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Transport Technical Note for the proposed residential development areas at Bowers Gifford/North Benfleet NDOs – July 2022

SITE DESCRIPTION AND LOCATION

It is proposed that numerous plots of land within the Bowers Gifford and North Benfleet NDO's be considered for new residential development, subject to technical and Green Belt appraisal being favourable. The sites are in the Borough of Basildon, which is the planning authority with Essex County Council being the highway authority. Planning applications for these development sites may come forward following the technical appraisal and this Transport Note has been prepared to consider the transport/highways implications and issues required to be addressed to support any applications. The site locations are shown at the plan, street map and aerial photograph at **Appendix A**.

The site proposals for both NDOs initially were as follows:

North Benfleet

As per the annotation on the site plan at **Appendix A**, it is likely that NB3 will be discounted from the NDO because of landscape impacts. The previous proposals were for 800 homes which included for contributions to offsite highways improvements (consideration is given in this note in respect of the potential transport impact would be in very broad terms if it were to be developed at this scale).

The 'blue line' plotlands area, including NB2 and NB1, are being considered as one parcel and estimate this could deliver up to **300 dwellings**.

Bowers Gifford

The sites have a capacity for a total of **130 dwellings** made up of:

- BG1 20 dwellings *
- BG2 30 dwellings **
- BG3 20 dwellings
- BG4 20 dwellings **
- BG5 40 dwellings (part development of site only)

Based on the initial Green Belt findings, sites BG1, BG2 and BG4 are likely to be discounted (annotated * above). If they are this would reduce the capacity to **60 dwellings**.

Overall development potential is therefore likely to comprise up to 300 units for North Benfleet NDO plus 60 units for Bowers Gifford NDO.

A couple of views along Pound Lane where access to most of the plots would be gained and also the main junctions to the south and north of the sites where they meet A127 trunk road in the north and London Road to the south are shown at Figures 1-6 below. The photographs show the predominantly

straight horizontal road alignment and flat vertical alignment with ample road width and forward visibility for drivers of motorised vehicles. There are few on-street waiting restrictions except for several sections of junction protection restrictions. The road width varies from between 6.5-7m in the southern section of Pound Lane with 1.7-2.5m footways to either side to 5.5m road width along the north section close to Burnt Mills Road where there is no footway to where the road meets the A127.



Figure 1 – Typical view along Pound Lane close to Cornwall Road



Figure 2 - Looking south along Pound Lane past traffic calming measures near Clarence Road



Figure 3 – Looking north towards Pound Lane/A127 junction



Figure 4 – Looking west along London Road towards Pound Lane signal-controlled junction

Existing traffic conditions and public transport provision

The sites are located at Bowers Gifford/North Benfleet and straddle Pound Lane between Burnt Mills Lane and London Road. A site visit was carried out during the AM peak period on 30th June 2022. The immediately local highway network was moderately trafficked during peak, with higher traffic flows being observed at the Saddlers Farm A13/A130/London Road interchange.

The Pound Lane/London Road traffic signal-controlled junction was quite lightly trafficked, minimal queues were observed and it had ample reserve capacity on all approaches to the junction.

Most of the side roads on Pound Lane are mainly residential in nature and the majority of which are unadopted to the north of Page Road. The many unadopted side roads serving the development plots are of varying construction, ranging from concrete slabs to tarmac surfacing (several unmade roads) and most without kerbing, footways, proper surface water drainage or streetlighting provision.

The side roads serving the plots vary in carriageway width from 3.5m to 6m.

Public & sustainable transport

The sites are near bus stops with services in both directions located at the Pound Lane/London Road traffic signal-controlled junction. Services include: 21 (Basildon Bus Station to North Benfleet - hourly,

via Pound Lane itself), 22 (Canvey Leigh Beck to Basildon Bus Station – every 20 minutes), 28 (Southend on Sea to Basildon Bus Station – 15-20 minutes), 51 (Chafford Hundred to Southend High School for Boys), D1 (Laindon to Dawes Heath), X10 (Lakeside Bus Station to Southend on Sea).

Train services for the C2C Line can be reached from Pitsea Station (2.5km to the south-west) and Benfleet Station to the south-east) but these facilities are probably too remote to be conveniently walked to from the sites under consideration.

Generally, the footways on Pound Lane and London Road are in a reasonable condition in the area and the appropriate dropped crossings are provided in most locations near to the site, although none all of these have the appropriate tactile paving required to meet current guidelines. The pedestrian environment around and in the vicinity of the site is currently adequate and along the routes leading to the local areas of interest, being well lit to both sides of the carriageway.

Local Parking Demand

On-street parking demand locally in the locality itself seems low during the working day with many spaces available on-street in the surrounding area, since most properties have adequate off-street parking provision. It is considered that on-street parking demand both during the day and overnight is not high in the area.

No vehicles were noted parking on either the single or double yellow line sections of waiting restrictions in the locality during the site visit, so no issues of non-compliant parking were apparent at the time which could affect road safety or capacity close to the site.

PROPOSALS

Development type

The development sites composition is unknown at present, but it is likely that they will comprise housing rather than flatted development. It is likely that all units will have off-street parking provision in accordance with the local parking standards

TRANSPORT IMPACT

North Benfleet

We understand from the planning consultant that originally 800 units for plot NB3 but this is likely to be discounted from the NDO proposals because of landscape issues.

NB1 and NB2 could comprise up to 300 units.

The number of vehicle trips generated by these NDO proposals for residential development will obviously vary according to the number of units. We have no details of the existing site uses so a net difference comparison cannot be made. For illustrative purposes vehicle trip rates have been obtained from TRICS database for privately owned house from a development in Stanford le Hope, Essex (data sheets shown at **Appendix B**), with the potential vehicle trips for each site as follows:

Potential Residential Use Car Trips - site NB3 (800 units)

	ARRIVALS		DEPARTURES		TOTAL
	Trip Rate Per unit	Predicted Traffic	Trip Rate Per unit	Predicted Traffic	Predicted TRIPS
AM Peak Hour 0800-0900	0.177	141.6	0.523	418.4	560
PM Peak Hour 1700-1800	0.439	351.2	0.274	219.2	570.4
Daily 0700-1900	2.976	2380.8	2.932	2345.6	4726.4

The total peak period vehicle trips arising from the development of 800 units could be in the order of 570 vehicles in the AM and PM peaks. During the whole day the total vehicle trips would be 4727 residential trips total, equating to an average of 394 vehicles per hour. The vehicle trips that may have arisen from the prior use are not known but since the site is in agricultural use these would probably have been low during the peak traffic periods so there would be little point in comparing the difference in any case. The impact of this level of additional traffic on the local highway network would be quite noticeable and could possibly trigger the need for junction improvement at Pound Lane/London Road traffic signals and require examination of the Saddlers Farm interchange junction to satisfy Essex County Council highways department that the capacity is not compromised. This junction is known to be heavily saturated during peak periods and substantial additional traffic could prompt the need for further improvements if possible.

Potential Residential Use Car Trips - sites NB1 & NB2 (300 units)

	ARRIVALS		DEPARTURES		TOTAL
	Trip Rate Per unit	Predicted Traffic	Trip Rate Per unit	Predicted Traffic	Predicted TRIPS
AM Peak Hour 0800-0900	0.177	53.1	0.523	156.9	210
PM Peak Hour 1700-1800	0.439	131.7	0.274	82.2	213.9
Daily 0700-1900	2.976	892.8	2.932	879.6	1772.4

The total peak period vehicle trips arising from the development of 300 units could be in the order of 214 vehicles in the AM and PM peaks. During the whole day the total vehicle trips would be 1773 residential trips total, equating to an average of 148 vehicles per hour. The vehicle trips that may have arisen from the prior use are not known but since the sites are possibly already residential or small - scale commercial use these again these would probably be low during the peak traffic periods so there would be little point in comparing the difference in any case. The impact of this level of additional traffic on the local highway network would be noticeable and again could possibly trigger the need for consideration of a junction improvement at Pound Lane/London Road traffic signals and require examination of the Saddlers Farm interchange junction to satisfy Essex County Council highways department that the capacity is not compromised.

Bowers Gifford

Potential Residential Use Car Trips - sites BG1, BG2, BG3, BG4, BG5 (130 units)

	ARRIVALS		DEPARTURES		TOTAL
	Trip Rate Per unit	Predicted Traffic	Trip Rate Per unit	Predicted Traffic	Predicted TRIPS
AM Peak Hour 0800-0900	0.177	23.01	0.523	67.99	91
PM Peak Hour 1700-1800	0.439	57.07	0.274	35.62	92.69
Daily 0700-1900	2.976	130	2.932	381.16	511.16

The total peak period vehicle trips arising from the development of 130 units could be in the order of 93 vehicles in the AM and PM peaks. During the whole day the total vehicle trips would be 511 residential trips total, equating to an average of 43 vehicles per hour. The vehicle trips that may have arisen from the prior use are not known but since the sites are possibly already residential, small - scale commercial or agricultural use these again these would probably be low during the peak traffic periods so there would be little point in comparing the difference in any case. The impact of this level of additional traffic on the local highway network may be noticeable and again could possibly trigger the need for consideration of a junction improvement at Pound Lane/London Road traffic signals and require examination of the Saddlers Farm interchange junction to satisfy Essex County Council highways department that the capacity is not compromised.

Assuming only sites BG3 and BG5 are developed the following vehicle trips could result:

Potential Residential Use Car Trips - sites BG3 & BG5 only (60 units)

	ARRIVALS		DEPARTURES		TOTAL
	Trip Rate Per unit	Predicted Traffic	Trip Rate Per unit	Predicted Traffic	Predicted TRIPS
AM Peak Hour 0800-0900	0.177	10.62	0.523	31.38	42
PM Peak Hour 1700-1800	0.439	26.34	0.274	16.44	42.78
Daily 0700-1900	2.976	178.56	2.932	175.92	354.48

The total peak period vehicle trips arising from the development could be in the order of 43 vehicles in the AM and PM peaks. During the whole day the total vehicle trips would be 355 residential trips total, equating to an average of just over 30 vehicles per hour, which would probably be imperceptible to the casual observer at the site. The vehicle trips that may have arisen from the prior use are not known but since the site is quite small these would probably have been low during the peak traffic periods so there would be little point in comparing the difference in any case.

Total North Benfleet & Bowers Gifford NDO development traffic impact

The combination of the likely NDO sites possibly being brought forward could have a significant impact on the local highway network.

If it assumed that sites NB1, NB2, BG3 and BG5 all go forward the total additional peak traffic flows could increase from the development of 360 units could be in the order of 243 vehicles in the AM and PM peaks. During the whole day the total vehicle trips would be 2126 residential trips total, equating to an average of 177 vehicles per hour. The impact of this level of additional traffic on the local highway network would be noticeable and again would trigger the need for consideration of a junction improvement at Pound Lane/London Road traffic signals and require examination of the Saddlers Farm interchange junction to satisfy Essex County Council highways department that the capacity is not compromised and that improvements are not required.

All the above estimated trip generations have not been distributed to the highway network in the way that a full transport assessment would but it seems likely that most of the generated traffic would head south towards the Pound Lane/London Road junction. Some traffic would head north towards Burnt Mills Road/Pound Lane and the A127 trunk road to head west from the sites and these junctions would probably need to be capacity tested to check the level of impact but probably would not require improvement.

Access to the sites

From our observations on site achieving access to all the potential sites do not appear to present technical problems except for site **BG3** where the site frontage onto London Road has limited opportunity for a new access without compromising the traffic signal-controlled junction of Pound Lane/London Road and the westbound bus layby. For a site of only 20 units the cost to link onto the signal junction would probably be disproportionately high and not acceptable to Essex County highways. The other end of the site has what appears to be a bridle way along the boundary which is public highway but typically not easy to convert to carriageway.

The other plots which are likely to rely on making use of unadopted and/or unmade roads do not technically present a difficulty in achieving access but the Council and probably a developer would prefer to see properly constructed roads with quality surfacing, kerbing, drainage and street lighting. It is rare that the highway authority would formally adopt such roads even if the construction could be found to be adequate to accommodate the traffic anticipated to use them. Typically, the highway authority would propose private street works to make up the roads which generally requires the frontagers to each contribute a share of the costs to do so based on the length of frontage.

CONCLUSIONS

- The sites are reasonably well located in terms of its accessibility to local amenities and the major highway network. Public transport rail services are some distance from the sites but there are local bus services close to the sites.

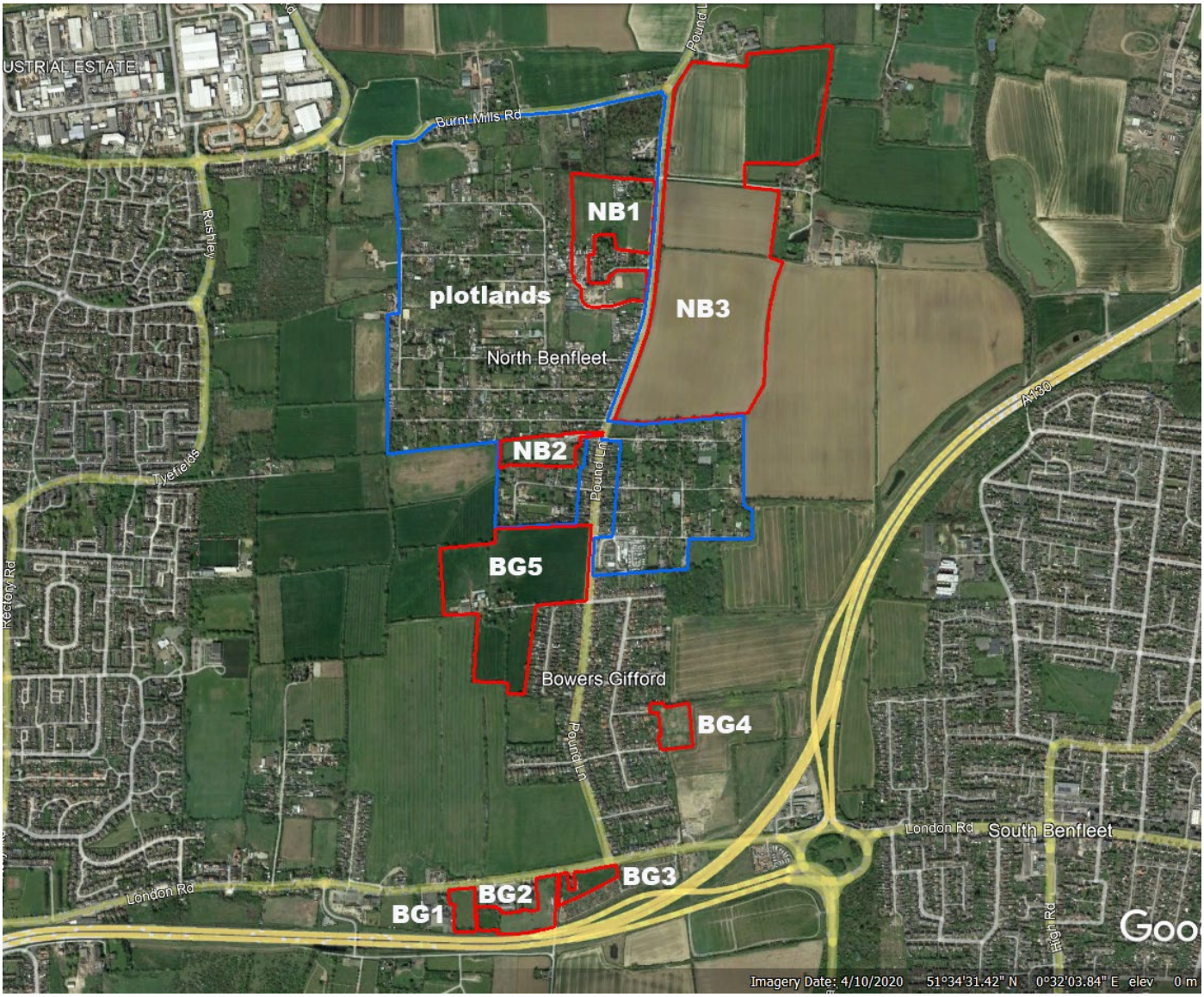
- Depending upon which and how many sites are brought forward, the change of land-uses to residential development could result in a significant increase in vehicle movements and could affect the highway capacity aspects of the site locality.

- Subject to consultation with Essex County Council highways department, it is likely that the levels of residential development proposed for the Bowers Gifford and North Benfleet NDOs would require traffic surveys of at least the Pound Lane/London Road junction and probably the Pound Lane/Burnt Mills Road roundabout junction and subsequently capacity tested with traffic generations distributed to the local highway network. The surveying/testing of the Saddlers Farm interchange is probably beyond the scope of the NDOs but the County may require testing by their own term consultants using their traffic model with figures provided by a developer/NDO, with cost of doing so charged to the applicant.

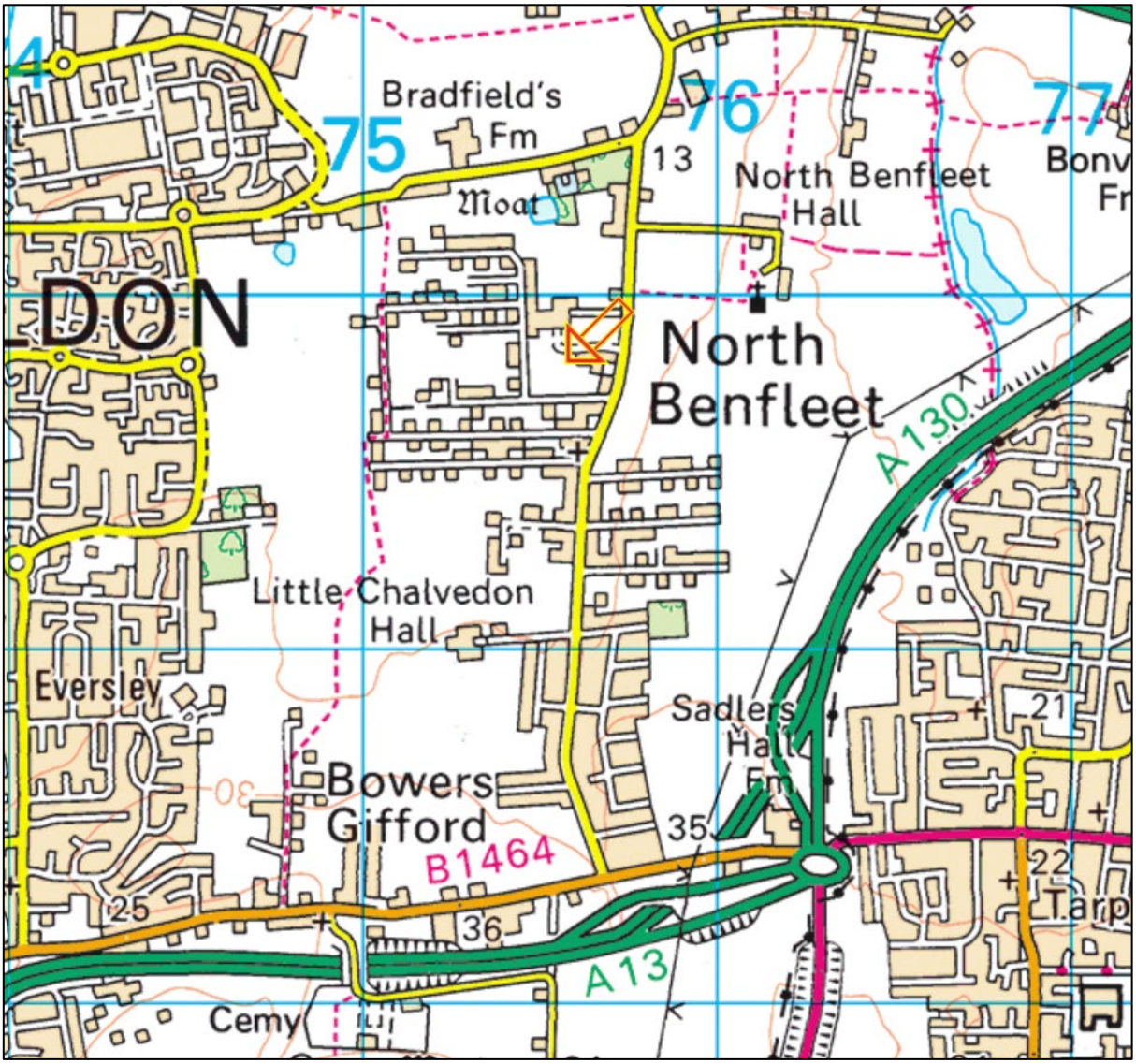
CCM – 29/07/22

Appendix A

Aerial photograph of the site location



Site street map



Appendix B – TRICS trip data

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

Main parameter selection:

Parameter: Number of dwellings
Range: 20 to 4334 (units:)

Date Range: 01/12/97 to 19/10/08

Selected survey days:
Tuesday 1 days

Selected survey types:
Manual count 1 days
Directional ATC Count 0 days

Selected Locations:
Edge of Town 1

Selected Location Sub Categories:
Residential Zone 1

Optional parameter selection:

Use Class:
C3 1 days

Population within 1 mile:
15,001 to 20,000 1 days

Population within 5 miles:
125,001 to 250,000 1 days

Car ownership within 5 miles:
0.6 to 1.0 1 days

Travel Plan:
No 1 days

LIST OF SITES relevant to selection parameters

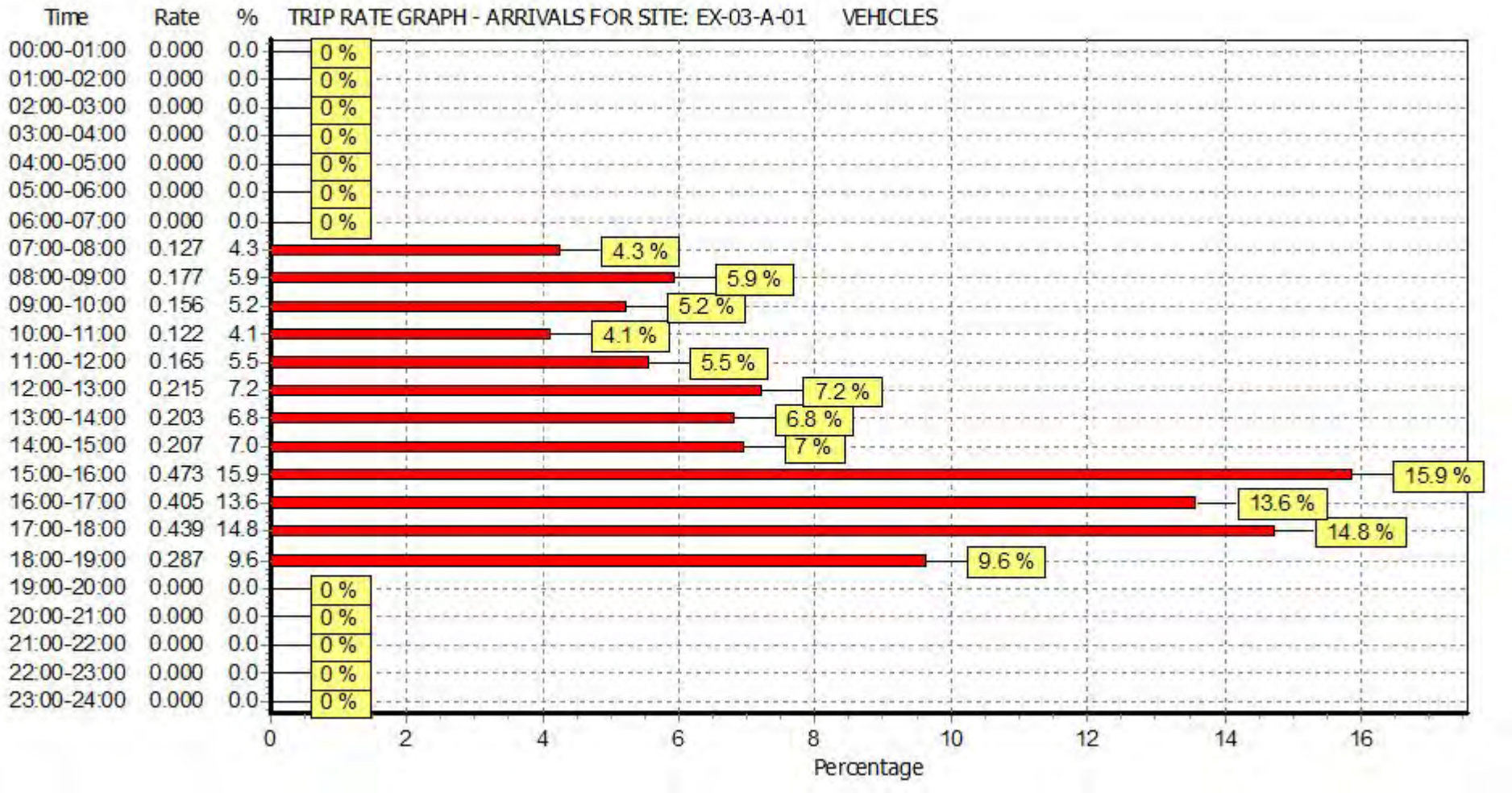
1 EX-03-A-01 SEMI-DET., STANFORD-LE-HOPE ESSEX
MILTON ROAD
CORRINGHAM
STANFORD-LE-HOPE
Total Number of dwellings: 237
Survey date: TUESDAY 13/05/08 Survey Type: MANUAL

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
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	0	0	0.000	0	0	0.000	0	0	0.000
01:00 - 02:00	0	0	0.000	0	0	0.000	0	0	0.000
02:00 - 03:00	0	0	0.000	0	0	0.000	0	0	0.000
03:00 - 04:00	0	0	0.000	0	0	0.000	0	0	0.000
04:00 - 05:00	0	0	0.000	0	0	0.000	0	0	0.000
05:00 - 06:00	0	0	0.000	0	0	0.000	0	0	0.000
06:00 - 07:00	0	0	0.000	0	0	0.000	0	0	0.000
07:00 - 08:00	1	237	0.127	1	237	0.333	1	237	0.460
08:00 - 09:00	1	237	0.177	1	237	0.523	1	237	0.700
09:00 - 10:00	1	237	0.156	1	237	0.198	1	237	0.354
10:00 - 11:00	1	237	0.122	1	237	0.190	1	237	0.312
11:00 - 12:00	1	237	0.165	1	237	0.118	1	237	0.283
12:00 - 13:00	1	237	0.215	1	237	0.186	1	237	0.401
13:00 - 14:00	1	237	0.203	1	237	0.190	1	237	0.393
14:00 - 15:00	1	237	0.207	1	237	0.186	1	237	0.393
15:00 - 16:00	1	237	0.473	1	237	0.308	1	237	0.781
16:00 - 17:00	1	237	0.405	1	237	0.232	1	237	0.637
17:00 - 18:00	1	237	0.439	1	237	0.274	1	237	0.713
18:00 - 19:00	1	237	0.287	1	237	0.194	1	237	0.481
19:00 - 20:00	0	0	0.000	0	0	0.000	0	0	0.000
20:00 - 21:00	0	0	0.000	0	0	0.000	0	0	0.000
21:00 - 22:00	0	0	0.000	0	0	0.000	0	0	0.000
22:00 - 23:00	0	0	0.000	0	0	0.000	0	0	0.000
23:00 - 24:00	0	0	0.000	0	0	0.000	0	0	0.000
Total Rates:			2.976			2.932			5.908

Parameter summary

Trip rate parameter range selected:	20 - 4334 (units:)
Survey date date range:	01/12/97 - 19/10/08
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Optional parameters used in selection:	NO
Surveys manually removed from selection:	214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01:00-02:00 0.000 0.0 0 %
02:00-03:00 0.000 0.0 0 %
03:00-04:00 0.000 0.0 0 %
04:00-05:00 0.000 0.0 0 %
05:00-06:00 0.000 0.0 0 %
06:00-07:00 0.000 0.0 0 %
07:00-08:00 0.127 4.3 4.3 %
08:00-09:00 0.177 5.9 5.9 %
09:00-10:00 0.156 5.2 5.2 %
10:00-11:00 0.122 4.1 4.1 %
11:00-12:00 0.165 5.5 5.5 %
12:00-13:00 0.215 7.2 7.2 %
13:00-14:00 0.203 6.8 6.8 %
14:00-15:00 0.207 7.0 7 %
15:00-16:00 0.473 15.9 15.9 %
16:00-17:00 0.405 13.6 13.6 %
17:00-18:00 0.439 14.8 14.8 %
18:00-19:00 0.287 9.6 9.6 %
19:00-20:00 0.000 0.0 0 %
20:00-21:00 0.000 0.0 0 %
21:00-22:00 0.000 0.0 0 %
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23:00-24:00 0.000 0.0 0 %
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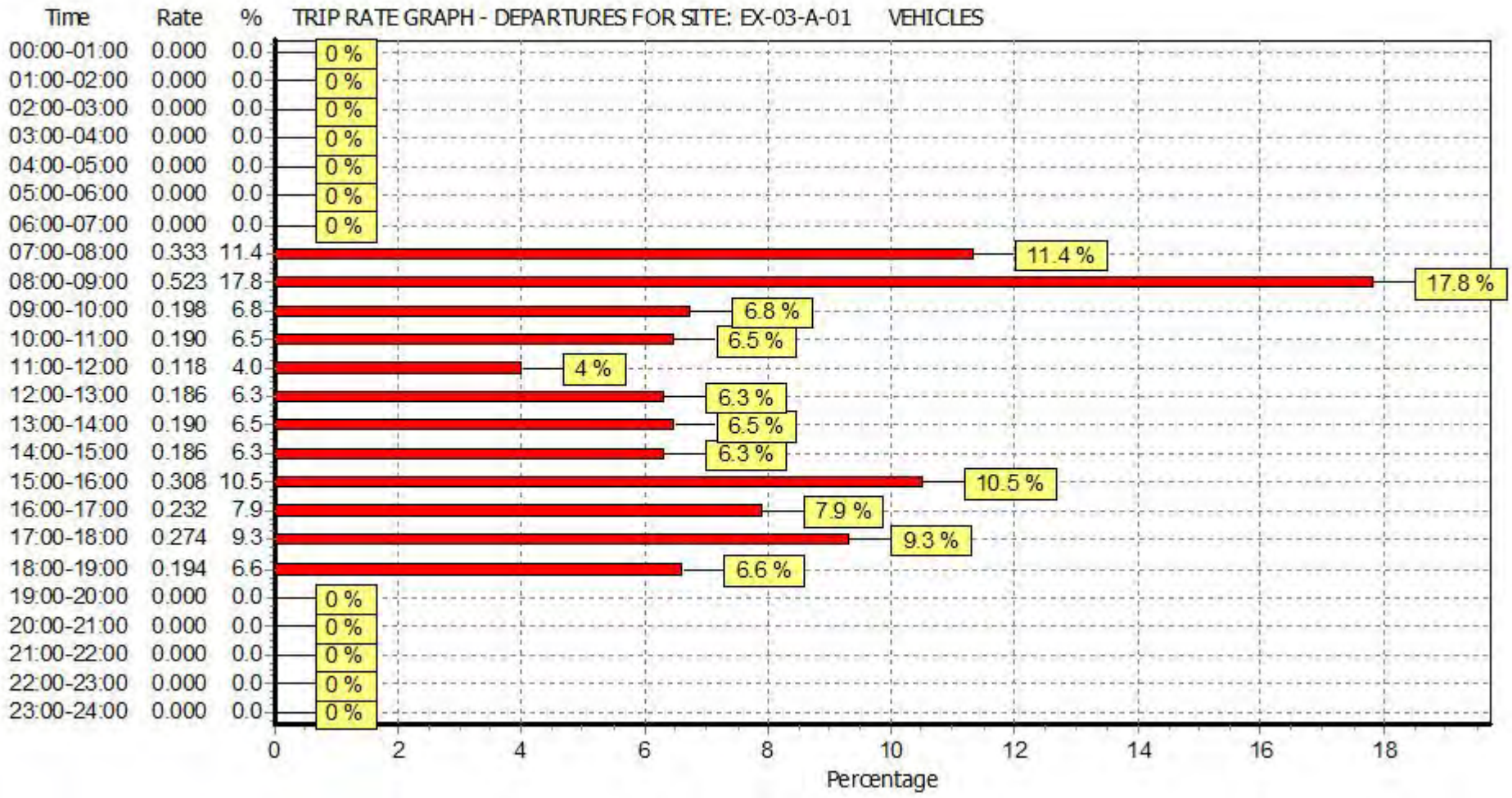
Percentage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02:00-03:00 0.000 0.0 0 %
03:00-04:00 0.000 0.0 0 %
04:00-05:00 0.000 0.0 0 %
05:00-06:00 0.000 0.0 0 %
06:00-07:00 0.000 0.0 0 %
07:00-08:00 0.333 11.4 11.4 %
08:00-09:00 0.523 17.8 17.8 %
09:00-10:00 0.198 6.8 6.8 %
10:00-11:00 0.190 6.5 6.5 %
11:00-12:00 0.118 4.0 4 %
12:00-13:00 0.186 6.3 6.3 %
13:00-14:00 0.190 6.5 6.5 %
14:00-15:00 0.186 6.3 6.3 %
15:00-16:00 0.308 10.5 10.5 %
16:00-17:00 0.232 7.9 7.9 %
17:00-18:00 0.274 9.3 9.3 %
18:00-19:00 0.194 6.6 6.6 %
19:00-20:00 0.000 0.0 0 %
20:00-21:00 0.000 0.0 0 %
21:00-22:00 0.000 0.0 0 %
22:00-23:00 0.000 0.0 0 %
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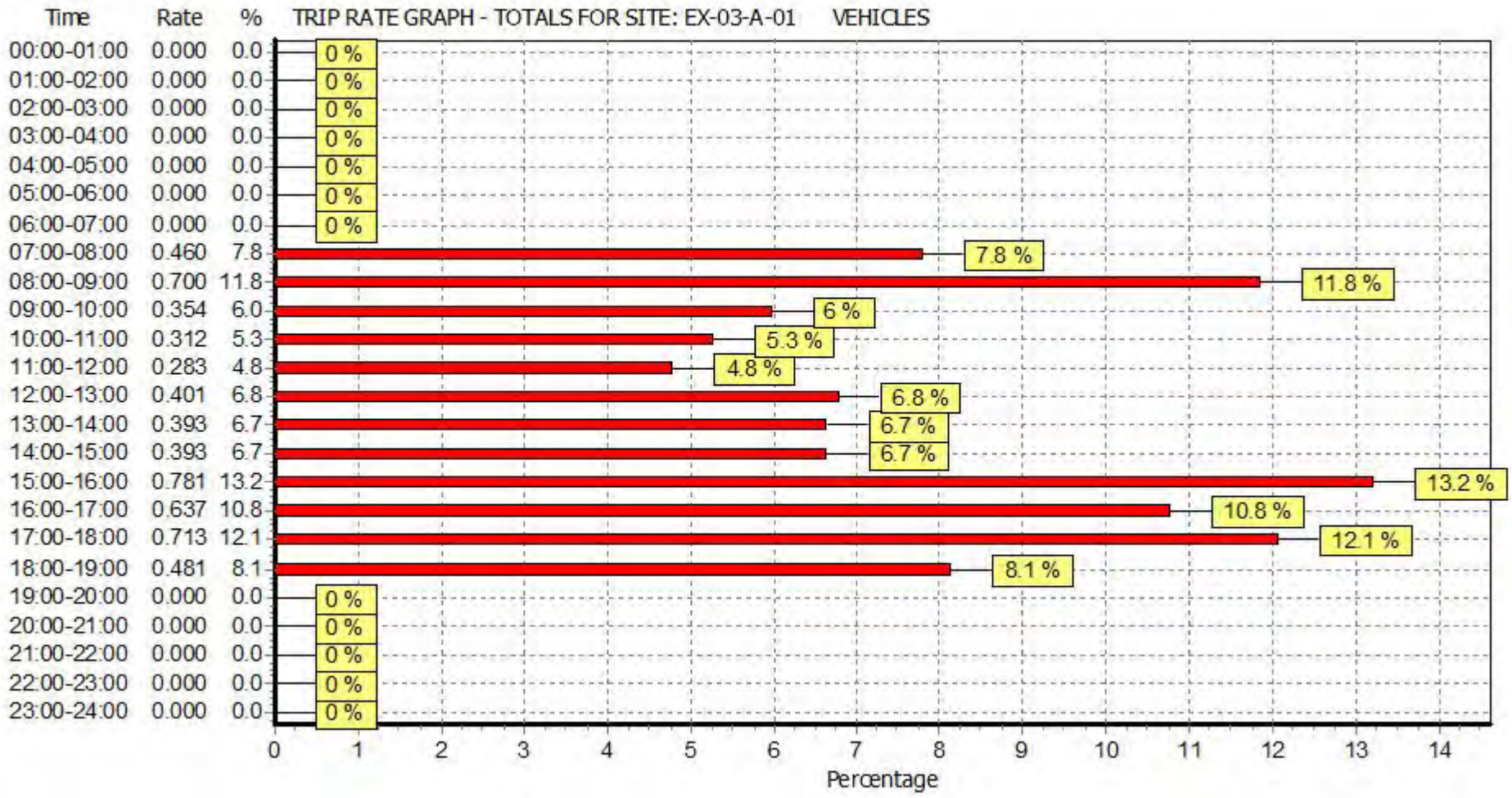
Percentage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02:00-03:00 0.000 0.0 0 %
03:00-04:00 0.000 0.0 0 %
04:00-05:00 0.000 0.0 0 %
05:00-06:00 0.000 0.0 0 %
06:00-07:00 0.000 0.0 0 %
07:00-08:00 0.460 7.8 7.8 %
08:00-09:00 0.700 11.8 11.8 %
09:00-10:00 0.354 6.0 6 %
10:00-11:00 0.312 5.3 5.3 %
11:00-12:00 0.283 4.8 4.8 %
12:00-13:00 0.401 6.8 6.8 %
13:00-14:00 0.393 6.7 6.7 %
14:00-15:00 0.393 6.7 6.7 %
15:00-16:00 0.781 13.2 13.2 %
16:00-17:00 0.637 10.8 10.8 %
17:00-18:00 0.713 12.1 12.1 %
18:00-19:00 0.481 8.1 8.1 %
19:00-20:00 0.000 0.0 0 %
20:00-21:00 0.000 0.0 0 %
21:00-22:00 0.000 0.0 0 %
22:00-23:00 0.000 0.0 0 %
23:00-24:00 0.000 0.0 0 %
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Percentage