.

Homing beacon
A permanent post in the ground which 'points' towards a landmark. It may also contain other information such as the distance to the landmark.

Minilith
A fixed, narrow sign containing wayfinding information.

Monolith
A wide, fixed sign containing wayfinding information. Similar to a 'minilith' but containing more information and usually located in areas with 'dwell space'.

Megalith
A very wide, fixed sign containing wayfinding information. Similar to a 'monolith' and a 'minilith'. Usually contains more 'planning information. Often situated at major arrival points such as national rail stations.

Village
eg Marylebone
An area of historical geographic unity, often derived from modes of use and usually no more than 1km square. A village is usually made up of two or more neighbourhoods

Neighbourhood
eg Chinatown
A small geographic area, usually defined by mode of use. Neighbourhoods are grouped into 'villages'.

Node
eg St Giles Circus
The intersection of two or more routes or paths.

Path
A defined and recognised connection between nodes.

Route
eg Jubilee Walk
A type of path supported with 'wayfinding' tools.

References

page 7
1. 'Oxford Street, Regent Street, Bond Street: An Action Plan for the Retail Streets'

page 8
1. Transport 2025 – Transport Vision for a Growing World City. TfL Executive Summary
2. DMAG Demography Update, September 2007

page 10, 11
1. TfL Study
2. Sources: Davison & Grant 1993, US Dept of Health 1996, British Heart Foundation 2000

page 12, 13
1. 2001 LATS Survey, TfL
2. TfL Study
3. 'Legible London – A Wayfinding Study', AIG 2006

page 15
1. www.legiblelondon.info online poll

page 16, 17
1. 'Legible London Initial Business Case' by Colin Buchanan, 2007
2. TfL Study

page 19
1. www.legiblelondon.info online poll

page 22
1. 'Legible London Leicester Square Navigation Study', AIG/LSE, March 2005

Sources and Bibliography

A Pattern Language
Christopher Alexander, Sarah Ishikawa, Murray Silverstein with Max Jacobson, Ingrid Fiksdahl-King and Shlomo Angel. OUP, 1977
A new deal for transport, better for everyone
Government White Paper on the Future of Transport,1998
A report of a health impact assessment of the Mayor's draft transport strategy
The London Health Commission, September 2001
Attitudes to walking
Synovate, 2007
Action Plan For Central London CLP, 2003
Angel Report 03–04
CLP, 2003-04
Approach to valuing streetscape Colin Buchanan / Leeds ITS for TfL, 2006
Assisting orientation and guidance for multimodal travellers in situations of modal change
Rehrl, K. / Leitinger, S. / Bruntsch, S. / Mentz, H.J. 8th International IEEE Conference on Intelligent Transportation Systems, Vienna, September 2005
At least 5 a week: Evidence on the impact of physical activity and its relationship to health
Chief Medical Officer, 2004
By Design: Urban Design in the Planning System: Towards Better Practice
DETR / CABE, 2000
CABE: Value of urban design
CABE / DETR, 2001
Camden walking plan:
Fourth Annual Review, 2004
Camden borough spending plan 2005/06–2007/08
London Borough of Camden / City of Westminster / CLP, 2005
City Walks in London
A report for the Government Office for London, Land Use Consultants, June 1995
Clearzone Walking Initiative
Intelligent Space for Camden Borough Council, 2004
Comments on the draft

walking plan for London
Sustrans, 2003
Commission for Integrated Transport MORI, July 2001
Courts and Lanes Design Strategy
Corporation of London, 2004
Covent Garden Report 03–04
CLP, 2003–04
Draft transport strategy – Public opinion poll
MORI / TfL, June 2001
Economic Value of Walkability Victoria Transport Policy Institute, Canada. Litman, T.A. 2004
Encouraging walking
DETR, 2000
English Heritage Street Audit
English Heritage, 2006
Final report for signage and wayfinding for people with learning difficulties
ODPM, February 2006
Going to town: Improving town centre access
A companion guide to PPG6 National Planning Retail Forum / DTLR, 2002
Guidance on full local transport plans DfT
Health in London: Review of the London Health Strategy high-level indicators
The London Health Commission, 2005
Ilford Metropolitan Centre: Area Action Plan
Space Syntax, February 2006
The Image of the City
Lynch, K. MIT Press, 1960
Improving Walkability
TfL, September 2005
Inclusive Mobility: A guide to best practice on access to pedestrian and transport infrastructure
Philip R Oxley, Cranfield Centre for Logistics and Transportation for DfT, 2002
Individualised Marketing: Changing travel behaviour for a better environment
Socialdata GmbH
Information for pedestrians: Guidance for the London boroughs
TfL / Wandsworth / TRL
Informatory Signs for use on

all-purpose Roads
Ministry of Transport, 1964
Interchange Plan: Improving interchange in London
TfL, August 2002
Islington Borough Spending Plan, 2006
Knowledge Point
(Taxi Knowledge)
LATS 2001 Household Survey
Transport for London
Legible London: A wayfinding study AIG / CLP, March 2006
Legible London Initial Business Case
Colin Buchanan, 2007
Legible London Leicester Square Navigation Survey
AIG / LSE, March 2005
Local Direction Signs
City of Westminster – Department of Planning and Transportation, 2003
London Access: Richard Saul Wurman's Guide
Access Press Ltd. NYC, 1987
London Cycle Guides (1-19)
TfL / GLA, 2004–
London Newspaper
Urban Age, November 2005
London Transport Users Committee: Where am I?
LTUC / Hugh Collis, May 2003
London's Functional Walking Network: A study of the key streets for utility walking
Intelligent Space for CLP, 2004
Major Stations Wayfinding Design Guidelines & Specifications DRU, 2002
Making London a walkable city – The walking plan for London Transport for London / Mayor of London, 2004
Manual For Streets
DfT / DCLG / CABE / WSP / TRL / Llewelyn Davis Yeang / Phil Jones Associates, 2007
Maps & Journeys: An ethnomethodological investigation
Brown, B. / Laurier, E. University Of Glasgow, 2004
Margaret Calvert – Edited interview for Frieze, 2003
Mayor's Energy Strategy
GLA February, 2004
Mayor's Transport Strategy: Report on public consultation

of the Draft Transport Strategy MORI / GLA
Metro Maps Mark Ovenden, Capital Transport Publishing, 2003
Multi-modal interchange signs standard for London
TfL, 2005
National Audit Office: Tackling obesity in England
NAO, 2001
Natural Movement: Or, configuration and attraction in urban pedestrian movement (Pion 1993) Unit For Architectural Studies, Bartlett School Of Architecture Hillier / Penn / Hanson / Grajewski / Xu
Network effects and psychological effects: A theory of urban movement
Hillier, B. / Iida, S UCL, 2006
On the Move: by foot – A discussion paper, 2003
Oxford Street, Regent Street, Bond Street: An Action Plan for the Retail Streets 2007
Pedestrian demand modeling for large cities Centre for Advanced Spatial Analysis CASA / UAL, June 2003
Planning and access for disabled people: A good practice guide
Department for Communities and local Government 2006
Policy, planning and design for walking & cycling: consultation draft DfT, 2004
Promoting walking in London: A draft business case Jan Gehl Gehl Architects for TfL, 2003
Quality Streets: Why good walking environments matter for London's economy
CLP, July 2003
Realising the potential: Walking and cycling in London
Transport 2000 Trust (taken from MTRU study), 2004
RODS report 2001 TfL
South Bank Public Art - A report on the first three years of the South Bank Public Art Programme, South Bank Employers Group, 1997
Streets For All
English Heritage, 2005

Streetscape Guidance – Consultation Draft July 2004
TfL /Mayor of London
Streetscape: Putting policies into practice Royal Borough of Kensington & Chelsea
Sustaining Success: The Mayor's economic strategy for London GLA / LDA, 2005
Syntactic evolution of cities
Krafta, R./Fattori, R./Gheno, P./ Pavlick Pereira, M. Federal University of Rio Grande do Sul, Brazil 2006
The Hippocampus, memory and place cells: Is it spatial memory or a memory space?
Howard Eichenbaum, Paul Dudchecko, Emma Wood, Matthew Shappiro and Heikki Tanila, 1999
The Mayor's Transport Strategy GLA, July 2001
The National Walking Strategy Living Streets, 2003
The potential for walking and cycling – Proposal for transferring modes of transport to walking and cycling MTRU for Transport 2000 Trust
The Walking Plan 2004
TfL / GLA, 2004
TfL London Travel Report
TfL / Henry Burroughs, 2005
The London Plan GLA, 2004
The value of urban design
Ministry for the Environment (NZ), June 2005
Towards a fine city for people – Public spaces and public life Gehl Architects, 2004
Transport for London 5 year investment programme: The TfL business plan 2005/6–2009/10 TfL, 2004
The Westminster Way: A public realm manual for the city Westminster Borough Council, Bennett Urban Planning / Buro Happold, November 2003
Transport & health in London Department Of Health / Department Of Civil Engineering, Imperial College London 1999
Tracking pedestrian volumes Intelligent Space for CLP 2004

Traffic signs manual, chapter 7: The Design of Traffic Signs
DfT / HMSO, 2003
Transport For Londoners
Transport 2000 Trust, 2004
Urban II Area – Reaching your destination: Safe & easy movement in Stockwell
Space Syntax / Stockwell Partnership August 2005
Stated Preference TfL 2004
Urban Design Compendium
English Partnerships, 2000
Value walking: Evaluating improvements to the public realm Colin Buchanan / Accent MR for TfL, 2005
Walk the Capital Ring
London Walking Forum / TfL / Colin Saunders, 2006
Walk This Way: Riverside London Southbank Employers Group, April 2003
Walking Bibliography
DfT, April 2005
Walking Fact sheet
DfT, January 2003
Walking and cycling: an action plan DfT, June 2004
Walking in London: A strategy for identifying the key streets for walking and making them more pedestrian friendly Intelligent Space for CLP, May 2005
Walking Maps TfL, 2002
Walking Strategy For Walking the Tube: A study into 'Walkable' Tube journeys in Central London
AIG for TfL, December 2006
Walking Tube Map
Rod Maclaren, 2003 http:// rodcorp.typepad.com/
Westminster Westminster City Council, March 2004
Wayfinding behaviour: Cognitive mapping & other spatial processes
Golledge, R.G. The John Hopkins University Press 1998
What is PERS? TRL
Working for the future of Covent Garden
City of Westminster
Your Way At Angel
Islington Council / TfL / CLP
Your Way in South Islington
Borough of Islington, 2006

Large text version available.
Contact 020 7017 8488

Credits
Legible London study and system architecture devised by Applied Information Group in association with Lacock Gullam.

West End prototype realised by AIG and Lacock Gullam, with seymourpowell and consultancy review by Placemarque.

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Legible London
Yellow Book

ORB OXFORD REGENT BOND ST. ACTION PLAN

LONDON DEVELOPMENT AGENCY

NEW WEST END COMPANY

MAYOR OF LONDON

City of Westminster

Transport for London