



**LAND AT WEST HORNDON
BRENTWOOD, ESSEX**

Strategic Growth Options - Highways

**Report No. 13-158-06
February 2015**

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1.0 INTRODUCTION

1.1 Odyssey Markides are acting for Countryside in relation to highways and transportation matters which affect a potential residential development site at West Horndon, Essex. Countryside are promoting this site through the Strategic Growth Options Consultation. The potential development site is shown on **Figure 1**.

1.2 The Strategic Growth Options Consultation (January 2015) document has been reviewed and the key highways matters are summarised in **Section 2.0**. Following initial review of the aforementioned documents **Section 3.0** sets out the existing pedestrian and cycle accessibility in West Horndon, whilst the public transport networks, both rail and bus, are set out in **Section 4.0**. These sections also discuss where, should the c.550-650 unit residential development site come forward, there may be scope for developer funded improvements in the village.

1.3 The strategic and local highway network is discussed in **Section 5.0** along with the potential areas where local improvements could be made within West Horndon. The potential site accesses are set out in **Section 6.0**, whilst the capacity on the local highway network is analysed in **Section 7.0**. The off-site sustainable transport impacts are discussed in **Section 8.0** and the summary and conclusions are set out in **Section 9.0**.

2.0 STRATEGIC GROWTH OPTIONS CONSULTATION (JANUARY 2015)

2.1 This Strategic Growth Options Consultation (January 2015), prepared by Brentwood Borough Council (BrBC), is a consultation on areas for potential growth and specific sites across Brentwood Borough and informs the emerging Brentwood Local Plan.

2.2 As set out in that document it is essential that the Local Plan is informed by robust up-to-date evidence. The transport evidence is not yet published by BrBC; however the consultation document states that both Crossrail Economic Impacts and Highways Modelling evidence are forthcoming.

2.3 There are 11 Strategic objectives set out; two being key with respect to highways. These are as follows:

- *Quality of Life & Community Infrastructure:*
 - *Improve public transport, cycling and walking facilities and encourage sustainable transport choices; and*
 - *Secure the delivery of essential infrastructure, including transportation schemes and community facilities in order to support new development growth throughout its delivery.*

2.4 The Borough has been split into three areas within this document, with the key area for our own report being the 'A127 Corridor'. It is noted that, in Brentwood Borough, the A127 corridor contains the single settlement of West Horndon and potentially has a greater capacity for growth than elsewhere in the Borough.

2.5 Although the A127 suffers from some congestion problems it has a greater scope for improvements than the A12, to the north. Therefore the A127 corridor operates to a better relative capacity than the A12.

2.6 The A127 Corridor Housing Site Options are shown on Figure 9 and show land east and west of West Horndon as housing site options. The area being promoted by Countryside is approximately those labelled 038A, 038B and 126 on Figure 9. This figure also shows the area put forward for the Dunton Garden Suburb as an urban area.

2.7 It is stated that development along this corridor could potentially provide funding for improvements to capacity along the A127. The text associated with the West Horndon developments and Dunton Garden Suburb states 'or', which infers only one of these areas would come forward. The site details are contained in Appendix 1.

2.8 BrBC are also preparing an Infrastructure Delivery Plan. This will prioritise the facilities that should be funded by the Community Infrastructure Levy (CIL) and identify the greatest need. With respect to transport it states that BrBC will be working with Essex County Council (ECC) to consider an overall transport strategy including the strategic development impacts on the A127 and beyond. In this regard further transport modelling will inform this strategy.

3.0 PEDESTRIAN AND CYCLE NETWORK

3.1 This section sets out the sustainable location of the site with respect to walking and cycling to key facilities in West Horndon. The areas where improvements to these networks could be made through funding from this potential development are also discussed.

3.2 As shown on **Figure 1**, the site is situated in a sustainable location with respect to walking and cycling and in this regard it is suitable for residential development in accordance with paragraph 34 of the National Planning Policy Framework (NPPF).

Pedestrian Network

3.3 There are footways on both sides of Station Road through West Horndon that connect residents to the centre of the village. East of the current built form there is only a footway on the northern side of Station Road, which benefits from a grass verge separating the footway from the carriageway. This footway leads to the northbound bus stop on the western side of the A128 Tilbury Road.

3.4 West Horndon's existing village centre includes a public house, newsagents / post office, café, GP Surgery and community centre located around the Station Road junctions with Thorndon Avenue and Chafford Gardens.

3.5 The centre of the site is within a c.950m walk of the centre of West Horndon and c.1.4km from the railway station. The site will provide pedestrian access onto the footway along Station Road where future residents can then comfortably walk into the centre of the village.

3.6 The CHIT Guidelines for Providing Journeys on Foot (2000) contains suggested acceptable walking distances to some common facilities; this information is replicated in **Table 3.1**.

Table 3.1 Suggested Acceptable Walking Distances (CIHT)

	Town centres (m)	Commuting / School Sight- seeing (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1000	800
Preferred maximum	800	2000	1200

3.7 It is considered that the village centre is within an acceptable walking distance of the centre of the site, as the village centre is not a town centre and being in a more rural location residents would be willing to walk further than those within a town. The railway station is within the preferred maximum walking distance for commuting and is indeed closer to the acceptable walking distance.

3.8 Access between the site and West Horndon Primary School is also good. Should a new primary school be proposed it is highly likely that this would similarly be suitably accessible by foot for future residents of the site.

3.9 In the centre of West Horndon there is a zebra crossing on Station Road between the junctions with Chafford Gardens and Thorndon Avenue. This provides safe crossing for pedestrians between the village hall and the local shops. This area is shown on **Drawing 13-158-003**.

3.10 It is understood that the Parish Council, as set out in their Annual Report 2013-2014, would like a second zebra crossing and safety barriers outside of the village hall and play area on Station Road. It is understood that Essex Highways are to address this following a meeting with Cllr Sibbald.

3.11 Although it is not considered that a second zebra crossing so close to the existing zebra crossing would be suitable, this could be further reviewed through discussions with the Parish Council and ECC. Extension

of the barriers from the existing zebra crossing to the children's play area could be achieved; however this would require the footway in this location to be widened and thus the Station Road carriageway narrowed. A potential scheme showing how this could be achieved is shown on **Drawing 13-158-004**.

3.12 The potential development site is within walking distance of all facilities within West Horndon, including the railway station, and is suitably located to connect to the good quality existing pedestrian network in the village. Therefore the site is in a very sustainable location with respect to pedestrian movements. Furthermore the development could help realise the Parish Council's wish for pedestrian related improvements in the centre of the village.

Cycle Network

3.13 All of the local facilities within West Horndon would be accessible by cycle from the site, being within 5km. The low volume of traffic and low speeds, within the 30mph speed limit, through the village are conducive to cycling on the road.

3.14 Within the site itself cycling facilities would be intrinsically designed into the scheme from the outset, as required, to ensure safe passage of cyclists through the development and connecting with the local rail and highway network.

3.15 Although there is little in the way of cycle facilities through West Horndon the development could fund additional cycle parking at the railway station and in the centre of the village. Further cycle routes could also be facilitated.

4.0 PUBLIC TRANSPORT NETWORK

4.1 This section sets out the sustainable location of the site with respect to rail and bus travel. The areas where improvements to these networks could be made through funding from this potential development are also discussed.

4.2 As shown on **Figure 1**, the site is situated in a sustainable location with respect to rail and bus travel and in this regard it is suitable for residential development in accordance with paragraph 34 of the NPPF.

Rail Network

4.3 West Horndon railway station is on the London Tilbury and Southend (LT&S) railway line, which is a typical suburban railway line, whose main purpose is to carry people to work in central London in the morning and return them home in the evening. The line is two track throughout, which means that trains cannot overtake each other. In order to minimize passengers' journey times, and to optimise the use of train capacity, a system of skip-stopping is in use during peak periods.

4.4 At these times, most trains from Shoeburyness run non-stop from Pitsea, Basildon or Laindon to London, usually also calling at either Upminster or Barking, but not both. Passengers starting their journeys at West Horndon are catered for by a series of trains at roughly 15 minute intervals which start from Laindon.

4.5 **Table 4.1** shows a summary of service frequencies as operated by c2c, both currently and those that will be operational from December 2015 subject to consultation. Travel into London Fenchurch Street takes c.30 minutes and to Shoeburyness takes c.40 minutes.

Table 4.1: Rail Service Frequencies for West Horndon

Period	Current		From Dec. 2015	
	To London	From London	To London	From London
Weekday				
• AM Peak	15	30	15	15
• Daytime	30	30	30	30
• PM Peak	20	20	15	15
Saturday	30	30	NC	NC
Sunday	30	30	NC	NC

*NC = No Change from current timetable

4.6 The facilities provided at West Horndon railway station are set out, from the 'c2c-online' website, in **Appendix A**.

4.7 The centre of the site is within a c.1.4km walk of West Horndon railway station and there is a good existing footway network between the site and the station. Due to the frequency of trains to and from London there is no option to increase the number of trains on this line; however there is the option of increasing the number of train carriages from the current eight up to 12 carriages. The potential demand for these additional carriages, due to the additional rail passengers that the development may generate, is further discussed in **Section 8.0**.

Potential Rail Improvements

4.8 It is understood that the Parish Council would like improvements to the footway linking the railway station with the footway adjacent to Station Road, disabled access to both of the station platforms and they also have concerns about the junction visibility when exiting the station car park onto Station Road.

4.9 Improvements could be made to the footway access to the railway station to provide pedestrians with a safer crossing arrangement from the westbound bus stop to the footway on the western side of the station approach road. A developer funded scheme could be designed and

implemented in this location should development in West Horndon come forward.

4.10 Any provision of disabled access to both railway station platforms would have to be undertaken by c2c and Network Rail; however the development would be able to provide a financial contribution towards implementing this.

4.11 The normal way to achieve disabled access to all platforms at a station is to install lifts at the footbridge, these being located on the opposite side of the bridge from the stairways. Network Rail are currently implementing a programme of improvements of this type; however this does not include West Horndon. The existing footbridge at West Horndon appears suitable for lifts to be added, which would probably cost of the order of £1m.

4.12 With respect to the visibility when leaving the railway station car park, there is little in alignment terms that can be done to improve this situation. Signage could be significantly increased and a mirrored sign could be placed opposite the station exit to provide drivers with a better view of vehicles travelling along Station Road over the railway bridge. The vegetation between the station car park exit and Station Road, on the approach to the bridge, could also be significantly cut back to improve direct visibility looking left from the station exit.

4.13 The existing Horndon Industrial Park, which is located on the northern side of Station Road opposite the railway station, may be redeveloped potentially for a B1 office / B2 light industrial use. Should this industrial site be redeveloped it would also likely review the highway layout in this location taking account of the industrial site access, Station Road overbridge and railway station access.

4.14 It is understood that the railway station car park is heavily used and there may be an option for c2c / Network Rail to increase the number of car parking spaces by constructing a two level multi-storey car park. There are

currently 146 car parking spaces and 10 cycle parking spaces at the station. It is conservatively considered that providing a two level car park could increase the number of spaces by 30-50%, which would then provide 190-219 spaces. Additional cycle parking could also be implemented, as required.

4.15 It may even be more economical for c2c / Network Rail to purchase additional land for surface parking. There would appear to be space on the south side of the tracks at West Horndon which could be used for this purpose.

4.16 The potential development will be within walking distance of West Horndon railway station. West Horndon railway station provides high quality and frequent rail services to and from London, Southend and Shoeburyness. The number of carriages for each train could be increased from eight to up to 12 to cater for an increase in rail passenger demand. It would also be possible to provide disabled access and additional car / cycle parking at the railway station, to cater for increased demand in the future.

Bus Network

4.17 There are existing bus services that operate along both Station Road through West Horndon and along the A128 Tilbury Road, refer to **Figure 3**.

4.18 The existing bus routes that serve West Horndon are the 265, 477 and 565. Route 265 is operated by Amber Coaches and provides an hourly service Monday to Saturday to / from Grays to the south. Route 477 is a school bus service to / from Brentwood County High School that operates in the AM and PM school peaks. Route 565 is operated by Regal Busways and provides three AM peak services to / from Brentwood. The timetables for these services are attached in **Appendix B**, whilst the routes and nearest existing stops are shown on **Figure 3**.

Potential Bus Improvements

4.19 Improvements to these services, including route diversion through the site, would be sought alongside development of the site. This would enable there to be a suitably frequent bus route serving all future residents of the site within a 400m walk of their home, in accordance with the ECC Design Guide.

4.20 Bus routes 265 and 565 that route to West Horndon would be redirected. Instead of routeing from the A128 Tilbury Road and Station Road the 265 bus service would turn into the site off the A128 Tilbury Road, route through the site and exit the site onto Station Road and then route through West Horndon. This diversion would be similar for the 565 service, but in the opposite direction. This is further discussed in **Section 8.0**.

4.21 It is understood that the Parish Council has tried to improve the bus services and to bring more buses into the village. The future residents of the proposed development will increase the commercial viability of the current bus services and increase the likelihood of having a greater number and frequency of buses through the village, to the benefit of all West Horndon residents. This is further discussed in **Section 8.0**.

4.22 The existing buses that route via the railway station would still do so with any potential diversion of the services through the site. Any new bus service would also route to the railway station, as this would be a key benefit for the future residents of the development as it would be for the existing residents of West Horndon.

4.23 West Horndon benefits from a good bus network that the development could significantly improve with both increased revenue from future residents' patronage and from developer funding.

5.0 HIGHWAY NETWORK

5.1 This section discusses the local highway network in the vicinity of the site and where development of the site could potentially enable local highway improvements to be realised within West Horndon village.

Strategic Highway Network

5.2 The key strategic road in the vicinity of the site is the A127 Southern Arterial Road, which connects the M25 Junction 29 to Southend. The A127 junction with the A1245, to the east of Basildon, provides connection to the A130 and A13 to the M25 Junction 30. These roads can be seen on **Figure 2**.

5.3 The A127 Southern Arterial Road is a dual carriageway subject to the national speed limit. There are a number of left-in left-out junctions connecting to the A127 that are substandard, such as Thorndon Avenue and Childerditch Lane. The A127 / A128 Halfway House junction is an all movements grade separated junction to the north east of the site.

A127 Corridor for Growth (March 2014)

5.4 The 'A127 – Corridor for Growth: An Economic Plan' is a joint strategy between ECC and Southend-on-Sea Borough Council (SoSBC) to assess the current issues and potential future improvements to the A127 corridor.

5.5 The study sets out the A127 corridor's economic importance. It suggests improvement works to provide greater journey time reliability and to facilitate future growth in the region.

5.6 This study states that the A127 between the M25 and Laindon is currently (broadly speaking) not over capacity, with ratio of flow to capacities (RFC) of between 0.9 and 1.0.

5.7 For the western end of the A127, introducing variable speed limits would aid in reducing collisions and increasing reliability; however, this may increase journey times.

5.8 The A127 / A128 Halfway House junction was identified as having a sub-standard horizontal alignment which is thought to be contributing to the high proportion of shunt-type collisions. It is suggested that realigning these entries would address the issue and would also offer better visibility of the junction to the right and the give way line.

5.9 It is stated that the realignment works of both exit slip roads at the roundabout would cost £360,000, with another £100,000 required for the stabilising works for the slipping embankments.

Local Highway Network

5.10 With respect to the local highway network the A128 is a single carriageway road subject to a 50mph speed limit and connects Brentwood in the north of the A13 to southern destinations.

5.11 In the immediate vicinity of the site is the junction of the A128 Tilbury Road / Station Road; this is a ghost island priority junction. Station Road is a single carriageway road with a footway on the northern side and subject to the national speed limit to the east of the built form of West Horndon. Station Road is subject to a 30mph speed limit through the village.

Village Centre Car Parking

5.12 At the corner of Station Road and Chafford Gardens there is a McColl's newsagents, Headlines unisex hairdressing salon and Aura fireplaces. There is a long drop kerb on the western side of Chafford Gardens, which allows for a crossover for car parking at 90 degrees to the road between the building and the footway, refer to **Drawing 13-158-003** for this existing arrangement. It is understood that the Parish Council is

concerned about the organisation of the parking in this location, where there has been an accident in recent years.

5.13 This arrangement could be improved by creating a short one-way service road with marked parking spaces as shown on **Drawing 13-158-004**. This would remove the long drop kerb length and therefore improve pedestrian safety. It would also remove the need for drivers to reverse back onto Chafford Gardens, as drivers would use the service road and exit onto Chafford Gardens in a forward gear, thus also improving driver / pedestrian safety.

Heavy Goods Vehicle Movements

5.14 It is understood that there is local concern with the movement of heavy goods vehicles (HGVs) through the village, between the A128 Tilbury Road and Horndon Industrial Park. Firstly, as discussed above, the industrial estate may be redeveloped for B1/B2 use; therefore if it were to be redeveloped for B1 office use there would not be any regular daily HGV movements associated with this site.

5.15 If the industrial estate continues to generate HGV movements there is the potential for a traffic calming scheme, with horizontal deflection, to be implemented on Station Road. This would reduce the speed of HGVs through the village and increase both perceived and actual safety. With any redevelopment there is the potential for BrBC to ensure HGV movements are limited, in volume and hours of operation, for the benefit of local residents.

5.16 The development could contribute towards the implementation of local highway schemes considered necessary by the Parish Council to overcome existing problems.

6.0 DEVELOPMENT ACCESS

6.1 This section demonstrates that suitable access to the site can be achieved for all modes of transport.

Pedestrian Accessibility

6.2 The site will be designed to have a very permeable pedestrian network of footways, and where applicable footpaths. These will connect to the existing off-site footway on the north side of Station Road and are also likely to connect to the footways on Cadogan Avenue.

6.3 This will enable future residents of the site to comfortably access the village centre, bus stops (both existing and future) and railway station by foot.

Site Access

6.4 The site has frontage in excess of 500m onto both sides of Station Road, between West Horndon village and the A128 Tilbury Road. The potential development however is only proposing to have residential dwellings on the north side of Station Road.

6.5 The highway alignment along the site frontage of Station Road is relatively straight and therefore providing a site access junction with suitable visibility splays onto Station Road is comfortably achievable.

6.6 There is an existing gap in the hedge / tree line along Station Road that currently provides access to the field. It is this gap in the hedge that could be used to enable a site access to be achieved with Station Road. This site access could have a 6.2m wide carriageway and two 2.0m wide footways. This carriageway width would cater for a bus to divert through the site and therefore the spine road through the site would act as a bus route. The footways at the site access would connect with the existing footways along Station Road.

6.7 Another site access could be realised onto the A128 Tilbury Road. This site access could take the form of a ghost island give way priority junction, similar to the other junctions located along the A128 Tilbury Road in this area. In order to accommodate this junction the existing junction of the A128 Tilbury Road and Tilbury Road would be closed, with Tilbury Road realigned to connect with the spine road of the development.

6.8 There is sufficient area on site to accommodate a permeable highway network with suitable access for emergency, refuse and delivery vehicles.

Parking

6.9 On-site car parking will be provided in accordance with ECC's, Parking Standards: Design and Good Practice 2009, minimum car parking standards. This will ensure that all on-site car parking is catered for within the site itself with no overspill onto the existing highway network.

6.10 The development can easily achieve suitable accesses from the existing highway network to the site. These would cater for a bus to route through the site, enable the site access junctions to operate within capacity and also provide access for emergency, refuse and delivery vehicles.

7.0 HIGHWAYS IMPACT

7.1 The generation and routeing of development traffic and its impact on the local highway network is set out in this section.

Base Traffic

7.2 Traffic surveys have been undertaken on the A127 and local highway network. The key junctions in the immediate vicinity of the site that have been surveyed are the A127 / A128 Halfway House grade separated junction and the A128 Tilbury Road / Station Road ghost island priority junction.

Vehicle Trip Generation

7.3 The TRICS database has been analysed in order to calculate the likely vehicle trips that the development site would generate. **Table 7.1** shows the vehicle trip rates and trips that the site would generate in the AM and PM peak hours. The TRICS output files are contained in **Appendix C**.

Table 7.1 Vehicle Trip Generation

	AM Peak		PM Peak	
	In	Out	In	Out
Trip Rates	0.14	0.43	0.36	0.21
Trips	92	282	235	139

7.4 As shown in **Table 7.1** the site would generate 374 two-way vehicle trips in each of the peak hours.

Routeing

7.5 It is envisaged that the majority of traffic associated with the site would travel onto the A128 Tilbury Road and then onto the A127 corridor, either eastbound towards Basildon or westbound towards the M25 and

London. It is not expected that a significant proportion of the traffic generated by the site would travel through West Horndon village itself.

7.6 Accessing the A127 corridor, via the A128, would avoid any delays of travelling through the village and potential queuing on the substandard slip roads waiting for a gap in the heavy traffic flow along the A127. Travelling via the A128 would be the most direct route onto the A127 corridor and the A127 / A128 Halfway House junction has standardised slip roads onto the A127, which would make it easier to access the A127 corridor.

Increases in Traffic Flows on Roads

7.7 The development site will increase the level of traffic on the local and strategic roads in vicinity of the site. The degree of increases in traffic compared to the surveyed flows are shown in **Table 7.2**.

Table 7.2 Increases in Traffic Flows

Road	Existing Flow		Ex. + Dev. Flow	
	AM	PM	AM	PM
Station Road	604	590	679	665
A128 Tilbury Road	1,484	1,585	1,785	1,914
A127 (west of A128)	5,632	5,676	5,699	5,767
A127 (east of A128)	6,626	6,590	6,759	6,710

7.8 As shown in **Table 7.2** the development of up to 650 residential dwellings would increase traffic on the local highway network, but not to a materially significant amount.

7.9 The Design Manual for Roads and Bridges (DMRB) TA 79/99 Traffic Capacity of Urban Roads sets out the capacities of urban roads; extracts of this guidance are attached in **Appendix D**.

7.10 It can be seen that the 'with development' traffic flow along Station Road would not exceed the link capacity for a UAP3 road. Although the A128 is more of a rural road it can be safely seen that its link capacity would not be exceeded with the development traffic added.

7.11 It can be seen that the A127 corridor is operating within, albeit close to, capacity as a UAP1 road (7.3m wide lanes); this has been set out in the A127 Corridor for Growth study. The development would not materially increase the traffic flow on the A127 and would not result in this corridor operating over its link capacity.

7.12 The development generated traffic would not result in any road in the vicinity of the site operating over its link capacity.

Off-Site Junction Capacity

7.13 The main sections of the local highway network in the vicinity of the site that would be further reviewed as part any planning application are as follows:

1. M25 Junction 29 - A127 Southern Arterial Road;
2. A127 Southern Arterial Road link capacity and safety issues;
3. A127 Southern Arterial Road / A128 Tilbury Road grade separated junction;
4. A128 Tilbury Road / Station Road ghost island priority junction;
5. A127 Southern Arterial Road left-in left-out junctions:
 - Thorndon Avenue;
 - Childerditch Lane;
 - Little Warley Hall Lane;
6. A127 Southern Arterial Road / Warley Street grade separated junction; and
7. Increases in traffic flow along Station Road and St Mary's Lane.

7.14 The A128 Tilbury Road / Station Road ghost island priority junction currently operates within capacity; however may require mitigation measures in the future should development in West Horndon come forward. There is a significant amount of highway and developer controlled land at this junction and therefore it would be possible to adequately mitigate the impact of development related traffic in this location.

7.15 As discussed earlier in this section the A127 currently operates close to its link capacity in the vicinity of the A127 / A128 Halfway House junction, with this junction also operating, within, but close to capacity. There appears to be scope to improve the capacity of this junction, which may include increasing the number of entry lanes, from two to three, on the A127 eastbound and westbound off-slips and the A128 northbound approach.

7.16 It is the long term aim of ECC Highways to improve this corridor and development at West Horndon would result in developer funding, towards the cost of upgrade works to this junction with the A127, being realised.

Other Junctions and Links

7.19 Taking each of the remaining aforementioned junctions in turn the M25 Junction 29 and the A127 corridor will need to be assessed with the development traffic added in order to enable mitigation schemes to be proposed, should these be required.

7.20 Any mitigation measures proposed for the M25 Junction 29 and the A127 corridor would have to be carefully discussed with both the Highways Agency and ECC Highways in order to suitably link with the long term strategic plans for this area of the strategic highway network.

7.21 It is envisaged that, if required, the development would be able to provide funding towards these potential improvement works, proportionally based on the quantum of development, along with other developer funding. It is considered that this approach would result in the development being

able to satisfactorily mitigate its impact on the highway network and thus ensure that the development is acceptable in highways terms.

7.22 As discussed earlier in this section it is *not* envisaged that any of the future residents of the site would choose to access the A127 corridor via the local country roads of Thorndon Avenue, Childerditch Lane or Little Warley Hall Lane, all of which have substandard left-in left-out junctions onto the A127. Similarly it is not envisaged that any of the site generated traffic would use the A127 / Warley Street junction.

7.23 The immediate junctions in the vicinity of the site would either operate within capacity or could be improved in order to be made to operate within capacity, with the development traffic added to the existing traffic movements. The proposed development will therefore not result in any unacceptable traffic impact.

8.0 SUSTAINABLE TRANSPORT

8.1 This section sets out the non-car modes of travel likely to be generated by the development, of up to 650 residential dwellings. The number of non-car trips and their impact on the sustainable transport networks is analysed.

Non-Car Trips

8.2 Further to the TRICS database being analysed for vehicle trips, Journey to Work data from the 2011 Census has also been analysed for the 'Herongate, Ingrave and West Horndon' ward. This data enables a suitable mode split for the potential development site, as is specifically based on census data for the area. These mode splits are shown in **Table 8.1**, which includes for an adjusted percentage mode split excluding those persons working from home, not in employment and 'other'.

Table 8.1 Journey to Work by Mode

Mode	No.	Percentage	Adjusted Percentage
Work from Home	135	5.1%	N/A
Train	451	17.1%	26.3%
Bus	11	0.4%	0.6%
Taxi	8	0.3%	0.5%
Motorcycle	19	0.7%	1.1%
Car	1,073	40.6%	62.6%
Car Passenger	63	2.4%	3.7%
Cycle	14	0.5%	0.8%
Pedestrian	76	2.9%	4.4%
Other	14	0.5%	N/A
Not in Employment	777	29.4%	N/A
Total	2,641	100%	100%

8.3 In order to apply the percentage mode splits to the 650 residential dwellings, proposed for the development site, the adjusted percentages shown in **Table 8.1** have been used along with the car driver trips shown in **Table 7.1**. **Table 8.2** shows the subsequent multi-modal trips that the development will generate.

Table 8.2 Development Trips

Mode	Percentage	AM Peak		PM Peak	
		In	Out	In	Out
Car	100%	92	282	235	139
Car	5.9%	5	17	14	8
Passenger					
Pedestrian	7.1%	6	20	17	10
Cycle	1.3%	1	4	3	2
Bus	1.0%	1	3	2	1
Rail	42.0%	5	17	14	8
Taxi	0.7%	1	2	2	1
Total	-	112	344	287	170

8.4 As shown in **Table 8.2** the development would generate up to 27 pedestrian trips, five cycle trips, four bus trips, 22 rail trips and three taxi trips in the busiest peak periods.

Non-Car Impact

8.5 The potential impacts of the non-car modes of transport are discussed in the following paragraphs.

Pedestrian Impact

8.6 The development will generate c.240 pedestrian movements per day. This level of additional pedestrian movement on the footway network in West Horndon will not have a material impact on the flows or safety of pedestrians in the village.

8.7 These additional pedestrians will indeed commercially benefit the local facilities and add to the vibrancy of the village.

8.8 A plethora of pedestrian linkages can be provided to create a permeable development. This will also lead to commercial benefits of the existing local facilities.

Cyclist Impact

8.9 The number of cycle trips that the site would generate are small, at c. five peak period trips and c. 40-50 daily trips. These cycle trips can be safely accommodated on the local highway network.

8.10 A plethora of cycle linkages can be provided to create a permeable development. This will also lead to commercial benefits of the existing local facilities.

Rail Passenger Impact

8.11 The site would generate c. 200 daily rail passenger trips; c. 100 outbound trips and c. 100 inbound trips. There would be c. 22 peak hour rail trips from the site.

8.12 There is sufficient platform length at West Horndon railway station to increase the train carriages from eight to up to 12 carriages, should this be required and indeed commercially beneficial. Although it is unlikely that the addition of c. 22 peak hour passengers would warrant such an increase; this along with other increases in rail demand along this line may lead to it being commercially beneficial for one additional carriage to be realised.

8.13 It is understood that the existing train service into Fenchurch Street is often overcrowded in the peak periods. The development could potentially provide funding to c. 2c towards providing additional carriages to ease this congestion.

8.14 The development will be close to West Horndon rail station with frequent connections to London and other destinations. Several improvements at the station (more parking provision, better access and provision of disabled facilities) as well as to the train services (longer carriages) will vastly improve the existing rail offer.

Impact of a new Railway Station at Dunton Garden Suburb

8.15 Should the Dunton Garden Suburb proposal come forward and provide a new railway station this will likely affect the commercial viability of Laindon and West Horndon railway stations.

Bus Passenger Impact

8.16 The site would generate up to c.four peak hour and c.35 daily bus trips. This is not likely to lead to the demand for additional buses or service frequencies; however as discussed earlier in this report the development could provide funding towards an increased frequency bus service, if required.

8.17 As discussed in **Section 4.0** there is scope for the Route 265 and 565 bus services to divert through the site. Diverting buses through the site would require a degree of additional travel distance and therefore travel time.

8.18 For the buses to divert through the site there would be an additional travel distance of c.600m and c.100m for the 265 and 565 services respectively. These distances equate to an additional travel time of c.1 minute 30 seconds and c.15 seconds respectively, using a conservative average bus speed of 15mph.

8.19 It can be seen from review of the timetables for Routes 265 and 565, in **Appendix B**, that they generally have a 17 minute and seven minute

layover in Grays and Brentwood respectively. Therefore diversion through the site could generally comfortably be achieved without significant changes to the remainder of the respective bus service.

8.20 There is sufficient provision of bus services in the area. The proposed development would facilitate betterment of these services as well as the diversion of some of the bus routes through the site.

9.0 CONCLUSIONS

9.1 Odyssey Markides are acting for Countryside in promoting the development east of West Horndon through the Strategic Growth Options Consultation.

9.2 It has been demonstrated within this report that the development being promoted by Countryside would be able to achieve the highways related strategic objectives set out in the Strategic Growth Options Consultation document; this is to improve public transport, cycling and walking facilities and secure the delivery of essential infrastructure.

9.3 The potential development site is within walking distance of all facilities within West Horndon, including the railway station, and is suitably located to connect to the good quality existing pedestrian network in the village. Furthermore the development could help realise the Parish Council's wish for pedestrian related improvements in the centre of the village.

9.4 Although there is little in the way of cycle facilities through West Horndon the development could fund additional cycle parking at the railway station and in the centre of the village. Further cycle routes could also be facilitated.

9.5 The potential development will be within walking distance of West Horndon railway station. West Horndon railway station provides high quality and frequent rail services to and from London, Southend and Shoeburyness. Several improvements of the station (more parking provision, better access and provision of disabled facilities) as well as to the train services (longer carriages) will vastly improve the existing rail offer.

9.6 West Horndon benefits from a good bus network that the development could significantly improve with both increased revenue from future residents' patronage and from developer funding.

9.7 The development could contribute towards the implementation of local highway schemes considered necessary by the Parish Council to overcome existing problems.

9.8 The development can easily achieve suitable accesses from the existing highway network to the site. These would cater for a bus to route through the site, enable the site access junctions to operate within capacity and also provide access for emergency, refuse and delivery vehicles.

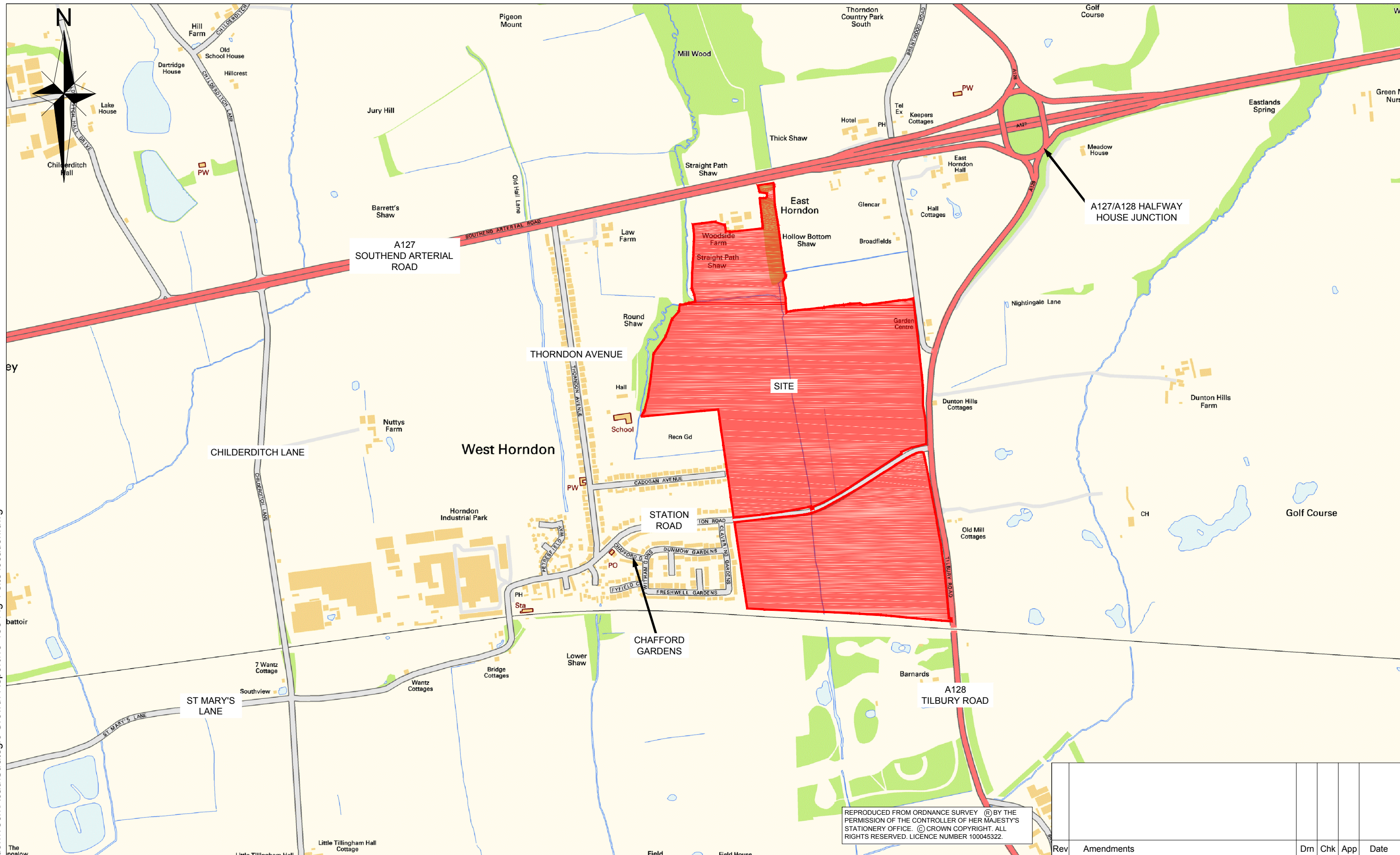
9.9 The link capacities of the roads within the vicinity of the site would not be exceeded, even with the development traffic added. The immediate junctions in the vicinity of the site would either operate within capacity or

could be improved in order to be made to operate within capacity, with the development traffic added to the existing traffic movements.

9.10 The proposed development will therefore not result in any unacceptable traffic impact.

FIGURES

P:\13-158 - West Horndon\Tech\Acad\Strategic Growth Report\13-158 Fig 1 site location.dwg



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Odyssey Markides

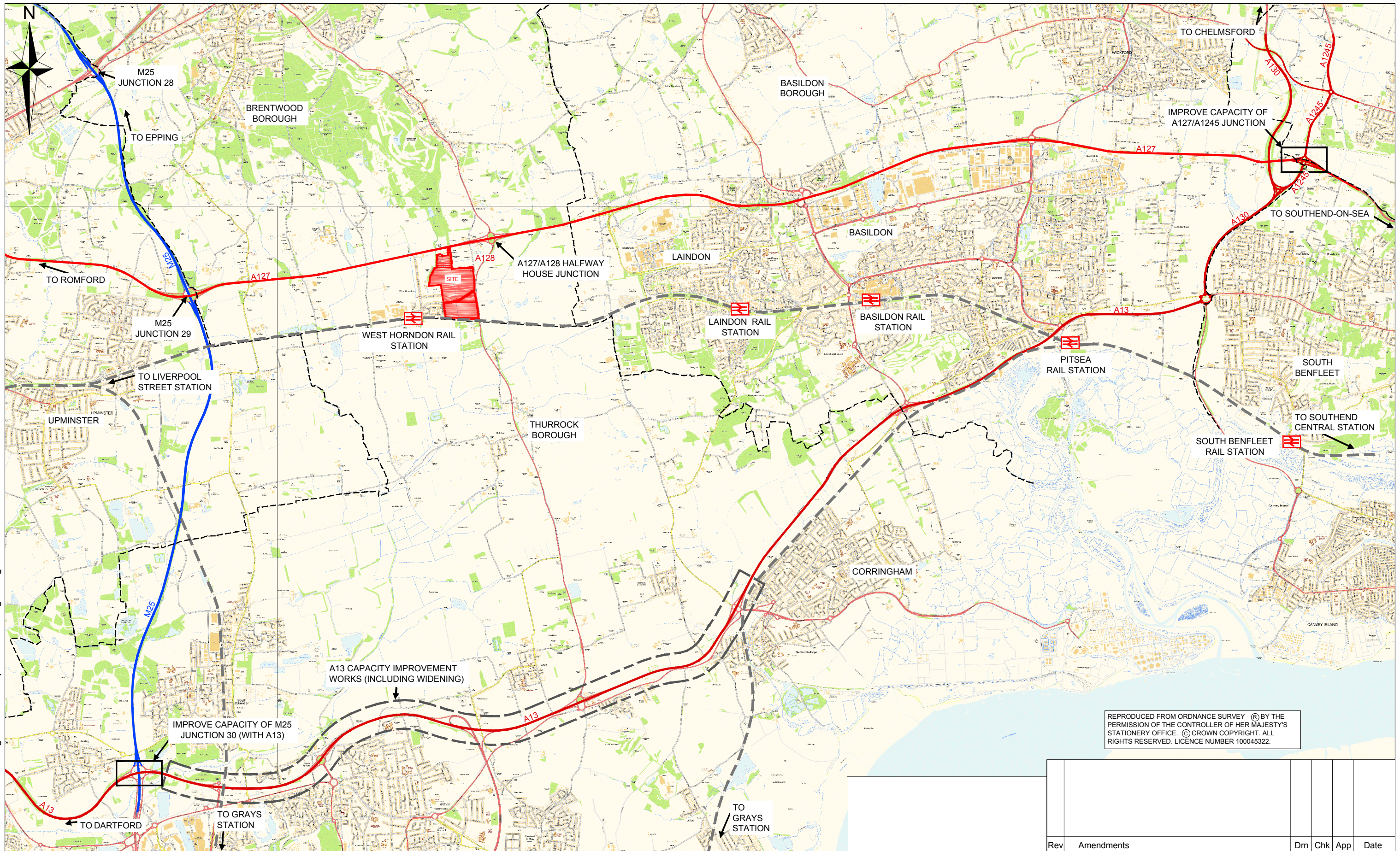
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Job Title	WEST HORNDON
Drawing Title	SITE LOCATION & LOCAL HIGHWAY NETWORK

Client	COUNTRYSIDE
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Rev	Amendments	Drn	Chk	App	Date
Scale	1:10,000	Date	JAN 15		Designed
					AB
Drawn	AB	Checked	MS		Approved
					BM
Job No	13-158	Drawing No	FIGURE 1		Rev



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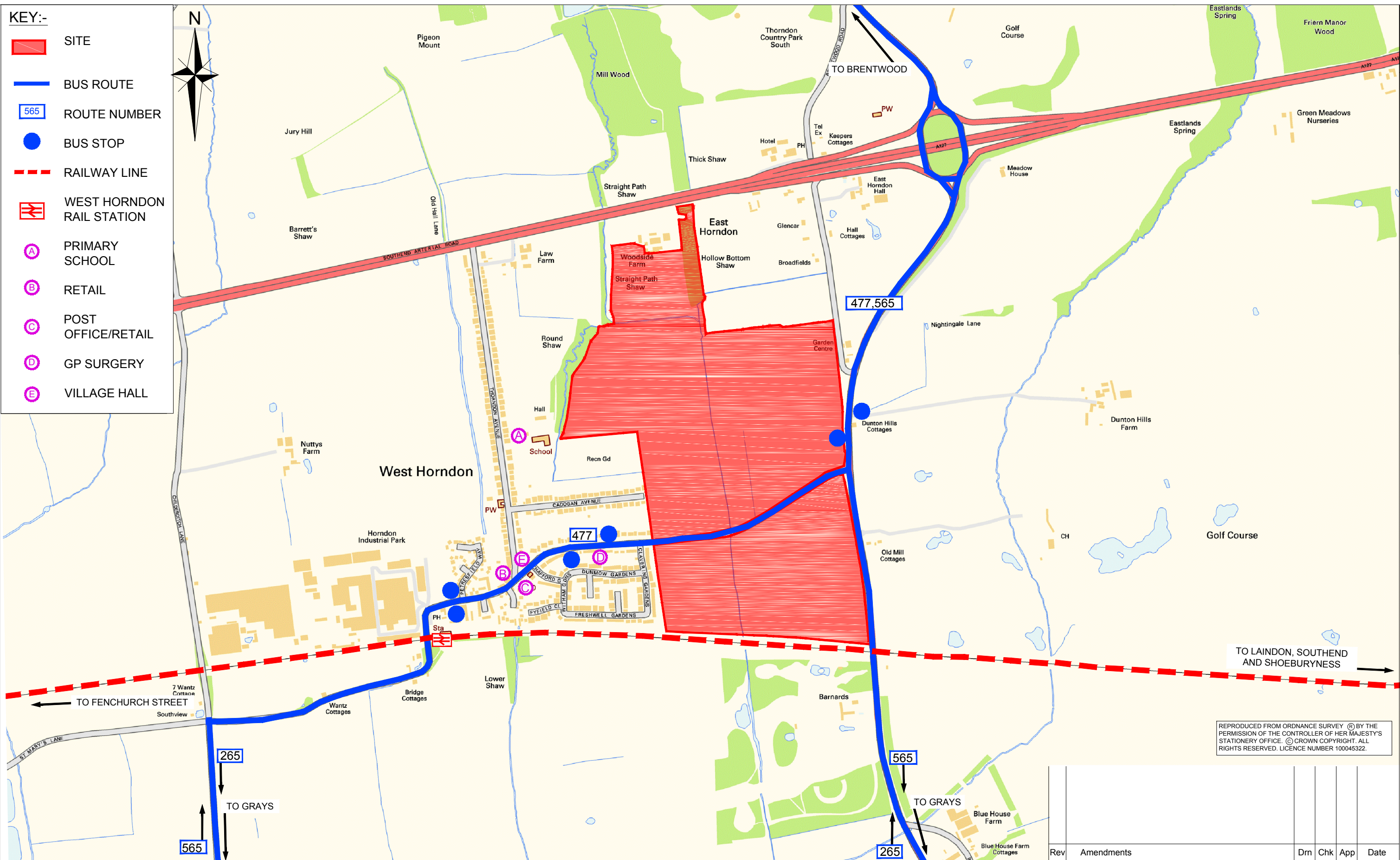
Job Title
WEST HORNDON

Drawing Title
**STRATEGIC
HIGHWAY & RAIL NETWORK**

Client
COUNTRYSIDE

Rev	Amendments	Drm	Chk	App	Date
Scale	N.T.S	Date	JAN 15		Designed AB
Drawn	AB	Checked	MS		Approved BM
Job No	13-158		Drawing No	FIGURE 2	
					Rev

P:\13-158 - West Horndon\Tech\Acad\Strategic Growth Report\13-158 Fig 3 public transport.dwg



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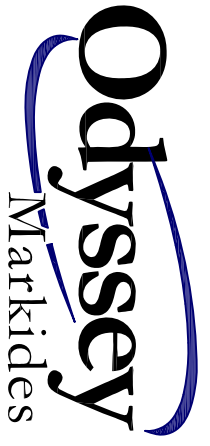
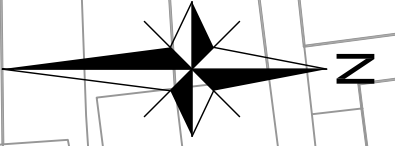
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Job Title	WEST HORNDON
Drawing Title	PUBLIC TRANSPORT NETWORK

Client	COUNTRYSIDE
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Rev	Amendments	Drn	Chk	App	Date
Scale	1:10,000	Date	JAN 15	Designed	AB
Drawn	AB	Checked	MS	Approved	BM
Job No	13-158	Drawing No	FIGURE 3	Rev	

DRAWINGS



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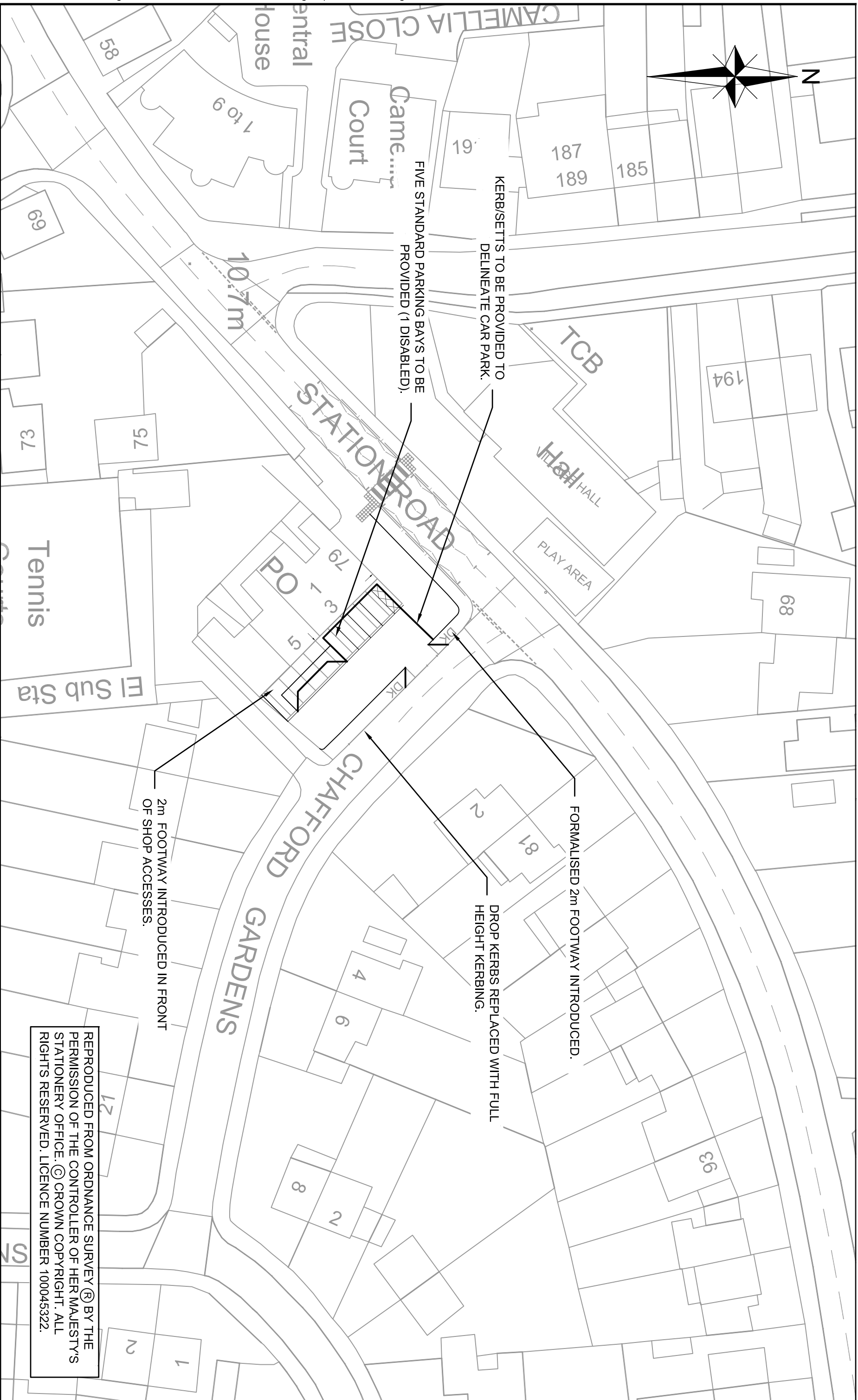
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Job Title	WEST HORNDON
Drawing Title	EXISTING PARKING COURT LAYOUT

Client	COUNTRYSIDE
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Drawn	MS	Checked	BM	Approved	BM
Job No	13-158	Drawing No	13-158-003	Rev	

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Job Title	WEST HORNDON
Drawing Title	POTENTIAL PARKING COURT IMPROVEMENTS

Client	COUNTRYSIDE
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Scale	1:500 @A3	Date	JAN 15	Designed	MS
Drawn	MS	Checked	BM	Approved	BM
Job No	13-158	Drawing No	13-158-004	Rev	

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APPENDIX A

West Horndon Railway Station Facilities and Services

From London

SX
December 2015

London Fenchurch Street	d	.....	05 00	05 07	05 10	05 24	05 34	05 41	06 00	06 04	06 08	06 19	06 32	06 35	06 39	06 42	06 46	06 50	06 56	07 02	07 05	07 08	07 14	07 17	07 20	07 26	07 29	07 32	07 35	07 38	
Limehouse		.....	05 04	05 11	05 14	05 28	05 38	05 45	06 05	06 08	06 13	06 23	06 36	06 40	06 44	06 46	06 50	06 54	07 01	07 06	07 09	07 13	07 18	07 21	07 24	07 30	07 33	07 36	07 39	07 42	
West Ham		.....	05 09	05 16	05 19	05 33	05 43	05 50	06 10	06 13	06 18	06 28	06 41	06 45	06 49	06 51	06 55	06 59	07 06	07 12	07 14	07 18	07 24	07 27	07 29	07 35	07 38	07 42	07 44	07 48	
London Liverpool Street	d	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barking		04 53	05 14	05 22	05 24	05 39	05 48	05 55	06 16	06 18	06 24	06 33	06 47	06 50	06 54	06 56	07 00	07 04	07 12	07 17	07 19	07 24	07 29	07 32	07 35	07 40	07 43	07 47	07 49	07 53	
Upminster		05 01	05 22	.....	05 32	.....	05 56	06 03	.....	06 26	06 32	06 41	.....	06 58	07 03	.....	.....	07 12	.....	.....	07 27	07 33	.....	.....	07 43	.....	.....	07 57	08 02		
Ockendon		05 06	.....	.....	05 38	.....	.....	06 09	.....	.....	06 40	.....	.....	.....	07 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	08 10	
Chafford Hundred (Lakeside)		05 10	.....	.....	05 41	.....	.....	06 12	.....	.....	06 43	.....	.....	.....	07 14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	08 13	
Dagenham Dock		.....	.....	05 26	.....	05 43	.....	.....	06 20	.....	.....	.....	06 51	.....	.....	.....	.....	.....	.....	07 22	.....	.....	.....	07 37	.....	.....	.....	.....	07 52	.....
Rainham		.....	.....	05 30	.....	05 47	.....	.....	06 24	.....	.....	.....	06 55	.....	.....	.....	07 04	.....	.....	07 26	.....	.....	.....	07 41	.....	.....	.....	07 56	.....	.....
Purfleet		.....	.....	05 35	.....	05 52	.....	.....	06 29	.....	.....	.....	07 02	.....	.....	.....	07 09	.....	.....	07 31	.....	.....	.....	07 49	.....	.....	.....	08 01	.....	.....
Grays		05 14	.....	05 42	05 45	05 59	.....	06 17	06 36	.....	06 48	.....	07 09	.....	07 21	07 15	.....	.....	.....	07 37	.....	07 48	.....	07 55	.....	.....	.....	08 07	.....	08 20	
Tilbury Town		05 17	.....	.....	05 48	.....	.....	06 20	.....	.....	06 51	.....	.....	.....	.....	07 18	.....	.....	.....	.....	.....	07 51	.....	.....	.....	.....	.....	.....	.....	.....
East Tilbury		05 23	.....	.....	05 54	.....	.....	06 26	.....	.....	06 57	.....	.....	.....	.....	07 24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stanford-le-Hope		05 27	.....	.....	05 58	.....	.....	06 29	.....	.....	07 00	.....	.....	.....	.....	07 27	.....	.....	.....	.....	.....	08 01	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Horndon		.....	05 27	.....	.....	.....	06 01	.....	.....	06 31	.....	.....	07 03	.....	.....	.....	.....	.....	.....	.....	.....	07 32	.....	.....	.....	.....	.....	.....	.....	08 02	.....
Laindon		.....	05 32	.....	.....	.....	06 06	.....	.....	06 36	.....	06 49	.....	07 07	.....	.....	07 15	07 20	07 30	.....	.....	07 37	.....	.....	.....	07 51	.....	08 01	.....	08 07	.....
Basildon		.....	05 35	.....	.....	.....	06 09	.....	.....	06 39	.....	06 52	.....	07 10	.....	.....	07 18	07 23	07 33	.....	.....	07 40	.....	.....	.....	07 54	.....	08 04	.....	08 10	.....
Pitsea		05 35	05 38	.....	06 06	.....	06 12	06 38	.....	06 42	07 08	.....	.....	07 14	.....	07 35	07 21	.....	07 36	.....	07 43	08 09	.....	.....	.....	07 58	.....	08 07	.....	08 13	.....
Benfleet		05 38	05 42	.....	06 09	.....	06 16	06 42	.....	06 46	.....	06 58	.....	07 17	.....	.....	07 25	07 29	07 40	.....	.....	07 47	.....	.....	.....	08 01	.....	08 11	.....	08 17	.....
Leigh-on-Sea		05 43	05 46	.....	06 14	.....	06 20	06 46	.....	06 50	.....	07 02	.....	07 22	.....	.....	07 30	07 33	07 45	.....	.....	07 51	.....	08 01	.....	08 06	08 11	08 15	.....	08 21	.....
Chalkwell		05 45	05 49	.....	06 16	.....	06 23	06 49	.....	06 53	.....	07 05	.....	07 24	.....	.....	07 32	07 36	.....	.....	07 54	.....	.....	.....	.....	08 08	.....	08 18	.....	08 24	.....
Westcliff		05 47	05 51	.....	06 18	.....	06 25	06 51	.....	06 55	.....	07 07	.....	07 26	.....	.....	07 34	07 38	.....	.....	07 56	.....	.....	.....	.....	08 10	.....	08 20	.....	08 26	.....
Southend Central	a	05 50	05 53	.....	06 21	.....	06 27	06 54	.....	06 57	.....	07 09	.....	07 29	.....	.....	07 37	07 40	.....	.....	07 58	.....	.....	.....	.....	08 13	.....	08 23	.....	08 28	.....
Southend Central	d	.....	05 54	.....	.....	.....	06 28	.....	.....	06 58	.....	07 10	.....	07 29	.....	.....	.....	07 41	.....	.....	07 59	.....	.....	.....	.....	08 13	.....	.....	.....	08 29	.....
Southend East		.....	05 56	.....	.....	.....	06 30	.....	.....	07 00	.....	07 12	.....	07 31	.....	.....	.....	07 43	.....	.....	08 01	.....	.....	.....	.....	08 15	.....	.....	.....	08 31	.....
Thorpe Bay		.....	05 58	.....	.....	.....	06 32	.....	.....	07 02	.....	07 14	.....	07 34	.....	.....	.....	07 45	.....	.....	08 03	.....	.....	.....	.....	08 18	.....	.....	.....	08 33	.....
Shoeburyness	a	.....	06 03	.....	.....	.....	06 38	.....	.....	07 08	.....	07 19	.....	07 38	.....	.....	.....	07 50	.....	.....	08 08	.....	.....	.....	.....	08 24	.....	.....	.....	08 38	.....

From London

London Fenchurch Street	d	07 41	07 44	07 47	07 50	07 56	07 59	08 02	08 05	08 08	08 14	08 17	08 20	08 25	08 29	08 35	08 38	08 44	08 50	08 54	08 59	09 05	09 11	09 17	09 20	09 26	09 34	09 41	09 51	09 55				
Limehouse		07 45	07 48	07 51	07 54	08 00	08 03	08 06	08 09	08 13	08 18	08 22	08 24	08 29	08 33	08 39	08 43	08 48	08 54	08 58	09 03	09 09	09 16	09 21	09 24	09 31	09 39	09 45	09 55	09 59				
West Ham		07 51	07 53	07 56	07 59	08 05	08 08	08 12	08 14	08 18	08 23	08 27	08 30	08 34	08 38	08 44	08 48	08 53	08 59	09 03	09 08	09 14	09 21	09 26	09 29	09 36	09 44	09 50	10 00	10 04				
London Liverpool Street	d	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barking		07 57	07 58	08 01	08 04	08 10	08 13	08 17	08 19	08 24	08 28	08 33	08 35	08 42	08 43	08 49	08 54	08 58	09 04	09 10	09 13	09 19	09 26	09 31	09 34	09 41	09 49	09 55	10 05	10 09				
Upminster		.....	.....	.....	08 12	.....	.....	.....	08 27	08 33	.....	.....	08 43	.....	.....	08 57	09 03	.....	09 12	.....	09 27	09 36	.....	09 42	.....	09 57	10 03	10 13	.....				
Ockendon		.....	.....	.....	.....	.....	.....	.....	.....	08 40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 09	.....		
Chafford Hundred (Lakeside)		.....	.....	.....	.....	.....	.....	.....	.....	08 44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 13	.....		
Dagenham Dock		08 01	.....	.....	.....	.....	.....	08 22	.....	.....	.....	08 38	.....	08 46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	09 46	.....	.....	.....	10 14	.....		
Rainham		08 05	.....	.....	.....	.....	.....	08 26	.....	.....	.....	08 42	.....	08 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	09 49	.....	.....	.....	10 17	.....		
Purfleet		08 10	.....	.....	.....	.....	.....	08 31	.....	.....	.....	08 49	.....	08 58	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	09 54	.....	.....	.....	10 22	.....		
Grays		08 16	.....	.....	.....	.....	.....	08 37	.....	08 48	.....	08 56	.....	09 05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	09 49	.....	10 01	.....	10 17	.....	10 29	
Tilbury Town		08 19	.....	.....	.....	.....	.....	.....	.....	08 51	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 20	.....	.....
East Tilbury		08 25	.....	.....	.....	.....	.....	.....	.....	08 57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 26	.....	.....
Stanford-le-Hope		08 29	.....	.....	.....	.....	.....	.....	.....	09 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 30	.....	.....
West Horndon		.....	.....	.....	08 17	.....	.....	08 32	.....	.....	.....	.....	08 48	.....	.....	09 02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10 02	.....	.....
Laindon		08 16	08 22	08 31	08 37	08 43	08 52	09 01	09 07	09 13	09 20	09 28	09 37	09 46	09 50	10 07	10 21
Basildon		.....	.....	08 19	08 25	.....	08 34	.....	08 40	.....	08 46	.....	08 55	.....	09 04	09 10	.....	09 16	09 23	.....	.....	09 31	09 40	.....	.....	09 49	09 53	.....	10 10	.....	10 24	.....	.....
Pitsea		08 37	.....	08 22	08 28	.....	08 38	.....	08 43	09 08	08 49	.....	08 59	.....	09 07	09 13	09 39	09 19	.....	.....	.....	09 34	09 43	10 10	09 52	.....	.....	.....	10 13	10 38	.....	.....	.....
Benfleet		.....	.....	08 26	08 32	.....	08 41	.....	08 47	.....	08 53	.....	09 02	.....	09 11	09 17	09 43	09 23	09 29	.....	.....	09 38	09 47	10 13	09 56	09 59	.....	10 17	10 42	10 30	.....	.....	.....
Leigh-on-Sea		.....	08 26	08 31	08 36	08 41	08 46	.....	08 51	.....	08 58	.....	09 07	.....	09 15	09 21	09 47	09 27	09 33	.....	.....	09 42	09 51	10 18	10 00	10 03	.....	10 21	10 46	10 34	.....	.....	.....
Chalkwell		.....	.....	08 33	08 39	.....	08 48	.....	08 54	.....	09 00	.....	09 09	.....	09 18	09 24	09 50	09 30	09 36	.....	.....	09 45	09 54	10 20	10 03	10 06	.....	10 24	10 49	10 37	.....	.....	.....
Westcliff		.....	.....	08 35	08 41	.....	08 50	.....	08 56	.....	09 02	.....	09 11	.....	09 20	09 26	09 52	09 32	09 38	.....	.....	09 47	09 56	10 22	10 05	10 08	.....	10 26	10 51	10 39	.....	.....	.....
Southend Central	a	.....	.....	08 38	08 43	.....	08 53	.....	08 58	.....	09 05	.....	09 14	.....	09 23	09 28	09 55	09 34	09 40	.....	.....	09 49	09 58	10 25	10 07	10 10	.....	10 28	10 54	10 41	.....	.....	.....
Southend Central	d	.....	.....	.....	08 44	.....	.....	.....	08 59	.....	.....	.....	09 14	.....	09 23	09 29	.....	09 35	09 41	.....	.....	09 50	09 59	10 25	10 08	10 11	.....	10 29	.....	10 42	.....	.....	.....
Southend East		.....	.....	.....	08 46	.....	.....	.....	09 01	.....	.....	.....	09 16	.....	09 25	09 31	.....	09 37	09 43	.....	.....	09 52	10 01	10 27	10 10	10 13	.....	10 31	.....	10 44	.....	.....	.....
Thorpe Bay		.....	.....	.....	08 48	.....	.....	.....	09 03	.....	.....	.....	09 19	.....	09 28	09 33	.....	09 39	09 45	.....	.....	09 54	10 03	10 30	10 12	10 15	.....	10 33	.....	10 46	.....	.....	.....
Shoeburyness	a	.....	.....	.....	08 53	.....	.....	.....	09 08	.....	.....	.....	09 23	.....	09 32	09 38	.....	09 44	09 50	.....	.....	09 59	10 08	10 34	10 17	10 20	.....	10 38	.....	10 51	.....	.....	.....

From London

SX
December 2015

London Fenchurch Street	d	10 04	10 11	10 19	10 25	10 34	10 41	10 49	10 55	11 04	11 11	11 19	11 25	11 34	11 41	11 49	11 55	12 04	12 11	12 19	12 25	12 34	12 41	12 49	12 55	13 04	13 11	13 19	13 25	13 34
Limehouse		10 08	10 15	10 23	10 29	10 38	10 45	10 53	10 59	11 08	11 15	11 23	11 29	11 38	11 45	11 53	11 59	12 08	12 15	12 23	12 29	12 38	12 45	12 53	12 59	13 08	13 15	13 23	13 29	13 38
West Ham		10 13	10 20	10 28	10 34	10 43	10 50	10 58	11 04	11 13	11 20	11 28	11 34	11 43	11 50	11 58	12 04	12 13	12 20	12 28	12 34	12 43	12 50	12 58	13 04	13 13	13 20	13 28	13 34	13 43
London Liverpool Street	d	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barking		10 18	10 25	10 33	10 39	10 48	10 55	11 03	11 09	11 18	11 25	11 33	11 39	11 48	11 55	12 03	12 09	12 18	12 25	12 33	12 39	12 48	12 55	13 03	13 09	13 18	13 25	13 33	13 39	13 48
Upminster		10 26	10 33	10 41	.....	10 56	11 03	11 11	.....	11 26	11 33	11 41	.....	11 56	12 03	12 11	.....	12 26	12 33	12 41	.....	12 56	13 03	13 11	.....	13 26	13 33	13 41	.....	13 56
Ockendon		.....	10 39	.....	.....	.....	11 09	.....	.....	.....	11 39	.....	.....	.....	12 09	.....	.....	.....	12 39	.....	.....	.....	.....	13 09	.....	.....	13 39	.....	.....
Chafford Hundred (Lakeside)		.....	10 43	.....	.....	.....	11 13	.....	.....	.....	11 43	.....	.....	.....	12 13	.....	.....	.....	12 43	.....	.....	.....	.....	13 13	.....	.....	13 43	.....	.....
Dagenham Dock		.....	.....	.....	10 44	.....	.....	.....	11 14	.....	.....	.....	11 44	.....	.....	.....	12 14	.....	.....	.....	.....	12 44	.....	.....	.....	13 14	.....	.....	13 44	.....
Rainham		.....	.....	.....	10 47	.....	.....	.....	11 17	.....	.....	.....	11 47	.....	.....	.....	12 17	.....	.....	.....	.....	12 47	.....	.....	.....	13 17	.....	.....	13 47	.....
Purfleet		.....	.....	.....	10 52	.....	.....	.....	11 22	.....	.....	.....	11 52	.....	.....	.....	12 22	.....	.....	.....	.....	12 52	.....	.....	.....	13 22	.....	.....	13 52	.....
Grays		.....	10 47	.....	10 59	.....	11 17	.....	11 29	.....	11 47	.....	11 59	.....	12 17	.....	12 29	.....	12 47	.....	12 59	.....	13 17	.....	13 29	.....	13 47	.....	13 59	.....
Tilbury Town		.....	10 50	.....	.....	.....	11 20	.....	.....	.....	11 50	.....	.....	.....	12 20	.....	.....	.....	12 50	.....	.....	.....	.....	13 20	.....	.....	13 50	.....	.....
East Tilbury		.....	10 56	.....	.....	.....	11 26	.....	.....	.....	11 56	.....	.....	.....	12 26	.....	.....	.....	12 56	.....	.....	.....	.....	13 26	.....	.....	13 56	.....	.....
Stanford-le-Hope		.....	11 00	.....	.....	.....	11 30	.....	.....	.....	12 00	.....	.....	.....	12 30	.....	.....	.....	13 00	.....	.....	.....	.....	13 30	.....	.....	14 00	.....	.....
West Horndon		10 31	.....	.....	.....	11 01	.....	.....	.....	11 31	.....	.....	.....	.....	12 01	.....	.....	.....	12 31	.....	.....	.....	.....	13 01	.....	.....	13 31	.....	.....	14 01
Laindon		10 36	.....	10 49	.....	11 06	.....	11 19	.....	11 36	.....	11 49	.....	.....	12 06	.....	12 19	.....	12 36	.....	12 49	.....	13 06	.....	13 19	.....	13 36	.....	13 49	14 06
Basildon		10 39	.....	10 52	.....	11 09	.....	11 22	.....	11 39	.....	11 52	.....	.....	12 09	.....	12 22	.....	12 39	.....	12 52	.....	13 09	.....	13 22	.....	13 39	.....	13 52	14 09
Pitsea		10 42	11 08	.....	.....	11 12	11 38	.....	.....	11 42	12 08	.....	.....	12 12	12 38	.....	.....	.....	12 42	13 08	.....	.....	13 12	13 38	.....	.....	13 42	14 08	.....	14 12
Benfleet		10 46	11 12	10 58	.....	11 16	11 42	11 28	.....	11 46	12 12	11 58	.....	12 16	12 42	12 28	.....	12 46	13 12	12 58	.....	13 16	13 42	13 28	.....	13 46	14 12	13 58	.....	14 16
Leigh-on-Sea		10 50	11 16	11 02	.....	11 20	11 46	11 32	.....	11 50	12 16	12 02	.....	12 20	12 46	12 32	.....	12 50	13 16	13 02	.....	13 20	13 46	13 32	.....	13 50	14 16	14 02	.....	14 20
Chalkwell		10 53	11 19	11 05	.....	11 23	11 49	11 35	.....	11 53	12 19	12 05	.....	12 23	12 49	12 35	.....	12 53	13 19	13 05	.....	13 23	13 49	13 35	.....	13 53	14 19	14 05	.....	14 23
Westcliff		10 55	11 21	11 07	.....	11 25	11 51	11 37	.....	11 55	12 21	12 07	.....	12 25	12 51	12 37	.....	12 55	13 21	13 07	.....	13 25	13 51	13 37	.....	13 55	14 21	14 07	.....	14 25
Southend Central	a	10 57	11 24	11 09	.....	11 27	11 54	11 39	.....	11 57	12 24	12 09	.....	12 27	12 54	12 39	.....	12 57	13 24	13 09	.....	13 27	13 54	13 39	.....	13 57	14 24	14 09	.....	14 27
Southend Central	d	10 58	.....	11 10	.....	11 28	.....	11 40	.....	11 58	.....	12 10	.....	12 28	.....	12 40	.....	12 58	.....	13 10	.....	13 28	.....	13 40	.....	13 58	.....	14 10	.....	14 28
Southend East		11 00	.....	11 12	.....	11 30	.....	11 42	.....	12 00	.....	12 12	.....	12 30	.....	12 42	.....	13 00	.....	13 12	.....	13 30	.....	13 42	.....	14 00	.....	14 12	.....	14 30
Thorpe Bay		11 02	.....	11 14	.....	11 32	.....	11 44	.....	12 02	.....	12 14	.....	12 32	.....	12 44	.....	13 02	.....	13 14	.....	13 32	.....	13 44	.....	14 02	.....	14 14	.....	14 32
Shoeburyness	a	11 07	.....	11 19	.....	11 37	.....	11 49	.....	12 07	.....	12 19	.....	12 37	.....	12 49	.....	13 07	.....	13 19	.....	13 37	.....	13 49	.....	14 07	.....	14 19	.....	14 37

From London

London Fenchurch Street	d	13 41	13 49	13 55	14 04	14 11	14 19	14 25	14 34	14 41	14 49	14 55	15 04	15 11	15 19	15 25	15 34	15 42	15 49	15 55	16 01	16 04	16 07	16 10	16 16	16 19	16 22	16 25	16 28	16 31
Limehouse		13 45	13 53	13 59	14 08	14 15	14 23	14 29	14 38	14 45	14 53	14 59	15 08	15 15	15 23	15 29	15 38	15 46	15 53	15 59	16 06	16 09	16 12	16 15	16 21	16 24	16 27	16 30	16 33	16 36
West Ham		13 50	13 58	14 04	14 13	14 20	14 28	14 34	14 43	14 50	14 58	15 04	15 13	15 20	15 28	15 34	15 43	15 51	15 58	16 04	16 11	16 14	16 17	16 21	16 26	16 29	16 32	16 35	16 38	16 41
London Liverpool Street	d	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barking		13 55	14 03	14 09	14 18	14 25	14 33	14 39	14 48	14 55	15 03	15 09	15 18	15 25	15 33	15 39	15 49	15 56	16 03	16 09	16 17	16 20	16 23	16 26	16 32	16 35	16 38	16 41	16 44	16 47
Upminster		14 03	14 11	.....	14 26	14 33	14 41	.....	14 56	15 03	15 11	.....	15 26	15 33	15 41	.....	15 57	16 04	16 11	.....	16 29	.....	16 35	16 40	16 44	.....	16 49	.....	16 56	
Ockendon		14 09	.....	.....	.....	14 39	.....	.....	.....	15 09	.....	.....	.....	15 39	.....	.....	.....	16 10	.....	.....	.....	.....	.....	.....	16 41	.....	.....	.....	16 57	.....
Chafford Hundred (Lakeside)		14 13	.....	.....	.....	14 43	.....	.....	.....	15 13	.....	.....	.....	15 43	.....	.....	.....	16 14	.....	.....	.....	.....	.....	16 44	.....	.....	.....	17 00	.....
Dagenham Dock		.....	.....	14 14	.....	.....	.....	14 44	.....	.....	.....	15 14	.....	.....	.....	15 44	.....	.....	.....	16 14	.....	.....	16 27	.....	.....	.....	.....	16 42	.....	.....
Rainham		.....	.....	14 17	.....	.....	.....	14 47	.....	.....	.....	15 17	.....	.....	.....	15 47	.....	.....	.....	16 17	.....	.....	16 31	.....	.....	.....	.....	16 46	.....	.....
Purfleet		.....	.....	14 22	.....	.....	.....	14 52	.....	.....	.....	15 22	.....	.....	.....	15 52	.....	.....	.....	16 22	.....	.....	16 36	.....	.....	.....	.....	16 51	.....	.....
Grays		14 17	.....	14 29	.....	14 47	.....	14 59	.....	15 17	.....	15 29	.....	15 47	.....	15 59	.....	16 18	.....	16 29	.....	.....	16 44	16 49	.....	.....	16 57	17 07	.....	.....
Tilbury Town		14 20	.....	.....	.....	14 50	.....	.....	.....	15 20	.....	.....	.....	15 50	.....	.....	.....	16 21	.....	.....	.....	.....	16 52	.....	.....	.....	17 00	.....	.....	.....
East Tilbury		14 26	.....	.....	.....	14 56	.....	.....	.....	15 26	.....	.....	.....	15 56	.....	.....	.....	16 27	.....	.....	.....	.....	16 58	.....	.....	.....	17 06	.....	.....	.....
Stanford-le-Hope		14 30	.....	.....	.....	15 00	.....	.....	.....	15 30	.....	.....	.....	16 00	.....	.....	.....	16 31	.....	.....	.....	.....	17 02	.....	.....	.....	17 10	.....	.....	.....
West Horndon		.....	.....	.....	14 31	.....	.....	.....	.....	15 01	.....	.....	.....	15 31	.....	.....	.....	16 02	.....	.....	.....	.....	.....	.....	.....	.....	16 49	.....	.....	.....
Laindon		.....	14 19	.....	14 36	.....	14 49	.....	.....	15 06	.....	15 19	.....	15 36	.....	.....	.....	16 06	.....	16 19	.....	.....	.....	.....	16 39	.....	16 49	16 54	.....	17 04
Basildon		.....	14 22	.....	14 39	.....	14 52	.....	.....	15 09	.....	15 22	.....	15 39	.....	15 52	.....	16 09	.....	16 22	.....	16 33	16 42	.....	.....	.....	16 57	.....	.....	17 01
Pitsea		14 38	.....	.....	14 42	15 08	.....	.....	.....	15 12	15 38	.....	.....	15 42	16 10	.....	.....	16 13	16 42	.....	.....	.....	16 46	.....	17 11	.....	17 01	17 20	.....	.....
Benfleet		14 42	14 28	.....	14 46	15 12	14 58	.....	15 16	15 42	15 28	.....	15 46	16 13	15 58	.....	16 16	16 45	16 28	.....	16 39	16 50	.....	17 16	.....	.....	17 05	.....	.....	17 09
Leigh-on-Sea		14 46	14 32	.....	14 50	15 16	15 02	.....	15 20	15 46	15 32	.....	15 50	16 18	16 02	.....	16 21	16 50	16 32	.....	16 44	16 55	.....	17 21	.....	.....	17 10	.....	.....	17 16
Chalkwell		14 49	14 35	.....	14 53	15 19	15 05	.....	15 23	15 49	15 35	.....	15 53	16 20	16 05	.....	16 23	16 52	16 35	.....	16 46	16 57	.....	17 24	17 03	17 12	.....	.....	.....	17 18
Westcliff		14 51	14 37	.....	14 55	15 21	15 07	.....	15 25	15 51	15 37	.....	15 55	16 22	16 07	.....	16 25	16 54	16 37	.....	16 48	16 59	.....	17 26	17 06	17 14	.....	.....	.....	17 20
Southend Central	a	14 54	14 39	.....	14 57	15 24	15 09	.....	15 27	15 54	15 39	.....	15 58	16 25	16 09	.....	16 28	16 57	16 39	.....	16 53	17 02	.....	17 31	17 09	17 19	.....	.....	.....	17 23
Southend Central	d	.....	14 40	.....	14 58	.....	15 10	.....	15 28	15 54	15 40	.....	15 58	.....	16 10	.....	16 29	.....	16 40	.....	.....	17 02	.....	.....	17 09	.....	.....	.....	.....	17 23
Southend East		.....	14 42	.....	15 00	.....	15 12	.....	15 30	.....	15 42	.....	16 00	.....	16 12	.....	16 31	.....	16 42	.....	.....	17 04	.....	.....	17 11	.....	.....	.....	.....	17 25
Thorpe Bay		.....	14 44	.....	15 02	.....	15 14	.....	15 32	.....	15 44	.....	16 03	.....	16 14	.....	16 33	.....	16 44	.....	.....	17 07	.....	.....	17 14	.....	.....	.....	.....	17 28
Shoeburyness	a	.....	14 49	.....	15 07	.....	15 19	.....	15 37	16 01	15 49	.....	16 07	.....	16 19	.....	16 38	.....	16 49	.....	.....	17 13	.....	.....	17 20	.....	.....	.....	.....	17 34

From London

London Fenchurch Street	d	16 34	16 37	16 40	16 43	16 46	16 49	16 52	16 55	16 58	17 01	17 04	17 07	17 10	17 13	17 16	17 19	17 22	17 25	17 28	17 31	17 34	17 37	17 40	17 43	17 46	17 49	17 52	17 55	17 58	
Limehouse		16 39	16 42	16 45	16 48	16 51	16 54	16 57	17 00	17 03	17 06	17 09	17 12	17 15	17 18	17 21	17 24	17 27	17 30	17 33	17 36	17 39	17 42	17 45	17 48	17 51	17 54	17 57	18 00	18 03	
West Ham		16 44	16 47	16 50	16 53	16 56	16 59	17 02	17 05	17 08	17 11	17 14	17 17	17 20	17 23	17 26	17 29	17 32	17 35	17 38	17 41	17 44	17 47	17 50	17 53	17 56	17 59	18 02	18 05	18 08	
London Liverpool Street	d	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barking		16 50	16 53	16 56	16 59	17 02	17 05	17 08	17 11	17 14	17 17	17 20	17 23	17 26	17 29	17 32	17 35	17 38	17 41	17 44	17 47	17 50	17 53	17 56	17 59	18 02	18 05	18 08	18 11	18 14	
Upminster		16 59	17 04	.....	17 11	17 14	.....	17 19	.....	17 26	17 29	.....	17 34	.....	17 41	17 44	.....	17 49	.....	17 56	17 59	.....	18 04	.....	18 11	18 14	.....	18 19	.....	
Ockendon		.....	.....	17 10	.....	.....	.....	.....	.....	17 27	.....	.....	.....	.....	.....	17 40	.....	.....	.....	17 57	.....	.....	.....	.....	18 10	.....	.....	.....	18 27	.....
Chafford Hundred (Lakeside)		.....	.....	17 14	.....	.....	.....	.....	.....	17 31	.....	.....	.....	.....	.....	17 44	.....	.....	.....	18 00	.....	.....	.....	.....	18 14	.....	.....	.....	18 31	.....
Dagenham Dock		.....	16 57	.....	.....	.....	.....	17 12	.....	.....	.....	.....	17 27	.....	.....	.....	.....	.....	.....	17 42	.....	.....	.....	17 57	.....	.....	.....	.....	18 12	.....
Rainham		.....	17 01	.....	.....	.....	.....	17 16	.....	.....	.....	.....	17 31	.....	.....	.....	.....	.....	.....	17 46	.....	.....	.....	18 01	.....	.....	.....	.....	18 16	.....
Purfleet		.....	17 06	.....	.....	.....	.....	17 21	.....	.....	.....	.....	17 36	.....	.....	.....	.....	.....	.....	17 51	.....	.....	.....	18 06	.....	.....	.....	.....	18 21	.....
Grays		.....	17 12	17 22	.....	.....	.....	17 27	17 36	.....	.....	.....	17 44	17 54	.....	.....	.....	.....	.....	17 57	18 07	.....	.....	18 12	18 22	.....	.....	.....	18 27	18 38
Tilbury Town		.....	17 15	.....	.....	.....	.....	17 30	17 39	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18 00	.....	.....	.....	18 15	.....	.....	.....	.....	18 30	.....
East Tilbury		.....	17 21	.....	.....	.....	.....	17 36	17 45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18 06	.....	.....	.....	18 21	.....	.....	.....	.....	18 36	.....
Stanford-le-Hope		.....	17 25	.....	.....	.....	.....	17 39	17 48	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18 09	.....	.....	.....	18 24	.....	.....	.....	.....	18 39	.....
West Horndon		17 04	.....	.....	.....	.....	17 19	.....	.....	.....	.....	17 34	.....	.....	.....	.....	.....	.....	.....	17 49	.....	.....	.....	18 04	.....	.....	.....	.....	18 19	.....
Laindon		17 09	.....	.....	17 15	17 19	17 24	.....	.....	.....	.....	17 34	17 39	.....	.....	17 45	17 49	17 54	.....	.....	.....	18 04	18 09	.....	.....	18 15	18 19	18 24	.....	.....
Basildon		17 13	17 28	17 31	17 43	17 58	18 01	18 13	18 28	18 31
Pitsea		17 16	17 40	.....	.....	.....	17 31	17 49	17 57	.....	.....	17 46	.....	.....	.....	.....	.....	.....	.....	18 01	18 19	.....	.....	18 16	18 41	.....	.....	.....	18 31	18 49
Benfleet		17 20	17 45	.....	17 24	.....	17 35	.....	18 01	17 39	.....	17 50	.....	.....	17 54	.....	18 05	.....	.....	18 09	.....	.....	18 20	18 45	.....	18 24	.....	18 35	.....	18 39
Leigh-on-Sea		17 25	17 50	.....	17 29	.....	17 40	.....	18 06	17 46	.....	17 55	.....	.....	18 01	.....	18 10	.....	.....	18 16	.....	.....	18 25	18 50	.....	18 31	.....	18 40	.....	18 46
Chalkwell		17 28	17 52	.....	.....	17 33	17 43	.....	18 09	.....	.....	17 48	17 58	.....	.....	.....	18 03	18 13	.....	.....	.....	18 18	18 28	18 52	.....	.....	18 34	18 43	.....	.....
Westcliff		17 30	17 54	.....	.....	17 35	17 45	.....	18 11	.....	.....	17 50	18 00	.....	.....	.....	18 05	18 15	.....	.....	.....	18 20	18 30	18 54	.....	.....	18 36	18 45	.....	.....
Southend Central	a	17 35	17 59	.....	.....	17 38	17 48	.....	18 16	.....	.....	17 53	18 03	.....	.....	.....	18 08	18 20	.....	.....	.....	18 23	18 35	18 57	.....	.....	18 38	18 47	.....	.....
Southend Central	d	.....	.....	.....	.....	17 38	17 48	.....	.....	.....	.....	17 53	18 05	.....	.....	.....	18 08	.....	.....	.....	.....	18 23	.....	18 58	.....	.....	18 39	18 48	.....	.....
Southend East		.....	.....	.....	.....	17 40	17 50	.....	.....	.....	.....	17 55	18 07	.....	.....	.....	18 10	.....	.....	.....	.....	18 25	.....	19 00	.....	.....	18 41	18 50	.....	.....
Thorpe Bay		17 43	17 53	17 58	18 09	18 13	18 28	19 02	18 43	18 52	
Shoeburyness	a	17 49	17 59	18 04	18 16	18 19	18 34	19 09	18 50	18 59	

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London Fenchurch Street	d	18 01	18 04	18 07	18 10	18 13	18 16	18 19	18 22	18 25	18 28	18 31	18 34	18 37	18 40	18 43	18 46	18 49	18 55	18 58	19 04	19 11	19 19	19 25	19 34	19 41	19 49	19 55	20 04	20 11	
Limehouse		18 06	18 09	18 12	18 15	18 18	18 21	18 24	18 27	18 30	18 33	18 36	18 39	18 42	18 45	18 48	18 51	18 54	19 00	19 03	19 08	19 15	19 23	19 29	19 38	19 45	19 53	19 59	20 08	20 15	
West Ham		18 11	18 14	18 17	18 20	18 23	18 26	18 29	18 32	18 35	18 38	18 41	18 44	18 47	18 50	18 53	18 56	18 59	19 05	19 08	19 13	19 20	19 28	19 34	19 43	19 50	19 58	20 04	20 13	20 20	
London Liverpool Street	d	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barking		18 17	18 20	18 23	18 26	18 29	18 32	18 35	18 38	18 41	18 44	18 47	18 50	18 53	18 56	18 59	19 02	19 05	19 11	19 14	19 19	19 25	19 34	19 39	19 49	19 55	20 03	20 09	20 18	20 25	
Upminster		18 26	18 29	.....	18 34	.....	18 41	18 44	.....	18 49	.....	18 56	18 59	.....	19 04	.....	19 11	19 14	.....	19 22	19 27	19 33	19 42	.....	19 57	20 03	20 11	.....	20 26	20 33
Ockendon		.....	.....	.....	18 41	.....	.....	.....	.....	18 57	.....	.....	.....	.....	.....	19 11	.....	.....	.....	.....	.....	19 39	.....	.....	.....	.....	20 09	.....	.....	20 39
Chafford Hundred (Lakeside)		.....	.....	.....	18 44	.....	.....	.....	.....	19 00	.....	.....	.....	.....	.....	19 14	.....	.....	.....	.....	.....	19 43	.....	.....	.....	.....	20 13	.....	.....	20 43
Dagenham Dock		.....	.....	18 27	.....	.....	.....	.....	.....	18 42	.....	.....	.....	18 57	.....	.....	.....	.....	.....	19 15	.....	.....	.....	19 44	.....	.....	.....	20 14	.....	.....
Rainham		.....	.....	18 31	.....	.....	.....	.....	.....	18 46	.....	.....	.....	19 01	.....	.....	.....	.....	.....	19 19	.....	.....	.....	19 47	.....	.....	.....	20 17	.....	.....
Purfleet		.....	.....	18 36	.....	.....	.....	.....	.....	18 51	.....	.....	.....	19 06	.....	.....	.....	.....	.....	19 24	.....	.....	.....	19 52	.....	.....	.....	20 22	.....	.....
Grays		18 42	18 51	18 57	19 04	19 14	19 19	19 32	19 47	19 59	20 17	20 29	20 47
Tilbury Town		.....	.....	18 45	.....	.....	.....	.....	.....	19 00	19 07	.....	.....	.....	19 22	.....	.....	.....	.....	.....	.....	.....	19 50	.....	.....	.....	20 20	.....	.....	20 50
East Tilbury		.....	.....	18 51	.....	.....	.....	.....	.....	19 06	19 13	.....	.....	.....	19 28	.....	.....	.....	.....	.....	.....	.....	19 56	.....	.....	.....	20 26	.....	.....	20 56
Stanford-le-Hope		.....	.....	18 54	.....	.....	.....	.....	.....	19 09	19 17	.....	.....	.....	19 31	.....	.....	.....	.....	.....	.....	.....	20 00	.....	.....	.....	20 30	.....	.....	21 00
West Horndon		.....	18 34	.....	.....	.....	.....	18 49	.....	.....	.....	.....	19 04	.....	.....	.....	.....	.....	.....	19 19	.....	.....	.....	19 32	.....	.....	20 02	.....	.....	20 31
Laindon		18 34	18 39	.....	.....	18 45	18 49	18 54	.....	.....	.....	.....	19 04	19 09	.....	.....	19 15	19 19	19 24	.....	19 31	19 37	.....	19 50	.....	20 06	.....	20 19	.....	20 36
Basildon		.....	18 43	.....	.....	.....	.....	18 58	.....	.....	.....	.....	19 01	.....	19 13	.....	.....	.....	.....	.....	.....	.....	.....	19 53	.....	20 09	.....	20 22	.....	20 39
Pitsea		18 46	19 04	19 01	19 19	19 25	19 16	19 40	19 44	20 08	20 13	20 38	20 42	21 08
Benfleet		.....	18 50	.....	.....	18 54	.....	19 05	.....	19 31	19 09	.....	19 20	.....	19 43	19 24	.....	19 35	.....	19 40	19 48	20 12	19 58	.....	20 16	20 42	20 28	.....	20 46	21 12
Leigh-on-Sea		.....	18 55	.....	.....	19 01	.....	19 10	.....	19 35	19 16	.....	19 25	.....	19 48	19 31	.....	19 40	.....	19 47	19 53	20 16	20 03	.....	20 21	20 46	20 32	.....	20 50	21 16
Chalkwell		18 48	18 58	.....	.....	.....	19 03	19 13	.....	19 38	.....	19 19	19 28	.....	19 50	.....	19 34	19 43	.....	.....	19 56	20 19	20 05	.....	20 23	20 49	20 35	.....	20 53	21 19
Westcliff		18 50	19 00	.....	.....	.....	19 05	19 15	.....	19 40	.....	19 21	19 30	.....	19 52	.....	19 36	19 45	.....	.....	19 58	20 21	20 07	.....	20 25	20 51	20 37	.....	20 55	21 21
Southend Central	a	18 53	19 03	19 08	19 20	19 45	19 23	19 33	19 57	19 38	19 47	20 00	20 25	20 10	20 28	20 55	20 39	20 57	21 25
Southend Central	d	18 53	19 05	.....	.....	19 08	.....	.....	.....	.....	.....	.....	19 23	19 33	.....	.....	.....	19 38	19 48	.....	.....	20 01	.....	20 10	.....	20 29	.....	20 40	.....	20 58
Southend East		18 55	19 07	.....	.....	19 10	.....	.....	.....	.....	.....	.....	19 25	19 35	.....	.....	.....	19 40	19 50	.....	.....	20 03	.....	20 12	.....	20 31	.....	20 42	.....	21 00
Thorpe Bay		18 58	19 09	.....	.....	19 13	.....	.....	.....	.....	.....	.....	19 28	19 38	.....	.....	.....	19 43	19 52	.....	.....	20 05	.....	20 15	.....	20 33	.....	20 44	.....	21 02
Shoeburyness	a	19 04	19 16	19 19	19 34	19 44	19 49	19 57	20 10	20 19	20 38	20 49	21 07	

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London Fenchurch Street	d	20 19	20 25	20 34	20 41	20 49	20 55	21 04	21 11	21 19	21 25	21 34	21 41	21 49	21 55	22 04	22 11	22 19	22 25	22 41	22 49	22 55	23 04	23 11	23 19	23 25	23 41	23 49	23 55	00 11	
Limehouse		20 23	20 29	20 38	20 45	20 53	20 59	21 08	21 15	21 23	21 29	21 38	21 45	21 53	21 59	22 08	22 15	22 23	22 29	22 45	22 53	22 59	23 08	23 15	23 23	23 29	23 45	23 53	23 59	00 15	
West Ham		20 28	20 34	20 43	20 50	20 58	21 04	21 13	21 20	21 28	21 34	21 43	21 50	21 58	22 04	22 13	22 20	22 28	22 34	22 50	22 58	23 04	23 13	23 20	23 28	23 34	23 50	23 58	00 04	00 20	
London Liverpool Street	d	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barking		20 33	20 39	20 48	20 55	21 03	21 09	21 18	21 25	21 33	21 39	21 48	21 55	22 03	22 09	22 18	22 25	22 33	22 39	22 55	23 03	23 09	23 18	23 25	23 33	23 39	23 55	00 03	00 09	00 25	
Upminster		20 41	.....	20 56	21 03	21 11	.....	21 26	21 33	21 41	.....	21 56	22 03	22 11	.....	22 26	22 33	22 41	.....	23 03	23 11	.....	23 26	23 33	23 41	.....	00 03	00 11	.....	00 33
Ockendon		21 09	21 39	22 09	22 39	23 09	23 39	00 09	00 39
Chafford Hundred (Lakeside)		21 13	21 43	22 13	22 43	23 13	23 43	00 13	00 42
Dagenham Dock		20 44	21 14	21 44	22 14	22 44	23 14	23 44	00 14
Rainham		20 47	21 17	21 47	22 17	22 47	23 17	23 47	00 17
Purfleet		20 52	21 22	21 52	22 22	22 52	23 22	23 52	00 22
Grays		.....	20 59	.....	21 17	.....	21 29	.....	21 47	.....	21 59	.....	22 17	.....	22 29	.....	22 47	.....	22 59	23 17	.....	23 29	.....	23 47	.....	23 59	00 17	.....	00 29	00 46
Tilbury Town		.....	.....	.....	21 20	.....	.....	.....	21 50	.....	.....	.....	22 20	.....	.....	.....	22 50	.....	.....	23 20	.....	.....	23 50	.....	.....	.....	00 20	.....	.....	00 49
East Tilbury		.....	.....	.....	21 26	.....	.....	.....	21 56	.....	.....	.....	22 26	.....	.....	.....	22 56	.....	.....	23 26	.....	.....	23 56	.....	.....	.....	00 26	.....	.....	00 55
Stanford-le-Hope		.....	.....	.....	21 30	.....	.....	.....	22 00	.....	.....	.....	22 30	.....	.....	.....	23 00	.....	.....	23 30	.....	.....	23 59	.....	.....	.....	00 30	.....	.....	00 59
West Horndon		.....	.....	21 01	.....	.....	.....	21 31	.....	.....	.....	22 01	.....	.....	.....	22 31	.....	22 46	.....	.....	23 16	.....	23 31	.....	23 46	.....	.....	00 16	.....	.....
Laindon		20 49	.....	21 06	.....	21 19	.....	21 36	.....	21 49	.....	22 06	.....	22 19	.....	22 36	.....	22 51	.....	.....	23 21	.....	23 36	.....	23 51	.....	.....	00 21	.....	.....
Basildon		20 52	.....	21 09	.....	21 22	.....	21 39	.....	21 52	.....	22 09	.....	22 22	.....	22 39	.....	22 54	.....	.....	23 24	.....	23 39	.....	23 54	.....	.....	00 24	.....	.....
Pitsea		.....	.....	21 12	21 38	.....	.....	21 42	22 08	.....	.....	22 12	22 38	.....	.....	22 42	23 08	22 57	.....	23 38	23 27	.....	23 42	00 08	23 57	.....	00 38	00 27	.....	01 07
Benfleet		20 58	.....	21 16	21 42	21 28	.....	21 46	22 12	21 58	.....	22 16	22 42	22 28	.....	22 46	23 12	23 01	.....	23 42	23 31	.....	23 46	00 12	00 01	.....	00 42	00 31	.....	01 11
Leigh-on-Sea		21 02	.....	21 20	21 46	21 32	.....	21 50	22 16	22 02	.....	22 20	22 46	22 32	.....	22 50	23 16	23 05	.....	23 46	23 35	.....	23 50	00 16	00 05	.....	00 46	00 35	.....	01 15
Chalkwell		21 05	.....	21 23	21 49	21 35	.....	21 53	22 19	22 05	.....	22 23	22 49	22 35	.....	22 53	23 19	23 08	.....	23 49	23 38	.....	23 53	00 19	00 08	.....	00 49	00 38	.....	01 18
Westcliff		21 07	.....	21 25	21 51	21 37	.....	21 55	22 21	22 07	.....	22 25	22 51	22 37	.....	22 55	23 21	23 10	.....	23 51	23 40	.....	23 55	00 21	00 10	.....	00 51	00 40	.....	01 20
Southend Central	a	21 09	.....	21 27	21 55	21 39	.....	21 57	22 25	22 09	.....	22 27	22 55	22 39	.....	22 57	23 23	23 12	.....	23 54	23 42	.....	23 57	00 23	00 12	.....	00 53	00 42	.....	01 22
Southend Central	d	21 10	.....	21 28	.....	21 40	.....	21 58	.....	22 10	.....	22 28	.....	22 40	.....	22 58	23 24	23 13	.....	23 54	23 43	.....	23 58	00 23	00 13	.....	00 53	00 43	.....	01 22
Southend East		21 12	.....	21 30	.....	21 42	.....	22 00	.....	22 12	.....	22 30	.....	22 42	.....	23 00	23 26	23 15	.....	23 56	23 45	.....	23 59	00 25	00 15	.....	00 55	00 45	.....	01 24
Thorpe Bay		21 14	.....	21 32	.....	21 44	.....	22 02	.....	22 14	.....	22 32	.....	22 44	.....	23 02	23 28	23 17	.....	23 58	23 47	.....	00 02	00 28	00 17	.....	00 58	00 47	.....	01 27
Shoeburyness	a	21 19	21 37	21 49	22 07	22 19	22 37	22 49	23 07	23 32	23 22	00 03	23 52	00 07	00 32	00 22	01 02	00 52	01 31	

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London Fenchurch Street	d	00 19	00 25	00 34
Limehouse		00 23	00 29	00 38
West Ham		00 28	00 34	00 43
London Liverpool Street	d	.....	.....	.....
Stratford		.....	.....	.....
Barking		00 33	00 39	00 49
Upminster		00 41	.....	00 57
Ockendon		.....	.....	.....
Chafford Hundred (Lakeside)		.....	.....	.....
Dagenham Dock		.....	00 44	.....
Rainham		.....	00 47	.....
Purfleet		.....	00 52	.....
Grays		.....	00 59	.....
Tilbury Town		.....	.....	.....
East Tilbury		.....	.....	.....
Stanford-le-Hope		.....	.....	.....
West Horndon		00 46	.....	01 02
Laindon		00 51	.....	01 07
Basildon		00 54	.....	01 10
Pitsea		00 57	.....	01 13
Benfleet		01 01	.....	01 17
Leigh-on-Sea		01 05	.....	01 21
Chalkwell		01 08	.....	01 24
Westcliff		01 10	.....	01 26
Southend Central	a	01 12	.....	01 28
Southend Central	d	01 13	01 29
Southend East		01 15	01 31
Thorpe Bay		01 17	01 33
Shoeburyness	a	01 22	01 38

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Shoeburyness	d	04 17	04 59	05 13	05 29	05 37	05 45	05 56	06 11	06 26			
Thorpe Bay		04 07	04 20	04 37	05 03	05 07	05 17	05 33	05 37	05 41	05 49	05 55	05 59	06 10	06 14	06 29	06 38				
Southend East		04 09	04 23	.....	04 39	.....	05 05	05 09	05 19	.....	.....	.....	.....	05 35	05 39	05 43	05 51	.....	05 57	06 02	.....	06 12	06 17	.....	.....	.....	06 32	06 40	.....	.....	.....	.....	.....
Southend Central	a	04 12	04 25	.....	04 42	.....	05 08	05 12	05 22	.....	.....	.....	.....	05 38	05 42	05 46	05 54	.....	06 00	06 04	.....	06 19	06 23	.....	.....	.....	06 34	.....	.....	.....	.....	.....
Southend Central	d	04 12	04 26	.....	04 42	.....	05 08	05 12	05 22	.....	.....	.....	.....	05 38	05 42	05 46	05 54	.....	06 00	06 05	06 11	.....	06 20	.....	.....	.....	06 35	.....	.....	.....	06 45	.....	.....	
Westcliff		04 15	04 28	.....	04 45	.....	05 10	05 15	05 24	.....	.....	.....	.....	05 40	05 44	05 48	05 56	.....	06 02	06 07	06 13	.....	06 22	.....	.....	.....	06 37	.....	.....	.....	06 48	.....	.....	
Chalkwell		04 17	04 30	.....	04 47	.....	05 13	05 17	05 27	.....	.....	.....	.....	05 43	05 47	05 51	05 59	.....	06 05	06 09	06 16	.....	06 24	.....	.....	.....	06 39	.....	.....	.....	06 50	.....	.....	
Leigh-on-Sea		04 20	04 33	.....	04 50	.....	05 15	05 20	05 30	.....	.....	.....	.....	05 45	05 49	05 53	06 01	.....	06 07	06 12	06 18	06 22	06 27	06 36	.....	.....	06 42	06 47	.....	.....	06 53	.....	.....	
Benfleet		04 24	04 37	.....	04 54	.....	05 20	05 24	05 35	.....	.....	.....	.....	05 50	05 54	05 58	06 06	.....	06 12	06 17	06 23	06 27	06 32	06 41	.....	.....	06 47	06 52	.....	.....	06 57	.....	.....	
Pitsea		04 28	04 41	.....	04 58	.....	05 23	05 28	05 38	.....	.....	.....	.....	05 53	06 04	.....	06 09	.....	06 19	06 21	06 29	06 31	06 36	.....	.....	06 42	06 51	.....	.....	.....	07 04	.....	.....	
Basildon		.....	04 44	.....	.....	.....	05 27	.....	05 42	.....	.....	.....	.....	05 57	.....	06 03	06 13	.....	.....	06 25	.....	06 35	06 40	06 47	.....	.....	06 55	06 58	.....	.....	.....	.....	.....
Laindon		.....	04 47	.....	.....	.....	05 30	.....	05 45	.....	.....	.....	.....	06 00	.....	06 06	06 16	.....	.....	06 28	.....	06 43	.....	.....	.....	.....	06 58	07 01	.....	.....	.....	.....	.....	.....
West Horndon		.....	04 52	.....	.....	.....	05 34	.....	05 49	.....	.....	.....	.....	06 04	.....	.....	06 20	.....	.....	06 33	.....	06 48	.....	.....	.....	.....	07 03	.....	.....	.....	.....	.....	.....	.....
Stanford-le-Hope		04 34	.....	.....	05 04	.....	.....	05 34	.....	.....	.....	.....	.....	.....	06 10	.....	.....	.....	.....	06 25	.....	06 35	.....	.....	.....	.....	06 48	.....	.....	.....	07 10	.....	.....	.....
East Tilbury		04 37	.....	.....	05 07	.....	.....	05 37	.....	.....	.....	.....	.....	.....	06 14	.....	.....	.....	.....	06 29	.....	06 38	.....	.....	.....	.....	06 52	.....	.....	.....	07 14	.....	.....	.....
Tilbury Town		04 43	.....	.....	05 13	.....	.....	05 43	.....	.....	.....	.....	.....	.....	06 20	.....	.....	.....	.....	06 35	.....	06 44	.....	.....	.....	.....	06 58	.....	.....	.....	07 20	.....	.....	.....
Grays		04 46	.....	04 53	05 16	05 23	.....	05 46	.....	05 53	06 06	06 14	.....	06 23	.....	.....	06 32	06 38	.....	06 48	.....	.....	.....	.....	06 53	07 01	.....	.....	07 02	07 17	07 23	.....	.....	
Purfleet		.....	.....	04 59	.....	05 29	.....	.....	.....	05 59	06 13	.....	.....	06 29	.....	.....	06 44	.....	.....	06 44	.....	.....	.....	.....	06 59	07 07	.....	.....	.....	.....	07 29	.....	.....	.....
Rainham		.....	.....	05 04	.....	05 34	.....	.....	.....	06 04	06 19	.....	.....	06 34	.....	.....	.....	.....	.....	06 49	.....	.....	.....	.....	.....	07 04	07 12	.....	.....	.....	07 34	.....	.....	.....
Dagenham Dock		.....	.....	05 07	.....	05 37	.....	.....	.....	06 08	06 22	.....	.....	06 38	.....	.....	.....	.....	.....	06 53	.....	.....	.....	.....	07 08	07 16	.....	.....	.....	07 38	.....	.....	.....	.....
Chafford Hundred (Lakeside)		04 50	.....	.....	05 20	.....	.....	05 50	.....	.....	.....	.....	.....	06 18	.....	.....	.....	.....	06 36	.....	06 51	.....	.....	.....	.....	.....	.....	.....	07 06	07 21	.....	.....	.....	.....
Ockendon		04 54	.....	.....	05 24	.....	.....	05 54	.....	.....	.....	.....	.....	06 23	.....	.....	.....	.....	06 40	.....	06 56	.....	.....	.....	.....	.....	.....	.....	07 11	07 26	.....	.....	.....	.....
Upminster		05 00	04 57	.....	05 30	.....	05 39	06 00	05 54	.....	.....	.....	.....	06 30	06 09	.....	06 15	06 25	06 48	.....	06 38	07 03	.....	06 53	.....	.....	.....	07 08	.....	07 18	07 33	.....	.....	.....
Barking		05 08	05 05	05 13	05 38	05 43	05 47	06 08	06 02	06 14	06 28	06 38	06 17	06 44	06 23	06 33	06 56	06 59	06 47	07 11	06 53	07 02	07 05	07 14	07 23	07 17	07 20	07 26	07 41	07 44	.....	.....	.....	.....
Stratford		
London Liverpool Street	a
West Ham		05 13	05 10	05 18	05 43	05 48	05 52	06 13	06 07	06 19	06 34	06 43	06 22	06 49	06 28	06 38	07 02	07 05	06 52	07 17	06 59	07 08	07 11	07 20	07 29	07 23	07 26	07 32	07 47	07 50	
Limehouse		05 18	05 15	05 23	05 48	05 53	05 57	06 18	06 12	06 24	06 39	06 48	06 27	06 55	06 33	06 43	07 07	07 10	06 58	07 22	07 04	07 13	07 16	07 25	07 34	07 28	07 31	07 37	07 52	07 55
London Fenchurch Street	a	05 23	05 20	05 28	05 53	05 58	06 02	06 23	06 17	06 29	06 44	06 53	06 32	07 00	06 38	06 48	07 14	07 17	07 05	07 29	07 11	07 20	07 23	07 32	07 41	07 35	07 38	07 44	07 59	08 02	

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Shoeburyness	d	06 40	06 50	07 05	07 20	07 35	07 50	08 05	
Thorpe Bay		06 43	06 53	07 01	07 08	07 13	07 23	07 28	07 38	07 43	07 53	08 02	08 08	
Southend East		06 46	06 56	.....	.....	.....	.....	07 03	07 11	.....	07 15	07 26	.....	.....	.....	07 30	.....	07 41	.....	07 45	07 56	.....	.....	.....	.....	.....	08 05	08 11	.....
Southend Central	a	06 48	06 58	.....	.....	.....	.....	07 07	07 13	.....	07 18	07 28	.....	.....	.....	07 33	.....	07 43	.....	07 48	07 58	.....	.....	.....	.....	.....	08 07	08 13	.....
Southend Central	d	06 49	06 59	.....	.....	.....	07 04	07 07	07 14	.....	07 18	07 29	.....	.....	.....	07 33	07 38	07 44	.....	07 48	07 59	.....	.....	.....	.....	08 04	08 08	08 14	.....
Westcliff		06 51	07 01	.....	.....	.....	07 06	07 09	07 16	.....	07 20	07 31	.....	.....	.....	07 35	07 40	07 46	.....	07 50	08 01	.....	.....	.....	.....	08 06	08 11	08 16	.....
Chalkwell		06 54	07 03	.....	.....	.....	07 09	07 12	07 18	.....	07 23	07 33	.....	.....	.....	07 38	07 43	07 48	.....	07 53	08 03	.....	.....	.....	.....	08 09	08 13	08 18	.....
Leigh-on-Sea		06 57	.....	07 08	.....	.....	07 12	07 16	.....	07 23	07 27	.....	07 38	.....	.....	07 42	07 46	.....	07 53	07 57	.....	08 08	.....	.....	.....	08 12	08 16	.....	08 23
Benfleet		07 02	.....	07 13	.....	.....	07 17	07 21	.....	07 28	07 32	.....	07 43	.....	.....	07 47	07 51	.....	07 58	08 02	.....	08 13	.....	.....	.....	08 17	08 21	.....	08 28
Pitsea		07 05	.....	.....	07 19	07 20	07 29	.....	07 32	07 35	.....	.....	.....	07 49	.....	07 50	08 04	.....	.....	08 05	.....	.....	.....	08 19	08 20	08 29	.....	.....	.....
Basildon		07 09	.....	.....	.....	07 24	.....	.....	07 36	07 39	.....	.....	.....	.....	.....	07 54	.....	.....	08 06	08 09	.....	.....	.....	.....	08 24	.....	.....	.....	08 36
Laindon		07 13	07 18	07 22	.....	.....	07 28	.....	07 33	.....	07 43	07 48	07 52	.....	.....	07 58	.....	08 03	.....	08 13	08 18	08 22	.....	.....	.....	08 28	.....	08 33	.....
West Horndon		07 17	.....	.....	.....	07 32	.....	.....	.....	.....	07 47	.....	.....	.....	.....	08 02	.....	.....	.....	08 17	.....	.....	.....	.....	.....	08 32	.....	.....	.....
Stanford-le-Hope		.....	.....	.....	07 25	.....	07 35	.....	.....	.....	.....	.....	.....	07 55	.....	08 10	.....	.....	.....	.....	.....	.....	.....	08 25	.....	08 35	.....	.....	.....
East Tilbury		.....	.....	.....	07 29	.....	07 38	.....	.....	.....	.....	.....	.....	07 59	.....	08 14	.....	.....	.....	.....	.....	.....	.....	08 29	.....	08 38	.....	.....	.....
Tilbury Town		.....	.....	.....	07 35	.....	07 44	.....	.....	.....	.....	.....	.....	08 05	.....	08 20	.....	.....	.....	.....	.....	.....	.....	08 35	.....	08 44	.....	.....	.....
Grays		.....	.....	.....	07 32	07 38	.....	07 48	.....	.....	.....	.....	07 52	08 02	08 08	08 17	.....	08 23	.....	.....	.....	.....	08 32	08 38	.....	08 48	.....	.....	.....
Purfleet		.....	.....	.....	07 44	.....	.....	.....	.....	.....	.....	.....	07 59	.....	08 14	.....	08 29	.....	.....	.....	.....	.....	.....	08 44	.....	.....	.....	.....	.....
Rainham		.....	.....	.....	07 49	.....	.....	.....	.....	.....	.....	.....	08 04	.....	08 19	.....	08 34	.....	.....	.....	.....	.....	.....	08 49	.....	.....	.....	.....	.....
Dagenham Dock		.....	.....	.....	07 53	.....	.....	.....	.....	.....	.....	.....	08 08	.....	08 23	.....	08 38	.....	.....	.....	.....	.....	.....	08 53	.....	.....	.....	.....	.....
Chafford Hundred (Lakeside)		.....	.....	.....	07 36	.....	07 51	.....	.....	.....	.....	.....	08 06	.....	08 21	.....	.....	.....	.....	.....	.....	.....	.....	08 36	.....	08 51	.....	.....	.....
Ockendon		.....	.....	.....	07 41	.....	07 56	.....	.....	.....	.....	.....	08 10	.....	08 26	.....	.....	.....	.....	.....	.....	.....	.....	08 41	.....	08 56	.....	.....	.....
Upminster		07 23	07 26	07 48	07 38	08 03	07 41	07 53	07 56	08 17	08 33	08 08	08 11	08 23	08 26	08 48	08 38	09 03	08 41
Barking		07 32	07 35	07 38	07 56	07 59	07 47	08 11	07 50	07 53	08 02	08 05	08 08	08 14	08 26	08 29	08 41	08 17	08 44	08 20	08 23	08 32	08 35	08 38	08 56	08 59	08 47	09 11	08 50	08 53
Stratford	
London Liverpool Street	a
West Ham		07 38	07 41	07 44	08 02	08 05	07 53	08 17	07 56	07 59	08 08	08 11	08 14	08 20	08 32	08 35	08 47	08 23	08 50	08 26	08 29	08 38	08 41	08 44	09 02	09 05	08 53	09 17	08 56	08 59
Limehouse		07 43	07 46	07 49	08 07	08 10	07 58	08 22	08 01	08 04	08 13	08 16	08 19	08 25	08 37	08 40	08 52	08 28	08 55	08 31	08 34	08 43	08 46	08 49	09 07	09 10	08 58	09 22	09 01	09 04
London Fenchurch Street	a	07 50	07 53	07 56	08 14	08 17	08 05	08 29	08 08	08 11	08 20	08 23	08 26	08 32	08 44	08 47	09 00	08 35	09 02	08 38	08 41	08 50	08 53	08 56	09 14	09 17	09 05	09 29	09 08	09 11

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Shoeburyness	d	08 20	08 35	08 49	09 11	09 26	09 41	09 56	10 11	10 26	10 41				
Thorpe Bay		08 13	08 23	08 38	08 52	09 15	09 30	09 45	10 00	10 15	10 30	10 45				
Southend East		08 15	08 26	.....	.....	.....	.....	.....	08 41	.....	.....	08 55	.....	.....	.....	.....	09 17	.....	09 32	.....	09 47	.....	10 02	.....	10 17	.....	10 32	.....	10 47		
Southend Central	a	08 18	08 28	.....	.....	.....	.....	.....	08 43	.....	.....	08 57	.....	.....	.....	.....	09 20	.....	09 35	.....	09 50	.....	10 05	.....	10 20	.....	10 35	.....	10 50		
Southend Central	d	08 18	08 29	.....	.....	.....	.....	.....	08 34	08 44	.....	08 50	08 58	.....	.....	09 02	.....	09 13	09 20	.....	09 35	09 43	09 50	.....	10 05	10 13	10 20	.....	10 35	10 43	10 50
Westcliff		08 20	08 31	.....	.....	.....	.....	.....	08 36	08 46	.....	08 52	09 00	.....	.....	09 05	.....	09 16	09 22	.....	09 37	09 46	09 52	.....	10 07	10 16	10 22	.....	10 37	10 46	10 52
Chalkwell		08 23	08 33	.....	.....	.....	.....	.....	08 39	08 48	.....	08 55	09 02	.....	.....	09 07	.....	09 18	09 25	.....	09 40	09 48	09 55	.....	10 10	10 18	10 25	.....	10 40	10 48	10 55
Leigh-on-Sea		08 27	.....	08 38	.....	.....	.....	.....	08 42	.....	08 53	08 58	09 05	.....	.....	09 10	.....	09 21	09 27	.....	09 42	09 51	09 57	.....	10 12	10 21	10 27	.....	10 42	10 51	10 57
Benfleet		08 32	.....	08 43	.....	.....	.....	.....	08 47	.....	08 58	09 03	09 10	.....	.....	09 15	.....	09 25	09 32	.....	09 47	09 55	10 02	.....	10 17	10 25	10 32	.....	10 47	10 55	11 02
Pitsea		08 35	.....	.....	.....	.....	08 49	08 50	.....	.....	.....	09 06	.....	.....	09 15	09 19	.....	09 29	.....	.....	09 50	09 59	.....	.....	10 20	10 29	.....	.....	10 50	10 59	.....	
Basildon		08 39	.....	.....	.....	.....	.....	08 54	.....	.....	09 06	09 10	09 16	.....	.....	09 23	.....	.....	09 37	.....	09 54	.....	10 07	.....	10 24	.....	10 37	.....	10 54	.....	11 07
Laindon		08 43	08 48	08 52	.....	.....	.....	.....	08 58	09 03	.....	09 14	09 20	.....	.....	09 26	.....	.....	09 40	.....	09 57	.....	10 10	.....	10 27	.....	10 40	.....	10 57	.....	11 10
West Horndon		08 47	.....	.....	.....	.....	.....	.....	09 02	.....	.....	09 18	.....	.....	.....	09 31	.....	.....	.....	.....	10 01	.....	.....	.....	10 31	.....	.....	.....	11 01	.....	.....
Stanford-le-Hope		08 55	09 21	09 35	10 05	10 35	11 05
East Tilbury		08 59	09 24	09 38	10 08	10 38	11 08
Tilbury Town		09 05	09 30	09 44	10 14	10 44	11 14
Grays		08 52	09 02	09 08	09 16	09 34	09 40	09 48	10 10	10 17	10 40	10 47	11 10	11 17	
Purfleet		08 59	09 14	09 39	09 46	10 16	10 46	11 16	
Rainham		09 04	09 19	09 45	09 51	10 21	11 21	
Dagenham Dock		09 08	09 23	09 48	09 55	10 24	10 54	11 24	
Chafford Hundred (Lakeside)		09 06	09 20	09 52	10 21	10 51	11 21	
Ockendon		09 11	09 24	09 56	10 25	10 55	11 25	
Upminster		08 53	08 56	.....	.....	09 18	.....	09 08	09 11	.....	09 24	09 28	09 31	.....	09 36	.....	10 03	09 49	.....	10 06	10 31	10 18	.....	10 36	11 01	10 48	.....	11 06	11 31	11 18	.....	
Barking		09 02	09 05	09 08	09 14	09 26	09 29	09 17	09 20	09 23	09 32	09 37	09 40	09 54	09 45	10 01	10 11	09 57	10 30	10 14	10 39	10 26	11 00	10 44	11 09	10 56	11 30	11 14	11 39	11 26	.....	
Stratford		
London Liverpool Street	a	
West Ham		09 08	09 11	09 14	09 20	09 32	09 35	09 23	09 26	09 29	09 38	09 43	09 46	09 59	09 50	10 06	10 16	10 02	10 35	10 19	10 44	10 31	11 05	10 49	11 14	11 01	11 35	11 19	11 44	11 31	.....	
Limehouse		09 13	09 16	09 19	09 25	09 37	09 40	09 28	09 31	09 34	09 43	09 48	09 51	10 05	09 56	10 11	10 21	10 07	10 40	10 24	10 49	10 36	11 10	10 54	11 19	11 06	11 40	11 24	11 49	11 36	.....	
London Fenchurch Street	a	09 20	09 23	09 26	09 32	09 44	09 47	09 35	09 38	09 41	09 50	09 55	09 58	10 10	10 01	10 16	10 26	10 13	10 45	10 29	10 54	10 41	11 15	10 59	11 24	11 11	11 45	11 29	11 54	11 41		

To London

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Shoeburyness	d	10 56	11 11	11 26	11 41	11 56	12 11	12 26	12 41	12 56	13 11	13 26	13 41	13 56	14 11		
Thorpe Bay		.....	11 00	.....	11 15	.....	11 30	.....	11 45	.....	12 00	.....	12 15	.....	12 30	.....	12 45	.....	13 00	.....	13 15	.....	13 30	.....	13 45	.....	14 00	.....	14 15	.....	
Southend East		.....	11 02	.....	11 17	.....	11 32	.....	11 47	.....	12 02	.....	12 17	.....	12 32	.....	12 47	.....	13 02	.....	13 17	.....	13 32	.....	13 47	.....	14 02	.....	14 17	.....	
Southend Central	a	.....	11 05	.....	11 20	.....	11 35	.....	11 50	.....	12 05	.....	12 20	.....	12 35	.....	12 50	.....	13 05	.....	13 20	.....	13 35	.....	13 50	.....	14 05	.....	14 20	.....	
Southend Central	d	.....	11 05	11 13	11 20	.....	11 35	11 43	11 50	.....	12 05	12 13	12 20	.....	12 35	12 43	12 50	.....	13 05	13 13	13 20	.....	13 35	13 43	13 50	.....	14 05	14 13	14 20	.....	
Westcliff		.....	11 07	11 16	11 22	.....	11 37	11 46	11 52	.....	12 07	12 16	12 22	.....	12 37	12 46	12 52	.....	13 07	13 16	13 22	.....	13 37	13 46	13 52	.....	14 07	14 16	14 22	.....	
Chalkwell		.....	11 10	11 18	11 25	.....	11 40	11 48	11 55	.....	12 10	12 18	12 25	.....	12 40	12 48	12 55	.....	13 10	13 18	13 25	.....	13 40	13 48	13 55	.....	14 10	14 18	14 25	.....	
Leigh-on-Sea		.....	11 12	11 21	11 27	.....	11 42	11 51	11 57	.....	12 12	12 21	12 27	.....	12 42	12 51	12 57	.....	13 12	13 21	13 27	.....	13 42	13 51	13 57	.....	14 12	14 21	14 27	.....	
Benfleet		.....	11 17	11 25	11 32	.....	11 47	11 55	12 02	.....	12 17	12 25	12 32	.....	12 47	12 55	13 02	.....	13 17	13 25	13 32	.....	13 47	13 55	14 02	.....	14 17	14 25	14 32	.....	
Pitsea		.....	11 20	11 29	.....	11 50	11 59	.....	12 20	12 29	.....	12 50	12 59	.....	13 20	13 29	.....	13 50	13 59	.....	14 20	14 29	.....	14 50	14 59	.....	15 20	15 29	.....	15 50	.....
Basildon		11 24	11 37	11 54	12 07	12 24	12 37	12 54	13 07	13 24	13 37	13 54	14 07	14 24	14 37	14 54
Laindon		11 27	11 40	11 57	12 10	12 27	12 40	12 57	13 10	13 27	13 40	13 57	14 10	14 27	14 40	14 57
West Horndon		.....	11 31	.....	.....	.....	12 01	.....	.....	.....	12 31	.....	.....	.....	13 01	.....	.....	.....	13 31	.....	.....	.....	14 01	.....	.....	.....	14 31	.....	.....	.....	.....
Stanford-le-Hope		.....	.....	11 35	.....	.....	12 05	.....	.....	.....	12 35	.....	.....	.....	13 05	.....	.....	.....	13 35	.....	.....	.....	14 05	.....	.....	.....	14 35	.....	.....	.....	.....
East Tilbury		.....	.....	11 38	.....	.....	12 08	.....	.....	.....	12 38	.....	.....	.....	13 08	.....	.....	.....	13 38	.....	.....	.....	14 08	.....	.....	.....	14 38	.....	.....	.....	.....
Tilbury Town		.....	.....	11 44	.....	.....	12 14	.....	.....	.....	12 44	.....	.....	.....	13 14	.....	.....	.....	13 44	.....	.....	.....	14 14	.....	.....	.....	14 44	.....	.....	.....	.....
Grays		11 40	.....	11 47	.....	12 10	.....	12 17	.....	12 40	.....	12 47	.....	13 10	.....	13 17	.....	13 40	.....	13 47	.....	14 10	.....	14 17	.....	14 40	.....	14 47	.....	15 10	.....
Purfleet		11 46	12 16	12 46	13 16	13 46	14 16	14 46	15 16
Rainham		11 51	12 21	12 51	13 21	13 51	14 21	14 51	15 21
Dagenham Dock		11 54	12 24	12 54	13 24	13 54	14 24	14 54	15 24
Chafford Hundred (Lakeside)		.....	.....	11 51	.....	.....	12 21	.....	.....	.....	12 51	.....	.....	.....	13 21	.....	.....	.....	13 51	.....	.....	.....	14 21	.....	.....	.....	14 51	.....	.....	.....	.....
Ockendon		.....	.....	11 55	.....	.....	12 25	.....	.....	.....	12 55	.....	.....	.....	13 25	.....	.....	.....	13 55	.....	.....	.....	14 25	.....	.....	.....	14 55	.....	.....	.....	.....
Upminster		.....	11 36	12 01	11 48	.....	12 06	12 31	12 18	.....	12 36	13 01	12 48	.....	13 06	13 31	13 18	.....	13 36	14 01	13 48	.....	14 06	14 31	14 18	.....	14 36	15 01	14 48	.....	.....
Barking		12 00	11 44	12 09	11 56	12 30	12 14	12 39	12 26	13 00	12 44	13 09	12 56	13 30	13 14	13 39	13 26	14 00	13 44	14 09	13 56	14 30	14 14	14 39	14 26	15 00	14 44	15 09	14 56	15 30	.....
Stratford	
London Liverpool Street	a
West Ham		12 05	11 49	12 14	12 01	12 35	12 19	12 44	12 31	13 05	12 49	13 14	13 01	13 35	13 19	13 44	13 31	14 05	13 49	14 14	14 01	14 35	14 19	14 44	14 31	15 05	14 49	15 14	15 01	15 35	.....
Limehouse		12 10	11 54	12 19	12 06	12 40	12 24	12 49	12 36	13 10	12 54	13 19	13 06	13 40	13 24	13 49	13 36	14 10	13 54	14 19	14 06	14 40	14 24	14 49	14 36	15 10	14 54	15 19	15 06	15 40	.....
London Fenchurch Street	a	12 15	11 59	12 24	12 11	12 45	12 29	12 54	12 41	13 15	12 59	13 24	13 11	13 45	13 29	13 54	13 41	14 15	13 59	14 24	14 11	14 45	14 29	14 54	14 41	15 15	14 59	15 24	15 11	15 45	

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December 2015

Shoeburyness	d	14 26	14 41	14 56	15 12	15 29	15 44	16 00	16 11	16 29	16 44	16 59	17 06	
Thorpe Bay		14 30	.....	14 45	.....	15 00	.....	15 16	.....	15 33	.....	15 47	16 04	.....	.....	.....	16 14	.....	.....	.....	16 33	.....	16 48	.....	.....	17 03	.....	.....	17 09	.....
Southend East		14 32	.....	14 47	.....	15 02	.....	15 18	.....	15 35	.....	15 50	16 06	.....	.....	.....	16 17	.....	.....	.....	16 35	.....	16 50	.....	.....	17 05	.....	.....	17 12	.....
Southend Central	a	14 35	.....	14 50	.....	15 05	.....	15 21	.....	15 38	.....	15 52	16 09	.....	.....	.....	16 19	.....	.....	.....	16 38	.....	16 53	.....	.....	17 08	.....	.....	17 14	.....
Southend Central	d	14 35	14 43	14 50	.....	15 05	15 13	15 21	.....	15 38	15 43	15 53	16 09	.....	.....	16 14	16 20	.....	16 29	16 32	16 38	16 45	16 53	16 58	.....	17 08	.....	.....	17 15	.....
Westcliff		14 37	14 46	14 52	.....	15 07	15 16	15 23	.....	15 40	15 45	15 55	16 11	.....	.....	16 17	16 22	.....	16 31	16 35	16 40	16 47	16 55	17 00	.....	17 10	.....	.....	17 17	.....
Chalkwell		14 40	14 48	14 55	.....	15 10	15 18	15 26	.....	15 43	15 48	15 57	16 14	.....	.....	16 19	16 24	.....	16 34	16 37	16 43	16 50	16 58	17 03	.....	17 13	.....	.....	17 19	.....
Leigh-on-Sea		14 42	14 51	14 57	.....	15 12	15 21	15 28	.....	15 45	15 50	16 00	16 16	.....	.....	16 22	16 27	16 31	16 36	16 40	16 45	16 53	17 00	17 05	.....	17 15	.....	.....	17 22	17 25
Benfleet		14 47	14 55	15 02	.....	15 17	15 25	15 33	.....	15 50	15 55	16 04	16 21	.....	.....	16 26	16 31	16 36	16 41	16 44	16 50	16 57	17 05	17 10	.....	17 20	.....	.....	17 26	17 31
Pitsea		14 50	14 59	.....	.....	15 20	15 29	.....	.....	15 53	15 58	.....	16 24	.....	.....	16 31	16 35	.....	16 45	16 49	16 53	17 01	17 08	17 14	.....	17 23	.....	17 24	17 30	.....
Basildon		14 54	.....	15 07	.....	15 24	.....	15 38	.....	15 57	.....	16 10	16 28	.....	.....	16 39	16 43	16 49	.....	.....	16 57	17 04	17 12	17 18	.....	17 27	.....	.....	17 34	17 37
Laindon		14 57	.....	15 10	.....	15 27	.....	15 41	.....	16 00	.....	16 13	16 31	.....	.....	16 42	16 46	16 52	.....	.....	17 00	17 07	17 15	17 21	.....	17 30	.....	.....	17 37	17 40
West Horndon		15 01	.....	.....	.....	15 31	.....	.....	.....	16 04	.....	.....	16 35	.....	.....	16 47	.....	.....	.....	.....	17 04	.....	17 19	.....	.....	17 34	.....	.....	.....	.....
Stanford-le-Hope		.....	15 05	.....	.....	15 35	.....	.....	.....	16 04	.....	.....	.....	.....	.....	16 37	.....	.....	.....	.....	16 55	.....	.....	.....	.....	.....	.....	.....	17 30	.....
East Tilbury		.....	15 08	.....	.....	15 38	.....	.....	.....	16 08	.....	.....	.....	.....	.....	16 40	.....	.....	.....	.....	16 59	.....	.....	.....	.....	.....	.....	.....	17 34	.....
Tilbury Town		.....	15 14	.....	.....	15 44	.....	.....	.....	16 14	.....	.....	.....	.....	.....	16 46	.....	.....	.....	.....	17 05	.....	.....	.....	.....	.....	.....	.....	17 40	.....
Grays		.....	15 17	.....	15 40	.....	15 47	.....	16 09	.....	16 17	.....	.....	16 38	16 48	16 50	.....	.....	.....	.....	17 08	.....	.....	.....	.....	17 17	.....	17 29	17 43	.....
Purfleet		.....	.....	.....	15 46	.....	.....	.....	16 15	.....	.....	.....	.....	16 44	.....	16 56	.....	.....	.....	.....	17 13	.....	.....	.....	.....	.....	17 35	17 49	.....	.....
Rainham		.....	.....	.....	15 51	.....	.....	.....	16 20	.....	.....	.....	.....	16 49	.....	17 01	.....	.....	.....	.....	17 18	.....	.....	.....	.....	.....	17 40	17 54	.....	.....
Dagenham Dock		.....	.....	.....	15 54	.....	.....	.....	16 24	.....	.....	.....	.....	16 52	.....	17 04	.....	.....	.....	.....	17 22	.....	.....	.....	.....	.....	17 43	17 58	.....	.....
Chafford Hundred (Lakeside)		.....	15 21	.....	.....	15 51	.....	.....	.....	16 21	.....	.....	.....	16 52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17 21	.....	.....	.....	.....
Ockendon		.....	15 25	.....	.....	15 55	.....	.....	.....	16 25	.....	.....	.....	16 57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17 27	.....	.....	.....	.....
Upminster		15 06	15 31	15 18	.....	15 36	16 02	15 49	.....	16 09	16 32	16 21	16 40	.....	17 04	.....	16 53	16 56	17 00	.....	17 09	17 15	17 24	17 29	17 34	17 39	.....	.....	17 45	17 48
Barking		15 14	15 39	15 26	16 01	15 44	16 11	15 57	16 31	16 17	16 41	16 29	16 48	16 58	17 13	17 10	17 01	17 04	17 08	17 28	17 17	17 23	17 32	17 38	17 43	17 47	17 50	18 05	17 53	17 56	
Stratford	
London Liverpool Street	a
West Ham		15 20	15 44	15 31	16 06	15 49	16 16	16 02	16 36	16 22	16 47	16 34	16 53	17 04	17 19	17 16	17 07	17 10	17 13	17 34	17 22	17 28	17 37	17 43	17 49	17 52	17 55	18 10	17 58	18 01	
Limehouse		15 25	15 49	15 36	16 12	15 54	16 21	16 07	16 41	16 27	16 52	16 39	16 58	17 09	17 24	17 21	17 12	17 15	17 18	17 39	17 27	17 33	17 42	17 48	17 54	17 57	18 00	18 15	18 03	18 06	
London Fenchurch Street	a	15 30	15 54	15 41	16 17	15 59	16 26	16 12	16 46	16 32	16 57	16 44	17 03	17 14	17 29	17 26	17 17	17 20	17 23	17 44	17 32	17 38	17 47	17 53	17 59	18 02	18 05	18 20	18 08	18 11	

To London

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December 2015

Shoeburyness	d	17 14	17 29	17 44	18 15	18 30	18 45	18 58	19 11	19 26						
Thorpe Bay		17 18	.....	.....	.....	17 33	.....	.....	.....	.....	17 48	.....	.....	.....	.....	.....	.....	18 19	.....	18 34	.....	18 49	.....	.....	.....	19 02	.....	19 15	.....	19 30				
Southend East		17 20	.....	.....	.....	17 35	.....	.....	.....	.....	17 50	.....	.....	.....	.....	.....	.....	18 21	.....	18 36	.....	18 51	.....	.....	.....	19 04	.....	19 17	.....	19 32				
Southend Central	a	17 23	.....	.....	.....	17 38	.....	.....	.....	.....	17 53	.....	.....	.....	.....	.....	.....	18 24	.....	18 39	.....	18 54	.....	.....	.....	19 07	.....	19 20	.....	19 35				
Southend Central	d	17 23	17 26	.....	.....	17 38	.....	.....	.....	.....	17 41	.....	.....	.....	.....	.....	.....	18 08	.....	18 11	.....	18 24	18 29	18 39	18 43	18 54	.....	.....	19 07	19 13	19 20	.....	19 35	
Westcliff		17 25	17 29	.....	.....	17 40	.....	.....	.....	.....	17 43	.....	.....	.....	.....	.....	.....	18 10	.....	18 13	.....	18 26	18 31	18 41	18 46	18 56	.....	.....	19 09	19 16	19 22	.....	19 37	
Chalkwell		17 28	17 31	.....	.....	17 43	.....	.....	.....	.....	17 46	.....	.....	.....	.....	.....	.....	18 12	.....	18 16	.....	18 29	18 34	18 44	18 48	18 59	.....	.....	19 12	19 18	19 25	.....	19 40	
Leigh-on-Sea		17 30	17 34	17 37	.....	17 45	.....	.....	.....	.....	17 49	17 52	18 00	18 07	.....	.....	.....	18 15	.....	18 18	18 22	18 31	18 36	18 46	18 51	19 01	.....	.....	19 14	19 21	19 27	.....	19 42	
Benfleet		17 35	17 39	17 43	.....	17 50	.....	.....	.....	.....	17 53	17 58	18 05	18 13	.....	.....	.....	18 20	.....	18 23	18 28	18 36	18 41	18 51	18 55	19 06	.....	.....	19 19	19 25	19 32	.....	19 47	
Pitsea		17 38	17 44	.....	.....	17 53	.....	17 54	17 57	.....	18 08	.....	.....	.....	.....	.....	.....	18 23	.....	18 26	.....	18 39	18 44	18 54	18 59	19 09	.....	.....	19 22	19 29	.....	.....	19 50	
Basildon		17 42	17 47	17 50	.....	17 57	.....	.....	.....	.....	18 01	18 05	18 12	18 20	.....	.....	.....	18 27	.....	.....	.....	18 35	18 43	.....	18 58	.....	.....	19 13	.....	19 26	.....	19 37	.....	19 54
Laindon		17 45	17 51	17 53	.....	18 00	.....	.....	.....	.....	18 04	18 09	18 15	18 23	.....	.....	.....	18 30	.....	.....	.....	18 39	18 46	.....	19 01	.....	.....	19 16	.....	19 29	.....	19 40	.....	19 57
West Horndon		17 49	.....	.....	.....	18 04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18 35	.....	.....	.....	18 50	.....	19 05	.....	19 20	.....	.....	19 33	.....	.....	.....	20 01	
Stanford-le-Hope		.....	.....	.....	.....	.....	.....	18 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18 32	.....	.....	18 50	.....	19 05	.....	.....	.....	.....	19 35	.....	.....
East Tilbury		.....	.....	.....	.....	.....	.....	18 04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19 38	.....	.....
Tilbury Town		.....	.....	.....	.....	.....	.....	18 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19 44	.....	.....
Grays		17 49	17 58	18 13	18 17	20 10	
Purfleet		18 04	18 19	20 16
Rainham		18 09	18 24	20 21
Dagenham Dock		18 13	18 28	20 24
Chafford Hundred (Lakeside)		17 53	19 51
Ockendon		17 57	19 55
Upminster		17 54	17 59	18 01	18 04	18 09	18 13	18 17	18 24	18 32	18 35	18 40	20 06
Barking		18 02	18 07	18 10	18 13	18 17	18 20	18 35	18 22	18 25	18 32	18 40	18 43	18 48	18 50	19 05	19 11	18 58	19 03	19 24	19 18	19 39	19 33	19 43	20 00	19 46	20 09	19 56	20 30	20 14	.....	.....	.....	.....
Stratford		
London Liverpool Street	a	
West Ham		18 07	18 13	18 16	18 19	18 22	18 25	18 40	18 28	18 31	18 37	18 46	18 49	18 53	18 56	19 11	19 16	19 04	19 08	19 30	19 23	19 44	19 38	19 48	20 05	19 51	20 14	20 01	20 35	20 19	.....	.....	.....	.....
Limehouse		18 12	18 18	18 21	18 24	18 27	18 30	18 45	18 33	18 36	18 42	18 51	18 54	18 58	19 01	19 17	19 21	19 09	19 13	19 35	19 28	19 49	19 43	19 53	20 10	19 56	20 19	20 06	20 40	20 24	.....	.....	.....	.....
London Fenchurch Street	a	18 17	18 23	18 26	18 29	18 32	18 35	18 50	18 38	18 41	18 47	18 56	18 59	19 03	19 06	19 22	19 26	19 14	19 18	19 40	19 33	19 54	19 48	19 58	20 15	20 01	20 24	20 11	20 45	20 29	.....	.....	.....	.....

To London

Shoeburyness	d	.....	19 41	.....	19 56	.....	20 11	.....	20 26	.....	20 41	20 56	.....	.....	.....	21 26	.....	21 41	21 56	.....	.....	.....	22 26	.....	.....	22 56	.....	.....	23 26
Thorpe Bay		.....	19 45	.....	20 00	.....	20 15	.....	20 30	.....	20 45	21 00	.....	.....	.....	21 30	.....	21 45	22 00	.....	.....	.....	22 30	.....	.....	23 00	.....	.....	23 30
Southend East		.....	19 47	.....	20 02	.....	20 17	.....	20 32	.....	20 47	21 02	.....	.....	.....	21 32	.....	21 47	22 02	.....	.....	.....	22 32	.....	.....	23 02	.....	.....	23 32
Southend Central	a	.....	19 50	.....	20 05	.....	20 20	.....	20 35	.....	20 50	21 05	.....	.....	.....	21 35	.....	21 50	22 05	.....	.....	.....	22 35	.....	.....	23 05	.....	.....	23 35
Southend Central	d	19 43	19 50	.....	20 05	20 13	20 20	.....	20 35	20 43	20 50	21 05	.....	21 13	.....	21 35	21 43	21 50	22 05	.....	22 13	22 35	.....	22 43	23 05	.....	23 13	23 35	
Westcliff		19 46	19 52	.....	20 07	20 16	20 22	.....	20 37	20 46	20 52	21 07	.....	21 16	.....	21 37	21 46	21 52	22 07	.....	22 16	22 37	.....	22 46	23 07	.....	23 16	23 37	
Chalkwell		19 48	19 55	.....	20 10	20 18	20 25	.....	20 40	20 48	20 55	21 10	.....	21 18	.....	21 40	21 48	21 55	22 10	.....	22 18	22 40	.....	22 48	23 10	.....	23 18	23 40	
Leigh-on-Sea		19 51	19 57	.....	20 12	20 21	20 27	.....	20 42	20 51	20 57	21 12	.....	21 21	.....	21 42	21 51	21 57	22 12	.....	22 21	22 42	.....	22 51	23 12	.....	23 21	23 42	
Benfleet		19 55	20 02	.....	20 17	20 25	20 32	.....	20 47	20 55	21 02	21 17	.....	21 25	.....	21 47	21 55	22 02	22 17	.....	22 25	22 47	.....	22 55	23 17	.....	23 25	23 47	
Pitsea		19 59	.....	.....	20 20	20 29	.....	.....	20 50	20 59	.....	21 20	.....	21 29	.....	21 50	21 59	.....	22 20	.....	22 29	22 50	.....	22 59	23 20	.....	23 29	23 50	
Basildon		.....	20 07	.....	20 24	.....	20 37	.....	20 54	.....	21 07	21 24	.....	.....	.....	21 54	.....	22 07	22 24	.....	.....	22 54	.....	.....	23 24	.....	.....	23 54	
Laindon		.....	20 10	.....	20 27	.....	20 40	.....	20 57	.....	21 10	21 27	.....	.....	.....	21 57	.....	22 10	22 27	.....	.....	22 57	.....	.....	23 27	.....	.....	23 57	
West Horndon		.....	.....	.....	20 31	.....	.....	.....	21 01	.....	.....	21 31	.....	.....	.....	22 01	.....	.....	22 31	.....	.....	23 01	.....	.....	23 31	.....	.....	00 01	
Stanford-le-Hope		20 05	.....	.....	20 35	.....	.....	.....	21 05	.....	.....	.....	.....	21 35	.....	.....	.....	22 05	.....	.....	.....	22 35	.....	.....	23 05	.....	.....	23 35	.....
East Tilbury		20 08	.....	.....	20 38	.....	.....	.....	21 08	.....	.....	.....	.....	21 38	.....	.....	.....	22 08	.....	.....	.....	22 38	.....	.....	23 08	.....	.....	23 38	.....
Tilbury Town		20 14	.....	.....	20 44	.....	.....	.....	21 14	.....	.....	.....	.....	21 44	.....	.....	.....	22 14	.....	.....	.....	22 44	.....	.....	23 14	.....	.....	23 44	.....
Grays		20 17	.....	20 40	.....	20 47	.....	21 10	.....	21 17	.....	.....	21 40	21 47	22 10	.....	22 17	.....	.....	22 40	22 47	.....	23 10	23 17	.....	23 39	23 47	.....	.....
Purfleet		.....	.....	20 46	.....	.....	21 16	.....	.....	.....	.....	.....	21 46	.....	22 16	.....	.....	.....	.....	22 46	.....	23 16	.....	.....	23 45	.....	.....	.....	.....
Rainham		.....	.....	20 51	.....	.....	21 21	.....	.....	.....	.....	.....	21 51	.....	22 21	.....	.....	.....	.....	22 51	.....	23 21	.....	.....	23 50	.....	.....	.....	.....
Dagenham Dock		.....	.....	20 54	.....	.....	21 24	.....	.....	.....	.....	.....	21 54	.....	22 24	.....	.....	.....	.....	22 54	.....	23 24	.....	.....	23 54	.....	.....	.....	.....
Chafford Hundred (Lakeside)		20 21	.....	.....	20 51	.....	.....	.....	21 21	.....	.....	.....	.....	21 51	.....	.....	.....	.....	.....	22 21	.....	.....	22 51	.....	23 21	.....	.....	23 51	.....
Ockendon		20 25	.....	.....	20 55	.....	.....	.....	21 25	.....	.....	.....	.....	21 55	.....	.....	.....	.....	.....	22 25	.....	.....	22 55	.....	23 25	.....	.....	23 55	.....
Upminster		20 31	20 18	.....	20 36	21 01	20 48	.....	21 06	21 31	21 18	21 36	.....	22 01	.....	22 06	22 31	22 18	22 36	.....	23 01	23 06	.....	23 31	23 36	.....	00 01	00 06	
Barking		20 39	20 26	21 00	20 44	21 09	20 56	21 30	21 14	21 39	21 26	21 44	22 00	22 09	22 30	22 14	22 39	22 26	22 44	23 00	23 09	23 14	23 30	23 39	23 44	23 59	00 09	00 14	
Stratford		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
London Liverpool Street	a	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Ham		20 44	20 31	21 05	20 49	21 14	21 01	21 35	21 19	21 44	21 31	21 49	22 05	22 14	22 35	22 19	22 44	22 31	22 49	23 05	23 14	23 19	23 35	23 44	23 49	00 05	00 14	00 19	
Limehouse		20 49	20 36	21 10	20 54	21 19	21 06	21 40	21 24	21 49	21 36	21 54	22 10	22 19	22 40	22 24	22 49	22 36	22 54	23 10	23 19	23 24	23 40	23 49	23 54	00 10	00 19	00 24	
London Fenchurch Street	a	20 54	20 41	21 15	20 59	21 24	21 11	21 45	21 29	21 54	21 41	21 59	22 15	22 24	22 45	22 29	22 54	22 41	22 59	23 15	23 24	23 29	23 45	23 54	23 59	00 15	00 24	00 29	

West Horndon



Station Approach, West Horndon, Brentwood, Essex

Opening Hours:

Mon To Fri: 0615-2000

Sat: 0815-1700

Sun: 0000-0000

Sun: 0000-0000

TICKETING

Ticket Machines for purchasing on the day and pre purchased tickets are available. Oyster ticket Machines are not available.

ASSISTANCE AND ACCESS

Step free access is only available from street level if travelling towards Southend from platform 2. There is no lift or step free entrance to platform 1. Accessible ticket machines and an induction loop is available. Impaired mobility set down is available within the booking hall. National key toilets are available within the booking hall.

CYCLE RACKS

10 cycle racks are available in the station carpark or on Platform 2 (Shoeburyness bound).

ATTRACTIONS

West Horndon is a pretty village just on the outskirts of London it has three golf courses close to the station – South Essex Golf Centre, Thorndon Park Golf Course and Warley Park Golf Club. If a day on the links doesn't tickle your fancy then take a stroll around Barnards Farm Gardens where you can take in a Japanese garden, young woodland, formal gardens and some interesting sculptures.

DRINKS & DINING

This picturesque village has two notable restaurants. The first is a family run Italian establishment La Bicicletta where they source and serve local produce. The second is The Railway Hotel, which is just across from the station. This traditional Victorian pub serves real ale and a good Sunday lunch.

SHOPPING

Gardeners will love the Homefield Nursery and Town and Country Nursery and Landscapes. If you enjoy diving Nutty's dive Centre is the place to go. For more traditional high street shops hop on the train to Basildon for Eastgate Shopping Centre.

Additional Information

Passenger Services

Services		Information
	Staffing Level	Part-time
Unavailable	Left Luggage	
Available	Lost Property	Mon To Fri: 08:00 - 18:00
Available	CCTV	

Ticketing

Services		Information
Available	Ticket Machines	
Available	Ticket Office	Mon To Fri 06:15 - 20:00 Sat 08:15 - 17:00 Sun 00:00 - 00:00 Sun 00:00 - 00:00
Available	Collection of Pre Purchased Tickets	
Unavailable	Oyster Pre Paid	
Unavailable	Oyster Top Up	
Unavailable	Travelcard Area	

Facilities

Services		Information
Available	Seated Area	
Unavailable	Waiting Rooms	
Unavailable	Trolleys	
Available	Refreshment Facilities	
Available	Toilets	Within booking hall
Unavailable	Baby Changing	
Unavailable	Pay Phones	
Available	Post Box	
Unavailable	Tourist Information Office	
Unavailable	Shops	
Unavailable	Wifi	
Unavailable	Web Kiosk	
Unavailable	ATM Machine	

Accessibility

Services		Information
Unavailable	Helpline	01702 357 640 Mon To Fri : 08:00 - 18:00
Available	Customer Help Points	
Unavailable	Staff Help	
Unavailable	Accessible Ticket Office Counter	
Available	Induction Loop	
Available	Ramp for train access	
Unavailable	Accessible public telephones	
Available	National key toilets	Within booking hall
Available	Step free access coverage	Step free access is only available from street level if travelling towards Southend from platform 2. There is no lift or step free entrance to platform 1
Available	Impaired mobility set down	Outside station entrance
Available	Disabled parking	
Unavailable	Accessible taxis	
Unavailable	Wheelchairs	

Transport Links

Services		Information
Available	Cycle storage availability	
Available	Cycle storage CCTV	
	Cycle storage location	Car Park & Platform 2 (Shoeburyness bound)
Unavailable	Cycle storage sheltered	
Available	Cycle storage # spaces	10
	Cycle storage type	Stands
	Rail replacement services location	Outside station entrance in car park
Available	Taxi rank	No
Available	Bus services	Information to plan your onward journey is available in a printable format here .
Available	Metro services	
Unavailable	Airport services	
Available	Port services	
Unavailable	Car hire services	
Unavailable	Cycle hire	
Unavailable	Car Park: Station Car Park	

APPENDIX B

West Horndon Bus Services

Mondays to Fridays (hourly frequency)

West Horndon, o/s Railway Station	0900	0957	1057	1157	1257	1357	1557	1657
Bulphan, Church	0908	1005	1105	1205	1305	1405	1605	1705
Bulphan, Recreation Ground	0909	1006	1106	1206	1306	1406	1606	1706
Orsett, Hospital	0918	1015	1115	1215	1315	1415	1615	1715
Orsett, Rectory Road	0919	1015	1115	1215	1315	1415	1615	1715
Orsett, Stanford Road	0920	1017	1117	1217	1317	1417	1617	1717
Socketts Heath, The Oak	0923	1020	1120	1220	1320	1420	1620	1720
Grays, Tennyson Avenue	0924	1021	1121	1221	1321	1421	1621	1721
Grays, Whitehall Road	0925	1022	1122	1222	1322	1422	1622	1722
Grays, Turps Corner	0927	1023	1123	1223	1323	1423	1623	1723
Grays, Bradleigh Avenue	0928	1024	1124	1224	1324	1424	1624	1724
Grays, Stanley Road	0929	1026	1126	1226	1326	1426	1626	1726
Grays, Bus Station (Bay 3)	0932	1028	1128	1228	1328	1428	1628	1728

Timetable effective from 17th March 2014

Saturday (hourly frequency)

West Horndon, o/s Railway Station	0900	0957	1057	1157	1257	1357	1557	1657
Bulphan, Church	0908	1005	1105	1205	1305	1405	1605	1705
Bulphan, Recreation Ground	0909	1006	1106	1206	1306	1406	1606	1706
Orsett, Hospital	0918	1015	1115	1215	1315	1415	1615	1715
Orsett, Rectory Road	0919	1015	1115	1215	1315	1415	1615	1715
Orsett, Stanford Road	0920	1017	1117	1217	1317	1417	1617	1717
Socketts Heath, The Oak	0923	1020	1120	1220	1320	1420	1620	1720
Grays, Tennyson Avenue	0924	1021	1121	1221	1321	1421	1621	1721
Grays, Whitehall Road	0925	1022	1122	1222	1322	1422	1622	1722
Grays, Turps Corner	0927	1023	1123	1223	1323	1423	1623	1723
Grays, Bradleigh Avenue	0928	1024	1124	1224	1324	1424	1624	1724
Grays, Stanley Road	0929	1026	1126	1226	1326	1426	1626	1726
Grays, Bus Station (Bay 3)	0932	1028	1128	1228	1328	1428	1628	1728

Timetable effective from 17th March 2014

Mondays to Fridays (hourly frequency)

Grays, Bus Station (Bay 8)	0935	1035	1135	1235	1335	1535	1635	1735
Grays, Stanley Road	0936	1036	1136	1236	1336	1536	1636	1736
Grays, Bradleigh Avenue	0937	1037	1137	1237	1337	1537	1637	1737
Grays, Turps Corner	0938	1038	1138	1238	1338	1538	1638	1738
Grays, Whitehall Road	0939	1039	1139	1239	1339	1539	1639	1739
Grays, Tennyson Avenue	0940	1040	1140	1240	1340	1540	1640	1740
Grays, Piggs Corner	0941	1041	1141	1241	1341	1541	1641	1741
Socketts Heath, The Oak)	0942	1042	1142	1242	1342	1542	1642	1742
Orsett, Stanford Road	0945	1045	1145	1245	1345	1545	1645	1745
Orsett, Rectory Road	0946	1046	1146	1246	1346	1546	1646	1746
Orsett, Hospital	0947	1047	1147	1247	1347	1547	1647	1747
Bulphan, Bulphan Motel	0953	1053	1153	1253	1353	1553	1653	1753
West Horndon, opp Clavering Gardens	0956	1056	1156	1256	1356	1556	1656	1756
West Horndon, o/s Railway Station	0957	1057	1157	1257	1357	1557	1657	1757

Timetable effective from 17th March 2014

Saturdays (hourly frequency)

Grays, Bus Station (Bay 8)	0935	1035	1135	1235	1335	1535	1635	1735
Grays, Stanley Road	0936	1036	1136	1236	1336	1536	1636	1736
Grays, Bradleigh Avenue	0937	1037	1137	1237	1337	1537	1637	1737
Grays, Turps Corner	0938	1038	1138	1238	1338	1538	1638	1738
Grays, Whitehall Road	0939	1039	1139	1239	1339	1539	1639	1739
Grays, Tennyson Avenue	0940	1040	1140	1240	1340	1540	1640	1740
Grays, Piggs Corner	0941	1041	1141	1241	1341	1541	1641	1741
Socketts Heath, The Oak)	0942	1042	1142	1242	1342	1542	1642	1742
Orsett, Stanford Road	0945	1045	1145	1245	1345	1545	1645	1745
Orsett, Rectory Road	0946	1046	1146	1246	1346	1546	1646	1746
Orsett, Hospital	0947	1047	1147	1247	1347	1547	1647	1747
Bulphan, Bulphan Motel	0953	1053	1153	1253	1353	1553	1653	1753
West Horndon, opp Clavering Gardens	0956	1056	1156	1256	1356	1556	1656	1756
West Horndon, o/s Railway Station	0957	1057	1157	1257	1357	1557	1657	1757

Timetable effective from 17th March 2014

SERVICE 477 - West Hordon - Ingrave

NIBSbuses.com

Schooldays Only	AM	PM
West Hordon Rail Station	07:50	15:52
West Hordon Clavering Gardens	07:51	15:51
Ingrave Road	08:00	15:42
Brentwood County High School	08:15	15:30

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The information on this timetable is expected to be valid until at least 28th January 2015. Where we know of variations, before or after this date, then we show these at the top of each affected column in the table.

Direction of stops: where shown (eg: W-bound) this is the compass direction towards which the bus is pointing when it stops

Mondays to Fridays

Service Restrictions	1							2										
	Notes	Sch	NSch	Sch	NSch	NSch	Sch	Sch	NSch	NSch	Sch	Sch	NSch	NSch	Sch			
Bulphan, Recreation Ground (W-bound)	—	—	—	0742	0802	0907	0907	—	1057	—	1303	—	—	—	1603	1603	—	1811
West Horndon, opp Railway Station	—	—	—	0750	0810	0915	0915	—	1105	—	—	—	—	—	—	—	—	—
Bulphan, Bulphan Motel (N-bound)	—	—	—	—	—	—	—	—	—	—	1306	—	—	—	1606	1606	—	1814
West Horndon, opp Dunton Hills Farm	—	—	—	0753	0813	0918	0918	—	1108	—	1308	—	—	—	1608	1608	—	1816
Herongate, opp The Green Man	0700	0715	0758	0818	0923	0923	1013	1113	1213	1313	1405	1455	1455	1615	1615	1700	1821	—
Brentwood, o/s Council Offices	0707	0722	0812	0828	0930	0930	1020	1120	1220	1320	1412	1502	1502	1623	1623	1708	1828	—
Brentwood, opp St Helen's School	—	—	0825	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brentwood, High Street (Stop E)	0710	0725	—	0833	0933	0933	1023	1123	1223	1323	1415	1505	1505	1627	1627	1712	1831	—
Brentwood, o/s Brentwood Railway Station	0715	0730	—	0838	0938	0938	1028	1128	1228	1328	1420	—	1510	1633	1633	1718	1836	—

Saturdays

Bulphan, Recreation Ground (W-bound)	0807	0907	—	1057	—	1303	—	—	1603	—	1801	—	—	—	—	—	—	—
West Horndon, opp Railway Station	0815	0915	—	1105	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bulphan, Bulphan Motel (N-bound)	—	—	—	—	—	1305	—	—	1606	—	1804	—	—	—	—	—	—	—
West Horndon, opp Dunton Hills Farm	0818	0918	—	1108	—	1308	—	—	1608	—	1808	—	—	—	—	—	—	—
Herongate, opp The Green Man	0823	0923	1013	1113	1213	1313	1413	1503	1613	1705	—	—	—	—	—	—	—	—
Brentwood, o/s Council Offices	0830	0930	1020	1120	1220	1320	1420	1510	1620	1712	—	—	—	—	—	—	—	—
Brentwood, High Street (Stop E)	0833	0933	1023	1123	1223	1323	1423	1513	1623	1715	—	—	—	—	—	—	—	—
Brentwood, o/s Brentwood Railway Station	0838	0938	1028	1128	1228	1328	1428	1518	1628	1720	—	—	—	—	—	—	—	—

Sundays

no service

Fri 2 Jan

Notes	NSch	NSch	NSch	NSch										NSch				
Bulphan, Recreation Ground (W-bound)	—	0802	0907	—	1057	—	1303	—	—	1603	—	—	—	—	—	—	—	1811
West Horndon, opp Railway Station	—	0810	0915	—	1105	—	—	—	—	—	—	—	—	—	—	—	—	—
Bulphan, Bulphan Motel (N-bound)	—	—	—	—	—	—	1306	—	—	1606	—	—	—	—	—	—	—	1814
West Horndon, opp Dunton Hills Farm	—	0813	0918	—	1108	—	1308	—	—	1608	—	—	—	—	—	—	—	1816
Herongate, opp The Green Man	0715	0818	0923	1013	1113	1213	1313	1405	1455	1615	1700	1821	—	—	—	—	—	—
Brentwood, o/s Council Offices	0722	0828	0930	1020	1120	1220	1320	1412	1502	1623	1708	1828	—	—	—	—	—	—
Brentwood, High Street (Stop E)	0725	0833	0933	1023	1123	1223	1323	1415	1505	1627	1712	1831	—	—	—	—	—	—
Brentwood, o/s Brentwood Railway Station	0730	0838	0938	1028	1128	1228	1328	1420	1510	1633	1718	1836	—	—	—	—	—	—

Service Restrictions: 1 - not 16.2.15 to 20.2., 30.3. to 10.4.
2 - only 16.2.15 to 20.2., 30.3. to 10.4.

Notes: NSch - Not Schooldays
Sch - Schooldays only



The information on this timetable is expected to be valid until at least 28th January 2015. Where we know of variations, before or after this date, then we show these at the top of each affected column in the table.

Direction of stops: where shown (eg: W-bound) this is the compass direction towards which the bus is pointing when it stops

Mondays to Fridays

Table with columns: Service Restrictions, Notes, Sch, NSch, NSch, Sch, 1, 2, 1, 2, 1, 2, 1. Rows include: Brentwood, opp Brentwood Railway Station; Brentwood, High Street (Stop C); Brentwood, opp St Helen's School; Brentwood, opp Council Offices; Herongate, o/s The Green Man; Herongate, opp The Green Man; West Horndon, o/s Dunton Hills Farm; Bulphan, Bulphan Motel (S-bound); Bulphan, Recreation Ground (W-bound); West Horndon, o/s Railway Station; Bulphan, Recreation Ground (E-bound).

Saturdays

Table with columns: Notes, Sch, NSch, NSch, Sch, 1, 2, 1, 2, 1, 2, 1. Rows include: Brentwood, opp Brentwood Railway Station; Brentwood, High Street (Stop C); Brentwood, opp St Helen's School; Brentwood, opp Council Offices; Herongate, o/s The Green Man; Herongate, opp The Green Man; West Horndon, o/s Dunton Hills Farm; Bulphan, Bulphan Motel (S-bound); Bulphan, Recreation Ground (W-bound); West Horndon, o/s Railway Station; Bulphan, Recreation Ground (E-bound).

Sundays

no service

Fri 2 Jan

Table with columns: Notes, NSch, NSch, 1, 2, 1, 2, 1, 2, 1, 2, 1. Rows include: Brentwood, opp Brentwood Railway Station; Brentwood, High Street (Stop C); Brentwood, opp Council Offices; Herongate, o/s The Green Man; Herongate, opp The Green Man; West Horndon, o/s Dunton Hills Farm; Bulphan, Bulphan Motel (S-bound); Bulphan, Recreation Ground (W-bound); West Horndon, o/s Railway Station; Bulphan, Recreation Ground (E-bound).

Service Restrictions: 1 - not 16.2.15 to 20.2., 30.3. to 10.4. 2 - only 16.2.15 to 20.2., 30.3. to 10.4.

Notes: NSch - Not Schooldays Sch - Schooldays only

**565****Brentwood Station - Herongate - West Horndon - Bulphan**

Regal Busways

For times of the next departures from a particular stop you can use **traveline-txt** - by sending the SMS code to **84268**. Add the service number after the code if you just want a specific service - eg: **buctdgt 60**. The return message from **traveline-txt** will show the next three departures, and it currently costs 25p plus any message sending charge. However it is free for all stops in Lincolnshire & in the SW region. Departure times will be real-time predictions where available, or scheduled departure times if not.

You can also get the same information by using the SMS code at www.nextbuses.mobi (only normal browsing charges apply) or through several iPhone or Android apps that offer access to **NextBuses**.

NOTE: SMS codes are different in each direction. Make sure you choose the right direction from these lists.

SMS Code	Stop Name	Street	ATCO Code
thuatmj	Bulphan, Recreation Ground (W-bound)	Church Road	1590036501
esxawtdt	West Horndon, opp Railway Station	Station Road	1500IM556
esxawdpw	West Horndon, adj Clavering Gardens	Station Road	1500WSTHORN1
thuajp	Bulphan, Bulphan Motel (N-bound)	Bulphan By Pass	15907075119
esxawdpt	West Horndon, opp Duntun Hills Farm	Tilbury Road	150006013004
esxawdpg	East Horndon, adj Halfway House	Tilbury Road	150006013001
esxawdptd	Herongate, o/s Thorndon Country Park	Brentwood Road	150006012011
esxawdpa	Herongate, opp The Green Man	Brentwood Road	1500IM2043
esxawdmt	Ingrave, adj Thorndon Approach	Brentwood Road	150006012008
esxawdmj	Ingrave, o/s School	Brentwood Road	150006012006
esxawdmd	Ingrave, o/s Church	Brentwood Road	1500IM1441B
esxawdma	Ingrave, o/s Thorndon Park Gates	Brentwood Road	150006012003
esxawdjt	Ingrave, adj Common Road	Brentwood Road	150006012001
esxgajaj	Brentwood, adj The Avenue	Ingrave Road	150037010008
esxgpwmdm	Brentwood, opp Masons	Ingrave Road	1500370100Y7
esxgajad	Brentwood, adj Bridge Close	Ingrave Road	150037010006
esxgpwaw	Brentwood, opp Hogarth Avenue	Ingrave Road	1500370100Y5
esxgagwp	Brentwood, adj Shenfield Common	Ingrave Road	150037010004
esxgagwj	Brentwood, o/s Council Offices	Ingrave Road	150037010002
esxjjad	Brentwood, adj Queen's Road	A128	1500IM198C
esxadgwd	Brentwood, opp St Helen's School	Sawyers Hall Lane	1500IM980
esxgmtjm	Brentwood, High Street (Stop E)	High Street	1500DGK173
esxadgwd	Brentwood, Crown Street (Stop J)	High Street	150037002005
esxgajdt	Brentwood, adj Queens Road Rbt	Kings Road	150037009001
esxgajga	Brentwood, o/s Brentwood Railway Station	Kings Road	1500IM439B

**565****Bulphan - West Horndon - Herongate - Brentwood Station**

Regal Busways

For times of the next departures from a particular stop you can use **traveline-txt** - by sending the SMS code to **84268**. Add the service number after the code if you just want a specific service - eg: **buctdgt 60**. The return message from **traveline-txt** will show the next three departures, and it currently costs 25p plus any message sending charge. However it is free for all stops in Lincolnshire & in the SW region. Departure times will be real-time predictions where available, or scheduled departure times if not.

You can also get the same information by using the SMS code at www.nextbuses.mobi (only normal browsing charges apply) or through several iPhone or Android apps that offer access to **NextBuses**.

NOTE: SMS codes are different in each direction. Make sure you choose the right direction from these lists.

SMS Code	Stop Name	Street	ATCO Code
esxgajgd	Brentwood, opp Brentwood Railway Station	Kings Road	1500IM439
esxgajdw	Brentwood, opp Queens Road Rbt	Kings Road	150037006001
esxgadwg	Brentwood, Crown Street (Stop K)	High Street	150037002006
esxgadwm	Brentwood, High Street (Stop C)	High Street	150037002008
esxadgwd	Brentwood, opp St Helen's School	Sawyers Hall Lane	1500IM980
esxgagwg	Brentwood, Wilsons Corner (SE-bound)	Ingrave Road	1500IM981
esxgagwm	Brentwood, opp Council Offices	Ingrave Road	1500IM981B
esxgpmgp	Brentwood, opp Shenfield Common	Ingrave Road	1500370100Y4
esxgagwt	Brentwood, adj Hogarth Avenue	Ingrave Road	150037010005
esxjamdw	Brentwood, opp Bridge Close	Ingrave Road	150037010Y06
esxgajag	Brentwood, o/s Masons	Ingrave Road	150037010007
esxgpmjm	Brentwood, opp The Avenue	Ingrave Road	1500370100Y8
esxawdjw	Ingrave, opp Thorndon Park Gates	Brentwood Road	150006012002
esxawdmg	Ingrave, opp Church	Brentwood Road	1500IM1441
esxawdmp	Ingrave, opp School	Brentwood Road	150006012007
esxawdmw	Ingrave, opp Thorndon Approach	Brentwood Road	150006012009
esxadwdw	Herongate, o/s The Green Man	Brentwood Road	1500IM210
esxawdpa	Herongate, opp The Green Man	Brentwood Road	1500IM2043
esxgpmaw	Herongate, opp Thorndon Country Park	Brentwood Road	1500060120Y1
esxawdpj	East Horndon, opp Halfway House	Tilbury Road	1500IM2044
esxawdpm	West Horndon, o/s Dunton Hills Farm	Tilbury Road	1500WSTHORN2
thuajt	Bulphan, Bulphan Motel (S-bound)	Bulphan by pass	15907075120
thuatmj	Bulphan, Recreation Ground (W-bound)	Church Road	1590036501
esxawdtg	West Horndon, o/s Railway Station	Station Road	150006013008
thudmap	Bulphan, Church (E-bound)	Church Road	1590036401
thuatmp	Bulphan, Recreation Ground (E-bound)	Church Road	1590036601

APPENDIX C
TRICS Output Files

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	EX ESSEX	1 days
04	EAST ANGLIA	
	SF SUFFOLK	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 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: 230 to 432 (units:)
 Range Selected by User: 200 to 491 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/06 to 12/05/14

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
Tuesday	1 days
Thursday	1 days

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

Selected survey types:

Manual count	3 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	3
--------------	---

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	2
No Sub Category	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.

Filtering Stage 3 selection:

Use Class:

C3 3 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:

10,001 to 15,000 1 days
15,001 to 20,000 1 days
20,001 to 25,000 1 days

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

Population within 5 miles:

50,001 to 75,000 1 days
125,001 to 250,000 2 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 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 3 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 | EX-03-A-01 | SEMI -DET. | ESSEX |
| | MILTON ROAD | | |
| | CORRINGHAM | | |
| | STANFORD-LE-HOPE | | |
| | Edge of Town | | |
| | Residential Zone | | |
| | Total Number of dwellings: | 237 | |
| | Survey date: TUESDAY | 13/05/08 | Survey Type: MANUAL |
| 2 | NE-03-A-02 | SEMI DETACHED & DETACHED | NORTH EAST LINCOLNSHIRE |
| | HANOVER WALK | | |
| | SCUNTHORPE | | |
| | Edge of Town | | |
| | No Sub Category | | |
| | Total Number of dwellings: | 432 | |
| | Survey date: MONDAY | 12/05/14 | Survey Type: MANUAL |
| 3 | SF-03-A-02 | SEMI DET./TERRACED | SUFFOLK |
| | STOKE PARK DRIVE | | |
| | MAIDENHALL | | |
| | IPSWICH | | |
| | Edge of Town | | |
| | Residential Zone | | |
| | Total Number of dwellings: | 230 | |
| | Survey date: THURSDAY | 24/05/07 | 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

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	3	300	0.085	3	300	0.265	3	300	0.350
08:00 - 09:00	3	300	0.141	3	300	0.434	3	300	0.575
09:00 - 10:00	3	300	0.161	3	300	0.171	3	300	0.332
10:00 - 11:00	3	300	0.143	3	300	0.191	3	300	0.334
11:00 - 12:00	3	300	0.167	3	300	0.150	3	300	0.317
12:00 - 13:00	3	300	0.178	3	300	0.179	3	300	0.357
13:00 - 14:00	3	300	0.156	3	300	0.165	3	300	0.321
14:00 - 15:00	3	300	0.185	3	300	0.189	3	300	0.374
15:00 - 16:00	3	300	0.360	3	300	0.250	3	300	0.610
16:00 - 17:00	3	300	0.320	3	300	0.201	3	300	0.521
17:00 - 18:00	3	300	0.362	3	300	0.214	3	300	0.576
18:00 - 19:00	3	300	0.307	3	300	0.227	3	300	0.534
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.565			2.636			5.201

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/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	3	300	0.004	3	300	0.002	3	300	0.006
08:00 - 09:00	3	300	0.003	3	300	0.006	3	300	0.009
09:00 - 10:00	3	300	0.003	3	300	0.002	3	300	0.005
10:00 - 11:00	3	300	0.006	3	300	0.007	3	300	0.013
11:00 - 12:00	3	300	0.002	3	300	0.002	3	300	0.004
12:00 - 13:00	3	300	0.001	3	300	0.002	3	300	0.003
13:00 - 14:00	3	300	0.002	3	300	0.000	3	300	0.002
14:00 - 15:00	3	300	0.003	3	300	0.003	3	300	0.006
15:00 - 16:00	3	300	0.002	3	300	0.001	3	300	0.003
16:00 - 17:00	3	300	0.003	3	300	0.002	3	300	0.005
17:00 - 18:00	3	300	0.003	3	300	0.002	3	300	0.005
18:00 - 19:00	3	300	0.002	3	300	0.001	3	300	0.003
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.034			0.030			0.064

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	300	0.006	3	300	0.006	3	300	0.012
08:00 - 09:00	3	300	0.000	3	300	0.000	3	300	0.000
09:00 - 10:00	3	300	0.000	3	300	0.001	3	300	0.001
10:00 - 11:00	3	300	0.001	3	300	0.002	3	300	0.003
11:00 - 12:00	3	300	0.000	3	300	0.001	3	300	0.001
12:00 - 13:00	3	300	0.003	3	300	0.004	3	300	0.007
13:00 - 14:00	3	300	0.003	3	300	0.004	3	300	0.007
14:00 - 15:00	3	300	0.002	3	300	0.002	3	300	0.004
15:00 - 16:00	3	300	0.001	3	300	0.001	3	300	0.002
16:00 - 17:00	3	300	0.003	3	300	0.000	3	300	0.003
17:00 - 18:00	3	300	0.000	3	300	0.000	3	300	0.000
18:00 - 19:00	3	300	0.000	3	300	0.000	3	300	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.019			0.021			0.040

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL PSVS
 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	3	300	0.000	3	300	0.000	3	300	0.000
08:00 - 09:00	3	300	0.000	3	300	0.000	3	300	0.000
09:00 - 10:00	3	300	0.000	3	300	0.000	3	300	0.000
10:00 - 11:00	3	300	0.000	3	300	0.000	3	300	0.000
11:00 - 12:00	3	300	0.000	3	300	0.000	3	300	0.000
12:00 - 13:00	3	300	0.000	3	300	0.000	3	300	0.000
13:00 - 14:00	3	300	0.000	3	300	0.000	3	300	0.000
14:00 - 15:00	3	300	0.000	3	300	0.000	3	300	0.000
15:00 - 16:00	3	300	0.000	3	300	0.000	3	300	0.000
16:00 - 17:00	3	300	0.000	3	300	0.000	3	300	0.000
17:00 - 18:00	3	300	0.000	3	300	0.000	3	300	0.000
18:00 - 19:00	3	300	0.000	3	300	0.000	3	300	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.

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL CYCLISTS
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	3	300	0.004	3	300	0.008	3	300	0.012
08:00 - 09:00	3	300	0.003	3	300	0.008	3	300	0.011
09:00 - 10:00	3	300	0.002	3	300	0.000	3	300	0.002
10:00 - 11:00	3	300	0.000	3	300	0.003	3	300	0.003
11:00 - 12:00	3	300	0.004	3	300	0.004	3	300	0.008
12:00 - 13:00	3	300	0.008	3	300	0.004	3	300	0.012
13:00 - 14:00	3	300	0.003	3	300	0.006	3	300	0.009
14:00 - 15:00	3	300	0.004	3	300	0.003	3	300	0.007
15:00 - 16:00	3	300	0.021	3	300	0.021	3	300	0.042
16:00 - 17:00	3	300	0.009	3	300	0.007	3	300	0.016
17:00 - 18:00	3	300	0.011	3	300	0.014	3	300	0.025
18:00 - 19:00	3	300	0.016	3	300	0.011	3	300	0.027
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.085			0.089			0.174

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL VEHICLE OCCUPANTS
 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	3	300	0.096	3	300	0.311	3	300	0.407
08:00 - 09:00	3	300	0.181	3	300	0.655	3	300	0.836
09:00 - 10:00	3	300	0.196	3	300	0.235	3	300	0.431
10:00 - 11:00	3	300	0.185	3	300	0.251	3	300	0.436
11:00 - 12:00	3	300	0.204	3	300	0.198	3	300	0.402
12:00 - 13:00	3	300	0.222	3	300	0.219	3	300	0.441
13:00 - 14:00	3	300	0.201	3	300	0.209	3	300	0.410
14:00 - 15:00	3	300	0.242	3	300	0.245	3	300	0.487
15:00 - 16:00	3	300	0.573	3	300	0.356	3	300	0.929
16:00 - 17:00	3	300	0.463	3	300	0.290	3	300	0.753
17:00 - 18:00	3	300	0.459	3	300	0.284	3	300	0.743
18:00 - 19:00	3	300	0.409	3	300	0.334	3	300	0.743
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.431			3.587			7.018

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL PEDESTRIANS
 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	3	300	0.038	3	300	0.070	3	300	0.108
08:00 - 09:00	3	300	0.059	3	300	0.146	3	300	0.205
09:00 - 10:00	3	300	0.050	3	300	0.067	3	300	0.117
10:00 - 11:00	3	300	0.040	3	300	0.038	3	300	0.078
11:00 - 12:00	3	300	0.042	3	300	0.042	3	300	0.084
12:00 - 13:00	3	300	0.039	3	300	0.030	3	300	0.069
13:00 - 14:00	3	300	0.033	3	300	0.034	3	300	0.067
14:00 - 15:00	3	300	0.062	3	300	0.057	3	300	0.119
15:00 - 16:00	3	300	0.215	3	300	0.081	3	300	0.296
16:00 - 17:00	3	300	0.088	3	300	0.046	3	300	0.134
17:00 - 18:00	3	300	0.066	3	300	0.065	3	300	0.131
18:00 - 19:00	3	300	0.060	3	300	0.059	3	300	0.119
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.792			0.735			1.527

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL BUS/TRAM 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	3	300	0.000	3	300	0.007	3	300	0.007
08:00 - 09:00	3	300	0.004	3	300	0.013	3	300	0.017
09:00 - 10:00	3	300	0.006	3	300	0.013	3	300	0.019
10:00 - 11:00	3	300	0.002	3	300	0.008	3	300	0.010
11:00 - 12:00	3	300	0.003	3	300	0.010	3	300	0.013
12:00 - 13:00	3	300	0.010	3	300	0.008	3	300	0.018
13:00 - 14:00	3	300	0.009	3	300	0.001	3	300	0.010
14:00 - 15:00	3	300	0.007	3	300	0.002	3	300	0.009
15:00 - 16:00	3	300	0.012	3	300	0.010	3	300	0.022
16:00 - 17:00	3	300	0.023	3	300	0.003	3	300	0.026
17:00 - 18:00	3	300	0.018	3	300	0.012	3	300	0.030
18:00 - 19:00	3	300	0.003	3	300	0.001	3	300	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.097			0.088			0.185

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/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	3	300	0.000	3	300	0.000	3	300	0.000
08:00 - 09:00	3	300	0.000	3	300	0.000	3	300	0.000
09:00 - 10:00	3	300	0.000	3	300	0.000	3	300	0.000
10:00 - 11:00	3	300	0.000	3	300	0.000	3	300	0.000
11:00 - 12:00	3	300	0.000	3	300	0.000	3	300	0.000
12:00 - 13:00	3	300	0.000	3	300	0.000	3	300	0.000
13:00 - 14:00	3	300	0.000	3	300	0.000	3	300	0.000
14:00 - 15:00	3	300	0.000	3	300	0.000	3	300	0.000
15:00 - 16:00	3	300	0.000	3	300	0.000	3	300	0.000
16:00 - 17:00	3	300	0.000	3	300	0.000	3	300	0.000
17:00 - 18:00	3	300	0.000	3	300	0.000	3	300	0.000
18:00 - 19:00	3	300	0.000	3	300	0.000	3	300	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.

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/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	3	300	0.000	3	300	0.000	3	300	0.000
08:00 - 09:00	3	300	0.000	3	300	0.000	3	300	0.000
09:00 - 10:00	3	300	0.000	3	300	0.000	3	300	0.000
10:00 - 11:00	3	300	0.000	3	300	0.000	3	300	0.000
11:00 - 12:00	3	300	0.000	3	300	0.000	3	300	0.000
12:00 - 13:00	3	300	0.000	3	300	0.000	3	300	0.000
13:00 - 14:00	3	300	0.000	3	300	0.000	3	300	0.000
14:00 - 15:00	3	300	0.000	3	300	0.000	3	300	0.000
15:00 - 16:00	3	300	0.000	3	300	0.000	3	300	0.000
16:00 - 17:00	3	300	0.000	3	300	0.000	3	300	0.000
17:00 - 18:00	3	300	0.000	3	300	0.000	3	300	0.000
18:00 - 19:00	3	300	0.000	3	300	0.000	3	300	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.

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: 230 - 432 (units:)
 Survey date date range: 01/01/06 - 12/05/14
 Number of weekdays (Monday-Friday): 3
 Number of Saturdays: 0
 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	300	0.000	3	300	0.007	3	300	0.007
08:00 - 09:00	3	300	0.004	3	300	0.013	3	300	0.017
09:00 - 10:00	3	300	0.006	3	300	0.013	3	300	0.019
10:00 - 11:00	3	300	0.002	3	300	0.008	3	300	0.010
11:00 - 12:00	3	300	0.003	3	300	0.010	3	300	0.013
12:00 - 13:00	3	300	0.010	3	300	0.008	3	300	0.018
13:00 - 14:00	3	300	0.009	3	300	0.001	3	300	0.010
14:00 - 15:00	3	300	0.007	3	300	0.002	3	300	0.009
15:00 - 16:00	3	300	0.012	3	300	0.010	3	300	0.022
16:00 - 17:00	3	300	0.023	3	300	0.003	3	300	0.026
17:00 - 18:00	3	300	0.018	3	300	0.012	3	300	0.030
18:00 - 19:00	3	300	0.003	3	300	0.001	3	300	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.097			0.088			0.185

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

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 Number of weekdays (Monday-Friday): 3
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 Number of Sundays: 0
 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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL TOTAL PEOPLE
 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	3	300	0.138	3	300	0.396	3	300	0.534
08:00 - 09:00	3	300	0.248	3	300	0.822	3	300	1.070
09:00 - 10:00	3	300	0.254	3	300	0.315	3	300	0.569
10:00 - 11:00	3	300	0.227	3	300	0.300	3	300	0.527
11:00 - 12:00	3	300	0.254	3	300	0.255	3	300	0.509
12:00 - 13:00	3	300	0.279	3	300	0.261	3	300	0.540
13:00 - 14:00	3	300	0.247	3	300	0.250	3	300	0.497
14:00 - 15:00	3	300	0.316	3	300	0.307	3	300	0.623
15:00 - 16:00	3	300	0.821	3	300	0.468	3	300	1.289
16:00 - 17:00	3	300	0.583	3	300	0.346	3	300	0.929
17:00 - 18:00	3	300	0.554	3	300	0.375	3	300	0.929
18:00 - 19:00	3	300	0.488	3	300	0.405	3	300	0.893
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.409			4.500			8.909

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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APPENDIX D

DMRB TA79/99 Traffic Capacity of Urban Roads

**VOLUME 5 ASSESSMENT AND
PREPARATION OF ROAD
SCHEMES**

**SECTION 1 PREPARATION AND
IMPLEMENTATION**

PART 3

TA 79/99 AMENDMENT NO 1

TRAFFIC CAPACITY OF URBAN ROADS

SUMMARY

Advice Note TA 79/99, published February 1999, was wrongly placed in Section 2 of DMRB Volume 5. All users should arrange for the document TA 79/99 to be inserted in Volume 5, Section 1, Part 3 of DMRB. References within the document to Section 2, Part 2 should also be corrected accordingly.

INSTRUCTIONS FOR USE

1. Remove Advice Note TA 79/99 from Volume 3 of the DMRB.
2. Amend the volume references on all pages of TA 79/99 to read Volume 5, Section 1, Part 3 of DMRB.
3. Remove existing title page and insert amended title page and Note to Users in front of Contents sheet of TA 79/99.
4. Enter the details of the amendment on the Registration of Amendment sheet, sign and date to confirm that the amendment has been incorporated.

Note: A quarterly index with a full set of Volume Contents Pages is available separately from The Stationery Office Ltd.



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THE DEPARTMENT OF THE ENVIRONMENT FOR
NORTHERN IRELAND

Traffic Capacity of Urban Roads

Summary: Advice Note TA 79/99, published February 1999, was wrongly placed in Section 2 of DMRB Volume 5.

2. GENERAL PRINCIPLES

Application of Capacity values

2.1 The guidance in this document should be used flexibly. In some circumstances, the use of a reduced width of carriageway will result in significant savings or environmental benefits, which outweigh the disbenefits of congestion during peak periods.

2.2 The capacity of urban roads can be affected by a wide range of factors that may not always be accurately predicted by the road features identified. For this reason capacity flows may be up to 10% more or less than the values given in this document.

Features Affecting Capacity

2.3 The potential capacity of a link will not be reached if either the capacity of junctions along the link or the capacity of the adjoining network is lower than the link in question. The flow on an urban road may also be affected by turning movements restricting the mainline capacity. Such constraints should be identified at an early stage.

2.4 Urban roads normally have higher flows in the morning and evening peaks than at other times of day. Improving features that affect the capacity would help prevent congestion during these periods.

2.5 The flows given in the tables are the maximum that typical urban roads can carry consistently in an hour. The principal factors that may affect flow levels on urban roads are given in Table 1.
For motorways the prime determinant is the carriageway width, but for all-purpose roads flow is also affected by the speed limit, the frequency of side roads, the degree of parking and loading, the frequency of at grade pedestrian crossings, bus stops, and accesses.

2.6 The capacity of the lower width roads will be significantly reduced by parking and temporary width restrictions caused by such activities as maintenance and Statutory Undertakers' Works. The lowest widths are unlikely to be suitable for bus routes or for significant volumes of heavy goods vehicles.

2.7 Roads in Category UAP3 and UAP4 may carry high proportions of local traffic, resulting in an increase in turning movements at junctions and accesses.

2.8 Capacity will also be affected by prevailing weather and night conditions. The capacities shown are for "favourable" daylight conditions.

Feature	ROAD TYPE				
	Urban Motorway	Urban All-purpose			
	UM	UAP1	UAP2	UAP3	UAP4
General Description	Through route with grade separated junctions, hardshoulders or hardstrips, and motorway restrictions.	High standard single/dual carriageway road carrying predominantly through traffic with limited access.	Good standard single/dual carriageway road with frontage access and more than two side roads per km.	Variable standard road carrying mixed traffic with frontage access, side roads, bus stops and at-grade pedestrian crossings.	Busy high street carrying predominantly local traffic with frontage activity including loading and unloading.
Speed Limit	60mph or less	40 to 60 mph for dual, & generally 40mph for single carriageway	Generally 40 mph	30 mph to 40 mph	30mph
Side Roads	None	0 to 2 per km	more than 2 per km	more than 2 per km	more than 2 per km
Access to roadside development	None. Grade separated for major only.	limited access	access to residential properties	frontage access	unlimited access to houses, shops & businesses
Parking and loading	none	restricted	restricted	unrestricted	unrestricted
Pedestrian crossings	grade separated	mostly grade separated	some at-grade	some at-grade	frequent at-grade
Bus stops	none	in lay-bys	at kerbside	at kerbside	at kerbside

Table 1 Types of Urban roads and the features that distinguish them

3. DETERMINATION OF URBAN ROAD CAPACITY

3.1 Table 1 sets out the types of Urban Roads and the features that distinguish between them and affect their traffic capacity. Tables 2 & 3 give the flow capacity for each road type described in Table 1.

3.2 Table 4 gives the adjustments when the proportion of heavy vehicles in a one way flow exceeds 15%. A heavy vehicle is defined in this context as OGV1, OGV2 or Buses and Coaches as given in the COBA Manual (DMRB 13.1 Part 4, Chapter 8).

3.3 The flows for road type UM in Table 2 apply to urban motorways where junctions are closely spaced giving weaving lengths of less than 1 kilometre. Urban motorways with layout and junction spacing similar to rural motorways can carry higher flows and TA46/97 "Traffic Flow Ranges for Use in the Assessment of New Rural Roads" will be more applicable.

3.4 Flows for single carriageways are based upon a 60/40 directional split in the flow. The one-way flows shown in Table 2 represent the busiest flow 60% figure.

3.5 The capacities shown apply to gradients of up to 5-6%. Special consideration should be made for steeper gradients, which would reduce capacity.

3.6 On-road parking reduces the effective road width and disrupts flow, e.g. where parking restrictions are not applied on road type UAP2 the flows are likely to be similar to UAP3 where unrestricted parking applies, see Table 1, Similarly effective parking restrictions can lead to higher flows.

		Two-way Single Carriageway- Busiest direction flow (Assumes a 60/40 directional split)								Dual Carriageway				
		Total number of Lanes								Number of Lanes in each direction				
		2			2-3	3	3-4	4	4+	2		3	4	
Carriageway width		6.1m	6.75m	7.3m	9.0m	10.0m	12.3m	13.5m	14.6m	18.0m	6.75m	7.3m	11.0m	14.6m
Road type	UM	Not applicable									4000	5600	7200	
	UAP1	1020	1320	1590	1860	2010	2550	2800	3050	3300	3350	3600	5200	*
	UAP2	1020	1260	1470	1550	1650	1700	1900	2100	2700	2950	3200	4800	*
	UAP3	900	1110	1300	1530	1620	*	*	*	*	2300	2600	3300	*
	UAP4	750	900	1140	1320	1410	*	*	*	*	*	*	*	*

Table 2 Capacities of Urban Roads
One-way hourly flows in each direction

Notes

- Capacities are in vehicles per hour.
- HGV ≤ 15%
- (*) Capacities are excluded where the road width is not appropriate for the road type and where there are too few examples to give reliable figures.