

TROY HOMES LTD

**PROPOSED RESIDENTIAL DEVELOPMENT:
FORMER LAUNDRY SITE, BOWER HILL, EPPING**



TRANSPORT ADDENDUM REPORT

REPORT REF. 185661-01

PROJECT NO. 185661

MARCH 2020

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FORMER LAUNDRY SITE, BOWER HILL, EPPING**

TRANSPORT ADDENDUM REPORT

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REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
-	1st Client Draft	IW	DRAFT	DRAFT	16.03.2020
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1.0 INTRODUCTION

- 1.1 Ardent Consulting Engineers (ACE) has been appointed by Troy Homes Ltd to prepare a Transport Addendum Report (TAR) to advise on the highways/transportation aspects of the residential development at the former Laundry Site, Bower Hill, Epping.
- 1.2 This TAR has been produced following an original Transport Statement submitted to support the development of 58 dwellings (56 new, and 2 re-provided) on a site identified within the Epping Forest Draft Local Plan as site EPP.R9. The planning reference for this application was EPF/3174/18. That application was refused by Epping Forest District Council and is being appealed by the applicant.
- 1.3 This TAR has been produced in order to explain the refinement of assumptions made to the work undertaken within the original Transport Assessment, provide scenario tests based upon new information provided by the client / design team, and also assess and explain the new aspects to the scheme.
- 1.4 Following this introduction, the remainder of this report is structured as follows:
- **Section 2.0** describes the changes to the scheme design since the submission of application EPF/3174/18, and their compliance to the relevant standards;
 - **Section 3.0** outlines refinement of the analysis of the scheme within the original Transport Statement, highlighting new information available and providing more focussed analysis;
 - **Section 4.0** considers the impact upon the Epping Forest SAC area following on from the new information being provided and scenario testing;
 - **Section 5.0** provides a summary and sets out the conclusions.

2.0 CURRENT SCHEME DESIGN

Site Location

- 2.1 The latest scheme design is provided at **Appendix A**.
- 2.2 To summarise the need for this Transport Addendum Report, the following points are most pertinent in highways terms as a result of changes to the scheme or clarification points to the original work:
- Site access to remain from Bower Hill as per the original application (agreed as acceptable by ECC Highways);
 - The internal carriageway has been designed as a shared surface environment with build-outs and passing places in order to restrict vehicle speeds within the development and provide priority for pedestrians and cyclists (as per Manual for Streets recommendations). The road has been amended in this respect since the original application;
 - Reduction in car parking on the site to 54 spaces (including 3 disabled spaces) from 57 spaces in the original application. This is in keeping with the request by EFDC to limit car parking on the site due to its proximity to public transport and local facilities, but given acknowledgement to the local car ownership levels and the objectors locally wishing a good amount of on-site parking be provided to avoid overspill issues on surrounding streets;
 - Further clarification on the existing site uses;
 - Further detailed review of the locational aspects of the site in the context of car ownership;
 - Confirmation that 100% of the spaces are to be electric charging ready;
 - Further clarification on the provision of a car-club space on the site, to be secured via a Section 106 Agreement.

Site Access Road

- 2.3 Due to the changes in the access road and turning areas on the site, a revised set of vehicle tracking plans are provided on **ACE Drawing 185661-001**.
- 2.4 The access road has been provided with a standard detail (for ECC roads) at the bellmouth to allow pedestrians to merge safely into the shared surface street. Along the access road, it is intended that pedestrians and cyclists have priority over motor vehicles. This will be achieved through a series of build-outs and passing places to slow vehicle speeds and the materials used to create an attractive pedestrian environment.
- 2.5 The road has a consistent 6m wide width, as per the Essex Design Guide requirements, with build-outs / passing places reduced to a minimum of 3.7m to ensure fire access to the site is not compromised.
- 2.6 The design of the shared surface is appropriate given the restriction on car parking being provided (see later in this chapter) and the guidance set out in Manual for Streets.

Parking Provision

- 2.7 In terms of the site's compliance to the relevant design standards and policy, the amendments are in line with the commentary supporting the draft allocation of this site for residential development, in so far as the EPOA (2009) Parking Standards state that *"For main urban areas a reduction to the vehicle parking standard may be considered, particularly for residential development. Main urban areas are defined as those having frequent and extensive public transport and cycling and walking links, accessing education, healthcare, food shopping and employment."*

- 2.8 It is clear that the proposed site falls within the above description, and that this has not been challenged by ECC or EFDC.
- 2.9 However, EFDC has commented that the site (within the original application) has provided too much car parking.
- 2.10 Indeed, the site-specific requirements of the draft allocation EPP.R9 state that: *"The site is within 400m radius of a London Underground Station. To promote sustainable transport modes and encourage active transport, development proposals for residential should limit the provision of onsite residents' car parking to that required to service essential needs of the development. Provision should be made on site for car clubs /car sharing or pooling arrangements, visitor parking and blue badge holders. Contributions will be sought for implementing Controlled Parking Zones in the vicinity of the site."*
- 2.11 To this end, at the pre-application stage, both ECC and EFDC Officers were approached to agree the appropriate level of on-site car parking. The applicant put forward empirical data from the most recent Census data in order to explain the parking level being proposed was in line with local car ownership, and that this would a) prevent overspill car parking occurring on surrounding areas, and b) provide an amount that would "service essential needs of the development".
- 2.12 The relevant Officers were approached about parking being provided just above 1 space per unit level. This was 63 spaces at the time of the pre-application for 62 units. Subsequently, the application provided 57 parking spaces for 58 units.
- 2.13 Based upon EPOA standards, the relevant unit mix of the 62-unit scheme would necessitate the minimum provision of 114 parking spaces (including visitor provision) and that of the 58-unit scheme would necessitate the minimum provision of 106 parking spaces (including visitor provision).

- 2.14 It is clear that both the pre-application scheme (63 spaces) and the subsequent application scheme (57 spaces) provided parking well below the minimum requirements, and therefore in adherence with both the EPOA reductions suggested in urban areas close to public transport, and the site-specific context provided by draft allocation EPP.R9.
- 2.15 Unfortunately, at pre-application stage, Officers from both ECC and EFDC did not state a specific level of parking that was considered appropriate when approached about the provision of 63 spaces for 58 units. ECC confirmed that the Officer had *"no adverse comments to make with regards to the parking provision"* based upon this level.
- 2.16 Likewise the EFDC Case Officer simply stated that *"the location of this site is clearly sustainable and therefore reduced parking provision is likely to be considered acceptable"* without either challenging the 63 spaces put forward or offering comment that a level below this should be provided.
- 2.17 On the basis that the provision of 57 spaces was ultimately submitted, and that this accorded with the local Census data, this seems to suggest that the parking level is of a level appropriate for the essential needs of the site. Indeed, the main thrust of third-party objectors to the site is that the development does not provide enough parking. It is our consideration that the correct balance has been struck between offering incentives towards alternative modes of transport through restricting parking, whilst ensuring that no adverse impacts are experienced on local streets due to overspill parking.
- 2.18 If considered appropriate by the Inspector, the applicant would be willing to financially contribute towards the processing, advertising and (if successful) implementation of a Residents' Controlled Parking Zone (CPZ) within the immediate area to mitigate any adverse impacts of the parking associated with the development. This contribution will be secured via the Section 106 Agreement.

- 2.19 It should finally be noted that the minor scheme revisions considered within this TAR have reduced the parking level further from that of the original application which should meet the aspirations of EFDC to reduce parking on the site. These changes have resulted from requests to enhance the landscaping within the site, amongst other design changes.
- 2.20 The reduction in parking level to 54 spaces, does not change the fundamental conclusions of the original application that sufficient parking is provided and that the site is well located to take advantage of public transport and town centre facilities within Epping.
- 2.21 It is considered, in summary, that the proposals strike the correct balance between the ECC (EPOA) Parking Standards, the guidance from EFDC on reducing car parking in sustainable areas, the need for essential parking (as evidenced by Census data), and the concerns raised by local objectors.

Electric Charging Points

- 2.22 It is proposed that all spaces are to be provided as electric charging ready from the outset. This is in line with Policy T1: Sustainable Transport Choices within the Epping Forest Local Plan Submission version which states that *"in order to accommodate the use of low emission vehicles to support improvements in air quality within the District the provision of electric vehicle charging points will be required within all new developments which make provision for car parking for vehicles"*.
- 2.23 The provision of all spaces as electric charging capable from the outset will assist in the transition of vehicles to non-carbon fuels, encouraging their uptake at an earlier point in time. This has a bearing on the EFSAC area, as the development will be promoting opportunity to travel by vehicles that do not emit harmful gases and particles.

Car Club Space

- 2.24 As per the reference in the original Transport Statement, it is intended that one of the spaces within the development be offered to a car club for usage. A space has been identified near to the junction with Bower Hill in order to serve both the residents of the development along with other residents in the local area.
- 2.25 This is to be secured via a Section 106 Agreement / Unilateral Undertaking, ensuring that the developer offers the space for a car club to operate.
- 2.26 Should an appropriate operator not be found (as indicated within the Essex Design Guide itself, *"A development of at least 100 homes is considered to be the viable economic threshold for car clubs, though this does not mean that they are unsuitable for smaller developments, particularly if the scheme can be extended to the surrounding area"*) then it is reasonable to assume that the car club space will be re-purposed as a visitor space. This mechanism will be secured within the Unilateral Undertaking.

3.0 ORIGINAL TRANSPORT STATEMENT ROBUSTNESS AND FURTHER SCENARIO TESTING

3.1 The original Transport Statement submitted in support of planning reference EPF/3174/18 took a precautionary approach to traffic generation rates and assumptions made. However, due to this way of approaching the assessment, it resulted in additional contingency to the traffic generation and of the site's impacts upon the local road network and also upon the Epping Forest SAC.

3.2 This section of the TAR explains the added contingency built into the original analysis and offers a more refined assessment on which the site should be judged. Partly, this is due to more information on the existing uses being made available, as well as a review of the original work completed being interrogated further.

3.3 The following elements are reviewed within this section:

- Use of the Census data;
- Use of the TRICS data;
- Consideration of site uses previously excluded from analysis.

2011 Census Data

3.4 Firstly, both the car ownership and travel to work data were derived from the 2011 Census for the existing residential population of the area surrounding the site (Epping Hemnall).

3.5 The data showed that around 52% of the ward residents travelled to work via car (as drivers) and around 35% used the train (including underground). An extract of the Table used in the original Transport Statement is provided below as **Table 3.1**.

**Table 3.1: Journey to Work Proportions (2011 Census data)
- reproduced from original Transport Statement (Table 2.1)**

Mode of Travel	Percentage of Residents (excluding working at home, other, unemployed)
<i>Train (incl. Underground)</i>	34.6%
<i>Bus</i>	1.3%
<i>Taxi</i>	1.4%
<i>Motorcycle</i>	1.0%
<i>Car Driver</i>	51.6%
<i>Car Passenger</i>	2.4%
<i>Bicycle</i>	0.5%
<i>Pedestrian</i>	7.2%
Total	100%

- 3.6 A review of the Epping Hemnall ward has been undertaken in order to understand the ward's locational characteristics, and how the proposed development site sits within the built environment.
- 3.7 **Plate 1** below provides the site's context within the Epping Hemnall ward (both the site and the Epping London Underground station are contained within the blue circle shown).



Plate 1: Epping Hemnall ward

- 3.8 As can be seen from the above plate, the site and the station are within the main built-up environment of Epping. However, there are large areas of the ward that are very rural in nature, or for the likes of Coopersale and Coopersale Street very remote from the town centre and the railway station.
- 3.9 To this end, it is therefore conceivable that the Census data underestimates the level of travel that is likely to occur by sustainable modes of travel from the development site.
- 3.10 Therefore, a manual adjustment has been made based upon an increase in walking, cycling and train modes, resulting in a 15% reduction in car driver trips from the development site as an

alternative scenario. The resultant modal split would therefore look as follows:

Table 3.2: Journey to Work Proportions (Alternative Assumptions)

Mode of Travel	Percentage of Residents (excluding working at home, other, unemployed)
<i>Train (incl. Underground)</i>	46.6%
<i>Bus</i>	1.3%
<i>Taxi</i>	1.4%
<i>Motorcycle</i>	1.0%
<i>Car Driver</i>	36.6%
<i>Car Passenger</i>	2.4%
<i>Bicycle</i>	0.5%
<i>Pedestrian</i>	10.2%
Total	100%

- 3.11 The resultant change in mode of travel would result in train usage being the most dominant form of travel for commuters from the site.
- 3.12 Within the original analysis, the TRICS data for the site (based upon all person trip rates) was applied to the local Census data to give a more accurate representation of travel for sites in the immediate vicinity, rather than relying on comparison sites elsewhere in the country.
- 3.13 It is therefore considered that the above amended journey to work proportions may provide a more nuanced and refined analysis of the local modal trips.
- 3.14 A review of the trip rates used from TRICS on an “all person” basis has been undertaken to see whether low car ownership in the local area, proximity to stations or the inclusion of sites from the Greater London dataset make a difference to the all person generation of a site. The review suggests that as the “all person” trip rates are the generation of people entering / leaving a site to go to or from work, then it is simply a count of the number of people entering or leaving

a site. The all person trip rates therefore do not particularly alter with varying assumptions on those criteria selected (e.g. car ownership in the local area, proximity to station, etc) as people are still leaving their premises whether they are going to travel by car or by rail.

3.15 The modal split applied locally is therefore more important in this approach, and the original analysis approach is considered correct, albeit in need of some local context for the Epping Hemnall ward as previously explained.

3.16 A modified set of trip generation rates (original application Table 5.1) has been provided below:

Table 3.2: Alternative Assumptions - Weekday peak hour all-person trip rates (source: TRICS)

Period and mode	Trip Rates			Trips		
	<i>In</i>	<i>Out</i>	<i>2-way</i>	<i>In</i>	<i>Out</i>	<i>2-way</i>
Weekday AM peak hour (08:00-09:00)						
<i>All-person (per dwelling – 4 houses)</i>	0.245	0.784	1.029	1	3	4
<i>All-person (per dwelling – 52 flats)</i>	0.126	0.452	0.578	7	24	30
Census derived Vehicles (51.6% car drivers)				4	14	18
Census derived Vehicles (36.6% car drivers)				3	10	13
Weekday PM peak hour (17:00-18:00)						
<i>All-person (per dwelling – 4 houses)</i>	0.603	0.272	0.875	2	1	4
<i>All-person (per dwelling – 52 flats)</i>	0.418	0.218	0.636	22	11	33
Total Census derived Vehicles (51.6% car drivers)				12	6	19
Census derived Vehicles (36.6% car drivers)				9	4	14

3.17 In both the AM and PM peaks, the original analysis was likely to have overestimated vehicle trips by 5 vehicles in each hour, based upon an amended local Census modal split. The refined assessment work on modal share is therefore expected to generate 5 fewer vehicles per day than the original analysis and is more representative of the local context of the site. It is conceivable that the modal split for the site may even be lower still.

TRICS Data

3.18 As has been established above, the TRICS data used changes little for all person trip rates due to the nature of the fact it is recording movement of people at a residential development predominantly travelling to / from work or school. This changes little regardless of mode of travel when recording simple ins and outs from a development.

3.19 However, a further interrogation of the TRICS database has been undertaken to see what the impacts of car ownership on development sites does to trip rates.

3.20 For both private houses and private flats the following criteria was selected within TRICS for "vehicle trip" generation rates rather than multi-modal / all person analysis:

- Sites in South East and East Anglia region only;
- Sites between 6 and 120 units in size;
- Town centre, edge of town centre and suburban areas;
- Low local car ownership (0.5 to 1.0 level);
- Removal of all sites providing in excess of 1:1 car parking.

3.21 In both cases, only one suitable site was produced. Whilst the TRICS database user guidance always advises against the use of low numbers of comparison sites, in this instance, the data has been used

to give an understanding of how restricted car ownership on a site can influence vehicle movements recorded.

- 3.22 For the flats (privately owned) scenario, the only site matching the criteria was survey **HC-03-C-01** for a block of flats in Portsmouth. The development is for 90 dwellings, but parking is restricted to only 77 spaces (parking provision of 0.85 spaces per unit).
- 3.23 For the houses (privately owned) scenario, the only site matching the criteria was survey **EX-03-A-02** for a development at Chigwell, Essex. The development is for 97 dwellings, but parking is restricted to only 84 spaces (parking provision of 0.87 spaces per unit).
- 3.24 A copy of the TRICS data is provided at **Appendix B**.
- 3.25 The current proposals on the Laundry Site are for 54 spaces for 58 units (parking provision of 0.93 spaces per unit). This is therefore considered a reasonable comparison.
- 3.26 Utilising the trip rates from the TRICS vehicle-only rates for the sites above, the 58-unit scheme at the Laundry Site would be expected to generate the following level of traffic (this excludes two houses which are being replaced and are therefore considered to generate the same level of traffic as currently occurs):

Table 3.3: Alternative Assumptions - Weekday peak hour vehicle trip rates (source: TRICS)

Period and mode	Trip Rates			Trips		
	<i>In</i>	<i>Out</i>	<i>2-way</i>	<i>In</i>	<i>Out</i>	<i>2-way</i>
Weekday AM peak hour (08:00-09:00)						
<i>Vehicles (per dwelling - 4 houses)</i>	<i>0.103</i>	<i>0.155</i>	<i>0.258</i>	<i>0</i>	<i>1</i>	<i>1</i>
<i>Vehicles (per dwelling - 52 flats)</i>	<i>0.044</i>	<i>0.200</i>	<i>0.244</i>	<i>2</i>	<i>10</i>	<i>13</i>
Total Vehicles				2	11	14
Weekday PM peak hour (17:00-18:00)						

Vehicles (per dwelling – 4 houses)	0.103	0.062	0.165	0	0	1
Vehicles (per dwelling – 52 flats)	0.122	0.078	0.200	6	4	10
Total Vehicles				6	4	11

3.27 As can be seen from **Table 3.3** the development is predicted to generate 14 two-way movements in the AM peak, and 11 two-way movements in the PM peak.

3.28 The AM peak is comparable to that of the amended Census profile shown in **Table 3.2** (13 two-way movements) but is slightly lower than that shown in the PM peak (14 two-way movements).

3.29 In both Table 3.2 and 3.3, the alternative assumptions are reasonably consistent with each other, and both are below the levels used in the original analysis by about 5 or 6 vehicles.

3.30 Table 3.4 provides an indication in the net change in trips in comparison to the MOT garage used in the original analysis along with the alternative assumptions used above.

Table 3.4: Alternative Assumptions – Net change in traffic - Weekday peak hour trip rates (source: TRICS)

Period and mode	Trips		
	In	Out	2-way
Weekday AM peak hour (08:00-09:00)			
Vehicle Difference (original TS)	-4	+13	+9
Vehicle Difference (comparison with amended modal share)	-5	+9	+4
Vehicle Difference (comparison with TRICS vehicle rates)	-6	+10	+4
Weekday PM peak hour (17:00-18:00)			
Vehicle Difference (original TS)	+10	0	+11
Vehicle Difference (comparison with amended modal share)	+7	-2	+6
Vehicle Difference (comparison with TRICS vehicle rates)	+4	-2	+2

- 3.31 **Table 3.4** indicates that the net change in trips could be only +2 vehicles in the PM peak, and +4 vehicles in the AM peak. These are negligible changes in flows.
- 3.32 It should be noted that these changes are in isolation only, and only relate to the refinement of the TRICS data and the modal share from Census data. These do not consider on-site operations of the site that were previously excluded for example.
- 3.33 The original analysis within the Transport Statement submitted with the application was appropriate at the time of submission but has been refined following a review of the analysis previously undertaken and given more localised context of the Census data used and the TRICS data applied.
- 3.34 In isolation, these changes alone have shown that with a more focussed assessment that the proposed site is expected to generate fewer trips than calculated in the original application work. The conclusions of the original work still stand, however, these are likely to have over-estimated the impacts of the development on the local road.
- 3.35 ECC Highways did not object to the previous analysis used.

Additional Extant Site Uses

- 3.36 The original analysis was considered appropriate and with additional contingency built-in, as the proposed development traffic was only assessed against the traffic that could have been generated by the MOT garage that formerly operated on the site.
- 3.37 Epping Forest District Council has suggested that for the purposes of modelling impacts on the Epping Forest SAC at this site, the MOT garage had stopped operating at the point that Natural England's Air Quality modelling surveys were undertaken and therefore new proposals for this site cannot be benchmarked against the existing or

previous uses of the site in Air Quality terms. However, whilst the MOT garage may have paused for a short period of time when the Council's assessment was undertaking, the existing MOT use is able to recommence at any time without restriction or the requirement to obtain additional planning consent. Therefore, the MOT garage can be reinstated without prior notice and therefore Natural England's position is not correct.

3.38 However, the site's operation historically is more varied than simply just a MOT garage (it's most recent use on part of the site only).

3.39 For the purposes of the original application, Ardent sought to exclude the vehicle movements the site previously generated as a Laundry Warehouse operation. However, it is clear that the site would have been intensively used when operational, and that this should not be forgotten.

3.40 In addition, the client has clarified the fact that the existing site also has 9 no. garages that are still in use, with vehicle movements associated with them.

3.41 On the basis that some of these are used to house cars, and some are used simply for storage, it has been estimated that movements are reasonable to be assumed as follows:

- A third of them are used as garages on a daily (weekday) basis = 3 arrivals / 3 departures per day, (3 garages x 5 days x two movements / 7 days = 4 AADT vehicle trips);
- A third of them are used once a week for lock-up / storage (3 garages x 1 weekly trip x two movements / 7 days = <1 AADT movement);
- A third of them are used once a fortnight for lock-up / garage = <1 AADT movement (3 garages x 0.5 weekly trip x two movements / 7 days = <1 AADT movement).

3.42 In total, the garages would be predicted to generate around 6 AADT movements, with most of those associated with the site being used

as garages. There is no restriction on their ownership however, all 9 garages could be used for parking vehicles as part of a commuting pattern by local residents who may own the garages and leave in the immediate area (not having parking on their own curtilage themselves), or be owned by people wishing to drive to this part of Epping from elsewhere to make use of the proximity of the site to the station.

- 3.43 In such unrestricted circumstances, the garages could be expected to generate closer to 13 AADT movements. There has been no assessment of the former laundry site within these movement level.
- 3.44 In comparison with the net changes in trips previously identified in **Table 3.4**, the further analysis of vehicle movements of the existing garages (which range from 4 to 13 movements per day) would result in a reduction in vehicle movements with the proposed scheme compared with the historic and extant situation experienced by the site.

Summary

- 3.45 Both the over-estimation of the trips generated by the proposed development and the under-estimation of the trips that could be generated by the existing site result in an original analysis that was coarse in nature.
- 3.46 However, this could over-estimate peak hour vehicle movements by 6 vehicles (just on TRICS analysis) but that this could be greater still when including the usage of the garages and original laundry usage.
- 3.47 The combination of refined TRICS and Census data analysis along with a review of the existing extant situation on the site means that the original Transport Statement work likely over-estimated the number of vehicles generated by the proposals and under-represented the existing land use movements.

- 3.48 As has been demonstrated, through further refined analysis, it is likely that no intensification of the site over and above the historic and extant level of use would be expected.
- 3.49 This analysis has not taken into account other assumptions to be considered in **Section 4.0**.

4.0 IMPACT UPON THE EPPING FOREST SAC

- 4.1 As was evidenced within the original Transport Statement accompanying the original application, it was calculated that a reduction in 5 vehicle movements through the Epping Forest SAC (EFSAC) area would occur with the residential scheme in place in comparison to the MOT garage.
- 4.2 Epping Forest District Council contend that the usage of the MOT garage is not valid as it had ceased operation at the point that Natural England sought to undertake their monitoring of Air Quality within the EFSAC area.
- 4.3 There is no reason why the MOT garage could not be reinstated without the need for any form of consent, and therefore, despite Epping Forest's assertions those vehicle movements could be reinstated at any point in time.
- 4.4 It is no different than a house being unoccupied for a period of a year, a retail unit changing hands or offices being unoccupied at the time the surveys on the EFSAC were being undertaken, all of which could result in changes in traffic on the wider highway network without the need for substantive changes in planning.
- 4.5 Irrespective of the original analysis clearly evidencing that there would be a reduction in vehicle movements through the EFSAC, this TAR has gone on to further refine the analysis based upon clearer assumptions and greater detail of the extant uses.
- 4.6 Given the original application predicted a reduction in vehicle movements through the EFSAC of some 5 vehicles, the analysis in this TAR would further remove trips from the EFSAC (due to the alternative assumptions on travel and the inclusion of further extant on-site trips not previously assessed).

- 4.7 Indeed, based upon the revised figures of modal share assumptions, this would result in an expected AADT of 95 movements (compared with 112 in the original analysis – Table 6.3).
- 4.8 As has already been identified in the previous chapter, the existing garages on site could have generated an additional 4 to 13 AADT movements associated with them. Again, adding the lower end of this figure (4 movements) to the original Table 6.3 figure results in 87 movements rather than 83 originally used.
- 4.9 Finally, the analysis in the original TS concerned with the impacts of vehicles on peak hour traffic, as is the focus of Highway Authorities. However, the impact on the EFSAC is considered against AADT figures, that being the Average Annual Daily Traffic (i.e. across 7 days operation).
- 4.10 Not only did the original analysis exclude the existing 9 no. on site garage usage and the laundry site usage itself (as now shown in Paragraph 4.8 above), it also only considered the operation of the MOT garage on a 5-day basis.
- 4.11 Clearly, MOT garages often operate half days on Saturdays (and occasionally on Sundays). This was not taken into account within the original application work, and therefore will have severely under-represented the existing site operation.
- 4.12 Based upon a 5.5 working week (i.e. half-day Saturday), then the AADT of the existing site would be 91 movements, plus the 4 trips robustly added (rather than 13) for the lock-up / garage / laundry site.
- 4.13 Based upon the above, even without going into the level of detail in terms of routing patterns (which evidenced reductions in the EFSAC), then the residential scheme is predicted to have a reduction in vehicle movements at the site entrance itself, and much more significant

reductions within the EFSAC than the 5 vehicle reduction previously calculated.

4.14 It is therefore clearly evidenced and with strong empirical data that the site would result in reductions in traffic through the EFSAC, and therefore without any negative impact upon its status.

4.15 This analysis has been built upon from the coarse assumptions used in the original Transport Statement, and refined through more focussed work and additional data available on the extant uses.

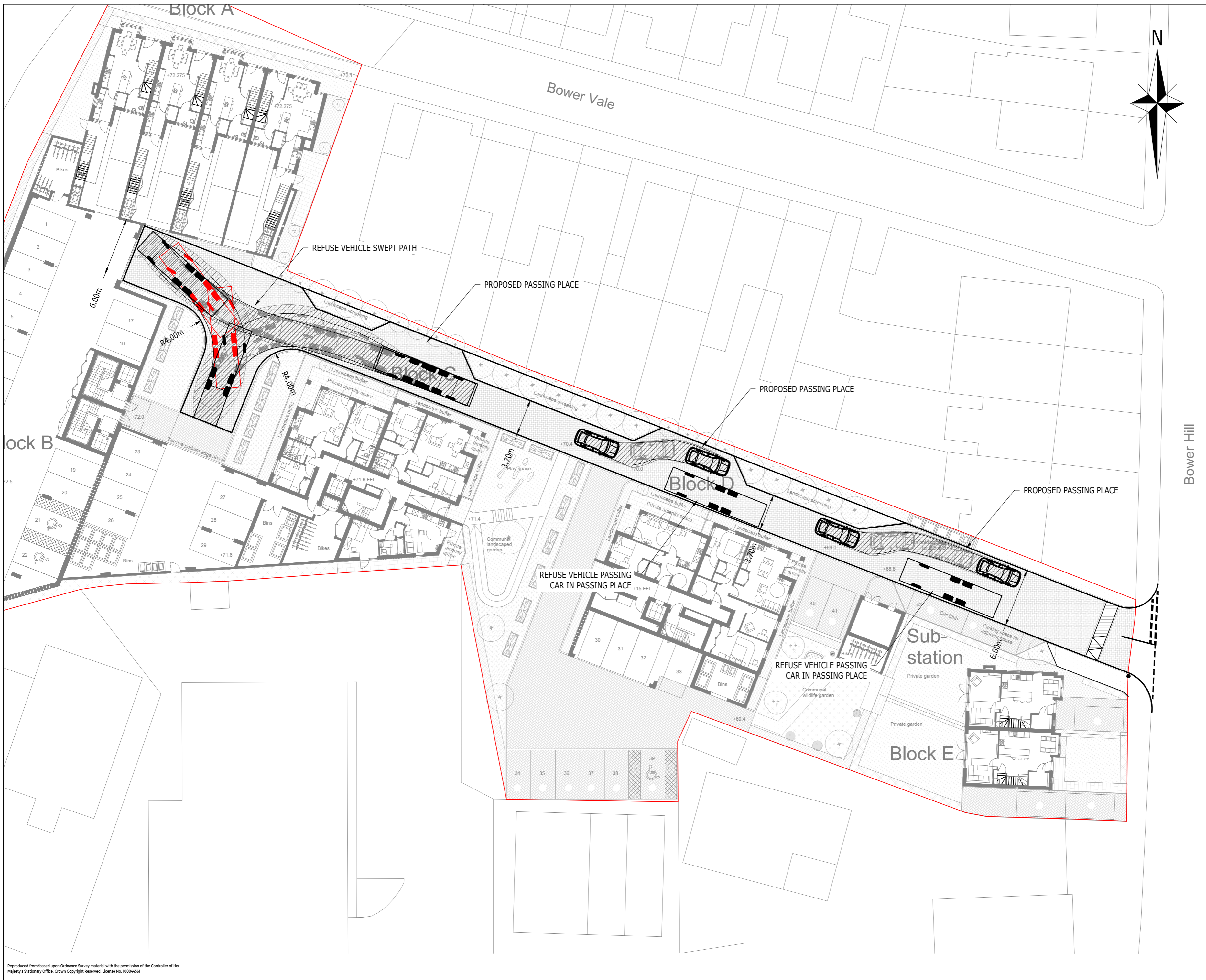
5.0 SUMMARY AND CONCLUSIONS

- 5.1 This TAR has been prepared in order to expand upon the analysis undertaken in support of the residential development at the former Laundry Site, Epping.
- 5.2 The original work supporting the application demonstrated that there was no residual highway impact and that there was predicted to be a reduction in vehicle movements through the Epping Forest SAC area. No highways objection was received in relation to the application.
- 5.3 Subsequently, following refusal of the scheme at planning committee, minor changes have been undertaken on the scheme. These have reduced car parking to 54 spaces for the 58 units, in line with the request by EFDC to reduce car parking but offering a balance for essential site uses in light of empirical evidence of the current car ownership levels in the surrounding ward.
- 5.4 Additional information has been provided in respect to the provision of electric charging spaces (100% provision) and a car club space. These will be secured via planning condition (for electric charging spaces) and through the Section 106 Agreement (for the car club space).
- 5.5 Residential Travel Information Packs are to be provided to each household as a commitment as both a planning condition and within the Section 106.
- 5.6 The TAR has refined the assumptions of the original Transport Statement given the coarse analysis provided initially. The refined assessment has reviewed both the proposed trip rates, travel modes and the existing land use assumptions. The original assessment work has been shown to be robust in the sense that it over-estimated the proposed traffic generation of the residential development, and under-estimated the number of vehicles generated by the extant site

uses. Even with these simplistic original assumptions, the original Transport Statement empirically provided evidence that there would be a reduction in vehicle movements through the EFSAC.

- 5.7 The refined assessment contained within the TAR has demonstrated that these reductions will actually be more significant than originally assessed, offering further betterment to the EFSAC than previously considered.
- 5.8 It is considered that this TAR clearly demonstrates that the proposed development has been robustly assessed, and that it will offer no severe residual impact to the local highway network, and will offer reductions to the vehicle flows passing through the EFSAC area in comparison to the extant site uses.

Drawings



VEHICLES USED:

	10.342
Essex Large Refuse Vehicle (3 axle)	10.342m
Overall Length	2.450m
Overall Width	3.814m
Overall Body Height	0.366m
Min Body Ground Clearance	2.450m
Track Width	4.00s
Lock to lock time	9.500m
Kerb to Kerb Turning Radius	

	4.572
Car	4.572m
Overall Length	1.769m
Overall Width	1.488m
Overall Body Height	0.249m
Min Body Ground Clearance	1.713m
Max Track Width	4.00s
Lock to lock time	5.100m
Kerb to Kerb Turning Radius	

KEY:

— SITE BOUNDARY

B	UPDATED TO LATEST LAYOUT	BT	DV	SAF	26.03.20
A	ROAD UPDATED TO REFLECT LATEST LAYOUT	DV	DV	SAF	13.03.20
Rev	Description	Drn	Chk	App	Date

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Web: www.ardent-ce.co.uk
E-mail: enquiries@ardent-ce.co.uk

Client: **TROY HOMES**

Project Title: **LAUNDRY SITE, EPPING- APPEAL**

Drawing Title: **PROPOSED ACCESS ROAD ARRANGEMENT**

A2 Scale	Date	Designed by
1:250	05/02/20	BT
Drawn by	Checked by	Approved by
BT	DV	IW

Drawing Number: **185661-001** Rev **B**

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Appendix A

Site Layout

Notes

Do not scale from this drawing.
 All contractors must visit the site and be responsible for taking and checking dimensions.
 All construction information should be taken from figured dimensions only.
 Any discrepancies between drawings, specifications and site conditions must be brought to the attention of the supervising officer.
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This drawing is prepared for the specific project stage in the Drawing Status section below and it is not intended to be used for any other purpose. Whilst all reasonable efforts are used to ensure drawings are accurate, JTP accept no liability for any reliance placed on, or use made of, this plan by anyone for purposes other than those stated in the Drawing Status below.

Car Parking:

Houses - 2 spaces per dwelling = 12 spaces
 Apartments + Visitors + Car Club = 42 spaces

Total = 54
 (includes 3 disabled parking bays = 6%)

● Parking space with electric charging point



Bower Hill

P4	18.03.20	Sub-station repositioned. Parking removed to create wildlife garden. Car club note added. Access road narrowed in places to accommodate additional landscape screening to north.		
P3	22.05.19	Parking spaces annotated to indicate 100% electric charging provision	DCS	IF
P2	08.03.19	5 parking spaces removed between blocks B and C and replaced with landscaping. Disabled parking spaces relocated within podium with loss of one standard space. Footpath adjacent to block A removed	DCS	IF
P1	23.11.18	Issue for planning	DCS	IF

Rev	Date	Description	Drawn	Chkd

Drawing Status

Client
Troy Homes



Project
Laundry Site, Epping

Drawing Title
Site Plan - Ground Floor

Scale @ A1 1 : 200 Job Ref. 01199B
 Drawing No. MP_10 Revision P4
 Scale Bar 0 2 4 6 8 10 m

Appendix B

TRICS Data

Calculation Reference: AUDIT-437201-200315-0300

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02 SOUTH EAST
 HC HAMPSHIRE 1 days

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

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 90 to 90 (units:)
 Range Selected by User: 6 to 175 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 05/06/18

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

Selected survey days:

Tuesday 1 days

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

Selected survey types:

Manual count 1 days
 Directional ATC Count 0 days

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

Selected Locations:

Edge of Town Centre 1

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

Selected Location Sub Categories:

Built-Up Zone 1

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

Secondary Filtering selection:

Use Class:

C3 1 days

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

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:

250,001 to 500,000 1 days

*This data displays the number of selected surveys within stated 5-mile radii of population.*Car ownership within 5 miles:

0.6 to 1.0 1 days

*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

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

No PTAL Present 1 days

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

LIST OF SITES relevant to selection parameters

1 HC-03-C-01 BLOCKS OF FLATS HAMPSHIRE
CROSS STREET
PORTSMOUTH

Edge of Town Centre

Built-Up Zone

Total Number of dwellings: 90

Survey date: TUESDAY

05/06/18

Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CA-03-C-03	too much parking

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
VEHICLES

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	1	90	0.067	1	90	0.144	1	90	0.211
08:00 - 09:00	1	90	0.044	1	90	0.200	1	90	0.244
09:00 - 10:00	1	90	0.078	1	90	0.056	1	90	0.134
10:00 - 11:00	1	90	0.033	1	90	0.033	1	90	0.066
11:00 - 12:00	1	90	0.067	1	90	0.100	1	90	0.167
12:00 - 13:00	1	90	0.111	1	90	0.156	1	90	0.267
13:00 - 14:00	1	90	0.067	1	90	0.056	1	90	0.123
14:00 - 15:00	1	90	0.056	1	90	0.044	1	90	0.100
15:00 - 16:00	1	90	0.067	1	90	0.022	1	90	0.089
16:00 - 17:00	1	90	0.122	1	90	0.056	1	90	0.178
17:00 - 18:00	1	90	0.122	1	90	0.078	1	90	0.200
18:00 - 19:00	1	90	0.100	1	90	0.089	1	90	0.189
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.934			1.034			1.968

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.

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Parameter summary

Trip rate parameter range selected: 90 - 90 (units:)
Survey date range: 01/01/11 - 05/06/18
Number of weekdays (Monday-Friday): 1
Number of Saturdays: 0
Number of Sundays: 0
Surveys automatically removed from selection: 0
Surveys manually removed from selection: 1

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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-437201-200315-0317

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02 SOUTH EAST
 EX ESSEX 1 days

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

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 97 to 97 (units:)
 Range Selected by User: 7 to 120 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 19/09/19

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

Selected survey days:

Monday 1 days

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

Selected survey types:

Manual count 1 days
 Directional ATC Count 0 days

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

Selected Locations:

Edge of Town 1

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

Selected Location Sub Categories:

Residential Zone 1

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

Secondary Filtering selection:

Use Class:

C3 1 days

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

10,001 to 15,000 1 days

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

Population within 5 miles:

250,001 to 500,000 1 days

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

Car ownership within 5 miles:

0.6 to 1.0 1 days

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:

No 1 days

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

PTAL Rating:

2 Poor 1 days

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

LIST OF SITES relevant to selection parameters

1 EX-03-A-02 DETACHED & SEMI -DETACHED ESSEX
 MANOR ROAD
 CHIGWELL
 GRANGE HILL
 Edge of Town
 Residential Zone
 Total Number of dwellings: 97
 Survey date: MONDAY 27/11/17 Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
KC-03-A-04	too much parking
NF-03-A-01	too much parking
NF-03-A-03	too much parking
SF-03-A-04	too much parking
SF-03-A-05	too much parking

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES

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	1	97	0.062	1	97	0.113	1	97	0.175
08:00 - 09:00	1	97	0.103	1	97	0.155	1	97	0.258
09:00 - 10:00	1	97	0.093	1	97	0.113	1	97	0.206
10:00 - 11:00	1	97	0.082	1	97	0.124	1	97	0.206
11:00 - 12:00	1	97	0.062	1	97	0.082	1	97	0.144
12:00 - 13:00	1	97	0.103	1	97	0.041	1	97	0.144
13:00 - 14:00	1	97	0.093	1	97	0.072	1	97	0.165
14:00 - 15:00	1	97	0.093	1	97	0.103	1	97	0.196
15:00 - 16:00	1	97	0.103	1	97	0.052	1	97	0.155
16:00 - 17:00	1	97	0.093	1	97	0.103	1	97	0.196
17:00 - 18:00	1	97	0.103	1	97	0.062	1	97	0.165
18:00 - 19:00	1	97	0.082	1	97	0.052	1	97	0.134
19:00 - 20:00	1	97	0.062	1	97	0.052	1	97	0.114
20:00 - 21:00	1	97	0.031	1	97	0.021	1	97	0.052
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.165			1.145			2.310

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.

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Parameter summary

Trip rate parameter range selected:	97 - 97 (units:)
Survey date range:	01/01/11 - 19/09/19
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	5

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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.