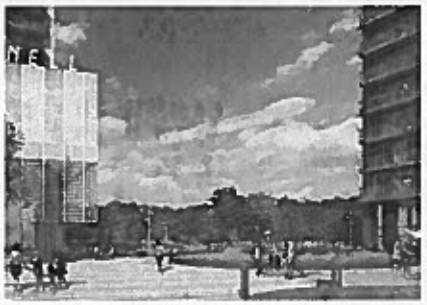
GURNELL LEISURE CENTRE

FULL PLANNING APPLICATION



TRANSPORT ASSESSMENT

DECEMBER 2018

ECOWORLD INTERNATIONAL
CREATING TOMORROW & BEYOND

Ealing

Gurnell Leisure Centre, Ealing

17/12/2018

Reference number GB01T18D37-001

TRANSPORT ASSESSMENT

SYSTRA

GURNELL LEISURE CENTRE, EALING

TRANSPORT ASSESSMENT

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1. INTRODUCTION

1.1 General

1.1.1 SYSTRA Ltd (SYSTRA) has been commissioned to provide transport and highways advice in relation to a Proposed Development at Gurnell Leisure Centre, Ruislip Road East, London, W13 0AL

1.1.2 This document has been prepared by SYSTRA on behalf of BE:HERE EALING LIMITED ("the Applicant") in support of a Full Planning Application for the demolition of the existing Gurnell Leisure Centre ("the Application Site") and the construction of a new leisure centre alongside enabling residential uses.

1.1.3 The Local Planning and Highways Authority is the London Borough of Ealing (LBE).

1.1.4 This planning application for the redevelopment of the Application Site seeks full planning permission for:

> "Demolition of all existing buildings and re-provision of leisure centre, car and coach parking, BMX track and skate park, alongside enhancements and access to the existing park; and the erection of up to 498 sqm retail floorspace (Class A1-A3) and 615 residential units, with associated landscaping, playspace, cycle and car parking, refuse storage, access and servicing." (The Proposed Development).

1.1.5 Gurnell Leisure Centre (GLC) opened in 1981 and is now one of London's busiest leisure centres, providing one of only four indoor 50m swimming pools in London.

1.1.6 The number of users have been increasing in recent years, however the centre is in need of a significant level of repair and investment. Following a review of the options available and with an understanding that the cost of renovating the existing centre was prohibitive, in March 2015 the London Borough of Ealing (LBE) Cabinet made the decision to demolish the existing centre and replace it with a new state-of-the-art facility.

1.1.7 The new leisure centre, designed to be a flagship facility of regional importance is proposed to be re-provided generally on the footprint of the existing leisure centre in order to mitigate impacts on the wider parkland, which is designated as Metropolitan Open Land (MOL). The leisure centre building will be part funded by LBE with the remaining cost be to funded through enabling residential development. These new residential units will be located both above the new leisure centre and generally within the footprint of the current adjacent car park, which is considered Previously Developed Land (PDL).

1.1.8 Alongside the provision of a new flagship leisure centre and residential units, the adjacent open space and amenity provisions to the north will be enhanced for improved public use and access. The proposal therefore represents an opportunity to create a genuinely mixed-use and complementary development for use by not just the local community, but by residents throughout the borough and beyond.

1.2 Existing Site

1.2.1 Gurnell Leisure Centre currently occupies the southwest corner of the existing Site with ground level on-site car parking to the southeast. Located further north between the leisure centre and car park is a BMX track, concrete skate park and children's play area; there is a sports field in the north of the existing Site. A public right of way follows the bank of the River Brent within the existing site to the west. Access to the leisure centre and car park is from Ruislip Road East, where a new Quietway has recently been constructed along the northern footway.

1.2.2 The existing Gurnell Leisure Centre is approximately 8m high and provides a main swimming pool, recreation pool, exercise studios, gym, changing rooms and staff facilities.

1.2.3 All public rights of way will be maintained and incorporated into the design, including those associated with the new Ruislip Road East Quietway.

1.3 Pre-application Discussions

1.3.1 In addition to regular design pre-application meetings with LBE, specific traffic and transport discussions were also undertaken with LBE on Wednesday 28th June 2017, Friday 22nd September 2017 and Friday 31st August 2018. Additionally a meeting was held with the Greater London Authority (GLA) on the 9th October 2018 to discuss the development principles. These discussions formed the outline of the Scoping Note and Transport Assessment (TA) and led to agreement, in principle, of the transport scope and parameters. Summary notes reflecting these discussions can be found at **Appendix A.**

1.4 Report Scope

1.4.1 The TA is structured as follows:

- **Section 2: Policy Review** – Provides an outline and review of the relevant national and local transport planning policy and guidance in the context of the Proposed Development.
- **Section 3: Baseline Conditions** – Sets out information concerning the existing transport conditions prevailing at the Application Site and in the immediate surrounding area, including a review of pedestrian and cycle facilities, public transport services and on-street parking restrictions.
- **Section 4: Pedestrian and Cycling Assessments** – Details the results of the pedestrian and cyclist audit undertaken in the vicinity of the Application Site;
- **Section 5: Development Proposals** – Details the existing Application Site and Proposed Development;
- **Section 6: Multi-Modal Trip Generation** – Presents the outcome of a multi-modal trip assessment carried out to identify existing and future trip generation associated with the Application Site;
- **Section 7: Junction Assessments** – Describes and presents the results of the Junctions 9 modelling assessments including the two Application Site access points and Ruislip Road Roundabout;
- **Section 8: Sustainable Transport Strategy** – Presents an overview of the sustainable transport strategy adopted on Application Site, accompanies the Travel Plan; and
- **Section 9: Summary and Conclusion** – Summarises the key points arising from the work carried out to inform this TA, and presents a final conclusion.

1.4.2 **All technical appendices are included at the end of this document.**

2. POLICY ANALYSIS

2.1 General

2.1.1 This section analyses the policy requirements associated with the Application Site at National, Regional and Local level, the policy documents analysed are as follows:

- **National Policy**
  - Government's National Planning Policy Framework (NPPF) (2018);
- **Regional Policy**
  - Draft New London Plan showing minor suggested changes (DLP) (2018);
  - Adopted London Plan (2016);
  - Mayor of London's Transport Strategy (2018);
- **Local Policy**
  - Ealing Local Plan (2013);
  - Ealing SPG 4 'Storing Waste for Recycling and Disposal'.

2.2 National Policy

Government's National Planning Policy Framework (NPPF) (2018)

2.2.1 The NPPF was published on 24th July 2018 with the purpose to set out the Government's planning policy framework and guide how policies should be applied. This version of the NPPF replaces the previous framework, published in March 2012.

2.2.2 At the heart of the NPPF is a presumption in favour of sustainable development. This affects plan-making, where 'plans should positively seek to meet the development needs of their area,' while being sufficiently flexible to adapt to changes.

2.2.3 The NPPF recognises that transport policies should be considered important as to playing a wider role in opportunities to meet sustainability and health objectives by promoting walking, cycling and the use of public transport. (Paragraph 102b).

2.2.4 Consequently, the NPPF stresses that significant development should be focused on locations which are or can be made sustainable by limiting the need to travel and giving people a real choice about how they travel. Opportunities to maximise sustainable travel methods will however, vary between urban and rural areas, which should be taken into account during plan-making and decision-taking. (Paragraph 103).

2.2.5 Local parking policies should also be taken into account regarding the accessibility of the development, land use type and provision of public transport facilities in the local area. (Paragraph 105).

2.2.6 Applications for development should ensure that sites have (Paragraph 108):

- Opportunities to promote sustainable transport methods;
- Safe and suitable access to the site for all people: and,

- Significant impacts from the development on the transport network can be cost effectively mitigated.

2.2.7 Therefore, applications for developments should be located and designed where practical to (Paragraph 110):

- Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- Allow for efficient delivery of goods or access by emergency service vehicles;
- Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- Consider the needs of people with disabilities by all modes of transport.

2.2.8 Paragraph 111 states that all developments that generate significant amounts of movement should be required to provide a travel plan, and the application being supported by a transport statement or assessment. This will enable the likely impacts of a new development to be fully assessed.

2.3 Regional Policy

The Draft New London Plan showing Minor Suggested Changes (August 2018)

2.3.1 The London Plan sets out the Mayor's vision for the development of London for the next 20-25 years. In August 2018, the Mayor published the Draft New London Plan (DLP) showing minor suggested changes.

2.3.2 The Mayor's aim is to reduce the dependency on cars in London, with Policy T1 stating how 80% of all trips in London should be made by foot, cycle or public transport by 2041. All development should use its land most effectively in relation to connectivity and accessibility with existing sustainable transport networks. This policy is to support the improvement of health to create healthy streets (Policy T2), with the Mayor stating that by 2041 all Londoners should undertake at least 20mins of active travel per day.

2.3.3 Transport assessments should be submitted with development proposals to ensure that all possible impacts on the capacity of the transport network has been fully assessed.

2.3.4 As part of the healthy streets initiative, Policy T5 in the DLP states how the removal to barriers to cycling should be encouraged in development proposals. All development proposals should provide cycle parking in line with the minimum standards highlighted in the DLP, as outlined in **Table 1** below.

Table 1. Minimum cycle parking standards relevant to the proposed development

USE CLASS	LONG STAY	SHORT STAY
Dwellings	1 space per studio 1.5 spaces per 1 bedroom unit 2 spaces per all other dwellings	1 space per 40 units
Sports	1 space per 8 FTE staff	1 space per 100 sqm (GEA)

2.3.5 Car parking should be restricted in line with existing and future levels of public transport accessibility and connectivity, while car- free development should be encouraged in places that are well connected by public transport. Appropriate standards of Blue Badge parking should be available for disabled individuals (Policy T6). Where there is car parking available, provision for electric vehicle infrastructure should be made. (Policy T6).

The London Plan (March 2016) consolidated with alterations since 2011

2.3.6 The London Plan sets out the Mayor's vision for the development of London up to 2031. On 10 March 2015, the Mayor published the Further Alterations to the London Plan (FALP). From this date the FALP are operative as formal alterations to the London Plan. The London Plan also incorporates the Revised Early Minor Alterations (REMA) which were published in October 2013.

2.3.7 The Mayor's overarching vision for London is that is should (para 1.49):

2.3.8 'Excel among global cities – expanding opportunities for all its people and enterprises, achieving the highest environmental standards and quality of life and leading the world in its approach to tackling the urban challenges of the 21st century particularly that of climate change'.

2.3.9 Enabling sustainable modes of transport is considered to support this vision. The Plan notes that London should be (objective 6):

> *'A city where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling and makes better use of the Thames, and supports delivery of all the objectives of this Plan'.*

2.3.10 Strategically the Mayor intends to work with all relevant parties to (Policy 6.1):

- Encourage patterns of development that reduce the need to travel, especially by car;
- Improve the capacity and accessibility of sustainable travel modes such as public transport, walking and cycling;
- Support development with high levels of trips only in areas of high public transport accessibility;
- Improve interchange between different forms of travel;
- Encourage the use of the River Thames for passenger and freight use;

- Minimise the impact of freight on the transport network;
- Encourage shifts to more sustainable forms of transport; and
- Promote walking by ensuring an improved urban realm.

2.3.11 Car Parking standards are highlighted in Table 6.2 of the London Plan.

2.3.12 The Mayor's commitment 'to improving the environment by encouraging more sustainable means of transport, through a cycling revolution, improving conditions for walking, and enhancement of public transport' (para. 6.2) is noted.

2.3.13 Policy 6.13 outlines the Mayor's policy on parking within London. It notes a wish to achieve a balance between promoting new development and preventing excessive car parking provision whilst highlighting the importance for features such as electric charging points and adequate cycle parking facilities.

2.3.14 Paragraph 6.35 of the Further Alterations to the London Plan (FALP) states that new developments should provide cycle parking and cyclist changing facilities for staff members. The minimum cycle parking standards detailed in Chapter 6, Table 6.3 of the London Plan.

Mayor of London's Transport Strategy (2018)

2.3.15 The Mayor's Transport Strategy is the statutory document that sets out the policies and proposals of the Mayor of London to reshape transport in London. It builds on the vision for a better London and takes forward the approach set to encourage increasing use of sustainable transport methods allowing a healthy streets approach.

2.3.16 The vision of the strategy is to reduce the dependency Londoners have on cars and encourage walking and cycling, with an additional long-term focus on reducing congestion challenges. By 2041 the strategy aims for 80% of trips to be made on foot, by cycle or by using public transport.

2.3.17 The main aims highlighted in the transport strategy are:

- For all Londoners to do 20 minutes of active travel daily;
- For no one to be killed by a bus by 2030 and for deaths from road collisions to be eliminated by 2041;
- To reduce freight traffic in the morning peak by 10% by 2026 and total traffic by 10-15% a day by 2041;
- For all new taxis to have zero emissions by 2018 and all new private hire vehicles to have zero emissions by 2023. All new buses should have zero emissions by 2025 and all new cars by 2030;
- Crossrail 2 to be open by early 2030s;
- To create a London suburban metro by the late 2020s;
- To improve accessibility and reduce journey times by 2041;
- To incorporate the transport principles of 'good growth' in regeneration and new development.

2.3.18 This vision will be delivered by ensuring changes in technology contributes positively to the healthy streets aim; by ensuring that funding transport improvements will be a more efficient and fairer process; and monitoring that delivery of the vision is on track. During 2018, each London Borough will draft their Local Implementation Plans, demonstrating how they will achieve the aims of the strategy locally.

2.4 Local Policy

Ealing Local Plan (2013)

2.4.1 The Ealing Local Plan is an emerging collection of documents that sets out how the borough will develop up until 2026. It must be in conformity with the London Plan that is produced by the Mayor of London and consists of the following documents along with a selection of saved Supplementary Planning Documents:

- London Plan;
- Development (or Core) Strategy DPD, April 2012;
- Development Sites DPD, December 2013;
- Development Management DPD, December 2013;
- Joint West London Waste Plan, July 2015; and
- Planning for Schools DPD, May 2016.

Sustainable Transport for New Developments – SPD Adopted December 2013

2.4.2 This SPD sets out Ealing Council's requirements in terms of transport provision for significant developments needing planning permissions and forms part of Ealing's Local Plan and supplements the policies contained with the Development Strategy.

2.4.3 Sustainable transport refers to transport that is environmentally, socially and economically sustainable and includes walking, cycling, public transport, car-sharing and use of electric and other alternatively fuelled vehicles. The Local Plan addresses six major aspects of transport policy:

A. Integration of land-use and transport planning to reduce road traffic;
B. The use of parking policy to restrain car use;
C. Improvements to public transport;
D. The intensive promotion of walking and cycling;
E. The health and safety impacts of transport; and
F. A fully integrated freight distribution system.

2.4.4 The approach of the Local Plan to transport is grounded in the NPPF's principle of reducing the need to travel:

- Planning consent will only normally be given to developments that ensure traffic safety and promoted use of public transport by site users;
- Development proposals should facilitate cycling through the provision of secure cycle parking and cycle routes within the development, and the provision of shower and changing facilities at major developments;
- Low car housing will be encouraged in areas where car ownership and use will be low enough to justify the proposal or the development undertakes to form or contribute to a car club; and the residents are committed to contribute to its management as indicated by a Travel Plan and confirmed in a legal agreement; and
- The council will respond positively to applications for the alternative use and development of private non-residential parking areas.

2.4.5 A Transport Assessment (TA) is a statutory document which demonstrates how the development proposals are likely to impact on the local environment in transport terms and considers issues before, during and after construction. The TA should identify the mitigation measures that may be required to deal with the predicted transport impacts and how improvements in accessibility and safety, especially for pedestrians, cyclists and public transport users will be made. The TA will inform both the final design of the development and, where applicable, the Travel Plan.

Cycle Parking (Chapter 6)

2.4.6 The TA should include measures improving cycling conditions which benefit employers by reducing the space required for car parking, reducing mileage claims and having a healthier workforce, cycling requirements as set out in the Sustainable Transport SPD are as follows:

- Multiple access points for cyclists should be provided at large sites and the development should never block or close off existing cycle or walking routes through a site, even unofficial ones, and should create new routes where possible;
- Cycle parking standards should comply with the London Plans Cycle Parking Standards;
- Cycle parking for new residential developments must be in a fully enclosed, under cover and lockable compound. For individual dwellings or developments with a small number of flats, a cycle bin style locker, is recommended for each separate unit. For larger residential developments it is recommended that cycle parking should accommodate no more than 20 cycles in each store to ensure maximum security preferably forming part of the main building associated with the cores;
- Cycle requirements for non-residential development would generally need to meet the requirements of the London Plan and that noted in the point above. However, it may be acceptable for short term cycle parking to be located within just a sheltered area;
- Where cycle parking is shared, the cycle stands should allow the front and rear wheels, and the frame to be locked to it. Where space is limited it may be desirable to use double-decker stands, although the majority of cycle stands within a development/phase of a development should require no lifting;
- Cycle parking should have sufficient spacing between stands and it is recommended that Sheffield Stands are used. The dimensions detailed in Manual for Streets Figure 8.6 need to be adhered to as well as a preferred bike to bike aisle spacing of 1.5m although in some cases a minimum of 1.2m may be acceptable;
- Cycle parking should be easily accessible and should be located closer to the main building entrances than car parking. Although not ideal, if a ramp is required to access cycle parking, e.g. it is located in a basement car park, the gradient must be no more than 1:12. It should be located no lower than the highest level of the basement car park where there is more than 1 basement level. It should be noted the standard headroom height for cyclists is 2.7m;
- Shower and changing facilities should be provided to complement cycle parking facilities. It is suggested that one shower facility is provided per 50 employees;
- Routes to the cycle bays should be clearly signed and there should be minimal conflict with motorised traffic. They should comply with current best practice guidelines 7 to aid manoeuvrability including lifts where required;
- A contribution to proposed cycle superhighway routes within the vicinity of the development in line with London Plan Policy will be sought.

Car Clubs

2.4.7 In a car club, members 'pay as they go' to use vehicles parked in designated car club parking bays. Using a car club allows members to avoid the overhead costs and responsibilities of owning a car. This means that members will consider whether they really need to use the car rather than other modes. Car clubs are a valid and viable means of achieving low car development (not only housing).

2.4.8 Any development without any, or a reduced, parking provision may be deemed to be acceptable if the development commits to either the creation of a car club and to subsidise future residents use. If a car club is already available within a 5 minute walk and it is deemed appropriate by the Local Authority then subsidising car club membership may be sufficient, although this would depend on factors such as the size of the development.

2.4.9 Any development with 75 units or more will need to provide 1 car club for every 100 units unless all accredited car club operators confirm they are uninterested. With regards to commercial use classes all businesses within the strategic level threshold would need to provide a car club on site and membership for all employees that want it, unless all accredited car club operators confirm they are uninterested.

2.5 Summary

2.5.1 This section has summarised the national, regional and local policy which has an overarching theme of encouraging sustainable development and the uptake of sustainable transport. The development proposals aim to encourage the uptake of active travel through promotion of excellent walking and cycling facilities at the Application Site.

3. BASELINE CONDITIONS

3.1 General

3.1.1 This section of the Transport Assessment describes the existing or baseline conditions currently prevailing at the Application Site and in the surrounding area.

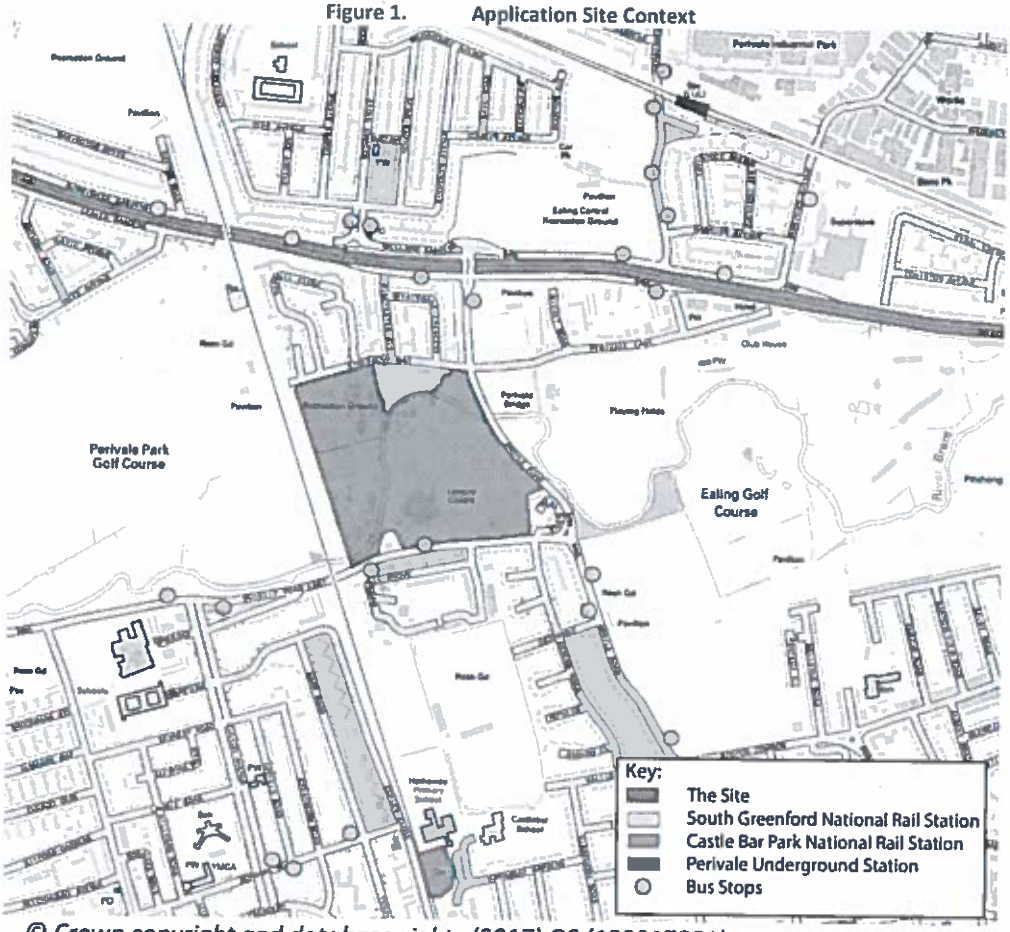
3.1.2 Baseline Conditions are needed to accurately establish and fully understand the context of the Proposed Redevelopment and associated traffic and transport implications.

3.2 Site Location & Description

3.2.1 The Application Site is located within the London Borough of Ealing, between Greenford to the west and Perivale to the east. The Application Site is bound to the north by Stockdove Way and the River Brent, to the west via the footpath adjacent to the Greenford Railway line, to the east via Argyle Road (B456), as well as residential dwellings on Pearl Gardens to the south east. Playing fields and Ealing golf course are located further east. Ruislip Road East (B455) forms the southern boundary of the Application Site with residential dwellings beyond.

3.2.2 A map showing the Application Site location in context can be seen in **Figure 1** below.

Figure 1. Application Site Context



3.3 Existing Site

3.3.1 The Site is currently occupied by Gurnell Leisure Centre towards the south west with ground level car parking in the south east corner. There is also a BMX track, concrete skate park and children's play area and sports field to the north of the existing Site.

3.3.2 The Leisure Centre is approximately 8m above existing ground levels and has the provision for a 50m six lane Olympic swimming pool, 25m recreation pool, sauna and steam rooms, exercise studios, gym, changing rooms and staff facilities. There are also three outdoor football pitches, one 11-a-side, one 9-a-side and one 7-a-side. It currently accommodates 45 staff members.

3.3.3 The leisure centre is open 06:30-22:00 Monday to Friday and 08:00-20:00 on Saturday and Sunday.

Cycle Parking

3.3.4 There are currently 15 cycle parking spaces on the existing Site, situated in clusters adjacent to the leisure centre and skate park facilities. The next nearest available cycle parking is located at Castle Bar Park to the south of the Site.

Car Parking

3.3.5 There are two car parks present at the existing Site, the main public car park has 175 parking spaces as well as four coach bay spaces. The second private car park, for staff, permit holders and deliveries only, has 19 car parking spaces as well as two turning areas.

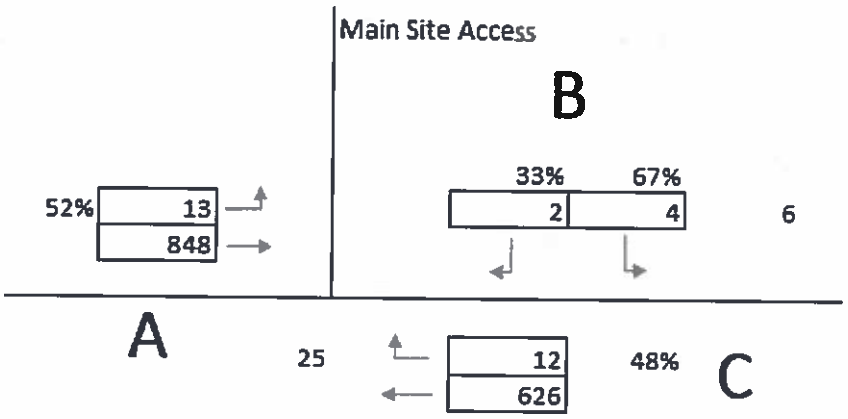
Access

3.3.6 Pedestrian and vehicular access to the Site is from the south off Ruislip Road East. There are two vehicular access points, one into the main public car park and one for staff use only. It is noted that the staff only access is shared by a residential dwelling to the west. Surveys were undertaken of the existing access points on the 15th June 2017 to assess the current demand for parking, the results can be seen below.

Main Site Access Traffic Flows

3.3.7 The main existing site access leading to the existing Gurnell Leisure Centre car park, off Ruislip Road East, was also surveyed. The morning and evening peak flows can be seen in **Figure 2** and **Figure 3.**

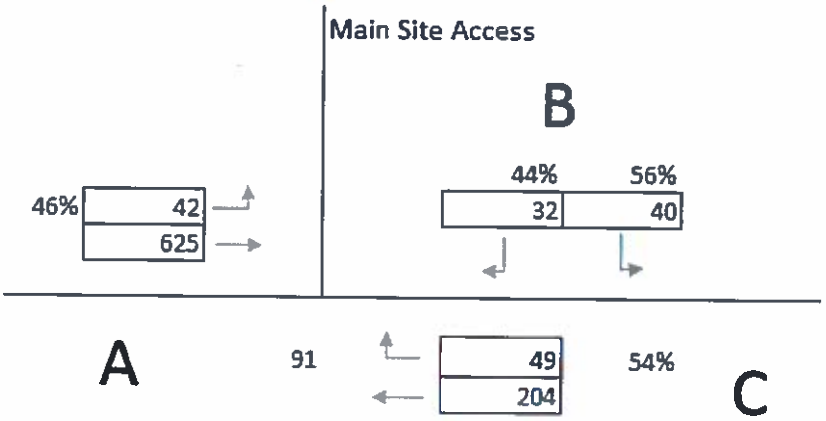
Figure 2. Baseline Flows AM Peak (08:00-09:00)



3.3.8 Of the total traffic travelling on Ruislip Road East, only 2% turns into the Site, with 48% coming from the east and 52% from the west.

3.3.9 In the AM peak, there are minimal trips leaving the Site, of the six vehicles counted 67% travel east and 33% travel west.

Figure 3. Baseline Flows PM Peak (17:00-18:00)



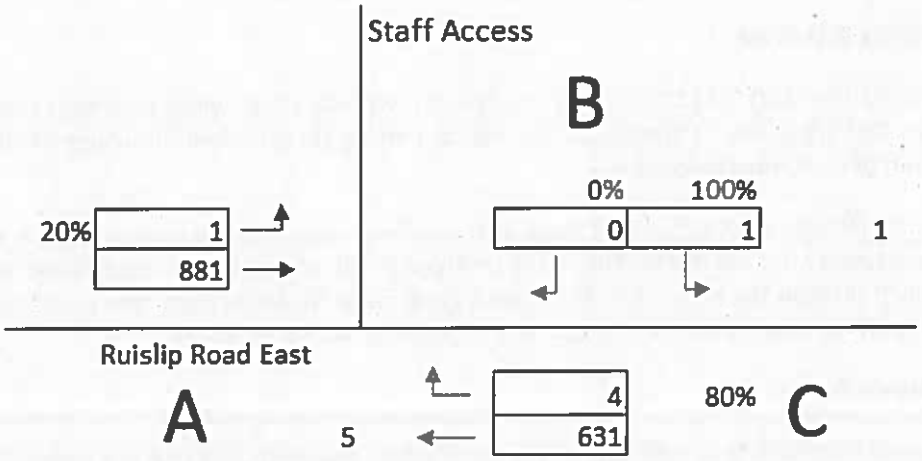
3.3.10 During the PM peak, only 10% of the total traffic passing along Ruislip Road turns into the car park; with the main flow of traffic on Ruislip Road East.

3.3.11 Of the traffic that enters the car park, 54% came from the east and 46% came from the west. A similar split is seen of the vehicles exiting the car park, with 56% travelling east and 44% travelling west.

Staff Access Traffic Flows

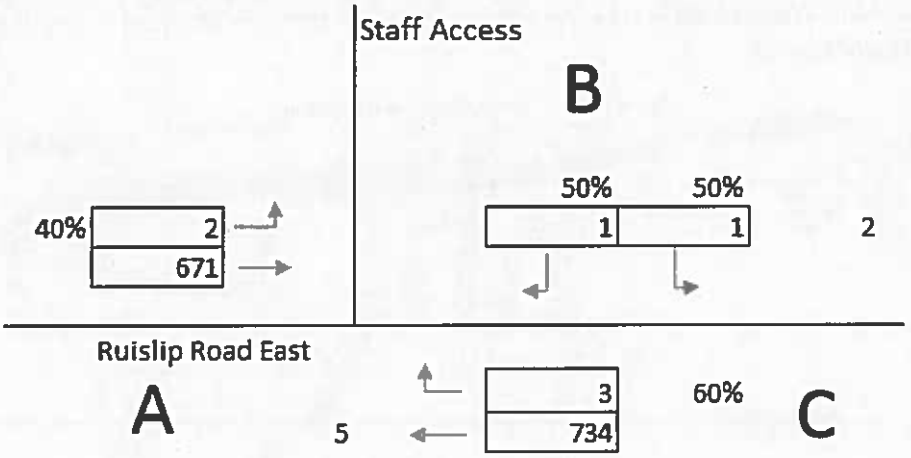
3.3.12 The baseline flows for the staff access can be seen in **Figure 4** and **Figure 5.**

Figure 4. Baseline Flows AM Peak (08:00-09:00)



3.3.13 Only five vehicles utilise the staff access in the AM peak, of these 80% come from the east and 20% come from the west, meaning the majority are right turners. In total the highest flow is along Ruislip Road East.

Figure 5. Baseline Flows PM Peak (17:00-18:00)



3.3.14 During the PM peak, the majority of traffic turning into the staff access from Ruislip Road is from the east (60%), with 40% entering from the west. Comparably, for vehicles exiting there is a 50:50 split as to their direction. Of the total flow on Ruislip Road East, only 0.4% is associated with the Site.

3.4 Highway Network

Ruislip Road East

3.4.1 Ruislip Road East (B455) is a single carriageway two way street which provides access to the Site. The speed limit is 30mph and there is car parking along the southern edge of the road in front of residential properties.

3.4.2 In September 2017 the Ruislip Road East Quietway was installed, narrowing the available carriageway. It runs from Clifton Road to Argyle Road, improving the opportunity for active travel through the area. This is a shared cycle route for pedestrians and cyclists and runs directly outside Gurnell Leisure Centre and past the two access points.

Argyle Road

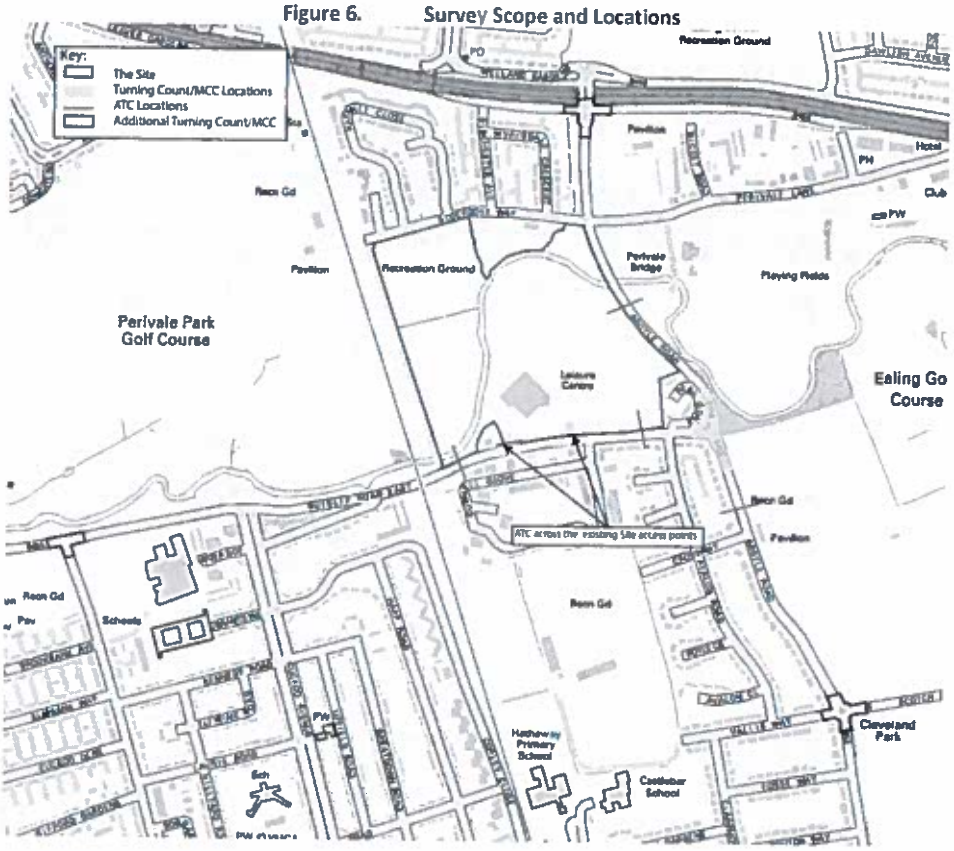
3.4.3 Argyle Road (B456) is a 30mph, single carriageway road with flares on the approach to the junction with Ruislip Road East.

3.4.4 It connects Ruislip Road East with the A40 to the north of the Site. To the south, Argyle Road connects the Site to Ealing Town Centre as well as West Ealing Station and Ealing Broadway.

Existing Traffic Surveys

3.4.5 SYSTRA commissioned a third party company to undertake queue length, turning count and Automatic Traffic Count (ATC) surveys (between 12th – 18th June 2017) at the locations shown in **Figure 6** below.

Figure 6. Survey Scope and Locations



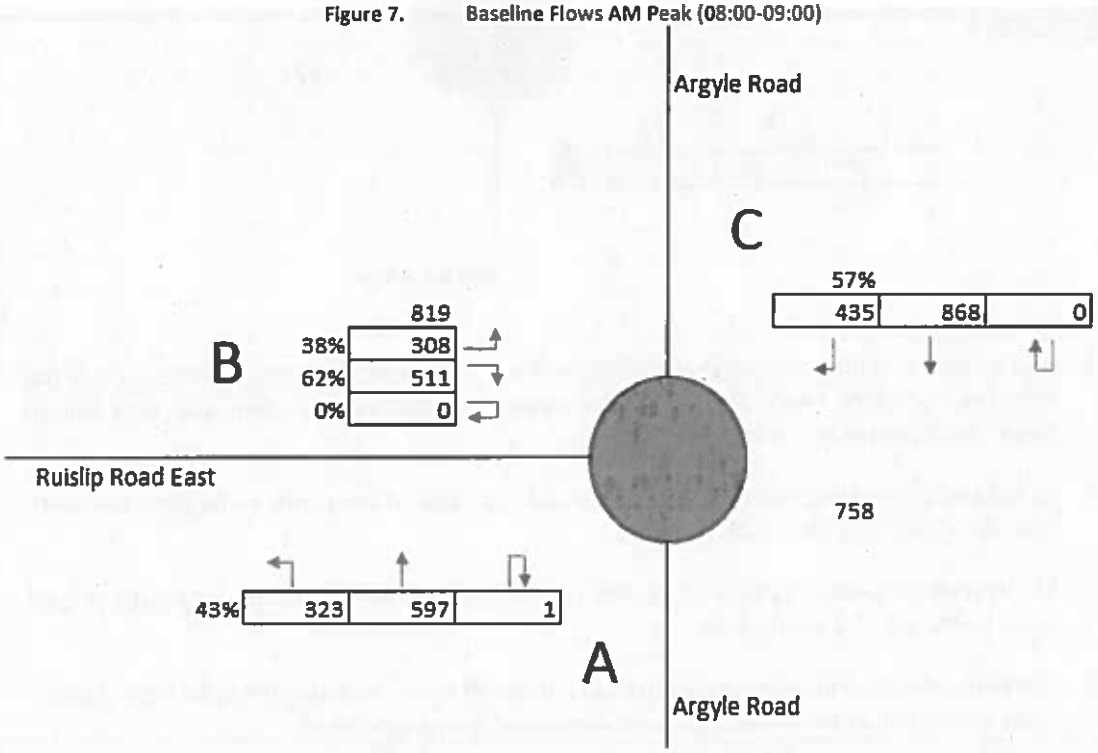
3.4.6 It is noted that all surveys were carried out prior to the Ruislip Road Cycle Track being installed, however, it is assumed that the demand flows for vehicles seeking to use the roads remain constant. When undertaking the modelling in Chapter 7, the reduced carriageway width was considered.

3.4.7 These surveys were then analysed to produce baseline flows at each of the junctions and to inform the modelling of the Ruislip Road/Argyle Road roundabout and the two Site accesses (outlined in paragraph 3.3.7 to 3.3.14 above).

Ruislip Road East/Argyle Road Roundabout

3.4.8 The morning and evening peak hour baseline flows for the Ruislip Road East/Argyle Road roundabout can be seen in **Figure 7** and **Figure 8**.

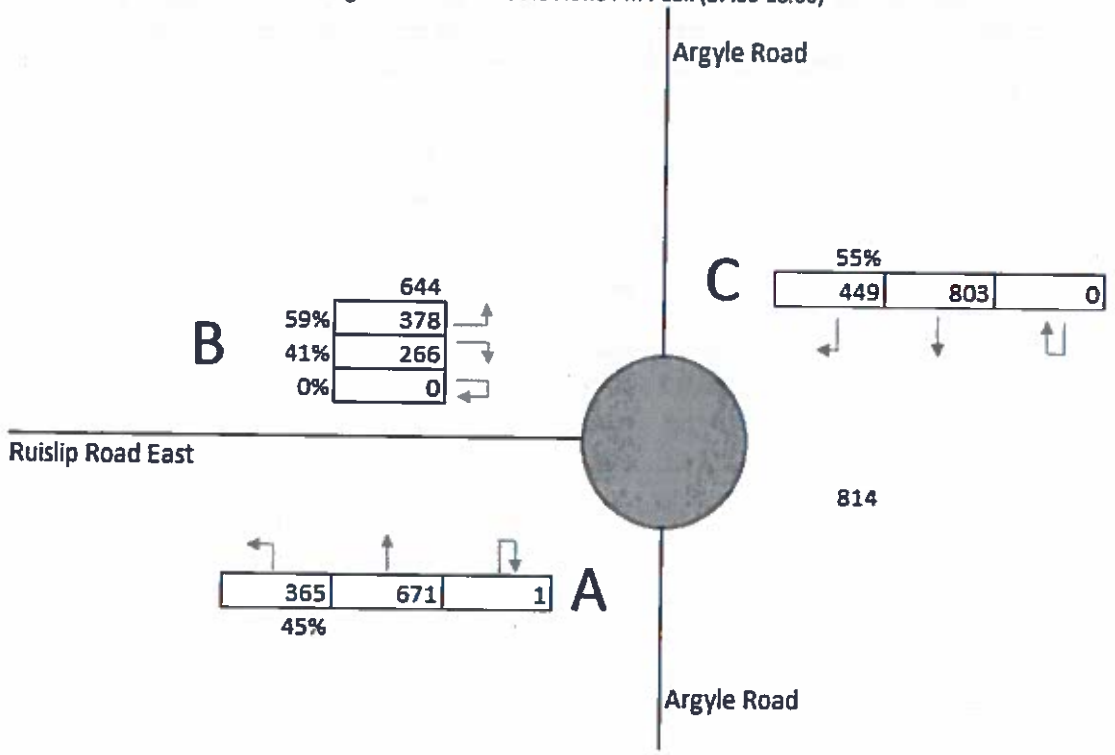
Figure 7. Baseline Flows AM Peak (08:00-09:00)



3.4.9 The busiest arm in the AM peak is Argyle Road north, with 1303 vehicles utilising this arm. Of these, approximately 435 turn onto Ruislip Road East, which makes up approximately 57% of all the traffic taking this exit.

3.4.10 Of the traffic travelling towards the roundabout, from the Ruislip Road East, 38% travel north and 62% travel south.

Figure 8. Baseline Flows PM Peak (17:00-18:00)



3.4.11 The busiest arm of the roundabout is Argyle Road north with 1252 manoeuvres across the peak hour of which 64% drive south onto Argyle Road and 36% travelled west onto Ruislip Road East (towards Gurnell Leisure Centre).

3.4.12 Of the traffic travelling west along Ruislip Road East, 55% of the traffic came from the north and 45% came from the South.

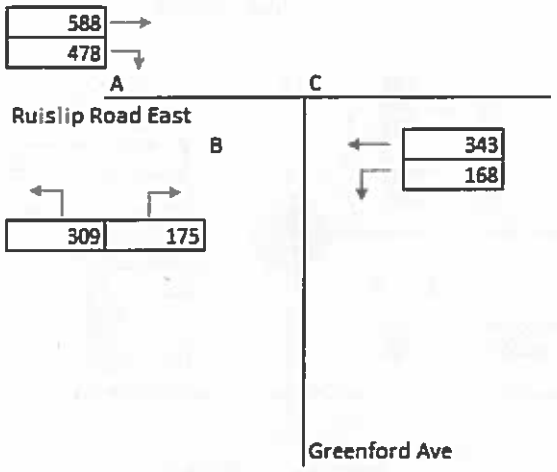
3.4.13 Of the traffic travelling away from Gurnell Leisure Centre, and towards the roundabout, 59% went north and 41% went south.

3.4.14 The most prevalent manoeuvres were from C to A and A to C, meaning the main flow of traffic went straight on at the roundabout and continued onto Argyle Road.

Ruislip Road East/Greenford Avenue

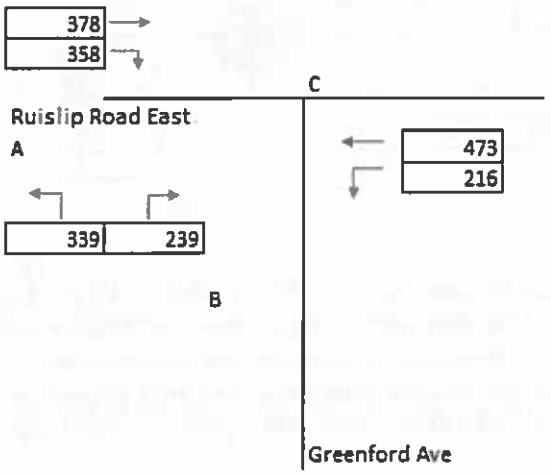
3.4.15 The morning and evening peak hour flows for the Ruislip Road East/Greenford Avenue junction can be seen in **Figure 9** and **Figure 10** overleaf.

Figure 9. AM Peak



3.4.16 **Figure 9** above highlights heavy traffic flows on Ruislip Road East with 588 vehicles travelling east and 343 vehicles travelling west. Of the vehicles turning onto Ruislip Road East 64% turn left and 36% turn right.

Figure 10. PM Peak



3.4.17 **Figure 10** above shows that whilst there are still heavy flows on Ruislip Road East they are slightly lower than those in the AM peak with 378 travelling east and 343 travelling west. As expected those turning onto Greenford Avenue is higher in the AM than the PM peak and those turning onto Ruislip Road East is lower in the AM than the PM, as people make opposite return journeys.

Argyle Road/Scotch Common

3.4.18 The Argyle Road/Scotch Common junction is located to the south east of the Site, accessed via the Ruislip Road roundabout. The AM and PM peak hour flows can be seen overleaf.

Figure 11. AM Peak

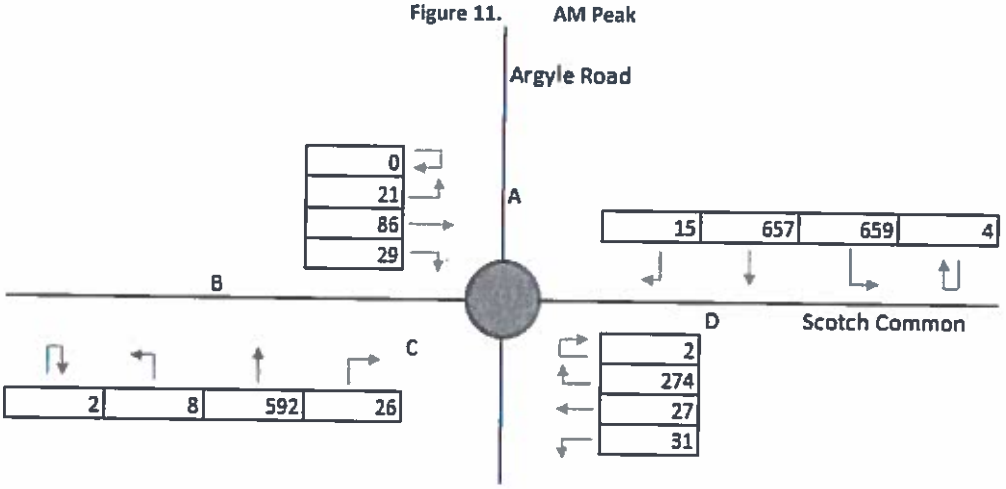
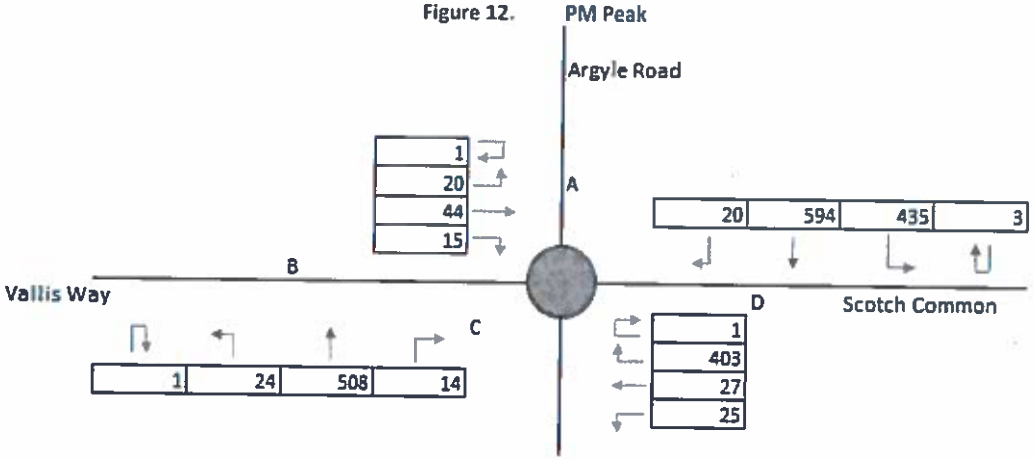


Figure 12. PM Peak



3.4.19 **Figure 11** and **Figure 12** show the AM and PM peak flows for the Argyle Road/Scotch Common roundabout. The AM is comparatively busier than the PM peak with 2433 vehicle movements compared to 2135. The most popular manoeuvre in both peak is straight north or south along Argyle Road, this is seconded by vehicles turning onto or off from Scotch Common, another busy route. Few vehicles travel along Vallis Way in comparison to the other arms on the junction.

Argyle Road/A40

3.4.20 The junction containing movements coming off and onto the A40 westbound have been captured through the baseline surveys and the AM and PM peak results are explained overleaf. It is noted that vehicle movements associated with the eastbound A40 were not captured, though vehicles travelling straight on (north) from Argyle Road could be joining the eastbound traffic.

Figure 13. AM Peak

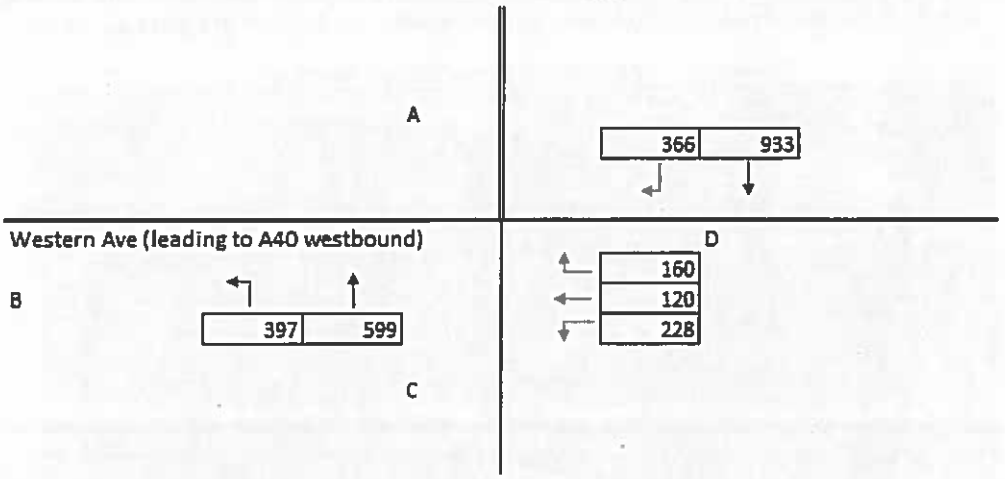
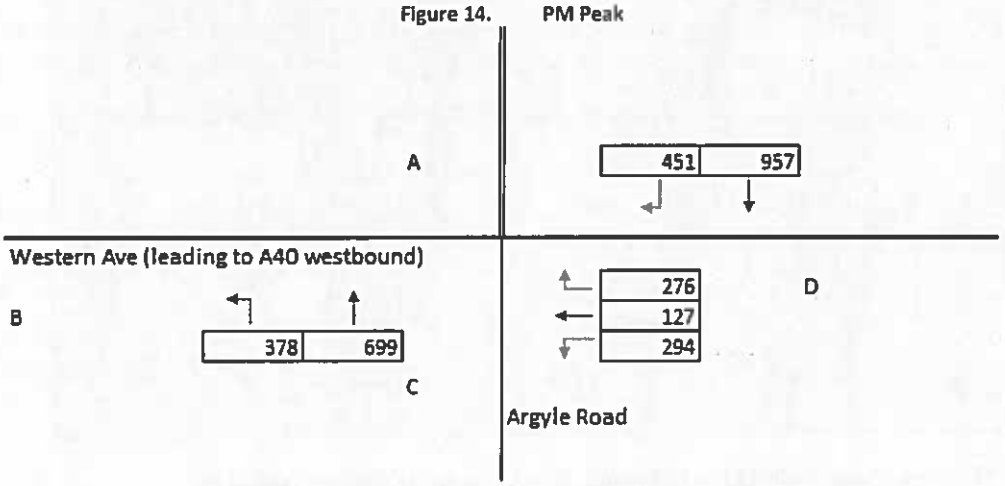


Figure 14. PM Peak



3.4.21 **Figure 13** and **Figure 14** above show the vehicle turning movements in the standard AM and PM network peak hours. Looking at the vehicle movements, the most popular manoeuvre is to travel straight on (north or south) across the junctions from Argyle Road. In the AM and PM peak these movements make up approximately 55% and 52% of all vehicle movements respectively.

3.5 On-Street Parking

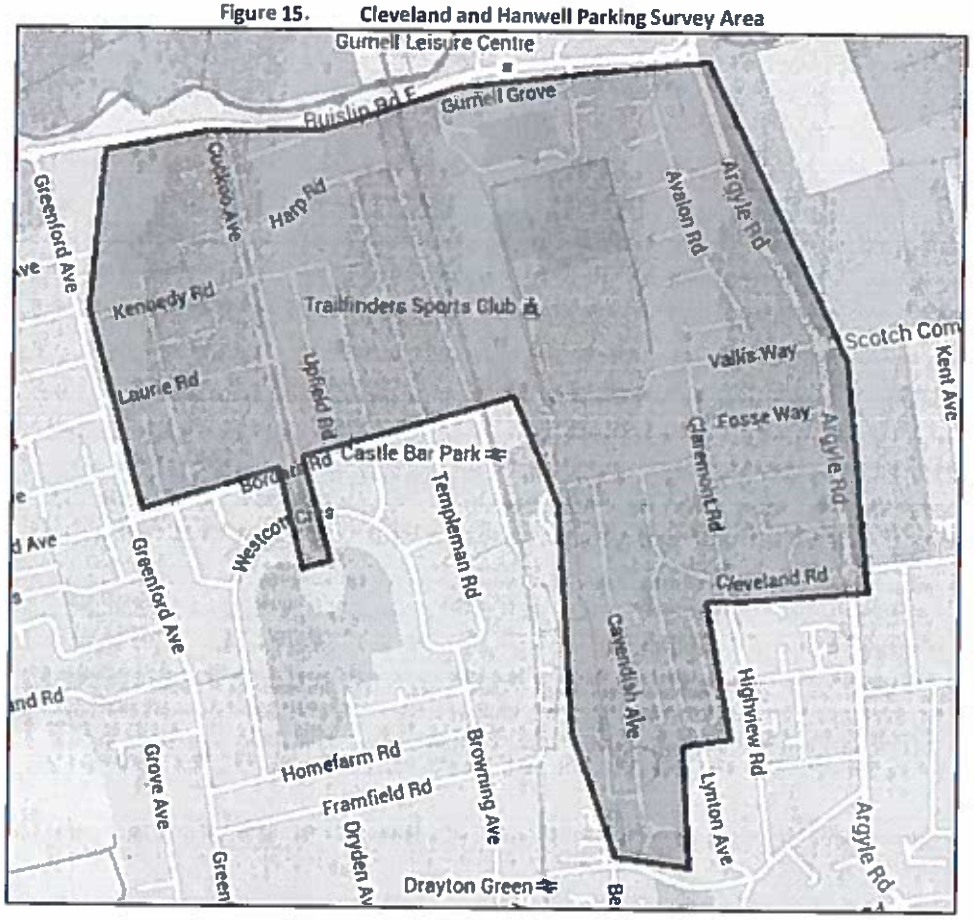
3.5.1 Parking is limited along the stretch of Ruislip Road East directly in front of the Site owing to double yellow lines. The Site is not located within a CPZ and is unrestricted outside residential properties on the south side of the carriageway. There are no other nearby CPZ areas, the results of the parking surveys below provide further detail on local parking demand.

3.6 Parking Survey

3.6.1 Parking beat survey data was provided to SYSTRA by LBE in December 2016. The surveys took place on Wednesday 10th and Friday 12th February 2016 with beats at 5am, 9am, 12pm, 3pm and 6pm. This data is considered representative of the current situation as it was only

undertaken in 2016. The Cleveland and Hanwell survey area was analysed as this includes the streets in the vicinity of the Site and a map of the area can be seen in **Figure 15** below.

Figure 15. Cleveland and Hanwell Parking Survey Area



3.6.2 The area above yielded the following parking stress at 5:00am (**Table 2**).

Table 2. Cleveland and Hanwell Parking Stress

Road Name	Capacity	Overnight Capacity (05:00)	Stress (%)
Argyle Close	5	5	100%
Argyle Road	104	17	16%
Avalon Close	8	10	125%
Avalon Road	84	85	101%
Bordars Walk	16	2	13%
Brants Walk	12	19	158%
Brentside Close	6	9	150%
Bruton Way	51	42	82%
Cavendish Avenue	215	181	84%
Claremont Road	74	61	82%
Cleveland Road	101	87	86%
Compton Close	17	3	18%

Copley Close	80	43	54%
Crossway	40	28	70%
Cuckoo Avenue	140	105	75%
Downside Crescent	5	2	40%
Elfwine Road	23	14	61%
Fosse Way	45	34	76%
Graffton Close	12	12	100%
Greatdown Road	39	36	92%
Gurnell Grove	93	66	71%
Harp Road	82	76	93%
Hathaway Gardens	58	30	52%
Hillyard Road	35	37	106%
Kennedy Road	48	40	83%
Kingsley Avenue	172	137	80%
Laurie Road	27	29	107%
Riverside Close	25	38	152%
Robinson Close	24	23	96%
Royle Crescent	6	5	83%
Ruislip Road	31	16	52%
Rutland Gardens	12	15	125%
Upfield Road	22	27	123%
Vallis Way	53	48	91%
Total	1765	1382	78%

3.6.3 **Table 2** shows that the average capacity across all streets in the vicinity at 5am is 78%, with a number of streets underutilised and some operating above formal capacity. Notably, Brents Walk, which has 12 formal spaces was operating above capacity with 19 vehicles parked on-street.

3.6.4 Streets with low levels of stress are Argyle Road, Boarders Walk and Compton Close, with an overnight stress of 16%, 13% and 15% respectively. Argyle Road, whilst presenting a low parking stress, is restricted by a number of single yellow lines, meaning that whilst residents can park there overnight they must park elsewhere between 08:00 and 18:30. Similarly, Compton Close has single yellow lines along the entirety of the eastern carriageway meaning that parking is only acceptable overnight. These low parking stresses lower the overall average, though do represent true overnight capacity as the spaces are eligible for use by local road users.

3.6.5 Eight of the streets surveyed were deemed to be operating over capacity (stress of over 100%), these were Avalon Close, Brants Walk, Brentside Close, Hillyard Road, Laurie Road, Riverside Close, Rutland Close, Rutland Gardens and Upfield Road. The two with the highest stress were Brants Walk and Riverside Close with 158% and 152% stress respectively.

3.6.6 Both Brants Walk and Riverside Close have unrestricted parking with undefined parking bays along the entirety. This leads to vehicles parking in any available space, which may technically be smaller than a typical parking space, leading to overcapacity. This is also the case on Copley Close where people park perpendicular in the parallel parking bays to maximise parking potential, meaning that the vehicles are intruding into the available carriageway.

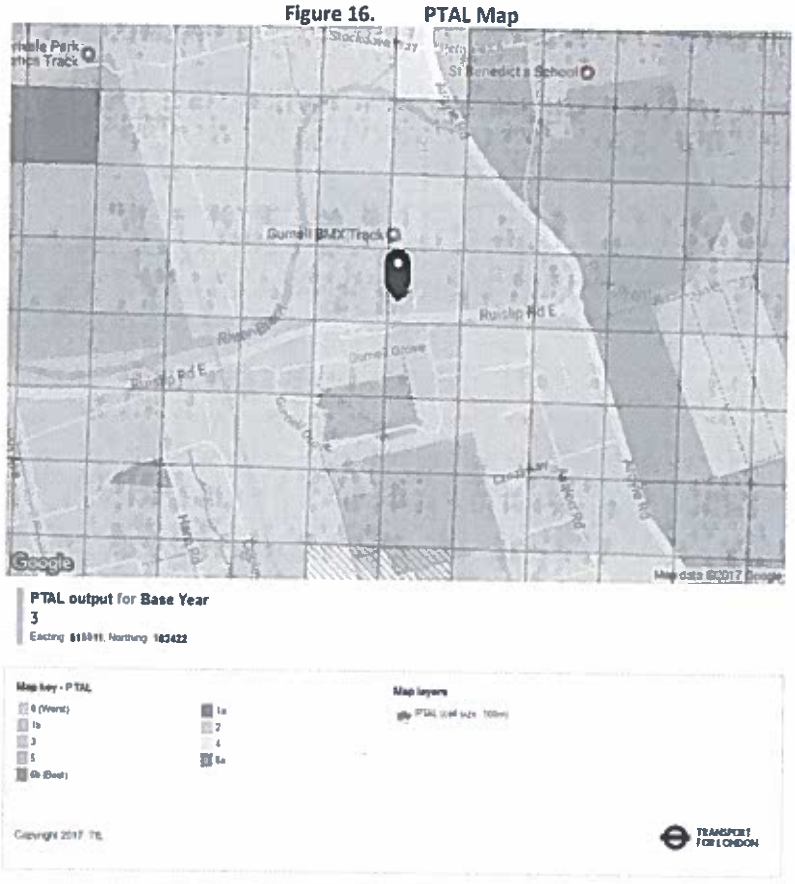
3.6.7 Whilst the surveys provide a theoretical capacity of the local streets, in reality there is more available parking capacity than the surveys suggest as people tend to park perpendicularly rather than vertically freeing up more space for other car owners.

3.7 PTAL and Public Transport Network

3.7.1 Public Transport Accessibility Levels (PTALs) are 'a detailed and accurate measure of the accessibility of a point to the public transport network, taking into account walk access time and service availability. The method is essentially a way of measuring the density of the public transport network at any location within Greater London' (TfL; Measuring Public Transport Accessibility Levels, April 2010). The ratings range from 1a (very poor) to 6b (excellent).

3.7.2 The PTAL rating for the Site has been calculated using the TfL "WebCAT" assessment tool. The Application Site is located within a PTAL area of 2 - 3, with the development itself wholly within PTAL 3 land which is classified as 'Moderate' and reflects the range of public transport services present in the vicinity of the Site (where 1a is the worst and 6b is the best PTAL achievable). The map showing the site's PTAL can be seen in **Figure 16** below, the full PTAL report can be found at **Appendix B.**

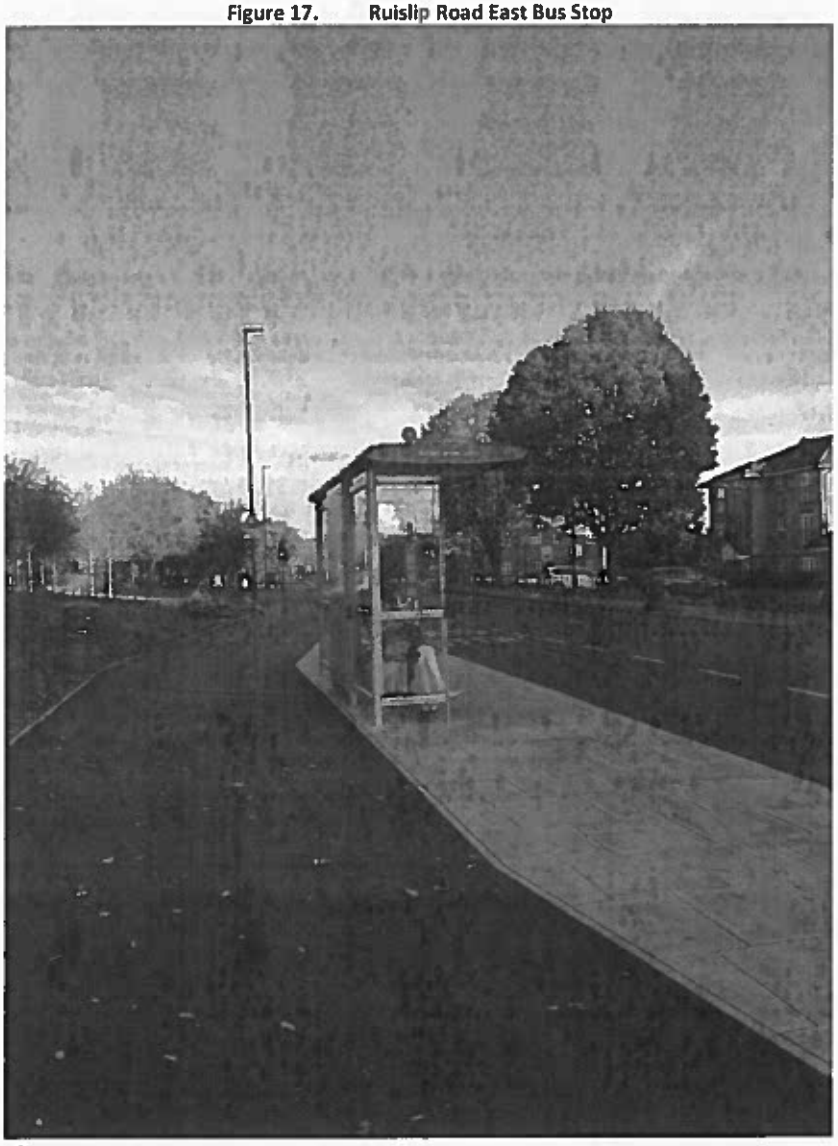
Figure 16. PTAL Map



Bus Services

3.7.1 The nearest bus stops to the Site are approximately 65 metres away on Ruislip Road East and serve routes E2, E9, E5, E10, E7 and N7 with a frequency per hour of 8, 5, 5, 4 and 5 respectively. The next available bus stops with a different service is located 490 metres away and serves route 297 with a frequency of 6 vehicles per hour. The nearest stop on Ruislip Road East can be seen in Figure 17 below.

Figure 17. Ruislip Road East Bus Stop



National Rail Services

3.7.2 Castle Bar Park National Rail Station is located to the southwest of the Site, approximately a 10 minute walk, providing direct trains to Greenford and West Ealing which is operated by Great Western Railway. These stations then go on to provide direct access to London Paddington.

3.7.3 South Greenford National Rail Station is located to the north of the Site, approximately a 20 minute walk. It is served by Great Western Railway and serves the same lines as Castle Bar National Rail Station. It is located within zone 4 of London's Travelcard zones.

Elizabeth Line (Crossrail)

3.7.4 A new Crossrail station is currently being constructed at West Ealing National Rail Station, approximately a 25 minute walk or 7 minute bus journey away. This will provide connections into Central London, along with Heathrow and Berkshire. It is located within zone 4 of London's Travelcard zones.

London Underground Services

3.7.5 Perivale underground station is located approximately a mile to the north of the Site (20 minute walk) and serves the central line on the West Ruislip branch. It is located within zone 4 of London's Travelcard zones. Bus 297 from Perivale station enables drop off at Ruislip Road East, a six minutes walking distance from Gurnell Leisure Centre.

3.8 Pedestrian & Cycle Access

3.8.1 A new cycle lane has been implemented along Ruislip Road East, which forms part of the Ruislip Road East Quietway. This is a shared segregated route for pedestrians and cyclists and runs from Clifton Road to Argyle Road. From Clifton Road the cycle route connects to residential streets and routes to the north toward Greenford; from Argyle Road cyclists can join routes through Pitshanger Park toward Hangar Lane and Park Royal.

3.8.2 There is a Santander Cycle docking station located at Castle Bar Park; this is within a 10 minute walk from the Site.

3.8.3 Public cycle parking is provided on Site with a total of 15 cycle parking spaces.

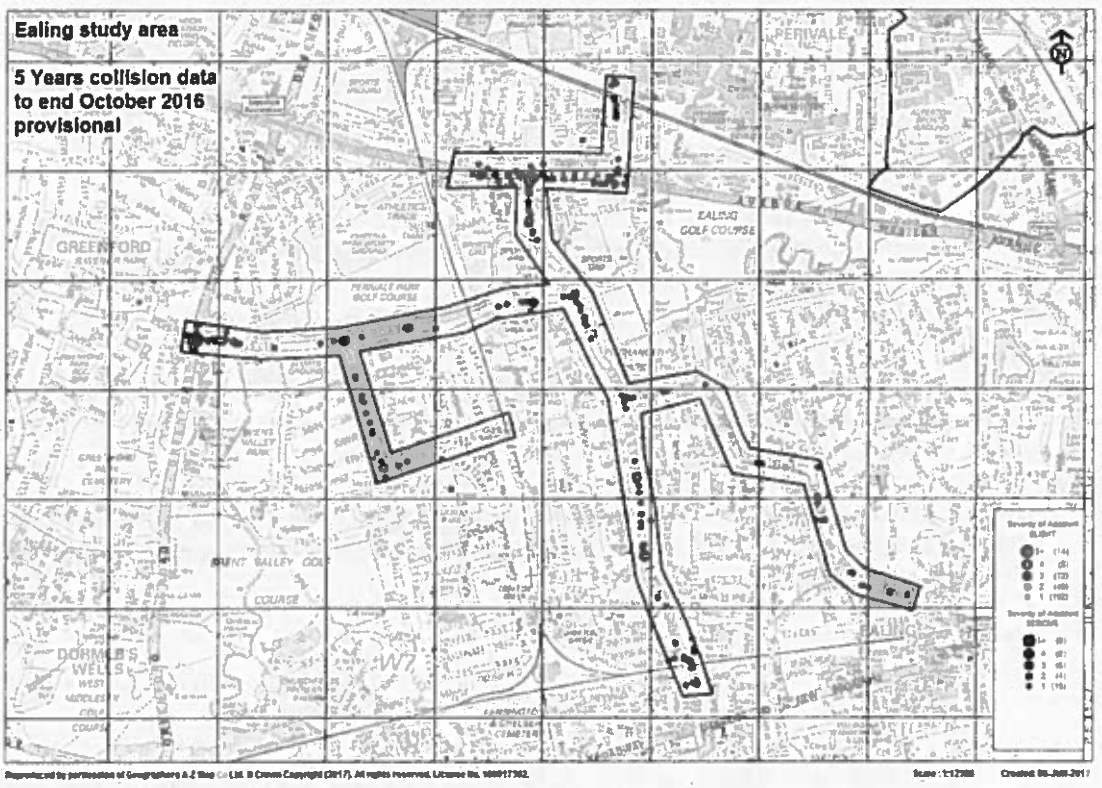
3.8.4 Pedestrian access to the Site is excellent with footways along all roads in the locality. Footways are of good quality in terms of both construction and condition, particularly fronting the Site. Gurnell Leisure Centre, which is located on Metropolitan Open Land, also has a number of public rights of way, providing pedestrians with high quality green routes through the Site.

3.8.5 It is noted that more information on the pedestrian and cycling environment can be found in **Chapter 4.**

3.9 Road Safety Data

3.9.1 Up to date accident data has been obtained from TfL's Road Safety Unit for the most recently available five year period from 10/2011 to 10/2016. The area obtained can be seen in **Figure 18** below.

Figure 18. Accident Data Area Coverage



3.9.2 A total of 288 accidents were recorded in the area in the last 5 years, with an average of 57 accidents a year. 92.4% of these were classed as 'Slight' incidents and 7.6% were classed as 'Serious'. There were no fatalities. A table showing a more detailed breakdown of this analysis can be seen in **Table 3.**

Table 3. Accident Data Analysis

SEVERITY/MONTHS	2012	2013	2014	2015	2016	TOTAL
Fatal	0	0	0	0	0	0
Serious	4	4	4	4	6	22
Slight	42	45	52	63	64	266
Total	46	49	56	67	70	288

3.9.3 27% of the accidents involved a pedestrian and were classed as a 'pedestrian accident', 10% involved a cyclist casualty, 39% of the accidents occurred in the dark, 19% occurred in the wet and 1% occurred in the snow/ice.

3.9.4 Nine incidents occurred outside of Gurnell Leisure Centre. The majority of these were non pedestrian accidents with only one incident involving a pedestrian, two involved a cyclist, four involved a motorbike and three involved cars. These are as follows:

- Ruislip Road East/Gurnell Grove;
  - V1 pulled out of car park entrance and turned right colliding with a motorbike;
    - Severity: Slight
  - Cyclist riding across pedestrian zebra crossing was impacted by a vehicle travelling west;
    - Severity: Slight;
  - A Car turned right into path of an oncoming car;
    - Severity: Slight;
  - Vehicles turned right across path of an oncoming cyclist causing a collision
    - Severity: Slight;
  - Cyclist collided with vehicle turning into a private entrance;
    - Severity: Slight;
  - A westbound vehicle stopped for a pedestrian at signalised crossing but ended up colliding with the pedestrian.
    - Severity: Severe

3.9.5 Nine incidents occurred in the vicinity of the Ruislip Road East/Argyle Road roundabout. All the incidents involved vehicles with seven involving cars and two involving motorbikes. The incidents were as follows:

- Argyle Road/Ruislip Road East Crossing;
  - A car crossed the centre white line, colliding with two cars of which one was pushed into a parked tipper truck;
    - Severity: Slight
  - Driver was distracted by a baby crying in the back seat and veered across the road hitting a vehicle and pushing it backwards into another;
    - Severity: Slight;
  - A vehicle swerved to avoid an oncoming car on the wrong side of the road;
    - Severity: Slight;
  - A vehicle waiting at a zebra crossing was shunted by a second vehicle who had been hit by a car behind;
    - Severity: Slight;
  - Driver was distracted by satellite navigation on mobile which was on the drivers laps and drove into the rear of a second vehicle pushing it into the vehicle in front;
    - Severity: Slight;
  - A vehicle did a U-turn and was hit by an oncoming vehicle;
    - Severity: Slight;
  - A vehicle was approaching the roundabout and tried to change to the right hand lane, crashing into a second vehicle;
    - Severity: Slight;
  - A vehicle being held in traffic was shunted by a second vehicle.
    - Severity: Slight.

Accident Summary

3.9.6 Almost all the accidents recorded caused by poor driver behaviour e.g. crossing lanes at the last minute or making informal U-turns and hitting oncoming vehicles.

3.9.7 Pedestrian accidents were mainly caused by people not crossing the road at designated crossing points or crossing between parked cars/buses. Although it is noted that there were some instances where a vehicle failed to stop at a formal crossing.

3.9.8 None of the accidents were caused by defects within the public highway and therefore there are no common causalities, which might require remedial works. It is also noted that the Quietway which was installed in September 2017 is likely to further improve safety on the local road network.

4. PEDESTRIAN AND CYCLING ASSESSMENT

4.1 General

4.1.1 This section of the report summarises the findings of the PERS-style Audit and CLoS assessment undertaken by SYSTRA staff on 7th June 2017. The full data tables and raw analysis can be found at **Appendix C** of this report.

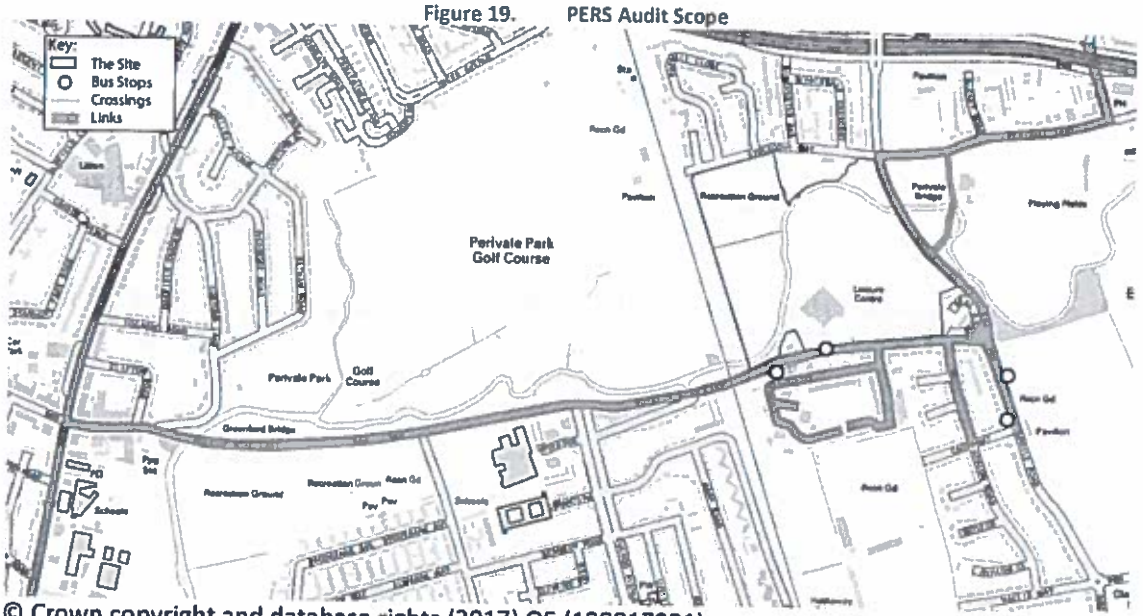
4.1.2 It is noted that when the assessments were undertaken, the Ruislip Road East Quietway had not been implemented, and so the results presented in this chapter represent a worse case analysis of the existing cycle facilities. No major changes are understood to have occurred to the pedestrian network since the audits were undertaken.

4.2 PERS Audit

4.2.1 A PERS Style audit was conducted in the vicinity of the Site, to a scope agreed with LBE, to assess the existing pedestrian environment and give the infrastructure a score from -3 to 3. Links (pavement), crossings and public transport infrastructure (bus stops) were also assessed.

4.2.2 The agreed scope can be seen in **Figure 19** below.

Figure 19. PERS Audit Scope



Links

4.2.3 Nine links were assessed as part of the audit, the overall scores for each link can be found in **Table 4** below.

Table 4. Link Scores

LINK	LOCATION	PERS SCORE
L1	Old Church Lane / Bridge	2.31
L2	Perivale Lane	1.69
L3	Public Footpath (Argyle Road to Perivale Lane)	1.00
L4	Argyle Road (North)	2.00
L5	Argyle Road (South)	1.71
L6	Avalon Road	1.57
L7	Gurnell Grove	1.93
L8	Ruislip Road East - Site	2.50
L9	Ruislip Road East (From Railway Track to Greenford)	2.50
Average		1.91

4.2.4 The resultant links scores show that all pavements and walkways in the vicinity of the Site are of a relatively high standard, especially Ruislip Road East directly outside the Site which had the highest score of 2.50. The lowest scoring link was the off-road public footpath, which scored 1.00 due to lack of suitable lighting and a low sense of security. There was also no segregation between cyclists and pedestrians and minimal signage which could cause user conflict.

Crossings

4.2.5 A total of four crossings were assessed, the resultant scores can be seen in **Table 5.**

Table 5. Crossing PERS Scores

CROSSING	LOCATION	SCORE
C1	Signalised Crossing Outside Leisure Centre	2.67
C2	Zebra Crossing (By Staff Access)	1.42
C3	Ruislip Road/Greenford Road	2.42
C4	Argyle Road/Ruislip Road East	1.08
Average		1.90

4.2.6 The scores show that all the crossings in the vicinity of the Site are designed a relatively high standard, especially the signalised crossing directly outside the Gurnell Leisure Centre. The lowest scoring was the zebra crossings at the Argyle Road/Ruislip Road East junction, which

was mainly due to the low crossing capacity and high traffic flows/poor driver behaviour that were experienced at the roundabout.

Public Transport

4.2.7 A total of four bus stops were assessed, the resultant scores can be seen in **Table 6.**

Table 6. Public Transport Scores

CROSSING	LOCATION	SCORE
PT1	Argyle Road (Stop AJ)	1.90
PT2	Ruislip Road East (Stop AA)	1.40
PT3	Ruislip Road East (Stop RW)	2.40
PT4	Ruislip Road East (Stop RU)	2.00
Average		1.93

4.2.8 The resultant scores show that all bus stops in the vicinity of the Site are of adequate standard. Some scored lower than others due to lack of live time information and visible places of concealment.

PERS Summary

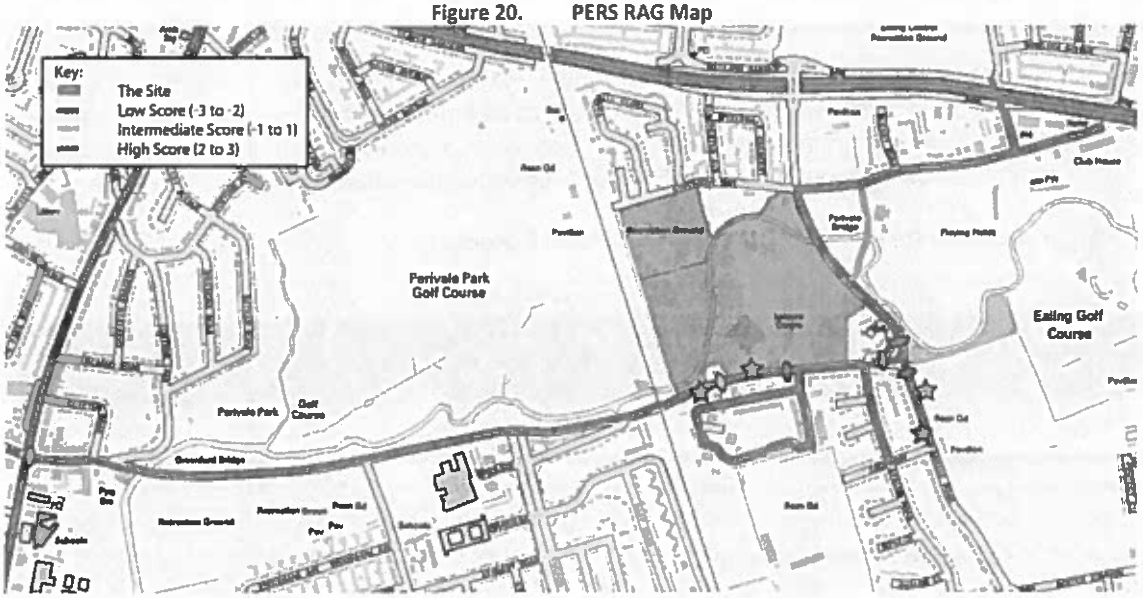
4.2.9 A summary of the average scores for links, crossings and public transport waiting areas can be seen in **Table 7** below.

Table 7. Summary Scores

CRITERIA	AVERAGE PERS SCORE
Crossings	1.90
Links	1.91
PT Waiting Areas	1.93

4.2.10 In general all crossings, links and bus stops scored highly, with the public transport waiting areas scoring the highest at 1.93 out of 3. Footways were deemed of suitable width and quality for the footfall and all crossings catered appropriately to the demand with spare capacity for future pedestrian increases. A summary of the scores, can be seen in **Figure 20** overleaf.

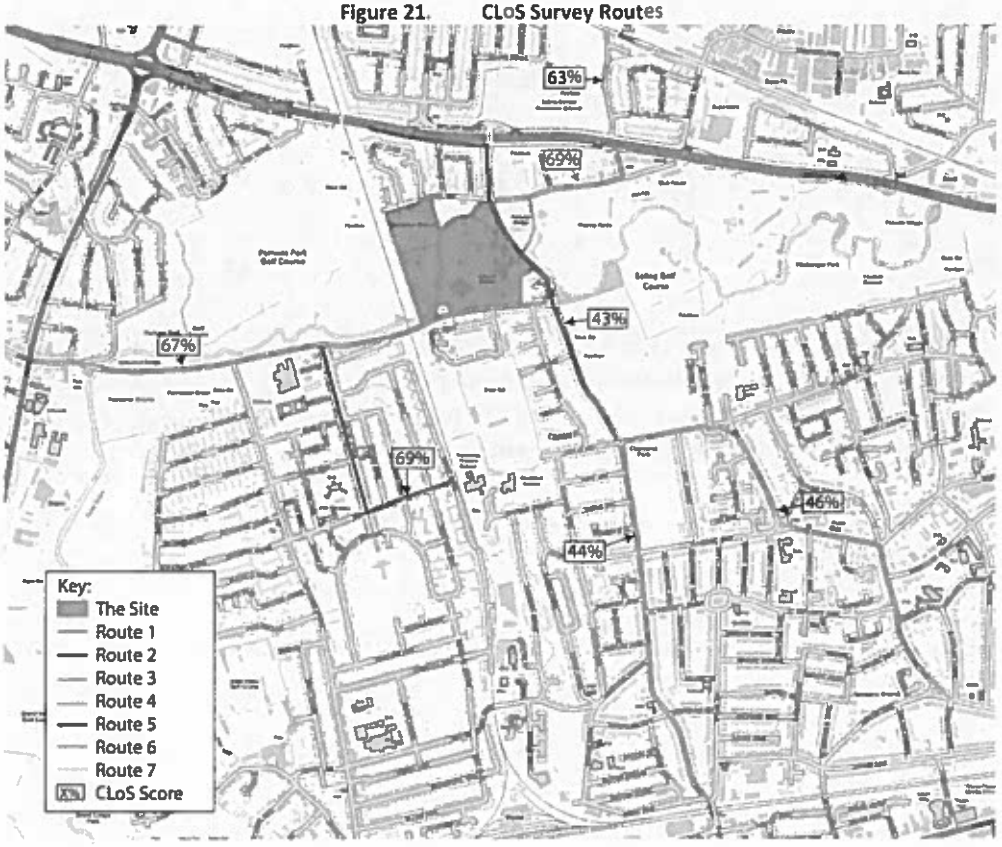
Figure 20. PERS RAG Map



4.3 CLoS Assessment

4.3.1 A CLoS survey was undertaken for the principal routes surrounding the Site. This included routes from West Ealing Rail Station to the south and Perivale Station to the north. Routes from residential areas to the east and west were also included. **Figure 21** below shows the routes surveyed.

Figure 21. CLoS Survey Routes



4.3.2 The assessment was undertaken on 7th June 2017 between the hours of 10:00-12:00 by a SYSTRA staff member, who cycled along the routes in both directions with a video camera. Upon returning to the office, he assigned each route a score for each of the criteria, and the exercise was repeated by another colleague based on the video footage.

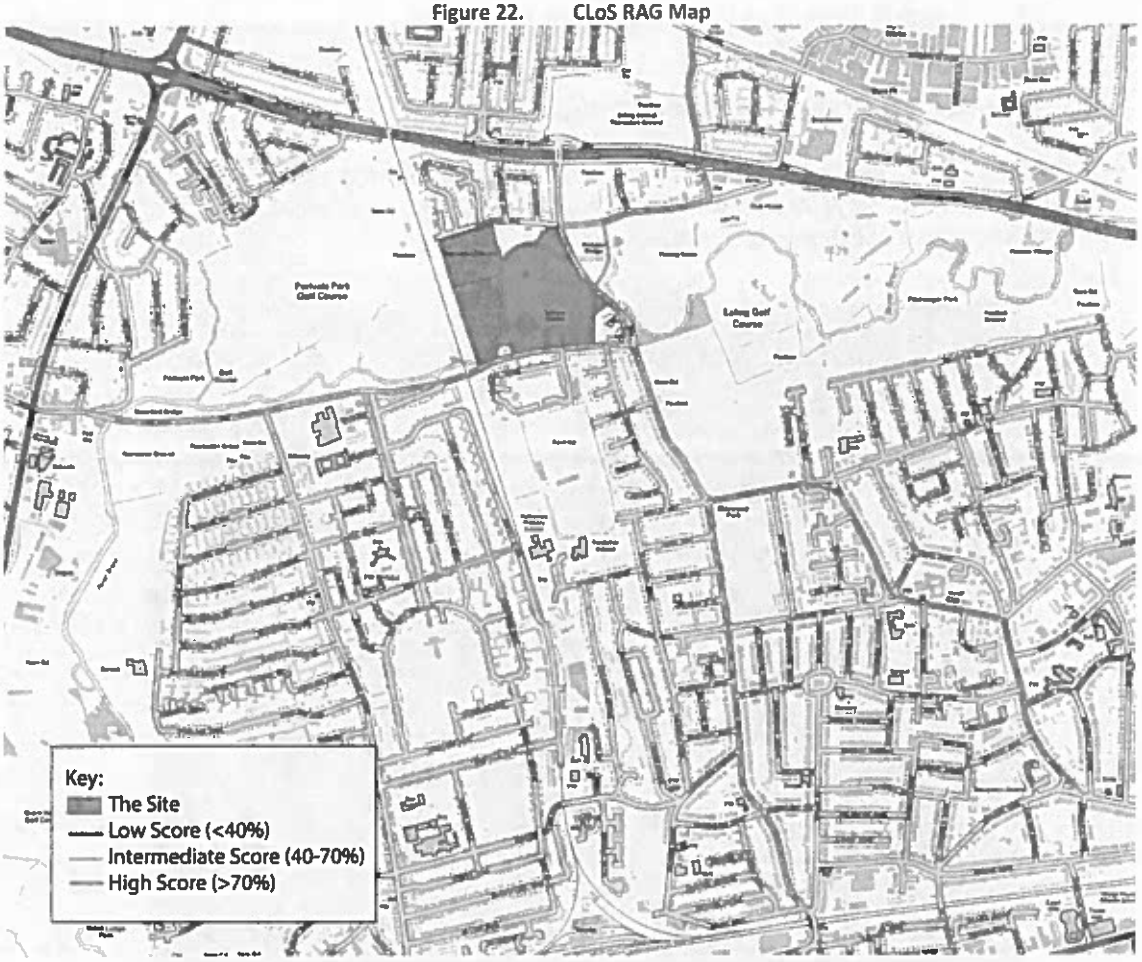
4.3.3 The scores for each route are shown in **Table 8** overleaf:

Table 8. CLoS Scores

LINK	ROUTE	SCORE (%)
1	Ruislip Road East	67
2	Cuckoo Ave / Bordars Road	69
3	Argyle Road (West Ealing Station to Scotch Common)	44
4	Scotch Common / B455	46
5	Argyle Road (Scotch Common to the A40)	43
6	Perivale Lane / Old Church Lane / Off-road route	69
7	Horsenden Lane South (A40 to Perivale Station)	63
Average		57

4.3.4 As **Table 8** shows, all routes scored between 40% and 70%, which qualify as intermediate levels of service according to the London Cycle Design Standard. The scores for each route were averaged to give an overall score of 57%. Full scoring outputs are provided in **Appendix C, Figure 22** overleaf presents a visual summary of the scores.

Figure 22. CLoS RAG Map



4.3.5 The best-performing elements of the route were:

- Low traffic volumes, particularly on Cuckoo Avenue, Bordars Road and Perivale Lane;
- Route directness, with minimal conflicting movements;
- New shared-space routes along Ruislip Road East to the Site;
- Off-road cycle path throughout length of Cuckoo Avenue;
- Social Safety; and
- Infrequent kerbside activity and HGV interaction.

4.3.6 Key issues included:

- Lack of segregation or dedicated cycle lanes along Argyle Road, Bordars Road, Kent Gardens and the B455;
- Some routes relatively steep in gradient;
- High traffic speeds along Argyle Road; and
- Frequent roundabout junctions which may be unattractive for inexperienced cyclists.

4.4 Detailed Comments

4.4.1 The results of the following routes are described in more detail below:

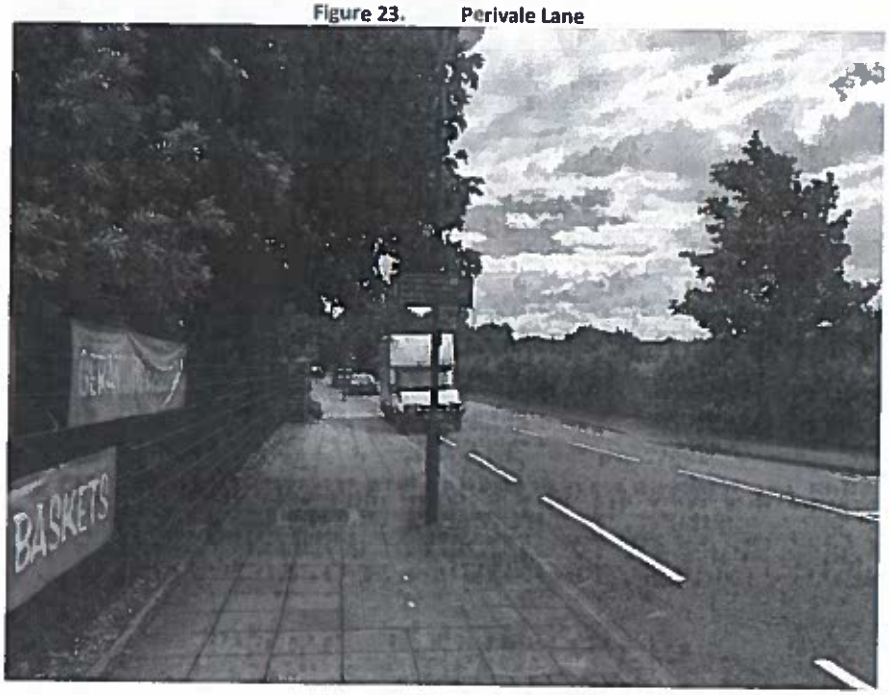
- 6: Perivale Lane / Old Church Lane / Off-road route

- 5: Argyle Road (Scotch Common to the A40); and
- 1: Ruislip Road East.

6: Perivale Lane / Old Church Lane / Off-road route

4.4.2 **Figure 23** provides a photograph of Perivale Lane, taken from the junction with Argyle Road, facing in an easterly direction. This route achieved a CLoS score of 69 out of 100, meaning it scored joint highest among the study area routes.

Figure 23. Perivale Lane

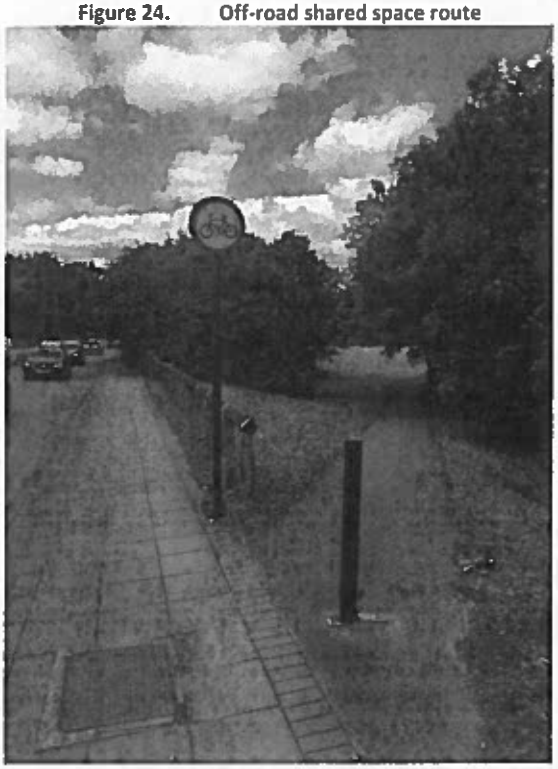


4.4.3 Cycling from Argyle Road, Perivale Lane has optional cycle lanes marked along both sides of the road for approximately 140m before cyclists must use the general traffic lanes. It was noted that some of these cycle lanes were obstructed by parked vehicles as shown in **Figure 23** above.

4.4.4 Perivale Lane scored highly in terms of feeling of safety, due to there being a low usage of the road by heavy freight or HGVs in line with the residential nature of the road, as well as slow observed vehicle speeds. The road is well-lit and informally observed, and the route is flat with no vertical or horizontal directions. Connectivity is also high due to Old Church Road leading to a shared space footbridge over the A40 for access to the north.

4.4.5 The off-road cycle route pictured in **Figure 24** provides an attractive route between Argyle Road and Perivale Lane for cyclists. The lack of interaction with vehicles means the route scored highly on collision risk, and the route is considered to have a high level of directness due to the journey and junction times being less than for motor vehicles. Issues with the route included its gradient and the risk of crime due to a lack of surveillance.

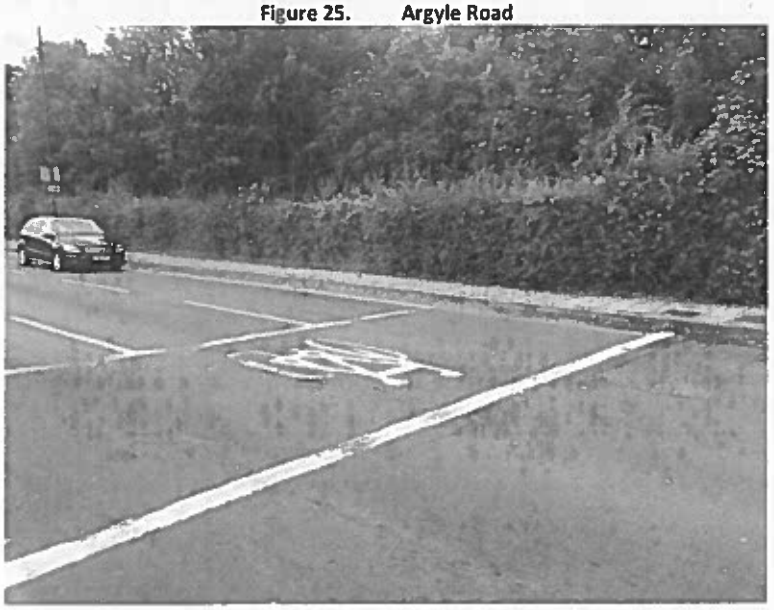
Figure 24. Off-road shared space route



5: Argyle Road (Scotch Common to the A40)

4.4.6 **Figure 25** provides a photograph of Argyle Road demonstrating road widths and an Advanced Stop Line (ASL) present.

Figure 25. Argyle Road



4.4.7 **Figure 26** shows the section of the A40 leading to the west which was included in this route.

Figure 26. A40

4.4.8 This route scored lowest among the routes surveyed, at 43%. Argyle Road scored poorly on feeling of safety and collision risk, due to the size and speed of the road being potentially unattractive to cyclists considering the lack of dedicated cycle lanes, though the road does feature several ASLs at junctions.

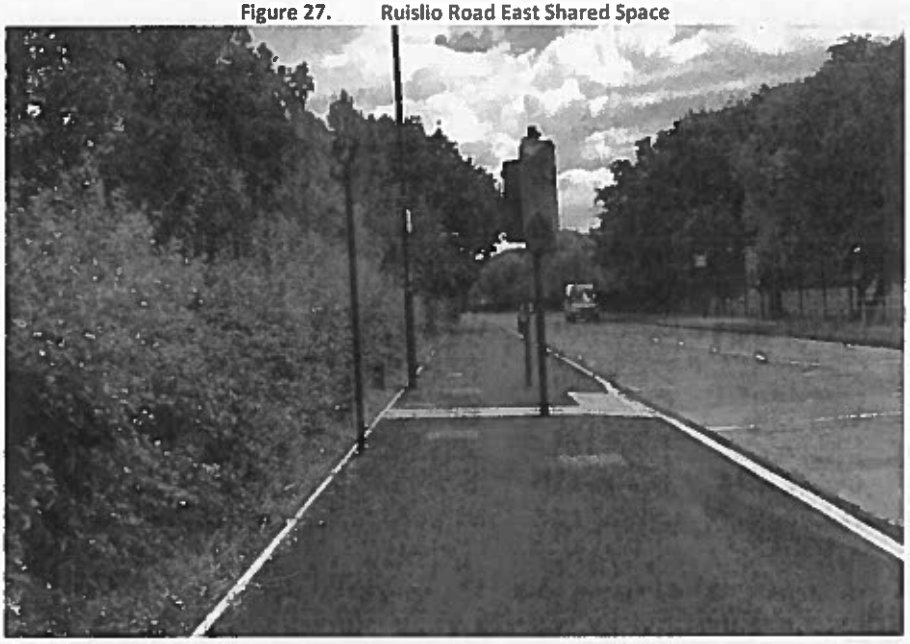
4.4.9 Traffic volumes are high contributing to poor scoring on air quality and noise, but it was noted in the survey that there was only occasional interaction with HGVs. Positive features of the route include the perception of social safety, the flat gradient and smooth surface quality.

4.4.10 The northern section of the Argyle Road connects with an on-slip onto the A40. While the A40 is a dual-carriageway, the route contains a section of shared space footpath leading to a subway under the A40, as well as an access for South Greenford rail station. Despite the section of shared space, the road contains little signage or way-finding information which affected the coherence of the route. Cyclists are likely to use the hard shoulder of the on-slip when joining the route, and this is considered to present little risk of collision from nearby vehicles.

1: Ruislip Road East

4.4.11 **Figure 27** below shows a photograph of Ruislip Road East, which Gurnell Leisure Centre is accessed from.

Figure 27. Ruislio Road East Shared Space



4.4.12 Ruislip Road East scored a total of 67%, and this was due to cyclists being able to use the shared space footpaths along both sides of the road for much of the route, meaning interaction with general traffic and HGVs is low.

4.4.13 Journey times are high compared to private car use due to the avoidance of junction delay, and while the route has a slight gradient heading westbound, the overall comfort of the route is high due to the newly-laid footpath surface.

5. DEVELOPMENT OVERVIEW

5.1 General

5.1.1 This section of the report sets out the context of the Proposed Development including the land use, access and parking proposals of the development.

5.1.2 It is noted that there are currently several existing public rights of way interacting with the Application Site most notably, the public footpaths through the Metropolitan Open Land (MoL) and the Ruislip Road East Quietway at the access points. Throughout the design process careful consideration has been given to their retention and, any rights of way associated with this scheme or any future scheme have been considered in the access design.

5.1.3 All relevant floors plans, produced by 3D Reid architects, can be found at **Appendix D.**

5.2 Development Proposals

5.2.1 The Proposed Development comprises of the following:

> "Demolition of all existing buildings and re-provision of leisure centre, car and coach parking, BMX track and skate park, alongside enhancements and access to the existing park; and the erection of up to 498 sqm retail floorspace (Class A1-A3) and 615 residential units, with associated landscaping, playspace, cycle and car parking, refuse storage, access and servicing." (The Proposed Development).

Residential Tenure

5.2.2 The development will provide private "for sale" units across a range of sixes (from studio to three bed), the percentage split of the units can be seen in **Table 9** below.

Table 9. **Residential Unit Size Split**

UNIT SIZE	NUMBER OF UNITS	%
TOTAL		
Studio	61	10%
1 bed	276	45%
2 bed	243	40%
3 bed	35	6%
Total	**615**	**100%**

Access Strategy

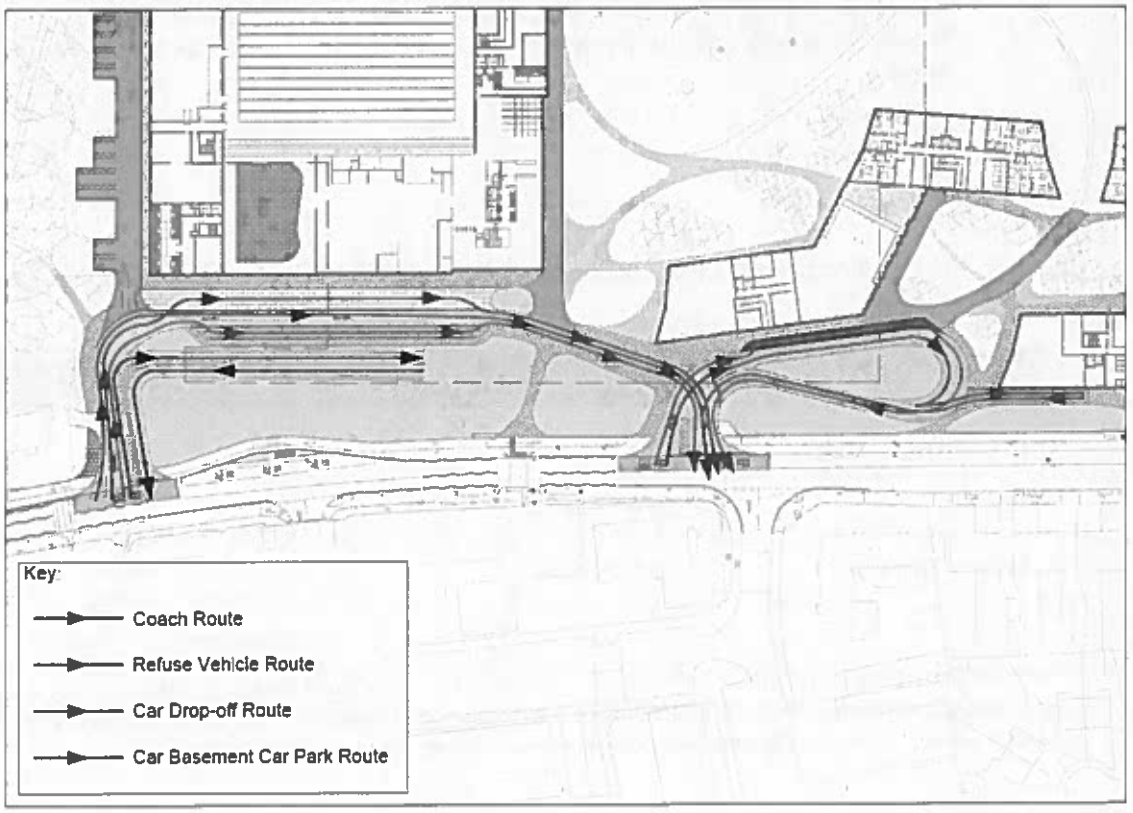
Vehicular Access

5.2.3 The existing vehicular accesses into the Application Site will be retained in their current locations as part of the development. The eastern access includes some widening to accommodate coach manoeuvres when exiting the Application Site, with the majority of the widening being on the eastern side of the access junction given that coaches only exit from this junction.

5.2.4 The western access has been widened to accommodate coach vehicles tuning into the Application Site as well as to allow two-way movement of vehicles through this access junction (coaches are prohibited from exiting via the eastern access). The majority of widening has occurred on the eastern side of the access junction to avoid conflict with the existing zebra crossing on the western side of the access junction on Ruislip Road. To accommodate the junction widening there is a slight realignment to the kerbline of the existing bus stop to the eastern side of the junction. This is required given the geometric constraints of widening to the western side due to the proximity to the existing zebra crossing. **Drawing 107696-SK-01** in Appendix E provides an overlay comparison of the existing and proposed access junctions.

5.2.5 The vehicle access and egress movements throughout the Application Site are shown on **Figure 28** below.

Figure 28. Vehicle Access and Egress movements across the Application Site



5.2.6 The eastern access junction is two –way operation and will be the main point of entry for the Application Site. This access serves entry and exit from the basement car park serving both the residential and leisure centre land uses. Additionally, coaches enter via the eastern access and exit via the western access via a one-way route through the Application Site, enabling drop-off within the designated drop-off zone. Refuse collection for the leisure centre and deliveries can also occur within the drop-off zone utilising the eastern access junction for entry and the western access junction for exit.

5.2.7 The western access junction is two-way operation providing the entry and exit for residential servicing including refuse collection, drop off and deliveries. Additionally, as stated above, coaches exit the Application Site via the western access junction.

5.2.8 The Application Site layout and junction operation is presented on Drawing 107696-Opt2C in **Appendix E**.

5.2.9 The swept path analysis of the range of vehicular movements on-site and vehicle types is presented in **Appendix F**.

Pedestrian Access

5.2.10 Pedestrian access to the Application Site will be gained from Ruislip Road East for both residents and leisure users. Paths will be created through the MoL, guiding site users to their destination and providing an attractive route for members of the public wishing to access the MoL to the north. The landscape masterplan shows the intended footway routes through the Application Site as shown in Drawing 107696-Opt2C in **Appendix E** providing excellent pedestrian connectivity through the Application Site and to the MoL land to the north. In future, these links will also connect to the new proposed pedestrian bridge over the River Brent.

5.3 Parking

Car Parking

5.3.1 The residential car parking standards, as stipulated in the London Plan (2016), are as follows:

Table 10. Maximum Residential Car Parking Standards

UNIT SIZE	LONG STAY	615 DWELLINGS
1 – 2 bedroom	Less than 1 per unit	578
3 Bedroom	Up to 1.5 per unit	53
4 or more Bedrooms	Up to 2 per unit	0
TOTAL		631 spaces

**It is noted that in areas of good public transport developments should aim for significantly less than 1 space per unit. Adequate parking space for disabled people must also be provided on Site. 20% of all spaces must be for electric vehicles with an additional 20% passive provision for electric vehicles in the future.*

5.3.2 In the New Draft London Plan (2018) the maximum residential parking standards is up to 0.75 spaces per dwelling in an outer London borough location with a PTAL of 3. For 615 dwellings this equates to 461 residential parking spaces. For leisure uses sites with a PTAL of 0-3 should be assessed on a case by case basis and should be consistent with a Healthy Streets Approach with an aim to encourage active travel.

5.3.3 There will be a total of 344 car parking spaces on-site, 175 for staff/visitors and 169 for residents. The basement parking will provide space for 335 parking spaces and 9 are located at ground level. This provision is lower than the maximum residential car parking standards specified in the New Draft London Plan 2018 and is a suitable provision for a leisure centre of this scale in an outer London location.

5.3.4 The New Draft London Plan with minor suggested changes (August 2018) requires 3% of the total residential unit numbers to be provided with a parking space for the disabled, with 615 units this equates to 19 spaces for the disabled. Additionally, to accommodate changing needs in the future, there is a requirement for a future adaption strategy to allow an additional 7% of dwellings to be provided with a designated disabled persons parking space in the future if the demand did arise, equating to 43 additional parking spaces for the disabled. This can be accommodated on Site within the residential basement if the future demand arises.

5.3.5 In addition, car parking for disabled users ("blue badge parking") for the leisure centre should be determined according to usage of the sports facility. Sport England's publication "Accessible Sports Facilities 2010" recommends a minimum of 8 spaces or 8% of the total provision.

5.3.6 In line with Sport's England policy 15 parking spaces for the disabled will be located in the leisure centre basement car park (8%).

5.4 Parking Management

5.4.1 Parking Management plays a key role in establishing a shift away from single car occupancy journeys towards more sustainable modes. Without restrictions to car parking, existing car drivers have a limited motivation for modal shift and are therefore unlikely to change their behaviour.

5.4.2 Parking Management plans are designed to prevent the following issues:

- Parking in inappropriate locations e.g. footways and grass verges;
- Compromised access e.g. emergency vehicles;
- Severance to pedestrian and cyclist movements; and
- Visual intrusion and reduction of amenity of the environment.

5.4.3 The aims of the parking management principles for the Site are therefore to direct the safe operation of the onsite parking without impacting on the public highways. This will be achieved through the following key objectives:

- Ensure that the disabled spaces are monitored and used appropriately;
- Prevent unauthorised access through a series of management measures; and
- Ensure no illegitimate parking on site, or cross over of leisure centre visitors using the residential parking (or vice versa).

5.5 Car Park Access

5.5.1 As identified on Figure 28, all vehicles associated with the basement car park will access and egress via the western access junction. This access will lead to a two-way ramp allowing direct access to the basement car park.

5.5.2 To access the nine on-street disabled parking spaces to the north east side of the Site (see Figure 28), vehicles will enter via the west access and exit via the east access.

5.6 Basement Car Park Operation

5.6.1 Internal walls and vehicle barriers separate the Leisure Centre parking provision with the residential parking provision. The basement parking will provide space for 335 parking spaces, of which 175 are for staff and visitors and 169 are for residents.

5.6.2 15 disabled spaces are provided for the Leisure centre with a 1.2m clear access zone to one side of the parking space, in line with Approved Document M – Volume 2: Buildings other than Dwellings (2015). 19 disabled parking spaces are provided for the residential uses from outset, equating to 3% of the total number of dwellings. These spaces will have 1.2m clear access zone to both sides of the parking space in line with Approved Document M - Volume 1: Dwellings (2015 incorporating 2016 amendments). Additionally the residential basement car park can accommodate an increase of the total number of disabled parking spaces (43) from conversion of existing parking spaces should the demand arise. This equates to an additional 7% of the 615 total dwellings being able to be provided with a designated disabled parking space in the future, given that the spaces are leased rather than privately sold.

Leisure Centre

5.6.3 To control access to the leisure centre basement car park, a ticket system will be place, whereby people will be required to drive up to the entrance barrier, request a ticket and then drive to their chosen parking bay. Payment will be required before egressing with the same ticket.

5.6.4 All car park users, including staff, will be required to pay to use the facilities. Disabled blue badge holders can park free of charge. There are 15 spaces available for this purpose.

5.6.5 A car park shutter will be used across the Leisure Centre entrance in order to prevent access out of operational hours for the Leisure Centre.

Residential

5.6.6 Access to the residential basement car park will be restricted by fob entry vehicle barrier system (or similar entry control system) for those residents who lease a parking space. This will prevent access for non-residents and enhance security.

5.6.7 Residents using the nine ground floor parking spaces will be required to display a permit in their car to prevent illegal parking. Wardens will monitor the use of these spaces.

5.6.8 A turning space is provided to allow vehicles to turn around safely and exit, in the unlikely event of vehicles driving past the leisure centre entrance.

'Sign and Line'

5.6.9 All bays within the Site will be clearly lined and signed to ensure that users know where to park. This includes the disabled spaces, which will be signed to let users know they are for disabled use only and so that other vehicles park considerately within the space provided. Signage will be present on Site to direct users, including disabled users, to an appropriate parking space.

Staff Monitoring and Enforcement

5.6.10 Leisure centre staff will monitor the nine ground floor residential car parking spaces, the disabled spaces in the basement car park and the coach parking bays, to ensure no illegitimate parking occurs. Anyone caught abusing the system will face a penalty fine.

5.6.11 To enable the use of such measures, residents will be required to display a permit in their car to demonstrate they can legitimately park in that space, these will be distributed when the residents move in.

5.6.12 Staff will also monitor the use of the blue badge bays and, if required, can request sign modification to provide more disabled parking. The spaces will be regularly monitored on at least a bi-annual basis to ensure that the facilities provided reflect apparent demand.

5.7 Emergency Vehicles

5.7.1 For emergency vehicles there should be a vehicle access for a pump appliance to blocks of flats to within 45m of all points within each dwelling. Blocks of flats not able to comply with the requirements for access to within 45m of all points within each dwelling will be provided with a firefighting main and access for a pumping appliance to within 18m of each fire main inlet connection point (London Fire Brigade: Fire Safety Guidance Note GN29). Direct access to the dry riser locations in Blocks A-D and F are provided via internal roads and footpaths through the landscaped area. Block E is served directly from Ruislip road, as this is within the required distance thresholds.

5.7.2 All emergency vehicles will be able to utilise either vehicular access point to reach the buildings, and the affected area, and have adequate room to manoeuvre on the internal road network.

5.7.3 Swept path of a fire pumping appliance manoeuvring around the internal road network of the Application Site (to demonstrate the principles described above) can be seen at **Appendix F.**

5.8 Cycle Parking

5.8.1 Cycle parking stores will be located on the ground floor of the residential buildings and the leisure centre, they will be secure, covered and are highly accessible by being located at ground floor with level access.

5.8.2 The minimum New Draft London Plan (2018) cycle parking standards are as follows:

Table 11. Minimum Cycle Parking Standards

LAND USE	LONG STAY	SHORT STAY
C3: Dwellings	1 space per studio and 1 bedroom 1 person unit; 1.5 spaces per 1 bedroom 2 person unit; 2 spaces per all other units	5 to 40 units: 2 spaces Thereafter: 1 space per 40 units
D2: Sports (e.g. sports hall, swimming, gymnasium, etc.)	1 space per 8 staff	1 space per 100sqm (GEA)

5.8.3 Based on the London Plan the Application Site is required, and is providing, the following cycle parking:

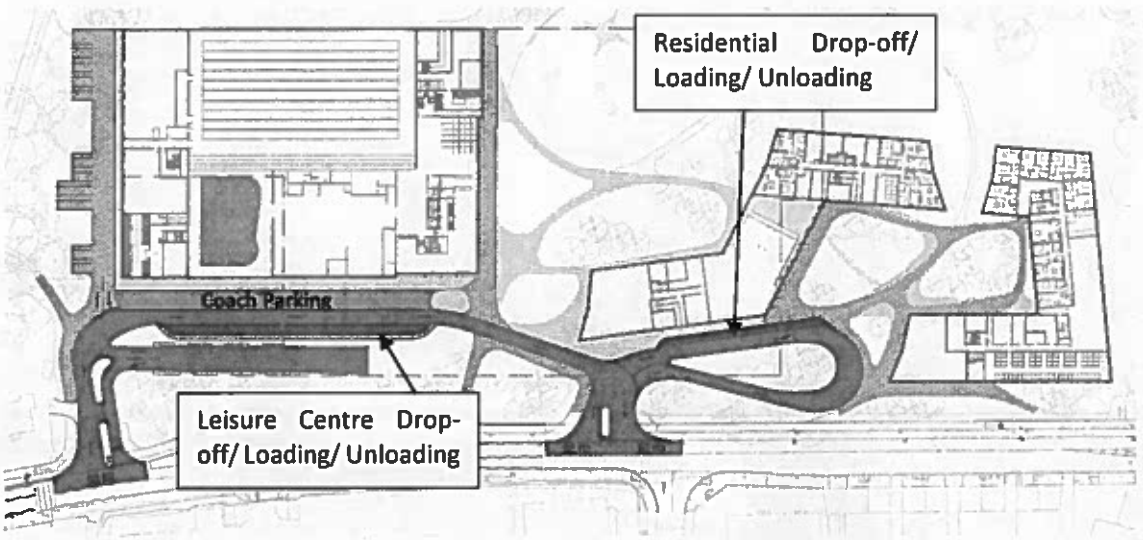
- **C3 Residential (615 dwellings)** = 1,031 Long Stay and 17 Short Stay Spaces;
  - TOTAL = 1,048 spaces;
- **D2: Sports (11,354 sqm and 45 staff)** = 6 Long Stay and 114 Short Stay;
  - TOTAL = 120 spaces.
- **Total Spaces Required** = 1,037 Long Stay Spaces and 131 Short Stay.

5.8.4 The long-stay cycle parking will be provided as two-tier Josta stands in covered locations or in cycle stores. This provision will be located in a safe, secure and sheltered location accessible only by either a keypad or fob. The short-stay cycle parking will be provided primarily as Sheffield stands within a sheltered external cycle store with signage provided to encourage visitor trips by cycle.

5.9 Delivery and Servicing

5.9.1 All delivery and servicing activity will be accommodated on-site via the western access for the leisure centre and via the eastern access for residential land uses. The internal roads have been designed to a sufficient width to enable these movements to occur. Deliveries for the leisure centre can occur within the drop-off zone outside the leisure centre. Residential deliveries will occur via the drop-off zone in proximity to residential entrances. The zones will allow for multiple small delivery vehicles or 2 to 3 larger rigid delivery vehicles to service the development simultaneously. Both of these zones are marked in purple on **Figure 29** below.

Figure 29. Drop-off Zones - Leisure Centre and Residential



Refuse Strategy

5.9.2 Ealing's SPG 4 Storing Waste for Recycling and Disposal states that "stands and enclosures must be located not more than 25m from the nearest access point for the collection vehicle, and wheeled refuse containers not more than 10m away from the vehicle access point, preferably on a level surface". Part H of the Building Regulations (2000) states that residents should not be required to carry waste more than 30m horizontally and waste collection vehicles should be able to get within 25m of the storage point.

5.9.3 All refuse activity will take place off-street, with refuse collection for the leisure centre taking place on the western loop within the coach parking bays.

5.9.4 Refuse collection for the residential uses will take place on the eastern loop with the refuse vehicle entering via the eastern access. A managed solution will be in place to move the bins on collection day from individual refuse stores within each block to the larger bin store located within Block E in order to ensure that the distances in paragraphs 5.4.2 remain true. To ensure the refuse collection can occur within 10m of the main bin store at Block E, the refuse vehicle will reverse to the southern side of Block E, as shown in **Figure 30** below. As the route to the south side of Block E is not a primary vehicle route, no conflict with other vehicles will occur.

Figure 30. Refuse Collection – Block E Bin Store 10m isochrone

5.9.5 Swept path analysis of the residential refuse vehicle accessing the Application Site can be seen at **Appendix G.**

6. MULTI-MODAL TRIP GENERATION ASSESSMENT

6.1 General

6.1.1 This section outlines the trip generation associated with the existing and proposed developments.

6.1.2 Trip generation results have been derived from the existing surveys as well as the latest version of the industry standard TRICS® database (TRICS® 2018(a) v7.5.2) to predict the Application Site's trip rate based on similar sites within the database. The selected sites have been chosen based upon similar location, parking provision and public transport accessibility characteristics to the Proposed Development.

6.1.3 Trip generation data has then been presented for both the morning and evening weekday peak periods. Unless otherwise stated, any mathematical errors are caused by rounding.

6.1.4 All copies of relevant TRICS® outputs including site lists are included at **Appendix H** of this report.

6.2 Existing Site

6.2.1 As the new leisure centre is being built on the footprint of the existing and with similar facilities, it is assumed that there will be a like-for-like replacement in trips and no new trips created as part of the Development. It is also noted that the number of leisure centre visitor car parking spaces will remain largely as per the existing for users of the Leisure Centre. Therefore, when calculating the net change in trips, this will relate to the residential development only.

6.2.2 For the purposes of the modelling, a sensitivity test (10% uplift) was conducted on the leisure centre trips to account for the enhanced facilities and consequent demand.

6.2.3 To gain an accurate representation of the existing vehicle trips, the MCC surveys were analysed and considered to represent the existing Site. These vehicular flows can be seen in **Table 12.**

Table 12. Leisure Centre Vehicular Trips from Survey Data

MODE	AM IN	AM OUT	PM IN	PM OUT
Vehicle (PCU)	30	7	96	74
10% Uplift	33	8	106	81

6.2.4 To obtain an overall modal split, for multi-modal travel, to and from the Site, the existing TRICS survey undertaken at Gurnell Leisure Centre was extracted from the TRICS database and the modal splits utilised, this can be seen in **Table 13.**

Table 13. TRICS Leisure Centre Trip Rate

MODE	MODAL SPLIT	TOTAL
Cars	40%	207
Passengers	28%	143
Cyclists	1%	7
Pedestrians	13%	64
Public Transport	18%	93
Total People	100%	514

TRICS (v7.4.2)

6.2.5 **Table 13** above shows that daily, 40% of visitors are expected to travel to the Site by car, with 28% passengers, 13% pedestrians, 18% on public transport and 1% on bicycles.

6.3 Proposed Development

Residential Dwellings

6.3.1 The Proposed Development includes the provision of 615 residential dwellings. The following criteria have been used to find appropriate sites within the TRICS database:

- Land Use – Residential (03);
- Sub Land Use – Flats Privately Owned (C);
- Multi-modal trip rate;
- Greater London only; and
- Weekday surveys only.

6.3.2 The above criteria resulted in the identification of the following sites, which have appropriate volume of dwellings and parking ratio, seen in **Table 14** below.

Table 14. Residential Site Locations

SITE	DESCRIPTION	AREA	DWELLS	PARKING	PTAL
BT-03-C-02	BLOCKS OF FLATS	BRENT	472	151	5 Very Good
HV-03-C-02	BLOCKS OF FLATS	HAVERING	493	246	2 Poor

TRICS (v7.4.2)

6.3.3 The selected residential sites, show in **Table 14** above, yielded the following trip rate, shown in **Table 15.**

Table 15. Trip Rate (per dwelling)

MODE	AM IN	AM OUT	PM IN	PM OUT	TOTAL IN	TOTAL OUT
Vehicles	0.021	0.059	0.069	0.027	0.423	0.419

MODE	AM IN	AM OUT	PM IN	PM OUT	TOTAL IN	TOTAL OUT
Cars	0.016	0.052	0.058	0.020	0.358	0.352
Taxis	0.004	0.005	0.002	0.002	0.019	0.019
Passengers	0.002	0.035	0.026	0.008	0.149	0.164
OGVs	0.001	0.000	0.002	0.000	0.009	0.010
LGVs	0.000	0.002	0.005	0.004	0.031	0.031
Cyclists	0.001	0.002	0.002	0.000	0.007	0.012
Pedestrians	0.017	0.079	0.057	0.028	0.594	0.559
Public Transport	0.010	0.138	0.084	0.047	0.567	0.673
Total People	0.051	0.313	0.238	0.110	1.740	1.830

6.3.4 Scaling the trip rates in **Table 14**, the following trip estimates were calculated **(Table 15)**.

Table 16. Residential Trips (per 615 dwellings)

MODE	AM IN	AM OUT	PM IN	PM OUT	TOTAL IN	TOTAL OUT
Vehicles	13	36	42	17	259	257
Cars	10	32	36	12	219	216
Taxis	2	3	1	1	12	12
Passengers	1	21	16	5	91	101
OGVs	1	0	1	0	6	6
LGVs	0	1	3	2	19	19
Cyclists	1	1	1	0	4	7
Pedestrians	10	48	35	17	364	343
Public Transport	6	85	51	29	348	413
Total People	31	192	146	67	1067	1122

TRICS (v7.4.2)

6.3.5 The table above shows that the residential dwellings are expected to generate approximately 2,189 total people two way trips per day, of these 24% (108) are estimated to be undertaken by vehicle, 32% (138) by pedestrians and 35% (171) by public transport. 9% (43) of people are expected to travel to the Application Site as a vehicle passenger and 1% (3) will cycle.

6.3.6 436 total people two way trips will occur in the peak hours, of which 97 will be car trips, 170 will be via public transport, 110 by pedestrians and 3 by bicycle.

6.4 Proposed Development Flows

6.4.1 Utilising the turning proportions from the baseline flows in Chapter 3, the Proposed Development trips were distributed across the network to analyse the traffic patterns and potential impact on the surrounding junctions. This was completed for the two Application Site accesses and the Ruislip Road East/Argyle Road roundabout, the AM and PM Proposed Development flow distribution, with 10% uplift on Leisure Centre trips, can be seen overleaf.

SYSTRA

Figure 31. AM Peak Proposed Development (+10% LC Trips uplift) Flow Distribution

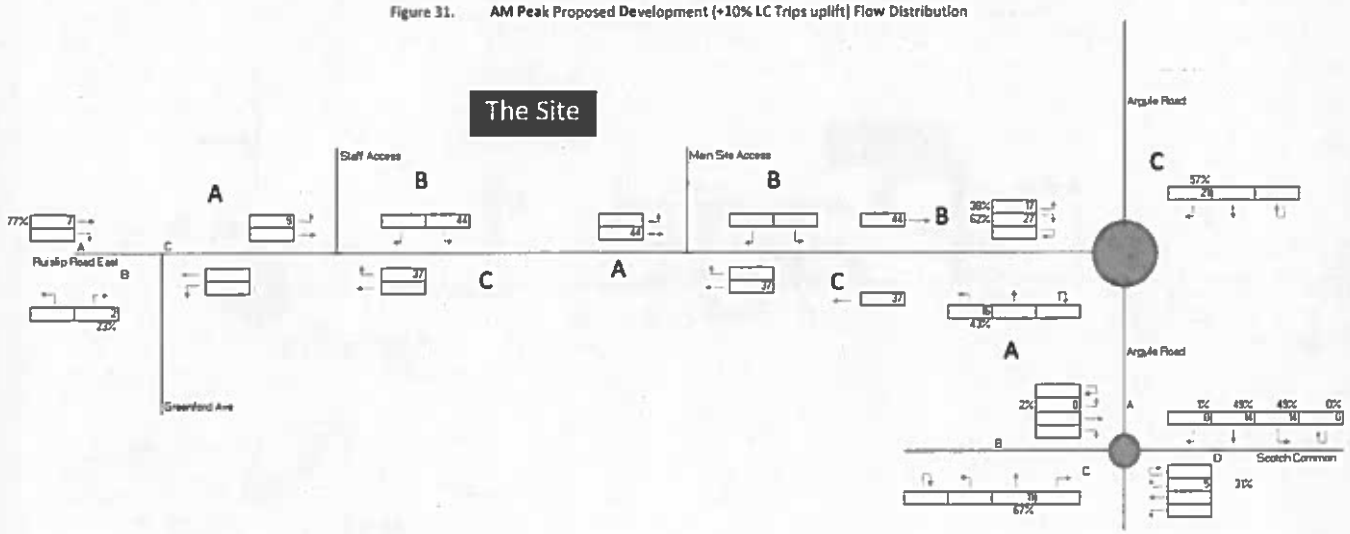
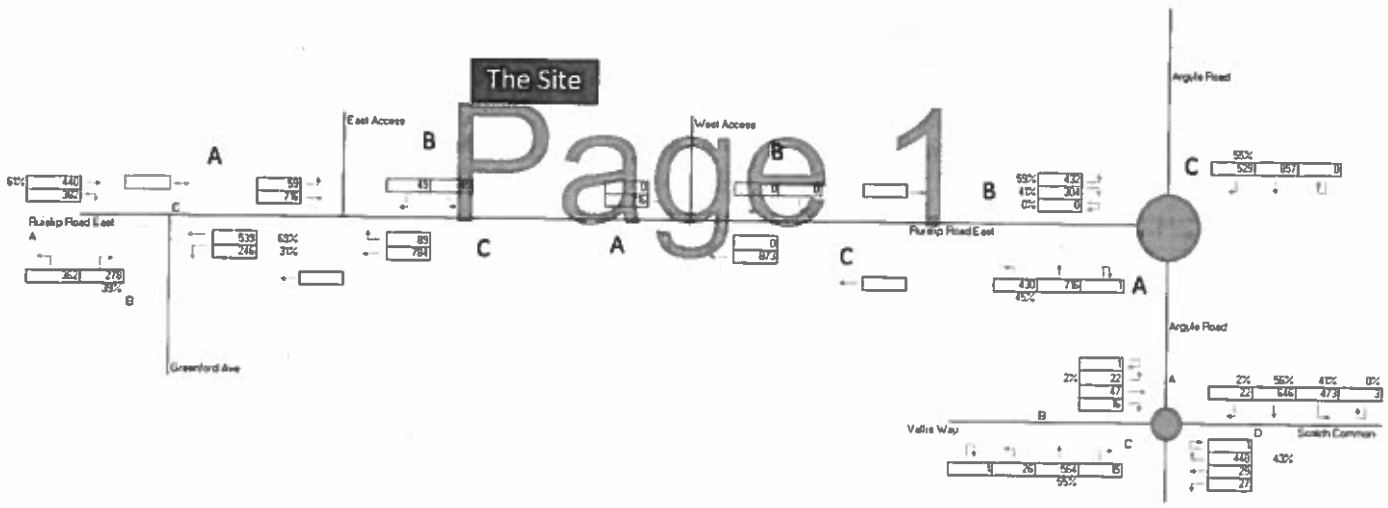


Figure 32. PM Peak Development Flows & Proportions compared to Do Minimum Scenarios



6.4.2 **Figure 31** and **Figure 32** on page 57 and 58 show that the PM is expected to generate more vehicle movements that the AM, especially around the eastern access point.

6.5 Net Change – Residential Trips

6.5.1 As the leisure centre trips are considered to be un-changed and already present on the local highway network, as a worst case analysis, the net change in trips for the Application Site is expected to mirror the values in **Table 14** on page 55.

6.5.2 This is considered a robust assessment as it assumes that the leisure centre will continue to be used to the same level as existing. Furthermore, when using the trip values in the junction assessments the leisure centre trips are already accounted for in the baseline survey flows.

6.6 2011 Census Analysis (MSOA)

Car Ownership Data

6.6.1 To estimate the level of car ownership and therefore parking required on-site, car ownership data by accommodation type was also extracted from the 2011 census, the raw data for flats can be seen in **Table 17**.

Table 17. Car Ownership Data for Flats MSOA

NUMBER OF CARS	NUMBER OF FLATS/APARTMENTS (MSOA)		PROPOSED DEVELOPMENT	
	Total	%	Units	Cars
None	28,777	51%	314	0
One	23,355	41%	252	252
Two +	4,377	8%	49	98
Total	56509	**100%**	**615**	**350**

6.6.2 The table above shows that there is a fairly even split between those who own at least one car and those that do not. 51% of persons living in a flat, maisonette, apartment or caravan do not own a car and 49% own at least one car.

6.6.3 Applying these proportions across the 615 dwellings proposed, this equates to a total parking demand for 350 car parking spaces, with 252 dwellings owning one car and 49 dwellings owning two or more cars (two assumed for the calculation).

6.6.4 Due to the nature of the dwellings proposed however, it is not thought that car ownership will be as high in practice as the Census data suggests. The majority of the dwellings are studio and 1 bed flats as opposed to family size and therefore, their parking demand will be much lower.

6.6.5 Similar sites, also developed by the Applicant, have had parking occupation surveys undertaken and their parking demand quantified. At a site in East India, 19 build to rent designated spaces are currently let with 144 tenants in occupation, representing 13% of

tenants demanding a parking space. This is considerably lower than the 49% calculated from the survey data and when applied to the Application Site equates to a demand for 80 car parking spaces.

6.6.6 Given the location of the Application Site, it is deemed appropriate that a total of 169 parking spaces be provided. Exceeding this number will result in an over design of car parking spaces and will compromise the design and viability of the development. In addition to this, it will encourage unnecessary use of private vehicle trips.

7. JUNCTION ASSESSMENTS

7.1 General

7.1.1 In order to understand the current and future capacity levels at the junctions close to the Application Site, traffic junction modelling utilising the Junctions 9 software was undertaken, in agreement with LBE. This chapter provides a summary of the assessments and the results.

7.1.2 The junctions modelled are as follows:

- Ruislip Road East/Argyle Road Roundabout;
- Main Site Access; and
- Staff Access.

7.1.3 All raw modelling outputs including baseline, do minimum and with development flows can be seen at **Appendix I.**

7.1.4 It is noted that the Junctions 9 software was utilised for these modelling scenarios. There are existing signalised and zebra crossing points already present outside the existing Site; however, these are challenging to model correctly in this particular context. It is considered that by assessing the junctions without these crossing points it presents a worst case scenario for right turners and their max delay time as there is no formal break in the main traffic flow to represent those breaks which in reality are created by the crossings. The signalised and zebra crossing outside the Site will have a positive impact on the right turners by creating gaps in the traffic and therefore only improve the outcomes of the models.

7.2 Baseline Surveys

7.2.1 Baseline traffic surveys were undertaken across the network, to a scope agreed with LBE. This data was extracted for the surveys modelled and used to create traffic flows that could be input into the model.

7.2.2 The baseline surveys, including turning counts for all surveyed junctions, are explained in greater detail in **Chapter 3.**

7.3 Modelling Assessment Criteria

7.3.1 Three separate Junctions 9 models were used to model the mini roundabout and two priority access junctions listed above.

7.3.2 The modelling software used empirical formula based on traffic flows, junction geometries and signal timings to calculate the capacity of the different traffic streams. Geometric measurements were taken by SYSTRA from OS Mapping and include lane widths and lengths.

7.4 Methodology and Scenarios

7.4.1 The methodology for the model consists of two inputs, the geometric calculations and the traffic flows (demand).

7.4.2 The following scenarios were assessed at each junction. For each scenario the standard morning and evening weekday peak was assessed (08:00-09:00 and 17:00-18:00). A sensitivity analysis was also undertaken, at the request of the LBE highways officer, which encompassed the 10% uplift of all existing leisure centre trips, to account for the enhanced facilities and therefore parking demand. This was not undertaken for the Main Site access point, as in the future no leisure centre visitors will utilise this access point.

7.4.3 The scenarios were as follows:

- 2017 Baseline (AM and PM);
- 2022 Do Minimum (AM and PM);
- 2022 With Development (AM and PM); and
- 2022 With Development (AM and PM) – 10% Leisure Centre Sensitivity Test (staff access and Ruislip Road East roundabout only).

7.5 TEMPro Growth Factors

7.5.1 2022 flows were calculated using the latest available TEMPro software (v7.2) and dataset (NTM AF15) to factor the 2017 flows. The following criteria were selected to obtain the TEMPro growth rates for both the morning and evening peak:

- Trip ends by time period;
- Area definition: London-Outer London-Ealing;
- Base Year 2017;
- Transport mode: Car Driver;
- Trip end type: Origin/Destination;
- Area Type: Urban; and
- Road Type: All Roads.

7.5.2 The TEMPro factors utilised to scaled the baseline traffic flows can be seen in **Table 18** below.

Table 18. TEMPro Growth Factors

TIME PERIOD	AM PEAK	PM PEAK
2017-2022	1.067	1.068

7.6 Development Traffic

7.6.1 The Proposed Development residential traffic was calculated using the industry standards TRICS software (TRICS® 2018(a) v7.5.2). The trip rates are detailed in Chapter 6, however, the vehicular trips themselves can be seen in **Table 19** below.

Table 19. Proposed Development Vehicular Trip Rates

MODE	AM IN	AM OUT	PM IN	PM OUT
Vehicular	13	36	42	17

TRICS (v7.4.2)

7.6.2 It is noted that the vehicular trips associated with the leisure centre are assumed to be captured in the baseline flows. As such, the baseline flows have been reassigned between the eastern and western access junctions. As a worst case assessment 100% of trips have been assigned to utilise the eastern access junction which serves the primary route to and from the basement car park as well as the entry point for coaches and drop-off to the leisure centre.

7.6.3 The western access serves residential drop off, residential servicing trips and the exit route for coaches. Whilst trips associated with the western access junction are anticipated to be minimal, a 10% worst case trips assessment has been also assigned to the western access junction.

7.7 Junctions 9 Results

7.7.1 The following tables provide an overview of the model outputs for each junction assessed, as well as a brief interpretation of them.

7.7.2 A degree of saturation of lower than 0.85 suggests that the junction is operating within capacity, a saturation of between 0.85 and 1.00 means the junction is approaching capacity and a value of over 1.00 means the junction is or will be operating over theoretical capacity.

7.7.3 The delay time relates to the time take in second to complete the desired manoeuvre and queue lengths represent the estimated number of passenger car units (PCU's) queuing on a junction arm. A PCU is calculated as follows:

- Pedal cycle = 0.2;
- Motor cycle = 0.4;
- Passenger car = 1.0;
- Light Goods Vehicle (LGV) = 1.0;
- Medium Goods Vehicle (MGV) = 1.5;
- Buses & Coaches = 2.0;
- Heavy Goods Vehicle (HGV) = 2.3; and
- Articulated Buses = 3.2.

7.7.4 Level of service (LoS) references include:

- A = Free Flow;
- B = Reasonably Free Flow;
- C = Stable Flow;
- D = Approaching Unstable Flow;
- E = Unstable Flow; and
- F = Forced or Breakdown Flow.

7.8 Ruislip Road East/Argyle Road Roundabout

7.8.1 Baseline 2017, Do Minimum 2022 and With Development 2022 scenarios were tested at the junction, these assess junction capacity in the AM and PM peaks, and use real time traffic flows, geometries and TEMPro growth factors to as closely as possible model the existing situation. The arms represent the following approaches to the junction:

A. Argyle Road (South);
B. Ruislip Road East; and

C. Argyle Road (North).

7.8.2 **Table 20** below highlights the AM peak results and **Table 21** overleaf highlights the PM peak results.

Table 20. AM Peak Period Results

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
2017 BASELINE: AM PEAK				
A: Argyle Road (Northbound)	0.55	4.27	1.2	A
B: Ruislip Road East (Eastbound)	0.49	3.80	1.2	A
C: Argyle Road (Southbound)	0.86	14.71	5.6	B
2022 DO MINIMUM: AM PEAK				
A: Argyle Road (Northbound)	0.59	5.26	1.6	A
B: Ruislip Road East (Eastbound)	0.53	4.65	1.2	A
C: Argyle Road (Southbound)	0.93	29.63	11.9	D
2022 WITH DEVELOPMENT: AM PEAK				
A: Argyle Road (Northbound)	0.60	4.99	1.5	A
B: Ruislip Road East (Eastbound)	0.56	4.48	1.2	A
C: Argyle Road (Southbound)	0.96	36.80	15.0	E
2022: WITH DEVELOPMENT AM PEAK (10% SENSITIVITY)				
A: Argyle Road (Northbound)	0.60	5.00	1.5	A
B: Ruislip Road East (Eastbound)	0.56	4.48	1.3	A

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
C: Argyle Road (Southbound)	0.96	37.02	15.0	E

7.8.3 The models results in **Table 20** estimate that, once the development traffic is added onto the network, on average the junction is operating within capacity (0.71 Ratio of Flow to Capacity, or RFC), however, the Argyle Road Southbound arm is operating close to full capacity with an estimated RFC and delay of 0.96 and 36.80s respectively, as a result of this the arm is likely to have unstable flow.

7.8.4 In spite of the high RFC in the '2022 With Development and 10% sensitivity' scenario, there only a 0.03 increase on the '2022 Do Minimum' scenario meaning that the development traffic is not having a significant impact on the junction. The junction is already approaching capacity in the baseline and applying growth factors to the baseline flows further reduces junction capacity.

7.8.5 When looking at the sensitivity test, increasing the leisure centre flows by 10%, there is no significant change between the 'With Development' and 'Sensitivity' scenarios, with no change in RFC values and only minor increases in maximum delay on Arm A and Arm C.

Table 21. PM Peak Period Results

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
2017 BASELINE: PM PEAK				
A: Argyle Road (Northbound)	0.62	5.11	1.6	A
B: Ruislip Road East (Eastbound)	0.40	3.35	0.7	A
C: Argyle Road (Southbound)	0.73	7.18	2.7	A
2022 DO MINIMUM: PM Peak				
A: Argyle Road (Northbound)	0.67	5.98	2	A
B: Ruislip Road East (Eastbound)	0.43	3.65	0.8	A
C: Argyle Road (Southbound)	0.79	9.12	3.7	A
2022: With Development: PM PEAK				

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
A: Argyle Road (Northbound)	0.71	6.87	2.4	A
B: Ruislip Road East (Eastbound)	0.46	3.85	0.9	A
C: Argyle Road (Southbound)	0.82	10.92	4.5	B
2022: WITH DEVELOPMENT: PM PEAK 10% SENSITIVITY				
A: Argyle Road (Northbound)	0.71	6.96	2.4	A
B: Ruislip Road East (Eastbound)	0.46	3.85	0.9	A
C: Argyle Road (Southbound)	0.83	11.09	4.6	B

7.8.6 **Table 21** shows that the PM peak is operating with more spare capacity than the AM peak, with a maximum RFC, delay and queue of 0.82, 10.92s and 5 PCU's in the 'With Development' scenario, with 'Reasonably Free Flowing' traffic.

7.8.7 From the 2022 Do Minimum to the 2022 with Development with 10% sensitivity test, there is a 0.04 uplift in RFC along Arm C (Argyle Road), which is the busiest arm. This difference of 4% spare capacity is minimal and , as in the AM peak, means the development traffic is having a minimal effect on the junction as a whole.

7.8.8 When analysing the 'Sensitivity' scenario, the RFC only increases by 0.01 with maximum delay and queue length on Arm C increases to 11.09 and 4.6 respectively. Like the AM peak this increase is minimal and does not result in any material change to the operation of the junction.

7.9 Access Point Assessments

7.9.1 It is noted that, as worst case assessment, 100% of trips associated with the Proposed Development have been routed via the eastern access junction which serves the primary route to and from the basement car park as well as the entry point for coaches and drop-off to the leisure centre.

7.9.2 The western access serves residential drop off, residential servicing trips and the exit route for coaches. Whilst trips associated with the western access junction are anticipated to be minimal, a 10% worst case trips assessment has been also assigned to the western access junction. The existing Leisure Centre trips have been reassigned rather than added to baseline flows to avoid double counting of trips.

Western Access Junction

7.9.3 'Baseline 2017', 'Do Minimum 2022' and 'With Development 2022' scenarios were tested at the junction, these assess junction capacity in the AM and PM peaks, and use real time traffic flows, geometries and TEMPro growth factors to as closely as possible model the existing situation. The arms represent the following approaches to the junction:

A. Ruislip Road East (Eastbound)
B. Site Access and
C. Ruislip Road East (Westbound).

7.9.4 **Table 22** shows the results for the AM peak period and **Table 23** shows the results for the PM period.

Table 22. AM Peak Period Results

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
2017 BASELINE: AM PEAK				
Access to Ruislip Road (Eastbound)	0.01	7.32	0.0	A
Access to Ruislip Road (Westbound)	0.01	14.62	0.0	B
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.05	4.51	0.1	A
2022 DO MINIMUM: AM PEAK				
Access to Ruislip Road (Eastbound)	0.01	7.59	0.0	A
Access to Ruislip Road (Westbound)	0.01	16.39	0.0	C
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.06	4.44	0.1	A
2022 WITH DEVELOPMENT: AM PEAK				
Access to Ruislip Road (Eastbound)	0.00	0.00	0.0	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.0	A

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.02	4.25	0.0	A
2022 WITH DEVELOPMENT: AM PEAK: 10% UPLIFT				
Access to Ruislip Road (Eastbound)	0.00	0.00	0.0	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.0	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.02	4.25	0.0	A

7.9.5 In the AM peak the junction is operating with significant capacity across all streams and scenarios. Once the Proposed Development is introduced the results of the junction improve due to the re-assignment of the leisure centre trips, with only 10% of trips routed through the western access junction as a worst case assessment.

Table 23. PM Peak Period Results

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
2017 BASELINE: PM PEAK				
Access to Ruislip Road (Eastbound)	0.08	7.35	0.1	A
Access to Ruislip Road (Westbound)	0.13	15.16	0.1	C
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.22	4.47	0.8	A
2022 DO MINIMUM: PM Peak				
Access to Ruislip Road (Eastbound)	0.09	7.71	0.1	A
Access to Ruislip Road (Westbound)	0.15	17.15	0.2	C
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.25	4.43	1.0	A

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
2022: With Development: PM PEAK				
Access to Ruislip Road (Eastbound)	0.01	6.20	0.0	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.0	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.04	4.16	0.1	A
2022: With Development: PM PEAK: 10% UPLIFT				
Access to Ruislip Road (Eastbound)	0.01	6.21	0.0	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.0	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.05	4.16	0.1	A

7.9.6 **Table 23** highlights that the access has more movements in the PM peak than the AM with higher RFC's on all arms, but lower delays as the main flow of traffic along Ruislip Road East are lower.

7.9.7 As the leisure centre traffic has been re-distributed the combined RFC for traffic travelling from Ruislip Road East and turning right into the leisure centre or going straight ahead reduced from the 'Do Minimum' to the 'With Development' scenarios; from 0.25 to 0.04. This highlights that as the number of trips routing through the western access as part of the Proposed Development results in improvements to the junction capacity and reduces delays.

Eastern Access Assessment

7.9.8 'Baseline 2017', 'Do Minimum 2022', 'With Development 2022' and 2022 With Development and 10% sensitivity scenarios were tested at the junction, these assess junction capacity in the AM and PM peaks, and use real time traffic flows, geometries and TEMPro growth factors to as closely as possible model the existing situation. The arms represent the following approaches to the junction:

A. Ruislip Road East (Eastbound);
B. Site Access and; and
C. Ruislip Road East (Westbound).

7.9.9 **Table 24** and **Table 25** show the model results for the AM and PM peak periods.

Table 24. AM Peak Results

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
2017 BASELINE: AM PEAK				
Access to Ruislip Road (Eastbound)	0.00	0.00	0.00	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.00	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.01	8.83	0.00	A
2022 DO MINIMUM: AM PEAK				
Access to Ruislip Road (Eastbound)	0.00	0.00	0.00	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.00	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.01	9.16	0.00	A
2022 WITH DEVELOPMENT: AM PEAK				
Access to Ruislip Road (Eastbound)	0.11	9.56	0.1	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.0	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.16	4.62	0.5	A
2022: WITH DEVELOPMENT: AM PEAK: 10% UPLIFT				
Access to Ruislip Road (Eastbound)	0.11	9.59	0.1	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.0	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.18	4.66	0.6	A

7.9.10 Throughout all scenarios the junction is operating with significant capacity in the AM peak, with free flowing traffic and 95% spare capacity. The low figures cited in the 'Baseline' and 'Do Minimum' scenarios are representative of the existing situation, as the access currently leads to 19 car parking spaces for staff only. As the majority of the Proposed Development traffic will be re-routed to this access, given it leads to and from the basement car park, there is an increase in RFC from 0.01 to 0.18 for right turn movements into the access junction in the With Development and 10% sensitivity scenario. However the significant spare capacity means that the existing access parameters can cope with the increased traffic flows and the junction design improvements assist with ensuring the junction still operates within capacity.

Table 25. PM Peak Results

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
2017 BASELINE: PM PEAK				
Access to Ruislip Road (Eastbound)	0.00	0.00	0.0	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.0	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.01	7.81	0.0	A
2022 DO MINIMUM: PM PEAK				
Access to Ruislip Road (Eastbound)	0.00	0.00	0.0	A
Access to Ruislip Road (Westbound)	0.00	0.00	0.0	A
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.01	8.00	0.0	A
2022: WITH DEVELOPMENT: PM PEAK				
Access to Ruislip Road (Eastbound)	0.12	10.75	0.2	B
Access to Ruislip Road (Westbound)	0.27	29.31	0.4	D
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.41	6.17	1.9	A
2022: WITH DEVELOPMENT: PM PEAK: 10% UPLIFT				

ARM	MAX RFC	MAX DELAY (S)	MAX QUEUE (PCU)	MAX LOS
Access to Ruislip Road (Eastbound)	0.13	11.15	0.2	B
Access to Ruislip Road (Westbound)	0.30	30.89	0.5	D
Ruislip Road East (W) to Access/Ruislip Road East (W)	0.44	6.52	2.1	A

7.9.11 As in the AM peak, the junction is operating with significant spare capacity, minimal delay and free flowing traffic in the 'Baseline' and 'Do Minimum' scenarios, which is concurrent of the existing access.

7.9.12 In the 'With Development' scenario, once the leisure centre and 10% of the residential traffic has been re-routed via this access, the max RFC increases to 0.30 for right turners out of the Application Site, with a maximum delay of 30.89 seconds, with the RFC increasing to 0.44 for right turners into the Application Site from Ruislip Road. This is busier than the AM peak, which is as expected as the leisure centre vehicle trips increase significantly in the PM compared to the AM. Despite this increased RFC, the junction still has significant spare capacity as it is estimated to operate at a maximum of 44% of capacity.

7.10 Modelling Summary

7.10.1 In summary, the two access points into the development are operating with significant spare capacity, with the re-directed leisure centre evening traffic flows on each access utilising the spare capacity observed in the 'Baseline' scenarios. This also includes the provision for the new Quietway, which alters the available carriageway space on the approach to the Ruislip Road East roundabout.

7.10.2 The Ruislip Road East roundabout is shown to operate close to capacity (0.96 RFC) in the AM peak period, on the Argyle Road (southbound) arm, once the development traffic is added to the network. However, this is only a 0.03 increase on the 'Do Minimum' scenario meaning that if the development was not constructed the roundabout would still be operating with less than 7% capacity.

7.10.3 A 10% sensitivity assessment was also undertaken, whereby 10% was added to the existing leisure centre trips to account for the improved facilities and potential increase in parking demand. This sensitivity test resulted in minor traffic increases on all the three junctions m models and exceptionally minor increases were seen across all factors, meaning that the junctions can cope with the additional demand the leisure centre may generate.

7.10.4 Overall, the development traffic is not expected to have a significant impact on the existing highway network, and the percentage increase on the baseline dissipates significantly after the Ruislip Road East roundabout, especially on approach to the A40 (**Figure 31** and **Figure 32**).

8. SUSTAINABLE TRANSPORT STRATEGY

8.1 General

8.1.1 This section summarises the sustainable transport strategy to be implemented at the Application Site. It should be read in conjunction with the Travel Plan prepared to accompany this application.

8.1.2 It is anticipated that the majority of Application Site users will travel to and from the Application Site by public transport due to the limited car parking provided as part of the Proposed Development and the proximity of local transport services. The Application Site may also generate linked trips, with residents expected to utilise the facilities at the leisure centre.

8.2 Site Accessibility

8.2.1 The Application Site is located within a PTAL area of 2 - 3, with the development itself wholly within PTAL 3 land which is classified as 'Moderate' (where 1a is the worst and 6b is the best PTAL achievable). It is located within accessible walking distance of five daytime bus services and two National Rail stations. Ealing Broadway and West Ealing London Underground stations are accessible via local buses. It is also noted that the addition of the Elizabeth Line at West Ealing will significantly improve journey times into central London and boost the PTAL of the surrounding area.

8.2.2 Local-level Census data (2011) specifies that 48% of residents within the same Middle Super Output Area (MSOA) travel to work by public transport whilst 3% cycle and 6% walk. It is noted that, due to the restricted / limited car parking provision and high quality cycle parking facilities to be provided as part of the Proposed Development, the proportion of trips made to and from the Application Site by public transport and bicycle is expected to be higher than that indicated by the Census data.

8.3 Parking

Parking Strategy

8.3.1 The Proposed Development has been designed to provide a car parking ratio of 0.27 spaces per unit (169 spaces to 615 residential units). Measures that facilitate limited levels of car parking have been identified throughout this report, such as cycle parking and a good level of access to public transport services. Furthermore, due to the units comprising of mainly one and two-bedroom flats it is thought unlikely that car ownership levels will be high.

Parking Restrictions

8.3.2 The Application Site is located off Ruislip Road East where limited parking is provided, the majority of the carriageway being either single or double yellow lined, though is unrestricted for a short stretch on the southern side of the carriageway to the east of the Application Site and on the surrounding residential streets e.g. Avalon Road.

8.3.3 It is not expected however that residents will need to park on street, due to the unit mix car ownership is expected to be low and those who require a parking space (for the larger flats) can park in the dedicated car park. Of a survey undertaken at a similar site, developed by the

Applicant with a similar unit mix, in East India only 13% of the tenants rented a parking space (144 dwelling development).

Cycle Parking

8.3.4 A total of 1,037 long stay cycle parking spaces will be provided at the Application Site for use by the residents (1,031) and staff (6) , these will be provided as two-tier Josta stands in covered locations or in cycle stores. This provision will be located in a safe, secure and sheltered location accessible only by either a keypad or fob.

8.3.5 131 short stay cycle parking spaces will be provided primarily as Sheffield stands within a sheltered external cycle store with signage provided to encourage visitor trips by cycle so as to encourage sustainable transport to and from the Application Site.

9. SUMMARY AND CONCLUSION

9.1.1 This document has been prepared by SYSTRA on behalf of BE:HERE EALING LIMITED ("the Applicant") in support of a Full Planning Application for the demolition of the existing Gurnell Leisure Centre ("the Application Site") and the construction of a new leisure centre alongside enabling residential uses.

9.1.2 This planning application for the redevelopment of the Application Site seeks full planning permission for:

> "Demolition of all existing buildings and re-provision of leisure centre, car and coach parking, BMX track and skate park, alongside enhancements and access to the existing park; and the erection of up to 498 sqm retail floorspace (Class A1-A3) and 615 residential units, with associated landscaping, playspace, cycle and car parking, refuse storage, access and servicing." (The Proposed Development).

9.1.3 The Proposed Development will provide a total of 344 car parking spaces, 175 for staff/visitors and 169 for residents. The basement parking will provide space for 335 parking spaces and 9 are located at ground level.

9.1.4 The existing vehicular accesses into the Application Site will be retained in their current locations as part of the development. The eastern access junction is two –way operation and will be the main point of entry for the Application Site. This access serves entry and exit from the basement car park serving both the residential and leisure centre land uses. The western access junction is two-way operation providing the entry and exit for residential servicing including refuse collection, drop off and deliveries as well as egress for coaches. Both the eastern and western access junctions include some widening to accommodate the required vehicle movements and in particular coaches.

9.1.5 Pedestrian access to the Application Site will be gained from Ruislip Road East for both residents and leisure users. Paths will be created through the MoL, guiding site users to their destination and providing an attractive route for members of the public wishing to access the MoL to the north.

9.1.6 1,037 long stay cycle parking spaces will be provided at the Application Site to meet the Draft New London Plan policy, as well as 131 short stay spaces, for use by residents and Leisure Centre visitors/ staff.

9.1.7 All delivery and servicing activity will be accommodated on-site via the western access for the leisure centre and via the eastern access for residential land uses. The internal roads have been designed to a sufficient width to enable these movements to occur.

9.1.8 All servicing activity will take place off-street, residential servicing and refuse vehicles will utilise the eastern access and deliveries for the leisure centre can dwell for a short time outside the leisure centre via the western access.

9.1.9 SYSTRA has undertaken a PERS and CLoS assessment, which highlighted the high quality pedestrian and cycling infrastructure in the area. Crossings and links in the vicinity were deemed to be appropriate for the footfall and the public transport waiting areas catered to the existing and future demand.

9.1.10 Based on TRICS data the Proposed Development is expected to generate 2,189 total person trips a day (including two-way trips), of which 436 will occur in the peak hours. Of those in the peak hours, 97 will be car trips, 170 will be via public transport, 110 by pedestrians and 3 by bicycle.

9.1.11 The Junctions 9 modelling undertaken for the two access points and the Ruislip Road East Roundabout, to the east of the Application Site, showed that the Development will have a negligible impact on the highway network. The two existing accesses are underutilised and the roundabout, whilst operating close to capacity in the AM peak, is a result of the exiting baseline traffic rather than the additional from the development. All models also show that any traffic generated as a result of the development will have a negligible effect on the local highway network, with all junctions operating within capacity.

9.1.12 In conclusion, the Proposed Development is acceptable in transport terms as it complies with planning policy, is located in a sustainable and well connected location, with the provision for active travel modes to promote sustainable travel to and from the Application Site.

SYSTRA

Appendix A – Pre-application Email Discussions

Transport & Access Email Notes

SYSTRA

Meeting: Wednesday 28th June 2017 with Francis Torto from London Borough of Ealing

From: Francis Torto [mailto:TORTOF@ealing.gov.uk]
Sent: 29 June 2017 11:26
To: SOHEILI Jamshid <jsoheili@systra.com>; MIZSER-JONES Holly <hmizserjones@systra.com>
Cc: Tudor Jones <Tudor.Jones@bartonwillmore.co.uk>; Alison.Crofton@be.co.uk; Paul Boulter <Paul.Boulter@be.co.uk>; WATSON David <dwatson@systra.com>; Jonathan Kirby <kirbyjo@ealing.gov.uk>
Subject: RE: Ealing: Gurnell Leisure Centre: Transport Meeting 28/6 [Filed 29 Jun 2017 11:31]

Good morning Jamshid,

Thanks for coming over yesterday and I found our discussions very useful. Please comments in red below:

Scheme Development

- FT aware of potential scheme changes however the transport/highways principles should remain valid, and assessment can continue - ok.

Single Node Access

- Systra presented the single node access option ie a large roundabout. It was agreed this would be unrealistic owing to impact on land take and scheme design. Given site constraints and requirement to accommodate basement parking and coaches, use of 2 existing access nodes remains the optimum solution. – This is subject to introducing physical access control measures at the secondary access.

June 2017 Surveys

- Systra provided an update on recent surveys and presented a summary, this included junction surveys, PERS, CLoS and link counts. Both PERS and CLoS audits are fine. FT agreed to provide any historic link data that LBE might have in order to establish historic flow trends for TA purposes. – We don't seem have much recent data but I have attached what is available.

Leisure Centre Visitations

- TA to represent any possible uplift in visitation/movements as a result of a new leisure facility next to a new residential complex , whether new or diverted trips.

Transport Assessment

- Agreed to continue with current Scoping principles, as revised scheme details emerge.

Meeting: Friday 22nd September 2017 with Francis Torto from London Borough of Ealing

Dear Francis,

Many thanks for the meeting earlier this afternoon and your valuable contributions, we discussed;

- Revised scheme and layout
- Parking provision, in effect same quantum
- Impact of Quietways
- Eastern and Western access nodes, we presented an updated western access layout to take into account Coaches and Leisure centre visitors wishing to access basement facility. We highlighted retaining the eastern node in its current position as per previously agreed principles, serving the residential m/storey parking facility. You requested an exercise to assess the 'pros & cons' of optimising this access location and moving it further east if feasible at all, SYSTRA to investigate although confirmed this may be costly and geometrically not feasible.
- All elements covered by previously submitted Transport Scoping Note remains valid, SYSTRA to submit a draft Transport Assessment Report in the next fortnight or so, and then arrange a meeting in SYSTRA offices to discuss any LBE comments before finalising the TA and supporting docs.
- Confirmed planning submission on or before 3/11, must focus efforts to meet this deadline.

Will be in touch shortly with a date for the next transport progress meeting,

Have a great weekend,

Best wishes,

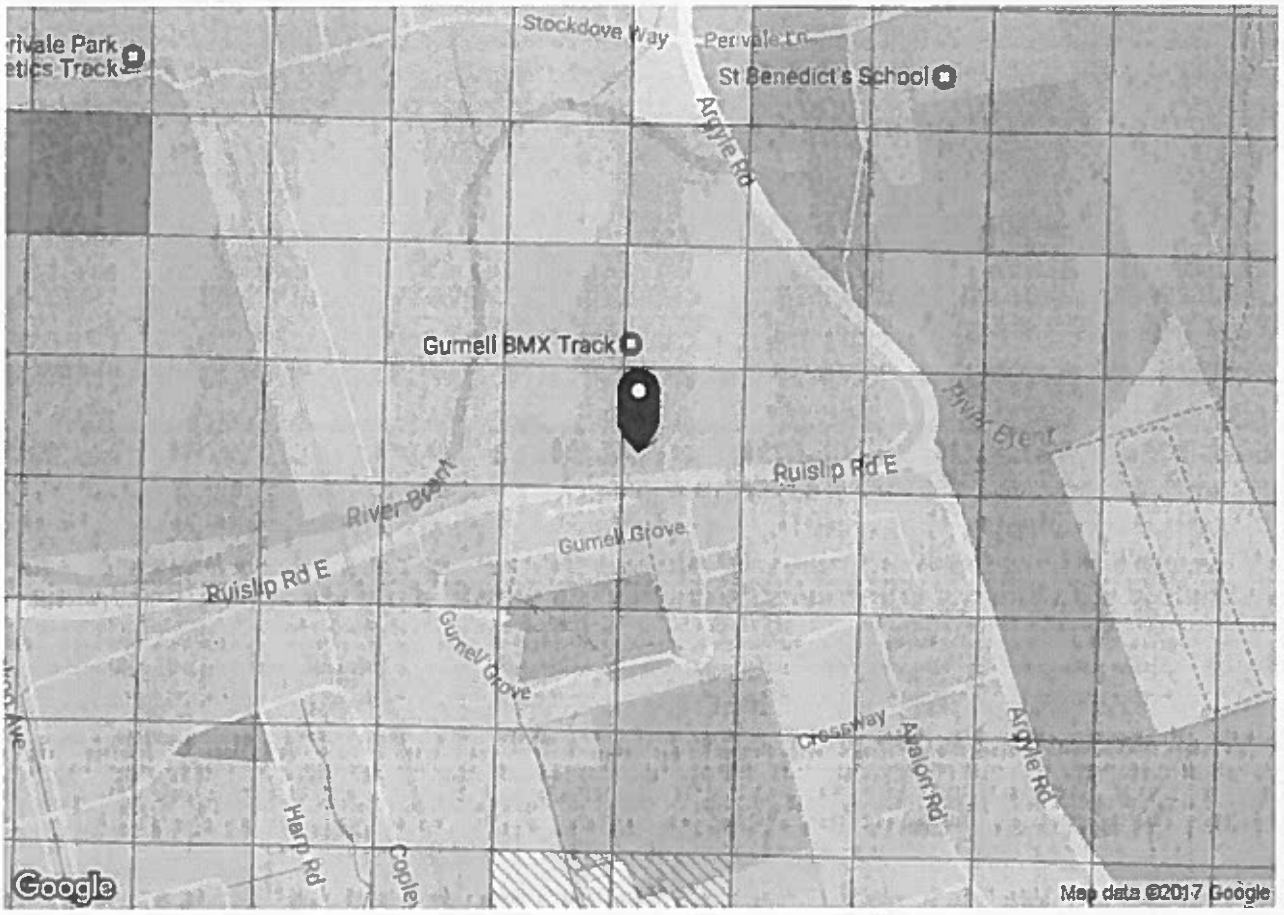
Jamshid

Jamshid Soheili
Projects Director
SYSTRA Consultancy Ltd, 5 Old Bailey, London EC4M 7BA

Direct Dial: +44 (0)203 882 6677, Mobile: +44 (0)7885 468 012,

Appendix B – PTAL Report

TRANSPORT FOR LONDON



PTAL output for Base Year
3

31 Ruislip Rd E, London W13 0HT, UK
Easting: 515911, Northing: 182422

Grid Cell: 90270

Report generated: 03/04/2017

Map key - PTAL

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

Map layers

PTAL (cell size: 100m)

Calculation Parameters

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

Calculation data

Mode	Stop	Route	Distance (metres)	Frequency(vph)	Walk Time (mins)	SWT (mins)	TAT (mins)	EDF	Weight	AI
Bus	RUISLIP RD E SWIM. POOL	E2	158.31	8	1.98	5.75	7.73	3.88	1	3.88
Bus	RUISLIP RD E SWIM. POOL	E9	158.31	5	1.98	8	9.98	3.01	0.5	1.5
Bus	RUISLIP RD E SWIM. POOL	E5	158.31	5	1.98	8	9.98	3.01	0.5	1.5
Bus	RUISLIP RD E SWIM. POOL	E10	158.31	4	1.98	9.5	11.48	2.61	0.5	1.31
Bus	RUISLIP RD E SWIM. POOL	E7	158.31	5	1.98	8	9.98	3.01	0.5	1.5
Bus	ARGYLE RD RUISLIP R EAST	297	388.47	6	4.86	7	11.86	2.53	0.5	1.27
									Total Grid Cell AI:	10.96

Appendix C – PERS and CLoS Outputs

Links (9)

Old Church Lane / Bridge			
Detailed Parameter	Overall Score	Weighted Score	Comments
Effective width	2	15	
Dropped kerbs	3	12	
Gradient	2	3	
Obstructions	3	12	
Permeability	3	4	
Legibility	3	4	
Lighting	3	12	
Tactile information	3	12	
Colour contrast	1	6	
Personal security	1	10	
Surface Quality	3	12	
User conflict	3	20	
Quality of environment	0	0	
Maintenance	2	3	
AVERAGE/TOTAL	**2.308**	**122**	

Perivale Lane			
Detailed Parameter	Overall Score	Weighted Score	Comments
Effective width		0	
Dropped kerbs	1	6	
Gradient	3	4	
Obstructions	2	9	
Permeability	1	2	
Legibility	1	2	
Lighting	3	12	
Tactile information	-3	-9	
Colour contrast	2	9	
Personal security	1	10	
Surface Quality	3	12	
User conflict	3	20	
Quality of environment	2	3	
Maintenance	3	4	
AVERAGE/TOTAL	**2**	**84**	

Public Footpath (Argyle Road to Perivale Lane)			
Detailed Parameter	Overall Score	Weighted Score	Comments
Effective width	3	20	
Dropped kerbs	0	0	
Gradient	2	3	
Obstructions	2	9	
Permeability	3	4	
Legibility	1	2	
Lighting	-3	-9	
Tactile information	-3	-9	
Colour contrast	3	12	
Personal security	-3	-15	
Surface Quality	2	9	
User conflict	2	15	
Quality of environment	2	3	
Maintenance	3	4	
AVERAGE/TOTAL	**1.00**	**48**	

Argyle Road (North)			
Detailed Parameter	Overall Score	Weighted Score	Comments
Effective width	3	20	
Dropped kerbs	2	9	
Gradient	3	4	Flat
Obstructions	2	9	
Permeability	1	2	
Legibility	2	3	
Lighting	3	12	
Tactile information	0	0	
Colour contrast	3	12	
Personal security	0	0	
Surface Quality	3	12	
User conflict	3	20	
Quality of environment	1	2	
Maintenance	2	3	
AVERAGE/TOTAL	**2**	**108**	

Argyle Road (South)

Detailed Parameter	Overall Score	Weighted Score	Comments
Effective width	2	15	
Dropped kerbs	3	12	
Gradient	2	3	
Obstructions	2	9	
Permeability	0	0	
Legibility	0	0	
Lighting	3	12	
Tactile information	2	9	
Colour contrast	2	9	
Personal security	1	10	
Surface Quality	2	9	
User conflict	2	15	
Quality of environment	1	2	
Maintenance	2	3	
AVERAGE/TOTAL	**1.71**	**108**	

Avalon Road			
Detailed Parameter	Overall Score	Weighted Score	Comments
Effective width	3	20	
Dropped kerbs	2	9	
Gradient	2	3	
Obstructions	2	9	
Permeability	1	2	
Legibility	2	3	
Lighting	3	12	
Tactile information	-3	-9	
Colour contrast	2	9	
Personal security	1	10	
Surface Quality	1	6	
User conflict	2	15	
Quality of environment	2	3	
Maintenance	2	3	
AVERAGE/TOTAL	**2**	**95**	

Gurnell Grove			
Detailed Parameter	Overall Score	Weighted Score	Comments

Effective width	3	20	
Dropped kerbs	3	12	
Gradient	2	3	
Obstructions	2	9	
Permeability	2	3	
Legibility	2	3	
Lighting	3	12	
Tactile information	-2	-6	
Colour contrast	3	12	
Personal security	0	0	
Surface Quality	3	12	
User conflict	2	15	
Quality of environment	1	2	
Maintenance	3	4	
AVERAGE/TOTAL	**2**	**101**	

Ruislip Road East - Site			
Detailed Parameter	Overall Score	Weighted Score	Comments
Effective width	3	20	
Dropped kerbs	3	12	
Gradient	2	3	
Obstructions	3	12	
Permeability	1	2	
Legibility	3	4	
Lighting	3	12	
Tactile information	3	12	
Colour contrast	3	12	
Personal security	2	15	
Surface Quality	3	12	
User conflict	1	10	
Quality of environment	2	3	
Maintenance	3	4	
AVERAGE/TOTAL	**3**	**133**	

Ruislip Road Easte (From Railway Track to Greenford)			
Detailed Parameter	Overall Score	Weighted Score	Comments
Effective width	3	20	
Dropped kerbs	3	12	
Gradient	3	4	

Obstructions	3	12	
Permeability	1	2	
Legibility	2	3	
Lighting	3	12	
Tactile information	3	12	
Colour contrast	3	12	
Personal security	2	15	
Surface Quality	3	12	
User conflict	1	10	
Quality of environment	2	3	
Maintenance	3	4	
AVERAGE/TOTAL	**3**	**133**	

	PERS Score	Weighted Score
Old Church Lane / Bridge	2.31	122.00
Perivale Lane	1.69	84.00
Public Footpath (Argyle Road to Perivale Lane)	1.00	48.00
Argyle Road (North)	2.00	108.00
Argyle Road (South)	**1.71**	**108**
Avalon Road	1.57	95.00
Gurnell Grove	**1.93**	**101**
Ruislip Road East - Site	2.50	133.00
Ruislip Road Easte (From Railway Track to Greenford)	**2.50**	**133**
AVERAGE	1.91	103.56

Crossings

Signalised Crossing Outside Leisure Centre			
Detailed Parameter	Overall Score	Weighted Score	Additional Comments
Crossing Provision	2	15	
Deviation from the Desire Line	3	12	
Performance	2	15	
Crossing capacity	2	3	
Delay	2	9	
Legibility	3	4	
Legibility to sensory impaired	3	12	
Dropped kerbs	3	12	
Gradient	3	4	
Obstructions	3	4	
Surface Quality	3	12	
Maintenance	3	4	
AVERAGE/TOTAL	**3**	**106**	

Zebra Crossing (By Staff Access)			
Detailed Parameter	Overall Score	Weighted Score	Comments
Crossing Provision	0	0	
Deviation from the Desire Line	3	12	
Performance	0	0	
Crossing capacity	2	3	
Delay	1	6	
Legibility	2	3	
Legibility to sensory impaired	-3	-9	
Dropped kerbs	3	12	
Gradient	3	4	
Obstructions	1	2	
Surface Quality	3	12	
Maintenance	2	3	
AVERAGE/TOTAL	**1**	**48**	

Ruislip Road/Greenford Road			
Detailed Parameter	Overall Score	Weighted Score	Comments
Crossing Provision	2	15	
Deviation from the Desire Line	3	12	
Performance	2	15	
Crossing capacity	2	3	
Delay	2	9	
Legibility	3	4	
Legibility to sensory impaired	3	12	
Dropped kerbs	3	12	
Gradient	1	2	On a hill
Obstructions	3	4	
Surface Quality	3	12	
Maintenance	2	3	
AVERAGE/TOTAL	**2**	**103**	

Argyle Road/Ruislip Road East			
Detailed Parameter	Overall Score	Weighted Score	Comments
Crossing Provision	0	0	
Deviation from the Desire Line	2	9	
Performance	1	10	Zebra Crossings
Crossing capacity	-1	-1	Some of the pavement was narrow
Delay	1	6	High Traffic flows, low speeds
Legibility	2	3	
Legibility to sensory impaired	-1	-3	Only tactiles
Dropped kerbs	2	9	
Gradient	3	4	
Obstructions	0	0	
Surface Quality	2	9	
Maintenance	2	3	
AVERAGE/TOTAL	**1**	**49**	

AVERAGES	**1.90**	**76.50**	

Crossings	PERS Score	Weighted Score
Signalised Crossing Outside Leisure Centre	2.67	106.00
Zebra Crossing (By Staff Access)	1.42	48.00
Ruislip Road/Greenford Road	2.42	103.00
Argyle Road/Ruislip Road East	1.08	49.00
AVERAGE	**1.90**	**76.50**

Public Transport Waiting Areas

Argyle Road (Stop AJ)			
Detailed Parameter	Overall Score	Weighted Score	Comments
Information to the waiting area	3	12	
Infrastructure to the waiting area	1	6	
Boarding public transport	2	15	
Information at the waiting area	3	12	
Safety perceptions	1	10	
Security measures	1	10	
Lighting	3	12	
Quality of the environment	2	3	
Maintenance and Cleanliness	1	2	
Waiting area comfort	2	9	
AVERAGE/TOTAL	**2**	**91**	

Ruislip Road East (Stop AA)			
Detailed Parameter	Overall Score	Weighted Score	Comments
Information to the waiting area	2	9	
Infrastructure to the waiting area	1	6	
Boarding public transport	1	10	
Information at the waiting area	2	9	
Safety perceptions	1	10	
Security measures	1	10	
Lighting	2	9	
Quality of the environment	1	2	
Maintenance and Cleanliness	1	2	
Waiting area comfort	2	9	
AVERAGE/TOTAL	**1**	**76**	

Ruilsip Road East (Stop RW)			
Detailed Parameter	Overall Score	Weighted Score	Comments
Information to the waiting area	3	12	
Infrastructure to the waiting area	3	12	

Boarding public transport	3	20	
Information at the waiting area	2	9	
Safety perceptions	2	15	
Security measures	1	10	
Lighting	3	12	
Quality of the environment	1	2	
Maintenance and Cleanliness	3	4	
Waiting area comfort	3	12	
AVERAGE/TOTAL	**2**	**108**	

Ruislip Road East (Stop RU)			
Detailed Parameter	Overall Score	Weighted Score	Comments
Information to the waiting area	3	12	
Infrastructure to the waiting area	1	6	
Boarding public transport	2	15	
Information at the waiting area	2	9	
Safety perceptions	1	10	
Security measures	1	10	
Lighting	3	12	
Quality of the environment	2	3	
Maintenance and Cleanliness	2	3	
Waiting area comfort	3	12	
AVERAGE/TOTAL	**2**	**92**	

	PERS Score	Weighted Score
Argyle Road (Stop AJ)	1.90	91
Ruislip Road East (Stop AA)	1.40	76
Ruilsip Road East (Stop RW)	2.40	108
Ruislip Road East (Stop RU)	2.00	92
	1.93	91.75

	Average PERS Score	Average Weighted Score
Crossings	1.90	76.50
Links	1.91	103.56
PT Waiting Areas	1.93	91.75

Cycling Level of Service assessment matrix

http://lcc.org.uk/pages/clos

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 1, highest = 2)*

Factor	Indicator	Critical * (fail)	Basic CLoS (score=0)	Good CLoS (score=1)	Highest CLoS (score=2)	Score	
Safety	**(max possible = 48)**						
Collision risk	Left/right hook at junctions	Heavy streams of turning traffic cut across main cyclist stream	Side road junctions frequent and/or untreated. Conflicting movements at major junctions not separated	Fewer side road junctions. Use of entry treatments. Conflicting movements on cycle routes are separated at major junctions	Side roads closed or footway is continuous. All conflicting streams separated at major junctions	1	x3
	Collision alongside or from behind	Nearside lane in range 3.2m to 4.0m	Cyclists in wide (4m+) nearside traffic lanes or cycle lanes less than 2m wide	Cyclists in dedicated cycle lanes at least 2m wide	Cyclists separated from motorised traffic	1	x3
	Kerbside activity or risk of collision with door	Cycle lanes <1.5m alongside parking / loading with no buffer	Frequent kerbside activity / effective width for cyclists of 1.5m	Less frequent kerbside activity / effective width for cyclists of 2m	No kerbside activity / No interaction with vehicles parking or loading	1	x3
	Other vehicle fails to give way or disobeys signals		Poor visibility, no route continuity across junctions and unclear priority	Clear route continuity through junctions, good visibility, priority clear for all users, visual priority for cyclists across side roads	Cycle priority at signalised junctions; visual priority for cyclists across side roads	1	
Feeling of safety	Separation from heavy traffic		Cyclists in general traffic lanes or cycle lanes less than 2m	Cycle lanes at least 2m wide	Cyclists physically separated from other traffic at junctions and on links, or no heavy freight	2	
	Speed of traffic (where cyclists are not separated)	85th percentile greater than 30mph	85th percentile greater than 25mph	85th percentile 20-25mph	85th percentile less than 20mph	1	x3
	Total volume of traffic (where cyclists are not separated)	>2,000 vehicles/ hour at peak	500 - 1,000 vehicles / hour at peak (but becomes 'critical' if 5 per cent or more are HGVs)	200 - 500 vehicles / hour at peak (but becomes 'basic' if 2 per cent or more are HGVs)	<200 vehicles / hour at peak	1	x3
	Interaction with HGVs	Frequent, close interaction	Frequent interaction	Occasional interaction	No interaction	0	x3
Social safety	Risk/fear of crime		High risk: 'ambush spots', loitering, poor maintenance	Low risk: area is open, well designed and maintained	No fear of crime: high quality streetscene and pleasant interaction	1	
	Lighting		Long stretches of darkness	Short stretches of darkness	Route lit thoroughly	2	
	Isolation		Route passes far from other activity for most of the day	Route close to activity, for all of the day	Route always overlooked	1	
	Impact of highway design on behaviour		Layout encourages aggressive behaviour	Layout controls behaviour throughout	Layout encourages civilised behaviour: negotiation and forgiveness	2	
						30	

Directness	**(max possible = 8)**						
Journey time	Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle ahead (including other cyclists)	Cyclists can usually pass other vehicles (including cyclists)	Cyclists can always pass other vehicles	2	
	Delay to cyclists at junctions		Journey time longer than motor vehicles	Journey time around the same as motor vehicles	Journey time less than motor vehicles	2	
Value of time	For cyclists compared to private car use (normal weather conditions)		VOT greater than private car use value due to some site specific factors	VOT equivalent to private car use value: similar delay-inducing factors and convenience	VOT less than private car use value due to attractive nature of route	2	
Directness	Deviation of route (against straight line or nearest main road alternative)		Deviation factor greater than 40 per cent	Deviation factor 20-40 per cent	Deviation factor less than 20 per cent	2	
						8	
Coherence	**(max possible = 6)**						
Connections	Ability to join/leave route safely and easily		Cyclists cannot connect to other routes without dismounting	Cyclists share connections with motor traffic	Cyclists have dedicated connections to other routes	1	
	Density of other routes		Network density mesh width >400m	Network density mesh width 250-400m	Network density mesh width <250m	1	
Way-finding	Signing		Basic direction signing (cyclists follow road signs and markings)	Some cycle-specific direction signing	Consistent signing of range of routes and destinations at decision points	2	
						4	
Comfort	**(max possible = 20)**						
Surface quality	Defects: non cycle friendly ironworks, raised/ sunken covers/gullies	Major defects	Many minor defects	Few minor defects	Smooth, high-grip surface	6	x3
Surface material	Construction		Hand-laid asphalt or unstable blocks/sets	Machine laid asphalt concrete or HRA, smooth blocks	Machine laid asphalt concrete; smooth and firm blocks undisturbed by turning vehicles	2	
Effective width without conflict	Clear nearside space in secondary position or motor vehicle speed/ volume in primary position	Secondary: <1.5m Primary: high motor vehicle flow	Secondary: 1.5m Primary: medium motor vehicle flow	Secondary: 1.5-2.0m Primary: low motor vehicle flow	Secondary: >2.0m Primary: no overtaking by motor vehicles	3	x3
Gradient	Uphill gradient over 100m		>5 per cent	3-5 per cent	<3 per cent	1	
Deflections	Pinch points caused by horizontal deflections		(Remaining) lane width <3.2m	(Remaining) lane width >4.0m or <3.0m (low motor vehicle flow)	Traffic is calmed so no need for horizontal deflections	2	
Undulations	Vertical deflections		Round top humps	Sinusoidal humps	No vertical deflections	1	
						15	

Attractiveness	**(max possible = 12)**					
Impact on walking	Pedestrian Comfort Level (PCL)		Reduction in PCL to C, D or E	No impact on pedestrian provision or PCL never lower than B	Pedestrian provision enhanced by cycling provision or PCL A	1
Greening	Green infrastructure or sustainable materials incorporated into design		No greening element	Some greening elements	Full integration of greening elements	1
Air quality	PM10 & NOX values referenced from concentration maps		Medium to High	Low to Medium	Low	1
Noise pollution	Noise level from recommended riding range		>78DB	65-78DB	<65DB	0
Minimise street clutter	Signing required to support scheme layout		Large amounts of regulatory signing to conform with complex layout	Moderate amount of signing, particularly around junctions	Minimal signing, eg for wayfinding purposes only	1
Secure cycle parking	Ease of access to secure cycle parking on- and off-street		No additional secure cycle parking	Minimum levels of cycle parking provided (ie to London Plan standards)	Cycle parking is provided to meet future demand and is of good quality and securely located	1
						5
Adaptability	**(max possible = 6)**					
Public transport integration	Smooth transition between modes or route continuity maintained through interchanges		No consideration for cyclists within interchange area	Cycle route continuity maintained through interchange and some cycle parking available	Cycle route continuity maintained and secure cycle parking provided Transport of cycles available.	1
Flexibility	Facility can be expanded or layouts adopted within area constraints		No adjustments are possible within constraints. Road works may require some closure	Links can be adjusted to meet demand but junctions are constrained by vehicle capacity limitations. Road works will not require closure; cycling will be maintained although route quality may be compromised to some extent	Layout can be adapted freely without constrain to meet demand or collision risk. Adjustments can be made to maintain full route quality when roadworks are present	2
Growth enabled	Route matches predicted usage and has exceedence built into the design		Provision does not match current levels of demand	Provision is matched to predicted demand flows	Provision has spare capacity for large increases in predicted cycle use	2
						5
TOTAL (max 100)						67

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)*

Cycling Level of Service assessment matrix

http://kcc.org.uk/pages/clos

*For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)

Factor	Indicator	Critical * (fail)	Basic CLoS (score=0)	Good CLoS (score=1)	Highest CLoS (score=2)	Score	
Safety	**(max possible = 48)**						
Collision risk	Left/right hook at junctions	Heavy streams of turning traffic cut across main cycling stream	Side road junctions frequent and/or untreated. Conflicting movements at major junctions not separated	Fewer side road junctions. Use of entry treatments. Conflicting movements on cycle routes are separated at major junctions	Side roads closed or footway is continuous. All conflicting streams separated at major junctions	1	x3
	Collision alongside or from behind	Nearside lane in range 3.2m to 4.0m	Cyclists in wide (4m+) nearside traffic lanes or cycle lanes less than 2m wide	Cyclists in dedicated cycle lanes at least 2m wide	Cyclists separated from motorised traffic	1	x3
	Kerbside activity or risk of collision with door	Cycle lanes <1.5m alongside parking / loading with no buffer	Frequent kerbside activity / effective width for cyclists of 1.5m	Less frequent kerbside activity / effective width for cyclists of 2m	No kerbside activity / No interaction with vehicles parking or loading	1	x3
	Other vehicle fails to give way or disobeys signals		Poor visibility, no route continuity across junctions and unclear priority	Clear route continuity through junctions, good visibility, priority clear for all users, visual priority for cyclists across side roads	Cycle priority at signalised junctions; visual priority for cyclists across side roads	1	
Feeling of safety	Separation from heavy traffic		Cyclists in general traffic lanes or cycle lanes less than 2m	Cycle lanes at least 2m wide	Cyclists physically separated from other traffic at junctions and on links, or no heavy freight	1	
	Speed of traffic (where cyclists are not separated)	85th percentile greater than 30mph	85th percentile greater than 25mph	85th percentile 20-25mph	85th percentile less than 20mph	6	x3
	Total volume of traffic (where cyclists are not separated)	>2,000 vehicles/ hour at peak	500 - 1,000 vehicles / hour at peak (but becomes 'critical' if 5 per cent or more are HGVs)	200 - 500 vehicles / hour at peak (but becomes 'basic' if 2 per cent or more are HGVs)	<200 vehicles / hour at peak	6	x3
	Interaction with HGVs	Frequent, close interaction	Frequent interaction	Occasional interaction	No interaction	3	x3
Social safety	Risk/fear of crime		High risk: 'ambush spots', loitering, poor maintenance	Low risk: area is open, well designed and maintained	No fear of crime: high quality streetscene and pleasant interaction	2	
	Lighting		Long stretches of darkness	Short stretches of darkness	Route lit thoroughly	1	
	Isolation		Route passes far from other activity for most of the day	Route close to activity, for all of the day	Route always overlooked	2	
	Impact of highway design on behaviour		Layout encourages aggressive behaviour	Layout controls behaviour throughout	Layout encourages civilised behaviour negotiation and forgiveness	1	
						32	

Directness	**(max possible = 8)**						
Journey time	Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle ahead (including other cyclists)	Cyclists can usually pass other vehicles (including cyclists)	Cyclists can always pass other vehicles	2	
	Delay to cyclists at junctions		Journey time longer than motor vehicles	Journey time around the same as motor vehicles	Journey time less than motor vehicles	2	
Value of time	For cyclists compared to private car use (normal weather conditions)		VOT greater than private car use value due to some site- specific factors	VOT equivalent to private car use value: similar delay-inducing factors and convenience	VOT less than private car use value due to attractive nature of route	2	
Directness	Deviation of route (against straight line or nearest main road alternative)		Deviation factor greater than 40 per cent	Deviation factor 20-40 per cent	Deviation factor less than 20 per cent	2	
						8	
Coherence	**(max possible = 5)**						
Connections	Ability to join/leave route safely and easily		Cyclists cannot connect to other routes without dismounting	Cyclists share connections with motor traffic	Cyclists have dedicated connections to other routes	2	
	Density of other routes		Network density mesh width >400m	Network density mesh width 250-400m	Network density mesh width <250m	1	
Way-finding	Signing		Basic direction signing (cyclists follow road signs and markings)	Some cycle-specific direction signing	Consistent signing of range of routes and destinations at decision points	2	
						5	
Comfort	**(max possible = 20)**						
Surface quality	Defects: non cycle friendly ironworks, raised/ sunken covers/gullies	Major defects	Many minor defects	Few minor defects	Smooth, high-grip surface	6	x3
Surface material	Construction		Hand-laid asphalt or unstable blocks/sets	Machine laid asphalt concrete or HRA; smooth blocks	Machine laid asphalt concrete; smooth and firm blocks undisturbed by turning vehicles	2	
Effective width without conflict	Clear nearside space in secondary position or motor vehicle speed/ volume in primary position	Secondary: <1.5m Primary: high motor vehicle flow	Secondary: 1.5m Primary: medium motor vehicle flow	Secondary: 1.5-2.0m Primary: low motor vehicle flow	Secondary: >2.0m Primary: no overtaking by motor vehicles	3	x3
Gradient	Uphill gradient over 100m		>5 per cent	3-5 per cent	<3 per cent	1	
Deflections	Pinch points caused by horizontal deflections		(Remaining) lane width <3.2m	(Remaining) lane width >4.0m or <3.0m (low motor vehicle flow)	Traffic is calmed so no need for horizontal deflections	0	
Undulations	Vertical deflections		Round top humps	Sinusoidal humps	No vertical deflections	1	
						13	

Attractiveness **(max possible = 12)**						
Impact on walking	Pedestrian Comfort Level (PCL)		Reduction in PCL to C, D or E	No impact on pedestrian provision or PCL never lower than B	Pedestrian provision enhanced by cycling provision or PCL A	1
Greening	Green infrastructure or sustainable materials incorporated into design		No greening element	Some greening elements	Full integration of greening elements	2
Air quality	PM10 & NOX values referenced from concentration maps		Medium to High	Low to Medium	Low	2
Noise pollution	Noise level from recommended ndrg range		>78DB	65-78DB	<65DB	2
Minimise street clutter	Signing required to support scheme layout		Large amounts of regulatory signing to conform with complex layout	Moderate amount of signing, particularly around junctions	Minimal signing, eg for wayfinding purposes only	1
Secure cycle parking	Ease of access to secure cycle parking on- and off-street		No additional secure cycle parking	Minimum levels of cycle parking provided (ie to London Plan standards)	Cycle parking is provided to meet future demand and is of good quality and securely located	1
						9
Adaptability **(max possible = 6)**						
Public transport integration	Smooth transition between modes or route continuity maintained through interchanges		No consideration for cyclists within interchange area	Cycle route continuity maintained through interchange and some cycle parking available	Cycle route continuity maintained and secure cycle parking provided. Transport of cycles available.	0
Flexibility	Facility can be expanded or layouts adopted within area constraints		No adjustments are possible within constraints. Road works may require some closure	Links can be adjusted to meet demand but junctions are constrained by vehicle capacity limitations. Road works will not require closure; cycling will be maintained although route quality may be compromised to some extent	Layout can be adapted freely without constrain to meet demand or collision risk. Adjustments can be made to maintain full route quality when roadworks are present	1
Growth enabled	Route matches predicted usage and has exceedence built into the design		Provision does not match current levels of demand	Provision is matched to predicted demand flows	Provision has spare capacity for large increases in predicted cycle use	1
TOTAL (max 300)						2
						6

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)*

Cycling Level of Service assessment matrix

http://lcc.org.uk/pages/clos

*For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)

Factor	Indicator	Critical * (fail)	Basic CLoS (score=0)	Good CLoS (score=1)	Highest CLoS (score=2)	Score	
Safety	**(max possible = 48)**						
Collision risk	Left/right hook at junctions	Heavy streams of turning traffic cut across main cycling stream	Side road junctions frequent and/or untreated. Conflicting movements at major junctions not separated	Fewer side road junctions. Use of entry treatments. Conflicting movements on cycle routes are separated at major junctions	Side roads closed or footway is continuous. All conflicting streams separated at major junctions	3	x3
	Collision alongside or from behind	Near side lane in range 3.2m to 4.0m	Cyclists in wide (4m+) nearside traffic lanes or cycle lanes less than 2m wide	Cyclists in dedicated cycle lanes at least 2m wide	Cyclists separated from motorised traffic	0	x3
	Kerbside activity or risk of collision with door	Cycle lanes <1.5m alongside parking / loading with no buffer	Frequent kerbside activity / effective width for cyclists of 1.5m	Less frequent kerbside activity / effective width for cyclists of 2m	No kerbside activity / No interaction with vehicles parking or loading	0	x3
	Other vehicle fails to give way or disobeys signals		Poor visibility, no route continuity across junctions and unclear priority	Clear route continuity through junctions, good visibility, priority clear for all users, visual priority for cyclists across side roads	Cycle priority at signalised junctions; visual priority for cyclists across side roads	0	
Feeling of safety	Separation from heavy traffic		Cyclists in general traffic lanes or cycle lanes less than 2m	Cycle lanes at least 2m wide	Cyclists physically separated from other traffic at junctions and on links, or no heavy freight	0	
	Speed of traffic (where cyclists are not separated)	85th percentile greater than 30mph	85th percentile greater than 25mph	85th percentile 20-25mph	85th percentile less than 20mph	3	x3
	Total volume of traffic (where cyclists are not separated)	>1,000 vehicles/ hour at peak	500 - 1,000 vehicles / hour at peak (but becomes 'critical' if 5 per cent or more are HGVs)	200 - 500 vehicles / hour at peak (but becomes 'basic' if 2 per cent or more are HGVs)	<200 vehicles / hour at peak	3	x3
	Interaction with HGVs	Frequent, close interaction	Frequent interaction	Occasional interaction	No interaction	3	x3
Social safety	Risk/fear of crime		High risk: 'ambush spots', loitering, poor maintenance	Low risk: area is open, well designed and maintained	No fear of crime: high quality streetscene and pleasant interaction	2	
	Lighting		Long stretches of darkness	Short stretches of darkness	Route lit thoroughly	2	
	Isolation		Route passes far from other activity for most of the day	Route close to activity, for all of the day	Route always overlooked	2	
	Impact of highway design on behaviour		Layout encourages aggressive behaviour	Layout controls behaviour throughout	Layout encourages civilised behaviour negotiation and forgiveness	1	
						19	

Directness	**(max possible = 8)**						
Journey time	Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle ahead (including other cyclists)	Cyclists can usually pass other vehicles (including cyclists)	Cyclists can always pass other vehicles	1	
	Delay to cyclists at junctions		Journey time longer than motor vehicles	Journey time around the same as motor vehicles	Journey time less than motor vehicles	1	
Value of time	For cyclists compared to private car use (normal weather conditions)		VOT greater than private car use value due to some site specific factors	VOT equivalent to private car use value; similar delay-inducing factors and convenience	VOT less than private car use value due to attractive nature of route	1	
Directness	Deviation of route (against straight line or nearest main road alternative)		Deviation factor greater than 40 per cent	Deviation factor 20-40 per cent	Deviation factor less than 20 per cent	2	
						5	
Coherence	**(max possible = 6)**						
Connections	Ability to join/leave route safely and easily		Cyclists cannot connect to other routes without dismounting	Cyclists share connections with motor traffic	Cyclists have dedicated connections to other routes	1	
	Density of other routes		Network density mesh width >400m	Network density mesh width 250 400m	Network density mesh width <250m	0	
Way finding	Signing		Basic direction signing (cyclists follow road signs and markings)	Some cycle-specific direction signing	Consistent signing of range of routes and destinations at decision points	0	
						1	
Comfort	**(max possible = 20)**						
Surface quality	Defects: non cycle friendly ironworks, raised/ sunken covers/gullies	Major defects	Many minor defects	Few minor defects	Smooth, high-grip surface	6	x3
Surface material	Construction		Hand-laid asphalt or unstable blocks/sets	Machine laid asphalt concrete or HRA, smooth blocks	Machine laid asphalt concrete; smooth and firm blocks undisturbed by turning vehicles	1	
Effective width without conflict	Clear nearside space in secondary position or motor vehicle speed/ volume in primary position	Secondary: <1.5m Primary: high motor vehicle flow	Secondary: 1.5m Primary: medium motor vehicle flow	Secondary: 1.5-2.0m Primary: low motor vehicle flow	Secondary: >2.0m Primary: no overtaking by motor vehicles	0	x3
Gradient	Uphill gradient over 100m		>5 per cent	3-5 per cent	<3 per cent	1	
Deflections	Pinch points caused by horizontal deflections		(Remaining) lane width <3.2m	(Remaining) lane width >4.0m or <3.0m (low motor vehicle flow)	Traffic is calmed so no need for horizontal deflections	0	
Undulations	Vertical deflections		Round top humps	Sinusoidal humps	No vertical deflections	2	
						10	

Attractiveness	**(max possible = 12)**					
Impact on walking	Pedestrian Comfort Level (PCL)		Reduction in PCL to C, D or E	No impact on pedestrian provision or PCL never lower than B	Pedestrian provision enhanced by cycling provision or PCL A	1
Greening	Green infrastructure or sustainable materials incorporated into design		No greening element	Some greening elements	Full integration of greening elements	1
Air quality	PM10 & NOX values referenced from concentration maps		Medium to High	Low to Medium	Low	1
Noise pollution	Noise level from recommended riding range		>78DB	65-78DB	<65DB	1
Minimise street clutter	Signing required to support scheme layout		Large amounts of regulatory signing to conform with complex layout	Moderate amount of signing, particularly around junctions	Minimal signing, eg for wayfinding purposes only	2
Secure cycle parking	Ease of access to secure cycle parking on- and off-street		No additional secure cycle parking	Minimum levels of cycle parking provided (ie to London Plan standards)	Cycle parking is provided to meet future demand and is of good quality and securely located	1
						7
Adaptability	**(max possible = 6)**					
Public transport integration	Smooth transition between modes or route continuity maintained through interchanges		No consideration for cyclists within interchange area	Cycle route continuity maintained through interchange and some cycle parking available	Cycle route continuity maintained and secure cycle parking provided. Transport of cycles available.	0
Flexibility	Facility can be expanded or layouts adopted within area constraints		No adjustments are possible within constraints. Road works may require some closure	Links can be adjusted to meet demand but junctions are constrained by vehicle capacity limitations. Road works will not require closure; cycling will be maintained although route quality may be compromised to some extent	Layout can be adapted freely without constrain to meet demand or collision risk. Adjustments can be made to maintain full route quality when roadworks are present	1
Growth enabled	Route matches predicted usage and has exceedence built into the design		Provision does not match current levels of demand	Provision is matched to predicted demand flows	Provision has spare capacity for large increases in predicted cycle use	1
						2
TOTAL (max 100)						**44**

For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)

Cycling Level of Service assessment matrix

http://lcc.org.uk/pages/clos

*For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)

Factor	Indicator	Critical * (fail)	Basic CLoS (score=0)	Good CLoS (score=1)	Highest CLoS (score=2)	Score	
Safety	**(max possible = 48)**						
Collision risk	Left/right hook at junctions	Heavy streams of turning traffic cut across main cycling stream	Side road junctions frequent and/or untreated. Conflicting movements at major junctions not separated	Fewer side road junctions. Use of entry treatments. Conflicting movements on cycle routes are separated at major junctions	Side roads closed or footway is continuous. All conflicting streams separated at major junctions	6	x2
	Collision alongside or from behind	Nearside lane in range 3.2m to 4.0m	Cyclists in wide (4m+) nearside traffic lanes or cycle lanes less than 2m wide	Cyclists in dedicated cycle lanes at least 2m wide	Cyclists separated from motorised traffic	0	x3
	Kerbside activity or risk of collision with door	Cycle lanes <1.5m alongside parking / loading with no buffer	Frequent kerbside activity / effective width for cyclists of 1.5m	Less frequent kerbside activity / effective width for cyclists of 2m	No kerbside activity / No interaction with vehicles parking or loading	0	x3
	Other vehicle fails to give way or disobeys signals		Poor visibility, no route continuity across junctions and unclear priority	Clear route continuity through junctions, good visibility, priority clear for all users, visual priority for cyclists across side roads	Cycle priority at signalised junctions; visual priority for cyclists across side roads	1	
Feeling of safety	Separation from heavy traffic		Cyclists in general traffic lanes or cycle lanes less than 2m	Cycle lanes at least 2m wide	Cyclists physically separated from other traffic at junctions and on links, or no heavy freight	0	
	Speed of traffic (where cyclists are not separated)	85th percentile greater than 30mph	85th percentile greater than 25mph	85th percentile 20-25mph	85th percentile less than 20mph	3	x3
	Total volume of traffic (where cyclists are not separated)	>1,000 vehicles/ hour at peak	500 - 1,000 vehicles / hour at peak (but becomes 'critical' if 5 per cent or more are HGVs)	200 - 500 vehicles / hour at peak (but becomes 'basic' if 2 per cent or more are HGVs)	<200 vehicles / hour at peak	3	x3
	Interaction with HGVs	Frequent; close interaction	Frequent interaction	Occasional interaction	No interaction	3	x1
Social safety	Risk/fear of crime		High risk. 'ambush spots', loitering, poor maintenance	Low risk: area is open, well designed and maintained	No fear of crime: high quality streetscene and pleasant interaction	1	
	Lighting		Long stretches of darkness	Short stretches of darkness	Route lit thoroughly	2	
	Isolation		Route passes far from other activity for most of the day	Route close to activity, for all of the day	Route always overlooked	2	
	Impact of highway design on behaviour		Layout encourages aggressive behaviour	Layout controls behaviour throughout	Layout encourages civilised behaviour: negotiation and forgiveness	0	
						21	

Directness	**(max possible = 8)**						
Journey time	Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle ahead (including other cyclists)	Cyclists can usually pass other vehicles (including cyclists)	Cyclists can always pass other vehicles	1	
	Delay to cyclists at junctions		Journey time longer than motor vehicles	Journey time around the same as motor vehicles	Journey time less than motor vehicles	2	
Value of time	For cyclists compared to private car use (normal weather conditions)		VOT greater than private car use value due to some site -specific factors	VOT equivalent to private car use value: similar delay-inducing factors and convenience	VOT less than private car use value due to attractive nature of route	1	
Directness	Deviation of route (against straight line or nearest main road alternative)		Deviation factor greater than 40 per cent	Deviation factor 20-40 per cent	Deviation factor less than 20 per cent	2	
						6	
Coherence	**(max possible = 6)**						
Connections	Ability to join/leave route safely and easily		Cyclists cannot connect to other routes without dismounting	Cyclists share connections with motor traffic	Cyclists have dedicated connections to other routes	1	
	Density of other routes		Network density mesh width >400m	Network density mesh width 250-400m	Network density mesh width <250m	1	
Way-finding	Signing		Basic direction signing (cyclists follow road signs and markings)	Some cycle-specific direction signing	Consistent signing of range of routes and destinations at decision points	0	
						2	
Comfort	**(max possible = 20)**						
Surface quality	Defects: non cycle friendly ironworks, raised/ sunken covers/gullies	Major defects	Many minor defects	Few minor defects	Smooth, high-grip surface	3	x2
Surface material	Construction		Hand-laid asphalt or unstable blocks/sets	Machine laid asphalt concrete or HRA; smooth blocks	Machine laid asphalt concrete; smooth and firm blocks undisturbed by turning vehicles	1	
Effective width without conflict	Clear nearside space in secondary position or motor vehicle speed/ volume in primary position	Secondary: <1.5m Primary: high motor vehicle flow	Secondary: 1.5m Primary: medium motor vehicle flow	Secondary: 1.5-2.0m Primary: low motor vehicle flow	Secondary: >2.0m Primary: no overtaking by motor vehicles	0	x3
Gradient	Uphill gradient over 100m		>5 per cent	3-5 per cent	<3 per cent	0	
Deflections	Pinch points caused by horizontal deflections		(Remaining) lane width <3.2m	(Remaining) lane width >4.0m or <3.0m (low motor vehicle flow)	Traffic is calmed so no need for horizontal deflections	0	
Undulations	Vertical deflections		Round top humps	Sinusoidal humps	No vertical deflections	2	
						6	

Attractiveness	**(max possible = 12)**					
Impact on walking	Pedestrian Comfort Level (PCL)		Reduction in PCL to C, D or E	No impact on pedestrian provision or PCL never lower than B	Pedestrian provision enhanced by cycling provision or PCL A	1
Greening	Green infrastructure or sustainable materials incorporated into design		No greening element	Some greening elements	Full integration of greening elements	1
Air quality	PM10 & NOx values referenced from concentration maps		Medium to High	Low to Medium	Low	2
Noise pollution	Noise level from recommended riding range		>78DB	65-78DB	<65DB	1
Minimise street clutter	Signing required to support scheme layout		Large amounts of regulatory signing to conform with complex layout	Moderate amount of signing, particularly around junctions	Minimal signing, eg for wayfinding purposes only	2
Secure cycle parking	Ease of access to secure cycle parking on- and off-street		No additional secure cycle parking	Minimum levels of cycle parking provided (ie to London Plan standards)	Cycle parking is provided to meet future demand and is of good quality and securely located	1
						8
Adaptability	**(max possible = 6)**					
Public transport integration	Smooth transition between modes or route continuity maintained through interchanges		No consideration for cyclists within interchange area	Cycle route continuity maintained through interchange and some cycle parking available	Cycle route continuity maintained and secure cycle parking provided. Transport of cycles available.	0
Flexibility	Facility can be expanded or layouts adopted within area constraints		No adjustments are possible within constraints. Road works may require some closure	Links can be adjusted to meet demand but junctions are constrained by vehicle capacity limitations. Road works will not require closure, cycling will be maintained although route quality may be compromised to some extent	Layout can be adapted freely without constrain to meet demand or collision risk. Adjustments can be made to maintain full route quality when roadworks are present	2
Growth enabled	Route matches predicted usage and has exceedence built into the design		Provision does not match current levels of demand	Provision is matched to predicted demand flows	Provision has spare capacity for large increases in predicted cycle use	1
						3
TOTAL (max 100)						**46**

For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 1, highest = 6)

Cycling Level of Service assessment matrix

http://lcc.org.uk/pages/clos

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 1, highest = 6)*

Factor	Indicator	Critical * (fail)	Basic CLoS (score=0)	Good CLoS (score=1)	Highest CLoS (score=2)	Score	
Safety	(max possible = 48)						
Collision risk	Left/right hook at junctions	Heavy streams of turning traffic cut across main cycling stream	Side road junctions frequent and/or untreated. Conflicting movements at major junctions not separated	Fewer side road junctions. Use of entry treatments. Conflicting movements on cycle routes are separated at major junctions	Side roads closed or footway is continuous. All conflicting streams separated at major junctions	1	x3
	Collision alongside or from behind	Nearside lane in range 3.2m to 4.0m	Cyclists in wide (4m+) nearside traffic lanes or cycle lanes less than 2m wide	Cyclists in dedicated cycle lanes at least 2m wide	Cyclists separated from motorised traffic	0	x3
	Kerbside activity or risk of collision with door	Cycle lanes <1.5m alongside parking / loading with no buffer	Frequent kerbside activity / effective width for cyclists of 1.5m	Less frequent kerbside activity / effective width for cyclists of 2m	No kerbside activity / No interaction with vehicles parking or loading	0	x3
	Other vehicle fails to give way or disobeys signals		Poor visibility, no route continuity across junctions and unclear priority	Clear route continuity through junctions, good visibility, priority clear for all users, visual priority for cyclists across side roads	Cycle priority at signalised junctions; visual priority for cyclists across side roads	1	
Feeling of safety	Separation from heavy traffic		Cyclists in general traffic lanes or cycle lanes less than 2m	Cycle lanes at least 2m wide	Cyclists physically separated from other traffic at junctions and on links, or no heavy freight	0	
	Speed of traffic (where cyclists are not separated)	85th percentile greater than 30mph	85th percentile greater than 25mph	85th percentile 20-25mph	85th percentile less than 20mph	0	x3
	Total volume of traffic (where cyclists are not separated)	>1,000 vehicles / hour at peak	500 - 1,000 vehicles / hour at peak (but becomes 'critical' if 5 per cent or more are HGVs)	200 - 500 vehicles / hour at peak (but becomes "basic" if 2 per cent or more are HGVs)	<200 vehicles / hour at peak	0	x2
	Interaction with HGVs	Frequent, close interaction	Frequent interaction	Occasional interaction	No interaction	3	x3
Social safety	Risk/fear of crime		High risk: 'ambush spots', loitering, poor maintenance	Low risk: area is open, well designed and maintained	No fear of crime: high quality streetscene and pleasant interaction	2	
	Lighting		Long stretches of darkness	Short stretches of darkness	Route lit thoroughly	2	
	Isolation		Route passes far from other activity for most of the day	Route close to activity, for all of the day	Route always overlooked	2	
	Impact of highway design on behaviour		Layout encourages aggressive behaviour	Layout controls behaviour throughout	Layout encourages civilised behaviour: negotiation and forgiveness	1	
						14	

Directness	**(max possible = 8)**						
Journey time	Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle ahead (including other cyclists)	Cyclists can usually pass other vehicles (including cyclists)	Cyclists can always pass other vehicles	0	
	Delay to cyclists at junctions		Journey time longer than motor vehicles	Journey time around the same as motor vehicles	Journey time less than motor vehicles	1	
Value of time	For cyclists compared to private car use (normal weather conditions)		VOT greater than private car use value due to some site- specific factors	VOT equivalent to private car use value: similar delay-inducing factors and convenience	VOT less than private car use value due to attractive nature of route	1	
Directness	Deviation of route (against straight line or nearest main road alternative)		Deviation factor greater than 40 per cent	Deviation factor 20-40 per cent	Deviation factor less than 20 per cent	2	
						4	
Coherence	**(max possible = 6)**						
Connections	Ability to join/leave route safely and easily		Cyclists cannot connect to other routes without dismounting	Cyclists share connections with motor traffic	Cyclists have dedicated connections to other routes	2	
	Density of other routes		Network density mesh width >400m	Network density mesh width 250 400m	Network density mesh width <250m	1	
Way-finding	Signing		Basic direction signing (cyclists follow road signs and markings)	Some cycle-specific direction signing	Consistent signing of range of routes and destinations at decision points	1	
						4	
Comfort	**(max possible = 20)**						
Surface quality	Defects: non cycle friendly ironworks, raised/ sunken covers/gullies	Major defects	Many minor defects	Few minor defects	Smooth, high-grip surface	0	x3
Surface material	Construction		Hand-laid asphalt or unstable blocks/sets	Machine laid asphalt concrete or HRA; smooth blocks	Machine laid asphalt concrete; smooth and firm blocks undisturbed by turning vehicles	2	
Effective width without conflict	Clear nearside space in secondary position or motor vehicle speed/ volume in primary position	Secondary: <1.5m Primary: high motor vehicle flow	Secondary: 1.5m Primary: medium motor vehicle flow	Secondary: 1.5–2.0m Primary: low motor vehicle flow	Secondary: >2.0m Primary: no overtaking by motor vehicles	0	x3
Gradient	Uphill gradient over 100m		>5 per cent	3-5 per cent	<3 per cent	2	
Deflections	Pinch points caused by horizontal deflections		(Remaining) lane width <3.2m	(Remaining) lane width >4.0m or <3.0m (low motor vehicle flow)	Traffic is calmed so no need for horizontal deflections	1	
Undulations	Vertical deflections		Round top humps	Sinusoidal humps	No vertical deflections	2	
						13	

Attractiveness	**(max possible = 12)**					
Impact on walking	Pedestrian Comfort Level (PCL)		Reduction in PCL to C, D or E	No impact on pedestrian provision or PCL never lower than B	Pedestrian provision enhanced by cycling provision or PCL A	1
Greening	Green infrastructure or sustainable materials incorporated into design		No greening element	Some greening elements	Full integration of greening elements	1
Air quality	PM10 & NOX values referenced from concentration maps		Medium to High	Low to Medium	Low	1
Noise pollution	Noise level from recommended riding range		>78DB	65-78DB	<65DB	1
Minimise street clutter	Signing required to support scheme layout		Large amounts of regulatory signing to conform with complex layout	Moderate amount of signing, particularly around junctions	Minimal signing, eg for wayfinding purposes only	2
Secure cycle parking	Ease of access to secure cycle parking on- and off-street		No additional secure cycle parking	Minimum levels of cycle parking provided (ie to London Plan standards)	Cycle parking is provided to meet future demand and is of good quality and securely located	0
						6
Adaptability	**(max possible = 6)**					
Public transport integration	Smooth transition between modes or route continuity maintained through interchanges		No consideration for cyclists within interchange area	Cycle route continuity maintained through interchange and some cycle parking available	Cycle route continuity maintained and secure cycle parking provided. Transport of cycles available.	0
Flexibility	Facility can be expanded or layouts adopted within area constraints		No adjustments are possible within constraints. Road works may require some closure	Links can be adjusted to meet demand but junctions are constrained by vehicle capacity limitations. Road works will not require closure; cycling will be maintained although route quality may be compromised to some extent	Layout can be adapted freely without constrain to meet demand or collision risk. Adjustments can be made to maintain full route quality when roadworks are present	1
Growth enabled	Route matches predicted usage and has exceedence built into the design		Provision does not match current levels of demand	Provision is matched to predicted demand flows	Provision has spare capacity for large increases in predicted cycle use	1
						2
TOTAL (max 100)						49

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)*

Cycling Level of Service assessment matrix

http://lcc.org.uk/pages/clos

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)*

Factor	Indicator	Critical * (fail)	Basic CLoS (score=0)	Good CLoS (score=1)	Highest CLoS (score=2)	Score	
Safety	**(max possible = 48)**						
Collision risk	Left/right hook at junctions	Heavy streams of turning traffic cut across main cycling stream	Side road junctions frequent and/or untreated. Conflicting movements at major junctions not separated	Fewer side road junctions. Use of entry treatments. Conflicting movements on cycle routes are separated at major junctions	Side roads closed or footway is continuous. All conflicting streams separated at major junctions	1	x3
	Collision alongside or from behind	Nearside lane in range 3.2m to 4.0m	Cyclists in wide (4m+) nearside traffic lanes or cycle lanes less than 2m wide	Cyclists in dedicated cycle lanes at least 2m wide	Cyclists separated from motorised traffic	1	x3
	Kerbside activity or risk of collision with door	Cycle lanes <1.5m alongside parking / loading with no buffer	Frequent kerbside activity / effective width for cyclists of 1.5m	Less frequent kerbside activity / effective width for cyclists of 2m	No kerbside activity / No interaction with vehicles parking or loading	0	x3
	Other vehicle fails to give way or disobeys signals		Poor visibility, no route continuity across junctions and unclear priority	Clear route continuity through junctions, good visibility, priority clear for all users, visual priority for cyclists across side roads	Cycle priority at signalised junctions; visual priority for cyclists across side roads	1	
Feeling of safety	Separation from heavy traffic		Cyclists in general traffic lanes or cycle lanes less than 2m	Cycle lanes at least 2m wide	Cyclists physically separated from other traffic at junctions and on links, or no heavy freight	2	
	Speed of traffic (where cyclists are not separated)	85th percentile greater than 30mph	85th percentile greater than 25mph	85th percentile 20-25mph	85th percentile less than 20mph	6	x3
	Total volume of traffic (where cyclists are not separated)	>1,000 vehicles/ hour at peak	500 - 1,000 vehicles / hour at peak (but becomes 'critical' if 5 per cent or more are HGVs)	200 - 500 vehicles / hour at peak (but becomes 'basic' if 2 per cent or more are HGVs)	<200 vehicles / hour at peak	6	x3
	Interaction with HGVs	Frequent, close interaction	Frequent interaction	Occasional interaction	No interaction	6	x3
Social safety	Risk/fear of crime		High risk: 'ambush spots', loitering, poor maintenance	Low risk: area is open, well designed and maintained	No fear of crime: high quality streetscene and pleasant interaction	1	
	Lighting		Long stretches of darkness	Short stretches of darkness	Route lit thoroughly	2	
	Isolation		Route passes far from other activity for most of the day	Route close to activity, for all of the day	Route always overlooked	2	
	Impact of highway design on behaviour		Layout encourages aggressive behaviour	Layout controls behaviour throughout	Layout encourages civilised behaviour negotiation and forgiveness	2	
						34	

Directness	**(max possible = 8)**						
Journey time	Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle ahead (including other cyclists)	Cyclists can usually pass other vehicles (including cyclists)	Cyclists can always pass other vehicles	0	
	Delay to cyclists at junctions		Journey time longer than motor vehicles	Journey time around the same as motor vehicles	Journey time less than motor vehicles	1	
Value of time	For cyclists compared to private car use (normal weather conditions)		VOT greater than private car use value due to some site- specific factors	VOT equivalent to private car use value: similar delay-inducing factors and convenience	VOT less than private car use value due to attractive nature of route	1	
Directness	Deviation of route (against straight line or nearest main road alternative)		Deviation factor greater than 40 per cent	Deviation factor 20-40 per cent	Deviation factor less than 20 per cent	2	
						4	
Coherence	**(max possible = 6)**						
Connections	Ability to join/leave route safely and easily		Cyclists cannot connect to other routes without dismounting	Cyclists share connections with motor traffic	Cyclists have dedicated connections to other routes	1	
	Density of other routes		Network density mesh width >400m	Network density mesh width 250-400m	Network density mesh width <250m	1	
Way-finding	Signing		Basic direction signing (cyclists follow road signs and markings)	Some cycle-specific direction signing	Consistent signing of range of routes and destinations at decision points	2	
						4	
Comfort	**(max possible = 20)**						
Surface quality	Defects: non cycle friendly ironworks, raised/ sunken covers/gullies	Major defects	Many minor defects	Few minor defects	Smooth, high-grip surface	6	x3
Surface material	Construction		Hand-laid asphalt or unstable blocks/sets	Machine laid asphalt concrete or HRA; smooth blocks	Machine laid asphalt concrete; smooth and firm blocks undisturbed by turning vehicles	1	
Effective width without conflict	Clear nearside space in secondary position or motor vehicle speed/ volume in primary position	Secondary: <1.5m Primary: high motor vehicle flow	Secondary: 1.5m Primary: medium motor vehicle flow	Secondary: 1.5-2.0m Primary: low motor vehicle flow	Secondary: >2.0m Primary: no overtaking by motor vehicles	5	x3
Gradient	Uphill gradient over 100m		>5 per cent	3-5 per cent	<3 per cent	2	
Deflections	Pinch points caused by horizontal deflections		(Remaining) lane width <3.2m	(Remaining) lane width >4.0m or <3.0m (low motor vehicle flow)	Traffic is calmed so no need for horizontal deflections	2	
Undulations	Vertical deflections		Round top humps	Sinusoidal humps	No vertical deflections	2	
						16	

Attractiveness	**(max possible = 12)**					
Impact on walking	Pedestrian Comfort Level (PCL)		Reduction in PCL to C, D or E	No impact on pedestrian provision or PCL never lower than B	Pedestrian provision enhanced by cycling provision or PCL A	1
Greening	Green infrastructure or sustainable materials incorporated into design		No greening element	Some greening elements	Full integration of greening elements	1
Air quality	PM10 & NOX values referenced from concentration maps		Medium to High	Low to Medium	Low	2
Noise pollution	Noise level from recommended riding range		>78DB	65-78DB	<65DB	2
Minimise street clutter	Signing required to support scheme layout		Large amounts of regulatory signing to conform with complex layout	Moderate amount of signing, particularly around junctions	Minimal signing, eg for wayfinding purposes only	2
Secure cycle parking	Ease of access to secure cycle parking on- and off-street		No additional secure cycle parking	Minimum levels of cycle parking provided (ie to London Plan standards)	Cycle parking is provided to meet future demand and is of good quality and securely located	1
						9
Adaptability	**(max possible = 6)**					
Public transport integration	Smooth transition between modes or route continuity maintained through interchanges		No consideration for cyclists within interchange area	Cycle route continuity maintained through interchange and some cycle parking available	Cycle route continuity maintained and secure cycle parking provided. Transport of cycles available.	1
Flexibility	Facility can be expanded or layouts adopted within area constraints		No adjustments are possible within constraints. Road works may require some closure	Links can be adjusted to meet demand but junctions are constrained by vehicle capacity limitations. Road works will not require closure; cycling will be maintained although route quality may be compromised to some extent	Layout can be adapted freely without constrain to meet demand or collision risk. Adjustments can be made to maintain full route quality when roadworks are present	0
Growth enabled	Route matches predicted usage and has exceedence built into the design		Provision does not match current levels of demand	Provision is matched to predicted demand flows	Provision has spare capacity for large increases in predicted cycle use	1
						2
TOTAL (max 100)						

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)*

Cycling Level of Service assessment matrix

http://lcc.org.uk/pages/clos

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)*

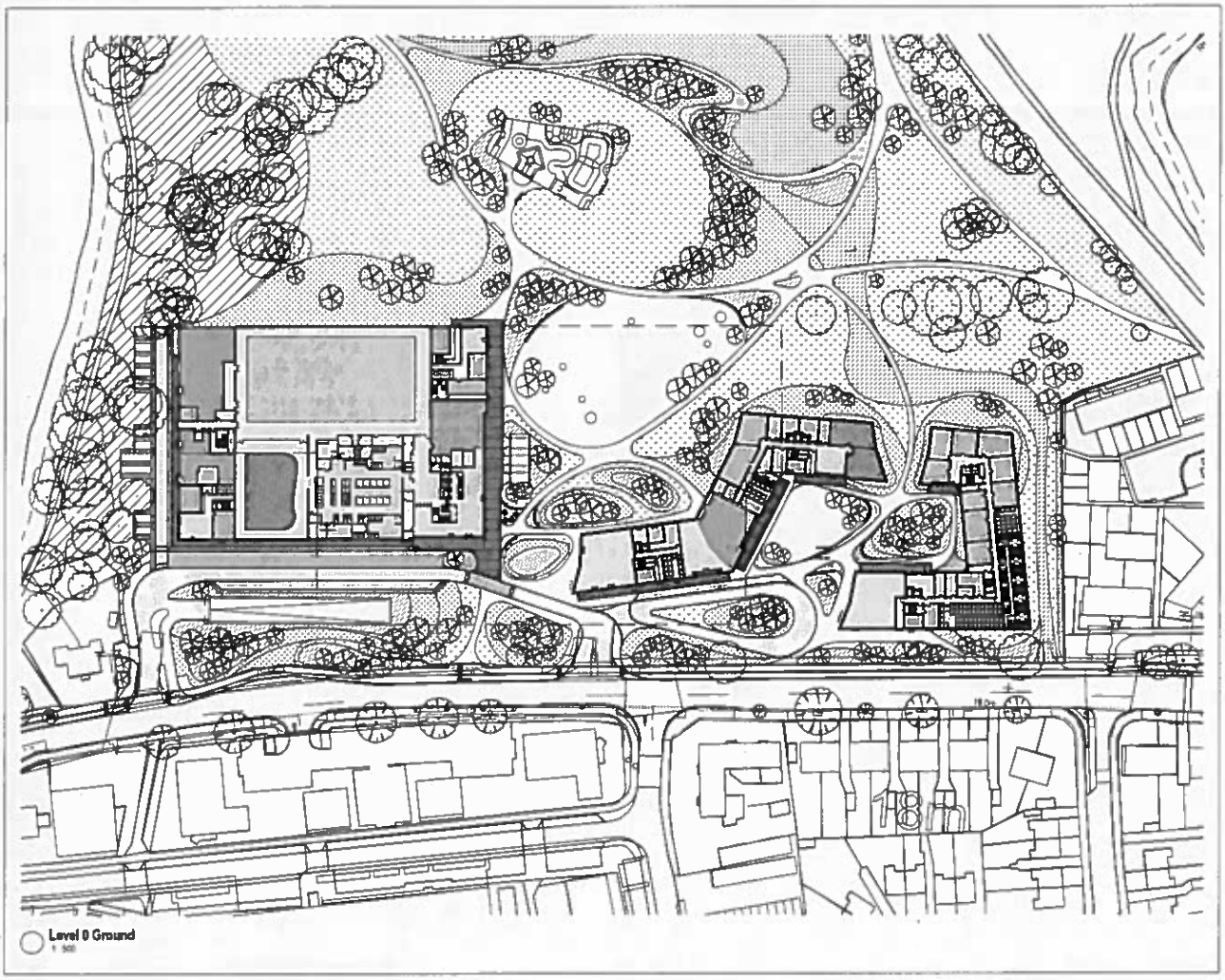
Factor	Indicator	Critical * (fail)	Basic CLoS (score=0)	Good CLoS (score=1)	Highest CLoS (score=2)	Score	
Safety	**(max possible = 48)**						
Collision risk	Left/right hook at junctions	Heavy streams of turning traffic cut across main cycling stream	Side road junctions frequent and/or untreated. Conflicting movements at major junctions not separated	Fewer side road junctions. Use of entry treatments. Conflicting movements on cycle routes are separated at major junctions	Side roads closed or footway is continuous. All conflicting streams separated at major junctions	6	x3
	Collision alongside or from behind	Nearside lane in range 3.2m to 4.0m	Cyclists in wide (4m+) nearside traffic lanes or cycle lanes less than 2m wide	Cyclists in dedicated cycle lanes at least 2m wide	Cyclists separated from motorised traffic	0	x3
	Kerbside activity or risk of collision with door	Cycle lanes <1.5m alongside parking / loading with no buffer	Frequent kerbside activity / effective width for cyclists of 1.5m	Less frequent kerbside activity / effective width for cyclists of 2m	No kerbside activity / No interaction with vehicles parking or loading	3	x3
	Other vehicle fails to give way or disobeys signals		Poor visibility, no route continuity across junctions and unclear priority	Clear route continuity through junctions, good visibility, priority clear for all users, visual priority for cyclists across side roads	Cycle priority at signalised junctions; visual priority for cyclists across side roads	2	
Feeling of safety	Separation from heavy traffic		Cyclists in general traffic lanes or cycle lanes less than 2m	Cycle lanes at least 2m wide	Cyclists physically separated from other traffic at junctions and on links, or no heavy freight	1	
	Speed of traffic (where cyclists are not separated)	85th percentile greater than 30mph	85th percentile greater than 25mph	85th percentile 20-25mph	85th percentile less than 20mph	1	x3
	Total volume of traffic (where cyclists are not separated)	>1,000 vehicles/ hour at peak	500 - 1,000 vehicles / hour at peak (but becomes 'critical' if 5 per cent or more are HGVs)	200 - 500 vehicles / hour at peak (but becomes 'basic' if 2 per cent or more are HGVs)	<200 vehicles / hour at peak	1	x3
	Interaction with HGVs	Frequent, close interaction	Frequent interaction	Occasional interaction	No interaction	1	x3
Social safety	Risk/fear of crime		High risk, 'ambush spots', loitering, poor maintenance	Low risk: area is open, well designed and maintained	No fear of crime: high quality streetscene and pleasant interaction	2	
	Lighting		Long stretches of darkness	Short stretches of darkness	Route lit thoroughly	2	
	Isolation		Route passes far from other activity for most of the day	Route close to activity, for all of the day	Route always overlooked	2	
	Impact of highway design on behaviour		Layout encourages aggressive behaviour	Layout controls behaviour throughout	Layout encourages civilised behaviour negotiation and forgiveness	2	
						29	

Directness	**(max possible = 8)**						
Journey time	Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle ahead (including other cyclists)	Cyclists can usually pass other vehicles (including cyclists)	Cyclists can always pass other vehicles	1	
	Delay to cyclists at junctions		Journey time longer than motor vehicles	Journey time around the same as motor vehicles	Journey time less than motor vehicles	1	
Value of time	For cyclists compared to private car use (normal weather conditions)		VOT greater than private car use value due to some site specific factors	VOT equivalent to private car use value; similar delay-inducing factors and convenience	VOT less than private car use value due to attractive nature of route	1	
Directness	Deviation of route (against straight line or nearest main road alternative)		Deviation factor greater than 40 per cent	Deviation factor 20-40 per cent	Deviation factor less than 20per cent	2	
						5	
Coherence	**(max possible = 6)**						
Connections	Ability to join/leave route safely and easily		Cyclists cannot connect to other routes without dismounting	Cyclists share connections with motor traffic	Cyclists have dedicated connections to other routes	2	
	Density of other routes		Network density mesh width >400m	Network density mesh width 250-400m	Network density mesh width <250m	1	
Way finding	Signing		Basic direction signing (cyclists follow road signs and markings)	Some cycle-specific direction signing	Consistent signing of range of routes and destinations at decision points	2	
						5	
Comfort	**(max possible = 20)**						
Surface quality	Defects: non cycle friendly ironworks, raised/ sunken covers/gullies	Major defects	Many minor defects	Few minor defects	Smooth, high-grip surface	6	x2
Surface material	Construction		Hand-laid asphalt or unstable blocks/sets	Machine laid asphalt concrete or HRA, smooth blocks	Machine laid asphalt concrete; smooth and firm blocks undisturbed by turning vehicles	2	
Effective width without conflict	Clear nearside space in secondary position or motor vehicle speed/ volume in primary position	Secondary: <1.5m Primary: high motor vehicle flow	Secondary: 1.5m Primary: medium motor vehicle flow	Secondary: 1.5-2.0m Primary: low motor vehicle flow	Secondary: >2.0m Primary: no overtaking by motor vehicles	3	x3
Gradient	Uphill gradient over 100m		>5 per cent	3-5 per cent	<3 per cent	2	
Deflections	Pinch points caused by horizontal deflections		(Remaining) lane width <3.2m	(Remaining) lane width >4.0m or <3.0m (low motor vehicle flow)	Traffic is calmed so no need for horizontal deflections	2	
Undulations	Vertical deflections		Round top humps	Sinusoidal humps	No vertical deflections	1	
						16	

Attractiveness (max possible = 12)						
Impact on walking	Pedestrian Comfort Level (PCL)		Reduction in PCL to C, D or E	No impact on pedestrian provision or PCL never lower than B	Pedestrian provision enhanced by cycling provision or PCL A	0
Greening	Green infrastructure or sustainable materials incorporated into design		No greening element	Some greening elements	Full integration of greening elements	1
Air quality	PM10 & NOX values referenced from concentration maps		Medium to High	Low to Medium	Low	1
Noise pollution	Noise level from recommended riding range		>78DB	65-78DB	<65DB	1
Minimise street clutter	Signing required to support scheme layout		Large amounts of regulatory signing to conform with complex layout	Moderate amount of signing, particularly around junctions	Minimal signing, eg for wayfinding purposes only	1
Secure cycle parking	Ease of access to secure cycle parking on- and off-street		No additional secure cycle parking	Minimum levels of cycle parking provided (ie to London Plan standards)	Cycle parking is provided to meet future demand and is of good quality and securely located	1
						5
Adaptability (max possible = 6)						
Public transport integration	Smooth transition between modes or route continuity maintained through interchanges		No consideration for cyclists within interchange area	Cycle route continuity maintained through interchange and some cycle parking available	Cycle route continuity maintained and secure cycle parking provided. Transport of cycles available.	1
Flexibility	Facility can be expanded or layouts adopted within area constraints		No adjustments are possible within constraints. Road works may require some closure	Links can be adjusted to meet demand but junctions are constrained by vehicle capacity limitations. Road works will not require closure; cycling will be maintained although route quality may be compromised to some extent	Layout can be adapted freely without constrain to meet demand or collision risk. Adjustments can be made to maintain full route quality when roadworks are present	1
Growth enabled	Route matches predicted usage and has exceedence built into the design		Provision does not match current levels of demand	Provision is matched to predicted demand flows	Provision has spare capacity for large increases in predicted cycle use	1
						3
TOTAL (max 100)						63

**For highlighted critical indicators, score is multiplied by 3 (basic = 0, good = 3, highest = 6)*

Appendix D – Proposed Floor Plans



Level 0 Ground
1:500

Notes

STAGE 2 ISSUE

EcoWorld

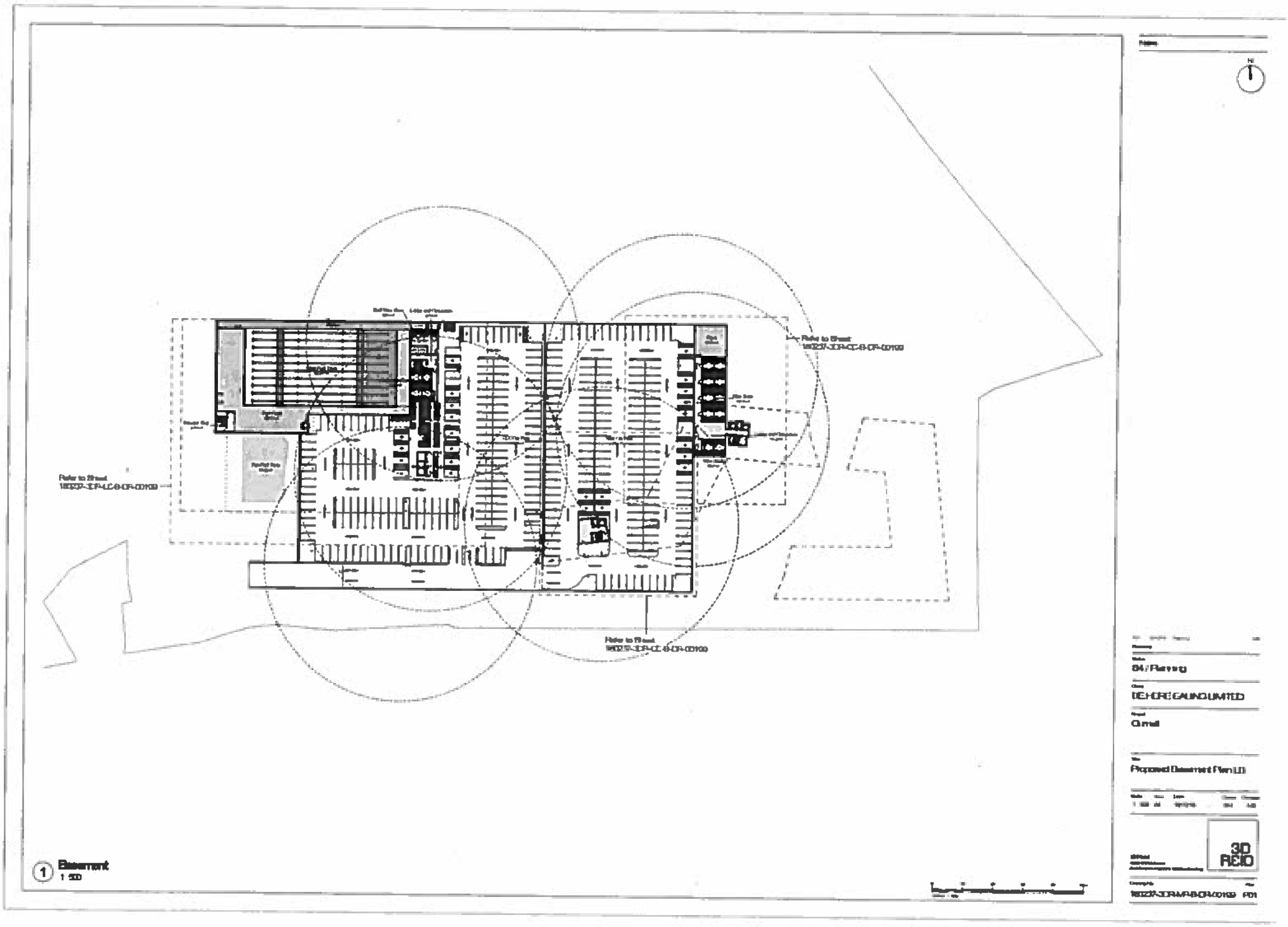
Eco Park

Proposed Ground Floor Plan L00

1:500 A1 10/10/16 SV MS

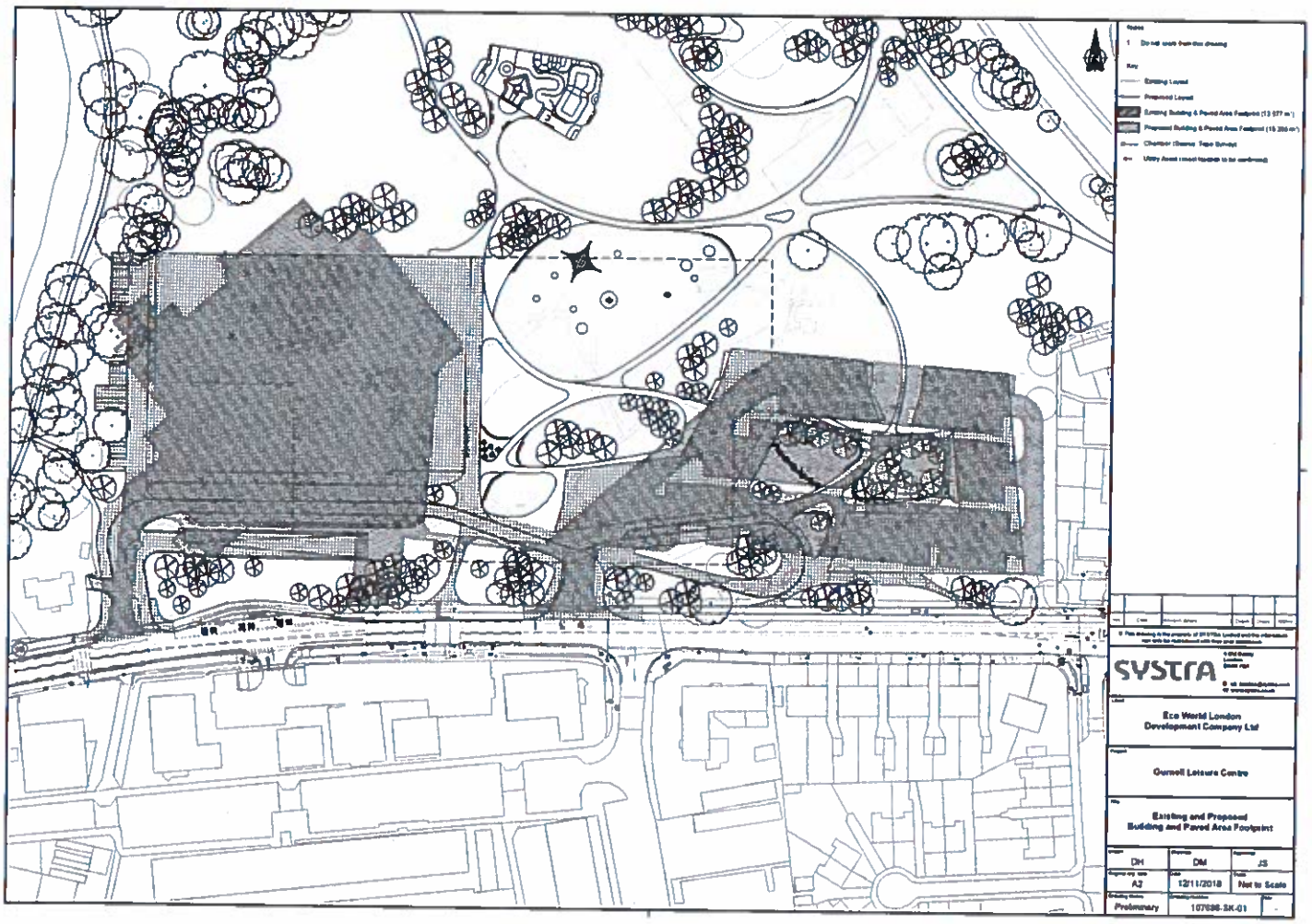
30 REID

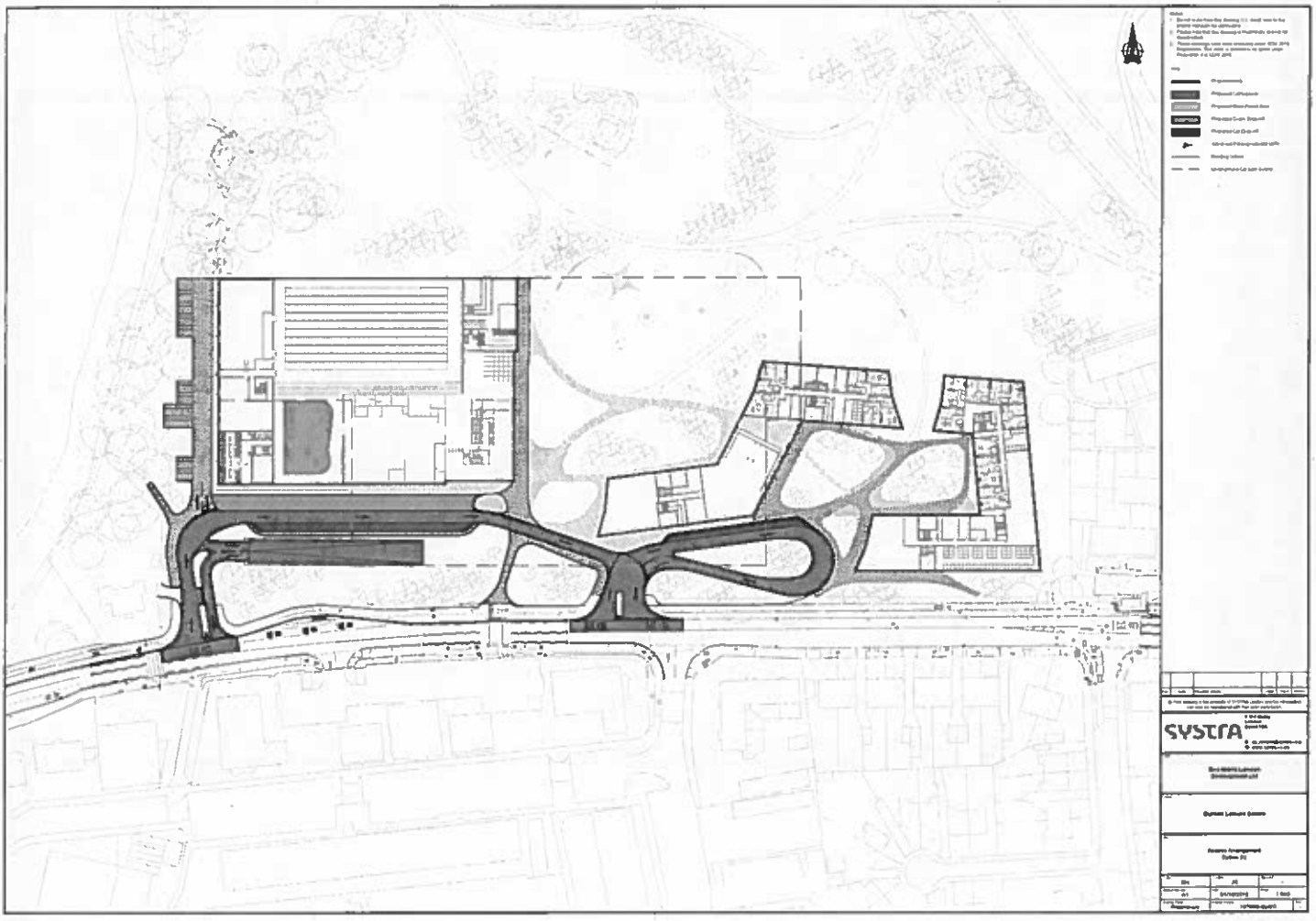
160227-3DR-XX-DR-00200 S2


Refer to Sheet
Refer to Sheet
Refer to Sheet
Basement
1 : 500
S4 / Planning
3D REID
P01

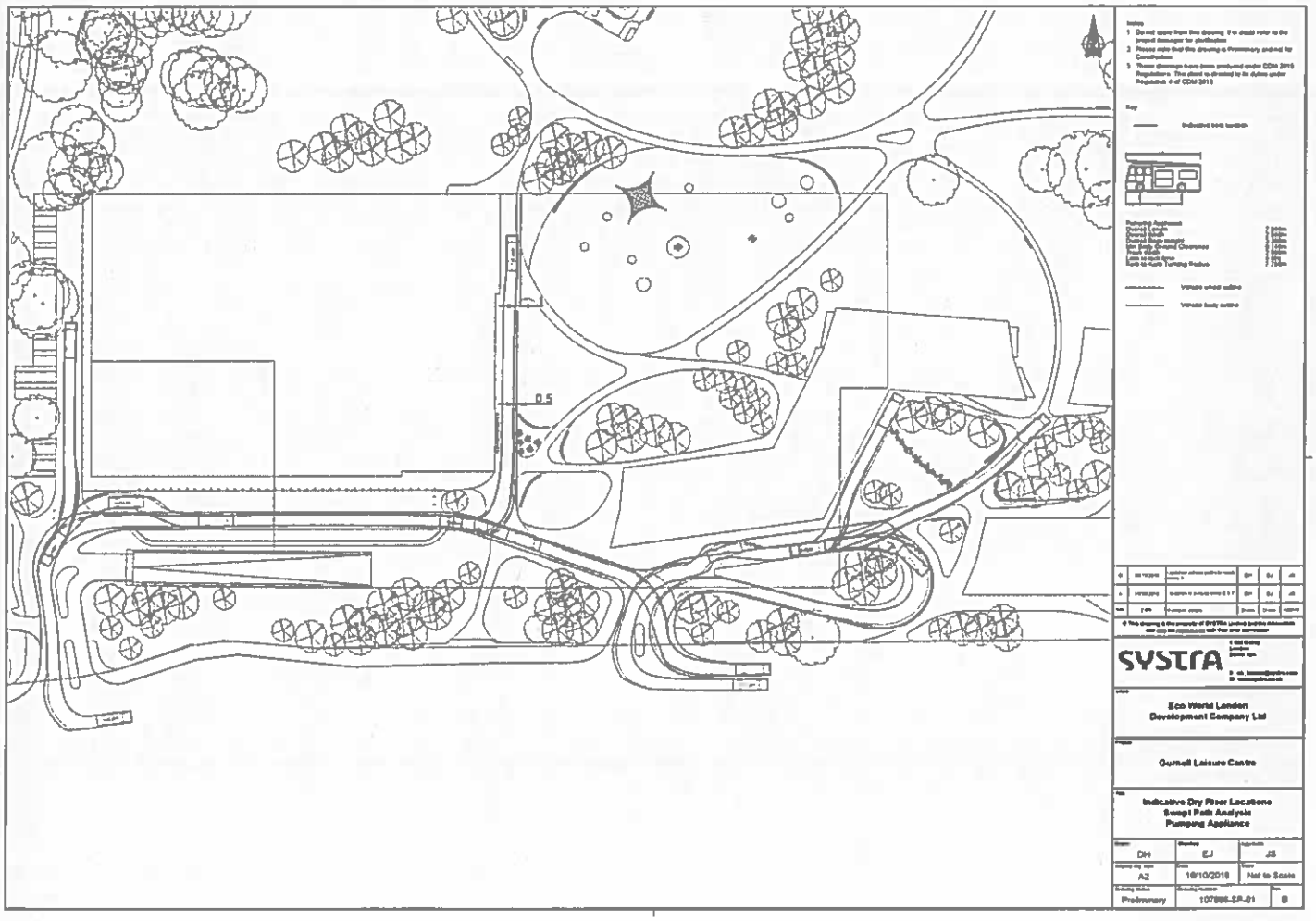
SYSTRA

Appendix E – Vehicle Access Arrangements


Notes
1 Do not scale from this drawing
Key
Existing Layout
Proposed Layout
Existing Building & Paved Area Footprint (13 977 m²)
Proposed Building & Paved Area Footprint (15 255 m²)
Chamber (Source: Topo Survey)
Utility Asset (most location to be confirmed)
SYSTRA
Eco World London Development Company Ltd
Gurnell Leisure Centre
Existing and Proposed Building and Paved Area Footprint
DH
DM
JS
A2
12/11/2018
Not to Scale
Preliminary
107696-SK-01


SYSTRA

Appendix F – Fire Tender Swept Path



Notes
1 Do not scale from this drawing. If in doubt refer to the project manager for clarification
2 Please note that this drawing is Preliminary and not for Construction
3 These drawings have been produced under CDM 2015 Regulations. The client is deemed to be duties under Regulation 4 of CDM 2015

Key

Indicative kerb kerbline

Refuse Vehicle
Overall Length
Overall Width
Overall Body Height
Min Body Ground Clearance
Track Width
Lock to lock time
Kerb to Kerb Turning Radius

Vehicle wheel outline

Vehicle body outline

D	08.10.2018	Updated refuse path to reach access 3	DH	EJ	JS
C	04.09.2018	Updated to pumping area & 3.7	DH	EJ	JS
Rev	Date	Description	Drawn	Check	Approved

SYSTRA

1 Old Bailey
London
EC4M 7BA

T +44 (0)20 7429 7000
W www.systra.co.uk

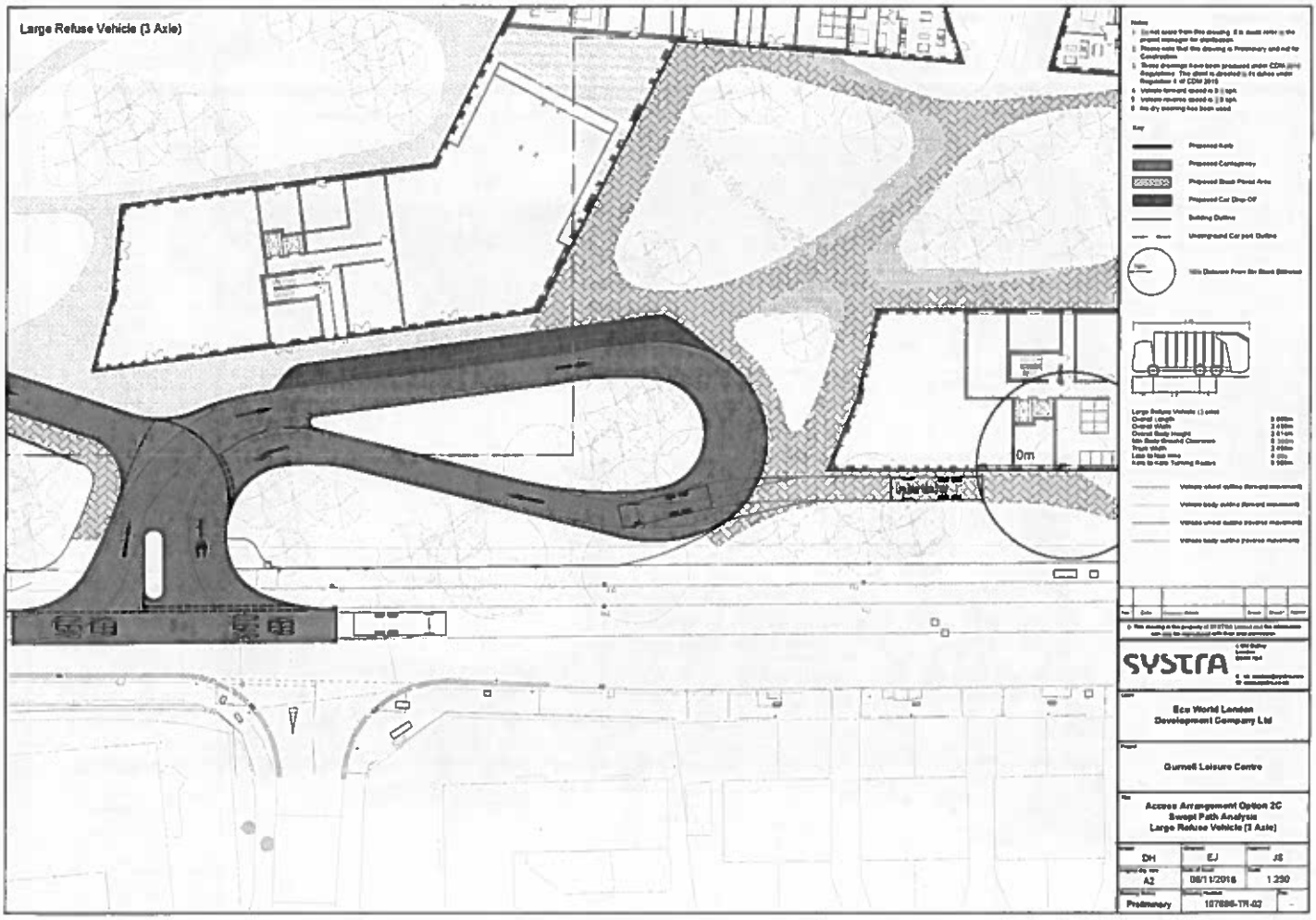
Client
Eco World London Development Company Ltd

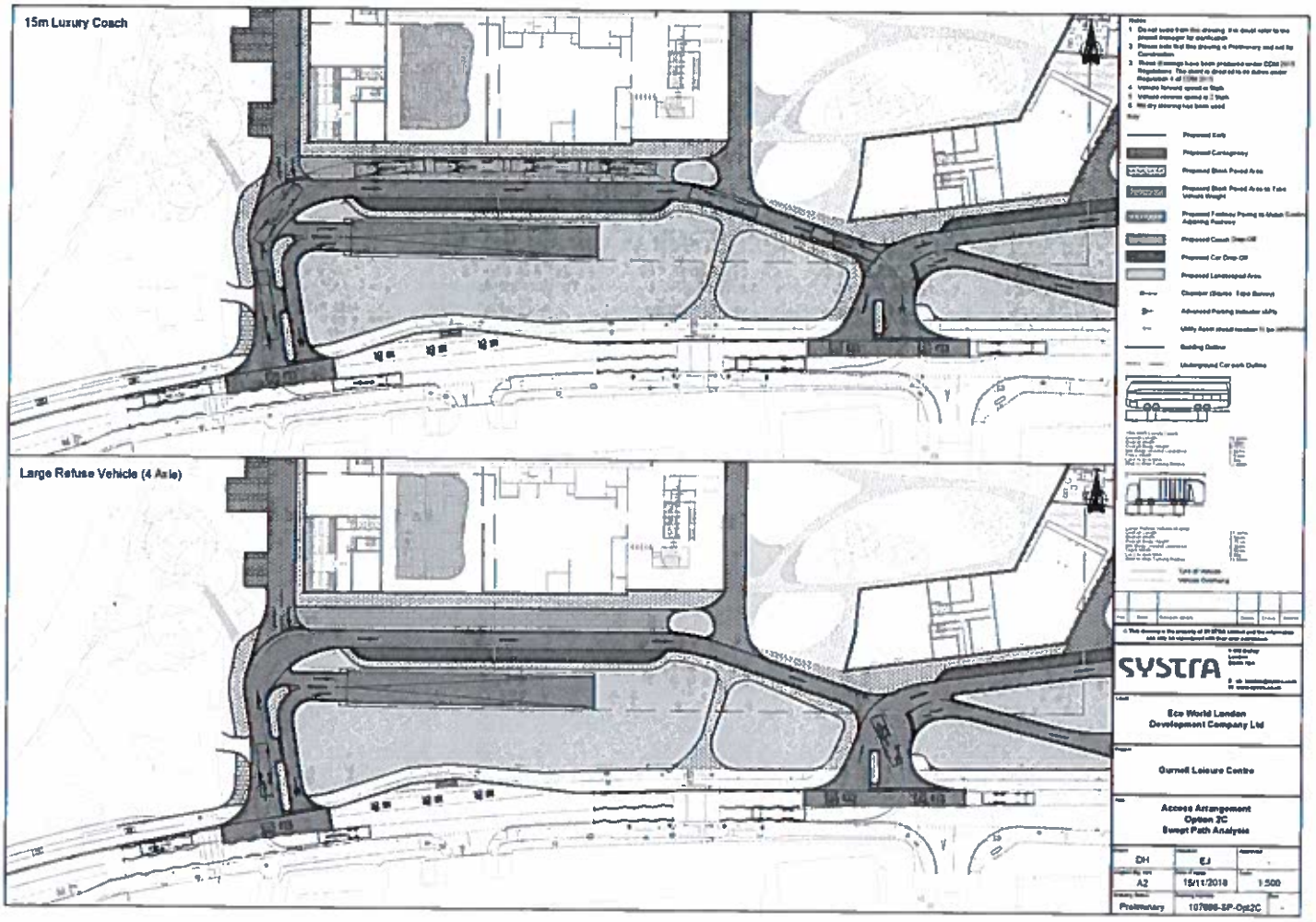
Project
Gurnell Leisure Centre

Title
Indicative Dry Riser Locations
Swept Path Analysis
Pumping Appliance

Drawn	Checked	Approved
DH	EJ	JS
Original Dwg. size	Date	Scale
A2	16/10/2018	Not to Scale
Drawing Status	Drawing Number	Rev.
Preliminary	107886-SP-01	B

Appendix G – Refuse Swept Path


Large Refuse Vehicle (3 Axle)
Eco World London Development Company Ltd
Gurnell Leisure Centre
Access Arrangement Option 2C
Swept Path Analysis
Large Refuse Vehicle (3 Axle)
DH
EJ
JS
A2
08/11/2016
1:250
Preliminary
107886-TR-02


15m Luxury Coach
Large Refuse Vehicle (4 Axle)
SYSTRA
Eco World London Development Company Ltd
Gurnell Leisure Centre
Access Arrangement Option 2C Swept Path Analysis
DH
EJ
A2
15/11/2018
1:500
Preliminary
107686-SP-Opt2C

Appendix H – TRICS Outputs

Calculation Reference: AUDIT-700702-181114-1148

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

01	**GREATER LONDON**		
	BT	BRENT	1 days
	HV	HAVERING	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: 472 to 493 (units:)
Range Selected by User: 9 to 493 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 30/11/16

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

Selected survey days:

Tuesday	1 days
Wednesday	1 days

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

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Development Zone	1
Built-Up Zone	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3	2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

10,001 to 15,000	1 days
25,001 to 50,000	1 days

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

Population within 5 miles:

125,001 to 250,000	1 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	1 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

2 Poor	1 days
5 Very Good	1 days

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

LIST OF SITES relevant to selection parameters

1 **BT-03-C-02** **BLOCKS OF FLATS** **BRENT**
ENGINEERS WAY
WEMBLEY

Suburban Area (PPS6 Out of Centre)
Development Zone
Total Number of dwellings: 472
Survey date: WEDNESDAY *30/11/16* *Survey Type: MANUAL*

2 **HV-03-C-02** **BLOCKS OF FLATS** **HAVERING**
WATERLOO ROAD
ROMFORD

Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Number of dwellings: 493
Survey date: TUESDAY *22/11/16* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BT-03-C-01	Parking
HG-03-C-02	Parking
HK-03-C-03	PTAL
HO-03-C-02	Dwellings
HO-03-C-03	PTAL
IS-03-C-03	Parking
IS-03-C-04	PTAL
IS-03-C-05	Parking
IS-03-C-06	Parking
KI-03-C-03	PTAL
KN-03-C-02	Parking
KN-03-C-03	PTAL
NH-03-C-01	Dwellings
SK-03-C-01	Parking
SK-03-C-02	Parking
WH-03-C-01	Parking

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.019	2	483	0.048	2	483	0.067
08:00 - 09:00	2	483	0.021	**2**	**483**	**0.059**	2	483	0.080
09:00 - 10:00	2	483	0.027	2	483	0.028	2	483	0.055
10:00 - 11:00	2	483	0.021	2	483	0.027	2	483	0.048
11:00 - 12:00	2	483	0.017	2	483	0.023	2	483	0.040
12:00 - 13:00	2	483	0.019	2	483	0.020	2	483	0.039
13:00 - 14:00	2	483	0.035	2	483	0.033	2	483	0.068
14:00 - 15:00	2	483	0.034	2	483	0.034	2	483	0.068
15:00 - 16:00	2	483	0.040	2	483	0.031	2	483	0.071
16:00 - 17:00	2	483	0.052	2	483	0.036	2	483	0.088
17:00 - 18:00	**2**	**483**	**0.069**	2	483	0.027	**2**	**483**	**0.096**
18:00 - 19:00	2	483	0.061	2	483	0.032	2	483	0.093
19:00 - 20:00	1	472	0.002	1	472	0.008	1	472	0.010
20:00 - 21:00	1	472	0.006	1	472	0.013	1	472	0.019
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.423			0.419			0.842

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	472 - 493 (units:)
Survey date date range:	01/01/10 - 30/11/16
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	16

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TAXIS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.003	2	483	0.002	2	483	0.005
08:00 - 09:00	**2**	**483**	**0.004**	**2**	**483**	**0.005**	**2**	**483**	**0.009**
09:00 - 10:00	2	483	0.001	2	483	0.000	2	483	0.001
10:00 - 11:00	2	483	0.001	2	483	0.001	2	483	0.002
11:00 - 12:00	2	483	0.001	2	483	0.002	2	483	0.003
12:00 - 13:00	2	483	0.000	2	483	0.000	2	483	0.000
13:00 - 14:00	2	483	0.001	2	483	0.001	2	483	0.002
14:00 - 15:00	2	483	0.002	2	483	0.002	2	483	0.004
15:00 - 16:00	2	483	0.000	2	483	0.000	2	483	0.000
16:00 - 17:00	2	483	0.001	2	483	0.001	2	483	0.002
17:00 - 18:00	2	483	0.002	2	483	0.002	2	483	0.004
18:00 - 19:00	2	483	0.001	2	483	0.001	2	483	0.002
19:00 - 20:00	1	472	0.000	1	472	0.000	1	472	0.000
20:00 - 21:00	1	472	0.002	1	472	0.002	1	472	0.004
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.019			0.019			0.038

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL OGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	**2**	**483**	**0.002**	**2**	**483**	**0.003**	**2**	**483**	**0.005**
08:00 - 09:00	2	483	0.001	2	483	0.000	2	483	0.001
09:00 - 10:00	2	483	0.002	2	483	0.003	2	483	0.005
10:00 - 11:00	2	483	0.000	2	483	0.000	2	483	0.000
11:00 - 12:00	2	483	0.000	2	483	0.000	2	483	0.000
12:00 - 13:00	2	483	0.000	2	483	0.000	2	483	0.000
13:00 - 14:00	2	483	0.000	2	483	0.001	2	483	0.001
14:00 - 15:00	2	483	0.002	2	483	0.002	2	483	0.004
15:00 - 16:00	2	483	0.000	2	483	0.000	2	483	0.000
16:00 - 17:00	2	483	0.000	2	483	0.000	2	483	0.000
17:00 - 18:00	2	483	0.002	2	483	0.001	2	483	0.003
18:00 - 19:00	2	483	0.000	2	483	0.000	2	483	0.000
19:00 - 20:00	1	472	0.000	1	472	0.000	1	472	0.000
20:00 - 21:00	1	472	0.000	1	472	0.000	1	472	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.009			0.010			0.019

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL CYCLISTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.000	2	483	0.002	2	483	0.002
08:00 - 09:00	2	483	0.001	2	483	0.002	2	483	0.003
09:00 - 10:00	2	483	0.001	2	483	0.002	2	483	0.003
10:00 - 11:00	2	483	0.000	2	483	0.000	2	483	0.000
11:00 - 12:00	2	483	0.000	2	483	0.000	2	483	0.000
12:00 - 13:00	2	483	0.000	2	483	0.000	2	483	0.000
13:00 - 14:00	2	483	0.000	2	483	0.000	2	483	0.000
14:00 - 15:00	2	483	0.000	**2**	**483**	**0.005**	**2**	**483**	**0.005**
15:00 - 16:00	2	483	0.001	2	483	0.001	2	483	0.002
16:00 - 17:00	**2**	**483**	**0.002**	2	483	0.000	2	483	0.002
17:00 - 18:00	2	483	0.002	2	483	0.000	2	483	0.002
18:00 - 19:00	2	483	0.000	2	483	0.000	2	483	0.000
19:00 - 20:00	1	472	0.000	1	472	0.000	1	472	0.000
20:00 - 21:00	1	472	0.000	1	472	0.000	1	472	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.007			0.012			0.019

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLE OCCUPANTS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.020	2	483	0.059	2	483	0.079
08:00 - 09:00	2	483	0.023	**2**	**483**	**0.094**	2	483	0.117
09:00 - 10:00	2	483	0.031	2	483	0.032	2	483	0.063
10:00 - 11:00	2	483	0.024	2	483	0.039	2	483	0.063
11:00 - 12:00	2	483	0.022	2	483	0.029	2	483	0.051
12:00 - 13:00	2	483	0.026	2	483	0.023	2	483	0.049
13:00 - 14:00	2	483	0.044	2	483	0.041	2	483	0.085
14:00 - 15:00	2	483	0.048	2	483	0.050	2	483	0.098
15:00 - 16:00	2	483	0.061	2	483	0.051	2	483	0.112
16:00 - 17:00	2	483	0.083	2	483	0.046	2	483	0.129
17:00 - 18:00	**2**	**483**	**0.095**	2	483	0.035	**2**	**483**	**0.130**
18:00 - 19:00	2	483	0.085	2	483	0.037	2	483	0.122
19:00 - 20:00	1	472	0.002	1	472	0.017	1	472	0.019
20:00 - 21:00	1	472	0.008	1	472	0.030	1	472	0.038
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.572			0.583			1.155

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.022	2	483	0.044	2	483	0.066
08:00 - 09:00	2	483	0.017	**2**	**483**	**0.079**	2	483	0.096
09:00 - 10:00	2	483	0.012	2	483	0.024	2	483	0.036
10:00 - 11:00	2	483	0.028	2	483	0.038	2	483	0.066
11:00 - 12:00	2	483	0.065	2	483	0.045	2	483	0.110
12:00 - 13:00	2	483	0.056	2	483	0.048	2	483	0.104
13:00 - 14:00	2	483	0.027	2	483	0.062	2	483	0.089
14:00 - 15:00	2	483	0.047	2	483	0.051	2	483	0.098
15:00 - 16:00	2	483	0.065	2	483	0.048	**2**	**483**	**0.113**
16:00 - 17:00	2	483	0.064	2	483	0.042	2	483	0.106
17:00 - 18:00	2	483	0.057	2	483	0.028	2	483	0.085
18:00 - 19:00	2	483	0.020	2	483	0.012	2	483	0.032
19:00 - 20:00	**1**	**472**	**0.070**	1	472	0.025	1	472	0.095
20:00 - 21:00	1	472	0.044	1	472	0.013	1	472	0.057
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.594			0.559			1.153

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL BUS/TRAM PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.001	2	483	0.027	2	483	0.028
08:00 - 09:00	2	483	0.005	**2**	**483**	**0.047**	2	483	0.052
09:00 - 10:00	2	483	0.005	2	483	0.020	2	483	0.025
10:00 - 11:00	2	483	0.007	2	483	0.020	2	483	0.027
11:00 - 12:00	2	483	0.008	2	483	0.015	2	483	0.023
12:00 - 13:00	2	483	0.012	2	483	0.017	2	483	0.029
13:00 - 14:00	2	483	0.018	2	483	0.016	2	483	0.034
14:00 - 15:00	2	483	0.019	2	483	0.013	2	483	0.032
15:00 - 16:00	2	483	0.023	2	483	0.017	2	483	0.040
16:00 - 17:00	2	483	0.028	2	483	0.018	2	483	0.046
17:00 - 18:00	2	483	0.032	2	483	0.021	2	483	0.053
18:00 - 19:00	**2**	**483**	**0.044**	2	483	0.018	**2**	**483**	**0.062**
19:00 - 20:00	1	472	0.030	1	472	0.021	1	472	0.051
20:00 - 21:00	1	472	0.025	1	472	0.019	1	472	0.044
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.257			0.289			0.546

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.000	2	483	0.052	2	483	0.052
08:00 - 09:00	2	483	0.005	**2**	**483**	**0.091**	**2**	**483**	**0.096**
09:00 - 10:00	2	483	0.010	2	483	0.029	2	483	0.039
10:00 - 11:00	2	483	0.008	2	483	0.021	2	483	0.029
11:00 - 12:00	2	483	0.013	2	483	0.022	2	483	0.035
12:00 - 13:00	2	483	0.010	2	483	0.026	2	483	0.036
13:00 - 14:00	2	483	0.016	2	483	0.016	2	483	0.032
14:00 - 15:00	2	483	0.023	2	483	0.015	2	483	0.038
15:00 - 16:00	2	483	0.018	2	483	0.016	2	483	0.034
16:00 - 17:00	2	483	0.019	2	483	0.018	2	483	0.037
17:00 - 18:00	**2**	**483**	**0.052**	2	483	0.026	2	483	0.078
18:00 - 19:00	2	483	0.052	2	483	0.019	2	483	0.071
19:00 - 20:00	1	472	0.049	1	472	0.021	1	472	0.070
20:00 - 21:00	1	472	0.036	1	472	0.019	1	472	0.055
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.311			0.391			0.702

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.001	2	483	0.079	2	483	0.080
08:00 - 09:00	2	483	0.010	**2**	**483**	**0.138**	**2**	**483**	**0.148**
09:00 - 10:00	2	483	0.016	2	483	0.049	2	483	0.065
10:00 - 11:00	2	483	0.016	2	483	0.040	2	483	0.056
11:00 - 12:00	2	483	0.022	2	483	0.036	2	483	0.058
12:00 - 13:00	2	483	0.023	2	483	0.042	2	483	0.065
13:00 - 14:00	2	483	0.033	2	483	0.031	2	483	0.064
14:00 - 15:00	2	483	0.041	2	483	0.028	2	483	0.069
15:00 - 16:00	2	483	0.040	2	483	0.032	2	483	0.072
16:00 - 17:00	2	483	0.047	2	483	0.035	2	483	0.082
17:00 - 18:00	2	483	0.084	2	483	0.047	2	483	0.131
18:00 - 19:00	**2**	**483**	**0.095**	2	483	0.036	2	483	0.131
19:00 - 20:00	1	472	0.078	1	472	0.042	1	472	0.120
20:00 - 21:00	1	472	0.061	1	472	0.038	1	472	0.099
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.567			0.673			1.240

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.042	2	483	0.183	2	483	0.225
08:00 - 09:00	2	483	0.051	**2**	**483**	**0.313**	**2**	**483**	**0.364**
09:00 - 10:00	2	483	0.060	2	483	0.107	2	483	0.167
10:00 - 11:00	2	483	0.067	2	483	0.118	2	483	0.185
11:00 - 12:00	2	483	0.109	2	483	0.110	2	483	0.219
12:00 - 13:00	2	483	0.105	2	483	0.113	2	483	0.218
13:00 - 14:00	2	483	0.104	2	483	0.135	2	483	0.239
14:00 - 15:00	2	483	0.136	2	483	0.134	2	483	0.270
15:00 - 16:00	2	483	0.168	2	483	0.132	2	483	0.300
16:00 - 17:00	2	483	0.196	2	483	0.123	2	483	0.319
17:00 - 18:00	**2**	**483**	**0.238**	2	483	0.110	2	483	0.348
18:00 - 19:00	2	483	0.200	2	483	0.086	2	483	0.286
19:00 - 20:00	1	472	0.150	1	472	0.085	1	472	0.235
20:00 - 21:00	1	472	0.114	1	472	0.081	1	472	0.195
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.740			1.830			3.570

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL CARS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.011	2	483	0.039	2	483	0.050
08:00 - 09:00	2	483	0.016	**2**	**483**	**0.052**	2	483	0.068
09:00 - 10:00	2	483	0.021	2	483	0.024	2	483	0.045
10:00 - 11:00	2	483	0.017	2	483	0.026	2	483	0.043
11:00 - 12:00	2	483	0.010	2	483	0.017	2	483	0.027
12:00 - 13:00	2	483	0.017	2	483	0.018	2	483	0.035
13:00 - 14:00	2	483	0.032	2	483	0.027	2	483	0.059
14:00 - 15:00	2	483	0.026	2	483	0.027	2	483	0.053
15:00 - 16:00	2	483	0.038	2	483	0.027	2	483	0.065
16:00 - 17:00	2	483	0.048	2	483	0.033	2	483	0.081
17:00 - 18:00	**2**	**483**	**0.058**	2	483	0.020	2	483	0.078
18:00 - 19:00	2	483	0.058	2	483	0.025	**2**	**483**	**0.083**
19:00 - 20:00	1	472	0.002	1	472	0.006	1	472	0.008
20:00 - 21:00	1	472	0.004	1	472	0.011	1	472	0.015
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.358			0.352			0.710

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL LGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.002	2	483	0.002	2	483	0.004
08:00 - 09:00	2	483	0.000	2	483	0.002	2	483	0.002
09:00 - 10:00	2	483	0.003	2	483	0.001	2	483	0.004
10:00 - 11:00	2	483	0.003	2	483	0.000	2	483	0.003
11:00 - 12:00	**2**	**483**	**0.005**	**2**	**483**	**0.004**	**2**	**483**	**0.009**
12:00 - 13:00	2	483	0.002	2	483	0.002	2	483	0.004
13:00 - 14:00	2	483	0.002	2	483	0.004	2	483	0.006
14:00 - 15:00	2	483	0.004	2	483	0.003	2	483	0.007
15:00 - 16:00	2	483	0.001	2	483	0.004	2	483	0.005
16:00 - 17:00	2	483	0.003	2	483	0.002	2	483	0.005
17:00 - 18:00	2	483	0.005	2	483	0.004	2	483	0.009
18:00 - 19:00	2	483	0.001	2	483	0.003	2	483	0.004
19:00 - 20:00	1	472	0.000	1	472	0.000	1	472	0.000
20:00 - 21:00	1	472	0.000	1	472	0.000	1	472	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.031			0.031			0.062

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL MOTOR CYCLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.000	2	483	0.001	2	483	0.001
08:00 - 09:00	2	483	0.000	2	483	0.000	2	483	0.000
09:00 - 10:00	2	483	0.000	2	483	0.000	2	483	0.000
10:00 - 11:00	2	483	0.000	2	483	0.000	2	483	0.000
11:00 - 12:00	2	483	0.000	2	483	0.000	2	483	0.000
12:00 - 13:00	2	483	0.000	2	483	0.000	2	483	0.000
13:00 - 14:00	2	483	0.000	2	483	0.000	2	483	0.000
14:00 - 15:00	2	483	0.000	2	483	0.000	2	483	0.000
15:00 - 16:00	2	483	0.001	2	483	0.000	2	483	0.001
16:00 - 17:00	2	483	0.000	2	483	0.000	2	483	0.000
17:00 - 18:00	**2**	**483**	**0.002**	2	483	0.000	2	483	0.002
18:00 - 19:00	2	483	0.001	**2**	**483**	**0.003**	**2**	**483**	**0.004**
19:00 - 20:00	1	472	0.000	1	472	0.002	1	472	0.002
20:00 - 21:00	1	472	0.000	1	472	0.000	1	472	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.004			0.006			0.010

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL Underground Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.000	2	483	0.031	2	483	0.031
08:00 - 09:00	2	483	0.003	**2**	**483**	**0.050**	2	483	0.053
09:00 - 10:00	2	483	0.008	2	483	0.020	2	483	0.028
10:00 - 11:00	2	483	0.007	2	483	0.018	2	483	0.025
11:00 - 12:00	2	483	0.011	2	483	0.017	2	483	0.028
12:00 - 13:00	2	483	0.008	2	483	0.018	2	483	0.026
13:00 - 14:00	2	483	0.013	2	483	0.013	2	483	0.026
14:00 - 15:00	2	483	0.015	2	483	0.015	2	483	0.030
15:00 - 16:00	2	483	0.013	2	483	0.015	2	483	0.028
16:00 - 17:00	2	483	0.016	2	483	0.018	2	483	0.034
17:00 - 18:00	2	483	0.028	2	483	0.021	2	483	0.049
18:00 - 19:00	2	483	0.020	2	483	0.017	2	483	0.037
19:00 - 20:00	**1**	**472**	**0.038**	1	472	0.013	1	472	0.051
20:00 - 21:00	1	472	0.036	1	472	0.019	**1**	**472**	**0.055**
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.216			0.285			0.501

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL DLR Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.000	2	483	0.000	2	483	0.000
08:00 - 09:00	**2**	**483**	**0.001**	**2**	**483**	**0.001**	**2**	**483**	**0.002**
09:00 - 10:00	2	483	0.000	2	483	0.000	2	483	0.000
10:00 - 11:00	2	483	0.000	2	483	0.000	2	483	0.000
11:00 - 12:00	2	483	0.000	2	483	0.000	2	483	0.000
12:00 - 13:00	2	483	0.000	2	483	0.001	2	483	0.001
13:00 - 14:00	2	483	0.000	2	483	0.000	2	483	0.000
14:00 - 15:00	2	483	0.000	2	483	0.000	2	483	0.000
15:00 - 16:00	2	483	0.000	2	483	0.000	2	483	0.000
16:00 - 17:00	2	483	0.000	2	483	0.000	2	483	0.000
17:00 - 18:00	2	483	0.000	2	483	0.000	2	483	0.000
18:00 - 19:00	2	483	0.000	2	483	0.000	2	483	0.000
19:00 - 20:00	1	472	0.000	1	472	0.000	1	472	0.000
20:00 - 21:00	1	472	0.000	1	472	0.000	1	472	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.001			0.002			0.003

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL Overground Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.000	2	483	0.009	2	483	0.009
08:00 - 09:00	2	483	0.000	**2**	**483**	**0.012**	2	483	0.012
09:00 - 10:00	2	483	0.002	2	483	0.005	2	483	0.007
10:00 - 11:00	2	483	0.001	2	483	0.001	2	483	0.002
11:00 - 12:00	2	483	0.002	2	483	0.002	2	483	0.004
12:00 - 13:00	2	483	0.001	2	483	0.006	2	483	0.007
13:00 - 14:00	2	483	0.002	2	483	0.001	2	483	0.003
14:00 - 15:00	2	483	0.007	2	483	0.000	2	483	0.007
15:00 - 16:00	2	483	0.002	2	483	0.000	2	483	0.002
16:00 - 17:00	2	483	0.000	2	483	0.000	2	483	0.000
17:00 - 18:00	2	483	0.005	2	483	0.002	2	483	0.007
18:00 - 19:00	2	483	0.003	2	483	0.002	2	483	0.005
19:00 - 20:00	**1**	**472**	**0.011**	1	472	0.008	**1**	**472**	**0.019**
20:00 - 21:00	1	472	0.000	1	472	0.000	1	472	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.036			0.048			0.084

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL National Rail Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.000	2	483	0.011	2	483	0.011
08:00 - 09:00	2	483	0.001	**2**	**483**	**0.028**	**2**	**483**	**0.029**
09:00 - 10:00	2	483	0.000	2	483	0.004	2	483	0.004
10:00 - 11:00	2	483	0.000	2	483	0.002	2	483	0.002
11:00 - 12:00	2	483	0.000	2	483	0.003	2	483	0.003
12:00 - 13:00	2	483	0.001	2	483	0.001	2	483	0.002
13:00 - 14:00	2	483	0.000	2	483	0.001	2	483	0.001
14:00 - 15:00	2	483	0.001	2	483	0.000	2	483	0.001
15:00 - 16:00	2	483	0.002	2	483	0.001	2	483	0.003
16:00 - 17:00	2	483	0.003	2	483	0.000	2	483	0.003
17:00 - 18:00	2	483	0.019	2	483	0.003	2	483	0.022
18:00 - 19:00	**2**	**483**	**0.029**	2	483	0.000	2	483	0.029
19:00 - 20:00	1	472	0.000	1	472	0.000	1	472	0.000
20:00 - 21:00	1	472	0.000	1	472	0.000	1	472	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.056			0.054			0.110

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL Bus Passengers
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.001	2	483	0.027	2	483	0.028
08:00 - 09:00	2	483	0.005	**2**	**483**	**0.047**	2	483	0.052
09:00 - 10:00	2	483	0.005	2	483	0.020	2	483	0.025
10:00 - 11:00	2	483	0.007	2	483	0.020	2	483	0.027
11:00 - 12:00	2	483	0.008	2	483	0.015	2	483	0.023
12:00 - 13:00	2	483	0.012	2	483	0.017	2	483	0.029
13:00 - 14:00	2	483	0.018	2	483	0.016	2	483	0.034
14:00 - 15:00	2	483	0.019	2	483	0.013	2	483	0.032
15:00 - 16:00	2	483	0.023	2	483	0.017	2	483	0.040
16:00 - 17:00	2	483	0.028	2	483	0.018	2	483	0.046
17:00 - 18:00	2	483	0.032	2	483	0.021	2	483	0.053
18:00 - 19:00	**2**	**483**	**0.044**	2	483	0.018	**2**	**483**	**0.062**
19:00 - 20:00	1	472	0.030	1	472	0.021	1	472	0.051
20:00 - 21:00	1	472	0.025	1	472	0.019	1	472	0.044
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.257			0.289			0.546

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL Servicing Vehicles
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	483	0.000	2	483	0.000	2	483	0.000
08:00 - 09:00	2	483	0.001	2	483	0.001	2	483	0.002
09:00 - 10:00	2	483	0.001	2	483	0.001	2	483	0.002
10:00 - 11:00	2	483	0.000	2	483	0.000	2	483	0.000
11:00 - 12:00	2	483	0.001	2	483	0.000	2	483	0.001
12:00 - 13:00	2	483	0.001	2	483	0.001	2	483	0.002
13:00 - 14:00	2	483	0.001	2	483	0.002	2	483	0.003
14:00 - 15:00	**2**	**483**	**0.002**	2	483	0.001	2	483	0.003
15:00 - 16:00	2	483	0.000	2	483	0.000	2	483	0.000
16:00 - 17:00	2	483	0.001	2	483	0.001	2	483	0.002
17:00 - 18:00	2	483	0.002	**2**	**483**	**0.003**	**2**	**483**	**0.005**
18:00 - 19:00	2	483	0.001	2	483	0.001	2	483	0.002
19:00 - 20:00	1	472	0.000	1	472	0.000	1	472	0.000
20:00 - 21:00	1	472	0.000	1	472	0.000	1	472	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.011			0.011			0.022

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Appendix I – Modelling Outputs

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.2.5947

Filename: Do Min and With Dev +Sensitivity Test.j9
Path: P:\STH\2018\107696 Gurnell LC Revised Submission\30 Technical\31 Modelling\Junction Models\Models\Eastern Junction\With Dev Models +Sensitivity Test
Report generation date: 14/11/2018 19:58:42

»(Default Analysis Set) - With Development, AM
»(Default Analysis Set) - With Development, PM
»(Default Analysis Set) - Sensitivity 2022, AM
»(Default Analysis Set) - Sensitivity 2022, PM

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - Sensitivity 2022			
Stream B-C	0.2	11.15	0.13	B
Stream B-A	0.5	30.89	0.30	D
Stream C-AB	2.1	6.52	0.44	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Gurnell Leisure Centre
Location	Staff Access Point
Site number	
Date	18/09/2017
Version	1
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	With Development	AM	ONE HOUR	08:00	09:30	15
D6	With Development	PM	ONE HOUR	17:00	18:30	15
D7	Sensitivity 2022	AM	ONE HOUR	08:00	09:30	15
D8	Sensitivity 2022	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

(Default Analysis Set) - With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	0.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Ruislip Road East (Westbound)		Major
B	Staff Access		Minor
C	Ruislip Road East (Eastbound)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.60			100.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	7.61	3.14	3.09	3.09	3.09		0.10	72	36

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	498	0.084	0.214	0.134	0.305
1	B-C	678	0.097	0.244	-	-
1	C-B	632	0.228	0.228	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only, they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	With Development	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	949	100.000
B		✓	43	100.000
C		✓	707	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	9	940
	B	0	0	43
	C	673	34	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.11	9.56	0.1	A
B-A	0.00	0.00	0.0	A
C-AB	0.16	4.62	0.5	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	32	504	0.064	32	0.1	7.622	A
B-A	0	271	0.000	0	0.0	0.000	A
C-AB	64	844	0.076	64	0.1	4.613	A
C-A	468			468			
A-B	7			7			
A-C	708			708			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	39	471	0.082	39	0.1	8.334	A
B-A	0	227	0.000	0	0.0	0.000	A
C-AB	95	896	0.106	94	0.2	4.496	A
C-A	541			541			
A-B	8			8			
A-C	845			845			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	47	424	0.112	47	0.1	9.555	A
B-A	0	166	0.000	0	0.0	0.000	A
C-AB	158	973	0.163	157	0.5	4.419	A
C-A	620			620			
A-B	10			10			
A-C	1035			1035			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	47	424	0.112	47	0.1	9.558	A
B-A	0	165	0.000	0	0.0	0.000	A
C-AB	159	974	0.163	159	0.5	4.427	A
C-A	620			620			
A-B	10			10			
A-C	1035			1035			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	39	471	0.082	39	0.1	8.342	A
B-A	0	226	0.000	0	0.0	0.000	A
C-AB	95	897	0.106	96	0.2	4.509	A
C-A	540			540			
A-B	8			8			
A-C	845			845			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	32	504	0.064	32	0.1	7.634	A
B-A	0	271	0.000	0	0.0	0.000	A
C-AB	65	844	0.076	65	0.1	4.624	A
C-A	468			468			
A-B	7			7			
A-C	708			708			

(Default Analysis Set) - With Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	2.20	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	With Development	PM	ONE HOUR	17:00	18:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	771	100.000
B		✓	92	100.000
C		✓	867	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	55	716
	B	46	0	46
	C	784	83	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.12	10.75	0.2	B
B-A	0.27	29.31	0.4	D
C-AB	0.41	6.17	1.9	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	35	534	0.065	34	0.1	7.919	A
B-A	35	298	0.116	34	0.1	14.995	B
C-AB	172	926	0.186	170	0.6	5.240	A
C-A	480			480			
A-B	41			41			
A-C	539			539			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	41	493	0.084	41	0.1	8.767	A
B-A	41	251	0.165	41	0.2	18.839	C
C-AB	259	994	0.261	258	0.9	5.396	A
C-A	520			520			
A-B	49			49			
A-C	644			644			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	51	422	0.120	50	0.1	10.686	B
B-A	51	186	0.272	50	0.4	28.879	D
C-AB	442	1093	0.404	438	1.9	6.093	A
C-A	513			513			
A-B	61			61			
A-C	788			788			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	51	419	0.121	51	0.2	10.751	B
B-A	51	186	0.273	51	0.4	29.310	D
C-AB	445	1096	0.406	445	1.9	6.167	A
C-A	509			509			
A-B	61			61			
A-C	788			788			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	41	490	0.084	42	0.1	8.838	A
B-A	41	250	0.165	42	0.2	19.100	C
C-AB	262	998	0.262	266	1.0	5.472	A
C-A	518			518			
A-B	49			49			
A-C	644			644			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	35	532	0.065	35	0.1	7.968	A
B-A	35	297	0.117	35	0.1	15.135	C
C-AB	175	928	0.188	176	0.6	5.294	A
C-A	478			478			
A-B	41			41			
A-C	539			539			

(Default Analysis Set) - Sensitivity 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	0.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	Sensitivity 2022	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	949	100.000
B		✓	44	100.000
C		✓	710	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	9	940
	B	0	0	44
	C	673	37	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.11	9.59	0.1	A
B-A	0.00	0.00	0.0	A
C-AB	0.18	4.66	0.6	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	33	504	0.066	33	0.1	7.634	A
B-A	0	270	0.000	0	0.0	0.000	A
C-AB	70	844	0.083	69	0.2	4.646	A
C-A	465			465			
A-B	7			7			
A-C	708			708			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	40	471	0.084	39	0.1	8.348	A
B-A	0	226	0.000	0	0.0	0.000	A
C-AB	103	896	0.115	103	0.3	4.542	A
C-A	535			535			
A-B	8			8			
A-C	845			845			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	48	424	0.114	48	0.1	9.575	A
B-A	0	165	0.000	0	0.0	0.000	A
C-AB	172	973	0.177	171	0.5	4.497	A
C-A	610			610			
A-B	10			10			
A-C	1035			1035			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	48	424	0.114	48	0.1	9.586	A
B-A	0	164	0.000	0	0.0	0.000	A
C-AB	173	974	0.177	173	0.6	4.509	A
C-A	609			609			
A-B	10			10			
A-C	1035			1035			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	40	471	0.084	40	0.1	8.358	A
B-A	0	226	0.000	0	0.0	0.000	A
C-AB	104	897	0.116	105	0.3	4.560	A
C-A	535			535			
A-B	8			8			
A-C	845			845			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	33	504	0.066	33	0.1	7.646	A
B-A	0	270	0.000	0	0.0	0.000	A
C-AB	70	844	0.083	71	0.2	4.659	A
C-A	464			464			
A-B	7			7			
A-C	708			708			

(Default Analysis Set) - Sensitivity 2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	2.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	Sensitivity 2022	PM	ONE HOUR	17:00	18:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	775	100.000
B		✓	98	100.000
C		✓	873	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	59	716
	B	49	0	49
	C	784	89	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.13	11.15	0.2	B
B-A	0.30	30.89	0.5	D
C-AB	0.44	6.52	2.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	37	531	0.069	37	0.1	7.999	A
B-A	37	296	0.125	36	0.2	15.242	C
C-AB	185	926	0.200	183	0.6	5.331	A
C-A	472			472			
A-B	44			44			
A-C	539			539			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	44	488	0.090	44	0.1	8.910	A
B-A	44	248	0.177	44	0.2	19.327	C
C-AB	278	994	0.280	277	1.0	5.544	A
C-A	507			507			
A-B	53			53			
A-C	644			644			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	54	412	0.131	54	0.2	11.045	B
B-A	54	183	0.295	53	0.4	30.344	D
C-AB	475	1093	0.435	471	2.1	6.417	A
C-A	486			486			
A-B	65			65			
A-C	788			788			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	54	409	0.132	54	0.2	11.153	B
B-A	54	182	0.296	54	0.5	30.890	D
C-AB	479	1096	0.437	478	2.1	6.516	A
C-A	483			483			
A-B	65			65			
A-C	788			788			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	44	485	0.091	44	0.1	8.991	A
B-A	44	247	0.178	45	0.2	19.639	C
C-AB	281	998	0.282	286	1.1	5.633	A
C-A	503			503			
A-B	53			53			
A-C	644			644			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	37	529	0.070	37	0.1	8.052	A
B-A	37	295	0.125	37	0.2	15.398	C
C-AB	187	928	0.202	189	0.6	5.394	A
C-A	470			470			
A-B	44			44			
A-C	539			539			

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: East Junction Base and Do Minimum.j9
Path: P:\STH\2018\107696 Gurnell LC Revised Submission\30 Technical\31 Modelling\Junction Models\Models\Eastern Junction\Base and Do Min Models
Report generation date: 14/11/2018 13:08:38

»(Default Analysis Set) - Baseline , AM
»(Default Analysis Set) - Baseline , PM
»(Default Analysis Set) - Do Minimum , AM
»(Default Analysis Set) - Do Minimum , PM

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - Do Minimum			
Stream B-C	0.0	0.00	0.00	A
Stream B-A	0.0	0.00	0.00	A
Stream C-AB	0.0	8.00	0.01	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle

File summary

File Description

Title	Gurnell Leisure Centre
Location	Staff Access Point
Site number	
Date	18/09/2017
Version	1
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Baseline	AM	ONE HOUR	08:00	09:30	15
D2	Baseline	PM	ONE HOUR	17:00	18:30	15
D3	Do Minimum	AM	ONE HOUR	08:00	09:30	15
D4	Do Minimum	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

(Default Analysis Set) - Baseline , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	0.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Ruislip Road East (Westbound)		Major
B	Staff Access		Minor
C	Ruislip Road East (Eastbound)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			100.0	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	9.82	4.25	3.60	3.60	3.60		1.00	28	28

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	550	0.096	0.242	0.152	0.346
1	B-C	764	0.112	0.283	-	-
1	C-B	632	0.234	0.234	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only, they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Baseline	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	882	100.000
B		✓	1	100.000
C		✓	635	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	1	881
	B	0	0	1
	C	631	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.00	0.00	0.0	A
B-A	0.00	0.00	0.0	A
C-AB	0.01	8.83	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	576	0.000	0	0.0	0.000	A
B-A	0	316	0.000	0	0.0	0.000	A
C-AB	3	479	0.006	3	0.0	7.556	A
C-A	475			475			
A-B	0.75			0.75			
A-C	663			663			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	540	0.000	0	0.0	0.000	A
B-A	0	270	0.000	0	0.0	0.000	A
C-AB	4	451	0.008	4	0.0	8.050	A
C-A	567			567			
A-B	0.90			0.90			
A-C	792			792			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	489	0.000	0	0.0	0.000	A
B-A	0	208	0.000	0	0.0	0.000	A
C-AB	4	412	0.011	4	0.0	8.832	A
C-A	695			695			
A-B	1			1			
A-C	970			970			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	489	0.000	0	0.0	0.000	A
B-A	0	208	0.000	0	0.0	0.000	A
C-AB	4	412	0.011	4	0.0	8.832	A
C-A	695			695			
A-B	1			1			
A-C	970			970			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	540	0.000	0	0.0	0.000	A
B-A	0	270	0.000	0	0.0	0.000	A
C-AB	4	451	0.008	4	0.0	8.051	A
C-A	567			567			
A-B	0.90			0.90			
A-C	792			792			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	576	0.000	0	0.0	0.000	A
B-A	0	316	0.000	0	0.0	0.000	A
C-AB	3	479	0.006	3	0.0	7.559	A
C-A	475			475			
A-B	0.75			0.75			
A-C	663			663			

(Default Analysis Set) - Baseline , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	0.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	Baseline	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	673	100.000
B		✓	2	100.000
C		✓	737	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	671
	B	1	0	1
	C	734	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.00	0.00	0.0	A
B-A	0.00	0.00	0.0	A
C-AB	0.01	7.81	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	821	0.000	0	0.0	0.000	A
B-A	0	343	0.000	0	0.0	0.000	A
C-AB	2	516	0.004	2	0.0	7.011	A
C-A	553			553			
A-B	2			2			
A-C	505			505			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	593	0.000	0	0.0	0.000	A
B-A	0	302	0.000	0	0.0	0.000	A
C-AB	3	494	0.006	3	0.0	7.329	A
C-A	660			660			
A-B	2			2			
A-C	603			603			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	555	0.000	0	0.0	0.000	A
B-A	0	247	0.000	0	0.0	0.000	A
C-AB	3	464	0.007	3	0.0	7.811	A
C-A	808			808			
A-B	2			2			
A-C	739			739			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	555	0.000	0	0.0	0.000	A
B-A	0	247	0.000	0	0.0	0.000	A
C-AB	3	464	0.007	3	0.0	7.813	A
C-A	808			808			
A-B	2			2			
A-C	739			739			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	593	0.000	0	0.0	0.000	A
B-A	0	302	0.000	0	0.0	0.000	A
C-AB	3	494	0.006	3	0.0	7.329	A
C-A	660			660			
A-B	2			2			
A-C	603			603			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	621	0.000	0	0.0	0.000	A
B-A	0	343	0.000	0	0.0	0.000	A
C-AB	2	516	0.004	2	0.0	7.014	A
C-A	553			553			
A-B	2			2			
A-C	505			505			

(Default Analysis Set) - Do Minimum , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	0.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	Do Minimum	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	941	100.000
B		✓	1	100.000
C		✓	677	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	1	940
	B	0	0	1
	C	673	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.00	0.00	0.0	A
B-A	0.00	0.00	0.0	A
C-AB	0.01	9.16	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	564	0.000	0	0.0	0.000	A
B-A	0	300	0.000	0	0.0	0.000	A
C-AB	3	469	0.006	3	0.0	7.721	A
C-A	507			507			
A-B	0.75			0.75			
A-C	708			708			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	525	0.000	0	0.0	0.000	A
B-A	0	252	0.000	0	0.0	0.000	A
C-AB	4	439	0.008	4	0.0	8.272	A
C-A	605			605			
A-B	0.90			0.90			
A-C	845			845			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	471	0.000	0	0.0	0.000	A
B-A	0	185	0.000	0	0.0	0.000	A
C-AB	4	398	0.011	4	0.0	9.156	A
C-A	741			741			
A-B	1			1			
A-C	1035			1035			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	471	0.000	0	0.0	0.000	A
B-A	0	185	0.000	0	0.0	0.000	A
C-AB	4	398	0.011	4	0.0	9.158	A
C-A	741			741			
A-B	1			1			
A-C	1035			1035			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	525	0.000	0	0.0	0.000	A
B-A	0	252	0.000	0	0.0	0.000	A
C-AB	4	439	0.008	4	0.0	8.274	A
C-A	605			605			
A-B	0.90			0.90			
A-C	845			845			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	564	0.000	0	0.0	0.000	A
B-A	0	300	0.000	0	0.0	0.000	A
C-AB	3	469	0.006	3	0.0	7.723	A
C-A	507			507			
A-B	0.75			0.75			
A-C	708			708			

(Default Analysis Set) - Do Minimum , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	0.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	Do Minimum	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	718	100.000
B		✓	2	100.000
C		✓	787	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	2	716
	B	1	0	1
	C	784	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.00	0.00	0.0	A
B-A	0.00	0.00	0.0	A
C-AB	0.01	8.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	611	0.000	0	0.0	0.000	A
B-A	0	329	0.000	0	0.0	0.000	A
C-AB	2	508	0.004	2	0.0	7.118	A
C-A	590			590			
A-B	2			2			
A-C	539			539			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	582	0.000	0	0.0	0.000	A
B-A	0	286	0.000	0	0.0	0.000	A
C-AB	3	485	0.006	3	0.0	7.468	A
C-A	705			705			
A-B	2			2			
A-C	644			644			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	541	0.000	0	0.0	0.000	A
B-A	0	226	0.000	0	0.0	0.000	A
C-AB	3	453	0.007	3	0.0	8.003	A
C-A	863			863			
A-B	2			2			
A-C	788			788			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	541	0.000	0	0.0	0.000	A
B-A	0	226	0.000	0	0.0	0.000	A
C-AB	3	453	0.007	3	0.0	8.003	A
C-A	863			863			
A-B	2			2			
A-C	788			788			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	582	0.000	0	0.0	0.000	A
B-A	0	286	0.000	0	0.0	0.000	A
C-AB	3	485	0.006	3	0.0	7.468	A
C-A	705			705			
A-B	2			2			
A-C	644			644			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	611	0.000	0	0.0	0.000	A
B-A	0	329	0.000	0	0.0	0.000	A
C-AB	2	508	0.004	2	0.0	7.121	A
C-A	590			590			
A-B	2			2			
A-C	539			539			

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Ruislip Roundabout.j9
Path: P:\STH\2018\107696 Gumell LC Revised Submission\30 Technical\31 Modelling\Junction Models\Models\Ruislip Road Roundabout
Report generation date: 14/11/2018 17:22:18

»(Default Analysis Set) - Scenario 1, AM
»(Default Analysis Set) - Scenario 1, PM
»(Default Analysis Set) - Scenario 2 - Do Min, AM
»(Default Analysis Set) - Scenario 2 - Do Min, PM
»(Default Analysis Set) - Scenario 3 - With Dev, AM
»(Default Analysis Set) - Scenario 3 - With Dev, PM
»(Default Analysis Set) - Sensitivity 2022, AM
»(Default Analysis Set) - Sensitivity 2022, PM

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - Sensitivity 2022			
Arm A	2.4	6.96	0.71	A
Arm B	0.9	3.85	0.46	A
Arm C	4.6	11.09	0.83	B

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Gumell Leisure Centre
Location	Ruislip Road East/Argyle Road Roundabout
Site number	
Date	30/06/2017
Version	1
Status	Draft
Identifier	
Client	London Borough of Ealing
Jobnumber	ST17312
Enumerator	
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Scenario 1	AM	ONE HOUR	08:00	09:30	15
D2	Scenario 1	PM	ONE HOUR	17:00	18:30	15
D4	Scenario 2 - Do Min	AM	ONE HOUR	08:00	09:30	15
D5	Scenario 2 - Do Min	PM	ONE HOUR	17:00	18:30	15
D6	Scenario 3 - With Dev	AM	ONE HOUR	08:00	09:30	15
D7	Scenario 3 - With Dev	PM	ONE HOUR	17:00	18:30	15
D8	Sensitivity 2022	AM	ONE HOUR	08:00	09:30	15
D9	Sensitivity 2022	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

(Default Analysis Set) - Scenario 1, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Ruislip Road/Argyle Road Roundabout	Standard Roundabout	A, B, C	8.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Argyle Road (S)	
B	Ruislip Road East	
C	Argyle Road (S)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	6.09	7.95	13.4	19.0	28.2	30.7	
B	6.60	7.93	29.3	20.6	28.2	27.4	
C	5.77	6.93	11.5	24.5	28.2	20.1	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.766	2224
B	0.801	2376
C	0.755	2101

The slope and intercept shown above include any corrections and adjustments

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Scenario 1	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	921	100.000
B		✓	819	100.000
C		✓	1303	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	1	323	597
	B	511	0	308
	C	868	435	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A	0.55	4.27	1.2	A
B	0.49	3.80	0.9	A
C	0.86	14.71	5.6	B

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	693	326	1975	0.351	691	0.5	2.800	A
B	617	449	2016	0.306	615	0.4	2.565	A
C	981	384	1811	0.542	976	1.2	4.288	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	828	390	1926	0.430	827	0.7	3.277	A
B	736	537	1946	0.378	736	0.6	2.974	A
C	1171	460	1754	0.668	1168	2.0	6.109	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1014	474	1861	0.545	1012	1.2	4.233	A
B	902	657	1849	0.488	900	0.9	3.789	A
C	1435	563	1676	0.856	1421	5.4	13.436	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1014	479	1858	0.546	1014	1.2	4.266	A
B	902	658	1848	0.488	902	0.9	3.802	A
C	1435	564	1676	0.856	1434	5.6	14.711	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	828	396	1921	0.431	830	0.8	3.305	A
B	736	539	1944	0.379	738	0.6	2.988	A
C	1171	461	1753	0.668	1186	2.1	6.498	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	693	329	1973	0.352	694	0.5	2.819	A
B	617	451	2015	0.306	617	0.4	2.579	A
C	981	386	1810	0.542	984	1.2	4.379	A

(Default Analysis Set) - Scenario 1, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Ruislip Road/Argyle Road Roundabout	Standard Roundabout	A, B, C	5.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	Scenario 1	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1037	100.000
B		✓	644	100.000
C		✓	1252	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	1	365	671
	B	266	0	378
	C	803	449	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A	0.62	5.11	1.6	A
B	0.40	3.35	0.7	A
C	0.73	7.18	2.7	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	781	337	1966	0.397	778	0.7	3.023	A
B	485	504	1972	0.246	484	0.3	2.416	A
C	943	200	1950	0.483	939	0.9	3.547	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	932	403	1916	0.487	931	0.9	3.653	A
B	579	603	1892	0.306	578	0.4	2.740	A
C	1126	240	1920	0.586	1124	1.4	4.507	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1142	493	1847	0.618	1139	1.6	5.067	A
B	709	738	1784	0.397	708	0.7	3.342	A
C	1378	294	1880	0.733	1373	2.7	7.038	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1142	494	1846	0.619	1142	1.6	5.113	A
B	709	740	1783	0.398	709	0.7	3.351	A
C	1378	294	1879	0.733	1378	2.7	7.177	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	932	405	1914	0.487	935	1.0	3.689	A
B	579	606	1890	0.306	580	0.4	2.748	A
C	1126	240	1920	0.586	1131	1.4	4.591	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	781	339	1965	0.397	782	0.7	3.045	A
B	485	507	1970	0.246	485	0.3	2.427	A
C	943	201	1949	0.484	945	0.9	3.588	A

(Default Analysis Set) - Scenario 2 - Do Min, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Ruislip Road/Argyle Road Roundabout	Standard Roundabout	A, B, C	15.53	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	Scenario 2 - Do Min	AM	ONE HOUR	08:00	09:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	983	100.000
B		✓	874	100.000
C		✓	1390	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	1	345	637
	B	545	0	329
	C	926	464	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A	0.59	5.26	1.6	A
B	0.53	4.65	1.2	A
C	0.93	29.63	11.8	D

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	740	347	1958	0.378	737	0.7	3.237	A
B	658	479	1992	0.330	656	0.5	2.957	A
C	1046	410	1792	0.584	1040	1.5	5.228	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	884	415	1908	0.464	883	0.9	3.865	A
B	786	573	1917	0.410	785	0.8	3.493	A
C	1250	490	1731	0.722	1245	2.8	8.056	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1082	501	1841	0.588	1080	1.5	5.187	A
B	962	701	1814	0.530	960	1.2	4.627	A
C	1530	600	1648	0.929	1500	10.4	23.096	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1082	509	1835	0.590	1082	1.6	5.283	A
B	962	702	1813	0.531	962	1.2	4.654	A
C	1530	601	1647	0.929	1525	11.8	29.632	D

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	884	429	1898	0.466	886	1.0	3.930	A
B	786	575	1915	0.410	788	0.8	3.517	A
C	1250	492	1730	0.722	1285	3.0	9.572	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	740	351	1955	0.378	741	0.7	3.266	A
B	658	481	1990	0.331	659	0.5	2.975	A
C	1046	412	1791	0.584	1052	1.6	5.403	A

(Default Analysis Set) - Scenario 2 - Do Min, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Ruislip Road/Argyle Road Roundabout	Standard Roundabout	A, B, C	6.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	Scenario 2 - Do Min	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1107	100.000
B		✓	688	100.000
C		✓	1336	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	1	390	716
	B	284	0	404
	C	857	479	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A	0.67	5.98	2.0	A
B	0.43	3.65	0.8	A
C	0.79	9.12	3.7	A

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	833	359	1949	0.428	830	0.7	3.210	A
B	518	538	1945	0.266	517	0.4	2.518	A
C	1006	214	1940	0.519	1002	1.1	3.820	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	995	430	1895	0.525	994	1.1	3.987	A
B	618	644	1860	0.333	618	0.5	2.896	A
C	1201	256	1908	0.629	1199	1.7	5.057	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1219	525	1823	0.669	1215	2.0	5.895	A
B	758	787	1745	0.434	756	0.8	3.638	A
C	1471	313	1865	0.789	1463	3.6	8.805	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1219	527	1821	0.669	1219	2.0	5.980	A
B	758	789	1743	0.435	757	0.8	3.650	A
C	1471	314	1864	0.789	1471	3.7	9.122	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	995	433	1892	0.526	999	1.1	4.045	A
B	618	647	1858	0.333	620	0.5	2.909	A
C	1201	257	1908	0.630	1209	1.7	5.208	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	833	362	1947	0.428	835	0.8	3.241	A
B	518	541	1943	0.267	519	0.4	2.528	A
C	1006	215	1939	0.519	1008	1.1	3.877	A

(Default Analysis Set) - Scenario 3 - With Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Ruislip Road/Argyle Road Roundabout	Standard Roundabout	A, B, C	18.35	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	Scenario 3 - With Dev	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	996	100.000
B		✓	917	100.000
C		✓	1411	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	359	637
	B	572	0	345
	C	926	485	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A	0.60	4.99	1.5	A
B	0.56	4.48	1.2	A
C	0.96	36.80	15.0	E

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	750	363	1946	0.385	747	0.6	2.996	A
B	690	478	1993	0.346	688	0.5	2.754	A
C	1062	429	1777	0.598	1056	1.5	4.956	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	895	434	1892	0.473	894	0.9	3.606	A
B	824	572	1918	0.430	823	0.7	3.287	A
C	1268	514	1713	0.740	1263	2.8	7.906	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1097	521	1826	0.601	1094	1.5	4.907	A
B	1010	700	1815	0.556	1008	1.2	4.448	A
C	1554	629	1627	0.955	1515	12.4	26.162	D

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1097	531	1818	0.603	1097	1.5	4.989	A
B	1010	701	1814	0.557	1010	1.2	4.475	A
C	1554	630	1626	0.956	1543	15.0	36.798	E

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	895	452	1878	0.477	898	0.9	3.681	A
B	824	574	1916	0.430	826	0.8	3.312	A
C	1268	515	1712	0.741	1316	3.0	10.150	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	750	367	1943	0.386	751	0.6	3.024	A
B	690	480	1991	0.347	691	0.5	2.773	A
C	1062	431	1776	0.598	1068	1.5	5.129	A

(Default Analysis Set) - Scenario 3 - With Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Ruislip Road/Argyle Road Roundabout	Standard Roundabout	A, B, C	7.90	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	Scenario 3 - With Dev	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1143	100.000
B		✓	734	100.000
C		✓	1382	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	427	716
	B	303	0	431
	C	857	525	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A	0.71	6.87	2.4	A
B	0.46	3.85	0.9	A
C	0.82	10.92	4.5	B

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	861	393	1923	0.448	857	0.8	3.369	A
B	553	537	1946	0.284	551	0.4	2.579	A
C	1040	227	1930	0.539	1036	1.2	4.007	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1028	471	1864	0.551	1026	1.2	4.288	A
B	660	643	1861	0.355	659	0.5	2.994	A
C	1242	272	1896	0.655	1240	1.9	5.460	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1258	574	1785	0.705	1254	2.3	6.729	A
B	808	786	1746	0.463	807	0.9	3.827	A
C	1522	333	1850	0.823	1512	4.4	10.350	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1258	578	1782	0.706	1258	2.4	6.872	A
B	808	788	1744	0.463	808	0.9	3.845	A
C	1522	334	1849	0.823	1521	4.5	10.915	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1028	476	1860	0.552	1032	1.2	4.373	A
B	660	646	1858	0.355	661	0.6	3.010	A
C	1242	273	1895	0.656	1253	1.9	5.689	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	861	396	1921	0.448	862	0.8	3.408	A
B	553	540	1943	0.284	553	0.4	2.590	A
C	1040	228	1929	0.539	1043	1.2	4.080	A

(Default Analysis Set) - Sensitivity 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Ruislip Road/Argyle Road Roundabout	Standard Roundabout	A, B, C	18.44	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	Sensitivity 2022	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	997	100.000
B		✓	918	100.000
C		✓	1411	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	360	637
	B	573	0	345
	C	926	485	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A	0.60	5.00	1.5	A
B	0.56	4.48	1.3	A
C	0.96	37.02	15.0	E

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	751	363	1946	0.386	748	0.6	2.998	A
B	691	478	1993	0.347	689	0.5	2.756	A
C	1062	430	1777	0.598	1056	1.5	4.960	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	896	434	1892	0.474	895	0.9	3.609	A
B	825	572	1918	0.430	824	0.8	3.289	A
C	1268	515	1713	0.741	1263	2.8	7.917	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1098	521	1826	0.601	1095	1.5	4.914	A
B	1011	700	1815	0.557	1009	1.2	4.454	A
C	1554	630	1628	0.956	1515	12.5	26.265	D

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1098	530	1818	0.604	1098	1.5	4.996	A
B	1011	701	1814	0.557	1011	1.3	4.462	A
C	1554	631	1625	0.956	1543	15.0	37.017	E

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	896	453	1876	0.477	899	0.9	3.687	A
B	825	574	1916	0.431	827	0.8	3.312	A
C	1268	516	1711	0.741	1317	3.0	10.188	B

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	751	367	1943	0.386	752	0.6	3.023	A
B	691	480	1991	0.347	692	0.5	2.772	A
C	1062	432	1775	0.598	1068	1.5	5.134	A

(Default Analysis Set) - Sensitivity 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Ruislip Road/Argyle Road Roundabout	Standard Roundabout	A, B, C	8.01	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	Sensitivity 2022	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	1146	100.000
B		✓	736	100.000
C		✓	1386	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	430	716
	B	304	0	432
	C	857	529	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
A	0.71	6.98	2.4	A
B	0.46	3.85	0.9	A
C	0.83	11.09	4.6	B

Main Results for each time segment

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	863	396	1921	0.449	860	0.8	3.383	A
B	554	537	1946	0.285	553	0.4	2.582	A
C	1043	228	1929	0.541	1039	1.2	4.023	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1030	474	1861	0.554	1029	1.2	4.316	A
B	662	643	1861	0.356	661	0.5	2.998	A
C	1246	273	1895	0.657	1243	1.9	5.496	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1262	579	1781	0.708	1257	2.4	6.809	A
B	810	785	1746	0.464	809	0.9	3.836	A
C	1526	334	1849	0.825	1516	4.4	10.496	B

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1262	582	1778	0.709	1262	2.4	6.961	A
B	810	788	1744	0.465	810	0.9	3.854	A
C	1526	335	1849	0.825	1525	4.6	11.088	B

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	1030	480	1857	0.555	1035	1.3	4.402	A
B	662	647	1858	0.356	663	0.6	3.017	A
C	1246	274	1895	0.658	1256	2.0	5.730	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
A	863	399	1918	0.450	865	0.8	3.423	A
B	554	540	1943	0.285	555	0.4	2.593	A
C	1043	229	1928	0.541	1047	1.2	4.097	A

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.2.5947

Filename: Base and Do Minimum.j9
Path: P:\STH\2018\107696 Gurnell LC Revised Submission\30 Technical\31 Modelling\Junction Models\Models\Western Junction\Base and Do Minimum
Report generation date: 14/11/2018 16:07:57

»(Default Analysis Set) - Baseline , AM
»(Default Analysis Set) - Baseline, PM
»(Default Analysis Set) - Do Minimum , AM
»(Default Analysis Set) - Do Minimum , PM

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - Do Minimum			
Stream B-C	0.1	7.71	0.09	A
Stream B-A	0.2	17.15	0.15	C
Stream C-AB	1.0	4.43	0.25	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle

File summary

File Description

Title	Gurnell Leisure Centre
Location	Main Site Access
Site number	
Date	18/09/2017
Version	1
Status	(new file)
Identifier	
Client	
Jobnumber	ST17312
Enumerator	
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Baseline	AM	ONE HOUR	08:00	09:30	15
D2	Baseline	PM	ONE HOUR	17:00	18:30	15
D3	Do Minimum	AM	ONE HOUR	08:00	09:30	15
D4	Do Minimum	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

(Default Analysis Set) - Baseline , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Ruislip Road East (Westbound)		Major
B	Site Access		Minor
C	Ruislip Road (Eastbound)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			80.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	9.82	4.25	3.60	3.60	3.60		0.10	35	110

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	642	0.112	0.283	0.178	0.404
1	B-C	763	0.112	0.283	-	-
1	C-B	820	0.230	0.230	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only, they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Baseline	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	861	100.000
B		✓	6	100.000
C		✓	638	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	13	848
	B	2	0	4
	C	626	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	7.32	0.0	A
B-A	0.01	14.62	0.0	B
C-AB	0.05	4.51	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	3	581	0.005	3	0.0	6.228	A
B-A	2	373	0.004	1	0.0	9.690	A
C-AB	21	819	0.026	21	0.0	4.511	A
C-A	459			459			
A-B	10			10			
A-C	638			638			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	545	0.007	4	0.0	6.642	A
B-A	2	321	0.006	2	0.0	11.287	B
C-AB	31	867	0.036	31	0.0	4.305	A
C-A	543			543			
A-B	12			12			
A-C	762			762			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	496	0.009	4	0.0	7.316	A
B-A	2	248	0.009	2	0.0	14.616	B
C-AB	50	938	0.053	50	0.1	4.055	A
C-A	652			652			
A-B	14			14			
A-C	934			934			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	496	0.009	4	0.0	7.316	A
B-A	2	248	0.009	2	0.0	14.618	B
C-AB	50	938	0.053	50	0.1	4.056	A
C-A	652			652			
A-B	14			14			
A-C	934			934			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	545	0.007	4	0.0	6.642	A
B-A	2	321	0.006	2	0.0	11.290	B
C-AB	31	867	0.036	31	0.0	4.309	A
C-A	543			543			
A-B	12			12			
A-C	762			762			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	3	581	0.005	3	0.0	6.228	A
B-A	2	373	0.004	2	0.0	9.694	A
C-AB	21	819	0.026	21	0.0	4.512	A
C-A	459			459			
A-B	10			10			
A-C	638			638			

(Default Analysis Set) - Baseline, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	1.01	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	Baseline	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	667	100.000
B		✓	72	100.000
C		✓	783	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	42	625
	B	32	0	40
	C	734	49	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.08	7.35	0.1	A
B-A	0.13	15.16	0.1	C
C-AB	0.22	4.47	0.8	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	30	614	0.049	30	0.1	6.162	A
B-A	24	391	0.062	24	0.1	9.801	A
C-AB	95	902	0.105	94	0.2	4.455	A
C-A	494			494			
A-B	32			32			
A-C	471			471			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	36	582	0.062	36	0.1	6.590	A
B-A	29	341	0.084	29	0.1	11.507	B
C-AB	140	966	0.145	139	0.4	4.361	A
C-A	564			564			
A-B	38			38			
A-C	562			562			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	44	534	0.082	44	0.1	7.342	A
B-A	35	273	0.129	35	0.1	15.113	C
C-AB	231	1058	0.218	229	0.8	4.360	A
C-A	631			631			
A-B	46			46			
A-C	688			688			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	44	534	0.083	44	0.1	7.349	A
B-A	35	273	0.129	35	0.1	15.162	C
C-AB	232	1059	0.219	232	0.8	4.375	A
C-A	630			630			
A-B	46			46			
A-C	688			688			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	36	582	0.062	36	0.1	6.598	A
B-A	29	341	0.084	29	0.1	11.551	B
C-AB	141	967	0.146	143	0.4	4.384	A
C-A	563			563			
A-B	38			38			
A-C	562			562			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	30	614	0.049	30	0.1	6.168	A
B-A	24	390	0.062	24	0.1	9.832	A
C-AB	96	903	0.106	97	0.2	4.471	A
C-A	493			493			
A-B	32			32			
A-C	471			471			

(Default Analysis Set) - Do Minimum , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.16	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	Do Minimum	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	919	100.000
B		✓	6	100.000
C		✓	681	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	14	905
	B	2	0	4
	C	668	13	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	7.59	0.0	A
B-A	0.01	16.39	0.0	C
C-AB	0.06	4.44	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	3	569	0.005	3	0.0	6.363	A
B-A	2	355	0.004	1	0.0	10.188	B
C-AB	25	835	0.029	24	0.0	4.440	A
C-A	488			488			
A-B	11			11			
A-C	681			681			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	531	0.007	4	0.0	6.826	A
B-A	2	299	0.006	2	0.0	12.110	B
C-AB	36	867	0.041	36	0.1	4.229	A
C-A	576			576			
A-B	13			13			
A-C	814			814			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	478	0.009	4	0.0	7.594	A
B-A	2	222	0.010	2	0.0	16.381	C
C-AB	60	965	0.063	60	0.1	3.980	A
C-A	689			689			
A-B	15			15			
A-C	996			996			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	478	0.009	4	0.0	7.594	A
B-A	2	222	0.010	2	0.0	16.386	C
C-AB	61	965	0.063	61	0.1	3.981	A
C-A	689			689			
A-B	15			15			
A-C	996			996			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	531	0.007	4	0.0	6.827	A
B-A	2	299	0.006	2	0.0	12.114	B
C-AB	36	888	0.041	37	0.1	4.233	A
C-A	576			576			
A-B	13			13			
A-C	814			814			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	3	569	0.005	3	0.0	6.363	A
B-A	2	355	0.004	2	0.0	10.190	B
C-AB	25	835	0.030	25	0.0	4.443	A
C-A	488			488			
A-B	11			11			
A-C	681			681			

(Default Analysis Set) - Do Minimum , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	1.11	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	Do Minimum	PM	ONE HOUR	17:00	18:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	712	100.000
B		✓	77	100.000
C		✓	836	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	45	667
	B	34	0	43
	C	784	52	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.09	7.71	0.1	A
B-A	0.15	17.15	0.2	C
C-AB	0.25	4.43	1.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	32	603	0.054	32	0.1	6.298	A
B-A	26	374	0.068	25	0.1	10.321	B
C-AB	108	924	0.117	107	0.3	4.406	A
C-A	521			521			
A-B	34			34			
A-C	502			502			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	39	568	0.068	39	0.1	6.793	A
B-A	31	321	0.095	30	0.1	12.386	B
C-AB	162	993	0.163	161	0.5	4.334	A
C-A	589			589			
A-B	40			40			
A-C	600			600			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	47	515	0.092	47	0.1	7.701	A
B-A	37	248	0.151	37	0.2	17.068	C
C-AB	275	1093	0.252	273	1.0	4.407	A
C-A	645			645			
A-B	50			50			
A-C	734			734			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	47	514	0.092	47	0.1	7.711	A
B-A	37	247	0.151	37	0.2	17.148	C
C-AB	277	1095	0.253	277	1.0	4.430	A
C-A	644			644			
A-B	50			50			
A-C	734			734			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	39	568	0.068	39	0.1	6.801	A
B-A	31	320	0.095	31	0.1	12.450	B
C-AB	164	995	0.164	165	0.5	4.361	A
C-A	588			588			
A-B	40			40			
A-C	600			600			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	32	603	0.054	32	0.1	6.312	A
B-A	26	373	0.069	26	0.1	10.361	B
C-AB	109	925	0.118	110	0.3	4.427	A
C-A	520			520			
A-B	34			34			
A-C	502			502			

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.0.2.5947

Filename: With Dev and Sensitivity Test.j9
Path: P:\STH\2018\107696 Gurnell LC Revised Submission\30 Technical\31 Modelling\Junction Models\Models\Western Junction\With Dev and Sensitivity Test
Report generation date: 14/11/2018 19:40:43

»(Default Analysis Set) - With Development, AM
»(Default Analysis Set) - With Development , PM
»(Default Analysis Set) - 2022 AM Sensitivity Test, AM
»(Default Analysis Set) - 2022 PM Sensitivity Test, PM

Summary of junction performance

	PM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 2022 PM Sensitivity Test			
Stream B-C	0.0	6.21	0.01	A
Stream B-A	0.0	0.00	0.00	A
Stream C-AB	0.1	4.16	0.05	A

There are warnings associated with this model run - see the 'Data Errors and Warnings' tables

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Gurnell Leisure Centre
Location	Main Site Access
Site number	
Date	18/09/2017
Version	1
Status	(new file)
Identifier	
Client	
Jobnumber	ST17312
Enumerator	
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	With Development	AM	ONE HOUR	08:00	09:30	15
D6	With Development	PM	ONE HOUR	17:00	18:30	15
D7	2022 AM Sensitivity Test	AM	ONE HOUR	08:00	09:30	15
D8	2022 PM Sensitivity Test	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	(Default Analysis Set)	100.000

(Default Analysis Set) - With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2022 AM Sensitivity Test, AM	Demand Set 7: Scenario Name includes Time Period Name ('AM'). Are you sure this is correct?
Warning	Demand Sets	D8 - 2022 PM Sensitivity Test, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.03	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Ruislip Road East (Westbound)		Major
B	Site Access		Minor
C	Ruislip Road (Eastbound)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.60			80.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	7.27	6.02	4.30	3.94		0.10	197	235

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	727	0.123	0.311	0.196	0.445
1	B-C	840	0.120	0.303	-	-
1	C-B	620	0.224	0.224	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only: they may differ for subsequent time segments

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	With Development	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	949	100.000
B		✓	4	100.000
C		✓	705	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	1	948
	B	0	0	4
	C	702	3	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.00	0.00	0.0	A
B-A	0.00	0.00	0.0	A
C-AB	0.02	4.25	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	624	0.000	0	0.0	0.000	A
B-A	0	400	0.000	0	0.0	0.000	A
C-AB	6	854	0.007	6	0.0	4.245	A
C-A	525			525			
A-B	0.75			0.75			
A-C	714			714			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	582	0.000	0	0.0	0.000	A
B-A	0	337	0.000	0	0.0	0.000	A
C-AB	9	910	0.010	9	0.0	3.994	A
C-A	625			625			
A-B	0.90			0.90			
A-C	852			852			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	524	0.000	0	0.0	0.000	A
B-A	0	249	0.000	0	0.0	0.000	A
C-AB	15	994	0.015	15	0.0	3.677	A
C-A	761			761			
A-B	1			1			
A-C	1044			1044			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	524	0.000	0	0.0	0.000	A
B-A	0	249	0.000	0	0.0	0.000	A
C-AB	15	994	0.015	15	0.0	3.680	A
C-A	761			761			
A-B	1			1			
A-C	1044			1044			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	582	0.000	0	0.0	0.000	A
B-A	0	337	0.000	0	0.0	0.000	A
C-AB	9	910	0.010	9	0.0	3.996	A
C-A	625			625			
A-B	0.90			0.90			
A-C	852			852			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	624	0.000	0	0.0	0.000	A
B-A	0	400	0.000	0	0.0	0.000	A
C-AB	6	854	0.007	6	0.0	4.247	A
C-A	525			525			
A-B	0.75			0.75			
A-C	714			714			

(Default Analysis Set) - With Development , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2022 AM Sensitivity Test, AM	Demand Set 7: Scenario Name includes Time Period Name ('AM'). Are you sure this is correct?
Warning	Demand Sets	D8 - 2022 PM Sensitivity Test, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.11	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	With Development	PM	ONE HOUR	17:00	18:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	719	100.000
B		✓	5	100.000
C		✓	875	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	6	713
	B	0	0	5
	C	867	8	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	6.20	0.0	A
B-A	0.00	0.00	0.0	A
C-AB	0.04	4.16	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	725	0.005	4	0.0	5.492	A
B-A	0	385	0.000	0	0.0	0.000	A
C-AB	18	971	0.019	18	0.0	4.156	A
C-A	640			640			
A-B	5			5			
A-C	537			537			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	691	0.007	4	0.0	5.769	A
B-A	0	333	0.000	0	0.0	0.000	A
C-AB	28	1049	0.027	28	0.0	3.877	A
C-A	759			759			
A-B	5			5			
A-C	641			641			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	6	644	0.009	5	0.0	6.202	A
B-A	0	261	0.000	0	0.0	0.000	A
C-AB	49	1163	0.042	49	0.1	3.555	A
C-A	914			914			
A-B	7			7			
A-C	785			785			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	6	644	0.009	6	0.0	6.202	A
B-A	0	261	0.000	0	0.0	0.000	A
C-AB	49	1163	0.043	49	0.1	3.558	A
C-A	914			914			
A-B	7			7			
A-C	785			785			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	691	0.007	5	0.0	5.769	A
B-A	0	333	0.000	0	0.0	0.000	A
C-AB	28	1049	0.027	28	0.0	3.878	A
C-A	758			758			
A-B	5			5			
A-C	641			641			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	725	0.005	4	0.0	5.494	A
B-A	0	385	0.000	0	0.0	0.000	A
C-AB	18	971	0.019	19	0.0	4.157	A
C-A	640			640			
A-B	5			5			
A-C	537			537			

(Default Analysis Set) - 2022 AM Sensitivity Test, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2022 AM Sensitivity Test, AM	Demand Set 7: Scenario Name includes Time Period Name ('AM'). Are you sure this is correct?
Warning	Demand Sets	D8 - 2022 PM Sensitivity Test, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.04	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2022 AM Sensitivity Test	AM	ONE HOUR	08:00	09:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	950	100.000
B		✓	4	100.000
C		✓	709	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	1	949
	B	0	0	4
	C	705	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.00	0.00	0.0	A
B-A	0.00	0.00	0.0	A
C-AB	0.02	4.25	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	624	0.000	0	0.0	0.000	A
B-A	0	399	0.000	0	0.0	0.000	A
C-AB	8	855	0.009	8	0.0	4.247	A
C-A	526			526			
A-B	0.75			0.75			
A-C	714			714			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	582	0.000	0	0.0	0.000	A
B-A	0	335	0.000	0	0.0	0.000	A
C-AB	12	912	0.013	12	0.0	3.999	A
C-A	626			626			
A-B	0.90			0.90			
A-C	853			853			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	523	0.000	0	0.0	0.000	A
B-A	0	247	0.000	0	0.0	0.000	A
C-AB	20	996	0.020	20	0.0	3.687	A
C-A	761			761			
A-B	1			1			
A-C	1045			1045			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	523	0.000	0	0.0	0.000	A
B-A	0	247	0.000	0	0.0	0.000	A
C-AB	20	996	0.020	20	0.0	3.690	A
C-A	761			761			
A-B	1			1			
A-C	1045			1045			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	582	0.000	0	0.0	0.000	A
B-A	0	335	0.000	0	0.0	0.000	A
C-AB	12	912	0.013	12	0.0	3.999	A
C-A	626			626			
A-B	0.90			0.90			
A-C	853			853			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	0	624	0.000	0	0.0	0.000	A
B-A	0	399	0.000	0	0.0	0.000	A
C-AB	8	855	0.009	8	0.0	4.247	A
C-A	526			526			
A-B	0.75			0.75			
A-C	714			714			

(Default Analysis Set) - 2022 PM Sensitivity Test, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Demand Sets	D7 - 2022 AM Sensitivity Test, AM	Demand Set 7: Scenario Name includes Time Period Name ('AM'). Are you sure this is correct?
Warning	Demand Sets	D8 - 2022 PM Sensitivity Test, PM	Demand Set 8: Scenario Name includes Time Period Name ('PM'). Are you sure this is correct?

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2022 PM Sensitivity Test	PM	ONE HOUR	17:00	18:30	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	722	100.000
B		✓	5	100.000
C		✓	882	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	6	716
	B	0	0	5
	C	873	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	10	10	10
	B	10	10	10
	C	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	6.21	0.0	A
B-A	0.00	0.00	0.0	A
C-AB	0.05	4.16	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	724	0.005	4	0.0	5.498	A
B-A	0	383	0.000	0	0.0	0.000	A
C-AB	21	974	0.021	21	0.0	4.154	A
C-A	643			643			
A-B	5			5			
A-C	539			539			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	690	0.007	4	0.0	5.777	A
B-A	0	331	0.000	0	0.0	0.000	A
C-AB	32	1053	0.030	32	0.0	3.878	A
C-A	761			761			
A-B	5			5			
A-C	644			644			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	6	643	0.009	5	0.0	6.212	A
B-A	0	258	0.000	0	0.0	0.000	A
C-AB	56	1168	0.048	56	0.1	3.562	A
C-A	915			915			
A-B	7			7			
A-C	788			788			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	6	643	0.009	6	0.0	6.212	A
B-A	0	258	0.000	0	0.0	0.000	A
C-AB	56	1168	0.048	56	0.1	3.563	A
C-A	915			915			
A-B	7			7			
A-C	788			788			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	690	0.007	5	0.0	5.777	A
B-A	0	331	0.000	0	0.0	0.000	A
C-AB	32	1053	0.030	32	0.0	3.881	A
C-A	761			761			
A-B	5			5			
A-C	644			644			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-C	4	724	0.005	4	0.0	5.500	A
B-A	0	383	0.000	0	0.0	0.000	A
C-AB	21	974	0.021	21	0.0	4.155	A
C-A	643			643			
A-B	5			5			
A-C	539			539			

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