

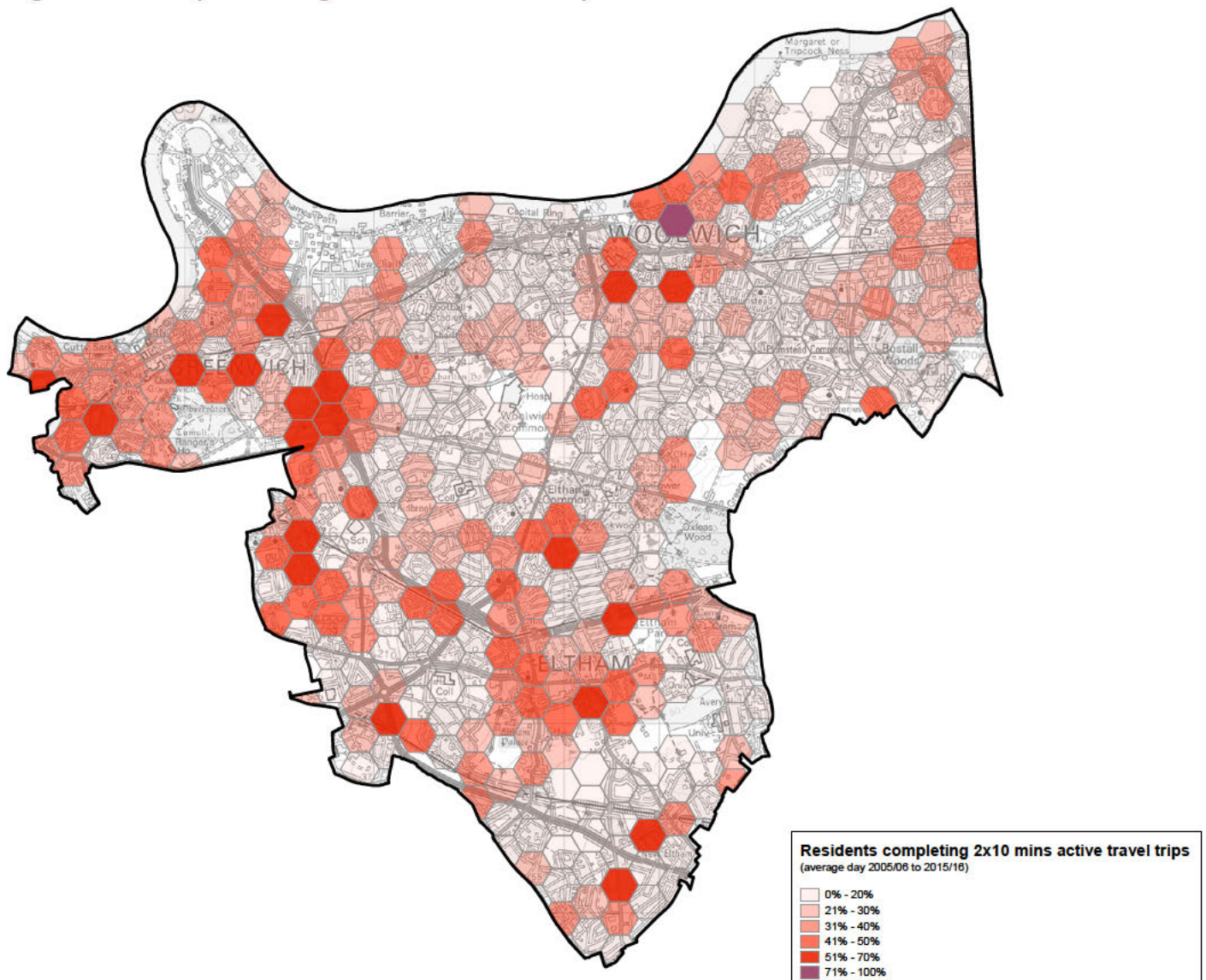
Trends in levels of inactivity and activity in Greenwich are moving towards convergence with those for England, London and other boroughs with comparable levels of deprivation. However, those meeting national recommendations are still below comparator borough averages. (56.4% versus 59%) (Greenwich Joint Strategic Needs Assessment)⁵.

Outcome indicator 1a from the MTS relates to the percentage of the population which does at least 20 minutes per day of active travel. Data provided by

TfL shows Greenwich was at 21% in 2016/17 and sets targets to reach 39% by 2021 and 78% by 2041. Figure 2.3 below shows the distribution of Greenwich residents who achieve the recommended 20 minutes per day of active travel.

The map shows higher concentrations in small areas around Greenwich, Blackheath, Eltham and Woolwich. However most of the borough is covered by areas where a majority of people do not achieve the 20 minutes of active travel.

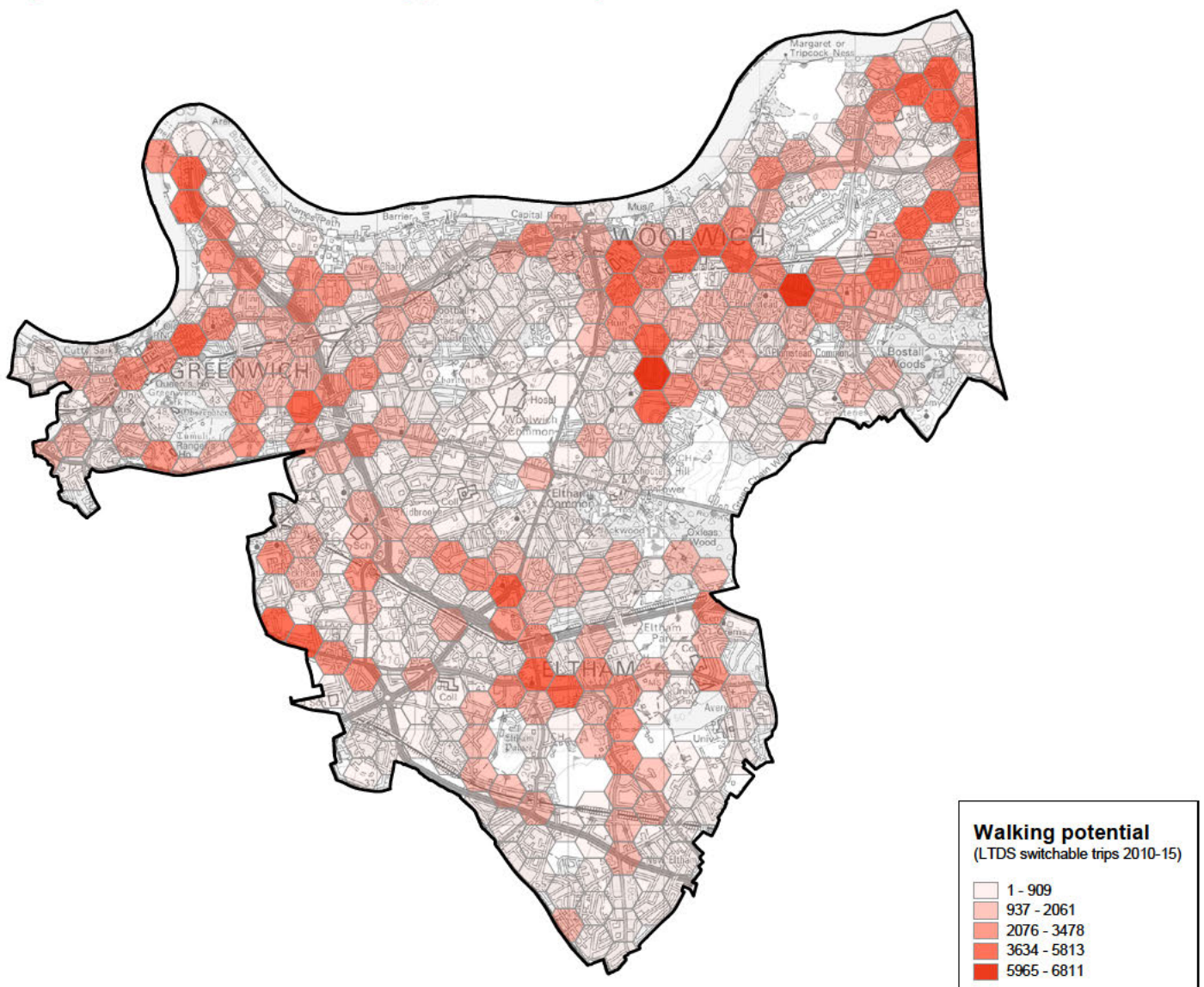
Figure 2.3: Map showing 20 minutes activity in Greenwich



The evidence base from the Greenwich Joint Strategic Needs Assessment⁶ highlights the need to promote physical activity for children through creating environments that promote walking and cycling. The Greenwich Health and Wellbeing Strategy sets out a key priority for improving health and Wellbeing Strategy sets out a key priority for improving health outcomes by enhancing the built environment in order to promote walking and cycling, this can be complimented through the active introduction of Green Infrastructure.

TfL data⁷ indicates Greenwich is a borough where there is considerable potential for increased active travel. Therefore, designing attractive street environments is likely to encourage the take up of active travel instead of car use.

Figure 2.4: Greenwich walking potential map



Walking

28% of all trips in Royal Greenwich were made by foot in 2016/17, an increase of 1.6% from 2012/2013 (LTDS)⁸. Walking has a major role in transport, leisure, health, social inclusion, the environment and local economy. Walking should be as pleasant, safe and convenient as possible. It is an accessible mode for most people and improving conditions for walking can bring a range of benefits to our everyday lives: to health, safety, access to services and even our sense of community. Walking potential data shows the extent to which trips could be switched to walking. Figure 2.4 shows the locations where walking potential is highest and lowest.

Pedestrianisation and improved pedestrian facilities can provide major townscape and environmental benefits. These measures will be focused in the areas with highest potential, in the town centres of Woolwich, Greenwich, Plumstead, Thamesmead and Eltham. As part of this LIP we will deliver 'Healthy Routes' to create attractive, safe and accessible walking routes to schools, Town Centres and public transport with a particular focus on improving conditions for children, older people and disabled people

We will also continue to make accessibility improvements, which include dropped kerbs, tactile paving, tonal distinction between areas for pedestrians and areas for vehicles, upgrading crossings, and decluttering. The needs of pedestrians will be prioritised wherever possible, through the provision of continuous footways and other interventions.

Cycling

In 2014 the Royal Borough of Greenwich adopted its first borough-wide Cycling Strategy. It set out a vision and delivery plan to achieve a 5% cycling mode share by 2026. This strategy has been instrumental in the delivery of high-quality infrastructure to support cycling in the Royal Borough. The cycling mode share in the Royal Borough has increased from 1.1% in 2009 to 1.7% today (LTDS). This is a marked improvement and above the average cycling mode share for an outer London borough. However, the target mode share stated in the Royal Greenwich Cycling Strategy by this point in 2018 is 3.8%. In order to deliver the 5% cycling mode share target by 2026 a step change in the quality and consistency of provision for cyclists is required.

Cycling facilities in Royal Greenwich are largely made up of routes that predate the introduction of the London Cycling Design Standards (2014). The network varies in the level and quality of provision; it can also be inconsistent and is often disrupted due to kerbside activity such as parking and loading. With the exception of the A102, and the A2 the existing cycle network includes all roads and greenways in the borough. Some of these roads have dedicated cycling facilities which are made up of advisory (dashed line) or mandatory (continuous line) cycle lanes on main roads. Some are signed routes on quieter streets. Other streets have no specific facilities for cyclists. Advanced stop lines for cyclists are present at many signal-controlled junctions. There is currently no timed separation for cyclists at any junction in the borough.

Much of this existing cycling provision does not meet current best practice and/or does not provide sufficient capacity for the growing volumes of cyclists. Examples include cycle lanes and tracks of substandard width, poor junction alignment, lack of continuity at side road crossings, barriers to contra-flow cycling, restricted forward visibility and inconvenient barriers on cycle tracks as a result of parking and/or loading activities. As a result, the cycling network can be inconsistent, unattractive to use and larger junctions create severance between areas.

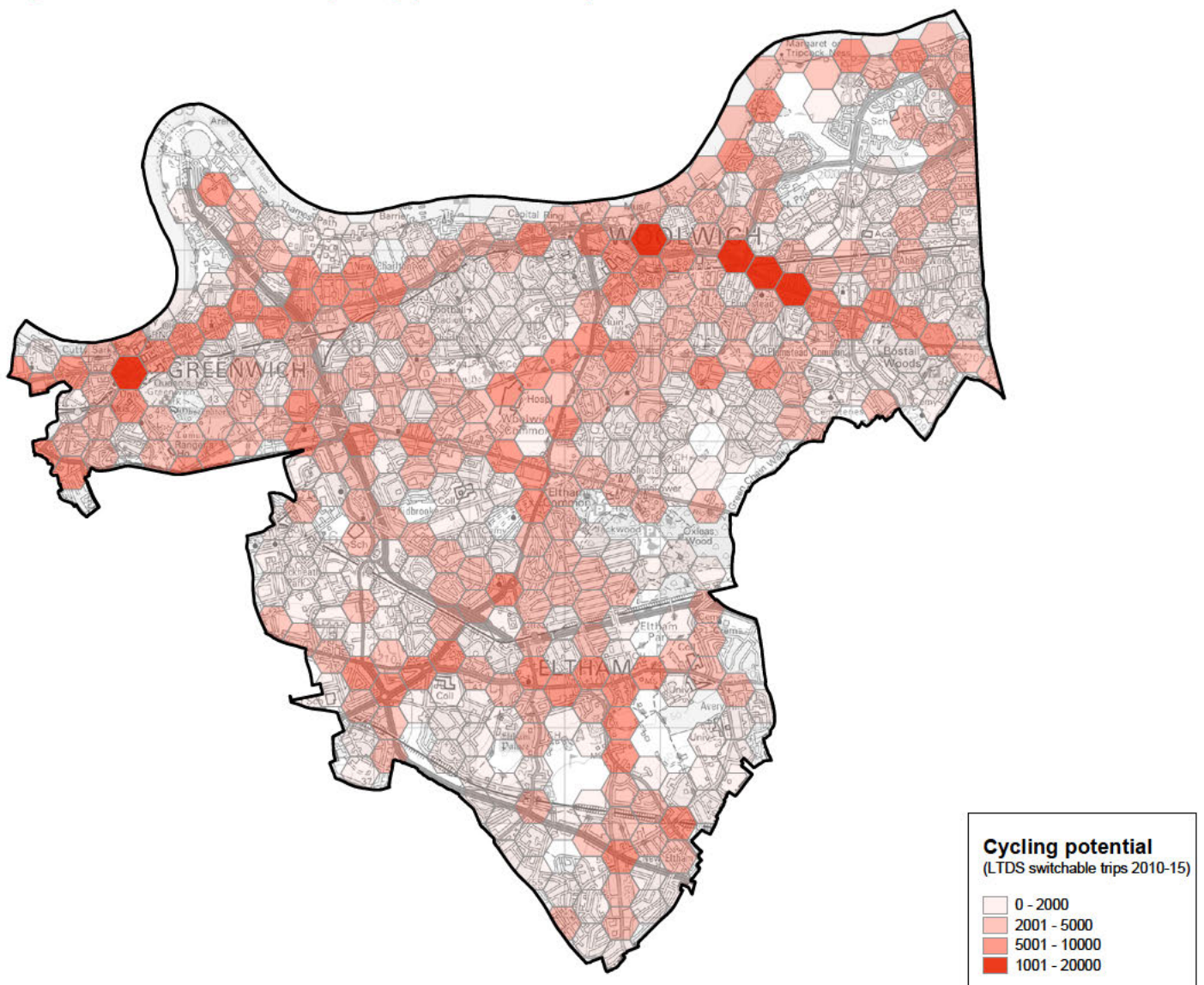
⁸ London Travel Demand Survey 2017
tfl.gov.uk/corporate/about-tfl/how-we-work/planning-for-the-future/consultations-and-surveys/london-travel-demand-survey

Greenwich is a borough with significant cycling potential. In 2017 TfL published the Strategic Cycling Analysis (SCA) which identified the cycling connections with the greatest potential for the growth of cycling in London. The SCA highlighted two routes in Royal Greenwich that are within the top 25 routes for cycling growth in London (Number 11: Woolwich to Greenwich and Number 6: Greenwich to Hackney)⁹. The Council is working with TfL to ensure that these

routes are delivered to a high-quality standard as swiftly as possible. In addition to this, the analysis indicates a high cycling potential concentrated in areas surrounding the Royal Borough's three town centres and six district centres (Figure 2.5 below). In order to unlock this potential, the cycling network will need to provide consistent and attractive routes for all users.

Since the preparation of the previous LIP, significant

Figure 2.5: Greenwich cycling potential map



developments have been made at a regional level to define the quality of route (described as a 'level of service') that is required in order to create safe and attractive cycling routes for people of all ages and abilities. The following documents set these requirements out clearly;

- London Cycling Design Standards (LCDS)
- Cycling Level of Service (CLOs)
- Kerbside Loading Guidance
- Construction Logistics and Community Safety (CLOCS)
- Gearing up: An investigation into safer cycling in London (GLA, November 2012)
- Get Britain Cycling (All Party Parliamentart Group, April 2013)

Cycle Route Development

Since the last LIP the Council has made significant progress in developing cycle route infrastructure. This includes:

- Fully segregated cycle tracks on Plumstead Road.
- Repository Road
- Eltham Hill
- Bexley Road and Rochester Way, amongst others:
- Delivery of the Thames Path Missing Link in Woolwich Dockyard
- On-going delivery of four Quietway routes

Cycle Parking

Providing secure, accessible cycle parking - particularly in residential areas, town centres, public transport interchanges and at key destinations - is crucial for encouraging travel by bike. The Royal Borough is increasing the number of secure long-stay and public short-stay cycle parking spaces around the borough.

There are currently 355 publicly available Sheffield stand (U-tube style) cycle rack spaces, the majority of which are situated in the town centres of Greenwich, Woolwich and Eltham.

There are currently 440 secure cycle parking spaces



Plumstead Westbound Cycle Route

We will continue to deliver new cycle routes such the new route on Plumstead road delivered since the last LIP



Cycle Hangers

We will continue to install new cycle hangers in estates and suitable locations on the Royal Borough's highways.

available on Royal Borough housing estates, of which 352 (80%) are occupied.

There are currently 48 secure on-street parking spaces available on Royal Borough highways land, of which 48 (100%) are occupied

The Royal Borough has secured LIP funding for 2018/19 to deliver a range of public cycle parking provision. This will continue throughout the term of this LIP.

Cycle Training

Cycle training had previously been delivered in-house by a team of up to 15 fully-accredited cycling instructors, providing training in both primary and secondary schools, individually to adults, and to families during school holidays. The following types of training are currently offered to residents, workers and students:

- Bikeability training in primary and secondary schools (mostly Year 5, 6 and 7)
- Adult 1:1 sessions and group training sessions
- Family sessions delivered outside of school term time
- Community group-sessions delivered at community hubs and/or housing estates

Table 2.2 outlines the number of children and adults that received cycle training during the previous financial year (2017-2018)

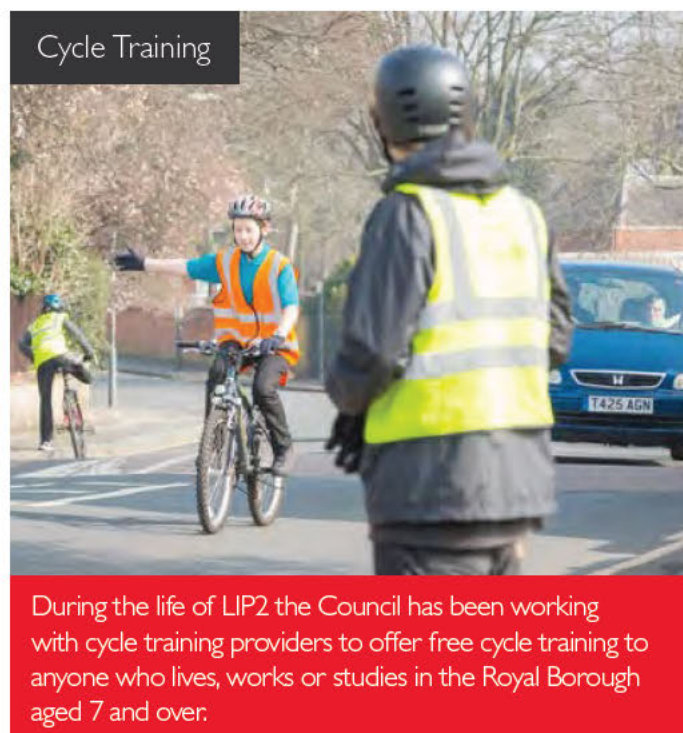


Table 2.2: Children and adults receiving cycling training (2017-18)

	KPI 17/18	Total 17/18	% KPI achieved	Total 16/17	General trend
Adults trained (unique)	400	665	166%	341	Exceeding
Children trained (unique)	1250	1527	122%	1965	Exceeding
Children trained on-road (unique)	625	1127	180%	1141	Exceeding

The Royal Borough currently owns 40 children's bikes that are delivered to schools to enable children without a bike to participate in Bikeability courses. Adult trainees without access to a bike can also use one free of charge for training courses at Hornfair Park and Avery Hill Park.

Cycle Promotion

Additional borough-wide active travel initiatives are offered to residents, outside of the main cycle training programme, to encourage modal shift. These include:

- **A monthly public Dr Bike free bike repair and advice programme in Greenwich and Eltham town centres**
- **Social rides incorporating new infrastructure improvements e.g. Thames Path, Quietways**
- **Personalised Travel Planning support from cycling instructors and community outreach workers in the Low Emission Neighbourhood (LEN)**
- **Events supported include:**
 - Car Free Day
 - Great Get Together
 - Annual Big Bike Ride (Greenwich & Bexley Community Hospice)
 - National Clean Air Day
 - National Bike Week
 - National Cycle to Work Day
 - Road Safety events (see section below)

Road Safety

The Council remains committed to the protection of all road users and particularly to improving the safety of pedestrians and cyclists. This includes reducing the community severance effects of busy main roads and creating pedestrian-friendly spaces where traffic conflicts are reduced.

The most recent figures, released in 2016, show that all types of casualties on Borough roads are decreasing, with the exception of a small increase in casualties of collisions involving car passengers. These statistics

also show that in 2016 Royal Greenwich was one of only four London Boroughs to see a reduction in KSIs (Killed or Serious Injured) incidents. Amongst these it has one of the highest rates of reduction, at 11%.

The key indicator of performance we were working to under the last Local Implementation Plan was reducing KSI (Killed/Serious) collisions by 50% by the year 2020, compared to the average of 2005-2009. The Royal Borough met this 2020 target for collision reduction in 2013 and continues to see further reductions.

These figures should also be considered alongside the significant length of road for which the borough is responsible – 483km (for comparison TLRN only accounts for 26.9km of roads in the borough). While the TLRN roads represent approximately 5% of the total length of roads in the Borough it should be noted that the TLRN had over 32% of all collisions in 2016.

Collision map

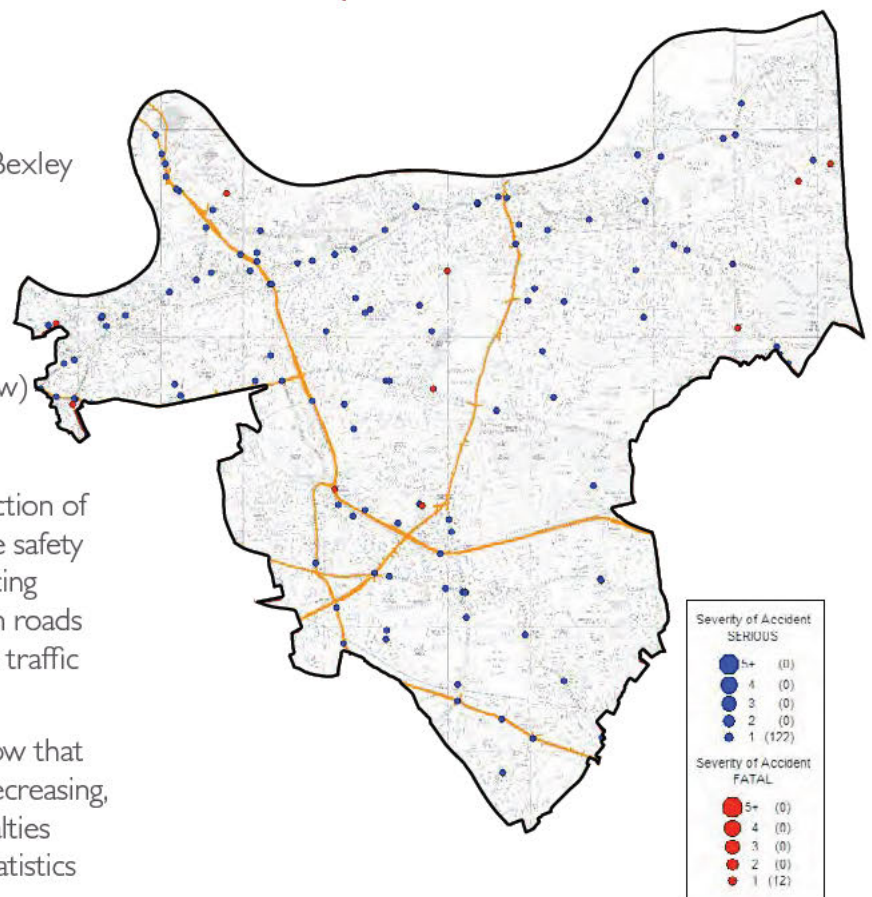


Table 2.3: Changes in KSI by mode 2005-2016

Year	2005	2016	Reduction
Pedestrians	31	15	-52%
Pedal Cyclists	6	4	-56%
Powered 2 Wheelers	34	18	-32%
Car Occupants	33	9	-75%
Bus and Coach Occupants	1	2	-60%
Other vehicle Occupants	3	0	-100%
Total	108	48	-58%

New Collision Reporting

The Metropolitan Police Service (MPS) introduced a new collision reporting system in November 2016: the Case Overview and Preparation Application (COPA). The City of London Police moved to the Collision Reporting And SHaring (CRASH) system in October 2015. This has had a number of impacts on the data that is available to Transport for London (TfL), and

the London Boroughs in the ACCSTATS database for collision investigation.

Under the new systems police officers use an 'injury-based assessment' (in line with DfT STATS 20 guidance) and online self-reporting is available to the public. Both of these changes are expected to provide a better assessment of the number and severity of injuries but they have made data collected from November 2016 onwards difficult to compare with earlier data.

TfL commissioned the Transport Research Laboratory (TRL) to undertake a back-casting exercise, to enable pre November 2016 data to be compared with post November 2016 data. These initial back-cast estimates include the number of people killed or seriously injured (KSI) for each borough between 2005 and 2017 and this data has been used to update borough targets to align with those contained in the Mayor's Transport Strategy, namely a 65 percent reduction in KSIs by 2022 against the 2005-09 baseline;

a 70 percent reduction in KSIs by 2030 against the 2010-14 baseline; and zero KSIs by 2041.

The targets contained in this final version of our LIP have been set against Outcome 2 for Vision Zero and reflect the reporting changes described above. The level of the Royal Borough's ambition remains unchanged, despite these revised figures.

The new targets for Royal Greenwich are shown in the table below:

	Observed			Targets		
	2005-09 baseline	2010-14 baseline	2017	2022	2030	2041
KSI	203	127	97	39	18	0

Taking a Vision Zero Approach

This LIP is designed to help deliver the Mayor's Vision Zero ambition: the elimination of all deaths and serious injuries from London's streets by 2041. The Royal Borough's target is for deaths and serious injuries from all road collisions to be eliminated from our streets by 2041. To do this we must reduce KSI's from 97 in 2017, to 39 by 2022, to 18 by 2030 and to 0 by 2041. We will focus on reducing the dominance of motor vehicles on our streets and ensuring that road danger reduction is central to all transport-related activity. This approach taken by this LIP to road danger reduction is influenced by the main principles of the Vision Zero Action Plan. These are:

Safe Speeds

Lowering traffic speeds will make our streets more inviting, less polluted, less dominated by motor vehicles, and more attractive for walking and cycling. As part of its approach to encouraging safer speeds, the Royal Borough is committed to continuing the introduction of 20mph zones. These have contributed to improving safety and delivering reductions in casualties, particularly amongst children. Accident data is used to prioritise implementation to ensure it is effective (this includes the consideration of schools in the areas).

Over 85% of residential areas in the Royal Borough are covered by 20mph zones. The delivery plan in the LIP sets out a series of programmes which will



incrementally lead towards 'a borough-wide 20mph zone' for all residential areas. Our 20mph zones are designed to be 'self-enforcing' through the use of appropriate traffic calming measures e.g. speed humps, speed cushions and speed tables. However we are supportive of potential proposals to allow boroughs to enforce 20mph limits. The locations of new 20mph zones are set out in the three-year delivery plan, in the Delivery section of this LIP. These locations have been developed using data taken from annual Road Safety Plan.

We are also looking to introduce 20mph on some of our major roads where local conditions dictate. A good candidate for this is Woolwich Road which serves two schools (Trust and Windrush) and support proposals to allow boroughs to enforce 20mph.

Safe Streets

A key to making people feel safe on our streets is reducing danger at the most dangerous locations.

Our programme of Local Safety Schemes has contributed to improving safety and delivering reductions in casualties, particularly amongst



In order to cut pollution and make it safer and easier for children, selected roads outside school gates are closed to traffic between 8am to 9.30am and 3pm to 4pm during term time.

children. As with 20 mph zones, accident data is used to prioritise implementation to ensure it is effective (this includes the consideration of schools in the areas). The locations of new local safety schemes are set out in the three-year delivery plan in the Delivery section of this LIP. These locations have been developed using data taken from annual Road Safety Plan. These schemes will be delivered using the healthy streets approach and will utilise the Healthy Streets Check for Designers.

We are currently delivering a number of innovative projects to enhance the public realm, with an emphasis on both improving air quality and enhancing road safety. These include:

- **Trafalgar Road Improvements** – As part of the Council's Low Emission Neighbourhood programme, the Royal Borough will be improving Trafalgar Road (A206) to create a friendlier environment for pedestrians and cyclists. Works will include creating continuous footways, to give priority to pedestrians, and implementing dedicated cycle lanes, including the introduction of three pocket parks which will include both Green Infrastructure and Sustainable Drainage.
- **Greenwich Town Centre Liveable Neighbourhood** – Through TFL's Liveable Neighbourhood programme the Royal Borough is working to transform the area, and make it safer for pedestrians and cyclists.

Vulnerable Road Users

The Borough Road Safety Plan employs a weighting system that affords priority to vulnerable road users. A pedestrian has twice the weighting of a car passenger injury and a child cyclist would have a threefold weighting over the same car passenger. Each year the Royal Borough also completes a 5 year Child Road Safety Audit. This identifies road user types, collision locations and wards where educational interventions are targeted for the forthcoming year. This approach is key to making people feel safe on our streets and is

reducing danger at the most dangerous locations.

The Council also takes a proactive approach to road safety around schools. The Royal Borough regularly reviews traffic calming measures around schools to ensure that they are suitable as schools and travel patterns change.

The Royal Borough will continue to hold a number of interventions outside of the schools programme including but not limited to examples of which include:

- A monthly Independent Travel Training Bus which together with Travel mentors, Road Safety staff and the Police afford members of the community that have limited confidence when travelling by bus a 'hands on' experience on some of the issues that may arise and coping strategies when they may occur.
- 'Stepping Stones' mainly held in the holidays an independent travel training package for the community that may have confidence issues when outside this programme whilst open for pupils encourages parents and carers to participate and continue further independent training.
- General Independent Travel Training sessions are offered on an ad-hoc basis

Powered Two Wheelers¹⁰

Our annual Borough Road Safety Report includes full personal injury collision analysis of Borough roads. As more vulnerable road users, Powered Two Wheeler collisions have an additional weighting applied to them, to help better target possible interventions.

An analysis of Powered Two Wheeler collisions shows that the majority occur on the TLRN or roads immediately in the vicinity of the TLRN. This also shows that many of the victims reside outside of the Borough.

The Royal Borough participates in the '2 Wheels London' programme. This provides best practice, hints and tips, training and legislative news to the

motorcycling community. The Royal Borough is part of its London Stakeholder Group. 2 Wheels London also aims to pass this information to business's in the Royal Borough, with more than 20 local businesses currently involved.

Safe Vehicles

Delivering the Healthy Streets Approach means reducing the dominance of motor vehicles on our streets. This not only means reducing the use of motor vehicles, but also reducing the danger that they pose. There are a number of initiatives that the Council has been involved in and will continue to pursue through the lifetime of this LIP:

Construction Logistics Improvement Group (CLIG): The Council is a member of CLIG and will be improving its fleet in accordance with Direct Vision Standard. This includes installing 4-camera systems, audible left turn warning devices and side sensors to its HGV fleet.

Fleet Operator Recognition Scheme

(FORS): is a voluntary accreditation scheme for fleet operators. It aims to raise the level of quality of fleet operations, and to demonstrate which operators are achieving exemplary levels of best practice in safety, efficiency, and environmental protection. The Council is a Bronze FORS borough and will work to attain at least Silver FORS status in the first two years on this LIP.

Construction Logistics and Community Safety Standard (CLOCS): is the direct result of collaboration between the construction and fleet sectors to address shared issues. It draws together best practice from a number of standards, policies and codes of practice to provide an industry standard that can be implemented by regulators, clients, principal contractors and fleet operators.

As Local Planning Authority the Council requires Construction Logistics Plans from developers to ensure construction practices are in accordance with CLOCS requirements. As a fleet operator the Royal Borough is working towards becoming a CLOCs

¹⁰ Powered Two Wheelers include mopeds, scooters and motorcycles.

borough. The minimum FORS level to be eligible for CLOC accreditation is Silver and we will therefore work towards achieving this (see above). The first steps will be extra turning warning sensors, audible left turn warnings and camera systems.

Safe behaviours

The Vision Zero approach to encouraging safe road user behaviour is threefold:

- Directly tackling high-risk behaviours, irrespective of mode, that contribute to road danger, starting with those that contribute to the vast majority of collisions.
- Upholding the greater responsibility of those driving and riding for a living.
- Filling knowledge or skills gaps to enable people to take responsibility for their own wellbeing.

Road danger links closely with age, responsibility and ability the Royal Borough has a structured Road Safety programme that encourages more responsible actions and behaviours at many levels. The Royal Borough has developed a programme of behaviour change measures, designed to encourage safe road user behaviour in line with the approach described above. These include:

Tackling road danger at the source: The Royal Borough is an active participant in the TfL Exchanging Places programme. This encourages Heavy Goods Vehicle (HGV) drivers, bus drivers and cyclists to be more aware of each other. These events give cyclists the opportunity to sit in the driver's seat of a HGV or bus, and see what the driver can and cannot see. There is also the opportunity to try Exchanging Places as a virtual reality experience. These new mobile headsets allow up to 10 people to participate at once, and is accessible for all ages.

The Royal Borough has, with the Metropolitan Police, also targeted Powered Two Wheeler users at key locations with high collision rates, offering advice and the opportunity to participate in **'Bike Safe' or 'Scooter Safe'** events at a reduced cost. Bikesafe

and Scootersafe are one day police-led training days for riders to learn key skills to ride safely in London.

The **'STEPWISE'** programme has engaged older pedestrians after a rise in collisions involving larger vehicles. Community events were held at high footfall community centres, to offer advice and take feedback.

Another key aspect of Vision Zero is filling knowledge or skills gaps to enable people to take responsibility for their own wellbeing. Through the **Safer Urban Driving** project, the Royal Borough is committed to ensuring its professional drivers behave responsibly while driving for the Council and are trained to understand the behaviours of other road users.

Safe Urban Driving courses are delivered through the cycle training programme, and are offered to anyone driving professionally for the Royal Borough. They help drivers to empathise with cyclists and other vulnerable road users by taking part in a 3.5 hour practical lesson on a bike. These courses count towards a driver's Certificate of Professional Competence (CPC).

The Royal Borough is currently re-training its refuse collectors, and expects another 60-80 drivers to be trained or re-trained in the upcoming financial year. By ensuring as many drivers are trained as possible, the Council is demonstrating its aspiration to achieve a minimum of FORS Silver during this three year LIP delivery plan period.

Enforcement: As the agency still responsible for enforcement against moving traffic offences in Royal Greenwich, the Metropolitan Police continues make a crucial contribution to local road safety. The Royal Borough has worked with the Police to bring forward a number of road safety initiatives targeting vulnerable road users, including: motorcyclists; older road users; and young car drivers and passengers.

The Council has resolved to seek moving traffic contravention powers and resources are being secured to implement this. Targeting of this enforcement will be heavily influenced by our road danger reduction approach.

Corporate Road Safety: The Council, as an organisation, places great emphasis on its own responsibility to use the road safely. As a result:

- The Council has a zero-tolerance policy for alcohol consumption by its staff.
- The Council offers cycle training to all staff and provides additional support to those who are looking to cycle to, from and during work. Cycle taster sessions have been provided at Council sites, led-rides offered between council locations and regular Doctor Bike sessions have been held for staff to have bikes checked by cycle mechanics. Pool bikes are also available to staff wishing to cycle for Council business. As well as making employees safer cyclists, by reducing the number of Council trips undertaken by motorised vehicles this reduce traffic dominance – increasing safety for all.
- A training ‘toolbox’ has been developed to teach the Royal Borough’s professional drivers about road safety and vulnerable road users. Together with Safe Urban Driving training described above, this forms part as part of their CPC requirements

Post-collision learning and criminal justice

Understanding the causes of collisions is fundamental to preventing their reoccurrence. Our approach to responding to and understanding the causes of collisions has been through robust data analysis. This will continue to be the case, through the delivery of this LIP. The Safe speeds, Safe streets, Safe vehicles and Safe behaviours sections above explain how we use data, to learn from collisions and direct our work.

We will work with stakeholders to adopt new processes and practices, to stay at the forefront and further enhance this approach.

As part of the Vision Zero programme we will continue to support TfL in developing a better understanding of the most serious, fatal, incidents on our roads. We will participate in the new ‘Go Look See’ initiative. Council officers and members

of TfL’s operational teams will visit sites within the first 24 hours following an incident to ensure there are no asset defects or operational issues of concern. Within the first 72 hours, a further site visit for non-operational staff will take place to make further observations about the layout, infrastructure and user behaviours. These visits are not part of the formal investigation but help identify whether there are any immediate precautionary actions that could be taken to reduce risk at that or similar locations

Crime

Antisocial behaviour can have a significant impact on people’s perceptions of safety and on their journey experiences. Such behaviour can create a sense of unease and increase fear of crime. The Borough will work with Transport for London and other partners to introduce measures for improving behaviour on public transport and bringing about a shift in public opinion about what is acceptable behaviour when travelling.

Borough ‘hotspots’ for antisocial behaviour are Woolwich and Greenwich Town Centres¹¹. Addressing these areas will require a range of measures, which combine enforcement with education and social marketing to persuade people to be more considerate of others when travelling.

Proposals for new development will also be expected to “consider community safety and aim to discourage crime”¹². Designing out crime is an effective strategy for reducing the potential for crime, which also contributes to a more positive urban environment.

There is a need for secure overnight cycle parking facilities in residential areas. Bicycles locked to stands overnight are not sufficiently protected from thieves, who are able to break most locks available given time. Cycle theft is a problem in residential areas and the council is seeking to address this in future developments. For existing council homes, we are investigating the feasibility of introducing secure cycle storage in disused spaces, e.g. laundry rooms. Cycle Hangers can also play a role for existing properties.

¹¹ Safer Greenwich Partnership – ASB-Annual Review 2017/18

¹² Greenwich Core Strategy with detailed policies (Policy CH1)



Personalised Travel Planning is an established approach that enables people to think about the way they currently travel and provides them with the information, advice and motivation to walk, cycle and use public transport more often.

Delivery plan priorities for a Healthier Greenwich

This section sets out a range of interventions that will contribute towards achieving the 'Healthier Greenwich' Borough Objective. They promote a sustainable transport network and public realm that encourage active travel, keeping us all fit and healthy, mentally and physically. They will make our roads safer, particularly for walking and cycling. They will help to ensure we all feel safe and secure when we're out and about.

This objective will be delivered through three LIP priorities:

- **LPI:** Promoting a sustainable transport network in Royal Greenwich that provides opportunities for active travel, and thereby good physical and mental health, for everyone.
- **LP2:** Encouraging active travel through behaviour change and awareness initiatives. This will include cycle and driver training schemes.

- **LP3:** Improving safety, particularly for vulnerable road users, reducing collisions and ensuring people feel secure on streets and in public areas.

By delivering on these priorities these interventions also deliver the following MTS Outcome MTS Indicator 1a: Londoners to do at least the 20 minutes of active travel they need to stay healthy each day

- **MTS Indicator 1b:** Londoners have access to a safe and pleasant cycle network
- **MTS Indicator 2: Vision Zero** - Deaths and serious injuries from all road collisions to be eliminated from our streets

We have taken an approach which takes the LIP priorities above and groups interventions into three strands: active travel infrastructure, active travel promotion and road danger reduction. More detail is provided on these priority measures in the Delivery Plan section.



Active Travel Infrastructure:

- Expanding the development of a network of pedestrian priority routes includes investment in key strategic walking routes in the borough. This includes incorporating existing paths, using opportunities afforded by the riverside, pocket places, open spaces, road closures and redevelopment schemes including through the introduction of Green Infrastructure to improve and enhance these opportunities.
- To undertake signage audits for the Borough Town Centres and improve signage up to Legible London standard.
- Extension of Quietways programme
- Accessibility improvements (for example, continuous footways, dropped kerbs, tactile paving, tonal distinction between areas for pedestrians and areas for vehicles, upgrade of crossings, decluttering)
- Deliver 'Healthy Routes' to create attractive, safe and accessible walking routes to schools, town centres and public transport interchanges

- with a particular focus on improving conditions for children, older people and disabled people
- The Borough has targets of 34% and 72% percent of the population to live within 400m of strategic cycle network by 2026 and 2041 respectively. Such ambitious targets must be met with the required level of funding to achieve them. We will continue to lobby TfL for the extension of Cycle Superhighway 4 route through Greenwich Town Centre via the Liveable Neighbourhood to Woolwich and beyond. We will continue to deliver improved cycle routes, including Quietways and filtered permeability for cycling.
- A key priority is for transformational cycling improvements to Angerstien Roundabout which forms part of the Cycle Superhighway 4 route to Woolwich. The dominance of traffic, including significant flows of heavy goods, vehicles presents significant safety concerns. The Council will work with TfL to ensure a solution is progressed within the term of the LIP that addresses road danger and is future proofed

to accommodate Cycle Super Highway designs and planned changes in the area (such as TfL's Silvertown Tunnel).

- Implementation of the Liveable Neighbourhood in Greenwich Town Centre and ensuring all improvements meet the ten Healthy Streets Indicators. We will also develop plans for an additional Liveable Neighbourhood in Greenwich within the life of the LIP Delivery Plan.
- Explore the potential for a dockless cycle hire system in the Borough, with a view to putting plan in place within the period of this LIP.
- Continue to install new cycle parking - including parking at schools, stations and town centres, as well as cycle hangers in residential locations.
- Junction safety improvements (including measures to reduce speed on turning and promote pedestrian priority).
- The Council will continue to work closely with Transport for London and the Greater London Authority to ensure that the full route of Cycle Superhighway 4 from Tower Bridge to Greenwich is delivered as swiftly as possible as well as the cycling future routes that have been identified in the Strategic Cycling Analysis. This includes the remodelling of the Angerstein Roundabout (Woolwich Road flyover) as a key priority. In addition, the Council will ensure that the emerging designs for the Greenwich Town Centre Liveable Neighbourhood provide consistent and high-quality cycling facilities.
- The Council will continue to invest significant funding and resources to deliver the Quietways programme to a high-quality standard with the intention of launching all four routes before the end of this LIP cycle in 2022.
- A key part of the delivery programme will be to establish clear and concise Streetscape Guidance for the Royal Borough. This will create consistency across the materials that make up our public spaces and define the level of service that these spaces must provide different types of users. This will define the level of service for pedestrians and cyclists by street type and establish a clear policy basis on which to deliver a consistent and high-quality network including high quality green infrastructure.
- The Strategic Cycling Analysis (SCA) has highlighted that the following corridors have the highest current cycling levels, as well as the highest potential for cycling growth. The Council will prioritise the following routes for upgrades as part of the Active Travel Infrastructure package to deliver phased improvements. These routes either intersect with or run directly along Strategic Road Network and/or the Transport for London Road Network (TLRN). Therefore, the delivery of these improvements will require collaboration and support from TfL
 - i. Plumstead Common Road to Charlton Park Road (via HaHa Road)
 - ii. Shooters Hill Road (South Circular to Sun in the Sands Roundabout, inclusive)
 - iii. South Circular Road (A205 Well Hall Road Roundabout to Woolwich Ferry Roundabout, inclusive)
 - iv. Woolwich to Greenwich (A206)
 - v. Eltham Hill
- The Council will deliver a programme of 'modal filters' on residential streets, to create parallel routes away from main roads that have less motorised traffic, are quiet and pleasant to cycle on. This will be delivered as part of the Traffic Reduction package, please see the Delivery Plan section for more details.
- The Council will make every opportunity count within its 'business as usual' activities, such as highway resurfacing and 20 mile an hour zone delivery, to introduce smaller light touch interventions that improve the consistency of the cycling network. For example, using cycle friendly speed humps or ensuring re-lining work adds new facilities where practical.
- Revisiting restrictions preventing cycling in parks

and open spaces, to ensure that the prohibition of cycling in these spaces is warranted. Where there is no evidence of the need to prohibit cycling we will work to remove them. Other boroughs have successfully completed this process and RBG will work with them to understand the best approach.

- Ensuring new development is permeable and creates a calm environment where cycling is the logical choice.
- Wayfinding on cycle routes can vary across the borough and is not always consistent or clear. Through the process of upgrading the RBG cycling network the Royal Borough will deliver an annual programme of wayfinding upgrades to the cycling network to ensure that all routes are clearly and legibly signed.
- The Royal Borough will deliver feeder routes to major transport interchanges in the borough to ensure convenient and safe access to public transport connections. It will also work with rail operators and private land owners to ensure that there is sufficient and secure cycle parking at all underground and rail stations

Active travel promotion:

- The Royal Borough will continue to exploit opportunities through the delivery of all projects, such as quietways and Highway maintenance across its network to introduce and enhance existing Green Infrastructure and Sustainable Drainage Systems, such as:
 - Crown Woods Way – SuDS, Air Pollution, Noise Pollution (Case study LO2)¹³
 - Plumstead Road – Cycle route
 - Repository Road – Quietway
 - Armitage Way - Quietway
 - Wilton Road – Highway Maintenance
- School and Workplace Travel plans
- STARS school travel accreditation scheme: get even more schools accredited and increase the

number with gold accreditation

- Update the Borough Cycle Map to reflect the developments in cycle routes since the last version of the map (and consider options for online mapping).
- To continue the adult and child cycle training programmes
- To continue to promote active travel through targeted events such as Car Free Day, play streets National Clean Air Day, National Bike Week and National Cycle to Work Day

Road danger reduction

- The Council will continue to deliver more 20mph zones, working closely with schools and residents in identified areas. The next two zones to be implemented (in 2019/20) will be at Plumstead Common Road and Western way. These locations and the locations set out in the three-year delivery plan will be subject to review alongside the annual Road Safety Plan, which informs the locations of 20mph zones.
- Continue to implement local road safety schemes, which are informed by the Borough Road safety Plan. For 2019/20 the areas prioritised are:
 - Footscray Road/Avery Hill Road
 - Plumstead Common Road/Sandy Hill Road.
 - Charlton Road (Invicta Road-Canberra Road)
 These locations and the locations set out in the three-year delivery plan will be also be subject to review alongside the annual Road Safety Plan which informs the locations of local safety improvements
- We continue to work closely with all schools to ensure that children are taught vital road safety skills from an early age.
- Provide Bikeability training sessions.
- Support the Community Roadwatch scheme
- Incorporate the principals of designing out crime in all public realm improvements, including Liveable Neighbourhoods.

¹³ www.theccc.org.uk/wp-content/uploads/2018/11/Adaptation-actions-in-cities-what-works-final.pdf

Strategic Objective 2: Greener Greenwich

Reducing pollution from transport, to keep us healthy, happy and reduce our contribution to climate change. There will be a reduction in car ownership and single occupancy car trips.

LiP Priorities

- **LP4:** Improving air quality by reducing the levels of key pollutants that are associated with traffic and transport in the Royal Borough.
- **LP5:** Reducing transport's contribution to climate change including the introduction of Green Infrastructure and Sustainable Drainage.
- **LP6:** Promoting an innovative and future-proof transport network befitting London's leading 'Smart City' Borough.

Related MTS outcomes and indicators

Outcome 3: London's streets will be used more efficiently and have less traffic on them

- **MTS Indicator 3a:** Reduce the volume of traffic in London
- **MTS Indicator 3b:** Reduce the number of freight trips in the central London morning peak
- **MTS Indicator 3c:** Reduce car ownership in London

Outcome 4: London's streets will be clean and green

- **MTS Indicator 4a:** Reduced CO₂ emissions
- **MTS Indicator 4b:** Reduced NO_x emissions
- **MTS Indicator 4c:** Reduced particulate emissions (PM₁₀)
- Reduced particulate emissions (PM_{2.5})

Reducing the volume of traffic

Congestion on main routes is in part caused by commuting and through traffic. This causes bus journeys to be unreliable, has negative environmental impacts and increases risk for pedestrians and cyclists. It can also stifle economic growth, affecting local business activities.

Both the Blackwall Tunnel and Woolwich Ferry act as major traffic attractors for those travelling through the Borough. A significant challenge to support continued economic development is the limited reliability and resilience of the existing infrastructure. The Woolwich Ferry has been operational for many years and capacity cannot meet demand. The network is extremely sensitive to the operation of the Blackwall Tunnel. Greenwich has little resilience if disruption occurs, causing severe congestion across the entire network. The development by TfL of the Silvertown Tunnel will also cause similar issues.

The predominant traffic flows in the Borough are towards central London in the morning peak and back out in the evening peak. Figure 209 shows these flows in the AM peak. Roads with high flows include:

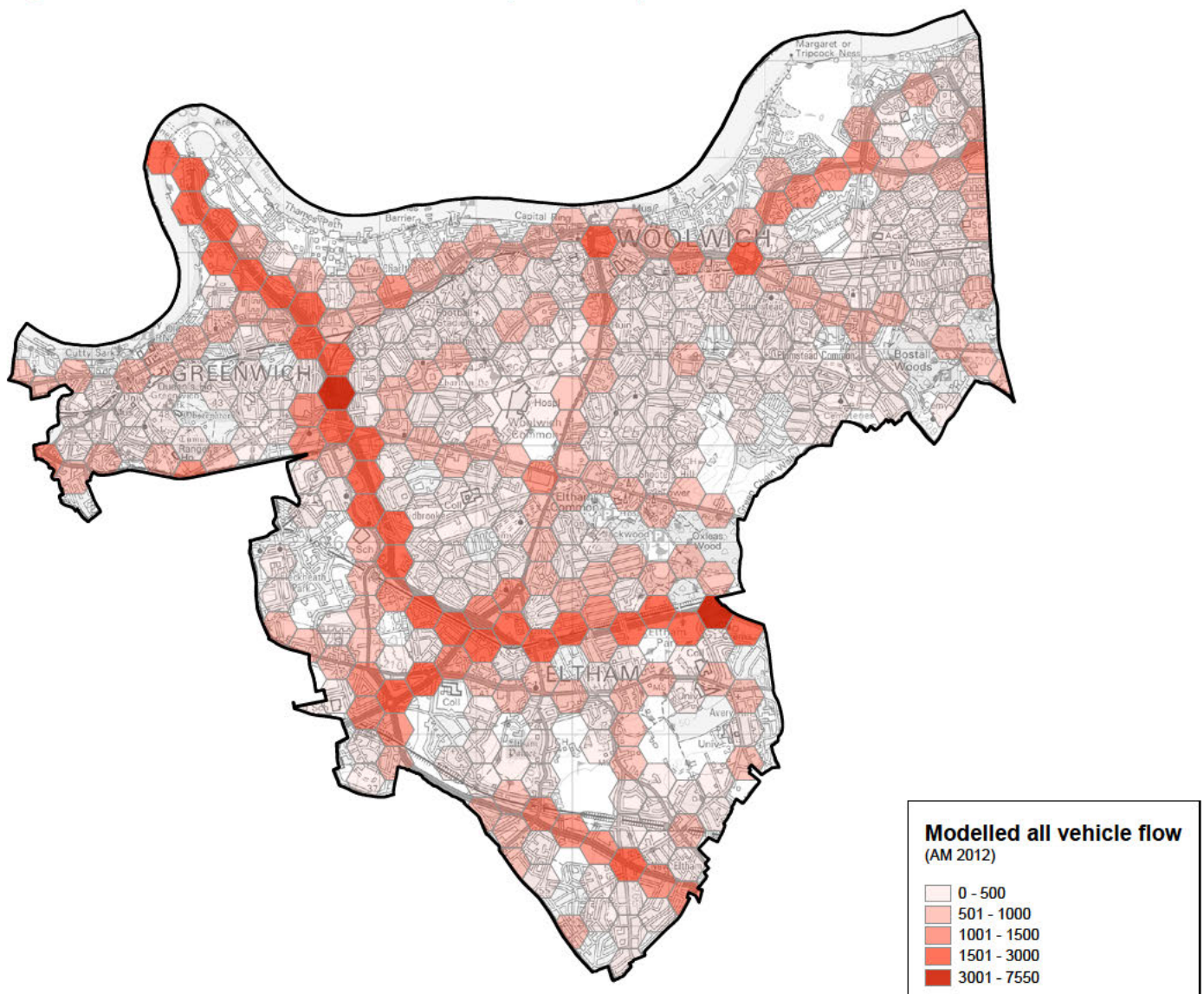
- The A20 from the boundary with Bexley towards Lee Green
- The A2 from the Bexley boundary to the Sun in Sands roundabout and then west towards Deptford. Much of the A2 traffic joins the A102 to reach the Blackwall Tunnel. In the morning peak the northbound queues at the tunnel start at around 6.30.
- The A207 Shooters Hill and Shooters Hill Road also carry high flows of traffic, most of which heads for the Sun in Sands roundabout to join the A2 traffic heading west or north via the A102 to the Blackwall Tunnel.
- Plumstead Road also carries high flows, being an extension of the South Thames Distributor Road. The A2016 brings traffic in from the east in the morning but joins the

A206 Plumstead Road resulting in congestion as far as Woolwich. Much of this traffic then heads west to join the A102 for the tunnel, or continues along the A206 to Greenwich Town Centre and then A200 Creek Road towards Central London.

Whilst much of the traffic in Greenwich is through traffic, local trips still play a significant part and we need to continue to work to address the dominance of traffic in our town centres. We have complete schemes at Woolwich and Eltham which have improved conditions for pedestrians and cyclists by reallocating space from vehicle traffic.

All of these roads are congested in the morning peak, with similar congestion in the evening peak in the eastbound direction.

Figure 2.9: Greenwich vehicle flows (AM 2012)



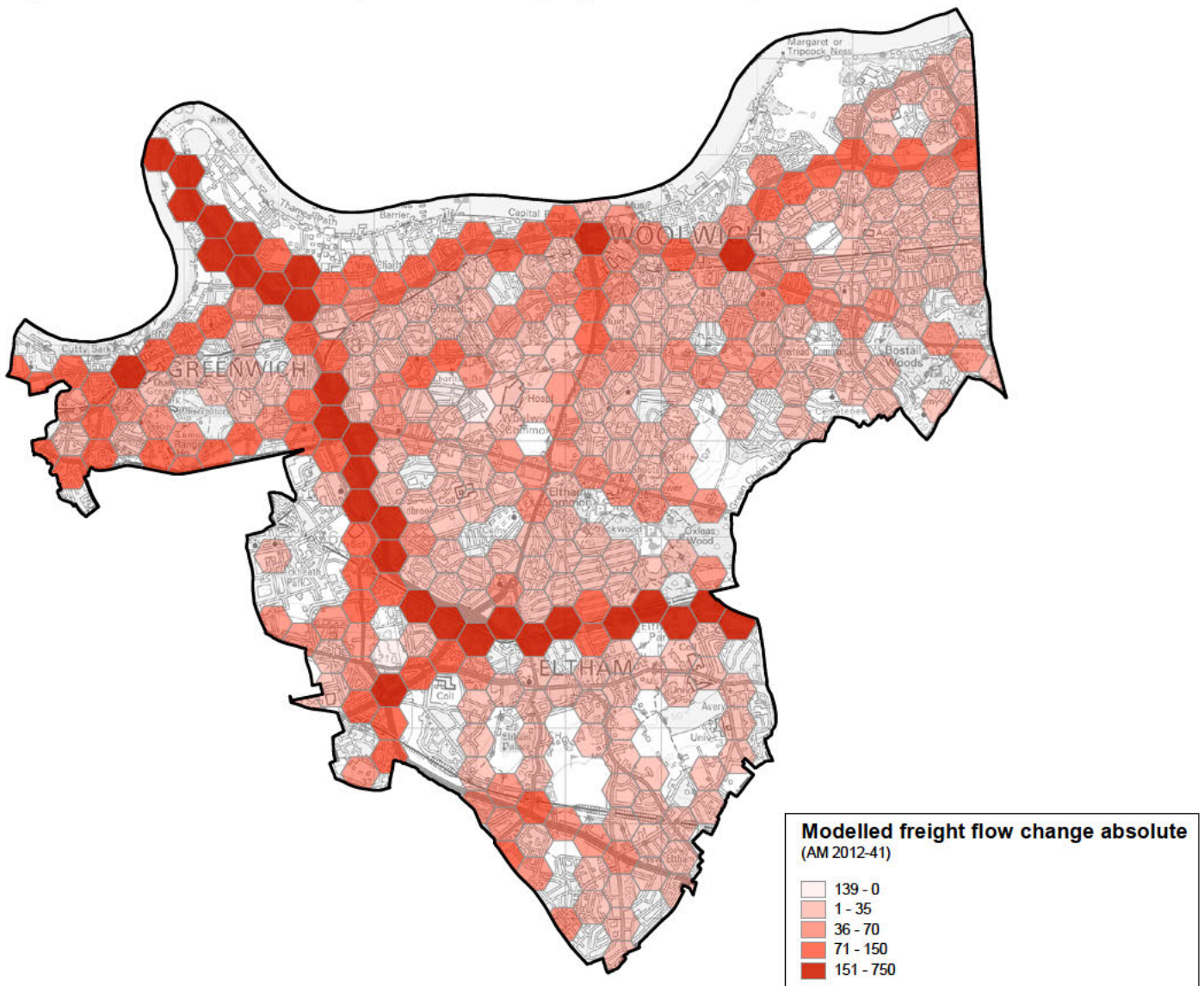
Rat Running and Modal Filters

As a result of the traffic conditions described in the preceding paragraph, 'rat running' on residential streets affects many local communities in the Royal Borough. This can be challenging to resolve as fixing the issue in one street tends to push the issue onto neighbouring roads. Therefore, it is essential to take an area based approach.

We need to create quiet neighbourhood areas - where residents can get together and people choose

to walk and cycle – by restricting access to motorised vehicles. This is usually achieved by stopping vehicles at a certain point on a residential street, so residents can gain access but through movements are not possible except by foot or bike (or in some cases public transport). We will introduce a programme through the LIP to create these quiet neighbourhood areas and address rat running. This will involve measures to understanding the opportunities, prioritise options and engage stakeholders.

Figure 2.10: Modelled freight flow change (AM 2012-41)



Freight

Growth in freight movement is expected, with the number of Light Goods Vehicles forecast to grow by up to 30 per cent between 2008 and 2031, accounting for 15 per cent of traffic. The movement of goods by road through the Borough is a major contributor to poor air quality - especially in areas where there is a high density of goods vehicles and the potential for congestion and delay - for example in the approaches to the Blackwall Tunnel and the Woolwich Ferry.

The mitigation of the local impacts of freight arising from the high level of development in East London will be a challenge. However, we have the opportunity to consider sustainable construction and servicing through the planning process from the outset. The Council is currently working on a local level to manage freight movement in new developments by requiring travel, construction management, or delivery and servicing plans as part of conditions attached to planning approvals.

Reducing Car Ownership

Car ownership in Greenwich increased between 2015 and 2016 from 78,626 to 80,297, an increase of 1.2%. The increase in car ownership for outer London was 1.3% for the same period. Whilst significant, this slight increase should be considered in the context of significant population increase. We will continue enabling and supporting more residents to live car-free lifestyles or to give up their second cars through a variety of measure which have proven effective in reducing car ownership.

Controlled Parking Zones and Parking Management

Our Controlled Parking Zone (CPZ) programme, delivered through the LIP programme, has provided parking controls that support our overall sustainable transport objectives. They allow good, sustainable, growth by controlling car ownership and helping to protect our streets from inappropriate parking.

LIP funding will support the development of new CPZs, extensions to existing CPZs and an annual rolling programme of CPZ Reviews to ensure controls remain fit-for-purpose as Royal Greenwich grows. Funding will also contribute to minor changes/improvements in response to new issues and opportunities to deliver our Borough Objectives.

Our existing Parking Strategy, adopted in 2014- sets out the key objectives as support for growth, balancing demand with amenity, reducing congestion, improving safety, public realm and air quality, protecting kerbside space and encouraging mode shift. These are being reviewed in light of MTS and LIP objectives but generally remain. In particular reducing the convenience/attractiveness of short car trips. Parking restrictions are focussed in growth areas, around transport hubs and town centres and are supported by a robust but fair charging and enforcement regime.

Car Clubs

A car club allows members to easily hire a car from a shared fleet, for a fee based on the duration and mileage of the rental period. Typically, car club vehicles can be booked for any length of time from 30 minutes, with the flexibility to increase the rental period if necessary. Cars are booked online, by app or by phone. Payment is taken directly from the member's account. Car club vehicles can be booked with as little as a few minutes' notice.

At present, there are 25 car club vehicles, which operate on the Borough's highway. These are provided through a contract with an operator. Additionally, there are other car clubs, which operate in the Borough on private land.

In early 2019 we will be tendering for a new car club contract for the next three years. As part of this process we will seek to ensure the car club network expands to parts of Royal Greenwich not currently served by cars clubs and encourage operators to deploy ultra-low emission vehicles (ULEVs).

Figure 2.11 shows the location of car club cars on the Royal Borough’s highways. Outside of the City of London, the highest concentrations of car club vehicles per 10,000 people occurs in the most central boroughs north of the Thames, declining steadily with increasing radius from the city centre.

Presently, Greenwich has 4.3 vehicles per 10,000 residents. This is higher than in neighbouring Bromley, Newham and Bexley, but is lower than Lewisham, Brent and Richmond upon Thames. The Royal Borough’s performance is marginally better in terms of the absolute number of car club vehicles, reflecting the good progress that has been made. Nevertheless, Royal Greenwich’s rapidly growing population requires further enhancement and expansion if car clubs are to remain an attractive alternative to car ownership.

Figure 2.11: Greenwich on-street car club locations map

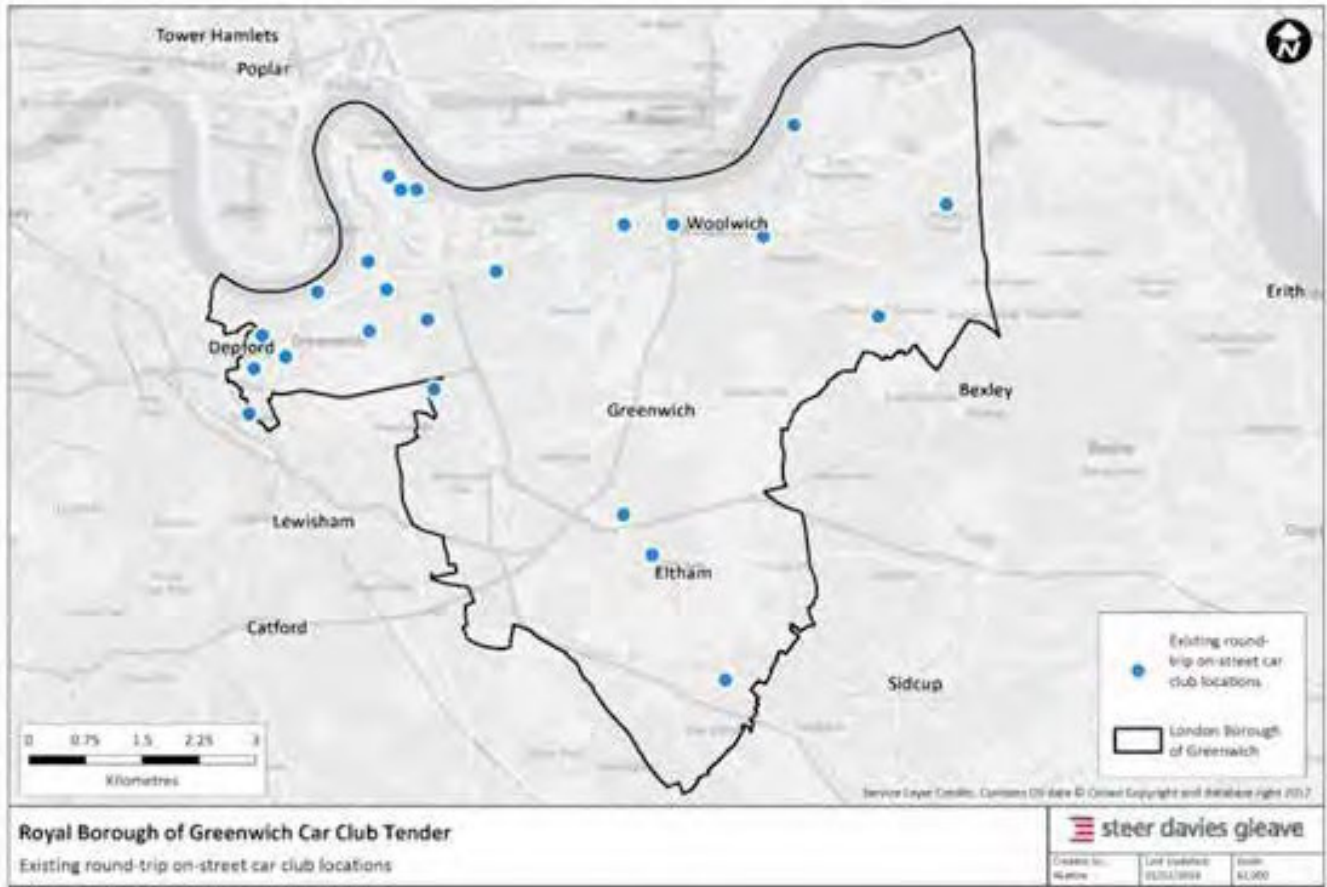


Figure 2.12: Number of car club trips made per 10,000 residents

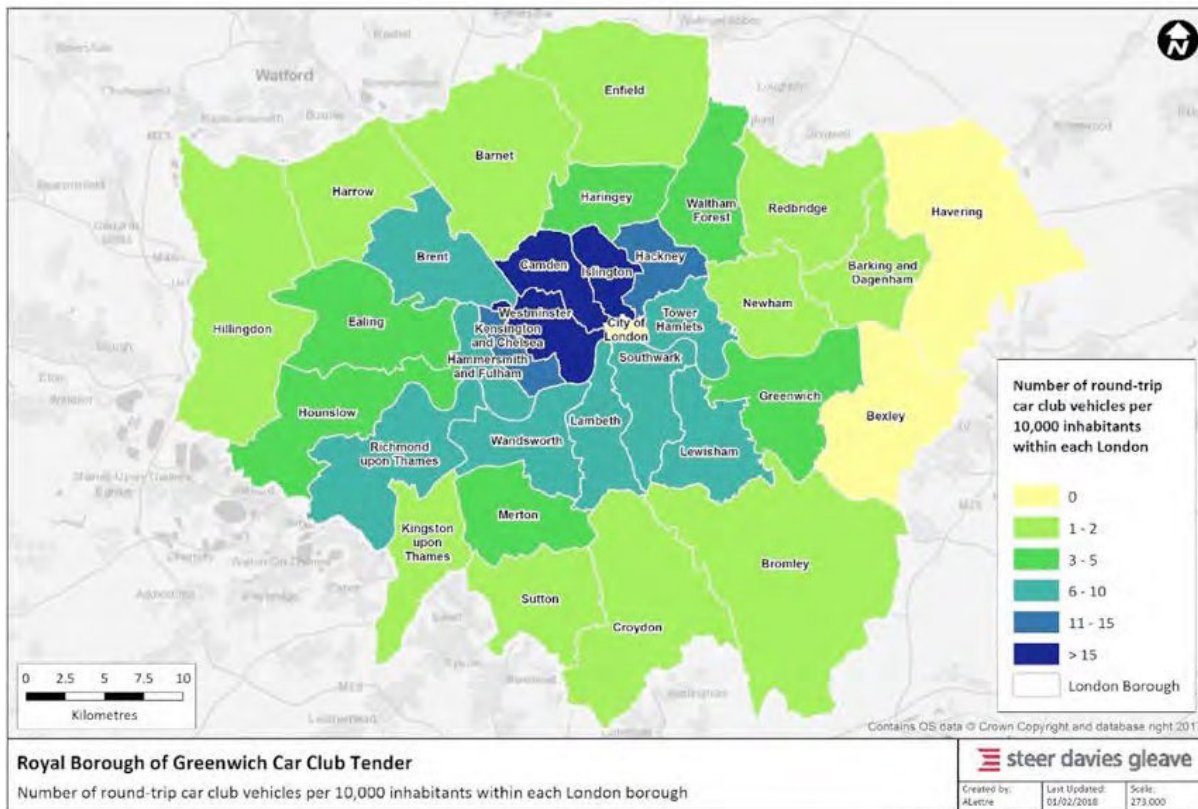
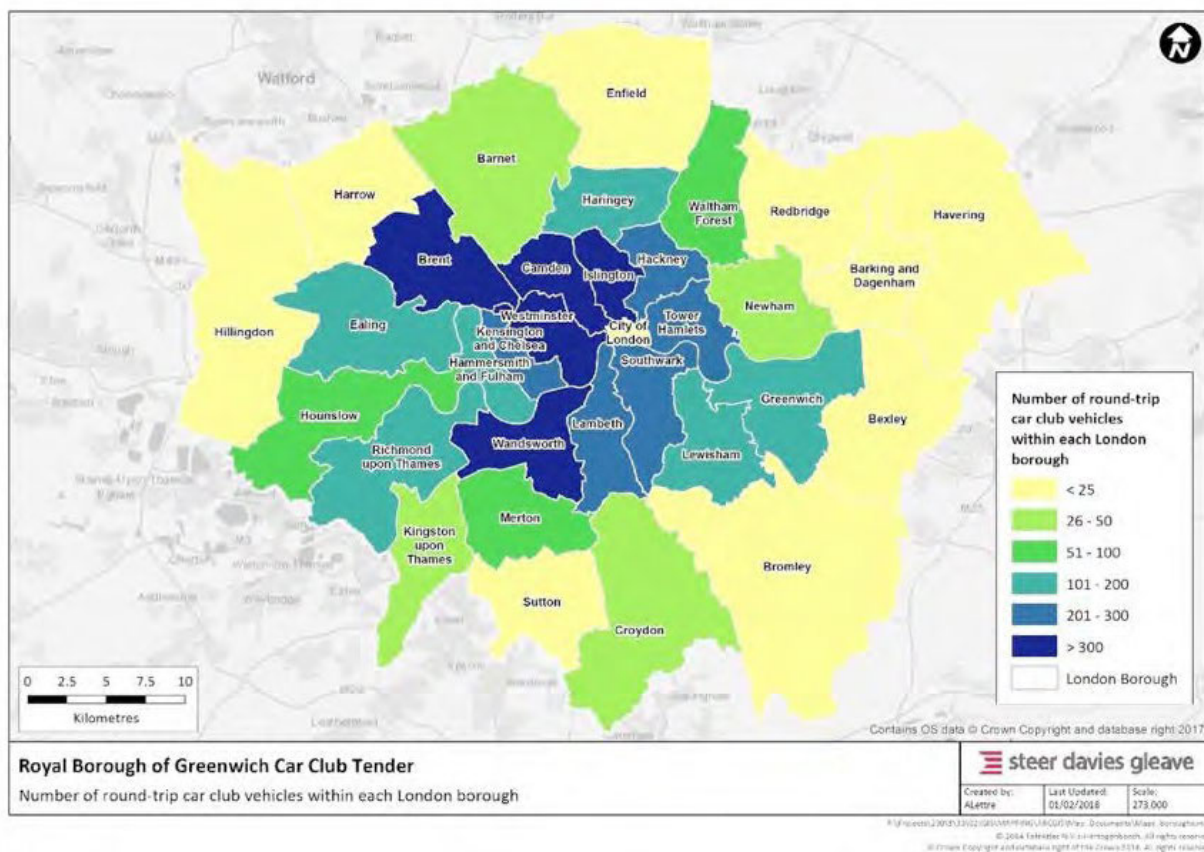


Figure 2.13: Car club density of London



Transport Innovation

Recent years have seen major technological developments, including the increased use of mobile technology, new payment methods and the ease of accessing the internet on-the-go. The evolution of technology has already generated new approaches to transport services in London and this is only set to grow.

These technological advances have not only changed how we interact with existing transport systems but have enabled the development of new systems. The best examples of this relate to technologies that are developing around how cars operate and how they can be accessed. We have already seen how new technology has changed the way we use car clubs since the last LIP. Mobile app technology has allowed for the development of new car club models such as point-to-point and floating car clubs. Apps have also made significant changes to private hire and have ushered in a new wave commonly referred to as mobility as a service.

Connected Autonomous Vehicles in Greenwich

Greenwich's commitment to pioneering new and innovative technologies is also reflected in its current leading role in the development of understanding the role of autonomous vehicles on the city and its citizens. They aim, as part of the development of new technology and shift to Mobility as a Service (MaaS), to address a range of challenges facing the borough, including demographic change, increasing traffic congestion and air pollution.

The IUK funded MERGE Greenwich project simulated existing travel patterns in the Borough and how they could change with an autonomous ride share system to augment the existing public transport offer. This system would operate without a driver and would enable two or more passengers (and potentially goods items) to share the vehicle.

The project showed how autonomous vehicle

ride-sharing can complement, rather than compete with public transport and active travel, and offer an alternative to privately owned vehicles. With this experience, Royal Greenwich is well-placed to take advantage of developments in 'smart' technology and data analytics.

Autonomous vehicles and ride sharing have a significant number of potential advantages, such as:

- Reducing road collisions due to human error
- Reducing overall journey times for drivers who will no longer need to find a parking space
- Increasing accessibility for those who cannot drive and those who find it difficult to reach transport hubs.
- Shifting the pattern of car ownership to car use (in the same manner as car clubs)
- Play a part in the creation of Liveable Neighbourhoods by freeing kerbside parking pressure



The GATEway project, a 3 year Innovate UK funded project which looked to understand the public's attitudes, acceptance and appetite for a move to autonomy.

MAVEN (Managing Automated Vehicles Enhances Network) started in September 2016 and developed algorithms to support the more efficient movement of 'dynamic platoons' of highly automated passenger and freight vehicles through urban corridors and signalised junctions. Grouping vehicles together in 'platoons' can save space and can make transport networks more efficient. The project used shared dynamic intelligence between vehicles and infrastructure. This led to improvements in safety and emissions, while reducing congestion and delay.

The role of Greenwich is to bring shared learning from other projects to the consortium and to help integrate the programme into a wider 'smart city' issues. In the later stages of this three-year programme, it could potentially expand to apply learning from the operational testing taking place in the City of Helmond, at DLR Braunschweig and through other virtual test methods.

The consolidation of learning from these projects played a large part in Greenwich (co located with the Queen Elizabeth Olympic Park) being successful in bidding for £19m of IUK funding as the location of one of two real world UK CAV test beds – the Smart Mobility Living Lab:London. The SMLL:L is a collaborative project with partners including the Transport Research Lab, Transport for London, Cisco, Cubic, Loughborough University and LLDC, which is currently undergoing its 18 month build out prior to becoming operational in 2019.

Improving Air Quality

An Air Quality Management Area (AQMA) has been declared for the whole of the Borough, as Nitrogen Dioxide (NO₂) levels exceeded the limits set out in the national Air Quality Standards at some of our monitoring stations and modelling indicates it is being breached at others.

Although we are now meeting national Air Quality Standards Limits for Particulate Matter (small particles in the air, known as PM10 and PM2.5 depending on their size), we are exceeding the World Health Organisation air quality guideline limit for this pollutant. This pollutant has significantly adverse effects on health, particularly for the most vulnerable in our society.

An Air Quality Focus Area is a location that has been identified by the GLA as having both high levels of NO₂ and significant human exposure.

In Royal Greenwich these include:

- Woolwich and Woolwich Arsenal A205 Woolwich Rd/A206 Plumstead Rd
- Blackwall Tunnel at Southern Approach Road and Westcombe Park
- Sun-in-the-Sands junction A102/A2 Shooters Hill and Charlton Rd Roundabout
- Greenwich Centre
- Greenwich Trafalgar Road A206
- Eltham High Street
- Westthorne Avenue A205

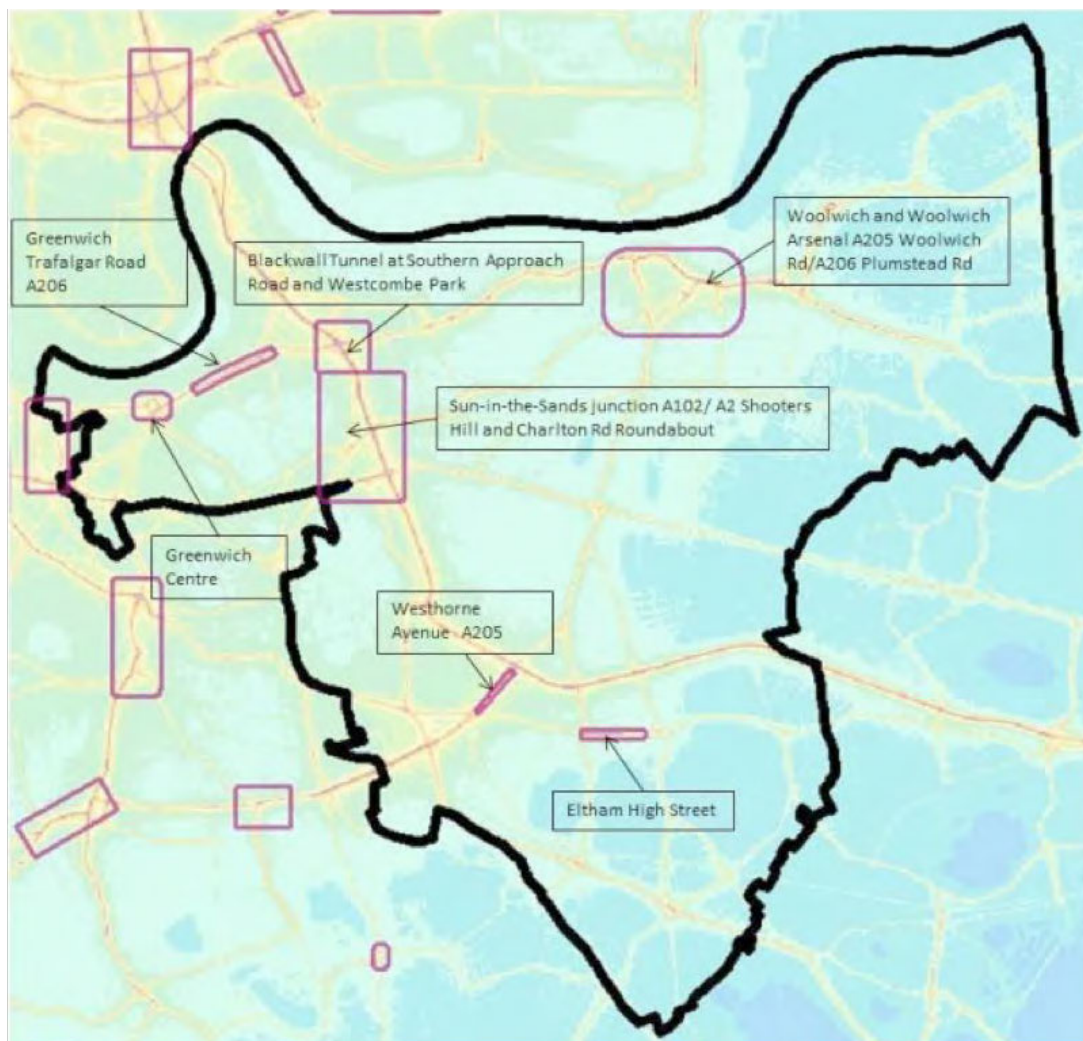
Vehicle emissions are the largest contributor to poor air quality in the borough. Therefore, transport has a big role to play in reducing this threat to a healthier Greenwich. The Royal Borough is committed to improving air quality (in partnership with TfL around its roads) through measures that:

- Reduce the volume of traffic, through the measures set out in the section of that title above. This is particularly important in locations where emissions affect many

people or particularly vulnerable people, such as the schools targeted by our experimental School Streets project.

- Encouraging a shift to walking cycling and public transport use, through the Measures set out under the Healthier Greenwich objective above.
- Encouraging the uptake of cleaner fuels and vehicles through the measures described below.

Figure 2.14: Location of NO2 focus areas in Greenwich



Encouraging the uptake of cleaner fuels and vehicles

As well as incentivising modal shift from private car use to walking and cycling, the Council is committed to encouraging the switch to ultra-low emission vehicles (such as electric) when vehicle use is absolutely necessary.

Pure electric and plug-in hybrid vehicles reached record levels in 2017 in the UK and this was also the case for Greenwich. Whilst the number of plug-in Electric Vehicle in Royal Greenwich is relatively low compared to the total number of vehicle registrations, their growth on last year is significant - with almost double the number registered.

This rate of growth was the fourth highest in London. Based on study for TfL by Element Energy and WSP Parsons Brinckerhoff, growth is set to continue. The study estimates there could be up to 6065 ultra-low emission vehicles in Royal Greenwich by 2025. The study states that a key barrier to electric vehicle take up is access to electric vehicle charging facilities.

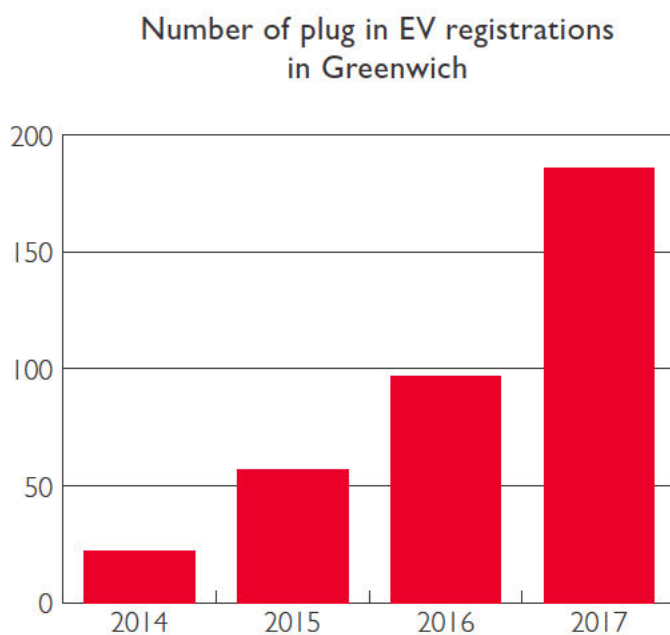
Source London EV Charging Network

The 'Source London' pan-London public Electric Vehicle Charging network has over 500 charging points across London. There are 14 existing Source London points in Greenwich and these are standard 7kW chargers which will fully charge an electric vehicle in 6-8 hours. The network was expanded by an additional 10 charging points in July 2018 and officers are working with Source London on a further expansion by the end of 2018. The Council will seek to ensure electric vehicle charging provision keeps pace with the demands of residents and businesses as the uptake of electrics vehicles continues to grow.

Rapid EV Charging network

There are five rapid charging points in RBG, which will fully charge a suitable electric vehicle in 30 minutes. Four of these are owned by the Council; the other, more, recent point is installed owned and operated by an operator under the new TfL Rapid Charging

Figure 2.15: EV registrations in Greenwich (2014-2017)



framework. Officers are working with TfL to identify additional rapid charging locations for 2018, to contribute to the TfL target of 300 rapid chargers by the end of the year.

This rapid charging network will help facilitate the Mayor's aims for: all new taxis to be zero emission capable from 2018; all new Private Hire Vehicles from 2023; all new cars and vans from 2030; and all other vehicles from 2040. This would mean that all taxis and PHVs could be zero emission capable by 2033 at the latest and London's entire transport system could be zero emission by 2050.

Go Ultra Low Cities Scheme (GULCS)

The Office for Low Emission Vehicle's GULCS scheme seeks to develop an extensive network of convenient charging infrastructure in order to meet the Mayor's ambitions to improve air quality. The Royal Borough has secured funding for a first round of charging points to be installed on existing lamp posts. This first tranche is set to be installed before the end of 2018. A second round of funding is expected to be available in 2019 for additional charging points

Greenwich Low Emission Neighbourhood (LEN)

The Greenwich LEN is a £2m programme in the Greenwich West and Peninsula wards. The Greenwich LEN is one of five part funded by the Mayor of London. Approximately half of the funding comes from the borough, primarily S106 contributions.

The scheme is focused on improving air quality in the Greenwich West and Peninsula wards. In addition, the programme will make the area a more people-friendly neighbourhood and improve local road safety. The programme is made up of three work streams: smarter movement, smarter spaces, and smarter technology.

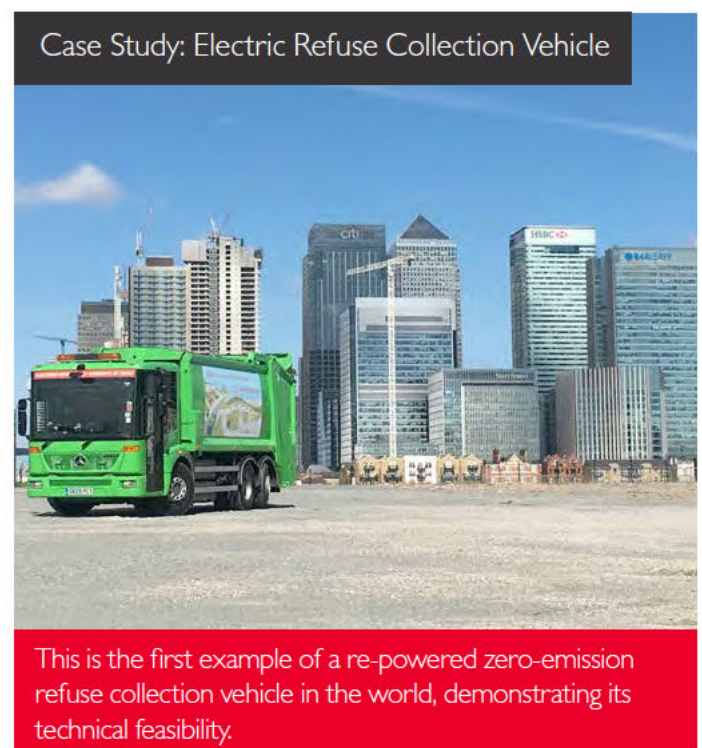
Electric Refuse Collection

Diesel refuse collection vehicle's emissions contribute to poor air quality, increased noise pollution, and other

problems. The Repowered Electric Refuse Collection Vehicle Project seeks to address these problems. It involved retrofitting a diesel refuse collection vehicle with an electric drive train and electric actuators for its hydraulic systems – making it entirely electrically powered. The vehicle was also fitted with a new body to what was an 'end-of-life' vehicle.

By electrifying an end-of-life diesel refuse collection vehicle, a number of benefits are anticipated. These include: a reduction in air pollution from diesel emissions; reduced noise pollution; and reduced resource consumption by the repowering of an end-of-life asset. By repowering end-of-life diesel RCVs, waste service providers and local authorities have the option of introducing zero-emission vehicles to reduce greenhouse gas emissions (even on current grid-electricity generation mix).

Operational trials of the vehicle commenced in the Royal Borough of Greenwich in July 2018. It operates on routes around Greenwich on double-shifts to test how it performs compared with current diesel models.





Delivery plan priorities for a Greener Greenwich

This section sets out a range of interventions that will contribute towards achieving the Borough objective of reducing pollution from transport. They will help to keep us healthy, happy and reduce our contribution to climate change. They will help to reduce car ownership and single occupancy car trips. This objective will be delivered through LIP priorities:

- **LP4:** Improving air quality by reducing the levels of key pollutants that are associated with traffic and transport in the Royal Borough.
- **LP5:** Reducing transport's contribution to climate change including the introduction of Green Infrastructure and Sustainable Drainage.

By delivering on this objective these priorities also deliver on the following MTS Outcome objectives:

- **Outcome 3:** London's streets will be used more efficiently and have less traffic on them

- **Outcome 4:** London's streets will be clean and green

We have taken an approach which takes the LIP priorities above to create package of measures titled 'Reducing Emissions'. The following interventions have been identified as priorities to reduce traffic, emissions and improving the physical environment. More detail is provided on these priority measures in the Delivery Plan section.

- Continue to use the planning process to require that alternative modes (such as rail or waterways) are considered within Construction Management Plans and Delivery and Servicing Plans.
- Continue to implement new CPZs and monitor existing zones.
- Further develop freight consolidation



practices through the South London Freight Consolidation Group.

- Work with TfL to promote retiming of deliveries in town centres.
- Data shows there is a scope for increasing the number of car club vehicles in the borough. The Council will seek to achieve this with a particular focus on expanding coverage to areas poorly served by the existing car club network in the southern and eastern parts of the borough.
- We will explore new and emerging car club models which are being adopted in other parts of London. In new one-way car clubs, vehicles do not necessarily need to be returned to the same location where they were picked up.
- Encourage the switch to zero emission vehicles through the development of electric vehicle charging infrastructure. Over the life of the delivery plan, we will expand the network of Source London Points and rapid chargers, as well as trailing lamp post chargers.
- In addition to the physical installation of technologies such as electric vehicle charge

points; we are exploring and trialling Sustainable Energy Management Systems (SEMS) for the charging points. We are developing energy management systems which will help manage the district level energy grid to support future growth of EVCPs and other energy assets. We are exploring how SEMS can be used to mitigate any potential impact on the grid from the growth of EV charging points. The trial will include monitoring usage of charging points and using algorithms to curtail usage when the grid is most under strain.

- The Royal Borough will continue to deliver Green Infrastructure and Sustainable Drainage alongside its commitment to increase the number of Street trees across the borough through the inclusion of such measures through the delivery of projects such as Quietway's, Highway maintenance and flood risk reduction. These measures will greatly aid the borough's ambitions of creating and delivering a Greener and Healthier Greenwich and will greatly contribute to the MTS Proposal 44 to remove 5ha of impermeable surface per year, alongside



reducing air pollution creating and enhancing healthy streets to reduce the impacts of mental health and increase wellbeing. These measures will also greatly contribute to the boroughs aims of reducing and mitigating the impacts of climate change such as reducing the heat island effect and will greatly aid in the delivery of a resilient highway network.

- The Royal Borough will continue develop innovative approaches to addressing the transport challenges faced in Royal Greenwich, by taking advantages of research opportunities and working with partner organisations when opportunities arise. Below are two such projects due to begin in the early years of this LIP.
 - i. iConnected Autonomous Vehicle Test Bed - Smart Mobility Living Lab: London (SMLL:L) Greenwich is participating in this project to create an urban environment to enhance the testing of in-vehicle sensors. Cities will lead on work related to the design, leasing and fit-out of properties for this testing. Knowledge and experience gathered during the project will

inform our future transport work. The project is at mobilisation stage and will begin in 2019.

- ii. MERGE This project allows Digital Greenwich Cities (the Royal Borough's in-house smart city team) to gain insight into how an Autonomous Vehicle ridesharing service could function in the Borough. Analysis has already been carried out of how it could be integrated with public transport and existing infrastructure. The project will be ongoing through the life of this Plan.

Strategic objective 3: Connected Greenwich

A joined-up transport network provides great access to all of the opportunities Royal Greenwich offers. It connects all areas and all people. It is efficient, affordable and attractive to create a connected Greenwich. A range of great public transport, walking and cycling options offer the best way to travel in Royal Greenwich.

LiP Priorities

- **LP7:** Maintaining existing transport infrastructure to secure its longevity and improve its quality, capacity and effective operation.
- **LP8:** Improving the accessibility, efficiency and affordability of the transport network so that everyone can enjoy the benefits of living in, working in and visiting the Royal Borough of Greenwich.

Related MTS outcomes and indicators

Outcome 5: The public transport network will meet the needs of a growing London

Outcome 6: Public transport will be safe, affordable and accessible to all

Outcome 7: Journeys by public transport will be pleasant, fast and reliable

- **MTS Indicator 5:** Increase public transport use
- **MTS Indicator 6:** Everyone will be able to travel spontaneously and independently
- **MTS Indicator 7:** Bus journeys will be quick and reliable, an attractive alternative to the car

Improving connectivity for the whole borough

Many of larger transport projects such as Crossrail, a potential Bus Rapid Transit and the DLR extension to Thamesmead are related to new development and will bring immediate connectivity benefits predominantly to the north of the borough. It is vital that an efficient, affordable and attractive transport network connects all of Royal Greenwich. This is vital to meet our objectives, delivers the MTS's objectives and spread opportunities to all. Transport services must also be maintained in parts of the borough which don't experience significant levels of development.

The Royal Borough will continue to encourage Southeastern Trains to ensure that it provides a rail service that offers a good level of frequency, quality and reliability to residents who rely on the Bexleyheath Line which serves Falconwood, Eltham, Kidbrooke and Blackheath Stations.

The Royal Borough will continue to lobby TfL to ensure it provides a bus service that provides a good level of frequency, quality and accessibility for residents across Royal Greenwich. We have worked with TfL to develop a series of bus route changes to respond to the opening of Crossrail. These changes will allow more parts of the Borough to benefit from the new Crossrail services. We are also working to ensure bus route development is responsive to additional demands from new development. We are currently working with TfL on a new bus route which would connect Kidbrooke with North Greenwich.

Access for people with limited mobility

The transport system needs to cater for journeys made by people with a range of visible and invisible disabilities, and limited mobility. Making the public transport system more accessible and inclusive is essential to allow access to jobs, education and services for disabled people and older people who will

continue to increase as a proportion of the population.

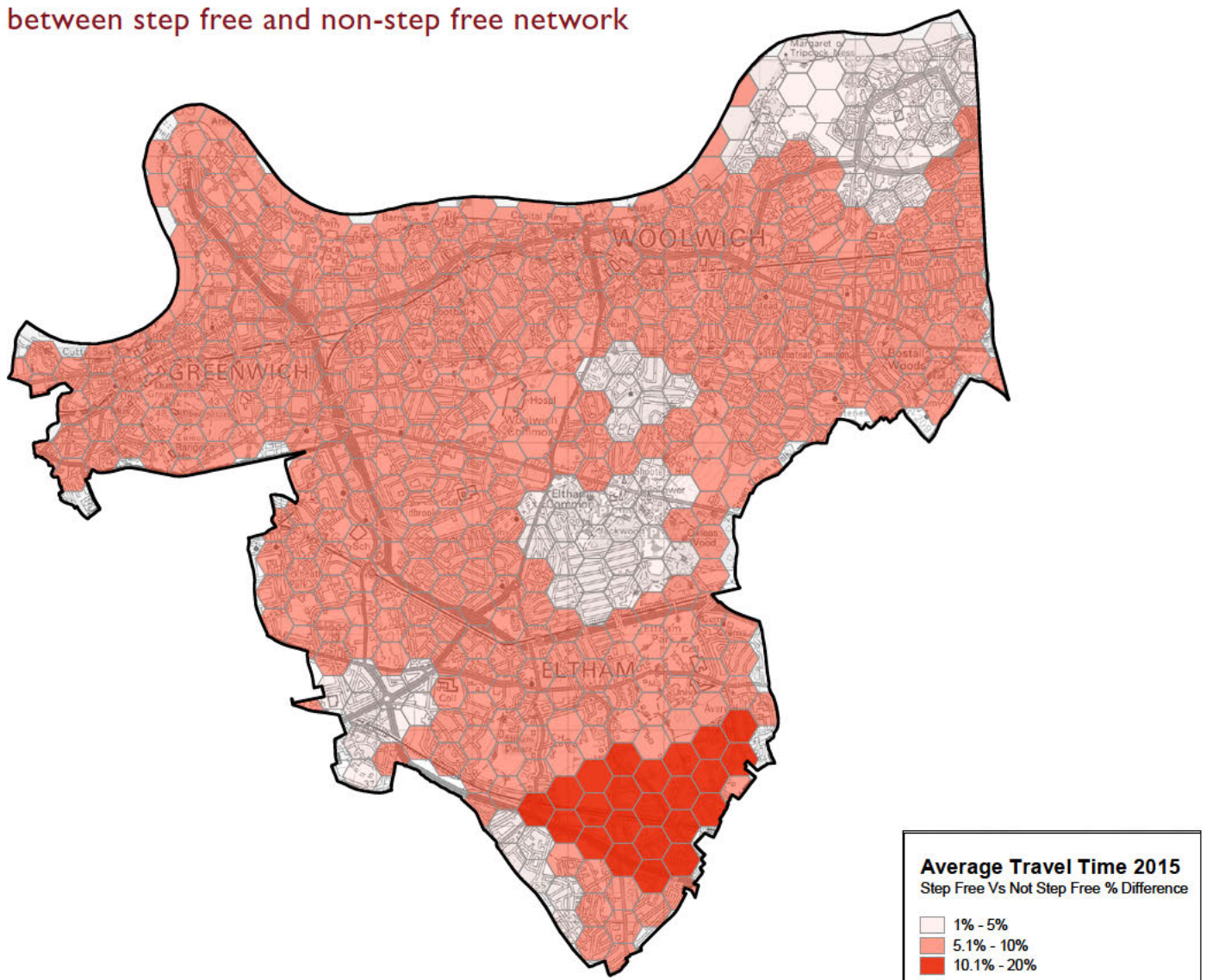
The key indicator for this outcome in the MTS is the difference in journey time between average journey time using the step-free network and travelling via steps (in minutes). In 2015 there was a 5 minutes difference journey time (86 minutes for the step free network compared to 81 minutes for the full network in Royal Greenwich). The target for 2041 is to reduce to half the difference to 2 minutes (72 minutes for the step free network compared to 70 minutes for the full network).

Figure 2.16 shows how journey time differences for

step-free travel vary across the borough. The map shows that in most of the Borough it takes 5 -10% longer to travel by a step free route. Around New Mottingham and New Eltham it takes 10-20% longer to travel by a step free route.

The key to improving access is addressing the barriers presented to disabled and older people when using the public transport system. Addressing these barriers, to create a more accessible public transport system, more trips to be made by disabled and older people, as well as making their current trips easier and quicker thereby contributing to a more inclusive city.

Figure 2.16: Average travel time differences between step free and non-step free network



Accessibility improvements should be complemented by ensuring that the transport network is better connected across and within all modes and spaces through which people travel. Vehicles, stops, stations and streets should be designed to be as inclusive and accessible as possible, taking account of the needs of all users.

Step free access to stations

The data above shows significant journey time differences between step free and non-step free networks for most of the borough. This suggests significant improvements are needed. A key priority will be Mottingham Station, which has a 10%-20% difference in travel time.

Routes to stations

Step free access will not be enough. The MTS is focused on the whole journey experience. Routes to stations and stops need to be considered, as part of the whole journey experience of disabled and older people. This includes reviewing pedestrian routes and access to stations and increasing space for pedestrians as well as providing new seating.

This complements our approach to improving pedestrian conditions to transport hubs throughout this LIP: such as the new crossing between Woolwich Arsenal DLR and the new Crossrail stations, and improved access to stops and stations through the new Greenwich Town Centre Liveable Neighbourhood. The range of walking and cycling schemes described throughout this strategy will all (to varying degrees) play a part in improving routes to stations. The potential to improve access to stations and bus stops will be considered in the design of all relevant schemes and developments.

Bus Stop Accessibility

Since the last LIP there has been significant progress in improving bus stop access through the Bus Stop Accessibility programme. By the end of the 2018/19 programme all bus stops will have been upgraded since the last delivery plan of 2014/15.

Accessibility at the heart of our work

People with disabilities or reduced mobility have a wide range of needs. These go far wider than physical access; they include things like places to rest and improved legibility. By following the Mayor's Healthy Streets approach (and other related guidance) in the delivery of our schemes, the Royal Borough aims to increase accessibility through all of its transport work.

Tackling deprivation

Greenwich is a borough of contrasts. It is both a major tourist destination with World Heritage Site status, and a borough with pockets of extreme deprivation. To combat the decline in certain areas the Council has created local partnerships to link the Council, local community and businesses. The Council has also developed strategies to foster an integrated approach to the regeneration of the borough.

Using the Government's measure of deprivation, the Index of Multiple Deprivation (2015), Greenwich is the 41st most deprived borough in England and Wales. Wards with areas in the 10 per cent most deprived in England are:

- **Abbey Wood**
- **Charlton**
- **Eltham**
- **West Glyndon**
- **Greenwich West**
- **Middle Park and Sutcliffe**
- **Peninsula**
- **Thamesmead Moorings**
- **Woolwich Common**
- **Woolwich Riverside**

This map shows a concentration of deprivation along the waterfront wards, but with significant concentrations further south around Kidbrooke. In order to address this transport provision must meet the needs of all people: connecting all people and all places. It is especially important that affordable transport options are developed to serve these areas. Bus and cycling improvements are important in this

regard and improve independent travel options for those on low incomes.

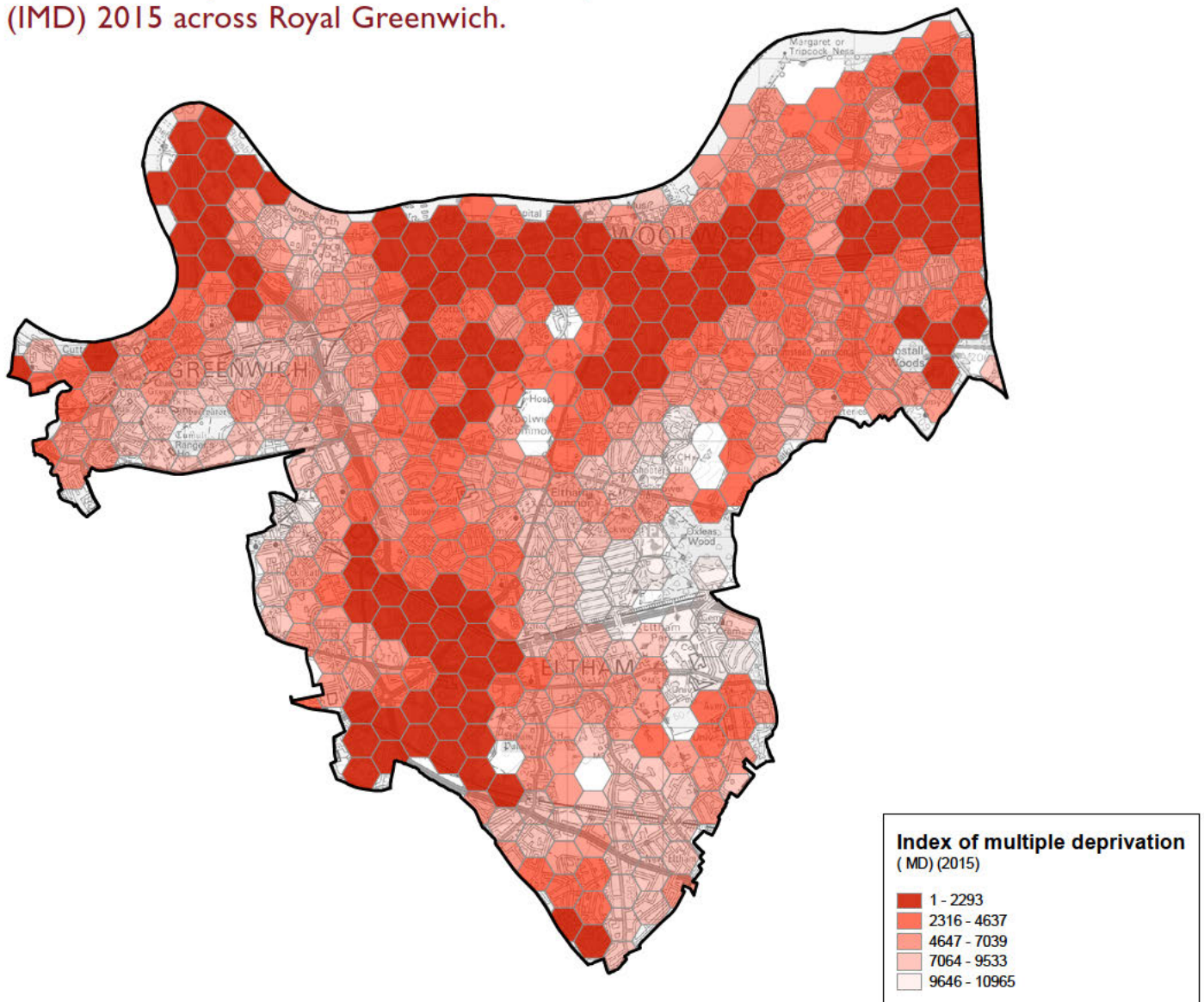
Developments in the transport network such as the DLR extension to Woolwich and Crossrail have contributed to the regeneration of Greenwich and we will need to work with transport operators and TfL to improve transport provision further in areas with high deprivation. Improvements to cross river transport links are especially required to open up employment

opportunities north of the river.

Bus reliability

Figure 2.18 shows the spatial distribution of bus speeds across Royal Greenwich. Bus speeds are derived from ibus data. This dataset represents an annualised average AM peak (07:00-10:00) bus speed for 2016/17. To encourage increases in public transport use slower speeds between town centres need to be addressed.

Figure 2.17 maps the Index of Multiple Deprivation (IMD) 2015 across Royal Greenwich.



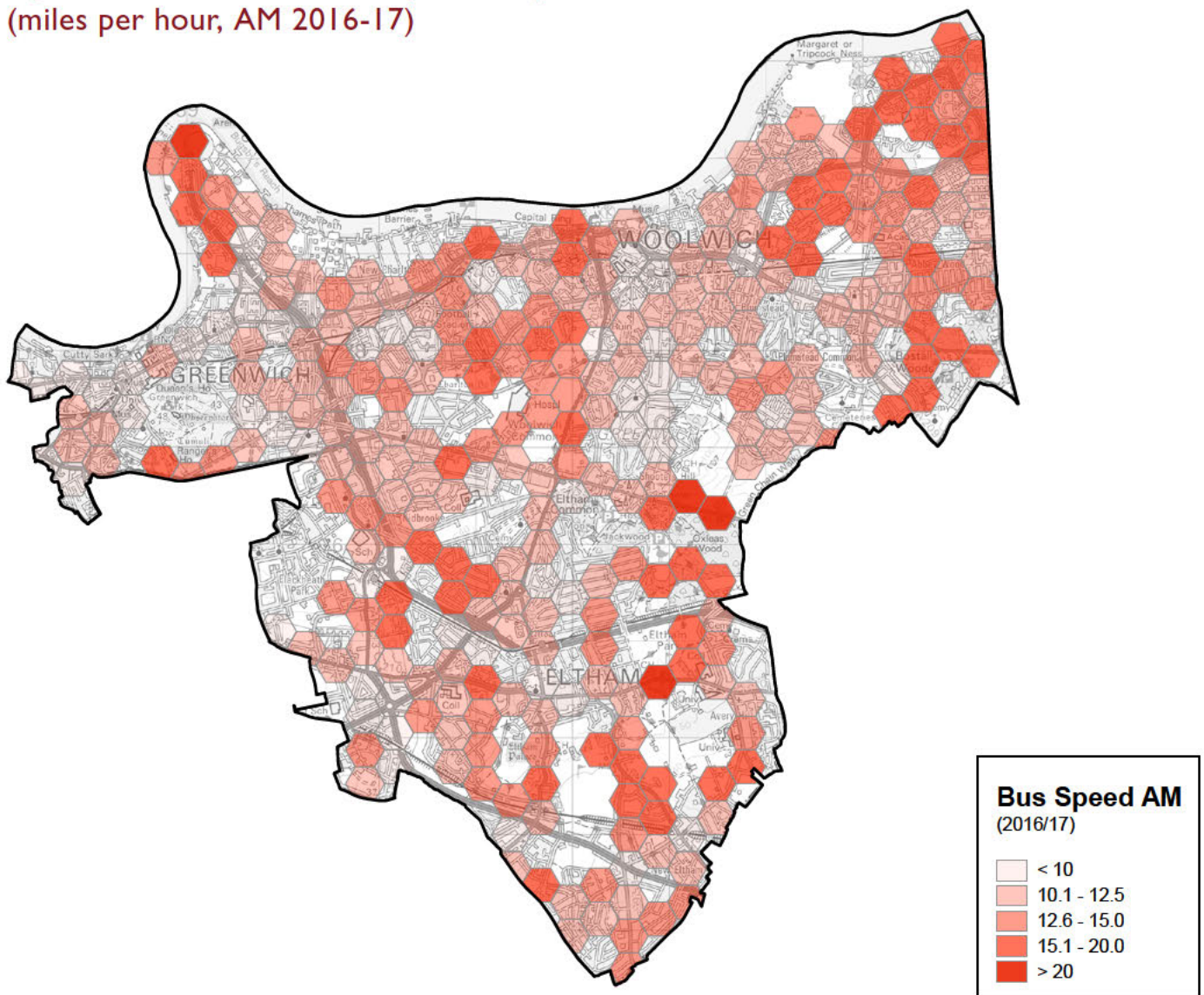
The Council will work with TfL to identify parts of the network that would benefit from bus priority and will take forward the pilot bus rapid transit system between Woolwich and Abbey Wood.

Bus Improved public transport information

There should be a focus on the needs of customers by providing good information and communication. Great passenger support and assistance should be available, particularly when services are delayed or disrupted.

As the quality of information available to drivers continues to increase, public transport will need to do more to get people out of their cars. We will continue to work with public transport operators to ensure passengers have adequate access to service information. We will also use all the necessary communications at our disposal to help communicate service announcements when possible.

Figure 2.18: Greenwich bus speeds map (miles per hour, AM 2016-17)





Delivery plan priorities for a Connected Greenwich

This section sets out a range of interventions that will contribute towards achieving the Borough Objective for a joined-up transport network that provides great access to all of the opportunities Royal Greenwich offers. One which connects all areas and all people. It will be efficient, affordable, attractive and use innovative technology to create a connected Greenwich. A range of great public transport, walking and cycling options will offer the best way to travel in Royal Greenwich.

- **LP6:** Promoting an innovative and future-proof transport network befitting London's leading 'Smart City' Borough.
- **LP7:** Maintaining existing transport infrastructure to secure its longevity and improve its quality, capacity and effective operation.

- **LP8:** Improving the accessibility, efficiency and affordability of the transport network so that everyone can enjoy the benefits of living in, working in and visiting the Royal Borough of Greenwich.

By delivering on these priorities these interventions also deliver on the following MTS Outcome objectives:

- **Outcome 5:** The public transport network will meet the needs of a growing London
- **Outcome 6:** Public transport will be safe, affordable and accessible to all
- **Outcome 7:** Journeys by public transport will be pleasant, fast and reliable

The following interventions have been identified as priorities to create a connected Greenwich. More



detail is provided on these priority measures in the Delivery Plan section.

- Based on bus speed data from TfL we have developed a programme of bus priority improvement for the first year of this LIP. Future years' programmes will be developed by continuing to work with TfL to monitor and review bus services in the Borough. We will with analyse how the network is developing in the Borough and assess how this network might need to change in response to changes, growth and new developments. The 2019/20 programme includes the following areas of focus:
 - i. Bugsby's Way / Peninsular Park Road
 - ii. Bugsby's Way Bus Lane Extension
 - iii. Bugsby's Way Underpass Bus Lane
 - iv. Eltham High Street / Southend Cres
 - v. Plumstead High Street
 - vi. Plumstead Road East
 - vii. Vanbrugh Hill
- By the end of the 2018/19 programme, 100% of the Royal Borough's bus stops will have been upgraded to improve accessibility. We will continue to monitor the condition of bus stops

and carry out work (such as surfacing and lining) when required.

We will take a collaborative approach to delivering bus priority measures in partnership with TfL, in order to improve bus journey time reliability. This will involve reviewing waiting and loading arrangements, where necessary the extension of 'bus cage' road markings, and the adjustment of hours of bus lane operation on key routes, as well as more infrastructure-focused bus priority measures.

To date, we have utilised a dedicated resource (in 2017/18 and into 2018/19) to identify and deliver bus priority improvements across the Borough with TfL support. We intend to extend this approach through the LIP3 period, to deliver bus priority measures to reduce unnecessary delays and improve bus journey times.

- Assess how buses in Woolwich Town centre interact with the public realm and implement changes, which deliver improvements for pedestrians and bus journey reliability.
- Asses step free access arrangements at all rail stations with a particular focus on Mottingham and New Eltham Stations that showed the



highest differences between step free and non-strep free networks.

In order to ensure our walking programme contribute towards outcome 5 (encouraging public transport), we have developed a new programme, which has a budget for £200k per annum to go towards:

Implementation of localised healthy walking routes. Includes expanding the development of a network of pedestrian priority routes to schools, town centres and public transport interchanges Includes investment in key strategic walking routes in the borough and improved wayfinding.

This programme includes working to:

- i. Review pedestrian routes to stations, increasing space for pedestrians and provide seating. This complements our approach to improving pedestrian conditions to transport hubs, as seen at: the new crossing between Woolwich Arsenal DLR and the new Crossrail station; and improved access from the new Greenwich Town Centre Liveable Neighbourhood.
- ii. Ensure our accessible bus stops are in a good

state of repair. All of the Borough's bus stops have been upgraded to be accessible. The challenge now is ensuring this level of access is retained by keeping bus stops in a suitable state of repair for all users.

- iii. Review legibility and signage for sustainable transport users around stations.

Strategic objective 4: Growing Greenwich

Get people into 21,000 new jobs and 40,275 new homes in Royal Greenwich by 2031. Making growth good for existing residents, during construction and beyond.

LiP Priorities

- **LPI0:** Supporting the creation of, and access to, a minimum of 40,275 new homes and 21,000 additional jobs by 2031 in the Royal Borough whilst minimizing the impact of construction and growth on existing residents.
- **LPI1:** Supporting Planning policy that encourages mixed-use developments within the Royal Borough, which reduce the need to travel.

Related MTS outcomes and indicators

Outcome 8: Active, efficient and sustainable travel will be the best option in new developments

Related MTS Outcome

Outcome 9: Transport investment will unlock the delivery of new homes and jobs

Given the level of growth projected in Greenwich, significant change in travel mode choice can only be achieved if the planning of transport and land use are well integrated. This section summarises how the Borough's planning policies integrate with transport planning to ensure that development in the Borough contributes towards the Boroughs transport objectives and MTS outcomes.

Employment in London is forecast to grow by three-quarters of a million by 2031, from 4.6 million in 2006 to 5.5 million and employment in the East Sub-Region is expected to grow by up to just under 1 million jobs by 2031, providing the second largest increase in employment per Sub-Region in London - around 20 percent of the total.

Integrated Land Use and Transport Planning

The Borough's Core Strategy supports the development of an integrated and sustainable transport system. In particular the document sets out the policies set out in table 2.3.

Policy IM(a) Impact on the Road Network

- i. When planning transport provision for major developments and extensive sites where comprehensive development can take place, developers should have regard to:
 - a. The road hierarchy
 - b. Building into highways networks speed management and design criteria for speeds no greater than 20 mph; and
 - c. Incorporating appropriate traffic calming measures and encouraging residential roads to be designed as shared spaces

Policy IM(b) Walking and Cycling

- i. The Royal Borough is committed to protecting and enhancing Royal Greenwich's footpaths and cycle ways and new developments should provide for the needs of their users. Development in Royal Greenwich should:
 - ii. integrate with the existing footpath and both the London and local cycle networks and encourage the principles of shared space;
 - iii. provide sufficient provision of changing and shower facilities for cyclists;
 - iv. provide cycle parking in line with policy IM(c);
 - v. promote walking and cycling safety, with well lit, signed and well-maintained routes and safe facilities for crossing roads and at transport interchanges;
 - vi. take account of 'desire lines' to local shops, services and schools, including safer routes to school and to public transport nodes; and
 - vii. Take account of the Royal Borough's Cycling Strategy and in particular the development of primary and local cycle networks through Royal Greenwich.

Policy IM(c) Parking Standards

Developments must provide the minimum level of car parking provision necessary, for people with disabilities, as set out in the London Plan, and ensure provision for servicing, safe pick-up, drop-off and waiting areas for vehicles such as taxis and coaches, where that activity is likely to be associated with the development.

Developments supported by a high level of public transport accessibility and within Controlled Parking Zones should be car free. Development in areas of on-street parking stress should be 'car-capped.' For car capped developments, the Royal Borough will:

- i. limit on-site car parking to spaces designated for disabled people, any operational or servicing needs, and spaces designated for the occupiers of development;
- ii. not issue on-street parking permits; and use a condition / legal agreement to ensure that future occupants are aware they are not entitled to on-street parking permits.
- iii. The Royal Borough will also strongly encourage contributions to car clubs and pool car schemes in place of private parking in new developments across Royal Greenwich and seek the provision of electric charging points as part of any car parking provision, following the minimum standards set out in the London Plan.
- iv. Developments must meet, as a minimum, the standards for cycle parking as set out in the London Plan.
- v. In order to reduce the use of the car, developments, must not go above those maximum parking standards set out in the London Plan and, where appropriate, should go below these.

Policy IM5 Freight

The impact and movement of goods and materials on the road network will be minimised by:

- i. ensuring developments that generate high numbers of freight movements are located close to major transport routes;
- ii. safeguarding Angerstein, Brewery, Murphy's, Riverside and Tunnel Wharves and Victoria Deep Water Terminal, as defined on the Proposals Map, for river-based cargo handling. Alternative uses will only be considered if the wharf is no longer viable or capable of being made viable for river-based cargo handling or, exceptionally, for a strategic proposal of essential benefit to London, which cannot be planned for and delivered on any other site in Greater London;
- iii. supporting proposals that increase the proportion of freight in Royal Greenwich that is either rail or water borne;
- iv. safeguarding railheads for aggregate distribution, including Angerstein Wharf; and
- v. maximising the movement of bulk materials by water, including construction and demolition materials.

The Core Strategy also ensures cycling and walking are supported by planning policy, by supporting the provision of infrastructure. The needs of pedestrians, including those with disabilities, and cyclists must be prioritised in developments. The design and layout of developments are required to do this, as well as the establishment and maintenances of links with public transport.

For walking and cycling, all existing footpaths and cycle ways, including the existing riverside and Thames Path, will be safeguarded. The development of new or improved footpaths and cycle ways will also be supported. Developments along the riverside are required to incorporate the provision for a riverside pathway and contribute to improvements to this where they are required.

A crucial challenge facing London and the south east is how and where to accommodate significant population and employment growth. This growth is expected to be focused in the following Opportunity Areas identified within the draft London Plan (2017) and the Royal Greenwich Local Plan: Core Strategy (2014):

- Greenwich Peninsula
- Charlton Riverside
- Woolwich
- Deptford Creek / Greenwich Riverside (partly in Lewisham)

- Thamesmead and Abbey Wood (partly in Bexley)

The area around Kidbrooke is also identified as an Intensification Area.

These areas (and other parts of the Borough) are expected to accommodate the following changes in homes and jobs:

- **32,040 new homes between 2018/19 and 2028/29 (approx. 3,204 homes per year); and;**
- **21,000 new jobs by 2028 (approx. 1,400 new jobs per year).**

The Royal Borough's town centres will remain key contributors to economic activity and employment, supporting business growth in order to retain and develop existing businesses while attracting inward investment for job creation.

These new homes and businesses will increase the demand for transport services to, from and around the Borough. This will create a significant challenge in terms of providing appropriate transport connectivity and capacity, particularly in terms of public transport, walking and cycling. It is vital that the transport provision and level of service in the borough is able to meet the housing, education, employment, health and social requirements of both the existing and growing population.

Essential transport investment

Completion of Crossrail will provide much needed capacity for links to central London from Woolwich and Abbey Wood. However, significant improvements to orbital connectivity in this part of London are still required. The proposed package of three crossings at Silvertown, Woolwich and Thamesmead remains critical to successful economic development, through improved access to employment opportunities north of the river.

Cross river DLR connections to Thamesmead

TfL is investigating options for more public transport links across the river, including a DLR extension to Thamesmead from Gallions Reach. This crossing would help to support new housing developments, and improve connections for existing residents and businesses. The new crossing would be the 7th extension in the network's 29-year history and would help support development of around 17,000 new homes across Newham and the Royal Borough of Greenwich in the next 10 years.

Greenwich Transit Scheme (BRT)

In 2017 the Council, in partnership with the Borough of Bexley, TfL and Peabody Housing commissioned a study to investigate the public transport corridor between North Greenwich and Slade Green, and at a high level evaluate the potential to introduce a new but rapid transit system. The study identified a segregated/priority public transport corridor and in 2018 TfL began a feasibility study for a trial BRT route to link Greenwich, Thamesmead and Abbey Wood. TfL will be undertaking further route option appraisal for this trial section of the route.

Cycle Superhighways

The 2018 TfL Business Plan includes the implementation of Cycle Superhighway 4 (CS4) which would connect Tower Bridge to Greenwich Town Centre. Additionally it now also includes the Greenwich to Woolwich route, which would extend CS4 from Greenwich via Charlton to Woolwich,

where it could connect with onward links to Plumstead and Thamesmead. This route has been identified and prioritised as a Cycling Future Route (CFRI 1) through the Strategic Cycling Analysis carried out by TfL in June 2017.

The Royal Borough supports this route, which would enhance the overall effectiveness of the strategic cycling network, in particular the prioritisation of transformational improvements to Angerstein Roundabout. This strategic cycling route will be essential if the ambitious mode share aspirations of the MTS are to be achieved.

London Overground to Barking Riverside

Options are being explored for a potential extension of the London Overground from Barking Riverside to Thamesmead. By enhancing needed orbital links this extension would be essential for meeting the ambitious mode share targets set out in the Mayor's Transport Strategy by reducing future car dependency.



Delivery Plan Priorities for a Growing Greenwich

This section sets out a range of interventions that will contribute towards getting people into 21,000 new jobs and 40,275 new homes in Royal Greenwich by 2031. Making growth good for existing residents, during construction and beyond.

The Council will work with transport providers to ensure the transport network capable of meeting the travel needs of this growth in a way that is constant with the overall objective of 80% of trips to be by non-car modes by 2041. This is consistent outcomes 8 and 9 from the MTS.

Outcome 8 is to make active, efficient and sustainable travel will be the best option in new developments. Outcome 9 is to ensure transport investment unlocks the delivery of new homes and jobs.

Actions include:

- Work with TfL on a pilot bus rapid transit link serving Thamesmead between Woolwich and Abbey Wood.
- Continue to lobby TfL for bus service enhancements and ensure capacity is meeting the need of Greenwich's growth in homes and jobs.
- Continuing to lobby for improved transport links (including cross river connections) as part of Thamesmead & Abbey Wood Opportunity Area work.
- Ensuring the integration of transport in major development applications and masterplans. EG Charlton Riverside.

Chapter 3: The Delivery Plan



Introduction

In developing the Programme of Investment, the Council has:

- **Identified delivery actions which address the requirements identified for each of borough transport objectives which cover all of the Mayor’s Transport Strategy outcomes**
- **Reviewed the strength of evidence (e.g. before and after analysis of data and previous local investment, professional expertise, etc.) and prioritised investment in programme areas where there is clear evidence to suggest that intended outcomes will be delivered and will make a significant contribution to Greenwich’s Local Implementation Plan objectives.**
- **Structured the programme around packages of complementary measures or holistic interventions, in order to maximise the benefits of the Council’s investment where there is evidence of a need to address specific issues;**
- **Ensured walking and cycling improvements are incorporated into all packages, where appropriate, recognising the active travel aims of the MTS.**
- **Reviewed our historic patterns of spend against our intended outcomes for the third Local Implementation Plan period, and identified:**
 - a. what additional schemes would be implemented if more resources were available and what the benefits would be;
 - b. what trade-offs would need to be made if lower levels of investment were only available.

This process was undertaken and involved key transport delivery officers and the lead member for Air Quality, Transport & Public Realm. This process was supported by an evidence-based exercise which involved identifying potential areas of spend. The programme has been developed in conjunction with

the Strategic Environmental Assessment scoping report and the development of an Equalities Impact Assessment. These assessments ensure that the programme mitigates against environmental impacts and does not discriminate against disadvantaged groups.

The Council’s delivery actions for the period 2019/20 to 2021/22 build on our achievements in recent years. Active travel will be encouraged through a package of engineering measures as well as supporting behaviour change measures. These activities will be supplemented by a programme of engineering measures identified within school travel plans, and infrastructure improvements, which will create a safer environment for pedestrians and cyclists, driven partly by our analysis of casualty rates. Interventions will be focused on addressing killed and seriously injured casualties across all modes, and all pedestrian and cycle casualties.

The Council has adopted a data-led approach to prioritise and inform all casualty reduction investment, e.g. by targeting investment in areas where there is an identified casualty problem. For example, accident remedial schemes (or local safety schemes) will be prioritised according to the number of weighted casualties, giving greatest priority to those killed and seriously injured. The location of accidents involving cycling and pedestrians (separately) will be monitored, and the evidence reviewed to determine the need for site-specific engineering solutions.

Linkages to the Mayor's Transport Strategy priorities

Table 3.1 - Linkages between LIP projects and programmes and the Mayor's Transport Strategy outcomes

Project/Programme	MTS mode share	MTS Outcomes							
	active, efficient and sustainable mode share	1: Active	2: Safe	3: Efficient	4 Clean & Green	5: Connected	6: Accessible	7 Quality	8 & 9: Sustainable Growth/Unlocking
Active travel infrastructure									
Walking improvements		x	x	x	x	x	x	x	x
Cycle Routes		x	x	x	x	x	x	x	x
Cycle Parking		x	x	x	x				x
Wayfinding		x	x	x	x		x		x
Active travel behaviour change									
Cycle training		x	x	x	x		x		
Road Danger Reduction									
Road safety education		x	x		x				
Local safety schemes		x	x		x				
20mph zones		x	x		x				
Traffic Reduction									
Car Clubs			x	x					x
Filtered permeability			x	x	x				
CPZ			x	x	x				
Reducing emissions									
ULEV promotion					x				x
Public Transport Quality									
Bus stops and bus priority			x	x	x	x	x	x	x

TfL Business Plan

The following projects from the TfL's business plan have implications for the borough.

Cycle Superhighways

The latest TfL business plan includes the implementation of Cycle Superhighway 4 which would connect Tower Bridge to Greenwich Town Centre.

Cross river DLR connections to Thamesmead

TfL is investigating options for more public transport links across the river, including a DLR extension to Thamesmead. This crossing would: help to support new housing developments, improve air quality by improving conditions for walking and cycling, and encourage Londoners to take public transport. The new crossing would be the 7th extension in the network's 29-year history and would help support development of around 17,000 new homes across Newham and the Royal Borough of Greenwich in the next 10 years.

Silvertown Tunnel

In May 2018 TfL were granted permission from the Department for Transport (DfT) to build the Silvertown Tunnel, a new twin-bore road tunnel under the Thames in east London that will link the Greenwich Peninsula and Silvertown. Construction could begin in late 2019 or 2020, with the new tunnel expected to open from 2024.

London Overground to Barking Riverside

Options are being explored for a potential extension of the London Overground from Barking Riverside to Thamesmead. By enhancing needed orbital links this extension would be essential for meeting the ambitious mode share targets set out in the Mayor's Transport Strategy by reducing future car dependency.

ULEZ

The Ultra Low Emission Zone (ULEZ) will be in place in central London from 8 April 2019. Within the zone, any petrol or diesel vehicle including cars, motorcycles and vans within the Congestion Charge area in central

Figure 3.1: 2021 ULEZ Boundary



London, you will need to meet new tighter emissions standards. From 25 October 2021, the ULEZ area will be expanded to include the inner London area bounded by the North and South Circular Roads.

The introduction of the ULEZ will help reduce exhaust NOx and PM emissions, helping to improve air quality and making central London a safer and more pleasant place to live, work and visit.

Implications for Greenwich

The second chapter of this LIP has highlighted some challenges facing the Royal Borough relating to active travel levels, road safety and air quality. The projects listed above from the TfL business plan will be essential for meeting the ambitious targets set out in the MTS which relates to active travel, road safety, air quality and accommodating growth.

Cycle Superhighway 4 will be necessary if the outcomes of the LIP relating to mode share, active travel and proportion of populations within 400m of a strategic cycle route. We will continue to work with TfL to deliver the route to Woolwich and beyond.

The expansion of ULEZ is supported by the Royal Borough but there is preference for the expansion to beyond the south circular in order to cover the whole of the Royal Borough. This would contribute significantly to achieving the air quality targets set out in the MTS.

The 'Growing Greenwich' objective sets out how transport planning and land use planning will be integrated and how transport will support the significant levels of growth taking place in the Royal Borough. The Thamesmead opportunity area will require cross river connections to unlock the growth projected in the area and we will continue to work closely with TfL and the GLA to deliver the Mayor of London's commitment to extending the DLR to Thamesmead. Furthermore, we will investigate potential for further extensions beyond Thamesmead including to Abbey Wood. Bus rapid transport will support growth along the Peninsula, Charlton,

Woolwich and Thamesmead corridor.

The Royal Borough remains of the view that the provision of a new vehicular crossing at Silvertown, accompanied by cross-river improvements in public transport, and improvements for pedestrians and cyclists, and as part of a package of crossings, is justified. However, the lack of resilience at Blackwall and the lack of vehicular crossings and capacity in the East of London are significant issues and will continue to have a negative impact in parts of the Royal Borough.

Furthermore, public transport infrastructure needs to be enhanced in East and South-East London to meet the demands of a growing population. Royal Borough supports the construction of a package of river crossings, constructed from west to east consistent with the direction of growth, so as to support the growth, development and prosperity of the Royal Borough and the wider sub-region. We believe that the integration of more sustainable transport modes, particularly public transport, should be integrated into all new crossings.

TfL Business Plan Measure	Benefits to Royal Greenwich	Borough Complementary Measure
Cycle Superhighways	<p>Cycle Superhighway 4 will be necessary if the following outcomes of the LIP are to be met:</p> <ul style="list-style-type: none"> • Mode share; • Active travel; and • Proportion of population within 400m of a strategic cycle route. 	<p>The Royal Borough will be implementing a Liveable Neighbourhood scheme in Greenwich Town Centre. As well as taking cyclists onwards from CS4 to key destinations, this is key to the future expansion of the route eastwards towards Woolwich. The Town Centre will otherwise remain a barrier to cycling on this route.</p> <p>The Royal Borough is also committed to addressing safety issues at Angersteine Angerstien roundabout, which is another barrier to the expansion of the route to Woolwich.</p>
Silvertown Tunnel	<p>Improved cross-river connectivity by private vehicles and bus. Potential for reduced congestion around Blackwall Tunnel.</p>	<p>The Royal Borough is working closely with TfL to ensure the tunnel delivers forecast benefits in Royal Greenwich. This includes work on a Local Legal Agreement to deliver additional mitigation measures and future participation in the Silvertown Tunnel Implementation Group.</p> <p>This plan has highlighted a series of traffic reduction measures which would complement the tunnel. These include CPZs, car club expansion and filtered permeability. Measures in this Plan to improve access to bus stops will increase the benefits delivered by new cross-river bus services.</p>
ULEZ	<p>This would contribute significantly to achieving the air quality targets set out in our air quality action plan and the MTS outcomes relating to air quality.</p>	<p>The Royal Borough is committed to remaining a leader in installing the necessary electric vehicle charging infrastructure to make it easier for residents and businesses to switch to ultra low emission vehicles. We are also committed to continuing to introduce electric vehicles into our own fleet.</p> <p>Measures to encourage walking, cycling and public transport use will help increase the attractiveness of those options, in tandem with the impact of the charge.</p>
Cross river DLR connections to Thamesmead; and London Overground extension to Thamesmead through Barking Riverside	<p>These new cross river connections are essential for the regeneration of Thamesmead and delivery of new homes and jobs. They also improve access for existing residents to jobs and services in wider east London area.</p>	<p>The Royal Borough is working closely with TfL and the GLA on the Opportunity Area Planning Framework for Thamesmead. This will allow us to incorporate the approaches set out in this LIP into its planning.</p> <p>As we have done with Crossrail we will support and develop public transport, cycling and walking improvements which complement major cross river rail extensions.</p> <p>These include adjusting bus services, improved public realm around stations, and cycling infrastructure to and around stations.</p>

Sources of funding

Table 3.2 below identifies potential funding sources for implementation of our LIP, including LIP funding allocation from TfL, contributions from the borough's own funds, and funding from other sources.

An annual work programme is prioritised and drawn up, based on the Borough Road Safety Plan and other information. The borough's LIP allocation from TfL is a key source of funding. Figures provided by TfL indicate that the borough will receive £1,983,700 per year for the corridors and neighbourhoods and supporting measures. Boroughs will also receive an additional £100,000 for local transport funding. Other potential sources of income include:

- GLA funding
- Developer Contributions, Section 106 funding/CIL
- Central Government funding (such as OLEV funding)
- European and other international funding
- Greenwich Council revenue funding

The indicative annual funding allocation of £1,938,000 that TfL is to provide to the Boroughs for the 3 years 2019/20 to 2021/22 was used to help prioritise schemes. This influenced the detailed spend for 2019/20 and indicative spend for the next two years is to be agreed by Cabinet in October 2018. However,

Table 3.2-Potential funding for LIP Delivery

Funding Source	2019/20	2020/21	2021/22	Total
	£k	£k	£k	£k
TfL/GLA funding				
LIP formula funding –Corridors & Supporting Measures	1,938	1,938	1,938	5,814
Discretionary funding (Includes £100k local transport funding and Liveable Neighbourhood funding)	1,805	2,100	1,00	4,005
Strategic funding (not known at time of writing. Will be sought for Quietways & Bus Priority)	-	-	-	-
GLA funding	-	-	-	-
Subtotal	3,743	4,038	2,038	9,819
Borough funding				
Capital/Revenue funding (estimated)	9,899	9,899	9,899	29,697
Parking revenue (All parking revenue is committed to concessionary fares)	0	0	0	0
Subtotal	9,899	9,899	9,899	29,697
Other sources of funding				
S106 (Subject to development triggers, allocation and draw down approval)	208	-	-	208
CIL (Subject to allocation and draw down approval)	-	-	-	-
European Funding	0	0	0	0
Subtotal	208	0	0	208
Total	13,850	13,937	11,937	39,724

the Royal borough has a programme of works which is as ambitious as the outcomes and overall aim of the MTS. We have therefore set out a programme of works which achieve these ambitions but whose costs exceed the indicative allocation set out above.

There is sufficient flexibility in the delivery programme is shown in Table 3.4. to allow schemes to be brought forward or put back in response to having to work the indicative allocation or circumstances such as:

- Review of recent accident data
- Public utility planned work
- Changes in local priorities
- Budgetary changes due to other scheme final out-turns.

The programme will be reviewed at least every 3 years.

The majority of the Council's highways maintenance activity is funded through Council revenue allocations. The Council's total revenue highway maintenance budget for 2018/19 is £9,899,000 and this is likely to remain similar for the three financial years from 2019/20-2021/22.

This programme includes the maintenance of:

- Carriageways and footways
- Street furniture
- Highways Structures (including bridges and tunnels)
- Street trees and highway verges
- Street Lighting
- Guard Rails
- Pedestrian Crossings
- Signs and Bollards
- Road Markings
- Highway drainage

In addition to the above TfL usually funds the planned maintenance of principal ('A') roads maintenance, as well as a pan-London bridge strengthening programme via the London Bridges Engineering Group (LoBEG).

Last year's allocation for Principal Road maintenance was £737,000. However, under the current LIP settlement this allocation has been withdrawn.

The principal road LIP allocation was always formula funded based on road condition survey data. This data and our local analysis of road condition structural deterioration demonstrates the need to invest in structural maintenance equivalent to 5-7% of the length of the network each year. The Borough is therefore concerned that with no funding or reduced funding for three years, it is likely to compromise efforts to achieve the mode share and road safety targets set out in the MTS.

The Council will continue to lobby TfL to ensure principal road maintenance funding is re-instated and will support the Mayors and TfL's case to government for specific direct (Government) funding for London's highways as well and seeing London being allocated a proportion of vehicle tax collected by Government.

Table 3.3 – Long Term interventions up to 2041

Project	Approx. date	Indicative cost	Likely funding source	Comments
Utilise the river for passenger services (intensify use, protect and enhance river bus services)	5-10 years	£TBC	TFL/SI06/CIL	<p>Continue to work with partner organisations to deliver a high quality, high frequency river bus connecting the Royal Borough's existing piers with central London.</p> <p>Expand Woolwich Pier at an appropriate time to support river services.</p> <p>Explore the feasibility for, and deliver where possible, new river bus stops/piers at Charlton Riverside, west Peninsula and Thamesmead.</p> <p>Introduce Wood Wharf to Greenwich Peninsula shuttle ferry.</p>
Introduce further Low Emission Neighbourhoods	1-5 Years		TFL/SI06	<p>Investigate the potential for rolling out further Low Emission Neighbourhoods and best practice following the initial trial in west Greenwich/Peninsula wards.</p> <p>Continue to lobby TfL to deliver the cleanest possible bus fleets on routes through the Royal Borough.</p> <p>Implementation of transport-related actions from the Borough's Air Quality Action Plans and Greener Greenwich strategies.</p>
Further development of Liveable Neighbourhood schemes and place making (Eltham, Greenwich, Plumstead, Thamesmead and Woolwich)	1-5 years	£5m	TFL/SI06/CIL	<p>Use existing, and bid for additional, funding to deliver upgrades to the Borough's main town centres with a particular focus on sustainable travel modes.</p> <p>Utilise the opportunity of transport-specific town centre improvements to upgrade the public realm.</p>
Support improved public transport access to Thamesmead and Charlton Riverside	5-10 year	£50m	TFL/SI06/CIL	<p>Work with TfL and London Borough of Bexley to deliver high-quality transit connections between North Greenwich, Charlton, Woolwich, Thamesmead, Abbey Wood and further east.</p> <p>In first phases to deliver further bus priority packages to speed up bus journey times, including new bus lanes where feasible.</p> <p>Implement bus priority measures and enhance connecting bus services as part of wider Charlton Riverside Masterplan proposals.</p>

Project	Approx. date	Indicative cost	Likely funding source	Comments
Provide north-south bus connections, including bus priority measures in Eltham	1-5 years	£TBC	TFL/SI06/CIL	<p>Enhance connections between Kidbrooke and North Greenwich including direct and more frequent services.</p> <p>Upgrade orbital bus routes including connections from the Eltham area to Woolwich, providing enhanced and more direct/quicker access to Crossrail and other services.</p> <p>Identify and deliver additional bus priority measures to improve north-south bus journey times and reliability.</p>
Investigate autonomous vehicles – both private cars and in the logistics sphere	5-10 years	£TBC	TFL/SI06	Continue to lead in the development, testing and piloting of the introduction of Autonomous Vehicles in the UK.
Support the extension of Crossrail 1 eastwards, along its safeguarded route, to Ebbsfleet / Gravesend.	10-15 years	£TBC	TFL/SI06/CIL	<p>Work closely with key partner organisations to deliver this extension in the earliest possible timeframe.</p> <p>An extension eastwards into Kent further supports the development of the 'City in the East' and is supported by the Royal Borough</p>
Promote and support a package of road and public transport based river crossings	10-15 years	£TBC	TFL//CIL	<p>A package of river crossings is necessary to address the severance of the Thames and support the development of the Borough. This should address both public transport and roads based requirements, and be delivered west to east in the direction of growth in the Thames Gateway.</p> <p>A fixed road and rail link at Gallions Reach is necessary to support growth and development in the north-east of the borough.</p>
DLR extension (Becton Branch) to Thamesmead and beyond	10-15 years	£750m	TFL	Work closely with TfL and the GLA to deliver the Mayor of London's commitment to extending the DLR to Thamesmead.
Support London Overground expansion into Borough from Barking Riverside	10-15 years	£1.5bn	TFL	Ensure commitment from relevant partner organisations (TfL/Network Rail etc.) to deliver London Overground extension from Barking Riverside to Abbey Wood.

Table 3.4 – Three-year indicative programme of investment for period 2019/20 to 2021/22

Royal Borough of Greenwich – TFL BOROUGH FUNDING 2019/20/2021/22	PROGRAMME BUDGET (figures are in £000's)		
	2019/20	2020/21	2021/22
Local transport initiatives	100	100	100
Corridors, Neighbourhoods & Supporting Measures			
Active Travel Infrastructure			
Development of streetscape guidance for cycle and public realm schemes in the Borough.	45	0	0
Cycle parking: Installation of new cycle parking – including parking at schools, stations and town centres, as well as cycle hangers in residential locations.	20	20	20
Primary cycling routes projects (schemes derived from Strategic Cycling Assessment).	578.7	600	600
Implementation of localised healthy walking routes. Includes expanding the development of a network of pedestrian priority routes to schools, town centres and public transport interchanges Includes investment in key strategic walking routes in the borough and improved wayfinding.	100	147.7	150
Accessibility improvements such as the provision of tactile paving, the improvement of sub-standard pedestrian islands, lighting enhancements, continuous footways, dropped kerbs, tactile paving, tonal distinction between areas for pedestrians with a particular focus on improving conditions for children, older people and disabled people.	40	40	40
Total	783.7	807.7	810
Active Travel Behaviour Change			
Funding for RBG School Travel Advisor position and support to deliver range of school travel plan programmes including updates of travel plans and delivery of activities and initiatives linked to them as identified in other funding sections below.	45	45	45
Behaviour change initiatives including campaigns, publicity, marketing materials etc linked to School Travel Plan actions. Includes funding for school cycle and scooter parking where required. Allows schools to develop active travel schemes in line with their School Travel Plan action plans.	65	65	65
Cycle training co-ordinator role overseeing cycle training contract plus associated training activities e.g. Dr Bikes, cycle maps, HGV/cycle safety initiatives etc	45	45	45
Series of awareness campaigns to boost walking and cycling through behaviour change programmes across the Borough	20	20	20
Total	175	175	175

Royal Borough of Greenwich – TFL BOROUGH FUNDING 2019/20/2021/22	PROGRAMME BUDGET (figures are in £000's)		
	2019/20	2020/21	2021/22
Reducing Road Danger			
Local Safety Scheme - Plumstead Common Road (Burrage Road - Garland Road)	109	0	0
Local Safety Scheme - Charlton Road (Invicta Road-Canberra Road)	100	0	0
Local Safety Scheme - Blackwall Lane slip into BTSA	10	100	0
Local Safety Scheme - Footscray Road/Avery Hill Road	10	50	0
Local Safety Scheme - Plumstead Common Road/Sandy Hill Road	0	10	50
Local Safety Scheme - Blackwall lane/Draednought Street	0	10	75
Local Safety Scheme- Woolwich Road (Phase 2)	150	0	0
Waterdale Road Area 20MPH Zone	40	0	0
Colepits Road Area 20MPH Zone	40	0	0
St Johns Park Area 20MPH Zone	0	50	0
Blanmerie Road Area 20MPH Zone	0	50	0
Sparrow's Lane Area 20MHP Zone	0	0	50
Greenhaven Drive Area 20MPH Zone	0	0	50
Updating of existing 20mph zones and Controlled Parking Zones	30	30	30
Retrofitting of council fleet to contribute towards achieving FORS silver accreditation and CLOCS	10	10	10
Engineering measures linked to School Travel Plan actions including (where appropriate) raised tables, improved crossings, markings and other safety initiatives. All to be completed by March 2018	45	45	45
School and adult cycle training programme - tendered contract with Bikeworks which includes all output and outcome targets	131	131	131
Targeted measures to support groups at higher risk of road collisions including older people, powered two wheelers, young drivers and BME groups. Includes a mixture of funding for courses (such as Scooter Safe and Bike Safe), online resources (including '2 Wheels London') plus campaigns, behaviour change initiatives, marketing, awareness raising and resources.	90	90	99.7
Total	765	576	540.7

Royal Borough of Greenwich – TFL BOROUGH FUNDING 2019/20/2021/22	PROGRAMME BUDGET (figures are in £000's)		
	2019/20	2020/21	2021/22
Traffic Reduction			
Supporting the development of the car club network . Cost is mainly TMOs. Plus marketing and other campaigns to promote uptake of Car Clubs in the Borough, and supporting pilot e-car club work.	5	5	5
The Council is carrying out an extensive review of its Controlled Parking Zones (CPZs) and introduction of some new zones. All of the above schemes have, or will be subject to a full consultation and approval process.	135	200	233
Modal filters : a programme to specifically address rat running by stopping vehicles at a certain point on a residential street, so residents can gain access but through movements are not possible except by foot or bike.	0	100	100
Total	140	305	338
Reducing Emissions			
Support for the roll out of Source London electric vehicle charging points , Lamp post charging (match funded by GULCS) and rapid chargers.	35	35	35
Total	35	35	35
Public Transport			
Bus Package - Small scale bus priority and bus stop measures	40	40	40
Total	40	40	40
Subtotal	1,938.7	1,938.7	1,938.7
Discretionary Funding			
Liveable Neighbourhoods	1705	2000	0
Liveable Neighbourhood (Future scheme)	0	0	285
Principal Road Maintenance	0	TBC	TBC
Bridge strengthening	TBC	TBC	TBC
Traffic signal modernisation	TBC	TBC	TBC
Total	1,705	2,000	285
Strategic Funding			
Bus Priority	TBC	TBC	TBC

Royal Borough of Greenwich – TFL BOROUGH FUNDING 2019/20/2021/22	PROGRAMME BUDGET (figures are in £000's)		
	2019/20	2020/21	2021/22
Borough cycling programme	TBC	TBC	TBC
Total	0	0	0
Other			
Crossrail complementary measures	0	0	0
Mayor's Air Quality Fund	0	TBC	TBC
Low Emission Neighbourhoods	0	0	0
Total	0	0	0
All TfL borough funding	3,743.7	4,038.7	2,323.7

Supporting commentary for the three-year programme





Supporting commentary for the three-year programme

Active Travel Infrastructure Package

This package of measures includes infrastructure improvements which contribute to increased active travel in accordance with the Healthy Streets Approach.

Walking and Accessibility

There are number of schemes proposed which focus on increasing walking mode share in the Borough and improving pedestrian safety. Walking programmes include improvements such as the provision of new sections of footpath, improvements to existing paths and schemes providing wider benefits for pedestrians such as width restrictions, pocket parks and/or road closures that prevent problematic rat-running in local neighbourhoods. Improved town centre pedestrian wayfinding (such as legible London) will be a core element of the measures to increased mode share as well as providing important information for visitors to Royal Greenwich.

A list of specific schemes for 2019/20 has been developed for implementation based on information collated in prior years. In prior years this has also included raised tables, zebra crossings and other measures to facilitate improved crossings for pedestrians, wheelchair users and parents with buggies etc.

Accessibility schemes are also included in this package. This includes an on-going programme of footway accessibility improvements such as the provision of tactile paving, the improvement of sub-standard pedestrian islands, and lighting enhancements.

Cycling

The current cycling mode share in the Royal Borough of Greenwich is 1.7%. The Council's adopted Cycling Strategy (2014) set out the ambition that by 2018 the cycling mode share in the borough will be 3.8%. A clear programme of investment is required to allow this aim to be achieved.

We are proposing to invest significant resources into specific cycling schemes. We will spend over £1.8m over the three-year life of the delivery plan through the LIP. It is recognised that significant funding, in addition to the LIP allocation, is needed to boost cycling mode share in the Royal Borough if the ambitious active travel aims of the MTS and Cycling Strategy are to be achieved. Core LIP funding will be complemented by

- additional Borough Cycling Programme funding;
- developer contributions; and
- working with TfL to bring forward Cycle Superhighway 4, the re-modelling of Angerstein roundabout (Woolwich Flyover),



improved cycling facilities along the South Circular (A205) and improvements to other key routes.

In addition, we will take a more innovative approach to delivering a high-quality cycling route network in the Royal Borough. This includes using modal filters to deliver truly quiet routes, running on-street trials for proposed schemes and introducing more segregation to the Royal Boroughs primary route network. This work will focus on achieving an appropriate level of service for cyclists according to traffic volumes and road conditions with a degree of separation from motor vehicles that is consistent with the London Cycling Design Standards.

The Council has developed a strong working relationship with London boroughs that have benefitted from mini-Holland funding. We will work with these boroughs to utilise the knowledge and experience they have developed. We will monitor mode share (derived from the LTDS), safety (road casualty statistics) and broader measures as outlined in our adopted Cycling Strategy. This will include 'flow' data monitoring, and measures from non-LTDS sources such as the Active People surveys and Census information.

Using the Strategic Cycling Analysis conducted by TfL, population growth forecasts and site specific evaluation the Council has identified and prioritised the 8 routes

that host the highest current cycle flows as well as the highest potential for future cycling growth in the Royal Borough of Greenwich. These routes are;

Route Number	Route	Length of route	Land Owner
1	Bostall Hill to Greenwich	9.7km	Royal Borough of Greenwich
2	Blackheath to Deptford	1.9km	Transport for London
3	Greenwich to Blackheath	1km	The Royal Parks
4	Woolwich Ferry to Shooters Hill	2.6km	Transport for London
5	Shooters Hill to Blackheath	1km	Royal Borough of Greenwich
6	East Greenwich to Peninsula	1.8km	Royal Borough of Greenwich
7	Plumstead Common to Greenwich Park	4.4km	Royal Borough of Greenwich
8	Eltham to Lee	1.7km	Transport for London

All of the routes above cross or run directly along the strategic road network (SRN) or the Transport for London Road Network (TLRN). Making significant alterations to these roads and key junctions requires approval from Transport for London. Therefore the delivery of the primary route network will be dependent upon supportive engagement from TfL.

Four of the routes shown above run primarily on roads owned and maintained by the Council (route numbers 1, 5, 6, 7). These four routes will be delivered by the Royal Borough using LIP funding as well as all other available sources such as developer contributions and other capital funding sources. Delivery will be phased given the limited funding available and the large scope of works that is required.

Four of these routes are primarily on roads owned and maintained by other authorities, namely, Transport for London and the Royal Parks. The Council will work with these authorities to lobby and support them in delivering the improvements required for these routes to be upgraded to a high standard for cyclists. The Council will work to ensure that this standard is consistent with the Royal Borough's expectations set out in the emerging Royal Greenwich Healthy Streets Guidance, to ensure a consistent journey for people choosing to travel by bike. It is important to note that delivery of these routes owned by other authorities will be dependent upon their support.

For this delivery plan, there will be a specific allocation for cycle parking, providing secure, accessible cycle parking – particularly in residential areas, town centres, public transport interchanges and at key destinations - is crucial for encouraging travel by bike.

Active Travel behaviour change

It is recognised that the environmental improvements described above are crucial to delivering more and safer walking and cycling in the Borough. Accordingly, they will command the bulk of the total investment in active travel. However, supporting behaviour change measures play an essential role in promoting active travel and complement the infrastructure projects set out above. We will continue to invest significant sums on our behaviour change initiatives, in line with prior years. This will include:

- i. School and (voluntary) workplace travel plans and associated actions.
- ii. Continuing our innovative and high performing road safety education, training and awareness raising work.
- iii. Travel awareness and marketing/behaviour change campaigns (including the Green Chain Walk project).
- iv. HGV/cyclist safety. For example, we will continue to invest in driver training for our fleet drivers and other HGV operators in the Borough.

Within the schools programme, in each financial year (as per previous years) funding has been allocated to continue the role of a full time School Travel Advisor. The advisor will work with our local schools to encourage sustainable modes of travel amongst pupils, parents and staff. To support this role, dedicated resources are allocated for small-scale engineering schemes in the vicinity of certain schools to improve pedestrian and cycle safety. A Travel Plan initiatives allocation is made to implement a range of measures identified in those plans. A small grants/active travel fund is also ring-fenced to encourage specific initiatives such as cycle parking, school cycle clubs and so on.

The schools scheme is intrinsically linked to our wider road safety education, training and publicity campaigns. This includes working with hard to reach groups, with young drivers and other vulnerable road users to deliver effective campaigns that reduce the potential for road traffic incidents, as well as our dedicated network of school crossing patrols. These schemes have played an important part in our on-going road casualty reduction improvements and it is our intention to continue (and build upon) these programmes forward in this new three year funding period.

An additional programme will continue our existing work focussed on travel awareness and voluntary workplace travel plans. This approach has been developed over the first two LIP periods.

In 2019/20 to 2021/22 this will include:

- A series of events aimed at promoting walking and cycling
- A series of 'Dr Bike' initiatives (for both

residents and businesses)

- A programme to address low bike ownership levels in Royal Greenwich, by helping establish a community bike maintenance and recycling initiative.

Road Danger Reduction Package

Local Safety Schemes and the 20mph programme have been instrumental in helping deliver exceptional casualty reductions in the Royal Borough. Our Local Safety Schemes are data-led and developed and located using an analysis of casualties across Royal Greenwich. They are divided between schemes on the major road network and in residential areas. Most of the Local Safety Schemes are on major road networks in the Borough. Residential areas are more frequently treated using 20mph zoning (see below).

Our annual Borough Road Safety Plan synthesises and analyses casualty statistics to inform the future year's programmes. Based on a detailed analytical process, 'links', 'nodes' and/or 'cells' of particular priority are identified based on: total casualty statistics, and the economic value of casualty savings in each area. Accordingly, the detailed programme for 2019/20 has been identified (see table 3.7).

This includes schemes at:

- Plumstead Common Road (Burrage Road - Garland Road)
- Charlton Road (Invicta Road-Canberra Road)

The programme for 2020/21 and 2021/22 includes:

- Trafalgar Road/Blackwall Lane
- Blackwall Lane slip into BTSA
- Footscray Road/Avery Hill Road
- Plumstead Common Road/Sandy Hill Road
- Blackwall lane/Dreadnought Street

20mph Zones

The 20mph zone schemes proposed for 2018/19 (Colepits Road Area and Waterdale Road Area) will expand our current 20mph zone coverage – towards the target of a covering all residential areas (and some of the more strategic links, on a case by case basis) in the Borough. By the end of 2018/19, 85% of the Borough will be covered by a 20mph speed

limit zone. By tackling the most problematic areas first, with physical measures, the most difficult and costly 20mph areas are being completed now, with the easier, quicker and less costly areas (less physical measures) to follow in future years. It is intended that all of the relevant (residential) areas of the Borough will be covered by a 20mph limit by the around 2023 assuming current funding and delivery plans continue.

In addition, and consistent with the LIP guidance document, road safety will be an integral part of all engineering schemes, not just dedicated 'local safety' and '20mph' programmes. Our priority will be to continue and improve this record in each year of the Delivery Plan.

Traffic Reduction Package

As a fleet operator the Royal Borough is working towards becoming a CLOCs borough. The minimum FORS level to be eligible for CLOC accreditation is Silver and we will therefore work towards achieving this (see above). **There will be an allocation towards retrofitting fleet vehicles** extra turning warning sensors, audible left turn warnings and camera systems to attain at least Silver FORS status in the first two years on this LIP.

Parking controls are at the heart of our overall sustainable transport policy: allowing the Royal Borough to control inappropriate car use and manage the impact of parking on our valuable street space. This supports a healthier, greener, better connected Greenwich where growth works for everyone.

In particular, we will be using LIP funding to develop new Controlled Parking Zones (CPZs) including extensions to existing zones, plus an annual rolling programme of reviewing CPZs in the Borough for effectiveness and any developments required. Funding will also contribute to minor changes/improvements required to keep pace with the changing needs of a growing borough. We will also be continuing to work to improve the co-ordination and management of freight deliveries in the Borough.

We will also utilise some funding each financial year for the continued roll out, development and marketing of Car Clubs and car sharing in Royal Greenwich (which expanded rapidly during the first LIP2 period).

We are also currently reviewing our existing car club model to determine the best way cars clubs can serve residents and businesses and reduce car ownership. We will build on the existing network of bays that are located on the public highway throughout the Royal Borough.

We will introduce a programme within the LIP to specifically address rat running and introduce 'modal filters'. This will involve;

- Establishing a process for identifying 'neighbourhood cells' that warrant treatment.
- Understanding the issues and options for those locations
- Engaging the local community

Reducing Emissions

This package builds on our success in previous years to meet our stated LIP targets to reduce CO2 and local pollutant emissions. We will be continuing our approach to electric vehicles charging points by ensuring that a network is developed in such a way that maximises coverage across the borough. We will work with partners to ensure appropriate infrastructure is delivered in suitable locations, whether they are on high streets or on residential streets.

Public Transport Package

Bus stops

It is important that we continue to roll out our successful bus stop accessibility programme to enable as many residents (and visitors) in Royal Greenwich to access the dense network of bus services available. By 2019/20 all of the Borough's bus stops would have been made accessible. Funding for the three of this LIP will be towards repair of older bus stops installed under the previous programme.

Bus priority

Our priority programme we will be taking forward the following schemes in the first year of this LIP (2019/20). These are:

- Bugsby's Way / Peninsular Park Road

- Bugsby's Way Bus Lane Extension
- Bugsby's Way Underpass Bus Lane
- Eltham High Street / Southend Cres
- Plumstead Road East
- Vanbrugh Hill

For bus priority development beyond 2019/20, Greenwich will continue work with TfL to monitor and review bus services in the Borough. This will allow us to analyse how the network is developing in the Borough, and assess how this network might need to change in response to growth and new developments.

Effective mechanisms for liaising on local bus service and infrastructure issues exist and have secured improvements that will have supported growth in the Royal Borough as well as local amenity. These will continue to operate and support the development of local proposals.

Risks to delivery of three-year programme

Every programme and scheme, regardless of size, has risks which could prevent the successful delivery of a completed scheme on time and on budget. Greenwich has in place a system of identifying risks and consequences, so that any detrimental effects can be minimised.

This system is based on three key stages;

- **Identification of risks, opportunities and uncertainties at both the scheme and programme level**
- **Risk quantification and analysis for decision support**
- **On-going reporting and review where necessary**

The objective is to allow the programme managers to identify the risks and consequences that will have the greatest impact on the schemes.

**Table 3.5 - LIP Risk Assessment for three-year programme
2019/20-2021/22**

Risk	Likelihood			Potential mitigation measures	Impact if not mitigated
	H	M	L		
Financial					
Cost increases/ Budget Reductions		×		Project costs are reviewed internally on a monthly basis and any variants in cost are reported by the Assistant Director. Permission may then be given to transfer funds from one budget to another to ensure the highest priority projects are completed, while staying within the overall budget. Where a scheme experiences delays, funding will be transferred to the next highest priority scheme.	Project delay or no longer taken forward
Active travel behaviour change					
Stakeholder support		×		Early consultation is undertaken in advance of detailed design, so that any fundamental issues are addresses as early as possible. Consultation is also undertaken at detailed design stage where appropriate.	Lack of local support for schemes
Public/Political					
Policy compatibility			×	A spread of schemes across policy areas will ensure that we are delivering across the full range of intended targets and outcomes. Elected members are engaged in the LIPs development, and approve the programme and prioritisation.	Project no longer taken forward
Programme & Delivery					
Resource to plan, design and implement the programme		×		Work planned in conjunction with our Officer, contractor and consultant resources. The 3-year plan provides a reserve list of schemes in order to ensure efficient use of resources if other schemes are delayed.	Project delay
Delays to progress of work		×		Timescales for delivery allow sufficient time to develop a detailed design, undertake any consultation required, and address any identified issues. Where necessary, the 3-year programme puts design work in the year before the implementation year. Consultation with statutory undertakers is undertaken at the earliest possible stage. Early liaison with the Council's traffic order consultant ensures that all required notices and orders are built into the programme.	Increase projects costs and potential for project to no longer be taken forward

Table 3.6: 2019/20 annual spending submission

Scheme Title	Scheme Description	Funding Source (list multiple)	Funding £000's				
			FY 18/19	FY 19/20	FY 20/21	Sub-Total	Grand Total
Active Travel Infrastructure Package	Infrastructure improvements, which contribute to increased active travel in accordance with the Healthy Streets Approach.	LIP Allocation	783.7	0	0	783.7	783.7
		-	0	0	0	0	
Active Travel Behaviour Change Package	Supporting behaviour change measures promoting active travel which complement infrastructure measures	LIP Allocation	175	0	0	175	175
		-	0	0	0	0	
Reducing Road Danger Package	Package of measures to support achieving vision zero. Includes local safety schemes, 20mph zones and awareness campaigns	LIP Allocation	765	0	0	765	765
		-	0	0	0	0	
Traffic Reduction Package	Package of measures to reduce overall traffic and car ownership including controlled parking and encourage the take up of car clubs.	LIP Allocation	140	0	0	140	248
		S106	208	0	0	208	
Reducing Emissions	Variety of initiatives aimed at improving the air quality impacts of transport in the Borough. To include supporting the uptake of ultra low emission vehicles (ULEV).	LIP Allocation	35	0	0	35	35
		-	0	0	0	0	
Public Transport Package	Schemes including bus stop accessibility programme and bus priority schemes - including working in conjunction with TfL on bus corridor and pinch point projects.	LIP Allocation	40	0	0	40	40
		-	0	0	0	0	
Local Transport Fund	Local Transport Fund	LIP Allocation	100	0	0	100	100
		-	0	0	0	0	
Greenwich Town Centre 'Liveable Neighbourhood' bid	Detailed design phase of Greenwich Town Centre liveable neighbourhood bid	LIP Allocation	1,705	2,000	0	3,705	3,705
		-	0	0	0	0	

Total (2019/20) 5,852.70

Supporting commentary for the annual programme

Active Travel Infrastructure Package

Streetscape Guidance Document

A key part of the 2018/19 delivery programme will be to establish clear and concise Streetscape Guidance for the Royal Borough. This will create consistency across the materials that make up our public spaces and define the level of service that these spaces must provide different types of users. This will define the level of service for pedestrians and cyclists by street type and establish a clear policy basis on which to deliver a consistent and high-quality network.

Primary cycling route projects

Using the Strategic Cycling Analysis conducted by TfL, population growth forecasts and site-specific evaluation the Council has identified and prioritized routes that host the highest current cycle flows as well as the highest potential for future cycling growth in the Royal Borough of Greenwich.

For 2019/20 the following route from the list will be Eltham Hill. This scheme will provide a continuation of the previous major scheme on Eltham High Street through to the borough boundary to the west. The scheme will include improving walking and cycling links between two key areas of high cycling potential as identified in the strategic cycling assessment (Eltham to Lee).

The measures that are to be introduced as part of the scheme will include:

- Provide continuity of cycle lane Standards on Eltham High Street and complete the link between the borough boundary with Bexley and the South Circular.
- Provide a segregated cycle track (step cycle track) adjacent to the footways to improve cycle safety and current conflicts between cyclist riding between parked vehicles and moving traffic.

- Narrow the carriageway width to improve vehicular speeds
- Improve pedestrian crossing facilities
- Improve bus journey times and design conflict between buses and cyclists using the current sub-standard lanes as 'bus stop' bypasses will be created.
- Localised footway surface improvement and decluttering.

Another scheme to be developed from 2019/20 is Plumstead High Street. This would complement plans to regenerate Plumstead including the High Street in the next couple of years as part of 'Good Growth' funding awarded to the town centre. The aim therefore is to coordinate cycle facility improvements and safety measures with the wider regeneration scheme. Considering SCA data, Plumstead High Street form part of a priority link between Abbey Wood and Woolwich. The improvement works will be delivered in phases in order to reduce the overall impact on the public and transport services. The scheme measures are expected to deliver the following:

- Continuity of cycle standards on Plumstead Road and creating a link to Abbey Wood.
- Carriageway improvements to facilitate good public transport accessibility, reliability and interchange, in particular a rapid bus service linking Woolwich with Abbey Wood
- Improve pedestrian crossing facilities for more vulnerable road users
- Enhance the general comfort and safety of pedestrians, cyclist and driver
- Better visibility and encouragement of lower vehicular speeds, aimed at the number and type of accidents from occurring and promoting more people walking and cycling in a safe manner for local journeys
- Improve air quality and enhance the public realm

There is also a £20k allocation towards cycle parking,

providing secure, accessible cycle parking – particularly in residential areas, town centres, public transport interchanges and at key destinations - is crucial for encouraging travel by bike.

Walking Schemes

Implementation of localised walking healthy routes. Includes expanding the development of a network of pedestrian priority routes includes investment in key strategic walking routes in the borough such as the Green Chain Walk. The 2018/19 programme will include a Legible London signage scheme for Woolwich Town Centre.

Accessibility Schemes

Localised accessibility improvements such as the provision of tactile paving, the improvement of sub-standard pedestrian islands, lighting enhancements, continuous footways, dropped kerbs, tactile paving, tonal distinction between areas for pedestrians and areas for vehicles and decluttering.

Active Travel behaviour change

It is recognised that the environmental improvements described above are crucial to delivering more and safer walking and cycling in the Borough. Accordingly, they will command the bulk of the total investment in active travel. However, supporting behaviour change measures play an essential role in promoting active travel and complement the infrastructure projects set out above. We will continue to invest significant sums on our behaviour change initiatives, in line with prior years.

This will include:

- i. School and (voluntary) workplace travel plans and associated actions.
- i. Continuing our innovative and high performing road safety education, training and awareness raising work.
- i. Travel awareness and marketing/behaviour change campaigns (including the Green Chain Walk project).
- i. HGV/cyclist safety. For example, we will continue to invest in driver training for our

fleet drivers and other HGV operators in the Borough.

In each financial year (as per previous years) funding towards the schools programme, in has been allocated to continue the role of a full time School Travel Advisor. The advisor will work with our local schools to encourage sustainable modes of travel amongst pupils, parents and staff. To support this role, dedicated resources are allocated for small-scale engineering schemes in the vicinity of certain schools to improve pedestrian and cycle safety. A 'Travel Plan' initiatives allocation is made to implement a range of measures identified in those plans. A small grants/ active travel fund is also ring-fenced to encourage specific initiatives such as cycle parking, school cycle clubs and so on.

The schools scheme is intrinsically linked to our wider road safety education, training and publicity campaigns. This includes working with hard to reach groups, with young drivers and other vulnerable road users to deliver effective campaigns that reduce the potential for road traffic incidents, as well as our dedicated network of school crossing patrols. These schemes have played an important part in our on-going road casualty reduction improvements and it is our intention to continue (and build upon) these programmes forward in this new three year funding period.

An additional programme will continue our existing work focussed on travel awareness and voluntary workplace travel plans. This approach has been developed over the first two LIP periods. In 2019/20 this will include:

- A series of events aimed at promoting walking and cycling
- A series of 'Dr Bike' initiatives (for both residents and businesses)
- A programme to address low bike ownership levels in Royal Greenwich, by helping establish a community bike maintenance and recycling initiative.

Road Danger Reduction Package

Local Safety Schemes and the 20mph programme have been instrumental in helping deliver exceptional casualty reductions in the Royal Borough. Our Local Safety Schemes are data-led and developed and located using an analysis of casualties across Royal Greenwich. They are divided between schemes on the major road network and in residential areas. Most of the Local Safety Schemes are on major road networks in the Borough. Residential areas are more frequently treated using 20mph zoning (see below).

Our annual Borough Road Safety Plan synthesises and analyses casualty statistics to inform the future year's programmes. Based on a detailed analytical process, 'links', 'nodes' and/or 'cells' of particular priority are identified based on: total casualty statistics, and the economic value of casualty savings in each area. Accordingly, the detailed programme for 2019/20 has been identified (see table 3.7).

This includes schemes at:

Plumstead Common Road (Burrage Road - Garland Road) Local Safety Scheme - These improvements will include:

- Increase drivers' awareness of pedestrians, cyclists and help to confirm a route for all road users
- Encouraging lane discipline for both cyclist and vehicles
- Improving pedestrian crossing facilities for more vulnerable road users
- Enhancing the general comfort and safety of pedestrians, cyclist and drivers
- Carriageway improvements to facilitate good public transport accessibility, reliability and interchange and reduce delays to bus service
- Providing better visibility and encouragement of lower vehicular speeds, aimed at the number and type of accidents from occurring and promoting more people walking and cycling in a safe manner for local journeys

Charlton Road (Invicta Road-Canberra Road) Local Safety Scheme -These improvements will include:

- Increase drivers' awareness of pedestrians, cyclists and help to confirm a route for all road users
- Encourage lane discipline for both cyclist and vehicles
- Improve pedestrian crossing facilities for more vulnerable road users
- Enhance the general comfort and safety of pedestrians, cyclist and drivers
- Carriageway improvements to facilitate good public transport accessibility, reliability and interchange and reduce delays to bus service
- Provide better visibility and encouragement of lower vehicular speeds, aimed at the number and type of accidents from occurring and promoting more people walking and cycling in a safe manner for local journeys

Woolwich Road Local Safety Scheme (Phase 2): These improvements will include:

- Increasing drivers' awareness of pedestrians, cyclists and help to confirm a route for all road users
- Encouraging lane discipline for both cyclist and vehicles
- Improving pedestrian crossing facilities for more vulnerable road users
- Enhancing the general comfort and safety of pedestrians, cyclist and drivers
- Carriageway improvements to facilitate good public transport accessibility, reliability and interchange and reduce delays to bus service
- Providing better visibility and encouragement of lower vehicular speeds, aimed at the number and type of accidents from occurring and promoting more people walking and cycling in a safe manner for local journeys

20mph Zones

The 20mph zone schemes proposed for 2018/19 (Colepits Road Area and Waterdale Road Area) will expand our current 20mph zone coverage – towards the target of a covering all residential areas (and some of the more strategic links, on a case by case basis) in the Borough. For these scheme areas in particular (but also to include the walking and cycling projects), we will be implementing designs based on the evidence collected for each area and prior experience.

Traffic Reduction Package

Parking controls are at the heart of our overall sustainable transport policy: allowing the Royal Borough to control inappropriate car use and manage the impact of parking on our valuable street space. This supports a healthier, greener, better connected Greenwich where growth works for everyone.

In particular, we will be using LIP funding to develop new Controlled Parking Zones (CPZs) including extensions to existing zones, plus an annual rolling programme of reviewing CPZs in the Borough for effectiveness and any developments required.

Funding will also contribute to ad-hoc associated parking requests and minor changes/improvements required to keep pace with the changing needs of a growing borough. We will also be continuing to work to improve the co-ordination and management of freight deliveries in the Borough.

We will also utilise some funding each financial year for the continued roll out, development and marketing of Car Clubs and car sharing in Royal Greenwich (which expanded rapidly during the first LIP2 period).

Car clubs

We will build on the existing network of bays that are located on the public highway throughout the Royal Borough. We are also currently reviewing our existing car club model to determine the best way cars clubs can serve residents and businesses and reduce car ownership. We will be testing the feasibility of new car club models including floating and point to point.

Modal Filters

We will introduce a programme within the LIP to specifically address rat running and introduce 'modal filters'. This will involve;

- Establishing a process for identifying 'neighbourhood cells' that warrant treatment.
- Understanding the issues and options for those locations
- Engaging the local community

As a fleet operator the Royal Borough is working towards becoming a CLOCs borough. The minimum FORS level to be eligible for CLOC accreditation is Silver and we will therefore work towards achieving this (see above). **There will be an allocation towards retrofitting fleet vehicles** extra turning warning sensors, audible left turn warnings and camera systems to attain at least Silver FORS status in the first two years on this LIP.

Reducing Emissions Package

This package builds on our success in previous years to meet our stated LIP targets to reduce CO2 and local pollutant emissions. We will be continuing our approach to electric vehicle by ensuring that the network is developed in such a way that maximises coverage across the borough. We will work with partners to ensure appropriate infrastructure is delivered in suitable locations, whether they are on high streets or on residential streets. For 2018 /19 LIP funding will support:

- The roll out of lamppost charging points for electric vehicles
- The expansion of the source London network in the borough

Public Transport Package

Bus stops

It is important that we continue to roll out our successful bus stop accessibility programme to enable as many residents (and visitors) in Royal Greenwich to access the dense network of bus services available. By 2019/20 all of the borough bus stop would have been made accessible. Funding for this year will be towards repair of older bus stops installed under the programme.

Bus priority

Our priority programme we will be taking forward the following schemes in the first year of this LIP (2019/20). These are:

- Bugsby's Way / Peninsular Park Road
- Bugsby's Way Bus Lane Extension
- Bugsby's Way Underpass Bus Lane
- Eltham High Street / Southend Cres
- Plumstead Road East
- Vanbrugh Hill

Risk assessment for the annual programme

To manage the risks of individual schemes a risk register is established and maintained for each scheme in the programme. As part of our risk assessment process, programme delivery is monitored at monthly meetings in order to identify and resolve any problems as soon as they occur.

The project manager for each scheme reports (either directly or via their manager) to the programme manager, who is the single point of contact for liaison with TfL on the progress of the spending programme. If it is apparent that there are significant risks to timescales and / or costs, it is possible to re-prioritise design work so that abortive costs are minimised.

As part of our risk assessment process, programme delivery will also be monitored as a standing agenda item at the monthly Transportation Management Team meeting in order to identify and resolve any problems as soon as they occur.

Table 3.7: LIP Risk Assessment for 2019/20 programme

Risk	Likelihood			Potential mitigation measures	Impact if not mitigated
	H	M	L		
Financial					
Cost increases/ Budget Reductions		×		Project costs are reviewed internally on a monthly basis and any variants in cost are reported by the Assistant Director. Where a scheme experiences delays, funding will be transferred to the next highest priority scheme.	Compromise project or project delay
TfL announcing reduction in funding		×		Permission may then be given to transfer funds from one budget to another to ensure the highest priority projects are completed, while staying within the overall budget.	Compromises delivery of project
Third Party					
Lack of stakeholder support		×		Early consultation is undertaken in advance of detailed design, so that any fundamental issues are addresses as early as possible. Consultation is also undertaken at detailed design stage where appropriate.	Project delay
Public/Political					
Policy incompatibility			×	A spread of schemes across policy areas will ensure that we are delivering across the full range of intended targets and outcomes	Project no longer taken forward
Schemes not supported by ward members and local community.			×	Elected members are engaged in the LIPs development, and approve the programme and prioritisation.	Project no longer taken forward
Programme & Delivery					
Lack of resource to plan, design and implement the programme		×		Work planned in conjunction with our Officer, contractor and consultant resources. The 3-year plan provides a reserve list of schemes in order to ensure efficient use of resources if other schemes are delayed.	Project delay
Delays to progress of work		×		Timescales for delivery allow sufficient time to develop a detailed design, undertake any consultation required, and address any identified issues. Where necessary, the 3-year programme puts design work in the year before the implementation year. Consultation with statutory undertakers is undertaken at the earliest possible stage. Early liaison with the Council's traffic order consultant ensures that all required notices and orders are built into the programme.	Project delay and cost overrun

Monitoring and delivery of the outcomes of the Mayor’s Transport Strategy

Table 3.7 below outlines the targets for Royal Greenwich against the MTS overarching mode-share aim and outcome indicators. The Royal Borough’s progress against the outcome targets and mode-share aim will be measured through strategic data collected by TfL on behalf of the Boroughs.

Overarching mode-share aim and outcome MTS Indicators.

The delivery indicators are set by TfL and relate to each of the nine MTS Outcomes. These provide a reference for the delivery of the Mayor’s Transport Strategy at a local level. The borough will monitor and record the delivery indicators and report to TfL once a year in June using Proforma C.

Delivery MTS Indicators

Table 3.8: Borough outcome indicator targets

Objective	Metric	Borough target	Target year
Overarching mode share aim – changing the transport mix			
80 per cent of all trips in London to be made on foot, by cycle or using public transport by 2041	Active, efficient and sustainable (walking, cycling and public transport) mode share (by borough resident) based on average daily trips. Base period 2013/14 - 2015/16.	61%	2021
		75%	2041
Additional commentary			
This is an ambitious target with the 2016/17 level being 58%. However, 75% by 2041 can be met if significant infrastructure provision towards north south connections and cross river connectivity. Cycle super Highway 4 to Woolwich is also vital.			
Healthy streets and healthy people			
Outcome 1: London’s streets will be healthy and more Londoners will travel actively			
Londoners to do at least the 20 minutes of active travel they need to stay healthy each day	Proportion of London residents doing at least 2x10 minutes of active travel a day (or a single block of 20 minutes or more).	39%	2021
		70%	2041
Additional commentary			
In 2016 the level of Greenwich residents doing at least 2x10 minutes of active travel a day was 32%. Given the level of growth in the borough and programme of schemes and programmes detailed in this LIP, we are confident 39% can be reached by 2021. A more than doubling to 70% will however require significant development in infrastructure included cross river connections, north/south cycling and walking connections and the need for strategic cycling routes such as Cycle Super Highway 4.			
Additional commentary			
The current level for Greenwich is 31% and our ability to reach 70% by 2041 is also dependent on significant infrastructure investment towards north south connections and cross river connectivity. Cycle super Highway 4 to Woolwich is also vital.			
Londoners have access to a safe and pleasant cycle network	Proportion of Londoners living within 400m of the London-wide strategic cycle network.	34%	2021
		72%	2041

Objective	Metric	Borough target	Target year
Additional commentary			
The figure for 2016 is 2%. Cycle super highway to Woolwich and beyond would bring much of the areas of highest population densities and growth. However, 72% will be dependent on further strategic cycle route investment in the rest of the borough.			
Outcome 2: London's streets will be safe and secure			
Deaths and serious injuries from all road collisions to be eliminated from our streets	Deaths and serious injuries (KSIs) from road collisions, base year 2005/09 (for 2022 target)	39	2022
	Deaths and serious injuries (KSIs) from road collisions base year 2010/14 (for 2030 target).	18 0	2030 2041
Additional commentary			
In the calendar year 2017 (the latest available data) in the Royal Borough there were 97 KSI collisions. RBG will continue to implement measures through the LIP to work towards Vision Zero.			
Outcome 3: London's streets will be used more efficiently and have less traffic on them			
Reduce the volume of traffic in London.	Reduction in vehicle kilometres by 2041	1,056	2021
		1003	2041 (5% reduction)
		951	2041 (100% reduction)
Reduce car ownership in London.	Total cars owned and car ownership per household, borough residents. Quarter of a million fewer cars owned in London. Base period 2013/14 - 2015/16.	76,900	2021
		75,200	2041
Additional commentary			
Traffic Volume: Greenwich is committed to continuing to work with residents and businesses to encourage active travel over car travel. However, it is likely that traffic volumes will increase considerably as a result of the opening of the Silvertown Tunnel. Greenwich will work with TfL to ensure this impact is mitigated.			
Car Ownership: Car ownership in Greenwich increased from 78,626 to 80,297 between 2015 and 2016. The borough is however experiencing significant growth in population which is outpacing the growth in cars owned. This will result in an increase in active travel and public transport mode share. Car ownership will continue to be addressed with expansion of cars clubs and improvements in active travel and public transport infrastructure provision.			
Outcome 4: London's streets will be clean and green			
Reduced CO2 emissions.	CO2 emissions (in tonnes) from road transport within the borough, base year 2013	192,200	2021
		58,900	2041
Reduced NOx emissions.	NOX emissions (in tonnes) from road transport within the borough. Base year 2013	300	2021
		40	2041
Reduced particulate emissions.	PM10 emissions (in tonnes) from road transport within borough. Base year 2013.	64	2021
		44	2041
	PM2.5 emissions (in tonnes) from road transport within borough. Base year 2013.	31 21	2021 2041
Additional commentary			
These targets can be reach with the series of road reduction measures and support for electric vehicles set out in this LIP. We have an ambitious plan for expansion of our existing car club as well as the network of electric vehicle charging points in the Borough.			

Objective	Metric	Borough target	Target year
A good public transport experience			
Outcome 5: The public transport network will meet the needs of a growing London			
More trips by public transport - 14-15 million trips made by public transport every day by 2041.	Trips per day by borough of residence. Reported as 3yr moving average. Base year 2013/14 - 2015/16.	206	2021
		327	2041
Additional commentary			
The 2016 level for the Borough is 172,000 trips per day. This is certain to increase with the levels of development in the Borough's growth areas including the Peninsula, Charlton, Woolwich and Thamesmead.			
Outcome 6: Public transport will be safe, affordable and accessible to all			
Everyone will be able to travel spontaneously and independently.	Reduce the difference between total public transport network journey time and total step-free public transport network,	70	Average journey time using full network (mins)
		72	Average journey time using step-free network (mins)
		2 -55%	Time diff (mins) % change between 2015 and 2041
Additional commentary			
The current journey time metric for RBG is 81 minutes journey time using full network. In order to achieve a reduction to 70 minutes RBG will work with TfL to implement measures to improve bus journey times through bus route improvements and the reduction in overall traffic levels. We will continue to implement bus priority measures work with TfL on the development of a new bus rapid transit scheme.			
The current journey time metric for RBG is 81 minutes journey time using step free network. In order to achieve a reduction to 70 minutes RBG will need to build on the improvement above by securing step free acces for more rails stations and improving accessibility around stations. Furthermore improvement north south bus links will be required.			
Outcome 7: Journeys by public transport will be pleasant, fast and reliable			
EBus journeys will be quick and reliable, an Annualised average bus speeds, base attractive alternative year 2015/16 to the car.	Annualised average bus speeds, base attractive alternative year 2015/16	11.5	2021 (15% increase)
		12.8	2041 (15% increase)
		11.2	2021 (5% increase)
		11.7	2041 (5% increase)
Additional commentary			
As outlined for outcome 6 RBG will seek to implement measures to improve bus journey times through bus route improvements and the reduction in overall traffic levels. The observed level for 2015 was 11.1mph and the targets of 11.5 and 12.8 for 2012 and 2041 respectively are deemed achievable.			
New homes and jobs			
Outcome 8: Active, efficient and sustainable travel will be the best options in new developments Outcome 9: Transport investment will unlock the delivery of new homes and jobs			
The 'Growing Greenwich' objective sets out how transport planning and land use planning will be integrated and how transport will support the significant levels of growth taking place in the Royal Borough. The Thamesmead opportunity area will require cross river connections to unlock the growth projected and bus rapid transport will support growth along the Peninsula, Charlton, Woolwich and Thamesmead corridor.			

	Requirement	Location
1	Where boroughs do not use the model template and provide their submission in a different format, they must provide an index to their responses cross-referenced to all the mandatory requirements as defined in this guidance.	Met through inclusion of this table
2	Boroughs are required to include in their LIP an explanation of the statutory background of the LIP process.	Pages 10-12
3	Boroughs are required to outline the democratic processes taken to approve the submission of the LIP at a borough level.	Page 13
4	Boroughs are required to provide evidence to show that all statutory consultees and any other organisations/ groups have been engaged with during the formal statutory consultation period. They must also demonstrate how the views of their consultees have been taken into account.	Page 12
5	There is a requirement to undertake a Strategic Environmental Assessment and it is recommended that an Equalities Impact Assessment is also done (which addresses the borough's Public Sector Equality Duty). The boroughs are required to consider whether it is appropriate for the LIP to be assessed against other matters, for example crime and disorder, health, economic and business issues, air quality and climate change.	Both assessments have been undertaken
6	Boroughs must meet all of the following requirements for the submission of their LIP set out below under the following headings: a. Name of document b. Submitting the document to TfL c. Submission milestones	All these milestones have been met
7	Boroughs are required to set out the local context including the geographical, demographic and other characteristics of their boroughs, cross-referencing existing policy and context documents as appropriate.	Pages 15-21
8	Boroughs are required to identify key opportunities for shifting trips and journey stages to walking, cycling and public transport to contribute to achieving the overarching aim for 80 per cent of trips to be made by active, efficient and sustainable modes by 2041.	Page 22 sets out the key opportunities for achieving the overarching aim of 80 per cent of trips to be made by active, efficient and sustainable modes by 2041. These opportunities are explained in greater detail under each of the four overarching strategic transport objectives

	Requirement	Location
9	Boroughs are required to set out local issues, challenges and opportunities within the context of contributing towards the achievement of the nine Mayor's Transport Strategy outcomes and the relevant policies and proposals.	Local issues, challenges and opportunities are set out under each strategic transport objective section. Each section sets out the objective's relation to the relevant MTS outcome.
10	Boroughs are required to set objectives that explicitly assist with meeting the Mayor's Transport Strategy aim of increasing the sustainable travel mode share.	The four overarching strategic objectives in the LIP are explicit in assisting the achievement of the MTS aim of increased sustainable mode share. They address all of the MTS outcomes.
11	Boroughs are required to identify a set of locally specific LIP objectives that contribute to achieving the nine outcomes of the Mayor's Transport Strategy, and the relevant policies and proposals.	Four overarching Strategic Objectives have under them LIP Priorities, which have been developed to contribute to achieving the nine outcomes of the Mayor's Transport Strategy, and the relevant policies and proposals.
12	Other Mayoral strategies are also relevant to LIPs, and boroughs should have regard to these as they are published.	Other Mayoral strategies are considered on page 15
13	Boroughs are required to outline projects and programmes that contribute to the delivery of the Mayor's Transport Strategy – including the overarching mode share aim, each of the nine outcomes and the relevant policies and proposals – in preparing a Delivery Plan.	Each strategic objection chapter includes a delivery plan section, which details a series of projects and programmes. Each of these sets out how they contribute to meeting the strategic objective, and relevant MTS outcome (s).
14	When preparing their LIPs, boroughs are required to take into account the major projects and investment in all modes of transport, as well as the investment in the road network that may impact on their borough, as set out in the TfL Business Plan.	Major projects detailed in pages 72-74
15	Boroughs are required to identify all interventions that are intended to be wholly or partly funded using LIP funding in the borough's Programme of Investment. Boroughs should identify the proposed funding source for each of these interventions, ie how much is from LIP funding allocations and how much comes from other sources (for example, the council's own capital and revenue sources, Section 106/ CIL contributions, or other sources of TfL/ GLA funding, such as Growth Areas).	Table 3.2 page 75

	Requirement	Location
16	Boroughs are required to provide a list of potential schemes up until 2041, together with a short explanation of the reasons for their inclusion in the Delivery Plan.	Table 3.3 page 77
17	Boroughs are required to produce a costed and funded high-level indicative Programme of Investment that covers, by year, the three-year period 2019/20 to 2021/22.	Table 3.4 pages 79 to 81
18	Boroughs are required to provide supporting commentary on: <ul style="list-style-type: none"> a. How the three-year Programme of Investment has been derived, including how potential interventions have been identified and prioritised, and practical considerations relating to timescales, capacity and consultation b. The role of revenue-based investment, policy decisions, and third-party actions (including commitments outlined in TfL's Business Plan and investment programme) in delivering the borough's LIP objectives c. How the delivery of the Mayor's priorities will be supported at a local level 	Page 83 to 88
19	Boroughs are required to include a concise section on risk assessment and mitigation in preparing and considering options for their Delivery Plan.	Table 3.5 page 89 Table 3.7 on page 96
20	Boroughs are required to provide a detailed and costed programme of schemes and initiatives for the first year of the plan, with the programme to be updated in subsequent years. Boroughs should submit their Programme of Investment using Proforma A (as shown at Part three – Appendix F). Proformas will need to be uploaded to the Borough Portal.	Table 3.6 page 90
21	Boroughs are required to provide supporting commentary on: <ul style="list-style-type: none"> a. How the annual Programme of Investment has been derived, including how potential interventions have been identified and prioritised, and practical considerations relating to timescales, capacity and consultation b. The role of revenue-based investment, policy decisions, and third-party actions (including commitments outlined in TfL's Business Plan and investment programme) in delivering the borough's LIP objectives c. How the delivery of the Mayor's priorities will be supported at a local level 	Supporting commentary on pages 91 to 94

	Requirement	Location
22	Boroughs are required to identify any projects that have significant potential of risk within the planned programme of works and identify any mitigation measures for these high-risk projects.	Risk assessment have been carried out for the three year and one year investment plans on pages 89 and 96
23	Boroughs are required to set targets against the overarching mode share aim and the nine outcomes using their respective outcome indicators.	Targets have been set out in table 3.8 on page 97
24	Boroughs are required to collect this information and submit it to TfL using Proforma C on at least an annual basis.	This will be carried out when required

