



Potential future transport projects for London

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London TravelWatch is the official body set up by Parliament to provide a voice for London's travelling public, including the users of all forms of public transport.

Our role is to:

- Speak up for transport users in discussions with policy-makers and the media;
- Consult with the transport industry, its regulators and funders on matters affecting users;
- Investigate complaints users have been unable to resolve with service providers, and;
- Monitor trends in service quality.

Our aim is to press in all that we do for a better travel experience all those living, working or visiting London and its surrounding region. But with the pressures of population growth, demographic change and economic development, the challenge of improving people's travel experience is a constantly demanding one.

With the publicity given to major projects such as Crossrail, extensions to the Northern and Bakerloo Lines and the Cycle Superhighway scheme, it is important not to overlook the potential benefits of smaller or less radical improvements. This paper has been prepared following the consultation on London's transport infrastructure to 2050 invitation to submit ideas for specific improvements – beyond those already in the pipeline - to help address this challenge

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1 Planning for London's future

London faces a growing challenge of finding sufficient capacity on its transport network to cope with increased demand as the capital's population and economy grows, whilst at the same time trying to reduce the environmental impact of transport, and congestion, and to enable economic growth in London and in the rest of the United Kingdom.

Current plans envisage projects such as Crossrail 2, extensions of the Northern line to Battersea, the Bakerloo line beyond Elephant & Castle into South East London, Tramlink to Crystal Palace and others such as , , cycle superhighways are already in the planning stage. London TravelWatch supports these projects as they will bring substantive benefits both to users but also meet non-transport objectives of the Mayor and Government in terms of planning and regeneration, housing provision, supporting economic growth, enhancing the environment, reducing inequality, improving health (and access to healthcare), improving policing and reducing crime and supporting the arts and culture.

However even with these plans, congestion is still projected to grow on London's roads and railways: so what next?

The Mayor through Transport for London (TfL) has a considerable array of policies and aspirations for long term planning for transport that are set out in documents such as Mayor's Transport Strategy, the London Plan and TfL's Business Plans. All of these have been considered by London TravelWatch at various stages in their inception and implementation, and these documents contain policies and aspirations that London TravelWatch supports.

This paper aims to explore ideas and concepts for policies that go beyond these, and so does not cover projects mentioned above to which substantive resources have been committed in terms of planning. We have not sought to cost or prioritise our ideas– they are merely ideas as a basis for further consideration.

The paper draws on previous work by London TravelWatch on small scale projects and potential regeneration effects of transport initiatives, as well as other sources.

2 Principles behind concepts for projects

We have used the following principles to develop the ideas for these projects:-

- Providing alternative routes for travel and opportunities for interchange that avoid central London
- Joining up current services better, so that more efficient use is made of existing infrastructure and of operating resources.
- Reusing redundant infrastructure for new links
- Generating income through fares and development
- Making services more efficient and therefore generating cost savings
- Improving accessibility and extending the options available for travellers with disabilities
- Anticipating, where possible, likely changes in demand from the travelling public brought about by the development of new housing, hospitals or education institutions

The Deputy Mayor has indicated that schemes should also have the ability to influence wider Mayoral priorities other than transport, such as regeneration, reduction in crime, community cohesion and increasing employment.

3 Potential projects

1. Large scale projects with potential high impact and significant potential to stimulate growth and regeneration:
 - Chiltern Metro
 - West Hampstead Interchange
 - Providing more cross London links and services
 - Resignaling major National Rail routes to enable high frequency Metro services to operate
 - Providing a pedestrian and cycle tunnel under the Thames between Canada Wharf and West Ferry

2. Improving orbital public transport including:-
 - North Downs electrification
 - Tramlink extension to Orpington via Biggin Hill
 - Barking to Gospel Oak electrification Plus
 - Developing London's outer rail hubs
 - West Ealing - Greenford electrification

3. Providing additional capacity at central London rail and underground stations:-
 - New entrance to Covent Garden station near to the Royal Opera House / Aldwych / Temple station
 - New entrance to Waterloo East station from The Cut / Hatfields
 - New passageway on 'paid' side linking City Thameslink and St.Paul's stations
 - New entrances at Embankment end of Charing Cross National Rail station to give access to Embankment underground station and pier
 - New passageway on 'paid' side linking Camden Town underground and Camden Road national rail stations.
 - Step free access and new passageway on 'paid' side linking the two Edgware Road underground stations
 - Step free access and new passageway on 'paid' side linking Regents Park and Great Portland Street underground stations

4. Reusing redundant infrastructure for public transport and/or cycling:-
 - Bow Church to Hackney
 - Finsbury Park to Muswell Hill
 - Mill Hill East to Edgware
 - Belmont to Harrow & Wealdstone
 - Brentford to Southall
 - Croydon to Canary Wharf cycle route using redundant railway alignments between Crystal Palace and Nunhead, and through public parks between Croydon and Crystal Palace

5. Connecting London's inner orbital and radial rail routes – a 'string of pearls':-
 - Junction Road – Tufnell Park
 - Maiden Lane station for Kings Cross (North)
 - Brixton station High Level platforms
 - Brockley station High Level platforms
6. Connecting West London and increasing capacity to Heathrow Airport:-
 - West Drayton to Uxbridge and Denham
 - Southern access route to Heathrow
7. Regenerating road corridor routes from central London
8. Cross River Light Rail transit
9. Smaller schemes with wider and bigger impact:-
 - Ticket gates at major inner and outer London stations
 - The 10 minute interchange challenge
 - Small scale step-free access at underused stations
 - Tackling transport deserts – advance guard planning
 - A single door-to-door transport service for those unable to use public transport
 - Greater pedestrian connectivity at out of town retail outlets
 - Tackling 100+ barriers to completing the London cycle network
 - Rebuilding Seven Sisters station
 - Rebuilding Silver Street station.
 - Reinstating the westbound link to the Angerstein Wharf branch for rail freight at Angerstein Junction.
 - Developing freight consolidation centres
10. Schemes with potential to stimulate regeneration through tourism:-
 - Cannon Street to Southwark footbridge alongside the Cannon Street rail bridge
 - Reopening part of the King William Street to Borough underground railway tunnel as a pedestrian route.
 - Reopening the Nunhead to Crystal Palace (High Level) rail route as a narrow gauge tourist railway

The details of these projects and their potential impacts are set out below.

4 Large scale projects with potential for directing and leading growth and regeneration, but with passenger benefits

Chiltern Metro

- 4.1 By the 2020s almost all of London's rail routes will have no spare capacity to accommodate additional infrastructure without substantive demolition of adjacent properties or tunnelling. The one exception to this is the Chiltern route which in the 1960s and 1970s was reduced from a four track railway to a two track one. The route is also the only non-electrified main line route within London.
- 4.2 The route is characterised by the use of shorter length trains compared to other London rail routes and very poor levels of service to London area stations because of the limitations of the two-track railway.
- 4.3 However, reinstatement of a four track infrastructure and electrification would unlock significant opportunities to improve passenger services both within London and further afield in terms of journey numbers and journey times, as well as provide overcrowding relief on other National Rail and London Underground lines across west and north west London. It would also unlock significant regeneration and development opportunities at points along the route.
- 4.4 An alternative to four tracking the existing infrastructure would be to work with HS2 and Network Rail on reviving the use of the former Great Western Birmingham Main Line that runs between South Ruislip and Old Oak Common that it was originally intended would have been taken over by HS2. However, since the decision by HS2 to not use this alignment it would be possible to restore a conventional two track railway for local use between these two points.
- 4.5 Beyond Old Oak Common would be two alternative options the first of which is for Chiltern services to feed into Crossrail. Alternatively trains could use the alignment of the former Great Western North Acton freight route alongside the Central Line to White City and the West London Line that has not been reused since its closure in 1964. The land which the line formerly occupied is owned by the British Rail Residuary Body and so has not been substantially developed since closure. It would therefore be important to safeguard this route for future transport development. Access to the West London Line north of Shepherds Bush would then mean services from the Chiltern route could serve the redeveloped areas around Earls Court, the Nine Elms Battersea Vauxhall opportunity area and Waterloo International station.
- 4.6 The close interworking with the London Underground Metropolitan Line means that this line would also have the potential to benefit from an

upgrade, by for example increasing line speeds and improving signalling and pathing of trains.

- 4.7 Replacement of diesel traction with electric would also lead to significant improvements in air quality along the line of the route.
- 4.8 A substantial proportion of the current Chiltern route diesel fleet would require replacement at around the same time as the South West Trains diesel fleet that operates from Waterloo to the West of England. This latter fleet could potentially be replaced by electric units if electrification of the Basingstoke – Exeter and Bristol – Southampton lines were to take place.
- 4.9 There could be potential cost savings from procuring and operating a common fleet of electric trains for the West of England and Chiltern routes, both of which potentially would need dual voltage capability to operate either over the Metropolitan line or the South Western lines from London to Hampshire.
- 4.10 This project can significantly contribute towards the Mayor’s transport objectives, and address other Mayoral priorities. These include improved air quality; better access to jobs and services from areas of deprivation, and/or areas with significant minority ethnic and faith groups who suffer inequality; regeneration around the areas Park Royal, Shepherds Bush, Earls Court, Wembley, Vauxhall and Waterloo; better connectivity of businesses within London and to key markets outside; better and more efficient connectivity to Wembley national stadium and arena complexes and better access to healthcare services at stations en route.

West Hampstead Chiltern & Metropolitan Line platforms

- 4.11 New platforms at this location on the Chiltern and Metropolitan lines would significantly enhance the connectivity of most of North London and surrounding counties by providing an interchange with the Thameslink, North London and Jubilee lines. This interchange could significantly cut journey times between North West London, Buckinghamshire and major destinations for jobs and services such as Stratford, Canary Wharf, London Bridge, Kings Cross, Elephant & Castle and Croydon as well as to Gatwick and Luton Airports.
- 4.12 The scheme would potentially need to use ‘air rights’ above the current railway lines, but would also facilitate regeneration within the local area.
- 4.13 Even greater benefit would be derived from this scheme if it were to be delivered as part of a Chiltern ‘Metro’ local service within London as above.

- 4.14 This project can significantly contribute towards the Mayor's transport objectives, and address issues such as improved air quality; better access to jobs and services from areas of deprivation, and/or areas with significant minority ethnic and faith groups who suffer inequality; regeneration of the West Hampstead area; better connectivity of businesses over a massive area within London and to key markets outside, especially by reducing journey times to key destinations between business and higher education areas, airports and over a dozen specialist and teaching hospitals.

Providing more cross London links and services.

- 4.15 Since the 1980's it has been recognised that the use of terminating stations in central London can be a very inefficient in terms of rolling stock and staff utilisation, and that the operation of cross London services makes for more efficient use of these resources. In addition the opening of routes such as Thameslink and Crossrail have and will generate significant additional demand from the new links they provide by satisfying current suppressed demand and by stimulating economic growth. In addition they have relieved congested routes of London Underground and pedestrian flows in and around main line terminal stations.
- 4.16 There are two routes with potential to be linked together which would satisfy this criteria. These are the Great Northern routes trains to Moorgate and Southern trains from the Tulse Hill route that terminate at London Bridge. These both have similar frequencies and turn around times of 7-8 minutes at each terminus.
- 4.17 The Finsbury Park – Moorgate route is currently operated by First Capital Connect. Originally it was a 'tube' line, but in the 1970s it was converted to a British Rail operation. However, no investment has been made in the route since the 1970s so stations and trains are in something of a 'time warp'. In addition the timetabled service does not operate after 2200 on Mondays to Fridays or at all on Saturdays or Sundays. This poor level of service is despite major regeneration of sites along the route; Emirates Arsenal stadium at Drayton Park; the development of 'tech city' around Old Street and Stratford City which is accessible by connection onto London Overground at Highbury & Islington.
- 4.18 The Thameslink Southern Great Northern franchise award in 2014 envisages that late evening and weekend services would be restored to this route in 2015. In addition, the franchise operator has committed to replacing the existing train fleet during the life of the franchise.
- 4.19 However, this leaves the stations without the benefit of any major investment and their continuation unchanged since the previous modernisation in the 1970's. also Investment in these would support the

growth of 'tech city' firms and small enterprises that have grown up in this area in recent years and would realise the benefits of agglomeration.

- 4.20 Southern services from the Tulse Hill route have always terminated at London Bridge in separate terminating platforms. However, the numbers of these platforms has reduced with the Thameslink programme, such that with the accelerated growth in usage of these and other routes into London Bridge this could become a major capacity constraint.
- 4.21 A constraint on both the Great Northern and Southern Tulse Hill routes is that the Northern line City branch is fed by both of these services at points which already crowding hotspots.
- 4.22 Connecting the two services would however give the opportunity to relieve these constraints, capture efficiencies from cutting out cumulative turn around times of 15 minutes from retaining two separate services and replacing them with a three minute journey from Moorgate to London Bridge.
- 4.23 A suggested route might be in tunnel from Moorgate to a station connected to the Bank / Monument complex or Mansion House / Cannon Street then to London Bridge, then a station in the Bricklayers Arms area (currently not served by rail) and emerging at a portal near South Bermondsey station to rejoin the main rail network.
- 4.24 This project would significantly contribute towards the Mayor's transport objectives: supporting the development of 'Tech City' around Old Street station; it would give better access to jobs and services from areas of deprivation, and/or areas with significant minority ethnic and faith groups who suffer inequality; contributing to regeneration along the Finsbury Park – Old Street corridor and around South Bermondsey and Peckham; providing better connectivity of businesses within London and to key markets outside; providing better connectivity to the creative areas in the Old Street / Hoxton area and better access to healthcare services such as Moorfields Eye Hospital at Moorgate.
- 4.25 There would be potential for significant relief to the congested parts of the Northern and Victoria lines : South of Finsbury Park, the Bank branch and between Balham and London Bridge.

Resignalling major National Rail routes to enable high frequency Metro services to operate

- 4.26 London's National Rail network differs from the London Underground in that train frequencies are much lower on account of the signalling and other systems used. Upgrading National Rail signalling to similar standards to London Underground would enable a much greater volume of train service to be operated thereby creating additional capacity.

Providing a pedestrian and cycle tunnel under the Thames between Canada Wharf (Nelson Dock) and West Ferry (Canary Wharf).

- 4.27 East of Tower Bridge the instance of crossings open to pedestrians and cyclists across the River Thames is restricted to the foot tunnels at Greenwich and Woolwich. The redevelopment of the London Docks has meant that there is a high dependence on public and road transport for cross river journeys east of Tower Bridge. A commercial ferry service (RB4) has been developed at this point between Nelson Dock and Canary Wharf piers to serve the needs of business travellers between hotels on the south side of the river and the financial district on the north side.
- 4.28 Provision of a foot tunnel at this location would however, increase the accessibility of jobs, services and residential property on both sides of the river at this point. It would offer the option of journeys being made by foot and cycle that are currently done by public transport or by the longer road routes (Rotherhithe or Blackwall tunnels).

5 Improving London's orbital public transport

London at present does not have an equivalent rail route to the M25 motorway allowing travel between its major suburbs and wider economic area without the need to travel into inner or central London. However, many of the schemes outlined above have the potential to provide parts of an equivalent orbital rail network. These would need to be supplemented by schemes using new infrastructure or upgrades to existing lines as follows:-

5.1 North Downs electrification

- 5.2 The route between Reading and Gatwick Airport is one of the few rail routes that does not have continuous electrification. There are significant gaps (Wokingham to Ash and Guildford to Reigate) that if filled would enable major improvements to outer orbital journeys in and between South West London, Surrey, Sussex, West Kent, Berkshire and Oxfordshire. Combined with the reopening of the Milton Keynes to Oxford route (East West rail) already agreed or a potential Airtrack type scheme from Heathrow Airport to Staines, this would enable significant numbers of rail journeys that currently require travel via central London or road journeys via the M25 and radial roads to be made by an outer orbital rail route.
- 5.3 A bi-product of such an electrification scheme would be greater resilience of electricity supply to all Southern and South West Trains routes into London from Surrey and Berkshire.
- 5.4 Therefore, even though this scheme is entirely outside the Greater London area there would significant benefits arising to Greater London as a result of reduced congestion on London's roads and the M25, and in crowding on radial rail routes into London.
- 5.5 Providing a rail alternative to the M25 and radial roads would bring benefits in terms of improved air quality, especially in outer London. It would also free up capacity within the London transport system to accommodate growth. Improving access to London's airports would also have a benefit in terms of London's economic competitiveness.

5.6 New Addington to Orpington via Biggin Hill

- 5.7 New Addington has benefitted significantly from Tramlink over the years, but links eastward are relatively poor. Biggin Hill is one of the largest and fastest growing settlements within Greater London that has no rail-based links at all. An extension to Tramlink eastward from New Addington toward Biggin Hill and Orpington would open up a significant number of job opportunities for this relatively isolated and (in parts) deprived area,

and would reduce journey times between Biggin Hill and central London, as well as other major employment / growth centres such as Croydon and Lewisham.

- 5.8 As noted above this proposal would help meet Mayoral priorities in reducing inequality and promoting access to jobs and services. In New Addington there would also be opportunities to promote regeneration in association with such a scheme.

5.9 Barking – Gospel Oak rail line electrification, train and platform lengthening

- 5.10 A decision has been made to electrify this route. However, there is potential to widen benefit further by extending the services beyond their current terminals at either end toward West Hampstead (for interchange with Thameslink, the Metropolitan and Jubilee lines, and potentially the Chiltern route) or towards the Thames Gateway development area (Dagenham Dock, Rainham, Purfleet and Tilbury), and by reopening the station at Junction Road which would provide an interchange with the Northern line at Tufnell Park. Building works at stations in connection with electrification works could also be combined with works to improve accessibility.
- 5.11 Non-passenger transport benefits would also include the ability to replace diesel haulage of freight trains with electric, provided that the scheme also includes the electrification of access lines to and from Thamesport, connections to the Midland Main Line, the Dudden Hill freight line, the Kew 'curves' lines and the line between Nuneaton and Birmingham (with associated freight terminal connections). Replacement of diesel with electric traction would bring improvements in performance of freight on a wide range of lines radiating from London with associated benefits for passengers on these routes.
- 5.12 Non transport benefits would include potential for regeneration at various sites along the line – particularly Barking town centre, South Tottenham and Upper Holloway. Improved services along the route would also potentially allow residents along the route to access more jobs and services – especially as it serves a number of areas with high levels of deprivation. This benefit would be greater if services were extended beyond Gospel Oak to the interchange at West Hampstead. Extension of the service beyond Barking and Gospel Oak would also open up regeneration and development in the Thames Gateway area, and improve access to healthcare facilities such as the Royal Free Hospital at Hampstead Heath. Replacement of diesel trains with electric trains would also have air quality benefits on the route and on connecting routes in London.

5.13 Developing London's outer rail hubs

- 5.14 London has a number of outer London stations that already perform a 'hub' function distributing passengers within the London area, reducing the pressure on central London interchanges. These hubs could be developed further, and the nature of their good accessibility also makes them attractive locations for commercial development and fits in with the Mayor's policies for developing outer London. The stations included in this category would be Ealing Broadway, Willesden Junction, Wembley Central, West Hampstead, Finsbury Park, Tottenham Hale, Stratford, Barking, Woolwich Arsenal, Lewisham, Peckham Rye, Brixton (see below), Herne Hill, Bromley South, East Croydon, Clapham Junction, Wimbledon, Sutton and Richmond.
- 5.15 Improving these interchanges would act as a stimulus to economic growth and regeneration across a wide range of centres in inner and outer London.

5.16 Electrifying the rail route between West Ealing and Greenford

- 5.17 Currently there is a half-hourly diesel train service between London Paddington and Greenford provided by First Great Western. This service will be replaced when Crossrail commences operations west of London Paddington in 2018 with a shuttle service between West Ealing and Greenford that will remain as part of the Great Western franchise.
- 5.18 The journey time between West Ealing and Greenford is 12 minutes. This is not sufficiently robust to allow a 30 minute interval service to be provided using one train and crew, which would be commensurate with the current usage of the service. This would mean that a second train and crew would be required to maintain the current level of service or to increase this to a 20 minute interval service. In addition the retention of this service within the Great Western franchise means that this will be an isolated local service, that will need to be serviced from the nearest diesel depot 30 miles away or be reallocated to Chiltern Railways as the nearest other diesel operator at this time.
- 5.19 For the above reasons this makes the service to be provided after 2018 to be very inefficient in terms of rolling stock provision and staffing. It is also likely to suffer from loss of patronage because the majority of passengers using the service at present travel to Ealing Broadway, Acton Main Line and London Paddington, and the introduction of an additional interchange will reduce the attractiveness of the route. This means that the cost of providing the shuttle service is likely to be very high, compared to the potential revenue generated from it. Finding a way of reducing the operating costs of this service and retaining at least some of the current travel demand on this route are therefore important considerations.

- 5.20 Providing a lower cost service on this route could be done by several means. Ideally, the service would be best provided by a tram or other light rail vehicle that would not require full scale rail electrification. However, even using these technologies might be as costly as electrification because of the necessary cost of providing 'spare' rolling stock for a tram / light rail option. However, full rail electrification could mean that the cost of providing a train fleet and crew would be absorbed into a much larger operation thus generating economies of scale and allowing a through service to be restored beyond West Ealing to stations where passengers currently travel.
- 5.21 Studies of the Great Western main line have indicated that retaining a through service to the Greenford branch is not feasible after the introduction of Crossrail because of lack of capacity between Old Oak Common and London Paddington. However, capacity might be available to run a service beyond West Ealing to at least a point in the Old Oak Common area. This would suggest that electrification between West Ealing and Greenford plus a suitable turn back facility at Old Oak Common in-conjunction with the provision of a HS2 station would mean that a through service could be provided potentially as part of the London Overground concession at a much lower cost than keeping the service as a diesel shuttle service.

6 Providing additional capacity at central London rail and underground stations

6.1 London's population has been growing at a significantly faster rate in recent years than had previously predicted. In parallel with this the numbers of passengers using the London Underground network in central London has also been increasing with the result that crowding issues are a major issue. The advent of new projects such as Thameslink and Crossrail, and major upgrade programmes such as at Victoria and Bank stations will provide significant relief and capacity to absorb growth. However, it is likely that growth will generate crowding issues at locations that will not benefit from these projects and which in many cases already have to actively manage crowding.

6.2 New entrance to Covent Garden station near to the Royal Opera House / Aldwych / Temple station

6.3 Covent Garden station is a very busy station that has a significant shortfall in capacity such that in order to manage this, the station often has to operate in 'exit only' mode. Distances to other London Underground stations are such that crowding issues are managed by directing passengers to these stations such as Leicester Square, Charing Cross and Holborn. Temple station is also within the catchment area for Covent Garden, but the walking route is not as obvious or as well signed as routes to other stations. Temple station has much lower usage than other stations in the area, and could be suitable for directing passengers wanting to access the Covent Garden area.

6.4 Also in the area is the former Aldwych London Underground station, terminus of the branch of the Piccadilly Line from Holborn. The geographic between this former station and Covent Garden station is of roughly the same order as other underground passageway links such as between Bank and Monument, or between South Kensington station and the Science Museum.

6.5 Construction of an entrance or entrances to Covent Garden station with linking passageways in this area would have the potential to relieve existing congestion at the station and also provide improved accessibility to the area around Aldwych / Temple, with benefits to the University of London, Theatres and the Royal Courts of Justice.

6.6 New entrance to Waterloo East station from The Cut / Hatfields

6.7 The area to the east of Waterloo station has developed significantly since the opening of Southwark London Underground station as part of the Jubilee line extension in 2000, Southwark station has a direct connection

to Waterloo East National Rail station. Passengers with Travelcards and Freedom Passes can exit Waterloo East station via Southwark station at no extra cost: However, holders of other National Rail paper tickets and Oyster Pay As You Go customers are subject to a small charge for this facility.

- 6.8 Over the years various attempts have been made to find a mechanism to get rid of this charge or to provide an additional National Rail entrance into The Cut / Hatfields to allow better access to Waterloo East station. However, these have foundered due to commercial objections from London Underground over potential revenue loss and from opposition from local residents to a new entrance on the grounds of noise and disturbance.

6.9 New passageway on 'paid' side linking City Thameslink and St.Paul's stations

- 6.10 These two stations have no direct connection at present but are relatively close in proximity. An underground passageway linking the two would provide an interchange between the Central line and the Thameslink National Rail route. In particular it would benefit passengers travelling from the Central Line's catchment to Gatwick and Luton Airports.
- 6.11 New permanent entrances at Embankment end of Charing Cross National Rail station to give access to Embankment underground station and pier.
- 6.12 Charing Cross national rail station has a number of emergency exits from its platforms at the Victoria Embankment end of the station. Making a permanent set of exits at this point would reduce the walking route between Charing Cross station and Embankment London Underground station, and thus creating a more effective interchange between the two. This would potentially provide some relief for the Jubilee line between London Bridge and Westminster.

6.13 New passageway on 'paid' side linking Camden Town underground and Camden Road national rail stations

- 6.14 Camden Town is one of the most congested stations on the London Underground network, and has been so for many years. Various schemes over the years have been put forward but have failed for a variety of reasons.
- 6.15 Camden Road station is a relatively short distance from Camden Town station. It has developed significantly in recent years as a result of the expansion of London Overground. The proximity to Camden Town station has meant that there is now a significant flow of passengers who interchange between the two stations. Providing a passageway between

the two stations would reduce the flow of passengers into the most congested areas of Camden Town station and provide a much easier interchange between the two lines.

6.16 Step free access and new passageway on 'paid' side linking the two Edgware Road underground stations

6.17 These two London Underground stations are very close together and often passengers are confused by them both having the same name, but no physical connection between the two. Providing step free access to either station would be costly and potentially quite difficult to achieve. However, the proximity of both stations might lend itself to providing a new entrance that could be step free but linked to both stations. There would be an additional advantage of providing direct interchange between the Bakerloo and Circle / Hammersmith and City. This would provide relief for stations such as Baker Street and Paddington.

6.18 Step free access and new passageway on 'paid' side linking Regents Park and Great Portland Street underground stations

6.19 These two London Underground stations are very close together and also amongst the least used stations in central London. Providing step free access to either station would be costly and potentially quite difficult to achieve. However, their proximity to one another might lend itself to the idea of providing a new entrance that could be step free but linked to both stations. There would be an additional advantage of providing a direct interchange between the Bakerloo and Circle / Hammersmith and City / Metropolitan lines. This would provide relief for stations such as Baker Street and Paddington.

7 Reusing redundant infrastructure for public transport and/or cycling

- 7.1 Many former railways in London have been redeveloped for other uses in recent years. However, there are still a number of former routes that could have potential new transport uses and also enable regeneration of significant areas of London, by reducing journey times and overcrowding on routes to major centres of employment.
- 7.2 It is possible that four of the suggestions below could converge into a single project covering a route from Canary Wharf – Hackney – Finsbury Mark – Highgate / Muswell Hill – Finchley Central – Mill Hill East – Edgware – Belmont – Harrow & Wealdstone / Harrow-on-the-Hill. Additionally a link could be made between Heathrow and Harrow-on-the-Hill incorporating the current West Ealing – Greenford branch line, taking in areas such as Sudbury and Southall. The sum of the connectivity, regeneration and capacity enhancement parts of this would be considerably greater than the individual constituent parts.

7.3 Bow Church to Hackney

- 7.4 This former rail route to the London Docks could form part of an extension of the Docklands Light Railway linking Hackney directly to major employment areas of Canary Wharf. There are no direct rail links on this axis with users reliant on long bus journeys and congested roads over a relatively short distance. Hackney has a historic deficit in rail transport provision and despite close proximity to the City of London has suffered from poor links to adjacent areas. The route also could assist in improving cross river transport links if a service pattern of Hackney – Bow Church – Canary Wharf – Greenwich – Lewisham were adopted.
- 7.5 Non transport benefits could be further regeneration in Hackney and Bow, and enabling areas of Hackney and Tower Hamlets to have greater access to the jobs market.
- 7.6 This route could provide a parallel alternative to the East London Line and Jubilee lines, and the Blackwall Tunnel road route – with a potential capacity release on these lines and roads to accommodate further growth or in the case of the roads to improve air quality by a reduction in road traffic.

7.7 Finsbury Park to Muswell Hill

- 7.8 This former rail route is converted mainly into a 'Parkland Walk' using rough footpaths and acting as a nature corridor. However, there is significant potential to upgrade this route for cycling and/or a new public transport route whilst maintaining the Parkland Walk character of the

route. The gentle gradient of the former rail route has the potential to help encourage and increase cycling in this hilly area of North London, and act as a parallel cycling route to the A1. There would be a potential impact on the Northern Line as this route's Highgate depot occupies part of the track bed that would be required for any rail based scheme. However, the replacement of Northern Line rolling stock might provide the opportunity to release such land for another transport project.

7.9 Mill Hill East to Edgware

7.10 This former rail route has significant potential to increase the accessibility of development and regeneration areas of the former Mill Hill barracks site and areas of Colindale, either through upgraded walking and cycling facilities and/or a new public transport route that could take over the Mill Hill East – Finchley Central branch of the Northern line. This would simplify Northern line operations and allow resources to be redirected to other parts of this line.

7.11 Belmont to Harrow & Wealdstone

7.12 This former rail route could provide upgraded cycling and walking routes in the area or it could be used for a new public transport route.

7.13 Taken together, these four individual projects would make a substantial contribution toward both the Mayor's transport and other priorities, especially in terms of regeneration, improving access to jobs and air quality, stimulating the economy, providing better connectivity between businesses, reducing inequality and improving access to healthcare and to open spaces.

7.14 The individual elements of the routes would still be worthwhile in pursuing and would still meet Mayoral objectives but the total benefits would be much less.

7.15 Brentford to Southall

7.16 This rail route is currently used as a freight route serving the aggregates and waste transfer industries. It is a single line branch, that links into a freight yard at Southall. Freight services to this yard often use up significant amounts of capacity on the Great Western route to access this yard because they need to cross the main 'fast' lines before or after Southall. Extending this branch line to meet the South Western line at Brentford and redoubling it to its original two track layout has the potential to offer an alternative route for freight trains to the yard at Southall without the need to use the Great Western main line. This would release extra capacity for passenger services on this route.

7.17 An alternative use for this route would be the creation of an off road cycle route between the A4 and Southall.

7.18 Croydon to Canary Wharf cycle route using redundant railway alignments

- 7.19 A key barrier to taking up cycling is the need to go up hills of significant gradient and length. Providing routes where gradients are manageable has the potential to encourage modal shift into cycling from non-cycling groups and also to encourage irregular cyclists to become more frequent in their use of cycling as a principle means of transport.
- 7.20 The former Crystal Palace (High Level) rail route from Nunhead has the potential to encourage and increase cycling in this hilly area of South London, as part of a longer cycle route say from Croydon to Canary Wharf, using existing 'quiet roads' and designated cycle routes. There are three major engineering obstacles to achieving such a major new piece of cycling and walking infrastructure.
- 7.21 The two tunnels near Crystal Palace are still extant and suitable for reopening. However, these could follow the example of the 'two tunnels' cycling project in Bath. There is an element of social housing that was built on the route after its closure in 1954. However, this may be suitable for redevelopment at higher densities.
- 7.22 A bridge across the A205 South Circular Road at Lordship Lane – Horniman Museum and Gardens would need to be reinstated so as to give cyclists and pedestrians uninterrupted transit across this busy road.
- 7.23 This idea would usefully complement the GLA's other objectives for the rejuvenation of Crystal Palace Park, and regeneration of surrounding areas such as Upper Norwood, Thornton Heath and Penge. The benefits of such a scheme would include improved air quality, improved access to health services and health outcomes (where active travel modes were made more attractive), regeneration and potential for additional housing, better access to jobs and services, and better business to business connectivity.

7.24 Connecting London's inner orbital and radial rail routes

- 7.25 Above we have described a number of projects, such as West Hampstead Interchange and developing London's outer rail hubs, These could be complemented by the development of stations and platforms at a number of other location which currently do not possess them.

7.26 Junction Road – Tufnell Park

- 7.27 Tufnell Park Northern Line station is located quite close to where the Barking – Gospel Oak line crosses it at the surface. Prior to 1943 there was a station here, but this was closed for wartime economy reasons

and never reopened. At the time the services calling at this station ran to Kentish Town where there was easy interchange with the Northern Line. Today however services run to Gospel Oak and there is no easy interchange with the Northern Line. Providing a station at Junction Road would provide such an easy interchange and enable much better connections for local journeys within North London e.g. Barking to Barnet or Walthamstow to Finchley.

7.28 Maiden Lane – Kings Cross (North)

7.29 A station at this location would close a ‘long’ gap in station spacing on the North London line (NLL), and enable access to the Kings Cross Railway Land’s development with its large scale residential, university and business areas from the NLL. This has the potential to ease congestion on lines serving Kings Cross St Pancras.

7.30 A station at this location would assist the regeneration process in this area, and meet Mayoral priorities for improved access to healthcare and higher education, and improving the competitiveness of businesses locating in this area.

7.31 Brixton station high level platforms

7.32 New platforms at this location on the ‘Atlantic’ lines used by London Overground and Southeastern Victoria – Dartford services would significantly enhance the connectivity of Brixton with inner South and West London, Surrey via Clapham Junction and North West Kent. It would enhance Brixton’s role as a major bus interchange. It would enable Brixton to be connected to other local centres such as Peckham, Lewisham and Clapham Junction which are currently only accessible by lengthy bus journeys despite relatively short geographical distance.

7.33 This scheme has significant non transport benefits in terms of regeneration within Brixton, but also would substantially improve access to jobs and services and reduce inequality from areas of deprivation around Brixton which benefit from its excellent bus network. Benefits to health would accrue from the reduced journey time to Denmark Hill (Kings College Hospital) of around 2-3 minutes compared to the much longer journey times by bus or road at present. There is likely to be an environmental benefit and improved air quality from reduced private vehicle traffic making local journeys in the area.

7.34 Brockley station high level platforms

7.35 Southeastern Victoria to Dartford via Lewisham trains pass directly over the platforms at Brockley station served by Southern and London Overground services to London Bridge, the East London Line, Croydon and Clapham Junction.

- 7.36 The provision of such platforms would facilitate a significant number of orbital journeys within South East London, and from North West Kent to North East Surrey that are either not possible by rail at present or would require travel via zone 1 stations such as London Bridge.
- 7.37 The benefits would include potential reduction in car traffic on roads such as the A205 South Circular, freeing up capacity on rail routes into zone 1, and enabling rail travel from Brockley to local centres such as Peckham Rye, Denmark Hill, Lewisham, Blackheath, Bexleyheath and Dartford which currently require travel to other stations.
- 7.38 There is also potential for redevelopment on adjacent sites that could contribute towards its cost. However, the presence of the existing station means that ongoing operation costs of such platforms are likely to be minimal.
- 7.39 The benefits of this scheme accrue through the potential reduction in road traffic elsewhere in South London in terms of air quality, providing better connectivity between businesses in the wider area, reducing journey times for local journeys to Kings College Hospital, and providing wider access to jobs and services within South East London. On adjacent sites, there is also potential for additional housing to be created.

7.40 Connecting West London and providing additional capacity to Heathrow Airport

7.41 West Drayton to Uxbridge and Uxbridge to Denham

- 7.42 These two former rail routes could be reinstated to provide better links to Uxbridge and to Heathrow Airport. Two Crossrail trains an hour are scheduled to terminate at West Drayton. This would improve connectivity of Uxbridge (adjacent centres such as Brunel University and Hillingdon Hospital) to central London, Ealing, and Southall and by connection at West Drayton to Slough, Maidenhead, Reading and the Thames Valley. A connection at Denham would allow onward travel to the Chiltern route and has potential to attract significant traffic from private cars, and reduce congestion on adjacent road routes such as the A40, M4, M25 and M40.
- 7.43 This scheme has significant benefits in terms of improved air quality, improved connectivity for businesses in the Heathrow area, improving access to higher education (at Brunel University) and improving access to jobs and services in the Crossrail corridor.

7.44 Southern access to Heathrow Airport

- 7.45 London TravelWatch has previously supported the construction of the Airtrack route from Staines to Heathrow Airport Terminal 5. This would provide connectivity from South West London and Surrey by rail to Heathrow Airport, whereas currently a bus link from Woking or Feltham is

required for public transport users or access is made by private car or taxi.

- 7.46 This proposal has been revived by London Borough of Wandsworth, after the failure of the original scheme proposed by BAA plc and Surrey County Council, as Airtrack Lite. Airtrack would support and enhance current regeneration activity around Nine Elms, Battersea and Waterloo by providing greatly enhanced connectivity to Heathrow Airport.
- 7.47 A potential variation on Airtrack Lite would be an additional loop from Brentford to Heathrow Airport using the Brentford – Southall freight line and additional tracks alongside the Great Western Main Line between Southall and Airport Junction. This would give greater flexibility in train service operation and potentially encourage significant regeneration around some large industrial and warehousing sites in Brentford, Hayes and Southall.
- 7.48 This scheme would complement existing proposals for a western access line to Heathrow Airport from the Great Western main line.
- 7.49 This scheme has considerable scope for improving air quality in the Heathrow area and corridors leading to it. There is considerable scope for regeneration and provision of new homes around Brentford, Southall and Hayes & Harlington stations. It would also significantly improve access to jobs and services from a number of deprived communities, and therefore be a catalyst for reducing inequality. Business connectivity would be significantly improved by the better links between west, south west and south central London.

7.50 Regenerating road corridor routes from central London

- 7.51 London has a number of historic road corridors that radiate from the centre, which formerly were major arterial routes, but whose character has changed over recent decades to be more focused on local journeys.
- 7.52 A corridor-based approach to regeneration would enable these routes to become more focused on the needs of local traffic, cycling, buses and pedestrians. In particular improving the reliability of bus services through bus priority measures would have the potential to significantly reduce bus operating costs. Similarly, improving the safety of cyclists on these routes would be beneficial. Potential routes could include Ermine Street (A10), Harrow Road (A404), Edgware Road (A5), Uxbridge Road (A4020) and the A23 route between Kennington and Croydon via Brixton.
- 7.53 This series of projects would bring major benefits in terms of improved air quality, improved access to health services and health outcomes (where active travel modes were made more attractive), regeneration and

potential for additional housing, better access to jobs and services, and better business to business connectivity.

7.54 Cross River Light Rail transit

7.55 The corridor between Kings Cross and Euston to Waterloo, Elephant & Castle, Brixton and Peckham is one of the most densely trafficked corridors for buses and cyclists in London.

7.56 This previously planned project was shown to have major non-transport benefits from improved air quality, improved access to health services, facilitating regeneration schemes at various places en route, improving access to jobs and services in areas of severe deprivation, and better business to business connectivity.

7.57 Smaller schemes or policies with wider and bigger impacts

7.58 Smaller schemes can often have a larger and wider impact than bigger projects, and can also make a significant contribution to transport services either by making them more efficient or enabling a greater number of users to access existing services.

7.59 Installation of ticket gates at major inner and outer London stations

7.60 There are over 20 stations operated by national rail operators and London Underground in the Greater London area that have over one million users per year that either do not have ticket gates or are only partially gated. This affords considerable opportunity for fare evasion and other forms of fraudulent travel. This also reduces the revenue available to transport operators and authorities to invest in both transport operations and improved facilities for passengers. There is thus also an opportunity cost to these stations remaining ungated, regardless of the ownership or form of operation whether it be direct operation by TfL – London Underground, a rail concession agreement operated for TfL or a DfT franchised arrangement.

7.61 Gating of these stations could be potentially self-financing but would as with previous such schemes considerably help reduce the incidence of crime, disorder and fare evasion on the transport network and in their immediate vicinities. All of these 26 stations are interchanges with other rail routes, trams or buses, and so such schemes could form part of plans to enhance the interchange function of these stations. In some cases – such as Elephant & Castle National Rail station it could also help unlock regeneration in the adjacent areas. The 26 stations are listed in Appendix A and are mixed between inner and outer London.

7.62 The ten minute interchange challenge

7.63 London TravelWatch has identified a number of locations within London where stations and tram stops are within approximately 10 minutes or less walk of each other or could be made within 10 minutes or less walk with appropriate physical interventions. Much more could be made of these interchanges if they were treated to appropriate promotion, signage and in some cases physical works to reduce the distance and time between them. These interchanges are mainly outside of the zone 1 Travelcard area, and could have the ability to free up an amount of capacity on routes subject to overcrowding for very modest costs. There will be other benefits as well in terms of local areas, and so these schemes are likely to be extremely worthwhile pursuing.

7.64 Meeting other Mayoral priorities. The benefits of such schemes would include improved air quality, improved access to health services and health outcomes (where active travel modes were made more attractive), regeneration and potential for additional housing, better access to jobs and services, and better business to business connectivity.

7.65 Small scale step free access at underused stations

7.66 There are a number of small scale schemes at stations such as Penge West, Sudbury Hill Harrow, Ravensbourne, Bellingham, Maze Hill and Haydons Road where step free access could be provided by ramp rather lifts. These stations have lower footfall, but could play a more significant role in their local communities if better access were provided. There is potential for encouraging regeneration at Penge West and Sudbury Hill Harrow for adjacent town centres. Penge West as well as serving Penge High Street, is used as a southern access to Crystal Palace Park. Bellingham station also serves a significant social housing area and has some adjacent brownfield land that could be released for development. London TravelWatch research on passenger attitudes to value for money shows that improving accessibility for mobility impaired people also has the effect of improving the overall satisfaction of all transport users.

7.67 West Brompton London Underground station has no step free access to the southbound District line platform, whereas the other platforms have full lift access. Providing a lift here would significantly improve the accessibility of the station and the interchange capability.

7.68 Kilburn High Road and Alexandra Palace stations having been rebuilt recently have space available for the installation of lifts to all platforms.

7.69 These schemes would have significant benefits in their localities in terms of reducing inequality and improving access to jobs and services from disadvantaged groups. Access to healthcare would be improved where services to these stations operate to existing accessible stations near to healthcare facilities, There would also be opportunities for local regeneration and small scale housing schemes associated with these schemes.

7.70 Tackling transport deserts – advance guard planning

- 7.71 Some areas of Greater London have significant potential for development but are remote from the rail and underground network as it now operates, although they have the potential for new schemes at a later date. However, the lack of transport links may have a deterrent effect on development. The solution to this issue may be to repeat the successful strategy adopted in the 1990s in advance of the opening of the Jubilee Line extension and the Beckton branch of the DLR, of providing express bus links that would mimic the eventual rail link.
- 7.72 Other areas may lack transport links and have no realistic prospect of additional rail links, but might justify the provision of additional and better bus links to provide connections to areas of employment. An example like this might be an express bus service from outer areas of Bexley to Canary Wharf.
- 7.73 The benefits of such schemes would include improved air quality, improved access to health services and health outcomes (where active travel modes were made more attractive), regeneration and potential for additional housing, better access to jobs and services, and better business to business connectivity.

7.74 A single door to door transport service for those unable to use public transport

- 7.75 London TravelWatch has long had aspirations to see improvements to the range of services available to the frail elderly and people with disabilities. These are provided by numerous providers other than TfL – many in the public sector such as councils and health authorities. However, there is often duplication and unnecessarily restrictive rules about who can and who cannot travel and where they can go. Users need a simple single service whether they are going to the shops, day centre, school or hospital. Rationalisation of such services would significantly improve their cost effectiveness as well as give an overall improvement to users. The Mayor would be the most appropriate political leader to co-ordinate such a move .
- 7.76 This project would have benefits arising from improving the access to services and healthcare amongst vulnerable groups in society, potentially enabling more people to live independently for longer. There would also be benefits from improved air quality and addressing equality issues.

7.77 Greater pedestrian connectivity between out of town retail outlets

- 7.78 Congestion often occurs on major roads where out of town retail outlets have developed incrementally in a linear fashion, as a result of car users driving from one store car park to another, which may be located on opposite sides of the road. Examples of this are the A23 Purley Way,

A206 Woolwich Road, A224 Sevenoaks Way and A406 Friern Bridge retail areas. Providing skywalks, subways or other pedestrian links between shops and outlets could reduce the number of unnecessary short linked journeys which need to be accommodated on otherwise trunk roads. Such links could also enhance connectivity to local communities and to public transport facilities, such as Waddon station from the A23 Purley Way or New Southgate from Friern Bridge retail park.

- 7.79 Potentially this project could also be linked to a road freight and parcels strategy which would look to improve the efficiency of freight delivery services, and encourage shoppers to use retailer home delivery services rather than driving to retail parks to collect the goods themselves. There is some evidence of consumers in areas of lower car ownership in inner London already adopting this model. Examples include IKEA stores in Northumberland Park and Croydon where significant numbers of shoppers access these stores by public transport to examine and choose goods in a showroom type way and then order items for delivery from company websites.
- 7.80 The benefits of these schemes would include improved air quality, better business to business connectivity, and also potential local environmental improvements.

7.81 Tackling the 100 barriers to completing the London Cycle network

- 7.82 The London Cycle Network was never completed due to the presence of over 100 'pinch points' which were considered too difficult to solve, as this would involve reduction in road capacity of other modes. We recommend a reconsideration to look at whether these barriers are insurmountable.
- 7.83 The benefits of this scheme would include improved air quality, improved health outcomes through more use of 'active' travel modes, environmental benefits through the less intensive use of private cars and encouraging cycling amongst disadvantaged or minority groups.

7.84 Seven Sisters station rebuild

- 7.85 This station forms a key interchange between the Victoria Line and the West Anglia route of Greater Anglia, and is also a major access to Tottenham town centre (including for bus routes that call there) and Tottenham Hotspur Football Club. However, it lacks modern facilities used by considerably more passengers than originally intended when the Victoria Line was opened in 1968. It is also used on a frequent basis as a diversionary call on the Stansted Express airport route.
- 7.86 Rebuilding could significantly improve the accessibility and ambience of the station, facilitate regeneration in Tottenham town centre and around the Tottenham Hotspur football ground, and allow for better interchange

with buses and South Tottenham station on the Barking – Gospel Oak line.

- 7.87 Seven Sisters station is a principal gateway to the area around Tottenham High Road and redevelopment would enhance existing regeneration schemes in the area, assist with business connectivity, improve the access to healthcare, jobs, and help reduce inequality in the areas of deprivation that are located close to this station.

7.88 Silver Street station rebuild

- 7.89 This station provides good public transport access to North Middlesex University Hospital. Improvements to the walking route to and from the Hospital and reorganisation of healthcare in North London and Hertfordshire have enabled considerable growth in usage of the station. However, surveys as part of the hospital travel plan indicate that there is still considerable scope for modal shift from private car usage to public transport in the corridor served by train services to this station. The station is not accessible with many stairs to and from the platforms, and other facilities do not reflect the increased usage of the station. This, plus the nature of the walking route between the station and the hospital is a significant barrier to staff, patients and visitors using rail as part of their journey to and from the hospital.
- 7.90 Rebuilding could significantly improve the accessibility and ambience of the station as well as assist or open regeneration adjacent to the station, which is also on the main A406 North Circular Road. This could include potential improvements to walking and cycling in the area, and improve community cohesion where the A406 motorway standard road has separated local communities.
- 7.91 This scheme would improve access to health care services, and also air quality. There are also significant opportunities locally for regeneration, and assisting in reducing inequality.

7.92 Reinstating the westbound link to the Angerstein Wharf branch for rail freight at Angerstein Junction.

- 7.93 This freight branch railway at present carries aggregates from the Angerstein Wharf on the River Thames. The current arrangement of its junction with the Southeastern route from Blackheath to Charlton is orientated towards the east with a very sharp curve. Freight trains heading toward or coming from the South London Line and the rest of the UK have to negotiate a very circuitous route via Woolwich, Bexleyheath or Sidcup to access the branch. This is a significant use of capacity as it requires a number of 'conflicting' moves across a number of flat junctions.. This could be reused by passenger services. In addition the tight curvature of Angerstein Junction has resulted in a number of

derailments of freight wagons in a recent years with considerable disruption to passenger services.

- 7.94 Providing a direct straight junction at Angerstein Junction toward Blackheath would overcome the shortcomings of the existing junction and free up capacity for passenger services.
- 7.95 The Angerstein Wharf branch is located next to the A102 Blackwall Tunnel approach road. This raises the possibility that rail freight could be expanded at this location through the use of a terminal from which freight could be distributed by rail.

7.96 Developing freight consolidation centres

- 7.97 A feature of the changing nature of London's traffic in recent years has been the growth of small van traffic making deliveries of goods ordered via the internet. This growth has had an impact on other modes of transport such as buses and cycles through increased congestion.
- 7.98 During the 2012 London Olympics TfL piloted the use of freight consolidation centres. These were successful in producing some significant reductions in trip rates of vehicles carrying freight.
- 7.99 In 2012 for the duration of the games, the London Lorry Ban was relaxed to allow night time deliveries. This resulted in fewer freight movements at peak hours leading to reduced congestion, and better reliability of delivery times for freight receivers.
- 7.100 In 2014 a number of supermarkets and on-line retailers began arrangements with London Underground and Network Rail whereby passengers could arrange for their shopping to be delivered to stations rather to individuals' homes and offices. These are in effect freight consolidation centres. They are a welcome development as they will reduce the number of journeys made by small vans and cars to homes, offices and other places of business. They also restore rail stations to their original multi functional status of handling goods and passengers together. It also opens the possibility of goods being delivered locally by low energy use vehicles such as cargo bikes. As yet however, goods are not delivered to the stations by rail.
- 7.101 A different initiative has been the Colas Rail and TNT Express trial freight train from Rugby to London Euston, carrying overnight express parcels and perishable products for distribution in central London, with goods being delivered before 0600..
- 7.102 For larger volume and bulk deliveries of freight consolidation in a similar vein to that employed during the 2012 Olympic Games offers the opportunity for reducing the impact of freight traffic on London's road network. Ideally such consolidation centres should be capable of being served by both road and rail. Potential sites might include Angerstein

Wharf (as noted above), Barking, Harlesden, Old Oak Common, Temple Mills, Feltham or the Lea Valley.

7.103. Regeneration through tourism – transport schemes with tourist potential

- 7.104 Worldwide there are many examples of how transport schemes with tourist potential have been instrumental in stimulating economic regeneration. In London, examples of such initiatives include the 'Millenimum Bridge' from St.Pauls to the Tate Modern: the RV1 'RiVerside Bus' that links Covent Garden, The South Bank, Tower Bridge and Tower Hill which initially conceived as a tourist service, is now a well established route used by commuters to reach areas of central London previously not well served.
- 7.105 The 'Garden Bridge' is an example of such a project proposed already for London. However, there could also be other projects which might have similar benefits.

7.106 Routes paralleling London Bridge

- 7.107 London Bridge is a very busy road and pedestrian crossing point of the River Thames. It's proximity to major tourist sites such as Southwark Cathedral, Borough Market, The Golden Hind and the Monument, and its use as a major pedestrian thoroughfare for commuters means that at times it can be very congested for pedestrians.
- 7.108 Two alternative schemes could provide some relief to London Bridge by creating routes with greater touristic interest.
- 7.109 The Cannon Footbridge (<http://www.cannonfootbridge.com/>) would provide a footbridge attached to the side of Cannon Street railway bridge. This would connect the north and south walking routes alongside the Thames and would reduce walking times between Cannon Street District Line station and points in SE1 such as Borough Market.
- 7.110 Close by to this is the route of the former King William Street tube line – which was the original route of the Northern Line, abandoned in the early 20th Century. The tunnels for this could be opened up for a pedestrian route, based on the theme of a disused Underground railway.

7.111 Serving a rebuilt Crystal Palace

- 7.112 Proposals have emerged for a proposal to rebuild / build a new 'Crystal Palace' on the site of the former building destroyed by fire in 1936. The proposals also include a major refurbishment of Crystal Palace Park. The development is dependent on the use of existing road and rail links (except the former High Level rail line that was closed in 1954) to the site which have been largely unaltered since the early 20th Century. These links were built to serve the needs of the Palace, but with its demise and

the development of the surrounding areas in the intervening period, demand has filled up this capacity. There is a danger therefore that without additional capacity on the road, bus and rail networks in the area will not be able to cope with the additional demand that would be put upon it

- 7.113 The intention of the Crystal Palace proposals is to create a 'leisure destination'. However, as outlined above travel arrangements could become problematic and a poor visitor experience. To counteract this an additional element needs to be considered.
- 7.114 Heritage railways are a well established feature of the tourist market in the UK with a variety of different business models based on scenic routes, use of heritage or novelty rolling stock, use of different gauges of track and high levels of customer service to make travel on them an enjoyable experience.
- 7.115 However, the London area has very few if any such heritage railways. The nearest examples being quite some distance away¹.
- 7.116 The Crystal Palace site could potentially be served by a heritage or novelty railway using the route of the former High Level rail route from Nunhead. This could be shared with a potential cycle route as noted above. Crystal Palace Park was used to demonstrate the possibilities of electric and pneumatically powered trains in the 19th Century, and the first narrow gauge steam locomotives for the Ffestiniog Railway were designed and built locally at New Cross Gate in the 1860's. Therefore there are some very strong themes that could be exploited to provide a novelty factor for such a service but also satisfying the need to provide an effective transport service to and from the development. ,

¹ Nearest 'heritage railways' would be the Epping – Ongar Railway, the Princess Risborough and Chinnor Railway, the Spa Valley Railway and the Bluebell Railway.

Appendix A

Stations recommended to be included in a programme of ticket barrier provision:-

London Underground

Finsbury Park, West Ruislip (Chiltern platforms)

National Rail

Abbey Wood (alternative entrance), Barnehurst, Barnes, Beckenham Junction, Blackheath, Catford, Catford Bridge, Chessington South, Elephant & Castle, Forest Gate, Greenwich, Grove Park, Hayes & Harlington, Herne Hill, Highams Park, Hither Green, Mill Hill Broadway, Mortlake, Petts Wood, Southall, Teddington, Tottenham Hale, and Worcester Park..