Sarnlea

Consulting Engineers

133 Baston Road, Bromley, BR2 7AB

TRANSPORT STATEMENT

- Baston Road
- September 2023

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1. Introduction

1.1 Summary

1.1.1 This Transport Statement has been prepared by Sarnlea Consulting Engineers on behalf of South East Living in order to support a forthcoming outline planning application at no 133 Baston Road, Bromley, BR2 7AB

1.1.1 This Transport Statement forms a hybrid document supporting two applications.

1.1.2 Application 1 – Outline Planning approval is sought for:

"Demolition of the existing detached house, swimming pool, tennis courts and outbuildings and the erection of 2 detached single storey dwellings with car barns and parking".

1.1.3 Application 2 – Outline Planning approval is sought for:

"Demolition of the existing detached house and the erection of 3 detached houses with parking"

1.1.4 The Transport Statement is structured as follows:

- Section 2.0 outlines the background to the proposed developments:
- Section 3.0 considers the existing conditions of, and around the site. This section also looks at the baseline transport data on which the assessment is based. It gives the relevant details of the local highway network surrounding the site and assesses the accessibility levels of the site via modes of transport other than the private car;
- Section 4.0 details the national and local policy considerations relevant to the development site and land use proposed;
- Section 5.0 looks at the proposed developments in detail by giving regard to the proposed access strategy, parking provision and the site's internal layout;

- Section 6.0 evaluates the impact of Traffic Generation associated with the proposal; and
- Section 7.0 includes a summary and draws together the conclusions of the assessment.

2. Background

2.1 Site Location & Application Context

2.1.1 The application site currently comprises an irregular shaped parcel of land at no 133 Baston Road, Bromley, BR2 7AB to the south east of Hayes town centre.

2.1.2 The application site currently comprises a large, detached dwelling with associated swimming pool and tennis courts along with an ingress and egress access which provides an existing pedestrian right of way to the neighbouring Temple Academy of Performing Arts School.

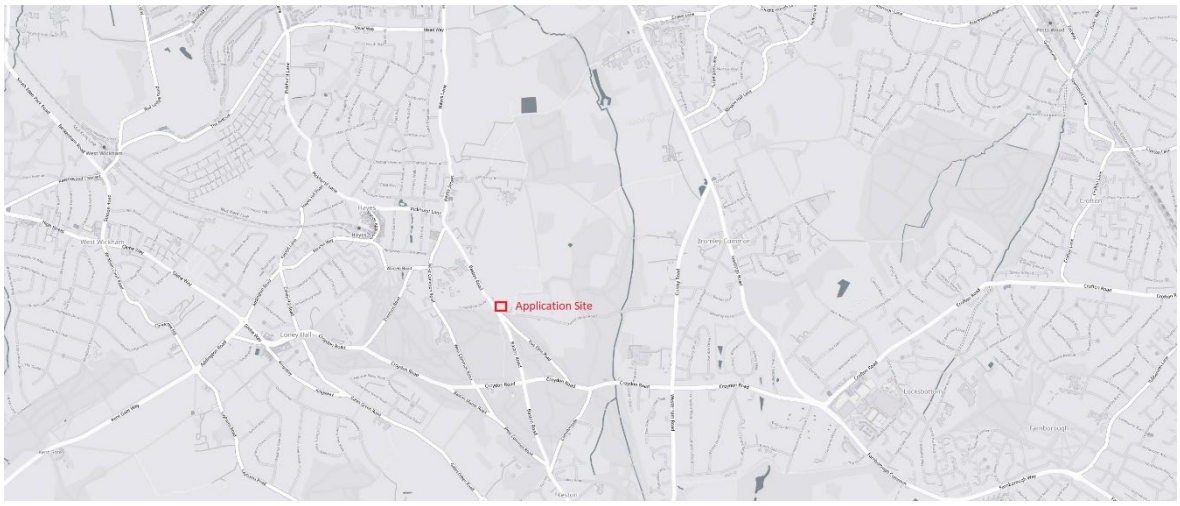
2.1.3 The application site sits to the northeast of Baston Road and is currently accessed from the public highway.

2.1.4 Baston Road forms a local distributor road being the B265 and, in this location, runs in a broadly North-westerly to South-westerly direction.

2.1.5 The B265 runs from the A222 at Bickley Park Cricket Club to the northeast and to the A233 Westerham Road roundabout to the southeast.

2.1.6 The total site area equates to approximately 5,360m², with Application 1 site area comprising 2,975 m² and Application 2 comprising 3,960m². A site location Plan can be seen as **Figure 1** below:

Figure1



2.1.7 The “Red Line” boundary of the application site overall and for the two separate applications can be seen as **Figure 2** below:

Figure 2

2.1.8 The site lies within a location characterised by a mix of private residential dwellings with local amenities and as such, falls within a prime location to support such a use.

2.1.9 The site has not been subject to any pertinent planning history in highways terms.

3. Existing Conditions

3.1 Local Highway Network

3.1.1 The application site is situated within the existing curtilage of no 133 Baston Road which itself fronts and is accessed from the public highway.

3.1.2 Baston Road forms a single carriageway two- lane highway of some 6.2m in width in proximity to the application site.

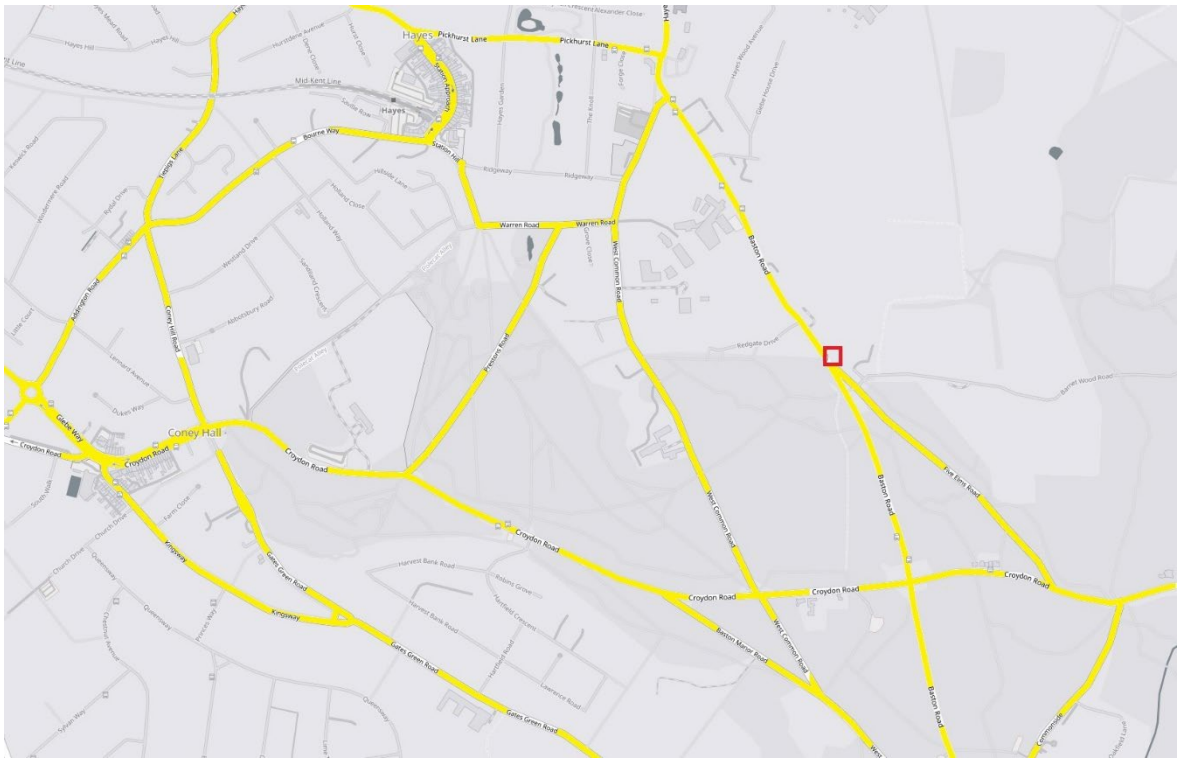
3.1.3 Baston Road in this location is street lit and is subject to a 30mph speed limit.

3.1.4 A footways is present on the application side flank of Baston Road being the northeastern flank which runs the entire length of Baston Road in proximity to the application site.

3.1.5 The application site lies approximately 572m tom the north of the A232 Croydon Road which forms part of the Transport for London Road Network (TLRN).

3.1.6 A plan depicting the local highway network can be found as **Figure 3** below:

Figure 3



3.2 Public Transport Appraisal and PTAL

3.2.1 The nearest bus stops are located approximately 44m and 97m away on Baston Road to the southeast known as “Five Elms (S) and (N) and as such lie well inside the maximum desirable walking distance to a bus stop of 400 metres as identified in the IHT document ‘Guidelines for Planning for Public Transport Development’.

3.2.2 Notwithstanding the threshold, paragraph 5.18 of the IHT document states that:

“It is more important to provide services that are easy for passengers to understand and attractive to use than to achieve slavish adherence to some arbitrary criteria for walking distance.”

3.2.3 Hayes Railway Stations are situated circa 1,287m walking route from the application site and as such lies just outside the 1000m preferred maximum walking distance as prescribed by the Institute of Highways and Transportation.

3.2.4 Hayes Railway Station forms the suburban terminus for the Hayes Line which runs between Hayes and south of Lewisham via Elmer’s End et al.

3.2.5 Typical off-peak services are provided at a rate of 4 trains per hour to London Charing cross, Ladywell, London Bridge and Lewisham.

3.2.6 The station sits within London’s Travelcard Zone 5.

3.2.7 Bus services accessed from the nearest stops at “Five Elms” constitute the 146 and 353 services. Full details of the service can be found in **Appendix A.**

3.2.8 The PTAL (Public Transport Accessibility Level) of the site is 1b. This is considered to be “Poor”. The full PTAL report can be found in **Appendix B**.

3.2.9 The first stage in PTAL calculation is to calculate the walking distance from the site (known as the point of interest (POI)) to the nearest bus stops and rail stations (where rail can be taken to also include London Underground, DLR and trams). These stops and stations are known as service access points (SAPs)'. Only SAPs within a certain distance of the POI are included (640m for bus stops and 960m for rail stations, which correspond to a walking time of 8 minutes and 12 minutes respectively at the standard assumed walking speed of 80m/min).

3.2.10 The next stage is to determine the service level during the morning peak (defined as 0815-0915) for each route serving a SAP. Where service levels differ in each

direction on a route, the highest frequency is taken. On railways, a route is generally defined as a service with a particular calling pattern - for example, services on the Piccadilly line from Hammersmith could be divided into two "routes": Cockfosters to Heathrow and Cockfosters to Uxbridge.

3.2.11 A total access time for each route is then calculated by adding together the walking time from the POI to the SAP and the average waiting time for services on the route (i.e. half the headway). This is converted to an equivalent doorstep frequency (EDF) by dividing 30 (minutes) by the total access time, which is intended to convert total access time to a "notional average waiting time, as though the route were available at the doorstep of the POI".

3.2.12 A weighting is applied to each route to simulate the enhanced reliability and attractiveness of a route with a higher frequency over other routes. For each mode (e.g. bus, Tube, DLR, tram, rail), the route with the highest frequency is given a weighting of 1.0, with all other routes in that mode weighed at 0.5.

3.2.13 Finally, the EDF and the weighting are multiplied to produce an accessibility index for each route, and the accessibility indices for all routes are summed to produce an overall accessibility index for the POI.

3.2.14 This accessibility index (AI) can then be converted to a PTAL grade (1-6) through a banding system (where AIs 0.00-5.00 are PTAL 1, 5.01-10.00 are PTAL 2, etc, up to PTAL 6 for scores of 25 and above).

3.2.15 It is clear from the appraisal that the development site is poorly served by public transport services, however, is completely typical for the nature of such an area.

3.3 Walking Appraisal

3.3.1 According to the Institute of Highways and Transportation (IHT), approximately 80% of walk journeys and walk stages in urban areas are less than one mile. The average length of a walk journey is one kilometre (0.6 miles). This differs little by age or sex and has remained constant since 1975/76. However, this varies according to location. The main factors that influence both walking distance and

walking time in a city or town centre appear to be the size of the city or town itself, and the shape and quality of the pedestrianised area.

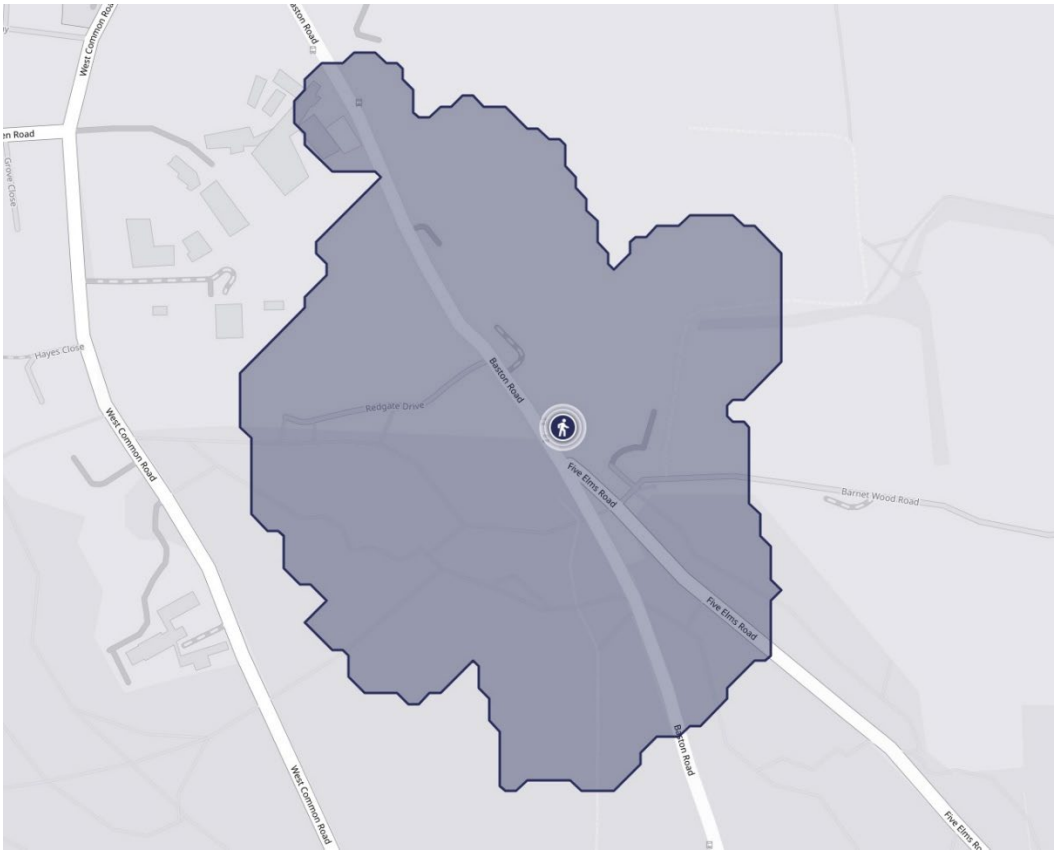
3.3.2 An average walking speed of 1.4m/s can be assumed, which equates to approximately 400m in 5 minutes or 3 miles per hour. The situation of people with mobility difficulties must be kept in mind when applying these figures.

3.3.3 This equates to an average mean of 1200m or a 15 minute walk, however, experience dictates that many walking distances can be much longer.

3.3.4 A distance of 1000m for a walking journey or stage is deemed as acceptable, with a preferred maximum of 2000m.

3.3.5 A full walking isochrones band can be seen in **Figure 4** below which illustrates the localities within an acceptable walking distance of the site.

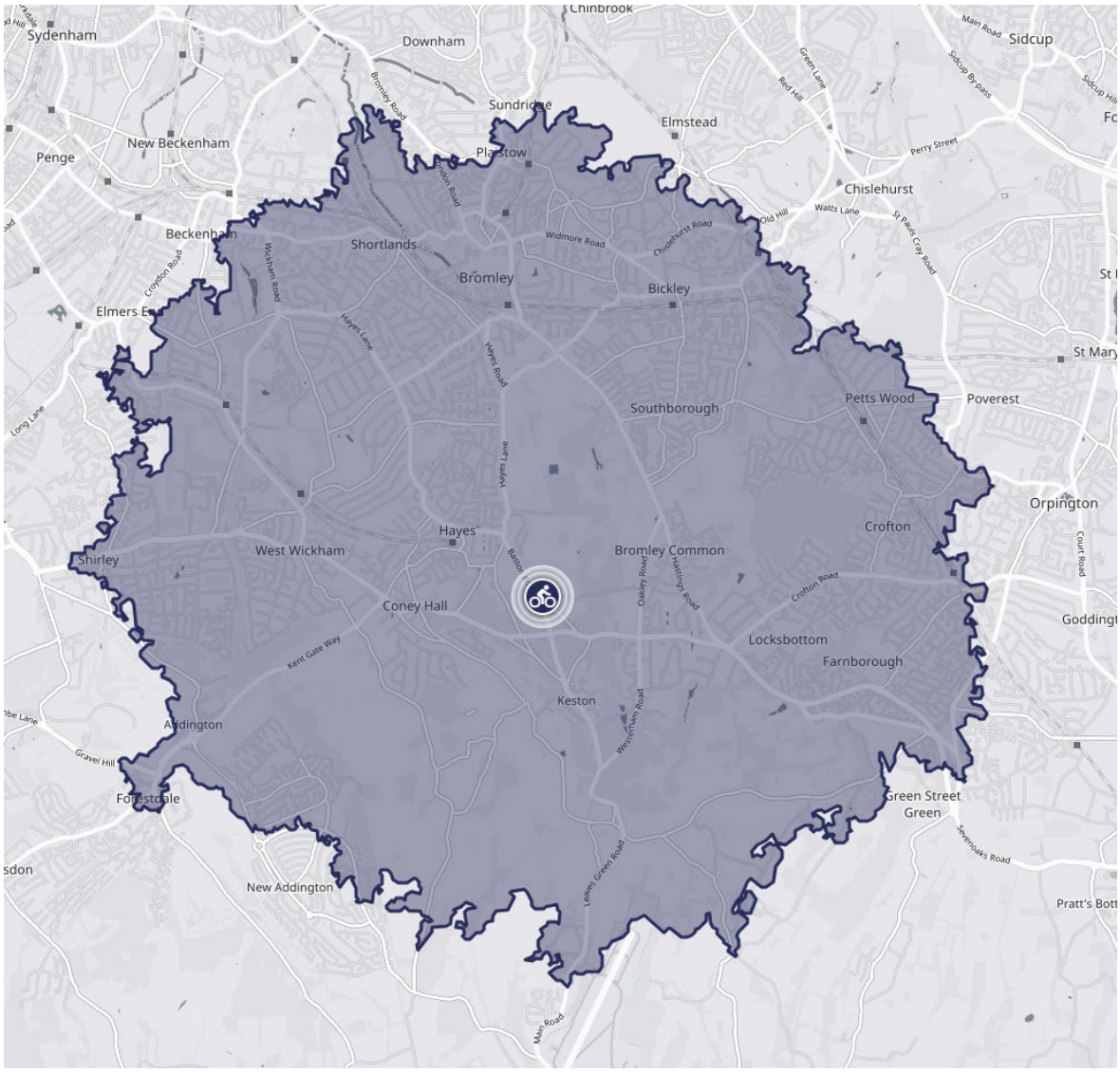
Figure 4



3.4 Cycling Appraisal

3.4.1 The considered acceptable cycling distance to new developments is regarded as being 4km, although many commuters travelling by bike will cycle much further distances than this, the Department for Transport (DFT) considers 4km as the acceptable distance. This equates to approximately a 20 minute journey **Figure 5** below illustrates the full cycling isochrones within an acceptable distance of the site.

Figure 5



4. National and Local Policy

4.1 National Policy

4.1.1 In 1998 the Government published a White Paper entitled 'A New Deal for Transport: Better for everyone'. Within this document, the Government set out its integrated transport policy to reduce the need to travel, to tackle congestion and pollution, and to support a strong economy, a sustainable environment, and a healthy and inclusive society.

4.1.2 As such, the Government is committed to developing an integrated transport policy for the various regional areas throughout the United Kingdom. There is a widely recognised need to reduce the dependence on the private car through encouraging the use of public transport.

4.1.3 In the context of transportation, there are a number of goals which are relevant to the consideration of the transport impact of the development proposal. These are:

- Making the best use of existing roads for all users;
- Reducing the number of accidents and improving safety on the road network;
- Restraining private car based commuting;
- Encouraging responsible car usage and promoting public transport, walking and cycling;
- Improving the road network to assist public transport services;
- Providing for the needs of the mobility impaired; and
- Improving the choice of transport available, especially for disabled people and those without a car.

4.1.4 All developments should be progressed with reference to the transport requirements of the National Planning Policy Framework (NPPF). The core document from a transport perspective is the NPPF, The NPPF states the same primary objective for sustainable methods of transport, namely;

- To promote more sustainable transport choices for people;
- To promote accessibility to jobs and services by public transport, walking and cycling; and
- To reduce the need to travel, especially by private car.

4.1.5 The National Planning Policy Framework (NPPF) sets out 12 core planning principles which include;

- to encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value;
- actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable;

4.1.6 The NPPF sets a strategy for promoting sustainable transport. It requires that decisions should take account of whether:

- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- safe and suitable access to the site can be achieved for all people; and;
- improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development.

"Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."

4.1.7 Developments should be located and designed where practical to;

- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;

- create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;

- consider the needs of people with disabilities by all modes of transport.

4.2 National Planning Practice Guidance (NPPG)

4.2.1 National Planning Practice Guidance (NPPG) is supplementary advice intended to expand on and support the principals and practices of the National Planning Policy Framework (NPPF). It is managed and maintained by the Department of Communities & Local Government. Amongst other things, NPPG provides advice on the need for, and the preparation of, Travel Plans, Transports Statements and Transport Assessments.

4.2.2 NPPG states that Travel Plans, Transport Assessments and Transport Statements can positively contribute to:

• encouraging sustainable travel;

• lessening traffic generation and its detrimental impacts;

• reducing carbon emissions and climate impacts;

• creating accessible, connected, inclusive communities;

• improving health outcomes and quality of life;

• improving road safety; and

• reducing the need for new development to increase existing road capacity or provide new roads.

4.2.3 NPPG advises that the key transport issues to be considered in a transport evidence base should:

• assess the existing situation and likely generation of trips over time by all modes and the impact on the locality in economic, social and environmental terms; and

• consider the cumulative impacts of existing and proposed development on transport networks.

4.3 Manual for Streets/Manual for Streets 2

4.3.1 MfS and MfS2 was published in 2007 and 2010 and are referred to throughout the report.

4.3.2 The purpose of MfS was to help rebalance the function of residential streets which had on many occasions resulted in places that were dominated by motor vehicles, which failed to make a positive contribution to the quality of life. MfS demonstrates the benefits that flow from good design and assigns a higher priority to pedestrians and cyclists, setting out an approach to residential streets that recognises their role in creating places that work for all members of the community. MfS refocuses on the place function of residential streets, giving clear guidance on how to achieve well designed streets and spaces that serve the community in a range of ways

4.3.3 The 'Department for Transport' and 'Department for Communities and Local Government' support the guidance provided in the manuals, though importantly, they do not outline any new policies or legal requirements.

4.3.4 Some of the key aims for streets in the introduction, are as follows:

• help build and strengthen the communities they serve;

• meet the needs of all;

• form part of a well-connected network;

4.3.5 It also discourages designs that:

• primarily meet motor traffic needs;

• are difficult to serve by public transport.

4.3.6 MfS 2 applies the same principles to a wider variety of situations including both rural and urban. Both aim to deliver contextually sensitive designs, which involves

understanding the unique landscape and role of individual modes of transport in the area.

4.4 The London Plan (2021)

4.4.1 In 2008, it was determined that a replacement London Plan should be produced and subsequently a Draft London Plan was prepared for public consultation. Following an Examination in Public (EIP), the London Plan 2011 was published in July 2011. Further alterations to the London Plan (FALP) were published on March 2015. The Mayor's Vision and Objectives for London are set out in Chapter 1 and include the City being made up of diverse, strong, secure and accessible neighbourhoods where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities.

4.4.2 The new London Plan 2021 was adopted on 2 March, four years after its first inception.

4.4.3 The new London Plan (which is the third since it was first published in 2004) was formally published and adopted on 2 March 2021. It comes at a pivotal and challenging time for London as it seeks to establish a new post-Brexit identity and maintain its global position, whilst emerging from the embers of the Covid pandemic.

4.4.4 The new London Plan has the challenge of delivering growth in a constrained city for a population projected to increase by 70,000 each year, reaching 10.4m by end of the Plan's term in 2041. It intends to do this with an overarching objective of 'Good Growth' that is 'socially and economically inclusive and environmentally sustainable' and by being 'more ambitious and focussed than any previous London Plan'.

4.4.5 Given its importance and status, the draft policies were closely scrutinised during a five-month Examination in Public in 2019. The first Intend to Publish version of the new Plan was submitted to the Secretary of State for approval in December 2019.

4.4.6 Policy T6.1 states:

New residential development should not exceed the maximum parking standards set out in Table 10.3. These standards are a hierarchy with the more restrictive standard applying when a site falls into more than one category.

B - Parking spaces within communal car parking facilities (including basements) should be leased rather than sold.

C - All residential car parking spaces must provide infrastructure for electric or Ultra-Low Emission vehicles. At least 20 per cent of spaces should have active charging facilities, with passive provision for all remaining spaces.

D - Outside of the CAZ, and to cater for infrequent trips, car club spaces may be considered appropriate in lieu of private parking. Any car club spaces should have active charging facilities.

E - Large-scale purpose-built shared living, student accommodation and other sui generis residential uses should be car-free.

F - The provision of car parking should not be a reason for reducing the level of affordable housing in a proposed development.

G - Disabled persons parking should be provided for new residential developments.

Table 1 (Table 10.3 - Maximum Residential Parking Standards)

Location	Number of Beds	Maximum Parking Provision
Central Activities Zone Inner London Opportunity Areas Metropolitan and Major Town Centres All areas of PTAL 5 – 6 Inner London PTAL 4	All	Car free~
Inner London PTAL 3	All	Up to 0.25 spaces per dwelling
Inner London PTAL 2 Outer London Opportunity Areas	All	Up to 0.5 spaces per dwelling
Inner London PTAL 0 – 1	All	Up to 0.75 spaces per dwelling
Outer London PTAL 4	1-2	Up to 0.5 - 0.75 spaces per dwelling+

Outer London PTAL 4	3+	Up to 0.5 - 0.75 spaces per dwelling+
Outer London PTAL 2 – 3	1-2	Up to 0.75 spaces per dwelling
Outer London PTAL 2 – 3	3+	Up to 1 space per dwelling
Outer London PTAL 0 – 1	1-2	Up to 1.5 space per dwelling
Outer London PTAL 0 – 1	3+	Up to 1.5 spaces per dwelling^

4.5 Mayor's Transport Strategy (2018)

4.5.1 The Mayor's Transport Strategy, published March 2018, sets the target for 'all trips in London to be made on foot, by cycle or using public transport by 2041', to be delivered through the policies set out within the London Plan.

4.5.2 This target is emphasised in Policy 5 which states:

'The Mayor, through TfL and the boroughs, and working with stakeholders, will prioritise space efficient modes of transport to tackle congestion and improve the efficiency of streets for the movement of people and goods, with the aim of reducing overall traffic levels by 10-15 per cent by 2041.'

4.6 Bromley Local Plan (2019)

4.6.1 Bromley's Local Plan was adopted on the 16th of January 2019. The Local Plan sets out the planning policies, site allocations and land designations Borough-wide and is the central document in the Borough's Development Plan.

4.6.2 The document states that "The Council's decisions on planning applications should be taken in line with its development plan unless there are significant matters (material considerations) which indicate otherwise."

4.6.3 One of Bromley's primary visions in relation to resident's health and wellbeing is to produce healthier environments and infrastructure to support people in living fuller,

longer, healthier and more sustainable lives. Specifically, in relation to transport, the transport objectives listed are:

- Reduce road congestion at peak times through better management of the network and encouraging patterns of development that reduce the need to travel and by improving road junctions and layouts whenever and wherever possible
- Support improvements to public transport links, including associated parking, and facilitate environments that encourage walking and cycling.
- Locate major developments where they can maximise the use of public transport.
- Ensure new developments include electric charging points, cycling facilities such as dedicated cycle routes, and car clubs where appropriate, increasing choice for local people.
- Ensure streets are safe, accessible and uncluttered, improve road safety and reduce air and noise pollution from traffic.
- Ensure the efficient movement of freight, whilst minimising its impacts on the transport network.
- Secure investment in critical public transport infrastructure to improve transport connectivity and orbital movements to East London.

4.6.4 At Section 4, the document sets out the planning policies to deliver the transport objectives listed above. Policy 30 sets out the car parking standards of the borough, after stating "The Council will normally require off-street parking spaces to be provided in new residential development…". It continues, "Where parking pressures are identified at and around key public transport interchanges, new parking proposals will be supported on the basis that they do not undermine policies to encourage walking, cycling and public transport use.

4.6.5 The supporting text for Policy 31 – Relieving Congestion includes:

"Development proposals that are likely to have significant transport implications will be assessed for their impact on all modes of travel. The assessment should reflect the scale and likely impact of the development and propose appropriate measures to improve access by public transport, walking, and cycling in order to reduce the need for car-based trips and parking".

4.6.6 Policy 32 Road Safety states that “the Council will consider the potential impact of any development on road safety and will ensure that it is not significantly adversely affected.” The supporting text continues “Where a proposed is situated in a location with an existing road safety problem, the applicant would be expected to fund any necessary mitigation to resolve the difficulty as far as possible.

5. Proposed Development

5.1 Development Description

5.1.1 Outline Planning approval is sought for:

5.1.2 Application 1

"Demolition of the existing detached house, swimming pool, tennis courts and outbuildings and the erection of 2 detached single storey dwellings with car barns and parking".

5.1.3 Application 2

"Demolition of the existing detached house and the erection of 3 detached houses with parking"

5.1.4 The site layout plans for both applications and overall site layout can be seen as **Appendix C**.

5.2 Proposed Access Strategy & Internal Site Layout

5.2.1 Both applications intend to utilise the same vehicular access strategy.

5.2.2 The proposed development(s) are to be accessed via utilisation of part of the existing ingress/egress accessway that serves the site.

5.2.3 Currently, the site forms an in/out arrangement with ingress being taken from the northern access and egress from the southern access.

5.2.4 The existing access arrangement also provides for a right of access to the adjacent school which is to be maintained.

5.2.5 The proposal involves the part stopping up of the existing northern access and to replace the vehicular access with a segregated pedestrian entrance that will serve

both the application development(s) and importantly maintain the existing right of way to the adjacent school.

5.2.6 The existing northern access suffers from sub-standard visibility and as such could not be utilised for uncontrolled egress.

5.2.7 The existing southern access will then be upgraded and formalised but maintained as the sole point of vehicular access to the site.

5.2.8 Upgrading and formalisation will involve the construction of formalised junction radii and localised widening and landscaping.

5.2.9 The proposed access would require minor amendment which would be designed within a subsequent S.278 Minor Highway Works submission.

5.2.10 Internally to the site, both applications would create a new access road forming cul-de-sacs with Application 1 forming driveway and car barn parking spaces and Application 2 retaining car parking for no's 121-131 Baston Road and driveway frontage parking for the proposed 3 detached houses.

5.2.11 A full suite of vehicle tracking swept path analysis and vehicular visibility splay drawings demonstrating the suitability of the access and internal manoeuvring areas can be found as **Appendix D.**

5.3 Refuse Collection and Servicing

5.3.1 Refuse collection and delivery can be accommodated internally within the site and details regarding refuse collection, delivery and servicing can be found additionally within **Appendix D**.

5.4 Cycle Parking Provision

5.4.1 Each dwelling would be provided with a minimum of 2 cycle parking spaces and these are to be located in a dedicated safe, secure, and convenient cycle stores located within the rear gardens/private amenity space of each dwelling. The details of which would be expected to be secured by appropriate condition.

5.4.2 The level of provision is fully in line with the adopted minimum standards as prescribed within the London Plan 2021.

5.5 Car Parking Provision

5.5.1 The development schedule consists of 2 x 3-bed dwellings (Application 1) and 3 x 5-bed dwellings (Application 2).

5.5.2 For application 1 both plots are provided with 2 parking spaces each consisting of 1 x frontage driveway space and 1 x car barn space.

5.5.3 For application 2, Plots 1 & 2 are provided with 2 x frontage driveway spaces each and Plot 3 is provided with 1 x frontage driveway.

5.5.4 Parking within the site is also retained for no's 121-131 Baston Road

5.5.5 In total for the newly proposed dwellings sees an overall provision of 9 parking spaces.

5.5.6 Current London Plan Parking Standards state the following maximum parking:

Outer London PTAL 0 – 1	1-2	Up to 1.5 space per dwelling
Outer London PTAL 0 – 1	3+	Up to 1.5 spaces per dwelling

5.5.7 The level of parking provision is considered to accord fully with the adopted standards as prescribed within the London Plan.

5.6 Construction and Logistics Plan

5.6.1 In line with validation requirements a Framework Construction Logistics Plan is provided in association with the application.

5.6.2 The Associated Construction Logistics Plan cab be found in **Appendix E.**

6. Development Traffic Generation

6.1.1 Whilst this Transport Statement covers 2 separate applications, for additional robustness, the assessment of traffic generation treats the site as one overall development proposal and makes no account of the existing large residential dwelling and as such treats the existing site as vacant in traffic impact terms.

6.1.2 For developments consisting of a limited number of residential dwellings in such a location as Bromley, it is not appropriate to make use of the TRICS database alone in order to determine an appropriate dataset, but to utilise the accepted National Travel Survey (NTS)

6.1.3 The most recent NTS with full data results undertaken in 2016 determined that for residential dwellings the typical trip rates are broken down as follows:

TABLE 2: NTS Journey Purpose Split

Journey Purpose	0800-0900	1700-1800
Commuting and Business	28%	39%
Education/Escort Education	47%	3%
Shopping	5%	12%
Personal Business	14%	20%
Leisure	6%	26%

6.1.4 Typical expected trip rates per household are as follows:

TABLE 3: NTS dwelling Trip Rates

	Arrivals	Departures	Totals
AM Peak 0800-0900	0.285	0.982	1.267
PM Peak 1700-1800	0.660	0.403	1.603

6.1.5 The above trip rates are dwelling trip rates, so taking an extremely robust position assumption that 100% of all person trips are made by individual private vehicle the following vehicular traffic generation would be seen:

TABLE 4: Development Traffic Generation (NTS)

	Arrivals	Departures	Totals
AM Peak 0800-0900	1	5	6
PM Peak 1700-1800	3	2	5

6.1.6 Clearly, the above assumption and estimations are extremely robust and assume that all trips would be made via private vehicle which would not be the case in reality.

6.1.7 Notwithstanding the extremely robust assessment, the above vehicular trip rates are at a level as to be classed as immaterial in traffic impact terms.

6.1.8 The following tables provide the relevant TRICS data and its application to the proposed development. The full TRICS data utilised is provided within **Appendix F.**

6.1.9 As discussed within the Transport Statement use of the NTS is considered extremely robust and the following TRICS data confirms this to be the case.

6.1.10 TRICS interrogation has eliminated all sites outside of Greater London and all sites above a PTAL rating of “Poor” and also eliminates any town centre sites. The data is therefore considered fully representative. It should also be noted that the PM peak hour as identified from TRICS falls outside of the traditional network peak hour.

6.1.11 The data in the following tables is therefore provided as a relevant sensitivity test against the NTS data.

TABLE 5: TRICS Dwelling Trip Rates

	Arrivals	Departures	Totals
AM Peak 0800-0900	0.186	0.266	0.452
PM Peak 1500-1600	0.186	0.186	0.372

6.1.12 Applying the above trip rates to the proposed development results in the following traffic Generation:

TABLE 6: TRICS Traffic Generation

	Arrivals	Departures	Totals
AM Peak 0800-0900	1	1	2
PM Peak 1900-2000	1	1	2

6.1.13 Following interrogation of the TRICS Database a multimodal trip rates assessment has been identified. For robustness the busiest hour periods have been selected:

TABLE 7: Multimodal Split

Mode	Arrivals	Departures	Trips (Two-Way)
Taxi	0.011	0.011	1
Cyclists	0.023	0.023	1
Pedestrians	0.289	0.331	5
Bus/Tram	0.125	0.095	2
Rail	0.008	0.004	1
All Modes			**10**

6.1.14 5-6 vehicular movements occurring at the site access during the busiest peak hour is immaterial when assessed either in isolation or against the existing background traffic flows on Baston Road or the wider local highway network.

7. Summary and Conclusions

7.1.1 This Transport Statement has been prepared by Sarnlea Consulting Engineers on behalf of South East Living in order to support a forthcoming outline planning application at no 133 Baston Road, Bromley, BR2 7AB

7.1.2 This Transport Statement forms a hybrid document supporting two applications.

7.1.3 Application 1 – Outline Planning approval is sought for:

"Demolition of the existing detached house, swimming pool, tennis courts and outbuildings and the erection of 2 detached single storey dwellings with car barns and parking".

7.1.4 Application 2 – Outline Planning approval is sought for:

"Demolition of the existing detached house and the erection of 3 detached houses with parking"

7.1.5 The Transport Statement has considered the transport implications of the development proposals and the conclusions of the report are as follows:

- The development proposals have been formulated in accordance with both local and national policy to which the proposal accords well;
- The proposals have been assessed in terms of accessibility by non-car borne modes and the level of accessibility is adequate and in accordance with developments of this type and scale;
- The likely level of traffic has been obtained from an interrogation of the National Travel Survey incorporating the TRICS database. The assessment has found that the developments will generate a level of traffic that is immaterial in terms of highway safety and efficiency;
- The level of proposed parking provision is sufficient for the developments' needs;
- The internal site layouts are suitable and fit for purpose in terms of both highway safety and highway efficiency; and

- The details regarding refuse collection have been assessed as being acceptable.

Appendices

Appendix A

146 Downe – Keston – Bromley

146	Mondays to Fridays															
Downe Village *St Mary's Church*	0644	0750	0900	1000	1100	1200	1300	1400	1500	1605	1710	1815	1920	2020	2120	2220	2320
Keston *Church*	0648	0756	0905	1005	1105	1205	1305	1405	1505	1610	1715	1820	1925	2025	2125	2225	2325
Keston *Fox*	0651	0759	0908	1008	1108	1208	1308	1408	1508	1613	1718	1823	1928	2028	2128	2228	2328
Hayes *George*	0656	0804	0913	1012	1112	1212	1312	1412	1513	1618	1723	1827	1932	2032	2131	2231	2331
Bromley South Station	0704	0814	0922	1020	1120	1220	1320	1420	1522	1627	1732	1836	1939	2038	2137	2237	2337
Bromley North Station	0709	0819	0927	1027	1127	1227	1327	1427	1529	1634	1739	1842	1945	2043	2142	2242	2342
146	**Saturdays (also Good Friday)**															
Downe Village *St Mary's Church*	0655	0755	0855	1000	1105	1210	1315	1418	1520	1620	1720	1820	1920	2020	2120	2220	2320
Keston *Church*	0659	0800	0900	1005	1110	1215	1320	1423	1525	1625	1725	1825	1925	2025	2125	2225	2325
Keston *Fox*	0702	0803	0903	1008	1113	1218	1323	1426	1528	1628	1728	1828	1928	2028	2128	2228	2328
Hayes *George*	0705	0806	0907	1012	1117	1222	1327	1430	1532	1632	1732	1832	1932	2032	2131	2231	2331
Bromley South Station	0711	0812	0914	1020	1126	1231	1336	1439	1540	1640	1740	1839	1938	2038	2137	2237	2337
Bromley North Station	0716	0818	0920	1027	1134	1239	1343	1445	1545	1645	1745	1845	1943	2043	2142	2242	2342
146	**Sundays and other Public Holidays (except Christmas Day)**															
Downe Village *St Mary's Church*	1000	1100	1205	1310	1415	1520	1620	1720	1820	1920	2020	2120	2220	2320		
Keston *Church*	1005	1105	1210	1315	1420	1525	1625	1725	1825	1925	2025	2125	2225	2325		
Keston *Fox*	1008	1108	1213	1318	1423	1528	1628	1728	1828	1928	2028	2128	2228	2328		
Hayes *George*	1012	1112	1217	1322	1427	1532	1632	1732	1832	1932	2031	2131	2231	2331		
Bromley South Station	1019	1120	1225	1330	1435	1539	1639	1739	1839	1938	2037	2137	2237	2337		
Bromley North Station	1025	1127	1232	1337	1442	1545	1645	1744	1844	1943	2042	2142	2242	2342		

146 Bromley – Keston – Downe

146	Mondays to Fridays															
Bromley North Station	0716	0825	0933	1033	1133	1233	1333	1433	1536	1641	1746	1851	1951	2051	2151	2251	2351
Bromley South Station	0721	0830	0937	1037	1137	1237	1337	1437	1541	1646	1751	1856	1955	2055	2155	2255	2354
Hayes *George*	0728	0838	0944	1044	1144	1244	1344	1444	1549	1654	1759	1903	2001	2100	2200	2300	2359
Keston *Fox*	0733	0843	0948	1048	1148	1248	1348	1448	1553	1658	1803	1907	2005	2104	2204	2304	0002
Keston *Church*	0736	0846	0951	1051	1151	1251	1351	1451	1556	1701	1806	1910	2008	2107	2207	2307	0005
Downe Village *St Mary's Church*	0740	0850	0955	1055	1155	1255	1355	1455	1600	1705	1810	1914	2012	2111	2211	2311	0009
146	**Saturdays (also Good Friday)**															
Bromley North Station	0726	0826	0931	1036	1140	1245	1349	1451	1551	1651	1751	1851	1951	2051	2151	2251	2351
Bromley South Station	0730	0830	0936	1041	1146	1251	1355	1457	1557	1657	1756	1856	1955	2055	2155	2255	2354
Hayes *George*	0736	0836	0942	1048	1153	1258	1402	1504	1604	1704	1803	1902	2001	2100	2200	2300	2359
Keston *Fox*	0740	0840	0946	1053	1158	1303	1406	1508	1608	1708	1807	1906	2005	2104	2204	2304	0002
Keston *Church*	0743	0843	0949	1056	1201	1306	1409	1511	1611	1711	1810	1909	2008	2107	2207	2307	0005
Downe Village *St Mary's Church*	0747	0847	0953	1100	1205	1310	1413	1515	1615	1715	1814	1913	2012	2111	2211	2311	0009
146	**Sundays and other Public Holidays (except Christmas Day)**															
Bromley North Station	0931	1031	1136	1241	1346	1451	1551	1651	1751	1851	1951	2051	2151	2251	2351		
Bromley South Station	0935	1035	1141	1246	1351	1456	1556	1656	1755	1855	1955	2055	2155	2255	2354		
Hayes *George*	0941	1041	1147	1252	1357	1502	1602	1702	1801	1901	2001	2100	2200	2300	2359		
Keston *Fox*	0945	1045	1152	1257	1402	1506	1606	1706	1805	1905	2005	2104	2204	2304	0002		
Keston *Church*	0948	1048	1155	1300	1405	1509	1609	1709	1808	1908	2008	2107	2207	2307	0005		
Downe Village *St Mary's Church*	0953	1053	1200	1305	1410	1514	1614	1713	1812	1912	2012	2111	2211	2311	0009		

353 Ramsden – Hayes – Forestdale

353	Mondays to Fridays																			
Ramsden Estate *Rye Crescent*	0530	0557	0618	0634	0650	0706	0722	0741	0803	0824	0844	0904	0924	0945				1145	1205
Orpington *Pond*	0536	0603	0626	0642	0658	0714	0730	0749	0811	0832	0852	0912	0932	0952				1152	1212
Orpington *War Memorial (High Street,*	0539	0606	0629	0646	0702	0718	0734	0753	0815	0836	0856	0917	0937	0957				1157	1217
Orpington Station *Crofton Road*	0542	0609	0632	0650	0707	0724	0742	0801	0822	0843	0902	0922	0942	1002	*Then*			1202	1222
Locksbottom *St Michael's Church*	0546	0614	0638	0656	0714	0732	0751	0810	0830	0850	0909	0929	0949	1008	*every 20*			1208	1229
Keston Mark *The Keston Mark*	0548	0616	0641	0659	0718	0738	0758	0818	0836	0855	0913	0932	0952	1011	*minutes*			1211	1232
Hayes Station	0553	0622	0649	0707	0727	0747	0807	0827	0845	0903	0921	0940	1000	1018	*until*			1218	1239
Coney Hall *Addington Road*	0555	0624	0652	0710	0730	0750	0810	0830	0848	0906	0924	0943	1003	1021				1221	1242
Addington Village *Interchange*	0601	0631	0701	0722	0744	0803	0821	0839	0857	0914	0932	0951	1011	1029				1229	1250
Forestdale *Courtwood Lane/Markfield*	0606	0636	0706	0727	0749	0808	0826	0844	0902	0919	0937	0956	1016	1034				1234	1255
Ramsden Estate *Rye Crescent*	1225	1245	1305	1325	1344	1400	1420	1436	1452	1512	1532	1552	1612	1632	1652	1712	1732	1752		
Orpington *Pond*	1232	1252	1312	1332	1351	1407	1427	1443	1502	1521	1541	1600	1620	1639	1659	1719	1739	1759		
Orpington *War Memorial (High Street,*	1237	1257	1317	1337	1356	1412	1432	1448	1507	1526	1546	1605	1625	1644	1704	1724	1743	1803		
Orpington Station *Crofton Road*	1242	1302	1322	1342	1401	1417	1437	1454	1513	1533	1553	1612	1632	1651	1711	1731	1750	1809		
Locksbottom *St Michael's Church*	1249	1309	1329	1349	1408	1424	1444	1501	1521	1541	1601	1620	1640	1659	1719	1739	1758	1817		
Keston Mark *The Keston Mark*	1252	1312	1332	1352	1411	1427	1447	1505	1525	1545	1605	1624	1644	1703	1723	1742	1801	1820		
Hayes Station	1259	1319	1339	1359	1418	1435	1455	1515	1535	1554	1614	1633	1652	1711	1731	1750	1809	1828		
Coney Hall *Addington Road*	1302	1322	1342	1402	1421	1438	1458	1519	1539	1558	1618	1637	1656	1715	1735	1754	1813	1831		
Addington Village *Interchange*	1310	1330	1350	1410	1429	1447	1507	1529	1550	1609	1629	1649	1708	1727	1747	1806	1825	1842		
Forestdale *Courtwood Lane/Markfield*	1315	1335	1355	1415	1435	1453	1513	1536	1557	1615	1635	1655	1714	1733	1753	1812	1831	1848		
Ramsden Estate *Rye Crescent*	1812	1832	1852	1912	1932	1957	2022	2047	2112	2139	2209	2239	2309	2339						
Orpington *Pond*	1819	1839	1859	1918	1938	2003	2028	2052	2117	2144	2214	2244	2314	2344						
Orpington *War Memorial (High Street,*	1823	1843	1903	1922	1942	2006	2031	2055	2120	2147	2217	2247	2316	2346						
Orpington Station *Crofton Road*	1829	1849	1909	1927	1947	2010	2034	2058	2123	2150	2220	2249	2318	2348						
Locksbottom *St Michael's Church*	1836	1856	1916	1934	1953	2016	2039	2103	2128	2155	2225	2254	2323	2353						
Keston Mark *The Keston Mark*	1839	1859	1919	1937	1956	2018	2041	2105	2130	2157	2227	2256	2325	2355						
Hayes Station	1847	1906	1926	1944	2002	2024	2047	2110	2135	2202	2232	2301	2330	0000						
Coney Hall *Addington Road*	1850	1909	1929	1947	2005	2027	2050	2112	2137	2204	2234	2303	2332	0002						
Addington Village *Interchange*	1859	1918	1937	1955	2013	2035	2057	2119	2144	2211	2240	2309	2338	0008						
Forestdale *Courtwood Lane/Markfield*	1905	1924	1943	2001	2018	2040	2102	2123	2148	2215	2244	2313	2342	0012						

353	Saturdays (also Good Friday)																			
Ramsden Estate *Rye Crescent*	0530	0605	0635	0705	0735	0805	0825	0845	0903	0922	0942	1000	1018	1038	1058	1118	1138	1158		
Orpington *Pond*	0536	0611	0641	0711	0741	0811	0831	0851	0909	0928	0948	1007	1026	1046	1106	1126	1145	1205		
Orpington *War Memorial (High Street,*	0539	0614	0644	0714	0744	0814	0834	0855	0913	0932	0952	1011	1031	1051	1111	1131	1151	1212		
Orpington Station *Crofton Road*	0542	0617	0647	0717	0747	0817	0837	0858	0917	0936	0956	1016	1036	1056	1116	1137	1157	1218		
Locksbottom *St Michael's Church*	0546	0621	0652	0722	0752	0822	0842	0903	0923	0942	1002	1022	1042	1102	1123	1144	1204	1225		
Keston Mark *The Keston Mark*	0548	0623	0654	0724	0754	0824	0844	0905	0925	0945	1005	1025	1045	1105	1126	1147	1207	1228		
Hayes Station	0553	0628	0659	0730	0800	0830	0850	0912	0932	0952	1012	1032	1052	1112	1134	1155	1215	1236		
Coney Hall *Addington Road*	0555	0630	0701	0732	0802	0832	0853	0915	0935	0955	1015	1035	1055	1115	1137	1158	1218	1239		
Addington Village *Interchange*	0601	0637	0708	0739	0809	0839	0901	0923	0943	1003	1024	1045	1105	1125	1147	1208	1228	1248		
Forestdale *Courtwood Lane/Markfield*	0605	0641	0712	0743	0814	0844	0906	0928	0948	1008	1029	1050	1110	1131	1153	1214	1234	1254		
Ramsden Estate *Rye Crescent*	1218	1238	1258	1318	1338	1358	1418	1438	1458	1518	1538	1558	1619	1639	1659	1719	1739	1759		
Orpington *Pond*	1225	1245	1305	1325	1345	1405	1425	1445	1505	1525	1545	1605	1625	1645	1705	1725	1745	1805		
Orpington *War Memorial (High Street,*	1232	1251	1311	1331	1350	1410	1430	1450	1510	1530	1550	1610	1630	1650	1710	1730	1749	1809		
Orpington Station *Crofton Road*	1238	1257	1317	1337	1356	1416	1436	1456	1516	1536	1556	1616	1636	1656	1716	1735	1754	1814		
Locksbottom *St Michael's Church*	1245	1304	1324	1344	1403	1423	1443	1503	1523	1543	1603	1623	1642	1702	1722	1741	1800	1820		
Keston Mark *The Keston Mark*	1248	1307	1327	1347	1406	1426	1446	1506	1526	1546	1606	1626	1645	1705	1725	1744	1803	1823		
Hayes Station	1256	1315	1335	1355	1414	1434	1454	1513	1533	1553	1613	1633	1652	1712	1732	1751	1810	1830		
Coney Hall *Addington Road*	1259	1318	1338	1358	1417	1437	1457	1516	1536	1556	1616	1636	1655	1715	1735	1754	1813	1833		
Addington Village *Interchange*	1308	1327	1347	1407	1426	1446	1506	1525	1545	1605	1625	1644	1703	1723	1743	1802	1821	1841		
Forestdale *Courtwood Lane/Markfield*	1314	1333	1353	1413	1432	1452	1512	1531	1551	1611	1631	1650	1709	1729	1749	1808	1827	1847		
Ramsden Estate *Rye Crescent*	1819	1839	1859	1919	1944	2016	2046	2116	2145	2214	2242	2310	2339							
Orpington *Pond*	1825	1845	1905	1925	1950	2022	2051	2121	2150	2219	2247	2315	2344							
Orpington *War Memorial (High Street,*	1829	1849	1909	1929	1954	2026	2054	2124	2153	2222	2250	2318	2347							
Orpington Station *Crofton Road*	1834	1854	1913	1933	1957	2029	2057	2127	2156	2225	2253	2321	2349							
Locksbottom *St Michael's Church*	1840	1900	1919	1939	2003	2034	2102	2132	2201	2230	2258	2326	2354							
Keston Mark *The Keston Mark*	1843	1903	1922	1942	2006	2036	2104	2134	2203	2232	2300	2328	2356							
Hayes Station	1850	1909	1928	1948	2012	2042	2110	2140	2209	2238	2305	2333	0001							
Coney Hall *Addington Road*	1853	1911	1930	1950	2014	2044	2112	2142	2211	2240	2307	2335	0003							
Addington Village *Interchange*	1901	1919	1938	1957	2021	2051	2119	2149	2218	2247	2313	2341	0009							
Forestdale *Courtwood Lane/Markfield*	1907	1925	1943	2002	2026	2056	2124	2154	2223	2252	2318	2345	0013							

353	Sundays and other Public Holidays (except Christmas Day)																		
Ramsden Estate *Rye Crescent*	0600	0630	0700	0730	0800	0830	0900	0930	0959	1028	1058	1128	1158	1227	1257	1327	1357	1427
Orpington *Pond*	0605	0635	0705	0735	0805	0835	0906	0936	1005	1035	1105	1135	1205	1234	1304	1334	1404	1433
Orpington *War Memorial (High Street,*	0608	0638	0708	0738	0808	0838	0909	0940	1009	1039	1109	1139	1209	1239	1309	1339	1409	1438
Orpington Station *Crofton Road*	0611	0641	0711	0741	0811	0841	0912	0944	1013	1043	1113	1143	1214	1244	1314	1344	1414	1442
Locksbottom *St Michael's Church*	0615	0645	0716	0746	0816	0846	0917	0950	1019	1049	1119	1149	1220	1250	1320	1350	1420	1448
Keston Mark *The Keston Mark*	0617	0647	0718	0748	0818	0848	0919	0952	1021	1051	1121	1152	1223	1253	1323	1353	1423	1451
Hayes Station	0622	0652	0723	0753	0824	0854	0925	0958	1028	1058	1128	1159	1230	1300	1330	1400	1429	1457
Coney Hall *Addington Road*	0624	0654	0725	0755	0826	0857	0928	1001	1031	1101	1131	1202	1233	1303	1333	1403	1432	1500
Addington Village *Interchange*	0630	0700	0731	0802	0833	0905	0936	1009	1039	1109	1139	1210	1241	1311	1341	1411	1439	1507
Forestdale *Courtwood Lane/Markfield*	0634	0705	0736	0807	0838	0910	0941	1014	1044	1114	1144	1215	1246	1316	1346	1416	1444	1512
Ramsden Estate *Rye Crescent*	1457	1527	1557	1627	1657	1727	1757	1820	1844	1911	1941	2011	2040	2110	2140	2209	2239	2309
Orpington *Pond*	1503	1533	1603	1633	1703	1733	1803	1826	1850	1917	1947	2017	2045	2115	2145	2214	2244	2314
Orpington *War Memorial (High Street,*	1508	1538	1608	1637	1707	1737	1807	1830	1854	1920	1950	2020	2048	2118	2148	2217	2247	2316
Orpington Station *Crofton Road*	1512	1542	1612	1641	1711	1741	1811	1834	1858	1923	1953	2023	2050	2120	2150	2219	2249	2318
Locksbottom *St Michael's Church*	1518	1548	1618	1646	1716	1746	1816	1839	1903	1928	1958	2028	2055	2125	2155	2224	2254	2322
Keston Mark *The Keston Mark*	1521	1551	1621	1649	1719	1748	1818	1841	1905	1930	2000	2030	2057	2127	2157	2226	2256	2324
Hayes Station	1527	1557	1627	1655	1725	1754	1824	1847	1911	1936	2006	2036	2102	2132	2202	2231	2301	2329
Coney Hall *Addington Road*	1530	1600	1630	1658	1728	1757	1827	1850	1913	1938	2008	2038	2104	2134	2204	2233	2303	2331
Addington Village *Interchange*	1537	1607	1637	1705	1735	1804	1834	1857	1920	1945	2015	2044	2110	2140	2210	2239	2309	2337
Forestdale *Courtwood Lane/Markfield*	1542	1612	1642	1710	1740	1809	1839	1902	1925	1950	2020	2049	2115	2144	2214	2243	2313	2341
Ramsden Estate *Rye Crescent*	2339																	
Orpington *Pond*	2344																	
Orpington *War Memorial (High Street,*	2346																	
Orpington Station *Crofton Road*	2348																	
Locksbottom *St Michael's Church*	2352																	
Keston Mark *The Keston Mark*	2354																	
Hayes Station	2359																	
Coney Hall *Addington Road*	0001																	
Addington Village *Interchange*	0007																	
Forestdale *Courtwood Lane/Markfield*	0011																	

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353	Mondays to Fridays																				
Forestdale *Courtwood Lane/Markfield*	0525	0555	0625	0645	0701	0717	0735	0755	0815	0835	0854	0909	0929					1229	1249	1309
Addington Village *Interchange*	0531	0601	0632	0653	0710	0726	0744	0804	0823	0843	0902	0917	0936					1236	1256	1316
Coney Hall *Addington Road*	0535	0605	0637	0659	0716	0733	0751	0811	0830	0850	0909	0922	0941					1241	1301	1321
Hayes Station	0537	0608	0640	0702	0720	0737	0755	0815	0834	0853	0912	0925	0944					1244	1304	1324
Keston Mark *The Keston Mark*	0543	0614	0647	0710	0730	0750	0810	0830	0847	0904	0920	0933	0952					1252	1313	1333
Locksbottom *St Michael's Church*	0545	0616	0650	0713	0733	0753	0813	0833	0850	0907	0923	0936	0955					1255	1316	1336
Orpington Station *Crofton Road*	0550	0622	0656	0720	0741	0801	0821	0841	0858	0915	0931	0944	1003					1303	1324	1344
Orpington *War Memorial (High Street,*	0552	0624	0659	0723	0745	0805	0825	0845	0902	0919	0935	0948	1007					1307	1328	1348
Orpington *Carlton Parade*	0556	0628	0703	0728	0750	0810	0830	0850	0907	0924	0940	0953	1013					1313	1334	1354
Ramsden Estate *Rye Crescent*	0600	0632	0708	0733	0756	0816	0835	0855	0912	0929	0945	0958	1018					1318	1339	1359
Forestdale *Courtwood Lane/Markfield*	1329	1349	1409	1429	1446	1502	1522	1543	1603	1623	1643	1703	1723	1743	1803	1823	1842	1902		
Addington Village *Interchange*	1336	1356	1416	1436	1453	1509	1529	1550	1610	1630	1650	1710	1730	1750	1810	1830	1849	1908		
Coney Hall *Addington Road*	1341	1401	1421	1441	1458	1514	1534	1556	1616	1636	1656	1716	1736	1756	1816	1835	1854	1913		
Hayes Station	1344	1404	1424	1444	1501	1517	1537	1559	1619	1639	1659	1719	1739	1759	1819	1838	1857	1916		
Keston Mark *The Keston Mark*	1353	1413	1433	1454	1513	1533	1551	1610	1630	1650	1710	1728	1748	1808	1828	1846	1905	1923		
Locksbottom *St Michael's Church*	1356	1416	1436	1457	1516	1536	1554	1613	1633	1653	1713	1731	1751	1811	1831	1849	1908	1925		
Orpington Station *Crofton Road*	1404	1424	1444	1507	1529	1549	1607	1623	1643	1703	1722	1740	1759	1819	1839	1857	1916	1932		
Orpington *War Memorial (High Street,*	1408	1428	1448	1511	1534	1555	1613	1628	1648	1708	1727	1745	1804	1824	1844	1901	1920	1936		
Orpington *Carlton Parade*	1414	1434	1454	1517	1540	1601	1619	1634	1654	1714	1733	1751	1810	1829	1849	1906	1925	1941		
Ramsden Estate *Rye Crescent*	1419	1439	1500	1523	1546	1607	1625	1640	1700	1720	1739	1756	1815	1834	1854	1911	1930	1946		
Forestdale *Courtwood Lane/Markfield*	1922	1942	2002	2032	2102	2132	2202	2235	2305	2335	0005									
Addington Village *Interchange*	1928	1948	2007	2037	2107	2137	2207	2240	2310	2340	0009									
Coney Hall *Addington Road*	1933	1953	2012	2042	2112	2142	2212	2244	2314	2344	0013									
Hayes Station	1936	1956	2015	2044	2114	2144	2214	2246	2316	2346	0015									
Keston Mark *The Keston Mark*	1942	2002	2021	2049	2119	2149	2219	2251	2321	2351	0020									
Locksbottom *St Michael's Church*	1944	2004	2023	2051	2121	2151	2221	2253	2323	2353	0022									
Orpington Station *Crofton Road*	1950	2010	2029	2057	2126	2156	2226	2257	2327	2357	0026									
Orpington *War Memorial (High Street,*	1954	2014	2032	2100	2129	2159	2229	2259	2329	2359	0028									
Orpington *Carlton Parade*	1959	2019	2036	2104	2133	2203	2233	2303	2333	0003	0031									
Ramsden Estate *Rye Crescent*	2004	2024	2041	2108	2137	2207	2237	2307	2337	0006	0034									

353	Saturdays (also Good Friday)																				
Forestdale *Courtwood Lane/Markfield*	0525	0555	0625	0655	0725	0755	0815	0835	0855	0914	0934	0953	1011	1029	1048	1108	1127	1145			
Addington Village *Interchange*	0531	0601	0631	0701	0731	0801	0821	0842	0902	0921	0941	1000	1018	1036	1055	1115	1134	1152			
Coney Hall *Addington Road*	0535	0605	0635	0706	0736	0806	0826	0847	0907	0926	0946	1005	1023	1041	1100	1120	1139	1158			
Hayes Station	0537	0607	0638	0709	0739	0809	0829	0850	0910	0929	0949	1008	1026	1044	1103	1123	1142	1201			
Keston Mark *The Keston Mark*	0542	0612	0643	0714	0745	0815	0835	0856	0916	0936	0956	1016	1034	1052	1112	1132	1151	1211			
Locksbottom *St Michael's Church*	0544	0614	0645	0716	0747	0817	0837	0858	0918	0939	0959	1019	1037	1055	1115	1135	1154	1214			
Orpington Station *Crofton Road*	0548	0618	0649	0722	0753	0823	0843	0904	0924	0946	1006	1026	1045	1103	1123	1143	1202	1222			
Orpington *War Memorial (High Street,*	0550	0620	0651	0724	0755	0826	0846	0907	0928	0950	1010	1030	1049	1108	1128	1148	1207	1227			
Orpington *Carlton Parade*	0553	0623	0654	0728	0759	0830	0850	0912	0933	0955	1015	1035	1055	1114	1134	1154	1214	1234			
Ramsden Estate *Rye Crescent*	0557	0627	0658	0732	0803	0834	0854	0916	0937	1000	1020	1040	1100	1120	1140	1200	1220	1240			
Forestdale *Courtwood Lane/Markfield*	1205	1225	1245	1305	1325	1345	1405	1425	1445			1625	1645	1705	1725	1745	1805	1825			
Addington Village *Interchange*	1212	1232	1252	1312	1332	1352	1412	1432	1452			1632	1652	1712	1732	1752	1812	1832			
Coney Hall *Addington Road*	1219	1239	1259	1318	1338	1358	1418	1438	1457			1637	1657	1717	1737	1757	1817	1837			
Hayes Station	1222	1242	1302	1321	1341	1401	1421	1441	1500			1640	1700	1720	1740	1800	1820	1840			
Keston Mark *The Keston Mark*	1232	1252	1312	1330	1350	1409	1429	1448	1507			1647	1707	1727	1747	1807	1827	1847			
Locksbottom *St Michael's Church*	1235	1255	1315	1333	1353	1412	1432	1451	1510			1650	1710	1730	1750	1810	1830	1850			
Orpington Station *Crofton Road*	1243	1303	1323	1341	1400	1419	1439	1458	1517			1657	1717	1736	1756	1816	1836	1856			
Orpington *War Memorial (High Street,*	1248	1308	1327	1345	1404	1423	1443	1502	1521			1701	1721	1740	1800	1820	1840	1900			
Orpington *Carlton Parade*	1255	1314	1333	1351	1410	1429	1449	1508	1527			1707	1726	1745	1805	1825	1845	1905			
Ramsden Estate *Rye Crescent*	1301	1320	1339	1357	1416	1435	1455	1514	1532			1712	1731	1750	1810	1830	1850	1910			
Forestdale *Courtwood Lane/Markfield*	1845	1905	1925	1945	2010	2035	2105	2135	2205	2235	2305	2335	0005								
Addington Village *Interchange*	1851	1911	1931	1951	2016	2041	2111	2140	2210	2240	2310	2339	0009								
Coney Hall *Addington Road*	1856	1916	1936	1956	2021	2046	2116	2145	2215	2244	2314	2343	0013								
Hayes Station	1859	1919	1939	1959	2024	2049	2119	2148	2217	2246	2316	2345	0015								
Keston Mark *The Keston Mark*	1906	1925	1945	2005	2030	2055	2125	2154	2222	2251	2321	2350	0020								
Locksbottom *St Michael's Church*	1909	1928	1947	2007	2032	2057	2127	2156	2224	2253	2323	2352	0022								
Orpington Station *Crofton Road*	1915	1934	1953	2013	2037	2102	2132	2201	2229	2257	2327	2356	0026								
Orpington *War Memorial (High Street,*	1919	1937	1956	2016	2040	2104	2134	2203	2231	2259	2329	2358	0028								
Orpington *Carlton Parade*	1924	1942	2001	2021	2045	2109	2138	2207	2235	2303	2333	0002	0032								
Ramsden Estate *Rye Crescent*	1929	1947	2006	2025	2049	2113	2142	2211	2239	2307	2337	0006	0036								

Then every 20 minutes until

353	Sundays and other Public Holidays (except Christmas Day)																			
Forestdale *Courtwood Lane/Markfield*	0620	0648	0717	0747	0817	0845	0910	0934	1003	1032	1102	1129	1159	1229	1259	1329	1359	1429		
Addington Village *Interchange*	0625	0653	0722	0752	0822	0851	0916	0940	1009	1038	1108	1136	1206	1236	1306	1335	1405	1435		
Coney Hall *Addington Road*	0630	0658	0727	0757	0827	0856	0921	0945	1014	1043	1113	1141	1211	1241	1311	1340	1410	1440		
Hayes Station	0632	0700	0729	0759	0829	0858	0924	0948	1017	1046	1116	1145	1215	1245	1315	1344	1414	1444		
Keston Mark *The Keston Mark*	0637	0706	0735	0805	0835	0904	0930	0954	1023	1053	1123	1152	1222	1252	1322	1351	1421	1451		
Locksbottom *St Michael's Church*	0639	0708	0737	0807	0837	0906	0933	0957	1026	1056	1126	1155	1225	1255	1325	1354	1424	1453		
Orpington Station *Crofton Road*	0643	0713	0742	0812	0842	0911	0939	1004	1033	1103	1133	1202	1232	1302	1332	1401	1431	1500		
Orpington *War Memorial (High Street,*	0645	0715	0744	0814	0844	0914	0942	1007	1037	1107	1137	1206	1236	1306	1336	1405	1435	1504		
Orpington *Carlton Parade*	0648	0718	0748	0818	0848	0918	0947	1012	1042	1112	1142	1212	1242	1312	1342	1411	1441	1510		
Ramsden Estate *Rye Crescent*	0652	0722	0752	0822	0852	0922	0952	1017	1047	1117	1147	1217	1247	1317	1347	1416	1446	1515		
Forestdale *Courtwood Lane/Markfield*	1459	1529		1729	1759	1829	1859	1931	2002	2033	2103	2134	2204	2234	2305	2335	0005			
Addington Village *Interchange*	1505	1535		1735	1805	1835	1905	1937	2007	2038	2108	2139	2209	2239	2309	2339	0009			
Coney Hall *Addington Road*	1510	1540		1740	1810	1840	1910	1942	2012	2043	2113	2143	2213	2243	2313	2343	0013			
Hayes Station	1514	1544	*Then*	1744	1813	1843	1913	1944	2014	2045	2115	2145	2215	2245	2315	2345	0015			
Keston Mark *The Keston Mark*	1521	1551	*every 30*	1751	1819	1849	1919	1949	2019	2050	2120	2150	2220	2250	2320	2350	0020			
Locksbottom *St Michael's Church*	1523	1553	*minutes*	1753	1821	1851	1921	1951	2021	2052	2122	2152	2222	2252	2322	2352	0022			
Orpington Station *Crofton Road*	1529	1559	*until*	1759	1827	1857	1927	1957	2027	2057	2127	2156	2226	2256	2326	2356	0026			
Orpington *War Memorial (High Street,*	1533	1602		1802	1830	1859	1929	1959	2029	2059	2129	2158	2228	2258	2328	2358	0028			
Orpington *Carlton Parade*	1539	1607		1807	1834	1903	1933	2003	2033	2103	2133	2202	2232	2302	2331	0001	0031			
Ramsden Estate *Rye Crescent*	1544	1612		1812	1839	1908	1938	2008	2037	2107	2137	2206	2236	2305	2334	0004	0034			

Appendix B

WebCAT PTAL Report
==========
Site Details

Grid Cell: 17157

Easting: 540945
Northing: 165552

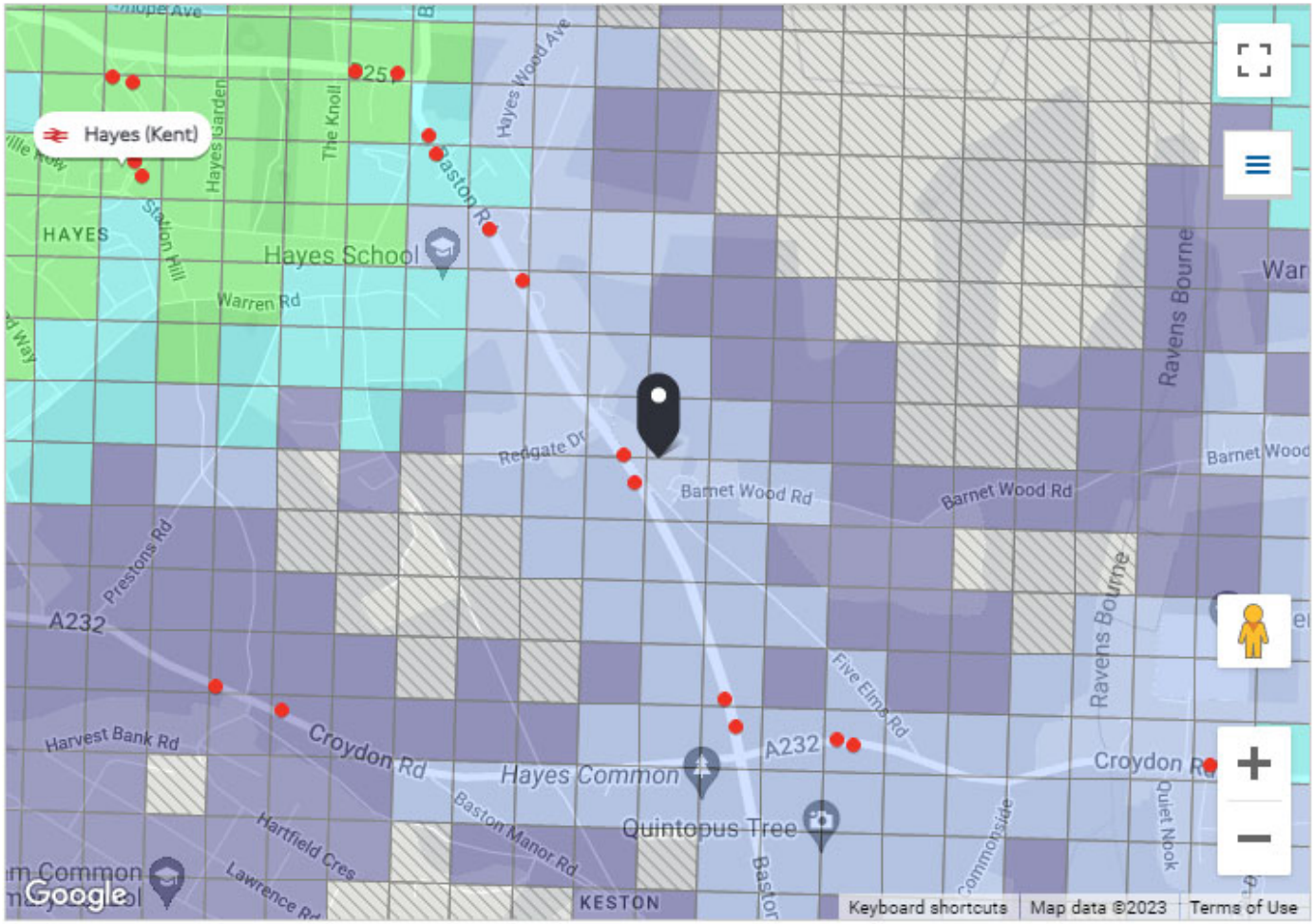
Report Date: 25/09/2023
Scenario: Base Year

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

Mode	Stop	Route	Distance (metres)		Frequency (vph)	Walk Time (mins)		
SWT (mins)		TAT (mins)	EDF	Weight	AI			
Bus	BARNET WOOD ROAD		353	140.43	4	1.76	9.5	11.26
2.67	1	2.67						
Bus	BARNET WOOD ROAD		146	140.43	1	1.76	32	33.76
0.89	0.5	0.44						

Total Grid Cell AI: 3.11
PTAL: 1b



You can click anywhere on the map to change the selected location.

PTAL output for Base Year

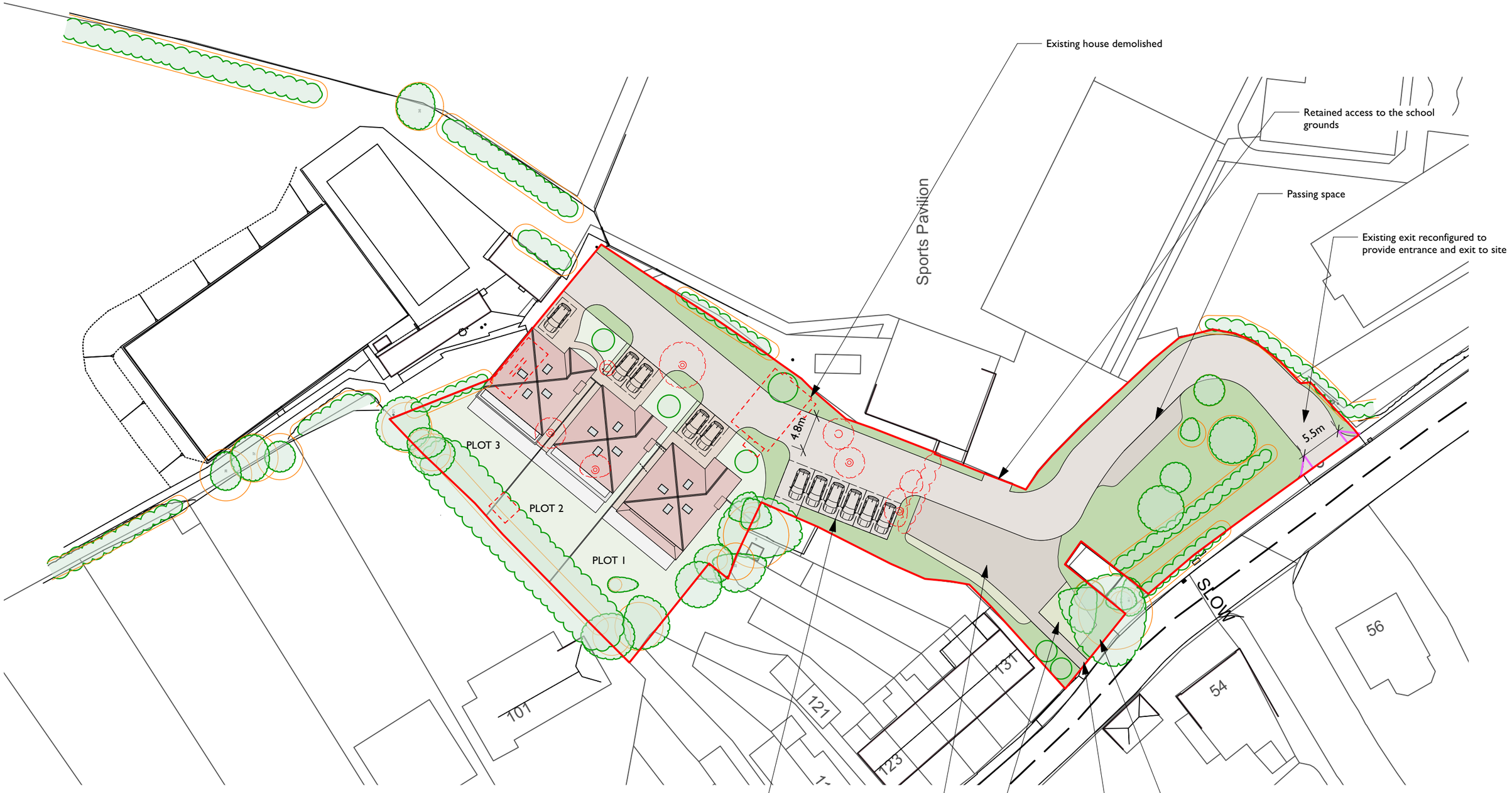
Ib

BR2 7AB

Bromley BR2 7AB, UK

Easting: **540912**, Northing: **165589**

Appendix C



0m 10m 20m 50m 100m

N

Revisions

Notes

Client
South East Living Group

Project
133 Baston Road
Bromley
BR2 7BS

Project Number
134

Drawing Title
Site Layout

DOMINIC LAMB ARCHITECTS
4a Maltings Place, 169 Tower Bridge Road, London SE1 3JB
studio@lamb.london
+44 (0)7783 212203
lamb.london

Status: Planning
Drawn: DL
Checked: DL
Scale: 1:500@A3
Date: Sept 2023
Drawing Number: 134-S10
Revision

Wild flower meadow within green belt area

Garden spaces for new plots sited within the footprint of the existing hard standing

Swimming pool, tennis court and associated buildings and hardstanding to be demolished

Existing house demolished

New access road

Retained access to the school grounds

Passing space

Existing exit reconfigured to provide entrance and exit to site

PLOT 4

PLOT 5

Sports Pavilion

4.8m

5.5m

SLOW

101

121

123

131

54

56

Retained hard-standing for school Right of Way

Grass-crete surface

New planting and picket fence to front boundary

New pedestrian gate and access in replacement of existing vehicle entrance

0m 10m 20m 50m 100m

N

Revisions

Notes

Client: South East Living Group

Project: 133 Baston Road, Bromley, BR2 7BS

Project Number: 134

Drawing Title: Site Layout

DOMINIC LAMB ARCHITECTS
6a Maltings Place, 169 Tower Bridge Road, London SE1 3JB
studio@lamb.london
+44 (0)7789 332003
lamb.london

Status: Planning

Drawn: DL

Checked: DL

Scale: 1:500@A3

Date: Sept 2023

Drawing Number: 134-S20

Revision

Revisions

Notes

Client
South East Living Group

Project
133 Baston Road
Bromley
BR2 7BS

Project Number
134

Drawing Title
Site Layout

DOMINIC LAMB ARCHITECTS
6a Maltings Place, 169 Tower Bridge Road, London SE1 3JB
studio@lamb.london
+44 (0)7793 531003
lamb.london

Status
Planning

Drawn
DL

Checked
DL

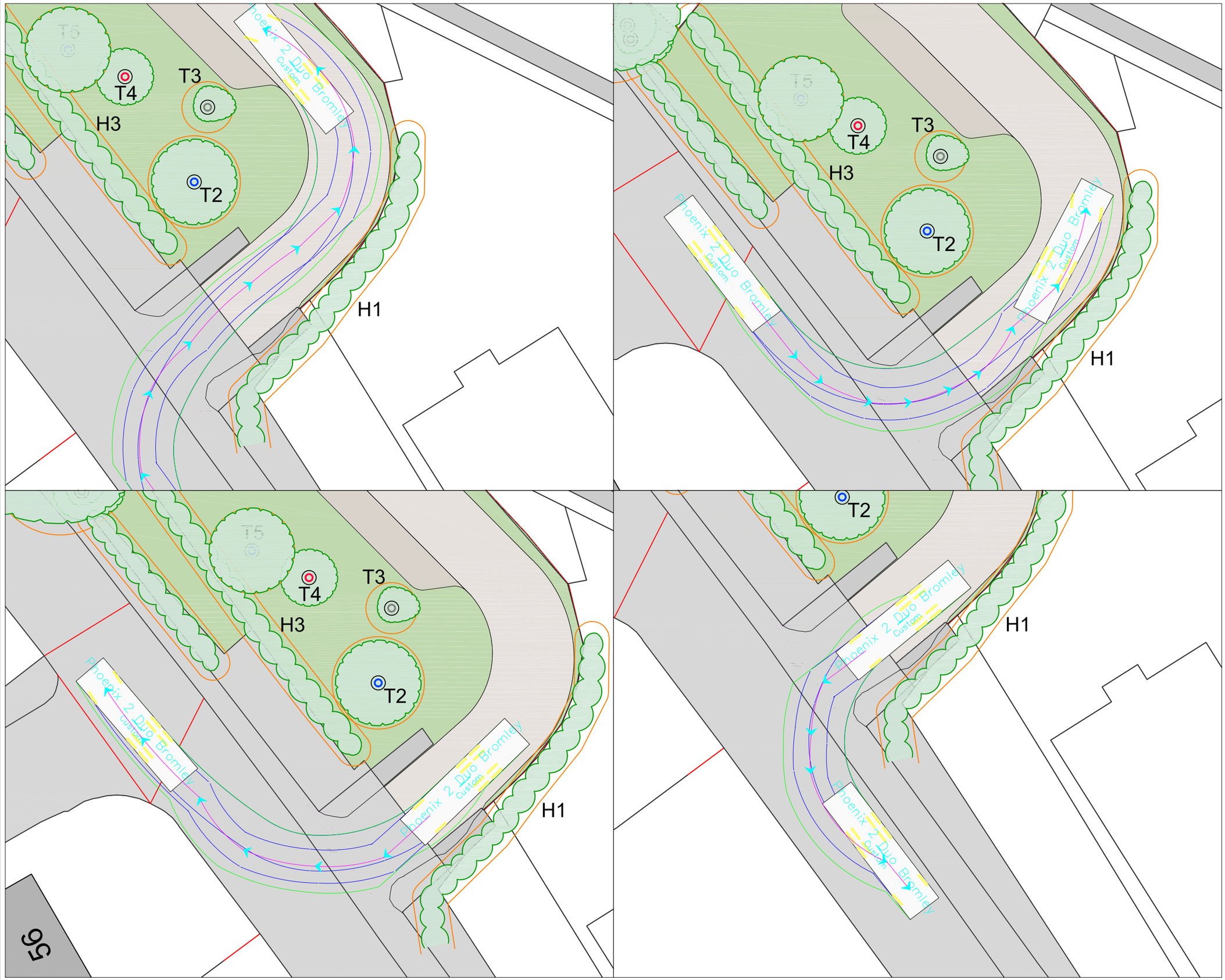
Scale
1:500@A3

Date
Sept 2023

Drawing Number
134-S00

Revision

Appendix D



NOTES

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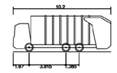
3. References to left or right when identifying elevations, are made assuming facing the front elevation



Phoenix 2 Duo (P2-12W with Elite 6x4 chassis)

Overall Length	10.400m
Overall Width	2.550m
Overall Body Height	3.470m
Min Body Ground Clearance	0.291m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.800m

Rev.	Description	Date	Chk'd

Sarnlea
Consulting Engineers
c/o 20 11 Court Road
Glen Parva
Leicester
LE2 9JB

Job

Baston Road

Drawing

Vehicle Tracking

Scales	Date	Drawn	Checked
1:250@A3	Sept 23	AM	AM

Number Revision

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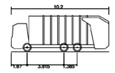
SDV

	mm
Width	: 1800
Track	: 1800
Lock to Lock Time	: 6.0
Steering Angle	: 37.8



Phoenix 2 Duo (P2-12W with Elite 6x4 chassis)

Overall Length	10.400m
Overall Width	2.550m
Overall Body Height	4.100m
Front Ground Clearance	0.270m
Track Width	2.300m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.800m

Rev.	Description	Date	Chk'd

Sarnlea
Consulting Engineers

c/o 20 11 Court Road
Glen Parva
Leicester
LE2 9JB

Job

Baston Road

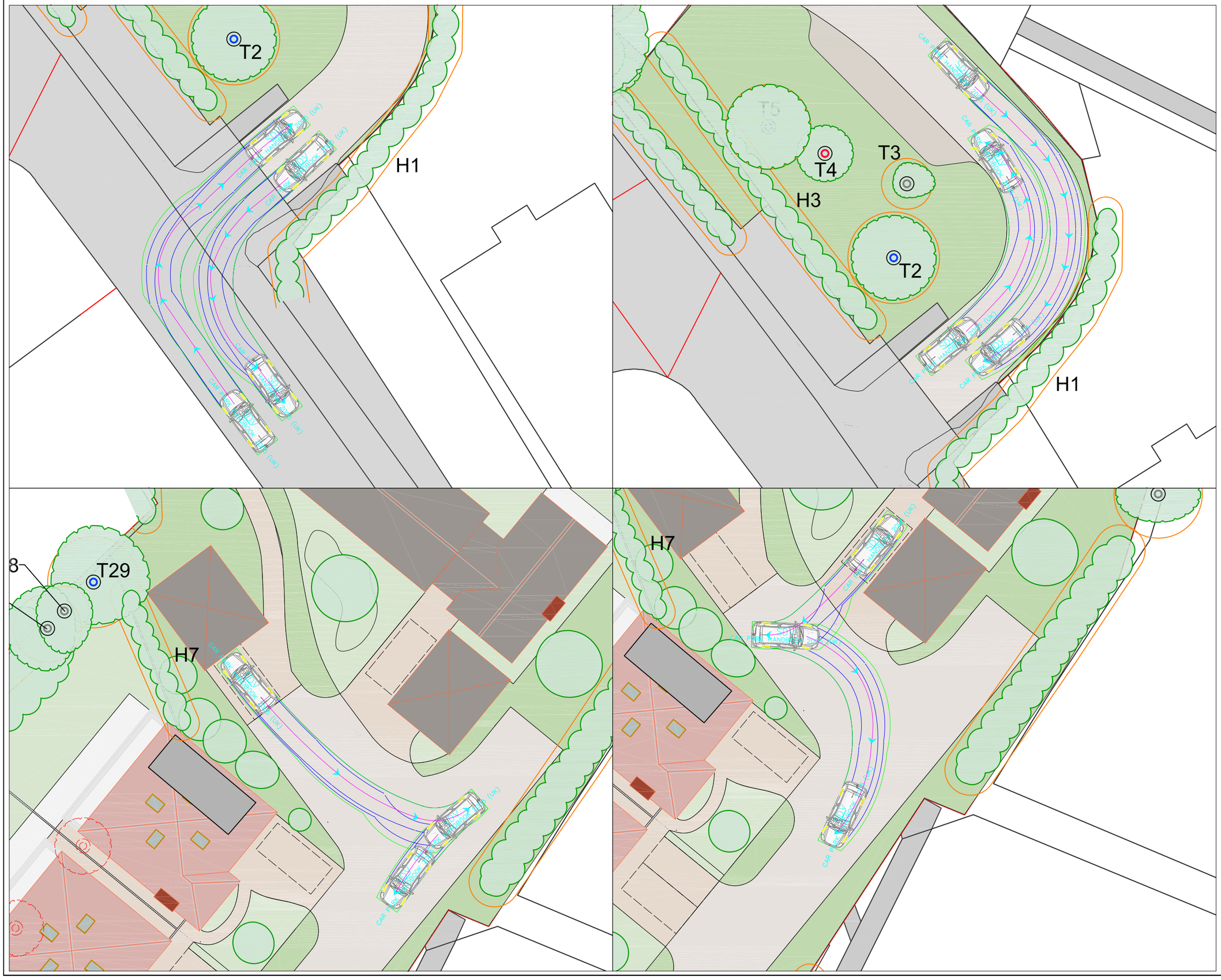
Drawing

Vehicle Tracking

Scales	Date	Drawn	Checked
1:250@A3	Sept 23	AM	AM

Number

Revision



NOTES

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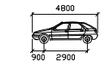
3. References to left or right when identifying elevations, are made assuming facing the front elevation



SDV

	mm
Width	1800
Track	1800
Lock to Lock Time	6.0
Steering Angle	37.8

Rev.	Description	Date	Chk'd

Sarnlea
Consulting Engineers
c/o 20 11 Court Road
Glen Parva
Leicester
LE2 9JB

Job

Baston Road

Drawing

Vehicle Tracking

Scales	Date	Drawn	Checked
1:250@A3	Sept 23	AM	AM

Number Revision

NOTES

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Rev.	Description	Date	Chk'd

Sarnlea
Consulting Engineers
c/o 20 11 Court Road
Glen Parva
Leicester
LE2 9JB

Job
Baston Road

Drawing
Visibility Splays

Scales	Date	Drawn	Checked
1:250@A3	Sept 23	AM	AM

Number | Revision

Appendix E

Sarnlea

Consulting Engineers

133 Baston Road, Bromley, BR2 7AB

FRAMEWORK CONSTRUCTION LOGISTICS PLAN

- Baston Road
- September 2023

133 Baston Road, Bromley, BR2 7AB

FRAMEWORK CONSTRUCTION LOGISTICS PLAN

- Baston Road
- September 2023

Sarnlea Consulting Engineers (Trading Name)
Company Address:
Firecrest Court
Warrington
Tel: +44 7896 984328

Postal Address;
C/O 11 Court Road
Glen Parva
Leicester
LE2 9JB

Appendices

Tables

Contents

Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
revA	26.09.23	AJRM	AJRM	26.09.23	revA

Distribution of copies

Revision	Copy no	Quantity	Issued to
Draft	01	01 (electronic)	NS (SEL)

Printed:	25 September 2023
Last saved:	25 September 2023 07:14 PM
File name:	Framework CLP
Author:	AJRM
Project manager:	AJRM
Name of organisation:	South East Living
Name of project:	Baston Road
Name of document:	Framework CLP
Document version:	revA
Project number:	ENG/SEL/BR/01

1. Introduction

1.1 Summary

1.1.1 This Framework Construction Logistics Plan has been prepared by Sarnlea Consulting Engineers on behalf of South East Living in order to support a two forthcoming planning applications at no 133 Baston Road, Bromley, BR2 7AB

1.1 The Schemes

1.1.2 Following any planning consent granted, the proposed schemes are as follows:

Application 1

"Demolition of the existing detached house, swimming pool, tennis courts and outbuildings and the erection of 2 detached single storey dwellings with car barns and parking".

Application 2

"Demolition of the existing detached house and the erection of 3 detached houses with parking"

1.1.3 Subject to obtaining the necessary consents, demolition and construction of the proposed development will commence in the 2nd quarter of 2025 and would last for a period of approximately 16 months.

1.1.4 The volumes of construction staff on-site during the construction period would be at an average of 6 per day and would peak at a level of 10 staff per day for 12 weeks.

1.1.5 Construction will operate around a 10-hour day (0700-1700 hours) Monday-Friday and 0800-1300 on a Saturday.

1.1.6 The construction staff profile will feature an 80%-20% split between general construction labour and specialised construction staff respectively.

2. Construction Logistics Plan Requirement

2.1.1 The proposed development is subject to a planning application submitted to the London Borough of Bromley (LBB) to which this document forms supporting information to the Transport Statement which itself forms one of the key endorsing documents to the application.

2.1.2 Planning validation requirements have confirmed that this Framework CLP should accompany the planning application to be submitted.

2.1.3 This Framework CLP sets out how the eventual confirmed contractors will ensure that the construction of the proposed development will adhere to the submitted details of the construction programme at the relevant time.

2.1.4 The purpose of this Framework CLP is to minimise the transport impact during the construction phase of the proposed development and should be read in conjunction with the Transport Statement.

2.1.5 A full Construction Logistics Plan is likely to be secured via condition by both LBB and TfL (if appropriate) and the full plan will be published in line with TfL's CLP Guidance which can be found as **Appendix A.**

3. Responsibilities

3.1 Introduction

3.1.1 It is intended that the Framework CLP will be a working document that will evolve during the construction programme of the proposed development and during the time leading up to the start of the programme when details are being finalised and agreed as more information becomes apparent.

3.1.2 The site's main contractor will nominate a person(s) to be responsible for the co-ordination of all elements of transport for the duration of the demolition and construction works. The nominated person(s) will be responsible for the monitoring the application of the CLP and to implement any modifications in consultation with LBB and TfL.

3.1.3 Modifications are likely to involve changes to expected numbers of construction staff, anticipated changes to volumes and/or frequencies of civil/mechanical works traffic and changes to the construction programme itself.

3.2 Six Monthly Review

3.2.1 During the construction programme, meetings between the site contractor and the LBB on-site (if requested) in order to review construction operation against the CLP if required by the Highway Authorities.

3.2.2 During any meetings, any anticipated modifications to the construction programme will be discussed as to their impact upon the plan and agreed with the respective parties.

3.3 CLP Representative

3.3.1 Contact details for the nominee of the main contractor are provided in **Table 1** below:

Table 1	**Construction Phase**
Company name	*TBC*
Contact name	*TBC*
Address	*TBC*

Telephone no.	*TBC*
Mobile no.	*TBC*
e-mail	*TBC*

3.4 Construction Programme

3.4.1 The details of the provisional demolition and construction programme can be seen below:

3.4.2 [Insert Here When Known]

4. Construction Site Access

4.1.1 Access to the construction site for all vehicular movements will be taken through vehicular access off Baston Road.

4.1.2 Swept Path Analysis for the construction site layout will be contained within the final CLP, however notional vehicle tracking for the most common largest vehicle expected to visit the site is contained within **Appendix B.**

5. Identified Construction Routes

5.1 Civil and Mechanical Works Traffic (including Abnormal Indivisible Loads)

5.1.1 The application site is located off of Baston Road. Baston Road junctions with the A232 Croydon Road approximately 572m to the south of the application site.

5.1.2 The application site does lie within the proximity of interest to the Transport for London Road Network (TLRN), being the A232. The site does not sit near any part of the London's Excluded Road Network for HGV's and freight (ERN).

5.1.3 The majority of all civil and mechanical works traffic movements accessing the construction site will do so via the strategic and local highway network will do so via the following route:

- A232
- Baston Road

5.1.4 All Abnormal Indivisible Loads (AIL) will travel via the A232 only. It is expected that approximately ?? AIL movements will be required to access the construction site during the ?? month construction programme.

5.1.5 Police and abnormal loads escorts will be used, and loads will be transported by specialist haulage contractors in accordance with *'The Road Vehicles (Authorisation Type) (General) Order 2003'* (STGO) regulations and special orders granted from the Department for Transport (DfT).

5.1.6 The A232 is rated as acceptable for carrying any expected AIL movements, however many local roads surrounding the site are exempt and carry weight and width restrictions.

5.2 Restrictions

5.2.1 To assist in any monitoring of the above restrictions, the main site contractor will retain a hard copy of the details of all heavy goods vehicles delivering plant and materials to and from the application site. The records will include the details of:

- Date and time of arrival and departure of the heavy goods vehicle;
- Details of the route taken;
- The vehicle registration number;

- The vehicle operator and driver’s name, and;
- The type and nature of the load being carried or delivered.

6. Construction Personnel, Plant and Materials

6.1 Construction Personnel

Numbers and Working Hours

6.1.1 Average numbers of construction staff on-site per day during the approximate 16 month construction period will be 6, however, this will peak at a level of 12 for the busiest 3 months of the of the programme.

6.1.2 The construction programme will operate around a 10-hour day (0700-1700 hours) Monday-Saturday and a 5-hour day on a Saturday (0800-1300). No construction is planned to take place on any Sunday or public/bank holiday unless under special circumstances with written agreement being obtained from LBB/TfL, and no construction staff will access or egress the site outside of these hours, except in an emergency, or under the conditions as set out above.

6.1.3 Approximately 80% of staff would be involved in general construction, with the remaining 20% being made up of specialised construction personnel.

6.1.4 Construction personnel will arrive and depart from the construction site up to an hour before each shift due to site safety and inspection briefings that will occur on a 'per shift' basis in line with the current *"Construction (Design and Management) regulations 2007"*

Mode of Travel

6.1.5 Experience of London construction schemes dictates that the construction staff profile would likely see a 75%-25% split between those using private vehicles and those utilising public transport, walking and cycling as a mode of travel. This reflects the most up-to-date statistics for travel to work patterns for the London area.

6.1.6 Experience also dictates that it is safe to assume that those travelling by private vehicle would do so at an average occupancy rate of 2 persons per vehicle.

6.1.7 It is expected that any specialist construction staff may not be local to the area and will travel to the construction site from the wider UK region. Again, based on similar experience, it is expected that they will travel to the local area in contractor

minibuses and will stay in local accommodation. They will then travel to and from the site in these vehicles at an average UK occupancy rate of 7 per vehicle.

6.1.8 Secure and covered cycle storage areas will be provided on-site for construction personnel.

6.2 Transportation of Plant and Construction Materials

6.2.1 In addition to the expected construction staff transport movements, the construction programme will receive civil and mechanicals works traffic.

6.2.2 During each 10-hour construction day, it is expected that ?? Light Goods Vehicles (LGVs) and ?? Heavy Goods Vehicles (HGVs) associated with civil and mechanicals works traffic will visit the construction site. This is in addition to the ?? AIL movements that are expected to visit the site during the approximate ?? month construction programme.

7. Mitigation, Monitoring and Review

7.1.1 There are specific elements of Construction Logistics Plans that commits to monitor, review and mitigate against if necessary.

7.1.2 Vehicular noise associated with construction comes from vehicle engines, reverse beepers and tail lift strikes.

7.1.3 The plan agrees to enforce against any unnecessary revving of engines or indeed engine idling whilst loading and unloading is taking place within the internal service area.

7.2 Reverse Beepers

7.2.1 The plan commits to the monitoring of noise associated with reverse beepers by undertaking monthly spot checks of the decibel level of such activities. If complaints are received from neighbours or the noise levels exceed agreed targets, then the operator will investigate ways to mitigate the impact. Such measure could include, but not be limited to further environmental screening or the potential installation of directional sound broadband white noise reversing alarms.

7.3 Tail lift Strikes

7.3.1 The plan commits to the monitoring of noise associated with tail lift strikes upon any hard floor surface of the construction site by undertaking monthly spot checks of the decibel level of such activities. If complaints are received from neighbours or the noise levels exceed agreed targets, then operator will investigate ways to mitigate the impact. Such measure could include, but not be limited to further environmental screening or the potential installation of low noise tail lift grit plates or floor pads.

7.4 Co-ordination of Deliveries

7.4.1 In order for a fully-fledged program for co-ordination of deliveries to take place for a development such as a small scale garage, the site needs to be fully operational for a period of time in order to allow for systems to naturally settle into an established routine.

7.4.2 On this basis, Construction Logistics Plan commits to providing details of delivery and service monitoring of delivery vehicle volumes, types and timings if requested

by the LPA for a period at 3months, 6 months and 1 year following any planning approval and the introduction of the plan.

7.5 Vehicle Cleaning

7.5.1 A jet washing station will be the preferred method of cleaning wheels and chassis of all HGV's, plant and delivery vehicles leaving the site for the purposes of keeping the site access road and adjacent public highway clear of mud and debris during site demolition, excavation, preparation and construction.

7.5.2 The scheme will be implemented in accordance with any approved details and will be installed and operational before any development commences and retained in working order throughout the duration of the construction program.

7.5.3 No vehicles will leave the site in a condition whereby mud, clay or other deleterious materials will be deposited on the public highway.

8. Construction Personnel Travel Plan Framework

8.1 Introduction

8.1.1 Increased car usage has resulted in high volumes of traffic in peak hours which can give rise to localised congestion in town and city centres and on radial routes around both residential and employment areas. In turn, this congestion contributes to poor air quality and threats to personal health. The problem is exacerbated because many car journeys only accommodate one person, when a car generally has a capacity for four.

8.1.2 Traffic associated with construction staff travelling to and from the site during the construction programme is the most onerous period (in traffic terms) of the development and although these vehicular movements will occur outside of the network peak hours when staff arrive in the morning, the end of the construction day will fall within the peak hours on the local and wider highway network.

8.1.3 Notwithstanding this, attempting to achieve a reduction in the amount of construction staff travelling by private car to and subsequently from the construction site is a realistic aim given the good standard of public transport and other facilities that are available.

8.1.4 This set of travel plan measures is focussed on the specific transport issues which affect the construction workforce commuting to and from the construction site. It will recommend a range of measures to counteract the dependence on the private car, but will always take into account of the temporary nature of the construction programme and the fact that many staff have the requirement of transporting their own tools and/or associated equipment. Individually these factors should not

represent a significant barrier to the promotion of sustainable transport, however, when combined; they present a range of challenges to be overcome.

8.1.5 Although not a specific Travel Plan, the measures detailed form more than just a report and are designed to evolve as the construction programme itself may evolve throughout the approximate ?? month period.

8.1.6 The Travel Plan measures are designed to cover the construction of the proposed development. It is expected that construction will begin in the ?? quarter of 20?? with a target completion date at the end of the ?? quarter of 20??.

8.1.7 At this stage there are a number of unknown factors which currently restrict the potential of this construction phase travel plan, these include:

- The origin of the construction workforce employees and construction deliveries;
- The location from which construction workforce employees will commute to/from on a daily basis;
- Generally, the individuals in the workforce are not known until just before work starts, making it difficult to plan sustainable transport in advance;
- Potential modal splits can only be estimated using existing travel to work statistics for the London area, consequently, setting targets for reducing any single occupancy vehicle travel is difficult, especially during the first months of construction, and;
- At the beginning of the construction programme, more general labour is employed and revolves around civil engineering activities where labour can be sourced locally. However, as construction progresses, more skilled workers will be employed by companies probably located further away from the application site.

8.1.8 In addition to this, the characteristics of the construction site employees, such as the following, conspire to reduce the appeal of travelling by more sustainable modes of transport:

- The need to carry specialised tools and equipment along with Personalised Protection Equipment (PPE);
- The physical nature of the work makes walking/cycling to/from work less appealing, and;
- The construction workforce is by nature very transient, making it difficult to establish routines based around sustainable transport.

8.1.9 Traditionally, Travel Planners would know the workforce. In addition to this, the travelling patterns of the workforce would be much more established. When preparing conventional workplace travel plans, the Travel Planner would have the prior opportunity to consult with the end user. This information would then form the foundation on which a package of sustainable transport measures would be developed.

8.1.10 Despite these difficulties, a comprehensive range of potential sustainable transport measures are presented within this report. As more detailed information about the construction workforce becomes available nearer to the start of the construction programme, these measures will be reviewed in line with the evolving documents.

8.1.11 Specific details relating to staff and associated vehicle numbers, construction vehicle numbers, trip distribution and assignment, AIL movements and public transport provision serving the local area have all be described, appraised and assessed within the Transport Statement and for that reason are not reiterated here.

8.1.12 This document has been prepared in accordance with the DfT's publication: *"The Essential Guide to Travel Planning"* and with reference to LBB's sustainable travel policies and other relevant guidance.

8.1.13 The emphasis of this framework should be to set out a travel management strategy for the construction site, particularly single occupancy car trips and to improve the choices of transport available to construction personnel by measures to encourage and educate regarding options for walking, cycling and public transport use, and through these, deliver a modal shift away from the private car where possible.

8.1.14 Experience shows that the benefits from a Travel Plan can be extensive. For the temporary construction site a travel plan can:

- Solve problems caused by demand for parking;
- Save money on the cost of providing and maintaining parking areas;
- Release land under car parks for more productive laydown area use;
- Solve problems caused by traffic congestion on and around the application site;
- Improving the image of the construction site to both visitors and neighbours;
- Ease delays to deliveries and movement of goods off the site;
- Improve construction personnel health and reduce absenteeism;

- Assist with recruitment and retention my making staff journeys to work easier and cheaper, and;
- Improve staff punctuality by reducing congestion delays and supporting more reliable and sustainable means of travel.

8.1.15 National Planning Guidance puts in place a framework to deliver Government Transport Policies. This Travel Plan Framework has been prepared in accordance with the following local and national guidance which includes:

- DfT publication: *"Travel Plan Guidelines";*
- The Energy Efficiency Best Practice Programme Travel Plan Resource Pack;
- PPG 13: Transport;
- DETR publication: *"Green Transport Plans, the benefits of Green Transport Plans.*

8.2 Travel Plan Management Structure

8.2.1 A key lesson from workplace and school travel plans is the importance of establishing a clear structure for the ongoing management of the plan, and this is of equal importance for a Framework CLP.

8.2.2 **Due to the size and nature of this residential development it is not proposed to implement any specific construction phase Travel Plan, however if it were required by LB Bromley then the following would be applicable (7.23 – 7.36):**

8.2.3 The main contractor of the site will nominate an individual, or board of individuals from a number of main contractors on-site to oversee and co-ordinate the travel plan and its progress if requested by LB Bromley. The Travel Plan Co-ordinator will have the following responsibilities:

- Provide the management support to take ideas forward and make strategic decisions regarding resources and budgets;
- Steer the travel plan in the desired direction and address any issues that arise;
- Monitor and review progress and identify realistic targets for taking the Travel Plan forward;
- Develop and oversee the implementation of initiatives outlined in the plan;
- Design and implementation of an effective marketing and awareness raising campaign;
- Manage the travel plan measures proposed;

- Negotiate with public transport operators;
- Manage promotion schemes and events;
- Provide Green travel advice and information to construction staff and contractors;
- Co-ordinate data collection to develop the Travel Plan;
- Act as a main point of contact, and;
- Provide on-going liaison with the Sustainable Travel Team at LBB/TfL.

8.2.4 The Travel Plan Co-ordinator will have overall responsibility and will aim to ensure that the Travel Plan meets its objectives and targets. The Co-ordinator will make and approve strategic decisions as appropriate.

8.2.5 The Travel Plan Co-ordinator will be appointed at least 3-weeks prior to the commencement of the construction programme.

8.3 Travel Management Aspirations

8.3.1 The travel management objectives outlined below reflect the general principles and aims to be targeted by the implementation of CLP as it develops.

8.3.2 Traffic assessment impact of the development is addressed within the Transport Statement and is therefore not considered in detail within this report.

8.3.3 In defining the travel plan framework, the following hierarchy of modes will be applied in order of priority:

- Walking/Cycling
- Bus
- Metro
- Rail
- Car

8.3.4 Accessibility for mobility impaired persons will be considered at every level.

8.3.5 The aims of the CLP will be:

- To reduce the reliance on the private car through the reduction in the number and length of motorised journeys, in particular, those journeys involving single occupancy car trips;

- To promote the use of alternative means of travel which are more sustainable and environmentally friendly, and;
- To encourage work practices that reduces the need to travel.

8.3.6 The objectives of the plan will be:

- To encourage walking;
- To encourage cycling;
- To encourage the use of public transport, and;
- Where it is necessary to use the private car, encourage more efficient use.

8.4 Contents of the Travel Plan

8.4.1 The following measures will be evaluated for their appropriateness for the construction programme in the short, medium and long term:

- Improved walking, cycling and public transport facilities, including connections to the local network;
- Workforce travel surveys;
- Discounted public transport tickets;
- The provision of public transport, walking and cycling information;
- The development of a car sharing database, and;
- The provision of a dedicated shuttle bus service.

8.5 Statement of Intent

8.5.1 Before the commencement of the construction programme after remedial groundworks, any required Travel Plan Co-ordinator will be appointed to the site. It will be their job to work with the Council's Sustainable Travel Officer and Sustainable Travel Team (as required) as well as the site's management to ensure

that the measures identified within the final agreed Travel Plan are implemented and that the agreed forms of monitoring, evaluation and review takes place.

8.5.2 Within 6 weeks of the start of construction, all the agreed actions contained within the plan will be operational.

8.5.3 In order to implement the plan, the co-ordinator will use the best reasonable endeavours to ensure that all stakeholders sign up to the principles of the plan.

8.5.4 The co-ordinator will, in conjunction with LBB/TfL, monitor and review the objectives and targets and lead implementation and monitoring/review/evaluation of the plan as time progresses, making any changes as deemed appropriate.

Appendices

Appendix A

CLOCS | Construction Logistics and Community Safety

Construction Logistics Planning (CLP)
Guidance

Version: v1.2 (April 2021)

This document is for guidance only. It was developed by Transport for London and adapted by CLOCS for UK-wide implementation.

Any references to London in this guidance are for illustrative or educational purposes to assist other areas with implementation planning.

Thank you to the following for their contribution and support in the creation of this document:

Considerate Constructors Scheme (CCS)
Chartered Institute of Logistics and Transport
Chartered Institute of Building (CIOB)
City of London
Constructing Excellence
Construction Logistics Improvement Group (CLIG)
FORS
High Speed Two (HS2) Ltd
London Councils
Port of London Authority
Rail Freight Group
SECBE
WestTrans

Last updated: v1.2 (April 2021). New links added to pages 32, 37, 40, 42 and 44.
Previous versions: v1 (March 2020) and v1.1 (March 2021).

CLP Guidance

The purpose of this Construction Logistics Planning (CLP) guidance is to ensure that CLPs of high quality are implemented to minimise the impact of construction logistics on the road network. Well-planned construction logistics will reduce:

- **Environmental impact:** lower vehicle emissions and noise levels
- **Road risk:** improving the safety of road users
- **Congestion:** reduced vehicle trips, particularly in peak periods
- **Cost:** efficient working practices and reduced deliveries

The guidance deals specifically with the construction logistics element of the planning permission process and aims to support local borough guidance on CLPs and Transport Assessments (TAs).

This guidance aims to:

- Establish a standardised approach to assessing the CLP element of planning applications
- Inform developers of the technical requirements of CLPs
- Describe the planned measures that should be considered or included within a CLP
- Provide detail on the implementation and monitoring of CLPs
- Introduce the concept of Community Considerations and their relevance to the CLP process

A well-prepared CLP ensures that construction logistics is considered during the planning permission process.

This CLP Guidance will help to ensure that requirements are met and that planning applications can be reviewed and assessed comprehensively. The guidance is designed to integrate with all activity undertaken throughout the planning process and construction programme.

What is a CLP?

A CLP is an important management tool for planners, developers and construction contractors. The CLP focuses specifically on construction supply chains and how their impact on the road network can be reduced. The construction supply chain covers all movements of goods, waste and servicing activity to and from site.

A CLP differs from a Construction Management Plan (CMP) or Construction and Environmental Management Plan (CEMP) in that CLPs are developed earlier in the planning process and focus specifically on logistics. The information and planned measures identified in the CLP can also be included in the CMP or CEMP.

Glossary

There is a glossary for key terms at the end of this document. Please familiarise yourself with them before reading the guidance.

Any questions?

Please contact: support@clocs.org.uk

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CLP introduction

The construction phase of a development will have environmental, safety and congestion impacts on the road network and the surrounding community. The impacts can vary depending on the size, timescale and location of the development, and, for larger developments that may take many years to construct, the construction phase can have a greater impact than the operational phase.

This guidance uses the umbrella term '**Community Considerations**' to address the main concerns faced by construction logistics activities, particularly at the local level. Such activity can have a significant impact on the surrounding community, especially when residential areas and/or facilities like schools, hospitals, health centres, community centres, sports facilities, transport hubs and Cycle Super Highways are located near the work site.

A CLP provides the framework for understanding and managing construction vehicle activity into and out of a proposed development, encouraging modal shift and reducing overall vehicle numbers. A full assessment of all phases of construction should be included and detail:

- The amount of construction traffic generated
- The routes the construction vehicles will use
- The impact on relevant Community Considerations
- Any traffic management that will be in place
- Any policies which encourage modal shift

There are two types of CLPs that may be required:

Outline CLP accompanies the planning application and gives the planning authority an overview of the expected logistics activity during the construction programme.

Detailed CLP is submitted to a planning authority at the post-granted discharge of conditions stage and provides the planning authority with the detail of the logistics activity expected during the construction programme.

CLP toolkit/resources

To assist you in learning about and implementing CLPs, there are several resources for CLP guidance available on the CLOCS website:

- A CLP Tool
- A CLP Tool completed example
- An Outline CLP Template
- An Outline CLP Template completed example

Available here: CLOCS website

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Planning permission process

Local Planning Authorities (LPAs) are responsible for approving planning applications. As the CLP typically forms part of a planning application, LPAs are also responsible for approving the CLP.

LPAs must make a judgement on a case-by-case basis as to whether a development proposal will generate significant impacts on the road network. For illustrative purposes, a Planning level of impact table (p6) has been produced for guidance.

Community Considerations will also affect the level of anticipated impact. The **Considerations level of impact table** below is indicative and the actual level of impact could be higher or lower depending on a number of considerations.

These planning applications include, amongst others:

- The CLP policies of the Local Plan (if any)
- This CLP Guidance
- The scale of the proposed development and its potential for construction impacts
- Community Considerations
- Programme and the duration of scheduled works
- Impact on other priorities/strategies (such as promoting walking and cycling)
- The cumulative impacts of multiple developments within a particular area
- Consideration given to existing and/or planned non-highway modes including consolidation and river/rail transport

** If customising this guidance for your local area, insert any local policies or application processes (as appendices) here **

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	Level of impact		
Considerations	**Lower**	**Medium**	**Higher**
Approx. construction cost	< £2m	> £2m	> £23m
Community Considerations	Lower	Medium	Higher
Size	All developments falling outside of 'Higher' and 'Medium' definitions	10+ residential units or creation/change of use of 1,000+ m^2 floorspace	100+ residential units or creation/ change of use of 10,000+ m^2 floorspace

Outline and Detailed CLPs

There are two stages in the planning process when drafting a CLP:

1. The **Outline CLP** is written during the planning and design stage and is submitted with the planning application.
2. The **Detailed CLP** is written during the pre-construction/ construction stage and is implemented and monitored throughout the construction programme.

The requirements for CLPs differ depending on the level of impact the development is expected to have. As shown in the **Planning level of impact** table below, developments deemed to have a lower impact should provide details within the Transport Assessment, although where there are specific construction issues a CLP may be more appropriate. Medium and higher impact developments will require an Outline CLP and a Detailed CLP.

Outline CLPs should be prepared during the planning approval stage for medium and higher impact developments. For lower impact sites details can be included within the Transport Assessment. As detailed design has likely not occurred and a contractor has likely not been commissioned at this stage, the Outline CLP will contain fewer details than the Detailed CLP.

For **lower impact** developments, the construction impacts should be considered within the Transport Assessment. For **medium impact** developments, the Outline CLP should contain details that are available at the planning stage, and for **higher impact** developments, additional details are required with input from a construction logistics specialist.

The planned measures that are committed to in the Outline CLP will be written into the Section 106 agreement with reference to the Detailed CLP to be produced prior to construction.

Detailed CLPs are extensive plans that are required to be produced for medium and higher impact sites. They are produced during the pre-construction stage and need to be updated throughout construction. Updating the CLP will be covered in more detail in the **Writing a CLP** section of this guidance.

	Level of impact		
Planning stage	**Lower**	**Medium**	**Higher**
Planning approval	Transport Assessment or Outline CLP	Outline CLP	Outline CLP
Pre-construction	No CLP required*	Detailed CLP	Detailed CLP

*A detailed CLP may be required for lower impact sites with specific construction impacts. To be confirmed by the relevant authority at pre-planning or planning approval stage.

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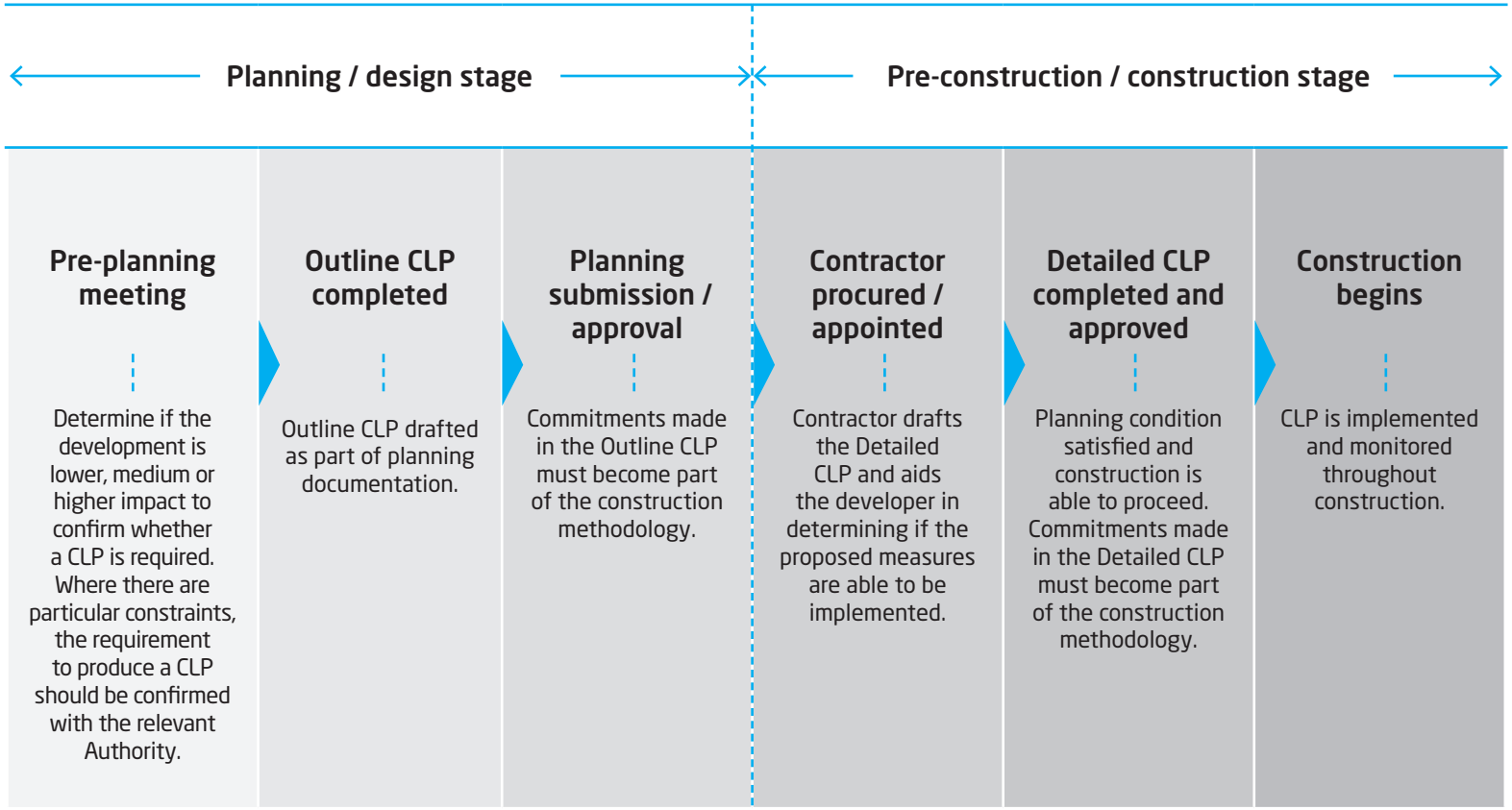
CLPs and the planning process

The two stages are shown below with the activities that typically occur during each stage. Depending on the circumstances of certain projects, the activities shown below may not occur in the order specified.



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Who is involved?

Local Planning Authorities (LPAs) are responsible for reviewing and approving the Outline and the Detailed CLP. LPAs are also responsible for ensuring construction is carried out according to the terms of the CLP. They will respond to complaints raised by the community and follow them up with the developer.

Developers hold overall responsibility for the management of the development. They are responsible for agreeing the terms of the CLP and ensuring that their contractors conform with the agreed measures.

Planning specialists typically write the Outline CLP for planning approval. They are responsible for working with the developer and local authority planners to help define which planned measures can be agreed at the planning stage.

Contractors typically write the Detailed CLPs which reflect the actual plans for the construction of the site. Contractors are responsible for the day-to-day management of the construction site. They are responsible for ensuring that the CLP and the agreed planned measures are implemented on the site. When considering moving goods by water and rail, specific reference to rail or marine contractors should be made.

Logistics operators provide haulage services to the construction industry. They are responsible for abiding by the measures outlined in the CLP.

Local government bodies – statutory consultees in the planning process, particularly where an application is deemed to have an impact on the transport networks e.g. Transport for London (TfL) and Transport for Greater Manchester (TfGM).

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Accreditation

To support all parties involved in the preparation and assessment of CLPs, three one-day training courses have been developed. These courses have been designed specifically to support individuals from any organisation.

Foundation

Those who attend the Foundation training will leave with an understanding of:

- The context of freight and construction
- The complexity of construction and construction logistics
- The purpose of CLPs and the benefits they offer
- The CLP planning process
- CLP structure and content
- Community Considerations and planned measures

Successful completion of Foundation training will earn attendees the Construction Logistics Planning Foundation Certificate.

Practitioner

Completion of the Foundation training is a prerequisite for those who wish to obtain the Practitioner qualification.

Those who attend the Practitioner training will leave with an understanding of:

- How the CLP may be tailored to align with the 6 phases of construction
- How to utilise the CLP Tool
- How to implement planned measures through CLP development
- How to review, re-assess and update the CLP

Successful completion of Practitioner training will earn attendees the Construction Logistics Planning Practitioner Certificate.

Advanced

Completion of the Practitioner training is a prerequisite for those who wish to attend the Advanced training.

Those who attend the Advanced training will leave with an understanding of:

- Data modelling / vehicle estimation tools
- Communicating CLPs through the supply chain
- Self or internal measuring auditing techniques
- Enforcing CLP requirements

The Chartered Institute of Logistics and Transport | Accredited Short Course

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Policy

This section explains why CLPs are used in planning and outlines the key national strategic planning policies.

National Planning Policy Framework (NPPF)

The NPPF promotes the use of sustainable transport throughout the UK, safe road design, and the efficient and sustainable delivery of goods and supplies. The NPPF sets out the long-term strategy for sustainable development.

Traffic Management Act (2004)

Part 2 of the Traffic Management Act sets out the responsibility of local authorities to manage traffic networks within their geographical area of responsibility. This includes efficient use of the network and the requirement to take measures to avoid contributing to traffic congestion.

Local Planning Authority policy

Local authorities have a statutory responsibility to minimise disruption to nearby residents and the local economy during the construction stage of a development. This is captured in a range of statutory requirements and best practice guidance, some of which apply to the planning process. An element of these requirements includes producing CLPs as part of a suite of plans designed to ensure sustainable development.

Opportunity Area Planning Framework (OAPF)

CLPs can be effective at significantly reducing construction transport movements in and around OAPF developments as they can cover multiple sites, and should be considered as part of the OAPF process.

Highways Act

The Highways Act 1980 is an Act of the Parliament of the United Kingdom dealing with the management and operation of the road network in England and Wales. It is the Act which most of the activities pertaining to CLPs utilise.

Vision Zero

An approach to road danger reduction that works towards the elimination of road traffic, deaths and serious injuries by reducing the dominance of motor vehicles on our streets.

** If customising this guidance for your local area, insert any references to local strategies, plans and policies (as appendices) here. **

Contents

Writing a CLP

The following structure is used when preparing both the Outline CLP and Detailed CLP.

This section of the guidance describes the details required in each CLP. It is split into two sections: Outline CLP and Detailed CLP. Within these sections, the strategies to reduce impacts section differentiates between lower, medium and higher impact developments.

1. Introduction
2. Context, considerations and challenges
3. Construction programme and methodology
4. Vehicle routing and site access
5. Strategies to reduce impacts
6. Estimated vehicle movements
7. Implementing, monitoring and updating

CLP toolkit/resources

To assist you in learning about and implementing CLPs, there are several resources for CLP guidance available on the CLOCS website:

- A CLP Tool
- A CLP Tool completed example
- An Outline CLP Template
- An Outline CLP Template completed example

Available here: CLOCS website

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Outline CLP:
Introduction

The introduction shall provide high level information including:

- Developer name
- Existing site location and use
- Summary of works
- Individual responsible for preparing the CLP must be identified in this section and on the title page of the CLP, as shown in the CLP Template (available here: CLOCS website).
- The individual responsible for approving the CLP must also be identified in this section.

The following information should also be included, under these headings:

- Objectives of the CLP
- Site context
- Development proposals
- CLP structure

Contents

Outline CLP: Context, considerations and challenges

This section describes the current situation on and around the site. It should briefly describe the relevant local Community Considerations and land uses that may have an impact on construction.

Relevant infrastructure owners and operators (i.e. Network Rail, National Grid, TfL, TfGM etc.) should be consulted at the earliest opportunity if the construction is expected to have an impact on their assets.

The headings in these sections are described in more detail in the CLP Template (available here: CLOCS website) and must include:

- Policy
- Plans
- Local access including highways, public transport, cycling, walking and waterways
- Community Considerations

This chapter should also include three clearly legible maps that show the current context of the site. The three maps should include the following details:

Regional plan with a scale smaller than 1:15,000 showing:

- The location of the work site(s) in the context of main roads, routes, water ways, railways and other key infrastructure
- Freight delivery infrastructure (e.g. consolidation centres)
- Community Considerations

Local context plan with a scale of between 1:2,000 and 1:3,000 showing:

- The location of the site in the context of surrounding roads, footways, cycle routes and other infrastructure
- Detail nearest wharf and railhead to site
- Potential marshalling areas
- Freight delivery infrastructure (e.g. consolidation centres)
- Community Considerations

Site boundary plan with a scale of between 1:500 and 1:1,000 showing:

- The local context of the area with a fine level of detail (OS data) as currently provisioned highlighting the extent of footways, other buildings, cycle lanes and road markings
- Community Considerations

Please see examples of these maps in CLP Example (available here: CLOCS website)

Contents

Outline CLP:
Construction programme and methodology

This section outlines the construction programme and the methodology. The CLP Tool should be used to generate a construction programme diagram to be accompanied by an explanatory narrative (see the CLP Template at CLOCS website).

The construction methodology must be described for the duration of the development using the following six different phases for buildings and infrastructure projects.

Buildings phases:

1. **Site setup and demolition** – includes establishing welfare accommodation, setting-up hoarding, demolishing existing buildings and clearing the site of debris.
2. **Basement excavation and piling** – typically includes removing excavated material from the site and excavating the basement. As the basement is being dug, piling is required to form the basement walls and structural footings of the building.
3. **Sub-structure** – below ground works include foundations and basement walls. Plant installation can also occur.
4. **Super-structure** – above ground works including the structural elements of the building including floors.
5. **Cladding** – cladding includes the external elements of the building including the façade, roof and glazing.
6. **Fit-out, testing and commissioning** – this stage includes all mechanical, electrical, and plumbing installation and testing of newly installed systems.

Infrastructure phases:

1. **Site establishment, clearance and alterations** – includes establishing welfare accommodation, clearing the site of debris and existing buildings and alterations to existing infrastructure (e.g. utilities).
2. **Excavation and foundations** – typically includes removing excavated material from the site and excavating the basement. As the basement is being dug, piling is required to form the basement walls and structural footings.
3. **Sub-structure** – below ground works include foundations and basement walls. Plant installation can also occur.
4. **Super-structure** – includes the above ground structural elements of the infrastructure.
5. **Services and systems installation** – infrastructure projects typically have extensive and complex systems. These can include mechanical, electrical and plumbing (MEP) systems, but also specialised systems (e.g. signalling, electrical and water).
6. **Fit-out, testing and commissioning** – includes all mechanical, electrical, and plumbing installation and testing of newly installed systems.

Contents

Outline CLP:
Construction programme and methodology cont.

Lower impact site

For developments with a lower impact, details should include the overall programme and peak period of activity.

Medium impact site

For developments with a medium impact, the overall programme will need to be identified including the start of demolition/enabling works and the peak period of activity.

Higher impact site

For developments with a higher impact, the pre-contract engagement of a contractor or construction logistics expert is suggested to ensure the Outline CLP is as accurate and realistic as possible. The programme for the works should be defined, including start and end dates for each phase of construction and a description of how works are expected to occur during each phases.

Contents

Outline CLP:
Vehicle routing and site access

This section consists of maps and associated text describing the vehicle routing and site access plans. The plans should be marked up versions of the plans already included to illustrate the sites, context considerations and challenges. The plans at the three different scales should include those items listed below.

Regional plan with a scale smaller than 1:15,000 showing:

- Strategic roads that are likely to be used to access the site
- Freight delivery infrastructure (e.g. consolidation centres)
- Community Considerations

Local context plan with a scale of between 1:2,000 and 1:3,000 showing:

- Local area routing including turn back routes
- Local access roads required to be used for the last stages of a journey to site. Specific access routes on the local roads should be identified. The connection to/from local roads to the strategic road network should also be shown.
- Routes that are off-limits to site traffic
- Detail of nearest wharf and railhead to site
- Freight delivery infrastructure (e.g. consolidation centres)
- Community Considerations

Site plan with a scale of between 1:500 and 1:1,000 showing:

- Local access to the site
- Hoarding lines with site access gates (vehicle, pedestrian and cyclist)
- Pedestrian and cycle access and routes both into an on site
- Highway changes (including footway and road closures)
- Vehicle routing to site (including swept paths)
- Vehicle pit lanes, marshalling and loading areas
- Vehicle routing on to and within the site (including swept paths)
- Crane location(s)
- Potential areas of conflict and traffic marshal locations
- Parking (vehicle and cycle), loading and unloading arrangements.
- Community Considerations

Medium impact sites require a single plan showing the typical site layout.

Higher impact sites require multiple plans showing the site layout during the different phases of construction.

Please see examples of these maps in CLP Example (available here: CLOCS website)

Contents

Outline CLP:
Strategies to reduce impacts

This section describes measures that can be implemented to ensure the CLP is effective in achieving the aims of reducing environmental impact, road risk, congestion and cost.

Planned measures are specific techniques that are agreed to through the planning process. Planned measures need to be SMART (Specific, Measurable, Achievable, Relevant & Time-bound), easily interpreted, implemented and monitored. They are agreed in outline during planning permission process and the detail is defined prior to starting construction activities.

The measures are categorised as follows:

Committed – indicates a measure that will be implemented as part of the CLP, secured by planning condition or, where applicable, through the Section 106 agreement. These measures shall be included in any tendering documents for the contract to build the development. If the developer's contractors do not comply with these requirements, it will be classified as a material breach of their contract and could lead to them being refused access to the site. It is the developer's responsibility to ensure their requirements are part of the main contractor and subcontractor contracts. The main contractor is responsible for ensuring that all sub-contractors conform to these contractual requirements.

Proposed – indicates a measure that is feasible and must be evaluated to determine its practicality. If a measure is not feasible, the CLP shall contain justification and evidence as to why it has been rejected. Proposed measures shall be discussed with potential contractors during the procurement stage with a view to including them in the contract and agreeing to them in the Detailed CLP.

Considered – indicates a measure that is not currently relevant but may be in the future. These measures should be proposed if suitable, but the CLP does not need to mention them if they are not appropriate.

The suggested requirements differ slightly depending on the impact of the site. The tables on the following 2 pages represent the baseline measures that are expected to be committed to. Any deviation from these will need to be justified in the CLP.

Contents

Outline CLP: Planned measures for a medium impact site

A medium impact site shall consider the following planned measures in the Outline CLP:

The following planned measures should be **committed** to:

- Safety and environmental standards and programmes
- Adherence to designated routes

The following planned measures should be **proposed** for further study/detail:

- Delivery scheduling
- Re-timing for out-of-peak deliveries
- Re-timing for out-of-hours deliveries
- Use of holding and vehicle call off areas
- Use of logistics and consolidation centres
- Smart procurement
- Implement a staff travel plan

The following planned measures shall be **considered** if circumstances change:

- Vehicle choice
- Freight by Water
- Freight by Rail
- Design for Manufacture and Assembly (DfMA) and off-site manufacture
- Collaboration with other sites in the area.
- Re-use of material on site

Planned measures – medium impact site

Planned measures checklist	Committed	Proposed	Considered
Measures influencing construction vehicles and deliveries			
Safety and environmental standards and programmes	X		
Adherence to designated routes	X		
Delivery scheduling		X	
Re-timing for out-of-peak deliveries		X	
Re-timing for out-of-hours deliveries		X	
Use of holding areas and vehicle call off areas		X	
Use of logistics and consolidation centres		X	
Vehicle choice			X
Measures to encourage sustainable freight			
Freight by Water*			X
Freight by Rail			X
Material procurement measures			
DfMA and off-site manufacture			X
Re-use of material on site			X
Smart procurement		X	
Other measures			
Collaboration with other sites in the area			X
Implement a staff travel plan		X	

* If site, consolidation centre or holding areas are within 100m of foreshore of navigable water-way or rail freight siding.

NB: lower impact sites require a single plan showing the typical site layout.

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Outline CLP: Planned measures for a higher impact site

A higher impact site shall consider the following planned measures in the outline CLP:

The following planned measures shall be **committed** to:

- Safety and environmental standards and programmes
- Adherence to designated routes
- Delivery scheduling
- Collaboration with other sites in the area
- Implement a staff travel plan

The following planned measures shall be **proposed** for further study/detail:

- Re-timing for out-of-peak deliveries
- Re-timing for out-of-hours deliveries
- Use of holding and vehicle call off areas
- Use of logistics and consolidation centres
- Freight by Water
- Freight by Rail
- Design for Manufacture and Assembly (DfMA) and off-site manufacture
- Re-use of material on site
- Smart procurement

The following planned measures shall be **considered** if circumstances change:

- Vehicle choice

Planned measures – higher impact site

Planned measures checklist	Committed	Proposed	Considered
Measures influencing construction vehicles and deliveries			
Safety and environmental standards and programmes	X		
Adherence to designated routes	X		
Delivery scheduling	X		
Re-timing for out-of-peak deliveries		X	
Re-timing for out-of-hours deliveries		X	
Use of holding areas and vehicle call off areas		X	
Use of logistics and consolidation centres		X	
Vehicle choice			X
Measures to encourage sustainable freight			
Freight by Water*		X	
Freight by Rail		X	
Material procurement measures			
DfMA and off-site manufacture		X	
Re-use of material on site		X	
Smart procurement		X	
Other measures			
Collaboration with other sites in the area	X		
Implement a staff travel plan	X		

* If site, consolidation centre or holding areas are within 100m of foreshore of navigable water-way or rail freight siding.

Contents

Outline CLP:
Estimated vehicle movements

As part of the Outline CLP, the number of trips associated with the construction of the development should be estimated. This estimate will vary based on the type of construction, the programme and the phasing of construction.

The applicant will use their own methods to develop an initial estimate of the number of vehicles arriving on site during each of the six phases of construction. The data presented in the CLP should, for consistency, be submitted from the CLP Tool. This information will be important for target-setting and measuring actual road activity. Vehicle movement numbers provided must be realistic and proportionate to the size of the development.

As part of the estimation exercise, the size of any vehicle holding areas and capacity of any vehicle unloading points should also be reported. The peak number of vehicles arriving on site must not exceed the site's capacity to accommodate said vehicles.

Contents

Outline CLP: Implementing, monitoring and updating

The Outline CLP should include a description of how the CLP will be implemented, monitored and updated. Although many details and defined strategies will be unavailable at the planning stage, the intention and output of the implementation, monitoring and updating strategy should be reported. Local traffic management procedures should be referred to.

This section should include the following:

- Job title and Construction Logistics Practitioner ID number of the people responsible for approving and implementing the CLP
- Data that will be collected
- Description of the contractors' handbook
- Description of the drivers' handbook

The data collected should include:

Number of vehicle movements to site:
- Total vehicle, rail or barge movements
- By vehicle type/size/age
- Time spent on site
- Consolidation centre utilisation
- Origin and destination of vehicle, barge or train arriving at or leaving site (or wharf/railhead in use)
- Delivery/collection accuracy compared to schedule

Breaches and complaints:
- Community concerns about construction activities
- Vehicle routing
- Unacceptable queuing or parking
- Adherence to safety & environmental standards & programmes
- Low Emissions Zone (LEZ) and Ultra Low Emissions Zone (ULEZ) compliance
- Anti-idling

Safety:
- Logistics-related incidents
- Record of associated fatalities and serious injuries
- Methods staff are travelling to site
- Vehicles and operators not meeting safety requirements
- Personal safety surrounding the site

Contents

Detailed CLP:
Introduction

The introduction should provide information about the development and the construction including:

- Site location and use
- Developer name
- Name and contact information of individual responsible for preparing the CLP
- Name and contact information of individual responsible for approving the CLP
- Site contact details (in hours)
- Site contact details (out of hours)
- Summary of works
- Hours of operation
- Scope and size of development
- Estimated materials and quantities
- Traffic Regulation Orders (TROs) that may be required
- Events / temporary overlay

This section should be organised using the following headings:

- Objectives of the CLP
- Site context
- Development proposals
- CLP structure

Contents

Detailed CLP: Context, considerations and challenges

This section describes the current situation on and around the site. It must include a brief description of any changes that have occurred to relevant local community considerations and land uses since completion of the Outline CLP.

Relevant infrastructure owners and operators (i.e. Network Rail, National Grid, TfL, TfGM etc.) should be consulted at the earliest opportunity if the construction is expected to have an impact on their assets.

This chapter should also include three clearly legible maps that show the current context of the site. The three maps should include the following details:.

Regional plan with a scale smaller than 1:15,000 showing:

- The location of the work site(s) in the context of main roads, cycle routes, water ways, railways and other key infrastructure
- Freight delivery infrastructure (e.g. consolidation centres)
- Community Considerations

Local context plan with a scale of between 1:2,000 and 1:3,000 showing:

- The location of the site in the context of surrounding roads, footways, cycle routes and other infrastructure
- Marshalling areas
- Residential/commercial population approximate numbers
- Community considerations
- Detail nearest wharf and railhead to site
- Freight delivery infrastructure (e.g. consolidation centres)

Site boundary plan with a scale of between 1:500 and 1:1,000 showing:

- The local context of the area with a fine level of detail (OS data) as currently provisioned highlighting the extent of footways, other buildings, cycle lanes and road markings
- Community considerations

Contents

Detailed CLP: Construction programme and methodology

This section outlines the construction programme and the methodology. The CLP Tool should be used to generate a construction programme diagram and this should be accompanied by a narrative (see the CLP Template on CLOCS website).

The construction methodology must be described for the duration of the development using the following six different phases for buildings and infrastructure projects:

Buildings:

1. Site setup and demolition
2. Basement excavation and piling
3. Sub-structure
4. Super-structure
5. Cladding
6. Fit-out, testing and commissioning

Infrastructure:

1. Site establishment, clearance and alterations
2. Excavation and foundations
3. Sub-structure
4. Super-structure
5. Services and systems installation
6. Fit-out, testing and commissioning

For more details on these phases, please go to page 14.

Medium impact site

For developments with a medium impact, the overall programme and the peak period of activity need to be identified.

Higher impact site

For developments with a higher impact, the developer should engage with the contractor to either provide information or assist in writing the Detailed CLP. The construction methodology should be described including the types of materials that will be used. The construction programme should be defined including:

- Start and end dates for each phase of construction
- A description of how works will occur at the different phases
- The types of materials to be used and the methodology for bringing materials to site.

Contents

Detailed CLP:
Vehicle routing and site access

This section consists of maps and associated text describing the vehicle routing and site access plans. The plans should be marked up versions of the plans already included to illustrate the sites, context considerations and challenges.

These plans should also be similar to those submitted in the Outline CLP with any relevant updates incorporated. The plans at the three different scales should include:

Regional plan with a scale smaller than 1:15,000 showing:

- Strategic roads that are likely to be used to access the site.
- Freight delivery infrastructure (e.g. consolidation centres)
- Community considerations

Local context plan with a scale of between 1:2,000 and 1:3,000 showing:

- Local area routing including turn back routes
- Local access roads may be required to be used for the last stages of a journey to site. Specific access routes on the local roads should be identified. The connection to/from local roads to the strategic road network should also be shown
- Routes that are off-limits to site traffic
- Community considerations
- Freight delivery infrastructure (e.g. consolidation centres)

Site plan with a scale of between 1:500 and 1:1,000 showing:

- Local access to the site
- Hoarding lines with site access gates (vehicle, pedestrian and cyclist)
- Pedestrian and cycle access and routes both into and on site
- Changes to highway (including footway and road closures)
- Vehicle routing to site (including swept paths)
- Vehicle pit lanes, marshalling and loading areas
- Vehicle routing on to and within the site (including swept paths)
- Crane location(s)
- Potential areas of conflict and traffic marshal locations
- Parking (vehicle and cycle), loading and unloading arrangements.
- Community considerations

Lower impact sites require a single plan showing the typical site layout.

Medium impact sites require a single plan showing the typical site layout.

Higher impact sites require multiple plans showing the site layout during the different phases of construction.

Contents

Detailed CLP:
Strategies to reduce impacts

This section describes measures that can be implemented to ensure the CLP is effective in achieving the aims of reducing environmental impact, road risk, congestion and cost.

Planned measures are specific techniques that are agreed through the planning process. Planned measures need to be SMART (Specific, Measurable, Agreed, Realistic, Timely), easily interpreted, implemented and monitored. They are agreed in outline during planning permission process and the detail is defined prior to starting construction activities.

The measures are categorised as follows:

Committed – indicates a measure that shall be implemented as part of the CLP, secured by planning condition or, where applicable, the Section 106 agreement. These measures shall be included in any tendering documents for the contract to build the development. If the developer's contractors do not comply with these requirements, it will be classified as a material breach of their contract and could lead to them being refused access to the site. It is the developer's responsibility to ensure their requirements are part of the main contractor and subcontractor contracts. The main contractor is responsible for ensuring that all sub-contractors conform to these contractual requirements.

Proposed – indicates a measure that is feasible and shall be studied further to determine its practicality. If a measure is not feasible, the CLP must contain justification and evidence as to why it has been rejected. Proposed measures should be discussed with potential contractors during the procurement stage with a view to including them in the contract and agreeing to them in the Detailed CLP.

Considered – indicates a measure that is not currently relevant but may be in the future. These measures should be proposed if suitable.

The suggested requirements differ slightly depending on the impact of the site. The tables on the following 2 pages represent the baseline measures that are expected to be committed to. Any deviation from these will need to be justified in the CLP.

Contents

Detailed CLP:
Planned measures for a medium impact site

A medium impact site shall consider the following planned measures in the Outline CLP:

The following planned measures should be **committed** to:

- Safety and environmental standards and programmes
- Adherence to designated routes
- Freight by Water
- Freight by Rail
- Implement a staff travel plan

The following planned measures should be **proposed** for further study/detail:

- Delivery scheduling
- Re-timing for out-of-peak deliveries
- Re-timing for out-of-hours deliveries
- Use of holding and vehicle call off areas
- Use of logistics and consolidation centres
- Re-use of material on site
- Smart procurement
- Collaboration with other sites in the area

The following planned measures shall be **considered** if circumstances change:

- Vehicle choice
- Design for Manufacture and Assembly (DfMA) and off-site manufacture

Planned measures - medium impact site:

Planned measures Checklist	Committed	Proposed	Considered
Measures influencing construction vehicles and deliveries			
Safety and environmental standards and programmes	X		
Adherence to designated routes	X		
Delivery scheduling		X	
Re-timing for out-of-peak deliveries		X	
Re-timing for out-of-hours deliveries		X	
Use of holding areas and vehicle call off areas		X	
Use of logistics and consolidation centres		X	
Vehicle choice			X
Measures to encourage sustainable freight			
Freight by Water*	X		
Freight by Rail	X		
Material procurement measures			
DfMA and off-site manufacture			X
Re-use of material on site		X	
Smart procurement		X	
Other measures			
Collaboration with other sites in the area		X	
Implement a staff travel plan	X		

* If site, consolidation centre or holding areas are within 100m of foreshore of navigable water-way or rail freight siding.

Contents

Detailed CLP:
Planned measures for a higher impact site

A higher impact site shall consider the following planned measures in the Outline CLP:

The following planned measures should be **committed** to:

- Safety and environmental standards and programmes
- Adherence to designated routes
- Delivery scheduling
- Freight by Water
- Freight by Rail
- Collaboration with other sites in the area
- Implement a staff travel plan

The following planned measures shall be **proposed** for further study/detail:

- Re-timing for out-of-peak deliveries
- Re-timing for out-of-hours deliveries
- Use of holding and vehicle call off areas
- Use of logistics and consolidation centres
- Design for Manufacture and Assembly (DfMA) and off-site manufacture
- Re-use of material on site
- Smart procurement

The following planned measures should be **considered** if circumstances change:

- Vehicle choice

Planned measures - higher impact site:

Planned measures Checklist	Committed	Proposed	Considered
Measures influencing construction vehicles and deliveries			
Safety and environmental standards and programmes	X		
Adherence to designated routes	X		
Delivery scheduling	X		
Re-timing for out-of-peak deliveries		X	
Re-timing for out-of-hours deliveries		X	
Use of holding areas and vehicle call off areas		X	
Use of logistics and consolidation centres		X	
Vehicle choice			X
Measures to encourage sustainable freight			
Freight by Water*	X		
Freight by Rail	X		
Material procurement measures			
DfMA and off-site manufacture		X	
Re-use of material on site		X	
Smart procurement		X	
Other measures			
Collaboration with other sites in the area	X		
Implement a staff travel plan	X		

* If site, consolidation centre or holding areas are within 100m of foreshore of navigable water-way or rail freight siding.

Contents

Detailed CLP:
Estimated vehicle movements

As part of the Detailed CLP, the contractor shall provide an estimate of the number of trips associated with the construction of the development. This will vary between phases and will require close cooperation with all subcontractors.

The applicant will use their own methods to develop an initial estimate of the number of vehicles arriving on site during each of the six phases of construction. The data presented in the CLP should, for consistency, be submitted from the CLP Tool. This information will be important for target-setting and measuring actual road activity. Vehicle movement numbers provided must be realistic and proportionate to the size of the development.

As part of the estimation exercise, the size of any vehicle holding areas and capacity of any vehicle unloading points should also be reported. The peak number of vehicles arriving on site should never exceed the site's capacity to accommodate said vehicles.

Contents

Detailed CLP: Implementing, monitoring and updating

The Detailed CLP should be implemented throughout the construction programme to ensure it is effective. The CLP is expected to be a 'living document' and so should be updated during construction if any significant changes to the scope or programme of construction occur. Although the CLP can be reviewed at any time, CLPs are typically reviewed prior to the start of a new phase of construction.

Where there is a concentration of construction activity, it is good practice to set up a construction working group, with representatives from all interested parties, including the local planning authority. The working group should share the results of the CLPs, broken down so that people can see the impact for each individual development phase and the numbers and types of vehicles in use. There is an expectation that the contractor will participate and work together with others in the area to minimise impacts.

Online delivery booking, tracking systems and gate checks also provide detailed evidence about the number and type of delivery vehicles, and the efficiency and accuracy of the deliveries made. All this information will help highlight actual impacts of deliveries against predictions, and help set targets for future impact assessments.

The following information should be recorded to aid in monitoring the CLP:

- Job title and Construction Logistics Practitioner ID number of the people responsible for approving and implementing the CLP.
- Data (the format of the data will depend on the extent and capability of the monitoring tools used)
- Contractors' handbook
- Drivers' handbook

The following list is a suggested starting point for the type of data that could be collected and reviewed:

Number of vehicle movements to site:
- Total vehicle, rail or barge movements
- By vehicle type/size/age
- Time spent on site
- Consolidation centre utilisation
- Origin and destination of vehicle, barge or train arriving at or leaving site (or wharf/railhead in use)
- Delivery/collection accuracy compared to schedule

Breaches and complaints:
- Community concerns about construction activities
- Vehicle routing
- Unacceptable queuing or parking
- Adherence to safety & environmental standards & programmes
- Low Emissions Zone (LEZ) and Ultra Low Emissions Zone (ULEZ) compliance
- Anti-idling

Safety:
- Logistics-related incidents
- Record of associated fatalities and serious injuries
- Methods staff are travelling to site
- Vehicles and operators not meeting safety requirements
- Personal safety surrounding the site

Contents

Detailed CLP: Implementing, monitoring and updating cont.

Contractors' handbook

A contractor and driver handbook can be used to distribute information to those responsible for abiding by the CLP. They are recommended to aid in implementing the CLP.

The CLP should contain details of the contractors' handbook. Producing a handbook is an effective way to ensure that all contractors are aware of their obligations. This should include the following:

- **Safety toolbox talk** – setting out how and when these will take place, including frequency and duration and an outline of topics to be included. These should be environmental and safety orientated.
- **Anti-idling toolbox talk** – setting out how and when these will happen for all drivers, including frequency and duration.
- **Vehicle routing and delivery scheduling system** – an explanation to contractors of the routing and delivery system in use, contractors' access and their requirement to utilise the schedule deliveries system.
- **Driver training** – an outline of how and when this will happen during the contract, and the company that will carry out the training.
- **Safety and environmental standards**

Contract compliance

Contractors must report on any requirements that are part of the planning condition and/or the CLP. This must happen at a pre-agreed time, such as daily, weekly or monthly. The complexity and frequency of the reporting will reflect the scale and duration of the construction programme. The responsibility for managing and monitoring is usually with the developer. The planning authority will not take an active role in monitoring and managing individual CLPs but will become involved should an incident occur or complaints be registered. The records kept by the developer (or contractor if delegated) could be scrutinised. Should serious defects become apparent, a 'stop work' order could be issued in extreme circumstances.

Drivers' handbook

Owing to the subcontracted nature of the construction industry, it is important that all drivers are aware of their obligations. Therefore, a drivers' handbook should include essentials relating to environment and safety. It should be concise, specific to the individual construction programme, and should include:

- Authorised routes to and from the site
- Site opening times
- Booking and scheduling information
- Site entry and exit points, and other information relating to access
- Anti-idling
- Vulnerable road user safety

Contents

Planned measures

Planned measures are specific techniques that are agreed and committed to through the planning permission process. They are used to influence behaviours that reduce environmental impact, road risk and congestion. Planned measures need to be SMART (Specific, Measurable, Achievable, Relevant, Time-bound) easily interpreted, implemented and monitored.

They are agreed in the Outline CLP during planning permission process. They are revisited when the Detailed CLP is defined prior to commencing construction activity. If practicable, a commitment to using rail and water should be made.

This section of the CLP Guidance (p32-45) describes a range of potential measures that offer many benefits, and also potential cost savings to developers and construction freight and logistics operators.

Further guidance:

- The CLOCS Planned Measures page.
- The CLOCS Planned Measures - London case study
- The TfL Construction Freight Benefits report to see quantified calculated benefits for several case studies.

Contents

Safety and environmental standards and programmes

A commitment to follow established programmes will require suppliers and contractors to be contractually obligated to adhere to higher safety and environmental standards.

CLOCS - Construction Logistics and Community Safety

The CLOCS Standard draws together evolving and applied best practice from a number of standards, policies and codes of practice to provide one industry standard that can be implemented by regulators, clients, principal contractors and fleet operators.

The Standard aims to ensure that construction companies follow safe practices in the management of their operations, vehicles, drivers and construction sites. Adherence will entail, for example, preparation of a CLP, details of site access and inclusion of a procurement clause specifying an operator's quality standard - typically FORS Silver.

It is expected that, as part of your CLP, adoption of and adherence to the CLOCS standard are mandated by the procurement process.

Visit clocs.org.uk to find out more.

FORS - Fleet Operator Recognition Scheme

FORS is a voluntary national fleet accreditation scheme designed to help improve fleet operator performance in key areas such as environmental performance, safety and operational efficiency.

Its purpose is to raise the level of quality within fleet operations and to recognise those operators that are achieving the environmental, safety and efficiency requirements of the FORS standard.

There are progressive requirements for achieving FORS accreditation at Bronze, Silver and Gold levels. The FORS logo allows construction clients to readily distinguish FORS operators from other operators – it is a mechanism by which adherence to the CLOCS standard can be assured and monitored. FORS accreditation confirms that a fleet operator can demonstrate that appropriate systems and policies exist to ensure drivers are suitably fit, qualified and licenced to operate vehicles which are properly maintained, equipped and insured.

It is expected that, as part of your CLP, achievement of and adherence to the FORS Silver standard is mandated via the procurement process for all fleet operators engaged to support the development.

Visit fors-online.org.uk to find out more and see a list of accredited operators.

Contents

Safety and environmental standards and programmes cont.

HGV Direct Vision Standard

HGV blind spots have been shown to contribute to a large proportion of collisions with vulnerable road users. Recent research has shown that increased levels of direct vision – what a driver can see directly through the windows of the cab – can improve reaction times and reduce cognitive demand on the driver.

In London, Transport for London developed a Direct Vision Standard (DVS) for HGVs. The DVS is an objective, scientific measure of how much a HGV driver can see from their cab directly through windows, as opposed to indirectly through mirrors or camera monitoring systems. The DVS categorises vehicles using a simple star rating system based on how much of the area of greatest risk to vulnerable road users a driver can see. The higher the star rating, the more a driver can directly see of this area. Three stars equate to a 'good' rating, while zero stars will be awarded to those HGVs considered 'not suitable for use in an urban environment' because of the significantly higher potential risk of collision they pose.

It is expected that as part of your CLP you ensure that no vehicles deemed unsuitable for the urban environment are used to support your development and that operators are encouraged to use the highest star rated vehicles practicable.

For more information, visit tfl.gov.uk/direct-vision-standard

Operational conditions and site standards for construction supply and waste sites

Many of the HGVs that pose the greatest risk to vulnerable road users are designed to be driven off-road, with a high chassis designed to cope with uneven or soft surfaces.

The majority of off-road HGVs spend only a small proportion of their time operating in off-road conditions. If all construction sites, tips and quarries had level driving surfaces, there would be no need for off-road HGVs to be on our streets. For vehicle operators, improved site conditions also mean less damage to vehicles and reduced operating costs.

CLOCS has developed a handbook to help with the assessment of on-site ground conditions, which provides a one to five rating based on the ground conditions at a particular site (approach angle, rutting and bumps, water, material type). An exemplar site rated five on the scale will be suitable to operate low entry vehicles whilst a site rated one will only be suitable for some N3G classification of 'off road' vehicles variants and site plant only.

It is expected that as part of your CLP you will assess your development site, include the rating with the CLP and ensure that operators supporting the site are aware of the rating to allow them to select the vehicle most suitable to the operating conditions.

The directory and assessment criteria can be found here: clocs.org.uk

Contents

Adherence to designated routes

Designated routes form a key part of the CLP and must be defined and adhered to by all vehicles accessing the site.

Strategic access routes

Unless materials are being transported from local suppliers, goods vehicles will be required to travel to site from other locations. Such journeys should be restricted, unless otherwise advised, to the Strategic Road Network (SRN); best suited to this type of heavy traffic. Use of strategic routes is less likely to create congestion and will help minimise the impact on local air quality. These strategic access routes must be recorded clearly on a map and communicated to drivers and contractors using the CLP and handbooks.

Local access routes

The impact on local access roads may be essential for the last stages of a journey to site. One or more specific access routes on the local distributor road network should be specified as compulsory. You must also show how these link to the strategic road network.

These routes should be discussed and agreed with the planning authority on a site-specific basis, taking into account:

- Transport assessment results
- Local capacity constraints
- Safety considerations
- Potential for multi-drop deliveries where neighbouring sites collaborate
- Likely site access and unloading points

Community considerations

The route to the site should avoid areas that may increase the traffic risk to vulnerable road users. For example, avoid routes that pass:

- Residential areas
- Schools
- Hospitals
- Health centres
- Community centres
- Sports facilities
- Public transport infrastructure
- Cycle Super Highways
- Bus stops

If this is not possible, the area in question must be clearly marked on the map and extra care taken when driving through it.

Contents

Delivery scheduling and re-timing for out of hours deliveries and out of peak deliveries

A commitment to carefully manage site deliveries and collections by scheduling and re-timing them in a manner that consciously avoids, where possible, the most congested times of the day and in a way that is sensitive to local community. Doing so will reduce congestion, allowing site-related vehicles to operate more efficiently while minimising the risk of collision, particularly with cyclists and pedestrians. Efficient delivery scheduling can also reduce cost and contribute to improved air quality.

Delivery Schedule

Sites are encouraged to employ a Delivery Management System (DMS). This could be either electronic or paper based. Whatever the format, such systems are vital to the coordination of a site's booking and delivery process. Delivery management ensures that the flow of vehicles to and from site is controlled, ensuring that deliveries are expected to promote safe and efficient use of loading/unloading areas.

Delivery Management also provides surety of delivery for critical items, which protects the integrity of the build schedule, and allows for accurate, efficient reporting of delivery activity.

Out of peak

Deliveries and collections made outside of peak traffic times are more likely to arrive on time which may in turn reduce on-site delays. They also have the potential to reduce congestion in the vicinity of the development with all of the associated safety, environmental and efficiency improvements this may entail. Consequently, where possible, off-peak movements are encouraged.

Out of hours

With the right level of support from stakeholders and when carried out responsibly, deliveries can take place at different times selected to suit residents, businesses and operators.

Contents

Use of holding and vehicle call off areas

A commitment to use holding and call off areas can reduce congestion, unacceptable parking and associated penalties.

Holding and call off areas allow vehicles to wait and/or queue at a suitable location near the site where they can be called to site when appropriate and at short notice. Holding areas can be located on vacant sites, on under-used areas of roadway or anywhere near the work site where vehicles can be held with minimal adverse impacts.

Holding and call off areas can only be used if approved by the relevant authority. Inclusion in an approved CLP does not remove the right of the appropriate highway authority to suspend such use if the area is on their network.

Holding area case studies with quantified calculated benefits can be found in the TfL Construction Freight Benefits report.

Contents

Use of logistics and consolidation centres

A commitment to using a consolidation centre can help reduce and control the number of deliveries to site. Such facilities can also be used for off-site 'assembly' of materials and quality control purposes.

The benefits of consolidation centre use include:

- Reduced environmental impact through a reduction in road miles run
- Improved safety as a result of fewer vehicle movements
- Increased security of supply through provision of a 'storage buffer' for long lead items
- Reduced likelihood of damage or theft to materials as a result of less on-site storage
- Reduced construction and delivery costs through reduced fuel costs

If a consolidation centre is to be used, the location, the anticipated number of deliveries to and from the centre and the nature of the vehicles involved (for example, the potential use of electric vehicles) should be noted in the CLP.

For example: consolidation centres are mapped in the Freight Infrastructure in London Tool (FIILT) which can be found here.

Contents

Freight by rail and/or water

Movement of freight by rail and/or water can be a cost-effective and efficient method of transporting a range of goods and commodities. It is a sustainable approach that removes construction vehicles from our roads.

Movement of freight by rail or water can reduce the amount of harmful emissions associated with a development and improve safety by reducing the likelihood of a construction vehicle being involved in a collision. Any site that is close to a railhead and/or wharf should automatically consider the use of these modes.

Freight by rail and/or water should be proposed and a feasibility study be completed for higher impact sites if either the site, logistics and consolidation centre, or holding area, are near to a freight siding or wharf of a navigable waterway. Many supply points for asphalt and concrete may also be rail or water fed, and any plan should seek to maximise the use of materials from these locations.

For example: water and rail freight facilities are mapped in the Freight Infrastructure in London Tool (FIILT) which can be found here.

Contents

Vehicle choice

On certain construction sites, utilising vehicles with greater payloads has the potential to reduce vehicle movements and therefore improve safety, efficiency and environmental impact but only if those vehicles meet the highest environmental and safety standards.

A study was initiated to look into the potential for using heavy goods vehicles (HGVs) with a higher payload to carry bulk construction materials in London, with a view to reducing overall HGV volumes.

To view the study in full, click: Investigating the construction industry's use of HGV types.

Cargo bike case studies with quantified calculated benefits can be found in the TfL Construction Freight Benefits report.

Contents

DfMA and off-site manufacture

Design for Manufacture and Assembly (DfMA) and off-site construction typically entail the application of factory or factory-like conditions to construction projects. This may mean the assembly of a complete building from prefabricated components or the use of manufactured building components (facade, mechanical and engineering sub-assemblies, bathroom suite, kitchen etc.) within a traditional build.

DfMA and off-site manufacture reduce the number of vehicles arriving to site and can minimise the amount of waste generated, therefore reducing the overall environmental impact of the site. Site safety is also improved and costs may be reduced by increasing the speed of construction through productivity improvements.

However, DfMA leads to more abnormal loads which in turn can lead to more disruption on the network and directly outside of the site. Therefore, the benefits of DfMA should be carefully considered and only encouraged where access is safely achievable.

Contents

Re-use of material on site

The benefits of re-using materials on-site are:

- A reduction in vehicle movements delivering new material to site
- A reduction in vehicle movements removing waste material from site

A simple example of such re-use is the crushing of demolished structures to create aggregate.

Reusing materials on site can help to reduce costs, vehicles movements and environmental impact by reusing materials that are already owned and on site. This reuse also reduces the need for additional materials with the associated environmental and financial benefits that follow.

Local on-ste crushing case studies with quantified calculated benefits can be found in the TfL Construction Freight Benefits report.

Contents

Smart procurement

Procurement of suppliers is an often overlooked means by which the number of vehicle movements associated with a development can be reduced. It is important to select a supplier who can, via their approach to logistics, help minimise the number of vehicle movements. Environmental benefit may be derived through their sourcing of materials, location of their freight delivery infrastructure, willingness to collaborate with other suppliers or use of alternative delivery modes.

Smart procurement can also improve safety through specification of the safest and most suitable vehicles, process and equipment.

Finally, smart procurement can reduce cost as consolidation of logistics activity can create economies of scale and the management of fewer suppliers can be more efficient.

Contents

Collaboration with other sites in the area

Working with neighbouring developers to realise benefits such as consolidation of vehicle movements, common procurement and shared-waste management can help increase efficiency and reduce negative construction impacts.

The CLP requires a review of other sites in the area, an assessment of their cumulative impact and the impact of any collaborative planned measures considered. Planned measures can be more efficient when incorporated by multiple sites. Possible such planned measures include:

- Joint use of consolidation centres
- Shared holding areas
- Shared cleaning and traffic control services
- Supplier consolidation
- Driver training programmes
- Regular communication and community engagement
- Shared facilities (for example messing and welfare facilities)
- Re-use of materials

Within an OAPF, collaboration is a mandatory requirement and any collaborative agreement should be in line with the requirements described in the OAPF.

A sharing holding area case study with quantified calculated benefits can be found in the TfL Construction Freight Benefits report.

Contents

Implement a staff travel plan

During the construction process your workforce will, necessarily, make a considerable number of journeys to and from site. The workforce will have an impact that varies based on the number of workers, mode they take and the timing of the trips.

Whilst it is not always compulsory to complete a travel plan for the construction period, your CLP should include confirmation that you have relayed pertinent information (for example, the identity of your travel plan coordinator, a site induction with detail of sustainable travel options and site-specific travel information) to the workforce employed on or visiting the site. It should also state the times at which you expect the highest numbers of your workforce to access/depart the site and shift handovers etc. A staff travel plan may have been written elsewhere and if so, the plan should only be referenced in the CLP.

Your CLP should include:

- Confirmation that a summary of local public transport options to access the construction site has been provided to all staff via induction training
- A description of how the site will discourage the use of private transport by personnel employed in its construction
- Confirmation that safe and secure cycle parking made available at the construction site

Contents

Glossary

CLP Tool

Spreadsheet tool to produce consistent outputs for CLPs.

Construction and Environmental Management Plan (CEMP)

A CEMP outlines how a construction project will avoid, minimise or mitigate effects on the environment and surrounding area.

Construction logistics

The planning, organisation and management of services and movement of materials to and from the construction site.

Construction Logistics and Community Safety (CLOCS)

The CLOCS standard was devised in collaboration with construction clients, logistic operators and industry associations. It aims to ensure that construction companies follow safe practices in the management of their operations, vehicles, drivers and construction sites.

Construction Logistics Improvement Group (CLIG)

The Construction Logistics programme is being implemented through the CLIG and several Working Groups. The primary role of CLIG is to act as the steering group throughout the programme, developing, approving, adopting and promoting interventions through its Working Groups.

Construction Logistics Plan (CLP)

A CLP is an important management tool for planners, developers and those working in construction companies. It focuses specifically on construction supply chains and how their impact on the road network can be reduced.

Construction Management Plan (CMP)

A CMP details the procedures, sequencing and methodology for a construction project with the aim of demonstrating how the impact of construction can be minimised in relation to both on site activity and the transport arrangements for vehicles servicing the site.

Construction phase(s)

For consistency, this guidance refers to 6 distinct construction phases associated with buildings and infrastructure projects. Within each phase, the nature of construction logistics activity will differ. It should be noted that phases may run concurrently.

Consolidation centre

A consolidation centre is a facility used to consolidate numerous small loads of supplies intended for the same final destination into fewer, larger loads. Consolidation centres typically offer additional value add services such as waste collection, stevedoring, off-site construction and security screening.

Contents

Contractors' handbook

This is a component of a CLP which sets out the requirements for all operatives on the construction site.

Community considerations

Relates to facilities and locations over which care should be taken to understand and minimise the negative impacts of construction logistics activity. The umbrella term 'community considerations' is used to address the main concerns faced by construction logistics activities, particularly at the local level. Such activity can have a significant impact on the surrounding community especially when residential areas and/or facilities like schools, hospitals, health centres, community centres, sports facilities, transport hubs and Cycle Super Highways etc. are located near the work site.

Detailed CLP

Submitted to a planning authority at the post-granted discharge of conditions stage. Provides the planning authority with the detail of the logistics activity expected during the construction programme.

Design for Manufacture and Assembly (DfMA)

DfMA is a combination of two methodologies – Design for Manufacture and Design for Assembly – which are both used to minimise production cost and simplify product structure through design and process improvements.

Direct Vision Standard (DVS)

The Direct Vision Standard for heavy goods vehicles (HGVs) assesses and rates how much an HGV driver can see directly from their cab in relation to other road users. It aims to improve the safety of all road users by banning or restricting vehicles with low rating.

Drivers' handbook

This is a component of a CLP which details the obligations of all drivers working on the construction programme.

Fleet Operator Recognition Scheme (FORS)

FORS is a voluntary, national fleet accreditation scheme designed to help improve fleet operator performance in key areas such as fuel efficiency, vehicle emissions, safety and compliance.

Freight Infrastructure in London Toolkit (FIILT)

London only: an interactive web based tool to help public planning bodies, local authorities, river/rail suppliers, wharf owners / operators, construction logistics contractors, construction supply chain contractors, planning consultants, materials suppliers, and developers to identify the opportunities and potential to move goods and services within London by rail or water (river and/or canal) instead of road transport, and to reduce road transport by using Construction Consolidation Centres (CCCs).

Heavy Goods Vehicle (HGV)

Any vehicle with a gross combination mass over 3500kg.

Local Planning Authorities (LPAs)

These are the local authorities or councils that are empowered by law to exercise statutory town planning functions for a particular area of the United Kingdom, making them responsible for deciding whether a development can go ahead.

Local Plan

These are developed by local planning authorities and are a critical tool in guiding decisions about individual development proposals. They set out a vision and a framework for the future development of the area, addressing needs and opportunities in relation to housing, the economy, community facilities and infrastructure – as well as a basis for safeguarding the environment, adapting to climate change and securing good design.

Low Emissions Zone (LEZ)

Low Emission Zones are being introduced in UK cities to encourage the most polluting heavy diesel vehicles driving in the cities to become cleaner by levying a charge on vehicles entering the city which do not comply with LEZ standards.

Mechanical, Electrical Plumbing (MEP)

MEP stands for 'mechanical, electrical and plumbing' in building design and construction.

National Planning Policy Framework (NPPF)

This framework acts as guidance for local planning authorities and decision-makers, both in drawing up plans and making decisions about planning applications, by setting out the Government's planning policies for England and how these are expected to be applied.

Operational phase

This begins once the construction phase has ended and the project has been completed, and continues throughout the duration of the development's use.

Opportunity Area Planning Framework (OAPF)

OAPFs are documents that are used to specify how an 'opportunity area' can be developed.

Outline CLP

Accompanies the planning application and gives the planning authority an overview of the expected logistics activity during the construction programme.

Planned measures

These are specific strategies that are agreed and committed to through the planning permission process. They are used to influence behaviours that reduce environmental impact, road risk and congestion.

Planning application

A planning application is a formal request to a local planning authority for permission to build something new or add to an existing building.

Section 106 agreement

A section 106 agreement is a legal agreement between a developer and the local authority that enables planning permission to be granted for a development that would otherwise be unacceptable in planning terms. They can prescribe the nature of the development; require the developer to compensate for loss resulting from the development; or ask for actions to mitigate the development's impact.

SMART

'SMART' targets are targets that are specific, measurable, achievable, relevant and time-bound.

Smart procurement

Where procurement decisions are made with the aim of providing the optimal logistics solution for goods coming to site.

Staff travel plan

A staff travel plan is a management strategy for an organisation or site that seeks to deliver sustainable transport objectives articulated in a document that is regularly reviewed. They are based on evidence of the anticipated transport impacts of development and set measures to promote and encourage sustainable travel.

Strategic Road Network (SRN)

The Strategic Road Network (SRN) comprises approximately 4,300 miles of motorways and major 'trunk' A-roads in England. It is managed by Highways England (HE).

Traffic Management Act (2004)

This act was introduced to tackle congestion and disruption on the road network. The TMA places a duty on local authorities to make sure traffic moves freely and quickly on their roads and the roads of nearby authorities.

Traffic Regulation Orders (TROs)

Police or local authorities can place temporary, experimental or permanent restrictions on traffic within their areas by way of a TRO.

Transport Assessments (TAs)

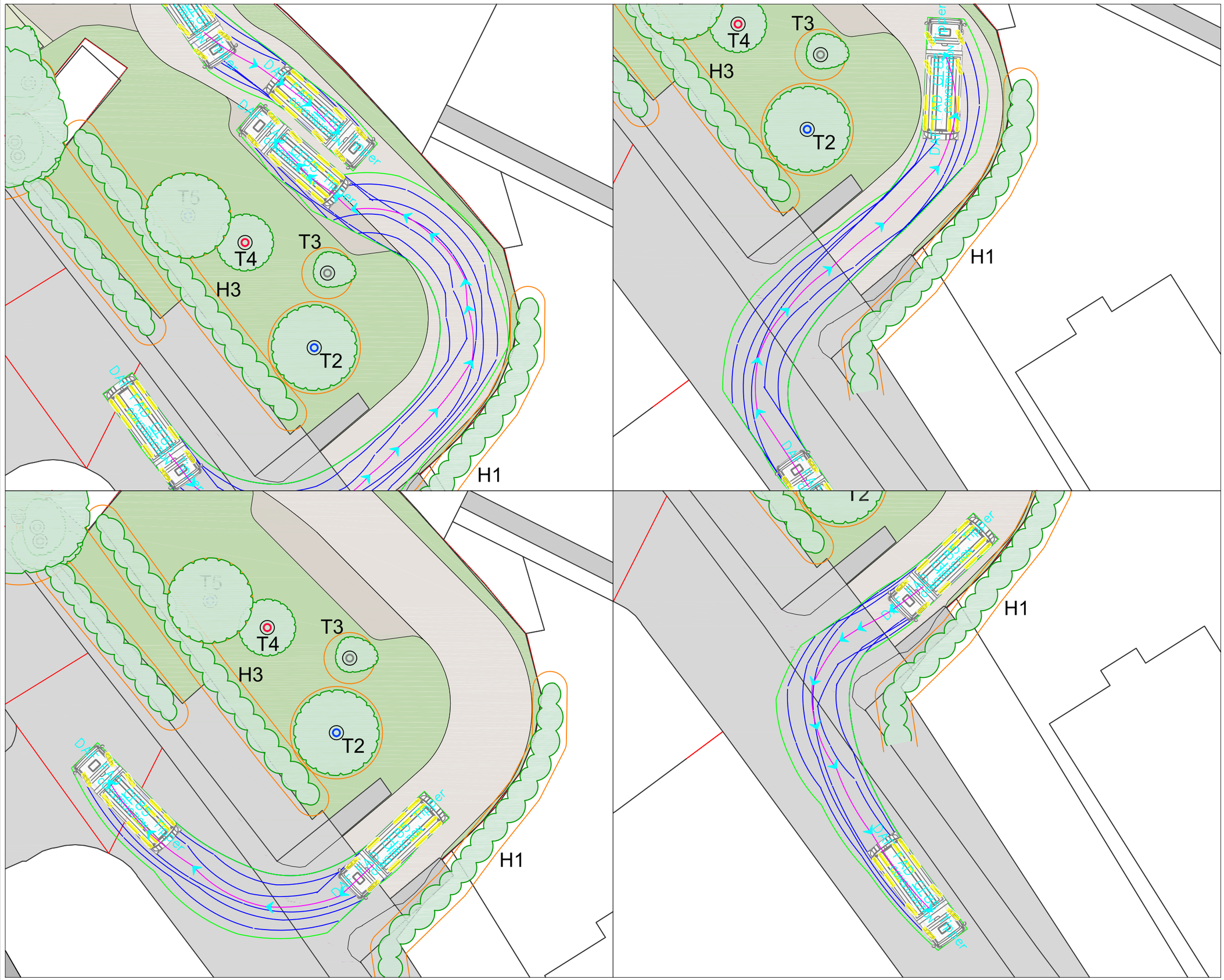
The Transport Assessment will define the impacts of the site, potential highway works required for the development, PTAL level, accident data, construction routes, and other known committed developments. A review of any existing Transport Assessment should be undertaken to inform the requirements of the CLP.

Construction Logistics Planning Guidance

CLOCS | Construction Logistics and Community Safety

For more info: **clocs.org.uk**

Appendix B



NOTES

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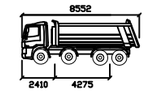

DAF FAD CF85 Tipper
mm

Width	: 2550
Track	: 2550
Lock to Lock Time	: 6.0
Steering Angle	: 35.5

Rev.	Description	Date	Chk'd

Sarnlea
Consulting Engineers
c/o 20 11 Court Road
Glen Parva
Leicester
LE2 9JB

Job

Baston Road

Drawing

Vehicle Tracking

Scales	Date	Drawn	Checked
1:250@A3	Sept 23	AM	AM

Number | Revision

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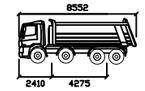

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Number | Revision

Appendix F

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BN	BARNET	1 days
	EN	ENFIELD	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: 32 to 231 (units:)
Range Selected by User: 9 to 231 (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 24/11/21

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:

Tuesday	1 days
Wednesday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	2 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	1
Neighbourhood Centre (PPS6 Local Centre)	1

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:

Residential Zone	2

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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	4 days - Selected
Servicing vehicles Excluded	1 days - Selected

Secondary Filtering selection:

Use Class:
C3 2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 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:
25,001 to 50,000 2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
500,001 or More 2 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 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 1 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 1 days
2 Poor 1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BN-03-A-04 MIXED HOUSES & FLATS BARNET
SWEETS WAY
WHETSTONE

Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total No of Dwellings: 231
Survey date: TUESDAY *21/09/21* *Survey Type: MANUAL*

2 EN-03-A-01 TERRACED & SEMI-DETACHED ENFIELD
BOLLINGBROKE PARK
COCKFOSTERS

Edge of Town
Residential Zone
Total No of Dwellings: 32
Survey date: WEDNESDAY *24/11/21* *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 03 - RESIDENTIAL/A - HOUSES 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): 2.70

	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	2	132	0.038	2	132	0.137	2	132	0.175
08:00 - 09:00	2	132	0.186	2	132	0.266	2	132	0.452
09:00 - 10:00	2	132	0.103	2	132	0.087	2	132	0.190
10:00 - 11:00	2	132	0.087	2	132	0.106	2	132	0.193
11:00 - 12:00	2	132	0.080	2	132	0.076	2	132	0.156
12:00 - 13:00	2	132	0.141	2	132	0.129	2	132	0.270
13:00 - 14:00	2	132	0.106	2	132	0.118	2	132	0.224
14:00 - 15:00	2	132	0.125	2	132	0.106	2	132	0.231
15:00 - 16:00	2	132	0.186	2	132	0.186	2	132	0.372
16:00 - 17:00	2	132	0.144	2	132	0.141	2	132	0.285
17:00 - 18:00	2	132	0.167	2	132	0.144	2	132	0.311
18:00 - 19:00	2	132	0.160	2	132	0.152	2	132	0.312
19:00 - 20:00	2	132	0.103	2	132	0.095	2	132	0.198
20:00 - 21:00	2	132	0.122	2	132	0.080	2	132	0.202
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.748			1.823			3.571

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:	32 - 231 (units:)
Survey date date range:	01/01/14 - 24/11/21
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
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/A - HOUSES 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	2	132	0.004	2	132	0.004	2	132	0.008
08:00 - 09:00	2	132	0.008	2	132	0.008	2	132	0.016
09:00 - 10:00	2	132	0.011	2	132	0.011	2	132	0.022
10:00 - 11:00	2	132	0.008	2	132	0.008	2	132	0.016
11:00 - 12:00	2	132	0.000	2	132	0.000	2	132	0.000
12:00 - 13:00	2	132	0.004	2	132	0.004	2	132	0.008
13:00 - 14:00	2	132	0.011	2	132	0.011	2	132	0.022
14:00 - 15:00	2	132	0.004	2	132	0.004	2	132	0.008
15:00 - 16:00	2	132	0.000	2	132	0.000	2	132	0.000
16:00 - 17:00	2	132	0.008	2	132	0.008	2	132	0.016
17:00 - 18:00	2	132	0.008	2	132	0.008	2	132	0.016
18:00 - 19:00	2	132	0.008	2	132	0.008	2	132	0.016
19:00 - 20:00	2	132	0.000	2	132	0.000	2	132	0.000
20:00 - 21:00	2	132	0.000	2	132	0.000	2	132	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.074			0.074			0.148

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/A - HOUSES 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	2	132	0.004	2	132	0.019	2	132	0.023
08:00 - 09:00	2	132	0.015	2	132	0.023	2	132	0.038
09:00 - 10:00	2	132	0.004	2	132	0.000	2	132	0.004
10:00 - 11:00	2	132	0.000	2	132	0.000	2	132	0.000
11:00 - 12:00	2	132	0.000	2	132	0.000	2	132	0.000
12:00 - 13:00	2	132	0.000	2	132	0.000	2	132	0.000
13:00 - 14:00	2	132	0.004	2	132	0.000	2	132	0.004
14:00 - 15:00	2	132	0.000	2	132	0.000	2	132	0.000
15:00 - 16:00	2	132	0.008	2	132	0.004	2	132	0.012
16:00 - 17:00	2	132	0.015	2	132	0.004	2	132	0.019
17:00 - 18:00	2	132	0.008	2	132	0.000	2	132	0.008
18:00 - 19:00	2	132	0.023	2	132	0.011	2	132	0.034
19:00 - 20:00	2	132	0.000	2	132	0.000	2	132	0.000
20:00 - 21:00	2	132	0.000	2	132	0.000	2	132	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.081			0.061			0.142

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/A - HOUSES 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	2	132	0.057	2	132	0.171	2	132	0.228
08:00 - 09:00	2	132	0.236	2	132	0.327	2	132	0.563
09:00 - 10:00	2	132	0.175	2	132	0.091	2	132	0.266
10:00 - 11:00	2	132	0.053	2	132	0.061	2	132	0.114
11:00 - 12:00	2	132	0.103	2	132	0.087	2	132	0.190
12:00 - 13:00	2	132	0.122	2	132	0.068	2	132	0.190
13:00 - 14:00	2	132	0.095	2	132	0.095	2	132	0.190
14:00 - 15:00	2	132	0.125	2	132	0.118	2	132	0.243
15:00 - 16:00	2	132	0.289	2	132	0.331	2	132	0.620
16:00 - 17:00	2	132	0.179	2	132	0.129	2	132	0.308
17:00 - 18:00	2	132	0.118	2	132	0.118	2	132	0.236
18:00 - 19:00	2	132	0.144	2	132	0.114	2	132	0.258
19:00 - 20:00	2	132	0.038	2	132	0.027	2	132	0.065
20:00 - 21:00	2	132	0.015	2	132	0.008	2	132	0.023
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.749			1.745			3.494

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/A - HOUSES 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	2	132	0.000	2	132	0.095	2	132	0.095
08:00 - 09:00	2	132	0.046	2	132	0.091	2	132	0.137
09:00 - 10:00	2	132	0.023	2	132	0.019	2	132	0.042
10:00 - 11:00	2	132	0.011	2	132	0.008	2	132	0.019
11:00 - 12:00	2	132	0.030	2	132	0.019	2	132	0.049
12:00 - 13:00	2	132	0.008	2	132	0.011	2	132	0.019
13:00 - 14:00	2	132	0.030	2	132	0.027	2	132	0.057
14:00 - 15:00	2	132	0.023	2	132	0.019	2	132	0.042
15:00 - 16:00	2	132	0.125	2	132	0.019	2	132	0.144
16:00 - 17:00	2	132	0.076	2	132	0.019	2	132	0.095
17:00 - 18:00	2	132	0.030	2	132	0.019	2	132	0.049
18:00 - 19:00	2	132	0.019	2	132	0.000	2	132	0.019
19:00 - 20:00	2	132	0.011	2	132	0.000	2	132	0.011
20:00 - 21:00	2	132	0.008	2	132	0.000	2	132	0.008
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.440			0.346			0.786

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/A - HOUSES 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	2	132	0.000	2	132	0.004	2	132	0.004
08:00 - 09:00	2	132	0.000	2	132	0.000	2	132	0.000
09:00 - 10:00	2	132	0.000	2	132	0.000	2	132	0.000
10:00 - 11:00	2	132	0.000	2	132	0.000	2	132	0.000
11:00 - 12:00	2	132	0.000	2	132	0.000	2	132	0.000
12:00 - 13:00	2	132	0.000	2	132	0.000	2	132	0.000
13:00 - 14:00	2	132	0.000	2	132	0.000	2	132	0.000
14:00 - 15:00	2	132	0.000	2	132	0.000	2	132	0.000
15:00 - 16:00	2	132	0.000	2	132	0.000	2	132	0.000
16:00 - 17:00	2	132	0.000	2	132	0.000	2	132	0.000
17:00 - 18:00	2	132	0.004	2	132	0.000	2	132	0.004
18:00 - 19:00	2	132	0.000	2	132	0.000	2	132	0.000
19:00 - 20:00	2	132	0.008	2	132	0.000	2	132	0.008
20:00 - 21:00	2	132	0.000	2	132	0.000	2	132	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.012			0.004			0.016

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.*