

Edgware Supplementary Planning Document

Transport Study Modelling Appendix

September 2020



1 Introduction

Urban Flow has been commissioned by Barnet Council to prepare a transport study in support of a Supplementary Planning Document (SPD) for Edgware town centre and the immediate surrounding area.

This 'Modelling Appendix' provides more detailed information on the assessment undertaken of SPD development proposals.

2 SPD development proposals

Within the SPD study area, two potential development sites have been identified in the Draft Local Plan Preferred Approach.

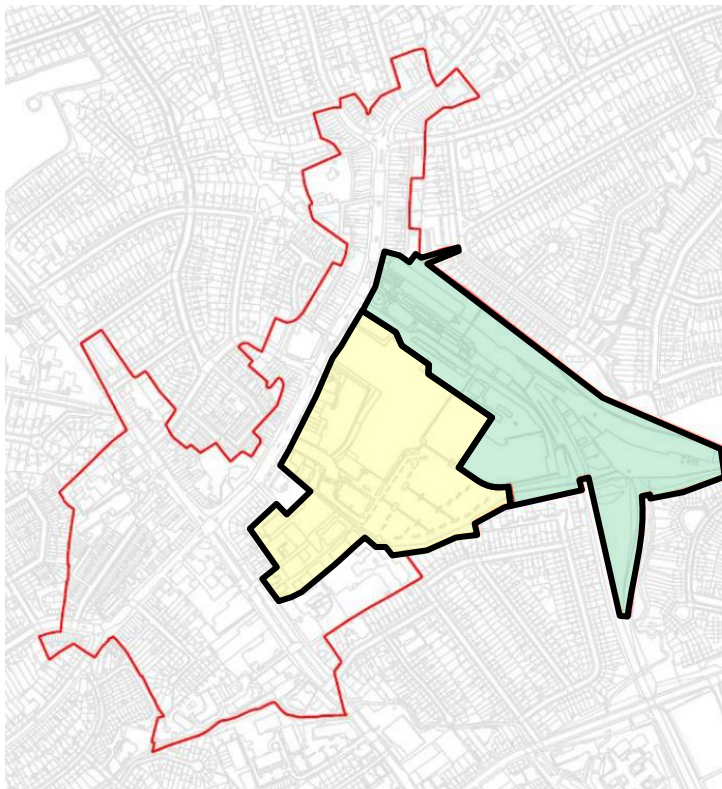


Figure 1 Map of proposed developments within the SPD boundary

These potential development sites are in the heart of Edgware town centre and occupy a substantial combined area of c.16 hectares. Table 1 below provides an overview of the assumed development proposals that have been used to inform this SPD transport study.

These development assumptions have been used to test a possible scale of change within the SPD area and investigate what the potential impacts may be. All of these assumptions are subject to change ahead of a more detailed master planning exercise being undertaken and planning permissions being sought.

Plot	Existing use	Proposed SPD use	Quantum
27	Retail centre, offices, car parking	New residential, retail and office retained, new leisure and community uses	Indicative residential capacity = 2,379 units
28	Transport operations	Residential, transport operations, new retail, office and community uses	Indicative residential capacity = 2,317 units

Table 1 Proposed SPD development sites

Access and movement framework

A detailed masterplan of the proposed development sites will be prepared after the adoption of the SPD. This master planning process will include the preparation of a movement framework for the area which will include an assessment of appropriate walking, cycling and vehicle links. For the purposes of the transport study we have assumed:

- Existing walk connections (eg Brook Avenue to West Way) will be retained and upgraded to accommodate walking and cycling;
- Additional walking and cycling connections will be introduced where required to deliver needed improvements in sustainable movement connectivity (eg to the High Street via Forumside);
- A crossing over the existing tube lines may be needed to provide alternative emergency access – this is in order to avoid long cul-de-sacs and provide rapid access to the entire development area;
- The existing bridge over the tube lines will be available for walking and cycling – leading to a substantial reduction in walking/cycling distances to the town centre and a step-change improvement in public transport accessibility (PTAL 1 to PTAL 5); and
- There will not be a new vehicular route through the development that would provide a new strategic connection between, for example, Station Road and Deans Lane.



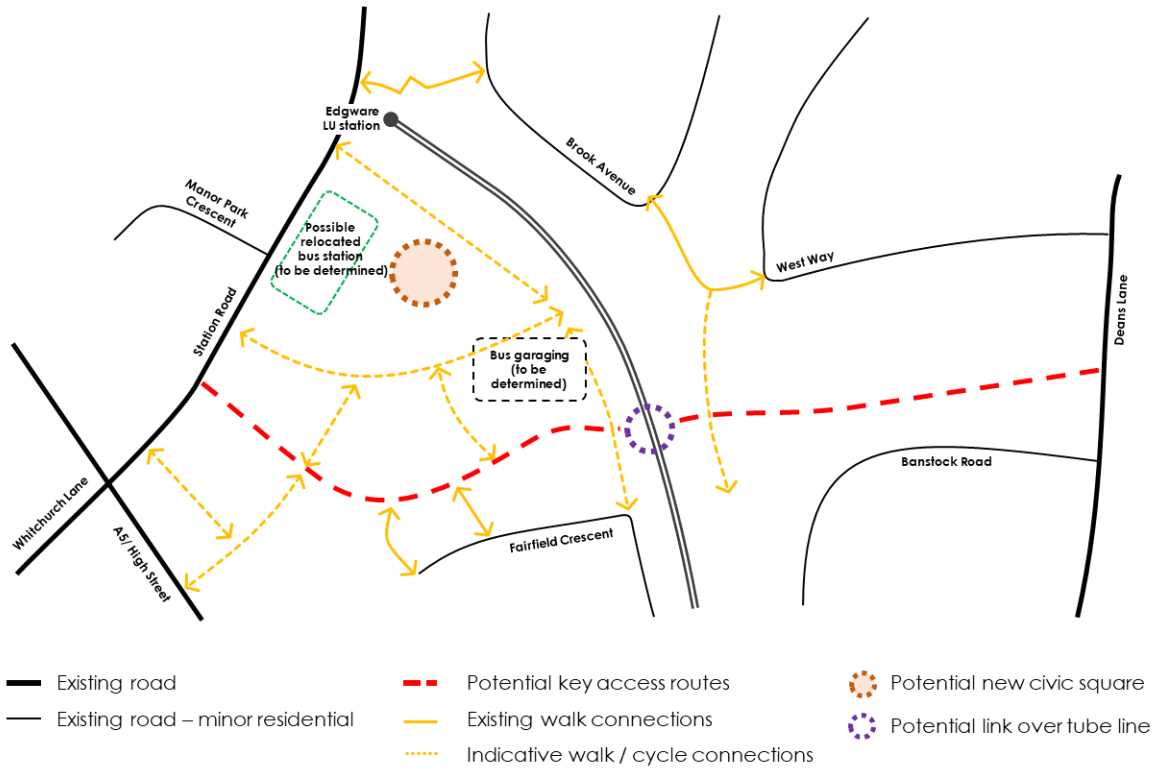


Figure 2 Schematic access and movement plan



3 Other modelling considerations

Town centre development sites

Information has been supplied by LB Barnet officers regarding other, relevant Edgware town centre developments. A summary is provided in Table 2 below.

Location	Development summary	Testing assumptions
120-124 Station Rd (Premier Place)	122 flats 1,855m ² A-class space	All retail trips linked to existing town centre activity Residential trip generation in the order of 130 vehicle trips per day
Railway Hotel, Station Road	90-bed hotel (with 31 parking spaces)	No Transport Assessment prepared in support of the planning application Total trip generation assumed to be c.60 vehicles per day (each parking space used for an inbound + outbound trip)
Rectory Grove, Rectory Lane	52 residential units	Residential trip generation in the order of 90 vehicle trips per day
Premier Inn, 435 Burnt Oak Broadway	43 additional hotel rooms	Total trip generation assumed to be c.95 vehicles per day

Table 2 Other town centre development assumptions

Combining these four developments gives a total additional vehicle trip generation of c.365 vehicle movements per day (inbound and outbound). This is equivalent to approximately 40 two-way vehicle movements in a peak hour.

In addition, there will be additional movement on foot, cycle and public transport. However, compared to existing volumes of movement by mode (see the baseline appendix for more information), the scale of this additional movement for the combined developments will not lead to conditions significantly different from the present day.



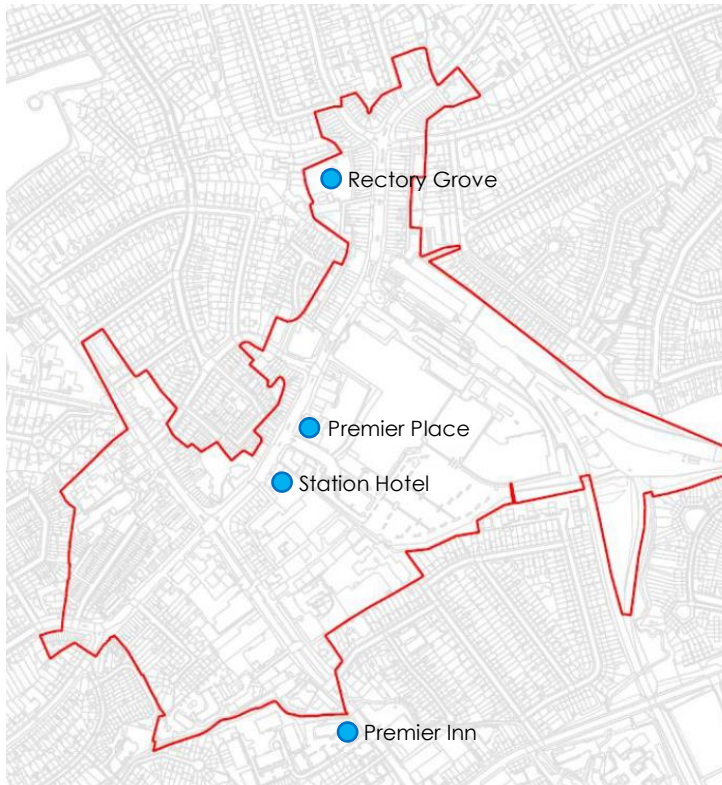


Figure 3 Location of other town centre developments

Wider growth

Barnet is expected to deliver a minimum of 46,000 new homes within the lifetime of its new Local Plan (2021-2036). This represents a substantial increase in the resident population in the Borough; the indicative residential capacity of the sites within Edgware of 4,600 units represents 10% of this total.

Strategic modelling of the impacts of Local Plan growth is expected to be undertaken as the Local Plan progresses to the Regulation 19 stage. Testing of the growth proposed in this SPD will be considered within the overall context of this Local Plan testing and analysis.

The Draft Local Plan states that *“These [town centre development and enhancement] proposals should be informed by the outputs of an area wide transport model.”* [para 11.5.9]

In light of this forthcoming, overarching Local Plan testing, this SPD transport study will consider more local-scale highway issues relating to local congestion, etc. The primary aim being to: (a) ensure local conditions are not adversely affected; and (b) establish how to facilitate wider transport/behaviour change through SPD development.

The baseline analysis undertaken for this transport study has utilised TfL ‘city planner’ data sources which includes forecast changes in highway network flows (see baseline appendix, page 11). Figure 6 below shows that it could be expected that there is a

20%-40% increase in highway flows in the SPD area. Figure 7 covers a wider area and shows substantial increases to the north in the Edgware Way corridor and the south east in the Hale Lane corridor.

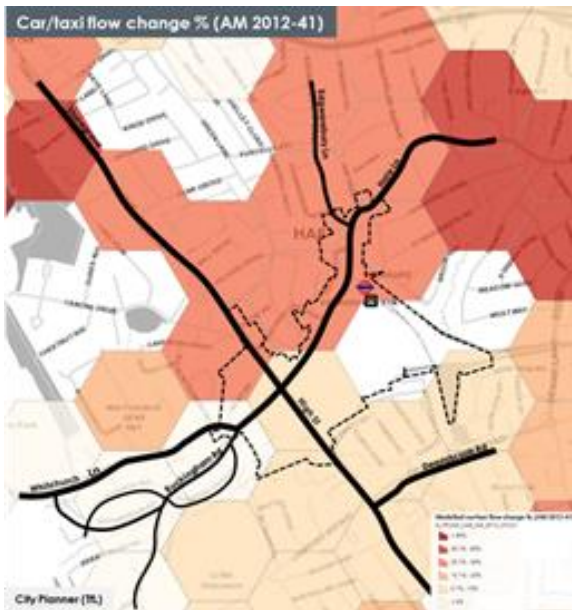


Figure 4 SPD highway network flow change forecast [source: TfL City Planner]

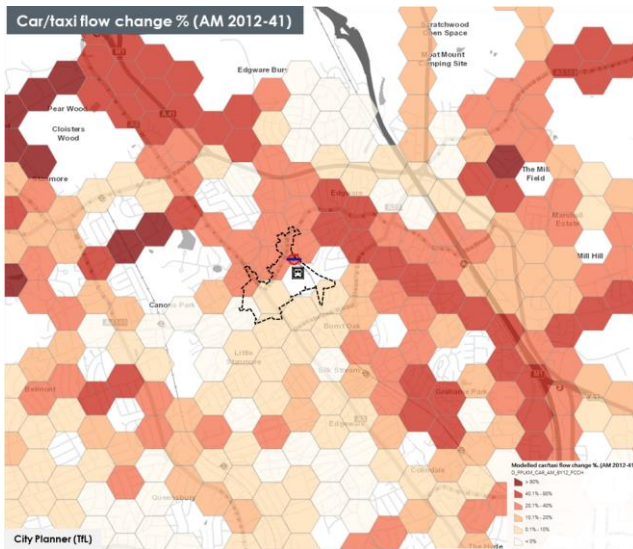


Figure 5 Wider area highway network flow change forecast [source: TfL City Planner]



An assessment of future highway stress was undertaken as part of the evidence base for the LTTS; an extract is shown in Figure 6. This suggests that the key Station Road and High Street corridors are not expected to be under significant stress (<85% volume over capacity ratio); the areas in Figure 8 showing larger highway demand growth are consistent with links identified as operating at, or in excess of, capacity.

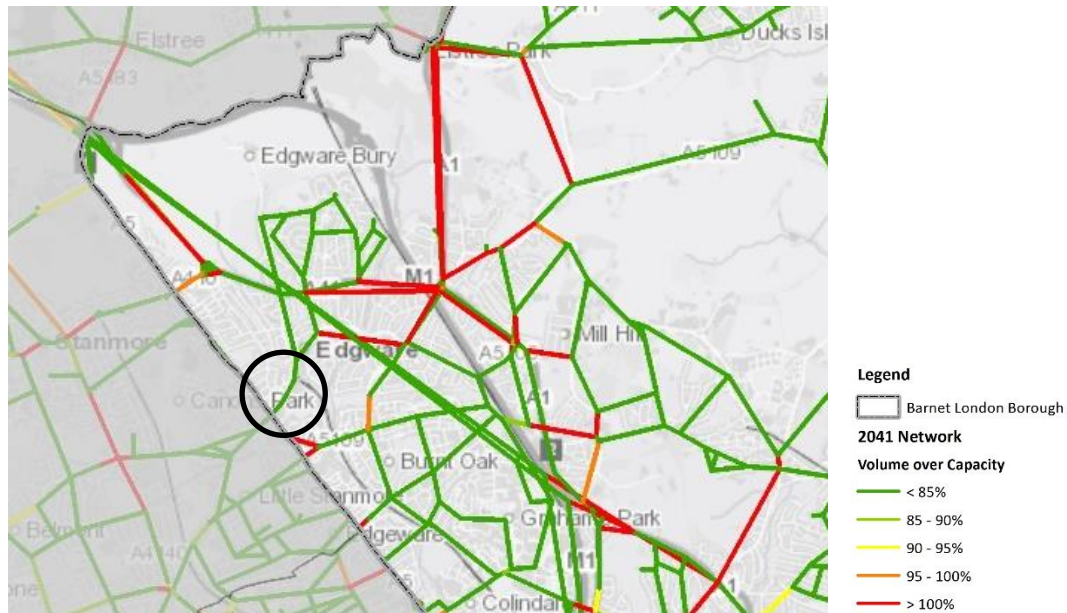


Figure 6 Modelled 2041 highway network stress (source: extract from Barnet LTTS Figure 2.8)

As noted above on page 6, strategic modelling of the impacts of Local Plan growth is expected to be undertaken and the proposed Edgware SPD growth will be considered as part of this to provide a more refined, detailed analysis of future conditions.

Retail catchment analysis

Use has been made of the 'Town Centres Floorspace Needs Assessment' undertaken for Barnet Council in December 2017. It was an assessment of retail need for the Borough in order to inform new retail and town centre policies for the Local Plan.

'Comparison trade draw maps' were created to illustrate the ability of the borough's different centres to attract spending from beyond each of their immediate catchments. Edgware's comparison trade draw map is shown in Figure 7.

Between 30% and 40% of comparison retail turnover in Edgware is drawn from the immediate local area (purple shading). The town centre also draws a large amount of trade from immediately adjoining areas (eastern Harrow borough and Burnt Oak / Colindale, dark blue shading). This suggests that Edgware performs an important local shopping function but does not have a particularly large reach / market share in the wider area and could, in principle, be improved to reflect the town's 'major centre' status.

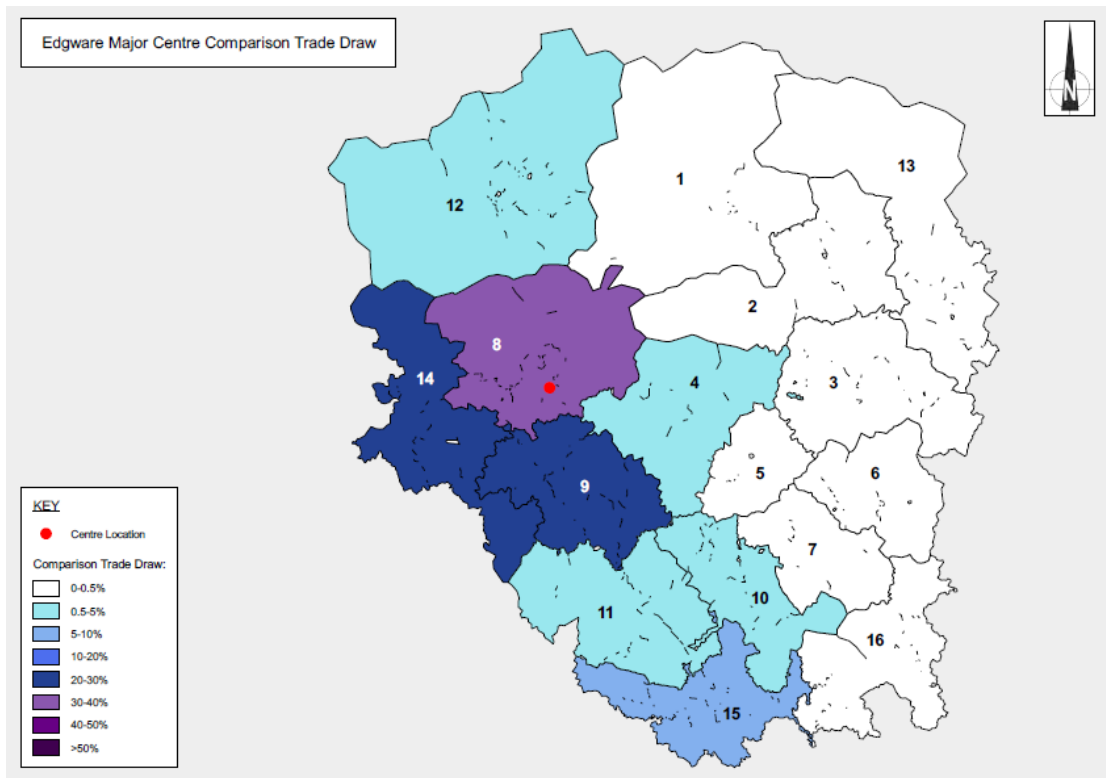


Figure 7 Trade draw distribution for Edgware town centre (Town Centres Floorspace Needs Assessment, Appendix D)

'Comparison market share maps' were also created to illustrate the level of influence each retail centre has over its local residents' shopping patterns. Edgware's comparison market share map is shown in Figure 8.

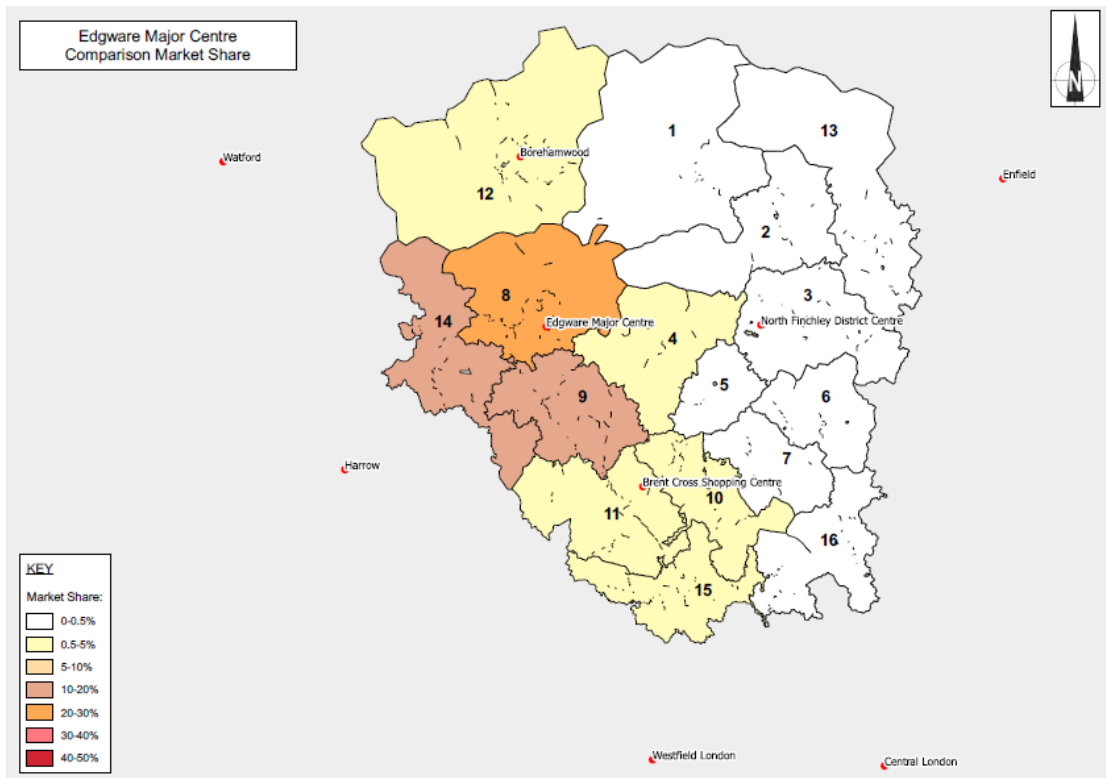


Figure 8 Market share distribution for Edgware town centre (Town Centres Floorspace Needs Assessment, Appendix E)

Edgware town centre's core catchment area is solely confined to the local area. Edgware residents otherwise travel to a broad range of destinations to undertake retail activity including:

- Brent Cross (20-30% market share);
- Central London (10-20% market share); and
- Watford (10-20% market share).

Overall, the wider Edgware area is estimated to have the following retail activity split (Figure 5.2 in the Town Centres Floorspace Needs Assessment study):

- 52% of expenditure retained within the wider Edgware area;
- 25% of expenditure within Barnet; and
- 23% leaked to other areas.

Separate to retail activity, the study also identifies that “a significant amount of food & drink ... expenditure is leaked to destinations outside the borough.” (7.5, p.54)

Edgware Town Centre Economic Strategy

More recently, an Edgware Town Centre Economic Strategy¹ has been produced that considers emerging trends in town centre development. The study also includes a baseline review of Edgware town centre's composition and identifies gaps in current provision.

¹ Edgware Town Centre Economic Strategy, Transport for London, August 2020



Edgware is in competition with Brent Cross, Watford, Borehamwood and Harrow. The town's proximity to these centres currently has a limiting factor upon its potential to attract higher order national retailers. In order to meet the needs and expectations of current and future residents the study identifies that "Edgware needs to have a strategy and find a niche or element of differentiation that will give the town centre a uniqueness that will attract visitors and ensure they continue to return".

In summary, the study concludes that: "By strengthening specific commercial aspects of the town centres composition (comparison retail, food and beverage, commercial leisure and employment uses), seeking opportunities for features which will attract and differentiate the town centre (such as cultural and art offerings) and providing environmental improvements including usable public spaces Edgware town centre should ensure its ongoing vitality and viability."

In terms of trends, of particular note is an emerging trend for "investment in and development of build to rent residential schemes and compact living (co-living and micro-living) within accessible town centres".

To this end, this transport study assumes that improvements to the retail, leisure and wider offer in Edgware town centre and its co-location with a substantial new residential community should assist with creating a stronger local/wider area 'pull' and reduce leakage to retail centres further away.

Leisure centre analysis

A desktop review identified 9 large leisure centres (including swimming pools) in the wider area surrounding Edgware. The nearest centres are located at Copthall and Harrow, approximately 3 miles away, equivalent to a journey time in the order of 15-20 minutes.

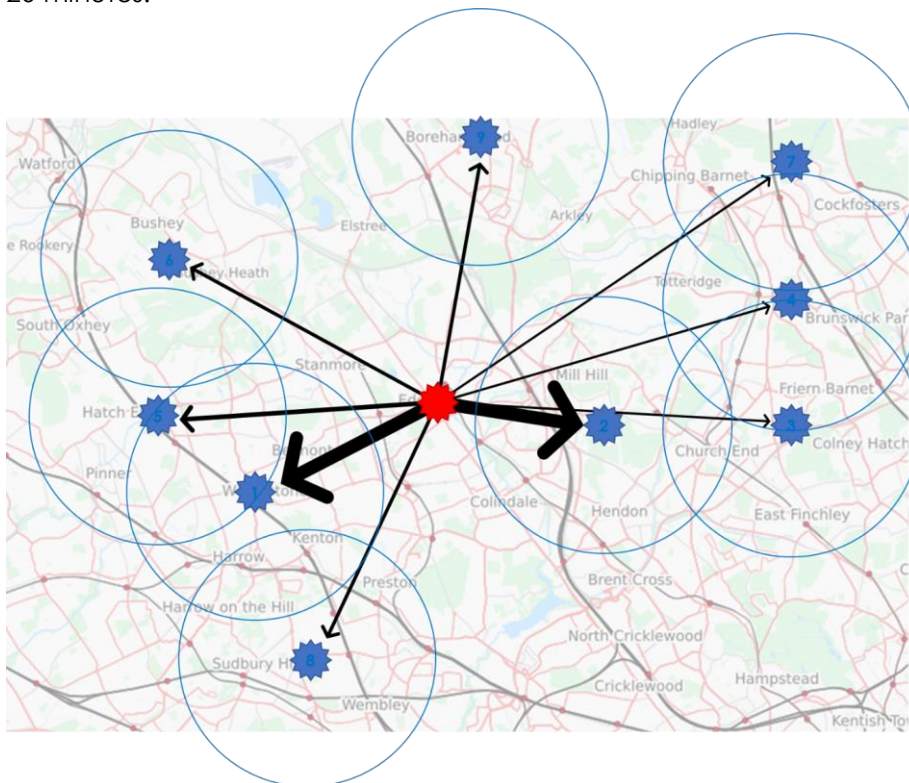


Figure 11 Location of nearby leisure centres + swimming pools with indicative attractiveness indicated by arrow width

A simple gravity model was constructed to assess the relative attractiveness of each of these locations to Edgware town centre. This model considered indicative journeys by all modes of travel. Primarily because of their proximity, the Copthall and Harrow leisure centres could be expected to attract at least 50% of Edgware's notional leisure centre demand. Modest demand could be expected at the locations further afield.

The gravity model was then re-run with a new Edgware town centre location added. It could be expected that the inclusion of this new facility could capture a significant proportion (in the order of 70%) of the demand from existing and new residents.

Cinema analysis

A desktop review identified 7 cinemas in the wider area surrounding Edgware, ranging in size from 1 to 12 screens. Most of the cinemas are located 5+ miles away, equivalent to a journey time in the order of 25-30 minutes.

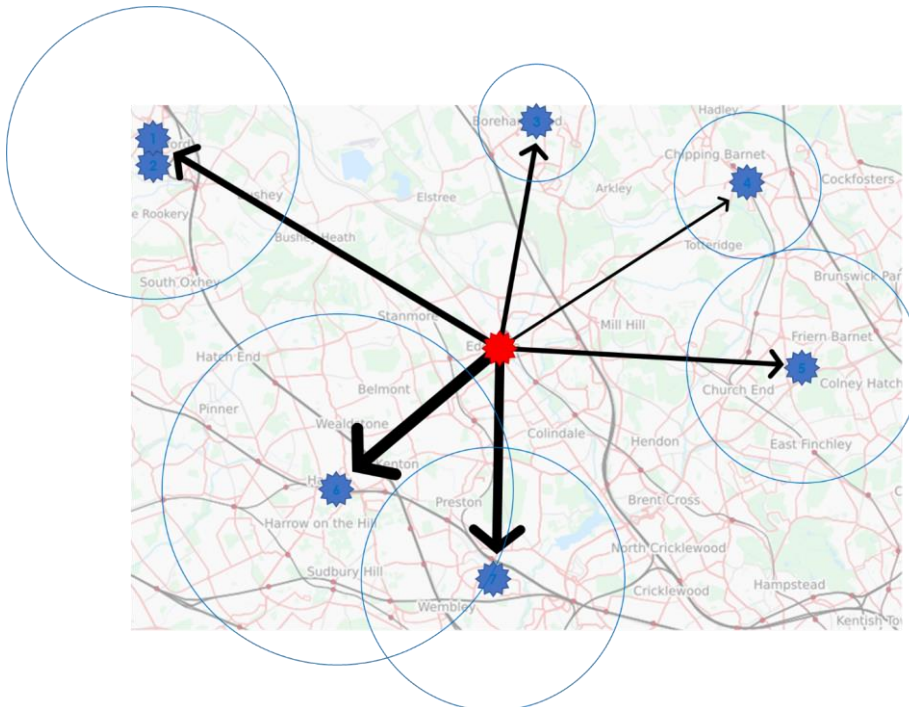


Figure 12 Location of nearby cinemas with indicative attractiveness indicated by arrow width

As with leisure centres, a gravity model was constructed to assess the relative attractiveness of each of these locations to Edgware town centre. A combination of its size (screens) and proximity means that Harrow View could be the most popular followed by Wembley and Watford (two cinemas).

The gravity model was then re-run with a new Edgware town centre location added (with an assumed 5 screens). It could be expected that the inclusion of this new facility could capture a significant proportion (in the order of 75%) of the demand from existing and new Edgware residents.

This is consistent with the Town Centres Floorspace Needs Assessment that estimates the Borough could support 14 additional screens by 2036.

Overall, in this high-level transport study is assumed that a strengthened and revitalised town centre 'offer' with a wider range of retail, leisure and cultural options will:

- (a) Provide more opportunities for local residents (existing and new) to have their retail/leisure needs met locally without the need to travel to other centres; and
- (b) Strengthen the town centre's reach / market share in the wider area and capture activity that is currently going to/from other centres further afield.

Transport Classification of Londoners

The baseline appendix includes reference to the 'Transport Classification of Londoners', a system developed by TfL to categorise Londoners on the basis of the travel choices they make, and the motivations for making those decisions.

The population is segmented based on a number of key variables including:

- Propensity to change travel;
- Mode usage and dominant mode of travel;
- Lifestage (composite of age, household structure and employment status);
- Income;
- Ethnicity;
- Health / fitness motivations; and
- Use of technology.

This results in 9 segments that reflect groups' similar behaviours, attitudes and responses to change. The SPD and immediately surrounding area is shown in Figure 13.

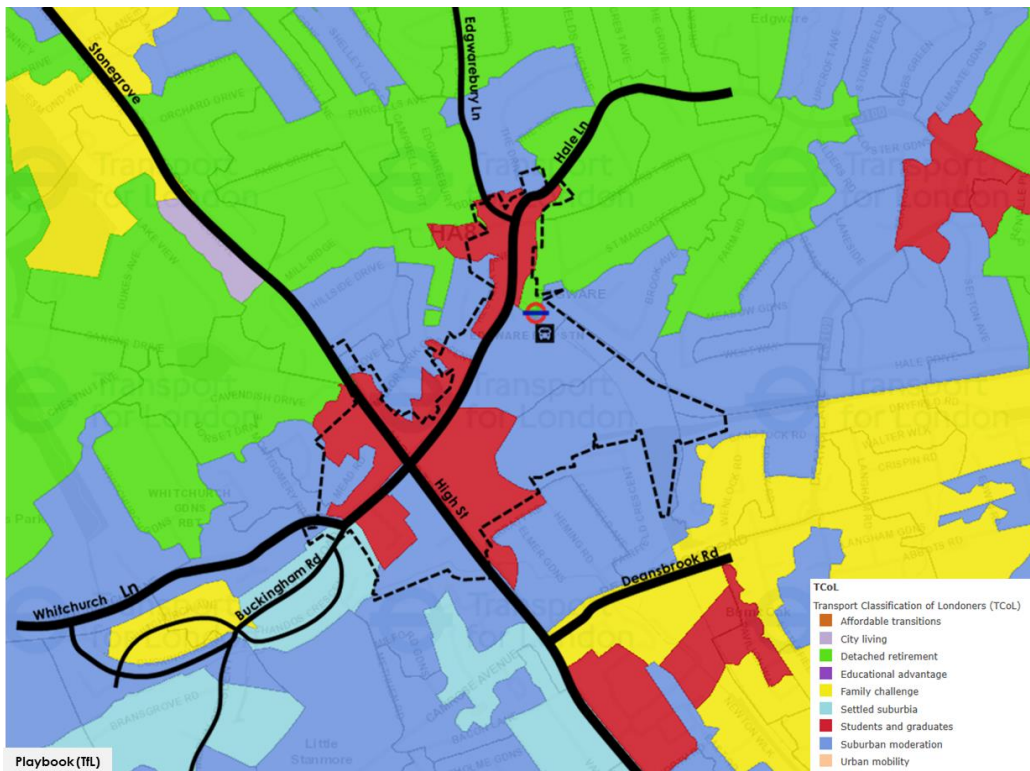


Figure 13 Transport Classification for Londoners – wider SPD area



The immediate SPD study area is dominated by 'Students and Graduates' (red) and 'Suburban Moderation' (blue). There is also a high proportion of 'Detached Retirement' (green; to the north) and some 'Family Challenge' (yellow) living in the wider town centre area.

A summary of the behaviours, attitudes and responses to change are shown in Table 3.

	Students and graduates	Suburban moderation	Detached retirement	Family challenge
Car use	Below average	Above average	Well above average	Below average
Walk / cycle activity	Above average	Below average	Well below average	Average
'Cycling is safe and stress-free'	Above average	Average	Well below average	Above average
Propensity for any change	Average	Below average	Well below average	Above average
Propensity for car reduction	Average	Average	Well below average	Above average
Propensity for walk/cycle increase	Below/above average	Below/well above average	Well below average	Well above average

Table 3 Transport Classification of Londoners – summary by key segments

Of the current residential mix in the area there is a mixed pattern in terms of prevailing car use, attitudes to walking and cycling and propensity to change travel behaviours.

However, the introduction of a significant new residential population will potentially introduce new, additional segments into Edgware. This will particularly be the case as residential densities will be high and very urban with parking provision extremely low, requiring residents to be able to meet a significant portion of their mobility needs by modes other than car.

In light of this, the following segments could be expected to become more prevalent in Edgware in the future:

- Affordable Transitions;
- Family Challenge;
- Students and graduates; and
- Urban mobility.

These segments' differing behaviours, attitudes and responses to change are shown in Table 4.



	Affordable transitions	Family challenge	Students and graduates	Urban mobility
Car use	Well below average	Below average	Below average	Below average
Walk / cycle activity	Above / well above average	Average	Above average	Above average
'Cycling is safe and stress-free'	Well above average	Above average	Above average	Above average
Propensity for any change	Well above average	Above average	Average	Above average
Propensity for car reduction	Well above average	Above average	Average	Well above average
Propensity for walk/cycle increase	Above / well above average	Well above average	Below / above average	Well above average

Table 4 Transport Classification of Londoners – summary by potential new segments

All of these segments share common trends in terms of current modal usage (particularly by car) and their generally above average propensity for change. As such, SPD-related and other interventions and measures to promote active travel, sustainable travel and reductions in car use are more likely to be well-received by new residents, more so than existing ones.

As residential development proposals are considered further and better known it may be possible to refine these initial assumptions about the likely segments that new residents will belong to. Particular measures can then be targeted to best effect, noting key differentials in attitudes and behaviours compared to some existing groups.



4 SPD developments impact assessment – assumptions and methodology

The modelling approach has followed a conventional four-stage modelling approach:

Trip Generation > Trip Distribution > Trip Mode > Trip Assignment

Each stage has been informed by robust, appropriate data and assumptions that are outlined below.

This high-level transport study assumes a high-intensity scenario whereby the anticipated maximum residential capacity of c.4,700 units will be delivered in some form across both sites identified in the Draft Local Plan (see Table 1, page 3).

For non-residential uses the following high-level assumptions have been made:

- retail retained at its existing quantum;
- office retained at its existing quantum;
- increase in bus garage land take required for electrification; and
- new leisure uses including cinema and swimming pool.

The location and layout of this mix of retained and new uses will not be specifically addressed; their cumulative impact and ability to deliver on a widened, strengthened town centre offer will be the main focus. This is also considered below under 'internalisation'.

Trip generation - residential

A multi-modal trip generation assessment has been undertaken using TRICS, the industry standard tool for estimating trip generation. A range of trip rates were obtained for different land use mixes; those deemed to be most appropriate for use in this transport study were:

- Mixed private housing - flats and houses; and
- Mixed private/affordable housing.

Sites within these two categories were chosen using a range of criteria:

- London only;
- 'Town Centre' or 'Edge of Town Centre'; and
- Very low PTAL locations excluded.

The number of representative sites in each category was:

- Mixed private housing - flats and houses = 10 sites; and
- Mixed private/affordable housing = 4 sites.



Hour start	In	Out	Total
7	0.073	0.398	0.471
8	0.164	0.835	0.999
9	0.234	0.260	0.493
10	0.127	0.174	0.301
11	0.172	0.191	0.363
12	0.179	0.178	0.356
13	0.179	0.193	0.372
14	0.173	0.220	0.393
15	0.440	0.276	0.716
16	0.429	0.250	0.679
17	0.477	0.214	0.691
18	0.438	0.218	0.656
19	0.388	0.211	0.599
20	0.259	0.120	0.379
Total	3.730	3.736	7.466

Table 3 Trip rate per residential unit

Total daily trips (7am-9pm) made per residential units is 7.466 by all modes; the range of daily trips is between 6.117 (mixed private and affordable housing) to 8.814 (mixed private housing).

A high-intensity development of 4,696 residential units might therefore be expected to generate in the order of 35,000 trips per day (inbound and outbound, by all modes of travel).

Hour start	In	Out	Total
7	350	1850	2200
8	750	3900	4700
9	1100	1200	2300
10	600	800	1400
11	800	900	1700
12	850	850	1650
13	850	900	1750
14	800	1050	1850
15	2050	1300	3350
16	2000	1150	3200
17	2250	1000	3250
18	2050	1000	3100
19	1800	1000	2800
20	1200	550	1800
Total	17500	17550	35050

Table 4 Residential trips based on high-intensity scenario of 4,696 residential units

Assuming a residential population in the order of 10,000 (ie an average of 2 people per residential unit) this gives a daily trip generation of 3.5 trips per person per day.

This TRICS estimate has been compared against national travel statistics² to ensure that the trip rates used in this study are representative. Based on the most recently available data, 145 weekday trips are made per person per year (England average) which equates to approximately c.2.8 trips per person per weekday. Historically, London residents make fewer trips per day than for the rest of England. As such, the high-level

² National Travel Survey 2018, Tables 0504 and 9906



assumption of 3.5 trips per person per day using TRICS can be regarded as conservative and appropriate.

Peak movement flows by all modes of travel are:

- in the morning between 8-9am (in the order of 4,650 trips); and
- in the afternoon/evening between 3-7pm (in the order of 3,000 trips per hour).

This magnitude of movement generated by this high-intensity scenario will need careful management and design, even if a significant percentage of the trips are expected to take place by walk/cycle.

It could be expected that current trends in peak spreading will continue to take place in the future, particularly for trips that are on capacity-constrained networks (eg tube, certain highway movements). Whilst further peak spreading would not affect the overall quantum of trips generated, it would shift their times to less busy periods. However, for the purposes of this assessment we are assuming no changes to journey making propensity by time of day in order to assess continued pressure during peak periods.

Trip purpose

The total movement generated by the residential development has been split into component journey purposes based on National Travel Survey data³. Eight separate journey purposes were compressed into four main groupings:

- Work (including commuting and employer's business);
- Education (including education and escort education);
- Personal (including shopping and other personal business); and
- Leisure (including visiting friends, entertainment, sport, holiday).

For each hour, the percentage of movement by each purpose is shown in Table 5 below.

Hour starting	Work	Education	Personal	Leisure	Total
7	54%	19%	17%	9%	100%
8	24%	51%	18%	7%	100%
9	16%	10%	48%	25%	100%
10	9%	2%	59%	30%	100%
11	9%	3%	59%	28%	100%
12	11%	4%	55%	29%	100%
13	15%	3%	53%	29%	100%
14	14%	14%	45%	27%	100%
15	10%	47%	26%	18%	100%
16	26%	11%	36%	27%	100%
17	36%	5%	32%	27%	100%
18	24%	2%	33%	41%	100%
19	14%	1%	34%	52%	100%
20	15%	1%	30%	54%	100%
21	17%	1%	24%	58%	100%

Table 5 Journey purposes splits by hour (based on NTS data)

³ National Travel Survey 2018, Table 0502



Applying these journey purpose splits to the trip generation totals gives a more detailed breakdown of trips by purpose (Table 6; NB two-way trips).

Hour start	Work	Education	Personal	Leisure	Total
7	1200	450	400	200	2200
8	1100	2400	850	350	4700
9	400	250	1100	600	2300
10	150	50	850	400	1400
11	150	50	1000	500	1700
12	200	50	900	500	1650
13	250	50	950	500	1750
14	250	250	850	500	1850
15	350	1600	850	600	3350
16	850	350	1150	850	3200
17	1150	150	1050	850	3250
18	750	50	1000	1300	3100
19	400	0	950	1450	2800
20	250	0	550	950	1800
Total	7400	5750	12400	9500	35050

Table 6 Hourly two-way trips by journey purpose

Within the peak periods the following key findings are:

- The 8-9am morning peak is dominated by work and education trips – approximately 3,500 in total;
- There is a 3-4pm afternoon peak that is created by school departures; and
- There is an evening peak spread over several hours (4-7pm) that comprises a mix of work, leisure and personal journey purposes.

Trip generation – non-residential

As noted above, for non-residential uses the following high-level assumptions have been made:

- retail retained at its existing quantum;
- office retained at its existing quantum;
- increase in bus garage land take required for electrification; and
- new leisure uses including cinema and swimming pool.

On this basis, it is assumed that current quantum of movement generated by the existing office and retail uses within the town centre will not change significantly and will result in no overall net change. Any change in levels of movement generated by the re-provision of these land uses is likely to be exceptionally small in comparison to the scale of residential trip generation.

Similarly, an enlarged area for bus operations (including bus stops, stands and garaging) will not have, in its own right, a significant impact on the overall quantum of trips generated by the SPD development.

For new leisure uses, the following high-level assumptions have been made to provide an initial estimate of what additional volumes of movement could be generated:

- Multi-screen cinema with 5 screens and 1,000 seats total; and
- Swimming pool / leisure centre complex of c.4,000m².



It should be noted that these assumptions are purely indicative and have been used to illustrate the possible scale of movement generated by the inclusion of facilities within the SPD development area. Below is some benchmarking against other relevant, local facilities.

- Other nearby swimming pool / leisure centre complexes – all of which have a swimming pool, gym, sports hall, café, etc:
 - Harrow leisure centre
 - Wembley, Vale Farm; and
 - Barnet, Cophall.

- Other nearby cinemas:
 - Borehamwood, 4 screens
 - Barnet, 5 screens
 - North Finchley, 9 screens
 - Watford, 9 screens
 - Harrow, 12 screens

Indicative trip rates were extracted from the TRICS database for both cinema and leisure centre land uses.

Cinema

Hour start	In	Out	Total
9	0.035	0.001	0.036
10	0.007	0.002	0.009
11	0.011	0.025	0.036
12	0.037	0.021	0.058
13	0.018	0.009	0.027
14	0.029	0.022	0.051
15	0.033	0.029	0.062
16	0.017	0.016	0.033
17	0.057	0.031	0.088
18	0.082	0.037	0.119
19	0.037	0.020	0.057
20	0.093	0.053	0.146
21	0.024	0.075	0.099
22	0.003	0.080	0.083
23	0.004	0.045	0.049
Total	0.487	0.466	0.953

Table 7 Multi-modal trips rate for cinema (per seat)



Hour start	In	Out	Total
7	0	0	0
8	0	0	0
9	50	0	50
10	0	0	0
11	0	50	50
12	50	0	50
13	0	0	50
14	50	0	50
15	50	50	50
16	0	0	50
17	50	50	100
18	100	50	100
19	50	0	50
20	100	50	150
21	0	100	100
22	0	100	100
23	0	50	50
Total	500	500	1000

Table 8 Multi-modal cinema trips based on 1,000 seats

On a typical weekday it could be expected that a 1,000 seat multi-screen cinema generates approximately 1,000 two-way (inbound and outbound) trips – with the majority being from the late afternoon onwards.

Leisure Centre

Hour start	In	Out	Total
6	0.810	0.048	0.858
7	0.786	0.771	1.557
8	1.893	0.810	2.703
9	3.355	1.390	4.745
10	3.376	2.860	6.236
11	2.268	3.265	5.533
12	2.208	3.044	5.252
13	2.643	1.859	4.502
14	1.952	2.929	4.881
15	3.125	1.590	4.715
16	3.858	2.848	6.706
17	3.073	3.871	6.944
18	2.686	3.683	6.369
19	2.003	2.660	4.663
20	0.905	2.295	3.200
21	0.219	1.367	1.586
Total	35.160	35.290	70.450

Table 9 Trip rate for leisure centre (per 100m²)



Hour start	In	Out	Total
6	50	0	50
7	50	50	50
8	100	50	100
9	150	50	200
10	150	100	250
11	100	150	200
12	100	100	200
13	100	50	200
14	100	100	200
15	150	50	200
16	150	100	250
17	100	150	300
18	100	150	250
19	100	100	200
20	50	100	150
21	0	50	50
Total	1400	1400	2800

Table 10 Multi-modal leisure centre trips based on 4,000m²

Assuming a development size of c.4,000m² (consistent with centres in Wembley and Barnet) gives a total daily trip profile of approximately 3,000 movements inbound and outbound by all modes of travel.

Whilst both substantial in their own right, the combined trip generation of the cinema and the leisure centre (c.4,000 trips per day) is an order of magnitude smaller than the residential trip generation (c.35,000 trips per day). The combined trip generation for all land uses assessed is shown in Table 11.

Hour start	In	Out	Total
6	50	0	50
7	350	1900	2250
8	850	3950	4800
9	1250	1300	2550
10	750	950	1650
11	900	1050	1950
12	950	1000	1950
13	950	1000	1950
14	900	1150	2100
15	2200	1400	3600
16	2200	1300	3500
17	2400	1200	3600
18	2250	1200	3450
19	1950	1100	3050
20	1350	700	2050
21	50	150	150
Total	19400	19300	38700

Table 11 Residential + cinema + leisure centre multi-modal trips



Trip distribution

The distribution of trips generated by the proposed SPD development (ie inbound origins and outbound destinations) has been considered by journey purpose – work, education, leisure and personal/other.

Work journey purpose

Data from the 2011 Census shows that for the local Edgware ward, 31% of work-based trips (excluding home working) were within Barnet borough. A further c.8% of work-based trips were classified as 'work from home'.

In the last 9 years, it is reasonable to assume a continued, upward trend in home working. ONS homeworking data for 2012-2019⁴ indicates that, at a national level, there has been a 21% growth in working from home. Applying this growth at a local level gives a c.10% current homeworking rate (and c.41% intra-Borough rate).

In line with aspirations in the Draft Local Plan, it is assumed that the pattern of future employment demand will see greater local and intra-Borough opportunities, notably growth at Brent Cross. It is also anticipated that there will be continued, strong growth in working from home and/or remote working using hubs close to home locations. This trend could be magnified by longer-term responses to the COVID-19 pandemic.

Data from the 2011 Census has also been used to identify the destinations of work trips outside the Borough. There is a strong demand for movement towards central London (eg Camden, Westminster, Islington, City) but also much more widely in outer London (Harrow, Brent) and surrounding areas (eg Watford, Hertsmere). The overall split of work distributions reflects this:

- Homeworking = up to 20%;
- Work trips made within Barnet borough = up to 40%;
- Total work intra-Borough trips = up to 60%;
- Work trips towards/from central London (ie Camden, Westminster, etc) = c.25%;
and
- Work trips to/from Harrow, Brent, wider London and surrounding centres = c.15%.

The promotion of homeworking, flexible working locations and local Borough employment opportunities through wider SPD policies and principles will be important to ensure work trips are retained locally. A directly relevant policy within the Draft Local Plan (Policy TRC04) relates to Digital Communication and Connectivity which states that:

“The Council will promote the development of advanced, high quality communications infrastructure to support economic growth and more accessible, inclusive communities”.

4

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/adhocs/11512homeworkersbyoccupationandindustry2012to2019>



Education journey purpose

It has been assumed that any new primary school provision that is required to support SPD development will be within close walking (and scooting) distance. This will ensure sustainable travel modes are the dominant, obvious choice for parents and children. High-quality walking and cycling links should be provided through/around the SPD area to facilitate safe and efficient movement to/from the school(s). Chapter 8 of the main report provides more information on proposed measures.

For secondary school provision it has been assumed that demand will be spread locally to nearby schools, primarily within the Borough and also in Harrow.

Leisure and personal journey purposes

Leisure and personal trips have been assumed to be a wide mix of very local through to London-wide distance trips. Edgware's existing town centre 'offer' will be significantly strengthened by SPD development leading to increased numbers of trips being made within a short, walkable distance of the town centre.

Internalisation

The 'internalisation' of development-generated trips (ie short distance walking trips that extend no further than the town centre) is a key expectation of the proposed SPD development. It will deliver a step change in how the town centre functions through the day, including a greater emphasis on expanding the evening economy. In addition to a proportion of SPD personal and leisure purpose trips being retained within the local area, Edgware town centre's existing catchment for non-work trips will be enlarged and strengthened to reflect the increased 'offer' that will be achieved through major redevelopment.

Of the c.35,000 daily trips generated by the SPD residential development, Table 6 shows that c.22,000 trips are for personal and leisure purposes. The assumption that 25% of personal trips and 20% of leisure trips are 'hyper local' gives c.5,000 trips per day that will be contained within the immediate vicinity of the SPD development area.

Summary

For each of the four key journey purpose groupings considered above, a distance-based distribution has been applied across six zones:

- Hyper local = <500m distance (equivalent to internal trips);
- Local = <1km distance, Edgware town centre;
- Wider = <2km distance, the wider Edgware catchment;
- Borough = c.5km distance, Barnet Borough;
- Strategic = >5km distance, north London and beyond; and
- Central = >5km distance, specifically towards central London.

This zoning system is shown schematically in Figure 3 overleaf and shows the relative catchments of each of the six distribution zones.



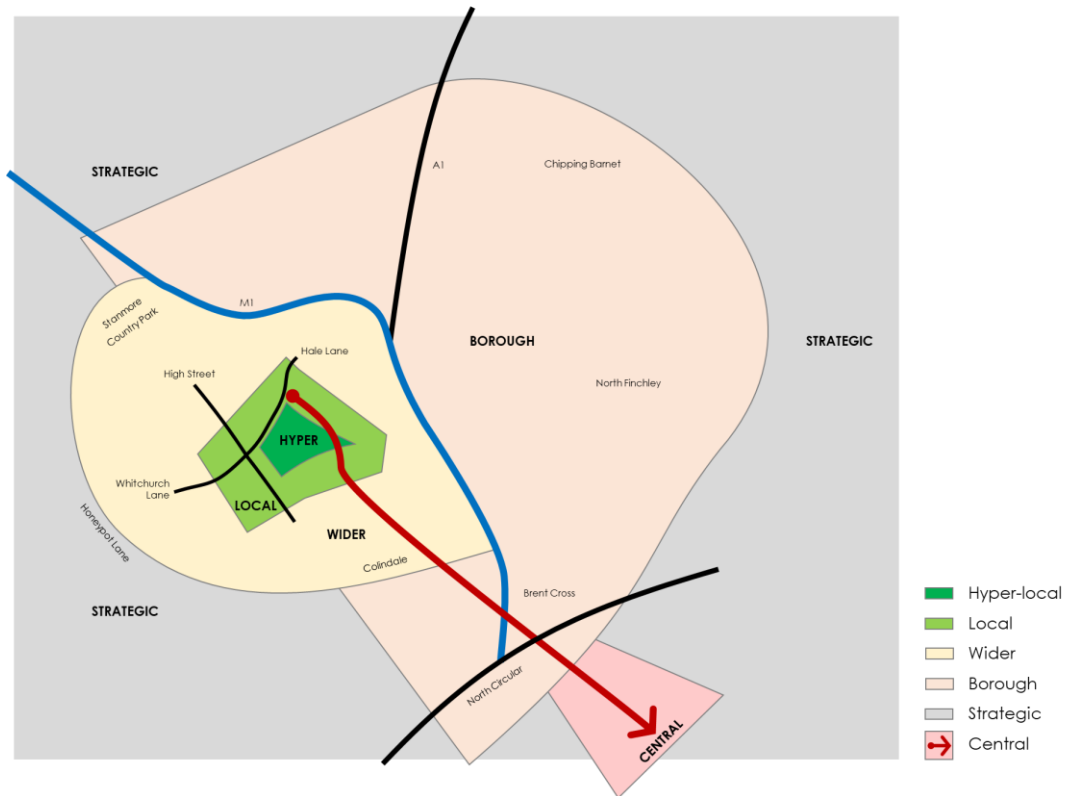


Figure 3 Schematic zoning map

The percentage split to the six distribution zones for each of the four journey purposes is shown below in Table 12:

- Work-based trips are distributed so that there's 20% home working and 40% Borough working;
- Education trips are predominantly local with an allowance for wider-area secondary school movement;
- Personal trips are biased strongly to the town centre and wider town centre catchment; and
- Leisure trips are distributed relatively widely, reflecting the diverse activities likely to be undertaken within the wider London area.

Zoning	Hyper-local	Local	Wider	Borough	Strategic	Central
Area	Immediate	Town centre	Wider Edgware	Barnet	N London	London
Work	5%	5%	10%	20%	30%	30%
Education	50%	20%	25%	5%	0%	0%
Personal	25%	45%	15%	5%	5%	5%
Leisure	20%	20%	20%	20%	10%	10%

Table 12 Trip distance splits by journey purpose



Trip mode

Residential development

Based on the prevailing policy context (both London-wide, GLA's London Plan and locally, Barnet's Draft Local Plan) the assumed starting point for new development in Edgware town centre is for it to be car free.

The vast majority of trips will be undertaken by sustainable modes, particularly walking and cycling. Dependent on journey distance (see Table 11 above), different mode (or modes) of travel will be more feasible / attractive than others. Table 12 at the end of this section provides a summary of the proposed modes by journey distance.

Provision is assumed to be provided for disabled users in line with the London Plan that specifies 3 spaces for every 100 units (noting the recommendation for this provision to rise to accommodate a possible 10 spaces per 100 units in the longer term).

However, in order to reflect Edgware's outer London location and its wider catchment that is poorly served by public transport, it is assumed in this transport study that a modest supply of non-disabled parking will be provided. This provision could represent two broad scenarios:

- a minority of households are provided with a dedicated parking space – conferring the ability for some to make (potentially extensive) use of travelling by car; or
- a wider, non-private, shared-use parking model is pursued that is open to a much larger number of people to use on a flexible basis, depending on need.

In order to promote access to mobility by vehicles as widely as possible it is assumed that the latter approach will be promoted and followed.

The total quantum of residential car parking indicatively assumed in this transport study is:

- the provision of up to c.250 disabled spaces – representing approximately 5% of total residential units (thus exceeding the 3% minimum London Plan requirement but less than longer term 10% target); and
- the flexible provision of c.250 spaces for car club, visitor parking and other flexibly-managed provision – again representing approximately 5% of total residential units.

In addition to on-site car parking provision providing vehicle-based mobility for residents, vehicle use by residents is also assumed to take place through a combination of taxi, private hire (eg Uber) or other future models eg MaaS (Mobility as a Service).

In the lifetime of the SPD (ie 10-15 years) it is assumed that the cost (£/mile) of MaaS or other solutions will not lead to a significant number of residents making trips by vehicle for regular, work purpose trips but may do so for less frequent leisure and personal purpose trips.



A modest quantum of visitor parking has been assumed to reflect the catchment of Edgware that extends into areas very poorly served by public transport. The mode share assumptions below incorporate an allowance for this (as the trip generation totals include all movements, not just those by the residents themselves).

Management of the residential parking will need careful management; measures to be specified and implemented through Residential Travel Plans. Examples of measures could be:

- pre-booking visitor parking spaces with an allowance (eg yearly) for usage by each household; and
- maintaining the existing approach of not providing on-street parking permits to new residents and strengthen CPZ controls and enforcement across the town centre to prevent uncontrolled overspill parking.

In line with the trip distribution assumptions outlined above for schools, education-based trips (including escort education by parents) are assumed to take place almost entirely by sustainable modes:

- walking, cycling, scooting for primary school age children; and
- walking, cycling and public transport for secondary school age children – with a small allowance for trip-chaining (ie school drop-off then onto work).

Controlling the use of private cars for school pick-up/drop-off will be achieved through a combination of the limited parking supply (see above) and specific targets and measures in School Travel Plans. Overall, these assumptions and considerations give rise to a set of mode shares differentiated by journey distance (Table 13).

Zoning	Hyper-local	Local	Wider	Borough	Strategic	Central
Area	Immediate	Town centre	Wider Edgware	Barnet	N London	London
Distance	<500m	<1km	<2km	<5km	<10km	>10km
Modes	Walk	Walk Cycle	All	Cycle Bus Tube Vehicle	Bus Tube Vehicle	Tube Vehicle
Walk	100%	90%	50%	0%	0%	0%
Cycle	0%	10%	25%	15%	5%	0%
Bus	0%	0%	15%	65%	65%	0%
Tube	0%	0%	5%	10%	15%	90%
Car	0%	0%	5%	10%	15%	10%
Other	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Table 13 Trip mode by journey distance

The assumptions above are intended to be fully consistent with the vision statements as set out in the LTS:

- “Walking will be the natural mode for short journeys in Barnet...” [p.30];
- “Cycling in Barnet will be the mode of choice for medium distance journeys, especially for trips to town centres and stations...” [p.37];
- “Public transport will be the default mode for long distance journeys in Barnet.” [p.42]; and
- “Cars will be the mode of last resort in Barnet.” [p.48]



Combining the high-level assumptions on journey distance by purpose (Table 12) and trip mode by journey distance (Table 13) gives an overall set of mode shares by journey purpose (Table 14).

	Work	Education	Personal	Leisure
Walk	15%	81%	73%	48%
Cycle	8%	9%	9%	11%
Bus	34%	7%	9%	23%
Tube	34%	2%	7%	14%
Car	10%	2%	3%	6%
Other	0%	0%	0%	0%
Total	100%	100%	100%	100%

Table 14 Trip mode by journey purpose

Work trips primarily take place by public transport – with a broadly equal split between tube and bus use. This reflects the relatively equal split between destinations that can / can't be made by tube. However because of the wide distribution of workplaces in outer London (and beyond) that are not necessarily well served by public transport there is a modest car mode split – reflecting a mix of private vehicles, privately-hired vehicles and other future car-based mobility options.

The vast majority of education purpose trips are by walking with a smaller component by cycle, bus and other modes reflecting the wider secondary school catchments.

Personal and leisure purpose trips are biased towards active travel modes with sustainable modes (bus, tube) making up the majority of the remainder of travel demand. A small proportion of trips are being made by vehicles – again reflecting a mix of private vehicles, privately-hired vehicles and other future car-based mobility options.

Combining the mode shares by journey purpose (Table 13) with the trip generation totals (Tables 6, 8 and 10) gives an overall total modal generation by hour (Table 15 inbound and Table 16x outbound, overleaf).

For outbound trips the dominant hour is the conventional morning peak hour of 8-9am. This is particularly due to education (and escort education) purpose trips being made as well as work and other journey purposes. Within this peak hour, the majority (nearly two-thirds) of trips are made on foot.

Outbound public transport usage is highest in the morning between 7am and 9am. Across these two hours there are c.1,100 trips made on bus and c.750 trips made by tube. Outside of the morning peak, in the order of 150-250 trips per hour are made per hour by bus and in the order of 80-160 trips per hour made by tube. These public transport flows are considered further in Chapter 4, public transport impact analysis.

Vehicle flows are a maximum of 160 vehicles per hour outbound between 8-9am. Typical non-peak flows are 40 vehicles per hour, less than one per minute on average. These highway network flows are considered further in Chapter 4, highway impact analysis.



Hour start	Walk	Cycle	Bus	Tube	Vehicle	Total
7	750	150	450	400	150	1900
8	2400	350	600	450	150	3950
9	700	100	200	150	50	1250
10	500	100	150	100	50	900
11	600	100	200	100	50	1050
12	550	100	200	100	50	950
13	550	100	200	100	50	1000
14	650	100	200	100	50	1150
15	900	150	200	100	50	1350
16	650	100	250	200	50	1300
17	500	100	300	200	100	1150
18	550	100	300	150	50	1200
19	550	100	250	150	50	1100
20	300	50	150	100	50	700
21	50	0	50	0	0	100
Total	10150	1750	3700	2400	1000	19000

Table 15 total outbound trips by mode by hour

Hour start	Walk	Cycle	Bus	Tube	Vehicle	Total
7	150	50	100	50	50	350
8	500	50	150	100	50	850
9	650	100	250	150	50	1250
10	400	50	150	50	50	700
11	500	100	150	100	50	900
12	550	100	200	100	50	950
13	500	100	200	100	50	950
14	500	100	150	100	50	900
15	1400	200	300	150	100	2200
16	1100	200	450	300	100	2150
17	1050	200	550	400	150	2400
18	1050	200	500	350	150	2200
19	1000	200	400	250	100	1900
20	650	150	300	200	100	1300
21	0	0	0	0	0	50
Total	10000	1800	3800	2450	1050	19100

Table 16 total inbound trips by mode by hour

Wider changes to town centre activity

Separate to the new trips identified as being generated by the proposed SPD development, changes to existing trip making activity in Edgware town centre could be expected. This was considered in terms of retail, leisure centre and cinema catchments in Chapter 3 (page 8):

- The provision of new leisure and cultural facilities (eg leisure centre, cinema) and an enhances retail offer will lead to increased town centre activity, consistent with Edgware being the Borough's major centre (and also a key centre for Harrow borough residents);
- This strengthened, local catchment will result in less 'leakage' to other competing centres and will result in shorter trips being made by local residents which will:
 - (a) reduce pressure on highway networks due to decrease vehicle journey distances;



- (b) make these trips more 'switchable' to non-car modes including walking and cycling – with further reductions in highway demand as a result;
- The anticipated growth in town centre visitation by non-car, sustainable modes is compatible with, and positively supports, a longer-term reduction in the town centre's parking supply – primarily the existing off-street car park that will be redeveloped and replaced by SPD development;
 - The clear expectation is that the SPD development will be a catalyst for positive change to walking/cycling environment and for a normalisation of walking/cycling for short to medium-length trips; and
 - Overall, the wider changes to town centre activity will be positive in terms of reductions in car-based demand and increases in sustainable, active travel.

Trip assignment

This is considered in the next section 'Impact analysis' and is done separately for bus, tube, highway and walk/cycle.



4 SPD development impact analysis

This section provides an assessment of the possible impacts that SPD development will have on public transport, highway and walk/cycle networks in the SPD area and more widely.

Public transport – bus

Hour start	Inbound						Outbound					
	Work	Education	Personal	Leisure	Total	% Total by hour	Work	Education	Personal	Leisure	Total	% Total by hour
7	50	0	0	0	100	3%	350	50	50	50	450	12%
8	50	50	0	50	150	4%	300	150	50	50	600	16%
9	50	0	50	150	250	7%	50	0	50	100	200	5%
10	0	0	50	100	150	4%	50	0	50	100	150	4%
11	50	0	50	100	150	4%	50	0	50	100	200	5%
12	50	0	50	100	200	5%	50	0	50	100	200	5%
13	50	0	50	100	200	5%	50	0	50	100	200	5%
14	50	0	50	100	150	4%	50	0	50	100	200	5%
15	50	50	50	150	300	8%	50	50	50	100	200	5%
16	200	0	50	200	450	12%	100	0	50	100	250	7%
17	250	0	50	200	550	14%	100	0	50	150	300	8%
18	150	0	50	250	500	13%	100	0	50	150	300	8%
19	100	0	50	250	400	11%	50	0	50	150	250	7%
20	50	0	50	200	300	8%	50	0	0	100	150	4%
21	0	0	0	0	0	0%	0	0	0	50	50	1%
Total	1200	150	550	1900	3800	100%	1350	250	500	1550	3700	100%
Total % by purpose	32%	4%	14%	50%	100%		36%	7%	14%	42%	100%	

Table 17 Bus trips by journey purpose

Hour start	Bus - inbound							Bus - outbound						
	Hyper	Local	Wider	Borough	Strategic	Central	Total	Hyper	Local	Wider	Borough	Strategic	Central	Total
7	0	0	0	50	50	0	100	0	0	50	200	200	0	450
8	0	0	0	50	50	0	150	0	0	100	250	200	0	600
9	0	0	50	100	100	0	250	0	0	50	100	100	0	200
10	0	0	0	100	50	0	150	0	0	0	100	50	0	150
11	0	0	0	100	50	0	150	0	0	50	100	50	0	200
12	0	0	0	100	50	0	200	0	0	100	100	50	0	200
13	0	0	0	100	50	0	200	0	0	0	100	50	0	200
14	0	0	0	100	50	0	150	0	0	50	100	50	0	200
15	0	0	50	150	100	0	300	0	0	50	100	50	0	200
16	0	0	50	200	200	0	450	0	0	50	150	100	0	250
17	0	0	50	250	250	0	550	0	0	50	150	100	0	300
18	0	0	50	250	200	0	500	0	0	50	150	100	0	300
19	0	0	50	200	150	0	400	0	0	50	150	100	0	250
20	0	0	50	150	100	0	300	0	0	0	100	50	0	150
21	0	0	0	0	0	0	0	0	0	0	50	0	0	50
Total	0	0	500	1950	1400	0	3800	0	0	500	1800	1350	0	3700

Table 18 Bus trips by zoning

SPD development-generated demand in the AM and PM peak hours is equivalent to an additional c.800 passengers per hour (inbound and outbound). This demand will be highest nearest to Edgware town centre (wider, borough and strategic zoning) and will reduce as buses travel further away.

During peak periods, the 14 bus routes covering Edgware (both starting/terminating at the bus station and through routes) provide a combined peak service frequency of 175 buses per hour. Spread equally across all services, the SPD development demand is equivalent to a modest additional 4 passengers per service per hour.

Baseline BODS data indicates that, when all services are combined throughout the day, on average each bus operates at a relatively low level of utilisation, equivalent to c.30% of its total standing capacity. The addition of the all-day SPD development demand is equivalent to an additional 4% of total standing capacity. As such, in principle there would appear to be sufficient capacity to accommodate the estimated additional patronage generated by the SPD development.



Route	Direction	Max surveyed loading	Daily services	Daily max patronage	Total standing capacity per vehicle	Maximum daily capacity	% Utilisation
32	Outbound	31	119	3689	90	10710	34%
	Inbound	29	119	3451	90	10710	32%
79	Outbound	24	93	2232	90	8370	27%
	Inbound	26	93	2418	90	8370	29%
107	Outbound	24	66	1584	90	5940	27%
	Inbound	27	67	1809	90	6030	30%
113	Outbound	27	150	4050	75	11250	36%
	Inbound	30	148	4440	75	11100	40%
142	Southbound	28	88	2464	90	7920	31%
	Northbound	30	89	2670	90	8010	33%
186	Southbound	35	88	3080	90	7920	39%
	Northbound	30	86	2580	90	7740	33%
204	Outbound	26	106	2756	90	9540	29%
	Inbound	25	104	2600	90	9360	28%
221	Outbound	28	128	3584	90	11520	31%
	Inbound	31	128	3968	90	11520	34%
240	Outbound	17	68	1156	90	6120	19%
	Inbound	18	68	1224	90	6120	20%
251	Outbound	21	86	1806	77	6622	27%
	Inbound	21	91	1911	77	7007	27%
288	Loop	15	98	1470	77	7546	19%
292	Southbound	24	67	1608	90	6030	27%
	Northbound	25	65	1625	90	5850	28%
303	Outbound	11	58	638	77	4466	14%
	Inbound	13	57	741	77	4389	17%
340	Outbound	21	88	1848	73	6424	29%
	Inbound	25	88	2200	73	6424	34%
ALL		662	2506	63602	2301	213008	30%

Scenario	Daily patronage	% Utilisation
BODS	63602	30%
SPD development	7498	4%
BODS + SPD development	71100	33%

Table 19 Maximum BODS loadings and implied average utilisation by route/direction

However, allowing for peak hour loadings well in excess of the daily average reported in BODS, indicative peak period utilisations by service could range from 30% to greater than 80% of total standing capacity. Within a particular peak period, the busiest buses could experience higher utilisations still.

Given this range of peak period utilisations, the addition of the SPD development demand could be expected to be accommodated on many but not necessarily all services when they are operating at their busiest times.

Furthermore, a key element of the SPD is to promote movement by sustainable, non-car movement. The combination of a strengthened town centre offer that captures more retail and leisure activity from the local and wider area and a reduced (and further reducing in the longer-term) parking supply will mean that there is increased bus demand to/from Edgware by existing residents.



The scale of existing vehicle usage to/from the existing off-street car parking (see Table 31) is in the order of 3,800 inbound vehicle trips per weekday. Based on a smaller future parking supply of c.500 the number of vehicle trips that could be expected reduces to c.2,400 per weekday, a reduction of 1,400 trips – which are assumed to continue to be made, albeit by a different mode. Of these 1,400 trips, if it is assumed that 50% are within scope for bus (ie beyond walking / cycling distance) this equates to an additional c.700 inbound trips per weekday.

A strengthened town centre offer that captures more retail and leisure activity from the local and wider area can also be expected to generate increased bus demand. Using pedestrian flows along the busiest section of Station Road as a benchmark, current activity is in the order of 8,000 people per day. Applying a 20% uplift to reflect increased activity generated by a larger town centre catchment (and the same 50% bus share as above) gives a net daily increase of 800 people who have travelled to/from Edgware by bus.

The indicative scale of additional bus demand from town centre improvements and wider travel behaviour changes might be expected to be in the order of 1,500 people per day. This is smaller in scale than the SPD-generated demand above and, as such, could be expected to be accommodated on many but not necessarily all services when they are operating at their busiest times.

Moving beyond an assessment of current conditions and utilisations, TfL has forecast that to reach the targeted 80% mode share for sustainable modes, a 40% increase in bus passengers will be required across London. This will be proportionately higher in outer suburbs such as Edgware where the current bus mode share is lower. Therefore, it can be expected that over the next 20 years there will be large increases in bus patronage over and above that generated by the SPD development.

Bus service improvements, both in terms of frequencies and areas covered, should be investigated to meet agreed, identified future shortfalls and provide greater opportunities for bus travel to make up a much greater proportion of journeys by all modes.

This is fully consistent with the draft Local Plan that states that:

“...improved bus provision (in terms of configuration as well as capacity) will play a key role in meeting the transport needs of residents” [paragraph 11.3.6]

and that:

“The Council will work with TfL on improving the local bus network, with the aim of more closely and efficiently matching demand and capacity and improving public transport accessibility overall.” [paragraph 11.5.4]

Public transport – tube

Peak tube activity is anticipated to take place during the conventional morning period (7-9am) for outbound trips and afternoon/evening period (4-7pm) for inbound trips.



The volume of demand is up to 450 people per hour, equivalent to up to 8 people per minute.

Hour start	Inbound						Outbound					
	Work	Education	Personal	Leisure	Total	% Total by hour	Work	Education	Personal	Leisure	Total	% Total by hour
7	50	0	0	0	50	2%	350	0	0	0	400	17%
8	50	0	0	0	100	4%	300	50	50	50	450	19%
9	50	0	50	50	150	6%	50	0	50	50	150	6%
10	0	0	0	50	50	2%	50	0	50	50	100	4%
11	50	0	50	50	100	4%	50	0	50	50	100	4%
12	50	0	50	50	100	4%	50	0	50	50	100	4%
13	50	0	50	50	100	4%	50	0	50	50	100	4%
14	50	0	0	50	100	4%	50	0	50	50	100	4%
15	50	0	50	50	150	6%	50	0	0	50	100	4%
16	200	0	50	100	300	12%	100	0	50	50	200	8%
17	250	0	50	100	400	16%	100	0	0	50	200	8%
18	150	0	50	100	350	14%	100	0	0	50	150	6%
19	100	0	50	150	250	10%	50	0	0	50	150	6%
20	50	0	0	100	200	8%	50	0	0	50	100	4%
21	0	0	0	0	0	0%	0	0	0	0	0	0%
Total	1200	50	400	800	2450	100%	1350	50	400	600	2400	100%
Total % by purpose	49%	2%	16%	33%	100%		56%	2%	17%	25%	100%	

Table 19 Tube trips by journey purpose

Baseline data

RODS data represents the number of people travelling on a typical (or average) weekday on the London Underground network. Data has been extracted from the most recent year (2017) to give typical station entry/exit flows at Edgware station and service utilisations on the relevant northern line branch.

Typical weekday (Monday-Thursday) entry/exit flows are shown in Table 20.

Hour start	2017 RODS	
	Entry	Exit
7	1,310	291
8	1,419	421
9	729	261
10	450	179
11	375	215
12	340	252
13	327	303
14	306	378
15	344	486
16	426	746
17	457	1,064
18	360	1,214
19	206	802
20	129	449
21	91	328
Total	7,991	7,480

Table 20 RODS data for Edgware station

Total inbound / outbound flows are in the range of 7,500 – 8,000 per day with a peak flow of between c. 1,200 inbound (PM, 6-7pm) and c.1,400 outbound (AM, 8-9am).

Comparing the estimated SPD travel demand by tube gives an increase in Edgware station entry/exit flows, equal to a c.33% increase across the day (06-21). Peak increases in station flows are 54% exit (9-10am) and 69% entry (7-8pm).



Hour start	2017 RODS		SPD total		SPD % change	
	Entry	Exit	Entry = Out	Exit = In	Entry = Out	Exit = In
7	1,310	291	400	50	31%	17%
8	1,419	421	450	100	32%	24%
9	729	261	150	150	21%	57%
10	450	179	100	50	22%	28%
11	375	215	100	100	27%	47%
12	340	252	100	100	29%	40%
13	327	303	100	100	31%	33%
14	306	378	100	100	33%	26%
15	344	486	100	150	29%	31%
16	426	746	200	300	47%	40%
17	457	1,064	200	400	44%	38%
18	360	1,214	150	350	42%	29%
19	206	802	150	250	73%	31%
20	129	449	100	200	78%	45%
21	91	328	0	0	0%	0%
Total	7,991	7,480	2,400	2,400	30%	32%

Table 21 SPD tube patronage comparison

A high-level static analysis of the station's capacity has been undertaken using the 2017 RODS data plus SPD development flows.

The hourly peak flows were converted into 5-minute maximum peak flows using a 50% uplift factor (ie 5-min maximum flow = 60-min peak flow ÷ 12 * 1.5). The maximum peak flows are therefore:

- AM entries = 1,852 per hour (8-9am) = 232 in 5 minutes; and
- PM exits = 1,625 per hour (6-7pm) = 203 in 5 minutes.

The maximum gate line capacity was assumed to be 25 people per minute, per gate with three standard gates operational in the peak direction (ie entries in the morning, exits in the evening). The wide aisle gates in use at the station have been excluded from the analysis but will provide a modest additional level of capacity.

Overall, there is a 5-minute maximum gate line capacity of 375 people, equivalent to the following levels of utilisation:

- AM entry maximum peak flow = 62% of gate line capacity; and
- PM exit maximum peak flow = 54% of gate line capacity.

On this basis, there should be sufficient gate line capacity to accommodate the SPD development-generated additional tube demand. This is consistent with a high-level assessment of LU requirements undertaken by TfL in 2018⁵ which stated that the ticket hall "doesn't [appear to] suffer from undue congestion... [and] similarly, the platforms and the staircases leading to them are adequate".

Train loadings

At a headline, based on a minimum (post COVID-19) service frequency of 20 trains per hour by direction, the SPD development generates a maximum additional loading of 20 passengers per train per hour (AM, 8-9am) and 17 passengers per hour

⁵ Edgware Development TfL Requirements, October 2018



(PM, 5- 6pm). As Edgware is the first/last station on the Northern line, the increases in station entry/exit flows, are equivalent to increases in train loadings.

The high-level assumptions on journey distance by journey purpose gives a breakdown of likely tube demand to different stations along the Northern line, where:

- Wider = eg as far as Colindale;
- Borough = eg as far as Golders Green; and
- Strategic, Central = eg as far as Camden (representing peak loading before services split to Bank and Charing Cross branches).

Hour start	Colindale		Golders Green		Camden Town	
	Out	In	Out	In	Out	In
7	400	50	400	50	350	50
8	450	100	400	100	350	50
9	150	150	150	150	150	100
10	100	50	100	50	100	50
11	100	100	100	100	100	50
12	100	100	100	100	100	100
13	100	100	100	100	100	100
14	100	100	100	100	100	100
15	100	150	100	150	100	150
16	200	300	150	300	150	250
17	200	400	200	400	150	350
18	150	350	150	300	150	300
19	150	250	150	250	100	200
20	100	200	100	150	50	150
21	0	0	0	0	0	0
Total	2400	2450	2250	2250	2000	2000

Table 22 Tube trips by zoning (indicative station locations)

Tables 23 (Colindale), 25 (Golders Green) and 27 (Camden Town) show the percentage change when estimated SPD development-generated flows are combined with 2017 RODS data. Highest increases are seen to/from Colindale, dropping as distance increases away from Edgware.

Colindale

Across the day, the estimated increase in tube patronage at Colindale station (representing trips made within the 'Wider' area) is between 16-18% (see Table X below). Peak direction increases are:

- southbound, AM (8-9am) has a +15% increase; and
- northbound, PM (6-7pm) has a +20% increase.

Non-peak direction increases are higher, in particular reflecting the scale of non-work based trips generated by the residential development:

- northbound, AM (9-10am) has a +33% increase; and
- southbound, PM (7-8pm) has a +39% increase.



Hour start	Colindale RODS		Colindale SPD		SPD % change	
	S/bound	N/bound	Out	In	Out	In
7	2,498	452	397	74	16%	11%
8	2,987	731	433	88	15%	14%
9	1,425	427	151	141	11%	35%
10	779	333	95	71	13%	15%
11	643	356	103	92	16%	28%
12	632	468	101	101	16%	21%
13	580	598	116	109	17%	17%
14	519	709	124	98	19%	14%
15	571	965	109	175	18%	16%
16	711	1,392	181	309	28%	22%
17	892	2,099	188	411	22%	19%
18	621	2,289	170	335	24%	15%
19	367	1,291	141	256	41%	19%
20	241	728	87	180	41%	27%
21	175	547	5	1	0%	0%
Total	15,315	13,560	2402	2441	16%	18%

Table 23 Change in tube demand at Colindale station

Peak train loadings along with theoretical utilisations based on maximum seated and standing capacities are shown in Table X for Colindale station. This is based on 20/24 trains per hour off-peak/peak, 248 seated capacity per train, and 438 standing capacity per train (at 4 people per m²).

Hour start	Colindale RODS+SPD		% Seated Utilisation		% Standing Util	
	Entry	Exit	Entry = Out	Exit = In	Entry = Out	Exit = In
6	1,674	176	34%	4%	19%	2%
7	2,895	526	58%	11%	33%	6%
8	3,420	819	57%	14%	33%	8%
9	1,576	568	26%	10%	15%	5%
10	874	404	15%	7%	8%	4%
11	746	448	13%	8%	7%	4%
12	733	569	12%	10%	7%	5%
13	696	707	12%	12%	7%	7%
14	643	807	11%	14%	6%	8%
15	680	1,140	11%	19%	6%	11%
16	892	1,701	15%	29%	8%	16%
17	1,080	2,510	18%	42%	10%	24%
18	791	2,624	13%	44%	8%	25%
19	508	1,547	10%	31%	6%	18%
20	328	908	7%	18%	4%	10%
21	180	548	4%	11%	2%	6%
Total	17,717	16,001	20%	18%	11%	10%

Table 24 Typical train loadings at Colindale station with SPD development

Maximum loadings are seen in the AM peak southbound (57% of seated capacity) and in the PM peak northbound (44% of seated capacity). This indicates that the estimated additional demand generated by the SPD development can be accommodated.

Golders Green

Across the day, the estimated increase in tube patronage at Golders Green station (representing trips made within the 'Borough' area) is between 6-7% (see Table 25 below). Peak direction increases are:

- southbound, AM (8-9am) has a +5% increase;
- northbound, PM (6-7pm) has a +6% increase.



Non-peak direction increases are higher, in particular reflecting the scale of non-work based trips generated by the residential development:

- northbound, AM (9-10am) has a +9% increase;
- southbound, PM (7-8pm) has a +13% increase.

Hour start	Golders Green RODS		Golders Green SPD		SPD % change	
	S/bound	N/bound	Out	In	Out	In
7	5,155	1,413	383	71	7%	5%
8	7,290	2,092	395	80	5%	4%
9	3,782	1,484	141	130	4%	9%
10	1,993	1,098	87	65	4%	6%
11	1,612	1,019	94	84	6%	8%
12	1,593	1,199	93	93	6%	8%
13	1,570	1,348	108	101	7%	8%
14	1,532	1,485	114	90	7%	6%
15	1,792	2,002	95	152	5%	8%
16	2,255	3,119	170	291	8%	9%
17	2,736	4,922	179	392	7%	8%
18	2,026	5,238	160	316	8%	6%
19	1,021	3,041	132	240	13%	8%
20	627	1,910	81	169	13%	9%
21	471	1,513	4	1	1%	0%
Total	38,511	33,317	2235	2275	6%	7%

Table 25 Change in tube demand at Golders Green station

Peak train loadings along with theoretical utilisations based on maximum seated and standing capacities are shown in Table X for Golders Green station. This is based on 20/24 trains per hour off-peak/peak, 248 seated capacity per train, and 438 standing capacity per train (at 4 people per m²).

Hour start	G. Green RODS+SPD		% Seated Utilisation		% Standing Util	
	Entry	Exit	Entry = Out	Exit = In	Entry = Out	Exit = In
6	3,056	435	62%	9%	35%	5%
7	5,538	1,484	112%	30%	63%	17%
8	7,685	2,172	129%	36%	73%	21%
9	3,923	1,614	66%	27%	37%	15%
10	2,080	1,163	35%	20%	20%	11%
11	1,706	1,103	29%	19%	16%	10%
12	1,686	1,292	28%	22%	16%	12%
13	1,678	1,449	28%	24%	16%	14%
14	1,646	1,575	28%	26%	16%	15%
15	1,887	2,154	32%	36%	18%	20%
16	2,425	3,410	41%	57%	23%	32%
17	2,915	5,314	49%	89%	28%	51%
18	2,186	5,554	37%	93%	21%	53%
19	1,153	3,281	23%	66%	13%	37%
20	708	2,079	14%	42%	8%	24%
21	475	1,514	10%	31%	5%	17%
Total	40,746	35,592	45%	39%	26%	22%

Table 26 Typical train loadings at Golders Green station with SPD development

Maximum loadings are seen in the AM peak southbound (112% of seated capacity / 73% of standing capacity) and in the PM peak northbound (93% of seated capacity / 53% of standing capacity). This indicates that the estimated additional demand generated by the SPD development can be accommodated, albeit beyond the seated capacity of the train.



Camden Town

Across the day, the estimated increase in tube patronage at Camden Town station (representing trips made within the 'Strategic' and 'Central' areas) is between 3- 4% (see Table X below). Peak direction increases are:

- southbound, AM (8-9am) has a +3% increase; and
- northbound, PM (6-7pm) has a +3% increase.

Non-peak direction increases are higher, in particular reflecting the scale of non-work based trips generated by the residential development:

- northbound, AM (9-10am) has a +4% increase; and
- southbound, PM (7-8pm) has a +6% increase.

Hour start	Camden RODS		Camden SPD		SPD % change	
	S/bound	N/bound	Out	In	Out	In
7	6,374	2,742	355	65	6%	2%
8	10,643	3,778	357	71	3%	2%
9	6,393	2,871	126	114	2%	4%
10	3,333	1,961	76	56	2%	3%
11	2,742	1,817	82	73	3%	4%
12	2,700	2,107	81	81	3%	4%
13	2,517	2,430	96	89	4%	4%
14	2,402	2,664	100	78	4%	3%
15	2,919	3,426	82	130	3%	4%
16	3,935	4,980	152	261	4%	5%
17	4,724	7,663	161	356	3%	5%
18	3,752	8,201	141	282	4%	3%
19	2,038	5,466	115	210	6%	4%
20	1,295	3,550	69	147	5%	4%
21	947	2,797	1	0	0%	0%
Total	59,721	57,269	1992	2016	3%	4%

Table 27 Change in tube demand at Camden station (pre/post service split)

Peak train loadings along with theoretical utilisations based on maximum seated and standing capacities are shown in Table X for Camden Town station. This is based on 20/24 trains per hour off-peak/peak, 248 seated capacity per train, and 438 standing capacity per train (at 4 people per m²).

Hour start	Camden RODS+SPD		% Seated Utilisation		% Standing Util	
	Entry	Exit	Entry = Out	Exit = In	Entry = Out	Exit = In
6	3,007	816	61%	16%	34%	9%
7	6,729	2,807	136%	57%	77%	32%
8	11,000	3,849	185%	65%	105%	37%
9	6,519	2,985	110%	50%	62%	28%
10	3,409	2,017	57%	34%	32%	19%
11	2,824	1,890	47%	32%	27%	18%
12	2,781	2,188	47%	37%	26%	21%
13	2,613	2,519	44%	42%	25%	24%
14	2,502	2,742	42%	46%	24%	26%
15	3,001	3,556	50%	60%	29%	34%
16	4,087	5,241	69%	88%	39%	50%
17	4,885	8,019	82%	135%	46%	76%
18	3,893	8,483	65%	143%	37%	81%
19	2,153	5,676	43%	114%	25%	65%
20	1,364	3,697	27%	75%	16%	42%
21	948	2,797	19%	56%	11%	32%
Total	61,713	59,285	68%	66%	39%	37%

Table 28 Typical train loadings at Camden Town station with SPD development



Maximum loadings are seen in the AM peak southbound (185% of seated capacity / 105% of standing capacity) and in the PM peak northbound (143% of seated capacity / 81% of standing capacity). This indicates that the estimated additional demand generated by the SPD development can be accommodated, albeit beyond the seated capacity of the train, at most times of the day - but not during the AM peak southbound.

If standing capacity is assumed to be 5 people per m², the AM peak southbound would drop below 100%; although this would need to be offset by some variability in demand within the busiest peak hour.

The SPD development-generated increase in pressure on the Northern line will need to be considered further in conjunction with future patronage forecasts reflecting increased demand from other major, strategic developments, any longer-term impacts due to COVID-19, and opportunities for increasing peak period capacity.

Highway

Peak vehicle activity is anticipated to take place during the conventional morning period (7-9am) for outbound trips and afternoon/evening period (4-7pm) for inbound trips. The volume of demand is up to 150 vehicle trips per hour, fewer when allowing for an occupancy of more than one person per vehicle trip. The equivalent trip rate is several vehicle movements per minute in a peak period, dropping to less than one per minute outside of the peaks.

Hour start	Inbound						Outbound					
	Work	Education	Personal	Leisure	Total	% Total by hour	Work	Education	Personal	Leisure	Total	% Total by hour
6	0	0	0	0	0	0%	0	0	0	0	0	#DIV/0!
7	0	0	0	0	50	5%	100	0	0	0	150	#DIV/0!
8	0	0	0	0	50	5%	100	50	0	0	150	#DIV/0!
9	0	0	0	50	50	5%	0	0	0	0	50	#DIV/0!
10	0	0	0	0	50	5%	0	0	0	0	50	#DIV/0!
11	0	0	0	0	50	5%	0	0	0	50	50	#DIV/0!
12	0	0	0	50	50	5%	0	0	0	50	50	#DIV/0!
13	0	0	0	50	50	5%	0	0	0	0	50	#DIV/0!
14	0	0	0	0	50	5%	0	0	0	50	50	#DIV/0!
15	0	0	0	50	100	10%	0	0	0	0	50	#DIV/0!
16	50	0	0	50	100	10%	50	0	0	50	50	#DIV/0!
17	100	0	0	50	150	14%	50	0	0	50	100	#DIV/0!
18	50	0	0	50	150	14%	0	0	0	50	50	#DIV/0!
19	0	0	0	50	100	10%	0	0	0	50	50	#DIV/0!
20	0	0	0	50	100	10%	0	0	0	50	50	#DIV/0!
21	0	0	0	0	0	0%	0	0	0	0	0	#DIV/0!
Total	350	50	150	500	1050	100%	400	50	150	400	1000	#DIV/0!
Total % by purpose	33%	5%	14%	48%	100%		40%	5%	15%	40%	100%	

Table 29 Vehicle trips by journey purpose

When broken down by distribution zoning, the generated vehicle trips are spread relatively equally between 'wider', 'borough' and 'strategic/central' zones – representing a mix of journey distances.



Hour start	Car - inbound							Car - outbound						
	Hyper	Local	Wider	Borough	Strategic	Central	Total	Hyper	Local	Wider	Borough	Strategic	Central	Total
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	20	0	20	0	0	20	20	60	40	120
8	0	0	0	20	20	0	40	0	0	40	40	60	40	160
9	0	0	20	20	20	20	60	0	0	20	20	20	20	60
10	0	0	0	20	20	0	40	0	0	0	20	20	0	40
11	0	0	0	20	20	0	40	0	0	0	20	20	0	60
12	0	0	0	20	20	0	40	0	0	0	20	20	0	40
13	0	0	0	20	20	0	40	0	0	0	20	20	0	40
14	0	0	0	20	20	0	40	0	0	0	20	20	0	60
15	0	0	20	20	20	20	80	0	0	20	20	20	0	60
16	0	0	20	40	40	20	120	0	0	20	20	20	20	80
17	0	0	20	40	60	40	160	0	0	0	20	20	20	80
18	0	0	20	40	40	20	140	0	0	0	20	20	20	80
19	0	0	20	40	40	20	100	0	0	0	20	20	20	60
20	0	0	20	20	20	20	80	0	0	0	20	20	0	40
21	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Total	0	0	160	320	360	200	1020	0	0	160	300	340	180	1000

Table 30 Vehicle trips by zoning

To give an overall quantum of future vehicle movement, the SPD-generated vehicle trip making needs to be combined with an understanding of the scale of movement likely to be generated by the retained off-street town centre parking. This can then be compared against existing vehicle flows to give an assessment of the net change. This is shown diagrammatically in Figure 4.

EXISTING FLOWS



FUTURE FLOWS

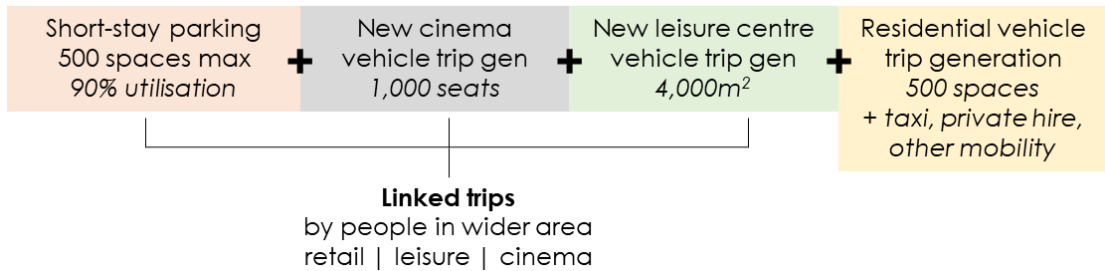


Figure 4 Existing and future highway flow components

Surveyed, existing car park flows (long stay and short stay) are in the order of 7,200 vehicle movements per day (inbound and outbound). This comprises long-stay car parking that sees 100% utilisation and short-stay car parking that sees a maximum utilisation in the order of 60%.

The under-utilisation of the short-stay car parking supply combined with the clear future policy imperative for reduced car use (notably the Mayor’s 2041 target of 72% sustainable travel mode share) means that a reduced town centre car parking supply should be a clear goal for the SPD, combined with supporting measures to enable, promote and encourage increased movement by walking, cycling and public transport.



The loss of long-stay parking (primarily used for onward tube travel towards central London) is expected to lead to a several responses: relocated parking activity within Edgware; a changed mode of travel to the tube station (ie car to non-car modes); and changed tube station use (ie drive to another location with parking availability).

In terms of any locally-relocated parking activity, a review of (and possible expansion of) existing CPZ schemes would be required to ensure no unwanted overspill parking impacts arise from the removal of this long-stay parking supply.

The existing off-street car park flows are of a similar order of magnitude to the future vehicle trip generation from the SPD developments – a combination of residential uses, retained retail activity (albeit with a reduced and intensified car park – 500 spaces at 90% maximum utilisation), and new leisure and cinema uses.

Hour start	EXISTING FLOWS			TOTAL FUTURE TRIP GEN			ABSOLUTE NET CHANGE		
	INTO CP	OUT OF CP	TOTAL	IN	OUT	Total	IN	OUT	Total
7	180	20	200	60	140	200	-120	120	0
8	250	60	310	220	210	430	-30	150	120
9	390	200	590	390	220	610	0	20	20
10	370	330	700	350	320	670	-20	-10	-30
11	380	360	740	350	350	700	-30	-10	-40
12	390	400	790	360	370	740	-30	-30	-60
13	340	350	690	320	340	660	-20	-10	-30
14	350	410	760	330	390	730	-20	-20	-40
15	360	370	730	380	340	720	20	-30	-10
16	280	440	720	340	420	760	60	-20	40
17	210	350	560	300	360	660	90	10	100
18	150	280	430	250	230	480	100	-50	50
19	90	190	280	140	220	360	50	30	80
20	40	70	110	100	100	200	60	30	90
21	30	40	70	20	40	60	-10	0	-10
Total	3810	3870	7680	3910	4050	7980	100	180	280

Table 31 Existing (surveyed) flows, future vehicle trip generation, absolute net change

The overall all-day movement change by vehicle could be expected to be modest, in the order of approximately 280 additional inbound and outbound vehicle movements. The balance of movement by hour will vary due to changes in parking type (removal of long-stay commuter parking) and new residential journey purposes. Overall, the scale of change in any one hour is +/- 100 vehicles per hour.

Existing flows all directed through a single access point on Station Road. Future flows should be split, if possible, across several points of access (onto Station Road, possibly onto the High Street via Forumside, and possibly to the east onto Deans Lane). Splitting the SPD development across several access junctions could be expected to lead to an overall net reduction in junction flows at the main Station Road access point.

When spread more widely across the local highway network (eg High Street north and south, Whitchurch Lane, Hale Lane, Edgwarebury Lane, Deans Lane) the total net change in vehicle movement that could be expected by SPD development is modest (far right columns of Table 31) and in principle could be accommodated, subject to more detailed analysis at masterplanning stage once site capacities and site accesses are known.



There is a clear opportunity to provide a quantum of off-street parking below the assumed 500 spaces to lower, longer-term levels in order to (a) directly influence travel behaviour and (b) reflect anticipated decreases in car use. As such, a reduced quantum of off-street parking should be the overall aspiration of the SPD development and one which could lead to further reductions in highway network flows.

More widely, the clear policy imperative for London more generally and for Barnet and Edgware more specifically is for substantially increased levels of walking, cycling and public transport use and consequent reductions in car use – noting the longer-term target of 72% of Borough trips being made by sustainable modes of travel by 2041 (set against a London-wide target of 80% of trips). This shift is entirely consistent with the SPD development principles and modelling assumptions.

In principle, a shift from car to sustainable modes could therefore be expected to lead to reductions in traffic levels throughout Edgware town centre. This, combined with a 'net no change' SPD development impact suggests that a future highway network could (a) accommodate predicted demand and (b) be optimised in key locations to provide additional space, priority and infrastructure for walking and cycling activity. Indeed, clearly prioritising walking and cycling movement within the town centre will be critical to delivering the ambitious SPD principles.

The volume of active travel (walking and cycling) movement generated by the proposed SPD development (see below) is significant and will require specific measures such as additional pedestrian crossings. As development proposals become more refined the impact of such measures will need to be considered to understand any changes to highway capacity, reassignment to other routes and any resulting impacts.

Walking / Cycling

The scale of walking and, to a lesser extent, cycling movement generated by the proposed SPD development is considerable, in the order of 20,000 walking trips per day, approximately 3,000 walking trips per hour and approximately 3,500 cycling trips per day. When walking is included as the first/last part of bus and tube 'main mode' trips, the totals are higher still.

Compared to observed flows of 500 walking trips per hour along Station Road this represents at least a five-fold increase in walking activity; for cycling there is an even larger increase on the low existing, observed flows.



Hour start	Walk - inbound							Walk - outbound						
	Hyper	Local	Wider	Borough	Strategic	Central	Total	Hyper	Local	Wider	Borough	Strategic	Central	Total
7	50	50	50	0	0	0	150	350	300	150	0	0	0	750
8	250	150	100	0	0	0	500	1300	750	400	0	0	0	2400
9	250	300	100	0	0	0	650	300	350	100	0	0	0	700
10	150	200	50	0	0	0	400	200	250	100	0	0	0	500
11	200	250	100	0	0	0	500	200	300	100	0	0	0	600
12	200	250	100	0	0	0	550	200	250	100	0	0	0	550
13	200	250	100	0	0	0	500	200	250	100	0	0	0	550
14	200	250	100	0	0	0	500	250	300	100	0	0	0	650
15	700	500	200	0	0	0	1400	450	300	150	0	0	0	900
16	450	500	200	0	0	0	1100	250	300	100	0	0	0	650
17	400	500	200	0	0	0	1050	200	250	100	0	0	0	500
18	400	500	200	0	0	0	1050	200	250	100	0	0	0	550
19	350	450	150	0	0	0	1000	200	250	100	0	0	0	550
20	250	300	100	0	0	0	650	100	150	50	0	0	0	300
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3950	4400	1650	0	0	0	10000	4300	4200	1650	0	0	0	10150

Hour start	Cycle - inbound							Cycle - outbound						
	Hyper	Local	Wider	Borough	Strategic	Central	Total	Hyper	Local	Wider	Borough	Strategic	Central	Total
7	0	0	0	0	0	0	50	0	50	50	50	0	0	150
8	0	0	50	0	0	0	50	0	100	200	50	0	0	350
9	0	50	50	0	0	0	100	0	50	50	0	0	0	100
10	0	0	50	0	0	0	50	0	50	50	0	0	0	100
11	0	50	50	0	0	0	100	0	50	50	0	0	0	100
12	0	50	50	0	0	0	100	0	50	50	0	0	0	100
13	0	50	50	0	0	0	100	0	50	50	0	0	0	100
14	0	50	50	0	0	0	100	0	50	50	0	0	0	100
15	0	50	100	50	0	0	200	0	50	50	0	0	0	150
16	0	50	100	50	0	0	200	0	50	50	50	0	0	100
17	0	50	100	50	0	0	200	0	50	50	50	0	0	100
18	0	50	100	50	0	0	200	0	50	50	50	0	0	100
19	0	50	100	50	0	0	200	0	50	50	0	0	0	100
20	0	50	50	50	0	0	150	0	0	50	0	0	0	50
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	500	850	350	100	0	1800	0	450	850	350	100	0	1750

Table 32 Walking / Cycling trips by zoning

As shown in the distributional analysis above, the vast majority of walking activity will take place within a very short distance, contained within the town centre. For cycling activity, journey distances extend to the wider local and Borough areas.

This scale of change means a considerable improvement is needed in terms of provision, promotion and support for travel by active modes. A comprehensive package of measures to radically improve the public realm in the town centre is proposed – see Chapter 8 in the main transport study report. In addition, other measures to promote and safely accommodate increased cycling activity are proposed, complimentary to the Council's Long-Term Transport Strategy (ie new infrastructure and improvements along High Street).



DOCUMENT CONTROL

Version	Date	Author	Reviewer	Comments
1.0	01/05/20	SA		Draft content
1.1	15/05/20	SA		Initial draft
1.2	05/06/20	SA		Updated draft
1.3	12/06/20	SA		Draft WIP issued
1.4	26/06/20	SA	JE	Draft final
1.5	13/07/20	SA	JE	Issued to client for review
1.6	11/09/20	SA	JE	Final

