Annexes

Annex 1

Checking things are on track

The RTF expects that TfL and the boroughs would monitor the performance of London's streets and road network with respect to the different functions set out as well as progress against delivery of the vision overall.

This should be supported by a programme of research to improve understanding of road users behaviour, their perceptions and their needs, and of likely responses to a range of interventions. The following table highlights some indicators or areas that should be part of TfL's monitoring approach.

These example indicators will also provide an understanding of progress towards the three core priorities of the RTF as set out in the preface – delivering better places across London, transforming the environment for walking, cycling and public transport, and enabling people and vehicles to move more efficiently on London's roads.

Category	Example indicators/areas	Principal geographies
Moving	• Traffic volume and flow by vehicle type • Traffic congestion, delays, journey time reliability • Journey time for some key corridors • Use, performance and accessibility of bus services • Cycling and pedestrian volumes • Asset condition • Perception of journey experience	GLA, sub-region, corridors, specific locations
Living	• Town centre and high street performance indicators (eg, footfall) • Perception of aspects of the urban realm, focusing on access, accessibility, cohesion, quality and liveability • Valuation of urban realm improvements • Active streets index (eg number of street events through the year) • Perception of quality of local places	GLA, specific locations
Unlocking	• Road network connectivity • Match between infrastructure provision and development needs • Match between infrastructure provision and mode share aspirations • Property values	GLA, specific locations
Functioning	• Movement of freight, servicing activity and its efficiency • Parking provision and behaviour • Effective management of road and street works	GLA, sub-regions
Protecting	• Road traffic casualties • Vehicle-related offences and perceptions of aspects of road user behaviour • Crime and perception of crime	GLA, sub-regions, specific locations
Sustaining	• Emissions of greenhouse gases and local air quality pollutants • Perceptions of road-related noise • Mode shares for active travel (walking, cycling) • Green street index (number of street trees, pocket parks, etc)	GLA, sub-regions, specific locations

Annex 2

Putting street-types into practice

This annex looks at each of the street-types in terms of their:

- Functions and users
- Priorities/key service standards
- Potential mitigations for non-priority users
- The types of intervention/tools that would be appropriate

Many of the improvements highlighted are light touch measures deliverable in a short space of time – but still with a significant impact. Other changes may take more time. Meeting the full aspirations across London for the street family will be dependent on the more strategic interventions discussed in the RTF report.

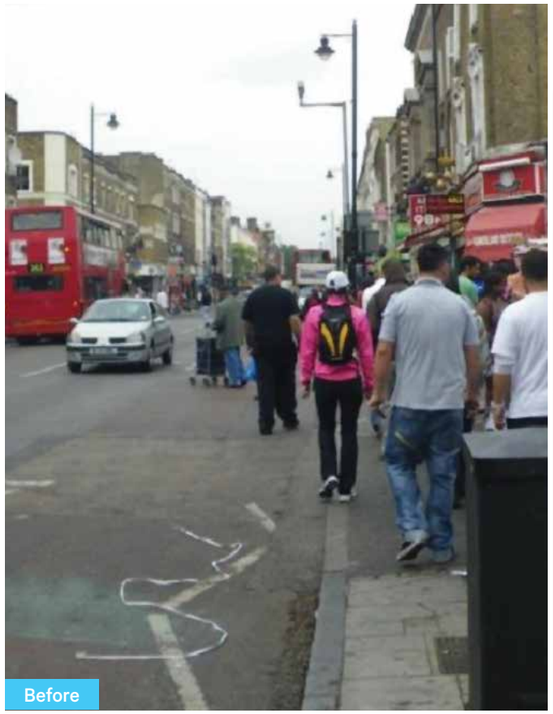
The most challenging streets and roads are those where demands for movement and place are both very high.

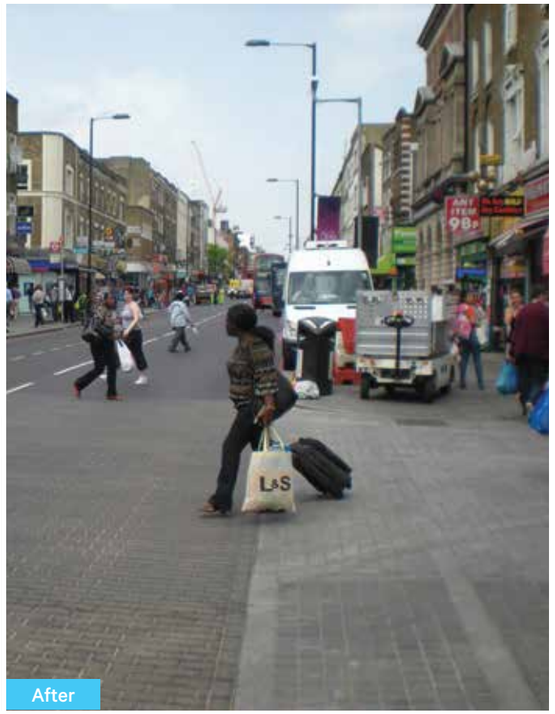
It will also, of course, require sustained funding and commitment over the next 20 years to deliver a programme of improvements across the different street-types and across different parts of London.

In practice, there will need to be robust assessment of the economic, environmental, safety, social and other costs/benefits of any proposed measures in specific locations.

The most challenging streets and roads to get the balance right is where demands for movement and place are high. For example when an arterial road 'meets' a town centre it becomes a high road (if on a London-wide corridor) or high street (if on a sub-regional corridor) and the demands and aspirations around 'place' functions and quality of the urban environment increase.

It is important to reflect the changing function of many streets through the day.





Kingsland High Street

It will be important to differentiate between Inner and Outer London high roads and high streets where the issues and opportunities (and the types of intervention, for example, parking) may differ given the different mix of modes and access. And, within Outer London, there will also be variations within the parameters reflecting different characteristics and aspirations.

The use of many of these roads in particular may vary through the day and week and policies should reflect this, making more flexible use of the space available.

Getting the balance right at Kingsland High Street

Kingsland High Street is the bustling local centre for Dalston, east London. Targeted by Hackney Council as an area for physical, social and economic regeneration, the streetscape improvements at Kingsland High Street support aspirations to help regenerate the local community, its businesses, and to encourage further investment and growth. The improvements incorporate widened, decluttered footways and crossings, re-located bus stops and an interchange that is easy to navigate. Despite the reduced carriageway capacity, traffic signals have been optimised to cut vehicle congestion.

Where an arterial road 'meets' a place of regional, or particularly high, sub-regional significance – existing or emerging – it becomes a city hub/boulevard.

Many of these are increasingly important areas with significant growth potential (Vauxhall Nine Elms Battersea, Elephant & Castle and Old Street) and aspirations for dense high-quality development, inner-city lifestyles, urban realm improvements and high levels of walking and cycling.

These are the hardest locations to get the balance right and clear, early decisions will need to be made about the priorities and how far changes may go.

In some places, there may be particular issues associated with the road layout, for example, gyratories and ambitions to remove/re-design them. The implications of this for wider network functioning need to be considered, but examples such as Tottenham Hale show how this can help 'rebalance' areas.

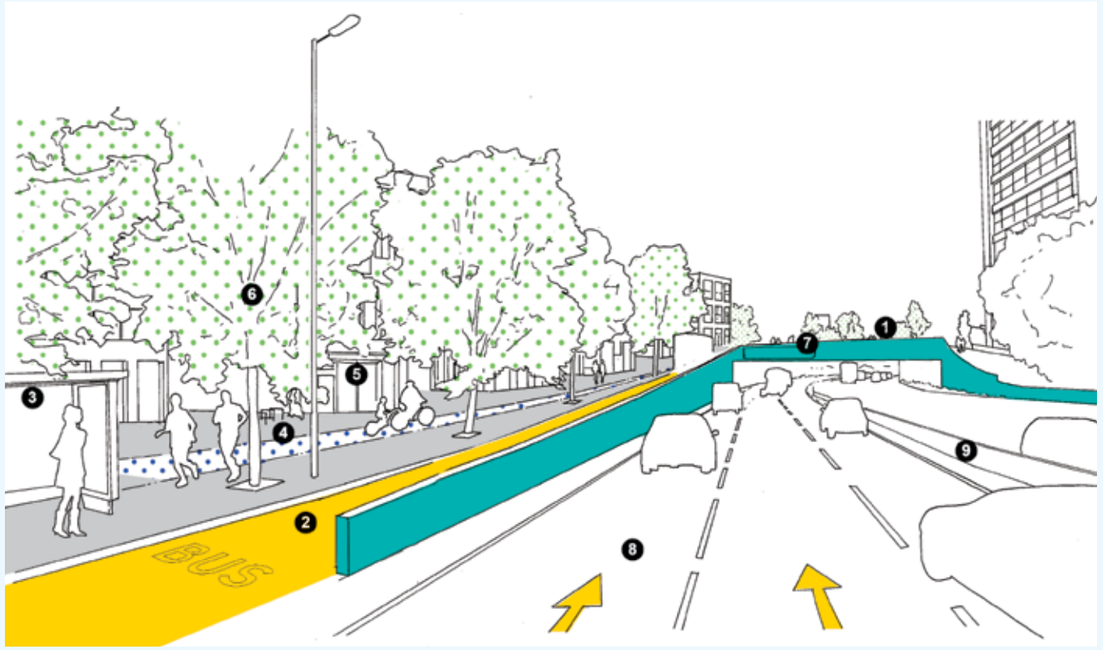
Before

Braham Street Park

A city hub transformed at Aldgate

Braham Street Park was the first project completed under the High Street 2012 programme which aimed to improve links between the Olympic Park and the rest of London. This scheme is also part of a wider transformation of the Aldgate gyratory into a two-way system. The redirection of four lanes of traffic, by reverting Whitechapel High Street back to a two-way street, freed up road space which allowed for the creation of a new park. The park features many of the public's wishes expressed through extensive public consultation including large expanses of green space achieved through the use of sloping grass mounds, hedges, trees, a water feature and Europe's longest bench.

Ingredients



1. Broad landscaped bridge, or roofed over section of road, incorporating pedestrian, cyclist and local vehicular routes, to reduce severance of communities
2. Separation of buses from other motorised traffic to improve local access to public transport
3. High-quality bus stop with a large shelter and live service information
4. Improved landscape setting incorporating separated cycle routes and wide footways to improve walking and cycling access in the local area
5. Improved access, physical environment and connectivity to enable new development
6. Street trees to assist visual and noise screening
7. Real-time information for motorised traffic
8. Lane rationalisation and separation of buses to enhance motorised traffic capacity
9. Improved median barriers

Additional ingredients

- Cluttered and unnecessary signage removed

Arterial roads

Reliable major routes for large volumes of traffic that mitigate the impact on adjacent communities.

Functions

- Arterials are essential for business, bringing goods into and out of London
- They are key to moving large volumes of motorised traffic, for example the busiest parts of the A12 cater for more than 100,000 vehicles a day with the North Circular exceeding 120,000
- Trip lengths vary with arterial roads catering for long-distance as well as shorter trips

Users

- Cars take up more than half of the traffic
- Freight takes up the next biggest share, up to a third
- Buses, cyclists and pedestrians are more likely to cross arterial roads than travel along them

Challenges

- Congestion during peak periods
- Daily customer experience needs to be more consistent
- Severance between the areas they pass through

Priorities (key service standards)

- More reliable vehicular journey times
- Less congestion
- Sufficient capacity for private vehicles and freight

Providing for other users

- Reducing severance by providing opportunities to cross the road, potentially via high-quality bridges/underpasses
- Good parallel routes for local traffic and cycling
- Reducing air quality/noise impacts/more greenery

Tools

1c 21st-century roadworks
1d Innovative materials and kit
3a Optimised traffic signals
3c More dynamic on-street information
3d Effective incident management
3f Congestion hot spot busting
4f Active network management
5a Junctions enhancement plan
5b New and improved separation
5c Freeing space from motorised traffic impacts
5d Substitute/relocated capacity

Tools (applied to all street-types)

1a Improved asset management tools
1e Future flexibility
1h Cleaner vehicles
3b World-leading real-time traffic management system
3e A strong customer focus
4c Smart charging
4d Smart work centres and practices
4e Next generation travel demand management schemes
4g Parking policy
4h Land use planning
5f Connections to growth areas

Aspirational view: Arterial roads

Ingredients

1. Station forecourt de-cluttered and reorganised to provide improved public realm
2. Improved formal crossings with pedestrian countdown
3. Guardrails and bollards removed and junction geometry redesigned
4. Superhighways and advanced stop lines for cyclists
5. Well-located and well-designed market stalls
6. Improved surfacing of junction, with tone and material change to calm vehicular traffic
7. Legible London sign, to improve wayfinding
8. High-quality cycle parking
9. Improved median at staggered crossing, incorporating traffic signage

Additional ingredients

- High-quality bus facilities and priority measures to improve bus journey time reliability
- De-cluttered street with improved management regime
- Inset loading bays to improve ease of servicing and deliveries

High roads

Reliable major routes through London that provide vibrant, safe, secure and well-maintained urban environments and make shops and services easily accessible.

Functions

- Accommodate large volumes of traffic handling in excess of 20,000 vehicles a day, while also serving major town centres and being a focal point for community life

Users

- Given the town centre functions, pedestrian flows are high, typically peaking in the mid-afternoon
- High roads are used by a mix of all types of traffic
- Buses play a major role in people movement but are not a large proportion of total traffic
- Goods vehicles can account for up to 30 per cent of traffic
- High roads are also popular for cyclists, particularly in the morning and evening as they provide direct routes

Challenges

- Congestion causes delays and, combined with high traffic volumes, can create severance/reduced amenity
- Poor urban realm
- Road safety can be poor as the intensity of interactions can result in a high number of collisions

Priorities (key service standards)

- Reliable journeys for vehicles
- Bus priority
- Safer, inclusive and higher quality pedestrian environment (including 20mph limit)
- Accessibility of local services, shops and access for freight

Providing for other users

- Controlled pedestrian crossings at regular intervals

Tools

1b Enhanced safety features
1c 21st century roadworks
1d Innovative materials and kit
1f Basic street improvements
1g Greener streets
2a More efficient people movement
2b Safe speed environment
2d Providing space for stopping
2e Re-imagined streets and places
2f Re-design of gyratories
2g Better crossings
3a Optimised traffic signals
3c More dynamic on-street information
3d Effective incident management
3f Congestion hot spot busting
3g Better targeted enforcement
3h Flexible lanes and management
4a Re-timing freight
4b Re-moding freight/services
4f Active network management
5d Substitute/ relocated capacity
5e New public spaces and pedestrian/ cycling facilities

Tools (applied to all street-types)

See page 225 for full list.

Aspirational view: High roads

Ingredients

1. De-cluttered, wide and reorganised pavement, with aligned street furniture, and delineated trading areas using pavement studs
2. Threshold pedestrian crossing treatment to mark transition to pedestrian priority environment
3. Generous cycle lane
4. Legible London sign, to improve wayfinding
5. Street trees and high-quality, well-located seating
6. Inset loading bay to improve ease of servicing and deliveries
7. Wide, formal crossing in the distance
8. Median strip to facilitate informal pedestrian crossings
9. Cycle racks on median strip to reduce clutter on footways
10. Consolidated street furniture, such as bins attached to streetlights, to reduce clutter

Additional ingredients

- Traffic calming measures, including 20mph limit and change in materials
- High-quality bus facilities to improve access to high street and facilitate interchange
- Disused telephone booths removed and others consolidated

High streets

Provide access by all modes to shops and services, and ensure a high-quality public realm and strong focus for community life.

Functions

- A destination for large numbers of people accessing shops, restaurants and other services
- Found across London, they are the lifeblood of local communities

Users

- A mix of all types of traffic with buses providing access for large numbers of people
- Levels will vary across the day with more motorised traffic in the morning and evening, and more pedestrians in the afternoon and at night

Challenges

- Congestion
- Road safety
- Inadequate provision for deliveries and servicing
- Quality of place

Priorities (key service standards)

- A high-quality environment for pedestrians, with good and frequent (and informal) crossings
- Good facilities for service vehicles to ensure local businesses can easily receive deliveries
- Road safety and a slower speed environment
- Accessibility for sustainable modes, for example, buses and cycling

Providing for other users

- To get the right balance at high streets journey times might increase for some users but this should be offset by increased reliability and improved road safety

Tools

1a Improved asset management tools
1b Enhanced safety features
1c 21st century roadworks
1d Innovative materials and kit
1e Future flexibility
1h Cleaner vehicles
2f Re-design of gyratories
2h Informal spaces
3b World-leading real-time traffic management system
3c More dynamic on-street information
3d Effective incident management
3e A strong customer focus
3f Congestion hot spot busting
3h Flexible lanes and management
4c Smart charging
4d Smart work centres and practices
4e Next generation travel demand management schemes
4f Active network management
4g Parking policy
4h Land use planning
5a Junctions enhancement plan
5b New and improved separation
5c Freeing space from motorised traffic impacts
5d Substitute/ relocated capacity
5e New public spaces and pedestrian/ cycling facilities
5f Connections to growth areas

Tools (applied to all street-types)

See page 225 for full list.

Aspirational view: High streets

Ingredients

1. Spacious undercroft with direct sight lines, an improved station entrance, to replace a narrow subway and serve as a through-route for pedestrians and cyclists under a roundabout
2. Wide, gently sloping access route to create a new public space with seating and café areas
3. Smart traffic signals to smooth vehicular traffic flow and reduce congestion
4. Cycle hire docking station
5. High-quality cycle parking
6. Wheeling ramps to make stairs accessible to cyclists
7. Street trees with integrated seating
8. Consolidated street furniture, such as bins attached to streetlights, to reduce clutter
9. Cycle lanes incorporated into the roundabout layout
10. High-quality and well-located bus stop with a large shelter and live service information to facilitate interchange

Additional ingredients

- High-quality materials and finishes to present a world-class public realm

City hubs and boulevards

Vibrant focal points for business and culture. They reduce the impact of high traffic volumes while accommodating high pedestrian flows, bus access and essential traffic.

Functions

- Part of the strategic road network but with high aspirations for quality of place
- Often the location for new city quarters and major development plans/aspirations
- Important destinations for visitors and residents, with a wide range of leisure, retail, community and other services

Users

- A mix of all traffic and in high volumes
- Buses are particularly important for people movement
- Significant proportions of goods vehicles also passing through
- Pedestrian movement is high throughout the day (for example, modelling for the Southern roundabout at Elephant & Castle has forecast 13 million annual pedestrian crossings – equal to the forecast number of vehicles through the junction)

Challenges

- The volume, complexity and diversity of demands, makes the balance hardest to strike here
- Many locations in this typology are currently under-performing against the 'place' functions

Priorities (key service standards)

- Access for buses
- High-quality environment for pedestrians and cyclists
- Urban realm to support revitalised city quarters
- Improved safety and environmental quality
- Sufficient movement for network functioning

Providing for other users

- Goods vehicles accommodated out-of-hours as much as possible
- Targeted demand management can help to ensure private vehicle trips are high-value/essential trips only

Tools

1b Enhanced safety features
1c 21st-century roadworks
1d Innovative materials and kit
1f Basic street improvements
1g Greener streets
2a More efficient people movement
2b Safe speed environment
2e Re-imagined streets and places
2f Re-design of gyratories
2g Better crossings
3a Optimised traffic signals
3c More dynamic on-street information
3d Effective incident management
3f Congestion hot spot busting
3g Better targeted enforcement
3h Flexible lanes and management
4a Re-timing freight
4b Re-moding freight/services
4f Active network management
5d Substitute/ relocated capacity
5e New public spaces and pedestrian/ cycling facilities

Tools (applied to all street-types)

See page 225 for full list.

Aspirational view: City hubs and boulevards

Aspirational view

1. Dedicated two-way cycle lane to provide safe route for cyclists as part of Quietway network
2. Separate cycle signals as part of high-quality cycling infrastructure
3. High-quality bus stop with a large shelter and live service information
4. Formal pelican crossings
5. Legible London sign to improve wayfinding
6. Tactile paving and drop kerbs to improve accessibility
7. High-quality cycle parking
8. Prohibited turns to prevent 'rat-running' by motorised traffic
9. Well-maintained road surface
10. Signalised right-turn lane with filter to reduce the potential for congestion at the junction

Connectors

Reliable routes for medium distance and local road journeys, comfortable roads for cyclists and safe and secure routes for pedestrians.

Functions

- Play an important role in the movement network, providing key connections between places
- Can vary from local routes carrying light volumes of traffic to busier roads that provide important links from arterial and high roads to other parts of London
- Land uses vary along connectors and include small parades of shops, homes and workplaces, but the priority is on passing through rather than being destinations in themselves
- Routes for pedestrians from their homes to various destinations/bus stops
- The majority of the Quietway cycle network will be made up of connectors and local streets

Users

- A mix of all traffic: flows likely to be higher in the morning and evening
- Lower volumes of heavy goods vehicles
- Quieter connectors provide a popular route for cyclists

Challenges

- Congestion in peak periods in particular in close proximity to junctions with more strategic roads
- Wayfinding and legibility
- Street lighting

Priorities (key service standards)

- Providing reliable journeys for motorised vehicle journeys
- Good environment for pedestrians and cyclists
- Reliable bus journeys where bus routes pass through connectors
- Road safety

Providing for other users

- Accessible, safe and well-lit pedestrian routes
- Alternative effective arterial roads for freight
- Greening to enhance environmental quality for residents

Tools

1b Enhanced safety features
1c 21st century roadworks
2g Better crossings
2h Informal spaces
3a Optimised traffic signals
3g Better targeted enforcement
4f Active network management
5e New public spaces and pedestrian/ cycling facilities

Tools (applied to all street-types)

See page 225 for full list.

Ingredients

1. One-way gyratory system removed and lanes reconfigured to reduce vehicle speeds
2. Lane restricted to buses and cycles only, to improve cycle safety and bus journey time reliability
3. Median strip to allow informal pedestrian crossings, with formal crossings at key junctions
4. High-quality bus stop with a large shelter and live service information
5. High-quality, centrally located street lighting. Additional lighting mounted onto building facades where practicable, to reduce clutter
6. Inset loading bays to improve ease of servicing and deliveries
7. Street trees with high-quality grates and lighting, and potential for sustainable drainage systems
8. Bespoke seating design to give greater area identity
9. Legible London sign, to improve wayfinding
10. Cycle hire docking station
11. High-quality cycle parking
12. Café seating along improved shop forecourt area

Additional ingredients

- High-quality materials and finishes to present a world-class public realm
- Visual clutter, such as unnecessary guardrails and disused phone booths, removed

City streets

Provide a world-class, pedestrian friendly environment while ensuring excellent connections with the wider transport network.

Functions

- Widely known for their concentration of commercial and cultural street activity
- Important role in perceptions of London as a place to visit and do business in. They cater for large volumes of visitors
- Provides for essential traffic, in particular public transport and freight/servicing
- Bus priority measures to allow reliable journeys as buses are important to get people to these locations
- High footfall and visitor satisfaction

Providing for other users

- Flexible use of space to cater for demand at different times of the day, for example, pavements with inset loading bays to cater for pedestrians during the day and deliveries at night
- Diversion of general traffic on to more efficient routes
- Provision for coach and taxi access

Users

- High pedestrian levels
- Buses and taxis make up a significant proportion of motorised traffic

Challenges

- Constrained pedestrian movement
- Road safety
- Accommodating freight and servicing
- Congestion

Priorities (key service standards)

- A world-class public realm
- Free pedestrian movement with the ability to cross the road along desired lines

4a Re-timing freight
4b Re-moding freight/services

Tools (applied to all street-types)

See page 225 for full list.

Tools

1f Basic street improvements
1g Greener streets
2a More efficient people movement
2b Safe speed environment
2e Re-imagined streets and places
2g Better crossings
3a Optimised traffic signals
3g Better targeted enforcement

Aspirational view: City streets

Aspirational view

1. No through-route from road, to ensure usage only by local motorised traffic and prevent 'rat-running'
2. Safe walkways for families and children
3. Safe routes for cyclists as part of Quietway network
4. High-quality cycle parking
5. Different road surface to highlight parking bays, which do not obstruct the road
6. Threshold treatment to highlight pedestrian crossing point and mark transition to residential area
7. Change in road alignment to calm vehicular traffic and encourage lower speeds
8. Street trees along both sides of road

Local streets

Quiet, safe and desirable residential streets that foster community spirit and local pride.

Functions

- The majority of Londoners live on streets that are used mainly by local vehicles and pedestrians who live on them to access their homes, go to work, school or to access local shops and services
- Some are also used by cyclists as an alternative to busier routes
- Can provide spaces for children to play
- The majority of the Quietway cycle network will be made up of local streets and connectors

Users

- Private vehicles
- Cyclists
- Pedestrians
- Delivery vehicles

Challenges

- Rat-running
- Poor lighting
- Management and maintenance issues

Priorities (key service standards)

- Accessible and safe pedestrian environment
- Parking for residents and car clubs/car sharing
- Providing an environment serving the diverse needs of local residents including older people and children

Providing for other users

- Through movement of traffic should be discouraged with connectors providing better alternative routes

Tools

2b Safe speed environment
2c Fun and active streets
2d Providing space for stopping
2h Informal spaces
4e Next generation travel demand management schemes

Tools (applied to all street-types)

See page 225 for full list.

Aspirational view

1. Shared space design to create a vibrant town street
2. No through-route for motorised traffic, to prevent 'rat-running'
3. Space allocated for market stalls to increase street trading and pedestrian footfall
4. Café seating along shop forecourt area
5. High-quality materials with a flush surface
6. Space for car parking in off-peak periods
7. Access for servicing and deliveries at low speeds
8. Street trees
9. High-quality cycle parking

Town squares/streets

A focus for community activity and services (retail, leisure, public, etc) with ease of pedestrian movement a priority.

Functions

- A destination for local people accessing local shops or services such as street markets

Users

- Mainly used by pedestrians with the focus on the street activity generated and little through movement

Challenges

- Difficult to provide good facilities for delivery and servicing during particular times of the day when footfall is high
- Poor-quality urban environment that can impact the vibrancy of these streets

Priorities (key service standards)

- Free pedestrian movement in a good-quality environment
- Safe and secure urban environment
- User satisfaction/footfall

Providing for other users

- Town squares need to be well-connected to be effective – good transport facilities at the edges need to be provided such as cycle parking, bus stops and parking spaces
- Access can be provided through these streets for other modes out-of-hours
- Providing adequate delivery/servicing facilities through inset loading bays, delivery, servicing plans, and timed access

Tools

2b Safe speed environment
2c Fun and active streets
2d Providing space for stopping
2e Re-imagined streets and places

Tools (applied to all street-types)

See page 225 for full list.

Aspirational view

1. Area closed to motorised traffic to provide pedestrian priority environment
2. Removable bollards to allow emergency access, facilities servicing and deliveries
3. Appropriate spaces for street performers
4. Conservation area grade yellow lines
5. Accessible paving along edge to facilitate wheelchair movement
6. Legible London sign to improve wayfinding
7. High-quality cycle parking
8. Café seating areas delineated using pavement studs

Additional ingredients

- Accessible links to public transport modes
- Late opening hours encouraged to activate night-time ambience
- High-quality materials and finishes to present a world-class public realm

City places

World-class, pedestrian friendly environments to support their role as places of major significance and encourage high levels of street activity and vibrancy.

Functions

- Areas with a high concentration of commercial activity, entertainment venues and cultural landmarks
- These places are internationally known for their distinctive character and make a big contribution to the attractiveness of London

Users

- Almost entirely pedestrian as access for motorised vehicles is restricted most of the day

Challenges

- These places have the highest concentration of street activity and accommodating this while providing for through-movement for pedestrians can be difficult
- Similarly, making provision for delivery and servicing can also result in competing demands for space

Priorities (key service standards)

- High-quality, safe and secure pedestrian environment
- Footfall/ambience/ user satisfaction

Providing for other users

- Motorised traffic is not generally catered for in these areas, however provisions should be made to allow access for delivery and servicing vehicles, ideally out-of-hours

Tools

2b Safe speed environment
2c Fun and active streets
2e Re-imagined streets and places
4a Re-timing freight
4b Re-moding freight/services

Tools (applied to all street-types)

See page 225 for full list.

Annex 3

RTF case studies

World-class city centre

1 Oxford Street

The UK's top-ranked retail location, and the busiest retail street in Europe, is crucial to London's GDP and attracts more than 500,000 daily visitors. It is a key east-west route for bus services and carries significant numbers of taxis and cycles, all competing for road space. Retailers, landowners and businesses demand a world-class public realm to compete with other retail locations, both domestic and international.

Traffic movement conflicts with the place functions for visitors and shoppers, contributing to high levels of pedestrian crowding on footways.

In the short term, the public realm could be enhanced by continued street de-cluttering and the provision of public spaces. More diagonal crossings and the use of Pedestrian Countdown signals would improve the visitor experience, along with additional temporary street closures to motorised traffic. In the medium term, Crossrail will increase visitor numbers and the demand for footway space.

Pedestrianisation would require re-routing bus services to adjacent roads which would be unpopular and reduce accessibility to the street itself. The opening of Crossrail will reduce demand for some bus services accessing Oxford Street. The opportunity also exists to significantly reduce traffic by making it a bus and cycle-only street, with servicing, deliveries and taxis allowed outside peak shopping hours.

Proposed street-type:
City street.

A dense, vibrant Inner London

2 Lower Road (A200)

This strategic road links the southeast of the Capital to central and east London. It runs from the Rotherhithe gyratory system to the roundabout at the Rotherhithe Tunnel approach road.

It suffers from congestion owing to high demand for local and through movements, exacerbated by a pinch point at the Rotherhithe Tunnel. The complex road layout inhibits access to the Rotherhithe peninsula, impacts on bus services, and acts as a barrier for pedestrians and cyclists. The pedestrian environment is poor owing to the low-quality urban realm, uneven footways, and poor air quality. Major development planned for Surrey Quays will increase demand for Lower Road – both for vehicular traffic and for enhancing the area's place function.

Short-term measures should focus on improving the pedestrian environment and maintaining existing infrastructure.

For the longer term, removing the Rotherhithe gyratory system and improving the local environment will be key. This will need support through a strategic demand management programme to avoid negative impacts on the road network. As the road crosses the boundary between Lewisham and Southwark, the aspirations of both boroughs must be coordinated together with planned development schemes.

Proposed street-type:
Generally connector with sections of high street.

3 Lewisham/Catford

The A21 is a key route that connects Catford and Lewisham, two major town centres with a number of developments and growth proposals planned – notably the Lewisham Gateway development. The nature of the road changes a number of times, with changing emphases of place and movement.

The road performs well in many respects: for traffic, as a bus route, as a high street and for loading provision. Specific challenges are the cycling environment, road safety, and the need to provide a vastly improved public realm to unlock the growth potential in the area surrounding the Catford gyratory.

Short-term schemes need to focus on reducing severance, improving the walking environment and increasing provision for cyclists. It is also important that this section of the road continues to provide acceptable and reliable journey times for motorised traffic.

For the longer-term, options for the redesign or removal of Catford gyratory will need to provide alternative capacity such as flyunders to avoid creating significant congestion in the area. If this is not feasible in the immediate vicinity, additional capacity on alternative corridors should be considered.

Proposed street-type:
High road.

A dense, vibrant Inner London

4 Stoke Newington (A10)

This Inner London town centre has a growing reputation as a vibrant local commercial and community hub. It is located around the Stoke Newington gyratory on the A10, a major north London radial route and one of the Capital's busiest bus corridors.

The road layout of the A10 bisects the town centre, creating severance for pedestrians and cyclists. Along with congestion, low-quality public realm and cluttered, narrow pavements, this hinders the town centre's place aspirations.

In the short term, de-cluttering the high street and enhancing the urban realm (in keeping with the area's character) will improve the town centre. The construction of Barclays Cycle Superhighway 1 will provide greater capacity for cyclists and introduce more flexibility to pedestrian crossings, and loading bays will increase space and reduce severance for pedestrians.

For the longer term, removing the gyratory and converting the high street to two-way traffic would reduce the effects of severance and increase public space, but could increase levels of congestion in the area and cause rat-running on residential roads. To avoid this, some form of broader, area-wide demand management may be required to reduce overall motorised traffic levels.

Proposed street-type:
High road.

Chiswick Roundabout to Hammersmith

5 Great West Road (A4)

The A4 is a major arterial road in west London carrying high volumes of traffic (over 90,000 vehicles per day) between the M4 and central London.

Between Chiswick Roundabout and Hammersmith, the road causes severance and crossing opportunities are limited to subways. At Hammersmith, a flyover separates the arterial motorised traffic from the gyratory and town centre below. The flyover is visually intrusive and the high levels of motorised traffic generate noise and air pollution along the corridor.

In the short-term, further roll-out of Split Cycle Offset Optimisation Technique (SCOOT) will improve journey time reliability, and improving subway conditions (the main crossing opportunities along the corridor) will help to increase pedestrian safety and security.

However, to exploit the potential new surface developments and make greater use of Hammersmith's established transport hub, longer-term proposals for providing alternative tunnelled routes for through-traffic should be explored. This would have transformative effects on the town centre, greatly improving the quality of life for its residents, and reducing severance of communities along the corridor.

Proposed street-type:
Arterial.

A network of diverse, accessible and safe neighbourhoods across Outer London

6 The North Circular (A406)

The North Circular is the main orbital road in north London, linking many key radial routes between the A13 and the A4. It is one of the busiest roads in London and facilitates movement between town centres and neighbourhoods across Outer London for people and goods.

The road is congested at several points, including the intersections of Henlys Corner and Hanger Lane, and other at-grade junctions with local roads. Retail and other car-based development along the road has exacerbated congestion levels. Residents' quality of life is severely impaired by poor air quality, noise and severance.

Interventions similar to recent schemes at Henlys Corner and Bounds Green could help reliability but will not be enough to cope with rising traffic levels: the North Circular links the Thames Gateway, Upper Lea Valley, Brent Cross and Old Oak Common growth areas.

A clear strategy is needed for the road, focused on providing reliable and acceptable journey times, through measures such as junction improvements, or decking sections of the road to reclaim the land above it. This could improve conditions for residents and free up space for local transport, community uses or development.

Proposed street-type:
Arterial.

7 Bullsmoor Lane, Upper Lea Valley (A1055)

Bullsmoor Lane provides the main access from the M25 and the north to the Upper Lee Valley (ULV) Opportunity Area. Although generally only a single-lane highway, it caters for a large number of vehicles with particularly high freight levels. Housing, a school and local shops front on to the road.

Growth in the ULV is expected to put further pressure on Bullsmoor Lane, increasing the current levels of congestion at junctions with the A1010 and the A10.

Interventions are required to improve air quality, reduce the high noise levels, ignore severance and address the poor-quality public realm.

In the short and medium-term, improved traffic control could help manage congestion, while traffic calming and better street improvements could be made in the more sensitive sections of the road.

For the longer-term, an alternative or replacement connection to the M25 should be investigated to enhance connectivity between the growth area and the SRN while improving living conditions for local residents.

Proposed street-type:
Connector.

8 Burnt Oak Broadway (A5)

A borough road that forms, part of the A5 on the London-Luton growth corridor, it runs parallel to the A41 and M1 arterial roads. The A5 provides an important connection to local major developments.

Significant delays at junctions result in poor journey time reliability along the road. Cyclists are not well catered for and the low-quality urban realm and frontages provide a generally unwelcoming pedestrian environment. Furthermore, the road layout of the A5 impedes east-west movement.

In the short term, de-cluttering and urban realm improvements are important, along with implementing SCOOT to address congestion issues. Junction improvements are planned for the next few years to accommodate the expected growth and highway demand from nearby major developments. Beyond that, consideration could be given to redesigning the carriageway to include cycle routes and to allow for easier pedestrian crossing, together with parking and loading facilities.

The road lies on the boundary of three boroughs: Brent, Barnet and Harrow. As part of continued close working to deliver growth-related schemes, the creation of a 'high street management group' to facilitate and coordinate new proposals in a consistent manner could be beneficial for the A5 in the long-term.

Proposed street-type:
High street.

9 Tooting High Street (A24)

Part of the A24, Tooting High Street is a busy, largely single carriageway radial route with high traffic flows into central London. It is also a major bus and Underground interchange and an important centre for the local community.

The corridor as a whole suffers from high levels of congestion and collisions. This is partly due to constrained road space and the conflicting demands on it, and has implications on severance, road safety and urban realm.

Congestion in Tooting could be alleviated by signal optimisation, de-cluttering, and the use of flexible loading bays or side streets for deliveries. However, congestion needs to be tackled along the entire corridor so that measures specific to Tooting are not compromised by the effects of congestion hot spots in other areas. Locally, a 20mph speed limit, along with traffic-calming measures and a redesigned street layout, could deliver safety and environmental improvements while helping maintain vehicular flows.

Strategic measures need to focus on the whole A24 corridor. The most effective method of reducing congestion would be to encourage a mode shift from car trips.

Proposed street-type:
High road.

Breathing life back into town centres across London

10 Kingston town centre

Kingston is a major Outer London town centre with a strong retail and leisure-focused core. There are proposals for significant retail and leisure development with the aim of diversifying the town offer.

Significant attractors including the railway and bus stations, library, and leisure centre, are segregated from the pedestrianised town centre by the wide, traffic-dominated road network.

In the short-term, the efficiency of car travel in Kingston could be slightly improved by using dynamic parking management and variable message signs displaying parking space availability. Severance could also be reduced through public realm enhancements and traffic calming, as well as improvements to pedestrian crossings from the railway and bus stations. However, this could impact negatively on traffic delays and congestion.

Long-term measures to further reduce severance should be explored including using commercial development to 'bridge' sections of the road network, and providing a more welcoming gateway to the town centre through station redevelopment associated with Crossrail 2. As a Biking Borough, there is significant potential to encourage mode shift from short-distance car trips. Opportunities to reduce through traffic should be explored by reducing the existing road dominance, potentially through reducing network capacity.

Proposed street-type:
City hub/boulevard.

Unlocking major growth and regeneration across London: Regeneration in east London

11 Docklands – City corridor (A13, A1203 and A3211)

The Docklands – Central London Corridor forms a key route into the centre of the Capital, particularly for freight and servicing traffic, and connects the employment centres of Canary Wharf and the City.

Congestion on these roads is high and pressure on the corridor will increase with the substantial growth forecast for east London. Significant increases in cycling must also be accommodated – the planned cycle route along Victoria Embankment will reduce road space, requiring motorised traffic to be reduced or rerouted. The A13 causes significant severance for communities and potential growth areas.

Short-term measures should focus on operational improvements, including the further roll-out of SCOOT, dynamic network management and pedestrian countdown, while also seeking to greatly improve environmental conditions.

Traffic flows could be further regulated using a demand management plan, particularly for freight traffic. This could include the use of consolidation centres and out-of-hours deliveries. Junction improvements would also reduce congestion and unlock the substantial development potential of adjacent land. Studies are required to determine the feasibility of reducing severance along these corridors using schemes such as land bridges, and improving the local environment by transforming the public realm in town centres.

Proposed street-type:
Arterial, high road and city hub/boulevard (towards Central London).

Unlocking major growth and regeneration across London: Regeneration in east London

12 Lower Lea Valley area (A12)

The A12 is one of the Capital's busiest and most strategically important roads, running from northeast London to the Blackwall Tunnel.

However, it severs development land in Tower Hamlets from the rest of the borough, limiting provision for the area's increasing population. The road needs to support and not impede the significant development forecast along this corridor.

Providing crossings would impact on strategic movement and only partially reduce severance, without tackling noise and air quality.

More significant solutions are needed to enable the area to adequately respond to its acute growth pressures, while also enabling efficient arterial movement. These could include Mile End-style bridges for pedestrians and cyclists, decking over sections of the road to provide additional space for development, and public realm improvements. More extensive cut and cover schemes as seen in Boston and Paris could also be possible. Parallel routes for buses and cyclists would better serve local communities and reduce conflict between local and strategic movement. The place functions of these parallel routes could be increased by new developments creating separated high streets with crossings over the A12.

Proposed street-type:
Generally arterial road with separated high streets.

Unlocking major growth and regeneration across London: Iconic new inner-city quarters

13 Euston/Marylebone Road

As part of London's Inner Ring Road, circumventing the Congestion Charging zone, Euston/Marylebone Road is a vital corridor for many vehicular modes. This results in conflict for road space, particularly between motorised traffic and cyclists. With Underground stations and rail termini along its length (including the proposed terminus for High Speed 2), it is also a key transport interchange. The road has a high place value as it hosts a number of internationally renowned attractions.

The road is noisy, polluted, dominated by traffic, and forms a barrier between central London and the area immediately north, causing severance of local communities. Development and intensification of the area north of the road will exacerbate the conflict between traffic movements along and across the road.

Short-term interventions should focus on calming traffic speeds while actively managing traffic flows to maintain journey time reliability, and improving crossing opportunities for pedestrians and cyclists.

More significant improvements have been dismissed as having limited impact – much of the traffic only travels a short distance on the road. Daytime vehicle restrictions would reduce demand on this corridor, as would the provision of alternative capacity elsewhere. Both should be explored further.

Proposed street-type:
City hub/boulevard.

14 Victoria

Victoria is one of the busiest rail and Underground stations in London's Central Activities Zone. It also has a busy bus station. Pedestrian flows are high, with thousands of people using the hub every day.

Some of the roads in the vicinity are one-way, creating circuitous routes for vehicular traffic and severing key pedestrian movement corridors, including crossing movements to the rail and Underground stations located outside the Inner Ring Road. The bus station cannot contain all bus services, which increases pressure on adjacent streets.

Current work to extend the Underground station will provide pedestrian exits inside the Inner Ring Road, greatly improving access. Large-scale redevelopment of the area will dramatically enhance the area's place function and better cater for higher pedestrian numbers.

Long-term options should consider diverting the Inner Ring Road outside the station hub. This could enable Victoria to be developed more coherently as a pedestrian-focused place without severance. Any plans must ensure appropriate access for buses, and be integrated with planning for the District and Circle line station, Victoria Coach Station and Crossrail 2. They must also consider the evolving pattern and intensification of uses in Victoria.

Proposed street-type:
City hub/boulevard.

15 Elephant & Castle

Elephant & Castle northern roundabout is a key public transport interchange and major bus network hub on London's Inner Ring Road. It is also densely populated with shops and other attractions to residents.

Motorised traffic dominance causes local severance, decreases the quality of the public realm, and creates noise and air pollution. The roundabout has the worst collision record for all comparable junctions in London, experiences significant levels of bus congestion, and has poor facilities for pedestrians and cyclists. There is also an above-average crime rate in the vicinity.

The anticipated intensification of development at Elephant & Castle will further increase pressure on the area. Previously, proposed measures have concentrated on improving road safety and reducing severance but have done little to improve the sense of place. A recent peninsularisation concept could have transformative impacts on public space, road safety, and facilities for pedestrians and cyclists. Refined designs will balance these improvements with the movement needs of buses and other motorised traffic.

To effectively reduce conflict in this area, a reduction in motorised traffic is needed. The future role of the Inner Ring Road also needs to be agreed to determine whether alternative orbital capacity may be required.

Proposed street-type:
City hub/boulevard.

Unlocking major growth and regeneration across London: Iconic new inner-city quarters

16 Wellesley Road, Croydon

This key transport corridor runs through the heart of the Croydon Metropolitan Centre. The area benefits from excellent transport connections and established commercial, retail and civic functions.

Croydon Metropolitan Centre has suffered from a period of decline, with many under-used commercial properties and a poor urban realm. Generally there is clear acknowledgement that Croydon needs a high-quality, integrated urban realm as part of the catalyst for future investment.

Measures are under way through the Connected Croydon programme, supported by the Mayor and the borough, with the aim of enhancing its place functions and reducing the severance created by the road through better wayfinding, pedestrian crossings, and improved cycling facilities.

The proposed redevelopment of the Whitgift Shopping Centre by Westfield and Hammerson represents a significant opportunity for Croydon to renew its commercial and retail offer. The development will require good access via Wellesley Road. Strategic measures in the locality and beyond are required to balance the additional demand from this new development with the aspiration for an improved urban realm.

Proposed street-type:
City street.

Glossary

Roads/streets:
Interchangeable terms for the public spaces between buildings which provide for movement, living, unlocking, functioning, protecting and sustaining.

Trips:
Movements from origins to destinations, such as from homes to workplaces. A single trip contains at least one journey stage.

Journey stages:
The stages of a trip. For example, a person's trip from their home to their workplace may contain three journey stages: walking to their nearest Underground station, taking the Underground to central London, and walking to their workplace. The equivalent trip by car would equate to a single journey stage.

Traffic:
Motor vehicle traffic, cyclists and pedestrians.

Vehicular traffic:
Motor vehicles and cyclists.

Motorised traffic:
Cars, taxis, buses, vans, HGVs, powered two-wheelers and other motorised vehicles.

Private motorised traffic:
Motorised traffic excluding buses and (sometimes) taxis.

Capacity for vehicles:
The number of vehicles that can move along a road during a given period of time.

Capacity for people:
The number of people that can move along a road during a given period of time.

Congestion:
The additional time taken to complete a journey (usually expressed in minutes per kilometre) compared to the 'free flow' journey time, ie when unimpeded by other traffic.

Reliability:
The variability in journey times, measured as the proportion of typical 30 minute road journeys completed within 25-35 minutes.

Car-lite development:
High density, mixed-use development which aims to minimise car use and reduce car ownership in particular areas through a range of measures. It seeks to replicate effective features of car-free schemes in Europe by delivering direct quid pro quos such as more liveable streets for those who choose not to own a car.

List of photographic sources page

London Legacy Development Corporation 29
Sellar Property Group 30
London Communications Agency 31
Nine Elms 51
Guidedogs 106
NYC DOT 107
Alamy 109
Daan Roosegaarde design 109
Geoff Crawford 112
Hamilton-Baillie Associates & Martin Cassini 113
NYC DOT 114
NYC DOT 115
Getty Images 115
Laservision – Creators of the Softstop Barrier System 118
Alamy 120
Getty Images 121
SF Park 121
Spitsscoren 124
Alamy 124
Alamy 127
Lennart Johansson 127
Design IPV Delft 129
Heatherwick Studio 131
Alamy 132
Alamy 133
Sustrans 138
Peter Jones 139
Alamy 158
Alamy 162
Heatherwick Studio 167
JC Choblet scénographe urbain/APUR 170
Norwegian Public Roads Administration and Aas-Jakobsen 172
Getty Images 179

tfl.gov.uk/roadstaskforce
July 2013