From Public Transport to Active Travel: Lessons from Canary Wharf

1 – London's Public Transport Centrism

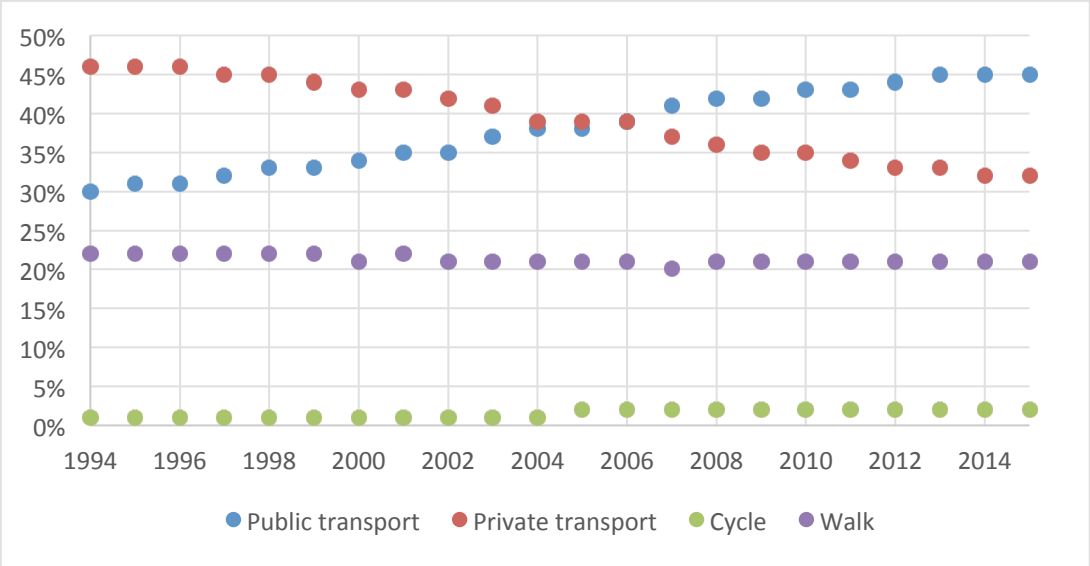
Transport infrastructure has shaped and transformed London. The city born out of the port of Londinium grew in the Middle Ages as roads connected it to surrounding towns and villages. The introduction of public transport further expanded the city, as wealthier residents moved out of the centre and into the cleaner, greener suburbs. In the 20th Century, despite continued investment into the underground network, ridership remained fairly stagnant due to the emergence of the private car (Harris 2011), which also led to a sharp decline in bicycle use (GLC 1984)

For the last 30 years, transport policy has focused on achieving a shift from private to public transport in response to rising CO_2 emissions and increasing highway congestion. To achieve this, London has heavily invested in rail infrastructure, with the opening of the Docklands Light Railway (1987), the Jubilee Line extension (1999), the London Overground (2007), the upgrades for the 2012 Olympics and the Elizabeth Line (2018).

Complementary to these investments have been measures to discourage private car use. In 1993, on-street parking enforcement was transferred from the Police to Local Authorities, leading to a rapid increase in spatial and temporal restrictions (TfL 2014), and in 2003 Ken Livingstone introduced the congestion charge, which reduced the number of private vehicles entering central London by 26% (CPI 2016).

These policies revolutionised the way Londoners move, with a 15% swing from private to public transport between 1994 and 2015 (see **Figure 1**).

Figure 1: London Mode Share[1]



This mode shift is particularly impressive given the population increase from 6.9m in 1991 to 8.2m in 2011. During this period, the integration of land use and public transport planning was instrumental in ensuring that the additional demand was converted into bus and rail journeys rather than private car trips.

Since 2004, London's spatial development strategy has been outlined in the London Plan. The first *London Plan* aimed to integrate land use and transport planning through the creation of the Public

[1] All figure sources at the end of the document

Transport Accessibility Level (PTAL)[2], which quantifies public transport accessibility on a scale from one (very poor) to six (excellent) (TfL 2010). To reduce reliance on the private car and attain a more sustainable modal split, the *London Plan* aimed to increase public transport capacity, concentrate jobs and homes in high PTAL areas and reduce car parking provision as PTAL increases (Mayor of London 2004).

The current *London Plan*[3] has similar aspirations and includes the following policies (Mayor of London 2016):

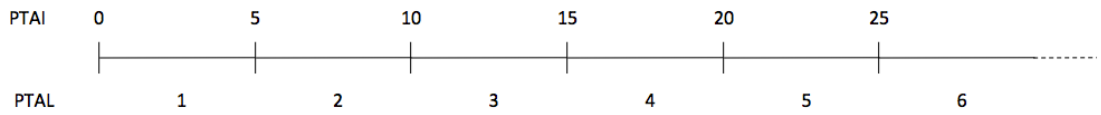
- A sustainable residential density matrix which only permits high-density development in high PTAL locations (see **Figure 2**);
- An inverse relationship between PTAL and car parking provision, with car-free development promoted in high PTAL areas; and
- The concentration of jobs in high PTAL locations, with 50% of B1 Land Use (offices) in PTAL zones 5-6.

Figure 2: Sustainable Residential Matrix[4]

Setting	Public Transport Accessibility Level (PTAL)		
	0 to 1	2 to 3	4 to 6
Suburban	150–200 hr/ha	150–250 hr/ha	200–350 hr/ha
3.8–4.6 hr/unit	35–55 u/ha	35–65 u/ha	45–90 u/ha
3.1–3.7 hr/unit	40–65 u/ha	40–80 u/ha	55–115 u/ha
2.7–3.0 hr/unit	50–75 u/ha	50–95 u/ha	70–130 u/ha
Urban	150–250 hr/ha	200–450 hr/ha	200–700 hr/ha
3.8 –4.6 hr/unit	35–65 u/ha	45–120 u/ha	45–185 u/ha
3.1–3.7 hr/unit	40–80 u/ha	55–145 u/ha	55–225 u/ha
2.7–3.0 hr/unit	50–95 u/ha	70–170 u/ha	70–260 u/ha
Central	150-300 hr/ha	300–650 hr/ha	650–1100 hr/ha
3.8–4.6 hr/unit	35–80 u/ha	65–170 u/ha	140–290 u/ha
3.1–3.7 hr/unit	40–100 u/ha	80–210 u/ha	175–355 u/ha
2.7–3.0 hr/unit	50–110 u/hr	100–240 u/ha	215–405 u/ha

The impact of these policies on the distribution of jobs and homes is demonstrated in **Figure 3**, which shows the average density and Public Transport Accessibility Index (PTAI) of each ward.

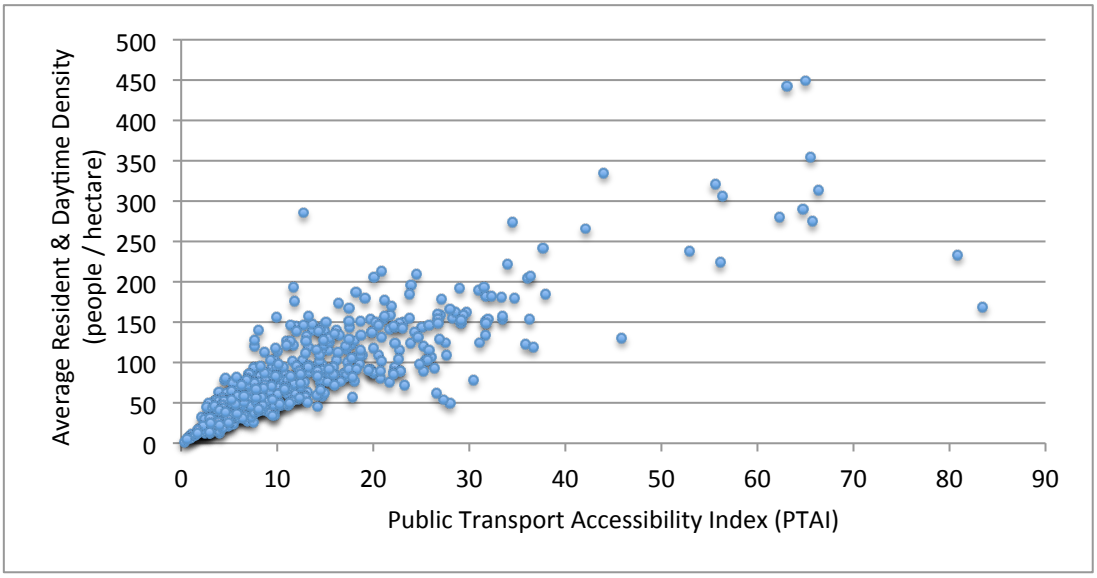
[2] The PTAL rating takes into account all rail services within 960m and all bus services within 640m of a given point. These are added to calculate the Public Transport Accessibility Index (PTAI), which is then banded into PTAL as follows



[3] Note: The new *Draft London Plan* was published in November 2017 but has not yet been adopted

[4] hr = habitable rooms, ha = hectare, u = units

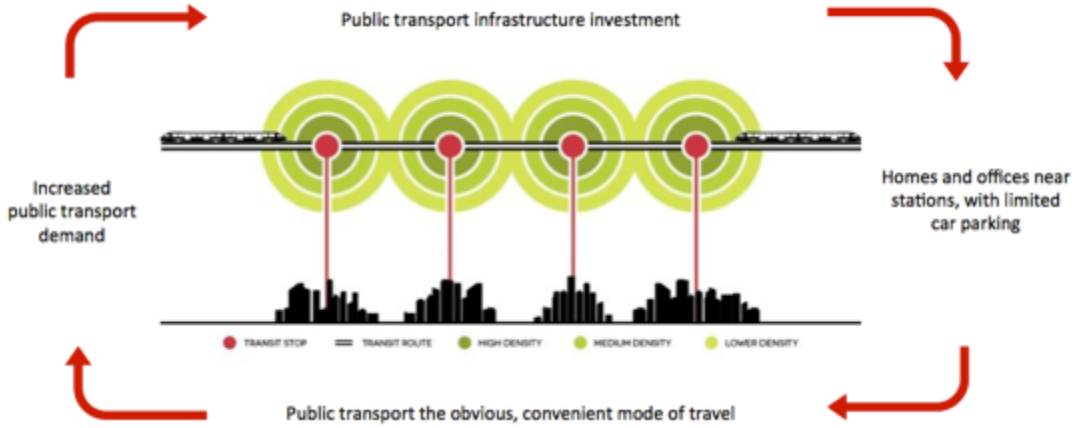
Figure 3: London Wards – PTAI and Density



The fact that density is concentrated in high PTAL areas, combined with parking restrictions and high-quality public transport infrastructure, has successfully made public transport the preferred mode of transport for most Londoners.

This public transport centric development model creates a virtuous feedback loop, with the additional bus and rail fares being reinvested into public transport infrastructure, as shown in **Figure 4**.

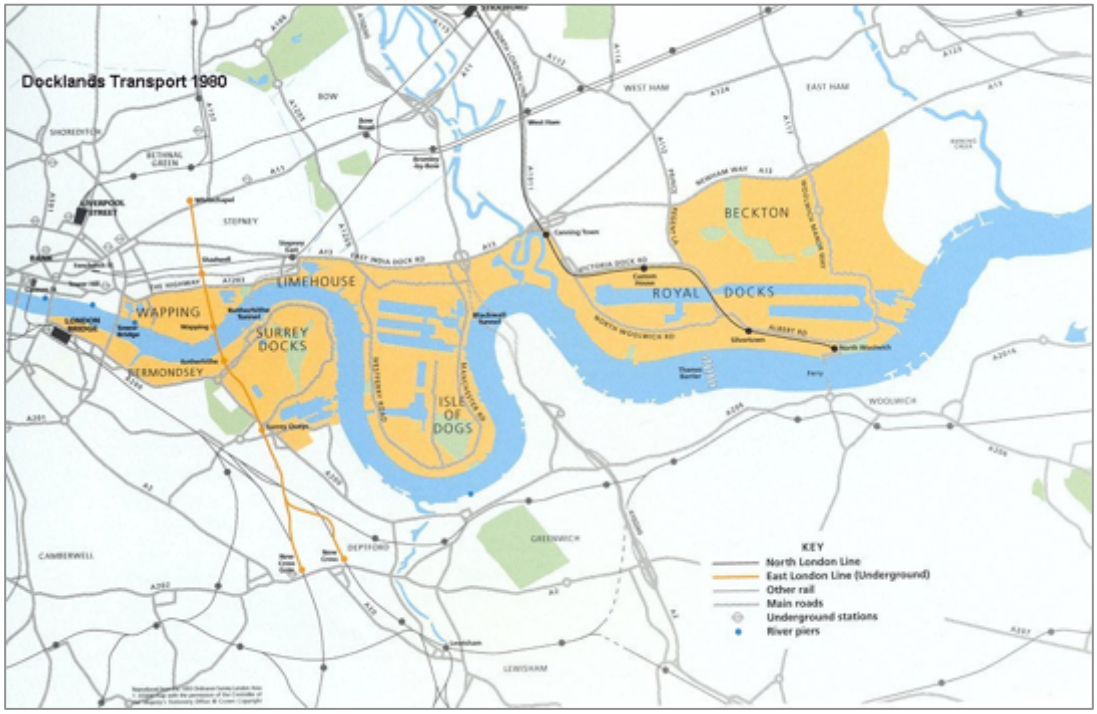
Figure 4: Public Transport Centric Development



Public sector bodies have leveraged this model to raise private sector funding for public transport schemes, as new rail infrastructure and stations have increased property value and unlocked land for developers.

Exemplar of this model is Canary Wharf, built on the Isle of Dogs in the 1990s. When the London Docklands Development Corporation (LDDC) was established in 1981, the Isle of Dogs was physically isolated from London, with no public transport and poor highway connections (see **Figure 5**).

Figure 5: Docklands Transport Infrastructure 1980

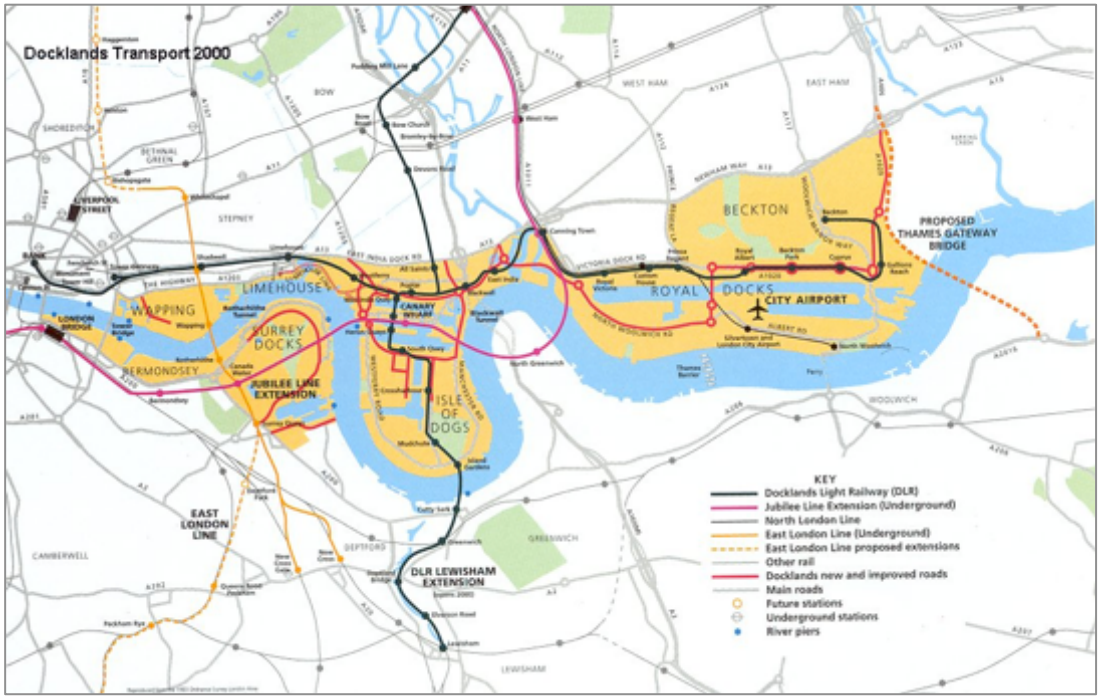


The LDDC recognised the importance of improving access to attract investors and immediately built the Red Bricks road scheme and introduced the Docklands Clipper, a high-frequency shuttle bus to Mile End underground station, which proved extremely successful (LDDC Monograph 2009).

On the back of these small-scale interventions, the LDDC prepared the business case for the Docklands Light Railway, which opened to the public in 1987 and was extended to Bank in 1991 (see **Figure 6**). This new frequent, fast and reliable connection to the City sparked substantial investment including the Canary Wharf Development Agreement for a 900,000sqm office development, which led to the approval of the Jubilee Line extension, completed in 1999 (LDDC Monograph 2009).

The Canary Wharf Group contributed £369m to the construction of these two railway schemes, highlighting the willingness of the private sector to fund infrastructure for public transport centric development (Parliament 2007).

Figure 6: Docklands Transport Infrastructure 2000



The LDDC also took over planning powers from Tower Hamlets and set less restrictive parking standards for the initial phases of development. As public transport infrastructure was committed and built, temporary parking was gradually removed, to the current ratio of 1 space per 600sqm (Mayor of London 2017a).

The impact of these policies on mode choice is demonstrated by the data in **Figure 7** and **Figure 8**.

Figure 7: Method of Travel to Work – Daytime Population

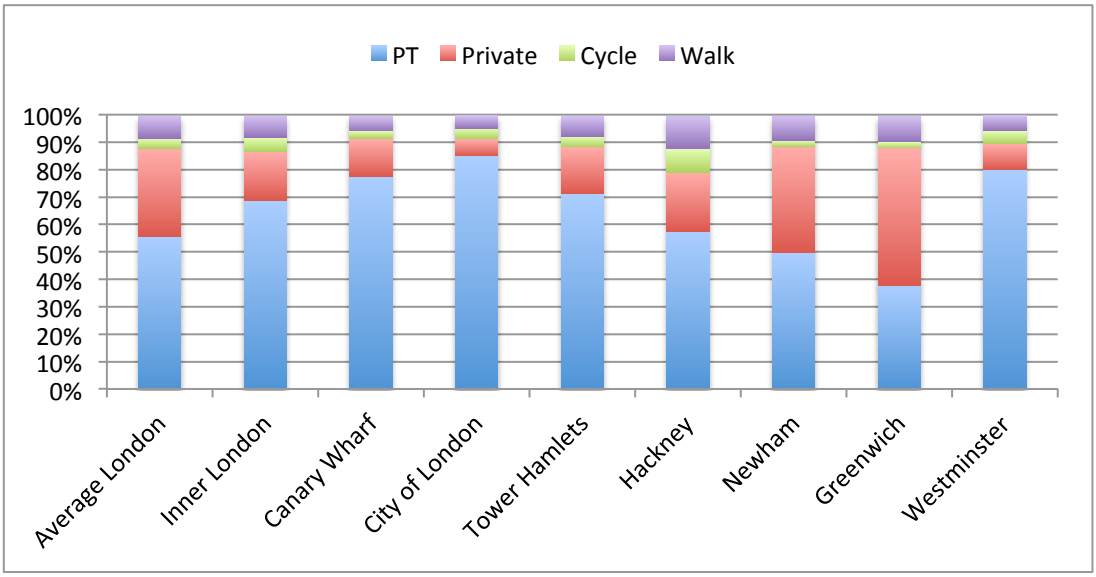
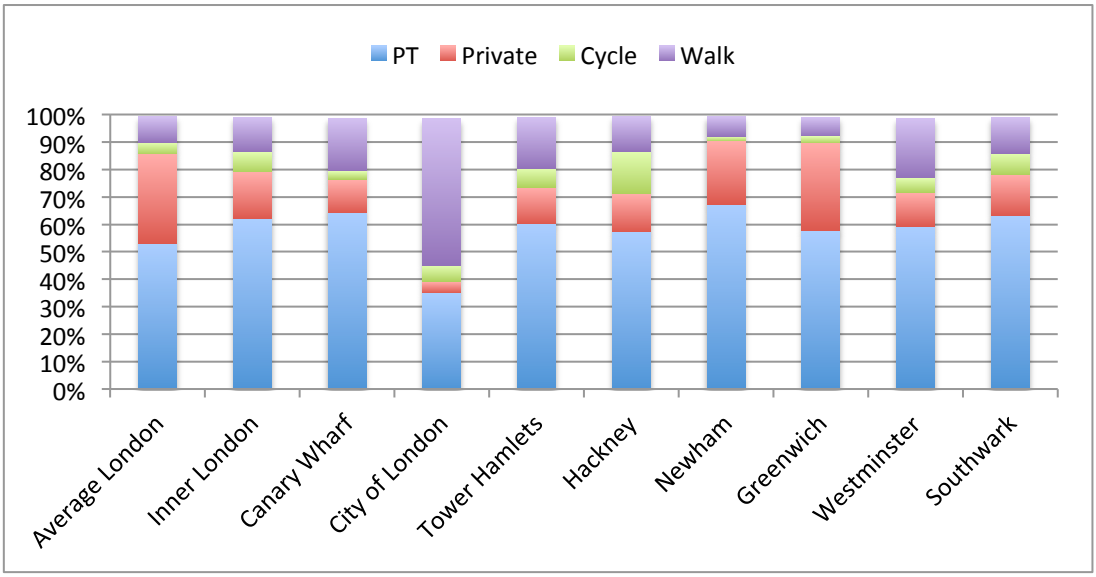


Figure 8: Method of Travel to Work – Resident Population



For employees, the public transport mode share in Canary Wharf is higher than the inner London average and on par with Westminster, whilst car use is significantly lower than in the rest of Tower Hamlets and in the surrounding boroughs (Newham, Greenwich and Hackney).

Given the location outside inner London, it is remarkable that fewer Canary Wharf residents commute by private car than any of the other boroughs analysed, except for the City of London.

This evidence demonstrates that the integration of public transport and land use planning unlocked land on the Isle of Dogs and created a development that minimises private vehicle use and maximises travel by public transport.

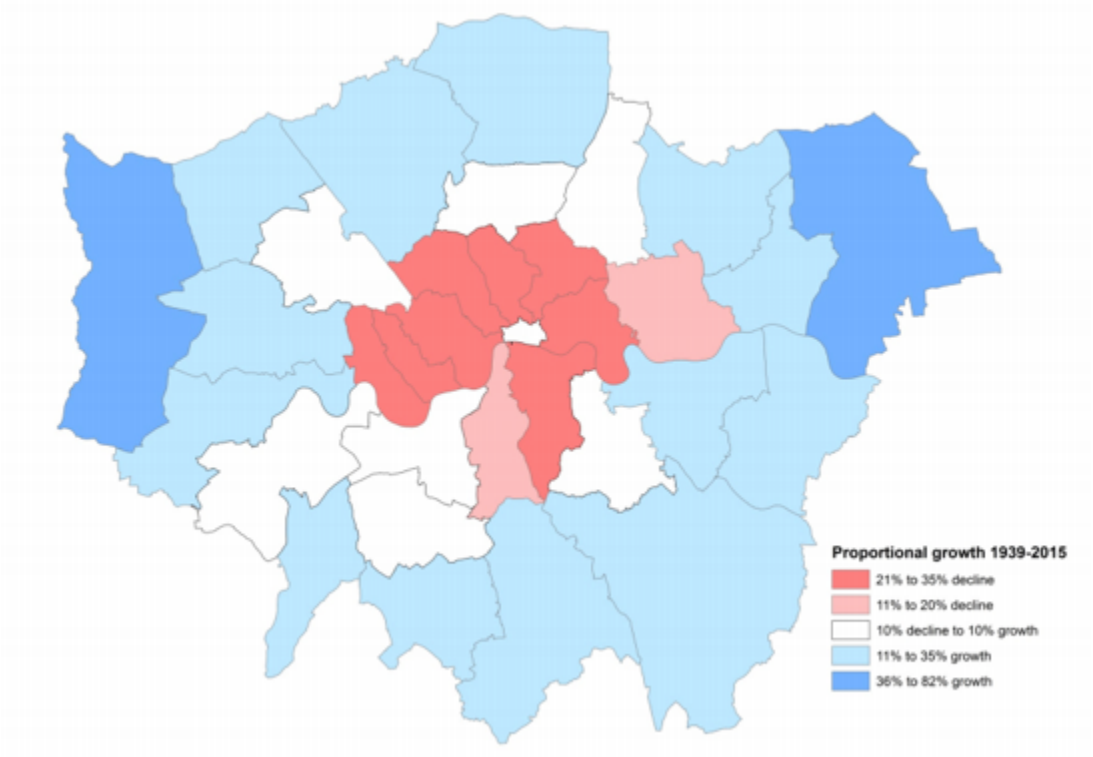
In line with the public transport centric development loop, connectivity to Canary Wharf will be further enhanced when the Elizabeth Line (Crossrail) opens in December 2018. Given that Crossrail has added £5.5b in real estate value and unlocked land for 57,000 new homes and 3.25m sqm of commercial space along its route, it is unsurprising that the Canary Wharf Group contributed £150m of funding for the new station and is now strongly lobbying for Crossrail 2 (Crossrail 2017, TfL 2017a).

2 – Redefining Sustainability

The need for continuous transport investment is intrinsic to the public transport centric development model. New jobs and offices are located in areas of high PTAL with restricted parking, to ensure that residents and employees become bus and rail passengers. Once the capacity of a line is saturated, revenues are invested into new lines, reaching further and further into the suburbs. Without an increase in travel demand, therefore, the virtuous circle would grind to a halt.

This is seen in practice in London, where significant investments have improved public transport speed and reliability. As journey times decreased, many residents elected to move out of Central London into outer suburbs that had suddenly become a short train journey away from a train terminus (see **Figure 9**).

Figure 9: Population Change London Boroughs (1939-2015)



Since 1939, the capital has experienced mass migration to the suburbs, with inner London's population shrinking significantly as urbanisation brought exponential growth to outer London. A similar process took place in New York City in the early 20th Century, when the introduction of the subway allowed lower Manhattan residents to move out, particularly to Brooklyn (Museum of the City of New York 2017).

Whilst this trend is clearly related to increasing property prices, these are largely a consequence of the planning paradigm. Land value is driven by land use and transport planning, therefore a city which forces residents to move out of city centres to afford mortgages has failed in finding the right location, mix and density of jobs and homes.

Through continued public transport investment, the once-meaningful metric of proximity is gradually obliterated, as journey time replaces journey distance (Montgomery 2013, p. 45). This is reminiscent of the effect of new highways in many sprawling North American cities, where "distance is reduced to an abstraction" (Montgomery 2013, p. 45).

The public transport centric model is similarly creating a doughnut effect, with 56% of private sector jobs concentrated in inner London (Sivaev 2013) and employees commuting from increasingly further away as offices price out residents. Between 2001 and 2011 alone, the average commute distance for London residents increased by 8% from 10.36km to 11.2km. For the daytime population, the increase was a staggering 21%, from 14.7km to 17.8km.

In 2014 it was announced that the Elizabeth Line would extend to Reading, with 1,500-passenger trains making the 70km trip to Canary Wharf in 68 minutes. Since then, Reading has ranked as the UK's fastest growing city (EY 2017), with a predicted 43% increase in property values by 2020 (Hyde 2016), suggesting central London or Canary Wharf employees might commute from Reading.

Despite the opening of the Elizabeth Line, overcrowding on the London Underground network is expected to return to current levels by 2026. By 2050, the demand for underground and rail journeys will have increased by 60% and 80% respectively from the 2015 baseline (JLL 2017).

To meet this demand, the current strategy is to construct additional infrastructure, such as Crossrail 2. However, the finite space available underneath London makes constructing new lines increasingly expensive: the total cost of Crossrail 1 was £14.8bn, whilst for Crossrail 2 it is expected to be £30bn. Even a smaller project such as the Northern Line extension, essential to deliver the Battersea redevelopment, will cost £1.2bn (80% of which is being provided by the private sector) (Mayor of London 2017b). These projects require long-term planning and funding commitments that can be challenging in times of political insecurity, when agile and responsive schemes would be more appropriate.

Even the cost of upgrade programmes has been increasing, with £900m invested to accommodate 3,000 extra hourly passengers on the Victoria Line, now the second most frequent train service worldwide (Urban 2017) and £5.5bn to be spent on the Circle, Metropolitan, District and Hammersmith & City Line by 2022 (Topham 2015).

For decades, the answer to congested roads was to build more lanes. However, this approach has proven ineffective, as more road space generates more cars, a process known as induced traffic (Montgomery 2013, pp. 155, 102). So, rather than staying on this "hedonic treadmill of construction and frustration", planners have recognised the need to reduce travel demand and promote the use of alternative modes (Montgomery 2013, p. 186).

The current model of public transport centric development is stuck in this induced demand loop. As tunnels are dug deeper and people commute further, the sustainability of this model must be questioned and alternative models for growth investigated.

The increase in teleconferencing and remote working, for example, may be a means of reducing travel demand. However, research has revealed a rebound effect of homeworkers who engage in alternative travel if they do not need to commute to work (Scottish Government 2013).

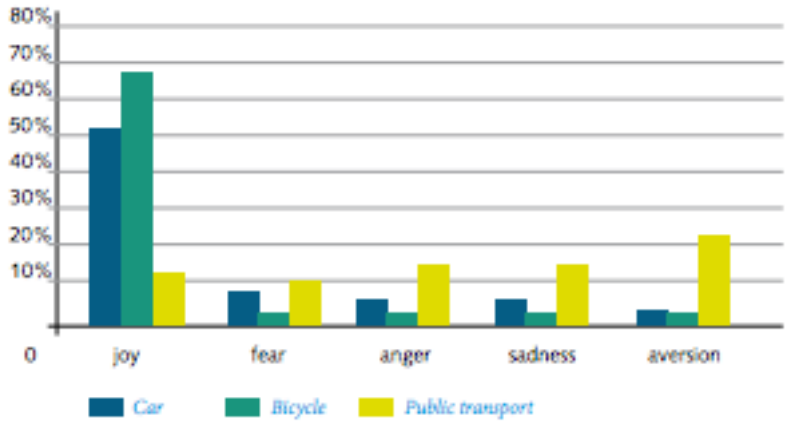
Walking and cycling are also seen as an effective way to alleviate public transport demand, and every *London Plan* since 2004 has set increasing their mode shares as a key target. However, as **Figure 1** demonstrates, whilst effective policy promoted the shift from private to public transport, walking and cycling mode share have remained stagnant at 20-22% and 1-2% respectively.

In the past three years, another argument has emerged in support of walking and cycling investment: the relationship between transport and health. In London, 57% of adults and 37% of children under the age of 11 are overweight or obese, with 80% of children not achieving the recommended daily hour of physical activity (Department of Health 2015, Public Health England, TfL 2017b). Transport is seen as a key opportunity to integrate physical activity into people's daily routines, helping to address this public health crisis and reducing healthcare costs.

As a result, the semantics have shifted from environmentally sustainable travel to active travel. Walking and cycling are not only the most efficient way of getting people around on limited road space, but also the healthiest and most sustainable transport modes (Norman 2017). As such, they sit at the top of the new mode hierarchy, followed by public transport.

Another metric that supports active travel investment is happiness. Studies across the Netherlands (**Figure 10**), California and New York have revealed that people who walk and cycle consistently report the highest levels of happiness, fun and joy when commuting (Montgomery 2013, p. 186). They feel more energetic, upbeat and confident, reporting less fear, anger and sadness than drivers and public transport users (Fiets Beraad 2009).

Figure 10: Mental Health and Mode Choice



With active travel making people mentally and physically healthier, freer and better connected with the world around them (Montgomery 2013, p. 189), there is increasing pressure on built environment professionals to implement policies that prioritise walking and cycling over the private car and public transport. Health is suddenly the driver for transport policy, with active travel as the basis of the Healthy Streets approach that underpins the latest *Draft Mayor's Transport Strategy* (*MTS*) and *Draft London Plan*.

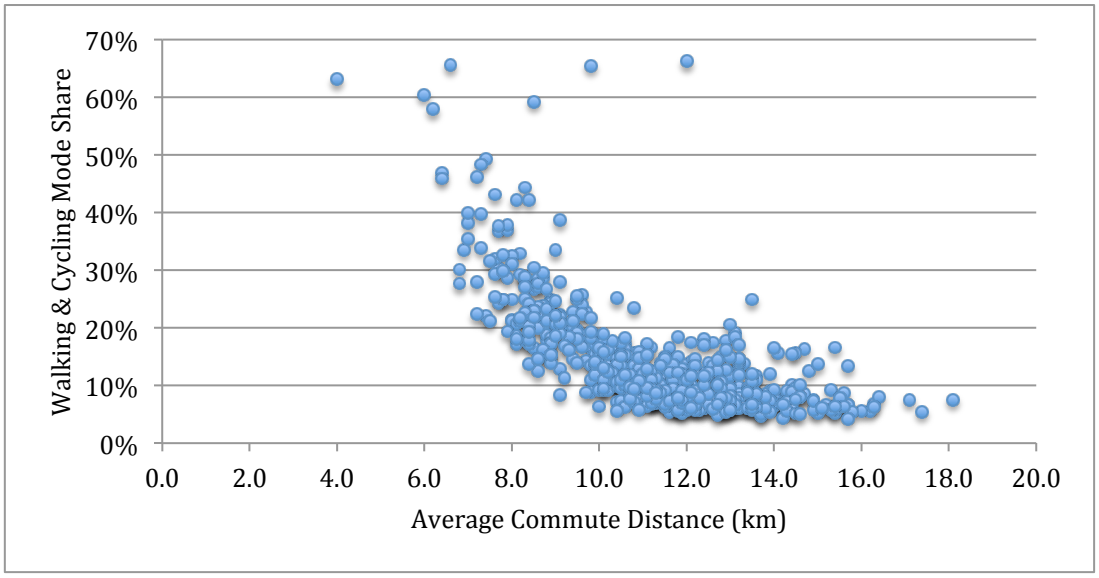
Part 3 – Discouraging Active Travel

So far, cycling investment has largely focused on improving safety, which consistently emerges as the number one barrier to the uptake of cycling (TfL 2016, Howells 2017, Cycling Embassy of Great Britain). In his last Mayoral term, Boris Johnson invested £400m on a programme of Cycle Superhighways, Quietways and Mini-Hollands (Mayor of London 2013), which Sadiq Khan bettered by committing £770m to walking and cycling (Walker 2016). However, whilst the number of cycling trips in central London appears to be increasing (TfL 2017c), there has not been a step change in uptake.

The main motivations for considering taking up cycling include saving money, saving time and convenience of cycling (TfL 2016). Research has demonstrated that people in Copenhagen or in the Netherlands do not cycle due to health or environmental reasons, but simply out of self-interest, as it happens to be the easiest, quickest and most convenient way to get from A to B (Montgomery 2013, p. 223).

Journey distance is a key parameter when choosing how to travel. **Figure 11** plots the commute distance and the active travel mode share for all London wards.

Figure 11: London Wards – Commute Distance and Active Travel



Unsurprisingly, active travel mode share generally reduces when residents have to travel further. Longer commutes reduce opportunities for utility cycling and lead to the emergence of the Lycra-clad super-commuter who races through the city on a road bike, wearing reflective clothing and an aerodynamic helmet in an attempt to beat Strava records. This unique cycling type has taken a foothold in London and creates a competitive, hostile and antisocial environment that leads to conflicts with other road users and intimidates novice cyclists (see **Figure 12**). It is unsurprising that only 33% of Londoners classify cyclists as respectful and 31% as law abiding (TfL 2016).

Figure 12: Super-Commuting in London (Left) and Utility Cycling in Copenhagen (Right)

Given the above, the public transport centric model spells trouble for active travel, as growing travel distances make walking and cycling increasingly prohibitive. The data in **Figure 13** and **Figure 14** indicates travel distance and active travel mode share across a sample set of boroughs.

Figure 13: Commute Distance

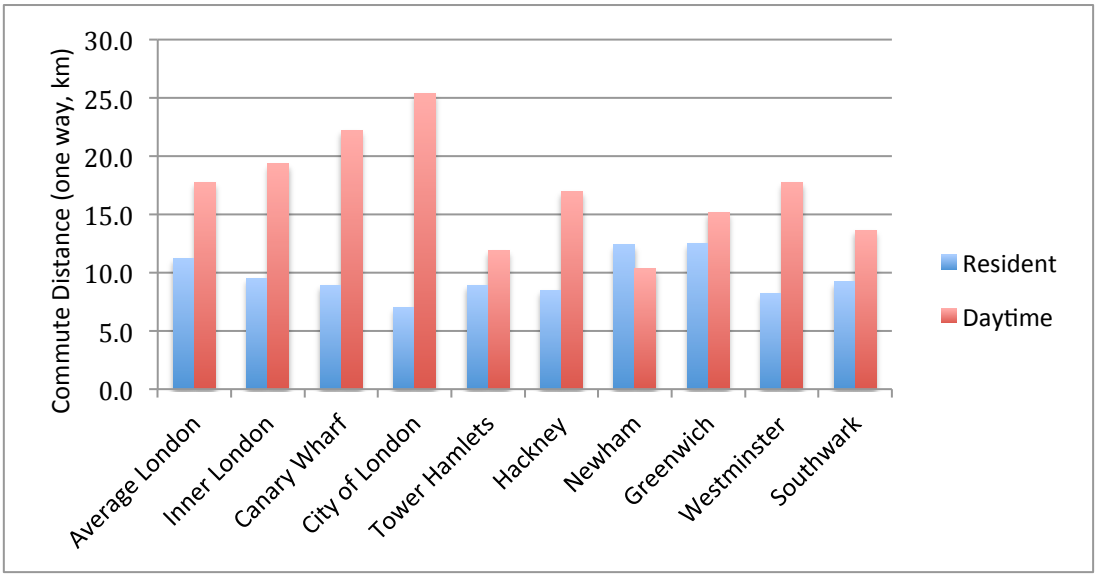
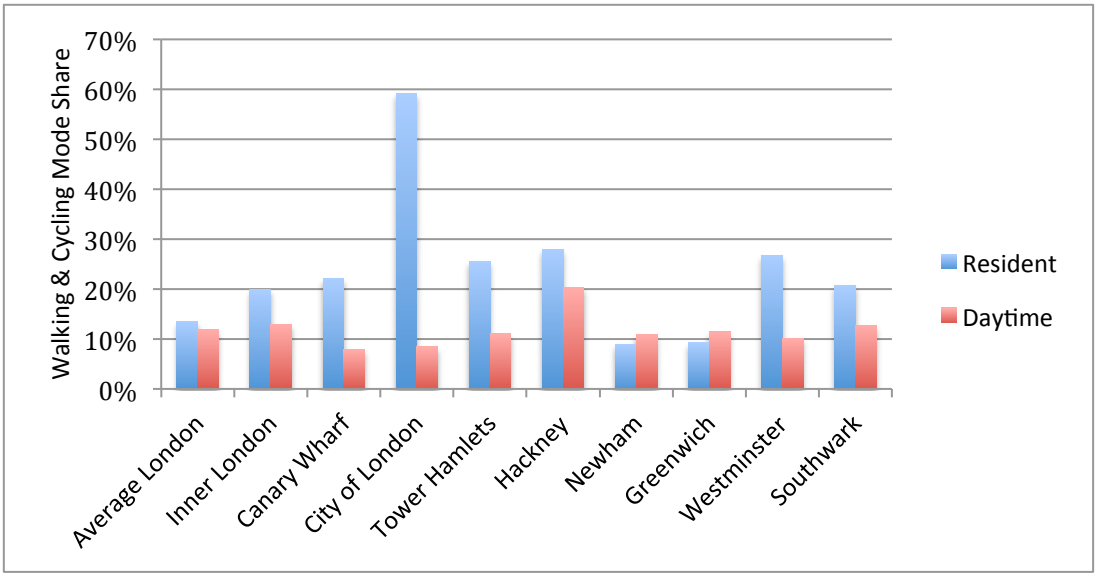


Figure 14: Active Travel Mode Share



Given the long commutes to the City of London and Canary Wharf, it is unsurprising to find that they have the lowest daytime walking and cycling percentage. However, the City makes amends with the highest active travel mode share for residents. Given the large employment offer in Canary Wharf, it is concerning that only 22% of residents walk or cycle to work (fewer than the Tower Hamlets average), indicating a missed opportunity in the integration of land use and transport planning.

When moving from A to B, one compares all available options and tends to pick whatever mode is cheapest, quickest and most convenient. These metrics are therefore relative rather than absolute, making it impossible discuss modes in isolation. For example, the mode shift from car driving to public transport in London occurred when driving was made more expensive and inconvenient than taking the bus or the tube. As such, to increase walking and cycling mode share, the focus cannot be on pull factors alone (infrastructure, cycle parking), but also on factors that push users away from other modes of transport.

Whilst London has adopted a wide range of policies to discourage the use of private cars, which are recognised as “the cigarette of the future” (Lerner, quoted in Garcia 2014), public transport has become so convenient that it is difficult to convince users to shift to active travel. Clear evidence of

this was provided by the underground strikes in January 2017, when thousands of Londoners pulled out their rusty bikes, tried cycle hire for the first time or discovered how pleasant it is to walk to work (Robertshaw 2017, Smith 2017).

The new *Draft London Plan* and *Draft MTS* often refer to walking, cycling and public transport in the same sentence. However, it is important to recognise the benefits delivered by each and prioritise investment accordingly, as every additional rail or bus passenger means one fewer person walking or cycling to work. The Mayor has set the target of 80% of all journeys to be undertaken by public transport, walking and cycling by 2041 (Mayor of London 2017c), but if all this increase were to be in public transport trips, with walking and cycling staying stagnant, would this be enough to solve the public health crisis?

The competition for ridership extends to funding. Sadiq Khan's record active travel funding still only accounts for 5.5% of the total transport budget, the vast majority of which is spent on public transport improvements (Walker 2016). If the aim is to create healthy cities in line with the walking, cycling, public transport mode hierarchy, this balance cannot be right. Imagine how many segregated cycle lanes could be built if the active travel allocation were increased to 20-30%.

Segregated infrastructure highlights the third area of competition between active travel and public transport: physical space. Since the early 2000s, London has reallocated space from the private car to buses and taxis (Aldred 2016). However, finding the space for cycling has been considerably more difficult, often due to the impact on bus lanes.

The impact of cycle superhighways on bus journey times has been so controversial (Forster 2017, Gilligan 2017a, Gilligan 2017b, Henn 2016) that, on some schemes, Transport for London (TfL) is now omitting segregated lanes and proposing the shared use of bus lanes, which will do little to attract novice cyclists (TfL 2017d). TfL's *Strategic Cycling Analysis* outlines four potential solutions to the bus and cycle conflict, but these invariably entail a reduced provision for one user category. But how many bus trips could simply be cycled if bus lanes were converted into cycle lanes?

While it is not feasible to terminate all bus services, walking and cycling must become the most practical, convenient and safest modes of transport for an active and healthy population. Unfortunately, it is in the success of public transport centric developments such as Canary Wharf, guided by policy aims of the 20th Century, where we see the downfall of 21st Century objectives through ballooning infrastructure costs, longer commutes and declining mental and physical health (see **Figure 15**).

Figure 15: Public Transport Centric Development and Active Travel

The conflict between policy objectives is epitomised by developments on top of stations, with record PTAL ratings but minimal active travel opportunities, as elevators and escalators take residents from beds or desks to platforms.

To reduce travel demand and enable the shift to active travel, an alternative model for the integration of land use and transport planning is therefore required.

4 – Planning for Active Travel

The aim of reducing the need for travel is inextricably linked to increases in density and in mixed use. Canary Wharf has been criticised for being "elitist and disconnected from the surrounding context" (McGuirk 2014, p. 129), and the shortage of nearby high quality residential accommodation is part of the reason employees live so far from the Isle of Dogs.

This is now being addressed by the Wood Wharf eastern extension, with short commutes attracting buyers to the 3,300 new residential units (Barber 2017). This kind of high-density mixed-use model is reminiscent of Manhattan, where 53% of residents who work on the island commute by walking, cycling, taxis and motorcycles[5]. (New York City 2010).

Recent years have seen an increased focus on creating outer London town centres to shorten travel distances and reduce the tide of commuters travelling into and out of central London each day. This polycentric city concept is promoted in the London Plan as an opportunity for more effective land use and transport integration, enabling intensification, encouraging walking, cycling and greater use of public transport and fostering social inclusivity (Mayor of London 2016).

However, whilst development remains public transport centric, travel distances will continue to increase and active travel will be unable to compete. To change the tide, an active travel centric development model is needed.

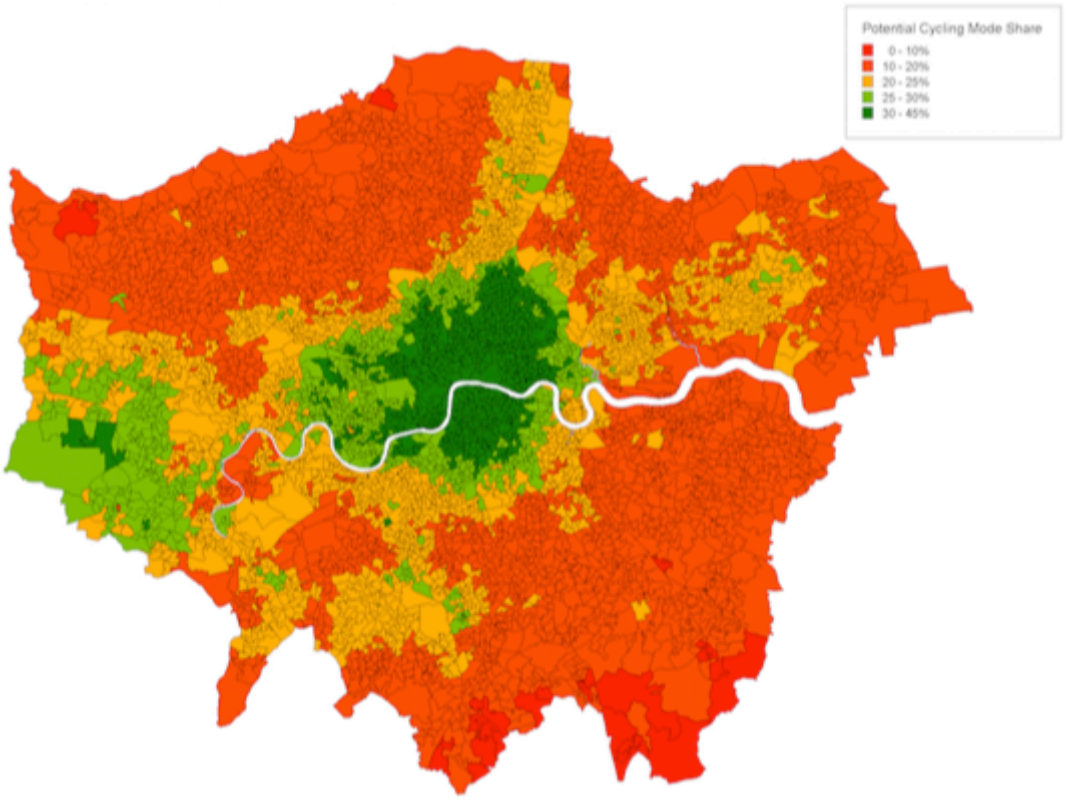
The starting point for this model is the Propensity to Cycle Tool (PCT), developed by a partnership of British universities and funded by the Department for Transport. The PCT quantifies cycling potential by looking at the length and hilliness of each trip to work (origin-destination pair).

TfL's own analysis of cycling potential, presented in the *Strategic Cycling Analysis*, is more refined as it includes non-commuting trips, measured cycle flows and projected population and employment growth. If this data were to be made publicly available in the future, it could replace the PCT data used in this analysis.

In the PCT's Go Dutch scenario, data from the Netherlands is used to calculate how likely someone would be to undertake a trip of a given length and hilliness by bicycle (for example, 50% of people might cycle a 5km trip with an elevation change of 100m). By applying this probability curve to all existing commuter trips in London, the picture in **Figure 16** emerges.

[5] No further breakdown between the four modes is provided in the dataset

Figure 16: PCT Go Dutch Scenario



If Londoners cycled like the Dutch, 22% of all commuter trips would be undertaken by bicycle. This demonstrates that distance and hilliness are not insurmountable obstacles in London, but also that commutes must be shortened to obtain Dutch-level cycling mode shares greater than 30%.

The map indicates the areas where, based on geography and commuting patterns, active travel is most likely to be a viable option for residents (over 40% mode share in Tower Hamlets and Hackney). It also demonstrates the lack of polycentricism in London, with very few cyclable or walkable commutes in outer London (Heathrow being the notable exception).

Part 1 of this study presented the *London Plan's* PTAL-based density matrix (**Figure 2**). To reduce travel distances and encourage active travel, this could be replaced with a PCT-based matrix such as the one in **Figure 17**.

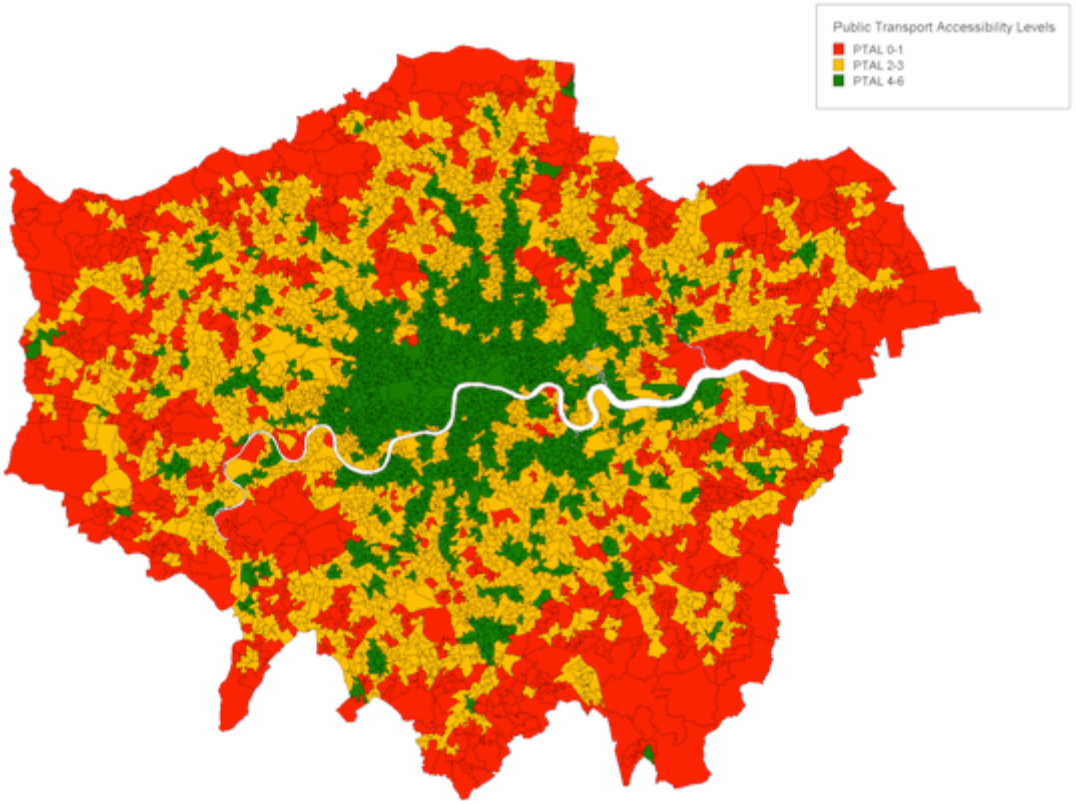
Figure 17: PCT-Based Density Matrix (Indicative Numbers)

Setting	Active Travel Potential		
	0-20%	20-30%	30%+
Urban	35-75 units / ha	35-250 units / ha	45-130 units / ha
Suburban	35-95 units / ha	45-170 units / ha	45-260 units / ha
Central	35-110 units / ha	65-240 units / ha	140-405 units / ha

As more jobs are provided in outer London, opportunities for active travel will increase and more yellow and green areas will appear in the surrounding areas. This alternative density matrix would therefore actively contribute to the polycentric model advocated in the *London Plan*.

By comparing **Figure 16** and **Figure 18**, the issue of point density associated with the current planning model is made apparent. By focusing on the geography of bus stops and rail stations, high-density residential development is being permitted in high PTAL areas far away from employment centres and not in low PTAL pockets close to central London that are conducive to active travel.

Figure 18: PTAL Density Bands



The latter are the neighbourhoods where this alternative density matrix could be transformational. Areas with low PTAL rating tend to have lower land value (Spittles 2011) and are therefore less appealing to developers. A PCT-based policy would unlock land for development, permit higher density and attract investors. This model could therefore provide additional housing by densifying the gaps between stations, resulting in a linear density increase moving closer to employment areas.

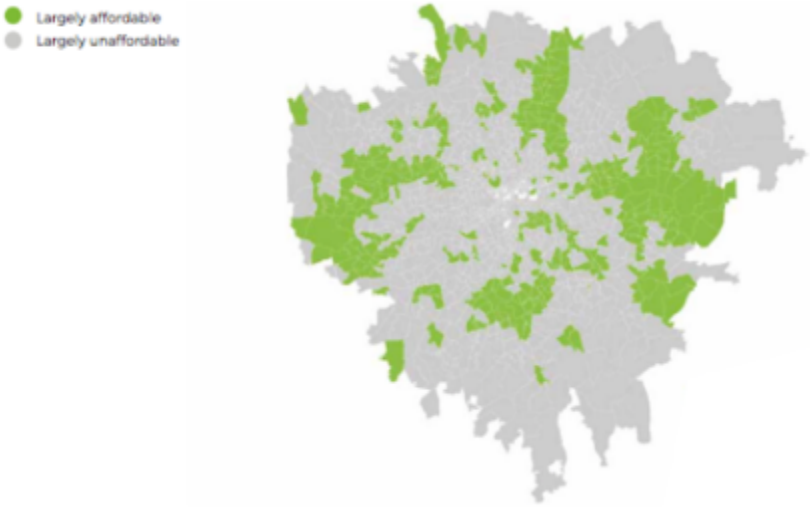
To identify these high PCT low PTAL areas, an analysis of the Census Lower Super Output Areas (LSOAs) in London has been undertaken, with the results shown in **Figure 19** and **Figure 20**.

Figure 19: LSOAs with PTAL 1-2 and PCT Mode Share >25% (Go Dutch)

Figure 20: LSOAs with PTAL 1-3 and PCT Mode Share >30% (Go Dutch)

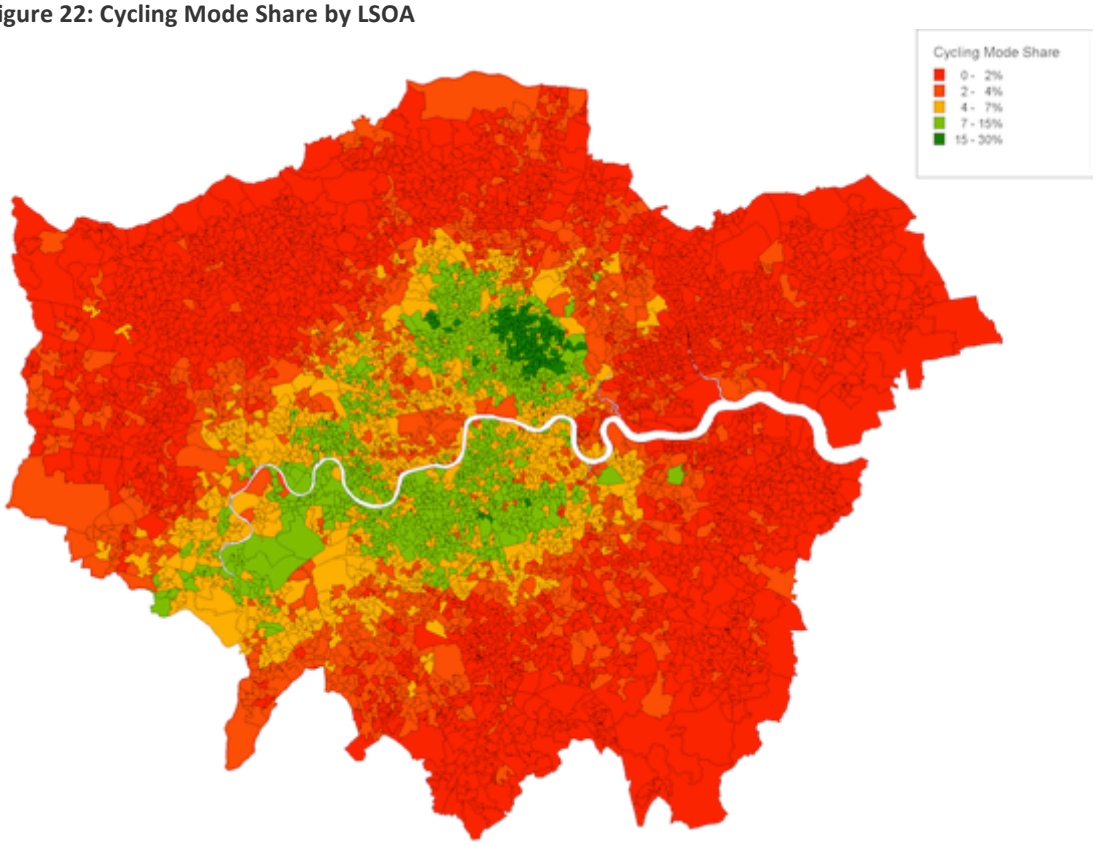
Green opportunity zones appear all over London, particularly around Heathrow, Hackney and South London. Areas such as Hanworth, Stamford Hill, Clapton, Camberwell, Peckham and Rotherhithe have been overlooked by public transport and land value is therefore relatively low given the proximity to jobs (see **Figure 21**).

Figure 21: London Affordability Map



In south and east London, cheaper leases and rents are already attracting students or young professionals who prefer to move by bicycle, as demonstrated by **Figure 22**.

Figure 22: Cycling Mode Share by LSOA



These areas can operate as urban laboratories for a new type of development designed around active travel. Safe, high-quality cycle parking could be provided at ground level and within flats or offices themselves (see **Figure 23**), with communal bicycle repair stations, tandems, cargo and electric bikes available. Ramps could connect floors (see **Figure 24**), enabling residents to cycle from their front doors to the segregated cycle lanes, wide footways and running lanes that connect homes, offices, schools, shops and parks.

Figure 23: SRAM Offices, Chicago

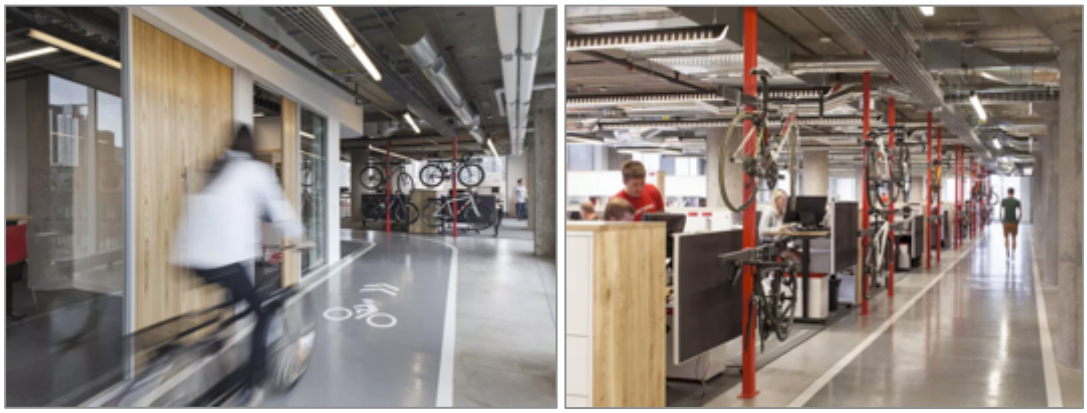


Figure 24: West Village Basis Yard (Top) and 8-House, Copenhagen (Bottom)

There is ample evidence that segregated cycle lanes, greenways and cycle hire docking stations have a positive impact on property value and rents (Ferrini 2017, National Association of Realtors 2016, Property Wire 2015). Active travel infrastructure could therefore perform the same role as public transport infrastructure, unlocking land for development. Local authorities could use this correlation to ensure that healthy infrastructure is paid for by the private sector through planning obligations and funding contributions.

Canary Wharf has taught us that if you make one mode of transport the obvious choice, people will embrace it. Cycle centric developments make active travel as normal as it is for the Dutch, who “don’t think about it, we just do it. Cycling is as normal as breathing” (Taskovski Films 2017).

As people switch from public transport to active travel, pressure is alleviated from bus and rail services, and more funding can be allocated to creating Healthy Streets, closing the cycle centric development loop (see **Figure 25**).

Figure 25: Cycle Centric Development

Building these developments in affordable areas could attract young people, renters and first time buyers who are more likely to embrace an active travel centric lifestyle. In disadvantaged areas, cycling could replace the bus as the go-to affordable mode and help address the income-related child obesity gap (NHS 2016).

This is an ambitious prospect considering the current levels of cycling in London. Public transport centric developments such as Battersea and Old Oak Common are essential for London's growth, and more must be built. However, given that the private sector is willing to fund entire stations, it is paramount that exceptional active travel facilities and segregated cycle infrastructure also be provided at these locations, to better level the playing field for walking, cycling and public transport.

In many locations, cycling and public transport can be complementary rather than competitive. The Cycling PTAL (CTAL) introduced by TfL infers that density could be extended further from stations if residents were to cycle rather than walk the first and last stage of their commute. The current CTAL is limited to a five minute cycle, but if it were extended to ten or twelve minutes and incorporated in transport policy, it could unlock development land and become a powerful tool for local authorities to demand the private sector provide cycle lanes or cycle hubs at stations (see **Figure 26**).

Figure 26: Waltham Forest Cycle Hub

As London's outer town centres are developed further through densification and mixed use, more opportunities will emerge for developments that are centred on active travel. For example, segregated cycle lanes and the proposed Rotherhithe river crossing could enable cycle centric developments around Canary Wharf, densifying areas of London that are currently under-developed due to poor public transport connectivity.

Through the sound integration of land use and transport planning, London has been extremely successful at getting people out of cars and onto public transport. However, the 21st Century has brought forward new pressing objectives of reducing travel demand and increasing physical activity to save on healthcare costs. Public transport centric developments such as Canary Wharf are contrary to these aims, demonstrating the need for an alternative land use and transport integration model.

The adoption of an alternative density matrix based on the propensity to cycle would reduce the need to travel, and active travel centric developments could make walking and cycling the obvious modes of travel for Londoners. This alternative cycle centric model could unlock land for development, attracting private sector investment for active travel infrastructure and alleviating pressure on the public transport network, whilst creating a healthier and more sustainable city.

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