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CIVIL ENGINEERING CONSULTANTS

TRANSPORT ASSESSMENT

GRID REF: 604550E, 223229N

LAND BEHIND BROADFIELDS

WIVENHOE, ESSEX

prepared for

TAYLOR WIMPEY EAST LONDON

MARCH 2021

REFERENCE: ST2981/TA-2009
REVISION 1

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APPENDICES

Note: Traffic count data files provided separately

1 Introduction

1.1 Stomor Ltd. has been commissioned by Taylor Wimpey East London, to prepare a Transport Assessment (TA) for the construction of residential development (Use Class C3), access, landscaping, public open space, and associated infrastructure works.

1.2 The site is located on the north east side of Wivenhoe adjacent to existing residential development on the north and south sides of Richard Avenue, referred to in this assessment as Land behind Broadfields. A site location plan is provided in **Appendix A** (land edged red).

1.3 This TA is provided in support of a planning application for the site that is allocated in the Wivenhoe Neighbourhood Plan, which the Colchester Borough Council (CBC) Local Plan adopts including the allocations. As such the site is to be allocated within the CBC Local Plan under policy SS16.

1.4 A proposed site layout has been prepared by JCN. The layout shows 120 dwellings consisting of a range of dwelling sizes and types. In addition, open space and sports pitch provision will be delivered within the site boundary as well as new pedestrian and cycle links.

1.5 The site comprises an area of undeveloped land currently used for agricultural purposes, and forms part of a larger field system extending to Elmstead Road in the north.

1.6 Pre-application advice has been received from Essex County Council (ECC) Highways regarding the scope of this TA and advice on design details for the site layout. Further details are contained in **Appendix B.**

2. Existing Conditions

2.1 Existing Site Information

2.1.1 The site is located approximately 2km north of Wivenhoe Town Centre and is irregular in shape in shape. The western site frontage abuts the rear of existing residential development on Richard Avenue, Alexandra Drive and Henrietta Close.

2.1.2 The site covers a gross area of approximately 11.58 hectares and is currently used for agricultural purposes.

2.1.3 There is currently no vehicular access provided to the site via Richard Avenue. There are also no current public rights of way running through or alongside the site. However, access on foot can be achieved from the eastern end of Richard Avenue where a gap in a low wall provides pedestrian access for informal routes around the site.

2.1.4 The site access will be located at the eastern end of Richard Avenue, extending what is currently a cul-de-sac into the site.

2.1.5 Richard Avenue extends north west to enable access to the north and east via Broadfields and Elmstead Road, or west via Mede Way and Vine Drive to Colchester Road.

2.1.6 The site does not lie within, or near, a designated Air Quality Management Area (AQMA).

2.2 Local Highway Network

2.2.1 The area is residential in character with associated lightly trafficked roads although Colchester Road and Elmstead Roads carry more traffic to Colchester, Alresford, Brightlingsea and Clacton. The residential roads adjacent to the site are subject to a 30mph speed limit.

2.2.2 Richard Avenue is 6.0m in width and extends north west to form a priority junction with Broadfields. Broadfields continues north west for approximately 70m to form a priority junction with Elmstead Road. Both Roads are subject to a 30mph speed limit, are lit and are supported by footways along both sides of the carriageway.

2.2.3 Elmstead Road is approximately 5.5m wide but varies in width. Opposite Broadfields Elmstead Road is agricultural (NB it is understood that some of this land may be developed for housing), and as a result only has a footway on the south side for approximately 50m. There is a short section of road with no footway (approximately 60m) before a footway is provided on the north from existing residential development to

Colchester Road. A footway extends on the south side from Broadfields north east to just beyond the Wivenhoe town boundary.

2.2.4 Elmstead Road extends south west to form a priority junction with Colchester Road and north east to form a crossroad junction with Brightlingsea Road. Elmstead Road is subject to a 30mph speed limit from a point just east of the Broadfields junction. Elmstead Road is also subject to 7.5 tonne weight limit along its length into Wivenhoe.

2.2.5 Approximately 135m north west of the proposed site access, Mede Way forms a priority junction with Richard Avenue. Mede Way extends south and connects to Vine Drive to provide access by vehicles and on foot to Colchester Road, passing local shops and facilities at the west end of Vine Drive. Both roads are approximately 5.5m wide with footways provided on both sides.

2.2.6 Colchester Road provides the main north-south link between Wivenhoe and Colchester. It is approximately 6.0m in width and has footways on both sides from Vine Road southwards. North of Vine Road there is a footway on the east side which provides access to a signalised crossing. On the west side of Colchester Road there is a shared foot/cycleway that connects Wivenhoe to the University of Essex (UoE) Colchester campus via Boundary Road.

2.2.7 Approximately 275m south of Vine Drive, Colchester Road splits at a mini roundabout junction to enable access to the centre of Wivenhoe via The Cross and the east side of the town and Alresford via Rectory Hill.

2.2.8 There is a footway along both sides of The Cross providing access to the centre of Wivenhoe and the Railway Station. In addition, there are footways on both sides of Heath Road and Broome Grove allowing access on foot from Colchester Road to Broomgrove Infant and Junior Schools.

2.2.9 The residential area adjacent to the site has an extensive footway network connecting Richard Avenue to other residential areas in Wivenhoe and the centre of the town to the south. The footway network provides access to signalised and unsignalised crossings on Colchester Road to assist accessibility on foot throughout the town and, significantly, to local bus stops.

2.2.10 There is no specific cycle infrastructure in the immediate vicinity of the site although the nature of the adjacent residential roads suggests low vehicle volumes and speeds. A good quality off-road pedestrian/cycle route is provided on Colchester Road to connect to the UoE.

2.2.11 The Highway Boundary Plan is provided in **Appendix C**, identifying the areas of land maintainable at public expense in the vicinity of the site.

2.3 Policy Appraisal

National Policy

2.3.1 National policy is set out in the National Planning Policy Framework dated (February 2019). Section 4 of the National Planning Policy Framework sets out policies for promoting sustainable transport, recognising that different policies and measures will be required in different communities, and opportunities to maximise sustainable transport solutions will vary from urban to rural areas.

2.3.2 The following assessment identifies the potential impact of the proposed development in transport terms, it demonstrates how opportunities for using existing infrastructure can be used, how technology might contribute towards managing travel demand (i.e. via home working) and how opportunities for promoting sustainable modes of travel have been positively promoted as a realistic alternative to using private motor vehicles.

Local Policy

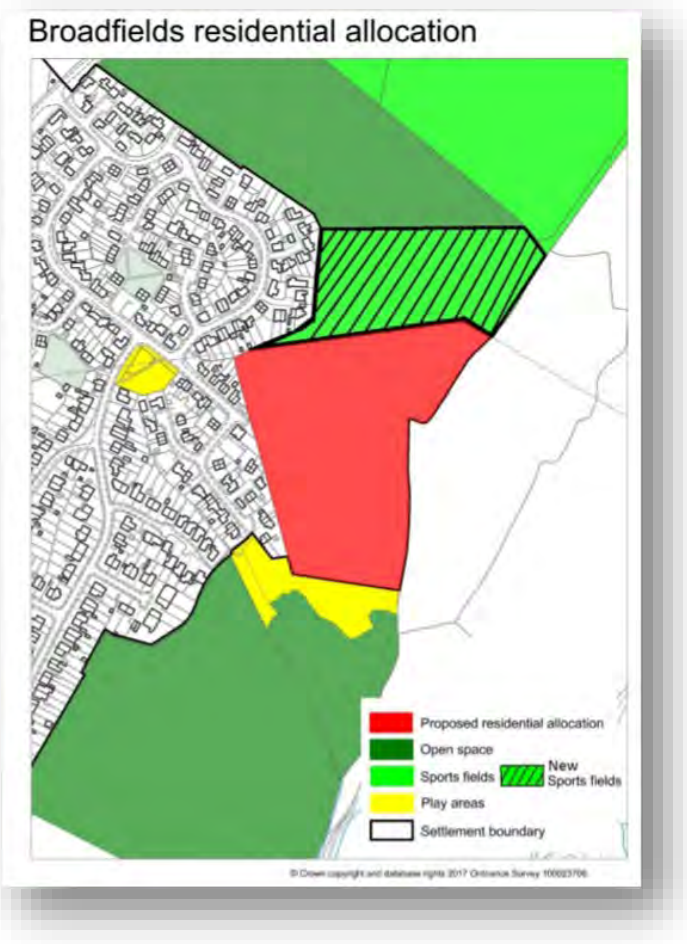
2.3.3 The Local Plan was adopted 1st Feb 2021 identifies that Wivenhoe Parish Council will produce a Neighbourhood Plan (NP) to identify its housing requirements. Policy SS16 of the emerging Local Plan makes provision for the allocation of the site for housing development via the NP as part of the overall strategy for housing provision in Colchester borough.

2.3.4 The Local Plan sets out the overall strategy for the borough, identifying Wivenhoe as a settlement that is capable of accommodating future growth. Wivenhoe is considered a sustainable settlement with the following extract summarizing its status.

> The town benefits from good infrastructure provision including a mainline train station, a GP surgery, two primary schools, numerous shops and restaurants and abundant open space provision. This is reflected in the designation of the town as Rural District Centre. There are also frequent bus services between Wivenhoe and Colchester and a cycle path between Wivenhoe, and the University of Essex has recently been built. There is a well-used footpath and cycle route to Colchester along the River Colne (the Wivenhoe Trail), which increases the sustainable nature of the settlement and makes it suitable for additional future growth within the Local Plan period.

2.3.5 An extract of the version of the NP issued for referendum is shown below. It identifies the site as suitable for residential development and the accompanying text confirms a minimum of 120 dwellings should be provided with vehicle access via Richard Avenue.

2.3.6 In addition, the NP requires that a pedestrian/cycle link should be provided from the site to connect to the Broad Lane Sports facilities via Elmstead Road and through the site with a contribution to upgrade public footpath 14 (i.e. south of the site) to shared pedestrian/cycle use.



Extract from Wivenhoe Neighbourhood Plan showing the site in red.

2.3.7 For the purposes of this assessment, it is assumed that the policy and site allocation position is as per the NP. This assessment will focus on the travel demands created by the site and how they can be accommodated on the local network.

2.3.8 ECC's Local Transport Plan (LTP[1]) 2011 sets out a range of strategies and policies related to transport and managing growth in the county to support CBC's Local Plan strategy. It sets out transport priorities for rural areas that:

- Support the economy of historic rural towns and villages, extensive coastline and varied countryside;
- Provide support for transport in rural areas to ensure that access is provided to employment, education, healthcare and food shopping;
- Ensure that people in rural areas are able to access important services (including shopping, healthcare, library facilities, etc.), without needing to travel long distances; and
- Minimise the impact transport has on the character of our rural areas.

2.3.9 ECC Development Management Policies (2010) set out more detailed policy requirements. Amongst the range of policy that supports the priorities set out above, Policy 2 makes specific reference to *'working closely with district planning authorities to enable a better balance of new homes, jobs and services'* and '*locating new developments in areas which are accessible to key services by sustainable forms of transport'*.

2.3.10 This assessment demonstrates that the proposed development and access strategy complies with national and local policy with specific regard to demonstrating it is sustainable and has an acceptable impact.

2.4 Existing Sustainable Transport Facilities

Bus Services

2.4.1 The development site is fairly well located in terms of access on foot and by bicycle to public transport. Drawing ST-2981-05 'Local Facilities Plan' has been attached in **Appendix D**, which shows the existing public transport facilities on Colchester Road, accessed via Mede Way and Vine Drive.

[1] see www.essexhighways.org/uploads/docs/essex_ltp.pdf)

2.4.2 There are several existing bus services that stop on Colchester Road, approximately 650m (7 mins) walking distance from the site. Services can broadly be summarised as follows:

- **61 service**, providing broadly four services an hour Mon-Sat between Wivenhoe, UoE and Colchester (town centre and north Colchester (Highwoods);
- **62 service**, providing broadly three services an hour Mon-Fri between Brightlingsea, Wivenhoe, UoE and Colchester (town centre and North Station); and
- **74 service**, providing an hourly service Mon-Sat between Clacton, Wivenhoe and Colchester with a less frequent service on Sundays/Public Holidays.

2.4.3 An interactive public transport services map is provided online by Essex County Council which shows live departures, routes and timetables from stops in Wivenhoe. This information can be found at http://www.essexbus.info/map.html. Figure 1 provides an example of live information available for stops on Colchester Road near Vine Drive.

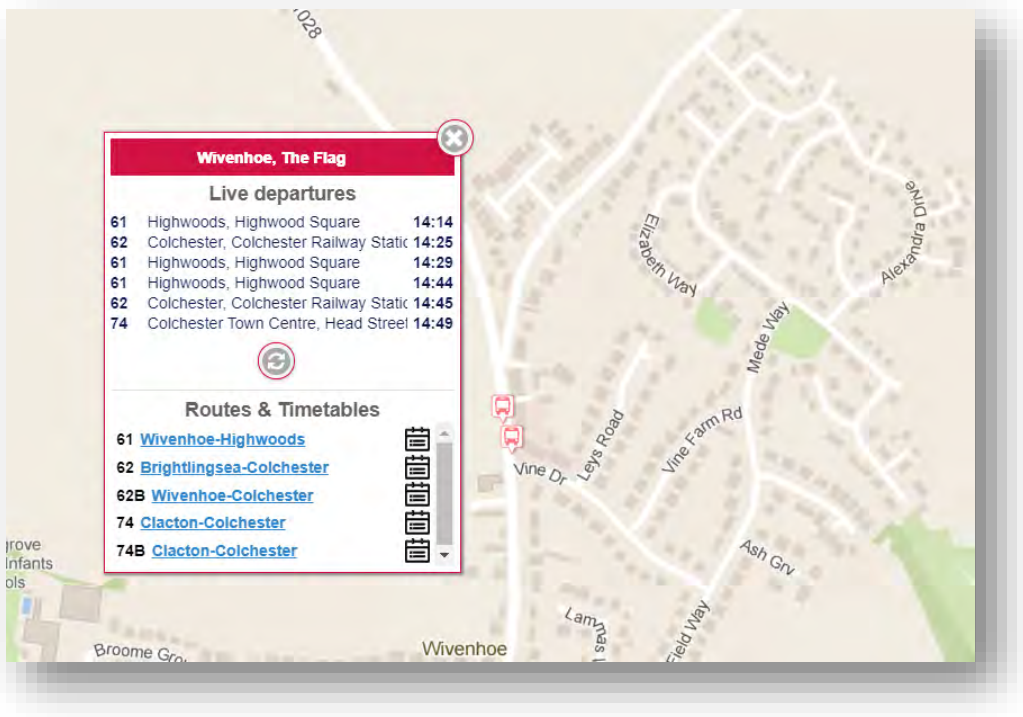


Figure 1: Extract from ECC Interactive Bus Services Map, 2020

2.4.4 Bus journey time from the nearest stop on Church Road to:

- Colchester Town Centre/Railway Station is 21 minutes;
- Wivenhoe Town Centre/Railway Station is 4 minutes;

- Essex University is 8 minutes;
- Brightlingsea is 27 minutes; and
- Clacton is 36 minutes.

2.4.5 The nearest stops to the site on Colchester Road are accessible by footways in both directions and are supported by shelters and seating. The southbound stop also has raised kerbing.

2.4.6 Colchester provides a range of employment, shopping, school and day to day services that are accessible via bus service from Wivenhoe.

Rail Services

2.4.7 Wivenhoe Railway Station is located approximately 720m south west of the site. On foot, this journey is approximately 27 minutes via Mede Way, Vine Drive and Colchester Road footways.

2.4.8 The same route to Wivenhoe Railway Station by bicycle would take approximately 7 minutes. The journey time by scooter is likely to be in the region of 10 minutes.

2.4.9 Wivenhoe is on the 'Sunshine Coast Line' with direct links to London Liverpool Street, Colchester, Chelmsford and Clacton with, broadly, 4 services at peak times and 2 services off-peak Monday to Saturday. Sunday frequencies are lower.

2.4.10 The ECC interactive public transport services map also provides access to live rail departures at https://ojp.nationalrail.co.uk/service/ldbboard/arr/WIV/LST/From. The same link provides access to timetables and information on facilities at Wivenhoe station, confirming that there is/are:

- Bicycle Parking and 40 storage spaces with CCTV;
- 55 car park spaces with 2 accessible spaces; and
- Toilets, refreshment facilities and public Wi-Fi.

2.4.11 It should be noted that at the time of writing, public transport operators are stating on their respective websites that due to the coronavirus situation their timetables may be subject to periodic changes in order to respond to this evolving situation.

Pedestrians and Cyclists

2.4.12 The site is well connected to a comprehensive existing footway network serving all of Wivenhoe via footways on both sides of Richard Avenue, Mede Way and Vine Drive and then on to the centre of Wivenhoe via Colchester Road.

2.4.13 The footway network between the site and the centre of Wivenhoe, schools and Railway station is generally of good quality, continuous and in good repair. The signalised crossing on Colchester Road just north of Vine Drive provides a good quality crossing facility that enables access to the town centre and services and facilities on the west side of the town.

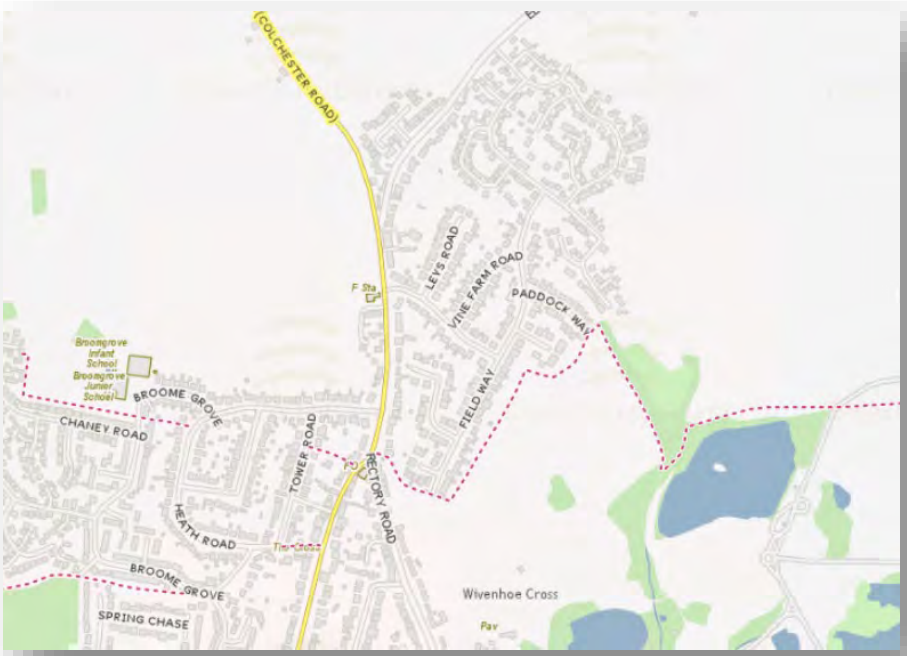
2.4.14 Other crossing facilities on The Cross and at other locations provide good quality access to the town centre.

2.4.15 Broomgrove Infant and Primary Schools are located on the west side of Wivenhoe, approximately 1.1km from the site access (approximately 15 minutes' walk or scoot). The same journey by bicycle would take approximately 5 minutes.

2.4.16 The site is located within a 6-minute walk of local services and facilities at the western end of Vine Drive. These services include a foodstore, chemist, takeaway, public house and a hairdresser.

2.4.17 Access to the UoE Colchester Campus is possible via a good quality off-road pedestrian/cycle route on the west side of Colchester Road. Journey times by bicycle to the centre of the Campus from the site is approximately 11 minutes.

2.4.18 Public Footpath 14 runs close to the southern edge of the site on a broadly east-west alignment through Wivenhoe (see extract from ECC Public Rights of Way Interactive Map below). This shows that the site has the potential to be connected to The Cross area on foot via an alternative, off-road route.



2.4.19 **Appendix D** shows access routes and journey times from the site to key services and facilities within Wivenhoe as well as estimated walk and cycle times.

2.5 Traffic Flows on links and junctions within the Study Area

2.5.1 The COVID-19 context has required a different approach to gathering and using traffic data to inform an appraisal of development traffic.

2.5.2 Historic traffic count data was provided by ECC for link flows only on Elmstead Road (west of Broadfields, surveyed 2018) and Colchester Road (north of Vine Drive, surveyed 2019). No turning count data is available and ECC pre-application advice agreed that any traffic appraisal would need to work with available date.

2.5.3 Notwithstanding the context, it was agreed that the study area shown in Table 1 should be included in this assessment.

Ref:	Location	AM Peak Two-way flows[2]	PM peak Two-way flows[2]
J1	Broadfields/ Elmstead Road	286	282
J2	Elmstead Road/ Colchester Road	765	802
J3	Vine Drive/ Colchester Road	821	858

Table 1: Study area agreed with ECC

2.5.4 As no turning count data was available, an estimate of peak time traffic flows from existing residential development is required to enable a 'Base Year' to be established.

2.5.5 TRICS derived trip rates (see **Appendix E** - agreed for the development site at pre-application stage) have been applied to the estimated number of properties in the *existing* residential areas to the west of the site, all of whom would use Richard Avenue/Broadfields or Vine Drive to access the wider highway network via Elmstead Road or Colchester Road junctions.

2.5.6 Traffic assignment was based on link flow directional flows to give an estimated departure/arrival direction and applied to existing baseline traffic flows. A simplified approach to assignment has been adopted as flows vary slightly between locations (note, for example, that link flow counts were not available on both sides of the junctions in Table 1 meaning assignment estimates were based on limited surveyed flows).

2.5.7 Base Year 2018 traffic flow information is provided in **Appendix F** and assignment assumptions are included in **Appendix G.**

2.5.8 Baseline traffic flow data is taken from the surveys summarised above. The recorded peak two-way flows at the surveyed links are shown in Table 1. It should be noted how low the flows currently are on Elmstead Road (J1).

2.5.9 The historical data provided by ECC included some speed data to enable an assessment of 85%ile speeds. As the count data was only available in one location on Elmstead and Colchester Roads it is not possible to assess speed compliance on both approaches to the study area junctions.

[2]Taken from 'major arms' on Elmstead Road and Colchester Road

2.5.10 Notwithstanding, a combination of measured 85%ile speeds and recorded Personal Injury Accidents provides a robust appraisal of safety in the study area. Table 2 summarises 85%ile speeds in the vicinity of the study area junctions.

	Northbound 85%ile speed	**Southbound** 85%ile speed
Elmstead Road (west of Broadfields)	35.3mph	33.3mph
Colchester Road (north of Vine Drive)	34.0mph	36.0mph

Table 2: Recorded 2019 85%ile speeds on Marsh Road

2.5.11 Based on analysis of the traffic data (and as indicated in the above tables) speeds on both Elmstead Road (west of Broadfields) and Colchester Road (north of Vine Drive) exceed the current speed limit.

2.5.12 It should be noted that 85%ile speeds are incomplete and are not taken within the visibility splays of each junction. We have assessed the available visibility at both junctions, there is plenty of visibility to allow vehicles exiting the side road to see oncoming traffic. We would expect to see a significant number of collisions if there were insufficient visibility.

2.6 Personal Injury Accident Records

2.6.1 Summary Personal Injury (PI) Accident data for the area in the vicinity of the site has been obtained from ECC's website for the period 1st July 2017 – 30th June 2020 (see summary at **Appendix H**).

2.6.2 Inspection of the summary data indicated that there were:

- 0 collisions at the junction of Broadfields and Elmstead Road;
- 0 collisions on Richard Avenue, Mede Way, Vine Drive and Broadfields;
- 1 serious collision at the junction of Vine Drive and Colchester Road, occurring at 1230 on 13th August 2017 resulting in 1 casualty from 2 vehicles; and
- 0 collisions on other lengths of Colchester Road or Elmstead Road in the study area.

2.6.3 The number of accidents recorded in the study area are very low given the timeframe over which the accidents were recorded, and number of roads included.

2.6.4 The summary data indicates no recorded PI accidents involving pedestrians, children, OAPs or cyclists during this period.

2.6.5 The summary recorded PI accident information indicates that there does not appear to be any safety concerns on the roads adjacent to the site and nearest junctions. No further detailed appraisal of PI accidents is considered necessary in relation to the proposed development.

2.6.6 In addition, the low recorded PI accident information also indicates that the recorded 85%ile speeds summarised in the previous section of this report are not giving rise to significant safety concerns.

3 Proposed Development

3.1 The proposed development area covers 3.5ha on the north east side of Wivenhoe. A proposed development site layout has been prepared by JCN to show a development of 120 dwellings with associated open space, drainage features and landscaping.

3.2 Means of Access Appraisal

3.2.1 The main site access will be taken from Richard Avenue, approximately 14m east of the junction with Henrietta Close.

3.2.2 The proposed site access will be via the eastern end of Richard Avenue into the site. This will allow access by all vehicles and includes footways on both sides of the access.

3.2.3 A 3.0m pedestrian and cycle access will be provided from the north side of the site, extending through the proposed open space and adjacent fields to connect to Elmstead Road. Within the site, a pedestrian/cycle link will extend to the southern boundary connecting to open space provision to the south.

3.2.4 A Means of Access Plan, Drawing ST-2981-02-A, has been prepared to demonstrate access arrangements to serve up to 120 dwellings. A copy of this drawing is provided in **Appendix I**. The Means of Access and site layout have been designed to incorporate the following features:

i. Provision of a new 6m wide access road from the site to Richard Avenue, approximately 14m east of the junction with Henrietta Close by way of extending the existing cul-de-sac into the site;

ii. The site access will curve into the site (from north west to east) and the design speed of the internal access road is 20mph. The site access is designed as a speed control bend, with a curve greater than 45 degrees with a centre line radius of less than 13.6m which will help manage traffic speeds and not require additional speed restraint measures.

iii. Additional signing will be provided to advise drivers of the 20mph speed limit within the site which is complimented by the additional raised table vertical speed restraint measures at the internal site junctions.

iv. The internal access road will be 5.5m wide throughout the site with cul-de-sacs also provided at 5.5m width. Some shared surface areas are provided, each at a minimum width of 6.0m;

v. 2.0m wide footways will be provided on either side of the main site access road connecting with Richard Avenue and on one side of cul-de-sacs within the site;

vi. Bellmouth radii of 6.0m will be provided at all main internal site junctions with vision splays of 2.0m x 25m to comply with requirements for 20mph design speed vehicle to vehicle inter-visibility;

vii. Swept Path Analysis has been undertaken at the site access and internal junctions and turning areas for a suitable size waste vehicle (see **Appendix J**); and

viii. Car and cycle parking provided within the site in accordance with the Essex County Council Parking Standards, dated September 2009.

3.2.5 Within the site, the access road runs east from Richard Avenue from which three cul-de-sacs extend north and south. The access road then continues to the north from which another cul-de-sac extends to the east and the access road terminates as short cul-de-sac at its northern extent.

3.2.6 There are several private drives provided within the site, extending off the main access road or from the end of cul-de-sacs. Private drives are designed to serve a maximum of five dwellings.

3.2.7 The access road, cul-de-sacs and private drives have been designed to comply with the latest Essex Design Standards, including allowing access for waste and emergency vehicles.

3.2.8 A Stage 1 Road Safety Audit (RSA) has been undertaken for a previous version of the proposed site access. This design incorporated a shallower angle and a raised table to manage traffic speed.

3.2.9 As no other vertical calming features are present on the approach to the site access on Richard Avenue, it was concluded that the final design of the access should be amended to take the form of a speed control bend, a copy of the original RSA is included at **Appendix K** and an amended audit will be undertaken for the current proposed access.

3.3 Anticipated Parking Requirements

3.3.1 The Essex Vehicle Parking Standards require a minimum of:

- 1 car parking space per 1-bedroom dwelling,
- 2 spaces for dwellings with 2 or more bedrooms, and
- 1 visitor space per 4 dwellings (0.25 spaces per dwelling).

3.3.2 Each dwelling has 2 vehicle parking spaces. Overall, there is 25% visitor car parking provision at the development.

3.3.3 Garages are included within parking provision provided they comply with minimum internal dimensions of 3m x 7m (single) and 6m x 7m (double).

3.3.4 The proposed layout complies with the Essex Parking Standards and provides car parking via hardstanding or garages within the curtilage of houses or via allocated communal parking for flats. Un-allocated visitor parking spaces are also provided at various locations throughout the site.

3.3.5 Cycle parking will be accommodated in garages or private gardens with space for sheds or outbuildings within the curtilage of houses.

3.3.6 The proposed development has been designed to accord with the adopted Essex Parking Standards for both motor vehicle and cycle parking.

4 Appraising the Impact of the Proposed Development

4.1 Assessment Criteria

4.1.1 The proposed development is for 120 dwellings and this assessment has been prepared on this basis.

4.1.2 The site is allocated within the adopted Neighbourhood Plan Policy WIV 29, so the principle of housing development on the site and its access requirements are assumed to have been considered via the Local Plan site allocation process.

4.1.3 This appraisal is based on three key assessments as follows:

- The suitability of the **site access** to accommodate proposed development access demands;
- The ability to access the site via **sustainable modes** of transport; and
- The impact of the proposed development on **off-site transport infrastructure and services**.

4.1.4 Experience suggests that construction traffic routing may be a concern for local residents. The issue is not considered in detail in this assessment other than to appraise any highway conditions that may affect the routing of construction traffic. We anticipate that a Construction Traffic Management Plan will be required by planning condition that will include consideration of traffic routing in more detail.

4.2 Base Year Traffic Flows

4.2.1 Historic traffic data was acquired from ECC for Colchester Road and Elmstead Road to provide 2018 base year traffic flows on the highway network adjacent to the site.

4.2.2 The limitations on acquiring new and using historic data due to the COVID-19 context were discussed with ECC and it was accepted that this assessment would be based on the best data available.

4.2.3 Tables 1 and 2 set out in Section 2 summarise base year traffic conditions within the study area.

4.3 Assessment Periods and Assessment Years

4.3.1 The weekday peak periods on the highway network will be assessed as they are likely to be the most capacity constrained. Based on data extracted from traffic counts, peak times (and especially PM peaks) vary so the widely used traditional network peak periods have been used for this assessment as follows:

- 0800 – 0900
- 1700 – 1800

4.3.2 The proposed development is anticipated to be fully occupied by 2023 so this assessment will consider the impact of the proposed development in that year plus a future year assessment in 2028.

4.3.3 Pre-application advice from ECC confirmed that use of TemPro growth factors would be sufficient to provide baseline traffic flows in the two assessment years.

4.3.4 Baseline 2018 traffic diagrams are shown in **Appendix F.** 'Without Development' flows in 2023 and 2028 are shown in **Appendices L** and **M,** respectively.

4.4 Trip Generation - Proposed Residential Development

4.4.1 Census 2011 data and, specifically, 'Method of Travel to Work'[3] data has been used to identify trip generation by all modes of travel from the proposed development.

4.4.2 Census 2011 data indicates there are 2,359 households in Wivenhoe Quay with a resident population of 5,402 resulting in an occupancy rate of 2.3 persons per dwelling. Applying this to 120 dwellings would equate to an estimated population of 276 people in the new development.

4.4.3 In addition, Census data indicates that 76% of residents of this part of Wivenhoe are 'economically active' which equates to an estimated 91 residents in the proposed development. It is assumed that the majority of 'economically active' residents would have some form of 'method of travel to work' including 'working at or mainly from home'.

4.4.4 The Census 'Method of Travel to Work' data indicates the estimated 91 residents will generate a range of travel demands at peak times, summarised in Table 3.

[3] Census 2011 E05004146 for method of travel data for Wivenhoe Quay (NB Wivenhoe Cross includes part of Colchester)

Method of Travel to Work	Mode Share (%)	No. of trips
Work at or from home	11.9	11
Walk	15.7	14
Cycle	6.6	6
Bus, coach or mini-bus	9.0	8
Train, tram or underground	3.5	3
Drive car or van	48.8	45
Passenger in car or van	3.6	3
Motorcycle, scooter or moped	0.5	1
Taxi	0.1	0
Other method of travel	0.3	0

Table 3: Census 2011 Mode Share (rounded)

4.4.5 Based on the Census data it is estimated that there will be demand for 80 trips from the site for work purposes (i.e. total of 91 trips minus those working at or from home). It is worth noting that Census derived travel demand does not equate to *peak hour* travel demand.

4.4.6 Reference has been made to the TRICS database under the land-use category 'Residential' and the sub-category 'houses privately owned' to specifically identify peak hour vehicle trips generated by the proposed development (see **Appendix E).** The TRICS output is summarised in Table 4.

Peak Period	Vehicle Trip Generation					
	Inbound		Outbound		Two-Way	
	Rate	Trips	Rate	Trips	Rate	Trips
AM Peak (0800 to 0900)	0.162	19	0.398	48	0.560	67
PM Peak (1700 to 1800)	0.387	46	0.174	21	0.561	67

Table 4: Trip Rates per Dwelling (TRICS residential – houses privately owned)

4.4.7 Based on the vehicle trip rates summarised in Table 4, the proposed development of up to 120 dwellings would be expected to generate in the region of 67 two-way vehicle movements during the AM peak hour and 67 two-way vehicle movements during the PM peak hour.

4.4.8 Table 3 estimates 45 trips by car/van using Census 2011 data[4] whereas Table 4 estimates 48 outbound AM vehicle trips using TRICS.

4.4.9 It should be noted that the TRICS rates focus on the peak hour *only* whereas Census data focuses on overall method of travel to work that is *not* time specific.

4.4.10 The TRICS method suggests the bulk of peak vehicle trips will take place during the assessed hours. This offers a 'worst case' scenario.

4.4.11 Therefore, both methods are considered robust and the Census data helps validate the TRICS peak hours data.

4.5 Traffic Distribution

4.5.1 Census 2011 data showing usual place of work of existing residents in Wivenhoe has been analysed to identify likely distribution of traffic during peak hours. Online journey planning mapping has been used to identify likely traffic routing at peak times.

4.5.2 In addition, we have reviewed directional flows of traffic from the historic traffic data to seek to add some local validation to the assignment process.

4.5.3 It has been assumed that all traffic exits the site and can choose to travel north to Elmstead Road or west to Colchester Road, based on likely end destination, personal choice, or knowledge of potential journey times. This is predicted to provide the shortest journey time to/from key peak time destinations.

4.5.4 The majority of vehicles are predicted to travel along Richard Avenue to/from the junction of Broadfields and Elmstead Road to reach destinations outside Wivenhoe.

4.5.5 Some traffic is assumed to travel via Vine Drive and Colchester Road to the centre of Wivenhoe and the railway station, and also to destinations located north of the town. In addition, an allowance for a small number of peak time journeys via Elmstead Road then Colchester Road has also been allowed in this assessment.

4.5.6 **Appendix L, F** summarise the trip assignment used in this assessment and the development traffic flows, based on this assignment.

[4] NB assumed to be outbound AM *and* inbound PM

4.5.7 It is recognised that other events may influence traffic routing. The COVID-19 context has resulted in increased amounts of home working and less peak time traffic. It is less apparent whether this trend will continue over the assessment period, but it is not unreasonable to assume some increase in home working. This assessment does not assume any increase in home working so is considered robust.

4.6 Traffic Impact

4.6.1 Development of the site is expected to generate additional two-way flows of 67 vehicles during the AM and 67 during the PM peak periods at the site access on Richard Avenue.

4.6.2 We have assessed the impact of the proposed residential development on all of the junctions set out in Table 1 to identify whether a 'severe' (NB as referred to in the NPPF) traffic impact is likely from the development.

4.6.3 Table 5 compares the peak hours total traffic at each junction for the proposed development in 2023 at year of full occupancy. This appraisal shows the overall percentage increase in traffic as a result of the proposed development.

4.6.4 Table 6 compares peak hours traffic flows at each junction in the future assessment year of 2028, also showing the overall percentage increase of development traffic.

Junction	Scenario	Traffic Flow Comparison			
		2023			
		Total Trips		% Difference	
		AM	PM	AM	PM
J1 Broadfields/Elmstead Road	Without Development	301	296	+14%	+15%
	With Development	344	341		
J2 Elmstead Road/Colchester Road	Without Development	805	842	+2%	+2%
	With Development	820	858		
J3 Vine Drive/Colchester Road	Without Development	864	901	+3%	+3%
	With Development	888	924		

Table 5: 2023 'Opening Year' Development Junction Impact Comparison

Junction	Scenario	Traffic Flow Comparison			
		2028			
		Total Trips		% Difference	
		AM	PM	AM	PM
J1 Broadfields/Elmstead Road	Without Development	313	307	+14%	+15%
	With Development	356	352		
J2 Elmstead Road/Colchester Road	Without Development	837	874	+2%	+2%
	With Development	852	890		
J3 Vine Drive/Colchester Road	Without Development	899	935	+3%	+2%
	With Development	923	958		

Table 6: 2028 'Future Year' Development Junction Impact Comparison

4.6.5 It is generally considered that development impacts that result in an increase in traffic of 5% or greater may require junctions to be analysed in more detail to determine whether they will operate acceptably 'with development'. Tables 5 and 6 demonstrate that the development has a traffic impact above 5% at the Broadfields/Elmstead Road junction so further analysis has been undertaken of this junction.

4.6.6 Development impact at J2 and J3 on Colchester Road are predicted to be low in both 'with development' scenarios.

4.6.7 DMRB Advice Note TA 79/99 'Traffic Capacity of Urban Roads'[5] has been consulted, which gives an indication of hourly flow capacities for different road categories. Based upon Table 1 and an extrapolation of Table 2 of this document, for a road type UAP4 with unrestricted parking, the two-way capacity of Elmstead Road is calculated as follows:

Flow Capacity	One-Way (60%)	One-Way (40%)	Total Flow
Colchester Road Width 6.0m	882	588	1470

Table 7: Calculated vehicle link capacity of Marsh Road (DMRB TA 79/99)

4.6.8 Comparing Tables 5 and 6 with Table 7 demonstrates that the current and predicted peak hour flows on Colchester Road can be readily accommodated within its theoretical capacity and that there is likely to be plenty of spare capacity. No further assessment has been undertaken of J2 and J3.

4.6.9 More detailed analysis has been undertaken of J1 using the Junctions 9 modelling software package (Junctions 9 modelling files are attached in **Appendix N**). Table 8 summarises the Junctions 9 modelling results for J1.

	AM Peak			**PM Peak**		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Existing Layout – Without Dev 2023					
Stream B-AC	0.2	8.84	0.19	0.1	7.67	0.06
Stream C-AB	0.1	6.27	0.06	0.2	6.85	0.15
	Existing Layout - With Dev 2023					
Stream B-AC	0.3	9.3	0.21	0.1	7.92	0.08
Stream C-AB	0.1	6.38	0.08	0.2	7.16	0.19
	Existing Layout - Without Dev 2028					
Stream B-AC	0.2	8.97	0.20	0.1	7.72	0.05
Stream C-AB	0.1	6.30	0.07	0.2	6.89	0.16
	Existing Layout - With Dev 2028					
Stream B-AC	0.3	9.45	0.22	0.1	7.97	0.08
Stream C-AB	0.1	6.40	0.08	0.2	7.21	0.19

Table 8: J1 Junctions 9 Modelling Results

[5] TA 79/99 'Traffic Capacity of Urban Roads' – Design Manual for Roads and Bridges (DMRB) Advice Note, February 1999.

4.6.10 At J1 (Broadfields/Elmstead Road) the modelling results indicate that in both 'without' and 'with' development scenarios the junction will operate well within capacity in both peaks in 2023 and 2028. This is in line with our experience of priority junction operation with the major and minor road flows and turning proportions as predicted.

4.7 Access by large vehicles

4.7.1 It is expected that the vast majority of vehicles associated with the site would be private cars of typical dimensions. A refuse vehicle would collect from the site once a week and it is assumed this arrangement is already in place for properties on Richard Avenue.

4.7.2 The site access has been designed to accommodate visits by waste, emergency and commercial delivery vehicles. These are likely to be the largest vehicles accessing the site, albeit infrequently by waste and emergency vehicles.

4.7.3 Swept path analysis of a 9.19m waste vehicle has been undertaken. Drawings ST-2981-03 and 04 (see **Appendix J**) demonstrating that a vehicle of this size can access the site and leave in either direction in forward gear.

4.7.4 The construction phase of the proposed development will also require access by large vehicles, albeit over a relatively short timescale. Access for construction purposes is proposed via Elmstead Road.

4.7.5 A Construction Traffic Management Plan (CTMP) would normally be required via Planning Condition when more is known about the construction programme. At this stage, our assessment suggests that routing construction traffic via Elmstead Road should not be a major concern and would help avoid the immediately adjacent residential streets.

4.8 Sustainable Transport

Walking, cycling and public transport

4.8.1 Table 3 provides information on the likely amount of peak travel demand from the site by sustainable modes of transport. We have appraised the existing transport infrastructure and services in the context of this potential demand alongside promoting access by sustainable modes.

4.8.2 The site is well located in terms of sustainable transport, with local facilities and bus stops within walking and cycling distance. The site is located within 15-minute walk from

Broomgrove Infant and Junior Schools via continuous footway network and signalised crossing on Colchester Road. This will reduce demand for car-based travel.

4.8.3 UoE Colchester Campus is accessible on foot or by bicycle via Colchester Road. Access by bicycle being approximately 7 - 8 minutes' journey time and on foot up to 30 minutes.

4.8.4 The railway station and town centre are all located up to 30 minutes' walk and 7 minutes bike ride or 10 minutes by scooter from the site, either via Colchester Road/High Street or via the network of roads on the east side of Wivenhoe. It is anticipated that commuting by rail would be an attractive option for residents of the site and future demand met by the commercial rail operator.

4.8.5 Pedestrian journey time to bus stops on Colchester Road is 7-8 minutes' walk time from the site. Bus services to from Wivenhoe are good for this location in terms of frequency and destinations. Bus occupancy data is unknown, but it is anticipated that the peak demand indicated in Table 3 could be accommodated on existing services.

4.8.6 A 3.0m pedestrian and cycle access will be provided from the north side of the site, extending through the proposed open space and adjacent fields to connect to Elmstead Road. Within the site, a pedestrian/cycle link will extend to the southern boundary connecting to open space provision to the south.

Home and Remote Working

4.8.7 Census 2011 data indicates a small but significant number of people will work at or from home in the proposed development. We would expect this figure to have grown by the time of the next Census, and any increase reflected in the proposed development where new dwellings will be provided with high-speed broadband.

4.8.8 Increases in home or remote working are likely to reduce demand for travel to and from the site, especially at peak times. The consequences of COVID-19 may also lead to increased amounts of home or remote working as a legacy.

4.8.9 Remote working from local facilities equipped with broadband may also change some demand for peak time travel from journeys to external destinations to shorter distance journeys to locations within Wivenhoe or Colchester that can be undertaken on foot, by bicycle or bus.

4.8.10 Our assessment suggests that the local transport infrastructure and services could accommodate the potential demand for travel on foot, by bicycle and bus generated by the proposed development.

Car Sharing and Car Clubs

4.8.11 Car sharing is a realistic option for residents of the site who work in Wivenhoe or other nearby destinations such as Colchester or, especially, the UoE campus at Colchester (which operates its own Travel Plan (see www.essex.ac.uk/student/travel-and-transport/sustainable-transport-initiatives).

4.8.12 Car sharing helps reduce travel costs and demand for parking as well as reducing demand for highway capacity.

4.8.13 Car Clubs are increasingly popular for people who wish to have occasional access to a car without owning one (i.e. for occasional work or leisure purposes). This may help some residents live without the need for owning a car for regular and, therefore, peak time use.

4.8.14 Promoting use of sustainable modes as well as Car Sharing and Car Clubs via a Travel Plan would help reduce demand for motor vehicle travel and have a positive impact on peak time travel. The existing Colchester Travel Plan Club (see www.colchestertravelplanclub.co.uk/) would be able to offer advice and guidance on best practice as well as linked initiatives to support the site's Travel Plan.

4.8.15 This assessment indicates that there is likely to be minimal impact on highway capacity within the vicinity of the site resulting from the proposed development. A reasonable financial contribution towards promoting sustainable transport could be made to recognise the potential for increasing walking, cycling and bus mode share.

4.9 Road Safety Audit

4.9.1 A Stage 1 Road Safety Audit has been carried out based upon on the Means of Access drawing ST-2981-02. The audit is attached in **Appendix K**. This audit was carried out by an independent Safety Auditor who identified two problems. The auditors provided appropriate recommendations to overcome these issues and a Designer's Response has been prepared which accepts these recommendations and proposes the necessary measures to address issues at the detailed design stage. The Designer's Response is also attached in **Appendix K**.

4.9.2 The Audit referred to measures required to ensure 20mph speed limits are ensured throughout the site and that suitable advanced warning signage is installed to ensure drivers/riders are aware of the proposed raised table at the site access.

4.9.3 With regard to the first point, raised tables and junction features are proposed throughout the site to ensure compliance with a 20mph design speed throughout the site. Internal site access roads and cul-de-sacs are relatively short which will also help manage speeds.

4.9.4 On the second point, advanced warning signs will be provided to alert drivers/riders of the raised table and change to 20mph on approach to the site from Richard Avenue. In addition, advanced warning signs will advise of the change from 20mph to 30mph at the site exit.

4.10 Travel Plan

4.10.1 A Travel Plan will be prepared for the proposed development which will provide first residents of the development with information on how to travel to and from the site via sustainable transport modes (i.e. routes and journey times to key destinations).

4.10.2 In addition, residents will be provided with information on journey planning by various modes of travel as well as information on car sharing.

4.10.3 The overall objective would be to promote a culture of sustainable travel from the outset as Wivenhoe has a range of services and facilities than can be accessed by sustainable modes of travel.

4.10.4 The site Travel Plan could potentially be linked to the Colchester Travel Plan Club (see www.colchestertravelplanclub.co.uk/) would be able to offer advice and guidance on best practice as well as linked initiatives to support the site's Travel Plan and help reduce the amount of car based trips to work.

5 Conclusions

5.1 Stomor Ltd. has been commissioned by Taylor Wimpey East London, to prepare a Transport Assessment (TA) for the construction of residential development (Use Class C3), access, landscaping, public open space, and associated infrastructure works on land behind Broadfields, Wivenhoe, Essex

5.2 The site covers an area of approximately 3.5ha and is located approximately 2.0km north of Wivenhoe town centre.

5.3 This TA is provided in support of a full planning application for the redevelopment of the site for 120 dwellings with associated site access and open space.

5.4 The site access will be via Richard Avenue in the form of extending the existing road into the site to create a new access with an overall width of 6m, tapering to 5.5m once into the site. The site access is designed as a speed control bend to help manage traffic speeds on approach to and at the site access.

5.5 The internal site layout has been designed to promote low traffic speeds, with a 20mph design speed throughout. The layout has been checked to ensure visibility at internal junctions and around bends complies with the required standard.

5.6 Swept path analysis has been undertaken for the site access with Richard Avenue and internal roads and this demonstrates that the site can accommodate the largest vehicle likely to use the site.

5.7 A 3.0m route for pedestrians and cyclists will be provided between the site and Elmstead Road to allow connection from the site to nearby sports facilities. This route will continue through the site to the southern side of the site.

5.8 A Stage 1 Road Safety Audit has been undertaken for a previous version of the site access and the findings have been used to inform the design of the current proposed access. Any other relevant design issues identified will be addressed at detailed design stage and a revised Stage 1 Road Safety Audit will be undertaken on the proposed access.

5.9 Raised table features are provided within the site to manage speeds at 20mph. Appropriate signage will be provided to advise road users of speed limits and of raised table features on transition from Richard Avenue to the site.

5.10 The proposed parking provision will be in accordance with Essex County Council Vehicle Parking Standards. Provision will include allowance for residents and visitors parking as well as cycle parking.

5.11 The development site is well located in terms of sustainable transport with access to schools, bus stops, railway station and a range of services and facilities on foot and by bicycle via a comprehensive footway network and short to medium walking and cycling distances.

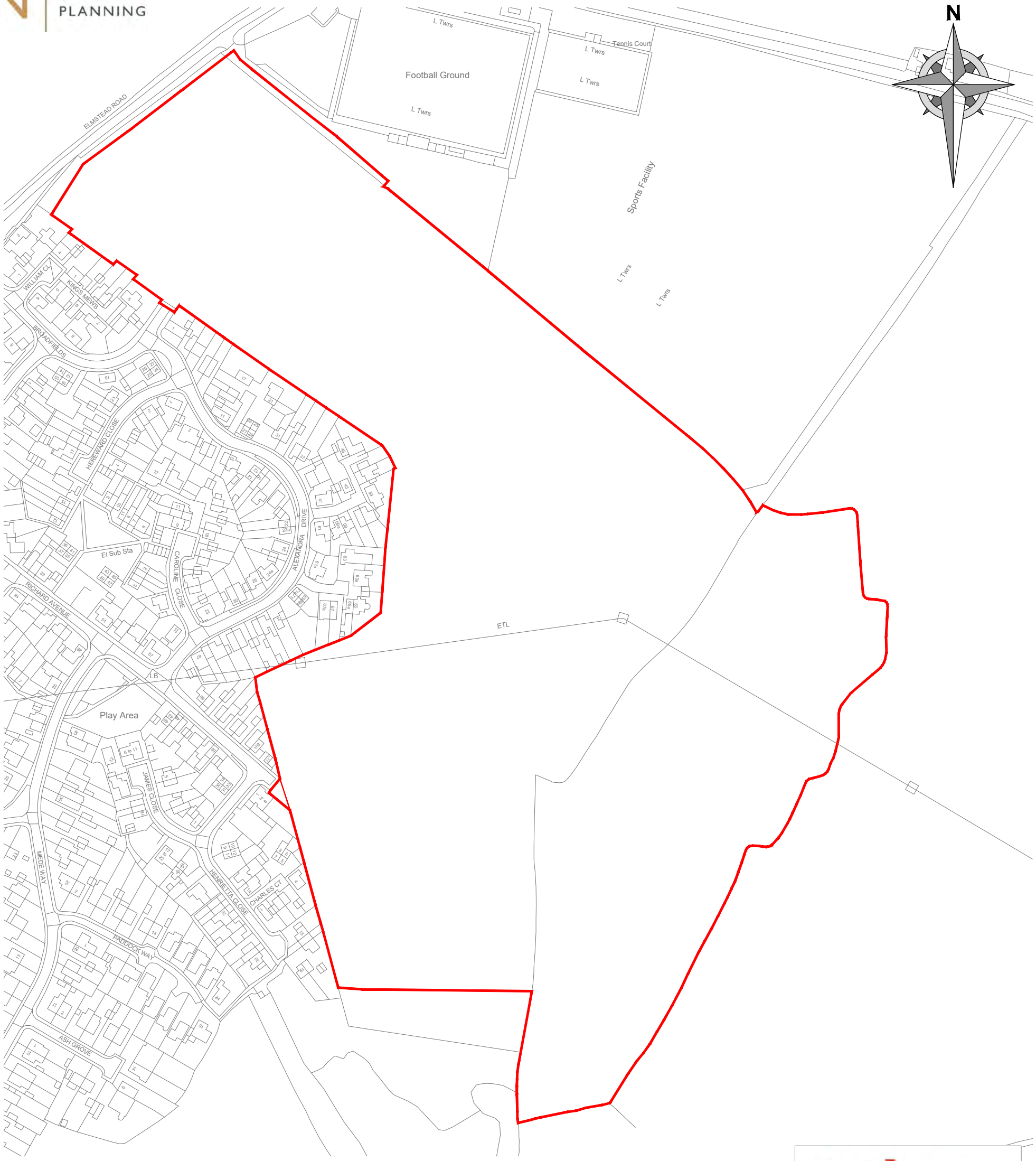
5.12 The proposals are expected to result in a slight increase in traffic during peak hours which will have a minimal impact on adjacent roads as well as Elmstead and Colchester Road.

5.13 A contribution could be made to help promote use of sustainable modes within Wivenhoe. Any contribution would need to be fair and reasonable in scale to the impact of the proposed development, taking into consideration the proposed pedestrian and cycle link provided by Taylor Wimpey to Elmstead Road as required by the Neighbourhood Plan allocation.

5.14 Recorded speeds on Elmstead and Colchester Roads are just over the 30mph limit and there is no evidence of a significant safety problem in the immediate vicinity of the junctions assessed in this report.

5.15 Given the scale of the development and anticipated impact, with reference to the NPPF, the likely residual cumulative impact of the development is not considered to be ‘severe’.

JCN DESIGN & PLANNING



Key:

Site Boundary

0 100 200 metre

Taylor Wimpey

Project:-

Wivenhoe, Land South of Elmstead Road, off Richard Avenue

Description:-

Location Plan

Scale:- 1-2500 @ A3

Date:- Mar 2021

Drg no:- TW027-PL01-01

Revision:- 00

From:	Simon Young
To:	Paula Cullen
Subject:	FW: Highways pre-application request - Land to east of Richard Avenue, Wivenhoe
Date:	18 March 2021 12:26:12
Attachments:	image001.jpg

From: Martin Mason - Strategic Development Engineer <Martin.Mason@essex.gov.uk>
Sent: 30 June 2020 12:02
To: Simon Young <s.young@stomor.com>
Subject: RE: Highways pre-application request - Land to east of Richard Avenue, Wivenhoe [Filed 03 Feb 2021 10:17]

Hi Simon,

I've reviewed your proposed TA scope and would like to make the following comments:

1. Para 4.3 & 13.2: please see the Essex Design Guide in terms of whether there can be only one footway in some locations
2. Para 4.6: these links should be 3.5 metres wide
3. Para 6.5: in the absence of your ability to conduct surveys due to Covid-19, I accept you have no choice but to use the possible alternative sources of information listed
4. Para 7.2: I'm not aware of any significant committed developments in the vicinity of the proposal site but you should check with Colchester Borough Council Planning Department
5. Para 11.2: I'm not aware of any major highway schemes in the vicinity of the proposal site however please check our website
6. Section 13: please include details of any Public Rights of Way (PRoW) which may be affected by the proposed development and what if any improvements to the PRoW network are proposed
7. Section 15: for a proposal of this size, our guidance doesn't require a Travel Plan but instead Residential Travel Information Packs however if you would like to go with a Plan this would be welcomed in terms of doing all you can to minimise trip making and those which are made by more sustainable modes of transport such as public transport, cycling and walking

I would advise the planning application should also be accompanied by a construction management plan. Also, any proposed highway works drawing(s) should be accompanied by a stage one safety audit and designers' response. Please also ensure any drawing(s) has the extent of highway clearly marked (as sourced from highwayrecords@essexhighways.org)

Thanks

Martin

Martin Mason
Strategic Development Engineer
Transportation and Smarter Travel
Essex County Council | telephone: 03330 130590 | mobile: 07919 624331 | email: martin.mason@essex.gov.uk

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From: Martin Mason, Strategic Development Engineer
Sent: 09 June 2020 14:44
To: Simon Young <s.young@stomor.com>
Cc: Development Enquiries <development.enquiry@essex.gov.uk>; Elliott Moore, Infrastructure Planning Officer <Elliott.Moore@essex.gov.uk>
Subject: RE: Highways pre-application request - Land to east of Richard Avenue, Wivenhoe

Hi Simon,

Thanks for your email.

We have up to 21 days to respond to enquiries but I will of course come back to you with my comments sooner if possible.

Thanks again.

Martin

Martin Mason
Strategic Development Engineer
Transportation and Smarter Travel
Essex County Council | telephone: 03330 130590 | mobile: 07919 624331 | email: martin.mason@essex.gov.uk

---

From: Simon Young <s.young@stomor.com>
Sent: 09 June 2020 12:51
To: Martin Mason, Strategic Development Engineer <Martin.Mason@essex.gov.uk>
Cc: Development Enquiries <development.enquiry@essex.gov.uk>; Elliott Moore, Infrastructure Planning Officer <Elliott.Moore@essex.gov.uk>
Subject: Highways pre-application request - Land to east of Richard Avenue, Wivenhoe

Hi Martin

On behalf of my Client, Taylor Wimpey East London, please find attached completed pre-app request form along with associated TA Scoping Report. A layout plan and TRICS data is appended to the report. The TRICS data appended to the report is the same as the data used for a recent application submitted by Taylor Wimpey for a similar development at Burnham on Crouch.

The attached form includes PO details in order that you can arrange payment of the pre-app fee directly with Taylor Wimpey.

I would be grateful if you could acknowledge receipt in the first instance. Please also let me know if there is any additional information you require at this stage.

Regards and thanks

Simon Young
Transport Planning Consultant

s.young@stomor.com
Direct line: 01462 342134
Office: 01462 615433

Suite 2 | First Floor | Portmill House | Portmill Lane | Hitchin | Hertfordshire | SG5 1DJ
www.stomor.com

From: Martin Mason, Strategic Development Engineer <Martin.Mason@essex.gov.uk>
Sent: 08 June 2020 14:08
To: Simon Young <s.young@stomor.com>
Cc: Development Enquiries <development.enquiry@essex.gov.uk>; Elliott Moore, Infrastructure Planning Officer <Elliott.Moore@essex.gov.uk>
Subject: RE: Highways pre-application fee query

Hi Simon,

Thanks for your enquiry.

To review and comment on your TA scope would be £510 plus VAT. If you would also like my comments on the development itself, means of access etc etc., that would be an additional £320 plus VAT.

Please can you complete the attached form and return it to me along with which documents you would like reviewed and I will then come back to you as soon as possible.

Hope this helps.

Thanks again.

Martin

Martin Mason
Strategic Development Engineer
Transportation and Smarter Travel
Essex County Council | telephone: 03330 130590 | mobile: 07919 624331 | email: martin.mason@essex.gov.uk

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From: Development Enquiries <development.enquiry@essex.gov.uk>
Sent: 08 June 2020 10:43
To: Martin Mason, Strategic Development Engineer <Martin.Mason@essex.gov.uk>
Subject: FW: Highways pre-application fee query

Good morning Martin,

Please see below – Simon would like to confirm the price a pre-application before submitting.

Best wishes,

Elliott Moore

Infrastructure Planning Officer
Planning Service
Economy, Localities & Public Health
Essex County Council

Telephone: **0333 013 9446** | E-mail: **elliott.moore@essex.gov.uk**

For information regarding developer contributions and pre-planning application advice, please see our **web page**

In line with government advice relating to the COVID-19 pandemic, from 20th March 2020 the ECC Planning Service is working remotely, away from the office for the foreseeable future. This is a challenging time, and as a service we are adapting where possible. This means staff are working flexibly throughout the day around caring responsibilities and/or have been redeployed to support critical council services.

From: Simon Young <s.young@stomor.com>
Sent: 07 June 2020 12:24
To: Development Enquiries <development.enquiry@essex.gov.uk>
Subject: RE: Highways pre-application fee query

Hi Elliot

Address is land to east of Richard Avenue, Wivenhoe.

Regards and thanks

Simon Young
Transport Planning Consultant
s.young@stomor.com
Direct line: 01462 342134
Office: 01462 615433

Suite 2 | First Floor | Portmill House | Portmill Lane | Hitchin | Hertfordshire | SG5 1DJ
www.stomor.com

From: Development Enquiries <development.enquiry@essex.gov.uk>
Sent: 05 June 2020 17:01
To: Simon Young <s.young@stomor.com>
Subject: RE: Highways pre-application fee query

Hi Simon,

If you could confirm the site address please, I will forward on your query to a colleague who will be able to confirm.

Best wishes,

Elliott Moore

Infrastructure Planning Officer
Planning Service
Economy, Localities & Public Health
Essex County Council

Telephone: **0333 013 9446** | E-mail: **elliott.moore@essex.gov.uk**

For information regarding developer contributions and pre-planning application advice, please see our **web page**

In line with government advice relating to the COVID-19 pandemic, from 20th March 2020 the ECC Planning Service is working remotely, away from the office for the foreseeable future. This is a challenging time, and as a service we are adapting where possible. This means staff are working flexibly throughout the day around caring responsibilities and/or have been redeployed to support critical council services.

From: Simon Young <s.young@stomor.com>
Sent: 04 June 2020 11:57
To: Development Enquiries <development.enquiry@essex.gov.uk>
Subject: Highways pre-application fee query

Good morning

I'd like to submit a pre-application advice request on behalf od my client. It will be for a residential development of 120 dwellings with a layout plan and TA scoping report.

Can you confirm the fee for the above will be £510 for a 'Large Major' development please?

Regards and thanks

Simon Young
Transport Planning Consultant
s.young@stomor.com
Direct line: 01462 342134
Office: 01462 615433

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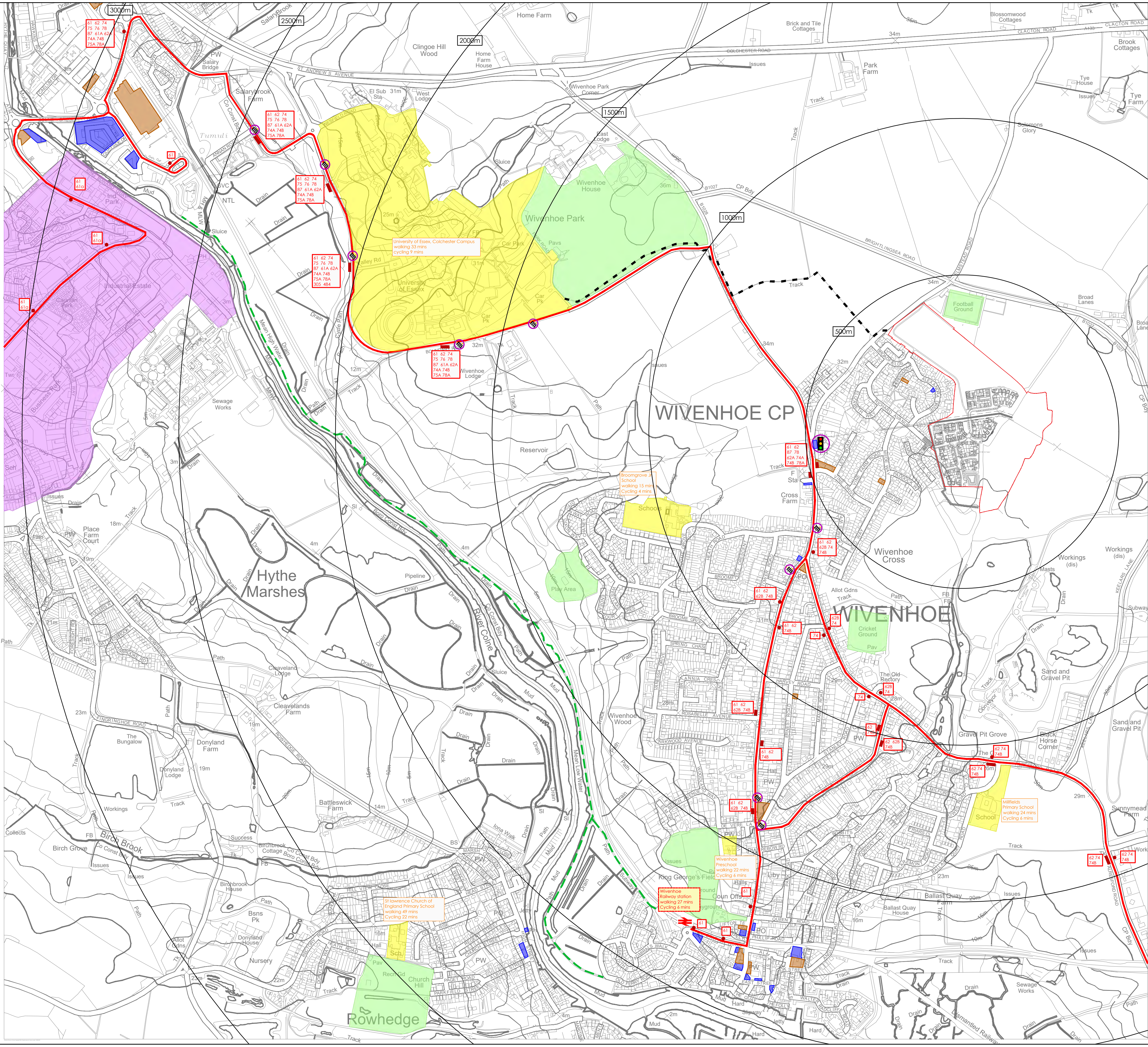
Extract from Essex County Council Highway Information online records showing:

1. Highway boundary/area maintained as highway
2. Category of local roads
3. Street lighting

https://www.essexhighways.org/interactive-maps-and-live-travel-information/highways-information-map.aspx



KEY

- SITE
- SCHOOLS/COLLEGES
- EMPLOYMENT AREAS
- RECREATIONAL FACILITIES
- SHOPS/RETAIL OUTLETS
- Pubs and Restaurants
- Footpath
- BUS ROUTES (FREQUENT)
- BUS ROUTES (FREQUENT) - HAIL AND RIDE
- CYCLE TRACK
- BUS STOP (WITH SHELTER)
- BUS STOP (WITHOUT SHELTER)
- RAILWAY STATION
- ZEBRA CROSSING
- UNCONTROLLED CROSSING
- SIGNALISED CROSSING
- 94 94A BUS SERVICES

Rev	Description	Date	Drawn	Checked	Apvd.

Project

Wivenhoe, Land Off Richard Avenue

Drawing Description

FACILITIES PLAN

Drawing Number	Scale	Date	Drawn	Checked	Approved
ST-2981-05	NTS@A3	13.08.20	JN	SAY	SJB

Client: Taylor Wimpey

Architect: JCN

Do not scale off the drawing. Only written dimensions should be taken. Any discrepancies or errors should be brought to the attention of the engineer immediately. This document is copyright and may not be reproduced without permission of the owner.

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CIVIL ENGINEERING CONSULTANTS

Suite 2, First Floor, Portmill House, Portmill Lane, Hitchin, Herts, SG5 1DJ
www.stomor.com | 01462 615433 | info@stomor.com

Calculation Reference: AUDIT-700101-160811-0819

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	SC	SURREY	1 days
03	SOUTH WEST		
	DC	DORSET	1 days
	SM	SOMERSET	1 days
	WL	WILTSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	WM	WEST MIDLANDS	1 days
	WO	WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	2 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
	GM	GREATER MANCHESTER	1 days
09	NORTH		
	CB	CUMBRIA	2 days

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

Filtering Stage 2 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: 23 to 99 (units:)
Range Selected by User: 20 to 100 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/06 to 12/11/15

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

Selected survey days:

Monday	4 days
Tuesday	2 days
Wednesday	2 days
Thursday	4 days
Friday	2 days

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

Selected survey types:

Manual count	14 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	14

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:

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.

Filtering Stage 3 selection:

Use Class:

C1	1 days
C3	13 days

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

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	4 days
10,001 to 15,000	3 days
15,001 to 20,000	2 days
20,001 to 25,000	2 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:

5,001 to 25,000	1 days
25,001 to 50,000	2 days
50,001 to 75,000	1 days
75,001 to 100,000	4 days
100,001 to 125,000	3 days
250,001 to 500,000	2 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	2 days
1.1 to 1.5	12 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	13 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.

LIST OF SITES relevant to selection parameters

1 CB-03-A-03 SEMI DETACHED CUMBRIA
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40
Survey date: THURSDAY 20/11/08 Survey Type: MANUAL

2 CB-03-A-04 SEMI DETACHED CUMBRIA
MOORCLOSE ROAD
SALTERBACK
WORKINGTON
Edge of Town
No Sub Category
Total Number of dwellings: 82
Survey date: FRIDAY 24/04/09 Survey Type: MANUAL

3 CH-03-A-09 TERRACED HOUSES CHESHIRE
GREYSTOKE ROAD
HURDSFIELD
MACCLESFIELD
Edge of Town
Residential Zone
Total Number of dwellings: 24
Survey date: MONDAY 24/11/14 Survey Type: MANUAL

4 DC-03-A-08 BUNGALOWS DORSET
HURSTDENE ROAD
CASTLE LANE WEST
BOURNEMOUTH
Edge of Town
Residential Zone
Total Number of dwellings: 28
Survey date: MONDAY 24/03/14 Survey Type: MANUAL

5 ES-03-A-02 PRIVATE HOUSING EAST SUSSEX
SOUTH COAST ROAD

PEACEHAVEN
Edge of Town
Residential Zone
Total Number of dwellings: 37
Survey date: FRIDAY 18/11/11 Survey Type: MANUAL

6 GM-03-A-10 DETACHED/SEMI GREATER MANCHESTER
BUTT HILL DRIVE
PRESTWICH
MANCHESTER
Edge of Town
Residential Zone
Total Number of dwellings: 29
Survey date: WEDNESDAY 12/10/11 Survey Type: MANUAL

7 NY-03-A-10 HOUSES AND FLATS NORTH YORKSHIRE
BOROUGHBRIDGE ROAD

RIPON
Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: TUESDAY 17/09/13 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 NY-03-A-11 PRIVATE HOUSING NORTH YORKSHIRE
HORSEFAIR

BOROUGHBRIDGE
Edge of Town
Residential Zone
Total Number of dwellings: 23
Survey date: WEDNESDAY 18/09/13 Survey Type: MANUAL

9 SC-03-A-04 DETACHED & TERRACED SURREY
HIGH ROAD

BYFLEET
Edge of Town
Residential Zone
Total Number of dwellings: 71
Survey date: THURSDAY 23/01/14 Survey Type: MANUAL

10 SH-03-A-05 SEMI-DETACHED/TERRACED SHROPSHIRE
SANDCROFT
SUTTON HILL
TELFORD
Edge of Town
Residential Zone
Total Number of dwellings: 54
Survey date: THURSDAY 24/10/13 Survey Type: MANUAL

11 SM-03-A-01 DETACHED & SEMI SOMERSET
WEMBDON ROAD
NORTHFIELD
BRIDGWATER
Edge of Town
Residential Zone
Total Number of dwellings: 33
Survey date: THURSDAY 24/09/15 Survey Type: MANUAL

12 WL-03-A-01 SEMI D./TERRACED W. BASSETT WILTSHIRE
MAPLE DRIVE

WOOTTON BASSETT
Edge of Town
Residential Zone
Total Number of dwellings: 99
Survey date: MONDAY 02/10/06 Survey Type: MANUAL

13 WM-03-A-03 MIXED HOUSING WEST MIDLANDS
BASELEY WAY
ROWLEYS GREEN
COVENTRY
Edge of Town
Residential Zone
Total Number of dwellings: 84
Survey date: MONDAY 24/09/07 Survey Type: MANUAL

14 WO-03-A-02 SEMI DETACHED WORCESTERSHIRE
MEADOWHILL ROAD

REDDITCH
Edge of Town
No Sub Category
Total Number of dwellings: 48
Survey date: TUESDAY 02/05/06 Survey Type: MANUAL

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL 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	14	52	0.082	14	52	0.290	14	52	0.372
08:00 - 09:00	14	52	0.162	14	52	0.398	14	52	0.560
09:00 - 10:00	14	52	0.167	14	52	0.232	14	52	0.399
10:00 - 11:00	14	52	0.136	14	52	0.154	14	52	0.290
11:00 - 12:00	14	52	0.195	14	52	0.189	14	52	0.384
12:00 - 13:00	14	52	0.194	14	52	0.162	14	52	0.356
13:00 - 14:00	14	52	0.169	14	52	0.183	14	52	0.352
14:00 - 15:00	14	52	0.191	14	52	0.192	14	52	0.383
15:00 - 16:00	14	52	0.264	14	52	0.198	14	52	0.462
16:00 - 17:00	14	52	0.315	14	52	0.173	14	52	0.488
17:00 - 18:00	14	52	0.387	14	52	0.174	14	52	0.561
18:00 - 19:00	14	52	0.257	14	52	0.159	14	52	0.416
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.519			2.504			5.023

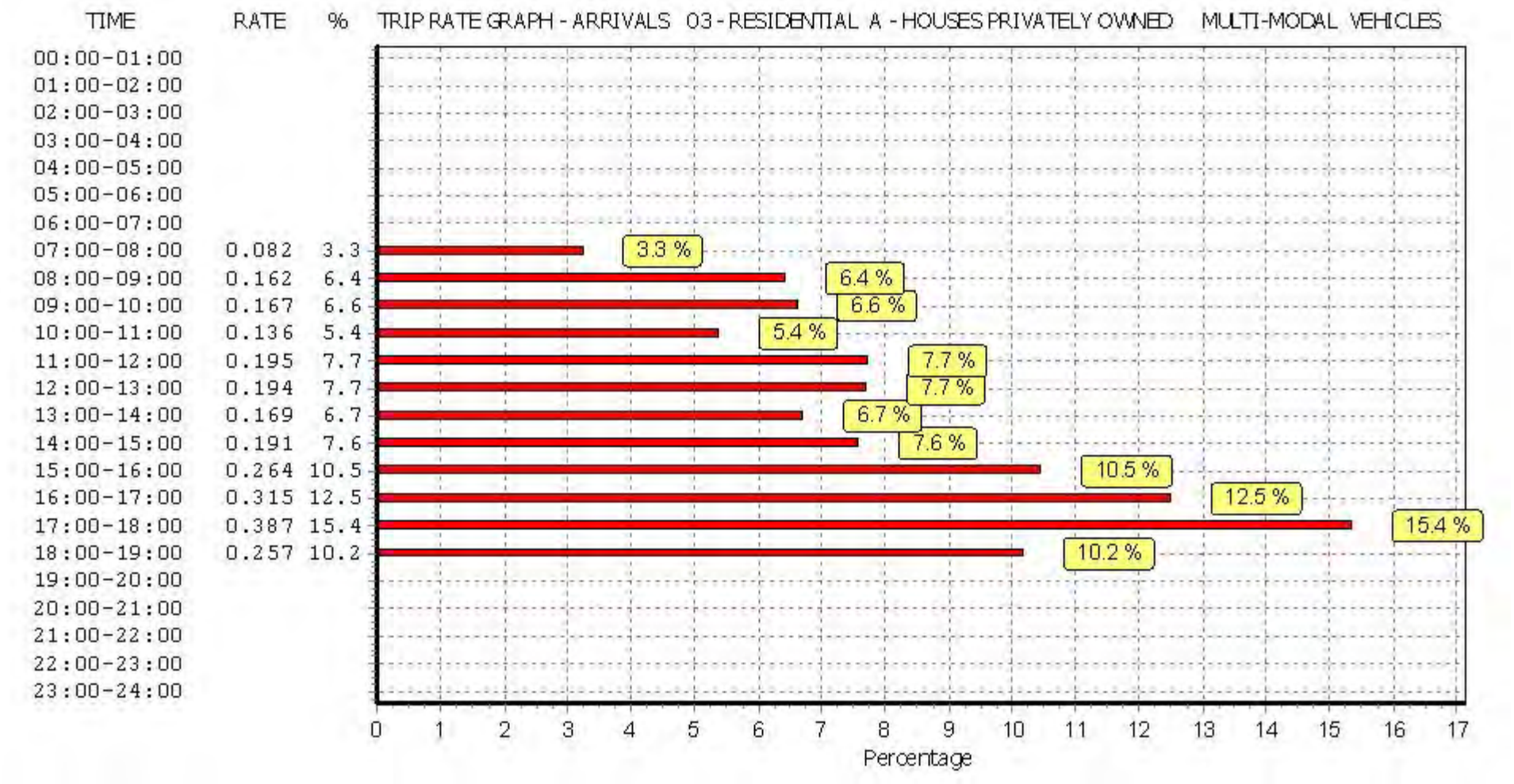
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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.

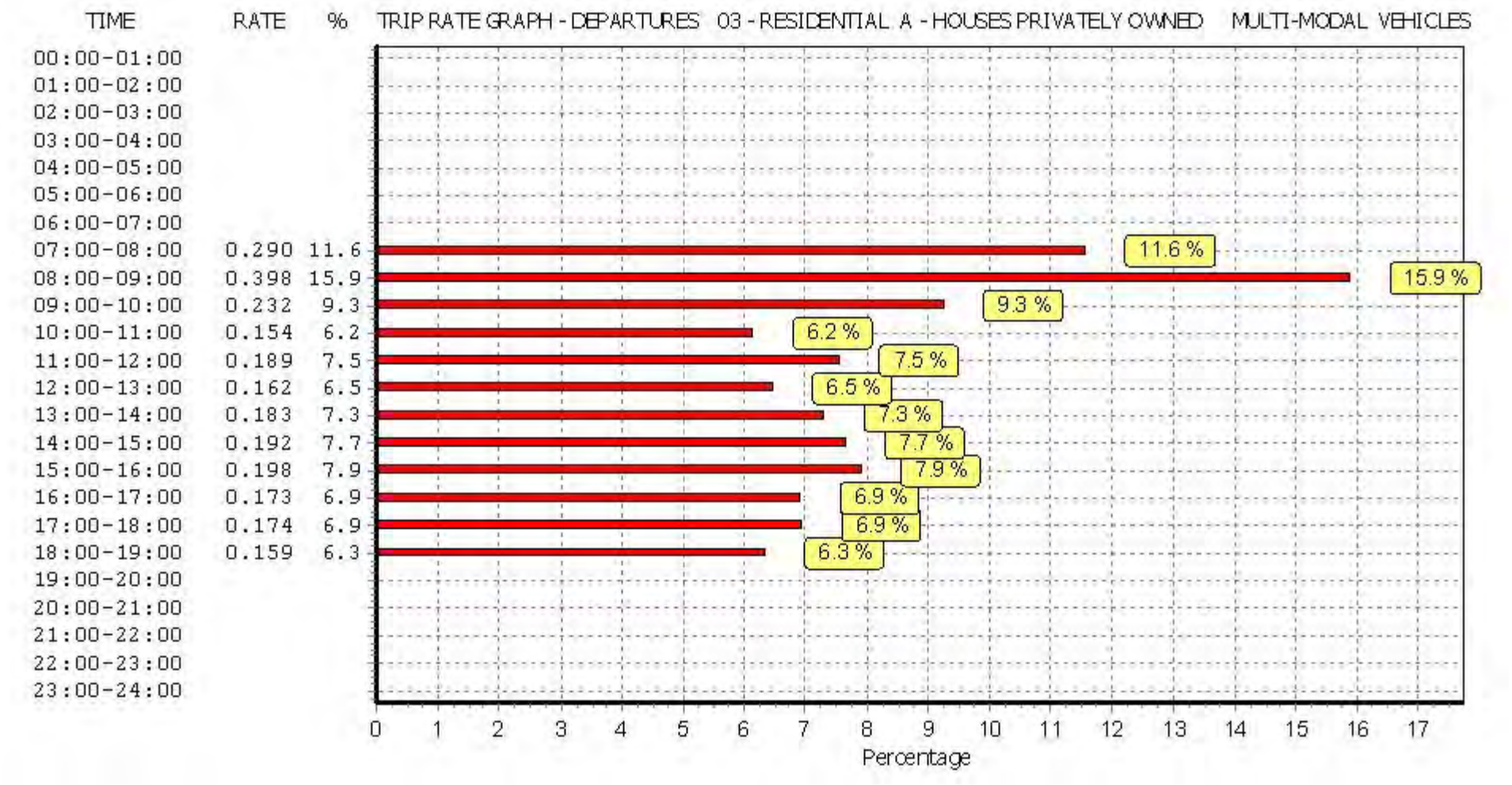
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



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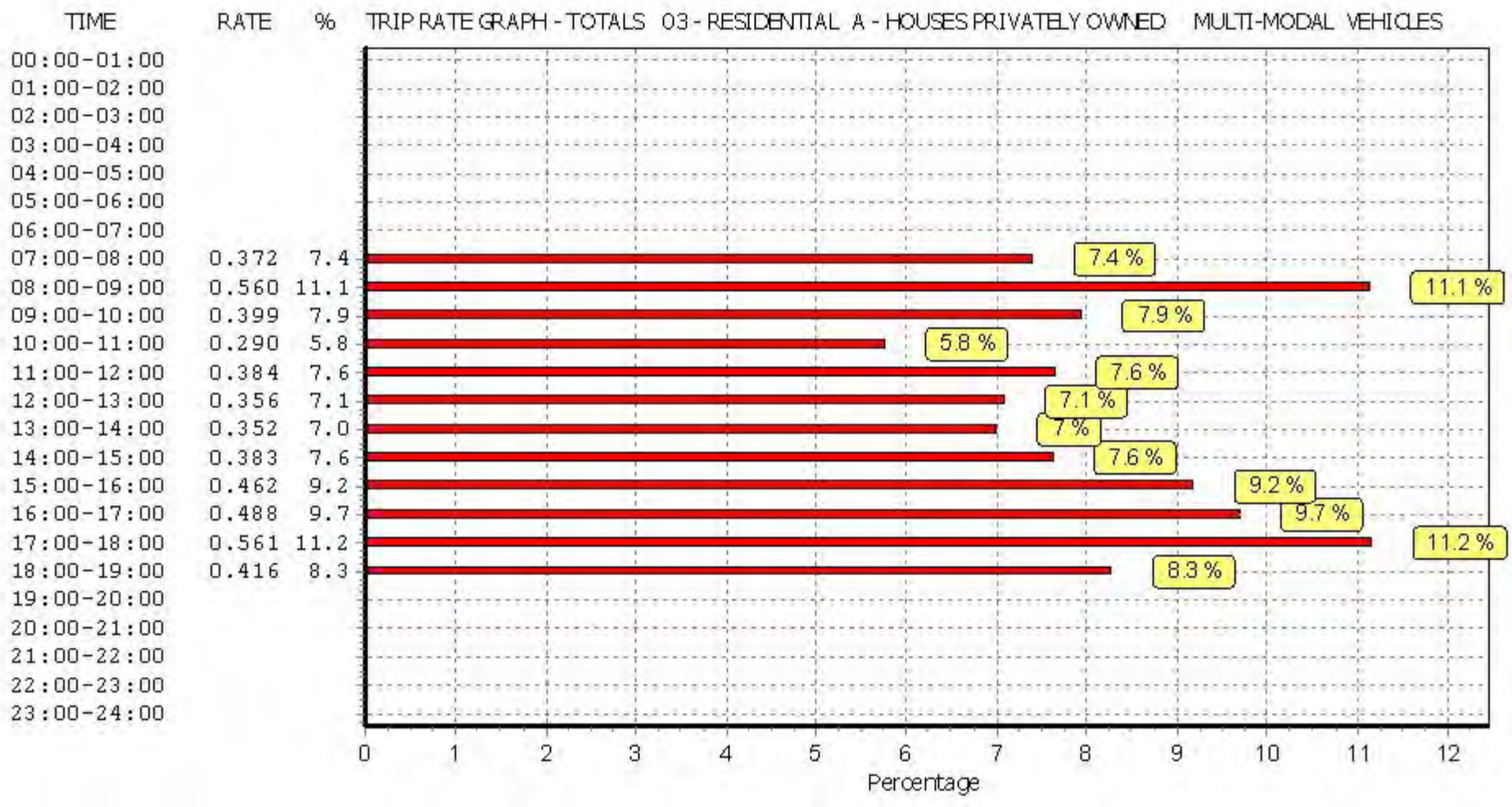

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TAXIS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

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	14	52	0.006	14	52	0.007	14	52	0.013
08:00 - 09:00	14	52	0.011	14	52	0.010	14	52	0.021
09:00 - 10:00	14	52	0.007	14	52	0.010	14	52	0.017
10:00 - 11:00	14	52	0.003	14	52	0.003	14	52	0.006
11:00 - 12:00	14	52	0.006	14	52	0.004	14	52	0.010
12:00 - 13:00	14	52	0.006	14	52	0.004	14	52	0.010
13:00 - 14:00	14	52	0.003	14	52	0.004	14	52	0.007
14:00 - 15:00	14	52	0.007	14	52	0.006	14	52	0.013
15:00 - 16:00	14	52	0.008	14	52	0.008	14	52	0.016
16:00 - 17:00	14	52	0.008	14	52	0.004	14	52	0.012
17:00 - 18:00	14	52	0.003	14	52	0.001	14	52	0.004
18:00 - 19:00	14	52	0.004	14	52	0.006	14	52	0.010
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.072			0.067			0.139

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.

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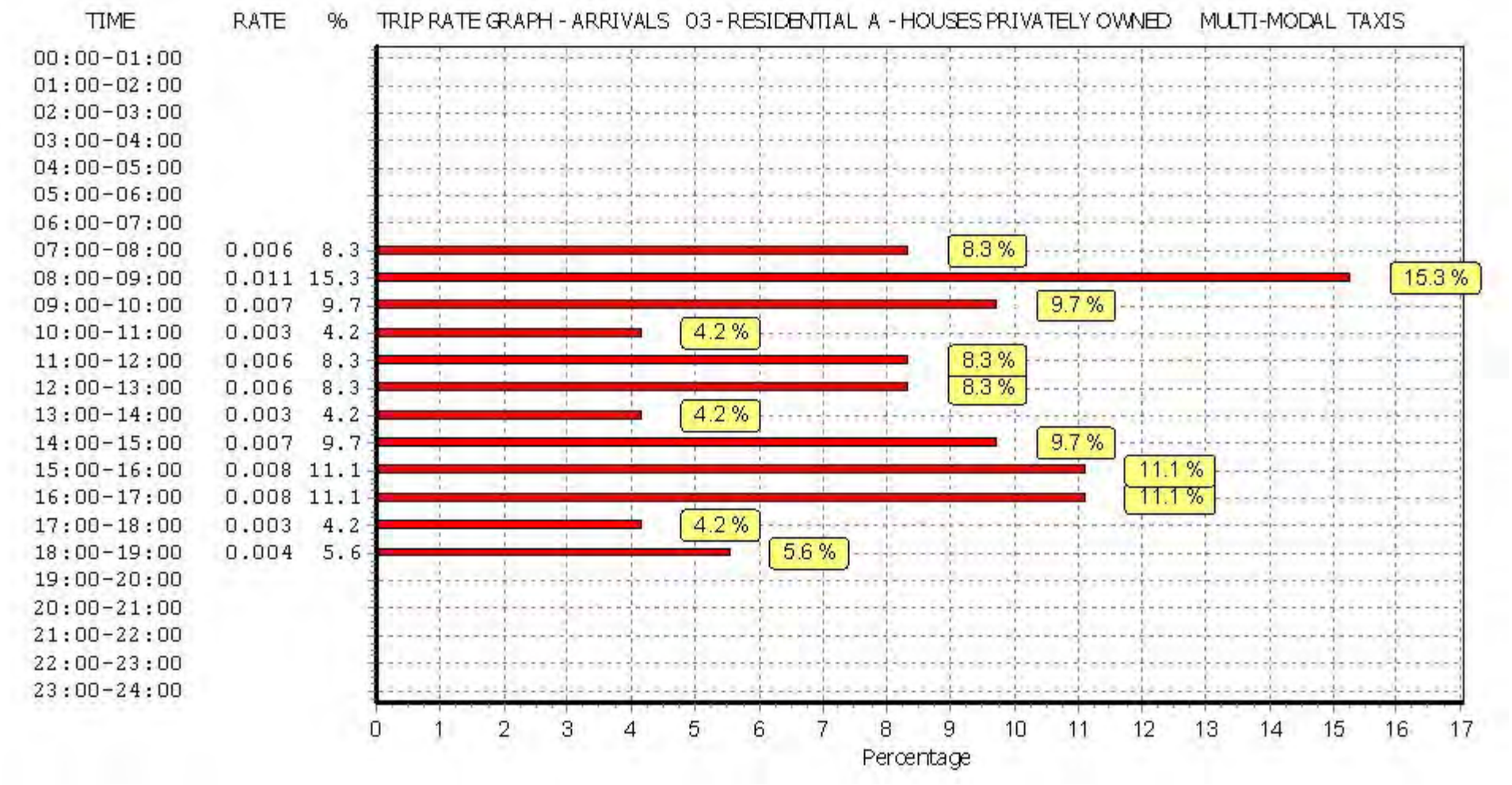
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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



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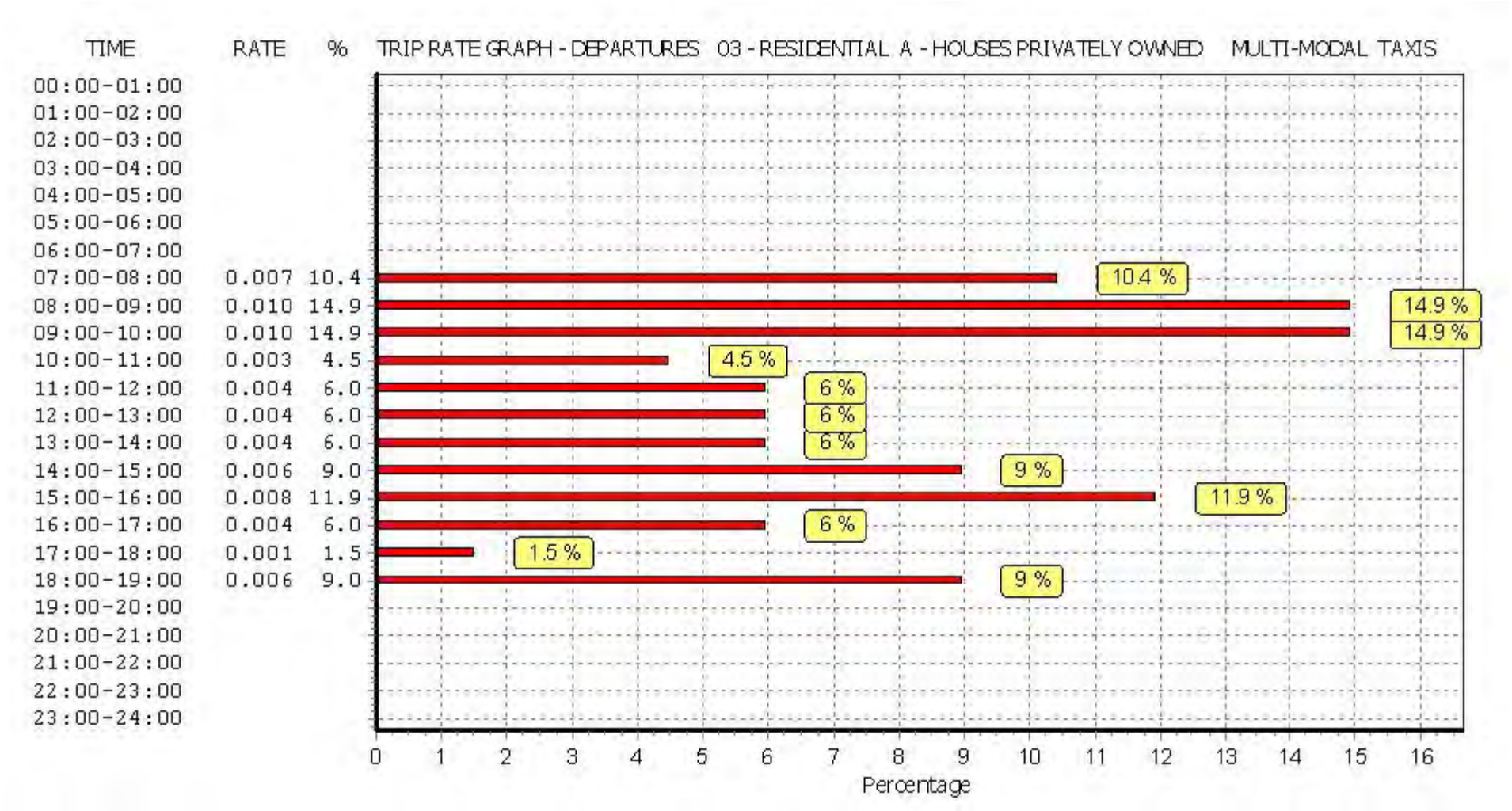

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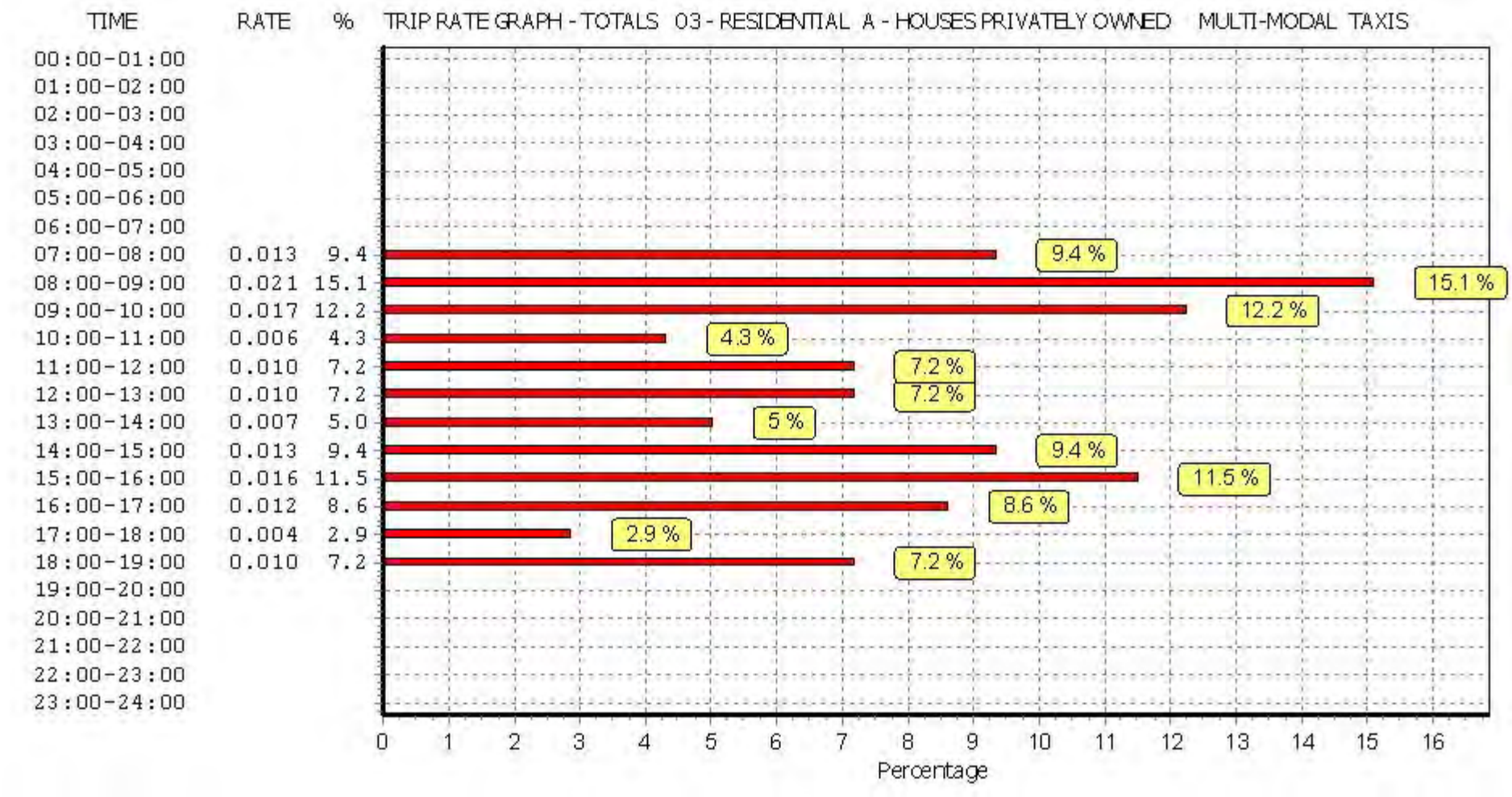

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL OGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	52	0.001	14	52	0.001	14	52	0.002
08:00 - 09:00	14	52	0.001	14	52	0.001	14	52	0.002
09:00 - 10:00	14	52	0.003	14	52	0.003	14	52	0.006
10:00 - 11:00	14	52	0.003	14	52	0.003	14	52	0.006
11:00 - 12:00	14	52	0.001	14	52	0.001	14	52	0.002
12:00 - 13:00	14	52	0.003	14	52	0.003	14	52	0.006
13:00 - 14:00	14	52	0.001	14	52	0.000	14	52	0.001
14:00 - 15:00	14	52	0.000	14	52	0.001	14	52	0.001
15:00 - 16:00	14	52	0.001	14	52	0.001	14	52	0.002
16:00 - 17:00	14	52	0.000	14	52	0.001	14	52	0.001
17:00 - 18:00	14	52	0.001	14	52	0.000	14	52	0.001
18:00 - 19:00	14	52	0.000	14	52	0.000	14	52	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.015			0.015			0.030

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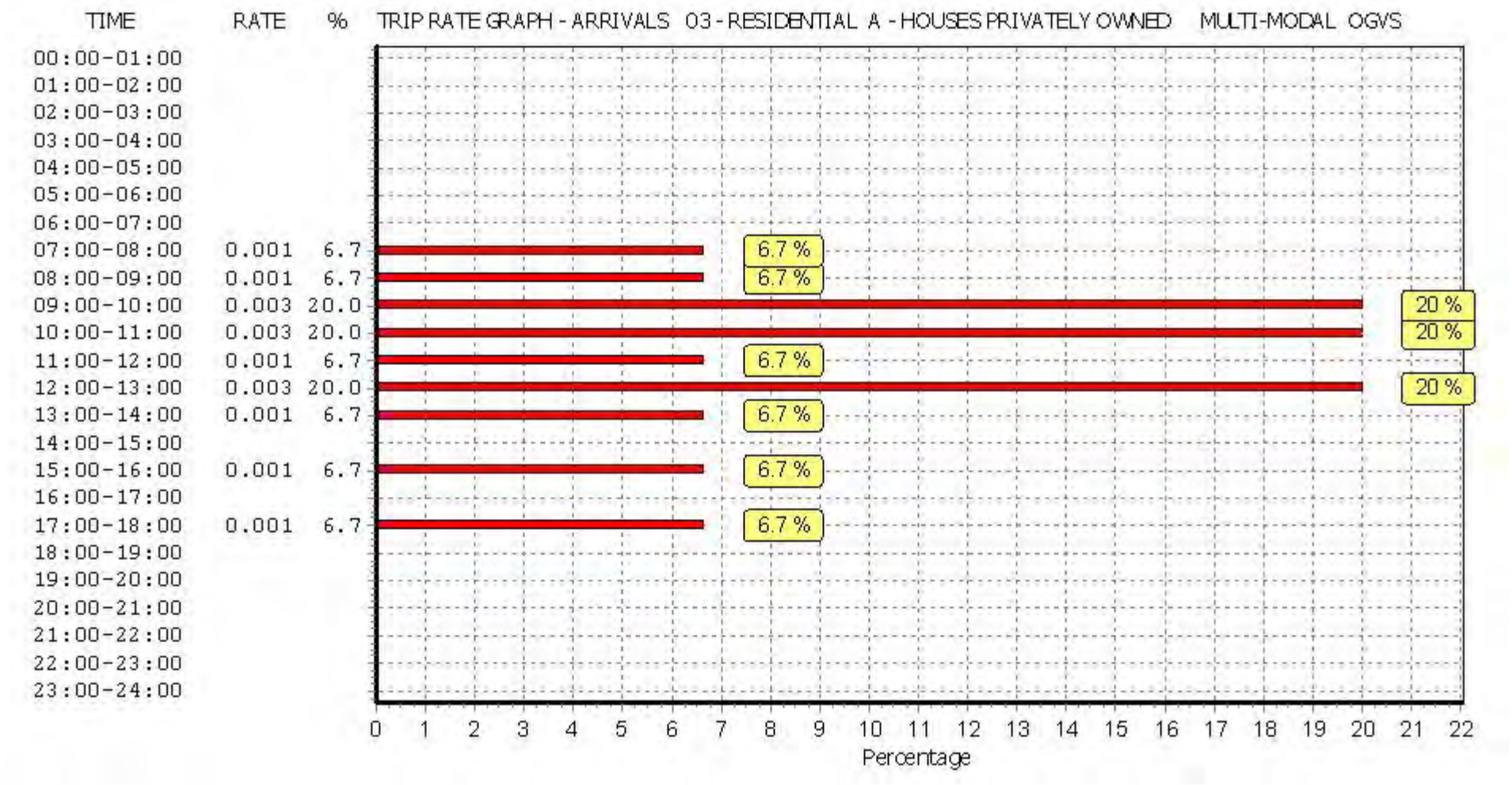
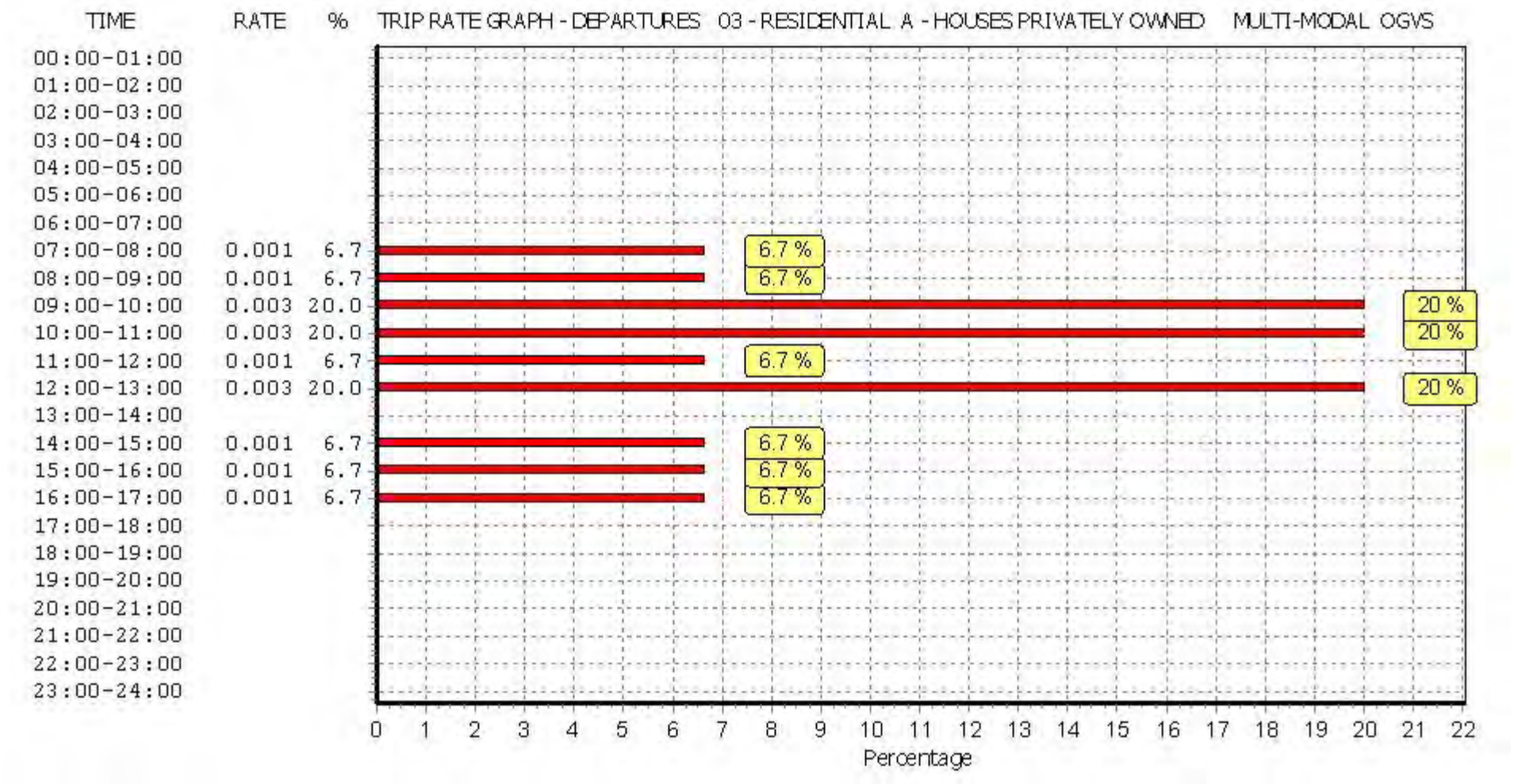
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



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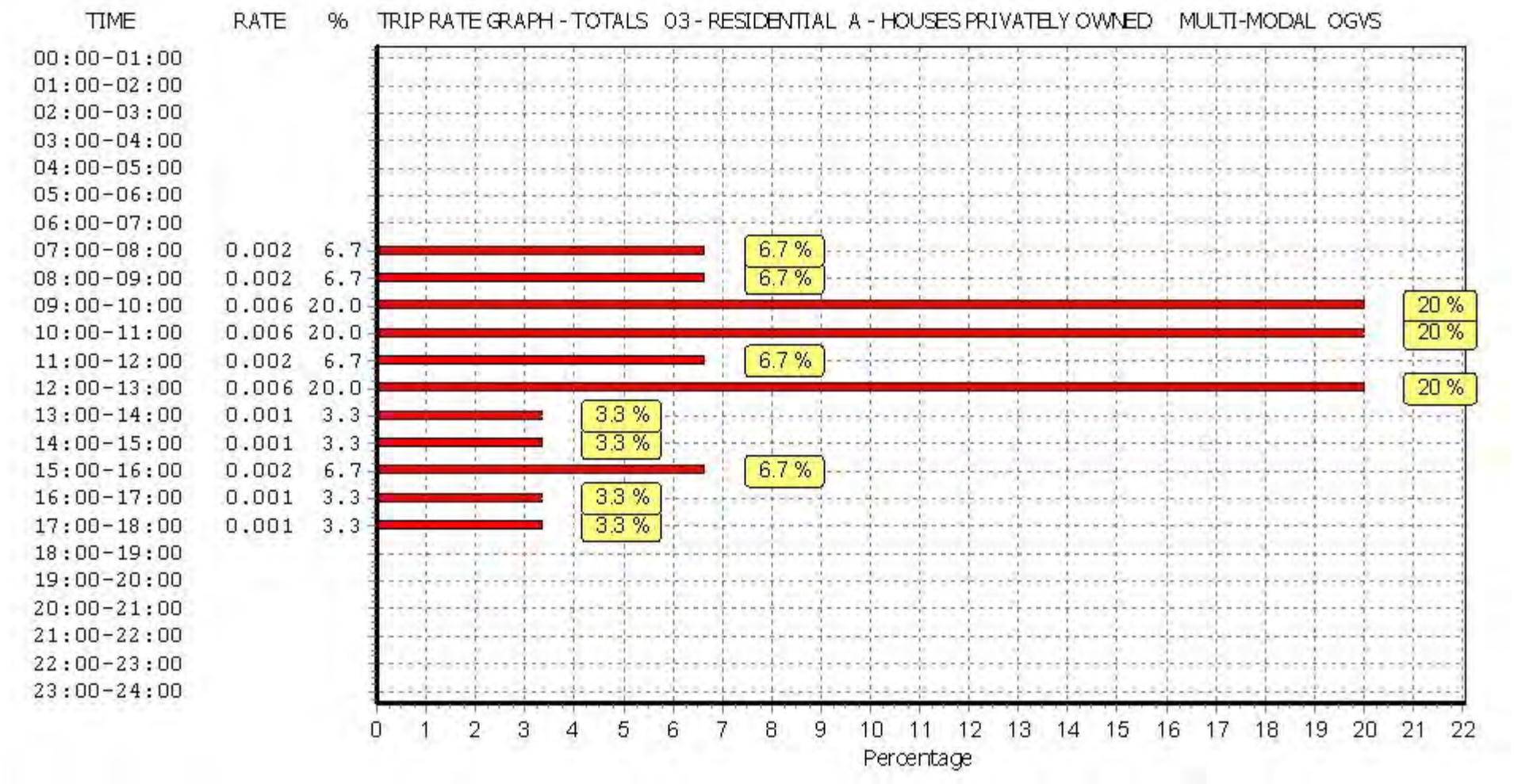

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PSVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	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	14	52	0.000	14	52	0.000	14	52	0.000
08:00 - 09:00	14	52	0.000	14	52	0.000	14	52	0.000
09:00 - 10:00	14	52	0.000	14	52	0.000	14	52	0.000
10:00 - 11:00	14	52	0.000	14	52	0.000	14	52	0.000
11:00 - 12:00	14	52	0.003	14	52	0.003	14	52	0.006
12:00 - 13:00	14	52	0.000	14	52	0.000	14	52	0.000
13:00 - 14:00	14	52	0.000	14	52	0.000	14	52	0.000
14:00 - 15:00	14	52	0.000	14	52	0.000	14	52	0.000
15:00 - 16:00	14	52	0.000	14	52	0.000	14	52	0.000
16:00 - 17:00	14	52	0.000	14	52	0.000	14	52	0.000
17:00 - 18:00	14	52	0.000	14	52	0.000	14	52	0.000
18:00 - 19:00	14	52	0.000	14	52	0.000	14	52	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.003			0.003			0.006

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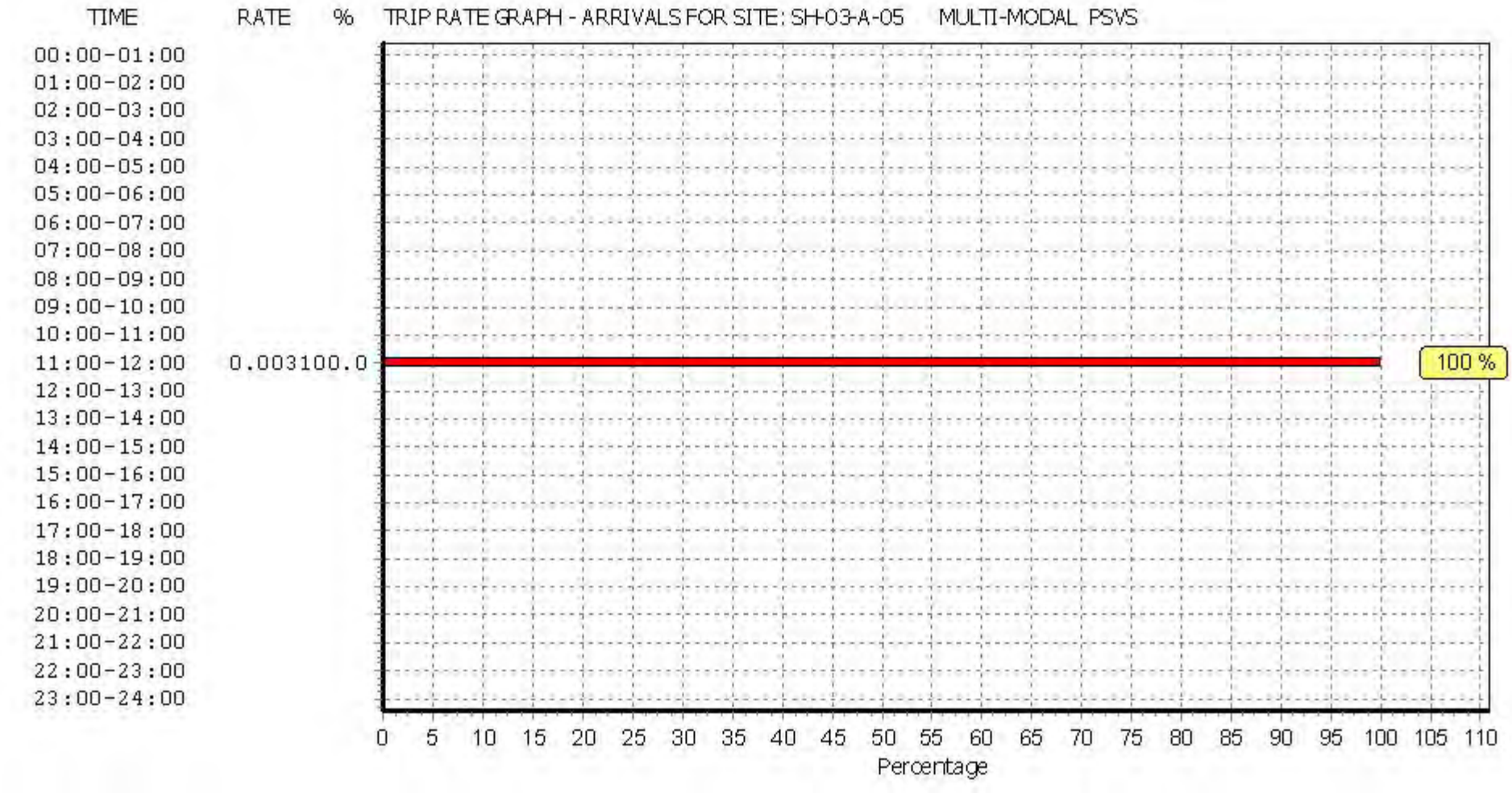
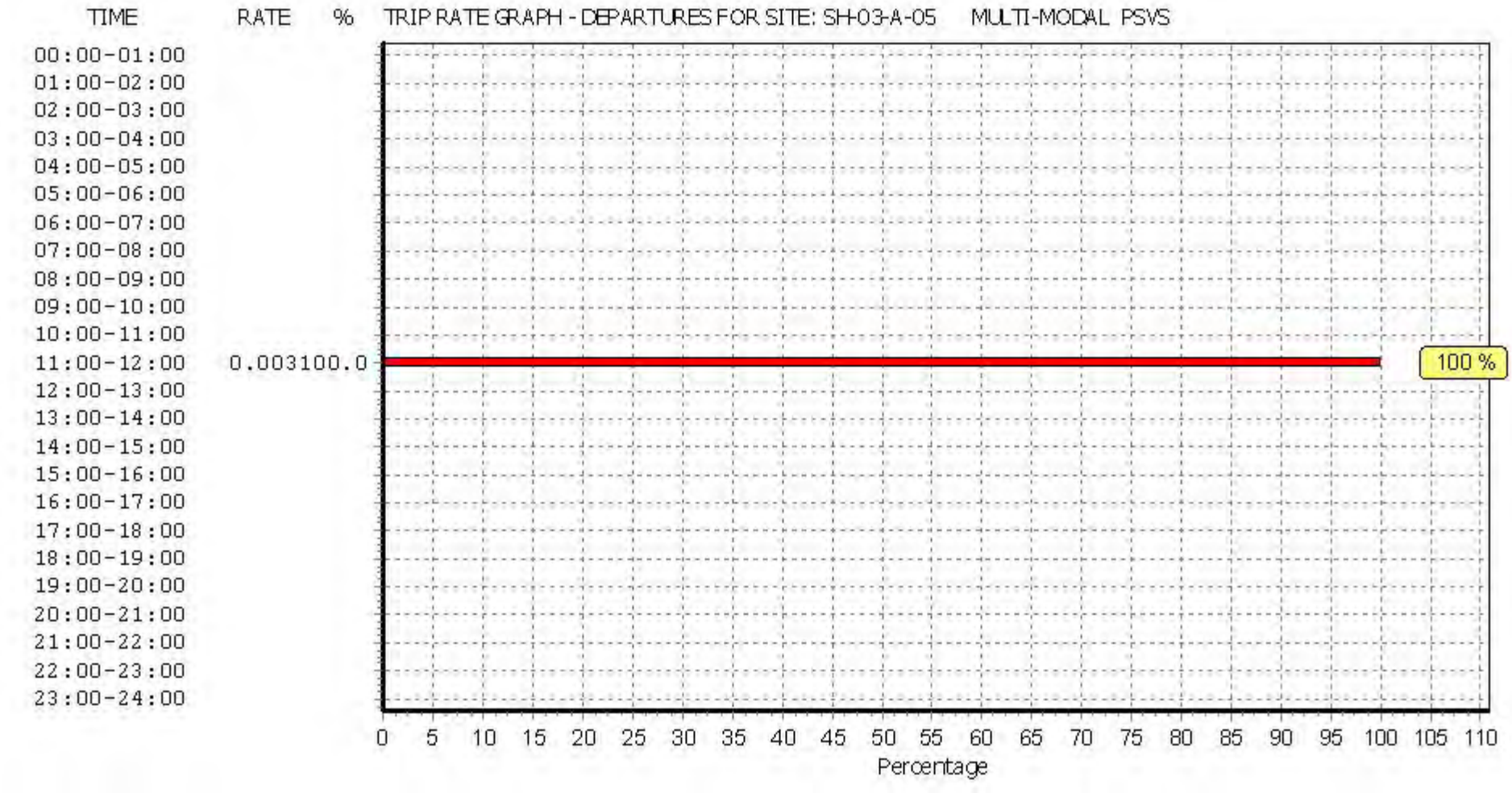
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

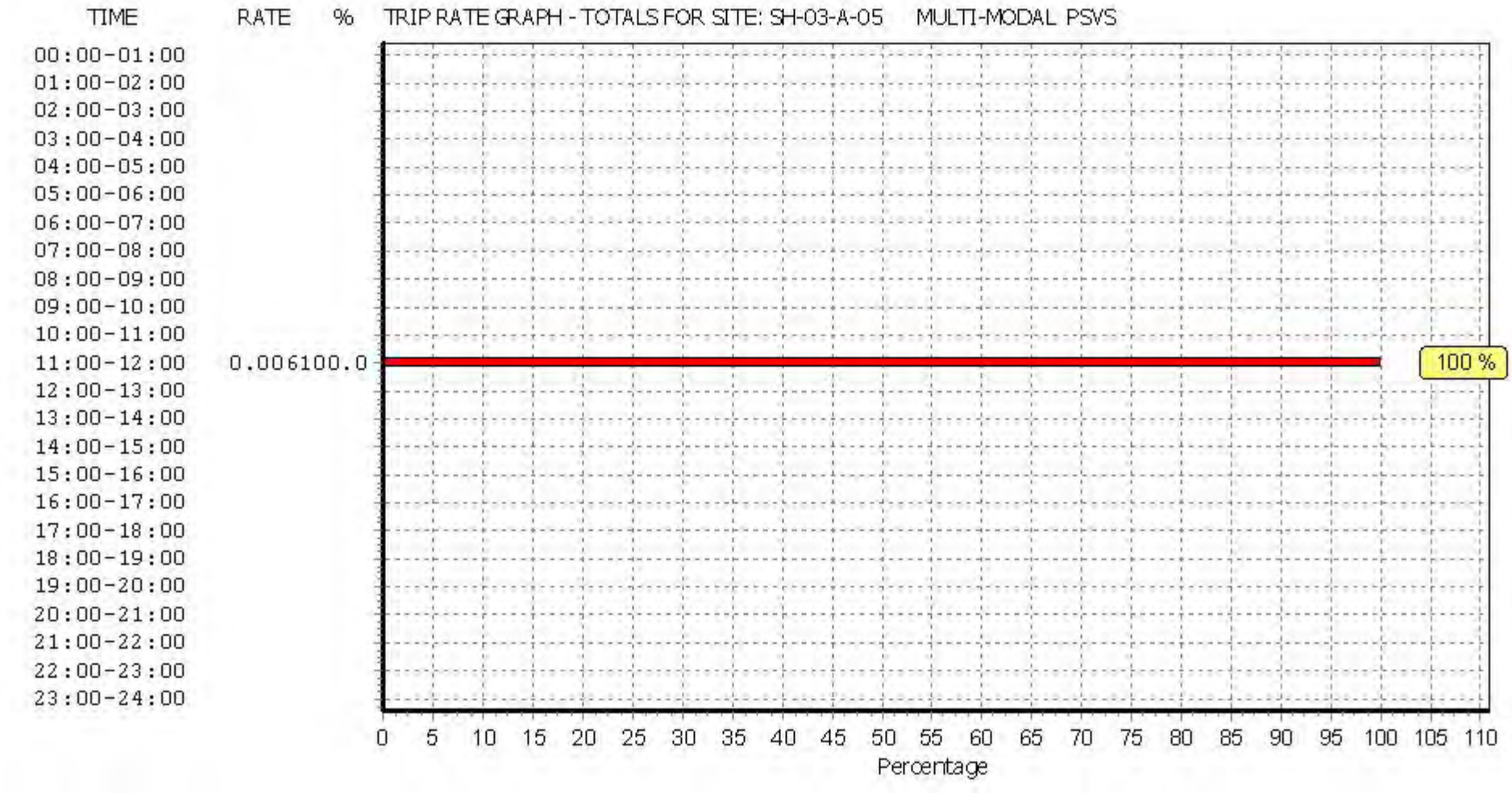
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	52	0.004	14	52	0.015	14	52	0.019
08:00 - 09:00	14	52	0.001	14	52	0.021	14	52	0.022
09:00 - 10:00	14	52	0.001	14	52	0.006	14	52	0.007
10:00 - 11:00	14	52	0.000	14	52	0.007	14	52	0.007
11:00 - 12:00	14	52	0.007	14	52	0.001	14	52	0.008
12:00 - 13:00	14	52	0.004	14	52	0.003	14	52	0.007
13:00 - 14:00	14	52	0.008	14	52	0.004	14	52	0.012
14:00 - 15:00	14	52	0.004	14	52	0.006	14	52	0.010
15:00 - 16:00	14	52	0.010	14	52	0.001	14	52	0.011
16:00 - 17:00	14	52	0.018	14	52	0.007	14	52	0.025
17:00 - 18:00	14	52	0.017	14	52	0.011	14	52	0.028
18:00 - 19:00	14	52	0.008	14	52	0.008	14	52	0.016
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.082			0.090			0.172

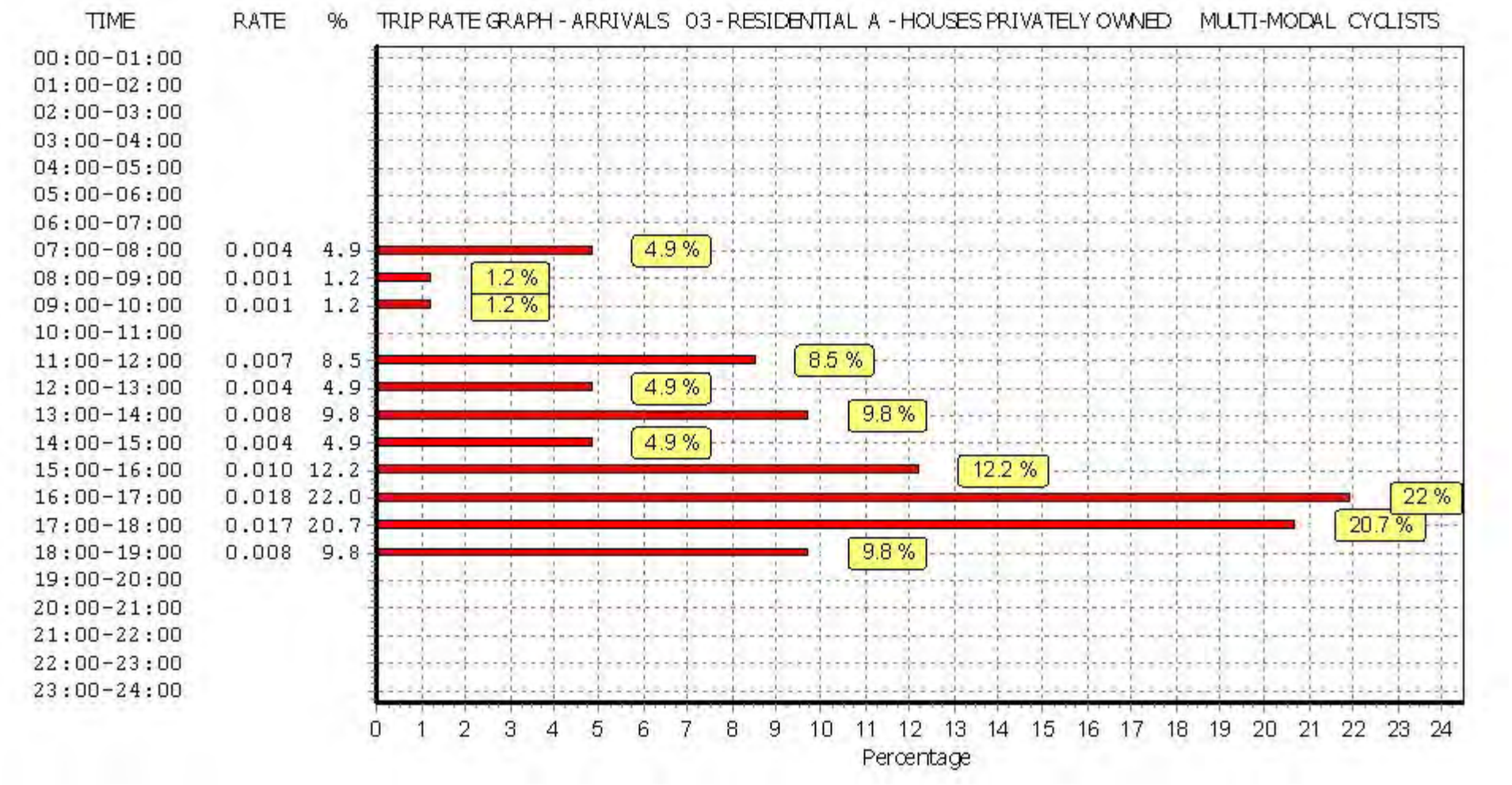
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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.

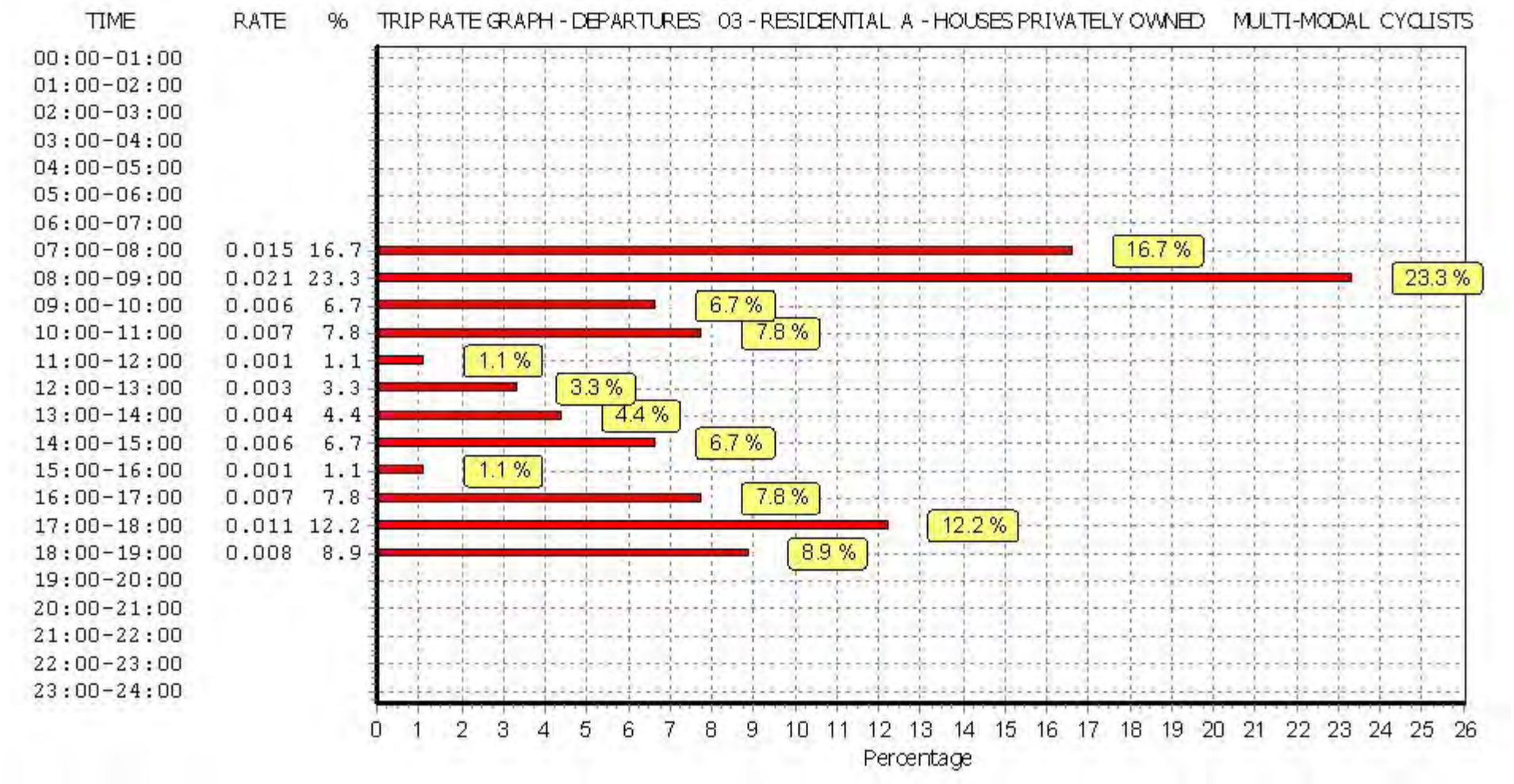
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

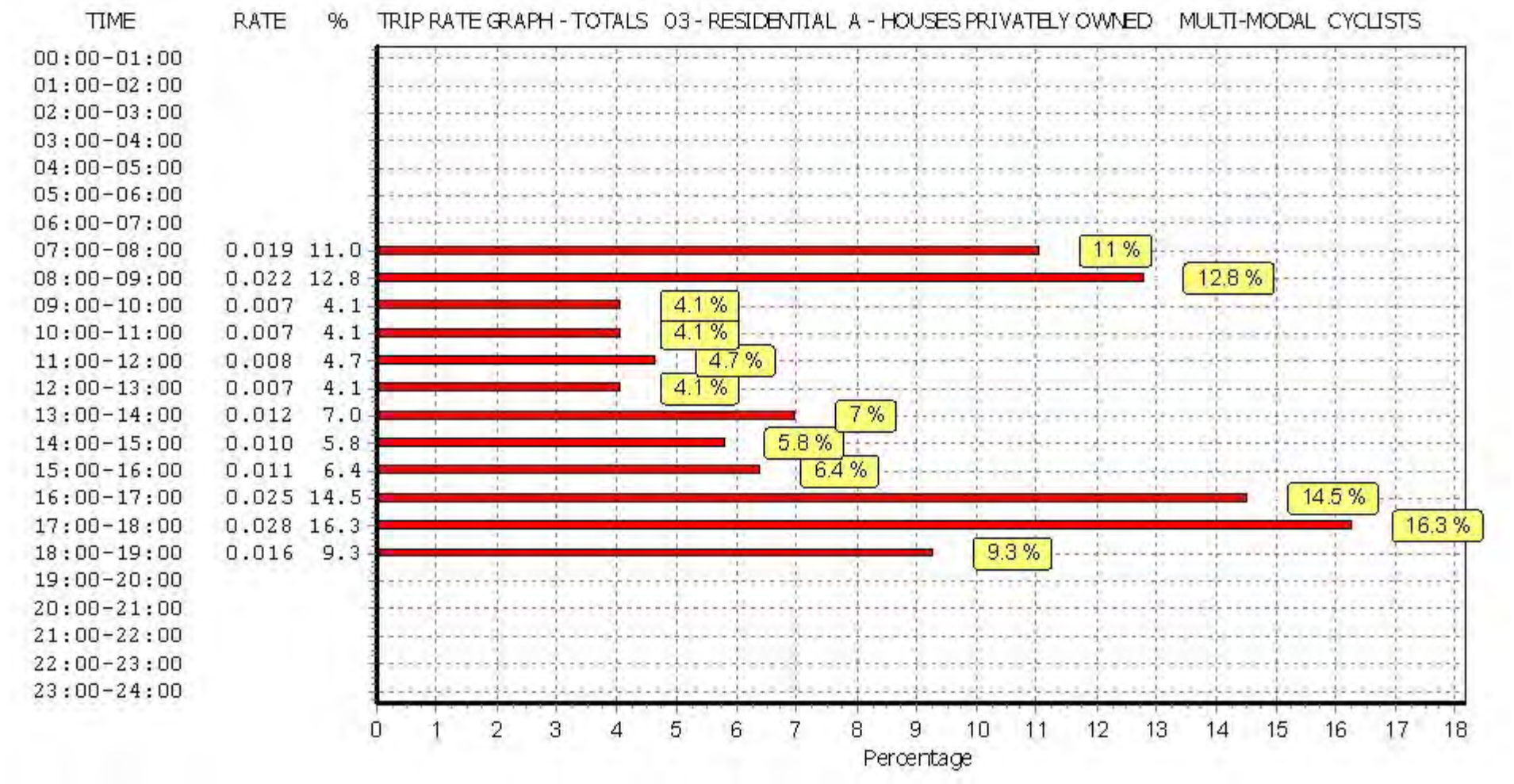
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES 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	14	52	0.090	14	52	0.371	14	52	0.461
08:00 - 09:00	14	52	0.194	14	52	0.609	14	52	0.803
09:00 - 10:00	14	52	0.201	14	52	0.289	14	52	0.490
10:00 - 11:00	14	52	0.158	14	52	0.194	14	52	0.352
11:00 - 12:00	14	52	0.261	14	52	0.228	14	52	0.489
12:00 - 13:00	14	52	0.246	14	52	0.196	14	52	0.442
13:00 - 14:00	14	52	0.207	14	52	0.221	14	52	0.428
14:00 - 15:00	14	52	0.241	14	52	0.234	14	52	0.475
15:00 - 16:00	14	52	0.425	14	52	0.252	14	52	0.677
16:00 - 17:00	14	52	0.427	14	52	0.221	14	52	0.648
17:00 - 18:00	14	52	0.531	14	52	0.225	14	52	0.756
18:00 - 19:00	14	52	0.353	14	52	0.202	14	52	0.555
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.334			3.242			6.576

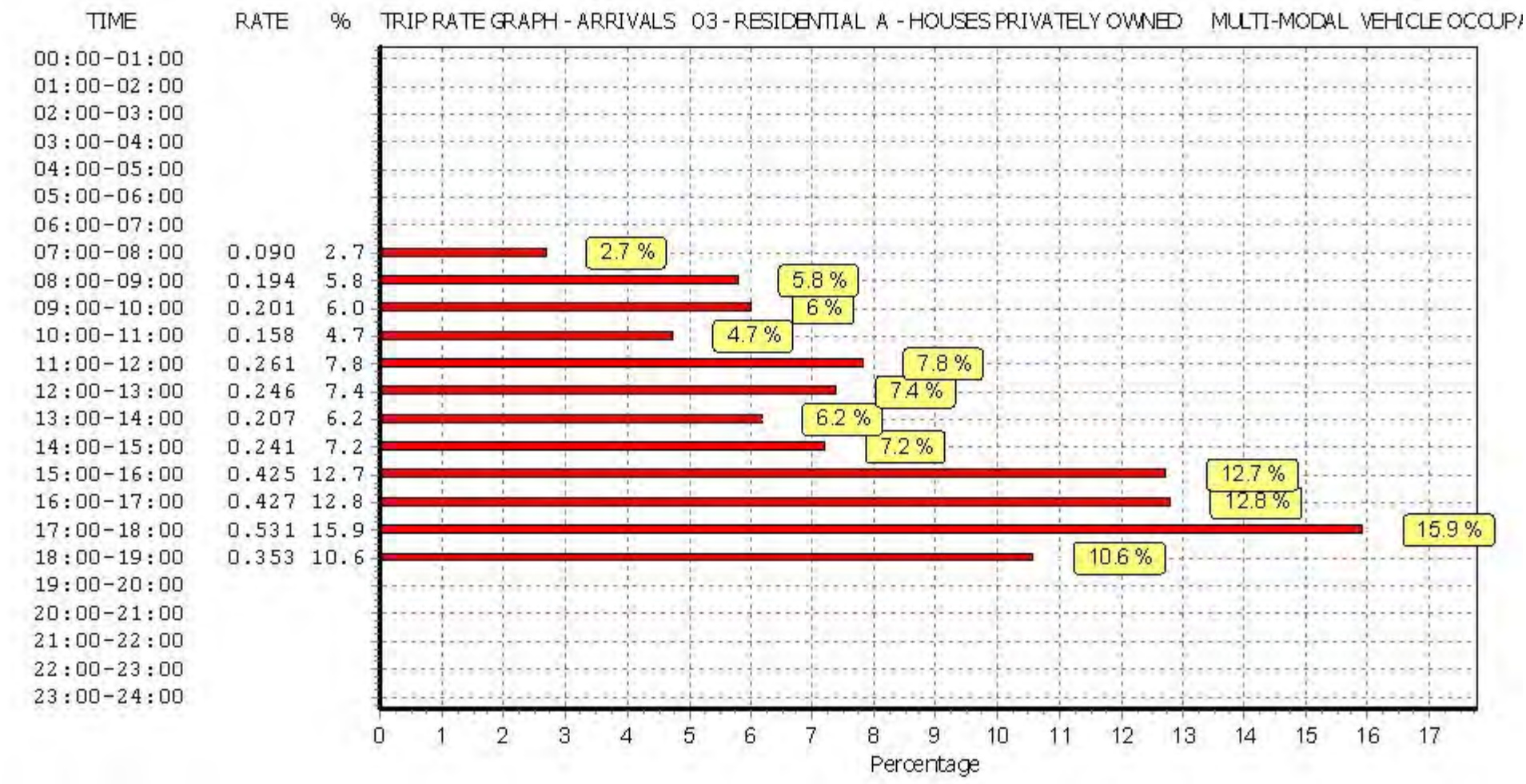
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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.

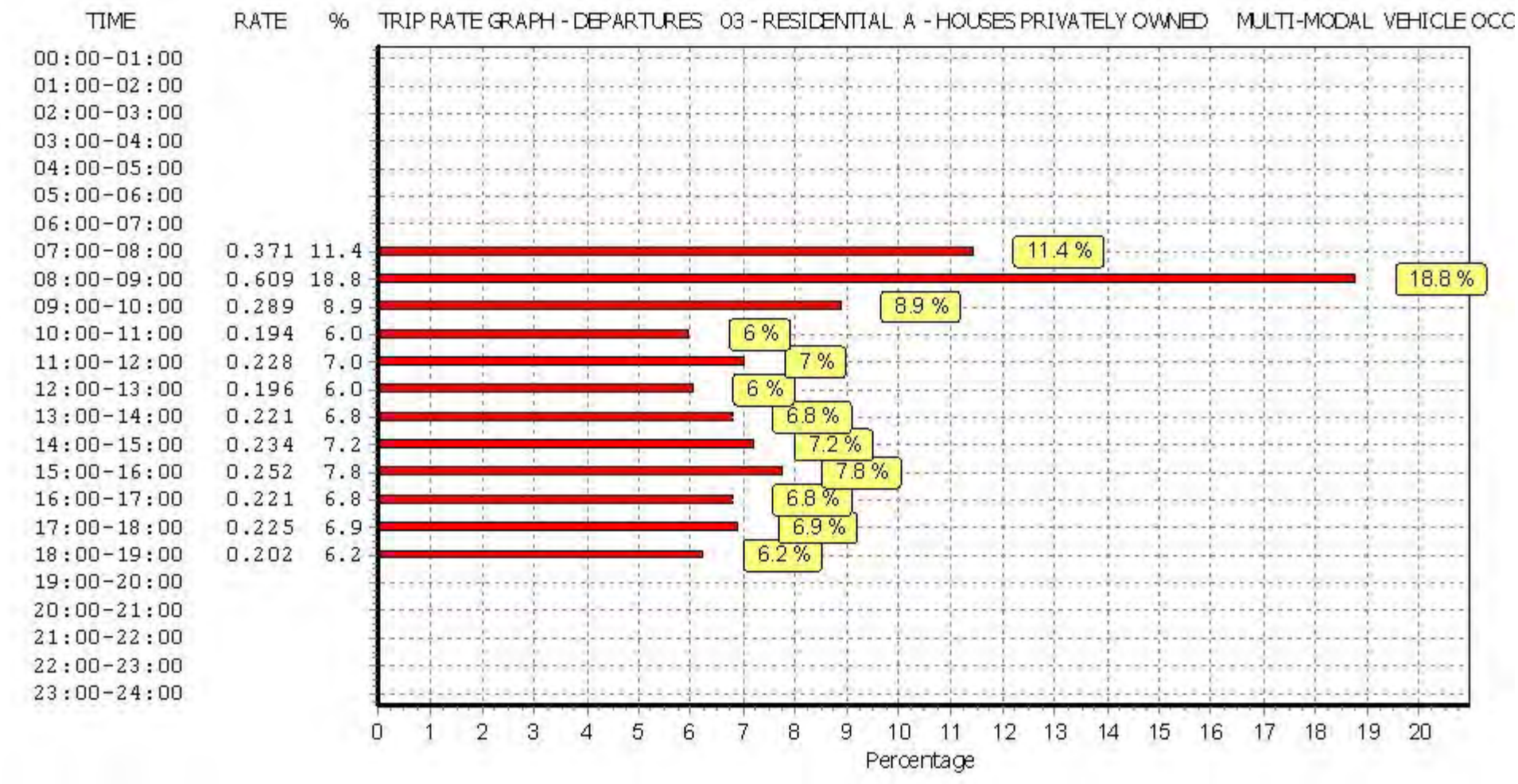
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

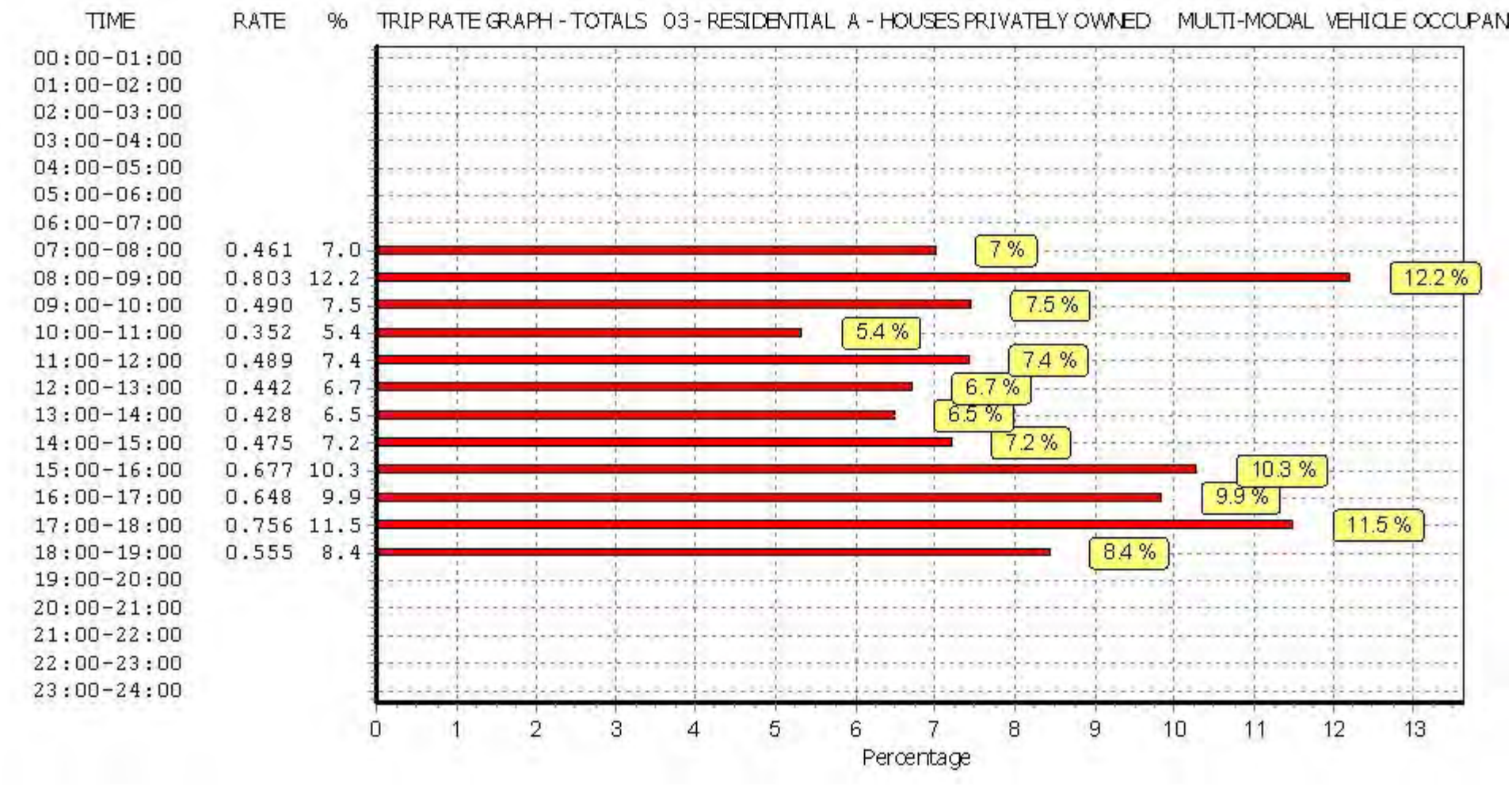
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	52	0.014	14	52	0.044	14	52	0.058
08:00 - 09:00	14	52	0.047	14	52	0.180	14	52	0.227
09:00 - 10:00	14	52	0.040	14	52	0.069	14	52	0.109
10:00 - 11:00	14	52	0.035	14	52	0.051	14	52	0.086
11:00 - 12:00	14	52	0.057	14	52	0.054	14	52	0.111
12:00 - 13:00	14	52	0.035	14	52	0.032	14	52	0.067
13:00 - 14:00	14	52	0.051	14	52	0.035	14	52	0.086
14:00 - 15:00	14	52	0.051	14	52	0.048	14	52	0.099
15:00 - 16:00	14	52	0.140	14	52	0.087	14	52	0.227
16:00 - 17:00	14	52	0.076	14	52	0.057	14	52	0.133
17:00 - 18:00	14	52	0.079	14	52	0.041	14	52	0.120
18:00 - 19:00	14	52	0.072	14	52	0.048	14	52	0.120
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.697			0.746			1.443

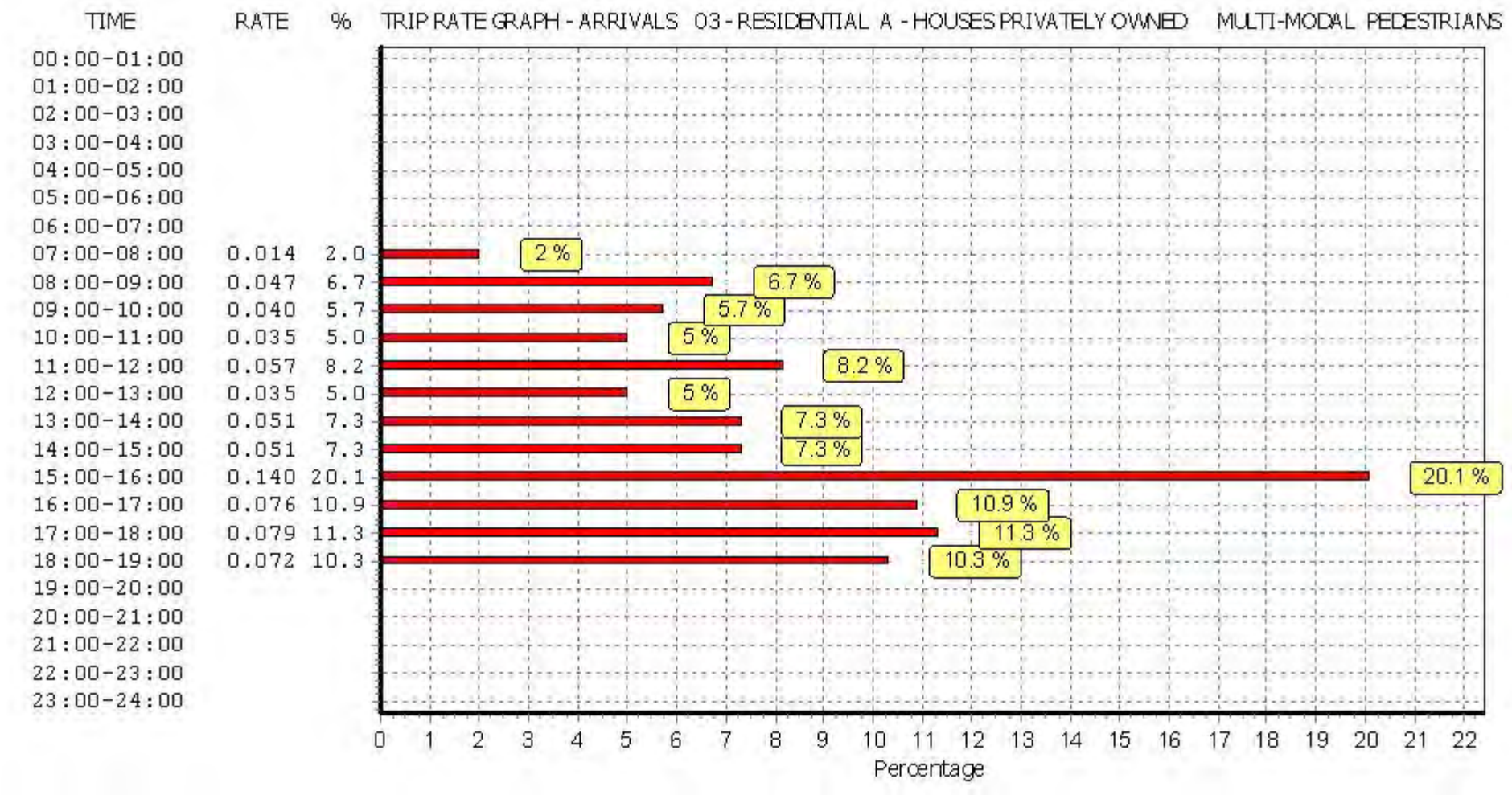
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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.

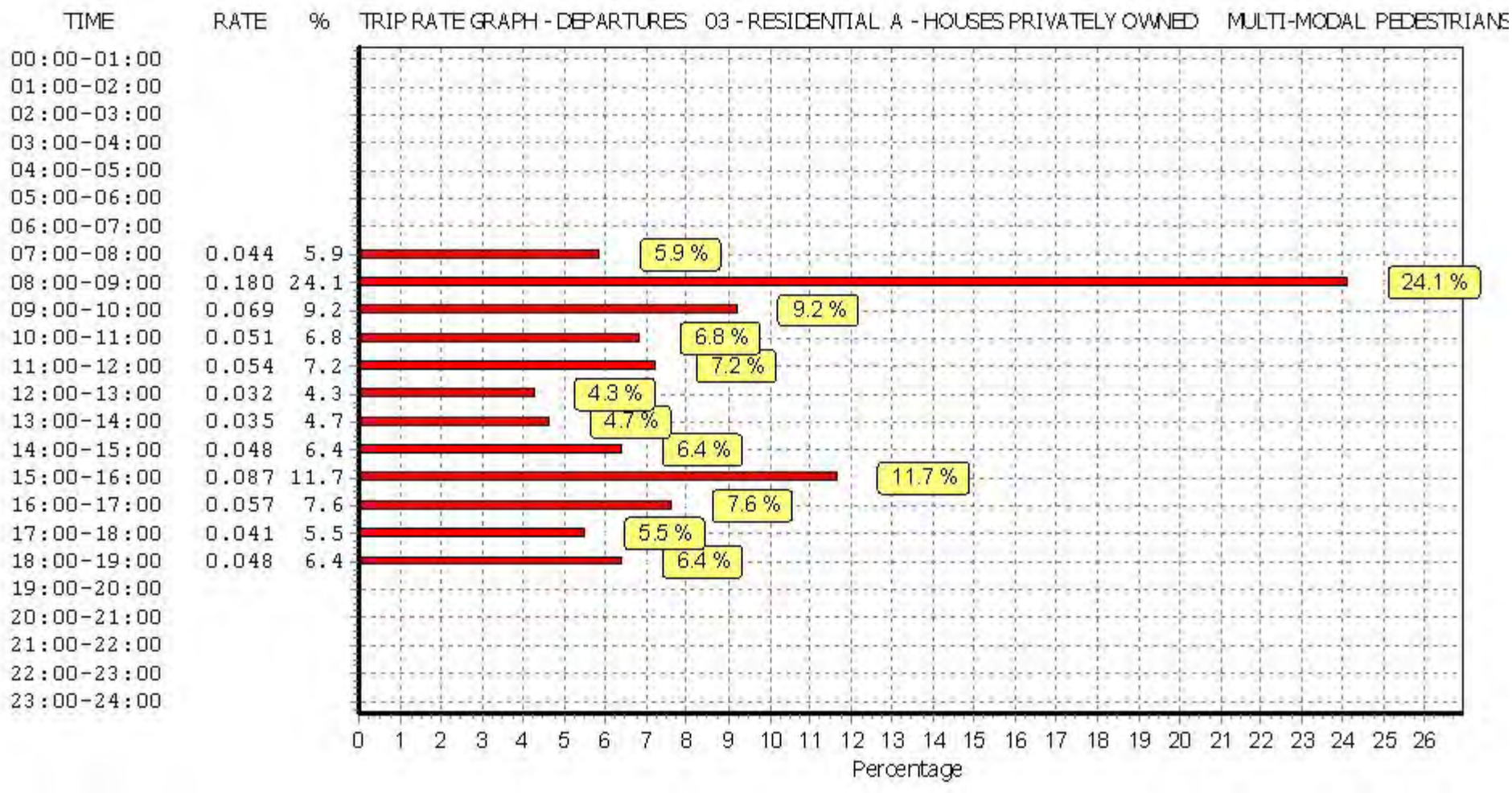
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

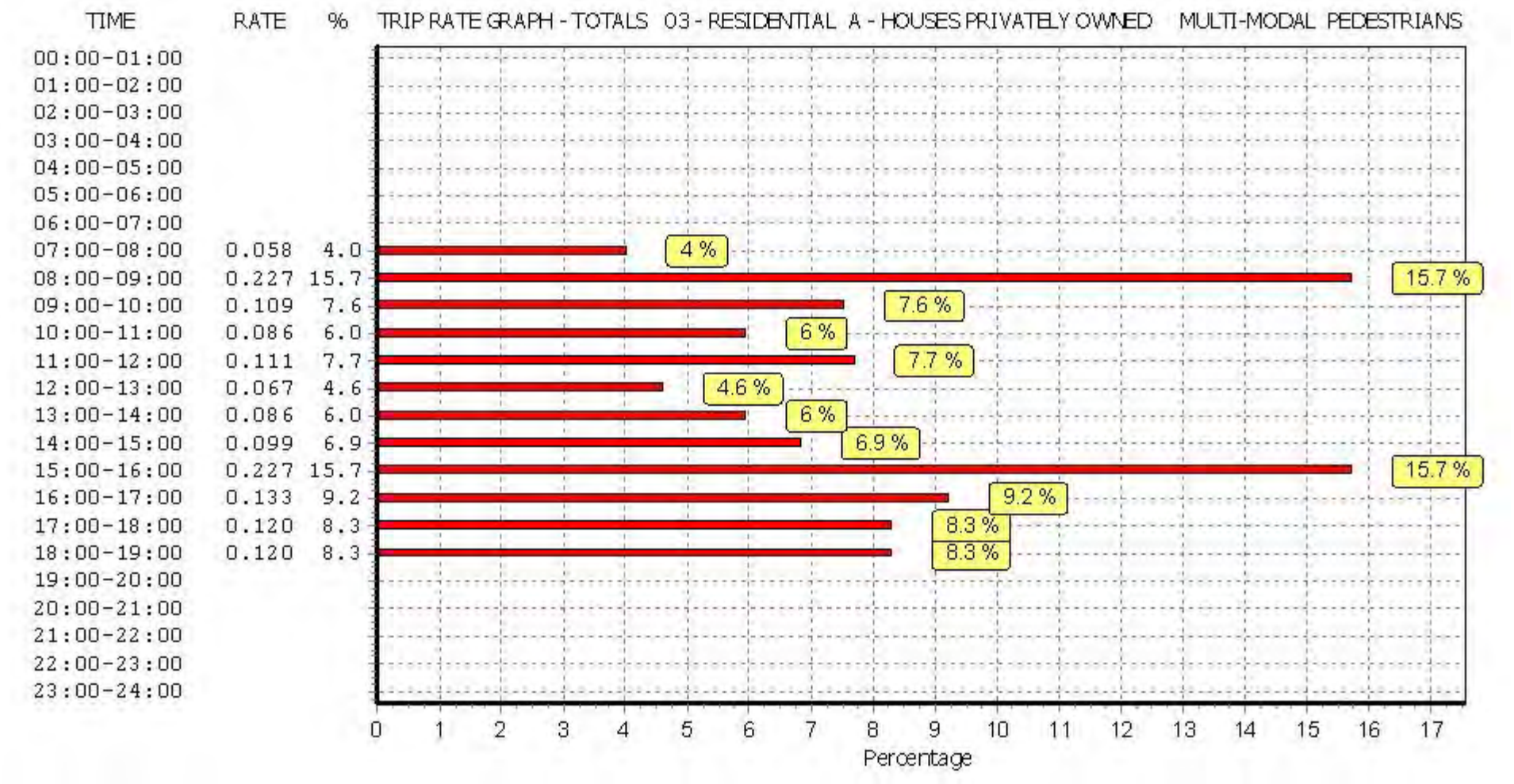
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	52	0.000	14	52	0.012	14	52	0.012
08:00 - 09:00	14	52	0.003	14	52	0.001	14	52	0.004
09:00 - 10:00	14	52	0.000	14	52	0.003	14	52	0.003
10:00 - 11:00	14	52	0.000	14	52	0.006	14	52	0.006
11:00 - 12:00	14	52	0.008	14	52	0.001	14	52	0.009
12:00 - 13:00	14	52	0.003	14	52	0.001	14	52	0.004
13:00 - 14:00	14	52	0.000	14	52	0.001	14	52	0.001
14:00 - 15:00	14	52	0.001	14	52	0.001	14	52	0.002
15:00 - 16:00	14	52	0.004	14	52	0.001	14	52	0.005
16:00 - 17:00	14	52	0.006	14	52	0.003	14	52	0.009
17:00 - 18:00	14	52	0.003	14	52	0.001	14	52	0.004
18:00 - 19:00	14	52	0.006	14	52	0.000	14	52	0.006
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.034			0.031			0.065

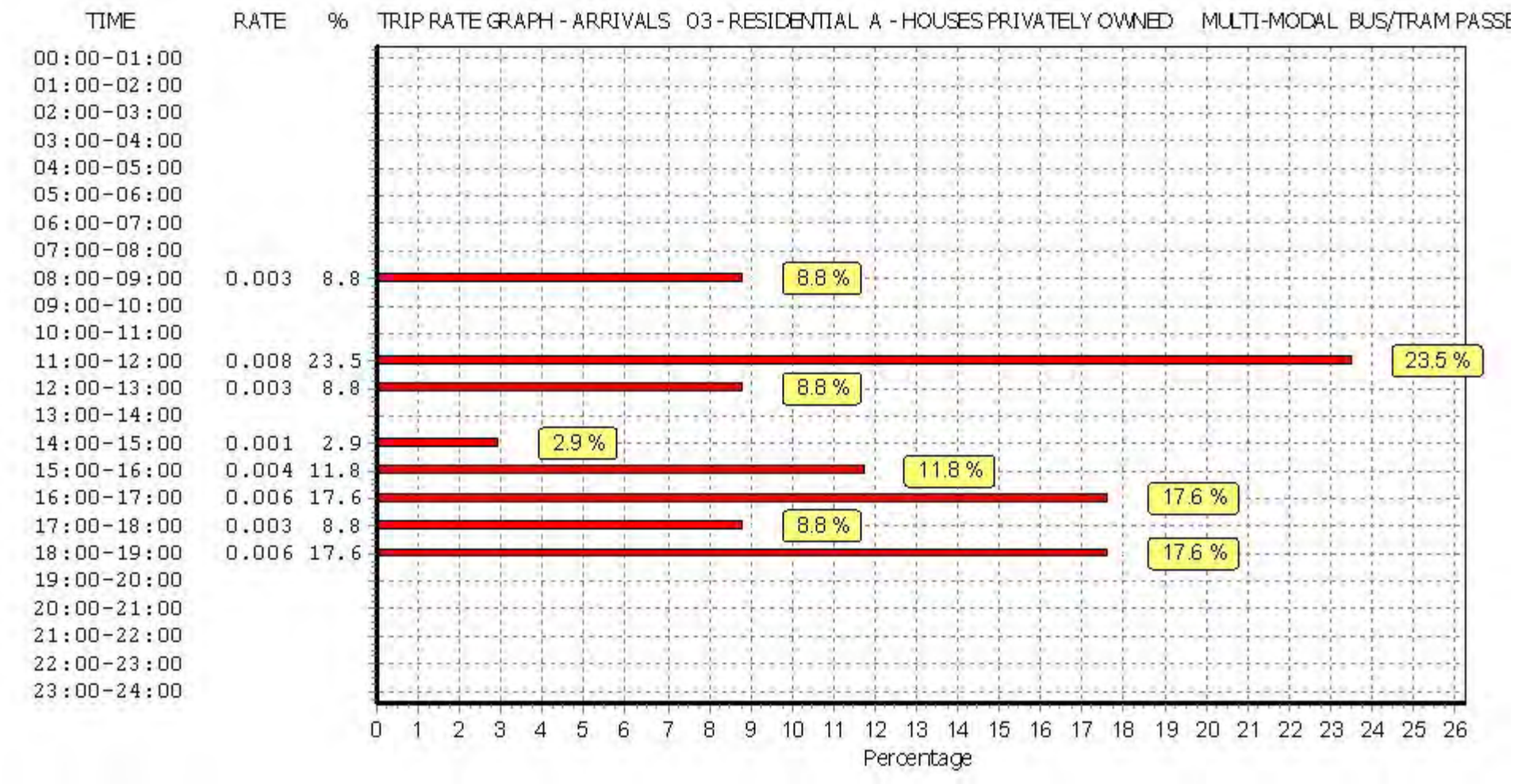
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are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

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

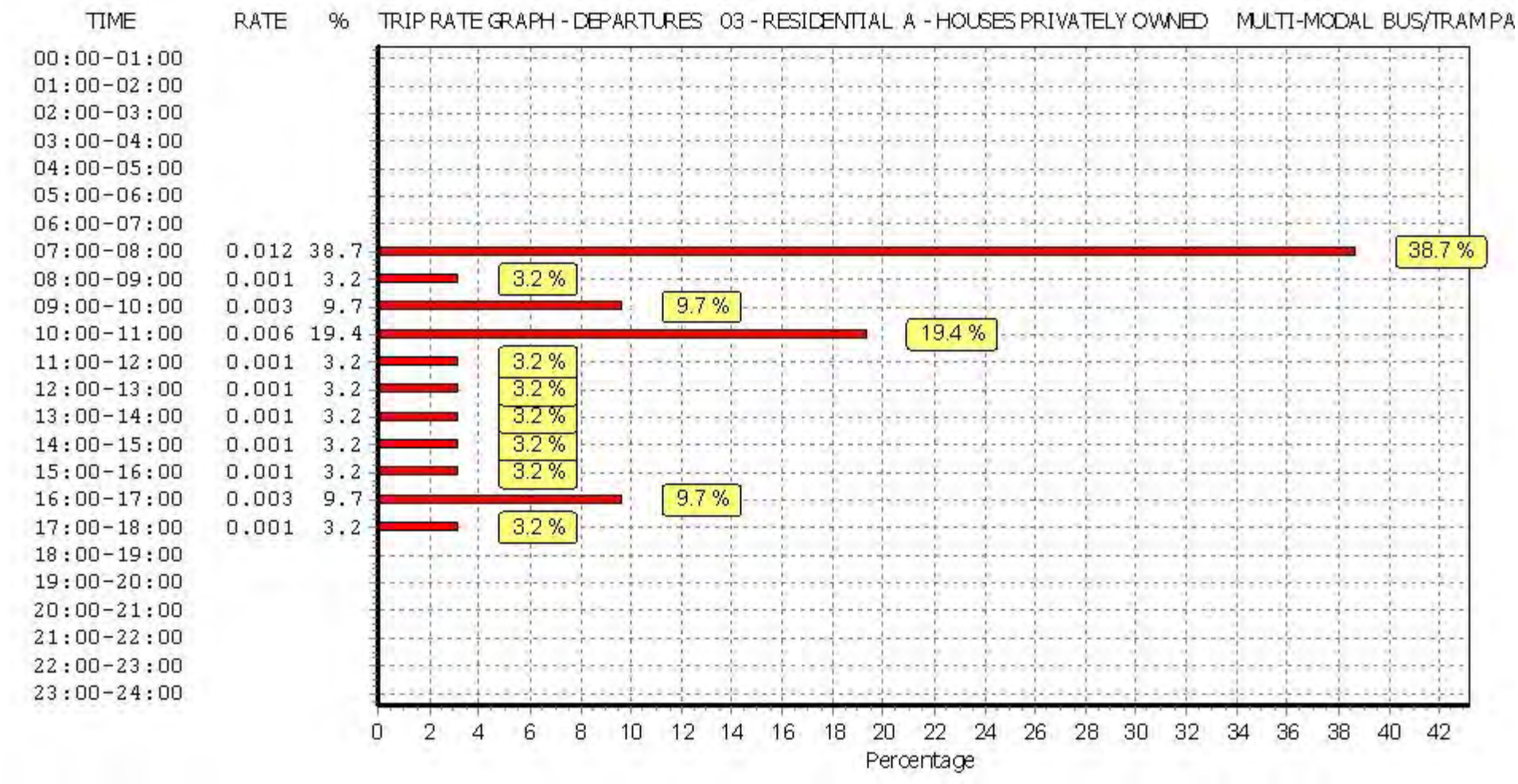
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

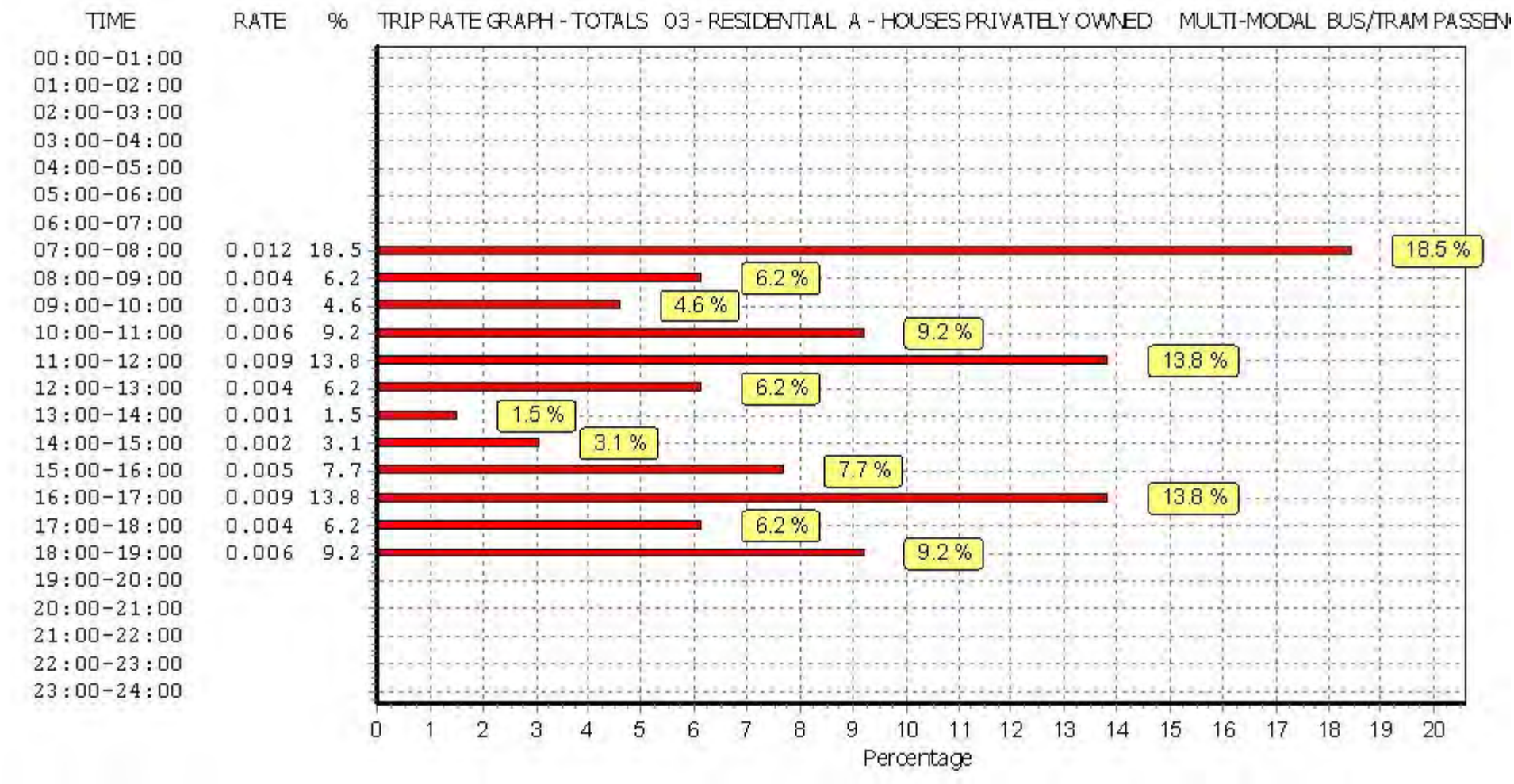
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL 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	14	52	0.000	14	52	0.000	14	52	0.000
08:00 - 09:00	14	52	0.000	14	52	0.001	14	52	0.001
09:00 - 10:00	14	52	0.000	14	52	0.001	14	52	0.001
10:00 - 11:00	14	52	0.000	14	52	0.000	14	52	0.000
11:00 - 12:00	14	52	0.000	14	52	0.000	14	52	0.000
12:00 - 13:00	14	52	0.000	14	52	0.001	14	52	0.001
13:00 - 14:00	14	52	0.000	14	52	0.000	14	52	0.000
14:00 - 15:00	14	52	0.000	14	52	0.000	14	52	0.000
15:00 - 16:00	14	52	0.000	14	52	0.000	14	52	0.000
16:00 - 17:00	14	52	0.000	14	52	0.000	14	52	0.000
17:00 - 18:00	14	52	0.001	14	52	0.000	14	52	0.001
18:00 - 19:00	14	52	0.001	14	52	0.000	14	52	0.001
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.002			0.003			0.005

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.

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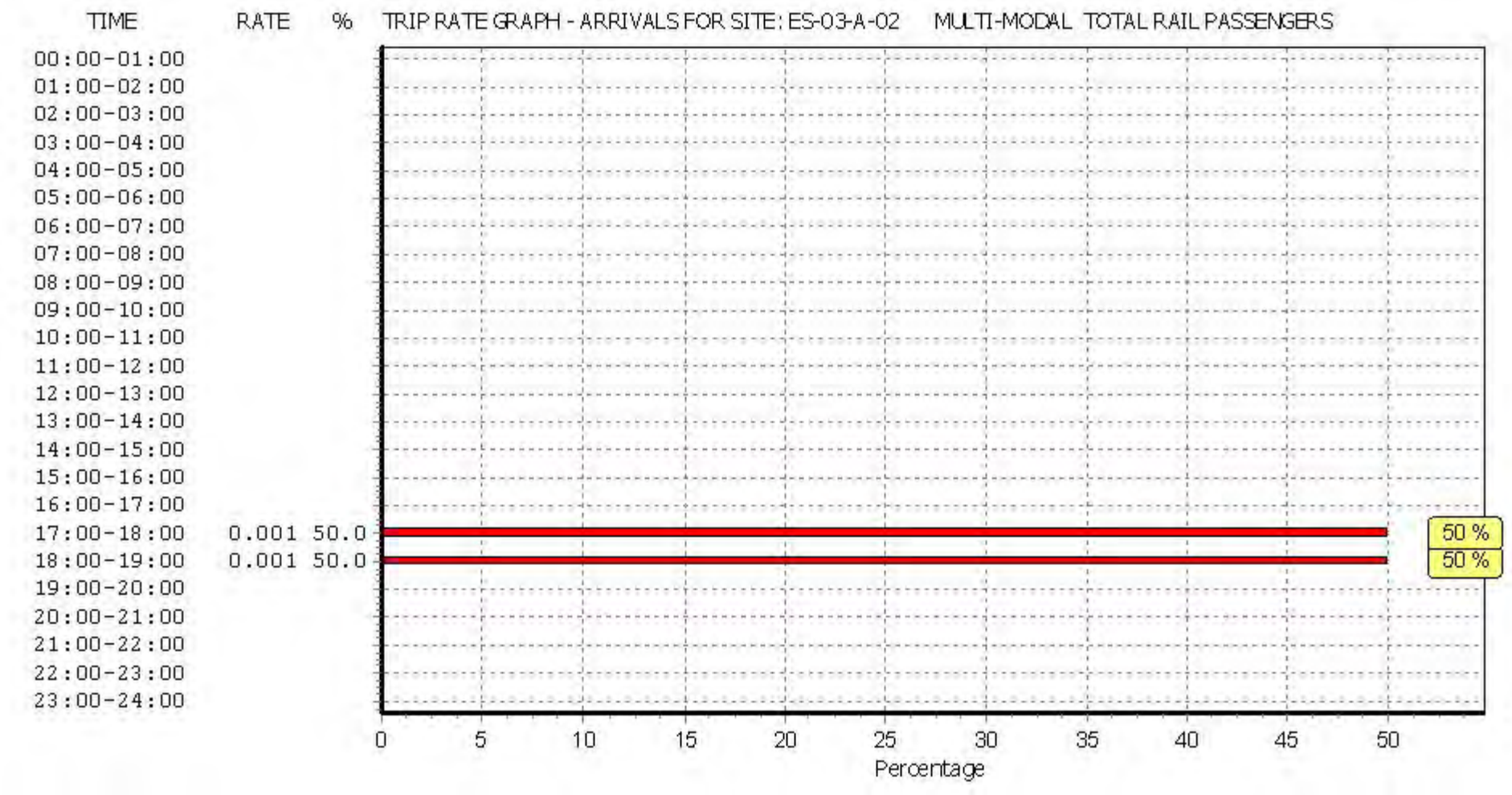
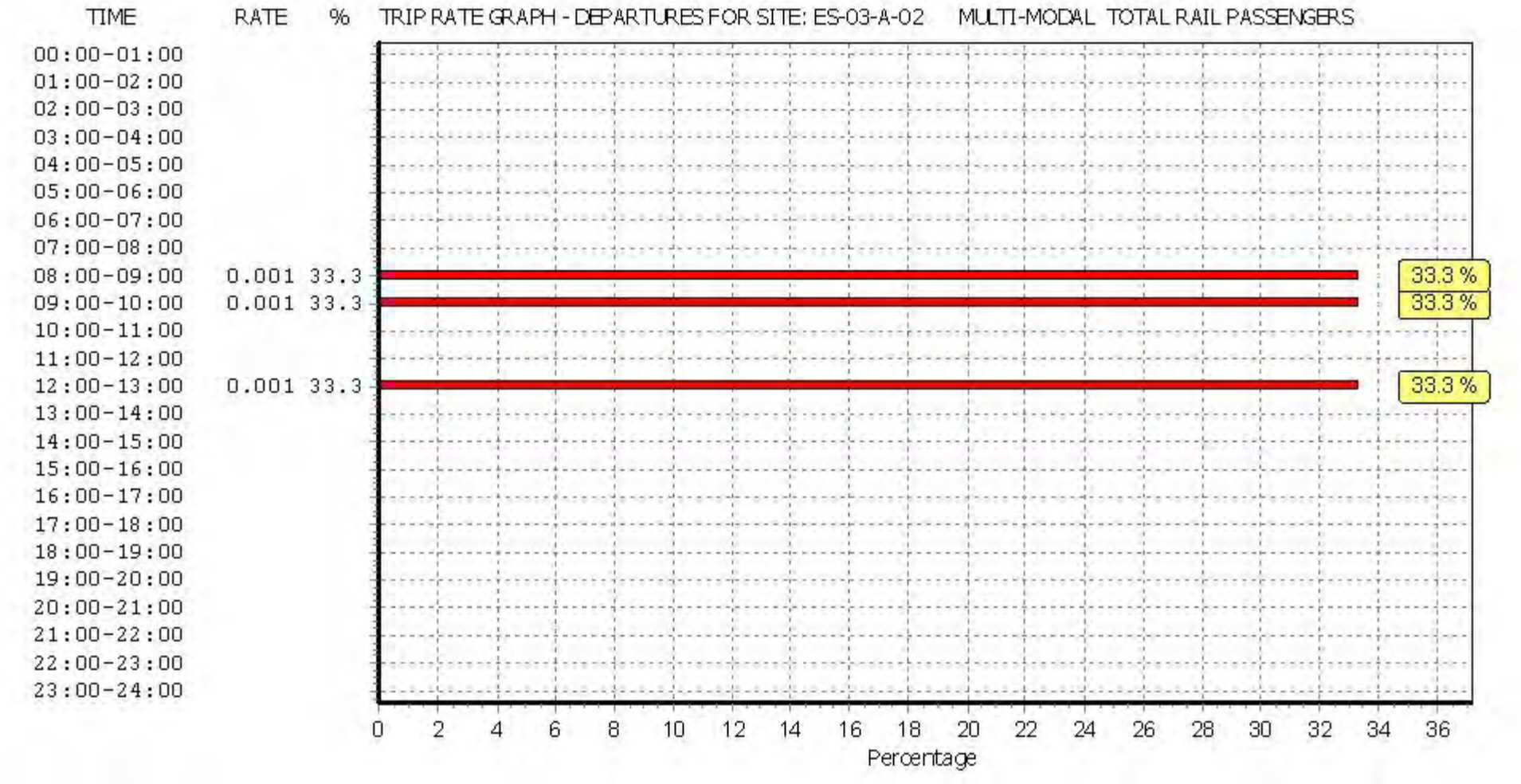
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



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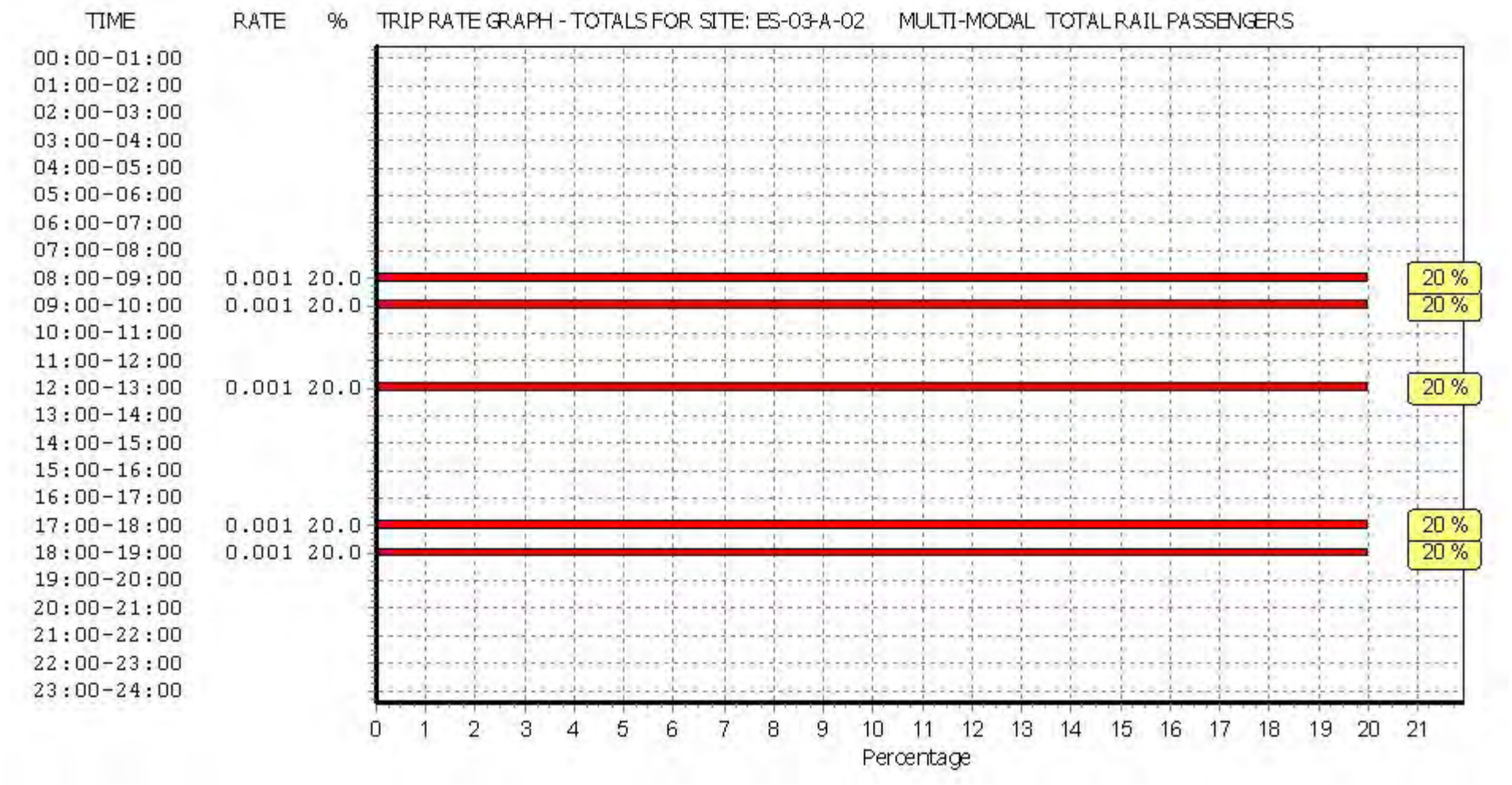

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL COACH PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

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	14	52	0.000	14	52	0.000	14	52	0.000
08:00 - 09:00	14	52	0.000	14	52	0.000	14	52	0.000
09:00 - 10:00	14	52	0.000	14	52	0.000	14	52	0.000
10:00 - 11:00	14	52	0.000	14	52	0.000	14	52	0.000
11:00 - 12:00	14	52	0.000	14	52	0.000	14	52	0.000
12:00 - 13:00	14	52	0.000	14	52	0.000	14	52	0.000
13:00 - 14:00	14	52	0.000	14	52	0.000	14	52	0.000
14:00 - 15:00	14	52	0.000	14	52	0.000	14	52	0.000
15:00 - 16:00	14	52	0.000	14	52	0.000	14	52	0.000
16:00 - 17:00	14	52	0.000	14	52	0.000	14	52	0.000
17:00 - 18:00	14	52	0.000	14	52	0.000	14	52	0.000
18:00 - 19:00	14	52	0.000	14	52	0.000	14	52	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

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.

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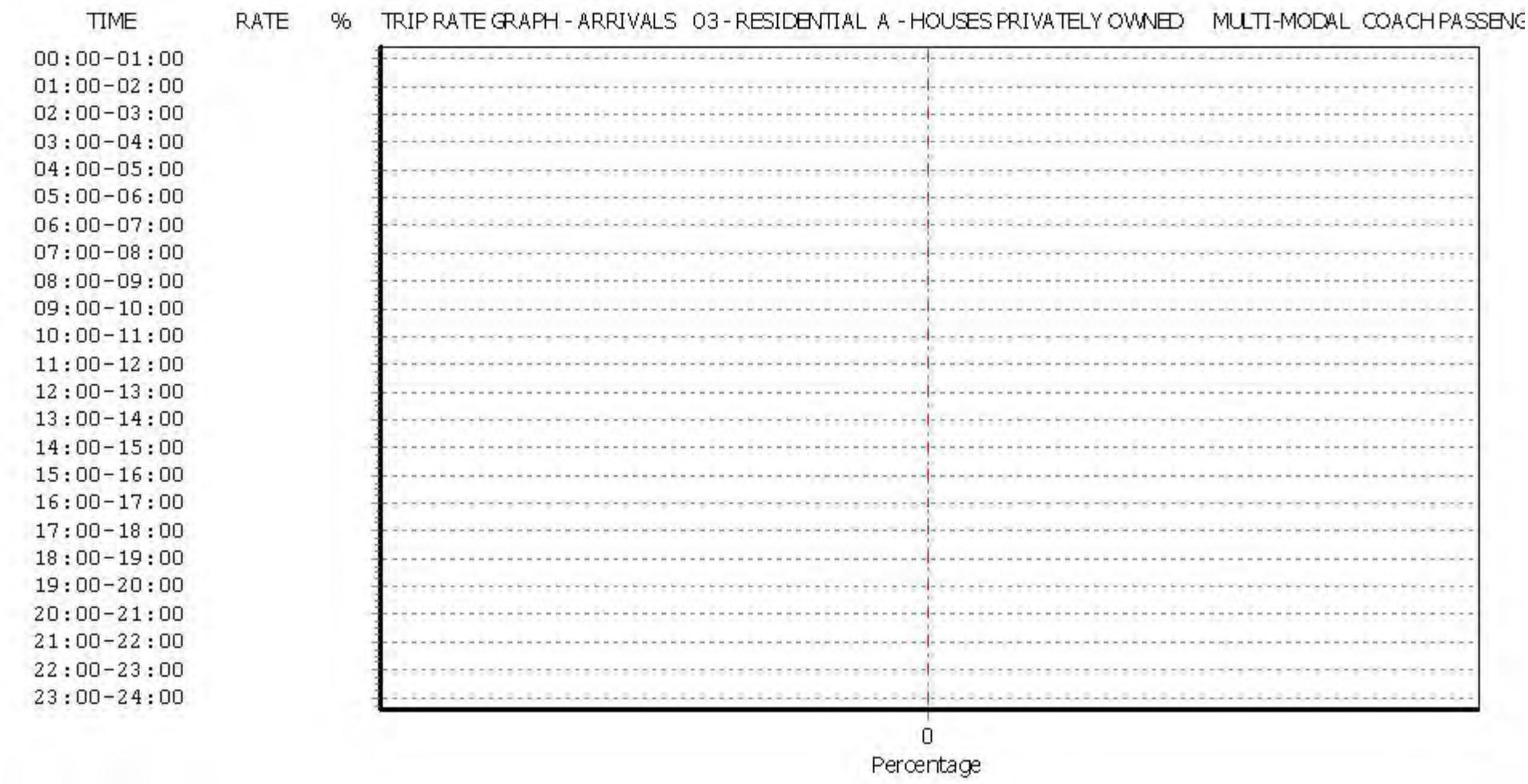
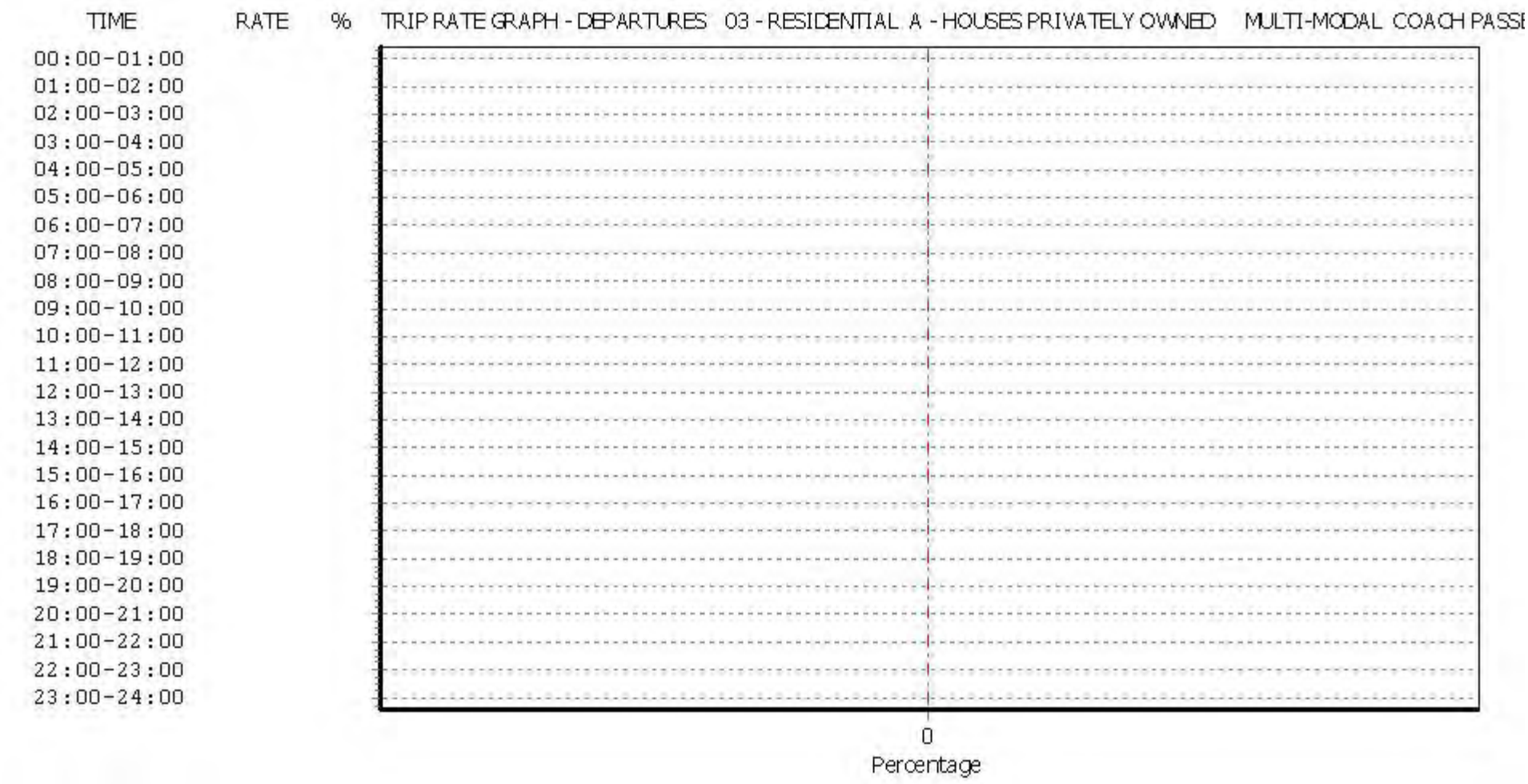
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

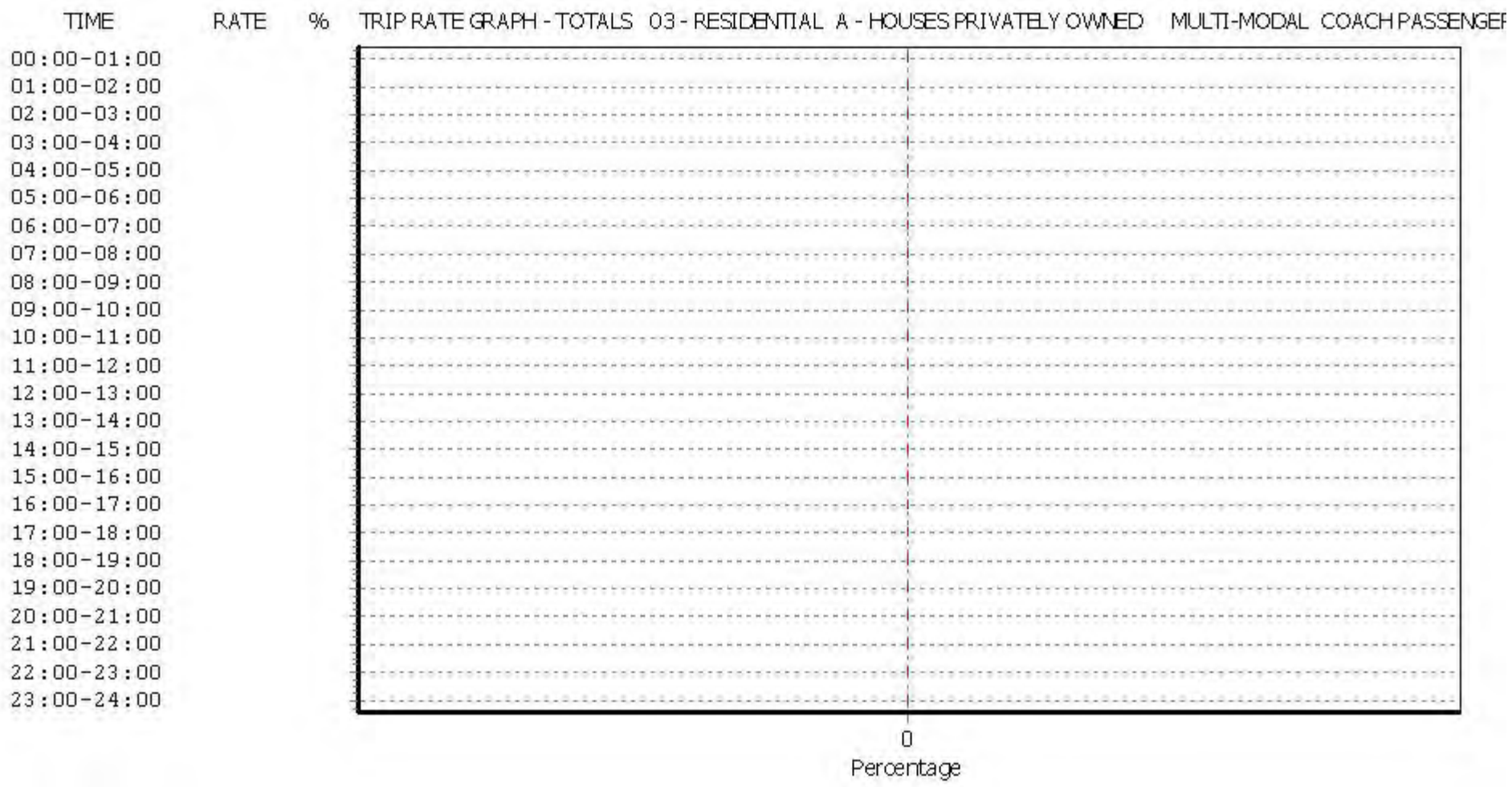
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	52	0.000	14	52	0.012	14	52	0.012
08:00 - 09:00	14	52	0.003	14	52	0.003	14	52	0.006
09:00 - 10:00	14	52	0.000	14	52	0.004	14	52	0.004
10:00 - 11:00	14	52	0.000	14	52	0.006	14	52	0.006
11:00 - 12:00	14	52	0.008	14	52	0.001	14	52	0.009
12:00 - 13:00	14	52	0.003	14	52	0.003	14	52	0.006
13:00 - 14:00	14	52	0.000	14	52	0.001	14	52	0.001
14:00 - 15:00	14	52	0.001	14	52	0.001	14	52	0.002
15:00 - 16:00	14	52	0.004	14	52	0.001	14	52	0.005
16:00 - 17:00	14	52	0.006	14	52	0.003	14	52	0.009
17:00 - 18:00	14	52	0.004	14	52	0.001	14	52	0.005
18:00 - 19:00	14	52	0.007	14	52	0.000	14	52	0.007
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.036			0.036			0.072

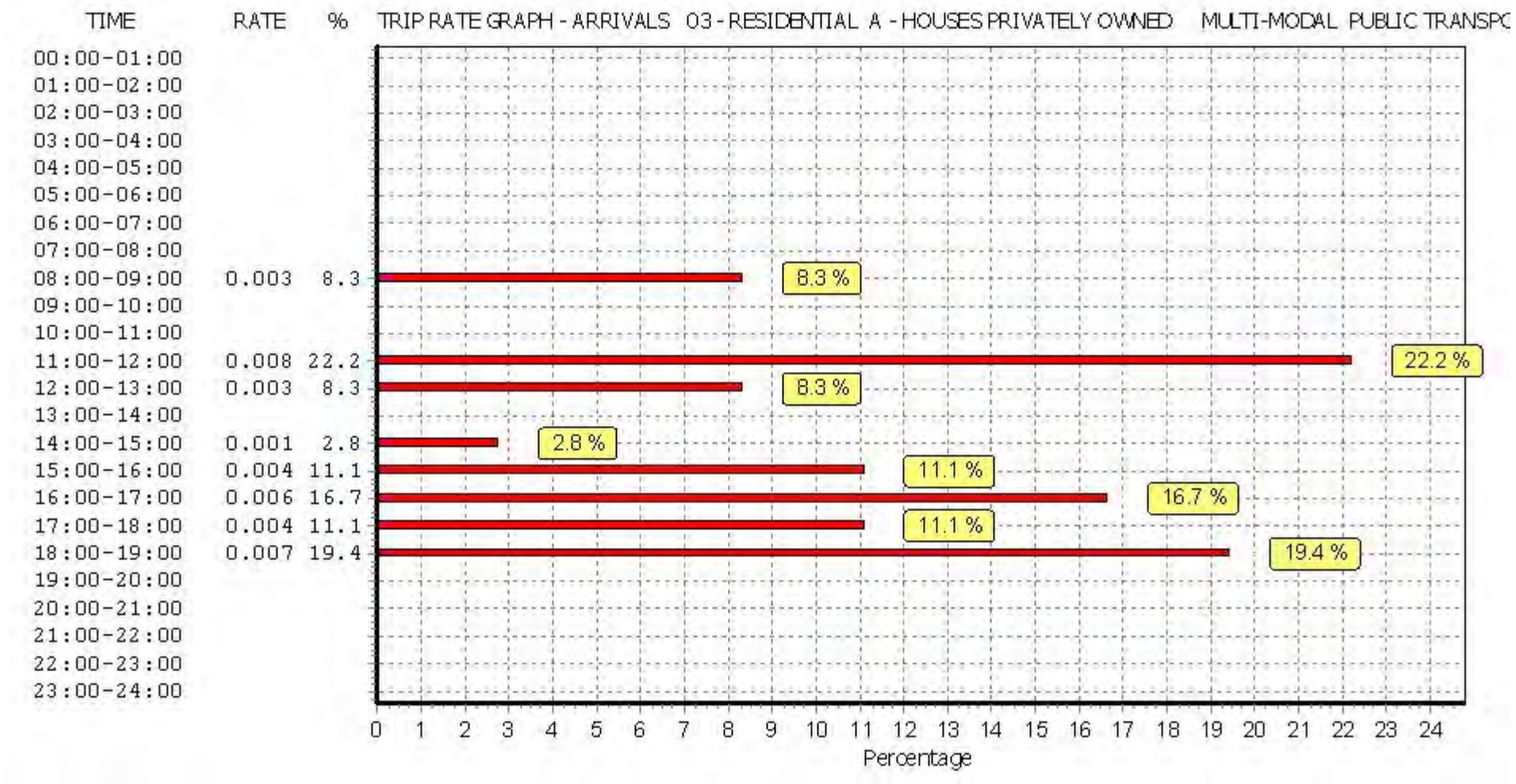
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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.

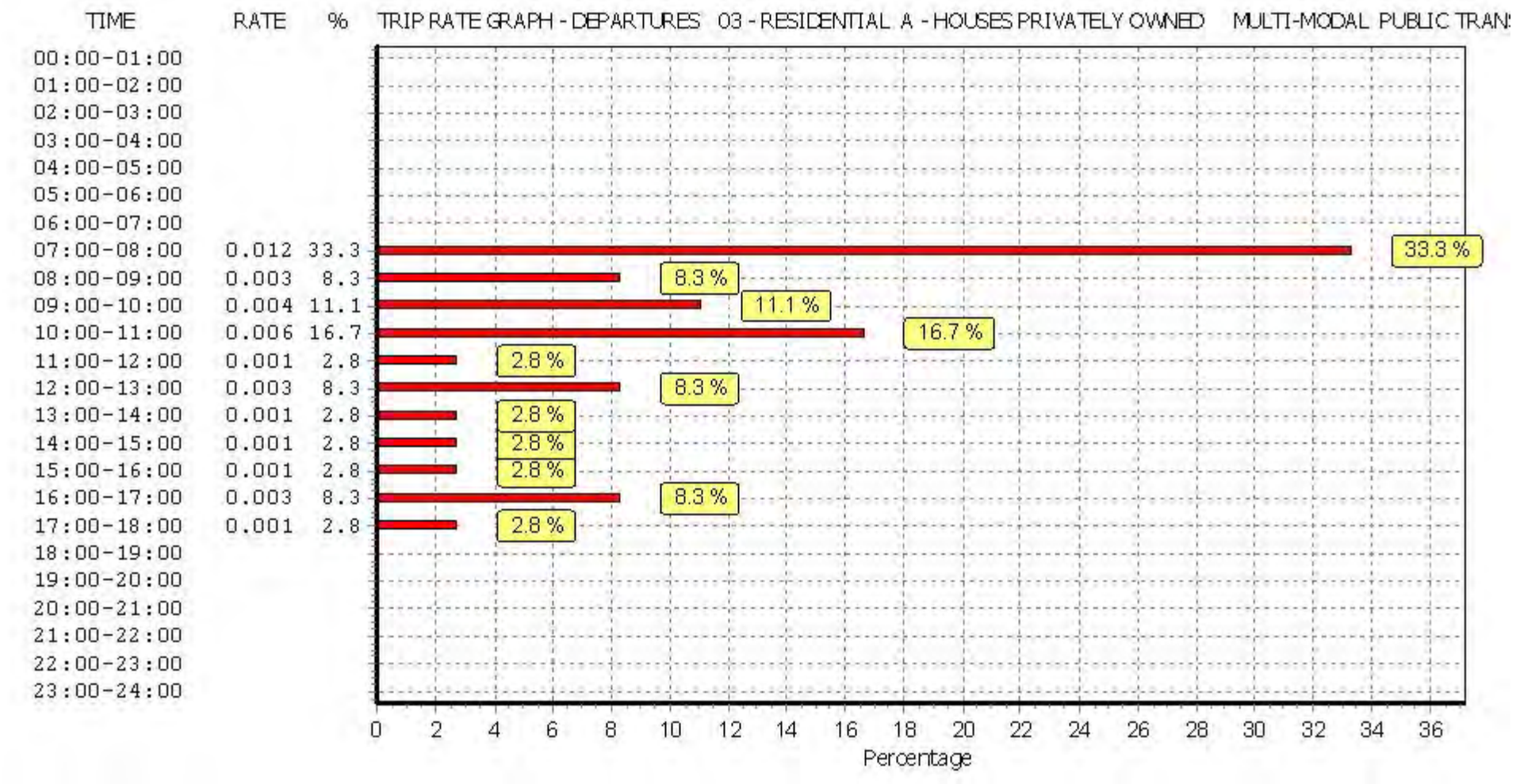
Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



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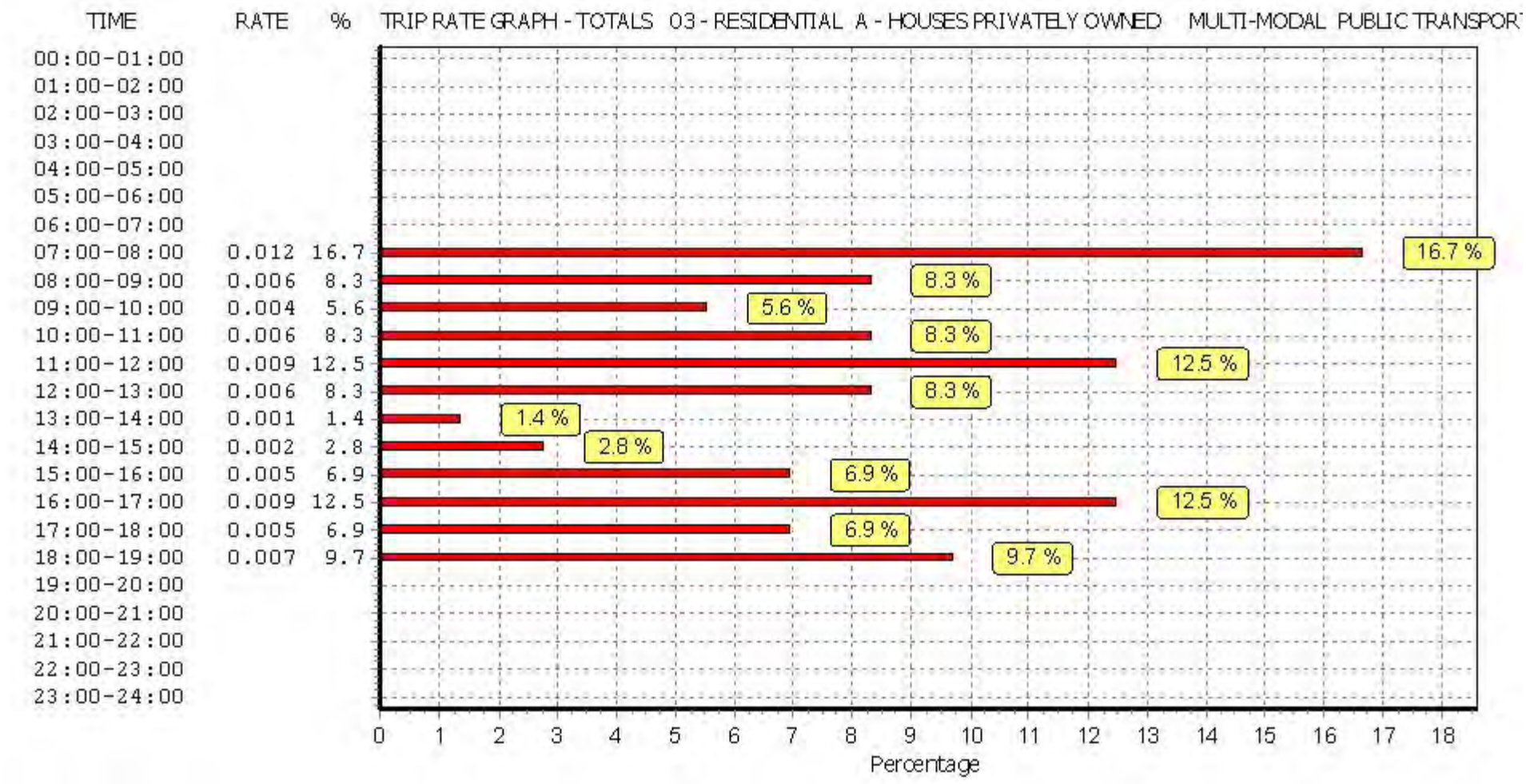

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	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	14	52	0.108	14	52	0.443	14	52	0.551
08:00 - 09:00	14	52	0.245	14	52	0.812	14	52	1.057
09:00 - 10:00	14	52	0.242	14	52	0.368	14	52	0.610
10:00 - 11:00	14	52	0.192	14	52	0.257	14	52	0.449
11:00 - 12:00	14	52	0.333	14	52	0.285	14	52	0.618
12:00 - 13:00	14	52	0.288	14	52	0.234	14	52	0.522
13:00 - 14:00	14	52	0.267	14	52	0.261	14	52	0.528
14:00 - 15:00	14	52	0.297	14	52	0.289	14	52	0.586
15:00 - 16:00	14	52	0.578	14	52	0.342	14	52	0.920
16:00 - 17:00	14	52	0.527	14	52	0.288	14	52	0.815
17:00 - 18:00	14	52	0.631	14	52	0.279	14	52	0.910
18:00 - 19:00	14	52	0.440	14	52	0.259	14	52	0.699
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.148			4.117			8.265

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.

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Parameter summary

Trip rate parameter range selected:	23 - 99 (units:)
Survey date date range:	01/01/06 - 12/11/15
Number of weekdays (Monday-Friday):	14
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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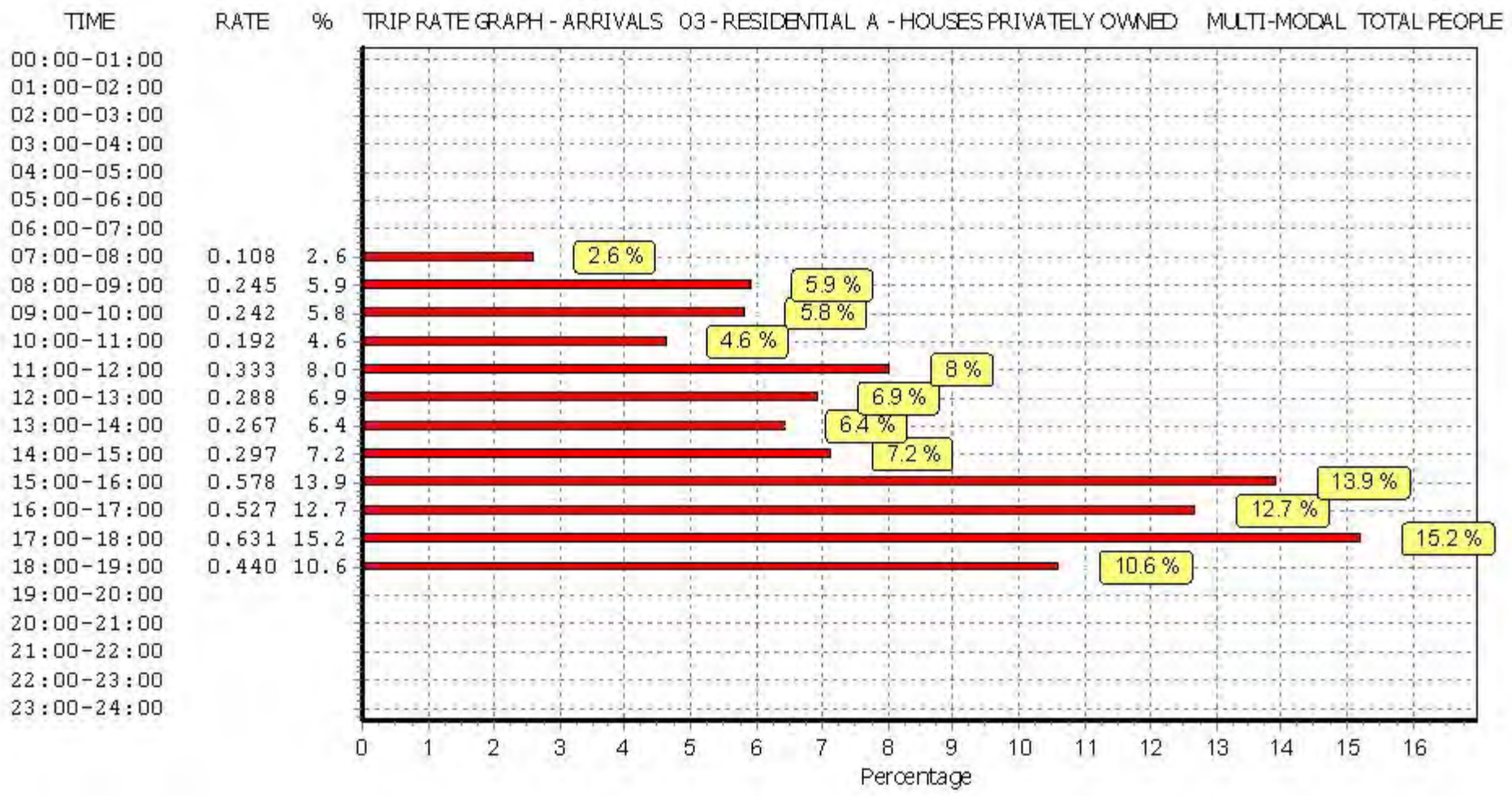

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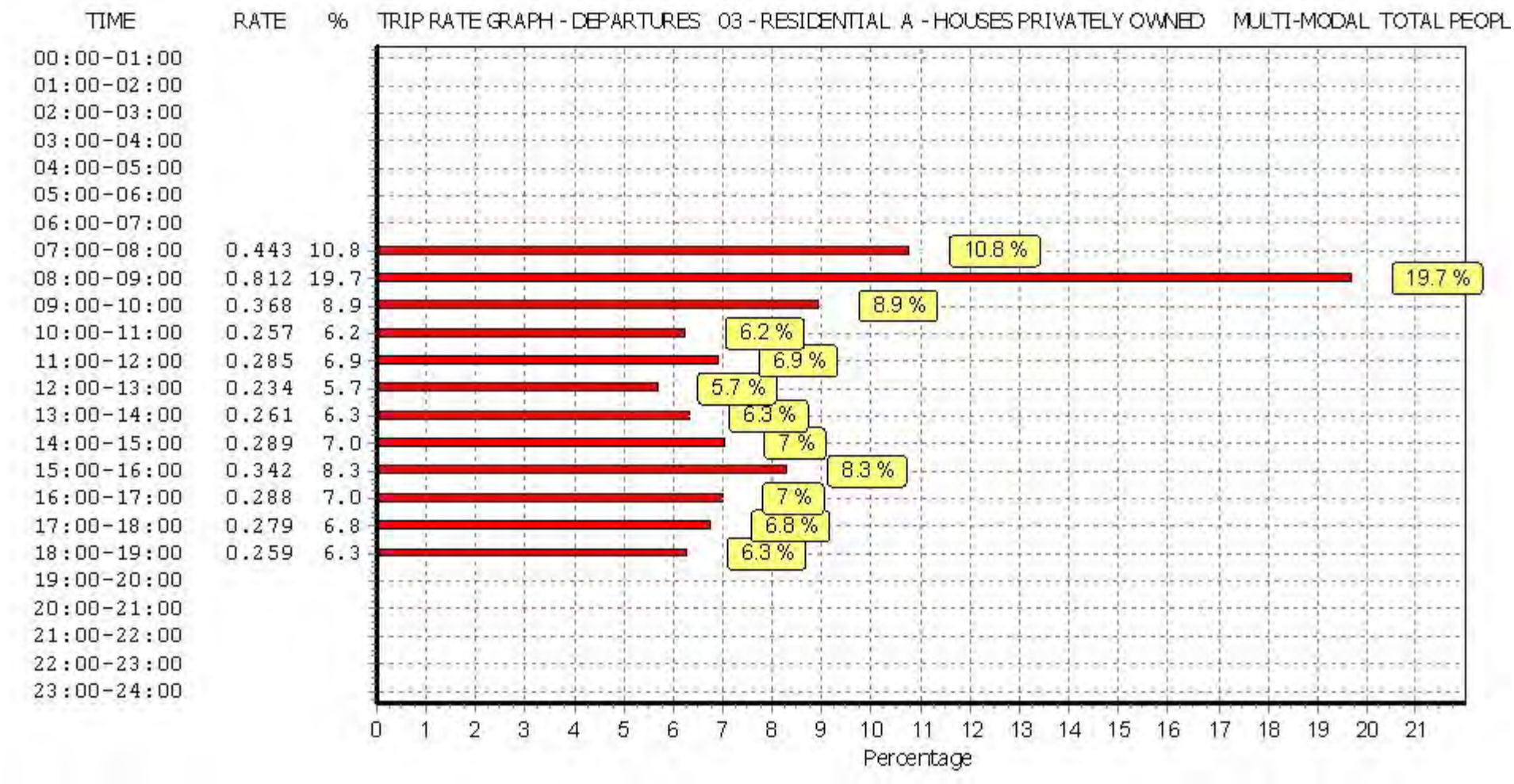

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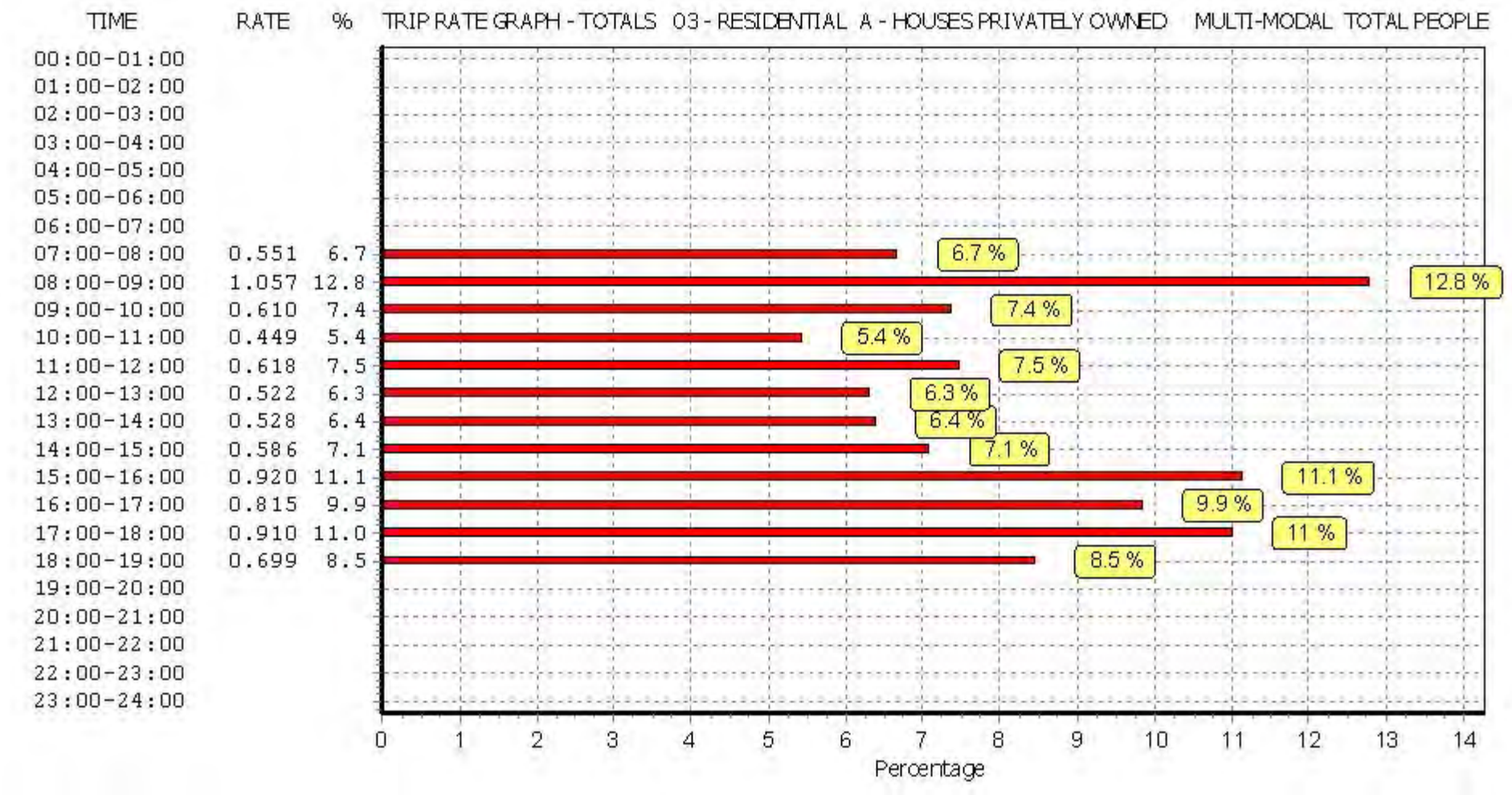

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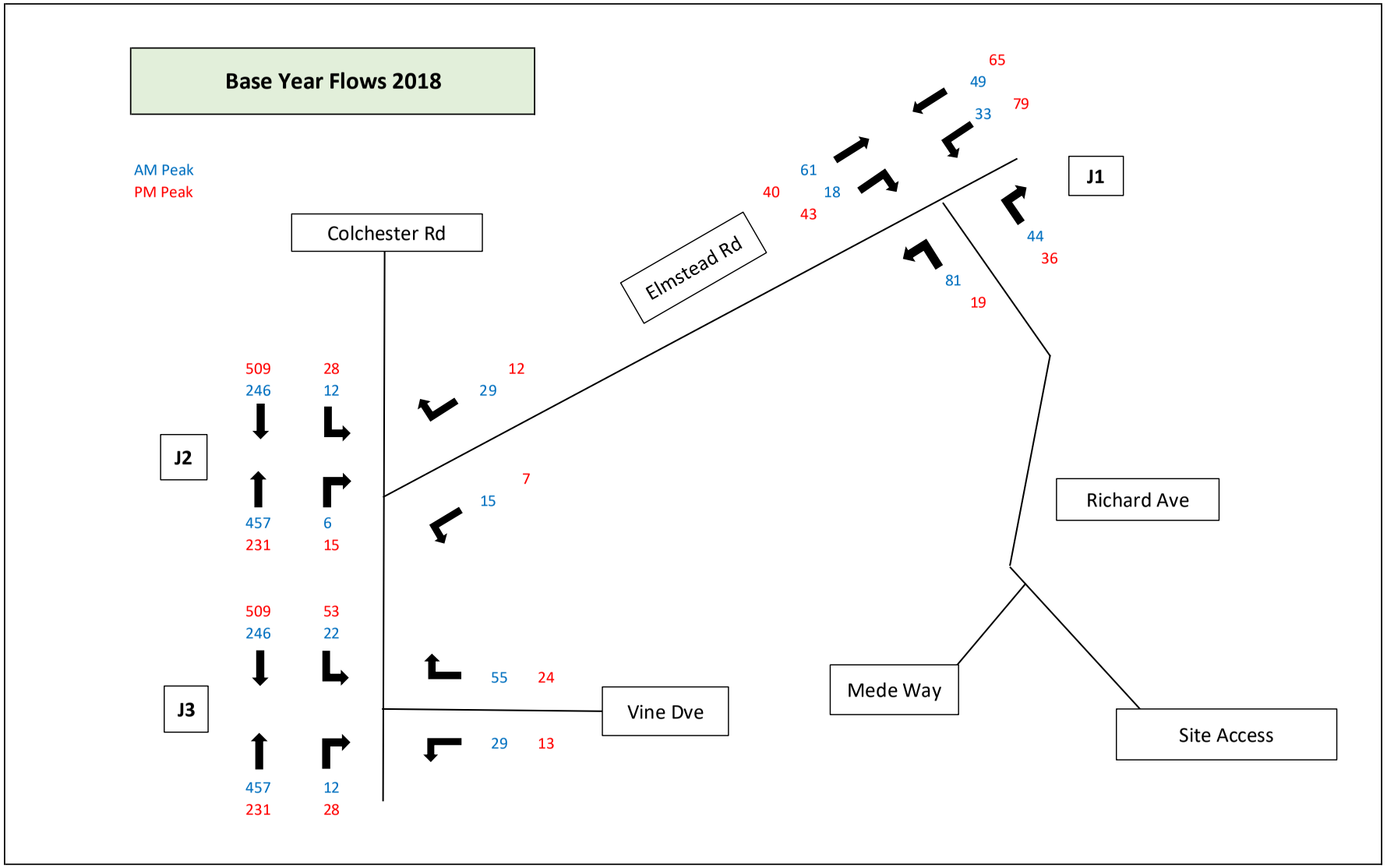
Base Year Flows 2018
AM Peak
PM Peak
Colchester Rd
Elmstead Rd
J1
J2
J3
Richard Ave
Mede Way
Site Access
Vine Dve
65
49
33
79
61
40
18
43
44
36
81
19
509
246
28
12
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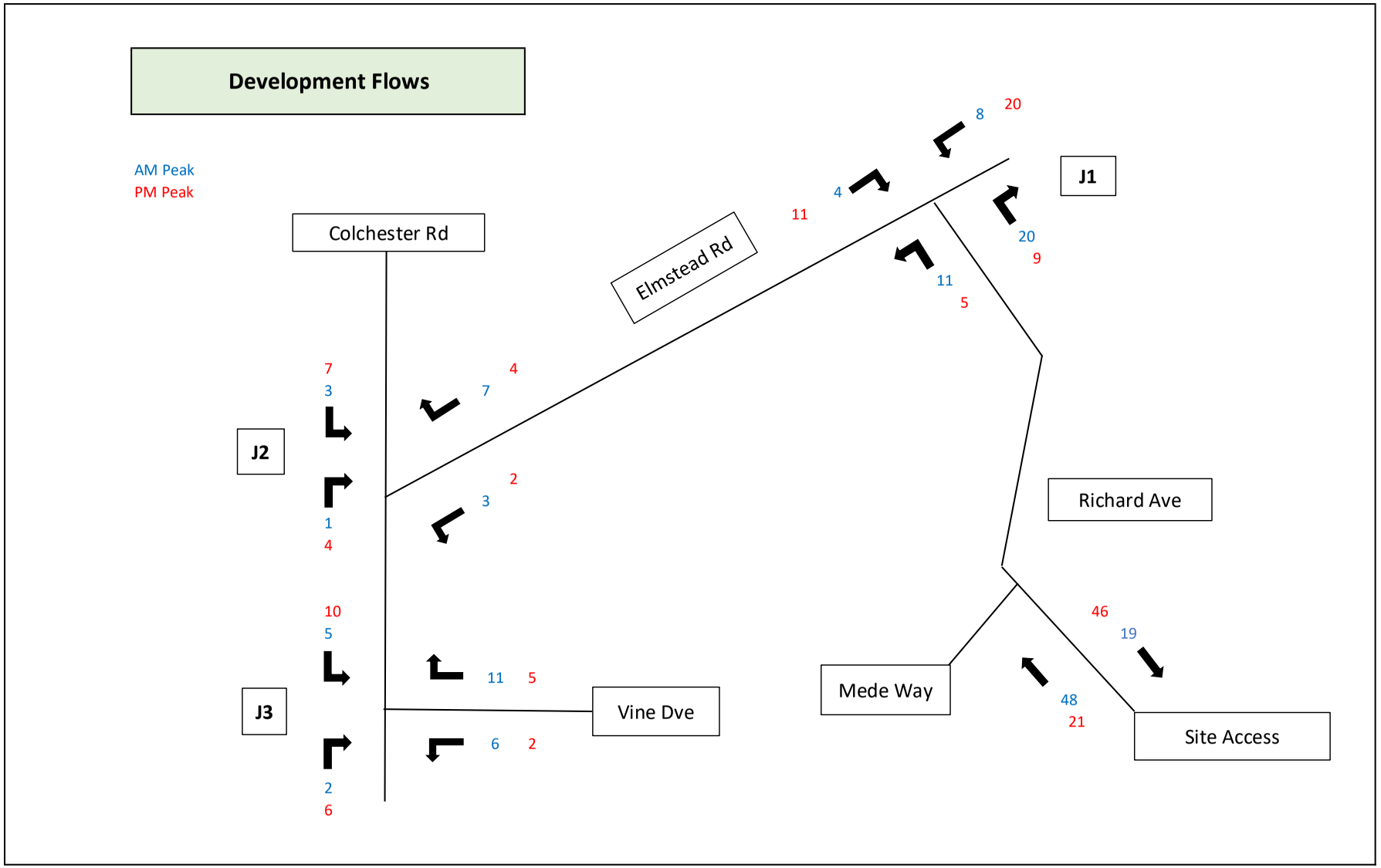
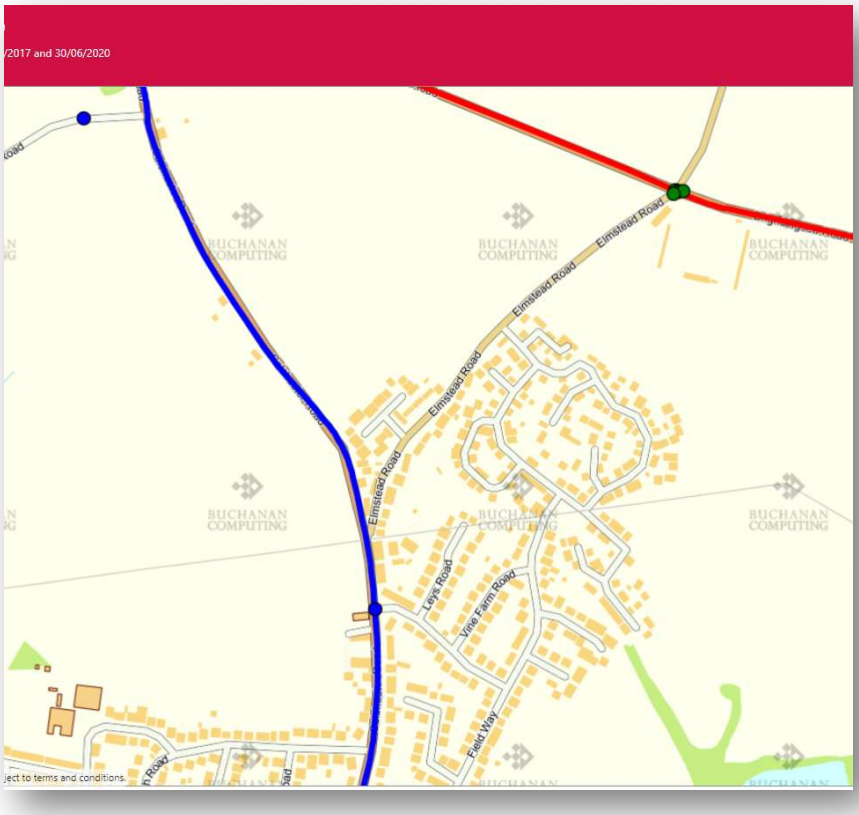
6
15
509
246
53
22
55
24
29
13
457
231
12
28


Development Flows
AM Peak
PM Peak
Colchester Rd
Elmstead Rd
J1
J2
J3
Richard Ave
Mede Way
Vine Dve
Site Access
8
20
4
11
20
9
11
5
7
3
7
4
2
3
1
4
10
5
11
5
6
2
2
6
46
19
48
21

Extract from Essex County Council online collisions data

Displaying collisions between 01/07.2017 and 30.06/2020

Blue = Serious category collision. Green = Slight category collision



KEY

SITE BOUNDARY

VISION SPLAY

EXISTING FOOTWAY

PROPOSED FOOTWAY

EXISTING CARRIAGEWAY

PROPOSED CARRIAGEWAY

THIS IS AN INDICATIVE MEANS OF ACCESS PLAN AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES.

SITE

Richard Avenue

Henrietta Close

Sub Station Parking

2.4m x 43m VISIBILITY SPLAY

2.4m x 25m VISIBILITY TO ONCOMING TRAFFIC

CARRIAGEWAY TO TIE IN WITH EXISTING CARRIAGEWAY

2.0m X 25m Visibility Splay

2.0m x 25m Visibility Splay

20MPH ZONE SIGNS TO BE INSTALLED AT SITE ACCESS AND THROUGOUT SITE

ADVANCED WARNING SIGNS TO BE INSTALLED AT SITE ACCESS TO ADVISE DRIVERS/RIDERS OF RAISED TABLES

2.4m X 16m TO TANGENT VISIBILITY SPLAY

FOOTWAY TO TIE IN WITH EXISTING FOOTWAY

SITE BOUNDARY ABUTS PUBLIC HIGHWAY AT SITE ACCESS

6.0

5.60

2.0

R10.50

R13.50

R16.50

0 2.5 5 7.5 10 12.5m

SCALE BAR 1:250

Rev	Description	Date	Drawn	Checked	Apvd.
A	Means of Access Updated to Suit Revised Layout	30.03.21	JJN	BDR	SAY

Project

Wivenhoe, Land Off Richard Avenue

Drawing Description

Proposed Means of Access

Drawing Number	Scale	Date	Drawn	Checked	Approved
ST-2981-02-A	1:250@A3	07.08.20	KN	SAY	NJM

Client

Taylor Wimpey

Architect

JCN

stomor
CIVIL ENGINEERING CONSULTANTS

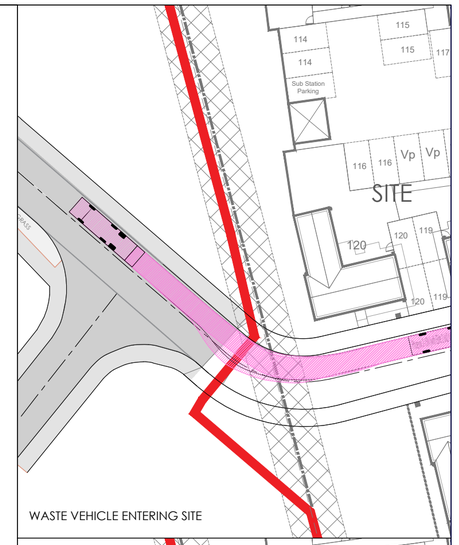
Suite 2, First Floor, Portmill House, Portmill Lane, Hitchin, Herts, SG5 1DJ

www.stomor.com | 01462 615433 | info@stomor.com

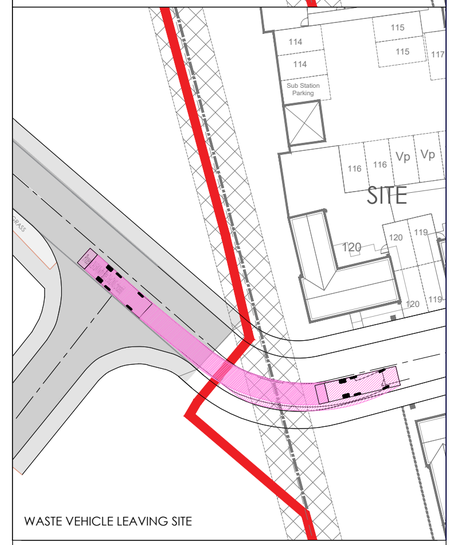
SEE INSERTS 1 AND 2 - WASTE VEHICLE ENTERING/LEAVING SITE

Connection to Woodland

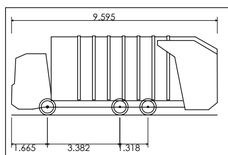
Cycle / Footpath



WASTE VEHICLE ENTERING SITE



WASTE VEHICLE LEAVING SITE



Phoenix 2-15N (with Elite 2 6x2 MS chassis)

Overall Length	9.595m
Overall Width	2.230m
Overall Body Height	3.699m
Min Body Ground Clearance	0.251m
Track Width	2.200m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.300m

0 5 10 15 20 25m

SCALE BAR 1:500

Rev	Description	Date	Drawn	Checked	Apvd.
A	Swept Path Analysis Updated to Suit Revised Layout	30.03.21	JJN	BDR	SAY

Project

Wivenhoe, Land Off Richard Avenue

Drawing Description

Swept Path Analysis Sheet 1 Of 2

Drawing Number	Scale	Date	Drawn	Checked	Approved
ST-2981-03-A	1:500@A2	13.08.20	KN	NJM	SAY

Client

Taylor Wimpey

Architect

JCN

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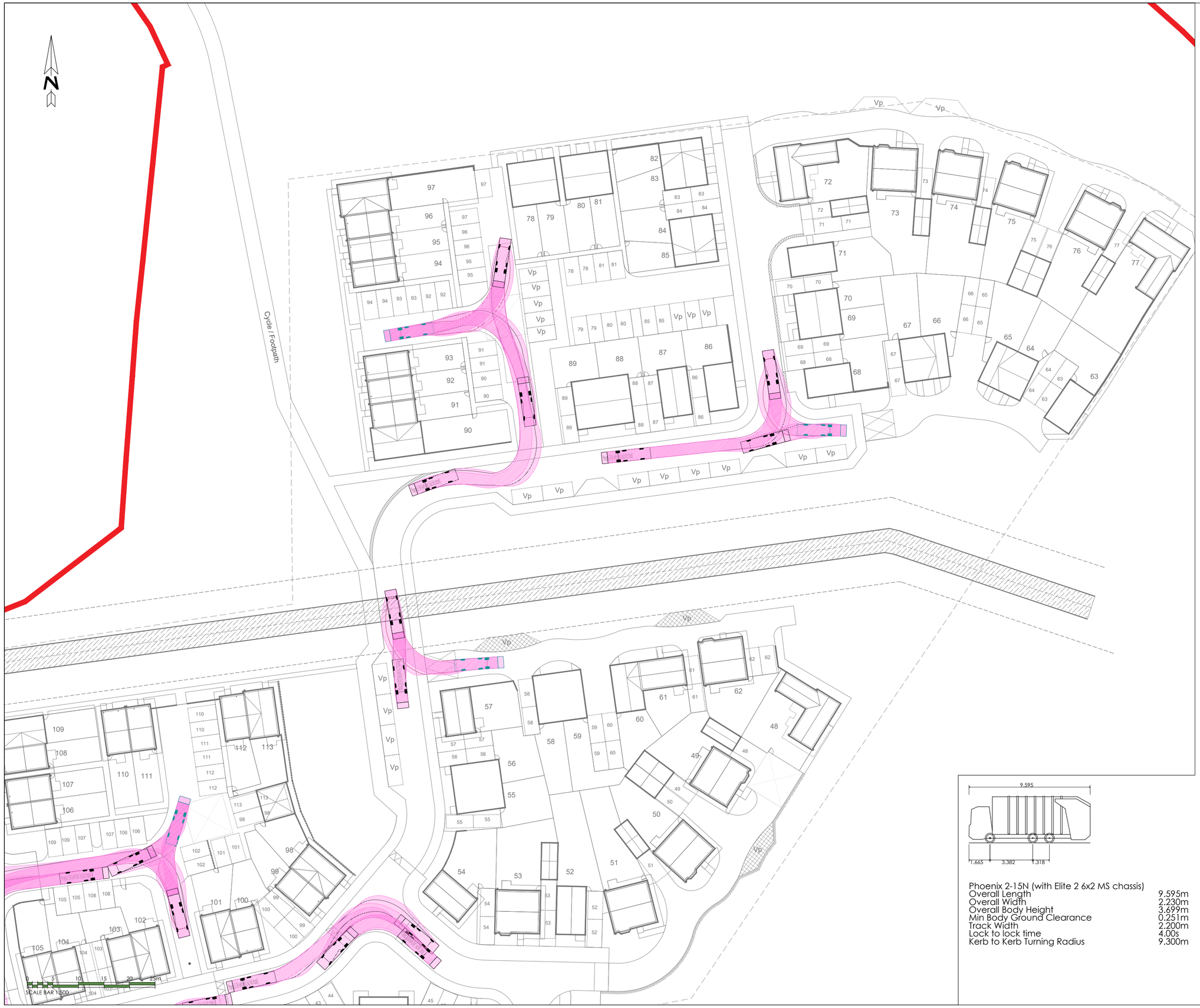

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Rev	Description	Date	Drawn	Checked	Apvd.
A	Swept Path Analysis Updated to Suit Revised Layout	30.03.21	JJN	BDR	SAY

Project

Wivenhoe, Land Off Richard Avenue

Drawing Description

Swept Path Analysis Sheet 2 Of 2

Drawing Number	Scale	Date	Drawn	Checked	Approved
ST-2981-04-A	1:500@A2	13.08.20	KN	NJM	SAY

Client

Taylor Wimpey

Architect

JCN

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Portmill Lane, Hitchin, Herts, SG5 1DJ
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ROAD SAFETY AUDIT
STAGE 1

PROPOSED NEW SITE ACCESS AND EXTENSION OF RICHARD AVENUE, WIVENHOE

REPORT REF: BN/SC/20-114

Job no	BN-SC-20-114	Issue no	1	Date	August 2020
Prepared by	BN	Verified by	JB	Approved by	BN

ROAD SAFETY AUDIT
STAGE 1

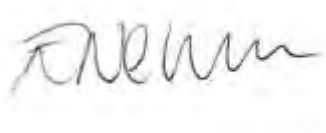
PROPOSED NEW SITE ACCESS
AND EXTENSION OF
RICHARD AVENUE,
WIVENHOE

August 2020

REPORT REF: BN/SC/20-114

CLIENT: Stomor Ltd
Suite 2
First Floor
Portmill Lane
Hitchin
Herts
SG5 1DJ

Report Prepared By:



Beth Newiss MSoRSA

Checked By:

Jason Bown MSoRSA

NB: This report was produced for Stomor Ltd, for the specific purpose of documenting the Stage 1 Road Safety Audit process undertaken under the principles of GG119.

PROJECT DETAILS

Report Title:	Stage 1 Road Safety Audit
Date:	August 2020
Document reference and revision:	BN-SC-20-114
Prepared by:	Beth Newiss and Associates
Design Organisation:	Stomor Limited
Project Sponsor:	Taylor Wimpey East London
Overseeing Organisation:	Essex County Council

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
0	Stage 1 Road Safety Audit drafted for Audit Team discussions.	BN			24/08/2020
1	Stage 1 Road Safety Audit finalised and issued to the Design Organisation.	BN	JB	BN	25/08/2020

CONTENTS

DRAWINGS/DOCUMENTS PRESENTED FOR AUDIT

ST-2981-02 Means of Access Plan
Audit Brief Dated 12th August 2020

APPENDICES

A1 LOCATION PLAN

1.0 INTRODUCTION

1.1 This report results from a Road Safety Audit (RSA) carried out on a proposed new site access and extension of Richard Avenue, Wivenhoe. The audit was requested by the Stomor Ltd on behalf of Taylor Wimpey East London.

1.2 **The Scheme:**
Planning permission will be sought for a residential development of up to 120 dwellings on land to the east of Richard Avenue, Wivenhoe. To facilitate access to the new development, the proposal is to form a new access via extension of the turning head/cul-de-sac at the eastern end of Richard Avenue, with associated footways.

1.3 **The Proposals:**

- Access road with minor narrowing from existing carriageway width of 6.0m to 5.5m
- New raised table
- Associated Footways

1.4 The Road Safety Audit was undertaken during August 2020 in accordance with the scheme drawing provided on the 12th August 2020 as well as the full Road Safety Audit Brief supplied, on the 12th August 2020 by the Design Organisation, Stomor Limited, on behalf of the Project Sponsor, Taylor Wimpey East London. The Road Safety Audit comprised of an examination of the documents provided.

1.5 The Road Safety Audit has been undertaken by an Audit Team whose qualifications and experience accord with the requirements of the Local Authority. The Audit Team consists of the following members:

Beth Newiss MCIHT MSoRSA
Beth Newiss & Associates
Captiva 19a Grange Hill, Coggeshall, Essex, CO6 1RE
TEL: 07962349262 Email: bethnewissandassociates@gmail.com

Jason Bown PGDipMS IEng FIHE MICE MSoRSA
Beth Newiss & Associates
TEL: 07962349262 Email: bethnewissandassociates@gmail.com

1.6 The terms of reference of this Road Safety Audit are as described in GG119. This Road Safety Audit has been undertaken based on the Road Safety Audit Team's previous experience and knowledge in undertaking Collision Investigation, Road Safety Engineering and Road Safety Audits. The scheme has been examined and this report compiled, only with regard to the safety implications for road users of the scheme as presented. It has not been examined or

verified for compliance with any other standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. A technical audit has not been included. All comments and recommendations are referenced to the design drawings supplied with the Audit Brief and the location of road safety concerns raised have been illustrated adjacent to the items along with relevant photographs for clarity, where appropriate, as well as on the Location Plan attached at **Appendix A1**.

1.7 A visit to site was undertaken by both auditors together on the 20th August 2020. During the site visit the weather was dry but dull. The road surface with damp from previous rainfall. No traffic was observed in the area during the site visit. No cyclists nor pedestrians were observed.

1.8 The Audit Team have been provided with collision data for this scheme and note that there have been no (0) collisions within the vicinity of the proposals in the last three (3) years.

1.9 Recommendations made in this report are proportionate and viable suggestions for improvement to eliminate or mitigate, in accordance with GG119, and do not imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which would be equally acceptable in achieving the desired elimination or mitigation and these should be considered when the Design Organisation responds to this report.

1.10 The Designer Organisation Response to the RSA should be formally recorded and reported to the Overseeing Organisation and the RSA Team so that a record of the Audit process is contained in the As Built design pack to be provided and retained by the Overseeing Organisation on final completion. Any drawings or documents associated with the Design Organisation Response are listed at **Appendix A2**, if applicable.

2.0 PREVIOUS ROAD SAFETY AUDIT(S)

2.1 The Audit Team have not been made aware of any previous Road Safety Audit(s).

3.0 SAFETY ISSUES RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

As a result of an examination of the drawings and documents supplied by Stomor Ltd, the problems highlighted in Section 3.0 were identified. The recommended course of action that should be taken in respect of each problem was also indicated, and the locations are shown on the drawings in ***Appendix A1*** *where necessary.*

3.1 GENERAL

PROBLEM	
Location:	**Throughout**
Summary:	**Lack of concise information provided.**
The drawings provided detail that the raised speed hump has been proposed to 'ensure a 20mph speed limit' and the audit brief details the design speed for the proposals at 20mph. Whilst on site it was noted that the existing surrounding residential area and Richard Avenue has a speed limit of 30mph. It is unclear from the drawings and brief whether the speed limit is being proposed as being changed at this location to facilitate a 20mph zone.	
RECOMMENDATION	
It is recommended that the Design Team clarify the speed limit within the proposed site. If the intention is to introduce a 20mph speed limit, the necessary associated measures will be required to maintain the 20mph speed limit throughout.	

3.2 SIGNING, LIGHTING AND CARRIAGEWAY MARKINGS

PROBLEM	
Location:	**A**– Approach to Speed Hump
Summary:	**Lack of Advanced Warning may result in loss of control or damage only type collisions at the speed hump.**
During the site visit the Audit Team also took a walk around the wider existing residential development. It was noted during this that there are no further speed humps within the existing development. The drawings provided detail the introduction of a speed hump at the transition between the existing residential development and the proposed residential development site. Whilst the Audit Team welcome the introduction of speed reducing measures if advanced warning of the speed hump are not provided loss of control or damage only type collisions may occur at this location.	
RECOMMENDATION	
It is recommended that the Design Team introduced the appropriate 'Advanced Warning' signs prior to the speed hump.	

4.0 AUDIT TEAM STATEMENT

4.1 We certify that this audit has been undertaken in accordance with the principles of GG119.

Audit Team Leader

Beth Newiss MCIHT MSoRSA

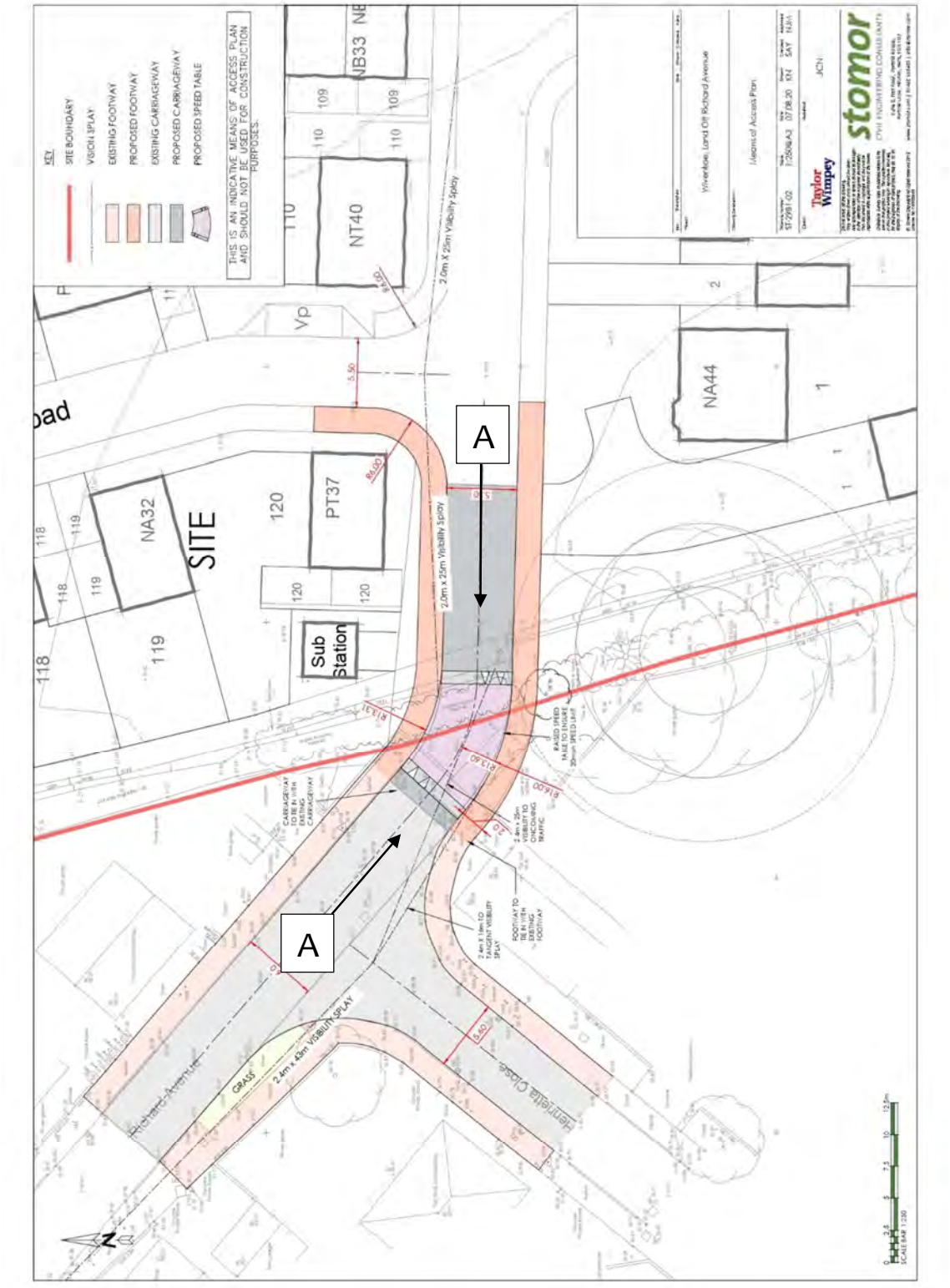
Date: 24th August 2020

Jason Bown PGDipMS IEng FIHE MICE MSoRSA

Date: 24th August 2020

APPENDIX A1

LOCATION PLAN


KEY
SITE BOUNDARY
VISION SPLAY
EXISTING FOOTWAY
PROPOSED FOOTWAY
EXISTING CARRIAGEWAY
PROPOSED CARRIAGEWAY
PROPOSED SPEED TABLE
THIS IS AN INDICATIVE MEANS OF ACCESS PLAN AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES.
Wivenhoe, Land Off Richard Avenue
Means of Access Plan
Taylor Wimpey
stomor
SITE
NA32
NA44
NT40
PT37
Sub Station
2.0m X 25m Visibility Splay
2.4m x 43m VISIBILITY SPLAY
GRASS
Richard Avenue
Hentella Close
A
A
N

Road Safety Audit Stage 1 – Design Team Response

This is the designer's response to the problems highlighted by the Stage 1 Road Safety Audit (RSA) for the proposed access arrangements, as shown on Drawing ST-2981-02, for proposed residential development at Richard Avenue, Wivenhoe. The RSA was undertaken by Beth Newiss & Associates dated August 2020 (Ref: BN/SC/20-114). The RSA was undertaken for the following proposals:

- Access road with minor narrowing from existing carriageway width 6.0m to 5.5m.
- New raised table
- Associated Footways

Safety Issues Raised
Note 1: the following paragraph numbers correspond with RSA1.
Note 2: see RSA problem location plan attached to RSA1.

3.1 General

3.1.1 Problem

Location: Throughout

Summary: Lack of Concise information provided

The drawings provided detail that the raised speed hump has been proposed to 'ensure a 20mph speed limit' and the audit brief details the design speed for the proposals at 20mph. Whilst on site it was noted that existing surrounding residential area and Richard avenue has a speed limit of 30mph. It is unclear from drawings and brief whether the speed limit is being proposed as being changed at this location to facilitate a 20mph zone.

RECOMMENDATION: It is recommended that the design team clarify the speed limit within the proposed site. If the intention is to introduce a 20mph speed limit, the necessary associated measures will be required to maintain the 20mph speed limit throughout.

Designer's Response – The proposed recommendation is accepted, signage will be provided in the vicinity of the junction notifying of the reduction to 20mph and continuity of 20mph speed limit throughput the site, and details of signage will be provided at detailed design stage and Stage 2 Road Safety Audit. Further speed humps are present at frequent points throughout. This will encourage vehicles to maintain a low speed.

3.2 Signing, Lighting and Carriageway Markings

3.2.1 Problem

Location: Approach to speed bump

Summary: Lack of Advanced Warning may result in loss of control or damage only type collisions at the speed hump.

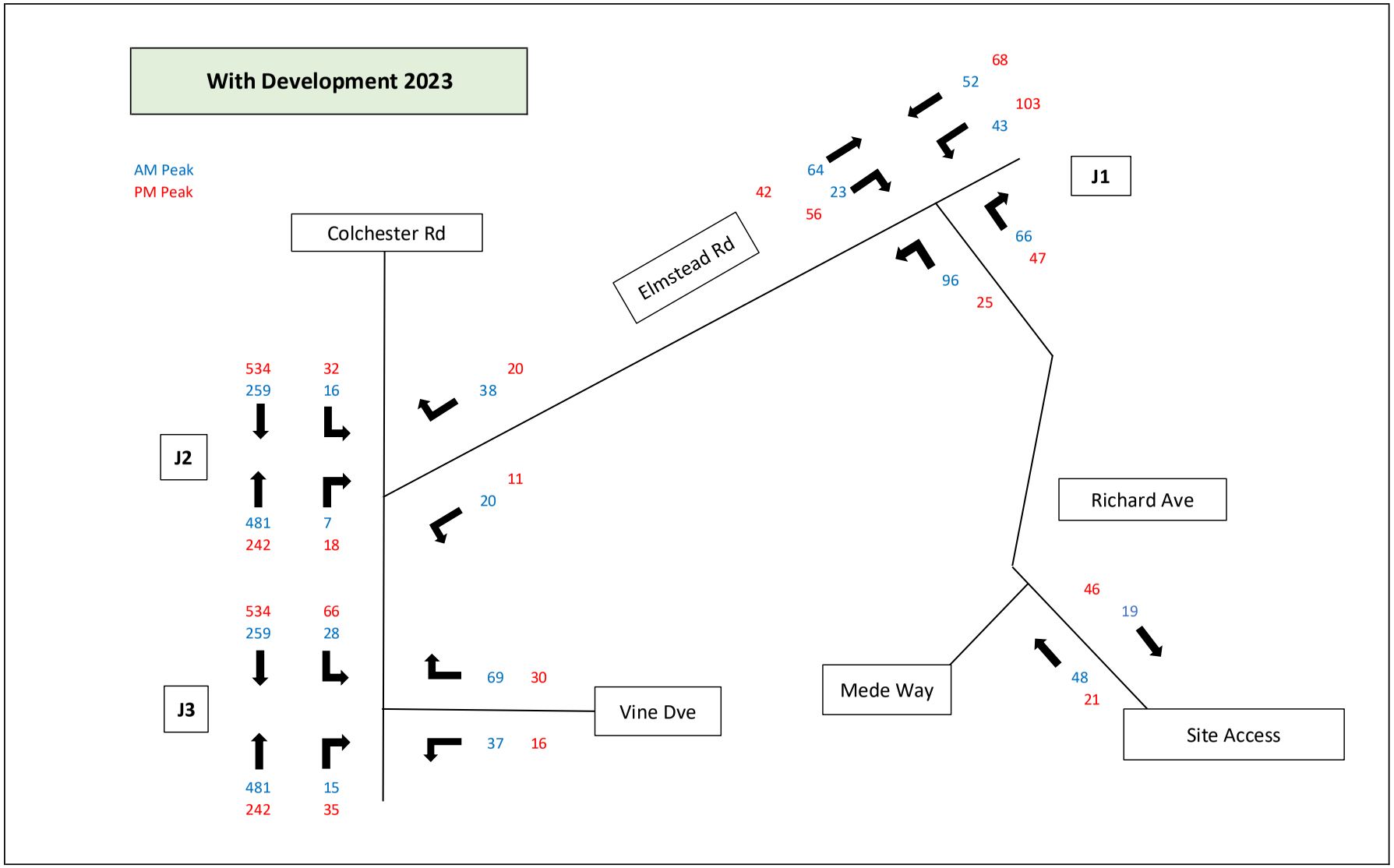
Road Safety Audit Stage 1 – Design Team Response

Details: During the site visit the Audit Team also took a walk around the wider existing residential development. It was noted during this that there are no further speed humps within the existing development. The drawings provided detail the introduction of a speed hump at the transition between the existing residential development and the proposed residential development site. Whilst the Audit Team welcome the introduction of speed reducing measures if advanced warning of the speed hump are not provided loss of control or damage only type collisions may occur at this location.

RECOMMENDATION: It is recommended that the Design Team introduced the appropriate 'Advanced Warning' signs prior to the speed hump.

Designer's Response – The proposed recommendation is accepted, signage will be provided in the vicinity of the speed hump providing 'advanced warning', and details of signage will be provided at detailed design stage and Stage 2 Road Safety Audit..

Stomor Ltd
29th August 2020


With Development 2023
AM Peak
PM Peak
Colchester Rd
Elmstead Rd
J1
J2
J3
Richard Ave
Mede Way
Vine Dve
Site Access
68
52
103
43
64
23
42
56
66
47
96
25
534
259
32
16
20
38
11
20
481
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37
16
481
242
15
35
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19
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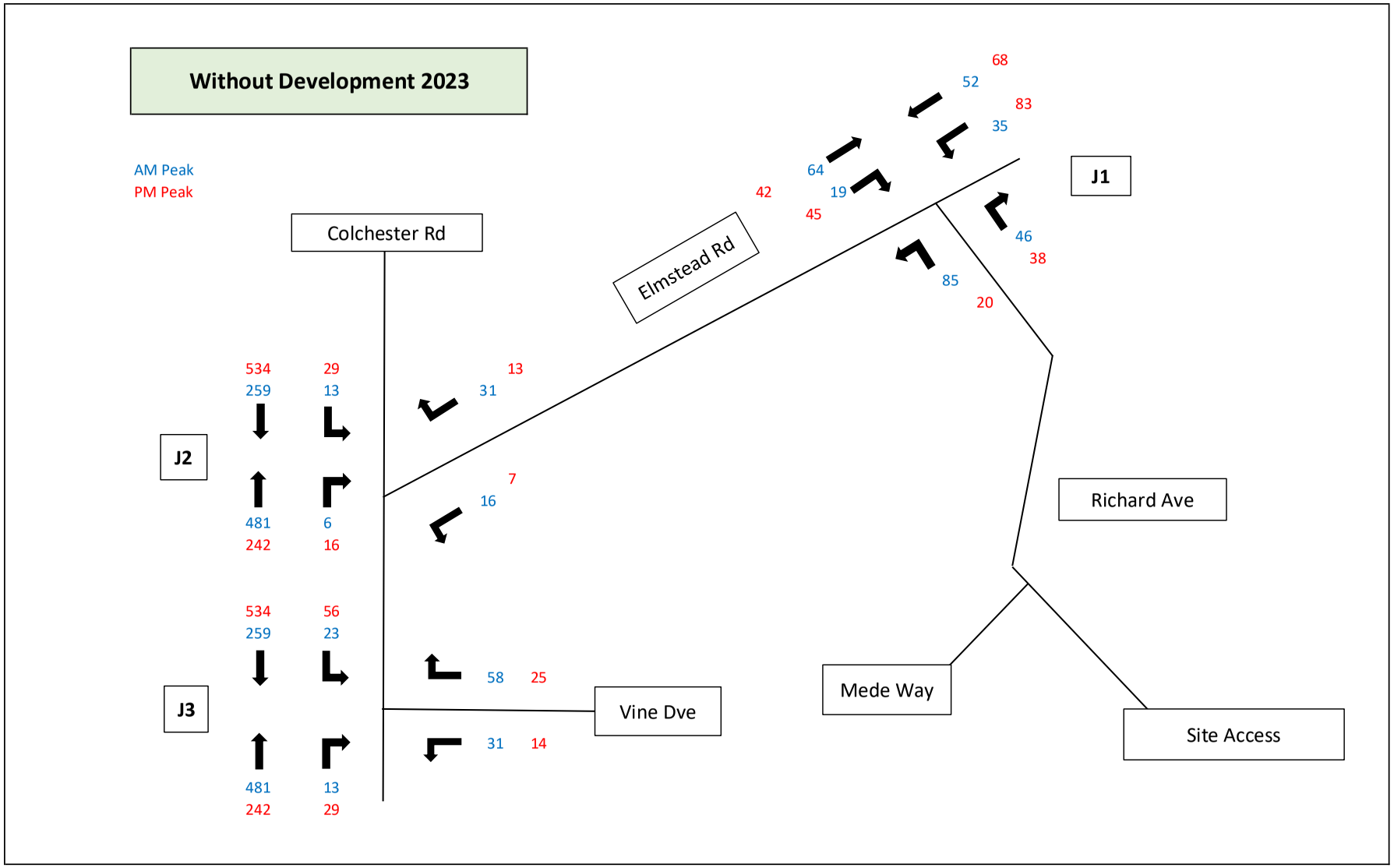
21


Without Development 2023
AM Peak
PM Peak
Colchester Rd
Elmstead Rd
J1
J2
J3
Richard Ave
Mede Way
Site Access
Vine Dve
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35
64
19
42
45
46
38
85
20
534
259
29
13
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23
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25
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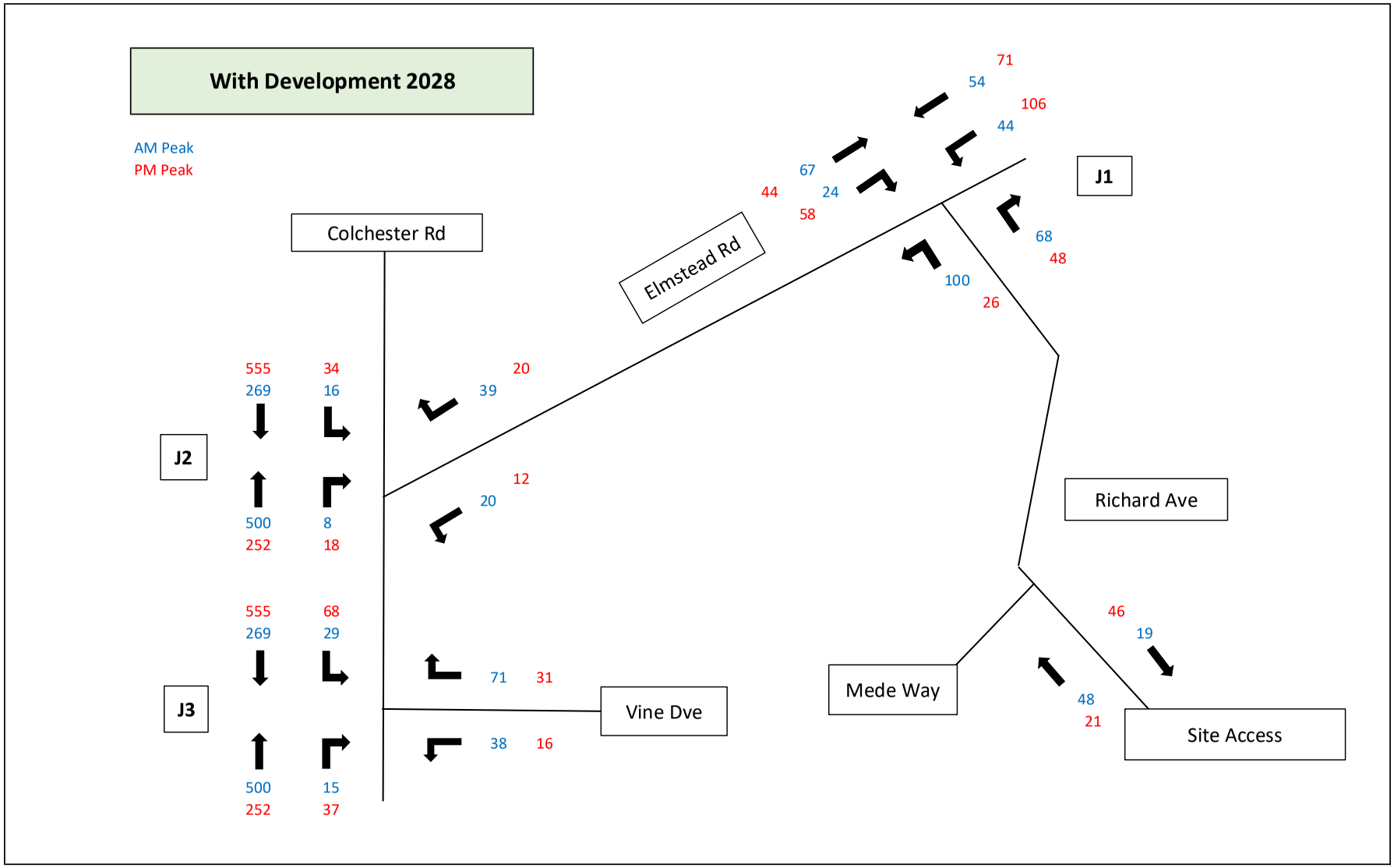
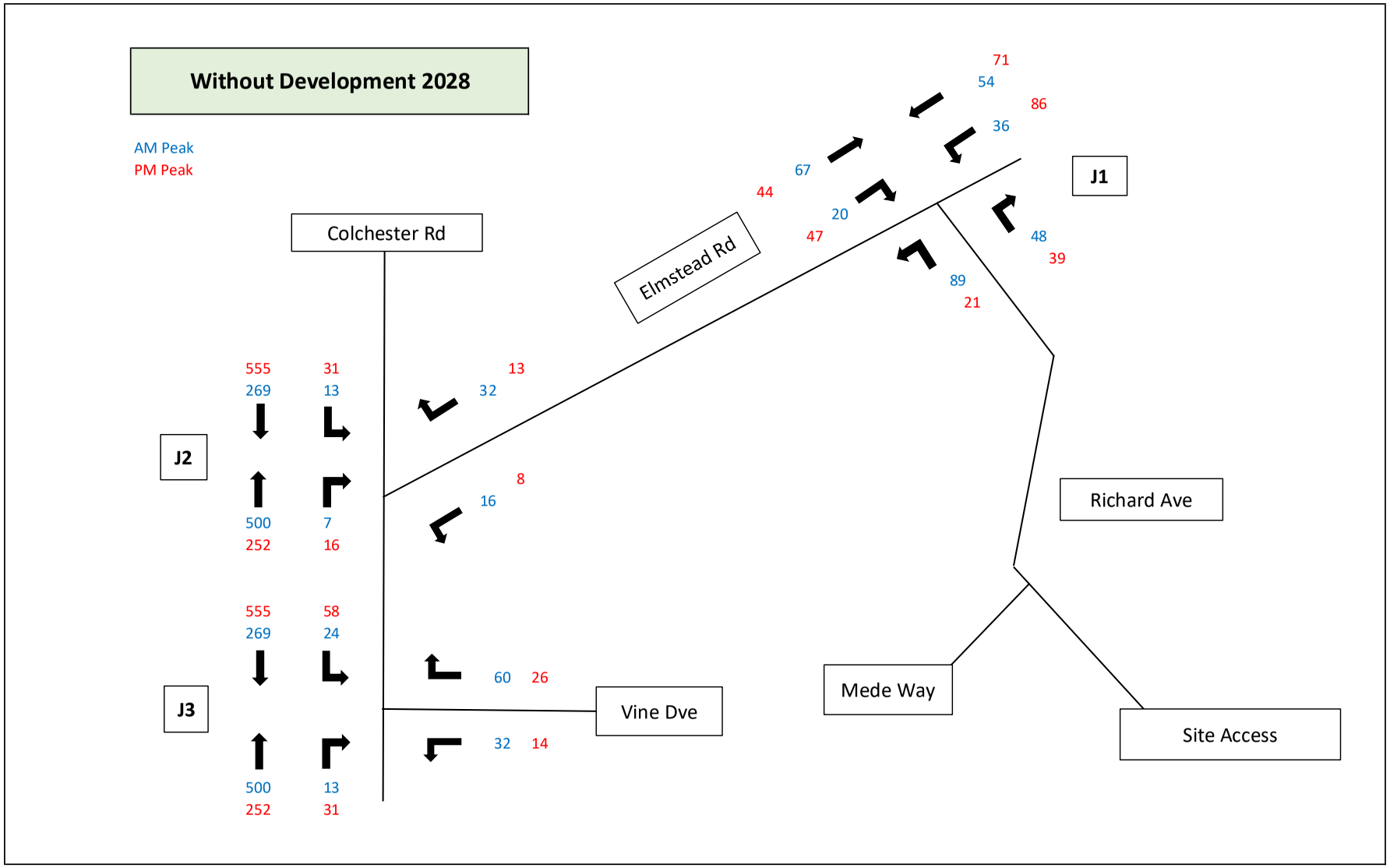
14
481
242
13
29


With Development 2028
AM Peak
PM Peak
Colchester Rd
Elmstead Rd
J1
J2
J3
Richard Ave
Mede Way
Vine Dve
Site Access
71
54
106
44
67
44
24
58
68
48
100
26
555
269
34
16
20
39
12
20
500
252
8
18
555
269
68
29
71
31
38
16
500
252
15
37
46
19
48
21


Without Development 2028
AM Peak
PM Peak
Colchester Rd
Elmstead Rd
J1
J2
J3
Richard Ave
Mede Way
Vine Dve
Site Access
71
54
86
36
67
44
20
47
48
39
89
21
555
269
31
13
13
32
8
16
500
252
7
16
555
269
58
24
60
26
32
14
500
252
13
31

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: J1 Broadfields Priority Junction.j9
Path: Y:\2900 Projects\2981-Wivenhoe, Development off Richard Avenue\Stomor Documents
Report generation date: 28/07/2020 12:10:49

Summary of junction performance

	AM Peak				PM Peak			
	Set ID	Queue (Veh)	Delay (s)	RFC	Set ID	Queue (Veh)	Delay (s)	RFC
Existing Layout - 2023 Without Dev								
Stream B-C	D1	0.1	6.10	0.08	D2	0.1	5.83	0.06
Stream B-A		0.2	8.84	0.19		0.0	7.67	0.04
Stream C-AB		0.1	6.27	0.06		0.2	6.85	0.15
Existing Layout - 2023 With Dev								
Stream B-C	D3	0.1	6.29	0.11	D4	0.1	5.96	0.08
Stream B-A		0.3	9.30	0.21		0.1	7.92	0.06
Stream C-AB		0.1	6.38	0.08		0.2	7.16	0.19
Existing Layout - 2028 Without Dev								
Stream B-C	D5	0.1	6.16	0.08	D6	0.1	5.86	0.07
Stream B-A		0.2	8.97	0.20		0.0	7.72	0.05
Stream C-AB		0.1	6.30	0.07		0.2	6.89	0.16
Existing Layout - 2028 With Dev								
Stream B-C	D7	0.1	6.36	0.12	D8	0.1	5.99	0.08
Stream B-A		0.3	9.45	0.22		0.1	7.97	0.06
Stream C-AB		0.1	6.40	0.08		0.2	7.21	0.19

There are wa.nings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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	
Location	
Site number	
Date	28/07/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	STOMORLTD\Simon
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	mph	Veh	Veh	perHour	s	-Min	perHour

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2023 Without Dev	AM Peak	ONE HOUR	07:45	09:15	15	✓
D2	2023 Without Dev	PM Peak	ONE HOUR	16:45	18:15	15	✓
D3	2023 With Dev	AM Peak	ONE HOUR	07:45	09:15	15	✓
D4	2023 With Dev	PM Peak	ONE HOUR	16:45	18:15	15	✓
D5	2028 Without Dev	AM Peak	ONE HOUR	07:45	09:15	15	✓
D6	2028 Without Dev	PM Peak	ONE HOUR	16:45	18:15	15	✓
D7	2028 With Dev	AM Peak	ONE HOUR	07:45	09:15	15	✓
D8	2028 With Dev	PM Peak	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Layout	✓	100.000	100.000

Existing Layout - 2023 Without Dev, AM Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - Elmstead Road West - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Elmstead Road East		Major
B	Broadfields		Minor
C	Elmstead Road West		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 - Elmstead Road West	5.50			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 - Broadfields	One lane plus flare	10.00	7.00	3.00	2.50	2.50	✓	1.00	62	43

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	545	0.101	0.257	0.161	0.366
B-C	699	0.109	0.277	-	-
C-B	632	0.250	0.250	-	-

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)	Run automatically
D1	2023 Without Dev	AM Peak	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Elmstead Road East		ONE HOUR	✓	83	100.000
B - Broadfields		ONE HOUR	✓	131	100.000
C - Elmstead Road West		ONE HOUR	✓	87	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	19	64
	B - Broadfields	85	0	46
	C - Elmstead Road West	52	35	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	0	1
	B - Broadfields	0	0	0
	C - Elmstead Road West	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.08	6.10	0.1	A	42	63
B-A	0.19	8.84	0.2	A	78	117
C-AB	0.06	6.27	0.1	A	32	48
C-A					48	71
A-B					17	26
A-C					59	88

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	35	9	661	0.052	34	0.0	0.1	5.743	A
B-A	64	16	515	0.124	63	0.0	0.1	7.958	A
C-AB	26	7	618	0.043	26	0.0	0.0	6.084	A
C-A	39	10			39				
A-B	14	4			14				

A-C	48	12			48				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	41	10	653	0.063	41	0.1	0.1	5.887	A
B-A	76	19	509	0.150	76	0.1	0.2	8.311	A
C-AB	32	8	615	0.051	32	0.0	0.1	6.164	A
C-A	47	12			47				
A-B	17	4			17				
A-C	58	14			58				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	51	13	641	0.079	51	0.1	0.1	6.099	A
B-A	94	23	501	0.187	93	0.2	0.2	8.827	A
C-AB	39	10	612	0.063	39	0.1	0.1	6.274	A
C-A	57	14			57				
A-B	21	5			21				
A-C	70	18			70				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	51	13	641	0.079	51	0.1	0.1	6.100	A
B-A	94	23	501	0.187	94	0.2	0.2	8.836	A
C-AB	39	10	612	0.063	39	0.1	0.1	6.274	A
C-A	57	14			57				
A-B	21	5			21				
A-C	70	18			70				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	41	10	653	0.063	41	0.1	0.1	5.890	A
B-A	76	19	509	0.150	77	0.2	0.2	8.326	A
C-AB	32	8	615	0.051	32	0.1	0.1	6.168	A
C-A	47	12			47				
A-B	17	4			17				
A-C	58	14			58				

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	35	9	661	0.052	35	0.1	0.1	5.750	A
B-A	64	16	515	0.124	64	0.2	0.1	7.983	A
C-AB	26	7	618	0.043	26	0.1	0.0	6.087	A
C-A	39	10			39				
A-B	14	4			14				
A-C	48	12			48				

Existing Layout - 2023 Without Dev, PM Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - Elmstead Road West - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.20	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)	Run automatically
D2	2023 Without Dev	PM Peak	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Elmstead Road East		ONE HOUR	✓	87	100.000
B - Broadfields		ONE HOUR	✓	58	100.000
C - Elmstead Road West		ONE HOUR	✓	151	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	45	42
	B - Broadfields	20	0	38
	C - Elmstead Road West	68	83	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	0	1
	B - Broadfields	0	0	0
	C - Elmstead Road West	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.06	5.83	0.1	A	35	52
B-A	0.04	7.67	0.0	A	18	28
C-AB	0.15	6.85	0.2	A	77	116
C-A					61	92
A-B					41	62
A-C					39	58

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	29	7	667	0.043	28	0.0	0.0	5.632	A
B-A	15	4	512	0.029	15	0.0	0.0	7.241	A
C-AB	63	16	621	0.102	63	0.0	0.1	6.445	A
C-A	51	13			51				
A-B	34	8			34				
A-C	32	8			32				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	34	9	664	0.051	34	0.0	0.1	5.715	A
B-A	18	4	503	0.036	18	0.0	0.0	7.416	A
C-AB	76	19	620	0.122	75	0.1	0.1	6.615	A
C-A	60	15			60				
A-B	40	10			40				
A-C	38	9			38				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	42	10	659	0.063	42	0.1	0.1	5.831	A
B-A	22	6	492	0.045	22	0.0	0.0	7.666	A
C-AB	93	23	619	0.150	93	0.1	0.2	6.840	A

C-A	73	18			73				
A-B	50	12			50				
A-C	46	12			46				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	42	10	659	0.063	42	0.1	0.1	5.831	A
B-A	22	6	491	0.045	22	0.0	0.0	7.667	A
C-AB	93	23	619	0.150	93	0.2	0.2	6.846	A
C-A	73	18			73				
A-B	50	12			50				
A-C	46	12			46				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	34	9	664	0.051	34	0.1	0.1	5.716	A
B-A	18	4	503	0.036	18	0.0	0.0	7.418	A
C-AB	76	19	620	0.122	76	0.2	0.1	6.619	A
C-A	60	15			60				
A-B	40	10			40				
A-C	38	9			38				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	29	7	667	0.043	29	0.1	0.0	5.638	A
B-A	15	4	512	0.029	15	0.0	0.0	7.246	A
C-AB	63	16	621	0.102	63	0.1	0.1	6.460	A
C-A	51	13			51				
A-B	34	8			34				
A-C	32	8			32				

Existing Layout - 2023 With Dev, AM Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - Elmstead Road West - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.59	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)	Run automatically
D3	2023 With Dev	AM Peak	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Elmstead Road East		ONE HOUR	✓	87	100.000
B - Broadfields		ONE HOUR	✓	162	100.000
C - Elmstead Road West		ONE HOUR	✓	95	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	23	64
	B - Broadfields	96	0	66
	C - Elmstead Road West	52	43	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	0	1
	B - Broadfields	0	0	0
	C - Elmstead Road West	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.11	6.29	0.1	A	61	91
B-A	0.21	9.30	0.3	A	88	132
C-AB	0.08	6.38	0.1	A	40	60
C-A					48	71
A-B					21	32
A-C					59	88

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	50	12	669	0.074	49	0.0	0.1	5.805	A
B-A	72	18	509	0.142	72	0.0	0.2	8.224	A
C-AB	32	8	617	0.053	32	0.0	0.1	6.151	A
C-A	39	10			39				
A-B	17	4			17				
A-C	48	12			48				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	59	15	659	0.090	59	0.1	0.1	5.997	A
B-A	86	22	502	0.172	86	0.2	0.2	8.650	A
C-AB	39	10	615	0.063	39	0.1	0.1	6.246	A
C-A	47	12			47				
A-B	21	5			21				
A-C	58	14			58				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	73	18	645	0.113	73	0.1	0.1	6.283	A
B-A	106	26	493	0.214	105	0.2	0.3	9.287	A
C-AB	48	12	612	0.078	48	0.1	0.1	6.376	A
C-A	57	14			57				
A-B	25	6			25				
A-C	70	18			70				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	73	18	645	0.113	73	0.1	0.1	6.287	A
B-A	106	26	493	0.214	106	0.3	0.3	9.298	A
C-AB	48	12	612	0.078	48	0.1	0.1	6.376	A
C-A	57	14			57				
A-B	25	6			25				
A-C	70	18			70				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	59	15	659	0.090	59	0.1	0.1	6.002	A
B-A	86	22	502	0.172	87	0.3	0.2	8.670	A
C-AB	39	10	615	0.063	39	0.1	0.1	6.247	A
C-A	47	12			47				
A-B	21	5			21				
A-C	58	14			58				

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	50	12	669	0.074	50	0.1	0.1	5.818	A
B-A	72	18	509	0.142	72	0.2	0.2	8.256	A
C-AB	32	8	617	0.053	33	0.1	0.1	6.157	A
C-A	39	10			39				
A-B	17	4			17				
A-C	48	12			48				

Existing Layout - 2023 With Dev, PM Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - Elmstead Road West - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.59	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)	Run automatically
D4	2023 With Dev	PM Peak	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Elmstead Road East		ONE HOUR	✓	98	100.000
B - Broadfields		ONE HOUR	✓	72	100.000
C - Elmstead Road West		ONE HOUR	✓	171	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	56	42
	B - Broadfields	25	0	47
	C - Elmstead Road West	68	103	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	0	1
	B - Broadfields	0	0	0
	C - Elmstead Road West	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.08	5.96	0.1	A	43	65
B-A	0.06	7.92	0.1	A	23	34
C-AB	0.19	7.16	0.2	A	96	144
C-A					61	91
A-B					51	77
A-C					39	58

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	35	9	665	0.053	35	0.0	0.1	5.714	A
B-A	19	5	506	0.037	19	0.0	0.0	7.387	A
C-AB	78	20	620	0.126	78	0.0	0.1	6.635	A
C-A	50	13			50				
A-B	42	11			42				
A-C	32	8			32				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	42	11	661	0.064	42	0.1	0.1	5.817	A
B-A	22	6	496	0.045	22	0.0	0.0	7.603	A

C-AB	94	24	619	0.152	94	0.1	0.2	6.853	A
C-A	60	15			60				
A-B	50	13			50				
A-C	38	9			38				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	52	13	655	0.079	52	0.1	0.1	5.962	A
B-A	28	7	482	0.057	27	0.0	0.1	7.914	A
C-AB	116	29	619	0.188	116	0.2	0.2	7.152	A
C-A	72	18			72				
A-B	62	15			62				
A-C	46	12			46				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	52	13	655	0.079	52	0.1	0.1	5.962	A
B-A	28	7	482	0.057	28	0.1	0.1	7.917	A
C-AB	116	29	619	0.188	116	0.2	0.2	7.159	A
C-A	72	18			72				
A-B	62	15			62				
A-C	46	12			46				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	42	11	661	0.064	42	0.1	0.1	5.821	A
B-A	22	6	496	0.045	23	0.1	0.0	7.606	A
C-AB	94	24	619	0.152	94	0.2	0.2	6.861	A
C-A	60	15			60				
A-B	50	13			50				
A-C	38	9			38				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	35	9	665	0.053	35	0.1	0.1	5.718	A
B-A	19	5	506	0.037	19	0.0	0.0	7.394	A
C-AB	78	20	620	0.126	79	0.2	0.1	6.654	A
C-A	50	13			50				
A-B	42	11			42				
A-C	32	8			32				

Existing Layout - 2028 Without Dev, AM Peak

Data Errors and Warnings

Severity	Area	Item	Description

Warning	Major arm width	C - Elmstead Road West - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.19	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)	Run automatically
D5	2028 Without Dev	AM Peak	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Elmstead Road East		ONE HOUR	✓	87	100.000
B - Broadfields		ONE HOUR	✓	137	100.000
C - Elmstead Road West		ONE HOUR	✓	90	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	20	67
	B - Broadfields	89	0	48
	C - Elmstead Road West	54	36	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	0	1
	B - Broadfields	0	0	0
	C - Elmstead Road West	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.08	6.16	0.1	A	44	66
B-A	0.20	8.97	0.2	A	82	123
C-AB	0.07	6.30	0.1	A	33	50
C-A					49	74
A-B					18	28
A-C					61	92

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	36	9	659	0.055	36	0.0	0.1	5.776	A
B-A	67	17	514	0.130	66	0.0	0.1	8.031	A
C-AB	27	7	617	0.044	27	0.0	0.0	6.098	A
C-A	41	10			41				
A-B	15	4			15				
A-C	50	13			50				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	43	11	650	0.066	43	0.1	0.1	5.929	A
B-A	80	20	508	0.158	80	0.1	0.2	8.408	A
C-AB	32	8	615	0.053	32	0.0	0.1	6.182	A
C-A	48	12			48				
A-B	18	4			18				
A-C	60	15			60				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	53	13	637	0.083	53	0.1	0.1	6.157	A
B-A	98	24	499	0.196	98	0.2	0.2	8.963	A
C-AB	40	10	612	0.065	40	0.1	0.1	6.296	A
C-A	59	15			59				
A-B	22	6			22				
A-C	74	18			74				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	53	13	637	0.083	53	0.1	0.1	6.158	A
B-A	98	24	499	0.196	98	0.2	0.2	8.972	A

C-AB	40	10	612	0.065	40	0.1	0.1	6.296	A
C-A	59	15			59				
A-B	22	6			22				
A-C	74	18			74				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	43	11	650	0.066	43	0.1	0.1	5.933	A
B-A	80	20	508	0.158	80	0.2	0.2	8.424	A
C-AB	32	8	615	0.053	33	0.1	0.1	6.183	A
C-A	48	12			48				
A-B	18	4			18				
A-C	60	15			60				

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	36	9	659	0.055	36	0.1	0.1	5.783	A
B-A	67	17	514	0.130	67	0.2	0.2	8.057	A
C-AB	27	7	617	0.044	27	0.1	0.0	6.104	A
C-A	41	10			41				
A-B	15	4			15				
A-C	50	13			50				

Existing Layout - 2028 Without Dev, PM Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - Elmstead Road West - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.21	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)	Run automatically

D6	2028 Without Dev	PM Peak	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Elmstead Road East		ONE HOUR	✓	91	100.000
B - Broadfields		ONE HOUR	✓	60	100.000
C - Elmstead Road West		ONE HOUR	✓	157	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	47	44
	B - Broadfields	21	0	39
	C - Elmstead Road West	71	86	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	0	1
	B - Broadfields	0	0	0
	C - Elmstead Road West	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.07	5.86	0.1	A	36	54
B-A	0.05	7.72	0.0	A	19	29
C-AB	0.16	6.89	0.2	A	80	120
C-A					64	96
A-B					43	65
A-C					40	61

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	29	7	666	0.044	29	0.0	0.0	5.650	A
B-A	16	4	511	0.031	16	0.0	0.0	7.265	A
C-AB	65	16	620	0.105	65	0.0	0.1	6.476	A
C-A	53	13			53				
A-B	35	9			35				
A-C	33	8			33				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	35	9	662	0.053	35	0.0	0.1	5.737	A
B-A	19	5	502	0.038	19	0.0	0.0	7.449	A
C-AB	78	20	619	0.126	78	0.1	0.1	6.650	A
C-A	63	16			63				
A-B	42	11			42				
A-C	40	10			40				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	43	11	657	0.065	43	0.1	0.1	5.858	A
B-A	23	6	490	0.047	23	0.0	0.0	7.714	A
C-AB	97	24	619	0.156	96	0.1	0.2	6.889	A
C-A	76	19			76				
A-B	52	13			52				
A-C	48	12			48				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	43	11	657	0.065	43	0.1	0.1	5.858	A
B-A	23	6	490	0.047	23	0.0	0.0	7.715	A
C-AB	97	24	619	0.156	97	0.2	0.2	6.891	A
C-A	76	19			76				
A-B	52	13			52				
A-C	48	12			48				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	35	9	662	0.053	35	0.1	0.1	5.740	A
B-A	19	5	502	0.038	19	0.0	0.0	7.454	A
C-AB	78	20	619	0.126	78	0.2	0.1	6.659	A
C-A	63	16			63				
A-B	42	11			42				
A-C	40	10			40				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	29	7	666	0.044	29	0.1	0.0	5.654	A

B-A	16	4	511	0.031	16	0.0	0.0	7.271	A
C-AB	65	16	620	0.105	65	0.1	0.1	6.491	A
C-A	53	13			53				
A-B	35	9			35				
A-C	33	8			33				

Existing Layout - 2028 With Dev, AM Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - Elmstead Road West - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.63	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)	Run automatically
D7	2028 With Dev	AM Peak	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Elmstead Road East		ONE HOUR	✓	91	100.000
B - Broadfields		ONE HOUR	✓	168	100.000
C - Elmstead Road West		ONE HOUR	✓	98	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Elmstead Road East	**B - Broadfields**	**C - Elmstead Road West**
From	**A - Elmstead Road East**	0	24	67
	B - Broadfields	100	0	68
	C - Elmstead Road West	54	44	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	0	1
	B - Broadfields	0	0	0
	C - Elmstead Road West	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.12	6.36	0.1	A	62	94
B-A	0.22	9.45	0.3	A	92	138
C-AB	0.08	6.40	0.1	A	41	61
C-A					49	74
A-B					22	33
A-C					61	92

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	51	13	667	0.077	51	0.0	0.1	5.843	A
B-A	75	19	508	0.148	75	0.0	0.2	8.300	A
C-AB	33	8	617	0.054	33	0.0	0.1	6.167	A
C-A	41	10			41				
A-B	18	5			18				
A-C	50	13			50				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	61	15	656	0.093	61	0.1	0.1	6.047	A
B-A	90	22	501	0.180	90	0.2	0.2	8.754	A
C-AB	40	10	614	0.065	40	0.1	0.1	6.264	A
C-A	48	12			48				
A-B	22	5			22				
A-C	60	15			60				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	75	19	641	0.117	75	0.1	0.1	6.352	A
B-A	110	28	491	0.224	110	0.2	0.3	9.433	A

C-AB	49	12	611	0.080	49	0.1	0.1	6.398	A
C-A	59	15			59				
A-B	26	7			26				
A-C	74	18			74				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	75	19	641	0.117	75	0.1	0.1	6.357	A
B-A	110	28	491	0.224	110	0.3	0.3	9.447	A
C-AB	49	12	611	0.080	49	0.1	0.1	6.401	A
C-A	59	15			59				
A-B	26	7			26				
A-C	74	18			74				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	61	15	656	0.093	61	0.1	0.1	6.052	A
B-A	90	22	501	0.180	90	0.3	0.2	8.772	A
C-AB	40	10	614	0.065	40	0.1	0.1	6.268	A
C-A	48	12			48				
A-B	22	5			22				
A-C	60	15			60				

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	51	13	666	0.077	51	0.1	0.1	5.857	A
B-A	75	19	508	0.148	75	0.2	0.2	8.335	A
C-AB	33	8	617	0.054	33	0.1	0.1	6.169	A
C-A	41	10			41				
A-B	18	5			18				
A-C	50	13			50				

Existing Layout - 2028 With Dev, PM Peak

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - Elmstead Road West - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.60	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)	Run automatically
D8	2028 With Dev	PM Peak	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A - Elmstead Road East		ONE HOUR	✓	102	100.000
B - Broadfields		ONE HOUR	✓	74	100.000
C - Elmstead Road West		ONE HOUR	✓	177	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	58	44
	B - Broadfields	26	0	48
	C - Elmstead Road West	71	106	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Elmstead Road East	B - Broadfields	C - Elmstead Road West
From	A - Elmstead Road East	0	0	1
	B - Broadfields	0	0	0
	C - Elmstead Road West	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.08	5.99	0.1	A	44	66
B-A	0.06	7.97	0.1	A	24	36
C-AB	0.19	7.21	0.2	A	99	149
C-A					63	95
A-B					53	80
A-C					40	61

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	36	9	664	0.054	36	0.0	0.1	5.732	A
B-A	20	5	505	0.039	19	0.0	0.0	7.416	A
C-AB	81	20	620	0.130	80	0.0	0.2	6.667	A
C-A	53	13			53				
A-B	44	11			44				
A-C	33	8			33				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	43	11	660	0.065	43	0.1	0.1	5.838	A
B-A	23	6	494	0.047	23	0.0	0.0	7.641	A
C-AB	97	24	619	0.157	97	0.2	0.2	6.893	A
C-A	62	16			62				
A-B	52	13			52				
A-C	40	10			40				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	53	13	654	0.081	53	0.1	0.1	5.989	A
B-A	29	7	480	0.060	29	0.0	0.1	7.968	A
C-AB	120	30	619	0.193	119	0.2	0.2	7.205	A
C-A	75	19			75				
A-B	64	16			64				
A-C	48	12			48				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	53	13	654	0.081	53	0.1	0.1	5.989	A
B-A	29	7	480	0.060	29	0.1	0.1	7.971	A
C-AB	120	30	619	0.193	120	0.2	0.2	7.214	A
C-A	75	19			75				
A-B	64	16			64				
A-C	48	12			48				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	43	11	660	0.065	43	0.1	0.1	5.842	A
B-A	23	6	494	0.047	23	0.1	0.1	7.644	A
C-AB	97	24	619	0.157	97	0.2	0.2	6.904	A
C-A	62	16			62				

A-B	52	13			52				
A-C	40	10			40				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	36	9	664	0.054	36	0.1	0.1	5.738	A
B-A	20	5	505	0.039	20	0.1	0.0	7.423	A
C-AB	81	20	620	0.130	81	0.2	0.2	6.686	A
C-A	53	13			53				
A-B	44	11			44				
A-C	33	8			33				

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