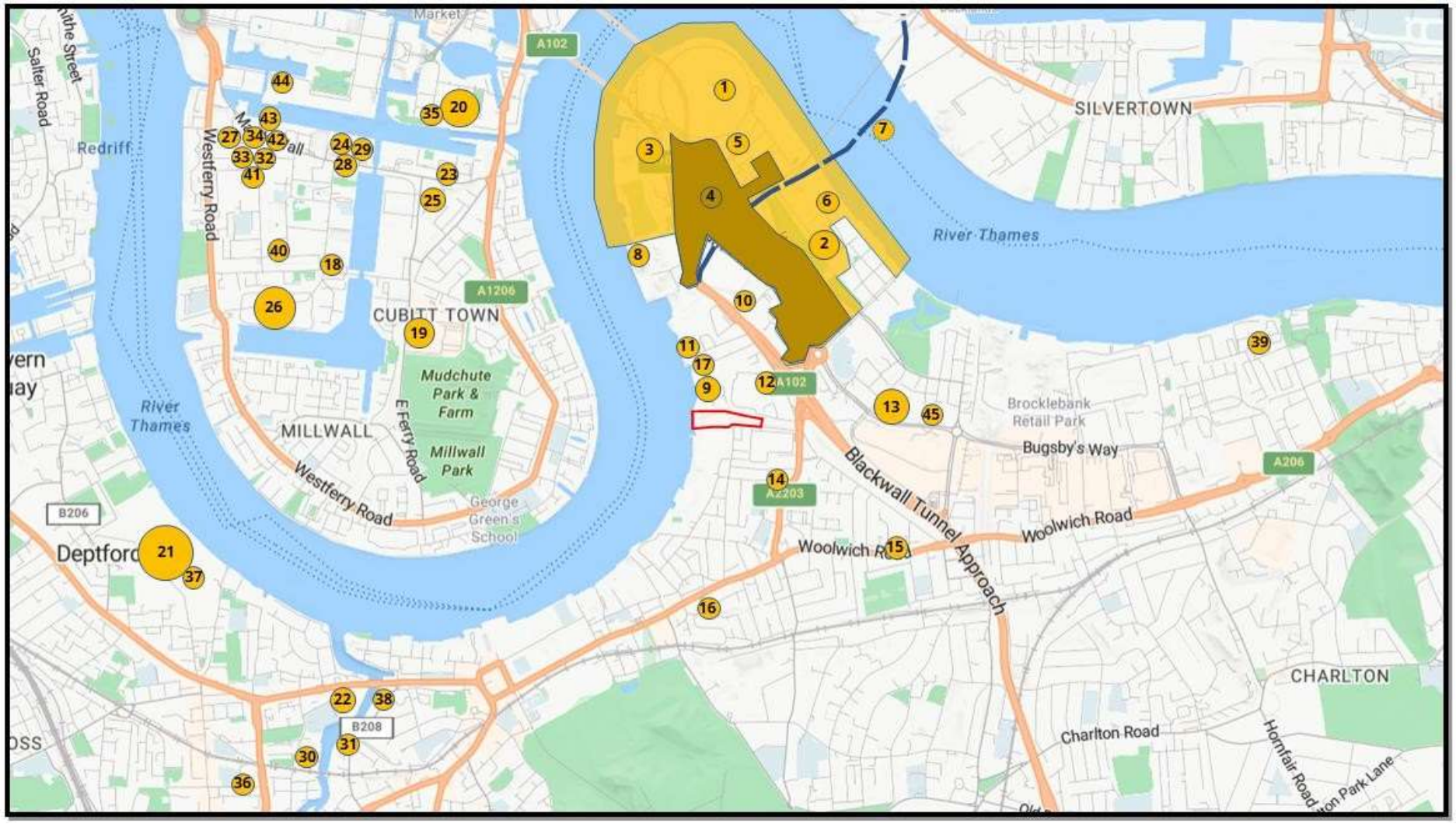
Ref(Figu	Scheme	Planning Reference	Planning Authority	Status	ıl "Committed" (Planning;d in Transport Asse		Rationale
1	Greenwich Peninsula Masterplan 2015 Meridian Quays and Lower Riverside neighbourhoods.	15/0716/O As amended: 20/2000/NM	RB Greenwich	Approved December 2015 Approved September 2022	Y	N	This is included within the newer 2019 Masterplan where there is relevant overlap and is therefore considered a duplicate.
2	Greenwich Peninsula Plot 19.05	21/2077/R (reserved matters) Related to 15/0716/O	RB Greenwich	Approved September 2022	Y	N	Approved Post 2020 EIA Review however, Reserved Matters included no Transport Updates.
3	Greenwich Peninsula Plots 1.02 and 1.03	23/0418/R (reserved matters) Related to 15/0716/O	RB Greenwich	Validated April 2023	N	N	This is a reserved matters application and contains no updates to Transport matters.
4	Greenwich Peninsula Masterplan 2019 (Hybrid application - detailed elements relate to Plots 18.02 and 18.03 currently being built out)	19/2733/O	RB Greenwich	Approved September 2022	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
5	Greenwich Peninsula Plot N0201	23/2150/F	RB Greenwich	Validated June 2023	N	N	This is part of the 2019 masterplan and therefore already considered. The proposals are car and permit free, and generate neglibile levels of traffic.
6	Greenwich Peninsula Plot M0121	23/1565/F	RB Greenwich	Validated June 2023	N	N	This is part of the 2019 masterplan and therefore already considered. The proposals are for 51 additional residential units compared to the masterplan; however, the trip generation showws a total net reduction in vehicle trips.
8	Victoria Deep Water Terminal	17/1142/F As amended:18/2729/MA	RB Greenwich	Approved June 2017	N	N	This application is for the temporary relocation of the concrete works for a period of a total of 2 years additional dating from 2018. This is therefore understood to have expired already and this application is no longer relevant to the development.
9	Morden Wharf	20/1730/O	RB Greenwich	Approved June 2022	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
10	1 Boord St	19/0939/F	RB Greenwich	Approved January 2021	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
11	Temporary bus garage - Go-ahead London, Northern Warehouse	23/1161/F	RB Greenwich	Validated April 2023	N	N	This is the temporary relocation of a bus depot, with currently existing travel patterns and a low level of private car use (10 two-way trips per peak hour); it is considered that these flows are already on the network and therefore not 'new' impact.
12	Unit 2 & 7 Peterboat Close	22/1026/F	RB Greenwich	Approved December 2022	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
13	GMV - Phases 9 and 10 (Plots 401-405)	19/4075/R	RB Greenwich	Approved November 2021	Y	N	Approved Post 2020 EIA Review, however the reserved matters does not include any transport matters and the original application is already included as Site 45. This is considered a duplicate.
14	87 Blackwall Lane	19/0512/F	RB Greenwich	Approved December 2019	Y	N	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available; however it is for only some 27 flats which are car-free. The TS concludes that the impact of development will be negligible and on the basis of unlikely to generate more than a small handful of disabled person vehicle trips, this site has been discounted
15	141-143 Woolwich Road	21/3944/F	RB Greenwich	Approved February 2023	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
16	Former Sam Manners House	20/1815/F	RB Greenwich	Approved April 2021	Y	N	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available; however it is for only some 30 flats which are car-free. The TS concludes that the impact of development will be negligible and on the basis of unlikely to generate more than a small handful of disabled person vehicle trips, this site has been discounted
17	Land North of Northern Warehouse, Morden Wharf, Morden Wharf Road, London, SE10 0NU	19/3298/F	RB Greenwich	Validated November 2019	N	N	This is a minor application for wheel-washing facilities and contains no transport assessment.
18	Glengall Quay - Pepper Street	PA/16/03518	LB Tower Hamlets	Approved December 2018	Y	N	The associated TA (PART_1-1316073) Identifies the trip generation and the distribution model and no trips are identified crossing the river.
19	Crossharbour District Centre (Asda)	PA/19/02534	LB Tower Hamlets	Approved September 2021	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
20	Wood Wharf - Parent Consent	PA/13/02966/P0	LB Tower Hamlets	Outline permission approved December 2014	Y	N	This is the parent consent of Site 35 below.
21	Convoys Wharf - Parent Consent	DC/13/83358	LB Lewisham	Approved March 2014	Y	N	Covered by Site 37, which is the newer application with updated Transport Work.
22	Thanet Wharf (Creekside Village East)	DC/18/108548	LB Lewisham	Awaiting Decision	N	N	There is no Transport Assessment information (noted to be Chapter 16 of the EIA) yet uploaded to the planning portal. This scheme is also not yet committed.
23	One Thames Quay	PA/21/00900	LB Tower Hamlets	Approved June 2023	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
24	Mill Harbour	PA/20/01969	LB Tower Hamlets	Approved October 2021	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
25	Skylines Village	PA/17/01597/A1	LB Tower Hamlets	Approved March 2021	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
26	Westferry Printworks	PA/22/02317	LB Tower Hamlets	EIA Scoping Opinion issued December 2022	N	N	Transport work not confirmed acceptable by planning approval and development not yet committed; car-free development with negligible distribution into the study area.
27	Cuba Street	PA/20/02128/A1	LB Tower Hamlets	Approved December 2022	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available

28	South Quay Plaza Phase 4	PA/15/03073/B1	LB Tower Hamlets	Approved March 2017	Y	N	The Approved TA states that there is no noted distribution into the assessment area. The EIA associated with this scheme also idtenifies no significant, permanent, adverse impact which is not mitigated, with the vast majority of factors assessed resulting in a negligible impact.
29	South Quay Plaza Phases 1-3	PA/14/00944 Amended by: PA/21/02721	LB Tower Hamlets	Approved March 2015 Validated December 2021	Y	N	Traffic details for all 4 phases is included within the Phase 4 development application transport assessment work (Site 28), which have been referred to in lieu of this older application.
30	Sun Wharf	DC/20/118229	LB Lewisham	Approved August 2023	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
31	Saxon Wharf	18/1594/F	RB Greenwich	Approved October 2020	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
32	54 Marsh Wall	PA/16/01637/A1	LB Tower Hamlets	Approved January 2020	Y	N	The net development trips are negligble, and the ES addendum has identified all factors result in negligible impact. No distribution from this site is expected within the development area.
33	Aspen Consort Place	PA/15/02671	LB Tower Hamlets	Approved March 2017	Y	N	The distribution according to the TA does not include any overlap with the assessment area. All effects as per the associated EIA identifiy all are negligible, and the trip generation in respect of vehicles is low.
34	56-58 Marsh Wall	PA/22/00591/A1	LB Tower Hamlets	Approved July 2023	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
35	Wood Wharf - RM03 - E1/E2/E3/E4 - 10 George Street + 40 Charter Street	Reserved matters PA/21/01440/NC Related to: PA/13/02966	LB Tower Hamlets	Approved January 2022 Approved December 2014	Y	N	The Reserved Matters Application concludes within the ES addendum that there would be nil detriment. The original TA for 2026 total development flows identifies no distribution into the study area. Construction routes are also limited to the north of the river.
36	Frankham Walk (Tidemill Primary School)	DC/16/095039	LB Lewisham	Approved July 2018	Y	N	The approved TA states that no car trips will be generated at peak hour with a very minimal number across the day. The DSMP identifies a small number of trips at peak hours, which would be mitigated out of consideration by the associated DSMP. When distributed, it is unlikely that any vehciles would cross into the assessment area.
37	Convoys Wharf	DC/18/107698	LB Lewisham	Approved August 2021	Y	Y	Approved Post 2020 EIA Review
38	Ravensbourne Wharf	23/1414/F	RB Greenwich	Validated May 2023	N	N	Transport work not confirmed acceptable by planning approval and development not yet committed. This is a car-free scheme with neglibible trips within the study area.
39	Charlton Riverside - Hyde - Herringham Quarter	19/3456/F	RB Greenwich	Approved December 2022	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
40	111-113 Mellish Street	PA/19/01299/A1	LB Tower Hamlets	Approved September 2019	Y	N	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available; however it is for only22 flats which are car-free. The TS concludes that the impact of development will be negligible and on the basis of unlikely to generate more than a small handful of disabled person vehicle trips, this site has been discounted
41	The Bellamy	PA/21/02776/A1	LB Tower Hamlets	Validated December 2021	N	N	Net reduction in vehicle trips compared to existing use.
42	Ensign House	PA/21/00952/A1	LB Tower Hamlets	Approved November 2023	N	N	The EIA assumes no significant effects and no distribution into the Greenwich Peninsula. The development is car-free and generates a negligible increase in vehicle movements across the day.
43	Quay House	PA/20/02649	LB Tower Hamlets	Approved August 2021	Y	Y	Approved Post 2020 EIA Review and Sufficient Transport Assessment Information Available
44	HQW1 - Heron Quays West	PA/16/02956	LB Tower Hamlets	Approved June 2017	Y	N	The TS for this site identifies a net change in traffic that is a significant decrease compared to the former use. On that basis, this site has not been included. The associated EIA concluded no significant effects.
45	Millennium Village (Phase 4 and 5 (Plot 401 - 405 and 501-503))	12/0022/O	RB Greenwich	Approved March 2012	Y	In Part	Phases 1,2. 3, 4 and 6 have been built out according to the contractor's website. Phase 5 remains under contruction and is expected to be completed in 2024. Phase 5 comprises 112 residential units.
46	225 Marsh Wall	PA/16/02808/A1	LB Tower Hamlets	Granted by appeal 10 Oct 2018	Y	N	The associated TA identifies the trip generation and is car free. No trips are identified crossing the river.


A102
SILVERTOWN
River Thames
A1206
CUBITT TOWN
Mudchute Park & Farm
MILLWALL
Millwall Park
River Thames
Westferry Road
E Ferry Road
Westferry Road
George Green's School
B206
Deptford
A102
Brocklebank Retail Park
Bugsby's Way
A206
A2203
Blackwall Tunnel Approach
Woolwich Road
Woolwich Road
CHARLTON
Charlton Road
Hornfair Road
B208
Redriff
Salter Road
Market
1
2
3
4
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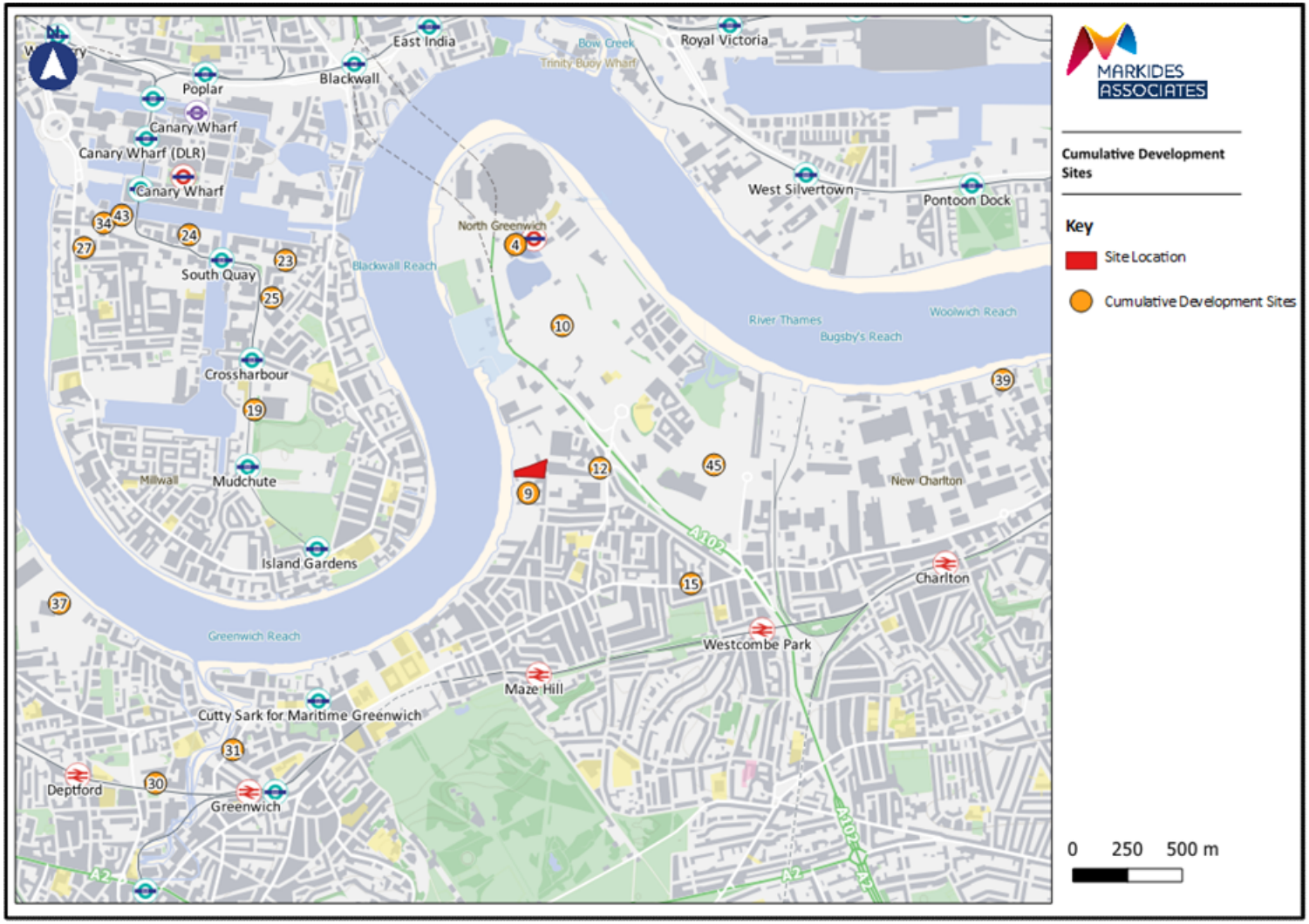

East India
Royal Victoria
Bow Creek
Trinity Buoy Wharf
Poplar
Blackwall
Canary Wharf
Canary Wharf (DLR)
Canary Wharf
West Silvertown
Pontoon Dock
North Greenwich
Blackwall Reach
South Quay
River Thames
Woolwich Reach
Bugsby's Reach
Crossharbour
Millwall
Mudchute
New Charlton
Island Gardens
A102
Charlton
Greenwich Reach
Westcombe Park
Maze Hill
Cutty Sark for Maritime Greenwich
Deptford
Greenwich
A2
A102
A2
Cumulative Development Sites
Key
Site Location
Cumulative Development Sites
0 250 500 m

Development	Location	Total Vehicle						HDV						AADT		
		AM Peak			PM Peak			AM Peak			PM Peak					
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
1 Boord Street	RBG	10	38	49	19	0	19	1	4	5	2	0	2	100	380	490
Morden Wharf	RBG	132	251	383	253	182	435	13	25	38	25	18	44	1,320	2,510	3,830
Greenwich Peninsula	RBG	1,057	1,453	2,514	1,288	1,126	2,412	106	145	251	129	113	241	10,570	14,530	25,140
Woolwich Road	RBG	0	3	3	3	0	3	0	0	0	0	0	0	0	30	30
Peterboat Close	RBG	0	5	5	7	1	8	3	6	9	8	4	12	0	50	50
Convoys Wharf	LBL	191	342	533	259	290	269	19	34	53	26	29	27	1,910	3,420	5,330
Millenium Village Phase 5	RBG	1	4	6	3	2	5	0	0	1	0	0	1	13	43	56
Saxon Wharf	RBG	0	2	3	1	0	2	0	0	0	0	0	0	4	21	25
Total Without Greenwich Peninsula		**335**	**645**	**981**	**546**	**475**	**741**	**36**	**70**	**106**	**61**	**51**	**85**	**3,347**	**6,454**	**9,811**

Assumed to be 10% total traffic in lieu of detailed trip generation; this is unlikely due to effect of Delivery

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	10	38	49	19	0	19	202	218	420
Bus			6			13			
Rail			9			34			
Car									
Cycle			0			1			
Riverboat									
Total Servicin									

Source: TRANSPORT_STATEMENT__JANUARY_2020_-619775 table 5-6. This was considered overly Robust

Key

Figures not Provided in Report

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	132	251	383	253	182	435			
Bus	38	165	203	157	62	219			
Rail	22	164	186	156	44	200			
Car									
Cycle	14	23	37	20	18	38			
Riverboat									
Total Servicing									

Source: morden_wharf_transport_assessment_mw_ram_tp_ta_004. the net difference has not been used as the site has been vacant for a number of years and former uses would not be captured in the 2022 baseline

Key

Figures not Provided in Report

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	1	4	6	3	2	5	27	3	56
Bus	1	3	3	1	1	2	14	15	29
Rail	9	37	47	3	12	31	201	214	418
Car	1	4	5	3	2	4	20	23	44
Cycle	0	1	1	1	0	1	5	6	11
Riverboat	0	0	0	0	0	0	0	0	0
Total Servicing									

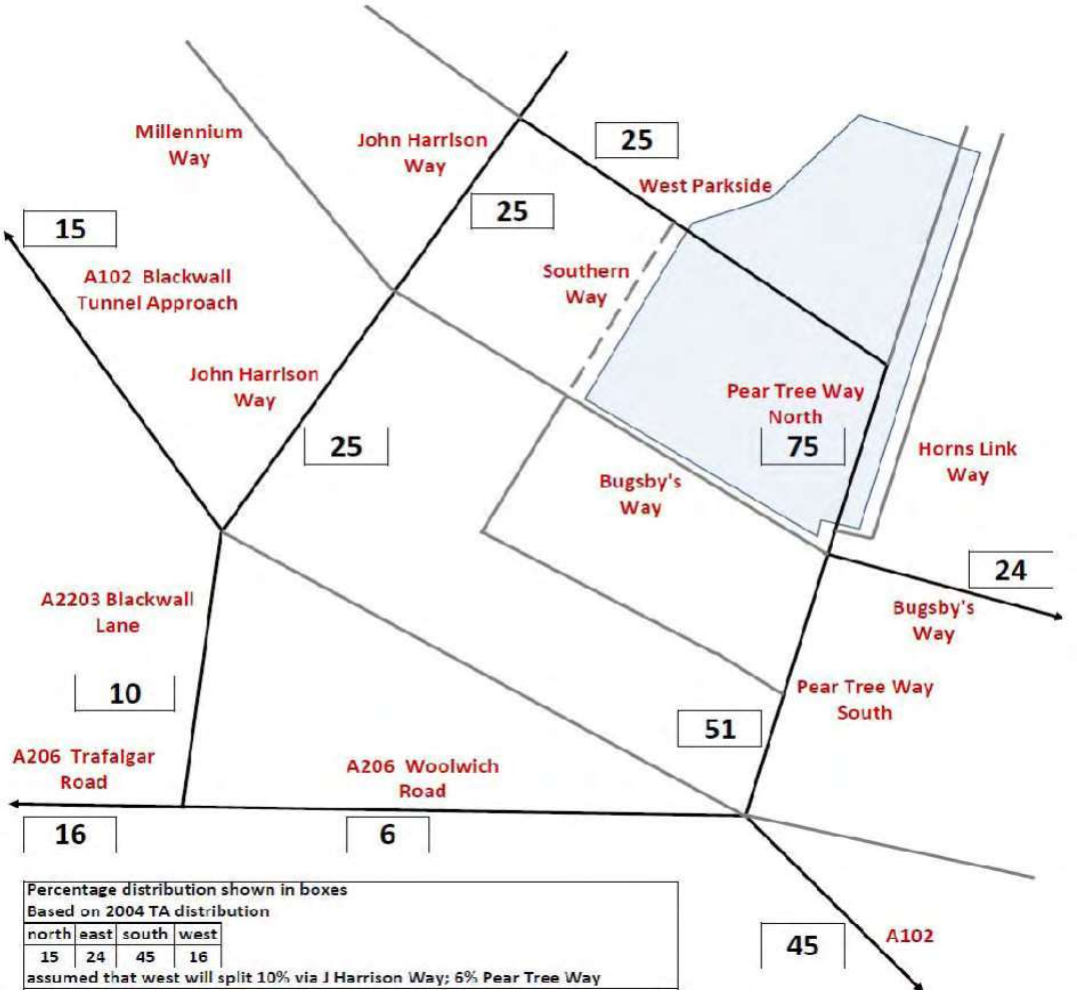
112 residential units

From Table 2.4 Appendix E Transport_Assessment_Part_7-57039; Trip Generation Technical Note

Trip Rates

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	0.012	0.038	0.050	0.031	0.018	0.048	0.244	0.027	0.502
Bus	0.006	0.023	0.029	0.011	0.008	0.019	0.125	0.131	0.256
Underground	0.076	0.307	0.382	0.015	0.102	0.252	1.673	1.754	3.427
Rail	0.007	0.027	0.034	0.013	0.009	0.023	0.120	0.157	0.307
Car	0.009	0.032	0.041	0.026	0.014	0.039	0.183	0.207	0.390
Cycle	0.002	0.009	0.011	0.005	0.003	0.008	0.047	0.050	0.097
Riverboat	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Servicing									

% Distributions As per Figure 4.1 Appendix E Transport_Assessment_Part_7-57039; Trip Generation Technical Note



Distribution	%	AM Peak			PM Peak			Daily Flows		
		In	Out	Total	In	Out	Total	In	Out	Total
A102 Blackwall Tunnel Approach	15%	0	1	1	1	0	1	4	0	8
A2203 Blackwall Lane	10%	0	0	1	0	0	1	3	0	6
A206 Trafalgar Road	16%	0	1	1	1	0	1	4	0	9
A206 Woolwich Road	6%	0	0	0	0	0	0	2	0	3

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	-8	4	-4	-9	-18	-27	-194	-148	-342
Bus			93			71			883
Rail			106			83			1,583
Car			8			6			78
Cycle			17			13			163
Riverboat									
Total Servicing			8			5			198

Sourced from Main TA. The later addendums did not provide multimodal trips or total vehicle trips. These assess a higher quantum of development. The net difference is used here as the site is understood to still be occupied ahead of implementation and would therefore have been captured within the baseline.

Key

Figures not Provided in Report

Residential use only (commercial flows not given for this hour/mode

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	1,057	1,453	2,514	1,288	1,126	2,412			
Bus	2,336	1,772	4,108	1,451	2,160	3,611			
Rail	2,981	5,761	8,742	5,051	3,955	9,006			
Car	941	1,293	2,237	1,052	940	1,992			
Cycle	311	596	907	421	310	731			
Riverboat	149	347	496	316	215	530			
Total Servicing									

Sourced from TRANSPORT_ASSESSMENT_INCLUDING_TRAVEL_PLAN__OUTLINE_PART_-592282 and TRANSPORT_ASSESSMENT_AND_TRAVEL_PLAN__DETAILED_PART_-592147

Scenario 4 2019 masterplan

Key

Figures not Provided in Report

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	0	3	3	3	0	3			
Bus	1	7	8	3	2	6			
Rail	3	13	15	6	4	11			
Car	0	3	3	3	0	3			
Cycle	0	2	2	1	1	1			
Riverboat									
Total Servicing							15	15	30

Source: TRANSPORT_STATEMENT-775781

Key

Figures not Provided in Report

Residential use only (commercial flows not given for this hour/mode

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	0	5	5	7	1	8	76	79	155
Bus	9	2	10	2	8	10	53	55	108
Rail	17	3	20	5	15	20	103	107	210
Car	-3	-1	-4	-1	-3	-4	-21	-20	-41
Cycle	1	0	1	0	1	1	8	8	16
Riverboat									
Total Servicing	3	6	9	8	4	12	97	99	196

3% 5%

Sourced from TRANSPORT_REPORT_ADDENDUM_SEPT_2022-862334. Net vehicle, servicing, and car change used as site understood to still be occupied. All other modes as per gross development trips

Key

Figures not Provided in Report

Link	Direction	Inbound		Outbound	
		Micro-vehicle/Car/LGV	HGV	Micro-vehicle/Car/LGV	HGV
Tunnel Avenue	E'bnd	-	-	100%	100%
	W'bnd	100%	100%	-	-
Blackwall Lane (N)	N'bnd	37%	50%	32%	70%
	S'bnd	-	-	22%	40%
Blackwall Lane (S)	N'bnd	41%	10%	-	-
	S'bnd	-	-	41%	10%
A102 (N)	N'bnd	-	-	5%	20%
	S'bnd	5%	20%	-	-
A102 (S)	N'bnd	22%	40%	-	-
	S'bnd	-	-	22%	40%
John Harrison Way (North Greeenwich)	N'bnd	-	-	11%	13%
	S'bnd	16%	15%	-	-
Bugsby's Way (North Greenwich)	N'bnd	16%	15%	-	-
	S'bnd	-	-	11%	13%

Table 3.1 – Summary of assumed traffic distribution for new trips

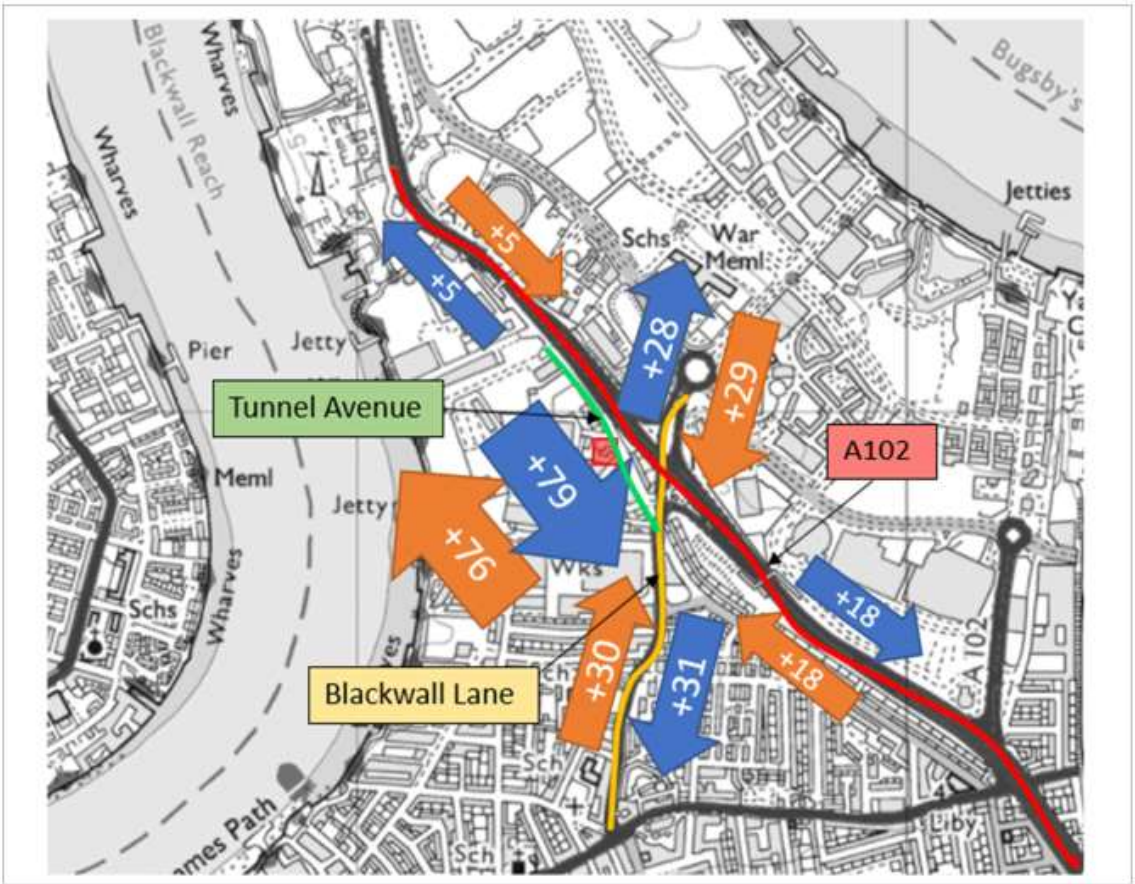


Figure 3.2 – Predicted net change in daily traffic flows – local network

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	191	342	533	259	290	269			
Bus	267	484	751	385	271	656			
Rail	305	729	1,034	573	398	971			
Car	183	324	507	242	178	240			
Cycle	36	76	112	59	38	97			
Riverboat	72	194	266	155	105	260			
Total Servicing									

Sourced from PLOT_08_TRANSPORT_STATEMENT_ADDENDUM-877861

Key

Figures not Provided in Report

Mode	AM Peak			PM Peak			Daily Flows		
	In	Out	Total	In	Out	Total	In	Out	Total
All vehicles	0	2	3	1	0	2	22	22	34
Bus									
Rail									
Car									
Cycle									
Riverboat									
Total Servicing							12	12	24

Source: TRANSPORT_STATEMENT-479893 Tabel 5.4. Servicing trips are derived from 18_1594_F-OUTLINE_DELIVERY__SERVICING___WASTE_MANAGEMENT_PLAN-479886

Key

Figures not Provided in Report

Transport Assessment

Enderby Place, Greenwich

28 November 2023

Prepared for

Maritime View Ltd

MARKIDES ASSOCIATES

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Prepared by:
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Project Number: 22181
Doc Number: TA01

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
A	Draft	BG	SEC	BG	DJT	27/10/2023
B	First Issue	BG	SEC	BG	DJT	28/11/2023

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Figures

Drawings

22181-MA-XX-XX-DR-C-7051 SPA Refuse Vehicle

22181-MA-XX-XX-DR-C-7052 SPA Ground Level Plan

Appendices

1. Introduction

1.1 Overview

1.1.1 Markides Associates (MA) have been instructed by Maritime View Ltd ('the applicant') to prepare this Transport Assessment (TA) in support of an application for re-development of Enderby Place ('the site'), adjacent to Morden Wharf in the Royal Borough of Greenwich (RBG). RBG are both the planning and highways authority.

1.1.2 The proposals comprise up to 564 residential apartments (Class C3), light industrial (Class E(g)(iii)) and community / café use (Sui Generis), and associated highways, landscaping and public realm works. A site layout plan is included in **Appendix A.**

1.2 Site and Planning Context

1.2.1 The site is currently un-occupied brownfield site, formerly occupied by a now demolished – Submarine Cable Works. As such it currently has no formal land use status but could otherwise be considered B2/B8 industrial.

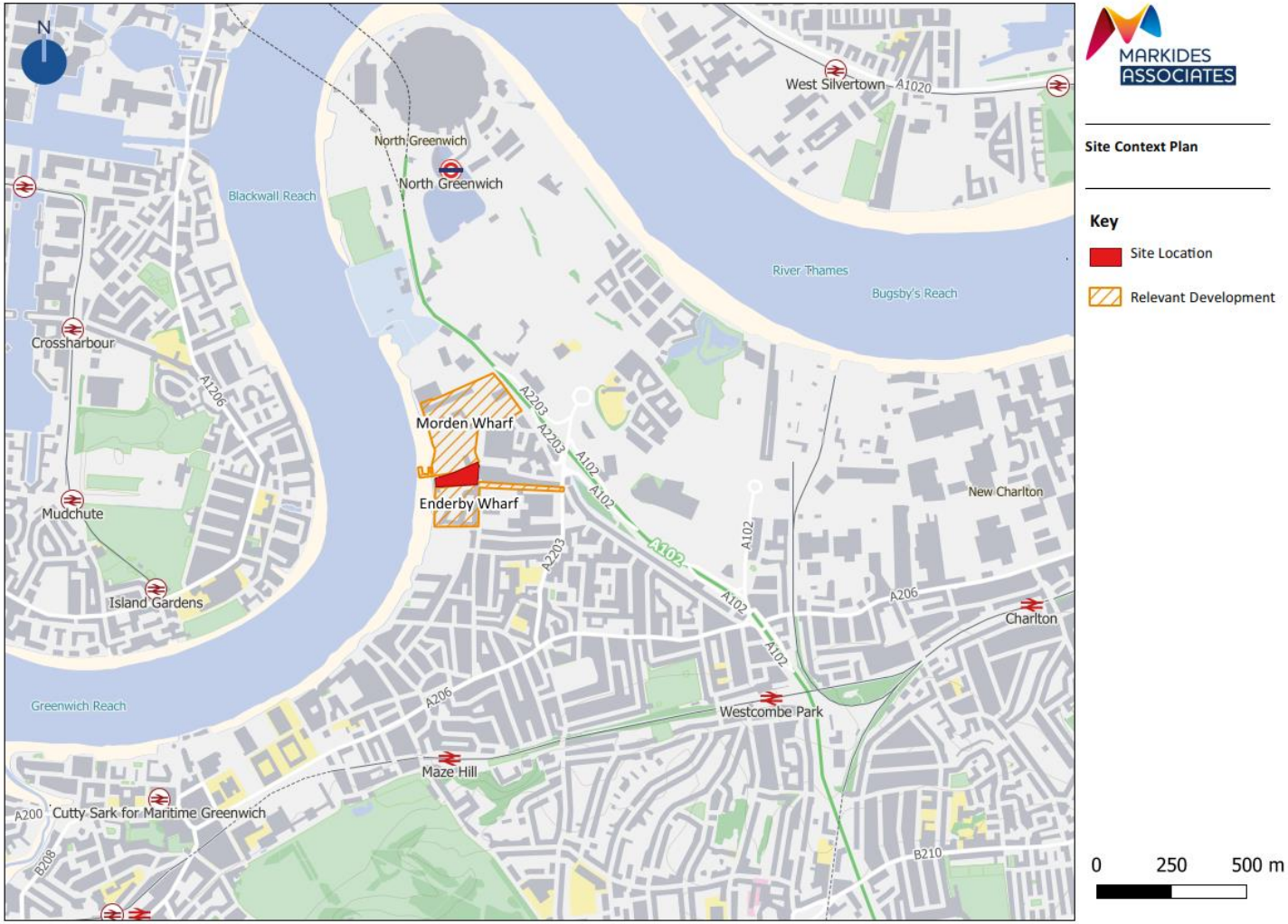
1.2.1 The site has planning permission (planning ref: 15/0973/F) for the erection of a cruise liner terminal building, skills academy (Use Class D1), 477 residential units (increasing from 93) (Use Class C3), retail, restaurants and cafes and drinking establishments (Use Classes A1, A3 and A4), vehicular access with associated servicing facilities, car parking, landscaping, public realm (including improvements to the Thames Path), play spaces, infrastructure, and associated parking.

1.2.2 This scheme has been implemented and could be built out.

1.2.3 It is bound to the north by land which has planning permission for a development known as Morden Wharf, separated by a Historical Retaining Wall and light Industrial warehouses to the northeast. The river Thames bounds the site to the west along with the Thames Path walking and cycling route. The site is bound to the south by Telegraph Avenue and Telcon Way, which form the main access for all modes to the site.

1.2.4 South of Telegraph Avenue is a completed mixed-use development identified as Enderby Wharf, with the grade listed Enderby Public House retained and situated at the western end of Telegraph Avenue. Telegraph Avenue itself forms a non-vehicular cul-de-sac, providing pedestrian and cycle access to the Thames. The site context is shown diagrammatically in **Figure 1.1** overleaf.

Figure 1.1 Site Context Plan



1.2.5 As shown in the figure above, there are two relevant developments neighbouring the site which are summarised in **Table 1.1**.

Table 1.1 Local Planning Context

Site	Description of development	Status
Morden Wharf GLA Ref: 2020/6043/S1 LPA Ref: 20/1730/O	Outline permission for demolition of most structure and phased mixed-use redevelopment comprising: up to 1,500 residential dwellings; up to 17,311sqm GIA commercial floorspace (Class A1/A2/A3/A4/B1/B1c/ B2/B8/D1/D2); Full planning permission for change of use of part of the Southern Warehouse from Class B1c/B2/B8 to B1c/B2/B8/A3/A4; refurbishment (including mezzanines) and external alterations to part of the Southern Warehouse; change of use of the Jetty to public realm and installation on the Jetty of Gloriana Boathouse (use class D1/D2); access; landscaping and public realm works including new river wall and upgraded Thames Path	Granted 16/12/2020, not implemented
Enderby Wharf 10/3063/F	**Originally:** Redevelopment of the site comprising a new jetty for cruise liners and the Thames Clipper, a Cruise Liner Terminal, a 251 room hotel with conference, restaurant ancillary facilities (Use Class C1); skills academy (Use Class D1); 770 residential units (Use Class C3); commercial (Use Class B1); a crèche (Use Class D1) a gymnasium (Use Class D2); conversion and extension of Enderby House to provide tourist, community and retail facilities (Use Classes A1, A3, A4, B1, D1 and D2); and associated works.	Originally Granted 30/04/2012 **Built**

1.2.6 The Enderby Wharf proposals were originally a larger allocation that included the development site. Since that time, the site was disaggregated into two; Enderby Place (the development site) and Enderby Wharf (built and occupied development of some 400 flats).

1.2.7 The original proposal has gone through a long evolution, with the original 2012 planning application revised twice in 2014 (13/3025/NMA) and 2015 (15/0973/F), respectively. The changes comprised of reductions in parking, changes to the residential mix, and increasing the size of the cruise liner terminal building.

1.2.8 As stated above, the development site of Enderby Place has implemented planning permission for 477 residential units now entirely separate to what has been permitted, built, and occupied at Enderby Wharf.

Proposed Submission Site Allocations Plan 2021

1.2.9 The Proposed Submission Site Allocations Plan November 2021 is a Regulation 19 document for public consultation. It includes Enderby Place as 'GP1 Christchurch Way/Telegraph Avenue SE10 0AG' and cites a PTAL of 3. The draft site requirements include:

- New riverside Public Open Space and walk, with publicly accessible and legible connections through the site to the open space/walk and on to the Thames Path.
- Layout, scale, and massing of proposals must provide for regular gaps to ensure a visual and physical connection to the river.
- Provision of pier for river bus services
- Enhanced public transport via through routes for buses, in coordination with Site GP2.

1.2.10 RBG's Development Guidelines for GP1 include the following (our emphasis):

- Ground floors across the site should provide active frontages. If small-scale retail/leisure/community uses are proposed, these should be orientated to face the new riverside Public Open Space and improved Thames Path and should be designed as flexible units capable of accommodating a variety of uses to animate the space and provide passive surveillance. The site is located in an area of Public Open Space deficiency, in relation to local parks. **The new Public Open Space should be orientated to receive a high amount of sunlight throughout the year** and be sufficiently sized to provide playable space for all ages as well as areas for sitting out, informal recreation and nature conservation.
- **It is particularly important that the layout integrates pedestrian and cycle routes** with the movement network in adjacent residential development to the south and onwards to Westcombe Park and Maze Hill stations to moderate the constraints on pedestrian and cycle access via the SIL and the relatively isolated nature of the site.
- Any tall buildings proposed should be appropriately located **with sufficient gaps between buildings to create a legible cluster and to ensure good levels of daylight/sunlight at lower levels of accommodation** and to public/amenity spaces.
- The current permission includes provision for river bus services to the site. Revised proposals will be expected to **incorporate provision of a pier suitable for Thames Clipper requirements**, taking into account the development potential of the site and of Morden Wharf (site GP2) to the north. Proposals will need to ensure that the pier is appropriately integrated into the wider public realm of the site, and that the design of the pier supports a quality arrival experience for commuter and leisure passengers in all weather conditions.
- There is also potential for this site, in coordination with site GP2, to accommodate bus standing which could facilitate the extension of one or more bus routes from North Greenwich Station and improve the PTAL of the site. **Applicants will be expected to investigate the feasibility of the extension of bus services to improve the accessibility of the site, liaising with TfL and bus operators as appropriate.**
- Although the site has a mid-range PTAL, the site and surrounding developments include provision for walk-to services and amenities. **Proposals should minimise car parking provision.**

1.2.11 As set out above, it is recognised that the layout of any proposed development must fully integrate pedestrian and cycle routes within the design whilst also providing new public open space. Any proposals should also minimise car parking provision.

1.2.12 The document also confirms that applicants (in liaison with Morden wharf) will be required to investigate the feasibility of extending one or more bus routes from north Greenwich to improve the PTAL of the site. It should be noted that the policy does not set a requirement (nor does it state) that a bus route through the respective sites is a requirement of any development. Indeed, such a proposal has already been considered by the Morden Wharf applicant and was considered to be unviable at the time of that consent. The ability to reroute buses to improve the accessibility of the developments has however been explored in more detail and is set out later in this report.

1.3 Scope of the Transport Assessment

1.3.1 This TA has been prepared as a Healthy Streets TA using the best practice guidance provided by TfL dated June 2019. This has informed the structure of this document as well as the assessment methodologies which includes an Active Travel Zone (ATZ) assessment of the site and its surrounding area.

Planning Policy

1.3.2 This planning application has been prepared in consideration of national, regional, and local transport planning policies that are relevant to the development site including:

- National Planning Policy Framework – NPPF (2021);
- The London Plan (2021);
- The Mayor's Transport Strategy (2019);
- Royal Greenwich Local Plan: Core Strategy

1.3.3 A summary of the relevant planning policies and standards for the proposed development site is provided in **Appendix C**.

1.4 Other Documents

1.4.1 In addition to this Healthy Streets TA, the following transport documents have also been prepared and should be read in conjunction with this report:

- 22181-MA-DR-TP01 – Framework Site Travel Plan
- 22181-MA-DR-DSMP01 – Framework Site Delivery and Servicing Management Plan
- 22181-MA-DR-OWMP – Framework Operational Waste Management Plan
- 22181-MA-DR-SWMP01 – Framework Construction Site Waste Management Plan
- 22181-MA-DR-PMP01 – Framework Parking Management Plan

1.4.2 In addition, Avison Young have prepared an EIA assessment.

1.5 Supporting Healthy Streets, Vision Zero & the MTS

1.5.1 The development has been designed to support the strategic priorities of the Mayor in terms of Healthy Streets, Vision Zero and the Mayor's Transport Strategy (MTS). **Table 1.2** provides a summary of the primary design components and considerations relevant to these strategic objectives.

Table 1.2 Supporting Strategic Transport Objectives

Design Principle	Description	Objectives		
		MTS	Healthy Streets	Vision Zero
Development within high PTAL area	The proposed development is in a low PTAL area at present, but extensive redevelopment in the immediate vicinity of the site and at the site itself will improve the PTAL score and ensure that the site benefits from good access by active modes to local facilities. In addition, the local plan has allocated this site for this type of development.	✓		
Car-free development	The development will meet the London Plan 2021 standards for car-free development	✓	✓	✓
Servicing Strategy	The development has been designed with limited servicing access, utilising the existing servicing strategy.		✓	✓
Active Frontages	A significant proportion of the ground floor of both buildings provide active frontage and spaces for people with things to see and do.		✓	
Reducing vehicle trips	The development will be car-free excepting blue badge parking and will support improvements to public transport.	✓	✓	✓
Sustainable freight	The design has considered opportunities for encouraging sustainable freight, utilising existing provision for cargo bikes and e-delivery vehicles		✓	

1.6 Report Structure

1.6.1 The remainder of this Healthy Streets Transport Assessment, for which this chapter has provided an introduction, is structured as follows:

- **Chapter 2** – provides an overview of the Site and its surroundings.
- **Chapter 3** – covers information on transport planning for people,
- **Chapter 4** – outlines the Active Travel Zone (ATZ) in relation to the site.
- **Chapter 5** – provides details of the London-wide network in relation to the site, including details of the trip generation characteristics of the development and design solutions.
- **Chapter 6** – provides a summary of the key transport impacts/issues and the solutions/mechanisms and concluding remarks.

2. Transport Planning for People

2.1 Overview

2.1.1 This section provides details of the proposed development, including details on who the development is for, when they will travel there and why. As mentioned, the proposals comprise 564 residential units and 1,453 sqm (gross internal area) of commercial floorspace with associated works including access, car and cycle parking, landscaping, amenity space and refuse storage.

2.2 New Development Users

2.2.1 The proposed development has the potential to influence how people choose to travel because the site is located within close proximity to public transport and local amenities, as described later in this report.

2.2.2 The development has been designed predominantly for residential (C3) use. The users will therefore be residents and visitors accessing the site. It is anticipated that the majority of site users will follow typical work patterns, travelling to and from the site on weekdays with a concentration of departure trips during AM peak periods (07:00-10:00) and arrivals during PM peak periods (16:00-19:00).

2.2.3 The commercial uses (light industrial and community use/café) are expected to follow similar travel patterns in terms of peak time travel, with the community and café uses expected to be ancillary to the development in the local area and generating pass-by or linked trips from residents of the new development or those living and/or working in the local area.

2.2.4 In order to identify the transport needs of the site's typical user, as well as of people already living in the area, the Transport Classification of Londoners (TCoL) demographic segments have been referenced in order to identify the TCoL segment users of the site would most likely fall into. Greenwich is characterised by high level of representation amongst the 'Suburban Moderation' and 'Detached Retirement' segments.

2.2.5 The suburban moderation segment is characterised by families with children, high car and some bus mode share and an average level of propensity to change. The detached retirement segment is characterised by retirees without children, high car usage and a low propensity to change.

2.2.6 However, given the location of the development with its proximity to public transport and the flatted nature of the dwellings, it is likely that other classifications such as Affordable Transitions, Educational Advantage, or Urban Mobility, become part of the demographic, which is ultimately the driver of many large-scale urban developments such as this. All of which generally have lower car ownership and also an above average propensity to change travel behaviour to more active modes.

2.2.7 This TA will therefore demonstrate how the proposed development will ensure that these users will have their transport needs met and further encourage change of travel behaviours through development concepts and design measures.

2.3 Development Proposals in Detail

Use and Mix

2.3.1 The development proposals are for the erection of part-3, part-23, part-35 storey buildings, providing up to 564 residential apartments (Class C3), light industrial use (Class B1), and associated highways, landscaping and public realm works. The site layout is included in **Appendix A**.

2.3.2 The schedule of accommodation is summarised in **Table 2.1** below.

Table 2.1 Schedule of Accommodation

Residential			
Unit Size		**Number of Units**	**Number of Bedrooms**
1-bed	1B2P	282	282
2-bed	2B3P	87	408
	2B4P	117	
3-bed	3B5P	70	210
4-bed	4B6P	8	32
Total		**564**	**932**
Commercial			
Use Class		**Size (GIA)**	
B1 Light Industrial		**1,445 sqm**	

Access

2.3.3 All vehicle access will be taken from Telcon Way, including all servicing and delivery movements. Speeds and movements are expected to be limited therefore to operational demand only and 10mph. Swept path of the proposed parking area has been undertaken and is included as Drawing 22181-MA-XX-XX-DR-C-7051 and 22181-MA-XX-XX-DR-C-7052.

2.3.4 Active travel access will be taken from numerous points – via footways and cycling along Telcon Way, with cycle access to the podium cycle parking areas (more detail given below), and to/from the Thames Path, which forms the western boundary of the site. A pedestrian/cycle link has also been designed into the development to connect to Morden Wharf to the north as that site comes forward in due course. It Is also expected that the Morden Wharf development will deliver improvements and widening to the Thames Path at its boundary, allowing improved access to the north of the peninsula.

Parking

2.3.5 The site will be car free as per the local plan allocation, and as per pre-application consultation with the relevant authorities. It will provide 3% disabled parking provision for the residential only, plus a maximum of 2 disabled parking bays for the commercial uses. All vehicle parking will be located at lower ground/podium level, accessed from Telcon Way. A total of 20 blue badge spaces will be provided.

2.3.6 Long-stay cycle parking will also be accommodated at lower/ground podium level within a number of separate stores. Visitor cycle parking will be within allocated locations within the podium or within the public realm. The total proposed cycle parking is as per the London Plan 2021 requirements as follows:

Residential:

- 987 long-stay (of which 49 adapted cycle parking spaces)
- 27 visitor spaces

Commercial:

- 10 long-stay
- 2 visitor spaces

Public Transport Interventions

2.3.7 As per the local plan allocation:

> Applicants will be expected to investigate the feasibility of the extension of bus services to improve the accessibility of the site, liaising with TfL and bus operators as appropriate.

2.3.8 This has, through consultation with stakeholders, established a range of options. Morden Wharf's S106 sets out commitments to the delivery of a turning head and bus standing at an early phase of implementation, to allow the diversion/extension of a bus service of a regular frequency of not less than 2 per hour.

2.3.9 TfL have not confirmed which bus services may be diverted, although the Morden Wharf documents have assumed loadings onto the 108 service in all assessment as the nearest bus route existing to the development.

2.3.10 The consultation with stakeholders to date has assumed that a service frequency of 4 per hour should be sought, served by double-decker buses connecting from North Greenwich. As summarised above, all work published to date by Morden Wharf in respect of transport assessment states that due to the significant change in levels, the provision of a through access to Enderby Place was discounted. This conclusion was revisited as part of the design development for these proposals and the same conclusion was reached.

2.3.11 In consultation with stakeholders and to accord with the aspirations of GP1, MA have set out bus rerouting options utilising Telcon Way, which can be delivered along existing

infrastructure and which could be supported by the proposed Silvertown Tunnel amendments to Tunnel Avenue, avoiding the necessity for buses to route along Blackwall Lane.

2.3.12 In all options, buses would route along Christchurch Avenue, which although private in some sections, TfL have confirmed would be acceptable to the land owner and would allow for improved bus access to Enderby Wharf.

2.3.13 Technical Notes relating to bus access and the extensive optioneering work undertaken are included as **Appendix B**.

2.3.14 The development will also safeguard and make proportionate contribution to the delivery of the new Thames Clipper pier, which will sit at the northern boundary of the site, but primarily within land owned by Morden Wharf.

Waste Storage

2.3.15 Waste stores are segregated and provided at lower ground/podium level, near to cores for ease of access for residents and employees. A separate Delivery and Servicing Management Plan and an Operational Waste Management Plan have also been prepared, which provide the details of waste management for the development.

3. Existing Conditions

3.1 Overview

3.1.1 This section of the report provides details of the site as existing, access arrangement and accessibility by all modes.

3.2 Active Travel Environment

Pedestrian

3.2.1 The local pedestrian environment is of good quality and offers access to many local amenities, as well as various modes of public transport. Facilitating and encouraging access to and from the site by walking as a primary mode to and from local amenities is a fundamental aspect of the accompanying Travel Plan.

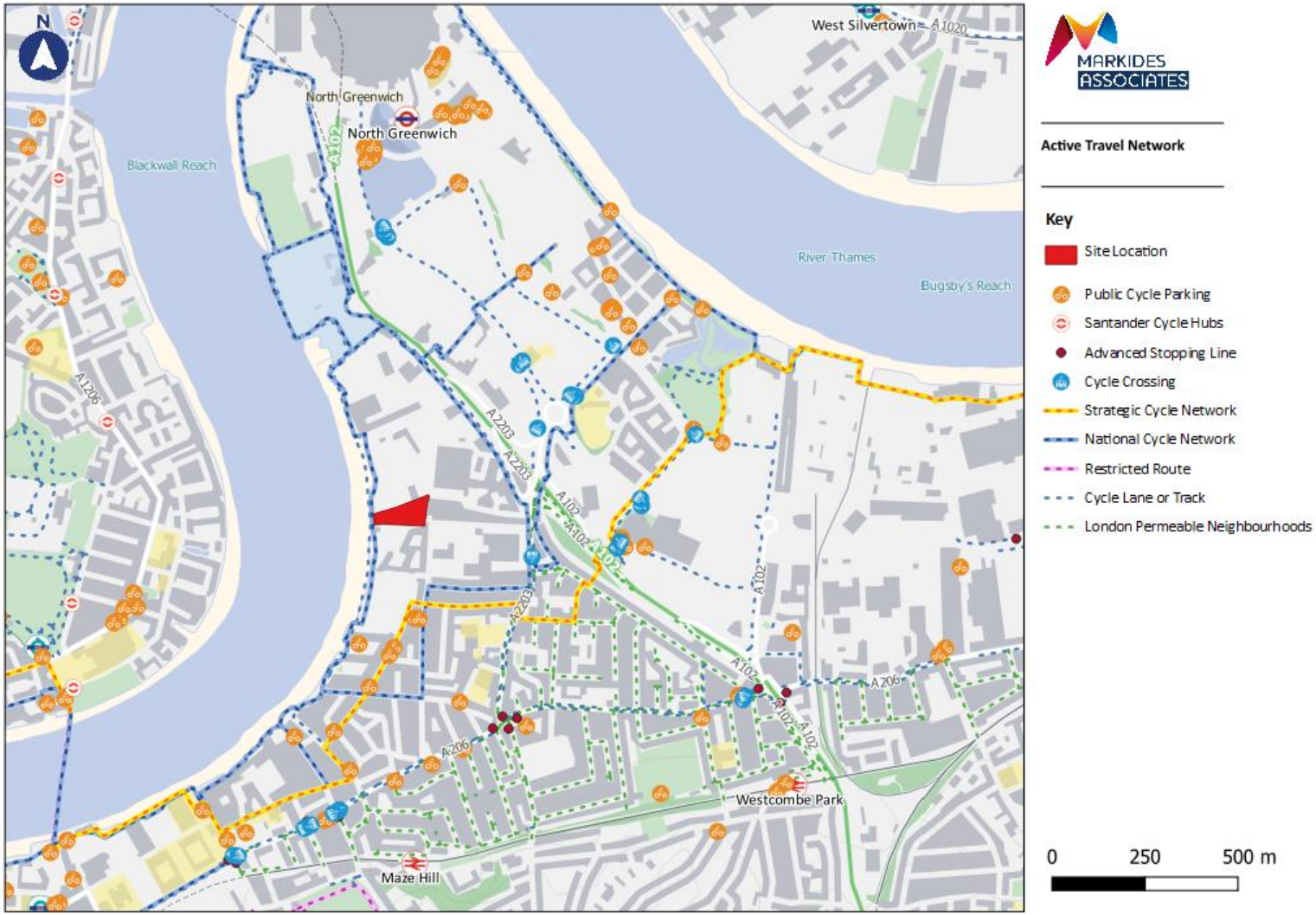
Cycle

3.2.2 The site benefits from proximity to the Strategic Cycle Network, which is located a short distance to the south, and which bisects the Greenwich peninsula.

3.2.3 Locally, there is an evolving network of other cycle paths, including the Olympian Way foot and cycle link along the bank of the Thames via Enderby Wharf, providing an off-road cycle connection from Cutty Sark up to the O2 Arena, and proceeding east as far as Erith via other Thames-side cycle connections.

3.2.4 Further details of the pedestrian and cycle accessibility of the local area are given in **Section 4.** A plan showing the extent of the active travel network is included overleaf as **Figure 3.1**.

Figure 3.1 Active Travel Network



3.3 Public Transport Accessibility Level (PTAL)

3.3.1 Public Transport Accessibility Level (PTAL) provides a measure of accessibility of a given point to the public transport network, considering walking time to a public transport node, service accessibility, service quality and frequency. The PTAL measure ranges between 0 and 6b, with 0 indicating the areas with the lowest accessibility to public transport and 6b the areas with the highest accessibility to public transport. The PTAL reports are included as **Appendix D** and show overall low PTALs. These notwithstanding, the site is an allocation within the Local Plan and it has been agreed that it should adopt the principles of car-free sustainable development.

Limitations of the PTAL Assessment

3.3.2 The PTAL calculation assumes that people will walk up to 640m (approximately 8-minutes) to a bus service and up to 960m (12-minutes) to a rail or Tube service (assuming 4.8km/h). Public transport notes beyond the threshold, even by a matter of centimetre, are assumed by the algorithm not to exist. It also maps walking routes upon the road network only, and pedestrian links such as footpaths or cycle connections are usually omitted.

3.3.3 PTAL scores are shown in WebCAT as a grid of squares where each side of each square is 100m, and the PTAL score shown is calculated from the point in the centre of the square, regardless of other variables such as where accesses are situated. The PTAL score is based on the average frequency of services between 08:15 and 09:15 during the morning weekday peak and only the nearest node is included in the assessment for each unique public transport service available. Factoring in scheduled and average waiting times, the Access Index (AI) is calculated for each grid and converted to PTAL using the bands shown in **Figure 3.2**.

Figure 3.2 Conversion of AI to PTAL[1]

PTAL	Access Index range	Map colour
0 (worst)	0	
1a	0.01 – 2.50	
1b	2.51 – 5.0	
2	5.01 – 10.0	
3	10.01 – 15.0	
4	15.01 – 20.0	
5	20.01 – 25.0	
6a	25.01 – 40.0	
6b (best)	40.01+	

Source: TfL

3.3.4 The numeric scores are subsequently also graded qualitatively as follows:

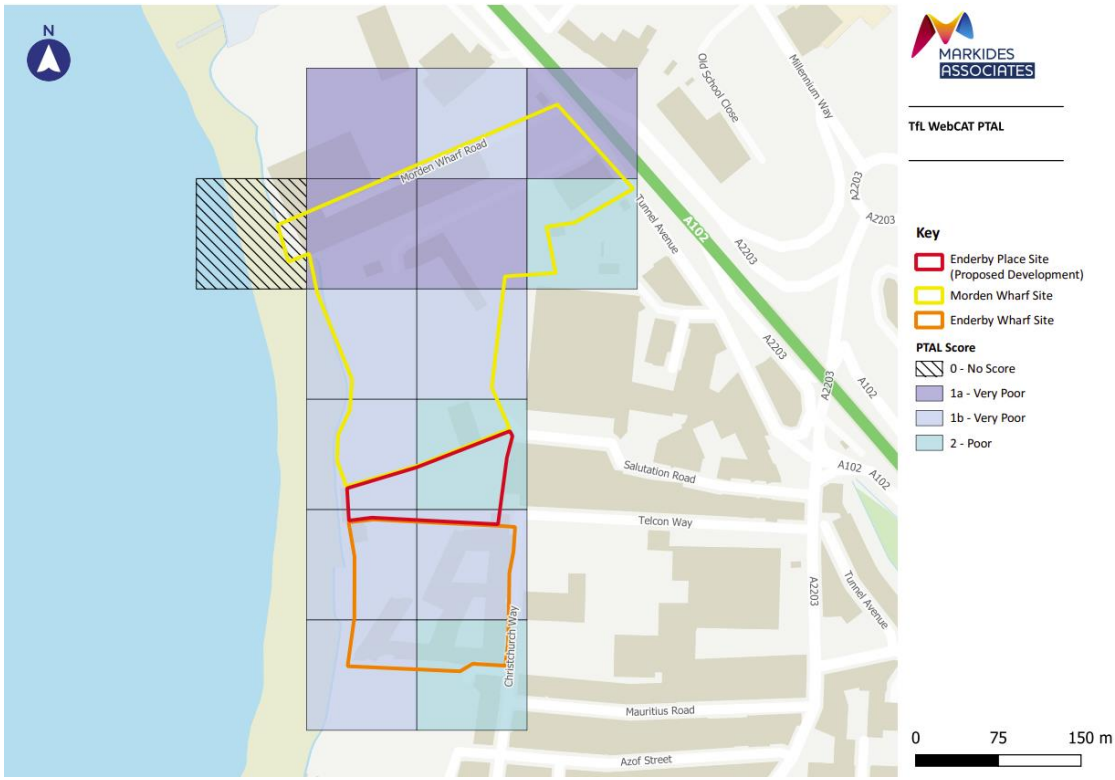
- 0 = No PTAL
- 1a = Very Poor
- 1b = Very Poor
- 2 = Poor
- 3 = Moderate
- 4 = Good
- 5 = Very Good
- 6a = Excellent
- 6b = Excellent

Existing WebCAT Outputs – Base Year

3.3.5 The existing WebCAT PTAL scores across the three sites in the base year scenario are illustrated in **Figure 3.3** below, with the full output report for each grid included in **Appendix D.**

[1] Source: https://content.tfl.gov.uk/connectivity-assessment-guide.pdf (Table 2.2)

Figure 3.3 WebCAT Output – Base Year



Source: TfL WebCAT[2] & MA QGIS

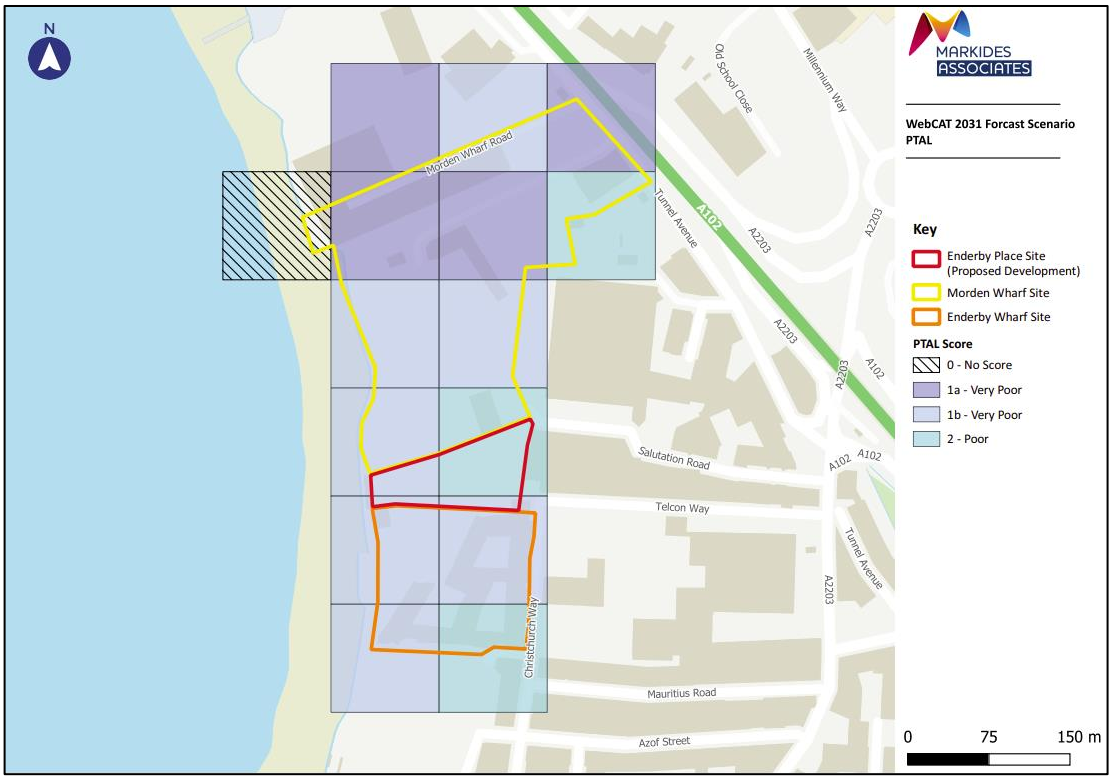
3.3.6 **Figure 3.3** demonstrates that the Enderby Place and Enderby Wharf sites have a combination of scores of 1a and 2 and the Morden Wharf site has a range from 0 (no score) to 2 in the base year. Overall, the TfL WebCAT PTAL shows a very poor to poor score.

Existing WebCAT Outputs – 2031

3.3.7 The PTAL scores for the sites in the WebCAT 2031 forecast scenario, in which bus services are based on a 3% uplift in frequencies from the base year network, are illustrated in **Figure 3.4**.

[2] https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-with-webcat/webcat

Figure 3.4 WebCAT Output – 2031 Forecast



Source: TfL WebCAT & MA QGIS

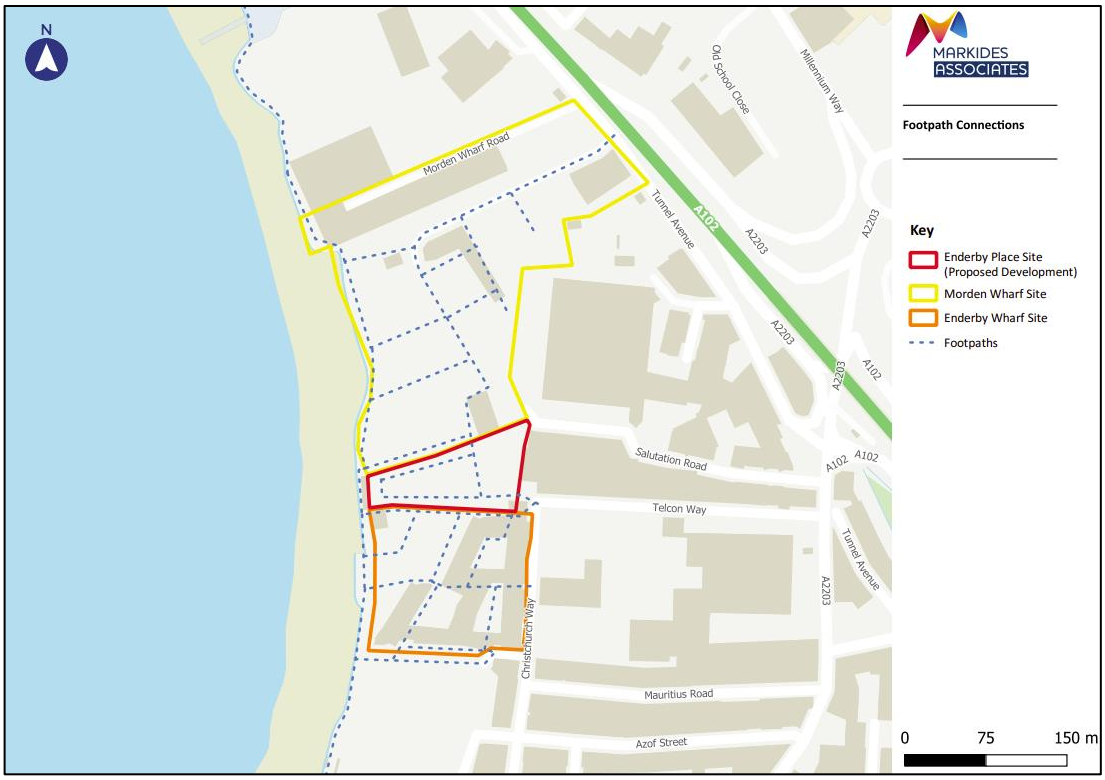
3.3.8 **Figure 3.4** demonstrates that the WebCAT tool predicts no improvement to the PTAL scores in the 2031 forecast year on the basis of a small uplift in bus services (i.e., without implementation of schemes such as the Morden Wharf and Enderby Place developments).

Manual Calculation of Existing PTAL (Validation)

3.3.9 TfL WebCAT PTAL algorithms (including those for future years) can include inaccuracies as the data sets from which it draws are not always reflective of on-site conditions. Bus stops may have been moved or closed, services have recently been amended which may not be reflected yet in the database, and most commonly, routes to public transport nodes are based on the vehicle road network only, excluding walking routes to services which could shorten walk distances and affect the PTAL score. Therefore, a validation has been run of the calculations of the existing situation which can be found in **Appendix E.**

3.3.10 Therefore, the manual calculation of the PTAL rating for the three sites based on the existing operational bus stops and services within 640m walking distance (as per **Table 3.1**) has been localised. It includes the network of new footpaths through the Enderby Wharf site and the assumed principal pedestrian connections through the Enderby Place and Morden Wharf sites which are shown in **Figure 3.5**.

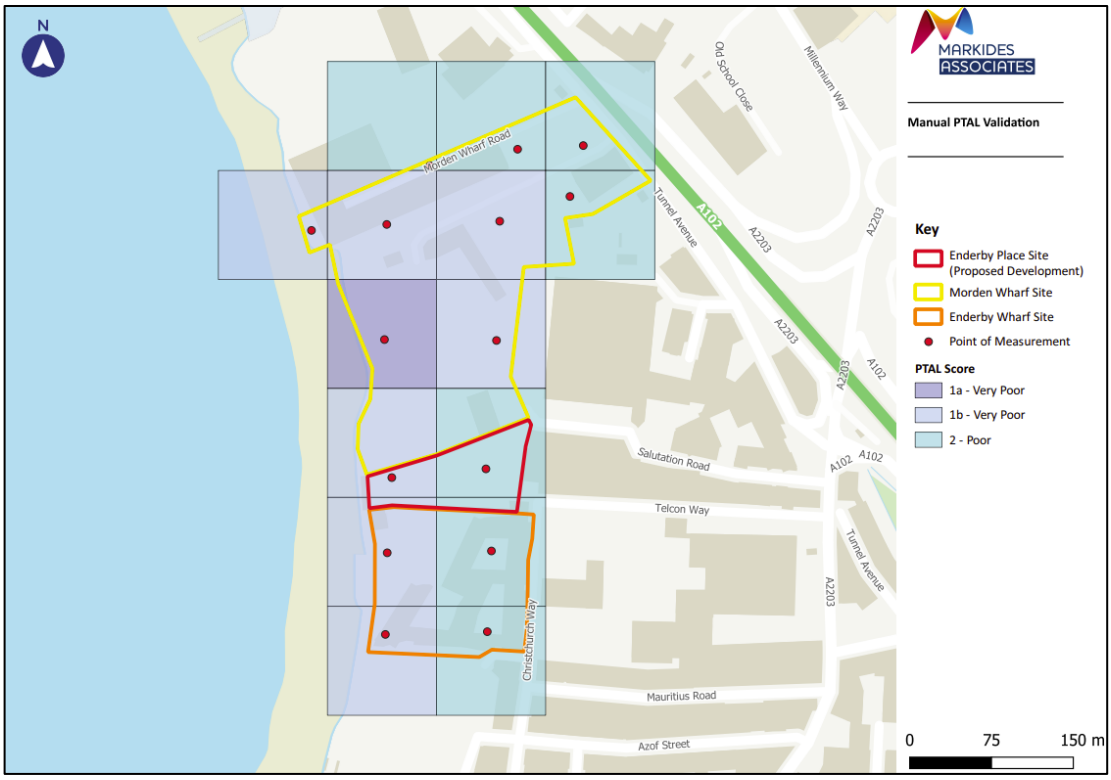
Figure 3.5 Network of Footpaths Through Sites



Source: MA QGIS

3.3.11 Furthermore, rather than calculating the walking distances from the centre point of each square in the grid, the walking distances for the manual PTAL calculation have been taken from a central point within the site boundary within the grid, to reflect a more representative walking distance for the site users. This is illustrated in **Figure 3.6** below.

Figure 3.6 Baseline Manual PTAL Calculation



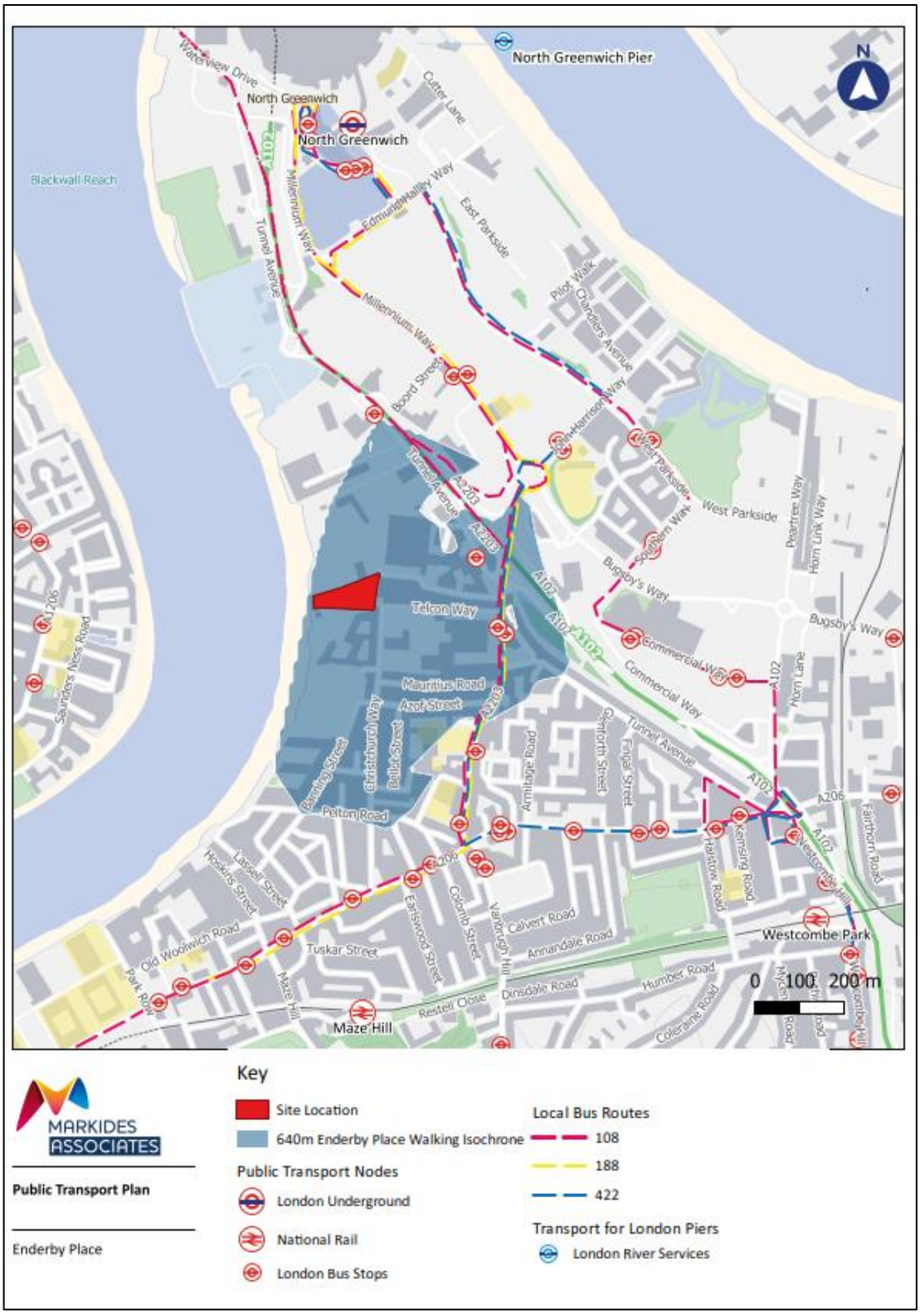
Source: MA QGIS

3.3.12 **Figure 3.6** demonstrates that the baseline PTAL score manually calculated for each site is higher that the TfL WebCAT score in a number of grids, particularly within the Morden Wharf site. The only grid with the lowest score of 1a is within the south-eastern side Morden Wharf site as the walking distance has been calculated assuming no through-route into the Enderby Place site to the south.

3.4 Bus Network

3.4.1 The existing TfL bus stops and local bus routes that operate in the vicinity of the sites are illustrated in **Figure 3.7** below. These services are all captured within the PTAL walk distance. It should be noted that bus stops and routeing are subject to change and the details below are given as available via TfL's journey planning tool as of October 2023; however, this includes some temporary diversions and bus stop closures due to the Silvertown Tunnel and other adjacent development works. These are expected to be reinstated in due course.

Figure 3.7 Public Transport Plan



3.4.2 Bus Stops Morden Wharf Road and Blackwall Lane Stop MU on Tunnel Avenue are temporarily out of service. The frequency and route for the associated local bus routes is otherwise given in **Table 3.1** below.

Table 3.1 Local Bus Services

Route	Direction	Peak Hour Frequency			Weekday Services	
		Weekday	Saturday	Sunday	First	Last
108	Stratford International (Stop MU)	7-11 mins	9-12 mins	2-4 per hour	24-hour service	
	Lewisham (Stop MW)	9-12 mins	8-12 mins	2-4 per hour		
188	Russell Square (Stop MP)	8-12 mins	8-12 mins	9-13 mins	24-hour service	
	North Greenwich (Stop MQ)	8-12 mins	9-13 mins	10-14 mins		
422	North Greenwich (Stop MQ)	9-12 mins	9-12 mins	10-13 mins	04:42	00:50
	North Greenwich (Stop MN)	9-12 mins	9-12 mins	11-13 mins	05:02	01:12

3.4.3 The 108 service is restricted to a single-decker bus due to routeing through the Blackwall Tunnel, which is too low for double-decker vehicles.

3.4.4 Additional services are also available from North Greenwich Station to the wider area, including the 129, 132, 161, 180, 335, 472 and 486 bus services, with destinations including Tottenham Court Road, Lewisham, and Stratford International.

3.5 Rail & Underground Services

3.5.1 The nearest railway station is located at North Greenwich, approximately 2.5km to the northeast, or a 7-minute cycle ride. The station is also accessible via bus using the 188 service from Tunnel Avenue Stop MQ northbound. Bus stop Tunnel Avenue (Stop MP) in the southbound direction is temporarily closed at the time of writing; it is understood that this is likely to be due to the age of the bus stop facility and the closure of the adjacent building, which is a committed development site with planning permission for redevelopment expected to be implemented shortly. It is expected that this bus stop will be reinstated in due course. In the interim, southbound passengers can alight at Christ Church Primary School (Stop MR).

3.5.2 North Greenwich Station is a London Underground Line station served by the Jubilee Line, which benefits from frequent peak hour services between Stanmore and Stratford via central London, as well as Night tube services.

3.5.3 Some of the key stations on the jubilee line, and the length of time it takes to reach them are listed below:

- Stanmore (far western station) – 53 minutes
- Waterloo – 12 minutes
- London Bridge – 9 minutes
- Canary Wharf – 2 minutes
- Stratford (far eastern station) – 9 minutes

3.5.4 Both Maze Hill and Westcombe Park stations are located approximately 1.5km south of the site (20 minute walk or 10 minute cycle). The bus journey to Trafalgar Road/Maze Hill bus stop using the 188 service takes 5 minutes, followed by a 250m walk to reach the station. The 422 service can be used to access Westcombe Park via the Westcombe Park Station Stop B bus stop followed by a 200m walk.

3.5.5 Both stations are served by Southeastern Rail and Thameslink trains and benefit from cycle parking. Each station is served by:

- 2 trains per hour to London Cannon Street
- 2 trains per hour to Luton
- 2 trains per hour to Barnehurst, returning to London Cannon Street via Bexleyheath and Lewisham
- 2 trains per hour to Rainham via Chatham

3.5.6 During the peak hours, the station is served by an additional half-hourly circular service to and from London Cannon Street via Sidcup and Lewisham in the clockwise direction and direct to London Bridge anticlockwise, for a total of 10 trains at peak hour.

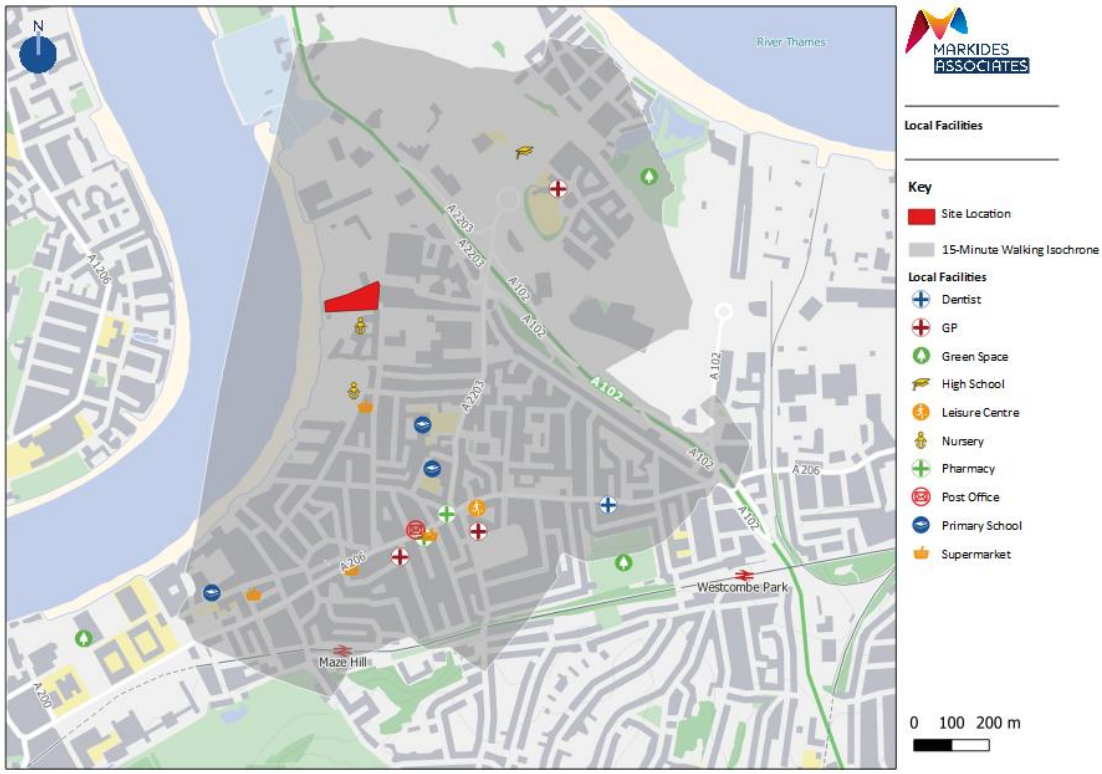
3.5.7 The locations of all stations and piers are included in **Figure 3.7** above.

3.6 Local Facilities

3.6.1 The site is well located in terms of access to existing and future facilities, with the proposals for the site also comprising a mix of uses, including employment and leisure.

3.6.2 A plan showing a 15-minute walking isochrone and facilities within reach of the site is included as **Figure 3.8**.

Figure 3.8 Local Facilities



3.7 Highway Network

3.7.1 At the local level, the site is bound to the south by Telegraph Avenue, a private road with no general access to vehicles, which forms a pedestrian and cycle connection from the public highway to the Thames Path via the northern edge of the Enderby Wharf development. The built form of Enderby Wharf over sails Telegraph Avenue in some locations, precluding tall vehicle access, excepting some emergency vehicles.

3.7.2 Telegraph avenue junctions with Christchurch Way and Telcon Way at a simple priority junction. Christchurch Way functionally forms a continuation of Telcon Way connecting south to the A206. Christchurch Way is a single-carriageway road, primarily residential, which for most of its length is adopted public highway subject to on-street parking in marked bays on each side of the road. This parking falls within Permit Holder Zone EG, operational Monday-Sunday between 09:00 and 20:00, with some Pay & Display spaces with a maximum stay of 2 hours. Between Attwood Lane and Telcon Way, Christchurch Road is a narrow, private access road.

3.7.3 Telcon Way is a single-carriageway two-way street connecting the site to the east to Blackwall Lane/Tunnel Avenue. It is subject to parking controls in the form of double yellow lining and forms the northern boundary of Enderby Wharf and the eastern boundary of the site. Footways are wide and in good condition, and the road is subject to a 10mph speed limit.

3.7.4 The junction of Telcon Way/Blackwall Lane forms a priority box junction, with a dedicated right hand turn lane into Telcon Way from Blackwall Lane southbound. The junction is approximately 50m south of the complex box signal junction of Blackwall Lane/Tunnel Avenue/A102 slipway.

3.7.5 Tunnel Avenue is a single-carriageway road connecting Blackwall Lane and Drawdock Road, and which runs parallel to the northbound carriageway of Blackwall Lane for its entire length. The footway on the western side of Tunnel Avenue is wide at some 5-6m and supports a shared foot-cycle connection and two bus stops with shelters, which until recently were served by the 108-bus route. At the time of writing there are works along Tunnel Avenue, particularly at the northern end, which are associated with adjacent development and/or the Silvertown Tunnel. Tunnel Avenue is not continuous for vehicle traffic, with as section of some 150m requiring diversion onto the A102; however, this is expected to be connected as part of the Silvertown Tunnel works.

4. Active Travel Zone Assessment

4.1 Preamble

4.1.1 This section of the report outlines the accessibility of the site in terms of walking and cycling, as well as assessing the key routes between the site and the most likely trip generators by active modes. It also examines the site in the context of the local area and its access to services, including local greenspace, and the permeability of local road.

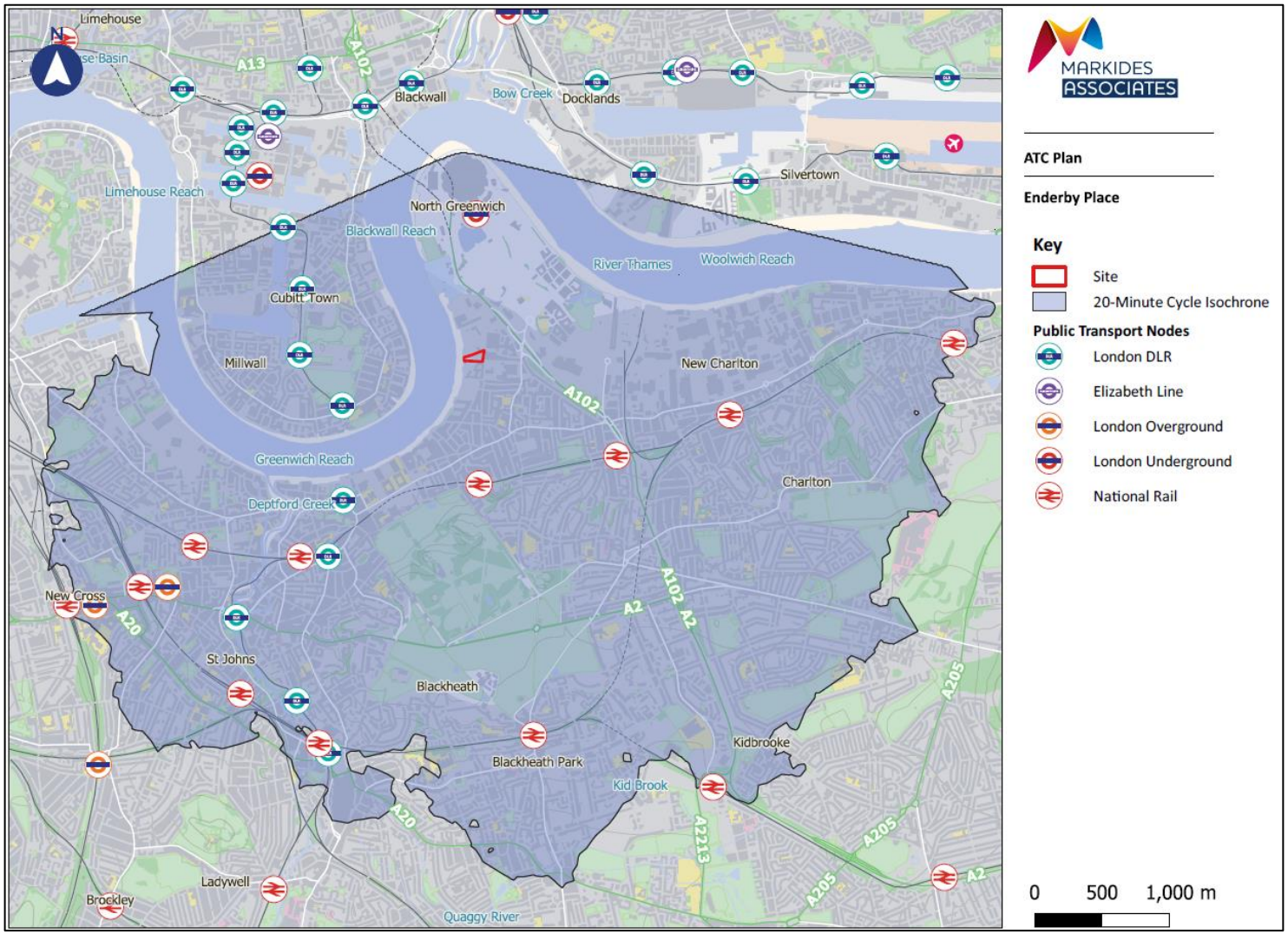
4.1.2 This assessment has been undertaken in accordance with the latest TfL Transport Assessment guidance dated June 2019.

4.2 The Active Travel Zone

4.2.1 The Active Travel Zone (ATZ) represents an area that is inclusive of all destination which can be reached within a 20-minute cycle from the site, including public transport access points, cycle infrastructure and key land uses such as schools, health centres and places of worship.

4.2.2 **Figure 4.1** illustrates the ATZ which is based on a 20-minute cycle from the site and indicates the location of London Underground and railway stations, bus stops and cycle routes within with the ATZ.

Figure 4.1 Extent of Active Travel Zone



4.3 Potential Key Active Travel Destinations

4.3.1 The site benefits from being located within close proximity to a range of social infrastructure that act as typical trip attractors for residential use, including education, food retail, leisure and health land uses, ensuring residents would not be wholly reliant on travel by private car to access essential goods and services.

4.3.2 **Table 4.1** classifies the key destinations from low to high priority in terms of active travel and the likelihood of users of the proposed development travelling to other key destinations from the development.

Table 4.1 Classification of Key Destinations in the ATZ

Key Destination	Priority	Justification
Rail Station	High	The travel mode share for people travelling to and from the proposed development is high (45% London Underground and National Rail combined) and therefore rail stations would be key destinations and are therefore classified as high priority.
Bus Stops	High	High bus mode share for people travelling to and from the proposed development (20%). Therefore, bus stops would be key destinations and are classified with high priority.
Town Centre	High	Given the proximity of the town centre to the site, and the range of services and amenities offered there, the town centre has been considered a high priority destination as it is likely to attract a significant number of trips from the development.
Supermarkets	High	Local supermarkets and other food stores will be a necessity for residents of the proposed development, thereby justifying their high priority classification.
Schools	Medium	The development is comprised of 564 residential dwellings of mixed sizes, including larger 5-person family units. It is likely therefore that some of these units will be occupied by residents with school-age children. The medium priority has been awarded to schools as not all flats may have children that need to travel to school.
Parks and Open Spaces	Medium	As the development does not offer a significant amenity space for residents, they may wish to go to a nearby park or open space on a nice day, particularly if they have children. Parks or open spaces have therefore been classified as a medium priority.

Key Destination	Priority	Justification
Medical Centres	Medium	Over time, it is likely that residents at the development will need to visit a medical centre, be it a GP surgery or pharmacy. Given the anticipated demographics thought to inhabit the development (young - middle-aged couples, possibly with children), it is not envisioned that medical centres will be a daily requirement for most residents, so they have been classified as a medium priority
Leisure Centres	Low	Some residents at the development may wish to join a leisure centre, but this facility is unlikely to be a necessity for most residents. Therefore, leisure centres have been classified as a low priority.
Places of Worship	Low	Some residents at the development may wish to visit a place of worship, but this facility is unlikely to be a necessity for most residents. Therefore, places of worship have been classified as a low priority.
Higher Education Facilities	Low	Some residents at the development may attend higher education facilities but given the demographic of people thought to be living in the development, it is not thought that higher education facilities would comprise a significant share of residential trips. Therefore, higher education facilities have been classified as a low priority.

4.3.3 As outlined above, considering the proposed use of the site, this assessment has excluded the destinations considered as low priority unless otherwise justified as they are not deemed relevant or likely destinations for the users of the development.

4.4 Neighbourhood Active Travel Destinations

4.4.1 This section identifies what are considered to be the most important routes from the proposed development site within the immediate development. In the case of the proposed development the prioritised routes are described in **Table 4.2**.

Table 4.2 Prioritised Routes

Destination	Justification
Blackwall Lane Bus Stops	This is the nearest bus stops to the site which provide bus connection to Underground services.
North Greenwich London Underground Station	This station provides key connections to the wider area, including central London.
Christ Church C of E Primary School	This is the nearest primary school to the site.
Southern Park	This is one of the nearby public open green spaces.
Trafalgar Road Retail Area	The is nearest area of retail amenities to the site, including supermarkets e.g., Tesco Express, via connection to the Strategic Cycle Network.

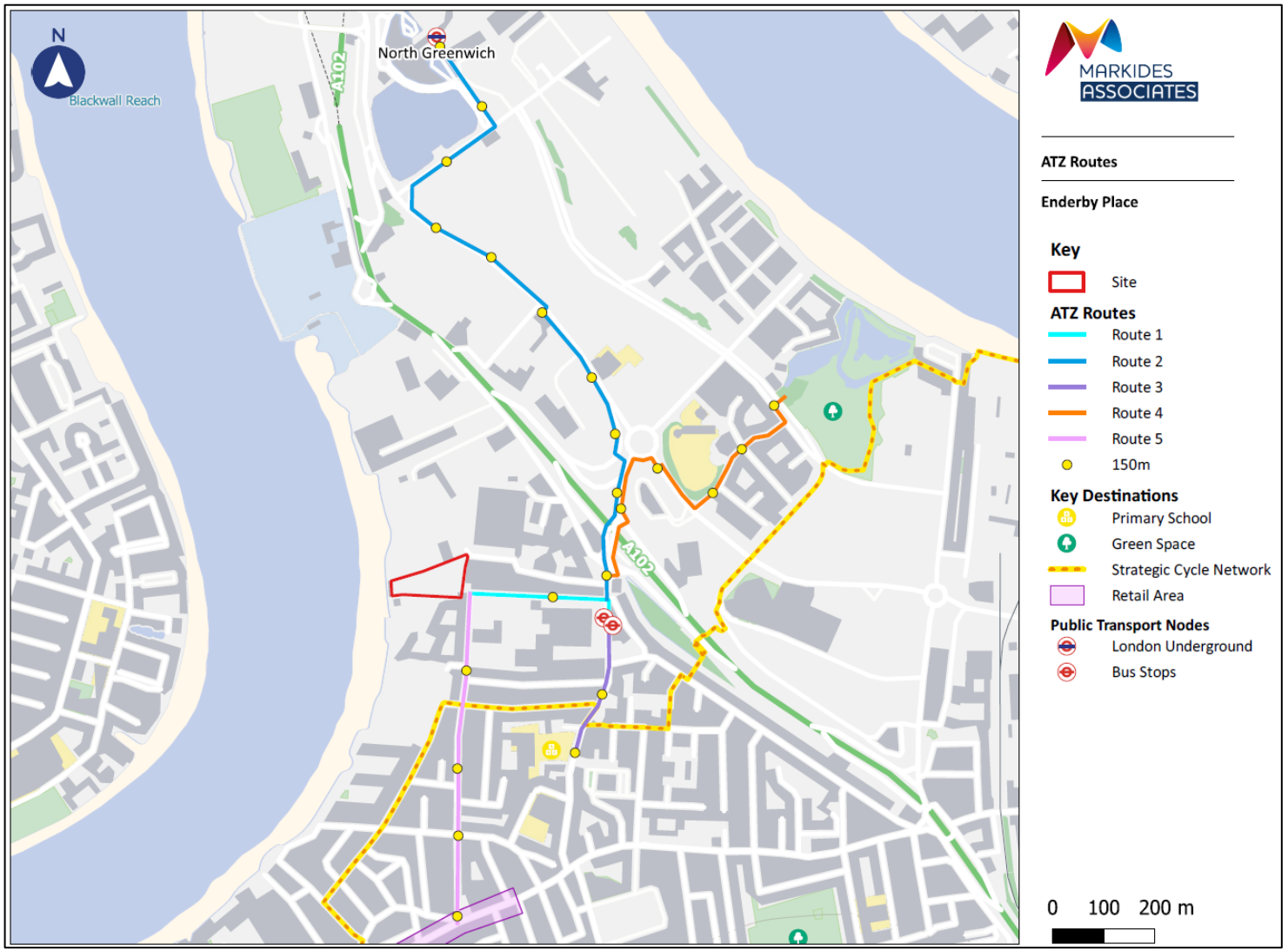
4.4.2 An active travel zone assessment was conducted on Tuesday 24 October 2023 along with five pre-determined routes within the neighbourhood area. These routes linked the site with the key destination identified earlier in this report and include the following:

- Route 1 – Site to Blackwall Lane Bus Stops
- Route 2 – Site to North Greenwich Station
- Route 3 – Site to Millenium Primary School
- Route 4 – Site to Southern Park
- Route 5 – Site to Trafalgar Road Retail Area (via Strategic Cycle Network)

4.4.3 The results of each Key Route Assessment are described further in this chapter. For each Key Route, a photographic survey has been undertaken with key points of note identified alongside an assessment of these elements against the Healthy Streets indicators. The assessor has walked each route, taking a photograph every 150m or where relevant. The worst part of each journey has been identified for both routes, which also provides a brief description as to why the area shown in the related photograph does not meet each of the Healthy Street indicators 3-10, along with measures that could be adopted to improve this situation.

4.4.4 **Figure 4.2** illustrates the five routes to the facilities outlined above.

Figure 4.2 Neighbourhood Active Travel Zone



4.5 Vision Zero Analysis

4.5.1 The Mayor's Transport Strategy is committed to Vision Zero to end deaths and serious injury on London roads and transport networks. The strategy sets out the goal that, by 2041, all deaths and serious injuries would be eliminated from London's roads and transport network.

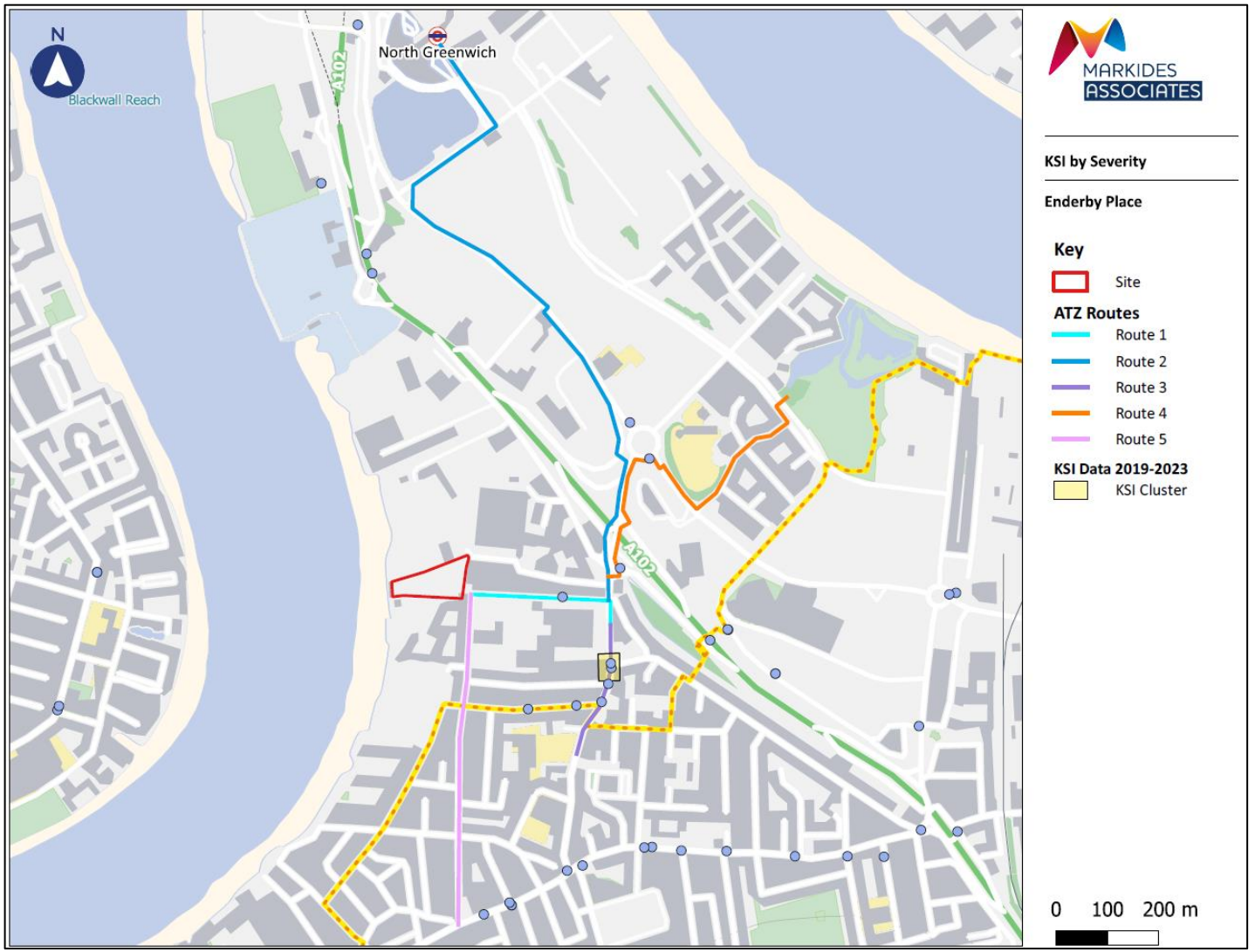
4.5.2 Within the vicinity of the site, casualty data obtained from TfL's London Collision Map for the 5-year period 2014-2018 has been obtained. A review of those casualties has been undertaken to determine the number of incidents which has resulted in people being killed or seriously injured (KSI) on the important walking and cycling routes illustrated in **Figure 4.3**.

4.5.3 This review also aims to identify whether there are any routes where there appears to be a clustering of KSI casualties. A cluster is defined as two or more serious casualties, or one or more fatal casualties.

4.5.4 Of the KSI casualties within proximity to the site, the figure demonstrates that there have been no fatal crashes within the vicinity of the site in the past 5 years. Therefore, there have only been serious crashes.

4.5.5 **Figure 4.3** highlights that there is only one cluster of KSI's located along Blackwall Lane at the junction with Tunnel Avenue.

Figure 4.3 KSI by Severity



4.5.6 The Blackwall Lane / Tunnel Avenue is a priority junction whereby Blackwall Lane is the major arm and Tunnel Avenue the minor arm. There are 'Keep Clear' white line road markings on Blackwall Lane. The 'cluster' of two collisions at this location have the following characteristics:

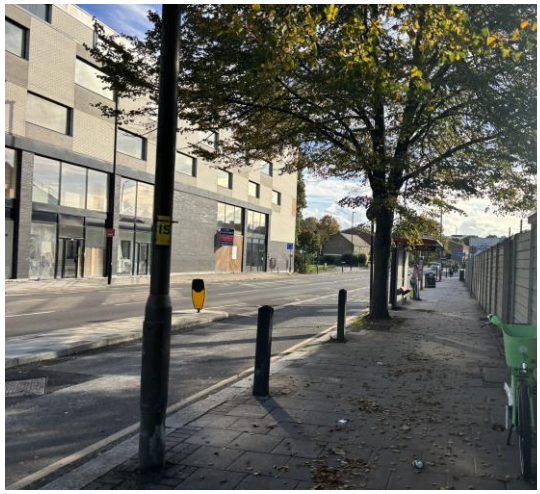
- Collisions occurred in 2020 and 2021.
- The collision in 2020 involved one casualty driving a powered 2-wheeler.
- The collision in 2021 involved one casualty driving a powered 2-wheeler.

4.5.7 There is no evident cause for the cluster beyond rider error, although there is some potential for conflict with vehicles pulling into / out of the junction while traffic is queuing at the pedestrian crossings to the north and south alongside powered 2-wheelers trying to jump ahead of the queues. This is unavoidable as the signals are called when pedestrians press the button.

4.6 Assessment of ATZ Routes

Route 1 – Site to Blackwall Lane Bus Stops

1. Telcon Way



2. Blackwall Lane

Table 4.3 Worst Part of Route 1 (Photo 2)

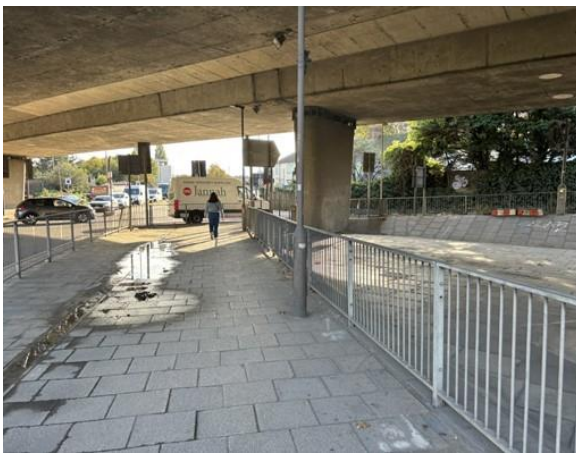
Healthy Streets Indicator	Comments
Easy to Cross	There are signalised pedestrian crossings <100m to the north and <30m south of the bus stops, aiding pedestrians crossings Blackwall Lane which is a moderately trafficked road.
People Feel Safe	This area supports active frontages from the apartments along Blackwall Lane, and the area is well lit and there are bus stops, which improve the sense of surveillance.
Things to See and Do	Is it predominantly residential apartments along Blackwall Lane, however, there is the Meantime Brewery and Visitor Centre just to the south of the bus stops, a gym <500m south of the bus stops and it is a short walk to Trafalgar Road where there is a host of retail opportunities.
Places to Stop and Rest	There are no formal places to stop and rest along the Telcon Way, although, the bus stops on Blackwall Lane have benches that people can rest on.

Healthy Streets Indicator	Comments
People Feel Relaxed	The route is largely residential, lit, and subject to passive surveillance. There is soft landscaping and no signs of vandalism.
Not Too Noisy	The A2203 is a busy road along which are buses which generates a degree of road noise that is difficult to mitigate. However, TfL bus fleet is increasingly electric or hybrid, which cuts engine noise.
Clean Air	The area benefits from green landscaping, including some mature trees and shrubs; however, the A2203 remains a busy road which impacts on air quality.
Shade and Shelter	The route benefits from soft landscaping including trees which provide intermittent shade and shelter.

Route 2 – Site to North Greenwich Station

1. Telcon Way

2. Blackwall Lane (north of Salutation Road)



3. Blackwall Lane (south of roundabout)

4. Millenium Way (north of roundabout)

5. Millenium Way (south of Old School Close)

6. Millenium Way (at Bond Street)

7. Millenium Way (alongside the O2 Car Park 1)

8. Millenium Way (alongside the O2 Car Park 1)

9. Edmund Halley Way

10. Millenium Way (north of Edmund Halley Way)

11. North Greenwich Station

Table 4.4 Worst Part of Route 2 (Photo 6)

Healthy Streets Indicator	Comments
Easy to Cross	There are signalised and dropped kerb crossings at appropriate locations following desire lines along Route 2 at Blackwall Lane and Millenium Way which are moderately trafficked roads.
People Feel Safe	There is minimal active frontage along Millenium Way at present as the area is currently undergoing extensive redevelopment. This will therefore be improved in the future once the development is completed. The A102 underpass may make some people uncomfortable, particularly in hours of darkness.
Things to See and Do	At present as the area is undergoing extensive redevelopment, therefore, currently there is little to see or do but this is expected to change in the near future.
Places to Stop and Rest	There are no formal spaces to stop and rest at the point of Photo 6 but there are concrete blocks, bus stops with benches nearby and walls against which a person could stop and lean or pause.
People Feel Relaxed	The route is well lit with soft landscaping and appropriately wide footways contributing to a relatively pleasant environment. Whilst the area is undergoing redevelopment, there is a lot of hoarding along Millenium Way which can be subject to vandalism, such as at the location of Photo 6.
Not Too Noisy	Millenium Way is moderately trafficked with two lanes of traffic in each direction and somewhat noisy as a result.
Clean Air	The area benefits from green landscaping, including mature trees and shrubs; however, Millenium Way is moderately trafficked which impacts on air quality.
Shade and Shelter	The route benefits from soft landscaping including trees, and intermitted bus stops which provide intermittent shade and shelter.

Route 3 – Site to Millenium Primary School

1. Telcon Way

2. Blackwall Lane (at bus stops)

3. Blackwall Lane (at Azof Street)

4. Blackwall Lane (at primary school)

Table 4.5 Worst Part of Route 3 (Photo 3)

Healthy Streets Indicator	Comments
Easy to Cross	There is signalised pedestrian crossings <100m to the north and south of the primary school respectively, aiding pedestrians crossings Blackwall Lane which is a moderately trafficked road.
People Feel Safe	This area supports active frontages from the apartments along Blackwall Lane, and the area is well lit and there are bus stops, which improve the sense of surveillance.
Things to See and Do	Is it predominantly residential apartments along Blackwall Lane, however, there is the Meantime Brewery and Visitor Centre just to the south of the bus stops, a gym <200m south of the bus stops and it is a short walk to Trafalgar Road where there is a host of retail opportunities.
Places to Stop and Rest	There are no formal places to stop and rest along the Telcon Way, although, the bus stops on Blackwall Lane have benches that people can rest on.
People Feel Relaxed	The route is largely residential, lit, and subject to passive surveillance. There is soft landscaping and no signs of vandalism.
Not Too Noisy	The A2203 is a busy road along which are buses which generates a degree of road noise that is difficult to mitigate. However, TfL bus fleet is increasingly electric or hybrid, which cuts engine noise.
Clean Air	The area benefits from green landscaping, including some mature trees and shrubs; however, the A2203 remains a busy road which impacts on air quality.
Shade and Shelter	The route benefits from soft landscaping including trees which provide intermittent shade and shelter.

Route 4 – Site to Southern Park

1. Telcon Way

2. Blackwall Lane (north of Salutation Road)

3. Blackwall Lane (at A102)

4. Bugsbuy's Way

5. Schoolbank Road (west of Moseley Row)

6. Schoolbank Road (at School Square)

7. West Parkside

Table 4.6 Worst Part of Route 4 (Photo 2)

Healthy Streets Indicator	Comments
Easy to Cross	There are signalised pedestrian crossings on each arm of the Blackwall Lane / Tunnel Avenue junction at the A102 underpass, including the on and off-slips to the A102 and at Bugsby's Way.
People Feel Safe	There is minimal active frontage along this route as it follows heavily trafficked routes and junctions which are lined by shrubs and mature trees, with the exception of Schoolbank Road. The A102 underpass may make some people uncomfortable, particularly in hours of darkness.
Things to See and Do	This route as it follows heavily trafficked routes and junctions which has limited active frontages and amenities, with the exception of School Square along Schoolbank Road which has a pedestrianised plaza space.
Places to Stop and Rest	There are no formal places to stop and rest along Blackwall Lane and Bugsbuy's Way, however, at School Square there are seating opportunities on low walls and steps and shade from trees.
People Feel Relaxed	At the A102 underpass it is dark and prone to vandalism. However, Along Schoolbank Road, the route is largely residential, lit, and subject to passive surveillance. There is soft landscaping and no signs of vandalism.
Not Too Noisy	The Blackwall Lane / Tunnel Avenue junction at the A102 is busy and prone to congestion, however, the remainder of the route is low-moderately trafficked and not too noisy, especially Schoolbank Road which is residential and part-pedestrianised.
Clean Air	The area benefits from green landscaping, including some mature trees and shrubs; however, the A2203 remains a busy road which impacts on air quality.
Shade and Shelter	The route benefits from soft landscaping including trees which provide intermittent shade and shelter. Furthermore, the A102 underpass provides both shade and shelter.

Route 5 – Site to Trafalgar Road Retail Area (via Strategic Cycle Network)

1. Christchurch Way (at Mauritius Road)

2. Christchurch Way (north of Derwent Street)

3. Christchurch Way (at Pelton Road)

4. Christchurch Way (north of Trafalgar Road)

Table 4.7 Worst Part of Route 5 (Photo 1)

Healthy Streets Indicator	Comments
Easy to Cross	There is traffic calming in place which reduces vehicle speeds. Christchurch Way has been subject to upgrading works between Telcon Way and Manilla Walk as part of the Enderby Wharf Development. However, the road surface is uneven in areas further south and poor drainage has caused water / mud and leaves to pool, as seen in Photo 1.
People Feel Safe	It is a quiet residential neighbourhood with natural surveillance from the overlooking properties and street lighting.
Things to See and Do	This route is within a residential neighbourhood, but it is a short walk to Trafalgar Road (<650m) where there is a host of retail opportunities. There is also a Sainsbury's Local between Banning Street and Derwent Street.

Healthy Streets Indicator	Comments
Places to Stop and Rest	There are no formal spaces to stop and rest along this route, but there are benches within the Enderby Wharf development that the route passes and walls against which a person could stop and lean or pause.
People Feel Relaxed	The route is residential in nature, therefore, there is not heavy vehicular traffic, has well maintained greenery and street lighting which contributes to a relaxing environment.
Not Too Noisy	The route is in a residential area, therefore, lightly trafficked and there is minimal noise.
Clean Air	The area benefits from green landscaping, including some mature trees and shrubs; however, the A2203 remains a busy road which impacts on air quality.
Shade and Shelter	There are trees along this route which overhang the footway, providing a level of shade and shelter for pedestrians.

4.7 Summary and Conclusions

4.7.1 Five routes have been assessed in accordance with ATZ guidance, to key destinations relevant to the site, and suggestions have been made for each as per the TfL Healthy Streets assessment categories.

4.7.2 It should be noted that the findings of the ATZ are suggestions only, as these are, by their nature, off-site and outside of the direct control of the Developer. The development proposals are also below the usual threshold for ATZ assessment. The applicant agrees to the proposed Mayoral CIL contribution and tariff per unit in principle (subject to further discussions with RBG); these are a robust contribution in proportion to the development for off-site works. The improvements suggested by the ATZ are therefore not necessary to the development and are not considered additional to the CIL or any other contribution agreed in principle.

4.7.3 Paragraph 56 of the NPPF relates to the use of obligations and states that:

Paragraph 56 - NPPF
Planning obligations must only be sought where they meet all of the following tests: a) necessary to make the development acceptable in planning terms; b) directly related to the development; and c) fairly and reasonably related in scale and kind to the development

4.7.4 The above is additionally set out in Regulation 122(2) of the Community Infrastructure Levy Regulations 2010.

4.7.5 The implementation of the suggestions of the ATZ are welcomed; however, they do not meet the above tests, as the level of pedestrian and cycle traffic to be generated by the development is negligible and would have no significant impact on these routes.

5. Impact on the London-wide Network

5.1 Overview

5.1.1 This section of the TA assesses how people of all abilities will travel from the development onto London's public transport and highway networks.

5.1.2 This has been carried out by undertaking a multimodal trip generation assessment using national standard Trip Rate Information Computer System (TRICS), a comprehensive database of traffic and multi-modal transport surveys covering a wide range of development types. TRICS provides a trip rate which is then used to quantify the number of trips generated by the proposed land use.

5.2 Existing Use/Permitted Use

5.2.1 The site is vacant with no historic data available. The site has planning permission for some 400 homes, a cruise line terminal with commercial floorspace, retail uses and associated works. This scheme has been implemented and could theoretically be built out. An existing transport assessment exists for this work and will be referred to for the assessment of the permitted use.

5.3 Residential Use

5.3.1 The proposed residential uses have been assessed using the TRICS database. Sites have been extracted using the following criteria:

- Land use – C3 Residential Flats Privately Owned
- Greater London only
- Multi-modal Weekday surveys
- Trip rate per unit
- Edge of town centre, edge of town or suburban location
- PTAL 1-3
- Surveys dating 2021 during covid restrictions discounted from the results

5.3.2 A total of eight sites were identified and have been used to derive a total person trip rate and servicing trip rates as given in **Table 5.1** along with the calculated trips by mode. The full TRICS outputs are included in **Appendix F.**

Table 5.1 Residential Trip Rates

Trip Rate	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	In	Out	Total	In	Out	Total
OGV	0.00	0.00	0.00	0.00	0.00	0.00
LGV	0.00	0.00	0.01	0.01	0.01	0.02
Total servicing (LGV+OGV)	0.00	0.01	0.01	0.01	0.01	0.02
Total Person	0.09	0.47	0.56	0.32	0.16	0.48
Trip Generation	**AM Peak (08:00-09:00)**			**PM Peak (17:00-18:00)**		
	In	**Out**	**Total**	**In**	**Out**	**Total**
OGV	0	0	0	0	0	0
LGV	0	1	1	2	1	3
Total servicing (LGV+OGV)	0	1	1	2	1	3
Total Person	13	67	80	45	23	69

5.3.3 As shown in the above, servicing trips account for some 4% of total person trips.

5.3.4 The above have also been compared to the trip rates approved for the Morden Wharf Development (as the most recent planning approval) within the associated Transport Assessment dated June 2020. Criteria used to extract TRICS sites is comparable; however, several of the sites used in that analysis have since been aged out of the TRICS database, and on that basis, the newer sites and trip rates given above have been used.

Residential Modal Split

5.3.5 The modal split of trips has been calculated using the 2011 Census data for the Method of Travel to Work for those living in the Greenwich 036B Lower Super Output Area (LSOA) Layer. This dataset provides 2011 estimates that classify usual residents aged 16 to 74 in England and Wales by their method of travel to work.

5.3.6 The 2021 Census data has not been used as it was collected during the Coronavirus (COVID-19) pandemic, a period of unparalleled and rapid change when the national lockdown, associated guidance and furlough measures will have affected people's travel to work habits.

5.3.7 The Census 2011 mode shares are summarised in **Table 5.2** below. To account for the car-free nature of the proposed development, with only disabled parking provided on-site and to incorporate servicing vehicle trips, the modal share above has been adjusted pro-rata. The adjusted modal split is also shown in **Table 5.2.**

Table 5.2 Census and Adjusted Mode Share

Method of Travel	LSOA Greenwich 036B	% Mode Share	Adjusted % Mode Share
Underground	220	35%	38%
Rail	76	12%	13%
Bus	133	21%	23%
Taxi	1	0%	0%
Powered 2-wheeler	6	1%	1%
Car	104	16%	4%
Car share	9	1%	2%
Bicycle	19	3%	3%
On foot	60	9%	10%
Other	7	1%	1%
Servicing	NA	NA	4%
Total	**635**	**100%**	100%

5.3.8 As shown in the table above, the most popular method of travel to the local area purposes is London Underground with 38% of the (adjusted) mode share, followed by bus with 23%. Active travel modes account for 12% of the mode share and vehicle trips (including car share) for 11% of the mode share.

5.3.9 The adjusted mode split in **Table 5.2** above has been applied to the total person trips given in **Table 5.1** and the results are summarised in **Table 5.3**.

Table 5.3 Proposed Multi-modal Residential Trips

Trip Rate	Adjusted Mode Split	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground	38%	20	101	121	69	35	104
Train	13%	7	35	42	24	12	36
Bus	23%	12	61	73	42	21	63
Taxi	0%	0	0	1	0	0	0
Motorcycle	1%	1	3	3	2	1	3
Car	4%	2	11	13	7	4	11
Car Share	2%	1	4	5	3	1	4
Bicycle	3%	2	9	10	6	3	9
On foot	10%	5	28	33	19	10	28
Other	1%	1	3	4	2	1	3
Servicing	4%	2	11	13	7	4	11
Total Person	**100%**	**52**	**265**	**318**	**180**	**92**	**273**

5.3.10 As shown in **Table 5.3**, the residential element of the development would generate an estimated total of 33 two-way vehicle trips in the AM peak and 29 in the PM peak, with most trips being undertaken by active modes and public transport.

5.4 Commercial

5.4.1 The proposed commercial is for light industrial use and for a small community/café space. The latter is considered to be for the purpose of serving the future residents and not considered a trip destination in its own right, generating only internalised trips and pass by trips, excepting for servicing. On that basis, only servicing for the community space has been considered on a first principles basis, which has assumed a total of 3 deliveries per day as a maximum (based on professional knowledge of other café uses, and assuming 1 x milk, 1 x food and 1 x other beverage/supply delivery per day. This is comparable to most Starbuck and Costa Coffee operations in London and would be considered the maximum, with other chains and more local businesses typically operating on fewer or more consolidated deliveries.).

5.4.2 The TRICS database has been examined for proxy sites for the B1c Light Industrial uses, as follows:

- Land use – 02/D Employment/Industrial Estate
- Weekday multimodal survey
- Edge of town or suburban location
- Greater London Sites only
- Trip rates per 100sqm

5.4.3 The search identified a total of 5 proxy sites and the full outputs are included as **Appendix G**.

5.4.4 Due to the type of land use, the mode split as per the TRICS output has been calculated for all modes. The trip rates and resulting mode splits are summarised in

Table 5.4 Commercial Light Industrial Trip Rates and Mode Split

Trip Rate	AM Peak			PM Peak			Mode Split TRICS BASIS
	In	Out	Total	In	Out	Total	
Total Person	**1.29**	**0.80**	**2.09**	**0.42**	**0.85**	**1.27**	**100%**
Of which total Vehicle	0.88	0.58	1.47	0.30	0.55	0.85	72%
Of which taxi	0.00	0.00	0.00	0.00	0.00	0.01	0%
Of which OGVs	0.06	0.05	0.11	0.01	0.01	0.02	4%
Of which LGVs	0.35	0.34	0.70	0.10	0.14	0.24	30%
Of which cars	0.46	0.19	0.65	0.19	0.39	0.58	37%
Of which motorbikes	0.01	0.00	0.01	0.00	0.01	0.01	0%
Of which Vehicle Occ	1.11	0.74	1.86	0.38	0.68	1.06	15%
of which cyclists	0.00	0.01	0.01	0.00	0.02	0.02	1%
of which pedestrians	0.04	0.02	0.06	0.02	0.04	0.06	5%
of which bus	0.09	0.02	0.11	0.01	0.06	0.07	4%
of which rail	0.04	0.01	0.05	0.01	0.06	0.07	2%

5.4.5 As shown in the table above, the TRICS proxy sites have a high car trip rate at 37%, and it should be noted that the proxy sites also provide general car parking (or it is otherwise available on street nearby at no charge), which will not be the case of the proposed development. Public transport use is also low; however, it is expected that the site will deliver improved bus connections and therefore the split above is not considered fully representative of the development. On that basis, the mode split has been adjusted pro-rata, retaining all operational trips and total person trips, and the results are given in **Table 5.5**.

Table 5.5 Adjusted Commercial Mode Split

Mode	TRICS MODE SPLIT	Adjusted Pro Rata
Taxi	0%	1%
OGV	4%	4%
LGV	30%	30%
Car	37%	3%
P2W	0%	0%
Car Share	15%	11%
Cyclist	1%	6%
Pedestrian	5%	10%
Bus	4%	15%
Total Rail	2%	20%
Total Person	100%	100%
Total Vehicle	72%	38%

5.4.6 The adjusted mode split above has been applied to the total person trips calculated as per the total person trip rate in **Table 5.4** and the results are given in

Table 5.6 Proposed Commercial Trips

Trip Rate	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Underground	**2**	**1**	**3**	**1**	**1**	**2**
Train	1	0	1	0	0	1
Bus	2	1	3	1	1	2
Taxi	0	0	0	0	0	0
Motorcycle	0	0	0	0	0	0
Car	0	0	1	0	0	0
Car Share	1	1	2	0	1	1
Bicycle	1	0	1	0	0	1
On foot	1	1	2	0	1	1
Other	0	0	0	0	0	0
OGV	0	0	1	0	0	0
LGV	0	0	0	0	0	0
Total Person	**11**	**7**	**19**	**4**	**8**	**11**
Total Veh	**4**	**3**	**7**	**1**	**3**	**4**

5.4.7 As shown in the table above, the commercial element would generate a total of 7 two-wavy vehicle trips in the AM peak and 4 in the PM peak.

5.5 Total Development

5.5.1 The total development trips have been summed and are given in **Table 5.7**.

Table 5.7 Total Development Trips

Trip Rate	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Underground	22	102	124	69	36	106
Train	8	35	43	24	13	37
Bus	14	62	76	42	22	65
Taxi	0	1	1	0	0	1
Motorcycle	1	3	3	2	1	3
Car	2	11	13	7	4	11
Car Share	2	5	7	3	2	6
Bicycle	2	9	12	6	4	10
On foot	7	28	35	19	10	30
Other	1	3	4	2	1	3
Servicing	3	11	14	8	4	12
Total Person	**64**	**272**	**336**	**184**	**100**	**284**

5.5.2 As shown, the total development would generate 40 two-way vehicle trips in the AM peak and 33 in the PM peak.

5.6 Comparison to Consented Scheme

5.6.1 As mentioned above, the site has planning permission which could be implemented. This is for 477 residential units with parking, and without public transport interventions. Assessed on the same basis as the above (mode split adjusted only to include servicing in this case), the site would generate the following trips as set out in **Table 5.8**.

Table 5.8 Consented Residential Scheme – 477 Units

Trip Rate	Adjusted Mode Split	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground	33%	15	75	89	51	26	77
Train	12%	5	26	31	18	9	27
Bus	20%	9	45	54	31	16	46
Taxi	0%	0	0	0	0	0	0
Motorcycle	1%	0	2	2	1	1	2
Car	16%	7	35	42	24	12	36
Car Share	1%	1	3	4	2	1	3
Bicycle	3%	1	6	8	4	2	7
On foot	9%	4	20	24	14	7	21
Other	1%	0	2	3	2	1	2
Servicing	4%	2	9	11	6	3	9
Total Person	100%	**44**	**224**	**269**	**153**	**78**	**231**

5.6.2 The net difference to the proposed has also been calculated and is given in **Table 5.9.**

Table 5.9 Net Difference Proposed and Consented

Trip Rate	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Underground	5	26	32	18	9	27
Train	2	9	11	6	3	9
Bus	3	16	19	11	6	16
Taxi	0	0	0	0	0	0
Motorcycle	0	1	1	0	0	1
Car	-5	-25	-30	-17	-9	-25
Car Share	0	1	1	1	0	1
Bicycle	0	2	3	2	1	2
On foot	1	7	9	5	3	7
Other	0	1	1	1	0	1
Servicing	0	2	2	1	1	2
Total Person	8	41	49	28	14	42
Total Vehicle	-4	-21	-26	-15	-7	-22

5.6.3 As shown in the table above, when compared to the consented scheme, the proposed development generates more total person trips and more trips by public transport but a reduction of 26 fewer vehicle trips in the AM peak and 22 fewer in the PM peak.

5.6.4 It should also be noted that the site was previously used as open air storage/ motor uses and industrial use. Should no development come forward as per the allocation, then reversion to this type of use would generate a higher number of vehicle trips than either scheme.

5.7 Impact on Public Transport

5.7.1 The development is committed to the delivery of a quality bus service near to the site, in conjunction with Morden Wharf. Various options have been discussed throughout the pre-application process.

5.7.2 It has been agreed in principle that the development will be served by a diverted route from North Greenwich Station, with a minimum frequency of 2 buses per hour and an ideal frequency of 4 per hour. TfL to date have not been able to identify which of their existing services would be diverted, although contrary to Morden Wharf's assessment it is stated that it is unlikely to be the 108 bus service.

5.7.3 Locations in respect of improvement to the site PTAL have been identified for buses, and an on-road option has been presented which delivers almost all of the benefits sought from the ramp option without reliance on Morden Wharf and without detriment to other considerations required by the site allocation Local Plan policy.

5.7.4 Whist the water boat services are not included within PTAL assessment and are considered a 'luxury' service, nevertheless, Census data does show a consistent level of travel upon them as a mode, which is presumed to be diverted from bus travel.

5.7.5 Frequency of the river boat service is not identified but in the worst-case is assumed to be 1 per hour. The 'Other' mode trips identified within the assessment have therefore been assigned to the new river boat service.

5.7.6 The public transport trips given in **Table 5.7** above have been allocated to destinations on the assumption that the majority of trips by rail will be towards Central London (75%) and the remainder to the east. Similarly, it is assumed that the majority of bus trips will be connecting to/from rail stations and has been split 50-50 north/south on that basis. A majority (90%) of rail trips have been double assigned to buses to capture bus mode towards the stations in the first instance.

5.7.7 The resulting loadings on public transport are summarised in **Table 5.10**.

Table 5.10 Impact on Public Transport

Trip Rate	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Jubilee Line east	5	26	31	17	9	26
Jubilee Line west	16	77	93	52	27	79
National Rail East	2	9	11	6	3	9
National Rail West	6	26	32	18	9	27
Bus to/from North Greenwich Station/Central London	29	133	162	91	48	138
Bus to/from Other Stations/Other Destinations	14	66	81	45	24	69
Riverboat Services	1	3	4	2	1	3

5.7.8 As shown in the table above, the morning peak would generate a total of 162 bus trips to and from the north, of which some 124 would continue by rail services from North Greenwich Station or originate from rail travelling to the site. There would be 81 trips to and from the south of which 43 would continue by rail from Maze Hill and Westcombe Park or travel from those station to the site. In the PM peak there would be 138 bus trips to and from the north of which 105 would interchange with North Greenwich station, and 69 bus trips to and from the south of which 36 would interchange with Maze Hill or Westcombe Park.

5.7.9 Assuming a single bus route with a frequency of 4 per hour in each direction, there would be loadings of 40 passengers per bus north of the site, and 20 per bus south of the site in the AM peak. In the PM peak there would be 35 passengers per bus north of the site and 17 passengers per bus south of the site.

5.7.10 There are some 30 trains per hour at peak times on the Jubilee Line, equating to passenger loadings of 2 additional passengers per train east of North Greenwich and 6 additional passengers per train west. in the AM peak. In the PM peak, this would equate to 2 additional passengers per train east of North Greenwich. and 5 additional passengers per train west.

5.7.11 Loadings at Westcombe Park and Maze Hill are assumed to be 50-50 and are therefore around 22 passengers in either peak hour per station.

5.7.12 There are 10 trains per hour at peak at each station, and therefore when distributed across the network, passenger loadings at peak hour equate to just 1 or 2 additional passengers per train. This level of increase is considered negligible.

5.8 Impact on Active Travel

5.8.1 The site will generate a number of new trips by foot and by bicycle. To assess the potential impact on local routes, these have been broadly distributed on a first principles basis, using our professional judgement of desire lines, local trip generators, and choice making based on quality of the route and the potential mitigation implemented upon that route which may encourage its use. The distribution and assumptions are set out in **Table 5.11**.

Table 5.11 Impact on the Active Travel Network

Trip Rate	Assumptions/Comments	AM Peak			PM Peak			Daily Flows		
		In	Out	Total	In	Out	Total	In	Out	Total
Cycle										
Thames Path North	0% due to interim condition of path making it almost impassible for cyclists. Route not explicitly assessed as part of ATZ though given consideration within it.	0	0	0	0	0	0	0	0	0
Thames Path South	40% due to quality of route and forward connections to Greenwich or Island Gardens via SCN. Route not explicitly assessed as part of ATZ though given consideration within it.	4	5	2	1	4	23	23	46	51
Other Route North	0% due to poor quality of routes making them unattractive to cyclists compared to other provision.	0	0	0	0	0	0	0	0	0
Other Route South	10% via SCN and NCN, local cycle paths and residential roads to Maze Hill, Blackheath, Westcombe Park. Route 5 within the ATZ	1	1	1	0	1	6	6	12	13
Other Route East	50% crossing at Tunnel Avenue bridge to Parkside. Routes 3 and 4 within the ATZ	5	6	3	2	5	29	29	58	63
On Foot										
Thames Path North	5% due to strong desire line north but interim quality of footpath being poor	1	2	1	1	1	9	9	17	19
Thames Path South	25% due to desire lines south and good quality path	7	9	5	3	7	44	43	86	95
Other Route North	25% due to strong desire lines North and availability of pedestrian crossings despite otherwise low-quality walking environment compared to other routes	7	9	5	3	7	44	43	86	95
Other Route South	25% due to desire lines south and generally good pedestrian connections to Maze Hill, Westcombe Park etc. Route 5 within the ATZ.	7	9	5	3	7	44	43	86	95
Other Route East	20% due to desire lines north but this option being a deviation; access to schools and leisure. Routes 3 and 4 within the ATZ	6	7	4	2	6	35	34	69	76

5.8.2 As shown in the table above, this is a high-level distribution but indicates that most active travel will seek to go east (prior to diverting north) and south from the site in the first instance. This may change following improvements implemented as part of Greenwich Peninsula and the Silvertown Tunnel progress, and following Morden Wharf's completion, a larger number of trips are expected to go north along the improved Thames Path. Key links in the interim are therefore the bridge

6. Summary and Conclusions

6.1.1 This TA has been prepared by Markides Associates on behalf of Maritime View Ltd in support of a planning application for the re-development of Enderby Place adjacent to Morden Wharf in the Royal Borough of Greenwich (RBG). RBG are both the planning and highways authority.

6.1.2 The development proposals are for the erection of part-3, part-23, part-35 storey buildings, providing up to 564 residential apartments (Class C3), light industrial (Class E(g)(iii)) and community / café use (Sui Generis), and associated highways, landscaping and public realm works.

6.1.3 This TA has demonstrated that the site is accessible in terms of its proximity to existing social and sustainable transport infrastructure. The assessments have also demonstrated that the impact of the development proposals upon the wider transport network can be accommodated without resulting in a severe impact and therefore deemed acceptable in accordance with the NPPF and London Plan 2021 policy.

6.1.4 The overall impact of the development upon the London wide transport networks is not considered to be negligible. The development is car-free and supported by a Travel Plan Statement to support and encourage users to travel sustainably to and from the site.

6.1.5 The proposals will result in increases to the number of trips on the local public transport networks, however given the wide range of services and destinations which can be accessed from the site, once these trips have been distributed across the wide range of services and destinations the overall impact of the development is not considered to be significant.

6.1.6 The site benefits from access to a range of sustainable transport modes that can be accessed through a generally comprehensive walking and cycling network, and impact on these networks as a result of development is also considered to be negligible.

6.1.7 In summary, this TA outlines how the proposed development will not result in any material impact to the public transport and road networks within the vicinity of the site. Accordingly, the development proposals are considered to be acceptable, and compliant with policy.

FIGURES

DRAWINGS

22181-MA-XX-XX-DR-C-7051 SPA Refuse Vehicle

22181-MA-XX-XX-DR-C-7052 SPA Ground Level Plan

APPENDIX A – SITE LAYOUT PLAN

APPENDIX B – TECHNICAL CORRESPONDENCE – BUS OPTIONS

APPENDIX C – POLICY REVIEW

A1 The National Planning Policy Framework (NPPF) (July 2021)

The NPPF as of July 2021 sets out Government planning policy, provides a framework within which local planning policies should be produced, and is a material consideration in planning decisions.

With regards to transport, the NPPF states that: "Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

Paragraph 112 continues those applications for development should:

- Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second- so far as possible – to facilitate access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
- Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
- Create places that are safe, secure, and attractive – which minimise the scope for conflicts between pedestrians, cyclists, and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
- Allow for the efficient delivery of goods, and access by service and emergency vehicles; and
- Be designed to enable charging of plug-in and ultra-low emission vehicles in safe, accessible, and convenient locations.

Paragraph 113 states that: *"All developments that will generate significant amounts of movement should be required to provide a travel plan and should be supported by a transport statement or transport assessment."*

A2 The London Plan 2021

The new London plan was published on 2nd March 2021.

Chapter 10 of this document deals with transport and Policy T1 sets the overarching approach to transport strategy for the city. Policy T1 states that development Plans and development proposals should support the delivery of the Mayor's strategic target of 80 per cent of all trips in London to be made by foot, cycle, or public transport by 2041, and the proposed transport schemes set out in Table 10.1.

Policy T1 continues, "*All development should make the most effective use of land, reflecting its connectivity and accessibility by existing and future public transport, walking and cycling routes, and ensure that any impacts on London's transport networks and supporting infrastructure are mitigated.*"

The London Plan 2021 additionally includes a new concept; 'Healthy Streets'. These are defined by 10 indicators as follows:

- Pedestrians from all walks of life;
- Easy to cross;
- Shade and shelter;
- Places to stop and rest;
- Not too noisy;
- People choose to walk, cycle, and use public transport;
- People feel safe;
- Things to see and do;
- People feel relaxed; and
- Clean air.

Policy T2 states that development proposals should demonstrate how they will deliver improvements that support the ten Healthy Streets Indicators in line with Transport for London guidance; reduce the dominance of vehicles on London's streets whether stationary or moving; and be permeable by foot and cycle and connect to local walking and cycling networks as well as public transport.

A2.1 Car Parking Standards

With regards to residential car parking, the Plan outlines a maximum parking provision standards for Outer London Opportunity Areas of up to 0.25 spaces per dwelling.

The Plan states that all residential car parking spaces must provide infrastructure for electric or Ultra-Low Emission vehicles. At least 20% of spaces should have active charging facilities, with passive provision for all remaining spaces.

Residential development proposals delivering ten or more units must, as a minimum, ensure that for three per cent of dwellings, at least one designated disabled persons parking bay per dwelling is available from the outset. Furthermore, developments must demonstrate, how an additional seven per cent of dwellings could be provided with one designated disabled persons parking space per dwelling in future.

A3 Royal Greenwich Local Plan: Core Strategy

Car and cycle parking policy is given within Greenwich's Local Plan 2018. Policy DM30: Car and cycle parking in new development states:

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

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

- *limit on-site car parking to spaces designated for disabled people, any operational*
- *or servicing needs, and spaces designated for the occupiers of development;*
- *not issue on-street parking permits; and*
- *use a condition / legal agreement to ensure that future occupants are aware they*
- *are not entitled to on-street parking permits.*
- *The Royal Borough will also strongly encourage contributions to car clubs and pool car schemes in place of private parking in new developments across Royal Greenwich and seek the provision of electric charging points as part of any car parking provision, following the minimum standards set out in the London Plan.*

Developments must meet, as a minimum, the standards for cycle parking as set out in the London Plan.

A4 Greenwich Waste Guidance Notes

This document (latest revision May 2018) sets out the Council's requirements for its waste and recycling collection services and should be used by architects and developers when designing waste storage and collection strategies.

With regards to the accessibility for collection vehicles and operatives, the guidance states the following:

Walking distance for refuse operatives from the container storage area to the refuse collection vehicle is no more than 15 metres. The vehicle stopping point should be clearly indicated on submitted drawings.

A safe collection area for operatives, such as a lay-by, is required if access to the chambers is on a dual carriageway, main fast flowing, or busy road.

Roads should be laid out to ensure reasonable convenience for the collection vehicle and should be a minimum of 5.5m wide. The collection vehicle should be able to proceed in a forward direction around the development, developers must not plan for refuse vehicles to reverse in a public area and the vehicle should not be expected to reverse for more than two vehicle lengths (20m).

Adequate space for turning must be provided and demonstrated in vehicle tracking drawings.

APPENDIX D – WEBCAT PTAL OUTPUTS

APPENDIX E – MANUAL PTAL CALCULATION WORKINGS

APPENDIX F – TRICS OUTPUT – RESIDENTIAL

APPENDIX G – TRICS OUTPUT – COMMERCIAL LIGHT INDUSTRIAL

FIGURES

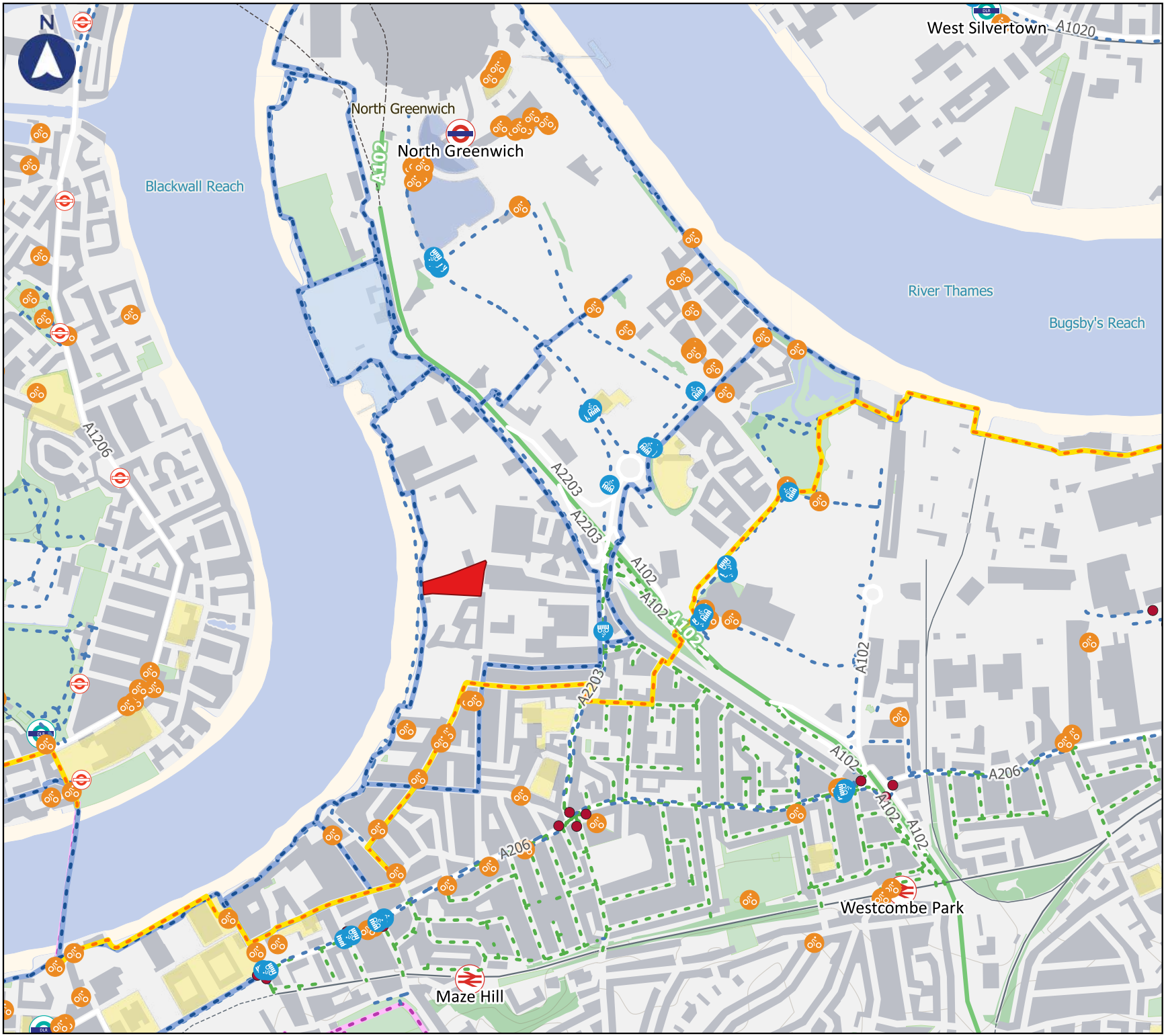
MARKIDES ASSOCIATES

Site Context Plan

Key

- Site Location
- Relevant Development

0 250 500 m



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Active Travel Network

Key

- Site Location
- Public Cycle Parking
- Santander Cycle Hubs
- Advanced Stopping Line
- Cycle Crossing
- Strategic Cycle Network
- National Cycle Network
- Restricted Route
- Cycle Lane or Track
- London Permeable Neighbourhoods

0 250 500 m

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Public Transport Plan

Enderby Place

Key

Site Location

640m Enderby Place Walking Isochrone

Public Transport Nodes

London Underground

National Rail

London Bus Stops

Local Bus Routes

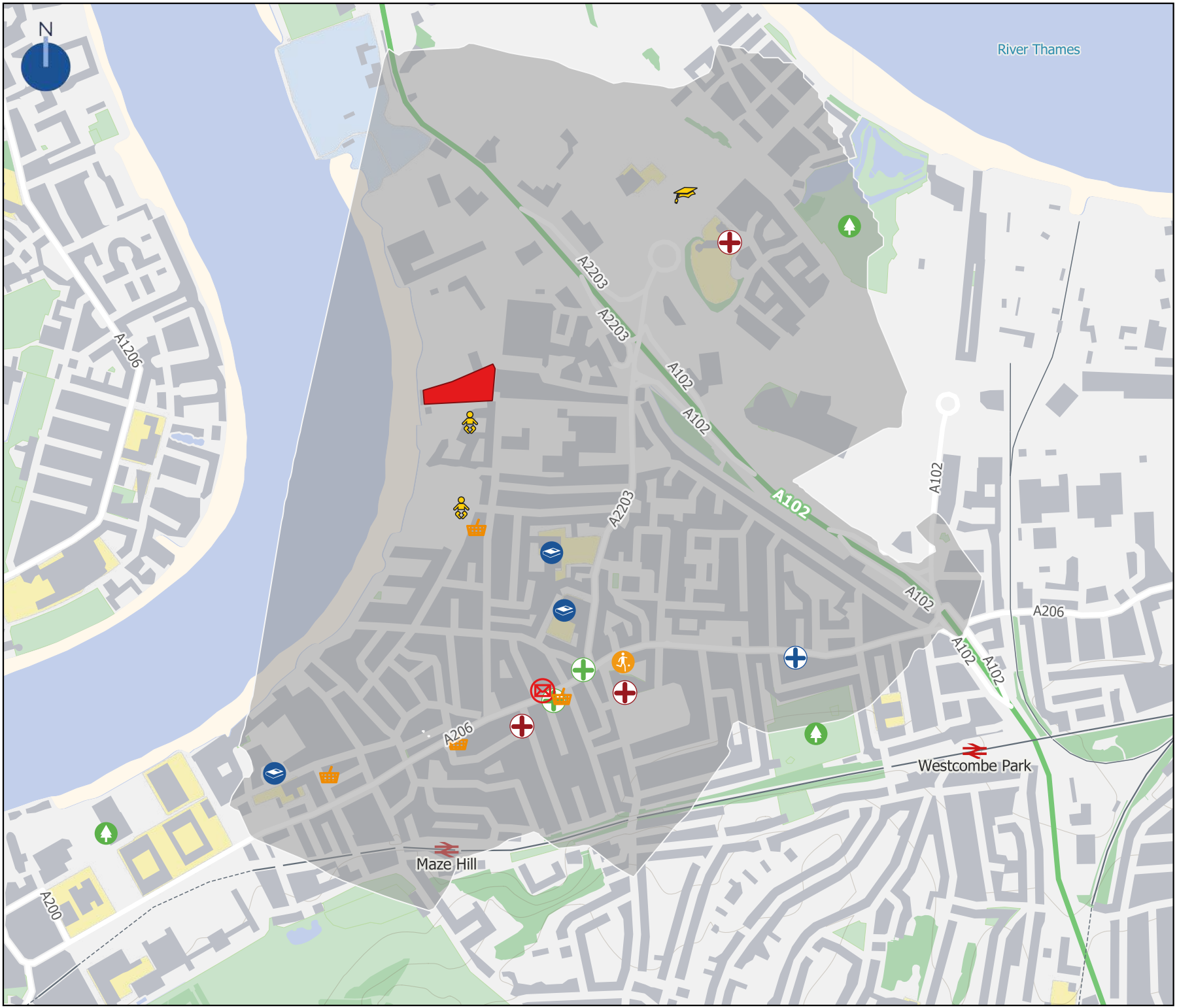
108

188

422

Transport for London Piers

London River Services



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Local Facilities

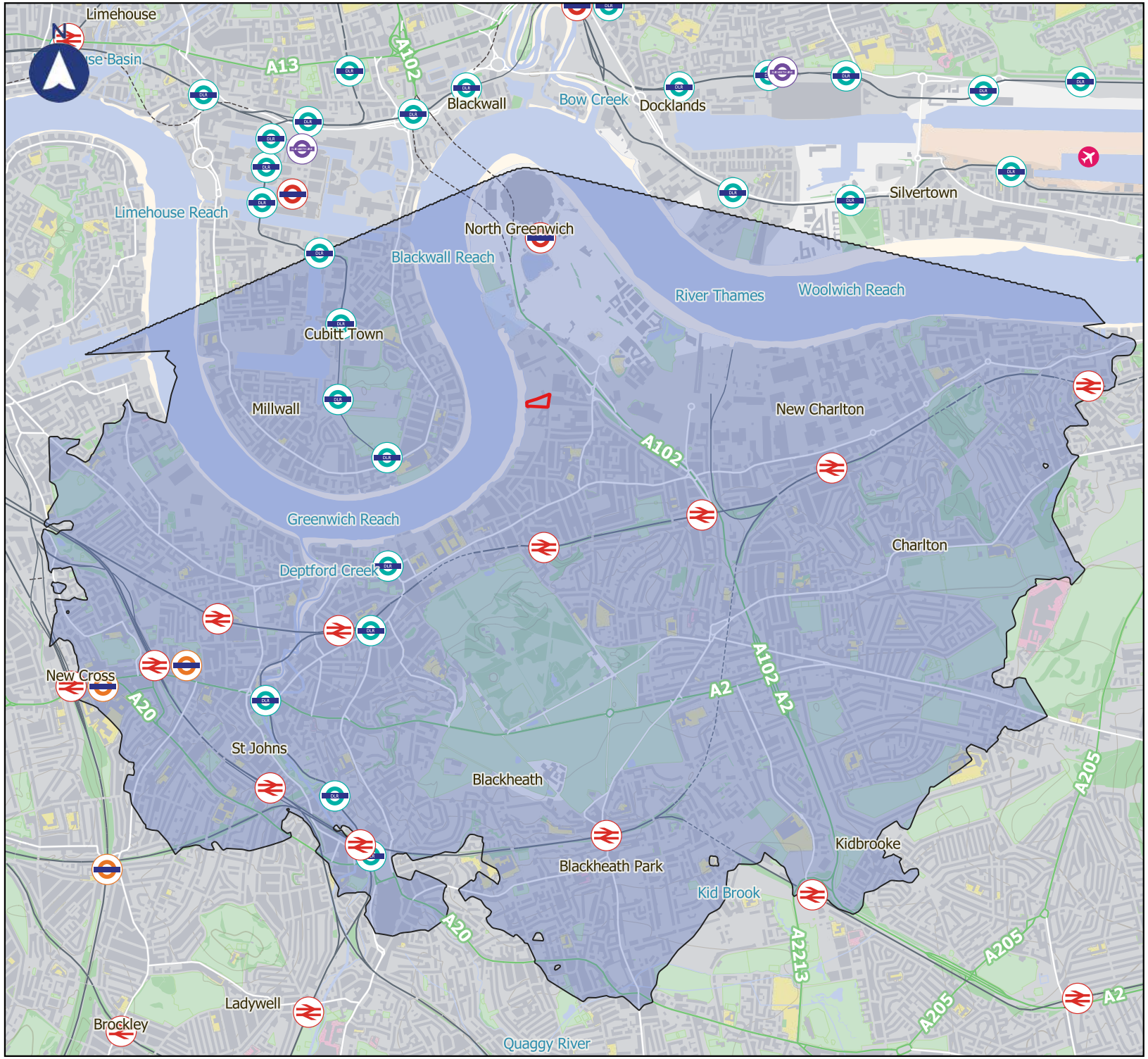
Key

- Site Location
- 15-Minute Walking Isochrone

Local Facilities

- Dentist
- GP
- Green Space
- High School
- Leisure Centre
- Nursery
- Pharmacy
- Post Office
- Primary School
- Supermarket

0 100 200 m



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ATC Plan

Enderby Place

Key

- Site
- 20-Minute Cycle Isochrone

Public Transport Nodes

- London DLR
- Elizabeth Line
- London Overground
- London Underground
- National Rail

0 500 1,000 m

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ATZ Routes

Enderby Place

Key

Site

ATZ Routes

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- 150m

Key Destinations

- Primary School
- Green Space
- Strategic Cycle Network
- Retail Area

Public Transport Nodes

- London Underground
- Bus Stops

0 100 200 m

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KSI by Severity

Enderby Place

Key

Site

ATZ Routes

Route 1

Route 2

Route 3

Route 4

Route 5

KSI Data 2019-2023

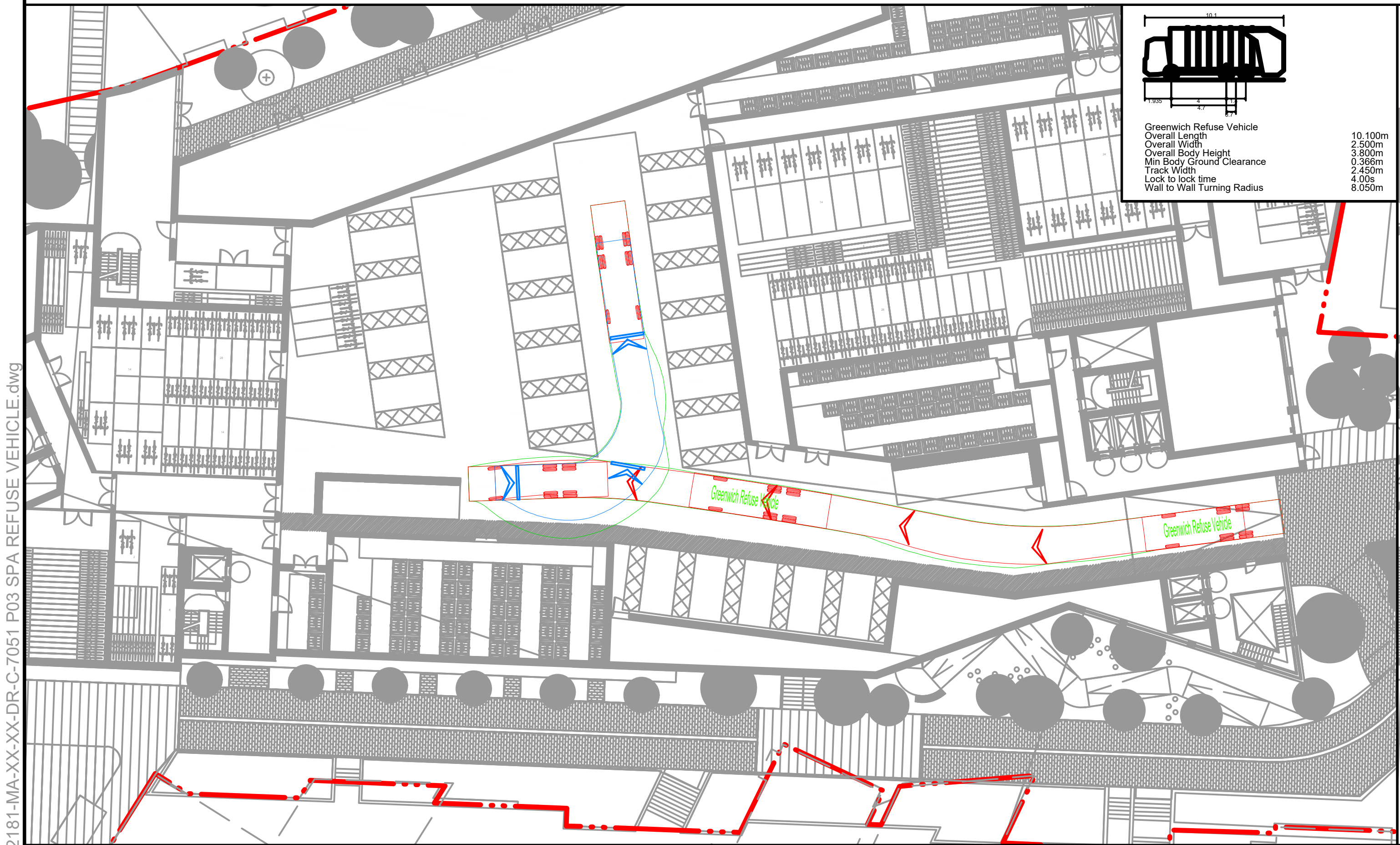
KSI Cluster

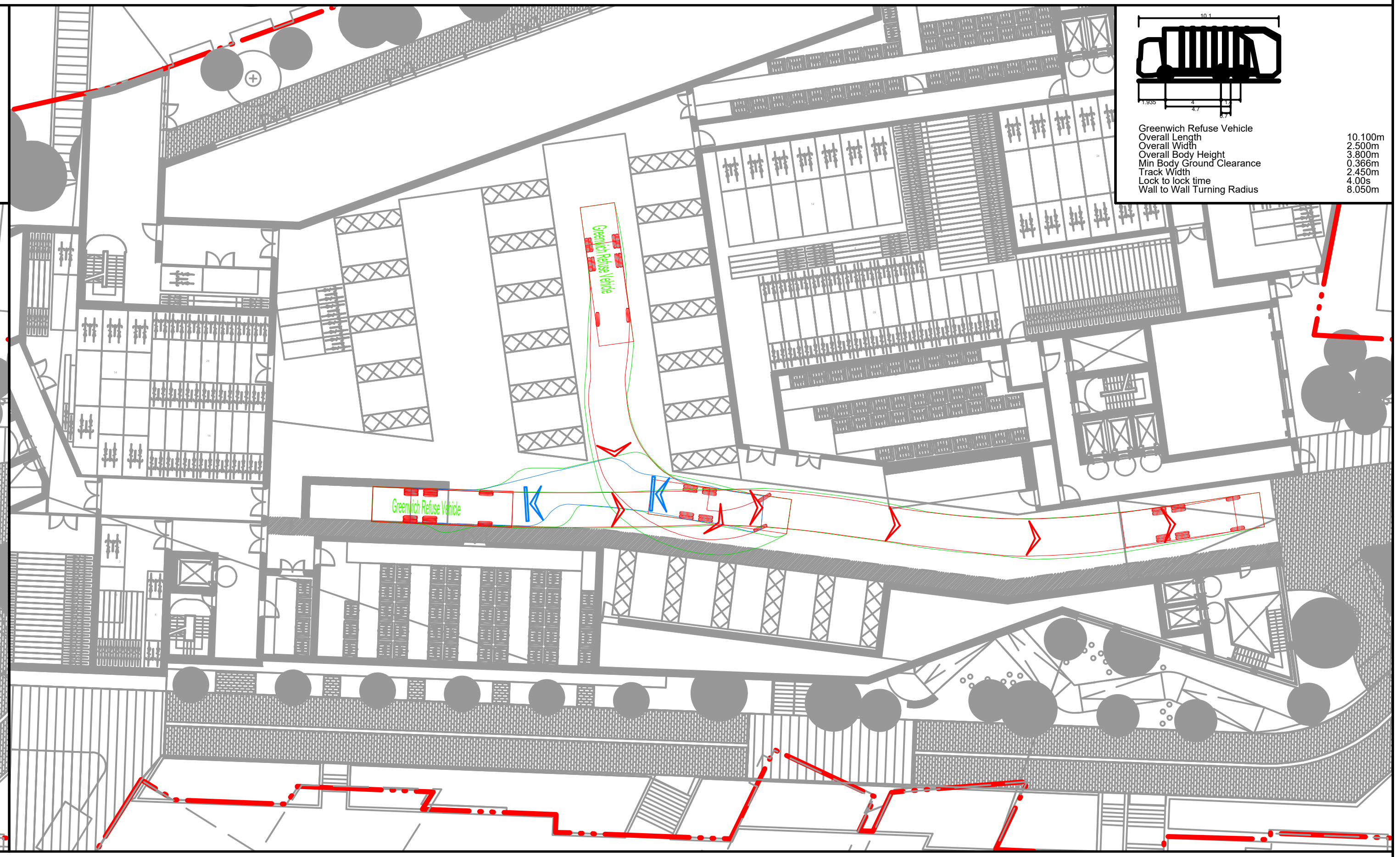
0 100 200 m

DRAWINGS

22181-MA-XX-XX-DR-C-7051 SPA Refuse Vehicle

22181-MA-XX-XX-DR-C-7052 SPA Ground Level Plan





KEY

Vehicle Body Line

Vehicle Wheel Line

Reverse Line

Scale 1:500 @ A3

10m 0 10m 20m 30m

Revision History					
P03	FOR INFORMATION	NB	BG	BG	29.11.23
P02	FOR INFORMATION	NB	BG	BG	08.11.23
P01	FOR INFORMATION	NB	SC	SC	05.10.23

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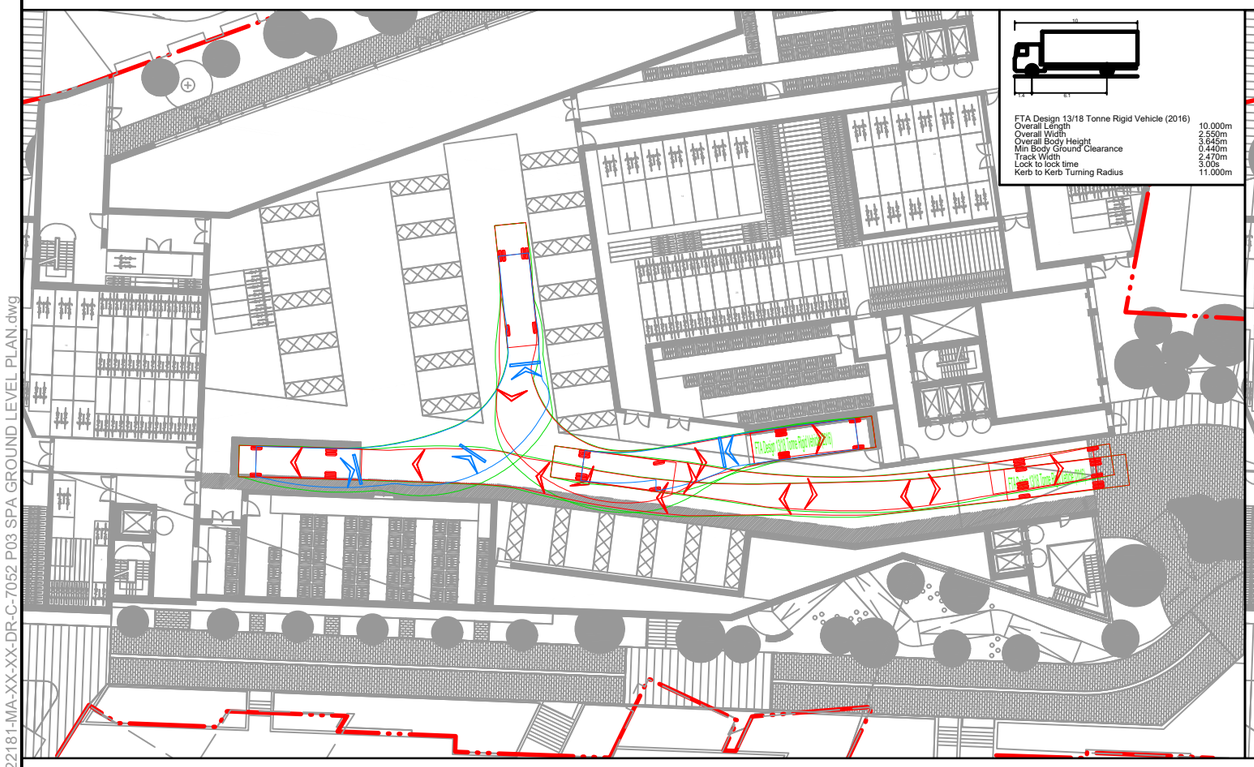
Project: ENDERBY PLACE	Status: S2 - FOR INFORMATION
Drawing Title: SWEPT PATH ANALYSIS REFUSE VEHICLE	Client: CRITERION CAPITAL

Scale	Date		
1:500	05.10.23		
Drawn	**Checked**	**Approved**	
NB	SC	SC	
Job No	**Drawing No**		**Rev**
22181	7051		P03



Scale 1:500 @ A3

10m 0 10m 20m 30m

Revision History					
P03	FOR INFORMATION	NB	BG	BG	29.11.23
P02	FOR INFORMATION	NB	BG	BG	08.11.23
P02	FOR INFORMATION	NB	SC	SC	05.10.23

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Project: ENDERBY PLACE

Status: S2 - FOR INFORMATION

Drawing Title: SWEPT PATH ANALYSIS
GROUND LEVEL PLAN

Client: CRITERION CAPITAL

Scale: 1:500

Date: 05.10.23

Drawn: NB

Checked: SC

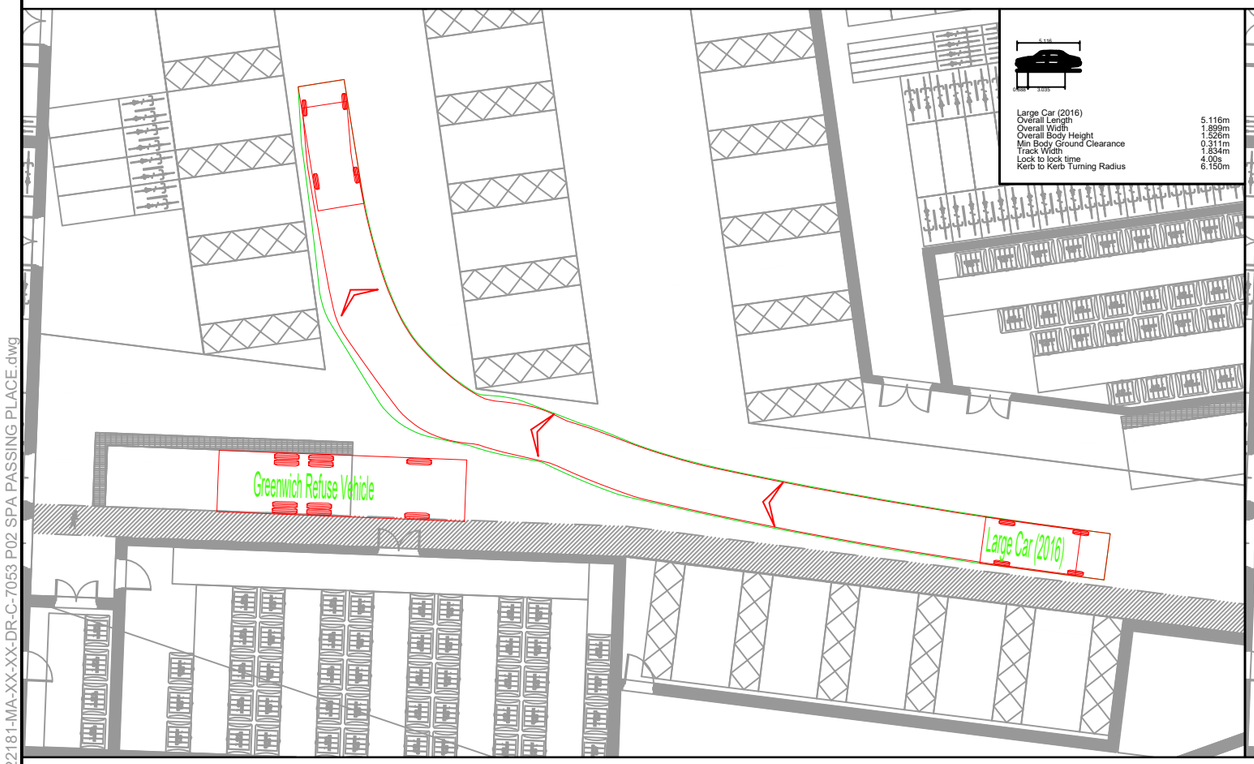
Approved: SC

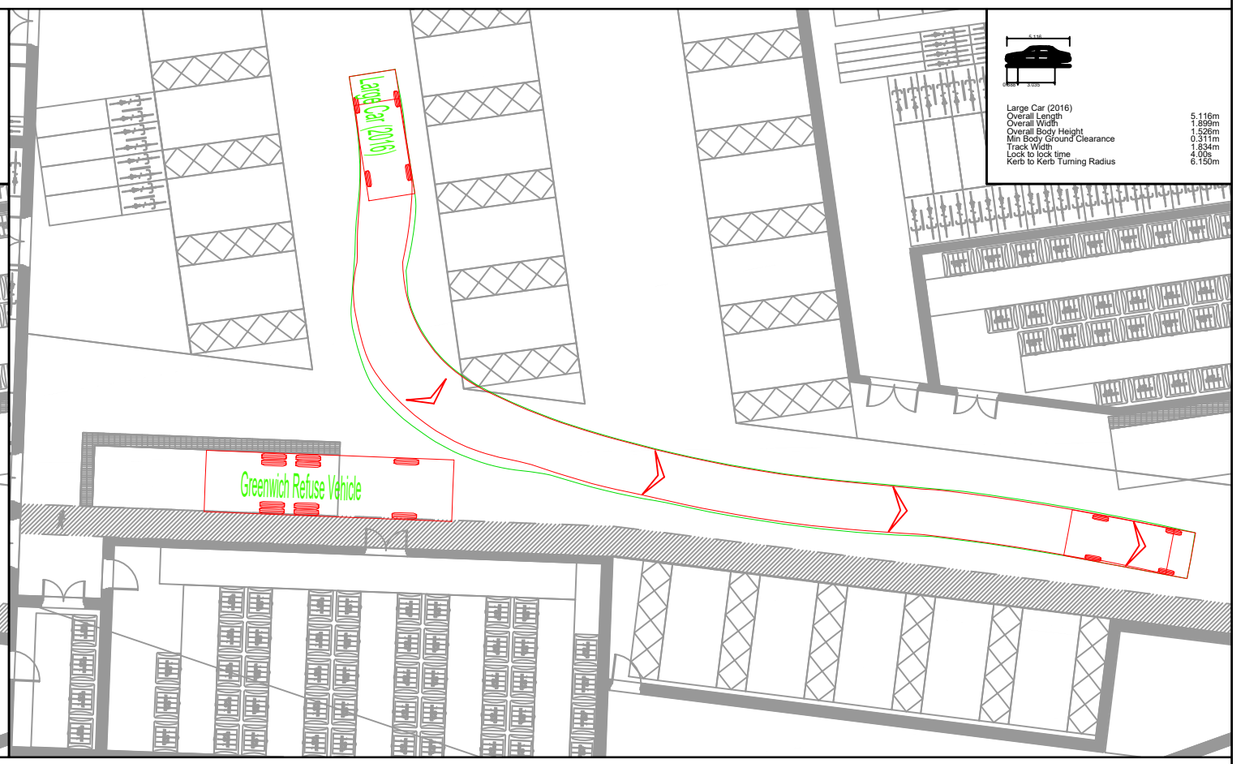
Job No: 22181

Drawing No: 7052

Rev: P03

M:\Projects\2022\22181 - Enderby Place\06. CAD-BIM\06.01 CADIA. Preliminary\22181-MA-XX-XX-DR-C-7052 P03 SPA GROUND LEVEL PLAN.dwg





Large Car (2016)	
Overall Length	5.116m
Overall Width	1.899m
Overall Body Height	1.526m
Min Body Ground Clearance	0.311m
Track Width	1.834m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	6.150m

Scale 1:250 @ A3

5m 0 5m 10m 15m

Revision History					
P02	FOR INFORMATION	NB	BG	BG	29.11.23
P01	FOR INFORMATION	NB	BG	BG	09.11.23

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Project: ENDERBY PLACE

Status: S2 - FOR INFORMATION

Drawing Title: SWEPT PATH ANALYSIS
PASSING PLACE - LARGE CAR

Client: CRITERION CAPITAL

Scale	Date		
1:250	05.10.23		
Drawn	Checked	Approved	
NB	BG	BG	
Job No	Drawing No		Rev
22181	7053		P02

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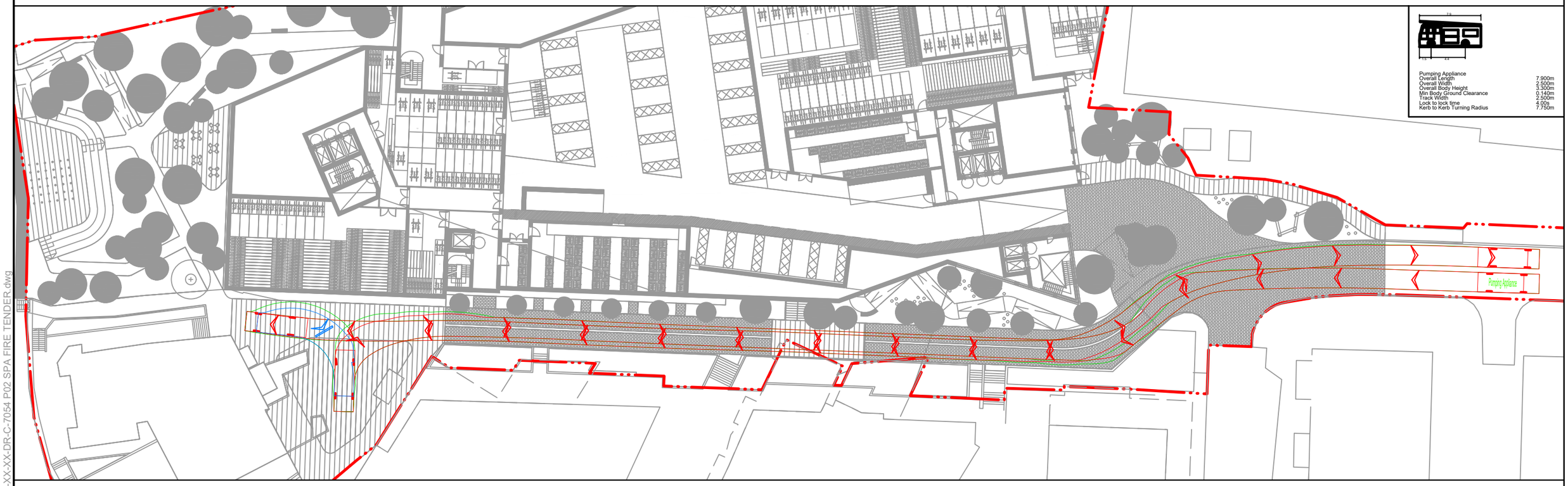

KEY

- Vehicle Body Line
- Vehicle Wheel Line
- Reverse Line

Scale 1:500 @ A3

10m 0 10m 20m 30m

Revision History					
P02	FOR INFORMATION	NB	BG	BG	29.11.23
P01	FOR INFORMATION	AA	SC	SC	16.11.23

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Project: ENDERBY PLACE

Status: S2 - FOR INFORMATION

Drawing Title: SWEPT PATH ANALYSIS FIRE TENDER

Client: CRITERION CAPITAL

Scale	Date		
1:500	16.11.23		
Drawn	Checked	Approved	
AA	SC	SC	
Job No	Drawing No		Rev
22181	7054		P02

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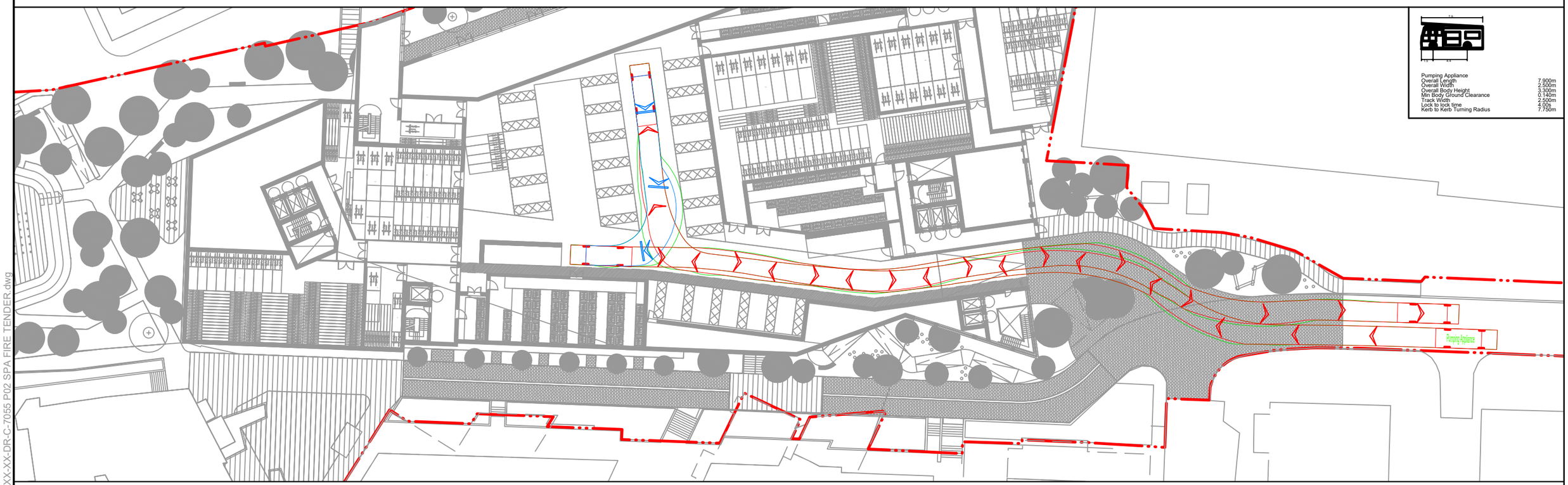

KEY

- Vehicle Body Line
- Vehicle Wheel Line
- Reverse Line

Scale 1:500 @ A3

10m 0 10m 20m 30m

Revision History					
P02	FOR INFORMATION	NB	BG	BG	29.11.23
P01	FOR INFORMATION	AA	SC	SC	16.11.23

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Project: ENDERBY PLACE

Status: S2 - FOR INFORMATION

Drawing Title: SWEPT PATH ANALYSIS - GROUND LEVEL PLAN FIRE TENDER

Client: CRITERION CAPITAL

Scale: 1:500

Date: 16.11.23

Drawn: AA

Checked: SC

Approved: SC

Job No: 22181

Drawing No: 7055

Rev: P02

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APPENDIX A – SITE LAYOUT PLAN

Morden Wharf
(Proposed)

Salutation Road

Industrial Warehouse

Commercial - 485sqm

Cycle Store

Plant

Refuse

Cycle Store

Cycle Store

Plant

Refuse

Plant

Cycle Store

Loading Bay

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

16 17 18 19 20

Plant

Refuse

Refuse

Plant

Refuse

Plant

Plant

Telcon Way

Telegraph Avenue

Telegraph Works

Christchurch Way

Enderby Wharf

River Thames

GENERAL NOTES.

All dimensions to be checked on site prior to commencement of any works, and/or preparation of any shop drawings.

Sizes of and dimensions to any structural elements are indicative only. See structural engineers drawings for actual sizes / dimensions.

Sizes of and dimensions to any service elements are indicative only. See service engineers drawings for actual sizes and dimensions.

This drawing to be read in conjunction with all other Architect's drawings, specifications and other Consultants' information.

All proprietary systems shown on this drawing are to be installed strictly in accordance with the Manufacturers/Suppliers recommended details.

Any discrepancies between information shown on this drawing and any other contract information or manufacturers/suppliers recommendations is to be brought to the attention of the Architect

DO NOT SCALE FROM THIS DRAWING.

NOTES.

REV.	DATE	NOTE	DRAWN
P1	10/11/23	PLANNING ISSUE	

BGY
BUCKLEY GRAY YEOMAN
+ 44 20 7033 9913
BGY.CO.UK

CLIENT: Criterion Capital

PROJECT: Enderby Place

DRAWING: Ground Level Plan

SCALE: 1:250 @ A1 (1:500 @ A3)

DATE: November 2023

DWG No.: 1136_GA-00

REVISION: P1

STATUS: PLANNING

APPROVED: AB

DRAFT

1 Scale: 1:250
Ground Floor Level +0.270

0 25 50 M

Morden Wharf (Proposed)

Salutation Road

Industrial Warehouse

Morden Tower Entrance

Telcon Tower Entrance

River Tower Entrance

Commercial - 500sqm

Commercial - 230sqm

Central Garden

Super Hydra

Riverside Park

Enderby House

Enderby Wharf

Telcon Way

Telegraph Avenue

Telegraph Works

Christchurch Way

Thamas Path

River Thames

6.100

6.370

6.20

6.200

5.60

5.500

5.000

4.450

4.000

3.800

5.075

5.825

5.450

4.760

4.325

3.960

3.650

3.575

3.200

2.725

2.460

2.300

(2.490)

(2.450)

(5.680)

(5.720)

(5.900)

(5.595)

(5.180)

(4.890)

(4.860)

(4.780)

(4.820)

1 Scale: 1:250
Podium Level +6.370

0 25 50 M

GENERAL NOTES.

All dimensions to be checked on site prior to commencement of any works, and/or preparation of any shop drawings.

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Sizes of and dimensions to any service elements are indicative only. See service engineers drawings for actual sizes and dimensions.

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DO NOT SCALE FROM THIS DRAWING.

NOTES.

REV.	DATE	NOTE	DRAWN
P1	10/11/23	PLANNING ISSUE	

BGY
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CLIENT: **Criterion Capital**

PROJECT: **Enderby Place**

DRAWING: **Podium Level Plan**

SCALE: **1:250 @ A1** **(1:500 @ A3)**

DATE: **November 2023**

DWG No.: **1136_GA-01** REVISION: **P1**

STATUS: **PLANNING** APPROVED: **AB**

DRAFT

APPENDIX B – TECHNICAL CORRESPONDENCE – BUS OPTIONS

Enderby Place, Greenwich

Review of bus access options

Project Number: 22181-01
Doc Number: TN02b

24 November 2022

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
A	Draft	DJT	SEC	DJT	DJT	22/9/22

1. Introduction

1.1 This note has been prepared on behalf of Criterion Capital in relation to development proposals at Enderby Place. It considers the opportunities and constraints in respect of future bus access and in particular, the aspiration to deliver a through route between Tunnel Avenue and Telcon Way by connecting Morden Wharf and Enderby Place.

2. Context

2.1 Whilst it is understood that no definitive bus route has as yet been agreed, the approved proposals for the adjacent Morden Wharf allow for a single decker bus to access the development, providing a link from the site to North Greenwich and the wider tube and rail network. Coupled with the proposed Mobility Hub, new cycle and walking routes and a Thames Clipper service, it was concluded that the provision of this bus route would be sufficient to support access to and from that site by a variety of transport modes. Any development proposals for Enderby Place would also place residents within an approximate 100-150m walk distance of the new bus facility. A schematic of the future bus route that formed part of the Morden Wharf approval is shown in **Figure 2.1**.

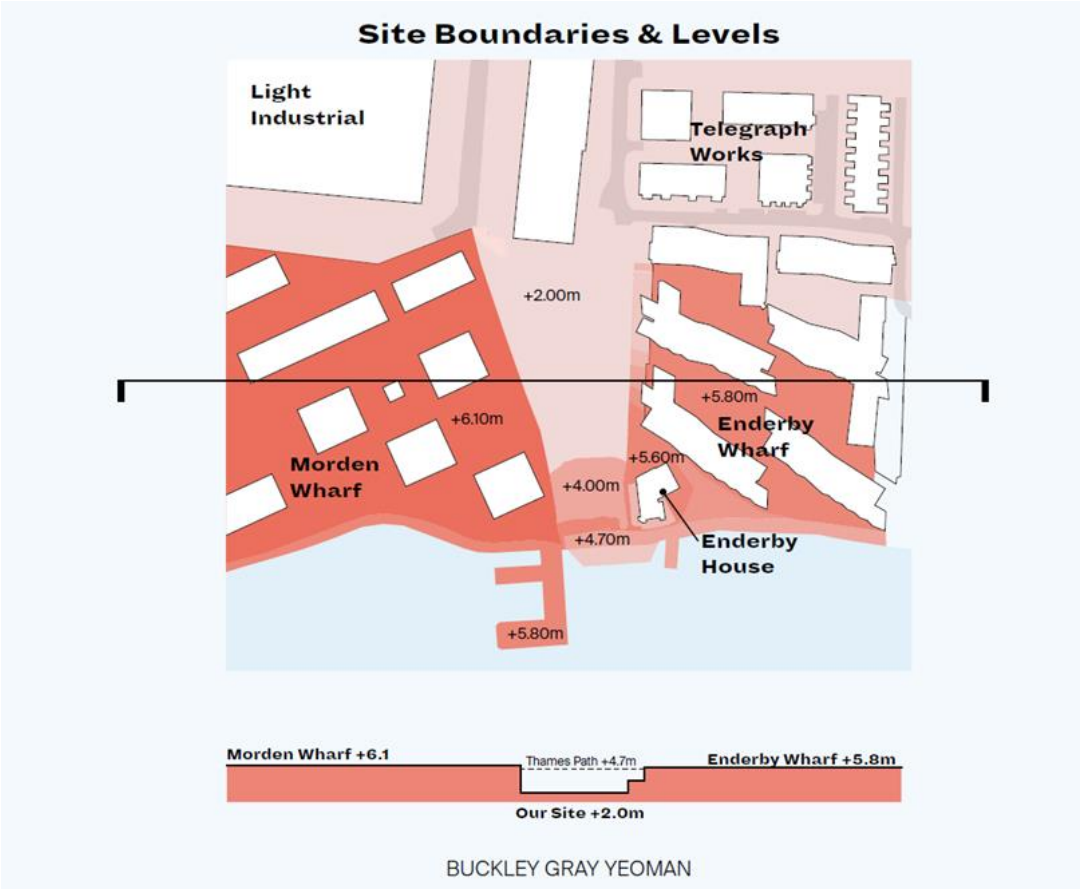
Figure 2.1 Future bus route map

3. Enderby Place – Topography

3.1 A review of the topographical survey confirms that the Morden Wharf Site sits significantly higher than the Enderby Place site, meaning that any bus connection linking the two sites would effectively be via a ramp.

3.2 It is understood that when developing the potential bus route strategy for Morden Wharf, consideration was also given to the potential of providing a through route connecting through Enderby Place to Christchurch Way; however, this was discounted at the time due to the significant level differences (greater than 2m) between the two sites. An indicative cross section is shown in **Figure 3.1** overleaf.

Figure 3.1 Indicative cross section



4. Connection to Telegraph Avenue

4.1 Aside from the level differences, to accommodate two-way single-decker buses plus pedestrian and cycle movements, the available width and environment along Telegraph Avenue has also been reviewed for suitability as these forms the southern boundary of the Enderby Place site.

4.2 Telegraph Avenue is an effective pedestrian and cycle link connecting Telcon Way to Olympian Way and the river. It also provides access to a number of residential dwellings in Enderby Wharf. Telegraph Avenue measures between 4m and 4.5m in width along its length. As shown in Photo 4.1, parts of the Enderby Wharf scheme also oversail parts of Telegraph Avenue making it unsuitable for bus access in its current form.

Photo 4.1 Photo looking along Telegraph Avenue

4.3 Typically, a minimum 6.4m carriageway width (straight) would be required to accommodate two-way bus movement, as well as footways of at least 2.4m on either side of the carriageway. Along Telegraph Avenue, it is assumed that this would mean that the existing street layout would remain in situ and a strip measuring a minimum 6.4m in width would be required from the Enderby Place site. In reality, the extent of the site that would be sterilised would be greater, as any new building would unlikely be hard up against the edge of the bus corridor. For this reason and in initial discussion with TfL, any proposal to connect a bus route into Telegraph Avenue have been discounted.

5. Connection to Telcon Way

5.1 Telcon Way is in excess of 6.4m wide, has footways on both sides of the carriageway and is therefore sufficiently wide to accommodate a bus route. However, the only point at which the site connects with Telcon Way is at the junction of Telcon Way / Telegraph Avenue /

Christchurch Road. This is also the most suitable location to ramp down to basement level to access proposed car parking and refuse collection.

5.2 To assess the potential for forming a connection suitable for both basement access and bus connection at this point, a number of options were considered, with two options progressed in more detail.

5.3 **Drawing 22181-MA-XX-XX-DR-C-7045-P02** and **Drawing 22181-MA-XX-XX-DR-C-7047-P02** show the proposed layout and associated tracking of Option A and Option C, respectively. Both options show a single decker bus passing inside the structure of the proposed building. The vehicle used to undertake the tracking measures 2.55m in width and is 11.6m in length. It is assumed that each vehicle will be offset from the structure by a minimum of 500mm.

5.4 Whilst the ramp will allow for 2-way operation, a one-way operational width is proposed, with bus access onto the ramp controlled via priority signals. The exact location of the signal heads would be developed in due course. The level of bus service expected is hourly to half-hourly and no other vehicle would use this ramp; the effective one-way working is therefore considered likely to be practical. The potential for two buses travelling in opposite directions to reach the ramp at the same time is small.

5.5 It is proposed that the revised access point at Telcon Way also provides access to the basement parking and servicing area. The basement will accommodate refuse collection, general servicing, and disabled parking only and is therefore not expected to generate a high number of vehicle movements. It is not considered appropriate to move vehicle access farther into the site due to the constraints along Telegraph Avenue already discussed and to reduce the impact on pedestrian and cycle movements. This is in line with pre-application consultation already undertaken with TfL.

6. Ramp gradients

6.1 As shown in **Drawing 22181-MA-XX-XX-DR-C-0171** and **Drawing 22181-MA-XX-XX-DR-C-0172-S,** some initial design and geometric work has been undertaken to assess the gradient of the two options proposed. The gradient of the two options is between 1:16 and 1:19 respectively, which is generally in accordance with acceptable standards set out in DMRB.

6.2 Given the gradient and location of the ramps; however, it is assumed that no footway or bus stops will be required, with passengers either walking to Morden Wharf or Christchurch Way to access services.

6.3 Both options proposed tie into the existing levels at the site entrance where the ramp down to basement level is proposed for car and service access.

7. Summary

7.1 It is evident that the delivery of a bus route through the Enderby Place site would have significant challenges to overcome, not least as a result of the significant level differences and the difficultly in tying any route back into the public highway.

7.2 It is not considered appropriate that any route connects into Telegraph Avenue nor that the bus route is across a new podium.

7.3 It is therefore considered that the options presented are the most viable options to consider further in respect of the viability of a future bus link through the site.

Technical Note

Alternate Bus Options

Enderby Place, Greenwich

Project Number: 22181
Doc Number: TN03
Prepared for: Criterion Capital

9 December 2022

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
A	Draft for Comment	SEC	DJT	SEC	DJT	7/12/2022
B	First Issue	SEC	DJT	SEC	DJT	9/12/2022

1. Introduction

1.1 Markides Associates have prepared this Technical Note (TN03) following pre-application consultation with TfL and RBG in relation to development proposals at Enderby Place. The discussion was supported by a Bus Options Technical Note (Ref: 22181-MA-DR-TN02) and a Transport Assessment Scoping Note (Ref: 22181-MA-DR-SN01).

1.2 This note summarises the headlines matters that were discussed at that meeting in relation to bus access; it provides further information on the viability of a bus route connection into the consented proposals for Morden Wharf and clarifies the policy position in respect of bus access through the two sites. It also considers an alternative and immediately deliverable bus route via Telcon Way.

1.3 TfL's pre application response has not been issued at the time of writing; it is therefore intended that the content of this Technical Note is considered so as to conclude the approach to bus routing and agree the most appropriate way forward.

Summary of Pre-Application Consultation

1.4 Several options for potential bus access were presented at the pre application meeting; these were based on a number of assumptions, some of which followed previous communications with TfL. These assumptions are set out in **Table 1.1** alongside the rationale at the time.

Table 1.1 Early Assumptions

Assumption	Rationale
Bus ramp to be located to the eastern edge of the site for easiest access onto Christchurch Way and to avoid impacting on Telegraph Avenue	This proposed to avoid impacting on valuable public realm provision through the centre of the proposed development and to broadly retain the massing as per the implemented extant planning permission. This arrangement ensured no day light sun light / rights to light issues would be exacerbated This approach also avoids any impact on the Olympian Way foot/cycle route and river frontage and Grade Listed Enderby House.
Ramp grades back to existing levels on Telcon Way approach to tie into basement access	The site is significantly lower than the approved Morden Wharf proposal and this is therefore a fixed constraint. The Enderby Place development also has to meet requirements for servicing and disabled parking access which can only reasonably be provided in the basement. Any bus ramp reduces the amount of available basement space.
Assumes a gradient of between 1:16 and 1:19 dependent on option	The gradients presented assumed that there may be potential to influence the consented levels in Morden Wharf. The levels are in accordance with MfS/DMRB standards
Assumes no pavement / footway is to be provided along the ramp	The achievable gradient is not DDA compliant and therefore footways were omitted.
Assumes the bus ramp is internal to the building	This is due to constraints on massing due to sunlight-daylight impacts and Rights to Light not allowing the building to be significantly moved to the east.
Assumes the head height clearance will be sufficient to allow for a single decker vehicle	This is due to the understanding that the route would be served by the nearest route diverted, provided by the 108, which is a single-decker. Additionally, bringing the ramp internal to the podium has structural constraints for which a double decker bus is not easily achievable.
Bus frequency of every 30 minutes.	Based on an understanding that the route would be served by the nearest route diverted, which was thought to run at this frequency.
Assumes the ramp will cater for 2-way bus movement but will have a one-way effective width. Bus access to the ramp controlled by signals at the top and bottom (details and locations to be considered further)	This is due to the significantly increased radius that would be required to provide an effective 2-way width. Providing a significantly larger ramp would provide an over dominating entrance to the development and to the views along Telcon Way. It also presents a number of impacts to the proposed building structure.
Assumes a minimum offset of 500mm from the vehicle tracking line to any building structure	This is to ensure vehicle and structural safety in regard to vehicle strike against columns etc.
Assumes that the car park / basement access is from the bottom of the ramp – no “through” route for any other vehicle	The potential location to ramp down to basement level is extremely limited and cannot be achieved from other locations.

1.5 Based on the constraints identified in **Table 1.1**, Options A and C were developed as they were considered to be the most feasible design options; both are duplicated below in **Figure 1.1**.

Figure 1.1 Options A and C as Presented

Source: Drawing 22181-MA-XX-XX-DR-C-7047-P02

1.6 Following initial review, TfL responded to the designs, stating that they were not acceptable for a number of reasons and that revised options should be considered. The TfL comments are summarised in **Table 1.2**, along with the rationale for each.

Table 1.2 Proposed Assumptions

Assumption	Rationale
Increased bus demand of a minimum of 4 buses per hour up to 6 buses per hour.	This to increase service provision to the area to accommodate the increase in residential development and associated demand. Bus services may be extended from those terminating at Greenwich station, which run at this frequency.
The route should accommodate double decker buses.	All routes on the Greenwich peninsula are double decker services, excepting the 108 which is only a single decker due to routeing through the Blackwall Tunnel. Even if a single decker bus is initially used, the route should be capable of upgrade to meet future demand.
Bus ramp to accommodate pedestrians and cyclists	Cyclists commonly use bus lanes.
Gradients – 5% if pedestrian access included 6% as the standard 8% as the practical minimum.	5% would be DDA compliant. 6% complies with MfS and DMRB standards.
Shuttle working of the ramp would not be accepted. The route must be two-way.	In the event of mechanical failure of the system, appropriate forward visibility along the entire length of the ramp must be ensured. Given the bend in the ramp, there is a risk that the route would have to be closed.

1.7 The proposed assumptions have been considered further and give rise to significant design issues that cannot be overcome.

2. Policy

2.1 Given the significant constraints identified, discussion at the pre-application meeting considered the current policy requirement for a bus connection to be provided and whether a suitable alternative would be sufficient; this has subsequently been reviewed.

2.2 The Site Allocations Local Plan is currently being prepared and will focus on sites that will deliver a significant amount of development and sites that support the delivery of specific Core Strategy objectives meeting the development needs identified in the Core Strategy and the London Plan.

2.3 Site Allocations Issues and Options were consulted on in Spring 2016 and the Preferred Approach in Autumn 2019. Consultation on the Site Allocations Proposed Submission took place from 8th November 2021 to 20th December 2021. The website states that there would be “further consultation early 2022 on the version of Site Allocations to be submitted to the Secretary of State for Examination in Public”; however, all publicly available documents date from November 2021, with no update relating to any 2022 consultation.

2.4 The Proposed Submission Site Allocations Plan November 2021 is a Regulation 19 document for public consultation. It includes Enderby Place as 'GP1 Christchurch Way/Telegraph Avenue SE10 0AG' and cites a PTAL of 3. The draft site requirements include:

- New riverside Public Open Space and walk, with publicly accessible and legible connections through the site to the open space/walk and on to the Thames Path.
- Layout, scale, and massing of proposals must provide for regular gaps to ensure a visual and physical connection to the river.
- Provision of pier for river bus services
- Enhanced public transport via through routes for buses, in coordination with Site GP2.

2.5 The Development Guidelines for GP1 include the following (our emphasis):

- Ground floors across the site should provide active frontages. If small-scale retail/leisure/community uses are proposed, these should be orientated to face the new riverside Public Open Space and improved Thames Path and should be designed as flexible units capable of accommodating a variety of uses to animate the space and provide passive surveillance. The site is located in an area of Public Open Space deficiency, in relation to local parks. **The new Public Open Space should be orientated to receive a high amount of sunlight throughout the year** and be sufficiently sized to provide playable space for all ages as well as areas for sitting out, informal recreation and nature conservation.
- **It is particularly important that the layout integrates pedestrian and cycle routes** with the movement network in adjacent residential development to the south and onwards to Westcombe Park and Maze Hill stations to moderate the constraints on pedestrian and cycle access via the SIL and the relatively isolated nature of the site.
- Any tall buildings proposed should be appropriately located **with sufficient gaps between buildings to create a legible cluster and to ensure good levels of daylight/sunlight at lower levels of accommodation** and to public/amenity spaces.
- The current permission includes provision for river bus services to the site. Revised proposals will be expected to **incorporate provision of a pier suitable for Thames Clipper requirements**, taking into account the development potential of the site and of Morden Wharf (site GP2) to the north. Proposals will need to ensure that the pier is appropriately integrated into the wider public realm of the site, and that the design of the pier supports a quality arrival experience for commuter and leisure passengers in all weather conditions.
- There is also potential for this site, in coordination with site GP2, to accommodate bus standing which could facilitate the extension of one or more bus routes from North Greenwich Station and improve the PTAL of the site. **Applicants will be expected to investigate the feasibility of the extension of bus services to improve the accessibility of the site, liaising with TfL and bus operators as appropriate.**
- Although the site has a mid-range PTAL, the site and surrounding developments include provision for walk-to services and amenities. **Proposals should minimise car parking provision.**

2.6 As set out above, the allocation document is currently in draft form and has not been formally adopted. Even assuming that the draft carries some weight, it does not provide an evidence base that confirms a bus route extension is deliverable, devolving that work to the applicant(s). The draft document does not therefore set an absolute requirement to deliver a bus route through the site as the primary consideration and the wording appears appreciative of the challenges to delivery.

2.7 Morden Wharf is set out as GP2 with similar comments.

3. Constraints

Constraints – Levels

3.1 As discussed, the topography across the site is challenging with limited scope for vehicle access. Telegraph Avenue at the southern edge of the site cannot be used for vehicle traffic without significant widening, impacting on the viability of the site and generating adverse impact on the pedestrian and cycle link that has been created as part of Enderby Wharf.

3.2 Telcon Way meets the eastern edge of the site and therefore forms the only existing vehicle access that can be delivered within the applicant's control. Providing access at this point also limits the potential for vehicle movements to conflict with other pedestrian and cycle accesses farther within the proposed development.

3.3 To provide disabled parking and servicing access to the site from Telcon Way, it must be at basement level (technically lower ground floor in relation to Telcon Way), and therefore a section of level access must be preserved at the junction of the new access/Telcon Way. This functionally limits the length of ramp that can be utilised to match the level of Morden Wharf to the north.

3.4 Morden Wharf also presents a fixed level which will be challenging to overcome as set out in the section below.

Constraints – Morden Wharf

3.5 Morden Wharf has detailed planning permission for:

> "Change of use of part of the Southern Warehouse from Class B1c/B2/B8 to B1c/B2/B8/A3/A4; refurbishment (including mezzanines) and external alterations to part of the Southern Warehouse; change of use of the Jetty to public realm and installation on the Jetty of the Gloriana boathouse (use class D1/D2); access; landscaping and public realm works including new river wall and upgraded Thames Path."

3.6 It has outline planning permission for additional development. The approved site plan is replicated below as **Figure 3.1** with the extent of the detailed application shown in grey.

Figure 3.1 Morden Wharf

Source: Drawing Number: A_001 Revision: 00 – Office for Metropolitan Architecture

3.7 As shown, the outline area of Morden Wharf abuts the site at its northern edge. Subsequent to the planning approval for Morden Wharf, a revised landscape parameter plan was submitted to provide a bus turning loop. This is replicated below as **Figure 3.2**.

Figure 3.2 Revised Morden Wharf Parameter Plan with new Bus Loop

Source: Drawing Number: A_011 Revision: 01 – Office for Metropolitan Architecture

3.8 The planning statement accompanying the above, dated April 2021 (Lichfields) is as follows (our emphasis):

> Comments from TfL note that the Public Transport Accessibility Level (PTAL) of the site is likely to remain low and the development should not rely on off-site bus stops (sic) provision along Tunnel Avenue. Following the Applicant's earlier commitment to provide a shuttle bus service between the site and North Greenwich, TfL registered an objection to the development and principle of introducing a shuttle bus services over that of a TfL bus service.
>
> **The accompanying Transport Assessment Addendum (TAA) explains that a through route to Enderby Place cannot be provided due to the significant height difference (greater than 2m).** As an alternative, an in/out route is proposed via Sea Witch Lane.
>
> The TAA outlines that traffic controls are proposed to enforce a short two-way controlled section for carriageway such that vehicles travelling in opposite directions must wait to be able to pass each other. This option is considered to be safe for pedestrians, cyclists and vehicles and will minimise changes to the public realm.
>
> Owing to the larger carriageway requirements to accommodate buses, the cycle route previously proposed along the northern part of Sea Witch Lane will be removed. Cyclist will instead cycle within the carriageway – which has been designed to maintain its character as a shared surface with a 'car as guest' ethos.

3.9 It is evident that the Morden Wharf design team considered and subsequently discounted the potential for a future connection into Enderby Place owing to the challenging topography.

3.10 The above proposal has been carried forward within the outline planning approval. It is also understood that:

- Morden Wharf is now to be sold, a process which is likely to take in excess of a year.
- The outline permission contains basements on the edge of the site abutting Enderby Place, predicated on the above assumption that a through bus route is not possible.

3.11 Notwithstanding that a reserved matters application remains to be submitted, there remain a number of significant constraints which cannot be addressed as part of the Enderby Place proposals;

- There is no guarantee that the new owner of Morden Wharf will wish to make significant changes to the approved scheme;
- There is no obligation for the new owner to make significant changes to the planning approval when there is an agreed bus strategy already included, that resolves the needs of Morden Wharf's bus access and considers bus access to be acceptable. The provision of the loop is set out within the S106 agreement, with relevant sections included as **Appendix A**. This includes flexible wording to allow for the S106 to still apply in the event that through route becomes the preferred option and feasible for delivery, but in all other instances the wording defers to and presumes the provision of a turning loop only.
- Reduction in the levels adjacent to Enderby Place to improve the ramp gradient may require significant excavation which carries significant cost; this may negate the ability for Morden Wharf to deliver their approved basement space, and which may generate additional need for flood risk assessment were basement spaces to be retained at a lower level, again at cost.
- Based on the approved documentation, the phasing timescale for Morden Wharf is given as 10-11 years, as a minimum, from the point of implementation. Given that sale and subsequent planning submissions will be required, it is not envisaged that the Morden Wharf proposals will be implemented within the next three years, meaning any bus connection through the site would be undeliverable for a significant period.

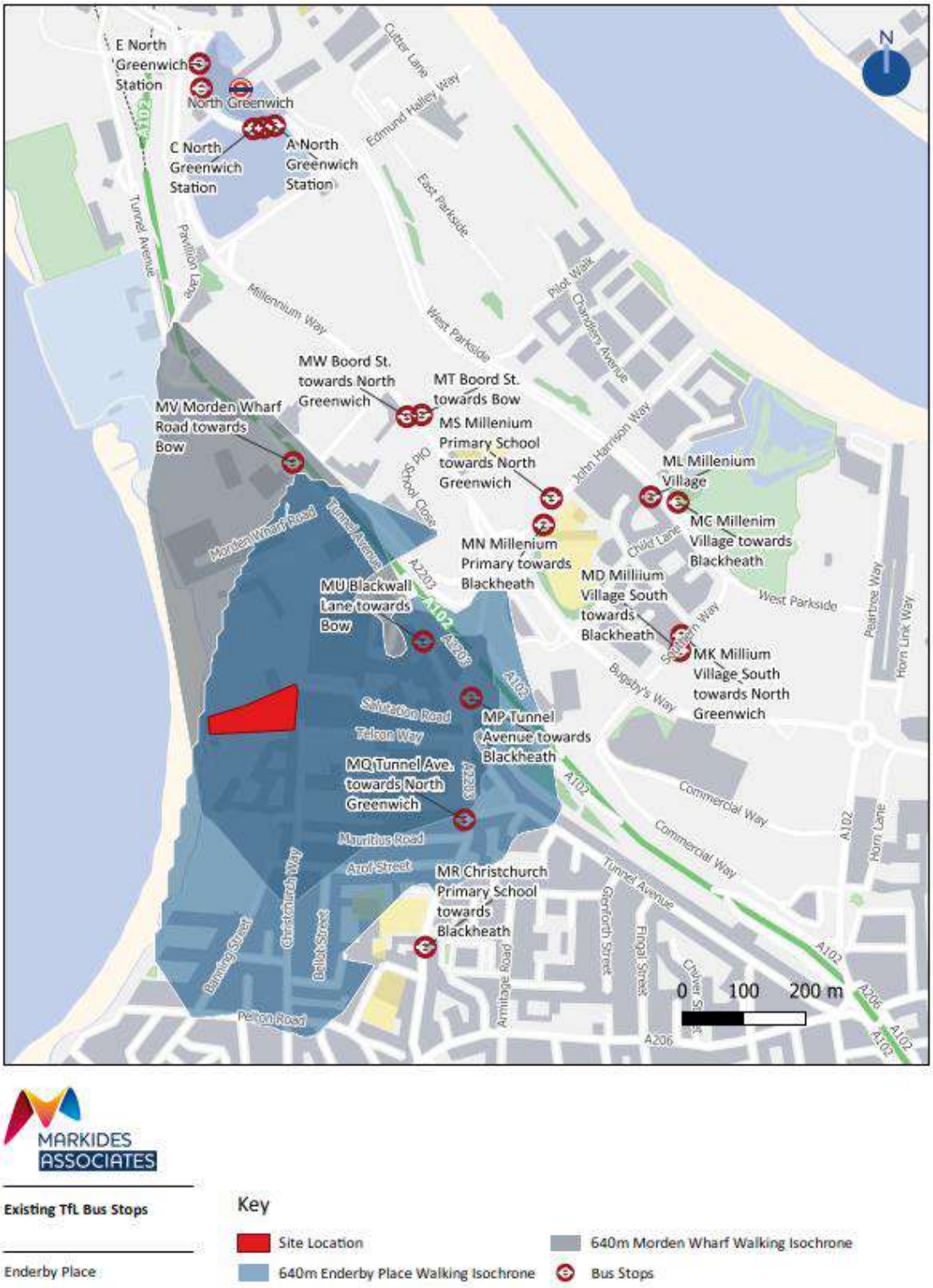
3.12 Given the uncertainties surrounding Morden Wharf, Enderby Place is likely to come forward well in advance of completion of Morden Wharf and the bus strategy should therefore not be reliant upon it. In particular, as no safeguarding of a specific connection point at a set level was allowed for in the Morden Wharf approval, any consent for Enderby Place could result in an over dominating bus ramp being delivered that cannot connect into the adjacent site.

4. Existing Bus Services, Stops and Access

4.1 Given the above, the existing operational TfL bus stops have been mapped, along with 640m walk distances from the centre of both Morden Wharf and Enderby Place, this being the

maximum walking distance to a bus node allowed within a PTAL calculation. This is shown in **Figure 4.1** overleaf. This does not account for all walking routes at the granular level (such as specific locations of pedestrian crossings) but provides an overview of the PTAL accessibility, and reflective of how the present PTAL calculation operates through WebCAT. **Figure 4.1** demonstrates that each site is within distance of 3 bus stops, served by the 108, 188 and 442 bus services.

Figure 4.1 Existing TFL Bus Stops



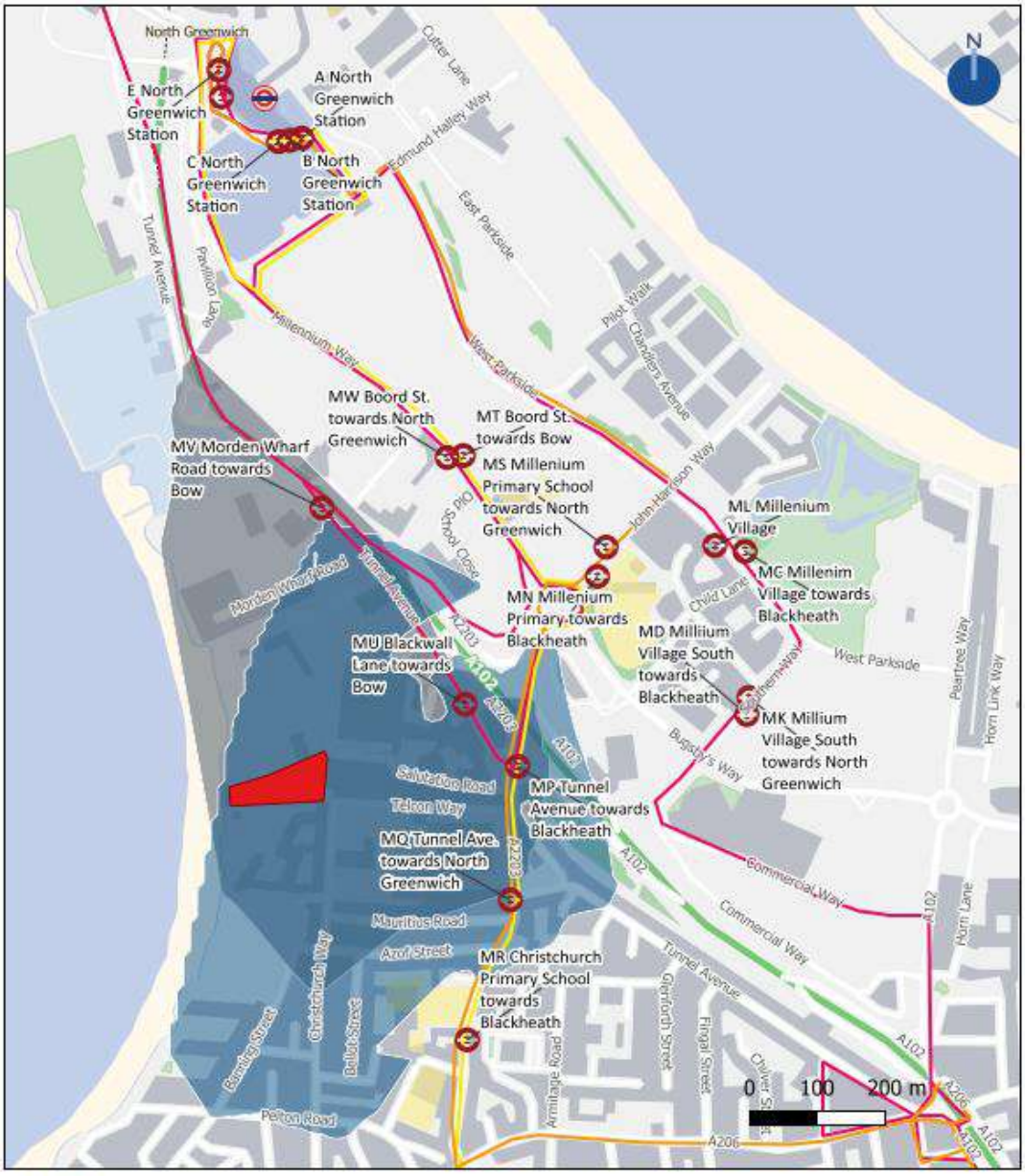
4.2 The frequency and route for the associated local bus routes is given in **Table 4.1** overleaf.

Table 4.1 Local Bus Services

Route	Direction	Peak Hour Frequency			Weekday Services	
		Weekday	Saturday	Sunday	First	Last
108	Stratford International (Stop MU)	7-11 mins	9-12 mins	2-4 per hour	24-hour service	
	Lewisham (Stop MW)	9-12 mins	8-12 mins	2-4 per hour		
188	Russell Square (Stop MP)	8-12 mins	8-12 mins	9-13 mins	24-hour service	
	North Greenwich (Stop MQ)	8-12 mins	9-13 mins	10-14 mins		
422	North Greenwich (Stop MQ)	9-12 mins	9-12 mins	10-13 mins	04:42	00:50
	North Greenwich (Stop MN)	9-12 mins	9-12 mins	11-13 mins	05:02	01:12

4.3 Stops MN and MW fall outside of the 640m walking distance for either site. Therefore, only the 188-bus route fully serves the site at present in both directions within the broad area allowed by the PTAL algorithm. The routes are shown diagrammatically overleaf in **Figure 4.2**.

Figure 4.2 Existing Local Bus Services



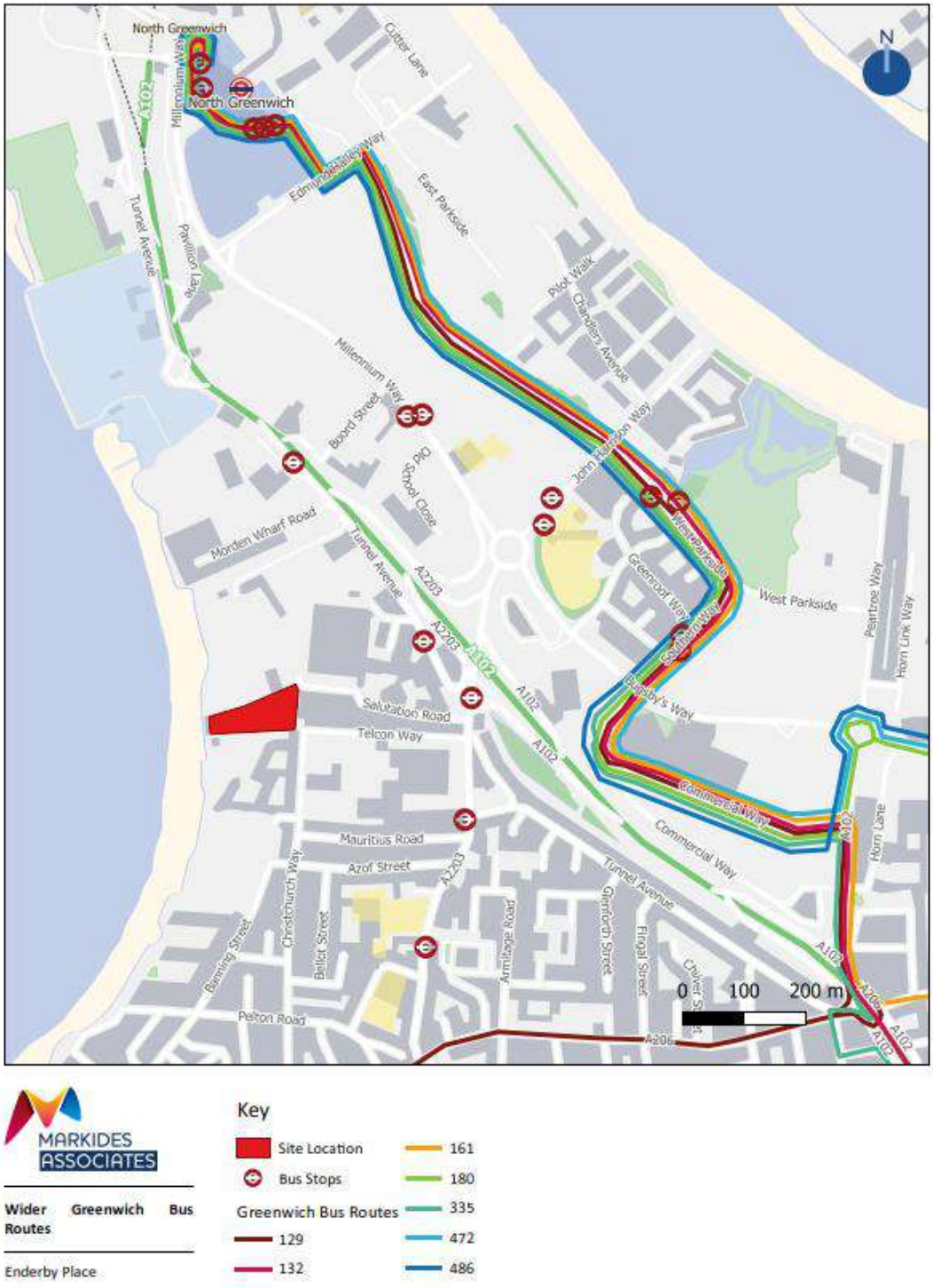
4.4 In the wider area, buses stopping at North Greenwich Station are the 129, 132, 161, 180, 335, 472 and 486. These are summarised overleaf in **Table 4.2** for the stop nearest to the site.

Table 4.2 Greenwich Buses

Route	Direction	Peak Hour Frequency			Weekday Services	
		Weekday	Saturday	Sunday	First	Last
129	Lewisham (Stop MC)	10-14 mins	12-14 mins	3 per hour	05:21	00:51
	North Greenwich (Stop ML)	10-14 mins	11-14 mins	3 per hour	05:44	01:16
132	Geddes Place (Stop MC)	8-12 mins	9-12 mins	4 per hour	05:21	01:16
	North Greenwich (Stop ML)	6-12 mins	9-12 mins	4 per hour	05:00	00:59
161	Chistlehurst (Stop MC)	11-13 mins	9-13 mins	11-13 mins	05:21	01:11
	North Greenwich (Stop ML)	10-13 mins	9-12 mins	11-13 mins	05:09	00:57
180	Erith Quarry (Stop MC)	8-12 mins	8-11 mins	4 per hour	05:08	01:03
	North Greenwich (Stop ML)	8-12 mins	8-12 mins	4 per hour	05:21	00:30
335	Wingfield School (Stop MC)	11-13 mins	11-13 mins	4 per hour	05:02	00:32
	North Greenwich (Stop ML)	11-14 mins	11-14 mins	4 per hour	05:21	00:49
472	Abbey Wood Station (Stop MC)	6-10 mins	8-12 mins	4 per hour	24-hour Service	
	North Greenwich (Stop ML)	6-10 mins	8-12 mins	4 per hour		
486	Friswell Place/ Bexleyheath (Stop MC)	6-11 mins	10-13 mins	4 per hour	05:18	01:18
	North Greenwich (Stop ML)	7-10 mins	9-14 mins	4 per hour	05:01	01:04

4.5 These routes are shown diagrammatically in **Figure 4.3**.

Figure 4.3 Greenwich Bus Routes



4.6 As shown in the figure above, there is significant overlap in routeing for existing bus services to North Greenwich Station. This is likely due to the legacy of active use and development being located along the spine of the peninsula, and the Pilot Busway, along which all routes travel. No buses use the A102 and all terminate at North Greenwich.

5. Bus Accessibility & Options

5.1 Without the granular detail of bus journey times by route and route efficiency/running costs, any estimates of potential extension or diversion of existing routes can only be undertaken at a high level. In consultation, TfL also confirmed that they have not yet undertaken any assessment of what routes would benefit from running through the site.

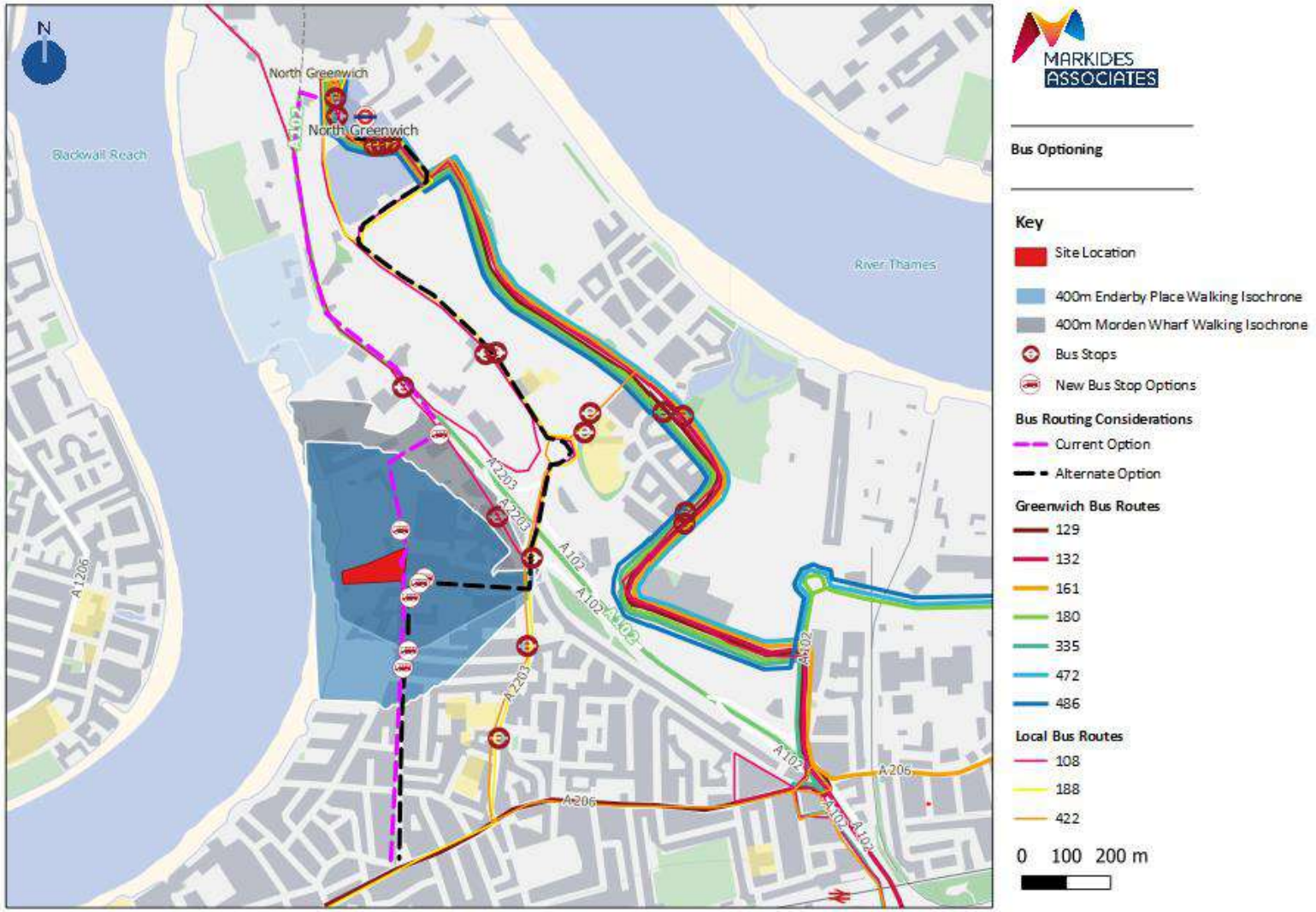
5.2 Discussion to date has assumed the extension of one of the existing routes terminating at North Greenwich would enter Morden Wharf and continue south via Enderby Place then along Christchurch Way, albeit this section of the road is private. It is assumed that this service would route via the A102 to reach the Morden Wharf Access. Northbound routeing is less clear without some kind of double back, which might add a longer diversion to the route.

5.3 The overarching aims are considered to be as follows:

- Improve existing PTAL scores, allowing for higher density development
- Bring bus services closer to the proposed developments at Enderby Place and Morden Wharf, and serve existing built residential development at Enderby Wharf, ideally within 400m.
- Divert services from the A102/Tunnel Avenue which are congested and generate bus journey delay, for a parallel route to the Pilot Busway on a smaller scale.

5.4 The present options all hinge on the timely and cooperative delivery of Morden Wharf with significant amendment to that planning approval, which may not be viable for the reasons identified above. For that reason, the currently proposed option and an alternative have been mapped and are presented in **Figure 5.1**.

Figure 5.1 Current and Alternate Bus Options



5.5 As shown in the figure above, the alternate option departs North Greenwich station as per existing routeing, follows Edmund Halley Way and Millennium Way as per existing routeing, passing under the A102 to turn west along Telcon Way. New bus stops may be feasible here. Similarly, a bus stop may be feasible on Christchurch Way.

5.6 A comparison of the proposed option and the alternative option is given below in **Table 5.1**.

Table 5.1 Comparison of Options

Consideration	Current Option	Alternative Option
Deliverable without reliance on 3rd Party Land at Morden Wharf	**X**	✓
Deliverable without reliance on 3rd Party Land at Christchurch Way	**X**	**X**
640m of Morden Wharf	✓	✓
640m of Enderby Place	✓	✓
400m of Morden Wharf	✓	✓
400m of Enderby Place	✓	✓
Service improves access at Enderby Wharf	✓	✓
Number of existing bus stops potentially served in addition to new stops	**1** – Stop MV only, adjacent to Morden Wharf	**3** – Stops MW, MT, and MP, adjacent to primary schools and employment
Route can remain within 640m of stops currently served at Millennium Village both ways	**?** – unclear how achievable	✓
Routeing avoids congested A102 entirely	**?** – unclear how achievable without unnecessary diversion	✓
Potential to easily tie into improvements to future GP3 site	**X**	✓
Deliverable without reliance on significant bus infrastructure, with carbon and cost implications	**X**	✓
Implementable from an early phase	**X**	✓
Route to station	✓	✓
Route to primary schools	**X**	✓

5.7 As shown in the table above, the current option does not present as many benefits as the alternative option. The alternative route meets the PTAL walking distances, as well as bus stops being only a 400m walk distance for both Morden Wharf and Enderby Place. It would

be able to provide a bus connection to Millennium Village and existing schools, as well as improved access to the potential future connection to the GP3 site, which will provide retail/leisure development and employment. Whilst it is expected that trips to the GP3 site and Millennium Village will largely be undertaken by walk and cycle, bus access is a benefit for those less able to undertake active travel or in inclement weather.

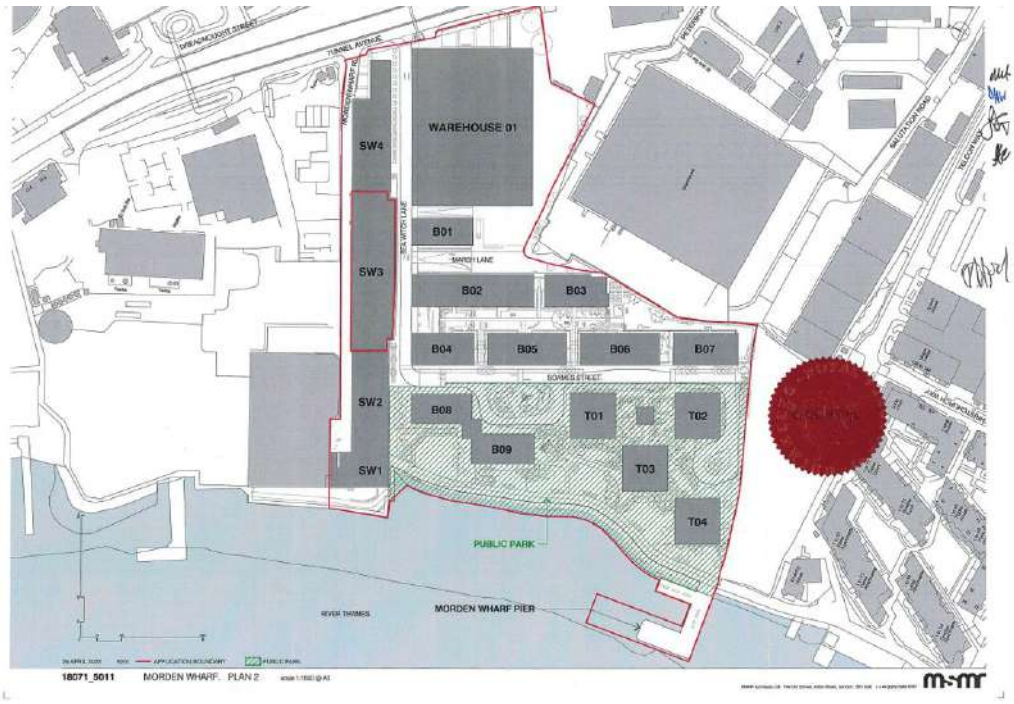
5.8 The alternative option appears to offer benefit in maintaining similar north-south routes and avoids the more congested roads on the network entirely and should therefore maintain reasonable bus journey times and access on existing routes. It is not clear how the current option could achieve this.

5.9 On the weight of the above, it is proposed that the alternative option is progressed to the next stage as follows:

- Feasibility of bus stop locations
- Feasibility of two-way working along Christchurch Way
- Assessment of existing and potential PTAL level

APPENDIX A – MORDEN WHARF S106

A1 Plan 2 – Block Plan, showing Bus Turning Loop



A2 Items from Section 1 – Definitions – Pertaining to Buses

"Bus Driver Facilities Specification"	means the specification for the Temporary Bus Driver Facilities and the Permanent Bus Driver Facilities located at Annex 11;
"Bus Infrastructure Specification"	means the specification for the Temporary Bus Infrastructure and the Permanent Bus Infrastructure located at Annex 12;
"Bus Service"	means a new and/or enhanced bus service that runs through Sea Witch Lane, Soames Street and the Temporary Bus Turning Facility or Permanent Bus Turning Facility through Soames Street to Enderby Place (which in all cases shall provide a continuous route connecting to the public highway or in the case of the bus service going through to Enderby Place connecting to public highway on Enderby Place or land over which the bus service has a right to use which ultimately connects to the public highway) with a minimum peak hour frequency of at least one bus every 12 minutes in each direction subject to TfL's absolute discretion in the exercise of its statutory functions;
"Bus Service Contribution"	means the sum of £2,500,000 (Two million five hundred thousand pounds) Indexed to be paid to TfL as a contribution towards the Bus Service;

"Mobility Hub"	means an area or areas within the Development for the colocation of the Permanent Bus Driver Facilities and the bus stands (should any public bus service wish to pick up and drop off passengers within the Land) and location of the shared mobility modes including a Cycle Hire Scheme and Car Club Parking Spaces;
"Mobility Hub Scheme"	means a scheme submitted to the Council and TfL in accordance with the Sixth Schedule of this Deed detailing the details for the Mobility Hub which confirms: (a) the location, size and layout of the facilities that comprise the Mobility Hub; (b) a specification for the facilities that comprise the Mobility Hub; (c) details of the proposed Car Club, such details to include the location and number of Car Club Parking Spaces which are to be provided as part of the Mobility Hub; (d) details of the proposed Cycle Hire Scheme, such details to include the location and number of cycle hire stands which are to be provided as part of the facilities that comprise the Mobility Hub; (e) details of the Permanent Bus Driver Facilities; (f) the timetable for construction and delivery of the facilities that comprise the Mobility Hub; (g) the arrangements for the maintenance, operation and management of facilities that comprise the Mobility Hub;

"Parking Bays Contribution"	means the sum of £20,000 (twenty thousand pounds) Indexed to be paid to the Council as a contribution towards altering the free parking bays on Tunnel Avenue into permit-only to discourage private car ownership for residents of the Development;
"Permanent Bus Driver Facilities"	means a driver rest facility and toilet(s) for exclusive use by TfL and/or London Bus Services Ltd bus drivers and crew to be provided by the Owner: • in accordance with the Bus Driver Facilities Specification; • at grade level; • in accordance with prevailing standards at the date of design; and • at the Owner's cost within the Mobility Hub details for which shall be agreed with the Council and TfL as part of the Mobility Hub Scheme to be approved by the Council and TfL in accordance with the Sixth Schedule or as otherwise agreed with the Council;
"Permanent Bus Driver Facilities Lease"	means the lease or leases between the Owner and TfL or London Bus Services Limited of the Permanent Bus Driver Facilities and including rights to use the Permanent Bus Infrastructure to the extent that these are not situated on the public highway and with associated rights to enable the running of bus services over unadopted roads within the Land from the public highway to and from and over the Permanent Bus Turning Facility for a term of 250 years and at a peppercorn rent with no service charge or management fee, such lease to be in accordance with heads of terms located at Annex 10 and granted in accordance with paragraph 6.21.2 of the Sixth Schedule;
"Permanent Bus Infrastructure"	means bus cages, bus stands, bus stops, posts and flags and any other associated equipment or works to be provided in connection with the Permanent Bus Turning Facility (including any lighting or mechanical ventilation required in the event that the Permanent Bus Turning Facility is to be over sailed or enclosed on any of its sides or is to form part of a colonnade) on and/or off the Land at the Owner's cost in accordance with the Bus Infrastructure Specification and which meet prevailing standards at the date of design;
"Permanent Bus Infrastructure Contribution"	means the proper and reasonable sum payable to TfL for the estimated cost of TfL providing and/or installing the Permanent Bus Infrastructure which shall be calculated by TfL three months prior to the date for payment specified in paragraph 6.8 of the Sixth Schedule with deductions for the estimated or actual costs of any Permanent Bus Infrastructure that is installed by the Owner pursuant to paragraph 6.10 of the Sixth Schedule PROVIDED THAT the Owner shall supply appropriate documentation to evidence such costs;

"Permanent Bus Infrastructure Contribution Excess"	means such reasonable and proper sum or sums by which the actual cost of the Permanent Bus Infrastructure exceeds the Permanent Bus Infrastructure Contribution;
"Permanent Bus Turning Facility"	means the provision of a one way loop for buses and vehicles with space allowed to pass a stationary bus allowing for a bus to use the turning facility as a terminus;
"Temporary Bus Driver Facilities"	means an area designated within the Development for use as temporary drivers' facilities which is to include a driver rest facility and toilet(s) for exclusive use by TfL and/or London Bus Services Ltd bus drivers and crew to be provided by the Owner: • in accordance with the Bus Driver Facilities Specification; • at grade level; • in accordance with prevailing standards at the date of design; and • at the Owner's cost and which is to remain available for exclusive use by TfL and/or London Bus Services Ltd bus drivers until the Permanent Bus Driver Facilities are Practically Complete and are available for use by TfL and/or London Bus Services Ltd bus drivers;
"Temporary Bus Driver Facilities Lease"	means the lease or leases between the Owner and TfL or London Bus Services Limited of the Temporary Bus Driver Facilities together with rights to use the Temporary Bus Infrastructure to the extent that these are not situated on the public highway and with associated rights to enable the running of bus services over unadopted roads within the Land from the public highway to and from and over the Temporary Bus Turning Facility for a term of 250 years and at a peppercorn rent with no service charge or management fee, such lease to be in accordance with heads of terms located at Annex 10 and granted in accordance with paragraph 6.23 of the Sixth Schedule;
"Temporary Bus Infrastructure"	means the temporary bus cages, bus stands, bus stops, posts and flags and any other associated temporary equipment or works to be provided in connection with the Temporary Bus Turning Facility (including any lighting or mechanical ventilation required in the

	event that the Temporary Bus Turning Facility is to be over sailed or enclosed on any of its sides or is to form part of a colonnade) on and/or off the Land at the Owner's cost in accordance with the Bus Infrastructure Specification and which meet prevailing standards at the date of design;
"Temporary Bus Infrastructure Contribution"	means the reasonable and proper sum payable to TfL based on the estimated cost of providing and/or installing the Temporary Bus Infrastructure which shall be calculated by TfL three months prior to the date for payment specified in paragraph 6.16 of the Sixth Schedule with deductions for the estimated or actual costs of any Temporary Bus Infrastructure that is installed by the Owner pursuant to paragraph 6.18 of the Sixth Schedule PROVIDED THAT the Owner shall first supply appropriate documentation to evidence such costs;
"Temporary Bus Infrastructure Contribution Excess"	means such reasonable and proper sum or sums by which the actual cost of the provision of the Temporary Bus Infrastructure exceeds the Temporary Bus Infrastructure Contribution;
"Temporary Bus Turning Facility"	means the provision of a one way loop for buses and vehicles with space allowed to pass a stationary bus allowing for a bus to use the temporary turning facility as a terminus in a temporary location;

MARKIDES ASSOCIATES

Existing TfL Bus Stops

Enderby Place

Key

- Site Location
- 640m Enderby Place Walking Isochrone
- 640m Morden Wharf Walking Isochrone
- Bus Stops

MARKIDES ASSOCIATES

Existing Local Bus Routes

Enderby Place

Key

- Site Location
- 640m Enderby Place Walking Isochrone
- 640m Morden Wharf Walking Isochrone
- Bus Stops

Local Bus Routes

- 108
- 188
- 422

MARKIDES ASSOCIATES

Wider Greenwich Bus Routes

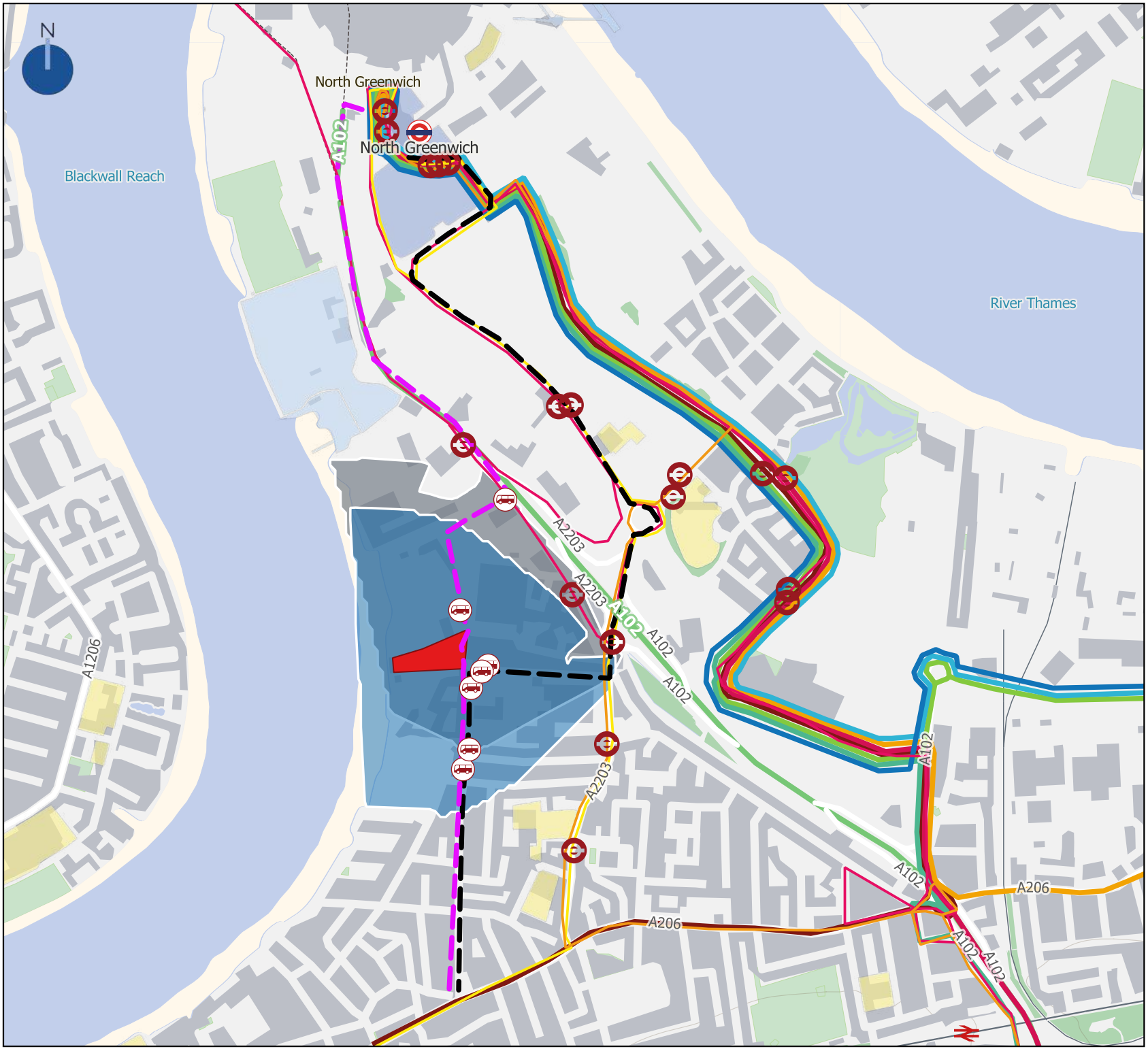
Enderby Place

Key

- Site Location
- Bus Stops

Greenwich Bus Routes

- 129
- 132
- 161
- 180
- 335
- 472
- 486



MARKIDES ASSOCIATES

Bus Optioning

Key

- Site Location
- 400m Enderby Place Walking Isochrone
- 400m Morden Wharf Walking Isochrone
- Bus Stops
- New Bus Stop Options

Bus Routing Considerations

- Current Option
- Alternate Option

Greenwich Bus Routes

- 129
- 132
- 161
- 180
- 335
- 472
- 486

Local Bus Routes

- 108
- 188
- 422

0 100 200 m

A2.1 Items from Schedule 6 Pertaining to Buses

6. Bus Turning Facility & Private Roads for Use by Buses

The Owner, the Council and TfL covenant with each other as follows:

Completion of the Permanent Bus Turning Facility and Permanent Bus Infrastructure

6.1 Not to submit any Reserved Matters Application in respect of above ground works comprised in a Block containing Residential Units until TfL has Approved the location of the Permanent Bus Turning Facility to be constructed on Soames Street or such alternative location as may be agreed with TfL and thereafter only to submit the relevant Reserved Matters Application in accordance with the details approved pursuant to this paragraph 6.1.

6.2 Not to submit a Reserved Matters Application in respect of above ground works comprised in a Block containing Residential Units which includes or is adjacent to the intended location for the Permanent Bus Turning Facility until TfL has Approved the design of the Permanent Bus Turning Facility to be constructed and thereafter to submit such a Reserved Matters Application in accordance with the details approved pursuant to this paragraph 6.2.

6.3 Where the Permanent Bus Turning Facility is to be provided on Soames Street to provide the Permanent Bus Turning Facility no later than the Practical Completion of Soames Street to the satisfaction of TfL.

6.4 Where the Permanent Bus Turning Facility is to be provided on the Land in an alternative location to Soames Street not to Implement any Reserved Matters Approval which includes the Permanent Bus Turning Facility or any Reserved Matters Approval in respect of above ground works comprised in a Block containing Residential Units adjacent to the Permanent Bus Turning Facility until a programme for the delivery of the Permanent Bus Turning Facility has been agreed with TfL and thereafter to provide the Permanent Bus Turning Facility on the Land in accordance with the programme agreed with TfL to the satisfaction of TfL.

6.5 Prior to the commencement of operational services over the Permanent Bus Turning Facility, TfL will require satisfactory completion of the Road Safety Audit and Bus Test (completion of which will be at TfL's sole discretion) and the Owner covenants with TfL that it will address any issues identified as part of the Road Safety Audit and Bus Test.

6.6 Prior to the Implementation of above ground works comprised in a Block containing Residential Units which includes or is adjacent to the intended location for the Permanent Bus Turning Facility the Owner shall agree with TfL whether the Permanent Bus Infrastructure is to be installed by TfL or by the Owner.

6.8 Subject always to paragraph 6.7, the Owner covenants with TfL that it shall pay the Permanent Bus Infrastructure Contribution to TfL either:

6.8.1 three months prior to the date on which it is anticipated that the Permanent Bus Turning Facility will be Practically Complete; or

6.8.2 if earlier, within 20 Working Days of request (such request to be accompanied by the necessary documentation to confirm TfL has obtained all necessary consents and rights to place the Permanent Bus Infrastructure in that location where the Permanent Bus Infrastructure is being located off-site).

6.9 If following Practical Completion of the supply, installation or provision of the Permanent Bus Infrastructure by TfL the cost to TfL is greater than the Permanent Bus Infrastructure Contribution the Owner covenants with TfL that it shall pay the Permanent Bus Infrastructure Contribution Excess following TfL's written request and following receipt by the Owner of evidence relating to the incurring of such excess and a proper invoice and to the extent that the actual cost to TfL is less than the Permanent Bus Infrastructure Contribution the unspent amount shall be returned by TfL to the Owner.

6.10 In consideration of payment of the Permanent Bus Infrastructure Contribution and subject to paragraphs 6.6 and 6.7 TfL shall install or procure the installation of the Permanent Bus Infrastructure as soon as reasonably practicable following the payment of the Permanent Bus Infrastructure Contribution (or part thereof) and the Owner shall make available the necessary and suitable land on the Land (including the necessary surfacing and inclusion of the necessary power supply and drainage in accordance with the Bus Infrastructure Specification) together with all necessary rights required in order to enable the installation of the Permanent Bus Infrastructure.

6.11 The Owner shall provide the Permanent Bus Turning Facility in accordance with paragraphs 6.3 or 6.4 by the later of:

6.11.1 24 months from the date the Temporary Bus Turning Facility is available for use by bus services; or

6.11.2 the Occupation of 1350 Residential Units.

6.12 In the event that the Permanent Bus Turning Facility has not been constructed and made available for use by the end of the period specified in paragraph 6.11 above to the satisfaction of TfL, the Owner shall not Occupy any further Residential Units beyond the end of that period until the Permanent Bus Turning Facility has been provided and a satisfactory Road Safety Audit and Bus Test completed (unless otherwise agreed with TfL).

Completion of the Temporary Bus Turning Facility and Temporary Bus Infrastructure

6.13 Where the Permanent Bus Turning Facility will not be complete prior to Occupation of the first Residential Unit and TfL confirms that it intends to run the Bus Service into the Site from Occupation of the first Residential Unit to:

6.13.1 agree with TfL and the Council the location and form of a Temporary Bus Turning Facility six months prior to first Occupation of the first Residential Unit;

6.13.2 provide the Temporary Bus Turning Facility and satisfactorily complete the Road Safety Audit and Bus Test in accordance with paragraph 6.14 below prior to Occupation of the first Residential Unit; and

6.13.3 not to Occupy or permit Occupation of the first Residential Unit until the Temporary Bus Turning Facility has been provided and the Road Safety Audit and Bus Test has been completed.

6.14 Prior to the commencement of operational services over the Temporary Bus Turning Facility, TfL will require satisfactory completion of the Road Safety Audit and Bus Test (completion of which will be at TfL's sole discretion) and the Owner covenants with TfL that it will address any issues identified as part of the Road Safety Audit and Bus Test. Where the Temporary Bus Turning Facility is required pursuant to paragraph 6.13 the Owner shall six months prior to Occupation of the first Residential Unit agree with TfL whether the Temporary Bus Infrastructure is to be installed by TfL or by the Owner.

6.15 In the event that TfL and the Owner agree that the Owner is to install all or any of the Temporary Bus Infrastructure on the Land at the Owner's cost or off the Land at the Owner's cost as part of any off-site highway works which the Owner is otherwise undertaking the Owner shall install the relevant Temporary Bus Infrastructure pursuant to the details approved by TfL and the Council and to a programme agreed between the Owner, TfL and the Council and the amount of the Temporary Bus Infrastructure Contribution shall be reduced commensurate to the cost of the Temporary Bus Infrastructure which the Owner is to install.

6.16 Where the Temporary Bus Turning Facility is required pursuant to paragraph 6.13 and subject always to paragraph 6.15, the Owner covenants with TfL and the Council that it shall pay the Temporary Bus Infrastructure Contribution to TfL either:

6.16.1 three months prior to the date on which it is anticipated that the Temporary Bus Turning Facility will be Practically Complete; or

6.16.2 if earlier, within 20 Working Days of request (such request to be accompanied by the necessary documentation to confirm TfL has obtained all necessary consents and rights to place the Temporary Bus Infrastructure in that location where the Temporary Bus Infrastructure is being located off-site).

6.17 If following Practical Completion of the supply, installation or provision of the Temporary Bus Infrastructure by TfL the cost to TfL is greater than the Temporary Bus Infrastructure Contribution the Owner covenants with TfL that it shall pay the Temporary Bus Infrastructure Contribution Excess following TfL's written request and following receipt by the Owner of evidence relating to the incurring of such excess and a proper invoice and to the extent that the actual cost to TfL is less than the Temporary Bus Infrastructure Contribution the unspent amount shall be returned by TfL to the Owner.

6.15 In the event that TfL and the Owner agree that the Owner is to install all or any of the Temporary Bus Infrastructure on the Land at the Owner's cost or off the Land at the Owner's cost as part of any off-site highway works which the Owner is otherwise undertaking the Owner shall install the relevant Temporary Bus Infrastructure pursuant to the details approved by TfL and the Council and to a programme agreed between the Owner, TfL and the Council and the amount of the Temporary Bus Infrastructure Contribution shall be reduced commensurate to the cost of the Temporary Bus Infrastructure which the Owner is to install.

6.16 Where the Temporary Bus Turning Facility is required pursuant to paragraph 6.13 and subject always to paragraph 6.15, the Owner covenants with TfL and the Council that it shall pay the Temporary Bus Infrastructure Contribution to TfL either:

6.16.1 three months prior to the date on which it is anticipated that the Temporary Bus Turning Facility will be Practically Complete; or

6.16.2 if earlier, within 20 Working Days of request (such request to be accompanied by the necessary documentation to confirm TfL has obtained all necessary consents and rights to place the Temporary Bus Infrastructure in that location where the Temporary Bus Infrastructure is being located off-site).

6.17 If following Practical Completion of the supply, installation or provision of the Temporary Bus Infrastructure by TfL the cost to TfL is greater than the Temporary Bus Infrastructure Contribution the Owner covenants with TfL that it shall pay the Temporary Bus Infrastructure Contribution Excess following TfL's written request and following receipt by the Owner of evidence relating to the incurring of such excess and a proper invoice and to the extent that the actual cost to TfL is less than the Temporary Bus Infrastructure Contribution the unspent amount shall be returned by TfL to the Owner.

6.18 In consideration of payment of the Temporary Bus Infrastructure Contribution and subject to paragraphs 6.14 and 6.15 TfL shall install or procure the installation of the Temporary Bus Infrastructure as soon as reasonably practicable following the payment of the Temporary Bus Infrastructure Contribution (or part thereof) and the Owner shall make available the necessary and suitable land on the Land (including the necessary surfacing and inclusion of the necessary power supply and drainage in accordance with the Bus Infrastructure Specification) together with all necessary rights required in order to enable the installation of the Temporary Bus Infrastructure.

Local highway authority consents

6.19 In the event that any of the Temporary Bus Driver Facilities, the Permanent Bus Driver Facilities, the Permanent Bus Turning Facility, the Temporary Bus Turning Facility, the Permanent Bus Infrastructure or the Temporary Bus Infrastructure is to be situated or relocated or repositioned on the local highway authority network, the Owner shall obtain the Approval of the Council to the location and design of the relevant infrastructure on reasonable terms acceptable to TfL before it

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is installed (with confirmation of such to be obtained from TfL in writing by the Owner and such Approval from the Council not to be unreasonably withheld or delayed).

Bus Driver Facilities Leases

6.21 Subject to paragraph 6.26, following Practical Completion of the Permanent Bus Turning Facility:

6.21.1 to permit TfL and London Bus Services Limited to run buses over the roads on the Land leading from the public highway to the Permanent Bus Turning Facility;

6.21.2 subject to paragraph 6.25 the Owner shall offer to grant (or shall procure an offer to grant) the Permanent Bus Driver Facilities Lease in accordance with paragraph 6.22 on the following terms:

6.21.2.1 the Permanent Bus Driver Facilities Lease shall be substantially in accordance with the heads of terms for the Bus Driver Facilities Lease located at Annex 10;

6.21.2.2 the Owner shall be responsible for preparing the draft Permanent Bus Driver Facilities Lease and shall provide the same to London Bus Services Limited (or another nominated TfL subsidiary) not later than 15 months prior to the anticipated date of the Permanent Bus Turning Facility being Practically Complete;

6.21.2.3 the Owner will provide confirmation that it has the relevant interest in the land which is to be demised by the Permanent Bus Driver Facilities Lease to London Bus Services Limited (or another nominated TfL subsidiary) to grant that lease to the reasonable satisfaction of TfL contemporaneously with providing the draft Bus Driver Facilities Lease to London Bus Services Limited (or another nominated TfL subsidiary);

6.21.2.4 the Owner will use reasonable endeavours to ensure that the final form of Permanent Bus Driver Facilities Lease is agreed with London Bus Services Limited (or another nominated TfL subsidiary) without undue delay PROVIDED THAT if the final form of any Permanent Bus Driver Facilities Lease has not been agreed by the date 6 months prior to the anticipated date of the Permanent Bus Turning Facility being Practically Complete, then the terms of the Permanent Bus Driver Facilities Lease may be referred to expert determination in accordance with clause 8; and

6.21.2.5 the date from which the bus services need to run shall be determined by TfL in consultation with the Owner and the Council.

6.22 As soon as reasonably practicable following the later of:

6.22.1 the agreement of the final form Permanent Bus Driver Facilities Lease pursuant to paragraph 6.21.2.4 or as determined in accordance with expert determination under clause 8; or

6.22.2 three months prior to the anticipated Practical Completion of the Permanent Bus Turning Facility; or

6.22.3 satisfactory completion of the Road Safety Audit and Bus Test

the Owner covenants with TfL that it shall offer to grant the Permanent Bus Driver Facilities Lease to London Bus Services Ltd (or another nominated TfL subsidiary) and TfL shall use reasonable endeavours to procure the acceptance of the Permanent Bus Driver Facilities Lease by London Bus Services Ltd (or another nominated TfL subsidiary).

6.23 In the event that either the Temporary Bus Turning Facility and/or the Temporary Bus Driver Facilities are required the Owner shall offer to grant TfL a Temporary Bus Driver Facilities Lease on the following terms:

6.23.1 the Temporary Bus Driver Facilities Lease shall be in accordance with the heads of terms for the Bus Driver Facilities Lease located at Annex 10;

6.23.2 the Owner shall be responsible for preparing the draft Temporary Bus Driver Facilities Lease and shall provide the same to London Bus Services Limited (or another nominated TfL subsidiary) not later than 6 months prior to the anticipated date of the Temporary Bus Turning Facility and/or Temporary Bus Driver Facilities (as relevant) being Practically Complete;

6.23.3 the Owner will provide confirmation that it has the relevant interest in the land which is to be demised by the Temporary Bus Driver Facilities Lease to London Bus Services Limited (or another nominated TfL subsidiary) to grant that lease to the reasonable satisfaction of TfL contemporaneously with providing the draft Temporary Bus Driver Facilities Lease to London Bus Services Limited (or another nominated TfL subsidiary);

6.23.4 the Owner will use reasonable endeavours to ensure that the final form of the Temporary Bus Driver Facilities Lease is agreed with London Bus Services Limited (or another nominated TfL subsidiary) without undue delay PROVIDED THAT if the final form of any Temporary Bus Driver Facilities Lease has not been agreed by the date 3 months prior to the anticipated date of the Temporary Bus Turning Facility being Practically Complete, then the terms of the Temporary Bus Driver Facilities Lease may be referred to expert determination in accordance with clause 8;

6.23.5 the date from which the bus services need to run shall be determined by TfL in consultation with the Owner and the Council; and

6.23.6 the Owner shall offer (or procure an offer) to surrender the Temporary Bus Driver Facilities Lease and grant the Permanent Bus Driver Facilities Lease in accordance with paragraph 6.21.2 upon Practical Completion of the Permanent Bus Turning Facility and/or Permanent Bus Driver Facilities (as relevant).

6.24 At the same time as offering the grant of the Permanent Bus Driver Facilities Lease or the Temporary Bus Driver Facilities Lease to London Bus Services Limited (or another nominated TfL subsidiary) the Owner covenants with TfL that it shall provide TfL with any third party consents, certificates or other approvals required to satisfy any subsisting restrictions on the Owner's title (or the title of the party granting the Permanent Bus Driver Facilities Lease or the Temporary Bus

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Driver Facilities Lease who derives title from the Owner) to permit the grant and subsequent registration of the Permanent Bus Driver Facilities Lease or the Temporary Bus Driver Facilities Lease.

6.25 The Owner covenants with TfL that TfL's and London Bus Services Ltd's reasonable and proper costs in connection with the negotiation, completion and registration of the Permanent Bus Driver Facilities Lease(s) and/or the Temporary Bus Driver Facilities Lease(s) shall be borne by the Owner.

6.26 In the event that TfL serves notice that it requires onward connection for buses into Enderby Place:

6.26.1 the obligations in paragraph 6.1 to 6.5, 6.11 to 6.18 and 6.23 shall lapse;

6.26.2 the words "in connection with the Permanent Bus Turning Facility" within the definition of "Permanent Bus Infrastructure" shall be read to mean "in connection with the Development";

6.26.3 paragraphs 6.6, 6.8, 6.19 to 6.22 and 7 shall be read so that references to "Permanent Bus Turning Facility" are construed as references to the roads on the Land leading from the public highway to the boundary of the Enderby Place site from the end of Soames Street as shown on Plan 2; and

6.26.4 the route shall be provided in accordance with a programme to be agreed between the Owner and TfL.

7. Bus Driver Facilities

The Owner covenants with the Council and TfL as follows:

7.1 To secure any necessary consents for the intended use of the Permanent Bus Driver Facilities and (if relevant) the Temporary Bus Driver Facilities at the Owner's cost and as Approved by TfL.

7.2 Where the Owner is providing a Temporary Bus Turning Facility, to provide either the Temporary Bus Driver Facilities or the Permanent Bus Driver Facilities prior to Practical Completion of the Temporary Bus Turning Facility.

7.3 When providing the Permanent Bus Turning Facility to provide either the Temporary Bus Driver Facilities or the Permanent Bus Driver Facilities prior to Practical Completion of the Permanent Bus Turning Facility.

7.4 To provide the Permanent Bus Driver Facilities as part of the fitting out of the Block identified in the Mobility Hub Scheme within which the Bus Driver Facilities are to be located and prior to Occupation of 1350 Dwellings.

8. Bus Service Contribution

The Owner covenants to the Council and TfL as follows:

8.1 To pay the Bus Service Contribution to TfL as follows:

8.1.1 20% of the Bus Service Contribution shall be paid to TfL six months prior to the anticipated date of Occupation of the first Residential Unit;

8.1.2 a further 20% of the Bus Service Contribution shall be paid to TfL on the first anniversary of the date on which the payment in paragraph 8.1.1 was paid or due to be paid

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(whichever is the earlier) PROVIDED THAT the Bus Service has commenced or where the Bus Service has not commenced, within 28 days of the Bus Service commencing;

8.1.3 a further 20% of the Bus Service Contribution shall be paid to TfL on the first anniversary of the date on which the payment in paragraph 8.1.2 was paid or due to be paid (whichever is the earlier) PROVIDED THAT the Bus Service is continuing to operate;

8.1.4 a further 20% of the Bus Service Contribution shall be paid to TfL on the second anniversary of the date on which the payment in paragraph 8.1.2 was paid or due to be paid (whichever is the earlier) PROVIDED THAT the Bus Service is continuing to operate; and

8.1.5 the final 20% of the Bus Service Contribution shall be paid to TfL on the third anniversary of the date on which the payment in paragraph 8.1.2 was paid or due to be paid (whichever is the earlier) PROVIDED THAT the Bus Service is continuing to operate.

Not to:

8.2.1 Occupy or permit the Occupation of the first Residential Unit until the first instalment of the Bus Service Contribution has been paid to TfL; nor

8.2.2 undertake any further construction of the Development following the anniversary dates upon which the further instalments of the Bus Service Contribution fall due to be paid unless the relevant instalment of the Bus Service Contribution is due and has been paid to TfL.

10. Traffic Management Plan

10.1 The Owner covenants with the Council and TfL to submit a Traffic Management Plan to TfL for Approval prior to submission of the Reserved Matters Application in respect of above ground works comprised in a Block containing Residential Units which includes or is adjacent to the intended location for the Permanent Bus Turning Facility and by no later than the date that is six months before the Bus Service is intended to commence.

10.2 The Owner covenants with the Council and TfL not to submit the Reserved Matters Application in respect of above ground works comprised in a Block containing Residential Units which includes or is adjacent to the intended location for the Permanent Bus Turning Facility until the Traffic Management Plan submitted pursuant to paragraph 10.1 has been Approved by TfL.

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10.3 The Owner covenants with the Council and TfL to implement the Approved Traffic Management Plan from the Occupation of the first Residential Unit or if later the date on which the Bus Service commences and for such period as the Bus Service is continuing to operate.

Technical Note

PTAL Assessment

Enderby Place, Greenwich

Project Number: 22181
Doc Number: TN04
Prepared for: Criterion Capital

18 May 2023

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
A	Draft for comment	BG	SEC/DT	BG	DT	17/05/23
B	Final	BG	DT	BG	DT	18/05/23

1. Introduction

1.1 Markides Associates (MA) has prepared this Technical Note (TN04) following pre-application discussions with Transport for London (TfL) and Royal Borough of Greenwich (RBG) in relation to development proposals at Enderby Place ('the site'). The discussion was supported by a Transport Assessment Scoping Note (Ref: 22181-MA-DR-SN01), Bus Options Technical Note (Ref: 22181-MA-DR-TN02) and an Alternative Bus Options Technical Note (Ref: 22181-MA-DR-TN03).

1.2 The proposals are expected to comprise some 600 residential units and circa 1,200sqm of employment floorspace with associated works including access, car and cycle parking, landscaping, amenity space and refuse storage.

1.1 To supplement the considerations regarding bus access to the site, this Technical Note considers the public transport accessibility (PTAL) level of the proposed development site, the Enderby Wharf site, and the Morden Wharf site under various scenarios. The analysis is set out to appraise the changes to PTAL under different bus routing options and access scenarios.

2. Site Context & Pre-Application Consultation

2.1 Enderby Place sits to the south of the Morden Wharf development site which was granted planning permission for up to 1,500 residential units and 17,311sqm commercial floorspace in June 2022 but is yet to be implemented, and to the north of the Enderby Wharf site which is built out and operational comprising 477 residential units.

2.2 Several options for potential bus access to Enderby Place were presented at pre application meetings with TfL and LBG; these were based on a number of assumptions, some of which followed previous communications with TfL.

2.3 As discussed in TN03, the topography across the Enderby Place site is challenging with limited scope for vehicle access. The Enderby Place site is significantly lower (approximately 4m) than the approved Morden Wharf site and this is therefore a fixed constraint. The Enderby Place development also has to meet requirements for servicing and disabled parking access which can only reasonably be provided in the basement. Any bus ramp reduces the amount of available basement space.

2.4 Telegraph Avenue at the southern edge of the site cannot be used for vehicle traffic without significant widening owing to width and overhead constraints, impacting on the viability of the site and generating adverse impact on the pedestrian and cycle link that has been created as part of Enderby Wharf.

2.5 Telcon Way meets the eastern edge of the site and therefore forms the only existing vehicle access that can be delivered within the applicant's control. Providing access at this point also limits the potential for vehicle movements to conflict with other pedestrian and cycle accesses farther within the proposed development.

2.6 TN03 provides further information on the viability of a bus route connection into the consented proposals for Morden Wharf and clarifies the policy position in respect of bus access through the two sites. It also considers an alternative and immediately deliverable bus route via Telcon Way. Notwithstanding the technical challenges of a ramp or other access issues, this note considers the benefit to overall PTAL of all bus route options.

3. Assessment Methodology

3.1 The PTAL Algorithm requires 2 main inputs – the point-to-point walk distance between a given 'origin' to a public transport node, and the average weekday service frequency.

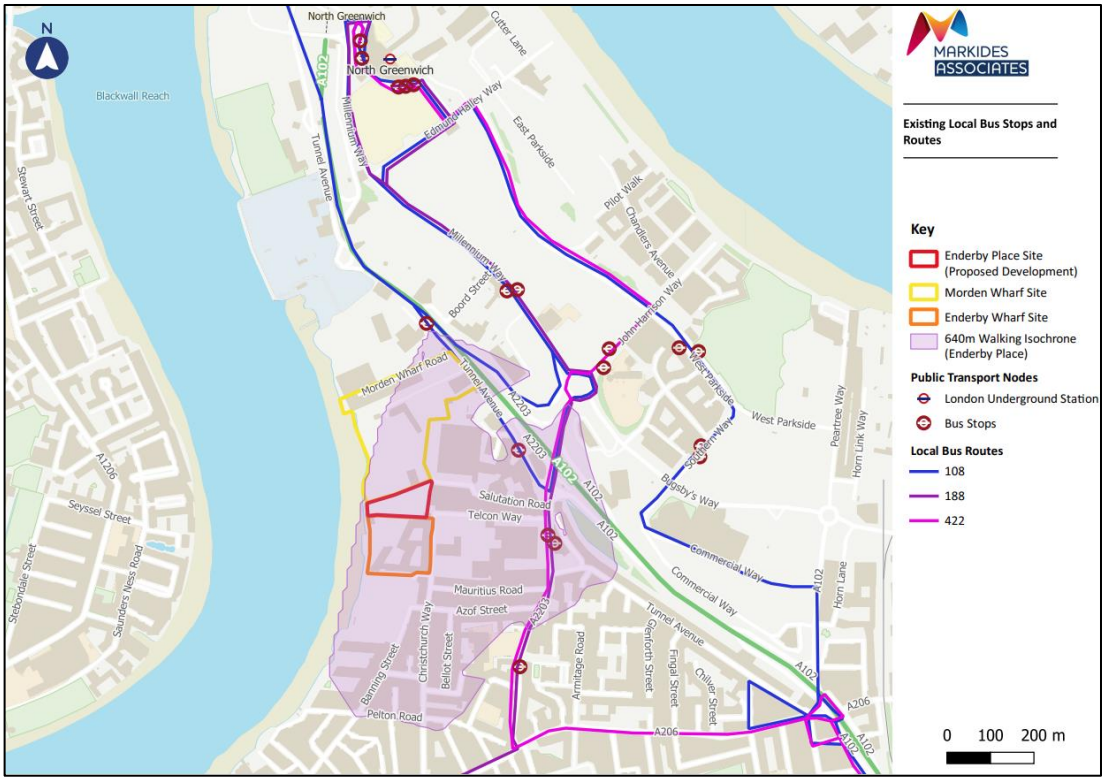
3.2 Ordinarily, a manual PTAL calculation would be undertaken using walk distances measured on site by an auditor from each point of interest to the respective nearest nodes. However, the Enderby Place site and Morden Wharf are both currently secured by hoarding and key areas are inaccessible, making physical measurement impractical.

3.3 As the assessment must also consider infrastructure which does not yet exist, GIS mapping software has been used to undertake network analysis. It accounts for walking speeds and distance and is capable of measuring routes. All other bus frequency information has been obtained from the most recent TfL bus timetables and routeing information publicly available and is summarised below.

Bus Services

3.4 The existing TfL bus stops and local bus routes that operate in the vicinity of the sites are illustrated in **Figure 3.1**. These services are all captured within the PTAL walk distance.

Figure 3.1 Local Bus Stops and Routes



Source: MA QGIS

3.5 The frequency and route for the associated local bus routes is given in **Table 3.1** below.

Table 3.1 Local Bus Services

Route	Direction	Peak Hour Frequency			Weekday Services	
		Weekday	Saturday	Sunday	First	Last
108	Stratford International (Stop MU)	7-11 mins	9-12 mins	2-4 per hour	24-hour service	
	Lewisham (Stop MW)	9-12 mins	8-12 mins	2-4 per hour		
188	Russell Square (Stop MP)	8-12 mins	8-12 mins	9-13 mins	24-hour service	
	North Greenwich (Stop MQ)	8-12 mins	9-13 mins	10-14 mins		
422	North Greenwich (Stop MQ)	9-12 mins	9-12 mins	10-13 mins	04:42	00:50
	North Greenwich (Stop MN)	9-12 mins	9-12 mins	11-13 mins	05:02	01:12

3.6 The 108 service is restricted to a single-decker bus due to routeing through the Blackwall Tunnel, which is too low for double-decker vehicles.

4. Assessment Scenarios

4.1 This note considers how different routing options proposed could affect the PTAL rating of the site and immediate area. It sets out the results of the manual PTAL calculations based on the following bespoke scenarios:

- Baseline Situation Validation – existing bus services, to establish that the model used adequately mirrors the TfL's WebCAT tool and to test if the WebCAT tool is generating accurate PTALs (e.g., accounting for walking routes and more recent changes in bus services etc.);
- Future Scenarios:
  - Scenario 1 – applying the Morden Wharf bus proposals with the consented bus turnaround within the site only (a 'do-nothing' scenario);
  - Scenario 2 – The Morden Wharf proposals plus the potential ramp through the Enderby Place proposed development; and
  - Scenario 3 – The Morden Wharf proposals plus the alternative bus routing strategy taking buses along Telecon Way (and omitting the consented bus turnaround within the Morden Wharf proposal).

4.2 More detail on each scenario is provided below.

Scenario 1 – Morden Wharf Bus Proposals

4.3 At the planning stage, the Morden Wharf development presented an option for a TfL bus route to access the site via Tunnel Avenue and use a drop-off / turning area (referred to as

'Wilkie Green') to allow buses to stop, turn around and exit the site back onto Tunnel Avenue. No further analysis in terms of how this would affect PTAL scores, bus journey times by route, or route efficiency/running costs was undertaken.

4.4 In this scenario, alongside this bus stop and turning circle within the Morden Wharf site, there would be a pedestrian link to the Enderby Place site, allowing future residents and employees of both developments to access the bus service.

4.5 It must be noted that it is entirely unknown which of the existing bus services were or are intended to serve Morden Wharf at the time of that planning permission and recent discussions with TfL have confirmed that this has still not yet been fixed. The 108-bus service operates immediately adjacent to the site and would seem the obvious choice; however, this is an hourly service and limited to single-decker buses only. Other service routes which currently terminate at North Greenwich Station may be extended to include Morden Wharf.

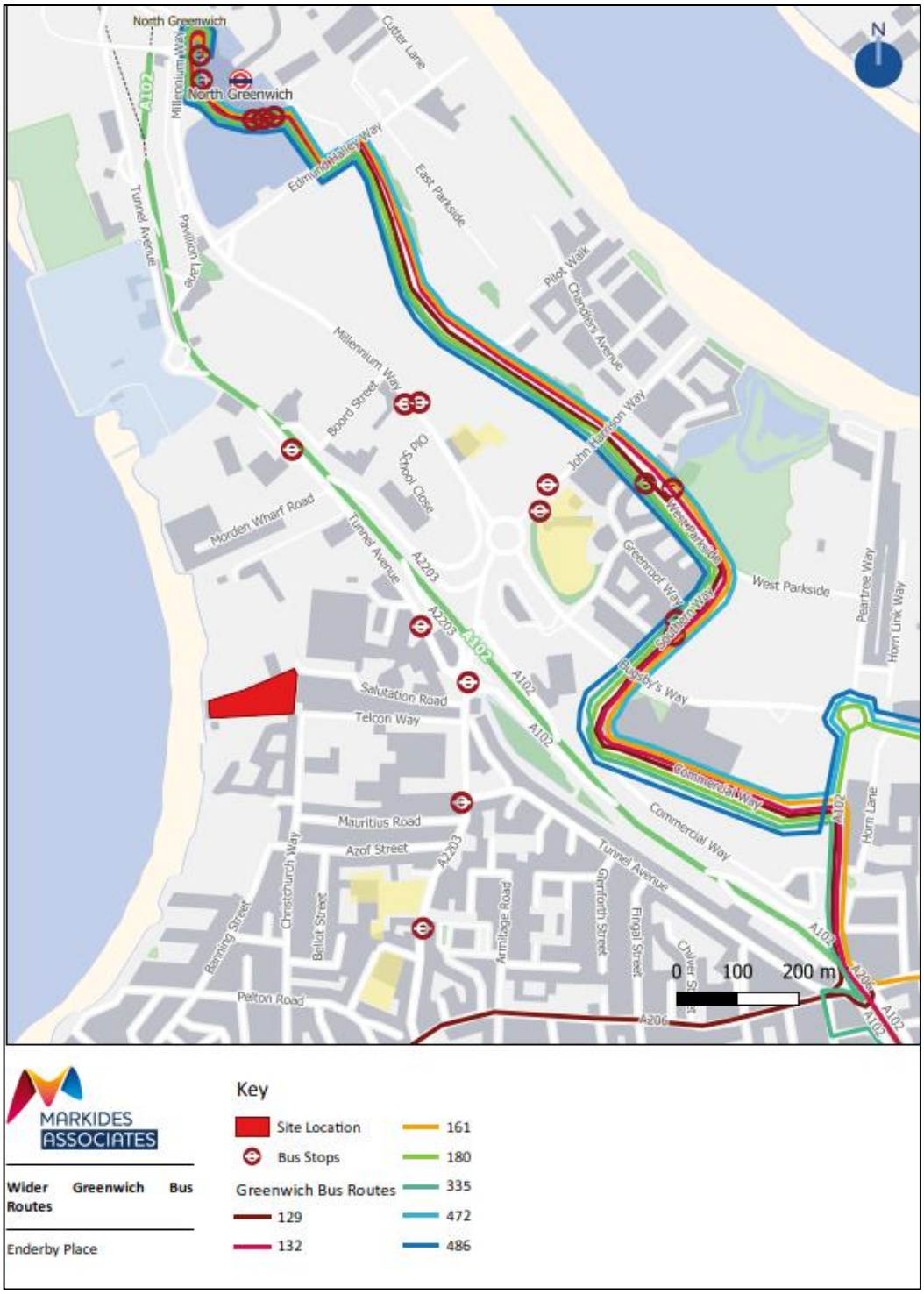
4.6 In the wider area, buses stopping at North Greenwich Station are the 129, 132, 161, 180, 335, 472 and 486. The services and their frequencies are summarised in **Table 4.1**. These services all currently fall outside of the upper walk distance for a bus service as defined by the PTAL methodology, therefore, the baseline and future Scenario 1 do not factor in these services and are based solely on the bus services 108, 188 and 422. (Scenarios 2 and 3 consider the existing accessible bus services 108, 188 and 422 as well as diverting one of the bus services from North Greenwich Station towards the three sites.)

Table 4.1 Greenwich Bus Services and Frequencies

Route	Direction	Peak Hour Frequency			Weekday Services	
		Weekday	Saturday	Sunday	First	Last
129	Lewisham (Stop MC)	10-14 mins	12-14 mins	3 per hour	05:21	00:51
	North Greenwich (Stop ML)	10-14 mins	11-14 mins	3 per hour	05:44	01:16
132	Geddes Place (Stop MC)	8-12 mins	9-12 mins	4 per hour	05:21	01:16
	North Greenwich (Stop ML)	6-12 mins	9-12 mins	4 per hour	05:00	00:59
161	Chistlehurst (Stop MC)	11-13 mins	9-13 mins	11-13 mins	05:21	01:11
	North Greenwich (Stop ML)	10-13 mins	9-12 mins	11-13 mins	05:09	00:57
180	Erith Quarry (Stop MC)	8-12 mins	8-11 mins	4 per hour	05:08	01:03
	North Greenwich (Stop ML)	8-12 mins	8-12 mins	4 per hour	05:21	00:30
335	Wingfield School (Stop MC)	11-13 mins	11-13 mins	4 per hour	05:02	00:32
	North Greenwich (Stop ML)	11-14 mins	11-14 mins	4 per hour	05:21	00:49
472	Abbey Wood Station (Stop MC)	6-10 mins	8-12 mins	4 per hour	24-hour Service	
	North Greenwich (Stop ML)	6-10 mins	8-12 mins	4 per hour		
486	Friswell Place/ Bexleyheath (Stop MC)	6-11 mins	10-13 mins	4 per hour	05:18	01:18
	North Greenwich (Stop ML)	7-10 mins	9-14 mins	4 per hour	05:01	01:04

4.7 These routes are illustrated in **Figure 4.1**.

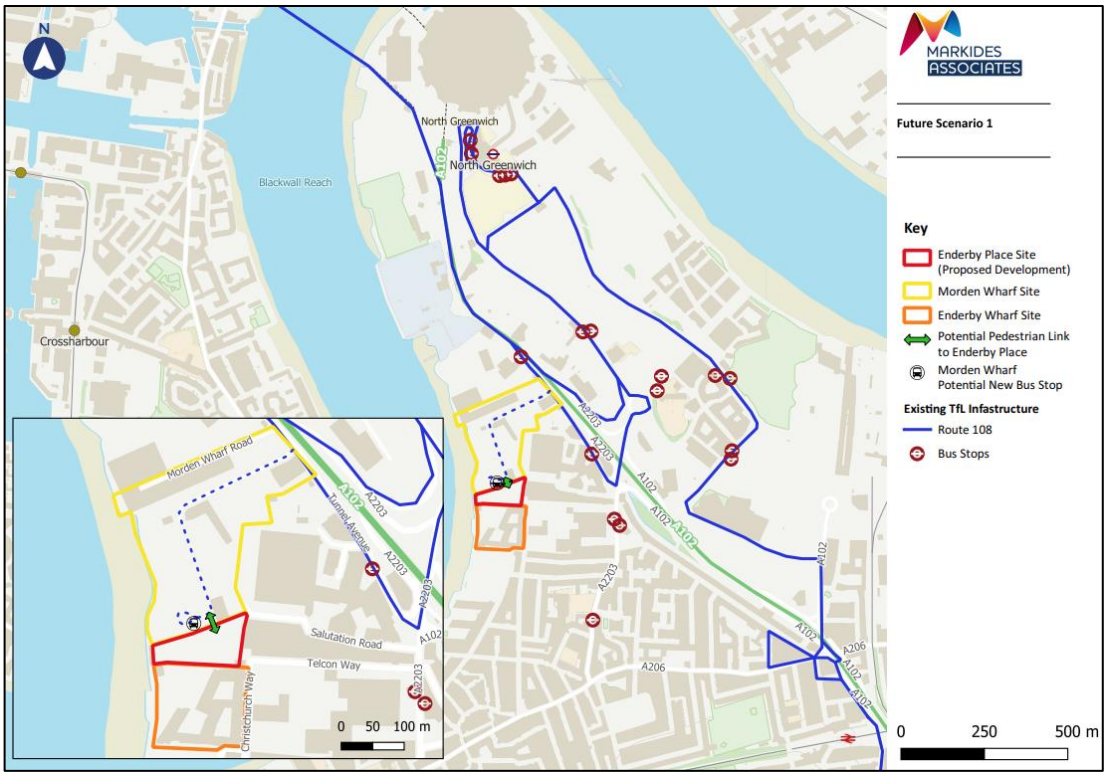
Figure 4.1 Greenwich Bus Routes



4.8 As shown in the figure above, there is significant overlap in routeing for existing bus services to North Greenwich Station and there could be scope to redirect a service to better serve the Morden Wharf, Enderby Wharf and Enderby Place sites.

4.9 A sketch illustration of the arrangement for Scenario 1 is shown in **Figure 4.2**.

Figure 4.2 Illustration of Scenario 1



Source: MA QGIS

Scenario 2 – Enderby Place Bus Ramp

4.10 Early expectations for the Morden Wharf and Enderby Place sites involved a bus connection between the Enderby Place site and Morden Wharf development to the north via a dedicated ramp. Morden Wharf ultimately obtained planning consent for the Wilkie's Green turning head in lieu of the ramp on the basis that the ramp was unfeasible to deliver.

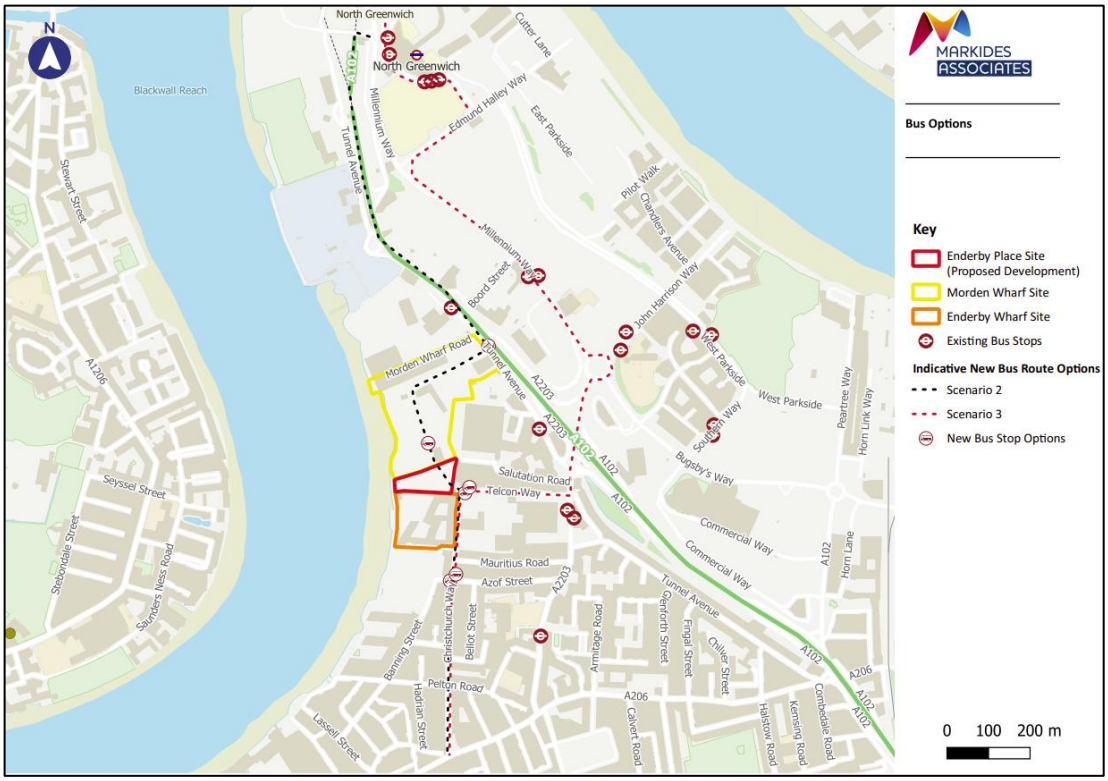
4.11 Subsequent pre-application discussion in relation to the Enderby Place proposals has resulted in a request for the ramp connection to be re-examined. It is again assumed to be served by the extension of one of the existing routes terminating at North Greenwich, which would enter Morden Wharf and continue south via Enderby Place then along Christchurch Way, albeit this section of the road is private. It is not known where routes would continue past that point; however, this would not affect the PTAL score as destination is not considered in the calculation. Furthermore, it does not affect the PTAL score whether this is a new or diverted bus services.

4.12 Notwithstanding the engineering issues relating to the provision of a ramp between the Morden Wharf and Enderby Place sites, Scenario 2 considers how providing a redirected bus service through the Morden Wharf and Enderby Place sites via a ramp with a bus stops within Morden Wharf and along Christchurch Way would affect the PTAL scores of the three sites. The gradient of the bus ramp and the distance from the Morden Wharf stop would mean that a bus stop would not be provided within Enderby Place.

4.13 The scenario appraised assumes the average weekday peak frequency of one of the existing Greenwich bus routes, i.e., a service every 10-minutes.

4.14 The bus routing options considered within Scenarios 2 and 3 are illustrated in **Figure 4.3** below.

Figure 4.3 Indicative Bus Options



Source: MA QGIS

Scenario 3 – Alternative Bus Strategy

4.15 Scenario 3 explores an alternative option that omits the loop into Morden Wharf, the bus ramp through the Enderby Place site and instead diverts a bus route along Millennium Way, Blackwall Lane, Telcon Way and Christchurch Way with new bus stops adjacent to the Enderby Place and Enderby Wharf sites.

4.16 As per the previous scenario, Scenario 3 assumes the average weekday peak frequency of one of the existing Greenwich bus routes, i.e., a service every 10-minutes. The bus routing option is also illustrated in **Figure 4.3** above. Scenario 2 and Scenario 3 therefore assess the same bus services and frequencies, with the only difference being the routing of the bus.

TfL WebCAT PTAL

4.17 The PTAL calculation assumes that people will walk up to 640m (approximately 8-minutes) to a bus service and up to 960m (12-minutes) to a rail or Tube service (assuming 4.8km/h). Public transport notes beyond the threshold, even by a matter of centimetre, are assumed by the algorithm not to exist.

4.18 PTAL scores are shown in WebCAT as a grid of squares where each side of each square is 100m, and the PTAL score shown is calculated from the point in the centre of the square, regardless of other variables such as where accesses are situated. The PTAL score is based on the average frequency of services between 08:15 and 09:15 during the morning weekday peak and only the nearest node is included in the assessment for each unique public transport service available. Factoring in scheduled and average waiting times, the Access Index (AI) is calculated for each grid and converted to PTAL using the bands shown in **Figure 4.4**.

Figure 4.4 Conversion of AI to PTAL[1]

PTAL	Access Index range	Map colour
0 (worst)	0	
1a	0.01 – 2.50	
1b	2.51 – 5.0	
2	5.01 – 10.0	
3	10.01 – 15.0	
4	15.01 – 20.0	
5	20.01 – 25.0	
6a	25.01 – 40.0	
6b (best)	40.01+	

Source: TfL

4.19 The numeric scores are subsequently also graded qualitatively as follows:

- 0 = No PTAL
- 1a = Very Poor
- 1b = Very Poor
- 2 = Poor
- 3 = Moderate
- 4 = Good
- 5 = Very Good
- 6a = Excellent
- 6b = Excellent

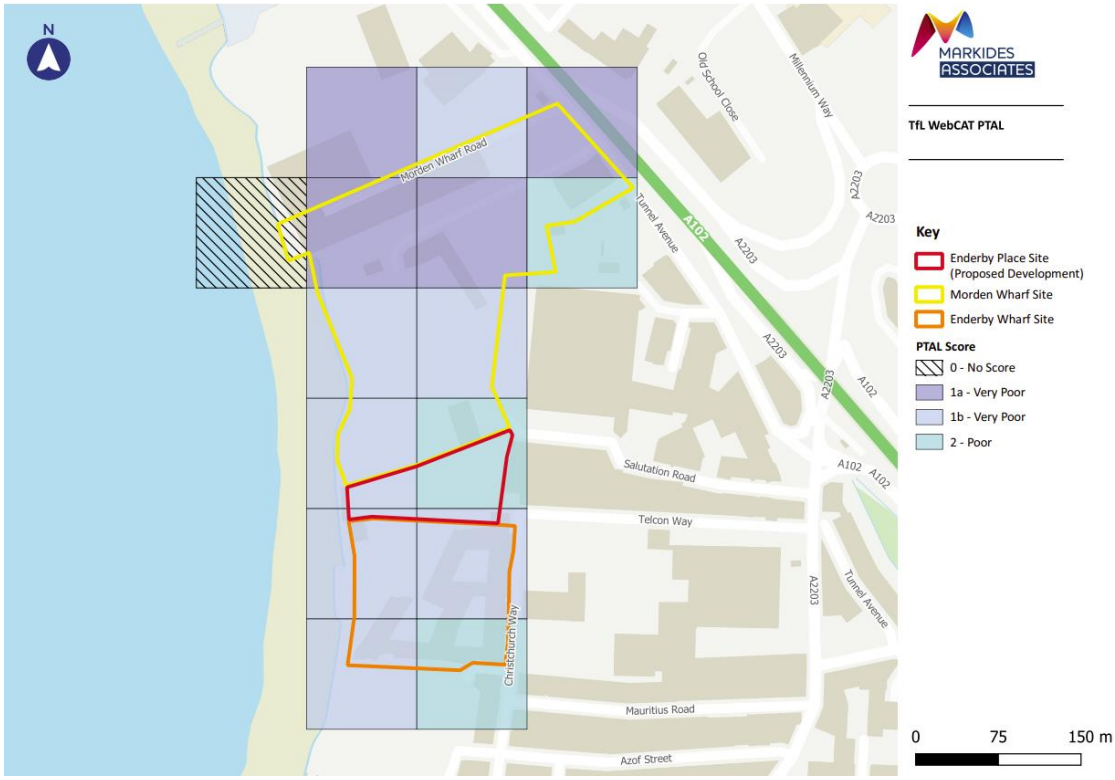
[1] Source: https://content.tfl.gov.uk/connectivity-assessment-guide.pdf (Table 2.2)

5. Existing WebCAT Outputs

Base Year

5.1 The existing WebCAT PTAL scores across the three sites in the base year scenario are illustrated in **Figure 5.1** below, with the full output report for each grid included in **Appendix A**.

Figure 5.1 WebCAT Output – Base Year



Source: TfL WebCAT[2] & MA QGIS

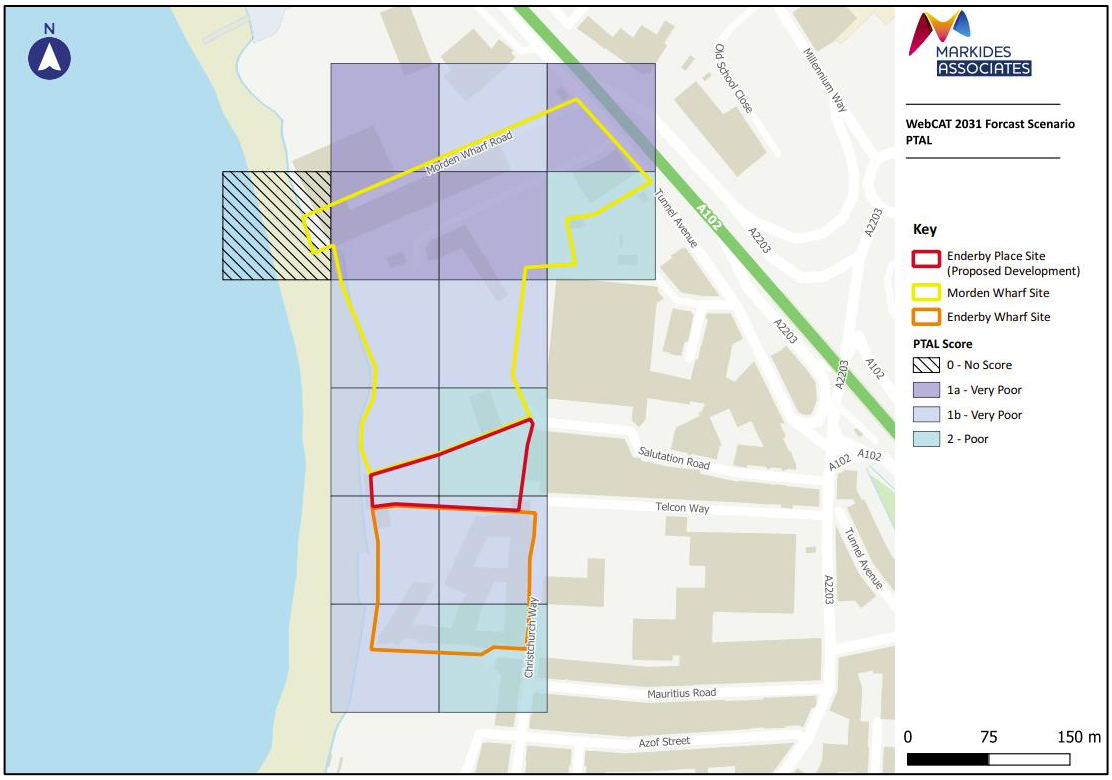
5.2 **Figure 5.1** demonstrates that the Enderby Place and Enderby Wharf sites have a combination of scores of 1a and 2 and the Morden Wharf site has a range from 0 (no score) to 2 in the base year. Overall, the TfL WebCAT PTAL shows a very poor to poor score.

2031

5.3 The PTAL scores for the sites in the WebCAT 2031 forecast scenario, in which bus services are based on a 3% uplift in frequencies from the base year network, are illustrated in **Figure 5.2**.

[2] https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-with-webcat/webcat

Figure 5.2 WebCAT Output – 2031 Forecast



Source: TfL WebCAT & MA QGIS

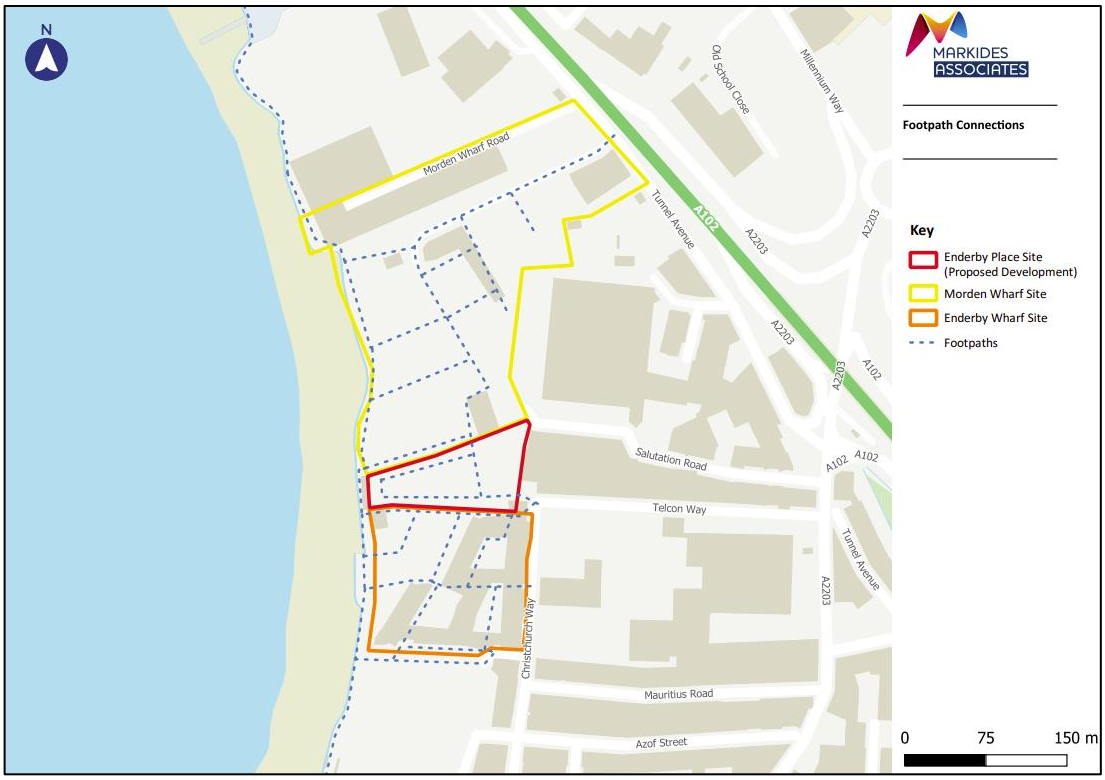
5.4 **Figure 5.2** demonstrates that the WebCAT tool predicts no improvement to the PTAL scores in the 2031 forecast year on the basis of a small uplift in bus services (i.e., without implementation of schemes such as the Morden Wharf and Enderby Place developments).

6. Manual Calculation of Existing Situation (Validation)

6.1 Prior to testing the future scenarios, a validation has been run of the calculations of the existing situation which can be found in **Appendix B**. However, the TfL WebCAT PTAL algorithms (including those for future years) can include inaccuracies as the data sets from which it draws are not always reflective of on-site conditions. Bus stops may have been moved or closed, services have recently been amended which may not be reflected yet in the database, and most commonly, routes to public transport nodes are based on the vehicle road network only, excluding walking routes to services which could shorten walk distances and affect the PTAL score.

6.2 Therefore, the manual calculation of the PTAL rating for the three sites based on the existing operational bus stops and services within 640m walking distance (as per **Table 3.1**) has been localised. It includes the network of new footpaths through the Enderby Wharf site and the assumed principle pedestrian connections through the Enderby Place and Morden Wharf sites which are shown in **Figure 6.1**.

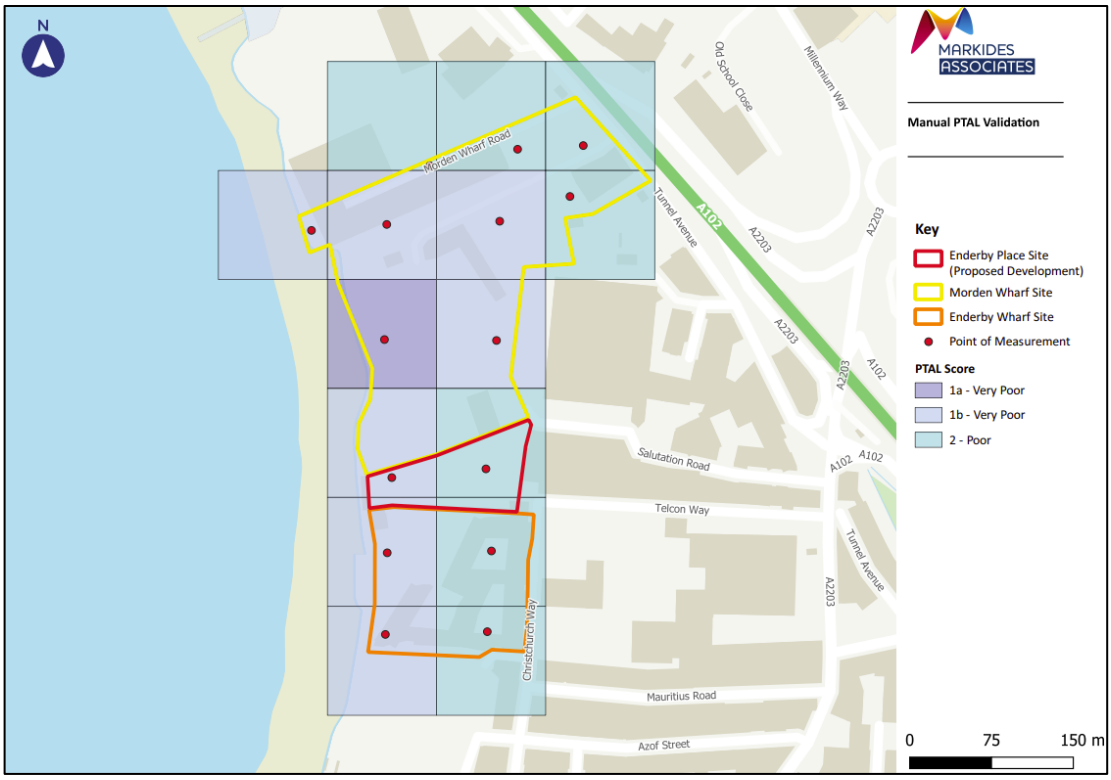
Figure 6.1 Network of Footpaths Through Sites



Source: MA QGIS

6.3 Furthermore, rather than calculating the walking distances from the centre point of each square in the grid, the walking distances for the manual PTAL calculation have been taken from a central point within the site boundary within the grid, to reflect a more representative walking distance for the site users. This is illustrated in **Figure 6.2** below.

Figure 6.2 Baseline Manual PTAL Calculation



Source: MA QGIS

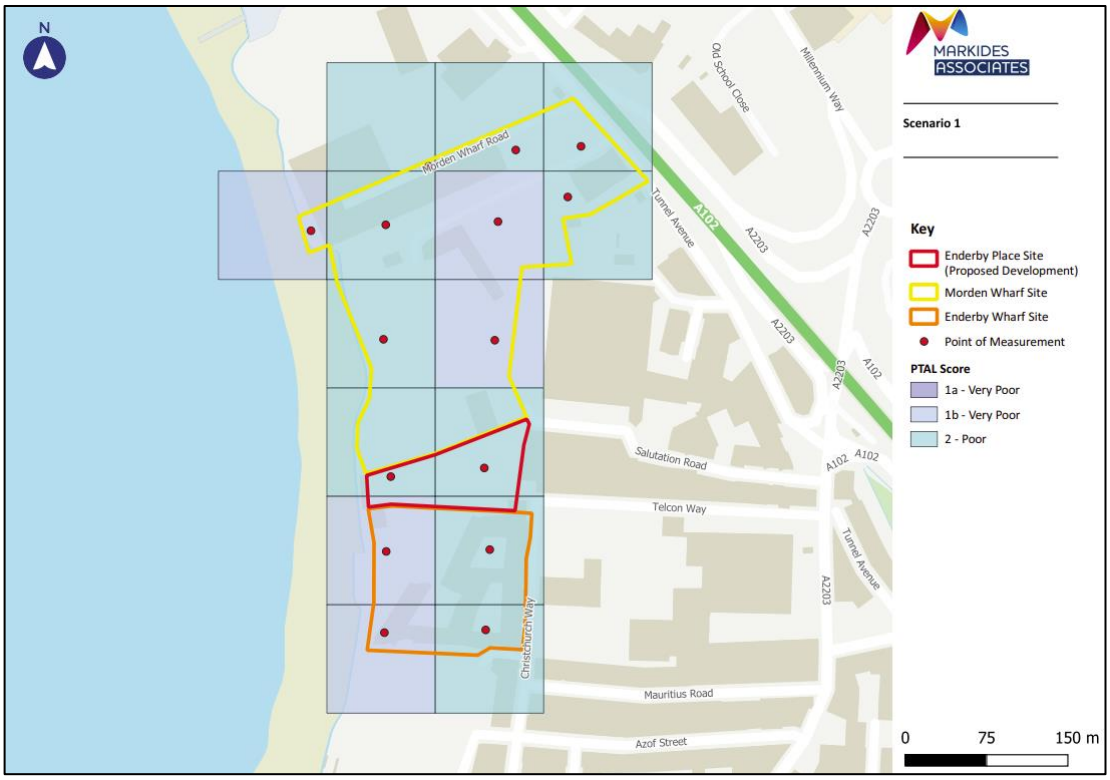
6.4 **Figure 6.2** demonstrates that the baseline PTAL score manually calculated for each site is higher that the TfL WebCAT score in a number of grids, particularly within the Morden Wharf site. The only grid with the lowest score of 1a is within the south-eastern side Morden Wharf site as the walking distance has been calculated assuming no through-route into the Enderby Place site to the south.

7. Future Scenarios

Scenario 1 – Morden Wharf Bus Proposals

7.1 Assuming the current frequency of the 108 service is maintained and a pedestrian link into the Enderby Place site is established as intended, the expected PTAL scores for the sites applying Scenario 1 (diverting the 108 service into the Morden Wharf site with a turnaround) is illustrated in **Figure 7.1**. The workings for each scenario are included in **Appendix A**.

Figure 7.1 Scenario 1 PTAL



Source: MA QGIS

7.2 The results demonstrate that whilst the addition of the bus stop within the Morden Wharf site reduces the walking distance to access the 108 service, which increases the AI in the majority of grids, this does not do so to an extent which increases the PTAL score into a higher banding above 'very poor' or 'poor' (as shown in **Figure 4.4**). This is with the exception of one area within the south-eastern part of the Morden Wharf site which score increases from 1a to 1b.

7.3 Where the PTAL score has improved within the Morden Wharf site, this is primarily due to creation of a pedestrian connection through Enderby Place, allowing users to take a 'short-cut' along Telcon Way to access the bus services 188 and 422 on Blackwall Lane which are otherwise beyond 640m walking distance.

7.4 Therefore, it can be concluded that whilst it offers general benefit, diverting the 108-bus service through the Morden Wharf site to utilise a new turning circle and bus stop would not increase the PTAL of the three sites.

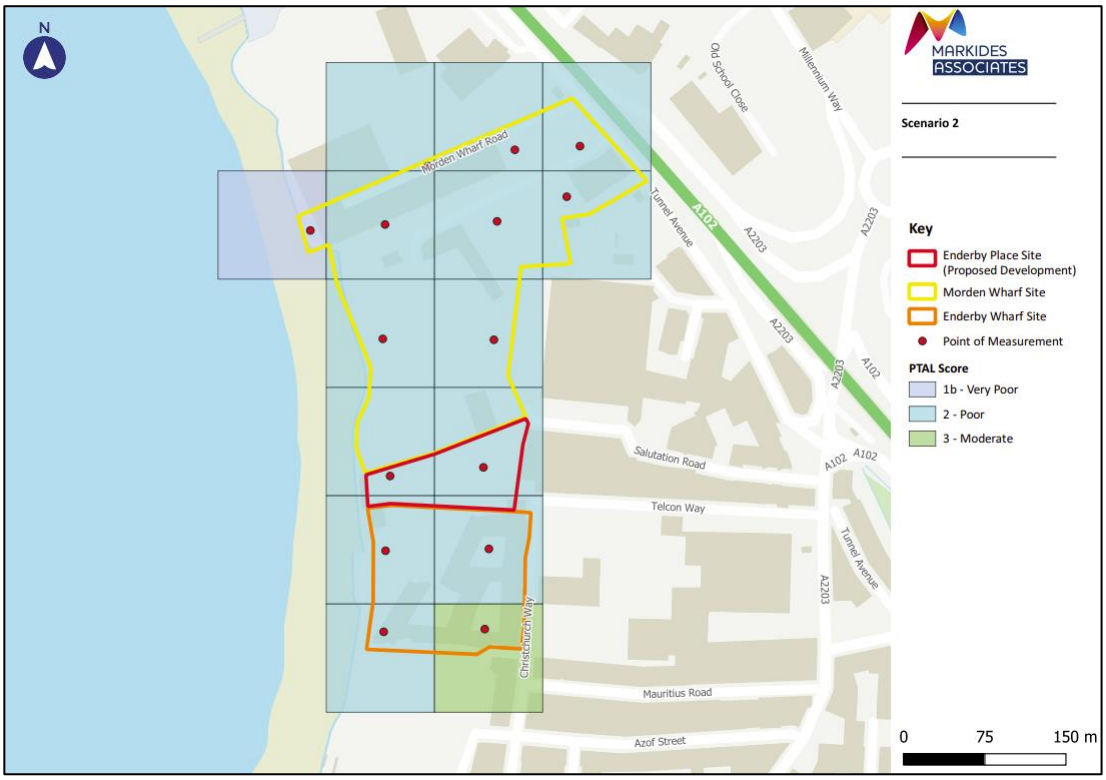
Scenario 2 – Enderby Place Ramp

7.5 The assessment in Scenario 1 confirms that there would be little to no improvement to the PTAL score of the three sites should the existing 108 bus service be diverted through the Morden Wharf site using a turning circle, and the same conclusion can be made if the service 108 were to continue along a bus ramp into the Enderby Place site.

7.6 The primary benefit to public transport accessibility comes from a pedestrian connection through the sites rather than a vehicular connection, or the diversion of an additional bus service that is not currently within walking distance of the sites.

7.7 Assuming a redirected bus service through the Morden Wharf and Enderby Place sites via a ramp with a bus stop within Morden Wharf and stops along Telcon Way and Christchurch Way (in addition to the existing accessible 108, 188 and 422 bus services), the results indicating the revised PTAL scores for each grid associated with Scenario 2 are demonstrated in **Figure 7.2**.

Figure 7.2 Scenario 2 PTAL



Source: MA QGIS

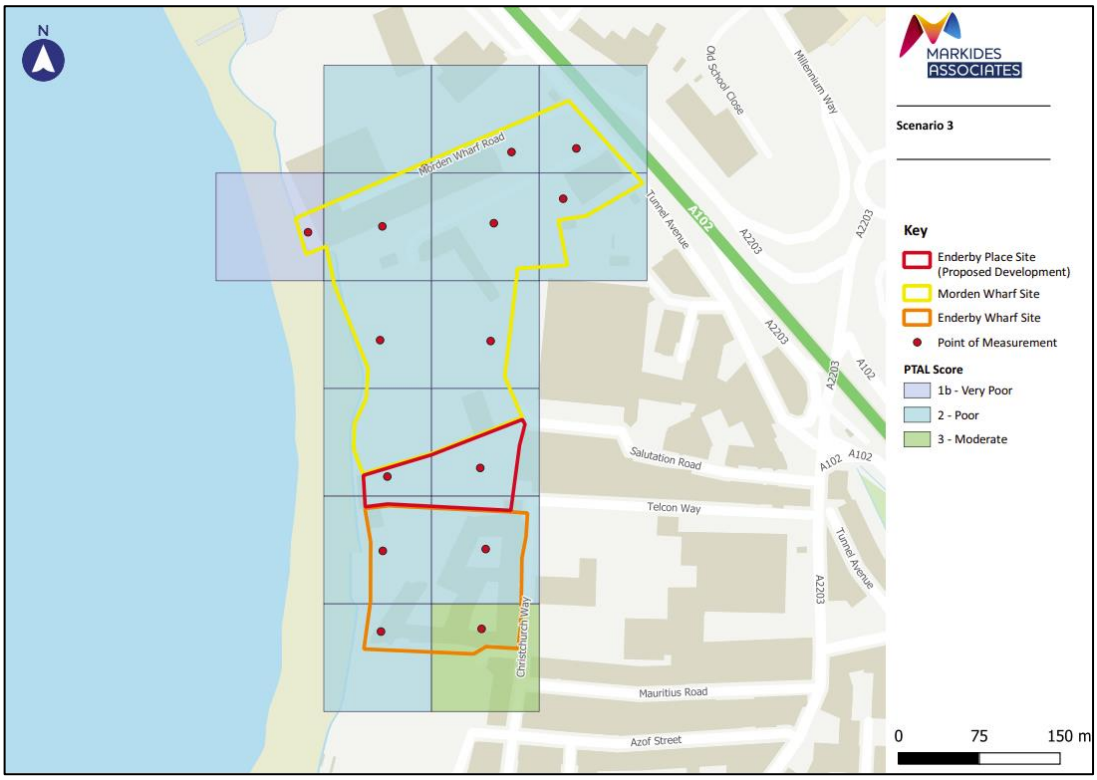
7.8 The results demonstrate that a diverted bus route through the Morden Wharf and Enderby Wharf sites via a bus ramp and along Christchurch Way past Enderby Wharf would increase the PTAL score to 2 for most grids. The westernmost area within Morden Wharf would remain a score of 1b and the south-eastern corner of the Enderby Wharf site would increase to a score of 3. This represents a marginal improvement to the public transport accessibility for areas within the Morden Wharf and Enderby Wharf sites.

Scenario 3 – Alternative Bus Strategy

7.9 Assuming a diverted bus service along Telcon Way and Christchurch Way (in addition to the existing accessible 108, 188 and 422 bus services, without the addition of a bus ramp between the Morden Wharf and Enderby Place sites) the results demonstrate that there would be no difference in PTAL score to Scenario 2, as illustrated in **Figure 7.3**. This is because

the pedestrian connection between the Morden Wharf and Enderby Places sites would facilitate users of the Morden Wharf development to access the new bus stops on Telcon Way within 640m walking distance.

Figure 7.3 Scenario 3 PTAL



Source: MA QGIS

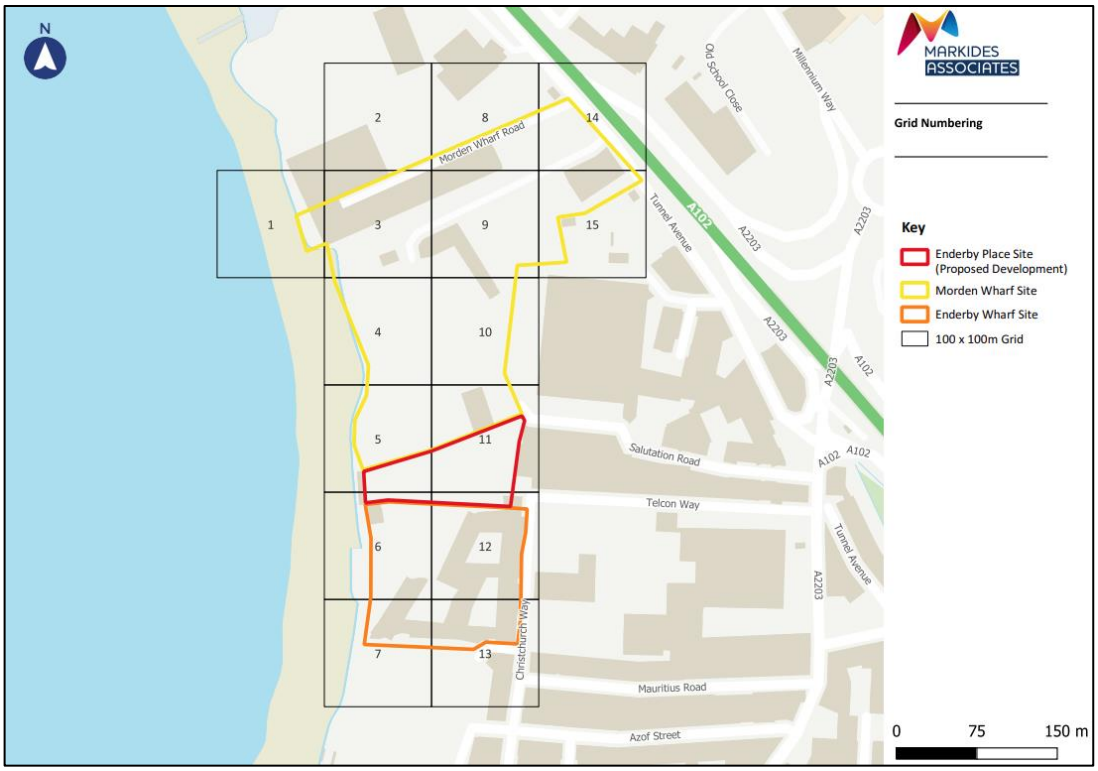
7.10 Therefore, there is no additional benefit to having a ramp to facilitate bus service routing through the sites and instead, buses can simply be diverted along Telcon Way to serve all developments to achieve the same outcome regarding public transport accessibility.

8. Summary and Conclusions

Summary

8.1 A table summarising the results with comments alongside each scenario is outlined in **Table 8.1** below, corresponding to the grid numbers illustrated in **Figure 8.1**. The full workings for each scenario are included in **Appendix A**.

Figure 8.1 Grid Numbering



Source: MA QGIS

Table 8.1 PTAL Assessment Summary

Grid	WebCAT PTAL		Existing Validation		Comments	Scenario 1		Comments	Scenario 2		Comments	Scenario 3		Comments
1	0	No Score	1b	Very Poor	WebCAT measures from centre of grid, we have re-measured from a point within the Morden Wharf site boundary which is within walking distance of bus stops	1b	Very Poor	No benefit to existing PTAL	1b	Very Poor	No benefit to existing PTAL	1b	Very Poor	No benefit to existing PTAL
2	1a	Very Poor	2	Poor	WebCAT does not factor in walking route along Morden Wharf	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
3	1a	Very Poor	1b	Very Poor	As above	2	Poor	Reduced walking distance to access bus service 108 due to addition of bus stop within Morden Wharf site and reduced walking times to the bus stop on Blackwall Lane due to pedestrian connection through Enderby Place site	2	Poor	Reduced walking distance to access bus service due to addition of bus stop within Morden Wharf site and reduced walking times to the bus stop on Blackwall Lane due to pedestrian connection through Enderby Place site	2	Poor	Reduced walking distance to bus stop on Blackwall Lane due to pedestrian connection through Enderby Place site and access to additional bus service via new stop on Telcon Way
4	1a	Very Poor	1a	Very Poor	No change	2	Poor	As above	2	Poor	As above	2	Poor	As above
5	1b	Very Poor	1b	Very Poor	No change	2	Poor	As above	2	Poor	As above	2	Poor	As above
6	1b	Very Poor	1b	Very Poor	No change	1b	Very Poor	No benefit to existing PTAL	2	Poor	Reduced walking distance to new bus stops on Christchurch Way	2	Poor	Reduced walking distance to new bus stops on Christchurch Way
7	1b	Very Poor	1b	Very Poor	No change	1b	Very Poor	No benefit to existing PTAL	2	Poor	As above	2	Poor	As above
8	1b	Very Poor	2	Poor	WebCAT does not factor in walking route along Morden Wharf	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
9	1a	Very Poor	1b	Very Poor	WebCAT does not capture walking routes through the site	1b	Very Poor	No benefit to existing PTAL	2	Poor	Benefits from additional service offered	2	Poor	Benefits from additional service offered
10	1b	Very Poor	1b	Very Poor	No change	1b	Very Poor	No benefit to existing PTAL	2	Poor	As above	2	Poor	As above
11	2	Poor	2	Poor	No change	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
12	1b	Very Poor	2	Poor	WebCAT does not include internal footpaths through Enderby Wharf development	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
13	2	Poor	2	Poor	No change	2	Poor	No benefit to existing PTAL	3	Moderate	Reduced walking distance to new bus stops on Christchurch Way	3	Moderate	Reduced walking distance to new bus stops on Christchurch Way
14	1a	Very Poor	2	Poor	WebCAT does not factor in walking route along Morden Wharf Road	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
15	2	Poor	2	Poor	As above	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL

Conclusions

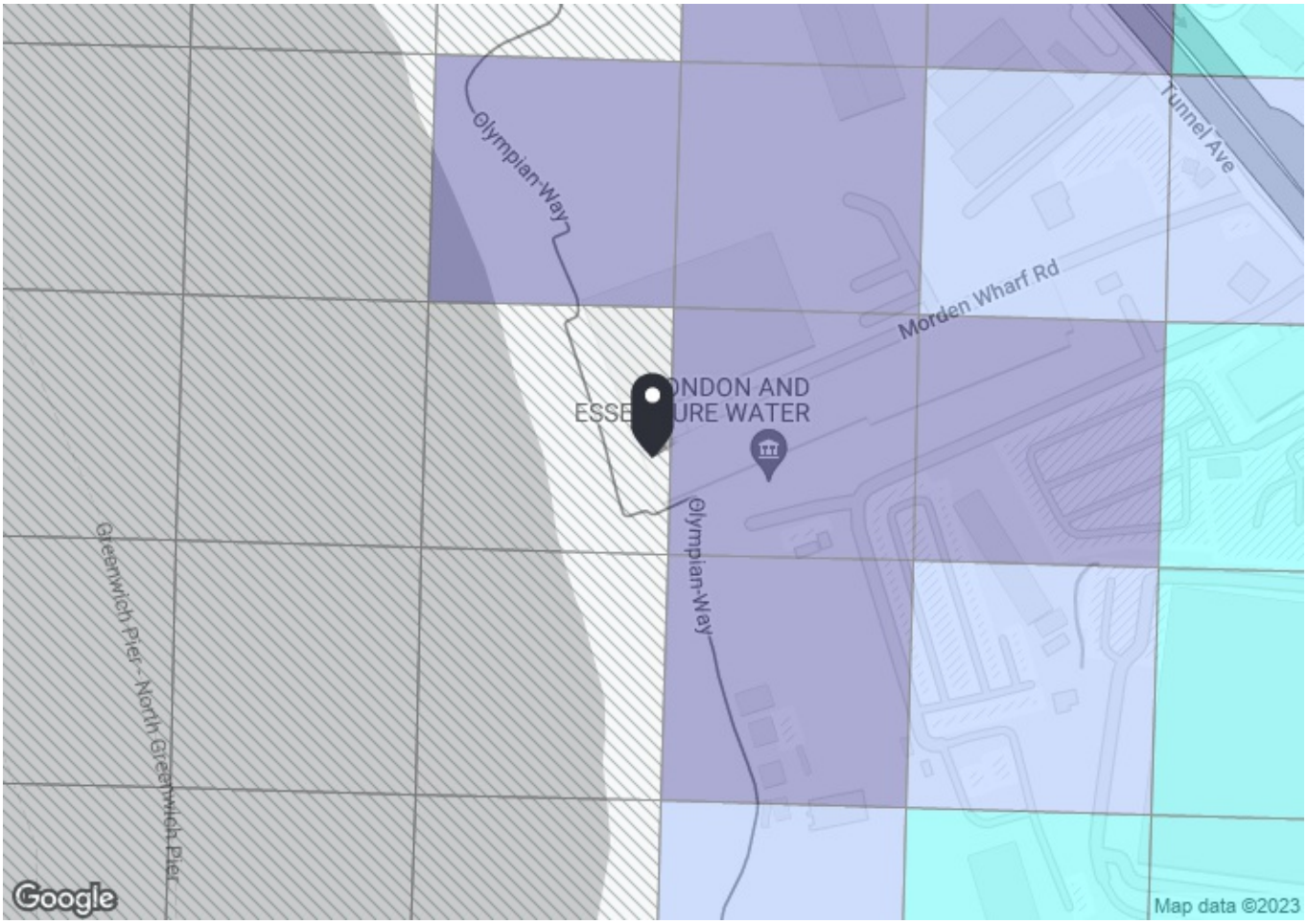
8.2 This Technical Note has considered the public transport accessibility (PTAL) level of the proposed development site, the Enderby Wharf site, and the Morden Wharf site under various scenarios. The analysis was undertaken to appraise the changes to PTAL under different bus routing options and access scenarios.

8.3 It is evident that the implementation of a bus route connecting Morden Wharf and Enderby Place, even if technically deliverable, would offer no benefit in increasing the overall PTAL rating of the respective sites when compared to an alternative route via Telcon Way that would be immediately deliverable and would not pose the technical challenges associated with a bus ramp.

8.4 It is therefore considered that the rerouting option identified should be considered in more detail.

APPENDIX A – WEBCAT PTAL OUTPUTS

TRANSPORT FOR LONDON



PTAL output for Base Year
0

F2V2+7V London, UK
Easting: 539090, Northing: 179033

Grid Cell: 73560

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

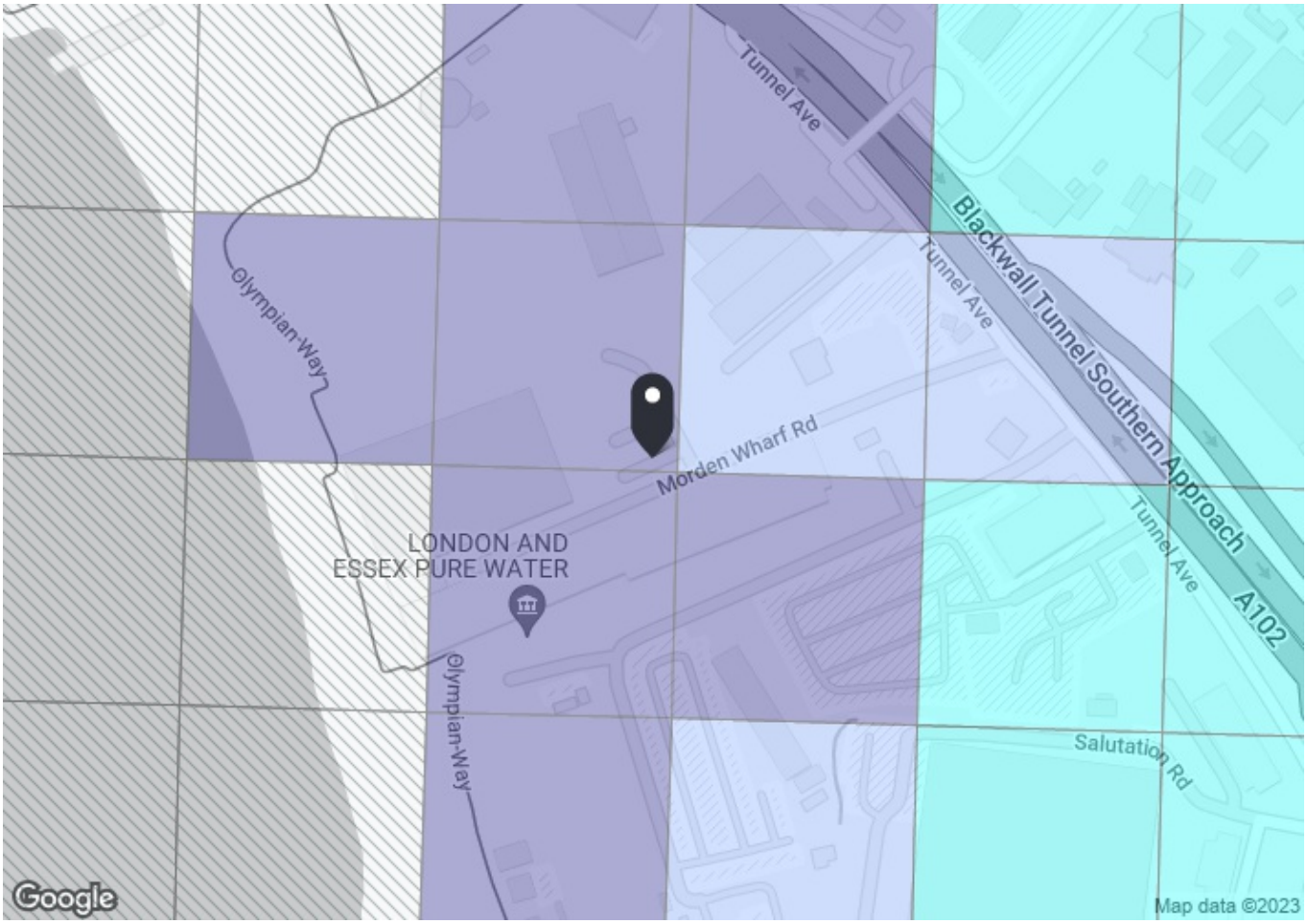
PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

TRANSPORT FOR LONDON



PTAL output for Base Year
1a

F2V3+FC London, UK
Easting: 539187, Northing: 179099

Grid Cell: 74045

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

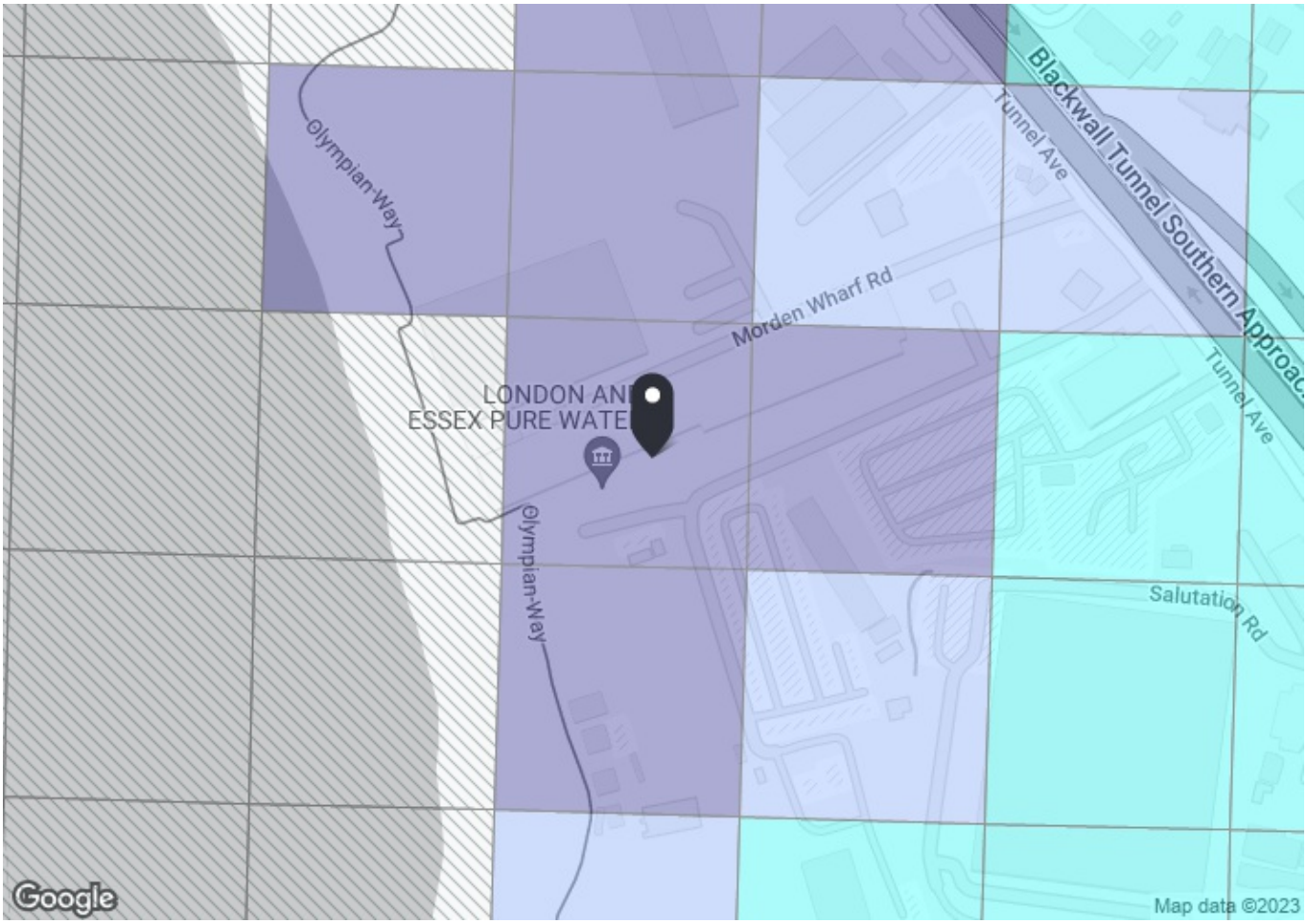
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	523.23	6	6.54	7	13.54	2.22	1	2.22
									Total Grid Cell AI:	**2.22**

TRANSPORT FOR LONDON



PTAL output for Base Year
1a

F2V3+77 London, UK
Easting: 539158, Northing: 179038

Grid Cell: 73561

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

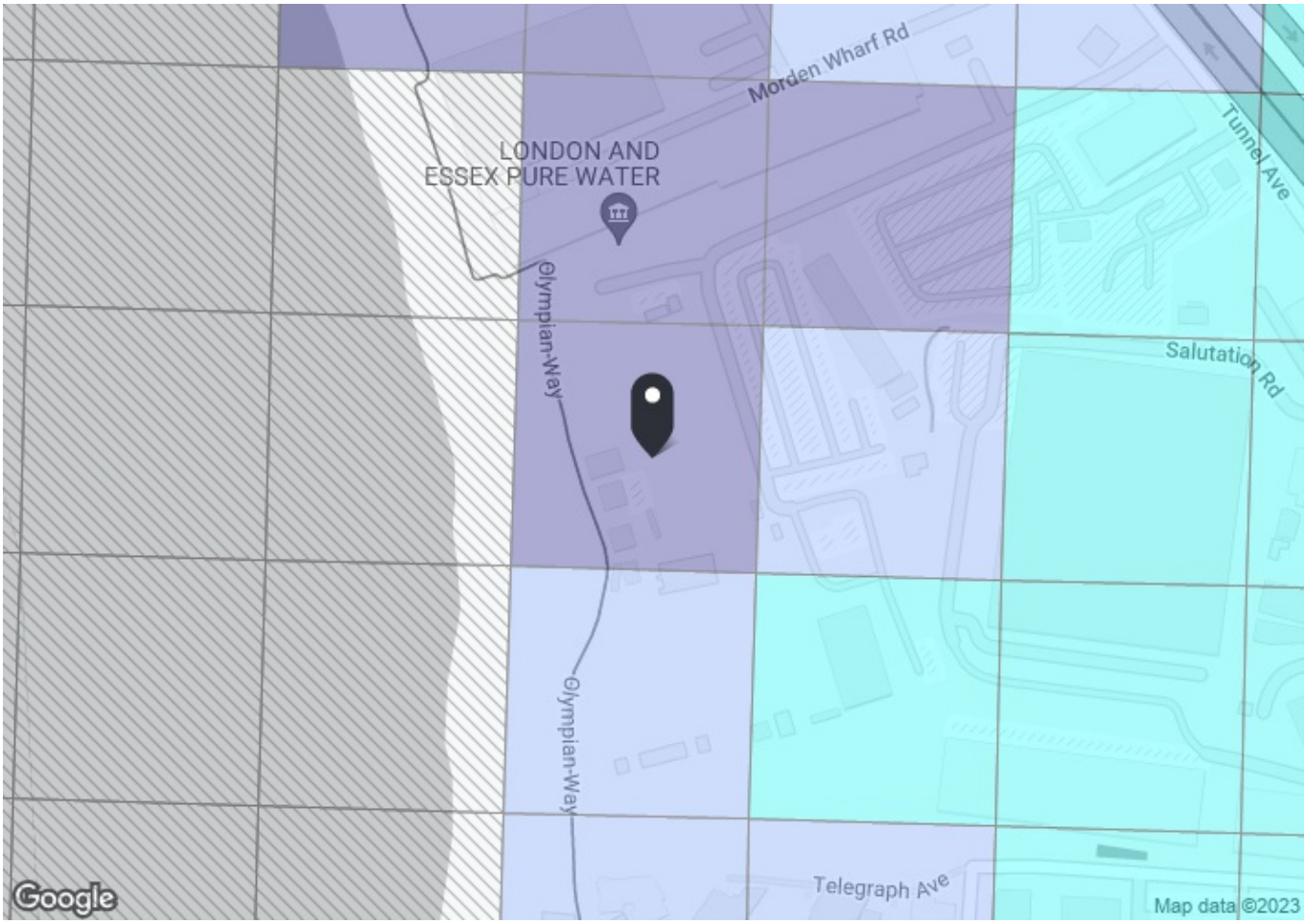
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	519.98	6	6.5	7	13.5	2.22	1	2.22
									Total Grid Cell AI:	**2.22**

TRANSPORT FOR LONDON



PTAL output for Base Year
1a

F2R3+W6 London, UK
Easting: 539154, Northing: 178939

Grid Cell: 73076

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

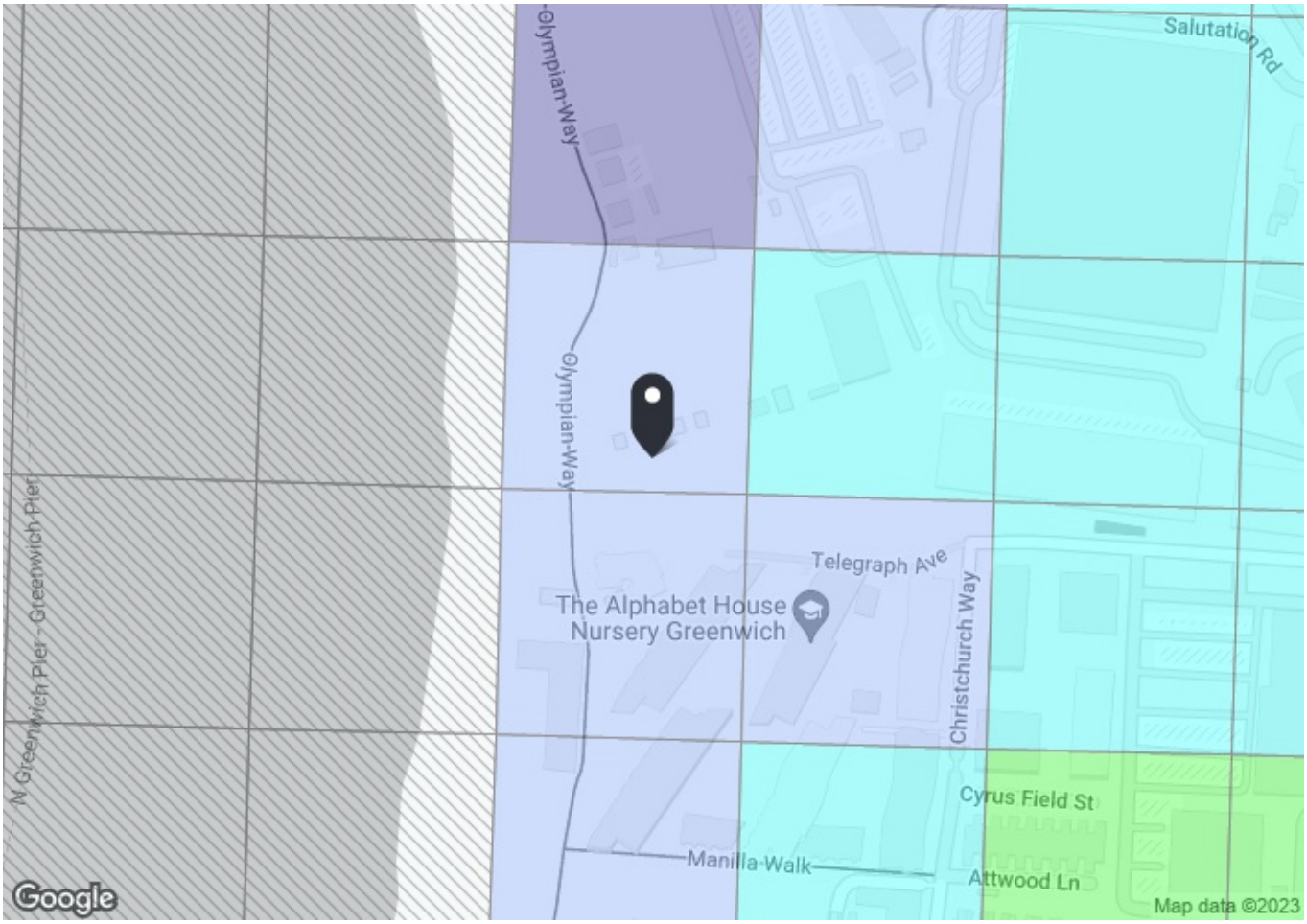
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	638.42	6	7.98	7	14.98	2	1	2
									Total Grid Cell AI:	**2**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

191 Tunnel Ave, London SE10 0GR, UK
Easting: 539158, Northing: 178808

Grid Cell: 72590

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

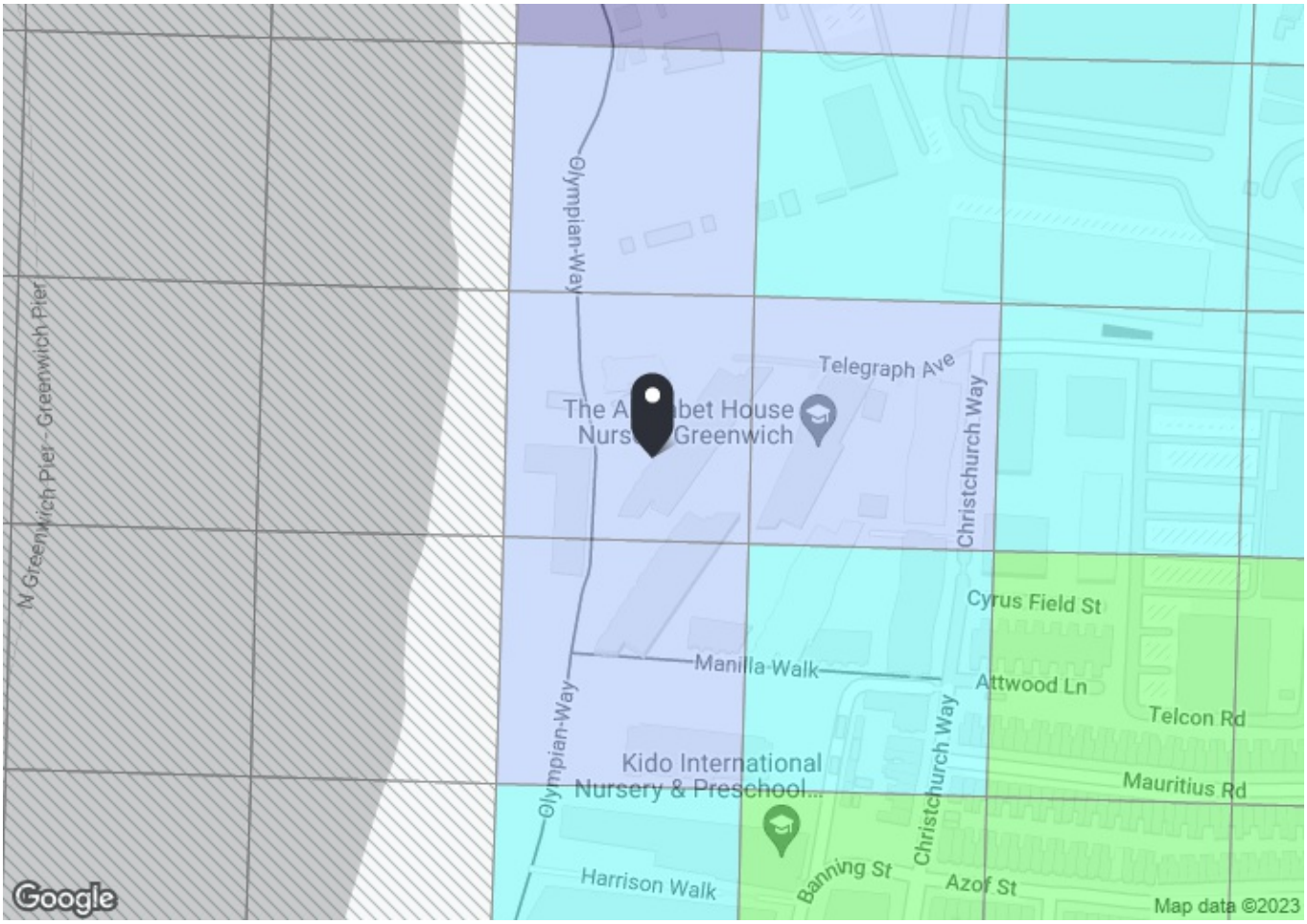
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	525.89	6	6.57	7	13.57	2.21	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	525.89	8	6.57	5.75	12.32	2.43	1	2.43
Bus	BLACKWALL LN TUNNEL AVE	108	560.12	6	7	7	14	2.14	0.5	1.07
									Total Grid Cell AI:	**4.61**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

21 Telegraph Ave, London SE10 0TH, UK
Easting: 539157, Northing: 178728

Grid Cell: 72103

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

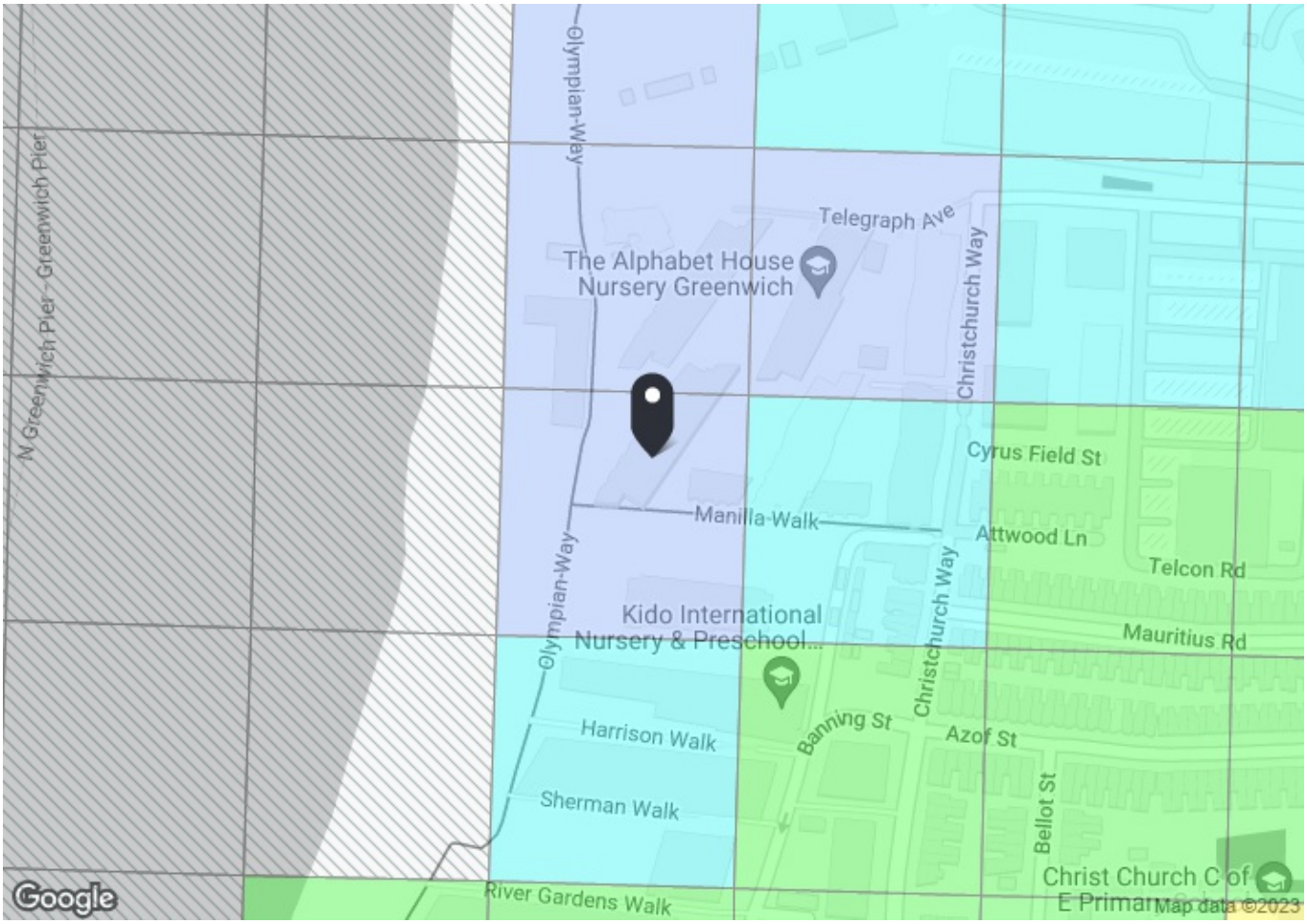
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	517.54	6	6.47	7	13.47	2.23	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	517.54	8	6.47	5.75	12.22	2.46	1	2.46
Bus	BLACKWALL LN TUNNEL AVE	108	551.78	6	6.9	7	13.9	2.16	0.5	1.08
									Total Grid Cell AI:	**4.65**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

34 Cable Walk, London SE10 0TS, UK
Easting: 539159, Northing: 178668

Grid Cell: 71617

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

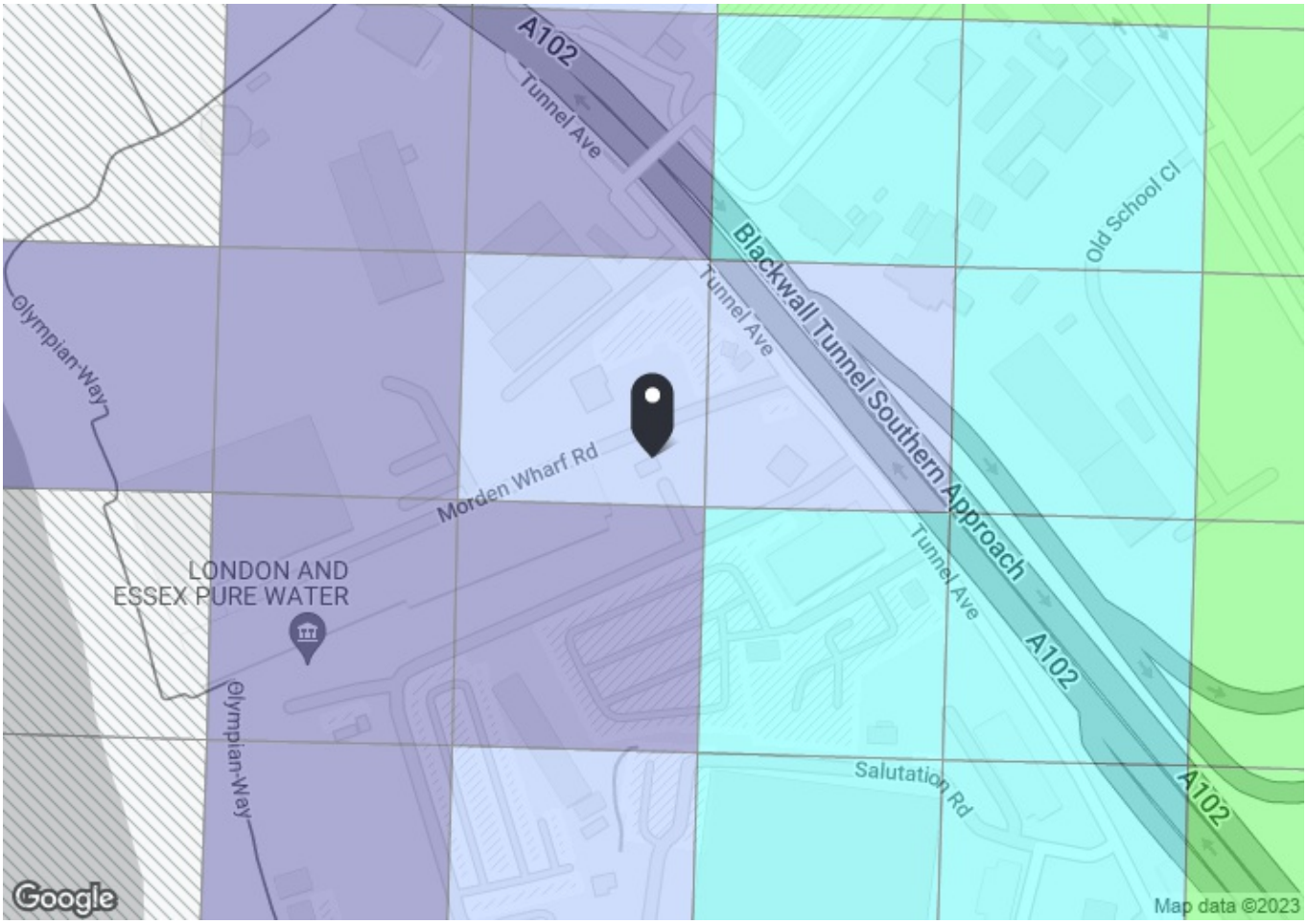
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	537.72	6	6.72	7	13.72	2.19	0.5	1.09
Bus	BLACKWALL LANE AZOF ST	188	537.72	8	6.72	5.75	12.47	2.41	1	2.41
									Total Grid Cell AI:	**3.5**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539275, Northing: 179113

Grid Cell: 74046

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

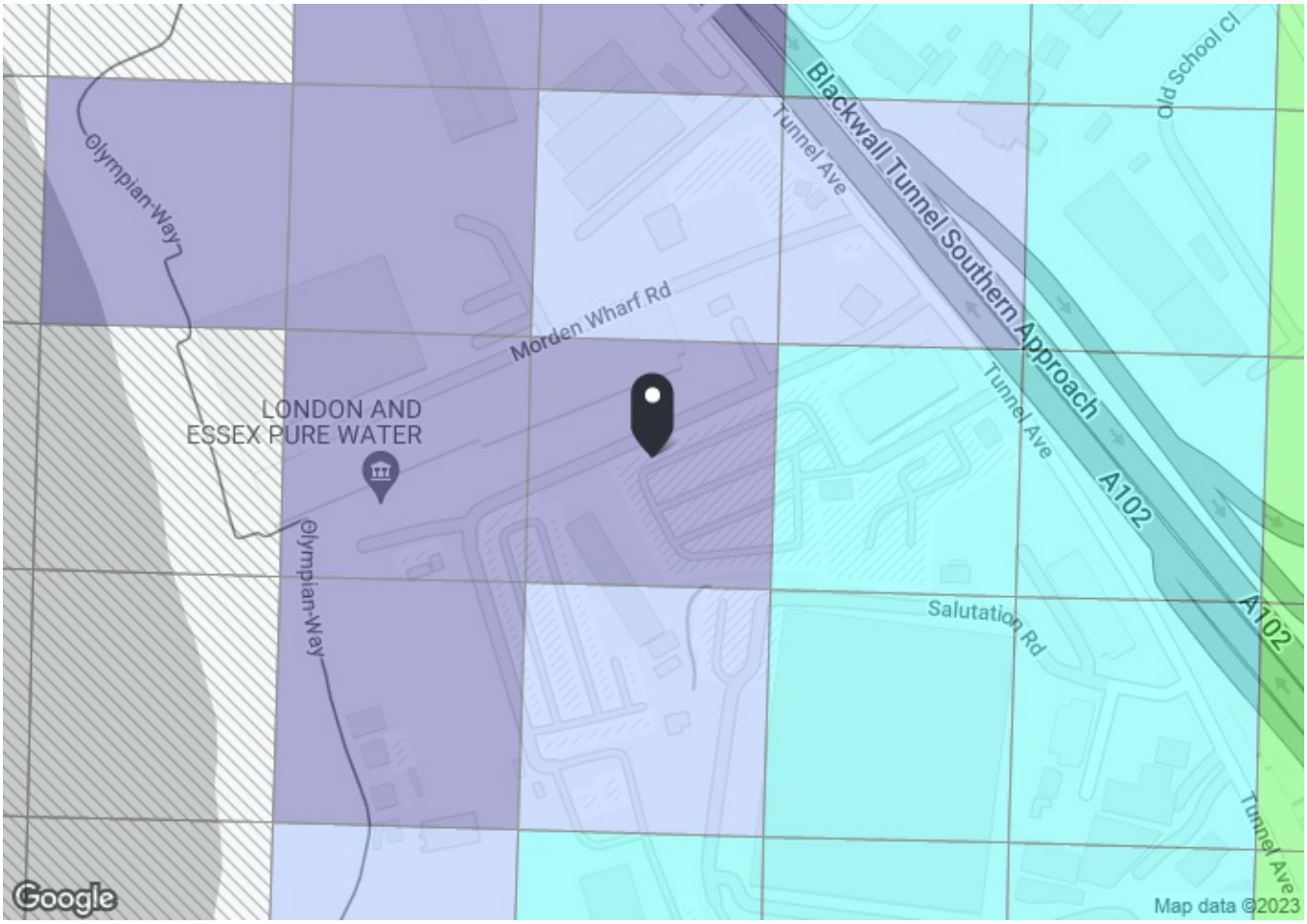
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	628.29	6	7.85	7	14.85	2.02	0.5	1.01
Bus	BLACKWALL LANE AZOF ST	188	628.29	8	7.85	5.75	13.6	2.21	0.5	1.1
Bus	BLACKWALL LN TUNNEL AVE	108	407.37	6	5.09	7	12.09	2.48	1	2.48
									Total Grid Cell AI:	**4.59**

TRANSPORT FOR LONDON



PTAL output for Base Year
1a

F2V3+7Q London, UK
Easting: 539248, Northing: 179046

Grid Cell: 73562

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

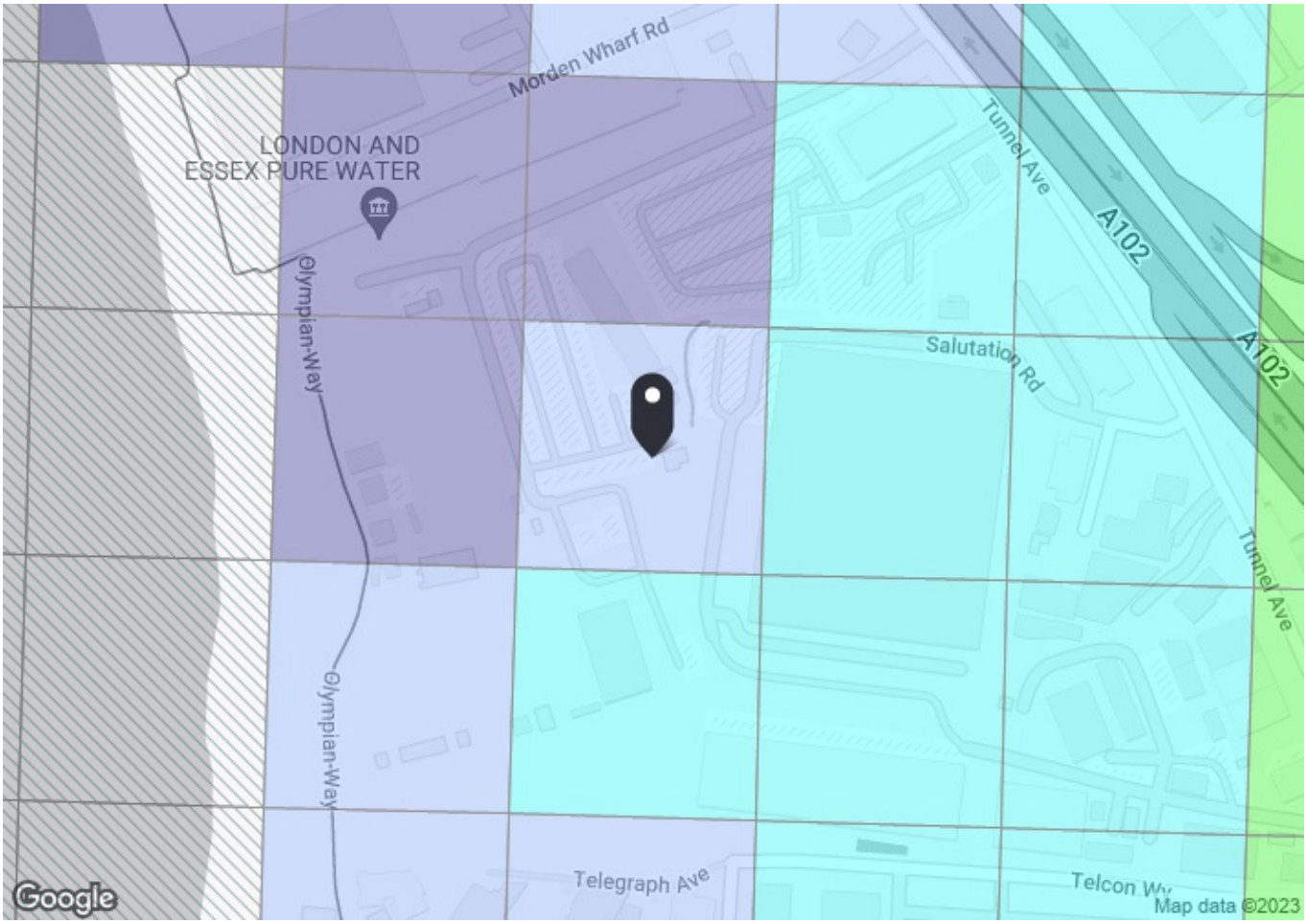
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	474.12	6	5.93	7	12.93	2.32	1	2.32
									Total Grid Cell AI:	**2.32**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

F2R3+WQ London, UK
Easting: 539252, Northing: 178940

Grid Cell: 73077

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

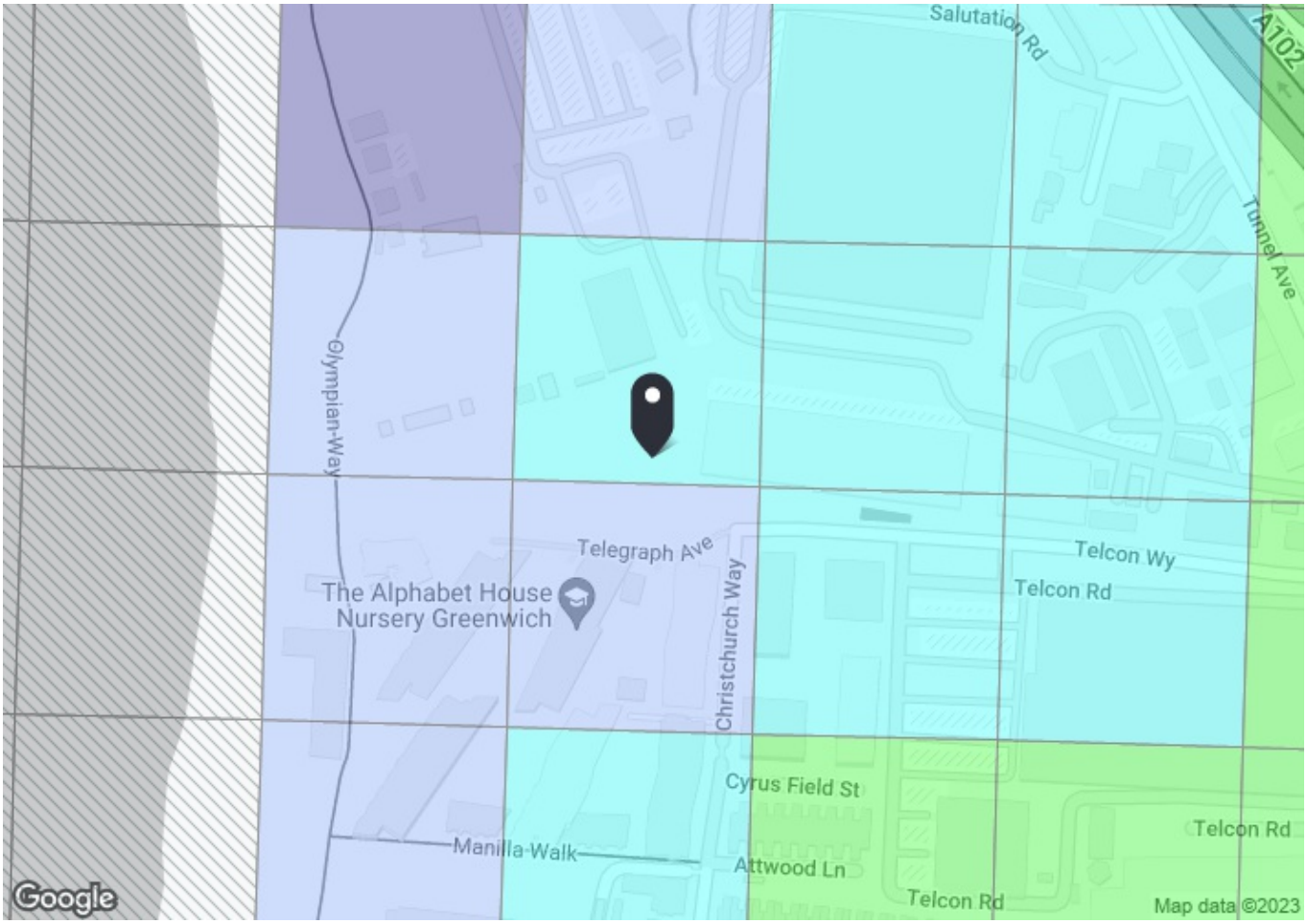
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	485.89	6	6.07	7	13.07	2.29	0.5	1.15
Bus	BLACKWALL LANE AZOF ST	188	485.89	8	6.07	5.75	11.82	2.54	1	2.54
Bus	BLACKWALL LN TUNNEL AVE	108	520.12	6	6.5	7	13.5	2.22	0.5	1.11
									Total Grid Cell AI:	**4.8**

TRANSPORT FOR LONDON



PTAL output for Base Year
2

1 Telegraph Ave, London SE10 0TA, UK
Easting: 539254, Northing: 178805

Grid Cell: 72591

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

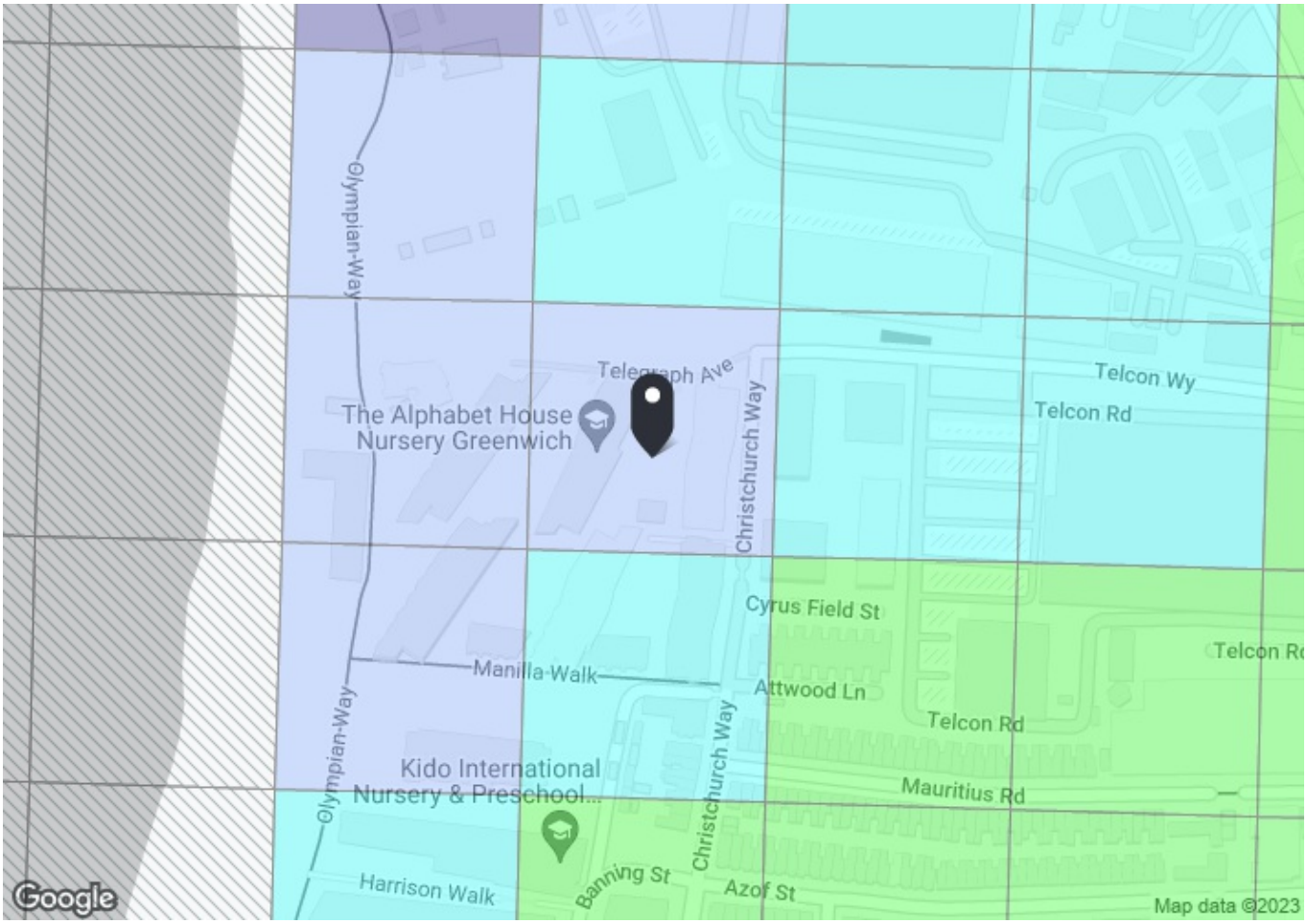
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	420.89	6	5.26	7	12.26	2.45	0.5	1.22
Bus	BLACKWALL LANE AZOF ST	188	420.89	8	5.26	5.75	11.01	2.72	1	2.72
Bus	BLACKWALL LN TUNNEL AVE	108	455.12	6	5.69	7	12.69	2.36	0.5	1.18
									Total Grid Cell AI:	**5.13**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

5 Telegraph Ave, London SE10 0AG, UK
Easting: 539248, Northing: 178732

Grid Cell: 72104

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

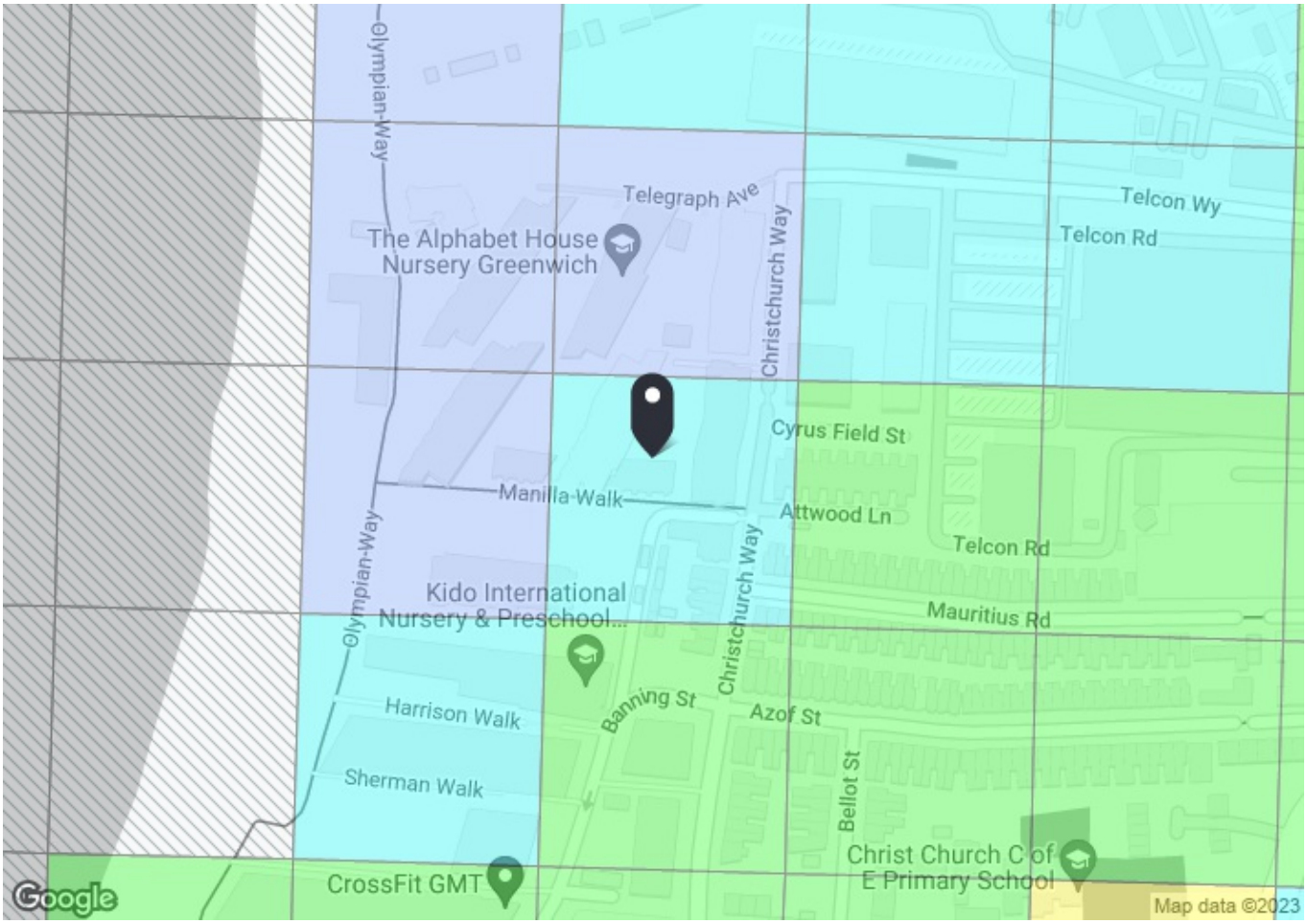
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	470.68	6	5.88	7	12.88	2.33	0.5	1.16
Bus	BLACKWALL LANE AZOF ST	188	470.68	8	5.88	5.75	11.63	2.58	1	2.58
Bus	BLACKWALL LN TUNNEL AVE	108	504.92	6	6.31	7	13.31	2.25	0.5	1.13
									Total Grid Cell AI:	**4.87**

TRANSPORT FOR LONDON



PTAL output for Base Year
2

24 Cable Walk, London SE10 0TQ, UK
Easting: 539239, Northing: 178661

Grid Cell: 71618

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

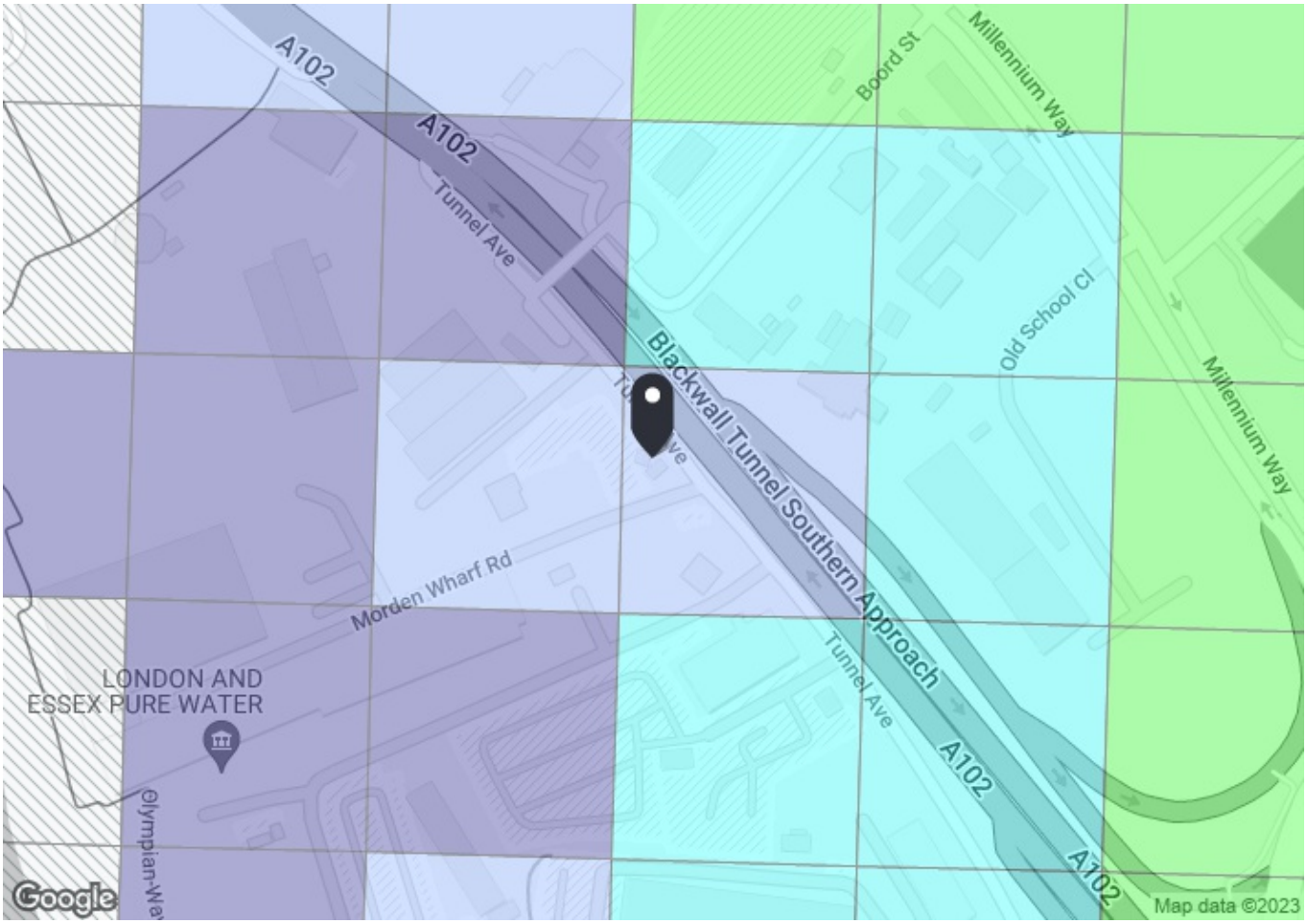
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	TRAFALGAR R BLACKWALL LN	286	552.37	6	6.9	7	13.9	2.16	0.5	1.08
Bus	TRAFALGAR R BLACKWALL LN	180	552.37	5	6.9	8	14.9	2.01	0.5	1.01
Bus	TRAFALGAR R BLACKWALL LN	386	552.37	4	6.9	9.5	16.4	1.83	0.5	0.91
Bus	TRAFALGAR R BLACKWALL LN	177	552.37	6	6.9	7	13.9	2.16	0.5	1.08
Bus	TRAFALGAR R BLACKWALL LN	129	552.37	7.5	6.9	6	12.9	2.32	0.5	1.16
Bus	BLACKWALL LANE AZOF ST	422	432.72	6	5.41	7	12.41	2.42	0.5	1.21
Bus	BLACKWALL LANE AZOF ST	188	432.72	8	5.41	5.75	11.16	2.69	1	2.69
									Total Grid Cell AI:	**9.14**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539310, Northing: 179157

Grid Cell: 74047

Report generated: 17/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

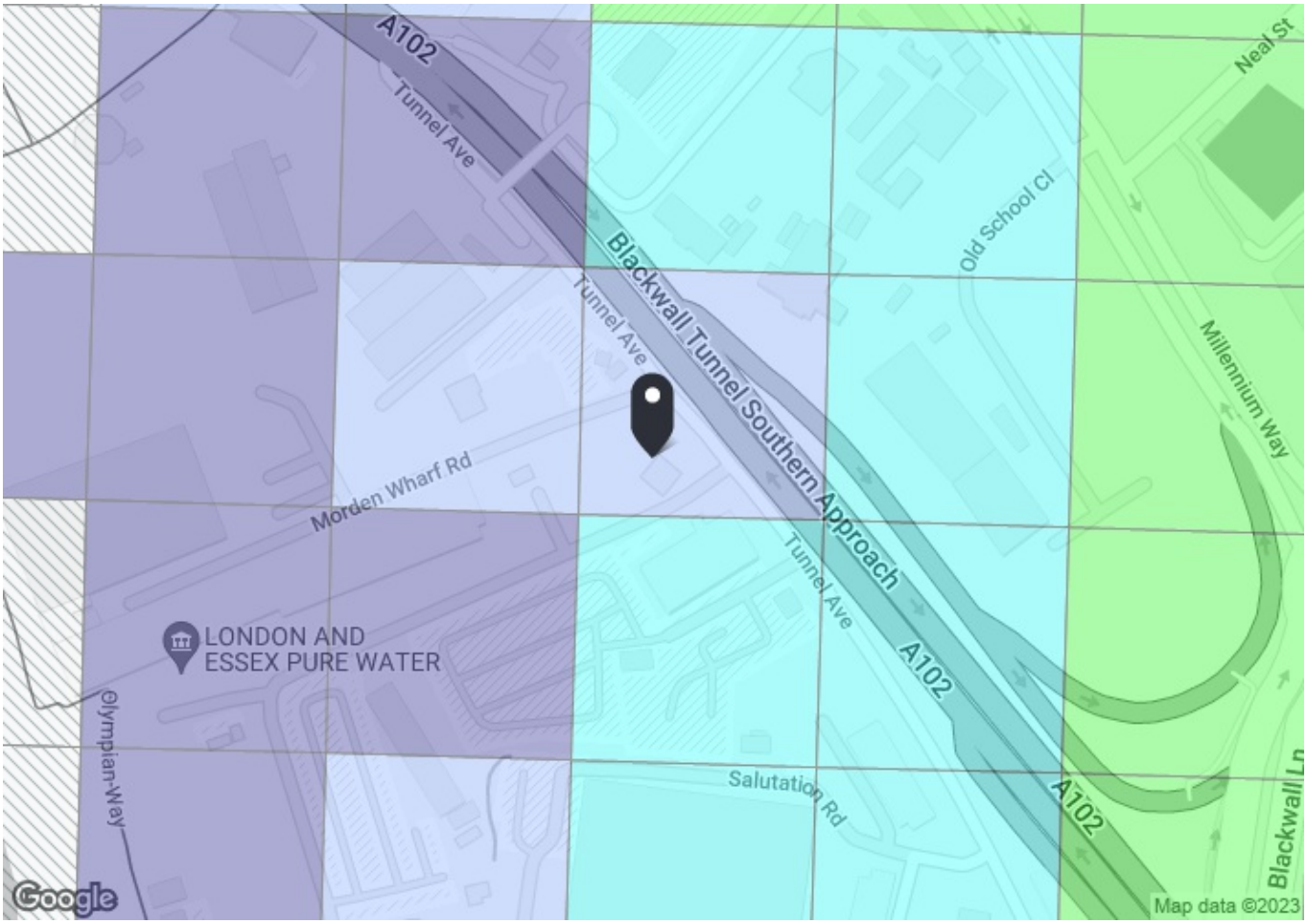
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	523.35	6	6.54	7	13.54	2.22	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	523.35	8	6.54	5.75	12.29	2.44	1	2.44
Bus	BLACKWALL LN TUNNEL AVE	108	456.47	6	5.71	7	12.71	2.36	0.5	1.18
									Total Grid Cell AI:	**4.73**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539327, Northing: 179117

Grid Cell: 74047

Report generated: 17/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

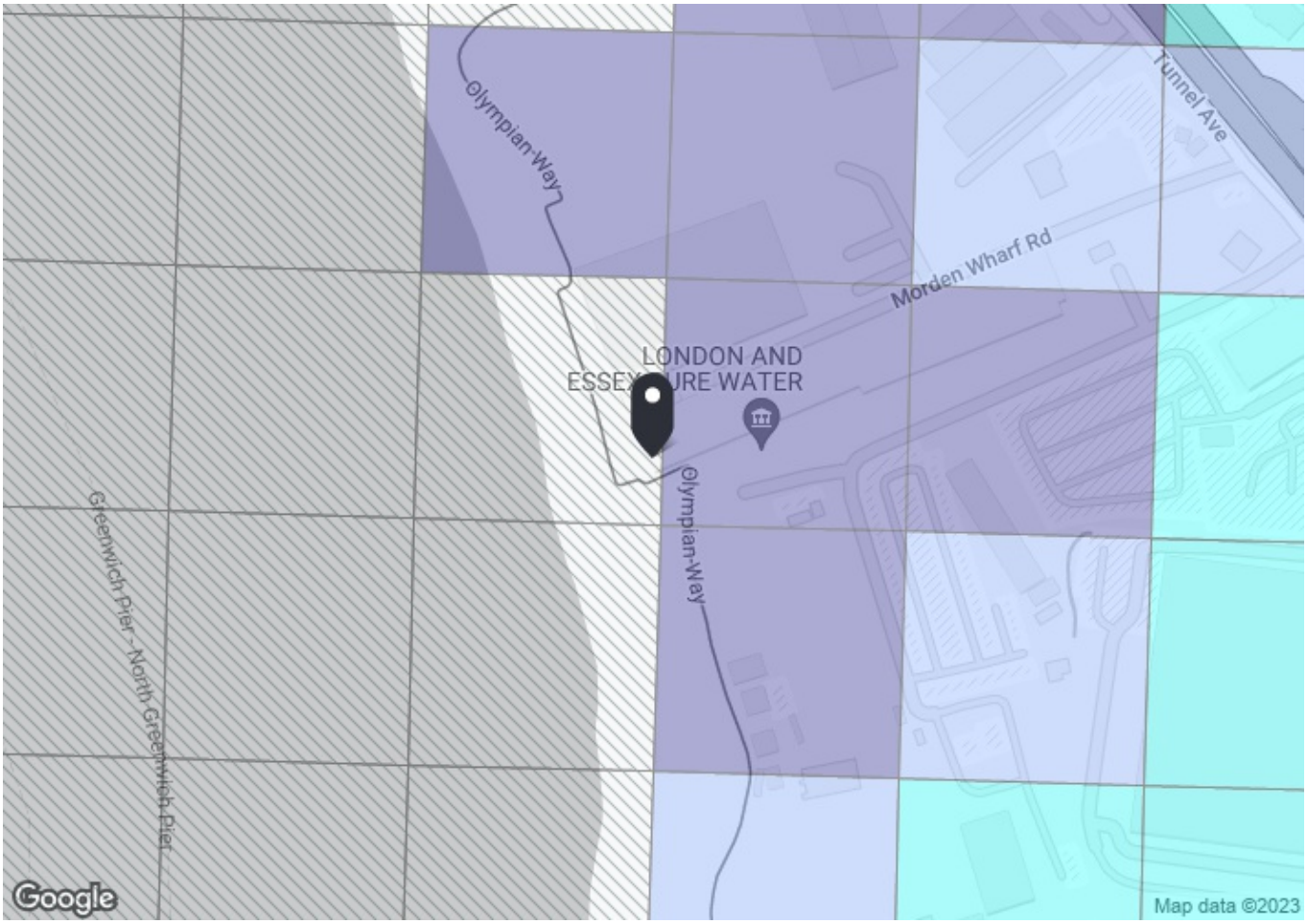
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	523.35	6	6.54	7	13.54	2.22	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	523.35	8	6.54	5.75	12.29	2.44	1	2.44
Bus	BLACKWALL LN TUNNEL AVE	108	456.47	6	5.71	7	12.71	2.36	0.5	1.18
									Total Grid Cell AI:	**4.73**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
0

F2V2+6V London, UK
Easting: 539093, Northing: 179021

Grid Cell: 73560

Report generated: 16/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	Change from base year

Map layers

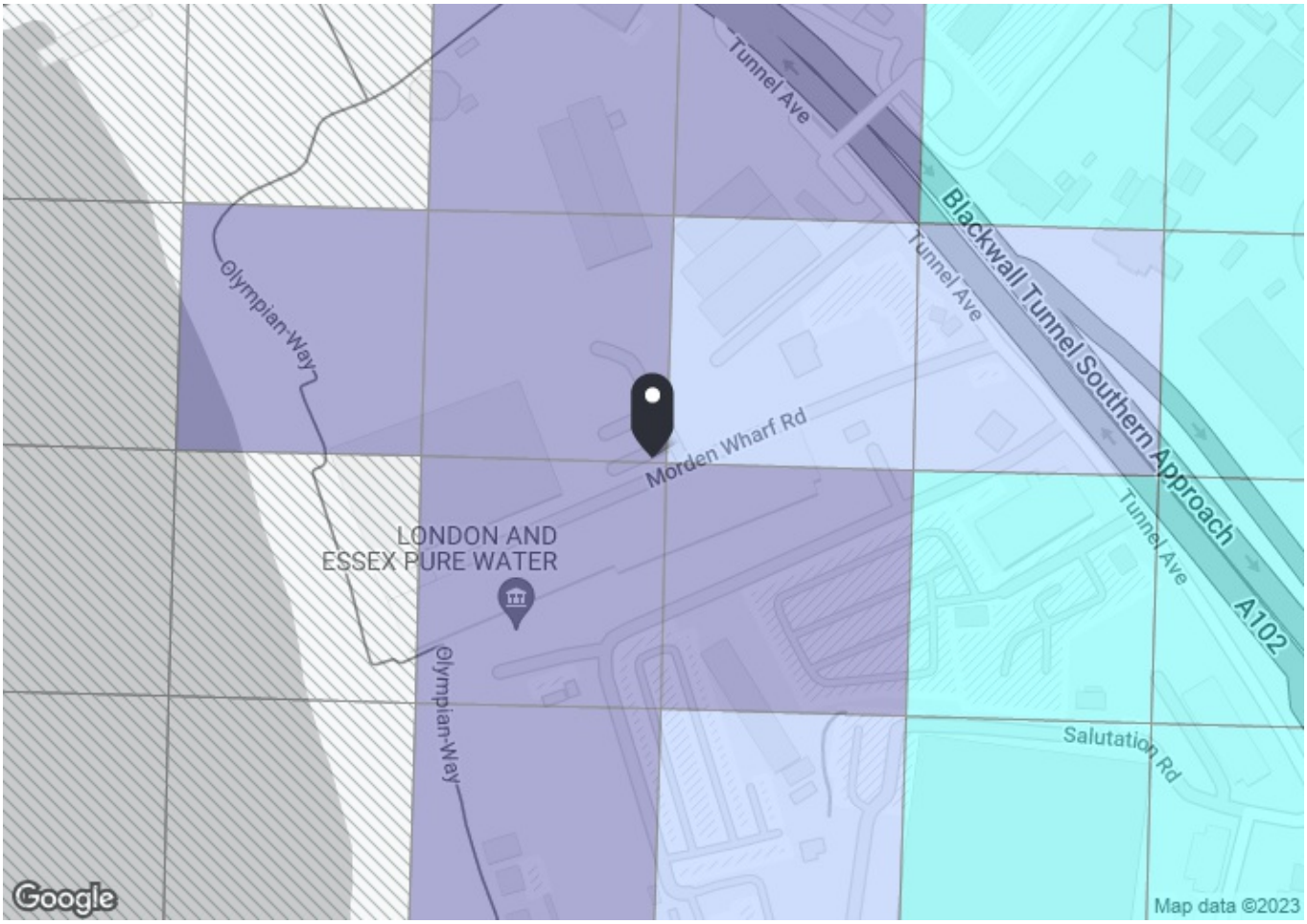
PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1a

Morden Wharf Rd, London SE10 0NU, UK
Easting: 539191, Northing: 179096

Grid Cell: 73561

Report generated: 16/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	Change from base year

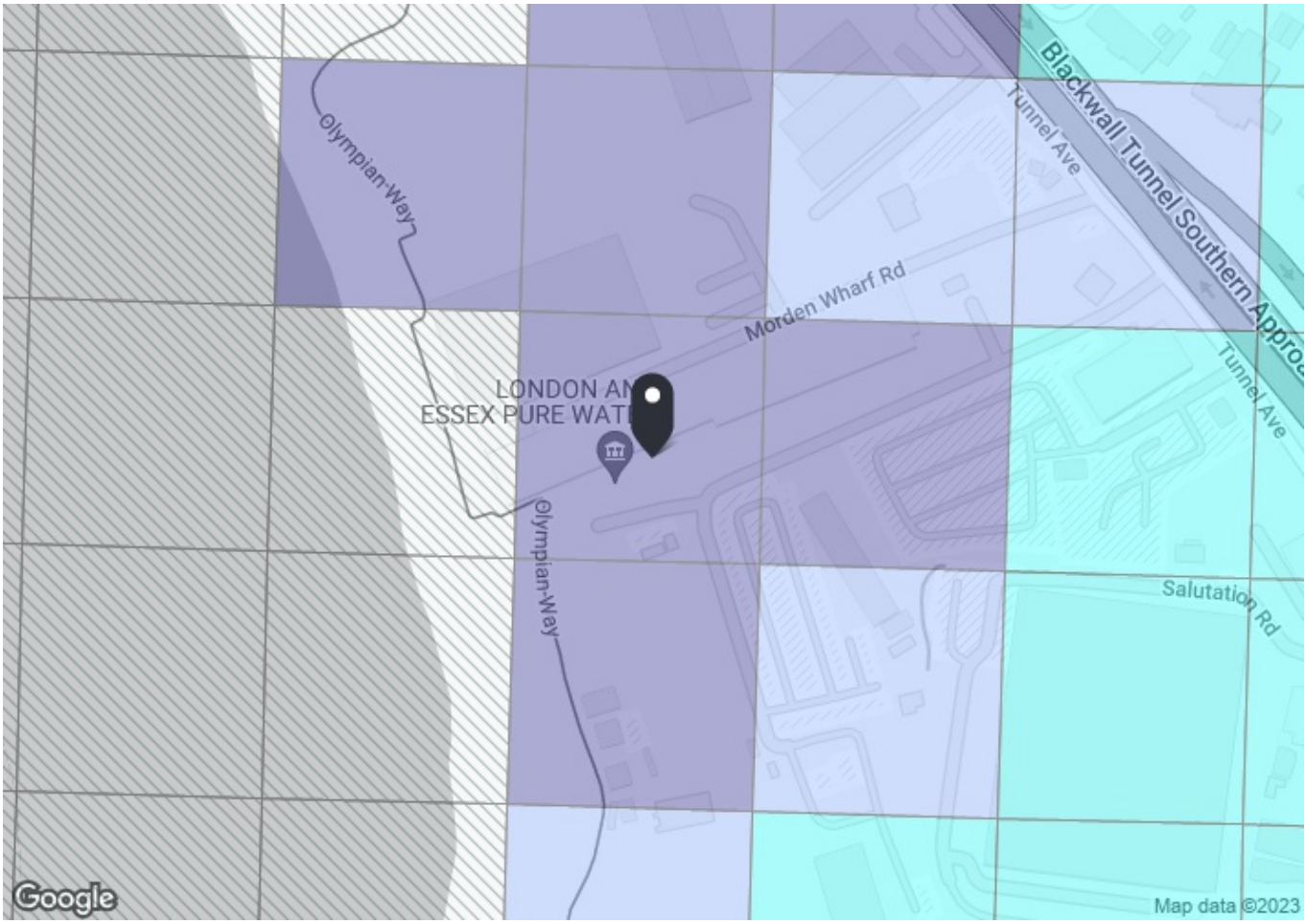
Map layers

PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1a

F2V3+76 London, UK
Easting: 539152, Northing: 179036

Grid Cell: 73561

Report generated: 16/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	Change from base year

Map layers

PTAL (cell size: 100m)

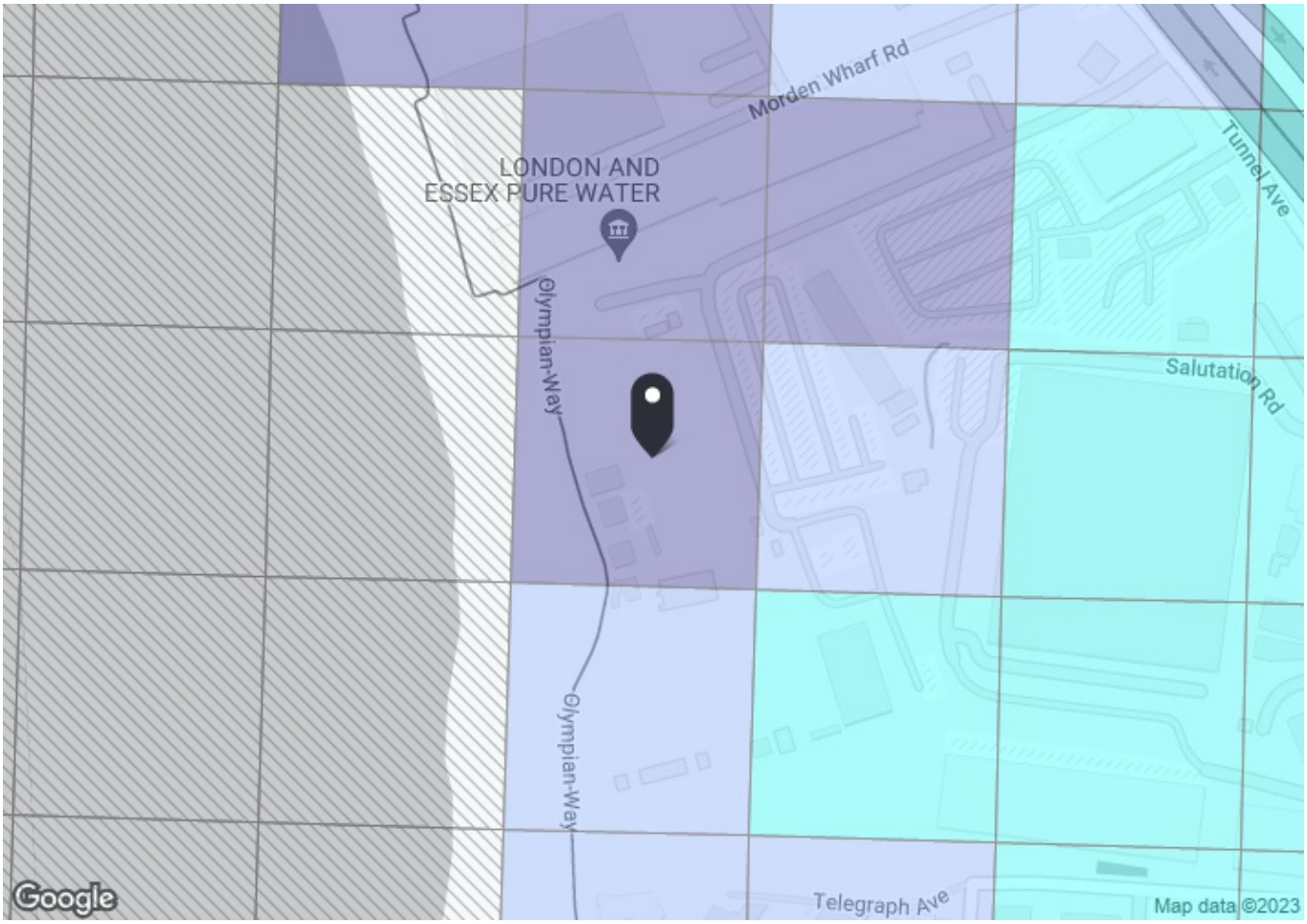
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	519.98	6.21	6.5	6.83	13.33	2.25	1	2.25
									Total Grid Cell AI:	**2.25**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1a

F2R3+W6 London, UK
Easting: 539153, Northing: 178946

Grid Cell: 73076

Report generated: 16/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	Change from base year

Map layers

PTAL (cell size: 100m)

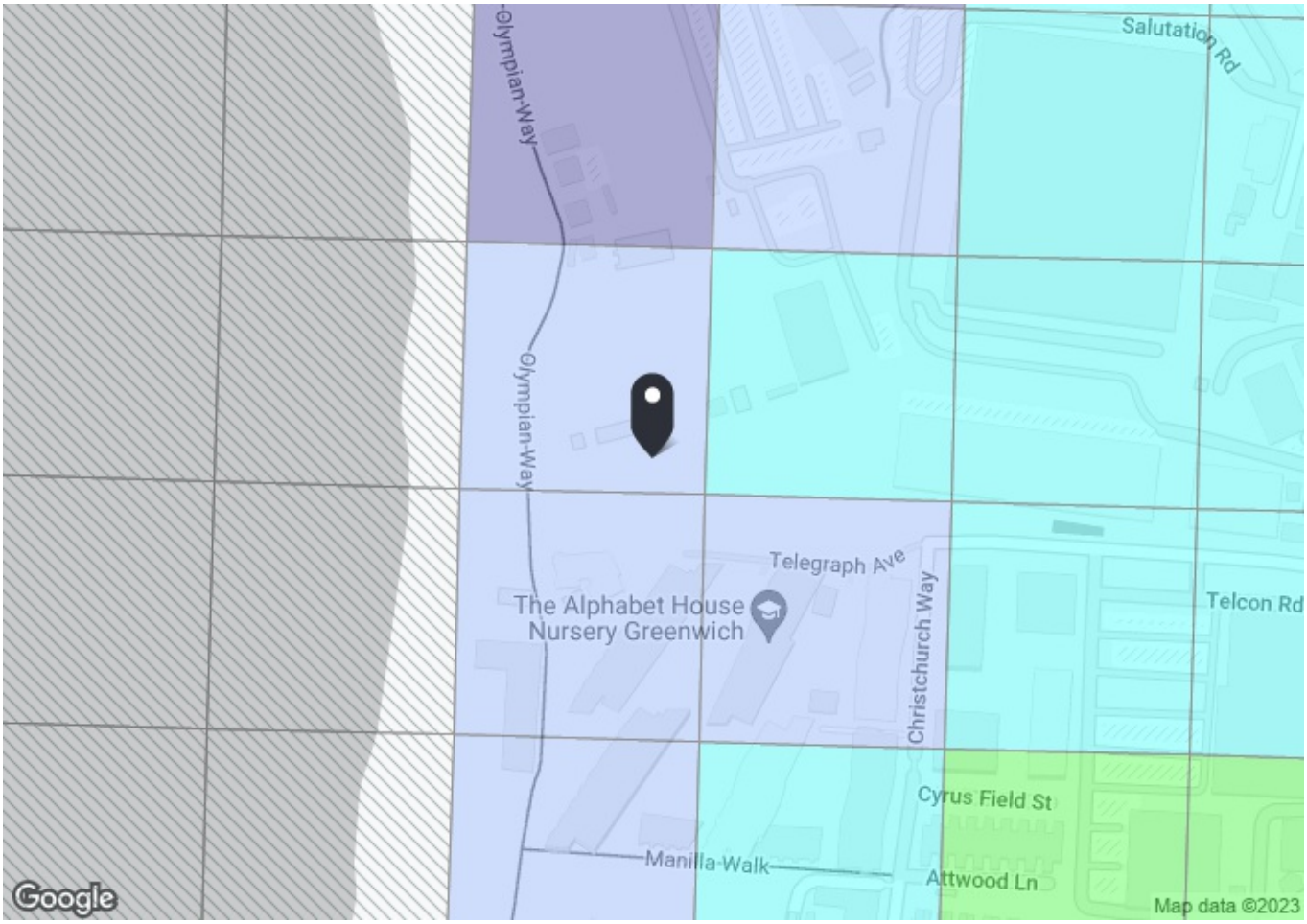
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	638.42	6.21	7.98	6.83	14.81	2.03	1	2.03
									Total Grid Cell AI:	**2.03**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

191 Tunnel Ave, London SE10 0GR, UK
Easting: 539175, Northing: 178808

Grid Cell: 72590

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

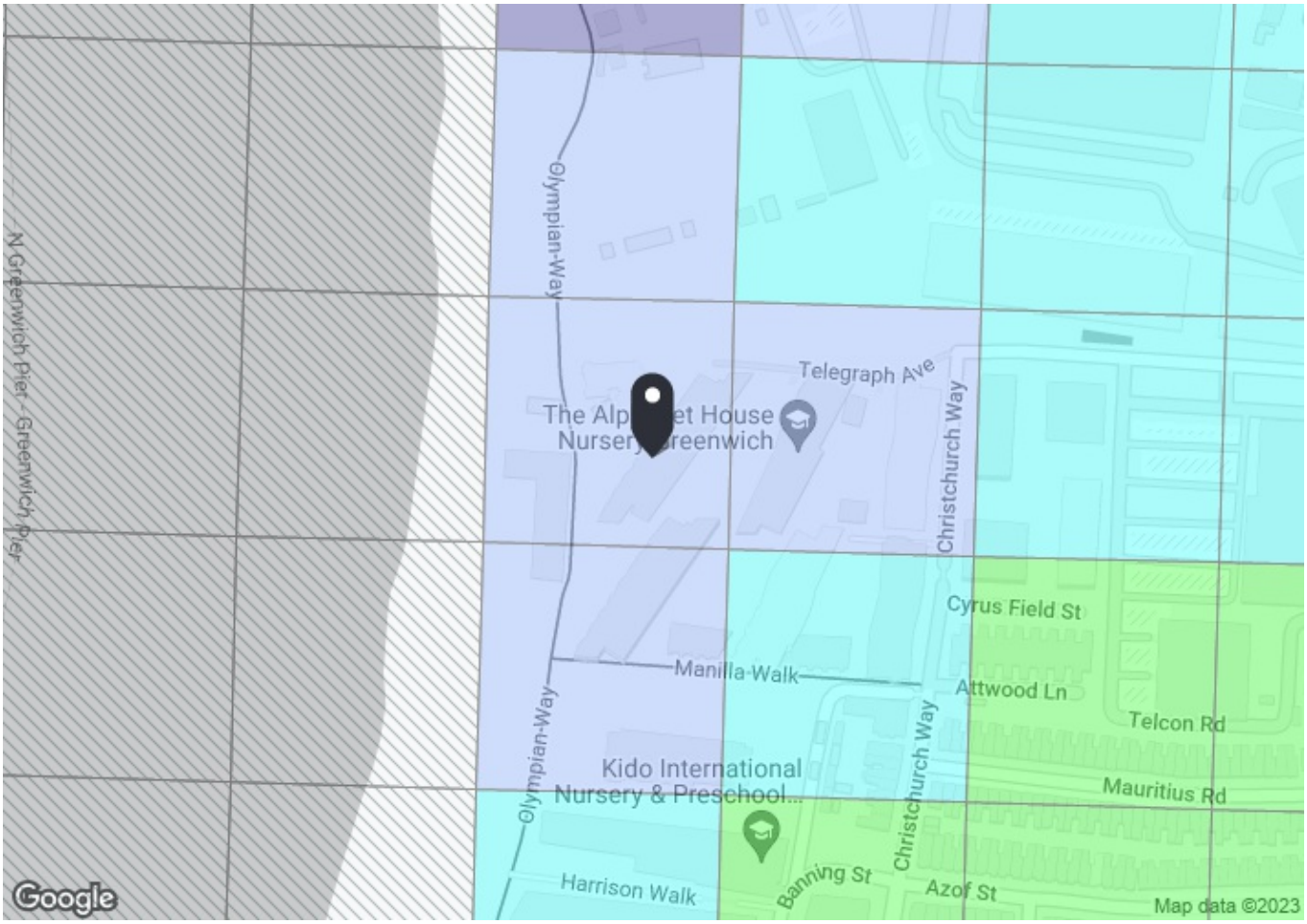
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	525.89	6.21	6.57	6.83	13.4	2.24	0.5	1.12
Bus	BLACKWALL LANE AZOF ST	188	525.89	8.28	6.57	5.62	12.2	2.46	1	2.46
Bus	BLACKWALL LN TUNNEL AVE	108	560.12	6.21	7	6.83	13.83	2.17	0.5	1.08
									Total Grid Cell AI:	**4.66**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

19 Telegraph Ave, London SE10 0AG, UK
Easting: 539166, Northing: 178730

Grid Cell: 72103

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

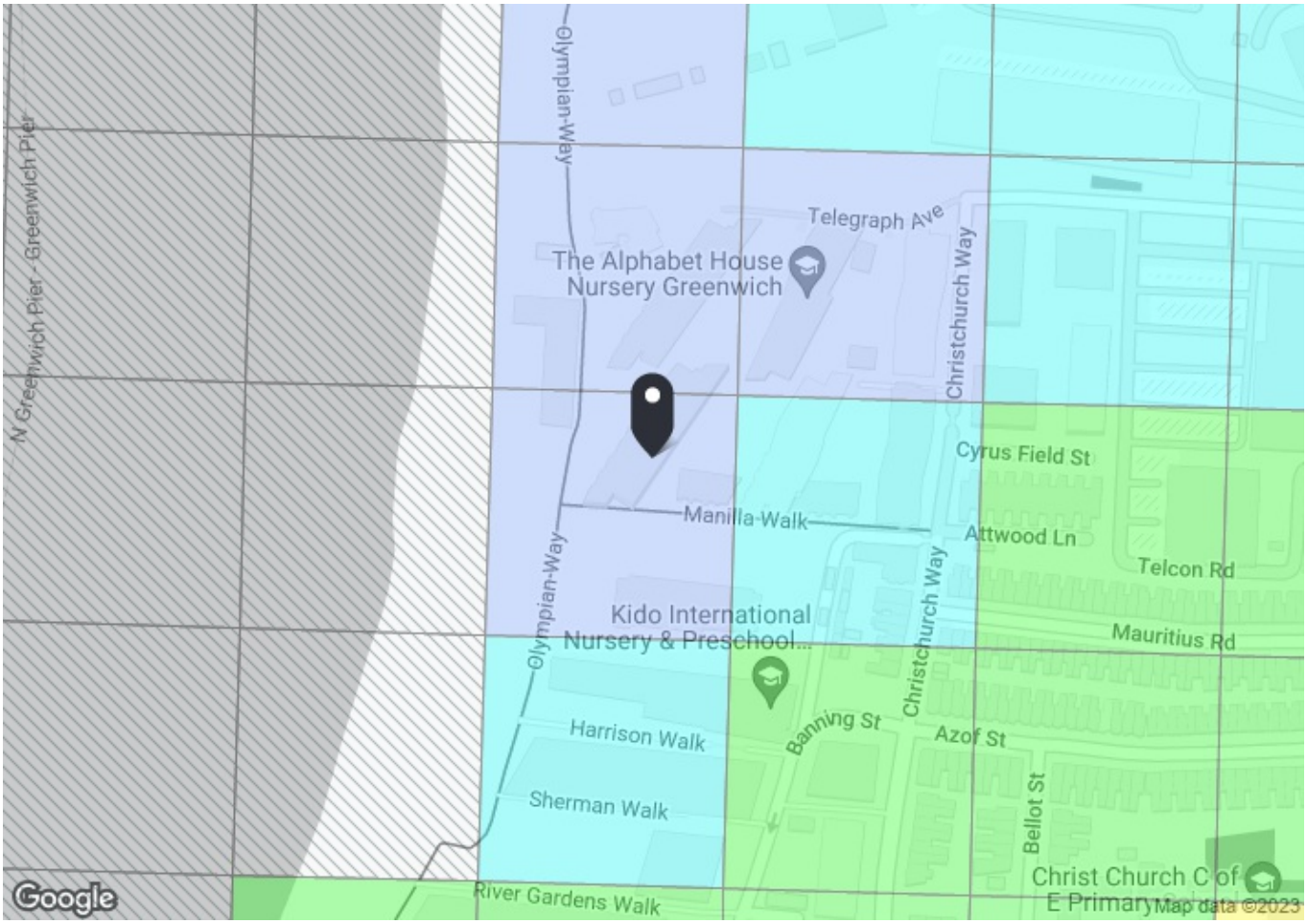
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	517.54	6.21	6.47	6.83	13.3	2.26	0.5	1.13
Bus	BLACKWALL LANE AZOF ST	188	517.54	8.28	6.47	5.62	12.09	2.48	1	2.48
Bus	BLACKWALL LN TUNNEL AVE	108	551.78	6.21	6.9	6.83	13.73	2.19	0.5	1.09
									Total Grid Cell AI:	**4.7**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

34 Cable Walk, London SE10 0TS, UK
Easting: 539163, Northing: 178668

Grid Cell: 71617

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

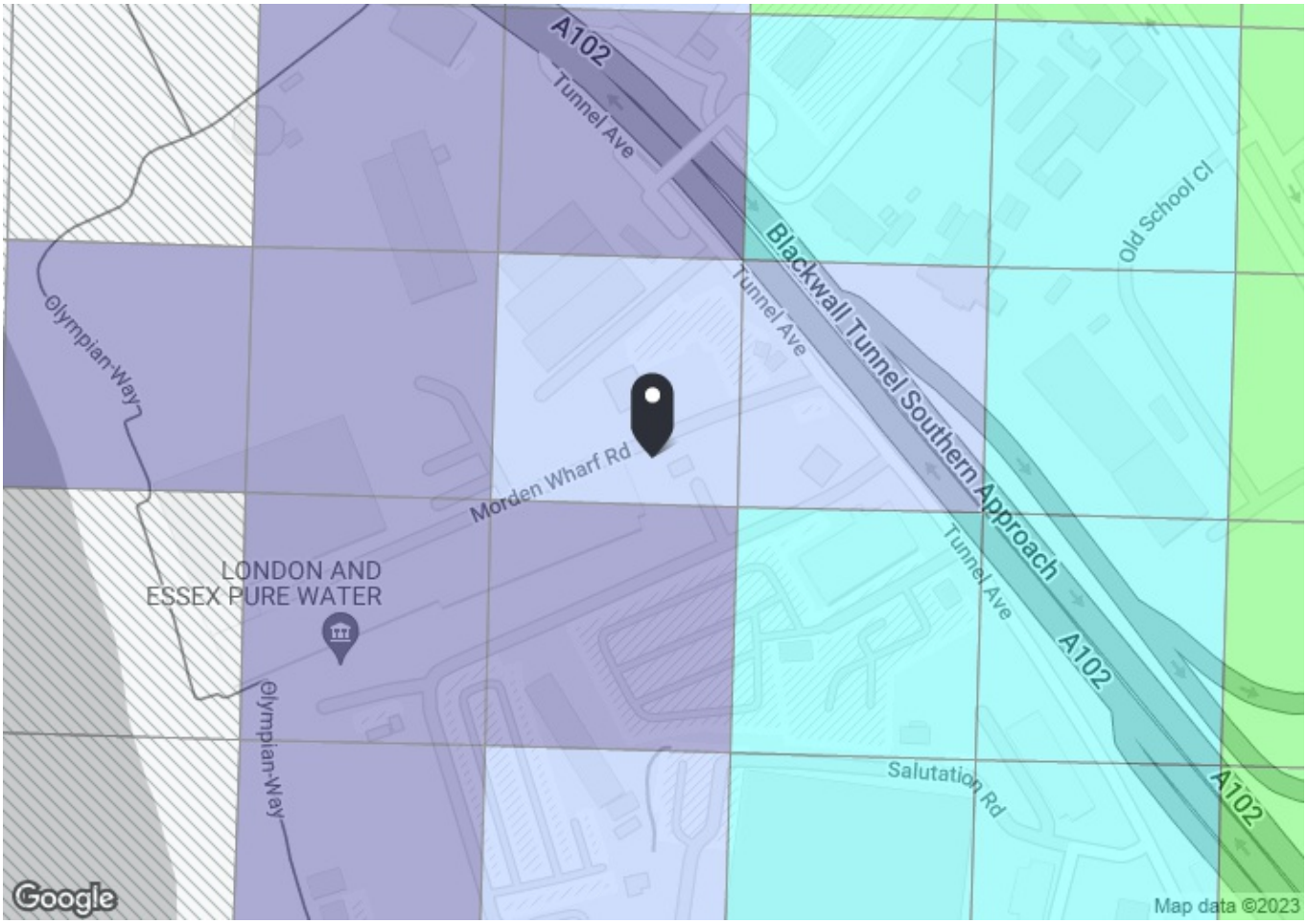
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	537.72	6.21	6.72	6.83	13.55	2.21	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	537.72	8.28	6.72	5.62	12.34	2.43	1	2.43
									Total Grid Cell AI:	**3.54**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539262, Northing: 179112

Grid Cell: 74046

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

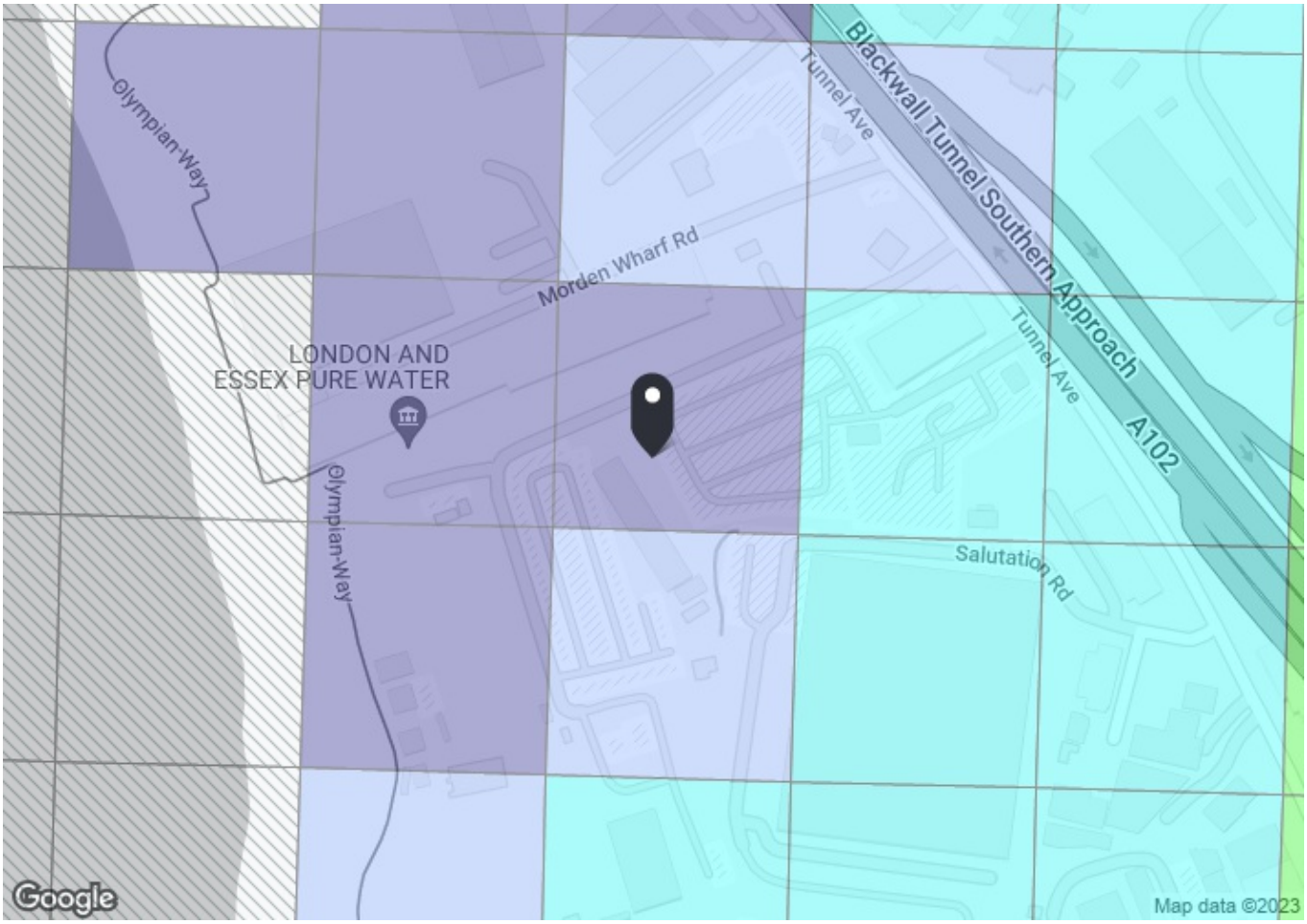
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	628.29	6.21	7.85	6.83	14.68	2.04	0.5	1.02
Bus	BLACKWALL LANE AZOF ST	188	628.29	8.28	7.85	5.62	13.48	2.23	0.5	1.11
Bus	BLACKWALL LN TUNNEL AVE	108	407.37	6.21	5.09	6.83	11.92	2.52	1	2.52
									Total Grid Cell AI:	**4.65**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1a

F2V3+6P London, UK
Easting: 539237, Northing: 179024

Grid Cell: 73562

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

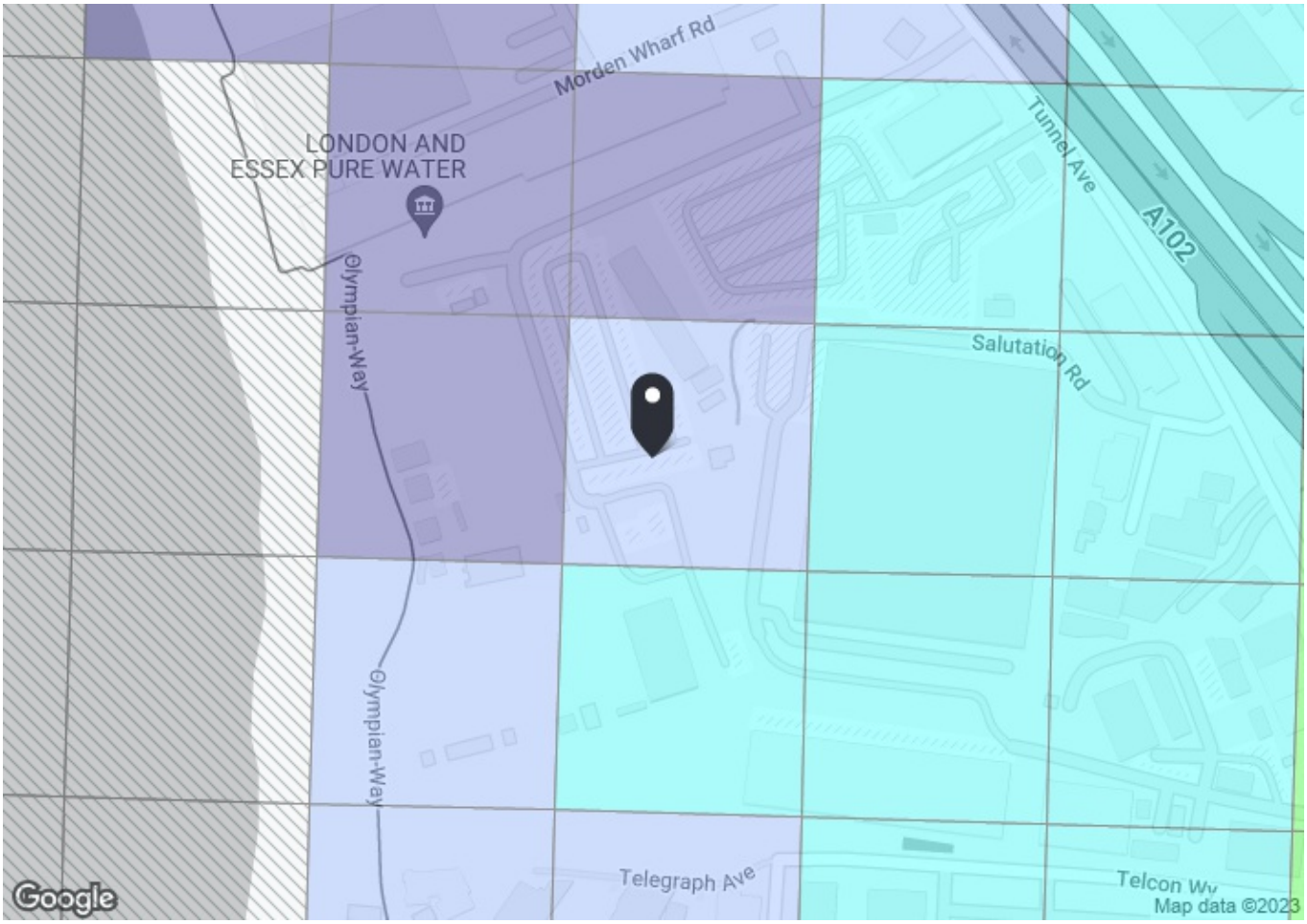
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	474.12	6.21	5.93	6.83	12.76	2.35	1	2.35
									Total Grid Cell AI:	**2.35**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

F2R3+WM London, UK
Easting: 539233, Northing: 178938

Grid Cell: 73077

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

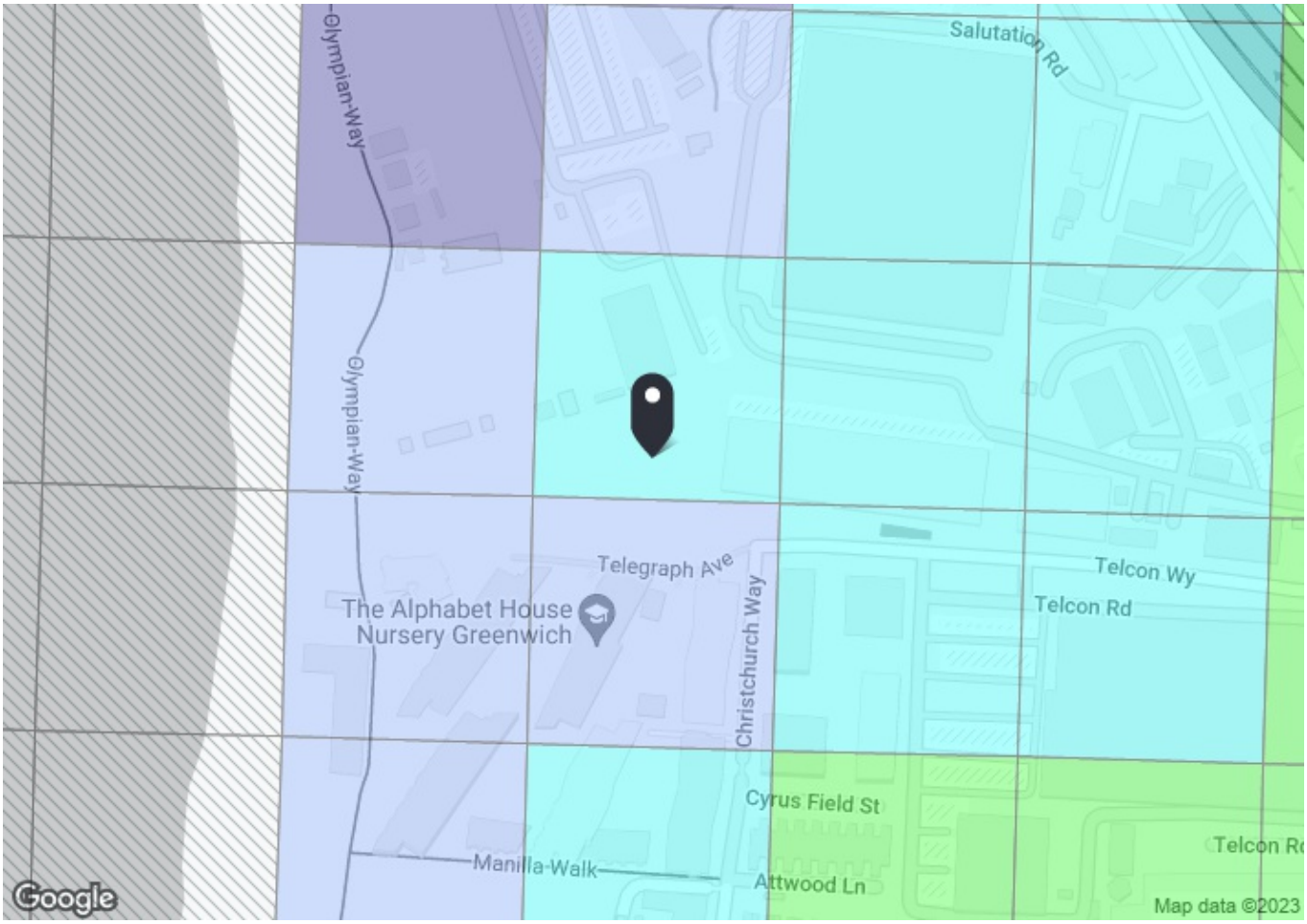
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	485.89	6.21	6.07	6.83	12.9	2.32	0.5	1.16
Bus	BLACKWALL LANE AZOF ST	188	485.89	8.28	6.07	5.62	11.7	2.56	1	2.56
Bus	BLACKWALL LN TUNNEL AVE	108	520.12	6.21	6.5	6.83	13.33	2.25	0.5	1.13
									Total Grid Cell AI:	**4.85**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
2

13 Telegraph Ave, London SE10 0TE, UK
Easting: 539245, Northing: 178811

Grid Cell: 72591

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

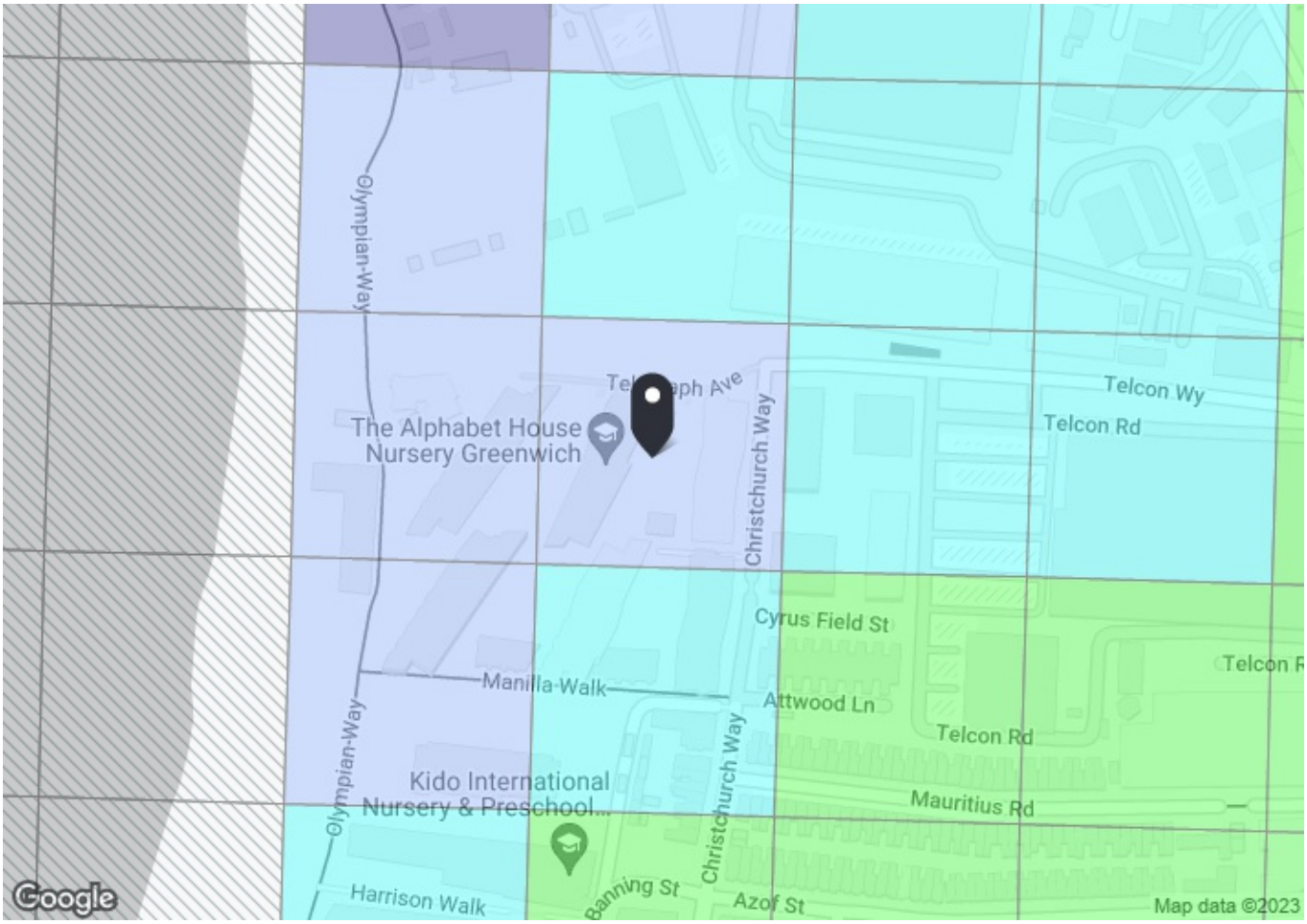
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	420.89	6.21	5.26	6.83	12.09	2.48	0.5	1.24
Bus	BLACKWALL LANE AZOF ST	188	420.89	8.28	5.26	5.62	10.88	2.76	1	2.76
Bus	BLACKWALL LN TUNNEL AVE	108	455.12	6.21	5.69	6.83	12.52	2.4	0.5	1.2
									Total Grid Cell AI:	**5.19**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

11 Telegraph Ave, London SE10 0TE, UK
Easting: 539243, Northing: 178738

Grid Cell: 72104

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

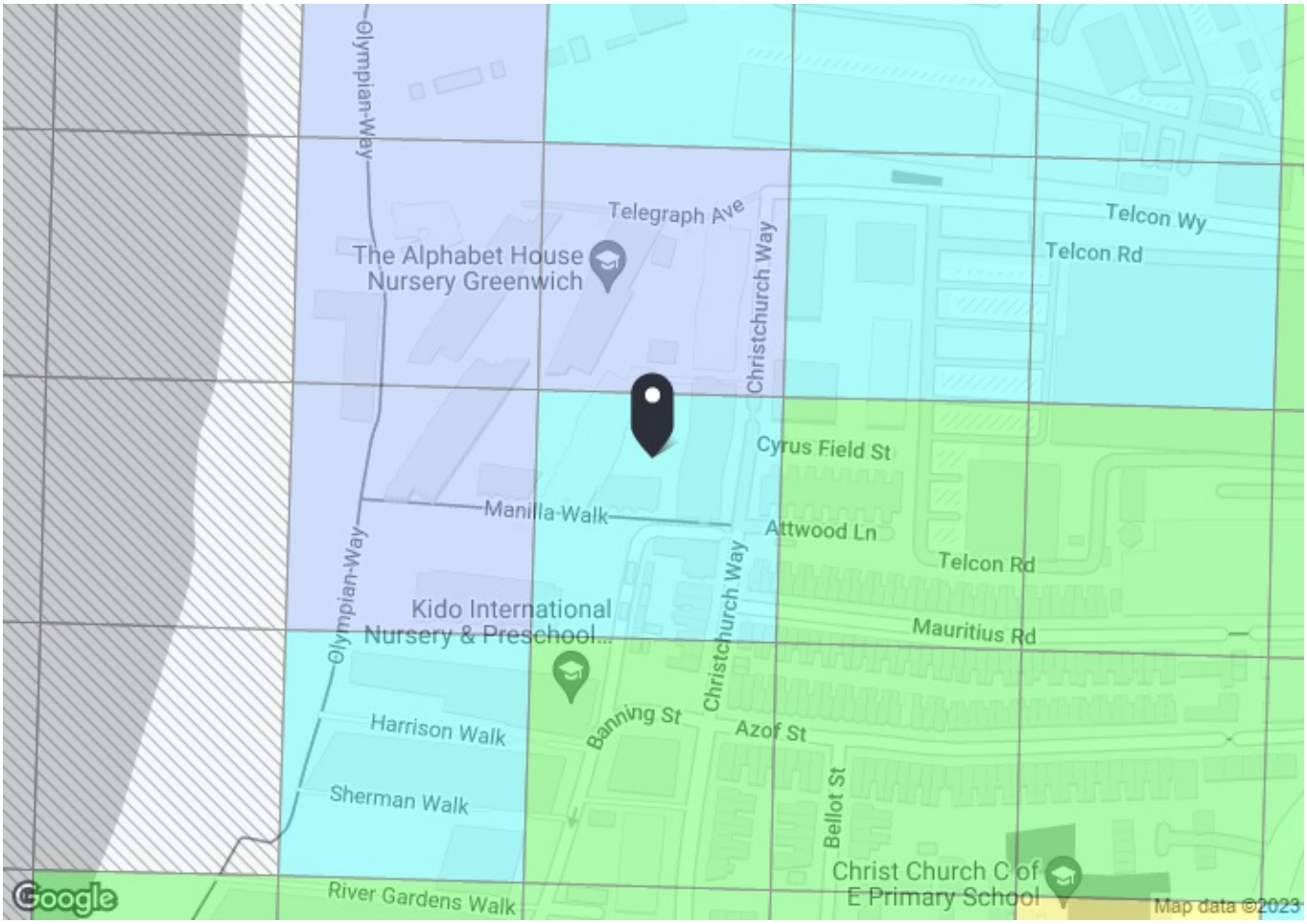
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	470.68	6.21	5.88	6.83	12.71	2.36	0.5	1.18
Bus	BLACKWALL LANE AZOF ST	188	470.68	8.28	5.88	5.62	11.51	2.61	1	2.61
Bus	BLACKWALL LN TUNNEL AVE	108	504.92	6.21	6.31	6.83	13.14	2.28	0.5	1.14
									Total Grid Cell AI:	**4.93**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
2

124 Christchurch Way London SE10 0UW, UK
Easting: 539244, Northing: 178668

Grid Cell: 71618

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

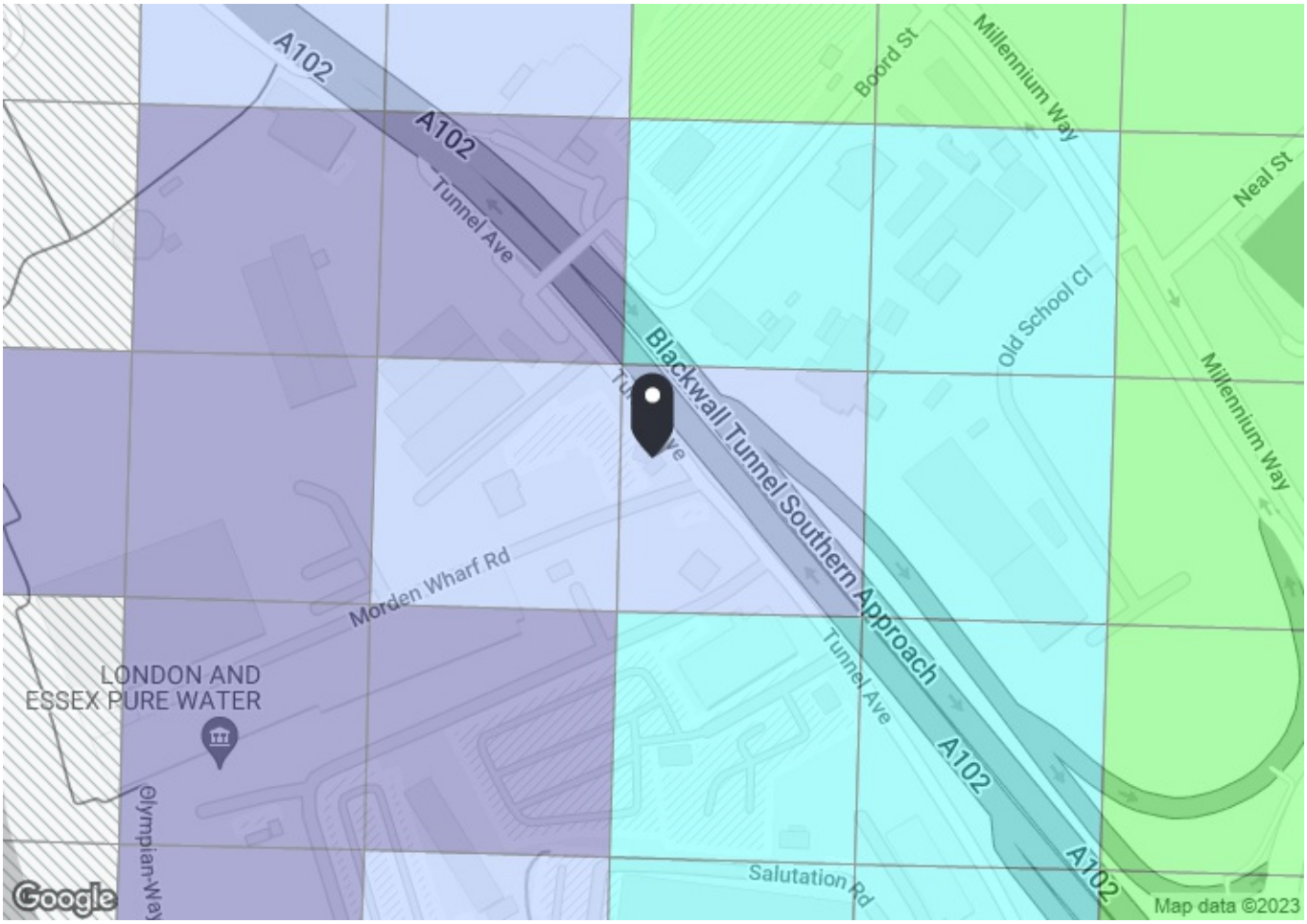
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	TRAFALGAR R BLACKWALL LN	286	552.37	6.21	6.9	6.83	13.74	2.18	0.5	1.09
Bus	TRAFALGAR R BLACKWALL LN	180	552.37	5.18	6.9	7.8	14.7	2.04	0.5	1.02
Bus	TRAFALGAR R BLACKWALL LN	386	552.37	4.14	6.9	9.25	16.15	1.86	0.5	0.93
Bus	TRAFALGAR R BLACKWALL LN	177	552.37	6.21	6.9	6.83	13.74	2.18	0.5	1.09
Bus	TRAFALGAR R BLACKWALL LN	129	552.37	7.76	6.9	5.86	12.77	2.35	0.5	1.17
Bus	BLACKWALL LANE AZOF ST	422	432.72	6.21	5.41	6.83	12.24	2.45	0.5	1.23
Bus	BLACKWALL LANE AZOF ST	188	432.72	8.28	5.41	5.62	11.03	2.72	1	2.72
									Total Grid Cell AI:	**9.25**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539310, Northing: 179156

Grid Cell: 74047

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

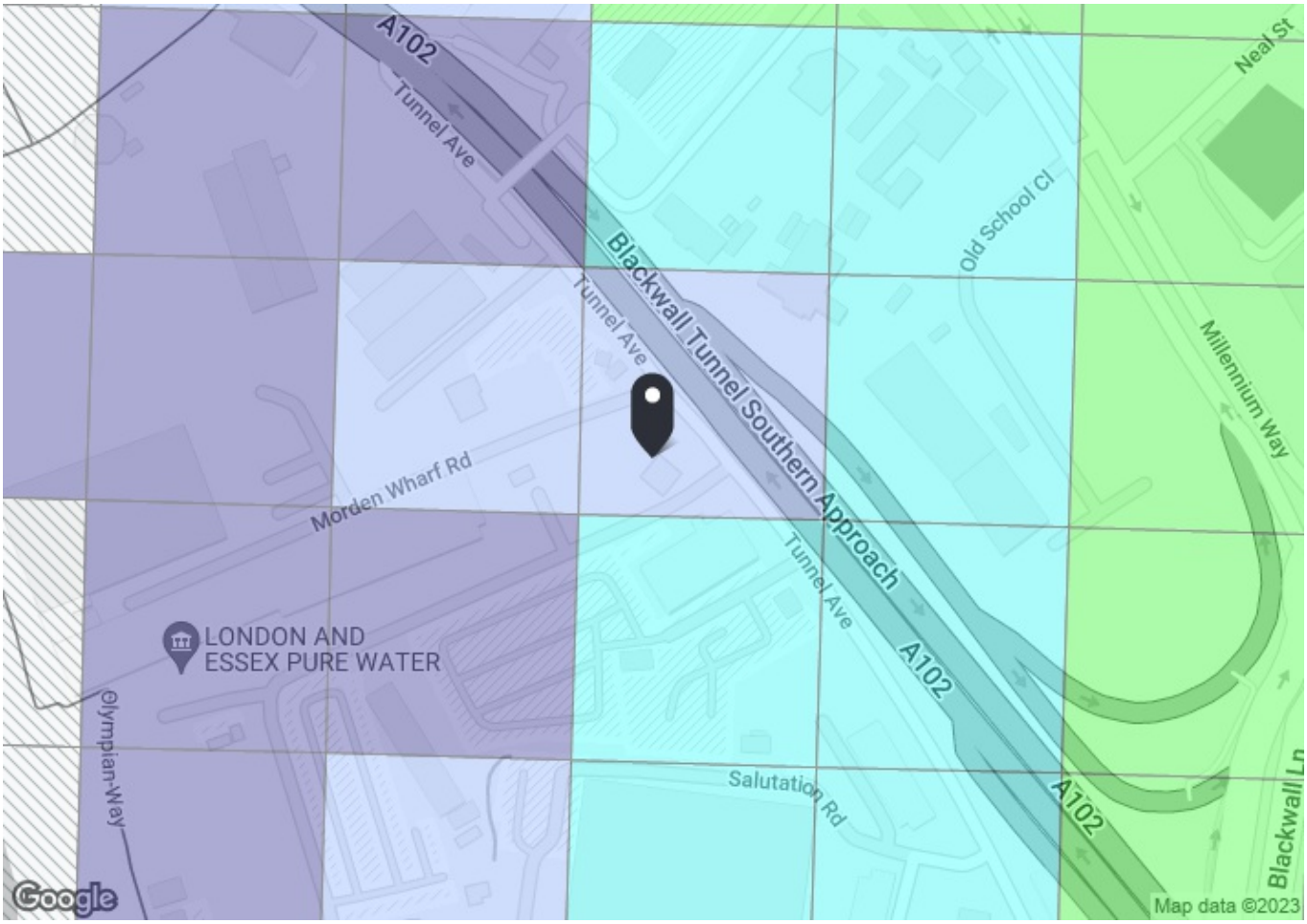
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	523.35	6.21	6.54	6.83	13.37	2.24	0.5	1.12
Bus	BLACKWALL LANE AZOF ST	188	523.35	8.28	6.54	5.62	12.17	2.47	1	2.47
Bus	BLACKWALL LN TUNNEL AVE	108	456.47	6.21	5.71	6.83	12.54	2.39	0.5	1.2
									Total Grid Cell AI:	**4.78**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539327, Northing: 179117

Grid Cell: 74047

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

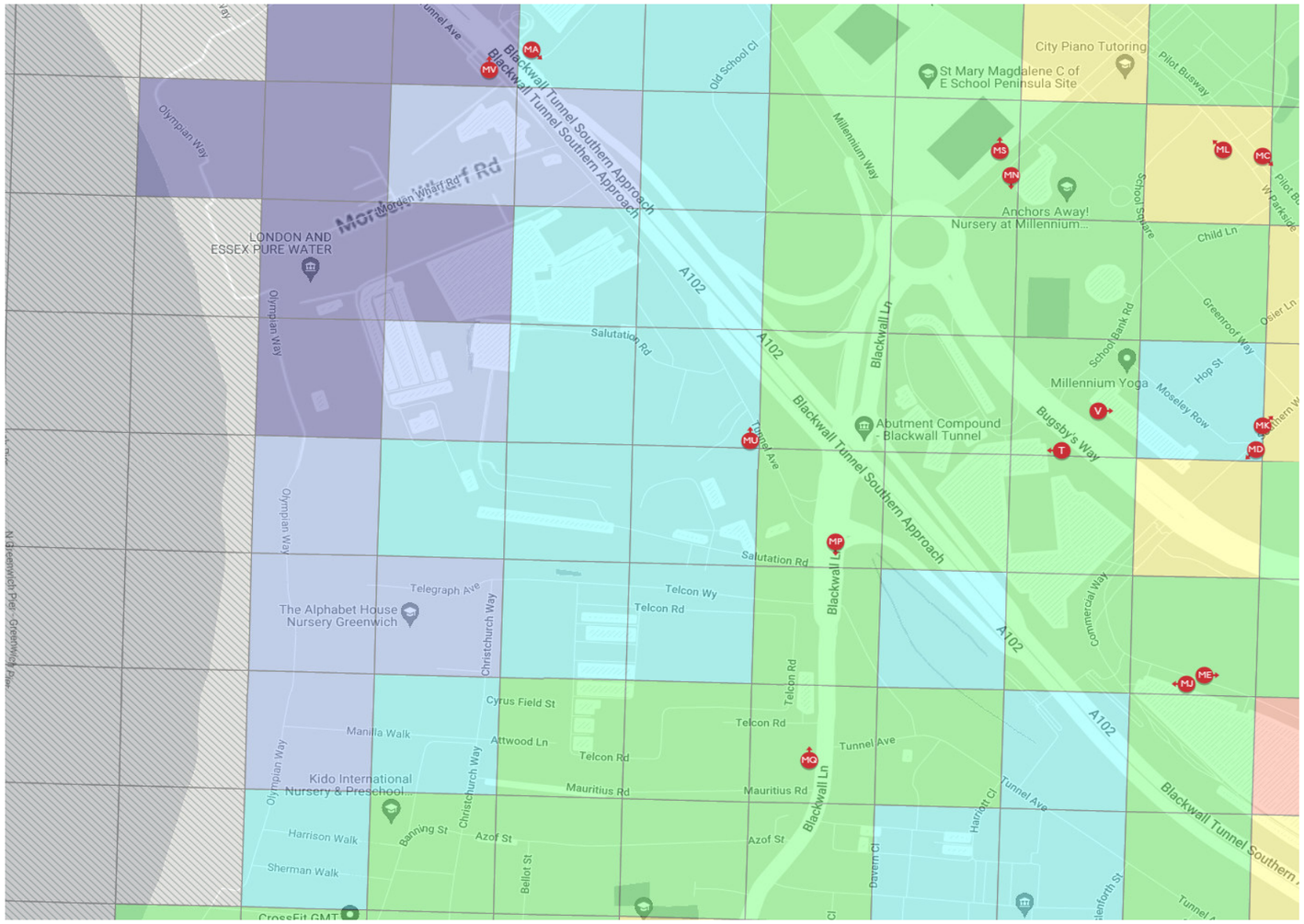
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	523.35	6.21	6.54	6.83	13.37	2.24	0.5	1.12
Bus	BLACKWALL LANE AZOF ST	188	523.35	8.28	6.54	5.62	12.17	2.47	1	2.47
Bus	BLACKWALL LN TUNNEL AVE	108	456.47	6.21	5.71	6.83	12.54	2.39	0.5	1.2
									Total Grid Cell AI:	**4.78**

APPENDIX B – PTAL CALCULATION WORKINGS



PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 – 2.50		Very poor
1b	2.51 – 5.00		Very poor
2	5.01 – 10.00		Poor
3	10.01 – 15.00		Moderate
4	15.01 – 20.00		Good
5	20.01 – 25.00		Very Good
6a	25.01 – 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	PTAL	Description
1	0	No Score
2	1a	Very Poor
3	1a	Very Poor
4	1a	Very Poor
5	1b	Very Poor
6	1b	Very Poor
7	1b	Very Poor
8	1b	Very Poor
9	1a	Very Poor
10	1b	Very Poor
11	2	Poor
12	1b	Very Poor
13	2	Poor
14	1a	Very Poor
15	2	Poor

0	0.00 - 0.07	No Score
1a	0.07 - 2.50	Very Poor
1b	2.51 - 5.00	Very Poor
2	5.01 - 10.00	Poor
3	10.01 - 15.00	Moderate
4	15.01 - 20.00	Good
5	20.01 - 25.00	Very Good
6a	25.01 - 40.00	Excellent
6b	40.00+	Excellent

PTAL Calculation based on EXISTING SERVICES

Service	Frequency (mins)	Frequncy (vph)
108	10.5	5.714285714
188	10.5	5.714285714
422	10.5	5.714285714

Enderby Place

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	505	6.3125	5.71428571	7.25	13.5625	2.211981567
North Greenwich Station / Russel Square	188	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich / Bexleyheath Clock Tower	422	2	410	5.125	5.71428571	7.25	12.375	2.424242424
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.74235
2.424242424	2.318111996	0	0	PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	450	5.625	5.714285714	7.25	12.875	2.330097087
North Greenwich Station / Russel Square	188	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich / Bexleyheath Clock Tower	422	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.01532
2.56684492	2.448471004	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

Morden Wharf

Grid 1

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	345	4.3125	5.71428571	7.25	11.5625	2.594594595
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	2.59459
2.594594595	0	0	0	PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 2

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich / Bexleyheath Clock Tower	422	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.04634
3.037974684	2.008368201	0	0	PTAL Level	2

Grid 3

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	370	4.625	5.714285714	7.25	11.875	2.526315789
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	2.52632
2.52632	0	0	0	PTAL Level	1

Grid 4

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	430	5.375	5.714285714	7.25	12.625	2.376237624
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	2.37624
2.37624	0	0	0	PTAL Level	1

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	540	6.75	5.71429	7.25	14	2.14286
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	2.14286
2.14286	0	0	0	PTAL Level	1

Grid 8

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	170	2.125	5.71429	7.25	9.375	3.2
North Greenwich Station / Russel Square	188	2	585	7.3125	5.71429	7.25	14.5625	2.06009
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.71429	7.25	14.5625	2.06009
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.26009
3.2	2.06009	0	0	PTAL Level	2

Grid 9

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	255	3.1875	5.714285714	7.25	10.4375	2.87425
North Greenwich Station / Russel Square	188	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich / Bexleyheath Clock Tower	422	2	570	7.125	5.714285714	7.25	14.375	2.08696
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.96121
2.874251497	2.08695652	0	0	PTAL Level	1

Grid 10

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	350	4.375	5.714285714	7.25	11.625	2.58065
North Greenwich Station / Russel Square	188	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich / Bexleyheath Clock Tower	422	2	656	8.2	5.714285714	7.25	15.45	1.94175
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.52239
2.58065	1.94175	0	0	PTAL Level	1

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	475	5.9375	5.714285714	7.25	13.1875	2.27488
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	2.27488
2.27488	0	0	0	PTAL Level	1

Grid 14

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	150	1.875	5.714285714	7.25	9.125	3.287671233
North Greenwich Station / Russel Square	188	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich / Bexleyheath Clock Tower	422	2	470	5.875	5.714285714	7.25	13.125	2.285714286
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.57339
3.28767	2.285714286	0	0	PTAL Level	2

Grid 15

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich / Bexleyheath Clock Tower	422	2	520	6.5	5.714285714	7.25	13.75	2.181818182
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.21979
3.03797	2.181818182	0	0	PTAL Level	2

Enderby Wharf

Grid 6

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	570	7.125	5.71428571	7.25	14.375	2.086956522
North Greenwich Station / Russel Square	188	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich / Bexleyheath Clock Tower	422	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.52174
2.31884058	2.202898551	0	0	PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 7

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	610	7.625	5.714285714	7.25	14.875	2.016806723
North Greenwich Station / Russel Square	188	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich / Bexleyheath Clock Tower	422	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.42073
2.274881517	2.14584412	0	0	PTAL Level	1

Grid 12

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	456	5.7	5.714285714	7.25	12.95	2.316602317
North Greenwich Station / Russel Square	188	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich / Bexleyheath Clock Tower	422	2	340	4.25	5.714285714	7.25	11.5	2.608695652
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.07134
2.6087	2.462648984	0	0	PTAL Level	2

Grid 13

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	530	6.625	5.714285714	7.25	13.875	2.162162162
North Greenwich Station / Russel Square	188	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Bexleyheath Clock Tower	422	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Lewisham Shopping Centre	129	2	595	7.4375	4.615	8.50054	15.938	1.882288963
Thamesmead / Peckham	177	2	595	7.4375	10	5	12.4375	2.412060302
Queen Mary's Hospital / Cutty Sark	286	2	595	7.4375	5	8	15.4375	1.943319838
Woolwich / Blacjheath Village	386	2	595	7.4375	3.529	10.501	17.9385	1.6723814
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	8.64695
2.41206	6.23489	0	0	PTAL Level	2

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 - 2.50		Very poor
1b	2.51 - 5.00		Very poor
2	5.01 - 10.00		Poor
3	10.01 - 15.00		Moderate
4	15.01 - 20.00		Good
5	20.01 - 25.00		Very Good
6a	25.01 - 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	AI	PTAL	Description
1	2.59459	1b	Very Poor
2	5.04634	2	Poor
3	2.52632	1b	Very Poor
4	2.37624	1a	Very Poor
5	4.74235	1b	Very Poor
6	4.52174	1b	Very Poor
7	4.42073	1b	Very Poor
8	5.26009	2	Poor
9	4.96121	1b	Very Poor
10	4.52239	1b	Very Poor
11	5.01532	2	Poor
12	5.07134	2	Poor
13	8.64695	2	Poor
14	5.57339	2	Poor
15	5.21979	2	Poor

PTAL Calculation based on Scenario 1 - bus stop and turning circle within Morden Wharf site served by bus service 108

Service	Frequency (mins)	Frequncy (vph)
108	10.5	5.714285714
188	10.5	5.714285714
422	10.5	5.714285714

Enderby Place

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	60	0.75	5.71428571	7.25	8	3.75
North Greenwich Station / Russel Square	188	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich / Bexleyheath Clock Tower	422	2	410	5.125	5.71428571	7.25	12.375	2.424242424
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.75	2.424242424	0	0	6.17424	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessiblity Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	110	1.375	5.714285714	7.25	8.625	3.47826087
North Greenwich Station / Russel Square	188	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich / Bexleyheath Clock Tower	422	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.47826087	2.56684492	0	0	6.04511	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessiblity Index

Morden Wharf

Grid 1

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	300	3.75	5.71428571	7.25	11	2.727272727
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.727272727	0	0	0	2.72727	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessiblity Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 2

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich / Bexleyheath Clock Tower	422	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.037974684	2.008368201	0	0	5.04634	2

Grid 3

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	180	2.25	5.714285714	7.25	9.5	3.157894737
North Greenwich Station / Russel Square	188	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich / Bexleyheath Clock Tower	422	2	640	8	5.714285714	7.25	15.25	1.967213115
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.15789	1.967213115	0	0	5.12511	2

Grid 4

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	115	1.4375	5.714285714	7.25	8.6875	3.45323741
North Greenwich Station / Russel Square	188	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich / Bexleyheath Clock Tower	422	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.45324	2.07792	0	0	5.53116	2

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	55	0.6875	5.71429	7.25	7.9375	3.77953
North Greenwich Station / Russel Square	188	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich / Bexleyheath Clock Tower	422	2	495	6.1875	5.71429	7.25	13.4375	2.23256
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.77953	2.23256	0	0	6.01209	2

Grid 8

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	170	2.125	5.71429	7.25	9.375	3.2
North Greenwich Station / Russel Square	188	2	585	7.3125	5.71429	7.25	14.5625	2.06009
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.71429	7.25	14.5625	2.06009
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.2	2.06009	0	0	5.26009	2

Grid 9

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	275	3.4375	5.714285714	7.25	10.6875	2.807017544
North Greenwich Station / Russel Square	188	2	580	7.25	5.714285714	7.25	14.5	2.068965517
North Greenwich / Bexleyheath Clock Tower	422	2	580	7.25	5.714285714	7.25	14.5	2.068965517
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.807017544	2.06896552	0	0	4.87598	1

Grid 10

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	335	4.1875	5.714285714	7.25	11.4375	2.62295082
North Greenwich Station / Russel Square	188	2	585	7.3125	5.714285714	7.25	14.5625	2.060085837
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.714285714	7.25	14.5625	2.060085837
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.62295	2.06009	0	0	4.68304	1

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	70	0.875	5.714285714	7.25	8.125	3.69231
North Greenwich Station / Russel Square	188	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich / Bexleyheath Clock Tower	422	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.69231	2.34146	0	0	6.03377	2

Grid 14

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	150	1.875	5.714285714	7.25	9.125	3.287671233
North Greenwich Station / Russel Square	188	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich / Bexleyheath Clock Tower	422	2	470	5.875	5.714285714	7.25	13.125	2.285714286
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.28767	2.285714286	0	0	5.57339	2

Grid 15

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich / Bexleyheath Clock Tower	422	2	520	6.5	5.714285714	7.25	13.75	2.181818182
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.03797	2.181818182	0	0	5.21979	2

Enderby Wharf

Grid 6

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	570	7.125	5.71428571	7.25	14.375	2.086956522
North Greenwich Station / Russel Square	188	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich / Bexleyheath Clock Tower	422	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.31884058	2.202898551	0	0	4.52174	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessiblity Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 7

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	610	7.625	5.714285714	7.25	14.875	2.016806723
North Greenwich Station / Russel Square	188	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich / Bexleyheath Clock Tower	422	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.274881517	2.14584412	0	0	4.42073	1

Grid 12

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	456	5.7	5.714285714	7.25	12.95	2.316602317
North Greenwich Station / Russel Square	188	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich / Bexleyheath Clock Tower	422	2	340	4.25	5.714285714	7.25	11.5	2.608695652
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.6087	2.462648984	0	0	5.07134	2

Grid 13

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	530	6.625	5.714285714	7.25	13.875	2.162162162
North Greenwich Station / Russel Square	188	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Bexleyheath Clock Tower	422	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Lewisham Shopping Centre	129	2	595	7.4375	4.615	8.50054	15.938	1.882288963
Thamesmead / Peckham	177	2	595	7.4375	10	5	12.4375	2.412060302
Queen Mary's Hospital / Cutty Sark	286	2	595	7.4375	5	8	15.4375	1.943319838
Woolwich / Blacjheath Village	386	2	595	7.4375	3.529	10.501	17.9385	1.6723814
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.41206	6.23489	0	0	8.64695	2

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 - 2.50		Very poor
1b	2.51 - 5.00		Very poor
2	5.01 - 10.00		Poor
3	10.01 - 15.00		Moderate
4	15.01 - 20.00		Good
5	20.01 - 25.00		Very Good
6a	25.01 - 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	AI	PTAL	Description
1	2.72727	1b	Very Poor
2	5.04634	2	Poor
3	5.12511	2	Poor
4	5.53116	2	Poor
5	6.17424	2	Poor
6	4.52174	1b	Very Poor
7	4.42073	1b	Very Poor
8	5.26009	2	Poor
9	4.87598	1b	Very Poor
10	4.68304	1b	Very Poor
11	6.04511	2	Poor
12	5.07134	2	Poor
13	8.64695	2	Poor
14	5.57339	2	Poor
15	5.21979	2	Poor

PTAL Calculation based on Scenario 2 - new diverted bus service through Morden Wharf and Enderby Place via ramp

Service	Frequency (mins)	Frequency (vph)
108	10.5	5.714285714
188	10.5	5.714285714
422	10.5	5.714285714
X	10.26	5.847953216

Enderby Place

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	505	6.3125	5.71428571	7.25	13.5625	2.211981567
North Greenwich Station / Russel Square	188	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich / Bexleyheath Clock Tower	422	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich	X	2	60	0.75	5.84795322	7.13	7.88	3.807106599
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.807106599	3.530210269	0	0	Accessibility Index	7.33734
				PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	450	5.625	5.714285714	7.25	12.875	2.330097087
North Greenwich Station / Russel Square	188	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich / Bexleyheath Clock Tower	422	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich	X	2	100	1.25	5.847953216	7.13	8.38	3.579952267
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.579952267	3.731693463	0	0	Accessibility Index	7.31185
				PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

Morden Wharf

Grid 1

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	345	4.3125	5.71428571	7.25	11.5625	2.594594595
North Greenwich	X	2	300	3.75	5.84795322	7.13	10.88	2.757352941
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.757352941	1.297297297	0	0	Accessibility Index	4.05465
				PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 2

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich / Bexleyheath Clock Tower	422	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich	X	2	210	2.625	5.847953216	7.13	9.755	3.075345976
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.075345976	3.527355843	0	0	Accessibility Index	6.6027
				PTAL Level	2

Grid 3

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	370	4.625	5.714285714	7.25	11.875	2.526315789
North Greenwich Station / Russel Square	188	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich / Bexleyheath Clock Tower	422	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich	X	2	180	2.25	5.847953216	7.13	9.38	3.198294243
Trains	Trains							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.19829	3.230371009	0	0	Accessibility Index	6.42867
				PTAL Level	2

Grid 4

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	430	5.375	5.714285714	7.25	12.625	2.376237624
North Greenwich Station / Russel Square	188	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich / Bexleyheath Clock Tower	422	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich	X	2	115	1.4375	5.847953216	7.13	8.5675	3.501604902
Trains	Trains							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.5016	3.26604	0	0	Accessibility Index	6.76765
				PTAL Level	2

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	540	6.75	5.71429	7.25	14	2.14286
North Greenwich Station / Russel Square	188	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich / Bexleyheath Clock Tower	422	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich	X	2	55	0.6875	5.84795	7.13	7.8175	3.83754
Trains	Trains							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.83754	3.30399	0	0	Accessibility Index	7.14153
				PTAL Level	2

Grid 8

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	170	2.125	5.71429	7.25	9.375	3.2
North Greenwich Station / Russel Square	188	2	585	7.3125	5.71429	7.25	14.5625	2.06009
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.71429	7.25	14.5625	2.06009
North Greenwich	X	2	170	2.125	5.84795	7.13	9.255	3.24149
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.24149	3.66009	0	0	Accessibility Index	6.90158
				PTAL Level	2

Grid 9

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	255	3.1875	5.714285714	7.25	10.4375	2.87425
North Greenwich Station / Russel Square	188	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich / Bexleyheath Clock Tower	422	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich	X	2	275	3.4375	5.847953216	7.13	10.5675	2.83889
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.874251497	3.50640294	0	0	Accessibility Index	6.38065
				PTAL Level	2

Grid 10

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	350	4.375	5.714285714	7.25	11.625	2.58065
North Greenwich Station / Russel Square	188	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich / Bexleyheath Clock Tower	422	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich	X	2	160	2	5.847953216	7.13	9.13	3.28587
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.28587	3.23207	0	0	Accessibility Index	6.51794
				PTAL Level	2

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	475	5.9375	5.714285714	7.25	13.1875	2.27488
North Greenwich Station / Russel Square	188	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich / Bexleyheath Clock Tower	422	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich	X	2	70	0.875	5.847953216	7.13	8.005	3.74766
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.74766	3.4789	0	0	Accessibility Index	7.22656
				PTAL Level	2

Grid 14

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	150	1.875	5.714285714	7.25	9.125	3.287671233
North Greenwich Station / Russel Square	188	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich / Bexleyheath Clock Tower	422	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich	X	2	150	1.875	5.847953216	7.13	9.005	3.33148251
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.33148	3.929549902	0	0	Accessibility Index	7.26103
				PTAL Level	2

Grid 15

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich / Bexleyheath Clock Tower	422	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich	X	2	210	2.625	5.847953216	7.13	9.755	3.075345976
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.07535	3.700805524	0	0	Accessibility Index	6.77615
				PTAL Level	2

Enderby Wharf

Grid 6

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	570	7.125	5.71428571	7.25	14.375	2.086956522
North Greenwich Station / Russel Square	188	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich / Bexleyheath Clock Tower	422	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich	X	2	155	1.9375	5.84795322	7.13	9.0675	3.308519438
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.308519438	3.362318841	0	0	Accessibility Index	6.67084
				PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 7

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	610	7.625	5.714285714	7.25	14.875	2.016806723
North Greenwich Station / Russel Square	188	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich / Bexleyheath Clock Tower	422	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich	X	2	165	2.0625	5.847953216	7.13	9.1925	3.263530052
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.263530052	3.283284878	0	0	Accessibility Index	6.54681
				PTAL Level	2

Grid 12

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	456	5.7	5.714285714	7.25	12.95	2.316602317
North Greenwich Station / Russel Square	188	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich / Bexleyheath Clock Tower	422	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich	X	2	105	1.3125	5.847953216	7.13	8.4425	3.553449808
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.55345	3.76699681	0	0	Accessibility Index	7.32045
				PTAL Level	2

Grid 13

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	530	6.625	5.714285714	7.25	13.875	2.162162162
North Greenwich Station / Russel Square	188	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Bexleyheath Clock Tower	422	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Lewisham Shopping Centre	129	2	595	7.4375	4.615	8.50054	15.938	1.882288963
Thamesmead / Peckham	177	2	595	7.4375	10	5	12.4375	2.412060302
Queen Mary's Hospital / Cutty Sark	286	2	595	7.4375	5	8	15.4375	1.943319838
Woolwich / Blacjheath Village	386	2	595	7.4375	3.529	10.501	17.9385	1.6723814
North Greenwich	X	2	70	0.875	5.847953216	7.13	8.005	3.747657714
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.74766	7.44092	0	0	Accessibility Index	11.1886
				PTAL Level	3

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 – 2.50		Very poor
1b	2.51 – 5.00		Very poor
2	5.01 – 10.00		Poor
3	10.01 – 15.00		Moderate
4	15.01 – 20.00		Good
5	20.01 – 25.00		Very Good
6a	25.01 – 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	AI	PTAL	Description
1	4.05465	1b	Very Poor
2	6.6027	2	Poor
3	6.42867	2	Poor
4	6.76765	2	Poor
5	7.33734	2	Poor
6	6.67084	2	Poor
7	6.54681	2	Poor
8	6.90158	2	Poor
9	6.38065	2	Poor
10	6.51794	2	Poor
11	7.31185	2	Poor
12	7.32045	2	Poor
13	11.1886	3	Moderate
14	7.26103	2	Poor
15	6.77615	2	Poor

PTAL Calculation based on Scenario 3 - new diverted bus service along Telcon Way (no ramp)

Service	Frequency (mins)	Frequncy (vph)
108	10.5	5.714285714
188	10.5	5.714285714
422	10.5	5.714285714
X	10.26	5.847953216

Enderby Place

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	505	6.3125	5.71428571	7.25	13.5625	2.211981567
North Greenwich Station / Russel Square	188	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich / Bexleyheath Clock Tower	422	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich	X	2	170	2.125	5.84795322	7.13	9.255	3.241491086
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.241491086	3.530233208	0	0	6.77172	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessiblity Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	450	5.625	5.714285714	7.25	12.875	2.330097087
North Greenwich Station / Russel Square	188	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich / Bexleyheath Clock Tower	422	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich	X	2	100	1.25	5.847953216	7.13	8.38	3.579952267
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.579952267	3.731893463	0	0	7.31185	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessiblity Index

Morden Wharf

Grid 1

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	345	4.3125	5.71428571	7.25	11.5625	2.594594595
North Greenwich	X	2	430	5.375	5.84795322	7.13	12.505	2.399040384
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.594594595	1.199520192	0	0	3.79411	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessiblity Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 2

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich / Bexleyheath Clock Tower	422	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich	X	2	445	5.5625	5.847953216	7.13	12.6925	2.363600552
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.037974684	3.190168477	0	0	6.22814	2

Grid 3

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	370	4.625	5.714285714	7.25	11.875	2.526315789
North Greenwich Station / Russel Square	188	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich / Bexleyheath Clock Tower	422	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich	X	2	340	4.25	5.847953216	7.13	11.38	2.636203866
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.6362	3.230371009	0	0	5.86657	2

Grid 4

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	430	5.375	5.714285714	7.25	12.625	2.376237624
North Greenwich Station / Russel Square	188	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich / Bexleyheath Clock Tower	422	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich	X	2	280	3.5	5.847953216	7.13	10.63	2.822201317
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.8222	3.26604	0	0	6.08824	2

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	540	6.75	5.71429	7.25	14	2.14286
North Greenwich Station / Russel Square	188	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich / Bexleyheath Clock Tower	422	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich	X	2	255	3.1875	5.84795	7.13	10.3175	2.90768
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.90768	3.30399	0	0	6.21167	2

Grid 8

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	170	2.125	5.714285714	7.25	9.375	3.2
North Greenwich Station / Russel Square	188	2	585	7.3125	5.714285714	7.25	14.5625	2.06009
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.714285714	7.25	14.5625	2.06009
North Greenwich	X	2	500	6.25	5.847953216	7.13	13.38	2.24215
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.2	3.18116207	0	0	6.38116	2

Grid 9

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	255	3.1875	5.714285714	7.25	10.4375	2.87425
North Greenwich Station / Russel Square	188	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich / Bexleyheath Clock Tower	422	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich	X	2	475	5.9375	5.847953216	7.13	13.0675	2.29577
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.874251497	3.2348425	0	0	6.10909	2

Grid 10

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	350	4.375	5.714285714	7.25	11.625	2.58065
North Greenwich Station / Russel Square	188	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich / Bexleyheath Clock Tower	422	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich	X	2	295	3.6875	5.847953216	7.13	10.8175	2.77328
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
2.77328	3.23207	0	0	6.00535	2

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	475	5.9375	5.714285714	7.25	13.1875	2.27488
North Greenwich Station / Russel Square	188	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich / Bexleyheath Clock Tower	422	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich	X	2	170	2.125	5.847953216	7.13	9.255	3.24149
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.24149	3.4789	0	0	6.7204	2

Grid 14

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	150	1.875	5.714285714	7.25	9.125	3.287671233
North Greenwich Station / Russel Square	188	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich / Bexleyheath Clock Tower	422	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich	X	2	520	6.5	5.847953216	7.13	13.63	2.201027146
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.28767	3.386227659	0	0	6.6739	2

Grid 15

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich / Bexleyheath Clock Tower	422	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich	X	2	500	6.25	5.847953216	7.13	13.38	2.242152466
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.03797	3.302894415	0	0	6.34087	2

Enderby Wharf

Grid 6

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	570	7.125	5.71428571	7.25	14.375	2.086956522
North Greenwich Station / Russel Square	188	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich / Bexleyheath Clock Tower	422	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich	X	2	155	1.9375	5.84795322	7.13	9.0675	3.308519438
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.308519438	3.362318841	0	0	6.67084	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessiblity Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 7

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	610	7.625	5.714285714	7.25	14.875	2.016806723
North Greenwich Station / Russel Square	188	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich / Bexleyheath Clock Tower	422	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich	X	2	160	2	5.847953216	7.13	9.13	3.285870756
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.285870756	3.283284878	0	0	6.56916	2

Grid 12

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	456	5.7	5.714285714	7.25	12.95	2.316602317
North Greenwich Station / Russel Square	188	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich / Bexleyheath Clock Tower	422	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich	X	2	105	1.3125	5.847953216	7.13	8.4425	3.553449808
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.55345	3.76699681	0	0	7.32045	2

Grid 13

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	530	6.625	5.714285714	7.25	13.875	2.162162162
North Greenwich Station / Russel Square	188	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Bexleyheath Clock Tower	422	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Lewisham Shopping Centre	129	2	595	7.4375	4.615	8.50054	15.938	1.882288963
Thamesmead / Peckham	177	2	595	7.4375	10	5	12.4375	2.412060302
Queen Mary's Hospital / Cutty Sark	286	2	595	7.4375	5	8	15.4375	1.943319838
Woolwich / Blacjheath Village	386	2	595	7.4375	3.529	10.501	17.9385	1.6723814
North Greenwich	X	2	70	0.875	5.847953216	7.13	8.005	3.747657714
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	PTAL Level
3.74766	7.44092	0	0	11.1886	3

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 - 2.50		Very poor
1b	2.51 - 5.00		Very poor
2	5.01 - 10.00		Poor
3	10.01 - 15.00		Moderate
4	15.01 - 20.00		Good
5	20.01 - 25.00		Very Good
6a	25.01 - 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	AI	PTAL	Description
1	3.79411	1b	Very Poor
2	6.22814	2	Poor
3	5.86657	2	Poor
4	6.08824	2	Poor
5	6.77172	2	Poor
6	6.67084	2	Poor
7	6.56916	2	Poor
8	6.38116	2	Poor
9	6.10909	2	Poor
10	6.00535	2	Poor
11	7.31185	2	Poor
12	7.32045	2	Poor
13	11.1886	3	Moderate
14	6.6739	2	Poor
15	6.34087	2	Poor

Grid	WebCAT PTAL		Existing Validation		Comments	Scenario 1		Comments	Scenario 2		Comments	Scenario 3		Comments
1	0	No Score	1b	Very Poor	WebCAT mesures from centre of grid, we have re-measured from a point within the Morden Wharf site boundary which is within walking distance of bus stops	1b	Very Poor	No benefit to existing PTAL	1b	Very Poor	No benefit to existing PTAL	1b	Very Poor	No benefit to existing PTAL
2	1a	Very Poor	2	Poor	WebCAT does not factor in walking route along Morden Wharf	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
3	1a	Very Poor	1b	Very Poor	As above	2	Poor	Reduced walking distance to access bus service 108 due to addition of bus stop within Morden Wharf site and reduced walking times to the bus stop on Blackwall Lane due to pedestrian connection through Enderby Place site	2	Poor	Reduced walking distance to access bus service due to addition of bus stop within Morden Wharf site and reduced walking times to the bus stop on Blackwall Lane due to pedestrian connection through Enderby Place site	2	Poor	Reduced walking distance to bus stop on Blackwall Lane due to pedestrian connection through Enderby Place site and access to additional bus service via new stop on Telcon Way
4	1a	Very Poor	1a	Very Poor	No change	2	Poor	As above	2	Poor	As above	2	Poor	As above
5	1b	Very Poor	1b	Very Poor	No change	2	Poor	As above	2	Poor	As above	2	Poor	As above
6	1b	Very Poor	1b	Very Poor	No change	1b	Very Poor	No benefit to existing PTAL	2	Poor	Reduced walking distance to new bus stops on Christchurch Way	2	Poor	Reduced walking distance to new bus stops on Christchurch Way
7	1b	Very Poor	1b	Very Poor	No change	1b	Very Poor	No benefit to existing PTAL	2	Poor	As above	2	Poor	As above
8	1b	Very Poor	2	Poor	WebCAT does not factor in walking route along Morden Wharf	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
9	1a	Very Poor	1b	Very Poor	WebCAT does not capture walking routes through the site	1b	Very Poor	No benefit to existing PTAL	2	Poor	Benefits from additional service offered	2	Poor	Benefits from additional service offered
10	1b	Very Poor	1b	Very Poor	No change	1b	Very Poor	No benefit to existing PTAL	2	Poor	As above	2	Poor	As above
11	2	Poor	2	Poor	No change	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
12	1b	Very Poor	2	Poor	WebCAT does not include internal footpaths through Enderby Wharf development	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
13	2	Poor	2	Poor	No change	2	Poor	No benefit to existing PTAL	3	Moderate	Reduced walking distance to new bus stops on Christchurch Way	3	Moderate	Reduced walking distance to new bus stops on Christchurch Way
14	1a	Very Poor	2	Poor	WebCAT does not factor in walking route along Morden Wharf road	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL
15	2	Poor	2	Poor	As above	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL	2	Poor	No benefit to existing PTAL

APPENDIX C – POLICY REVIEW

A1 The National Planning Policy Framework (NPPF) (July 2021)

The NPPF as of July 2021 sets out Government planning policy, provides a framework within which local planning policies should be produced, and is a material consideration in planning decisions.

With regards to transport, the NPPF states that: "Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

Paragraph 112 continues those applications for development should:

- Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second- so far as possible – to facilitate access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
- Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
- Create places that are safe, secure, and attractive – which minimise the scope for conflicts between pedestrians, cyclists, and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
- Allow for the efficient delivery of goods, and access by service and emergency vehicles; and
- Be designed to enable charging of plug-in and ultra-low emission vehicles in safe, accessible, and convenient locations.

Paragraph 113 states that: *"All developments that will generate significant amounts of movement should be required to provide a travel plan and should be supported by a transport statement or transport assessment."*

A2 The London Plan 2021

The new London plan was published on 2nd March 2021.

Chapter 10 of this document deals with transport and Policy T1 sets the overarching approach to transport strategy for the city. Policy T1 states that development Plans and development proposals should support the delivery of the Mayor's strategic target of 80 per cent of all trips in London to be made by foot, cycle, or public transport by 2041, and the proposed transport schemes set out in Table 10.1.

Policy T1 continues, "*All development should make the most effective use of land, reflecting its connectivity and accessibility by existing and future public transport, walking and cycling routes, and ensure that any impacts on London's transport networks and supporting infrastructure are mitigated.*"

The London Plan 2021 additionally includes a new concept; 'Healthy Streets'. These are defined by 10 indicators as follows:

- Pedestrians from all walks of life;
- Easy to cross;
- Shade and shelter;
- Places to stop and rest;
- Not too noisy;
- People choose to walk, cycle, and use public transport;
- People feel safe;
- Things to see and do;
- People feel relaxed; and
- Clean air.

Policy T2 states that development proposals should demonstrate how they will deliver improvements that support the ten Healthy Streets Indicators in line with Transport for London guidance; reduce the dominance of vehicles on London's streets whether stationary or moving; and be permeable by foot and cycle and connect to local walking and cycling networks as well as public transport.

A2.1 Car Parking Standards

With regards to residential car parking, the Plan outlines a maximum parking provision standards for Outer London Opportunity Areas of up to 0.25 spaces per dwelling.

The Plan states that all residential car parking spaces must provide infrastructure for electric or Ultra-Low Emission vehicles. At least 20% of spaces should have active charging facilities, with passive provision for all remaining spaces.

Residential development proposals delivering ten or more units must, as a minimum, ensure that for three per cent of dwellings, at least one designated disabled persons parking bay per dwelling is available from the outset. Furthermore, developments must demonstrate, how an additional seven per cent of dwellings could be provided with one designated disabled persons parking space per dwelling in future.

A3 Royal Greenwich Local Plan: Core Strategy

Car and cycle parking policy is given within Greenwich's Local Plan 2018. Policy DM30: Car and cycle parking in new development states:

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

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

- *limit on-site car parking to spaces designated for disabled people, any operational*
- *or servicing needs, and spaces designated for the occupiers of development;*
- *not issue on-street parking permits; and*
- *use a condition / legal agreement to ensure that future occupants are aware they*
- *are not entitled to on-street parking permits.*
- *The Royal Borough will also strongly encourage contributions to car clubs and pool car schemes in place of private parking in new developments across Royal Greenwich and seek the provision of electric charging points as part of any car parking provision, following the minimum standards set out in the London Plan.*

Developments must meet, as a minimum, the standards for cycle parking as set out in the London Plan.

A4 Greenwich Waste Guidance Notes

This document (latest revision May 2018) sets out the Council's requirements for its waste and recycling collection services and should be used by architects and developers when designing waste storage and collection strategies.

With regards to the accessibility for collection vehicles and operatives, the guidance states the following:

Walking distance for refuse operatives from the container storage area to the refuse collection vehicle is no more than 15 metres. The vehicle stopping point should be clearly indicated on submitted drawings.

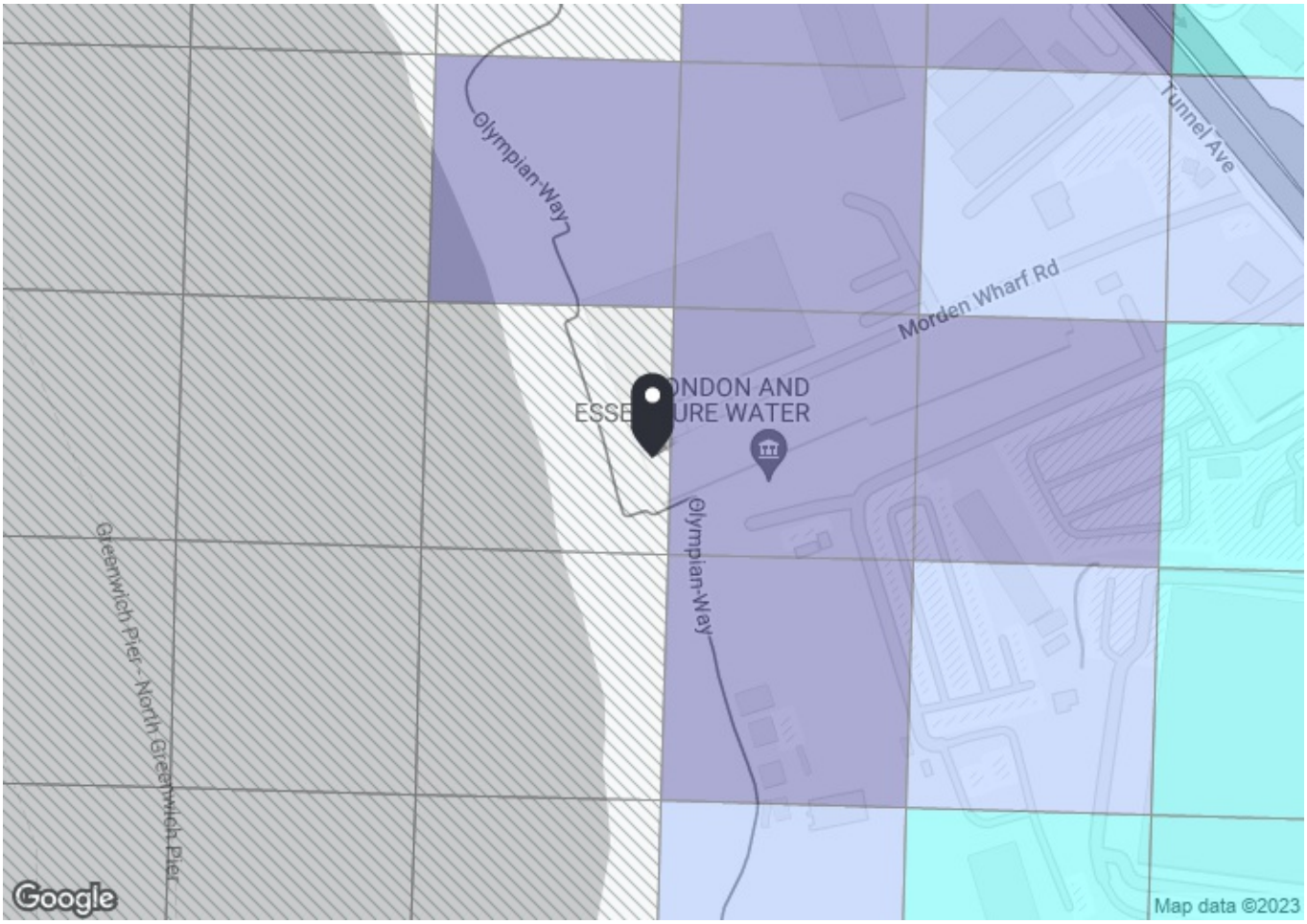
A safe collection area for operatives, such as a lay-by, is required if access to the chambers is on a dual carriageway, main fast flowing, or busy road.

Roads should be laid out to ensure reasonable convenience for the collection vehicle and should be a minimum of 5.5m wide. The collection vehicle should be able to proceed in a forward direction around the development, developers must not plan for refuse vehicles to reverse in a public area and the vehicle should not be expected to reverse for more than two vehicle lengths (20m).

Adequate space for turning must be provided and demonstrated in vehicle tracking drawings.

APPENDIX D – WEBCAT PTAL OUTPUTS

TRANSPORT FOR LONDON



PTAL output for Base Year
0

F2V2+7V London, UK
Easting: 539090, Northing: 179033

Grid Cell: 73560

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

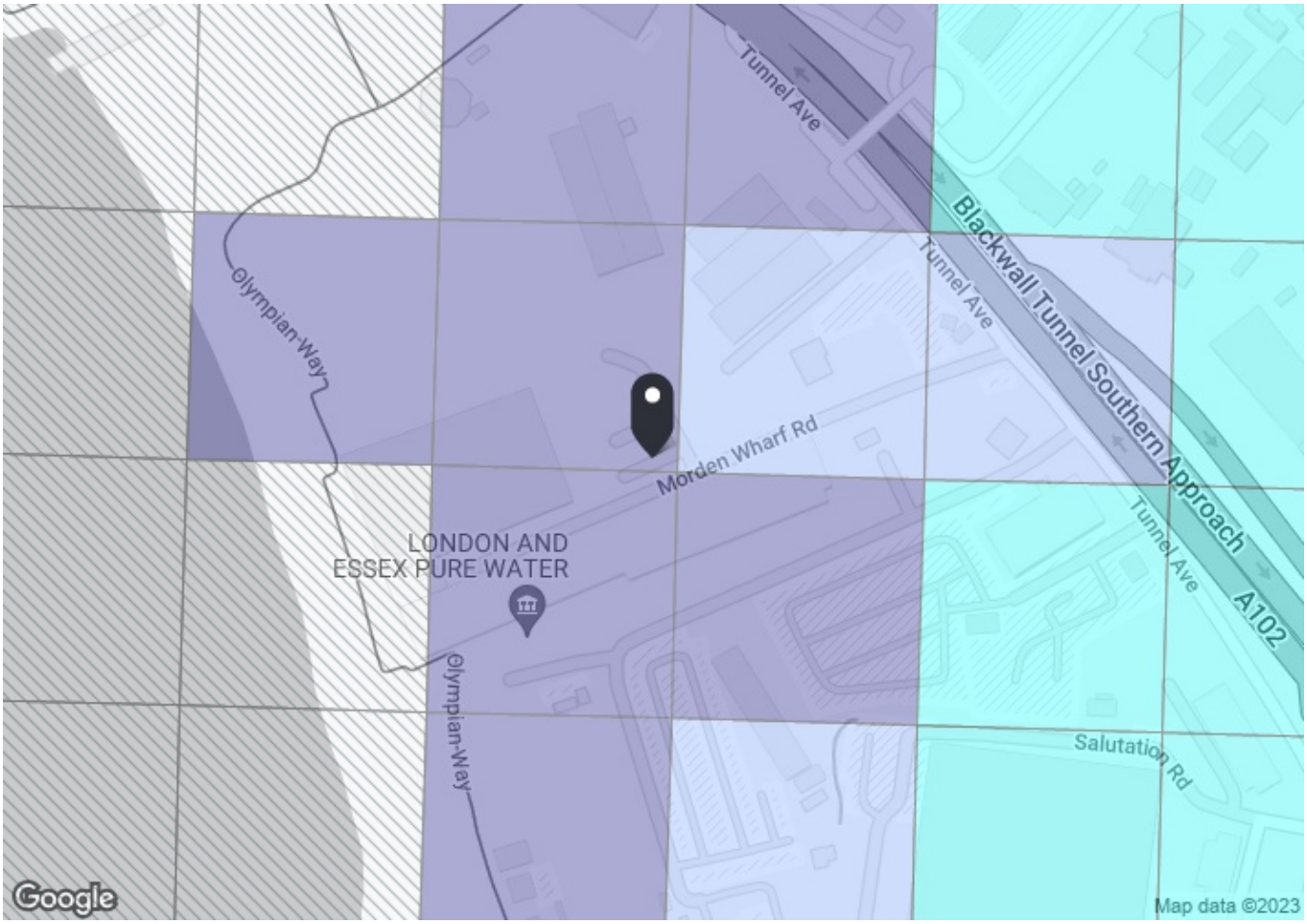
PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

TRANSPORT FOR LONDON



PTAL output for Base Year
1a

F2V3+FC London, UK
Easting: 539187, Northing: 179099

Grid Cell: 74045

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

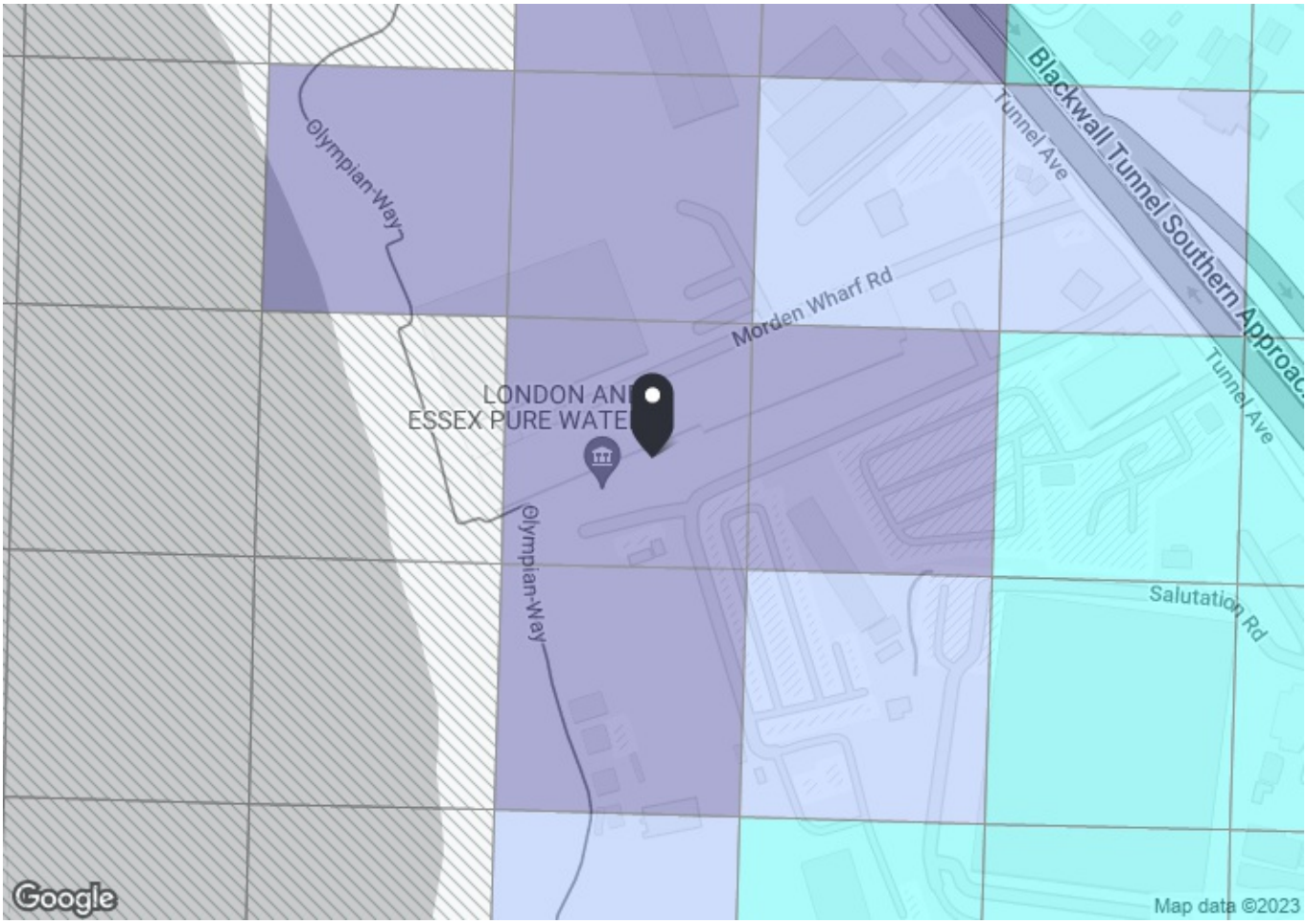
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	523.23	6	6.54	7	13.54	2.22	1	2.22
									Total Grid Cell AI:	**2.22**

TRANSPORT FOR LONDON



PTAL output for Base Year
1a

F2V3+77 London, UK
Easting: 539158, Northing: 179038

Grid Cell: 73561

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

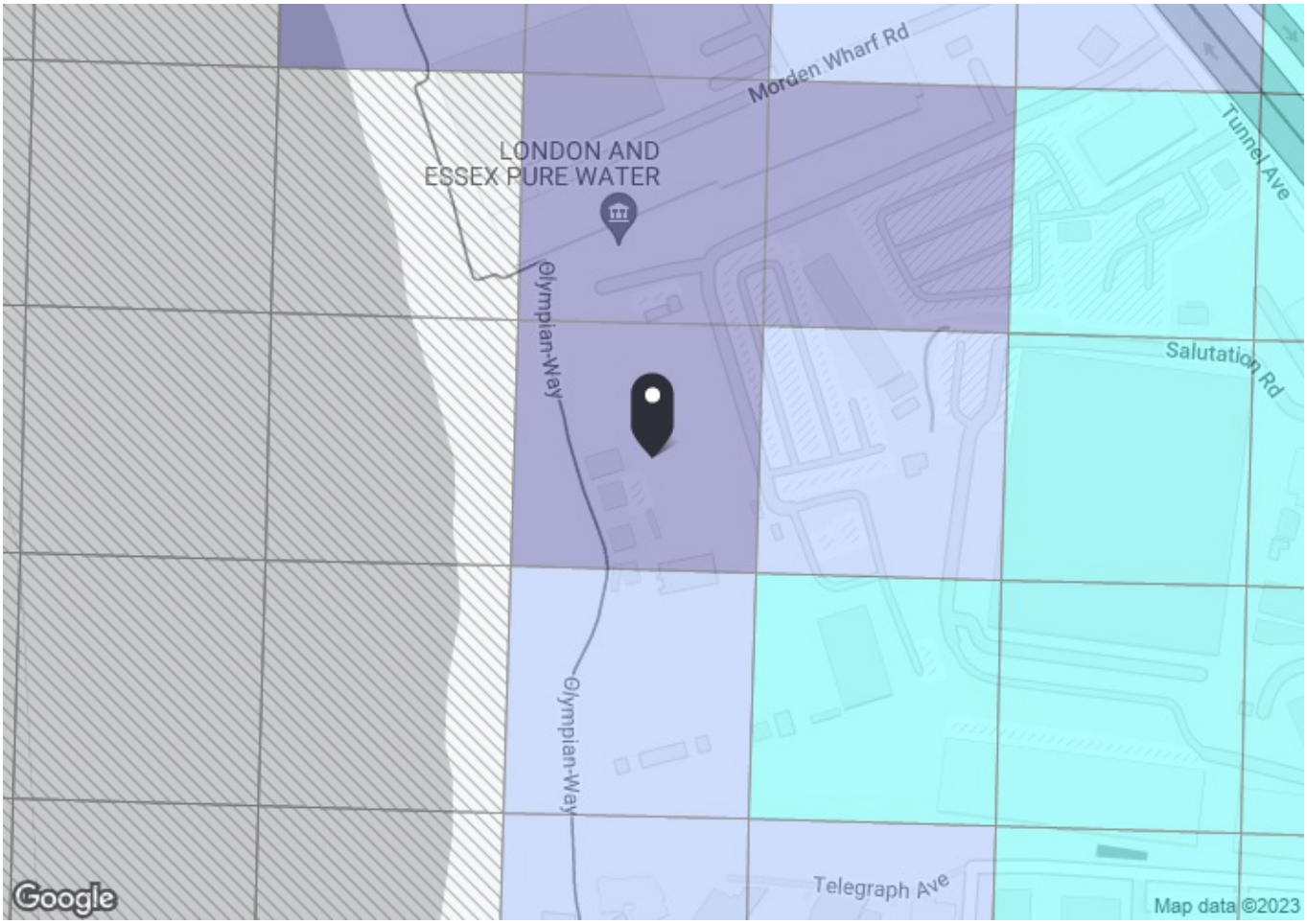
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	519.98	6	6.5	7	13.5	2.22	1	2.22
									Total Grid Cell AI:	**2.22**

TRANSPORT FOR LONDON



PTAL output for Base Year
1a

F2R3+W6 London, UK
Easting: 539154, Northing: 178939

Grid Cell: 73076

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

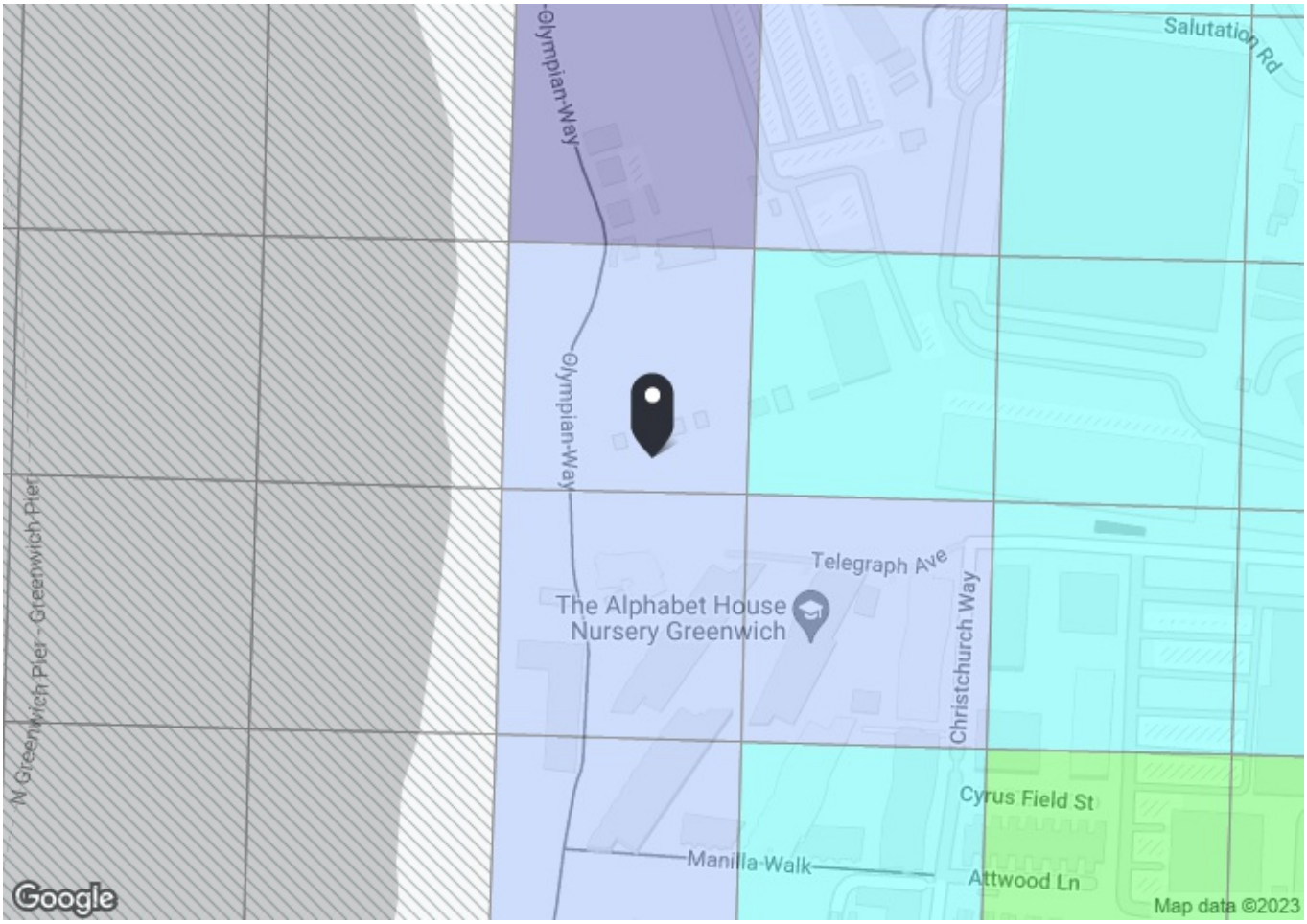
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	638.42	6	7.98	7	14.98	2	1	2
									Total Grid Cell AI:	**2**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

191 Tunnel Ave, London SE10 0GR, UK
Easting: 539158, Northing: 178808

Grid Cell: 72590

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

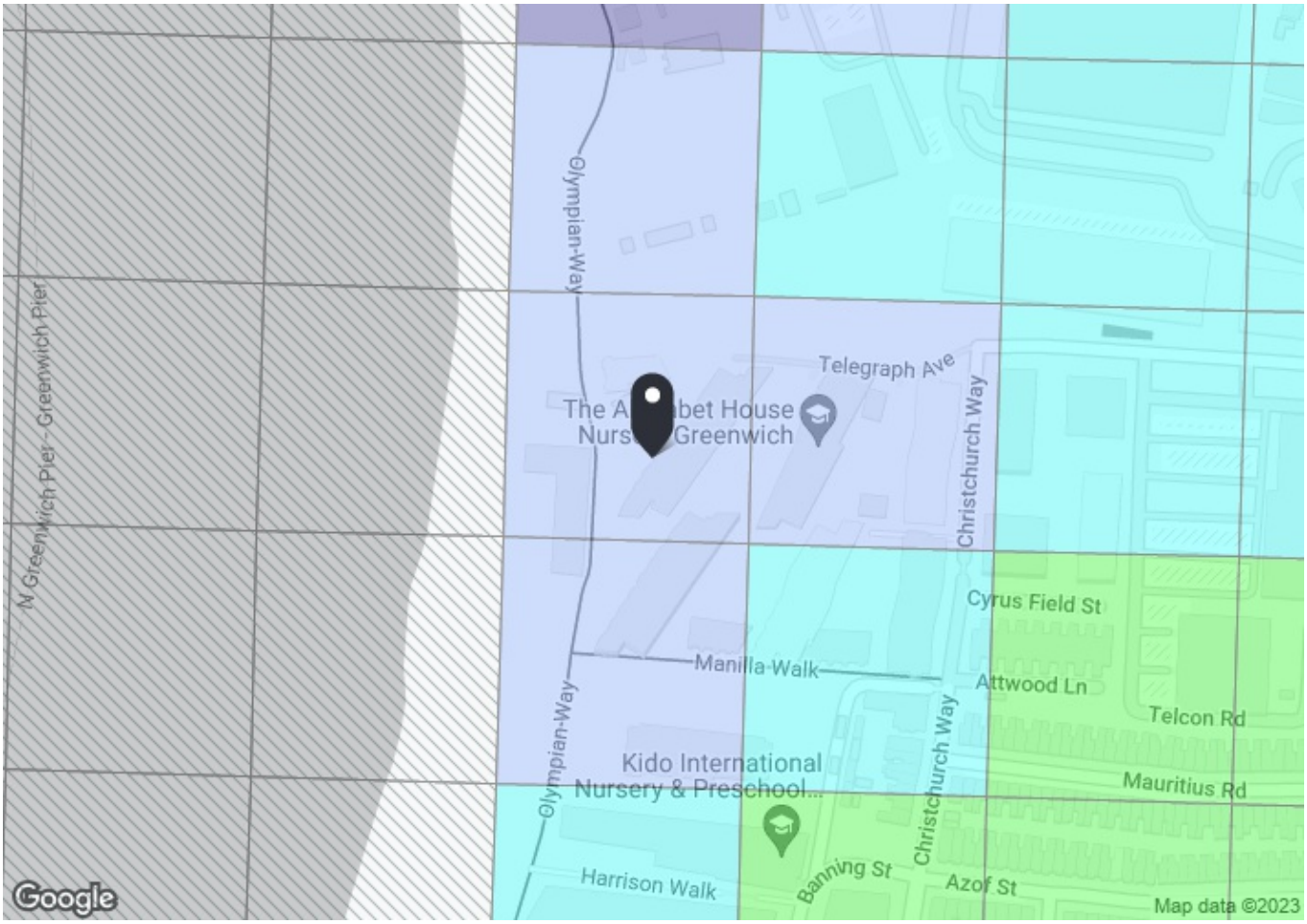
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	525.89	6	6.57	7	13.57	2.21	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	525.89	8	6.57	5.75	12.32	2.43	1	2.43
Bus	BLACKWALL LN TUNNEL AVE	108	560.12	6	7	7	14	2.14	0.5	1.07
									Total Grid Cell AI:	**4.61**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

21 Telegraph Ave, London SE10 0TH, UK
Easting: 539157, Northing: 178728

Grid Cell: 72103

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

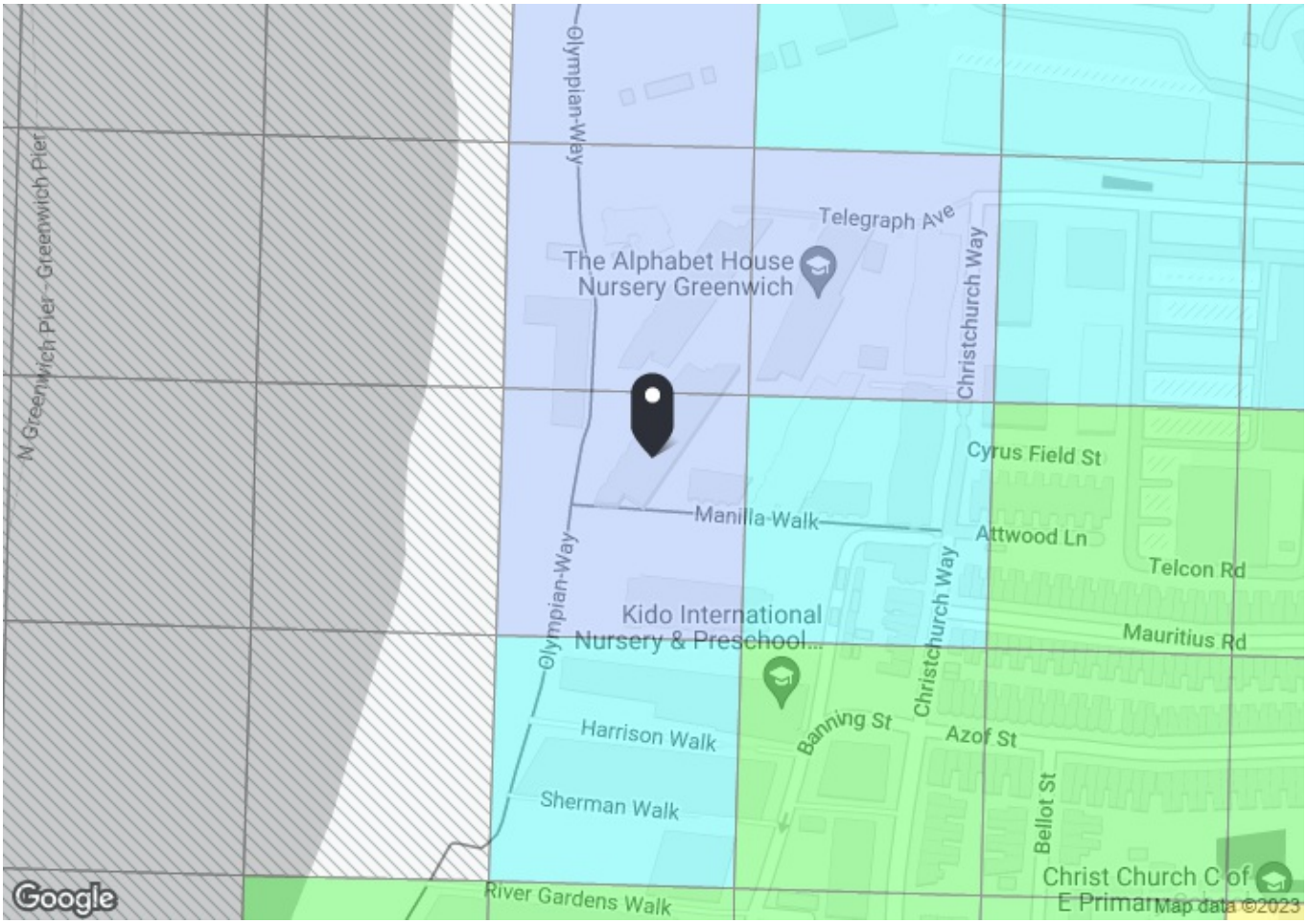
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	517.54	6	6.47	7	13.47	2.23	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	517.54	8	6.47	5.75	12.22	2.46	1	2.46
Bus	BLACKWALL LN TUNNEL AVE	108	551.78	6	6.9	7	13.9	2.16	0.5	1.08
									Total Grid Cell AI:	**4.65**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

34 Cable Walk, London SE10 0TS, UK
Easting: 539159, Northing: 178668

Grid Cell: 71617

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

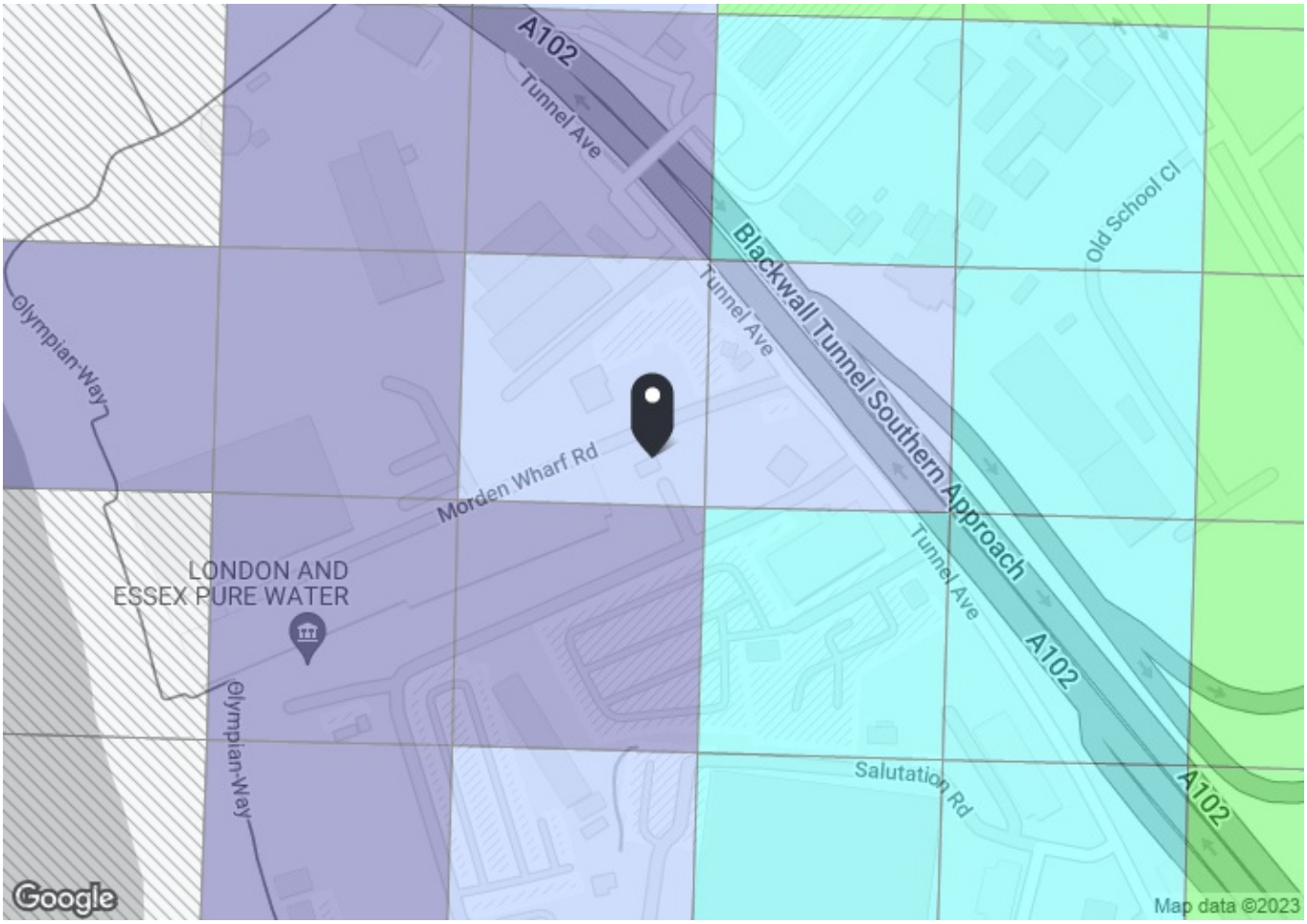
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	537.72	6	6.72	7	13.72	2.19	0.5	1.09
Bus	BLACKWALL LANE AZOF ST	188	537.72	8	6.72	5.75	12.47	2.41	1	2.41
									Total Grid Cell AI:	**3.5**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539275, Northing: 179113

Grid Cell: 74046

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

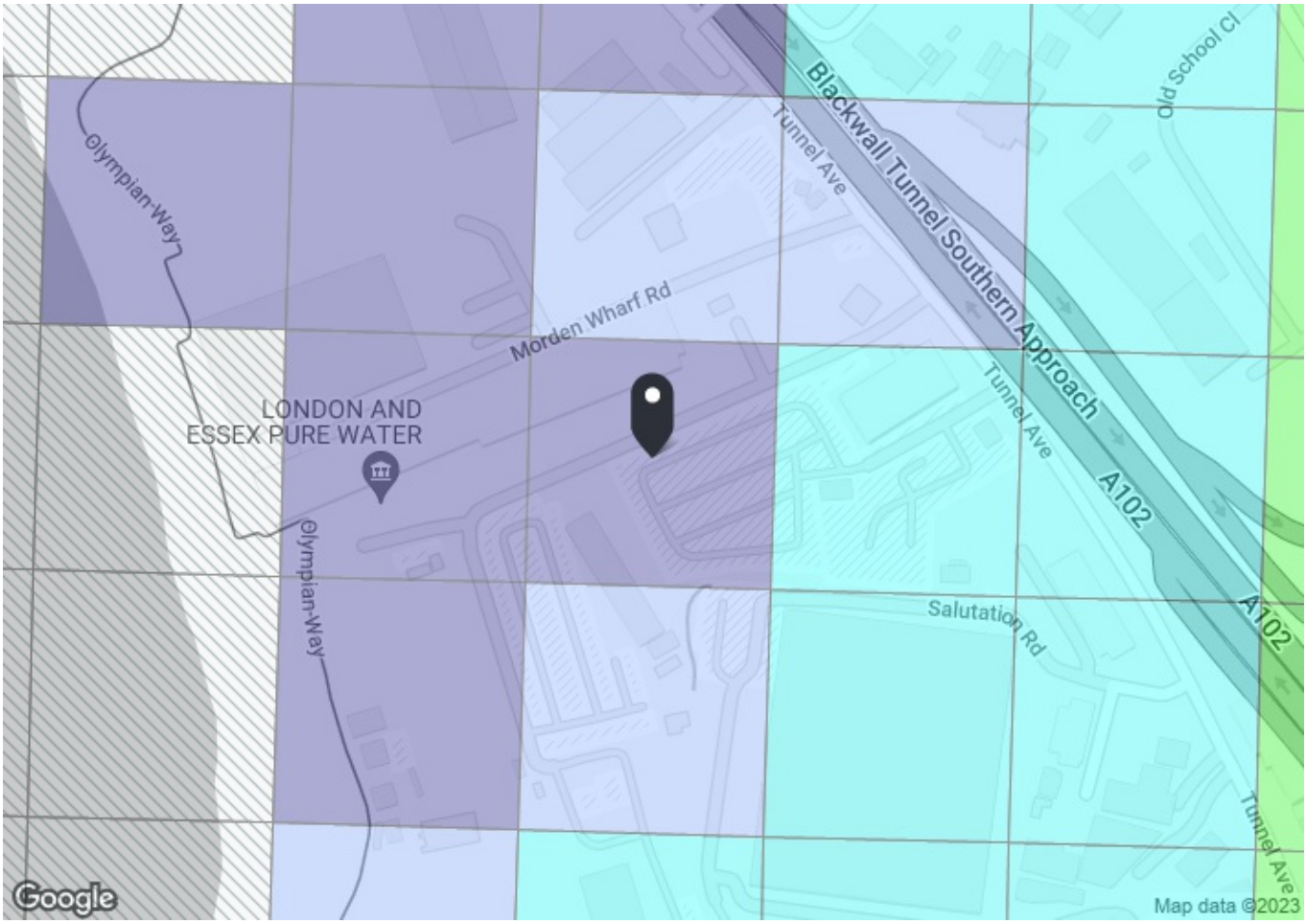
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	628.29	6	7.85	7	14.85	2.02	0.5	1.01
Bus	BLACKWALL LANE AZOF ST	188	628.29	8	7.85	5.75	13.6	2.21	0.5	1.1
Bus	BLACKWALL LN TUNNEL AVE	108	407.37	6	5.09	7	12.09	2.48	1	2.48
									Total Grid Cell AI:	**4.59**

TRANSPORT FOR LONDON



PTAL output for Base Year
1a

F2V3+7Q London, UK
Easting: 539248, Northing: 179046

Grid Cell: 73562

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

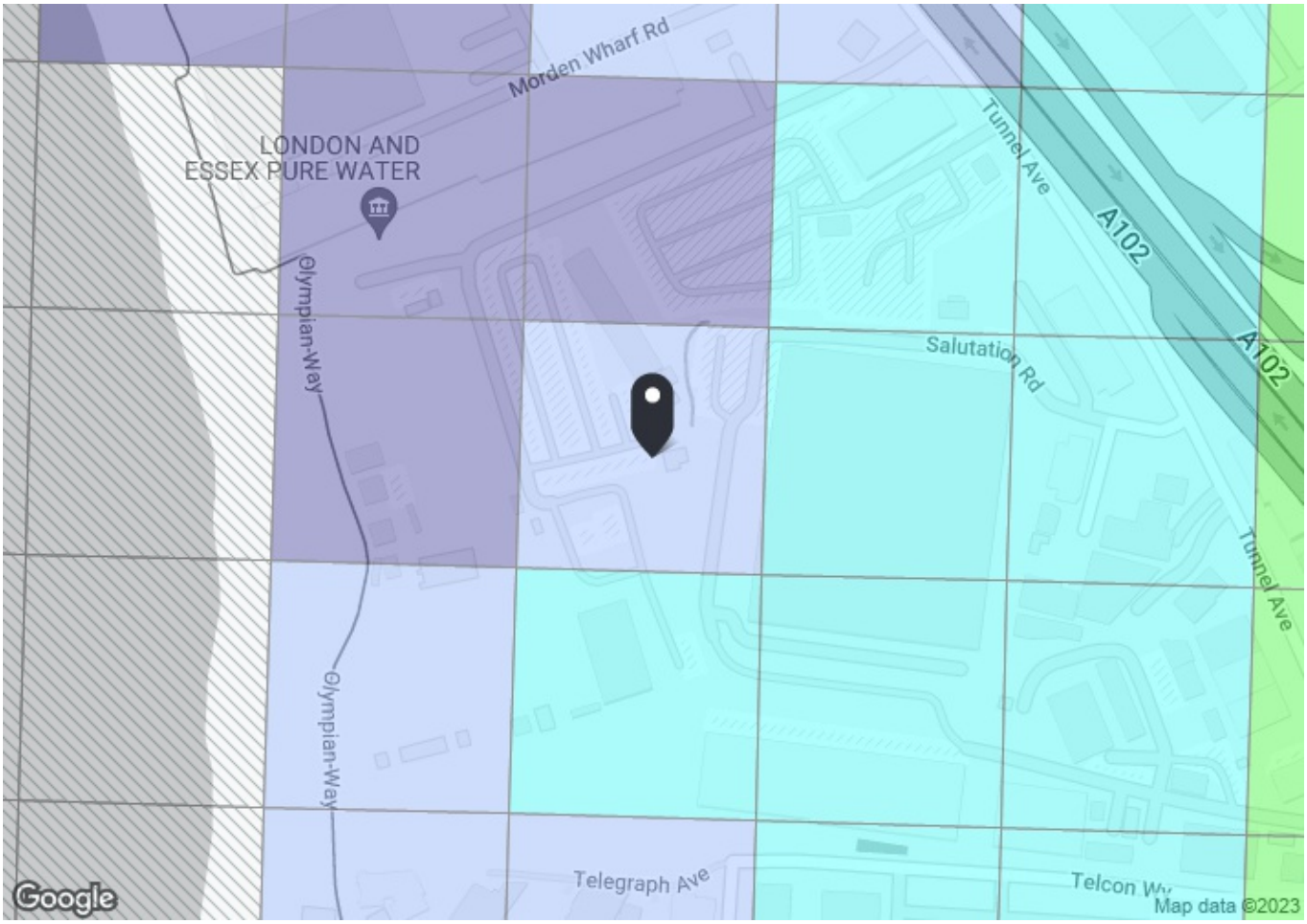
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	474.12	6	5.93	7	12.93	2.32	1	2.32
									Total Grid Cell AI:	**2.32**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

F2R3+WQ London, UK
Easting: 539252, Northing: 178940

Grid Cell: 73077

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

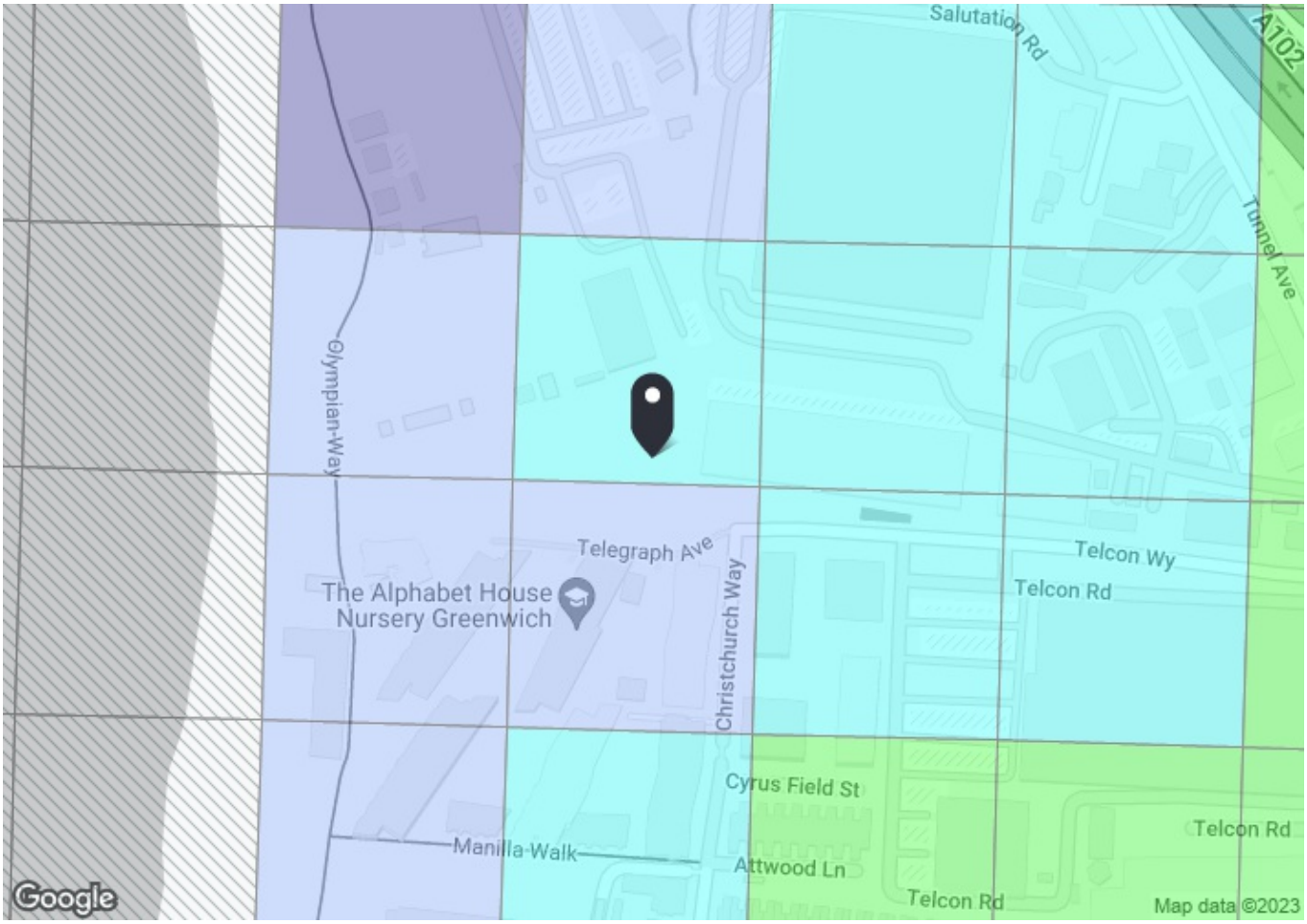
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	485.89	6	6.07	7	13.07	2.29	0.5	1.15
Bus	BLACKWALL LANE AZOF ST	188	485.89	8	6.07	5.75	11.82	2.54	1	2.54
Bus	BLACKWALL LN TUNNEL AVE	108	520.12	6	6.5	7	13.5	2.22	0.5	1.11
									Total Grid Cell AI:	**4.8**

TRANSPORT FOR LONDON



PTAL output for Base Year
2

1 Telegraph Ave, London SE10 0TA, UK
Easting: 539254, Northing: 178805

Grid Cell: 72591

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

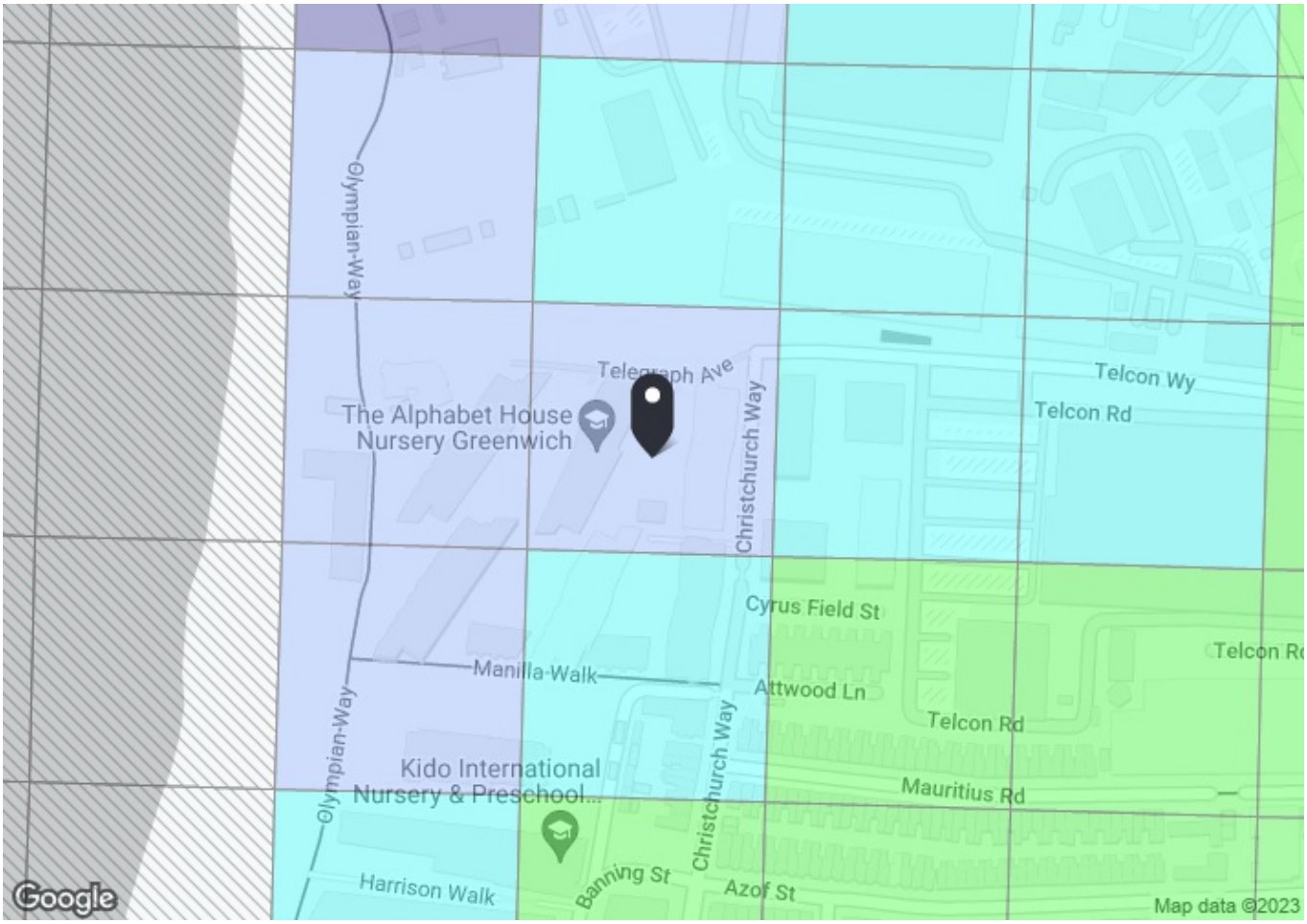
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	420.89	6	5.26	7	12.26	2.45	0.5	1.22
Bus	BLACKWALL LANE AZOF ST	188	420.89	8	5.26	5.75	11.01	2.72	1	2.72
Bus	BLACKWALL LN TUNNEL AVE	108	455.12	6	5.69	7	12.69	2.36	0.5	1.18
									Total Grid Cell AI:	**5.13**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

5 Telegraph Ave, London SE10 0AG, UK
Easting: 539248, Northing: 178732

Grid Cell: 72104

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

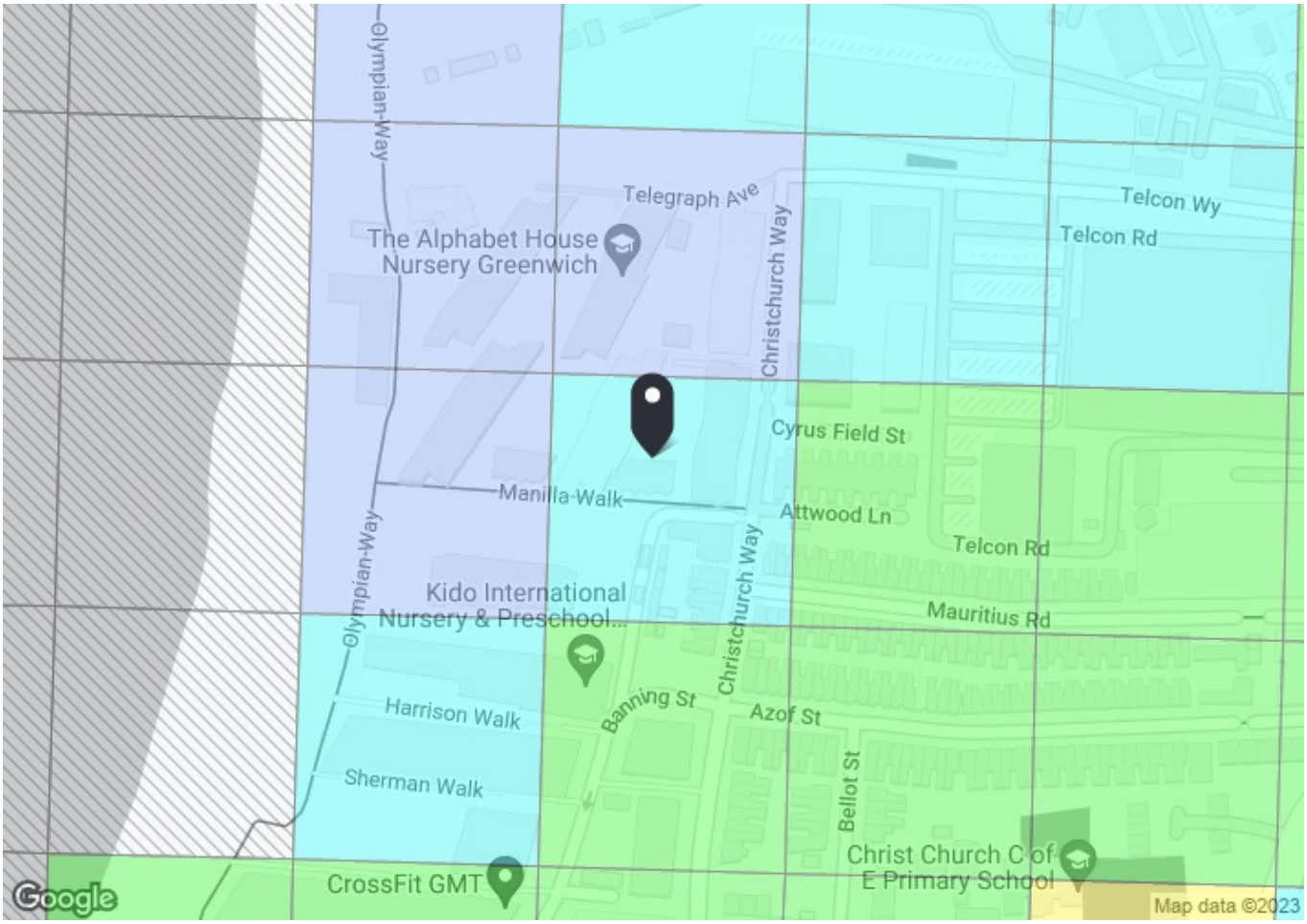
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	470.68	6	5.88	7	12.88	2.33	0.5	1.16
Bus	BLACKWALL LANE AZOF ST	188	470.68	8	5.88	5.75	11.63	2.58	1	2.58
Bus	BLACKWALL LN TUNNEL AVE	108	504.92	6	6.31	7	13.31	2.25	0.5	1.13
									Total Grid Cell AI:	**4.87**

TRANSPORT FOR LONDON



PTAL output for Base Year
2

24 Cable Walk, London SE10 0TQ, UK
Easting: 539239, Northing: 178661

Grid Cell: 71618

Report generated: 16/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

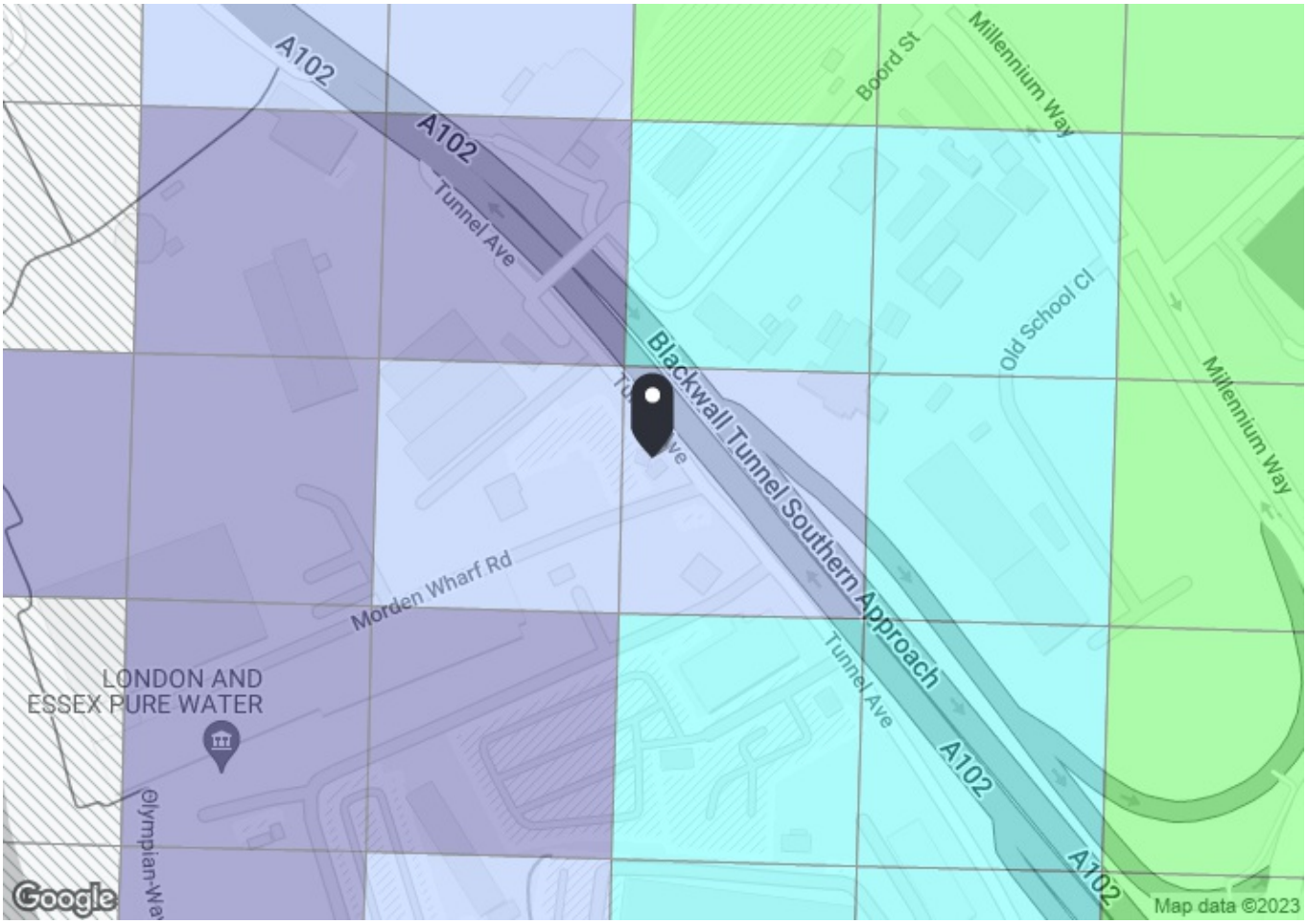
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	TRAFALGAR R BLACKWALL LN	286	552.37	6	6.9	7	13.9	2.16	0.5	1.08
Bus	TRAFALGAR R BLACKWALL LN	180	552.37	5	6.9	8	14.9	2.01	0.5	1.01
Bus	TRAFALGAR R BLACKWALL LN	386	552.37	4	6.9	9.5	16.4	1.83	0.5	0.91
Bus	TRAFALGAR R BLACKWALL LN	177	552.37	6	6.9	7	13.9	2.16	0.5	1.08
Bus	TRAFALGAR R BLACKWALL LN	129	552.37	7.5	6.9	6	12.9	2.32	0.5	1.16
Bus	BLACKWALL LANE AZOF ST	422	432.72	6	5.41	7	12.41	2.42	0.5	1.21
Bus	BLACKWALL LANE AZOF ST	188	432.72	8	5.41	5.75	11.16	2.69	1	2.69
									Total Grid Cell AI:	**9.14**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539310, Northing: 179157

Grid Cell: 74047

Report generated: 17/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

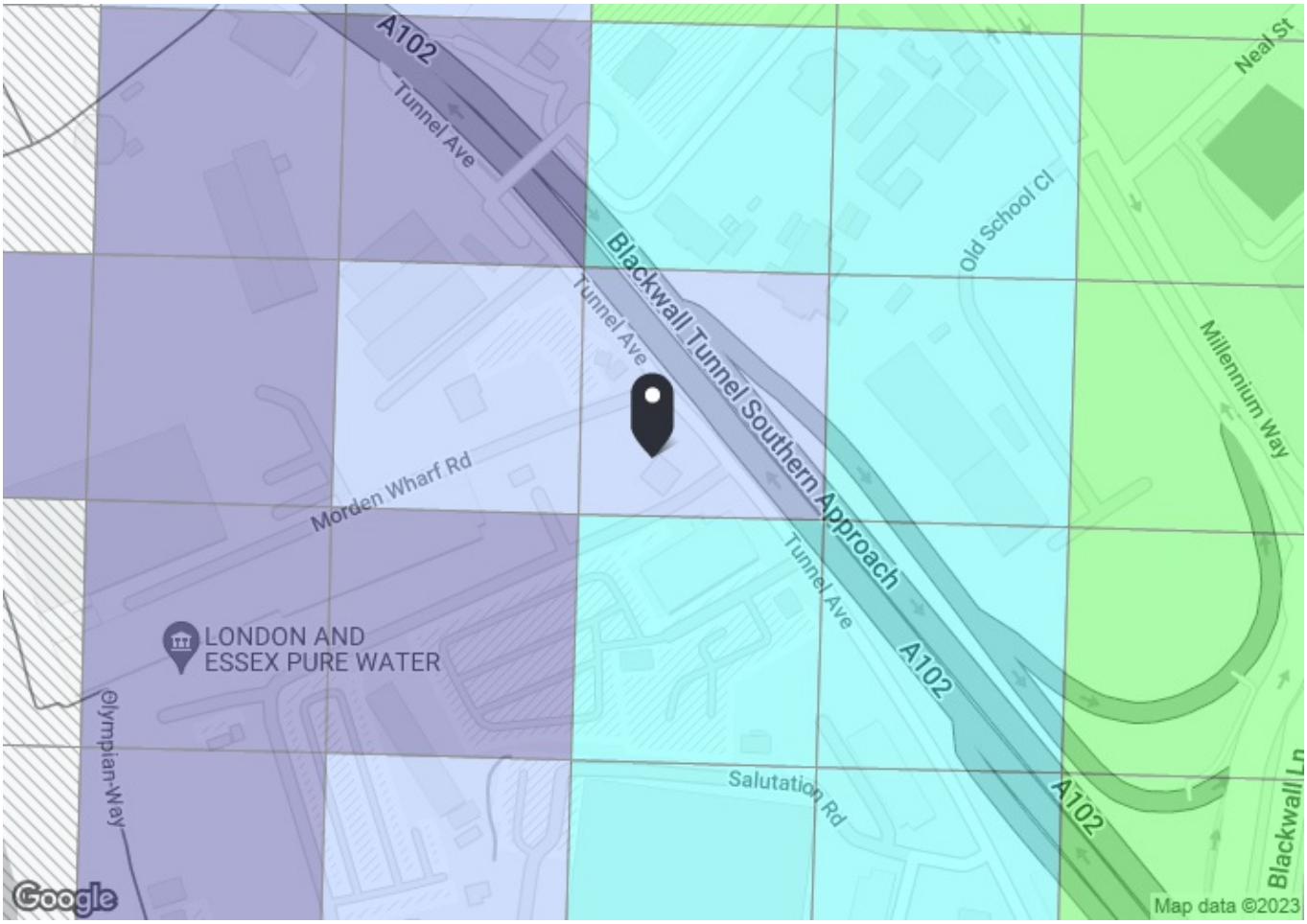
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	523.35	6	6.54	7	13.54	2.22	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	523.35	8	6.54	5.75	12.29	2.44	1	2.44
Bus	BLACKWALL LN TUNNEL AVE	108	456.47	6	5.71	7	12.71	2.36	0.5	1.18
									Total Grid Cell AI:	**4.73**

TRANSPORT FOR LONDON



PTAL output for Base Year
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539327, Northing: 179117

Grid Cell: 74047

Report generated: 17/05/2023

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

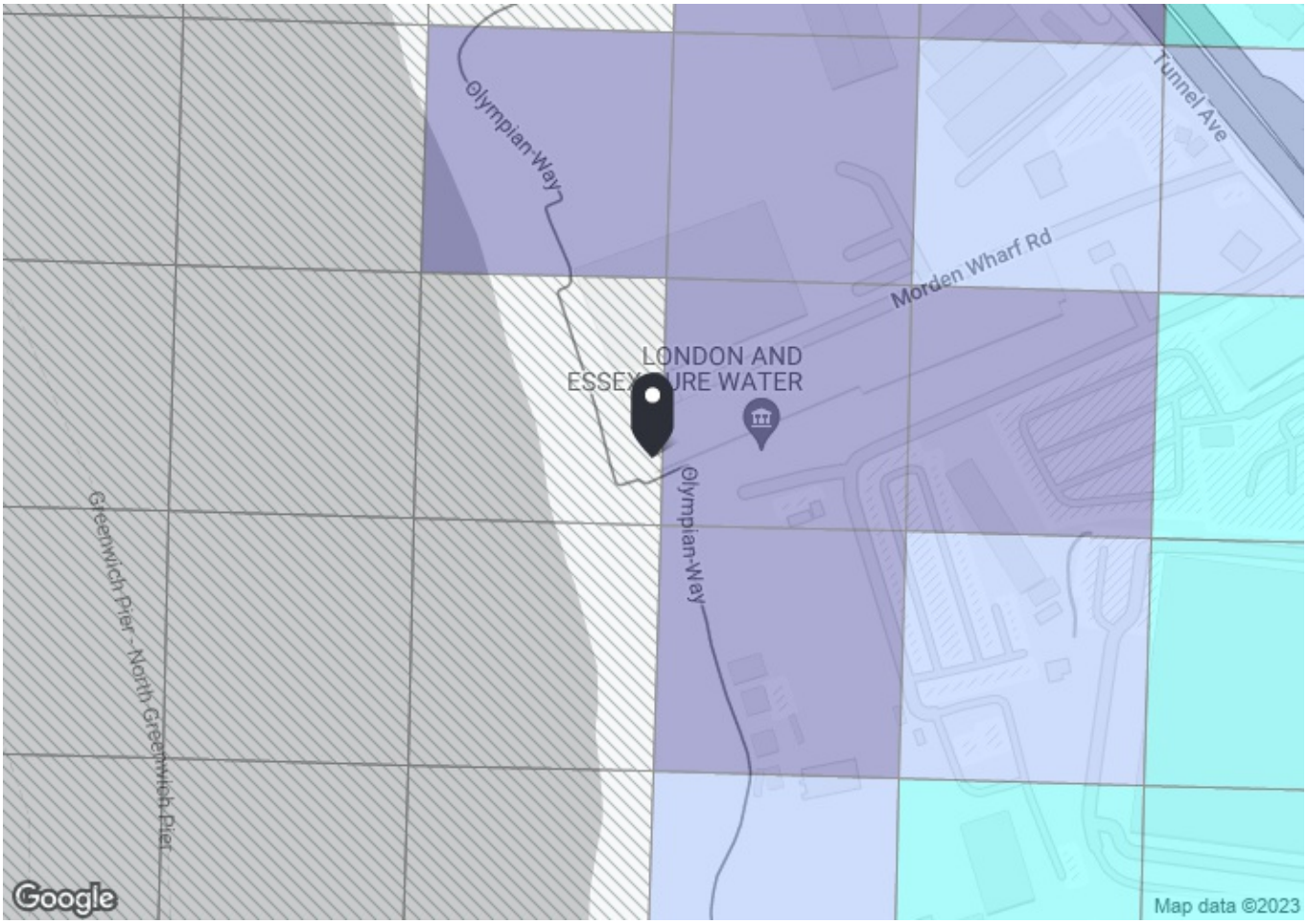
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	523.35	6	6.54	7	13.54	2.22	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	523.35	8	6.54	5.75	12.29	2.44	1	2.44
Bus	BLACKWALL LN TUNNEL AVE	108	456.47	6	5.71	7	12.71	2.36	0.5	1.18
									Total Grid Cell AI:	**4.73**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
0

F2V2+6V London, UK
Easting: 539093, Northing: 179021

Grid Cell: 73560

Report generated: 16/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	Change from base year

Map layers

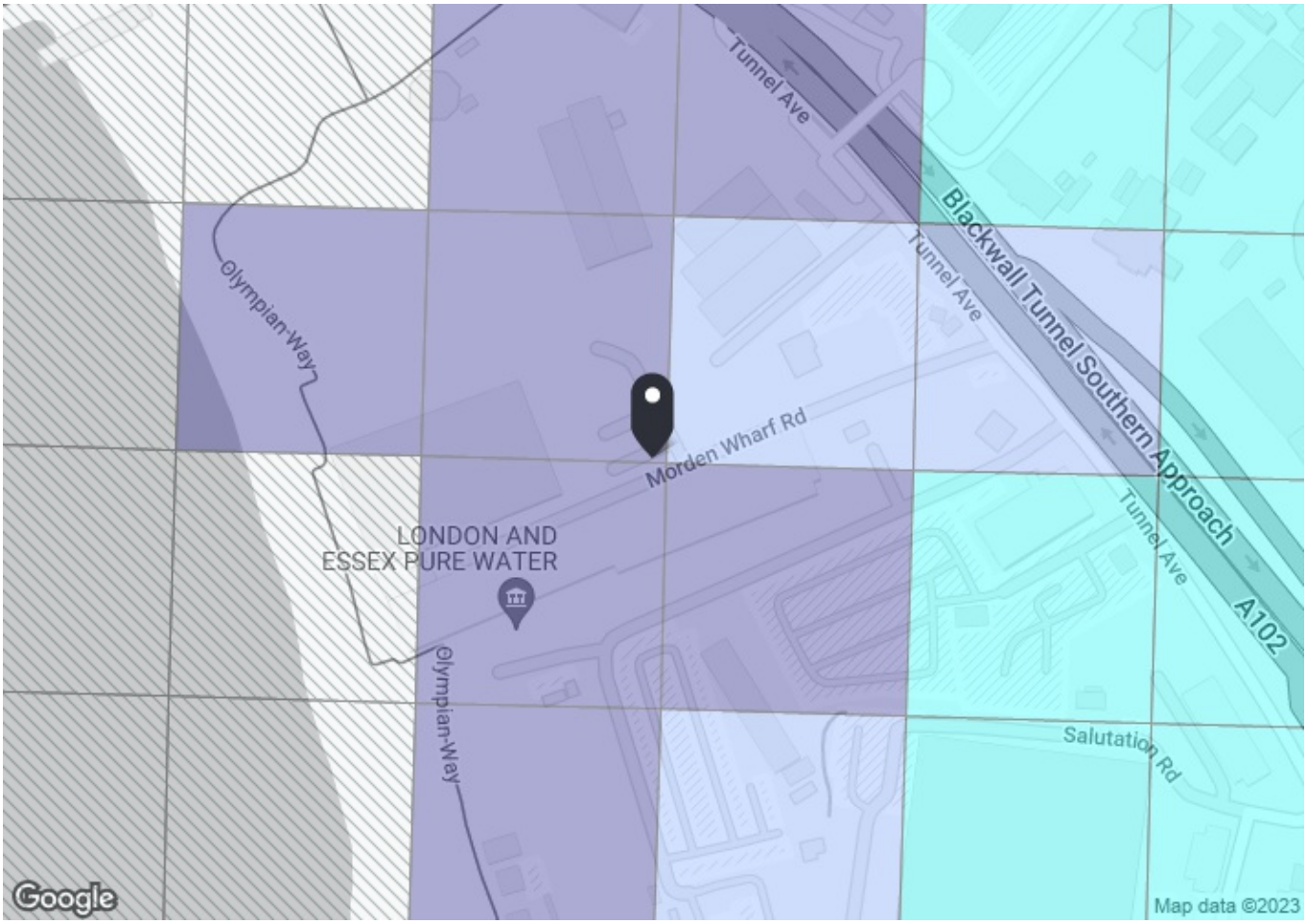
PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1a

Morden Wharf Rd, London SE10 0NU, UK
Easting: 539191, Northing: 179096

Grid Cell: 73561

Report generated: 16/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	Change from base year

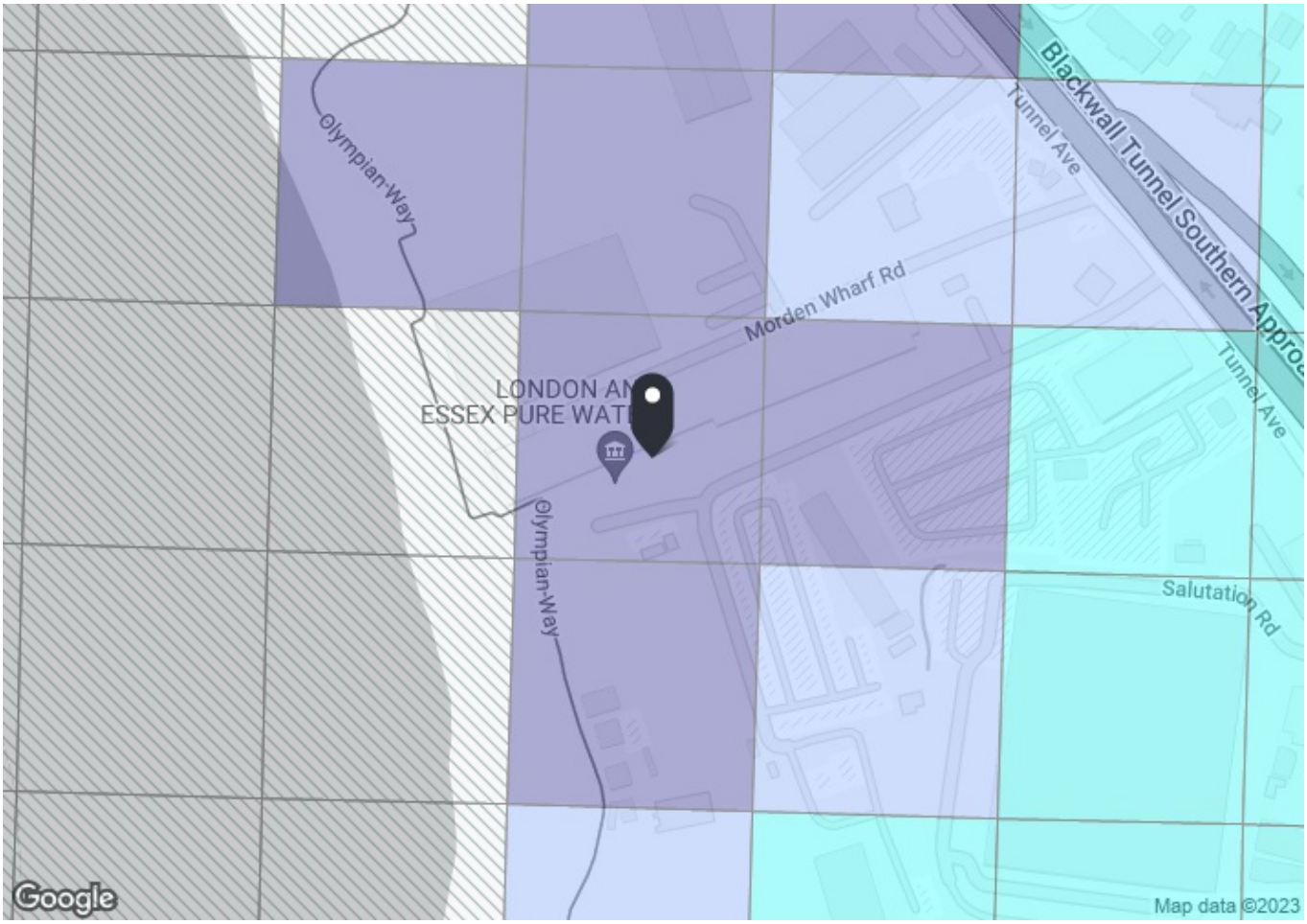
Map layers

PTAL (cell size: 100m)

Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1a

F2V3+76 London, UK
Easting: 539152, Northing: 179036

Grid Cell: 73561

Report generated: 16/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	Change from base year

Map layers

PTAL (cell size: 100m)

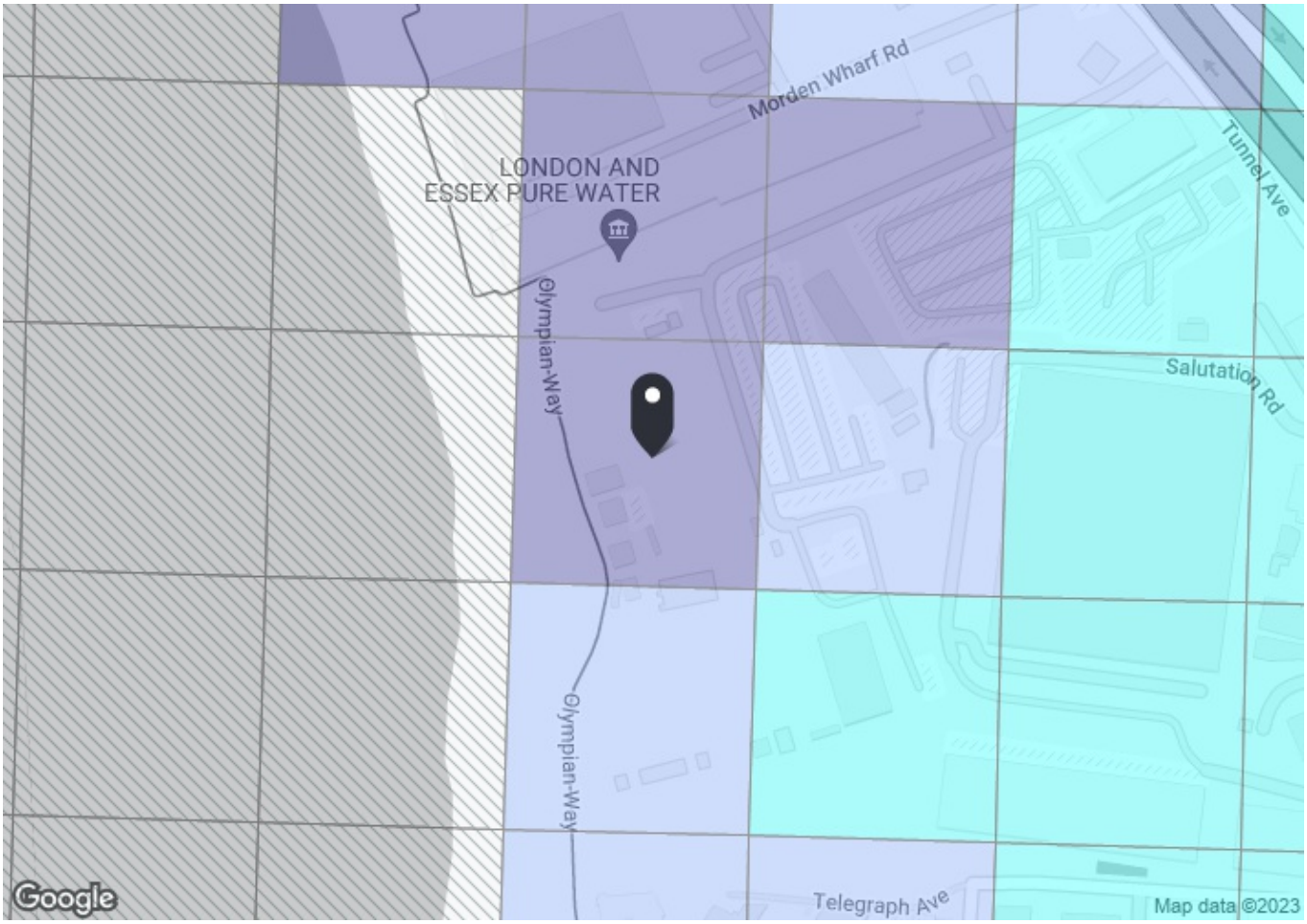
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	519.98	6.21	6.5	6.83	13.33	2.25	1	2.25
									Total Grid Cell AI:	**2.25**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1a

F2R3+W6 London, UK
Easting: 539153, Northing: 178946

Grid Cell: 73076

Report generated: 16/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	Change from base year

Map layers

PTAL (cell size: 100m)

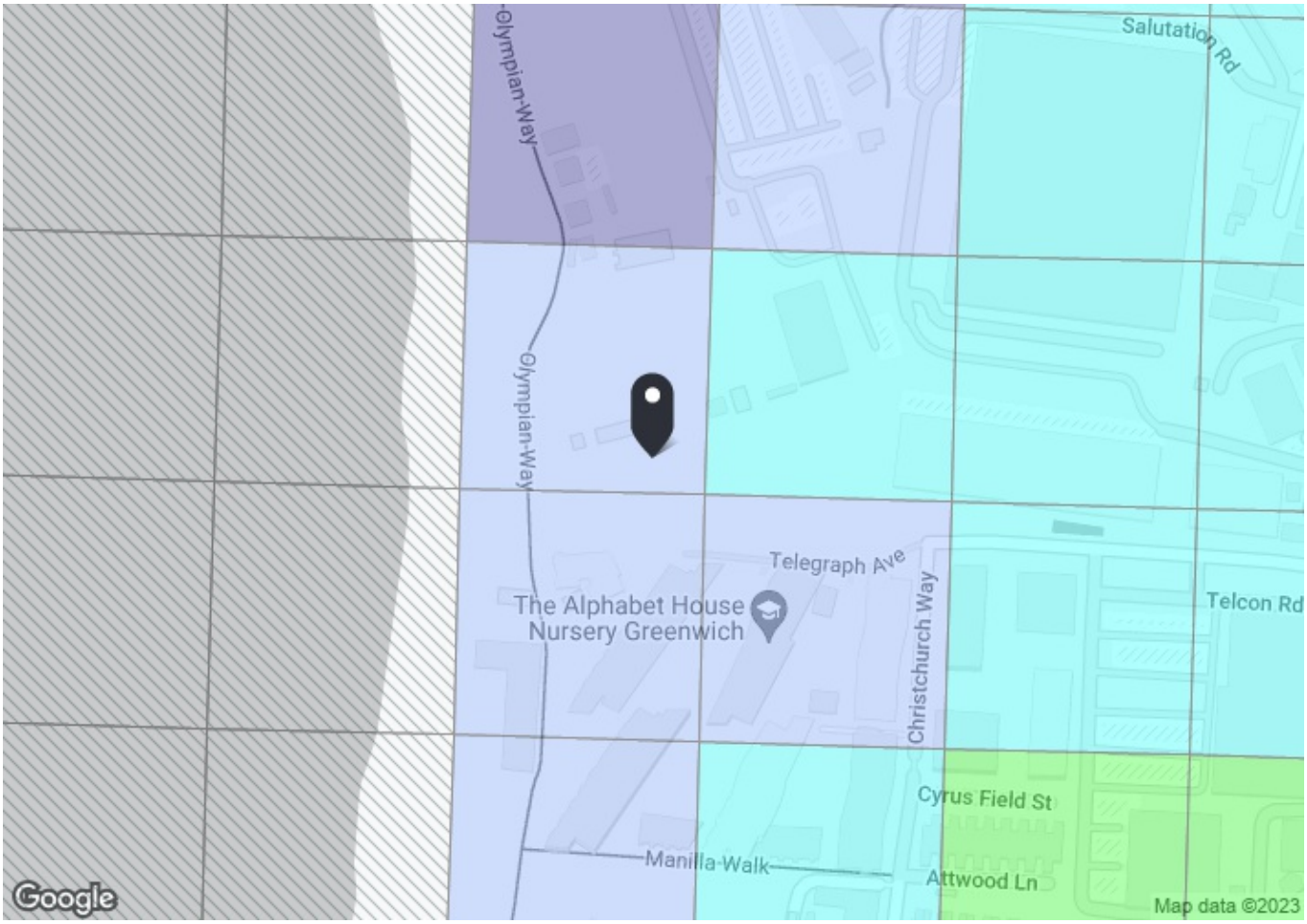
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	638.42	6.21	7.98	6.83	14.81	2.03	1	2.03
									Total Grid Cell AI:	**2.03**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

191 Tunnel Ave, London SE10 0GR, UK
Easting: 539175, Northing: 178808

Grid Cell: 72590

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

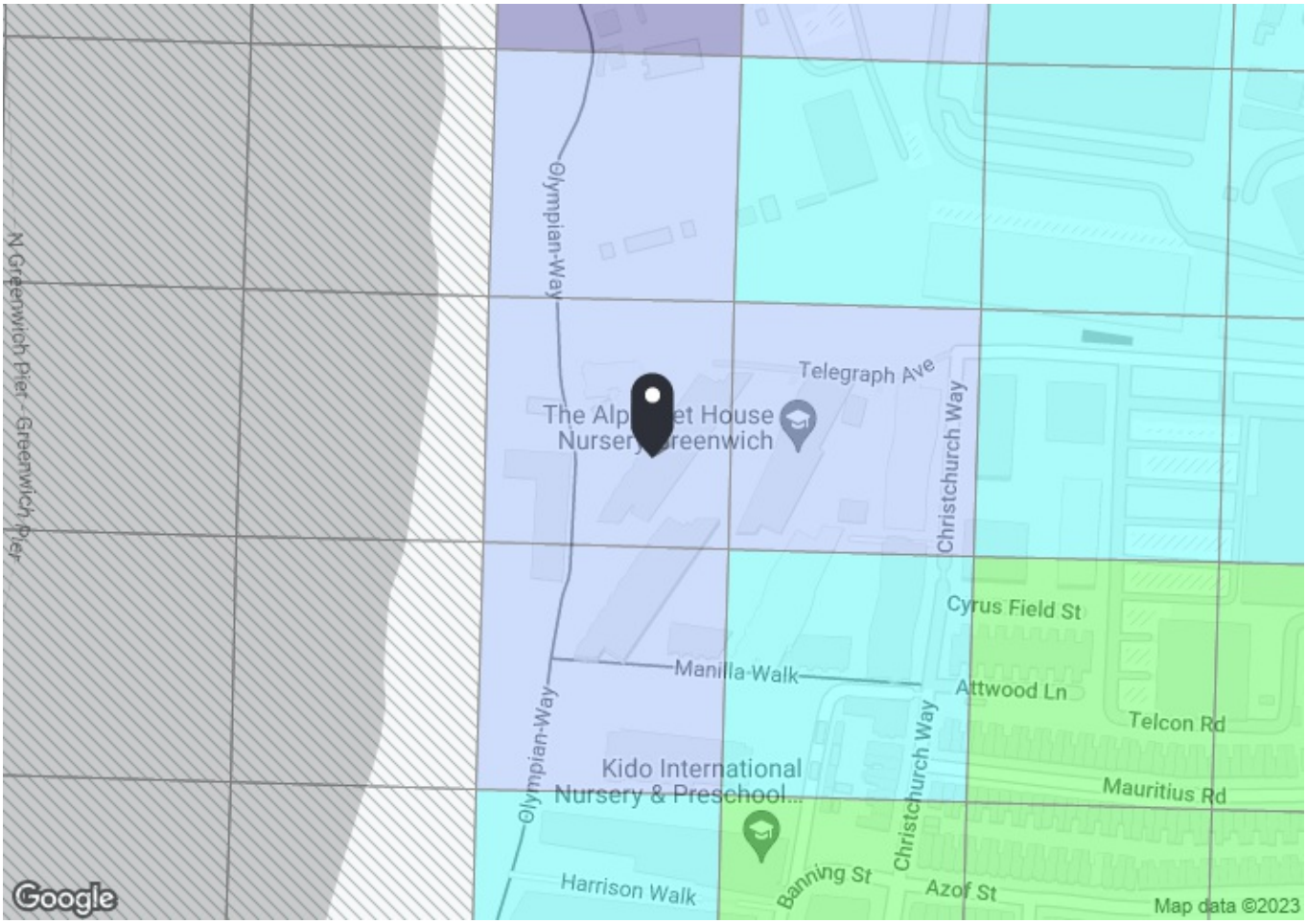
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	525.89	6.21	6.57	6.83	13.4	2.24	0.5	1.12
Bus	BLACKWALL LANE AZOF ST	188	525.89	8.28	6.57	5.62	12.2	2.46	1	2.46
Bus	BLACKWALL LN TUNNEL AVE	108	560.12	6.21	7	6.83	13.83	2.17	0.5	1.08
									Total Grid Cell AI:	**4.66**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

19 Telegraph Ave, London SE10 0AG, UK
Easting: 539166, Northing: 178730

Grid Cell: 72103

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

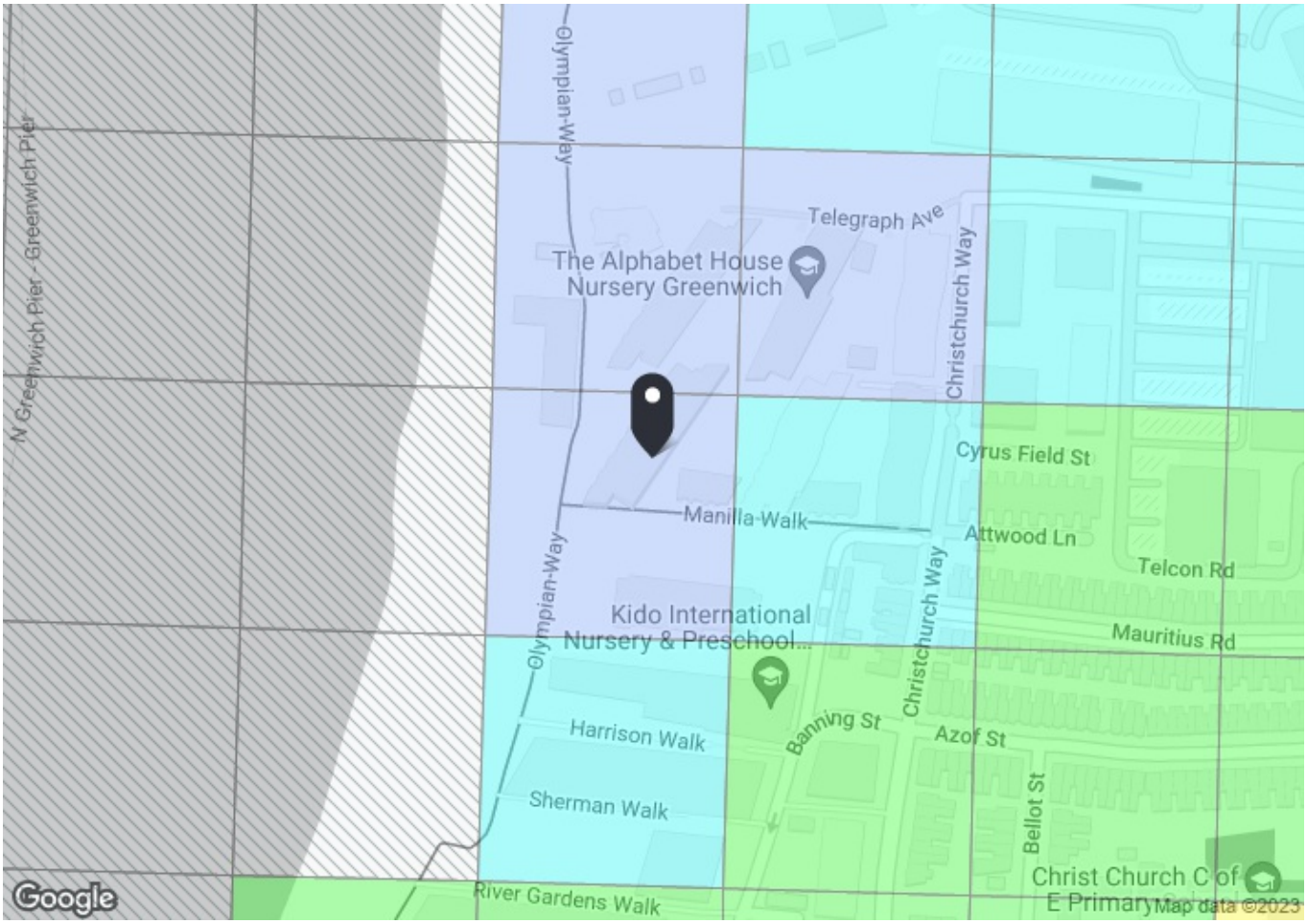
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	517.54	6.21	6.47	6.83	13.3	2.26	0.5	1.13
Bus	BLACKWALL LANE AZOF ST	188	517.54	8.28	6.47	5.62	12.09	2.48	1	2.48
Bus	BLACKWALL LN TUNNEL AVE	108	551.78	6.21	6.9	6.83	13.73	2.19	0.5	1.09
									Total Grid Cell AI:	**4.7**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

34 Cable Walk, London SE10 0TS, UK
Easting: 539163, Northing: 178668

Grid Cell: 71617

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

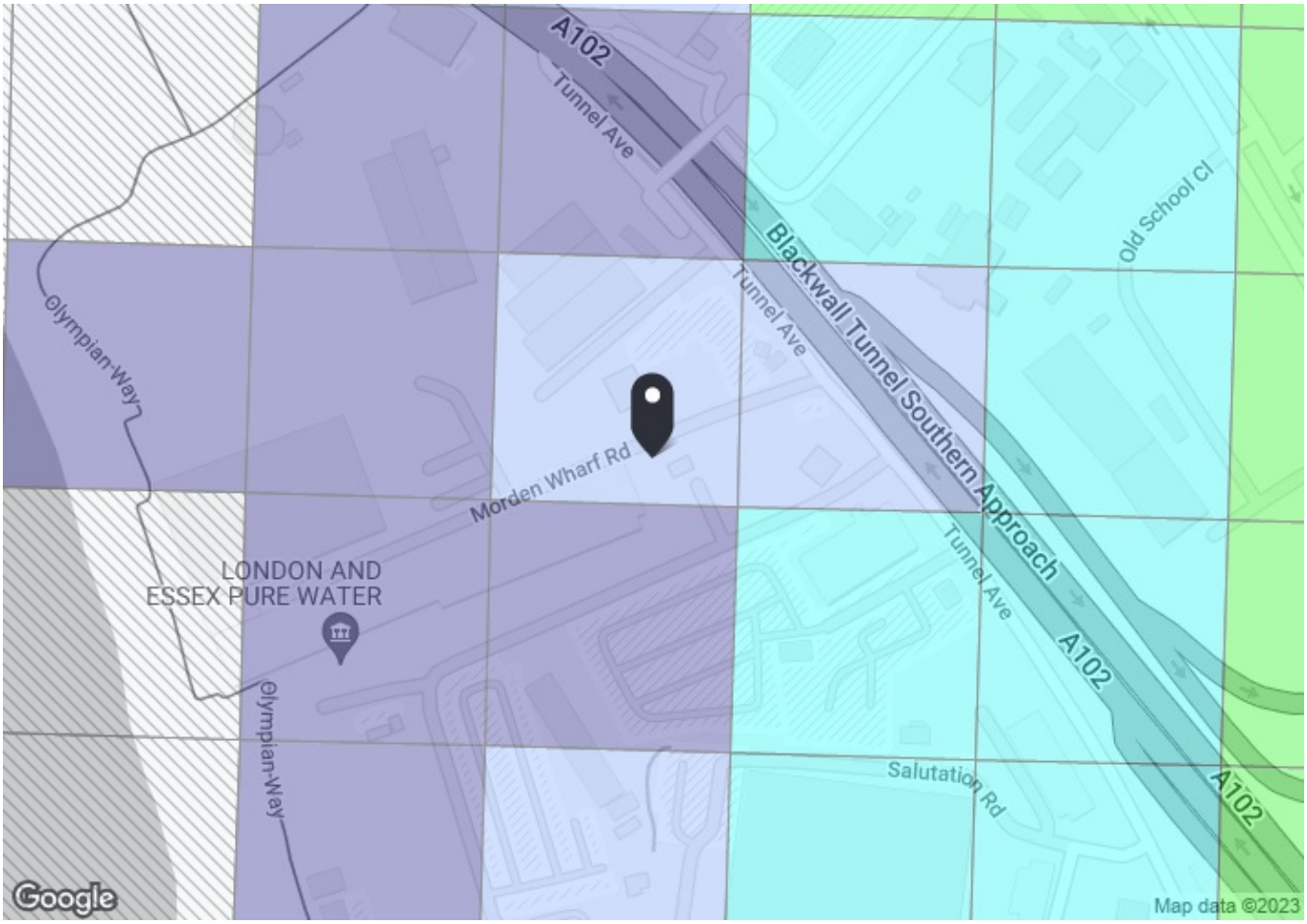
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	537.72	6.21	6.72	6.83	13.55	2.21	0.5	1.11
Bus	BLACKWALL LANE AZOF ST	188	537.72	8.28	6.72	5.62	12.34	2.43	1	2.43
									Total Grid Cell AI:	**3.54**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539262, Northing: 179112

Grid Cell: 74046

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

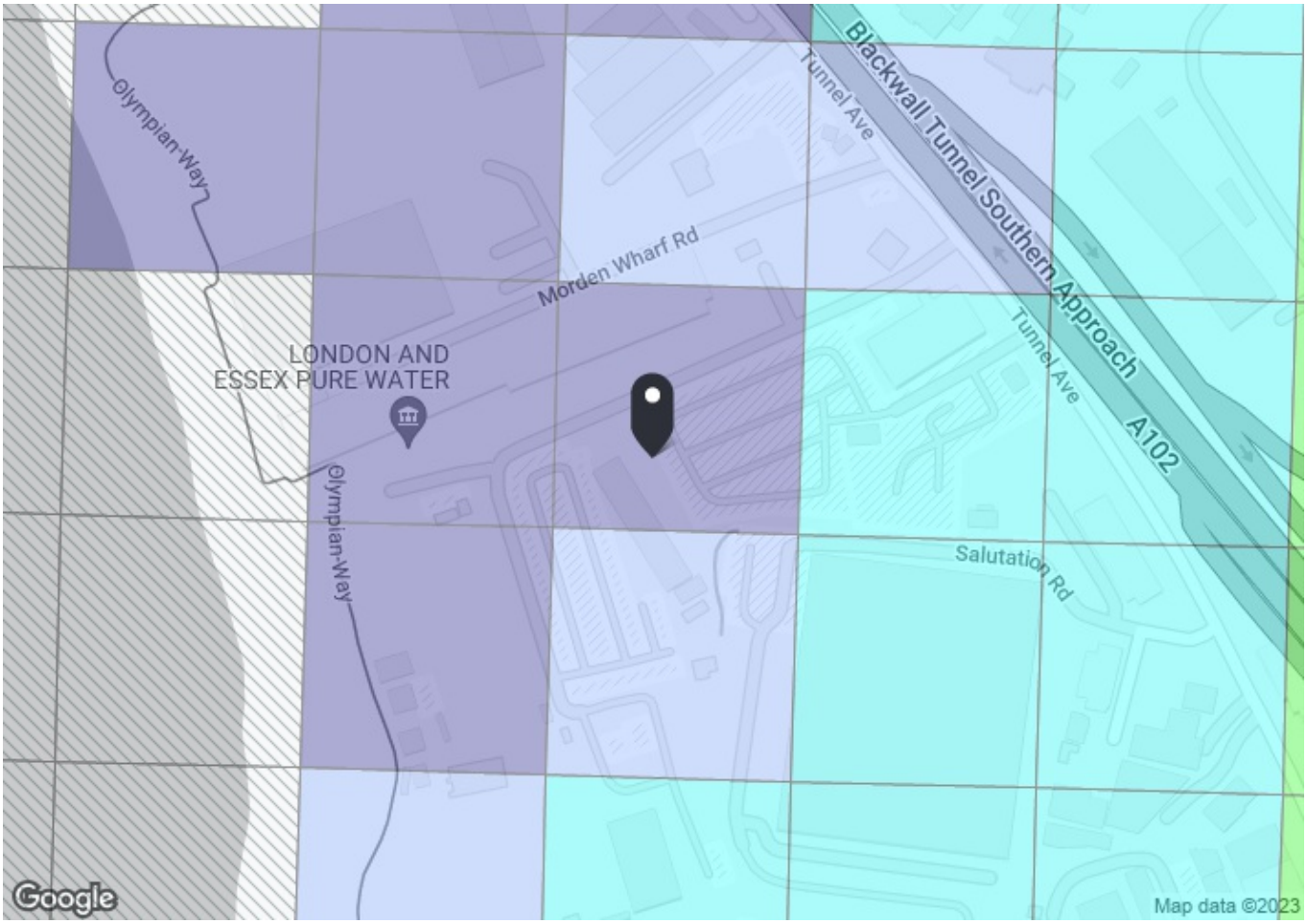
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	628.29	6.21	7.85	6.83	14.68	2.04	0.5	1.02
Bus	BLACKWALL LANE AZOF ST	188	628.29	8.28	7.85	5.62	13.48	2.23	0.5	1.11
Bus	BLACKWALL LN TUNNEL AVE	108	407.37	6.21	5.09	6.83	11.92	2.52	1	2.52
									Total Grid Cell AI:	**4.65**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1a

F2V3+6P London, UK
Easting: 539237, Northing: 179024

Grid Cell: 73562

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

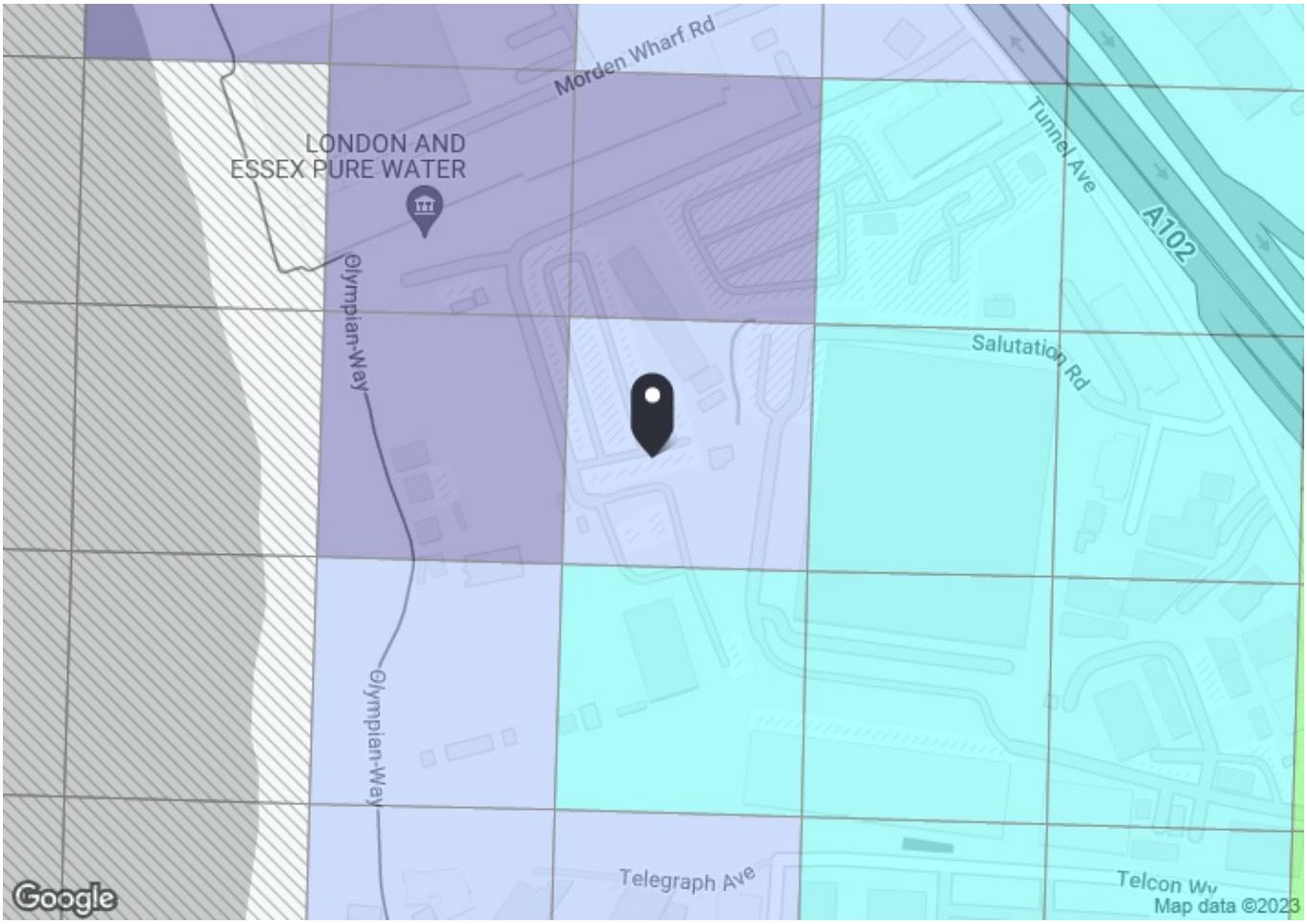
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LN TUNNEL AVE	108	474.12	6.21	5.93	6.83	12.76	2.35	1	2.35
									Total Grid Cell AI:	**2.35**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

F2R3+WM London, UK
Easting: 539233, Northing: 178938

Grid Cell: 73077

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

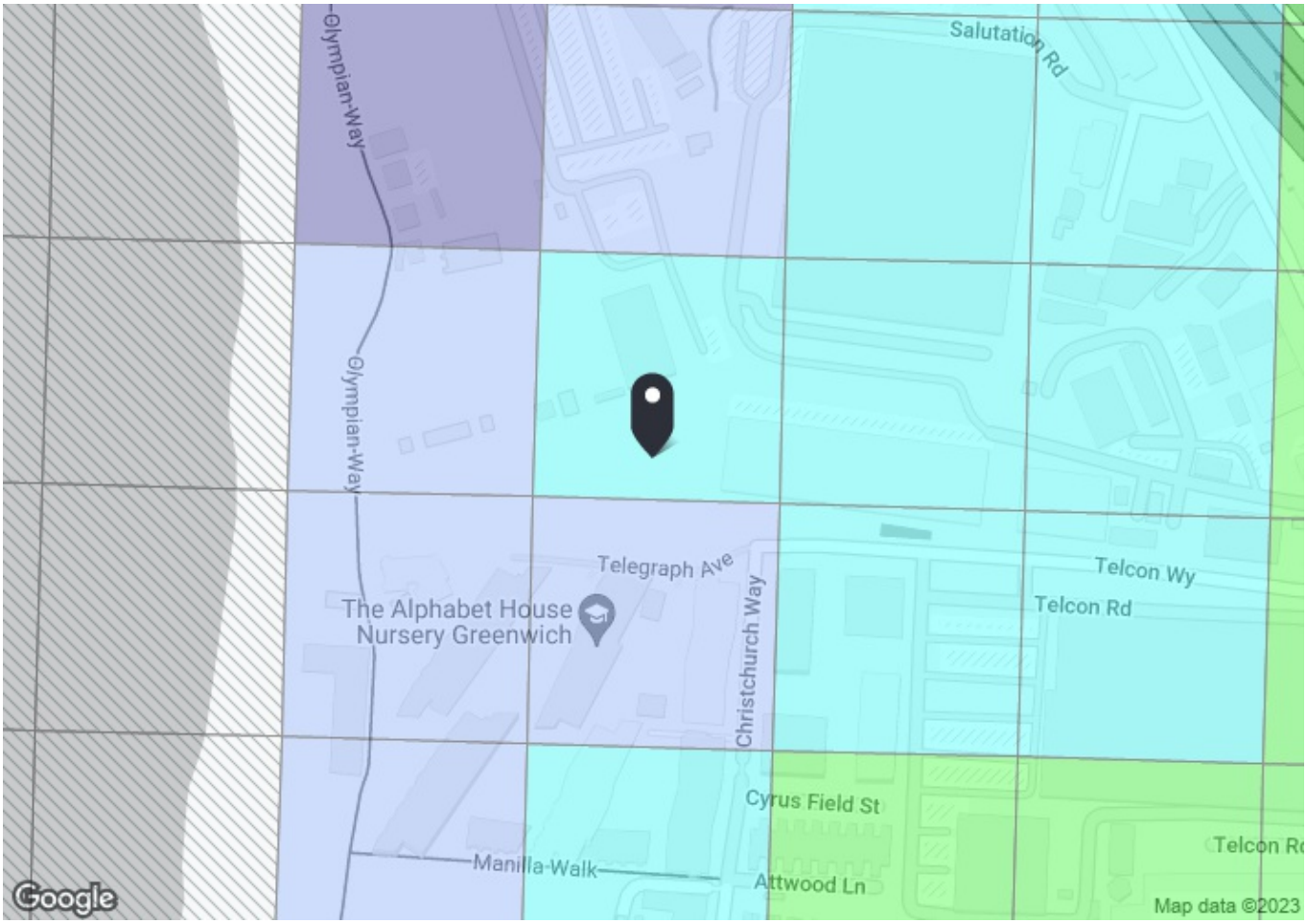
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	485.89	6.21	6.07	6.83	12.9	2.32	0.5	1.16
Bus	BLACKWALL LANE AZOF ST	188	485.89	8.28	6.07	5.62	11.7	2.56	1	2.56
Bus	BLACKWALL LN TUNNEL AVE	108	520.12	6.21	6.5	6.83	13.33	2.25	0.5	1.13
									Total Grid Cell AI:	**4.85**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
2

13 Telegraph Ave, London SE10 0TE, UK
Easting: 539245, Northing: 178811

Grid Cell: 72591

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

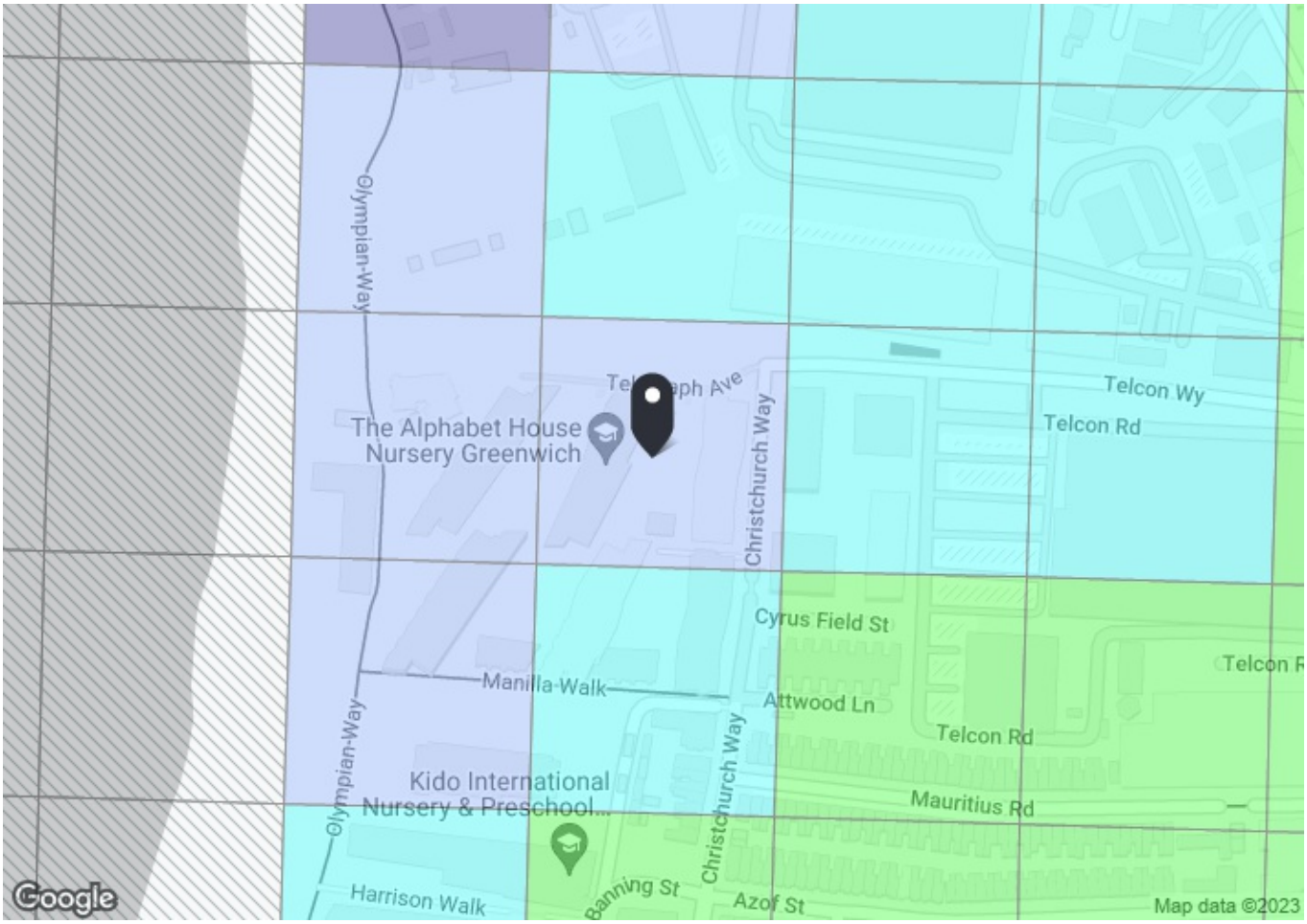
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	420.89	6.21	5.26	6.83	12.09	2.48	0.5	1.24
Bus	BLACKWALL LANE AZOF ST	188	420.89	8.28	5.26	5.62	10.88	2.76	1	2.76
Bus	BLACKWALL LN TUNNEL AVE	108	455.12	6.21	5.69	6.83	12.52	2.4	0.5	1.2
									Total Grid Cell AI:	**5.19**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

11 Telegraph Ave, London SE10 0TE, UK
Easting: 539243, Northing: 178738

Grid Cell: 72104

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

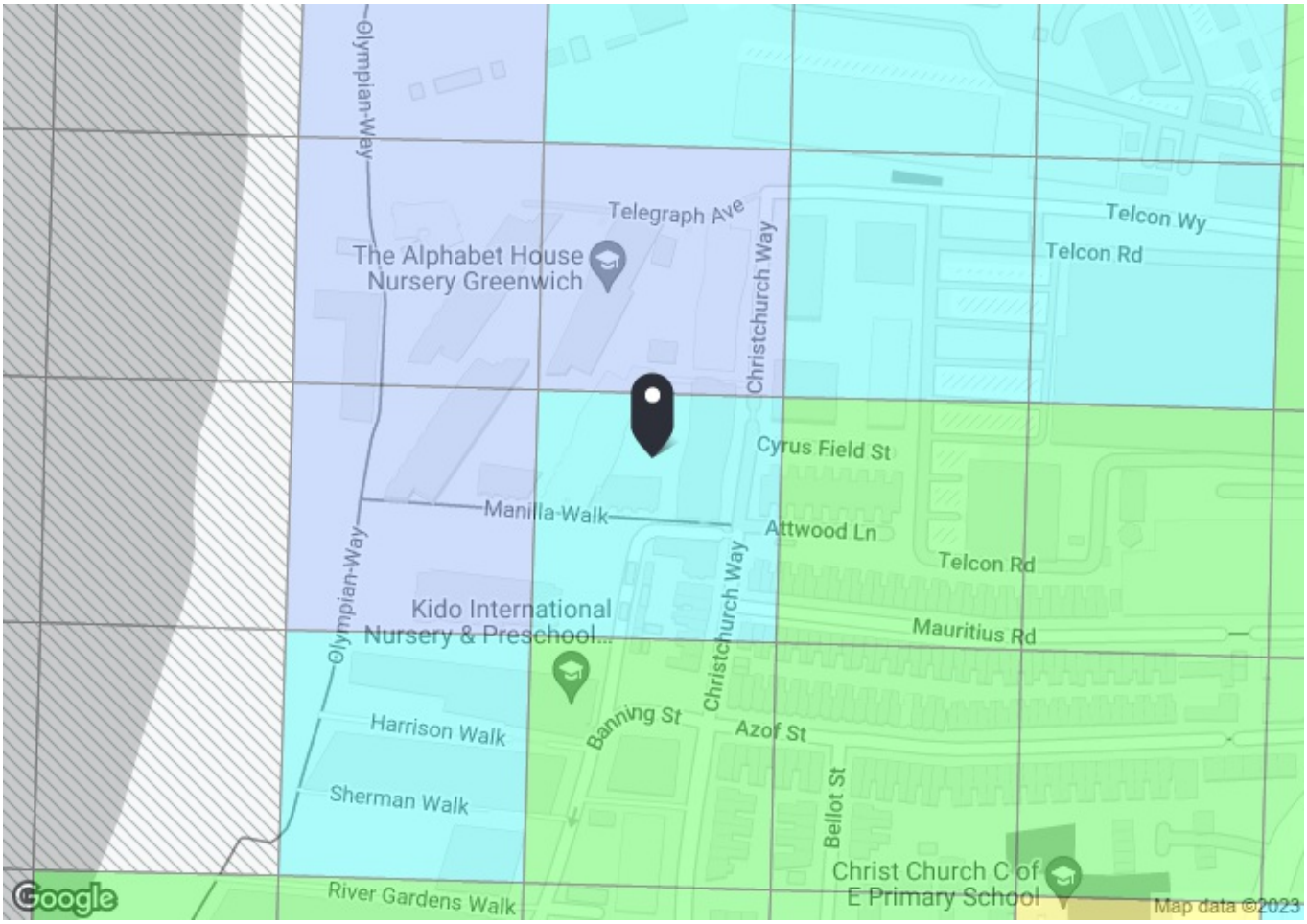
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency (vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	470.68	6.21	5.88	6.83	12.71	2.36	0.5	1.18
Bus	BLACKWALL LANE AZOF ST	188	470.68	8.28	5.88	5.62	11.51	2.61	1	2.61
Bus	BLACKWALL LN TUNNEL AVE	108	504.92	6.21	6.31	6.83	13.14	2.28	0.5	1.14
									Total Grid Cell AI:	**4.93**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
2

124 Christchurch Way London SE10 0UW, UK
Easting: 539244, Northing: 178668

Grid Cell: 71618

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

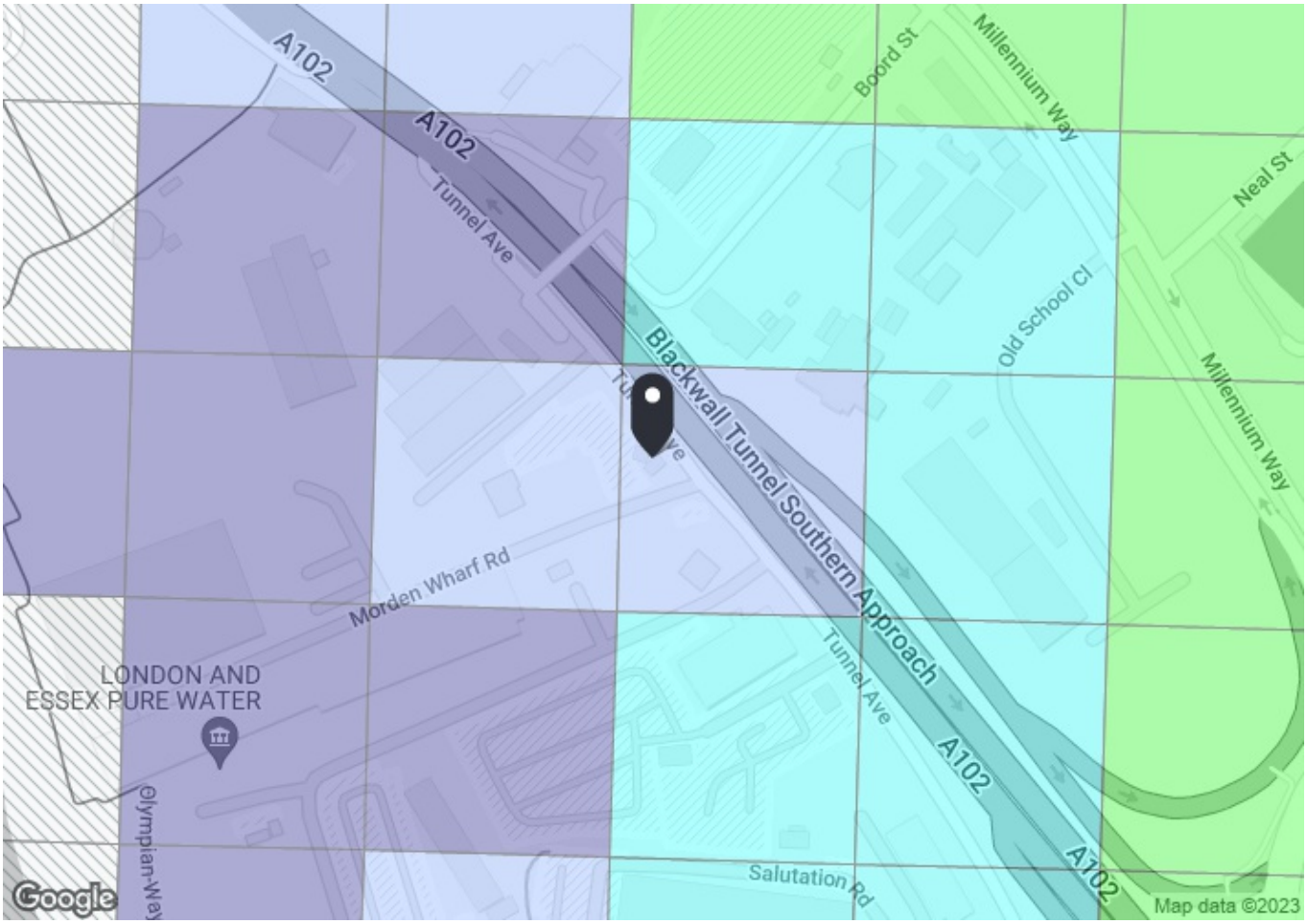
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	TRAFALGAR R BLACKWALL LN	286	552.37	6.21	6.9	6.83	13.74	2.18	0.5	1.09
Bus	TRAFALGAR R BLACKWALL LN	180	552.37	5.18	6.9	7.8	14.7	2.04	0.5	1.02
Bus	TRAFALGAR R BLACKWALL LN	386	552.37	4.14	6.9	9.25	16.15	1.86	0.5	0.93
Bus	TRAFALGAR R BLACKWALL LN	177	552.37	6.21	6.9	6.83	13.74	2.18	0.5	1.09
Bus	TRAFALGAR R BLACKWALL LN	129	552.37	7.76	6.9	5.86	12.77	2.35	0.5	1.17
Bus	BLACKWALL LANE AZOF ST	422	432.72	6.21	5.41	6.83	12.24	2.45	0.5	1.23
Bus	BLACKWALL LANE AZOF ST	188	432.72	8.28	5.41	5.62	11.03	2.72	1	2.72
									Total Grid Cell AI:	**9.25**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539310, Northing: 179156

Grid Cell: 74047

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

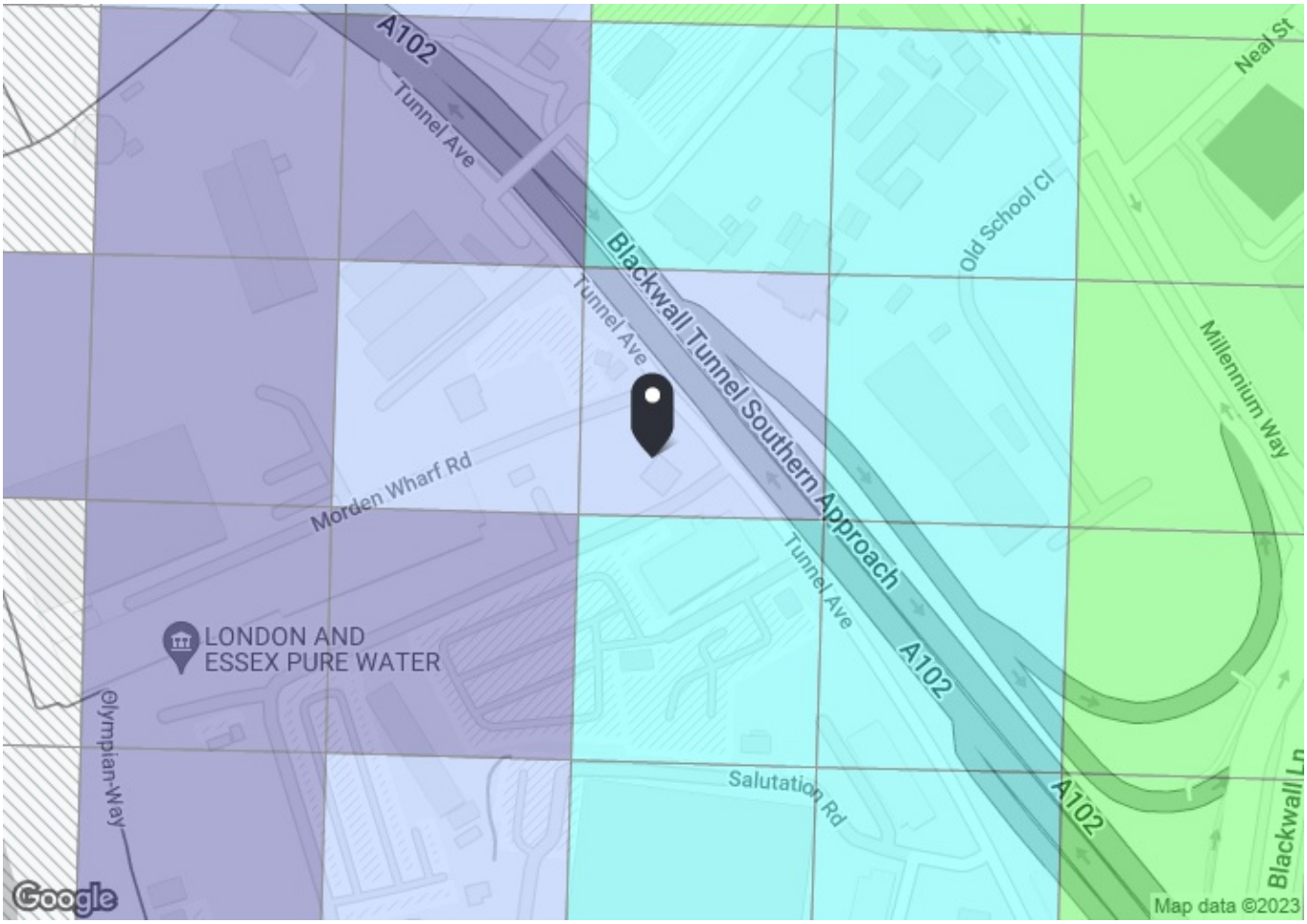
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	523.35	6.21	6.54	6.83	13.37	2.24	0.5	1.12
Bus	BLACKWALL LANE AZOF ST	188	523.35	8.28	6.54	5.62	12.17	2.47	1	2.47
Bus	BLACKWALL LN TUNNEL AVE	108	456.47	6.21	5.71	6.83	12.54	2.39	0.5	1.2
									Total Grid Cell AI:	**4.78**

TRANSPORT FOR LONDON



PTAL output for 2031 (Forecast)
1b

215 Tunnel Ave, London SE10 0QW, UK
Easting: 539327, Northing: 179117

Grid Cell: 74047

Report generated: 17/05/2023

This information is produced using forecasting tools and is subject to uncertainty

Map key - PTAL

0 (Worst)	1a
1b	2
3	4
5	6a
6b (Best)	

Map layers

PTAL (cell size: 100m)

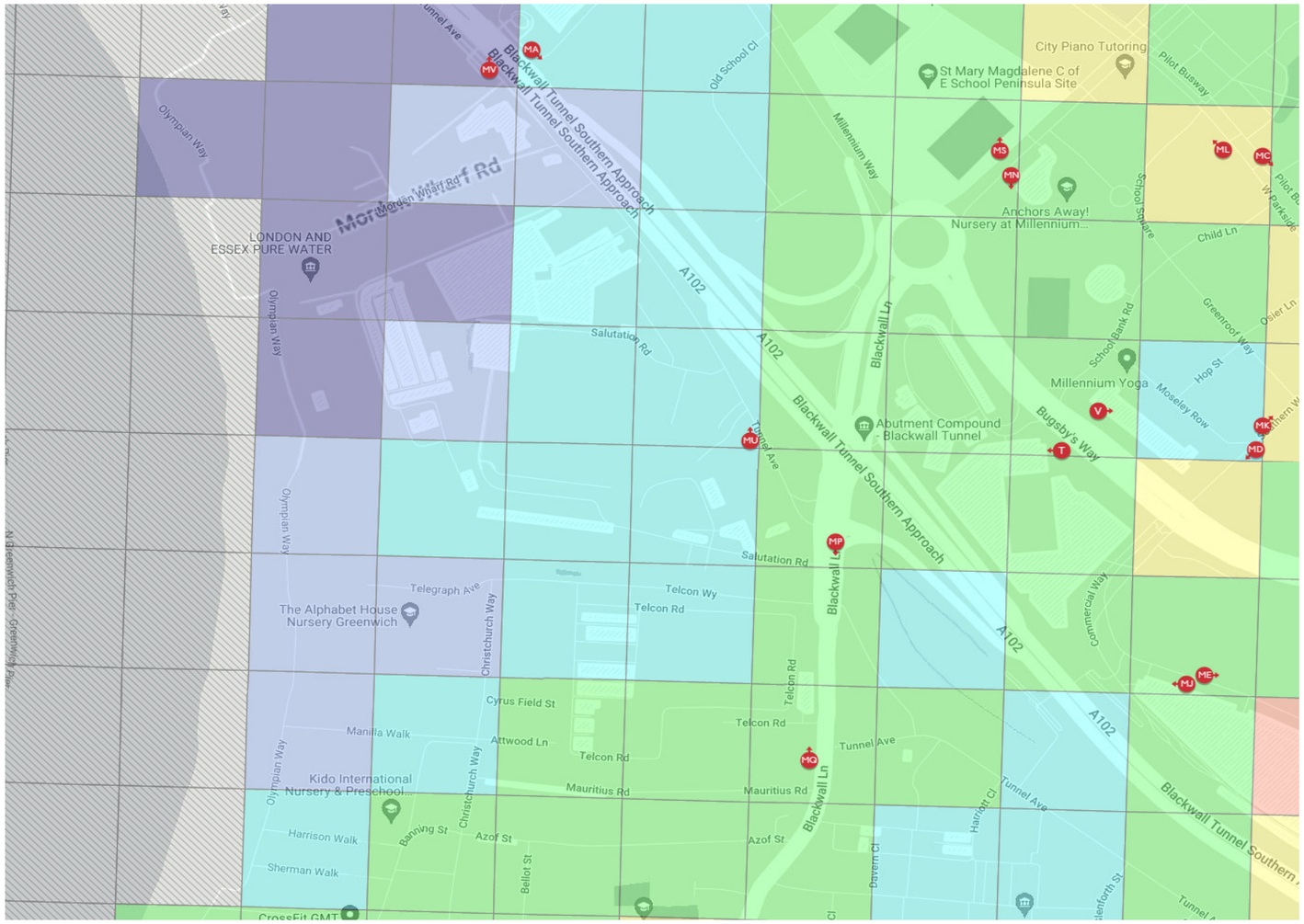
Calculation Parameters

Day of Week	M-F
Time Period	AM Peak
Walk Speed	4.8 kph
Bus Node Max. Walk Access Time (mins)	8
Bus Reliability Factor	2.0
LU Station Max. Walk Access Time (mins)	12
LU Reliability Factor	0.75
National Rail Station Max. Walk Access Time (mins)	12
National Rail Reliability Factor	0.75

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	BLACKWALL LANE AZOF ST	422	523.35	6.21	6.54	6.83	13.37	2.24	0.5	1.12
Bus	BLACKWALL LANE AZOF ST	188	523.35	8.28	6.54	5.62	12.17	2.47	1	2.47
Bus	BLACKWALL LN TUNNEL AVE	108	456.47	6.21	5.71	6.83	12.54	2.39	0.5	1.2
									Total Grid Cell AI:	**4.78**

APPENDIX E – MANUAL PTAL CALCULATION WORKINGS



PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 – 2.50		Very poor
1b	2.51 – 5.00		Very poor
2	5.01 – 10.00		Poor
3	10.01 – 15.00		Moderate
4	15.01 – 20.00		Good
5	20.01 – 25.00		Very Good
6a	25.01 – 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	PTAL	Description
1	0	No Score
2	1a	Very Poor
3	1a	Very Poor
4	1a	Very Poor
5	1b	Very Poor
6	1b	Very Poor
7	1b	Very Poor
8	1b	Very Poor
9	1a	Very Poor
10	1b	Very Poor
11	2	Poor
12	1b	Very Poor
13	2	Poor
14	1a	Very Poor
15	2	Poor

0	0.00 - 0.07	No Score
1a	0.07 - 2.50	Very Poor
1b	2.51 - 5.00	Very Poor
2	5.01 - 10.00	Poor
3	10.01 - 15.00	Moderate
4	15.01 - 20.00	Good
5	20.01 - 25.00	Very Good
6a	25.01 - 40.00	Excellent
6b	40.00+	Excellent

PTAL Calculation based on EXISTING SERVICES

Service	Frequency (mins)	Frequncy (vph)
108	10.5	5.714285714
188	10.5	5.714285714
422	10.5	5.714285714

Enderby Place

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	505	6.3125	5.71428571	7.25	13.5625	2.211981567
North Greenwich Station / Russel Square	188	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich / Bexleyheath Clock Tower	422	2	410	5.125	5.71428571	7.25	12.375	2.424242424
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.424242424	2.318111996	0	0	Accessibility Index	4.74235
				PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	450	5.625	5.714285714	7.25	12.875	2.330097087
North Greenwich Station / Russel Square	188	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich / Bexleyheath Clock Tower	422	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.56684492	2.448471004	0	0	Accessibility Index	5.01532
				PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

Morden Wharf

Grid 1

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	345	4.3125	5.71428571	7.25	11.5625	2.594594595
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.594594595	0	0	0	Accessibility Index	2.59459
				PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 2

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich / Bexleyheath Clock Tower	422	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
3.037974684	2.008368201	0	0	Accessibility Index	5.04634
				PTAL Level	2

Grid 3

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	370	4.625	5.714285714	7.25	11.875	2.526315789
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.52632	0	0	0	Accessibility Index	2.52632
				PTAL Level	1

Grid 4

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	430	5.375	5.714285714	7.25	12.625	2.376237624
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus	Half of Rest	Best Train EDF	Half of rest		
2.37624	0	0	0	Accessibility Index	2.37624
				PTAL Level	1

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	540	6.75	5.71429	7.25	14	2.14286
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus	Half of Rest	Best Train	Half of rest		
2.14286	0	0	0	Accessibility Index	2.14286
				PTAL Level	1

Grid 8

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	170	2.125	5.71429	7.25	9.375	3.2
North Greenwich Station / Russel Square	188	2	585	7.3125	5.71429	7.25	14.5625	2.06009
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.71429	7.25	14.5625	2.06009
Trains	*Trains*							

Best Bus	Half of Rest	Best Train	Half of rest		
3.2	2.06009	0	0	Accessibility Index	5.26009
				PTAL Level	2

Grid 9

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	255	3.1875	5.714285714	7.25	10.4375	2.87425
North Greenwich Station / Russel Square	188	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich / Bexleyheath Clock Tower	422	2	570	7.125	5.714285714	7.25	14.375	2.08696
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.874251497	2.08695652	0	0	Accessibility Index	4.96121
				PTAL Level	1

Grid 10

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	350	4.375	5.714285714	7.25	11.625	2.58065
North Greenwich Station / Russel Square	188	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich / Bexleyheath Clock Tower	422	2	656	8.2	5.714285714	7.25	15.45	1.94175
Trains	*Trains*							

Best Bus	Half of Rest	Best Train	Half of rest		
2.58065	1.94175	0	0	Accessibility Index	4.52239
				PTAL Level	1

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	475	5.9375	5.714285714	7.25	13.1875	2.27488
Trains	*Trains*							

Best Bus	Half of Rest	Best Train	Half of rest		
2.27488	0	0	0	Accessibility Index	2.27488
				PTAL Level	1

Grid 14

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	150	1.875	5.714285714	7.25	9.125	3.287671233
North Greenwich Station / Russel Square	188	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich / Bexleyheath Clock Tower	422	2	470	5.875	5.714285714	7.25	13.125	2.285714286
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest		
3.28767	2.285714286	0	0	Accessibility Index	5.57339
				PTAL Level	2

Grid 15

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich / Bexleyheath Clock Tower	422	2	520	6.5	5.714285714	7.25	13.75	2.181818182
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest		
3.03797	2.181818182	0	0	Accessibility Index	5.21979
				PTAL Level	2

Enderby Wharf

Grid 6

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	570	7.125	5.71428571	7.25	14.375	2.086956522
North Greenwich Station / Russel Square	188	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich / Bexleyheath Clock Tower	422	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.31884058	2.202898551	0	0	Accessibility Index	4.52174
				PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 7

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	610	7.625	5.714285714	7.25	14.875	2.016806723
North Greenwich Station / Russel Square	188	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich / Bexleyheath Clock Tower	422	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest		
2.274881517	2.14584412	0	0	Accessibility Index	4.42073
				PTAL Level	1

Grid 12

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	456	5.7	5.714285714	7.25	12.95	2.316602317
North Greenwich Station / Russel Square	188	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich / Bexleyheath Clock Tower	422	2	340	4.25	5.714285714	7.25	11.5	2.608695652
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest		
2.6087	2.462648984	0	0	Accessibility Index	5.07134
				PTAL Level	2

Grid 13

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	530	6.625	5.714285714	7.25	13.875	2.162162162
North Greenwich Station / Russel Square	188	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Bexleyheath Clock Tower	422	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Lewisham Shopping Centre	129	2	595	7.4375	4.615	8.50054	15.938	1.882288963
Thamesmead / Peckham	177	2	595	7.4375	10	5	12.4375	2.412060302
Queen Mary's Hospital / Cutty Sark	286	2	595	7.4375	5	8	15.4375	1.943319838
Woolwich / Blacjheath Village	386	2	595	7.4375	3.529	10.501	17.9385	1.6723814
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest		
2.41206	6.23489	0	0	Accessibility Index	8.64695
				PTAL Level	2

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 - 2.50		Very poor
1b	2.51 - 5.00		Very poor
2	5.01 - 10.00		Poor
3	10.01 - 15.00		Moderate
4	15.01 - 20.00		Good
5	20.01 - 25.00		Very Good
6a	25.01 - 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	AI	PTAL	Description
1	2.59459	1b	Very Poor
2	5.04634	2	Poor
3	2.52632	1b	Very Poor
4	2.37624	1a	Very Poor
5	4.74235	1b	Very Poor
6	4.52174	1b	Very Poor
7	4.42073	1b	Very Poor
8	5.26009	2	Poor
9	4.96121	1b	Very Poor
10	4.52239	1b	Very Poor
11	5.01532	2	Poor
12	5.07134	2	Poor
13	8.64695	2	Poor
14	5.57339	2	Poor
15	5.21979	2	Poor

PTAL Calculation based on Scenario 1 - bus stop and turning circle within Morden Wharf site served by bus service 108

Service	Frequency (mins)	Frequncy (vph)
108	10.5	5.714285714
188	10.5	5.714285714
422	10.5	5.714285714

Enderby Place

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	60	0.75	5.71428571	7.25	8	3.75
North Greenwich Station / Russel Square	188	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich / Bexleyheath Clock Tower	422	2	410	5.125	5.71428571	7.25	12.375	2.424242424
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.17424
3.75	2.424242424	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	110	1.375	5.714285714	7.25	8.625	3.47826087
North Greenwich Station / Russel Square	188	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich / Bexleyheath Clock Tower	422	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.04511
3.47826087	2.56684492	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

Morden Wharf

Grid 1

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	300	3.75	5.71428571	7.25	11	2.727272727
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	2.72727
2.727272727	0	0	0	PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 2

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich / Bexleyheath Clock Tower	422	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.04634
3.037974684	2.008368201	0	0	PTAL Level	2

Grid 3

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	180	2.25	5.714285714	7.25	9.5	3.157894737
North Greenwich Station / Russel Square	188	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich / Bexleyheath Clock Tower	422	2	640	8	5.714285714	7.25	15.25	1.967213115
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.12511
3.15789	1.967213115	0	0	PTAL Level	2

Grid 4

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	115	1.4375	5.714285714	7.25	8.6875	3.45323741
North Greenwich Station / Russel Square	188	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich / Bexleyheath Clock Tower	422	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.53116
3.45324	2.07792	0	0	PTAL Level	2

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	55	0.6875	5.71429	7.25	7.9375	3.77953
North Greenwich Station / Russel Square	188	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich / Bexleyheath Clock Tower	422	2	495	6.1875	5.71429	7.25	13.4375	2.23256
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.01209
3.77953	2.23256	0	0	PTAL Level	2

Grid 8

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	170	2.125	5.71429	7.25	9.375	3.2
North Greenwich Station / Russel Square	188	2	585	7.3125	5.71429	7.25	14.5625	2.06009
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.71429	7.25	14.5625	2.06009
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.26009
3.2	2.06009	0	0	PTAL Level	2

Grid 9

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	275	3.4375	5.714285714	7.25	10.6875	2.807017544
North Greenwich Station / Russel Square	188	2	580	7.25	5.714285714	7.25	14.5	2.068965517
North Greenwich / Bexleyheath Clock Tower	422	2	580	7.25	5.714285714	7.25	14.5	2.068965517
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.87598
2.807017544	2.06896552	0	0	PTAL Level	1

Grid 10

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	335	4.1875	5.714285714	7.25	11.4375	2.62295082
North Greenwich Station / Russel Square	188	2	585	7.3125	5.714285714	7.25	14.5625	2.060085837
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.714285714	7.25	14.5625	2.060085837
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.68304
2.62295	2.06009	0	0	PTAL Level	1

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	70	0.875	5.714285714	7.25	8.125	3.69231
North Greenwich Station / Russel Square	188	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich / Bexleyheath Clock Tower	422	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.03377
3.69231	2.34146	0	0	PTAL Level	2

Grid 14

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	150	1.875	5.714285714	7.25	9.125	3.287671233
North Greenwich Station / Russel Square	188	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich / Bexleyheath Clock Tower	422	2	470	5.875	5.714285714	7.25	13.125	2.285714286
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.57339
3.28767	2.285714286	0	0	PTAL Level	2

Grid 15

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich / Bexleyheath Clock Tower	422	2	520	6.5	5.714285714	7.25	13.75	2.181818182
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.21979
3.03797	2.181818182	0	0	PTAL Level	2

Enderby Wharf

Grid 6

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	570	7.125	5.71428571	7.25	14.375	2.086956522
North Greenwich Station / Russel Square	188	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich / Bexleyheath Clock Tower	422	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.52174
2.31884058	2.202898551	0	0	PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 7

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	610	7.625	5.714285714	7.25	14.875	2.016806723
North Greenwich Station / Russel Square	188	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich / Bexleyheath Clock Tower	422	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.42073
2.274881517	2.14584412	0	0	PTAL Level	1

Grid 12

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	456	5.7	5.714285714	7.25	12.95	2.316602317
North Greenwich Station / Russel Square	188	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich / Bexleyheath Clock Tower	422	2	340	4.25	5.714285714	7.25	11.5	2.608695652
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.07134
2.6087	2.462648984	0	0	PTAL Level	2

Grid 13

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	530	6.625	5.714285714	7.25	13.875	2.162162162
North Greenwich Station / Russel Square	188	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Bexleyheath Clock Tower	422	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Lewisham Shopping Centre	129	2	595	7.4375	4.615	8.50054	15.938	1.882288963
Thamesmead / Peckham	177	2	595	7.4375	10	5	12.4375	2.412060302
Queen Mary's Hospital / Cutty Sark	286	2	595	7.4375	5	8	15.4375	1.943319838
Woolwich / Blacjheath Village	386	2	595	7.4375	3.529	10.501	17.9385	1.6723814
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	8.64695
2.41206	6.23489	0	0	PTAL Level	2

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 - 2.50		Very poor
1b	2.51 - 5.00		Very poor
2	5.01 - 10.00		Poor
3	10.01 - 15.00		Moderate
4	15.01 - 20.00		Good
5	20.01 - 25.00		Very Good
6a	25.01 - 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	AI	PTAL	Description
1	2.72727	1b	Very Poor
2	5.04634	2	Poor
3	5.12511	2	Poor
4	5.53116	2	Poor
5	6.17424	2	Poor
6	4.52174	1b	Very Poor
7	4.42073	1b	Very Poor
8	5.26009	2	Poor
9	4.87598	1b	Very Poor
10	4.68304	1b	Very Poor
11	6.04511	2	Poor
12	5.07134	2	Poor
13	8.64695	2	Poor
14	5.57339	2	Poor
15	5.21979	2	Poor

PTAL Calculation based on Scenario 2 - new diverted bus service through Morden Wharf and Enderby Place via ramp

Service	Frequency (mins)	Frequency (vph)
108	10.5	5.714285714
188	10.5	5.714285714
422	10.5	5.714285714
X	10.26	5.847953216

Enderby Place

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	505	6.3125	5.71428571	7.25	13.5625	2.211981567
North Greenwich Station / Russel Square	188	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich / Bexleyheath Clock Tower	422	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich	X	2	60	0.75	5.84795322	7.13	7.88	3.807106599
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	7.33734
3.807106599	3.530233259	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	450	5.625	5.714285714	7.25	12.875	2.330097087
North Greenwich Station / Russel Square	188	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich / Bexleyheath Clock Tower	422	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich	X	2	100	1.25	5.847953216	7.13	8.38	3.579952267
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	7.31185
3.579952267	3.731893983	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

Morden Wharf

Grid 1

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	345	4.3125	5.71428571	7.25	11.5625	2.594594595
North Greenwich	X	2	300	3.75	5.84795322	7.13	10.88	2.757352941
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	4.05465
2.757352941	1.297297297	0	0	PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 2

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich / Bexleyheath Clock Tower	422	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich	X	2	210	2.625	5.847953216	7.13	9.755	3.075345976
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.6027
3.075345976	3.527355843	0	0	PTAL Level	2

Grid 3

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	370	4.625	5.714285714	7.25	11.875	2.526315789
North Greenwich Station / Russel Square	188	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich / Bexleyheath Clock Tower	422	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich	X	2	180	2.25	5.847953216	7.13	9.38	3.198294243
Trains	Trains							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.42867
3.19829	3.230371009	0	0	PTAL Level	2

Grid 4

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	430	5.375	5.714285714	7.25	12.625	2.376237624
North Greenwich Station / Russel Square	188	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich / Bexleyheath Clock Tower	422	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich	X	2	115	1.4375	5.847953216	7.13	8.5675	3.501604902
Trains	Trains							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus	Half of Re	Best Train EDF	Half of rest	Accessibility Index	6.76765
3.5016	3.26604	0	0	PTAL Level	2

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	540	6.75	5.71429	7.25	14	2.14286
North Greenwich Station / Russel Square	188	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich / Bexleyheath Clock Tower	422	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich	X	2	55	0.6875	5.84795	7.13	7.8175	3.83736
Trains	Trains							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus	Half of Re	Best Train	Half of rest	Accessibility Index	7.14153
3.83736	3.30399	0	0	PTAL Level	2

Grid 8

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	170	2.125	5.71429	7.25	9.375	3.2
North Greenwich Station / Russel Square	188	2	585	7.3125	5.71429	7.25	14.5625	2.06009
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.71429	7.25	14.5625	2.06009
North Greenwich	X	2	170	2.125	5.84795	7.13	9.255	3.24149
Trains	Trains							

Best Bus	Half of Re	Best Train	Half of rest	Accessibility Index	6.90158
3.24149	3.66009	0	0	PTAL Level	2

Grid 9

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	255	3.1875	5.714285714	7.25	10.4375	2.87425
North Greenwich Station / Russel Square	188	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich / Bexleyheath Clock Tower	422	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich	X	2	275	3.4375	5.847953216	7.13	10.5675	2.83889
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.38065
2.874251497	3.50643294	0	0	PTAL Level	2

Grid 10

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	350	4.375	5.714285714	7.25	11.625	2.58065
North Greenwich Station / Russel Square	188	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich / Bexleyheath Clock Tower	422	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich	X	2	160	2	5.847953216	7.13	9.13	3.28587
Trains	Trains							

Best Bus	Half of Re	Best Train	Half of rest	Accessibility Index	6.51794
3.28587	3.23207	0	0	PTAL Level	2

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	475	5.9375	5.714285714	7.25	13.1875	2.27488
North Greenwich Station / Russel Square	188	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich / Bexleyheath Clock Tower	422	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich	X	2	70	0.875	5.847953216	7.13	8.005	3.74766
Trains	Trains							

Best Bus	Half of Re	Best Trai	Half of rest	Accessibility Index	7.22656
3.74766	3.4789	0	0	PTAL Level	2

Grid 14

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	150	1.875	5.714285714	7.25	9.125	3.287671233
North Greenwich Station / Russel Square	188	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich / Bexleyheath Clock Tower	422	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich	X	2	150	1.875	5.847953216	7.13	9.005	3.33148251
Trains	Trains							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	7.26103
3.33148	3.929549902	0	0	PTAL Level	2

Grid 15

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich / Bexleyheath Clock Tower	422	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich	X	2	210	2.625	5.847953216	7.13	9.755	3.075345976
Trains	Trains							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.77615
3.07535	3.700805524	0	0	PTAL Level	2

Enderby Wharf

Grid 6

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	570	7.125	5.71428571	7.25	14.375	2.086956522
North Greenwich Station / Russel Square	188	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich / Bexleyheath Clock Tower	422	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich	X	2	155	1.9375	5.84795322	7.13	9.0675	3.308519438
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.67084
3.308519438	3.362318841	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 7

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	610	7.625	5.714285714	7.25	14.875	2.016806723
North Greenwich Station / Russel Square	188	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich / Bexleyheath Clock Tower	422	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich	X	2	165	2.0625	5.847953216	7.13	9.1925	3.263530052
Trains	Trains							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.54681
3.263530052	3.283284879	0	0	PTAL Level	2

Grid 12

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	456	5.7	5.714285714	7.25	12.95	2.316602317
North Greenwich Station / Russel Square	188	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich / Bexleyheath Clock Tower	422	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich	X	2	105	1.3125	5.847953216	7.13	8.4425	3.553449808
Trains	Trains							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	7.32045
3.55345	3.76699681	0	0	PTAL Level	2

Grid 13

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	530	6.625	5.714285714	7.25	13.875	2.162162162
North Greenwich Station / Russel Square	188	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Bexleyheath Clock Tower	422	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Lewisham Shopping Centre	129	2	595	7.4375	4.615	8.50054	15.938	1.882288963
Thamesmead / Peckham	177	2	595	7.4375	10	5	12.4375	2.412060302
Queen Mary's Hospital / Cutty Sark	286	2	595	7.4375	5	8	15.4375	1.943319838
Woolwich / Blacjheath Village	386	2	595	7.4375	3.529	10.501	17.9385	1.6723814
North Greenwich	X	2	70	0.875	5.847953216	7.13	8.005	3.747657714
Trains	Trains							

Best Bus	Half of Re	Best Train EDF	Half of rest	Accessibility Index	11.1886
3.74766	7.44092	0	0	PTAL Level	3

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 – 2.50		Very poor
1b	2.51 – 5.00		Very poor
2	5.01 – 10.00		Poor
3	10.01 – 15.00		Moderate
4	15.01 – 20.00		Good
5	20.01 – 25.00		Very Good
6a	25.01 – 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	AI	PTAL	Description
1	4.05465	1b	Very Poor
2	6.6027	2	Poor
3	6.42867	2	Poor
4	6.76765	2	Poor
5	7.33734	2	Poor
6	6.67084	2	Poor
7	6.54681	2	Poor
8	6.90158	2	Poor
9	6.38065	2	Poor
10	6.51794	2	Poor
11	7.31185	2	Poor
12	7.32045	2	Poor
13	11.1886	3	Moderate
14	7.26103	2	Poor
15	6.77615	2	Poor

PTAL Calculation based on Scenario 3 - new diverted bus service along Telcon Way (no ramp)

Service	Frequency (mins)	Frequncy (vph)
108	10.5	5.714285714
188	10.5	5.714285714
422	10.5	5.714285714
X	10.26	5.847953216

Enderby Place

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	505	6.3125	5.71428571	7.25	13.5625	2.211981567
North Greenwich Station / Russel Square	188	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich / Bexleyheath Clock Tower	422	2	410	5.125	5.71428571	7.25	12.375	2.424242424
North Greenwich	X	2	170	2.125	5.84795322	7.13	9.255	3.241491086
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.77172
3.241491086	3.530233208	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	450	5.625	5.714285714	7.25	12.875	2.330097087
North Greenwich Station / Russel Square	188	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich / Bexleyheath Clock Tower	422	2	355	4.4375	5.714285714	7.25	11.6875	2.56684492
North Greenwich	X	2	100	1.25	5.847953216	7.13	8.38	3.579952267
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	7.31185
3.579952267	3.731893463	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index

Morden Wharf

Grid 1

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	345	4.3125	5.71428571	7.25	11.5625	2.594594595
North Greenwich	X	2	430	5.375	5.84795322	7.13	12.505	2.399040384
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	3.79411
2.594594595	1.199520192	0	0	PTAL Level	1

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 2

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich / Bexleyheath Clock Tower	422	2	615	7.6875	5.714285714	7.25	14.9375	2.008368201
North Greenwich	X	2	445	5.5625	5.847953216	7.13	12.6925	2.363600552
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.22814
3.037974684	3.190168477	0	0	PTAL Level	2

Grid 3

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	370	4.625	5.714285714	7.25	11.875	2.526315789
North Greenwich Station / Russel Square	188	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich / Bexleyheath Clock Tower	422	2	640	8	5.714285714	7.25	15.25	1.967213115
North Greenwich	X	2	340	4.25	5.847953216	7.13	11.38	2.636203866
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	5.86657
2.6362	3.230371009	0	0	PTAL Level	2

Grid 4

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	430	5.375	5.714285714	7.25	12.625	2.376237624
North Greenwich Station / Russel Square	188	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich / Bexleyheath Clock Tower	422	2	575	7.1875	5.714285714	7.25	14.4375	2.077922078
North Greenwich	X	2	280	3.5	5.847953216	7.13	10.63	2.822201317
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.08824
2.8222	3.26604	0	0	PTAL Level	2

Grid 5

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	540	6.75	5.71429	7.25	14	2.14286
North Greenwich Station / Russel Square	188	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich / Bexleyheath Clock Tower	422	2	495	6.1875	5.71429	7.25	13.4375	2.23256
North Greenwich	X	2	255	3.1875	5.84795	7.13	10.3175	2.90768
Trains	*Trains*							
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0
					0	0	0	0

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.21167
2.90768	3.30399	0	0	PTAL Level	2

Grid 8

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	170	2.125	5.714285714	7.25	9.375	3.2
North Greenwich Station / Russel Square	188	2	585	7.3125	5.714285714	7.25	14.5625	2.06009
North Greenwich / Bexleyheath Clock Tower	422	2	585	7.3125	5.714285714	7.25	14.5625	2.06009
North Greenwich	X	2	500	6.25	5.847953216	7.13	13.38	2.24215
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.38116
3.2	3.18116207	0	0	PTAL Level	2

Grid 9

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	255	3.1875	5.714285714	7.25	10.4375	2.87425
North Greenwich Station / Russel Square	188	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich / Bexleyheath Clock Tower	422	2	570	7.125	5.714285714	7.25	14.375	2.08696
North Greenwich	X	2	475	5.9375	5.847953216	7.13	13.0675	2.29577
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.10909
2.874251497	3.2348425	0	0	PTAL Level	2

Grid 10

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	350	4.375	5.714285714	7.25	11.625	2.58065
North Greenwich Station / Russel Square	188	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich / Bexleyheath Clock Tower	422	2	656	8.2	5.714285714	7.25	15.45	1.94175
North Greenwich	X	2	295	3.6875	5.847953216	7.13	10.8175	2.77328
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.00535
2.77328	3.23207	0	0	PTAL Level	2

Grid 11

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency
Stratford International Station / Lewisham	108	2	475	5.9375	5.714285714	7.25	13.1875	2.27488
North Greenwich Station / Russel Square	188	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich / Bexleyheath Clock Tower	422	2	445	5.5625	5.714285714	7.25	12.8125	2.34146
North Greenwich	X	2	170	2.125	5.847953216	7.13	9.255	3.24149
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.7204
3.24149	3.4789	0	0	PTAL Level	2

Grid 14

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	150	1.875	5.714285714	7.25	9.125	3.287671233
North Greenwich Station / Russel Square	188	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich / Bexleyheath Clock Tower	422	2	470	5.875	5.714285714	7.25	13.125	2.285714286
North Greenwich	X	2	520	6.5	5.847953216	7.13	13.63	2.201027146
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.6739
3.28767	3.386227859	0	0	PTAL Level	2

Grid 15

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	210	2.625	5.714285714	7.25	9.875	3.037974684
North Greenwich Station / Russel Square	188	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich / Bexleyheath Clock Tower	422	2	520	6.5	5.714285714	7.25	13.75	2.181818182
North Greenwich	X	2	500	6.25	5.847953216	7.13	13.38	2.242152466
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.34087
3.03797	3.302894415	0	0	PTAL Level	2

Enderby Wharf

Grid 6

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	570	7.125	5.71428571	7.25	14.375	2.086956522
North Greenwich Station / Russel Square	188	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich / Bexleyheath Clock Tower	422	2	455	5.6875	5.71428571	7.25	12.9375	2.31884058
North Greenwich	X	2	155	1.9375	5.84795322	7.13	9.0675	3.308519438
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.67084
3.308519438	3.362318841	0	0	PTAL Level	2

*EDF of all but the most accessible route for both bus and train would be halved in arriving at the Accessibility Index
** Peak time frequencies are used

Walk catchment area is defined: max walk distance 640m for bus and 960m for underground

Grid 7

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	610	7.625	5.714285714	7.25	14.875	2.016806723
North Greenwich Station / Russel Square	188	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich / Bexleyheath Clock Tower	422	2	475	5.9375	5.714285714	7.25	13.1875	2.274881517
North Greenwich	X	2	160	2	5.847953216	7.13	9.13	3.285870756
Trains	*Trains*							

Best Bus EDF	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	6.56916
3.285870756	3.283284878	0	0	PTAL Level	2

Grid 12

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	456	5.7	5.714285714	7.25	12.95	2.316602317
North Greenwich Station / Russel Square	188	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich / Bexleyheath Clock Tower	422	2	340	4.25	5.714285714	7.25	11.5	2.608695652
North Greenwich	X	2	105	1.3125	5.847953216	7.13	8.4425	3.553449808
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	7.32045
3.55345	3.76699681	0	0	PTAL Level	2

Grid 13

Origin / Destination	Route	Average Wait Time	Walk Distance (Metres)	Walk time (Mins) a=D/80	Scheduled frequency (0815-0915)	Average Waiting time	Access Time	Equivalent Doorstep Frequency (EDF)
Stratford International Station / Lewisham	108	2	530	6.625	5.714285714	7.25	13.875	2.162162162
North Greenwich Station / Russel Square	188	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Bexleyheath Clock Tower	422	2	418	5.225	5.714285714	7.25	12.475	2.404809619
North Greenwich / Lewisham Shopping Centre	129	2	595	7.4375	4.615	8.50054	15.938	1.882288963
Thamesmead / Peckham	177	2	595	7.4375	10	5	12.4375	2.412060302
Queen Mary's Hospital / Cutty Sark	286	2	595	7.4375	5	8	15.4375	1.943319838
Woolwich / Blacjheath Village	386	2	595	7.4375	3.529	10.501	17.9385	1.6723814
North Greenwich	X	2	70	0.875	5.847953216	7.13	8.005	3.747657714
Trains	*Trains*							

Best Bus	Half of Rest	Best Train EDF	Half of rest	Accessibility Index	11.1886
3.74766	7.44092	0	0	PTAL Level	3

PTAL	Range of Index	Map Colour	Description
1a (Low)	0.01 - 2.50		Very poor
1b	2.51 - 5.00		Very poor
2	5.01 - 10.00		Poor
3	10.01 - 15.00		Moderate
4	15.01 - 20.00		Good
5	20.01 - 25.00		Very Good
6a	25.01 - 40.00		Excellent
6b (High)	40.01 +		Excellent

Grid	AI	PTAL	Description
1	3.79411	1b	Very Poor
2	6.22814	2	Poor
3	5.86657	2	Poor
4	6.08824	2	Poor
5	6.77172	2	Poor
6	6.67084	2	Poor
7	6.56916	2	Poor
8	6.38116	2	Poor
9	6.10909	2	Poor
10	6.00535	2	Poor
11	7.31185	2	Poor
12	7.32045	2	Poor
13	11.1886	3	Moderate
14	6.6739	2	Poor
15	6.34087	2	Poor

APPENDIX F – TRICS OUTPUT – RESIDENTIAL

Filtering Summary

Land Use	03/C	RESIDENTIAL/FLATS PRIVATELY OWNED
Selected Trip Rate Calculation Parameter Range	6-493 DWELLS	
Actual Trip Rate Calculation Parameter Range	14-493 DWELLS	
Date Range	Minimum: 01/01/14	Maximum: 28/06/22
Parking Spaces Range	All Surveys Included	
Parking Spaces Per Dwelling Range:	All Surveys Included	
Bedrooms Per Dwelling Range:	All Surveys Included	
Percentage of dwellings privately owned:	All Surveys Included	
Days of the week selected	Monday	1
	Tuesday	2
	Wednesday	3
	Friday	2
Main Location Types selected	Edge of Town Centre	3
	Suburban Area (PPS6 Out of Centre)	3
	Edge of Town	2
Population within 500m	All Surveys Included	
Population <1 Mile ranges selected	10,001 to 15,000	1
	15,001 to 20,000	1
	20,001 to 25,000	1
	25,001 to 50,000	5
Population <5 Mile ranges selected	125,001 to 250,000	1
	500,001 or More	7
Car Ownership <5 Mile ranges selected	0.6 to 1.0	6
	1.1 to 1.5	2
PTAL Rating	1a (Low) Very poor	1
	2 Poor	5
	3 Moderate	2

Calculation Reference: AUDIT-860401-221125-1120

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BE	BEXLEY	2 days
	BT	BRENT	1 days
	HO	HOUNSLOW	2 days
	HV	HAVERING	1 days
	KI	KINGSTON	1 days
	RD	RICHMOND	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
Actual Range: 14 to 493 (units:)
Range Selected by User: 6 to 493 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/14 to 28/06/22

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	2 days
Wednesday	3 days
Friday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	3
Suburban Area (PPS6 Out of Centre)	3
Edge of Town	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	1
Development Zone	2
Residential Zone	4
Built-Up Zone	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village,

Secondary Filtering selection:

Use Class:

C3	8 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

10,001 to 15,000	1 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	5 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

125,001 to 250,000	1 days
500,001 or More	7 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	5 days
No	3 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

1a (Low) Very poor	1 days
2 Poor	5 days
3 Moderate	2 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

Site(1):	BE-03-C-01	Site area:	0.84 hect
Development Name:	BLOCKS OF FLATS	No of Dwellings:	79
Location:	BEXLEYHEATH	Housing density:	120
Postcode:	DA6 8AE	Total Bedrooms:	146
Main Location Type:	Edge of Town Centre	Survey Date:	19/09/18
Sub-Location Type:	Residential Zone	Survey Day:	Wednesday
PTAL:	3 Moderate	Parking Spaces:	84
Site(2):	BE-03-C-02	Site area:	3.04 hect
Development Name:	BLOCKS OF FLATS	No of Dwellings:	402
Location:	BELVEDERE	Housing density:	197
Postcode:	DA17 6FB	Total Bedrooms:	699
Main Location Type:	Edge of Town	Survey Date:	19/09/18
Sub-Location Type:	Industrial Zone	Survey Day:	Wednesday
PTAL:	2 Poor	Parking Spaces:	550
Site(3):	BT-03-C-01	Site area:	1.25 hect
Development Name:	BLOCKS OF FLATS	No of Dwellings:	170
Location:	PARK ROYAL	Housing density:	170
Postcode:	NW10 7HQ	Total Bedrooms:	324
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	28/09/16
Sub-Location Type:	Development Zone	Survey Day:	Wednesday
PTAL:	3 Moderate	Parking Spaces:	212
Site(4):	HO-03-C-03	Site area:	1.19 hect
Development Name:	BLOCKS OF FLATS	No of Dwellings:	150
Location:	BRENTFORD	Housing density:	176
Postcode:	TW8 8FF	Total Bedrooms:	324
Main Location Type:	Edge of Town Centre	Survey Date:	18/11/16
Sub-Location Type:	Development Zone	Survey Day:	Friday
PTAL:	2 Poor	Parking Spaces:	106
Site(5):	HO-03-C-05	Site area:	0.08 hect
Development Name:	BLOCK OF FLATS	No of Dwellings:	14
Location:	HOUNSLOW	Housing density:	467
Postcode:	TW5 9RW	Total Bedrooms:	20
Main Location Type:	Edge of Town	Survey Date:	06/03/20
Sub-Location Type:	Residential Zone	Survey Day:	Friday
PTAL:	2 Poor	Parking Spaces:	12
Site(6):	HV-03-C-02	Site area:	3.48 hect
Development Name:	BLOCKS OF FLATS	No of Dwellings:	493
Location:	ROMFORD	Housing density:	258
Postcode:	RM7 0GR	Total Bedrooms:	1231
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	22/11/16
Sub-Location Type:	Built-Up Zone	Survey Day:	Tuesday
PTAL:	2 Poor	Parking Spaces:	246
Site(7):	KI-03-C-03	Site area:	0.14 hect
Development Name:	BLOCK OF FLATS	No of Dwellings:	20
Location:	SURBITON	Housing density:	333
Postcode:	KT6 4DJ	Total Bedrooms:	45
Main Location Type:	Edge of Town Centre	Survey Date:	11/07/16
Sub-Location Type:	Residential Zone	Survey Day:	Monday
PTAL:	2 Poor	Parking Spaces:	25
Site(8):	RD-03-C-06	Site area:	0.93 hect
Development Name:	BLOCKS OF FLATS	No of Dwellings:	170
Location:	KEW	Housing density:	298
Postcode:	TW9 4FD	Total Bedrooms:	276
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	28/06/22
Sub-Location Type:	Residential Zone	Survey Day:	Tuesday
PTAL:	1a (Low) Very poor	Parking Spaces:	171

MANUALLY DESELECTED SURVEYS

Site Ref	Survey Date	Reason for Deselection
WF-03-C-06	25/05/21	Covid

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 2.77

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.037	8	187	0.111	8	187	0.148
08:00 - 09:00	8	187	0.034	8	187	0.124	8	187	0.158
09:00 - 10:00	8	187	0.053	8	187	0.059	8	187	0.112
10:00 - 11:00	8	187	0.045	8	187	0.057	8	187	0.102
11:00 - 12:00	8	187	0.045	8	187	0.067	8	187	0.112
12:00 - 13:00	8	187	0.055	8	187	0.052	8	187	0.107
13:00 - 14:00	8	187	0.061	8	187	0.069	8	187	0.130
14:00 - 15:00	8	187	0.049	8	187	0.055	8	187	0.104
15:00 - 16:00	8	187	0.083	8	187	0.063	8	187	0.146
16:00 - 17:00	8	187	0.103	8	187	0.064	8	187	0.167
17:00 - 18:00	8	187	0.119	8	187	0.075	8	187	0.194
18:00 - 19:00	8	187	0.125	8	187	0.063	8	187	0.188
19:00 - 20:00	7	144	0.100	7	144	0.065	7	144	0.165
20:00 - 21:00	7	144	0.091	7	144	0.054	7	144	0.145
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.000			0.978			1.978

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	14 - 493 (units:)
Survey date date range:	01/01/14 - 28/06/22
Number of weekdays (Monday-Friday):	9
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	5
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TAXIS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.004	8	187	0.003	8	187	0.007
08:00 - 09:00	8	187	0.005	8	187	0.005	8	187	0.010
09:00 - 10:00	8	187	0.003	8	187	0.003	8	187	0.006
10:00 - 11:00	8	187	0.001	8	187	0.001	8	187	0.002
11:00 - 12:00	8	187	0.001	8	187	0.002	8	187	0.003
12:00 - 13:00	8	187	0.003	8	187	0.002	8	187	0.005
13:00 - 14:00	8	187	0.003	8	187	0.003	8	187	0.006
14:00 - 15:00	8	187	0.002	8	187	0.002	8	187	0.004
15:00 - 16:00	8	187	0.006	8	187	0.005	8	187	0.011
16:00 - 17:00	8	187	0.002	8	187	0.003	8	187	0.005
17:00 - 18:00	8	187	0.006	8	187	0.005	8	187	0.011
18:00 - 19:00	8	187	0.007	8	187	0.007	8	187	0.014
19:00 - 20:00	7	144	0.005	7	144	0.006	7	144	0.011
20:00 - 21:00	7	144	0.000	7	144	0.000	7	144	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.048			0.047			0.095

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL OGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.004	8	187	0.005	8	187	0.009
08:00 - 09:00	8	187	0.001	8	187	0.001	8	187	0.002
09:00 - 10:00	8	187	0.003	8	187	0.003	8	187	0.006
10:00 - 11:00	8	187	0.003	8	187	0.003	8	187	0.006
11:00 - 12:00	8	187	0.002	8	187	0.001	8	187	0.003
12:00 - 13:00	8	187	0.001	8	187	0.001	8	187	0.002
13:00 - 14:00	8	187	0.002	8	187	0.003	8	187	0.005
14:00 - 15:00	8	187	0.001	8	187	0.001	8	187	0.002
15:00 - 16:00	8	187	0.001	8	187	0.001	8	187	0.002
16:00 - 17:00	8	187	0.000	8	187	0.000	8	187	0.000
17:00 - 18:00	8	187	0.001	8	187	0.001	8	187	0.002
18:00 - 19:00	8	187	0.001	8	187	0.001	8	187	0.002
19:00 - 20:00	7	144	0.001	7	144	0.001	7	144	0.002
20:00 - 21:00	7	144	0.000	7	144	0.000	7	144	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.022			0.043

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL CYCLISTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.003	8	187	0.009	8	187	0.012
08:00 - 09:00	8	187	0.005	8	187	0.013	8	187	0.018
09:00 - 10:00	8	187	0.004	8	187	0.005	8	187	0.009
10:00 - 11:00	8	187	0.002	8	187	0.005	8	187	0.007
11:00 - 12:00	8	187	0.003	8	187	0.001	8	187	0.004
12:00 - 13:00	8	187	0.001	8	187	0.003	8	187	0.004
13:00 - 14:00	8	187	0.007	8	187	0.006	8	187	0.013
14:00 - 15:00	8	187	0.002	8	187	0.007	8	187	0.009
15:00 - 16:00	8	187	0.004	8	187	0.003	8	187	0.007
16:00 - 17:00	8	187	0.007	8	187	0.002	8	187	0.009
17:00 - 18:00	8	187	0.011	8	187	0.004	8	187	0.015
18:00 - 19:00	8	187	0.007	8	187	0.006	8	187	0.013
19:00 - 20:00	7	144	0.014	7	144	0.004	7	144	0.018
20:00 - 21:00	7	144	0.004	7	144	0.001	7	144	0.005
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.074			0.069			0.143

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLE OCCUPANTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.044	8	187	0.145	8	187	0.189
08:00 - 09:00	8	187	0.038	8	187	0.189	8	187	0.227
09:00 - 10:00	8	187	0.063	8	187	0.071	8	187	0.134
10:00 - 11:00	8	187	0.054	8	187	0.069	8	187	0.123
11:00 - 12:00	8	187	0.065	8	187	0.087	8	187	0.152
12:00 - 13:00	8	187	0.070	8	187	0.063	8	187	0.133
13:00 - 14:00	8	187	0.079	8	187	0.092	8	187	0.171
14:00 - 15:00	8	187	0.064	8	187	0.073	8	187	0.137
15:00 - 16:00	8	187	0.126	8	187	0.083	8	187	0.209
16:00 - 17:00	8	187	0.154	8	187	0.080	8	187	0.234
17:00 - 18:00	8	187	0.160	8	187	0.105	8	187	0.265
18:00 - 19:00	8	187	0.172	8	187	0.081	8	187	0.253
19:00 - 20:00	7	144	0.129	7	144	0.091	7	144	0.220
20:00 - 21:00	7	144	0.126	7	144	0.069	7	144	0.195
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.344			1.298			2.642

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.017	8	187	0.045	8	187	0.062
08:00 - 09:00	8	187	0.035	8	187	0.105	8	187	0.140
09:00 - 10:00	8	187	0.045	8	187	0.045	8	187	0.090
10:00 - 11:00	8	187	0.022	8	187	0.047	8	187	0.069
11:00 - 12:00	8	187	0.034	8	187	0.039	8	187	0.073
12:00 - 13:00	8	187	0.055	8	187	0.037	8	187	0.092
13:00 - 14:00	8	187	0.039	8	187	0.034	8	187	0.073
14:00 - 15:00	8	187	0.039	8	187	0.035	8	187	0.074
15:00 - 16:00	8	187	0.072	8	187	0.043	8	187	0.115
16:00 - 17:00	8	187	0.046	8	187	0.036	8	187	0.082
17:00 - 18:00	8	187	0.060	8	187	0.036	8	187	0.096
18:00 - 19:00	8	187	0.053	8	187	0.043	8	187	0.096
19:00 - 20:00	7	144	0.072	7	144	0.055	7	144	0.127
20:00 - 21:00	7	144	0.056	7	144	0.052	7	144	0.108
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.645			0.652			1.297

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL BUS/TRAM PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.003	8	187	0.059	8	187	0.062
08:00 - 09:00	8	187	0.010	8	187	0.077	8	187	0.087
09:00 - 10:00	8	187	0.023	8	187	0.030	8	187	0.053
10:00 - 11:00	8	187	0.017	8	187	0.015	8	187	0.032
11:00 - 12:00	8	187	0.011	8	187	0.017	8	187	0.028
12:00 - 13:00	8	187	0.017	8	187	0.023	8	187	0.040
13:00 - 14:00	8	187	0.013	8	187	0.019	8	187	0.032
14:00 - 15:00	8	187	0.019	8	187	0.021	8	187	0.040
15:00 - 16:00	8	187	0.023	8	187	0.027	8	187	0.050
16:00 - 17:00	8	187	0.033	8	187	0.017	8	187	0.050
17:00 - 18:00	8	187	0.041	8	187	0.008	8	187	0.049
18:00 - 19:00	8	187	0.047	8	187	0.013	8	187	0.060
19:00 - 20:00	7	144	0.056	7	144	0.018	7	144	0.074
20:00 - 21:00	7	144	0.034	7	144	0.020	7	144	0.054
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.347			0.364			0.711

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.003	8	187	0.075	8	187	0.078
08:00 - 09:00	8	187	0.005	8	187	0.085	8	187	0.090
09:00 - 10:00	8	187	0.011	8	187	0.026	8	187	0.037
10:00 - 11:00	8	187	0.005	8	187	0.020	8	187	0.025
11:00 - 12:00	8	187	0.011	8	187	0.023	8	187	0.034
12:00 - 13:00	8	187	0.015	8	187	0.017	8	187	0.032
13:00 - 14:00	8	187	0.013	8	187	0.022	8	187	0.035
14:00 - 15:00	8	187	0.016	8	187	0.017	8	187	0.033
15:00 - 16:00	8	187	0.017	8	187	0.017	8	187	0.034
16:00 - 17:00	8	187	0.027	8	187	0.007	8	187	0.034
17:00 - 18:00	8	187	0.047	8	187	0.011	8	187	0.058
18:00 - 19:00	8	187	0.073	8	187	0.007	8	187	0.080
19:00 - 20:00	7	144	0.084	7	144	0.007	7	144	0.091
20:00 - 21:00	7	144	0.044	7	144	0.008	7	144	0.052
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.371			0.342			0.713

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.005	8	187	0.135	8	187	0.140
08:00 - 09:00	8	187	0.015	8	187	0.162	8	187	0.177
09:00 - 10:00	8	187	0.033	8	187	0.056	8	187	0.089
10:00 - 11:00	8	187	0.023	8	187	0.035	8	187	0.058
11:00 - 12:00	8	187	0.022	8	187	0.041	8	187	0.063
12:00 - 13:00	8	187	0.032	8	187	0.040	8	187	0.072
13:00 - 14:00	8	187	0.027	8	187	0.041	8	187	0.068
14:00 - 15:00	8	187	0.035	8	187	0.039	8	187	0.074
15:00 - 16:00	8	187	0.040	8	187	0.044	8	187	0.084
16:00 - 17:00	8	187	0.061	8	187	0.025	8	187	0.086
17:00 - 18:00	8	187	0.089	8	187	0.019	8	187	0.108
18:00 - 19:00	8	187	0.119	8	187	0.020	8	187	0.139
19:00 - 20:00	7	144	0.139	7	144	0.025	7	144	0.164
20:00 - 21:00	7	144	0.078	7	144	0.028	7	144	0.106
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.718			0.710			1.428

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 2.77

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.070	8	187	0.334	8	187	0.404
08:00 - 09:00	8	187	0.093	8	187	0.470	8	187	0.563
09:00 - 10:00	8	187	0.146	8	187	0.178	8	187	0.324
10:00 - 11:00	8	187	0.101	8	187	0.156	8	187	0.257
11:00 - 12:00	8	187	0.123	8	187	0.168	8	187	0.291
12:00 - 13:00	8	187	0.158	8	187	0.143	8	187	0.301
13:00 - 14:00	8	187	0.152	8	187	0.174	8	187	0.326
14:00 - 15:00	8	187	0.140	8	187	0.154	8	187	0.294
15:00 - 16:00	8	187	0.242	8	187	0.173	8	187	0.415
16:00 - 17:00	8	187	0.268	8	187	0.143	8	187	0.411
17:00 - 18:00	8	187	0.320	8	187	0.164	8	187	0.484
18:00 - 19:00	8	187	0.352	8	187	0.150	8	187	0.502
19:00 - 20:00	7	144	0.354	7	144	0.174	7	144	0.528
20:00 - 21:00	7	144	0.264	7	144	0.149	7	144	0.413
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.783			2.730			5.513

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL CARS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.027	8	187	0.092	8	187	0.119
08:00 - 09:00	8	187	0.026	8	187	0.108	8	187	0.134
09:00 - 10:00	8	187	0.042	8	187	0.045	8	187	0.087
10:00 - 11:00	8	187	0.031	8	187	0.043	8	187	0.074
11:00 - 12:00	8	187	0.031	8	187	0.055	8	187	0.086
12:00 - 13:00	8	187	0.041	8	187	0.040	8	187	0.081
13:00 - 14:00	8	187	0.045	8	187	0.051	8	187	0.096
14:00 - 15:00	8	187	0.039	8	187	0.045	8	187	0.084
15:00 - 16:00	8	187	0.069	8	187	0.047	8	187	0.116
16:00 - 17:00	8	187	0.090	8	187	0.055	8	187	0.145
17:00 - 18:00	8	187	0.093	8	187	0.058	8	187	0.151
18:00 - 19:00	8	187	0.105	8	187	0.049	8	187	0.154
19:00 - 20:00	7	144	0.089	7	144	0.053	7	144	0.142
20:00 - 21:00	7	144	0.084	7	144	0.051	7	144	0.135
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.812			0.792			1.604

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL LGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.003	8	187	0.007	8	187	0.010
08:00 - 09:00	8	187	0.001	8	187	0.004	8	187	0.005
09:00 - 10:00	8	187	0.005	8	187	0.004	8	187	0.009
10:00 - 11:00	8	187	0.009	8	187	0.010	8	187	0.019
11:00 - 12:00	8	187	0.009	8	187	0.009	8	187	0.018
12:00 - 13:00	8	187	0.010	8	187	0.008	8	187	0.018
13:00 - 14:00	8	187	0.011	8	187	0.009	8	187	0.020
14:00 - 15:00	8	187	0.006	8	187	0.006	8	187	0.012
15:00 - 16:00	8	187	0.007	8	187	0.009	8	187	0.016
16:00 - 17:00	8	187	0.010	8	187	0.007	8	187	0.017
17:00 - 18:00	8	187	0.013	8	187	0.009	8	187	0.022
18:00 - 19:00	8	187	0.004	8	187	0.005	8	187	0.009
19:00 - 20:00	7	144	0.000	7	144	0.002	7	144	0.002
20:00 - 21:00	7	144	0.002	7	144	0.001	7	144	0.003
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.090			0.090			0.180

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL MOTOR CYCLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.000	8	187	0.004	8	187	0.004
08:00 - 09:00	8	187	0.001	8	187	0.007	8	187	0.008
09:00 - 10:00	8	187	0.000	8	187	0.003	8	187	0.003
10:00 - 11:00	8	187	0.000	8	187	0.000	8	187	0.000
11:00 - 12:00	8	187	0.001	8	187	0.001	8	187	0.002
12:00 - 13:00	8	187	0.001	8	187	0.001	8	187	0.002
13:00 - 14:00	8	187	0.001	8	187	0.002	8	187	0.003
14:00 - 15:00	8	187	0.001	8	187	0.001	8	187	0.002
15:00 - 16:00	8	187	0.001	8	187	0.000	8	187	0.001
16:00 - 17:00	8	187	0.001	8	187	0.000	8	187	0.001
17:00 - 18:00	8	187	0.005	8	187	0.003	8	187	0.008
18:00 - 19:00	8	187	0.008	8	187	0.003	8	187	0.011
19:00 - 20:00	7	144	0.006	7	144	0.003	7	144	0.009
20:00 - 21:00	7	144	0.005	7	144	0.002	7	144	0.007
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.031			0.030			0.061

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL Underground Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.001	8	187	0.030	8	187	0.031
08:00 - 09:00	8	187	0.001	8	187	0.035	8	187	0.036
09:00 - 10:00	8	187	0.004	8	187	0.008	8	187	0.012
10:00 - 11:00	8	187	0.004	8	187	0.007	8	187	0.011
11:00 - 12:00	8	187	0.005	8	187	0.008	8	187	0.013
12:00 - 13:00	8	187	0.005	8	187	0.005	8	187	0.010
13:00 - 14:00	8	187	0.005	8	187	0.006	8	187	0.011
14:00 - 15:00	8	187	0.007	8	187	0.004	8	187	0.011
15:00 - 16:00	8	187	0.004	8	187	0.010	8	187	0.014
16:00 - 17:00	8	187	0.009	8	187	0.003	8	187	0.012
17:00 - 18:00	8	187	0.017	8	187	0.005	8	187	0.022
18:00 - 19:00	8	187	0.025	8	187	0.003	8	187	0.028
19:00 - 20:00	7	144	0.042	7	144	0.002	7	144	0.044
20:00 - 21:00	7	144	0.018	7	144	0.004	7	144	0.022
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.147			0.130			0.277

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL DLR Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.000	8	187	0.000	8	187	0.000
08:00 - 09:00	8	187	0.001	8	187	0.001	8	187	0.002
09:00 - 10:00	8	187	0.000	8	187	0.000	8	187	0.000
10:00 - 11:00	8	187	0.000	8	187	0.000	8	187	0.000
11:00 - 12:00	8	187	0.000	8	187	0.000	8	187	0.000
12:00 - 13:00	8	187	0.000	8	187	0.001	8	187	0.001
13:00 - 14:00	8	187	0.000	8	187	0.000	8	187	0.000
14:00 - 15:00	8	187	0.000	8	187	0.000	8	187	0.000
15:00 - 16:00	8	187	0.000	8	187	0.000	8	187	0.000
16:00 - 17:00	8	187	0.000	8	187	0.000	8	187	0.000
17:00 - 18:00	8	187	0.000	8	187	0.000	8	187	0.000
18:00 - 19:00	8	187	0.000	8	187	0.000	8	187	0.000
19:00 - 20:00	7	144	0.000	7	144	0.000	7	144	0.000
20:00 - 21:00	7	144	0.000	7	144	0.000	7	144	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.001			0.002			0.003

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL Overground Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.000	8	187	0.003	8	187	0.003
08:00 - 09:00	8	187	0.001	8	187	0.002	8	187	0.003
09:00 - 10:00	8	187	0.001	8	187	0.001	8	187	0.002
10:00 - 11:00	8	187	0.000	8	187	0.003	8	187	0.003
11:00 - 12:00	8	187	0.002	8	187	0.003	8	187	0.005
12:00 - 13:00	8	187	0.001	8	187	0.000	8	187	0.001
13:00 - 14:00	8	187	0.003	8	187	0.001	8	187	0.004
14:00 - 15:00	8	187	0.000	8	187	0.000	8	187	0.000
15:00 - 16:00	8	187	0.001	8	187	0.001	8	187	0.002
16:00 - 17:00	8	187	0.000	8	187	0.001	8	187	0.001
17:00 - 18:00	8	187	0.001	8	187	0.000	8	187	0.001
18:00 - 19:00	8	187	0.001	8	187	0.000	8	187	0.001
19:00 - 20:00	7	144	0.002	7	144	0.000	7	144	0.002
20:00 - 21:00	7	144	0.000	7	144	0.000	7	144	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.013			0.015			0.028

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL National Rail Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.002	8	187	0.043	8	187	0.045
08:00 - 09:00	8	187	0.003	8	187	0.048	8	187	0.051
09:00 - 10:00	8	187	0.006	8	187	0.017	8	187	0.023
10:00 - 11:00	8	187	0.001	8	187	0.011	8	187	0.012
11:00 - 12:00	8	187	0.003	8	187	0.013	8	187	0.016
12:00 - 13:00	8	187	0.009	8	187	0.011	8	187	0.020
13:00 - 14:00	8	187	0.005	8	187	0.015	8	187	0.020
14:00 - 15:00	8	187	0.009	8	187	0.013	8	187	0.022
15:00 - 16:00	8	187	0.013	8	187	0.006	8	187	0.019
16:00 - 17:00	8	187	0.018	8	187	0.003	8	187	0.021
17:00 - 18:00	8	187	0.029	8	187	0.006	8	187	0.035
18:00 - 19:00	8	187	0.046	8	187	0.003	8	187	0.049
19:00 - 20:00	7	144	0.040	7	144	0.005	7	144	0.045
20:00 - 21:00	7	144	0.026	7	144	0.004	7	144	0.030
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.210			0.198			0.408

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL Bus Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.003	8	187	0.059	8	187	0.062
08:00 - 09:00	8	187	0.010	8	187	0.075	8	187	0.085
09:00 - 10:00	8	187	0.023	8	187	0.028	8	187	0.051
10:00 - 11:00	8	187	0.017	8	187	0.015	8	187	0.032
11:00 - 12:00	8	187	0.011	8	187	0.017	8	187	0.028
12:00 - 13:00	8	187	0.017	8	187	0.023	8	187	0.040
13:00 - 14:00	8	187	0.013	8	187	0.019	8	187	0.032
14:00 - 15:00	8	187	0.019	8	187	0.021	8	187	0.040
15:00 - 16:00	8	187	0.023	8	187	0.027	8	187	0.050
16:00 - 17:00	8	187	0.033	8	187	0.017	8	187	0.050
17:00 - 18:00	8	187	0.041	8	187	0.008	8	187	0.049
18:00 - 19:00	8	187	0.047	8	187	0.013	8	187	0.060
19:00 - 20:00	7	144	0.056	7	144	0.018	7	144	0.074
20:00 - 21:00	7	144	0.034	7	144	0.020	7	144	0.054
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.347			0.360			0.707

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL Scooters
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	187	0.000	8	187	0.000	8	187	0.000
08:00 - 09:00	8	187	0.000	8	187	0.000	8	187	0.000
09:00 - 10:00	8	187	0.000	8	187	0.001	8	187	0.001
10:00 - 11:00	8	187	0.000	8	187	0.000	8	187	0.000
11:00 - 12:00	8	187	0.000	8	187	0.000	8	187	0.000
12:00 - 13:00	8	187	0.000	8	187	0.000	8	187	0.000
13:00 - 14:00	8	187	0.000	8	187	0.000	8	187	0.000
14:00 - 15:00	8	187	0.000	8	187	0.000	8	187	0.000
15:00 - 16:00	8	187	0.000	8	187	0.000	8	187	0.000
16:00 - 17:00	8	187	0.000	8	187	0.000	8	187	0.000
17:00 - 18:00	8	187	0.000	8	187	0.000	8	187	0.000
18:00 - 19:00	8	187	0.000	8	187	0.000	8	187	0.000
19:00 - 20:00	7	144	0.000	7	144	0.000	7	144	0.000
20:00 - 21:00	7	144	0.002	7	144	0.001	7	144	0.003
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.002			0.002			0.004

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

APPENDIX G – TRICS OUTPUT – COMMERCIAL LIGHT INDUSTRIAL

Markides Associates Ltd 73-81 Southwark Bridge Road London Licence No: 860401

Filtering Summary

Land Use	02/D	EMPLOYMENT/INDUSTRIAL ESTATE
Selected Trip Rate Calculation Parameter Range	3300-13850 sqm GFA	
Actual Trip Rate Calculation Parameter Range	3300-13850 sqm GFA	
Date Range	Minimum: 01/01/14	Maximum: 10/06/19
Parking Spaces Range	All Surveys Included	
Days of the week selected	Monday	1
	Wednesday	2
	Thursday	2
Main Location Types selected	Suburban Area (PPS6 Out of Centre)	3
	Edge of Town	2
Population within 500m	All Surveys Included	
Population <1 Mile ranges selected	5,001 to 10,000	1
	10,001 to 15,000	2
	50,001 to 100,000	2
Population <5 Mile ranges selected	50,001 to 75,000	1
	500,001 or More	4
Car Ownership <5 Mile ranges selected	0.6 to 1.0	3
	1.1 to 1.5	2
PTAL Rating	1b Very poor	3
	2 Poor	1
	3 Moderate	1
Filter by Site Operations Breakdown	All Surveys Included	

Calculation Reference: AUDIT-860401-221128-1151

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BE	BEXLEY	1 days
	BT	BRENT	1 days
	HD	HILLINGDON	2 days
	HO	HOUNSLOW	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 3300 to 13850 (units: sqm)
Range Selected by User: 3300 to 13850 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/14 to 10/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Wednesday	2 days
Thursday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	3
Edge of Town	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	4
Built-Up Zone	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

Not Known	5 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	2 days
50,001 to 100,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	1 days
500,001 or More	4 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

1b Very poor	3 days
2 Poor	1 days
3 Moderate	1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BE-02-D-01 INDUSTRIAL ESTATE BEXLEY
CRABTREE MANORWAY N.
ERITH

Edge of Town
Industrial Zone
Total Gross floor area: 3300 sqm
Survey date: WEDNESDAY 19/09/18 Survey Type: MANUAL

2 BT-02-D-01 INDUSTRIAL ESTATE BRENT
NORTH CIRCULAR ROAD
NEASDEN
BRENT PARK
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Gross floor area: 5565 sqm
Survey date: WEDNESDAY 14/11/18 Survey Type: MANUAL

3 HD-02-D-02 INDUSTRIAL ESTATE HILLINGDON
BRADFIELD ROAD
RUISLIP
SOUTH RUISLIP
Edge of Town
Industrial Zone
Total Gross floor area: 13850 sqm
Survey date: THURSDAY 25/06/15 Survey Type: MANUAL

4 HD-02-D-03 INDUSTRIAL ESTATE HILLINGDON
BRADFIELD ROAD
RUISLIP
SOUTH RUISLIP
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 8310 sqm
Survey date: MONDAY 10/06/19 Survey Type: MANUAL

5 HO-02-D-01 INDUSTRIAL ESTATE HOUNSLOW
HAMPTON ROAD WEST
FELTHAM
HANWORTH
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 7400 sqm
Survey date: THURSDAY 25/06/15 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.37

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.025	2	7855	0.000	2	7855	0.025
05:30 - 06:00	2	7855	0.064	2	7855	0.006	2	7855	0.070
06:00 - 06:30	2	7855	0.172	2	7855	0.045	2	7855	0.217
06:30 - 07:00	2	7855	0.229	2	7855	0.108	2	7855	0.337
07:00 - 07:30	5	7685	0.325	5	7685	0.195	5	7685	0.520
07:30 - 08:00	5	7685	0.344	5	7685	0.268	5	7685	0.612
08:00 - 08:30	5	7685	0.429	5	7685	0.265	5	7685	0.694
08:30 - 09:00	5	7685	0.453	5	7685	0.318	5	7685	0.771
09:00 - 09:30	5	7685	0.458	5	7685	0.312	5	7685	0.770
09:30 - 10:00	5	7685	0.445	5	7685	0.385	5	7685	0.830
10:00 - 10:30	5	7685	0.442	5	7685	0.442	5	7685	0.884
10:30 - 11:00	5	7685	0.487	5	7685	0.401	5	7685	0.888
11:00 - 11:30	5	7685	0.476	5	7685	0.505	5	7685	0.981
11:30 - 12:00	5	7685	0.401	5	7685	0.466	5	7685	0.867
12:00 - 12:30	5	7685	0.440	5	7685	0.437	5	7685	0.877
12:30 - 13:00	5	7685	0.359	5	7685	0.393	5	7685	0.752
13:00 - 13:30	5	7685	0.393	5	7685	0.450	5	7685	0.843
13:30 - 14:00	5	7685	0.341	5	7685	0.271	5	7685	0.612
14:00 - 14:30	5	7685	0.328	5	7685	0.372	5	7685	0.700
14:30 - 15:00	5	7685	0.323	5	7685	0.375	5	7685	0.698
15:00 - 15:30	5	7685	0.328	5	7685	0.388	5	7685	0.716
15:30 - 16:00	5	7685	0.291	5	7685	0.328	5	7685	0.619
16:00 - 16:30	5	7685	0.281	5	7685	0.307	5	7685	0.588
16:30 - 17:00	5	7685	0.203	5	7685	0.310	5	7685	0.513
17:00 - 17:30	5	7685	0.174	5	7685	0.276	5	7685	0.450
17:30 - 18:00	5	7685	0.128	5	7685	0.271	5	7685	0.399
18:00 - 18:30	5	7685	0.151	5	7685	0.219	5	7685	0.370
18:30 - 19:00	5	7685	0.128	5	7685	0.146	5	7685	0.274
19:00 - 19:30	3	6337	0.105	3	6337	0.110	3	6337	0.215
19:30 - 20:00	3	6337	0.042	3	6337	0.095	3	6337	0.137
20:00 - 20:30	2	5805	0.009	2	5805	0.043	2	5805	0.052
20:30 - 21:00	2	5805	0.000	2	5805	0.034	2	5805	0.034
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			8.774			8.541			17.315

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	3300 - 13850 (units: sqm)
Survey date date range:	01/01/14 - 10/06/19
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL TAXIS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:30 - 07:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
07:00 - 07:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
07:30 - 08:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:00 - 08:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:30 - 09:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:00 - 09:30	5	7685	0.005	5	7685	0.005	5	7685	0.010
09:30 - 10:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:00 - 10:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:30 - 11:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:00 - 11:30	5	7685	0.005	5	7685	0.005	5	7685	0.010
11:30 - 12:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:00 - 12:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:30 - 13:00	5	7685	0.003	5	7685	0.003	5	7685	0.006
13:00 - 13:30	5	7685	0.008	5	7685	0.008	5	7685	0.016
13:30 - 14:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
14:00 - 14:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
14:30 - 15:00	5	7685	0.005	5	7685	0.005	5	7685	0.010
15:00 - 15:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
15:30 - 16:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:00 - 16:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
16:30 - 17:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:00 - 17:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
17:30 - 18:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:00 - 18:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:30 - 19:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
19:00 - 19:30	3	6337	0.000	3	6337	0.000	3	6337	0.000
19:30 - 20:00	3	6337	0.000	3	6337	0.000	3	6337	0.000
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.038			0.038			0.076

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.006	2	7855	0.000	2	7855	0.006
05:30 - 06:00	2	7855	0.006	2	7855	0.000	2	7855	0.006
06:00 - 06:30	2	7855	0.006	2	7855	0.000	2	7855	0.006
06:30 - 07:00	2	7855	0.025	2	7855	0.013	2	7855	0.038
07:00 - 07:30	5	7685	0.021	5	7685	0.034	5	7685	0.055
07:30 - 08:00	5	7685	0.021	5	7685	0.018	5	7685	0.039
08:00 - 08:30	5	7685	0.021	5	7685	0.016	5	7685	0.037
08:30 - 09:00	5	7685	0.039	5	7685	0.031	5	7685	0.070
09:00 - 09:30	5	7685	0.008	5	7685	0.018	5	7685	0.026
09:30 - 10:00	5	7685	0.042	5	7685	0.031	5	7685	0.073
10:00 - 10:30	5	7685	0.039	5	7685	0.034	5	7685	0.073
10:30 - 11:00	5	7685	0.023	5	7685	0.031	5	7685	0.054
11:00 - 11:30	5	7685	0.026	5	7685	0.023	5	7685	0.049
11:30 - 12:00	5	7685	0.031	5	7685	0.036	5	7685	0.067
12:00 - 12:30	5	7685	0.018	5	7685	0.018	5	7685	0.036
12:30 - 13:00	5	7685	0.016	5	7685	0.016	5	7685	0.032
13:00 - 13:30	5	7685	0.034	5	7685	0.023	5	7685	0.057
13:30 - 14:00	5	7685	0.026	5	7685	0.039	5	7685	0.065
14:00 - 14:30	5	7685	0.016	5	7685	0.016	5	7685	0.032
14:30 - 15:00	5	7685	0.016	5	7685	0.008	5	7685	0.024
15:00 - 15:30	5	7685	0.026	5	7685	0.026	5	7685	0.052
15:30 - 16:00	5	7685	0.013	5	7685	0.010	5	7685	0.023
16:00 - 16:30	5	7685	0.023	5	7685	0.021	5	7685	0.044
16:30 - 17:00	5	7685	0.010	5	7685	0.021	5	7685	0.031
17:00 - 17:30	5	7685	0.010	5	7685	0.010	5	7685	0.020
17:30 - 18:00	5	7685	0.003	5	7685	0.000	5	7685	0.003
18:00 - 18:30	5	7685	0.000	5	7685	0.005	5	7685	0.005
18:30 - 19:00	5	7685	0.003	5	7685	0.000	5	7685	0.003
19:00 - 19:30	3	6337	0.005	3	6337	0.011	3	6337	0.016
19:30 - 20:00	3	6337	0.005	3	6337	0.000	3	6337	0.005
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.538			0.509			1.047

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL PSVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:30 - 07:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
07:00 - 07:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
07:30 - 08:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:00 - 08:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:30 - 09:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:00 - 09:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:30 - 10:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:00 - 10:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:30 - 11:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:00 - 11:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:30 - 12:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:00 - 12:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:30 - 13:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:00 - 13:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:30 - 14:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
14:00 - 14:30	5	7685	0.003	5	7685	0.000	5	7685	0.003
14:30 - 15:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:00 - 15:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:30 - 16:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:00 - 16:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:30 - 17:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:00 - 17:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:30 - 18:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:00 - 18:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:30 - 19:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
19:00 - 19:30	3	6337	0.000	3	6337	0.000	3	6337	0.000
19:30 - 20:00	3	6337	0.000	3	6337	0.000	3	6337	0.000
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.003			0.000			0.003

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL CYCLISTS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.025	2	7855	0.006	2	7855	0.031
06:00 - 06:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:30 - 07:00	2	7855	0.006	2	7855	0.000	2	7855	0.006
07:00 - 07:30	5	7685	0.010	5	7685	0.000	5	7685	0.010
07:30 - 08:00	5	7685	0.016	5	7685	0.003	5	7685	0.019
08:00 - 08:30	5	7685	0.000	5	7685	0.005	5	7685	0.005
08:30 - 09:00	5	7685	0.000	5	7685	0.005	5	7685	0.005
09:00 - 09:30	5	7685	0.008	5	7685	0.000	5	7685	0.008
09:30 - 10:00	5	7685	0.003	5	7685	0.000	5	7685	0.003
10:00 - 10:30	5	7685	0.000	5	7685	0.005	5	7685	0.005
10:30 - 11:00	5	7685	0.003	5	7685	0.003	5	7685	0.006
11:00 - 11:30	5	7685	0.008	5	7685	0.005	5	7685	0.013
11:30 - 12:00	5	7685	0.005	5	7685	0.003	5	7685	0.008
12:00 - 12:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
12:30 - 13:00	5	7685	0.008	5	7685	0.003	5	7685	0.011
13:00 - 13:30	5	7685	0.003	5	7685	0.005	5	7685	0.008
13:30 - 14:00	5	7685	0.003	5	7685	0.003	5	7685	0.006
14:00 - 14:30	5	7685	0.005	5	7685	0.003	5	7685	0.008
14:30 - 15:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:00 - 15:30	5	7685	0.003	5	7685	0.026	5	7685	0.029
15:30 - 16:00	5	7685	0.003	5	7685	0.003	5	7685	0.006
16:00 - 16:30	5	7685	0.000	5	7685	0.008	5	7685	0.008
16:30 - 17:00	5	7685	0.005	5	7685	0.003	5	7685	0.008
17:00 - 17:30	5	7685	0.000	5	7685	0.013	5	7685	0.013
17:30 - 18:00	5	7685	0.000	5	7685	0.003	5	7685	0.003
18:00 - 18:30	5	7685	0.000	5	7685	0.003	5	7685	0.003
18:30 - 19:00	5	7685	0.003	5	7685	0.005	5	7685	0.008
19:00 - 19:30	3	6337	0.000	3	6337	0.000	3	6337	0.000
19:30 - 20:00	3	6337	0.000	3	6337	0.011	3	6337	0.011
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.120			0.127			0.247

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL VEHICLE OCCUPANTS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.025	2	7855	0.000	2	7855	0.025
05:30 - 06:00	2	7855	0.070	2	7855	0.006	2	7855	0.076
06:00 - 06:30	2	7855	0.204	2	7855	0.051	2	7855	0.255
06:30 - 07:00	2	7855	0.299	2	7855	0.121	2	7855	0.420
07:00 - 07:30	5	7685	0.432	5	7685	0.234	5	7685	0.666
07:30 - 08:00	5	7685	0.445	5	7685	0.401	5	7685	0.846
08:00 - 08:30	5	7685	0.523	5	7685	0.338	5	7685	0.861
08:30 - 09:00	5	7685	0.588	5	7685	0.406	5	7685	0.994
09:00 - 09:30	5	7685	0.518	5	7685	0.383	5	7685	0.901
09:30 - 10:00	5	7685	0.534	5	7685	0.435	5	7685	0.969
10:00 - 10:30	5	7685	0.484	5	7685	0.513	5	7685	0.997
10:30 - 11:00	5	7685	0.570	5	7685	0.479	5	7685	1.049
11:00 - 11:30	5	7685	0.531	5	7685	0.588	5	7685	1.119
11:30 - 12:00	5	7685	0.479	5	7685	0.541	5	7685	1.020
12:00 - 12:30	5	7685	0.513	5	7685	0.505	5	7685	1.018
12:30 - 13:00	5	7685	0.422	5	7685	0.479	5	7685	0.901
13:00 - 13:30	5	7685	0.500	5	7685	0.520	5	7685	1.020
13:30 - 14:00	5	7685	0.390	5	7685	0.320	5	7685	0.710
14:00 - 14:30	5	7685	0.385	5	7685	0.424	5	7685	0.809
14:30 - 15:00	5	7685	0.388	5	7685	0.450	5	7685	0.838
15:00 - 15:30	5	7685	0.393	5	7685	0.448	5	7685	0.841
15:30 - 16:00	5	7685	0.364	5	7685	0.409	5	7685	0.773
16:00 - 16:30	5	7685	0.362	5	7685	0.383	5	7685	0.745
16:30 - 17:00	5	7685	0.268	5	7685	0.380	5	7685	0.648
17:00 - 17:30	5	7685	0.221	5	7685	0.349	5	7685	0.570
17:30 - 18:00	5	7685	0.161	5	7685	0.331	5	7685	0.492
18:00 - 18:30	5	7685	0.208	5	7685	0.302	5	7685	0.510
18:30 - 19:00	5	7685	0.156	5	7685	0.185	5	7685	0.341
19:00 - 19:30	3	6337	0.126	3	6337	0.168	3	6337	0.294
19:30 - 20:00	3	6337	0.047	3	6337	0.126	3	6337	0.173
20:00 - 20:30	2	5805	0.009	2	5805	0.052	2	5805	0.061
20:30 - 21:00	2	5805	0.000	2	5805	0.034	2	5805	0.034
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			10.615			10.361			20.976

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL PEDESTRIANS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.019	2	7855	0.000	2	7855	0.019
05:30 - 06:00	2	7855	0.025	2	7855	0.000	2	7855	0.025
06:00 - 06:30	2	7855	0.045	2	7855	0.000	2	7855	0.045
06:30 - 07:00	2	7855	0.064	2	7855	0.000	2	7855	0.064
07:00 - 07:30	5	7685	0.026	5	7685	0.008	5	7685	0.034
07:30 - 08:00	5	7685	0.013	5	7685	0.013	5	7685	0.026
08:00 - 08:30	5	7685	0.026	5	7685	0.010	5	7685	0.036
08:30 - 09:00	5	7685	0.013	5	7685	0.013	5	7685	0.026
09:00 - 09:30	5	7685	0.034	5	7685	0.013	5	7685	0.047
09:30 - 10:00	5	7685	0.023	5	7685	0.010	5	7685	0.033
10:00 - 10:30	5	7685	0.018	5	7685	0.018	5	7685	0.036
10:30 - 11:00	5	7685	0.034	5	7685	0.034	5	7685	0.068
11:00 - 11:30	5	7685	0.013	5	7685	0.013	5	7685	0.026
11:30 - 12:00	5	7685	0.013	5	7685	0.013	5	7685	0.026
12:00 - 12:30	5	7685	0.013	5	7685	0.018	5	7685	0.031
12:30 - 13:00	5	7685	0.008	5	7685	0.016	5	7685	0.024
13:00 - 13:30	5	7685	0.023	5	7685	0.031	5	7685	0.054
13:30 - 14:00	5	7685	0.057	5	7685	0.021	5	7685	0.078
14:00 - 14:30	5	7685	0.026	5	7685	0.023	5	7685	0.049
14:30 - 15:00	5	7685	0.031	5	7685	0.016	5	7685	0.047
15:00 - 15:30	5	7685	0.013	5	7685	0.018	5	7685	0.031
15:30 - 16:00	5	7685	0.021	5	7685	0.021	5	7685	0.042
16:00 - 16:30	5	7685	0.016	5	7685	0.044	5	7685	0.060
16:30 - 17:00	5	7685	0.008	5	7685	0.021	5	7685	0.029
17:00 - 17:30	5	7685	0.005	5	7685	0.021	5	7685	0.026
17:30 - 18:00	5	7685	0.013	5	7685	0.021	5	7685	0.034
18:00 - 18:30	5	7685	0.010	5	7685	0.018	5	7685	0.028
18:30 - 19:00	5	7685	0.008	5	7685	0.018	5	7685	0.026
19:00 - 19:30	3	6337	0.000	3	6337	0.026	3	6337	0.026
19:30 - 20:00	3	6337	0.005	3	6337	0.053	3	6337	0.058
20:00 - 20:30	2	5805	0.000	2	5805	0.017	2	5805	0.017
20:30 - 21:00	2	5805	0.000	2	5805	0.026	2	5805	0.026
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.623			0.574			1.197

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL BUS/TRAM PASSENGERS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.025	2	7855	0.000	2	7855	0.025
06:00 - 06:30	2	7855	0.051	2	7855	0.000	2	7855	0.051
06:30 - 07:00	2	7855	0.045	2	7855	0.000	2	7855	0.045
07:00 - 07:30	5	7685	0.065	5	7685	0.005	5	7685	0.070
07:30 - 08:00	5	7685	0.031	5	7685	0.008	5	7685	0.039
08:00 - 08:30	5	7685	0.052	5	7685	0.008	5	7685	0.060
08:30 - 09:00	5	7685	0.042	5	7685	0.010	5	7685	0.052
09:00 - 09:30	5	7685	0.047	5	7685	0.010	5	7685	0.057
09:30 - 10:00	5	7685	0.031	5	7685	0.016	5	7685	0.047
10:00 - 10:30	5	7685	0.023	5	7685	0.010	5	7685	0.033
10:30 - 11:00	5	7685	0.013	5	7685	0.008	5	7685	0.021
11:00 - 11:30	5	7685	0.021	5	7685	0.005	5	7685	0.026
11:30 - 12:00	5	7685	0.010	5	7685	0.005	5	7685	0.015
12:00 - 12:30	5	7685	0.008	5	7685	0.010	5	7685	0.018
12:30 - 13:00	5	7685	0.000	5	7685	0.010	5	7685	0.010
13:00 - 13:30	5	7685	0.013	5	7685	0.016	5	7685	0.029
13:30 - 14:00	5	7685	0.013	5	7685	0.008	5	7685	0.021
14:00 - 14:30	5	7685	0.010	5	7685	0.005	5	7685	0.015
14:30 - 15:00	5	7685	0.005	5	7685	0.021	5	7685	0.026
15:00 - 15:30	5	7685	0.003	5	7685	0.052	5	7685	0.055
15:30 - 16:00	5	7685	0.016	5	7685	0.005	5	7685	0.021
16:00 - 16:30	5	7685	0.013	5	7685	0.042	5	7685	0.055
16:30 - 17:00	5	7685	0.016	5	7685	0.021	5	7685	0.037
17:00 - 17:30	5	7685	0.008	5	7685	0.026	5	7685	0.034
17:30 - 18:00	5	7685	0.000	5	7685	0.031	5	7685	0.031
18:00 - 18:30	5	7685	0.003	5	7685	0.021	5	7685	0.024
18:30 - 19:00	5	7685	0.003	5	7685	0.013	5	7685	0.016
19:00 - 19:30	3	6337	0.005	3	6337	0.047	3	6337	0.052
19:30 - 20:00	3	6337	0.000	3	6337	0.037	3	6337	0.037
20:00 - 20:30	2	5805	0.000	2	5805	0.017	2	5805	0.017
20:30 - 21:00	2	5805	0.000	2	5805	0.026	2	5805	0.026
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.572			0.493			1.065

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL TOTAL RAIL PASSENGERS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.013	2	7855	0.000	2	7855	0.013
06:30 - 07:00	2	7855	0.025	2	7855	0.000	2	7855	0.025
07:00 - 07:30	5	7685	0.013	5	7685	0.003	5	7685	0.016
07:30 - 08:00	5	7685	0.016	5	7685	0.003	5	7685	0.019
08:00 - 08:30	5	7685	0.018	5	7685	0.003	5	7685	0.021
08:30 - 09:00	5	7685	0.026	5	7685	0.003	5	7685	0.029
09:00 - 09:30	5	7685	0.018	5	7685	0.005	5	7685	0.023
09:30 - 10:00	5	7685	0.023	5	7685	0.003	5	7685	0.026
10:00 - 10:30	5	7685	0.016	5	7685	0.008	5	7685	0.024
10:30 - 11:00	5	7685	0.010	5	7685	0.008	5	7685	0.018
11:00 - 11:30	5	7685	0.018	5	7685	0.008	5	7685	0.026
11:30 - 12:00	5	7685	0.003	5	7685	0.005	5	7685	0.008
12:00 - 12:30	5	7685	0.005	5	7685	0.008	5	7685	0.013
12:30 - 13:00	5	7685	0.008	5	7685	0.013	5	7685	0.021
13:00 - 13:30	5	7685	0.005	5	7685	0.008	5	7685	0.013
13:30 - 14:00	5	7685	0.010	5	7685	0.008	5	7685	0.018
14:00 - 14:30	5	7685	0.008	5	7685	0.008	5	7685	0.016
14:30 - 15:00	5	7685	0.000	5	7685	0.013	5	7685	0.013
15:00 - 15:30	5	7685	0.003	5	7685	0.016	5	7685	0.019
15:30 - 16:00	5	7685	0.000	5	7685	0.008	5	7685	0.008
16:00 - 16:30	5	7685	0.003	5	7685	0.010	5	7685	0.013
16:30 - 17:00	5	7685	0.003	5	7685	0.005	5	7685	0.008
17:00 - 17:30	5	7685	0.003	5	7685	0.021	5	7685	0.024
17:30 - 18:00	5	7685	0.005	5	7685	0.039	5	7685	0.044
18:00 - 18:30	5	7685	0.000	5	7685	0.018	5	7685	0.018
18:30 - 19:00	5	7685	0.000	5	7685	0.010	5	7685	0.010
19:00 - 19:30	3	6337	0.000	3	6337	0.005	3	6337	0.005
19:30 - 20:00	3	6337	0.000	3	6337	0.032	3	6337	0.032
20:00 - 20:30	2	5805	0.000	2	5805	0.034	2	5805	0.034
20:30 - 21:00	2	5805	0.000	2	5805	0.017	2	5805	0.017
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.252			0.322			0.574

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL COACH PASSENGERS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:30 - 07:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
07:00 - 07:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
07:30 - 08:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:00 - 08:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:30 - 09:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:00 - 09:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:30 - 10:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:00 - 10:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:30 - 11:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:00 - 11:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:30 - 12:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:00 - 12:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:30 - 13:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:00 - 13:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:30 - 14:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
14:00 - 14:30	5	7685	0.003	5	7685	0.000	5	7685	0.003
14:30 - 15:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:00 - 15:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:30 - 16:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:00 - 16:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:30 - 17:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:00 - 17:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:30 - 18:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:00 - 18:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:30 - 19:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
19:00 - 19:30	3	6337	0.000	3	6337	0.000	3	6337	0.000
19:30 - 20:00	3	6337	0.000	3	6337	0.000	3	6337	0.000
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.003			0.000			0.003

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.025	2	7855	0.000	2	7855	0.025
06:00 - 06:30	2	7855	0.064	2	7855	0.000	2	7855	0.064
06:30 - 07:00	2	7855	0.070	2	7855	0.000	2	7855	0.070
07:00 - 07:30	5	7685	0.078	5	7685	0.008	5	7685	0.086
07:30 - 08:00	5	7685	0.047	5	7685	0.010	5	7685	0.057
08:00 - 08:30	5	7685	0.070	5	7685	0.010	5	7685	0.080
08:30 - 09:00	5	7685	0.068	5	7685	0.013	5	7685	0.081
09:00 - 09:30	5	7685	0.065	5	7685	0.016	5	7685	0.081
09:30 - 10:00	5	7685	0.055	5	7685	0.018	5	7685	0.073
10:00 - 10:30	5	7685	0.039	5	7685	0.018	5	7685	0.057
10:30 - 11:00	5	7685	0.026	5	7685	0.016	5	7685	0.042
11:00 - 11:30	5	7685	0.039	5	7685	0.013	5	7685	0.052
11:30 - 12:00	5	7685	0.013	5	7685	0.010	5	7685	0.023
12:00 - 12:30	5	7685	0.013	5	7685	0.018	5	7685	0.031
12:30 - 13:00	5	7685	0.008	5	7685	0.023	5	7685	0.031
13:00 - 13:30	5	7685	0.018	5	7685	0.023	5	7685	0.041
13:30 - 14:00	5	7685	0.023	5	7685	0.016	5	7685	0.039
14:00 - 14:30	5	7685	0.021	5	7685	0.013	5	7685	0.034
14:30 - 15:00	5	7685	0.005	5	7685	0.034	5	7685	0.039
15:00 - 15:30	5	7685	0.005	5	7685	0.068	5	7685	0.073
15:30 - 16:00	5	7685	0.016	5	7685	0.013	5	7685	0.029
16:00 - 16:30	5	7685	0.016	5	7685	0.052	5	7685	0.068
16:30 - 17:00	5	7685	0.018	5	7685	0.026	5	7685	0.044
17:00 - 17:30	5	7685	0.010	5	7685	0.047	5	7685	0.057
17:30 - 18:00	5	7685	0.005	5	7685	0.070	5	7685	0.075
18:00 - 18:30	5	7685	0.003	5	7685	0.039	5	7685	0.042
18:30 - 19:00	5	7685	0.003	5	7685	0.023	5	7685	0.026
19:00 - 19:30	3	6337	0.005	3	6337	0.053	3	6337	0.058
19:30 - 20:00	3	6337	0.000	3	6337	0.068	3	6337	0.068
20:00 - 20:30	2	5805	0.000	2	5805	0.052	2	5805	0.052
20:30 - 21:00	2	5805	0.000	2	5805	0.043	2	5805	0.043
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.828			0.813			1.641

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.37

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.045	2	7855	0.000	2	7855	0.045
05:30 - 06:00	2	7855	0.146	2	7855	0.013	2	7855	0.159
06:00 - 06:30	2	7855	0.312	2	7855	0.051	2	7855	0.363
06:30 - 07:00	2	7855	0.439	2	7855	0.121	2	7855	0.560
07:00 - 07:30	5	7685	0.547	5	7685	0.250	5	7685	0.797
07:30 - 08:00	5	7685	0.520	5	7685	0.427	5	7685	0.947
08:00 - 08:30	5	7685	0.619	5	7685	0.364	5	7685	0.983
08:30 - 09:00	5	7685	0.669	5	7685	0.437	5	7685	1.106
09:00 - 09:30	5	7685	0.625	5	7685	0.411	5	7685	1.036
09:30 - 10:00	5	7685	0.614	5	7685	0.463	5	7685	1.077
10:00 - 10:30	5	7685	0.541	5	7685	0.554	5	7685	1.095
10:30 - 11:00	5	7685	0.632	5	7685	0.531	5	7685	1.163
11:00 - 11:30	5	7685	0.591	5	7685	0.619	5	7685	1.210
11:30 - 12:00	5	7685	0.510	5	7685	0.567	5	7685	1.077
12:00 - 12:30	5	7685	0.541	5	7685	0.544	5	7685	1.085
12:30 - 13:00	5	7685	0.445	5	7685	0.520	5	7685	0.965
13:00 - 13:30	5	7685	0.544	5	7685	0.580	5	7685	1.124
13:30 - 14:00	5	7685	0.474	5	7685	0.359	5	7685	0.833
14:00 - 14:30	5	7685	0.437	5	7685	0.463	5	7685	0.900
14:30 - 15:00	5	7685	0.424	5	7685	0.500	5	7685	0.924
15:00 - 15:30	5	7685	0.414	5	7685	0.560	5	7685	0.974
15:30 - 16:00	5	7685	0.403	5	7685	0.445	5	7685	0.848
16:00 - 16:30	5	7685	0.393	5	7685	0.487	5	7685	0.880
16:30 - 17:00	5	7685	0.299	5	7685	0.429	5	7685	0.728
17:00 - 17:30	5	7685	0.237	5	7685	0.429	5	7685	0.666
17:30 - 18:00	5	7685	0.180	5	7685	0.424	5	7685	0.604
18:00 - 18:30	5	7685	0.221	5	7685	0.362	5	7685	0.583
18:30 - 19:00	5	7685	0.169	5	7685	0.232	5	7685	0.401
19:00 - 19:30	3	6337	0.132	3	6337	0.247	3	6337	0.379
19:30 - 20:00	3	6337	0.053	3	6337	0.258	3	6337	0.311
20:00 - 20:30	2	5805	0.009	2	5805	0.121	2	5805	0.130
20:30 - 21:00	2	5805	0.000	2	5805	0.103	2	5805	0.103
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			12.185			11.871			24.056

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL CARS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.019	2	7855	0.000	2	7855	0.019
05:30 - 06:00	2	7855	0.045	2	7855	0.006	2	7855	0.051
06:00 - 06:30	2	7855	0.102	2	7855	0.032	2	7855	0.134
06:30 - 07:00	2	7855	0.115	2	7855	0.045	2	7855	0.160
07:00 - 07:30	5	7685	0.151	5	7685	0.047	5	7685	0.198
07:30 - 08:00	5	7685	0.167	5	7685	0.070	5	7685	0.237
08:00 - 08:30	5	7685	0.219	5	7685	0.081	5	7685	0.300
08:30 - 09:00	5	7685	0.242	5	7685	0.109	5	7685	0.351
09:00 - 09:30	5	7685	0.310	5	7685	0.143	5	7685	0.453
09:30 - 10:00	5	7685	0.239	5	7685	0.221	5	7685	0.460
10:00 - 10:30	5	7685	0.216	5	7685	0.190	5	7685	0.406
10:30 - 11:00	5	7685	0.239	5	7685	0.190	5	7685	0.429
11:00 - 11:30	5	7685	0.247	5	7685	0.239	5	7685	0.486
11:30 - 12:00	5	7685	0.167	5	7685	0.195	5	7685	0.362
12:00 - 12:30	5	7685	0.216	5	7685	0.252	5	7685	0.468
12:30 - 13:00	5	7685	0.182	5	7685	0.161	5	7685	0.343
13:00 - 13:30	5	7685	0.198	5	7685	0.245	5	7685	0.443
13:30 - 14:00	5	7685	0.154	5	7685	0.135	5	7685	0.289
14:00 - 14:30	5	7685	0.161	5	7685	0.169	5	7685	0.330
14:30 - 15:00	5	7685	0.161	5	7685	0.216	5	7685	0.377
15:00 - 15:30	5	7685	0.172	5	7685	0.211	5	7685	0.383
15:30 - 16:00	5	7685	0.141	5	7685	0.185	5	7685	0.326
16:00 - 16:30	5	7685	0.156	5	7685	0.193	5	7685	0.349
16:30 - 17:00	5	7685	0.115	5	7685	0.187	5	7685	0.302
17:00 - 17:30	5	7685	0.115	5	7685	0.182	5	7685	0.297
17:30 - 18:00	5	7685	0.070	5	7685	0.208	5	7685	0.278
18:00 - 18:30	5	7685	0.104	5	7685	0.141	5	7685	0.245
18:30 - 19:00	5	7685	0.073	5	7685	0.096	5	7685	0.169
19:00 - 19:30	3	6337	0.079	3	6337	0.084	3	6337	0.163
19:30 - 20:00	3	6337	0.032	3	6337	0.074	3	6337	0.106
20:00 - 20:30	2	5805	0.009	2	5805	0.034	2	5805	0.043
20:30 - 21:00	2	5805	0.000	2	5805	0.026	2	5805	0.026
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			4.616			4.367			8.983

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.013	2	7855	0.000	2	7855	0.013
06:00 - 06:30	2	7855	0.064	2	7855	0.013	2	7855	0.077
06:30 - 07:00	2	7855	0.089	2	7855	0.051	2	7855	0.140
07:00 - 07:30	5	7685	0.151	5	7685	0.112	5	7685	0.263
07:30 - 08:00	5	7685	0.146	5	7685	0.177	5	7685	0.323
08:00 - 08:30	5	7685	0.187	5	7685	0.169	5	7685	0.356
08:30 - 09:00	5	7685	0.167	5	7685	0.174	5	7685	0.341
09:00 - 09:30	5	7685	0.135	5	7685	0.143	5	7685	0.278
09:30 - 10:00	5	7685	0.164	5	7685	0.133	5	7685	0.297
10:00 - 10:30	5	7685	0.185	5	7685	0.219	5	7685	0.404
10:30 - 11:00	5	7685	0.224	5	7685	0.180	5	7685	0.404
11:00 - 11:30	5	7685	0.195	5	7685	0.234	5	7685	0.429
11:30 - 12:00	5	7685	0.200	5	7685	0.234	5	7685	0.434
12:00 - 12:30	5	7685	0.203	5	7685	0.164	5	7685	0.367
12:30 - 13:00	5	7685	0.159	5	7685	0.211	5	7685	0.370
13:00 - 13:30	5	7685	0.151	5	7685	0.174	5	7685	0.325
13:30 - 14:00	5	7685	0.156	5	7685	0.096	5	7685	0.252
14:00 - 14:30	5	7685	0.148	5	7685	0.182	5	7685	0.330
14:30 - 15:00	5	7685	0.141	5	7685	0.146	5	7685	0.287
15:00 - 15:30	5	7685	0.128	5	7685	0.146	5	7685	0.274
15:30 - 16:00	5	7685	0.128	5	7685	0.130	5	7685	0.258
16:00 - 16:30	5	7685	0.099	5	7685	0.083	5	7685	0.182
16:30 - 17:00	5	7685	0.075	5	7685	0.094	5	7685	0.169
17:00 - 17:30	5	7685	0.047	5	7685	0.078	5	7685	0.125
17:30 - 18:00	5	7685	0.055	5	7685	0.060	5	7685	0.115
18:00 - 18:30	5	7685	0.047	5	7685	0.070	5	7685	0.117
18:30 - 19:00	5	7685	0.052	5	7685	0.049	5	7685	0.101
19:00 - 19:30	3	6337	0.021	3	6337	0.016	3	6337	0.037
19:30 - 20:00	3	6337	0.005	3	6337	0.021	3	6337	0.026
20:00 - 20:30	2	5805	0.000	2	5805	0.009	2	5805	0.009
20:30 - 21:00	2	5805	0.000	2	5805	0.009	2	5805	0.009
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			3.535			3.577			7.112

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL MOTOR CYCLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:30 - 07:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
07:00 - 07:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
07:30 - 08:00	5	7685	0.010	5	7685	0.003	5	7685	0.013
08:00 - 08:30	5	7685	0.003	5	7685	0.000	5	7685	0.003
08:30 - 09:00	5	7685	0.005	5	7685	0.003	5	7685	0.008
09:00 - 09:30	5	7685	0.000	5	7685	0.003	5	7685	0.003
09:30 - 10:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:00 - 10:30	5	7685	0.003	5	7685	0.000	5	7685	0.003
10:30 - 11:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:00 - 11:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
11:30 - 12:00	5	7685	0.003	5	7685	0.000	5	7685	0.003
12:00 - 12:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
12:30 - 13:00	5	7685	0.000	5	7685	0.003	5	7685	0.003
13:00 - 13:30	5	7685	0.003	5	7685	0.000	5	7685	0.003
13:30 - 14:00	5	7685	0.005	5	7685	0.000	5	7685	0.005
14:00 - 14:30	5	7685	0.000	5	7685	0.005	5	7685	0.005
14:30 - 15:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:00 - 15:30	5	7685	0.000	5	7685	0.003	5	7685	0.003
15:30 - 16:00	5	7685	0.010	5	7685	0.003	5	7685	0.013
16:00 - 16:30	5	7685	0.000	5	7685	0.008	5	7685	0.008
16:30 - 17:00	5	7685	0.003	5	7685	0.008	5	7685	0.011
17:00 - 17:30	5	7685	0.000	5	7685	0.003	5	7685	0.003
17:30 - 18:00	5	7685	0.000	5	7685	0.005	5	7685	0.005
18:00 - 18:30	5	7685	0.000	5	7685	0.003	5	7685	0.003
18:30 - 19:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
19:00 - 19:30	3	6337	0.000	3	6337	0.000	3	6337	0.000
19:30 - 20:00	3	6337	0.000	3	6337	0.000	3	6337	0.000
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.051			0.056			0.107

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL Underground Passengers
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.013	2	7855	0.000	2	7855	0.013
06:30 - 07:00	2	7855	0.025	2	7855	0.000	2	7855	0.025
07:00 - 07:30	5	7685	0.008	5	7685	0.003	5	7685	0.011
07:30 - 08:00	5	7685	0.016	5	7685	0.000	5	7685	0.016
08:00 - 08:30	5	7685	0.013	5	7685	0.003	5	7685	0.016
08:30 - 09:00	5	7685	0.026	5	7685	0.000	5	7685	0.026
09:00 - 09:30	5	7685	0.016	5	7685	0.000	5	7685	0.016
09:30 - 10:00	5	7685	0.021	5	7685	0.003	5	7685	0.024
10:00 - 10:30	5	7685	0.013	5	7685	0.005	5	7685	0.018
10:30 - 11:00	5	7685	0.008	5	7685	0.008	5	7685	0.016
11:00 - 11:30	5	7685	0.013	5	7685	0.005	5	7685	0.018
11:30 - 12:00	5	7685	0.003	5	7685	0.003	5	7685	0.006
12:00 - 12:30	5	7685	0.003	5	7685	0.000	5	7685	0.003
12:30 - 13:00	5	7685	0.008	5	7685	0.013	5	7685	0.021
13:00 - 13:30	5	7685	0.005	5	7685	0.003	5	7685	0.008
13:30 - 14:00	5	7685	0.010	5	7685	0.003	5	7685	0.013
14:00 - 14:30	5	7685	0.008	5	7685	0.005	5	7685	0.013
14:30 - 15:00	5	7685	0.000	5	7685	0.013	5	7685	0.013
15:00 - 15:30	5	7685	0.000	5	7685	0.010	5	7685	0.010
15:30 - 16:00	5	7685	0.000	5	7685	0.008	5	7685	0.008
16:00 - 16:30	5	7685	0.000	5	7685	0.008	5	7685	0.008
16:30 - 17:00	5	7685	0.003	5	7685	0.003	5	7685	0.006
17:00 - 17:30	5	7685	0.003	5	7685	0.016	5	7685	0.019
17:30 - 18:00	5	7685	0.003	5	7685	0.039	5	7685	0.042
18:00 - 18:30	5	7685	0.000	5	7685	0.016	5	7685	0.016
18:30 - 19:00	5	7685	0.000	5	7685	0.008	5	7685	0.008
19:00 - 19:30	3	6337	0.000	3	6337	0.005	3	6337	0.005
19:30 - 20:00	3	6337	0.000	3	6337	0.016	3	6337	0.016
20:00 - 20:30	2	5805	0.000	2	5805	0.034	2	5805	0.034
20:30 - 21:00	2	5805	0.000	2	5805	0.017	2	5805	0.017
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.218			0.247			0.465

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL Overground Passengers
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:30 - 07:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
07:00 - 07:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
07:30 - 08:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:00 - 08:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:30 - 09:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:00 - 09:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:30 - 10:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:00 - 10:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:30 - 11:00	5	7685	0.003	5	7685	0.000	5	7685	0.003
11:00 - 11:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:30 - 12:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:00 - 12:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:30 - 13:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:00 - 13:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:30 - 14:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
14:00 - 14:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
14:30 - 15:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:00 - 15:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:30 - 16:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:00 - 16:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:30 - 17:00	5	7685	0.000	5	7685	0.003	5	7685	0.003
17:00 - 17:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:30 - 18:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:00 - 18:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:30 - 19:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
19:00 - 19:30	3	6337	0.000	3	6337	0.000	3	6337	0.000
19:30 - 20:00	3	6337	0.000	3	6337	0.000	3	6337	0.000
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.003			0.003			0.006

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL National Rail Passengers
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:30 - 07:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
07:00 - 07:30	5	7685	0.005	5	7685	0.000	5	7685	0.005
07:30 - 08:00	5	7685	0.000	5	7685	0.003	5	7685	0.003
08:00 - 08:30	5	7685	0.005	5	7685	0.000	5	7685	0.005
08:30 - 09:00	5	7685	0.000	5	7685	0.003	5	7685	0.003
09:00 - 09:30	5	7685	0.003	5	7685	0.005	5	7685	0.008
09:30 - 10:00	5	7685	0.003	5	7685	0.000	5	7685	0.003
10:00 - 10:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
10:30 - 11:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:00 - 11:30	5	7685	0.005	5	7685	0.003	5	7685	0.008
11:30 - 12:00	5	7685	0.000	5	7685	0.003	5	7685	0.003
12:00 - 12:30	5	7685	0.003	5	7685	0.008	5	7685	0.011
12:30 - 13:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:00 - 13:30	5	7685	0.000	5	7685	0.005	5	7685	0.005
13:30 - 14:00	5	7685	0.000	5	7685	0.005	5	7685	0.005
14:00 - 14:30	5	7685	0.000	5	7685	0.003	5	7685	0.003
14:30 - 15:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:00 - 15:30	5	7685	0.003	5	7685	0.005	5	7685	0.008
15:30 - 16:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:00 - 16:30	5	7685	0.003	5	7685	0.003	5	7685	0.006
16:30 - 17:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:00 - 17:30	5	7685	0.000	5	7685	0.005	5	7685	0.005
17:30 - 18:00	5	7685	0.003	5	7685	0.000	5	7685	0.003
18:00 - 18:30	5	7685	0.000	5	7685	0.003	5	7685	0.003
18:30 - 19:00	5	7685	0.000	5	7685	0.003	5	7685	0.003
19:00 - 19:30	3	6337	0.000	3	6337	0.000	3	6337	0.000
19:30 - 20:00	3	6337	0.000	3	6337	0.016	3	6337	0.016
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.036			0.076			0.112

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL Bus Passengers
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.025	2	7855	0.000	2	7855	0.025
06:00 - 06:30	2	7855	0.051	2	7855	0.000	2	7855	0.051
06:30 - 07:00	2	7855	0.045	2	7855	0.000	2	7855	0.045
07:00 - 07:30	5	7685	0.065	5	7685	0.005	5	7685	0.070
07:30 - 08:00	5	7685	0.031	5	7685	0.008	5	7685	0.039
08:00 - 08:30	5	7685	0.052	5	7685	0.008	5	7685	0.060
08:30 - 09:00	5	7685	0.042	5	7685	0.010	5	7685	0.052
09:00 - 09:30	5	7685	0.047	5	7685	0.010	5	7685	0.057
09:30 - 10:00	5	7685	0.031	5	7685	0.016	5	7685	0.047
10:00 - 10:30	5	7685	0.023	5	7685	0.010	5	7685	0.033
10:30 - 11:00	5	7685	0.013	5	7685	0.008	5	7685	0.021
11:00 - 11:30	5	7685	0.021	5	7685	0.005	5	7685	0.026
11:30 - 12:00	5	7685	0.010	5	7685	0.005	5	7685	0.015
12:00 - 12:30	5	7685	0.008	5	7685	0.010	5	7685	0.018
12:30 - 13:00	5	7685	0.000	5	7685	0.010	5	7685	0.010
13:00 - 13:30	5	7685	0.013	5	7685	0.016	5	7685	0.029
13:30 - 14:00	5	7685	0.013	5	7685	0.008	5	7685	0.021
14:00 - 14:30	5	7685	0.010	5	7685	0.005	5	7685	0.015
14:30 - 15:00	5	7685	0.005	5	7685	0.021	5	7685	0.026
15:00 - 15:30	5	7685	0.003	5	7685	0.052	5	7685	0.055
15:30 - 16:00	5	7685	0.016	5	7685	0.005	5	7685	0.021
16:00 - 16:30	5	7685	0.013	5	7685	0.042	5	7685	0.055
16:30 - 17:00	5	7685	0.016	5	7685	0.021	5	7685	0.037
17:00 - 17:30	5	7685	0.008	5	7685	0.026	5	7685	0.034
17:30 - 18:00	5	7685	0.000	5	7685	0.031	5	7685	0.031
18:00 - 18:30	5	7685	0.003	5	7685	0.021	5	7685	0.024
18:30 - 19:00	5	7685	0.003	5	7685	0.013	5	7685	0.016
19:00 - 19:30	3	6337	0.005	3	6337	0.047	3	6337	0.052
19:30 - 20:00	3	6337	0.000	3	6337	0.037	3	6337	0.037
20:00 - 20:30	2	5805	0.000	2	5805	0.017	2	5805	0.017
20:30 - 21:00	2	5805	0.000	2	5805	0.026	2	5805	0.026
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.572			0.493			1.065

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL Water Service Passengers
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
05:30 - 06:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:00 - 06:30	2	7855	0.000	2	7855	0.000	2	7855	0.000
06:30 - 07:00	2	7855	0.000	2	7855	0.000	2	7855	0.000
07:00 - 07:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
07:30 - 08:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:00 - 08:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
08:30 - 09:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:00 - 09:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
09:30 - 10:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:00 - 10:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
10:30 - 11:00	5	7685	0.003	5	7685	0.000	5	7685	0.003
11:00 - 11:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
11:30 - 12:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:00 - 12:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
12:30 - 13:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:00 - 13:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
13:30 - 14:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
14:00 - 14:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
14:30 - 15:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:00 - 15:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
15:30 - 16:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:00 - 16:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
16:30 - 17:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:00 - 17:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
17:30 - 18:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:00 - 18:30	5	7685	0.000	5	7685	0.000	5	7685	0.000
18:30 - 19:00	5	7685	0.000	5	7685	0.000	5	7685	0.000
19:00 - 19:30	3	6337	0.000	3	6337	0.000	3	6337	0.000
19:30 - 20:00	3	6337	0.000	3	6337	0.000	3	6337	0.000
20:00 - 20:30	2	5805	0.000	2	5805	0.000	2	5805	0.000
20:30 - 21:00	2	5805	0.000	2	5805	0.000	2	5805	0.000
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.003			0.000			0.003

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Appendix 10.1

Glossary of Air Quality Terms

National Air Quality Standard/National Air Quality Objective (NAQO): The concentrations of pollutants in the atmosphere, which can broadly be taken to achieve a certain level of environmental quality. The standards are based on an assessment of the effects of each pollutant on human health including the effects on sensitive subgroups.

Annual mean: The average of the concentrations measured for each pollutant for one year. In the case of the Air Quality Objectives, this is for a calendar year.

Air Quality Management Area (AQMA): An area that a local authority has designated for action, based upon predicted exceedances of Air Quality Objectives.

Concentration: The amount of a (polluting) substance in a volume (of air), typically expressed as a mass of pollutant per unit volume of air (for example, microgrammes per cubic metre, µg/m3) or a volume of gaseous pollutant per unit volume of air (parts per million, ppm).

Exceedance: A period of time where the concentration of a pollutant is greater than the appropriate Air Quality Objective.

Nitrogen Oxides: Nitric oxide (NO) is mainly derived from road transport emissions and other combustion processes such as the electricity supply industry. NO is not considered to be harmful to health. However, once released into the atmosphere, NO is usually very rapidly oxidised to nitrogen dioxide (NO2), which is harmful to health. NO2 and NO are both oxides of nitrogen and together are referred to as nitrogen oxides (NOx).

Particulate Matter: Fine Particles are composed of a wide range of materials arising from a variety of sources including combustion sources (mainly road traffic), and coarse particles, suspended soils and dust from construction work. Particles are measured in a number of different size fractions according to their mean aerodynamic diameter. Most monitoring is currently focused on PM10 (less than 10 microns in diameter), but the finer fractions such as PM2.5 (less than 2.5 microns in diameter) is becoming of increasing interest in terms of health effects.

µg/m3 microgrammes per cubic metre of air: A measure of concentration in terms of mass per unit volume. A concentration of 1 µg/m3 means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.

Appendix 10.2
Air Quality Model

In the UK, the Department for Environment, Food & Rural Affairs (Defra) provides guidance on the most appropriate methods to estimate pollutant concentrations for use in Local Air Quality Management (LAQM). Defra regularly updates its Technical Guidance, with the latest LAQM Technical Guidance TG22 published in 2016.

The methodology in TG22 directs air quality professionals to a number of tools published by Defra to predict and manage air quality. One of the main tools for modelling air pollutants is ADMS-Roads, which is a refined air dispersion model produced by Cambridge Environmental Research Consultants. ADMS-Roads has been specifically developed for use with UK roads and as such is considered to be one of the most appropriate tools for use in UK air quality modelling and therefore is widely used in the UK.

ADMS-Roads is an air dispersion modelling suite that predicts the air quality impacts of nitrogen dioxide, particulate matter and other inert pollutant concentrations from moving and idling motor vehicles at or alongside roads and junctions.

The methodology utilised by ADMS-Roads is significantly more advanced than that of most other air dispersion models, such as CALINE, which Breeze Roads is based upon, which is the other commonly used detailed air dispersion model in the UK. ADMS-Roads incorporates the latest understanding of the boundary layer structure and goes beyond the simplistic Pasquill-Gifford stability categories method used in other dispersion models and utilises the Monin-Obukhov length for greater accuracy. The model also uses advanced algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions.

Unlike the 'DMRB Screening Method', ADMS-Roads can take into account annualised meteorological data; it can take into account source, receiver and terrain heights; canyon effects can be modelled, and the model can calculate hourly concentrations.

TG22 provides detailed guidance on the modelling of air pollutants and in particular highlights a procedure to validate models. The procedure discusses the comparison of modelled results against measured levels, either from diffusion tubes (for NO2) or continuous monitors (for NO2 or PM10).

Model verification and subsequent adjustment for oxides of nitrogen is undertaken based upon NOX as most models (including ADMS-Roads) predict NO2 based upon its relationship to NOx. Consequently, the verification process requires conversion to NOx of any measurements of NO2 in order to compare against modelled levels of NOx.

Defra has published in 2009 a methodology to calculate NOx from NO2 and as part of its LAQM toolkit . The calculation method allows local authorities and air quality consultants to derive NO2 and NOx wherever NOx is predicted by modelling emissions from roads. The calculation method incorporates the impact of expected changes in the fraction of NOx emitted as NO2 (f – NO2) and changes in regional concentrations of NOx, NO2 and O3.

Background concentrations for various pollutants are published and updated regularly by Defra, so it is possible to calculate the contribution of NOx from road traffic at a particular location. If the ratio of the monitored road traffic contribution to the modelled road traffic contribution of NOx is calculated, this factor can be applied to the component derived from road traffic emissions for any predictions of NOx in the area. Therefore, it is possible to validate the model such that predictions should be within 10% of air quality measurements.

Appendix 10.3

Modelling Procedure and Input Data

Traffic Data

Traffic flows in the vicinity of the site have been obtained from the Department for Transport's traffic database for the year 2022. High traffic growth factors have been applied to this data to predict traffic flows for the proposed opening year (2027).

Since lower traffic speeds increase emissions from vehicles, it is necessary to take into account the reduction in traffic speeds around junctions. TG22 suggests that "there is no simple factor that can be applied to the average speed to calculate a speed applicable to congested periods" and that one should exercise professional judgement when taking into account congestion and decreasing speeds around junctions. However, in the absence of any more detailed site-specific information, TG22 does suggest that that "For a busy junction, assume that traffic approaching the junction slows to an average of 20kph …(for) approach distances of approximately 25m". This is the approach adopted at this site.

All road links within 200 m of a receptor have been included in the model. Road widths have been modelled in accordance with OS mapping data. However, based on observations, road widths are adjusted to take into account any restrictions to flow, such as parked cars.

Since road-traffic emissions on roads with significant gradients (>2.5%) can increase significantly, especially in relation to HGVs, significant gradients are taken into account in the modelling. At this site, road gradient effects were not considered to be significant.

The wake effects of traffic induced turbulence have been included in the modelling as standard. This takes into account the fact that increased traffic volumes and speeds produce more turbulence, which has effects on dispersion.

Input road links, traffic flows, the percentage of Heavy Goods Vehicles (HGVs) and traffic speeds are shown below.

Road Link	AADT 2022	AADT 2027	AADT 2027 with Development	AADT 2027 with Development and Cumulative Schemes	% HGV	Speed (kph)
A206 1	18882	20341	20389	21312	9.3	48
A206 2	18882	20341	20389	21312	9.3	20
A206 3	18882	20341	20389	21312	9.3	48
A102	73288	78952	79099	82681	4.4	80
Peartree Way 1	16175	17425	17425	17425	10.5	48
Peartree Way 2	16175	17425	17425	17425	10.5	20
Peartree Way 3	16175	17425	17425	17425	10.5	48
Peartree Way 4	16175	17425	17425	17425	10.5	20
Wooliwch Road 1	13837	14906	14940	15640	9.8	48
Woolwich Road 2	13837	14906	14940	15640	9.8	20
Woolwich Road 3	14324	15431	15465	16165	9.3	48
Woolwich Road 4	14324	15431	15465	16165	9.3	20
John Harrison Way 1	4928	5309	5309	5309	15.1	20
John Harrison Way 2	4928	5309	5309	5309	15.1	48
John Harrison Way 3	4928	5309	5309	5309	15.1	20
Millenium Way 1	14103	15193	15193	15193	10.0	48

Millenium Way 2	14103	15193	15193	15193	10.0	20
Bugsbys Way 1	21274	22918	22918	22918	12.0	48
Bugsbys Way 2	21274	22918	22918	22918	12.0	20
Blackwall Lane 1	29853	32160	32433	32851	10.0	48
Blackwall Lane 2	29853	32160	32433	32851	10.0	20
Telcon Way	2000	2155	2428	2428	1.7	32
Blackwall Lane 3	29853	32160	32433	32851	10.0	32
A102 2	73288	78952	78996	83185	4.5	80

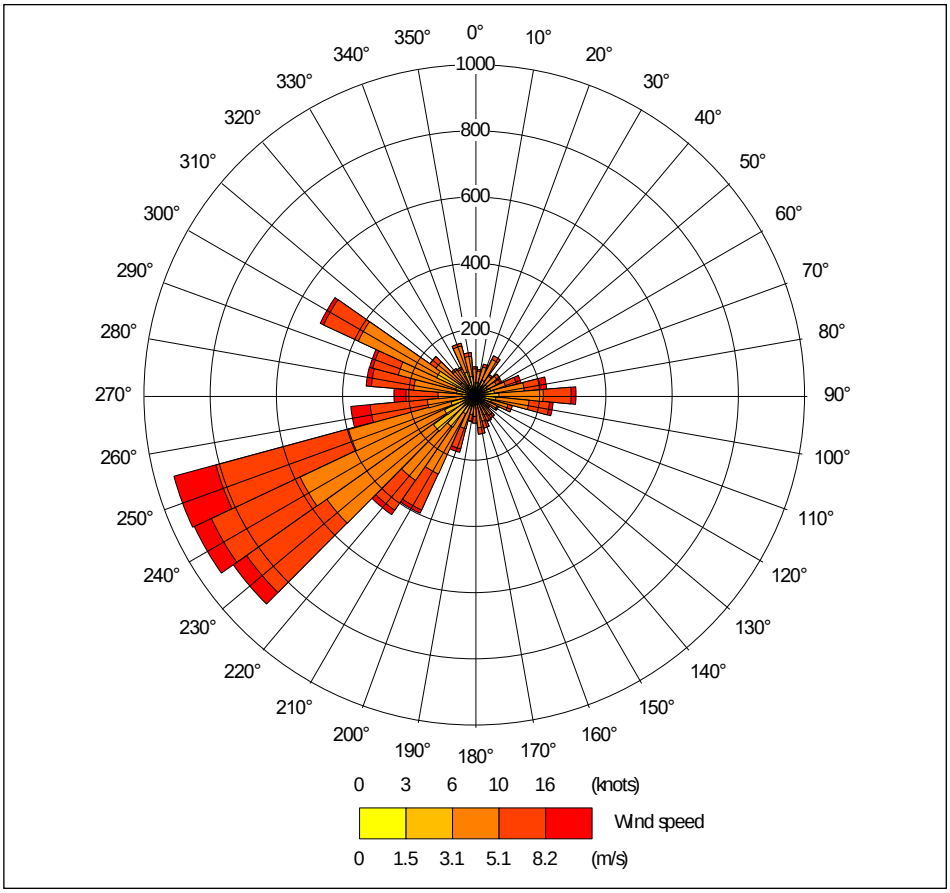
Meteorological Data

TG22 suggests that a single year's meteorological data will be sufficient to predict air pollution concentrations.

Meteorological data was obtained from London City Airport for 2022 (Surface Station Number 3763 - ICAO airport code EGLC – 5m above sea level). It is considered that this weather station is likely to be representative of conditions within the area local to the development site.

Data was collected in accordance with internationally accepted weather observation techniques, specifically the METAR weather format, which is an internationally recognised standardised weather format commonly used in the aviation industry. The meteorological data consists of hourly sequential data of wind speed, wind direction, surface temperature, precipitation rate and cloud cover data. In line with the standards, all data is passed through numerous quality control checks. At this site, the data was over 99% complete, with very little missing data.

The Meteorological data was used for both model verification and future year scenarios. The figure below shows the wind rose data used in the modelling.



Emission Factors

The model utilises emission factors contained within EFT v11.0, published in November 2021. This represents the most up to date emissions factors available. The Emissions Factors Toolkit (EFT) is published by Defra and the Devolved Administrations to assist local authorities in carrying out Review and Assessment of local air quality as part of their duties under the Environmental Act 1995. It can be used by anyone to predict pollution concentrations at a given point, in conjunction with a detailed dispersion model.

The EFT provides emission rates for 2018 through to 2030 and takes into consideration data from the National Atmospheric Emissions Inventory (NAEI) such as fleet composition based on European emission standards from pre-Euro I to Euro 6/VI (including Euro 6 subcategories) and scaling factors reflecting improvements in the quality of fuel and some degree of retrofitting.

The EFT allows users to calculate road vehicle pollutant emission rates for NOx, PM10, PM2.5 and CO2 for a specified year, road type, vehicle speed and vehicle fleet composition. EFT v11.0 uses the latest COPERT 5.3 NOx and PM emissions factors, updated from COPERT 5.0. The EFT is updated regularly to reflect changes in vehicle fleet composition and emissions factors.

It should be noted that the fleet projections in EFT v11.0 are based on fleet growth assumptions which were current prior to the Covid-19 pandemic and subsequent restrictions and lockdowns. Outputs from the EFT do not reflect short or longer-term impacts on emissions resulting from behavioural change during the national or local lockdowns. Consequently, it is probable that emission factors from EFT v11.0 represents a worst-case scenario when considering future pollutant concentrations.

Street Canyons

ADMS-Roads is designed to be used to model concentrations at different locations assuming that there are no obstacles to air flow. Dispersion modelling in urban areas is difficult due to the presence of buildings, trees, walls, etc. that modify the wind flow and alter the dispersion of traffic emissions. This is especially the case in so called 'street canyons', where buildings, or other obstacles, can trap pollutants and restrict dispersion. ADMS-Roads includes additional modules to account for the restricted dispersion.

Although street canyons have been defined as narrow streets where the height of buildings on both sides of the road are greater than the road width, there are numerous examples whereby broader streets may be considered as street canyons. It also does not require buildings on both sides of a road to restrict dispersion. A wall or a bank with trees will also affect dispersion, as will overhanging trees.

Background concentrations influence pollutant levels within street canyons when the air mass at rooftop level moves into the canyon, leading to increased ventilation and flushing of the polluted air from the traffic. Similarly, gaps between buildings allow increased wind flows to enter the canyon and can re-circulate pollutants away from the junctions but causing increased concentrations further away. The opposite effect may occur if the gap is at a junction, where road traffic emissions are carried into the canyon, resulting in higher concentrations.

The concentrations depend of the wind direction with respect to the orientation of the street canyon; when the wind is perpendicular to the road higher concentrations occur on the leeward side. Wind blowing along a road will reduce concentrations as it ventilates the canyon. In reality, street canyons in are generally not regular in shape, the buildings on opposite sides of the road are of different heights, the width varies along the street and there are gaps between buildings.

LAQM.TG22 states "Where a street can be partially classified as a street canyon, for example, where there are gaps in between buildings, monitoring in such locations may indicated elevated concentrations. It is therefore recommended that local authorities consider these links as street canyons; otherwise predicted concentrations are likely to be under-estimated" (paragraph 7.413).

At this site, street canyon effects were not considered to be significant.

Advanced Modelling Parameters

The following modelling parameters have been used in the ADMS-Roads Model:

Parameter	Value	Rationale
Latitude	51.49˚	Latitude of site
Surface Roughness Note 1	1 m	Recommended for cities
Minimum Monin-Obukhov Length	100 m	Recommended for large conurbations >1,000,000
Surface Albedo	0.23	The default for non-snow-covered ground
Priestley-Taylor Parameter	1.0	Model default

Background Concentrations of Air Pollutants

Background concentrations of air pollutants for the modelling were obtained from the UK National Air Quality Information Archive, in accordance with Local Air Quality Management Technical Guidance TG22. The archive contains estimated background concentrations for the whole of the UK at 1 km^2 resolution.

Background concentrations of 22.20 µg/m3, 18.70 µg/m3 and 12.40 µg/m3 of NO_2, PM_{10} and $PM_{2.5}$ respectively were determined for the 1 km^2 grid square centred at 539500 179500.

In order to avoid 'double counting', major road sources within the grid square identified were removed from the total background as they have been explicitly modelled as part of the assessment.

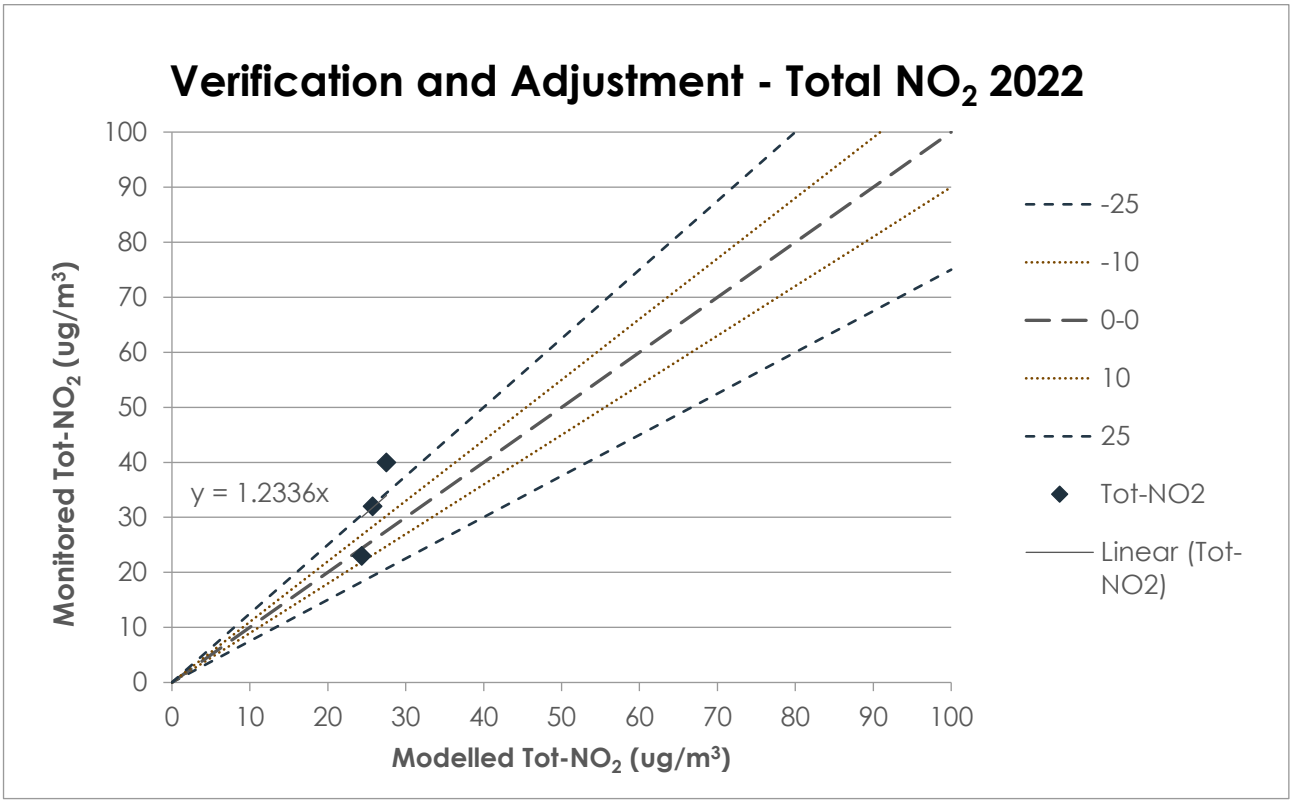
The above background concentrations have been used in all modelling scenarios (current and future) in order to show a worst-case scenario, i.e., future concentrations assuming that background levels stay constant and do not decrease as expected.

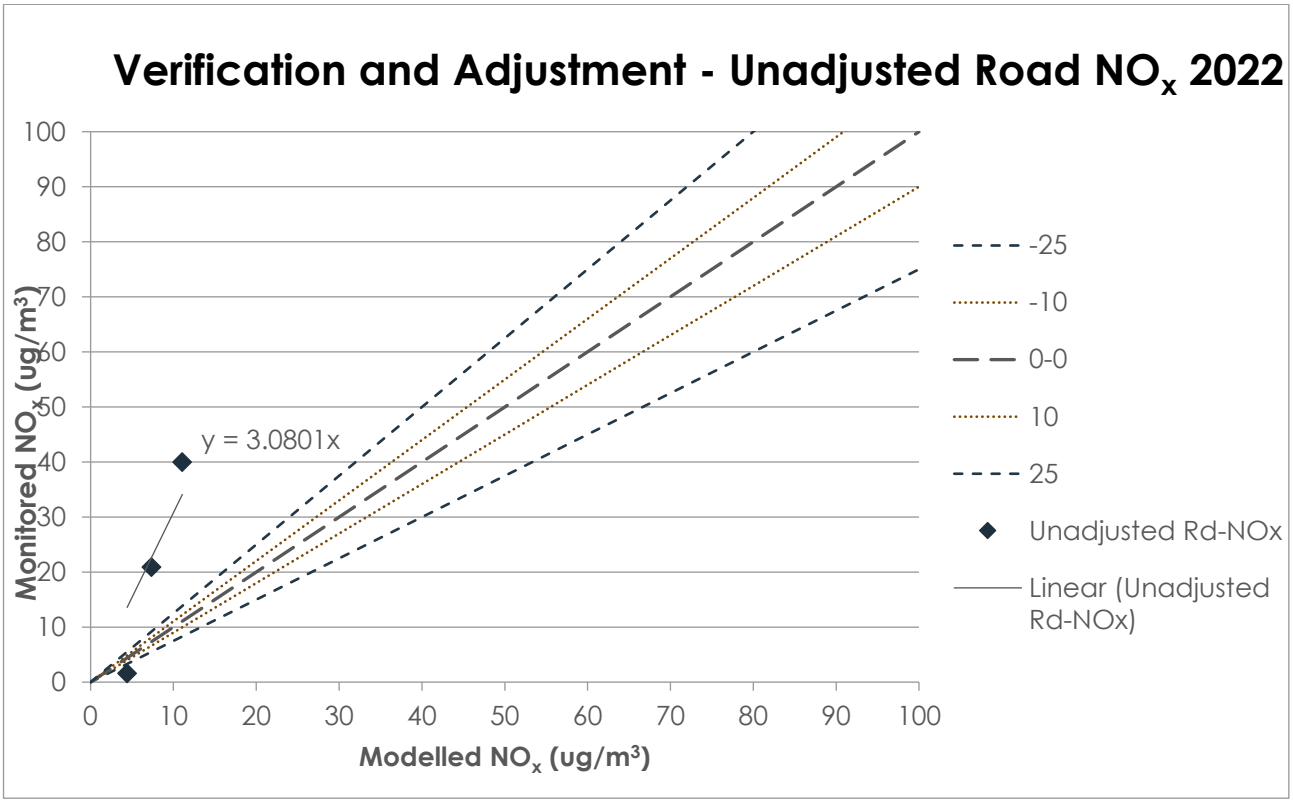
Site Suitability Receptor Locations

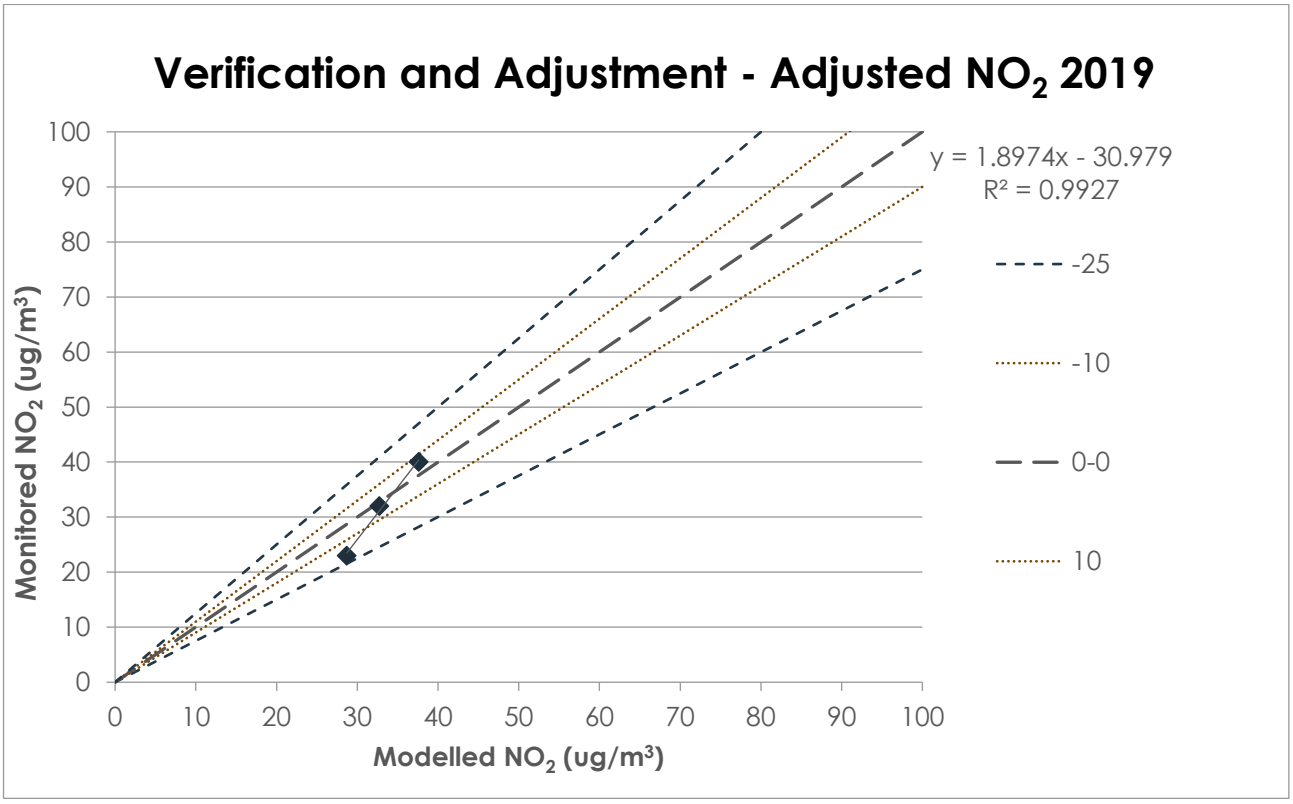
Model Verification and Adjustment

Verification of the air quality model was carried out in accordance with LAQM Technical Guidance TG22 using the data from the monitoring locations in the vicinity of the site for 2022. The exercise required the modelling of the monitoring locations for 2022 and comparing the modelled results with the monitoring results. The verification data is summarised below and shows that pollutant concentrations where underpredicted using the model; therefore, an adjustment factor of 3.0801 was applied to the model contribution of NO_x.

Monitoring Location	Modelled Roads NO_x	Modelled Tot-NO_2	Monitored Tot-NO_2	%Diff Mod/Mon Tot-NO_2	Modelled Rd-NO_x	Monitored Rd-NO_x	NO_x ADJ Corr 1	Adj Mod Rd-NO_x	Adj Mod Tot-NO_2	Monitored Tot-NO_2	%Diff Mod/Mon Adj Tot-NO_2
GN5	7.35	25.77	32	-19.47	7.35	20.91	2.85	22.63	32.75	32.00	2.34
GN6	4.41	24.36	23	5.91	4.41	1.62	0.37	13.58	28.69	23.00	24.74
GR8	11.07	27.53	40	-31.18	11.07	39.99	3.61	34.08	37.61	40.00	-5.98




Verification and Adjustment - Unadjusted Road NOx 2022
Monitored NOx (ug/m3)
Modelled NOx (ug/m3)
y = 3.0801x
-25
-10
0-0
10
25
Unadjusted Rd-NOx
Linear (Unadjusted Rd-NOx)


Verification and Adjustment - Adjusted NO2 2019
Monitored NO2 (ug/m3)
Modelled NO2 (ug/m3)
y = 1.8974x - 30.979
R² = 0.9927
-25
-10
0-0
10

Appendix 10.4

Air Quality Modelling Results

2022 Baseline

Receptor/Location	NO_2 (µg/m³)	PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)
	Annual Mean	Annual Mean	Days >50 µg/m³	Annual Mean
GN5	32.75	21.16	4.98	13.83
GN6	28.69	20.45	3.98	13.40
GR8	37.61	22.73	7.59	14.73
Receptor A Ground Floor	23.78	19.15	2.44	12.66
Receptor A 1st Floor	23.71	19.13	2.42	12.65
Receptor A 2nd Floor	23.61	19.11	2.39	12.63
Receptor A 3rd Floor	23.50	19.08	2.37	12.62
Receptor A 4th Floor	23.40	19.05	2.34	12.60
Receptor B Ground Floor	23.62	19.11	2.40	12.64
Receptor B 1st Floor	23.59	19.11	2.39	12.63
Receptor B 2nd Floor	23.55	19.09	2.38	12.62
Receptor B 3rd Floor	23.48	19.07	2.36	12.61
Receptor B 4th Floor	23.41	19.05	2.34	12.60
Receptor C Ground Floor	23.39	19.04	2.33	12.60
Receptor C 1st Floor	23.37	19.04	2.33	12.59
Receptor C 2nd Floor	23.34	19.03	2.32	12.59
Receptor C 3rd Floor	23.29	19.02	2.30	12.58

Receptor C 4th Floor	23.23	19.00	2.29	12.57
Receptor D Ground Floor	23.24	19.00	2.29	12.57
Receptor D 1st Floor	23.23	19.00	2.29	12.57
Receptor D 2nd Floor	23.21	18.99	2.28	12.57
Receptor D 3rd Floor	23.17	18.98	2.27	12.56
Receptor D 4th Floor	23.13	18.97	2.26	12.55
192 Tunnel Avenue Ground Floor	36.40	23.25	8.59	14.99
192 Tunnel Avenue 1st Floor	33.32	22.20	6.64	14.39
176 Tunnel Avenue Ground Floor	30.54	21.29	5.17	13.88
176 Tunnel Avenue 1st Floor	29.75	21.03	4.79	13.73
158 Tunnel Avenue Ground Floor	28.11	20.52	4.06	13.44
158 Tunnel Avenue 1st Floor	27.74	20.40	3.91	13.37
212 Tunnel Avenue Ground Floor	33.11	22.15	6.56	14.37
212 Tunnel Avenue 1st Floor	31.64	21.66	5.74	14.09
224 Tunnel Avenue Ground Floor	33.49	22.30	6.82	14.46
224 Tunnel Avenue 1st Floor	31.82	21.73	5.86	14.13

2027 Baseline

Receptor/Location	NO_2 (µg/m³)	PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)
	Annual Mean	Annual Mean	Days >50 µg/m³	Annual Mean
GN5	29.11	21.22	5.06	13.81
GN6	26.39	20.51	4.05	13.40
GR8	32.39	22.84	7.80	14.71
Receptor A Ground Floor	23.21	19.16	2.45	12.66
Receptor A 1st Floor	23.17	19.15	2.44	12.65
Receptor A 2nd Floor	23.10	19.12	2.41	12.63
Receptor A 3rd Floor	23.03	19.09	2.38	12.62
Receptor A 4th Floor	22.97	19.06	2.35	12.60
Receptor B Ground Floor	23.10	19.13	2.42	12.64
Receptor B 1st Floor	23.09	19.12	2.41	12.63
Receptor B 2nd Floor	23.06	19.11	2.39	12.62
Receptor B 3rd Floor	23.02	19.09	2.38	12.61
Receptor B 4th Floor	22.97	19.06	2.35	12.60
Receptor C Ground Floor	22.96	19.06	2.34	12.60
Receptor C 1st Floor	22.95	19.05	2.34	12.59
Receptor C 2nd Floor	22.92	19.04	2.33	12.59
Receptor C 3rd Floor	22.89	19.03	2.31	12.58

Receptor C 4th Floor	22.86	19.01	2.30	12.57
Receptor D Ground Floor	22.86	19.01	2.30	12.57
Receptor D 1st Floor	22.86	19.01	2.30	12.57
Receptor D 2nd Floor	22.84	19.00	2.29	12.57
Receptor D 3rd Floor	22.82	18.99	2.28	12.56
Receptor D 4th Floor	22.79	18.98	2.27	12.55
192 Tunnel Avenue Ground Floor	31.47	23.41	8.90	14.99
192 Tunnel Avenue 1st Floor	29.41	22.32	6.85	14.39
176 Tunnel Avenue Ground Floor	27.58	21.38	5.31	13.88
176 Tunnel Avenue 1st Floor	27.06	21.11	4.90	13.73
158 Tunnel Avenue Ground Floor	25.99	20.58	4.15	13.44
158 Tunnel Avenue 1st Floor	25.75	20.46	3.98	13.37
212 Tunnel Avenue Ground Floor	29.27	22.27	6.77	14.37
212 Tunnel Avenue 1st Floor	28.30	21.76	5.91	14.09
224 Tunnel Avenue Ground Floor	29.51	22.42	7.03	14.45
224 Tunnel Avenue 1st Floor	28.40	21.83	6.02	14.12

2027 With Development

Receptor/Location	NO_2 (µg/m³)	PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)
	Annual Mean	Annual Mean	Days >50 µg/m³	Annual Mean
GN5	29.12	21.22	5.07	13.81
GN6	26.39	20.51	4.06	13.40
GR8	32.41	22.85	7.82	14.71
Receptor A Ground Floor	23.24	19.17	2.47	12.66
Receptor A 1st Floor	23.19	19.15	2.45	12.65
Receptor A 2nd Floor	23.12	19.13	2.41	12.64
Receptor A 3rd Floor	23.04	19.09	2.38	12.62
Receptor A 4th Floor	22.98	19.07	2.35	12.60
Receptor B Ground Floor	23.11	19.13	2.42	12.64
Receptor B 1st Floor	23.10	19.12	2.41	12.63
Receptor B 2nd Floor	23.07	19.11	2.40	12.63
Receptor B 3rd Floor	23.02	19.09	2.38	12.62
Receptor B 4th Floor	22.97	19.07	2.35	12.60
Receptor C Ground Floor	22.97	19.06	2.35	12.60
Receptor C 1st Floor	22.96	19.05	2.34	12.60
Receptor C 2nd Floor	22.93	19.04	2.33	12.59
Receptor C 3rd Floor	22.90	19.03	2.32	12.58

Receptor C 4th Floor	22.86	19.01	2.30	12.57
Receptor D Ground Floor	22.87	19.02	2.30	12.57
Receptor D 1st Floor	22.86	19.01	2.30	12.57
Receptor D 2nd Floor	22.85	19.01	2.29	12.57
Receptor D 3rd Floor	22.83	18.99	2.28	12.56
Receptor D 4th Floor	22.80	18.98	2.27	12.56
192 Tunnel Avenue Ground Floor	31.52	23.43	8.95	15.01
192 Tunnel Avenue 1st Floor	29.45	22.33	6.88	14.40
176 Tunnel Avenue Ground Floor	27.61	21.39	5.32	13.88
176 Tunnel Avenue 1st Floor	27.08	21.12	4.92	13.73
158 Tunnel Avenue Ground Floor	26.01	20.59	4.16	13.44
158 Tunnel Avenue 1st Floor	25.77	20.46	3.99	13.37
212 Tunnel Avenue Ground Floor	29.30	22.29	6.79	14.38
212 Tunnel Avenue 1st Floor	28.32	21.77	5.92	14.09
224 Tunnel Avenue Ground Floor	29.53	22.43	7.05	14.46
224 Tunnel Avenue 1st Floor	28.42	21.84	6.03	14.13

2027 With Cumulative Development

Receptor/Location	NO_2 (µg/m³)	PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)
	Annual Mean	Annual Mean	Days >50 µg/m³	Annual Mean
GN5	29.42	21.34	5.24	13.87
GN6	26.46	20.54	4.10	13.42
GR8	32.83	23.03	8.16	14.81
Receptor A Ground Floor	23.27	19.19	2.48	12.67
Receptor A 1st Floor	23.22	19.17	2.46	12.66
Receptor A 2nd Floor	23.15	19.14	2.43	12.64
Receptor A 3rd Floor	23.07	19.11	2.40	12.63
Receptor A 4th Floor	23.00	19.08	2.37	12.61
Receptor B Ground Floor	23.15	19.15	2.44	12.65
Receptor B 1st Floor	23.13	19.14	2.43	12.64
Receptor B 2nd Floor	23.10	19.12	2.41	12.63
Receptor B 3rd Floor	23.05	19.10	2.39	12.62
Receptor B 4th Floor	23.00	19.08	2.37	12.61
Receptor C Ground Floor	23.00	19.07	2.36	12.61
Receptor C 1st Floor	22.98	19.07	2.36	12.60
Receptor C 2nd Floor	22.96	19.06	2.34	12.60
Receptor C 3rd Floor	22.93	19.04	2.33	12.59

Receptor C 4th Floor	22.89	19.02	2.31	12.58
Receptor D Ground Floor	22.89	19.03	2.32	12.58
Receptor D 1st Floor	22.89	19.02	2.31	12.58
Receptor D 2nd Floor	22.87	19.02	2.30	12.57
Receptor D 3rd Floor	22.85	19.01	2.29	12.57
Receptor D 4th Floor	22.82	18.99	2.28	12.56
192 Tunnel Avenue Ground Floor	31.74	23.56	9.20	15.08
192 Tunnel Avenue 1st Floor	29.63	22.44	7.06	14.46
176 Tunnel Avenue Ground Floor	27.77	21.48	5.46	13.93
176 Tunnel Avenue 1st Floor	27.23	21.20	5.03	13.78
158 Tunnel Avenue Ground Floor	26.14	20.66	4.26	13.48
158 Tunnel Avenue 1st Floor	25.89	20.53	4.08	13.41
212 Tunnel Avenue Ground Floor	29.54	22.42	7.03	14.45
212 Tunnel Avenue 1st Floor	28.53	21.88	6.11	14.15
224 Tunnel Avenue Ground Floor	29.82	22.59	7.34	14.55
224 Tunnel Avenue 1st Floor	28.66	21.97	6.25	14.20

Appendix 10.5
Policy & Guidance

National Legislation

1.1.1 Part IV of the Environment Act (1995), requires the UK government to produce a national Air Quality Strategy which contains standards, objectives and measures for improving ambient air quality. The National Air Quality Strategy sets out National Air Quality Objectives (NAQOs) that are maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale.

1.1.2 The Clean Air for Europe (CAFE) programme revisited the management of Air Quality within the EU and replaced the EU Framework Directive 96/62/EC, its associated Daughter Directives 1999/30/EC, 2000/69/EC, 2002/3/EC, and the Council Decision 97/101/EC, with a single legal act, the Ambient Air Quality and Cleaner Air for Europe Directive 2008/50/EC.

1.1.3 Directive 2008/50/EC is currently transcribed into UK legislation by the Air Quality Standards Regulations 2010, which came into force on 11th June 2010. These limit values are binding on the UK and have been set with the aim of avoiding, preventing or reducing harmful effects on human health and on the environment as a whole. These limit values are the basis of the NAQOs.

1.1.4 The National Air Quality Objectives (NAQOs) and their Limit Values will form the basis of this air quality assessment of the proposed development. The NAQOs are based on an assessment of the effects of each pollutant on public health. Therefore, they are a good indicator in assessing whether, under normal circumstances, the air quality in the vicinity of a development is likely to be detrimental to human health. In determining whether air pollutant levels may constrain development, the results of studies are compared against the acceptability criteria.

Clean Air Strategy (2019)

1.1.5 The Government's Clean Air Strategy was launched on the 14th January 2019 and sets out a range of initiatives that will help reduce air pollution, providing healthier air to breathe, enhancing the economy and protecting nature.

1.1.6 The Clean Air Strategy highlights action to be taken to reduce emissions across all sectors, including transport, the home, farming, and industrial sources. This includes actions to reduce particulate matter from domestic emissions, by introducing new legislation to prohibit the sales of the most polluting fuels and ensuring only the cleanest stoves are available for sale by 2022.

1.1.7 In addition, the Clean Air Strategy sets out proposals to halve the population living in areas with concentrations of fine particulate matter ($PM_{2.5}$) above the World Health Organisation (WHO) guideline levels of 10 µg/m^3 by 2025. Since the publication of the Clean Air Strategy, the WHO has further reduced its guideline level for $PM_{2.5}$ to 5 µg/m^3.

National Planning Policy Framework (2023)

1.1.8 The National Planning Policy Framework (NPPF) was first published in March 2012 and revised in July 2018, February 2019, July 2021 and most recently September 2023. The NPPF outlines the Government's environmental, economic and social policies for England. The NPPF sets out a presumption in favour of sustainable development which should be delivered with three main dimensions: economic; social and environmental (Paragraphs 7, 8 10 and 11). The NPPF aims to enable local people and their councils to produce their own distinctive local and neighbourhood plans, which should be interpreted and applied in order to meet the needs and priorities of their communities.

1.1.9 The NPPF states that in the planning system:

"*Planning policies and decisions should contribute to and enhance the natural and local environment by… e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans*" (Paragraph 174).

1.1.10 The NPPF also states that:

"*Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan*" (Paragraph 186).

Planning Practice Guidance (2016)

1.1.11 The Planning Practice Guidance (PPG) was launched on 6th March 2014 and has undergone regular revision, with the most recent changes to Air Quality in November 2019. It provides additional guidance and interpretation to the Government's strategic policies, outlined within the NPPF, in a web-based resource. This is updated regularly.

1.1.12 Matters of relevance to the air quality assessment include:

- The provision of "*guidance on how planning can take account of the impact of new development on air quality*". The PPG provides signposts as to how to address air quality in planning applications and highlights the importance of local plans.
- The statement that "*The Department for Environment, Food and Rural Affairs carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with relevant Limit Values*" and "*It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit*" (Reference ID: 32-001-20191101). The PPG goes on to say that "*Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species)*" (Reference ID: 32-005-20191101).
- The identification of the content of an air quality assessment, stating clearly that "*Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific*" (Reference ID: 32-007-20191101).

"Clearing the Air" – The Mayor's Air Quality Strategy (2010)

1.1.13 In December 2010, the Mayor of London's Air Quality Strategy was published by the Greater London Authority (GLA). The strategy sets out a framework for delivering improvements to London's air quality and includes measures aimed at reducing emissions from all types of new development, as well as raising awareness of air quality issues and its impacts on health.

The London Plan (2021)

1.1.14 The New London Plan was formally published on the 2nd of March 2021 and replaces the previous London Plan.

1.1.15 The London Plan 2021 takes an even tougher approach to air quality than its predecessor. The Plan notes that:

"Poor air quality is a major issue for London which is failing to meet requirements under legislation. Poor air quality has direct impacts on the health, quality of life and life expectancy of Londoners. The impacts tend to be most heavily felt in some of London's most deprived neighbourhoods, and by people who are most vulnerable to the impacts, such as children and older people. London's air quality should be significantly improved and exposure to poor air quality, especially for vulnerable people, should be reduced (para 9.1.1)*. The Mayor is committed to making air quality in London the best of any major world city, which means not only achieving compliance with legal limits for Nitrogen Dioxide as soon as possible and maintaining compliance where it is already achieved, but also achieving World Health Organisation targets for other pollutants such as Particulate Matter* (para 9.1.2)".

1.1.16 This last point is reinforced in Paragraph 9.1.4 which states "*where this policy refers to 'existing poor air quality' this should be taken to include areas where legal limits for any pollutant, or World Health Organisation targets for Particulate*

Matter, are already exceeded and areas where current pollution levels are within 5 per cent of these limits (para 9.1.4)". Consequently, while not legal limits on air pollution, air quality assessments within London now require the consideration of the lower WHO targets on PM_{10} and $PM_{2.5}$.

1.1.17 Policy SI1 – Improving Air Quality states that:

- "*Development Plans, through relevant strategic, site-specific and area-based policies, should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.*
- *To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:*
    - *Development proposals should not:*
        - *lead to further deterioration of existing poor air quality*
        - *create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits*
        - *create unacceptable risk of high levels of exposure to poor air quality.*
    - *In order to meet the requirements above, as a minimum:*
        - *development proposals must be at least Air Quality Neutral*
        - *development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures*
        - *major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1*
        - *development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.*
- *Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:*
    - *how proposals have considered ways to maximise benefits to local air quality, and*
    - *what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.*
- *In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.*

- *Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development*".

1.1.18 The 2021 London Plan is supported by various supplementary London Plan Guidance (LPG) documents, of which ones relating to previous versions of the London Plan are still referred to as Supplementary Planning Guidance (SPGs). Relevant LPGs and those SPGs that are still adopted are discussed below.

Housing Supplementary Planning Guidance (2016)

1.1.19 Previous versions of the London Plan were supported by Supplementary Planning Guidance documents (SPGs), some of which have been revoked with the introduction of The 2021 London Plan and others which remain adopted. New supplementary guidance documents to The 2021 London Plan are referred to as London Planning Guidance (LPGs).

1.1.20 The Housing Supplementary Planning Guidance (SPG), published in March 2016 highlights the elements of the London Plan that are relevant to housing development, and where applicable, provides more detail. The SPG states:

"*Air Quality - Standard 5.6.1 (and policy 7.14) – Minimise increased exposure to existing poor air quality and make provision to address local problems of air quality, be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs).*".

Air Quality and Planning Guidance (2007)

1.1.21 Written by the London Air Pollution Planning and the Local Environment (APPLE) working group of the London Councils, an umbrella organisation comprising all 32 London Borough and the City of London, the Air Quality and Planning Guidance provides technical advice on how to conduct air quality assessments for planning applications.

1.1.22 Whilst some of this guidance is now out of date, as it has not been updated in line with changes in other guidance documents or policy, the document does still provide useful guidance, especially in relation to detailed dispersion modelling. The guidance also offers advice in relation to determining the significance of exposure to air pollution and the levels of mitigation required.

Land-Use Planning & Development Control: Planning for Air Quality (2017)

1.1.23 Land-Use Planning & Development Control: Planning for Air Quality, jointly published by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK) in May 2015 and updated in January 2017, provides general guidance on air quality and planning.

1.1.24 Specifically, the guidance provides details on the scoping of effects, how to assess the impacts in relation to air quality, as well as details on how to assess the significance of impacts.

London Local Air Quality Management Technical Guidance TG22 (2022)

1.1.25 Specifically designed to provide technical guidance to Local Planning Authorities in relation to their review and assessment of air quality, TG(22) provides useful guidance in relation to the appropriate methods of air quality modelling and monitoring, which can be as equally useful to the assessment of air quality impacts.

London Atmospheric Emissions Inventory (2016)

1.1.26 The London Atmospheric Emissions Inventory (LAEI), published in 2013 and update in 2016, includes maps of the Air Quality Focus Areas in London. Air Quality Focus Areas were defined across London in locations where the EU annual mean limit value for NO_2 was exceeded, coupled with a high level of human exposure. These were not designed to be an exhaustive list of London's air pollution hotspots, but locations where the problem was the most acute. The Focus Areas were defined to address concerns raised by boroughs within the LAQM review process and forecasted air pollution trends. There are currently 187 Air Quality Focus Areas across London.

1.1.27 The Focus Areas have been used by GLA, TfL and the Boroughs to inform local air quality management, the development of air quality interventions and the planning process. Under London Local Air Quality Management guidelines, Boroughs are required to have regard to the focus areas in their Borough when devising their Air Quality Action Plans.

World Health Organization Air Quality Guidelines (2021)

1.1.28 The WHO Air Quality Guidelines propose threshold limits for key air pollutants that pose health risks. The guidelines cover a range of pollutants and suggest threshold levels at which health effects are unlikely to occur, based on the latest scientific evidence. For a number of pollutants, the WHO levels are equivalent to the levels determined by the EU, which were then exacted into the National Air Quality Objectives in the UK; however, the guidelines offer recommended exposure levels for particulate matter (PM_{10} and $PM_{2.5}$) which are lower than the National Air Quality Objectives as set out in the Air Quality Standards Regulations 2010. The WHO Guidelines also provides interim targets for areas of high air pollution.

1.1.29 Since WHO's last 2005 global update, there has been a marked increase of evidence that shows how air pollution affects different aspects of health. For that reason, and after a systematic review of the accumulated evidence, WHO has adjusted almost all the AQGs levels downwards in 2021.

Guidance on the Assessment of Mineral Dust Impacts for Planning

1.1.30 This guidance uses a simple distance-based screening process to identify those minerals sites where the dust impacts are unlikely to be significant and therefore require no further assessment.

1.1.31 Where more detailed assessment is required, a basic assessment framework is presented which employs the Source Pathway Receptor approach to evaluate the risk of dust impacts and effects.

Appendix 11.1

Glossary of Acoustic Terms

Decibel (dB)	This is a tenth (deci) of a bel. Decibel can be a measure of the magnitude of sound, changes in sound level and a measure of sound insulation. Decibels are not an absolute unit of measurement but are an expression of the ratio between two quantities expressed in logarithmic form.
dB(A)	A-weighted decibels, i.e. decibel level incorporating a frequency weighting (A-weighting), which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness.
Freefield	A situation in which the radiation from a sound source is completely unaffected by the presence of any reflecting boundaries.
Hertz (Hz)	Unit of frequency, equal to one cycle per second. The frequency of sound waves refers to the number of pressure fluctuations per second. Frequency is related to the pitch of a sound.
$L_{Aeq,T}$	The equivalent steady sound level in dB(A) containing the same acoustic energy as the actual fluctuating sound level over the given period, *T*. For example, daytime noise is generally measured over a 16 hour period, so T is 16 hours. $L_{Aeq,T}$ can be measured directly with an integrating sound level meter.
L_{A10}	The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 10 percent of a given time and is the $L_{A10,T}$. The L_{A10} is used to describe the levels of road traffic noise at a particular location.
L_{A50}	The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 50 percent of a given time and is the $L_{A50,T}$.
L_{A90}	The 'A'-weighted sound pressure level of the residual noise in decibels exceeded for 90 percent of a given time and is the $L_{A90,T}$. The L_{A90} is used to describe the background noise levels at a particular location.
L_{Amax}	The 'A'-weighted maximum sound pressure level measured over a measurement period.
R_w (or SRI)	The weighted sound reduction index as a single number laboratory measured rating used to describe the sound insulation of building elements.

Appendix 11.2

Schedule of Equipment

Equipment Set 3056:

Equipment Type	Manufacturer	Serial Number	Calibration Certification Number	Calibration Type	Date of Last Calibration Check	Date of Next Calibration Check
Nor-140 Type 1 Sound Level Meter	Norsonic	1403056	U42312	UKAS Calibration: 0789	2nd November 2022	November 2024
Nor-1209 Pre-amplifier	Norsonic	12528	U42312	UKAS Calibration: 0789	2nd November 2022	November 2024
Nor-1225 Microphone	Norsonic	98361	42311	UKAS Calibration: 0789	2nd November 2022	November 2024
Nor-1255 Sound Calibrator	Norsonic	32849	U45865	UKAS Calibration: 0789	3rd November 2023	November 2024
Nor-1284 Dehumidifier	Norsonic	222		Not Applicable		
Nor-1212 Weather Protection Kit	Norsonic			Not Applicable		
Nor1408A/5 Extension Cable	Norsonic/Lemo			Not Applicable		

Equipment Set 5199:

Equipment Type	Manufacturer	Serial Number	Calibration Certification Number	Calibration Type	Date of Last Calibration Check	Date of Next Calibration Check
Nor-140 Type 1 Sound Level Meter	Norsonic	1405199	U42092	UKAS Calibration: 0789	6th October 2022	October 2024
Nor-1209 Pre-amplifier	Norsonic	15117	U42092	UKAS Calibration: 0789	6th October 2022	October 2024
Nor-1225 Microphone	Norsonic	151240	42091	UKAS Calibration: 0789	6th October 2022	October 2024
Nor-1255 Sound Calibrator	Norsonic	32849	U45865	UKAS Calibration: 0789	3rd November 2023	November 2024
Nor-1284 Dehumidifier	Norsonic	222	Not Applicable			
Nor- 1212 Weather Protection Kit	Norsonic	Not Applicable				
Nor1408A/5 Extension Cable	Norsonic/Lemo	Not Applicable				

Appendix 11.3

Summary of Noise Measurements

Measurement Location 1: 24 Hours

Time	L_{Aeq}	L_{Amax}	L_{A10}	L_{A50}	L_{A90}
07:00	50.9	65.7	54.0	46.0	42.8
08:00	53.2	68.4	56.1	49.2	45.5
09:00	52.9	68.2	56.2	49.2	45.7
10:00	51.8	70.0	53.7	48.4	45.7
11:00	51.8	70.2	54.2	48.4	45.6
12:00	53.8	73.4	56.0	52.6	50.5
13:00	55.0	69.7	57.0	53.8	51.8
14:00	55.3	74.8	57.2	53.8	52.0
15:00	55.2	70.4	57.2	53.8	52.1
16:00	53.5	71.6	55.2	52.0	50.4
17:00	52.1	75.8	53.6	49.7	48.2
18:00	52.1	69.3	53.8	49.3	47.7
19:00	52.6	69.7	55.0	49.0	47.4
20:00	50.2	70.1	51.9	48.2	46.8
21:00	47.7	68.3	48.8	46.9	45.7
22:00	49.1	74.1	48.9	46.3	45.1
23:00	46.3	58.9	47.4	46.0	44.9
00:00	44.8	57.8	45.9	44.3	43.1
01:00	42.7	59.2	43.8	42.4	41.4
02:00	40.4	48.7	41.8	39.9	38.7
03:00	39.0	57.7	40.5	37.7	36.3
04:00	41.1	60.3	42.2	38.9	37.3
05:00	46.8	62.2	48.3	41.5	39.5
06:00	48.9	68.4	48.9	43.5	41.4
Day	**52.8**	**75.8**	**54.3**	**49.8**	**47.7**
Night	**44.9**	**68.4**	**44.8**	**41.8**	**40.3**

Measurement Location 2

Time	L_{Aeq}	L_{Amax}	L_{A10}	L_{A50}	L_{A90}
12:00	55.8	71.8	57.6	51.6	48.5
13:00	59.1	83.6	58.4	53.8	51.0
14:00	54.2	71.9	56.0	52.0	49.6
Day	**56.9**	**83.6**	**57.3**	**52.5**	**49.7**
$L_{A10.3hr}$	57.3				
$L_{A10.18hr}$	56.3				
$L_{Aeq.16hr}$	**54.3**				

Measurement Location 3

Time	L_{Aeq}	L_{Amax}	L_{A10}	L_{A50}	L_{A90}
12:00	56.4	81.5	58.9	52.6	49.2
13:00	53.8	73.1	55.9	51.9	49.0
14:00	53.3	63.5	54.9	51.5	49.8
Day	**54.7**	**81.5**	**56.6**	**52.0**	**49.3**
$L_{A10.3hr}$	56.6				
$L_{A10.18hr}$	55.6				
$L_{Aeq.16hr}$	**53.6**				

Appendix 11.4
Planning Policy Context

The National Planning Policy Framework (2023)

1.1.1 The National Planning Policy Framework ("NPPF") was first published on the 27th March 2012 and revised July 2018, February 2019, July 2021 and September 2023.

1.1.2 The NPPF states that in the planning system *"Planning policies and decisions should contribute to and enhance the natural and local environment by… e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans"* (Paragraph 174).

1.1.3 Paragraph 185 of the NPPF talks specifically about noise stating that *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason…".*

1.1.4 Specifically in relation to noise from existing commercial premises, Paragraph 187 of the NPPF notes: *"Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed".*

Noise Policy Statement for England (2010)

1.1.5 The Noise Policy Statement for England (NPSE) provides further guidance which is relevant to the policy set out in Paragraph 185 of the NPPF and states that: *"Within the context of sustainable development:*

- *avoid significant adverse impacts on health and quality of life;*

- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible contribute to the improvement of health and quality of life."*

1.1.6 NPSE introduces established concepts originally from the field of toxicology that are now being applied to noise impacts. They are:

- **NOEL – No Observed Effect Level** - This is the level of noise below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.
- **LOAEL – Lowest Observed Adverse Effect Level** - This is the level of noise above which adverse effects on health and quality of life can be detected.
- **SOAEL – Significant Observed Adverse Effect Level** - This is the level above which significant adverse effects on health and quality of life occur.

1.1.7 NPSE goes on to state that *"it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."*

National Planning Practice Guidance on Noise

1.1.8 The Planning Practice Guidance (PPG) was launched on 6th March 2014 and has undergone regular revision, with the most recent changes to Noise Guidance coming in July 2019. PPG provides additional guidance and interpretation to the Government's strategic policies, outlined within the NPPF, in a web-based resource.

1.1.9 The NPPG provides more guidance on the assessment of noise for planning purposes and builds on the concepts of NOEL, LOAEL and SOAEL introduced in NPSE to establish whether noise is a factor that needs to be taken into account. It states*: "Local planning authorities' plan-making and decision taking should take account of the acoustic environment and in doing so consider:*

- whether or not a significant adverse effect is occurring or likely to occur;
- whether or not an adverse effect is occurring or likely to occur; and
- whether or not a good standard of amenity can be achieved.

1.1.10 In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation."

1.1.11 However, it goes into more detail about the subjective nature of noise and how the results of any assessment must be treated flexibly and pragmatically. The guidance states: *"The subjective nature of noise means that there is not a*

simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. These factors include:

- *the source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day – this is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night;*
- *for a new noise making source, how the noise from it relates to the existing sound environment;*
- *for non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;*
- *the spectral content of the noise (i.e. whether or not the noise contains particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features), and;*
- *the local arrangement of buildings, surfaces and green infrastructure, and the extent to which it reflects or absorbs noise.*

1.1.12 More specific factors to consider when relevant include:

- *the cumulative impacts of more than one source of noise;*
- *whether any adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time (and the effect this may have on living conditions). In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations.*
- *In cases where existing noise sensitive locations already experience high noise levels, a development that is expected to cause even a small increase in the overall noise level may result in a significant adverse effect occurring even though little to no change in behaviour would be likely to occur.*
- *Noise Action Plans (where these exist), and, in particular the Important Areas identified through the process associated with the Environmental Noise Directive and corresponding regulations should be taken into account. Defra's website has information on Noise Action Plans and Important Areas. Local authority environmental health departments will also be able to provide information about Important Areas.*
- *the effect of noise on wildlife. Noise can adversely affect wildlife and ecosystems. Particular consideration needs to be given to the potential effects of noisy development on international, national and locally designated sites of importance for biodiversity;*
- *where external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.*
- *some commercial developments including restaurants, hot food takeaways, night clubs and public houses can have particular impacts, not least because activities are often at their peak in the evening and late at night. Local planning authorities will wish to bear in mind not only the noise that is generated within the premises but also the noise that may be made by customers in the vicinity".*

1.1.13 **Table 11.4** shows examples of the noise hierarchy (adapted from the PPG) and shows that that the aim is to identify where the overall effect of the noise exposure falls in relation to SOAEL, LOAEL and NOEL. The implication of the advice is only noise that is 'noticeable and very disruptive' would be considered unacceptable and therefore, should be prevented. The inference, therefore, is that all other outcomes can be acceptable, depending upon the specific circumstances and level of mitigation.

Table 11.1: Noise Exposure Hierarchy

Perception	Examples of outcomes	Increasing effect level	Action	Noise Level
Not noticeable	No Effect	No Observed Effect	No specific measures required	Low Noise Level
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required	
	Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up the volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. The potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum	Increasing Noise Levels ↓
	Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. The potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep.	Significant Observed Adverse Effect	Avoid	
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate the effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent	High Noise Level

The London Plan (2021)

1.1.14 The London Plan notes that noise is an integral part of development planning. When designing developments, it notes that *"measures to design out exposure to poor air quality and noise from both external and internal sources should be integral to development proposals and be considered early in the design process. Characteristics that increase pollutant or noise levels, such as poorly-located emission sources, street canyons and noise sources should also be designed out wherever possible. Optimising site layout and building design can also reduce the risk of overheating as well as minimising carbon emissions by reducing energy demand"* (para 3.3.9).

1.1.15 Policy *D13 Agent of Change* formalises the Agent of Change principle in London's planning policy in relation to noise.

The policy notes:

"For a long time, the responsibility for managing and mitigating the impact of noise and other nuisances on neighbouring residents and businesses has been placed on the business or activity making the noise or other nuisance, regardless of how long the business or activity has been operating in the area. In many cases, this has led to newly-arrived residents complaining about noise and other nuisances from existing businesses or activities, sometimes forcing the businesses or other activities to close" (para 3.13.1).

"The Agent of Change principle places the responsibility for mitigating the impact of noise and other nuisances firmly on the new development. This means that where new developments are proposed close to existing noise-generating uses, for example, applicants will need to design them in a more sensitive way to protect the new occupiers, such as residents, businesses, schools and religious institutions, from noise and other impacts. This could include paying for soundproofing for an existing use, such as a music venue. The Agent of Change principle works both ways. For example, if a new noise-generating use is proposed close to existing noise-sensitive uses, such as residential development or businesses, the onus is on the new use to ensure its building or activity is designed to protect existing users or residents from noise impacts" (para 3.13.2).

1.1.16 Policy D13 states:

- "The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development. Boroughs should ensure that Development Plans and planning decisions reflect the Agent of Change principle and take account of existing noise and other nuisance-generating uses in a sensitive manner when new development is proposed nearby.
- Development should be designed to ensure that established noise and other nuisance-generating uses remain viable and can continue or grow without unreasonable restrictions being placed on them.
- New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.
- Development proposals should manage noise and other potential nuisances by:

- ensuring good design mitigates and minimises existing and potential nuisances generated by existing uses and activities located in the area
- exploring mitigation measures early in the design stage, with necessary and appropriate provisions including ongoing and future management of mitigation measures secured through planning obligations
- separating new noise-sensitive development where possible from existing noise-generating businesses and uses through distance, screening, internal layout, sound-proofing, insulation and other acoustic design measures.
- Boroughs should not normally permit development proposals that have not clearly demonstrated how noise and other nuisances will be mitigated and managed".

1.1.17 Policy *D14 Noise* goes on to state:

- "In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:
  - avoiding significant adverse noise impacts on health and quality of life
  - reflecting the Agent of Change principle as set out in Policy D13 Agent of Change
  - mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses
  - improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)
  - separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation
  - where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles
  - promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.
- Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra's Noise Action Plan for Agglomerations".

1.1.18 Policy D14 notes that "the management of noise should be an integral part of development proposals and considered as early as possible" (para 3.14.1).

1.1.19 It notes that "The management of noise also includes promoting good acoustic design of the inside of buildings. Section 5 of BS 8223:2014 provides guidance on how best to achieve this. The Institute of Acoustics has produced advice, Pro:PG Planning and Noise (May 2017), that may assist with the implementation of residential

developments. BS4214 provides guidance on monitoring noise issues in mixed residential/industrial areas" (para 3.14.3).

London Plan – Housing Supplementary Planning Guidance (2016)

1.1.20 The Housing SPG, published in March 2016 highlights the elements of the London Plan that are relevant to housing development, and where applicable, provides more detail. The SPG states:

"Noise

Standard 30 (and Policy 7.15) – The layout of adjacent dwellings and the location of lifts and circulation spaces should seek to limit the transmission of noise to sound sensitive rooms within dwellings.

2.3.42 - Policy 7.15 Reducing and Managing Noise, Improving and Enhancing the Acoustic Environment and Promoting Appropriate Soundscapes requires development proposals to seek to reduce noise and manage the effects of noise to improve health and quality of life. It is another important aspect of retreat and privacy in a dwelling. Noise from the street and adjoining properties can cause stress, sleep disturbance and friction between neighbours as recognised in the NPPF.

2.3.43 - All dwellings should be built with acoustic insulation and tested to current Building Regulations standards. However, acoustic insulation should not be relied upon as the only means of limiting noise and the layout and placement of rooms within the building should be considered at an early stage in the design process to limit the impact of external noise on bedrooms and living rooms. The impact of noise should also be considered in the placement of private external spaces."

creating a better place
for people and wildlife

Environment Agency

Mark Bullen
Taylor Yates
Maritime View Ltd
C/O Criterion Capital
16 Babmaes Street
London
SW1Y 6HD

Our ref: SL/2022/122257/01-L01
Your ref: Enderby Place

Date: 27 October 2022

Dear Mark

ENPAC/1/KSL/00579 the proposed development includes circa 750 residential units across three tower blocks up to 32 storeys in height, together with approximately 1,900 m2 commercial space (including office, employment, restaurant and café uses) ('development'). Amenity and public space provision, pedestrian routes, vehicular access, circulation and cycle and car parking will also be provided within a basement.

Enderby Place Christchurch Way Greenwich SE10 0AG

Thank you for consulting us on the above site for pre application advice.
With regards to the submitted documentation we have the following comments in response to your email dated 22/09/2022.

1. The applicant will have to assess the flood defence and demonstrate that it will protect the site for the development's lifetime. This will mean showing that the defence will be structurally safe for the lifetime of the development, and that it will meet the future TE2100 defence levels. If the defence has already been raised to this level, the applicant will need to demonstrate this in their FRA/planning application.
2. The Sequential test would have been passed if a previous planning application has been granted, however they would still need to demonstrate this in their application.
3. A new surface water outfall can be constructed if completely necessary. This will require two lines of defence preventing tidal ingress flowing back through the pipe. And will require a Flood Risk Activity Permit to carry out the actual works. TTWE APT will need to agree to the proposed design of this outfall.
4. The FRA will need to cover the risk of a tidal breach, so demonstrate how the site occupants will stay safe during a breach event (essentially all areas of the site need to have access to), and show that there will be no sleeping accommodation below the breach level

We have some comments and questions in relation to the drawings provided, please see below.

Elevations

1. Please clarify whether levels in the Site Layout package drawings are in metres Above Ordnance Datum?
2. We require all floor heights in metres Above Ordnance Datum (e.g., PODIUM MEZZANINE LEVEL", "LEVEL 1" etc.).
3. Is the carpark and commercial space in the basement, or at ground level?

Breach levels

Once it is clarified by Applicant what the proposed elevations are in metres Above Ordnance Datum for their proposal, there are the following considerations:

1. Is the green area in drawing for "GROUND LEVEL" residential, and is this below breach level?
2. Is the Commercial area at "GROUND LEVEL", and the Residential area at "PODIUM LEVEL" below breach level?

Adjacent flood defence (i.e., S438/03):

1. Are there an as-built drawing of the structure?
2. What is the current flood defence height? Not if it is below the TE2100 2100 level of 6.20m AOD we will require a raising strategy and clarity on whether the flood defence can support the extra load and maintain required design life.
3. What is the design life of the flood defence? Note it needs to be at least 100 years to ensure it is commensurate with the design-life of the proposed residential development.
4. What is the flood defence design type (e.g., cantilevered or including buried elements)? If it has buried elements, we would need to know how far these extend landward.
5. Please note that the TE2100 Plan 2065 level is 5.70m AOD and the 2100 level in 6.20mAOD.

We would like to remind the Riparian Owner of their responsibility to ensure a fit for purpose flood defence line is maintained in line with s.6 of the Metropolis Management (Thames River Prevention of Flood) Act 1879 to 1962 (The Act).

What is the Metropolis Management Act?

The Metropolis Management Act 1879 to 1962 is a series of acts passed to ensure the flood defences in London are maintained, in order to protect the city from flooding. They set out the responsibilities of Riparian Owners within the London Excluded Area. The acts place full responsibility on Riparian Owners for the renewal and maintenance of flood defences. They also grant the Environment Agency powers to inspect flood defences, instruct Riparian Owners to carry out works, or deliver works where the Riparian Owners do not, and then reclaim the cost.
The full acts can be accessed here:
https://www.legislation.gov.uk/ukla/1879/198/contents/enacted

It should be noted that any works directly to or within 16 metres of a tidal flood defence will require a flood risk activity permit. For further guidance on permits and exemptions please visit our website at www.gov.uk/guidance/flood-risk-activities-environmental-permits or call our National Customer Contact Centre (NCCC) 03708 506 506.

Please do not hesitate to contact me if needed.

Yours sincerely

Mr Randeep Dhanjal
Planning Advisor

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