



Amethyst Lane, Reading Transport Statement

For Reading Borough Council

— Date — 17 May 2023 —

Doc ref 26887-HYD-XX-XX-RP-TP-4001

Document control sheet

Issued by	Hydrock Consultants Limited White Building 1-4 Cumberland Place Southampton Hampshire SO15 2NP United Kingdom T +44 (0)23 82140907 E southampton@hydrock.com hydrock.com	Client	Reading Borough Council
		Project name	Amethyst Lane, Reading
		Title	Transport Statement
		Doc ref	26887-HYD-XX-XX-RP-TP-4001
		Project number	26887
		Status	Final
		Date	17/05/2023

Document production record		
Issue number	P01	Name
Prepared by	Jack Dalley MPlan MSc	
Checked by	Stephen Moody MSci MSc CMILT MCIHT	
Approved by	Stephen Moody MSci MSc CMILT MCIHT	

Document revision record			
Issue number	Status	Date	Revision details
PO1	S2	22/3/2023	Draft
PO2	S2	14/4/2023	Draft
PO3	S2	27/4/2023	Draft
PO4	S2	17/5/2023	Final

Hydrock Consultants Limited has prepared this report in accordance with the instructions of the above named client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

Contents

1. Introduction1

1.1 Overview 1

2. Site Location and Accessibility 2

2.1 Site Location and General Description2

2.2 Local Highway Network3

2.3 Pedestrian and Cycle Accessibility3

2.4 Public Transport Accessibility4

2.5 Local Facilities and Amenities 6

2.6 Highway Safety 9

3. Development Proposal10

3.1 Masterplan 10

3.2 Pedestrian and Cycle Access 10

3.3 Vehicular Access 11

3.4 Car parking13

3.5 Cycle parking15

4. Transport Policy and Guidance Context 16

4.1 National Policy 16

4.2 Local Policy 16

5. Trip Generation and Impact Assessment 17

5.1 Introduction17

5.2 Residential Dwellings17

5.3 Respite Care17

5.4 Multi-modal trip generation17

6. Summary and Conclusions 18

6.2 Conclusions 18

Tables

Table 2.1: Local bus routes4

Table 2.2: Distances to selected local amenities6

Table 3.1: Arrival and departure trip generation for the residential dwellings12

Table 3.2: Local Output Area car ownership15

Table 5.1: Proposed Site Trip Rates and Generation (21 residential dwellings)17

Table 5.2: Proposed Site Trip Rates and Generation (Respite facility)17

Table 5.3: Multi-modal residential trip generation17

Figures

Figure 1.1: Current site layout1

Figure 2.1: Site location2

Figure 2.2: Local highway network.....3

Figure 2.3: Location of local bus routes4

Figure 2.4: Public transport accessibility isochrone5

Figure 2.5: Local amenities6

Figure 2.6: 800m walking isochrone.....7

Figure 2.7: 5km cycling isochrone8

Figure 2.8: Locations and severity of accidents9

Figure 3.1: Site masterplan10

Figure 3.2: Pedestrian desire lines.....10

Figure 3.3: Road widths within the site.....11

Figure 3.4: MfS derived 85th percentile speeds13

Figure 3.5: Local Output Areas.....14

Figure 5.1: MSOA E02003403 for 2011 Census travel to work mode share17

Appendices

- Appendix A Site Layout
- Appendix B Swept Path Analysis
- Appendix C TRICS Outputs

1. Introduction

1.1 Overview

- 1.1.1 Hydrock is providing transportation planning consultancy services to Reading Borough Council with regards to the planning application for the redevelopment of a site to provide housing and a respite centre on a site north of Amethyst Lane.
- 1.1.2 The site comprises 0.56 hectares of land approximately 2.2 km south west of Reading town centre with access to be taken from a continuation of Amethyst Lane.
- 1.1.3 This transport statement has been compiled to reflect guidance set out in the National Planning Policy Framework (NPPF) and accompanying National Planning Policy Guidance (NPPG). It also considers advice set out in various local and national guidance documents including; Transport Evidence in Plan Making (DfT), and the Reading Local Plan 2019
- 1.1.4 This report confirms the location of the site is suitable for development as it benefits from being accessible to a range of services. It considers transport site layout matters including access by a variety of vehicles and provision of car and cycle parking.
- 1.1.5 The trip generation of the existing and proposed uses are summarised and conclusions drawn on the impact on the surrounding local highway network.
- 1.1.6 A Travel Plan (TP) has also been prepared as a separate document in conjunction with this report. The TP identifies measures and initiatives to encourage travel to and from the site by sustainable modes of travel.



Figure 1.1: Current site layout

2. Site Location and Accessibility

2.1 Site Location and General Description

- 2.1.1 The site is located approximately 2.2km south west of Reading town centre.
- 2.1.2 Amethyst Lane, from which the site is accessed, routes to the south of the site. Residential properties are located to the north and east. Liebenrood Road and Jenkins Close are to the west.
- 2.1.3 The site location is shown in Figure 2.1.
- 2.1.4 The site was formerly occupied by a council-operated adult social care centre. The property has been vacant for some time.

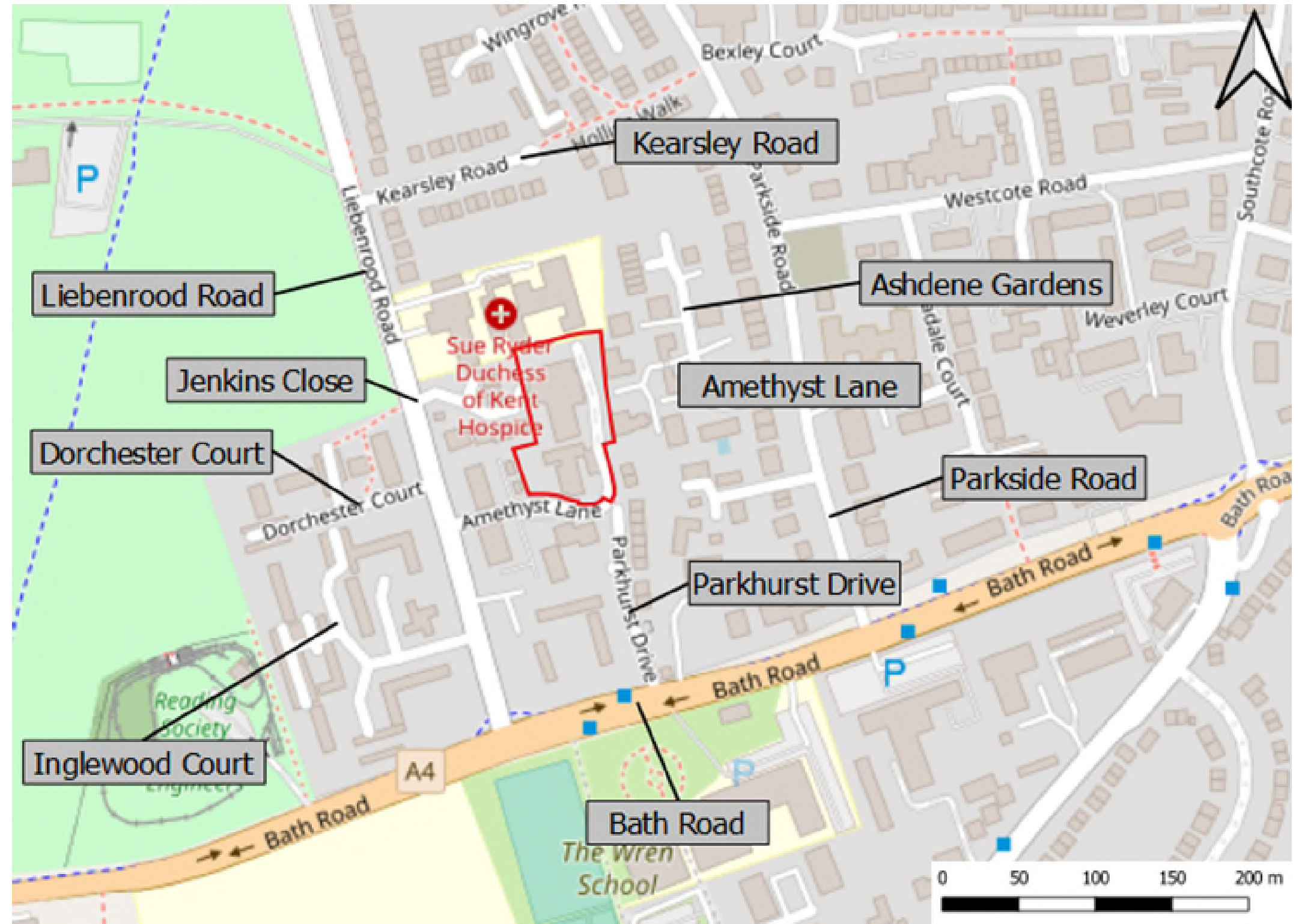


Figure 2.1: Site location

2.2 Local Highway Network

2.2.1 Details of roads within the local highway network are provided in Figure 2.2.

2.3 Pedestrian and Cycle Accessibility

- 2.3.1 The site is located within a built-up residential area with footways provided on both sides of most local roads.
- 2.3.2 Local roads are subject to a 30mph speed limit and feature streetlighting.
- 2.3.3 Amethyst Lane, from which the site is served, features footways on both sides measuring approximately 2.0m, street lighting and dropped kerbs on pedestrian desire lines at junctions.
- 2.3.4 Parkhurst Drive, which routes in a north-south orientation to the south of the site allows for pedestrian and cycle movements from Amethyst Lane, but prevents vehicles. Parkhurst Drive operates as a shared surface and provides a connection to Bath Road.

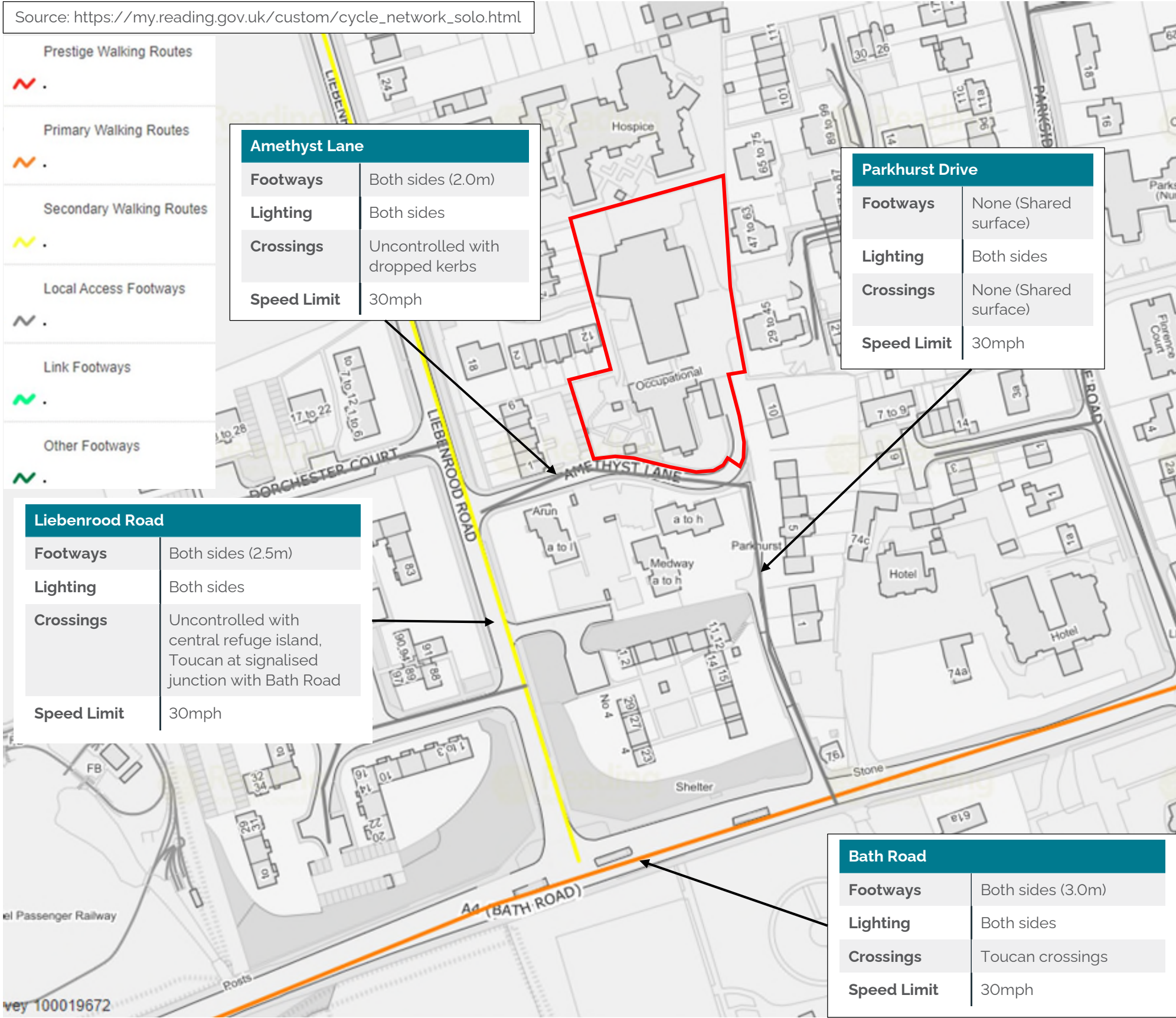


Figure 2.2: Local highway network

2.4 Public Transport Accessibility

- 2.4.1 The site benefits from local bus services within walking distance of the site.
- 2.4.2 The closest bus stop to the site is located on Bath Road (Liebenrood Road stop), approximately a 180m walk south of the site via Parkhurst Drive.
- 2.4.3 Buses from this stop include the 1 Jet Black which routes between Reading town centre and Newbury approximately every 30 minutes and the 2/2a Lime, which route between Reading town centre and Mortimer.
- 2.4.4 An additional stop is located 650m walk to the north on Tilehurst Road (Waverley Road stop). This stop is served by the 33 Royal Blue which runs approximately every 20 mins from Reading town centre to Little Heath.
- 2.4.5 Details of these services are provided in Table 2.1.
- 2.4.6 The closest railway station to the site is Reading West, which is located approximately 1.0km north east of the site. Services are provided by GWR and travel to destinations including Newbury and Basingstoke.
- 2.4.7 Reading station is located 2.2km north east of the site. The 1 Jetblack and 2 Lime buses stop close to Reading Station.
- 2.4.8 The public transport isochrone for 30 mins, 45 mins and 60 mins is presented in Figure 2.4.

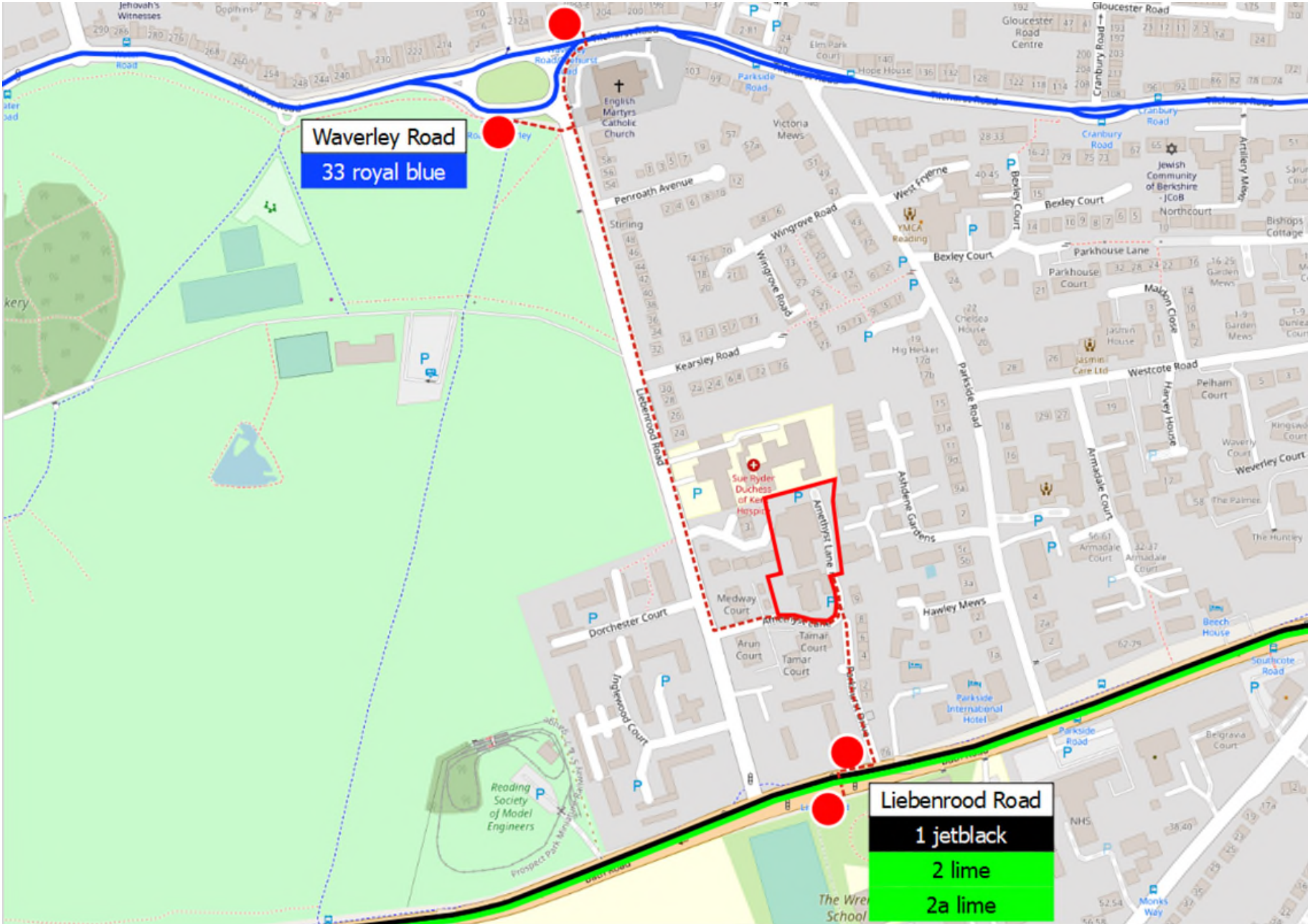


Figure 2.3: Location of local bus routes

Table 2.1: Local bus routes

Bus Stop	Bus Route	Destinations	AM peak hour services (number)	AM peak hour services (number)	Saturday typical hourly services (number)	Saturday typical hourly services (number)
Liebenrood Road	1 Jet Black	Newbury to Reading via Thatcham, Woolhampton, Theale	2	2	2	1
	2 Lime	Central Reading to Mortimer via Burghfield Common	1	1	1	0
	2a Lime	Central Reading to Mortimer via Burghfield Common	1	1	1	1
Waverley Road	33 Royal Blue	Central Reading - Turnham's Farm via Tilehurst Road, Corwen Road, Pierces Hill, Little Heath Road	3	3	3	2

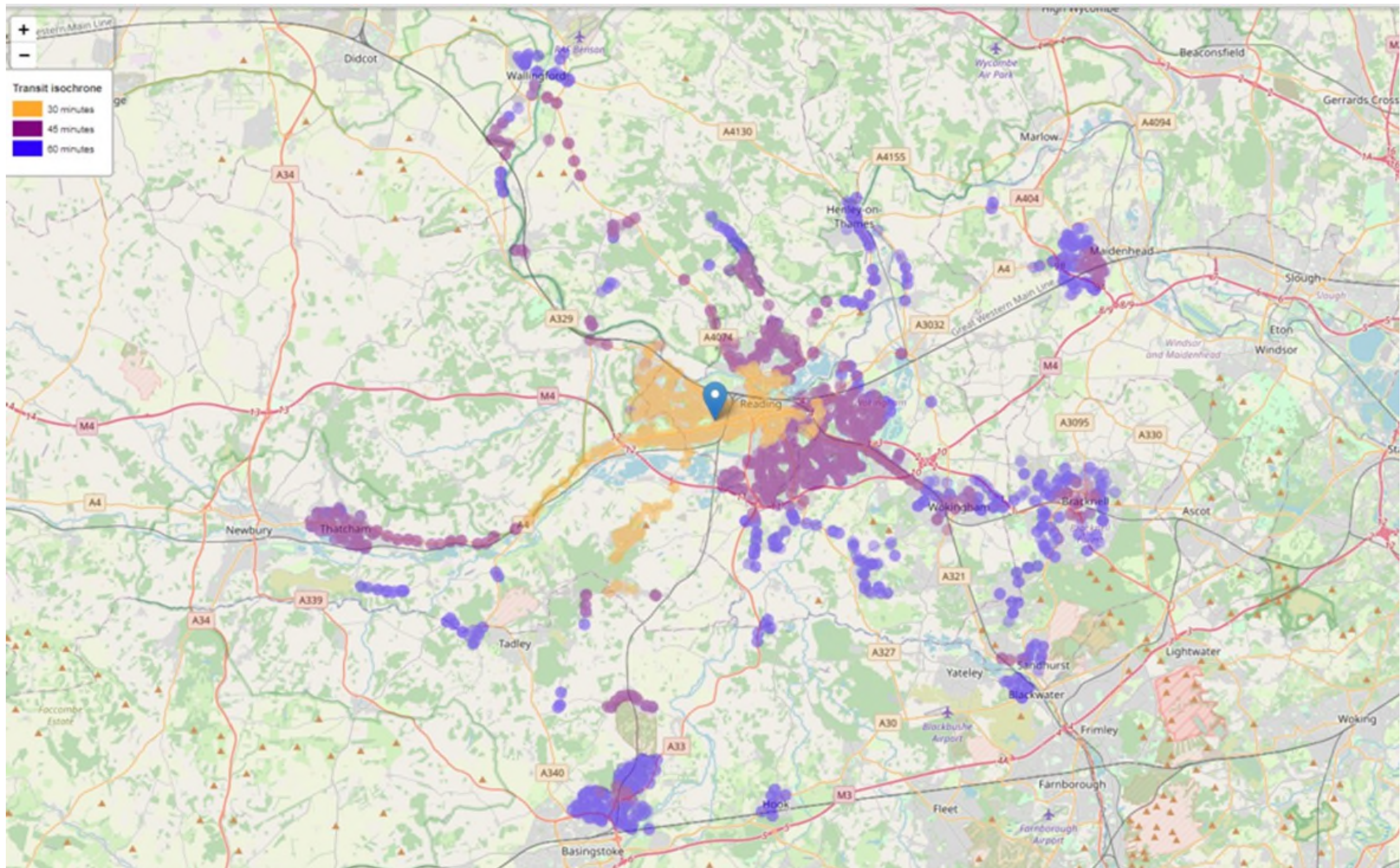


Figure 2.4: Public transport accessibility isochrone

2.5 Local Facilities and Amenities

- 2.5.1 Guidance on suitable walking and cycling distances to facilities is set out within TA91/05 'Provision for Non-Motorised Users' (2005) and DfT guidance set out in LTN1/20 'Cycle Infrastructure Design' (2020), which suggest that 3.2km and 8km are acceptable distances for walking and cycling respectively. Whilst TA91/05 is superseded by CD143, CD143 is silent in respect of recommended walking and cycling distances and therefore guidance contained within TA91/05 remains relevant.
- 2.5.2 A review of local facilities and amenities within 2km and 5km for walking and cycling distance of the site respectively has been undertaken.
- 2.5.3 Local facilities within 2km of the site are displayed at Figure 2.5. Walking and cycling distances from the site are provided in Table 2.2.

Table 2.2: Distances to selected local amenities

Amenity	Distance (km)
The Wren School	0.3
Little Dragons Nursery	0.5
GP	1.1
Southcote Primary School	1.1
Convenience store	1.3
Southcote Pharmacy	1.3
Dentist	1.4
Lidl	1.6
Salisbury Road Post Office	1.7

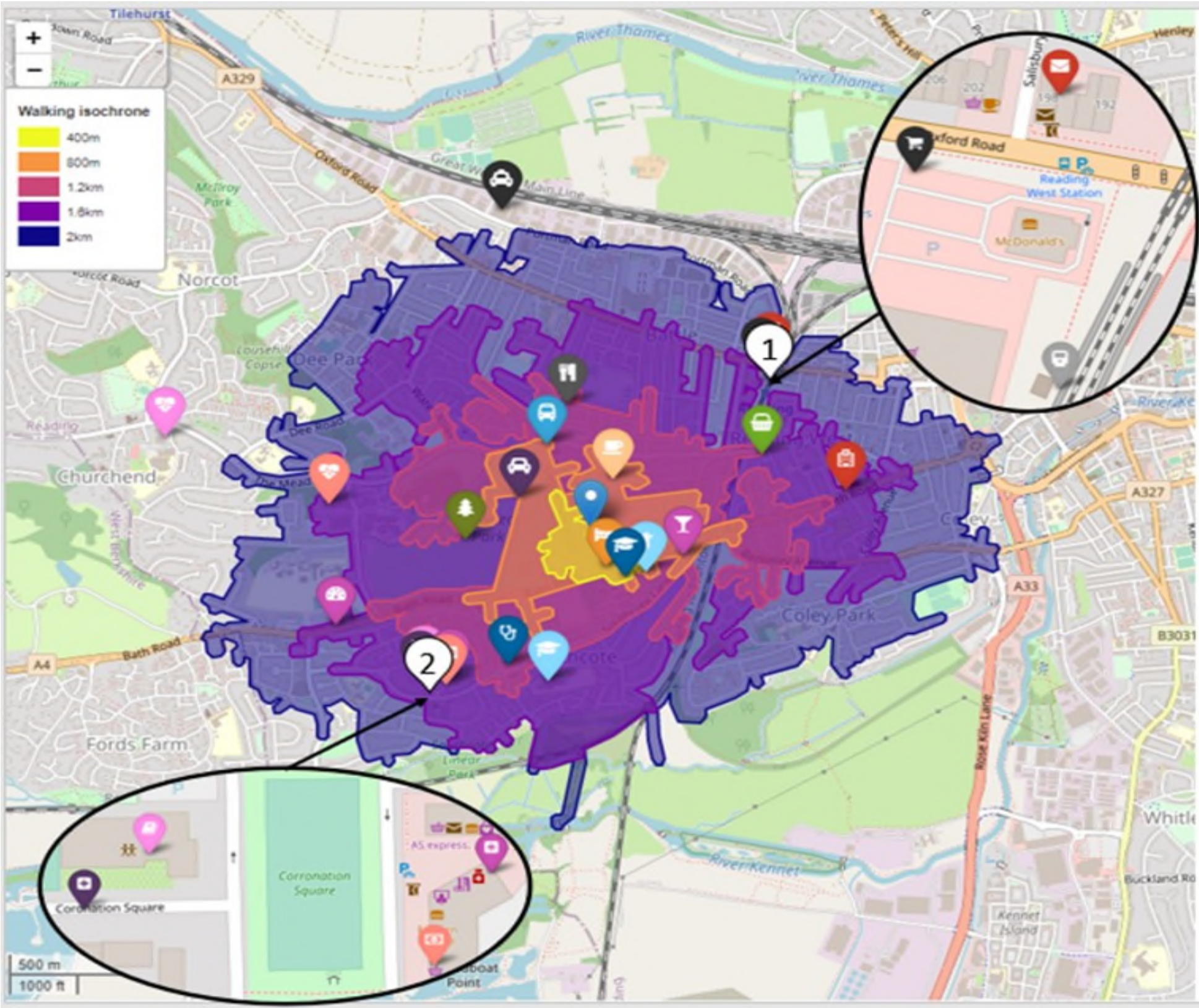


Figure 2.5: Local amenities

2.5.4 Figure 2.6 and Figure 2.7 show the 800m walking isochrone and the 5km cycling isochrone.

2.5.5 The figures demonstrate that the site is located in an area where trips to 'daily' amenities such as shops and schools can reasonably be undertaken on foot or by cycling.

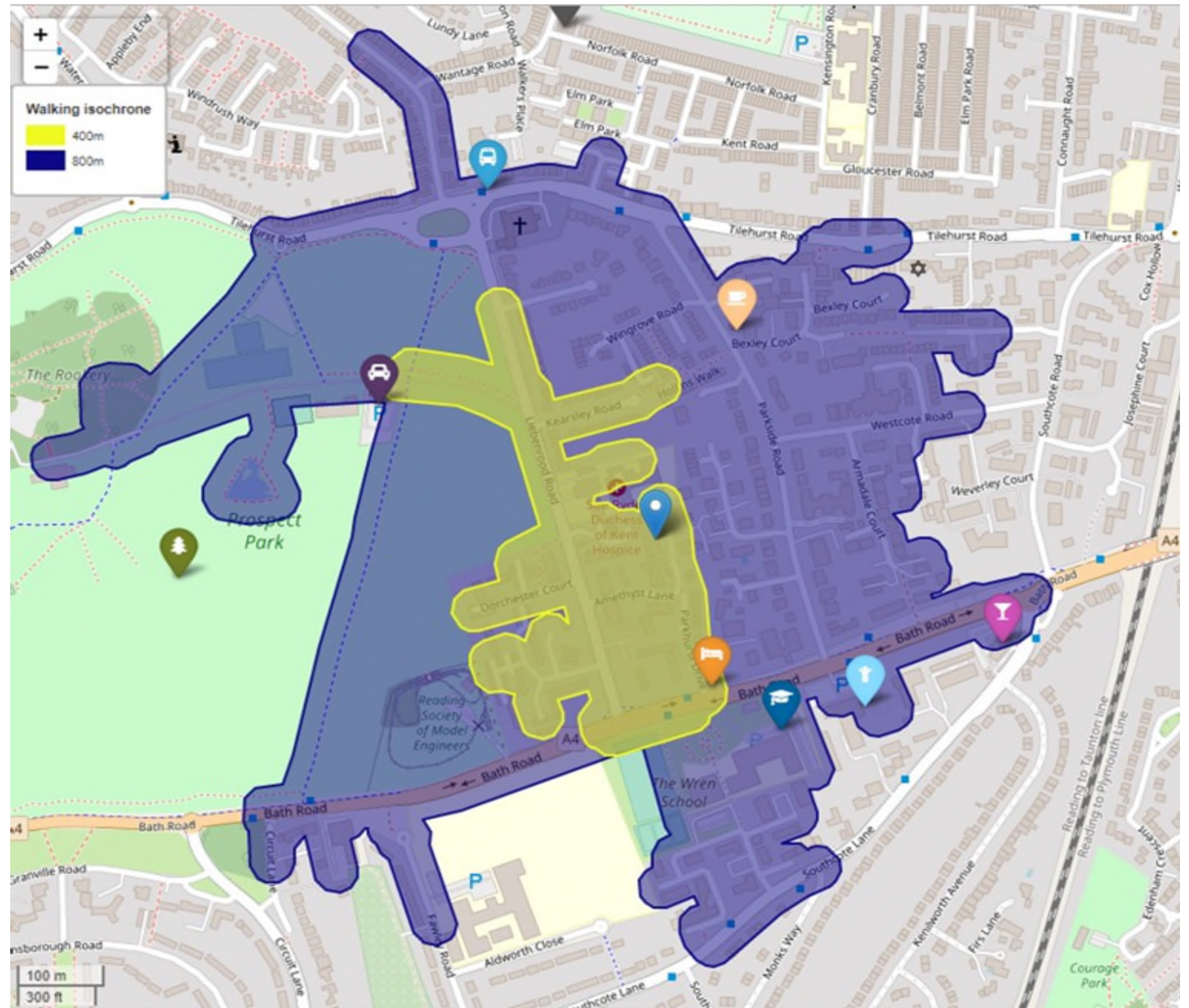


Figure 2.6: 800m walking isochrone

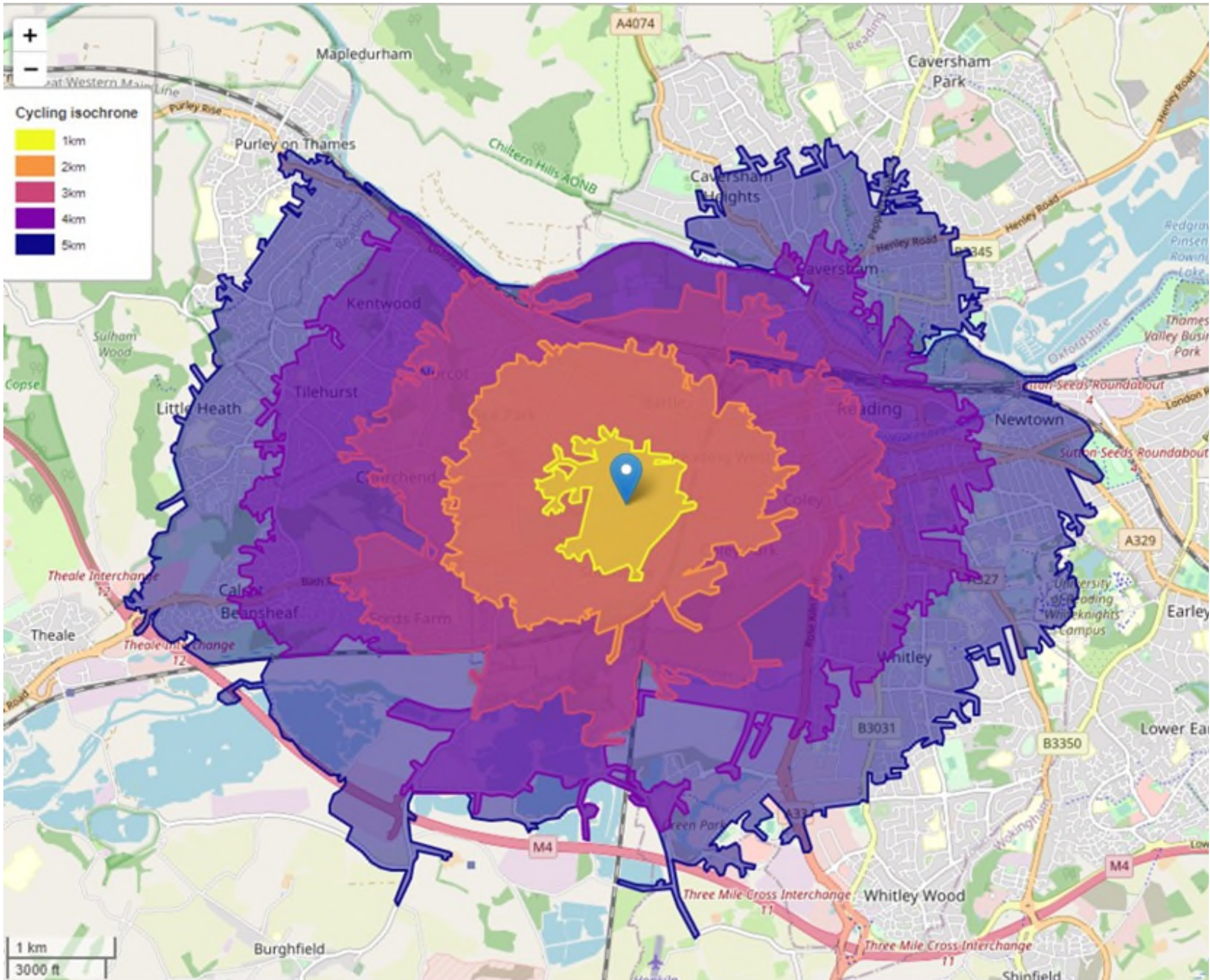
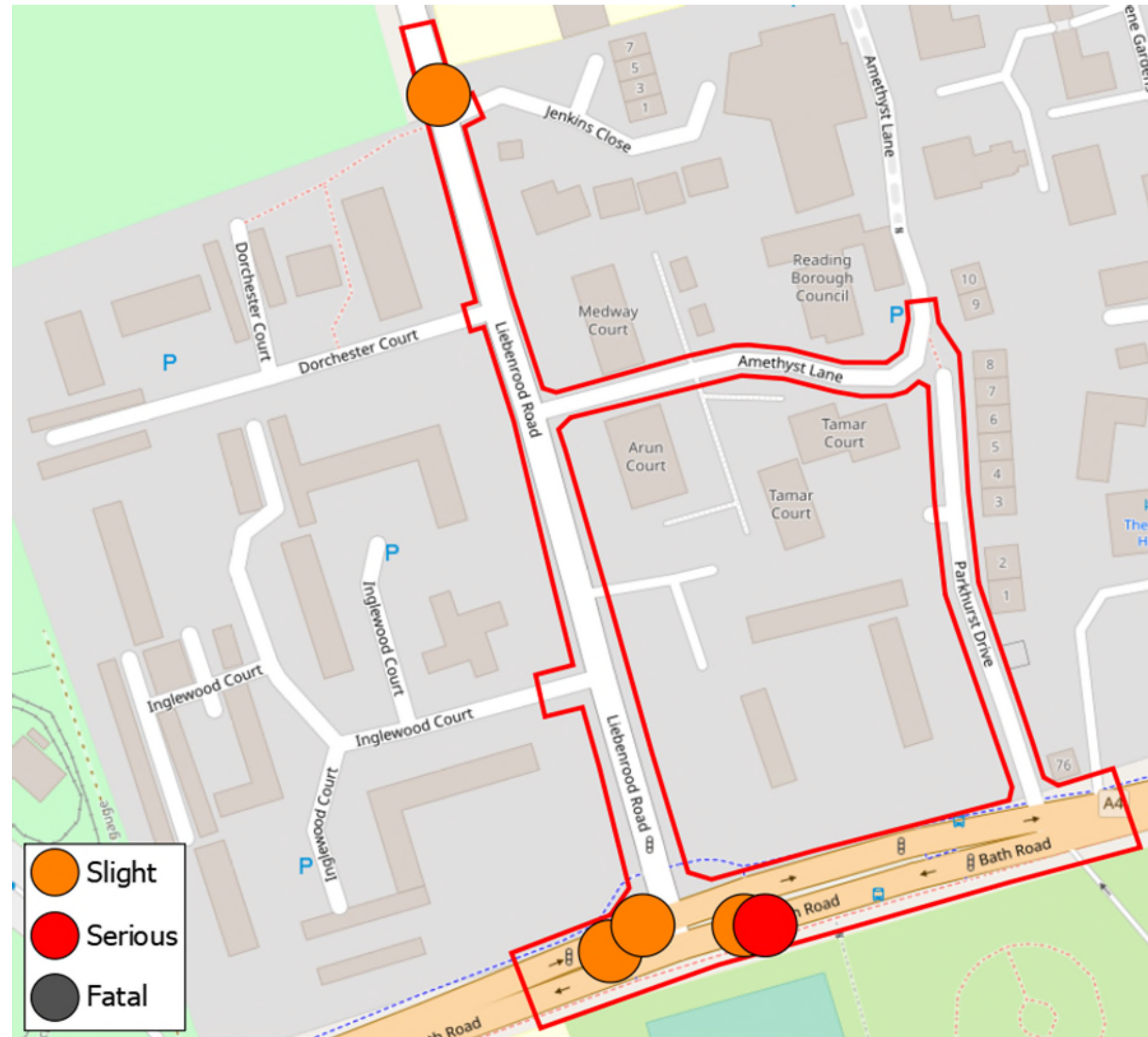


Figure 2.7: 5km cycling isochrone

2.6 Highway Safety

- 2.6.1 The extent of recorded road traffic collisions in the vicinity of the application site has been established from 2017-2021. Information has been obtained covering the latest available five-year period of Personal Injury Accident (PIA) data available.
- 2.6.2 The extents cover the immediate highway network within proximity to the site denoted by the red box highlighted in Figure 2.8. Collisions have been categorised into three types; slight, serious and fatal.
- 2.6.3 An incident was reported in March 2017 at the junction of Bath Road and Liebenrood Road. This involved two cars colliding when one turned right across the path of the other. A slight injury was reported by the driver of the car turning right.
- 2.6.4 Two incidents occurred when a pedestrian struck was a signalised crossing. A slight injury was reported in April 2017 and a serious injury in December 2017.
- 2.6.5 A further incident occurred in October 2018 on Liebenrood Road to the north of the junction with Jenkins Close. It involved a car striking the rear of a stationary car, which in turn hit the car in front. A slight injury was incurred by the driver of the second car.
- 2.6.6 A similar incident occurred in October 2021 at the junction of Bath Road and Liebenrood Road. The incident involved a stationary car being hit from behind by another car. A slight injury was by both drivers.
- 2.6.7 Whilst there have been five incidents, the frequency and causes are not considered to be at a level where there are highway safety concerns that need to be addressed as part of the proposed development.

Figure 2.8: Locations and severity of accidents



3. Development Proposal

3.1 Masterplan

- 3.1.1 The proposal is for the construction of 21 dwellings (18 x three bed and three four-bed) and a six-bedroom respite facility.
- 3.1.2 It is proposed that vehicular access will be provided from Amethyst Road as per the current junction configuration with Liebenrood Road.
- 3.1.3 Drawings of the proposed development are included in Appendix A, and a copy of the masterplan is shown in Figure 3.1.

3.2 Pedestrian and Cycle Access

- 3.2.1 Pedestrian access to the site is to be taken from the main vehicular access. Footways are present on both sides of Amethyst Lane, which will lead into the site.
- 3.2.2 Cycle access to the site is to be taken from the main site access.
- 3.2.3 The footways within the site will be between 1.5m and 2m in width. Inclusive Mobility: A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure (December 2021) allows for these widths to be used and states that:

"a minimum width of 1500mm could be regarded as the minimum acceptable under most circumstances." It also notes that: "where there is an obstacle, such as lamp columns, sign posts or electric vehicle charging points, the absolute minimum width is 1000mm."

- 3.2.4 Therefore, the footway widths included in the masterplan is appropriate in this context.
- 3.2.5 The site masterplan has been developed to accommodate the most direct routes for movement through the site,

- 3.2.6 What are perceived by the pedestrian to be the most direct and quickest routes are also referred to as desire lines. The pedestrian desire lines are shown in Figure 3.2 and this shows that the footways provided align with the most direct routes to/ from Parkhurst Drive.

- 3.2.7 The ability to provide a footway along the eastern side of the site to Parkhurst Drive was considered, but removed from the final masterplan based on the need to accommodate the number of car parking spaces agreed during pre-application discussions.



Figure 3.1: Site masterplan



Figure 3.2: Pedestrian desire lines

3.2.8 The route alongside the eastern side of the site is also a longer route for pedestrians to walk along and would involve more changes in direction.

3.2.9 The forecast traffic flows within the site are also not significant enough to represent a barrier to pedestrian crossing, and that at this stage amendments to the red line boundary are not being considered.

3.2.10 Therefore, it is considered that the locations of the footways within the site are appropriate.

3.2.11 Currently there is no footway provision to some of the existing properties east of Amethyst Lane. The masterplan includes an extension of the footway to provide this.

3.3 Vehicular Access

Overview

3.3.1 Vehicular access to the residential element of the site will be taken from a continuation of Amethyst Lane.

3.3.2 The properties will be accessed from an internal road that routes north-south through the site.

3.3.3 The entrance to the small car parking area for the respite centre will be from the existing section of Amethyst Lane.

Road widths

3.3.4 The roads within the site would be either 4.8m or 5.5m wide (summarised in Figure 3.3). Guidance in Manual for Streets (Figure 7.1 of MfS) confirms that this is an appropriate width for a car to pass a large vehicle, and for two large vehicles to pass each other respectively.

3.3.5 The entry road into the site utilises the existing geometry of Amethyst Lane, which is also 5.5m wide. The alignment of the road includes bends, and this is a

situation supported by Manual for Streets 2.

3.3.6 Manual for Streets 2 states *inter alia* in paragraph 8.6.12 that where HGV flows are low it may not be necessary to design carriageways to cater for two large vehicles meeting at a bend, as long as there is sufficient intervisibility. Forward visibility is covered in subsequent sections of this report.

3.3.7 The section of the site north of the internal s-bend has a road width of 4.8m, which as noted is wide enough for a car to pass a large vehicle. Whilst the analysis shows that two larger vehicles would not be accessing the site at the same time, the s-bend has been designed to accommodate two 10m rigid vehicles passing each other. This is discussed in further detail later in this report.

3.3.8 It is noted that there is on-street car parking provided alongside the roads within the site, and usage of these is discussed in further detail later in this report.

Turning within the site

3.3.9 The deliveries and servicing requirements for the site has been considered and the following vehicles have been used in the review:

- » 10m rigid (as proxy for fire tender)
- » Reading borough council refuse vehicle
- » 7.5t box van
- » 4.6t light van

3.3.10 A turning head at the northern end of the site means that vehicles can enter, turn, and exit the site in a forward gear. This is demonstrated by the vehicle tracking that is included in Appendix B.

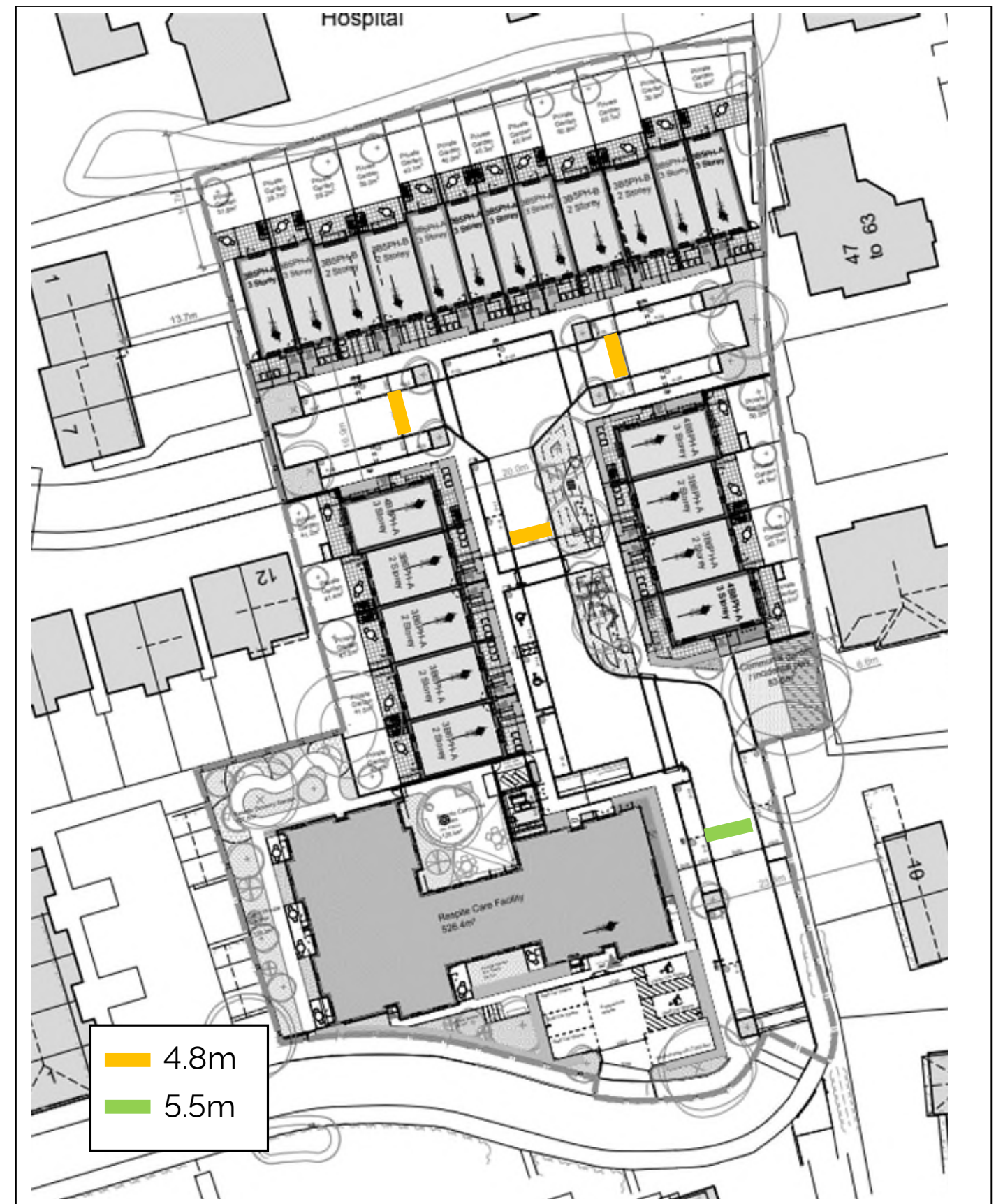


Figure 3.3: Road widths within the site

3.3.11 The delivery bay for the respite centre, and the space available within the road network is sufficient to allow a 7.5t to turn within the site. This swept path analysis is included in Appendix B and demonstrates there are at least two options for the driver to choose from when using the loading bay.

Manoeuvring through the site (cars and 10m rigid HGV)

3.3.12 The site layout has been reviewed and it is confirmed in the vehicle tracking included in Appendix B that two large cars can pass one another within the site unimpeded.

3.3.13 The tracking also considers the scenario where large cars meet a 10m rigid. The vehicle tracking demonstrates that there are multiple passing opportunities at frequent spacing within the site for situations where the large car and 10m rigid HGV are entering or exiting the proposed development.

3.3.14 Whilst this would require the large car or the 10m rigid HGV to yield whilst the other vehicle passes, this is shown as being possible without the need for either vehicle to reverse.

3.3.15 Therefore, the road widths and geometry are considered appropriate and acceptable for the forecast traffic volumes.

Manoeuvring through the site (two 10m rigid HGVs)

3.3.16 Consideration has been given to the situation where two 10m rigid vehicles are accessing the site at the same time. Manual for Streets is clear in its guidance that 5.5m is wide enough for two large vehicles, so the focus of the additional analysis is on the operation of the northern section of the site where the road width is slightly narrower at 4.8m.

3.3.17 It is noted that this is considered to be an infrequent scenario. The forecast frequency of arrivals and departures can be determined from the TRICS database. The derivation of the trip rates is discussed further in chapter 5 of this report.

3.3.18 The arrival and departure profiles are shown in Table 3.1 for the total number of vehicles, and then OGV and LGV individually

3.3.19 This demonstrates that the probability of two vehicles entering and exiting the site at the time is low because the peak two-way generation is nine vehicles. This equates to one vehicle every six to seven minutes. It is noted that the data shows that no OGVs or LGVs are forecast to arrive/ depart during the peak period.

3.3.20 Further review of the data shows that the peak number of OGV arrivals and departures is one in each direction, and review of the profile of arrivals and departures this indicates that this is the same vehicle doing both movements.

3.3.21 It is reiterated that Manual for Streets 2 states *inter alia* in paragraph 8.6.12 that where HGV flows are low it may not be necessary to design carriageways to cater for two large vehicles meeting at a bend, as long as there is sufficient intervisibility.

3.3.22 Therefore, consideration of, and designing for, two 10m rigid vehicles passing within the central section of the site is a robust approach to the masterplanning for the site.

3.3.23 The s-bend on the internal road has been tracked and the ability vehicles to pass a waiting 10m rigid HGV and a refuse vehicle has been demonstrated to be achievable (appendix B). The tracking drawings also show there is sufficient forward visibility (corresponding to a design speed of 20mph in the central

section) for drivers to make decisions on whether to proceed to the next section of the road network.

3.3.24 Therefore, the proposed highway geometry in the central part of the site is considered to be appropriate for a cul-de-sac facilitating access to 21 homes, and the design speed is considered to be robust given the geometry of the proposed highway network.

3.3.25 The southern bend in the road layout is an existing geometry that has been extended as a result of the proposed development.

3.3.26 The vehicle speeds in this location would be less than 15mph, and there is a traffic calming feature to further reduce speeds. More detailed analysis of the speeds is included in the section of this report that discusses the respite centre car park access.

3.3.27 The width of the road is 5.5m and as demonstrated by the vehicle tracking in Appendix B, the site can be accessed by vehicles up to the size of a 10m rigid HGV.

3.3.28 The 10m rigid would require the majority of the road space available to make the turn around the corner. The forward visibility has been considered and two vehicles are able to see each other for the majority of the movement. However, it is acknowledged that should two larger vehicles wish to travel around this southern bend at the same time there would be a requirement for one to give way to the other, and potentially reverse a short distance.

3.3.29 This situation is not unusual in urban settings, and over-engineering of the space would be considered an over provision of carriageway to the detriment of the urban design principles of the proposed development. It is also noted that any reversing would be within the carriageway, in an environment where pedestrians have a footway which provides a safe space, and where traffic flows would be very low.

3.3.30 Therefore, the road geometry in this location is considered to be acceptable.

	Total vehicles		OGVs		LGVs	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
07:00-08:00	1	4	0	0	0	1
08:00-09:00	2	5	1	1	0	0
09:00-10:00	2	4	1	0	1	0
10:00-11:00	2	3	0	1	0	1
11:00-12:00	2	2	1	1	1	0
12:00-13:00	3	2	1	1	0	0
13:00-14:00	3	2	1	1	0	0
14:00-15:00	3	3	1	1	0	0
15:00-16:00	5	3	0	0	1	0
16:00-17:00	5	2	0	0	1	0
17:00-18:00	5	4	0	0	0	0
18:00-19:00	4	3	0	0	0	0

Table 3.1: Arrival and departure trip generation for the residential dwellings.

Respite centre car park access

- 3.3.31 The respite centre car park site access visibility splay is also considered to be appropriate to this context. The visibilities are shown in Appendix A.
- 3.3.32 This shows that 2.4m x 43m can be achieved to the west (for vehicles travelling from the junction with Liebenrood Road) and 2.4m x 14.9m to the east.
- 3.3.33 This visibility to the east corresponds to a design speed of approximately 15mph in Manual for Streets.
- 3.3.34 Typically, the visibility requirements at an access would be determined using a speed survey, however this is not possible in this location because the road is essentially becoming a new street following redevelopment of the site.
- 3.3.35 Undertaking a speed survey elsewhere on Amethyst Lane, particularly to the east, where the parking court areas to the residential that fronts onto Liebenrood Road are located, would not be a true reflection of the speeds travelling around the bend east of the car park access, and therefore should not be used for this assessment.
- 3.3.36 Therefore, it is not possible to base the visibility requirements on observed 85th percentile wet weather traffic speeds. Paragraph 7.5.2 of Manual for Streets recognises this eventuality and states that for new streets the design speed is set by the designer.
- 3.3.37 Research carried out for Manual for Streets determined that the forward visibility and carriageway width were important in influencing traffic speeds. Therefore, this has been used to determine the theoretical 85th percentile speed of traffic existing the site between the left-right bend in the centre of the site, and the sharp bend near the south east corner of the respite centre.
- 3.3.38 The forward visibility of traffic exiting the site in this location is 45m, reducing to 30m as the vehicle completes its exit from this bend.
- 3.3.39 The 85th percentile speed using a 5.5m road width and 45m forward visibility is approximately 18.5mph. The 30m forward visibility is approximately 16.5mph. These are calculated using the graphs in Figure 3.4.
- 3.3.40 The road geometry includes a bend (inside radius is approximately 6m) and the width will be 5.5m in this location.
- 3.3.41 Therefore, the above are an over-estimate of the vehicle speeds travelling through this part of the site.
- 3.3.42 This is confirmed in Manual for Streets 2 (paragraph 8.3.8) which highlights that presence of a sharp bend will lead to slower speeds. The calculation of the impact the bend has on speed reduction is based on the result of equation v^2/R (these are design speed (v) and radius (R)) and then use of Table 8.2 of Manual for Streets 2.
- 3.3.43 The radius of the traffic movement around the bend (exiting from the development) is approximately 13m. Therefore, the v^2/R value for a starting 85th percentile speed of 16.5 mph (26.6km/h) is 54.5.
- 3.3.44 Table 8.2 of Manual for Streets 2 shows that a v^2/R value of 56 corresponds to a percentage speed reduction of 14%, and a v^2/R value of 40 corresponds to a reduction of 10%. Interpolation of the values for a v^2/R value change of 1.5 in this range equates to 0.375%. Therefore v^2/R value of 54.5 is considered to result in a 13.6% reduction in speed.
- 3.3.45 The outcome of this is that the theoretical 85th percentile vehicle speeds exiting the site round the bend will be 14.25mph.

- 3.3.46 The speed would be reduced further through the inclusion of a raised table that provides vertical traffic calming. The combination of the above analysis and the traffic calming confirms that the 2.4m x 14.9m visibility splay that can be achieved is sufficient and appropriate in this location and context.

3.4 Car parking

Residential

- 3.4.1 The site will provide 21 residential spaces, two of which will be accessible. The layout of the spaces will be predominantly parallel in orientation.
- 3.4.2 This configuration is considered to be appropriate given the site constraints and technical requirements of other disciplines,
- 3.4.3 The standard spaces would be 2m x 6m in size, with blue badge bays benefitting from a 1.2m clearance zone. The two bays on the eastern edge of the site are 2.5m x 6m to allow additional space for
- drivers and passengers to enter and exit the vehicle and then walk to the footway north of the spaces. The parking space north of the respite centre loading bay is longer and measures 2m x 6.7m and this allow vehicles to parallel park.
- 3.4.4 The spaces located within the turning head can be accessed by different car types, and whilst large cars will be required to reverse into some of the bays (if all of the other bays are in use), the distance is not excessive, and this does allow cars to exit the bays and the turning head in forward gears. Swept paths analysis is included in Appendix B.
- 3.4.5 The car parking bays along the road within the site have also been considered. The swept path analysis for the parking bays in the area where the road width is 5.5m shows that: large cars can parallel park in the bays and can exit the bays via a three-point turn.
- 3.4.6 The dimensions of a large car are shown in the drawings included in Appendix B.

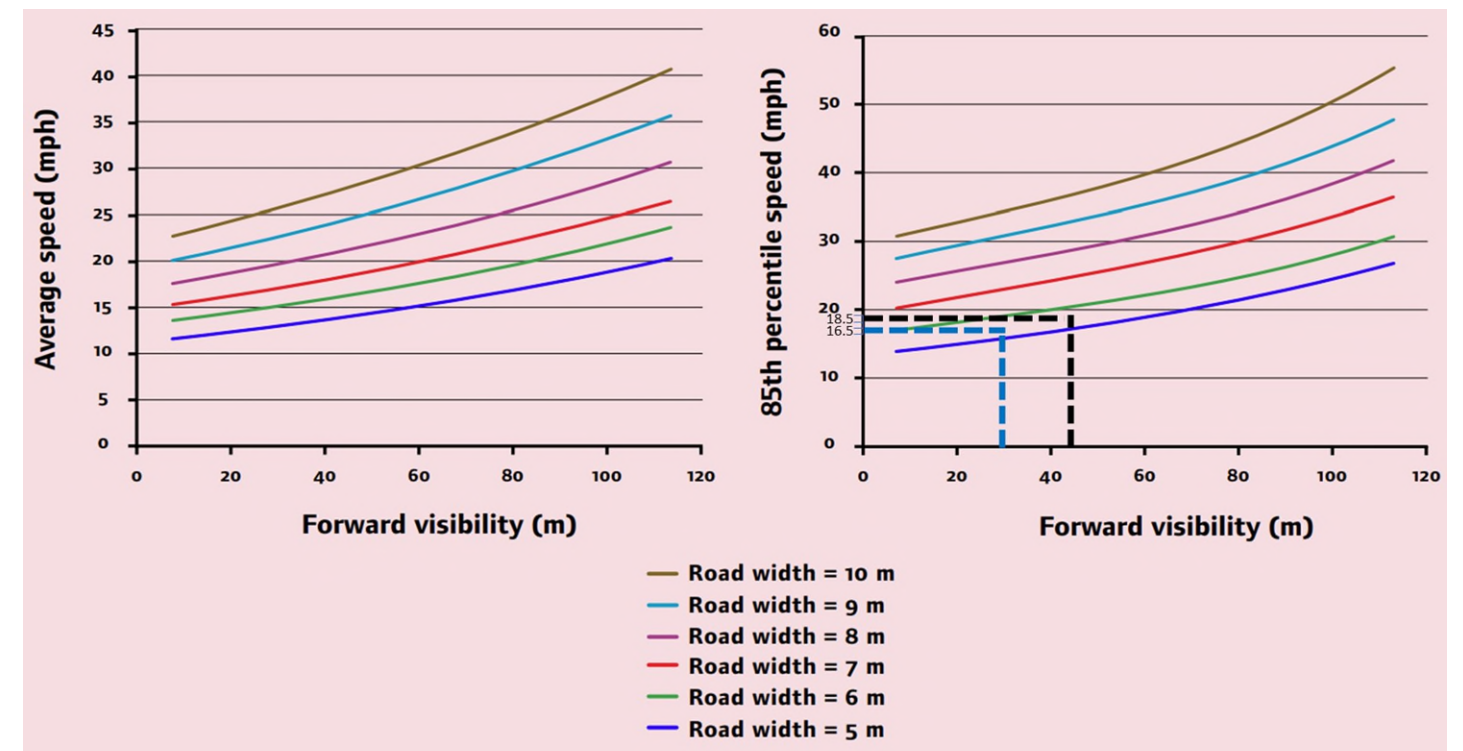


Figure 3.4: MfS derived 85th percentile speeds

This shows that the vehicle is approximately 5.1m long. For reference this is broadly the equivalent of, amongst others, the larger BMW, Mercedes, Jaguar and Audi vehicles that are available. These larger vehicles are understood to represent a lower proportion of total vehicle fleet and therefore tracking using this vehicle is robust.

- 3.4.7 The area within the central part of the site, south of the area configured as a T, has a carriageway width of 4.8m. The swept path analysis shows that a large car can parallel park in the bays. It also shows that should a driver choose not to travel between 25m and 5m (depending on the parking space in question) to the north to use the turning area to turn, these can exit these bays to travel south via a five point turn within the carriageway.
- 3.4.8 Additional swept path analysis has been undertaken for these bays for a medium car, which has a length of approximately 4.3m. The other dimensions are shown in the drawings included in Appendix B. For reference cars that are 4.3m long include, amongst others, Ford Focus', Volkswagen Golf's, BMW 1 Series, Audi A3, and Toyota Corolla.
- 3.4.9 The analysis shows that the 4.3m long medium car can undertake a three-point turn from the parking bays in the area where the carriageway width is 4.8m wide.
- 3.4.10 Therefore, overall the parking configuration is considered to be accessible to drivers
- 3.4.11 The car parking provision proposed in the development do not align with those set out in the Reading Borough Local Development Framework, Revised Parking Standards and Design (October 2011).

3.4.12 The nature of the proposed development, location, and accessibility by public transport means that demand for car ownership is likely to be lower than the SPD requirements. The principle of this has been discussed with Reading Borough Council and evidence from the 2021 Census is included in this report to confirm that the proposed provision is appropriate.

3.4.13 As the Applicant is proposing an affordable housing development it was considered appropriate to focus specifically on Output Areas (OAs) where social housing was reported by the census to at least 50% of the total housing provision. The analysis data includes 44 output areas comprising 5,419 households in Reading.

3.4.14 A three-stage methodology was developed to understand parking demand at a regional, household size and locality level. The review of each stage and brief discussion on how this influenced the approach to developing the parking strategy for the site is set out.

Step 1: Regional car ownership average amongst majority affordable housing tenants

3.4.15 Most homes in the OAs where more than 50% of householders were affordable had fewer than one car per household. This ratio of 0.91 spaces per dwelling includes a range of housing types and bedroom numbers.

3.4.16 Based on this evidence and the proposed tenure, the starting point for the parking strategy should be to provide one or less parking spaces per unit to reflect the average in OAs with a higher portion (+50%) of affordable homes.

Step 2: Car ownership average amongst affordable housing tenants in different sized units

3.4.17 It is accepted that car ownership is influenced by household size and

therefore an assessment of car ownership based on dwelling size was reviewed. Car ownership per dwelling has been considered in the context of the number of bedrooms in a home.

3.4.18 OAs with more than 70% of 1 and 2 bed units (small households) and 3 or 4 bed plus units (family sized units) were analysed. This showed that in OAs where more than 70% of households were small households, the average car ownership was 0.74 per dwelling and for family sized households it is 1 space per dwelling.

3.4.19 A similar analysis was also undertaken using OAs in Reading Borough with >50% private owned/ rented homes, and >70% 3 and 4 bedroom plus homes. This shows that for family housing the average car ownership per dwelling, using the same sifting criteria, is 27%

higher in private owned/ rented homes in Reading compared with social housing.

Step 3: Average car ownership within each locality

3.4.20 Steps 1 and 2, looked at average car ownership across Reading and support the case for car ownership of less than 1 space per dwelling. It is noted that locational specific attributes can impact car ownership, including: access to alternative transport modes and local services and jobs, controlled parking zones, regeneration, and parking capacity available.

3.4.21 Therefore, car ownership for zones around the site has also been interrogated to develop an appropriate parking strategy which not only responds to the regional data, but also the local data.

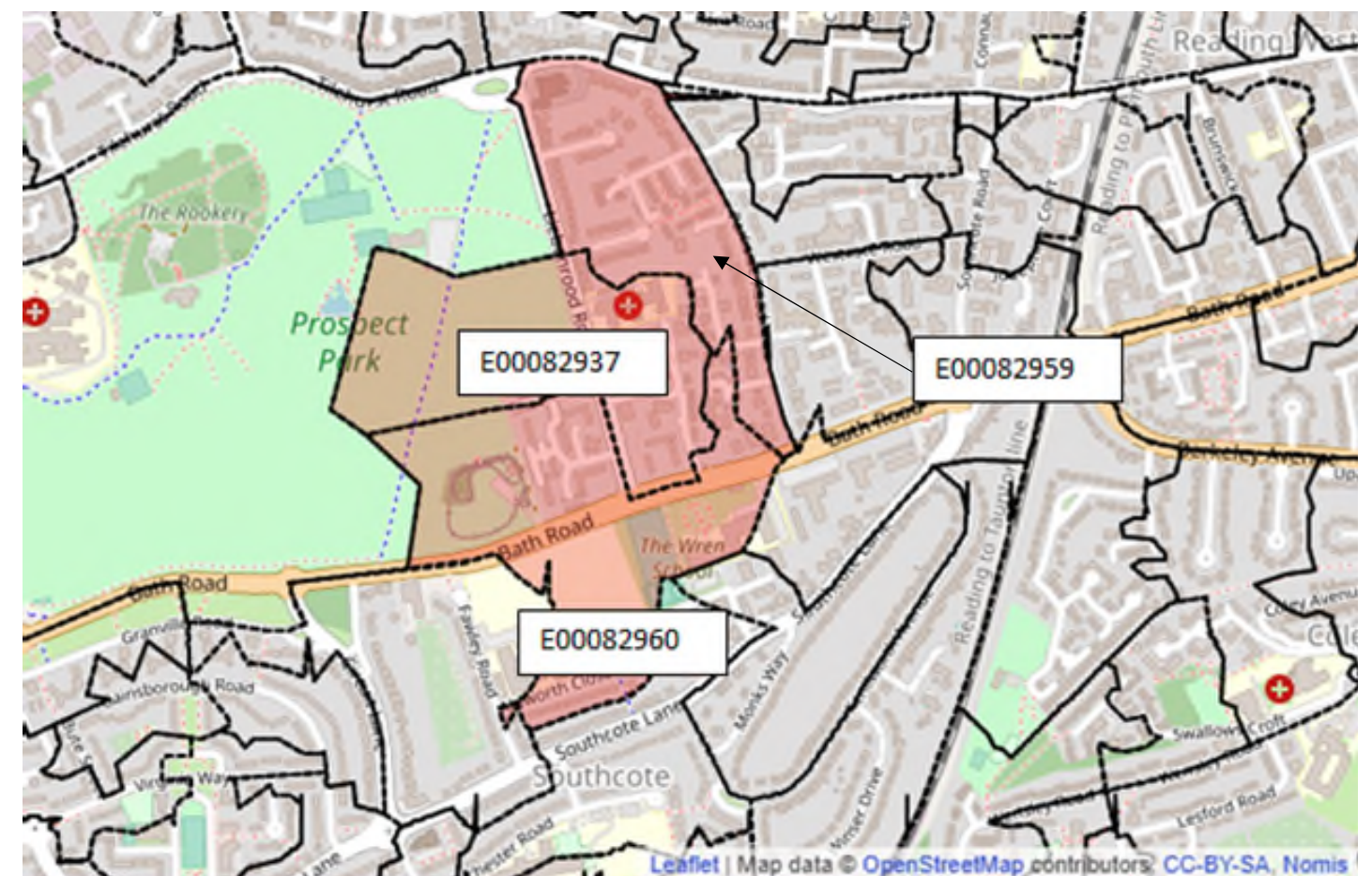


Figure 3.5: Local Output Areas

- 3.4.22 The site sits within output area E00082937 and the neighbouring areas are E00082959 and E00082960. The zones are shown in Figure 3.5.
- 3.4.23 The tenure of the three OAs has been reviewed and these have the following proportions of social housing:
- » E00082937: 35% social housing
 - » E00082959: 0% social housing
 - » E00082960: 7% social housing
- 3.4.24 This shows that, in terms of social housing, none of the zones are comparable to the proposed development. Output area E00082937 does include 35% social housing, but as shown in Table 3.2, this zone is predominantly 1- and 2-bedroom homes and therefore not comparable to the development proposals at Amethyst Lane.
- 3.4.25 Output area E00082960 is also predominantly private housing and smaller homes, and is therefore not directly comparable to the proposed development in terms of tenure and bedroom mix.
- 3.4.26 Output area E00082959 has the highest proportion of family 3- and 4-bedroom housing (67.7%), but no social housing. Therefore, the car ownership of 1.31 is considered to be greater than would be expected at the proposed development.
- 3.4.27 The review presented previously in this note demonstrated that in Reading Borough private owned/ social housing has on average 27% more cars per dwelling than social housing.
- 3.4.28 The car ownership of 1.31 spaces per dwelling for area E00082959, is between 28% and 36% higher than the neighbouring OAs. It is therefore considered to be reflective of the local circumstances and therefore takes account of the areas' accessibility and connectivity to services and public

transport which is Zone 3, whereas Amethyst and properties in E00082960 sits on or within the boundary of Zone 2.

3.4.29 It is considered reasonable to apply the 27% adjustment (private/ social difference) afford to the locally derived private owned/ rented tenure car ownership, and this would give a local social housing car ownership of 0.96 spaces per dwelling.

3.4.30 The masterplan for the proposed development is shows that 21 car parking spaces would be provided for the 21 homes within the development. This equates to a car parking ratio of 1 space per dwelling,

3.4.31 The site is located in an area with good accessibility and connectivity to services and public transport and the intention is for the internal roads to be adopted. This would allow parking to be controlled within the site through the use of appropriate lining and signing, and therefore prevent parking from occurring outside of car parking bays. Therefore, it is considered on balance that 1 space per dwelling is appropriate in this context.

Respite centre

- 3.4.32 Car parking is being provided at the respite centre. There is a not a specific policy requirement relating to this land use.
- 3.4.33 The staffing requirements for the centre are still being developed, but as a starting point the Adult Care and Health Team who, have advised that there will be always up to 10 staff members but due to shift pattens it is unlikely that all of these will be on site at the same time.
- 3.4.34 It was considered by Reading's Highway's Officer that the parking strategy for the centre should be based on the parking requirements of a nursing home as described in Reading's Revised Parking Standards and Design SPD (2011).

This stipulates a requirement of 1 per FTE staff & 1 per 4 residents. Accordingly, this generates a maximum demand of 12 parking spaces- 10 for staff and 2 for 6 residents.

- 3.4.35 Residents are likely to be dropped off at the centre by family members or an assisted transport service. This is because they will likely have high dependency needs and will be housed in a specialist environment providing for their physical and mental wellbeing for anything from one night up to two or three weeks, based on their allocated number of days / nights per year.
- 3.4.36 The design proposes:
- » 4 staff spaces (3 general needs spaces and one disabled access space)
 - » 1 disabled access visitor's space
 - » 1 larger minibus drop off space
 - » 1 dedicated deliveries space (to the North of the building)
- 3.4.37 All parking spaces for the centre are contained within the curtilage of the centre to the south of the site, with extensive landscaping used to help demarcate the area to help visitors distinguish between the area of the centre and the wider highway / residential parking zones.
- 3.4.38 Given the absence of a directly comparable land use in the Reading Borough Council car parking policy, the provision is based on advice provided by Reading Borough Council's Adult Care and Health Team who have confirmed support for the proposed parking strategy for the centre. Correspondence from these discissions is included in the

Output area	1 bed	2 bed	3 bed	4 + beds	Car ownership per dwelling
E00082937	36.7%	45.2%	13.9%	4.2%	0.90
Amethyst Lane (Proposed site)					
E00082959	7%	25.3%	41.9%	25.8%	1.31
E00082960	3.3%	77.2%	8.1%	11.4%	1.02

Table 3.2: Local Output Area car ownership

planning statement submitted as part of the planning application.

- 3.4.39 Parking for the respite facility will be provided in a courtyard accessed directly from Amethyst Lane. This includes a mini-bus bay and tracking for this is included in Appendix B. This confirms that the mini-bus can enter and exit the car park in forward gears. There is also a servicing bay, and this has been tracked for a 7.5t box van, and this is shown in Appendix B

Cycle parking

- 3.5.1 Cycle parking provision is to be provided in line with requirements in the Reading Borough Council Revised Parking Standards and Design SPD.
- 3.5.2 The standard for 3 and 4 bed dwellings is for 2 spaces. It is proposed that these spaces will be provided for each property in a covered lockable store to the front.
- 3.5.3 The respite centre cycle provision will be provided in accordance with local standards.

4. Transport Policy and Guidance Context

4.1 National Policy

National Planning Policy Framework (2021) - Section 9 - Promoting Sustainable Transport.

4.1.1 The revised NPPF document states that:

"Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- a) the potential impacts of development on transport networks can be addressed;*
- b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
- d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high-quality places".*

4.1.2 Under 'considering development proposals' within the NPPF paragraphs 110 & 111 state:

"In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users; and*
- c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe".

4.1.3 Paragraph 113 concludes that:

"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed".

4.2 Local Policy

4.2.1 The local transport policy is the draft Reading Transport Strategy 2036, which has been developed as the Local Transport Plan 4.

4.2.2 This document sets out the vision to

"Deliver a sustainable transport system in Reading that creates an attractive, green and vibrant town with neighbourhoods that promote healthy choices and wellbeing."

4.2.3 Policy TRS4 regards development. It states that

"New developments be will required to demonstrate how they will deliver healthy streets and make a positive contribution to the walking, cycling and public transport network and support sustainable travel, such as initially subsidising bus services, through the development and implementation of travel plans."

4.2.4 The other local document is the Reading Borough Local Plan, which was adopted in November 2019.

4.2.5 It states that

"Proposed development should contribute appropriately to meeting the objectives of the most up-to-date Local Transport Plan or any successor document, including sub-strategies, specific projects identified and the local action plans."

5. Trip Generation and Impact Assessment

5.1 Introduction

5.1.1 This section identifies the forecast trip generation of the proposed development site and sets out the likely vehicular impact of the development on the local highway network.

5.1.2 The vehicular traffic generation of the proposed development has been calculated using trip rates derived from the Trip Rate Information Computer System (TRICS® 7.8.2) database.

5.2 Residential Dwellings

5.2.1 The selection criteria used includes:

- » Land Use Category - Residential (Affordable/Local Authority Houses)
- » Region - England, (Excluding Greater London)
- » Location - Suburban/Edge of Town/Neighbourhood Centre

5.2.2 A summary of the forecast vehicle trip generation for the proposed use is illustrated in Table 5.1 with the full outputs included in Appendix C.

5.2.3 Table 5.1 indicates that the 21 dwellings are predicted to generate 7 two-way trips in the AM peak and 9 two-way vehicle trips in the PM peak.

Table 5.1: Proposed Site Trip Rates and Generation (21 residential dwellings)

	Arrivals		Departures		Two-way	
	Trip rate	Trips	Trip rate	Trips	Trip rate	Trips
AM Peak (0800-0900)	0.110	2	0.234	5	0.344	7
PM Peak (1700-1800)	0.234	5	0.167	4	0.401	9
Daily	1.743	37	1.774	37	3.517	74

5.3 Respite Care

5.3.1 The respite centre vehicle trip generation is based on trip rates derived from TRICS using the following criteria:

- » Land Use Category - Care home (specific condition)
- » Region - UK (Greater London and Northern Ireland removed)
- » Edge of town, suburban area and edge of town sites included
- » Residents from 7 to 58 included

5.3.2 A summary of the forecast vehicle trip generation for the proposed use is illustrated in Table 5.2 with the full outputs included in Appendix C.

5.3.3 Table 5.2 indicates that the six-bed respite facility is anticipated to generate 2 two-way vehicle trips in both the AM and PM peak hours.

Table 5.2: Proposed Site Trip Rates and Generation (Respite facility)

	Arrivals		Departures		Two-way	
	Trip rate	Trips	Trip rate	Trips	Trip rate	Trips
AM Peak (0800-0900)	0.068	1	0.032	1	0.100	2
PM Peak (1700-1800)	0.032	1	0.063	1	0.095	2
Daily	1.109	7	1.086	7	2.195	14

5.3.4 This level of trip generation is considered to be negligible in the context of existing traffic flows on the local highway network will not result in a severe impact on the operation of the local highway network.

5.4 Multi-modal trip generation

5.4.1 The multi-modal trip generation has been determined using the vehicle trip generation and the 2011 Census travel to work mode share data for MSOA E02003403. The multi-modal trip generation is shown in Table 5.3 and these would not severely impact the capacity of these modes.

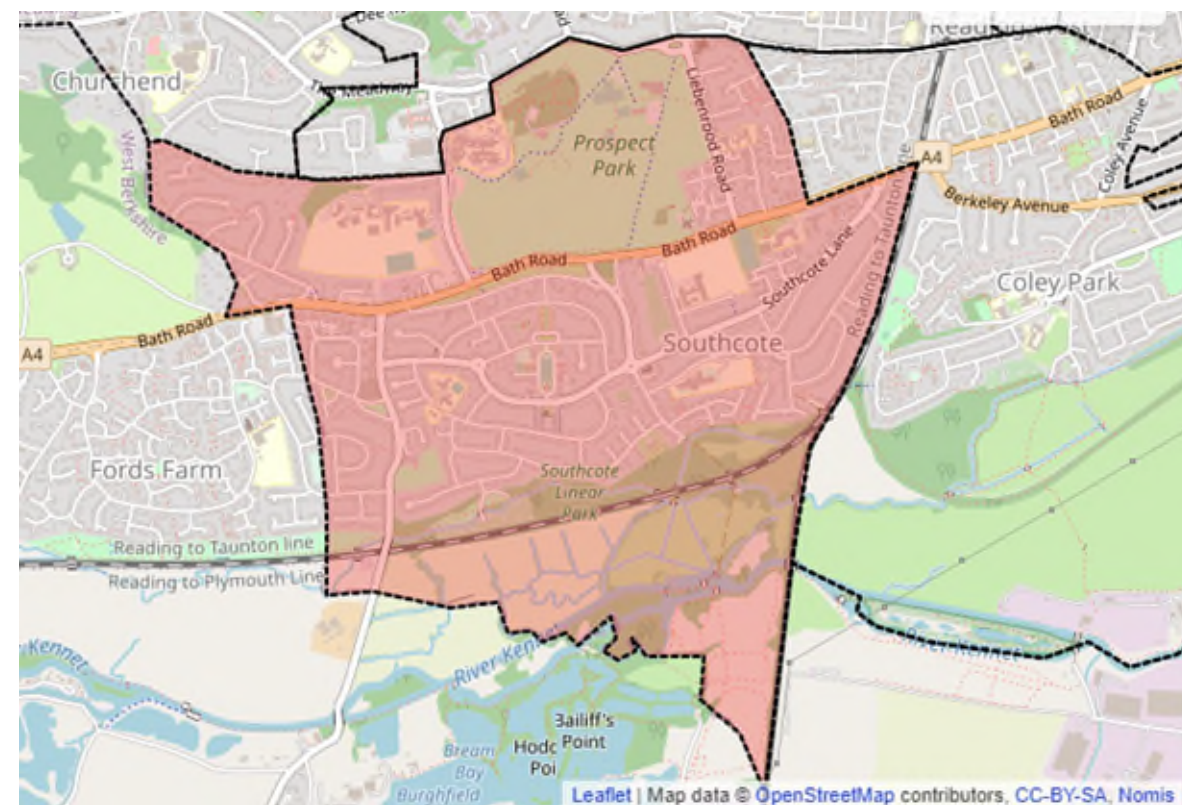


Figure 5.1: MSOA E02003403 for 2011 Census travel to work mode share

Table 5.3: Multi-modal residential trip generation

Mode	Mode share	AM (8am to 9am)	PM (5pm to 6pm)
Train	5%	1	1
Bus, minibus or coach	15%	3	3
Motorcycle	1%	0	0
Driving a car or van	57%	9	11
Passenger in a car or van	6%	1	1
Bicycle	4%	1	1
On foot	12%	2	2

6. Summary and Conclusions

- 6.1.1 This Transport Statement has been prepared by Hydrock on behalf of Reading Borough Council to provide transport planning advice pertaining to a planning application for 21 residential dwellings and a respite facility at Amethyst Lane, Reading.

6.2 Conclusions

- 6.2.1 The conclusions of this TS are as follows:

- » The development site is situated in an accessible location, within walking and cycling distance of a wide range of public transport, education, retail and healthcare facilities.
- » The site is connected to an established pedestrian and cycle network, with shared cycle/footways and crossing points provided in the vicinity.
- » The proposed levels of car parking are appropriate considering the land use type, scale and location of the development.
- » PIA data has been examined in the vicinity of the application site and it is unlikely that the increase in development traffic would adversely affect the road safety record. It is considered that there are no overriding safety issues in the vicinity of the site that would be exacerbated by the proposals.
- » Vehicular access will be via a continuation of Amethyst Lane, with a turning head provided to allow vehicles to enter and exit the site in forward gear.
- » The traffic generation of the proposed development is predicted to be 7 two-way movements in the AM peak, and 9 in the PM peak. It is therefore considered that the proposed development would not have a severe impact upon the operation of the local highway network.

- 6.2.2 Based on the findings within this TS and the demonstrated accessibility of the site, it is considered that in the context of paragraphs 110 & 111 of the NPPF, that there are no transport-related reasons why the development should not be permitted.

Hydrock Consultants Ltd

Appendix A Site Layout



Rev	Date	Drawn	Description
A	01.12.22	JCD	Initial Issue
B	07.12.22	JCD	Updated Respite footprint. Minor amends
C	03.01.23	JCD	Updated Respite footprint. Straightened Eastern terrace
D	10.01.23	JCD	Updated Respite plan. Minor layout amends. Design Team Issue
E	03.02.23	JCD	Layout Amends. Introduction of 3B5PH-A. Design Team Issue
F	14.02.23	JCD	Minor Amends
G	21.02.23	DEG	FFL Amends
H	06.03.23	TBO	Updated Respite footprint, front gardens and footpath
I	06.04.23	ALA	DRAFT Issue For Planning
J	02.05.23	KDU	Transport Amends
K	05.05.23	DEG	Issue for Planning
L	09.05.23	KDU	Issue for Planning - Transport Amends

Notes:
Do not scale from drawings unless by agreement with HTA. Use figured dimensions only. Check all dimensions on site prior to commencing the works. Drawing to be read in conjunction with other relevant consultant information.

This drawing is the copyright of HTA Design LLP and must not be copied or reproduced in part, or in whole, without the express permission of HTA Design LLP. Drawing to be read in conjunction with specification.

- Legend
- Site Boundary
 - 3B5P House
 - 3B6P House
 - 4B8P House
 - Respite Care Facility
 - Active Charging Spaces
 - Building Entrance
 - Existing Tree - Cat A
 - Existing Tree - Cat B
 - Existing Tree - Cat C
 - RPA
 - Proposed Tree
 - Hedge planting
 - Biodiverse Planting
 - Amenity / Play / Biodiverse Planting

Proposed Site Plan
drawing title
Reading Borough Council
Amethyst Lane
client / project

HTA-A_DR_0101
drawing number
1:500
scale @ A3

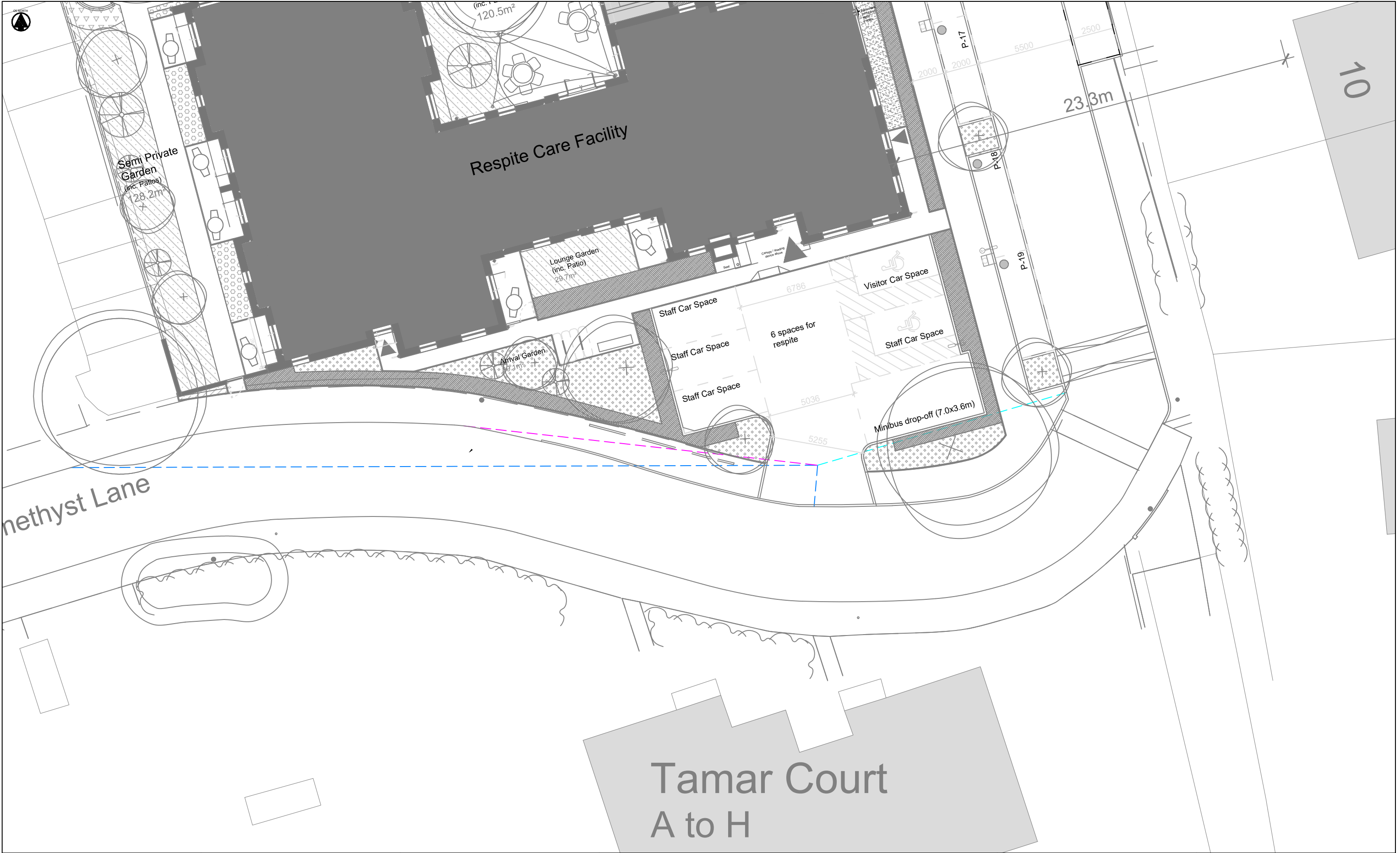
RBC-ALR
project number
JCD
originated by

FOR PLANNING
status

HTA Design LLP
www.hta.co.uk
London | Edinburgh | Manchester | Bristol

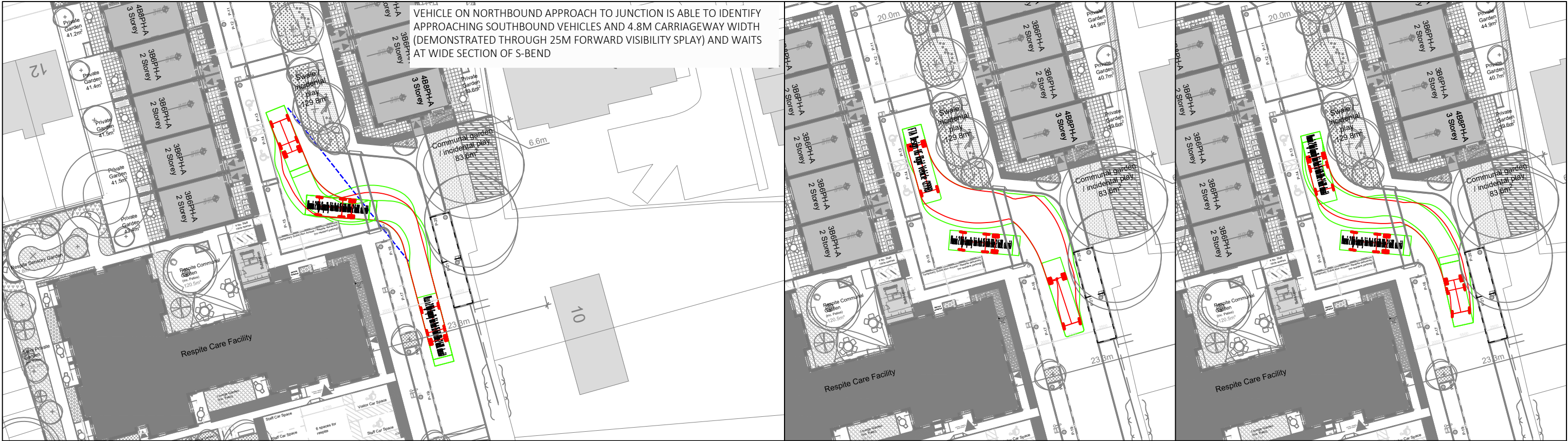


Appendix B Swept Path Analysis



VEHICLE MODEL USED FOR SWEEP PATH ANALYSIS	NOTES ----- VISIBILITY SPLAY (2.4m X 43m) ----- TANGENTIAL VISIBILITY SPLAY (2.4m x 20.4m) ----- VISIBILITY SPLAY (2.4m x 14.9m)	NOTES (CONTINUED)	REVISIONS (CONTINUED)	REVISIONS	Hydrock MERCHANTS' HOUSE NORTH WAPPING ROAD BRISTOL BS1 4RW t: (0117) 9459 225 e: bristol@hydrock.com CLIENT READING BOROUGH COUNCIL PROJECT AMETHYST LANE	RESPITE CENTRE ACCESS VISIBILITY SPLAYS	
						HYDROCK PROJECT NO. 26887	SCALE @ A3 1:200
						STATUS DESCRIPTION INFORMATION	
						DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 26887-HYD-XX-XX-DR-TP-0013	STATUS S2 REVISION P02

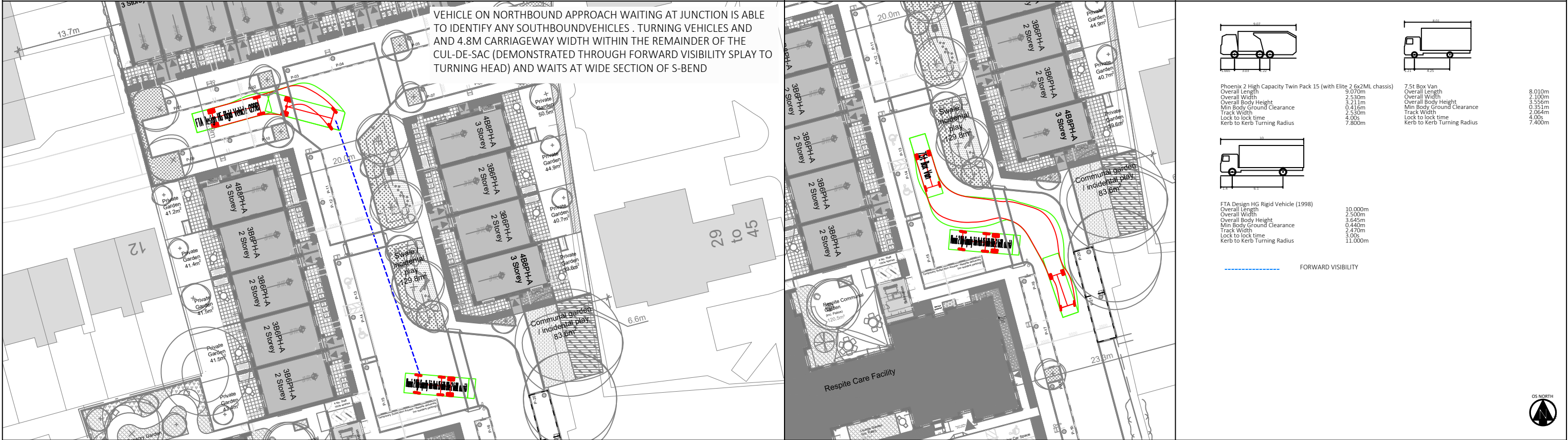
P02	FIRST ISSUE		ISSUED BY J.DALLEY	15/05/23	DESIGNED BY S.MOODY	15/05/23	APPROVED BY S.MOODY	15/05/23
P01	FIRST ISSUE		ISSUED BY J.DALLEY	14/04/23	DESIGNED BY S.MOODY	14/04/23	APPROVED BY S.MOODY	14/04/23



APPROACHING NORTHBOUND VISIBILITY SPLAY

10M RIGID PASSING WAITING REFUSE

REFUSE PASSING WAITING REFUSE



WAITING NORTHBOUND VISIBILITY SPLAY

7.5T BOX LORRY PASSING WAITING REFUSE

VEHICLE PROFILES

VEHICLE USED FOR SWEEP PATH ANALYSIS Phoenix 2 High Capacity Twin Pack 15 (with Elite 2 6x2ML chassis) <table><tr><td>Overall Length</td><td>9.070m</td></tr><tr><td>Overall Width</td><td>2.530m</td></tr><tr><td>Overall Body Height</td><td>3.211m</td></tr><tr><td>Min Body Ground Clearance</td><td>0.416m</td></tr><tr><td>Track Width</td><td>2.530m</td></tr><tr><td>Lock to lock time</td><td>4.00s</td></tr><tr><td>Kerb to Kerb Turning Radius</td><td>7.800m</td></tr></table>	Overall Length	9.070m	Overall Width	2.530m	Overall Body Height	3.211m	Min Body Ground Clearance	0.416m	Track Width	2.530m	Lock to lock time	4.00s	Kerb to Kerb Turning Radius	7.800m	NOTES	NOTES (CONTINUED)	REVISIONS (CONTINUED)	REVISIONS <table><tr><td>P02</td><td>SECOND ISSUE</td><td>ISSUED BY: J.DALLEY</td><td>15/05/23</td><td>DESIGNED BY: S.MOODY</td><td>15/05/23</td><td>APPROVED BY: S.MOODY</td><td>15/05/23</td></tr><tr><td>P01</td><td>FIRST ISSUE</td><td>ISSUED BY: S.ROSE</td><td>26/04/23</td><td>DESIGNED BY: S.MOODY</td><td>26/04/23</td><td>APPROVED BY: S.MOODY</td><td>26/04/23</td></tr></table>	P02	SECOND ISSUE	ISSUED BY: J.DALLEY	15/05/23	DESIGNED BY: S.MOODY	15/05/23	APPROVED BY: S.MOODY	15/05/23	P01	FIRST ISSUE	ISSUED BY: S.ROSE	26/04/23	DESIGNED BY: S.MOODY	26/04/23	APPROVED BY: S.MOODY	26/04/23	MERCHANTS' HOUSE NORTH WAPPING ROAD BRISTOL BS1 4RW t: (0117) 9459 225 e: bristol@hydrock.com CLIENT READING BOROUGH COUNCIL PROJECT AMETHYST LANE	REFUSE VEHICLE S-BEND TRACKING NORTHBOUND WAITING HYDROCK PROJECT NO. 26887 SCALE @ A3 1:500 STATUS DESCRIPTION INFORMATION DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 26887-HYD-XX-XX-DR-TP-0015 STATUS S2 REVISION P02
Overall Length	9.070m																																			
Overall Width	2.530m																																			
Overall Body Height	3.211m																																			
Min Body Ground Clearance	0.416m																																			
Track Width	2.530m																																			
Lock to lock time	4.00s																																			
Kerb to Kerb Turning Radius	7.800m																																			
P02	SECOND ISSUE	ISSUED BY: J.DALLEY	15/05/23	DESIGNED BY: S.MOODY	15/05/23	APPROVED BY: S.MOODY	15/05/23																													
P01	FIRST ISSUE	ISSUED BY: S.ROSE	26/04/23	DESIGNED BY: S.MOODY	26/04/23	APPROVED BY: S.MOODY	26/04/23																													