12. Transport

The borough's overall connectivity is high with its surrounding areas but less so within its boundaries.

Chapter Summary:

- With 31 public transport stations and 46 bus routes, Tower Hamlets has excellent connectivity to Central London and the rest of the country including to our International airports, Stanstead and London City Airport. Once the new Elizabeth Line (Crossrail) stations open at Canary Wharf and Whitechapel in 2018, the journey time from Canary Wharf to Heathrow will reduce from 55 to 38 minutes.

- Public transport is the most common mode of travel for the estimated 216,232 commuters who come into the borough daily, around half of whom are heading to Canary Wharf.

- Canary Wharf (Underground) is the 9th busiest station in the Capital with an estimated 55 million trips in 2016 up from 42 million in 2008. This does not include the estimated 30-40,000 passengers using the Canary Wharf DLR station daily.

- The busiest parts of the A12 accommodate more than 100,000 vehicles per day.

- Car ownership levels are low in Tower Hamlets: 37 per cent of households own one or more cars (or vans). This is half the national average (75 per cent) and means Tower Hamlets has the 4th lowest level of car ownership amongst the London Boroughs. Only City of London, Hackney and Islington were lower.

- Just over one in five residents (22 per cent) were cyclists, 9 per cent regular cyclists and 13 per cent 'occasional' cyclists.

- The borough's two Cycle super highway routes cater for 60 per cent of all cyclists entering or leaving Central London.

- In 2016, there were 1,086 accidents reported on the borough's roads. Of these, 7 involved fatal, 110 serious and 969 slight injuries to people. There has been a marked improvement in lowering the number of Killed or Seriously Injured (KSI) incidents from 161 to 65 between 2012 and 2015

Summary (continued)

- Congestion is prevalent on most of the borough's strategic roads for the majority of time. In 2016, the A2 Kidbrooke to the Blackwall Tunnel (although just south of the borough) was the 4th most congested length of road in England with 51 hours lost to delays. The A roads across the borough operate at around 85 per cent reliability in the morning peak and around 95 -98 per cent reliability in the evening peak hours. In 2016, the average traffic speed on A roads in the borough was 15.2 miles per hour. This was greater than Inner London (11.9 miles per hour) but less than London overall (16.3 miles per hour)

- The borough's transport infrastructure also acts a barrier and restricts movement across the borough. For example, at present it can be easier and quicker to get to destinations outside of the borough than to destinations within. It takes almost the same time to get from Canary Wharf to London City Airport as it does to get to Bethnal Green from Island Gardens by public transport.

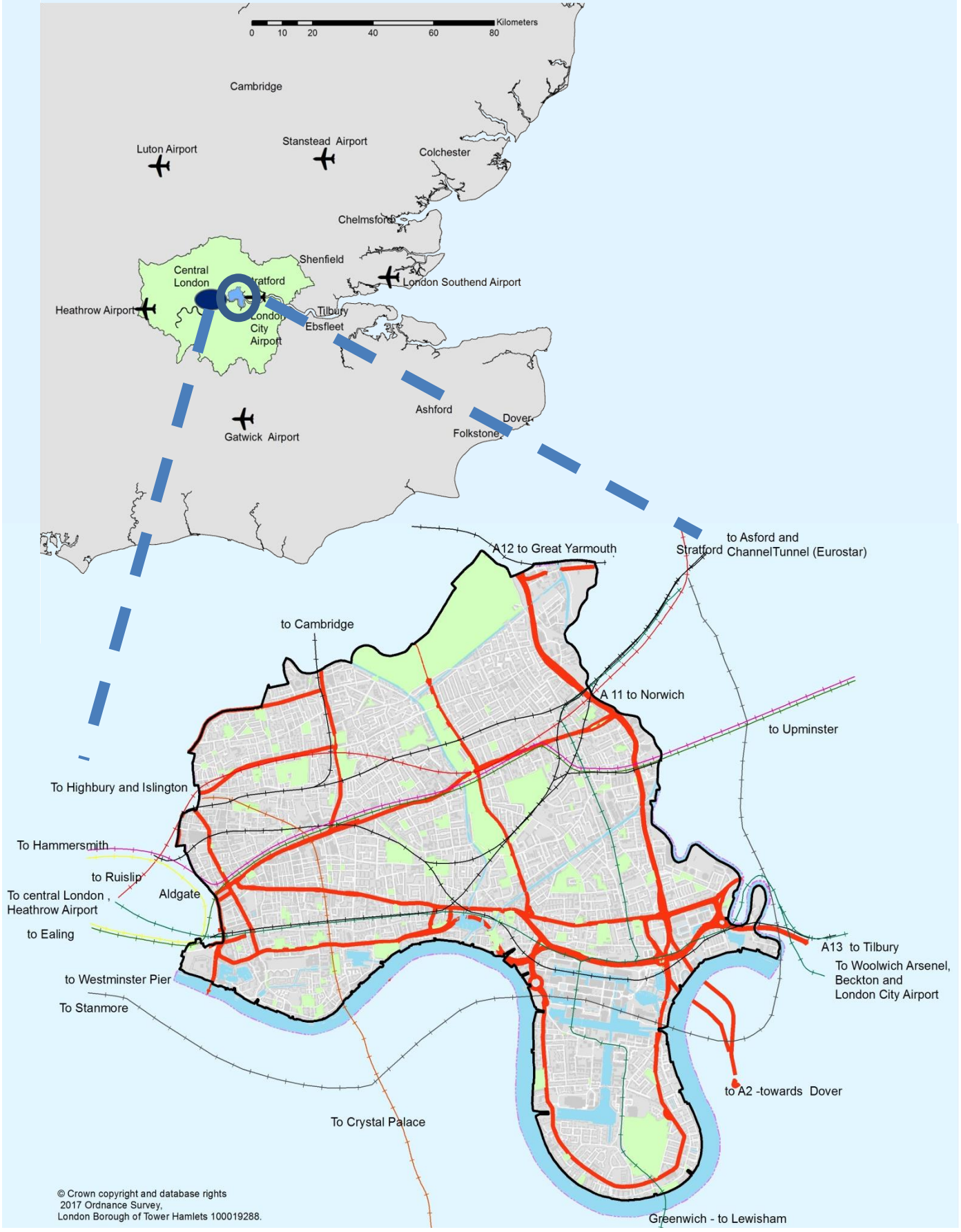
- Although Tower Hamlets is well served by public transport, the public transport accessibility levels (PTAL) are not uniform across the borough. Areas such as the City Fringe and Whitechapel have very good access whilst parts of Leamouth and the Isle of Dogs have poor access.

- There are areas with low PTAL scores and poor access, for example Lansbury Ward, which also have high levels of deprivation.

- River transport is increasingly being promoted as a mode of transport that will alleviate existing and future pressure on public transport. There are currently three piers in the borough including the Canary Wharf Pier. This pier is the most used in the borough, currently, with an average weekday entry and exit count of over 22,000 in 2015. TfL has proposed new piers at Wapping, Canary Wharf East and Trinity Buoy Wharf.

- Projected population and employment growth over the next decade will increase the demand for public transport and could further exasperate congestion on the borough's roads. There are a number of proposals planned which aim to alleviate congestion and expand capacity. These include a new river crossing at Silvertown linking with the Greenwich Peninsula to the south increasing the number of north/south bus routes, an additional pedestrian/cycle bridge from the Rotherhithe to Canary Wharf. As well as planned improvements to the Jubilee Line and the DLR to increase frequency and capacity of trains

Map 12.1: Tower Hamlets transport connections



Access to transport points that connect across and out of the borough are key to the local economy, local jobs and quality of life. This connectivity affects where people live and the modes of travel used in the borough. Tower Hamlets includes several major destinations to which people from outside the borough access on a daily basis. In the business world, it is the international financial district of Canary Wharf on the Isle of Dogs and the City fringe to the west of the borough. In terms of tourists, it's the Tower of London and other cultural sites. Transport infrastructure is made up of major and minor roads, footpaths, river and canal routes, varied types of rail routes, bridge connections and cycling pathways.

The Borough's transport connections and current usage

Roads

Tower Hamlets has 224 km of road, which is the same as the distance between Tower Hamlets and Cardiff. A small proportion, 16.5km are A roads. The borough's footways cover the same distance as the distance between Tower Hamlets and Paris (358 km) in an area of just 21 square kilometres.

The A13 and A11 cross the borough from east to west linking the City of London with Tilbury and Shoeburyness in Essex (A13) and Norwich in Norfolk (A11). The A12, running north south in the east of the borough from the Blackwall tunnel, links London with Essex, Norfolk and Suffolk. Whilst the Blackwall tunnel links up on the southern side of the Thames with the A2 (the main route from London to Dover). The Blackwall tunnel, currently, is one of only three River Thames road crossings east of Tower Bridge, the others being the Dartford tunnel/bridge and Rotherhithe tunnel. All regularly reach capacity and are affected by high levels of congestion.

The main A roads through the borough are red routes and although they are only small percentage of the total network length, they carry far more than this proportion of the total volume of traffic through the borough. This is in the same proportion as that of the 580km of London's strategic road network which constitutes only five per cent of London's road length, but carries 30 per cent of all traffic. The busiest parts of the A12 are catering for more than 100,000 vehicles a day.

In 2015, cars in Tower Hamlets travelled a total of 615 Million Vehicle Kilometres making up 73 per cent of the Million Vehicle Kilometres travelled by all vehicles. This is lower than the proportion of cars across London (76 per cent).[1] The borough's main road network makes up around 2 per cent of the total length of Transport for London's borough principle and strategic road network. (46km out of 2,290km)

The Department for Transport (DfT) measure traffic counts on all major roads across the country. In 2016 Tower Hamlets had 51 points. An Annual Average Daily Flow (AADF) is the average over a full year of the number of vehicles passing a point in the road network each day.[2] Table 12.1 gives the counts for several of these points

in the borough in 2016, showing, for instance, that cars make up most of the traffic at the Rotherhithe tunnel whereas there are far more HGVs at Blackwall tunnel. One reason for this difference is the size and capability/restrictions of the tunnels – Rotherhithe tunnel is much older and smaller than the Blackwall tunnel.

Table 12.1: Road Traffic Counts /Annual Average Daily Flows 2016

	2016, Thousands of vehicle miles							
Count location on/near	Cars	All HGVs	Cycles	Bus/ Coach	Motor cycles	light goods vehicles	All vehicles	%cars
Rotherhithe Tunnel	6,158	106	44	6	327	1,364	7,960	77
Tower Hill	1,725	266	300	105	324	1,829	2,868	60
Aspen Way(A13)	7,771	607	19	89	383	1,566	10,416	75
Blackwall Tunnel entrance	14,889	941	3	141	626	4,148	20,745	72
A12	7,926	593	3	114	284	1,829	10,746	74
A11	5,491	234	1,916	272	525	1,055	7,578	72

Source Department for Transport 2016

There are several car clubs which operate in the borough and they currently have 126 parking bays. Figures from Carplus[3] show that there were 7,933 members of car clubs within the borough in 2016.

Freight

Freight traffic forms a large part of the vehicles on some of the Boroughs roads. As the congestion charging zone is just outside the borough to the west, there is far more freight traffic on the A12 from the Blackwall tunnel. As well as Heavy Goods Vehicles (HGVs) carrying freight, there are increasingly delivery vans on the roads as more people purchase online and get the goods delivered to their homes. The increase in these types of delivery vehicles has filled the void left by changes in modes of transport as people use their cars less and travel more by public transport.

Buses

The bus network within Tower Hamlets is fairly comprehensive with 46 bus routes crossing the borough, both, north to south and east to west. Of these routes, around half (19) are through routes with their start and end points well outside the borough, going from, for example, Central London to Chingford and from Stratford to Lewisham. Most of the rest (17) are routes which have a start or finish at locations within the borough. Only 3 routes have their start and end points within the borough boundary.

Buses provide a more flexible service to enable penetration within residential and employment areas, as well as to directly serve important public service institutions

Map 12.2: Bus Network in Tower Hamlets

such as hospitals and education facilities. The borough's bus network performs similarly to networks for other Inner London Boroughs, albeit that average bus speeds are relatively low and waiting times for passengers over 25 per cent higher on average than the scheduled wait times. For instance, route 15 in quarter 1 of 2017/18 had an average wait time of 5.25 minutes which was 1.24 excess wait time over scheduled wait time (4.01 minutes). In 2017, the mean observed speed of buses within the borough was around 8 miles an hour whereas the equivalent for whole Greater London area was 9 miles an hour.

Table12.2: Typical weekday trips across part of the bus network, 2014

Typical week day trips

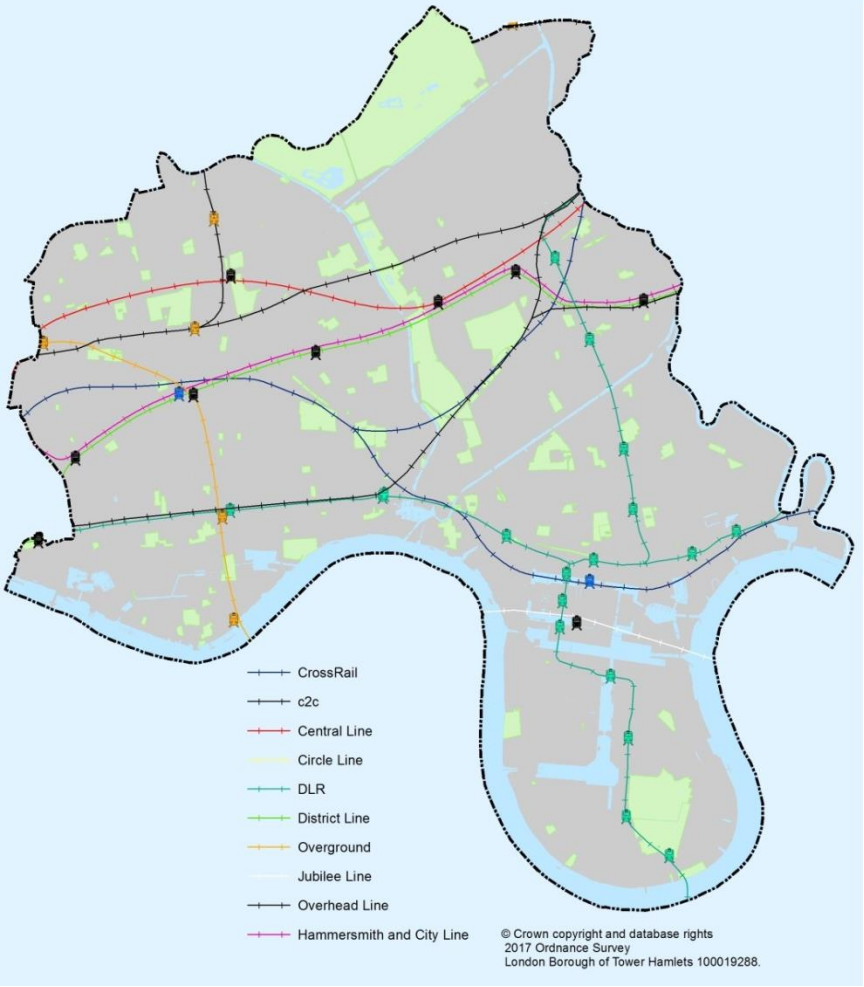
From/to	Shadwell	Wapping	Isle of Dogs E	Isle of Dogs W	Canary Wharf	City	Mile End
Shadwell	41	487	8	13	12	126	nd
Wapping		635	87	75	353	2054	nd
Isle of Dogs E			1515	2380	1475	183	798
Isle of Dogs W				670	5590	622	785
Canary wharf					508	882	1086

Source: Transport for London

Table 12.2 shows the number of two-way trips on a typical weekday between the destinations shown, which is only part of the bus network. This shows the high volumes of trips heading to Canary Wharf.[4] The baseline analysis[5] identified a series of routes, including the A13 Commercial Road, A1206, Westferry Road and A1208 Hackney Road on which overcrowding on buses is already significant.

Trains

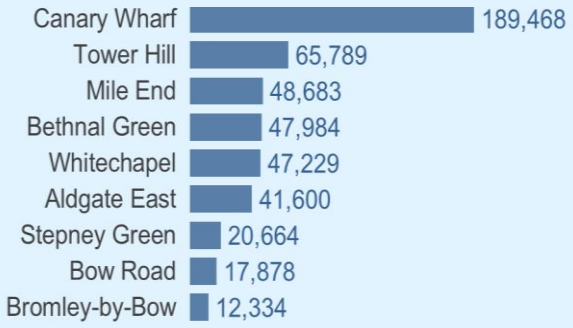
Map 12.3: Train Network in Tower Hamlets



Routes shown are of both surface and tunnelled lines

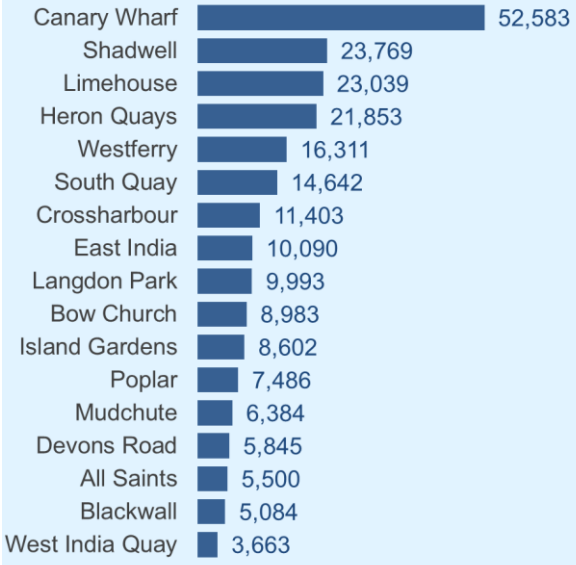
Tower Hamlets is well served by several train networks and has 31 public transport stations (3 mainline, 12 underground, 16 DLR) and will have, in 2018, two Elizabeth line (Crossrail) stations at Whitechapel and Canary Wharf. The majority of routes are east west in orientation. However the Overground, parts of the Docklands Light Railway (DLR) and the mainline are north south. These lines link the borough with destinations, such as, central London, Heathrow Airport in the west, Cambridge to the north east, Southend in the east and to Lewisham as well as Crystal Palace in the south.

Figure 12.1 Journeys through Underground stations 2016



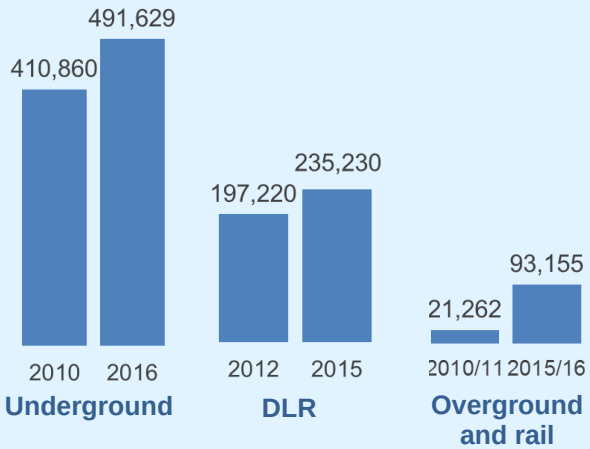
Source: Transport for London

Figure 12.2 Journeys through DLR stations 2015



Source : Docklands Light Railway

Figure 12.3: Journeys through stations in Tower Hamlets (daily average)



Source: Transport for London; Department of Transport

The newest line to cross the borough is Crossrail1 or the Elizabeth line. This, again, traverses the borough, in a mainly east west direction connecting Shenfield (Essex)and Abbey Wood (Kent) in the east through central London with Heathrow Airport and Reading (Berkshire)in the west.

The Elizabeth line (Crossrail), when it opens in 2018, will cut journey times across London. For instance, the journey from Canary Wharf to Heathrow Airport will be reduced to 39 minutes from 55 currently. The journey from Canary Wharf to Whitechapel will be reduced to 3 minutes from 13 currently.

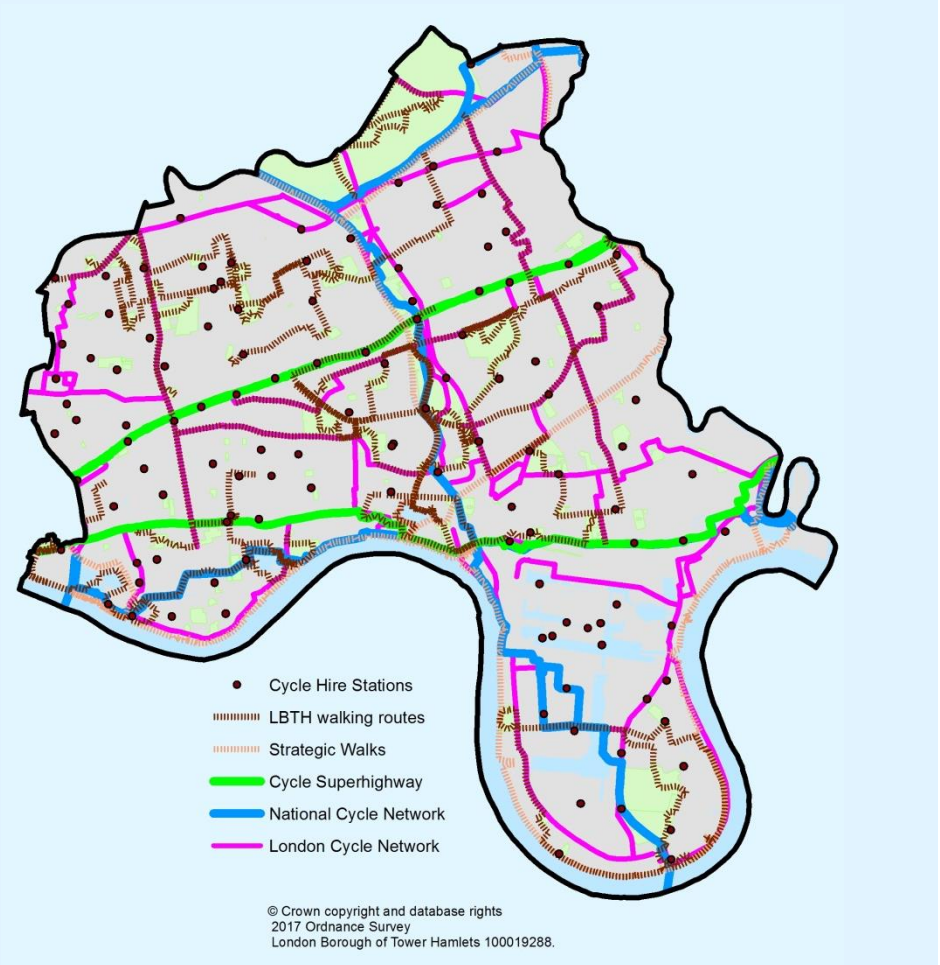
Figures 12.1 and 12.2 show the daily average number of passengers going through stations in Tower Hamlets in the past year.[6] Both the stations at Canary Wharf (DLR and Underground) had the highest volumes of passenger throughput of all the stations in the borough on their respective rail system. Around 190,000 passengers go through the Canary Wharf underground station in one typical work day and there were 55 million trips through this station in 2016 up from 42 million in 2010. Canary Wharf underground is one of the busiest stations in the Capital (9th after Kings Cross and St. Pancras (1st), Waterloo (2nd) and Oxford Circus (3rd)). Canary Wharf DLR station regularly has around 53, 000 passengers through each workday which is twice as many as the next busiest station Shadwell.

Between 2010-11 and 2015-16 entries to Bethnal Green (TfL line) station increased by 72 per cent to 53,031. In the same time period entries to Whitechapel and Shadwell (Overground) increased by 575 and 404 per cent respectively to stand at 6,998,984 for Whitechapel and 2,488,232 for Shadwell in

2015/16. These figures are based on ticket sales information.[7]

The stations on both the Underground and DLR saw around 20 percent increase in passenger numbers in their respective time periods whereas the growth for the Overground /rail was over 300 per cent. (Figure 12.3) The majority of this growth was at Whitechapel and Shadwell Overground stations. This growth in trips is also reflected in the figures for Shadwell DLR and Whitechapel Underground. Therefore, since the reopening of the Overground, the passenger numbers going through have increased dramatically as more people take advantage of these routes into the borough avoiding Central London.

Map 12.4 Walking and cycling networks in Tower Hamlets



Cycling

There are 53.3km of designated cycle networks in Tower Hamlets along with 32.5km of pedestrian walkways which are made up of strategic riverside walkways and green chains. This includes two cycle superhighways crossing the borough in an east west direction linking the City of London with Stratford (CS2) and Barking (CS3). As well as one of the first Quietways from Mile End to Barkingside.

The Barclays/Santander cycle high scheme now has stations containing 2,700 stands for 2,000 bicycles in the borough. These first became available in time for the 2012 London Olympics. The usage of these bicycles has not so far matched that of August 2012 when just over 400,000 hires and docks were made. In August 2016 nearly 300,000 hires and docks were made.[8] Four out of the top ten largest hire stations are in the borough, 2 in Canary Wharf area, one at Whitechapel and one in Mile End. Each of these has around 60 cycle stands available.

The two Cycle super highways routes cater for 60 per cent of all cyclists entering or leaving central London to/from Tower Hamlets.

The DfT traffic counts also count cycle movements.[9] At a section of the A11 near the A1025, the count was for 1,020 for pedal cycles in 2000. For the same site in 2016 the count has nearly trebled (3,673). As the A11 is also the route of the cycle super highway CS2, this count may reflect the increased cycle traffic since the route's inception.

The Borough also operates cycle count stations to measure cycle movements in order to gauge demand. In June 2017, at St James Gardens off Cable Street 100,940 cycle trips were recorded, at Naval Row, also on CS3, there were 20,595, trips. At Bethnal Green Gardens 4,940 trips were recorded and at Meath Bridge 9,937 trips. This is clearly showing the popularity of the cycle super highways.

Just over one in five (22 per cent) residents were cyclists, 9 per cent cycled weekly or daily, while 13 per cent were 'occasional' cyclists who cycled less often. Almost three quarters (74 per cent) of residents felt Tower Hamlets was a cycle friendly borough.[10]

Men were far more likely than women to be cyclists (30 vs. 13 per cent). Cycling is related to age: young adults were the most likely to cycle (29 per cent). White residents were far more likely than Bangladeshi residents to cycle (29 vs. 12 per cent). Private renters were far more likely to be cyclists than those in social housing (29 vs 12 per cent). Those in ABC1 households were more likely to cycle than those in DE households (27 vs. 11 per cent).[11]

Walking

Tower Hamlets has parts of longer strategic walks including Jubilee Greenway, Capital Ring and Lea Valley Walk as well as one of oldest, the Thames path, following the route of the Thames as near to the river bank as possible. The borough, along with Newham, is the flattest in London which enables greater cycling and walking opportunities.

Walking in Tower Hamlets is a popular form of travel with 40 per cent of trips in the borough made on foot, the second highest rate of walking in London. The borough

is relatively compact and the majority of people are within a short walk from shops, services and public transport.

Whilst walking is a relatively popular form of travel in the borough, Walk England has reported that the level of walking in the borough is actually falling and more should be done to arrest the decline and maximise the benefits of walking.[12] In addition, TfL data suggests around 27,000 trips per day are made in Tower Hamlets by other forms of travel that could be made by walking.[13]

River and canals

The canal network including the Regents Canal, Limehouse Cut, Hertford canal, and River Lea navigation are also water routes across the borough; in fact, Tower Hamlets has one of the largest 'blue networks' of the London boroughs.

As the southern boundary of the borough is the River Thames, Tower Hamlets has 3 river piers, currently, at St Katherine's, Canary Wharf and Masthouse, which serve river boats. As the river boats are now integrated into the Oyster payment network they offer an alternative way of commuting. A typical journey from Westminster pier to Canary Wharf takes 36 minutes. As well as the regular 'commuting' river boats there are also river boat tour operators catering more for the tourist market which may also utilise these piers.

Of the three river piers within the Borough, the Canary Wharf pier is well utilised, with an average weekday entry and exit count of over 22,000 (September 2015). In 2017 a new boat came into service for Thames Clippers and will be used on RB6 route which runs from Putney to Canary Wharf during the week. This boat will be capable of carrying 1,300 passengers a day.

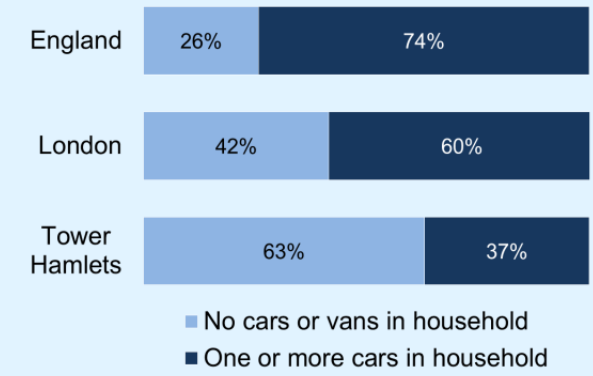
Network Connectivity

Interchanges are important in terms of connectivity whether it's between two underground lines or between bus and train routes. Stations like Whitechapel and Canary Wharf are of greater importance than others because they have, or will have, 3 or 4 train lines meeting at the same point. As well as other modes, such as, buses and in the case of Canary Wharf, river piers in close proximity.

In terms of international connectivity Tower Hamlets is well placed. It has links to London City Airport, Heathrow Airport, Gatwick Airport, Stansted Airport and Luton Airport. The journey times from the borough to City Airport via the DLR are around twenty minutes and flights from there to Paris are 1½ hours. The journey times from the borough to the other London airports are currently around an hour. From these 6 London airports travellers can travel to a total of 14 domestic destinations and 396 international destinations. Through the road network the borough is connected with Dover and other channel ports and through the train network it is also connected to the Eurostar service.

What is the level of car ownership in the borough?

Figure 12.4: Car Ownership, Tower Hamlets, London, England, 2011



Source :2011 Census Table KS404EW

Car ownership levels are low in Tower Hamlets: 37 per cent of households own one or more cars (or vans). This is half the national average (75 per cent) and means Tower Hamlets has the 4th lowest level of car ownership amongst the London Boroughs.[14] Only City of London, Hackney and Islington were lower.

Tower Hamlets households with children and residents ranging from ages 35 to 64 owned more cars than others. Residents travelling between 20km to 59km to work were more likely than others to have cars. Higher proportions (around 70 per cent) of households in the western part of Tower Hamlets have no car (or van), with the exception of St Katherine's and Wapping which has the highest proportion of one or more cars ownership in Tower Hamlets at 50 per cent. Of all the ethnic groups, Bangladeshi and Pakistani residents were more likely than others to have cars.

The number of licenced vehicles registered in the borough, in 2016, was 46,252 with the vast majority (around 40,000) being cars and the rest other light vehicles. This is an increase of around 2,500 from 2010. Tower Hamlets has around 2 per cent of the vehicles registered in London.[15] Electric vehicles account for 216 of the registrations in the borough for 2016.

Parking

The borough's parking policy aims to minimise parking provision to allow space for other uses including housing, employment uses, community facilities, play areas, amenity spaces and cycle parking. This should improve the attractiveness of an area for local walking and cycling as well as to make more efficient use of land.

Tower Hamlets operates controlled on-street parking throughout the borough but demand exceeds capacity. As of June 2016, there were 25,355 on-street bays, and the council has issued 29,643 conventional permits, which gives a ratio of 1.17. [16] There are also around 4,500 blue badge/disabled permits. Some of the on-street parking bays (126) are devoted to car club cars. Controlled parking operates at certain times so the issue of on-street parking outside of controlled hours (usually overnight and at weekends) often overcrowds streets. This can result in

unacceptable safety and accessibility issues for vulnerable road users and, in some cases, restricts traffic flows and increases journey times.

Commuting patterns

The most popular mode of travel for all Tower Hamlets residents who travel to work is by train or tube (41 per cent). This is the 8th highest in London (23 per cent).[17] 11 per cent of residents used a car or van to get to work ranking Tower Hamlets 4th lowest in London. The Tower Hamlets rate of 18 per cent for walking is about double that of the level in London (5 per cent), and more than the national level of 6 per cent. Furthermore, 7 per cent of the Tower Hamlets' residents cycle to work, which is greater than the level in London of 2.5 per cent, and more than double the national level of 2 per cent.

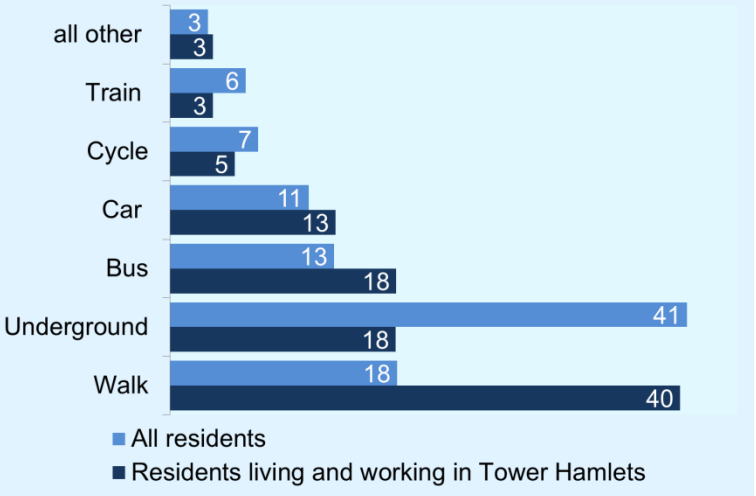
A relatively high percentage of White Other residents are the most likely to travel to work by train or tube (50 per cent), followed by Mixed ethnic groups (48 per cent), and White Irish ethnic groups (46 per cent). While Asian ethnic groups are the most likely to travel to work by car (18 per cent), followed by Black ethnic groups (14 per cent), and White British ethnic groups (10 per cent).

Households in the southern part of Tower Hamlets have the highest proportion of residents travelling to work by train or tube. However, Island Gardens and Lansbury both have the highest proportion of Tower Hamlets residents travelling to work by car at 9.1 per cent.

Figure 12.5 illustrates the difference between the proportions of modes of transport for those residents who live and work in Tower Hamlets as opposed to all residents.[18] This shows that walking and bus are the most important modes of transport for those who live and work in Tower Hamlets, 40 per cent of these people travel to work on foot and 18 per cent by bus.

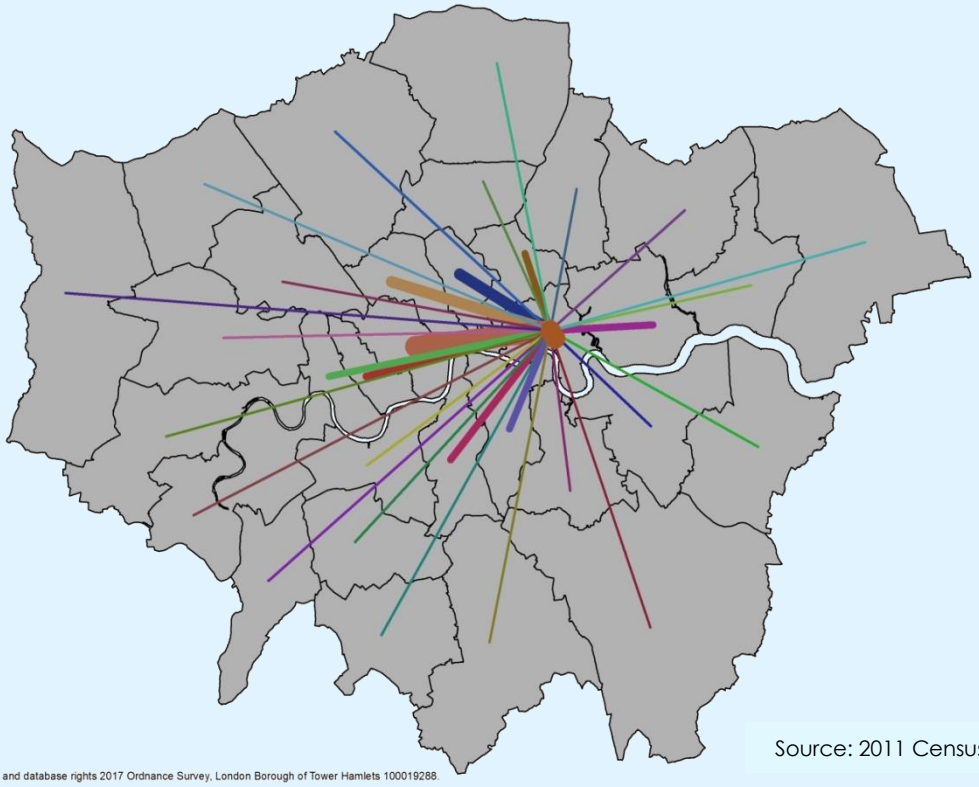
Figure 12.5: Modes of travel to work, Tower Hamlets, 2011

Source 2011 Census



Map 12.5 shows the numbers of Tower Hamlets residents commuting to workplaces in London Boroughs, the wider the line the greater number of commuters.
The patterns of commuting by residents to the London Boroughs clearly show far more travel to the inner London boroughs than to the outer London boroughs. There is also a geographical divide between east and west and also north and south, with more residents traveling to the eastern or central boroughs than the west and far more to the north than the south. Thus the numbers travelling from the borough to a south western outer London borough like Kingston upon Thames are in the hundreds rather than thousands.

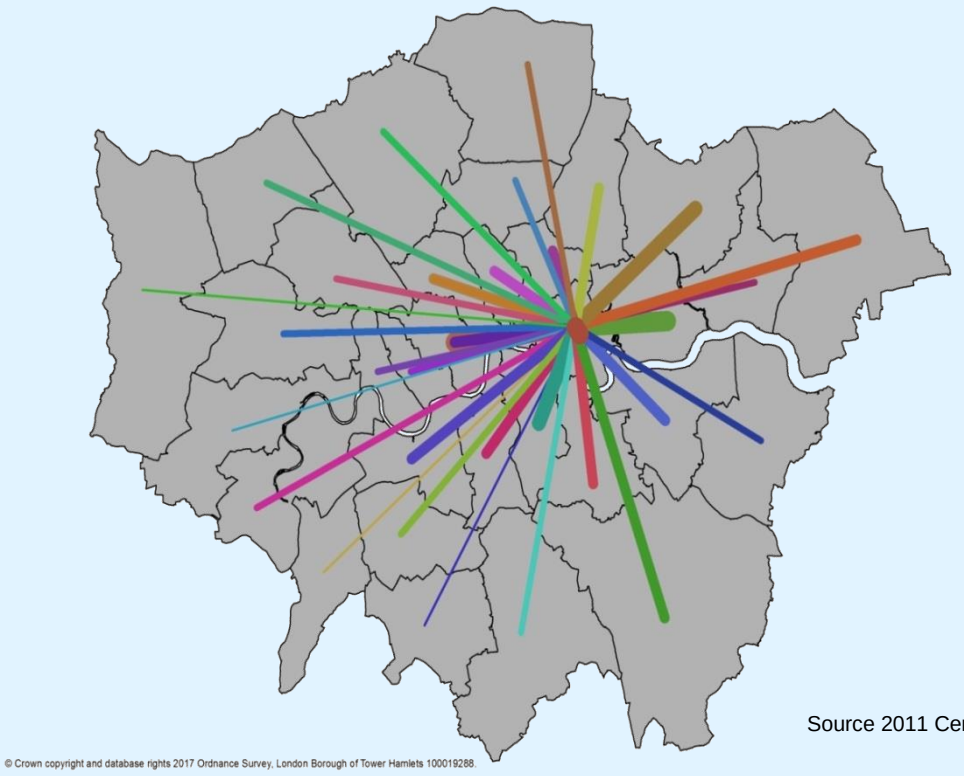
Map 12.5: Commuting by Tower Hamlets residents to London boroughs 2011



Source: 2011 Census

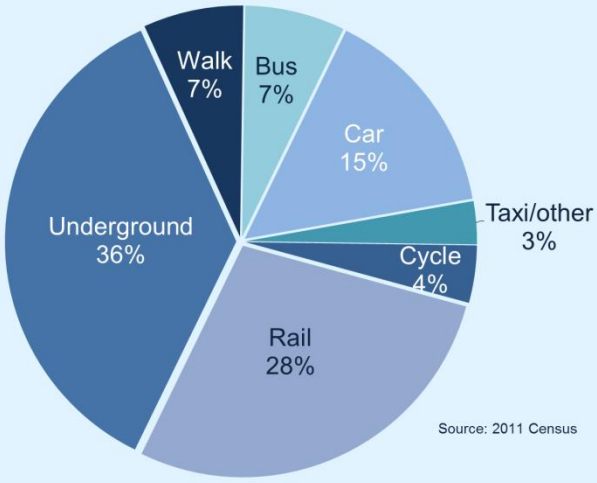
Map 12.6 shows commuters travelling to a workplace in Tower Hamlets from a London Borough, the wider the line the greater number of commuters travelling to Tower Hamlets. In all but 3 Boroughs the number of commuters coming to Tower Hamlets exceeded the numbers of Tower Hamlets residents going to that borough. In some cases the difference was over 1000 percentage points. For example, the number of Redbridge residents commuting to Tower Hamlets was around 8,700 whereas the number of Tower Hamlets residents going to Redbridge was around 600. There were also more commuters from central and eastern boroughs than there were from western boroughs.

Map 12.6: Commuting to Tower Hamlets by residents of London boroughs, 2011



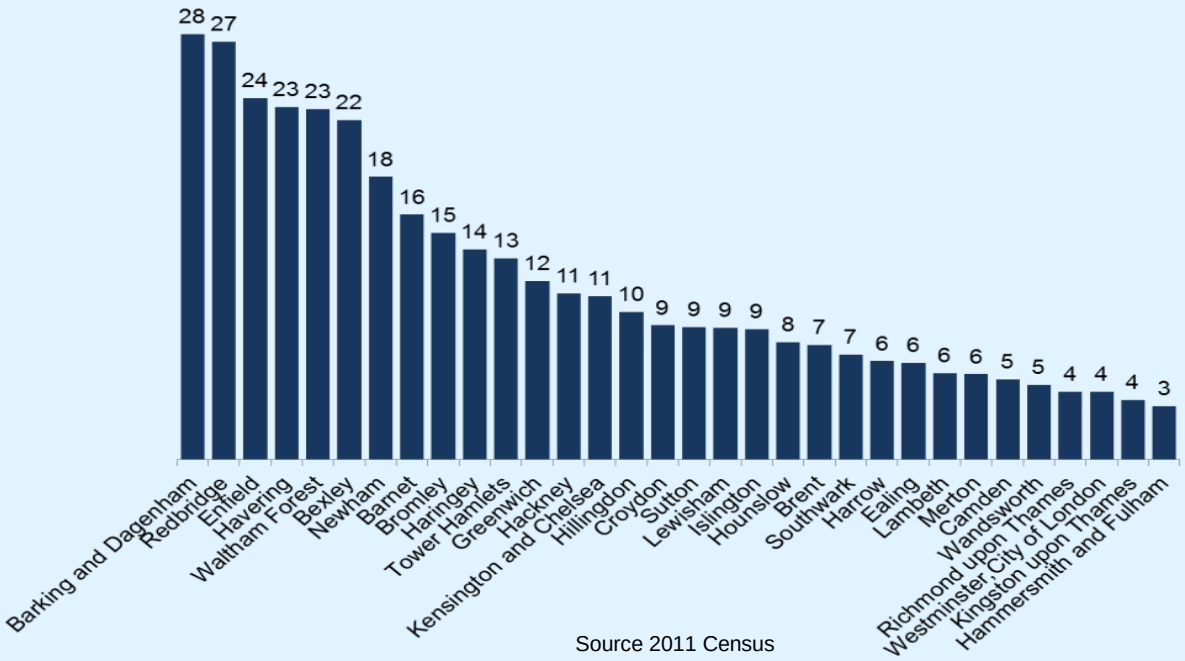
Source 2011 Census

Figure 12.6: Commuters to Tower Hamlets mode of travel, 2011



The most important mode of travel for commuters to Tower Hamlets is train or Underground: used by almost two thirds of commuters (64 per cent).[19] For those boroughs to the east of Tower Hamlets the car is still an important mode of travel. Havering, Enfield, Barking and Dagenham, Redbridge and Waltham Forest all have between 20 and 25 per cent of their commuters to Tower Hamlets travel by car. This is much higher percentage than for all commuters. (15 per cent) Commuting into Tower Hamlets by car is far more prevalent from outer London boroughs than inner London as well as more from the east than west. (Figure 12.7)

Figure 12.7: Percentage of residents commuting to Tower Hamlets by car from London Boroughs, 2011



Source 2011 Census

How safe are our streets?

In 2016, there were 1,086 accidents reported on the borough's roads. Of these, 7 involved fatal, 110 serious and 969 slight injuries to people. [20] Two thirds of the accidents happened in daylight and a third in darkness. The most frequent times for the accidents to occur were between the hours of 10am to 4pm with the evening rush hour next slightly above the morning rush hour. The majority (85 per cent) were also in dry as opposed to wet conditions. Three quarters of the incidents were during the working week (Monday to Friday). The majority of casualties were aged between 25 -59 (70 per cent) and only 4 per cent involved children below 16 years old. 16 per cent were pedestrians and 33 per cent were car users.

Table 12.3: Road Traffic Accidents 2012 to 2016

Year	KSI	Slight
2012	161	834
2013	85	847
2014	88	956
2015	65	1001
2016	117	969

Source : Transport for London

The overall general trend of accidents across the borough has been improving in recent years although not in 2016. There has been a marked improvement in lowering the number of Killed or Seriously Injured (KSI) incidents but those with slight injuries continue to be high.

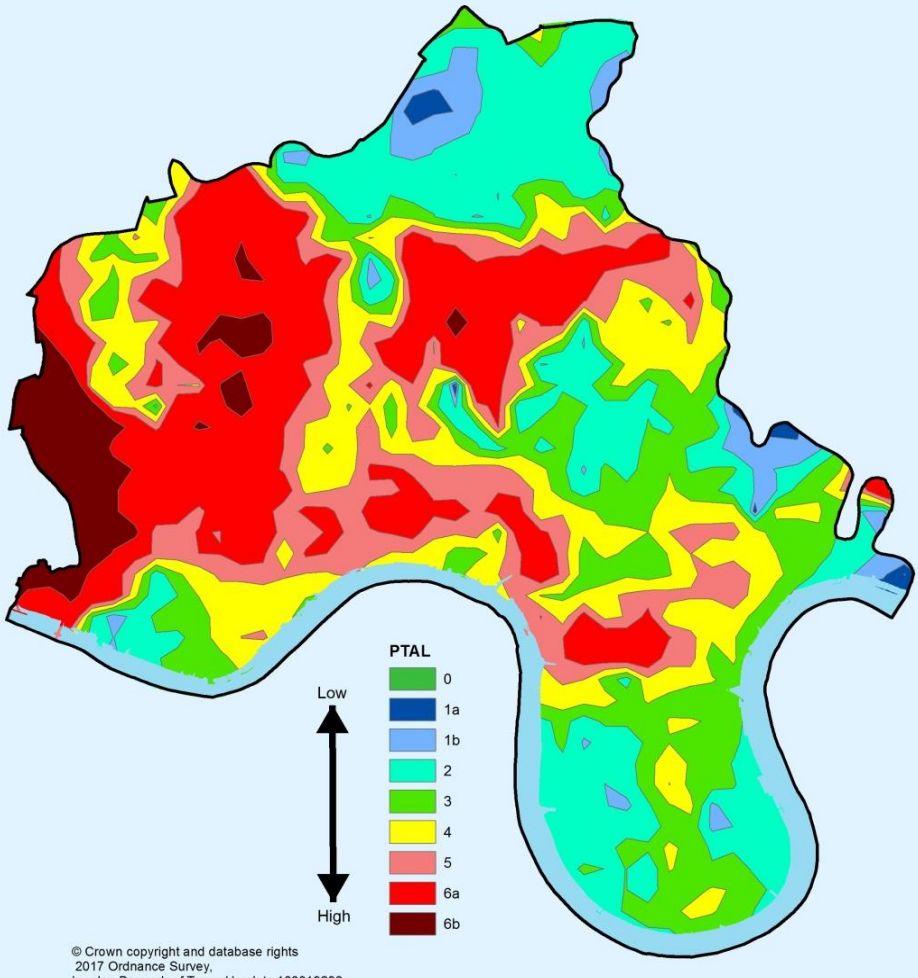
In 2015 the Council implemented a 20mph speed limit on all roads maintained by the borough; the overall aim of this was to improve road safety. In August 2016, a review of the scheme's implementation was undertaken [21] and found that the number of fatal and serious casualties has reduced by 20 per cent and 22 per cent

respectively; the number of collisions at junctions has reduced by 13 per cent; and the number of 'slight' injuries has increased by 24 per cent, giving an overall increase of around 15 per cent across the network. Despite an overall increase in collision numbers, the occurrence of the severest forms of casualties, 'fatal or 'serious', have reduced. The high economic costs relating to severe collisions and associated casualties have reduced by 4 per cent, resulting in an estimated £826,000 economic benefit (saving). There are now schemes in place to implement a 20 mile an hour speed limit on some of the roads in the borough that TfL maintain.

What are the problems with getting around the borough?

Although Tower Hamlets is well served by public transport, the Public Transport Accessibility Levels (PTAL) are not uniform across the borough. PTAL is a measure which rates locations by distance from frequent public transport services with 0 having poor connections and 6a and 6b having excellent connections. PTAL is used for measuring overall public transport connectivity, and cannot be used for individual public transport modes

Map12.7: Tower Hamlets Pubic Transport Accessibility Levels (PTAL)



Source: Transport for London

Map 12.7 shows there are areas with very good access such as the city fringe and Whitechapel, and areas with very poor access such as Leamouth and areas on the Isle of Dogs. The average PTAL score across the borough in both 2008 and 2015 was 4 whereas this is predicted to be 5 in 2021.

When comparing the PTAL scores with the Index of Multiple Deprivation 2015 there are areas which are highly deprived which also correspond to areas where the PTAL score is low, for example, in the Lansbury ward in the east of the borough. There are also areas with high PTAL and relatively high deprivation, for example, in the west in Whitechapel and Bethnal Green.

Map 12.8: Barriers to movement, Tower Hamlets, 2017

The transport infrastructure around the borough, itself, creates barriers to movement across the borough just because of its physical presence. This limit 'permeability': (Permeability refers to the variety of pleasant, convenient, accessible and safe routes through an area and the capacity of those routes to carry the movement of people, whilst avoiding visual clutter in the streetscape and barriers to pedestrian

and cycle movement as much as possible.) Transport infrastructure also acts as lines of severance which is where destinations which are geographically close cannot be reached easily due to busy wide roads, railway lines or rivers. The major roads, such as the A12 and A13 are dual carriageways and can present huge challenges to other users, for instance, in terms of crossing, as there can only be a few places to safely cross. The railway lines in cuttings and embankments as they traverse the borough are also lines of severance.

As well as the manmade structures, the borough is surrounded on almost 3 sides by water, the River Thames to the south, the River Lea to the east which restrict movement at the borough's south and east boundaries due to the few limited crossing points at present. Although manmade, the Regents Canal and Hertford Canal, in the north also act as barriers as they have limited crossing points which therefore restricts movement.

One of the major problems, at present, is that it is sometimes easier and quicker to get to destinations outside the borough as it is to go between two places within the borough. It takes almost the same time to go from Canary Wharf to London City Airport as it does from Bethnal Green to Island Gardens by public transport. (25 minutes for the former and 35 minutes for the latter).

Congestion on both road and rail is a daily occurrence within Tower Hamlets. Congestion is caused when the demand for space on the road and rail network exceeds the supply. Supply can be permanently increased by adding capacity or permanently decreased by converting road space for other uses. This has occurred on the borough's main roads where the cycle super highways have been developed or where bus lanes are formed. Whilst some congestion is a sign of a healthy economy, too much can cause negative effects. For instance, although bus use had been growing because of increased reliability and investment over the past decade, it has decreased over the last couple of years as traffic speeds have slowed due to the increase of traffic on the roads. This increase in traffic is not due to primarily more cars but to other vehicles such as delivery vans, goods vehicles or private hire vehicles. Cars take up 19 per cent of street space in central London, but account for only 11 per cent of journey kilometres. By comparison, buses take up only 11 per cent of street space, but account for 57 per cent of journey kilometres.

One of the ways congestion is measured is through speed of traffic on the roads. In 2016, average traffic speed on A roads in the borough was 15.2 miles per hour. This was greater than Inner London (11.9 miles per hour) but less than London overall (16.3 miles per hour). The average traffic speed on the boroughs roads has increased from 2015 by 5.6 per cent whereas both Inner London and Greater London the average traffic speed decreased by 1.7 per cent. Congestion can also be caused by temporary incidents such as road closures for road works or accidents. In a study by Inrix [22] they found the worst performance on the network in 2016 was on Wednesday 19th April, with a collision at Blackwall Tunnel requiring a

northbound closure and causing delays in excess of an hour. In 2016, the A2 Kidbrooke to the Blackwall Tunnel (although just south of the borough) was the 4th most congested length of road in England with 51 hours lost to delays.

High levels of congestion of traffic on the boroughs roads also lead to high levels of harmful emissions such as carbon dioxide (CO_2) and nitrous oxide (NOx). Some of the highest levels of these chemicals in London can be found on the main A roads crossing the borough. More detail on this can be found in the Environment chapter of the Borough Profile.

How are we dealing with the problems?

Tower Hamlets' Local Implementation Plan (LIP)[23] stresses the importance of creating a 'sustainable transport system that contributes to a better quality of life for all who live and work in the borough'. It aims to encourage cycling and walking, making these modes more attractive whilst also controlling traffic growth and congestion.

The majority of schemes within the LIP address the issues of permeability. For instance, some current programmes include interventions to create high quality north-south pedestrian and cycle routes supporting the Green Grid Strategy on key pedestrian routes between Commercial Road and Whitechapel (as recommended by Whitechapel Public Realm Strategy).

Another programme provides support for measures to improve local accessibility in the Poplar area which has been included in the Housing zone proposals. The scope includes new pedestrian bridges over the Lea and enhancements to connecting routes, as well as measures around Oban St to complement Leaway A13 crossing improvements.

The Healthy Streets Approach is the system of policies and strategies to help Londoners use cars less and to walk, cycle and use public transport more. Developed by TfL around 2014 and embedded into the new Transport Strategy for London (2017)[24]. The key to understanding the Healthy Streets Approach is to understand that most journeys made by Londoners start, end or happen entirely on our streets.[25] By providing good walking environments between homes and shops, services, jobs and public transport, this will encourage people to increase the number trips they make on foot and to create a more walkable borough.

To measure the health of streets a series of 10 indicators have been developed which include Streets should be easy to cross, have safe places to stop and rest, shade and shelter and things to see and do.[26] Tower Hamlets is incorporating these principles in the schemes which will feature in the new LIP.

What will the network look like in the future?

The development led growth in the borough will be dependent on the successful implementation of a first-class sustainable transport network to move the people, goods and services. The Draft Transport Strategy[27] confirms that there will be exceptionally high increases in the demand for public transport and highway congestion across the borough as a result of the projected growth in population and jobs over the next decade. The current overcrowding on the Jubilee and Central lines in peak periods is anticipated to continue in the future despite the delivery of the Elizabeth Line. There are also a number of capacity constraints on parts of the existing strategic road network which will be further exacerbated by growth, creating significant delays, congestion and pollution in the borough.

Map 12.9: Future proposals Tower Hamlets

However there are schemes and strategies in place which will enhance the Borough's current transport networks and aim to provide additional capacity for the predicted growth.

There are several additional crossings of the River Thames east of Tower Bridge currently in the planning and development stages with Transport for London. The

schemes closest to the borough are: a pedestrian/cycle link from Rotherhithe on the south side to Canary Wharf on the north, and a road tunnel linking the Greenwich peninsula on the south side with Silvertown on the north. This road tunnel aims to alleviate congestion at the Blackwall tunnel and also provide more north south bus routes.

Rather than more rail, surface or underground, infrastructure through the borough, the planned improvements for these networks is to increase the frequency and capacity of trains. For instance, the Jubilee line will have longer trains and an increase in the number of trains per hour passing through a station at peak times from 30 to 36 by 2020. The DLR will have extra carriages to enable all trains on the network to run as three carriages, rather than a mixture of two or three currently, to provide a total capacity of 15,000 passengers/hour in each direction. One proposed addition to London's train network is Crossrail 2 which will enhance the connectivity of the two Elizabeth Line stations in the borough as there will be interchanges between the two Crossrail lines within the network.

For the bus network, there will be increases in the number and frequency of buses on some of the routes, together with plans to change the actual routes of the buses to use different roads, in the future, where the demand is.

Freight traffic is set to increase even further as online purchases and deliveries continue to rise. Also hub and spoke methods, where there is a centralised depot and deliveries to homes from this from several companies, will continue to develop.

River transport is a growing mode of transport and could relieve the existing and future pressure on public transport network for people movement and transport network generally for freight movement. TfL's significant investment into river bus movement for passengers aims to increase capacity to 12 million by 2020. TfL have proposed new piers, three of which at Wapping, Canary Wharf East and Trinity Buoy Wharf are within the borough. These will also support the growth of river movement in the borough.

Electric vehicle ownership in Tower Hamlets is forecast to rise rapidly in the next eight years with an estimated 3,500 plus electric vehicles registered to Tower Hamlets residents and businesses by 2025. [28] This represents a huge rise in ownership levels in the borough from just 136 electric vehicles registered at the end of 2016. The borough's delivery plan estimates a minimum of 150 accessible charging points will be required to serve the number of electric vehicles located in Tower Hamlets streets by 2025. This would ensure every household is within 500 metres of their nearest charging point. However, the borough's ambition is to install up to 300 charging points across the borough by 2025.

There will also be greater promotion of car club membership and persuading these companies to use electric vehicles in their fleet. This is to further support the changing of modes of transport of people as studies[29] have found that after joining

a car club, new members reduce their car use and increase use of sustainable travel modes. Before joining a car club, 25 per cent travel by car at least once a week, falling to 18 per cent after joining. Car club members use public transport and walk and cycle more than the average Londoner. Travel by Underground and train is more than double the London average, with bus use 25 per cent higher than average. Car club members are three times more likely than the average Londoner to be regular cyclists.

The aims of the borough's Cycling strategy[30] include, that by 2025, we will: at least double the volume of cyclists in the borough; increase the proportion of residents cycling to work to 15 per cent; reduce the risk of cyclist accidents by half and double the number of children cycling to school. By strategically adding further links to the cycle network, a denser grid will be developed, ensuring easy access to network for all residents.

The aims of the borough's Walking Strategy[31] is that by 2021, Tower Hamlets will offer a high quality pedestrian environment and be a place where walking is the clear choice for all who live in, work in and visit the borough.

Find out more

This report was produced by the council's Corporate Research Unit as part of the Borough Profile 2018. For more in-depth analysis about Tower Hamlets, please visit the Borough Statistics page on the council's website or get in touch with the team at cru@towerhamlets.gov.uk.

Endnotes

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