CENTRE FOR LONDON

Sustainable and Active Travel on Kensington High Street

Nicolas Bosetti, Jon Tabbush, and Rob Whitehead

About the authors

Nicolas Bosetti

Nicolas was Head of Data and Insight at Centre for London until September 2022, and now works at Momentum Transport Consultancy. He is chiefly interested in cities, governance and regional economic development, and at Centre for London he has co-authored reports on inequality and social mobility, city planning, and sustainable transport. Nicolas has an MSc in Urban Policy.

Jon Tabbush

Jon is a Senior Researcher at Centre for London, where he is currently working on projects to investigate place-shaping in Kensington & Chelsea and impact investment in London. Before joining the Centre in 2021, Jon graduated with a Master's degree in Political Thought for research on the politics of community in 1990s Britain. During his undergraduate studies in History and Politics he also interned for a homelessness research institute and a local branch of Citizens Advice.

Rob Whitehead

Rob Whitehead is Director of Strategic Development at Centre for London. He rejoined the Centre in 2020, having initially helped to establish the organisation in 2011. Before joining Centre for London, Rob was Director of Knowledge at Future Cities Catapult. He has also led on strategy at the UN International Trade Centre and the London Development Agency.

Acknowledgements

We are grateful to all those who gave their time and expertise throughout the project. We are particularly indebted to officers and councillors at the Royal Borough of Kensington and Chelsea for their time and insights, and to members of our Local Reference Group and our Expert Reference Group for sharing their experience and expertise. We would also like to thank the students from UCL and Imperial College London's MSc in Transport for developing their proposals on the future of Kensington High Street. Particular thanks are due to Professor Peter Jones (Professor of Transport and Sustainable Development, UCL Department of Civil, Environmental & Geomatic Engineering) for leading the work from his students on Kensington High Street, and offering comments on our conclusions. We would also like to thank Martin Wedderburn (Director, Wedderburn Transport Planning) and Sara Nalakowska (Consultant Transport Planner, Wedderburn Transport Planning) for their contribution to this research. Our thanks also go to Millie Mitchell (Researcher, Centre for London) for the drawings of Kensington High Street.

Finally, we would like to thank the Royal Borough of Kensington and Chelsea (RBKC) for commissioning this work, and enabling us to make a contribution to improving active and sustainable transport in the borough.

Nevertheless, the report is editorially independent of our Reference Group and RBKC, who don't necessarily agree or support our conclusions. The views expressed in this report are solely those of the authors, and all errors and omissions remain our own.

Summary

Summary

There are severe issues of congestion, pollution and poor safety on Kensington High Street (KHS).

- In all our future scenarios, RBKC will need to manage the increased popularity of micromobility (these are small, lightweight vehicles that generally travel at speeds under 15mph, such as bicycles, escooters and cargo bikes) for both personal transport and for deliveries.

- RBKC will also need to take action to support its retail businesses – by creating an enhanced high street environment (including reduced congestion, noise and pollution).

- As we have seen, from our survey of trends, the overall strategic landscape, and our exploration of the future via our scenarios exercise, the crux of improving KHS for active and sustainable travel centres around improving conditions for micromobility users, and pedestrians.

- Providing micromobility lanes on alternative routes isn't a suitable option, as there isn't a direct route that would offer a better environment for cycling or walking.

- There are three options to improve safety for micromobility users on Kensington High Street. The key differences between these options are in the priority given to public transport users, pedestrians and micromobility users.

- **Option 1 focuses on public transport users.** Under this option there would be significantly fewer vehicles on KHS, and continuous bus lanes which would be shared with micromobility users.

- **Option 2 focuses on place users (pedestrians and people who spend time on KHS)** – with wider pavements and improved public realm. There would be fewer vehicles on KHS - a smaller reduction compared to Option 1, but their speed would be reduced thanks to a 15 mph speed limit (subject to Department for Transport approval). Outside of the critical section of KHS, micromobility users would have their own lane or share with buses where the former is not possible.

- **Option 3 focuses on micromobility users** by providing a continuous bi-directional protected lane on the north side of KHS.

  These options are presented in more detail in the report. All options include improvements for pedestrians – through improved crossings (increasing the frequency of the pedestrian crossing phase, changing staggered crossings to straight across, avoiding two-stage crossings, systematic use of tactile paving) and widened pavements where possible. These three options are presented as distinct because there are trade offs between each, but there is also scope to combine some design elements – for example, adding a micromobility lane could work alongside a reduction in rush hour motor traffic.

All options would create significant change from the street as it is currently, and have drawbacks for some user groups. Implementing any of these schemes will require extensive consultation and planning with all street users.

About this report

Centre for London is the capital's dedicated think tank. Our mission is to develop new solutions to London's critical challenges and advocate for a fair and prosperous global city. Centre for London was commissioned to deliver this work by the Royal Borough of Kensington and Chelsea in summer 2021.

This report builds on our work on placemaking in Phase 1 of the Centre for London project to examine high streets and placemaking in the Royal Borough of Kensington and Chelsea. The report we produced at the end of that phase looked at the borough's high streets and how they can recover from the pandemic, with in-depth looks at three very different high streets in the borough to create high street action plans, and a set of case studies with ideas and inspiration.

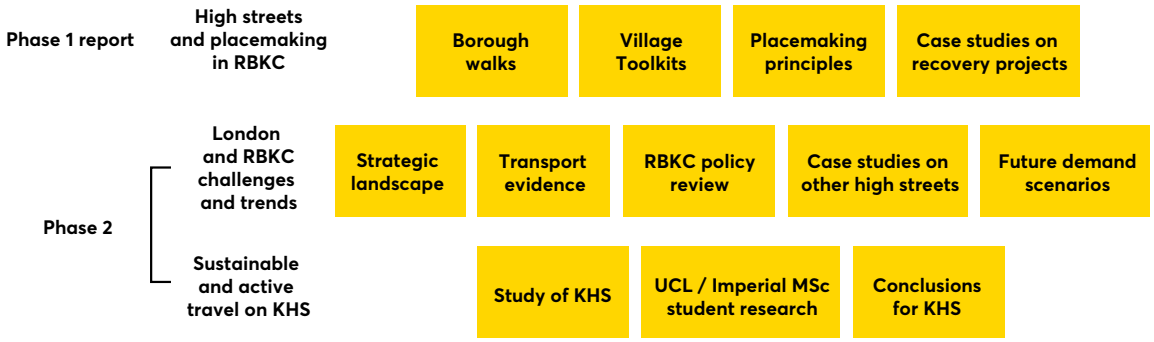
In this second phase of this project, we look in more detail at sustainable transport in the borough - looking at the balance between different modes of transport in and around high streets, and specifically at active travel and modes of travel along Kensington High Street.

How we created this report

We drew on a variety of sources and evidence including:

- Consultation with residents conducted on behalf of RBKC
    - Conducted by Mutual Gain: a series of workshops with groups of residents in different parts of the borough, conducted online due to the pandemic
    - Conducted by Commonplace: an online engagement platform producing quantitative data on residents' views about high streets in the borough
- Two reference groups of people with particular knowledge and expertise in the area
    - A local reference group of individuals and organisations based in the borough, including resident groups, third sector bodies, and businesses and cultural organisations
    - An expert reference group of professionals from outside RBKC with experience of placemaking for high streets and/or in sustainable travel
- A review of RBKC's internal documents regarding sustainable transport
- Data from TfL, GLA Economics, the ONS, and various other public sector bodies illustrating population characteristics and transport usage in London
- A review of case studies outside of RBKC regarding innovative sustainable transport solutions
- And our own work in Phase 1 of this project.

Figure 1: The elements of this Study



Summary of Phase I

Drawing on multiple sources, a mixture of research methods and in close collaboration with council officers and councillors, the Centre for London report from Phase 1 developed the following elements. These all contribute to and inform the analysis in this report.

Placemaking principles:

- The Royal Borough of Kensington and Chelsea wants its high streets to:
- Be places people want to visit and to stay, with facilities which encourage people to spend time there and to connect with others
- Adapt and change based on involvement from the community, and on learning from what has worked here and elsewhere
- Work for everyone: from babies to teenagers to working-age adults to older people
- Be healthy places, which encourage active travel, and with as little traffic noise and pollution as possible
- Have their own individual character based on their unique history and geography
- Be part of the solution to the climate crisis: reducing emissions and adapting to changing conditions, and with plenty of plants and green space
- Be places for culture, art, festivals, events and activities: during the day and into the evening

Placemaking toolbox

A selection of placemaking tools that local authorities and their partners have at their disposal in creating better high streets, from managing road space to using vacant space in innovative ways.

High street action plans

Designed for Portobello Road, Notting Hill Gate and Gloucester Road, the action plans apply tools from our placemaking toolbox to local centres, based on in-depth, on-the-ground research into each area and public data.

Case studies

A set of seventeen brief case studies from around the world putting our placemaking principles into practice, from Philadelphia's transformation of its empty City Hall Courtyard into a verdant public space, to Singapore's innovative community gardening projects.

Chapter 1: Sustainable and active travel in RBKC

The Strategic Landscape

This section suggests four substantive aspects of the strategic landscape that influence the choices available to sustainable transport and placemaking decision makers. The issues are explored on three overlapping scales: city-wide, national and international.

The climate emergency and local pollution

The race to decarbonise the UK transport sector, reduce harmful local vehicle emissions, and adapt to a changing climate is affecting strategic transport policy and streetscape design.

- **Climate emergency**: Policymakers at all levels of government are responding to the accelerating climate emergency and the destruction of biodiversity. In the transport sector, the national policy framework combines the decarbonisation of the energy mix, the electrification of the vehicle fleet, promotion of active travel and other measures to reduce car use. Most eye catching has been the promise to halt the sale of new petrol and diesel cars and vans by 2030. Alongside this, though less heralded, government has issued new national policy frameworks to encourage active forms of travel, particularly 'micromobility' devices, like cycles and e-scooters, and discourage car use, through Low Traffic Neighbourhoods and forms of road user charging. Both the Government and the Mayor of London have set out plans to extend and improve the cycle network: the Government's Plan for Walking and Cycling provides new standards for cycle route design and funding to deliver them, while the Mayor of London's Cycling Action Plan aims to increase the proportion of Londoners who live within 400 metres of the cycle network from 8.8 per cent in 2018 to 28 per cent by 2024 and 70 per cent in 2041. By March 2021, that number had risen to 18 per cent.[1]

- **Air pollution:** In London, air pollution has risen steadily up the agenda over the last decade, becoming a central policy plank of Sadiq Khan's mayoralty. It gained particular attention after December 2020, when the death of Ella Adoo-Kissi Debrah, a 9-year-old girl in South London, was ruled by the coroner to have been linked to air pollution. Despite the policy focus, in 2021, London's average concentration of particulates in the air still exceeded the World Health Organisation's recommended guidelines.[2] This has affected the policy choices of the Mayor of London. The expanded Ultra-Low Emissions Zone, a comparatively radical, though blunt form of road use pricing, has further restricted the use of the worst polluting vehicles in the city inside the South and North Circular. The ULEZ is set to expand to the whole of Greater London by the end of 2023. Most recently the Mayor of London has seemingly given his backing to a more comprehensive road user pricing scheme, but not to be fully operational before 2025.

- **Resilience to extreme weather:** The pandemic and the climate emergency have both increased the need for urban green spaces. The environmental incentive to devote more space to regenerative, green activities and less to polluting vehicles has been combined with rising demand for access to, and use of green space for exercise, sports and socialising. Increased flooding risk and the growing prevalence of extreme weather are also affecting London's policy landscape. Friends of the Earth showed that, in part due to a lack of access to public green space and gardens, London contains 40 per cent of the areas in England regarded as extremely socially heat-vulnerable[3], and the Mayor of London has called for more than half of London to be greened by 2050.[4] More trees and increasing absorbent storm drainage will also be essential to help mitigate flooding.

The pandemic and economic recovery

The Covid-19 pandemic has had major economic impacts and accelerated local economic trends, affecting high streets. Working from home seems to be replaced by a split working week for many, and visitor numbers are recovering quickly. An extended period of higher cost of living pressures is likely to lead to a recession.

- **Remote working:** a new normal has yet to appear at the time of writing this report, but data appears to herald a fundamental shift to more flexible home working arrangements that will have a lasting impact on employment hubs. In autumn 2021, while advice to work from home was lifted, office working was 30 per cent lower than before the pandemic.[5] And a survey of businesses conducted in January 2022 found only 25 per cent of London employers say they are not doing homeworking, or intending to use more remote working going forward (though the survey doesn't say what proportion of the workforce these employers represents).[6]

- **International visitors:** the composition of travellers into London has also changed dramatically during the pandemic. Data from June 2022 shows that London's airports were receiving 80 per cent of the passengers they carried in the equivalent month of 2019, a figure that recovered quickly from 42 per cent in November 2021. Though it is impossible to know when international travel patterns will fully recover, transport policymakers now confront a landscape in which shorter trips and local mobility make up a larger proportion of travel than previously, and weak consumer demand is no longer buoyed up by international travellers. The museum and heritage sector, a key attractor for visitors in many parts of central London, has been particularly hard-hit by this shift in the composition of consumer demand.

- **Domestic visits** to London also appear to have declined sharply, led by a steep fall in commuters from the Greater South-East, though data on domestic visits were not collected during the pandemic.[7]

- **Online retail:** The pandemic accelerated the shift to online retail to the detriment of bricks and mortar retailers. The share of online sales nationally has been steadily rising from 7 per cent of all retail sales in February 2010 to 19 per cent in February 2020, before surging to 28 per cent in February 2022. That number has now fallen back to just under 25 per cent but is predicted to gradually rise again, continuing a pre-pandemic trend.[8] This has led to some high-profile closures and further vacant units on London's high streets.

- **Cost of living pressure:** Real wage stagnation and even decline, despite tight labour market conditions, coupled with extraordinary price rises in some utilities and basic commodities are provoking what could be an extended period of sharply lower disposable incomes for many and increased hardship for the already vulnerable.

Technology, innovation and infrastructure

Changes in users, behaviours and the vehicle mix are placing new demands on the capital's roads and streets. New infrastructure is emerging.

- **Ride hailing:** Transport and retail innovations are having an impact on the way Londoners get around their city, and how they access goods and services. The combination of app-based technology and shared mobility services like Uber and Bolt are changing personal travel habits, in part by widening access, through cheaper fares, to taxi services.

- **Electrification and micromobility:** A wider variety of vehicle types are making use of London's roads as a result of the electrification of existing vehicle fleets and the adoption of new micromobility vehicles (such as e-scooters, cargo bikes and e-bikes). Parking for micromobility vehicles and the need for EV charging points creates new demands on managing street space, and potentially new opportunities for regulation, for example through geofencing.

- **Delivery boom:** Technological innovations are also changing how we purchase and consume goods. Home delivery, not just of warehouse-based goods, but also of fresh produce and hot food, is a booming sector that is impacting traditional retail space, industrial land demand (such as local delivery fulfilment centres to enable cargo bike deliveries) as well as demand for road and pavement space. Across London, miles driven by Light Goods Vehicles (such as vans) have increased by 54 per cent between 2009 and 2019, and now make up 16 per cent of all traffic in London.[9] We do not have specific data for bike and e-bike deliveries, but according to a study, UK sales of food through delivery platforms has doubled since 2020,[10] and there are reports that cargo bike delivery companies are experiencing very fast growth – for example one company expects to grow its fleet from 50 bikes to more than 1,500 over the course of 20 months, while another expects to triple its headcount in one year.[11][12]

- **New infrastructure:** The changing behaviours and challenges mentioned above, while powered by 'soft' digital infrastructure, have also increased the need for 'hard' infrastructure such as industrial space or traditional transport infrastructure. At one end of the cost and disruption spectrum demand for designated parking for micromobility vehicles and shared cars has increased. At the other, a massive multi-billion new East-West rail line. The Elizabeth Line will grow rail capacity, offering large tranches of East and West London new, reliable and green journey options into central London.

Funding and governance

The post covid outlook for transport funding is bleak as TfL's fare box revenue remains depressed. Boroughs and TfL are reliant on Government investment – in the current political climate, this has translated into crippling uncertainty about future funding. But updates of the Highway Code could deliver improvements in road safety.

- **Fall in ridership:** After the almost total evaporation of public transport ridership of the early stages of the pandemic, London's transit stations are still receiving a 31 per cent fewer visits in June 2022 than in 2019, according to Google mobility data, with Underground services suffering particularly from reduced passenger numbers.[13] Much of this change comes from fewer people travelling to work and for leisure in the capital, and fewer international visitors. Nevertheless, we have seen pressure grow on London's already congested roads and streets, as some people shift from public transport to walking, cycling and driving for more journeys, albeit with some switching to smaller electric vehicles, like e-bikes and e-scooters. Indeed, despite reduced journeys owing to higher rates of remote working and online shopping, demand on Transport for London's road network was only five per cent below pre-pandemic level in November 2021, suggesting a switch from public transport to driving.[14]

- **Transport for London funding:** National and city politics shape the choices available to transport policymakers. As one of the few global city capitals without central government subsidy, London's transport authority has been in financial crisis since the onset of the pandemic, depending on infusions of emergency funding without a long-term financial settlement. This has led to crippling uncertainty of funding for TfL and for boroughs to deliver improvement schemes, especially active travel schemes (as unlike fares, these are not directly revenue generating). Recent reports from the mayoralty and Transport for London threaten a scenario of 'managed decline' without further funding, with 100 bus routes and an entire tube line ceasing operation. GLA Economics and TfL analysis predicts that such a scenario would cost Londoners over £12 billion in economic welfare loss over the next ten years.[15]

- **Future infrastructure improvements:** After the opening of the Elizabeth Line, there are only very limited (and increasingly far-off) plans to invest in the city's transport infrastructure, indicating a period of at best 'go-slow' on the renewal of London transport infrastructure, and a massive drop in the chances of funding significant new infrastructure. Without additional investment in public transport, policymakers will be unable to respond to any future population growth and service quality could sharply decline.

- **Road user charging and reducing public transport passenger discounts:** Any financially sustainable long-term settlement looks increasingly likely to include a comprehensive road user charging scheme in the medium term, absorbing the Congestion Charge and ULEZ. The highly interventionist pro-active travel central government policy during the pandemic (through its Emergency Active Travel Fund) sits awkwardly with the lack of political will to tackle the root causes of car dependency up and down the country, for example through a national road user charging scheme to replace Vehicle Excise Duty. Decreased services and a potential end to the free or discounted Zip card scheme for young people will also have significant further effects on public transport usage, putting more pressure on roads and pavements.

- **Cycling safety:** finally, but not insignificantly, recent changes to the Highway Code have established a hierarchy of road users that prioritises the safety of those most at risk, from pedestrians and cyclists at the top (with a particular focus on children, older people, and people with disabilities). Among several other changes, the new Code recommends that drivers overtake cyclists at a minimum distance of 1.5 metres.[16] If it changes driver behaviour, the new Code could contribute to making roads safer for most vulnerable users and could encourage more to take up cycling.

Summary of RBKC transport evidence and policy responses

In this section we explore mobility and transport in Kensington and Chelsea, and its role in the London economy:

- We paint a picture of the borough's broad composition and look at London-wide transport policies.

- We explore travel patterns and key pre-pandemic trends. We look at the changes in mobility in the borough during the pandemic.

- We then set out the main travel and mobility related interventions carried out in the borough during the pandemic.

- We also look at the evidence available on residents' attitudes to mobility interventions.

- Finally, we drill down into the issue of active travel, and of cycling in RBKC and re-visit the strategic function the borough plays in London's transport system.

RBKC overview

There are four broad groups using RBKC's high streets: residents, workers employed in the borough, occasional visitors, and people travelling through the borough without stopping, with very particular specificities:

- Unusually the borough has roughly equally sized resident and employee populations – both at around 160,000.

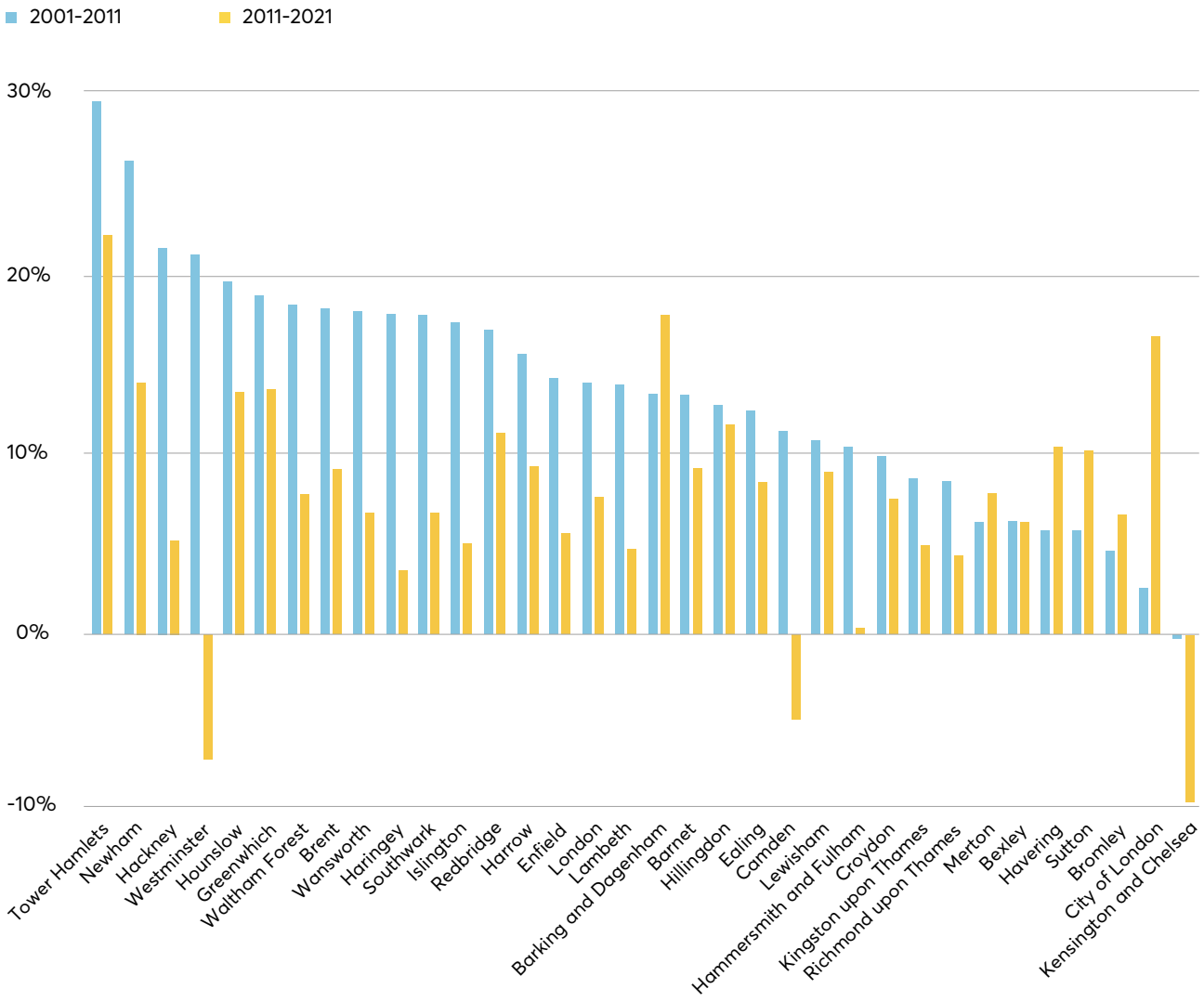
- Both the resident and employee populations are highly polarized in their composition. The borough has a high proportion of residents on either high or low incomes, and similarly, a large number of workers at both ends of the income spectrum, and relatively few around the middle of the pay range.

- As home to many world-renowned visitor attractions it also draws in one of the largest number of visitors and tourists of any London borough.

- Within London, RBKC is an important home, a place of work and a destination for millions. Its location straddling the western edge of the city's centre (the Central Activities Zone or CAZ) is an essential part of the appeal to residents, workers and visitors. Access is excellent into and out of the borough across all modes of transport. The downside of this great location however is that many also want to cross the borough, most commonly on an east-west axis. The borough is bounded to the west by dense residential neighbourhoods, and to east by the attractions, functions, and amenities of the city's core. The borough is traversed by several key east-west roads catering for the strategic movements of goods vehicles, cars, buses and cycles in and out of central London.

- The 2021 Census showed that RBKC's population shrank by 9.6 per cent and its number of households by 14.8 per cent between 2011-2021, the largest decrease of any local authority in England and Wales.[17] This was almost certainly affected by the impact of the pandemic, particularly given the preponderance of residents with second homes in the UK or abroad in Kensington and Chelsea. The notable rebound in rent levels in central London since the moment the census was taken gives another indication that the borough's population is almost certainly higher than recorded in 2021.[18] However, RBKC is the only local authority in London to have seen resident population fall over 2001-2011 and 2011-2021, as shown in the chart below

Figure 2: Change in resident population as measured by the Census



Source: Office for National Statistics. Census 2001, 2011 and 2021.

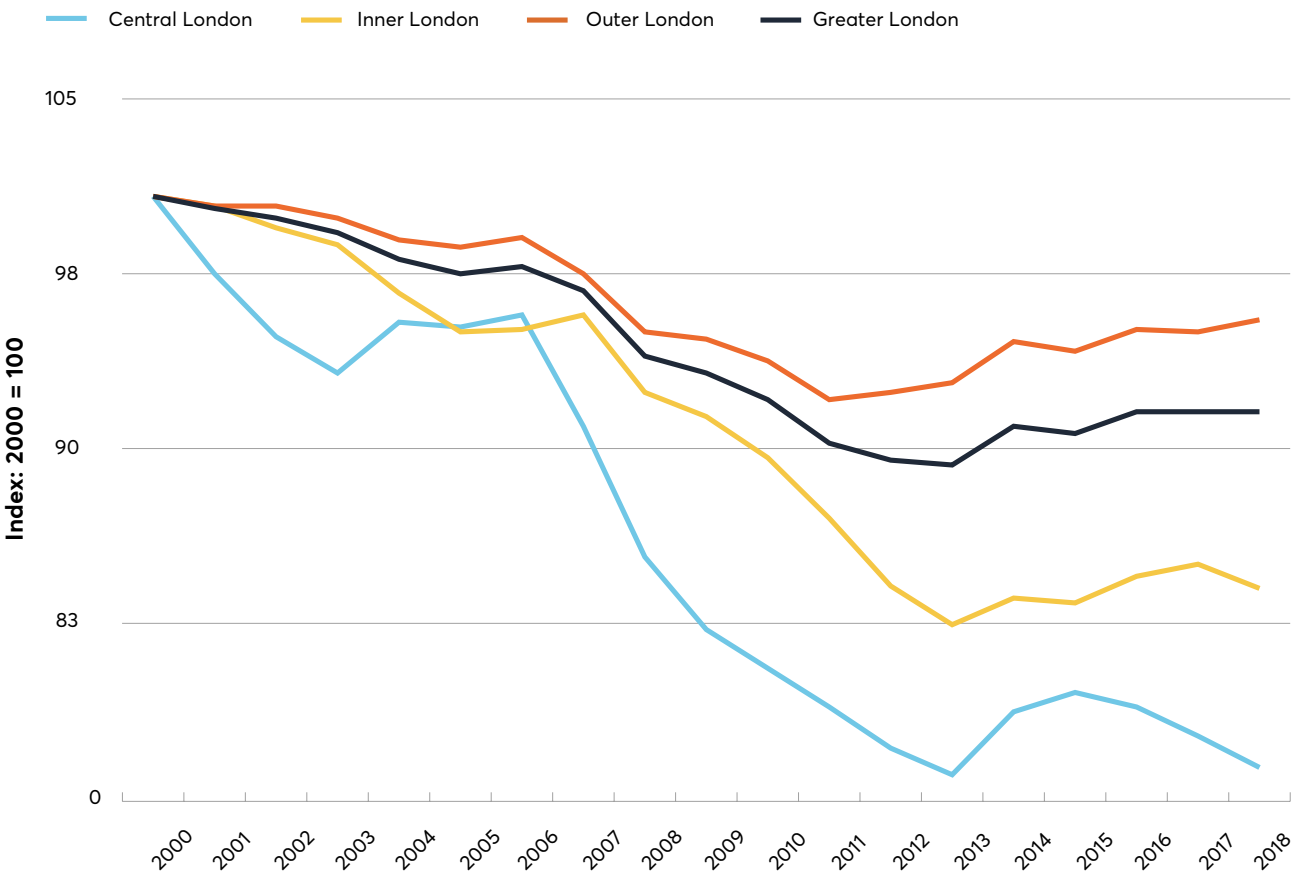
As a result, the transport network and high streets of Kensington and Chelsea cater to a very diverse range of users whose interests, needs and desires often align, but can sometimes be in strong competition.

London-wide transport policies

All transport within RBKC is managed within the overarching framework of the Mayor of London's Transport Strategy[19] for Greater London. This strategy has three central themes: healthy streets, a good public transport experience, and good growth. The strategy sets an ambitious mode share target for 80 per cent of all trips in London to be made on foot, by cycle or using public transport by 2041.

If the trajectory of the 2006-2019 trend does not change and more radical actions are not taken, London will miss the 80 per cent target by several percentage points.[20] This is partly due to a recent reversal in the decline of motor vehicle traffic since 2013 in Greater London as a whole, as seen in Figure 3 below.

Figure 3: Trends in road traffic, all motor vehicles, in central, inner, outer and Greater London. 2000-2018[21]

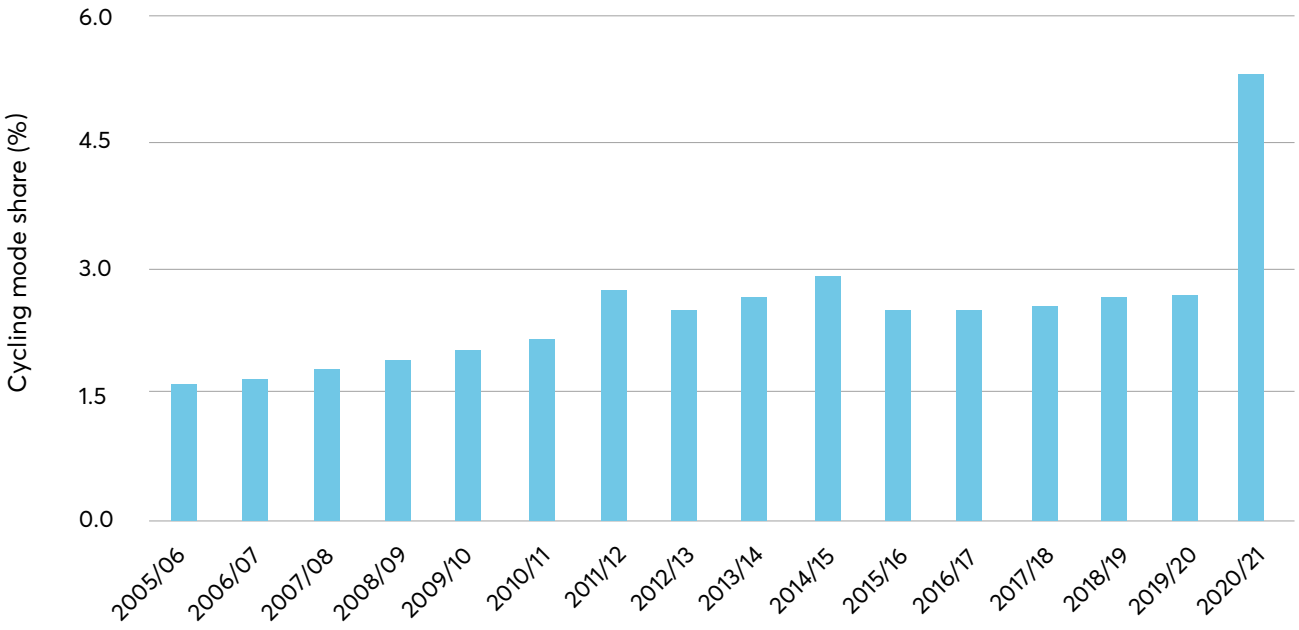


Source: Department for Transport

As Figure 4 shows, despite the reversal of the decline in motor vehicle journeys, the share of trips made by bicycle has continued to grow – from around 1.6 per cent in 2005 to 2.7 per cent in 2019. This number jumped to 5.3 per cent in 2020, as cycling trips continued to increase even though the number of all trips made during the pandemic fell but. A similar story is true of walking trips: the number of walking trips reached a record high in 2020, despite the total number of trips falling, which meant the mode share of walking increased markedly.

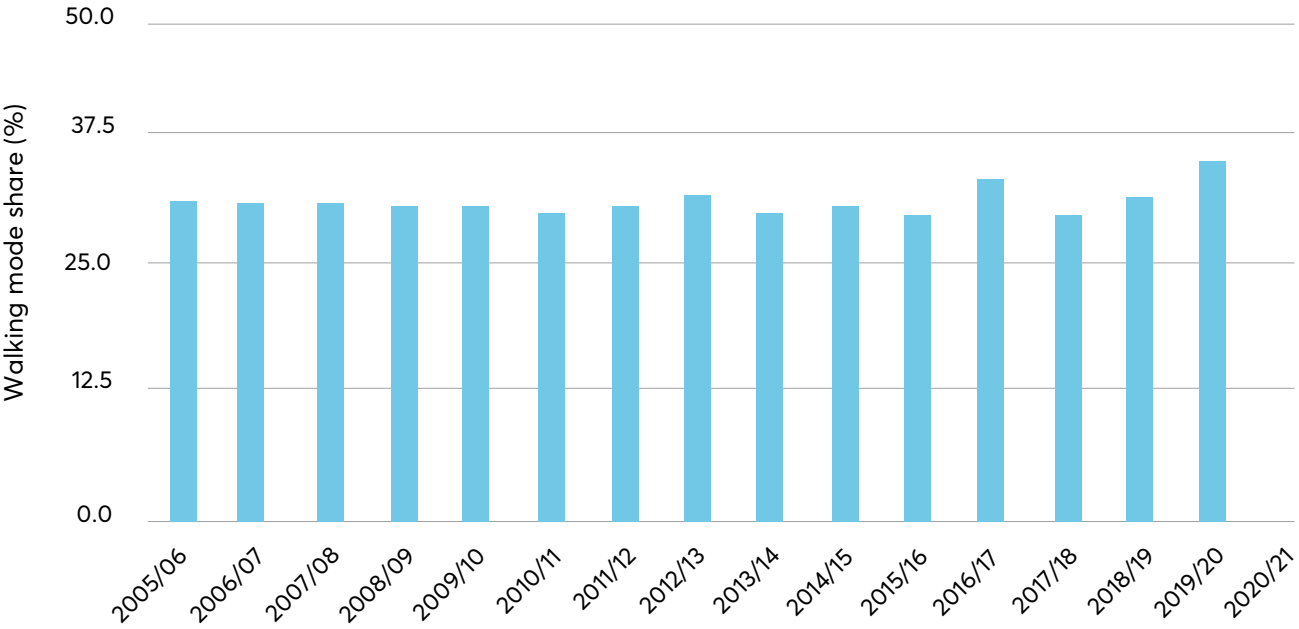
Walking and cycling trips and mode share in Greater London[22]

Figure 4: Cycling mode share



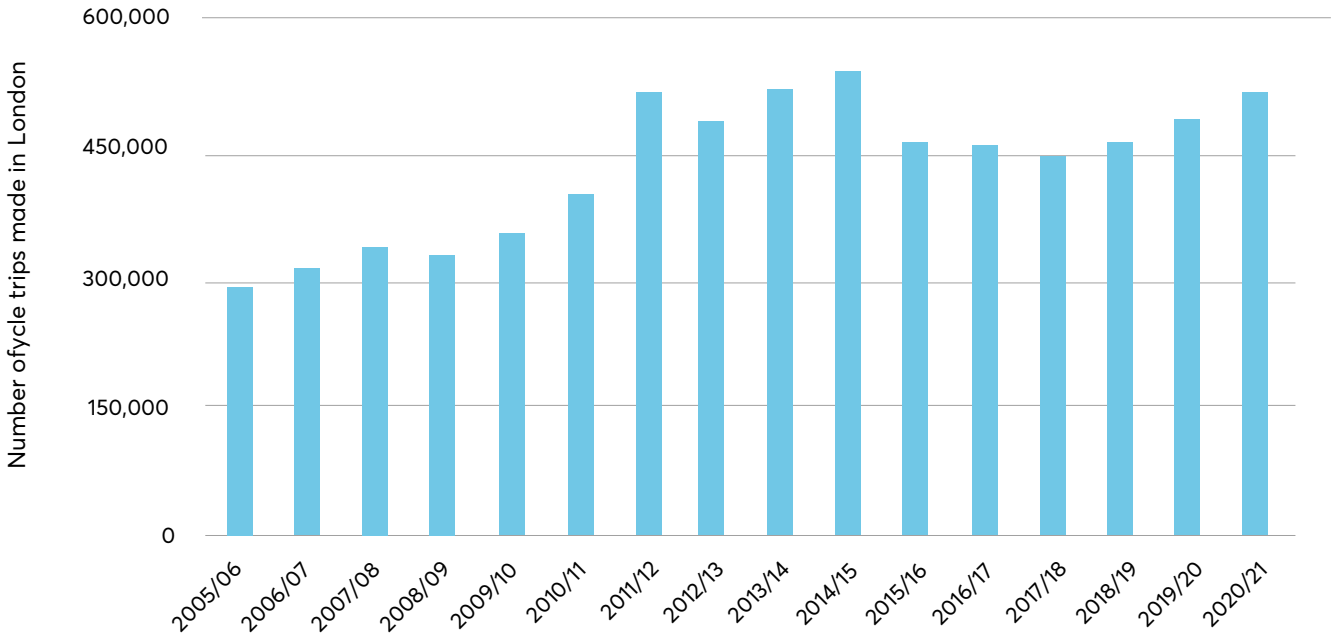
Source: Transport for London. London Travel Demand Survey

Figure 5: Walking mode share



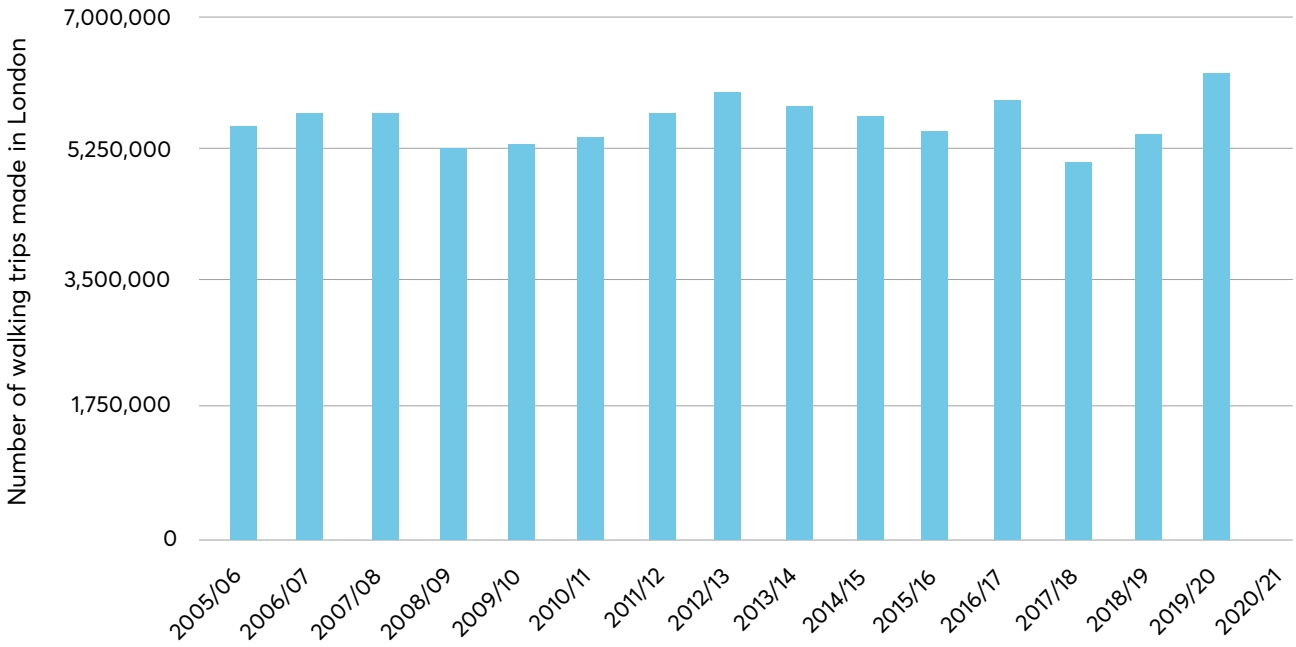
Source: Transport for London. London Travel Demand Survey

Figure 6: Number of cycling trips in London



Source: Transport for London. London Travel Demand Survey

Figure 7: Number of walking trips in London



Source: Transport for London. London Travel Demand Survey

In its Local Implementation Plan (LIP - April 2019)[23], RBKC sets out how it will deliver the goals of the Mayor's Transport Strategy in the borough. In the LIP, the borough pledged to:

- encourage a modal shift towards sustainable transport
- work towards eliminating road collision deaths and serious injuries
- make streets cleaner and greener
- improve public transport accessibility and reliability
- manage parking and loading
- improve street appearance and maintenance

The LIP has clear objectives aligned with TfL's healthy streets approach, and monitoring shows that the borough is on trajectory to meet its overall mode share target for residents (see section 3.3 below). But trips made by non-residents add pressure to the borough's roads and streets. And striking a balance between different transport modes (buses, micromobility, pedestrians, taxis and private cars) and between the needs of strategic cross-borough movement and local movement can both be particularly contentious theme in Kensington and Chelsea.

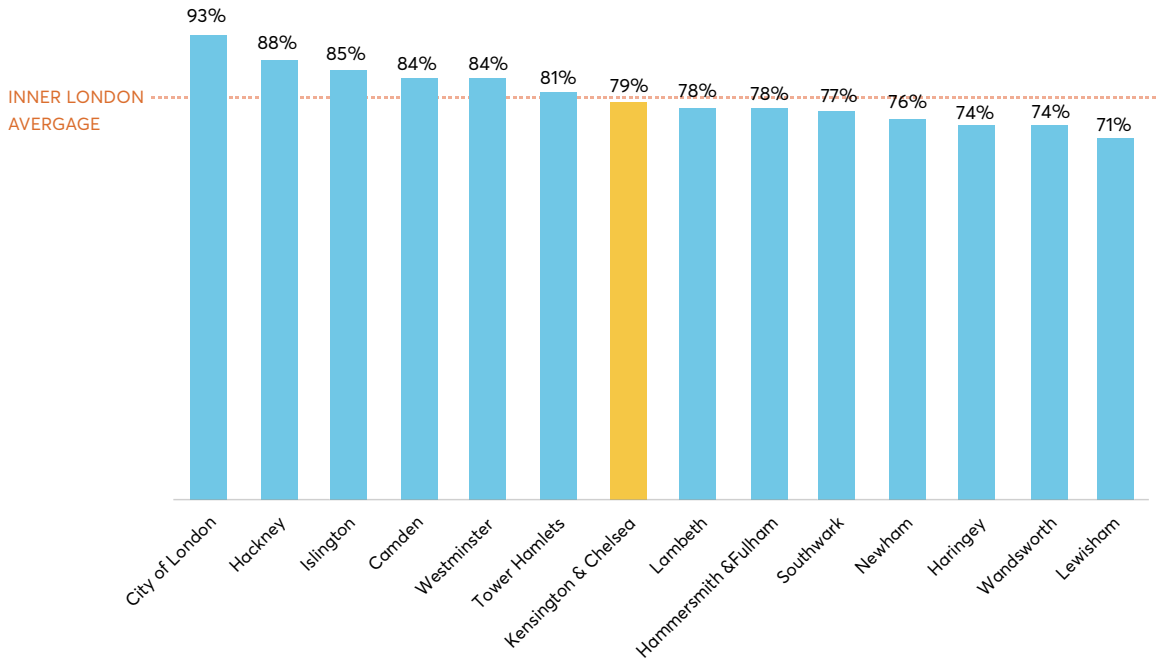
Travel patterns

Residents

Transport mode share

As shown in Figure 8, 79 per cent of trips made by RBKC are on foot, cycling or by public transport, which exceeds the 77 per cent target set in the Mayor's Transport Strategy (MTS) for 2021.[24] The share of sustainable journeys made by RBKC residents reflects its inner city location, though it is perhaps lower than would be expected given the entire borough is located within fare zones 1 or 2, within close proximity to the Central Activity Zone (unlike Hackney, Islington or Camden, which span fare zones 1 to 3).

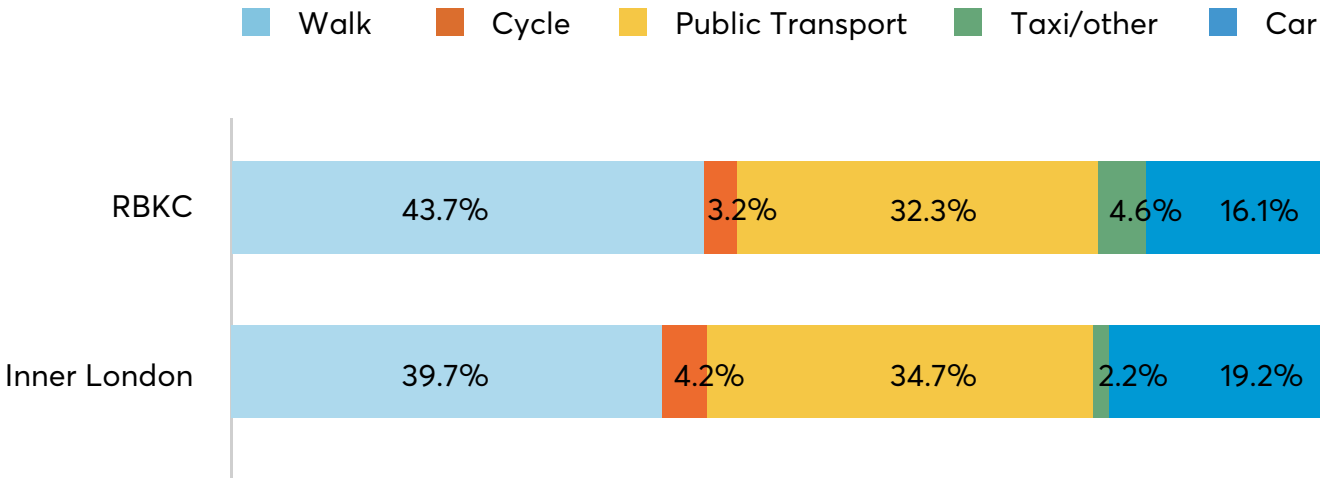
Figure 8: Percentage of trips made by active, efficient and sustainable transport modes (walking, cycling and public transport) by borough of residence - inner London[25]



Source: Transport for London. (2020). Mayor's Transport Strategy Outcome Indicators v6.0.

Figure 9 shows how RBKC residents travel compared to the average for inner London. Overall, around one third of trips are made by public transport, as is the case in inner London as a whole. The private car mode share in RBKC is lower than the inner London average, but this is probably because RBKC residents, like residents in neighbouring Westminster, have by far the highest mode share of taxi and 'other' modes (which includes minicabs, ride-hailing and riverboats). RBKC is unique in having a higher mode share of taxi and 'other' transport than for cycling. On active travel specifically, RBKC residents are 10 per cent more likely to walk than the average for inner London residents, but are 25 per cent less likely to cycle.

Figure 9: Proportion of average daily trips made by RBKC and inner London residents by mode of transport between 2017/2018-2019/2020[26]



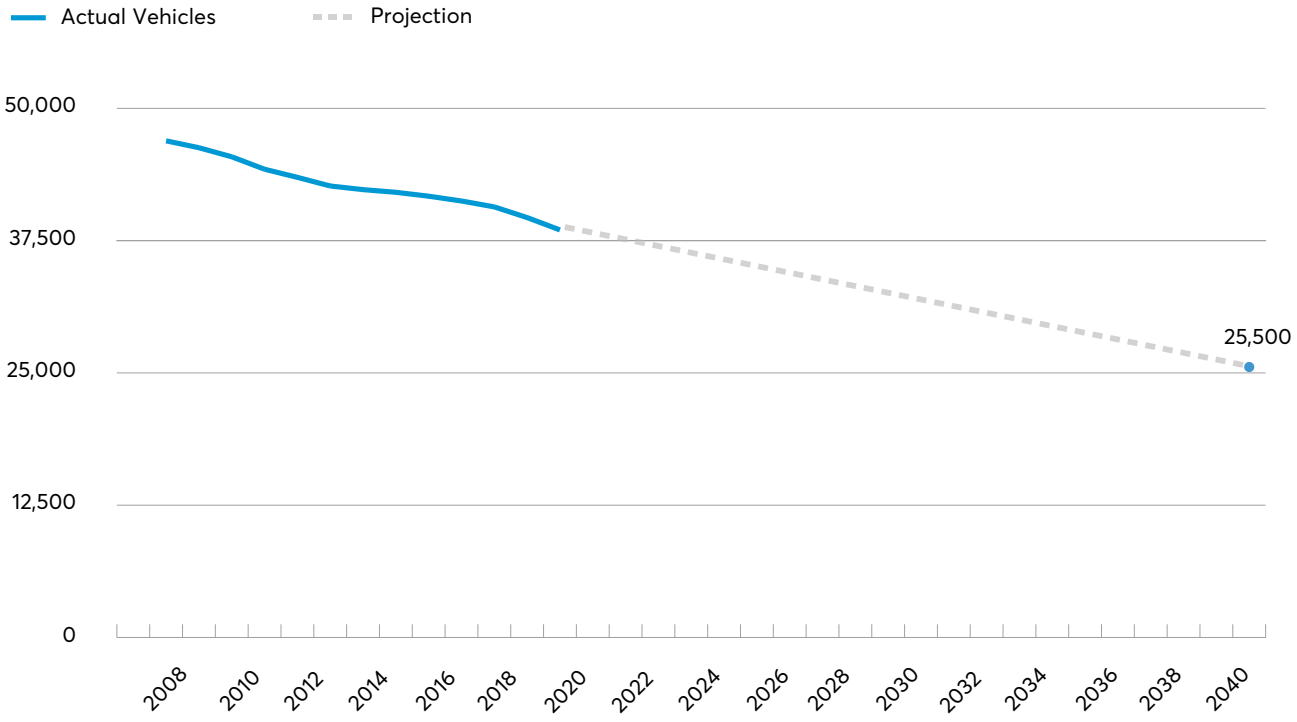
Source: Transport for London. (2020). Mayor's Transport Strategy Outcome Indicators v6.0.

Car ownership

Vehicle ownership statistics are a good predictor of private car use. With a ratio of 53 cars per 100 households, car ownership in RBKC is lower than the London average (76 cars per 100 households) but higher than other central London 'fringe' boroughs – for example there are 40 cars per 100 households in Westminster and 34 per 100 in Islington.[27]

Private vehicle ownership in RBKC has been falling, as shown in Figure 10. If this trend were to continue, vehicle ownership in the borough would reach 25,500 vehicles by 2041, which would be below the target set in the Mayor's Transport Strategy for the borough, at 31,400 vehicles. Linked to this, the number of resident parking permits has declined from 36,000 in 2011 to below 32,000 in 2022[28] - a decrease greater than the fall in population over the same period. More recently, the fall in the number of resident parking permits temporarily reversed in 2021, before falling again.

Figure 10: Actual and projected private vehicle ownership in RBKC[29]

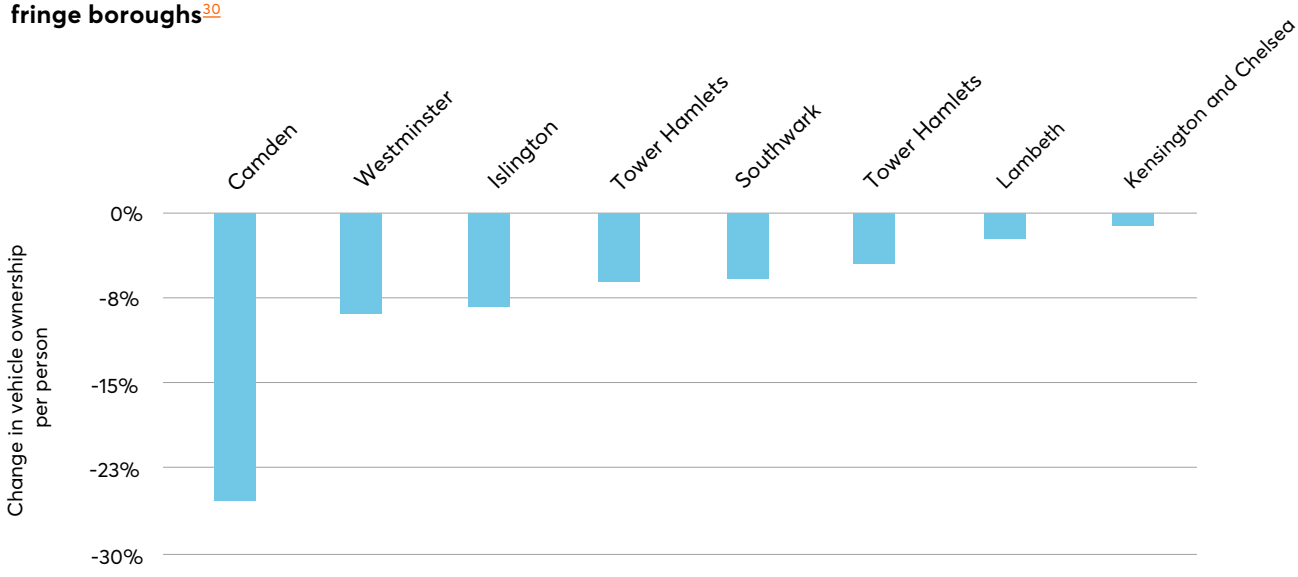


Source: Department for Transport. (2020). Number of Licensed Vehicles.

However, it is worth noting that the decrease in the private vehicle ownership rate in RBKC was much less pronounced than in other central London fringe boroughs in the last five available years of data (see Figure 11). Part of the reason for this difference is that other fringe boroughs have seen much larger increases in the number of new residents over this period, who may be less likely to own a car.

Aside from population decrease and churn, factors that would have played a role in the decrease in vehicle ownership in RBKC include changes to the pricing of parking permits, CO2 emissions-based charging, the growth in car clubs and private hire vehicle use.

Figure 11: Change in vehicle ownership per person between 2014 and 2019 - central London fringe boroughs[30]



Source: Transport for London (2020). Mayor's Transport Strategy Outcome Indicators.

Residents' work trips

While trips to work only make up a minority of Londoners' journeys, there is better data on origin and destination of residents' commutes (though it dates back to the 2011 census). 18 per cent of residents work in the borough, a further 45 per cent work in the City and Westminster, and 27 per cent in other inner London boroughs.

Just under half of residents who work in the borough walk to work, while 19 per cent travel by car or taxi – a higher proportion than in other central London 'fringe' boroughs: the figure is 9 per cent in Camden and Islington, 10 per cent in Westminster, and 15 per cent in Hackney and Tower Hamlets. The average share of residents who cycle to work is around 6 per cent.[31]

Employees

As would be expected from a borough with one of the highest employment densities in London, workers commute from a wide range of places: 8 per cent travel from adjacent Wandsworth and Hammersmith & Fulham, 5 per cent from the City and Westminster, 24 per cent from other inner London boroughs, and 32 per cent from outer London. The car/taxi mode share for commute trips from inner London boroughs ranges from 6 per cent to 14 per cent, while over 10 per cent of workers commuting from Wandsworth and Hammersmith and Fulham cycle in.[32]

Visitors

RBKC is an internationally recognised destination hosting a range of arts and cultural facilities, parks and markets. The Kensington Olympia exhibition centre on the borough's boundary also attracts business visitors. Visitors to London use a diverse range of travel modes (public transport, taxi, walking, tourist buses, cycle hire) and travel at all times of the day and evening – but we don't know precisely how they travel from publicly available data. This could be an area for further research.

Through traffic

As previously mentioned, the borough's location within London means there is high demand to cross it. Many do this using the London Underground, but the borough is also crossed by buses, taxis and private hire vehicles, delivery and servicing vehicles, micromobility vehicles and private cars. At present there is very limited intelligence on through traffic in the public domain, as satellite navigation and private hire vehicle companies don't release their detailed trip data publicly. Research conducted by the London borough of Hackney reportedly found that 40 per cent of traffic was crossing through the borough but not stopping there.[33] Specifically on cycling through traffic, Transport for London has produced maps of cycling demand, which are provided in section 3.7. Freight and servicing journeys are likely to be overrepresented within traffic crossing the borough (with some vehicles stopping in the borough).

Changes in mobility during the pandemic

Mobility and travel in RBKC have been severely affected by the change in volumes of residents, workers and visitors in the borough over the course of the pandemic. The table below shows changes in time spent in the borough by residents, workers and visitors.

Figure 12: Changes in mobility during the pandemic

Residents	Steep increases in time spent at home during Covid lockdowns (up to 35 per cent), time spent at home is now hovering between -1% to 10 per cent higher than the pre-Covid baseline, in line with other inner London boroughs.[34]
Workers	The workplace population includes many key workers employed in sectors that continued working in offices throughout lockdown. But as in other inner London boroughs, there was a 75 per cent drop in workplace activity during the first lockdown, which has been recovering, but is still 18 per cent below pre-pandemic levels by June 2022. Slightly higher activity can be observed on Wednesdays and Thursdays, which are the most popular office days for those working in 'hybrid' mode. [35]
Visitors	The borough experienced a 77 per cent drop in annual tourist attraction visits between 2019 and 2020, slightly above the inner London average of 72 per cent.[36] While most boroughs saw an increase in local park use during lockdown, some boroughs with larger parks attracting visitors from further afield saw a drop in visits during lockdown including RBKC.[37] Park use seems to be near or slightly above pre-Covid trends in June 2022, though of course is also weather dependent. GLA projections estimate that tourism, both in terms of overnight stays and visitor spending, may not recover to pre-pandemic levels until 2025.[38]
Through traffic	While there is no data on these, we know that there have been fewer vehicle journeys crossing the central London cordon, as visitor numbers and commuting trips have been lower, and so have the delivery and servicing trips that support them.

Walking and high street footfall

As previously mentioned, active travel increased during the pandemic due to the restrictions imposed on public transport use and the increase in local travel. TfL's analysis shows that walking accounted for over 60 per cent of all trips made by Londoners during the first quarter of 2021 – and typically over 50 per cent during other periods during the pandemic, compared to 35 per cent pre-pandemic. Most of these walking trips were trips within inner and outer London.[39]

High street footfall in the borough is driven by significant populations of residents, employees, and visitors. Although there was a rise in local resident shopping and related activities this has not compensated for the falls in both employee and visitor footfall: there was an estimated 40 per cent decrease in grocery and pharmacy visits during lockdowns. This figure has returned to pre-pandemic levels as of June 2022, signalling the strength of local demand from residents. Retail and recreation activity dropped by 80 per cent during lockdowns and while on the upwards trajectory, it remains at 34 per cent below pre-Covid baseline in June 2022, with similar trends observed for other inner London boroughs.[40]

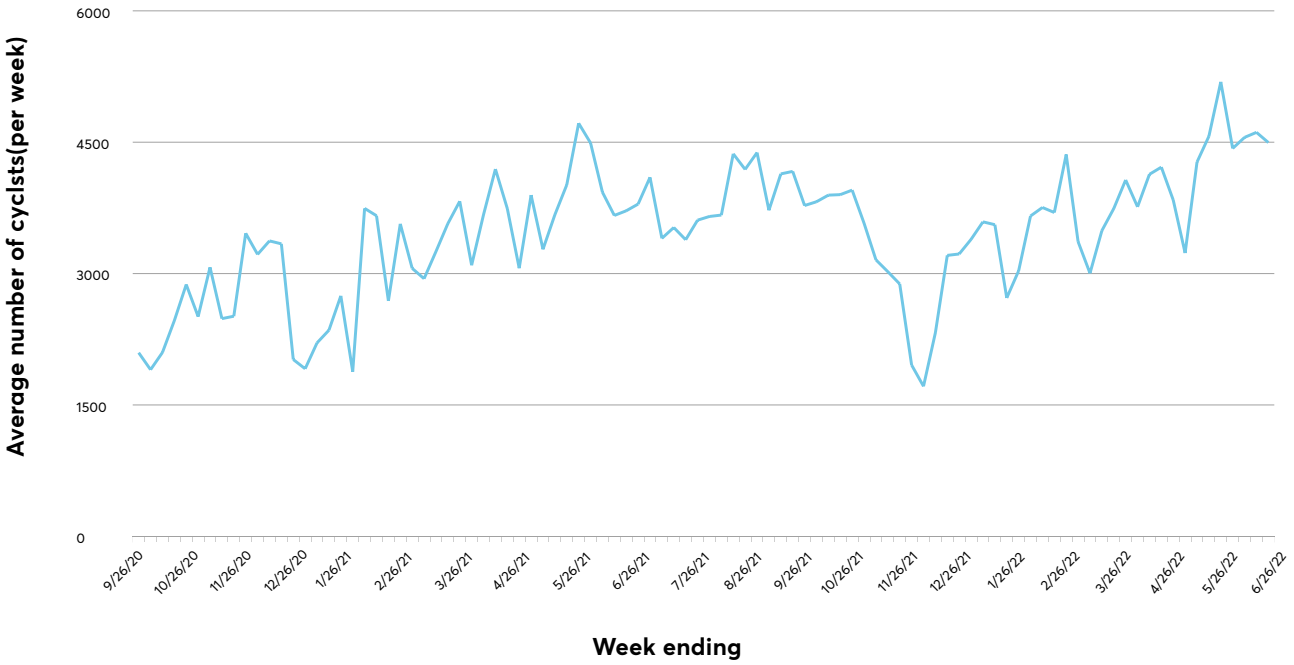
Micromobility (cycles, e-bikes and e-scooters)

Cycling in London has increased since the March 2020 lockdown, but cycling trips have changed: the initial reduction in commuter cycling was offset by a large increase in local trips and leisure activity.

In 2020 an increase of around 20 per cent in cycling was observed across most sites in RBKC (see Figure 13). The central and inner London cycle counter data shows a relative increase in weekend cycling, emphasising the increase in 'leisure' cycling. Weekday cycling shows

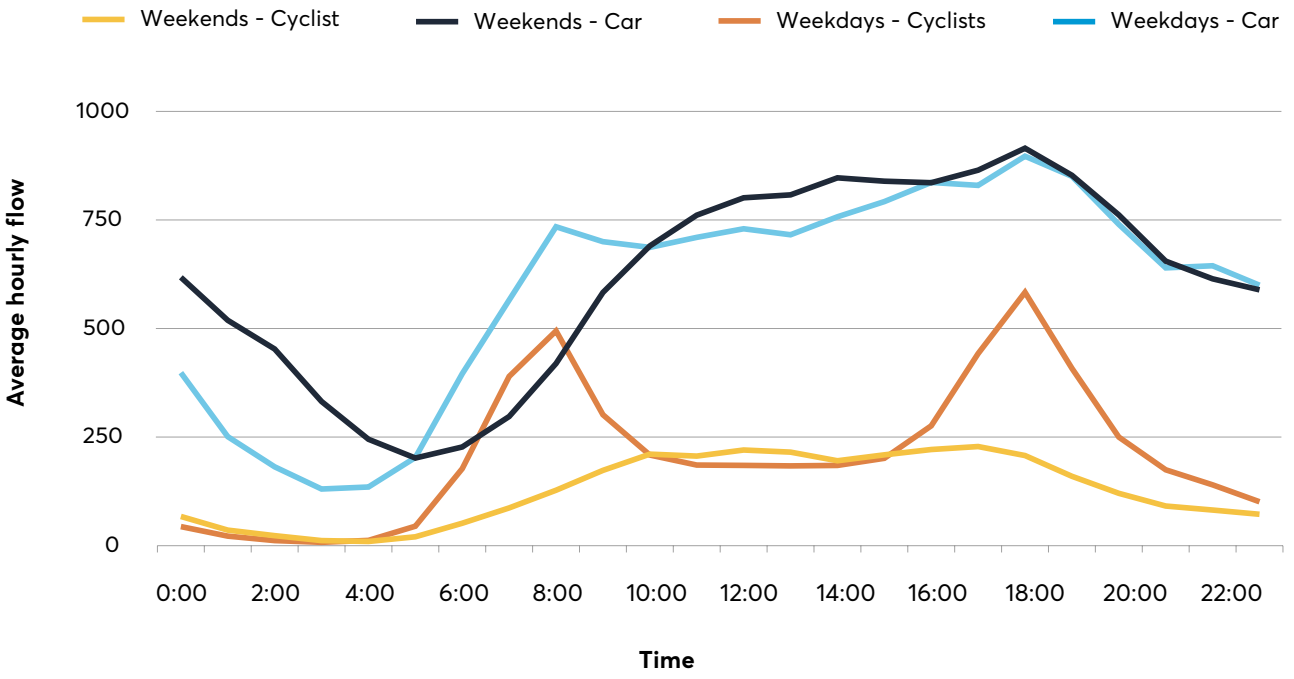
a different trend, with levels close to the pre-pandemic baseline in November 2021. London wide data for 2022 has not yet been published at the time of writing, so we zoom in on Kensington High Street. KHS counts show cyclist numbers have since been growing in 2022– overtaking last summer's figures. There are clear rush hour peaks, but also a steady flow of cyclists during the inter-peak and at weekends.

Figure 13: Average weekly cyclist numbers counted on KHS (at junction with Campden Hill Road) – June 2022



Source: Vivacity Labs

Figure 14: Average hourly flow of cars and cyclists on KHS (June 2022)



Source: Vivacity Labs

Figure 15: Change in average cycle flow between 2019 and 2020 in RBKC[41]

Source: Department for Transport. (2020). RBKC Average Annual Daily Flow in Road traffic statistics.

During 2021, RBKC joined a pilot scheme to trial the use of shared e-scooters. Borough-level data on the usage during this trial is not yet available, but anecdotally it appears that initial take-up is strong in RBKC. This is against a backdrop of a surge in demand, and visible use, on roads and pavements, of currently illegal private e-scooters. It is worth noting that while they are probably more sustainable than many other modes of transport, e-scooters are not an especially active mode of travel, yet consensus seems to be forming that they are complementary to more active forms, by increasing use of, and so demand, for cycling infrastructure. Pedal assisted e-bike sales, and cargo bikes, which tend to be more active options, have also seen dramatic upticks in sales and usage globally, in the UK and in London.

Public transport

RBKC experienced a significant decrease in public transport ridership in 2020, with an 80 per cent drop in transit activity during lockdowns[42]. The highest declines in 2019-20 patronage occurred at stations serving tourist attractions and employment centres. By June 2022 a general upwards trend could be observed, reaching the level of 31 per cent below pre-Covid baseline.[43] In London as a whole, there are 20 per cent fewer bus passengers than in the before the pandemic and around 25 per cent fewer passengers on the London Underground.[44]

Figure 16: Change in underground station patronage in RBKC, 2019-2020

Source: Department for Transport. (2020). RBKC Average Annual Daily Flow in Road traffic statistics.

Cars and taxis

In 2020, RBKC experienced a 19 per cent drop in vehicle traffic borough-wide, mirroring the London-wide picture.[45]The 2019-20 changes in Annual Average Daily Flows for all motor vehicles and specifically for cars and taxis show a relatively uniform reduction across the borough. However, by November 2021 road traffic on London's major roads had rebounded strongly, and was typically 96 per cent of pre-pandemic levels.[46]

The number of paid-for visitor car parking transactions declined by 28 per cent between 2019/20 and 2020/21, which broadly matches the observed reduction in retail and recreation activity in the Google activity data and the reduction in vehicle traffic over that period.[47]

Freight, servicing and delivery

In 2020, RBKC experienced a significant reduction in freight and servicing journeys, but with some local increases in Heavy Goods Vehicle (HGV) traffic (these are likely to relate to specific local circumstances such as construction sites). However, by November 2021, Light Goods Vehicle (LGV) and HGV entries into the London Congestion Charge zone rose to 78 per cent of the pre-pandemic baseline[48]. Similar trends can be expected on the main east-west routes into central London through RBKC.

Peak and off-peak travel

While London demand for travel continued to peak in weekday mornings and evenings during the pandemic, the increase in remote working meant that the proportion of weekday trips made at during the interpeak (10am-4pm) has increased from 44 per cent in 2019/20 to 52 per cent in 2020/21.[49]

In central London specifically, motorised traffic saw the greatest decrease in the early morning peak (5am to 6am) and in late evening (9pm to 10pm) – by around 30 per cent. This is likely due to a reduction in delivery and servicing vehicle trips into central London, and the latter likely showing the impact of the Congestion Charge extension into the evening. Motorised traffic was only about 5 per cent below its pre-pandemic level during the morning and evening rush (8am-9am and 5pm-6pm) and between 0 and 5 per cent below its pre-pandemic level in the interpeak (10am-4pm)[50]

Commuting has increased again since the lockdown restrictions were lifted, and it is likely that freight and servicing vehicle traffic into central London has picked up again as central London activity levels increased. There are indications that commuting is higher around midweek, but a new normal in terms of commuting has yet to emerge.

Travel policy changes in RBKC during the pandemic

In response to government guidance and emergency funding to enable social distancing, RBKC implemented an Active Travel Plan in summer 2020. The traffic restrictions introduced to facilitate the operation of Portobello Market and al fresco dining on several streets have proven successful and have since been made permanent.

The Active Travel Plan also facilitated the implementation of the borough-wide 20 mph speed limit and a number of School Streets with temporary restrictions on motorised traffic at school drop-off and pick-up times. Many of these schemes were uncontroversial and some highly popular. However, some were not. Of these, the temporary cycle lanes on Kensington High Street proved to be the most controversial intervention. It was partially implemented in October 2020 but then removed after seven weeks, leading to strong representations from TfL as a key scheme funder.[51]

Figure 17: Travel policy in RBKC during the pandemic

Interventions	Goals	Status
Portobello Road closure to motor traffic	Social distancing, improved experience for visitors	Permanent
Pavilion Road closure to motor traffic	Social distancing, improved experience for visitors	Permanent
Bute Street closure to motor traffic	Social distancing, improved experience for visitors	Permanent
School Streets	Social distancing, road danger reduction and mode shift	Implemented at nine schools
20mph speed limit on all borough roads	Road danger reduction and mode shift	Implemented

Interventions	Goals	Status
Kensington High Street lightly segregated cycle lanes	Strategic and local cycle route improvements, road danger reduction and mode shift	Removed
Temporary pavement widening including Notting Hill Gt station, Kensington High St station, Kings Rd Waitrose	Social distancing	Removed
Cycle parking – bike hangars and town centre parking	Mode shift, clear footways	Implemented
Chelsea Bridge Road cycle lane light segregation	Road danger reduction and mode shift	Not implemented
Queen's Gate floating parking cycle lane	Road danger reduction and mode shift	Not implemented
Cycleway: Pembridge Square to Meanwhile Gardens	Road danger reduction and mode shift	Implemented
Cycleway: Kensington High Street to Notting Hill	Road danger reduction and mode shift	Not implemented
Cycleway: Shepherd's Bush to Notting Hill	Road danger reduction and mode shift	Not fully implemented

Resident attitudes towards RBKC transport policy

In 2021, the Council conducted a series of workshops and surveys with members of its 'Citizens Panel', inviting responses from a panel of around 2,000 residents. One survey asked about the future of the borough's high streets, and the other questions focused on environmental issues.

This research found that RBKC residents recognised that the dominance of traffic is one of the main issues in high streets in the borough and causes challenges for pedestrians.[52] Many residents supported the introduction of more traffic-free areas, increased seating and greenery to revive high streets and encourage social interaction.[53]

Active travel

Residents also said that the promotion of active travel is one of the key ways the Council can tackle climate change through carbon reduction.[54]

RBKC's residents predominantly supported the wider introduction of a 20 mph speed limit, with a third in favour of a borough-wide 20 mph speed limit and over half (57 per cent) in favour of the limit being introduced on some but not all roads managed by the Council.[55]

The majority of respondents supported the introduction of Cycleways on back streets and just under 50 per cent of respondents supported the introduction of more segregated cycle lanes across the borough, with 32 per cent opposed.[56]

A Transport for London telephone survey of borough residents in early 2021 found that 59 per cent of respondents supported the introduction of protected cycle lanes on main roads, and 56 per cent backed protected cycle lanes on Kensington High Street. The survey found that the light segregated cycle lane in Kensington High Street gathered more support among people who lived further away from the High Street than those who lived nearby.[57]

During the citizen panel workshops on high streets, some residents said that fast cyclists were a risk to pedestrians similar to car traffic and emphasised the conflict between the cycle lanes and deliveries[58]. Older residents expressed their intimidation by high cycle traffic and saw age as a limiting factor for cycling.[59]

Road space allocation

There was general interest in an effective reallocation of public space within the borough, with a distinct desire for more parks and green spaces functioning as outdoor areas for community uses.[60] There was also general backing among residents (62 per cent) for planting trees in a small number of parking bays.[61]

Farmers' markets were seen as an opportunity to attract both local people and tourists. The 2020 traffic closures to facilitate al fresco dining were regarded as a success locally. The majority of residents (57 per cent) supported closure of roads for that purpose annually[62], preferring smaller centres over high streets due to their high foot traffic.[63] Three quarters of residents endorsed converting some of the parking bays to allow al fresco dining.[64]

Some of RBKC's residents, particularly those with mobility issues and older people, saw private motor vehicles as a convenient and necessary mode. There was also large opposition to the removal of the borough-wide Controlled Parking Zone, which allows resident parking permit holders to park across the whole borough (RBKC the only London borough to have this facility).[65]

Other boroughs have also struggled to address the alignment of their parking strategies with objectives to encourage sustainable modes for short trips, and Centre for London has previously recommended that boroughs "regularly review the coverage, size and operating hours of Controlled Parking Zones to ensure they meet local and mayoral policy objectives".[66]

Figure 18: Results from RBKC citizen panel surveys, summer 2021

Results from RBKC citizen panel surveys, summer 2021	
More than 50 per cent of respondents supported	**Fewer than 50 per cent of respondents supported**
Borough-wide 20 mph speed limits on some roads	20 mph speed limits on all roads managed by the Council
Installing more electric charging points and reducing their cost	Removing residents' permit to park across the borough
Increased Cycleways on back streets	Increasing segregated cycle lanes in the borough
More green spaces	
Planters in a small number of parking bays	
Closure of roads for al fresco dining	
Converting some parking bays for al fresco dining in summer	
Planting street trees in a small number of parking bays	

Active travel and the case for additional micromobility infrastructure

RBKC has the potential to become an active travel success story. It is a highly walkable borough, but more can and should be done to make it still more walkable. More pedestrian-friendly road layouts with wider pavements and better crossings and much else would help (see our phase 1 report for more on this). But walking services, in the main, only local movement needs. Of course, it is complementary to the rich public transport network and so contributes to making more active and greener journeys that start or finish in the borough. Rarely though is walking an option for those wanting to cross the borough or, in most cases, travel between town centres in the north and south of the borough – for these journeys, micromobility is a quicker option. For example – Kensington Town Hall to Chelsea Town Hall is a 40-minute walk but a 15-minute cycle, and High Street Kensington tube to Oxford Circus is a 50-minute walk but a 20-minute cycle. It is in this important regard that, although walking and cycling should both be priorities for borough transport policy, they should be considered differently. In short, the tension between local and strategic movement in the borough is central to the question of cycling promotion and infrastructure.

There is also evidence that micromobility, and in some cases, walking, have the potential to replace journeys currently made by car. Transport for London estimated that two thirds of all car trips in London could be made by bike, e-bike, and likely by e-scooter in 20 minutes or less.[67] Transport for London also estimates that almost one in 12 trips made by motor vehicle could be walked instead, and within these, a third would take under 10 minutes by walking (this analysis takes into account distance, age, whether people are carrying equipment and onward travel).[68] On top of this, we expect too that the likely growth in micromobility use will add to demand for safe 'cycling' infrastructure (which may need to be rebadged as a result).

RBKC is committed to implementing several additional Cycleways to facilitate local cycling trips in the borough, for example between Kensington High Street to Notting Hill. However, to reach the citywide target of 80 per cent of all trips to be made by public transport, walking and cycling, London needs a better city-wide network of safe cycle routes providing convenient access to destinations across all boroughs. Because of the density of demand, and the benefits of increased yet sustainable connectivity, this is especially true of areas in or providing access to the Central Activities Zone. Nevertheless, the LIP recognises 'that there is currently no protected cycle route running east-west across the borough to meet the strategic demand identified by TfL' and acknowledges the political difficulty in achieving this locally.[69]

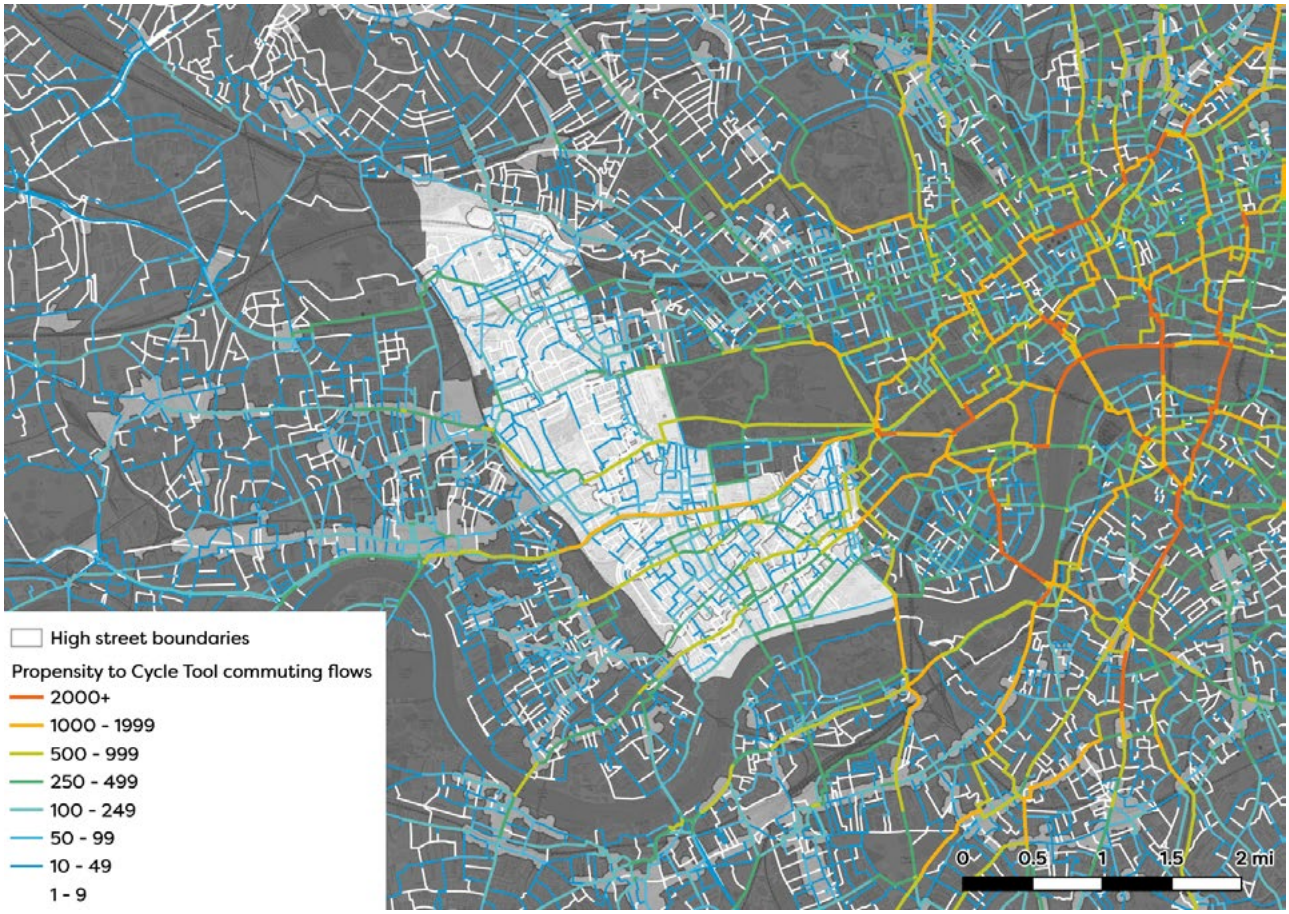
Future demand for cycling

Two separate tools explore where the demand for cycling in the borough is highest, and both show a similar picture:

1) The Propensity to Cycle Tool (PCT) predicts which trips could most easily switch to cycling, using cycle commuting flows from the 2011 census, as well as trip distance, hilliness, and demographic data.

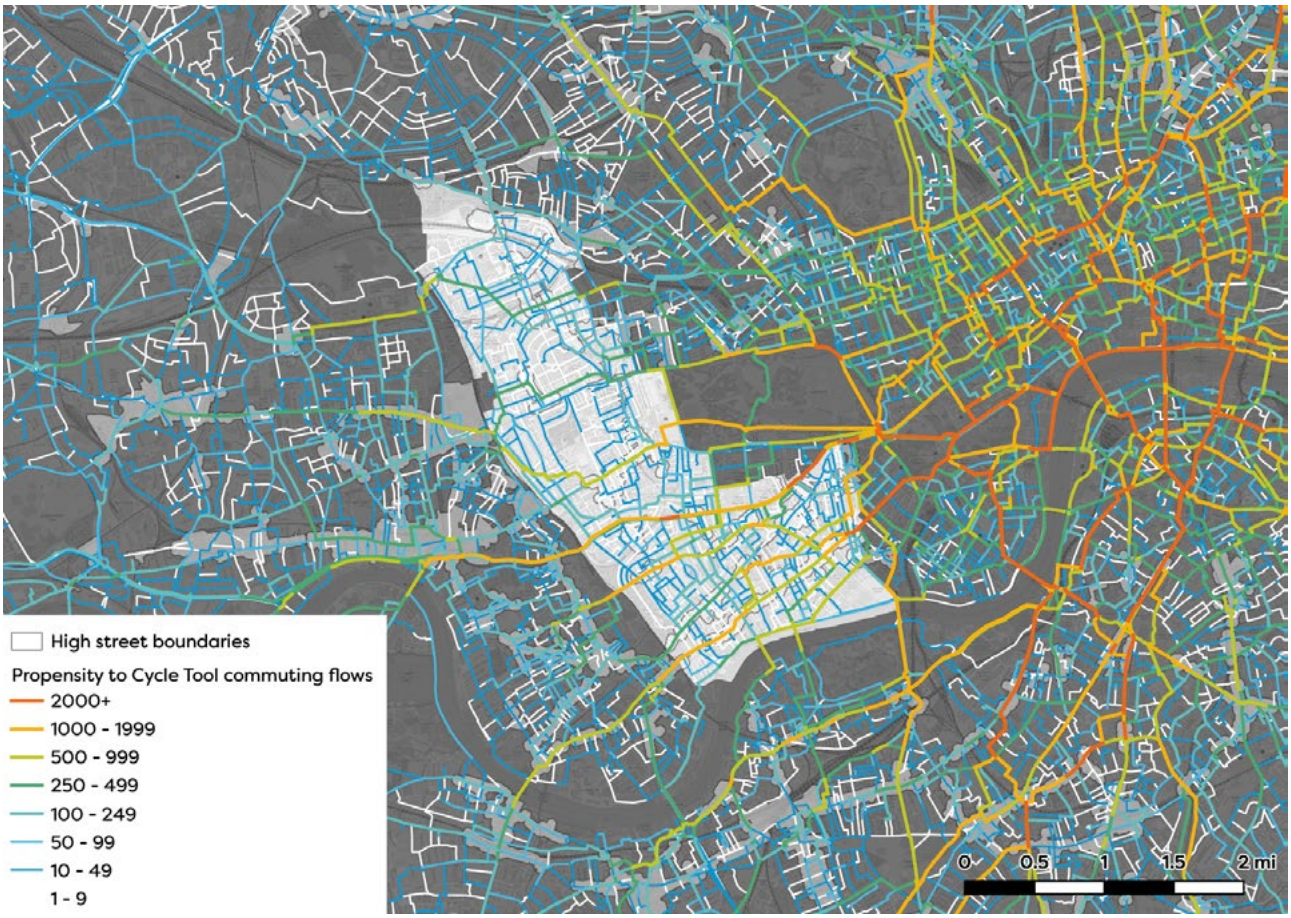
Figure 19 models the proportion of commuters who cycled to work on each given route in 2011. Figure 20 models cycle trips under the government's proposed target for cycling to double nationally. The data suggests strong demand for east-west trips for commuting, including on a route north of Hyde Park (that prolongs into Notting Hill Gate and parallel streets), Kensington High Street, Cromwell Road (a TfL road) and Old Brompton Road, King's Road and Chelsea Embankment. The map also shows more complex patterns of local trips in the north of the borough and in Chelsea (with some of these trips branching into east west trips).

Figure 19: Propensity to Cycle commuting flows – census 2011[70]



Source: Lovelace, R. et al. (2017). The propensity to cycle tool: An open source online system for sustainable transport planning.

Figure 20: Modelled commuting flows for the government target 'near market' scenario, which models the effects of sociodemographic and geographical characteristics on cycling[71]



Source: Lovelace, R. et al. (2017). The propensity to cycle tool: An open source online system for sustainable transport planning.

2) On top of this, TfL's Strategic Cycling Analysis identified cycling connections with the greatest potential to contribute to cycling growth in London (Figure 21). It suggests that many of the intra-borough north-south routes are catered for by existing and planned routes. In contrast, there is no major east-west cycle route in the borough. The map shows how east-west corridors through the borough are strategically essential for the wider west London cycle network, notably Notting Hill Gate/Holland Park Avenue, Kensington High Street, Cromwell Road (a TfL road), Old Brompton Road and Chelsea Embankment (also a TfL road). The fact that these are all busy thoroughfares is of significance – there isn't a convenient alternative East-West cycling route on quiet roads. It follows that East-West cycling movement in RBKC cannot avoid busy roads and will require protection from traffic.

Figure 21: Transport for London's Prioritised Strategic Cycling Connections[72]

Source: Transport for London. (2017). Strategic Cycling Analysis.

Both these approaches conclude that there is strong current and potential demand for east-west (and vice versa) cycle-based travel across the borough.

Given the global, London-wide, and local conditions we set out in this report it is reasonable to conclude that accommodating and encouraging the continued growth in cycling (and other micromobility) for all journey purposes in RBKC will be an essential component of helping London meet the MTS target of 80 per cent of journeys on foot, cycling and public transport by 2041. It will similarly make a significant contribution towards decarbonising London's transport and meeting the Mayor of London's goal of a net zero London by 2030.

Drawing on the strong evidence, and the case studies in section 4 that illustrate workable practical alternatives to the car-dominated configurations of current roadspace, it is our conclusion that a core part of these efforts in RBKC should be new east-west micromobility-dedicated protected roadspace corridors, designed with sufficient protection and allowance for other important usages of road and pavement space, especially pedestrians, public transport and essential vehicular services.

Sustainable Urban High Streets

Case Studies

This section looks at how four other major cities have dealt with intense pressure on street space on some of their main thoroughfares and high streets. The case studies look at schemes that attempt to re-allocate road space towards more sustainable modes taking a variety of approaches:

Reallocation of some road space to create protected cycle lanes and public realm enhancements: Ninth Ave, New York City and Sauchiehall St Ave, Glasgow

- Ninth Avenue shows us that well-designed programs to reassign road space on a major thoroughfare to active travel need not harm local businesses and can, in fact, help local commerce.

- Sauchiehall Street Avenue shows the additional aesthetic benefits of pedestrian-friendly street modifications. However, the continued decline of its retail offer suggests that regenerating traditional shopping streets in an era of declining in-person retail will require active travel policy to be matched by a pro-active placemaking strategy, likely involving 'meanwhile uses' for vacant units.[73]

Part pedestrianisation, part shared street: New Mariahilfer, Vienna

- The experience of New Mariahilfer Straße makes clear that, with enough time, it is possible to build supportive coalitions around pro-pedestrian street modifications that increase safety. It also shows that road modifications can change the purpose of spaces, diversifying shopping areas into spaces for leisure and socialisation.

Complete removal of private car traffic: Rue de Rivoli, Paris

- Though its effects on commerce and congestion are not yet clear, the scheme shows the importance of 'induced demand' – the potential for increased cycling infrastructure to invite more cycle use, rather than just meeting pre-existing demand.

Case Study 1 - Ninth Avenue, New York City

Ninth Avenue shows us that well-designed programs to reassign road space on a major thoroughfare to active travel need not harm local businesses and can, in fact, help local commerce.

Ninth Avenue is a major southbound thoroughfare in West Manhattan, passing through the neighbourhoods of the predominantly residential area of Chelsea and Midtown South. It is a four-lane road with kerbside parking on both sides and retail and services on the ground floor.

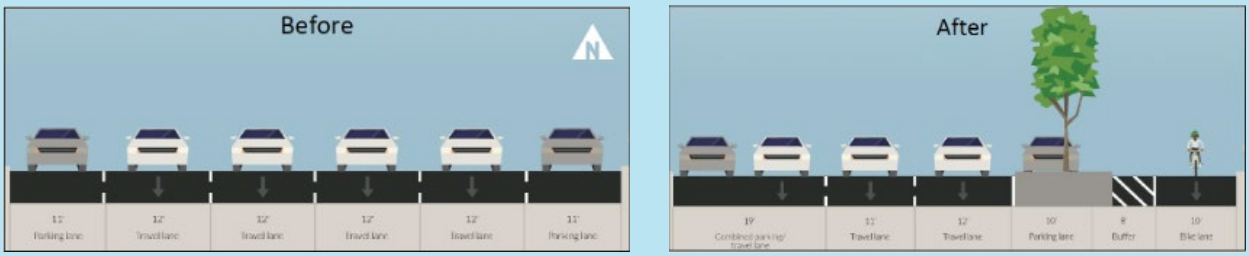
Figure 22: Ninth Avenue, New York City[74]

Photo credit: Ryan Russo, Randy Wade, Joshua Benson, Christopher Lucas

In 2007, the New York City Department of Transportation (DOT) started an innovative Complete Streets project. Its main goal was to reconfigure a previously traffic-dominated street to provide safe space for all road users and to create a better experience for cyclists and pedestrians.

As part of the intervention, the cross sections of the 20-metre wide road were modified by repurposing one of the lanes into a parking-protected cycle lane. With the introduction of landscaped safety islands, the effective pedestrian crossing distance of over 20 metres was reduced by almost 9 metres. On-street parking was kept and left-turn lanes were added at westbound streets. Left turn lanes and separate signal phases for bicycles were added at all junctions to reduce turning conflicts between bicycles and motor vehicles.

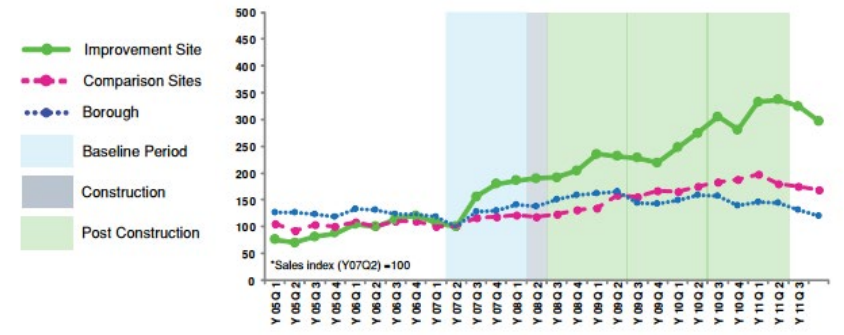
Figure 23: Ninth Avenue (23rd – 31st) cross-section before and after the intervention[75]



Source: NYC Department of Transport

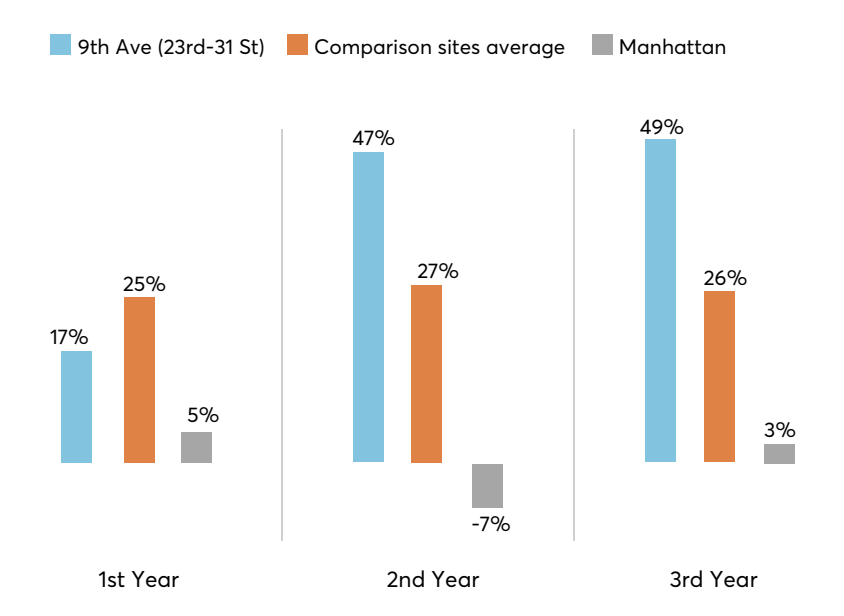
The investment brought a 65 per cent increase in cycle volumes and a 48 per cent reduction in crashes with injuries.[76] The DOT monitoring study revealed that the economic performance of businesses in the area improved steadily within three years of the improvement, up to 49 per cent in the third year. The street performed much better than the similar comparison sites (Seventh Avenue, Tenth Avenue and Hudson Street) and easily outpaced the borough's average performance. Sales data revealed some churn of businesses but a net positive effect with net business creation in the area.[77]

Figure 24: Combined Sales trends: Improvement Sites vs. Comparison Sites - 9th Avenue



Source: New York City Department of Transportation. (2013). The Economic Benefits of Sustainable Streets.

Figure 25: Sales post-improvement: 9th Avenue vs. Comparison Sites and borough[78]



Source: New York City Department of Transportation. (2013). The Economic Benefits of Sustainable Streets.

Case Study 2 - New Mariahilfer Straße, Vienna

Mariahilfer Straße in Vienna is one of the most significant shopping streets in Austria. Between 2013 and 2015, the section of the street located between the dense and largely residential 6th and 7th districts was converted from a congested throughfare into a popular public space under the project name 'Mariahilfer Straße Neu' (the new Mariahilfer Straße). The principal aim of the project was to support the multiple functions of the street by creating more space for people to walk, spend time and meet.

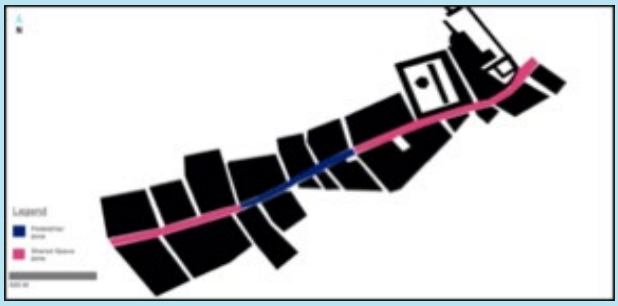
Figure 26: Mariahilfer Straße before and after the conversion into an encounter zone[79]

Photo credit: CC R Arno – Wikimedia Commons / Andreas Lindinger – Vienncouver.com

In the early 1990s the city introduced benches, planters and cafés to improve the quality of public space. However, a public consultation about traffic calming of the street was only initiated in 2011 and received heavy opposition from business owners and Vienna's Chamber of Commerce, who expressed their fear that the traffic calming measures and reduced parking provision would threaten business.[80] Following an experimental traffic closure, a local referendum was held in March 2014, with 53 per cent of residents of the 6th and 7th district voting in favour of the pedestrianisation of the street.[81]

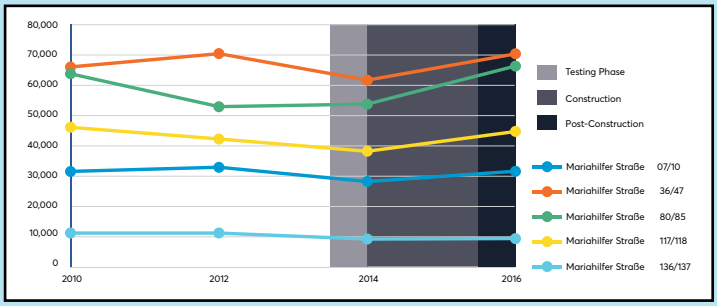
Due to an Austrian legal requirement to provide vehicular access to private garages, only one section of the street was fully pedestrianised, leaving the remaining sections as an 'encounter zone', which is a specific form of pedestrian-friendly traffic calming in Austria, Switzerland and France. The term 'encounter zone' reflects the philosophy of designing for civil interaction between road users and emphasises the social dimension of the streets.[82] According to the Austrian Traffic Code, the speed limit in Austrian encounter zones is 20 km/h and cars can only be parked for a short time in designated areas.

Figure 27: Innere Mariahilfer Straße sections[83]



Source: Lankhorst, A. (2020). A qualitative and quantitative unpacking of spatial, social and political dimensions of shared space. Evidence from the Mariahilfer straße in Vienna.

Figure 28: Daily footfall between 2008 and 2016[86]



Source: Lankhorst, A. (2020). A qualitative and quantitative unpacking of spatial, social and political dimensions of shared space. Evidence from the Mariahilfer straße in Vienna.

The encounter zone sections of the street have a level surface without kerbs or ramps, with an indicative lane in the middle, marked using a different shade of stone than the pavements along the shop frontages. The encounter zone is marked with traffic signs at entries and traffic lights on the intersections with bus routes and on crossings designated for visually impaired users. Parking and loading are only allowed in several designated locations. The city also introduced bicycle racks and multiple benches with planters for people to dwell in the public space.
There was an overall 12 per cent increase in footfall across the four counting sites located along the street between 2008 and 2018.[84] The main reason for visiting Mariahilfer Straße remained shopping, but it has also become a popular spot for strolls and meetings with friends.[85]

The two encounter zone areas prioritised pedestrians and cyclists, by forcing cars to slow down and negotiate priority with other road users. After the intervention, there was an observed reduction of between 66 per cent and 80 per cent in collisions and injuries,[87] leaving most visitors feeling safe,[88] and despite the initial increase in vehicle flows through surrounding streets, traffic there has now reduced.[89]

Residents' support for the changes increased to 71 per cent three months after the project's completion.[90] The improvements were especially popular among people under 30.[91] However, the largest change of attitudes was noted for people over 55, who were initially largely opposed to the traffic calming measures, but soon after their completion, their views were more positive. Retailers have also expressed their support, with 38 per cent stating that business improved after the renovation and 46 per cent not noticing any change.

Although controversial in the beginning, the success of the pedestrian-friendly street design has served as an example to several further street and public space transformations in the surrounding area, such as Otto-Bauer-Gasse, Zieglergasse and Neubaugasse and has inspired other districts.[92] The Chamber of Commerce, once the project's fiercest opponent, now recommends similar investments in encounter zones across all Vienna's districts, highlighting that their benefits outweigh the costs just two years after completion and that they help create new jobs and increase the city's income.[93]

Case Study 3 - Rue de Rivoli, Paris

Rue de Rivoli is a major east-west thoroughfare in Paris, stretching above Metro Line 1 from the Bastille, past the Louvre to the Place de la Concorde and connecting several of the city's important tourist attractions.

Figure 29: Example of a temporary bicycle express lane on Rue de Rivoli[94]

Image source: Dmitry Kostyukov The New York Times

The key city centre road is commercially vibrant, with shops including leading fashion brands. Before the Covid-19 pandemic, Rue de Rivoli was dominated by car traffic, but has since become a key step towards the city's goal to become a cycling capital set out in the latest Cycle Plan for 2021-2026.

Figure 30: The 2015-2020 and 2021-2026 Cycle Plans for the City of Paris[95]

In the Paris Cycle Plan for 2015-2020, Rue de Rivoli was defined as part of the Cycle Express Network (in purple on the map above). In May 2020, the city decided to create over 50 km of temporary bike lanes following the busiest metro lines (lines 1, 4 and 13) to ease pressure on public transport travel and prevent modal shift from public transport to motorised vehicles as France planned to lift the pandemic lockdown. As a natural alternative to Metro Line 1, Rue de Rivoli was selected for an express cycle route and car traffic was entirely prohibited, encouraging active travel. In September 2020, it was announced that the temporary cycle lanes would be kept and the closure of Rue de Rivoli to car traffic be made permanent, reserving its space for pedestrians, bicycles, taxis, buses, deliveries and servicing.

On its busiest days since the introduction of the scheme, the automatic counter on Rue de Rivoli registered over 25,000 cycles and e-scooters per day.[96] For the period between 28th November and 16th of December 2020, when non-essential services were re-opened, the average daily number of cyclists and e-scooter-riders increased

by 23 per cent from 5,984 to 7,386.[97] Despite the project's success, the decision to keep the current traffic restrictions has faced opposition of those who fear increased congestion in the area.

The city is planning to further improve the infrastructure of Rue de Rivoli for pedestrians and cyclists, adding new cycle parking and facilities for the increasing numbers of cargo bikes. The changes to Rue de Rivoli form part of wider political project to turn vast areas of the city centre into a pedestrian-friendly zones and gradually reduce on-street parking, in advance of Paris hosting the Olympics and Paralympics in 2024.

Case Study 4 - Sauchiehall Street Avenue, Glasgow

Sauchiehall Street is one of the main shopping streets in Glasgow's city centre. The section between Charing Cross and Rose Street is a key area for city's night life, with many bars and takeaway restaurants. The uninviting streetscape dominated by cars made it a good location for a pilot project for Glasgow City Council's ambitious 'Avenues' initiative. The programme aims to improve the quality of public space in the City Centre by creating a network of 17 people-friendly streets that encourage active travel and social interactions, promote the use of sustainable modes of transport, and help the city adapt to climate change.

Figure 31: Sauchiehall Street, Glasgow[98]

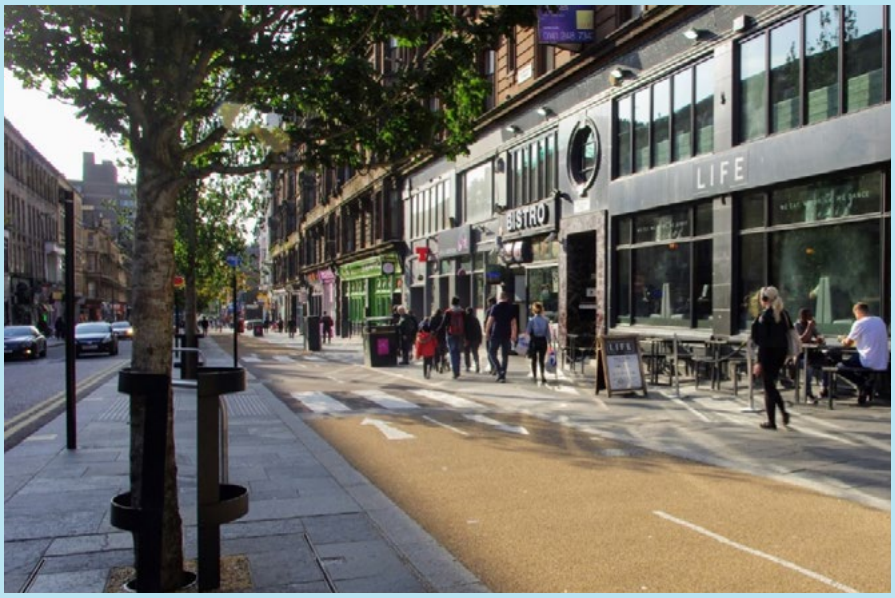


Image Source: Urban Movement

Between 2013 and 2019 the section of Sauchiehall Street was converted from a four-lane highway into an attractive space with a 20 mph (30 km/h) speed limit, widened footways and a bi-directional cycle track, segregated by a 2.5 m verge to provide safe environment for people of all ages. Disabled parking, loading and bus stops are distributed evenly along the kerb lines to create a single, meandering route, which helps to enforce the speed limit. To ensure that the footways are kept free from clutter, the Council are now rigorously enforcing a local by-law that all trade waste must be stored internally. Sauchiehall Street now features large semi-mature deciduous trees, regular seats placed at 50m intervals to encourage people to dwell in public space and regular rest stops for people with reduced mobility.[99]

Footfall data for Sauchiehall Street will eventually be published as part of Glasgow's Open Data policy.[100] Although no data from before and during construction yet available, initial evidence indicates that since the intervention, Sauchiehall Street has once again become a popular destination, with new businesses opening again after lockdown and an increased demand for outdoor space for eating and drinking, available on the widened footways.

In November 2021, the Sauchiehall Street Avenue project won the National Urban Design Award for a People Friendly Place as a replicable model for main streets, for all the community featuring best practice in many areas.[101]

Chapter 2: Scenarios

Introduction to scenarios

Scenarios can be a useful way of imagining and planning for the future. Unlike linear forecasts, scenarios are not intended to predict the future – they do not typically result in quantitative modelling of the probability of various options. Instead, scenarios are a way of breaking through the assumption that the future will look like the past. They aim to produce a range of plausible futures to help participants prepare for a wider horizon of possibilities than probabilistic forecasting might encourage them to. They are intended to handle the so-called 'TUNA' variables of strategy planning: 'turbulence', 'uncertainty', 'novelty', and 'ambiguity'.

In large organisations, it is common for leaders to come to a shared, comfortable consensus about the future, based upon a set of collective assumptions about the present. This can be perfectly healthy, but, especially in adapting to uncertainty, this collective cohesion can produce negative roadblocks and 'group-think'. Equally, in times of crisis and rupture, organisations can be hampered by the lack of trust and opposing views. Different parties attempt to force their understandings of the present upon each other, creating paralysis. Scenarios are a tool to help to break out of group-think or conflict by opening up conversations about possibilities and a variety of plausible futures that they had not considered, rather than just those they think most likely or desirable.

To be effective, it helps if scenarios are value-neutral and have a balance of positive and less attractive features – the process is not intended to produce preferred futures but to uncover plausible directions the world could take to help one adapt to the future. They should be plausible, so they are relevant to organisational strategy. They should be digestible; ideally memorable stories that participants can imagine and understand. They require boundaries – timeframes in which they are likely to take place. If these conditions are met, scenarios can help an organisation to challenge its presumptions and prejudices and 're-perceive' its surroundings.

The challenge of recovering from the pandemic has stoked the use of scenario planning. Transport for London supplemented its linear forecasting process with the creation of five plausible post-pandemic economic and transport scenarios, ranging from 'London Declines' to 'Agglomeration +', compared to its 'reference case' of pre-pandemic assumptions. As part of our London Futures program in 2020-21, we also created five scenarios to model distinct futures for the city.

Figure 32: Centre for London scenarios for the capital's future

Source: Centre for London

Plausible scenarios for the future of travel in Kensington and Chelsea

In the time since the temporary cycle lane was installed on Kensington High Street in December 2020 and removed seven weeks later, a heated and fragmented debate took place between supporters and opponents of the lane. The Council has suffered reputational damage from the controversy. The scenarios below will evolve thinking on how RBKC can plan for the future and reduce tensions around sustainable and active travel in Kensington and Chelsea.

Pre-pandemic trends in commuting, shopping, and active travel are significantly less useful than before in helping help us to accurately predict the future. We are living through a period of unprecedented change in which old presumptions about mobility are up for debate, as is described earlier in the report. Exploring what futures are plausible for the borough will help us plan for multiple possible roadmaps and create policy that can adapt to areas of uncertainty. In collaboration with senior officers at the Council and other stakeholders, we have created a set of plausible scenarios for the future of travel in the borough, coupled with a range of policy options designed to meet the demands of these scenarios and account for the uncertainties they entail.

Assumptions

Before creating scenarios, it is important to set the variables to hold steady, the assumptions that underly all plausible futures. With this baseline of consensus, we can decide which factors to flex.

Our assumptions are based on the borough's strategic landscape, built on international, national, and city-wide trends. Our 'flex' variables are factors that are uncertain and subject to significant volatility. Our approach assumes a time horizon of 2030 to bind our analysis and make it actionable.

On the national level, we assume that because of the widespread commitment to reaching net-zero, the carbon intensity of economic output will fall significantly. We will be incentivised to produce less waste, through use reduction and re-use. We assume that policymakers in UK cities will have to contend with the effects of more extreme weather, whether in the form of flooding, over-heating, or climate instability. The transition towards more sustainable modes of transport is assumed to continue and accelerate, with active travel gaining modal share against car use, within which internal combustion engines are increasingly replaced by electric vehicles, with these and other sustainable modes of freight delivery and servicing growing in popularity.

On the London level, we assume that long-distance physical connectivity will not markedly rise over this timeframe (against 2019 levels, and notwithstanding the now open Elizabeth Line), given the climate impacts of expanding the city's airports and its threadbare infrastructure spending pipeline. We assume that digital connectivity will continue to rise, as is argued earlier in the report.

Uncertainties

Having set out our assumptions we need to decide which trends to flex and consider as key uncertainties. RBKC is an unusual borough, in that it is the smallest borough in London and its daytime population is roughly equally split between residents, visitors, and workers. This creates more 'moving parts'. The fourth main group of users is through-traffic – including servicing and deliveries. Students, a further important group in the borough, are a combination of generally transient residents and visitors.

Given we are primarily interested in the usage of streets and pavements, and the core uncertainties around the growth of each population type, we chose to use these three core populations as the variables to flex in building our scenarios. Each scenario is characterised by the predicted growth or decline in these four groups, each changing the demand for different transport modes.

The trajectory of each of these variables over the 2020s is uncertain and vulnerable to behavioural changes in where people work, shop, live, and play. We have summarised its progress up until now in our strategic landscape review and summary of the borough's prevailing trends earlier in the chapter. Resident numbers, uniquely among London boroughs, look to have declined for two decades running, and this is against the backdrop of a fast growing London population. Visitor numbers to central London had been growing steadily in the decade preceding the pandemic, but their numbers have collapsed since 2020 and, according to GLA projections, are unlikely to return to 2019 levels until at least halfway through the decade. London remains the region of the UK where employees are most likely to work from home at least some of the time. There is significant uncertainty surrounding future trends for all three groups in RBKC. Therefore, our four scenarios are stories of what the borough could look like if these key segments of the population grow, decline, or stay steady.

Scenarios

Each scenario represents a different story of the borough's fortunes over the 2020s, intended to span the range of plausible futures ahead of Kensington and Chelsea.

More space for all: Competition for space falls as the borough declines.

Nearly normal: The borough slowly but steadily recovers to its pre-pandemic state.

Local is beautiful: Kensington and Chelsea becomes a '15-minute city'.

Roaring Twenties: The 2020s are a booming decade of economic growth for RBKC.

Figure 33: Four scenarios

Populations	Pre-pandemic trend (2010s)	During pandemic	Scenario 1 More space for all	Scenario 2 Nearly normal	Scenario 3 Local is beautiful	Scenario 4 Roaring Twenties
Resident Population	Decline	Decline	Decline	Decline	Steady	Steady/ Growth
Worker Population	Growth	Decline	Decline	Steady/ Growth	Decline	Growth
Visitor Population	Growth	Decline	Steady/ Growth	Growth	Decline	Growth
Through traffic	Growth	Decline	Decline	Steady/ Growth	Decline	Growth

Scenario 1: More space for all

In this scenario, the borough, along with the city at large, declines in popularity among workers and residents. There is an exodus of Londoners to other parts of the country, driven by high costs of living and growing demand for greater living space, reducing the city's buzz. In-person working remains suppressed compared to 2019 levels as employees settle into hybrid patterns of work to save time and money spent commuting. By 2024, international travel has returned to 2019 levels, as border restrictions are relaxed around the world, but business travel remains suppressed.

Fewer residents and workers in the borough mean less mobility - public transit usage declines markedly in the borough, along with that of cars and heavy freight. Given the underlying behavioural shifts in their favour, micromobility, taxi/private hire vehicle, and LGV use remain steady, as the shift to online shopping, ride hailing, and active travel continues. 'Micro-freight', used by delivery services like Deliveroo and JustEat, continues its growth, benefitting from continuing behavioural change among residents and workers. But overall competition for space on the borough's roads is reduced, as commuting flows fall.

For those still living and working in the borough, congestion is significantly decreased, improving air quality and travel times, and homes and workspaces improve in affordability, aiding quality of life. The borough's pathway to decarbonisation is accelerated, though continually low public transit usage may see provision across the city cut further over time.

Scenario 2: Nearly normal

This scenario foresees a future in which RBKC slowly but steadily recovers from the pandemic over the 2020s. Visitor numbers rebound quickly, as suppressed global demand for tourism is released, and the worker population returns to 2019 levels by 2030. However, the borough, along with central London as a whole, loses its draw, as hybrid working solidifies into the new normal for a significant portion of the city's workforce. Economic activity is affected by falls in demand for services from office workers. The borough's residential population continues to fall, as extremely high costs of living and an ageing local population restrict new household formation.

Tube and bus usage reduces, as growth in commuting flows remains muted and residents make fewer local trips. Car, van, and taxi/PHV use recover over the decade, as visitor numbers rebound, and these also increase walking levels. As in our other scenarios, demand for deliveries continues to grow, increasingly fulfilled using micromobility vehicles.

By the end of the decade, without policy changes, congestion surpasses pre-pandemic levels, worsening air pollution, discouraging commuting, and damaging the place value of the borough's high streets. The borough's pathway to decarbonisation does not significantly change.

Scenario 3: Local is beautiful

Kensington and Chelsea moves towards becoming its own '15-minute city'. While the borough's residential population stabilises, worker and visitor numbers fall continually over the decade. Full-time and hybrid working from home becomes the dominant mode of work and commuting into central London does not recover to 2019 levels. Hospitality work in the borough is severely affected by declines in workers and visitors, but businesses catering to residents, like neighbourhood restaurants and shops selling everyday essentials, see demand grow.

Micromobility use and walking stay stable, as increased local cycling among residents makes up for declining commuter and visitor numbers. Car, taxi, and public transit usage declines. Increased working from home keeps LGV usage stable and micro-freight continues its rise. However, decreased patronage of tourist-attracting businesses reduces the need for HGV deliveries. This also takes pressure off the borough's kerbside and roads, allowing for the prioritisation of local active travel.

The borough decarbonises faster than in any other scenario, as congestion reduces sharply and growth in living costs slows, as demand for housing in the area falls. Reduced traffic improves the place value of the borough's streets and town centres, inviting a greater mode share for pedestrians.

Scenario 4: Roaring twenties

The borough booms within a buoyant central London. The slide in residential population is stabilised by mid-decade and reversed by 2030, and new, high-productivity clusters of employment bring waves of new workers to the area. The pandemic is effectively suppressed, and office working recovers its default status on most days of the week, reinvigorating Transport for London's farebox revenue and allowing for connectivity improvements around the city. The number of commuters able to quickly reach London increases, fuelled by the Elizabeth Line, growing the labour market and demand for its services. Tourism quickly rebounds and grows steadily throughout the decade, reviving the borough's hospitality sector and encouraging the reopening of vacant high street units.

Public transit becomes more popular. Meanwhile the absolute decline in car usage in the borough is stabilised, and commercial success requires increased LGV and HGV provision. Higher visitor numbers stimulate the taxi and private hire industry and require the expansion of micromobility

provision for local trips, with a focus on hired bikes and escooters. Walking numbers rise precipitously. Overall, the competition for road, street and pavement space intensifies, exacerbated by the continued rise of micro-freight deliveries.

Without policy changes, the borough's pathway to decarbonisation is slowed, congestion is exacerbated, and increased demand for housing and other building uses pushes up the costs of residence, the costs facing businesses operating in the borough, and the costs for workers and visitors.

Figure 34: Challenges and opportunities for each scenario

Scenario	Intensified challenges	Opportunities
Scenario 1: More space for all	Peak visitor demand at main attractions (as visitor numbers recover, especially during weekends/high season)	More space for walking and micromobility Less pressure on roads and the kerbside Reduced commuting peaks Less demand for parking
Scenario 2: Nearly normal	Road congestion Discouraging car, taxi and PHV use Peak visitor demand at main attractions (same reason as above)	Reduced commuting peaks
Scenario 3: Local is beautiful	Manage decline of high street retail	More space for walking and micromobility Less pressure on the kerbside Reduced commuting peaks
Scenario 4: Roaring Twenties	Congestion on road, pavements and in stations Promoting public transport Reduced commuting peaks	More revenue from public transport
Common to all scenarios	Managing growth in local deliveries Enabling shift to micromobility Supporting high street retail and vitality	Enabling shift to micromobility Supporting high street retail and vitality

Challenges and opportunities

Each scenario brings specific challenges and opportunities, relative to our 2019 baseline, to RBKC's high streets – and some are common to all scenarios. These are set out in the table below:

In all scenarios, RBKC will need to manage growth in the number of local deliveries, many more of these completed using micromobility vehicles. As discussed earlier in the report, the increased popularity of micromobility vehicles for personal transport will also need to be accommodated and managed – we think this is an opportunity, as micromobility is a more sustainable and space-saving mode of transport than four wheeled vehicles. It is also a challenge, as failure to accommodate this growth risks the safety of their users and could clutter RBKC's high streets (as micromobility vehicles are parked or stopped illegally) and make it a less comfortable environment for other users. Across all scenarios, RBKC will also need to take action to support its retail businesses – usually by creating an enhanced environment (less congestion, noise and pollution) that is accessible to everyone in the borough – ideas on how this can be done can be found in our placemaking toolkit (link Phase 1 report).

As mentioned above, we do not assign likelihoods to each scenario. Scenarios 1, 2 and 3 would make it somewhat easier to implement the options presented later in the report, as there would be less demand to travel to and along KHS. Scenario 4 (Roaring Twenties) would make implementation more difficult (as demand for movement would be higher) but also even more necessary – without these changes KHS would be a more challenging and unsafe environment than it is today. We recommend that RKBC conducts regular town centre health checks to determine how challenges are evolving and highlight areas for focus but also opportunities.

Chapter 3:
Kensington High Street

Why people use Kensington High Street

Kensington High Street (KHS) forms the core of the historic Kensington town centre, and crosses the Royal Borough of Kensington and Chelsea from East to West, splitting it roughly down its middle. As Kensington High Street crosses eastwards into the City of Westminster, the street becomes Kensington Road and runs to Knightsbridge and eventually to Piccadilly Circus. As it crosses westwards into the London Borough of Hammersmith and Fulham, it becomes Hammersmith Road, which runs to Hammersmith and beyond to Chiswick and Brentford.

Like many other London high streets, Kensington High Street is both a destination and a major thoroughfare. There are a lot of offices in the surrounding area, and many people visit the street to shop, thanks in part to its department stores, a wide range of high street brands and independent shops. There is also a large offer of cafés and restaurants. Other attractors include the Town Hall and the library, the Design Museum, Holland Park, and nearby Kensington Gardens, Leighton House Museum and Sambourne House. As part of this project Centre for London has provided RBKC with a town centre toolkit to analyse the strengths and challenges facing high streets in the borough – it can be accessed here alongside case studies of other town centres in the borough.

Kensington High Street, as mentioned, is also a major thoroughfare into and from central London, for people and for goods. The street is used by buses, bicycles, cars and taxis, motorcycles, tradespeople, and delivery vehicles, ranging from cargo bikes to large lorries. The high street is currently an A road, and a key transport artery (it is on the Strategic Road Network), but the high street is not part of the TfL-managed 'red route' network (Transport for London Road Network, or TLRN). It is managed by the local authority, as with all other non-TLRN public roads in London.

Pedestrians

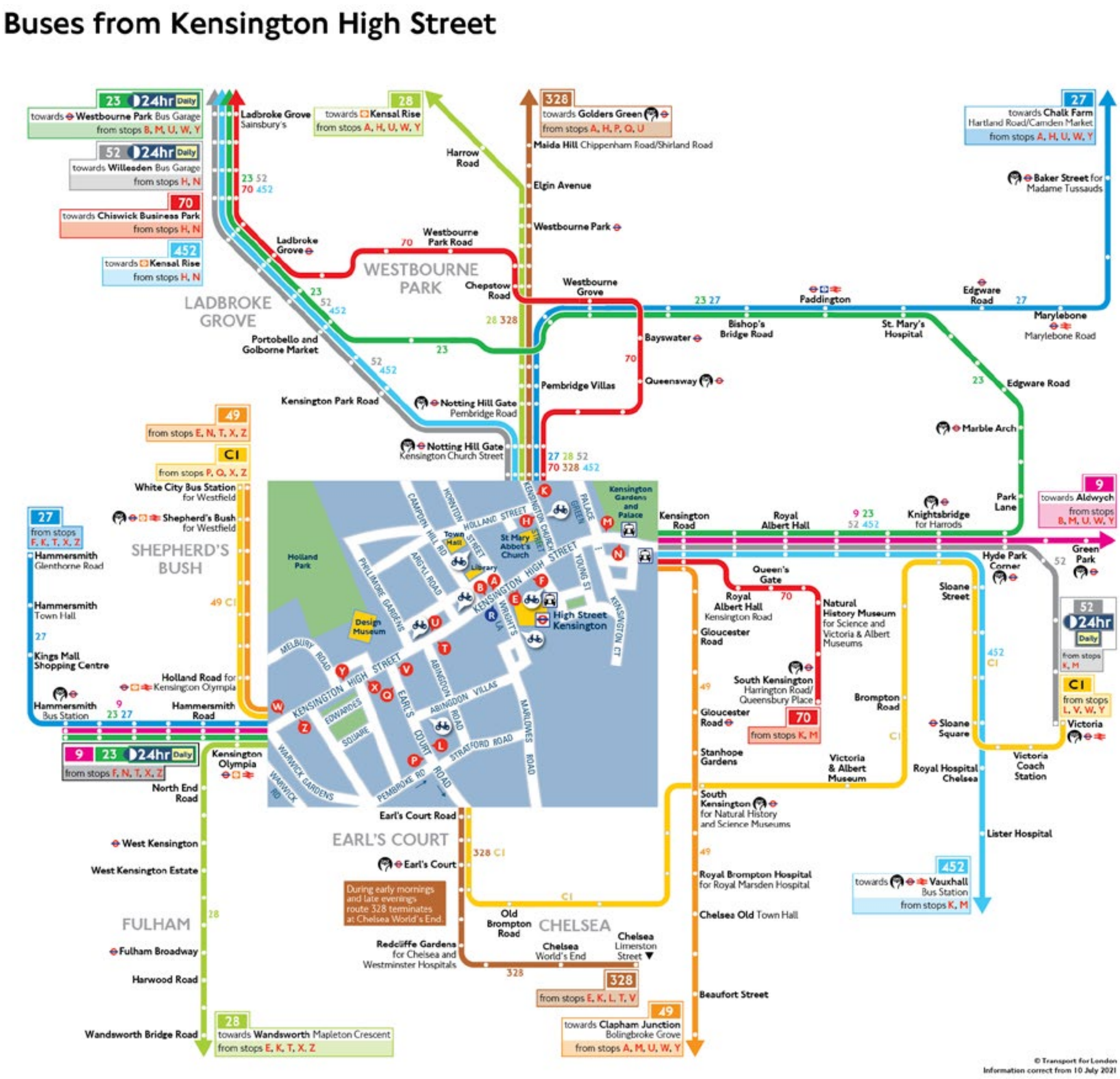
The third largest user groups on KHS, according to traffic counts data, are pedestrians, though of course many pedestrians concomitantly use other modes of transport. People who are on foot have different needs: some people are walking along or crossing KHS, some are walking in and out of shops (or making deliveries to them), while some are sitting down whether on public benches or on café outdoor tables and chairs. Pedestrians travel differently too, and have different accessibility needs – for example older people or people who travel with children, wheelchair users, or people who are blind or partially sighted may need more space or time to cross the road.

KHS pavements can get very busy. We experienced this during our site visits and this is confirmed by count data: at peak times, there is an average of 1,600 pedestrians an hour on KHS pavements at the junction with Campden Hill Road (and up to 1,800 on weekends). TfL guidance states that pavement width should be at least 4.2m on each side to ensure pedestrian comfort at this level of use (this can reduce to 3.3m if there is no street furniture),[102] but there are sections of KHS where the pavement is narrower than this. Besides, pavements have other uses too – for planting or for bin collections, which can reduce their capacity. Crowded and chaotic pavements can be intimidating and discourage people from using the street or lead them to step onto the roadway – which could lead to accidents.

Buses

The diagram below shows that 10 bus routes run through KHS. Buses are popular not just for local trips but also for accessing other major London locations including the West End. TfL's Central London Bus Review – a programme to change and close a large number of bus routes in central London – has proposed to re-route the 23 bus to serve South Kensington, meaning it will no longer serve Kensington High Street. It is as of yet unclear whether the Bus Review will be implemented in its current form.

Figure 35: Diagram showing bus routes along Kensington High Street[103]



Source: Transport for London

Tube

Many people also use the District and Circle Lines at High Street Kensington. Services from High Street Kensington head north towards Paddington and south towards Victoria and Wimbledon. In 2017 there were 12.8m entry and exit taps at the station, which put it in the top quarter of London underground stations by busyness. This translates into particularly heavy footfall around the station, with crowded pavements and high demand to cross the street in this location.

Large delivery vehicles

Many delivery and servicing vehicles use Kensington High Street – some do so because their journey starts or ends in the area, in which case they will stop for loading or unloading. For example, we accompanied a beer delivery truck which made several stops around Kensington High Street over the course of one morning. Other delivery vehicles do not stop in the borough but use the High Street to access central London, though more go down Cromwell Road as it is a larger trunk road.

As shown in the table below, the majority of delivery and servicing vehicles are vans, but there is a large number of lorries too. Like nearly all roads in London, Kensington High Street is a restricted route for Heavy Goods Vehicles (HGVs), which means that HGV operators need to obtain permission from London Councils to use it between the hours of 21.00 and 7.00 on weekdays, from 13.00 on Saturdays and all day on Sundays. The bridge over the railway at Kensington Olympia has a 4.5T weight limit which prevents larger lorries from using it, so most HGVs join the High Street at the junction with Warwick Road.[104]

Cars and taxis

Based on traffic counts at Campden Hill Road, the single most common type of vehicles on Kensington High Street are cars, taxis and private hire vehicles (traffic counts do not differentiate between those). Our estimate of the number of people who use cars on KHS also suggest they are one of the largest user groups currently, alongside people who use buses, and pedestrians (see table below). There are many reasons why people drive on KHS and we do not have data on these reasons – some journeys will be made by residents and workers while others are crossing the borough to get to or from central London. Some people rely on motor vehicles to get around – for example because they have accessibility requirements, while others will have choice between different modes. We can be confident that many people driving or using taxis and private hire vehicles on KHS could realistically travel by other modes, as Londonwide research conducted by Transport for London shows that at least one third of car trips made by Londoners could be walked in under 25 minutes and two thirds could be cycled in under 20 minutes.[105]

We were told by RBKC councillors that school drop off is one of the reasons that people drive along or across Kensington High Street, and that a number of hotels and embassies in the area also generate significant motor traffic. Traffic counts on KHS at the junction with Campden Hill Road show that westbound car traffic peaks in late afternoon and, perhaps more surprisingly, eastbound car traffic peaks in the early evening – perhaps to avoid the Congestion Charge, which is in force between 7:00-18:00 on weekdays east of Park Lane. Detailed traffic count data is shown in Appendix.

Micromobility (bikes, e-bikes and e-scooters)

Kensington High Street is also heavily used by people on bikes, and a growing number of people on e-scooters. There are several reasons for this. Overall, micromobility has grown in popularity among RBKC residents, workers and visitors (a very broad category that includes students, visitors from other boroughs, as well as from elsewhere in the UK and overseas), as shown earlier in the report. A significant number of cyclists start or end their journey near KHS - on an average day in May 2022, 850 people either picked up or dropped off a bicycle in the seven stations around Kensington High Street (see data in Appendix). Derry Street docking station, near High Street Kensington, was also the second busiest docking station in the borough that month. This helpfully highlights that many cycling journeys on KHS start or finish in the borough. Detailed cycle hire data is shown in Appendix.

There is also very strong demand for East-West travel on a bike across the borough including strong latent demand (as shown earlier in the report by TfL's Strategic Cycle Analysis) which is not currently adequately provided for. This is due to the high volumes of general motor traffic and the lack of East-West protected micromobility lanes on Kensington High Street and other roads crossing RBKC from East to West. Much of this demand is due to the borough's position within London, between the centre and the west of the city. Kensington High Street is a key link to the city's cycle network.

Going east from the borough boundary at Kensington Gardens a protected cycle route runs to Westminster, the City of London and Canary Wharf. This is a popular route to ride on because it is largely free of motor traffic as it crosses Hyde Park, Green Park and St James's Park. The data from cycle counters show the cycle route is busy during the week and at weekends – which suggests that people use it for different reasons – many will use it to get to work, either within the borough or outside, but visitors also use it to travel to the borough.

Going west from KHS at the RBKC boundary, a protected cycle route is being installed to Brentford Town Centre via Hammersmith, with new protection across the northern side of the Hammersmith gyratory.[106] This will create an almost continuous protected cycle lane from Brentford Town Centre to East London (with Kensington High Street and Kensington Road the missing link) and will create more cycling demand for crossing RBKC using Kensington High Street.

Delivery companies, and to some extent tradespeople, are also increasingly using micromobility to service the city. Like elsewhere in London, there has been a boom in hot food deliveries from restaurant kitchens along the high street, generally on motorcycles or ebikes. This also creates demand for stopping along KHS.

The rise in popularity of electric-powered micromobility (ebikes and escooters) fuelled by the likely upcoming legalisation of privately owned escooters, means demand for travelling using micromobility will continue to grow.

We have explored trends in travel demand in more detail in our borough-wide analysis.

Average daily counts on KHS at Campden Hill Road junction (January-July 2022)

Figure 36: Vehicle counts

Vehicles and people	Eastbound	Share of total movements	Westbound	Share of total traffic
Bus passengers[107]	**10043**	**27%**	**9717**	**32%**
Car passengers[108]	**14121**	**39%**	**8426**	**28%**
Cyclists	1801	5%	1990	7%
LGVs	1154	3%	803	3%
Motorbikes	669	2%	781	3%
HGVs	166	0%	91	0%
Pedestrians	8664	24%	8198	27%
TOTAL	36618	100%	30006	100%

Figure 37: Passenger estimates

Vehicles and people	Eastbound	Share of total movements	Westbound	Share of total traffic
Bus	797	4%	771	4%
Car incl. taxi and PHV	8826	40%	5266	29%
Cyclist	1801	8%	1990	11%
LGV	1154	5%	803	4%
Motorbike	669	3%	781	4%
HGV	166	1%	91	1%
Pedestrian	8664	39%	8198	46%
TOTAL	22077	100%	17900	100%

Source: Vivacity Labs and Centre for London analysis

Conflict, danger and congestion

Congestion

The popularity of Kensington High Street for all these modes of travel means the street is very busy and at times heavily congested. For example, bus timetables suggest that it takes around 8 minutes to travel the whole length of Kensington High Street (from Palace Gate to Kensington Olympia) in either direction at off-peak. But live travel data shows this journey can take twice as long during rush hour - which means an average speed of 4mph. This level of congestion also negatively affects car users. Traffic congestion typically happens where there are too many vehicles using the same road at the same time. This can be made worse by bottlenecks, which can be due to the road layout and intersections – for example high demand for right turns into Kensington Church Street can often hold up westbound traffic – we have seen this happen on our site visits in the middle of the day and have been told by councillors that this gets worse during rush hour. Vehicles stopping or parking on the roadway also create congestion as they force two lanes to become one – we have repeatedly seen goods vehicles doing this on KHS.

Pollution

Across London, road transport accounts for nearly half of all NOx emissions, 31% of PM2.5 emissions, and 28% of CO2 emissions, and there are no areas of the city in which PM2.5 levels do not exceed the World Health Organisation's guideline levels.[109]

The junction of Kensington High Street and Argyll Street has seen annual mean NO2 rates of nearly 60 ug/m3 in 2019, significantly above the national Air Quality Standard of 40 ug/m3, according to data collated by Friends of the Earth.[110] In 2021, 15 of the 32 tubes collecting data on this pollutant on KHS were exceeding the national Air Quality Standard,[111] and the 2022 data is likely to show worse results due to prolonged periods of stable weather, which didn't help with the dispersion of pollutants. Nitrogen dioxide causes inflammation of the airways and worsens the symptoms of lung and heart conditions.[112]

Noise

Strategic noise mapping, estimated by DEFRA, shows that Kensington High Street consistently experiences average noise levels of over 75dB across each 24-hour period, the highest category on the scale.[113] This extends onto several parts of the High Street's pavement, particularly surrounding High Street Kensington Station.

RBKC piloted the use of acoustic cameras in Sloane Street and Pont Street in late 2020 to tackle noise pollution from excessive engine noise, particularly related to anti-social driving, and there is now a camera at the junction of Kensington High Street and Warwick Road.

Generally, heavy car flow is also accepted to reduce the 'place value' of a space, making it much more likely people will want to spend as little time there as possible.

Safety

Kensington High Street is a very popular with many different user groups. This competition for use too often makes many users unsafe.

The most vulnerable user groups are motorcyclists, pedestrians and cyclists. These users are also making some of the most sustainable and active travel choices and so should both be protected and encouraged.

Across the borough, there were 642 casualties in RBKC in the 2021 calendar year. 32 per cent were powered two-wheelers, 27 per cent were

cyclists and 17 per cent were pedestrians.

Specifically on KHS, there were 25 collisions involving pedestrians between November 2018 and October 2021. Over the same period, there were twice as many collisions involving cyclists than pedestrians on KHS (50), five of which were serious for cyclists. The only group that sustained more injuries over the period on the High Street was motorcyclists – though fewer collisions involving them were serious.[114] 2016-2018 saw 45 cycling casualties, significantly higher per kilometre than on Holland Park Avenue, Notting Hill Gate, Cycleway 4 and Cycleway 9.[115]

Even collisions that don't cause serious injury can be incapacitating, such as whiplash or sprained ankle, and on top of this many collisions go unreported.

Generally, both heavy and fast motor traffic increase risks for vulnerable groups. Crossing the high street at busy times is made significantly harder by high traffic flows. Motorcyclists and cyclists (and sometimes pedestrians) must weave in and out of traffic, increasingly their risk of accidents.

Improving safety on Kensington High Street is, therefore, both a priority in and of itself, to reduce the serious risks suffered by the most vulnerable user groups, and necessary for increasing the flow of active and sustainable travel on the street.

Cycle safety guidance

The diagram below is part of the Government's design guidance for cycling. It shows suitable provision for cycling on UK roads based on the number of motor vehicles, the speed of traffic and the level of protection from that motor traffic. People on a micromobility vehicle on Kensington High Street currently mix with general motor traffic. Since November 2020, RBKC has had a 20mph speed limit on all the roads it manages and this applies to Kensington High Street (though it is frequently ignored). But as previously noted, traffic is very heavy – a daily average of 11,000 motor vehicles were counted at the junction with Campden Hill Road going East, and 7,000 going West. Government guidance estimates that people on a bike shouldn't mix with traffic if there are more than around 3,000 motor vehicles using their side of the road, even at 20mph. Kensington High Street is at least twice over this traffic threshold, and nearly three times for eastbound traffic. In these conditions, according to the guidance document, only a very small percentage of potential cyclists will find it suitable to be on a bike – this layout will exclude most potential users from cycling, and it is very likely that cyclists who currently use the street will have safety concerns.

Figure 38: Appropriate protection for cycling from motor traffic on highways

Speed limit	Motor traffic flow (pcu/24 hrs)	Protected space for cycling			Cycle lane	Mixed traffic
		Fully kerbed cycle track	Stepped cycle track	Light segregation		
20 mph	2000					
	4000					
	6000+					
30 mph	2000					
	4000					
	6000+					
40 mph	Any					
50 mph	Any					

Suitable for most people

Not suitable for all people and will exclude some potential users and/or have safety concerns

Suitable for few people and will exclude most potential users and/or have safety concerns

Source: Department for Transport (2020). Cycle Infrastructure Design Local Transport Note 1/20.

Kensington High Street - the current layout

Critical section

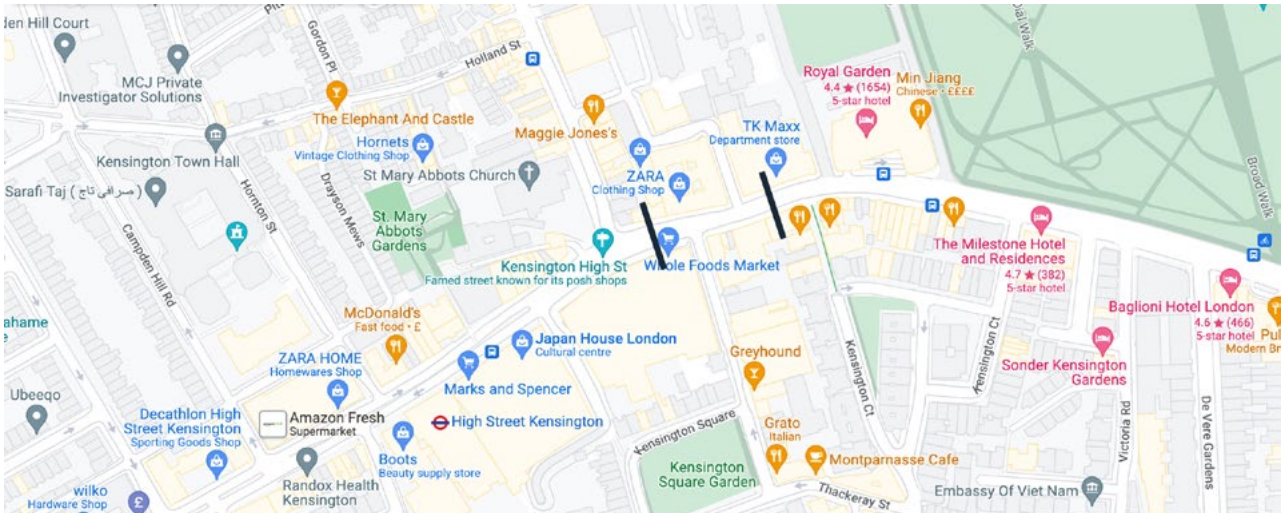
For all the traffic it carries, Kensington High Street is relatively narrow, especially in the section between Kensington Church Street and Kensington Gardens, where pavements taper significantly, and road space narrows to one and a half to two lanes of traffic in each direction. This is the critical section of KHS where conflict between different uses is the greatest. We were told by local councillors that this section of the high street is where congestion issues are the most severe and that a lot of objections to the temporary cycle lane were relating to congestion there. This critical segment is therefore the main focus of the next sections. It is shown on the map and cross section below.

East and west of the critical section

Elsewhere the street is wider, which currently allows for wider pavements, at least two lanes of traffic in each direction, and in some places a middle island (also called central reservation) with enough space for planting or bike parking. At present Kensington High Street does not have protected lanes for micromobility vehicles, which means that people on a bike or an escooter share the road space with all motor vehicles.

There are double yellow lines or bus stops along much of KHS – and for nearly the whole of the section between Kensington Church Street and Kensington Gardens. While loading is also restricted, loading bay availability is also restricted for an area of such high demand, and we have seen freight vehicles (small and large) stopped on the highway for deliveries or collection.

Figure 39: Critical section of KHS between Kensington Church Street and Palace Avenue



Road layout east and west of Kensington High Street

Our scope is limited to Kensington High Street and the part of Kensington Road managed by Kensington and Chelsea, but many journeys along here will start or end elsewhere. Micromobility users are protected from traffic going East through Hyde Park and will soon be protected going west to Hammersmith. This provision of infrastructure on an East-West line beyond KHS will drive up the desire to cycle on KHS.

Options for improving KHS

As discussed previously, there are severe issues of congestion, pollution and safety on Kensington High Street. RBKC's vision is for their high streets to:

- Be places people want to visit and to stay
- Adapt and change based on community involvement
- Work for everyone
- Be healthy places, which encourage active travel
- Have their own individual character
- Be part of the solution to the climate crisis
- Be places for culture, art, festivals, events and activities

Figure 40: Cross-section of KHS critical section (current configuration)

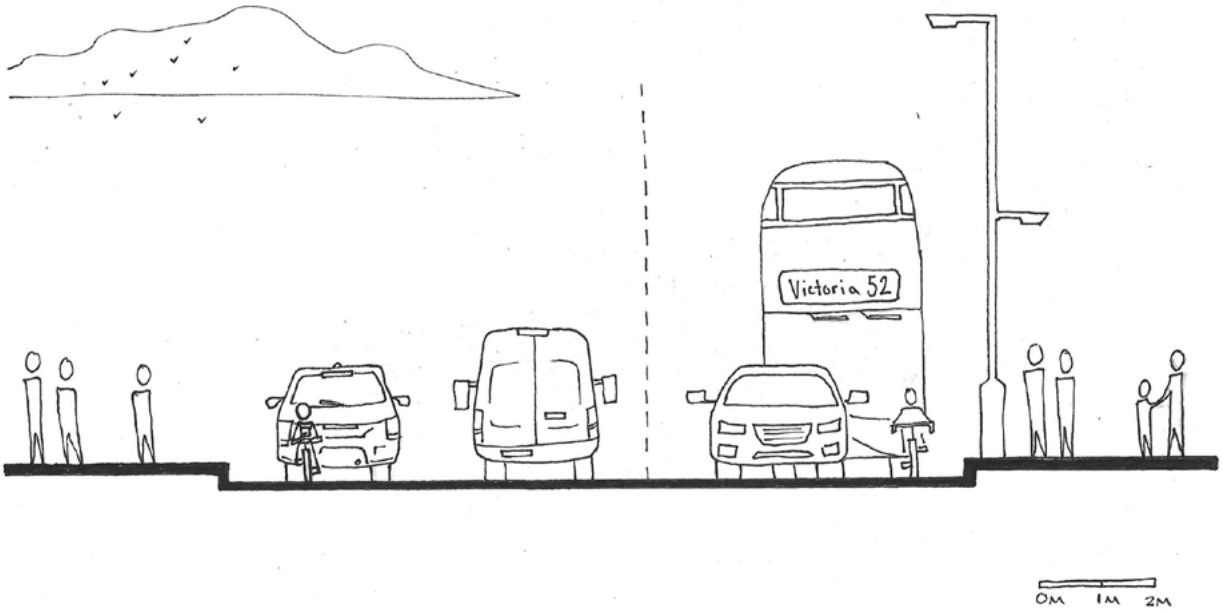
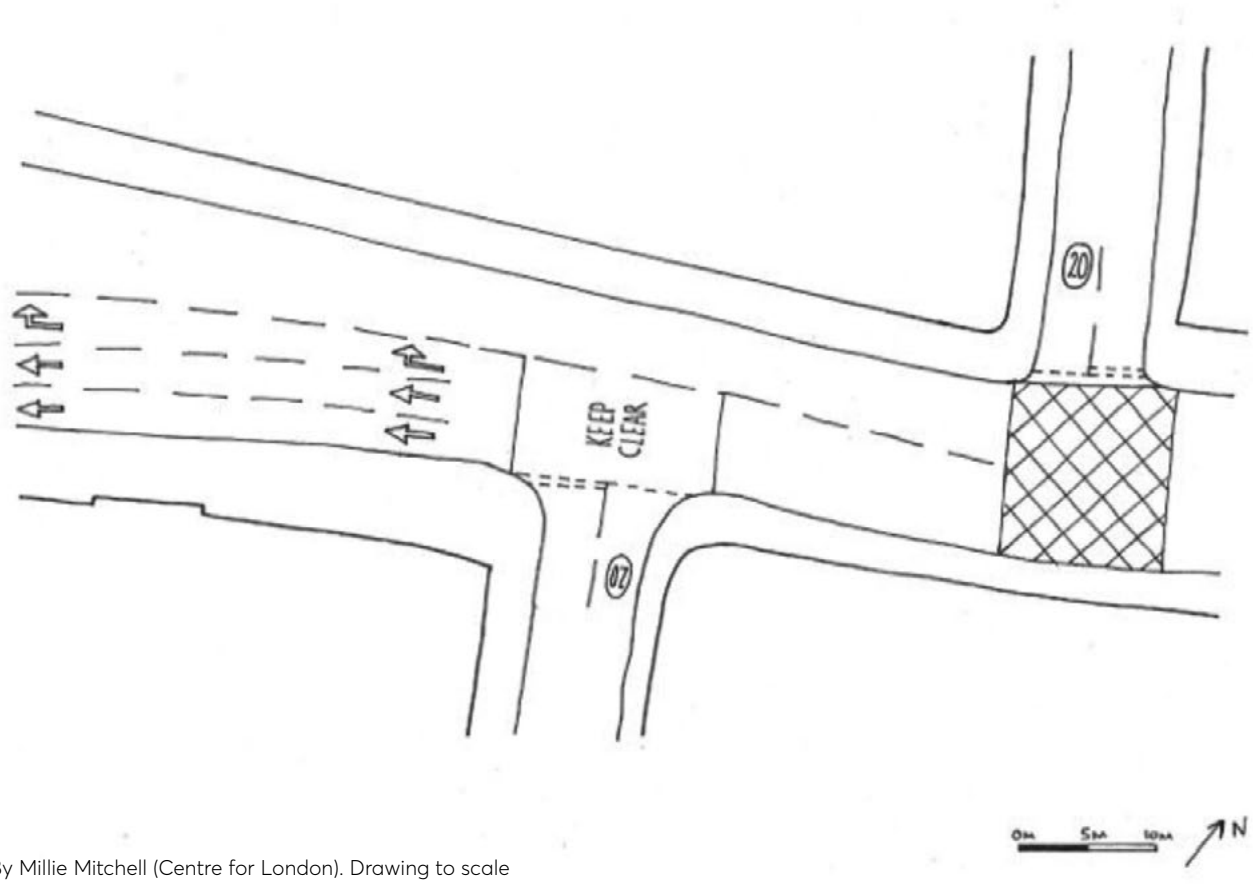


Figure 41: Existing road layout of KHS critical section (current configuration)



By Millie Mitchell (Centre for London). Drawing to scale

As we have seen, from our survey of trends, the overall strategic landscape, and our exploration of the future via scenarios, the crux of improving KHS for active and sustainable travel centres around improving conditions for micromobility users, and pedestrians.

Improving safety for micromobility users on the High Street and following TfL and government guidance (such as Local Transport Note 1/20) is central to this challenge and requires real policy change. The amount or speed of motor traffic could be reduced, or cyclists have to be protected from motor traffic, either on a segregated lane or via an alternative backstreet route.

All of these changes, aside from moving cyclists onto a backstreet route, will likely significantly improve conditions for pedestrians as well.

Alternative routes

Transport for London, in partnership with many London boroughs, has created Cycleways (formerly called Quietways) – these are routes that micromobility users can take to avoid mixing with high volumes of general motor traffic. To be safe to use, such routes need to be continuous, and have infrequent motor traffic – generally this is achieved by introducing filters that stop cars from driving through.

There is no possible back street Cycleway-style route that would offer micromobility users a practical and popular alternative to Kensington High Street. Part of the issue is that there are relatively few bridges over the railway that cuts between RBKC and the London Borough of Hammersmith and Fulham. Cromwell Road crosses much further to the South, so using it creates a significant detour for many micromobility users. The closest local back street to Kensington High Street is Phillimore Walk, but it only runs for a few hundred meters between the tube station and Holland Park. This doesn't help bypass the trickiest section of Kensington High Street around Kensington Church Street, where the road is at its narrowest, unless the route via York House Place and Kensington Palace Green is used. In our view, this route is wholly unsuitable as it has both timing restrictions and sections where no riding is permitted. It would also create conflict between micromobility lanes and pavements as the lane turns onto Phillimore Walk. The other main roads – Holland Park Avenue and Cromwell Road – do not currently have micromobility infrastructure and are also very busy with motor traffic – and even if they did have protection, the cycling infrastructure east and west of KHS make it a natural connector and a significant 'line of desire' for micromobility users.

Three options for improving KHS

To tackle the issues laid out in this report we have developed three options for improving sustainable and active travel on KHS. In each we have sought to tackle the major challenges of safety, placemaking, efficient use of space, journey times and flow, whilst seeking to minimise negative impacts across all user types. In option 1 we have prioritised public transport users. In option 2, place users, by which we mean pedestrians, shoppers, local workers and local businesses. In our final option we have prioritised micromobility users. Each option considers the needs of all other users but seeks to demonstrate somewhat the range of choices available whilst holding true to the aims of this study.

While each of our options could be viewed as a radical departure from the status quo of KHS, they each also reflect standards of modern urban street management, albeit in different forms. These standards are increasingly visible and even expected, in London and beyond, as part of managing and building cities that continue to work for, and attract, residents, workers and visitors whilst responding to the major challenges of our times.

In each option we have focussed on the most challenging section between Kensington Church Street and Kensington Gardens at the junction with Palace Avenue. We have then suggested a general treatment for the remaining section of the road to the East and the West.

Option 1: Priority to public transport users

Key features:

- **Critical section:** Eastbound sustainable transport lane in the critical section between 7am-8pm, every day. During these times, the lane would be dedicated to micromobility users, buses, coaches, motorcycles, emergency services, blue badge holders and the people who drive for them, and KHS residents. One lane for general traffic westbound.

- **Remainder of KHS:** Single direction micromobility lanes east and west of the critical section. At least one lane for general traffic.

Adaptations: Timed loading bays (on KHS and nearby streets), floating bus stops (where micromobility lanes are provided), more frequent pedestrian crossing phases and wider, straight-across crossings

Examples: Tottenham Court Road, Stoke Newington Church Street

Expected implications:

- Safer cycling, due to not sharing road space with general traffic
- Sustainable transport lane improves bus reliability
- Reduced pollution and noise
- Traffic displacement onto parallel main roads (especially Cromwell Road)
- Reduced, but controlled, loading capacity

Figure 42: Cross-section of critical section under Option 1 – Priority to public transport

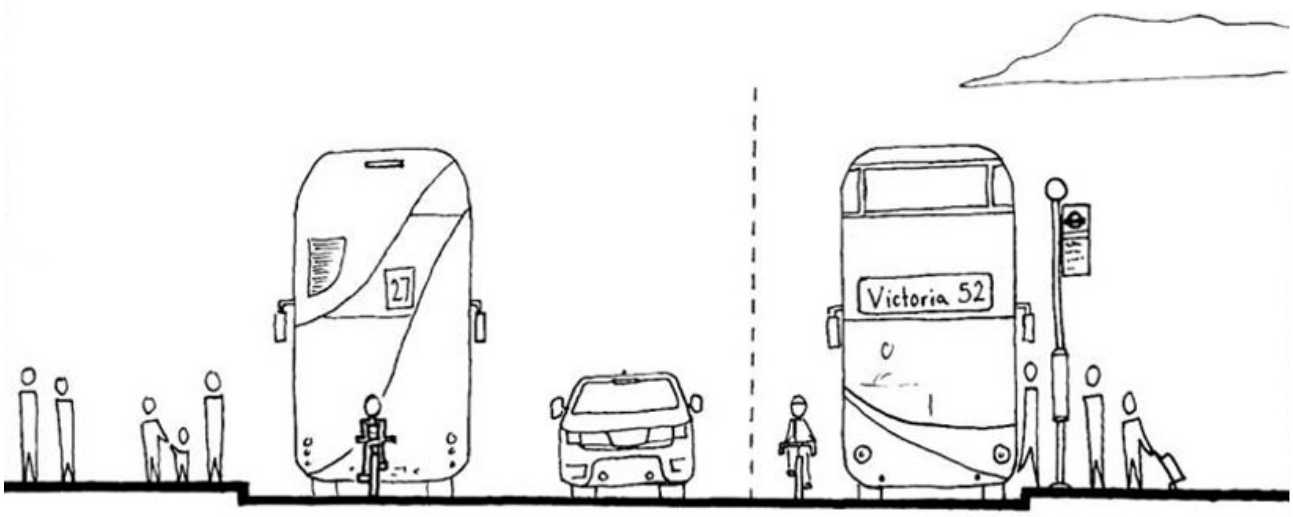
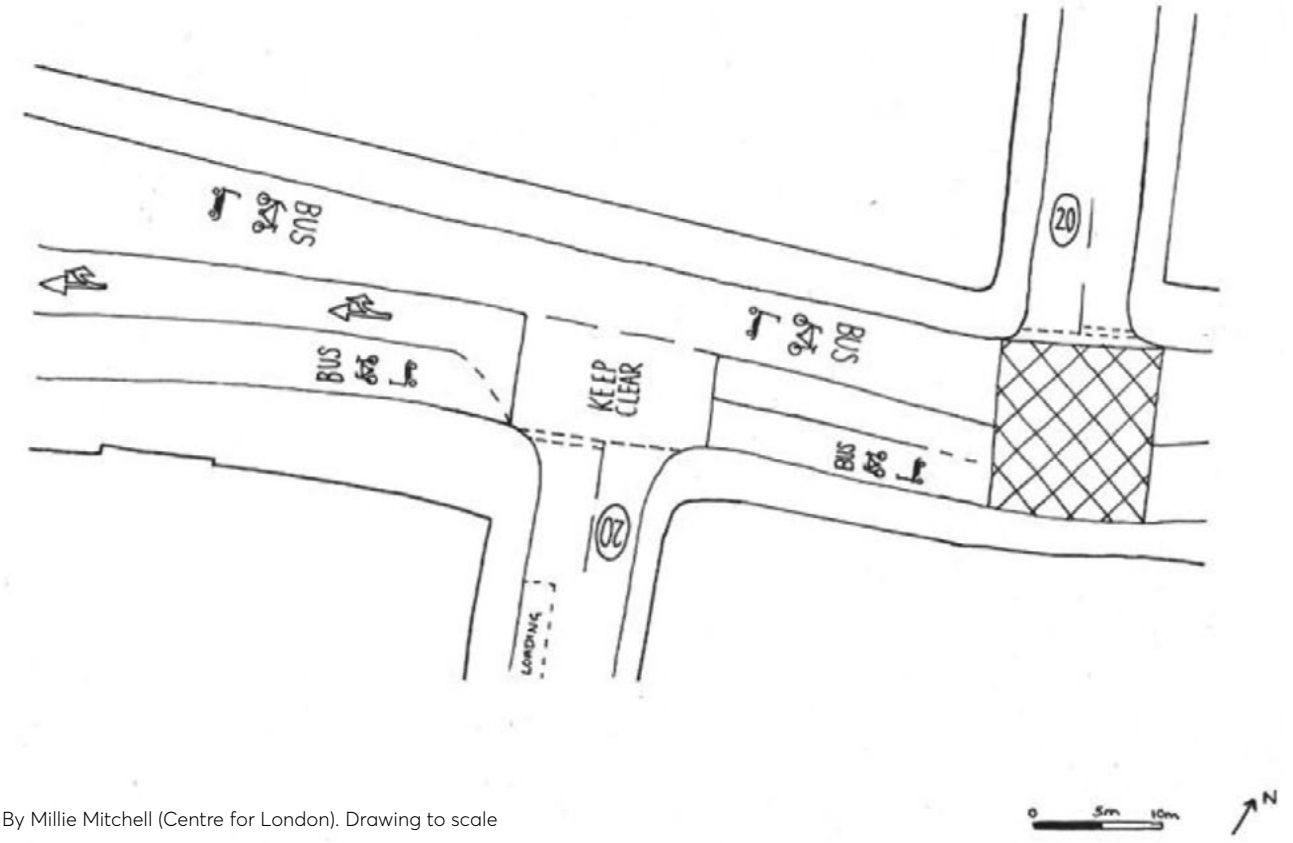


Figure 43: Road layout of KHS critical section under Option 1



By Millie Mitchell (Centre for London). Drawing to scale

The case for a sustainable transport lane in the critical section

There is sufficient road space to include single directional micromobility lanes and retain one lane for general traffic east and west of the critical section, but not in the critical section. Westbound in the critical section, where there are two lanes of traffic, micromobility and buses would share one lane and general traffic would share another. In the eastbound lane, micromobility users would continue to share the road with general traffic. As eastbound micromobility users would otherwise have to share one lane with general traffic, RBKC will need to reduce motor traffic to around 3,000 or fewer motor vehicles a day to meet Government guidance on road safety. This would be a significant change from today's traffic levels (currently around 11,000).

To reduce eastbound traffic to safe levels, RBKC should implement a sustainable transport lane, which would operate 7am-8pm, when eastbound traffic is higher than the safety threshold (see tables below).

Who could use the sustainable transport lane

When in operation (between 7am-8pm), the sustainable transport lane would be reserved to:

- micromobility (small, lightweight vehicles typically travelling at speeds below 15mph
- motorcycles
- high occupancy vehicles (buses and coaches)
- other vehicle journeys which are deemed essential - this would be blue light services, Kensington High Street residents, blue badge holders and the people who care for them.

In practice this would mean that most eastbound private cars, taxis, private hire vehicles, vans and lorries, which make up the bulk of motor traffic on Kensington High Street, would not be allowed on the critical section of the street at times when this would make the street too busy for micromobility users to mix with motor traffic. Taxis and private hire vehicles are generally considered a private form of transport, but they can provide a public service to users who rely on them because they have a disability. Taxis carrying blue badge holders should be allowed through the sustainable transport lane when it is in operation, for equity reasons. There will need to be a system in place to ensure that taxis only use the sustainable transport lane if they are providing a service to a blue badge holder. This could be reviewed in future as micromobility vehicles become more readily available to people with limited mobility.

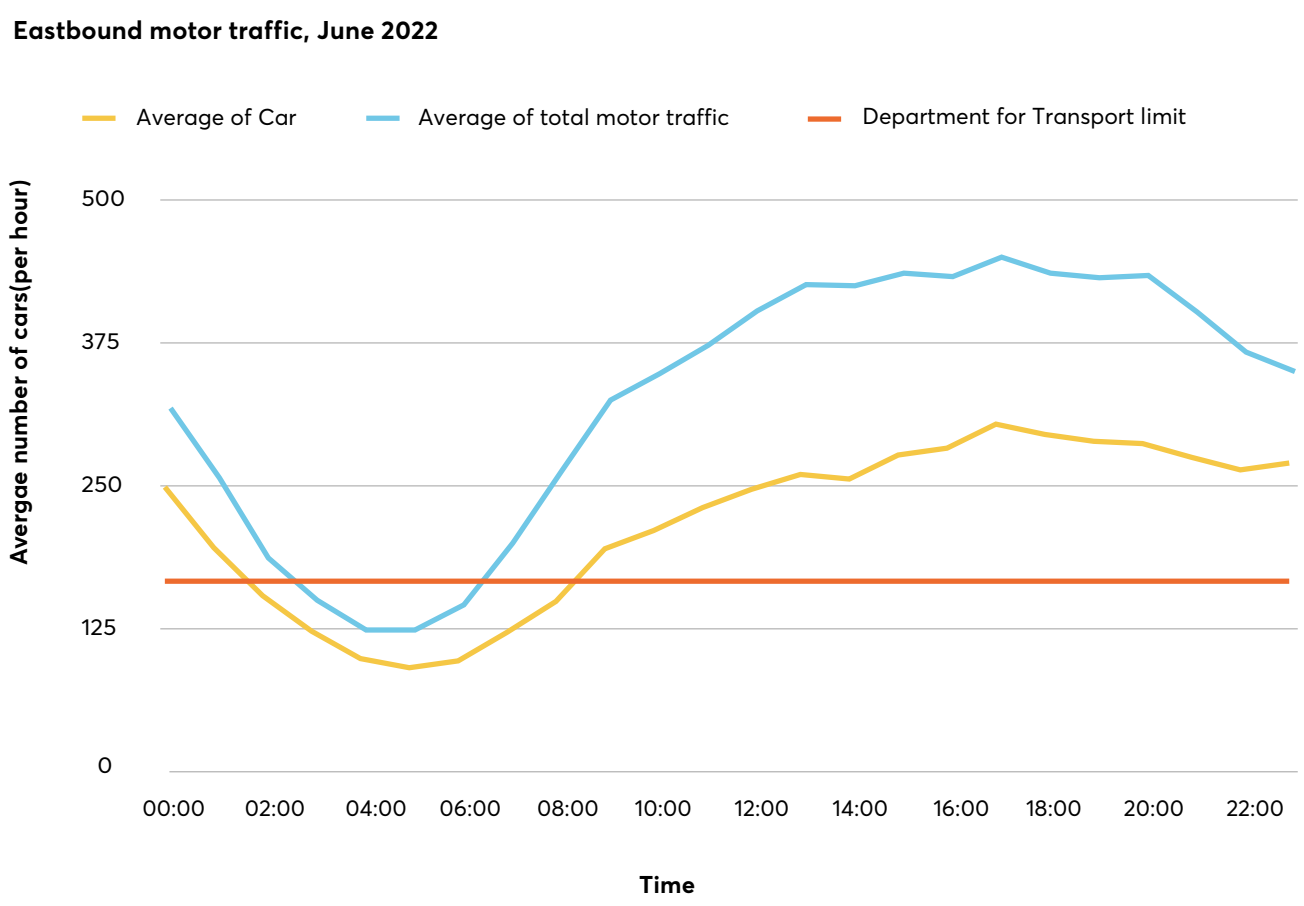
Since this is a significant change from current use, RBKC will need to give significant advance notice and engage with groups who would be most affected by this. For example, it will need to decide in consultation with residents the extent of resident exemptions. Our starting point would be that only residents with no choice but to use Kensington High Street to get to and from their addresses should be allowed to use the sustainable transport, to ensure road traffic doesn't reach unsafe levels for micromobility users, but RBKC may decide that more residents should be exempt. RBKC may also need to update its vehicle registration system so that both blue (or purple) badge holders and their carers can benefit from exemptions, and that these are easy to request.

Sustainable transport lane – hours of operation

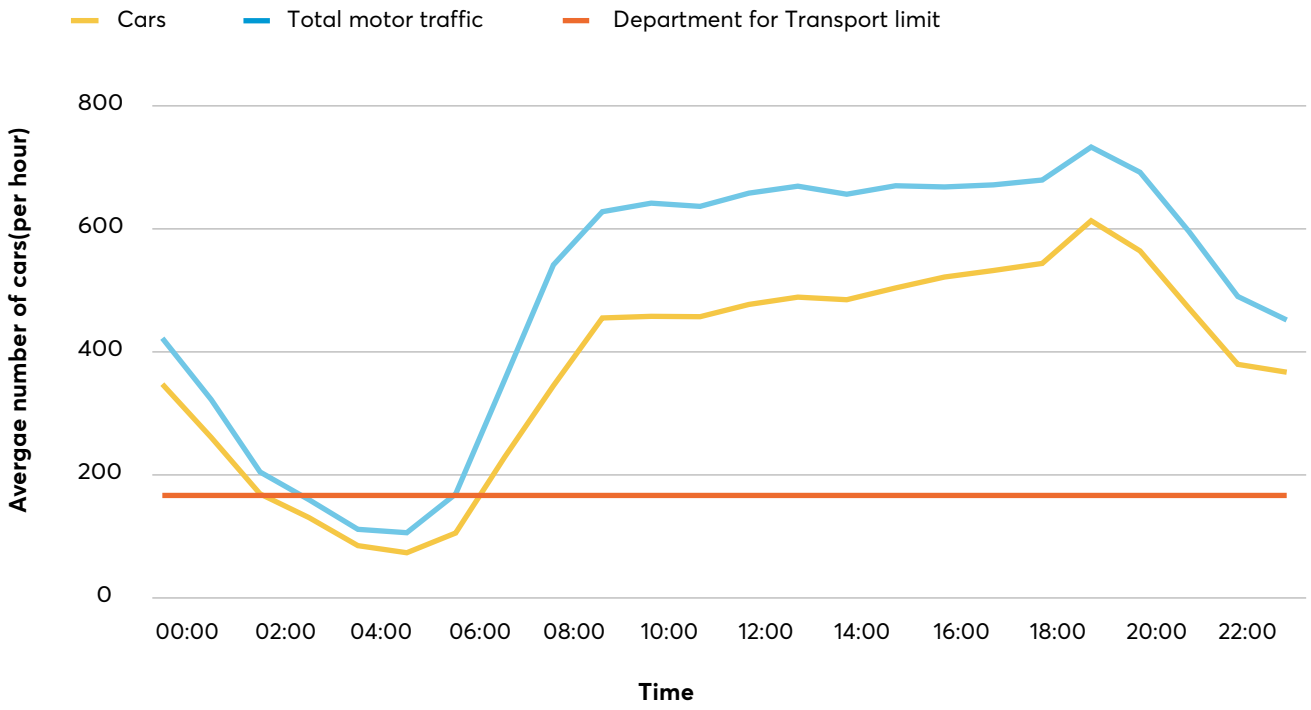
Based on the hourly traffic levels, we think the sustainable transport lane will need to be in place between the hours of 7am and 8pm. According to DfT guidance shown above, with a 20mph speed limit, the road will only be safe for some cyclists – and it will still 'exclude some potential users' if it has 4,000 motor vehicles per day, or around 166 per hour. On average, across June 2022, the sensor placed on the Campden Hill Road junction registered over 350 motor vehicles (cars, buses, motorbikes, LGVs and HGVs) an hour travelling East, and just under 200 travelling West at 7am each day. We are assuming that these volumes are similar in the critical section.

In either direction, 7am is the first hour of the day when average flow exceeds this limit (see charts below). We propose allowing general traffic from 8pm, even if traffic numbers after that time are still higher than the maximum recommended level in the Department for Transport's Cycle Infrastructure Design Local Transport Note 1/20. Indeed, we expect there will be traffic reduction impacts from the timed restrictions even outside restriction times as some people change how they travel. The timing of restrictions should be kept under review based on monitoring after implementation.

Figure 44: Average hourly motor traffic on KHS at the junction with Campden Hill Road



Westbound motor traffic, June 2022



Source: Vivacity Labs (2022)

Signage

Whilst the traffic restrictions only need to apply in the critical section of KHS, it is essential that advance notice and signage are provided widely on road network to avoid traffic displacement onto neighbouring back streets. Communications should ask motorists to avoid driving on Kensington High Street, and in the borough as a whole. Signage on the M4, A4 and A3220 should remind motorists of the traffic restrictions, discourage non-essential car journeys from crossing RBKC, and offer alternative routes to motorists (this would likely be Cromwell Road and Holland Park Avenue).

Traffic displacement

Restrictions to general traffic on the critical section of KHS will lead some people to change how they travel (and some will choose not to travel to the area) – which is expected to lead to an overall reduction in general motor traffic. The eastbound sustainable transport lane is likely to also reduce westbound traffic, and to have an impact outside restricted times, as a result of this behaviour change. Still, some vehicles are likely to use Cromwell Road or Holland Park Avenue as alternative routes.

Traffic displacement onto other roads is a major concern and will need to be minimised. Reassignment modelling should be conducted to estimate the impact of KHS traffic restrictions on other roads. There are other measures that can be implemented outside KHS (examples are provided at the end of the report) to help reduce traffic displacement. If there is some traffic displacement, larger roads would be more suited to accommodate this as they have more lanes of traffic, but again policies to reduce non-essential large vehicle traffic across the borough and the city as whole will help reduce the impact of displaced traffic.

Traffic displacement is also likely to change in character over time – after a short-term increase in boundary traffic, it is likely that longer-term change in expectations and route-planning will reduce displacement.

Case study: Tottenham Court Road

Tottenham Court Road resembles KHS: it is a busy thoroughfare, a key bus route, as well as a destination and a place to dwell (it is a popular lunch spot for local workers). Since March 2021, sections of Tottenham Court Road are restricted to buses and cyclists only from Monday-Saturday between 8am and 7pm. South of Oxford Street, southbound traffic on Charing Cross Road is restricted at all times (except for buses and cyclists). Other changes include new loading bays and on side streets, and new loading bays on Tottenham Court road itself, accessible outside restricted times.

Before the change there were regular problems with traffic congestion on Tottenham Court Road, and safety issues as micromobility users were sharing the roadway with buses and general traffic. The aim of the change was to make cycling safer, improve bus reliability and improve the environment for all pavement users. The plans were approved in 2015 and works started in 2018 (and were delayed by Covid-19) – other nearby changes include road closures in the area and new green spaces.

KHS and Tottenham Court Road differ in that Gower Street offers a closer alternative road to accommodate general traffic displacement from Tottenham Court Road. On KHS, the nearest alternative route for general traffic runs further (Cromwell/Brompton Road), but it does joins up with Hammersmith Road and Knightsbridge on either end of Kensington High Street.

The final monitoring report commands the scheme for reducing car traffic more effectively than was initially modelled, with marked reductions in collisions involving pedestrians and cyclists, and increased reliability for bus users. The main findings show:[116]

- Traffic reduced by an average of 32% on streets around Tottenham Court Road, which has generally quieted fears of displacement.

- Traffic reduced on Tottenham Court Road even outside restricted times - by 26% on weekdays and by 37% on Sundays on Tottenham Court Road on Sundays.

- Collisions involving pedestrians and cyclists have significantly reduced: “The number of collisions in the WEP scheme area involving pedestrians grew year-on-year between 2016 and 2019 but dropped by 57% from 2019 to 2021. Similarly, the number of collisions involving cyclists decreased from 26 in 2019, to 17 in 2020, and 16 in 2021. By comparison, average cycle flows along Tottenham Court Road increased by 5% between 2020 and 2021”.

- Bus journey time reliability improved for northbound routes, this is “despite a reduction in northbound road capacity on Tottenham Court Road (from three lanes down to one) and the removal of the northbound bus lane. The WEP appears to have had a negligible impact on average southbound bus route speeds.”.

The report acknowledged that it can be difficult to unpick the impact of the scheme from the impact of the pandemic, especially on air pollution metrics, but tries to overcome this challenge and finds likely positive impact on air quality.

Credit: Hallie Detrick

Stoke Newington Church Street (bus, micromobility, pedestrians and emergency vehicles only 7am-7pm everyday)

Credit: Hackney City Council

Option 2: Priority to place users

Key features:

- **In narrow section:** raised table and textured, mixed 'encounter' area, 15mph speed limit (this requires permission from the Department for Transport).

- Micromobility lane, merging with bus lane in parts of the critical section. In the critical section, the eastbound lane becomes a sustainable transport lane during AM peak hours Mon-Fri (7am-10am) – at these times it is restricted to buses, micromobility, motorcycles, emergency services, blue badge holders and the people who care for them, and KHS residents. Westbound, there is a single general traffic lane.

- **In rest of KHS:** Single direction non-continuous micromobility lanes

- **Adaptations:** Wider pavements (an additional 3 metres) and improvement to crossings (increasing the frequency of the pedestrian crossing phase, and switching from staggered crossings to straight across), signage to indicate 'cars are guests', advanced crossing phase for micromobility users, timed loading bays, floating bus stops (where there are micromobility lanes). New planters and trees, and benches. Space currently used as central reservation is reallocated to pavements to make pavements more comfortable to use.

Example: Discontinuous bike lanes near Whitechapel Station, Bank Junction

Expected implications:

- Increased cycle safety eastbound during peak

- Likely

- Sustainable transport lane improves bus reliability

- Significantly improved pedestrian experience, increased pedestrian safety

- Reduced pollution and congestion

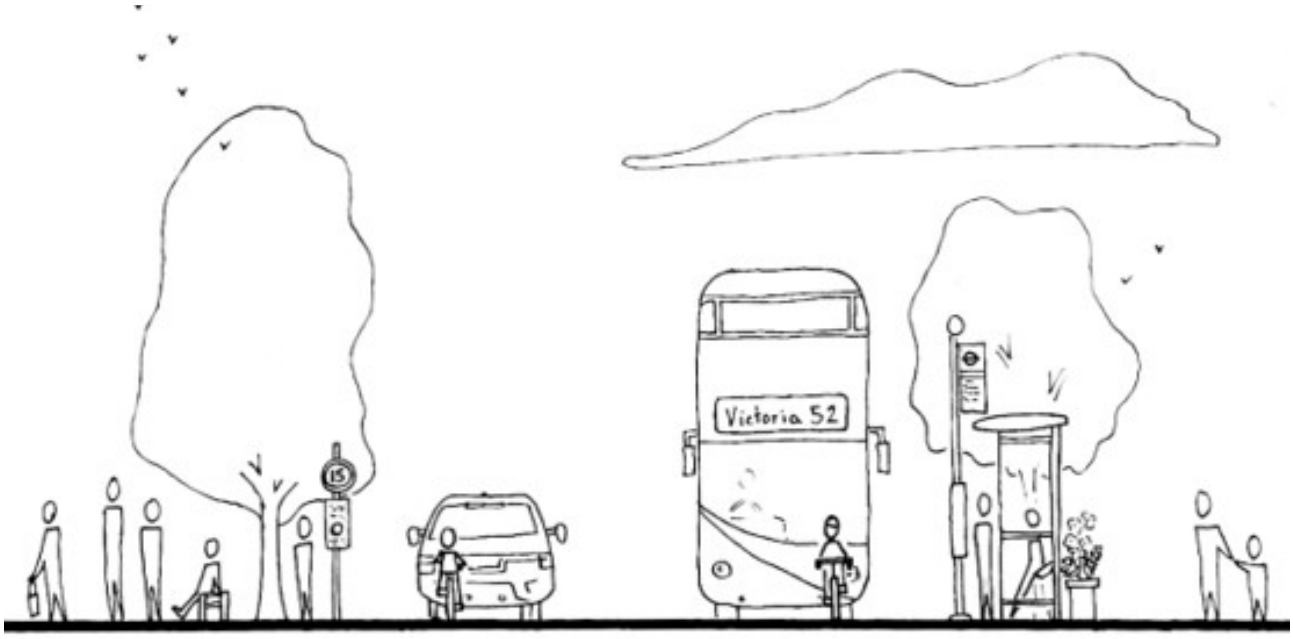
- Traffic displacement

- Reduced, but controlled, loading capacity

This option creates consistently slower maximum speeds along the critical section of KHS - the speed limit would be reduced to 15mph (this would require Department for Transport permission). The street layout would change to facilitate slower speeds, thanks to a raised table, changed surface texture and signage. As in the previous option, single direction micromobility lanes are included east and west of the critical section, alongside one lane of general traffic in each direction. These would be discontinuous, which means that they might merge with general traffic temporarily where the road is too narrow to provide a suitable micromobility lane. In the narrowest section, micromobility users share the eastbound lane with general traffic. At AM peak times, this lane becomes a sustainable travel lane (the same exemptions as in the previous option would apply). This is because there would be too much conflict between a high volume of micromobility users and general traffic during AM peak times to create a safe environment for micromobility users, even at 15mph maximum speed. Westbound, there is a general traffic lane, which will need to be wide enough for micromobility users alongside general traffic.

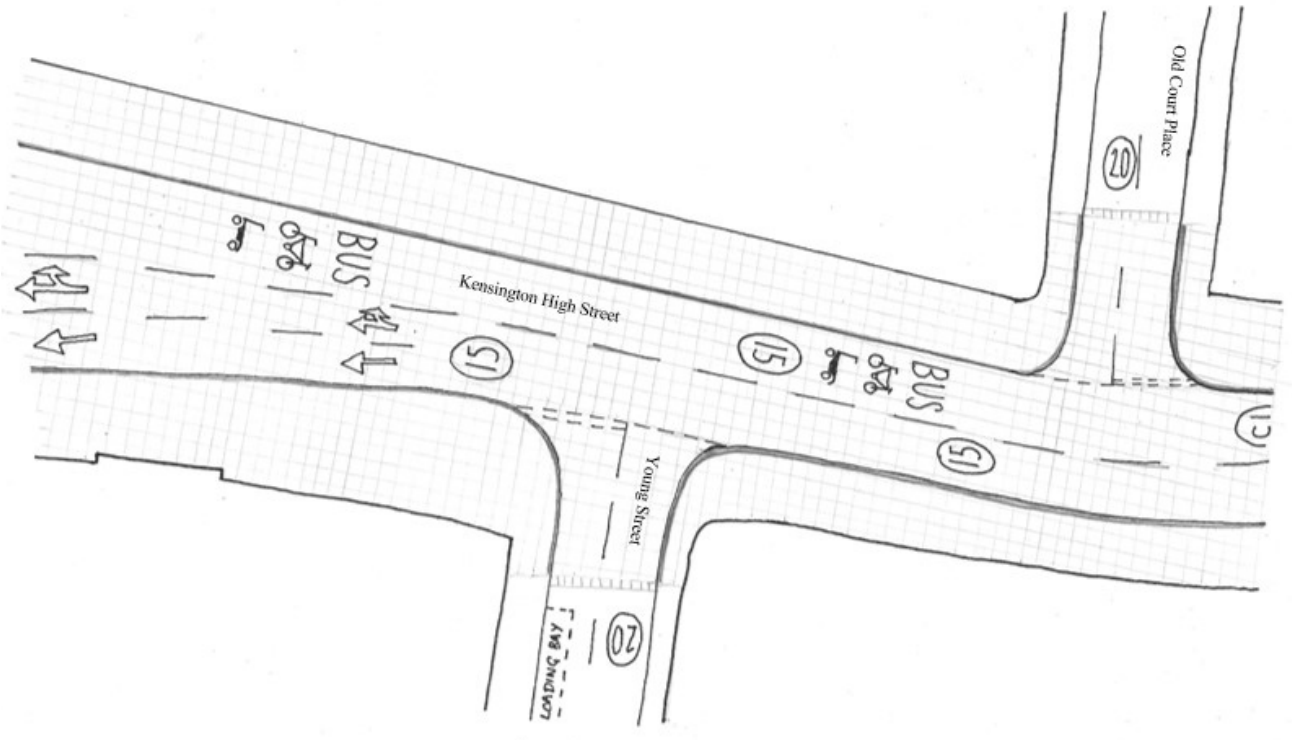
We anticipate that the sustainable travel lane will lead to a reduction in general traffic even when it is not in operation, as some people avoid the area altogether or travel by other modes. As in the previous option, the sustainable transport lane is a significant change and will need modelling, broad consultation and monitoring.

Figure 45: Cross-section and map of critical section under Option 2 – Priority to place users



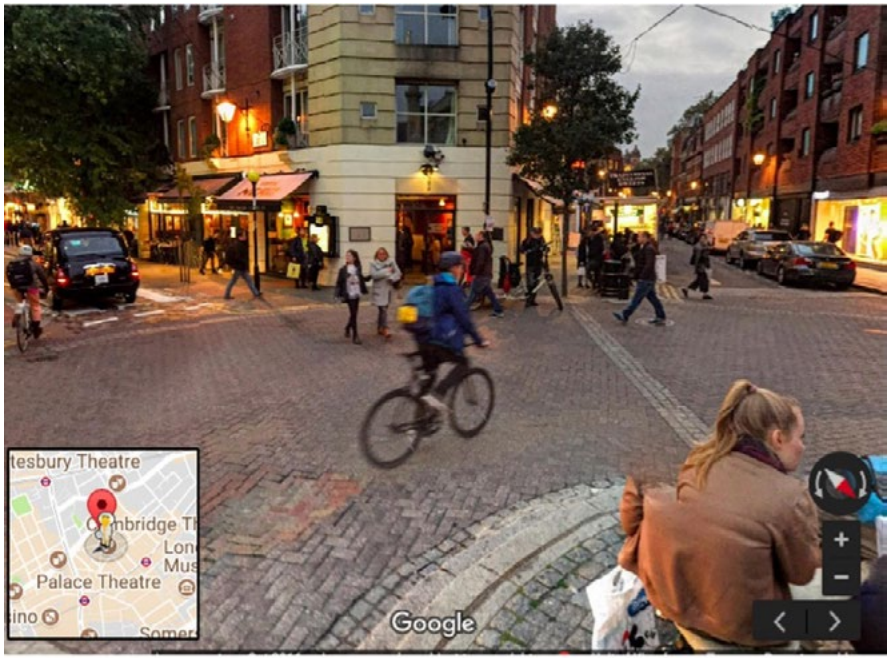
Westbound Eastbound

Figure 46: Road layout of KHS critical section under Option 2



By Millie Mitchell (Centre for London). Drawing to scale

Figure 47: Priority to place users in Covent Garden



Source: Google

Option 3: Priority to micromobility users

Key features:

Narrowest section and rest of KHS: A protected bi-directional East-West cycle lane on the North side, reallocated from motor traffic. 3m wide, narrowing to 2.5m where necessary.

Adaptations: Floating bus stops, cycle phases at traffic lights, improved pedestrian crossings (for example increasing the frequency of the pedestrian crossing phase, and switching from staggered crossings to straight across), extensive timed loading bays (on kerb opposite to micromobility lane)

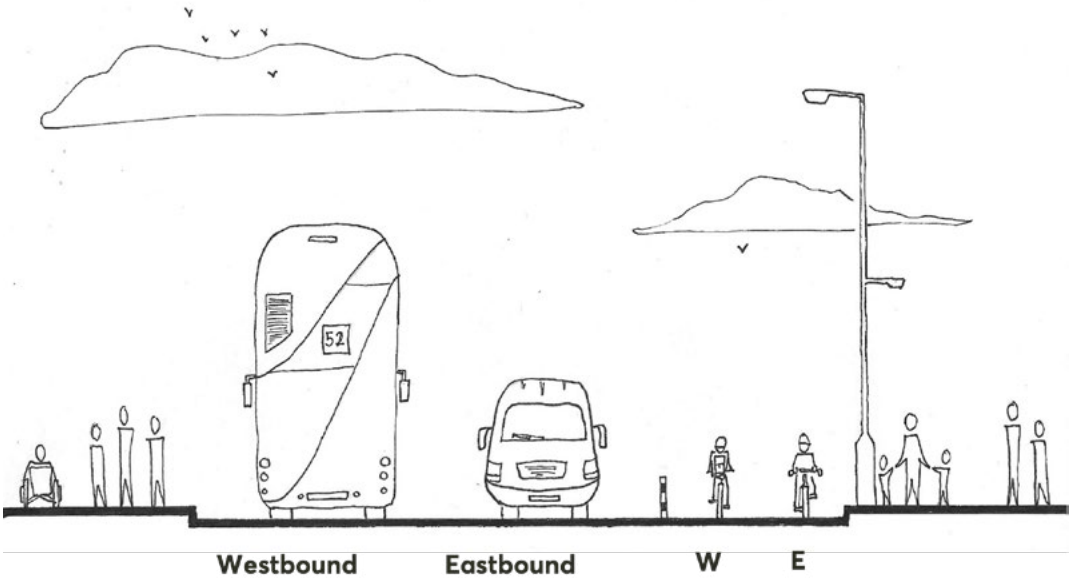
Example: Chiswick High Road

Expected implications:

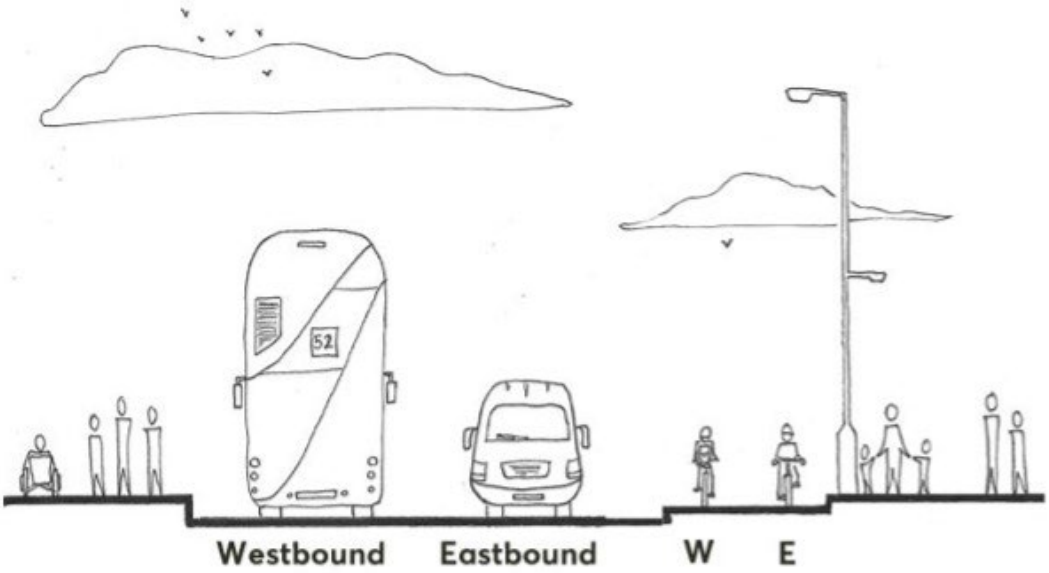
- Safer cycling, reduced conflict between cyclists and general traffic
- Potential for increased congestion for buses and general traffic
- Reduced, but controlled, loading capacity
- Increased pedestrian safety

Figure 48: Cross-section and map of critical section under Option 3 – Priority to micromobility users

Option A -
Wands seperate micromobility lane from general traffic

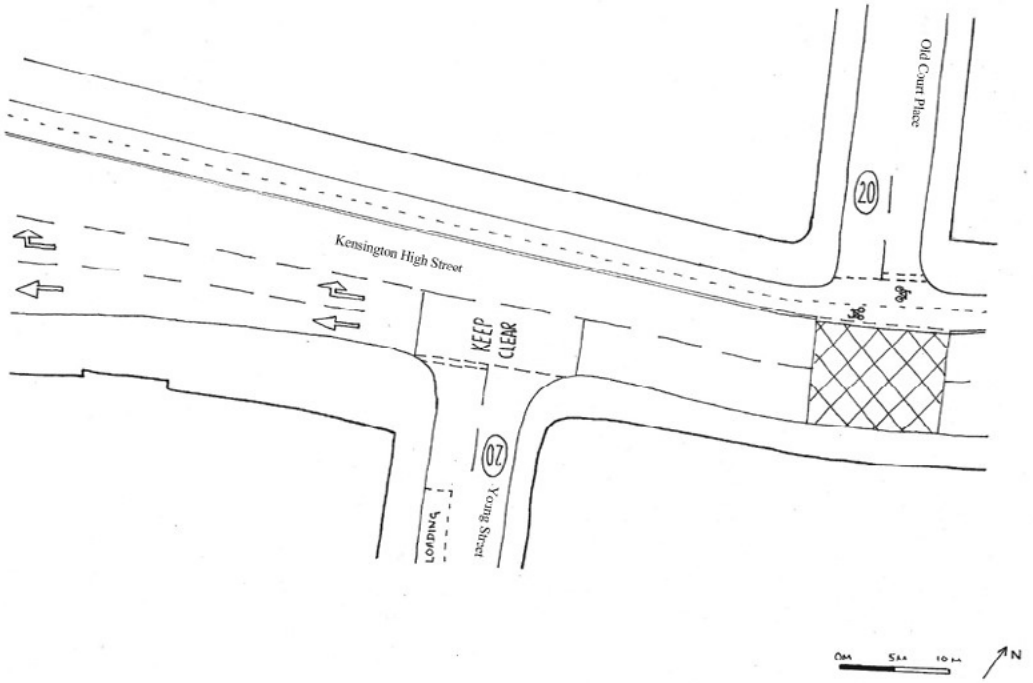


Option B -
Raised kerb seperates micromobility lane from general traffic (preferred over A)



By Millie Mitchell (Centre for London). Drawing to scale

Figure 49: Road layout of KHS critical section under Option 3



By Millie Mitchell (Centre for London). Drawing to scale

This option would create a protected, bi-directional, East-West cycle lane on the North side of Kensington High Street, reallocated from motor traffic. The lane would be 3m wide, narrowing to 2.5m where necessary.

The lane cannot be provided on the pavement as the flow of people on the pavement and on bikes is too high for both user groups to feel comfortable sharing the same space. There are several ways to offer protection from motor traffic (or to prevent motor vehicles from parking or stopping on the micromobility lane). The lane could be delineated with bollards, planting or a raised kerb. Thin plastic bollards (also called wands) or raised kerbs are often used where there isn't enough space for planting. We were told that wands were unpopular as means of separation during the temporary scheme, and they can create obstacles for micromobility users, so a stepped lane may be preferable.

At bus stops, protection should consist of 'floating bus stops', which means that the micromobility lane runs between the bus stop and the pavement, with marked crossing points for pedestrians to cross the cycle lane to reach the bus stop. Floating bus stops benefit both micromobility and bus users: micromobility users can safely overtake buses when buses are slowing and stopping, and it is easier for buses to leave the bus stop as they are not being overtaken by micromobility users. We have heard concerns around micromobility users not systematically giving way to people crossing to and from floating bus stops, which can be intimidating for many users, and dangerous, in particular for people who are blind or partially sighted. The design of the crossing should slow down micromobility users, and signage should make it very clear that pedestrians have priority.

At junctions where there are no traffic lights, motor vehicles must give way to users of the micromobility lane, as is the case currently. If there is a traffic light, any conflict between motor traffic and micromobility users must be avoided – this can be done through a specific phase for micromobility users (this can be at the same time as other traffic if there are no motor vehicles crossing the micromobility lane at the same time).

Figure 50: Example of stepped micromobility lane (Gower Street)

Credit: Hallie Detrick

Differences between a bi-directional micromobility lane and single directional ones

Given that traffic on Kensington High Street is heavy in both directions, there will need to be protection for cycling both ways – this could either be provided as two single direction lanes or one bi-directional lane – such as the one on the Embankment, or the new bike lane on Chiswick High Road. If they are single direction, micromobility lanes need to be least 1.5m wide to be safe to use, otherwise people on bikes are too close to traffic, and at least 2m wide to enable overtaking.

Because they can take up less road space, bi-directional lanes are a more attractive solution where there isn't sufficient space - a bi-directional lane would save 1-1.5m across the width of the High Street. Bi-directional lanes also free up kerb space on the other side of the road – this kerb space can be used by vehicles stopping for loading – and reduce the labour, expense, and disruption needed to install the lane. It also means that floating bus stops are only needed on one side of the road, and drivers may find some left turn movements easier. Bi-directional lanes have a downside: they can be harder for pedestrians to cross as they need to look both ways, with fewer gaps between bikes. However, this issue can be mitigated with appropriate pedestrian crossings. Even on the busiest bi-directional tracks, there are generally sufficient gaps between cyclists in which to cross the width of the track.

There is enough road space to provide a continuous micromobility lane and keep one lane for motor traffic in both directions. In the narrowest point of Kensington High Street, this would mean that the current 1.5 lanes Eastbound and two lanes Westbound would narrow to one lane in each direction.

If reduced capacity for motor traffic causes increases in congestion, this may have negative impacts on bus speeds, which would continue to share road space with general traffic in this solution. This could have negative consequences for social equity, given the important role of buses for low-income Londoners to be able to travel. As in other options, impacts of the changes on congestion, both on KHS and other roads, should be monitored over time, and this evidence should form the basis for the scheme to be reviewed. Complementary measures that reduce overall motor traffic could help mitigate any impact on congestion – there are examples of these at the end of the report.

Case study: Lessons from the temporary bike lanes scheme

In October 2020, RBKC installed a temporary bike lane on the length of Kensington High Street, with one lane operating in each direction. They were protected bike lanes for the most part, with thin plastic bollards separating micromobility users from general road traffic. Though the lane formed part of a necessary process of improving cycling safety in Kensington and Chelsea, it had significant deficiencies that any future streetscape modifications should look to avoid.

The bike lane was largely continuous, which precluded loading and servicing activities on most of the high street. Ten new loading spaces were provided on side streets, with new bays on Old Court Place, Prince of Wales Terrace, and other streets adjoining the high street.

Although the scheme received significant positive feedback, with observers noting a wider demographic cycling along the High Street than usual, it also provoked a high number of complaints. Like many emergency active travel schemes introduced in 2020 the scheme was installed quickly and without public consultation. This was largely unavoidable in the circumstances – the pandemic was a unique period and there were fears of a surge in car use as people were social distancing – but it probably damaged the scheme's prospects.

The Council also received complaints about traffic bottlenecks at several junctions down the high street and increased congestion – as detailed in the Leadership Team report regarding the project, it is not possible to separate this congestion from the school half term, the closure of the Wright's Lane junction, the Melbury Road Junction, and a series of roadworks on Campden Hill Road and Kensington Church Street that occurred throughout its life. There were also concerns about potential delays to emergency services, though no firm evidence has been produced to demonstrate this.

However, it is difficult to assess the impact of many of these deficiencies, as the temporary scheme was not in place for a long-enough period for cycle, loading, and motor traffic to stabilise, as well as the other disruptions happening simultaneously. Any analysis is also limited by the fact that Phase 2 of the scheme, which would have upgraded bus stops and important junctions on the High Street, was not implemented after the removal of Phase 1.

Changes common to all three options

Micromobility lanes in the east and west sections of KHS (in the first option, this can merge with bus lanes), including floating bus stops. Bus shelters with seating should be provided on bus islands, to improve their accessibility.

- Tactile paving near crossings (including micromobility lane crossings), increasing the frequency of the pedestrian crossing phase, and switching from staggered crossings to straight-across)

- Many businesses will need to change the way they make or receive their deliveries. Kerb access will be limited by the new micromobility lanes on the East and West sections of KHS, and by the sustainable transport lane in the critical section. New loading bays on side streets will help reduce the pressure on KHS. The last option (priority to micromobility) makes it easier to provide new loading bays on KHS, as there is a single micromobility lane. Loading bays should be bookable in advance, to increase reliability for delivery vehicles. Where timed restrictions apply, deliveries which are not made using micromobility vehicles will need re-timing.

- Drop off bays reserved blue and purple badge holders on side streets near KHS

Implementation

Implementing any of these schemes will require extensive consultation and planning with all street users. Each would also need new significant modelling to be done on the displacement effects on all road users in the medium and long term.

None of them are designed to act as temporary or interim schemes. We are confident that all of these options are designed to be deliverable within a three-year time frame. The impacts of the new scheme should be monitored and reviewed.

All of these schemes require an increased degree of compliance with the Highway Code – especially compliance with speed limits, stopping, parking and loading rules, and pedestrian priority.

Figure 51: Summary of options

Option	Safety emphasis	Key changes – KHS narrowest section	Key changes – KHS/KR East and West of narrowest section
1. Priority to public transport users	Motor vehicle reduction	One lane for buses and micromobility for westbound traffic One lane for buses and micromobility eastbound traffic (7am-8pm every day), which we call 'sustainable travel lane' General traffic lanes: from 2 to 1 lanes westbound; restricted use only eastbound lane (with exceptions)	Continuous bus lanes east and west General traffic lanes: from 2 to 1 in most sections Single direction micromobility lane on north and south sides where possible, otherwise merging with bus lane Floating bus stops Timed loading bays Improved crossings (more frequent pedestrian phase, switching from staggered crossings to straight across)
2. Priority to place users	Motor vehicle reduction / speed	Wider pavements (+3 metres new pavement width) and improved crossings Raised table and textured mixed 'encounter' area surface 15mph speed limit (would require DfT permission), new signage/language to indicate 'cars are guests' Single lane eastbound: for buses and micromobility (7-10 AM) (with exceptions) Single lane westbound: open to all traffic	Wider pavements and improved crossings to side roads Single direction micromobility lanes, discontinuous Floating bus stops Timed loading bays

Option	Safety emphasis	Key changes – KHS narrowest section	Key changes – KHS/KR East and West of narrowest section
3. Priority to micromobility users	Protection	Bi-directional protected micromobility lane on north side General traffic lanes: Eastbound reduces from 1.5 lanes to 1 lane Westbound reduces 2 lanes to 1 lane 1 floating bus stop	Continuous bi-directional micromobility lane on north side Extensive timed loading bays Floating bus stops Improved crossings

Complementary interventions outside KHS

Making Kensington High Street safer and more attractive for active and sustainable travel will require a whole-borough shift in transport policy. There are multiple ways this could be achieved. RBKC has had success with School Streets, where roads are temporarily closed to traffic during school opening and closing hours, with nine installed.

Ultimately, reducing congestion across the borough will require a reduction in car usage. On residential roads in particular, Low Traffic Neighbourhoods, which entail the full-time closure of non-main roads to car traffic, are proven to reduce car flow and increase the average time spent walking and cycling among residents who live within them, and around them. Data from Waltham Forest shows that three years after the borough's Low Traffic Neighbourhoods were installed, LTN residents did 115 minutes more walking and 20 minutes more cycling every week on average and car/van ownership fell by 6% after two years.[117]

More comprehensively, a system of Road User Charging that charges drivers for the miles they drive (graded by the emissions of their vehicle, live congestion levels, and the availability of public transport) would price in the costs of car use in the inner city and encourage use of other modes of transport. Centre for London research found that even a £1.50 charge for a 10km journey in an average vehicle would reduce overall demand for car usage by 10-15%.[118] However, comprehensive Road User Charging could not be implemented at the local authority level and would therefore rely on action from city or national government.

More locally, the borough-wide resident parking permit should be changed over time and brought in line with the rest of London by being broken down into smaller areas of permission. The availability and low cost of on-street parking is a key consideration when people choose how to travel, and the borough-wide parking permit encourages some people to drive instead of using other modes. Changing the borough-wide resident parking permit would also enable RBKC to ensure that kerb space near KHS is reliably available for road users who need it most – such as deliveries, blue badge holders and the taxi services they use.

Concluding remarks

This report is the culmination of a year-long effort to assist the Royal Borough of Kensington and Chelsea in improving how it manages high streets and transport.

We considered and developed both general principles for improving the high streets of the borough and made specific suggestions for improvement across a number of high streets. In a similar vein, in the second part of our research we have explored the wider issues relating to transport in London, considered possible future scenarios, and took the lessons from these into developing practical options for improving sustainable and active travel in Kensington High Street.

Some of the topics and ground we have covered in this project has been straightforward and uncontentious. Other topics, however, have been the subject of much vexed and often very public debate and dispute.

Throughout our work on this report, we have acted as Centre for London tries to in every project: we want to make London better. As in all real-world challenges, good solutions to knotty problems and tensions are nuanced and an evolving balance between competing interests, perspectives and paradigms. These tensions can be between the city scale and the local, or the hyper-local. Rival user interests in key public real estate like Kensington High Street might view the world differently. Does a need for a beer delivery trump a need for a bike lane? Or a better pavement the need for increased car flow? We have tried throughout to listen to different angles and perspectives and find imaginative new resolutions to these competitions for space, whilst balancing long term perspectives and fresh evidence.

Our options for KHS are neither exhaustive nor detailed. Instead, they should be read as reasonable options given the preceding arguments that we have laid out. Each and every one would need additional study before implementation, but this should not be used as an excuse for inaction. Without decisive, timely action, KHS will continue to hold back active and sustainable travel in the borough and across London and could contribute to spiral of decline compared to other similar parts of the city where change is being embraced more readily.

We hope that this work represents a reasoned and sensitive approach to the subject matter, and sincerely hope that it helps to stimulate a new consensus around what a flourishing, sustainable, safe and healthy high street in this corner of inner west London should look like.

Appendix

Traffic Flows on KHS

Figure 52: Cyclists - Eastbound and Westbound - June 2022

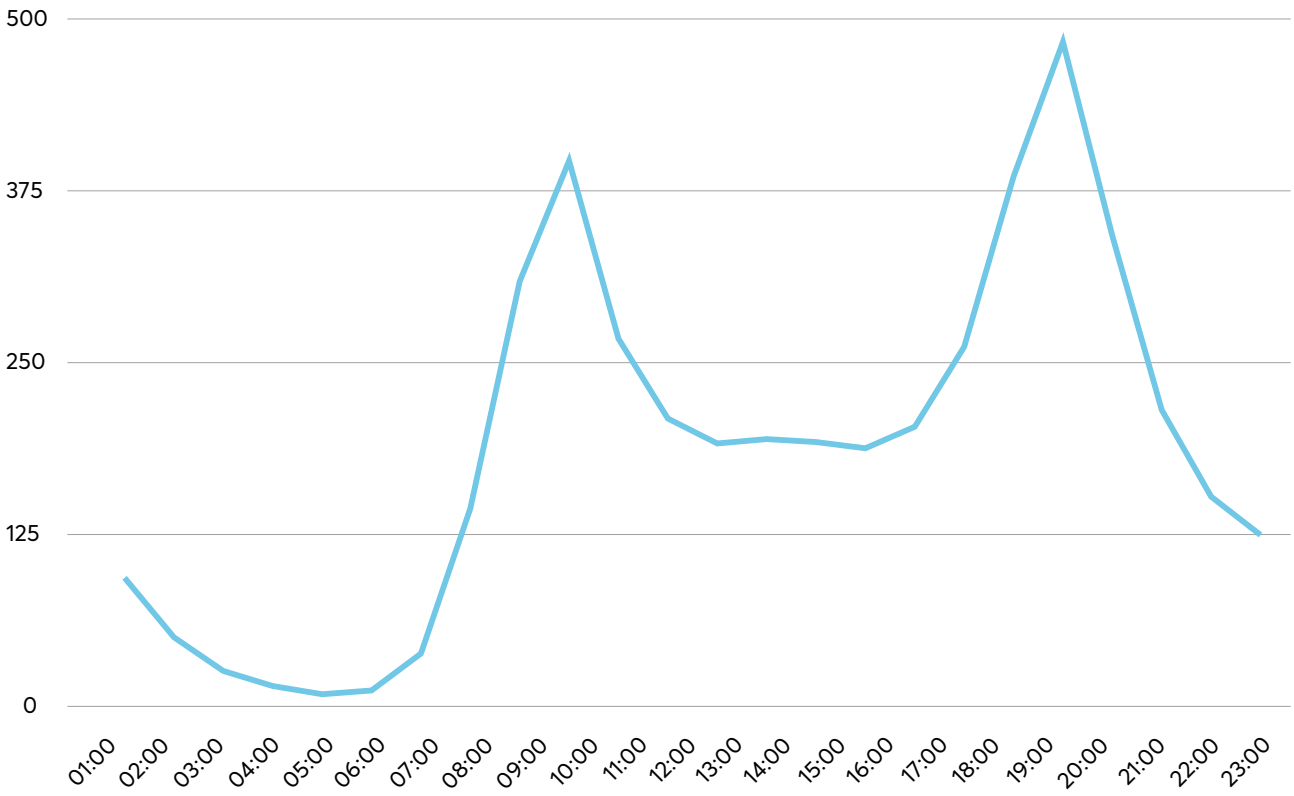


Figure 53: Cyclists - Eastbound - June 2022

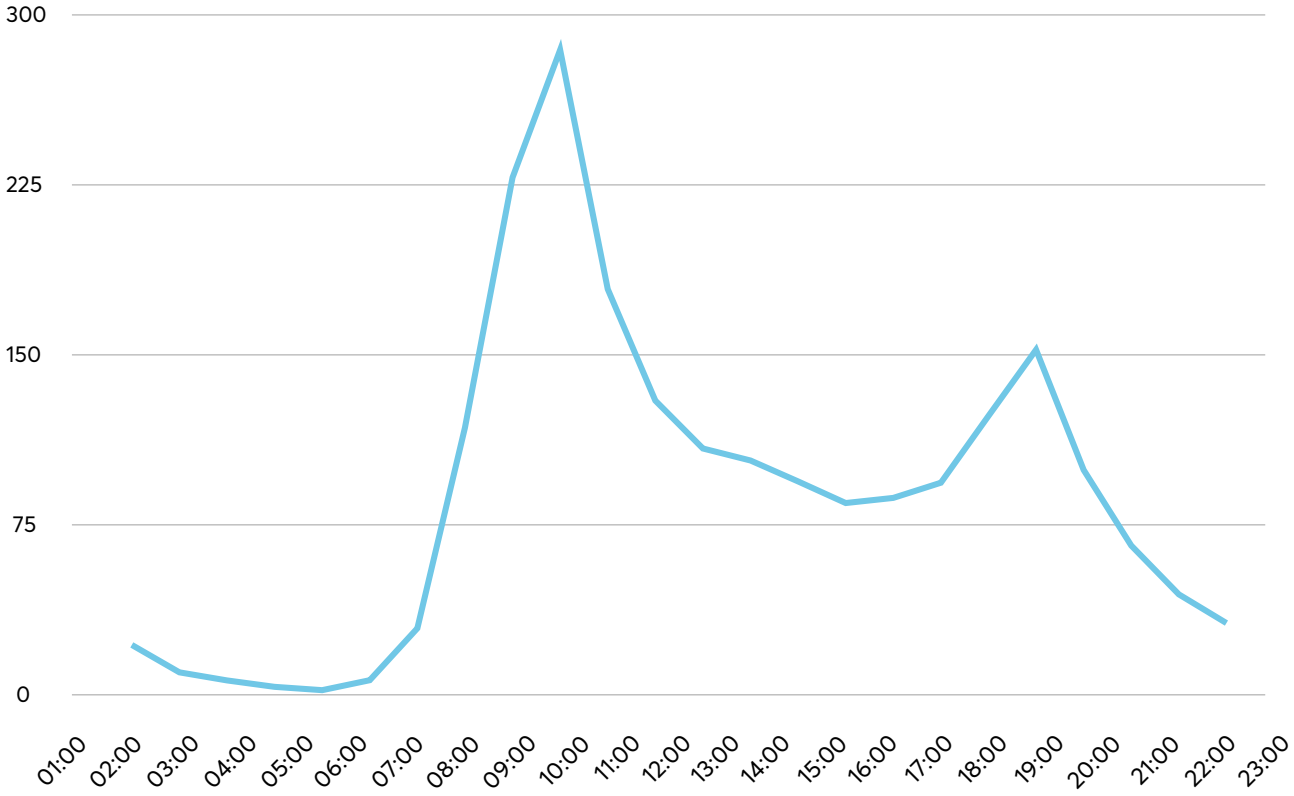


Figure 54: Cyclists - Westbound - June 2022

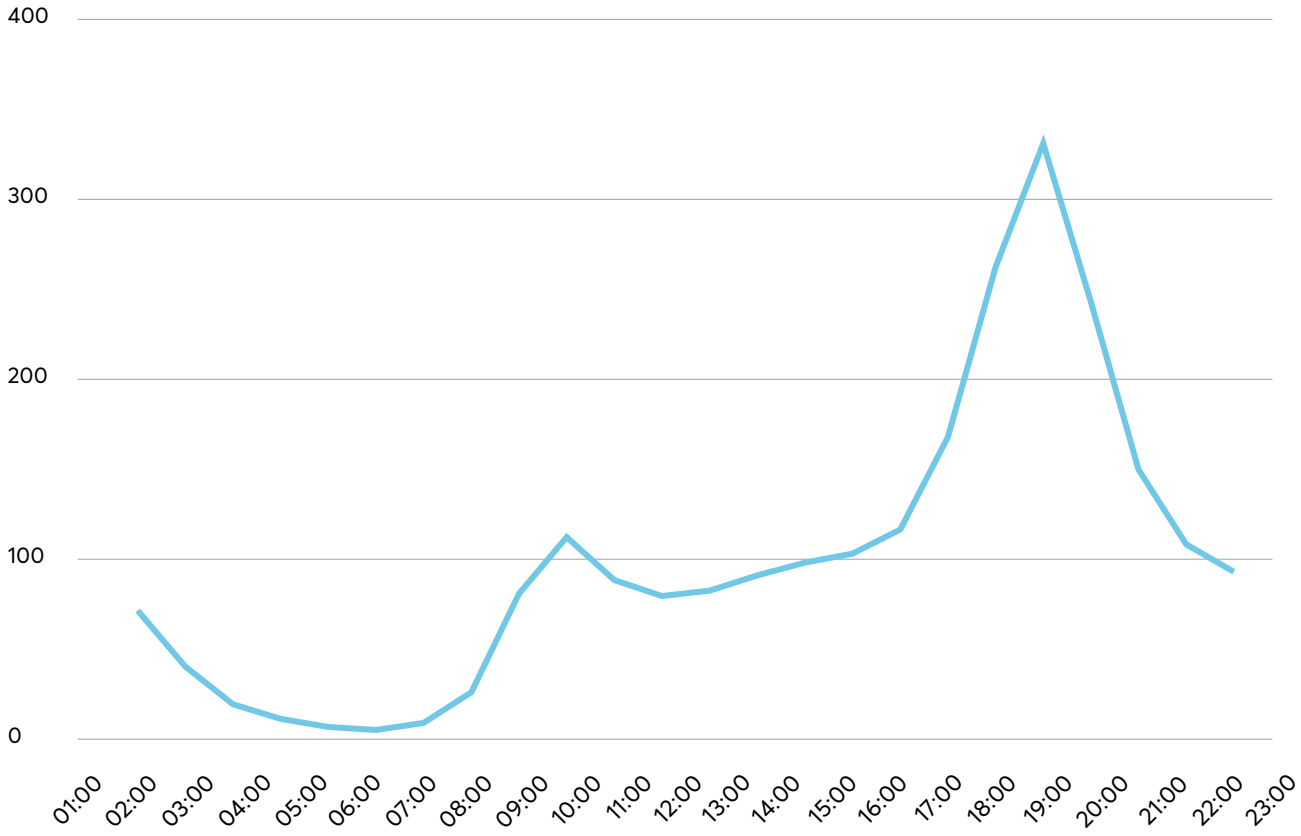


Figure 55: Weekday flow - June 2022

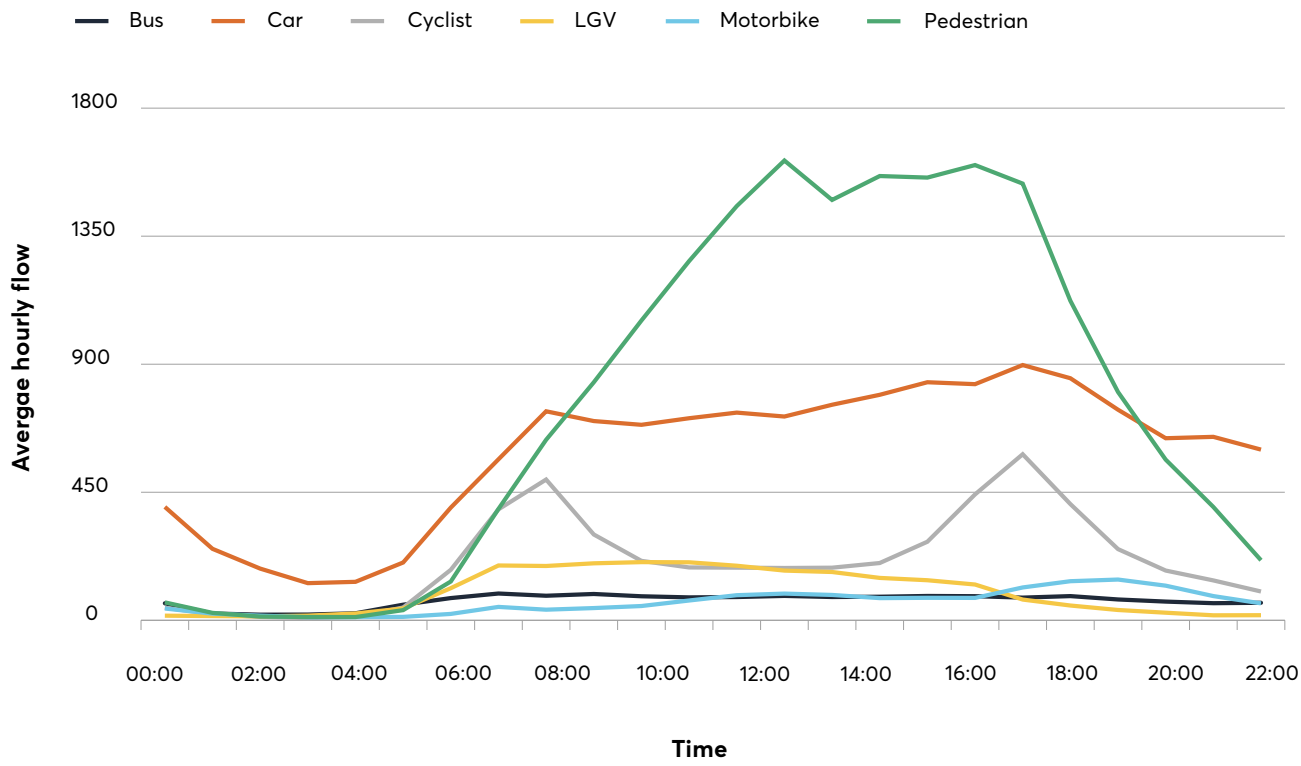


Figure 56: Weekend vehicle flow - June 2022

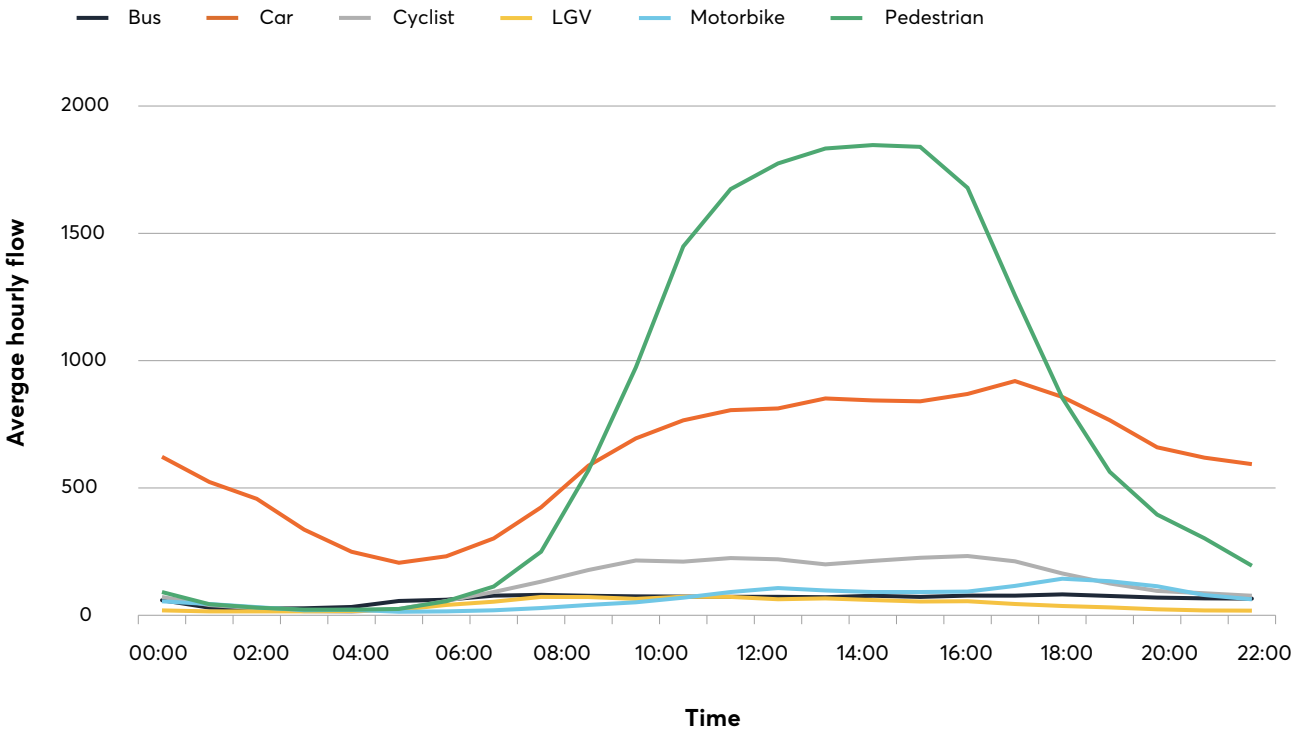
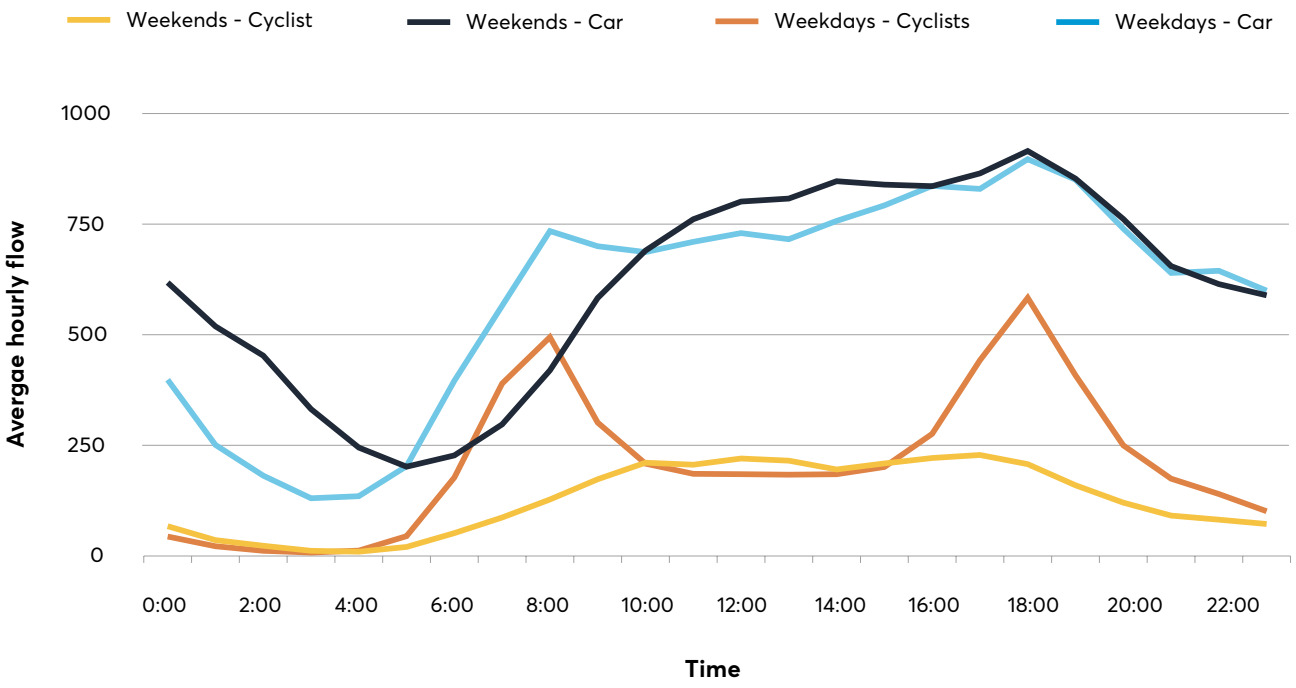


Figure 57: Cars and cyclists, weekdays vs. weekends - June 2022



Source for all above charts: Vivacity Labs (2022)

Figure 58: Total hires and docks at Transport for London cycle hire stations in Kensington Village, May 2022

Docking Station	Total Hirees	Total Docks	Total hires and docks
Argyll Road, Kensington	950	958	1,908
Derry Street, Kensington	2,998	2,998	5,996
De Vere Gardens, Kensington	1,398	1,290	2,688
Phillimore Gardens, Kensington	2,036	2,075	4,111
Phillimore Gardens, Kensington	2,081	21,70	4,251
Wright's Lane, Kensington	1,921	1,892	3,813
Warwick Road	1,879	1,843	3,722
Abingdon Villas, Kensington	848	853	1,701
Gloucester Road (North), Kensington	1,734	1,729	3,463
Holland Park, Kensington	941	698	1,639
Ilchester Place, Kensington	579	465	1,044
Kensington Church Street, Kensington	1,666	1,657	3,323
Kensington Town Hall, Kensington	743	725	1,468
Lexham Gardens, Kensington	1,328	1,261	2,589
Marloes Road, Kensington	643	605	1,248
Vicarage Gate, Kensington	678	664	1,342
KHS Stations	13,263	13,226	26,489
Average daily number of hires and docks	428	427	854
All Kensington Village hires and docks	20,544	20,040	40,584
Average daily number of hires and docks in Kensington Village	663	646	1,309

There are 89 docking stations in RBKC – this data only includes the 15 docking stations in Kensington Village (as defined by Transport for London). Of these, 6 stations are on or immediately near KHS, these are at the top of the table. Figures may not add up due to rounding. Source: Transport for London (2022). Santander Cycles Borough Report.

Figure 59: Traffic flows on Kensington High Street (2019)

	Count		Share of total traffic	
Direction of travel	Eastbound	Westbound	Eastbound	Westbound
Pedal cycles	1811	1156	10%	7%
Two wheeled motor vehicles	1319	1161	7%	7%
Cars and taxis	12487	11531	66%	66%
Buses and coaches	990	1029	5%	6%
LGVs	1920	2226	10%	13%
HGVs	460	397	2%	2%
All motor vehicles	**17175**	**16344**	**90%**	**93%**

Source: Department for Transport. The figures in the table above are for an average day in 2019.

Endnotes

1. Greater London Assembly. (2021). Record-breaking growth in London's cycle network continues. Retrieved from: london.gov.uk/press-releases/mayoral/mayor-and-tfl-announce-work-on-four-new-routes
2. Berkeley Earth. (2022). Local Particular Air Pollution (PM2.5). London, England, United Kingdom. Retrieved from: http://berkeleyearth.org/air-quality/local/United_Kingdom/England/London/
3. Friends of the Earth. (2020). England's green space gap. Retrieved from: https://policy.friendsoftheearth.uk/print/pdf/node/190
4. Greater London Assembly. (2017). Mayor: Let's help make London the world's first National Park City. Retrieved from: https://www.london.gov.uk/press-releases/mayoral/help-make-london-worlds-first-national-park-city
5. GLA (2022). GLA Covid-19 Mobility Report. Retrieved from: https://data.london.gov.uk/dataset/coronavirus-covid-19-mobility-report
6. Office for National Statistics (2022). Business insights and impact on the UK economy. BICS Wave 47. Retrieved from: https://www.ons.gov.uk/economy/economicoutputandproductivity/output/datasets/businessinsightsandimpactontheukeconomy
7. Transport for London. (2021). Travel in London Report 14.
8. Office for National Statistics (2022). Retail Sales Index time series (DRSI)
9. Department for Transport (2022). Road traffic Statistics.
10. McKinsey (2021). Ordering in: The rapid evolution of food delivery.
11. Butler S. (24 July 2021). Cycling brands gear up for rapid growth in UK cargo bike market.
12. Sutton M. (10 March 2022). How PedalMe's logistics strategy now targets multi-billion pound goals. Cycling Industry News.
13. Google. (2022). 2022 GB Region Mobility Report. Retrieved from: https://www.google.com/covid19/mobility/ and Transport for London. (2022). Public Transport Journeys by Type of Transport. London Datastore. Retrieved from: https://data.london.gov.uk/dataset/public-transport-journeys-type-transport
14. Transport for London (2022). Annual Travel in London Report 2021.
15. GLA Economics. (2022). The economic impacts under future funding scenarios for TfL, in London's Economy Today. Issue 233.
16. Department for Transport. (2022). The Highway Code.
17. Office for National Statistics. (2022). Population and household estimates, England and Wales: Census 2021. Retrieved from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationandhouseholdestimatesenglandandwales/census2021
18. Neal Hudson. (2022). Market Commentary – June 2022. BuiltPlace. Retrieved from: https://builtplace.com/market-commentary-june-2022/
19. Mayor of London. (2018). Mayor's Transport Strategy.
20. Centre for London analysis of Transport for London. (2020). London Travel Demand Survey. Retrieved from: https://tfl.gov.uk/cdn/static/cms/documents/ltds-0520.xlsx
21. Transport for London. Travel in London report 12.
22. Transport for London. London Travel Demand Survey. Retrieved from: https://tfl.gov.uk/cdn/static/cms/documents/ltds-0520.xlsx.
23. The Royal Borough of Kensington and Chelsea. (2019). Third Local

Implementation Plan.
24. Transport for London. (2020). Mayor's Transport Strategy Outcome Indicators v6.0.
25. Ibid.
26. Ibid.
27. Healthy Streets Scorecard. Outcome indicators. Retrieved from: https://www.healthystreetsscorecard.london/results/results_outcome_indicators/
28. The Royal Borough of Kensington and Chelsea. (Various). Annual parking and enforcement reports, 2011-2021. Retrieved from: https://www.rbkc.gov.uk/parking-transport-and-streets/visitor-parking-and-pay-phone/parking-reports. 2022 data shared by RBKC.
29. Department for Transport. (2020). Number of Licensed Vehicles.
30. Transport for London (2020). Mayor's Transport Strategy Outcome Indicators.
31. Office for National Statistics. (2011). 2011 Census. Table: WU03UK. Location of usual residence and place of work by method of travel to work. Retrieved from: https://www.nomisweb.co.uk/census/2011/wu03uk
32. Office for National Statistics. (2011). 2011 Census. Table: WU03UK. Location of usual residence and place of work by method of travel to work. Retrieved from: https://www.nomisweb.co.uk/census/2011/wu03uk
33. MyLondon (8 December 2020). The London borough that could get its very own Congestion Charge.
34. Google. (2022). GB Region Mobility Report. Accessed 31/01/2022. Retrieved from: https://www.google.com/covid19/mobility
35. Ibid.
36. Visit Britain. (2021). Annual Survey of Visits to Visitor Attractions 2020.
37. Google. (2022). 2022 GB Region Mobility Report. Accessed 31/01/2022. Retrieved from: https://www.google.com/covid19/mobility
38. Greater London Authority. (2022). London Tourism Forecast January 2022. Retrieved from: https://data.london.gov.uk/dataset/london-tourism-forecasts
39. Transport for London. (2020). Mayor's Transport Strategy Outcome Indicators v6.0.
40. Google. (2022). 2022 GB Region Mobility Report. Accessed 31/01/2022. Retrieved from: https://www.google.com/covid19/mobility
41. Department for Transport. (2020). RBKC Average Annual Daily Flow in Road traffic statistics. Retrieved from: https://roadtraffic.dft.gov.uk/local-authorities/110
42. Google. (2022). 2022 GB Region Mobility Report. Accessed 31/01/2022. Retrieved from: https://www.google.com/covid19/mobility
43. Google. (2022). 2022 GB Region Mobility Report. Accessed 31/01/2022. Retrieved from: https://www.google.com/covid19/mobility
44. Transport for London. (2022). Public Transport Journeys by Type of Transport. Accessed on 31/01/2022. Retrieved from: https://data.london.gov.uk/dataset/public-transport-journeys-type-transport
45. Department for Transport. (2020). RBKC Average Annual Daily Flow in Road traffic statistics. Retrieved from: https://roadtraffic.dft.gov.uk/local-authorities/110
46. Transport for London. (2021). Travel in London report 14.
47. Communication with Chief Transport Policy Officer. (2021). RBKC – Resident Permit Summary.
48. Ibid.
49. Transport for London. (2021). Travel in London report 14.
50. Transport for London. (2021). Travel in London report 14.
51. The Royal Borough of Kensington and Chelsea. (2021). Kensington High Street Temporary Cycle Lane Scheme.
52. The Royal Borough of Kensington and Chelsea. (2021). RBKC Future High Streets Workshops Report.
53. Ibid.

54. The Royal Borough of Kensington and Chelsea. (2021). Kensington and Chelsea Citizens' Panel – Making the borough greener.
55. Ibid.
56. bid.
57. The Royal Borough of Kensington and Chelsea. (2021). Kensington High Street Temporary Cycle Lane Scheme.
58. The Royal Borough of Kensington and Chelsea. (2021). RBKC Future High Streets Workshops Report.
59. Ibid.
60. Ibid.
61. The Royal Borough of Kensington and Chelsea. (2021). Kensington and Chelsea Citizens' Panel – Making the borough greener.
62. Ibid.
63. The Royal Borough of Kensington and Chelsea. (2021). RBKC Future High Streets Workshops Report.
64. The Royal Borough of Kensington and Chelsea. (2021). Kensington and Chelsea Citizens' Panel – Making the borough greener.
65. Ibid.
66. Barrett, S., Wills, J. & Washington-Ihieme, M. (2020). Reclaim the kerb: The future of parking and kerbside management in London.
67. Cottell et al. (2021). Micromobility in London. Centre for London. Retrieved from: https://www.centreforlondon.org/wp-content/uploads/2021/09/Micromobility_in_London_Report.pdf
68. Transport for London (2016). Analysis of walking potential. Retrieved from: https://content.tfl.gov.uk/analysis-of-walking-potential-2016.pdf
69. The Royal Borough of Kensington and Chelsea. (2019). Third Local Implementation Plan.
70. Lovelace, R. et al. (2017). The propensity to cycle tool: An open source online system for sustainable transport planning. Retrieved from: https://www.repository.cam.ac.uk/handle/1810/262117
71. Ibid.
72. Transport for London. (2017). Strategic Cycling Analysis. Retrieved from: https://content.tfl.gov.uk/strategic-cycling-analysis.pdf
73. STV News. ''City's heart is gone': Sadness as high street suffers vacancies as M&S close'. Retrieved from: https://news.stv.tv/west-central/citys-heart-is-gone-sadness-as-glasgows-sauchiehall-street-suffers-from-vacancies
74. Russo, R., Wade, R., Benson, J. & Lucas, C. (2008). Ninth Avenue Bicycle Path and Complete Street.
75. New York City Department of Transport. (2014). Protected Bicycle Lanes in NYC. Retrieved from: http://www.nyc.gov/html/dot/downloads/pdf/2014-09-03-bicycle-path-data-analysis.pdf
76. Ibid.
77. New York City Department of Transportation. (2012). Measuring the Street: New Metrics for 21st Century Streets.
78. New York City Department of Transportation. (2013). The Economic Benefits of Sustainable Streets.
79. Ibid.
80. Lindinger, A. (2015). Vienna's Mariahilferstraße combines Pedestrian Zone and Shared Space. Vienncouver.
81. Die Presse. (2014). Mariahilfer Straße neu: Unternehmer dagegen.
82. Hofinger, C., Hacker, E. & Hoser, B. (2015). Evaluierung der Verkehrsberuhigung und des Umbaus der Inneren Mariahilfer Straße - zentrale Ergebnisse.
83. Lankhorst, A. (2020). A qualitative and quantitative unpacking of spatial, social and political dimensions of shared space. Evidence from the Mariahilfer straße in Vienna.
84. Ibid.
85. Rajchl, A., Piringer, H., Gabler, S., Kolar-Paceski, M. & Petzl, D. (2020). Sozialraumanalyse Mariahilfer Straße.

86. Hofinger, C., Hacker, E. & Hoser, B. (2015). Evaluierung der Verkehrsberuhigung und des Umbaus der Inneren Mariahilfer Straße - zentrale Ergebnisse.
87. Wirtschaftskammer Wien & Magistrat der Stadt Wien. (2017). Passantenzählung 2016.
88. Bristol Cycling. (2020). Continental Case Study #1: Europe's 12th busiest high street, Mariahilfer Strasse, Vienna.
89. Hofinger, C., Hacker, E. & Hoser, B. (2015). Evaluierung der Verkehrsberuhigung und des Umbaus der Inneren Mariahilfer Straße - zentrale Ergebnisse. (2015).
90. Stuhlpfarrer, M. (2013). Mariahilfer Straße: „Verkehr löst sich in Luft auf". Die Presse.
91. Hofinger, C., Hacker, E. & Hoser, B. (2015). Evaluierung der Verkehrsberuhigung und des Umbaus der Inneren Mariahilfer Straße - zentrale Ergebnisse.
92. Ibid.
93. Jens, P. (2020). 5 Jahre Mariahilfer Straße: Als Wien das Flanieren lernte. Wien zu Fuß.
94. Vasari, B. (2019). Wirtschaftskammer Wien: 'Wir müssen die Straßen zurückerobern'. Wiener Zeitung.
95. Ville de Paris. (2021). Plan Vélo 2021-2026.
96. Ibid.
97. Ibid.
98. Paris Data. (n.d.). Comptage vélo - Données compteurs. Retrieved from: https://opendata.paris.fr/explore/dataset/comptage-velo-donnees-compteurs/information/?disjunctive.id_compteur&disjunctive.nom_compteur&disjunctive.id&disjunctive.name
99. Urban Design Group. (2021). National Urban Design Awards 2021
100. Urban Design Group. (2021). Sauchiehall Street, Glasgow | People Friendly Place. Retrieved from: https://www.udg.org.uk/directory/awards-finalists/sauchiehall-
101. Glasgow Open Data. (2021). Glasgow City Centre Footfall Dashboard. Retrieved from: https://data.glasgow.gov.uk/apps/glasgow-city-centre-footfall-dashboard/explore
102. Urban Design Group. (2021). National Urban Design Awards 2021.
103. Transport for London (2019). Pedestrian Comfort Guidance for London. Appendix B. Retrieved from: https://content.tfl.gov.uk/pedestrian-comfort-guidance-technical-guide.pdf
104. Transport for London (2021). Buses from Kensington High Street. Retrieved from: https://content.tfl.gov.uk/bus-route-maps/kensington-high-street-a4-100721.pdf
105. London Councils (2022). London Lorry Control Scheme. Scheme Map. Retrieved from: https://lcspermits.com/#schememap
106. Mayor of London (2022, 11 January). Press release: Cost of congestion in capital revealed as car use remains high. Retrieved from: https://www.london.gov.uk/press-releases/mayoral/cost-of-congestion-in-capital-revealed
107. Transport for London. Cycleway 9. Retrieved from: https://tfl.gov.uk/travel-information/improvements-and-projects/cycle-superhighway-9
108. Transport for London reported 26,000 bus passengers on KHS in 2019 (see report to RBKC leadership team). We apportioned this figure to post pandemic bus ridership (TfL bus ridership was 24% lower January-May 2022 than the equivalent period in 2019)
109. Estimated using national average car occupancy rate of 1.6 people per vehicle. Source: Department for Transport (2022). National Travel Survey. Table NTS0905
110. Mayor of London (2022). Have your say Our proposals to help improve air quality, tackle the climate emergency and reduce congestion May 2022. Retrieved from: https://haveyoursay.tfl.gov.uk/15619/widgets/44946/documents/26977

111. Friends of the Earth (2022, January 31). England's pollution hotspots (with distance adjustment). Retrieved from: https://www.google.com/maps/d/u/0/viewer?mid=1nxsB438uIxBcXx0m8FpfT-3ULszPc6Ka&ll=51.49937296450698%2C-0.1928907329447216&z=16
112. Air quality data provided by RBKC
113. Department for Environment, Food and Rural Affairs (2022, April 28th). National statistics Concentrations of nitrogen dioxide. Retrieved from: https://www.gov.uk/government/statistics/air-quality-statistics/ntrogen-dioxide
114. Extrium. England Noise and Air Quality Viewer. Retrieved from: http://www.extrium.co.uk/noiseviewer.html
115. Hudgell Solititors (2021, July 15th). Motorcycle Accident: Motorcycle accident statistics show bikers 50 times more likely to suffer a fatal injury than car drivers. Retrieved from: https://www.hudgellsolicitors.co.uk/news/motorcycle-accident/motorcycle-accident-statistics-show-bikers-50-times-more-likely-to-suffer-a-fatal-injury-than-car-drivers/
116. The Royal Borough of Kensington and Chelsea (2021, March 17th). Notice of Meeting. Leadership team. Retrieved from: https://www.rbkc.gov.uk/committees/Document.ashx
117. AECOM (2022). West End Project Final Monitoring Report. Retrieved from: https://democracy.camden.gov.uk/documents/s105697/Appendix%20E%20-%20AECOM%20-%20Final%20West%20End%20Project%20Monitoring%20Report.pdf
118. https://static1.squarespace.com/static/5d30896202a18c0001b49180/t/60003fabf3791928a02b707f/1610629036655/LTN+Briefing_FINAL.pdf
119. https://www.centreforlondon.org/wp-content/uploads/2019/04/Next-Generation-Road-User-Charging.pdf

Published by:
Centre for London 2021

House of Sport
190 Great Dover St
London SE1 4YB
T: 020 3757 5555
hello@centreforlondon.org
centreforlondon.org
Company Number: 8414909
Charity Number: 1151435

About Centre for London

We are London's independent think tank.
We are uniquely dedicated to developing new solutions to our city's challenges, for the benefit of all its people. We help policymakers and city leaders think for the long term about London's biggest issues and plan for a better future. We do this through:

Research and evidence
Conducting robust, unbiased research and analysis, and collaborating with Londoners and stakeholders across all sectors, to generate new ideas and recommendations.

Convening and collaborating
Bringing together citizens, experts and decision makers from diverse standpoints to discuss complex issues in a safe space, devise solutions and work out how to implement them.

Awareness raising and advocacy
Being an authoritative policy voice on London and promoting our research and ideas to those with the power to act on them – from the grassroots to local and national leaders – through briefings, publications, social media, press and events.

London faces complex and evolving challenges.
We develop policy solutions to tackle them.
Help us make London better for everyone.

Find out more at **centreforlondon.org**