

# Camden Infrastructure: Transport Infrastructure Needs Assessment



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Camden Infrastructure and CIL Study

Transport Infrastructure Needs Assessment

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## GLOSSARY

LB	London Borough
LUL	London Underground Limited
NR	National Rail
TfL	Transport for London
GLA	Greater London Authority
LDF	Local Development Framework
LIP	Local Implementation Plan
RUS	Route Utilisation Strategies
HLOS	High Level Output Statement
С	Committed
U/C	Under Construction
Ρ	Planned
CAZ	Central Activities Zone
GA	Growth Area
SA	Sub-area
ТВС	To be confirmed
LCN+	London Cycle Network
PTAL	Public Transport Accessibility Level
CRT	Cross River Tram
MTS	Mayor's Transport Strategy
UDP	Unitary Development Plan



## **EXECUTIVE SUMMARY**

#### Introduction

The emerging London Borough of Camden (hereafter referred to as Camden) Local Development Framework, within which the emerging *Core Strategy* is the principal document, estimates that Camden's population will grow by about 15% between 2006 and 2026. The emerging *Core Strategy* identifies five principal growth areas<sup>1</sup> where new residential and commercial development will be concentrated in the years leading up until 2025/6. In addition to the growth within the five principal growth areas, significant development will also take place, but will be much more evenly distributed across remaining parts of the borough.

A summary<sup>2</sup> of the anticipated scale of growth, by various measures, is given below:

	Anticipated increase per five year period and totals						
Measure	2006-11	2012-16	2016-21	2021-26	Total		
Population	8,358	11,064	9,869	6,697	35,988		
Dwellings	3,369	4,817	4,297	2,916	15,669		
Office Space (m2)	46,324	163,680	202,408	202,408	614,820		
Retail Space (m2)	6,620	14,782	15,282	10,282	46,965		
Leisure Space (m2)	6,836	24,001	29,665	29,665	90,166		

#### ES Table 1: Projected Residential and Commercial Development Growth, Camden, 2006 – 2026

Source: Based on joint analysis by London Borough of Camden and URS Corporation.

Population and employment growth will result in additional travel that, in turn, will result in the need for transport infrastructure improvements. PPS12 (2008)<sup>3</sup> states that core strategies should be supported by evidence of what physical, social and green infrastructure is needed to enable the amount of development proposed for the area, taking account of the type of development and its distribution. It also states that such evidence should also cover who will provide the infrastructure and when it will be provided.

In accordance with the guidance given by PPS12, the London Borough of Camden have commissioned an infrastructure study led by URS Corporation, together with Steer Davies Gleave, Integrated Services and Utilities Limited, Montague Evans and Davis Langdon.

<sup>&</sup>lt;sup>1</sup> These are, as set out in The Mayor's *London Plan*, the Opportunity Areas located at Kings Cross, Euston and Tottenham Court Road and the Areas for Intensification located at Holborn and the West Hampstead Interchange.

<sup>&</sup>lt;sup>2</sup> Further detail and a full explanation of the assumptions underpinning these figures are provided in the *Camden Infrastructure Study – Main Report* document, which accompanies this report.

<sup>&</sup>lt;sup>3</sup> *Planning Policy Statement 12: Local Spatial Planning*, Department for Communities and Local Government, 2008.



This technical report covers transport infrastructure, and sets out a series of preliminary conclusions for the infrastructure requirements in association with the growth levels set down in the emerging *Core Strategy*.

#### Purpose of the Camden Infrastructure Study

The broad purposes of the study, as described in the London Borough of Camden's Brief for this commission, are:

- A. To identify the infrastructure needs of the London Borough of Camden over the lifespan of the LDF (to 2025/6)
- B. To help establish the relative importance of infrastructure needs
- C. To prepare a strategic infrastructure plan and
- D. To devise a robust methodology to set a viable Community Infrastructure Levy.

This Transport Infrastructure Needs Assessment, and the accompanying Social Infrastructure Assessment and Utilities and Physical Infrastructure Needs Assessment, respond to the first two purposes listed, and provide the basis for the preparation of a strategic infrastructure plan. Transport priorities to support development will inform the methodology for setting a Community Infrastructure Levy to fund infrastructure provision within the borough.

#### Key Conclusions – Baseline

Camden has been segmented into three sub-areas; south, north east and north west, for the purpose of this study. These are illustrated in **Figure 1-1**.

Camden is relatively well served by public transport, as measured by the Public Transport Accessibility Level (PTAL) - the PTAL index ranges from 6 – excellent to 1 – very poor. The borough has a good to excellent PTAL index with the south sub-area having an excellent level of public transport accessibility. The north east and north west sub-areas have good levels of accessibility in the underground and rail network corridors. PTAL, however, only measures access to services and not the capacity available on rail and bus routes.

A baseline assessment of the travel conditions within Camden has been undertaken. The key findings for each mode of travel are:

 London Underground – overcrowding on the underground lines that serve Camden is primarily concentrated within the south sub-area. As well as crowding on underground lines there are also significant levels of crowding at a number of stations, including Camden Town and Euston. These are illustrated in Figure 2-6.

Many underground stations do not have step free access, such as Tottenham Court Road, Holborn, and Mornington Crescent in the south, Camden Town and Hampstead Heath in the north east and Swiss Cottage and West Hampstead in the north west. A number of stations suffer from poor quality public realm, including King's Cross, Tottenham Court Road and Euston in the south sub-area, Camden Town in the north east sub-area and Swiss Cottage in the north west sub-area. These are illustrated in **Figure 2-6**.



 National Rail and Key Interchanges – crowding (over planning capacity) occurs on the First Capital Connect line into West Hampstead and King's Cross (all sub-areas) and also on the London Overground network into Gospel Oak (north east sub-area). A number of key interchanges have been identified as requiring future investment/development such as Holborn and Euston Square in the south sub-area, West Hampstead and Kilburn High Road in the north west sub-area and Gospel Oak and Camden Town in the north east sub-area. Interchanges in the south are being actively improved; however stations in the north east and north west are awaiting proposals. These are illustrated Figure 2-6.

A number of stations also suffer from poor quality public realm such as Euston and King's Cross in the south, Camden Road in the north east and Kilburn High Road and West Hampstead in the north west. Step free access is not provided at all rail stations within Camden. These are illustrated **Figure 2-6**.

- **Bus Services** bus routes are an important mode of travel in Camden. The density of routes enables most major corridors to provide high levels of frequency. They also provide key local links to rail and underground stations and local amenities.
- Road Network over the ten years up to 2005 total vehicle flows in Camden have fallen, the
  number of bicycles entering the borough has risen and freight movements have fallen.
  Camden suffers from road congestion. Congestion, as detailed by TfL's traffic alert website, is
  focused around Euston Road and some of the roads to the south of it and Mornington
  Crescent within the south sub-area. Significant amounts of congestion are experienced
  around Camden Town and Kentish Town Road in the north east sub-area and around Swiss
  Cottage and Kilburn High Road in the north west sub-area. These are illustrated Figure 2-6.

Congested road junctions are primarily located within the south sub-area at Holborn, Shaftesbury Avenue, Euston Underpass and Mornington Crescent. The other key areas of road congestion are located at Camden Town in the north east sub-area and Swiss Cottage in the north west sub-area. These are illustrated **Figure 2-6**.

 Walking and Cycling – cycling and walking are increasingly important modes in Camden, not least because they alleviate pressure on the public transport network. Camden Town, Euston Underpass, Finchley Road and Camden High Street have been identified by the Central London Pedestrian Study as high priority locations to improve capacity, legibility and connectivity. It is noted that King's Cross was not included in this study. Notably Camden is recognised as one of the most forward thinking and proactive boroughs in terms of implementing cycling infrastructure and linking the 'gaps' in the LCN+ and non LCN+ network to provide more direct routes for cyclists away from heavily trafficked roads/areas.

## Key Conclusions – Infrastructure Requirements

Three opportunity areas; King's Cross, Euston and Tottenham Court Road as well as two areas for intensification; Holborn and West Hampstead have been identified as areas where significant growth in jobs and employment will occur to 2026. Growth in jobs and employment will also occur within throughout the rest of Camden. The number of jobs and the population for the whole of Camden will increase by 44,448 and 35,988, respectively from 2006-2026.



The projected growth in resident and employee population will place pressure on the transport network. Crossrail will provide additional rail capacity into Paddington from 2017/18 onwards and will provide relief to underground and rail services. However, post-2018 further capacity increases will be required particularly given the overcrowding that will occur on underground lines in the south sub-area by 2026. At present no firm proposals or committed scheme exist. This will need addressing. It is worth highlighting that Crossrail 2 would provide additional capacity into Tottenham Court Road and King's Cross St Pancras in the south sub-area, which would also increase the volume of onward movements at these stations. However this is likely to be delivered outside the timescales of this study.

The key findings for each of the modes are:

 London Underground – the infrastructure investment programme for the underground network serving Camden should cater for most of the increase in demand that will result from housing and employment growth in the borough. However there will still be high levels of crowding on some lines, particularly the Victoria line from the north and the central line from the east. The omission of Cross River Tram, which was expected to alleviate crowding levels on the Northern, Piccadilly and Victoria lines needs addressing through the consideration of a replacement scheme(s) to ease congestion on these lines. These are illustrated in Figure 3-1.

Camden Town station and West Hampstead Interchange are high priorities for investment due to the current deficit in provision in terms of capacity and interchange. Overcrowding on lines out of these stations is predicted to occur by 2026. Holborn and Swiss Cottage should also be included within an extended programme of LUL station congestion relief. Euston and Gospel Oak are also much in need of interchange improvements. These are illustrated in **Figure 3-1**.

It will also be necessary however to cater for the increased demand on the transport network that will be required to handle the increased number of onward trips out of Camden's stations. In particular this needs addressing in relation to the five growth areas and their associated stations; King's Cross, Euston, Tottenham Court Road, Holborn and West Hampstead. All five stations and their station environs have been identified as suffering from a deficit in the provision of pedestrian and cycling facilities, interchange with other modes such as buses and taxis, connectivity and permeability with the surrounding area, public realm and wayfinding. These are illustrated in **Figure 3-1**.

In general many underground stations do not have step free access and should be addressed such as Mornington Crescent in the south, Camden Town and Hampstead Heath in the north east and Swiss Cottage and West Hampstead in the north west. Step free access schemes should be implemented at all stations without step free access. A number of additional stations in the borough suffer from poor quality public realm these include Camden Town in the north east sub-area and Swiss Cottage and Finchley Road in the north west sub-area, which should be improved. Not least because of the existing supply gap, but because they too will be the focus of increased demand. These are illustrated in **Figure 3-1**.

 National Rail and Key Interchanges – the infrastructure investment programme for the rail network serving Camden should cater for most of the increase in demand that will result from housing and employment growth. However there will still be high levels of crowding on some commuter routes and station congestion.



A number of key interchanges have been identified as requiring future investment/development such as Holborn and Euston Square in the south sub-area, West Hampstead and Kilburn High Road in the north west sub-area and Gospel Oak and Camden Town in the north east sub-area. A number of stations also suffer from poor quality public realm such as Euston and King's Cross in the south, Camden Road in the north east and Kilburn High Road and West Hampstead in the north west. Step free access schemes should be implemented at all stations without step free access. These are illustrated in **Figure 3-1**.

- **Bus Services** bus routes are an important mode of travel in Camden. Service enhancements will be required borough wide, particularly in the growth areas such as King's Cross in particular. Bus priority and bus stop accessibility enhancements will continue to be invested in throughout the borough. A strategic review of bus services to redistribute capacity and to compensate for the Cross River Tram scheme not being progressed any further is required. This is not a planned commitment.
- Road Network as the number of people travelling to and from Camden increases and without any plans for major new highways in the borough congestion will increase. The congestion hotspots identified by TfL's traffic alert website, will continue to be congested. These are links that are focused around Euston Road and some of the roads to the south of it and Mornington Crescent within the south sub-area. Significant amounts of congestion will continue to be experienced on the roads serving Camden Town in the north east sub-area and around Swiss Cottage in the north west sub-area. These are illustrated in Figure 3-1.

Congested road junctions are primarily located within the south sub-area at Holborn, Shaftesbury Avenue, Euston Underpass and Mornington Crescent. The other key areas of road congestion are located at Camden Town in the north east sub-area and Swiss Cottage in the north west sub-area. It is recommended that these areas are the subject of road improvements. These are illustrated in **Figure 3-1**.

 Walking and Cycling – cycling and walking will be ever more increasingly important modes in Camden, not least because they alleviate pressure on the public transport network. Increases in the walk and cycle modal share for trips in and out of Camden will also contribute the improvement of air quality in the borough.

**Table ES2** details the infrastructure requirements that have been identified through this study. In the table, a grey-shaded background denotes those schemes or requirements that have already been committed to or identified within service provider strategies, whilst an unshaded, white background denotes those schemes that are additional requirements identified by this study



## ES Table 2 – Infrastructure Requirements

Key

_		

Already identified by responsible agency/ provider Requirement identified via this study

Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
King's Cross St Pancras	Rail	First Capital Connect (formerly Thameslink)	2011-2015	Network Rail	Need identified. Funding identified	Track and station upgrades to 12-car operation and 24 trains per hour
	Rail and Underground Stations	King's Cross Station Congestion Scheme	2008-2010	TfL	Need identified. Funding identified	Phase 1 (completed) new Western ticket hall giving direct access to Circle and Metropolitan lines and to St Pancras International, which has increased capacity and improved accessibility. Phase 2 – construction of Northern ticket hall to the west of King's Cross mainline station providing direct access to the Northern, Piccadilly and Victoria line platforms.
	Rail and Underground Stations	Improvements to public realm at stations	2011-2016	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Bus	Bus service enhancements	2011-2016	TfL	Need identified.	Increased capacity and new links
					King's Cross funding identified. Borough wide funding yet to be identified.	
King's Cross	Rail	East Coast Mainline	2014	Network Rail	Need identified. Funding to be identified.	Additional 12 car services
	Rail	Crossrail 2	2026+	Network Rail/TfL	Need identified. Funding to be identified.	
	Walking	Reduce severance effect of roads		LB Camden/TfL	Need identified. Funding to be identified.	Improved accessibility and connectivity
Tottenham Court Road	Rail	Crossrail	2017	Network Rail/TfL	Need identified. Funding identified	Provides 24 trains per hour in each direction during peak periods. Provides a 10% increase in London's rail based public transport capacity.
	Rail	Crossrail 2	2026+	Network Rail/TfL	Need identified. Funding to be identified.	



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Rail and Underground Stations	Tottenham Court Road Station Congestion Scheme	2010-2017	TfL	Need identified. Funding identified	Will cater for 200,000 passengers per day with Crossrail. Providing a new ticket hall (six times the six times the size of the current one), escalators to the Northern line, step free access and increased space in congested areas of the station.
	Rail and Underground Stations	Improvements to public realm at stations	2010-2017	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility
	West End Improvement s	Tottenham Court Road Two Way Working	2010-2026	TfL	Need identified. Funding yet to be identified.	Improved accessibility
Euston	Rail and Underground Stations	Euston Station Congestion Scheme	2016-2021	TfL	Need identified. Funding not identified	Station congestion relief – TfL studies have identified that by 2026 escalator and platform capacity would be overcapacity.
	Rail and Underground Stations	Euston Station Interchange Scheme	2016-2021	TfL	Need identified. Funding not identified.	Improved interchange and accessibility
	Rail and Underground Stations	Improvements to public realm at stations	2016-2021	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Walking	Reduce severance effect of roads	-	LB Camden/TfL	Need identified. Funding to be identified.	Improved accessibility and connectivity
Euston Road and roads to the south of Euston Road	Road Network	Road link improvements	2015-2026	LB Camden/TfL	Need identified. Funding not identified	To improve traffic flows
Euston Underpass	Road Network	Junction Improvements	2015-2026	LB Camden/TfL	Need identified. Funding to be identified.	Improved traffic flows
	Walking	Pedestrian environment improvements	2015-2026	LB Camden	Need identified. Funding to be identified.	Improved accessibility and connectivity
Euston Circus	West End Improvement s	Euston Circus	2010-2026	LB Camden/TfL/ Developer contributions	Need not identified. Funding not identified.	Improved accessibility
Euston Square	Rail and Underground Stations	Improvements to public realm at stations	2016-2021	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility
Holborn	Rail and Underground Stations	Holborn Station Congestion Scheme	2016-2021	TfL	Need identified. Funding not identified	Station congestion relief. No additional details on station specific intervention are publicly available.
	Rail and Underground Stations	Holborn Station Interchange Scheme	2016-2021	TfL	Need identified. Funding not identified.	Improved interchange and accessibility



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Rail and Underground Stations	Improvements to public realm at stations	2016-2021	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	
	Road Network	Junction Improvements	2015-2026	LB Camden/TfL	Need identified. Funding to be identified.	Improved traffic flows
West Hampstead	Rail	First Capital Connect (formerly Thameslink)	2011-2015	Network Rail	Need identified. Funding identified	Track and station upgrades to 12-car operation and 24 trains per hour
	Rail and Underground Stations	West Hampstead Station Interchange Scheme	2016-2021	TfL	Need identified. Funding not identified.	Improved interchange and accessibility
	Rail and Underground Stations	Improvements to public realm at stations	2016-2021	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility
	Public Realm	Legible London	2010-2026	TfL	Need identified. Funding yet to be identified.	Improved accessibility
Camden Town	Rail and Underground Stations	Camden Town Interchange Scheme	2016-2020	TfL	Need identified. Funding not identified.	
	Rail and Underground Stations	Camden Town Station Congestion Scheme	2010-2021	TfL	Need identified. Funding not identified	No additional details on station specific intervention are publicly available.



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Rail and Underground Stations	Improvements to public realm at stations	2016-2021	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	-
	Town Centre Projects	Camden Town Centre Project	2015-2020	LB Camden	Need not identified. Funding not identified.	Improved accessibility
	Public Realm	Legible London	2010-2026	TfL	Need identified. Funding yet to be identified.	Improved accessibility
	Road Network	Road link improvements	2015-2026	LB Camden/TfL	Need identified. Funding not identified	Improved To improve traffic flows traffic flows
	Road Network	Junction Improvements	2015-2026	LB Camden/TfL	Need identified. Funding to be identified.	Improved traffic flows
	Walking	Pedestrian environment improvements	2015-2026	LB Camden	Need identified. Funding to be identified.	Improved accessibility and connectivity
	Walking	Reduce severance effect of roads	2015-2026	LB Camden/TfL	Need identified. Funding to be identified.	Improved accessibility and connectivity
Camden High Street	Walking	Pedestrian environment improvements	2015-2026	LB Camden	Need identified. Funding to be identified.	Improved accessibility and connectivity
Camden Road	Rail and Underground Stations	Camden Road Station Interchange Scheme	2016-2020	TfL	Need identified. Funding not identified.	



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Rail and Underground Stations	Improvements to public realm at stations	2016-2021	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	
	Rail	First Capital Connect (formerly Thameslink)	2011-2015	Network Rail	Need identified. Funding identified	Track and station upgrades to 12-car operation and 24 trains per hour
Mornington Crescent	Road Network	Junction Improvements	2015-2026	LB Camden/TfL	Need identified. Funding to be identified.	Improved traffic flows
	Road Network	Road link improvements	2015-2026	LB Camden/TfL	Need identified. Funding not identified	To improve traffic flows
Chalk Farm	Town Centre Projects	Chalk Farm Town Centre Project	2010	LB Camden	Need identified. Funding identified.	Improved accessibility
Kentish Town	Rail	First Capital Connect (formerly Thameslink)	2011-2015	Network Rail	Need identified. Funding identified	Track and station upgrades to 12-car operation and 24 trains per hour
	Rail and Underground Stations	Improvements to public realm at stations	2016-2021	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility
	Town Centre Projects	Kentish Town Centre Project	2010	LB Camden	Need identified. Funding identified.	Improved accessibility
	Road Network	Road link improvements	2015-2026	LB Camden/TfL	Need identified. Funding not identified	To improve traffic flows



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
Warren Street	Rail and Underground Stations	Station Congestion Scheme	2016-2026	TfL	Need identified. Funding not identified	Station congestion relief. No additional details on station specific intervention are publicly available.
	Rail and Underground Stations	Station Interchange Scheme	2016-2026	TfL	Need identified. Funding not identified.	
Hampstead Heath	Rail and Underground Stations	Station Congestion Scheme	2016-2026	TfL	Need identified. Funding not identified	Station congestion relief. No additional details on station specific intervention are publicly available.
	Rail and Underground Stations	Station Interchange Scheme	2016-2026	TfL	Need identified. Funding not identified.	Improved interchange and accessibility
Gospel Oak	Rail and Underground Stations	Station Interchange Scheme	2016-2026	TfL	Need identified. Funding not identified.	Improved interchange and accessibility
	Rail and Underground Stations	Improvements to public realm at stations	2016-2026	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility
Swiss Cottage	Rail and Underground Stations	Improvements to public realm at stations	2016-2026	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility
	Walking	Reduce severance effect of roads	2015-2026	LB Camden/TfL	Need identified. Funding to be identified.	Improved accessibility and connectivity



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
Finchley Road	Rail and Underground Stations	Improvements to public realm at stations	2016-2026	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility
	Road Network	Road link improvements	2015-2026	LB Camden/TfL	Need identified. Funding not identified	To improve traffic flows
	Walking	Pedestrian environment improvements	2015-2026	LB Camden	Need identified. Funding to be identified.	Improved accessibility and connectivity
Kilburn High Road	Rail and Underground Stations	Improvements to public realm at stations	2016-2026	TfL/Network Rail/LB Camden	Need identified. Funding yet to be identified.	Improved accessibility
	Road Network	Road link improvements	2015-2026	LB Camden/TfL	Need identified. Funding not identified	To improve traffic flows
	Town Centre Projects	Kilburn High Road Town Centre Project	2015-2020	LB Camden	Need not identified. Funding not identified.	Improved accessibility
St Giles	West End Improvement s	St Giles Circus	2010-2026	LB Camden/TfL/ Developer contributions	Need not identified. Funding not identified.	Improved accessibility
	Public Realm	St Giles Public Realm Improvements	2010	LB Camden	Need identified. Funding identified.	Improved accessibility
Princes Circus	West End Improvement s	Princes Circus	2010-2026	LB Camden/TfL/ Developer contributions	Need not identified. Funding not identified.	Improved accessibility



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
Shaftesbur y Avenue	Road Network	Junction Improvements	2015-2026	LB Camden/TfL	Need identified. Funding to be identified.	Improved traffic flows
South sub- area	Underground	Victoria line	2012	TfL	Need identified. Funding identified	19% increase in capacity
	Underground	Piccadilly line	2014	TfL	Need identified. Funding identified	25% increase in capacity
	Underground	Metropolitan line	2016	TfL	Need identified. Funding identified	49% increase in capacity
	Underground	Circle and Hammersmith and City lines	2016	TfL	Need identified. Funding identified	49% increase in capacity
	Public Realm	Legible London	2010-2026	TfL	Need identified. Funding yet to be identified.	Improved accessibility
North west sub-area	Underground	Jubilee line	2009	TfL	Need identified. Funding identified	25% increase in capacity



## Camden Infrastructure and CIL Study Transport Infrastructure Needs Assessment

Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Underground	Metropolitan line	2016	TfL	Need identified. Funding identified	49% increase in capacity
Borough wide	Rail <sup>4</sup>	Crossrail	Delivery by 2017	TfL/Network Rail	Need identified. Funding identified.	Capacity of 15,000 passengers per hour provided in the peaks
		First Capital Connect (formerly Thameslink)	2011-2015	Network Rail	Need identified. Funding identified	Track and station upgrades to 12-car operation and 24 trains per hour (King's Cross St Pancras, West Hampstead, Camden Road and Kentish Town)
		Crossrail 2	2026+	Network Rail/TfL	Need identified. Funding to be identified.	Increased rail capacity (King's Cross and Tottenham Court Road)
	Underground	Northern line	2011 Phase 1 and 2020 Phase 2	TfL	Need identified. Funding identified	Phase 1 -20% increase in capacity Phase 2 – separation of Bank and Charing Cross lines
	Rail and Underground Stations	Step Free Access at Underground Stations	2015-2026	TfL	Need identified. Funding not identified.	Step free access

<sup>&</sup>lt;sup>4</sup> Crossrail, Crossrail 2 and First Capital Connect are also noted earlier in this table in each of the stations that the schemes affect, so as to highlight the benefit that the scheme will contribute to each location.



## Camden Infrastructure and CIL Study Transport Infrastructure Needs Assessment

Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Rail and Underground Stations	Step Free Access at Rail Stations	2015-2026	TfL	Need identified. Funding not identified.	Step free access
	Bus	Bus service enhancements	2010-2026	TfL	Need identified. Funding yet to be identified.	Increased capacity and new links
	Bus	Strategic Review of Bus Services (to compensate for Cross River Tram Scheme not being progressed further)	2011-2026	TfL	Need identified. Funding yet to be identified	Increased capacity
	Bus	Bus Priority	2010-2026	TfL	Need identified. Funding to be identified.	Improved bus journey times
	Bus	Bus Stop Accessibility	2010-2026	TfL	Need identified. Funding identified to 2009. Funding to be identified thereafter.	Improved accessibility
	Cycling	Cycling LCN+	2010-2026	TfL	Need identified. Funding identified to 2009	Improved accessibility and connectivity
	Cycling	Cycling Non LCN+	2010-2026	LB Camden	Need identified. Funding identified to 2009	Improved accessibility and connectivity



Location	Туре	ldentified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Cycling	Connections between LCN+ and non LCN+	2010-2026	LB Camden	Need identified. Funding identified to 2009, funding to be identified thereafter	Improved accessibility and connectivity
	Cycling	Cycle Parking	2010-2026	LB Camden	Need identified. Funding to be identified.	Improved accessibility
	Road Network	Improvements to taxi facilities	2015-2026	TfL/LB Camden	Need identified. Funding not identified.	Improved accessibility
	Road Network	Improvements to coach facilities	2015-2026	TfL/LB Camden	Need identified. Funding not identified.	Improved accessibility
	Road Network	Car Club Schemes	2010-2026	LB Camden/TfL	Need identified. Funding to be identified.	Reduced car ownership levels
	Road Network	Electric Car Charging Points	2010-2026	LB Camden/TfL	Need identified. Funding to be identified.	Increased number of clean fuel vehicles
	Road Network	Principal Road Renewal	2010-2026	TfL/LB Camden	Need identified. Funding identified to 2009. Funding to be identified thereafter.	Improved road conditions



Location	Туре	Identified Schemes / Requirements	When (if applicable)	Who – Agency Responsible	Is item already identified in strategy and/or fully funded?	What is Delivered
	Road Network	Local Road Safety Schemes	2010 - 2026	TfL/LB Camden	Need identified. Funding identified to 2009. Funding to be identified thereafter.	To improve roads safety
	Air Quality	Air quality monitors and improvements	2010-2026	LB Camden	Need identified. Funding to be identified.	Improved air quality
	Travel Demand	Travel Demand Management	2010-2026	LB Camden	Need identified. Funding to be identified after 2009.	Reduction in the number of trips by private vehicles

## **Next Steps**

The next steps involve using the infrastructure plan to inform the development of a Community Infrastructure Levy (CIL) for Camden. Guidance is still emerging on CIL and so further consultation and consideration of the CIL methodology and associated investment plan is required.

It is worth noting that sub regional transport studies are being taken forward, led and funded by TfL. These studies address predicted demand on public transport networks (rail and tube) and on the highway network. Camden is part of the North and Central London studies. The outcome of these studies (expected in Summer 2010) will provide an evidence base for the prioritisation of projects and the sub-regional transport plans. Camden's LIP2 will take account of these emerging regional Transport Plans.



## 1. INTRODUCTION

## 1.1. Purpose and Scope

This technical report is part of the *Camden Infrastructure and CIL Study*. The purpose of this report is to identify the transport infrastructure needs of the London Borough of Camden (hereafter referred to as Camden) over the period 2006 to 2026.

Transport infrastructure considered as part of this study includes:

- National rail (including London Overground)
- London underground
- Bus routes
- Highways
- Interchanges
- Stations (bus and rail)
- Pedestrian and cycle routes
- Public realm.

## 1.2. Context

Camden is an inner London borough bounded by LB Barnet and LB Haringey to the north, LB Islington to the east, the City of London and the City of Westminster to the south and LB Brent to the west. The borough includes major employment areas with 278,000 workers in total. It also has a resident population of 217,000 people (Local Implementation Plan<sup>5</sup>).

The borough has a number of town centres including Camden Town, West Hampstead/Finchley Road that provide shopping, local services and employment uses. Key tourist attractions and institutions such as the University of London, the British Museum, Hampstead Heath, Camden Lock and the British Library are located within the borough. Transport is fundamental to providing access to jobs, education, shopping, leisure, friends and relatives.

Camden extends into central London and experiences a large daily influx of workers and visitors, especially to the south of the borough. Such movements place pressure on available transport resources including rail and tube lines, stations, roads, car parks and public spaces.

<sup>&</sup>lt;sup>5</sup> London Borough of Camden, *Local Implementation Plan 2005/06-2010/11* 



#### Growth in Camden, Growth Areas and Sub-Areas

The emerging London Borough of Camden (hereafter referred to as Camden) Local Development Framework, within which the emerging *Core Strategy* is the principal document, estimates that Camden's population will grow by about 15% between 2006 and 2026.

The emerging *Core Strategy* identifies five principal growth areas<sup>6</sup> where new residential and commercial development will be concentrated in the years leading up until 2025/6. In addition to the growth within the five principal growth areas, significant development will also take place, but will be much more evenly distributed across remaining parts of the borough. With regard to looking at the spatial distribution of growth and for the purposes of this study, Camden is broken down into eight areas: comprised of the five growth areas and three sub-areas for which residential and commercial development growth has been forecast (see **Figure 1-1**)<sup>7</sup>. This reflects the varied geographical diversity and building densities across Camden. The south sub-area is located within London's Central Activities Zone (CAZ), as defined by the London Plan. The north east sub-area includes Swiss Cottage and West Hampstead. Hampstead Heath in the north of the borough separates the north east and north west sub-areas and is flanked by less densely populated areas such as Highgate and Hampstead.

Within this report, the demand for transport infrastructure is commonly assessed at the growth area and sub-area level. This provides a clear basis for understanding where demand for services will arise and sets the scene for understanding where additional provision may be required (subject to other relevant considerations).

<sup>&</sup>lt;sup>6</sup> These are, as set out in The Mayor's *London Plan*, the Opportunity Areas located at Kings Cross, Euston and Tottenham Court Road and the Areas for Intensification located at Holborn and the West Hampstead Interchange.

<sup>&</sup>lt;sup>7</sup> Further detail and a full explanation of the assumptions underpinning these figures are provided in the *Camden Infrastructure Study – Main Report* document, which accompanies this report.



#### Figure 1-1: Camden's Development Trajectory, 2006 to 2026



Source Based on Joint analysis by London Borough of Camden and URS Corporation

## Camden Infrastructure and CIL Study Transport Infrastructure Needs Assessment

os	S		
	2016-2021	2021-2026	Total (2006-2026)
	750	0	1,768
	1,723	0	4,061
	139,676	139,676	423,521
	8,327	8,327	25,166
1	2016-2021	2021-2026	Total (2006-2026)
	900	195	1,552
	2,067	448	3,565
	45,356	42,856	90,713
	2,640	2,537	5,280
M	COURT RC 2016-2021	DAD	Total (2006-2026)
	151	0	482
	347	0	1,107
	12,517	12,517	50,284
	749	749	2,998
	0010 0001	0001 0000	T-1-1 (0000 0000
	2016-2021	2021-2026	Total (2006-2026)
1000	2016-2021 0	2021-2026 0	Total (2006-2026) 45
	2016-2021 0 0	2021-2026 0 0	Total (2006-2026) 45 103 22 501
	2016-2021 0 8,380 500	2021-2026 0 8,380 500	Total (2006-2026) 45 103 33,521 1,998
DC	2016-2021 0 8,380 500	2021-2026 0 8,380 500	Total (2006-2026) 45 103 33,521 1,998
PS	2016-2021 0 8,380 500 STEAD INT 2016-2021	2021-2026 0 8,380 500 ERCHANG 2021-2026	Total (2006-2026) 45 103 33,521 1,998 E Total (2006-2026)
PS	2016-2021 0 8,380 500 30 500 500 500 500 500 500 500 500	2021-2026 0 8,380 500 ERCHANG 2021-2026 400	Total (2006-2026) 45 103 33,521 1,998 E Total (2006-2026) 1,019
PS	2016-2021 0 8,380 500 CTEAD INTI 2016-2021 314 721	2021-2026 0 8,380 500 ERCHANG 2021-2026 400 919	Total (2006-2026) 45 103 33,521 1,998 E Total (2006-2026) 1,019 2,340
PS	2016-2021 0 8,380 500 0 8,380 500 0 8 7 2016-2021 314 721 4,128	2021-2026 0 8,380 500 ERCHANG 2021-2026 400 919 4,128	Total (2006-2026) 45 103 33,521 1,998 E Total (2006-2026) 1,019 2,340 8,439



## **1.3.** Planning for Transport

Population and employment growth will result in additional travel that, in turn, will result in the need for transport infrastructure improvements.

Much of the transport infrastructure that serves travel in Camden is provided by Transport for London (some of the strategic roads, tube, London Overground rail and buses) or Network Rail. However, Camden is the highway authority for approximately 90% of roads in the borough and is responsible for public spaces and council owned car parks.

The objectives guiding transport investment have recently been reviewed in relation to the emerging MTS2 and the LIP2 process. A comprehensive transport strategy for Camden has been designed to ensure that the likely reduced level of funding for Camden for 2010/11 will be invested to maximise efficiency and impact.

These new objectives are set in the context of the new Community Strategy<sup>8</sup> and the LDF emerging Core Strategy and are:

- 1. A sustainable Camden that adapts to a growing population
  - To reduce motor traffic and emissions from transport to help improve air quality, mitigate climate change and contribute to making Camden a 'low carbon and low waste borough' by 2012
  - To encourage the use of sustainable transport (walking, cycling and public transport) and promote the use of cleaner vehicles
  - To ensure that the transport network supports sustainable growth and regeneration
- 2. A strong Camden economy that includes everyone
  - To ensure that the transport system helps to sustain or improves economic and community development
  - To reduce inequalities in transport and increase social inclusion
  - To ensure that freight and servicing requirements can be provided efficiently and reliably and are as sustainable as possible
- 3. A connected Camden community where people lead active healthy lives
  - To increase connectivity by all modes of transport, especially sustainable modes

<sup>&</sup>lt;sup>8</sup> London Borough of Camden, *A New Transport Investment Strategy for Camden* (May 2009)



- To improve the quality of the public realm to encourage greater levels of walking and cycling and recognise that streets are about more than movement
- To ensure efficient movement of people and goods within the transport network
- 4. A safe Camden that is a vibrant part of our world city
  - To improve road safety in the borough
  - To contribute to a reduction of real and perceived crime and anti-social behaviour on the transport network.

The strategy has also enabled greater links between the LDF and areas of growth with regeneration and place shaping.

Sub regional transport studies are being taken forward, led and funded by TfL. These studies address predicted demand on public transport networks (rail and tube) and on the highway network. Camden is part of two of these studies, namely the North and the Central London studies. The outcome of these studies (expected in Summer 2010) will provide an evidence base for the prioritisation of projects and the sub-regional transport plans. Camden's LIP2 will take account of these emerging regional transport plans.

While the majority of trips to jobs in Camden (**Table 2-1**: Journey to Work Census 2001) arrive by rail or underground, the majority of movements around the borough are by vehicle (car, bus, taxi, coach, cycle etc.) or on foot. The intensity of such movements, and especially walk movements on confined footways, creates a need to continuously ensure that such facilities are maintained to standards sufficient to maintain the status of Camden as an attractive place to live, work or visit.

## 1.4. Approach

In the context of each mode of transport considered for this study, transport infrastructure relates to physical works and not strictly speaking to the vehicles or trains that operate on each network. However, in discussing transport capacity, this distinction is often arbitrary and where necessary reference is made to operations as well as infrastructure works.

The emerging Local Development Framework and other local planning policy documentation, including the *Camden's Core Strategy Preferred Approach*<sup>9</sup>, Unitary Development Plan (UDP) and Local Implementation Plan (LIP) have informed this report. Camden has adopted a number of planning briefs which focus on key areas within the borough and outline strategic planning and transport advice, which have been consulted including:

<sup>&</sup>lt;sup>9</sup> London Borough of Camden, *Shaping Camden, Camden's Local Development Framework Core Strategy Preferred Approach; Consultation version*, October 2008.



- King's Cross Opportunity Area Planning & Development Brief (January 2004);
- Planning Framework for Tottenham Court Road Station & St Giles High Street Area (July 2004);
- Euston: A Framework for Change (April 2009);
- Planning Brief for St Giles Court (July 2004);
- Planning Brief for 21-31 New Oxford Street (July 2004);
- King's Cross Towards an Integrated City (October 2001).

The main development nodes (growth areas and areas for intensification) are concentrated in areas to the south of the borough, and this is reflected in proposals for supporting transport infrastructure.

This report is also informed by key strategic documents, such as the recent publication of the *Mayor's Transport Strategy Statement of Intent* (May 2009), which followed the publication of *Way to Go!* (Mayor of London 2008), the *Transport for London Business Plan 2009/10 – 2017/18* (November 2008) and *A New Plan for London Proposals for the Mayor's London Plan* (April 2009). These documents reflect the priorities and policies of the incumbent Mayor but are also outputs of a wide-ranging review of infrastructure schemes in London in response to funding constraints.

These documents take a realistic view of schemes likely to be delivered over the course of the next ten years. Given the costs associated with Crossrail (now sponsored by Transport for London) and underground upgrades, and given expected levels of future Government grant, several schemes were omitted from the *Business Plan*. In some cases, this reflects an underlying lack of viability or absence of political support; in others, it reflects the lack of funding that is likely to be available.

Whilst the *Business Plan* looks ahead ten years, the planning horizon for London is dictated by the London Plan, which sets out policies to 2026. The most complete appraisal of transport in London over this period was contained in *Transport 2025 – Transport vision for a growing world city* (hereafter referred to as T2025)<sup>10</sup>. T2025 identified a transport strategy for London that would match travel growth in London with transport infrastructure capacity improvements. The recent policy announcements potentially create supply gaps in some areas that are assessed in this report.

Additional documentation, such as the *Interchange Plan – improving interchange in London* (Transport for London, August 2002) and the *Central London Pedestrian Study* (Intelligence Space/Atkins, December 2007), have also been considered.

The aim of this report is to review the transport infrastructure requirements of the borough, regardless of ultimate provider, and to identify the relative importance of

<sup>&</sup>lt;sup>10</sup> Transport for London, *Transport 2025 – Transport Challenges for a Growing City*, November 2006

projects and schemes requiring investment and funding that will enable Camden to secure improvements consistent with its local planning objectives, in particular those articulated within its emerging *Core Strategy* over the period to 2025/6. This report, therefore, spans both infrastructure schemes that are national or regional in scope and more local measures that will be delivered primarily by the borough.

The Executive (Environment) Sub Group of Camden considered on 19 May 2009 a paper entitled *A New Transport Investment Strategy for Camden*' and this presented initial thoughts on transport funding priorities for the next *Local Implementation Plan* (LIP). The report was in response to new guidance on Transport for London funding of borough schemes that recognises needs-based assessments. The TfL funding allocation for the borough in 2009/10 is £7.411 million, but the report recognises that additional funding from other sources, such as s106 agreements, will be required to meet spending needs.

The report acknowledges the emerging new *Mayor's Transport Strategy* (known as *MTS2*), especially its priority to support economic development and population growth. Camden is in the process of reviewing its processes for prioritising transport improvements and the report lists (Appendix 2) several criteria relating to transport corridors, neighbourhoods and smarter travel that are reflected in this report. Given the provisional nature of GLA/TfL policies and guidance and the borough's response, this exercise will need to be ongoing and subject to review.

Sub regional transport studies are being taken forward, led and funded by TfL. These studies address predicted demand on public transport networks (rail and tube) and on the highway network. Camden is part of two of these studies, namely the North and the Central London studies. The outcome of these studies (expected in Summer 2010) will provide an evidence base for the prioritisation of projects and the sub-regional transport plans. Camden's LIP2 will take account of these emerging regional transport plans.

For the purposes of assessing future infrastructure requirements, standard Network Rail and LUL measures of rail capacity have been used as defined in the report. The baseline and future year rail capacity criteria differ in that the baseline is differentiated by a maximum number and the future year is defined as a range. They cannot therefore be exactly reconciled. Where information is presented that defines capacity in different terms, this is explained.



## 2. TRANSPORT INFRASTRUCTURE ASSESSMENT

## 2.1. General

Camden faces several challenges as it seeks to provide high quality transport services for its residents, workers and the many that pass through the borough. As noted above, much of this travel and associated infrastructure are outside the direct control of the authority. However, Camden is still charged with responsibility for ensuring that all transport services are adequate and sufficient to support new developments, especially in designated growth areas.

The following assessment follows an approach that is based on identifying known gaps in future infrastructure provision given assumed levels of growth and funding plans. The first section below examines baseline conditions in the borough by mode and this forms the basis for future assessments. This is followed by a review of growth assumptions, focusing especially on the designated growth areas such as King's Cross.

The remaining sections consider planned transport investment programmes and assess how they meet assumed growth in travel, both generally within the borough and specifically by area or corridor. Finally, this chapter examines gaps in the supply of transport infrastructure where planned provision fails to provide for future needs and identifies the relative importance of transport infrastructure needs.

## 2.2. Baseline Conditions

Baseline travel conditions within Camden have been assessed for each mode of travel for the three geographical sub-areas identified namely south, north east and north west. This forms the basis for an assessment of future needs and areas where there may be gaps in infrastructure provision.

In this section, transport capacity charts produced by Transport for London are used to indicate existing conditions on rail and underground lines on a consistent basis. The 'very crowded' criterion corresponds to the London Underground planning standard used later in this report in discussing future conditions – this is the level at which passenger conditions reach an unacceptable level of congestion. TfL assesses conditions on National Rail services on a consistent basis but this differs from how Network Rail assesses capacity, where the limit of acceptability is reached at lower levels of crowding.

Camden is relatively well served by public transport. An assessment of the level of public transport accessibility throughout Camden has been undertaken by TfL and Public Transport Accessibility Levels (PTAL) have been calculated. This analysis takes account of the walk distance of a location to public transport facilities and the frequencies of these services. The PTAL index ranges from 6 – excellent (red) to 1 – very poor (blue). The majority of the borough of Camden has very good to excellent public transport accessibility (PTAL >20), as illustrated in **Figure 2-1**. There are few areas in Camden that can be regarded as having 'poor' public transport accessibility (<10), but these exclude all



major or district centres. PTAL, however, only measures access to services and not capacity available on rail and bus routes.



#### Figure 2-1: Camden Public Transport Accessibility Levels

Source: Local Implementation Plan

The south sub-area has an excellent level of public transport accessibility (>25). This high level of accessibility and connectivity is provided by the London Underground network, a high density of bus routes and the national rail network. The north east and north west sub-areas have levels of accessibility that effectively mirror the underground and rail


network, with very good accessibility around stations and mostly moderate to good accessibility (10 to 20) elsewhere.

A key determinant of peak travel demands in the borough is journeys to work, with many trips being made by non-borough residents into and through Camden. The 2001 census data includes details of journeys to work by mode of travel and data has been extracted for travel to jobs located in Camden (inbound) and travel to jobs by Camden residents (outbound). **Table 2-1** shows the modal characteristics of inbound and outbound journeys to work.

Mode	Trips to Jobs in Camden	Trips to Jobs by Camden Residents
London Underground	33%	36%
National Rail	28%	6%
Bus	10%	14%
Car (driver and passenger)	16%	18%
Taxi	0%	1%
Motorcycle	2%	2%
Bicycle	3%	4%
Walk	7%	18%
Other	0%	1%
Total	100%	100%

#### Table 2-1: Journey to Work Modal Share for Camden (2001)

Source: Office for National Statistics

**Table 2-1** shows that the majority of trips to work in Camden are by rail modes, i.e. London Underground (33%) and National Rail (28%). Together with bus and taxi use, public transport modes account for 71% of all inbound trips. A total of 16% of jobs in Camden are accessed by car (including passengers).

Camden residents show a slightly higher propensity to travel to work by car (this includes travel to jobs in the borough) with 18% using this mode. A high percentage of residents walk to work (18%), reflecting the high numbers of residents who both live and work in the borough.

#### London Underground

The London Underground network serving Camden comprises 16 stations that provide links to all underground lines except the District, Bakerloo and Waterloo & City lines, which is illustrated in **Figure 2-6**. The network is more concentrated within the southern half of the borough, with the Northern line branches and Jubilee line providing links to the



north and north west of the borough respectively. The Metropolitan line also provides links to the north west at Finchley Road station.

The existing level of crowding on the public transport network facilitates an understanding of travel conditions on the public transport network. Existing levels of crowding on the underground network in Camden are shown in **Figure 2-2** (the worst direction is shown). The black bands represent severely crowded conditions and the red bands indicate very crowded conditions, i.e. which are over planning capacity.

The underground lines that serve the south sub-area are in most cases very crowded or severely crowded. The Piccadilly between King's Cross and Holborn is severely crowded. The Victoria line between King's Cross and Oxford Circus is also severely crowded. The Charing Cross Branch of the Northern line is very crowded from Camden to Euston and severely crowded from Euston to Warren Street and very crowded from Warren Street to Tottenham Court Road. The Bank branch of the Northern line is very crowded between Camden and King's Cross.

The underground lines serving the north east sub-area of Camden are the High Barnet and Edgware branches of the Northern line. The High Barnet section of the Northern line is severely crowded between Kentish Town and Camden. The section of the Edgware branch of the Northern line located within the north east and north west sub-areas is within the planning standards for line capacity. Transport conditions on the rail network are also illustrated in **Figure 2-3**.





#### Figure 2-2: London Underground Crowding in 2005 (AM Peak)

As well as crowding on underground lines in Camden, there are also significant levels of crowding at a number of LUL stations. In the most extreme cases, this can lead to partial or full station closures during peak periods. Transport for London gives the busiest station in 2005/06 on the entire underground network as King's Cross/St. Pancras, with 71.5 million passengers per annum using the station. Heavy demands result in congestion at peak times, although this is being addressed as part of the TfL station congestion relief programme.

Many stations located within Camden do not currently have step free access. These include Tottenham Court Road, Holborn, Russell Square, Goodge Street, Warren Street, Euston Square, Euston and Mornington Crescent in the south. In the north east, Camden Town, Chalk Farm and Belsize Park do not have step free access. In the north west Swiss Cottage, Finchley Road, Hampstead and West Hampstead do not have step free access. Stations without step free access are illustrated in **Figure 2-6**.



Several stations within Camden have a poor quality public realm and are illustrated in **Figure 2-6**, in particular these include:

- South sub-area Tottenham Court Road, Holborn, Euston Square, Euston and King's Cross
- North East sub-area Camden Town
- North West sub-area Swiss Cottage, Finchley Road and West Hampstead.

#### National Rail and Key Interchanges

The rail network serving Camden provides local, national and international links. A total of 12 overground stations are located in the borough, including 3 mainline stations - King's Cross, St Pancras and Euston stations. These three mainline termini are closely clustered stations that serve international, national and local destinations and are located within the south sub-area. These are shown in **Figure 2-6**.

In addition, local stations such as Kentish Town on the First Capital Connect route and Gospel Oak, Camden Road, Kentish Town West and Hampstead Heath on the London Overground Network are located within the north east sub-area. The north west sub-area is also served by the First Capital Connect route at West Hampstead station. This sub-area is also well served by the London Overground network, which provides orbital links at West Hampstead, Finchley Road & Frognal, South Hampstead and Kilburn Road. These lines and stations are also shown in **Figure 2-6**. **Figure 2-3** shows crowding levels on National Rail services.



#### Figure 2-3: National Rail Crowding in 2006 (Peak)



There is crowding on the First Capital Connect line into West Hampstead and King's Cross, which serves all three sub-areas in Camden. Crowding is also experienced on the London Overground Network into Gospel Oak from Hampstead Heath, which is within the north east sub-area. Rail crowding is summarised in **Figure 2-3**.

The Greater London Authority (GLA) Transport Committee produced *The Big Squeeze* – *Rail overcrowding in London* (February 2009)<sup>11</sup>. This document reports that London's rail network is overcrowded and that trains are perceived to be more crowded than reported in official figures. In addition, 'two-thirds of London commuters are dissatisfied with crowding on peak rail services with some services so packed that there are health and safety risks'. In fact, London performs worse than other areas of the UK.

The Interchange Plan<sup>12</sup> identifies King's Cross St Pancras and Euston as major central London termini requiring future investment/development. Holborn, Warren Street, Tottenham Court Road and Euston Square are also given as improvement priorities for other major central London termini that are located within the south sub-area. There are also crowding problems at Euston mainline station but this is mostly the result of high levels of interchange demand rather than space restrictions (platform lengths and widths, escalator capacity etc.) within the station. These are shown in **Figure 2-6**. It is not possible to consistently compare measures of crowding at stations due to differences in the composition of stations such as platform length, and any problems tend to be isolated to specific areas of facilities, such as gate lines or escalators.

West Hampstead, which is located within the north west sub-area, is categorised as a major strategic interchange in the *Interchange Plan* that plays an important role in London's transport network, with high levels of interchange and in need of investment. Other stations highlighted in this area of Camden are Kilburn High Road and South Hampstead, which are identified as district interchanges of more than local significance. These stations have been selected because the 'quality gap' is greatest. These are shown in **Figure 2-6**.

Stations located within the north east sub-area, which have been identified because the quality gap is the greatest, are Camden Road (NR), Hampstead Heath (NR), Gospel Oak (NR) and Camden Town (LUL). These are identified as district interchanges of more than local significance.

Many of the interchanges located within the south sub-area are being actively improved, while other stations located within north east and north west sub-areas are proposals for future investment but not programmed. For example, work has been undertaken at King's Cross/St. Pancras to significantly improve the station, including the Channel Tunnel Rail Link works and an expansion of the underground station and a new ticket hall. Tottenham Court Road and Farringdon stations are being upgraded as part of the Crossrail works.

<sup>&</sup>lt;sup>11</sup> London Assembly Transport Committee, *The Big Squeeze Rail Overcrowding in London*, February 2009

<sup>&</sup>lt;sup>12</sup> Transport for London, *Improving Interchange in London*, August 2002



A number of National Rail stations do not have step free access within Camden and are illustrated in **Figure 2-6**, these are:

- South sub-area Euston
- North East sub-area Camden Road, Kentish Town, Kentish Town West, Gospel Oak and Hampstead Heath
- North West sub-area Finchley Road & Frognal, South Hampstead, Kilburn High Road and West Hampstead.

The majority of National Rail stations have poor quality public realm and are illustrated in **Figure 2-6**, these include:

- South sub-area Euston and King's Cross
- North East sub-area Camden Road and Gospel Oak
- North West sub-area Kilburn High Road and West Hampstead.

#### **Bus Services**

Bus routes provide links along key corridors into central London as well as orbital links to destinations in Camden and neighbouring boroughs.

There are approximately 60 bus routes serving Camden. This level of service provision benefits Camden in terms of the levels of public transport accessibility provided for residents, workers and visitors travelling to, from and within the borough. The density of routes enables most major corridors to provide high levels of frequency. However the sheer volume of buses in some areas in the south of the borough, such as Oxford Street, contribute to congestion in the area. This in turn detrimentally impacts bus passenger journey times. The *Way to Gol* document recognises that wall to wall<sup>13</sup> buses on routes such as Oxford Street can be counter productive for pedestrians and the environment.

The London Bus Initiative (LBI) has done much to improve the reliability of buses operating in Camden with the implementation of bus lanes and other bus priority measures. However buses are still susceptible to road congestion, particularly as a result of road works.

#### **Road Network**

A total of 299.5 kilometres of public highway is located within Camden, of which Camden is the highway authority for 285.7 kilometres – TfL is responsible for the remaining 13.8 kilometres, which forms part of the Transport for London Road Network (TLRN). TfL is also responsible for the maintenance and operation of all traffic signals in the borough.

<sup>&</sup>lt;sup>13</sup> That is to say a continuous and consecutive row of buses.



The area to the south of Euston Road (part of the TLRN) is subject to the Congestion Charging Scheme (CCS).

It is more difficult to define highway conditions due to the diverse character of the road network. Historically, in central London, and therefore in Camden, average traffic speeds have changed little in the last 100 years at around 10 miles per hour. The introduction of the CCS in February 2003 had a very marked initial effect on traffic volumes entering the charging area. In the first year, all traffic flows declined by 14% but since the first year, and despite subsequent increases in charges, the reduction in 2007 was 16%, which compared with 2002 is marginally better than the first year.

Transport for London also monitors congestion within the charging zone as reported in the *Sixth Annual Report*<sup>14</sup>. In 2002, the average excess vehicle time per kilometre in central London was 2.3 minutes (equivalent to a reduction in speed from 30 mph to 14 mph). Initially, congestion fell following the introduction of charging but by 2007 excess travel time per kilometre was back to 2.3 minutes. There are several contributory factors to this higher level of congestion, including road works, but taking these factors into account there is still an unexplained increase.

Camden carries out classified traffic surveys at four screenlines in the borough biannually to measure the change in traffic flows and type of vehicles over time. The LIP summarises the results of these surveys over the ten years up to 2005. It found that:

- Total vehicle flows had fallen by 25%; of which 36% is a reduction in private cars
- The number of bicycles entering the borough had risen by 11%
- Goods vehicle flows have fallen
- An increased number of bus services are on the road therefore the level of bus service provision to the borough has improved.

How well traffic flows is important not just for private vehicles and buses but for freight as well. Congestion therefore impacts the movement of goods as well as people through Camden.

**Figure 2-4** details the road links that are congested within Camden as detailed by TfL; the information comes directly from TfL's London Traffic Control Centre. Congestion is focused around Euston Road and the roads to the south of it and Mornington Crescent within the south sub-area. Significant amounts of congestion are experienced around Camden Town and Kentish Town Road in the north east sub-area and around Kilburn High Road and Swiss Cottage including Finchley Road in the north west sub-area. This figure also illustrates that the highway network is predominantly radial in nature, with

<sup>&</sup>lt;sup>14</sup> Transport for London, *Central London Congestion Charging Impacts monitoring -Sixth Annual Report*,, July 2008



some orbital links provided by the B519 and A501. These congested links are also illustrated in **Figure 2-6**.

**Figure 2-5** illustrates the congested road junctions in Camden as detailed by TfL; the information comes directly from TfL's London Traffic Control Centre. These congested junctions are also illustrated in **Figure 2-6**.



#### Figure 2-4: Congested Road Links





#### Figure 2-5: Congested Road Junctions



Source: Transport for London



The congested road junctions are primarily located within the south sub-area at Holborn, Shaftesbury Avenue, Euston Underpass and Mornington Crescent. Other key areas of road congestion are located at Camden Town in the north east sub-area and Swiss Cottage in the north west sub-area. These congested junctions are also illustrated in **Figure 2-6**.

Some primary roads including Euston Road, Hampstead Road and Finchley Road have a significant severance effect due to heavily trafficked roads with few pedestrian crossings that cater for pedestrian desire lines. These are all roads which suffer from congestion.

Camden's LIP states that 'Camden has been explicit about the aim to reduce levels of motor traffic in the borough for some years.' Camden's *Network Management Plan* details ways in which to optimise the use of existing road space to improve traffic flows. It also outlines measures, including bus priority, urban realm improvements and walking and cycling plans, to encourage a mode shift from car trips to sustainable modes as a further measure. Camden has developed an integrated '*Green Transport Strategy: Taking steps for a people friendly Camden*'<sup>15</sup>. A major theme of this is to reduce dependence on private vehicles and maximise the potential of walking, cycling and public transport as genuine alternatives to the private car.

#### Walking and Cycling

Walking is seen as an increasingly important mode of transport in its own right. Walking relieves pressure on the public transport network, particularly in central London. In the south sub-area, walking from major interchanges, such as Euston Station, helps to relieve overcrowded tube and bus services.

The importance of walk trips over short distances is illustrated by the modal shares detailed in **Table 2-1**, particularly for trips made by Camden residents. The West End, Camden and West Hampstead are locations in Camden that are experiencing a growth in walk trips.

The TfL Legible London project aims to encourage more people to make short journeys on foot rather than by mechanised modes in order to alleviate overcrowding on the underground network. Camden is participating of the Legible London scheme trials. The Camden *LIP* shows investment in schemes to enhance and improve accessibility for pedestrians. Pedestrians, however, are highly susceptible to a range of problems that reduce the amenity of the walking environment, including traffic, poorly located or lack of crossings, narrow, in inconvenient locations and uneven footways and street clutter, which can be compounded by lack of or inadequate signage or wayfinding.

The *Central London Pedestrian Study* (Intelligence Space/Atkins, December 2007) examined pedestrian conditions at 102 key locations and systematically audited these sites against fixed criteria. It is noted that this study only focuses on locations on the TLRN and that it did not include King's Cross. Several of the sites identified as having the

<sup>&</sup>lt;sup>15</sup> *Camden Green Strategy* 2008-2012– (Camden, 2008)



highest priority for improvement are within Camden. The highest priority sites include Camden Town, Euston Underpass, Finchley Road and Camden High Street. Many of the problems identified at these locations arise from high pedestrian volumes in areas with inadequate footways and/or formal crossings and confusing crossings.

There is a comprehensive cycling network in the Camden. The *Camden Cycling Plan* – *Fourth Review* (2008) reports the findings of the borough's bi-annual vehicle and cycle survey. The survey is used to monitor the number of cyclists entering the borough. The Review states that 'between 2007 and 2008 there has been an increase in numbers cycling by 44.6% and the estimated modal share for cycle use is 11.19%. In 2000 cycling only accounted for 2.5% of total traffic use'. Cycling is therefore an increasingly important mode for people travelling in Camden and as an alternative mode.

#### Air Quality

Transport is a major source of carbon dioxide, nitrogen oxide and particulates emissions. Camden has produced an *Air Quality Action Plan* which incorporates a range of measures aimed at reducing nitrogen oxide and particulates emissions from road traffic across the borough. An *Air Quality Action Plan* is required under the Environment Act 1995. Camden has some of the poorest air quality levels in London and the borough is therefore an Air Quality Management area. Camden has a legal obligation to carry out air quality monitoring to determine how well it fares against air quality standards (Camden is not expected to meet the standards across the entire borough within the set timescales). The Plan links to the Community Strategy and takes account of the *Green Transport Strategy*, *Green Travel Plan* and the annual *Walking and Cycling Plan*.

Air pollution is harmful to human health in particular it is related to respiratory and lung diseases (especially in the young and old). The major source of air pollution in Camden is road vehicle emissions.

The range of measures to reduce carbon dioxide, nitrogen oxide and particulates emissions includes the promotion of sustainable travel such as walking and cycling and a reduction of the number of journeys by private vehicles, improvements to Camden's vehicle fleet, encouragement of the use of clean fuels, car free housing, enforcing parking control, traffic management schemes, clear zones, and the uptake of school and work place travel plans. These are outlined in more detail in the draft *Camden Green Transport Strategy*.

#### **Travel Demand Management**

Travel Demand Management is an explicit part of Camden's approach to network management. Camden has taken significant steps through the *Green Transport Strategy* and the *Network Management Plan* to reduce traffic and improve the environment. The draft *Camden Green Transport Strategy* (2008-2012) reports the key achievements of the strategy, which are:

- Camden has one of the highest levels of car club provision in the UK (2006)
- Camden has one of the highest levels of car free housing (2006)



- Total traffic has fallen by an average 23% between 1994 and 2005, which has reduced CO2 emissions by 23% over the same period
- Cycling has increased by 95% between 2001 and 2006
- The number of cyclists killed and seriously injured has decreased by 39% despite the large increase in people cycling.

The document addresses five key themes, namely: promoting travel choice; reducing congestion and emissions; promoting non polluting modes such as walking and cycling; developing public transport; and partnerships and networks. The key transport issues that need to be addressed in relation to the five themes include:

- Promoting Travel Choice:
  - School travel high proportion of trips made by private vehicle
  - Rising levels of adult and child obesity
  - Many stations are congested at peak times so there is a need to promote walking and cycling as an alternative to underground journeys.
- Congestion and Emissions:
  - Pollution levels are above the Government's air quality standards for nitrogen dioxide and particulate matter
  - Vehicle emissions are believed to contribute 13% of total CO2 emissions from Camden.
- Promoting Non Polluting Modes:
  - Need to facilitate travel for those without access to car by promoting cycling and walking; and
  - Traffic dominated environments deter people from walking and cycling; and can sever communities.
- Public Transport Developments:
  - Improve accessibility to transport networks
  - o Improve access to stations for mobility impaired.
- Partnerships and Networks:
  - Enable social inclusion in transport proposals.



#### Summary

The above analysis shows the range of problems and issues across each of the modes operating within Camden. **Figure 2-6** summarises the current transport infrastructure and access issues that have been discussed above.



Figure 2-6: Summary Current Transport capacity and Access Issues in Camden

# **Transport Current Capacity and Access Issues**









### 2.3. Growth Areas

The *London Plan* identifies opportunity areas and areas for intensification, which are a number of locations suitable for large scale redevelopment or significant increases in jobs and homes. Within Camden, there are three opportunity areas identified for growth in jobs and homes located within the Central Activities Zone (CAZ) - King's Cross, Euston and Tottenham Court Road, all of which are located around existing key transport interchanges and currently experience capacity issues.

An area for intensification located within the south sub-area that is also in the CAZ is Holborn. The other area for intensification is West Hampstead Interchange, which is located in the north west sub-area. There is less information available about the areas for intensification compared to the opportunity areas. All these areas are referred to as growth areas in *Camden's Core Strategy Preferred Approach*<sup>16</sup>. Population and employment increase will occur throughout the borough; however, the opportunity areas and to a lesser amount the areas for intensification will be the focus of concentrated high density development.

This section discusses the key transport issues currently experienced in the five growth areas.

#### King's Cross – South Sub-area

King's Cross is the largest development area within Camden. The growth area extends from the London Overground line in the north to Euston Road and the major railway stations of St Pancras and King's Cross in the south. To the east it is largely bounded by York Way and to the west by St Pancras and the main lines from the station. **Table 2-2** details the predicted growth in jobs and employment within this growth area, which are discussed in detail in **Section 2.5**.

<sup>&</sup>lt;sup>16</sup> London Borough of Camden, *Shaping Camden, Camden's Core Strategy Preferred Approach, Consultation Version*, October, 2008.

London Borough of Camden, King's Cross - Towards an Integrated City, October 2001, page 5

		Job	s		
Time Period	Commercial	Retail	Leisure	Total	Population
2006-2010 (Short- term)	0	184	0	184	156
2011-2016 (Short – Medium-term)	7,798	211	318	8,327	2,182
2016-2021 (Medium – Long- term)	7,798	211	318	8,327	1,723
2021-2026 (long- term)	7,798	211	318	8,327	0
Total	23,393	634	954	25,165	4,061

## Table 2-2: Projected Growth in Jobs and Population King's Cross Opportunity Area- 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

King's Cross is located within the CAZ and has excellent public transport accessibility; five underground lines, suburban, national and international train services and numerous bus services. It has the best public transport accessibility in London, which has improved with the completion of the Channel Tunnel Rail Link and will improve further when the First Capital Connect upgrade is finished.

Existing residential communities surround the site. Camden's *Core Strategy Preferred Approach* highlights the need to ensure that the development happens in a way that brings benefits to these surrounding deprived communities.

*King's Cross – Towards an Integrated City* highlights a key objective for the development to be:

'Building on the high existing accessibility of King's Cross Central by ensuring excellent and safe public movement throughout the development, reducing traffic to a minimum, maximising cross-site links and re-defining York Way as an attractive thoroughfare."

Both the UDP and the *King's Cross Opportunity Area Planning & Development Brief* (January 2004) point out that despite the excellent level of public transport accessibility, the public transport network frequently operates at or near capacity. The local road network is also heavily used by traffic and is congested.

The key objectives for the Opportunity Area are outlined in the *Planning & Development Brief* as:

 Improve the public transport interchange and services, including the facilitation of the further improvement of King's Cross Station and St Pancras Station including the CTRL terminus



- Encourage and facilitate, where practicable, further improvements to strategic public transport links including London Underground, buses, First Capital Connect and other overland rail services
- Provide throughout the development high levels of accessibility, facilities and safety for all users of the public transport, pedestrians, cyclists
- Provide good internal connection to ensure accessibility to the Stations from all parts of the Area and Triangle
- Maximise the connectivity and permeability of the Area and the Triangle to surrounding communities and facilities.

Outline planning permission has been granted for the King's Cross Central Argent development and individual schemes are now being built or coming forward for detailed approvals.

#### Euston – South Sub-area

Euston growth area is centred on Euston station and is only a ten minute walk from the King's Cross development. The transport infrastructure provides the area with excellent public transport accessibility but the area is also divided, with Somers Town separated from West Euston and both separated from Bloomsbury by the Euston Road. It is already an area with a significant amount of housing and employment. **Table 2-3** details the predicted growth in jobs and employment within this growth area, which are discussed in detail in section 2.5.

## Table 2-3: Projected Growth in Jobs and Population Euston Opportunity Area -2006 to 2026

		Job	s		
Time Period	Commercial	Retail	Leisure	Total	Population
2006-2010 (Short- term)	0	0	0	0	129
2011-2016 (Short – Medium-term)	0	103	0	103	921
2016-2021 (Medium – Long- term)	2,339	205	95	2,640	2,067
2021-2026 (long- term)	2,339	103	95	2,537	448
Total	4,679	410	191	5,280	3,565

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

Euston station is served by rail, underground and numerous bus routes. The station is a major national and commuter rail terminal. Euston Station handles some 70 million passengers per annum (source: Network Rail website), the majority of whom make journeys to/from the station via London Underground, bus or taxi. It is also located close



to other public transport connections including King's Cross, St Pancras and Euston Square stations.

The draft *Euston: A Framework for Change Supplementary Planning Document*<sup>17</sup> sets a number of key objectives for the area including:

- Creating a new station interchange of the highest possible quality to support the ongoing improvement of national, regional and local rail and related infrastructure
- A new station as a fundamental ingredient of a fully integrated public transport exchange which provides improved connectivity between modes and meets future requirements for easy and convenient movement of users of rail, underground bus, tram, and taxis. If the Cross River Tram (CRT) scheme was to come back or an alternative scheme to CRT progressed this would also need to be integrated.

The public transport networks, as highlighted in the draft framework document, that serve Euston station operate at or close to capacity. In addition the road network is also heavily used by traffic and is congested. This is a similar situation to King's Cross.

The public realm in the Euston area is poor; access to the station is not direct due to the severance effect of the road network and the need to navigate around the bus station and brings pedestrians, due to pedestrian routes not being on desire lines, into conflict with vehicles accessing the station.

Euston station is currently overcrowded due to constraints and has a poor quality environment:

- The main concourse has space constraints which limits passenger capacity;
- Platform widths and stairs/escalators reduce capacity;
- The station and retail functions conflict;
- It has a lack of flexibility to meet modern gateline/access standards;
- Poor concourse legibility and way finding.

As an interchange the connectivity between all modes is poor. This is due to the design of the station building. Also access for pedestrians and cyclists is poor.

The severance effect of the station and Euston Road is significant to movements in the area. The station tracks inhibit east-west movement. Euston Road is a dominating highway with high levels of traffic and convoluted and poor quality pedestrian crossings, which results in poor links and poor environment across it as well as along it.

<sup>&</sup>lt;sup>17</sup> London Borough of Camden, *Euston A Framework for Change – Supplementary Planning Document* (April 2009).



#### Tottenham Court Road – South Sub-area

The Tottenham Court Road growth area is centred on Tottenham Court Road station, which is at the eastern end of Oxford Street and is dominated by retail and entertainment uses, with some office use. **Table 2-4** details the predicted growth in jobs and employment within this growth area, which are discussed in detail in section 2.5.

### Table 2-4: Projected Growth in Jobs and Population Tottenham Court RoadOpportunity Area - 2006 to 2026

Jobs								
Time Period	Commercial	Retail	Leisure	Total	Population			
2006-2010 (Short- term)	702	19	29	749	322			
2011-2016 (Short – Medium-term)	702	19	29	749	439			
2016-2021 (Medium – Long- term)	702	19	29	749	347			
2021-2026 (long- term)	702	19	29	749	0			
Total	2,807	76	114	749	1,107			

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

Tottenham Court Road station is very accessible by public transport and it will be substantially enhanced with the delivery of Crossrail. It is served by Tottenham Court Road station and numerous bus services, but is within walking distances to Holborn, Covent Garden, Goodge Street and Leicester Square stations.

The Tottenham Court Road area is a highly constrained environment for pedestrians and public transport passengers with narrow and constricted footways, often cluttered by street vendors, and roads with poor crossing facilities. It is one of the busiest parts of central London and is home to tourist attractions, retail, bars and theatres. It is also an important location for interchange between buses and the underground and bus to bus.

Despite the good access to different modes, interchange is difficult. However the provision of new transport infrastructure is the opportunity required to improve interchange opportunities.

Pedestrian activity has increased without any increase in footway capacity. For example, the north side of Oxford Street, adjacent to the Tottenham Pub, is a pinch point. The location of the tube entrance/exits on the southern side causes congestion. Consequently, pedestrians spill onto the road to pass each other at all locations in this area.

There is a lack of pedestrian facilities on the east side of Charing Cross Road because of the water feature in front of the Centre Point building. Therefore a lot of pedestrian activity



occurs on the west side although people do still walk alongside the water fountain. There are many impediments to convenient pedestrian movement; very high two way footfall, narrow and non-existent footways and lack of pedestrian crossing facilities.

St Giles Circus has the highest number of pedestrian casualties in the Borough. The poor quality of this environment combined with inadequate way finding means that many people use the underground network to travel to places that are within walking distance such as Leicester Square, Covent Garden and Holborn.

The high amount of pedestrian activity during the day and the night leaves very little time for undertaking servicing activities during quieter periods.

A high number of bus movements including terminating services occur here. The total number of buses negotiating the junction during the day is in the region of 325 buses per hour. The buses emerging onto the St Giles Street junction from Oxford Street are the infamous (described in the *Way to Go!*) services that contribute towards the streets reputation as being a 'red wall' of buses. Buses along with taxis make up the majority of vehicles to/from Oxford Street. It is possible that competing demand for road space as a result of

The area is also an unpleasant area to cycle around. It is difficult to introduce cycle lanes because of the limited road space, complex junctions, heavy traffic and one-way systems. The one-way systems have reduced the quality of the environment and therefore have led to the needs of pedestrians and cyclists being insufficiently provided for.

Tottenham Court Road station, like much of the surrounding area, suffers from congestion throughout the day. **Figure 2-2** illustrates the crowded nature of the underground lines serving the station. It is one of the stations included in Transport for London's congestion relief programme and is currently being enlarged.

#### Holborn – South Sub-area

Holborn is located in the south sub-area and is primarily a commercial area with some residents in the area. It is located close to the Tottenham Court Road growth area. One of the unique attractions of Holborn as a business location is due to its location close to the City and the West End. **Table 2-5** details the predicted growth in jobs and employment within this growth area, which are discussed in detail in section 2.5..

		Job	s		
Time Period	Commercial	Retail	Leisure	Total	Population
2006-2010 (Short- term)	468	13	19	500	500
2011-2016 (Short – Medium-term)	468	13	19	500	500
2016-2021 (Medium – Long- term)	468	13	19	500	500
2021-2026 (long- term)	468	13	19	500	500
Total	1,871	51	76	1,998	1,998

 Table 2-5: Projected Growth in Jobs and Population Holborn Opportunity Area 

 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

Holborn station is served by the Piccadilly and Central lines. A number of bus services also serve the area. The station does not have step free access and is surrounded by poor public realm. Road traffic dominates and severs the links and the environment for pedestrians.

High numbers of pedestrians use the footways and crossings with inadequate widths/capacity for the numbers using the pedestrian crossings particularly at peak times (weekday morning and evening and at lunchtime). Improvements to the pedestrian environment are necessary particularly around Holborn station. Connectivity to the wider area such as Tottenham Court Road and the City is poor and could be much improved physically and through way-finding. This would encourage walking for those unfamiliar with the area.

#### West Hampstead Interchange – North West Sub-area

West Hampstead Interchange is located in the north west sub-area. West Hampstead is a district centre. **Table 2-6** details the predicted growth in jobs and employment within this growth area, which are discussed in detail in **Section 2.5**.



		Job	s		
Time Period	Commercial	Retail	Leisure	Total	Population
2006-2010 (Short- term)	0	4	0	4	4
2011-2016 (Short – Medium-term)	0	4	0	4	4
2016-2021 (Medium – Long- term) 2021-2026 (long- term)	234	4	10	247	247
	234	4	10	247	247
Total	468	16	19	502	502

## Table 2-6: Projected Growth in Jobs and Population West Hampstead OpportunityArea - 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

West Hampstead growth area is highly accessible by public transport with three separate stations, namely: First Capital Connect; London Overground; and London Underground. West End Lane is also served by a number of bus routes. The stations do not have step free access.

Interchange between these transport modes is poor. The stations are not directly linked. The only way of interchanging between these stations is at street level and therefore requires passengers to leave the station, cross the congested West End Lane and navigate several staircases. Interchange between rail and bus is also poor. Footways are not adequate for existing or projected pedestrian flows and routes are severed by traffic.

The ease of interchange is also hindered due to the following constraints:

- Level changes from street to platform
- Limited station concourse capacity
- Narrow width of pavements between stations that result in pedestrian congestions
- Railway lines that act as barriers to pedestrian movement.

Improvement is necessary to facilitate interchange between the three stations and bus services, thereby improving accessibility.

The pedestrian environment is poor around the stations. The number of people using West End Lane to access the stations is a deterrent to easy and attractive access to the shopping centre. Connectivity is poor. West End Lane is not well connected to the Finchley Road centre, which limits choice to access alternative public transport and town centre facilities. Pedestrian links to the south are also limited. West End Lane is narrow and busy with limited crossing points and narrow pavements (in some areas).



### 2.4. Planned Investment

The main providers of transport infrastructure in the borough are Transport for London (including its PPP partner Tubelines) and Network Rail.

The Camden *LIP*, published in March 2006, sets out the transport proposals which support the Mayor's *Transport Strategy*. The LIP identifies proposals to improve accessibility, reduce congestion, improve social inclusion, reduce the amount of traffic, reduce emissions, improve safety and security, improve air quality, reduce noise quality and improve the health and Londoners.

The *LIP* outlines projects to improve accessibility to Camden. It includes accessibility improvements to seven stations (Camden Road, Gospel Oak, Hampstead Heath, West Hampstead, Kentish Town and Maiden Lane). It discusses the importance of bus priority and the need to improve bus journey times. The *LIP* details a number of bus priority schemes and proposes a list of works to make all bus stops accessible. Improvements to pedestrian facilities and pedestrian safety are proposed.

Improving traffic flows is also addressed specifically for buses and taxis. Proposals to improve the public realm are included, including integration with interchange schemes such as Tottenham Court Road. Cycling schemes including LCN+ proposed routes and non-LCN+ initiatives are detailed. **Table 2-7** details the schemes contained in the *LIP* and associated costs to the date of opening. It should be noted that this information is to some degree out of date and that the *Local Development Framework* and new *LIP* will review these projects.



### Table 2-7: Camden Planned Infrastructure Projects

Project	Status	Opening Date	Cost <sup>1</sup>
Bridge Strengthening and Assessment – Camden Town, Kilburn	Proposed	2012	£3,070,000
Principal Road Renewal	Current	2010	£1,302,000
Implementation of Local Plan Corridor Schemes (including pedestrian and cycling improvements, urban design and traffic modelling)	Currently being implemented	2013	£2,647,000
Proposed Local Plan Corridor Schemes (including pedestrian/cycling improvements, public realm reviews, bus issues and traffic modelling)	Proposed	2013	£1,226,000
Local Road Safety Schemes	Proposed	2010	£785,000
20mph Zones Scheme	Current and proposed	2010	£502,000
Bus Stop Accessibility	Proposed	2010	£144,000
Cycling LCN+	Current	2010	£1,789,000
Cycling Non LCN+	Current	2010	£341,000
Walking (Olympics, Bloomsbury improvements, Bayham Street/Plender Street Junction and Euston Road Parallel Walking Corridor)	Current	2011	£459,000
Town Centre Projects – Kentish Town Centre	Current	2010	£907,000
Town Centre Projects – Chalk Farm Town Centre	Current	2010	£1,100,000
Bloomsbury Streets for People Programme	Current	2010	£4,000,000 <sup>3</sup>
Station Access Schemes (Camden Road, Gospel Oak, Hampstead Heath, West Hampstead, Kentish Town West, Maiden Lane <sup>2</sup> )			£1,300,000
Travel Demand Management including school travel plans, workplace travel plans, travel awareness and car clubs	Current	2010	£1,187,000
Local Area Accessibility including Dropped Kerbs, Street Furniture Relocation, Tactile Paving, Signing Improvements	Current	2010	£101,000

<sup>2</sup> Funding total for 2005-2009
 <sup>2</sup> This is dependent on TfL Building new station at this location.

<sup>3</sup> To be significantly supplemented with resources from the private sector. Source: Local Implementation Plan



The *Core Strategy Preferred Approach* highlights the following strategic transport schemes:

- Crossrail
- First Capital Connect
- Cross River Tram
- Tottenham Court Road Station
- Camden Town Station
- King's Cross/St. Pancras Station
- Euston Station
- West Hampstead.

Funding has not been identified for the Camden Town and West Hampstead schemes and will need to be identified in order to address the existing and future demand at these stations. The Euston station scheme would be funded from the intensification of development opportunities on the site.

The development of the Cross River Tram scheme has been stopped due to lack of funding to take the project forward. TfL is considering alternatives to Cross River Tram including recasting the Northern line service patterns to provide more trains per hour to increase capacity by 20%. TfL will involve the boroughs in developing alternatives.

Network Rail is responsible for the national rail network, including the major rail termini, but its spending priorities are set by the Department for Transport and the Office of the Rail Regulator. Transport for London is responsible for strategic roads and buses and manages the underground PPP contracts.

For the purposes of defining infrastructure, the infrastructure projects have been grouped into Network Rail, Transport for London and Camden schemes. The schemes are also grouped by status as either under construction, committed or planned. Committed schemes have completed all statutory processes and have a funding commitment. All schemes considered would increase transport provision in central London, including schemes that would provide additional capacity for travellers into the CAZ.

#### Network Rail

Network Rail forward plans are developed through its Route Utilisation Strategies (RUS) that are specific to each line group or franchise. A RUS covers a ten year period – there are several that are relevant to Camden.

Rail priorities are set by the Department for Transport in its *High Level Output Statement* (HLOS), which are incorporated into the *Network Rail Strategic Business Plan*. The latter currently covers the period 2009 to 2014 and is known as Control Period 4 (CP4). **Table** 



**2-8** summarises Network Rail projects programmed in CP4. Projects beyond CP4 are discussed below but any such schemes are subject to DfT approval and funding.

			Onening	
Project	Description	Status	Date	Cost <sup>1</sup>
First Capital Connect (formerly Thameslink)	Track and station upgrades to 12-car operation and 24 trains per hour in central section	U/C	2011 to 2015	£5.5 billion
CTRL Domestic Services	High speed trains on selected routes from Kent & Medway	U/C	2009	n/a
West Anglia	12-car trains on Cambridge & Stansted services/9-car trains on suburban services	С	2014	£24 million
Thameside	12-car trains	С	2014	£16 million
Great Eastern	Additional 12-car services	С	2014	£5 million
East Coast Main Line	Additional 12-car services on outer suburban commuter services	С	2014	£51 million <sup>2</sup>
Major Stations	King's Cross and Euston	C/P	?	n/a

#### Table 2-8: Network Rail Planned Infrastructure Projects

<sup>1</sup> Costs for 2014 schemes taken from Office of Rail Regulator Periodic Review PR08

<sup>2</sup> Finsbury Park to Alexandra Palace Improvements

Source: Network Rail Strategic Business Plan

U/C – Under Construction, C - Committed

First Capital Connect (formerly Thameslink) is a strategically important project for Network Rail in that it will allow many more stations north and south of London to be connected by direct services. It will also enable significantly more trains to operate between King's Cross/St Pancras (south sub-area) and London Bridge in the peak periods than at present and this should avoid the need for many passengers to interchange to underground services to cross the central area. Additional capacity will be provided by the upgrade to 12 car trains on the line serving West Hampstead and Kentish Town in the north west and north east sub-areas, respectively. It will deliver a significant capacity enhancement to Camden.

Service improvements on the lines into Euston will increase capacity on busy commuter routes through the introduction of longer trains.

Network Rail has a programme of improvements at major rail termini, including King's Cross and Euston stations. In most cases, major improvements are linked to station development masterplans and involve private sector partnerships, such as Euston station.

The period from 2014 is less clear and will depend upon the *Strategic Business Plan* for Control Period 5 (to 2019). The Route Utilisation Strategies (where available) do provide some indication of priorities and possible schemes but it is too early in the scheme



development and funding process to put too much weight on possibilities. However, CP5 is likely to continue the theme of increasing capacity, where possible, on routes into London terminals.

### Transport for London

Transport for London has responsibility for many transport services in London. Transport for London now has powers to let concessions to operate services on the London Overground network, namely the West London, North London and East London lines plus Gospel Oak to Barking and Watford to Euston services. TfL is the sponsor responsible for delivering the Crossrail project and will let the contract to operate services

TfL operates underground stations and trains but rolling stock, track and signalling systems are maintained and upgraded by the Private Public Partnership (PPP) companies that, in effect, make these systems available to London Underground. Payments to the PPP are based on availability and performance. However, the recent demise of Metronet has resulted in its contractual responsibilities being assumed by TfL. The remaining PPP Infraco, Underground Lines, remains responsible for the Jubilee, Northern and Piccadilly lines.

Transport for London rail and underground projects relevant to Camden are summarised in the list of schemes in **Table 2-9** is taken from the *TfL Business Plan* and includes schemes that, in most cases, will be completed by 2018 with costs specified applying only to this date.



Project	Description	Status	Opening Date	Cost
Crossrail	East/West rail link	С	2017	£17 billion
London Overground	Upgrade North London Railway Infrastructure and stations (50% increase in capacity)	U/C	2011	n/a
Jubilee Line	New signalling system to allow 30 trains per hour in peak (25% increase in capacity)	U/C	2009	Unknown*
Victoria Line	Higher frequency and larger trains (19% increase in capacity)	С	2012	Unknown*
Northern Line	Phase 1 signalling system to improve speeds and frequency (20% increase in capacity)	U/C	2012	Unknown *
	Phase 2 separation of Bank and Charing Cross lines at Kennington	Р	2020	Unknown *
Piccadilly Line	New signalling system and trains (25% increase in capacity)	С	2014	Unknown*
Metropolitan Line	New train stock and higher frequency services (49% increase in capacity)	С	2016	Unknown*
Circle and Hammersmith & City Lines	New train stock, longer trains and higher frequency with merged T-cup service (49% increase in capacity)	С	2016	Unknown*
Station Congestion Schemes	Tottenham Court Road (2016)	С		Unknown*
King's Cross Northern Ticket Hall	2010	U/C	2010	n/a

#### Table 2-9: Transport for London Infrastructure Projects

Source: TfL Business Plan

\*The costs of specific line upgrades have yet to be determined but the overall programme is currently estimated to be £30billion

These schemes will provide additional line capacity to the borough, particularly in the south sub-area.

The above table does include one scheme that is post-2018 and that is the separation of the Northern line branches at Kennington, which is currently not committed. This is regarded as a priority by LUL as it would release additional capacity on the Northern line branches through central London, including within Camden. However, the definition of this scheme is still being considered and there are several options for how separation could be achieved. Full separation would also trigger additional station upgrade costs.

Beyond 2018, it is also likely that further consideration will be given to Cross River Tram, which has been stopped due to lack of funding to take the project forward. TfL is considering alternatives to Cross River Tram including recasting the Northern line service patterns to provide more trains per hour to increase capacity by 20%. Other major projects that are ongoing include Cooling the Underground and the increasing roll-out of air conditioned carriages on sub-surface lines.



*Way to Go!* states that Transport for London will do everything in its power to facilitate an increase in the number of people walking in London. This will require the removal of physical or perceived barriers to walking including improving safety and security, the provision of high quality public space the removal of street clutter. A balance will need to be struck between pedestrian accessibility and capacity and traffic flows. Increasing the number of walking trips will reduce the need for some shorter journeys on the underground network and reduce the need to interchange at some key stations.

Continuing programmes to increase the number of cyclists are detailed in *T2025* and include:

- Upgrade and expand the cycle network
- Increase cycle safety, access and priority
- Improve facilities at origin, on route and destination
- Improve education and training
- Promote cycling as part of a healthy lifestyle.

This is promoted by the Mayor in *Way to Go!* and in *The Mayor's Transport Strategy Statement of Intent*. In addition the introduction of the London Cycle Hire Scheme and Cycle Superhighways will further promote cycling. Conflict between cyclists and other road users, including pedestrians will need to be addressed.

### 2.5. Projected Growth

Camden was set a target in the *London Plan* (2008) to build 5,950 additional homes by 2016/17. This is a target that Camden expects to exceed. More specifically, three opportunity areas (King's Cross, Euston and Tottenham Court Road) are identified in the London Plan as areas for growth in jobs and homes within Camden. These opportunity areas are located around existing key transport interchanges and have indicative employment and new home forecasts. The London Plan also highlights areas for intensification namely Holborn and West Hampstead Interchange, which are targeted for an increase in jobs and homes.

Consequently five growth areas have been identified. **Table 2-10** details the projected growth in jobs in these areas.



			Growth Area		
Time Period	King's Cross	Euston	Tottenham Court Rd	Holborn	West Hampstead
2006-2010 (Short- term)	184	-	749	500	4
2011-2016 (Short – Medium-term)	8,327	103	749	500	4
2016-2021 (Medium – Long-term)	8,327	2,640	749	500	247
2021-2026 (long- term)	8,327	2,537	749	500	247
Total	25,165	5,280	2,998	1,998	502

#### Table 2-10: Projected Growth in Camden's Growth Areas- Total Jobs, 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

**Table 2-10** illustrates that all growth areas are projected to have a significant increase in jobs up to 2026. In total, the increase is 36,483, of which King's Cross growth area will contributes the majority (25,165), Euston, Tottenham Court Road and Holborn will have an additional 5,820, 2,998 and 1,998 jobs, respectively by 2026.

King's Cross will not experience any significant growth in the number of people employed in this location until post-2011. Each five year period from 2011 to 2026 will see an evenly distributed growth of 8,327 jobs. King's Cross will therefore experience significant growth in the short to long term.

No growth in the number of people employed in the Euston growth area will occur between 2006-2010. A small increase in workers (103) will occur between 2011 and 2016. Significant growth will occur in the medium to long term from 2016 with just over 2,500 new employees working in the area.

Growth occurs for Tottenham Court Road and Holborn growth area in the short to long term. Tottenham Court Road will experience a consistent level of growth in jobs in the area over all of the five year periods with 749 new employees in each. Holborn has a similar pattern of growth with 500 new employees working in the area for work over each five year growth period.

West Hampstead experiences a negligible increase in jobs up to 2016 at which point a growth of 247 new jobs will occur in each of the two five year periods to 2026. Therefore growth occurs during the medium to long term.

The growth projections for jobs have been broken down into commercial, retail and leisure jobs. **Table 2-11** to **Table 2-15** detail the split between each of the categories for the five growth areas.

Timo	Comm	ercial	Re	etail	Leis	sure	
Period	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Total Jobs
2006-2010 (Short-term)	0	0%	184	100%	0	0%	184
2011-2016 (Short –	7 709	029/	011	20/	210	10/	0 207
Medium- term)	7,790	93%	211	3%	310	4%	0,327
2016-2021 (Medium –	7,798	93%	211	3%	318	4%	8.327
Long-term)	.,	0070		0,0	0.0	.,.	0,027
(long-term)	7,798	93%	211	3%	318	4%	8,327
Total	23,393	93%	817	3%	954	4%	24,981

# Table 2-11: Projected Growth in Jobs King's Cross Opportunity Area- Commercial,Retail and Leisure 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

## Table 2-12: Projected Growth in Jobs Euston Opportunity Area- Commercial, Retail and Leisure 2006 to 2026

	Comm	ercial	Re	etail	Leis	ure	
Time Period	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Total Jobs
2006-2010 (Short-term)	0	0%	0	0%	0	0%	0
2011-2016 (Short – Medium- term)	0	0%	103	100%	0	0%	103
2016-2021 (Medium – Long-term)	2,339	89%	205	8%	95	4%	2,640
2021-2026 (long-term)	2,339	92%	103	4%	95	4%	2,537
Total	4,679	88%	410	8%	191	4%	5,280

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

	Commercial		Re	Retail		Leisure	
Time Period	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Total Jobs
2006-2010 (Short-term) 2011-2016	702	93%	19	3%	29	4%	749
(Short – Medium- term)	702	93%	19	3%	29	4%	749
2016-2021 (Medium – Long-term)	702	93%	19	3%	29	4%	749
2021-2026 (long-term)	702	93%	19	3%	29	4%	749
Total	2,807	93%	76	3%	114	4%	2,998

## Table 2-13 Projected Growth in Jobs Tottenham Court Road Opportunity Area-Commercial, Retail and Leisure 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

## Table 2-14: Projected Growth in Jobs Holborn Opportunity Area- Commercial,Retail and Leisure 2006 to 2026

	Commercial		Retail		Leisure		
Time Period	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Total Jobs
2006-2010 (Short-term) 2011-2016	468	93%	13	3%	19	4%	500
(Short – Medium- term)	468	93%	13	3%	19	4%	500
2016-2021 (Medium – Long-term)	468	93%	13	3%	19	4%	500
2021-2026 (long-term)	468	93%	13	3%	19	4%	500
Total	1,871	93%	51	3%	76	4%	1,998

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.



	Commercial		Retail		Leisure		All Uses
Time Period	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Total Jobs
2006-2010 (Short-term)	0	0%	4	100%	0	0%	4
2011-2016 (Short – Medium- term)	0	0%	4	100%	0	0%	4
2016-2021 (Medium – Long-term)	234	95%	4	2%	10	4%	247
2021-2026 (long-term)	234	95%	4	2%	10	4%	247
Total	468	93%	16	3%	19	4%	502

Table 2-15: Projected Growth in Jobs West Hampstead Opportunity Area-Commercial, Retail and Leisure 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

The growth in jobs in all the growth areas will be predominately office jobs. Consequently there will be a significant increase in inbound trips during the AM peak hours and outbound trips during the PM peak hours as a result of the office employees.

Table 2-16 details the total projected population growth for the five growth areas.

		Growth Area							
Time Period	King's Cross	Euston	Tottenham Court Rd	Holborn	West Hampstead				
2006-2010 (Short- term)	156	129	322	0	25				
2011-2016 (Short – Medium-term) 2016-2021	2,182	921	439	103	675				
(Medium – Long- term)	1,723	2,067	347	0	721				
2021-2026 (long- term)	0	448	0	0	919				
Total	4,061	3,565	1,107	103	2,340				

#### Table 2-16: Projected Growth in Camden's Growth Areas- Population, 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

**Table 2-16** illustrates that all Euston and King's Cross growth areas are projected to have a significant increase in residents up to 2026. By 2026 the King's Cross growth area will experience the highest growth in population (4,061). King's Cross will experience



significant growth in the short to long term, as will Euston. Holborn will experience a small increase in its resident population between 2011-2016 (short to medium term). West Hampstead's population will increase in the short to long term, with a small increase between 2006 and 2010 and more significant numbers thereafter.

The five growth areas will need a transport network capable of catering for journeys in and out of the areas by the additional residents and workers, particularly in the peak periods. This will need to be addressed more particularly in the medium to long term.

Camden's *Core Strategy Preferred Approach* also refers to 'some development at other highly accessible locations, in particular Central London and the town centres of Camden Town, Finchley Road/Swiss Cottage, Kentish Town and Kilburn High Road'. **Table 2-17** details the projected growth in jobs and homes for the rest of the borough; the south, north west and north east sub-areas.

## Table 2-17: Projected Growth in Rest of Camden (Excluding Growth Areas), 2006 to2026

		Jobs		Population			
Time Period	South	North East	North West	South	North East	North West	
2006-2010 (Short-term)	1,810	110	120	3,317	2,882	1,527	
2011-2016 (Short – Modium torm)	1,810	315	120	3,928	1,833	983	
2016-2021 (Medium –	1,810	233	120	2,699	1,493	820	
Long-term) 2021-2026 (long-term)	1,810	130	120	3,025	1,527	779	
Total	7,238	787	479	12,968	7,736	4,109	

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

**Table 2-17** illustrates that the south sub-area will have the highest growth in residents and employment, this is the sub-area with the highest levels of existing public transport accessibility. The north east and north west sub-areas will experience similar levels of growth in jobs. The north east will have a higher number of new homes by 2026 than the north west (not including West Hampstead growth area which falls within the north west).



	Comm	ercial	Re	etail	Leis	sure	All Uses
Time Period	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Total Jobs
2006-2010 (Short-term) 2011-2016	1,717	95%	21	1%	71	4%	1,810
(Short – Medium- term)	1,717	95%	21	1%	71	4%	1,810
2016-2021 (Medium – Long-term)	1,717	95%	21	1%	71	4%	1,810
2021-2026 (long-term)	1,717	95%	21	1%	71	4%	1,810
Total	6,870	95%	64	1%	264	4%	7,238

### Table 2-18: Projected Growth in Jobs Rest of South Sub-area (Excluding Growth Areas)- Commercial, Retail and Leisure 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

## Table 2-19: Projected Growth in Jobs Rest of North East Sub-area (Excluding Growth Areas) - Commercial, Retail and Leisure 2006 to 2026

	Comm	Commercial		Retail		Leisure	
Time Period	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Total Jobs
2006-2010 (Short-term)	95	67%	10	9%	4	4%	110
2011-2016 (Short – Medium- term)	95	30%	215	66%	4	1%	315
2016-2021 (Medium – Long-term)	95	41%	133	57%	4	2%	233
2021-2026 (long-term)	95	73%	31	24%	4	3%	130
Total	382	48%	390	50%	16	2%	787

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.
	Comm	nercial	Re	etail	Leis	sure	All Uses
Time Period	Jobs	% of Total	Jobs	% of Total	Jobs	% of Total	Total Jobs
2006-2010 (Short-term)	95	80%	21	17%	4	3%	120
2011-2016 (Short – Medium- term)	95	80%	21	17%	4	3%	120
2016-2021 (Medium – Long-term)	95	80%	21	17%	4	3%	120
2021-2026 (long-term)	95	80%	21	17%	4	3%	120
Total	382	80%	62	17%	16	3%	479

## Table 2-20: Projected Growth in Jobs Rest of North West Sub-area (Excluding Growth Areas) - Commercial, Retail and Leisure 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

The south sub-area will have a growth that is predominately office trips. Consequently there will be a significant increase in inbound trips during the AM peak hours and outbound trips during the PM peak hours as a result of the growth in office employees. The growth in jobs is evenly distributed between the four time periods from 2006 to 2026.

The north east sub-area has more even distribution between retail and commercial, which will mean that the peak hours are less concentrated. The majority of growth is between 2011 and 2021.

The north west sub-area will also have a growth that is predominately office trips. This is evenly distributed in the short to long term.

An assessment of the number of trips by mode generated in the AM peak three hour for the total number of additional residents and workers that will travel in and out of Camden is detailed for the five growth areas and the three sub-areas (excluding growth areas) in **Table 2-21**. The modal split has been derived from 2001 Journey to Work Census data for Camden as shown in **Table 2-1**.

### Table 2-21: Trip Generation and Modal Split for Total Jobs and Population Growth to 2026

Growth/Sub					Car (driver	Моа	le				
area	Trips	Underground	Rail	Bus	`& passenger)	Taxi	Motorcycle	Cycle	Walk	Other	Total
	Inbound	783	131	305	392	22	44	87	392	22	2,176
King's Cross	Outbound	6,353	5,390	1,925	3,080	0	385	578	1,348	0	19252
	Two Way Trips	7,136	5,521	2,230	3,471	22	429	665	1,739	22	21,427
	Inbound	688	115	267	344	19	38	76	344	19	1910
Euston	Outbound	1,333	1,131	404	646	0	81	131	283	0	4,039
	Two Way Trips	2,020	1245	671	990	19	119	198	626	19	5,949
	Inbound	214	36	83	107	6	12	24	107	6	593
Tottenham Court Boad	Outbound	757	642	229	367	0	46	69	161	0	2,293
Court rioda	Two Way Trips	970	678	312	474	6	58	93	267	6	2,886
	Inbound	20	3	8	10	1	1	2	10	1	55
Holborn	Outbound	505	428	153	245	0	31	46	107	0	1,529
	Two Way Trips	524	431	161	255	1	32	48	117	1	1,584
	Inbound	451	75	176	226	13	25	50	226	13	1,254
West Hampstead	Outbound	127	108	38	61	0	8	12	27	0	384
Hampstead	Two Way Trips	578	183	214	287	13	33	62	253	13	1,638

Growth/Sub-	Mode Car (driver														
area	Trips	Underground	Rail	Bus	& passenger)	Taxi	Motorcycle	Cycle	Walk	Other	Total				
	Inbound	2,501	417	937	1,251	69	139	278	1,251	69	6,948				
South sub-	Outbound	1,827	1,550	554	886	0	111	166	388	0	5,537				
area	Two Way Trips	4,328	1967	1,526	2,137	69	250	444	1,638	69	12,485				
	Inbound	1,492	249	580	746	41	83	166	746	41	4,145				
North east	Outbound	199	169	60	96	0	12	18	42	0	602				
Sub-alea	Two Way Trips	1,691	417	640	842	41	95	184	788	41	4,747				
	Inbound	793	132	308	396	22	44	88	396	22	2202				
North west	Outbound	121	103	37	59	0	7	11	26	0	367				
Sub-area	Two Way Trips	914	235	345	455	22	51	99	422	22	2,568				
	Inbound	6,941	1,157	,2699	3,471	193	386	771	3,471	193	19,282				
Total Borough	Outbound	11,221	9,521	3,400	5,440	0	680	1,020	2,380	0	34,003				
Borough	Two Way Trips	18,162	10,678	6,100	8,911	193	1,066	1,791	5,851	193	53,285				

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation, TEMPRO and Census 2001



**Table 2-21** shows that the King's Cross growth area will generate a total of almost 21,300 trips in and outbound in the AM peak three hour, of which trips undertaken by residents (outbound) comprise the majority (just over 19,100). Trips by rail and underground make up the majority of outbound trips with over 11,600 trips occurring during the AM peak three hour. Over 2,200 additional in and outbound trips will be made on the bus network. An additional 3,500 trips will be made by car (driver and passenger). Almost 2,400 in and outbound additional walk and cycle trips will be generated, of which 72% are walk trips.

Nearly 6,000 additional inbound and outbound trips will be generated by the increase in residents and workers in the Euston growth area during the AM peak three hour, of which nearly 3,300 trips will be made by rail and underground. Almost 1,000 additional in and outbound car (driver and passenger) trips will have been generated by the increase in resident and worker population.

**Table 2-21** shows that the Tottenham Court Road growth area will, by 2026, have experienced an increase of 2,900 in and outbound trips. Rail trips will increase by nearly 1,700 in and outbound movements. Walk trips will increase by just over 600 in and outbound trips during this period.

An additional 1,600 in and outbound trips will be generated by the increase in residents and employees in the Holborn growth area by 2026. Trips made by rail will comprise the majority of new trips (nearly 1,000). Walk and cycle trips will increase by nearly 120 and 50 trips, respectively. An additional 160 trips will be undertaken on the bus network, of which almost 10 will be inbound and 150 will be outbound.

**Table 2-21** shows that of the 1,600 additional trips that will be generated by 2026 in the West Hampstead growth area, 1,200 will be made by workers travelling into the area and 400 will be made by residents travelling outbound. Nearly 800 in and outbound trips will be made on the rail and underground network. Almost 300 car driver and passenger trips will be generated during the AM peak three hour. Just over 250 walk trips and 60 cycle trips will be made primarily by workers travelling into the area.

The rest of Camden (excluding the growth areas) has been split into three sub-areas; south north east and north west sub-areas. The increase in homes and jobs in the south sub-area will generate an additional 12,500 new trips by 2026 of which 7,000 will be made by employees travelling into the area and 5,500 by residents that are undertaking outbound trips. Over 4,300 new trips will be made on the rail network and nearly 2,000 will be made on the underground network. Bus trips will increase by over 1,500 trips. Walk and cycle trips will increase by over 400 and 1,600, respectively.

The north east sub-area will generate nearly 4,800 additional in and outbound new trips by 2026 of which 4,200 will be made by employees travelling into the area and 600 by residents that are undertaking outbound trips. Nearly 1,700 new trips will be made on the rail network and over 400 will be made on the underground network. Bus trips will increase by over 600 trips. Walk and cycle trips will increase by nearly 800 and 200, respectively.



**Table 2-21** shows that the north west sub-area will experience an increase of nearly 2,600 new trips, of which 2,200 are inbound and nearly 400 are outbound during the AM peak three hour. Just over 900 new trips will be made on the rail network and over 200 will be made on the underground network. Bus trips will increase by over 300 in and outbound trips. Walk and cycle trips will increase by over 400 and almost 100 in and outbound trips, respectively.



## 2.6. Assessment of Existing Growth Strategies

#### Introduction

Network Rail, through its *Strategic Business Plan*, and Transport for London, through its *Business Plan*, are both making provision for increased commuter demand on rail and underground routes serving Camden. Both deliver significant increases in capacity in the medium term.

The London underground network will see significant enhancements to its line capacity over the next 10 years. The programme of investment also includes some station congestion relief schemes, which are scheduled for Tottenham Court Road station in Camden. This scheme is necessary to cater for the additional demand that will be generated by the growth in employment and homes that will occur at these locations and are supported by Camden's *Core Strategy Preferred Approach*.

The existing and future capacities on rail and underground lines have been assessed and these are an accurate reflection of programmed improvements to 2014 and 2018 respectively.

In this section, London Undergrounds crowding levels are assessed in relation to planning standards used to assess the limit of acceptable conditions for underground passengers. This equates to four passengers standing per square metre, as illustrated in **Figure 2-8**. Transport for London has assessed crowding on National Rail services on the same basis (**Figure 2-7**) but it should be noted that Network Rail definitions of acceptable crowding levels are lower.

#### Network Rail

Network Rail gives forecasts to 2014 and beyond this an average rate of growth is assumed derived from DfT sources. Underground passenger growth has been profiled based on employment growth – this is a simplification given expected variations by corridor.

The Network Rail investment programme discussed above will deliver higher capacity on rail routes into the main London terminals. **Table 2-22** summarises an assessment of the effects of this programme and projects this forward to 2026. Load factors are given for each station (defined as seats plus standing space divided by 0.45m<sup>2</sup> per passenger on commuter services). Higher load factors equate to busier lines.

Terminl	Demand 2008/9	Existing Capacity	Load Factor (%)	Demand 2013/14	Capacity 2013/14	Load Factor (%)	Demand 2026 <sup>1</sup>	Load Factor (%)
Euston	10,600	14,500	73	12,200	16,900	72	14,600	86
King's Cross	8,000	12,300	65	9,100	14,900	61	10,900	73
St Pancras	13,100	12,800	102	18,800	22,900	82	22,500	98
Total	31,700	39,600	80	40,100	54,700	73	48,000	88

ble 2-22: Load Factors or	n Rail Routes into	London Terminals	located in Camden

Source: Delivering Sustainable Railways - White Paper CM7176, DfT

<sup>1</sup> Assumes 1.5% per annum growth on all routes

The current load factor (2008/9) for Camden terminal stations is 80%, with St Pancras operating above capacity. The overall load factor is projected to rise to 88% based on demand projections but be reduced to 73% in 2014 based on improvements included in the Network Rail Strategic Business Plan, including First Capital Connect. Routes into St Pancras will be operating at 98% by 2026, which will need to be addressed.

Recent evidence given to the GLA Assembly by Transport for London<sup>18</sup> (Cross River Tram, London Assembly Transport Committee, October 2008) included an update of the *T2025* Reference Case rail crowding assessment. The revised assessment for 2026 includes all PPP upgrades, Crossrail and Cross River Tram. Work on the development of the Cross River Tram scheme has been stopped. TfL had undertaken assessments of a wide range of possible routes with input from local borough. Based on this work a technically preferred route for the tram was defined in 2008 for the purpose of costing and defining the business case. The government has not provided the funding to take the project forward and regrettably work has stopped on developing the scheme. As highlighted in the Business Plan, TfL is considering alternatives to Cross River Tram. The rail crowding levels in 2026 are shown in **Figure 2-7**<sup>19</sup>.

<sup>&</sup>lt;sup>18</sup> London Assembly Transport Committee, *Cross River Tram*, October 2008

<sup>&</sup>lt;sup>19</sup> As mentioned in **Section 2.2** it is not possible to consistently compare measures of crowding at stations due to differences in the composition of stations such as platform length, and any problems tend to be isolated to specific areas of facilities, such as gate lines or escalators.





#### Figure 2-7: National Rail Crowding Levels in 2026

Source: Cross River Tram, London Assembly Transport Committee, October 2008

Crowding levels at King's Cross are shown to have been alleviated by First Capital Connect but services into Gospel Oak show increased levels of crowding despite the increased capacity on the North London line.

#### London Underground

Transport for London PPP upgrades, as discussed above, will deliver significant additional capacity on underground lines into Camden. **Table 2-23** summarises load factors by line into Camden. Load factors are based on LUL planning standards and reflect committed line upgrade plans as discussed above. Higher load factors equate to busier lines.



Line (from)	Demand 2007	Existing Capacity	Load Factor (%)	Demand 2018	Capacity 2018	Load Factor (%)	Demand 2026	Load Factor (%)
Northern – High Barnet (North)	11,854	13,720	86	14,119	16,464	86	16,265	82
Northern – Edgware (North)	6,763	13,720	49	8,056	16,464	49	9,280	47
Victoria (North)	21,794	23,240	94	25,959	27,655	94	29,904	108
Piccadilly (East)	14,338	16,368	88	17,078	20,460	83	19,674	96
Central (East)	18,433	23,976	77	21,956	23,976	92	25,293	105
Metropolitan (North)	8,814	14,588	60	10,498	21,736	48	12,094	56
Hammersmith & City (East)	2,633	5,152	51	3,136	7,676	41	3,613	47
Circle (East)	1,534	5,152	30	1,827	7,676	24	2,105	27
Northern - Charing Cross branch(South)	6,839	13,720	50	8,146	16,464	49	9,384	47
Northern –Bank branch (South)	4,757	13,720	35	5,666	16,464	34	6,527	33
Victoria (South)	10,755	23,240	46	12,810	27,656	46	14,757	53
Piccadilly (West)	6,578	16,368	40	7,835	20,460	38	9,026	44
Central (West)	16,447	26,640	62	19,590	26,640	74	22,568	85
Metropolitan (South)	2,230	14,588	15	2,656	21,736	12	3,060	14
Jubilee (North)	9,955	19,488	51	11,858	25,919	46	13,660	53
Hammersmith & City (West)	3,244	5,152	63	3,864	7,676	50	4,451	58
Circle (West)	2,325	5,152	30	1,827	7,676	24	2,105	27
Total	149,293	253,984	59	179,843	312,800	57	204,851	63

## Table 2-23: Load Factors on London Underground Lines into Camden

<sup>¬</sup> No capacity changes assumed post-2018 except for the Northern line. Source: RODS

London Underground services into Camden are currently operating at 59% capacity. The Victoria line from the north is currently operating in excess of 90% of capacity. Some lines



have a significant amount of spare capacity as they enter Camden such as the Circle line in both directions and the Metropolitan line from the south.

Crossrail will provide additional rail capacity into Tottenham Court Road from 2017/18 onwards. In theory, Crossrail will provide a peak hour capacity of 15,000 passengers into Tottenham Court Road (based on provisional capacity of 1,500 passengers per train). However the 10 Crossrail trains in the peak hour will replace existing commuter services. Crossrail will provide relief to London Underground services as much as to National Rail services.

Planned line upgrades to 2018 will increase underground capacity into Camden by 28%. As such the operating load factor into the borough falls by 2% to 57% of capacity. Nevertheless the Victoria line from the north and Central line from the east will operate in excess of 90%.

In 2026 all London Underground lines, with the exception of the Victoria line from the north, the Central line from the east and the Piccadilly line from the east, are shown to be operating well within capacity in 2026.

Rail and underground upgrades will provide most of the increase in public transport capacity to 2026. The forward investment programme will therefore start to provide much needed capacity improvements. However, there will still be high levels of crowding on some commuter routes and station congestion. Camden's *Core Strategy Preferred Approach* also supports the transport infrastructure improvements at Tottenham Court Road and King's Cross stations, but also supports improvements to underground stations, including access to/from them and their surrounding environment.

Catering for the onward movement of people from Camden's mainline termini and key stations such as those served by First Capital Connect and Tottenham Court Road and Euston is important. The increased number of passengers travelling into these stations will in turn increase demand on the underground, bus, and street networks connecting into these stations as these passengers continue their onward journey. The knock on effect can be significant. Promoting walking rather than onward movement by underground or bus will be crucial to reducing congestion on these modes during peak hours. This will require investment in public realm and way finding.

Recent evidence given to the GLA Assembly by Transport for London<sup>20</sup> (Cross River Tram, London Assembly Transport Committee, October 2008) included an update of the *T2025* Reference Case rail crowding assessment. The revised assessment for 2026 includes all PPP upgrades, Crossrail and Cross River Tram. Work on the development of the Cross River Tram scheme has been stopped. TfL had undertaken assessments of a wide range of possible routes with input from local borough. Based on this work a technically preferred route for the tram was defined in 2008 for the purpose of costing and defining the business case. The government has not provided the funding to take the project forward and regrettably work has stopped on developing the scheme. As highlighted in the

<sup>&</sup>lt;sup>20</sup> London Assembly Transport Committee, *Cross River Tram*, October 2008



Business Plan, TfL is considering alternatives to Cross River Tram. **Figure 2-8** shows projected crowding levels on the underground network.



Figure 2-8: London Underground Crowding Levels in 2026

Source: Cross River Tram, London Assembly Transport Committee, October 2008

**Figure 2-8** shows only a marginal worsening of conditions compared with the base (2006) situation shown in **Figure 2-2**<sup>21</sup>. Crossrail, in particular, has helped to alleviate some of the crowding on east/west links. Substantial improvements will have therefore been made to the underground network, which will significantly improve overcrowding. The omission of Cross River Tram is expected to increase crowding levels on the Victoria, Northern and Piccadilly lines within the central area, including Camden by about 5%. This will need addressing through the consideration of a replacement scheme(s) such as bus network enhancements to ease congestion on these lines.

<sup>&</sup>lt;sup>21</sup> Please see **Footnote 19**.



#### Bus and Tram

Bus trips into central London and therefore Camden have increased markedly in recent years. *T2025* is projecting a further increase in bus patronage. In general terms increase in bus use has been addressed by increasing frequencies, particularly on key bus corridors where services are heavily used. In some cases additional capacity has been provided by higher capacity vehicles such as articulated buses on routes such as the 29.

Transport for London expects to operate an additional 8% bus kilometres by 2018 but it is projecting a 40% increase in patronage by 2026. A more efficient distribution of bus capacity is sought but there is no easy answer to this problem given the difficulties inherent in changing the bus network. A strategic review of bus services in London is commencing in Spring 2009 and only after this has been reported will it be possible to gauge the extent to which current investment plans are adequate.

The stopping of work on the development of Cross River Tram removes the only tram/transit project serving the Camden from Transport for London's investment programme. It is unlikely in the short term, with current financial constraints, that any proposals will now come forward before 2018. TfL will work with the boroughs to identify alternative proposals.

Bus priority and bus stop accessibility projects continue to be provided for within Camden's *LIP/LDF*.

#### Highways and Cycling

There are no plans for major new highways in Camden. Transport for London's emphasis is now firmly on traffic management to improve capacity. TfL are looking at the potential to increase capacity through changes in signalling and other measures under the banner of smoothing traffic flows. In this light, schemes such as Parliament Square that could have potentially reduced highway capacity have been shelved. This will facilitate the movement of freight as well as private vehicles. *Camden's Green Transport Strategy* (2008-2012) continues to look to deliver a reduction in the impact of traffic on the environment and as such promotes policies that have and will continue to reduce car use and increase cycling and sustainable modes of transport.

The London Cycle Network (LCN+) within Camden continues to be a project contained within the *LIP*. In addition Camden will look to provide additional cycle parking within the borough both through Council initiatives and through private development.

*Camden's Core Strategy Preferred Approach* CS7 is to reduce the environmental impact of travel. Sustainable transport such as walking and cycling reduces carbon emissions for vehicles. Public transport does have a role to play in the reduction of carbon emissions as do electric cars and car clubs. Camden will look to:

- Reduce the need to travel
- Promote walking and cycling and the use of public transport



- Promote the use of car clubs
- Limit the amount of private parking in the borough.

### 2.7. Infrastructure Provision Needs arising from Growth

As employment levels and the number of residents increase in Camden travel demand is projected to increase significantly.

To meet these growth projections various transport measures are required in order to provide the necessary infrastructure to facilitate the movement of people and goods to and from the area.

#### King's Cross – South Sub-area

Figure 2-9 Projected Growth in Jobs and Population King's Cross Growth Area 2006 to 2026



Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

**Figure 2-9** illustrates the growth projections for the King's Cross growth area discussed previously. King's Cross will be the focus of a high level of increase in residents and workers (predominantly office workers). By 2026 the projected growth in population will reach 4,061. In terms of employment there will be an increase of 24,981 workers of which 23,393 are office employees, 634 are retail employees and 954 are leisure employees.

From 2011 to 2026 each five year period will see an evenly distributed growth of 8,327 jobs. King's Cross will therefore experience significant growth in the short to long term.



The population increase occurs between 2006 and 2021, which is also in the short to long term.

The large increase in the numbers of people projected to work and live in the King's Cross area will result in a large increase in trips in and outbound during the AM and PM peaks. This will place significant additional pressure on the transport network that currently serves the King's Cross growth area. Additional line capacity will be provided by the various transport schemes on the underground and rail network that serve King's Cross. This should cater for the additional demand generated by the new development over this period.

The movement of people to and from the rail, underground stations and bus services is not adequately catered for at present. This daily ingress and egress of people will place significant additional pressure on the station concourses, bus services, pedestrian facilities such as footways and crossings and taxi facilities.

Consequently it will be necessary to improve and enhance the transport infrastructure supporting the King's Cross growth area. This will include:

- Improving and promoting pedestrian and cycle facilities will increase walk and cycle trips to and from the area and thereby reduce the number of trips on the underground network;
- Provide additional secure cycle parking in convenient locations that do not hinder pedestrian flows;
- Improve the width and quality of footways to cater for the additional pedestrian flows;
- Improve the public realm around the station
- Improve connectivity with the surrounding area for pedestrians and cyclists, including the improvement of pedestrian/cycle crossing points, however traffic flows must be maintained. This includes reducing the severance effect of the Euston Road
- Wayfinding
- Improve the pedestrian environment given that pedestrians are adjacent to a traffic dominated corridor
- Better integrate taxi facilities with transport hub
- Improve interchange between bus services although may only be possible by wayfinding
- Where parking is provided 20% should include electric charging points and also include car club spaces



These improvements need to be prioritised in line with the large increase in the number of residents and workers that is due to occur after 2011, as illustrated in Figure **2-9**.

Additional measures required for the King's' Cross growth area, as outlined in the planning brief<sup>22</sup> are:

- Improvements to the interchange to better integrate all public transport modes and taxis and to integrate them with the new development to the north
- Enhance the bus service provision to the area with additional services, diversion or extension of existing services
- Provision of a new railway station on the North London line at Maiden Lane adjacent to York Way
- Potential water transport services along Regent's Canal

#### Euston – South Sub-area

## Figure 2-10 Projected Growth in Jobs and Population Euston Growth Area 2006 to 2026



*Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.* 

<sup>&</sup>lt;sup>22</sup> London Borough of Camden and London Borough of Islington, *Kings Cross Opportunity Area Planning & Development brief,* January 2004



**Figure 2-9** shows the growth projections for Euston growth area discussed previously. Commercial jobs and population growth comprise the majority of growth and increase significantly from 2016.

Measures to improve the transport infrastructure for Euston are currently required. The additional growth in jobs and population will place additional pressure on the network and facilities.

Improvements to Euston are important not least because the existing gaps in provision will be exacerbated by the projected growth of resident and worker populations, but also because of the planned increases in line capacity on the underground and rail networks serving the station, which will impact station capacity and will significantly increase the number of onward trips from the station by bus, taxi or on foot.

It is necessary to address the following:

- Increases in passenger demand and movement throughout Euston station that arise as a result of new infrastructure including improvements to mainline rails services, underground and CTRL and increases in the local population
- Improve pedestrian and cycle links into the station and the surrounding area these need to fit with the provision of bus terminating facilities within the station area
- In general needs to be much more pedestrian friendly/focussed environment
- Provision of link improvements between Euston and Euston Square stations to facilitate better interchange
- Provision of east-west links between King's Cross, St Pancras and Euston stations including integration with surrounding areas
- Increase in demand for complementary transport modes for people's onward journeys
- Improve provision of bus operations and services
- Reduce severance effect of Euston Road, which could be achieved to an extent by improving crossings on Euston Road
- Incorporation of sustainable transport such as car clubs and cycle parking
- Provision of high quality spaces that provide attractive, inclusive and safe pedestrian/cycle and public transport access, which will improve connectivity in the area and facilitate more effective interchange and make the public realm more legible
- Wayfinding



Network Rail has plans to redevelop Euston station to resolve the overcrowding problems and improve the quality of the environment and to provide a station that is fit to meet future needs. This is particularly prudent for the future ability of the station to operate because planned line upgrades will increase the length of trains into the station and increase the number of passengers. The West Coast Mainline upgrade strategy will double trains into Euston and increase passengers by 70%. Also NWR and London Rail are expecting to operate longer trains into Euston. Network Rail has therefore entered into a partnership with British Land in order to achieve this.

The framework document<sup>23</sup>, for Euston station addresses the need for station redesign. Key objectives for the redevelopment of the station are:

- To provide a new station of the highest quality that will meet the operational requirements for forecast growth
- A legible transport interchange of the highest quality which blends well with the townscape and facilities interchange between different modes of transport and particularly public transport and pedestrian and cyclists
- Extensive and improved permeability across the station site and improved connectivity with the surrounding areas including St Pancras.

<sup>&</sup>lt;sup>23</sup> London Borough of Camden, *Euston: A Framework for Change – Supplementary Planning Document*, not yet published



#### Tottenham Court Road – South Sub-area



Figure 2-11 Projected Growth in Jobs and Population Tottenham Court Road Growth Area 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

**Figure 2-11** shows the growth projections for Tottenham Court Road growth area that have been discussed previously. Commercial jobs and population growth comprise the majority of growth and increase significantly from 2006. This intensification of commerce and increase in resident population will increase AM and PM peak flows in and out of the station and will therefore result in further congestion.

The delivery of Crossrail will increase the daily number of passengers using Tottenham Court Road station by 33% from 150,000 to 200,000. This will increase the number of interchange movements made within the station as well as the number of passengers that will interchange to bus services. Importantly it will also increase the number of onward pedestrian movements from the station as people chose to walk rather than interchange to another mode to reach their destination.

Camden has been working with TfL on design and modelling of a major intervention in the area; reintroducing two way working in the corridor. Work to date suggests that journey times can be improved for both buses and general traffic, whilst releasing space for public realm improvements at St Giles Circus to cope with the predicted increase in pedestrians to and from Tottenham Court Road Station.



The Tottenham Court Road growth area will require:

- The provision of public transport improvements to meet the long term needs of the area, including accommodation of Crossrail and associated station upgrades
- Improvements to facilitate interchange between modes
- Improvements to the pedestrian network so that it is continuous, connected well designed and signed
- Improve connectivity and permeability with the new developments that are planned such as Centre Point
- Provide increase levels of cycle parking. This should be provided where it doesn't impede pedestrian flows
- Widen footways to cater for intensification of use
- Improve wayfinding to cater for visitors and increased walk trips
- Investigate opportunities for new pedestrian routes such as Bucknall Street and the northern edge of Princes Circus to improve links to Tottenham Court Road Station
- New cycle routes with sensible desire lines
- Servicing for new developments to be provided off-street for commercial uses
- Restore two way working to calm traffic and give streets a more local feel and consider options to reduce through traffic, including Tottenham Court Road
- Public realm improvements to transform the area into an attractive, safe and vibrant place the public realm opportunities include the crossroads around Tottenham Court Road Station, land around Centre Point, Princes Circus, St Giles High Street and St Giles Church.
- Enhance public spaces by:
  - o Reorganising traffic circulation around Princes Circus
  - Full or partial closure of Andrew Borde Street
  - Narrowing St Giles High Street.



#### Holborn – South Sub-area



Figure 2-12 Projected Growth in Jobs and Population Holborn Growth Area 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

**Figure 2-12** shows the growth projections for the Holborn growth area that have been discussed previously. Commercial jobs and population growth comprise the majority of growth and increase significantly from 2006. This intensification of commerce in the area will increase the heavy station outflow in the AM and inflow in the PM peaks and will therefore result in further congestion. The crossing points outside the station are few and already congested.

The delivery of Crossrail will increase passenger numbers at Holborn station in a similar way to the increase projected for Tottenham Court Road station. Holborn station will experience a decrease in the number of passengers on the east-west lines and an increase in the number of interchange movements made within the station. There will also be a resultant increase in the number of passengers that will interchange onto local bus services. Significantly it will also increase the amount of onward pedestrian movements made from the station as people chose to walk rather than interchange to another mode to reach their destination.

Holborn is therefore a key concern and will require:

- Improvements to the street environments
- Address on street pinch points such as the flower stalls outside the station



- Improve crossing points so that the cater for the peak flows
- Provide more direct crossing points
- Improvements to the pedestrian environment around Holborn Station
- Public realm improvements to reduce the traffic dominated feel of the area around the station and to transform the area into an attractive, safe and vibrant place
- Reduce congestion
- Wayfinding
- Improved connections with the Tottenham Court Road area and City.
- Improve cycle routes
- Provide increase levels of cycle parking and facilities

#### West Hampstead – North West Sub-area





Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

Figure 2-13 shows the growth projections for the West Hampstead growth area that have been discussed previously. Population growth comprises the majority of growth and



increase significantly from 2011. There is also an increase in the level of commerce provided in the area. Consequently there will be an increase in outbound AM peak and inbound PM peak hour flows at the stations.

First Capital Connect will provide additional capacity and frequency to West Hampstead station.

West Hampstead will require:

- Improvements to pedestrian links and facilities including more crossing points
- Reduce conflict between pedestrians and vehicles
- Improvements to the pedestrian environment and routes
- Additional capacity
- Improvements to the interchange between the stations and between the stations and buses
- Provide a safe and comfortable environment that feels secure
- Wayfinding
- Increase level of cycle parking and improve cycle facilities.

#### Rest of Camden (Excluding Growth Areas)

The highest number of new homes and jobs outside of the growth areas are within the south sub-area, which is the area with the highest levels of public transport accessibility, but also the area with higher levels of congestion on rail and underground lines. **Figure 2-14** shows the growth projections for the rest of the south sub-area excluding growth areas that have been discussed previously.





## Figure 2-14 Projected Growth in Jobs and Population South Sub-area excluding Growth Areas 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

The south sub-area is projected to experience high levels of growth in resident and commercial jobs from 2006.

The additional homes and jobs that will occur in this section of the borough will require the provision of sufficient station capacity, rail and underground line capacity, key links and capacity on bus services. Line capacity enhancements are being provided on the rail and underground networks. The impact on the bus network will need to be catered for through the provision of additional capacity.

Euston station has been identified as a station in need of congestion relief.

Enhancements to pedestrian facilities and links will be necessary to ensure that additional footfall, particularly around stations are catered for. The focus of intervention will be at King's Cross, Holborn, Euston and Tottenham Court Road in the south sub-area due to the concentration of growth and the transport infrastructure needs this generates.

It will be necessary to reduce road link and junction congestion to ensure the movement of goods and people, particularly on Euston Road and on the roads to the south of Euston Road. Enhancements to pedestrian and cycle routes and facilities will also be required, including improved pedestrian crossings and the provision of additional cycle parking. Improvements to public realm and way finding will also be necessary to promote and facilitate walking.



**Figure 2-15** and **Figure 2-16** illustrate the projected growth in jobs and population in the north east and north west sub-areas, respectively.

Figure 2-15 Projected Growth in Jobs and Population North East Sub-area excluding Growth Areas 2006 to 2026



Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.





Figure 2-16 Projected Growth in Jobs and Population North West Sub-area excluding Growth Areas 2006 to 2026

Source: URS calculations based on joint analysis by London Borough of Camden and URS Corporation.

The north east and north west sub regions are projected to increase the number of new homes by 3,368 and 1,789 respectively from 2006. These numbers are higher than the total number of new homes in each of the growth areas. These are likely to be concentrated to a certain extent at the accessible town centres of Camden Town and Kentish Town in the north east and Finchley Road/Swiss Cottage and Kilburn High Road in the north west. Camden's *draft Core Strategy* points out that 'The Borough believes that the most appropriate way to manage future growth in Camden is to concentrate most development in areas with significant redevelopment opportunities at or near transport hubs, with growth at other accessible locations.' This enables the Borough to shape places by promoting an integrated approach to development and therefore ensure that the transport infrastructure is better integrated.

The importance of providing sufficient line and station capacity is important. Line capacity is being addressed by underground and rail schemes. Station capacity, particularly at Camden Town is yet to be resolved. Improvements to the public realm in theses areas will be vital to ensure that access to these stations is provided and to ensure that a high level of connectivity locally is provided to facilitate walk and cycle trips. Wayfinding will also be vital in improving legibility for pedestrians, however Legible London is likely to be focused in the south sub-area. Nevertheless Camden Town and Swiss Cottage would benefit greatly from comprehensive wayfinding.

Bus services throughout the north of the borough will require additional capacity to cater for the increase in bus trips that will occur as a result of the projected growth. Particularly



to key local amenities, town centres and transport stations/interchanges. Camden Town would benefit from improved bus interchange.

Camden Town, Kentish Town and Swiss Cottage all have a pedestrian environment that is adjacent to traffic dominated corridors and would benefit from enhancing the pedestrian environment and improving connectivity through more crossings

Camden, Swiss Cottage and Kentish Town all suffer from road link and junction congestion, which would also need to be addressed in conjunction with pedestrian and cycle improvements.

Improvements to cycle facilities will also be necessary. In general the borough would benefit from continuing to link the gaps in the existing and planned cycle network.

Town centre schemes – Kilburn High Road and Camden Town – integrate retail – more pedestrian friendly to make connectivity on linear shopping streets

Stations that are a priority for station congestion schemes are:

- North East Camden Town, Camden Road, Gospel Oak and Hampstead Heath
- North West West Hampstead and Kilburn High Road
- Stations that require public realm improvements in the north east and north west sub-areas are:
- North East Camden Town and Camden Road, Gospel Oak and Kentish Town
- North West West Hampstead, Finchley Road, Swiss Cottage and Kilburn High Road

#### Borough Wide

Step free access should be provided at stations throughout the borough.

Travel demand management will need to continue to play an integral part of the transport strategy for the borough through the *Green Transport Strategy* and the documents that support it such as the *Network Management Plan* and the *Camden Cycling Plan*. Camden will continue to:

- Implement Camden's Travel Plan
- Promote School Travel Plans
- Reduce the impact of new developments through car free/car capped housing, travel plans, construction management plans and servicing management plans and cycle parking
- Promote the use of car clubs
- Promote travel awareness



- Promote cycling and walking including the implementation of Legible London and improving links and providing cycle stations
- Continue to improve public transport within Camden.

Sub regional transport studies are being taken forward, led and funded by TfL. These studies address predicted demand on public transport networks (rail and tube) and on the highway network. Camden is part of two of these studies, namely the North and the Central London studies. The outcome of these cross borough studies (expected in Summer 2010) will provide an evidence base for the prioritisation of projects and the sub-regional transport plans. Camden's LIP2 will take account of these emerging regional transport plans.



## 3. CONCLUSIONS

### 3.1. Transport Infrastructure Requirements

**Table 3-1** summarises the transport infrastructure requirements for Camden up to 2026.

Before going on to the table, key conclusions are summarised below in respect of the types of transport, as well as transport-related issues, covered by this report.

#### London Underground and National Rail

Over 28,700 additional in and outbound trips will be made on the rail and underground network by 2026 as a result of new jobs and homes in the borough, of which 18,100 are on the underground and 10,600 on the rail network.

The infrastructure investment programme for the rail and underground network serving Camden should cater for the increase in demand that will result from housing and employment growth.

These line upgrades, however, will require an increase in station capacity on the network. Tottenham Court Road is the only station in Camden that is programmed for improvement due to the improvements necessary for Crossrail. Improvements to King's Cross will be completed in 2010. The underground stations requiring station congestion schemes are Holborn and Euston in the south sub-area and Camden Town in the north east sub-area.

The increased number of passengers travelling into Camden's mainline termini will in turn increase demand on the underground, bus, and street networks connecting into King's Cross, St Pancras and Euston stations as these passengers continue their onward journey. It is possible that these additional numbers could negate planned improvements. Consequently catering for the onward movement of people from Camden's mainline termini and key stations such as those served by First Capital Connect and Tottenham Court Road and Euston is important. Promoting walking rather than onward movement by underground or bus will be crucial to reducing congestion on these modes during peak hours. This will require investment in public realm and way finding.

Station interchange schemes that are of priority for progression are Euston, Holborn and Warren Street in the south sub-area, Camden Town, Camden Road, Hampstead Heath and Gospel Oak in the north east sub-area and West Hampstead in the north west sub-area.

Underground and rail stations will require step free access by 2026. The underground stations in each sub-area are:

- South sub-area Tottenham Court Road (planned) Holborn, Russell Square, Goodge Street, Warren Street, Euston Square, Euston and Mornington Crescent
- North east sub-area Camden Town, Chalk Farm and Belsize Park



• North west sub-area – Swiss Cottage, Finchley Road, Hampstead and West Hampstead

The rail stations that require step free access in each sub-area are:

- South sub-area Euston
- North east sub-area Camden Road, Kentish Town, Kentish Town West, Gospel Oak and Hampstead Heath
- North west sub-area Finchley Road & Frognal, South Hampstead, Kilburn High Road and West Hampstead

The rail and underground stations that require priority public realm improvements are:

- South sub-area King's Cross, Euston, Holborn, Tottenham Court Road, Euston Square
- North East sub-area Camden Town, Camden Road and Gospel Oak
- North West sub-area Swiss Cottage, Finchley Road, Kilburn High Road and West Hampstead.

#### **Bus Services**

Bus patronage is projected to increase by 40% in London and by a broadly comparable amount in central London and therefore Camden, yet London Buses expects bus kilometres operated to increase by only 8% to 2018. *Way to Go!* proposes a fresh look at bus services and Transport for London has already commenced a review of how it procures bus services. It is expected that this will herald a more comprehensive strategic review of bus services.

Service enhancements will be required borough wide, particularly in the growth areas. King's Cross in particular will generate an additional 2,216 bus trips in the AM peak three hour, of which 305 are inbound and 1911 are outbound. Assuming a double deck bus has a planning capacity of 70 passengers the increase in demand equates to an additional 3 buses per hour inbound and 16 buses per hour outbound in the peak hour

#### Walking and Cycling

*Camden's Core Strategy Preferred Approach* requires that a higher level of priority needs to be given to the pedestrian environment and the public realm. This is particularly appropriate for areas that have high numbers of pedestrian movements such as Holborn and Tottenham Court Road. Initiatives brought forward by the Council within the *LIP* to improve accessibility for pedestrians and London wide schemes such as Legible London should encourage higher numbers of walking in Camden.

Higher levels of cycling are likely given Council and TfL promotion and investment in the LCN+, cycle parking, cycle hire and cycle super highway schemes. The *Camden Cycling Plan* implements and monitors measures to increase the number of cyclists.



Camden currently has a comprehensive cycle network and is recognised as a borough that has made significant improvements to the cycle network and facilities provided within the borough. As a result the cycle modal share has increased in Camden. Any gaps in the LCN+ and Non LCN+ should continue to be plugged. Additional cycle parking should be provided throughout the borough. In particular the growth areas (King's Cross, Euston, Tottenham Court Road, Holborn and West Hampstead) will require additional cycle parking that should be located throughout the areas without reducing pedestrian capacity.

Increases in the number of walk trips through additional demand generated by the growth in jobs and homes and the number of walk trips that will occur as a result of a shift in the number of shorter distance trips made on the rail and underground network and the in the borough, in particular in the growth areas.

Increasing the walk and cycle modal share within Camden is important as it results in a reduction in the number of journeys made by private vehicles and therefore is beneficial to air quality.

An increase in walking and cycling trips should reduce shorter distance trips on buses and on the underground. For example destinations such as Covent Garden can be easily reached on foot from Holborn rather than using the underground. These walk trips can be encouraged by way finding through the implementation of Legible London. Increases in pedestrians and cycles, compete for capacity with vehicles. This will need addressing, particularly in areas that are already congested such as Tottenham Court Road.

Increased pedestrian capacity and improvements to the pedestrian environment including way-finding will be necessary to cater for this increasingly important mode. This is particularly important around stations where there is a significant amount of onward movement of people such as at King's Cross, Euston, Holborn and Tottenham Court Road, West Hampstead Interchange and Camden Town. This is a priority in the short term. Additional locations where improvements to the pedestrian environment including capacity enhancements, improvements to footways and provision of appropriate crossings on pedestrian desire lines are Euston Underpass in the South sub-area, Camden Town and Camden High Street in the North East sub-area and Finchley Road in the North West sub-area. Reducing the severance effect of traffic dominated roads at Camden Town, Kentish Town, Euston, King's Cross and Swiss Cottage by improving the pedestrian environment and improving connectivity through the provision of more crossings.

#### Road Network

Delays caused by congestion and road works affect private vehicles, freight and buses. The Mayor has announced a blitz on road works but the reality is that the replacement of life-expired utilities will continue for many years.

The Congestion Charging Scheme has reduced the number of vehicles entering the zone by 16% compared with 2002 levels, but still about 380,000 vehicles per day enter during the hours of charging. Of the vehicles (excluding pedal cycles) circulating within the zone, less than 63% are potentially chargeable (as measured by vehicle kilometres driven). The



congestion benefits of the charging zone have been largely negated in recent years by road works and many highway routes within the zone are seriously congested. There are no plans for significant infrastructure investment within Camden's boundaries or along routes leading to Camden within central London, but Transport for London makes a significant financial commitment to traffic management improvements, new signal systems (SCOOT) and real-time monitoring. The Mayor has announced a programme of re-timing traffic signals to increase capacity but this will take several years to complete.

The current strategy based on high-tech traffic management solutions and focusing on blackspots is the correct approach. However, the impact upon pedestrian flows needs to be considered.

The road links that require congestion relief are:

- South sub-area Euston Road and the roads to the south and Mornington Crescent
- North East sub-area Camden Town
- North West sub-area Finchley Road

The road junctions that require congestion relief are:

- South sub-area Holborn, Shaftesbury Avenue, Euston Underpass and Mornington Crescent
- North East sub-area Camden Town
- North West sub-area Swiss Cottage

The introduction of more electric car charging points will occur throughout the borough.

#### Travel Demand Management

Travel demand management will need to continue to play an integral part on the transport strategy for the borough through the *Green Transport Strategy* and the documents that support it such as the *Network Management Plan* and the *Camden Cycling Plan*.

#### Air Quality

Air quality will need to continue to be high on the agenda and will therefore be addressed by Camden's *Air Quality Action Plan* which incorporates a range of measures aimed at reducing nitrogen oxide and particulates from road traffic across the borough. The plan links to the LDF and other documents such as the *Green Transport Strategy*, *Green Travel Plan* and the *Walking and Cycling Plan*.

#### 3.2. Summary

The current investment plans to 2018, which include LUL upgrades and Crossrail clearly add significant additional public transport capacity but leave several residual problems or



issues. Post-2018, further capacity increases will be required but, at present, no firm proposals exist. The main infrastructure needs identified by this analysis, which are not planned commitments, but which are considered by the consultants to be of most importance for investment are as follows:

- Extension of LUL station congestion relief programme and improvements to the station environs and access to the stations, particularly Camden Town, West Hampstead, Holborn and Swiss Cottage
- Strategic review of bus services to redistribute capacity and to compensate for the Cross River Tram scheme not being progressed further
- Interchange improvements at stations, particularly Euston, West Hampstead, Camden Town and Gospel Oak
- More targeted traffic management measures to alleviate congestion hotspots, particularly Euston Road, Swiss Cottage and Camden High Street
- Crossrail 2 (aka Chelsea to Hackney) line, which would provide an additional rail line into Tottenham Court Road and King's Cross St Pancras
- Public realm improvements at locations identified in Central London Pedestrian Study and other key locations and enhancement to pedestrian facilities to promote walking and to ensure that the needs of vulnerable people and people with disabilities are catered for
- Public realm improvements at rail and underground stations including King's Cross, Euston, Holborn, Tottenham Court Road and West Hampstead
- More positive measures to assist cyclists, including priority measures, cycle hire schemes and parking
- Travel demand management
- Air quality monitors and improvements
- Introduction of Legible London particularly in the South sub-area and Camden Town.

**Table 3-1** and **Figure 3-1** below summarise the infrastructure requirements for each type of infrastructure covered by this report that are considered to be required to support the growth in population that is set to occur in accordance with the spatial vision in the Core Strategy.

Within **Table 3-1** a grey background has been used to indicate those types of infrastructure where Camden Council or other providers had already completed comprehensive work to look at infrastructure needs, and where the infrastructure requirement specified is a result of that work rather than a result of work completed by URS for this commission.



In **Table 3-1** the recommended level of importance (1-2) ascribed to each infrastructure scheme sets out for the Council how critical we consider the infrastructure item or the action to be to ensure delivery of development in Camden (including that which rectifies current infrastructure deficiencies). Items labelled as '1' are regarded as critically important or definitely required over the plan period. The infrastructure items of critical importance are those that are definitely required over the plan period so as to enable anticipated development to take place. Without adequate provision of these items there is a major risk that residential and commercial growth cannot continue beyond certain thresholds.

Items labelled as '2' are significant and highly desirable but are not critical. The items listed below are those that will certainly be required if development is to take place sustainably. However, lack of provision of these items is less likely to prevent development taking place in the short term (but which may become crucial at a later stage). Provision might be successfully made at a later stage in the development process. The requirement for some of the items is likely to arise from policy more than from other drivers, in the short term at least.

Further explanation of the detail contained in each of the columns is presented in the *Camden Infrastructure and CIL Study, Preparing for Growth: Executive Summary and Strategic Infrastructure Plan*, which accompanies this report.



## Table 3-1: Summary of Infrastructure Requirements

Key

Already identified by responsible agency/ provider Requirement identified via this study

Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers		Phasing	Responsibility and Funding			Cos	Cu A	ırrent Del rrangemo	livery ents	Notes	
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
King's Cross St Pancras	Rail	First Capital Connect (formerly Thameslink)	1	To provide additional capacity		~	✓	2011 to 2015 (S)	Network Rail	Network Rail	Facilitator	£5.5b	-	Y	Y	Y	Under Construction Track and Station upgrades to 12 car operation and 24 trains per hour on the central section
	Rail and Underground Stations	King's Cross Station Congestion Scheme	1	To alleviate station congestion		~	✓	2008-2010 (S)	TfL	TfL	Facilitator	Not identified	-	Υ	Υ	Y	Under Construction. Phase 1 (completed) new Western ticket hall giving direct access to Circle and Metropolitan lines and to St Pancras International, which has increased capacity and improved accessibility. Phase 2 – construction of Northern ticket hall to the west of King's Cross mainline station providing direct access to the Northern, Piccadilly and Victoria line platforms.
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	✓	2011-2016 (S-M)	TfL/ Network Rail/ LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Ν	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included	Drivers		Phasing	Resp	Responsibility and Funding			ts	Cu A	ırrent De rrangem	livery ents	Notes	
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Bus	Bus service enhancement	1	To provide additional capacity and links		~	~	2011-2016 (S-M)	TfL	TfL/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Y – King's Cross N – rest of Borough	
King's Cross	Rail	East Coast Mainline	1	To provide additional capacity		~	~	2014 (S)	Network Rail	Network Rail	Facilitator	£51m	-	Y	Y	Y	Committed Additional 12 car services on outer suburban commuter services New station concourse at King's Cross station.
	Rail	Crossrail 2	2	To provide additional capacity		~	✓	2026+ (L)	Network Rail/TfL	Network Rail/ TfL/ Businesses/ Developer contribution s	Facilitator	Undetermin ed	-	Y	N	N	Line safeguarded/subject to powers and funding.
	Walking	Reduce Severance effect of Roads	2	To improve accessibility and connectivity		~	~	2015-2026 (M-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	_	Y	Ν	N	
Tottenham Court Road	Rail	Crossrail	1	To alleviate pressure on the underground system and provide a faster east to west rail link connecting Heathrow in the west with the Thames Gateway in the east		~	~	2017 (M)	TfL/Networ k Rail	TfL/ Network Rail/ Businesses/ Developers	Facilitator	£17b	-	Y	Y	Y	Committed Scheme Crossrail Levy Provides 24 trains per hour in each direction during peak periods. Provides a 10% increase in London's rail based public transport capacity.

# Camden Infrastructure and CIL Study Transport Infrastructure Needs Assessment


Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	3	Phasing	Resp	onsibility and	Funding	Cos	ts	Cu	ırrent Del rrangem	livery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Rail	Crossrail 2	2	To provide additional capacity		~	V	2026+ (L)	Network Rail/TfL	Network Rail/ TfL/ Businesses/ Developer contribution s	Facilitator	Undetermin ed	-	Y	Ν	N	Line safeguarded/subject to powers and funding.
	Rail and Underground Stations	Tottenham Court Road Station Congestion Scheme	1	To alleviate station congestion		~	V	2010-2017 (S-M)	TfL	TfL	Facilitator	Not identified	-	Y	Υ	Y	Committed. Will cater for 200,000 passengers per day with Crossrail. Providing a new ticket hall (six times the six times the size of the current one), escalators to the Northern line, step free access and increased space in congested areas of the station.
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	~	2010-2017 (S-M)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Ν	
	West End Improvement s	Tottenham Court Road Two Way Working	1	To improve accessibility		~	~	2010-2026 (S-L)	TfL	LB Camden/ TfL/ Developer contribution s	Facilitator	Not identified	-	Y	N	N	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers		Phasing	Resp	onsibility and	Funding	Cos	ts	Cu A	rrent Del rrangeme	ivery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
Euston	Rail and Underground Stations	Euston Station Congestion Scheme	1	To alleviate station congestion		~	~	2016-2021 (M)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding. TfL studies have identified that by 2026 escalator and platform capacity would be overcapacity.
	Rail and Underground Stations	Euston Station Interchange Scheme	1	To improve interchange and accessibility		~	~	2016-2021 (M)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	~	2016-2021 (M)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution S	Facilitator	Not identified	-	Y	Ν	Ν	
	Walking	Reduce Severance effect of Roads	2	To improve accessibility and connectivity		~	*	2015-2026 (M-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
Euston Road and roads south of Euston Road	Road Network	Road link improvements	1	To improve traffic flows		~	✓	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
Euston Underpass	Road Network	Junction Improvements	1	To improve traffic flows		~	✓	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	



Id the Focation	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		/ Drivers	mand for 5	ld the re items be ∕?	Belivery	onsibility and	F <b>unding</b> ke LPA	/ providers	ts / SHU	noted by the <b>Z</b>	rrrent De rrangem	livery ents	Notes
Where shou infrastructu delivered?					Policy	Existing gap replacemen	Forecast de developmen	When shou infrastructu delivered b	Responsibl Agency	Responsibl Agency	Role and re of LBC as t	Identified by incl. Status	Identified by HUDU mod	Is the need provider?	Is the need	ls funding i	
	Walking	Pedestrian environment improvements	2	To improve accessibility, connectivity, capacity and safety		~	~	2015-2026 (M-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
Euston Circus	West End Improvement s	Euston Circus	1	To improve accessibility		~	✓	2010-2026 (S-L)	TfL	LB Camden/ TfL/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Ν	
Euston Square	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		*	✓	2016-2021 (M)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Υ	Ν	Ν	
Holborn	Rail and Underground Stations	Holborn Station Congestion Scheme	1	To alleviate station congestion		*	✓	2016-2021 (M)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	N	Subject to scheme design and funding. No additional details on station specific intervention are publicly available.
	Rail and Underground Stations	Holborn Station Interchange Scheme	1	To improve interchange and accessibility		~	~	2016-2021 (M)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	N	Subject to scheme design and funding
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	~	2016-2021 (M)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Υ	Ν	N	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	5	Phasing	Resp	onsibility and	Funding	Cos	ts	Cu A	rrent Del rrangem	livery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Road Network	Junction Improvements	1	To improve traffic flows		~	~	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ζ	
West Hampstead	Rail	First Capital Connect (formerly Thameslink)	1	To provide additional capacity		~	V	2011 to 2015 (S)	Network Rail	Network Rail	Facilitator	£5.5b	-	Y	Υ	Y	Under Construction Track and Station upgrades to 12 car operation and 24 trains per hour on the central section
	Rail and Underground Stations	West Hampstead Station Interchange Scheme	1	To improve interchange and accessibility		~	~	2016-2021 (M)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	N	Subject to scheme design and funding
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	~	2016-2021 (M)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution S	Facilitator	Not identified	-	Y	Ν	N	
	Public Realm	Legible London	2	To improve accessibility		~	~	2010-2016 (S-M)	TfL	TfL/ Developer contribution s	Facilitator	Unknown	-	Y	Ν	Ν	
Camden Town	Rail and Underground Stations	Camden Town/Camden Road Stations Interchange Scheme	1	To improve interchange and accessibility		~	~	2016-2021 (M)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	N	Subject to scheme design and funding
	Rail and Underground Stations	Camden Town Station Congestion Scheme	1	To alleviate station congestion		×	✓	2016-2020 (M)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding. No additional details on station specific intervention are publicly available.



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	,	Phasing	Resp	onsibility and	Funding	Cos	ts	Cu	ırrent De rrangem	livery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	✓	2016-2021 (M),)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Ν	
	Town Centre Projects	Camden Town Centre Project	1	To improve accessibility		~	~	2015-2020 (M)	LB Camden	LB Camden/ Developer contribution s	Client/ Planning authority	Not identified	-	Ν	Ν	Ν	
	Public Realm	Legible London	2	To improve accessibility		~	~	2010-2016 (S-M)	TfL	TfL/Develop er contribution s	Facilitator	Unknown	-	Y	Ν	Ν	
	Road Network	Road link improvements	1	To improve traffic flows		~	✓	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
	Road Network	Junction Improvements	1	To improve traffic flows		~	¥	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
	Walking	Pedestrian environment improvements	2	To improve accessibility, connectivity, capacity and safety		~	~	2015-2026 (M-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	N	N	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	5	Phasing	Resp	onsibility and l	Funding	Cos	ts	Cu A	irrent Dei rrangem	livery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Walking	Reduce Severance effect of Roads	2	To improve accessibility and connectivity		*	~	2015-2026 (M-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
Camden High Street	Walking	Pedestrian environment improvements	2	To improve accessibility, connectivity, capacity and safety		*	*	2015-2026 (M-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
Camden Road	Rail and Underground Stations	Camden Town/Camden Road Stations Interchange Scheme	1	To improve interchange and accessibility		✓	✓	2016-2021 (M)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		✓	✓	2016-2021 (M)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Υ	Ν	Ν	
	Rail	First Capital Connect (formerly Thameslink)	1	To provide additional capacity		✓	✓	2011 to 2015 (S)	Network Rail	Network Rail	Facilitator	£5.5b	-	Y	Υ	Y	Under Construction Track and Station upgrades to 12 car operation and 24 trains per hour on the central section
Mornington Crescent	Road Network	Junction Improvements	1	To improve traffic flows		~	*	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	5	Phasing	Resp	onsibility and I	Funding	Cos	ts	Cu A	ırrent De rrangem	livery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Road Network	Road link improvements	1	To improve traffic flows		~	~	2015-2026 (M-L)	LB Camden/T fL	LB Camden/TfL / developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	N	
Chalk Farm	Town Centre Projects	Chalk Farm Town Centre Project	1	To improve accessibility		~	~	2010 (S)	LB Camden	LB Camden/ Developer contribution s	Client/ Planning authority	£1,100,00 <sup>1</sup>	-	Y	Y	Y	
Kentish Town	Rail	First Capital Connect (formerly Thameslink)	1	To provide additional capacity		~	✓	2011 to 2015 (S)	Network Rail	Network Rail	Facilitator	£5.5b	-	Y	Υ	Y	Under Construction Track and Station upgrades to 12 car operation and 24 trains per hour on the central section
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	✓	2016-2021 (M)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Υ	Ν	Ν	
	Town Centre Projects	Kentish Town Centre Project	1	To improve accessibility		~	✓	2010 (S)	LB Camden	LB Camden/ Developer contribution s	Client/ Planning authority	£907,000 <sup>1</sup>	-	Y	Y	Y	
	Road Network	Road link improvements	1	To improve traffic flows		~	✓	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	N	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	5	Phasing	Resp	onsibility and	Funding	Cos	ts	Cu	ırrent Del ırrangeme	ivery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
Warren Street	Rail and Underground Stations	Station Congestion Schemes	1	To alleviate station congestion		~	~	2016-2026 (M-L)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding. No additional details on station specific intervention are publicly available.
	Rail and Underground Stations	Station Interchange Schemes	1	To improve interchange and accessibility		~	~	2016-2026 (M-L)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding
Hampstead Heath	Rail and Underground Stations	Station Congestion Schemes	1	To alleviate station congestion		~	~	2016-2026 (M-L)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding. No additional details on station specific intervention are publicly available.
	Rail and Underground Stations	Station Interchange Schemes	1	To improve interchange and accessibility		~	~	2016-2026 (M-L)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding
Gospel Oak	Rail and Underground Stations	Station Interchange Schemes	1	To improve interchange and accessibility		~	~	2016-2026 (M-L)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	Ν	Subject to scheme design and funding
	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	~	2016-2026 (M-L)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Y	N	Ν	
Swiss Cottage	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	~	2016-2026 (M-L)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/LB Camden/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Ν	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	;	Phasing	Resp	onsibility and I	Funding	Cos	ts	Cu A	rrent Del rrangemo	livery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by ?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Walking	Reduce Severance effect of Roads	2	To improve accessibility and connectivity		~	~	2015-2026 (M-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
Finchley Road	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	~	2016-2026 (M-L)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/LB Camden/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Ν	
	Road Network	Road link improvements	1	To improve traffic flows		~	✓	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
	Walking	Pedestrian environment improvements	2	To improve accessibility, connectivity, capacity and safety		~	×	2015-2026 (M-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
Kilburn High Road	Rail and Underground Stations	Improvements to public realm at stations	1	To facilitate pedestrian movement and connectivity		~	~	2016-2026 (M-L)	TfL/Networ k Rail/LB Camden	TfL/ Network Rail/ LB Camden/ Developer contribution s	Facilitator	Not identified	-	Υ	Ν	Ν	
	Road Network	Road link improvements	1	To improve traffic flows		~	~	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	;	Phasing	Resp	onsibility and I	Funding	Cos	ts	Cu A	rrent Dei rrangem	livery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Town Centre Projects	Kilburn High Road Town Centre Project	1	To improve accessibility		~	~	2015-2020 (M)	LB Camden	LB Camden/ Developer contribution s	Client/ Planning authority	Not identified	-	Ν	Ν	Ν	
St Giles	West End Improvement s	St Giles Circus	1	To improve accessibility		✓	✓	2010-2026 (S-L)	TfL	LB Camden/ TfL/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Ν	
	Public Realm	St Giles Public Realm Improvements	2	To improve accessibility		~	~	2010 (S)	LB Camden	Developer contribution s	Planning authority	Unknown	-	Y	Y	Y	
Princes Circus	West End Improvement s	Princes Circus	1	To improve accessibility		~	✓	2010-2026 (S-L)	TfL	LB Camden/ TfL/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Ν	
Shaftesbur y Avenue	Road Network	Junction Improvements	1	To improve traffic flows		~	✓	2015-2026 (M-L)	LB Camden/T fL	LB Camden/ TfL/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
South Sub- area	Underground	Victoria line	1	To provide additional capacity. Services are currently operating at, close or above full capacity particularly during peak hours.		~	*	2012 (S)	TfL	TfL	Facilitator	Costs of specific line upgrades yet to be determined but overall programme is currently estimated to be £30b	-	Y	Y	Y	Committed Higher frequency and larger trains (19% increase in capacity)



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	5	Phasing	Resp	onsibility and	Funding	Cos	ts	Cu	rrent Del rrangeme	livery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Underground	Piccadilly line	1	To provide additional capacity. Services are currently operating at, close or above full capacity particularly during peak hours.		>	*	2014 (S)	TfL	TfL	Facilitator	Costs of specific line upgrades yet to be determined but overall programme is currently estimated to be £30b	-	Y	Y	Y	Committed New signalling system and trains (25% increase in capacity)
	Underground	Metropolitan line	1	To provide additional capacity. Services are currently operating at, close or above full capacity particularly during peak hours.		<	~	2016 (M)	TfL	TfL	Facilitator	Costs of specific line upgrades yet to be determined but overall programme is currently estimated to be £30b	-	Υ	Y	Υ	Committed New train stock and higher frequency services (49% increase in capacity)
	Underground	Circle and Hammersmith and City lines	1	To provide additional capacity. Services are currently operating at, close or above full capacity particularly during peak hours.		~	¥	2016 (M)	TfL	TfL	Facilitator	Costs of specific line upgrades yet to be determined but overall programme is currently estimated to be £30b	-	Y	Y	Y	Committed New train stock, longer trains and higher frequency with merged T-cup service (49% increase in capacity)
	Public Realm	Legible London	2	To improve accessibility		✓	~	2010-2016 (S-M)	TfL	TfL/ Developer contribution s	Facilitator	Unknown	-	Y	Ν	N	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included		Drivers	3	Phasing	Resp	onsibility and	Funding	Cos	its	Cu A	Irrent Del rrangemo	ivery ents	Notes
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for	Is funding in place?	
North West Sub-area	Underground	Jubilee line	1	To provide additional capacity. Services are currently operating at, close or above full capacity particularly during peak hours.		~	V	2009 (S)	TfL	TfL	Facilitator	Costs of specific line upgrades yet to be determined but overall programme is currently estimated to be £30b	-	Y	Υ	Υ	Under construction New signalling system to allow 30 trains per hour in peak (25% increase in capacity)
	Underground	Metropolitan line	1	To provide additional capacity. Services are currently operating at, close or above full capacity particularly during peak hours.		~	~	2016 (M)	TfL	TfL	Facilitator	Costs of specific line upgrades yet to be determined but overall programme is currently estimated to be £30b	-	Y	Y	Y	Committed New train stock and higher frequency services (49% increase in capacity)
Borough Wide	Rail <sup>31</sup>	Crossrail	1	To alleviate pressure on the underground system and provide a faster east to west rail link connecting Heathrow in the west with the Thames Gateway in the east		~	✓	Delivery by 2017 (M)	TfL/Networ k Rail	TfL/ Network Rail/ Businesses/ Developers	Facilitator	£17b	-	Y	Y	Y	Committed Scheme Crossrail Levy Capacity of 15,000 passengers per hour provided in the peaks
		Crossrail 2	2	To provide additional capacity		~	✓	Delivery 2026+ (L)	Network Rail/TfL	Network Rail/ TfL/ Businesses/ Developer contribution s	Facilitator	Undetermin ed	-	Y	Ν	N	Line safeguarded/subject to powers and funding.

<sup>&</sup>lt;sup>31</sup> Crossrail, Crossrail 2 and First Capital Connect are also noted earlier in this table in each of the stations that the schemes affect, so as to highlight the benefit that the scheme will contribute to each location.



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included	Drivers		Phasing	ng Responsibility and Fund			Cos	Current Delivery Arrangements			Notes		
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
		First Capital Connect (formerly Thameslink)	1	To provide additional capacity		~	✓	Delivery 2011 to 2015 (S)	Network Rail	Network Rail	Facilitator	£5.5b	-	Y	Y	Y	Under Construction Track and Station upgrades to 12 car operation and 24 trains per hour on the central section
	Underground	Northern line	1	To provide additional capacity. Services are currently operating at, close or above full capacity particularly during peak hours.		~	✓	2012 (S) for Phase 1 signalling and 2020 (M) for Phase 2 separation of Bank and Charing Cross lines	ΤfL	TfL	Facilitator	Costs of specific line upgrades yet to be determined but overall programme is currently estimated to be £30b	-	Y	Y	Y	Committed Phase 1 signalling to improve speeds and frequency (20% additional capacity) Phase 2 separation of Bank and Charing Cross lines at Kennington
	Rail and Underground Stations	Step Free Access at LUL Stations	1	To improve accessibility		~	√	2015-2026 (M-L)	TfL	TfL	Facilitator	Not identified	-	Y	N	N	
	Rail and Underground Stations	Step Free Access at Rail Station	1	To improve accessibility		~	√	2015-2026 (M-L)	TfL	TfL	Facilitator	Not identified	-	Y	Ν	N	
	Bus	Bus service enhancement	1	To provide additional capacity and links		~	✓	2010 – 2026 (S-L)	TfL	TfL/ Developer contribution s	Facilitator	Not identified	-	Y	Ν	Y – King's Cross N – rest of Borough	
	Bus	Strategic review of bus services (to compensate for Cross River Tram Scheme not being progressed further)	1	To provide additional capacity		~	✓	2011-2026 (S-L)	TfL	TfL/ Developer contribution s	Facilitator	Yes	-	Y	Ν	Ν	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included	Drivers			Phasing	Resp	onsibility and	Cos	Cu	ırrent De rrangem	livery ents	Notes		
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Bus	Bus Priority	2	To improve bus journey times		~	~	2010-2026 (S-L)	TfL	TfL	Planning approval	Not identified	-	Y	Ν	N	
	Bus	Bus Stop Accessibility	2	To improve accessibility		~	~	2010-2026 (S-L)	TfL	TfL	Planning approval	£144,000	-	Y	Y	Y - to 2009 N- 2009- 2026	
	Cycling	Cycling LCN+	2	To improve cycle facilities		~	~	2010-2026 (S-L)	TfL/LB Camden	TfL/ LB Camden/ Developer contribution s	Planning approval	£1,789,000	-	Y	Y	Y - to 2009 $N -$ thereafter	
	Cycling	Cycling Non LCN+	2	To improve cycle facilities		~	~	2010-2026 (S-L)	TfL/LB Camden	TfL/LB Camden/ Developer contribution s	Planning authority/ Facilitator	£341,000	-	Y	Y	Y – to 2009 N – thereafter	
	Cycling	Connections between LCN+ and non LCN+	2	To improve connectivity of cycle networks		~	~	2010-2026 (S-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	Ν	Ν	
	Cycling	Cycle Parking	1	To increase provision of cycle parking		~	~	2010-2026 (S-L)	LB Camden	LB Camden/ Developer contribution s	Planning authority/ Facilitator	Unknown	-	Y	N	N	
	Road Network	Improvements to taxi facilities	2	To improve accessibility		~	✓	2015-2026 (M-L)	TfL/LB Camden	LB Camden/ TfL/ Developer contribution s	Planning authority	Unknown	-	Y	Ν	N	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included	Drivers		Phasing	Responsibility and Funding			Cos	CL A	ırrent De rrangem	livery tents	Notes		
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Road Network	Improvements to coach facilities	2	To improve accessibility		~	✓	2015-2026 (M-L)	TfL/LB Camden	LB Camden/ TfL/ Developer contribution s	Planning authority	Unknown	-	Y	Ν	N	
	Road Network	Car Club Schemes	2	To reduce the need for car ownership		~	✓	2010-2026 (S-L)	TfL/LB Camden	LB Camden/ TfL/ Developer contribution s	Planning authority	Unknown	-	Y	Ν	Ν	
	Road Network	Electric Car Charging Points	2	Sustainable transport		~	✓	2010-2026 (S-L)	TfL/LB Camden	LB Camden/ TfL/ Developer contribution s	Planning authority	Unknown	-	Y	Ν	Ν	
	Road Network	Principal Road Renewal	1	To improve road conditions		~	✓	2010-2026 (S-L)	TfL/LB Camden	LB Camden/ TfL	Client	£1,302,000	-	Y	Y	Y – to 2009 N - thereafter	
	Road Network	Local Road Safety Schemes	1	To improve safety		~	~	2010-2026 (S-L)	LB Camden	LB Camden/ TfL	Client	£785,000	-	Y	Y	Y – to 2009 N - thereafter	
	Air Quality	Air quality monitors and improvements	2	To improve the quality of air		~	~	2010-2026 (S-L)	LB Camden	LB Camden/ TfL/ Developer contribution s	Facilitator	Not identified	-	Y	Y	Ν	



Location	Infrastructure Area	Infrastructure Schemes and Actions	Infrastructure Importance (1-2)	Rationale for Inclusion / Risk if not Included	Drivers		Phasing	Responsibility and Funding		Funding	Costs		Current Delivery Arrangements			Notes	
Where should the infrastructure item be delivered?					Policy	Existing gap/ replacement/ upgrade	Forecast demand for development	When should the infrastructure items be delivered by?	Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBC as the LPA	Identified by providers incl. Status	Identified by URS / HUDU model	Is the need noted by the provider?	Is the need planned for?	Is funding in place?	
	Travel Demand	Travel Demand Management	2	To reduce the need to travel by private vehicles		~	*	2010-2026 (S-L)	LB Camden	LB Camden/ Developer contribution s	Client/ Planning authority	£1,187,000	-	Y	Y	Y – to 2009- N - thereafter	

#### Figure 3-1: Summary of Strategic Transport Infrastructure Requirements, 2006 to 2026

**Summary Strategic Transport Infrastructure Requirements** 



Source: SDG and URS Corporation