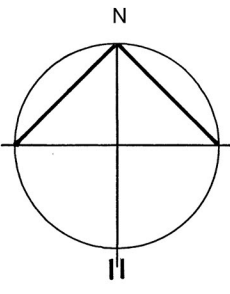


SCALE
0m 5m 10m 20m 50m 100m



Fairfax

Fairfax (Reading) Ltd and Reading Golf Club Ltd

Scale: 1 : 1000 @ A1 Drn By: PjH Date: Dec '20

Drg No: 2054/PL.04 Rev A

Project: Land at:
READING GOLF CLUB
KIDMORE END ROAD,
EMMER GREEN, READING

Drawing Title:
SITE LAYOUT

Copyright: Paul J Hewett R.I.B.A. Chartered Architect

Paul Hewett R.I.B.A.

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Appendix B RBC Comments & TA Scoping Report

Memo

From: (e)Transport Development Control Floor 1 North Rear Civic Offices Bridge Street Reading RG1 2LU
To: Susanna Bedford 0118 9372023 susanna.bedford@reading.gov.uk
Date: 23 October 2020 V1
Re: Consultation on Planning Application

Application Number: 200713

Application Type: Outline Planning Approval

Address: 17 Kidmore End Road Emmer Green Reading RG4 8SQ

Proposal: OUTLINE PLANNING APPLICATION, WITH MATTERS RESERVED IN RESPECT OF APPEARANCE, FOR DEMOLITION OF THE EXISTING CLUBHOUSE AND THE ERECTION OF A NEW RESIDENTIAL-LED SCHEME (C3 USE TO INCLUDE AFFORDABLE HOUSING) AND THE PROVISION OF COMMUNITY INFRASTRUCTURE AT READING GOLF CLUB

Reading Golf Course is located in Emmer Green, off Kidmore End Road, Reading. The existing golf course straddles two local authority administrative areas, Reading Borough Council (RBC) and South Oxfordshire District Council (SODC). The application site is located entirely within RBC and consists of outline planning application, with matters reserved in respect of appearance, for demolition of the existing clubhouse and the erection of a new residential-led scheme and the provision of community infrastructure.

The application site has been identified within the Borough's Local Plan as a site for development for 90 to 130 residential homes, community provision including healthcare and on-site public open space. It is also noted that any development should;

- Take measures to mitigate impacts on the highway network, particularly on Kidmore End Road and Tanners Lane;
- Include all parking requirements within the site to avoid exacerbating parking issues on existing streets;

The current development proposals are to deliver up to 260 new residential homes, which is in excess of the Borough's Local Plan allocation for 90 to 130 residential homes, and a health centre circa 850sqm.

Means of Access

Kidmore End Road is a single carriageway local distributor road operating a speed limit of 30mph. The primary vehicular access will be located on the eastern boundary of the site from Kidmore End Road, in a similar location to where the existing car park access to the Golf Club is located. The access design can be seen on Drawing 45675/5501/004A.

As the site is situated on one of the Borough's Local Transport Corridors classified as the C107, all proposals should comply with Reading Borough Council's Design Guidance for Residential Accesses on to Classified Roads to ensure that the safety and efficiency of the classified road network is maintained and enhanced by the design for access to new development. Therefore, the proposed access modifications are assessed with particular care to ensure good design standards are achieved, especially with the respect to layout and visibility.

The applicant has explored a number of options with Reading Buses to run bus services through the site. The Transport Assessment (para 4.2.11) states that Reading Buses do not favour the option to bring the current services into the site using the internal loop road. Therefore, existing bus stops on Kidmore End Road would be utilised until such time future development come forward on land within SODC and the re-routing of services can be assessed at that time.

Given the proposed number of units, Reading Borough Council's Design Guidance states that the residential access should be provided to a width of 5.5m with a junction radius of 6m for a distance of 50m. The vehicle tracking provided within the Transport Assessment (TA) indicates that the access can accommodate both a refuse vehicle and rigid trunk entering and leaving the site. Whilst it is noted that the rigid truck will overrun the centre line, this is likely to be an infrequent occurrence. Given that there is no firm commitment to run bus services through the site, the access is over designed given the number of units proposed under this application resulting in an excessively wide bellmouth junction.

The junction has been reduced to 5.5m

In terms of visibility, the relocated bus stop would be approximately 14m north of the main access. If the bus stop was provided with a shelter as illustrated on the access design, Drawing 45675/5501/004A, this would be located within the visibility triangle and would reduce sight lines for vehicles exiting the main development.

A bus shelter is not shown on the drawing, however, if one were to be installed it should be located so that it does not obstruct the sight line from the junction.

In addition, the Council's Design Guidance states that visibility requirements for new junctions onto classified road are 2.4m x 70m for local transport corridors. Therefore, revised visibility splays should be submitted for review to ensure sight lines of 2.4m x 70m can be achieved for vehicles exiting the site.

As per Manual for Streets, we believe 43m is sufficient, however 2.4x70m visibility splays are included on the drawing as requested by RBC

A secondary access will be located on the eastern boundary of the site providing access to the health centre and apartments above it only. This access will also form an emergency access with a droppable bollard into the site.

Reading Borough Council's Design Guidance states that *"The council will resist any new access on to a classified road if alternative access is available on to a non classified road or if it is possible for the development to share another existing access on the classified road network."*

Whilst the provision of an emergency access is acceptable, it is unclear why a secondary access is provided off Kidmore End Road for the health centre and apartments, when this can be achieved from the primary access (spine) road which is designed to accommodate higher flows of traffic. Therefore, the introduction of a secondary access point (other than for emergencies), does not comply with design guidance.

The secondary access is existing but is being slightly relocated and improved to include a footway.

The secondary access junction allows direct access to the health facility and reduces the impact of additional trips by all modes entering and exiting the residential development via the main access junction.

Previously the masterplan incorporated the health centre within the development, however RBC sought that for better access, therefore it was moved to the front of the development which allows the opportunity for separate accesses by all modes.

In terms of the design, the layout must comply with the Council's Design Guidance and adequate provision must be provided for pedestrians and cyclists using the existing classified road and new access road. The design drawings for the secondary access can be seen in Drawing 45675/5501/006, but no pedestrian footways are provided, and no dimensions have been illustrated to ensure it meets design guidance. In addition, visibility splays of 2.4m x 70m must be provided to ensure sight lines can be achieved for vehicles exiting the secondary access.

Footways, dimensions and 2.4mx70m visibility splays are now included on the drawing.

Tracking diagrams have been submitted to demonstrate a refuse vehicle and 10m long rigid vehicle entering the site requiring the full width of the access road to enter and turn within the site. Given that the Health Centre is likely to require frequent deliveries, the layout is unacceptable, and the access must be designed to accommodate two-way vehicle movements (if the provision of a secondary access is adequately justified).

The TRICS outputs for GP surgeries included in Appendix E have been analysed to understand an average trip number for OGVs at the proposed 850sqm facility. This shows that an average of half a trip per day could be expected. We have also analysed the site surveys in TRICS for the sites in Appendix E. This shows that the maximum number of OGV trips to a site, surveyed on a day is two vehicles. This is not considered frequent, and therefore, the 5.5m width, in line with RBC guidance and the main site access is considered appropriate.

It is stated that Reading Golf Club is moving to Caversham Heath Golf Club. However, there is a large area of land to the north of the development site within South Oxfordshire administrative area which forms part of the existing golf club. The proposed layout does not include vehicular access into this land. It should be established whether there is any alternative means of access to the land from a public highway.

There is no vehicle access to this land from public highway, as per the current situation. There are however, pedestrian and cycle connections from public highway.

Pedestrian & Cycling Access & Access to Public Transport Services.

Pedestrian and cycle access into the residential development will be facilitated from the main site access on Kidmore End Road, and an additional access for pedestrians and cyclists is shared with vehicular traffic at the entrance to the Health Centre.

However, it does not appear that pedestrian desire lines to the Health Centre have been considered as no pedestrian links have been made from main access road (spine road) to the Health Centre or from Kidmore More End Road adjacent to the bus stop. Therefore, pedestrians will be directed to the secondary access point where there is no segregated footway provision into the Health Centre. Given that the secondary access will be a frequently used junction for vehicles visiting the Health Centre for short appointments, a

pedestrian footway must be provided into the site. This will also provide residents in the north western areas with a safe and convenient pedestrian access to Kidmore end road.

A pedestrian link from the main access road has been provided.

Footways and cycle routes are proposed within the development for greater permeability within the site through landscaped areas between properties. A footway link into Emmer Green Primary School is proposed at the southern end of the site for school pupils and parents taking them to school. The applicant is requested to confirm that this link is committed and agreed with Emmer Green Primary School.

This is an aspiration for the masterplan and needs agreement with the school. If it is not provided, then there is an alternative route to the school via the main access, Kidmore End Road and Grove Road.

The Transport Assessment states that pedestrian and cycle links can be extended from the northern end of the site, connecting to the traffic free cycle route NCN 5 to the north. It is stated (in paragraph 4.2.5) that these links provide enhanced accessibility to/from the site for pedestrians and cyclists. However, they do not form part of this application and are located outside of the red line boundary. Therefore, there is no information submitted regarding what form these links would take or how they would be secured for future use.

These will be delivered as part of a Community Infrastructure Plan, included in Appendix X. They will be hoggin paths so suitable for walking and cycling for leisure uses through the open space.

A footway is provided on the western side of Kilmore End Road, which is approximately 1.5m wide and is segregated from the main carriageway by means of a 2.5m-wide grass verge. However, the width of the footpath narrows down to a width of 1m (approx.) outside the White Horse pub which is not ideal for people with mobility impairments traveling between the application site and the pedestrian crossing facilities on Peppard Road.

Policy CC6 of the Local Plan relates to accessibility and intensity of development. It states;

“The scale and density of development will be related to its level of accessibility by walking, cycling and public transport to a range of services and facilities, with the densest and largest scale development taking place in the most accessible locations. Unless it can be demonstrated that the accessibility of a site is to be significantly upgraded, for example, by providing high quality pedestrian routes or providing access to good public transport services, any new development must be at a scale, density and intensity appropriate to that level of accessibility.”

This is an existing issue for all residents of the existing community. We are providing an alternative route that avoids this narrowing for residents of the new development and existing residents. This is via new informal crossing on Kidmore End Road to the north of the narrowing taking people to the other side of the road where the footpath is wider at the pinch point location. Pedestrians can then use the refuge island crossing at the Kidmore End Road / Peppard Road junction to get to the signalised crossing of Peppard Road and onto Emmergreen local centre.

Bus stops are located on Kidmore end Road in close proximity to the site access and egress, providing services into Reading Town centre and Reading Train Station (Premier Routes 23 and 24). The internal layout of the site should be designed so that the walking distance along the footpath system to the bus stops should not be more than 400m from the furthest houses.

During pre-application discussions, it was stated that distances to public transport services from the dwellings along the north western boundary should be assessed. However, this assessment has not been undertaken and some dwellings appear to be in excess of 600m from public transport services. Therefore, the scale of the development does not appear to comply with the requirements of Policy CC6.

Please refer to section 6.4 for response.

Internal Layout

Manual for Streets (MfS) is expected to be used predominantly for the design, construction, adoption and maintenance of new residential streets. The internal roads should be designed to provide a network of connective routes to a maximum design speed of 20mph.

The internal layout includes a 6.5m wide spine road, looping at the northern end with footways on either side creating a dominant layout for vehicular traffic. Given that no bus services will venture into the site, the 6.5m spine road is excessively wide and does not comply to the principles of Manual for Streets for lightly trafficked streets. Research carried out in the preparation of Manual for Streets indicates that when long forward visibility is provided and generous carriageway width is specified, driving speeds tend to increase. In addition, the layout omits to provide any speed calming measures to reduce forward visibility and speeds within the site. This is all contrary to principles of Manual for Streets.

The spine road has been reduced to 5.5m. The street is designed to meander through the development and not have excessive sections of straight road. There are several junctions, building frontage, driveways and foot/cycleways along the side of the carriageway. All of these features are considered appropriate to control speeds through design without the need for physical features. However, if RBC are not satisfied that this layout is acceptable, then some one-way narrowings could be provided.

Shared use streets which serve more than one property are acceptable but the length and number of properties served from each shared surface should be kept to a minimum. Advice within Manual for Streets indicates *that shared surfaces can cause problems for some disabled people who may find the environment difficult to interpret. Shared surface schemes should include an alternative means for visually impaired people to navigate by.* Further it was noted by the design panel that shared use streets should not necessarily be the preferred type of street.

The layout includes large areas of shared surfaces where in excess of 5 dwellings are served from each shared surface. I am not satisfied that alternative means for visually impaired people to navigate by have been incorporated into all areas of the design to make the layout acceptable. This is of a concern on the shared surfaces which serve in excess of 15 dwellings with no navigation alternatives for visually impaired people e.g plots numbered 56-83, 174-193, 194-211 (inc 221-225).

Therefore, the applicant should revise the layout and improve footway provisions to ensure that no more than 5 dwellings are served by a shared surface.

A footway is provided on at least one side of all roads within the development that serve more than 6 plots.

The layout does include some areas of shared surfacing with a single footway e.g plot numbered 120-130. In principle this is acceptable, but I would expect to see the footway on the opposite side of the carriageway running adjacent to the properties.

A footway has been provided on both sides of the carriageway between plots 120 and 130.

The Transport Assessment states that the development will be designed to accommodate appropriate vehicles used for servicing and deliveries. Given that this application is submitted in outline with matters reserved in respect of appearance, tracking diagrams must be submitted at the outline stage to sure the that siting can accommodate service and delivery vehicles.

Parking & Cycle Parking

The site is located within Zone 3, Secondary Core Area, of the Council's adopted Parking Standards and Design SPD. Typically these areas are within 400m of a Reading Buses high frequency 'Premier Route', which provides high quality bus routes to and from Reading town centre and other local centre facilities. In accordance with the adopted SPD, the development would be required to provide;

- 1.5 spaces per 1 or 2 bedroom unit
- 2 spaces per 3 bedroom unit
- 2 spaces per 4 bedroom unit
- 1 space per 4 dwellings for visitor parking (Flats only)
- 3 spaces per consulting room + 1 per FTE staff for D1 Healthcare Centre

The proposed schedule of accommodation is as follows;

Breakdown of Accommodation	
1-Bed Flats / Maisonettes	32
2-Bed Flats / Maisonettes	24
2-Bed Houses	42
3-Bed Houses	81
4-Bed Houses	81
TOTAL	260

Policy TR5 of the Local Plan states that development should provide car parking and cycle parking that is appropriate to the accessibility of locations within the Borough to sustainable transport facilities, particularly public transport. It is important that enough parking is provided so that there is not a knock-on effect on the safety and function of the highway through on-street parking.

The development comprises predominantly three and four bedroom houses with garage and/or driveway parking. However, in order to comply with the Council's adopted Parking Standards and Design SPD, the internal dimensions of a single garages must comply to 7000mm long x 3000mm wide to allow easy access to/from the vehicle and sufficient storage to the rear to accommodate a bicycle. Garages not complying to the standard dimension cannot be counted in the overall parking provision for the development.

The indicative plans for the 3/4 bedroom dwelling with garages indicate that the garages will comply to the dimension of 7000mm long x 3000mm wide. However, assessing the indicative site layout, it appears that some of the garages range in size and fall below acceptable dimensions. Manual for Streets states that garages are not always used for car parking, and this can create additional demand for on-street parking. Research shows that in some developments, less than half the garages are used for parking cars, and that many are used primarily as storage. Therefore, it is essential that the garages are to an acceptable size to accommodate vehicle parking and storage.

All garages are 7m x 3m and so can be used as parking.

In terms of parking for the flats, it is stated that a maximum of 77 spaces will be provided within communal parking areas to cater for residents of apartments who do not have access to a garage or driveway. Given that development comprises of 56 x 1 or 2 bedroom flats/maisonettes this would equate to a requirement of 84 parking spaces. Assessing the indicative site layout, it does not appear that parking provision in line with the Council's Parking SPD has been provided. For example, the apartments number 174-185 are only provided with 16 spaces and no visitor parking spaces resulting in a shortfall of 5 spaces.

The unit schedule and parking numbers have been updated and all required numbers are accommodated. See section 6.4

It is stated (within paragraph 4.4.7) that for the purpose of this TA, the health centre has been assumed to have 5 treatment rooms and 10 FTE Staff. There does not appear to be any floorplans submitted to confirm the number of treatment rooms. Given that the parking provision for the health centre is based on the number of treatment rooms and the proposed number of staff, I am concerned the proposed parking provision is based on assumption rather than fact. This could lead to a shortfall of parking spaces associated with the health centre potentially resulting in on-street on Kidmore End road.

The adopted Parking Standards and Design SPD requires 3 parking spaces per consulting room plus 1 space per FTE members of staff. Based on the assumption above, the facility will require 25 spaces (15 for the treatment rooms and 10 for staff).

25 spaces have been provided for the health centre. There is no further detail at this time regarding the health centre size. However, when delivered, parking will be provided as per the RBC parking standard requirements. See section 4.4

Assessing the indicative site layout, it does not appear that an adequate number of parking spaces has been provided for the Health Centre and flats above. Assuming that the health centre requires 25 spaces (notwithstanding the concerns above), this leaves 41 spaces for the 34 residential flats equating to 1.2 spaces per dwelling. No justification has been submitted for the shortfall of spaces which is likely to have a knock-on effect on the safety and function of the highway through on-street parking.

Parking is provided in line with RBC standards. See section 4.4

It is stated that disabled parking provision will be provided in line with the Council's standards calculated on the number of spaces required for apartments. However, clarification is required regarding the number of disabled parking spaces allocated for the health centre.

5% of the 25 spaces; 2 spaces total. See section 4.4

The Council's Local Transport Plan 3 Strategy 2011 - 2026 includes policies for investing in new infrastructure to improve connections throughout and beyond Reading which include a network of publicly available Electric Vehicle (EV) charging points to encourage and enable low carbon or low energy travel choices for private and public transport. Policy TR5 of the Local Plan also states that development should make the following provision for electric vehicle charging points:

- *All new houses with dedicated off-street parking should provide charging points;*
- *Within communal car parks for residential or non-residential developments of at least 10 spaces, 10% of spaces should provide an active charging point.*

Within the Transport Assessment (para 4.4.9), it states that the development will provide an active charging point for electric vehicles in 8 spaces located within communal parking areas. However, in order to comply with the policy, all new houses with dedicated off-street parking should also provide charging points. Therefore, the applicant is requested to confirm that all houses will be provided with an active charging point and illustrate the location of the communal charging points.

An active charging point for electric vehicles at all houses that have dedicated off-street parking will be provided.

The Transport Assessment (para 4.4.10) states that the site will provide for a car club vehicle. Confirmation from local car club providers Co-Wheels will determine the demand for new car club spaces in this area. This will be determined through reserved matters applications but at least one space will be provided.

Cycle parking should be provided in line with Council's adopted Parking Standards and Design SPD Section 5. The SPD notes 0.5 cycle spaces is required for 1 or 2 bedroom flat, 1 space is required for 1 bedroom dwellings and 2 spaces are required for 2+ bedroom houses.

It is stated that cycle parking for the houses will be provided within garages. Dedicated secure cycle parking will be provided when secure facility cannot be provided. Whilst some matters can be covered by condition, details of the cycle storage should be provided for flats to ensure it can be conveniently located and large enough to accommodate the required number of stands.

Please see architect's drawings. These are included within the building footprint.

Person Trip Analysis

The Trip Rate Information Computer System (TRICS) database has been used to calculate the proposed trip rate and subsequent trip generation for the proposed residential development. The TRICS outputs are included in Appendix E of the Transport Assessment,

however, it is requested that the full TRICS output are submitted including the Multi-Modal Vehicle trip data for further review.

TRICS has been used to obtain person trip rates, not multi modal trip rates. The Transport Assessment is based on first principles approach and uses national and local evidence and data to calculate mode shares for different trip purposes that are specific and appropriate to the local area, in line with best practice.

The total number of trips generated by a certain type of development is relatively similar across the country as it is typically determined by size, not by local influencing transport factors.

The multi modal data in TRICS is not reflective of local travel patterns. Many factors influence mode share, such as walking and cycling infrastructure, public transport provision and distance to railway stations. Therefore, mode shares vary for each site, but none will have identical infrastructure and services to the proposed development. Therefore, mode shares obtained from TRICS are not considered appropriate for use in determining mode share for trips generated by the proposed development.

Following the comments above, if RBC still want to see the multi modal TRICS outputs then these can be provided. However, please note that these do not form part of our assessment, for the reasons outlined above.

A complex methodology has been used to derive the trip demands and patterns for the total residential person trips (obtain from TRIC's) which is outlined in Section 5 of the transport Assessment.

Table 5.2 shows the two-way peak hour residential trip purposes. i.e 20% of all residential person trips during the AM peak hour are made for employment purposes. To establish the arrivals/departures patterns a number of assumptions but I seek clarification regarding the night shift arrival patterns. It is stated (in para 5.1.10) that it is assumed that 12.3% of trips with an employment trip purpose will be arrival trips, and 87.7% will be departure trips. However, given that night shift patterns can vary, it is unclear why all of the 12.3% of night shift workers would arrive home during peak hour of 8am -9am. I assume a similar assumption has been made for night shift PM person trips.

In the AM peak hour, the majority of employment trips are likely to be those travelling to work. However, there will be a small proportion of people travelling home from work (likely shift work) at this time. The Trade Union Congress data reflects night shifts only and, whilst it is accepted that not all trips associated with night shift workers travelling home will occur in the AM peak hour, other returning employment trips may be made (likely ad hoc, such as people returning home from overnight business travel). Consequently the TUC data is considered a reasonable proxy overall.

In the PM peak hour, whilst a large proportion of employment trip will be people travelling home from work, the proportion of people travelling to work is expected to be higher than the proportion of those travelling home from work in the AM peak. This is due to Reading having a vibrant nightlife, and therefore a large number of jobs that are likely to generate trips to work in the PM peak hour (for example in restaurants). As a consequence, the directional proportions of employment trips in the PM peak hour has not been amended from the NTS data; 70% are arriving trips travelling home from work, and 30% are departing trips travelling to work.

Table 5.3 and Table 5.4 show the directional trip purposes for the AM and PM peak hours. In the AM peak hours, 49 person trips will arrive at the development site and 193 person trips will depart, and in the PM peak hour 155 person trips will arrive and 64 person trips will depart.

37% of secondary education trips are escorted (i.e parent dropping off) and adjustments have been made to the secondary escort education trips to reflect the proximity of the school to the development site. In principle, this approach is agreed but the escort education trips have been assigned to the proposed secondary school west of Rivermead Leisure Centre. Given that this is not an approved development and no application has been submitted at present, it is not appropriate to make this assumption and the distribution of all escort education trips in Table 5.5 and 5.6 should be reassigned accordingly.

Therefore, the person trip generation by trip purpose is shown in Table 5.7 and Table 5.8 should be amended to address my comments above to determine whether the reduction in person trips particularly during the AM peak hour can be supported.

The new school proposed west of Rivermead Leisure Centre has been included to provide a worst case assessment in terms of the number of car trips generated by the network on the road network towards Reading town centre and travelling across the Thames. If the school were removed from the assessment, the education trips would be re-assigned to Highdown School, where they would walk or cycle without an escort, or to Chiltern Edge School, where only 50% would be escorted. This would therefore result in both a decrease in trips travelling to/from the town centre area, and an overall reduction in escort education trips generated by the development; the assessment set out in the TA reflects a worst case.

Section 5.4 refers to the Health Centre Trip Distribution. The catchment area for the health centre is assumed to be the same as the existing Emmer Green Surgery which covers the Caversham area, however, I question whether this facility is needed to accommodate a shortfall of GP provisions in the area or whether this health centre will provide a wider range of services which may attract patients from a wider area. Confirmation is also required regarding the size of the Emmer Green Surgery and the proposed health centre to establish whether the new facility will accommodate a similar number of patients as assumed in paragraph 5.4.3.

The health centre is an expansion of the current facility of the Emmer Green surgery to accommodate the growing local demand and will have the same catchment area as the existing surgery. Residents outside the catchment area will not be permitted to register at the facility.

The residential trip mode share for employment purposes has been derived using census data from the localised area. Based on this calculation 67% of person trips for employment purposes are made as a car driver.

Due to the short distance between the development site and Emmer Green Primary School, it is assumed in paragraph 5.5.3 that all primary education trips will be undertaken by walking or cycling. This may be a reasonable assumption providing the footway link into Emmer Green Primary School is secured. Clarification has been sought above on this matter and should be confirmed for the purposes of this assessment.

The link is not yet secured with the school; it is an aspiration for the development. However, if it is not delivered, then parents and children will be able to walk from the

main site access, along Kidmore End Road and Grove Road, a short 8 to 15-minute walk depending on where they live on the site. This route is proposed to be improved to accommodate these trips and to discourage car use, with the delivery of raised crossings, in line with the Reading Transport Strategy (Consultation Draft) policies RTS1, RTS4, RTS5 and RTS14.

Paragraph 5.5.12 states that mode share for all other residential trip purposes have been calculated based on the 2011 Census TTW data as these trips are assumed to be undertaken by a mixture of modes. It is stated that the census data would provide a reasonable representation of mode share. Given that a table has not been included, I request confirmation that the percentage of person trips generated by other trip purposes as set in Table 5.7 & 5.8 is split by the mode share in the census data.

This is correct. Table 5.12 (new table) shows the breakdown of employment and other trip purposes as requested. Table 5.13 (previously Table 5.12) now shows all residential trip mode share.

The Residential Person Trip Mode Share is shown in Table 5.12, however, this may need to be amended to reflect the points above. A comparison will be made against the Multi-Modal Vehicle trip data from the TRICS outputs once they are submitted for review.

See paragraphs re TRICS mode share data above.

Vehicle trips have been assigned to the local highway network using CUBE software opposed to distributing traffic via existing turning count data. The resulting AM and PM peak hour development traffic assignment plots are included in Appendix H. It was requested during pre-application discussions the proposed “all or nothing” assignment tool was compared against the traditional method using the existing turning count movements at the junctions for a robust assessment but it does not appear that this has been submitted for review.

Turning counts at junctions are not considered an appropriate method for assigning development traffic.

The proposed development will generate only residential trips, whereas existing traffic on the network (that would be included in turning count data) includes traffic related to numerous other journey purposes, such as delivery and servicing, and trips with origins and destinations in entirely different areas (such as employment trips from people living outside Reading travelling to the town to work). Therefore, these trips are not representative of likely trip assignment for development trips, and any comparison to turning count data would be inappropriate.

Highway Impact

The study area for the development, scoped with RBC, includes the following junctions:

- Golf Course Access / Kidmore End Road / Chalgrove Way;
- Grove Road / Kidmore End Road;
- Kidmore End Road / Peppard Road;
- Buckingham Drive / Peppard Road mini roundabout;
- Peppard Road / Kiln Road / Caversham Park Road; and
- Peppard Road / Prospect Street / Henley Road / Westfield Road.

In respect of the Kidmore End Road and Peppard Road priority junction, the results demonstrate that the junction currently operates efficiently, and that traffic generated by the proposed development causes minimal delay to traffic and can be accommodated at the junction in its current form of a priority T-junction.

Despite the capacity assessment predicting that the current design can accommodate traffic generated by the development, a mini roundabout arrangement has been designed to help better manage traffic flows and aid vehicles exiting from Kidmore End Road. However, the roundabout junction assessment clearly demonstrates that the roundabout will result in increased queues and delay along Peppard Road above that of the current road layout. This includes the southbound queues along Peppard Road starting to approach the theoretical capacity for the junction whereas the existing T-junction design has no capacity issues on Peppard Road. The Highway Authority therefore cannot agree to any alterations to the junctions unless a detailed justification can be provided.

However, it should also be stressed that the Highway Authority have concerns regarding particular design. These concerns largely centre around the potential increased risk of collisions (and a potentially growing, inherited road safety issue) without measures to slow approaching traffic. This could be a particular problem with the southbound approach on Peppard Road, who will be able to approach at speed and drive straight through the feature unaffected, with other approaches expecting them to give way to the right.

‘Failing to give way’ or ‘failing to stop at a junction’ are common factors, particularly for cyclist incidents, so the design should address this risk. With the Kidmore End Lane give-way being recessed back into the junction slightly to accommodate the roundabout, the design also relies on an uncluttered and clear view of traffic approaching from the right (Peppard Lane northbound). Visibility splays of 2.4m x 90m should be submitted to ensure sight lines are not detrimentally affected.

The mini roundabout has been suggested to better manage traffic flows and essentially act as a traffic calming measure to slow traffic driving past the local centre. The assessment shows that the roundabout is predicted to operate within capacity and the small delays to traffic are not considered significant and are a result of traffic slowing to navigate the roundabout. Therefore, this is still proposed as an option in the TA. However, if RBC wish to retain the existing junction arrangement, as this too is predicted to operate within capacity, this is accepted, and the mini roundabout would not be delivered as requested. In this instance, it is proposed to include a raised crossing on Kidmore End Road, in line with the other raised crossing improvements that are proposed.

The capacity impacts of the Peppard Road / Prospect Street / Henley Road / Westfield Road signalised control junction indicate that the junction currently operates above the maximum theoretical operating capacity and the impact of development traffic at the junction will worsen this.

The developer will provide a contribution to RBC to introduce a smarter signal operating scheme such as MOVA to increase capacity at the junction. However, it is likely that the junction would require some significant upgrading of the equipment (not just installing the MOVA kit and some additional loops) and specialist setup of MOVA. Therefore, the contributions would need to fully cover the totality of this work in order to accommodate the additional flows.

The developer will provide an appropriate amount to upgrade the signal junction to MOVA. Exact amount to be agreed during S106 negotiations.

It has also been noted that the proposed impact at the Peppard Road / Kiln Road / Caversham Park Road junction has not been assessed / presented accurately. The section included within Table 7.6 is provided below and indicates that the development will result in a queue of 23 cars and a delay of 251 seconds.

2026 Future Year + Development				
Peppard Road (E)	0.2	0.85	0.0	0.15
Buckingham Drive	2.6	26.60	2.1	18.66
Peppard Road	1.5	7.40	0.4	2.84
Peppard Road	0.4	8.61	0.1	1.93
Kidmore End Road	23.1	251.60	2.4	30.46
Peppard Road (N)	1.1	7.60	0.7	7.11

The applicant has stated that *‘the results show that the Caversham Park Road approach is predicted to operate with relatively high queues and delays in 2026 in the AM peak hour. Impacts from traffic generated by the development are minimal with the largest increase in queue of four vehicles in the AM peak hour and less than 1 vehicle in the PM peak hour. These small increases are considered insignificant and therefore no improvements are required as part of this development.’*

However, on inspection of the junction assessments within the appendices has identified that the junction will actually result in a queue length of 34 cars and a delay of 367 seconds, this is an increase in queue of 15 cars and a delay of 163.51 seconds (over 1min 30 secs). See extract below.

Results Summary for whole modelled period

Junction	Arm	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1	A	1.02	0.3	A	528	792
	B	28.08	2.7	D	306	459
	C	8.45	1.8	A	567	850
2	A	10.70	0.4	B	105	157
	B	367.97	33.9	F	264	397
	C	7.65	1.1	A	405	607

The assessment has also not provided an RFC to fully assess the impact at the junction but given the increased delay and queues specified, the Level of Service (LOS) rating of F as well as previous assessments identifying that this junction is already exceeding capacity this must be assessed further with mitigation required.

The results reported in the TA are from a previous version of the model with an outdated set of traffic flows (both the summary table and appendix plot). The model results with the current and correct traffic flows are now reported in the TA and included in the appendix. These show that the impact is not significant and therefore no mitigation is required.

Off-Site Highway Works

A concept drawing of the proposed pedestrian improvements is shown in Drawing 45675/5501/008. However, it does not appear that a Stage 1 Road Safety Audit has been undertaken.

It is proposed that a stage 1 RSA is secured via condition.

A raised informal crossing, comprising a flat-top speed hump with a Duratherm herringbone imprint, is proposed on Kidmore End Road, Lyefield Court at its junction with Kidmore End Road, and on Grove Road at its junction with Kidmore End Road. Traffic calming measures such as these have been introduced on other strategic routes within the borough such as along the A4 Bath Road which provided off-carriageway pedestrian/cycling improvements and the creation of a new National Cycle Network route (NCN422).

The off-carriageway can improve traffic safety at the junction by slowing vehicles down when entering and exiting the junction as well as increasing visibility of pedestrians to other road users. These informal crossings will be provided with tactile paving to facilitate the crossing of visually impaired pedestrians. However, opportunities to improve priority for pedestrians /cyclists in the form of give way markings so vehicles are obliged to give way should be considered.

Priority to pedestrians or 'Copenhagen Style' crossings of the side roads have been considered. These are not considered appropriate at the main site access junction, secondary site access junction or Lyefield Court junction due to visibility constraints. Drivers would not have a wide enough field of vision to see approaching pedestrians or cyclists and therefore there would be a safety concern. This could be alleviated at the site access junctions by removing trees, however this is unlikely to be acceptable in terms of tree loss.

A pedestrian priority crossing could potentially be provided at the Grove Road junction as the land around the junction is much less constrained. It is proposed that the exact form of this crossing is secured via condition to allow more consultation with RBC and detailed analysis of design.

In terms of the raised table, all vertical deflections should be reduced to 60mm. Reading buses should be consulted on the locations of the raised tables to determine whether they would impact on services or positioning of bus stops.

The exact details of the speed hump will be agreed between the developer, RBC and Reading Buses. It is proposed that agreement of these details is conditioned.

In principle, the proposed pedestrian/cycling improvements are supported but this development provides the opportunity to introduce the pedestrian measures at the proposed junctions into the development. This will provide a connected route from the Emmer Green local centre to the development site.

These have now been provided at both the main and secondary access.

In conclusion, there are a number of outstanding transport/highway concerns still to be addressed before I can recommend approval of this application.

Regards

Natalie Lucas

Transport Development Control Officer

Transport | Directorate for Economic Growth and Neighbourhood Services (DEGNS)



now part of



Reading Golf Course

Transport Assessment Scoping Note

On behalf of **Fairfax Properties**



Project Ref: 45675/5501 | Rev: 0 | Date: June 2019

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Document Control Sheet

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Project Ref: 45675
Report Title: Transport Assessment Scoping Report
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For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved

This report has been prepared by Peter Brett Associates LLP ('PBA') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which PBA was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). PBA accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

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1 Introduction

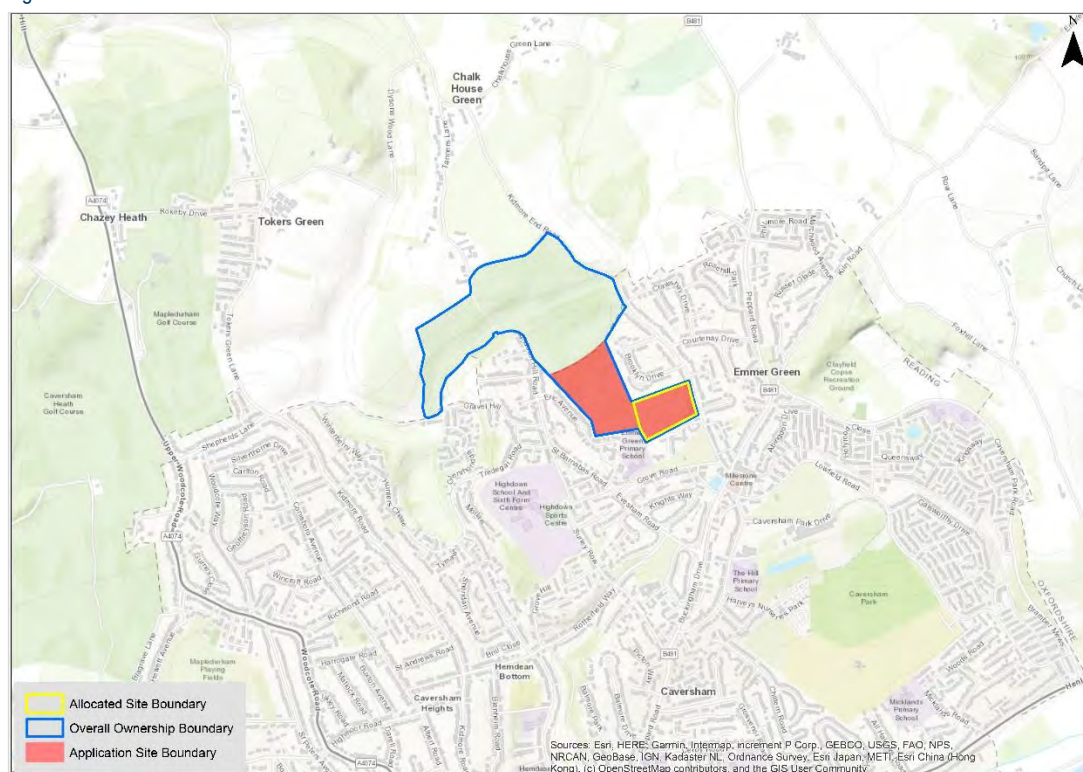
1.1 Background

- 1.1.1 Peter Brett Associates now part of Stantec (PBA) has been commissioned by Fairfax Properties to undertake a Transport Assessment (TA) in support of a planning application for the land at Reading Golf Course, Caversham. This report sets out the proposed scope of the TA, including the assessment methodology and assumptions.

1.2 The Site

- 1.2.1 The site is located in Emmer Green on Kidmore End Road, Reading. The golf course is 42ha in size and straddles two local authority administrative areas with approximately 12ha of this within Reading Borough Council (RBC) and a larger proportion of 30ha located within South Oxfordshire District Council (SODC).
- 1.2.2 Part of the application site located within RBC is allocated for residential development in RBC's Pre-Submission Draft Local Plan for 90 to 130 residential homes, community provision including healthcare and replacement clubhouse (subject to additional land in South Oxfordshire being secured for replacement holes).

Figure 1-1 Site Location Plan



2 Policy

2.1 Policy

- 2.1.1 The following policies will be reviewed in order to demonstrate that development proposals are in compliance with the requirements and aspirations within them.

2.2 National Policy

- National Planning Policy Framework – Department for Communities and Local Government (July 2018)
- Planning Practice Guidance – Department for Communities and Local Government (March 2014)

2.3 Local Policy

- Core Strategy (January 2015)
- Reading Borough Local Development Framework: Revised Parking Standards and Design (October 2011)
- Local Transport Plan 3: Strategy 2011 – 2026 (April 2011) and sub strategies, reference will be made to the New Local Plan.

3 Baseline Conditions

3.1 Local Amenities

- 3.1.1 There are a number of local amenities within walking distance of the site, which are set out below.

Centres

- 3.1.2 Emmer Green Local Centre is located within 350m approximately a 5-minute walk, from the site boundary and provides amenities such as:

- Post Office;
- Hardware and Convenience Store;
- Express Supermarket;
- Restaurants and Take-a-ways, Cafes;
- Barbers and beauty salon; and a
- Pharmacy.

- 3.1.3 Caversham District Centre is located 2.2km south of the site which is between a 5 or 10minute cycle journey and provides further variety of local amenities and a larger supermarket.

- 3.1.4 Reading Town Centre is 4km from the site and approximately a 15-minute cycle however bus service 23 provides direct access directly from the site to Reading Station and Reading Town Centre.

Leisure and Recreation

- 3.1.5 There are a number of different leisure facilities that service the area surrounding the site. Highdown Sport and Leisure is located to the east of the site, 1km south west of the site approximately a 12 minute walk away. Within a 1.1km journey there is Caversham Tennis club, Caversham Skate park, Caversham Football Club and North Reading Badminton Club. Additionally, there is Emmer Green Allotments within 400m of the site, easily accessed by circa 4-minute walk or 1-minute cycle.

Education

- 3.1.6 Emmer Green Primary School is the nearest primary school to the site, accessible within 850m which is between a 5-10 minute walk. Highdown School and Sixth Form Centre is 1.1km from the site, within approximately a 13-minute walk or a 4-minute cycle.

Health and Medical

- 3.1.7 Emmer Green Surgery and District Nurse's office is within 800m the site and provides NHS services.

Walking and cycling

- 3.1.8 The site is located in a residential area with a network of streets with footways and footpaths providing access to local facilities.

3.1.9 Reading Borough Council (RBC) branded cycle routes R40 and R41 provide a connection to Reading Station and Town Centre. The station is 3.3km from the site and can be reached in approximately 15 minutes by bicycle and therefore is a realistic alternative to the car. National Cycle Route 5 passes through the north of the Golf Course and provides a connection towards Oxford which provides a leisure route for new residents.

3.1.10 RBC's local cycle routes map is included in **Appendix A**.

3.2 Public Transport

Bus

3.2.1 The site has good public transport accessibility with bus services 23 and 24 routing along Kidmore End Road adjacent to the site and service 25 routing along Peppard Road. The services provided are summarised below in **Table 3-1**.

Table 3-1 Bus Services

Stop	Service No.	Fist Service	Last Service	Destination	Week day Frequency (minutes)	Weekend Frequency (minutes)
Calgrove Way	23	05:46	23:46	Friar Street	Every 23-30	Every 30
	24	05:27	23:22	Friar Street	Every 27-35	Every 30
Cavendish Road	25	06:00	20:39	Central Reading	Every 25-31	Every 20-60
	25	06:00	20:42	Peppard Common	Every 30	Every 60

Rail

3.2.2 Reading Station is located 3.5km to the south of the site and provides fast and frequent services into Oxford, Basingstoke, London and the wider regions.

3.2.3 Elizabeth Line services will be stopping at Reading Station by December 2019 providing enhanced services from Reading through to Central London. These new services will be accessible via cycling and bus services.

3.3 Highway Network

Local Highway

3.3.1 The site access leads on to Kidmore End Road which in turn connects to Peppard Road, providing direct access to Emmer Green in the north and Caversham and Reading Town centre in the south.

3.3.2 It should be noted that along Kidmore End Road the current parked cars on the southbound side of the carriageway result in a narrowing of the road causing delay to traffic including bus services. Therefore a Video Delay Survey is proposed to be conducted along Kidmore End Road.

Study Area

3.3.3 The proposed study area for the site for ATC and MCTC traffic surveys includes the following junctions:

- Golf Course Access / Kidmore End Road / Chalgrove Way
- Grove Road / Kidmore End Road
- Kidmore End Road / Peppard Road / Buckingham Drive double junction
- Peppard Road / Klin Road / Caversham Park Road
- Peppard Road / Prospect Street / Henley Road / Westfield Road

3.3.4 Traffic surveys will be undertaken at the locations outlined above.

3.4 Personal Injury Collisions

3.4.1 Personal Injury data covering the highway network surrounding the site, and for the junctions in the study area will be obtained for the most recent three-year period. The data will be analysed to understand if there are any existing safety issues in the proposed study area that may be adversely affected by the development proposals.

3.5 Existing Transport Connections

3.5.1 The existing connections to/from the site discussed in this section are illustrated in **Figure 3-1**.

Key:

- Existing:
- Site boundary
- Cycle routes
- Bus routes
- Bus service numbers
- Centres
- Reading Railway Station

The map shows the Emmer Green Local Centre area in Reading, with various bus routes (23, 24, 25) and cycle routes (green lines) connecting different parts of the area. The Emmer Green Local Centre is highlighted in orange, and the Caversham District Centre is highlighted in yellow. The map also shows various farms, houses, and roads in the area.

4 Development Proposals

4.1 Proposals

- 4.1.1 Current development proposals are to deliver up to 350 new residential homes on the site within RBC land only, including the allocation site for 90 to 130 homes and a medical centre circa 850sqm.

4.2 Access

Pedestrian and Cycle Access

- 4.2.1 Pedestrian access will be located on the eastern boundary of the site providing access to bus stops and local facilities in the area. Cycle access will be shared with pedestrian in addition to the on-road vehicle access.

Vehicle Access

- 4.2.2 Vehicle access will be located on the eastern boundary of the site from Kidmore End Road, where the existing car park access to the Golf Club is found.
- 4.2.3 An emergency access will also be located on the eastern boundary of the site, likely in the form of a pedestrian and cycle access with a drop bollard.

Public Transport

- 4.2.4 Bus stops are located directly on the site access and egress, providing services into Reading Town centre and Reading Train Station (services 23 and 24) outlined in section 3.2 of this TA.

4.3 Parking Provision

- 4.3.1 Parking provision on the site will consider RBC's parking standards and emerging policies, we will aim to reduce car use as much as possible.
- 4.3.2 Consideration for disabled, electric car charging and cycle parking will also be included in line with local/national policies.

4.4 Refuse, Servicing and Delivery

- 4.4.1 The masterplan will be designed to accommodate appropriate vehicles used for servicing and deliveries.

5 Person Trip Generation

5.1 TRICS Person Trip Rates

Residential

5.1.1 PBA are proposing to use the Trip Rate Information Computer System (TRICS) database version 7 to calculate the proposed trip rate and subsequent trip generation for the proposed residential development. The following parameters will be selected in TRICS:

- Residential: Houses Privately Owned
- No sites within Greater London, Scotland, Wales, Northern Ireland or Ireland
- 50 to 650 dwellings
- Most recent 10-year period: 01/03/09 – 01/03/19
- Location category: Suburban Area and Edge of Town
- Surveys include weekdays Monday - Friday

5.1.2 These criteria resulted in the selection of 27 sites. Some sites have been removed that include bungalows as these could be retirement properties and are not considered representative of the site. This has resulted in X sites being excluded from the calculation. The site results in the residential person trip rates are set out in **Table 5-1**. TRICS outputs are included in **Appendix B**.

Table 5-1 Residential Person Trip Rates

Time Period	Person Trip Rates			Person Trip Generation (350 homes)		
	Arrive	Depart	Two-way	Arrive	Depart	Two-way
AM Peak (08:00 – 09:00)	0.187	0.743	0.930	65	260	326
PM Peak (17:00 -18:00)	0.596	0.243	0.839	209	85	294

Medical Centre

5.1.3 PBA are proposing to use the TRICS database version 7 to calculate the proposed trip rate and subsequent trip generation for the medical centre. The following parameters will be selected in TRICS:

- Health: GP Surgeries
- No sites within Greater London, Scotland, Wales, Northern Ireland or Ireland
- 200 to 1,500 sqm gfa
- Most recent 10-year period: 01/03/09 – 01/03/19
- Location category: Suburban Area and Edge of Town

- Surveys include weekdays Monday - Friday

5.1.4 These criteria resulted in the selection of 8 sites. The proposed person trip rates generated by the medical centre are set out in **Table 5-2**. TRICS outputs are included in **Appendix B**.

Table 5-2 Medical Centre Person Trip Rates

Time Period	Person Trip Rates			Person Trip Generation (350 homes)		
	Arrive	Depart	Two-way	Arrive	Depart	Two-way
AM Peak (08:00 – 09:00)	6.583	3.652	10.235	56	31	87
PM Peak (17:00 -18:00)	2.848	4.416	7.264	24	38	62

Total Person Trip Generation

5.1.5 The total number of person trips to be assessed in the Transport Assessment that are generated by 350 new homes and an 850sqm medical centre are summarised in **Table 5-3**.

Table 5-3 Total Person Trip Rates

Time Period	Arrive	Depart	Total
AM Peak (08:00 – 09:00)	121	291	412
PM Peak (17:00 -18:00)	233	123	355

5.2 Trip Purpose – Residential Trips

5.2.1 The trip demands and patterns for the total residential person trips have been considered by trip purpose on the Department for Transport (DfT) National Travel Survey (NTS) Table NTSS0502 *Trip Start Time by Trip Purpose (Monday to Friday only)* which is included in **Appendix C**.

5.2.2 The categories of trip purpose within the NTS are:

- Employment
- Education
- Escort Education
- Retail
- Other Personal Business and Escort
- Visiting Friends / Entertainment / Sport
- Holidays / Day Trip / Other

5.2.3 The NTS data incorporates all education types into one group. These have been separated into primary, secondary and tertiary education using the following method:

- The 2011 Census Age by Single Year dataset has been used to calculate the likely proportion of primary (ages 4 to 10), secondary (ages 11 to 15) and tertiary (ages 16 to 17), based on the Middle-layer Super Output Areas (MSOA's) Reading 001 (illustrated in Figure 5.1).

Figure 5.1: MSOA Reading 001



5.2.4 The census data shows that 50% of children are primary school age, 38% are secondary school age and 12% are tertiary school age in this area.

5.2.5 Escort education trips are also all grouped together in the NTS. Table NTS0613 from the NTS provides a breakdown of trips to and from school per child, per mode of travel. This is broken down further into primary, secondary and tertiary escort education trips using the following methodology:

- NTS Table NTS0613 (contained **Appendix C**) gives the proportion of primary (3%) and secondary (37%) school aged children that travel to school alone. It is assumed, as other data is not available, that 37% of tertiary education aged children also travel alone.

5.2.6 This has been used to calculate the proportion of primary (97%) and secondary/tertiary (63%) school children that travel with an escort.

5.2.7 The proportion of primary (50%), secondary (38%) and tertiary (12%) school aged children calculated above have been combined with the proportions travelling with an escort and the person trip rates for each, to give the following split for residential trips with an escort education trip purpose:

- Primary escort education trips: 61%
- Secondary escort education trips: 29%

- Tertiary escort education trips: 10%

5.2.8 These ratios have then been applied to the total proportion of residential trips with an escort education trip purpose, as shown in **Table 5-2**.

Table 5-2 Peak Hour Residential Trip Purposes

Purpose	%	
	AM Peak Hour 0800-0900	PM Peak Hour 1700-1800
Employment	21%	33%
Business	3%	4%
Education	29%	3%
Primary	15%	1%
Secondary	11%	1%
Tertiary	4%	0%
Escort Education	22%	2%
Primary	11%	1%
Secondary	8%	1%
Tertiary	3%	0%
Retail	4%	12%
Other Personal Business and Escort	17%	24%
Visiting Friends/ Entertainment/ Sport	3%	19%
Holiday/ Day Trip/ Other	3%	7%

5.2.9 The trip purposes shown in **Table 5-2**, apply two-way trips for AM and PM peak. However, it is considered that trip purpose will vary by arrivals and departures. Trip purposes, split by time and arrivals/departures, have been calculated based upon the data contained within **Table 5-1** and **Table 5-2**, and the following assumptions:

- It has been assumed that there will be no residential person trips with an education purpose arriving at their home in the AM peak hour (08:00-09:00) or departing from their home in the PM Peak hour, as all trips with an education purpose are assumed to be school pupils travelling to and from school.
- To provide a robust assessment, it is assumed that all PM peak hour (17:00-18:00) escort education trips are arrivals, these are assumed to be parents returning from work, and picking their child up from after school clubs.
- 12.3% of people employed in the UK work night shifts (see evidence from the Trade Union Congress contained in **Appendix D**), and therefore in the AM peak hour, it is assumed that 12.3% of trips with an employment trip purpose will be arrival trips, and 87.7% will be departure trips.

5.2.10 **Table 5-3** and **Table 5-4** show the directional trip purposes for the AM and PM peak hours. Resulting person trips for the residential development are also shown.

Table 5-3 AM Peak Purpose Trips

Purpose	AM Peak %			AM Peak Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Employment	14%	36%	21%	10	109	119
Education	0%	36%	29%	0	109	109
Primary	0%	18%	15%	0	55	55
Secondary	0%	13%	11%	0	41	41
Tertiary	0%	4%	4%	0	14	14
Escort	38%	13%	22%	26	38	65
Education	19%	6%	11%	13	19	32
Primary	10%	3%	6%	7	10	16
Secondary	5%	2%	3%	3	5	8
Retail	7%	2%	4%	5	7	12
Other Business, Personal Business and Escort	30%	10%	17%	21	30	51
Visiting Friends/ Entertainment/ Sport	6%	2%	3%	4	6	10
Holiday/ Day Trip/ Other	6%	2%	3%	4	6	10
Totals	-	-	-	70	306	375

*Note – Numbers may not sum due to rounding.

Table 5-4 PM Peak Purpose Trips

Purpose	PM Peak %			PM Peak Person Trips		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Employment	33%	35%	33%	68	27	95
Education	4%	0%	3%	8	0	8
Primary	2%	0%	1%	4	0	4
Secondary	1%	0%	1%	3	0	3
Tertiary	0%	0%	0%	1	0	1
Escort	3%	0%	2%	6	0	6
Education	2%	0%	1%	3	0	3
Primary	1%	0%	1%	2	0	2
Secondary	0%	0%	0%	1	0	1
Tertiary						
Retail	12%	13%	12%	25	10	35
Other Personal						
Business and	23%	25%	24%	48	19	68
Escort						
Visiting						
Friends/	19%	20%	19%	39	16	55
Entertainment/						
Sport						
Holiday/ Day						
Trip/ Other	7%	7%	7%	14	6	20
Totals	-	-	-	208	78	285

*Note – Numbers may not sum due to rounding.

6 Trip Distribution

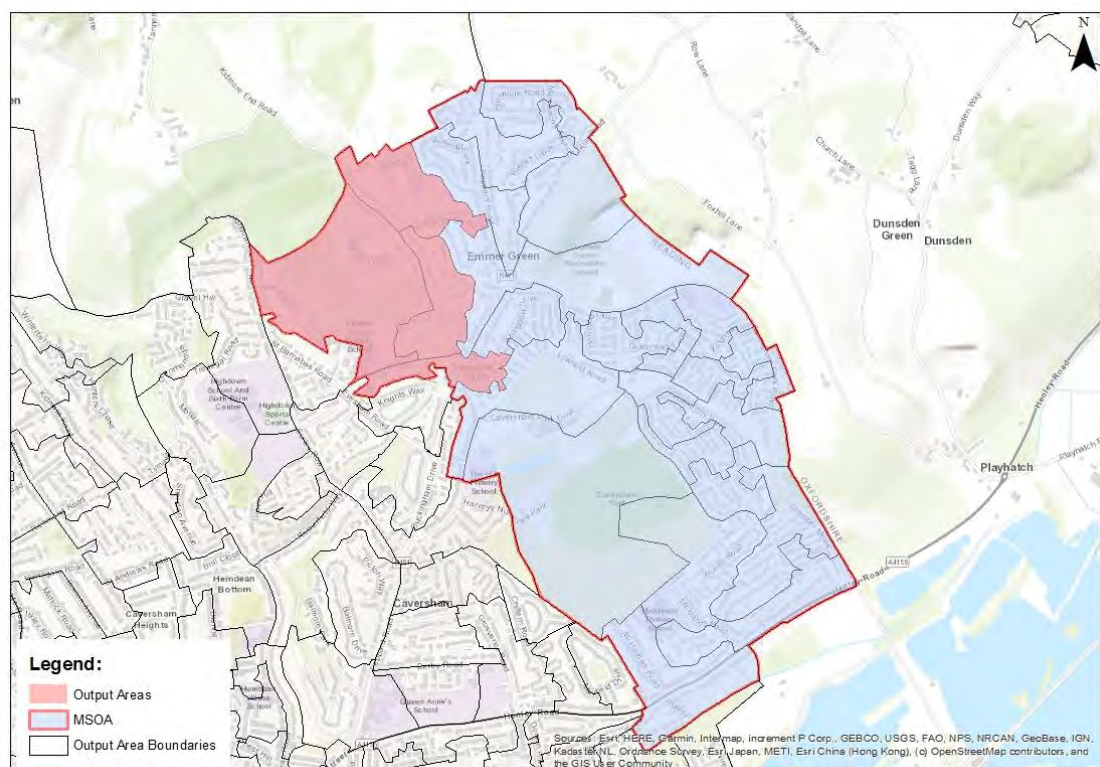
6.1 Residential Trip Distribution

- 6.1.1 It is proposed to utilise distribution profiles from the 2011 Census Travel to Work (TTW) data for the MSOA Reading 001 to determine a person trip distribution to/from the development, this data will be used against journey purpose as trips vary from local to wider trips based on purpose.

Employment

- 6.1.2 The method of trips distribution is accurate for external residential person trips with an employment purpose and escort education trips purpose (linked to employment) only. It is likely that employment trips will generate a mix of wider and local trips based on main employment areas in and outside of Reading.
- 6.1.3 Method of travel to work is not available by origin-destination at Output Area within the 2011 census, however this would provide a more accurate distribution profile to assign trips. It is therefore proposed to create a matrix of origin - destination trips based on the Output Areas that are most similar by means of aesthetics, location and access to the development site. Therefore, four of the Output Areas within Reading MSOA 001 have been selected, the OA's selected cover the development site and the surrounding areas, including alike housing types. The mode share proportions from Travel to Work Census data, MSOA Reading 001, will be applied to the selected output areas based on trips from all over OA's in the country. The OA's that have been selected are illustrated in the **Figure 6-1**.

Figure 6-1 Output Areas within MSOA Reading 001



Educa tion

- 6.1.4 Education trips are to be distributed manually to the Output Areas for the nearest schools to the development site.

Primary

- 6.1.5 Due to the surrounding location of the development site it is assumed that all primary trips will be allocated to Emmer Green Primary School, due to its close proximity.

Secondary

- 6.1.6 It is assumed 75% of education trips will be assigned to the closest secondary school Highdown Secondary School and due to its over-subscription, it is assumed 25% of education trips will be assigned to the next closest school which is Maiden Erlegh Chiltern Edge Secondary School.

Tertiary

- 6.1.7 Due to the selection of Tertiary Education available in Reading and the wider area, Tertiary education trips cannot be assigned to specific locations, therefore these trips will be assigned within the Travel To Work 2011 Census data.

Escort Educ ation

Primary

- 6.1.8 As stated in Paragraph 6.3.2, all Education trips including Escort Education will be assigned to Emmer Green primary School as this is the closest primary school to the development site.

Secondary

- 6.1.9 Based on the above (Paragraph 6.3.3) it is assumed that 75% of escort education trips will be assigned to Highdown Secondary School, therefore 25% will be assigned to Maiden Erlegh Chiltern Edge Secondary School. The 25% of Escort Education trips going to Maiden Erlegh Chiltern Edge Secondary School will be assigned within the TTW data as these escort trips are assumed to be taken on route of an escorts trip to work.

Tertiary

- 6.1.10 As the place of Tertiary education is unknown and cannot be assumed based on the area Tertiary Escort Education trips will be assigned within the TTW data, assuming most Escort Education trips will be on route to a place of work.

Other

- 6.1.11 All other trips will be assigned within the TTW data as trips will vary from local to wider based on the purpose of the trip. It is acknowledged that this method only takes into account trips to employment. This methodology outlined is accurate for external residential person trips with an employment purpose and escort education purpose (linked to employment) only, but it will reflect a rounded view of the trips the development site to other areas.
- 6.1.12 Other trip purposes include the categories:
- Other Personal;
 - Business;

- Escort;
- Visiting Friends, Entertainment and Sports; and,
- Holiday, Day Trip and Other

6.1.13 It is likely that trips with education, retail or visiting friends / sports / entertainment purpose would travel locally to Reading, whilst trips with a holiday / day trip purpose would likely travel further across country. Other personal business and escort trips are assumed to be a mix of wider and local trips. Therefore, it is considered that utilising the TTW data, on average, would provide reasonable representation of these trip purposes as this will give a balanced distribution and worst-case scenario both locally and within the wider area.

6.2 Medical Centre Trip Distribution

6.2.1 The catchment area for the medical centre is assumed to be the same as the existing Emmer Green Surgery which covers the RG4 postcode area (essentially the whole of north Reading).

6.2.2 It is assumed that a proportion of patients to the new medical centre would be from the proposed development. To acknowledge this internal trip generation between new homes on site and the medical centre it is assumed that the new medical centre would cater for a similar number of patients as Emmer Green Surgery and that all new residents of the development would register at the new medical centre.

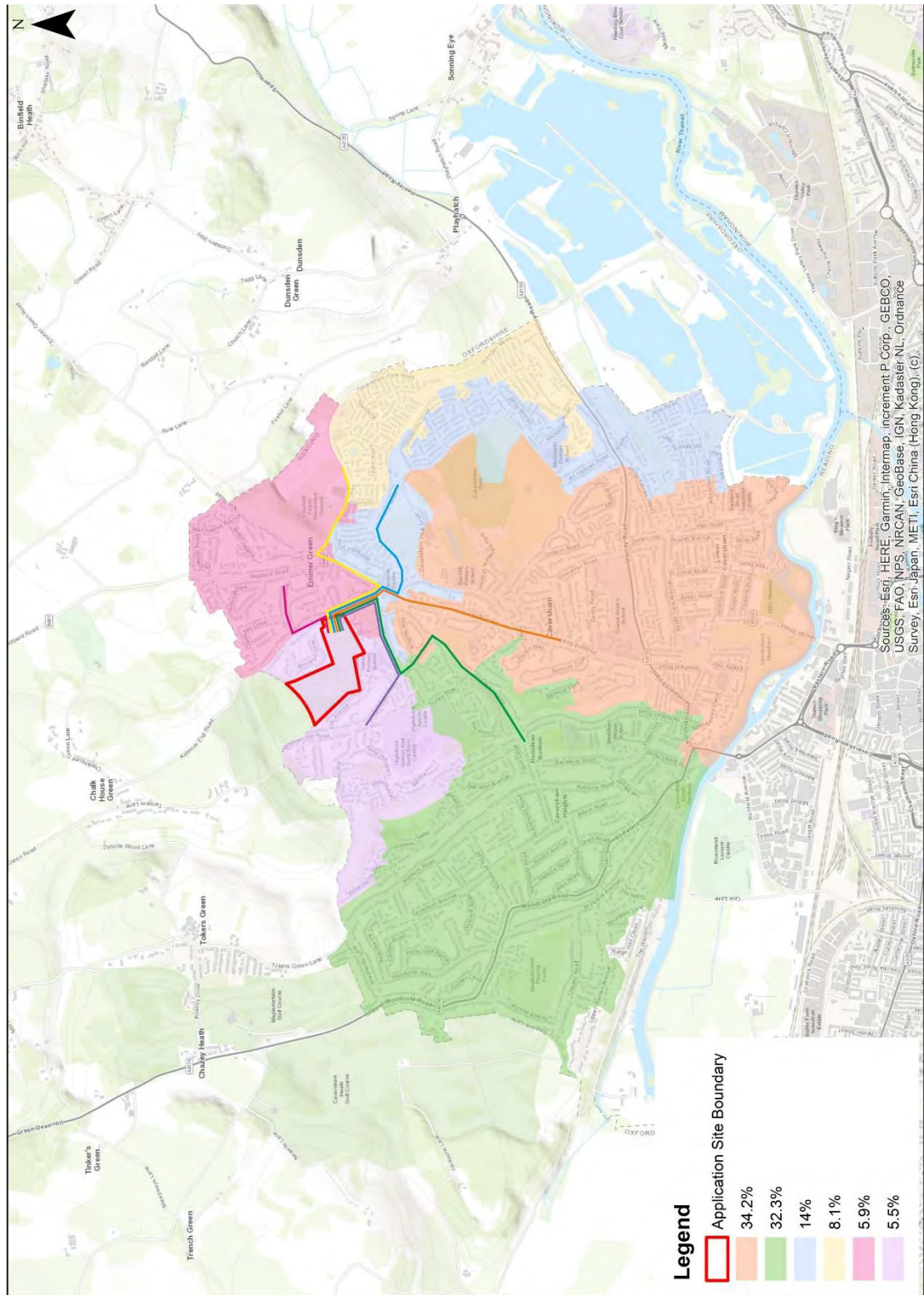
6.2.3 Based on information on the NHS website, Emmer Green Surgery has 10,910 registered patients. Therefore, for the purpose of this assessment, it is assumed that the new medical centre would cater for approximately 10,000 patients.

6.2.4 The population and housing numbers for Reading 001 MSOA have been extracted from Census 2011 to determine how many people may live at the site once fully developed. This shows that 7,781 people live in 3,205 dwellings which equates to an average household of 2.43 people. Therefore, for the purpose of this assessment it is assumed that approximately 850 people could live at the development.

6.2.5 Based on the above, it is assumed that 9% of patients will be from the new development.

6.2.6 The remaining 91% of person trips will be manually distributed based on key routes to the site from north Reading to the medical centre as set out in **Figure 6-1**.

Figure 6-1 Medical Centre Person Trip Distribution



7 Person Trip Mode Share

7.1 Residential

Employment Trip Purpose

- 7.1.1 It is proposed to utilise mode share from the 2011 Census Travel to Work data for the MSOA Reading 001 to determine the methods of travel people use, to and from the development, this data will be used against journey purpose as trips vary from local to wider trips based on purpose.
- 7.1.2 The method outlined above is accurate for the all employment purposes for people living within Reading MSOA 001 and working elsewhere. As discussed previously in paragraph 6.2.2, origin-destination mode share from 2011 Census are only available at MSOA level and larger. Each person trip will be assigned a percentage mode share based on the MSOA, then this will be applied to the proportion of trips made to each Output Area (OA) to calculate the percentage of people travelling by each mode from each OA.
- 7.1.3 **Table 7-1** provides the mode share percentages for the OA's selected within the MSOA Reading 001.

Table 7-1 Mode Share

Mode Share	%
Train	7%
Bus	9%
Taxi	0%
Motorcycle	1%
Car Driver	67%
Car passenger	5%
Bicycle	7%
Pedestrian	4%
Other	0%
Total	100%

- 7.1.4 Based on the trip generation trip rates set out in Section 5.1, **Table 7-2** details the person trips by mode of travel to work.

Table 7-2 Person Trip Mode Share

Method of Travel to Work	%	AM Person Trips			PM Person Trips		
		Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
Train	7%	5	21	26	15	5	20
Bus	9%	6	28	34	19	7	26
Taxi	0%	0	0	0	0	0	0
Motorcycle	1%	1	3	4	2	1	3
Car Driver	67%	47	205	251	139	52	191
Car passenger	5%	3	14	17	10	4	13
Bicycle	7%	3	11	14	8	3	10
Pedestrian	4%	5	23	28	15	6	21
Other	0%	0	0	1	0	0	0
Total	100%	70	305	375	208	78	285

- 7.1.5 It is recognised that trip modes will vary based on the purpose of the trip, therefore trips will be broken down further into trip purposes.

Education Trip Purpose

- 7.1.6 Education trips will be assigned mode share based on the location and the nature of the trip. TTW data is not a true representation of mode share assignment for education trips due to the high percentage of car drivers, and factors that may be an influence on how people travel such as distance. Due to the nature of persons within education, car driver mode share for education trips will not be included.

Primary

- 7.1.7 Due to the short distance between the development site and Emmer Green Primary School, it is assumed that all Primary School trips will be undertaken by walking or cycling.

Secondary

- 7.1.8 75% of the Secondary School trips to Highdown Secondary School will also be assumed to be walk or cycle due to the close proximity to the development site.
- 7.1.9 The remaining 25%, travelling to Maiden Erlegh Chiltern Edge are assumed to be travel by bus. This has been decided as there is a direct bus service to Maiden Erlegh Chiltern Edge Secondary School located directly on the access of the development and only operates for school use.

Tertiary

- 7.1.10 Mode share for Tertiary Education trips will be assigned within the 2011 Census TTW data as these trips are assumed to be undertaken by a mixture of modes.

Escort Education Trip Purpose

Primary

- 7.1.11 Escort education trips, travelling to Emmer Green Primary School are assumed to be undertaken by either walking or cycling as stated in paragraph 7.2.2.

Secondary

- 7.1.12 For Escort Education trips travelling to Maiden Erlegh Chiltern Edge, mode share will be proportioned by the number of escort education trips (car passenger) assigned with the TTW data. It is assumed for practical purposes if escorts are not already travelling in the direction of Maiden Erlegh Chiltern Edge Secondary School then the education trips will be by bus (stated in paragraph 7.2.4).
- 7.1.13 When assigning Escort Education trips by mode of travel it will be assumed these trips will be undertaken by car passenger. Therefore, it is proposed that mode share from TTW data is proportioned to dis-count car driver and motorcycle driver as Secondary School attendees are under the legal driving age.

Tertiary

- 7.1.14 Mode share for Tertiary Escort Education trips will be assigned within the 2011 Census TTW data as these trips are assumed to be undertaken by a mixture of modes.

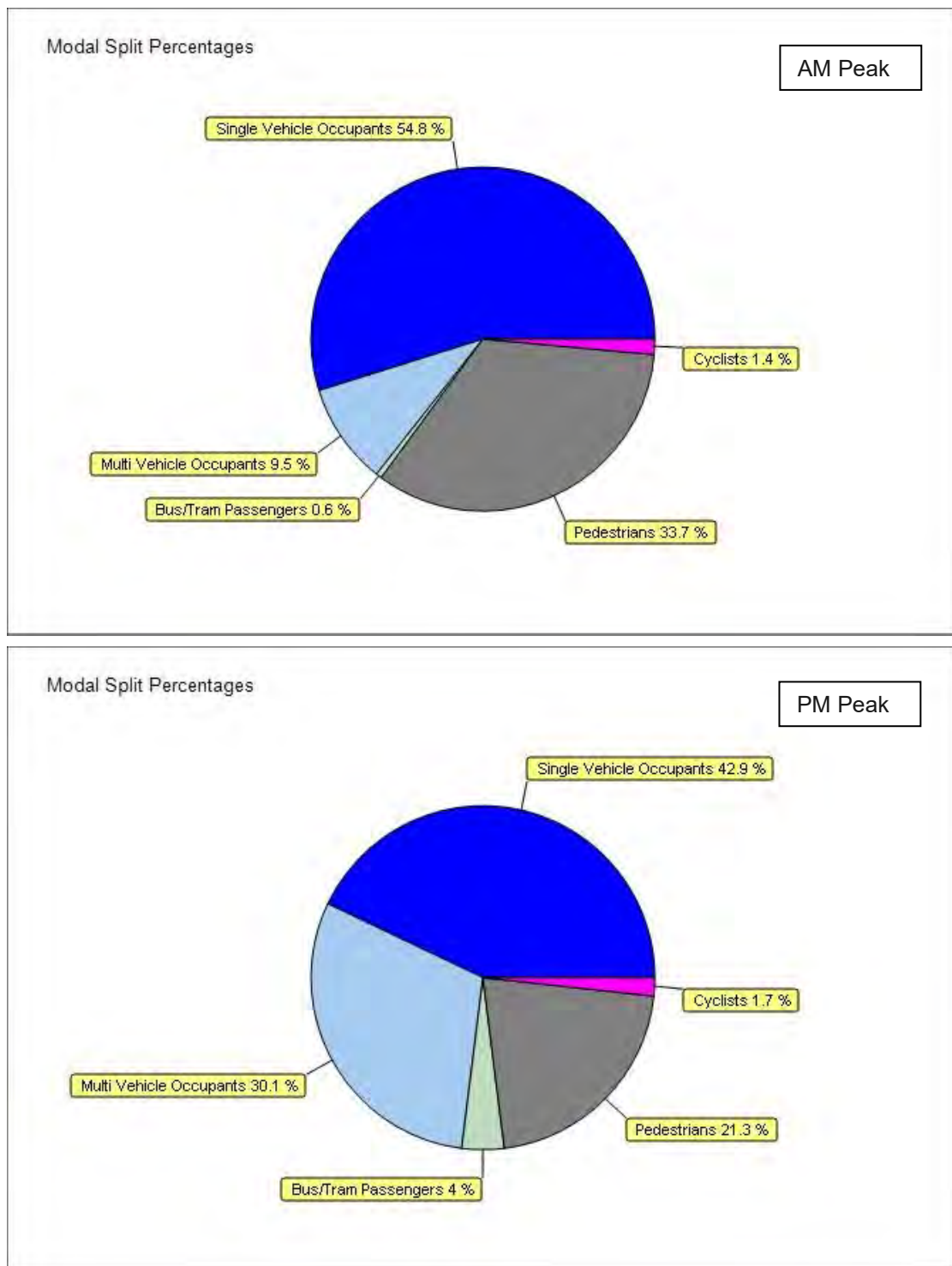
Other Trip Purpose

- 7.1.15 Other trip purposes include the categories:
- Other Personal;
 - Business and Escort;
 - Visiting Friends, Entertainment and Sports; and,
 - Holiday, Day Trip and Other.
- 7.1.16 It is acknowledged that this method only takes into account trips to employment. This methodology outlined above is accurate for external residential person trips with an employment purpose and escort education purpose (linked to employment) only.
- 7.1.17 The mode share for Other purpose journeys varies. It is likely that trips with education, retail or visiting friends / sports / entertainment purpose would travel more sustainably as they are envisaged to be short journeys, whilst trips with a holiday / day trip purpose would likely travel by car due to the longer distance. Other personal business and escort trips are assumed to be a mix of sustainable and unsustainable methods of travel. Therefore, it is considered that utilising the TTW data, on average, would provide reasonable representation of mode share as this will give a balanced and worst-case scenario.
- 7.1.18 A sustainable transport strategy will be developed to minimise car use at the site, and to maximise the use of sustainable transport including good public transport provision.
- 7.1.19 A framework travel plan will be alongside the final Transport Assessment.

7.2 Medical Centre

- 7.2.1 It is proposed to utilise the TRICS data extracted for the medical centre, set out in Section 5, to apply mode share for trips to/from the medical centre. The proposed mode share is shown in **Figure 7-1**. For the purpose of this assessment it will be assumed that multi vehicle occupancy is two people per vehicle.

Figure 7-1 Medical Centre Mode Share



8 Highway Capacity Impact

8.1 Vehicle Trip Assignment

- 8.1.1 It is proposed to assign vehicle trips onto the local highway network using an 'all or nothing' assignment tool
- 8.1.2 The assignment tool is a simple all or nothing assignment tool, assigning traffic to the network via the fastest route based on rush hour average speeds. The only traffic within the tool will be development-generated traffic. Delays approaching junctions are taken into account, as these would have lowered the average speed on a link, although individual turning movements are not taken into account.
- 8.1.3 Floating vehicle data (FVD) is used to provide journey time forecasts as well as real-time traffic updates. FVD is the process and technology for the collection; analysis and forecasting of journey times using speed and location data from probe vehicles. Using GPS and GSM technology, the Data Collection Unit in the vehicle supplies real-time and historic information on the probe's speed and position at any given time. The data from probe vehicles is aggregated to determine the average speed for a given stretch of road. The data set is made up of over 900 million points across Great Britain. Where there are no readings for roads average speeds have been calculated based on road name, road type, urban flag, postal sector, district or area the road link falls in.
- 8.1.4 Speeds are provided for the time-periods shown in **Table 6-1**.

Table 8-1 Model Times

	Times
Off-Peak Times	0900 - 1600
Rush-Hour Times	0700 – 0900 and 1600 - 1900
Night Times	1900 - 1700

8.2 Study Area

- 8.2.1 The study area set out in paragraph 3.3.4 includes the following junctions for analysis:
- Golf Course Access / Kidmore End Road / Chalgrove Way
 - Grove Road / Kidmore End Road
 - Kidmore End Road / Peppard Road / Buckingham Drive double junction
 - Peppard Road / Klin Road / Caversham Park Road
 - Peppard Road / Prospect Street / Henley Road / Westfield Road

8.3 Capacity Assessments

- 8.3.1 The capacity impacts of development traffic will be assessed at each of the junctions within the study area for the following scenarios;

- **S1)** Base Year: 2019
- **S2)** Future Base 2024
- **S3)** Future Base + Development (350 Homes)

8.3.2 Stand-alone capacity models of the junctions will be produced using appropriate software (such as JUNCTIONS 9). These will be validated against the traffic surveys and on-site observations and used to assess development traffic impact.

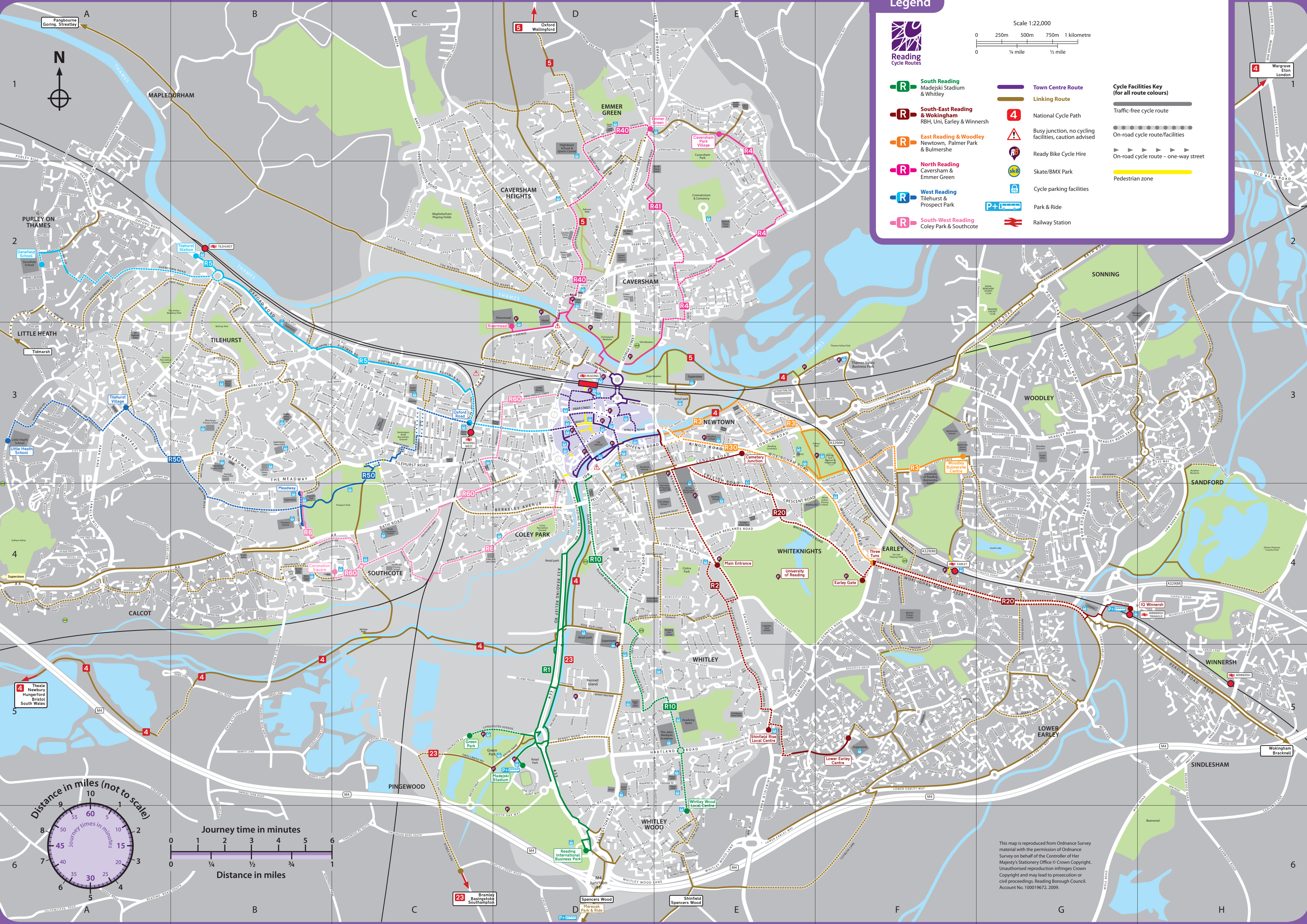
8.4 Background Traffic Growth

8.4.1 TEMPro 7.2 and the NTM AF15 Dataset have been used to determine growth factors for background traffic, these factors are summarised in **Table 9.2**. The growth rates calculated are proposed to be used to inform the capacity assessments in the TA, based on Reading's MSOA areas 001, 002, 003 and 004 which cover the north of Reading.

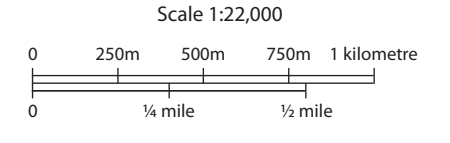
Table 8-2 TEMPro Growth Factors 2019 to 2024

Road Type	AM 07:00 – 09:59	PM 16:00 – 18:59
Urban Principle	1.07195	1.0724

Appendix A RBC Cycle Routes Map



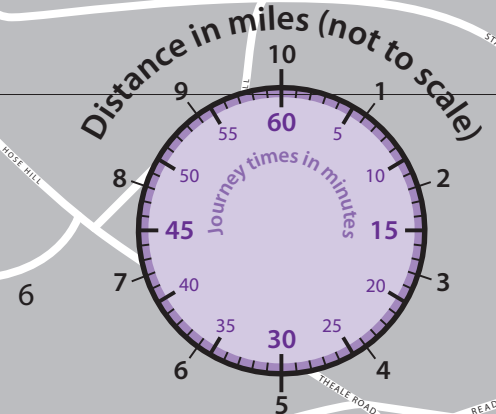
Legend



- R** South Reading
Madejski Stadium & Whitley
- R** South-East Reading & Wokingham
RBH, Uni, Earley & Winnersh
- R** East Reading & Woodley
Newtown, Palmer Park & Bulmershe
- R** North Reading
Caversham & Emmer Green
- R** West Reading
Tilehurst & Prospect Park
- R** South-West Reading
Coley Park & Southcote

- Town Centre Route**
- Linking Route**
- 4** National Cycle Path
- Busy junction, no cycling facilities, caution advised
- Ready Bike Cycle Hire
- Skate/BMX Park
- Cycle parking facilities
- Park & Ride
- Railway Station

- Cycle Facilities Key (for all route colours)**
- Traffic-free cycle route
 - On-road cycle route/facilities
 - On-road cycle route – one-way street
 - Pedestrian zone



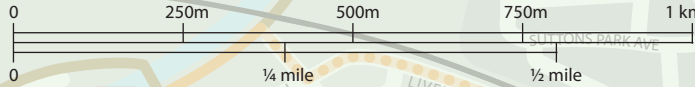
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Scale 1:11,000



Appendix B TRICS Output

Calculation Reference: AUDIT-706701-190625-0605

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	2 days
	HC HAMPSHIRE	1 days
	KC KENT	4 days
	SC SURREY	1 days
	WS WEST SUSSEX	4 days
03	SOUTH WEST	
	DV DEVON	1 days
04	EAST ANGLIA	
	NF NORFOLK	1 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	2 days
	ST STAFFORDSHIRE	1 days
	WO WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
	NY NORTH YORKSHIRE	1 days
	SY SOUTH YORKSHIRE	1 days
09	NORTH	
	CB CUMBRIA	1 days
	DH DURHAM	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary 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: Number of dwellings
 Actual Range: 50 to 432 (units:)
 Range Selected by User: 50 to 650 (units:)

Parking Spaces Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/03/09 to 01/03/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	4 days
Tuesday	5 days
Wednesday	5 days
Thursday	7 days
Friday	3 days

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

Selected survey types:

Manual count	24 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 undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	9
Edge of Town	15

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: