



Central London Bus Review Impact Assessment

Technical Note

**London Borough of
Hammersmith and Fulham**

70098423

July 2022

Introduction

Context



Introduction

WSP have been commissioned by London Borough of Hammersmith and Fulham (LBHF) to provide technical advice to inform their response to the Central London Bus Review consultation published by TfL.

The Central London Bus Review seeks to reduce bus kilometres in London by 4%, in order to achieve the financial savings required by Government as a condition for emergency funding provided to TfL.

TfL are proposing to **change 15 bus routes within Hammersmith and Fulham**, including the total withdrawal of five routes - these changes are summarised on pages three to five. In addition to these service cuts, changes are also proposed to four night bus routes that travel within the borough. These changes are summarised on pages three and six.

This technical note reports on the impact of these changes on bus PTALs (Public Transport Accessibility Levels) within the borough and provides analysis of reductions in PTALs for protected groups. Analysis of indices of deprivation has also been conducted to assess the impact of the changes on protected groups.

Policy Context

TfL's Bus Action Plan states that bus travel is critical to achieving the Mayor's Transport Strategy goal of 80% of trips to be made by walking, cycling and public transport by 2041. To meet this the action plan sets a target of nine million daily bus journeys, an increase of three million when compared to pre-pandemic levels.

The plan notes that there is significant uncertainty about public transport demand in the medium term, acknowledging there is significant risk of falling significantly behind the trajectory laid out in the Mayor's Transport Strategy. The plan argues "severe cuts to bus services would be counter to the goals we are trying to achieve in London, including decarbonisation, improving air quality, supporting local economies and improving social inclusion". As a result the plan commits to protect and enhance the quality of services on links where the bus network performs a critical role "particularly in central and inner London and on links to town centres".

The Bus Action Plan also recognises the role bus travel can play in enabling sustainable growth and development. This is particularly true in the Earls Court and Kensington Olympia areas, earmarked as an opportunity area in the London Plan and where significant housing growth is expected. Figure 1 opposite taken from the Bus Action Plan shows how significant growth in bus patronage is expected to occur in Hammersmith and Fulham.

Figure 1: Bus boardings in 2019 (above) and assuming delivery of the MTS in 2041 (below) (TfL Bus Action Plan)

Figure 9: Bus boardings (2019)

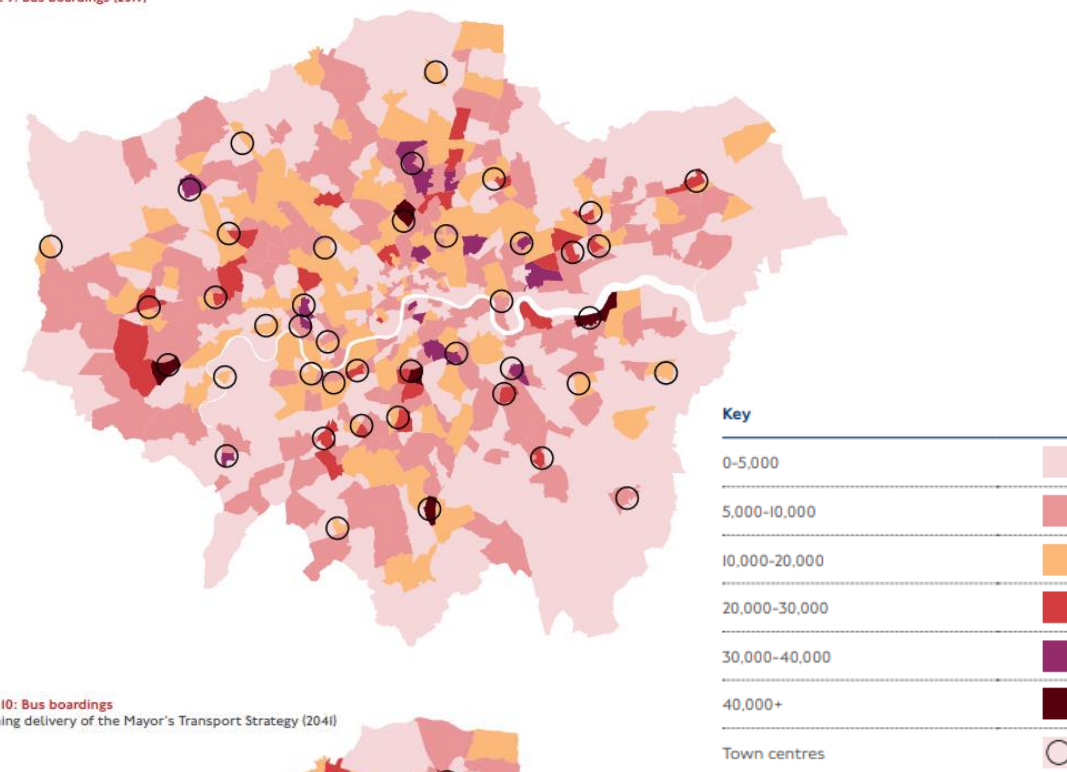
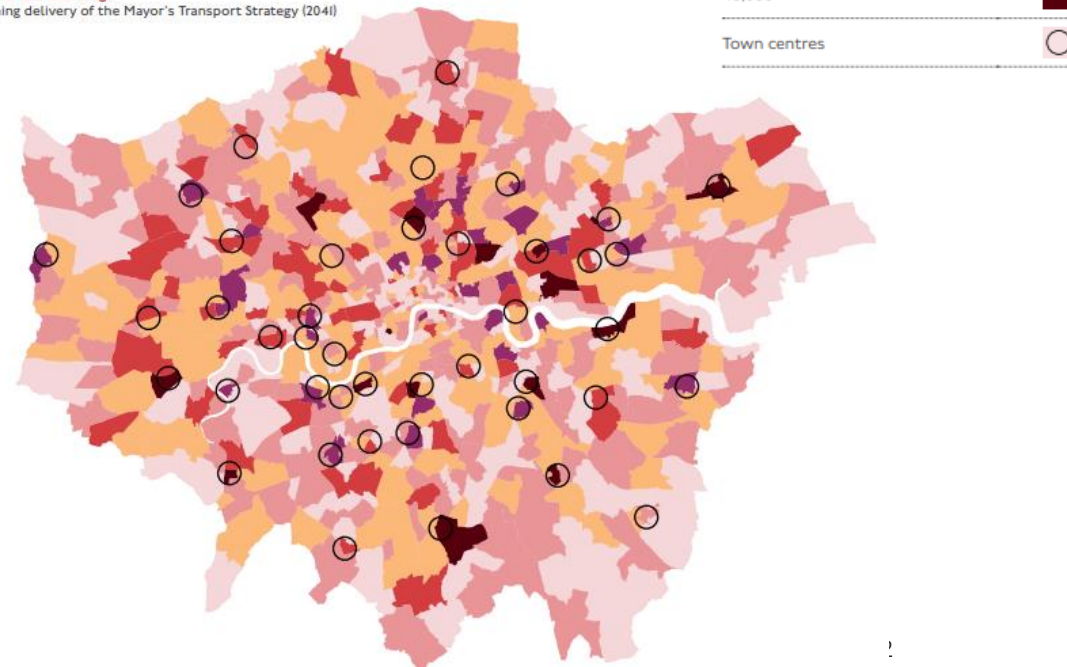


Figure 10: Bus boardings Assuming delivery of the Mayor's Transport Strategy (2041)



Contents

To quantify and assess the impact of the changes proposed by TfL this technical note looks at the following:

- > Summarises the changes TfL have proposed to bus routes and extracts key information from consultation
- > Describes our methodology for the review
- > Assesses the impacts on bus PTALs of the TfL proposals
- > Analyses the deprivation profile of areas negatively impacted by the proposals
- > Provides commentary on the likely impact on protected groups
- > Provides a qualitative assessment of journey times to key destinations

Summary of changes to routes

Table 1 summarises the changes TfL are proposing to the bus routes within Hammersmith and Fulham. This involves

- > Withdrawal of 5 bus routes and 2 night bus routes,
- > Re-routing of 6 bus routes and 1 night bus route
- > Extension of 4 bus routes
- > Introduction of 2 new night bus routes

Maps of the proposed changes are shown in **Appendix A**.

The following pages look at these changes in more detail, outlining the information contained in TfL consultation materials for each of the affected routes.

A table summarising the technical information provided by TfL in the consultation materials is shown in **Appendix B**.

Where appropriate, WSP commentary has been provided on the reasoning given by TfL for route changes. This is indicated by a red box.

TfL have used bus demand data collected on monitoring corridors to inform where cuts to bus services should fall. **None of these monitoring corridors are located in Hammersmith and Fulham.** The data from this monitoring exercise was not shared with WSP or the public.

Subsequent analysis within this technical note assesses the impact of these changes on public transport accessibility and protected groups.

Table 1: Changes to bus routes in Hammersmith and Fulham proposed by TfL

Route	Changes
C3	Withdrawn
11	Withdrawn
14	Withdrawn
72	Withdrawn
74	Withdrawn
N11	Withdrawn
N72	Withdrawn
23 (24hr)	Rerouted
27	Rerouted
49	Rerouted
211	Rerouted
328	Rerouted
430	Rerouted
N27	Rerouted
414	Extended
507	Extended
272	Extended
283	Extended
N430	New
N507	New

Summary of Route Changes



Information extracted from the TfL consultation

Withdrawn

C3

Route C3 would no longer run. TfL state there are currently a high number of buses running between Earls Court and Worlds End and the **capacity being provided is not needed** for the numbers of people who wish to use these services.

TfL say that changes to route 27 ensure all journeys currently made by the C3 can continue to be made.

11

Route 11 would no longer run. TfL argue buses in this area have **excess space** on board.

For passengers wishing to travel to locations between Victoria and Fulham a **new interchange** between the 26 and 507 would be **required**. Of the 14,056 trips that previously could have been completed using a direct service, **4% (589)** of those would now **require an interchange** to complete their journey.

14

Route 14 would no longer run. TfL state fewer people are using buses between Fulham and Knightsbridge, via Fulham Road and route 14 is **not being used to its full capacity**.

Passengers currently using route 14 between Tottenham Court Road and Russell Square would **no longer have a direct bus service** to Great Russell Street, Montague Street and Bedford Place. Of the 19,889 trips that previously could have been completed using a direct service, **10% (2,005)** of those would now **require an interchange** to complete their journey.

72

Route 72 would no longer run. TfL propose to extend routes 49, 272 and 283, which would allow them to remove route 72. Of the 8415 trips that previously could have been completed using a direct service, **1% (92)** of those would now **require an interchange** to complete their journey.

74

Route 74 would no longer run. TfL argue it has **excess space on board** because they are running more buses than needed between Fulham and Knightsbridge via Lillie Road. They argue this will simplify bus routes in the area and be a more efficient use of resources.

Of the 14,311 trips that previously could have been completed using a direct service, **15% (2,147)** of those would now **require an interchange** to complete their journey.

Rerouted

23 (24hr)

From Hyde Park Corner route 23 would be extended to Aldwych via Piccadilly. Route 23 would no longer serve stops between Hyde Park Corner and Hammersmith bus station. TfL argue **buses between Hyde Park Corner and Hammersmith bus station** on routes 9 and 23 **are underused**. 23 would replace links provided by withdrawn 14.

Passengers traveling between Westbourne Park/Edgware Road and Kensington Road/Hammersmith would need to change to bus route 9 on Piccadilly to complete their journey. Of the 15,788 trips that previously could have been completed using a direct service, **16% (2,496)** of those would now **require an interchange** to complete their journey.

27

TfL propose to reroute the 27 to operate between High Street Kensington and Clapham Junction to keep links currently served by route C3 if it were to no longer run. The route would no longer serve stops to Hammersmith.

Passengers travelling to Hammersmith would need to change between route 27 and route 328, which **may result in longer journey times** than at present. Of the 18,639 trips that previously could have been completed using a direct service, **7% (1,212)** of those would now **require an interchange** to complete their journey.

49

Route 49 would run between South Kensington and East Acton, via Wood Lane and White City. It would no longer run between Clapham Junction (Northcote Road) and South Kensington.

Passengers using route 49 for journeys between Clapham Junction – South Kensington to go to bus stops between South Kensington and White City, would need to change bus to complete their journey. Of the 19,669 trips that previously could have been completed using a direct service, **22% (4,331) or one in five trips** would now **require an interchange** to complete their journey.

Summary of Route Changes



Information extracted from the TfL consultation

Rerouted (continued)

211

Route 211 would be rerouted between Chelsea Bridge Road and Waterloo so that it serves Battersea Power Station rather than Waterloo. TfL state this would reduce excess bus capacity along routes between Parliament Square and Chelsea Bridge Road.

Passengers travelling to or from Hammersmith and locations such as Victoria or Waterloo, would need to change between route 211 and either route 26 or 507 to complete their journey. Of the 13,898 trips that previously could have been completed using a direct service, **10% (1,401)** of those would now **require an interchange** to complete their journey.

272

Route 272 would be extended from Shepherd's Bush Green to Hammersmith Bus Station. Its frequency would also increase. TfL argue that extending route 272 to Hammersmith Bus Station, with a frequency increase would serve stops along Wood Lane and Shepherd's Bush Road, if route 72 were to no longer run.

283

Route 283 would be extended from Hammersmith Bus Station to Hammersmith Bridge north side if route 72 were to no longer run.

507

Route 507 would be extended from Victoria to Fulham Broadway if routes 11 and 211 were no longer to run.

328

Route 328 would be rerouted from High Street Kensington to Hammersmith bus station This would replace bus links between Notting Hill and Kensington Church Street with Hammersmith currently provided by route 27. If it were to be rerouted as proposed, route 328 would no longer serve stops between Kensington High Street and World's End or Limerton Street.

Some passengers will need to change between the 328 and 27 buses to complete journeys. Of the 20,246 trips that previously could have been completed using a direct service, **6% (1,131)** of those would now **require an interchange** to complete their journey.

430

The 430 would be rerouted between West Brompton and South Kensington via Earls Court Road and Cromwell Road. TfL argue that rerouting route 430 would ensure bus capacity meets customer demand between Lillie Road and West Brompton, if route 74 were to no longer run.

Of 14,401 trips that previously could have been completed using a direct service, **4% (646)** of those would **require an interchange** to complete their journey.

414

Route 414 would be extended from Putney Bridge Station to Putney Heath (Green Man), if route 14 were to no longer run.

Across all the proposals **a significant number of users are affected** and will be required to change buses to complete their journey. This **will reduce the appeal of the bus and make journeys more difficult** for existing users.

Removing direct services to Central London will **reduce the appeal of the bus as a commuting alternative** and make it **harder to meet ambitious targets on bus patronage**.

Where routes are being withdrawn, TfL have suggested there is capacity on alternative routes. However, **no evidence has been provided that this is the case**.

Both changes to the 23 and 27 will **reduce the level of service on a key bus corridor into Hammersmith on the Hammersmith Road**, running counter to commitments to protect services on these routes.

Whilst TfL have provided details of the frequency increase on the 272, it should be noted that **no details have been provided on the reduction in frequency proposed on any of the other routes**.

These changes would **reduce the level of service provided in the Earls Court and Kensington Olympia areas** – key sites for future development. This will make it harder to 'bake in' from the outset sustainable travel behaviour within the occupiers of new development and will likely result in it being **harder to meet the anticipated increases in demand**.

Summary of Route Changes



Information extracted from the TfL consultation

Night bus changes

N11

Route N11 would no longer run. TfL propose to extend route N26 from Trafalgar Square to Victoria and introduce a new night service N507 between Ealing Broadway and Trafalgar Square.

Of the 710 trips that previously could have been completed using a direct service, **17% (120)** of those would now **require an interchange** to complete their journey.

N27

TfL propose to convert the N27 to a 24-hour service – renumbering this route to 27(N) It would also be restructured to run between Chalk Farm and Clapham Junction via Imperial Wharf. The route would no longer serve stops between Kensington High Street and Hammersmith Bus Station. Passengers would need to change buses to route N9 to complete their journey.

Of the 190 trips that previously could have been completed using a direct service, **20% (40)** of those would now **require an interchange** to complete their journey.

N72

Route N72 would no longer run. TfL argue that **fewer people are using night buses in this area** and withdrawing the route would allow them to reinvest resources where they are needed more.

Of the 190 trips that previously could have been completed using a direct service, **68% (130)** of those would now **require an interchange** to complete their journey.

A **significant proportion of existing night bus users would have to change buses** as part of these proposals. **The level of night bus service provided to Hammersmith Town Centre would be significantly reduced.** This both reduces the utility of the night bus network and **exposes existing users to greater risk travelling at night**, because of increased wait times and longer walk distances to night services.

Over 2 in 3 users of the N72 will be required to interchange following its withdrawal. The N72 is the spine of the Hammersmith night bus network – with few suitable alternatives.

The area **north of Du Cane Road would no longer be directly served by a night bus service.** Passengers would be 600 metres from a stop served by an alternative route, **resulting in users having to walk further late at night to access a bus stop.** This change is contrary to TfL's recent publicity campaign around women's safety on the London Public Transport Network. Night buses are integral to, not only the night time economy, but to employees who work early or late shifts (For example at Charing Cross / Hammersmith Hospitals).

Summary of All Changes

These changes represent a significant reduction of service for passengers in Hammersmith and Fulham. Although TfL have proposed some changes to routes to mitigate against this, many more passengers would have to change buses as part of these proposals.

Of the bus changes reviewed above, TfL have disclosed that **16,419 daily trips would no longer be possible without changing bus at least once. This represents approximately 5.9 million trips a year.** The affected bus routes have a total daily ridership of 160,787 so this would represent **10% of current daily trips.** The vast majority of these affected trips would be expected to start or end within Hammersmith and Fulham, as most of the changes reviewed are on routes that are within the borough boundary for most of their length.

The significant impact of these proposals will make **it harder to meet the ambitious targets** set in the Bus Action Plan and Mayor's Transport Strategy. Introducing interchanges to the journeys of 1 in 10 passengers on affected routes will **reduce the appeal of the bus to existing users and deter new users.**

Without sight of the bus demand data collected by TfL, it is hard to provide further detail on the number of passengers affected by the overall changes within Hammersmith and Fulham – however it can be assumed that a **significant proportion of current journeys will be impacted.** This note highlights that **protected groups in Hammersmith and Fulham are heavily impacted by the proposed service changes.**

Methodology

To inform changes to routes, TfL have conducted analysis of bus demand and capacity on key corridors in Central London. The consultation document was lacking analysis and data on the impact of these changes, and therefore a bespoke methodology was developed to inform this impact assessment.

Ten scenarios were devised to test the impact of the changes on bus Public Transport Accessibility Levels (PTALs). Further detail on these scenarios is shown on page 7.

Bus route lines for the wider study area were downloaded from Basemap's Datacutter portal for the second quarter of 2022. These route lines were imported into the TRACC software to build the scenarios. Routes were either: suspended, suspended and replaced with an amended bus route, suspended and replaced with a new bus route or adding a new bus route. Amendments were limited to changes within the boundary of Hammersmith of Fulham.

TRACC was then used to run a PTAL calculation for each scenario. A grid of 100mx100m polygons across Hammersmith and Fulham were created, with the centroid of these polygons used as the origin for a PTAL calculation. PTALs were calculated following TfL's PTAL guidance found in *Assessing transport connectivity in London, 2015*.

TRACC's PTAL calculation mirrors that of TfL, however the results cannot be directly compared to any published PTAL data as the base networks are not the same.

WSP's analysis uses a base scenario for AM peak travel, and a base scenario for night travel, and all scenarios are directly comparable to these base scenarios, where applicable. The AM peak was Tuesday 08:15 to 09:15 and the night was a Tuesday 03:00 to 04:00.

The ten scenario outputs (CSV format) from TRACC were joined to the original 100m x 100m grid of polygons in GIS ready for spatial analysis of socio-economic factors.

Index of Multiple Deprivation (IMD) data was obtained from the Office of National Statistics (ONS) to provide additional analysis as to the impact of the proposals on protected groups. This dataset is used to classify the relative deprivation specific areas within the entire country. The index is made up of multiple components which are then weighted with and compiled into a single score of deprivation – however the dataset allows insight into the component parts of the total IMD data.

The IMD data was calculated using a population weighted method. For example, if a 100m x 100m cell contained 2 postcodes from different Lower Super Output Areas (LSOAs), which had different IMD values, the postcode was assigned the IMD value from the appropriate LSOA, however, when aggregation took place for each 100m x 100m cell, the IMD value was multiplied by the population at the postcode and the sum of this for each 100m x 100m cell was then divided by the total population from the postcodes within the 100m x 100m cell.

To allow further IMD analysis, postcodes were further matched to LSOA codes which enabled sight of a wider range of metrics.

Further detail on this methodology can be found in **Appendix B**

Scenario Testing

Each of the route proposals were packaged into 8 different scenarios – with the change in bus PTAL between each scenario and a base scenario mapped within Hammersmith and Fulham.

The scenarios were packaged to ensure that related proposals and route alternations to mitigate the withdrawal of other routes were tested together e.g. the withdrawal of C3 was tested alongside the rerouting of 27 and 328. Table 2 shows the proposals included in each scenario.

The greatest changes in bus PTALs are seen in scenario 9 and 10, where the changes have a cumulative negative effect on bus PTALs.

Night bus proposals were packaged into a 9th scenario which was tested against a base scenario of existing night bus routes.

Outputs

PTAL change maps were produced for the following tests:

- > Test 1: Scenario 1 (Base) v Scenario 2
- > Test 3*: Scenario 1 (Base) v Scenario 4
- > Test 4: Scenario 1 (Base) v Scenario 5
- > Test 5: Scenario 1 (Base) v Scenario 6
- > Test 6: Scenario 1 (Base) v Scenario 7
- > Test 7: Scenario 1 (Base) v Scenario 8
- > Test 8: Scenario 1 (Base) v Scenario 9 (All proposals)
- > Test 9: Scenario 11 (Night Base) v Scenario 10 (Night proposals)

Maps showing the change in PTAL for each of the tests can be found in **Appendix D**.

Additional analysis was undertaken for Test 8 (Base vs All Changes) to understand the protected groups impacted. This analysis begins on page 11.

*Test 2 not included (changes were located outside borough)

Table 2: Matrix of the changes in bus routes for each scenario

	Rerouted						
Scenario*	23 (24hr)	27	49	272	283	328	414
1 (Base)	n/c	n/c	n/c	n/c	n/c	n/c	n/c
2	Off	n/c	n/c	n/c	n/c	n/c	n/c
4	n/c	n/c	n/c	n/c	n/c	n/c	n/c
5	n/c	Changed	n/c	n/c	n/c	Changed	n/c
6	n/c	n/c	n/c	n/c	n/c	n/c	Changed
7	n/c	n/c	n/c	n/c	n/c	n/c	n/c
8	n/c	n/c	Changed	Changed	Changed	n/c	n/c
9 (All Proposals)	Off	Changed	Changed	Changed	Changed	Changed	Changed

	Withdrawn				
Scenario*	C3	11	14	72	74
1 (Base)	n/c	n/c	n/c	n/c	n/c
2	n/c	n/c	n/c	n/c	n/c
4	n/c	Off	n/c	n/c	n/c
5	Off	n/c	n/c	n/c	n/c
6	n/c	n/c	Off	n/c	n/c
7	n/c	n/c	n/c	n/c	Off
8	n/c	n/c	n/c	Off	n/c
9 (All proposals)	Off	Off	Off	Off	Off

	Night buses					
Scenario*	N72	N27	N11	N507	N430	23 (24hr)
10 (Night Proposals)	Off	Changed	Off	New	New	Off
11 (Night Base)	n/c	n/c	n/c	Off	Off	n/c

n/c = No Change

*Scenario 3 not included (changes were located outside borough)

Change in Bus PTALs

Impact of all the changes



The map shown in Figure 2 highlights the areas which experience a change in bus PTAL following all the changes to bus routes proposed in Hammersmith and Fulham. The bus changes tested were:

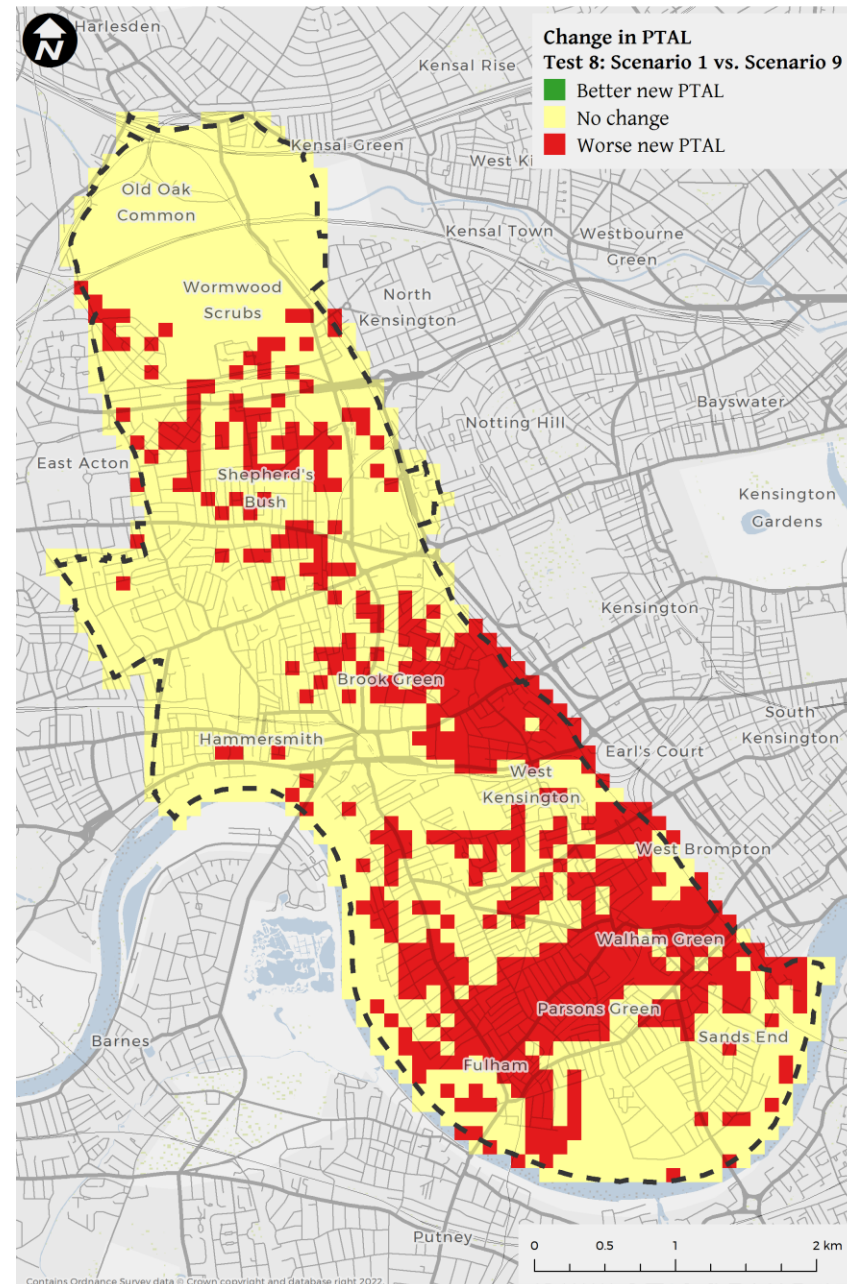
- > C3 (Withdrawn)
- > 11 (Withdrawn)
- > 14 (Withdrawn)
- > 72 (Withdrawn)
- > 74 (Withdrawn)
- > 23 (Rerouted)
- > 27 (Rerouted)
- > 49 (Rerouted)
- > 272 (Rerouted)
- > 283 (Rerouted)
- > 328 (Rerouted)
- > 414 (Rerouted)

No areas within Hammersmith and Fulham are expected to see **an increase in bus PTAL**. However, a **significant proportion** of the borough **can expect a decrease in bus PTAL** following implementation of the changes

The changes have the greatest impact in the south and west of the borough and pockets in the north. Examples of areas where bus PTALs worsen include Kensington Olympia, West Kensington, the Fulham Road corridor and pockets within Shepherds Bush / East Acton. The areas where the greatest change occurs do not have a wide range of suitable alternative transport modes, unlike the north of the borough where smaller changes are proposed to be made.

Both Kensington Olympia and Earls Court where PTAL reductions are proposed are identified in the London Plan as an opportunity area, with development likely to drive up bus demand in the future.

Figure 2: Change in PTAL from base scenario to a scenario with all the changes applied



Change in Night Bus PTALs

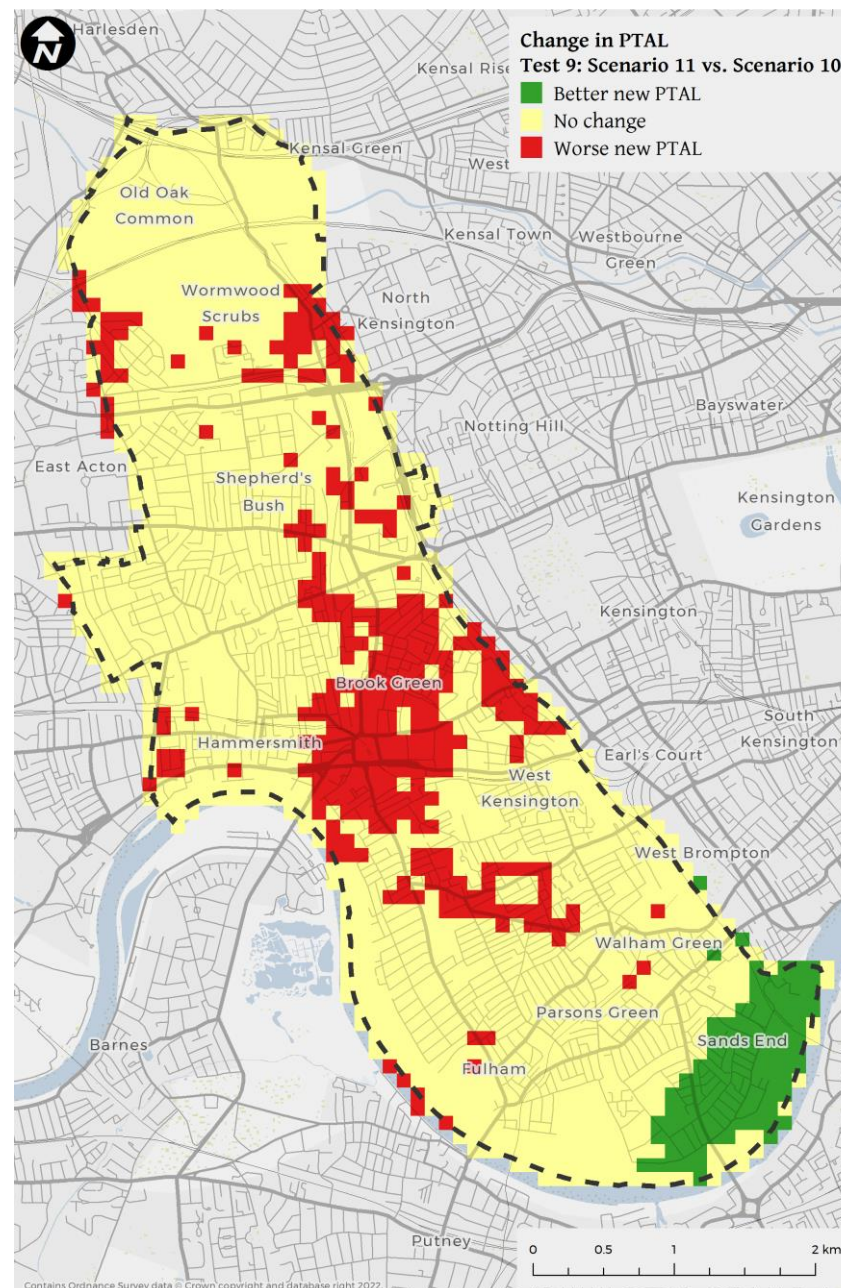
Impact of night bus changes

The map shown in Figure 3 highlights the areas which experience a change in bus PTAL following all the changes to night bus routes proposed in Hammersmith and Fulham. The bus changes tested were:

- > N11 (Withdrawn)
- > N72 (Withdrawn)
- > N27 (Rerouted)
- > N23 (Rerouted)
- > N430 (New)
- > N507 (New)

A **significant proportion** of the borough **can expect a decrease in bus PTAL** following implementation of the changes. Some areas to the south can expect an improvement in bus PTAL – following introduction of 24 hour service on a rerouted 27.

Figure 3: Change in PTAL from night bus base scenario to a scenario with all the night bus changes applied



Deprivation Analysis



IMD Dataset

Overall IMD

Analysis of ONS Index of Multiple Deprivation (IMD) data has been combined with PTAL analysis to show the deprivation profile of areas where PTALs have fallen in Scenario 9.

This analysis has revealed that **12%** of postcodes where bus PTALs reduce are in the **bottom quintile nationally for IMD**. Areas in the lowest quintile for IMD have multiple deprivation factors that interact to contribute to disadvantage. **Reducing bus serving to these groups is likely to further compound this disadvantage**. The subsequent analysis explores some of the indices of deprivation in turn – and assesses the impact of the service changes to each group.

Income deprivation

13% of postcodes where bus PTALs reduce are in the **bottom quintile nationally for income deprivation**.

Bus services are particularly important for this group – as they offer lower fares than other public transport services. **More than a third of bus journeys are made by Londoners with a household income of less than £20,000**. A peak fare Z1-Z2 underground fare costs £3.20, **94% more expensive** than a £1.65 single bus journey.

Whilst the bus hopper fare might mitigate against the cost of changing buses – some users travelling longer distances (mostly users with no alternative) will be unable to make a change within the 1 hour window of the hopper fare. This **doubles the cost of taking public transport** for these users. These users are least able to absorb increased transportation costs – costs which already comprise a significant proportion of daily outgoings.

Income deprivation affecting older people

42% of postcodes where bus PTALs reduce are in the **bottom quintile nationally for income deprivation affecting older people**.

TfL's data on freedom pass use shows that across the bus routes where changes are proposed – on average **14% of passengers are freedom pass users** with the figure as high as **20%** on some routes. These users are have particular difficulty changing buses. Introducing interchanges on established routes increases the cognitive load for those who are more likely to get confused and will be more physically demanding for users with mobility issues. Older people are particularly reliant on bus services to get out of the house and combat loneliness. Increasing barriers for this group is likely to have negative health and social impacts.

Income deprivation affecting younger people

19% of postcodes where bus PTALs reduce are in the **bottom quintile nationally for income deprivation affecting younger people**.

As previously highlighted, bus services are particularly important for income deprived groups. TfL's data on ZIP card use shows that across the bus routes where changes are proposed – on average **5% of passengers are ZIP card users**, with the figure as high as **9%** on some routes.

These users are likely to have few alternatives to the bus which is free at all times for ZIP card holders. The proposals are likely to impact pupils travelling to schools/colleges, who are particularly reliant on bus services.

Health deprivation and disability

2% of postcodes where bus PTALs reduce are in the **bottom quintile nationally for health deprivation and disability**.

TfL's data on freedom pass usage shows that across routes where changes are proposed – **3% of passengers are disabled freedom pass users**, with the figure as high as **5%** on some routes.

Bus services are the most accessible mode of public transport that serve all parts of London as part of a comprehensive network. This helps to reduce walking distances at either end of the journey. Low-floor vehicles run on all London buses, which have dedicated wheelchair spaces and access ramps. **52% of disabled Londoners do not have household access to a car** and depend on modes like the bus.

Introducing a requirement to interchange mid-route will be challenging for this group, particularly where same-stop interchange is not available. The changes will also reduce access to healthcare facilities in the borough – with service changes and subsequent PTAL reductions proposed at both Charing Cross and Hammersmith Hospitals.

Barriers to housing and services

22% of postcodes where bus PTALs reduce are in the **bottom quintile nationally for barriers to housing and services**.

Bus services are particularly important at increasing access to opportunity and essential services. The link between public transport accessibility and economic opportunity is well established. Reducing bus services in areas where these barriers are already substantial will **reduce opportunity for disadvantaged groups**.

Bus service changes and resulting PTAL reductions are also proposed in the Kensington Olympia and Earls Court areas – which are undergoing significant redevelopment. Reducing these services would **limit access to this new housing and employment opportunity** for residents in the borough.

Reducing bus service in these areas will also increase the competitiveness of the private car as an alternative for local journeys for occupiers of these developments, **baking in unsustainable travel behaviour** and making it harder to achieve ambitious targets on sustainable mode share.

Crime

22% of postcodes where bus PTALs reduce are in the **bottom quintile nationally for crime**.

Users in these areas **will be exposed to greater risk** when changing buses, or walking further to alternative services. This is particularly important for some protected groups – who have greater exposure and fear to some forms of crime such as **hate crimes or gender based violence**.

Introducing a requirement to interchange, or requiring users to walk part of their journey, would **negatively impact women and members of the LGBTQ+ community** who often cite fear of crime as a barrier to using public transport.

Almost 70% of users of the N72 will now be required to change services – further increasing anxiety from being victims of crime. These changes do not align with TfL's very public campaign to raise awareness of Women's Safety on the London Transport Network.

Impact on schools

Figure 4 maps the schools within the borough over the expected changes in PTALs following implementation of all the TfL proposals.

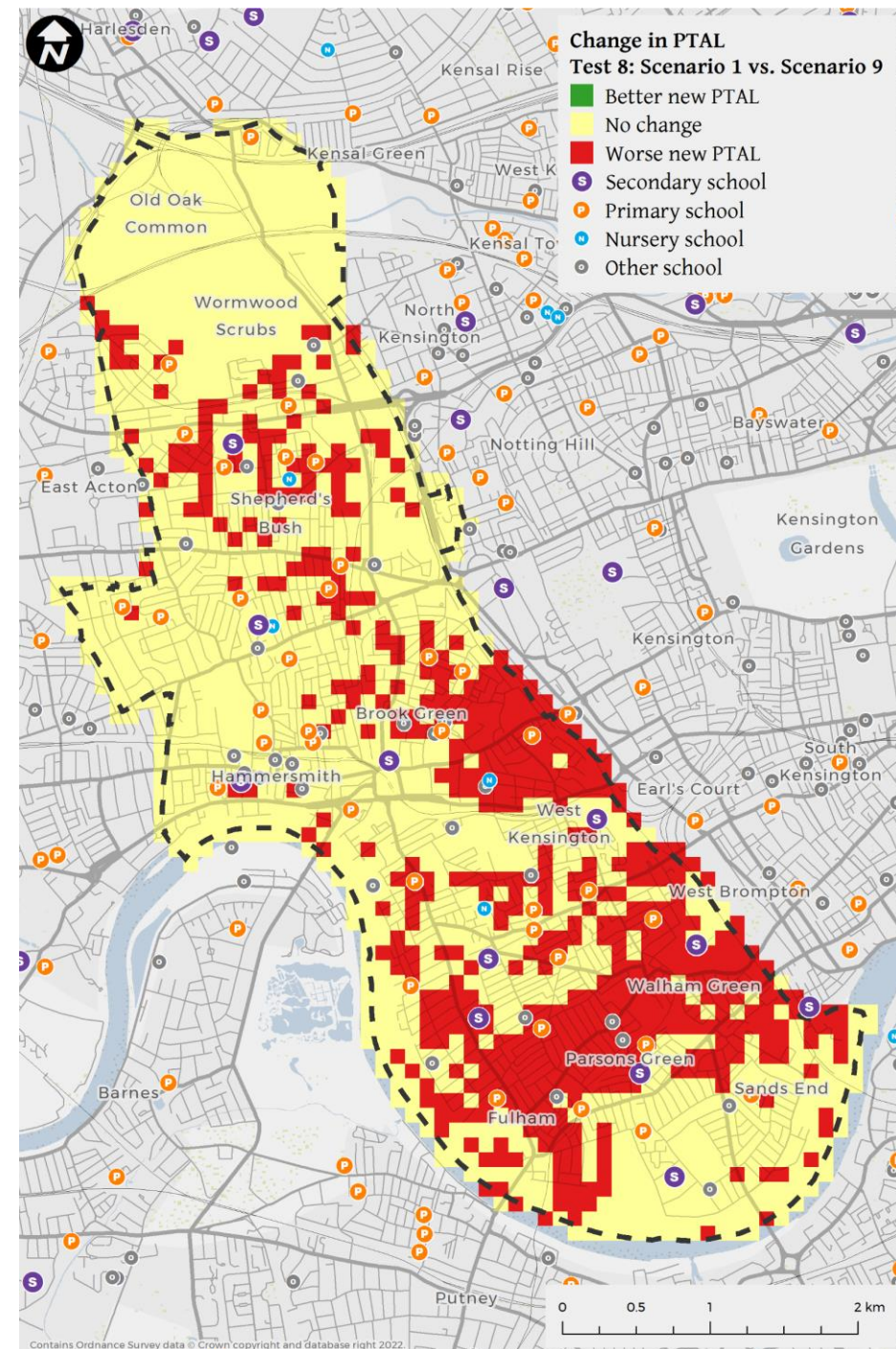
The analysis shows that the TfL proposals would have a significant negative impact on accessibility to bus services for many of the schools within the borough, particularly those to the south and west, with some schools also impacted in the north.

Of the 83 schools in the borough, **41% (34) are expected to experience a fall in bus PTALs following the proposals.** Of the schools impacted by the proposals, 18 are state primary schools, six are state secondary and ten are independent schools.

Our analysis shows that **60% of the ten state secondary schools in Hammersmith and Fulham will be negatively impacted by the proposals.** Secondary school pupils are particularly reliant on bus services, as many travel to school independently and have no viable alternatives. The proposals are likely to require more pupils to have to interchange as part of their journey, increasing journey times and reducing the attractiveness of bus trips. This may reduce the choice of schools available to pupils within a single bus journey and/or within an acceptable journey time.

53% of independent schools in Hammersmith and Fulham are negatively impacted by the proposals. These pupils tend to be from higher income households who have higher levels of car ownership. Making bus travel less attractive may encourage some parents to drive children to school. School run trips are often linked to other trips made by parents, so any increase in the share of trips by car to school would likely feed through to more car trips to work, to the shops etc. More cars on the road may result in higher levels of congestion and poorer air pollution and bus reliability, making it harder to meet the ambitious targets for sustainable transport usage.

Figure 4: Change in PTAL from base scenario to a scenario with all the changes applied



Qualitative Assessment of Journey Times



The changes proposed to bus routes have a wide-ranging geographical impact, affecting areas across the borough. Figure 5 shows how many key destinations within the borough are located in areas with PTAL reductions. TfL have not provided information on the changes to bus frequencies, but it is assumed that where routes are being withdrawn, overall bus frequencies at stops will be reduced.

Healthcare

Two hospitals are impacted by the changes, Hammersmith Hospital and Charing Cross Hospital. Patients travelling to Charing Cross Hospital will suffer from a reduced bus frequency on Fulham Palace Road following the withdrawal of the 74. This will require patients travelling from Central London to take the 430 and change to the 414 at High Street Kensington. Assuming the 414 operates at the TfL definition of 'high frequency' (a bus every 12 minutes), this could add almost 15 minutes to a journey.

Staff working shifts at Hammersmith Hospital late at night will be significantly disadvantaged by the removal of the N72 with no proposed replacement. This will require users to change buses to travel south from the hospital. With night buses operating at 2 bph frequencies, a single interchange could add 15 minutes to a journey.

Retail

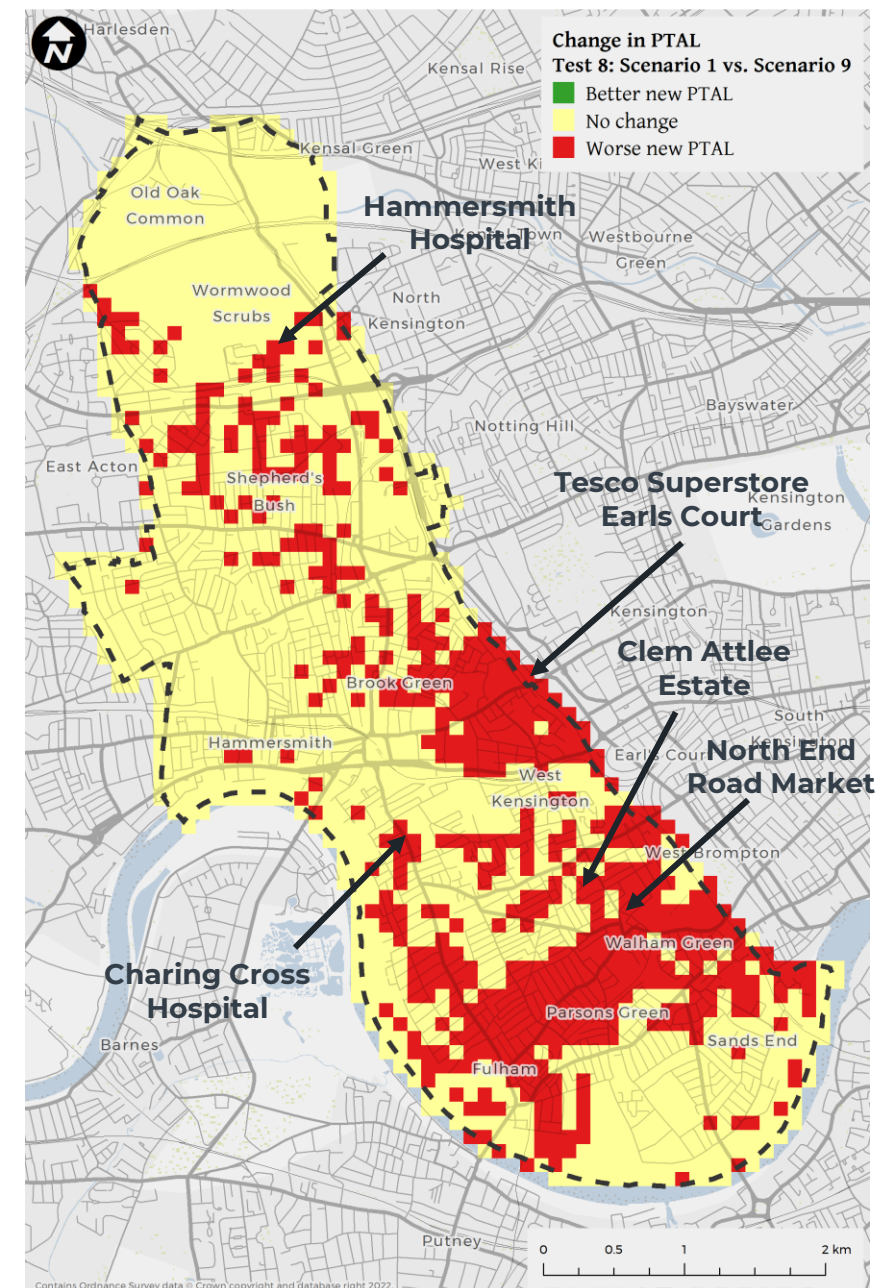
The Kensington Olympia/Earls Court area is hit particularly hard by the changes. The Tesco superstore Earls Court is a key grocery location for local residents, particularly lower income residents who avoid more expensive local convenience stores. The rerouting of the 27 and the 23 away from the Hammersmith Road corridor will reduce the frequency of buses to this destination from Central Hammersmith increasing journey times.

North End Road Market is a significant attractor of both visitors and local residents and suffers from a drop of accessibility from multiple angles. Removal of the 74 will reduce bus frequency on the Lillie Road corridor to the north and the withdrawal of the 211 and 14 will reduce bus frequency on the Fulham Road corridor. This means that travel to the market will now require a longer wait for a bus. If the bus becomes less attractive to car owners, bus journey time reliability could suffer with the increased number of cars on the road compared to a scenario where progress against the Mayor's Transport Strategy targets is sustained.

Residential

The Clem Attlee Estate is in the bottom 10% of IMD nationally and is the most deprived location in Hammersmith and Fulham. Residents here are particularly reliant on bus services, which provide a low cost means of travel. Residents travelling by bus towards Central London will no longer be able to use the 74 which is being withdrawn, and instead will have to take the 430 and change to the 414 at High Street Kensington. Assuming the 414 operates at the TfL definition of 'high frequency' (a bus every 12 minutes), this could add almost 15 minutes to a journey. This is before any drops in frequency are considered.

Figure 5: Change in PTAL from base scenario to a scenario with all the changes applied and key destinations annotated



This technical note has outlined the significant impact of TfL's proposals on protected groups and on progress towards transport objectives, impacts which have not been appropriately mitigated against.

- > 16,419 daily trips would no longer be possible without changing bus at least once, representing approximately 5.9 million trips a year. This would increase journey times for existing users and deter new users.
- > The proposals will make it harder to increase the number of trips made by public transport – as has been targeted by TfL.
- > The proposals have a negative impact on PTALs in Hammersmith and Fulham, with a broad geographic impact.
- > The proposals reduce PTAL in areas where residential development is expected will make it harder to embed sustainable travel behaviour amongst new occupiers
- > The proposals will compound the disadvantage felt in the most deprived parts of the borough – with 12% of postcodes impacted by the proposals in the bottom quintile nationally for IMD
- > The proposals place a significant cost burden on the lowest income households, potentially doubling the cost of transport.
- > The proposals will disproportionately impact older passengers, who are reliant on bus services for social interaction / access to essential services and are less able to interchange. 42% of postcodes impacted by the changes are in the bottom quintile nationally for income deprivation affecting older people.

- > The proposals will disproportionately impact younger passengers, who are more reliant on bus services to access education – with 19% of postcodes impacted by the proposals in the bottom quintile nationally for income deprivation affecting younger people.
- > The proposals will disproportionately impact disabled passengers, making it harder to access healthcare facilities and local destinations
- > The proposals will introduce barriers to housing and opportunity for disadvantaged populations
- > The proposals to withdraw night bus services will expose users to a greater risk of crime, gender based violence and hate crime – requiring users to walk further and interchange late at night.
- > The proposals will generally increase journey times reducing the appeal of bus services.

Taken together, these changes are incompatible with TfL's transport objectives and disproportionately impact protected groups. These impacts are wide-ranging and place a significant burden on deprived areas.

The logo for WSP, consisting of the letters 'W', 'S', and 'P' in a stylized, bold, orange font. The 'W' and 'S' are connected, and the 'P' is separate. The background is a grayscale photograph of a city street with a cyclist in the foreground and modern buildings in the background.

WSP

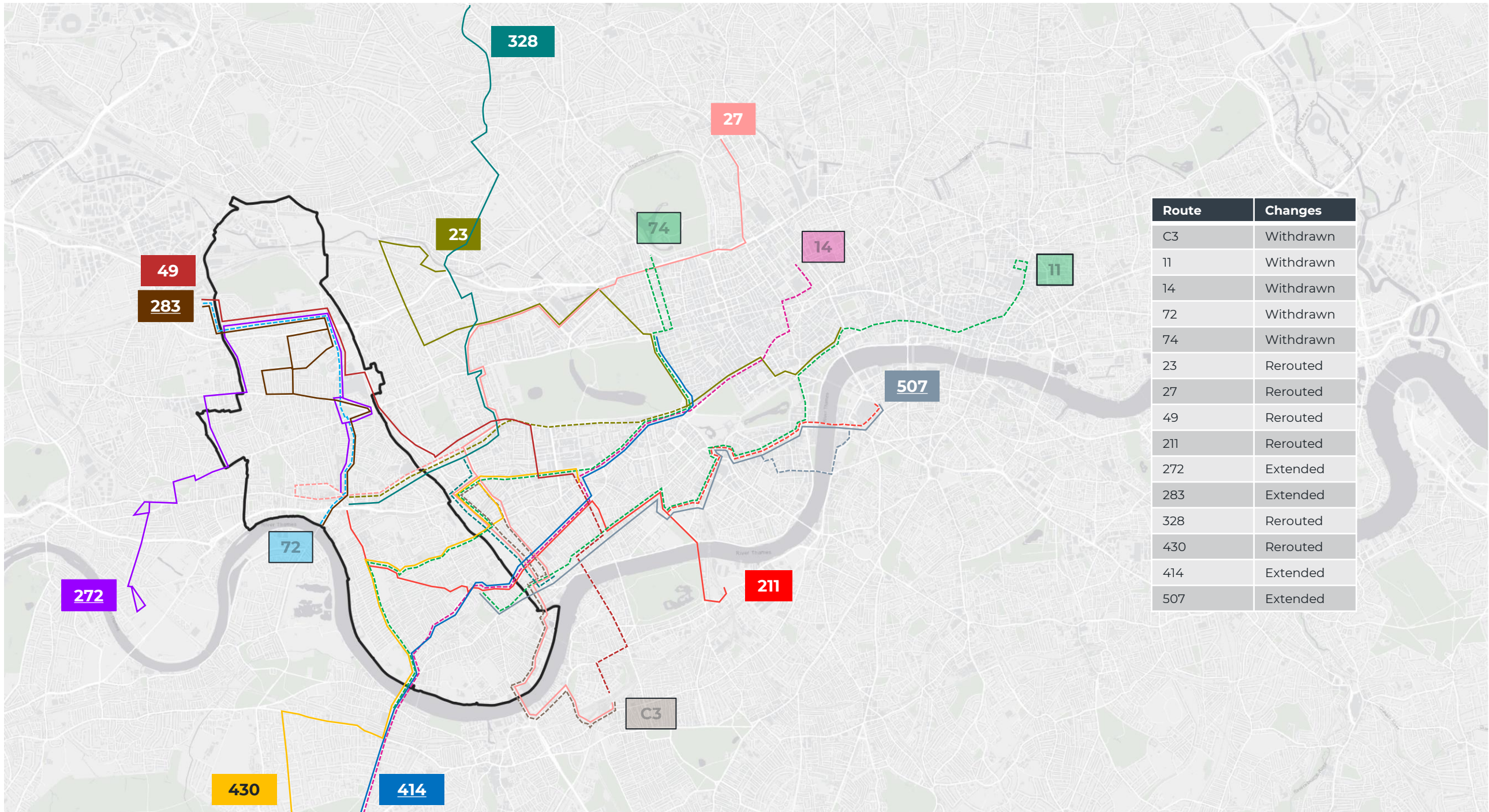
Appendix A

Route Proposal Maps

Summary of Route changes



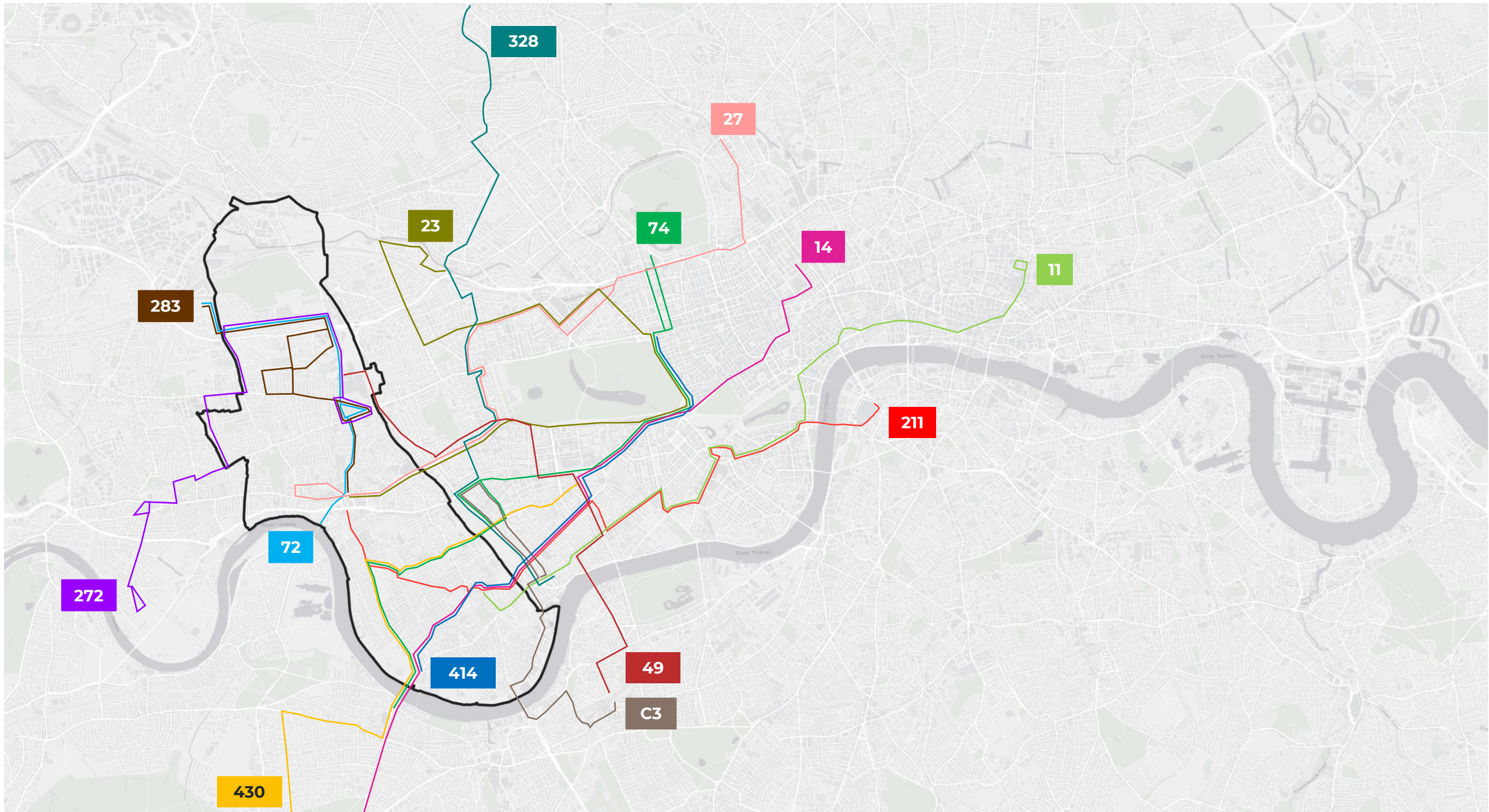
Figure A1: Summary of TfL proposals for bus routes in Hammersmith and Fulham



----- 14 Withdrawn
 ----- 23 Rerouted
 ----- 414 Extended

Existing Routes

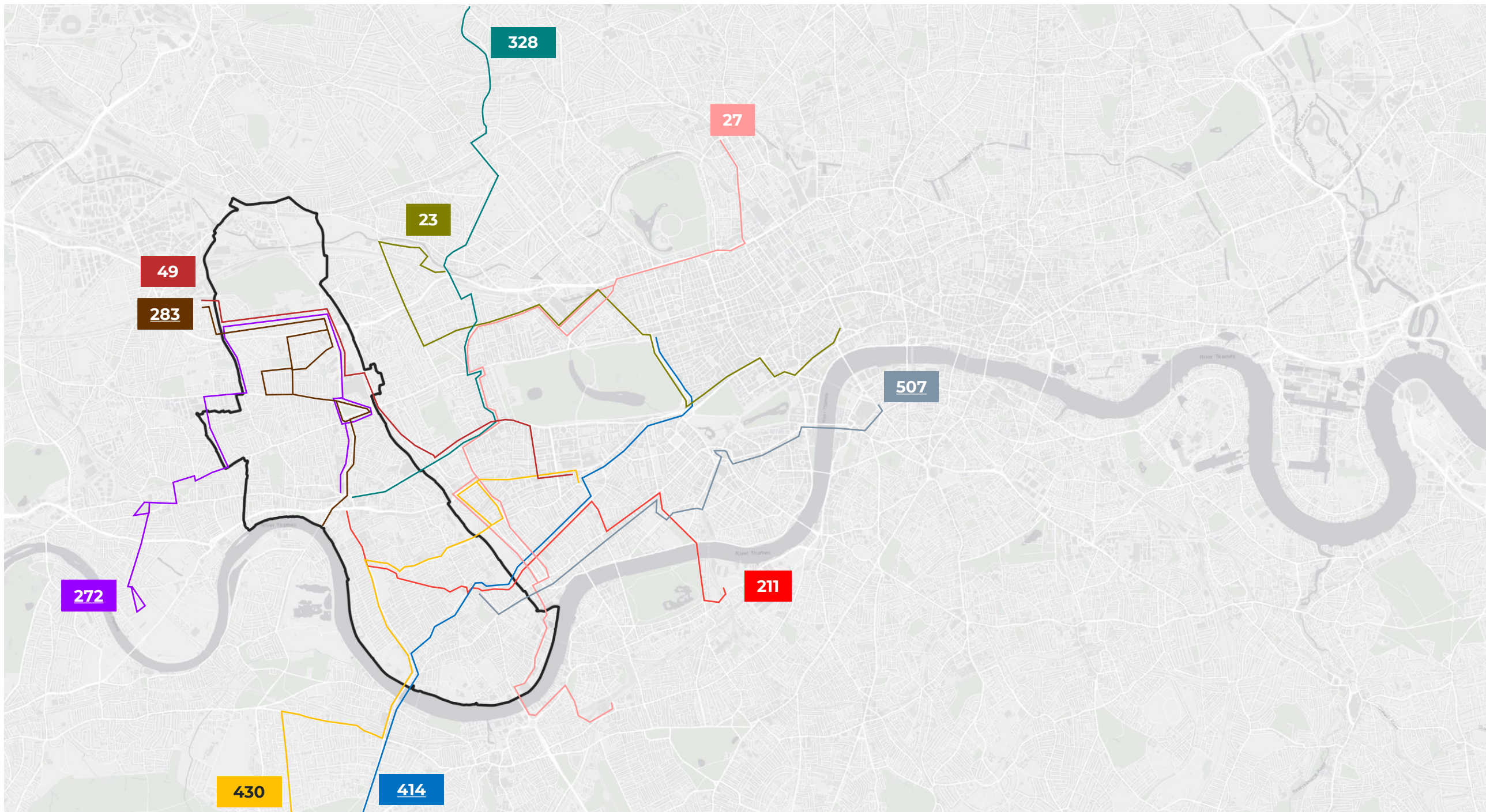
Figure A2: Map of selected existing bus routes in Hammersmith and Fulham



Proposed Routes



Figure A3: TfL proposed bus route in Hammersmith and Fulham

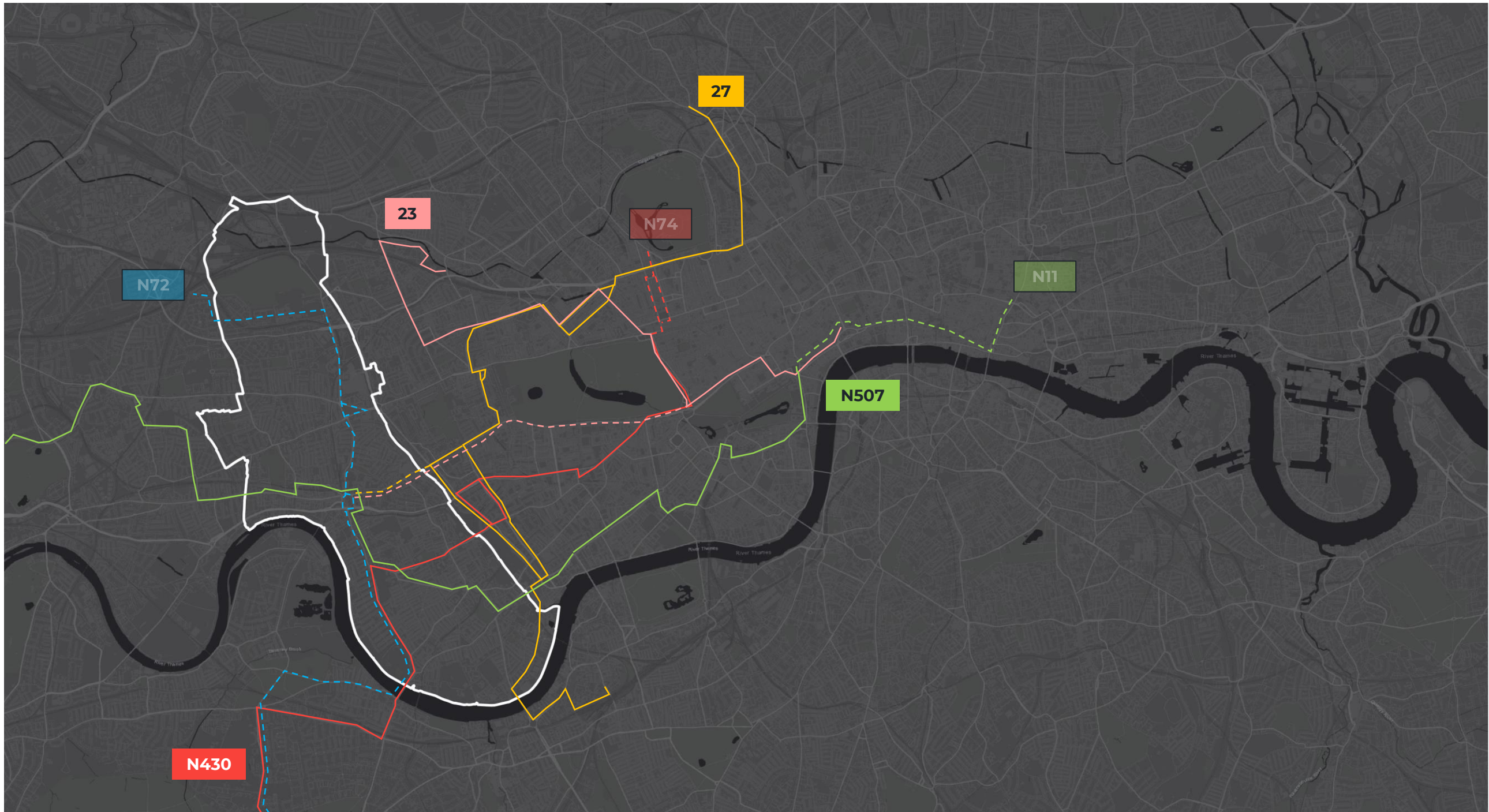


14 Withdrawn **23** Rerouted **414** Extended

Night Bus Route Proposals



Figure A4: Summary of TfL proposals for night bus routes in Hammersmith and Fulham



--- 14 Withdrawn — 23 Rerouted



Appendix B

TfL Consultation Data Summary



TfL Consultation Data Summary



Table B1: Data published by TfL on impact of proposals

Extracted from EQIAs of route proposals

Route	Total Trips (Current)	% Broken Links*	Broken Links*	% Older Passengers	% Young passengers	% Disabled Passengers
23	15,788	16%	2,496	17%	5%	3%
211	13,898	10%	1,401	20%	8%	3%
11	14,056	4%	589	17%	5%	2%
C3						
27	18,639	7%	1,212	16%	6%	3%
328	20,246	6%	1,131	20%	6%	5%
14	19,889	10%	2,005	14%	5%	2%
414						
74	14,311	15%	2,147	13%	5%	2%
430	14,401	4%	646	17%	9%	3%
72	8,415	1%	91	15%	9%	4%
272						
283						
49	19,669	22%	4,331	15%	6%	2%
N72	190	68%	130	5%	0%	2%
N27	190	20%	40	5%	0%	2%
N11	710	17%	120	5%	0%	0%
23 (24hr)	385	21%	80	10%	0%	3%

* TfL report the number of broken links where a route is being withdrawn or rerouted. This refers to the number / proportion of direct trips that would require 1 or more interchanges to complete a journey following the changes

The logo for WSP, consisting of the letters 'W', 'S', and 'P' in a stylized, bold, red font. The 'W' and 'S' are connected, and the 'P' is separate. The background is a grayscale photograph of a city street with a cyclist in the foreground and modern buildings in the background.

WSP

Appendix C

Methodology

Generating bus route lines for GIS

Bus route lines for the wider study area were downloaded from Basemap's Datacutter portal (<https://datacutter.basemap.co.uk/DataCutter>) as a shape file. Bus route lines were present for inbound and outbound routes and included all route variations. The route lines themselves were not exact and were created by Basemap as being the natural/likely route following the road network between relevant bus stops, in the correct route sequence.

A subset of the bus route lines was created featuring just the bus routes of interest to this project. Where applicable, they were then manually edited in a GIS to incorporate the proposed changes.

These bus route lines were then used to see identify where changes in and around Hammersmith & Fulham were.

Processing ATCO CIF files

The bus network for the wider study area was downloaded from the Datacutter portal as an ATCO CIF file. The currency of the data was the second quarter of 2022, which was the most up to date data available at the time.

The ATCO CIF file was imported into the TRACC software and was then used as a framework/workspace to amend the relevant individual bus routes to incorporate the necessary changes within the Hammersmith & Fulham boundary. Due to time constraints, it was not possible to amend the entire length of the affected bus route, and only amendments that would have affected the local accessibility within Hammersmith & Fulham were made.

Once an individual bus route had been amended, it was exported to disk as a new ATCO CIF file, and given an appropriate file name (e.g. New_49.cif).

For each scenario being tested – a total of 11 scenarios – the original, unedited, and full ATCO CIF file was imported into TRACC, and appropriately named to denote the associated scenario, e.g. "Bus_Network_Scen6".

Each of the bus scenario networks were then amended individually to incorporate the required changes. This involved the following options: suspending bus route(s), suspending bus route(s) and replacing them with an amended bus route, suspending bus route(s) and replacing them with a new bus route, adding a new bus route.

Testing local accessibility

As only local accessibility was able to be tested, TRACC was used to run a PTAL calculation for each scenario.

In ArcGIS, the "Create Fishnet" tool was used to create a 100m x 100m grid of polygons across Hammersmith & Fulham. Each grid square was given a unique ID and centroid points created – sharing the same unique ID.

The grid points were loaded into TRACC and used as the origins for the PTAL calculation.

Following TfL's PTAL guidance found in "Assessing transport connectivity in London, 2015" (<https://content.tfl.gov.uk/connectivity-assessment-guide.pdf>), TRACC was used to calculate PTALs for each scenario.

TRACC's PTAL calculation mirrors that of TfL, however the results cannot be directly compared to any published PTAL data as the base networks are not the same. WSP's analysis uses a base scenario for AM peak travel, and a base scenario for night travel, and all scenarios are directly comparable to these base scenarios, where applicable. The AM peak was Tuesday 08:15 to 09:15 and the night was Tuesday 03:00 to 04:00.

The 11 scenario outputs (CSV format) from TRACC were joined to the original 100m x 100m grid of polygons in GIS ready for spatial analysis of socio-economic factors.

Socio-economic analysis

Socio-economic variables were sourced from Experian Mosaic and Office of National Statistics English Indices of Deprivation (2019).

For each of the 100m x 100m cells, the socio-economic variables were calculated. For the variables derived from Experian Mosaic, a direct calculation was made - where the 100m x 100m cells was given the value of all postcode points that are located within its bounds. The IMD data was calculated using a population weighted method. For example, if a 100m x 100m cell contained 2 postcodes from different LSOAs, which had different IMD values, the postcode was assigned the IMD value from the appropriate LSOA, however, when aggregation took place for each 100m x 100m cell, the IMD value was multiplied by the population at the postcode and the sum of this for each 100m x 100m cell was then divided by the total population from the postcodes within the 100m x 100m cell.

The only variable in the socio-economic analysis is the PTAL value from each scenario. Therefore, any differences in the results can only be attributable to the change in underlying bus services in each scenario

The logo for WSP, consisting of the letters 'W', 'S', and 'P' in a stylized, bold, orange font. The 'W' and 'S' are connected, and the 'P' is separate. The background is a grayscale photograph of a city street with a cyclist in the foreground and modern buildings in the background.

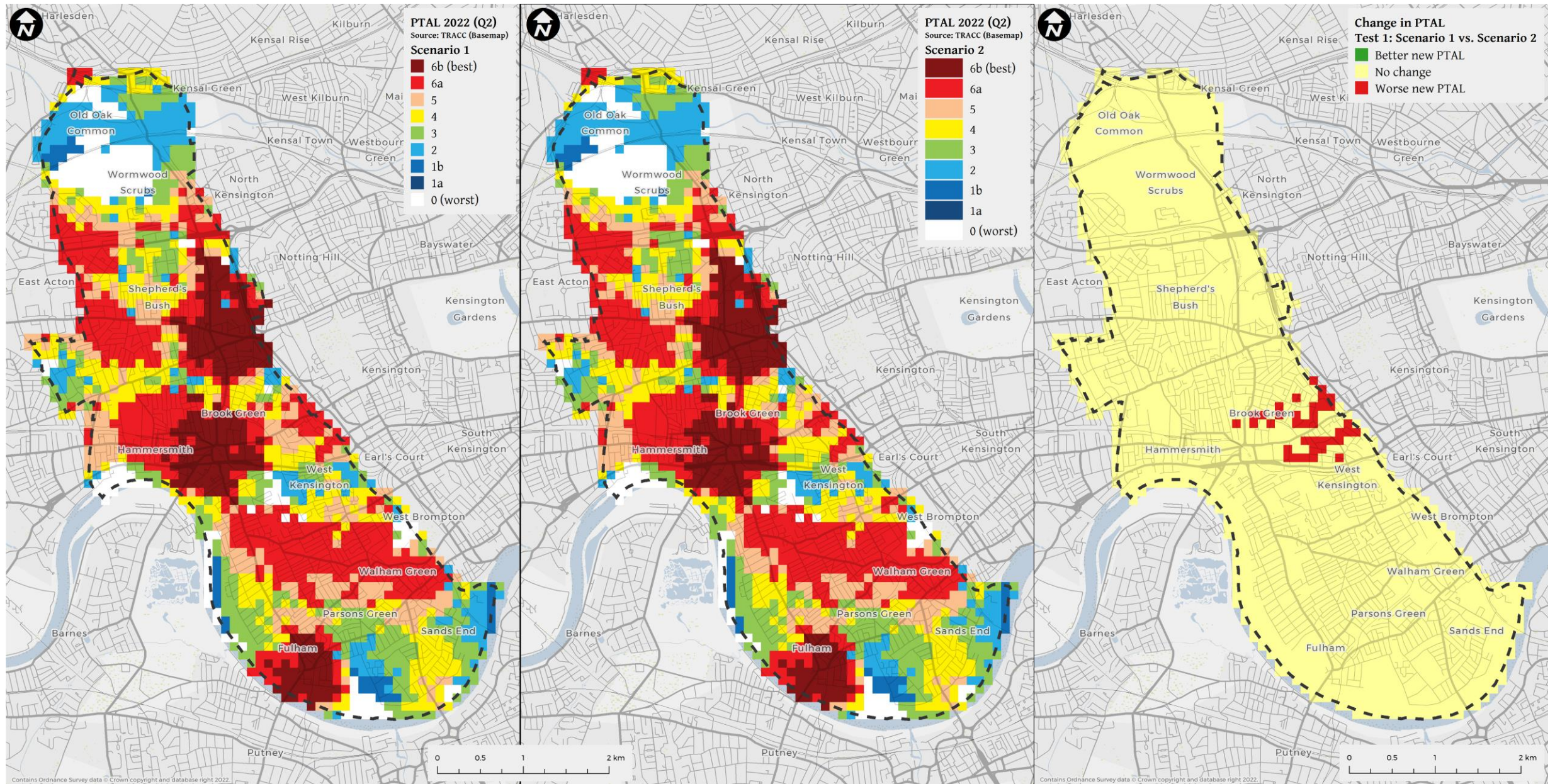
WSP

Appendix D

Scenario Testing

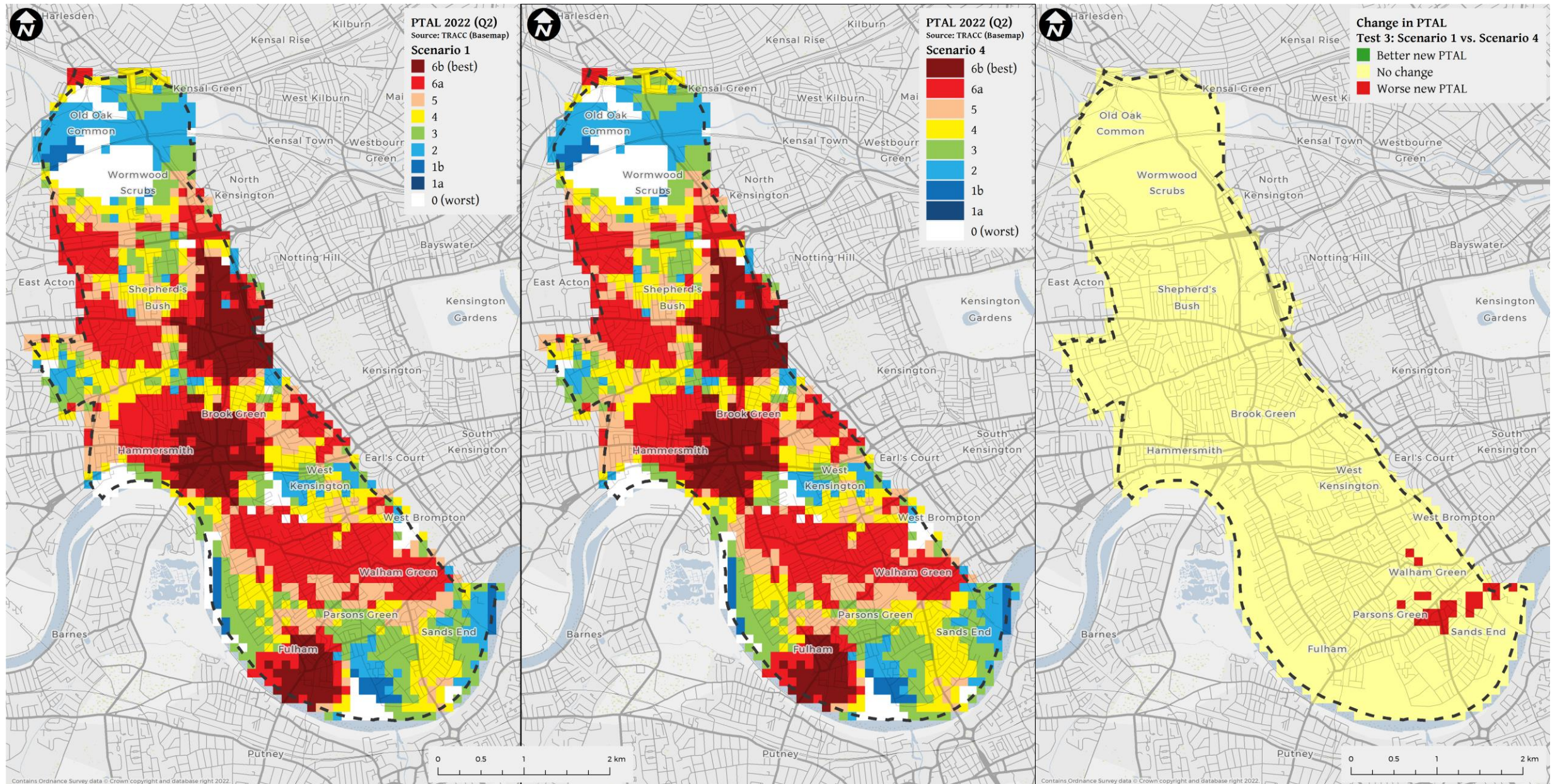
Test 1

Scenario 1 vs Scenario 2



Test 3*

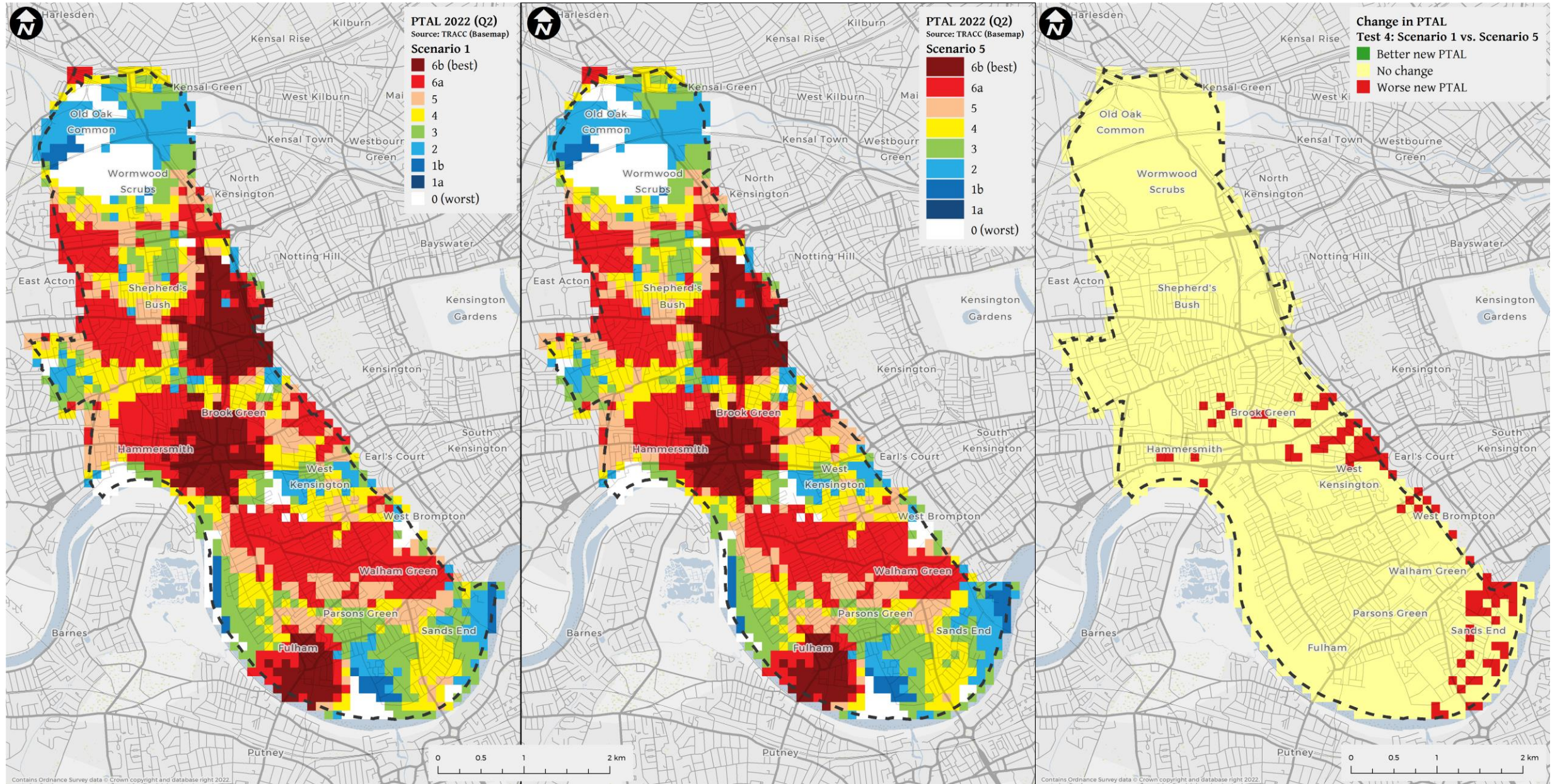
Scenario 1 vs Scenario 4



*Test 2 not included (changes were located outside borough)

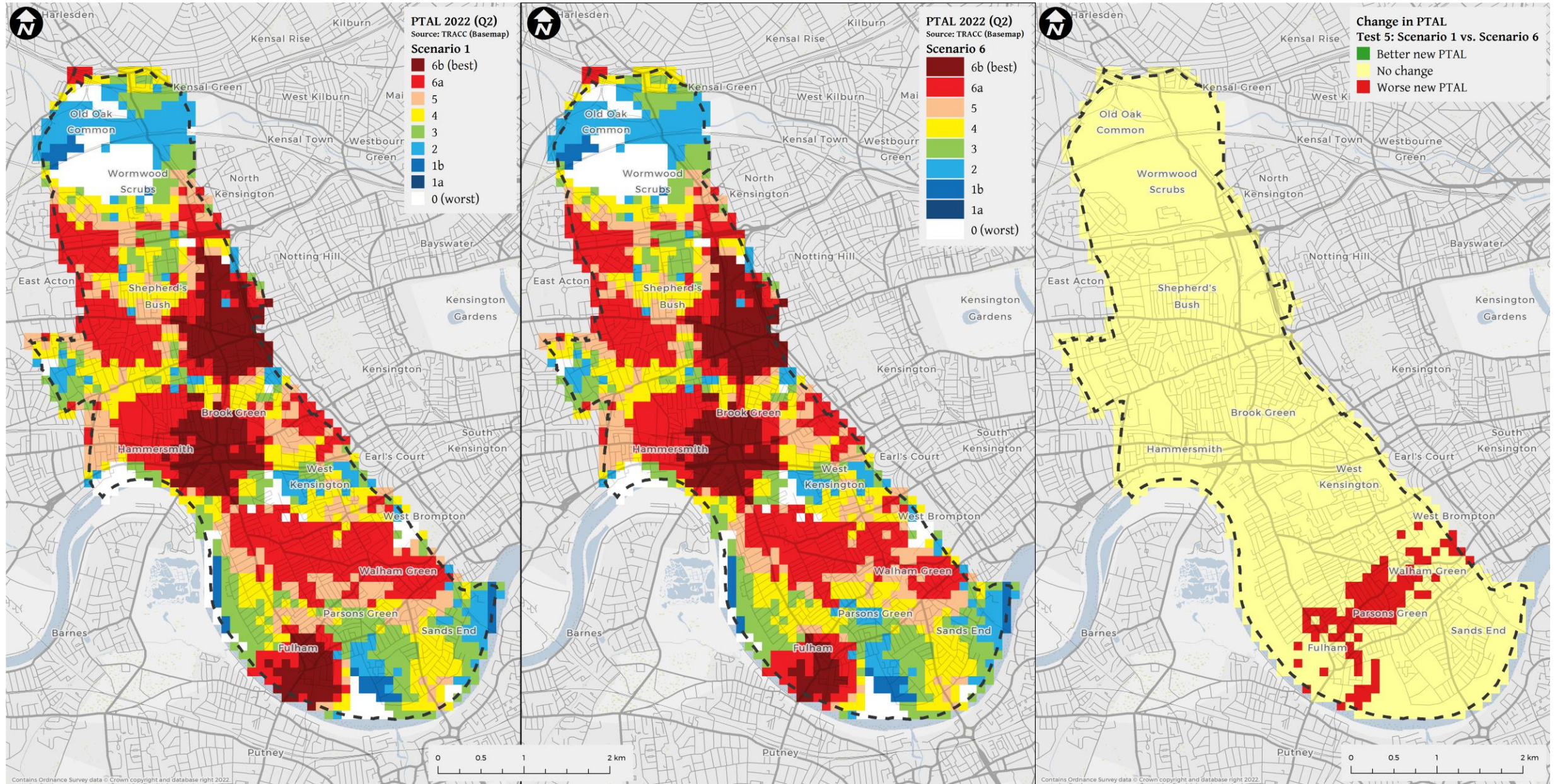
Test 4

Scenario 1 vs Scenario 5



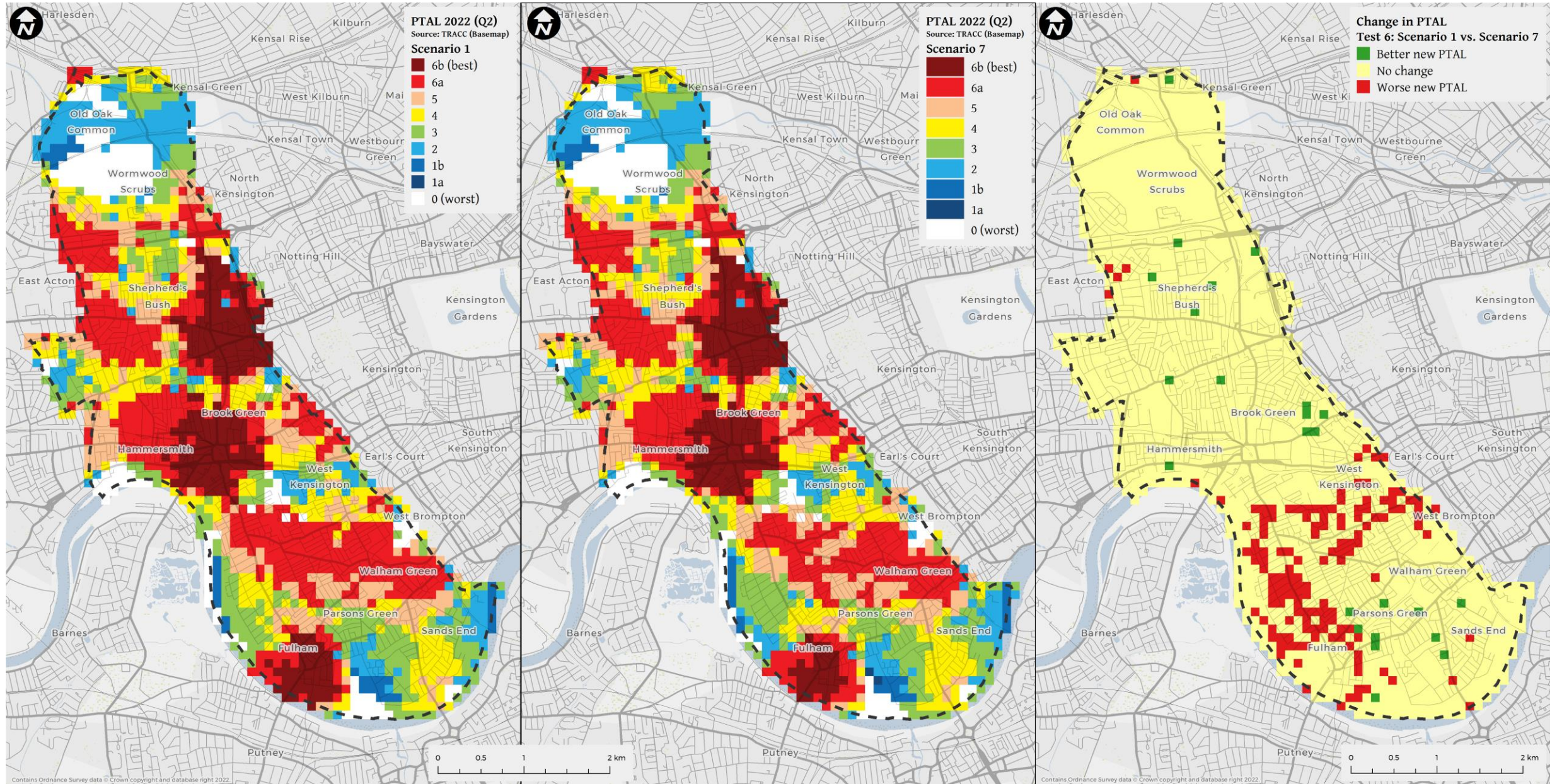
Test 5

Scenario 1 vs Scenario 6



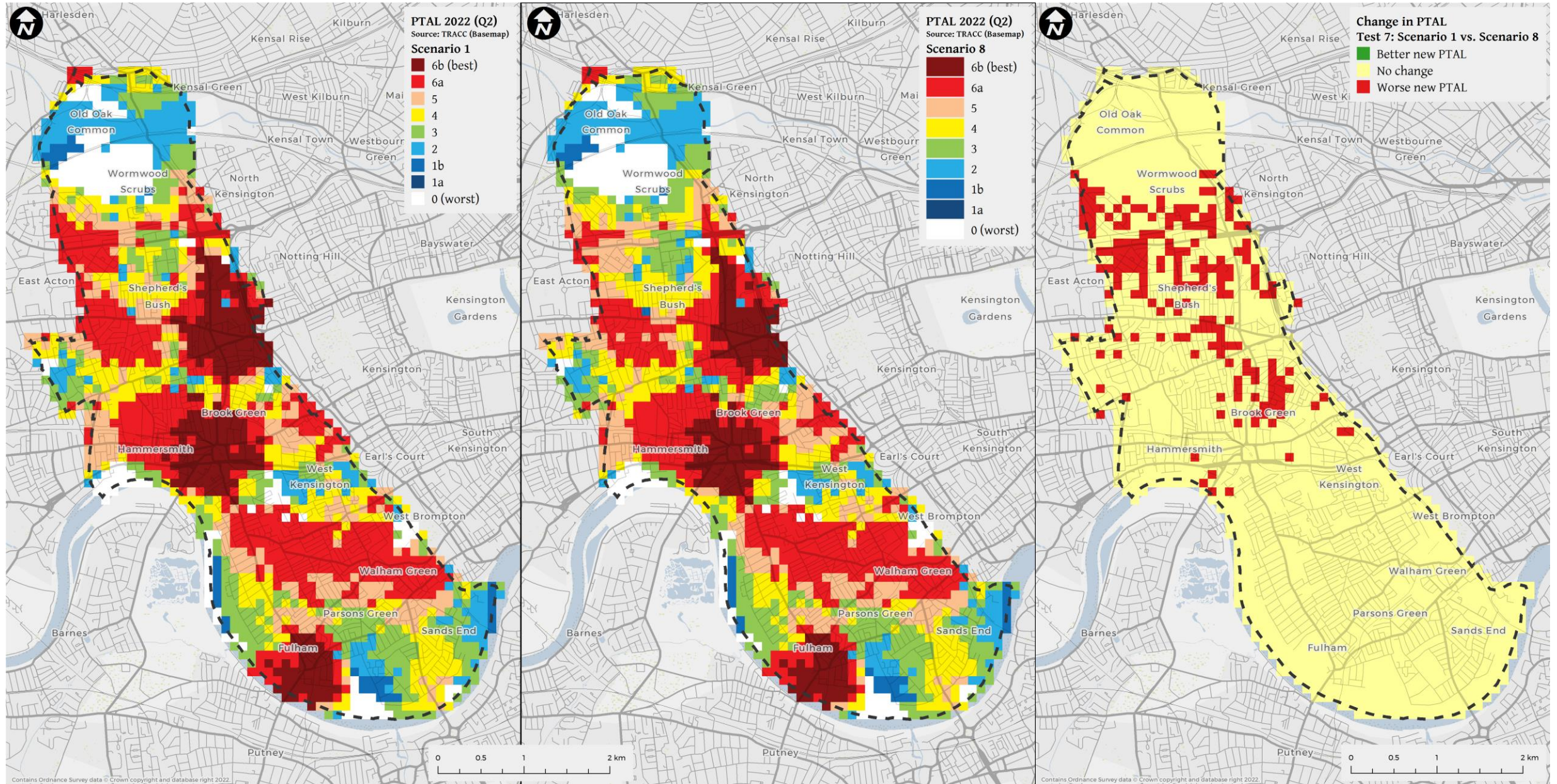
Test 6

Scenario 1 vs Scenario 7



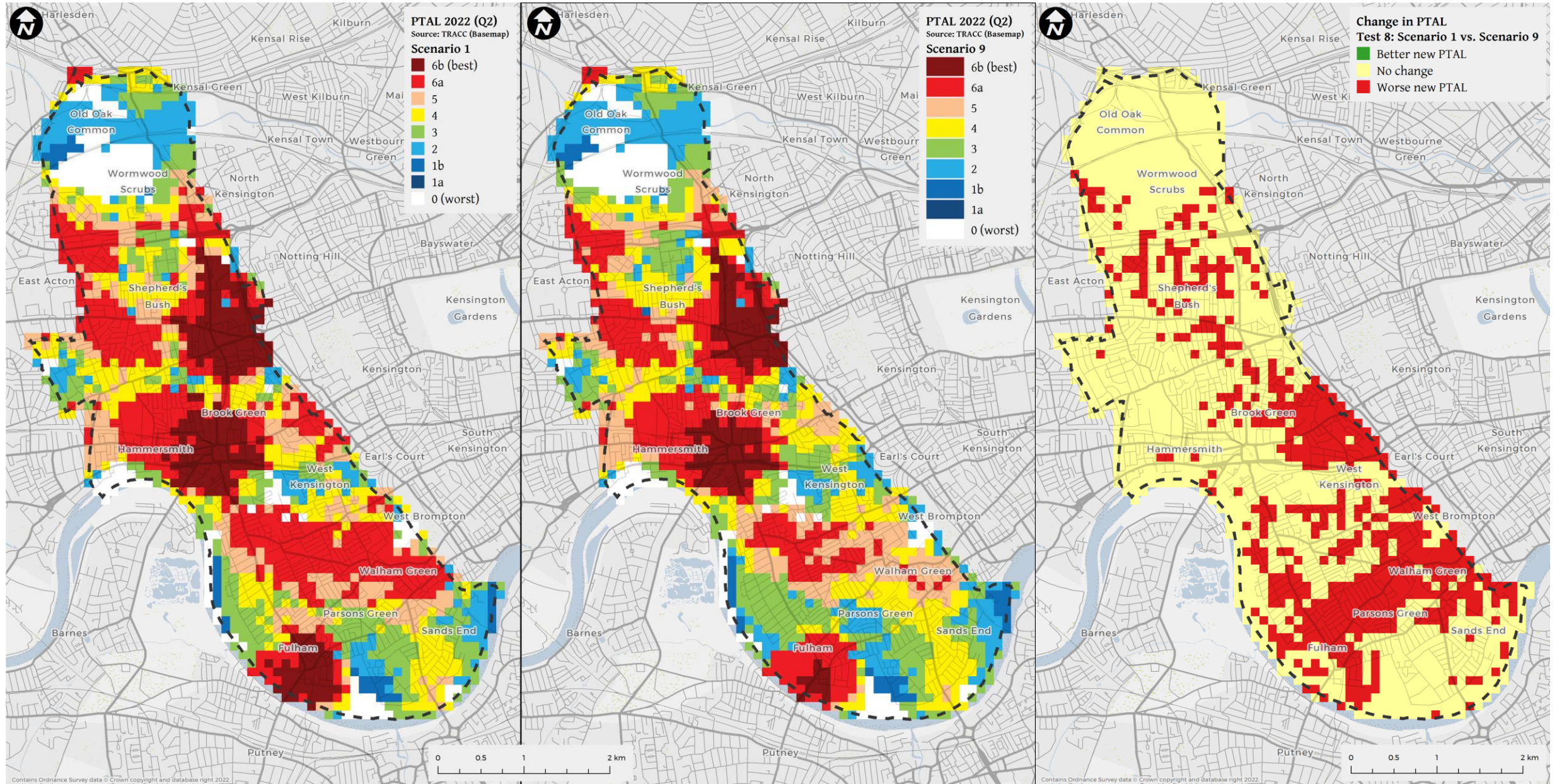
Test 7

Scenario 1 vs Scenario 8



Test 8

Scenario 1 vs Scenario 9 (All Proposals)



Test 9



Scenario 11 vs Scenario 10 (All Night Bus Changes)

