

### Passenger service for the Dudding Hill line: brief for feasibility study

#### Introduction

The West London Alliance is currently investigating ways of accommodating the additional demand resulting from the growth of population and employment in the area and across London as a whole.

One such option is to restore services utilising the Dudding Hill Line. This is an existing railway line in north-west London running from Acton to Cricklewood. The line itself has had no scheduled passenger service for over a century, no stations, no electrification, and a 30 miles per hour (48 km/h) speed limit with semaphore signalling, and is lightly used by freight and very occasional passenger charter trains. It is roughly 4 miles (6.4 km) long. On the face of it, this looks to meet a strategic need.

#### Purpose of the brief

The West London Alliance wishes to procure consultants in order to carry out a feasibility study into the case for running a new passenger service between Barnet, Brent, Ealing and Hounslow serving locations such as Cricklewood, Neasden, Harlesden, Acton Central, Old Oak Common, Brentford and Hounslow.

The aim of the proposed feasibility study is to investigate the practicalities and timings of this, as well as identifying the strength of the strategic, economic, commercial and financial case for such a new service.

Consultants should take as given the following which will be made available:

1. West London Transport Infrastructure Constraints: Evidence (February 2017, Regeneris Consulting Ltd.). The analysis in Section 5 of this report indicates material demand for movements along the equivalent A406 corridor. A significant proportion of these trips are currently undertaken by bus. It provides evidence of highway delays (e.g. Figure 3.12) as well as predicted future overcrowding (shown in Figure 3.21). The report helps demonstrate the strategic narrative for better orbital public transport connections, particularly between growth areas. The annex to this brief also shows mapped data on the proposed service mapped against changes in population, the index of multiple deprivation and London Plan opportunity areas to illustrate the available analysis with which a strategic case can potentially be shown
2. The initial feasibility study for LB Hounslow into a passenger link between Hounslow and Willesden which is available here:  
<https://hounslow.box.com/s/f42tpb1dvegwvvsy6qqdtyrnxtfssiei>
3. Subsequent analysis of the feasibility of timetabling more trains across Acton Wells Junction on the North London line and along the Hounslow Loop by both Network

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4. Lionel Road proposed railway station: Transport Business Case – Technical Report for London Borough of Hounslow
5. Latest plans for development of Old Oak Common and Park Royal including potential transport interventions.
6. Various other ad hoc pieces of work undertaken for *Infrastructure Plan 2050* ([https://www.london.gov.uk/sites/default/files/Transport%20Supporting%20Paper 3.pdf](https://www.london.gov.uk/sites/default/files/Transport%20Supporting%20Paper%203.pdf)), etc.

Background information and specific requirements are provided in the following sections.

## Strategic optioneering

The task is to test at a high-level whether the Dudding Hill line is the indeed the best possible way to support growth in this part of London. The consultants are asked to construct and consider a long-list of potential options to meet the transport challenges from west London's growth. Each option should be prioritised semi-qualitatively using criteria such as capital cost, operating cost, wider economic impacts, level of demand, transport benefits, likely value for money, fit with strategy, revenue impact, likelihood of third party funding, practical feasibility and programme impacts, although this list is open to discussion. This long-list of alternative options could include:

- make better use of existing heavy rail infrastructure, such as the Dudding Hill line
- examining other possible heavy rail alignments
- possible light rail, tram-train or tram options
- new Underground railway
- bus rapid transit
- road schemes
- any others that the consultant believes are reasonable or which a literature search uncovers

## Appraisal of the preferred high-level scheme

The West London Alliance believes that a passenger service using the Dudding Hill and Kew curve line between West Hampstead, Cricklewood, Old Oak Common, Brentford and Hounslow would score well in the optioneering analysis above. If this proves to be the case, there are a number of sub-options for such a proposed service which we wish to test. The scope could consist of:

- A 3 or 4-car diesel operated service at a frequency of 4 even interval trains per hour all day, every day with the following calling points:
  - Hounslow (existing station and platforms)
  - Isleworth (existing station and platforms)
  - Syon Lane (existing station and platforms)
  - Brentford (existing station and platforms)
  - Lionel Road (potential new station and platforms to meet all usual standards)
  - South Acton (existing station and platforms)
  - Acton Central (existing station and platforms)
  - Old Oak Common Victoria Road (potential new station and platforms to meet all usual standards with out of station (on-street) interchange with other proposed Old Oak Common stations as proposed in TfL consultations <https://consultations.tfl.gov.uk/london-overground/old-oak-common/> )
  - Harlesden (potential new station and platforms with out of station (on-street) interchange with Bakerloo line and London Overground station)
  - Neasden (potential new station and platforms with out of station interchange

with Jubilee line station)

- Cricklewood (new platforms on Hendon lines adjacent to existing station)
- West Hampstead (new platform(s) on Hendon lines adjacent to existing station)

Transport for London (TfL) estimate the following approximate journey times for the service which imply a fleet size of seven to eight, including a spare unit for maintenance. The consultant is asked to review this analysis.

Station		cumulative distance (miles)	cumulative time (mins)
West Hampstead	D	11.68	0
Cricklewood	A		2
Cricklewood	D	10.48	2.5
Neasden	A		4.5
Neasden	D	8.86	5
Harlesden	A		7.5
Harlesden	D	7.5	8
Old Oak Common Victoria Road	A		15
Old Oak Common Victoria Road	D	6.71	15.5
Acton Central	A		18.5
Acton Central	D	5.5	19
South Acton	A		22
South Acton	D	4.81	22.5
Brentford	A		25.5
Brentford	D	2.85	26
Syon Lane	A		29
Syon Lane	D	2.08	29.5
Isleworth	A		36.5
Isleworth	D	1.38	37
Hounslow	A	0	39
Reversal		n/a	At least 4 minutes



This 11.68 mile route is shown in the map above.

Infrastructure requirements for such a passenger service could include:

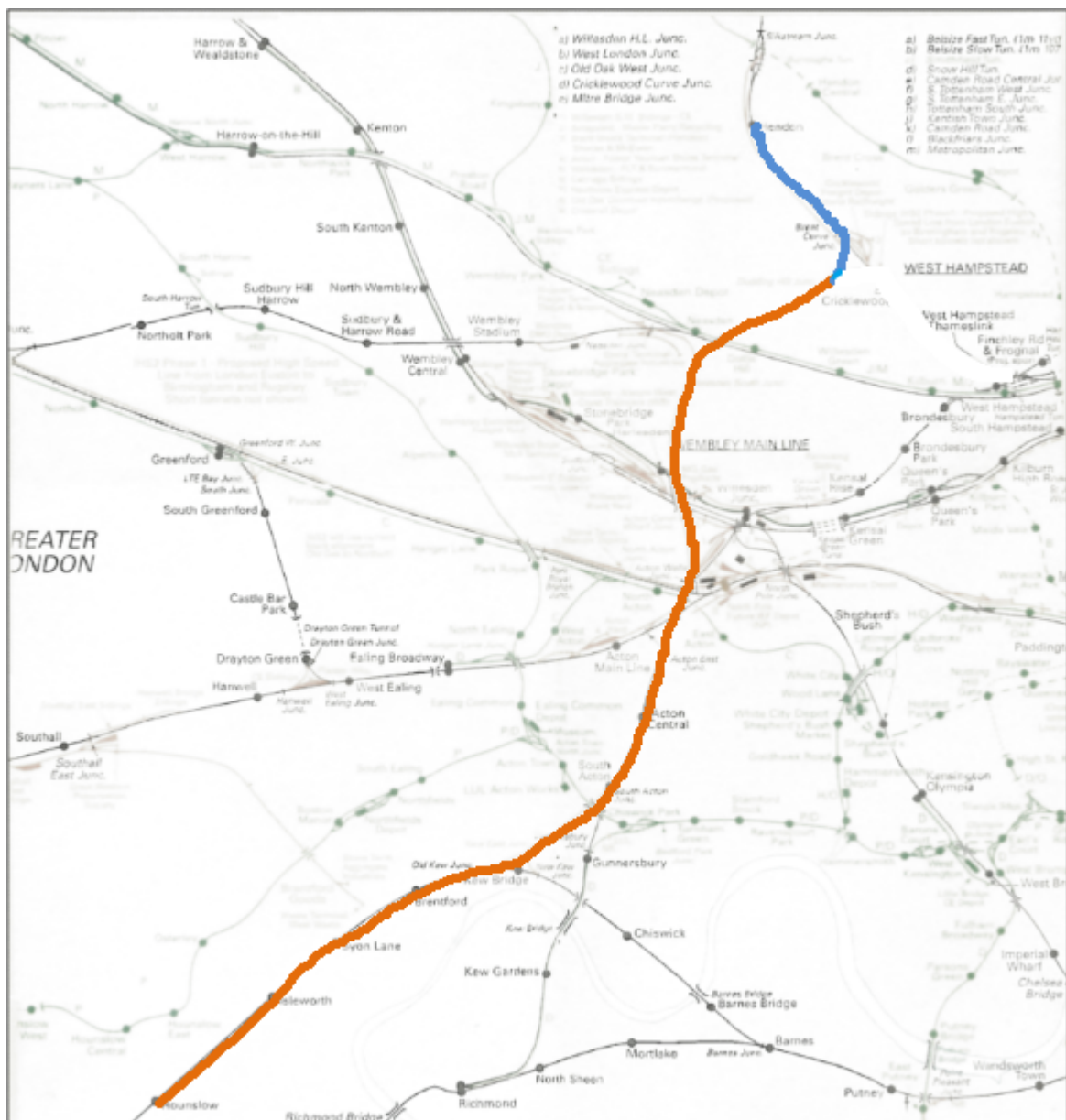
- Re-signalling of the Dudding Hill line
- Turn-back at Hounslow with associated connections and signalling
- Turn-back at West Hampstead with associated connections and signalling if necessary
- Additional platforms and associated station facilities
- Depot and stabling for a diesel fleet
- Potential doubling of Old Kew Junction (currently single track connection with the South Western line to Waterloo)
- Possible re-alignment (and possible four-tracking) of Acton Wells Junction
- Possible mitigations at level crossings given the impact on down-time and road traffic
- Mitigations if required for current freight services. The Dudding Hill Line is at

present used for freight services, with roughly 90 paths scheduled per weekday and approximately 30 of these used in both directions (not each).

### Other options

The consultants are asked to appraisal qualitatively and provide a narrative of the advantages and disadvantages of some other potential options raised already by stakeholders which are:

- 1) An 11.7 mile route to Hendon or Mill Hill rather than West Hampstead as shown in the map below with a possible intermediate call at the new Brent Cross Cricklewood station if feasible and appropriate



- 2) An electric train option for the West Hampstead to Hounslow route
- 3) The possibilities for a higher frequency service of 6-10 trains per hour train service

for the West Hampstead to Hounslow route, be it delivered from the outset or incrementally over time including programme, costs and benefits involved in scaling up the proposed service to this level over time

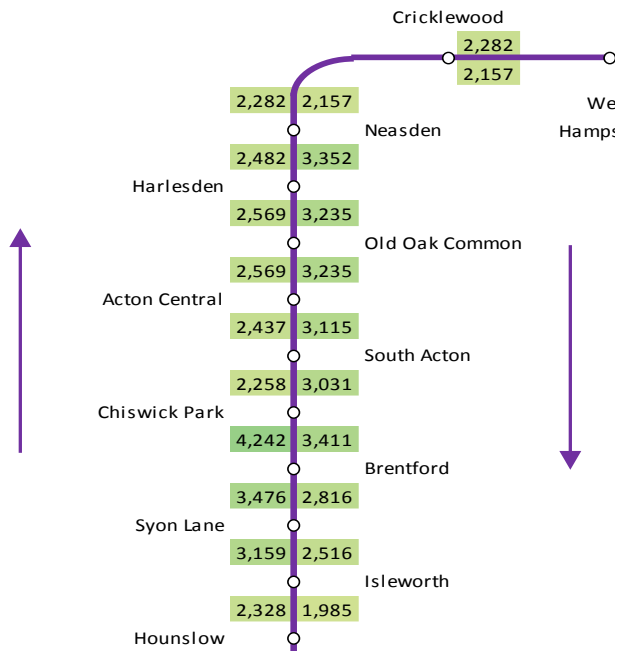
- 4) An option for the West Hampstead to Hounslow route with an additional spur to the Wembley Park or Wembley Stadium area

### **Analysis required**

The analysis required is an outline feasibility study (GRIP 1 equivalent) on the provision of service options as set out above

- 1) Reviewing existing regeneration proposals and material from the boroughs and TfL/GLA which may lead to an indication of the likely levels of growth and additional rail demand in the study area and an assessment of the additional housing capability from such a new service based on the change in PTALs or other acceptable method of calculation
- 2) Liaise with the concerned boroughs, West London Alliance, TfL/GLA to get a fuller understanding of the aspirations and options and constraints
- 3) Using Railplan establish a likely demand forecast for each option set out in the brief

(**NB.** For information, previous work in 2014 to inform the GLA Infrastructure Plan 2050 by Halcrow on behalf of TfL showed a peak three hour number of journeys of roundly 3,000 passengers in anti-clockwise / southbound and 2500 clockwise / northbound in 2031 using standard London Plan forecasts. This is shown in the graphic below. There are also demand estimates in the work by WSP for LB Hounslow for the southern half of the route, which are also roundly that number for passengers travelling over the Kew curve against which an explicit comparison should be made. However, the underlying assumptions will be different at least in detail from a current reference case.)



- 4) Establish the potential for interworking with freight services on existing routes and establish additional rail infrastructure that may be required to establish suitable services for each of the identified options. This should include:
  - a. consideration of the need for upgraded or grade-separated junctions, passing loops
  - b. impact of the additional stations and/or additional platforms, etc.
  - c. location of possible depots and stabling. For the diesel option, account should be taken of the fact that Willesden depot is losing its diesel capability shortly, so maintenance and refuelling will necessarily be undertaken elsewhere. Chiltern Railways has such a facility at Wembley, but this is unlikely to have much or any spare space, and paths to/from it may be tricky. Dedicated sidings may therefore be required, at least for a fuelling point with facilities for cleaning and valeting.
  - d. Review compatibility of other possible foreseen service developments and impact of other schemes within the geographic area upon this scheme (e.g. Southern access to Heathrow)
  
- 5) Establish the rail timetable feasibility with particular reference to
  - a. Compatibility with south western services between Old Kew Junction and Hounslow, and mitigations to ensure this if any for which there is analysis in hand by Network Rail and WSP for LB Hounslow
  - b. Interworking with other passenger and freight services through Acton Wells for which there is timetable analysis in hand by Network Rail and WSP for LB Hounslow. In the event that this shows conflicts that are not readily solved,



the tasks becomes one of identifying possible operational or infrastructure mitigations to achieve a four trains per hour frequency

- c. Interworking with freight services along the Dudding Hill line and Hendon lines given the need to interwork with the NLL and Hounslow loop services
  - d. Impact on level crossing down times
- 6) Review of capital and operating costs provided by TfL, and their use to complete the economic part of the standard five case business case model.
- a. Outline and present the strategic case
  - b. Outline and present the financial case
  - c. Outline and present the economic case, including passenger and environmental benefits
  - d. Outline and present the management case including a potential outline programme and the main engineering, fleet, public relations and other challenges to solve
  - e. Outline and present the commercial case including options for procuring a train service

## **Outputs**

We anticipate the five case business case documentation that results would be about 15-20 pages in length and suitable for use with stakeholders and funders. The final output of the work should include provision for a presentation(s) to Borough leaders etc, a final report and outline business case and [50] copies of a colour brochure which can be used for publicity purposes.

## **Work stages & deliverables**

The project should be delivered in the following stages.

### **1. Project inception and familiarisation**

This stage will include:

- Gaining familiarity with the proposed services and the potential routes and constraints.
- An inception meeting with the interested boroughs, the West London Alliance and TfL , where the context can be explained in more detail as needed to ensure a full understanding of the project.
- site visits if necessary

- Identification of the information necessary for execution of the study.

## 2 **Planning, cost estimates and business case assessment**

The consultant will need to:

- Attend a workshop to discuss the means by which the work will be taken forward for further analysis.
- Impact assessment on other key stakeholders, along with potential mitigation measures to be investigated.
- Consider the feasibility of the proposed service and any mitigations required, and make any adjustments necessary in consultation with the client
- Produce basic plans for each new platform and any additional stations
- List options for stabling and fleet maintenance
- Review TfL's itemised capital and operating costs for each option (to  $\pm 25\%$ )
- Provide indicative construction schedules for each option, highlighting aspects on the critical path, risk and opportunities
- Set out in writing the key assumptions
- Hold progress meetings with the client and provide weekly email updates

## 3 **Final report, presentation and colour brochures**

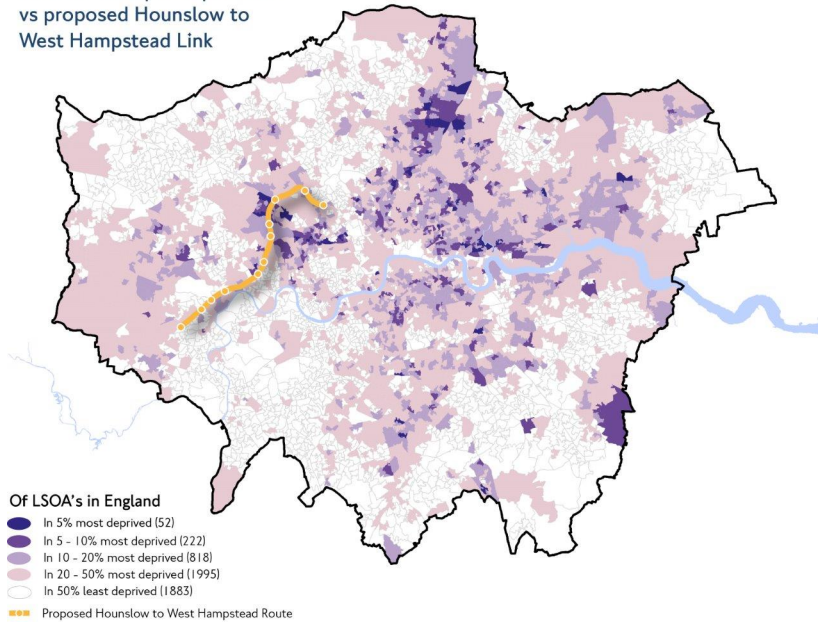
In this final stage, the consultant will:

- Attend a meeting with the client to present preliminary recommendations and collect any feedback
- Make minor adjustments necessary to accommodate this feedback
- Produce a final report which contains full detail.
- Prepare a presentation and allow for several presentation meetings for interested boroughs, West London Alliance and TfL/GLA
- Prepare [50] copies of a colour brochure for use in publicity and presentational / promotional activities

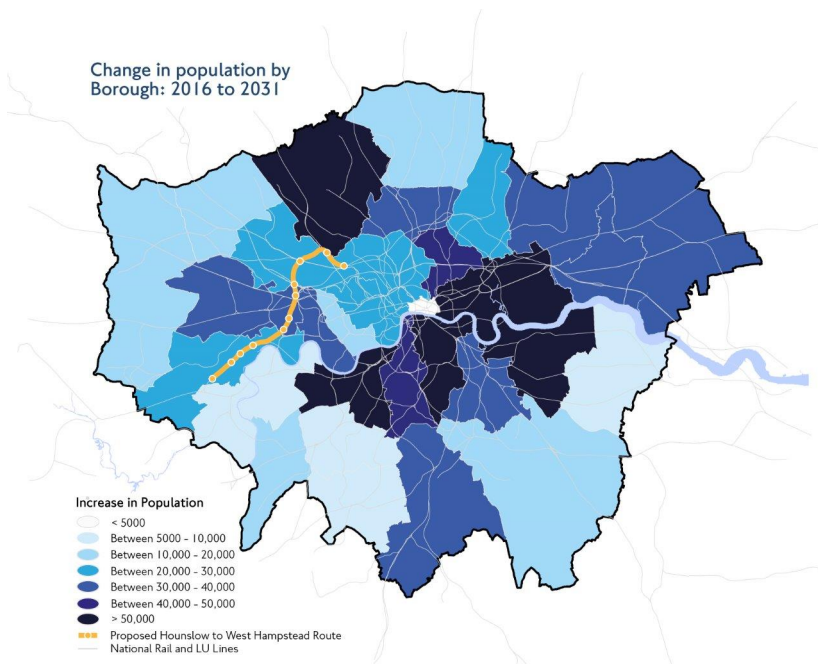
**Deadline for the Final outputs is late May 2017**

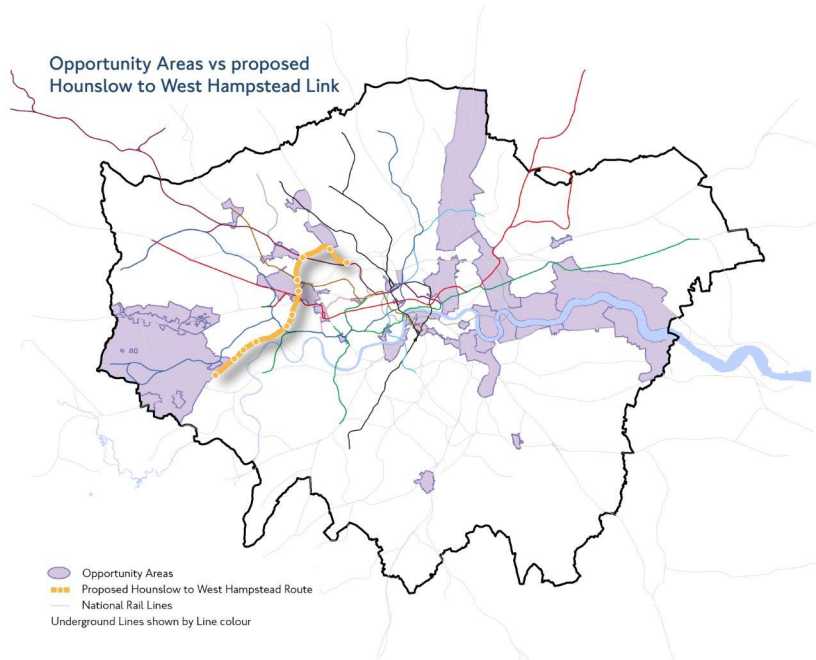
**Annex: Background data**

Index of Multiple Deprivation  
vs proposed Hounslow to  
West Hampstead Link



Change in population by  
Borough: 2016 to 2031

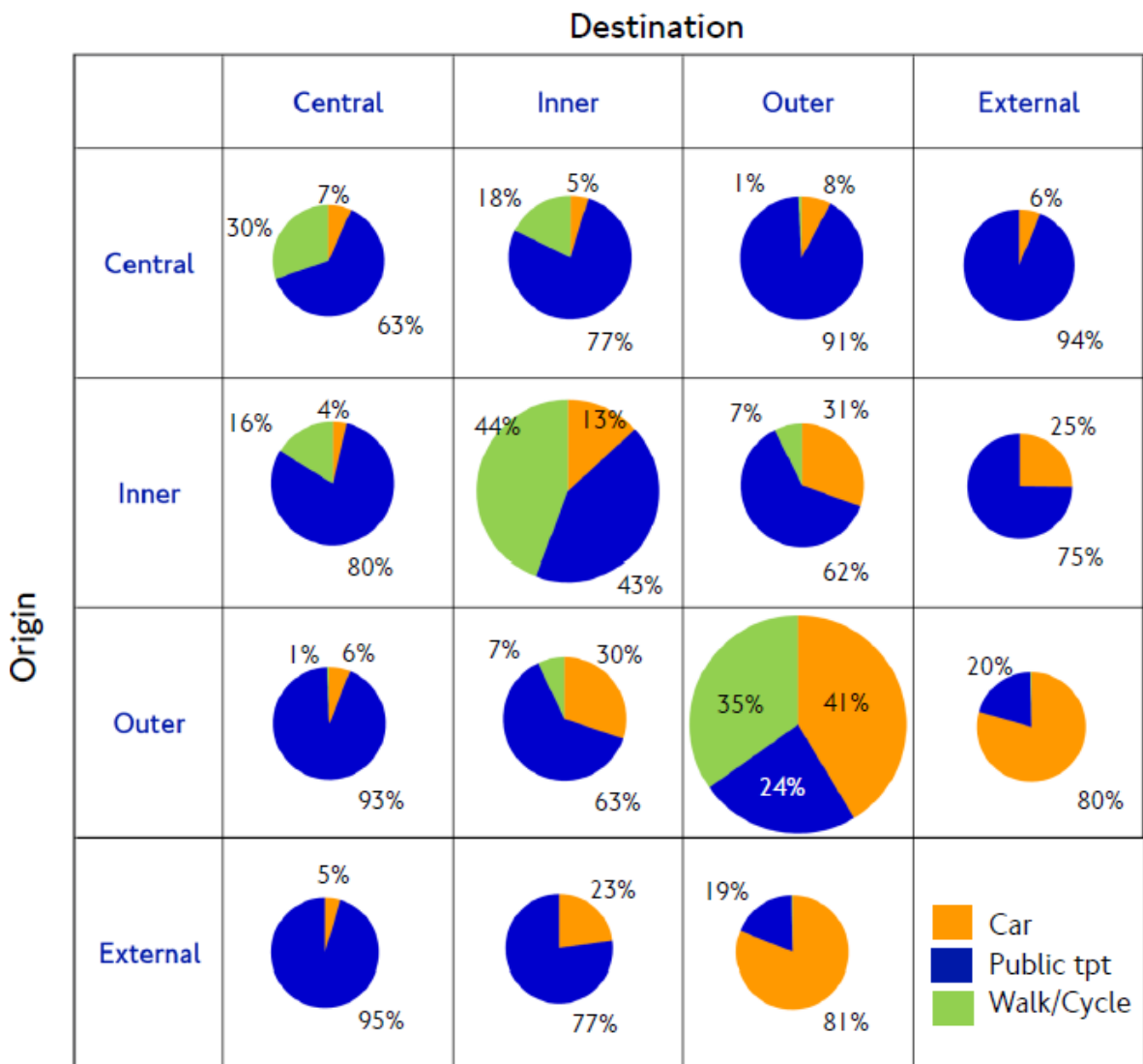




Analysis shows that the majority of journeys in London - 70% - will be made within or between inner and outer London.

	C	I	O	X
C	3%	4%	2%	2%
I	5%	21%	5%	1%
O	3%	5%	39%	3%
X	2%	1%	3%	

Around 30% of journeys between inner and outer London and 41% of journeys within outer London will be made by car.



Emerging policy is therefore identifying the need to reduce car use in inner and outer London by changing the relative appeal of the car compared to other modes in terms of price, time or convenience.