CHARLTON RIVERSIDE PHASE 1

TRANSPORT ASSESSMENT

Rockwell

Leopard Guernsey Anchor Propco Ltd

Anchor and Hope Lane Sites
Transport Assessment

30821/D008b
December2016

TPP
transport planning practice

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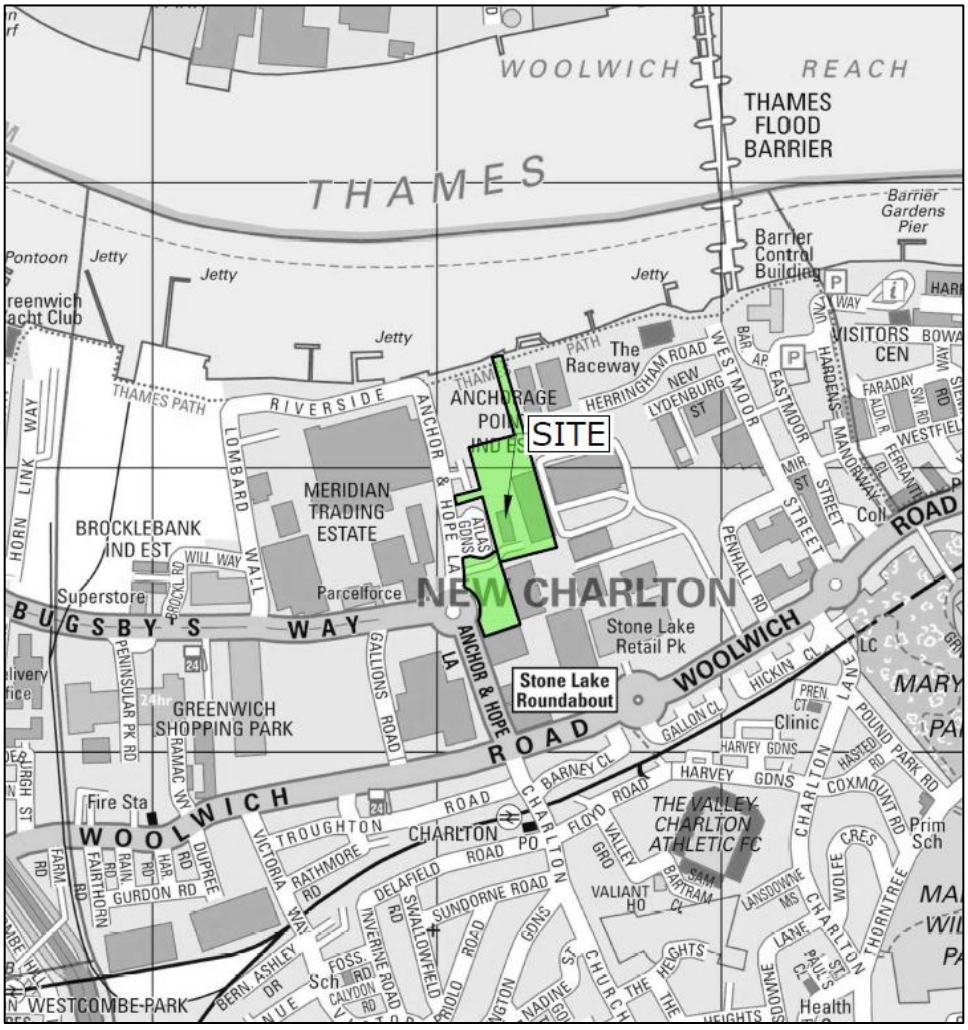
1 INTRODUCTION

1.1 Background Context

1.1.1 Transport Planning Practice (TPP) has been appointed by Leopard Guernsey Anchor Propco Ltd to provide transport advice in relation to the proposed redevelopment of the VIP Trading Estate and the VIP Industrial Estate, Anchor and Hope Lane, London SE7 7TE. The site located within the Charlton Riverside Opportunity Area in the Royal Borough of Greenwich (RBG).

1.1.2 The site is located to the east of Anchor and Hope Lane and comprises two plots of development, Plot A (Northern Plot) and Plot B (Southern Plot), with a strip connecting to Anchor and Hope Lane to the west and another to the north towards the Thames Path. The main access to the site is from Anchor and Hope Lane which runs between Woolwich Road and Bugsby's Way. The site location is shown in Figure 1.1.

Figure 1.1 – Site location



1.1.3 Charlton mainline rail station is located approximately 350m south of the site. Five bus routes are within easy walking distance of the site with bus stops on Bugsby's Way, Anchor and Hope Lane and Woolwich Road. The site has a good average Public Transport Accessible Level (PTAL) of 4 across the site.

1.1.4 The proposed development will provide 975 units residential as well as commercial space (A1, A3, B1, D1 and D2 use classes). The opening year is expected to be 2023. The description of development is as follows:

> *"Demolition of existing buildings and erection of 9 buildings ranging from 2 to 28 storeys in height for Class C3 residential use, with Class B1 employment space and flexible uses comprising Class A1 (retail), Class A3 (Café / Restaurant), Class D1 (Community Use) and Class D2 (Leisure) at ground floor and first floor level, alterations to existing vehicular access and creation of new pedestrian access from Anchor and Hope Lane and the riverside, creation of new areas of open space and landscaping together with the provision of associated car parking, cycle space, refuse and recycling storage, plant and all other associated works".*

1.1.5 The scheme will provide the following:

- 975 residential units provided within 9 buildings ranging in height from 2 to 28 storeys, including extensive private gardens and roof terraces;
- 1,560 sqm (GIA) of office space;
- Ancillary residential facilities including gym, swimming pool, changing rooms totalling 864 sqm (GIA);
- 690 sqm (GIA) of flexible retail/restaurant/café/leisure use;
- 407 sqm (GIA) of community uses;
- Extensive external public realm improvements and landscaping; and
- Parking, services, plant and circulation.

1.2 Report Structure

1.2.1 This Transport Assessment has been prepared to assess the impact of the proposed development on the local transport network in accordance with TfL's Transport Assessment Guidance.

1.2.2 The scope of this report has been discussed with officers at Transport for London (TfL) at a pre-application meeting on 5th September 2016 and the TfL pre-application advice letter has been included in Annex A. In addition, pre-application meetings with RBG officers and their masterplan consultant team, AECOM, have been held. This report incorporates their comments and is structured as follows:

- **Chapter 2: Transport Policy** – summarises the relevant national, regional and local transport policies against which the proposals will be assessed.
- **Chapter 3: Existing Site** – describes the site location and the existing land uses on-site.
- **Chapter 4 to 9: Baseline Conditions** – describes the existing and baseline transport conditions by mode.
- **Chapter 10: Site Accessibility** – outlines the site accessibility to existing local amenities and employment facilities in the baseline scenario.
- **Chapter 11: Proposed Development** – outlines the details of the proposed Charlton Riverside development.
- **Chapter 12: Trip Generation** – describes and summarises the multi-modal trip generation assessment for the proposed development.
- **Chapter 13: Cumulative Assessment Schemes** – sets out the schemes which are considered as part of the cumulative impact assessment.
- **Chapter 14 to 18: Impact Assessment** – assesses the impact of the proposed development by transport mode and considers mitigation measures where required.

- **Chapter 19: Impact Assessment - Construction** – assesses the impact of construction traffic for the development on the local area and considers possible mitigation measures.

- **Chapter 20: Summary and Conclusions** – provides a summary and presents the conclusions of this report.

2 TRANSPORT POLICY

2.1 Introduction

2.1.1 This chapter provides a summary of the key transport policies at a national, regional and local level. These include:

- National Planning Policy Framework, March 2012;
- The London Plan, March 2015;
- City in the East, October 2016;
- Mayor's Transport Strategy, May 2010;
- Royal Greenwich Local Plan: Core Strategy with Detailed Policies, July 2014; and
- Royal Greenwich Charlton Riverside Masterplan Supplementary Planning Document, April 2012.

2.2 National Policy

National Planning Policy Framework (March 2012)

2.2.1 The National Planning Policy Framework (NPPF) was published on the 27th March 2012. It focuses on a presumption in favour of sustainable development. One of the core planning principles relates to actively managing patterns of growth to make the fullest possible use of public transport, walking and cycling and focusing significant development in locations which are or can be made sustainable.

2.2.2 The NPPF recognises that the transport system should be balanced in favour of sustainable transport modes so that people are given a real choice about how they travel. It encourages solutions which support reductions in both greenhouse gas emissions and congestion.

2.2.3 Developments which generate significant movements should be located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. All developments which generate significant amounts of movements should be supported by a Transport Statement or a Transport Assessment and required to provide a Travel Plan. Planning decisions should

then consider whether opportunities for sustainable travel modes have been taken up, whether safe and suitable access to the site can be achieved for all people and whether improvements can be undertaken within the transport network which effectively limits the significant impacts of the development.

2.2.4 Developments should be located and designed where practical to:

- Accommodate the efficient delivery of goods and supplies;
- Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians;
- Incorporate facilities for charging plug-in and other ultra-low emission vehicles;
- Consider the needs of people with disabilities by all modes of transport.

2.2.5 In respect of parking standards, the NPPF states that local planning authorities should take into account the following:

- the accessibility of the development;
- the type, mix and use of development;
- the availability of and opportunities for public transport;
- local car ownership levels; and
- an overall need to reduce the use of high-emission vehicles.

2.3 Regional policy

The London Plan (March 2015 and March 2016)

2.3.1 The London Plan provides the overall strategic plan for London setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years. The latest version of the London Plan was published in March 2015 and Minor Alterations to the London Plan (MALPs) were adopted in March 2016 for housing and parking standards.

2.3.2 Policy 6.1 'Strategic Approach' states that the Mayor will work with all relevant partners to encourage patterns and nodes of development that reduce the need to travel; improve the capacity and accessibility of public transport, walking and cycling; support development that generates high levels of trips at locations with high levels of public transport accessibility and / or capacity; and support measures that encourage shifts to more sustainable modes.

2.3.3 Policy 6.3 on 'Assessing Effects of Development on Transport Capacity' states that development proposals should ensure that impacts on transport capacity and the transport network are fully assessed. Transport Assessments should be provided in accordance with TfL guidance and Travel Plans should be provided for applications above the thresholds set out in TfL guidance.

2.3.4 The London Plan sets out standards for car parking in Policy 6.13. It is stated that The Mayor wishes to see an appropriate balance being struck between promoting new development and preventing excessive car parking provision that can undermine cycling, walking and public transport use. In locations with high public transport accessibility, car-free developments should be promoted, while still providing for disabled people. The maximum parking standards are set out below.

Table 2.1 - Maximum Car Parking Standards for Residential

Number of beds / unit	Car space / unit
1 to 2 beds	Less than 1
3 beds	Up to 1.5
4 or more beds	Up to 2

Table 2.2 - Maximum Car Parking Standards for Office

Location	Maximum of one parking space per xm^2 of gross floor area, where x is:
Inner London	600-1000
Outer London	100-600

Table 2.3 - Maximum Car Parking Standards for Retail

Use	Maximum of one parking space per xm^2 of gross floor area, where x is:		
	PTAL 6 and 5	PTAL 4 to 2	PTAL 1
Non food	60-40	50-30	30

2.3.5 In terms of Blue Badge parking, the London Plan states that non-residential elements of a development should provide at least one accessible on or off street car parking bay designated for Blue Badge holders, even if no general parking is

provided. Any development providing off-street parking should provide at least two bays designated for Blue Badge holders. For residential uses, the London Plan requires adequate parking spaces for disabled people must be provided preferably on-site, and references GLA's 'Housing Supplementary Planning Guidance' (2012) and 'Accessible London Supplementary Planning Guidance' (2014).

2.3.6 The minimum standards for cycle parking are set out in Policy 6.9 and summarised below.

Table 2.4 – The London Plan (2015) cycle parking standards

Land use		**Cycle parking**	
		Long-stay	**Short-stay**
A1	Food retail	from a threshold of 100 sqm: 1 space per 175 sqm	from a threshold of 100 sqm: first 750 sqm: 1 space per 40 sqm Thereafter: 1 space per 300 sqm
	Non-food retail	from a threshold of 100 sqm: first 1000 sqm: 1 space per 250 sqm thereafter: 1 space per 1000 sqm	from a threshold of 100 sqm: first 1000 sqm: 1 space per 125 sqm. Thereafter: 1 space per 1000 sqm
A3	Cafes and restaurants	from a threshold of 100 sqm: 1space per 175 sqm	from a threshold of 100 sqm: 1 space per 40 sqm
B1	Office	1 space per 90 sqm	First 5000 sqm: 1 space per 500 sqm. Thereafter, 1 space per 5000 sqm
C3	Dwellings	1 space per studio and 1-bedroom unit; 2 spaces per all other dwellings	1 space per 40 units
D1	Nursery	1 space per 8 staff + 1 space per 8 students	1 space per 100 students
D1	Dentist	1 space per 5 staff	1 space per 3 staff
D2	Health Club	1 space per 8 staff	1 space per 100 sqm

2.3.7 The site is located within the Charlton Riverside Opportunity Area as identified within the London Plan. It has an indicative employment capacity of 1,000 and minimum of 3,500 new homes. It states that development at Charlton Riverside should be integrated with the wider development of the south bank of the Thames to complement opportunities at Deptford/Greenwich, Greenwich Peninsula and Woolwich.

City in the East (October 2016)

2.3.8 The Mayor of London's City in the East plan promotes the development of the east of London as an integrated part of the capital. It identifies Charlton Riverside as having the capacity to deliver 5,000 homes and 5,000 jobs. This supersedes the figures contained in the London Plan.

Mayor's Transport Strategy (May 2010)

2.3.9 The Mayor's Transport Strategy (MTS) is a statutory document which sets out the Mayor's transport vision and its expected delivery. The MTS has the following vision:

> *"London's transport system should excel among those of world cities, providing access to opportunities for all its people and enterprises, achieving the highest environmental standards and leading the world in its approach to tackling urban transport challenges of the 21st century."*

2.3.10 The following six goals set out how this overarching vision should be implemented. The transport strategy should:

- Support economic development and population growth;
- Enhance the quality of life for all Londoners;
- Improve the safety and security of all Londoners;
- Improve transport opportunities for all Londoners;
- Reduce transport's contribution to climate change and improve its resilience;
- Support delivery of the London 2012 Olympic and Paralympic Games and its legacy.

2.3.11 Chapter 4 sets out the strategic policies, of which the following are relevant to the proposals:

- Policy 4 relates to improving people's access to jobs and maximising public transport connectivity and Policy 5 relates to ensuring efficient and effective access for people and goods.

- Policy 9 relates specifically to development proposals and seeks to ensure the following:
- All high trip generating developments are located in areas of high public transport accessibility, connectivity and capacity;
- The design and layout of development sites maximise access by walking and cycling and to public transport facilities;
- Access for deliveries and servicing;
- Land for transport use is safeguarded;
- Planning contributions are sought for transport improvements where appropriate.
- Policy 11 states that The Mayor will seek to reduce the need to travel, encourage the use of more sustainable and less congesting modes of transport, set appropriate parking standards and promote smarter travel initiatives.

2.3.12 Chapter 5 considers transport proposals to manage the demand for travel, and refers to the need to smooth traffic flow for all user groups. It refers to the need to maximise the efficient use of the road network, both for transportation purposes and also when considered as part of London's public realm.

2.3.13 The term 'smoothing traffic flow' refers to managing road congestion and improving traffic journey time reliability and predictability. As a result, it seeks to improve conditions for cyclists and pedestrians as well as vehicular traffic.

2.3.14 Section 5.6.8 refers to how transport policy has moved away from the 'predict and provide' approach, to one which instead considers how 'to get more' from the existing road network for all road users as well as pedestrians, cyclists and local residents.

Mayor of London, Accessible London Supplementary Guidance (October 2014)

2.3.15 This document provides advice to boroughs, developers, designers and planning applicants on implementing inclusive design principles effectively and on creating

an accessible environment in London, with particular emphasis on the access requirements of disabled and older people. It does not introduce new policy or add any additional burdens on developers. It does not form part of the development plan, but should be taken into account as a further material consideration when considering planning applications so has weight as a formal supplement to the London Plan.

2.3.16 In terms of residential disabled parking, it recognises that the London Plan requires 10% of all new homes to be wheelchair accessible or easily adaptable for occupation by a wheelchair user. This London Plan then references the 'Wheelchair Housing Design Guide' (WHDG) which requires one parking bay for every wheelchair accessible or easily adaptable home (so 10% of the total number of residential units). It is considered that any residential development, even when car free, should comply with London Plan Policy 3.8 and provide adequate parking for the wheelchair accessible or easily adaptable units, preferably on-site.

2.3.17 However, based on the nature of the proposed development, the Accessible London SPG also recognises that:

> *"4.3.19 The WHDG also notes that grouped car parking serving multi-storey or high-density developments can be provided on the basis of management arrangements. This could provide at least one designated wheelchair space per wheelchair user dwelling if required. These spaces, whether off street or kerbside, should be of the required size to enable transfer between the car and an adjacent pavement or hardstanding.*
>
> *4.3.20 If the full complement of designated bays is not provided at first occupation, a parking management strategy (to be approved at planning application stage) should set out what mechanisms will be used to ensure that additional provision can be made quickly and easily. This may mean managing bays through leasing arrangements so that they can be assigned to Blue Badge holders as necessary, reflecting the actual demand or identifying additional off-site capacity."*

2.3.18 Therefore if the disabled parking is not provided at 10% of residential units from the outset, a parking management plan is considered to be acceptable in providing mechanisms to manage the bays to meet demand.

2.3.19 Accessible London further emphases a flexible approach as follows:

> *"4.3.21 On major developments with easy access to step free public transport and that have a significant number of wheelchair accessible /adaptable units boroughs should consider a flexible approaches to the provision associated parking bays and other mitigation measures. This could take the form of the delivery of conveniently located on street bays (through a s106 agreement) that can be taken in and out of use depending on the demand at any point in time, access to a car club and facilities for the storage and charging of mobility scooters and improvements to local bus tops, including the provision of raised kerbs to facilitate bus-ramps."*

2.4 Local policy

Royal Greenwich Local Plan: Core Strategy with Detailed Policies (July 2014)

2.4.1 RBG's Core Strategy with Detailed Policies set out how the council proposes to develop the borough over the next 15 years to improve the lives of the people who live and work here, whilst retaining the strong sense of history and identity of Royal Greenwich.

2.4.2 The Core Strategy identifies a number of Strategic Development Locations. This includes Charlton Riverside (Policy EA2) which will provide a new mixed-use urban quarter. Employment will be consolidated to maximise the use of land whilst maintaining employment levels in the waterfront area. There will be a reduction in the amount of out of town centre retail in this area and an increase in both the quantity and quality of open space. It is expected that the area will be transformed into an attractive and vibrant mixed use urban quarter providing around 3,500 - 5,000 new homes.

2.4.3 It is stated that the new development at Charlton Riverside will require sufficient buffering from the retained Strategic Industrial Location land and the safeguarded Riverside, Angerstein and Murphy's Wharves to minimise the potential for conflicts of use and interference to new residents.

2.4.4 With regards to transport policies, these are summarised in Table 2.1.

Table 2.5 – Summary of key RBG Core Strategy policies

Policy	Description
Policy IM4 Sustainable Travel	All development in RBG should contribute to improved accessibility and safety, and reduce the use of the private car and the need to travel. The needs of pedestrians, including those with disabilities, and cyclists should be prioritised in development and the design and layout of development should reflect this. Developments along the riverside must ensure that they incorporate the provision for a riverside pathway and contribute to improvements to this where it is required. In order to reduce the use of the car, developments, must not go above those maximum parking standards set out in the London Plan and, where appropriate, should go below these.
Policy IM(a) Impact on the Road Network	When planning transport provision for major developments and extensive sites where comprehensive development can take place, developers should have regard to: i. The road hierarchy ii. Building into highways networks speed management and design criteria for speeds no greater than 20 mph; and iii. Incorporating appropriate traffic calming measures and encouraging residential roads to be designed as shared spaces
Policy IM(b) Walking and Cycling	New developments should provide for the needs of in RBG should: i. integrate with the existing footpath and both the London and local cycle networks and encourage the principles of shared space; ii. provide sufficient provision of changing and shower facilities for cyclists; iii. provide cycle parking in line with policy IM(c); iv. promote walking and cycling safety, with well lit, signed and well maintained routes and safe facilities for crossing roads and at transport interchanges; v. take account of 'desire lines' to local shops, services and schools, including safer routes to school and to public transport nodes; and vi. Take account of the Royal Borough's Cycling Strategy and in particular the development of primary and local cycle networks through Royal Greenwich
Policy IM(c) Parking Standards	Developments must provide the minimum level of car parking provision necessary, for people with disabilities, as set out in the London Plan, and ensure provision for servicing, safe pick-up, drop-off and waiting areas for vehicles such as taxis and coaches, where that activity is likely to be associated with the development. RBG strongly encourage contributions to car clubs and pool car schemes in place of private parking in new developments across Royal Greenwich and seek the provision of electric charging points as part of any car parking provision, following the minimum standards set out in the London Plan. Developments must meet, as a minimum, the standards for cycle parking as set out in the London Plan.

Royal Greenwich Site Allocations Issues and Options Paper, Public Consultation Draft (February 2016)

2.4.5 This document sets out the sites and uses that are important to delivering the spatial strategy set out in the RBG Core Strategy and provide additional detail on

these. Once adopted, the site allocations local plan will form part of the Development Plan for RBG and adoption is due in Winter 2017.

2.4.6 Charlton Riverside is identified as a key regeneration area that provides a significant opportunity for new high quality river front development. The site is located within Site C5, known as Charlton Riverside Central. The options for future use are identified as

> *"Mixed use, including land for transport route, employment/commercial, small scale retail, residential and open space. Secondary and primary school area of search. To include bus and cycle eastwest route and transport interchange at the south western corner of the site opposite Charlton Church Lane."*

Royal Greenwich Charlton Riverside Masterplan Supplementary Planning Document (April 2012)

2.4.7 The Charlton Riverside Masterplan SPD provides the strategic planning steer for this area to guide development over the coming 15-20 years. The extent of the area considered is shown in Figure 2.1.

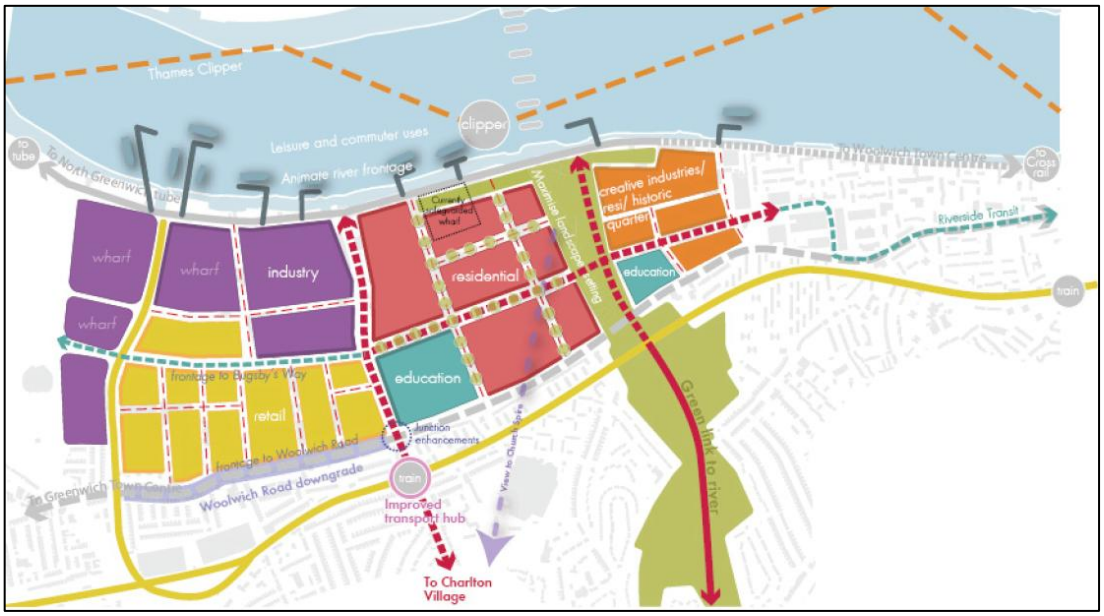
Figure 2.1– Charlton Masterplan Area

2.4.8 In relation to transport, the detailed objectives for this area includes improved connections to the wider area to form one integrated neighbourhood; improvements to the Thames Path, increasing safety and the connectivity of the pathway; and creation of a better environment for all uses.

2.4.9 It is recognised in the urban design issues section of the SPD that the existing study area is largely unwelcoming to pedestrians and cyclists and there are clear opportunities for improving connectivity and movement.

2.4.10 Figure 2.2 is an extract from the document which shows the concept design for the area. It shows that the site, along with the area to the east of the site is expected to have residential use, with the area to the west of Anchor and Hope Lane to have industrial and retail uses. The plan also shows the intention to provide a river service to the north of the site and improved transport hub at Charlton Station.

Figure 2.2– Charlton Masterplan Concept Design



2.4.11 It is understood that RBG are currently reviewing and updating the masterplan with their appointed consultants led by AECOM. The timetable for the consultation draft masterplan document is currently anticipated to be early in 2017. Throughout the pre-application process the applicant has been in consultation with RBG and their consultants.

3 EXISTING SITE

3.1 Introduction

3.1.1 This chapter sets out the site location, existing land uses and the details of the adjacent Charlton Riverside Opportunity Area development.

3.2 Existing Site Use

3.2.1 The site is approximately bounded by Anchor and Hope Lane and the residential properties at Atlas Gardens and Derrick Gardens to the west, and industrial units to the east and south. River Thames is to the north of the site.

3.2.2 The existing site currently contains a number of light industrial units. This includes a scaffolding hire company and a vehicle hire company. With the exception of two residential areas known as Atlas Gardens and Derrick Gardens, the site is surrounded by industrial uses.

3.3 Charlton Riverside Opportunity Area

3.3.1 The proposed development is located within the Charlton Riverside Opportunity Area. This has been identified in the RBG Core Strategy as one of the Strategy Development Locations. It is expected that the area will be transformed into an attractive and vibrant mixed use urban quarter providing circa 5,000 new homes.

3.3.2 A masterplan is currently being further developed by RBG for the Charlton Riverside Opportunity Area and the proposed development has been designed in keeping with the future aspirations for this area as an early phase of development.

3.3.3 As part of the masterplan, transport improvements are proposed. These are expected to be as follows:

- Charlton Riverside Pier to the north of the site. When the river pier is open, it could be expected that there would be a minimum frequency of 3 services per hour in each direction as operated by Thames Clippers on their current river services.
- New bus routes through the Opportunity Area.
- Improvements to Charlton Station as a transport hub.

4 BASELINE CONDITIONS – WALKING AND CYCLING

4.1 Introduction

4.1.1 This chapter describes the baseline walking and cycling conditions within the vicinity of the site.

4.2 Walking

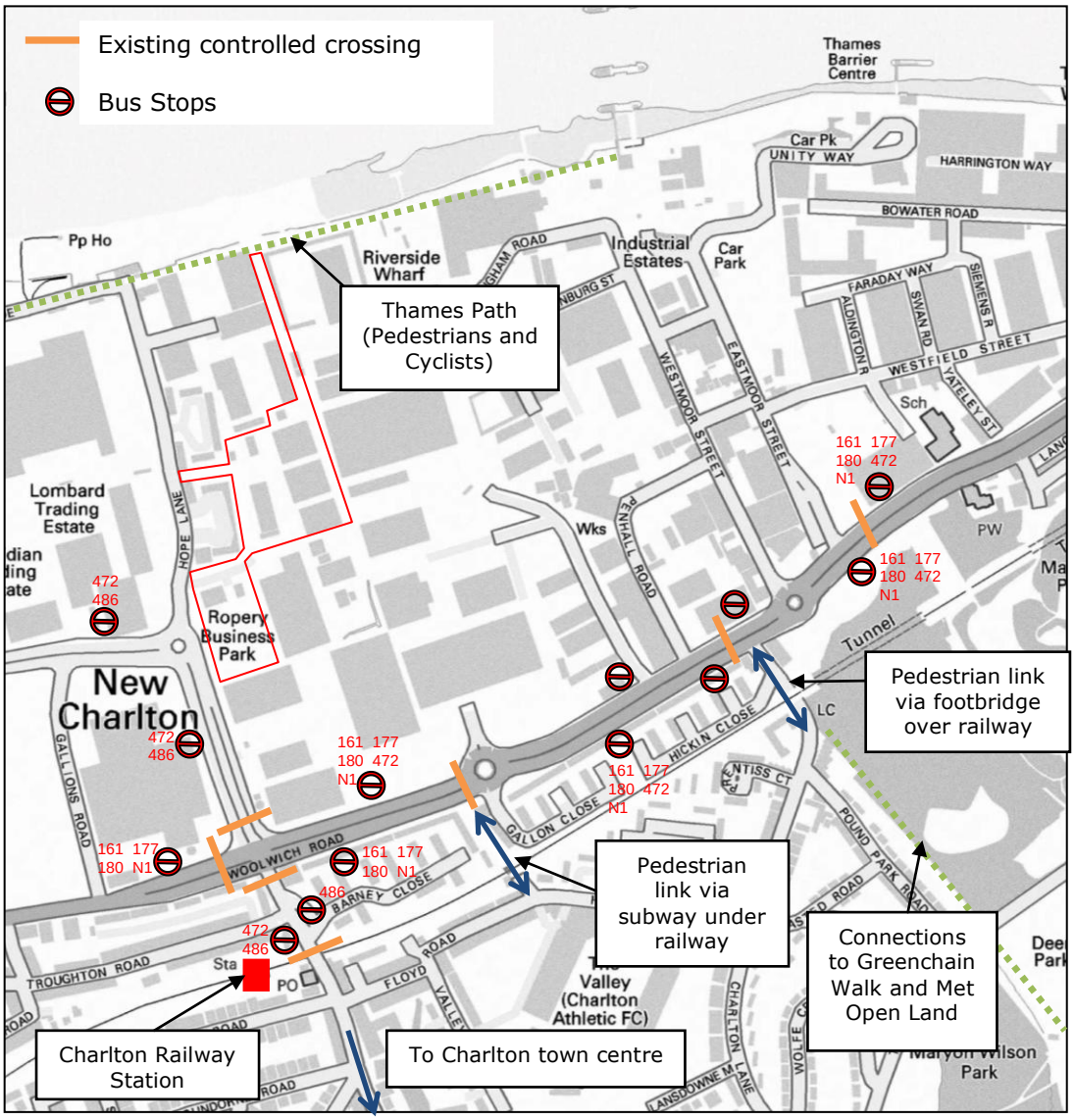
Existing conditions

4.2.1 The most important pedestrian desire lines to a site are considered to be those which provide access to public transport services and local facilities. Within the vicinity of the site, public transport services are located to the south of the site and Greenwich Shopping Park is located to the west on Bugsby's Way.

4.2.2 The main access to the site is from Anchor and Hope Lane from the site's western edge. Footways, dropped kerbs and tactile paving are provided along Anchor and Hope Lane. At the roundabout with Bugsby's Way to the south of the site, uncontrolled crossing facilities are provided on one of the arms (the northern Anchor and Hope Lane arm).

4.2.3 Signal controlled pedestrian crossings are provided at the Anchor and Hope Lane / Woolwich Road junction and Bugsby's Way / Gallions Road junction. It should be noted that there was formerly a Pelican crossing on Bugsby's Way to the west of the roundabout but was removed in 2014 when traffic signals were added at the Gallions Road junction.

Figure 4.1 – Pedestrian Crossing Points & Connections



4.2.4 It was agreed with TfL that there is limited benefit in undertaking an extensive PERS audit as there is expected to be coordinated improvements to this area as part of the Charlton Riverside Opportunity Area. However, a Pedestrian Environmental Appraisal has been undertaken which is included in Annex B to understand the existing conditions.

Baseline conditions

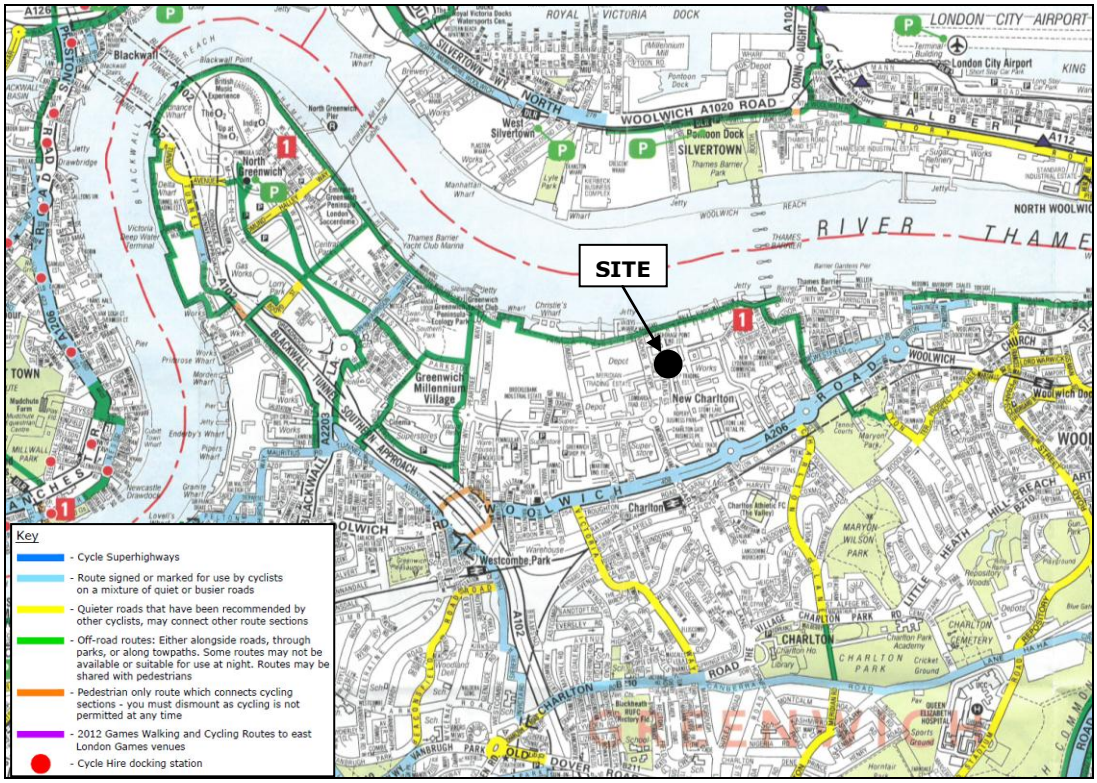
4.2.5 There are no known planned pedestrian improvements to the immediate area prior to the completion of the proposed development.

4.3 Cycling

Existing conditions

4.3.1 The local area is generally flat which helps to make cycling attractive as a mode of transport. Designated cycle routes are provided within close proximity of the site, which connects to the wider network across London. Figure 4.1 shows the local cycle network.

Figure 4.2 – Local Cycle Network



4.3.2 The A206 Woolwich Road to the south of the side is a signed cycle route with marked on-street cycle routes in both directions. The Thames Path is located to the north of the site and forms part of the National Cycle Network (NCN) Route 1. This is an off-road route which provides access to North Greenwich to the northwest and towards Royal Arsenal to the east.

4.3.3 Jubilee line services are available from North Greenwich Station and the cycle time is approximately 8 minutes. A new cycle hub is being provided by TfL at North Greenwich Station which will have 350 spaces.

4.3.4 The existing local cycle routes can be accessed from Anchor and Hope Lane which provide good access to and from local residential areas and other local

facilities. The local routes have adequate street lighting and signage to various local destinations.

Baseline Conditions

4.3.5 RBG and Sustrans are currently working up the details of the Thames Path Quietway scheme which will provide a quieter route to North Greenwich alongside the River Thames. This can be accessed at the northern end of Anchor and Hope Lane. Construction of the scheme is expected to be completed prior to occupation of the proposed development.

4.3.6 In addition, Cycle Superhighway 4 is planned to be implemented between Woolwich and London Bridge, travelling along Woolwich Road. Phase 3 of this cycle superhighway runs along this section of the A206 is between Greenwich and Woolwich, however TfL are unable to confirm the delivery dates for this section at present.

5 BASELINE CONDITIONS - BUS

5.1 Introduction

5.1.1 This chapter summarises the bus services which are and will be available from the site.

5.2 Existing Conditions

5.2.1 The nearest bus stop to the site is on the northern side of Bugsby's Way, to the west of the roundabout with Anchor and Hope Lane (85m from the site boundary). This bus stop is served by bus routes 472 and 486 travelling south on Anchor and Hope Lane towards Queen Elizabeth Hospital or Woolwich. For services in the opposite direction, there are bus stops on the western side of Anchor and Hope Lane (170m) and on the southern site of Bugsby's Way (250m).

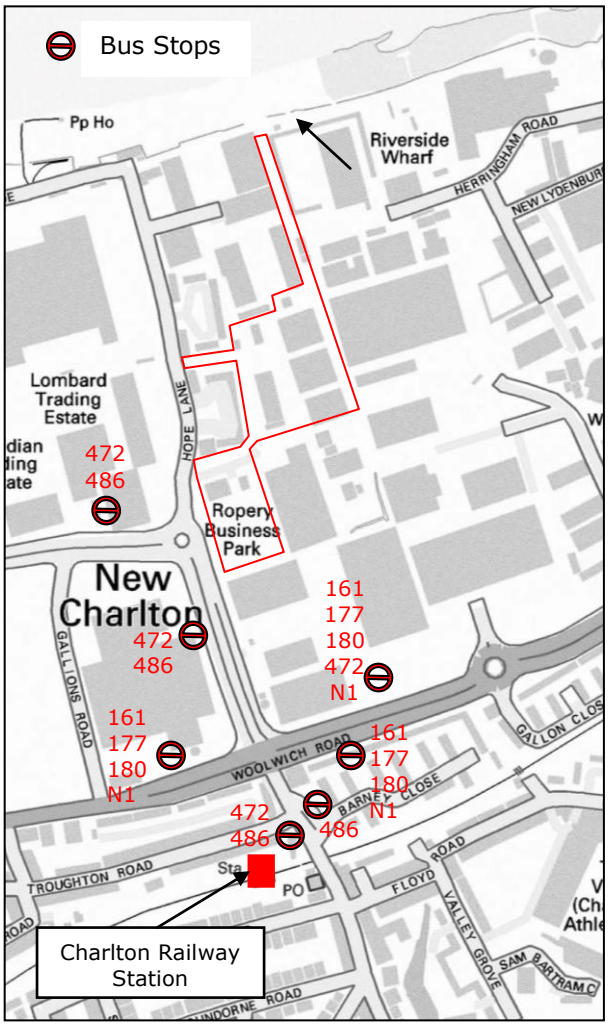
5.2.2 Both the 472 and 486 provide access to North Greenwich Station where interchange can be made with the Jubilee Line. The bus journey time is approximately 10 minutes.

5.2.3 Three additional bus routes (161, 177 and 180) are available on Woolwich Road. The nearest set of bus stops is located to the east of the junction with Anchor and Hope Lane, approximately 330m (a 3 to 4 minute walk) from the site.

5.2.4 Bus route 161 also serves North Greenwich Station and routes 177 and 180 provide further interchange opportunities with DLR services at Cutty Sark and Greenwich. The bus journey time is approximately 15 minutes.

5.2.5 The locations of the existing bus stops are shown in Figure 5.1.

Figure 5.1 – Existing bus stop locations



5.2.6 A summary of the existing bus services are provided in Table 5.1 and the local bus map is included in Annex C.

Table 5.1 – Summary of Bus Routes (Hourly Frequency in Each Direction)

Bus route	Route	AM peak	PM peak	Sat	Sun
472	North Greenwich – Bugsby's Way – Woolwich - Thamesmead	9	9	8	6
486	North Greenwich – Bugsby's Way – Charlton – Eltham – Welling - Bexleyheath	7	7	7	5
161	North Greenwich – Woolwich Road – Woolwich – Eltham – Chislehurst	6	6	5	5
177	Peckham – Greenwich – Woolwich Road – Woolwich - Thamesmead	6	6	5	5
180	Lewisham – Greenwich – Woolwich Road – Woolwich – Abbey Wood – Belvedere	6	6	6	4
	Total	**34**	**34**	**31**	**25**

5.2.7 The above shows that there are up to 34 buses per hour in each direction accessible from the site. This is on average one bus every two minutes in each direction.

5.2.8 In addition to the above services, the Woolwich Road bus stops are served by nightbus N1 which operates between Thamesmead and Central London, with a frequency of 2 to 3 buses per hour in each direction.

5.3 Baseline Conditions

5.3.1 There are no known committed changes to the existing bus routes or frequencies which would be in place prior to the completion of the development.

5.3.2 However, TfL has confirmed that a review is being undertaken of the bus network in the Greenwich and Bexley areas in order to compliment future Crossrail services. As the result of this review, there may be a number of changes to the frequency and routing of services in the immediate area. This study is expected to be completed by early 2017. It is also acknowledged that a bus strategy is likely to be in place as the Charlton Riverside Opportunity Area is developed. Furthermore, the Silvertown Tunnel Transport Assessment also incorporates potential future bus service routes to use the tunnel. This includes a service connecting Charlton to Canary Wharf. This is currently subject to a public examination due to finish in April 2017 at the earliest.

6 BASELINE CONDITIONS – NATIONAL RAIL

6.1 Introduction

6.1.1 This chapter summarises the National Rail services available from Charlton Station.

6.2 Existing Conditions

6.2.1 Charlton Rail Station is located approximately 350m (a 3 to 4 minute walk) south of the site. Trains serving this station run between London and Kent and are operated by Southeastern. There are around 8 trains per hour in each direction during weekday peak times.

6.2.2 The trains serve the London terminals of London Bridge (journey time of 17 minutes), London Waterloo East (26 minutes), London Charing Cross (33 minutes) and Cannon Street (24 minutes).

6.2.3 Interchange opportunities are available at the London terminals for bus services, London Underground services and further rail services. In addition, the passengers can interchange for DLR services at Woolwich Arsenal, Lewisham and Greenwich stations. Journey time to Woolwich Arsenal is either 4 or 6 minutes and the journey time to both Lewisham and Greenwich is around 7 minutes from Charlton.

6.3 Baseline Conditions

6.3.1 Construction is currently underway for Crossrail which will provide a direct rail connection between all of London's main business centres, linking Heathrow, with Paddington, the West End, the City and Canary Wharf.

6.3.2 The nearest Crossrail station to the site will be Woolwich, approximately 3km from the site. Woolwich Station can be accessed from the site using local bus services or rail services from Charlton. Crossrail services on this section of the route are expected to operate in 2018 with a frequency of 12 trains per hour, prior to the opening of the proposed development in 2023.

6.3.3 Crossrail is expected to significantly reduce journey times and from Woolwich Station, it is expected to take 8 minutes to Canary Wharf, 14 minutes to Liverpool Street and 22 minutes to Bond Street.

7 BASELINE CONDITIONS – PTAL

7.1 Introduction

7.1.1 This chapter sets out the existing and baseline Public Transport Accessibility Level (PTAL). The PTAL methodology has been adopted by the GLA and TfL as a means of quantifying and comparing the accessibility of a point of interest by public transport.

7.2 PTAL Methodology

7.2.1 The PTAL methodology takes into account the time taken to access the public transport network, including:

- The walk time to various public transport services;
- The average waiting time for each service; and
- The reliability of each service.

7.2.2 The methodology is based on a walk speed of 4.8kph and considers rail stations within a 12 minute walk (960m) of the site and bus stops within eight minutes walk (640m), with the PTAL assessment being undertaken using the AM peak hour operating patterns of existing public transport services.

7.2.3 An Equivalent Doorstep Frequency (EDF) is calculated for each of the public transport services accessible from the site based on the criteria described above. These individual EDF values are weighted to provide an accessibility index (AI) value for each public transport service accessible from the site. The sum of the AI's for each mode are aggregated to provide a single measure of accessibility for the site. The Total AI value is then compared against the accessibility level bands summarised in Table 7.1.

Table 7.1 – Accessibility level bands

PTAL Score	Range of Index (AI)	Description
1a	0.01 - 2.50	Very Poor
1b	2.51 – 5.00	Very Poor
2	5.01 – 10.00	Poor
3	10.01 – 15.00	Moderate
4	15.01 – 20.00	Good
5	20.01 – 25.00	Very Good
6a	25.01 – 40.00	Excellent
6b	>40.01	Excellent

7.3 Existing PTAL

7.3.1 The site is within walking distance of five bus services and Charlton Station. Given the size of the site, a detailed PTAL assessment was undertaken for pre-application discussions with TfL and RBG. This assessment is included in Annex D.

7.3.2 The existing site ranges from PTAL 4 in the southern end to PTAL 3 at the north end, with an average PTAL across the site of 4 which indicates good accessibility. This has been agreed with TfL.

7.4 Baseline PTAL

7.4.1 There are no known committed changes to the public transport services within walking distance of the site prior to completion of the development which would influence the PTAL.

7.4.2 It should be noted the assessment contained in Annex D also shows that with the incorporation of additional public transport provisions which could be reasonably expected to be associated with the Charlton Riverside Opportunity Area, the site has the potential of achieving a PTAL of 5.

8 BASELINE CONDITIONS - HIGHWAY NETWORK

8.1 Introduction

8.1.1 This chapter sets out the highway network and car parking within the vicinity of the site.

8.2 Highway Network

8.2.1 Site access is provided off Anchor and Hope Lane, via a private access road which provides for two-way vehicle movements. The private access road falls largely within the ownership of the site, albeit a short section owned by the adjacent landowner and there is a right of access across this section.

8.2.2 Anchor and Hope Lane is a wide, two-way carriageway, with sections of marked on-street parking bays on both sides. It meets Bugsby's Way to the south at a roundabout and continues south towards a signal controlled junction with the A206 Woolwich Road.

8.2.3 Bugsby's Way has two lanes in each direction and provides access to the west to Greenwich Shopping Park, Millennium Leisure Park, The O_2 as well as the Blackwall Tunnel. The A206 Woolwich Road is aligned approximately east-west. It provides access to Woolwich to the east and the Greenwich Market to the west. It also provides an alternative route to the A102 Blackwall Tunnel Southern Approach. The A206 Woolwich Road forms part of the Strategic Road Network (SRN).

8.2.4 There is a dedicated, segregated southbound bus lane on Anchor and Hope Lane to the south of the roundabout with Bugsby's Way. There are also other bus priority measures in the local area.

8.2.5 Uncontrolled, marked on-street parking bays are provided on both sides of Anchor and Hope Lane to the north of the site. There is no on-street parking to the south on Anchor and Hope Lane or Bugsby's Way.

Car Clubs

8.2.6 Car Clubs provide an easily accessible vehicle to members for short term hire as and when needed. This provides a lower fixed cost alternative to car ownership and private car use.

8.2.7 There are two Car Club vehicles located to the south of Charlton Station, approximately 550m (a 5 to 7 minute walk) from the site on Sundorne Road. The next nearest Car Club vehicles are located on Peartree Way (1.1km from the site, 2 vehicles) and on Fairthorn Road (1.2m from the site, 2 vehicles). These additional vehicles are operated by Zipcar.

8.3 Existing Traffic Flows

8.3.1 Traffic surveys were undertaken in July 2015 by an independent traffic survey company, avoiding school holidays, road closures, and other events which may have affected traffic patterns.

8.3.2 Manual classified turning counts have been undertaken at the following locations:

- Signalised junction of Bugsby's Way with Gallions Road (site 1);
- Priority junction of Gallions Road and the A206 (left in/ left out) (site 2);
- Priority junction of Anchor and Hope Lane and industrial access road (site 3);
- Roundabout junction of Bugsby's Way and Anchor and Hope Lane (site 4);
- Signalised junction of the A206/Anchor and Hope Lane and Charlton Church (site 5); and
- Roundabout junction of the A206 (Woolwich Road) and Gallon Close (site 6).

8.3.3 Queue length surveys and saturation flows (for signalised junctions) have also been collected.

8.3.4 In addition, link counts were undertaken within the site to establish the existing traffic generation of the existing development.

8.3.5 Automatic Traffic Counters (ATCs) were also laid at the following locations for seven days recording traffic volume and speeds:

- Anchor and Hope Lane to the south of industrial access road;

- Anchor and Hope Lane to the south of Bugsby's Way;
- Bugsby's Way to the east of Lombard Wall;
- The A206 (Woolwich Road) to the west of Charlton Church Lane;
- The A206 (Woolwich Road) to the east of Charlton Church Lane; and
- Charlton Church Lane to the south of the A206.

8.3.6 The survey locations are shown in Figure 9.1 and were agreed with TfL as part of the scoping exercise. The results are summarised in Table 8.1.

Figure 8.1 - Traffic survey locations

Table 8.1 – Existing Traffic Flows

Link	Existing Flows	
	AM Peak	PM Peak
Anchor and Hope Lane North of Bugsby's Way	251	249
Anchor and Hope Lane North of Site Access	192	135
Anchor and Hope Lane South of Bugsby's Way	1,286	1,569
Bugsby's Way West of Gallions Road	1,327	1,700
Bugsby's Way East of Gallions Road	1,362	1,995
Charlton Church Lane North of Delafield Way	404	450
A206 East of Anchor and Hope Lane	2,137	2,587
A206 West of Anchor and Hope Lane	1,201	1,234
Site Access	107	120
Gallions Road	202	390

8.4 Baseline Traffic Flows

8.4.1 It is not considered necessary to apply TEMPRO background growth as the traffic prediction for other committed developments are considered to be a more accurate and suitable means of assessing future traffic conditions. This approach has been agreed with TfL.

8.4.2 A summary of how the daily traffic flows (obtained from the Department for Transport website) on Woolwich Road have fluctuated over a 15 year period is shown in Table 8.2.

Table 8.2 – Annual Average Daily Flow on Woolwich Road (to the west of Anchor and Hope Lane)

Year	All vehicles	All HGVs
2000	25556	2628
2002	21428	1784
2004	21433	1749
2006	21456	1764
2008	25506	1618
2010	25321	1623
2011	25701	1629
2012	25580	1755
2013	19927	1705
2014	19655	1664
2015	19224	1680

Source: DfT website

8.4.3 The above table shows that the traffic flows along Woolwich Road have generally fallen over time and the normally expected underlying traffic growth has not been experienced. Furthermore, in the past four years, the flows have been stable and not changed significantly, despite the fact that a number of new

development schemes have been constructed and some occupied within the vicinity of the site would have normally been expected to result in an increase in traffic flows. This is, however, not the case. There has also been a decrease in the number of HGV movements.

8.4.4 Table 8.2 therefore further supports that additional background traffic growth is not required, in addition to taking account of committed development generated traffic for future traffic year assessment. This approach has been agreed with TfL.

8.5 Personal Injury Accident Analysis

8.5.1 Personal Injury Accident (PIA) data for the local area has been obtained and analysed for the past three years up to April 2016. The PIA data is provided in Annex E.

8.5.2 Within the study area, a total of 29 accidents were recorded of which 27 resulted in slight injuries and 2 resulted in serious injuries. There were no fatalities. The accidents, including the two serious accidents, occurred mainly at the Anchor and Hope Lane / Woolwich Road junction and the Stone Lake Roundabout.

8.5.3 All the accidents were caused by human error and failure to look properly was attributed to 22 of the accidents. Other causes included carelessness, wrong use of pedestrian crossing facility, cyclist disobeying a red light and following too closely. Two of the accidents were due to defective brakes

8.5.4 No accidents were recorded at the site access and one accident was recorded on Anchor and Hope Lane to the south at the junction with Atlas Gardens. A car turned left onto Anchor and Hope Lane and collided with a motorcyclist. The causes were identified to be poor manoeuvre and failure to look properly.

8.5.5 The PIA data shows that no common causal factor as all of the accidents were caused by human error and were not due to the design of the local highway infrastructure.

9 BASELINE CONDITIONS – SAFEGUARDED WHARVES

9.1 Introduction

9.1.1 This chapter sets out the locations of nearby safeguarded wharves and their existing access arrangements.

9.2 Existing Conditions

9.2.1 The site is located near to the following safeguarded wharves which are all located within the Charlton Riverside Opportunity Area and the locations are shown in Figure 9.1:

- Angerstein Wharf, Horn Lane - 7.36 hectare in use as an aggregates wharf. Access is provided onto Bugsby's Way and it also has a rail freight access and direct river access.
- Murphy's Wharf, Lombard Wall - 6.58 hectare in use as an aggregates wharf. Planning consent has been granted for a barge-loading facility associated with the outer (jetty) berth.
- Riverside Wharf, Herringham Road - 0.98 hectares in use as an aggregates wharf and includes an asphalt plant. It is accessed from Herringham Road / Westmoor Street and the Thames.

Figure 9.1 – Location of Safeguarded Wharves

9.3 Baseline Conditions

9.3.1 There are no known changes to the safeguarded wharves prior to the completion of the development and therefore the existing conditions are representative of the baseline.

10 SITE ACCESSIBILITY

10.1 Introduction

10.1.1 This section reviews the accessibility of the site to local amenities and employment facilities.

10.2 Access to Retail and Leisure Facilities

10.2.1 There are a number of retail and leisure facilities to the west of the site on Bugsby's Way. Greenwich Shopping Park and Peninsular Park provide a number of retail units and an Asda supermarket is also located in this area. Further west, Millennium Leisure Park contains an Odeon IMAX cinema, restaurants and other retail units. There are also local shops and amenities provided by Charlton Station to the south of the site.

10.2.2 The O_2 is easily accessible from the site using local bus routes or future river services. The O_2 is an entertainment destination and in addition to The O2 Arena, there is a range of other facilities including a cinema, bowling alley, restaurants and bars.

10.2.3 In terms of recreational space, the site is near to The Valley sports stadium (800m) and Maryon Park (950m).

10.2.4 Within the Charlton Riverside Opportunity Area, it is expected that a new mixed-use urban quarter created with a range of retail / leisure facilities. This is expected to serve the proposed development but there is also a range of existing facilities available in the local area. Improvements are also expected at Barrier Park.

10.3 Access to Employment

10.3.1 Employment generating areas are located close to the site including the adjacent industrial and retail uses such as the Sainbury's distribution centre, Anchor & Hope Business Park, Tarmac, Peninsula Park Westminster Industrial Estate. Additional employment opportunities are also available in Woolwich, Greenwich and Lewisham. All of these are within convenient cycling and public transport access to the site.

10.3.2 Other significant employment areas that are easily reached by public transport include the Canary Wharf Estate, Stratford, Woolwich and Central London. These

are easily accessed from the site using local bus routes and Charlton Rail Station along with further public transport interchange. It is important to note that the proposed development lies within an Opportunity Area which will be redeveloped and regenerated over time.

10.4 Access to Healthcare

10.4.1 The nearest GP surgeries are The Fairfield Centre located on Fairfield Grove (SE7 8TX, 1.4km) and Greenwich Peninsula Practice (SE10 0QN, 1.5km). The nearest dentist surgeries are The Dental Surgery, Cleverly Close (SE7 8DP, 1.3km) and Westcombe Park Dental Practice, Station Crescent (SE3 7EQ, 1.8km). The nearest hospital is Queen Elizabeth Hospital (Lewisham and Greenwich), approximately 2.8km from the site and accessible from the 486 bus route.

10.4.2 Additional healthcare facilities will be provided within the site and it is expected that further facilities would be provided within the Charlton Riverside Opportunity Area.

10.5 Access to Education

10.5.1 The nearest nursery to the site is Pound Park Nursery School (1.1km). The nearest primary schools are Fossdene Primary School (1km), Thorntree Primary School (1.3km), Windrush Primary School (1.3km) and Woodhill Primary School (1.9km). These primary schools also contain nurseries.

10.5.2 The nearest secondary schools are Royal Greenwich Trust School University Technical College (1.0km) and Charlton Park Academy (1.7km).

10.5.3 In respect of further education, many university and colleges are accessed easily by public transport, including University of Greenwich and University of East London as well as those across Central and Inner London.

10.5.4 It is currently proposed that the scheme would incorporate education space within the site for nursery provision.

11 PROPOSED DEVELOPMENT

11.1 Introduction

11.1.1 This chapter sets out the details of the proposed development, including access, car and cycle parking and servicing arrangements.

11.2 Proposed development

11.2.1 The development proposal comprises Plots A and B. Plot A is located to the east of Atlas Gardens (Northern Plot) and Plot B is located adjacent to the Anchor and Hope Lane roundabout with Bugsby's Way (Southern Plot).

11.2.2 The overall development will provide 975 residential units, 1,544m^2 (GEA) B1 office and 1,901m^2 (GEA) flexible A1 / A3 / D1 / D2 use with associated car and cycle parking.

11.2.3 The flexible uses has been broken down as follows for the purposes of the Transport Assessment:

- 662m^2 A1 retail
- 219m^2 A3 café / restaurant
- 125m^2 D1 dentist / clinic.
- 460m^2 D1 nursery.
- 435m^2 D2 ancillary health club.

11.3 Access for pedestrians and cyclists

11.3.1 The main pedestrian desire lines from the development to public transport services would be towards Charlton Station and bus stops on Anchor and Hope Lane, Bugsby's Way and Woolwich Road. Other key routes would be west towards the retail units off Bugsby's Way and to the north towards the Thames Path.

11.3.2 The development has been designed to be highly permeable in terms of access for pedestrians and cyclists. Routes are provided through the site, and where servicing activities may take place on some of these routes, shared surface design principles have been applied.

11.3.3 At the main vehicular entrance to the site from Anchor and Hope Lane, a raised table is proposed and a Zebra Crossing will also be provided at the northern end of Plot B. This facility will assist pedestrians accessing Plot A from the south.

11.3.4 As well as the main vehicular access from Anchor and Hope Lane, two additional pedestrian and cycle routes will be provided:

- Anchor and Hope Lane, to the north of the existing site access – This has been designed to also allow access for emergency vehicles.
- To the Thames Path to the north - This route would provide direct access to the Thames Path and riverside activities.

11.3.5 The existing pedestrian environment along Anchor and Hope Lane has been assessed, as agreed with TfL and this is set out in the analysis contained in Annex B. There are currently no designated crossing points provided by the Anchor and Hope Lane / Bugsby's Way roundabout which would allow access to the northbound bus stop on Anchor and Hope Lane, which is located on the western side to the south of Bugsby's Way, however it is noted that with the gaps in traffic, pedestrians informally cross with ease using the central island.

11.3.6 To improve pedestrian facilities, a Toucan crossing is proposed on Anchor and Hope Lane to the south of the Bugsby's Way roundabout. This takes into account the bus lane and the location of trees on both side of Anchor and Hope Lane. The design also improves access for cyclists and the existing bus lane can also be used as a cycle lane. The proposed layout is contained in Annex F.

11.3.7 It should be noted that further pedestrian / cycle improvements to this area are expected when the developments associated with the Charlton Riverside Opportunity Area come forward.

11.4 Public Realm

11.4.1 Extensive public realm spaces will be provided within the site, including communal amenity space and play space. The focus of these proposals is to improve the quality of connections across the site to the existing links and eventually connect with the wider masterplan. Private amenity space will also be provided for residents through balconies, roof terraces and private gardens.

11.5 Car Parking

11.5.1 Vehicular access to the site will be from Anchor and Hope Lane. Car parking will be provided at basement level in Plot A accessed by a ramp at a gradient of 1:10; and at below podium level in Plot B.

11.5.2 The proposed development will provide a total of 198 car parking spaces, including 59 accessible bays suitable for Blue Badge holders. A Car Park Management Plan will be implemented prior to occupation which will set out how car parking will be managed, maintained and controlled for residents, commercial occupiers and members of the public in order to minimise any potential impacts on the public highway. Priority will be given towards Blue Badge holding, car owning residents.

11.5.3 The commercial use will be allocated 2 Blue Badge holder bays, one on each plot, and no other general car parking provision.

11.5.4 The residential use will therefore have 196 car parking spaces which is equivalent to 0.2 space per unit. This low car parking provision reflects the accessibility of the site by walking, cycling and public transport and it meets the London Plan standards.

11.5.5 The level of Blue Badge parking represents 30% of the car parking spaces which exceeds the minimum of 10% of the parking provision required to be suitable for use as accessible bays as set out in the Borough's planning policy. Together with the car park management plan, it also complies with the Accessible London SPG and the London Plan.

11.5.6 As a minimum, 20% of all spaces will have electric vehicle charging points and a further 20% will have a passive provision as required by RBG and GLA.

11.6 Car Club

11.6.1 There are no Car Club vehicles currently proposed within the development. It is expected that there will be an overall Car Club strategy across the Charlton Riverside Opportunity Area. This would maximise the number of residents within walking distance of the vehicle and ensure the success and financial viability of the Car Club. The applicant will work with RBG as the Charlton Riverside Opportunity Area is developed to identify suitable locations and promote the use of Car Clubs when it is implemented.

11.7 Cycle Parking

11.7.1 Residential cycle parking will be provided which exceeds the London Plan standards. This is summarised in Table 11.1.

Table 11.1 – Proposed Residential Cycle Parking Provision

Residential unit	Minimum cycle parking standards	Proposed units	Minimum requirement cycle parking
Studio or 1 bedrooms	1 space	393	393
2 or more bedrooms	2 spaces	582	1,164
Visitor Spaces	1 per 40 apartments	975	25
Total to be provided	-	975	1,582

11.7.2 Residential cycle parking spaces will be provided at ground (below podium, Plot B) and basement (Plot A) levels in secure storage areas. Access to the Plot A basement cycle parking will be provided via the ramped access.

11.7.3 Separate cycle parking will be provided within the overall storage areas for the use of staff of the commercial space. This will be located within the lettable demise of each of these uses. Visitor cycle parking will be provided in the form of Sheffield stands at ground level in the public realm and will be able to provide for both commercial and residential visitors. In total, 50 cycle spaces are provided as a minimum in the public realm.

11.7.4 To assess the number of cycle parking spaces required, robust assumptions have made on staff numbers which are set out in Table 11.2. It has also been assumed that the one of the retail units will be occupied by A1 (food) use. Table 11.2 shows the parking provision for the non-residential uses which meet London Plan requirements.

Table 11.2 – Proposed Non-Residential Cycle Parking Provision

Land Use	Proposed floor area (m^2)	Estimated number of staff*	Long stay cycle parking	Short stay cycle parking
A1 (food)	248	5	1	6
A1 (non-food)	414	10	2	3
A2-A5	219	20	1	5
B1	1,544	140	17	3
D1 (dentist / clinic)	125	10	2	3
D1 (nursery)	460	22 + 76 children	12	1
D2 (health club)	435	16	2	4
Minimum number of cycle parking spaces to be provided			37	25

** Based on robust assumptions on employment densities and similar land uses.*

11.7.5 The long stay cycle parking spaces will be fitted within each of the commercial units depending on the occupation of the flexible units.

11.7.6 Long stay residential and commercial cycle parking will be a combination of double-stackers with a proportion of Sheffield stands to accommodate for larger models of cycles.

11.8 Servicing and Waste Collection Arrangements

11.8.1 All of the servicing and waste collection activities will take place within the site, away from the public highway.

11.8.2 All servicing vehicles will access the site using the private access road off Anchor and Hope Lane and turning areas are provided within the development so that vehicles can enter and exit the public highway in forward gear.

11.8.3 Dedicated refuse storages will be provided within each plot and concierge services will be provided to manage deliveries for residents and to manage waste collections as necessary.

11.8.4 Further details of servicing and waste collection, including servicing routes and zones, are set out in the Delivery and Servicing Plan (DSP) included in Annex G.

11.9 Framework Travel Plan

11.9.1 To encourage sustainable travel patterns, a Framework Travel Plan has been prepared for the proposed development which is included in Annex H. The

Framework Travel Plan has been prepared to reflect accessibility at the time when the development is complete.

12 EXISTING TRIP GENERATION

12.1 Introduction

12.1.1 This section summarises the existing trips generated by the site.

12.2 Existing Trip Generation

12.2.1 Currently, the site is occupied by a number of light industrial units, including a scaffolding hire company and a vehicle hire company.

12.2.2 Classified junction counts were undertaken on the site access road to determine the vehicular traffic generated by the existing site uses. Table 12.1 shows the survey results.

Table 12.1 – Existing Vehicular Trips

	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	**Out**	**Total**	**In**	**Out**	**Total**
All vehicles	28	16	44	12	27	39
HGVs	2	3	5	4	1	5

12.2.3 The above table shows the existing site generates 44 two-way vehicle trips during the AM peak hour and 39 trips during the PM peak hour. There were 5 HGV movements for both the AM and PM peak hours. These trips will be taken into account for a net impact assessment of the proposed development.

12.2.4 No trips by other modes were recorded at the existing site as part of the traffic survey. For a robust assessment, the trips by other modes will be assessed as new trips on the network.

13 PROPOSED TRIP GENERATION - RESIDENTIAL

13.1 Introduction

13.1.1 This section will assess the trip generation of the proposed residential development. The methodology for this has been agreed with TfL.

13.2 Residential person trip rates

13.2.1 The weekday peak hour trip rates for the residential apartments will be based on surveys of existing residential sites which are comparable with the proposed development in terms of the scale and location. Details of the sites are provided below:

- Canary Central, Lighterman's Road, E14 (April 2006) – 544 residential apartments (private and affordable);
- New Providence Wharf Building A, E14 (March 2006) – 559 residential apartments (private);
- Kempton Court, Whitechapel E1 (April 2006) – 80 residential apartments (private);
- City Walk, Shoreditch E2 (July 2006) – 110 residential apartments (private); and
- Bow Quarter, Bow E3 (July 2006) – 773 residential apartments and houses (private and affordable).

13.2.2 Data for the sites detailed above was obtained by an independent survey company. The survey results are available in the public domain and have been used to establish residential trip generation for many similar developments in the vicinity of the site.

13.2.3 The trips rates for peak times are shown in Table 13.1.

Table 13.1 – Proposed residential person trips

	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	**Out**	**Total**	**In**	**Out**	**Total**
Person trip rate (per unit)	0.046	0.504	0.55	0.311	0.113	0.423

13.2.4 The above trip rates have been accepted by TfL as appropriate for planning applications within East London for schemes consented within the past 6 months.

The pattern of movement of residents into and out of their dwellings is highly unlikely to have changed over time, regardless of the age of the surveys.

13.2.5 As a check, the TRICS database has also been consulted. However, it was found that many of the sites that have been surveyed in the last 5 to 6 years were not considered to be suitable or relevant for the assessment of the predicted trips. The most important considerations are the tenure of units; the mix of residential units as this will govern the occupancy; and the distance of travel (time) to central London as this significantly influences the time of trip movements in both the peak periods. In addition, only sites containing 100 units or more have been considered in order to provide a more meaningful comparison. The review of all the available sites within TRICS is provided in Table 13.2.

Table 13.2 – Comparison of person trip rates per dwelling

Site No.	Location	Survey Date	Comment
KN-03-C-02	South Kensington	15/06/10	All Private; All 2-bed or greater
KI-03-C-02	Kingston Upon Thames	14/06/10	All Private; All 2-bed or 1-bed; Distance from Central London (time).
HV-03-C-01	Romford	25/06/14	All Private; No defined mix; Distance from Central London (time).
BT-03-D-01	Dollis Hill, Brent	26/06/14	All Affordable; Distance from Central London (time).
IS-03-D-02	Islington	28/11/13	All Affordable; All 2 bedroom.
HD-03-M-03	Hayes	09/12/2014	All 2 to 4 bedroom no small units; Distance from Central London (time).
EG-03-M-01	Southall	17/07/14	All 1 and 2 bedroom; Distance from Central London (time).
GR-03-M-01	Greenwich	25/11/14	OK
HM-03-M-01	Fulham	21/05/14	OK

13.2.6 Based on the above appraisal of the TRICS Sites, only two sites would be broadly representative and the average trip rates for these two sites have been compared with the independent trip rates.

13.2.7 Additionally, transport documents of recent planning applications in the vicinity of the site have been reviewed to understand what trip rates have been deemed an acceptable basis for a trip assessment by RBG. The comparison of person trips per dwelling is shown in Table 13.3.

Table 13.3 – Comparison of residential persons trip rates

Survey Source	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	Out	Total	In	Out	Total
TRICS sites	0.106	0.372	0.478	0.240	0.160	0.400
Greenwich Peninsula	0.082	0.492	0.574	0.334	0.13	0.464
Greenwich Millennium Village	0.105	0.444	0.549	0.234	0.156	0.390
Proposed trip rates	0.046	0.504	**0.550**	0.311	0.113	**0.423**

13.2.8 As can be seen from the above table, the independent sites' two-way trip rates are either very similar or higher in both the AM and PM peak time periods when compared to the TRICS sites and these used to support the recent applications in the local area. The independent survey results are therefore considered appropriate.

13.2.9 The proposed residential trip generation, based on 975 units is provided in Table 13.4. The trip rates have been agreed with TfL.

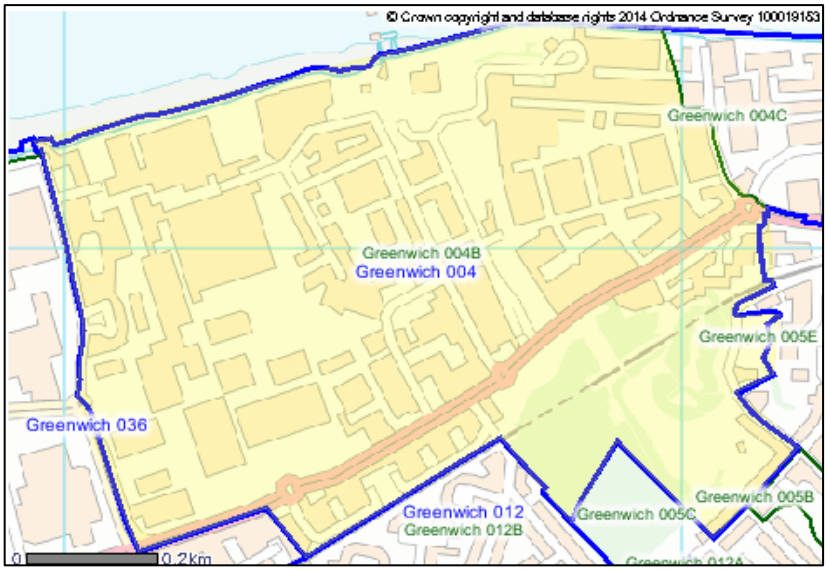
Table 13.4 – Proposed residential person trips

	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	Out	Total	In	Out	Total
Person trip rate per unit	0.046	0.504	0.550	0.311	0.113	0.423
Person trips (975 units)	45	491	536	303	110	412

13.3 Mode share

13.3.1 The residential person trips have been distributed across the transport modes in line with the 2011 Census data for the method of travel to work for residents. The site is located within Greenwich 004B Lower Layer Super Output Area (LSOA) which has been examined to establish the mode split of trips. The extent of the area is shown in Figure 13.1 and includes the existing dwellings at Atlas Gardens and Derrick Gardens adjacent to the site.

Figure 13.1 – Greenwich 004B LSOA



13.3.2 The census mode share data is shown in Table 13.5 and has been agreed with TfL. The analysis shows that over 60% of existing residents travel to work by public transport. The car driver mode share is 27.8%, however it should be noted that the existing car ownership level within the LSOA is 0.51 spaces per unit which is higher than the proposed provision of 0.22. Therefore, in reality the car mode share at the proposed development could be lower.

Table 13.5 – Proposed residential mode share

Mode	Census Mode share
Underground (LUL) / Light Rail (DLR)	19.5%
Rail	15.4%
Bus	25.5%
Taxi	0.2%
Motorcycle	0.6%
Car driver	27.8%
Car passenger	1.0%
Cycling	1.9%
Walking	7.5%
Other	0.6%
Total	100.0%

Source: 2011 Census data for Greenwich 004B LSOA

13.3.3 The above shows that 19.5% of residents currently to work by LUL / DLR. To take into account final modes of travel, further consideration has been undertaken on how passengers can access LUL and DLR services:

- London Underground services - interchange at North Greenwich Station for the Jubilee Line (via local buses or cycling) or at the London terminals (via rail).

- DLR services - interchange at Lewisham or Greenwich (via rail or cycling) or at Cutty Sark or Greenwich (via bus, but journey times are longer and therefore not considered).

13.3.4 Origin-destination data for residents travelling to work by LUL / DLR has been examined. This data is only available at borough level. For Greenwich, most residents who travel by LUL / DLR work in Westminster (29%) and Tower Hamlets (25%). Camden is the next highest with 8% and all other boroughs have less than 5%. The inner London boroughs give a total of 88% and the outer boroughs give 12%

13.3.5 For the purposes for this assessment, it is assumed that:

- Trips to Tower Hamlets will be split 50% bus to Jubilee line and 50% rail to interchange with DLR services.

- Trips to Westminster and the other inner boroughs are assumed to use bus to Jubilee Line.

- Trips to outer boroughs are assumed to be 70% rail to London terminals to interchange with LUL services, and 30% bus to Jubilee line.

- For a robust assessment of the proposed development on bus capacity, it is assumed that North Greenwich Station will be accessed by buses rather than cycling. However, cycling will be actively encouraged, is slightly quicker, and in practice there would be a lower demand for buses.

13.3.6 Therefore the 19.5% LUL / DLR trips have been further split into the following:

- Bus to Jubilee Line: 79.1% of 19.5% = <u>15.4%</u>

- Rail for DLR services (12.5% of 19.5% = 2.5%) and to London terminals for LUL (8.4% of 19.5% = 1.6%) = <u>4.1%</u>

13.4 Multi-Modal Trip Generation

13.4.1 Multi-modal trip generation have been undertaken total person trips and the mode share data. The calculations for the residential trip generation are included in Annex I and the trips are summarised in Table 13.6.

Table 13.6 – Proposed residential multi-modal trip generation

Mode	Mode Share	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
		In	Out	Total	In	Out	Total
LUL/DLR (via bus)	15.4%	7	76	83	47	17	64
LUL/DLR (via rail)	4.1%	2	20	22	12	4	16
Rail	15.4%	7	75	82	46	17	63
Bus	25.5%	12	125	137	77	28	105
Taxi	0.2%	0	1	1	1	0	1
Motorcycle	0.6%	0	3	3	2	1	3
Car driver	27.8%	13	137	150	84	31	115
Car passenger	1.0%	0	5	5	3	1	4
Cycling	1.9%	1	9	10	6	2	8
Walking	7.5%	3	37	40	23	8	31
Other	0.6%	0	3	3	2	1	3
Total	**100%**	**45**	**491**	**536**	**303**	**110**	**413**

13.4.2 The above table shows that the proposed residential development is expected to generate 536 and 413 two-way person trips in the AM and PM peak hours respectively.

13.5 Servicing trip generation

13.5.1 Service vehicle trip rates associated with the residential development will be established from a number of residential servicing surveys which have been previously conducted at the following sites:

- Kempton Court, Whitechapel E1 (April 2006) – 80 residential apartments (private);
- City Walk, Shoreditch E2 (July 2006) – 110 residential apartments (private); and
- Bow Quarter, Bow E3 (July 2006) – 773 residential apartments and houses (private and affordable).

13.5.2 The servicing trip rates and the resulting trips for 975 units in the AM and the PM peak periods are shown in Tables 13.7 and 13.8 respectively.

Table 13.7 – Proposed residential servicing trip rates (per unit)

	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	**Out**	**Total**	**In**	**Out**	**Total**
LGVs	0.002	0.002	0.004	0.000	0.000	0.000
HGVs	0.001	0.001	0.002	0.000	0.000	0.000
Total	0.003	0.003	0.006	0.000	0.000	0.000

Table 13.8 – Proposed residential servicing trips (975 units)

	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	**Out**	**Total**	**In**	**Out**	**Total**
LGVs	2	2	4	0	0	0
HGVs	1	1	2	0	0	0
Total	3	3	6	0	0	0

13.5.3 The above table shows that the residential element of the scheme could generate 6 servicing trips during the AM peak period of which 2 are expected to be by LGVs and there would be one HGV.

13.5.4 The residential servicing trip rates give a rate of 0.0343 trips per residential unit from 7am to 7pm. As a check, servicing movements have been obtained by Transport Planning Practice from Ballymore Asset Management Limited (BAML) for Baltimore Wharf, E14 for all the servicing movements surveyed on 4 December 2015 for the Phase 1 of the overall Baltimore Wharf development.

13.5.5 Phase 1 of Baltimore Wharf comprises a total of 691 private and affordable apartments along with ground floor commercial units. The data provides a full 24 hour set of servicing movements split by specific use. Therefore there is no mixture of non-residential servicing trips with the data.

13.5.6 This data provides a servicing trip rate for the same period, 7am to 7pm, of 0.0203 trips per residential unit. Therefore, the proposed servicing rates are considered a robust assessment of the servicing trips based on a similar type of development. This has been agreed with TfL.

14 PROPOSED TRIP GENERATION - NON-RESIDENTIAL

14.1 Introduction

14.1.1 This section will assess the trip generation of the proposed non-residential uses within the development.

14.2 Office (B1 use)

14.2.1 The proposed development will provide 1,544m^2 of office use. Given the car parking provision of only two bays suitable for disabled drivers across all the non-residential uses, this element of the scheme is not expected to attract any vehicle trips except for deliveries.

14.2.2 Trip generation has been undertaken for the office use based on first principles. As set out in Table 11.2, the office is estimated to have 140 staff (at 1 per 10m^2 NIA). The mode of travel for staff is expected to be similar to existing staff in the area. Therefore the method of travel to work by the workday population from the 2011 Census has been examined for the local area. This information is currently only available for super output areas so the area of Greenwich 004 has been used. The mode shares have then been redistributed to reflect zero general car parking provision for the commercial use. The proposed staff mode share is shown in Table 14.1.

Table 14.1 – Proposed commercial mode share

Mode	Mode share	Redistributed mode share
LUL/DLR	6.9%	14.4%
Rail	8.6%	18.1%
Bus	20.4%	42.7%
Taxi	0.2%	0.4%
Motorcycle	1.2%	2.6%
Car driver	49.1%	0.0%
Car passenger	3.2%	0.0%
Cycling	1.9%	4.0%
Walking	8.1%	16.9%
Other	0.4%	0.9%
Total	**100%**	**100.0%**

14.2.3 A similar assessment to the residential LUL / DLR distribution has been undertaken. Origin-destination data has been examined for existing staff in Greenwich travelling from across London. This shows that trips are more evenly split across boroughs, with highest 14% from Newham, 10% from Greenwich

and 8% from Lewisham. The total for inner London is 49% and outer London is 51%.

14.2.4 It should be noted that the data is for the whole of Greenwich where LUL / DLR services are available and therefore adjustments have been made to reflect the accessibility of Charlton. The following assumptions are made.

- Greenwich and Lewisham LUL/DLR trips are assumed to be rail trips to Charlton.
- Trips from other inner London boroughs will use bus to access the site from the Jubilee Line.
- Trips from outer London boroughs are assumed to be 70% LUL then rail from London terminals, and 30% bus from Jubilee line.

14.2.5 Therefore the 14.4% LUL / DLR trips have been further split into the following:

- Bus to Jubilee Line: 47.3% of 14.4% = 6.8%
- Rail for Greenwich and Lewisham (17% of 14.4% = 2.5%), and from LUL / London terminals (35.7% of 14.4% = 5.1%) = 7.6%

14.2.6 It is assumed that 85% of staff would be present on a typical weekday to take account of illness, meeting, annual leave etc. Data from the Canary Wharf Employee Travel Survey (2007) have then been used to estimate the proportion of staff arrival and departure trips which would take place in the AM and PM peak hours. This information is shown in Table 14.2 and the resulting staff trips are shown in Table 14.3.

Table 14.2 – Proposed office arrival and departure profile

	AM Peak		**PM Peak**	
	In	**Out**	**In**	**Out**
Employees	46.8%	10.0%	18.0%	35.3%

Table 14.3 – Proposed office multi-modal trip generation

Mode	Mode Share	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
		In	Out	Total	In	Out	Total
LUL/DLR (via bus)	6.8%	4	1	5	1	3	4
LUL/DLR (via rail)	7.6%	4	1	5	2	3	5
Rail	18.1%	10	2	12	4	8	12
Bus	42.7%	24	5	29	9	18	27
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	2	0	2	0	1	1
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Cycling	4.0%	2	1	3	1	2	3
Walking	16.9%	9	2	11	4	7	11
Other	0.9%	1	0	1	0	0	0
Total	**100%**	**56**	**12**	**68**	**21**	**42**	**63**

14.2.7 The above shows that the proposed retail and office uses are expected to generate 68 and 63 two-way staff trips in the AM and PM peak hours respectively.

14.2.8 The above methodology was discussed with TfL. As requested, a comparison with TRICS data has been undertaken to ensure that the proposed trip generation is robust. Three Greater London sites in Battersea (1,215m^2), Monument (1,951m^2) and Rotherhithe (2,371m^2) were found which were considered to be comparable in size and use. Person trip rates have been examined against the proposed trips in Table 14.3 and the results are shown below.

Table 14.4 – Comparison of office person trips (TRICS)

	AM peak (0800 – 0900)			PM peak (1700 – 1800)		
	In	Out	Total	In	Out	Total
TRICS - Trip rates per 100m^2	2.727	0.108	2.835	0.470	2.691	3.161
TRICS – applied to 1,544m^2	42	2	44	7	42	49
Proposed office trips	56	12	68	21	42	63
Net difference	+14	+10	+24	+14	0	+14

14.2.9 The comparison shows that the office trip generation based on first principles generate more trips than using TRICS and is therefore considered to be robust.

14.3 Flexible use (A1, A3, D1 and D2)

14.3.1 The remaining 1,901m^2 (GEA) non-residential space will have flexible use (A1, A3, D1 and D2). The trips for this have been assessed based on the most likely occupation of this space, using the floor areas set out in Chapter 11.

Retail and restaurant

14.3.2 The proposal is likely to have 662m^2 of A1 retail space and 219m^2 of A3 café / restaurant space. The scale of these units is not expected to become a destination in its own right and would serve the proposed development and future developments within the Charlton Riverside Opportunity Area.

14.3.3 Therefore these uses are only likely to attract staff trips from the wider area and these trips have been assessed. As set out in Table 11.2, the retail use is assumed to have 35 staff. Trips have been derived from first principles. It has been assumed that all staff will arrive and depart during the AM and PM peak hours, whereas in practice these units are likely to operate shift working. The staff trips have been distributed across the different transport modes using the mode share set out in the Table 14.1.

Table 14.5 – Proposed retail and restaurant multi-modal trip generation

Mode	Mode Share	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
		In	Out	Total	In	Out	Total
LUL/DLR (via bus)	6.8%	1	0	1	0	1	1
LUL/DLR (via rail)	7.6%	1	0	1	1	1	2
Rail	18.1%	3	1	4	1	2	3
Bus	42.7%	6	1	7	2	5	7
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	0	0	0	0	0	0
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Cycling	4.0%	1	0	1	0	0	0
Walking	16.9%	2	1	3	1	2	3
Other	0.9%	0	0	0	0	0	0
Total	**100%**	**14**	**3**	**17**	**5**	**11**	**16**

14.3.4 The above shows that the retail and restaurant uses could generate 17 and 16 two-way trips in the AM and PM peak hours respectively.

Dentist

14.3.5 As set out in Chapter 10, the nearest healthcare facilities are over 1km away. The proposed dentist surgery is expected to serve the residents at the proposed development and in the immediate area which are within easy walking distance. In addition, there will also be no designated car parking for the dentist surgery and therefore no car driver trips are expected.

14.3.6 The proposal is expected to generate staff trips and the wider transport network. For the purposes of the trip generation assessment, it is assumed that the dentist would have around 10 staff and that they would all arrive and depart during the AM and PM peak hours as a worse case. These trips have been distributed as per the mode share set out in Table 14.1 and the results are shown below.

Table 14.6 – Proposed dentist surgery multi-modal trip generation

Mode	Mode Share	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
		In	Out	Total	In	Out	Total
LUL/DLR (via bus)	6.8%	1	0	1	0	1	1
LUL/DLR (via rail)	7.6%	1	0	1	0	1	1
Rail	18.1%	2	0	2	0	2	2
Bus	42.7%	4	0	4	0	4	4
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	0	0	0	0	0	0
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Cycling	4.0%	0	0	0	0	0	0
Walking	16.9%	2	0	2	0	2	2
Other	0.9%	0	0	0	0	0	0
Total	100.0%	10	0	10	0	10	9

Nursery

14.3.7 Based on the proposed floor area of 460m^2, for the purposes of the trip generation assessment, based on similar sites the proposed nursery is expected to have around 22 staff and 76 children.

14.3.8 It would be reasonable to assume that most of the capacity would be taken up by the increase in resident population as the result of the proposed 975 residential units as well as the emerging developments within the Charlton

Riverside Opportunity Area. This is especially as the nearest nursery is over 1km away from the site.

14.3.9 Therefore the catchment area is expected to be within easy walking distance to the nursery with some parents expected to be dropping up children on the way to and from work. There is also no car parking or drop-off / pick-up facility provided and therefore no car trips are expected.

14.3.10 On this basis, it is assumed that all children and escorts will walk to the nursery. For a robust assessment, it is assumed that there will be one escort per child. It is assumed that all arrival and departure trips will take place during the AM and PM peak hours. In practice, nurseries tend to have staggered start and finish times for different sessions to enable working parents flexibility in times.

Table 14.7 – Proposed nursery multi-modal trip generation – children and escorts

Mode	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	Out	Total	In	Out	Total
Walking	144	72	216	72	144	216

14.3.11 Staff trips have also been distributed across the difference transport modes based on the mode share set out in Table 14.1. The resulting multi-modal trip generation for staff is shown in Table 14.8.

Table 14.8 – Proposed nursery multi-modal trip generation - staff

Mode	Mode Share	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
		In	Out	Total	In	Out	Total
LUL/DLR (via bus)	6.8%	1	0	1	0	1	1
LUL/DLR (via rail)	7.6%	2	0	2	0	2	2
Rail	18.1%	4	0	4	0	4	4
Bus	42.7%	9	0	9	0	9	9
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	1	0	1	0	1	1
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Cycling	4.0%	1	0	1	0	1	1
Walking	16.9%	4	0	4	0	4	4
Other	0.9%	0	0	0	0	0	0
Total	**100%**	22	0	22	0	22	22

Health Club

14.3.12 The health club is currently expected to be for the exclusive use of local residents and therefore would not generate visitor trips from the wider area. Staff at the gym would also be arranged in shift work, arriving and leaving outside of the peak hours. Therefore this use has been excluded in the trip generation assessment.

14.4 Total non-residential multi-modal trip generation

14.4.1 The calculations for the non-residential trip generation are included in Annex J and the table below provides a summary.

Table 14.9 – Total non-residential multi-modal trip generation

Mode	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	Out	Total	In	Out	Total
LUL/DLR (via bus)	7	1	8	1	6	7
LUL/DLR (via rail)	8	1	9	2	7	9
Rail	19	3	21	5	16	21
Bus	43	6	49	11	36	47
Taxi	0	0	0	0	0	0
Motorcycle	3	0	3	0	2	2
Car driver	0	0	0	0	0	0
Car passenger	0	0	0	0	0	0
Cycling	4	1	5	1	3	5
Walking	161	75	236	77	159	236
Other	1	0	1	0	0	0
Total	**246**	**87**	**333**	**98**	**229**	**327**

14.4.2 Based on the assessment undertaken, it is expected that the non-residential use will generate 333 and 327 two-way person trips in the AM and PM peak hours respectively.

14.5 Servicing trip generation

14.5.1 The number of daily delivery and servicing vehicle trips and their arrival profile for the proposed commercial uses within the scheme has been derived using detailed delivery and servicing vehicle surveys.

14.5.2 For the office servicing vehicle trips, the rates used have been based on the CR Eastman paper 'Servicing at Central London Offices' and applied to the proposed office floorspace.

14.5.3 The retail servicing vehicle trips are based on surveys of mixed retail units undertaken at Broadgate near Liverpool Street station, London and applied to the proposed retail floor space. This split of commercial floorspace has been assumed for the purposes of assessing the trip generation as the application is for a fully flexible split. The total number of commercial servicing trips are summarised in Table 14.11.

Table 14.10 – Proposed office and retail servicing trip rates (per 100m^2)

	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	**Out**	**Total**	**In**	**Out**	**Total**
Offices						
LGVs	0.018	0.018	0.035	0.008	0.008	0.015
HGVs	0.007	0.007	0.014	0.002	0.002	0.003
Total	0.088	0.088	0.176	0.020	0.020	0.040
Retail						
LGVs	0.081	0.081	0.162	0.018	0.018	0.037
HGVs	0.007	0.007	0.014	0.002	0.002	0.003
Total	0.088	0.088	0.176	0.020	0.020	0.040

Table 14.11 - Proposed office and retail servicing trips

	AM peak (0800 – 0900)		PM peak (1800 – 1900)			
	In	**Out**	**In**	**Out**	**In**	**Out**
Offices						
LGVs	0	1	1	0	0	0
HGVs	0	0	0	0	0	0
Retail						
LGVs	1	1	2	0	0	0
HGVs	0	0	0	0	0	0
Total	**1**	**2**	**3**	**0**	**0**	**0**

14.5.4 The above shows that 3 servicing trips could be expected the AM peak hour and none in the PM peak.

14.5.5 For the dentist surgery, nursery and health club, it would be expected that each use could generate up to one delivery a day. These are likely to take place throughout the day and have a negligible impact on the peak hours.

15 PROPOSED TRIP GENERATION - TOTAL

15.1 Introduction

15.1.1 This section provides a summary of the total trip generation based on the information set out in Chapters 13 and 14.

15.2 Total trip generation

15.2.1 The total multi-modal trips generated by the residential and non-residential uses are set out below.

Table 15.1 – Total multi-modal trip generation

Mode	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	Out	Total	In	Out	Total
LUL/DLR (via bus)	14	77	91	48	23	71
LUL/DLR (via rail)	10	21	31	14	11	25
Rail	26	78	103	51	33	84
Bus	55	131	186	88	64	152
Taxi	0	1	1	1	0	1
Motorcycle	3	3	6	2	3	5
Car driver	13	137	150	84	31	115
Car passenger	0	5	5	3	1	4
Cycling	5	10	15	7	5	13
Walking	164	112	276	100	167	267
Other	1	3	4	2	1	3
Total	**291**	**578**	**869**	**401**	**339**	**740**

15.2.2 In addition to the above, the following servicing trips will also be generated.

Table 15.2- Summary of Servicing Trips

Mode	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
LGVs	3	4	7	0	0	0
HGVs	1	1	2	0	0	0
Total vehicle trips	**4**	**5**	**9**	**0**	**0**	**0**

15.2.3 The above table shows that the proposed development is expected to generate 869 and 740 two-way person trips in the AM and PM peak hours respectively. In terms of vehicular movements, it is expected that there will be 150 car driver movements and 9 servicing movements in the AM peak, and 115 car driver movements and no servicing in the PM peak. These trips are assessed for all modes of transport in the following Chapters 17 to 22.

16 CUMULATIVE ASSESSMENT SCHEMES

16.1 Introduction

16.1.1 This chapter sets out the developments which have been taken into account to assess the cumulative impact on the local transport network. It also sets out the methodology in assessing the cumulative impact in this report.

16.2 Cumulative Development Schemes

16.2.1 The cumulative assessment considers all relevant development proposals in the vicinity of the site with planning permission but not yet built. The cumulative developments which have been agreed with RBG as part of the Environmental Statement scoping exercise are as follows:

- Greenwich Millennium Village (Phases 3, 4 and 5), Peartree Way, Greenwich (Ref: 12/0022/O);
- Parcel 2, sub-phase 1, Greenwich Millennium Village Phases 3, 4 and 5 (Ref: 13/3281/R);
- Morris Walk Estate (North), north of Pett Street SE18 (Ref: 14/0127/O);
- Morris Walk Estate, south of Maryon Road SE7 (Ref: 14/0126/O);
- Sainsbury's and former comet stores, 55 and 57 Bugsby's Way, Greenwich SE10 (Ref: 13/3285/O);
- Sainsburys, 50 Lombard Wall, Anchor and Hope Lane, Charlton (Ref: 11/1261/F);
- Land north of Woolwich Road and west of Gallions Road (Ref: 12/0835/F);
- Land r/o 40 Victoria Way, Charlton, SE7 (Ref: 12/0029/F);
- Brocklebank Industrial Estate (Ref: 13/2086/F);
- 1 Ferranti Close, Westfield Street, Woolwich (Ref: 12/1024/F);
- Valley House, 445 Woolwich Road, Charlton, SE7 (Ref: 16/0132/F);

- Former Matalan Site, 30 Bugsby's Way, Charlton, SE7 (Ref: 13/2016/F);
- Land to north of Woolwich Road (Ref: 11/0868/F);
- Land to north of Woolwich Road (Ref: 14/2550/F); and
- Maryon Road and Grove Estate (Ref: 14/0117/O).

16.2.2 The impacts of the cumulative development schemes on the surrounding transport network have been taken from the submitted Transport Assessments, where appropriate, with them being taken into account in the cumulative assessments, against which the proposed development's impact will be assessed.

16.3 Cumulative assessment methodology

Pedestrian and cycle

16.3.1 The cumulative effect assessment on local pedestrian and cycle routes has been based on analysing the provision of mitigation measures provided by the cumulative developments and the appraising the existing pedestrian and cycle network to determine the overall effect.

Bus

16.3.2 The cumulative effect assessment on the bus network has been based on analysing the provision of mitigation measures provided by the cumulative developments and appraising the existing bus and DLR network to determine the overall effect.

Rail

16.3.3 The existing and future line loadings on Southeastern trains are not available due to the data being commercially sensitive. However, each scheme will have contributed towards Crossrail through the S106 development contributions under the Mayoral Community Infrastructure Levy (CIL) policy. This will significantly increase rail capacity and mitigate the cumulative impact.

Highway

16.3.4 Where traffic flows from the cumulative schemes are expected to have an effect on the local highway network surrounding the site, they have been incorporated into the cumulative traffic assessment.

Construction traffic

16.3.5 Given that there is an uncertainty over when the various cumulative schemes would come forward in the area, the methods of construction that would be employed; the management measures that would be adopted at each site; or the periods of peak construction, it is difficult to accurately predict cumulative assessment of construction activities, particularly where the intensive operations are of short duration. Therefore, the cumulative assessment has been based on professional judgement.

17 IMPACT ASSESSMENT – WALKING AND CYCLING

17.1 Introduction

17.1.1 This chapter sets out the number of walking and cycling trips generated by the development, their expected impact and if there is any additional mitigation required for these trips.

17.2 Walking and Cycling Trips

17.2.1 In the morning peak hour, the proposed development is expected to generate 276 walking trips and 15 cycling trips. In the evening peak hour, the proposed development is expected to generate 267 walking trips and 13 cycling trips.

17.2.2 In addition to the above dedicated walking and cycling trips, there will also be trips associated with accessing public transport services. For a robust assessment of public transport services, it is assumed that passengers will use bus services to North Greenwich Station but in practice, cycling to North Greenwich Station for the Jubilee line will also be actively promoted. On this basis, the proposed development is expected to generate 134 trips via Charlton Station and 277 bus trips in the AM peak. In the PM peak there are 109 LUL, DLR and rail trips and 223 bus trips.

17.2.3 These public transport trips are expected to arrive and depart the site from Anchor and Hope Lane. Therefore the total two-way walking trips to and from the development are 687 and 599 in the AM and PM peak hours respectively.

17.3 Impact of Walking and Cycling Trips

17.3.1 The walking and cycling trips are expected to dissipate across the existing network. The main pedestrian desire lines are anticipated to be towards Charlton Station and bus stops located along Anchor and Hope Lane, Bugsby's Way and Woolwich Road.

17.3.2 There are existing footways and cycleways provided within the vicinity of the site. Further enhancements will be implemented as part of the scheme, including the provision of a Toucan crossing on Anchor and Hope Lane and dedicated walking / cycling routes to the Thames Path. The existing and proposed infrastructure is therefore considered sufficient to meet the additional pedestrian and cyclists demand and bring benefits to the local area.

17.4 Mitigation of Walking and Cycling trips

17.4.1 Given the level of trips expected and the proposed enhancements to the walking and cycling environment, no further mitigation is considered to be necessary.

17.5 Cumulative Assessment

17.5.1 Walking and cycling trips generated by the cumulative assessment schemes set out in Chapter 16 are not all focused on an isolated route and will be widely dissipated across the existing and proposed pedestrian network due to the greatly increased level of permeability within the area which the proposed development integrates with.

18 IMPACT ASSESSMENT - BUS

18.1 Introduction

18.1.1 This chapter sets out the number of bus trips generated by the development and the expected impact and assesses any suitable mitigation of these trips.

18.2 Bus Trips

18.2.1 The proposed development is expected to generate 186 and 151 dedicated bus trips in the AM and PM peak hours respectively. There will also be additional bus trips associated with accessing Jubilee line services from North Greenwich. These are summarised in Table 18.1 below.

Table 18.1 - Summary of Proposed Bus Trips

3hr Peak Period	AM (0700-1000)			PM (1600-1900)		
	In	Out	Total	In	Out	Total
LUL/DLR (via bus)	32	149	181	87	49	136
Bus	105	251	356	154	132	286
Total	**137**	**400**	**537**	**241**	**181**	**422**
Peak hour	**AM Peak (0800-0900)**			**PM Peak (1700-1800)**		
	In	**Out**	**Total**	**In**	**Out**	**Total**
LUL/DLR (via bus)	14	77	91	48	23	71
Bus	55	131	186	88	64	152
Total	**69**	**208**	**277**	**136**	**87**	**223**

18.2.2 The above shows that a total of 277 and 223 bus trips will be generated in the AM and PM peak hours respectively.

18.3 Impact of Bus Trips

18.3.1 As set out in Chapter 5, the site is currently served by five bus routes with a total peak frequency of 34 buses per hour in each direction. Based on an average bus operational capacity of 63 persons, this provides a bus capacity of 2,142 per hour. Therefore based on the proposed development bus trips set out in Table 16.1, the impact of on the bus network has been calculated in Table 18.2. This assumes a worse case with all additional passengers travelling in one direction.

Table 18.2 - Bus Network Impact Assessment

Time and direction		Bus trips	Bus network capacity (hr)	% of bus network capacity
AM Peak	In	69	2,142	3.2%
	Out	208	2,142	9.7%
PM Peak	In	136	2,142	6.3%
	Out	87	2,142	4.1%

18.3.2 Table 15.2 shows that the largest impact on the current bus network would be 9.7% which would occur in the weekday AM peak hour due to outbound trips. This impact is not expected to be noticeable and the trips generated equate to 6 additional passengers per bus during the peak hours. This could be adequately accommodated on the existing bus network.

18.3.3 A separate Bus Analysis report has been undertaken for the development, looking at the expected levels and distribution of bus trips generated throughout the day, in accordance with TfL London Buses requirements. Annex K contains the Bus Analysis report. This report will enable TfL to assess the daily profile of impact for the proposed development against their patronage data.

18.4 Mitigation of Bus Trips

18.4.1 The level of bus trips is not expected to have a significantly adverse impact on the bus network. However, TfL will be expected to require contributions towards improving bus services / frequencies as part of the proposed development to accommodate the additional patronage predicted. This will be secured through a financial contribution to bus services. As this would increase service frequencies or the number of services provided it would also benefit the wider public within the area and consequently increase the public transport accessibility of the site.

18.5 Cumulative Assessment

18.5.1 In consideration of cumulative developments, each of the other cumulative schemes will be expected to have provided appropriate funding towards bus service and frequency enhancements to mitigate their own impacts.

19 IMPACT ASSESSMENT – NATIONAL RAIL

19.1 Introduction

19.1.1 This chapter sets out the number of trips generated by the development and the expected impact and assesses if there are any likely suitable mitigation required for these trips.

19.2 Rail Trips

19.2.1 The proposed development is expected to generate 103 and 84 primarily rail trips in the AM and PM peak hours respectively. There will be additional linked rail trips associated for access to LUL/DLR services at North Greenwich, Greenwich and Lewisham. These are summarised in Table 19.1 below.

Table 19.1- Summary of Proposed Rail trips

3hr Peak Period	AM (0700-1000)			PM (1600-1900)		
	In	Out		In	Out	
LUL/DLR (via rail)	19	40	59	26	23	49
Train	52	150	202	91	68	159
Total	**71**	**190**	**261**	**93**	**91**	**208**
Peak hour	**AM Peak (0800-0900)**			**PM Peak (1700-1800)**		
	In	**Out**	**Total**	**In**	**Out**	**Total**
LUL/DLR (via rail)	10	21	31	14	11	25
Train	25	78	103	51	33	84
Total	**35**	**89**	**134**	**65**	**44**	**109**

19.2.2 The above shows that a total of 134 and 109 trips will be made on rail services from Charlton Station in the AM and PM peak respectively, including both rail as a main mode and secondary mode.

19.3 Impact of Rail Trips

19.3.1 TfL has confirmed that they do not hold information on rail station usage so numbers generated by the site is sufficient in assessing the impact. However, an estimate of the effect of the development on rail network capacity has been undertaken.

19.3.2 Southeastern was unable to confirm the capacity of the trains which serve Charlton Station during the peak hours, but it is understood that Southeastern Metro trains on the inter-city London routes use Class 465 and 466 Networkers and Class 376 Electrostars.

19.3.3 The typical number of seats in a Class 376 Electrostar is 334 (5-car unit) and in a Class 465/466 Networkers is 348 seats (4-car unit).

19.3.4 It is assumed that during peak times, Charlton Station is served by 8-car units with a total of 696 seats. DfT's methodology in calculating crowding allows a typical standing capacity of 35% of the number of seats for commuter rolling stock. This provides an operational capacity for each train of 940 passengers.

19.3.5 There are currently 8 trains per hour in each direction serving Charlton Station. This equates to an operational capacity of 7,520 passengers in each direction. Therefore based on the proposed development rail trips set out in Table 19.1, the impact of on the rail network has been calculated in Table 19.2. This assumes a worse case with all additional passengers travelling in one direction.

Table 19.2 - Rail Network Impact Assessment

Time and direction		Rail trips	Rail network capacity (hr)	% of rail network capacity
AM Peak	In	35	7,520	0.5%
	Out	89	7,520	1.2%
PM Peak	In	65	7,520	0.9%
	Out	44	7,520	0.6%

19.3.6 The above shows that the largest impact on the current rail network is expected to be 1.2% which would occur in the weekday AM peak hour with 89 outbound trips. This is equivalent to an average of 11 passengers per train in one direction. This impact is not expected to be significant and could be accommodated by the current rail network.

19.3.7 It should be noted that the above assessment does not take into account the impact of Crossrail, which is expected to reduce the demand on rail trips through Charlton Station into London as Crossrail services from Woolwich would provide faster journeys and would substantially increase rail capacity within this corridor.

19.4 Mitigation of Rail Trips

19.4.1 The above assessment shows the proposed development is not expected to have a significant impact on the existing rail capacity and Crossrail services in the future is expected to improve conditions. Therefore no site specific mitigation is required.

19.5 Cumulative Assessment

19.5.1 Future line loadings on Southeastern services are not available due to the information being commercially sensitive, as a result of the way in which the rail services are franchised. However, the cumulative impact of the proposed development in the context of other committed developments will be fully mitigated by the completion of Crossrail. Funding for a significant proportion of the cost of Crossrail is collected through S106 development contributions under the Mayoral Community Infrastructure Level (CIL) policy. Crossrail will significantly increase rail capacity through this south eastern rail corridor with 12 trains per hour equating to an increase in capacity of 18,000 passengers per hour per direction. Thus cumulative impact would be fully mitigated through Crossrail.

20 IMPACT ASSESSMENT – HIGHWAY NETWORK

20.1 Introduction

20.1.1 This chapter sets out the number of highway trips generated by the development and the expected impact and if there is a need for mitigation of these trips.

20.2 Vehicle Trips

20.2.1 The proposed development is expected to generate 159 and 115 vehicle trips in the AM and PM peak hours respectively. The vehicle trips from the existing have then been taken into account and this is summarised in Table 20.1 below.

Table 20.1– Summary of Net Change in Vehicular Trips

	AM peak (0800 – 0900)			PM peak (1800 – 1900)		
	In	**Out**	**Total**	**In**	**Out**	**Total**
Existing vehicle trips	28	16	44	12	27	39
Proposed car drivers	13	137	150	84	31	115
Proposed LGVs	3	4	7	0	0	0
Proposed HGVs	1	1	2	0	0	0
Total proposed	17	142	159	84	31	115
Net change	**-11**	**+126**	**+115**	**+72**	**+4**	**+76**

20.2.2 When taking into account the trips generated by the existing site, the proposed development will result in a net increase of 115 and 76 two-way vehicular trips in the AM and PM peak hours respectively.

20.2.3 To assess the impact of the above vehicle trips on the local highway network, the following traffic flow scenarios have been assessed:

- Baseline 2015 (existing 2016)
- Baseline 2015 + Proposed Development (without existing site traffic);
- Cumulative Baseline 2023 (Baseline 2016 + Cumulative Schemes); and
- Cumulative Baseline 2023 + Proposed Development.

20.2.4 Traffic flow diagrams for the above scenarios for the AM and PM peak hours are included in Annex L.

20.3 Impact of Vehicle Trips on Baseline Flows

20.3.1 The proposed development generated vehicle trips have been added to the baseline vehicle flows and the traffic associated with the existing site use has been removed.

20.3.2 The proposed vehicle trips have been distributed across the highway network based on existing turning movements from the traffic surveys. This takes into account turning restrictions at the local junctions.

20.3.3 The impacts of the development on the key links are shown in Table 20.2.

Table 20.2– Baseline Peak Hour Traffic Flow Assessment

Link	Baseline flows		Baseline + Proposed Development		Percentage Difference	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Anchor & Hope Lane North of Bugsby's Way	251	249	371	327	48%	31%
Anchor & Hope Lane North of Site Access	192	135	185	134	-4%	-1%
Anchor & Hope Lane South of Bugsby's Way	1,286	1,569	1,339	1,615	4%	3%
Bugsby's Way West of Gallions Road	1,327	1,700	1,396	1,728	5%	2%
Bugsby's Way East of Gallions Road	1,362	1,995	1,431	2,027	5%	2%
Charlton Church Lane North of Delafield Way	404	450	412	462	2%	3%
A206 East of Anchor & Hope Lane	2,137	2,587	2,200	2,617	3%	1%
A206 West of Anchor & Hope Lane	1,201	1,234	1,202	1,238	0%	0%
Site Access (Private Road)	107	120	220	197	106%	64%
Gallions Road	202	390	201	394	-1%	1%

20.3.4 The above table shows that the largest increase in traffic flows during the peak hours take place at the site access (+106%) and Anchor and Hope Lane to the south, between Bugsby's Way and the site access (+48%).

20.3.5 The site access currently has very low traffic flows and the proposed development will broadly double the existing traffic in the morning peak hour. Whilst this would be considered to be significant, this level of additional traffic is considered to be well within the environmental capacity of the road of 300 to

600 vehicles / hour for a residential road[1] as the traffic flows remain below this level. The site access junction has also been designed to accommodate this level of traffic.

20.3.6 Anchor and Hope Lane to the south of the site access has two lanes on the approach to the roundabout. The proposed trips are not expected to have a significant impact on the environmental capacity of the road and the flows will remain within the 300 to 600 vehicles per hour threshold for a residential road.

20.3.7 On the wider network, the highest increase is 5% on Bugsby's Way in the AM peak. This level of increase is not expected to have a significant impact on the highway network. Both Anchor and Hope Lane north of the site access and Gallions Road is expected to have a reduction in traffic. There are residential frontages on Anchor and Hope Lane to the north of the site and the reduction in traffic is expected to improve conditions.

20.3.8 The following table shows the impact of the proposed development on 24-hour traffic for all vehicles and for HGVs.

Table 20.3– Baseline 24-Hour Traffic Flow Assessment

Link	Baseline flows		Baseline + Proposed Development		Percentage Difference	
	All vehs	HGVs	All vehs	HGVs	All vehs	HGVs
Anchor & Hope Lane North of Bugsby's Way	3,293	481	4,073	421	24%	-12%
Anchor & Hope Lane North of Site Access	2,019	336	1,983	330	-2%	-2%
Anchor & Hope Lane South of Bugsby's Way	20,809	2,840	21,193	2,807	2%	-1%
Bugsby's Way West of Gallions Road	23,832	3,735	24,215	3,710	2%	-1%
Bugsby's Way East of Gallions Road	21,854	3,679	22,261	3,654	2%	-1%
Charlton Church Lane North of Delafield Way	6,581	553	6,658	546	1%	-1%
A206 East of Anchor & Hope Lane	39,527	6,017	39,901	5,989	1%	0%
A206 West of Anchor & Hope Lane	23,558	3,542	23,571	3,541	0%	0%
Site Access (Private Road)	1,385	148	2,129	83	54%	-44%
Gallions Road	5,172	17	5,186	16	0%	-8%

[1] Buchanan C et al (1963) - The Buchanan Report 'Traffic in Towns'

20.3.9 The above table shows that the proposed development traffic impact is limited to the private site access road and the short section of Anchor and hope Lane between the site and Bugsby's Way. Elsewhere across the highway network the proposed development would have a negligible impact on the highway network over 24-hours and there would be a reduction in HGV traffic.

20.3.10 Junction capacity modelling has been undertaken for the following junctions:

- Bugsby's Way / Gallions Road signalised junction
- Gallions Road / Woolwich Road priority junction
- Anchor and Hope Lane / Access Road priority junction
- Anchor and Hope Lane North / Bugsby's Way roundabout
- Woolwich Road / Anchor and Hope Lane / Charlton Church Lane signalised junction
- Woolwich Road / Retail Park Access Road / Gallon Close roundabout junction

20.3.11 The methodology and results are set out in the Junctions Modelling Analysis Report included in Annex M. The modelling results show that the proposed development can be accommodated on the surrounding road network and would not significantly impact the overall operation of the junctions assessed and the highway network will continue to operate within capacity.

20.4 Impact of Vehicle Trips on Cumulative Flows

20.4.1 For the cumulative assessment, the trips generated by the cumulative schemes set out in Chapter 13 have been added to the baseline traffic flows to provide a cumulative baseline scenario. The cumulative trips and their distribution have been extrapolated from the individual Transport Assessments for each scheme. The resulting trips are summarised in Table 20.4.

Table 20.4 – Cumulative Baseline Traffic Flows

Link	Baseline flows		Cumulative Baseline		Percentage Difference	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Anchor & Hope Lane North of Bugsby's Way	251	249	251	249	0%	0%
Anchor & Hope Lane North of Site Access	192	135	192	135	0%	0%
Anchor & Hope Lane South of Bugsby's Way	1,286	1,569	1,385	1,710	8%	9%
Bugsby's Way West of Gallions Road	1,327	1,700	1,426	1,841	7%	8%
Bugsby's Way East of Gallions Road	1,362	1,995	1,461	2,136	7%	7%
Charlton Church Lane North of Delafield Way	404	450	418	468	3%	4%
A206 East of Anchor & Hope Lane	2,137	2,587	2,234	2,731	5%	6%
A206 West of Anchor & Hope Lane	1,201	1,234	1,283	1,287	7%	4%
Site Access (Private Road)	107	120	107	120	0%	0%
Gallions Road	202	390	202	390	0%	0%

20.4.2 The largest increase in traffic from the cumulative schemes is 9% which occurs in the PM peak on Anchor and Hope Lane, south of Bugsby's Way. Bugsby's Way and A206 Woolwich Road to the west of Anchor and Hope Lane will also result in similar increases.

20.4.3 The proposed development vehicle trips have been added to the cumulative baseline vehicle flows and this is summarised in Table 20.5.

Table 20.5– Cumulative Baseline and Proposed Development Traffic Flows

Link	Cumulative Baseline flows		Cumulative Baseline + Proposed Development		Percentage Difference	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Anchor & Hope Lane North of Bugsby's Way	251	249	371	327	48%	31%
Anchor & Hope Lane North of Site Access	192	135	185	134	-4%	-1%
Anchor & Hope Lane South of Bugsby's Way	1,385	1,710	1,438	1,757	4%	3%
Bugsby's Way West of Gallions Road	1,426	1,841	1,494	1,869	5%	2%
Bugsby's Way East of Gallions Road	1,461	2,136	1,530	2,169	5%	2%
Charlton Church Lane North of Delafield Way	418	468	426	480	2%	2%
A206 East of Anchor & Hope Lane	2,234	2,731	2,297	2,761	3%	1%
A206 West of Anchor & Hope Lane	1,283	1,287	1,284	1,291	0%	0%
Site Access (Private Road)	107	120	220	197	106%	64%
Gallions Road	202	390	201	394	-1%	1%

20.4.4 The above table shows that the largest increase in traffic flows during the peak hours take place at the site access (+106%) and Anchor and Hope Lane to the south, between Bugsby's Way and the site access (+48%). Although the increase would be considered to be significant, these routes currently have low traffic flows and the level of additional traffic is considered to be well within the environmental capacity thresholds for residential streets. The highest increase on the other links is 5%. The proposal development is therefore not expected to have a significant impact.

20.4.5 The following table shows the impact of the proposed development on 24-hour traffic for all vehicles and for HGVs.

Table 20.6– Cumulative Baseline 24-Hour Traffic Flow Assessment

Link	Cumulative Baseline flows		Cumulative Baseline + Proposed Development		Percentage Difference	
	All vehs	HGVs	All vehs	HGVs	All vehs	HGVs
Anchor & Hope Lane North of Bugsby's Way	3,293	481	4,073	421	24%	-12%
Anchor & Hope Lane North of Site Access	2,019	336	1,983	330	-2%	-2%
Anchor & Hope Lane South of Bugsby's Way	22,415	2,857	22,799	2,824	2%	-1%
Bugsby's Way West of Gallions Road	25,438	3,752	25,821	3,727	2%	-1%
Bugsby's Way East of Gallions Road	23,460	3,696	23,867	3,671	2%	-1%
Charlton Church Lane North of Delafield Way	6,774	556	6,851	549	1%	-1%
A206 East of Anchor & Hope Lane	41,202	6,034	41,576	6,006	1%	0%
A206 West of Anchor & Hope Lane	24,126	3,550	24,140	3,548	0%	0%
Site Access (Private Road)	1,385	148	2,129	83	54%	-44%
Gallions Road	5,172	17	5,186	16	0%	-8%

20.4.6 The above table shows that similar to the proposed development will be negligible impact on the local highway network over 24-hours and there would be a reduction in HGV traffic.

20.4.7 The detailed traffic modelling junction assessment for the cumulative baseline and the cumulative baseline plus proposed development is outlined in the Junctions Modelling Analysis Report (Annex M). The results show that the proposed development and the cumulative schemes can be accommodated on the highway network without significant impacts.

20.5 Mitigation of Highway Trips

20.5.1 The proposed development is expected to generate 153 and 115 vehicle trips in the AM and PM peak hours respectively. This is a net increase of 107 and 76 vehicles trips in the AM and PM peak hours respectively when account is taken of the existing site operation. The impact of these trips has been assessed against the baseline traffic flows and also against the cumulative baseline traffic flows which includes all the cumulative schemes. Modelling work has also been undertaken on the local junctions as set out the Annex M.

20.5.2 The assessments have shown that the proposed development will not have a significant impact on the surrounding roads or the capacity of the local junctions. Therefore no highway link or junction capacity mitigation is required to accommodate the proposed development.

21 IMPACT ASSESSMENT – SAFEGUARDED WHARVES

21.1 Introduction

21.1.1 This chapter sets out the impact of the proposed development on the nearby safeguarded wharves.

21.2 Impact on Safeguarded Wharves

21.2.1 The site is located near three safeguarded wharves. Angerstein Wharf and Murphy's Wharf can be accessed from Bugsby's Way and Riverside Wharf is accessed from Herringham Road.

21.2.2 There will be no alterations to the direct access of the three safeguarded wharves as part of the proposals. There will also be no significant impact on the highway routes (SRN or TLRN) which provide access to the wharves as part of the proposals.

21.2.3 There will be an overall reduction in HGV traffic resulting from the development and this will provide a positive impact on the capacity of the roads for access to the safeguarded wharves.

21.3 Mitigation

21.3.1 There will be no impact on access arrangements to the safeguarded wharves and a reduction in the HGV traffic which will be a positive impact. Therefore no mitigation is required.

21.4 Cumulative Assessment

21.4.1 The other cumulative schemes would need to have ensured that they will not have an adverse impact on access to the safeguarded wharves.

22 IMPACT ASSESSMENT - CONSTRUCTION

22.1 Introduction

22.1.1 An assessment of the anticipated impacts of construction traffic for the proposed development has been undertaken.

22.2 Construction Vehicle Trips

22.2.1 Enabling works, demolition and construction would generate short-term increases in vehicle movements on the highway in the vicinity of the site. It should also be noted that these increases are not constant throughout the construction period and consideration has only been given to the highest peak frequency of vehicle movements so that a worse case assessment can be undertaken.

22.2.2 An assessment of the anticipated impacts of demolition/construction traffic has been based upon experience of such analysis undertaken for similar schemes within London.

22.2.3 It is considered that there will be a maximum of five Heavy Goods Vehicles (HGVs) serving the site during any given daytime hour. This is based upon the knowledge that it takes on average 12 minutes to load a lorry with spoil. As such, the two-way HGV traffic is highly unlikely to exceed 12 vehicles per hour at any point of the day and this has been used for the purposes of a worse case assessment. Based on an 8 hour day; a 22 day month; and an average of 10 vehicles per hour this equates to 1,760 vehicles two-way per month.

22.2.4 The net impact of construction traffic has been assessed which takes into account the traffic associated with the existing site which would cease, prior to construction of the scheme.

22.3 Construction Vehicle Distribution

22.3.1 All construction vehicles will enter and exit the site via Anchor and Hope Lane. This provides direct access A206 Woolwich Road and the strategic arterial routes of the A102 and other connected routes, thereby avoiding any other local roads where the impact of construction vehicle movements would be more noticeable.

22.3.2 The existing access currently accommodates HGV movements and would therefore be a suitable access point for construction traffic. The assessment of

the distribution of construction generated traffic takes into account the anticipated forms of construction material and their source locations. Consideration has also been given to the relative location of the site to the Strategic Road Network (SRN) and the Transport for London Road Network (TLRN) which are more suitable for construction vehicles.

22.3.3 The construction traffic distribution used is as follows:

- 10% East on the A206 Woolwich Road
- 25% North on the A102 Blackwall Tunnel Southern Approach
- 55% South on the A102 Blackwall Tunnel Southern Approach
- 10% West on the A206 Woolwich Road

22.3.4 It is proposed that 90% of the construction traffic would access the strategic road network from the A1020 / A102 / A206 junction to the west, and 10% would travel south on Anchor and Hope Lane to access A206 to the east. For construction vehicles to / from A206 west, it is assumed that they would enter from Anchor and Hope Lane and exit using the A1020 / A102 / A206 junction.

22.4 Impact of Construction Vehicles

22.4.1 The predicted net increase in traffic flows during construction based on baseline traffic are shown in Tables 22.1, 22.2 and 22.3 for the AM peak, PM peak and 24 hours respectively. The net increase reflects the removal of the existing site traffic and the additional traffic generated by the construction works.