CANADA WATER MASTERPLAN

Transport Assessment
Part 7 of 7

May 2018

Arup

British Land

Appendix H – Strategic Modelling Technical Note

British Land

Canada Water Masterplan

Strategic Model Development Report

Final Draft | 7 March 2018

Draft

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

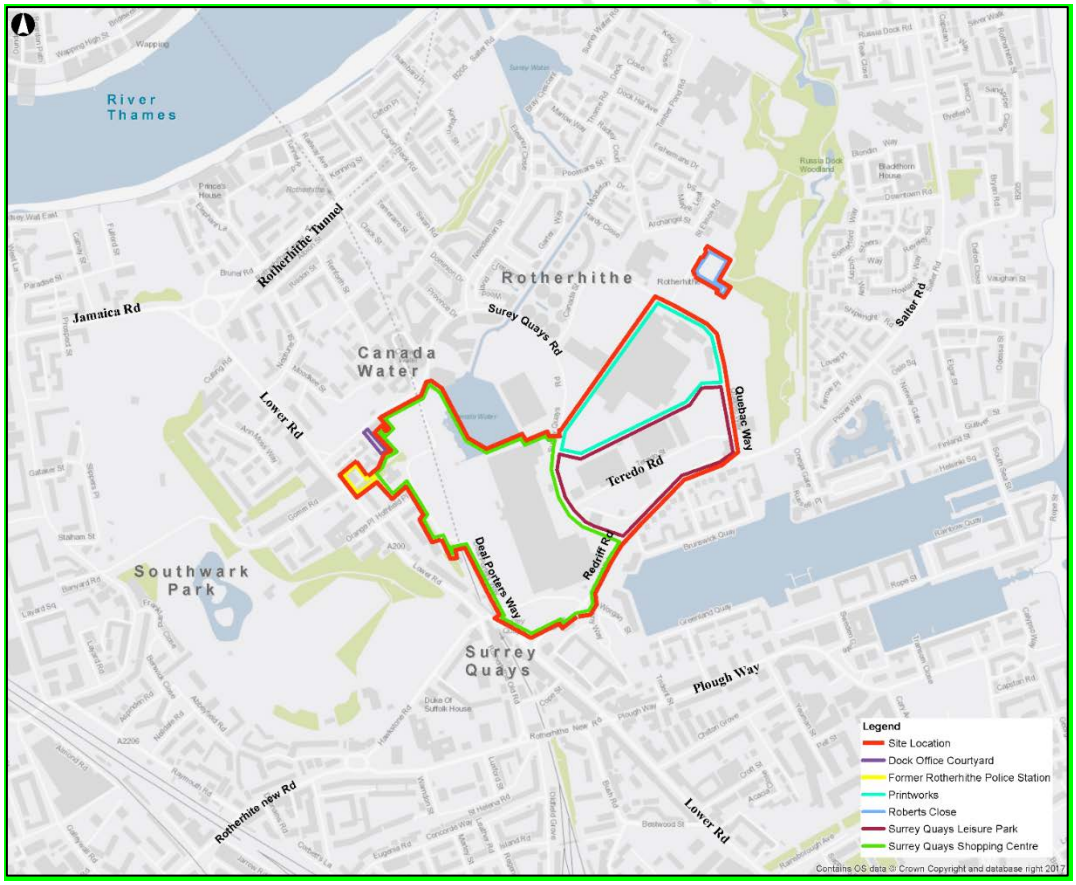
1.1 Background to the Study

This Technical Note details the strategic model development and forecasting undertaken by Arup in support of a hybrid planning application for the Canada Water Masterplan. The purpose of the note is to document the processes and data sources used to assess the strategic effect of the proposed development in terms of traffic and transport impacts, rather than to document the impacts themselves which are covered in the Transport Assessment (TA) and Model Forecasting Report.

1.2 Context

The hybrid planning application is made in relation to land bounded by Surrey Quays Road to the north, Lower Road (A200) to the west, Redriff Road (B205) to the south and Quebec Way to the east on behalf of BL CW Holdings Ltd, a subsidiary of British Land Company Plc, hereafter referred to as "British Land". Figure 1.1 shows the site location.

Figure 1.1 – Site Location



The Development comprises the comprehensive redevelopment of the Surrey Quays Shopping Centre, former Harmsworth Quays Printworks and Surrey Quays Leisure Park sites, former Dock Offices Courtyard, former Rotherhithe Police Station and land at Roberts Close. The Development will provide new retail, office, leisure and community floorspace along with residential dwellings. The Development will also provide significant,

high quality public realm, including a new town square, a new high street and a public park.

1.3 Forecasting Scenarios

This study has developed three forecasting scenarios that cover different demand conditions for the 2031 forecast year:

- **2031 Do Minimum (CW06)** – a revised version of Transport for London's (TfL) 2031 Reference Case incorporating additional consented development on the Rotherhithe Peninsula;
- **2031 Do Something 1 (CW11)** – a "maximum residential" development scenario as detailed in Table 1.1, and referred to as Development Scenario 1A in the TA; and
- **2031 Do Something 2 (CW12)** – a "maximum employment" development scenario as detailed in Table 1.2 and referred to as Development Scenario 2A in the TA.

The Development Specifications were provided by Quod in November 2017 for the purposes of undertaking the strategic modelling at that time. The Development Scenarios and Specifications used for trip generation purposes in the TA differ slightly from those in Tables 1.1. and 1.2, following further evolution in the intervening period. Differences between the Development Scenarios and Specifications used in the strategic modelling and those presented in the TA are minor and, as such, the results from the strategic modelling remain robust. This is discussed in more detail in section 9.4 of the TA..

Table 1.1 – CW11 "Maximum Residential" Scenario – Land Use

Land Use	Gross Floor Area (m^2)
A1 Retail	84,672
B1 Office	131,788
C1 Hotel	7,200
Student Accommodation	6,900
C2 Assisted Living	-
C3 Residential	332,396
D1 Community Use	11,520
D2 Leisure	49,440
D3 Cultural Use	36,960
Flexible Event Space (sui generis)	4,800
Petrol Filling Station (sui generis)	2,496

Table 2.2 – CW12 "Maximum Employment" Scenario – Land Use

Land Use	Gross Floor Area (m^2)
A1 Retail	84,672
B1 Office	306,720
C1 Hotel	7,200
Student Accommodation	6,900
C2 Assisted Living	-
C3 Residential	164,753
D1 Community Use	11,520
D2 Leisure	49,440
D3 Cultural Use	36,960
Flexible Event Space (sui generis)	4,800
Petrol Filling Station (sui generis)	2,496

Source: CWM Aecom Dev Spec Areas issued - Quod Development Scenario Testing 13112017.xlsx

1.4 Strategic Transport Study

In parallel to Arup's work for British Land related to the assessment of the Development, TfL and Southwark Council commenced work on a Strategic Transport Study (STS) in February 2017. The purpose of the STS is to examine the implications of growth in the Canada Water Opportunity Area as a whole.

The STS examines future year conditions as if no development happened in the Canada Water Opportunity Area and then explores how growth in the Opportunity Area would change transport conditions. The STS aims to test and identify packages of transport interventions that would be appropriate to address the Opportunity Area growth and to assist the authorities in setting future transport investment priorities for the area.

A range of discussions have taken place since February 2017 between TfL, Southwark Council and British Land to agree how the STS can inform the assessment of the development that British Land proposes. It was agreed that the strategic modelling for assessing the impacts of the Development, as detailed in this Technical Note, could draw as appropriate on work undertaken on the STS in order to ensure broad alignment and consistency between the two studies. As such, many of the processes and data sources used to assess the effect of the Development, in terms of traffic and transport impacts, have been inherited from the STS, as documented herewith.

2 Model Usage

2.1 TfL Strategic Model Suite

The TfL strategic model suite comprises five models covering the Greater London Area (GLA) in detail:

- LTS – demand model;
- Railplan – public transport model;
- LoHAM – highway model;

- Cynemon – cycling model; and
- LonLUTI – land use model.

A selection of these models has been directly used by Arup to assess the traffic and transport impacts of the Development as follows.

2.2 London Transportation Studies

The London Transportation Studies (LTS) model is TfL's demand model. It uses population, employment forecasts and other inputs, including retail floor space, schools and parking spaces to predict:

- Future trip numbers;
- Origin and destination of person trips;
- Time of travel; and
- Mode of transport.

LTS is a 24-hour model and the software platform for LTS is CUBE.

2.3 Railplan

Railplan is TfL's public transport model. It represents public transport service provision across the Greater London area and uses demand from LTS to predict:

- Passenger mode choice;
- The routes that passengers choose; and
- The associated crowding impacts.

Railplan is a peak period weekday model:

- AM peak period 07:00-10:00;
- Inter peak period 10:00-16:00; and
- PM peak period 16:00-19:00.

Whilst Railplan is now offered on the CUBE software platform by TfL, EMME Railplan v7.0 has been used for this study.

2.4 London Highway Assignment Model

The London Highway Assignment Model (LoHAM) is TfL's highway model. It represents the highway network in the Greater London area and uses demand from LTS to predict:

- The routes that drivers choose; and
- The associated congestion and delay impacts.

LoHAM is a peak hour weekday model:

- AM peak hour 08:00-09:00;

- Inter peak average hour between 10:00-16:00; and
- PM peak hour 17:00-18:00.

LoHAM is the aggregation of five sub regional models; one of which is the Central London Highway Assignment Model (CLoHAM). The geographical coverage and detailed model area of CLoHAM is sufficient to capture the highway impacts of the Development. Its choice for this study is supported by TfL and comes with the associated benefits of reduced model runs times and computer processing power requirements.

CLoHAM P3 is the version chosen for this study and is a SATURN model, of which version 11.3.12U of SATURN has been used for this study.

3 Demand scenarios

3.1 Approach and Sources of Information

TfL and Arup have shared demand scenario production using the LTS CUBE model as follows:

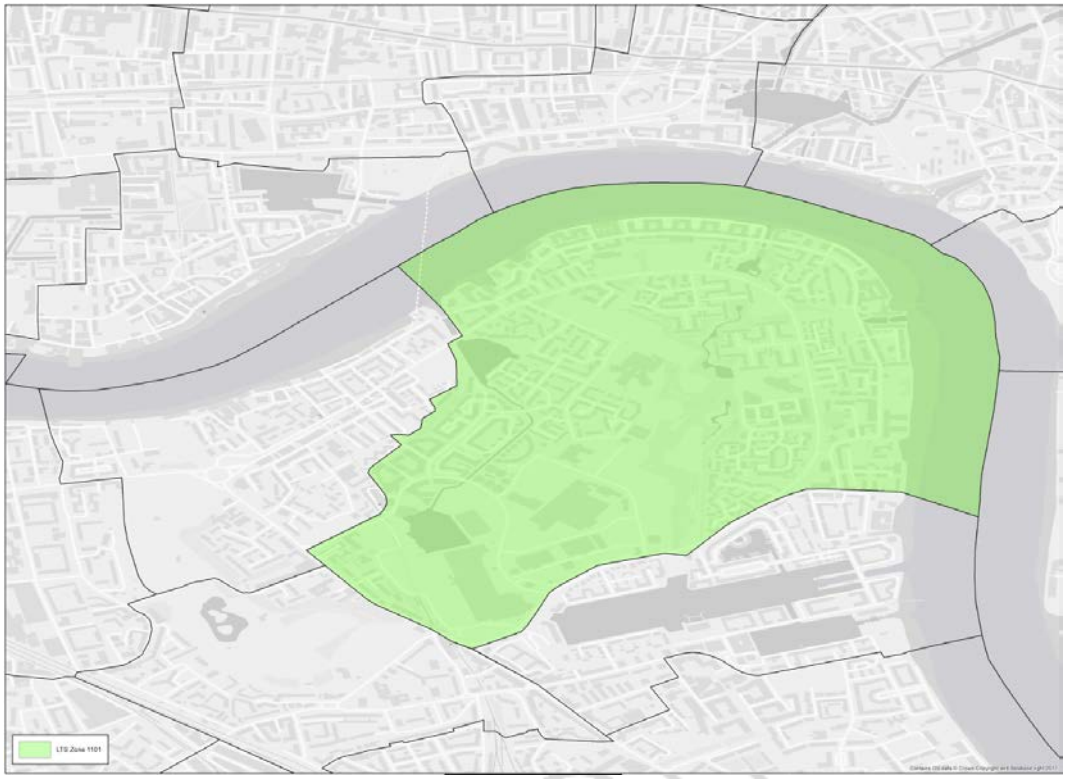
1. Arup provided development specifications to TfL;
2. TfL ran trip end model and supplied outputs to Arup;
3. Arup ran LTS with these outputs and provided highway and public transport matrices to TfL; and
4. TfL ran their own bespoke “DELTA” and “CHAMP” processes to convert the LTS matrices to Railplan and CLoHAM matrices respectively and provided them to Arup for model assignment.

LTS produces 24-hour matrices, which are then segmented into peak hour and peak periods. To best represent peak conditions, both the STS and this study have modelled the 2031 AM peak period in Railplan and the 2031 PM peak hour in CLoHAM.

3.2 Development specifications

The Rotherhithe Peninsula is broadly represented by LTS zone 1101 as shown in Figure 3.1. Moreover, the Development Site in Figure 1.1 is entirely within LTS zone 1101. As such, all LTS input development specifications apply to zone 1101 only.

Figure 3.1 – LTS Zone 1101



Development specifications for CW06, CW11 and CW12 are presented in Tables 3.1 to 3.3. The Do Minimum scenario CW06 has been inherited from the STS. In advance of the definitions of Do Something scenarios, CW11 and CW12, the STS Do Something was based on a single indicative development specification that has since been superseded.

The development specifications are based on the land use data in Table 1.1 and Table 1.2.

Table 3.1 – CW06 LTS Specification

Metric	Quantity
Homes	6,676
Population	13,352
Jobs	4,653
Retail floorspace[1] (m^2)	54,408
Primary pupils	1,680
Secondary pupils	1,200
Tertiary pupils	420
Public on-street parking spaces	96
Private non-residential parking spaces	377
Private residential parking spaces	4,525
Public off-street parking spaces	1,772

[1] Gross Internal Area (GIA)

Table 3.2 – CW11 LTS Development Specification

Metric	Quantity	Change on CW06
Homes	10,720	+4,044
Population	21,290	+7,938
Jobs	20,280	+15,627
Retail floorspace (m^2)	157,050	+102,642
Primary pupils	2,160	+480
Secondary pupils	1,500	+300
Tertiary pupils	420	0
Public on-street parking spaces	96	0
Private non-residential parking spaces	377	0
Private residential parking spaces	5,319	+794
Public off-street parking spaces	1,240	-532

Table 3.3 – CW12 LTS Development Specification

Metric	Quantity	Change on CW06
Homes	8,728	+2,052
Population	17,306	+3,954
Jobs	33,238	+28,585
Retail floorspace (m^2)	157,050	+102,642
Primary pupils	2,160	+480
Secondary pupils	1,500	+300
Tertiary pupils	420	0
Public on-street parking spaces	96	0
Private non-residential parking spaces	377	0
Private residential parking spaces	4,920	+395
Public off-street parking spaces	1,240	-532

3.3 Development Demand Distribution

TfL's DELTA and CHAMP processes distribute the development demand using the Reference Case zone systems without reference to the disposition of land uses in the Development. As such, upon receipt of the AM peak period Railplan matrices and PM peak hour CLoHAM matrices, a zone system disaggregation and demand redistribution process was undertaken to better represent the proposed distribution of land uses within the Development.

The process for Railplan was as follows:

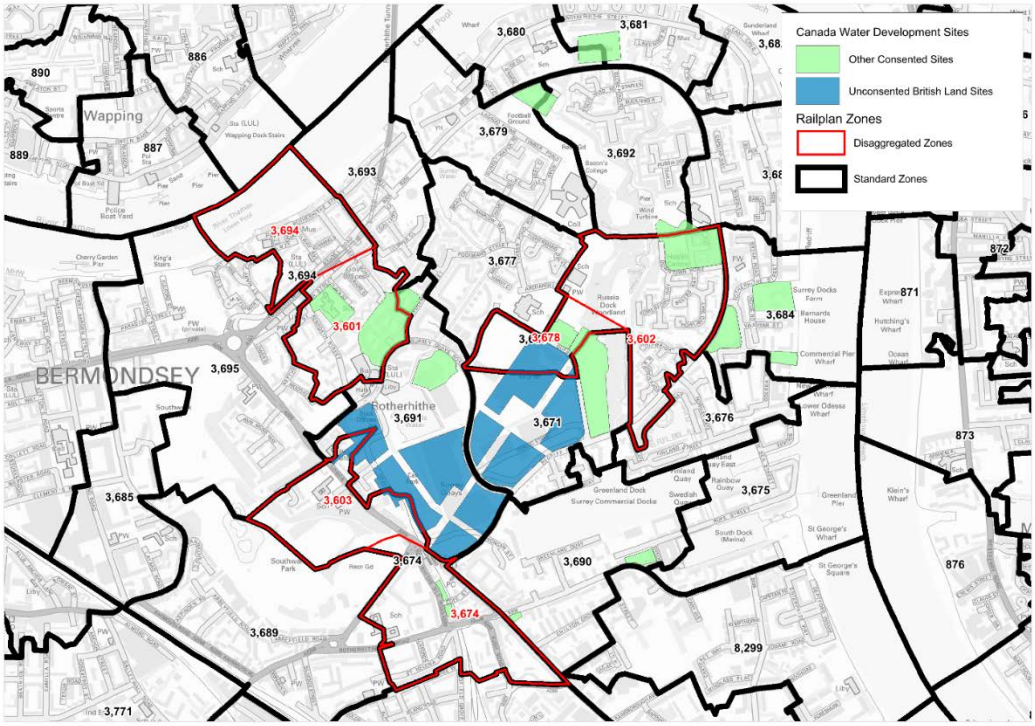
- Convert the existing Do Minimum matrix (CW06) to the Do Something Zone system;
- Convert the existing Do Something matrices (CW11/ CW12) with Reference Case zone system to the Do Something zone system

- Local zone disaggregation
- Using process developed for STS by TfL, Southwark Council and their consultants

- Subtract the existing Do Minimum matrix (CW06) from the resultant Do Something matrices;
- Redistribute trips in the resultant development matrices as per the broad land use distribution in the Development
- Add the resultant development matrices to the existing Do Minimum matrix (CW06) to create the Do Something matrices (CW11/ CW12)

The local Railplan zone disaggregation inherited from the STS is shown in Figure 3.2.

Figure 3.2 – Railplan Zone Disaggregation – STS



Source: Contains OS data © Crown copyright and database right (2017)

The process for CLoHAM was as follows:

- Convert the existing Do Minimum matrix (CW06), based on the Do Something zone system to the Reference Case zone system
  - Local zone aggregation
  - Using SATURN MX module
- Subtract the resultant matrix from the Do Something matrices (CW11/ CW12), based on the Reference Case zone system;

- Convert the resultant Development matrices with Reference Case zone system to the Do Something zone system
    - Local zone disaggregation
    - Using process developed for STS by TfL, Southwark Council and their consultants
- Split Deal Porters Way zone in Do Minimum matrix (CW06) into two
    - Based on the demand access/ egress split to the north (Surrey Quays Road) and to the south (Redriff Road) in the CW06 assignment;
- Split Deal Porters Way zone in Development matrices (CW11/ CW12) into two
    - 90% south (existing zone 26279)
    - 10% north (new zone 26300)

The purpose of this step, in addition to the local zone disaggregation of the STS, is to better represent how Development traffic would access the existing highway network. The design assumption in the Development is that the southern access point on Redriff Road would be the primary access point to the Development with immediate access to a multi-storey car park and the northern access point on Surrey Quays Road would provide local access to Plots at the northern end of the Development.

- Add the resultant Development matrix to the existing Do Minimum matrix (CW06) m to create the Do Something matrix (CW11/ CW12).

The local CLoHAM zone disaggregation inherited from the STS is shown in Figure 3.3 and Figure 3.4. The additional split of the CLoHAM zone representing Deal Porters Way is shown in Figure 3.5 and Figure 3.6.

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Figure 3.3 – CLoHAM Reference Case Zone System

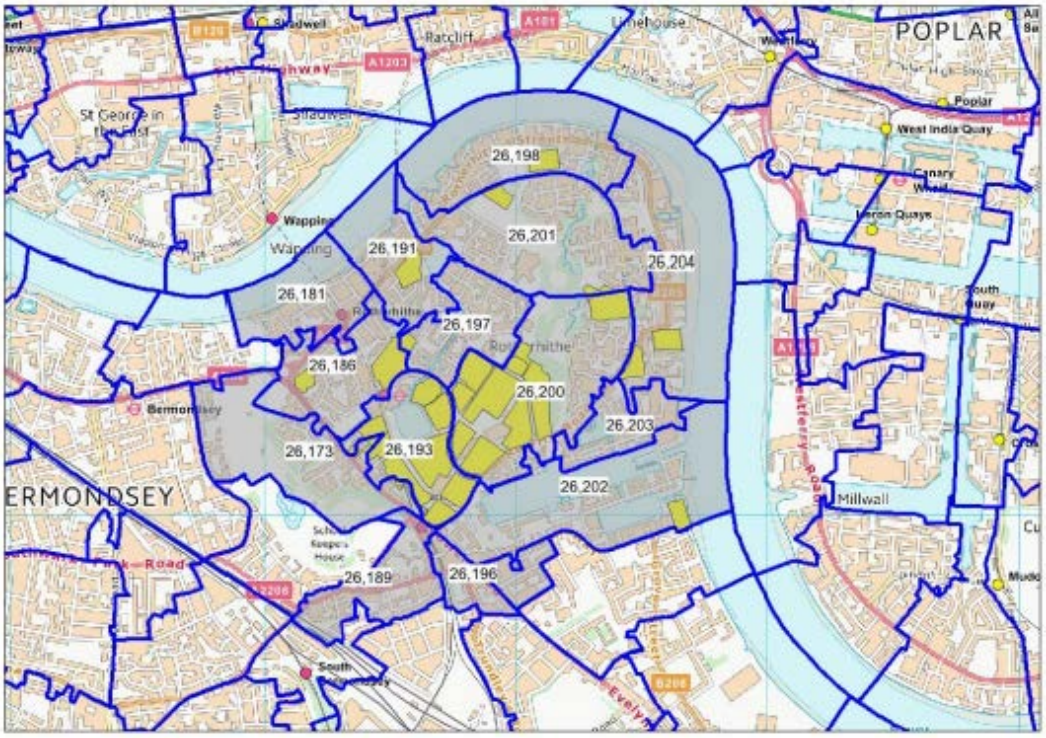

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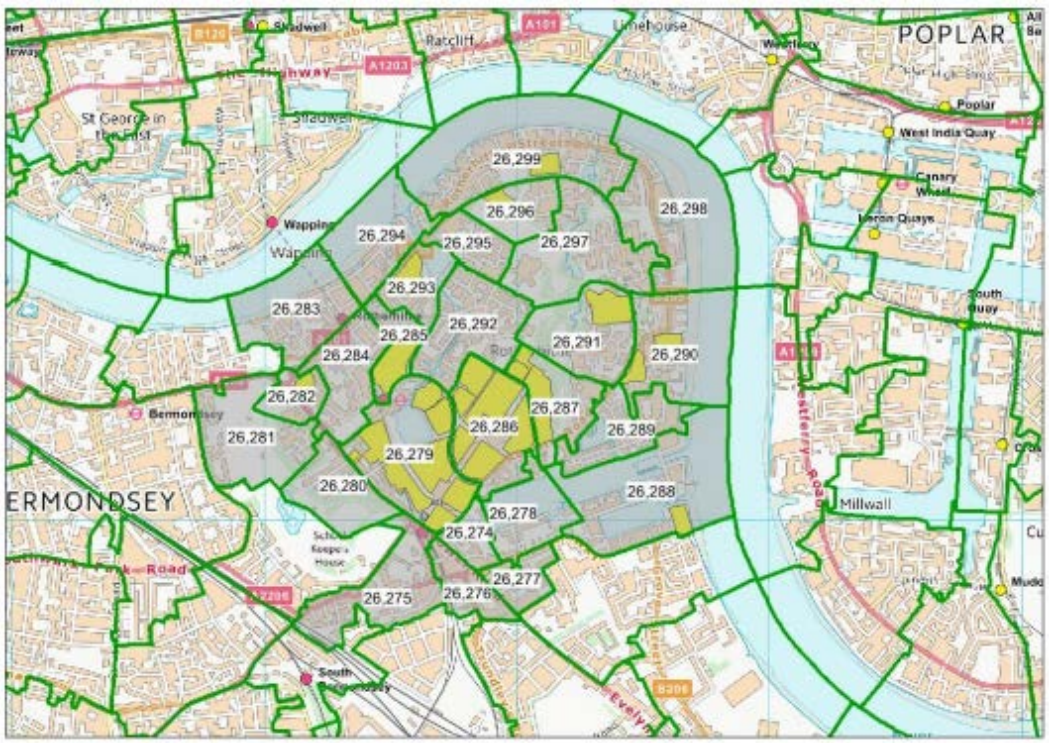
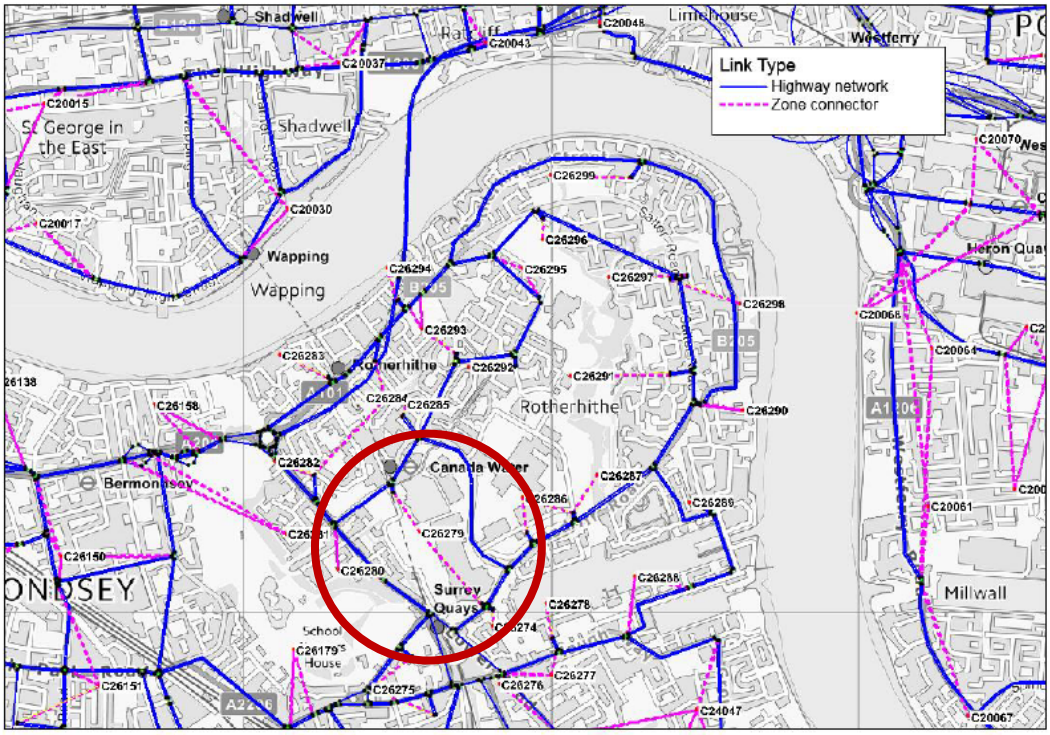
Figure 3.4 – CLoHAM Zone Disaggregation – STS



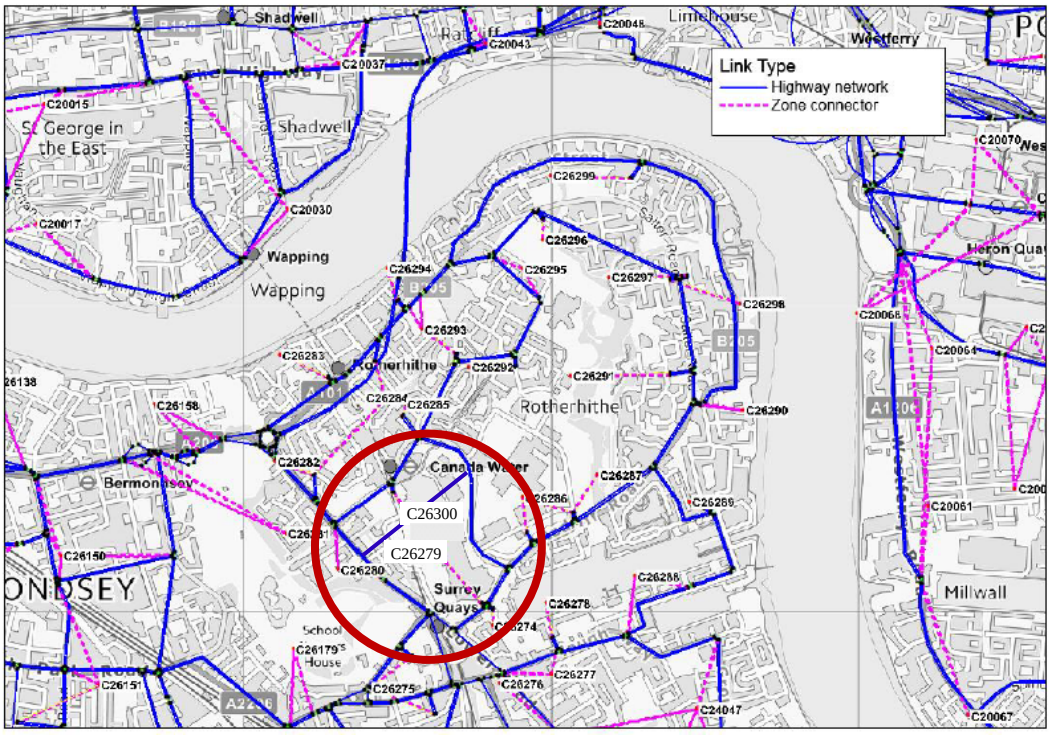
Source: Contains OS data © Crown copyright and database right (2016)

Figure 3.5 – CLoHAM Zone Disaggregation – STS



Source: Contains OS data © Crown copyright and database right (2016)

Figure 3.6 – CLoHAM Zone Disaggregation – Deal Porters Way



Source: Contains OS data © Crown copyright and database right (2016)

3.4 Development Matrices

Upon inspection of the resultant CLoHAM development trip matrices, an additional uplift was applied to the redistributed LTS trip ends to better represent the first principles trip generation assessment for the Development which is described in further detail in the TA. The same factoring process was considered and tested for the Railplan development trip matrices. The factoring in this instance reduced public transport trips to better represent the first principles trip generation for the Development. However, this resulted in counterintuitive results when compared back to the CW06 Do Minimum matrix, i.e. the Development producing a trip reduction, so was not taken forward.

The Development trip totals of the CW11 and CW12 Development Scenarios are shown in Tables 3.4 and 3.5.

Table 3.4 – CW11 Development Trip Totals

Trip Direction	Mode	Period	CW11 LTS	CW11 Trip Gen
From Development	Highway	PM Peak Hour	1,042	1,187
To Development	Highway	PM Peak Hour	721	1,199
From Development	Public Transport	AM Peak Hour[2]	2,571	964
To Development	Public Transport	AM Peak Hour	5,348	3,082

Table 3.5 – CW12 Development Trip Totals

Trip Direction	Mode	Period	CW12 LTS	CW12 Trip Gen
From Development	Highway	PM Peak Hour	1,135	1,202
To Development	Highway	PM Peak Hour	741	1,162
From Development	Public Transport	AM Peak Hour	1,857	760
To Development	Public Transport	AM Peak Hour	7,699	6,627

The Development trip distribution of the CW11 and CW12 Development Scenarios is shown in Figures 3.7 to 3.14. These show the origin and destination of all trips associated with the zones which comprise the site.

[2] To convert the Railplan 3-hour peak period matrices to a single peak hour a standard factor of 0.54 has been applied

Figure 3.7 – CW11 AM PT Trips from Development

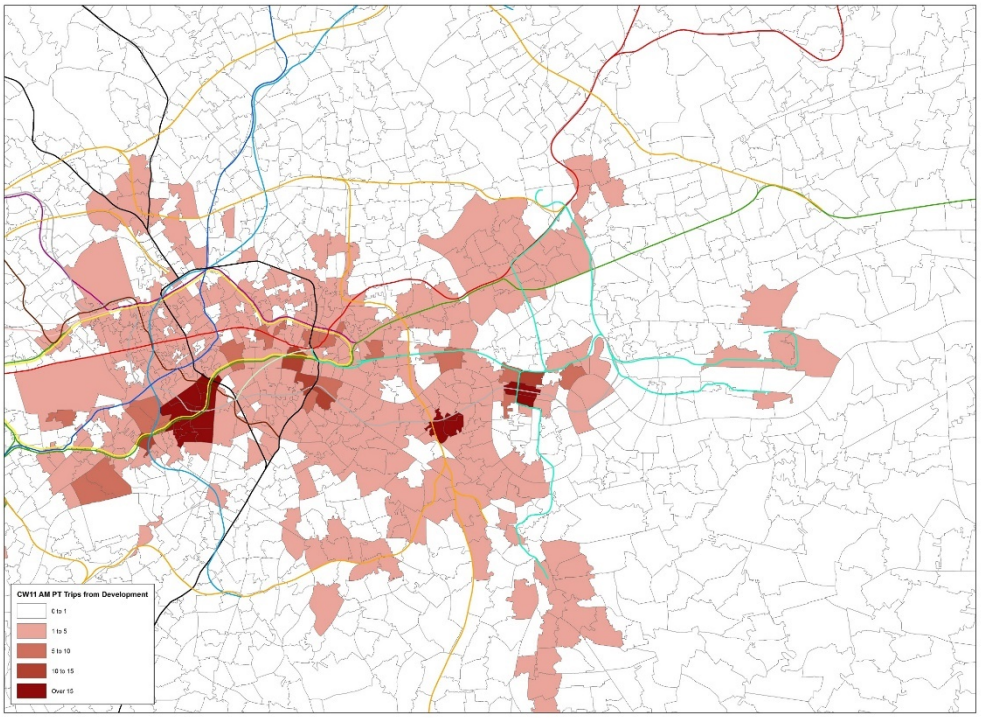


Figure 3.8 – CW11 AM PT Trips to Development

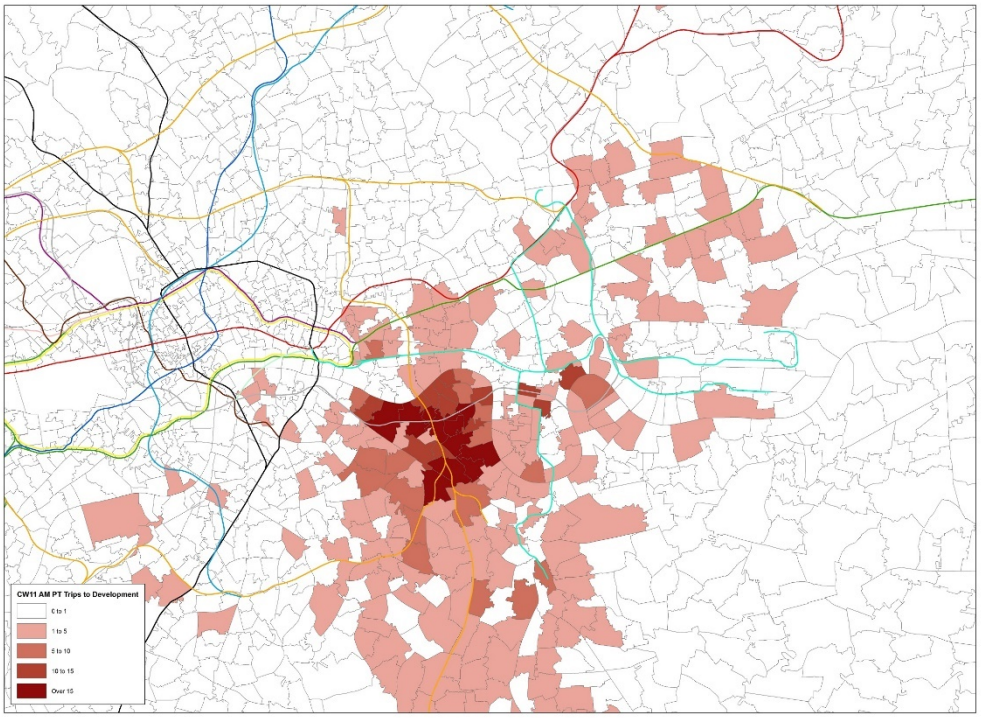


Figure 3.9 – CW12 AM PT Trips from Development

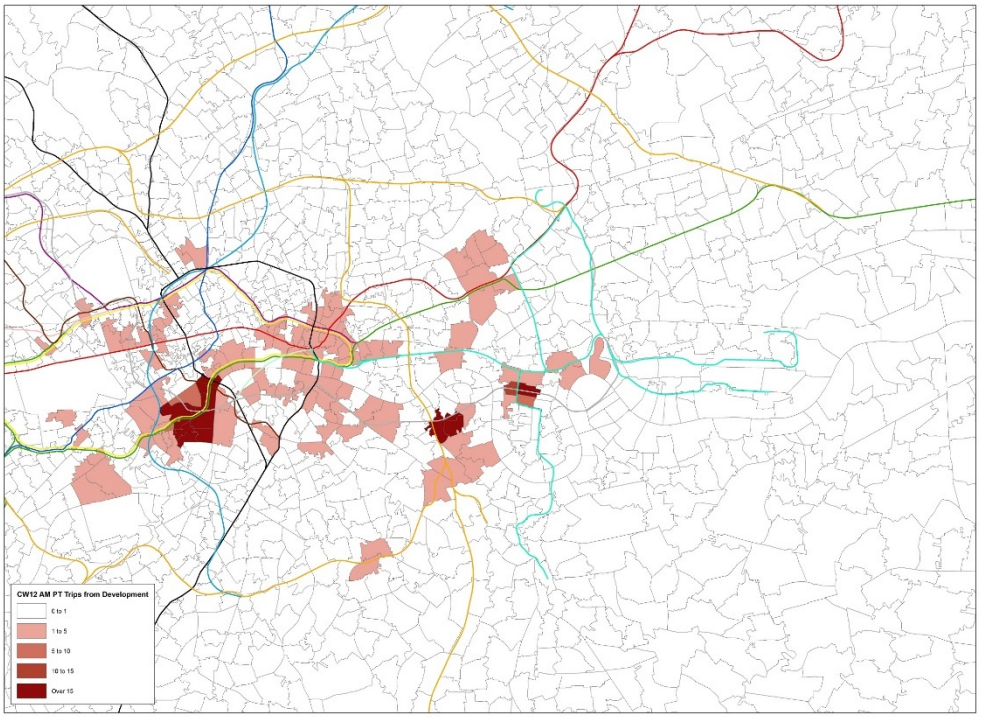


Figure 3.10 – CW12 AM PT Trips to Development

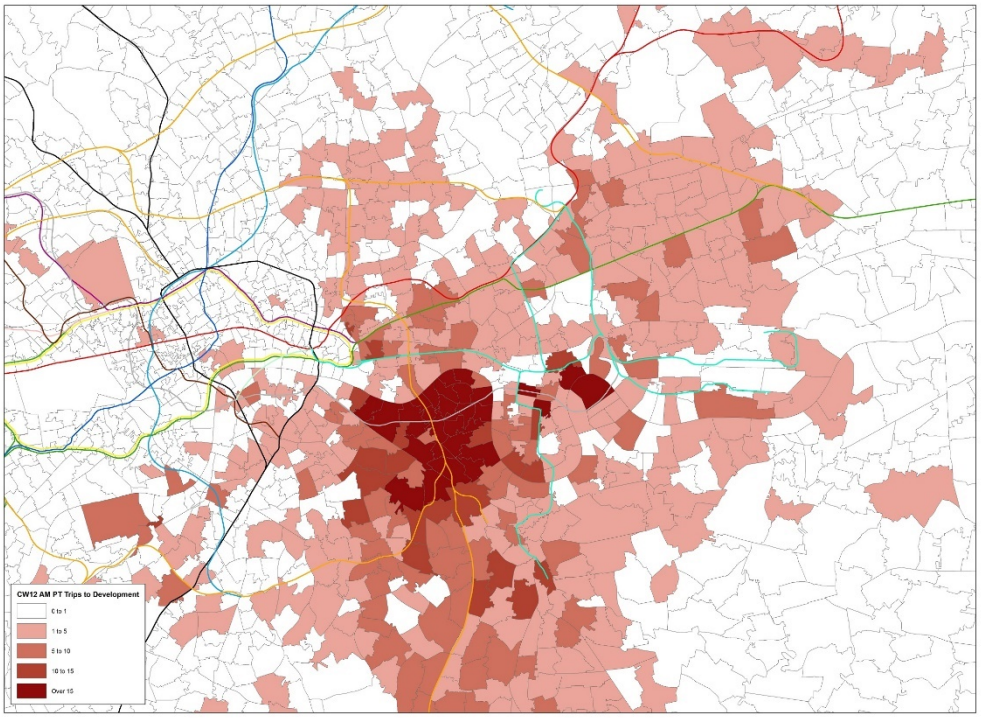


Figure 3.11 – CW11 PM HW Trips from Development

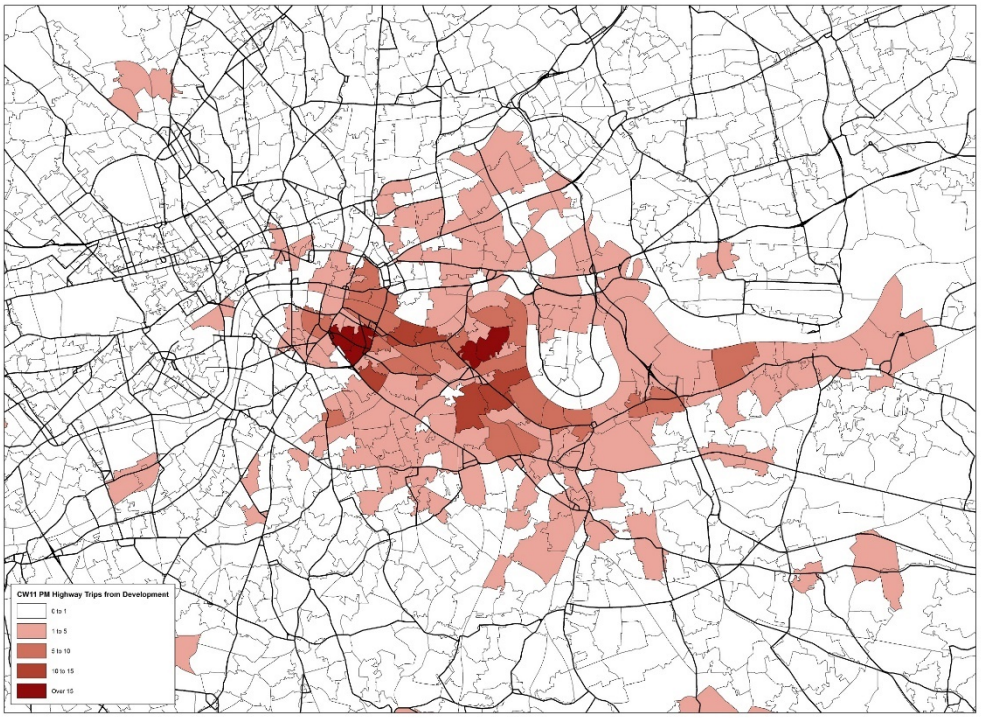


Figure 3.12 – CW11 PM HW Trips to Development

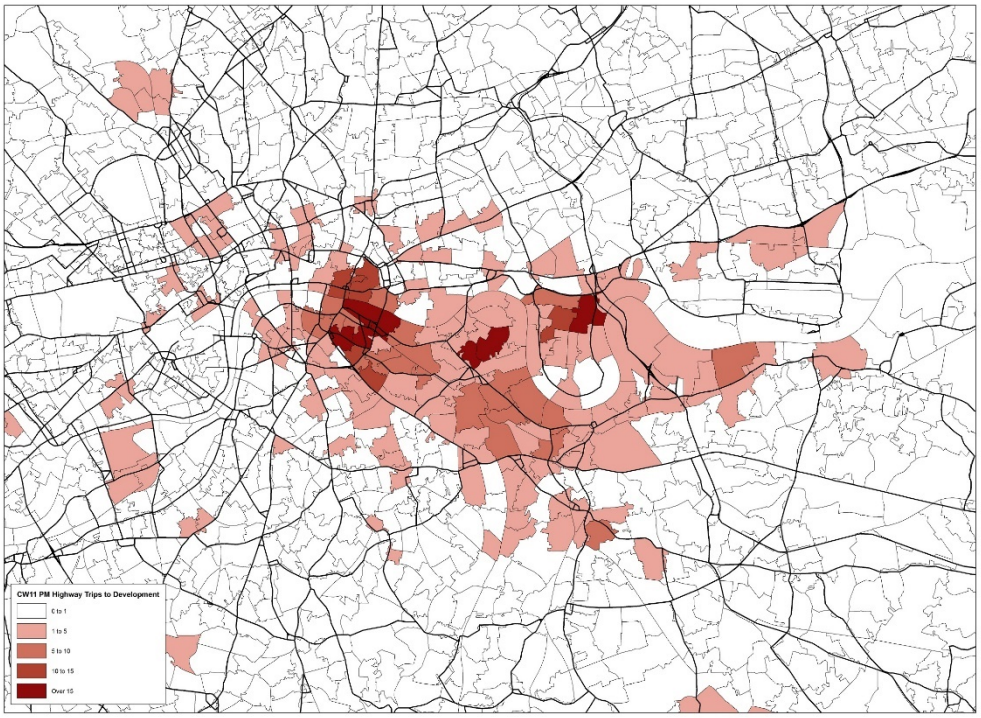


Figure 3.13 – CW12 PM HW Trips from Development

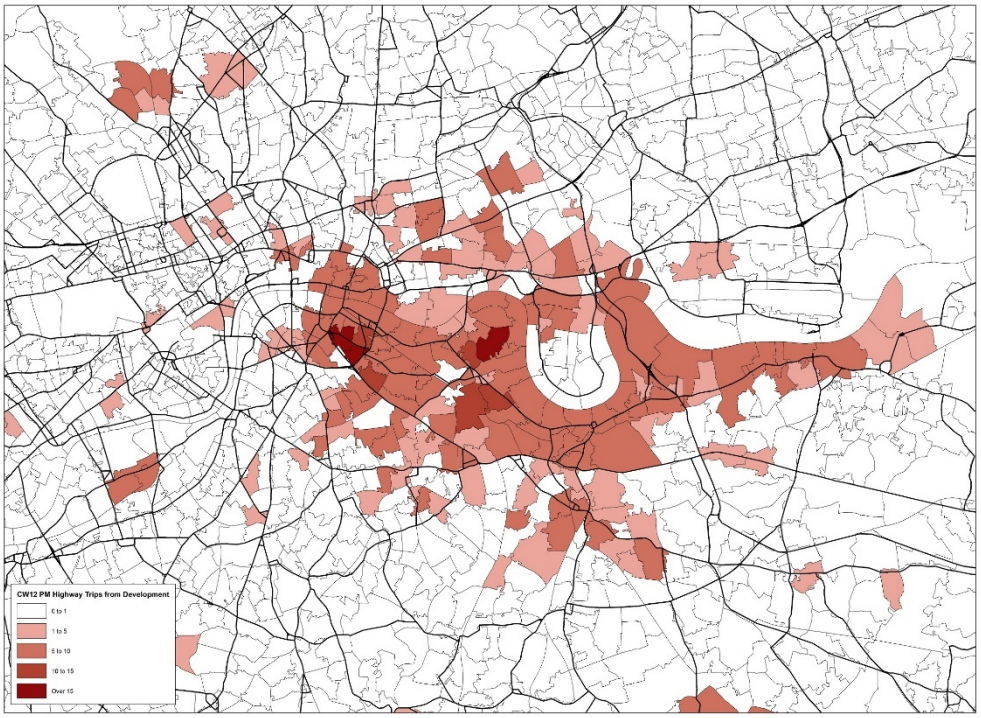
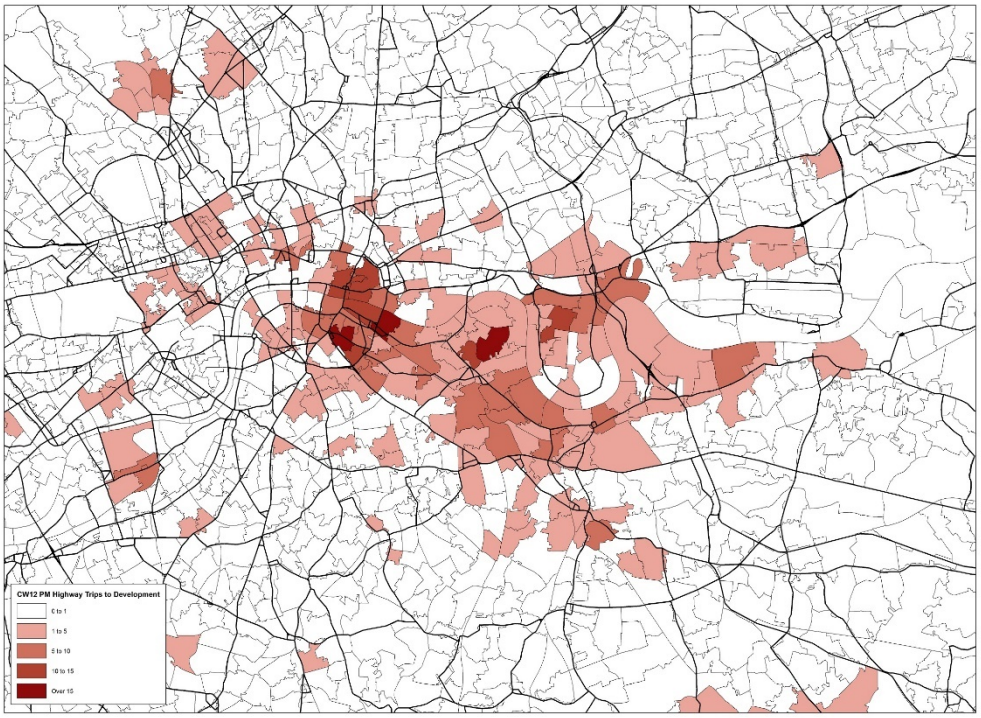


Figure 3.14 – CW12 PM HW Trips to Development



4 Network Development

4.1 Railplan

The STS produced a locally revalidated base year Railplan model and a redeveloped 2031 Reference Case to create the 2031 CW06 Do Minimum Railplan model. This captured the base year Railplan revalidation, as well as local future year network updates not included in the Railplan Reference Case. These updates are documented in "Canada Water Railplan British Land Handover TN02 v2" produced by Mott MacDonald.

The revalidated base year model, and subsequent 2031 CW06 Do Minimum model, provided a robust starting point for the assessment of the Development. From this model the Development Scenarios could be accurately modelled and assessed in terms of their impact on existing transport infrastructure.

The 2031 CW11 and 2031 CW12 Do Something assignments used the 2031 CW06 Do Minimum model network without further modification or enhancement other than those required to connect the Development to the model network. Potential public transport interventions that might be associated with the Development were assessed subsequently, following consideration of the outputs from the test using the 2031 CW06 Do Minimum model network. These were a subset of wider public transport mitigations assessed as part of the STS. The subset of interventions is detailed below:

- Bus route B – 5 buses per hour between Canada Water and Aldwych;
- Bus route C – 7 buses per hour between London Bridge and Greenwich; and
- Surrey Quays station second entrance within the Site.

4.2 CLoHAM

The STS produced a locally revalidated base year CLoHAM model and a redeveloped 2031 Reference Case to create the 2031 CW06 Do Minimum CLoHAM model. This model captured the base year CLoHAM revalidation, as well as local future year network updates not included in the CLoHAM Reference Case. These updates are documented in "381801_BL HAM model handover_v2" produced by Mott MacDonald.

The revalidated base year model, and subsequent 2031 CW06 Do Minimum, provided a robust starting point for the assessment of the Development. From this model the Development Scenarios could be accurately modelled and assessed in terms of their impact on existing transport infrastructure.

The 2031 CW11 and 2031 CW12 Do Something assignments used the 2031 CW06 Do Minimum model network without further modification or enhancement other than those required to connect the Development to the model network No highway mitigations were assessed in this study, although highway mitigations were assessed as part of the STS.

5 Summary and Conclusion

This Technical Note details the strategic model development and forecasting undertaken by Arup in support of a hybrid planning application for the Development. The purpose of the note is to document the processes and data sources used to assess the strategic effect of

the Development in terms of traffic and transport impacts, rather than to document the impacts themselves which are covered in Transport Assessment and Model Forecasting Report. The contents of this Technical Note confirm the robustness of the strategic model development and forecasting used in the assessment of the Development.

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Appendix I – Pedestrian Analysis

ARUP

Subject Canada Water Masterplan Pedestrian Trip Analysis

Date 10 April 2018 **Job No/Ref** 235588

Canada Water Masterplan Pedestrian Trip Analysis

1 Introduction

In order to determine the potential highway impact of the Canada Water Masterplan proposals, TfL has requested that the number of pedestrians leaving and entering the Canada Water Masterplan site once in operation be estimated. This is to inform the likely usage of pedestrian crossing facilities surrounding the site after full opening of the proposed development, anticipated to be in 2033.

This note sets out the methodology and results of the pedestrian trip analysis for the proposed Canada Water Masterplan, with supporting diagrams showing directional pedestrian movements on the fringes of the site.

2 Development Scenarios

The Transport Assessment (dated April 2018) has assessed the impact of the proposed development based on a mixture of land uses set out within the Development Specification Schedule, which lists amounts of maximum floorspace allowed for each land use. To ensure that the full range of impacts are captured by the Transport Assessment, two Development Scenarios have been assessed. The first of these, a 'maximum residential, minimum office' scenario, has examined the impact of a development that brings forward the greatest possible residential population within the proposed development. This is referred to as Scenario 1A. The second of these, the 'maximum office, minimum residential' scenario, has assessed the impact of having the greatest possible number of people working within the site and is referred to as Scenario 2A.

The two development scenarios ('maximum residential, minimum office' and 'maximum office, minimum residential') have been selected from several scenarios on the basis that they provide the worst-case situations in terms of peak-hour trip generation on either side of the development quantum spectrum. **Table 1** and **Table 2** present Development Scenarios 1A and 2A.

Table 1: Development Scenario 1A – Max. Resi., Min. Employment – Min. Student & Elderly

Outline Element	Gross External Area (m^2)	Gross Internal Area (m^2)	Net Internal Area (m^2)	Units	Rooms
A1 Retail	88,568	85,025	76,523	-	-
B1 Office	137,767	132,256	103,160	-	-
C1 Hotel	7,500	7,200	5,400	-	150
C3 Residential	360,328	331,502	255,256	3,889	-
Student Accommodation	7,500	6,900	5,313	150	-
C2 Assisted Living	0	0	0	0	-

Outline Element	Gross External Area (m²)	Gross Internal Area (m²)	Net Internal Area (m²)	Units	Rooms
D1 Community	45,650	43,824	34,183	-	-
D2 Leisure	51,500	49,440	38,563	-	-
Flexible Event Space	5,000	4,800	3,744	-	-
Energy Centre and Sub-Station	5,000	4,800	3,744	-	-
Multi-Storey Car Park	17,200	16,512	12,879	-	-
Petrol Filling Station	3,000	2,880	2,246	-	-
Total Maximum	731,513	-	-	4,039	-

Table 2: Development Scenario 2A – Min. Resi., Max. Employment – Min. Student & Elderly

Outline Element	Gross External Area (m²)	Gross Internal Area (m²)	Net Internal Area (m²)	Units	Rooms
A1 Retail	88,568	85,025	76,523	-	-
B1 Office	320,588	307,764	240,056	-	-
C1 Hotel	7,500	7,200	5,400	-	150
C3 Residential	177,507	163,306	125,746	1,890	-
Student Accommodation	7,500	6,900	5,313	150	-
C2 Assisted Living	-	0	0	0	-
D1 Community	45,650	43,824	34,183	-	-
D1 Leisure	51,500	49,440	38,563	-	-
Flexible Event Space	5,000	4,800	3,744	-	-
Energy Centre and Sub-Station	5,000	4,800	3,744	-	-
Multi-Storey Car Park	17,200	16,512	12,879	-	-
Petrol Filling Station	3,000	2,880	2,246	-	-
Total Maximum	731,513	-	-	2,040	-

3 Mode Split and Pedestrian Trips

The Transport Assessment has estimated the number of London Underground, London Overground, National Rail, bus and walking-only trips once the proposed development is fully operational. These modes of transport all involve an element of walking (either for a leg of the journey to a public transport access point e.g. Tube station or bus stop, or for the entirety of the journey).

Table 3 and **Table 4** present all forecast trips associated with these modes (i.e. that leave or enter the site, or stay within it) for the maximu residential and maximum employment scenarios respectively. For simplicity and robustness, it is assumed that all internal trips (contained within the site) will be exclusively made on foot.

Table 3: Forecast Pedestrian Trips (Development Scenario 1A, maximum residential)

Main Mode	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
London Underground / London Overground	1,342	457	1,798	602	1,316	1,916
National Rail	703	89	791	116	578	692
Bus	829	395	1,224	547	943	1,489
Walk Only (External)	959	949	1,909	1,285	1,487	2,774
Walk Only (Internal)*	1,616	583	2,199	1,600	2,064	3,665
Total	**5,449**	**2,473**	**7,921**	**4,151**	**6,387**	**10,536**

*All forecast internal pedestrian trips are assumed to be exclusively on foot.

Table 4: Forecast External Pedestrian Trips (Development Scenario 2A, maximum employment)

Main Mode	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
London Underground / London Overground	2,849	349	3,199	520	2,383	2,902
National Rail	1,604	103	1,707	128	1,242	1,369
Bus	1,619	288	1,907	507	1,510	2,018
Walk Only (External)	1,484	617	2,101	1,120	1,816	2,937
Walk Only (Internal)*	2,111	561	2,673	1,594	2,425	4,019
Total	**9,667**	**1,919**	**11,587**	**3,869**	**9,375**	**13,245**

*All forecast internal pedestrian trips are assumed to be exclusively on foot.

4 External Walking-Only Trips

4.1 Overview

The external walking-only trips as set out in **Table 3** and **Table 4** have been further broken down by land use. **Table 7** and **Table 8** summarise this split for the maximum residential and maximum employment scenarios respectively.

Table 5: Forecast External Walking-Only Trips by Land Use (Development Scenario 1A, maximum residential)

Land Use	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Totals	Arrivals	Departures	Totals
Residential	124	697	821	372	218	591
Office	443	19	463	19	333	352
Hotel	13	31	44	27	16	43
Commercial Leisure	0	0	0	181	115	297
Public Leisure	22	23	45	42	34	76
Foodstore	35	31	66	136	133	269
Other Retail	199	108	307	438	547	985
Student Accommoda-tion	0	1	1	3	2	5
Sheltered Accommoda-tion	0	0	0	0	0	0
Community	123	39	162	67	89	156
Total	**959**	**949**	**1,909**	**1,285**	**1,487**	**2,774**

Table 6: Forecast External Walking-Only Trips by Land Use (Development Scenario 2A, maximum employment)

Land Use	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Totals	Arrivals	Departures	Totals
Residential	60	339	399	181	106	287
Office	1,032	45	1,077	45	774	819
Hotel	13	31	44	27	16	43
Commercial Leisure	0	0	0	181	115	297
Public Leisure	22	23	45	42	34	76
Foodstore	35	31	66	136	133	269
Other Retail	199	108	307	438	547	985
Student Accommoda-tion	0	1	1	3	2	5
Sheltered Accommoda-tion	0	0	0	0	0	0
Community	123	39	162	67	89	156
Total	**1,484**	**617**	**2,101**	**1,120**	**1,816**	**2,937**

4.2 Residential and Student Accommodation Trip Distribution

4.2.1 Overview

Based on results from the Department for Transport's 2016 National Travel Demand Survey and Transport for London's 2015/2016 London Travel Demand Survey, the Transport Assessment has used the following journey purposes for each of the peak hours for residential trips, as shown in **Table 9** and **Table 10**, for the maximum residential and maximum employment scenarios respectively.

Table 7: Journey Purposes for Residential Trips (maximum residential scenario)

Journey Purpose	AM Peak Hour				PM Peak Hour			
	%	In	Out	Total	%	In	Out	Total
Work (Commute)	40%	50	279	329	53%	197	116	313
Education	40%	50	279	329	3%	11	7	18
Shopping and leisure	20%	25	139	164	44%	164	96	260
Total	**100%**	**124**	**697**	**821**	**100%**	**372**	**218**	**591**

Table 8: Journey Purposes for Residential Trips (maximum employment scenario)

Journey Purpose	AM Peak Hour				PM Peak Hour			
	%	In	Out	Total	%	In	Out	Total
Work (Commute)	40%	24	136	160	53%	96	56	152
Education	40%	24	136	160	3%	5	3	9
Shopping and leisure	20%	12	68	80	44%	80	47	126
Total	**100%**	**60**	**339**	**399**	**100%**	**181**	**106**	**287**

For student accommodation uses, it has been assumed that all trips made during the AM and PM peak hours would be for shopping, leisure and personal business, as shown in **Table 11**. With no university outside the site and within walking distance, it is unlikely that any student would walk to university/go on an education-related trip on foot.

Table 9: Journey Purpose for Student Accommodation Trips (both development scenarios)

Journey Purpose	AM Peak Hour				PM Peak Hour			
	%	In	Out	Total	%	In	Out	Total
Shopping and leisure	100%	0	1	1	100%	3	2	5

4.2.2 Journeys to Work

To determine the trip distribution for work-related (commuting) journeys, 2011 Census data has been derived from www.nomisweb.co.uk, a service provided by the Office for National Statistics that gives access to UK labour market statistics from official sources.

Using *Table WU03EW – Location of usual residence and place of work by method of travel to work (MSOA level)* for all residents of the Southwark 007 and Southwark 008 Middle-layer Super Output Areas (which encompass the site, as illustrated on **Figure 1**), a trip distribution of all residents walking to work has been established, as given in **Table 12** and **Table 13** for each development scenario.

Figure 1: Southwark 007 and Southwark 008 Middle-Layer Super Output Areas

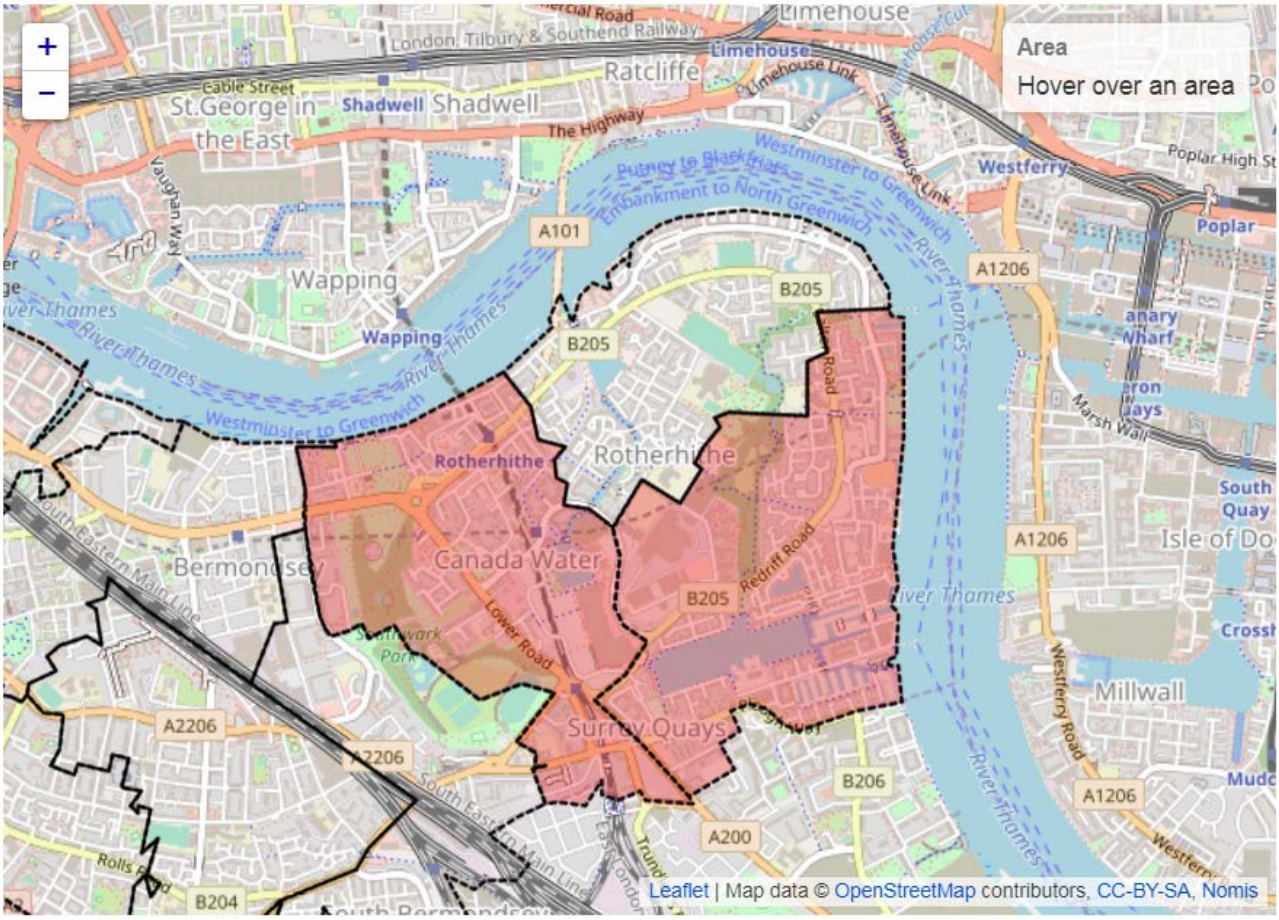


Table 10: Journey-to-Work Trip Distribution (maximum residential scenario)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	8.6%	4	24	28	17	10	27
Northeast	5.5%	3	15	18	11	6	17
East	5.4%	3	15	18	11	6	17
Southeast	5.0%	2	14	16	10	6	16
South	2.4%	1	7	8	5	3	7
Southwest	16.7%	8	46	55	33	19	52
West	20.2%	10	56	66	40	23	63
Northwest	36.2%	18	101	119	72	42	113
Total	**100.0%**	**50**	**279**	**329**	**197**	**116**	**313**

Table 11: Journey-to-Work Trip Distribution (maximum employment scenario)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	8.6%	2	12	14	8	5	13
Northeast	5.5%	1	7	9	5	3	8
East	5.4%	1	7	9	5	3	8
Southeast	5.0%	1	7	8	5	3	8
South	2.4%	1	3	4	2	1	4
Southwest	16.7%	4	23	27	16	9	25
West	20.2%	5	27	32	19	11	31
Northwest	36.2%	9	49	58	35	20	55
Total	**100.0%**	**24**	**136**	**160**	**96**	**56**	**152**

4.2.3 Education-Related Trips

To determine the trip distribution for education-related trips made by residents, an assessment of the nearest schools to the site was carried out in the Transport Assessment, assuming a worst case of no school being provided on the site and measuring the distance of existing schools from the centre of the site. Based on the distance, the assumed pupil attendance and the walking-only mode share of each school, weighting factors have been worked out for each school, resulting in an estimated trip distribution given in **Table 14**. This trip distribution has then been applied to each development scenario in **Table 15** and **Table 16**.

Table 12: Education-Related Trip Distribution

School	Distance from the Site	Direction	Assumed Proportion of Pupils within Site Attending	Assumed Walking Mode Share	Resulting Absolute Proportion of Pupils Walking to School	Adjusted Weighted Trip Distribution
Alfred Salter Primary	600m	Northeast	20%	90%	18%	28.5%
St John's RC Primary	750m	Northeast	15%	90%	13.5%	21.3%
Rotherhithe Primary	750m	South	10%	85%	8.5%	13.3%
Albion Primary	950m	North	2.5%	85%	2.125%	3.3%
St Joseph's Catholic Primary	1km	West	2.5%	85%	2.125%	3.3%
Bacon's College	950m	Northeast	20%	65%	13%	19.6%

School	Distance from the Site	Direction	Assumed Proportion of Pupils within Site Attending	Assumed Walking Mode Share	Resulting Absolute Proportion of Pupils Walking to School	Adjusted Weighted Trip Distribution
Compass School Southwark	1.9km	West	15%	20%	3%	5.3%
City of London Academy	2km	Southwest	7.5%	20%	1.5%	2.7%
St Michael's Catholic College	2.2km	Northwest	7.5%	20%	1.5%	2.7%
All	-	-	100.0%	-	63.25%	100.0%

Table 13: Education-Related Trip Distribution (maximum residential scenario)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	3.3%	2	9	11	0	0	1
Northeast	69.4%	34	194	228	8	5	12
East	0.0%	0	0	0	0	0	0
Southeast	0.0%	0	0	0	0	0	0
South	13.3%	7	37	44	1	1	2
Southwest	2.7%	1	8	9	0	0	0
West	8.6%	4	24	28	1	1	2
Northwest	2.7%	1	8	9	0	0	0
Total	**100.0%**	**50**	**279**	**329**	**11**	**7**	**18**

Table 14: Education-Related Trip Distribution (maximum employment scenario)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	3.3%	1	4	5	0	0	0
Northeast	69.4%	17	94	111	4	2	6
East	0.0%	0	0	0	0	0	0
Southeast	0.0%	0	0	0	0	0	0
South	13.3%	3	18	21	1	0	1
Southwest	2.7%	1	4	4	0	0	0
West	8.6%	2	12	14	0	0	1
Northwest	2.7%	1	4	4	0	0	0
Total	**100.0%**	**24**	**136**	**160**	**5**	**3**	**9**

4.2.4 Retail, Leisure and Personal Business Trips

To derive a trip distribution for the future residents' retail, leisure and personal business trips, a review of local attractions, shopping areas and leisure facilities has been undertaken.

It has been found that, outside the site, there are very few retail destinations within the Rotherhithe peninsula, with the exception of some local shops catering for small catchment areas. These would not constitute shopping destinations per se for the future residents of the site.

However, a number of parks and sports grounds have been identified in the north, east and northeast of the peninsula, such as Stave Hill Ecological Park, Lavender Pond Nature Reserve and St Paul's Sports Ground. To the east, southeast and south, Russia Dock Woodland, Surrey Docks Farm and Greenland Dock are also potential leisure destinations, as well as the shops along Lower Road. To the north, the area surrounding Rotherhithe London Overground Station could also be of interest, with the Brunel Museum and St Mary the Virgin's Church. To the west, Southwark Park and Southwark Athletics Centre would also potentially attract residents of the site. Finally, the Thames Path running along the River Thames can be accessed northwest, north, northeast, east and southeast of the site.

The local retail and leisure destinations are further detailed in **Table 17**, where the associated trip distribution has been estimated. The trip distribution has then been applied to each development scenario in **Table 18** and **Table 19**.

Table 15: Local Retail and Leisure Destinations and Estimated Trip Distribution

Cardinal Points and Estimated Trip Distribution		
Northwest – 15% Brunel Museum Church of St Mary the Virgin Rotherhithe The Mayflower Public House Rotherhithe Street (cobbled section) River Thames/Thames Path	***North – 5%*** Surrey Water Rotherhithe Street Bascule Bridge River Thames/Thames Path	***Northeast – 20%*** Stave Hill Ecological Park Lavender Pond Nature Reserve St Paul's Sports Ground River Thames/Thames Path
West – 10% Southwark Park	***Site***	***East – 10%*** Russian Dock Woodland Surrey Docks Farm River Thames/Thames Path
Southwest – 15% Southwark Athletics Centre Southwark Park	***South – 10%*** Shops along Lower Road	***Southeast – 15%*** Greenland Dock South Dock Marina River Thames/Thames Path

Table 16: Retail, Leisure and Personal Business Trip Distribution (maximum residential scenario)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	5%	1	7	8	8	5	13
Northeast	20%	5	28	33	33	19	52
East	10%	2	14	16	16	10	26
Southeast	15%	4	21	25	25	14	39
South	10%	2	14	16	16	10	26
Southwest	15%	4	21	25	25	14	39
West	10%	2	14	16	16	10	26
Northwest	15%	4	21	25	25	14	39
Total	**100%**	**25**	**139**	**164**	**164**	**96**	**260**

Table 17: Retail, Leisure and Personal Business Trip Distribution (maximum employment scenario)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	5%	1	3	4	4	2	6
Northeast	20%	2	14	16	16	9	25
East	10%	1	7	8	8	5	13
Southeast	15%	2	10	12	12	7	19
South	10%	1	7	8	8	5	13
Southwest	15%	2	10	12	12	7	19
West	10%	1	7	8	8	5	13
Northwest	15%	2	10	12	12	7	19
Total	**100%**	**12**	**68**	**80**	**80**	**47**	**126**

4.2.5 Student Accommodation Trips

It has been assumed that student accommodation trips would be exclusively associated with local retail, leisure and personal business purposes, as explained in **Section 4.2.1**. The trip distribution given in **Table 17** has therefore been applied to the peak-hour pedestrian flows of **Table 11**, and is presented in **Table 20**.

Table 18: Student Accommodation Trip Distribution

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	5%	0	0	0	0	0	0
Northeast	20%	0	0	0	1	0	1
East	10%	0	0	0	0	0	1
Southeast	15%	0	0	0	1	0	1
South	10%	0	0	0	0	0	1
Southwest	15%	0	0	0	1	0	1
West	10%	0	0	0	0	0	1
Northwest	15%	0	0	0	1	0	1
Total	**100%**	**0**	**1**	**1**	**3**	**2**	**5**

4.3 Office Trip Distribution

To determine the office trip distribution, 2011 Census data have been derived from www.nomisweb.co.uk. Using *Table WU03EW – Location of usual residence and place of work by method of travel to work (MSOA level)* for Southwark 007 and Southwark 008 Middle-layer Super Output Areas (which encompass the site, see **Figure 1**), a trip distribution of all office workers walking to work within the Workplace Zones Southwark 007 and Southwark 008 has been established, as given in **Table 21** and **Table 22**.

Table 19: Office Trip Distribution (maximum residential scenario)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	12.9%	57	2	60	2	43	46
Northeast	6.0%	27	1	28	1	20	21
East	5.8%	26	1	27	1	19	20
Southeast	14.4%	64	3	67	3	48	51
South	10.0%	44	2	46	2	33	35
Southwest	20.5%	91	4	95	4	68	72
West	21.6%	96	4	100	4	72	76
Northwest	8.8%	39	2	41	2	29	31
Total	**100.0%**	**443**	**19**	**463**	**19**	**333**	**352**

Table 20: Office Trip Distribution (maximum employment scenario)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	12.9%	134	6	139	6	100	106
Northeast	6.0%	62	3	65	3	46	49
East	5.8%	60	3	62	3	45	47
Southeast	14.4%	149	6	155	6	112	118
South	10.0%	103	4	107	4	77	82
Southwest	20.5%	211	9	220	9	158	168
West	21.6%	223	10	232	10	167	177
Northwest	8.8%	91	4	95	4	68	72
Total	**100.0%**	**1,032**	**45**	**1,077**	**45**	**774**	**819**

4.4 Trip Distribution for All Other Land Uses

The pedestrian trip distribution for all other land uses (hotel, commercial leisure, public leisure, foodstore, other retail and community) has been established on the basis of a population-gravity model.

In order to do so, 2011 Census data has been derived from www.nomisweb.co.uk. Using *Table KS101EW – Usual resident population* for all Lower-layer Super Output Areas encompassing places within an estimated 20- to 25-minute walking distance of the site (as illustrated on **Figure 2** and **Figure 3**, for the London Boroughs of Southwark and Lewisham, respectively), a trip distribution of all office workers walking to work within the Workplace Zones Southwark 007 and Southwark 008 has been established, as given in **Table 23**, for both development scenarios.

Figure 2: Selected Lower-Layer Super Output Areas in the London Borough of Southwark

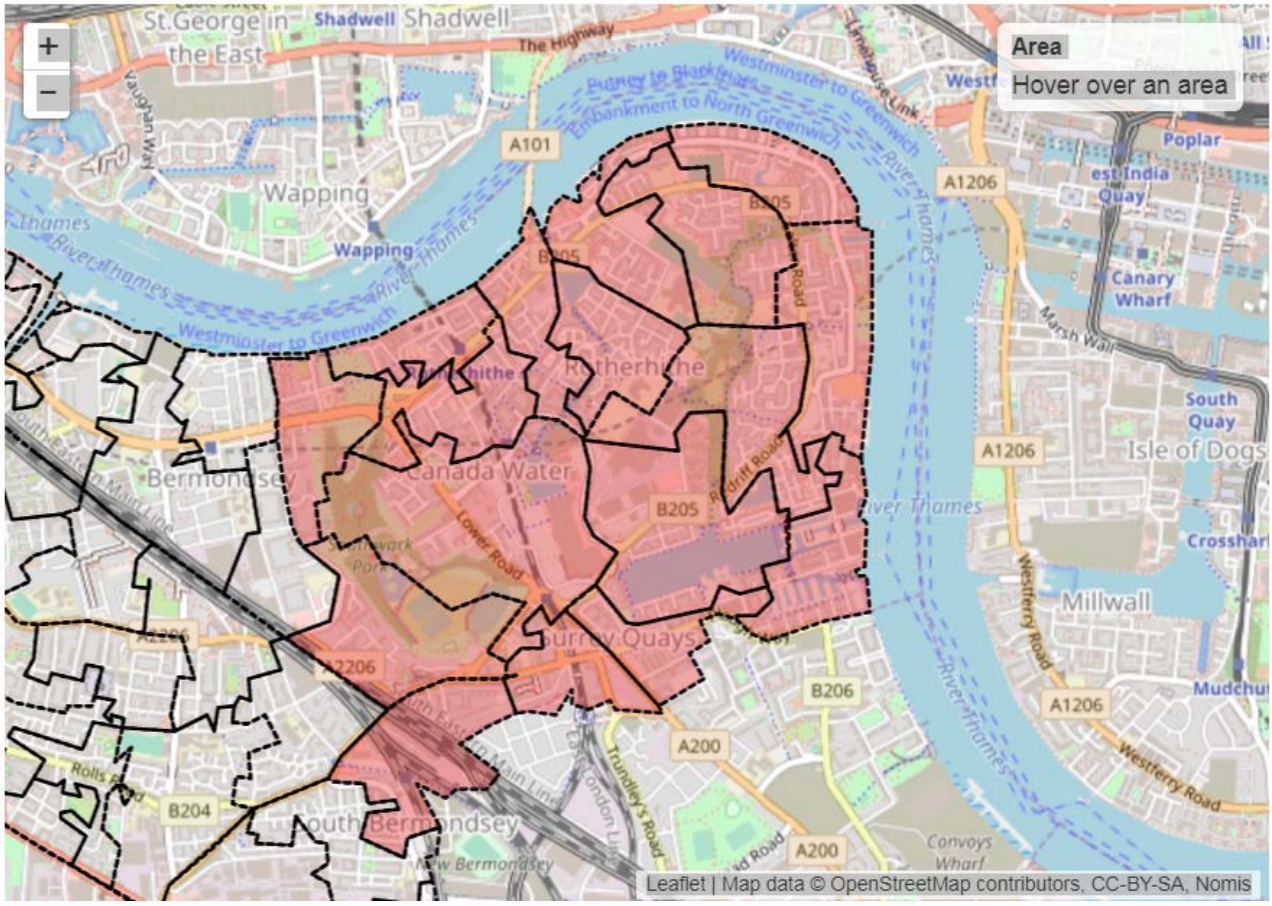


Figure 3: Selected Lower-Layer Super Output Areas in the London Borough of Lewisham

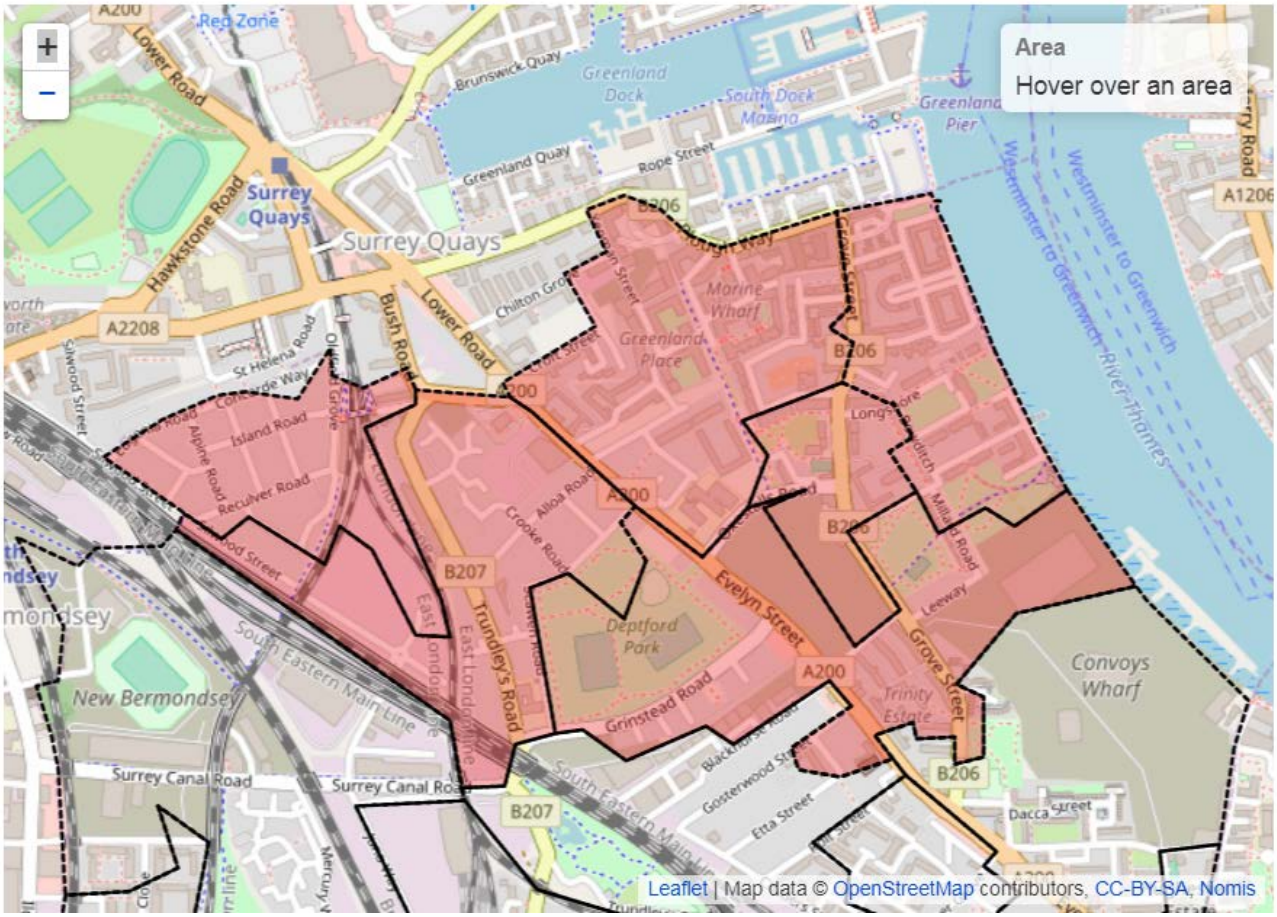


Table 21: Trip Distribution for All Other Land Uses (both development scenarios)

Direction	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
North	13.9%	54	32	87	124	130	254
Northeast	16.9%	66	39	105	150	158	308
East	6.3%	25	15	40	56	59	116
Southeast	24.8%	97	58	155	221	232	453
South	13.6%	53	32	85	121	127	248
Southwest	7.4%	29	17	46	66	69	135
West	5.3%	21	12	33	48	50	97
Northwest	11.7%	46	27	73	104	109	214
Total	**100%**	**392**	**233**	**625**	**892**	**934**	**1,826**

5 London Underground, London Overground and National Rail Trips

5.1 Station Entries and Exits

London Underground, London Overground and National Rail trips have been distributed to the pedestrian routes to Canada Water and Surrey Quays stations. Canada Water station is served by the London Underground (Jubilee line) and the London Overground (East London line), while Surrey Quays station is only served by the London Overground (East London line).

The modal split summary for forecast external pedestrian trips in **Table 24** does not distinguish London Overground trips from London Underground ones, as both lines are categorised as 'underground'. To separate one category from the other, and then allocate all trips accordingly onto the network and the relevant stations, station entry and exit data have been analysed for the 2031 proposed development trips (2031 Do-Something minus Do-Minimum scenario).

Table 22: 2031 Station Entries and Exits for Development Trips (Three-Hour AM Peak, 07:00-10:00)

	2031 Do-Something minus Do-Minimum Scenario	
	Canada Water	**Surrey Quays**
Station Entries	1,211 (87.1% of entries)	179 (12.9% of entries)
Station Exits	4,773 (62.8% of exits)	2,826 (37.2% of exits)
Jubilee Line	5,925 (65.9% of all entries and exits)	-
East London Line	59	3,005
	(34.1% of all entries and exits)	
Interchanges	-379	-

It is noted that, although the 2031 three-hour AM peak station entry and exit figures in **Table 24** are based on a previous Development Scenario used for the Strategic Transport Study model, they still broadly align with the AM peak hour ones predicted in **Table 3** and **Table 4**, which are respectively based on the maximum residential and maximum employment development scenarios:

- The maximum residential scenario forecasts 457 entries/departures in the AM peak hour, i.e. approximately 1,371 trips when multiplied by three, to be compared with the 1,390 station entries during the three-hour AM peak period; and
- The maximum employment scenario forecasts 2,849 exits/arrivals in the AM peak hour, i.e. around 8,547 trips when multiplied by three, to be compared with the 7,599 station exits during the three-hour AM peak period.

5.2 Trip Distribution

5.2.1 London Underground

Based on the station entry and exit data given in **Table 24**, it is estimated that 65.9% of all 'London Underground/London Overground' trips (see **Table 3** and **Table 4**) will be made on the London

Underground and will therefore travel from and to Canada Water station, as shown in **Table 25** and **Table 26** for each development scenario.

Table 23: London Underground Trip Distribution (maximum residential scenario)

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Canada Water	65.9%	65.9%	65.9%	65.9%	65.9%	65.9%
	885	**301**	**1,186**	**397**	**867**	**1,264**

Table 24: London Underground Trip Distribution (maximum employment scenario)

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Canada Water	65.9%	65.9%	65.9%	65.9%	65.9%	65.9%
	1,878	**230**	**2,108**	**343**	**1,570**	**1,913**

5.2.2 London Overground

Table 24 shows that an estimated 34.1% of all entries and exits are related to use of the London Overground, of which 1.9% (59) occur at Canada Water station and 98.1% (3,005) at Surrey Quays station. These proportions have been applied to the 'London Underground/London Overground' trips in **Table 3** and **Table 4** and have given the following London Overground trip distributions for each development scenario, as shown in **Table 27** and **Table 28**.

Table 25: London Overground Trip Distribution (maximum residential scenario)

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Overall	34.1%	34.1%	34.1%	34.1%	34.1%	34.1%
	458	**156**	**613**	**205**	**448**	**654**
Canada Water	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
	9	3	12	4	9	13
Surrey Quays	33.4%	33.4%	33.4%	33.4%	33.4%	33.4%
	449	153	601	201	440	641

Table 26: London Overground Trip Distribution (maximum employment scenario)

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Overall	34.1%	34.1%	34.1%	34.1%	34.1%	34.1%
	971	**119**	**1,090**	**177**	**812**	**989**
Canada Water	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
	19	2	21	3	16	19
Surrey Quays	33.4%	33.4%	33.4%	33.4%	33.4%	33.4%

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
	952	117	1,069	174	797	970

5.3 National Rail

As there is no National Rail station within walking distance of the site, it is assumed that all office workers using National Rail services as their main mode of transport will begin or end their journey using either London Underground or London Overground services. As such, all National Rail trips set out in **Table 3** and **Table 4** have been allocated to both Canada Water and Surrey Quays stations on the basis of station entry and exit proportions. The National Rail trip distribution is given in **Table 29** and **Table 30**.

Table 27: National Rail Trip Distribution (maximum residential scenario)

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Overall	**703**	**89**	**792**	**116**	**578**	**694**
Canada Water	87.1%	62.8%	-	87.1%	62.8%	-
	612	56	668	101	363	464
Surrey Quays	12.9%	37.2%	-	12.9%	37.2%	-
	91	33	124	15	215	230

Table 28: National Rail Trip Distribution (maximum employment scenario)

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Overall	**1,604**	**103**	**1,707**	**128**	**1,242**	**1,370**
Canada Water	87.1%	62.8%	-	87.1%	62.8%	-
	1,397	65	1,462	112	780	892
Surrey Quays	12.9%	37.2%	-	12.9%	37.2%	-
	207	38	245	16	462	478

5.4 Total London Underground, London Overground and National Rail Trips

The total pedestrian trip distributions for London Underground, London Overground and National Rail services are presented in **Table 31** and **Table 32** for the maximum residential and maximum employment scenarios respectively.

It should be noted that in assigning these walking trips to the local pedestrian network, it has been assumed for robustness that no new station entrance would be provided at Surrey Quays, and all trips between the Development and Surrey Quays would require a passenger to cross Lower Road.

Table 29: Total London Underground, London Overground and National Rail Trip Distribution (maximum residential scenario)

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Canada Water	1,506	360	1,866	502	1,239	1,740
Surrey Quays	539	186	725	216	655	871
Overall	**2,045**	**546**	**2,591**	**718**	**1,894**	**2,611**

Table 30: Total London Underground, London Overground and National Rail Trip Distribution (maximum empployment scenario)

Station	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Canada Water	3,294	297	3,591	457	2,366	2,824
Surrey Quays	1,159	155	1,314	190	1,258	1,449
Overall	**4,453**	**452**	**4,905**	**648**	**3,625**	**4,272**

6 Bus Trips

The redevelopment of the Canada Water Masterplan area will be accompanied by changes to the internal highway layout and internal bus stop locations. On the fringes of the site, however, no changes to bus stop locations will be made. For calculation purposes, it has been assumed that there would be no changes in bus route frequency or routing and the existing routes that currently stop there would continue to do so in the future (in reality, it is expected that there will be more buses and changes to route, as part of the Masterplan).

It is considered that users of the proposed development will walk to and from one of the five pairs of bus stops located immediately outside the site to catch a number of bus services, as set out in **Table 33**.

Table 31: Local Bus Stops, Bus Service Frequencies and Trip Distribution

Bus Service	Nearest Bus Stops Outside the Site	AM Peak Hour Frequency (Buses per Hour per Direction)	Proportion of Buses Serving this Route
1 – New Oxford Street – Canada Water Bus Station	Canada Water Bus Station Rotherhithe Police Station Surrey Quays Station	7.5	15.5%
47 – Newquay Road – Shoreditch	Canada Water Bus Station Canada Street Surrey Quays Station	5	10.3%
188 – North Greenwich Station – Russell Square	Canada Water Bus Station Canada Street Surrey Quays Station	8	16.5%
199 – Catford Garage – Canada Water Bus Station	Canada Water Bus Station Rotherhithe Police Station Surrey Quays Station	5	10.3%
225 – Springbank Road/Hither Green Station – Canada Water Bus Station	Canada Water Bus Station Rotherhithe Police Station Surrey Quays Station	4	8.2%
381 – Peckham Bus Station – County Hall	Canada Water Bus Station Rotherhithe Police Station Surrey Quays Station Canada Street Brunswick Quay	6	12.4%
C10 – Victoria Station/Grosvenor Gardens – Canada Water Bus Station	Canada Water Bus Station Canada Street Brunswick Quay	8	16.5%
P12 – Surrey Quays Shopping Centre – Brockley Rise/Chandos	Canada Water Bus Station Rotherhithe Police Station Canada Street	5	10.3%

Within the site, three pairs of bus stops will be provided (two on Deal Porters Way and one on Surrey Quays Road), therefore, assuming the number of bus trips is proportional to the number of bus stops provided, the number of external bus trips will be approximately equal to 5/8 (62.5%) of all bus trips given in **Table 3** and **Table 4**. Based on the above bus route frequencies in **Table 33**, a trip distribution to the five pair of bus stops has been established, assuming an equal split between bus stops served by each route for the maximum residential development scenario (**Table 34**) and the maximum employment development scenario (**Table 35**).

Table 32: Local Bus Stop Trip Distribution (maximum residential scenario)

Bus Stop	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
All Bus Stops	(100%)	829	395	1,224	547	943	1,489
All External Bus Stops	**(62.5%)**	**518**	**247**	**765**	**342**	**589**	**930**
Canada Water Bus Station	*31.7%*	*164*	*78*	*243*	*108*	*187*	*295*
Rotherhithe Police Station	*17.2%*	*89*	*42*	*132*	*59*	*101*	*160*
Surrey Quays Station	*22.7%*	*118*	*56*	*174*	*78*	*134*	*211*
Canada Street	*20.3%*	*105*	*50*	*155*	*69*	*120*	*189*
Brunswick Quay	*8.0%*	*41*	*20*	*61*	*27*	*47*	*74*

Table 33: Local Bus Stop Trip Distribution (maximum employment scenario)

Bus Stop	Trip Distribution	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
All Bus Stops	(100%)	1,619	288	1,907	507	1,510	2,018
All External Bus Stops	**(62.5%)**	**1,012**	**180**	**1,192**	**317**	**943**	**1,261**
Canada Water Bus Station	*31.7%*	*321*	*57*	*378*	*100*	*299*	*400*
Rotherhithe Police Station	*17.2%*	*174*	*31*	*205*	*55*	*162*	*217*
Surrey Quays Station	*22.7%*	*230*	*41*	*271*	*72*	*214*	*286*
Canada Street	*20.3%*	*205*	*37*	*242*	*64*	*192*	*256*
Brunswick Quay	*8.0%*	*81*	*14*	*95*	*25*	*75*	*101*

7 External Pedestrian Trip Distribution Summary

The external pedestrian trip distributions for each development scenario are summarised in **Table 36** and **Table 37**.

Table 34: External Pedestrian Trip Distribution Summary (maximum residential scenario)

Direction	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
External Walking-Only Trips						
North	119	75	194	152	188	340
Northeast	135	278	412	204	208	412
East	56	45	101	85	94	179
Southeast	167	96	263	259	300	560
South	108	91	199	146	174	320
Southwest	133	96	229	128	171	300
West	133	111	244	109	155	265
Northwest	108	159	267	203	196	399
Sub-Total	**959**	**951**	**1,910**	**1,287**	**1,487**	**2,773**
Walking Trips to London Underground, London Overground and National Rail Services						
Canada Water	1,506	360	1,866	502	1,239	1,740
Surrey Quays	539	186	725	216	655	871
Sub-Total	**2,045**	**546**	**2,591**	**718**	**1,894**	**2,611**
External Bus Trips						
Canada Water Bus Station	164	78	243	108	187	295
Rotherhithe Police Station	89	42	132	59	101	160
Surrey Quays Station	118	56	174	78	134	211
Canada Street	105	50	155	69	120	189
Brunswick Quay	41	20	61	27	47	74
Sub-Total	**518**	**247**	**765**	**342**	**589**	**930**
Total External Pedestrian Trips						
Total	**3,522**	**1,743**	**5,266**	**2,346**	**3,970**	**6,315**

Table 35: External Pedestrian Trip Distribution Summary (maximum employment scenario)

Direction	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
External Walking-Only Trips						
North	191	58	249	142	237	380
Northeast	148	157	306	179	219	398
East	87	32	118	73	112	184
Southeast	249	81	331	245	354	599
South	161	64	225	137	211	348
Southwest	247	63	310	104	244	348
West	252	68	320	85	233	319
Northwest	148	94	243	156	206	361
Sub-Total	**1,484**	**618**	**2,102**	**1,121**	**1,816**	**2,937**
Walking Trips to London Underground, London Overground and National Rail Services						
Canada Water	3,294	297	3,591	457	2,366	2,824
Surrey Quays	1,159	155	1,314	190	1,258	1,449
Sub-Total	**4,453**	**452**	**4,905**	**648**	**3,625**	**4,272**
External Bus Trips						
Canada Water Bus Station	321	57	378	100	299	400
Rotherhithe Police Station	174	31	205	55	162	217
Surrey Quays Station	230	41	271	72	214	286
Canada Street	205	37	242	64	192	256
Brunswick Quay	81	14	95	25	75	101
Sub-Total	**1,012**	**180**	**1,192**	**317**	**943**	**1,261**
Total External Pedestrian Trips						
Total	**6,949**	**1,250**	**8,199**	**2,085**	**6,384**	**8,470**

8 Mapped Pedestrian Flows at Perimeter Pedestrian Crossings

The predicted pedestrian flows at the pedestrian crossings on the perimeter of the site have been plotted onto **Figure 5**, **Figure 6**, **Figure 7** and **Figure 8**, based on the directions of travel indicated on **Figure 4**.

It can be seen that the pedestrian crossings located immediately outside the site that experience the highest pedestrian flows are those near Canada Water (London Underground and London Overground) station and bus station and near Surrey Quays (London Overground) station. The

highest two-way pedestrian movements are forecast to occur across Surrey Quays Road, outside Canada Water stations, at two crossings either side of the junction with Deal Porters Way, with a maximum of 950 movements in the AM peak hour in the maximum employment scenario. This equates to an average of 16 two-way movements at each of the two crossings per minute.

Figures

Figure 4: Pedestrian Movements at Perimeter of Site – Direction of Travel

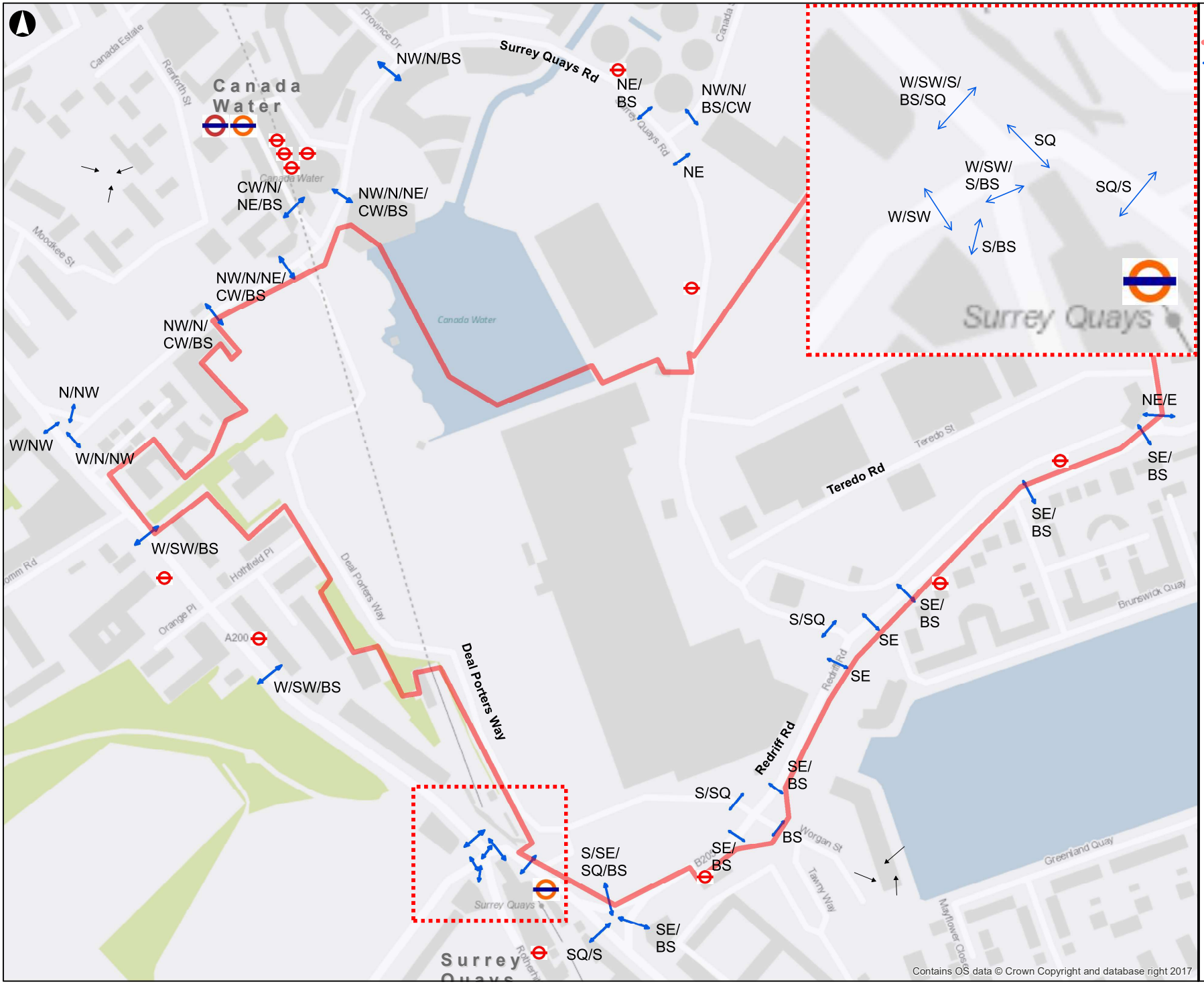
Figure 5: Pedestrian Movements at Perimeter of Site – Scenario 1A – AM Peak Hour

Figure 6: Pedestrian Movements at Perimeter of Site – Scenario 1A – PM Peak Hour

Figure 7: Pedestrian Movements at Perimeter of Site – Scenario 2A – AM Peak Hour

Figure 8: Pedestrian Movements at Perimeter of Site – Scenario 2A – PM Peak Hour

A3



Legend

- Site Location
- Pedestrian Crossings
- Underground Station
- Overground Station
- Bus Stop

BS - Bus Stop
SQ - Surrey Quays
CW - Canada Water
N - North
E - East
S - South
W - West
NE - North East
NW - North West
SE - South East
SW - South West

Metres
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Revision	Date	By	Chkd	Appd
P1	07/03/18	KB	SP	SJ

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Client
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Job Title
Canada Water Masterplan

Drawing Title
Direction of Pedestrian Movement

Scale at A3
1:2,550

Job No	Drawing Status
235588-00	**Final Issue**

Drawing No	Revision
Figure 4	**P1**

MXD Location

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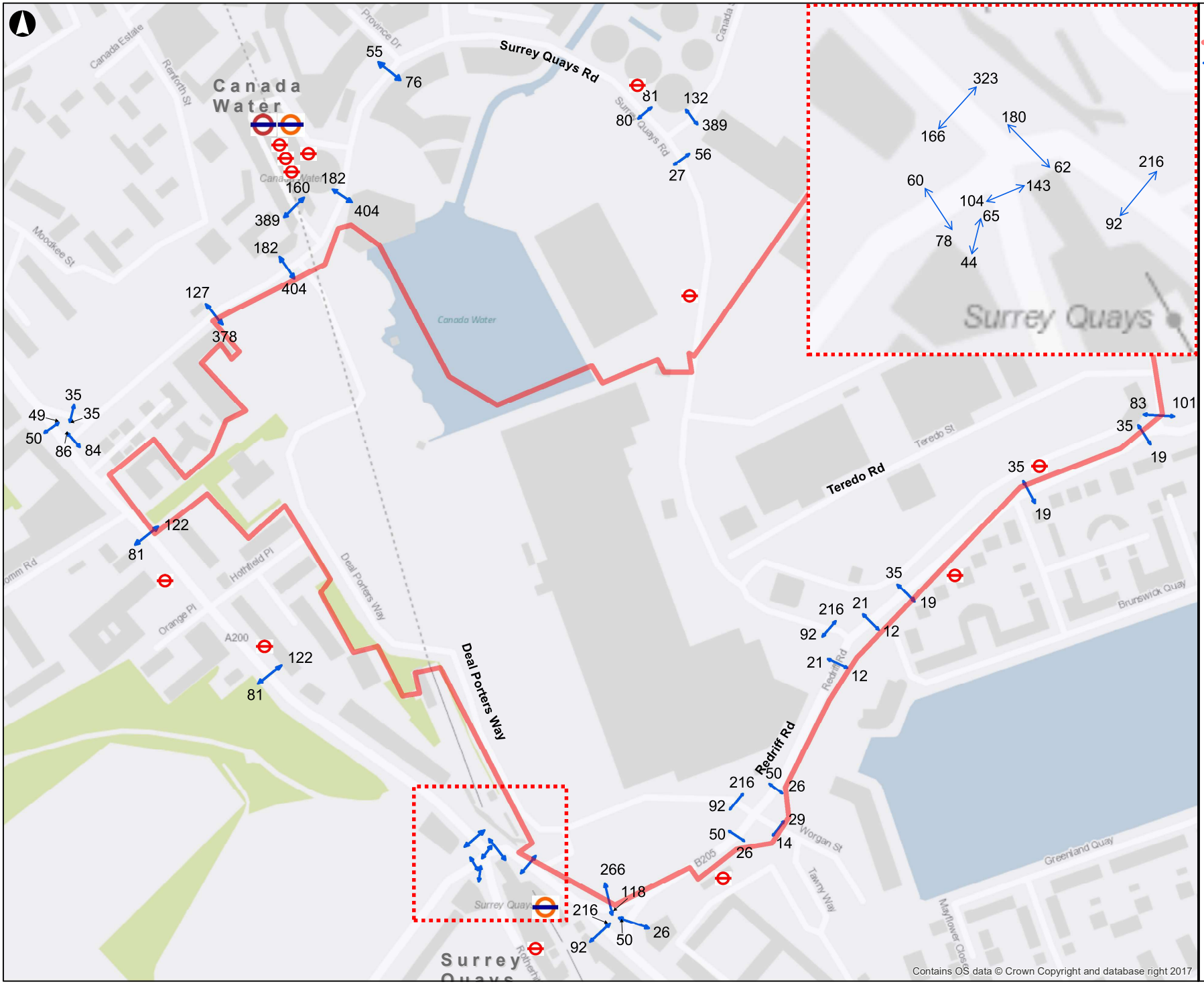
A3



Legend

- Site Location
- Pedestrian Crossings
- Underground Station
- Overground Station
- Bus Stop

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Job Title
Canada Water Masterplan

Drawing Title
Pedestrian movements at perimeter of site.
Scenario 1A - AM Peak Hour

Scale at A3
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Job No	Drawing Status
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Drawing No	Revision
Figure 5	**P1**

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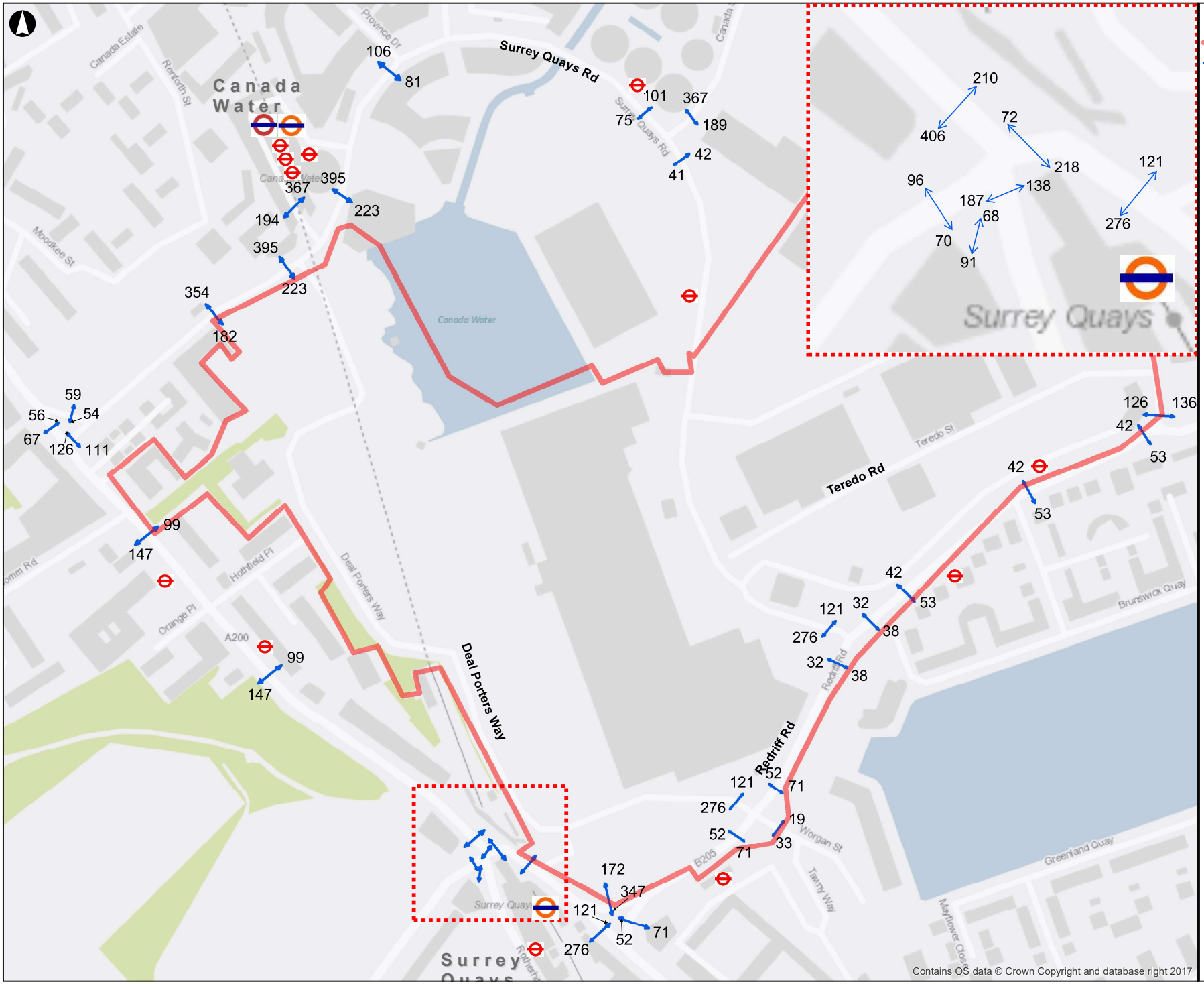

Legend

- Site Location
- Pedestrian Crossings
- Underground Station
- Overground Station
- Bus Stop

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Job Title
Canada Water Masterplan

Drawing Title
Pedestrian movements at perimeter of site. Scenario 1A - PM Peak Hour

Scale at A3
1:2,550

Job No	Drawing Status
235588-00	**Final Issue**

Drawing No	Revision
Figure 6	**P1**

MXD Location

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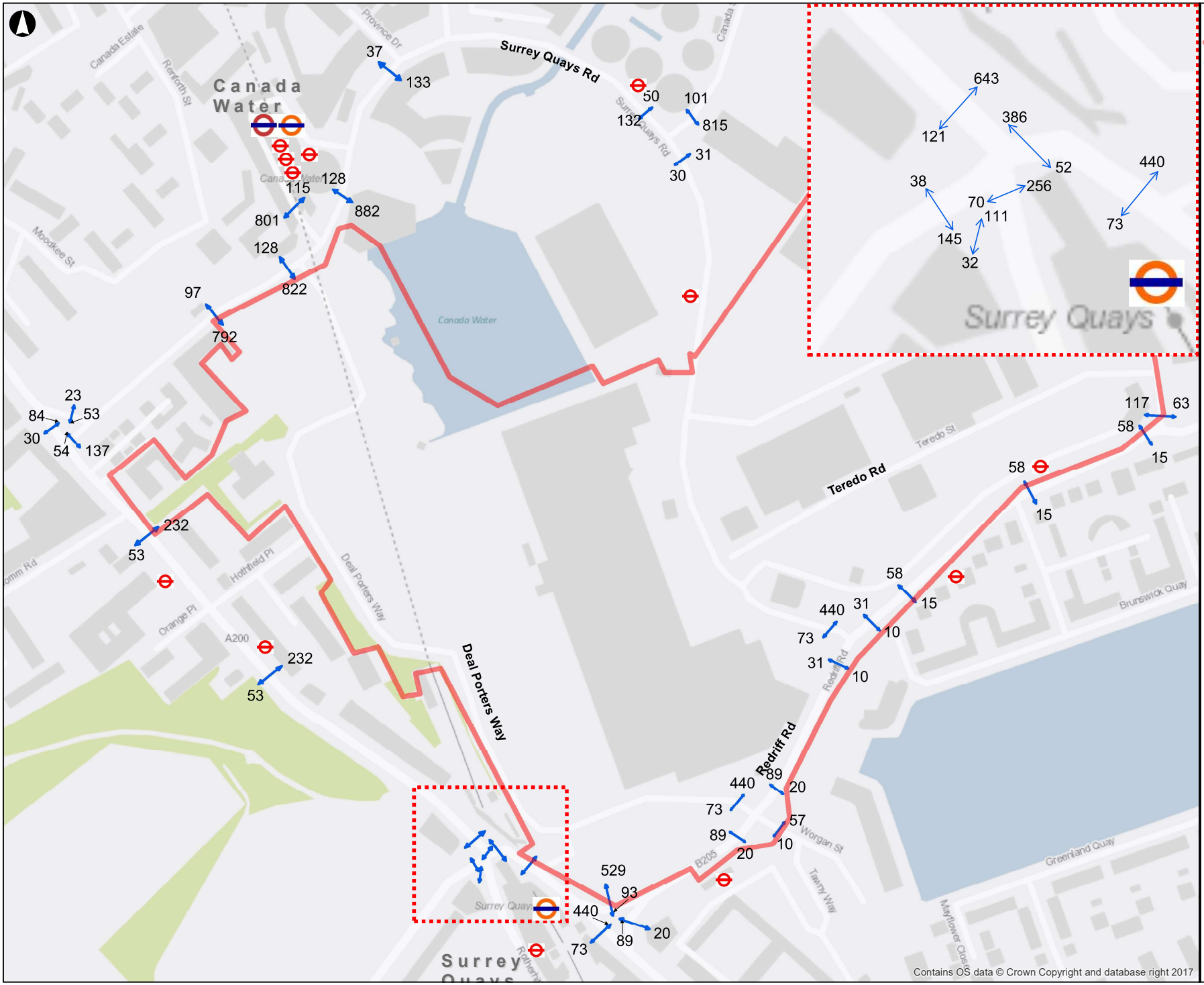

Legend

- Site Location
- Pedestrian Crossings
- Underground Station
- Overground Station
- Bus Stop

Metres
0 25 50 100

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Client
British Land

Job Title
Canada Water Masterplan

Drawing Title
Pedestrian movements at perimeter of site.
Scenario 2A - AM Peak Hour

Scale at A3
1:2,550

Job No	Drawing Status
235588-00	**Final Issue**

Drawing No	Revision
Figure 7	**P1**

MXD Location

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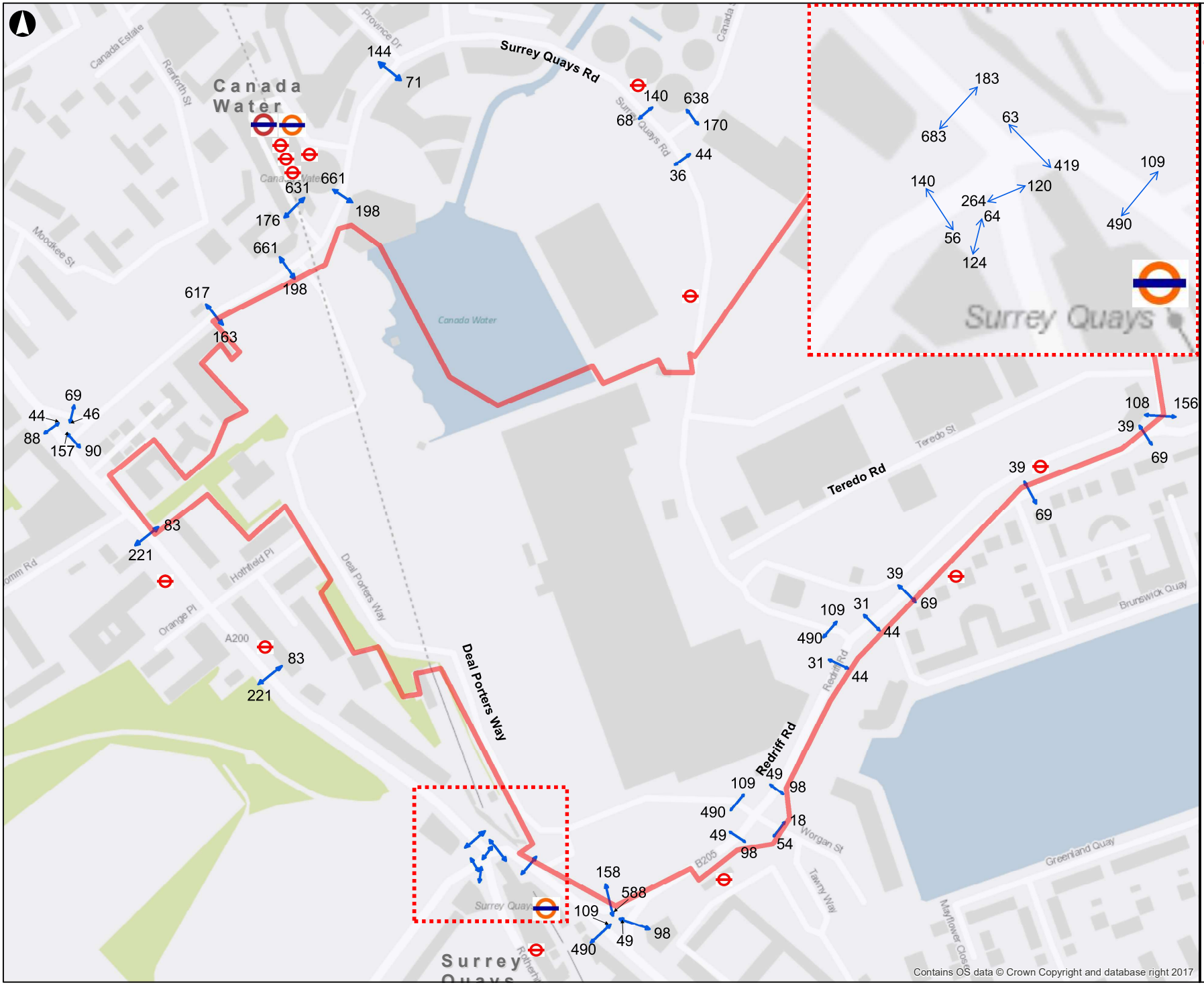
A3



Legend

- Site Location
- Pedestrian Crossings
- Underground Station
- Overground Station
- Bus Stop

Metres
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Job Title
Canada Water Masterplan

Drawing Title
Pedestrian movements at perimeter of site.
Scenario 2A - PM Peak Hour

Scale at A3
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Job No	Drawing Status
235588-00	**Final Issue**

Drawing No	Revision
Figure 8	**P1**

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Appendix J – Framework Travel Plan

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1. Introduction and Development Context

1.1 APPLICATION FORMAT

1.1.1 This Site-Wide Framework Travel Plan has been prepared by Arup and is submitted in support of a hybrid planning application for the Canada Water Masterplan. The hybrid planning application is made in relation to land bounded by Surrey Quays Road to the north, Lower Road (A200) to the west, Redriff Road (B205) to the south and Quebec Way to the east (the "Site") on behalf of BL CW Holdings Ltd, a subsidiary of British Land Company Plc ("The Applicant"), hereafter referred to as "British Land".

1.1.2 The hybrid planning application is formed of detailed development proposals in respect of Plots A1, A2 and K1 for which no matters are reserved ("Detailed Proposals"), and outline development proposals for the remainder of the Site, with all matters reserved ("Outline Proposals"). The Detailed Proposals and Outline Proposals together are referred to as the "Development".

1.1.3 The Development comprises the comprehensive redevelopment of the Surrey Quays Shopping Centre, former Harmsworth Quays Printworks and Surrey Quays Leisure Park sites, former Dock Offices Courtyard, former Rotherhithe Police Station and land at Roberts Close. The Development will provide new retail, office, leisure and community floorspace along with residential dwellings. The Development will also provide significant, high quality public realm, including a new Town Square, a new High Street and a public park.

1.1.4 The description of development is:

'Hybrid planning application seeking outline planning permission with all matters reserved for the demolition of all existing structures and redevelopment comprising the following mix of uses: retail (A1-A5), workspace (B1), hotel (C1), residential (C3), assisted living (C2), student accommodation (Sui Generis), leisure (including a cinema) (D2), community facilities (including health and education uses) (D1), an energy centre (Sui Generis), a temporary and permanent petrol filling station (Sui Generis), a primary electricity substation (Sui Generis), a secondary entrance for Surrey Quays Rail Station, landscaping including open spaces and public realm, car parking, means of access, associated infrastructure and highways works and demolition or retention with alterations of the Press Hall and Spine Building of the Printworks and seeking detailed planning permission for Plot A1 to provide uses comprising retail (A1-A5), workspace (B1) and residential (C3), Plot A2 to provide uses comprising retail (A1-A5), workspace (B1) and a public leisure centre (D2) and Plot K1 to provide residential use (C3).'

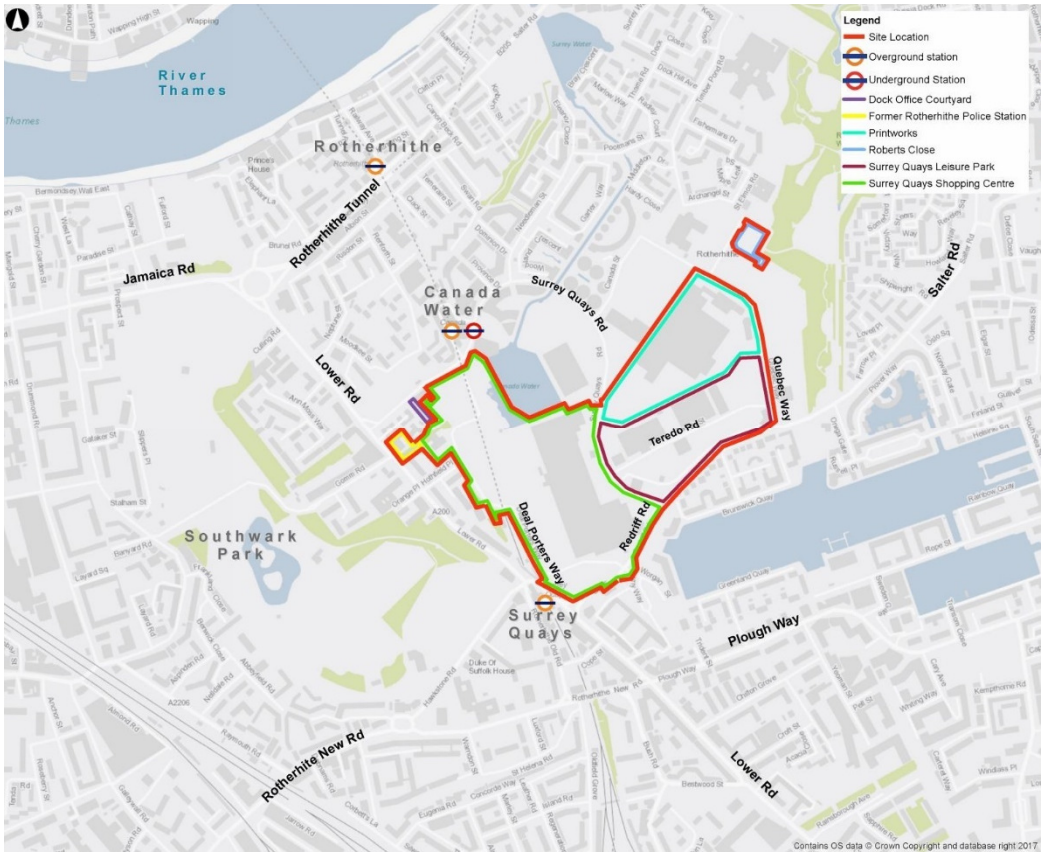
1.1.5 The purpose of the Site-Wide Framework Travel Plan is to encourage sustainable means of travel, identify appropriate mode share targets, the key measures that will be implemented to achieve these targets, and establish the overarching mechanisms to manage subsequent Travel Plans and monitor their effectiveness for influencing travel choices.

1.2 BACKGROUND AND SITE LOCATION

1.2.1 Canada Water is one of the 38 Opportunity Areas (OAs) identified across London by the Greater London Authority (GLA). Opportunity Areas are London's major source of brownfield land which have significant capacity for development and existing or potentially improved public transport access. Within the Canada Water OA, the Site is the single largest development opportunity and the vision for the Canada Water Masterplan is to create a vibrant, inclusive, mixed-use urban centre comprising a wide range of uses including workspace, retail, leisure, community and public spaces, as well as new homes.

The extent of the Site is shown in Figure 1.1. The Site is bounded by Surrey Quays Road to the north, Lower Road (A200) to the west, Redriff Road (B205) to the south, and Quebec Way to the east.

Figure 1.1: Site Location Plan



1.2.2 Canada Water station and Surrey Quays station are located in close proximity to the Site, providing access to Jubilee line underground services and London Overground services, as well as several bus routes. Existing and future public transport provision is covered in greater detail in Section 2.

1.2.3 The A200 Lower Road is located a short distance to the south-west of the site, and forms part of the Strategic Road Network. This provides a connection to the Rotherhithe Tunnel and Jamaica Road, both of which form part of the Transport for London Road

Network (TLRN). TfL intends to deliver Cycle Superhighway 4 (CS4) along the Jamaica Road / Lower Road / Evelyn Street corridor, although consideration is still being given to proposals along Lower Road by Southwark Council, pending the conclusions of a Strategic Transport Study (STS) for the Canada Water Opportunity Area, which is currently being jointly undertaken by Transport for London (TfL) and Southwark Council.

1.2.4 Other key roads in the area are Redriff Road, running along the Site's south-eastern boundary, and Surrey Quays Road which runs through the site between Surrey Quays Shopping Centre and Surrey Quays Leisure Park.

1.3 PROPOSED DEVELOPMENT

1.3.1 A hybrid planning application has been submitted, seeking detailed planning permission for three plots (A1, A2 and K1) within the masterplan area which would be delivered as part of the first phase of development, with the remainder of the Development applied for in outline. The Detailed Proposals seek consent for the land uses shown in Table 1.1. Table 1.2 then shows the range of uses being applied for as part of the Outline Proposals.

Table 1.1: Total Floorspace by use class within the Detailed Proposals

Land Use	Use Class	Plot A1 (GEA Sq.m)	Plot A2 (GEA Sq.m)	Plot K1 (GEA Sq.m)	TOTAL
Retail	A1-A5	1,028	890	-	**1,918**
Workspace	B1	16,344	21,744	-	**38,088**
Residential	C3	21,580	-	7.723	**29,303**
Leisure Centre	D2	-	5,979	-	**5,979**
Parking and Plant	-	2,610	3,414	258	**6,282**
TOTAL (excluding parking and plant)	-	**38,952**	**28,613**	**7,723**	**75,288**
TOTAL (including parking and plant)	-	**41,562**	**32,027**	**7,981**	**81,570**

Table 1.2: Floorspace parameters by Zone and use class within the outline proposals

Development Zone	Use Class	Zone B GEA SQ M	Zone C GEA SQ M	Zone D GEA SQ M	Zone E GEA SQ M	Zone F GEA SQ M	Zone G GEA SQ M	Zone H GEA SQ M	Zone J GEA SQ M	Zone L GEA SQ M	Zone M GEA SQ M	Zone N GEA SQ M	Zone P GEA SQ M	MAXIMUM GEA CAP BY USE (SQ M)
Retail	A1-A5	9,000	2,800	32,700	6,600	3,700	21,700	5,300	3,000	800	400	500	150	**86,650**
Workspace	B1	41,500	27,600	75,300	19,000	33,500	5,000	67,600	1,500	11,500	-	-	-	**282,500**
Hotel	C1	-	-	7,500	-	-	-	-	-	-	-	-	-	**7,500**
Assisted Living	C2	-	-	-	3,700	-	15,500	14,400	20,200	9,700	-	-	-	**35,700**
Residential	C3	27,300	23,000	38,700	13,600	60,700	44,200	41,200	57,700	27,600	4,500	-	-	**338,500**
Community Facilities	D1	4,600	-	4,600	2,900	33,500	5,000	-	4,000	4,000	700	-	150	**45,650**
Leisure/ Cultural	D2	-	-	20,000	7,500	7,500	-	25,000	-	-	-	-	-	**51,500***
Night Club	Sui Generis	-	-	1,500	-	-	-	1,500	-	-	-	-	-	**1,500**
Student Accommodation	Sui Generis	27,300	23,000	-	-	31,200	30,000	-	-	-	-	-	-	**50,300**
Energy Centre	Sui Generis	2,000	2,000	-	-	-	-	-	-	-	-	-	-	**2,000**
Primary Sub-Station	Sui Generis	-	-	-	3,000	-	-	-	-	3,000	-	-	-	**3,000**
Multi-Storey Car Park	Sui Generis	-	17,200	-	17,200	-	-	-	-	-	-	-	-	**17,200**
Petrol Filling Station	Sui Generis	-	3,000	-	3,000	-	-	-	-	-	-	-	-	**3,000**
Interim Petrol Filling Station	Sui Generis	-	3,000	-	-	-	-	-	-	-	-	-	-	**3,000**
Transport Infrastructure (potential second entrance to SQ Station)	Sui Generis	500	-	-	-	-	-	-	-	-	-	500	-	**500**
Flexible Events Space	Sui Generis	-	-	5,000	-	-	-	-	-	-	-	-	-	**5,000**
Parking and Plant	-	10,200	7,300	30,400	10,500	8,000	31,000**	18,400	13,700	3,400	400	250	200	**133,750**
Public Toilets	Sui Generis	-	-	-	-	-	-	-	-	-	-	-	-	**500***
MAXIMUM GEA CAP PER ZONE (SQ M) (excluding public toilets, parking and plant)	-	**76,000**	**48,900**	**159,800**	**36,600**	**89,900**	**65,900**	**82,500**	**60,700**	**29,800**	**5,200**	**750**	**150**	
TOTAL MAXIMUM GEA CAP (SQ M) (excluding public toilets, parking and plant)	**656,200**													

1.3.2 The first phase of development is intended to be completed and occupied in 2022 and 2023. Phasing for the remaining development will be developed at a later date, but it is likely that development will be on-going through to the early 2030s.

1.4 TRAVEL PLAN SCOPE

1.4.1 This Site-Wide Framework Travel Plan looks to establish a structured strategy that will enable residents, employees and visitors to the development to travel by sustainable modes, building on Healthy Streets principles to promote an urban environment where the quality of life and the quality of the environment are integral and that people will enjoy, want to spend time, and feel safe in. The Site-Wide Framework Travel Plan will do this through setting out clear objectives and targets, supported by suitable policies and an appropriate package of measures aimed at promoting sustainable travel with an emphasis on promoting alternatives to the car.

1.4.2 The Travel Plan is essentially a 'living document' requiring monitoring, review and revision to ensure it remains relevant to the organisation and those using the site and provides continuous improvements for its duration.

1.4.3 This document sets out the Site-Wide Framework Travel Plan proposals being developed by British Land as part of the planning application for the Development. It forms a central element of the overall transport strategy and:

- Explains the existing transport options available to travel to or from the site;
- Sets out a series of objectives for the Development;
- Identifies and describes the initiatives proposed to support the objectives;
- Establishes an action plan, identifying parties responsible for the delivery of each milestone; and
- Proposes a management structure for delivery and monitoring.

1.4.4 The structure of this Site-Wide Framework Travel Plan has been informed by TfL guidance on Travel Plans published in 2013.

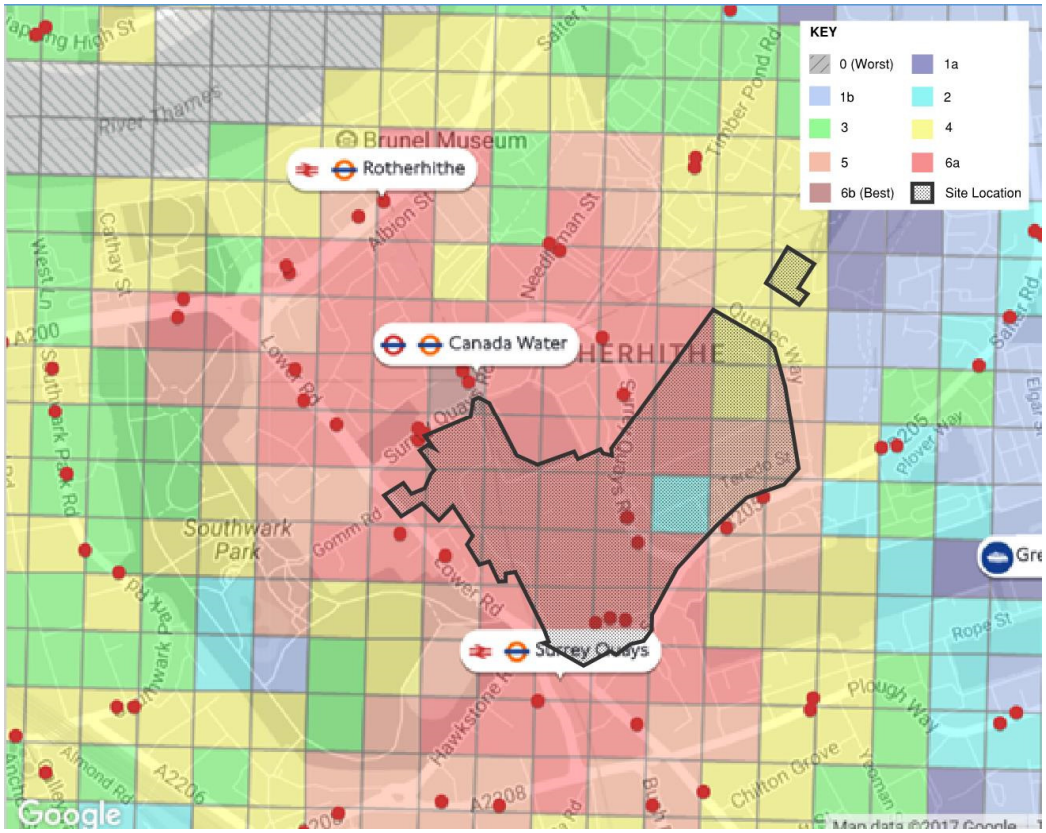
1.4.5 This Site-Wide Framework Travel Plan should be read in conjunction with the Transport Assessment (TA) for the Development, produced by Arup in 2018.

2. Site Assessment

2.1 INTRODUCTION

2.2 This section outlines the existing transport environment in relation to the site. The site is well placed in relation to an extensive public transport network, and this has been assessed using the Public Transport Accessibility Level (PTAL) methodology and TfL's WebCAT tool. This indicates that the majority of the site has a PTAL of 6a (representing excellent access to public transport) as shown in Figure 2.1. This reduces to a PTAL of 5 at the eastern parts of the site.

Figure 2.1: PTAL map of site (from TfL WebCAT tool)



2.3 PUBLIC TRANSPORT

London Underground and London Overground

2.3.1 Two stations are located in close proximity to the masterplan area, Canada Water station adjacent to the northern edge of the Site and Surrey Quays station adjacent to the southern edge. Canada Water station provides access to the Jubilee line and London Overground services, with access to the same London Overground services also available at Surrey Quays station. A summary of the routes and frequencies for all current services at these stations is presented in Table 2.1.

Table 2.1: Current London Underground and London Overground Services

Station	Line	Route	AM peak hour two-way frequency (08:00-09:00)
Canada Water	Jubilee	Stanmore – Wembley park – Baker Street – Waterloo – Canary Wharf - Stratford	60
Canada Water & Surrey Quays	Overground	Highbury & Islington – Dalston Junction – Whitechapel – New Cross Gate – Crystal Palace	8
Canada Water & Surrey Quays	Overground	Highbury & Islington – Dalston Junction – Whitechapel – New Cross Gate – Penge West – West Croydon	8
Canada Water & Surrey Quays	Overground	Dalston Junction – Whitechapel – Rotherhithe – New Cross	8
Canada Water & Surrey Quays	Overground	Dalston Junction – Whitechapel – Rotherhithe – Peckham Rye – Denmark Hill – Clapham Junction	8

2.3.2 The TA identifies that whilst there is currently spare capacity on the London Underground and London Overground networks in the AM peak period, the eastbound Jubilee line service towards Canary Wharf is very busy. Delays in boarding these trains can lead to queuing within Canada Water station, with implications for crowding and station management.

2.3.3 However, the Elizabeth line (Crossrail) will open through central London in December 2018, linking Shenfield and Abbey Wood in the east to Reading and Heathrow Airport in the west. Although it will not serve the Canada Water area directly, it will provide an alternative route from central London to Canary Wharf and Stratford, with a train every five minutes to either station. Modelling undertaken by TfL as part of the STS for the Opportunity Area suggests that the introduction of Crossrail frees up substantial capacity on the eastbound Jubilee line from 2019 by providing this alternative route.

Bus

2.3.4 Eight bus services are available within 640m walking distance of the Site. These services provide access to a variety of locations. Details of these services and their frequencies are summarised in Table 2.2.

Table 2.2: Current local bus services

Route No.	Route	AM peak hour (buses per hour per direction)
1	New Oxford Street – Canada Water bus station	7.5
47	Newquay Road – Shoreditch	5
188	North Greenwich station to Russell Square	8
199	Catford Garage – Canada Water bus station	5
225	Springbank Road / Hither Green station – Canada Water bus station	4
381	Peckham bus station – County Hall	6
C10	Victoria station / Grosvenor Gardens - Canada Water bus station	8
P12	Surrey Quays Shopping Centre – Brockley Rise / Chandos	5

2.3.5 Bus services use a number of bus stops including Canada Water bus station which is adjacent to the underground station on the northern edge of the Site. A smaller bus stop and stand facility is also provided on Deal Porters Way, at the southern end of Surrey Quays Shopping Centre. The locations of local bus stops are shown on Figure 2.2.

Figure 2.2: Location of bus stops around the site

2.3.6 The TA shows that bus services generally operate with spare capacity, but are used by existing residents to make relatively short journeys, particularly to and from Canada Water and Surrey Quays stations.

2.4 RIVER SERVICES

2.4.1 Greenland Pier and Hilton Docklands Nelson Pier are the closest piers served by river passenger services. A range of services can be found including tourist leisure services and fast commuter services. Thames Clippers is currently the only provider of commuter services at these piers, with a fast service between Greenwich and Embankment from Greenland Pier and a ferry service between Doubletree Docklands and Canary Wharf as shown in Table 2.3.

Table 2.3: Current river bus services

Pier	Service	Route	AM peak hour two way frequency
Greenland Pier	Thames Clipper RB1	Woolwich – North Greenwich – Greenland Pier – Canary Wharf – Tower – London Bridge – Bankside – Blackfriars – Embankment – Westminster	3 (westbound services only)
Doubletree Docklands	Thames Clipper RB4	Doubletree Docklands – Canary Wharf	6

2.5 WALKING

2.5.1 The local pedestrian network provides good access to different land uses in the local area. Footways in the immediate vicinity of the Site along Lower Road, Redriff Road and Surrey Quays Road are wide and in good condition with well-maintained tactile paving and dropped kerbs. However, pedestrian provision within the site itself is currently poor, with large areas of surface car parking and landscaping preventing direct pedestrian access in many locations.

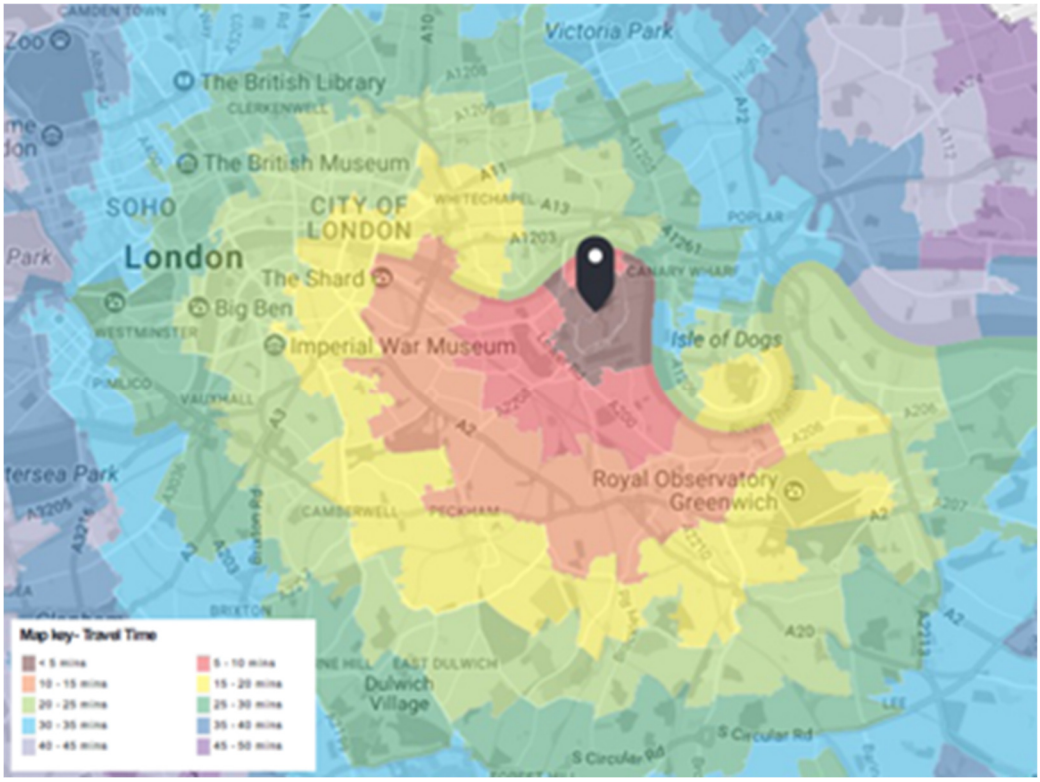
2.5.2 Surveys of pedestrian flows in the local area were undertaken in 2014 to assess the existing conditions on the pedestrian network and ascertain demand at pedestrian crossings within the site. The TA covers the results of these surveys in more detail.

2.6 CYCLING

2.6.1 On the roads within the peninsula, a 20mph speed limit creates a low-speed environment that is more conducive to on-street cycling, although there is currently little formal cycle infrastructure. Some provision is made for cyclists on Lower Road, with an advanced cycle stopline for northbound cyclists at the junction of Lower Road with Surrey Quays Road, and advisory cycle lanes for cyclists in both directions to the north of the junctions of Lower Road with Redriff Road and Hawkstone Road.

2.6.2 A map showing areas that can be accessed by cycling in different journey time bands has been produced using TfL's WebCAT tool and is presented in Figure 2.4. This shows how the river currently has a large impact on cycle journey times.

Figure 2.4: TIM map for cycling to and from the Site (from TfL WebCAT tool)



2.6.3 In late 2017 TfL consulted on proposals for Cycle Superhighway 4 (CS4), which would provide a continuous segregated cycle route between Tower Bridge and Greenwich along with new pedestrian crossings, improved public spaces and other improvements aimed at creating a more attractive environment for all users and accommodating the area's future growth. If the consultation is successful, TfL would look to begin work on CS4 in late 2018.Baseline Travel Patterns

2.7 VEHICLES

2.7.1 The Site is bounded by Surrey Quays Road to the north, Lower Road (A200) to the west, Redriff Road (B205) to the south and Quebec Way to the east. Of these roads, Lower Road is the most trafficked and forms part of the Strategic Road Network (SRN). The roads listed above are roads for which Southwark Council are the highway authority, with the exception of Deal Porters Way which is a private road.

2.7.2 Highway modelling was undertaken as part of the TA, and shows the local highway network generally operating within capacity. It is however noted that the proximity of the Site to the Rotherhithe Tunnel means that the local highway network is sensitive to incidents or delays either in the Rotherhithe Tunnel or the Blackwall Tunnel.

3. Baseline Travel Patterns

3.1.1 Given that the Development has not yet been constructed and represents a significant change in the nature of the existing area, it is not possible to undertake site monitoring to establish baseline travel characteristics at this stage. In the absence of site specific survey data, the trip generation forecasts outlined in the TA are considered a reasonable initial estimation of the likely trip generation associated with each land use proposed.

3.1.2 The methodology used to determine trip generation is covered in more detail in the TA, but predominantly uses a mixture of TRICS and TRAVL data, refined through the use of Census data and other local surveys where appropriate. The TA considers the transport impact of two Development Scenarios, representing a 'maximum residential' (Scenario 1A) and a 'maximum employment' (Scenario 2A) mixes of land use, which result in the trip generation shown in Table 3.1.

Table 3.1: Total number of trips

Scenario	Time Period	Direction	LU / LO	Rail	Bus	Car driver	Car passenger	M/bike	Walk	Cycle
Max Resi	AM Peak Hour	In	1,716	906	1,194	457	189	81	1,463	500
		Out	570	108	565	399	118	5	1,208	180
	PM Peak Hour	In	854	159	946	879	260	7	1,902	294
		Out	1,673	713	1,423	908	310	60	2,190	534
Max Empl	AM Peak Hour	In	3,411	2,000	2,110	501	289	186	2,077	1,012
		Out	461	130	457	349	97	10	861	142
	PM Peak Hour	In	772	179	909	842	254	12	1,730	272
		Out	2,826	1,489	2,056	923	378	135	2,562	886

3.1.3 However, these scenarios represent two extremes within the Parameter Plans and Development Specification that is being applied for. In practice, it is likely that a development with a land use mix between the two scenarios will be built out. As such, the anticipated mode share for each land use has been taken from the TA. Residential mode share has been calculated by journey purpose as shown in Table 3.2.

Table 3.2: Journey purposes for residential trips

Journey Purpose	AM Peak Hour	PM Peak Hour
Work	40%	53%
Education	40%	3%
Shopping and leisure	20%	44%

3.1.4 Because of varying journey purposes at different times of the day, this results in the mode shares for AM and PM peak hours shown in Table 3.3.

Table 3.3: Proposed residential mode share

	LU / LO	Rail	Bus	Car driver	Car passenger	M/bike	Walk	Cycle
AM Peak Hour	21%	3%	17%	6%	3%	0%	43%	7%
PM Peak Hour	28%	5%	14%	7%	2%	0%	36%	8%

3.1.5 For the remaining land uses, mode share is assumed to be consistent across the AM and PM peak hours. The mode shares for these land uses are shown in Table 3.4.

Table 3.4: Proposed non-residential mode share

	LU / LO	Rail	Bus	Car driver	Car passenger	M/bike	Walk	Cycle
Student accommodation	42%	0%	30%	4%	4%	0%	15%	5%
Assisted living	32%	0%	20%	14%	14%	0%	15%	5%
Employment	33%	21%	18%	1%	2%	2%	13%	10%
Food retail	10%	0%	21%	38%	2%	0%	28%	1%
Non-food retail	12%	2%	18%	12%	8%	0%	41%	7%
Hotel	10%	8%	10%	6%	15%	0%	51%	0%
Public leisure	2%	0%	12%	12%	11%	3%	50%	10%
Commercial leisure	12%	2%	18%	12%	8%	0%	41%	7%
Higher education	30%	11%	19%	0%	1%	0%	37%	2%
Health centre	17%	0%	20%	10%	6%	0%	42%	5%

4. Objectives

4.1.1 The overarching objective of the Site-Wide Framework Travel Plan is to promote the 'Healthy Streets' approach across the development. Healthy Streets is an approach which is embedded within the 2017 draft Mayor's Transport Strategy and the draft New London Plan.

4.1.2 Central to the Healthy Streets approach are the ten evidence based 'Healthy Streets Indicators', which are intended to be used to assess streets and ensure that proposals contribute towards the creation of a healthier city. The ten indicators are:

- Pedestrians from all walks of life - London's streets should be welcoming for everyone;
- People choose to walk, cycle and use public transport - this shift to healthier ways to travel will only happen if we reduce the dominance of motor traffic and improve streetscape experience;
- Clean air - this benefits everyone and reduces unfair health inequalities;
- People feel safe - everyone should feel safe at all times on London's streets;
- Not too noisy - less motor traffic noise will directly benefit health, street environment ambience and encourage active travel and human interaction;
- Easy to cross - by removing physical barriers, fast moving or heavy traffic and enabling more direct routes, streets will be more permeable;
- Places to stop and rest - more places to stop and rest will benefit everyone including local businesses by making streets more attractive places to spend time in;
- Shade and shelter - protection from high winds, heavy rain and direct sun will enable everyone to use London's streets, despite the weather;
- People feel relaxed - without the dominance of motorised traffic and with clean, well-maintained, clutter-free footways and cycleways, people will feel more comfortable; and
- Things to see and do - attractive views, buildings, planting and street art will all make for better, more interesting and stimulating journeys on London's streets, thus encouraging people not to drive short distances.

4.1.3 The strategy for this Site-Wide Framework Travel Plan therefore has the following objectives:

- To encourage people from all walks of life to make short journeys in and around the site on foot, freeing up public transport for longer distance trips;
- To make cycling the first choice for longer journeys to or from the site;
- To increase the attractiveness and use of public transport for day to day journeys;
- To reduce the environmental impact associated with any residual car trips through encouraging car sharing and the use of cleaner, quieter vehicles; and

- To make sustainable modes of travel safer, more accessible and user friendly.

4.1.4 These objectives are set out in the Site-Wide Framework Travel Plan and will apply across the whole site. As Reserved Matters applications are made for Development Zones or Plots, it is expected that Travel Plans specific to these will be prepared and submitted for approval. Whilst the objectives of the various Travel Plans will be common across all parts of the Development, it is intended that there will be flexibility in the targets and measures incorporated to address these, so that they can best respond to the individual characteristics of each part of the Development.

5. Targets

5.1.1 In order for the Travel Plan Objectives to be met, and to enable a measurement of success, targets must be Specific, Measurable, Achievable, Realistic and Timed (SMART) ensuring that wherever possible, targets for modal spilt can be achieved.

5.1.2 Monitoring of the Site-Wide Travel Plan and of individual Travel Plans for each Development Zone or Plot will be undertaken throughout their duration and if necessary changes to the implementation of each Travel Plan or the type of measures that it includes will be made to ensure that the overall targets are achieved within the timeframe set. It is intended that individual Travel Plans will initially be assessed over a five-year period, with interim targets set out for years one and three. However, if five-year targets are not met, the monitoring period may need to be extended to ensure that the objectives of the Travel Plan can be fulfilled.

5.1.3 As individual Travel Plans are developed, targets that are specific to each land use or occupier will need to be established. However, it is proposed that the primary target will be a focus on the reduction of car driver mode share and encouraging a shift towards more sustainable modes of travel. Reducing travel by private vehicles will be a key contributor to complying with the 'Healthy Streets' concept and the Site-Wide Framework Travel Plan objectives.

5.1.4 However, for the purposes of developing a Framework Travel Plan to guide sustainable travel initiatives over a Masterplan which will take around 15 years to be fully built out, it is not considered that setting targets to be met after five years is appropriate. Instead, the Site-Wide Framework Travel Plan will set out ways in which the headline mode share targets shown below can be achieved in 2033, on completion of the full Development. Individual Travel Plans for Development Zones or Plots will however continue to set out five year targets to demonstrate how they are contributing to achieving these targets.

- Reduce overall car mode share by 5%;
- Increase overall walk mode share by 2%; and
- Increase overall cycle mode share by 3%.

5.1.5 It is expected that individual occupiers will develop their own targets to help support the delivery of the Framework Travel Plan objectives. For example, a Travel Plan for a residential occupier may focus on encouraging mode shift away from car and towards cycling for work-related journeys, where walking may not be a reasonable alternative due to the trip lengths involved.

6. Initiatives and Measures

6.1 INTRODUCTION

6.1.1 Detailed Travel Plans will be prepared prior to occupation of individual Development Zones, providing details of how specific elements of the scheme will help implement the Travel Plan objectives and contribute towards the achievement of the targets detailed within Chapter 5 of this document.

6.1.2 In order to inform this process, this chapter sets out the broad package of measures that will be considered in order to seek to influence employee, resident and visitor travel to and from the Site and achieve the objectives and targets identified within Chapter 5. Specific measures that are applicable to a single land-use are identified where appropriate.

6.1.3 The measures have been grouped into two types:

- 'Hard' measures which relate to elements of infrastructure on and around the Site that can be incorporated into the design of the development to help secure Travel Plan objectives; and
- 'Soft' marketing, organisational and management measures which will be implemented as part of the development proposals to ensure that sustainable travel behaviour is maximised.

6.2 'HARD' MEASURES

6.2.1 Many physical aspects of the design of new development can influence travel patterns, and will have a significant impact upon achieving Travel Plan targets. The hard measures that have been incorporated into the design of the Development, set out below, seek to provide a built environment that encourages travel by more sustainable modes.

Measures to encourage walking

- The overall design of the Development, in accordance with the Design Guidelines and detailed as individual Development Zones are brought forward;
- Provision of pedestrian crossings on key desire lines around the site, to include tactile paving, dropped kerbs etc;
- Provision of signage and wayfinding, including Legible London signage;
- High quality street lighting;
- CCTV coverage across the site to ensure personal safety; and
- Digital measures such as updates to Google mapping across the site.

Measures to encourage cycling

- Provision of cycle parking in accordance with the standards in the 2016 London Plan;
- Provision of showers, lockers, drying facilities and other complementary cycle infrastructure;
- On street cycle provision across the Development; and
- Provision for the implementation of cycle hire facilities.

Measures to encourage public transport use

- Improved routes to stations and other public transport facilities;
- Safeguarding of land within Development Zone N to provide a new second entrance to Surrey Quays station;
- Bus stops and related facilities on the new High Street; and
- Real time public transport information within buildings and via the development website or similar sources.

Measures to encourage more sustainable car use

- Low levels of private and public car parking;
- A town centre car parking management regime, with a suitable charging strategy;
- Provision of electric vehicle charging points in accordance with the prevailing standards as Development Zones are brought forward;
- Provision for car and van clubs within the Site;
- Design to reduce vehicle speeds and vehicle permeability, including restrictions on access along the High Street;
- Variable Message Signs and other signage; and
- Permit allocations for residential car parking within the Site.

6.3 'SOFT' MEASURES

6.3.1 As well as infrastructure, future occupiers of the Development will be expected to contribute towards the achievement of Travel Plan objectives by adopting some or all of the following at an organisational level:

Measures to encourage walking

- Promotion of public health campaigns encouraging walking;
- Distribution of maps showing safe and convenient local walking routes to services; and
- Walking events such as led walks at lunchtime or after work, pedometer challenges and Walk Doctor events.

Measures to encourage cycling

- Discounts or loans for purchase of equipment (eg cycle loan, tax free scheme to employees, vouchers);
- Advice or training on riding skills, use of bike buddies;
- On-site bicycle repair service (eg Dr Bike events);
- Cycle maintenance classes;
- Pool cycles and cycle clubs; and
- Provision of information on local cycle routes.

Measures to encourage public transport use

- Provision of a public transport guide as part of sustainable travel information for residents, staff or visitors;
- Public transport travel subsidy initiatives (eg season ticket loan, Oyster card top up, pre-loaded Oyster card); and
- Policies supporting use of public transport for travel in the course of work (eg pool Oyster cards).

Measures to encourage more sustainable car use

- A charging structure within the proposed public car park to ensure that parking charges will apply and that long stay parking is discouraged;
- Commitment to a parking management plan detailing how parking will be allocated and operated;
- Parking enforcement as part of the estate management strategy;
- Provision of free membership of a car club for occupiers;
- Corporate car club membership;

- Recognition of limitations on residents within the Development being able to apply for car parking permits within any wider Controlled Parking Zone that may exist around the Site;
- Promoting car sharing schemes to raise car occupancy levels, including ride-matching databases, a guaranteed ride home, dedicated parking spaces and incentives for carsharers such as preferential parking;
- Providing eco-driving training to staff and residents;
- For visitors, information about sustainable access prominently featured (ahead of directions by car) in all promotional literature, posters and websites publicising the site; and
- Marketing of development opportunities within the Site based on their sustainable transport access and facilities, not simply availability of car parking

Measures to reduce the need to travel

- Occupiers to set out policies on flexible working (eg teleworking, home working, flexitime);
- Adoption of 'smart' working practices (eg teleconferencing, audioconferencing, hot desking);
- Local recruitment strategy and incentives for staff to relocate closer to work; and
- The inclusion of home delivery drop-off points within the design of buildings within the Development.

7. Travel Plan Strategy

7.1 MANAGEMENT

7.1.1 Management of the Travel Plan will be funded by British Land. The first stage in this process will be appointment of one or more Travel Plan Co-ordinators, who will be appointed to oversee the implementation and monitoring of all Travel Plans. The Co-ordinators will have overall responsibility for:

- Establishing and co-ordinating a Travel Plan Steering Group with meetings as required;
- Identifying key milestones, deliverables and a programme to oversee the development and implementation of specific initiatives;
- Development and dissemination of appropriate marketing / information materials;
- Overseeing implementation of Travel Plan measures in a timely manner;
- Liaison with any appropriate groups / organisations (e.g. the Travel Plan Officers) to ensure co-ordinated working;
- Undertaking appropriate monitoring of the Travel Plans, including any appropriate review and revisions;
- Monitoring and reviewing progress and identifying targets for taking the Travel Plans forward; and
- Ensuring that Travel Plan initiatives are co-ordinated with other activities of the proposed development.

7.1.2 The Site-Wide Framework Travel Plan will be funded through the establishment of a ‘Sustainable Travel Fund’, which could include access to net parking receipts from the proposed town centre car park as a source of funding, which could be reinvested into sustainable transport measures, including those established through Travel Plans.

7.2 MARKETING AND PROMOTION

7.2.1 It is recognised that for all Travel Plans to be successful, it is essential that the target audience is involved and made aware of its implementation and evolution. A detailed strategy for ongoing promotion and awareness raising of the Travel Plan will be developed by the Travel Plan Co-ordinator(s). The strategy will include:

- A series of meetings to explain the purpose of each Travel Plan;
- ‘Branding’ the Travel Plans to raise their profile and to make it and elements forming a part of it, instantly recognisable. An official ‘launch event’ for each Plan will be held. All leaflets and publications produced as a part of the Travel Plan will take on this branding;
- Ensuring that visitor information leaflets, posters and websites include transport information;

- Providing information about transport options and the Travel Plan in recruitment packs and new resident packs;
- Providing transport and travel information in areas where people congregate throughout the Development; and
- Ensuring that the Development participates in a programme of promotional events including national and local travel awareness campaigns.

8. Monitoring and Review

8.1 THE NEED FOR MONITORING

8.1.1 An important part of any Travel Plan is the continual monitoring and review of its effectiveness. Regular monitoring and review will help to gauge progress towards achieving targets and objectives, and if necessary, allow each Travel Plan to be refined and adapted in order to improve. Surveys will be carried out at defined intervals or when specific phases of development are completed and occupied.

8.1.2 Travel Plan monitoring will be the responsibility of the Travel Plan Co-ordinator, and monitoring results will be reported back to Southwark Council.

8.2 METHODOLOGY

8.2.1 In order to measure progress against targets, the following monitoring principles will be followed unless agreed in writing with Southwark Council:

- Baseline survey – a TRICS Survey Assessment Methodology (SAM) compliant survey will be carried out within three months of 75% occupation the plot. A survey report setting out the findings of the surveys will be shared with the Site Wide Travel Plan Co-ordinator(s).
- Progress surveys – SAM compliant surveys will then be carried out as close as possible to the year one, year three and year five anniversaries of the baseline survey as is practical. A monitoring report setting out progress against targets and revised measures if considered necessary will be submitted to Southwark council.

8.2.2 At least six weeks prior to the anticipated date of each survey, the Travel Plan Co-ordinator will agree the detailed scope of the surveys, including the date and the location of surveyors, with Southwark Council.

9. Action Plan

Table 9.1: Action Plan

Measure	Timescale	Responsibility	Measured by	Funding
Meet site wide aim targets	Long term target to be achieved on or before full occupation of the Development	Travel Plan Co-ordinator	Production and submission of Monitoring	
Reports on bi-annual basis	British Land			
Appoint Travel Plan Co-ordinator	No later than six months prior to first occupation	British Land	Southwark Council informed of contact details within 14 days of appointment.	British Land
Establishing a Travel Plan Steering Group	Within three months of appointment of Travel Plan Co-ordinator	Travel Plan Co-ordinator	Establishment of terms of reference for the Steering Group	British Land
Preparation of full Travel Plans for individual occupiers or Development Zones	Ongoing	Travel Plan Co-ordinator and individual occupiers	Submission of Travel Plans to Southwark Council	British Land / Individual Occupiers
Define scope of monitoring surveys	No more than one month prior to Years 1, 3 and 5 of Development Zone full occupation	Travel Plan Co-ordinator	Agreed survey scope with Southwark Council	British Land
Undertake baseline and monitoring surveys	Years 0, 1, 3 and 5 of each Development Zone full occupation	Travel Plan Co-ordinator	Receipt of survey results	British Land
Production of monitoring reports	Within six weeks of receipt of survey results	Travel Plan Co-ordinator	Distribution of monitoring reports to Southwark Council	British Land
Implementation of hard measures listed in Section 6.2	Ongoing throughout development of site	British Land	Physical provision of measures	British Land
Confirmation and implementation of soft measures associated with individual site occupiers	Ongoing	British Land and Individual Occupiers	Inclusion of measures into full Travel Plans	British Land / Individual occupiers
Production of marketing material for the Travel Plan	Ongoing	Travel Plan Co-ordinator	Marketing material is published and updated on a regular basis	British Land

Appendix K – Framework Delivery and Servicing Management Plan

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1. Introduction

1.1 DOCUMENT CONTENTS AND PURPOSE

1.1.1 This Delivery and Servicing Management Plan (DSMP) has been prepared by Arup and is submitted in support of a hybrid planning application for the Canada Water Masterplan (CWM). The hybrid planning application is made in relation to land bounded by Surrey Quays Road to the north, Lower Road (A200) to the west, Redriff Road (B205) to the south, Quebec Way to the east (the “Site”) on behalf of BL CW Holdings Ltd, a subsidiary of British Land Company Plc (“The Applicant”), hereafter referred to as “British Land”. The hybrid planning application is formed of detailed development proposals in respect of development plots A1, A2 and K1 for which no matters are reserved ("Detailed Proposals"), and outline development proposals for the remainder of the Site, with all matters reserved ("Outline Proposals"). The Detailed Proposals and Outline Proposals together are referred to as the “Development”.

1.1.2 This DSMP should be read in conjunction with the Transport assessment for the Development.

1.1.3 The Development comprises the comprehensive redevelopment of the Surrey Quays Shopping Centre, former Harmsworth Quays Printworks and Surrey Quays Leisure Park sites, former Dock Offices Courtyard, former Rotherhithe Police Station and land at Roberts Close. The Development will provide new retail, office, leisure and community floorspace along with residential dwellings. The Development will also provide significant, high quality public realm, including a new Town Square, a new High Street and a public park.

1.1.4 The purpose of this DSMP is to assess the Development in terms of servicing, demonstrating that it can be managed without detrimentally impacting other users. This document:

- Identifies and describes the servicing arrangements;
- Proposes a management strategy for loading and unloading activities; and
- Provides an on-going monitoring and review system for the DSMP.

1.1.5 Construction deliveries are addressed within a separate Construction Logistics Management Plan document.

1.1.6 This DSMP will be supplemented with’ a future town centre estate management plan. This will set out specific access control issues for particular parts of the site (e.g. The TfL station entrance, the Police hub, the High Street, residential areas) and how they will be addressed. This plan will be developed in due course.

1.1.7 The Development is expected to receive a range of deliveries throughout the day. It will be the responsibility of the site facilities management team (Broadgate Estates on behalf of British Land) to co-ordinate and manage these activities. The DSMP also seeks to:

- Identify where safe and legal loading can take place;
- Ensure delivery activities do not hinder the flow of traffic on the public highway;

- Manage deliveries to reduce the number of trips, particularly during peak hours;
- Minimise vehicles waiting or parking at loading areas so that there will be a continuous availability for approaching vehicles; and
- Identify opportunities to influence occupants' supply chains to ensure that delivery companies can demonstrate their commitment to best practice through accreditation to the Fleet Operator Recognition Scheme, minimum bronze, preferred silver.

1.1.8 It is envisaged that this site-wide DSMP will inform the production of DSMPs for individual development plots within the Development. Those DSMPs will be submitted to, and approved in writing by, Southwark Council, prior to the first occupation of the Development. The individual development plot facilities shall thereafter be operated in accordance with the approved DSMP (or any amended DSMP that may be approved from time to time by Southwark Council) for the life of the building. These DSMPs will require on-going monitoring and reviewing to ensure that the objectives are achieved. If necessary, the DSMPs should be reviewed and adapted to reflect continuous improvement of the delivery and servicing process.

1.1.9 The purpose of these DSMPs is to proactively assist servicing activities to and from the Development. Therefore:

- Copies of the DSMP will be provided at the Development plot's Loading Bay office (and/or other prominent locations);
- The DSMP will form part of the site management team training; and
- Information from the DSMP will be integrated into the occupier handbook and appropriate signing within the building.

1.1.10 This will ensure that both the site management team and delivery suppliers are informed about the details of the plans.

1.2 REFERENCE PUBLICATIONS

1.2.1 This document has been prepared with reference to the following other documents:

- The London Plan (Greater London Authority (GLA), March 2016)
- Draft New London Plan (GLA, Consultation 2017)
- Draft Mayor's Transport Strategy (GLA, Consultation 2017)
- Transport for London, Delivery Servicing Plans;
- Canada Water Area Action Plan (Southwark Council, 2015)
- Transport for London, Freight Plan;
- Transport for London, Code of Practice for Quieter Deliveries; and
- Canada Water Masterplan Transport Assessment.

1.2.2 Further relevant documents are identified in Section 2 of the Transport Assessment document.

2. Sustainable Procurement

2.1 OVERVIEW

2.1.1 The objective of this section of the DSMP is to identify initiatives that could be implemented at the Development to reduce the number of weekly delivery and servicing trips in similar developments around central London, thereby achieving:

- Fewer commercial vehicle visits during the working day;
- Improved safety for pedestrians and cyclists through reducing vehicle movements;
- Improved air quality through reduced vehicle emissions; and
- Reduced noise from commercial vehicles.

2.1.2 All commercial occupiers within the individual development plots of the Development will be required to implement the following measures to reduce the impact of servicing on the local environment:

- Use a booking-in system for controlling the flow of vehicles and for loading bay management;
- Consider the re-timing of deliveries;
- Provide a consolidated waste collection service; and
- Provide information to deliverers i.e. a delivery point assessment.

2.1.3 Additional measures that would reduce the number of daily deliveries include:

- Deploying stock optimisation techniques, such as just-in-time purchasing, increasing the size of orders, or bunching orders so that they arrive in consolidated loads at a regular day and or time each week;
- For office and other staff, occupiers should promote the banning of personal deliveries to the workplace. Instead, personal deliveries can be collected on the way home from work, using click and collect services; and
- Consider the introduction of a nominated carrier scheme (a scheme whereby a single delivery company is selected by the purchaser to deliver all their goods from all their suppliers).

2.2 DELIVERY BOOKING SYSTEM

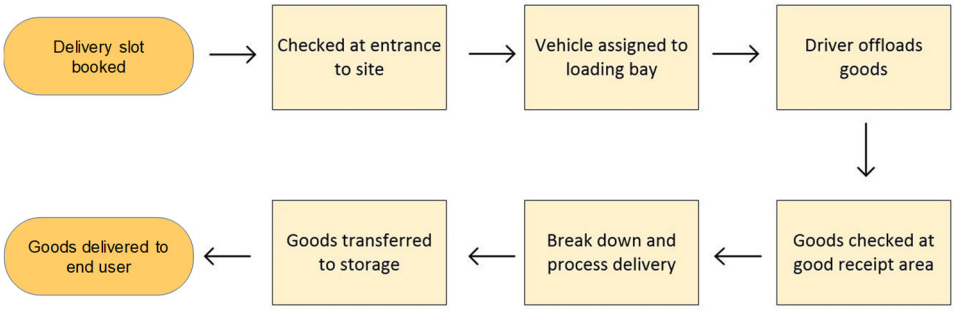
2.2.1 A delivery vehicle booking-in system (Vicinitee operated by Broadgate Estates) will be provided by the site management team to control the movement of servicing traffic entering and leaving the site and to manage the number of vehicles using the loading bays. The system will be available on-line for ease of use by suppliers and service providers. This will ensure that all servicing vehicles and deliveries are scheduled and prioritised accordingly. The benefits of such a system will be to:

- Reduce peak demand, by re-timing deliveries to less congested parts of the day; and

- Manage the traffic flow to the site proactively, to minimise queuing and congestion.

2.2.2 When a vehicle arrives at the development plot, pre-booked and occupier-approved deliveries will be granted access. The site management team may inspect the booking form or delivery note. Random security checks on the vehicle (swab, vehicle, paperwork check) may be introduced as part of a site-specific threat level response due to a heightened threat level or upon specific advice by an appropriate authority. The goods will be unloaded by the driver and may be inspected by the site management team before onward distribution to, or collection from, the development plot occupiers. This process flow is presented graphically in Figure 1.

Figure 1: Delivery process flow



2.2.3 For deliveries that are not booked in, if it is not busy, site management will call the recipient to confirm that the delivery is expected. The site management team may carry out a security check on the vehicle and allow the unloading to commence. If it is busy, the delivery will be turned away. If the occupier is not available to accept the delivery, it will be turned away.

2.3 RE-TIMING OF DELIVERIES

2.3.1 Working with the booking-in system, deliveries will be scheduled to avoid periods of peak demand, so that the arrivals of commercial vehicles are moved to times of the day where the impact is less severe. When scheduling deliveries outside of normal business hours, suppliers and their delivery agents will be expected to conform to TfL's Code of Practice for Quieter Deliveries. Occupiers, suppliers and the site management team will ensure that there is minimum impact from delivery and servicing activity on local residents.

2.3.2 Encouraging retailers, in particular food and beverage (F&B) retailers, to make deliveries during out of hours will further reduce the impact of vehicles on the surrounding roads during those periods of peak demand congestion and resulting noise and air pollution.

2.4 WASTE COLLECTION CONSOLIDATION

2.4.1 Occupiers of commercial premises will be required to use waste contractors appointed by the site management team for the collection of recycling, refuse and organic waste streams. This is so that waste collections are consolidated into the fewest vehicles as possible.

2.5 NOMINATED CARRIER SCHEME

2.5.1 A nominated carrier scheme would involve occupiers agreeing to the use of a single company for the delivery of certain types of goods. This would be focused predominantly on the collective procurement of non-perishable goods such as stationery. Additionally, nominating a shared courier, to be used by all occupiers, is a positive measure that would reduce the number of courier trips to the building each day.

2.6 COLLECTIVE PROCUREMENT

2.6.1 Commercial occupiers within the Development should have access to a list of preferred suppliers in a welcome pack and occupier handbook, provided by the site management team. Occupiers should be encouraged to engage in collective procurement of consumables such as office supplies, milk, flowers, catering and bread, from a small, carefully selected choice of suppliers.

2.6.2 Fit-out contractors should consolidate deliveries where feasible. The site management team will engage with occupiers and fit out teams to discuss the procedures for fit-out deliveries and removals prior to approval of permits to work and commencement of works. Movement of materials should take place out of normal working hours, with large deliveries and removals only permitted at weekends (or overnight during weekdays). Guidance should be provided to all occupiers in their welcome packs and occupier handbooks.

2.6.3 The Development would benefit from a reduction of the number of supplier vehicles on the street. Occupiers may benefit from volume discounts and reduced delivery costs. It has been shown that collective procurement by individual groups or businesses within a building, such as Transport for London's (TfL) Palestra operating centre, reduced stationery deliveries from twice daily to only three deliveries per week.

2.6.4 Occupiers should be encouraged to order goods and materials to utilise their storage capability fully. This could result in less frequent deliveries throughout the week.

2.7 DELIVERY POINT ASSESSMENT

2.7.1 Suppliers and their logistics providers will be given a Delivery Point Assessment (DPA) to assist deliveries to the Development. This document provides drivers with clear instructions on where and how to access the Development to avoid causing disruption to other road users and pedestrians. The content of these guidance notes will include the following:

- An outline of the correct route to the delivery premises;
- A detailed parking map of the area, including restrictions;
- A risk assessment for the Loading Bay, including manoeuvring, unloading, loading and; segregation of vehicles and pedestrians. A dynamic risk assessment should be undertaken by the driver on each visit, including the need for applying brakes and removing keys from the vehicle;
- Advice to the driver about special restrictions (e.g. the need to turn off vehicle refrigeration units); and
- Health and safety risks to their employees and third parties.

3. Servicing Strategy

3.1 OVERVIEW

3.1.1 The key objectives for designing the servicing strategy for CWM are as follows:

- Minimise the impact of servicing activities on the urban environment;
- Deliver efficient servicing for occupiers and service providers;
- Maximise convenience for residents, occupiers and service providers;
- Deliver high levels of safety to residents, occupiers and service providers;
- Meet security requirements (e.g. service vehicle access control, screening of goods);
- Deliver operational sustainability;
- Provide the operational flexibility/resilience required for the site;
- Align the strategy with the masterplan objectives for public realm; and
- Align with policy requirements.

3.1.2 When looking at individual development plots, the following have been considered to provide a safe and sustainable environment for residents and visitors to the CWM:

- Servicing (deliveries and maintenance) vehicles to use bays within the development plot, with no reversing from the street where possible. This represents best practice (safety, congestion, control of vehicles);
- Basement servicing to be adopted where appropriate, to provide ability to consolidate use of loading bays. Proposed for the Town Centre (development zone D);
- Some smaller vehicle servicing on street (e.g. for small and or isolated retail units with poor access to central loading bay area, supermarket home deliveries, couriers);
- Specific solutions required for residential waste collection and furniture removals requiring proximity to cores and waste presentation points; and
- Potential for Broadgate Estates to use electric vehicles on site, where possible.

3.1.3 Appendix A illustrates the servicing access strategy for the Development.

4. Delivery and Servicing Tips

4.1 INTRODUCTION

4.1.1 This section sets out the following assumptions:

- Area schedule;
- Daily delivery and service vehicle trip generation rates;
- Delivery and service vehicle dwell times;
- Vehicle manoeuvring space and loading bay area requirements; and
- Sizing of back of house areas (clear headroom, service corridors and good lifts).

4.2 AREA SCHEDULES

4.2.1 The Development will comprise the following mix of land uses:

- Retail (A1- A5);
- Workspace (B1);
- Hotel (C1);
- Assisted living and student accommodation (C2), and residential (C3);
- Community (D1), cultural and Leisure (D2) facilities;
- Energy centre, a temporary and permanent petrol filling station, and a primary electricity substation (all sui generis).

4.2.2 Two scenarios have been used to calculate servicing demands:

- Scenario 1A – Maximum Residential, Minimum Employment; and
- Scenario 2A – Minimum Residential, Maximum Employment.

- Given that a large amount of the Development is being applied for in outline, there is a range of floor areas that could be provided. As discussed in more detail in sections 8.1 and 9.1 of the Site-Wide Transport Assessment, two development scenarios have been considered to represent the extremities of the different floor areas that could be provided. Scenario 1A represents the maximum possible residential population that could be provided for through the Development and is shown in Table 1, whilst Scenario 2A represents the maximum possible number of employees and is shown in Table 2.

Table 1: Max Residential area schedule

Use Class	Gross Internal Area (m^2)
A1-A5 Retail	85,025
B1 Office	132,256
C1 Hotel	7,200
C2 Student Accommodation	6,900
C3 Residential	331,502
D1 Community	43,824
D2 Leisure	49,440
Night Club	1,440
Flexible Event Space	4,800
Parking and Plant	6,031
Energy Centre and Substation	4,800
Multi-Storey Car Park	16,512
Petrol Filling Station	2,880
Public Toilets	480
SQ Station Potential Entrance	480
Total	**693,570**

Table 2: Max Employment area schedule

Use Class	Gross Internal Area (m^2)
A1-A5 Retail	85,025
B1 Office	307,764
C1 Hotel	7,200
C2 Student Accommodation	6,900
C3 Residential	163,306
D1 Community	43,824
D2 Leisure	49,440
Night Club	1,440
Flexible Event Space	4,800
Parking and Plant	6,031
Energy Centre and Substation	4,800
Multi-Storey Car Park	16,512
Petrol Filling Station	2,880
Public Toilets	480
SQ Station Potential Entrance	480
Total	**700,882**

4.3 VEHICLE GENERATION

4.3.1 The estimated daily delivery and servicing trips to the Development have been calculated using an Arup in-house vehicle generation tool developed to utilise Arup research and other survey information from similar developments in the United Kingdom. The generation tool applies a delivery and servicing vehicle trip rate for each of the proposed building uses to the relevant gross internal area (GIA) for that building

use. The trip rates, which are expressed as vehicles per 100m^2 per day, have been derived from survey data from office, retail, and other facilities around London, as well as relevant design guidelines and local authority regulations. The surveys recorded vehicle arrival and departure times, vehicle type and size of goods vehicle use to make the delivery. The generation rates used to determine daily number of delivery trips are shown below:

- 0.52 vehicles/100m2/day for retail (A1);
- 0.18 vehicles/100m²/day for a large supermarket (A1);
- 0.20 vehicles/100m2/day for financial and professional services (A2);
- 2.20 vehicles/100m2/day for restaurants (A3);
- 1.60 vehicles/100m2/day for drinking establishments (A4);
- 1.20 vehicles/100m2/day for hot food takeaways (A5);
- 0.18 vehicles/100m²/day for workspace (B1);
- 0.25 vehicles/100m2/day for hotel (C1);
- 0.07 vehicles/100m2/day for residential (C2, C3); and
- 0.10 vehicles/100m^2/day for community (D1) and leisure (D2).

Table 3: Daily servicing vehicle demand

Scenario	Total Daily Service Vehicle Visits	Peak Hour Service Vehicle Visits
Maximum Residential	1,529*	212
Maximum Employment	1,727**	228

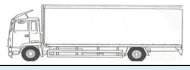
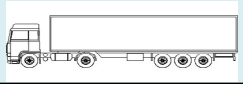
Note: *excluding 80 courier visits, **excluding 185 courier visits

4.4 SERVICING VEHICLE SIZES AND DWELL TIMES

4.4.1 The type and characteristics of delivery and servicing vehicles that are forecast to visit the Development are shown in Table 4.

4.4.2 The forecast vehicle demand for the Development indicates that 49% of delivery and servicing vehicles will be 6m light goods vehicles, with 36% being made up of 8m medium goods vehicles and 15% heavy goods vehicles, for the maximum residential scenario. For the maximum employment scenario, the respective values are 46%, 39% and 15%.

Table 4: Servicing vehicle sizes and dwell times

Vehicle Type	Vehicle	Characteristics	Turnaround Time (minutes)
Light Goods Vehicle		3.5 Tonne, vehicle length 6m, height 3.0m	10 – 15
Medium Goods Vehicle		7.5 Tonne, vehicle length 8m, height 4.2m	15 – 20
Large Goods Vehicle		17 Tonne, vehicle length 10m, height 4.2m	20 – 25
Large Goods Vehicle		44 Tonne, vehicle length 16.5m, height 4.2m	25-45

5. Delivery and Servicing Facilities

5.1 LOADING BAY AND VEHICLE MANOEUVRING AREAS

5.1.1 This section sets out the space requirements for the service area within each development plot. The size of this space will depend on the following:

- Maximum size of goods vehicle and the required turning and manoeuvring space;
- Depth of the offloading zone behind the vehicles;
- Access routes each side of the loading bays (safety route); and
- Size of the hammerhead required for turning and manoeuvring.

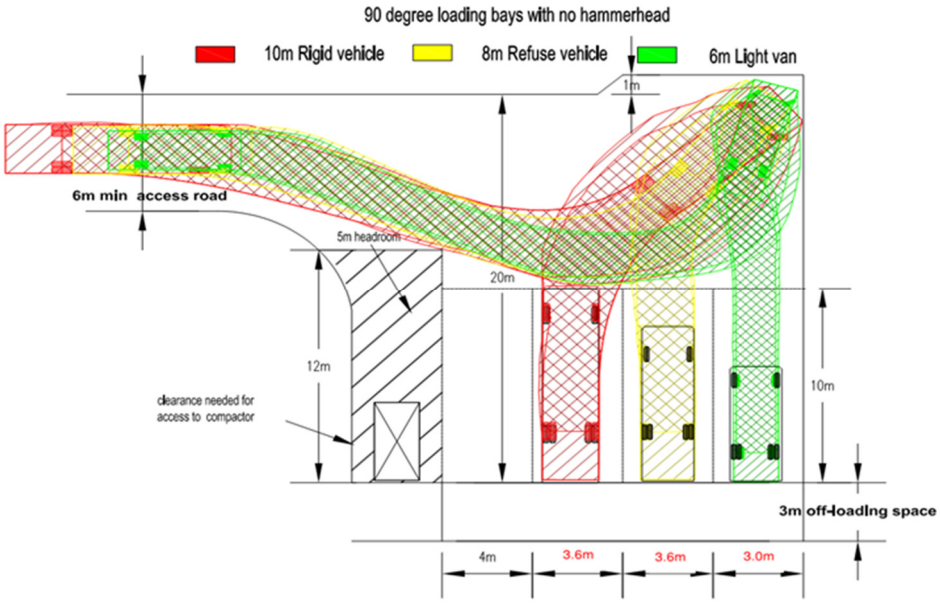
5.1.2 The dimensions of delivery and servicing vehicles are shown in Table 5. Figure 2 shows a generic loading bay layout, including these dimensions. This can be used as a template for designing individual development plot loading bay areas, to be modified according to the number and sizes of loading bays required at each development plot.

Table 5: Dimensions for loading bays and manoeuvring spaces

Vehicle length (m)	Minimum headroom (m)*	Loading bay width (m)	Length of loading bay (m)	Manoeuvring space in front of 10m vehicle (m)	Length offloading zone (m)	Total length service area (m)
10.0 (HGV)	4.5	3.6	10.0	11.0	3.0	24.0
8.1 (MGV)		3.6	8.0			
6.0 (LGV)		3.0	6.0			

*Excluding compactor bays, which will require 5m

Figure 2: Generic loading bay layout



5.1.3 Other dimensions required for planning loading bay areas are as follows:

- The total width of the loading zone should include 1.5m access strips along each flank to allow drivers or site management team staff, in the event of an emergency, to move away from the offloading zones towards the open manoeuvring spaces.
- From Table 5, a 10m heavy goods vehicle (HGV) will require a loading zone 24m long (including the offloading zone behind the vehicle). This sets the maximum dimension for the service area. Figure 2 illustrates a typical service area arrangement to accommodate vehicles up to and including a 10m HGV.
- Waste compactor bays will double as a loading bay for a 6m LGV. These bays are sized at 12m by 4m and will require a clear headroom of 5m.
- These area requirements exclude the space required for circulation area and service corridors to access goods lifts or occupier space around the service area (service corridors require a minimum clear width of 2.5m.

5.1.4 It has been assumed that deliveries requiring an articulated vehicle (16.5m) such as plant replacement or fit outs, may be processed on-street and activities would be managed out of hours where possible. Each development plot should consider how an articulated vehicle would be able to access the site.

5.2 BACK OF HOUSE AREAS

5.2.1 This section sets out the back of house requirements which will need to be considered within development plot servicing areas, subject to requirements. These include:

- Vehicle headroom requirements;
- Service area gradients;
- Goods staging space;
- Interim storage space;
- Loading Bay office;
- Post room;
- Service corridors; and
- Goods lifts.

Vehicle Headroom Requirements

- A minimum clear headroom of 4.5m is required for all goods vehicle manoeuvring and parking spaces within a service area;
- Ramp entrances will need a clear headroom of 4.75m; and
- 5m clear headroom will be required above a bay accommodating a portable waste compactor.

Service Area Gradients

- Vehicle manoeuvring areas should have a maximum gradient of 1:20; and
- Vehicle parking and unloading areas should have a maximum gradient of 1:40.

Goods Staging Space

5.2.2 A staging area is required where the traffic of goods and waste is high. There should be adequate room for goods and waste to be dropped off and queued such that the flow of goods is not blocked or impeded. This will avoid operatives being delayed and limit the effect on the operational performance and efficiency.

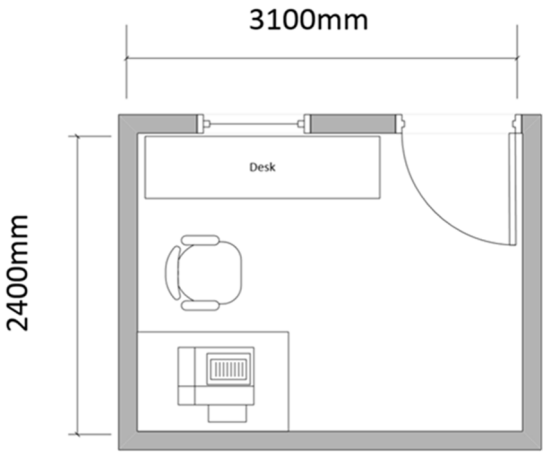
Interim Storage Space

5.2.3 There may be a requirement to have an interim storage area close to the vehicle offload area. The storage area will be used for temporary holding of deliveries prior to onward transportation and could have separate lockable sections for the site management team and for individual occupiers. Occupier and site management storage can be located away from the loading bay area but must be easily accessible for ease of operations. For security reasons, the storage area should only be accessible by approved site management and occupier staff personnel. The storage area should include separate areas for frozen, chilled and ambient products with further segregation for products such as chemical cleaning agents, as required. The space requirement for the storage area will be dependent on the level of site management staffing and occupier interest in using temporary holding space. As a rough rule of thumb, the area should be sized using 1% of the gross floor area. A thorough review of operational needs and the associated supply chain needs to be considered to provide a more accurate estimation of the storage areas.

Loading Bay Office

5.2.4 An office-type facility will be required for the site management team, which will be used for managing goods receipt paperwork associated with deliveries; storage of small items of equipment; and other functions. Figure 3 illustrates the simplest design for a Loading Bay office, containing a single workstation. The window should provide a view into the service area.

Figure 3: Generic Loading Bay office



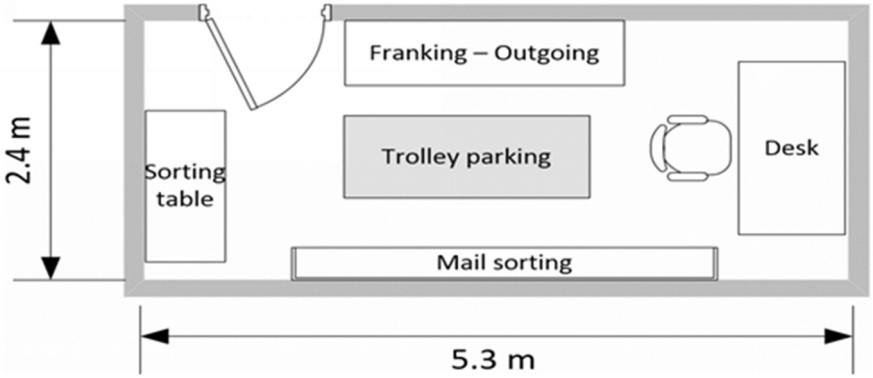
Post Room (for commercial premises only)

5.2.5 An area may be required for receiving, screening, sorting and storing post and small courier or other items. The size of the post room will be dependent on the number of destination points within the building. The more internal drop-off points within the commercial areas, the more pigeon hole sorting frames will be required. Figure 4 shows the equipment and layout for a post room sized to hold the following:

- Franking machine (outgoing post);
- Sorting table (incoming post);
- Mail sorting frame (internal distribution);
- Mail trolleys (internal distribution); and
- Workstation.

5.2.6 Using Figure 4 as a template, the size of the post room(s) within the Development can be determined, depending on the number of incoming letters or mail and the number of internal distribution points.

Figure 4: Generic post room layout



Concierge Facilities

5.2.7 An area may be required for receiving and storing residential deliveries and for other concierge-related services.

Service Corridors

- Service corridors should have a minimum width of 2.5m; and
- Service corridors should have a minimum clear headroom of 2.6m.

Goods Lifts

- A 2,000kg goods lift will usually provide the capacity and operational resilience for the vertical transportation of goods and waste containers for development plots up to 40,000m2;

- Goods lifts should be used for the movements of goods and waste only and should not be used as fire lifts;
- Prepared food (i.e. cooked meals) should not be moved in a goods lift used for the movement of waste.

6. Waste Generation and Storage

6.1 INTRODUCTION

6.1.1 This section sets out the waste management strategy for the Development including:

- Waste streams;
- Waste generation and storage requirements; and
- Waste management and collection strategies.

6.1.2 The section is split into Commercial and Residential sections

6.2 COMMERCIAL WASTE STREAMS

6.2.1 The commercial waste produced within the Development will be separated into five streams:

- Food;
- Non-Recyclable;
- Glass;
- Cardboard;
- Paper;
- Mixed Recycling (including plastic); and
- Special Waste (e.g. batteries).

6.3 WASTE GENERATION

6.3.1 The following assumptions have been applied when defining the waste management strategy:

- The area schedules provided in Table 1 and Table 2;
- Waste generation calculations are based on BS 5906:2005 and Arup estimations (based on other examples of similar developments); and
- In line with industry best practice waste storage has been provided for two days of waste generation for the Development.

6.3.2 The waste generation calculations are shown in Table 6 overleaf.

Table 6: Scenario waste generation

Land Use	Max Residential	Max Employment
	Waste Volume (m^3/day)	Waste Volume (m^3/day)
Retail	89	89
Food & Beverage	142	142
Office	112	262
Hotel	4	4
Residential	47	24
Community, Leisure, Cultural & Other	69	69
Total	**463**	**590**

6.4 WASTE STORAGE REQUIREMENTS

6.4.1 The requirements set out in 'BS5906:2005 Waste management in buildings' and Southwark Council document 'Waste management guidance notes for residential developments for waste storage and handling' are as follows:

- Commercial and residential waste must be stored in separate stores;
- Residents must not walk more than 30m in a horizontal direction to deposit their waste;
- Residential waste storage must be provided to accommodate alternate weekly collections for residual and recyclable waste;
- Where waste is not stored at surface level a goods lift must be provided to bring containers and bales to surface level for collection;
- A temporary storage area must be provided adjacent to the collection point;
- All waste containers will be accessible to the waste collector with unimpeded access to each individual container;
- The waste collector will not be required to pull full containers more than 10m to the collection vehicle;
- Containers will be stored or presented within 10m of vehicle access with unhindered access to each individual bin;
- A minimum clear space of 150mm will be allowed between containers;
- The waste room walls will be constructed of, or lined with, hard impervious material with a smooth finish suitable for washing down. The floor will not be less than 100mm thick, and formed of hard impervious material with a smooth finish, and there will not be steps and projections at the entrance;
- Drainage and hose-down facilities will be provided to allow cleansing of waste storage rooms;
- Waste collection vehicles will not be required to reverse more than 12m;
- Access roads for waste vehicles will have a minimum clear width of 3.5m, the gradient will not exceed 1:12; and

- The ground between the storage location for bulk bins and the loading position will be level, smooth, hard surfaced and provide a drop kerb should a container be required to be brought to ground level. The ground may have a maximum gradient of 1:14 if the ground slopes down towards the collection vehicle.

6.5 COMMERCIAL WASTE MANAGEMENT STRATEGY

6.5.1 The commercial waste management strategy has been reviewed with British Land and Broadgate Estates, with the objective of minimising waste handling by the site management team. The key elements of the proposed waste management strategy for the CWM are as follows:

- Commercial waste rooms will be sized for two-days of waste storage (collections to be undertaken daily). This represents industry best practice;
- Development plots with waste volumes requiring more than eight 1,100 litre eurobins will use 10m2 portable waste compactors for the storage of residual and mixed dry recyclable (MDR) waste (paper, plastics and mixed metal cans);
- Glass waste will be stored in 360 litre eurobins;
- Cardboard will be processed using a baler producing 100kg bales. Two 100kg bales can be stores on a 1,000mm x 1,200mm pallet; and
- • Where waste volumes are insufficient to require a waste compactor, residual and MDR will be stored in 1,100 litre eurobins and mixed metal cans will be stored in 360 litre eurobins.

6.6 COMMERCIAL WASTE MANAGEMENT PLAN

Internal Waste Segregation

General Waste

6.6.1 Non-recoverable waste streams will be colour coded and clearly labelled to help waste producers and the occupier cleaning team responsible for transferring the waste to the waste room to ensure that they place waste in the correct storage units.

Dry Recyclables

6.6.2 Dry recyclables will be segregated from other waste in both office and retail areas. Bins and bags will be colour coded and clearly labelled to help waste producers and occupier cleaning team responsible for transferring the waste to the waste room to ensure all recyclable waste is placed in the correct waste storage units.

Specialist Waste Stream Disposal

Waste Electrical and Electronic Equipment

6.6.3 Waste Electrical and Electronic Equipment (WEEE) and other specialist wastes are to be stored, alongside bulky waste, in an allocated area within the waste room.

Batteries

6.6.4 Batteries should be collected in pots (separate for lithium and alkaline types) within occupier areas. It is recommended that occupiers cover the terminals of lithium

batteries with an insulating, non-conductive material e.g. using electrical tape, to prevent the risk of fire. Occupiers will be responsible for battery disposal, usually via a nominated waste contactor.

Confidential Waste

6.6.5 The development plot site management team should organise a single contractor to manage the disposal of all confidential waste within the development plot.

Photocopier cartridges

6.6.6 Occupiers will be responsible for the collection and recycling of photocopier and printer cartridges.

Fluorescent Tubes and Light Bulbs

6.6.7 Occupiers will be responsible for arranging the collection of their fluorescent tubes and light bulb waste. This will normally be done through their maintenance contractors. Waste streams such as florescent tubes and batteries will be required to be collected by a licensed specialist contractor as they are designated as hazardous waste.

6.6.8 Where there is more than one occupier in a property, each occupier that is a producer of hazardous waste will need to register to permit their waste to be collected safely.

Oil, Grease and Fat

6.6.9 Commercial occupiers, e.g. food retailers, will be responsible for organising the collection of oil, grease and fat waste.

Internal Waste Transfer

6.6.10 Commercial occupiers will allocate space within their demised areas for waste and recycling stations for segregating waste. Occupiers' cleaning teams will empty the bins on each floor and transfer waste to the waste store in trolleys or roll cages via the goods lift.

Waste Mitigation

6.6.11 Employees and visitors of the Development will be encouraged to reduce, re-use and recycle waste materials where possible to reduce waste to incineration. To ensure occupiers recycle as much waste as possible, and to avoid the possible contamination of recyclate, containers will be easily identifiable and clearly labelled with communication on the correct way.

6.6.12 In addition, it is recommended that a weighing machine is provided within the waste room, so that waste from each occupier can be measured. This will allow management information to be produced, which will help drive initiatives to reduce, re-use and recycle.

Waste Collection

6.6.13 Waste collections will be undertaken by a nominated waste contractor. It is assumed that waste will be collected daily, though capacity has been provided for the storage of two-days of generated waste for all waste streams except food, which will be collected separately by a specialist waste contractor.

6.6.14 Where the distance between the waste room and the waste presentation point is more than 10m the development plot site management team will manage waste collections and rotate any full and empty containers.

6.7 RESIDENTIAL WASTE STRATEGY

6.7.1 The waste strategy for development plots containing residential accommodation will be determined on a development plot by development plot basis. Each development plot will be different in terms of residential mix (market, affordable, social, assisted living and student accommodation) and location of the cores and waste rooms relative to the collection point. Residential waste storage will be sized to hold sufficient waste for alternate weekly collections of residual and recyclable waste i.e. two weeks waste storage.

6.7.2 Waste will be stored in 1,100 litre eurobins.

6.7.3 Waste collections will be undertaken by the nominated LBS residential waste contractor.

6.7.4 Where the distance between the waste room and the waste presentation point is more than 10m the development plot site management team will manage waste collections and rotate any full and empty containers.

7. DSMP Update Process

7.1 INTRODUCTION

7.1.1 DSMPs are intended to be updated regularly, in accordance with Operations & Maintenance reviews by the development plot site management team and service charge reviews by the estate management team (including British Land).

7.1.2 The following sub-sections set out how the documents should be reviewed and maintained.

7.2 BOOKING-IN SYSTEM

7.2.1 The development plot site management team will be responsible for keeping a record of servicing activity, monitoring the effectiveness of the scheduling strategy and making amendments to the plan. An initial survey of servicing activity will be undertaken within 12 months of occupation of each development plot. Key pieces of information to be captured are as follows:

- Date and time of the delivery slot(s) booked (20-minute slots recommended);
- Vehicle types and types and volumes of goods carried;
- Arrival and departure times; and
- Company and driver contact details.

7.3 DSMP REVIEW

7.3.1 The development plot site management team will use information and feedback from occupiers, suppliers and residents to conduct an annual review of each DSMP. The review will assess the efficiency of the DSMP to meet the objectives of minimising the environmental impact on the surrounding area and providing servicing arrangements for the building which meet road management and safety requirements.

7.3.2 The development plot site management team (on behalf of the building owner) will conduct the first review within 12 months of the date of occupation and reviews will be conducted as necessary thereafter for a period of five years. Where necessary, changes to the DSMP will be made to reflect the findings of any review. As part of the gathering of data for the Travel Plan, supplementary questions on business travel will be encouraged in the travel surveys to ascertain the number of trips, mode of travel and any opportunities to reduce vehicular traffic to and from the site. In addition to the consideration of information on staff travel, the Travel Plan will seek to collect data relating to the number and modal split of visitors to the office element of the Development and the number and type of delivery traffic to carry out an audit of service traffic.

7.3.3 A Travel Plan Coordinator will acquire the relevant data from the occupiers of the building to obtain an understanding of the various travel patterns of visitors and delivery trips. A daily record of the service traffic movements will be conducted during a typical week to obtain the details. The information on delivery and service traffic that will be sought will include type of suppliers (to seek opportunities for consolidating regular

visits), patterns of arrivals and departures (to avoid peak periods) and types of vehicles used by the suppliers (for any assessment of vehicle-related emissions).

7.3.4 Information may also be made available from vehicle management systems and other sources (e.g. Tesco car park, multi-storey car park, High St automatic number plate recognition system).

Appendix A – Servicing Access Plan

Primary routes
Secondary routes
Secondary route - restricted access
Tertiary routes
Access locations
Servicing Access Point
Servicing Bay
Combined Basement

For further information please contact

freepost CANADA WATER MASTERPLAN
telephone 020 7729 1705 (request the Canada Water Team)
email team@canadawatermasterplan.com