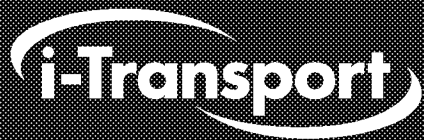


APPENDIX 10.1
TRANSPORT ASSESSMENT



Ford Airfield

Transport Assessment

Client: Redrow Homes Ltd / Wates Development
Ltd

i-Transport Ref: DS/EF/AI/ITB13091-003E R

Date: 23 October 2019

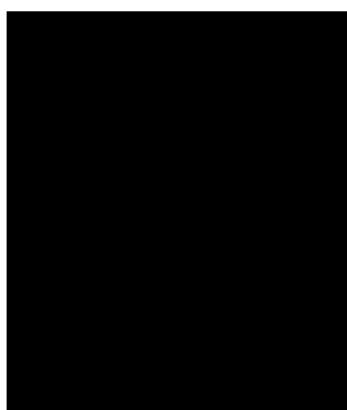
Ford Airfield

Transport Assessment

Client: Redrow Homes Ltd / Wates Development
Ltd

i-Transport Ref: DS/EF/AI/ITB13091-003E R

Date: 23 October 2019



www.i-transport.co.uk

COPYRIGHT

The contents of this document must not be copied or reproduced in whole or in part without the written consent of i-Transport LLP

Quality Management

Report No.	Comments	Date	Author	Authorised
ITB13091-003A	Working Draft	24/04/2019	EF/DS	JCB
ITB13091-003B	Working Draft	09/05/2019	EF/DS	JCB
ITB13091-003C	Draft Issue	24/05/2019	EF/DS	JCB
ITB13091-003D	Draft Issue	21/08/2019	EF/AI	DS
ITB13091-003E	Planning Issue	23/10/2019	EF/AI	DS

File Ref: T:\Projects\13000 Series\13091ITB Ford Airfield\Admin\Report and Tech Notes\003 - Transport Assessment\ITB13091-003E - R Transport Assessment - Working Draft.docx

Contents

SECTION 1	INTRODUCTION	1
SECTION 2	POLICY REVIEW	5
SECTION 3	DEVELOPMENT PROPOSALS	15
SECTION 4	EXISTING CONDITIONS	17
SECTION 5	SITE ACCESS, SERVICING AND PARKING	37
SECTION 6	TRANSPORT SUSTAINABILITY	45
SECTION 7	TRAFFIC IMPACT	62
SECTION 8	OPERATIONAL ASSESSMENTS	90
SECTION 9	HIGHWAY NETWORK MITIGATION	104
SECTION 10	LEVEL CROSSING IMPACT ASSESSMENT	113
SECTION 11	SUMMARY AND CONCLUSIONS	120

Figures

FIGURE 1	Site Location Plan
FIGURE 2	Local Highway Network Plan
FIGURE 3	Public Right of Way Plan
FIGURE 4	Site Access Strategy Plan
FIGURE 5	Local Facilities Plan
FIGURE TF1	2018 Base Morning Peak Hour 0800-0900
FIGURE TF2	2018 Base Evening Peak Hour 1700-1800
FIGURE TF3	Committed Development Traffic Flows Morning Peak Hour 0800-0900
FIGURE TF4	Committed Development Traffic Flows Evening Peak Hour 1700-1800
FIGURE TF5	2021 Base Morning Peak Hour 0800-0900
FIGURE TF6	2021 Base Evening Peak Hour 1700-1800
FIGURE TF7	2031 Base Morning Peak Hour 0800-0900
FIGURE TF8	2031 Base Evening Peak Hour 1700-1800
FIGURE TF9	Total Development Traffic Flows Morning Peak Hour 0800-0900
FIGURE TF10	Total Development Traffic Flows Evening Peak Hour 1700-1800
FIGURE TF11	2021 and Development Morning Peak Hour 0800-0900
FIGURE TF12	2021 and Development Evening Peak Hour 1700-1800
FIGURE TF13	2031 and Development Morning Peak Hour 0800-0900
FIGURE TF14	2031 and Development Evening Peak Hour 1700-1800

Drawings

GA-001 Rev E	Yapton Road Site Access
GA-043 Rev B	Yapton Road Access Tracking
GA-014 Rev B	Yapton Road Access Design Audit
GA-004 Rev A	Ford Lane Site Access
GA-039	Ford Lane Access Tracking
GA-013	Ford Lane Access Design Audit
GA-021	Ford Road Access
GA-037	Employment Site Access
GA-041	Rollaston Park Pedestrian Access
GA-042	Horsemere Green Lane Pedestrian Access
GA-054	Ford Lane Pedestrian Connection
GA-200-204	Yapton Road Pedestrian Improvements
GA-600	Church Lane Pedestrian/Cycle Improvements
GA-006-010	Ford Station Pedestrian/Cycle Route
GA-025	Illustrative Oystercatcher Layout
GA-012	Illustrative Comet Corner Layout
GA-028 Rev A	Ford Lane/North End Road Improvement
GA-026	B2233/North End Road Improvement
GA-027	Bilsham Road/B2233 Improvement

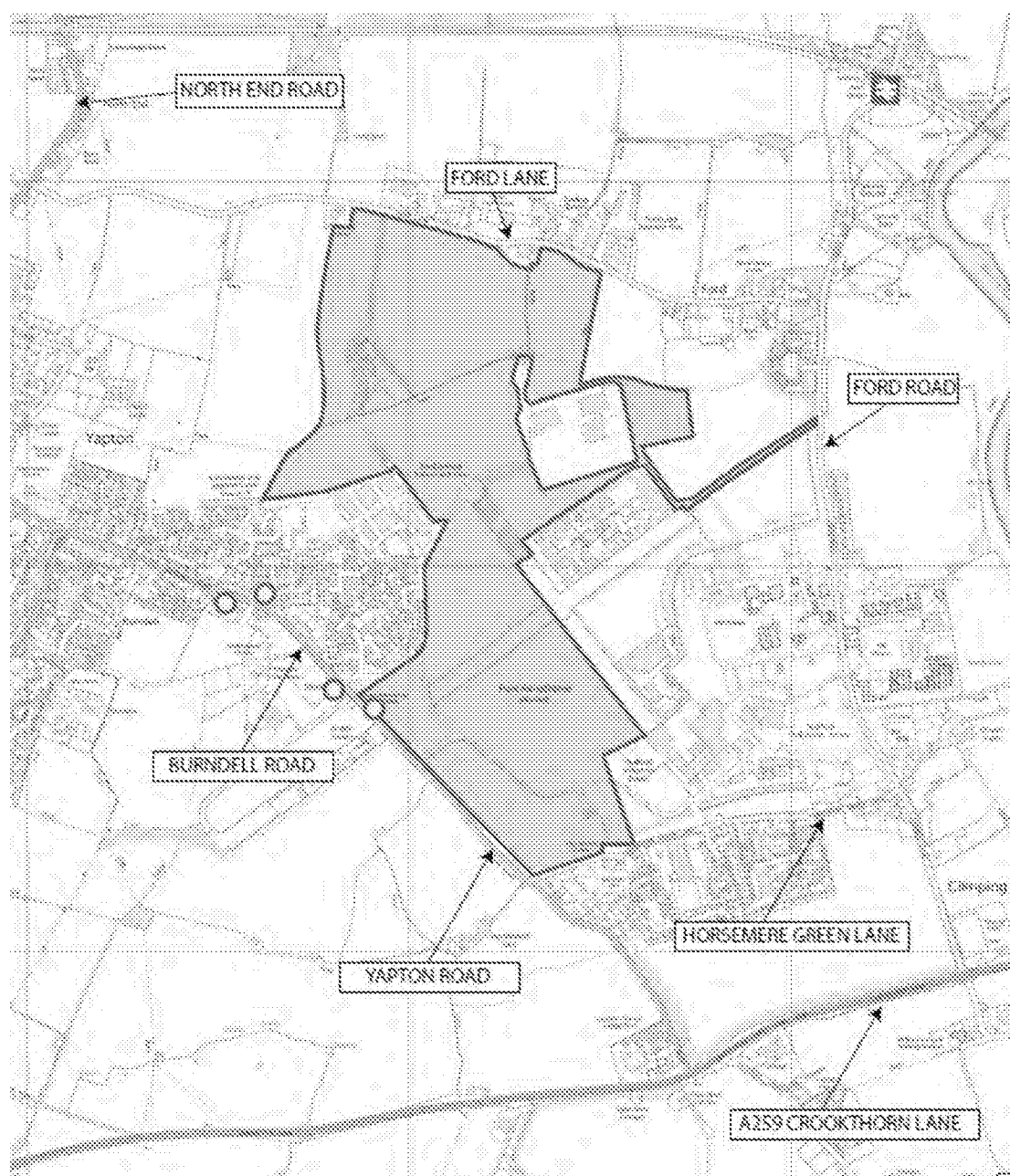
Appendices

APPENDIX A.	Pre-Application Scoping Notes
APPENDIX B.	Illustrative Masterplan
APPENDIX C.	NMU Audit
APPENDIX D.	TRICS Outputs
APPENDIX E.	Site- Specific TRICS Outputs
APPENDIX F.	Primary School First Principles Assessment
APPENDIX G.	TRICS Outputs – Employment
APPENDIX H.	Distribution and Assessment Models
APPENDIX I.	Census Data – Employee Origins
APPENDIX J.	Junctions 9 Outputs
APPENDIX K.	Highways England Correspondence
APPENDIX L.	Level Crossing Assessment
APPENDIX M.	ES Traffic Data
APPENDIX N.	Construction Traffic Data

SECTION 1 INTRODUCTION

- 1.1.1 Redrow Homes Limited and Wates Development Limited have appointed i-Transport LLP to provide highways and transport advice for the proposed development of Ford Airfield.
- 1.1.2 Ford Airfield is identified as a Strategic Site Allocation SD8 in the adopted Arun District Council (ADC) Local Plan 2011-2031. Ford Airfield is also allocated in the adopted Ford Neighbourhood Plan as Policy SA1. The location of the site is outlined in **Image 1.1**, below.

Image 1.1: Site Location Plan



Source: Consultants' image

- 1.1.3 The proposed development comprises an outline planning application (with all matters reserved except for access) for the development of up to 1,500 dwellings (Use Class C3), 60-bed care home (Use Class C2), up to 9,000 sqm of employment floorspace (Use Classes B1), local centre of up to 2,350 sqm including up to 900 sqm retail / commercial (Use Classes A1-A5) and 1,450 sqm community / leisure floorspace (Use Classes D1-D2), land for a two-form entry primary school (Use Class D1), public open space, allotments, new sports pitches and associated facilities, drainage, parking and associated access, infrastructure, landscape, ancillary and site preparation works, including demolition of existing buildings and part removal of existing runway hardstanding.

1.2 Scoping

- 1.2.1 In line with good practice, the transport and highways implications of the proposed development have been subject of pre-application discussions with West Sussex County Council (WSCC), in their capacity as the local highway authority. The comments received from WSCC have been taken into account during in producing this Transport Assessment.
- 1.2.2 Copies of the Transport Assessment Scoping Note (*ref: ITB13091-002 R*), Trip Generation Technical Note (*ref: ITB13091-007 TN*), Traffic Distribution and Assignment Technical Note (*ref: ITB13091-008 TN*) and Growth, Committed Development and Assessment Years (*ref: ITB13091-010 TN*) are provided at **Appendix A**. The Notes set out the proposed site access arrangements, the traffic assessment parameters used in the preparation of this TA and the scope of the assessment that has been undertaken.
- 1.2.3 A separate Framework Travel Plan has also been prepared (*ref: ITB13091-009D Framework Travel Plan*) to accompany the outline planning application, using guidance provided by WSCC. The primary purpose of the Travel Plan is to reduce the demand for travel by less sustainable modes of transport by identifying opportunities for the effective promotion and delivery of sustainable transport initiatives, e.g. walking, cycling, public transport and tele commuting, in connection with both the proposed and existing infrastructure and developments in Ford.

1.3 Consultation

1.3.1 In addition to pre-application engagement with the County Council, the proposed development has been subject to detailed consultation with key stakeholders and local residents. In total, the following has been undertaken:

- Scoping Note ITB13091-002 R was submitted to WSCC on 26 March 2018, presenting the Development and setting out the proposed structure of the Transport Assessment;
- A pre-application 'start-up' meeting with WSCC on 25 April 2018 to discuss the content of Scoping Note ITB13091-002 R and the general scope of the Transport Assessment;
- A further meeting with WSCC on 18 May 2018 to discuss the use of the Arun Transport Study model, trip generation and scope of the Transport Assessment;
- A workshop was held with Ford Parish Council on the 16 and 17 June 2018 to discuss the design principles of the development, including accessibility and other transport matters;
- Trip Generation Technical Note ITB13091-007 was submitted to WSCC for comment on the 17 July 2018;
- Traffic Distribution and Assignment Technical Note ITB13091-008 was submitted to WSCC for comment on 2 August 2018;
- A pre-application meeting was held with representatives of both the District and County Council on 9 October 2018, during which matters such as sustainable access routes and school parking provision were discussed; and
- A pre-application meeting was held with the County Council on 14 November 2018 to discuss access arrangements, layout principles, scope of the mitigation and where financial contributions towards strategic mitigation would be sought.

1.3.2 The feedback received during this engagement has assisted in developing a clearer understanding the existing transport opportunities and constraints in the surrounding area, as well as informing the transport strategy of the proposed development.

1.3.3 The local bus operator, Stagecoach South, has also been engaged in order to develop a public transport strategy for the site. The public transport strategy and the role of Stagecoach is discussed in Section 6 of this report.

1.4 Structure

1.4.1 The remainder of this Transport Assessment is structured as follows:

- Section 2 reviews the relevant national and local transport policy;
- Section 3 sets out the development proposals;
- Section 4 provides an overview of the existing transport conditions on the local transport network in the vicinity of the site;
- Section 5 sets out the proposed site access arrangements and considers the principles of site servicing and parking;
- Section 6 considers the accessibility of the site relative to local facilities;
- Section 7 provides an assessment of the likely transport impact of the development proposals, including traffic impact on the local roads;
- Section 8 provides an operational assessment of road junctions within the local area;
- Section 9 sets out a mitigation strategy for junctions impacted by the proposed development; and
- Section 10 assesses the impact of the development on the Ford Road and Yapton Lane level crossings; and
- Section 11 summarises the findings of this TA.

SECTION 2 POLICY REVIEW

- 2.1.1 To provide context for the assessment, this section of the TA provides a review of the national and local transport planning policies relevant to the proposed development.

2.2 National Policy

National Planning Policy Framework February 2019 (NPPF)

- 2.2.1 The revised NPPF sets out the Government's planning policies and how these are expected to be applied. It also constitutes guidance for local planning authorities and decision takers both in drawing up plans and as a material consideration in determining applications.

- 2.2.2 The NPPF stresses that at the forefront of planning is the 'presumption in favour' of sustainable development. Paragraph 9 states:

"at the heart of the Framework is a presumption in favour of sustainable development".

- 2.2.3 The NPPF requires in paragraph 111 and that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment.

- 2.2.4 Paragraph 108 presents the primary transport tests for new development proposals, stating that plans and specific applications for development should ensure that:

"a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."

- 2.2.5 Paragraph 109 of the revised NPPF presents a demanding test for assessing transport impacts. Only if there would be an 'unacceptable impact on highway safety' or when residual cumulative impacts are 'severe' should proposals be refused on transport grounds.

- 2.2.6 On this basis, planning permission for development should be approved unless a) the proposal is not consistent with development plan policies; b) where any adverse impacts 'significantly

and demonstrably' outweigh the benefits; or c) the specific policies within the NPPF indicate that the proposal should be restricted.

- 2.2.7 In accordance with NPPF, this TA has been produced to accompany the planning application and assesses the scheme against these key transport tests.

National Planning Practice Guidance (March 2014)

- 2.2.8 The web-based NPPG replaced the DfT's 'Guidance on Transport Assessment' on 6 March 2014 and seeks to bring together planning guidance for England across all disciplines in an accessible way as well as to provide a clear link between guidance and the aims and objectives of the NPPF.

- 2.2.9 The NPPG discusses the role of travel plans and transport assessments / statements and how they relate to each other:

"Travel Plans, Transport Assessments and Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements. (ID42 – 002);

Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be "severe", which may be a reason for refusal, in accordance with the National Planning Policy Framework. (ID42 – 005);

Travel Plans are long-term management strategies for integrating proposals for sustainable travel into the planning process. They should not, however, be used as an excuse for unfairly penalising drivers and cutting provision for cars in a way that is unsustainable and could have negative impacts on the surrounding streets. (ID42 – 003)".

- 2.2.10 In accordance with NPPG this TA has been prepared to assess the transport impacts of the development, and to consider whether any effects would be 'severe'.
- 2.2.11 Sections 7, 8 and 9 of the TA presents a comprehensive assessment of potential traffic impacts and identifies deliverable and appropriate mitigation to ensure any impacts of the development are not significant.
- 2.2.12 A Framework Travel Plan (FTP) is also provided to outline a long-term, realistic strategy for the promotion of sustainable travel which seeks to reduce car-based travel demand. The FTP should be read in conjunction with the TA.

2.3 Local Policy

Adoption Arun Local Plan 2011-2031 (July 2018)

2.3.1 In July 2018, Arun DC adopted a new Local Plan which sets out the vision for Arun District to 2031. The Plan identifies the vision for Arun district to 2031. The proposed development site Airfield is identified as Strategic Site Allocation SD8 in Policy H SP2c, for delivery of at least 1,500 new homes (30% affordable), a local centre, a primary school including nursery, employment/ business uses (B1) and a number of sports and recreational facilities. Redevelopment of the site therefore has policy support.

2.3.2 The Local Plan identifies a series of policies relating to transport, including:

"Policy T SP1 – Transport and Development - This identifies that development sites will be supported where they:

- ***Are designed to reduce the need to travel by car, but make provision for safe access to the site for all travel modes;***
- ***Give priority to pedestrian and cycle movements;***
- ***Incorporate appropriate levels of parking in line with WSCC Guidance;***
- ***Are supported by effective and deliverable Transport Assessments and Travel Plans; and***
- ***Explain how development can:***
- ***Accommodate deliveries and servicing;***
- ***Give priority to pedestrian and cycle movements and have access to high-quality public transport;***
- ***Create safe and secure layouts for all users;***
- ***Incorporate electric charging infrastructure; and***
- ***Consider the needs of people with disabilities."***

"Policy T DM1 – Sustainable Travel and Public Rights of Way – This identifies that proposals for new development must:

- ***Be located where they are close to sustainable travel opportunities which link to key destinations;***
- ***Contribute to the extension of public transport services;***
- ***Make provision for pedestrian and cycling facilities; and***

- ***Contributes to provision of a joined-up cycle and PROW network."***

2.3.3 This Transport Assessment, and the accompanying FTP, have been prepared in accordance with these requirements and set out how the criteria within policies SP1 and DM1 will be met.

West Sussex County Council's Transport Plan 2011-2026

2.3.4 The West Sussex County Council (WSCC) Local Transport Plan 3 was published in February 2011 and sets out a long-term strategy and implementation plan for making improvements to the transport system throughout the county over the next 20 years.

2.3.5 The strategy for Arun is to provide improvements to the transport system to tackle the identified transport issues as and when funding becomes available. To ensure that the regeneration aspirations of the plan are delivered, and the identified transport issues are addressed, they will ensure that all new scheme and developments contribute, and support, in some way to the following:

- ***increasing use of sustainable modes of transport;***
- ***improving network efficiency in order to improve journey times and air quality;***
- ***improving safety for all road users;***
- ***discouraging HGVs from using unsuitable roads; and***
- ***improving accessibility between communities within the District.***

2.3.6 This Transport Assessment has been prepared in accordance with the strategies set out in the Local Transport Plan. The TA provides a comprehensive assess of the impact of the development proposal and sets out a suitable and robust mitigation strategy.

Arun Transport Study 2016 (EBR 2017) and the Infrastructure Delivery Plan (2017)

2.3.7 The Arun Transport Study EBR 2017 (ATS) and the Infrastructure Delivery Plan (2017) (IDP) forms part of the evidence base that supports the Adoption Arun Local Plan. The ATS and IDP have been prepared to demonstrate that the policies and proposals outline in the LP are deliverable and to understand the infrastructure that is required to support development and growth across the District.

2.3.8 The ATS assesses the impact of planned growth upon the strategic and local highway networks. It establishes where intervention will be necessary to address a 'severe' highway impact arising from the planned growth and identifies schemes of mitigation at most

locations. The cost of the scheme is included within the ATS and these have been apportioned to specific development locations, including the Ford Airfield SDL, according to the proportional impact of each development. This provides a framework for the works and financial contributions required from the Development in order to mitigate the impact of development. **Table 2.1** sets out the identified schemes of relevance to the Ford SDL:

Table 2.1: Arun Transport Study Strategic Infrastructure Schedule

Location	Cost	Ford Impact	Ford Requirement
A27/A259	£900,000	5%	£45,750
A27/B2233	£300,000	11%	£33,000
A27/A284	£301,000	43%	£129,430
A27/The Causeway	Assumed £15,000	29%	£4,350
A27/A280	Widening Works – Angmering SDL	15%	N/A
A259/Church Lane	£169,000	21%	£51,800
A259/B2187	£259,000	17%	£56,780
A259/B2132	TBD	22%	TBD
A259/B2233	TBD	16%	TBD

Source: Arun Transport Study EBR (2017)

2.3.9 The ATS establishes that the schemes above do not represent the full cost of highways and transport mitigation, as each development will also need to consider the following on a site-by-site basis:

- Local junction mitigation (i.e. junctions not included in the scope of the ATS on the local network);
- Cycle/pedestrian infrastructure; and
- Bus infrastructure.

2.3.10 The findings of the ATS contribute towards the infrastructure requirements set out in the Infrastructure Delivery Plan. The most recent iteration of the IDP, produced by Arun District Council in 2017, provides a site-specific infrastructure schedule which reflects the schemes identified in the ATS. In addition, Section 8 of the IDP sets out that the Ford SDL is also required to consider the following provision:

- Sustainable links between Ford site and Ford Railway Station; and
- Additional cycle parking at Ford Railway Station.

2.3.11 On this basis, the TA has been prepared to consider the development proposals using the findings of the ATS and the inclusions of the IDP to determine the scope of the assessment, and establish the mitigation that will be required to address the impact of the development.

**West Sussex County Council – Guidance for Parking in New Residential Developments
(September 2010)**

2.3.12 WSCC Car Parking Standards Supplementary Planning Guidance was adopted in November 2003. The residential parking components of this were revised in September 2010, following revisions to PPG13. The current residential parking standards are calculated using Census data for area in which the site is located. The 'WSCC Parking Demand Calculator' tool allows parking demands to be derived allowing for:

- ***Local car ownership levels;***
- ***Allowance for increased car ownership;***
- ***The size of dwellings;***
- ***The type of dwellings i.e. houses or flats;***
- ***The tenure of dwellings i.e. private or affordable;***
- ***The number of allocated spaces to each dwelling; and***
- ***The additional parking demands of visitors.***

**Revised County Council Parking Standards and Transport Contributions Methodology
(November 2003, revised September 2010)**

2.3.13 This supplementary Planning Guidance was adopted by WSCC in November 2003 and revised in September 2010 and sets out:

- ***Revised Parking standards for all development use classes; and***
- ***A contributions methodology to be applied to commercial and residential development.***

2.3.14 The maximum parking standards set out in this document reflect the aims and objectives of the national guidance.

2.3.15 WSCC have developed an alternative contributions methodology to stress that:

"Developers will be required to provide improvements, or contributions towards the costs of ensuring that development is acceptable in term of capacity, safety and sustainable travel"

- 2.3.16 This SPG outlines the alternative method which increases consistency with which contributions are required and conforms with the national and local policy guidance.

West Sussex Walking and Cycling Strategy (December 2016)

- 2.3.17 WSCC has developed a Walking and Cycling Strategy to outline the design and safety principles for walking and cycling, recognising the different needs of users, and identifies and prioritises potential infrastructure improvements for the County.
- 2.3.18 In relation to Ford, the Strategy identifies potential improvements to local cycle routes between Yapton and Climping (82) and a new section of NCN 2 which runs parallel with Grevatt's Lane (125); this latter link has recently been completed.
- 2.3.19 Section 6 of this TA sets out how connections to the local cycle routes will be made.

Ford Neighbourhood Plan 2017-2031

- 2.3.20 The Ford Neighbourhood Plan was passed, with modification, by the Examiner and subject to Referendum on 8th November 2018. The Plan now has adopted status and sets out a vision for the area between 2017-2031 that reflects the thoughts of the local people. The Plan sets out some key objectives in order to achieve the key aims of the parish council.
- 2.3.21 The core objectives are as follows:
- ***"To retain and protect the character and cultural heritage of the parish; and***
 - ***To use the Plan as an opportunity to provide a village 'heart' while delivering a range of new housing and community facilities".***
- 2.3.22 The relevant policies are as follows:

"Policy SP1 Spatial Plan for the Parish

Development proposals of a minimum of 1545 new dwellings and supporting infrastructure and village centre community facilities will be supported provided that they are sited within the settlement boundary of the built-up area as defined in Policy BUA1. Proposals for the Ford airfield site must be part of a comprehensive Masterplan.

SP1.1 The policy supports development on land within the settlement boundary but only if it is considered to be suitable for development against other Plan policies.

SP1.2 Maintaining a gap between the settlements of Ford and Yapton is considered important."

2.3.23 The site is identified in the neighbourhood plan under Policy SA1 "Ford Airfield" and is set out as follows:

"A coherent and comprehensive Master Plan covering the site as a whole. This site-specific allocation for development is identified on the Proposals Map. The following specifics must be addressed as part of any planning proposal at this location:

- *Provision of minimum of 1500 homes;*
- *High-quality imaginative design including permeable layouts for pedestrians, cyclists and vehicles with visually robust outdoor spaces giving a sense of place and sense of orientation;*
- *Local areas for play including the provision of sports pitches and village greens;*
- *A new local centre comprising, but not limited to, a new community hall, local shop and restaurant, accommodation for the elderly and health centre, which shall be phased to be delivered in line with the proposed development;*
- *Potential for a custom/self-build, live/work element of the residential offering;*
- *Subject to assessment of the demand, employment space in the locality for small business and light industrial units (Use Class B1);*
- *A comprehensive Sustainable Urban Drainage system;*
- *Provision of a network of open space throughout the development site to include parks and gardens, natural and semi-natural green space, amenity space, children and young person's play-space and allotments;*
- *A network of open spaces, footpaths and cycleway connecting the community and its new facilities;*
- *Existing mature vegetation shall be retained where possible and complement and enhance the development proposals;*
- *Road improvements as necessary to Ford Lane, Horsemere Green Lane and in Yapton Road subject to detailed assessment;*
- *Provision of a primary school including a nursery*
- *Provision of affordable housing in line with the prevailing ADC policy, which should include a range of tenures and types including shared ownership, social rent and starter homes as based upon Parish needs;*

The detailed design of the master plan will be prepared through community workshops with the local community and stakeholders through an agreed community engagement strategy

Part or all of the development and associated community infrastructure may be delivered through a Community Land Trust."

2.3.24 Policy GA1 Footpath and Cycle Network outlines:

"Support will be given to proposals that improve and extend the existing footpath and cycle path network. The loss of existing footpaths and cycle paths will be resisted."

2.3.25 Policy GA2 outlines the requirements for parking and new development:

"Car Parking should be accommodated within the curtilage of the dwelling in the form of a garage and/or parking space. Development proposals will be supported only if they include the maximum level of off street parking consistent with the current local standards. Developments that reduce the amount of off-street parking currently available will only be supported if they make enforceable provision for equivalent off-street parking nearby".

2.3.26 Policy GA3 identifies that development sites will be supported where they:

- *"New residential streets and access ways must be designed with appropriate emphasis on all modes of transport, i.e. pedestrians and cyclists as well as vehicles;*
- *Quieter streets should be designed to be suitable for a range of social activities, such as children's play;*
- *Building fronts should overlook streets and other routes so that there are 'eyes on the street' and pedestrians and cyclists feel safe;*
- *20mph will generally be the maximum design speed that is considered appropriate for new streets within the residential development; and*
- *All streets will be designed to provide pedestrian footways."*

Relevant Transport Guidance

2.3.27 The TA has also been prepared with due regard to relevant 'industry standard' practice and guidance documents, including:

- DfT's 'Manual for Streets' (MfS) and 'Manual for Streets 2' (MfS2);
- The Design Manual for Road and Bridges (DMRB);
- Sustrans 'Design Manual';
- National Travel Survey (NTS) data;
- WSCC's 'Transport Assessment Methodology' (TAM); and
- Local Transport Notes (LTNs), including on walking and cycling routes.

2.4 Summary

2.4.1 Paragraph 108 of the NPPF identifies the three key transport criteria that decisions on development proposals should take account of. These are whether:

- The opportunities for sustainable travel have been appropriately 'taken up';
- Safe and suitable access can be achieved; and
- Improvements can be undertaken within the transport network that cost effectively limit the impacts of the development.

2.4.2 These criteria are reflected in local policy. This TA has therefore been prepared to assess the development proposal against these criteria.

2.4.3 It is noted that the site benefits from a Strategic Site Allocation (SD8) in Policy H SP2c of the Arun District Council Local Plan, and Policy S1 of the submission Ford Neighbourhood Plan, to deliver at least 1,500 new homes (30% affordable), a local centre, a primary school including nursery, employment/ business uses (B1) and a number of sports and recreational facilities.

SECTION 3 DEVELOPMENT PROPOSALS

3.1 Proposed Development

- 3.1.1 The development will provide up to 1,500 dwellings (Use Class C3), 60-bed care home (Use Class C2), up to 9,000 sqm of employment floorspace (Use Classes B1), local centre of up to 2,350 sqm including up to 900 sqm retail / commercial (Use Classes A1-A5) and 1,450 sqm community/leisure floorspace (Use Classes D1-D2), land for a two-form entry primary school (Use Class D1), public open space, allotments, new sports pitches and associated facilities, drainage, parking and associated access, infrastructure, landscape, ancillary and site preparation works, including demolition of existing buildings and part removal of existing runway hardstanding.
- 3.1.2 The planning application seeks outline consent with the resolution of access matters. All other matters, including the precise quantum and mix of development and the site layout, will form part of subsequent Reserved Matters Applications (RMA).

3.2 Site Access Strategy

- 3.2.1 The NPPF, at paragraph, 108 requires that;

“Safe and Suitable access to the site can be achieved for all people”

- 3.2.2 To achieve safe and suitable access, the development proposal includes the provision of 2 points of vehicular access to the residential element of the development, and a further access to the employment area. No internal vehicular link is to be provided between the residential and employment aspects of the development.
- 3.2.3 Vehicular access to the residential site is to be provided from Yapton Road where a 40m Inscribed Circle Diameter (ICD) roundabout is proposed, along with a second access from Ford Lane also in the form of a 40m ICD roundabout.
- 3.2.4 Vehicular access to the employment area is to be achieved from the existing ghost island right hand turn lane on Ford Road to which no modification is proposed.
- 3.2.5 Non-vehicular access to the sites is to be provided to Ford Road, Rollaston Park, Horsemere Green Lane and Ford Lane, some of which will connect with the existing PROW network across

the site. Cycle and pedestrian connection between the residential and employment areas will be made.

3.2.6 Section 5 of this TA provides a detailed assessment of the access strategy.

3.3 Site Layout and Illustrative Masterplan

3.3.1 Whilst the details of the site layout are still to be determined, the 'principles' of the site layout have been considered and are presented to provide context to the application and to demonstrate how the development can be brought forward.

3.3.2 The site layout will be designed in accordance with contemporary design guidance, namely DfT's *'Manual for Streets'* and West Sussex County Councils *'Local Design Guide'*. The layout will follow the principles outlined below:

- Main Spine – circa 6.2m-6.5m wide carriageway (in order to accommodate bus services), with 2.0m-3.0m footway/cycleways on the primary routes through the development;
- Primary Street – minimum 5.5m carriageway with 2.0m footways on the primary routes through the development;
- Secondary Streets – 5.0m wide carriageways operating as either a shared surface with service margin or as a carriageway with a distinct footway provision, designed to enable access for refuse vehicles; and
- Private driveways – narrower shared surface areas where refuse vehicles do not need to enter.

3.3.3 The illustrative site masterplan is provided at **Appendix B** and demonstrates how the development can be delivered on the land.

SECTION 4 EXISTING CONDITIONS

4.1 Introduction

- 4.1.1 This section of the TA describes the existing transport conditions in the area, including the opportunities for walking, cycling and the use of public transport. The existing highway conditions are also reviewed to provide a baseline for the TA.

4.2 Site Location

- 4.2.1 The site is located on the existing Ford Airfield, to the west of Ford and south of the village of Yapton. It is bounded by Yapton Road and residential properties to the west, Rudfield Industrial Estate to the south, Ford Road to the east and Ford Lane to the north. A site location plan is included at **Figure 1**.
- 4.2.2 The site is currently accessed from simple priority junctions onto both Yapton Road and Ford Lane, as well as a ghost island right turn lane junction on Ford Road (to the western runway). In addition, some business units (accommodating the Flying Fortress children's soft play centre and Arun Sports Centre) are accessed from Rollaston Park.
- 4.2.3 In addition to the leisure uses identified above, the site also hosts a weekly market and car boot sale on Sundays, and car boot sales only on Thursday and Saturdays. These activities take place on the southern runway, with the eastern and western runways used for customer parking. The remainder of the site is in use for agricultural purposes.

4.3 Walking and Cycling Facilities

- 4.3.1 The local highway network in the vicinity of the site provides a range of pedestrian and cycling opportunities. This section of the TA should be read in conjunction with the Local Highway Network Plan provided at **Figure 2**.

Ford Road/Station Road/Church Lane

- 4.3.2 Ford Road is situated to the east of the development and provides for a continuous footway circa 2.5m on the western side of the carriageway. Along a majority of its length the footway is set back from the edge of the carriageway by a verge circa 1.0m wide. Dropped kerb crossing

points are provided at all minor road junctions, and street lighting is provided for a section of the footway adjacent to HMP Ford.

- 4.3.3 To the north, Ford Road leads into Station Road. The footway continues north to, and past, Ford Railway Station and comprises a 2.0-2.5m footway. Along the majority of its length the footway is separated by a wide grass verge circa 2.5m wide.
- 4.3.4 To the south Ford Road leads into Church Lane where the route continues on the western side of the carriageway. A pedestrian refuge island is provided to the north of the access to Rudford Industrial Estate allowing pedestrians to cross to the eastern side of the carriageway. The footway on the western side ends to the south of the junction with Horsemere Green Lane, but the route continues on to the A259 on the eastern side.

A259

- 4.3.5 A 3.0m wide foot/cycleway is situated to the north of the A259 carriageway. The route was implemented by WSCC in 2018; NCN Route 2, a long-distance cycle route between Dover and St Austell, is to be diverted onto the new facility in 2019.
- 4.3.6 The junction of Church Lane/A259 is formed of a roundabout arrangement and, as part of the Climping Strategic Development, the roundabout is to be replaced by a larger roundabout arrangement. On the Church Lane arm of the junction, a pedestrian refuge island with dropped kerbs and tactile paving is provided (and will re-provided as part of the new junction arrangement) enabling pedestrians and cyclists to cross to the new foot/cycleway for westbound journeys.
- 4.3.7 A Toucan crossing, situated to the west of the Church Lane roundabout, is to be provided as part of the Climping Strategic Development and will enhance crossing provision over the A259 and onwards to Climping Beach. It also offers an alternative means to the use of the staggered refuge island crossing, to the east of the roundabout, for pedestrians and cyclists to cross the A259 in order to access the continuation of NCN Route 2 via Ferry Road to Littlehampton.

Yapton Road/Burndell Road/North End Road

- 4.3.8 B2233 Yapton Road is located to the west of the development site and no footways are present along the route. Whilst NCN Route 2 will be diverted to the new foot/cycleway along the A259, the current route uses Yapton Road.

- 4.3.9 To the north of its junction with Rollaston Park, Yapton Road joins with Burndell Road. A 2.0m wide footway is provided on the eastern side of the carriageway and dropped kerb crossings are provided at the junctions with Fordwater Gardens, Goodhew Close and Downview Road.
- 4.3.10 A footway on the western side of Burndell Road, circa 1.5m wide, commences to the north of Goodhew Close. A pedestrian refuge island crossing with dropped kerbs and tactile paving is provided at the mini roundabout with Bilsham Road. Street lighting is provided, and majority of this road is overlooked by residential properties.
- 4.3.11 A footway circa 2.0m wide is provided along the eastern side of B2132 North End Road from the junction with Burndell Road. A footway on the western side commences approximately 50m north of the junction and continues to reach Yapton C of E Primary School. The footway on the western side ends north of the Avisford Medical Centre but commences again after approximately 50m where the footway is separated from the carriageway by a wide grass verge.

4.4 Public Rights of Way

- 4.4.1 There is a network of Public Rights of Way that run through and near the site as shown in **Figure 3** including:
- Footpath No. 175 provides an east- west connection between Church Lane and Yapton Road to the south of the site;
 - Footpath No. 366 provides an east-west connection between Ford Lane and The Towpath;
 - Footpath No. 200_2 connects Footpath 366 with Burndell Road;
 - Footpath 170 provides a north - south connection between Footpath 366_1 and Burell Road via Fordwater Gardens; and
 - Footpath No. 200_3 provides a connection to Ford Road in the northeast corner of the site.

4.5 Non-Motorised User Audit Routes

- 4.5.1 The routes which future residents of the site would use to access the local facilities within Ford and Yapton have been assessed as part of a Non-Motorised User Audit. The Audit has identified any deficiencies in the existing network which may require improvement to

encourage future occupants of the Development to walk and cycle to local services and facilities. The Audit is presented in **Appendix C** and summarised below.

Route 1- Ford Road between proposed development and Ford Railway Station

4.5.2 This route provides a direct connection between the site and Ford Railway Station for onward journeys to destinations further afield including Littlehampton, Brighton, Portsmouth, and London. The route utilises pedestrian footways between the proposed site and Ford Railway station, via Ford Road and Station Road.

4.5.3 An assessment of the route identifies that it is:

- Convenient – the route is convenient and provides a direct route from the site to Ford Railway Station;
- Accessible – existing footways are present for the route with appropriate crossing provision;
- Safe – the route is safe, with the provided footway generally in good condition with smooth, hard surfaces suitable for walking;
- Comfortable – the route is comfortable with good width footway/ cycleway circa 1.5m wide. MfS identifies 1.5m as sufficient to allow a wheelchair user or pushchair user to pass a pedestrian and 0.9m as sufficient width for a wheelchair user to proceed.; and
- Attractive – the nature of the route is attractive with well-maintained footways providing a direct link from the site to Ford Railway Station.

Route 2- Proposed development along the B2233 Yapton Road/ Burndell Road towards the Yapton Village

4.5.4 This route provides a direct connection between the site and Yapton Village from the pedestrian access from the site onto Rollaston Park Road, using the northern footway, then onwards using Burndell Road/ B2233 footway into Yapton Village centre.

4.5.5 An assessment of the route identifies that it is:

- Convenient – there are existing footways provided along the entire route on the eastern side of the carriageway that provide access to bus services and local facilities;

- Accessible – dropped kerbs are provided at the junctions with Burndell Road, however tactile paving is absent. Informal pedestrian crossing facilities are provided at the Burndell Road and Bilsham Road junction with dropped kerbs and tactile paving provided. The signalised puffin crossing facilities located in Yapton village centre provide a safe route for pedestrians;
- Safe – the route is safe with footways in good condition with smooth, good quality surfaces suitable for walking. The route benefits from natural surveillance from residential properties and is street lit from Rollaston Park Road along Burndell Road all the way to the facilities situated in Yapton;
- Comfortable – footways are provided along the route and remain between 1.5m and 2m wide for entirety of the footway with no pinch points. The footway allows for two pedestrians to pass one another and is a comfortable width for wheelchair users and prams; and
- Attractive – the nature of this route is attractive with street lighting provided along the route and well-maintained footways.

Route 3- A259 along Ferry Road east towards Littlehampton

- 4.5.6 Route 3 provides a connection between the site and Littlehampton Town Centre, which is located to the south-east of the site. Residents can access the route via either the pedestrian/cycle access onto Horsemere Green Lane or PROW FP175 onto Ford Road.
- 4.5.7 The route then turns south along Church Road on the approach to the A259, transitioning onto the shared footway/ cycleway on the northern side of the carriageway. A pedestrian refuge island crossing is located west of Ferry Road, and the route continues southward along Ferry Road to the foot/cycle bridge access into Littlehampton.
- 4.5.8 An assessment of the route identifies that it is:
- Convenient - there is an existing footway provided along the entirety of Ferry Road and the A259 on the northern sides of the carriageway. The footway provides a distinct provision along Ferry Road heading east towards the town of Littlehampton;
 - Accessible - the bridge over the River Arun provides access across to Littlehampton for both pedestrians and cyclists and forms part of the National Cycle route 2;
 - Safe - the route is safe, with the footways in relatively good condition with hard surfaces which are suitable for walking;

- Comfortable - footways along Ferry Road are separated from the carriageway by a grass verge; and
- Attractive- the nature of this route is pleasant and is attractive. Ferry Road is lightly trafficked making it suitable for cycling on the carriageway. The existing footway provides an attractive route as it is separated from the carriageway.

Route 4 – Existing Byway 197 linking Crookthorn Lane to Climping Beach

4.5.9 This route consists of Byway 197, providing a connection between Crookthorn Lane and Climping Beach to the south of the site. The route begins at Crookthorn Lane and routes west past Climping C of E Primary School. Byway 197 then routes south for approximately 975m before reaching Climping Beach.

4.5.10 An assessment of the route identifies that the route is:

- Convenient - the route provides a direct link between Crookthorn Lane and Climping Beach. A wider PROW network, including footpaths 171, 172 and 169, is accessible off Byway 197 that provide connections to Climping Street and Ferry Road.
- Accessible - the route is accessible via walking and cycling however, despite being classified as a byway, vehicular travel is not possible given the quality of the track surface in some sections.
- Safe - the byway is not fit for access by general vehicular travel and provides no route for through traffic; as a result, pedestrians and cyclists are not at risk from collisions involving vehicles.
- Comfortable - the route is predominantly flat however some sections of the track display potholes and uneven surfaces that are in need of maintenance; and
- Attractive - the nature of this route is pleasant and is attractive. The gravel track is bordered on both sides by well-maintained farmland, with views to surrounding fields.

Route 5 – Public Right of Way between Station Road and Footpath 206 along River Arun

4.5.11 This route provides a connection between Station Road, to the east of the site, and Footpath 206 along the River Arun. Footpath 206 provides onward routes north towards Arundel and south towards Littlehampton. It is understood that Arun District Council have secured funding to enhance Footpath 206.

4.5.12 An assessment of the route identifies that the route is:

- Convenient- the route provides a convenient off-carriageway link between Station Road and Footpath 206 to the east of the site.
- Accessible -the route is a designated Footpath and is accessible only via walking. The first part of the footpath consists of a wide gravelled track, used to provide vehicular access to the Church of Saint Andrew. The remainder of the route is made up of grass or earth tracks. A section of Footpath 206 crosses a slipway that serves the Ship and Anchor Marina; during periods of high water, the footpath is submerged;
- Safe - the route diverges from the main carriageway, separating pedestrians from the main flow of vehicular traffic. Despite the first part of the route consisting of a vehicular access track, this section is signposted as private and is very lightly trafficked. The rural part of the route is well defined and wide enough for 2 people to pass in opposing directions. The track surfaces are even with little debris;
- Comfortable - the track surfaces are predominantly level with one section of moderate gradient change lasting approximately 6m; and
- Attractive - the first part of the route is bordered to the north by residential gardens and to the south by agricultural fields. The rural section of the route is bordered in some sections by vegetation and agricultural fields in others. The lack of urban scenery makes the route pleasant with views of the River Arun and rural landscapes.

4.6 Public Transport

Bus

- 4.6.1 The closest bus stops to the site are located on Yapton Road approximately 500m from the centre of the site. These stops are served by the regular bus service 700. In addition, School Service 665 connects with Littlehampton and Westergate. There is a shelter and timetables provided at these stops. **Table 4.1** shows detail of the local bus services.

Table 4.1 Ford Bus services

Service	Route	Service Frequency			First Bus (Mon – Fri)	Last Return (Mon- Fri)
		Weekdays	Saturdays	Sundays		
700	Littlehampton – Chichester	20-minute service	20-minute service	½ Hourly Service	05:27 to Chichester 06:01 to Littlehampton	21:23 from Chichester 22:34 from Littlehampton
665	Littlehampton – Westergate	School Service	-	-	2 services – depart at 07:31 and 07:38	14:50 from Westergate

Source: Traveline southeast

- 4.6.2 The Coastliner 700 service provide a genuine opportunity to travel to key destinations including Chichester and Littlehampton and provides a realistic alternative to using the car to travel to these destinations given the direct and frequent nature of the service. In addition, school bus services are available to numerous local schools including: Westergate Community School, Omiston Six Villages Academy (service 228), and Littlehampton Academy (service 615).

Rail

- 4.6.3 Ford Rail Station is located approximately 2km to the northeast of the site and provides rail services operated by southern. **Table 4.2** summarises existing services from the station.

Table 4.2: Ford Rail services

Destination	Service Frequency			Average Journey Time
	Weekdays	Saturdays	Sundays	
Littlehampton	2 services	2 services	1 service	5 minutes
Portsmouth	2 services	3 services	2 services	46 minutes
Southampton	2 services	2 services	2 services	1hr 15 mins
Brighton	2-3 services	2 services	2 services	43 minutes
London	3-4 services	3 services	2 services	1hr 37 minutes

Source: National Rail

4.7 Local Highway Network

Yapton Road

- 4.7.1 The site lies to the east of B2233 Yapton Road, a single carriageway road circa 6.5m wide and subject to a 30mph speed limit; to the south of the junction with Rollaston Park the speed limit increases to 40mph.
- 4.7.2 A footway is provided on the eastern side of the Yapton Road carriageway, to the north of its junction with Rollaston Park, which provides a connection with the facilities of Burndell and Yapton.

Ford Road

- 4.7.3 Ford Road runs along the eastern boundary of the site and is a single carriageway road circa 6.5m wide, with a speed limit of 40mph. A footway on the western side provides a connection to Ford Railway Station.
- 4.7.4 To the south of Ford Road, the road transitions from Ford Road to Church Lane on the approach to the A259. To the north of Ford Road, on the approach to Ford Railway Station, the road transitions to Station Road. A level crossing of the West Coastway Railway Line is situated on Station Road.

A259

- 4.7.5 Approximately 1km to the south of the site, Yapton Road and Church Lane connect with the A259. This single carriageway is subject to national speed limit and provides an east-west connection between Goring on Sea and Bognor Regis.
- 4.7.6 The junction of Yapton Road and the A259 comprises a ghost island right turn junction; the junction is known locally at the 'Oystercatcher Junction', and the junction has been identified as part of the Adoption Arun Local Plan as requiring strategic intervention; contributions are to be sought from strategic development to fund an, as yet, unidentified improvement scheme. As part of the Climping Strategic Development, situated to the south of Horsemere Green Lane, the Mulgrave Estate has safeguarded land through the Section 106 Agreement to be provided to the County Council in order for them to deliver a strategic improvement.
- 4.7.7 The junction of Church Lane and the A259 comprises a roundabout arrangement. The junction has been identified as part of the Adoption Arun Local Plan as requiring mitigation to address

operational capacity as a result of planned development. Whilst the Transport Study accompanying the Local Plan identified a scheme of approach widening on the westbound arm of the junction, the Climping Strategic Development is to deliver a 50m ICD roundabout at the junction as part of the site access arrangements.

Ford Lane

- 4.7.8 Ford Lane is situated to the north of the Ford Airfield development site. The road is typically 6.0-6.5m wide along its length and subject to a 40mph speed limit. No footways are present along the route.

A27

- 4.7.9 Approximately 4km north of the development site Ford Road connects with the A27. The A27 corridor forms part of the Strategic Road Network (SRN), managed by Highways England (HE) and provides a link between Chichester and Portsmouth to the west.
- 4.7.10 Highways England are currently consulting on plans to deliver an Arundel Bypass, which has an estimated scheme cost of £100m-£250m. Further consultation is due to commence in Autumn 2019; however, the delivery of local plan development is not predicated on the delivery of a bypass scheme.

Local Highway Network Traffic Flows and Vehicle Speeds

- 4.7.11 Traffic surveys were undertaken 5 July 2018 across the local highway network. A summary of weekday traffic flows in the vicinity of the site are summarised in **Table 4.3**.

Table 4.3: Local Highway Network Traffic Flows (weekday two-way flows)

Location	Morning Peak	Evening Peak
Ford Lane	489	387
Ford Road (north of Ford Lane)	578	578
Ford Road (south of Ford Lane)	829	796
North End Road	543	546
Yapton Road	602	702

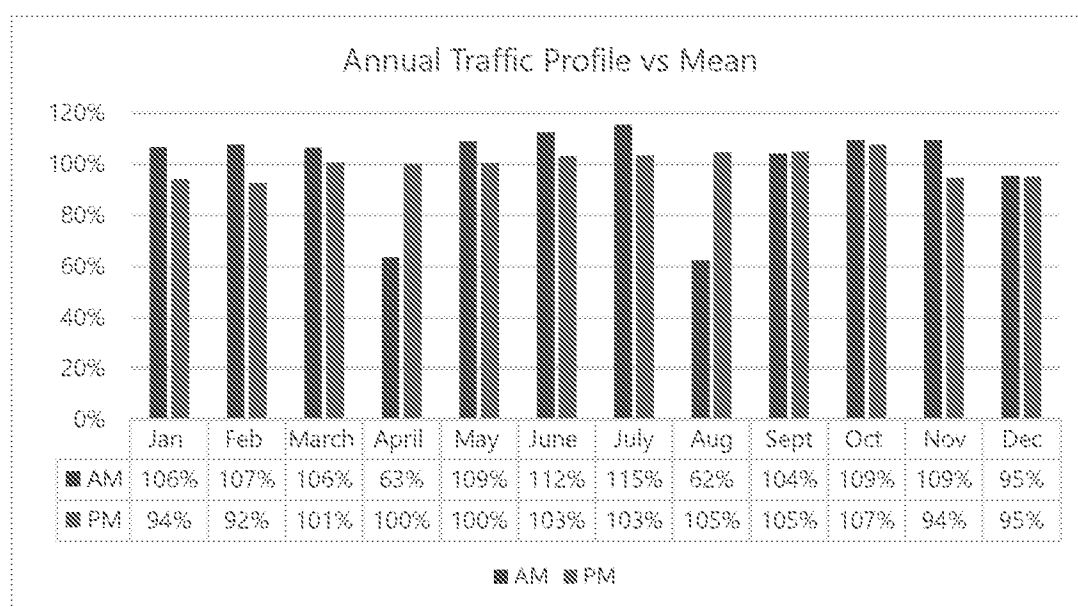
Traffic Surveys – July 2018

- 4.7.12 Traffic flows are moderate across the local highway network with approximately 10 vehicle movements each minute. Traffic flows are generally well balanced across the morning and evening peak hours.

4.7.13 July is not identified as a typical 'neutral' traffic period, given the commencement of the school summer holidays in the latter half of the month. However, due to local roadworks associated with the implementation of the pedestrian/cycleway adjacent to the A259, surveys could not be undertaken prior to this due to the impact that traffic management would have had on trip patterns.

4.7.14 Therefore, to consider the impact of collecting data in July, local traffic data from a permanent Automatic Traffic Count site at Bilsham Road has been obtained from WSCC to understand the seasonal profile of traffic flows month by month. **Image 4.1** presents the traffic profile for the year of 2017.

Image 4.1: 2017 Traffic Profile on Local Highway Network



Source: WSCC Data

4.7.15 Traffic flows in July are demonstrated to be above average in both the morning and evening peak hour with 115% and 103% of the average annual traffic flows respectively. Therefore, no adjustment has been made to the baseline traffic flows to account for any seasonal variation, and the above average baseline traffic data that has been collected makes for a robust assessment of network conditions.

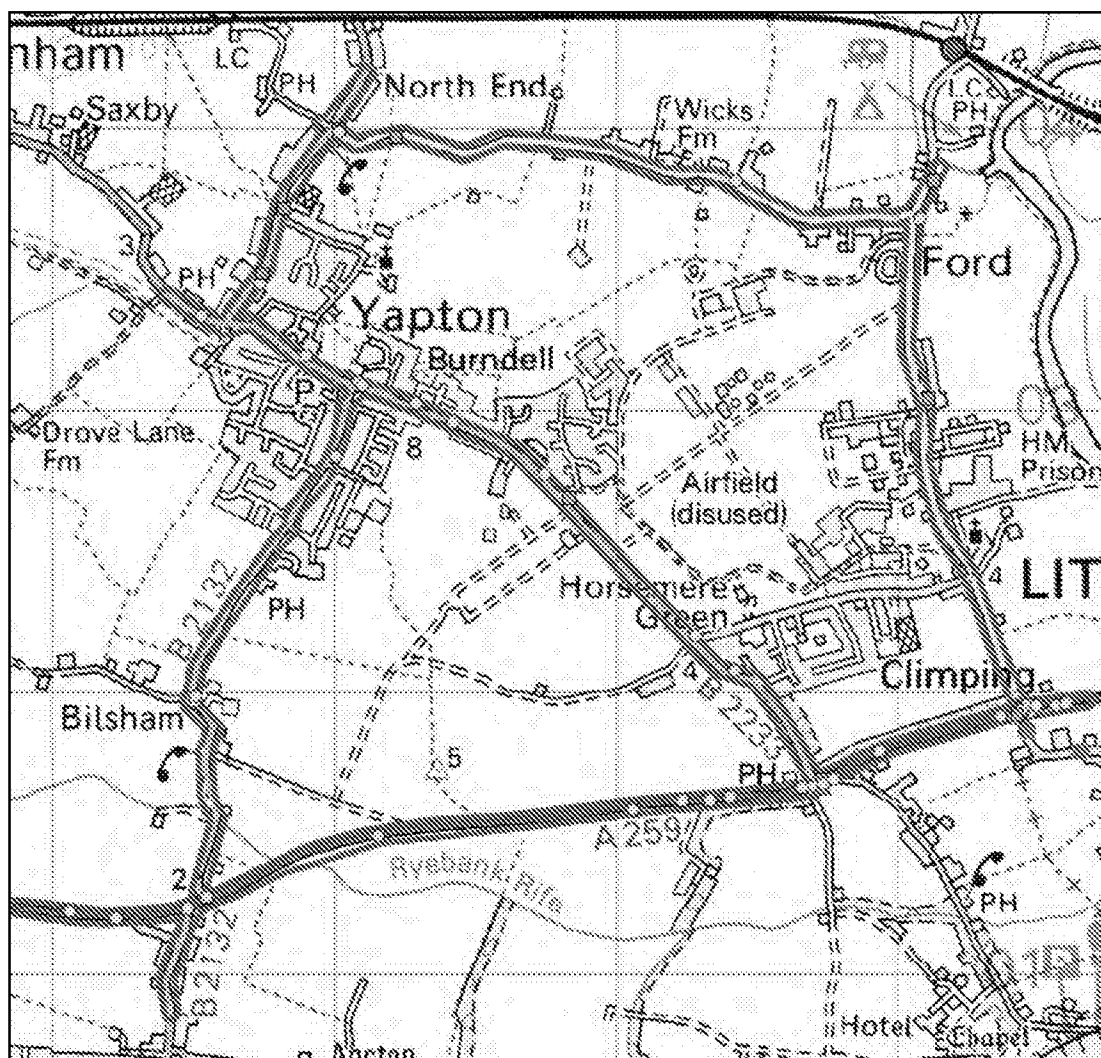
4.8 Personal Injury Accident Analysis

4.8.1 Personal injury Accident (PIA) data has been obtained from Sussex Police for the local highway network both in the vicinity of the site and the wider area. The data covers the most recent

five-year period available between 01/11/2013 and 31/10/2018. The study area is set out in Image 4.2, and includes:

- B2233 Yapton Road;
- Oystercatcher Junction;
- Junction of Bilsham Road and the A259 (known as Comet Corner);
- Ford Road; and
- Ford Lane.

Image 4.2: Personal Injury Accident Study Area



Source: Sussex Police

4.8.2 Analysis of the data has been undertaken, and **Table 4.4** provides a summary of accidents that have occurred.

Table 4.4: Personal Injury Accident Summary

Location	Vehicles			Pedestrians and Cyclists			Total
	Slight	Serious	Fatal	Slight	Serious	Fatal	
A259 Bridge Road	1			1			2
A259 Crookthorn Lane	2			1			3
A259 Crookthorn Lane/ B2233 Yapton Road Junction	3		1		1		5
A259 Crookthorn Lane/ Church Lane Roundabout	4	1		6	1		12
A259 Grevatt's Lane	3			1			4
A259 Worms Lane	2						2
A259 Worms Lane/ B2132 Yapton Road Junction	3	1					4
B2132 Bilsham Road	2			1			3
B2132 North End Road	1				2		3
B2132 North End Road/ Ford Lane Junction		1		2			3
B2233 Burndell Road	2			1			3
B2233 Burndell Road/ Rollaston Park Junction		1					1
B2233 Main Road	1						1
B2233 Main Road/ B2132 Bilsham Road	2						2
B2233 Main Road/ Canal Road Junction	1						1
B2233 Yapton Road	1			1			2
Ford Lane	1				1		2
Ford Road		1					1
Ford Road/ Ford Lane Junction	1			1			2
Station Road					1		1
Total	30	5	1	15	6	0	57

4.8.3 A summary of each recorded accident at the locations summarised in **Table 4.4** is provided in the following paragraphs.

A259 Bridge Road

4.8.4 Two slight accidents were recorded in the last five-year period on the A259 Bridge Road as follows:

- One vehicle in the process of overtaking, has clipped a cyclist causing the cyclist to fall from their bike; and
- One vehicle travelling westbound has failed to stop in time at stationary traffic and has struck the vehicle ahead of it.

A259 Crookthorn Lane

4.8.5 Three accidents were recorded in the last five-year period along the A259 Crookthorn Lane. All accidents were slight in nature, with one accident involving a cyclist. They were as follows:

- A vehicle was traveling westbound along the A259 and has failed to see the vehicles ahead of them slowing due to stationary traffic. As a result, the vehicle has rear ended the vehicle ahead of it causing damage;
- A vehicle heading westbound along the A259 has rear ended a vehicle ahead of it. As a result, this vehicle has then rear ended the next vehicle causing further damage; and
- An accident occurred as a result of a vehicle colliding with a cyclist on the nearside causing the cyclist to fall from their bicycle.

A259 Crookthorn Lane/ B2233 Yapton Road Junction

4.8.6 Five accidents were recorded in the last five-year period at this junction. One accident was reported as fatal, one serious accident involving a cyclist and three slight accidents.

- Two accidents occurred when drivers lost control of their vehicles and left the carriageway, one of which was fatal;
- Two accidents have occurred because vehicles have pulled out of the junction and collided with another vehicle at the junction; and
- One vehicle has struck a cyclist from behind, causing the cyclist to fall from their bicycle.

A259 Crookthorn Lane/ Church Lane Roundabout

4.8.7 Twelve accidents were recorded in the last five-year period at this roundabout. Two accidents were serious in nature and ten were slight, as follows:

- Seven of the accidents involved vehicles colliding with cyclists in the circulating carriageway of the roundabout. One of these was recorded as serious;
- Three of the accidents involved motorists losing control of their vehicles and exiting the carriageway;
- One accident was a result of a rear-ended shunt in stationary traffic; and
- Two vehicles travelling across the roundabout, one vehicle travelling west into A259 and another traveling east, have both collided into one another.

A259 Grevatt's Lane

4.8.8 Four accidents were recorded in the last five-year period on the A259 Grevatt's Lane. All four accidents were slight in nature and are as follows:

- A vehicle traveling east bound in the process of overtaking a cyclist has made minor contact with the vehicle wing mirror and has caused minor injury to the cyclist;
- A vehicle traveling westbound lost some of its load which collided with another vehicle behind causing damage;
- A vehicle travelling west has not slowed down in time and collided with slow moving traffic ahead of them;
- One accident occurred when a vehicle collided with a vehicle turning into Hobbs New Barn at the junction.

A259 Worms Lane

4.8.9 Two accidents were recorded in the last five-year period. Both accidents were slight in nature and are as follows:

- A vehicle has lost control and exited the carriageway on the nearside;
- A vehicle has collided with the rear of another slowing vehicle resulting in slight injury.

A259 Worms Lane/ B2132 Yapton Road Junction

- 4.8.10 Four accidents were recorded here within the last five-year period. One of these accidents was serious and three were slight. All four accidents were a result of vehicles exiting Worms Lane and colliding with oncoming vehicles on Yapton Road.

B2132 Bilsham Road

- 4.8.11 Three accidents were recorded within the last five-year period. All these accidents were slight in nature. The details of each accident are as follows:

- A motorcyclist and car collided after the motorcyclist lost control of their vehicle;
- A cyclist has joined the carriageway into the path of an oncoming vehicle;
- Two vehicles have collided head on around the bend.

B2132 North End Road

- 4.8.12 Three accidents were recorded within the last five-year period. Two of these accidents were serious and one was slight in nature. Both serious accidents involved cyclists and are as follows:

- Two accidents occurred when a cyclist has collided with a car causing serious injury; and
- One accident was the result of a rear end shunt between two vehicles slowing down on approach to traffic.

B2132 North End Road/ Ford Lane Junction

- 4.8.13 Three accidents were recorded within the last five-year period. One accident was classified as serious with two being slight, the details of which are as follows:

- A motorcycle, overtaking a stationary bin lorry has collided with a vehicle turning right out of Ford Lane. The motorcyclist was travelling on the wrong side of the carriageway;
- A vehicle has pulled out of the Ford Lane junction and has collided with a cyclist who was indicating left into Ford Lane;
- A vehicle has clipped a pedestrian standing at the side of the road causing slight injury.

B2233 Burndell Road

4.8.14 Three accidents were recorded within the last five-year period. All three accidents were classified as slight, the details of each are below:

- A vehicle traveling westbound has collided with a pedestrian in the carriageway;
- A vehicle attempting to avoid a head on collision has left the carriageway; and
- A vehicle has collided with another vehicle whilst turning right into Goodhew Close.

B2233 Burndell Road/ Rollaston Park Junction

4.8.15 Once accident has been recorded here in the last five-year period when a vehicle turned right into the path of a motorcyclist, causing a serious injury.

B2233 Main Road

4.8.16 One slight accident has been recorded in the last five-year period along the B2233 Main Road when a vehicle travelling eastbound collided with the rear of another vehicle.

B2233 Main Road/ B2132 Bilsham Road

4.8.17 Two accidents have been recorded in the last five-year period at this roundabout. Both accidents were slight and occurred as a result of rear end shunts between vehicles waiting at the junction.

B2233 Main Road/ Canal Road Junction

4.8.18 One accident has been recorded here in the last five-year period when a vehicle has failed to give way, resulting in a collision with the nearside of a vehicle traveling eastbound. This accident was slight in nature.

B2233 Yapton Road

4.8.19 Two accidents have been recorded on this road in the last five-year period, both accidents were slight. Details of these accidents are as follows:

- A motorist lost control of the vehicle and exited the carriageway, colliding with a tree; and
- A pedestrian in a wheelchair was travelling along the footway when they lost control and collided with the rear of a bus, resulting in slight injury.

Ford Lane

- 4.8.20 One 'serious' accident has been recorded on this road in the last five-year period as a result of a rear end shunt between a cyclist and a vehicle.

Ford Road

- 4.8.21 One 'serious' accident has been recorded on this road in the last five-year period as a result of a rear end shunt between two vehicles travelling northbound. This occurred as a result of a vehicle failing to slow down as the vehicle ahead of it was intending to turn into Nelson Row.

Ford Road/ Ford Lane Junction

- 4.8.22 Two accidents have been recorded in the last five-year period at this junction. Both accidents were recorded as slight and the details are as follows:
- One accident occurred as a result of a side on collision between a vehicle and cyclist at the junction, resulting in slight injury; and
 - One 'slight' accident occurred as a result of mis-leading signals which caused a vehicle to pull out of the junction into the path of another vehicle.

Station Road

- 4.8.23 One accident has been recorded in the last five-year period on this road when a car has overtaken a cyclist and collided side-on, resulting in a serious injury.

Summary

- 4.8.24 A total of 57 accidents have occurred within the study area during the most recent five-year period. Of the recorded accidents, 12 have occurred at the Church Lane/A259 roundabout of which 7 involved cyclists. West Sussex County Council has recently introduced remedial measures at the junction by implementing an off-road cycle route to the north of the A259 carriageway; this improvement removes the need for cyclists to use the carriageway, reducing the risk of cyclists/vehicular conflict. In addition, this junction is subject to a committed roundabout improvement as part of the Climping Strategic Development.
- 4.8.25 Of course, any accident resulting in injury is to be regretted and safety matters should never be taken lightly. This is reflected in national planning policy. Against this background, and whilst there does not appear to be an unusual accident record or a particularly identifiable

safety issue which remains unaddressed, this TA provides a thorough assessment of the development proposal's traffic impact on the local highway network.

4.9 Level Crossings

4.9.1 Level crossings of the West Coastway Railway Line are situated on both Ford Road and on Yapton Lane to the north of the Development.

4.9.2 Traffic surveys have been undertaken in order to establish the existing operating conditions to inform Section 7 of this TA. A full queue length analysis has been undertaken and the results are summarised below.

Table 4.5: Level Crossing Queue Length Survey Results

	Morning Peak		Evening Peak	
	Average Queue	Max Queue	Average Queue	Max Queue
Ford Road (N)	17	39	39	68
Ford Road (S)	23	38	22	32
Yapton Lane (N)	7	13	13	30
Yapton Lane (S)	18	37	4	12

Source: Traffic Surveys

4.9.3 At the Ford Road level crossing, the closure of the barrier typically lasts three to five minutes and generates average peak hour queues of circa 39 vehicles on the Ford Road (north) approach, whilst queues on Ford Road (south) reach 23 vehicles on average. The maximum queue observed was 68 vehicles during the evening peak period on the northern approach.

4.9.4 At the Yapton Lane level crossing, the closure of the barrier typically lasts one to two minutes and generates an average peak hour queue of circa 18 vehicles on the Yapton Lane (southern approach). The maximum queue observed was 37 vehicles during the morning peak period on the southern approach.

4.10 Summary

4.10.1 The site is located within close proximity to a network of existing and proposed walking and cycling facilities which offer safe and convenient routes to local services and facilities.

4.10.2 Ford has a regular bus service which provides good accessibility to wider destinations including Littlehampton and Chichester. Ford Rail station is located approximately 2km to the

north of the site and provides further opportunities for travel to destination further afield including Portsmouth, Brighton and London Victoria.

4.10.3 The site is well connected to the local highway network and access to the Highway England Strategic Road Network can be achieved to the north of the site.

4.10.4 A review of personal injury data does not indicate any specific highway safety problem on the local highway network.

SECTION 5 SITE ACCESS, SERVICING AND PARKING

5.1 Introduction

- 5.1.1 This section of the TA sets out the proposed site access arrangements from the local highway network along with servicing and parking provision.

5.2 Site Access Arrangements

- 5.2.1 Paragraph 108 of the NPPF requires development to demonstrate:

“Safe and Suitable access to the site can be achieved for all people”

- 5.2.2 To achieve safe and suitable access, the development proposal includes the provision of 2 points of vehicular access to the residential element of the development, provided from Ford Lane and Yapton Road. In addition, a single point of vehicular access is to be provided to the employment element of the development from Ford Road. There will be no internal vehicular link between the employment and residential area.
- 5.2.3 Dedicated pedestrian and cycle accesses will be provided to all parts of the development from Rollaston Park, Ford Road, Horsemere Green Lane and Ford Lane. Internal pedestrian and cycle links will be provided between the residential and employment areas, to enhance permeability of the site and allow movement between the new homes and jobs.

Vehicular Access – Yapton Road

- 5.2.4 Vehicular access from Yapton Road will take the form of a 4-arm roundabout with an inscribed circle diameter of 28m. Two of the arms will provide for the continuation of Yapton Road to both the north and the south, a third arm will provide access to the Development with the fourth arm being a stub arm to provide access to agricultural fields adjacent to Yapton Road. The access arrangements are presented in **Drawing ITB13091-GA-001 Rev E**, which can be found at the end of this TA.
- 5.2.5 Yapton Road is subject to a 40mph speed limit in the vicinity of the site access and an Automatic Traffic Count (ATC) placed on Yapton Road recorded that 85th percentile speeds are consistent with a 40mph road. Therefore, the Yapton Road arms have been designed in accordance with the Design Manual for Roads and Bridges (DMRB) TD16/70 for a 70kph road.

Forward visibility splays of 120m have been provided on the Yapton Road approaches to the roundabout.

- 5.2.6 The main spine road through the Development is to be provided as a 30mph road. Therefore, the development arm of the roundabout has been designed accordingly and provided with forward visibility extending a minimum of 90m.
- 5.2.7 Lane entry widths of 4.5m have been provided on all arms of the junction. On this basis, a circulatory lane width of 5.4m has been provided, consistent with clause 7.8 of TD16/07. A full Design Audit of the arrangement is provided in **Drawing ITB13091-GA-014 Rev B**.
- 5.2.8 The design of the junction has also been informed by vehicular swept path analysis, and this assessment establishes that large single or double decker buses (i.e. those in use on the Stagecoach 700 'Coastliner' service) can manoeuvre safely through the junction to and from all arms. A copy of the tracking is provided in **Drawing ITB13091-GA-043 Rev B**.
- 5.2.9 In accordance with the WSCC 'Road Safety Audit' Policy, a Road Safety Audit: Stage 1 (RSA1) will be commissioned once the technical aspects of the preliminary design are agreed. Any matters raised in the Audit will be appropriately resolved and any remedial actions agreed with WSCC.

Vehicular Access – Ford Lane

- 5.2.10 Vehicular access from Yapton Road will take the form of a 4-arm roundabout with an inscribed circle diameter of 40m. Two of the arms will provide for the continuation of Ford Lane to both the east and west, the third arm will provide access to the Development and the fourth arm will provide access to the consented anaerobic digestate plant to the north of Ford Lane (located at Wicks Farm). The access arrangements are presented in **Drawing ITB13091-GA-004 Rev A**, which can be found at the end of this TA.
- 5.2.11 Ford Lane is subject to a 40mph speed limit in the vicinity of the site access and an ATC placed on Yapton Road recorded that 85th percentile speeds are consistent with a 40mph road. Therefore, the Ford Lane arms have been designed in accordance with the Design Manual for Roads and Bridges (DMRB) TD16/70 for a 70kph road. Forward visibility splays of 120m have been provided on the Yapton Road approaches to the roundabout.

- 5.2.12 The main spine road through the Development is to be provided as a 30mph road. Therefore, the development arm of the roundabout has been designed accordingly and provided with forward visibility extending a minimum of 90m.
- 5.2.13 Lane entry widths of 4.5m have been provided on all arms of the junction. On this basis, a circulatory lane width of 5.4m has been provided, consistent with clause 7.8 of TD16/07. A full Design Audit of the arrangement is provided in **Drawing ITB13091-GA-013**.
- 5.2.14 The design of the junction has also been informed by vehicular swept path analysis, and this assessment establishes that large single or double decker buses (i.e. those in use on the Stagecoach 700 'Coastliner' service) can manoeuvre safely through the junction to and from all arms. A copy of the tracking is provided in **Drawing ITB13091-GA-039**.
- 5.2.15 In accordance with the WSCC 'Road Safety Audit' Policy, a Road Safety Audit: Stage 1 (RSA1) will be commissioned once the technical aspects of the preliminary design are agreed. Any matters raised in the Audit will be appropriately resolved and any remedial actions agreed with WSCC.

Vehicular Access - Ford Road

- 5.2.16 Access from the highway to the employment floorspace will be provided from Ford Road, utilising the existing access to Ford Airfield. The junction comprises a ghost island right turn lane.
- 5.2.17 The junction also provides access to the Wastewater Treatment Works and Virdor, and planning consent has recently been granted (ref: WSCC/027/18) permitting the reconfiguration of the Grundon access arrangements. All HGV movements associated with the Grundon operations will use this the access exclusively, whereas formerly entry to the site had been permitted from Rollaston Park).
- 5.2.18 On the basis of the above, it is established that the access can satisfactorily accommodate manoeuvres by Heavy Goods Vehicle (HGV). Therefore, no modification to the existing access arrangements is necessary. The existing access arrangements are shown in **Drawing ITB13091-GA-021**.
- 5.2.19 The WSCC 'Road Safety Audit' Policy, a Road Safety Audit: Stage 1 (RSA1) requires that an existing access be the subject of a RSA1 where it is anticipated to experience intensification in use by 50 or more vehicles per day. Therefore, a RSA1 has been commissioned and will follow

as part of the planning application. Any matters raised in the Audit will be appropriately resolved and any remedial actions agreed with WSCC.

5.2.20 Within the site, the area identified for employment use will be accessed by the extension of the consented Grundon Access Road. The arrangement comprises the extension of the 7.3m carriageway as well as the 2.0m footway located on the western side of the carriageway. The access arrangement is presented in drawing **ITB13091-GA-037**.

Pedestrian and Cycle Accesses

5.2.21 Cycle and pedestrian accesses are to be provided at the following locations and are set out in the Site Access Strategy Plan provided at **Figure 4**.

- Rollaston Park – providing access to pedestrian infrastructure to the north west of the site into Yapton which is to be improved as part of the development proposal (discussed in Section 5.3 of this TA). The arrangement is presented in drawing **ITB13091-GA-041**;
- Horsemere Green Lane – enabling a connection through to off-road infrastructure adjacent to the Church Lane carriageway proposed as part of the development (discussed in Section 5.3 of this TA) and onwards to the National Cycle Network Route 2 and Climping Beach. The access arrangement is presented in drawing **ITB13091-GA-042**; and
- Ford Road – providing access to pedestrian infrastructure on Ford Road, as well as future off-road cycle and pedestrian route to Ford Railway Station (discussed in Section 5.3 of this TA). The connection is made through the use of Public Right of Way 200.3 which is accessed from within the development site.

5.2.22 In addition to the above, connections to existing Public Rights of Way (PROW) will be made to further enhance the connectivity of the site and provide further points of pedestrian and cycle access. These include:

- Footpath 363, which runs east-west across the northern section of the site on the line on the old canal, and provides a connection to Footpaths 170, 200.2 and 360 on towards Burndell and Yapton;
- Footpath 366 and 366.1, which provide a connection to Ford Lane and the opportunity to connect north via Footpath 365; and

- Footpath 175, which provides an alternative pedestrian onto Ford Road at the southern end of the site.

5.2.23 Pedestrian access will also be provided between the residential and employment elements of the site. This link is shown in the illustrative masterplan to the rear of the local centre, north of the retained runways.

5.2.24 A connection into the site will also be made on the northern site boundary to provide access into the site for the existing residents north of Ford Lane. This will comprise a length of footway fronting to the dwellings and a dropped kerb and tactile paving crossing to bring residents into the development site and connect with onward infrastructure within the site. The proposed arrangement is presented in **Drawing ITB13091-GA-054**.

Summary

5.2.25 On the basis of the above, it is demonstrated that safe and suitable access can be provided for all users, consistent with paragraph 108 of the National Planning Policy Framework.

5.3 Street Hierarchy

5.3.1 Whilst the details of the layout will be determined as part of a subsequent Reserved Matters Applications (RMA), the principles of the site layout have been considered and are presented to provide context to the application to demonstrate how the development can be brought forward.

5.3.2 The site layout will be designed in accordance with contemporary design guidance, namely the Department for Transport's *'Manual for Streets'* and West Sussex County Council's *'Local Design Guide'*, and will follow the principles outlined below:

- Main Spine – circa 6.2m-6.5m wide carriageway, in order to accommodate bus services, with 2.0m-3.0m footway/cycleways on the primary routes through the development;
- Primary Street – minimum 5.5m carriageway with 2.0m footways on the primary routes through the development;
- Secondary Streets – 5.0m wide carriageways operating as either a shared surface with service margin or as a carriageway with a distinct footway provision, designed to enable access for refuse vehicles; and

- Private driveways – narrower shared surface areas where refuse vehicles do not need to enter.

5.3.3 The illustrative masterplan is provided at **Appendix B** and demonstrates how the development can be delivered on the land.

5.4 Service and Refuse Collection Arrangements and Emergency Access

5.4.1 The detailed layout of the scheme (which would need to be determined via a separate RMA) will have due regard to the guidance on carry distances for refuse provided in Schedule 1, Part H of the Building Regulations (2000):

- Residents should not be required to carry waste more than 30m (excluding any vertical distance) to the storage point; and
- Waste collections should be able to get within 25m of the storage point.

5.4.2 The site layout will be designed to the guidance set out in Section 6.8 of the Manual for Streets. Where appropriate, bin stores will be provided such that a refuse vehicle will not have to enter any smaller cul-de-sacs of 55m or less in length.

5.4.3 The site layout will also meet the MfS requirements in terms of providing access for emergency vehicles, with multiple access to the site for emergency vehicles provided at Yapton Road and Ford Lane. All roads within the site will provide in excess of 3.7m width (the required working width for a fire tender).

5.5 Parking

5.5.1 Future RMAs would deal with provision of car parking, which would be provided in accordance with the parking standards at the time.

5.5.2 A statement of intent with regards to parking is as follows:

- Car and cycle parking to be provided in accordance with local parking standards as set out in adopted guidance;
- Non-curtilage allocated car parking ideally to be located within 25m of individual dwellings;

- Within parking courts, a proportion of parking would be unallocated to provide for efficient use;
- On-street parking where appropriate to be provided within discrete parking bays on the main routes; and
- Provision of Electric Vehicle Charging will be explored as part of each phase with reference to adopted standards.

5.5.3 The illustrative masterplan demonstrates a feasible layout which can deliver a level of parking consistent with the current adopted parking standards.

Cycle Parking

5.5.4 Future reserved matters application would provide details of cycle parking provision. Adequate cycle parking facilities would be provided for the proposed dwellings in secure covered parking, such as within a garage or shed. Accordingly, cycle parking would be provided in accordance with the standards.

5.6 Summary

5.6.1 Vehicular access is proposed to the residential area of the site from Yapton Road and Ford Lane via new roundabout junctions. The proposed access arrangements have been designed in accordance with the relevant design guidance contained in the DMRB; they deliver sufficient geometry and visibility to ensure safe movement of vehicles through each access junction.

5.6.2 Access to the employment floorspace will be provided from Ford Road, utilising the existing access to Ford Airfield. The junction comprises a ghost island right turn lane. No alteration to the junction arrangement is necessary.

5.6.3 The development will deliver a permeable site layout and will offer a number of different connections to the existing local walking and cycling network to ensure the site is accessible by all. This includes pedestrian and cycle access to points along Ford Road, Ford Lane, Rollaston Park and Horsemere Green Lane.

5.6.4 In this regard, it is demonstrated that the site will deliver safe and suitable access, and that the proposed development compiles with the paragraph 108 of the NPPF.

- 5.6.5 The development will deliver car and cycle parking in line with the relevant adopted guidance and will promote a site layout that has been developed in accordance with the principles of Manual for Streets.

SECTION 6 TRANSPORT SUSTAINABILITY

6.1 Introduction

6.1.1 Paragraph 108 of the NPPF sets out that development proposals should ensure that:

“Opportunities for sustainable transport modes have been taken up depending on the nature and location of the site to reduce the need for major transport infrastructure”

6.1.2 This section of the TA considers the accessibility of the site to key local services and facilities by walking, cycling and public transport and should be read in conjunction with the Framework Residential Travel Plan (FT) (*document ref: ITB13091-009 R*). The opportunities for sustainable travel to the site are identified, and the FTP identifies measures to ensure that these opportunities are taken up.

6.2 Journey Purpose and Key Destinations

6.2.1 In promoting sustainable transport, it is important to consider the reasons why future residents of the proposed development will make journeys.

6.2.2 The Department for Transport’s (DfT) National Travel Survey identifies the reasons people travel. The proportion of all trips by purpose (by all modes) is summarised in **Table 6.1**.

Table 6.1: Proportion of Trips per Year by Journey Purpose (all modes)

Journey Purpose	Proportion of Trips
Leisure	26%
Shopping	19%
Commuting/Business	19%
Education/Escort Education	12%
Personal Business	9%
Other Escort	9%
Other	6%

(Source: Table NTS0409 of Transport Statistics Great Britain – 2016 Edition)

6.2.3 Leisure, shopping and education journeys account for more than half of all journeys made. Commuting represents around 20% of all travel.

6.3 Walking Distances

- 6.3.1 Section 6.3 of CIHT 'Planning for Walking' suggests that most people will walk if their destination is less than a mile away (1.6km):

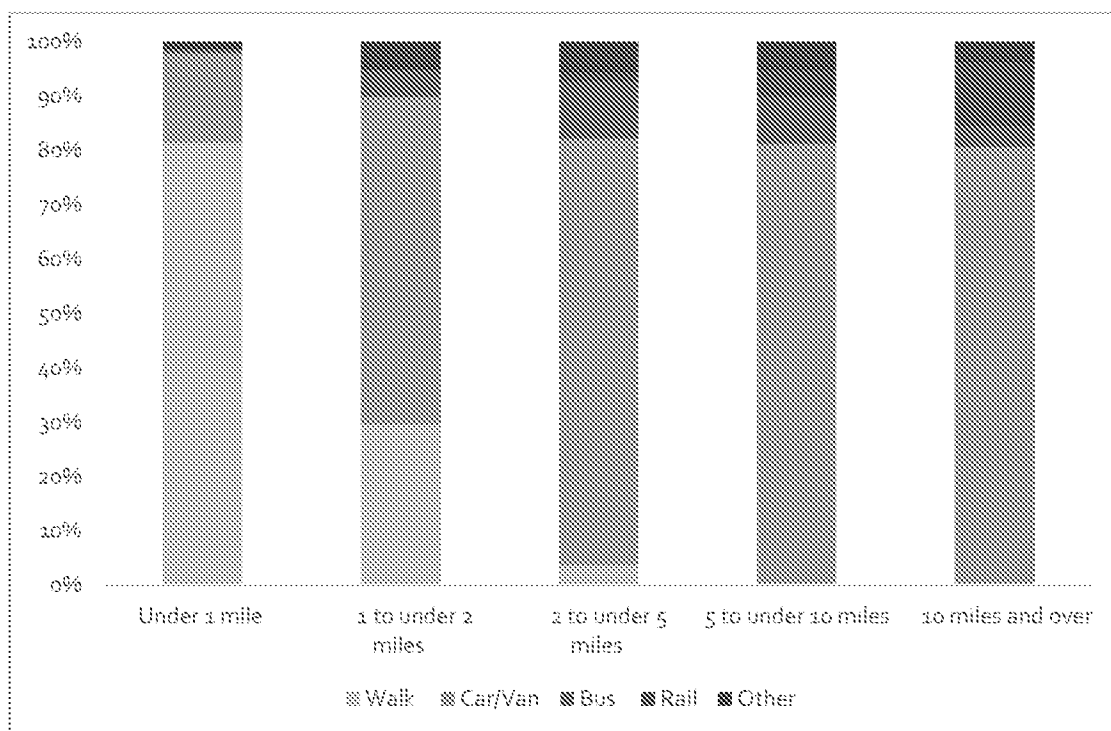
"Across Britain, approximately 80% of journeys shorter than 1 mile are made wholly on foot – something that has changed little in 30 years. The main reason for the decline in walking is the fall in the total number of journeys shorter than 1 mile, which has halved in thirty years. It is not that people are less likely to make short journeys on foot but rather that fewer of the journeys they make can be accomplished on foot. If destinations are within walking distance, people are more likely to walk if walking is safe and comfortable and the environment is attractive."

and

"most people will only walk if their destination is less than a mile away. Lane use patterns most conducive to walking are thus mixed in use and resemble patchworks of "walkable neighbourhoods," within a typical catchment of around 800m or 10 minutes' walk."

- 6.3.2 This is corroborated by the National Travel Survey (NTS) 2017 which identifies the mode share journeys of different lengths (**Image 6.1**) and confirms that the vast majority (80%) of trips of up to one mile (1.6km) are undertaken on foot.

Image 6.1: Mode Share of Trips by Main Mode for Different Trip Lengths



Source: National Travel Survey: England 2017

- 6.3.3 Providing new homes within one mile (1.6km) of facilities and services will provide the greatest opportunity for a significant proportion of trips to be made by walking.
- 6.3.4 That is not to say that a mile is the maximum that people are prepared to walk, nor that development must be located within a mile of everything. The NTS data (**Image 6.1**) identifies that a significant proportion (around 31%) of journeys between one and two miles are undertaken on foot, i.e. a significant proportion of people are prepared to walk for journeys of up to 2 miles (3.2km). This demonstrates that walking is a realistic and viable travel option for many people for such journeys.
- 6.3.5 This is supported by paragraph 2.3 of the DMRB TD91/05 'Provision for Non-Motorised Users', which identifies that walking is a 'normal' mode of transport for journeys undertaken within a range of two miles, as follows:

"Walking is used to access a wide variety of destinations including educational facilities, shops, and places of work, normally within a range of up to 2 miles. Walking and rambling can also be undertaken as a leisure activity, often over longer distances".

- 6.3.6 Against all of this background, the following walking distances have been used in this assessment:
- ♦ 1,600m – A comfortable walking distance i.e. the distance within which circa three-quarters of all journeys are made on foot; and
 - ♦ 3,200m – A reasonable walking distance i.e. the distance within which a significant proportion (circa one-third) of journeys will still be on foot.

6.4 Cycling Distances

- 6.4.1 DMRB TA 91/05 "Provision for Non-Motorised Users" paragraph 2.11 states:

"Cycling is used for accessing a variety of different destinations, including educational facilities, shops and places of work, up to a range of around 5 miles. Cycling is also undertaken as a leisure activity, often over much longer distances. As well as being a mode of transport in its own right, cycling frequently forms part of a journey in combination with cars and public transport."

- 6.4.2 Guidance within CIHT "Planning for Cycling" states:

"The majority of cycling trips are for short distances, with 80% being less than five miles and with 40% being less than two miles. However, the majority of trips by all modes are also short distances (67% are less than five miles, and 38% are less than two miles); therefore, the bicycle is a potential mode for many of these trips (DfT, 2014a)..."

6.4.3 Paragraph 1.5 in the Department for Transport's (DfT) Local Transport Note 2/08 'Cycle Infrastructure Design' (October 2008) states:

"Urban networks are primarily for local journeys. In common with other modes, many utility cycle journeys are under three miles (4.8km) (ECF, 1998), although for commuter journeys, a trip distance of over 5 miles (8km) is not uncommon."

6.4.4 Data provided within the National Travel Survey demonstrates that the average distance per journey by cycle is approximately 4.4km, with the current average length of an employment and leisure cycle trip some 5.2km.

6.4.5 On this basis, a 3.2km cycle distance is considered to be 'comfortable', a 5km cycling distance is considered to represent a 'reasonable' cycle distance, with 8km considered to be a 'acceptable' cycling distance.

6.5 Accessibility to Local Facilities

6.5.1 In addition to the facilities that will be provided on site (i.e. education, employment, retail, community and leisure uses), Yapton offers a good range of local facilities and services which future residents are likely to visit on a day to day basis. These are summarised in **Table 6.2**, with the location of these facilities shown on a plan at **Figure 5**.

Table 6.2: Key Local Destinations

Purpose	Destination	Total Distance	Walking Journey Time (mins)	Cycle Journey Time (mins)
Employment	Rudfield Industrial Estate	1,100	13	4
	Ford Lane Industrial Estate	1,900	23	7
	Ford Airfield Industrial Estate	600	7	2
Education	Yapton C of E Primary School	2,300	27	9
	Yapton Community Pre School	2,300	27	9
Retail	Yapton Co-Op	1,500	18	6
	Merry Meats Butchers	1,500	18	6
	Blisham Local stores	1,700	20	6
	Windmill Shopping Village	3,100	37	12
Leisure	Yapton Chippy Takeaway	1,550	18	6
	Silhouette Hair Salon	1,550	18	6

Purpose	Destination	Total Distance	Walking Journey Time (mins)	Cycle Journey Time (mins)
	Recreation Ground	1,600	12	6
	Village Hall	1,650	20	6
	Free Church	1,950	23	7
	Allotments	1,900	23	7
	St Mary C of E Church	2,300	27	9
Healthcare	Avisford Medical Group	2,100	25	8
	Meadowcroft Surgery	1,750	21	7

 = 'comfortable' walking (1,600m)/cycle distance (3.2km)

 = 'Reasonable' walking (3,200m)/cycle distance (5km)

- 6.5.2 As set out above, in close proximity to the site there are a good range of shops and facilities including healthcare, leisure, retail and local school and in addition to the facilities brought forward as part of the development. Such a provision will be able to satisfy many daily demands of the development, and provides the opportunity

6.6 Non- Motorised User Audit Routes

- 6.6.1 The routes which future residents of the site would use to access the local facilities within Ford, Yapton and the wider area have been assessed as part of a Non-Motorised User Audit. The Audit has identified any deficiencies in the existing network which may require improvement to encourage future occupants of the Development to walk and cycle to local services and facilities. The Audit is presented in **Appendix C**.

Route 1- Ford Road between proposed development and Ford Railway Station

- 6.6.2 This route provides a direct connection between the site and Ford Railway Station for onward journeys to destinations further afield including Littlehampton, Brighton, Portsmouth, and London. The route utilises pedestrian footways between the proposed site and Ford Railway station, via Ford Road and Station Road.

- 6.6.3 An assessment of the route identifies that it is:

- Convenient – the route is convenient and provides a direct route from the site to Ford Railway Station;

- Accessible – existing footways are present for the route with appropriate crossing provision;
- Safe – the route is safe, with the provided footway generally in good condition with smooth, hard surfaces suitable for walking;
- Comfortable – the route is comfortable with good width footway/ cycleway circa 1.5m wide. MfS identifies 1.5m as sufficient to allow a wheelchair user or pushchair user to pass a pedestrian and 0.9m as sufficient width for a wheelchair user to proceed; and
- Attractive – the nature of the route is attractive with well-maintained footways providing a direct link from the site to Ford Railway Station.

Route 2- Proposed development along the B2233 Yapton Road/ Burndell Road towards the Yapton Village

6.6.4 This route provides a direct connection between the site and Yapton Village from the pedestrian access from the site onto Rollaston Park Road, using the northern footway, then onwards using Burndell Road/B2233 footway into Yapton Village centre.

6.6.5 An assessment of the route identifies that it is:

- Convenient – there are existing footways provided along the entire route on the eastern side of the carriageway that provide access to bus services and local facilities;
- Accessible – dropped kerbs are provided at the junctions with Burndell Road, however tactile paving is absent. Informal pedestrian crossing facilities are provided at the Burndell Road and Bilsham Road junction with dropped kerbs and tactile paving provided. The signalised puffin crossing facilities located in Yapton village centre provide a safe route for pedestrians;
- Safe – the route is safe with footways in good condition with smooth, good quality surfaces suitable for walking. The route benefits from natural surveillance from residential properties and is street lit from Rollaston Park Road along Burndell Road all the way to the facilities situated in Yapton;
- Comfortable – footways are provided along the route and remain between 1.5m and 2m wide for entirety of the footway with no pinch points. The footway allows for two pedestrians to pass one another and is a comfortable width for wheelchair users and prams; and

- Attractive – the nature of this route is attractive with street lighting provided along the route and well-maintained footways.

Route 3- A259 along Ferry Road east towards Littlehampton

6.6.6 Route 3 provides a connection between the site and Littlehampton Town Centre, which is located to the south-east of the site. Residents can access the route via either the pedestrian/cycle access onto Horsemere Green Lane or PROW FP175 onto Ford Road.

6.6.7 The route then turns south along Church Road on the approach to the A259, transitioning onto the shared footway/ cycleway on the northern side of the carriageway. A pedestrian refuge island crossing is located west of Ferry Road, and the route continues southward along Ferry Road to the foot/cycle bridge access into Littlehampton.

6.6.8 An assessment of the route identifies that it is:

- Convenient - there is an existing footway provided along the entirety of Ferry Road and the A259 on the northern sides of the carriageway. The footway provides a distinct provision along Ferry Road heading east towards the town of Littlehampton;
- Accessible - the bridge over the River Arun provides access across to Littlehampton for both pedestrians and cyclists and forms part of the National Cycle route 2;
- Safe - the route is safe, with the footways in relatively good condition with hard surfaces which are suitable for walking;
- Comfortable - footways along Ferry Road are separated from the carriageway by a grass verge; and
- Attractive- the nature of this route is pleasant and is attractive. Ferry Road is lightly trafficked making it suitable for cycling on the carriageway. The existing footway provides an attractive route as it is separated from the carriageway.

Route 4 – Existing Byway 197 linking Crookthorn Lane to Climping Beach

6.6.9 This route consists of Byway 197, providing a connection between Crookthorn Lane and Climping Beach to the south of the site. The route begins at Crookthorn Lane and routes west past Climping C of E Primary School. Byway 197 then routes south for approximately 975m before reaching Climping Beach.

6.6.10 An assessment of the route identifies that the route is:

- Convenient - the route provides a direct link between Crookthorn Lane and Climping Beach. A wider PROW network, including footpaths 171, 172 and 169, is accessible off Byway 197 that provide connections to Climping Street and Ferry Road;
- Accessible - the route is accessible via walking and cycling. However, despite being classified as a byway, vehicular travel is not possible given the quality of the track surface in some sections;
- Safe - the byway is not fit for access by general vehicular travel and provides no route for through traffic; as a result, pedestrians and cyclists are not at risk from collisions involving vehicles;
- Comfortable - the route is predominantly flat however some sections of the track display potholes and uneven surfaces that are in need of maintenance; and
- Attractive - the nature of this route is pleasant and is attractive. The gravel track is bordered on both sides by well-maintained farmland, with views to surrounding fields.

Route 5 – Public Right of Way between Station Road and Footpath 206 along River Arun

6.6.11 This route provides a connection between Station Road, to the east of the site, and Footpath 206 along the River Arun. Footpath 206 provides onward routes north towards Arundel and south towards Littlehampton. It is understood that Arun District Council have secured funding to enhance Footpath 206.

6.6.12 An assessment of the route identifies that the route is:

- Convenient- the route provides a convenient off-carriageway link between Station Road and Footpath 206 to the east of the site;
- Accessible -the route is a designated Footpath and is accessible only via walking. The first part of the footpath consists of a wide gravelled track, used to provide vehicular access to the Church of Saint Andrew. The remainder of the route is made up of grass or earth tracks. A section of Footpath 206 crosses a slipway that serves the Ship and Anchor Marina; during periods of high water, the footpath is submerged;
- Safe - the route diverges from the main carriageway, separating pedestrians from the main flow of vehicular traffic. Despite the first part of the route consisting of a vehicular access track, this section is signposted as private and is very lightly trafficked. The rural part of the route is well defined and wide enough for 2 people to pass in opposing directions. The track surfaces are even with little debris;

- Comfortable - the track surfaces are predominantly level with one section of moderate gradient change lasting approximately 6m; and
- Attractive - the first part of the route is bordered to the north by residential gardens and to the south by agricultural fields. The rural section of the route is bordered in some sections by vegetation and agricultural fields in others. The lack of urban scenery makes the route pleasant with views of the River Arun and rural landscapes.

6.6.13 A number of improvements have been identified for the routes set out above; a package of improvement schemes is outlined in Section 6.8 of this TA.

6.6.14 A sixth NMU route was originally identified along Yapton Road between the A259 and Bilsham Road and discussed with West Sussex County Council as part of the pre-application submission. It was agreed that a pedestrian/cycle route to the south-west of the site should not be pursued, given both the physical constraints to providing a route adjacent to the carriageway, and the personal safety of users in providing a route distinct from the highway over private land.

6.6.15 Instead, WSCC requested a pedestrian/cycle connection onto Horsemere Green Lane in order to provide a connection to pedestrian/cycle infrastructure to the south-east of the site, and to enable access to the public open space associated with the Climping Strategic Development.

6.7 Public Transport

Bus

6.7.1 The closest existing bus stops to the site are located on Yapton Road approximately 500m from the centre of the site. These stops are served by the regular flagship Stagecoach 700 'Coastliner' bus service. In addition, School Service 665 connects with Littlehampton and Westergate. There is a shelter and timetables provided at these stops. **Table 6.3** summarises the services available from the stop:

Table 6.3: Ford Bus services

Service	Route	Service Frequency			First Bus (Mon – Fri)	Last Return (Mon- Fri)
		Weekdays	Saturdays	Sundays		
700	Littlehampton – Chichester	20-minute service	20-minute service	½ Hourly Service	05:27 to Chichester 06:01 to Littlehampton	21:23 from Chichester 22:34 from Littlehampton
665	Littlehampton – Westergate	School Service	-	-	2 services – depart at 07:31 and 07:38	14:50 from Westergate

Source: Traveline southeast

- 6.7.2 The Coastliner 700 service provides a genuine opportunity to travel to key destinations including Chichester and Littlehampton and offers a realistic alternative to using the car.
- 6.7.3 In addition, school bus services are available to numerous local schools including: Westergate Community School, Omiston Six Villages Academy (via service 228), and Littlehampton Academy (via service 615).

Rail

- 6.7.4 Ford Rail Station is located approximately 2km to the northeast of the site and provides rail services operated by Southern. **Table 6.4** summarises the services available from the station:

Table 6.4: Ford Rail services

Destination	Service Frequency (per hour)			Average Journey Time
	Weekdays	Saturdays	Sundays	
Littlehampton	2 services	2 services	1 service	5 minutes
Portsmouth	2 services	3 services	2 services	46 minutes
Southampton	2 services	2 services	2 services	1hr 15 mins
Brighton	2-3 services	2 services	2 services	43 minutes
London	3-4 services	3 services	2 services	1hr 37 minutes

Source: National Rail

6.8 Sustainable Transport Strategy

6.8.1 The site benefits from its proximity to a range of everyday services and facilities that cater for many journeys. The site is located within a reasonable walking distance from many of these facilities and comfortable cycle distance. Regular bus and rail services are also accessible to the site. Overall there are a number of realistic and viable transport choices available to future residents of the site.

6.8.2 In order to ensure these opportunities are taken up, a Sustainable Transport Strategy has been developed. The strategy comprises:

- Delivering sustainable access connections from the site to the local walking and cycling network;
- Delivering improvements to the walking network to address barriers to sustainable travel and encourage walking for local journeys; and
- Improve the public transport network to encourage access and use.

6.8.3 The strategy comprises a series of 'Hard' measures, which provide physical infrastructure improvements, and 'Soft' measures designed to encourage use of sustainable travel through incentives, promotion and marketing.

Hard Measures

6.8.4 To encourage walking for local trips and address the issues identified in the Non-Motorised User Audit, a package of infrastructure improvements has been developed to improve local walking connections. These comprise:

West of Site

6.8.5 A scheme of works is proposed to enhance the existing pedestrian route between the site via Rollaston Park and Burndell Road, to facilitate pedestrian journeys between the site and Yapton. The proposed improvements are shown in **Drawings ITB13091-GA-200, 201, 202, 203 and 204**, and comprise the following:

- The provision of an uncontrolled pedestrian crossing with tactile paving and dropped kerbs on the Johnson Way/ Rollaston Park junction;

- The provision of an uncontrolled pedestrian crossing with tactile paving and dropped kerbs on Rollaston Park;
- The provision of an uncontrolled pedestrian crossing with tactile paving on exiting dropped kerbs on Yapton Road next to the bus shelter;
- A new proposed footway extension immediately north of the bus shelter on Yapton Road to tie into the proposed uncontrolled pedestrian crossing;
- Provision of vehicle crossovers and narrowing of pedestrian crossing distance at both junctions leading into Drake Grove from the B2233/ Burndell Road;
- The provision of tactile paving at the existing dropped kerb on the Fordwater Gardens and Burndell Road junction; and
- The provision of tactile paving at the existing dropped kerb on the Goodhew Close and Burndell Road junction.

South East of Site

6.8.6 A scheme of works is proposed to enhance the existing pedestrian route between Horsemere Green Lane and NCN Route 2 (at the Church Lane Roundabout). The improvements will provide a shared-use pedestrian/cycleway to facilitate cycle and pedestrian journeys between the site and Littlehampton to the east and Bognor to the west. The proposed improvements are shown in **Drawing ITB13091-GA-600**, and comprise the following:

- The widening of the existing footway to provide a 2.5m-3.0m wide pedestrian/cycleway on the eastern side of Church Lane to connect with Horsemere Green Lane;
- Widening of the carriageway at the Church Lane/Horsemere Green Lane junction to accommodate a 3.0m wide path on the approach to a dropped kerb and tactile paving crossing; and
- A tie-in to the existing/diverted NCN Route 2 pedestrian/cycleway to the north of the A259 carriageway.

North East of Site

6.8.7 In accordance with the Infrastructure Delivery Plan, a scheme of works has been identified that would enhance the existing pedestrian route between Ford Lane and Ford Railway Station and provide an off-road shared use pedestrian/cycleway between the site and the station.

6.8.8 This route will encourage access to regular rail services available at the station, provide an alternative means of undertaking medium-long journeys by modes other than private car and provide a connection through the site to the location identified by the Council for future secondary school provision. The proposed improvements are shown in **Drawings ITB13091-GA-006, 007, 008, 009 and 010**, and comprise the following:

- The provision of an uncontrolled crossing, formed of dropped kerbs and tactile paving, at the Ford Lane/Ford Road junction;
- The realignment of Station Road to enable a 3m wide shared pedestrian/cycleway to be provided between the junction of Ford Lane and Ford Railway Station on the western side of the Station Road carriageway.

Public Transport

6.8.9 The layout of the site is to be designed to accommodate bus services along the main spine road. As part of future RMAs, the location and provision of bus stop infrastructure will be considered.

6.8.10 The site access from Yapton Road and Ford Lane have been designed to accommodate the manoeuvring of a large single and double decker bus (e.g. those in use on the 700 'Coastliner' service in the event that the route is diverted through the site).

6.8.11 Stagecoach South has advised that they would be willing and able to provide bus services to the site and correspondence with Stagecoach regarding details of the service provision is ongoing. The potential routing options that have been identified are:

- A morning and evening peak hour service between the development and Barnham Railway Station;
- A regular (e.g. hourly) service between Barnham and Littlehampton which enters the Development; or
- The diversion of the existing 700 'Coastliner' service, via Ford Lane to enter the site at the northern boundary before routing south through the site to re-join the existing route.

Soft Measures

6.8.12 To support the TA, a Framework Travel Plan has been developed which sets out a detailed and comprehensive strategy for delivery of measures to encourage sustainable travel (ref: ITB13091-009 R).

6.8.13 The overarching aims of the Framework Travel Plan are:

- To reduce the number of car trips generated by the site; and
- To improve accessibility to the site by non-car modes of transport and thereby encourage the use of other travel modes.

6.8.14 The overarching aims have been set in order to achieve a number of key transport objectives and targets. The key target of the FTP is to:

“Over a period of 5 years, achieve a 12-hour vehicle trip rate that is 10% lower than recorded at the commencement of the Travel Plan”

6.8.15 To achieve the aims and objectives, a package of ‘Soft’ measures designed to encourage residents to consider sustainable travel opportunities are promoted through the FTP. The Framework Travel Plan identifies the following measures;

- Appointment of a dedicated Travel Plan Coordinator;
- Provision of a residents ‘Residents Travel Information Pack’, to provide information of travel opportunities and to promote travel;
- Offer of a sustainable travel voucher to be used either on public transport (such as Stagecoach Taster Tickets) or on cycle equipment;
- Creation of a community travel website, to provide travel information, including promoting digital applications to support modern travel behaviours such as Stagecoach Buses new travel app;
- Creation of a steering group consisting of local residents to guide and oversee the delivery of the Travel Plan;
- Community noticeboards to identify travel opportunities and incentives; and
- Promotion of local car-share and bicycle user groups.

6.8.16 A sustainable transport strategy is provided in **Table 6.5** which summarises the comprehensive package of measures proposed to be delivered to encourage sustainable access to and from the site. Further detail is provided within the FTP that accompanies this TA.

Table 6.5: Sustainable Transport Strategy

Objective	Measure	Timescale
Overall cross-objective	Appoint a Travel Plan Coordinator	Prior to Occupation
	Develop web-site / twitter feed	Prior to Occupation
	Distribute Travel Welcome Packs	Prior to Occupation
Reduce the Need to Travel	Deliver connections to broadband network	Prior to Occupation
Promotion of Walking and cycling	Walking and cycling maps and health information	Prior to Occupation
	Package of Walking and Cycling Infrastructure improvements as set out in Section 5 + cycle storage	Phased with Development
	Delivery of MfS layout – interconnecting streets, shared streets and home zones	Phased with Development
	Offer of a £150 travel voucher to each dwelling for cycle equipment purchase	On occupation (within Travel Information Packs)
	Set up a Bicycle User Group (BUG)	6 months after occupation
Promotion of Public Transport	Promotion of digital travel applications (including the Stagecoach App)	Prior to Occupation
	Provision of bus stop infrastructure in the site	Phased with Development
	Offer of £150 Bus Taster ticket	On occupation (within Travel Information Packs)
Managing Car Demand	Promotion of car sharing schemes through	Ongoing
	Installation of electric vehicle charging facilities	Phased with Development

6.9 Summary

6.9.1 Residents of the development will benefit from a range of facilities provided on site, including education, employment, retail, community and leisure uses. In addition, Yapton and Ford provide a good range of everyday facilities and services which the future residents of the proposed development will visit on a regular basis. This includes a local convenience store, primary school and leisure facilities.

- 6.9.2 Future residents of the proposed development will have the opportunity to access a range of everyday destinations by a choice of different travel modes. Walking is a realistic means of travel to and from the site, with well-connected routes providing direct access to local facilities which are located within a short walk of the site. A Non-Motorised User Audit was undertaken and outlines a series of walking improvements to make the routes more attractive for pedestrian to use.
- 6.9.3 Facilities and services located in the vicinity of the site including Barnham and Littlehampton are within reasonable cycle distance from the site. NCN 2 runs along Yapton Road (and will be diverted to the new facility alongside the A259 in due course). Local roads support the use of cycling and the site is promoted in a manner to encourage cycle travel.
- 6.9.4 A 20 min frequency bus service operates 500m from the centre of the site providing a good connection with Littlehampton and Chichester which provides opportunities for future residents to access further facilities including employment opportunities. The bus also connects with Littlehampton Rail Station for onward travel.
- 6.9.5 Ford Rail Station is located approximately 1,500m from the site and provides regular services to destinations including Chichester, Portsmouth, Southampton and London. Infrastructure improvements brought forward by the development will provide safe and suitable pedestrian and cycle access to the Station.
- 6.9.6 The Development will help bring forward enhancements to the local pedestrian and cycle network, including:
- Pedestrian improvements along Yapton/Burndell Road;
 - Off-road pedestrian/cycle provision to Ford Station;
 - Off-road pedestrian/cycle provision along Church Lane;
 - Connection into the site for existing residents located to the north of Ford Lane; and
 - New and improved connections to the Public Rights of Way Network.
- 6.9.7 The development will be served by regular bus services; discussions with Stagecoach are on-going and the diversion of the 700 'Coastliner' service through the site is being considered.

- 6.9.8 The FTP identifies opportunities for the effective promotion of delivery of sustainable transport initiatives e.g. walking, cycling, public transport to reduce the demand for travel by less sustainable modes.
- 6.9.9 Future residents of the proposed development therefore have the opportunity to access a range of destinations by choice of sustainable modes. The proposed development is located where the need to travel will be minimised and through the FTP, the use of sustainable transport modes can be maximised. In line with the NPPF requirements, it is therefore demonstrated that the opportunities for sustainable travel can be and have been taken up.

SECTION 7 TRAFFIC IMPACT

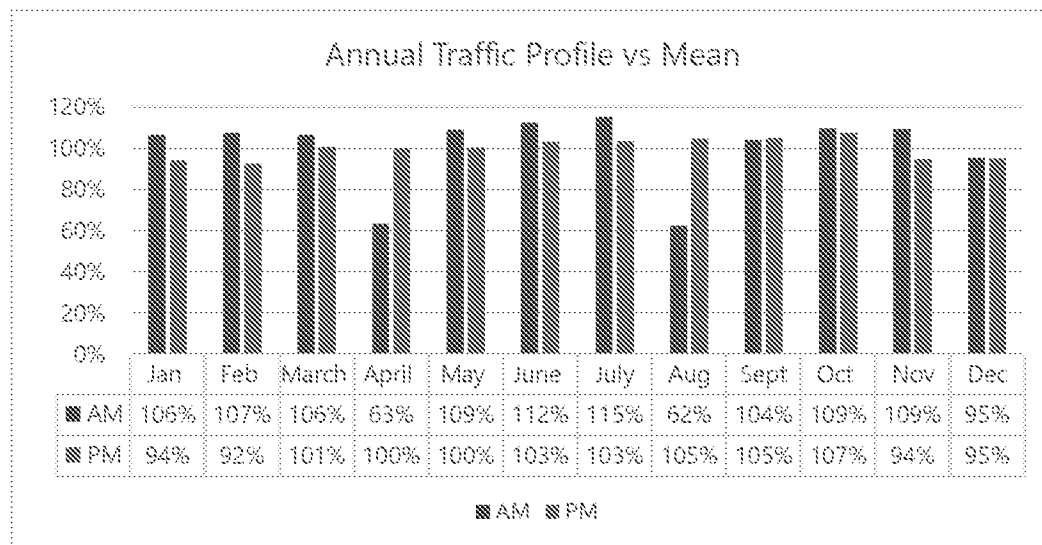
7.1 Introduction

- 7.1.1 This section of the TA summarises the traffic impact of the proposed development and establishes where it will be necessary to *“cost effectively mitigate to an acceptable degree”* (ref: NPPF paragraph 108) any significant traffic impacts of the development on the highway network.
- 7.1.2 The scope of the traffic impact assessment has been subject to pre-application submissions and discussion with WSCC, as the local highway authority, and this section takes into account their comments.

7.2 Observed Traffic Flows

- 7.2.1 Data collection was commissioned to be undertaken in June 2018 in order to establish baseline data across the study area. However, due to overrunning road works associated with the implementation of the cycle route adjacent to the A259, it was not possible to carry out these surveys; therefore, data collection was postponed and undertaken the following week. Data collection subsequently took place over a period of 7 days, commencing 2 July 2018 and concluding 8 July 2018.
- 7.2.2 Since the data collection period is fractionally outside of a typical collection period, an assessment of average monthly traffic flows has been undertaken on traffic data for the local area. Data has been obtained from a permanent Automatic Traffic Counter on Bilsham Road, accessed via the WSCC online traffic database, in order to understand the seasonal profile of traffic on a month by month basis. **Image 7.1** presents the traffic profile for 2017.

Image 7.1: 2017 Traffic Profile on Local Highway Network



Source: WSCC

7.2.3 As demonstrated in Image 7.1, traffic flows in July are above average in both the morning and evening peak hour with 115% and 103% of the average annual traffic flows respectively. On this basis, the usage of data collected in July is appropriate and provides a robust assessment.

7.2.4 The surveys were undertaken during peak periods of 0700-1000 and 1600-1900 at the following junctions:

- Ford Lane/ Ford Road;
- Ford Lane/North End Road;
- North End Road/ B2233 Mini Roundabout;
- Bilsham Road/ Burndeil Road Mini Roundabout;
- Rollaston Park/ Yapton Road;
- Yapton Road/ A259;
- B2132 Bilsham Road/ A259 'Comet Corner';
- A259/ Hoe Lane/ B2259 Roundabout;
- A259/ Church Lane/ Crookthorn Lane Roundabout;
- A259/ Broad Piece/ B2187 Roundabout;
- A27/ A284/ Maltravers St/ Ford Road Roundabout;
- A27/ Yapton Lane; and

- Yapton Lane/ The St Mini Roundabout.

7.3 Assessment Years and Traffic Growth

7.3.1 Paragraph 10.2.1 of the WSCC 'Transport Assessment Methodology' requires capacity assessment to be undertaken for the identified opening year of development and for a period of five years after submission of the planning application. The identified study area is part the WSCC's 'Strategic Road Network' and therefore an assessment at the end of the Local Plan is required. On this basis, the following assessment years have been used:

- 2021 – opening year (as identified in the most recent housing trajectory); and
- 2031 – Arun Local Plan horizon.

7.3.2 In order to assess the future year traffic impacts, growth factors from the base year of 2018 to the assessment years of 2021 and 2031 have been derived from the TEMPRO database for the Arun 006 area.

7.3.3 The TEMPRO planning assumptions indicate that between 2018 – 2031 it is assumed 109 additional jobs will have been created and 156 new dwellings been built. However, the growth associated with consented developments in the Arun 006 area, as set out in Section 7.5, is significantly in excess of the assumed growth included in TEMPRO.

7.3.4 Therefore, the planning assumption growth in TEMPRO has been removed and the committed development traffic flows, derived from the transport assessment work accompanying the planning applications, are applied directly to the baseline traffic flows in order to best reflect consented growth in households and jobs in the area. As such, the TEMPRO growth factors reflect growth from development outside of the Arun 006 area as well growth associated with projected increases in car ownership,

7.3.5 The growth factors derived from TEMPRO are summarised in **Table 7.1**.

Table 7.1: Growth Rates

Data Range	Morning Peak	Evening Peak
2018 – 2021	1.0103	1.0071
2018 – 2031	1.0293	1.0233

Source: TEMPRO 7.2

7.4 Committed Development

7.4.1 Committed developments within the area have been identified and listed below. These committed developments have been agreed for inclusion in Transport Assessment with WSCC as part of pre-application engagement:

- Land at North End Road for 100 dwellings – Application Ref: Y/80/16/OUT;
- Land East of Tye Lane, Walberton for 175 dwellings – Application Ref: WA/44/17-175;
- Cinders Lane, Yapton for 51 dwellings – Application Ref: Y/5/17-51; and
- Stakers Farm for 108 dwellings – Application Ref: Y/44/17-70.
- Bilsham Road for 550 dwellings - (Application Refs: Y/91/17 and Y/92/17); and
- Church Lane, Climping for 300 dwellings - (Application Ref: CM/1/17).

7.4.2 The committed development traffic flows within the study area have been obtained from the Transport Assessments for each scheme and included in addition to the TEMPRO growth factors applied to the observed traffic data, providing a robust assessment of future traffic growth.

7.4.3 A summary of the total committed development vehicle trips is shown on **Figure TF3-4** with the 2021/2031 plus committed development traffic flows shown on **Figures TF5-8** for the morning and evening peaks respectively.

7.5 Development Traffic Generation

Residential Traffic Generation

Background

7.5.1 The Arun Transport Study Stage 3 Final Report (ATS) establishes residential trip rates that have been used to inform the network capacity assessment within the ATS.

7.5.2 The trip rates have been derived from the Trip Rate Information Computer System (TRICS) database and extracted from the 'Houses Privately Owned' and 'Flats Privately Owned' sub land use category, based on data within the Strategic Housing Market Assessment (SHMA). Private market houses comprise 58% of the total trip rate and private market flats comprise the remaining 42%. The trip rates identified by the assessment are summarised in **Table 7.2**.

Table 7.2: Trip Rates – Arun Transport Study Stage 3 Final Report

Time Period	Arrivals	Departures	Two Way
08:00-09:00	0.091	0.259	0.350
17:00-18:00	0.243	0.100	0.343

Source: Arun Transport Study Stage 3 Final Report

- 7.5.3 In examining the Arun Local Plan, the Inspector stated that “**realistic trip rates**” (ref. para 199, *Report to Arun District Council, 4 July 2018*) have been applied and that “**...the Council has applied robust and consistent parameters relating to base flows, trip generation and assessing severe impacts**” (ref. para 126, *Report to Arun District Council, 4 July 2018*). The Inspector therefore concludes that the trip rates used in the Local Plan’s evidence base are sound.
- 7.5.4 Notwithstanding the above, as part of the Transport Assessment Scoping Meeting on the 18 May 2018, WSCC requested that the trip rates applied in the ATS were reviewed to determine whether they were suitable for use in the Transport Assessment (TA) accompanying the Ford Airfield development site, on the basis that the trip rates can be refined in accordance with site specific characteristics.
- 7.5.5 The remainder of this sub-section reviews the site-specific characteristics of the proposed development site and establishes the residential trip rate used to inform this TA.

General Residential Trip Generation

- 7.5.6 Multi-modal residential trip rates have been selected as the ‘Main Land Use’ and Mixed Private / Non- Private dwellings have been selected as the ‘Sub Land Use’. This best represents the mixture of dwelling and tenure types which are likely to be provided on site, with Policy AH SP2 of the Arun Local Plan (ALP) requiring a minimum of 30% affordable provision.
- 7.5.7 The search has identified a total of 7 surveyed sites; the trip rates derived from the surveys are summarised in **Table 7.3**. A full copy of the TRICS data, including all selection parameters, is provided within **Appendix D**.

Table 7.3: Morning and Evening Peak Hour Trip Rates (vehicles per dwelling)

Time Period	Arrivals	Departures	Two Way
08:00-09:00	0.130	0.346	0.476
17:00-18:00	0.273	0.116	0.389

Source: TRICS v7.5.1

- 7.5.8 These rates represent a typical Mixed Private / Non- Private development containing a mixture of houses and flats. However, they do not fully take account of the characteristics of the proposed development at Ford Airfield, in so far as the proposed site will include a number of local facilities at the centre of the site. The facilities include a primary school, retail, services and employment.
- 7.5.9 In addition, the site is located in a sustainable location that provides a range of modal choices for residents. Ford Railway Station is located approximately 800m from the eastern boundary of the site; the station provides regular services to Portsmouth, Southampton, Brighton and London Victoria. The Stagecoach 700 'Coastliner' bus service provides a 20-minute frequency to Chichester, Littlehampton and local schools, passing the proposed development site on its western boundary. The site itself will also be served by bus services, whether this be the diversion of the 700 service or a new route between Barnham and Littlehampton.

Site Specific Residential Trip Generation

- 7.5.10 To ensure that the trip rates used are representative of the proposed development at Ford Airfield, a detailed assessment has been undertaken on each of the TRICS sites used to determine the trip rates presented in **Table 7.3**.
- 7.5.11 Consideration has been given to the scale, housing mix, tenure, the location of the sites and their accessibility to local facilities and public transport. **Tables 7.4-7.10** provides a summary of the site characteristics and presents the trip rates derived from the site-specific surveys contained within the TRICS database. The individual TRICS outputs of each site are provided at **Appendix E**.

Table 7.4: Site Characteristics and Site-Specific Trip Rates – Hunts Pond Road

Site	Development Characteristics	Local Highway Network	Local Services and Facilities	Public Transport Network
Hunts Pond Road, Fareham	The site is located in a residential area to the west of Fareham. The development includes a mixture of private and affordable houses and flats.	Located to the west of the A27 which provides access to local destinations. The M27 lies to the north of the site and can be accessed within a 3.5km drive of the site.	Primary School - 0.9 km Secondary School - 5.1 km Local Shop/ Corner Shop - 1.1 km Supermarket - 1.6 km Doctors Surgery - 1.7 km	Circa 2.5km from Swanwick Station which provides rail services to Southampton and Portsmouth. Hourly bus services to Fareham and Southampton available within 450m of site frontage.
Time Period		Arrivals	Departures	Two Way
Morning	08:00-09:00	0.149	0.445	0.594
Evening	17:00-18:00	0.290	0.113	0.403

Source: TRICS Database (v.7.5.1)

Table 7.5: Site Characteristics and Site-Specific Trip Rates – South Coast Road

Site	Development Characteristics	Local Highway Network	Local Services and Facilities	Public Transport Network
South Coast Road, Peacehaven	The site is located at the south-eastern edge of Peacehaven, close to the coast. The development includes a mixture of private and affordable houses and flats.	Located off the A259 South Coast Road, which heads east and west between Peacehaven and Newhaven.	Primary School – 1.5km Secondary School – 1.7km Local Shop – 0.4km Supermarket – 3.0km Doctors – 1.3km	Circa 3.0km from Newhaven stations which provides rail services to Brighton and Seaford. Less than 2 services per hour to local destinations.
Time Period		Arrivals	Departures	Two Way
Morning	08:00-09:00	0.197	0.346	0.543
Evening	17:00-18:00	0.410	0.213	0.623

Source: TRICS Database (v.7.5.1)

Table 7.6: Site Characteristics and Site-Specific Trip Rates – Aldermaston Road

Site	Development Characteristics	Local Highway Network	Local Services and Facilities	Public Transport Network
Aldermaston Road, Basingstoke	The site is located at the northern edge of Basingstoke, north of ring road. The development includes a mixture of private and affordable houses and flats.	Located off Aldermaston Road, which heads south east a short distance to the junction with the A339 Ringway North, and north into the countryside.	Primary School – 1.1km Secondary School – 1.8km Local Shop – 1.1km Supermarket – 1.0km Doctors – 1.1km	Circa 2.0km from Basingstoke Railway Station. Circa 8 buses per hour operate from within 400m of the site serving destinations including Newbury and Chineham.
Time Period		Arrivals	Departures	Two Way
Morning	08:00-09:00	0.208	0.475	0.683
Evening	17:00-18:00	0.335	0.144	0.479

Source: TRICS Database (v.7.5.1)

Table 7.7: Site Characteristics and Site-Specific Trip Rates – St Anne's Drive

Site	Development Characteristics	Local Highway Network	Local Services and Facilities	Public Transport Network
St Anne's Drive, Redhill	The site is situated at the eastern edge of Redhill around 400 metres to the north-east of the edge of the town. The development includes a mixture of private and affordable houses and flats.	Local routes head towards all parts of the town, with the A23 to the west. The M25 lies to the north of the site and can be accessed within an 8km drive of the site.	Primary School – 0.5 km Secondary School – 0.1 km Local Shop/ Corner Shop – 1 km Supermarket – 0.8 km Doctors Surgery – 0.9 km	Circa 1km from Redhill Station which provides frequent services to London Victoria and Crawley. Circa 2 – 3 buses operate per hour within 400m of the site.
Time Period		Arrivals	Departures	Two Way
Morning	08:00-09:00	0.100	0.280	0.380
Evening	17:00-18:00	0.186	0.082	0.238

Source: TRICS Database (v.7.5.1)

Table 7.8: Site Characteristics and Site-Specific Trip Rates – Epsom Road

Site	Development Characteristics	Local Highway Network	Local Services and Facilities	Public Transport Network
Epsom Road, Surrey	This site is located in a residential area to the east of the centre of Guildford on Epsom Road. The development includes a mixture of private and affordable houses and flats.	The site is accessed from the A25 Epsom Road and local routes head towards all parts of the town. The A3 lies 3km to the north of the site.	Primary School – 0.6 km Secondary School – 1.2 km Local Shop/ Corner Shop – 0.6 km Supermarket – 3.5 km Doctors Surgery – 1 km	Circa 7 – 8 buses per hour operate within 400m of the site. Circa 1.6km from the site is London Road Station.
Time Period		Arrivals	Departures	Two Way
Morning	08:00-09:00	0.045	0.261	0.306
Evening	17:00-18:00	0.216	0.095	0.311

Source: TRICS Database (v.7.5.1)

Table 7.9: Site Characteristics and Site-Specific Trip Rates – Upper Shoreham Road

Site	Development Characteristics	Local Highway Network	Local Services and Facilities	Public Transport Network
Upper Shoreham Road, Shoreham by Sea	This site is located in a residential area at the eastern edge of Shoreham by Sea. The development includes a mixture of private and affordable terraced houses and flats.	The A27 is located just to the north of the site, providing for local and strategic east and west journeys. Other local routes head towards various parts of town.	Primary School – 0.8 km Secondary School – 1.0 km Local Shop/ Corner Shop – 0.2 km Supermarket – 0.6 km Doctors Surgery – 0.8 km	Circa 9 – 10 buses per hour operate within 400m of the site. Circa 1.5km from the site is Shoreham By Sea Station which provides services to Brighton and Chichester.
Time Period		Arrivals	Departures	Two Way
Morning	08:00-09:00	0.099	0.333	0.432
Evening	17:00-18:00	0.359	0.292	0.510

Source: TRICS Database (v.7.5.1)

Table 7.10: Site Characteristics and Site-Specific Trip Rates – Summersdale Road

Site	Development Characteristics	Local Highway Network	Local Services and Facilities	Public Transport Network
Summersdale Road, Chichester	This site is located in a north-eastern suburb of Chichester, with local roads heading around the residential area. The site was originally a hospital; at the time of the survey, parts of the hospital were still functioning.	The A27 is located a 2km drive to the south of the site. Local routes heading to various parts of town.	Primary School - 0.9 km Secondary School - 1.6 km Local Shop/ Corner Shop – 0.3 km Supermarket – 0.9 km Doctors Surgery – 0.2 km	Circa 6 buses per hour operate within 400m of the site. Circa 1.8km from the site is Chichester Railway Station which provides services to Brighton, Portsmouth and London Victoria.
Time Period		Arrivals	Departures	Two Way
Morning	08:00-09:00	0.131	0.294	0.425
Evening	17:00-18:00	0.238	0.140	0.378

Source: TRICS Database (v.7.5.1)

7.5.12 **Tables 7.4 - 7.10** demonstrate that the morning and evening period trip rates vary significantly between each of the sites selected. This variation in trip rates is not unexpected given the differing characteristics between the sites. For example, Hunts Pond is located 0.9km from the nearest primary school, 5.1km from the nearest secondary education facility and 2.5km from the nearest railway station; as such the site experiences a higher peak hour trip generation than other sites. By comparison, the St Anne's site has primary education located within 0.5km of the site, secondary education within 0.1km and the nearest railway station within 1.0km, resulting in the vehicular trip rate being considerably lower.

7.5.13 Consideration has been given to the distance from the Ford Airfield development site to local services and facilities (including the proposed mixed-uses within the site), the local and strategic road network, the provision of bus services and the availability of rail services. Using these parameters, the following sites were identified as having similar characteristics to the proposed development:

- SC-03-M-03 – 500 dwellings, St Anne's Drive, Redhill, Surrey; and
- SC-03-M-04 – 130 dwellings, Epsom Road, Surrey.

7.5.14 The primary factors in the deselection of the other sites identified in the search is set out in **Table 7.11**.

Table 7.11: Reasons for Site Deselection

Site	Reason for Deselection
Hunts Pond Road, Fareham	- Remote to secondary education; - Remote to railway station; and - Infrequent bus services.
South Coast Road, Peacehaven	- Remote to railway stations; - Limited rail connectivity; and - Less frequent bus services.
Aldermaston Road, Basingstoke	- Local railway station at upper limit of walkable distance and the station benefits from substantial car parking provision with good access via primary roads; - Lack of local facilities; and - Severance to facilities caused by dual carriageway ring road.
Upper Shoreham Road, Shoreham	- Local railway station benefits from substantial on-site car parking and unrestricted free parking on local roads around station; - Limited sustainable connectivity/indirect routes to railway station; and - Direct access via Holmbush Roundabout to relatively uncongested section of Strategic Road Network.
Summersdale Road, Chichester	- Poor cycle connectivity to station (requiring use of junctions with evidenced cyclist safety history); - Station benefits from substantial on-site/local car parking provision; - Access to services severed by A286 Ring Road; and - Distance to secondary school in excess of that proposed for the Ford Airfield development.

Source: TRICS v7.5.1 and Consultants' analysis

7.5.15 **Table 7.12**, below, summarises the trip rates derived from the surveys associated with the site selections identified in paragraph 7.5.13.

Table 7.12: Trip Rates (vehicles per dwelling) – Specific Site Selections

Time Period	Arrivals	Departures	Two Way
08:00-09:00	0.084	0.275	0.359
17:00-18:00	0.195	0.064	0.259

Source: TRICS Database (v.7.5.1)

7.5.16 For the purposes of comparison, the trip rates for the weekday morning and evening peaks that are included within the Arun Transport Study are repeated in **Table 7.13**.

Table 7.13: Trip Rates (vehicles per dwelling) – Arun Transport Study

Time Period	Arrivals	Departures	Two Way
08:00-09:00	0.091	0.259	0.350
17:00-18:00	0.243	0.100	0.343

Source: Arun Transport Study

7.5.17 On the basis that the trip rates presented in **Table 7.12** are derived from surveys of sites that are most representative of the local characteristics of the proposed development, these trip rates would be suitable to inform the residential trip generation.

7.5.18 However, it is noted that whilst the morning peak hour trip rate is broadly comparable with the trip rates used in the Arun Transport Study, there is deviation in the evening peak trip rate. Therefore, in the interests of a robust assessment and consistency with the strategic transport study, the trip rates established through the Arun Transport Study, summarised in **Table 7.13**, will be used. On this basis, **Table 7.14** sets out the trip generation of 1,500 dwellings at Ford Airfield.

Table 7.14: Morning and Evening Peak Hour Residential Trip Generation

Time Period	Arrivals	Departures	Two Way
08:00-09:00	137	389	526
17:00-18:00	365	150	515

Source: Consultants Calculations

7.5.19 As illustrated in Table 7.14, 1,500 dwellings are anticipated to generate some 526 two-way trips in the morning peak hour (08:00-09:00) and some 515 two-way trips in the evening peak hour (17:00-18:00).

7.5.20 The trip generation presented in Table 7.14 is a 'Garden Gate' trip generation and does not account for the opportunities for trips to be internalised within the development (i.e. movements that do not use the wider network to get to and from the destination of their journey purpose). Internalisation of movements to the other uses within the site is considered on a use-by-use basis throughout the remainder of this sub-section.

Primary School Education

7.5.21 A two-form entry primary school is proposed as part of the development at Ford Airfield, with capacity for circa 420 pupils. The school is required to cater for the demand for primary school education generated by the development of 1,500 new homes at Ford Airfield.

- 7.5.22 It is anticipated that the on-site primary school will have a catchment area that extends to cover the entirety of the development site; however, there is potential from some trips to originate from outside of this catchment to fill any residual capacity.
- 7.5.23 A 'first principles' approach using robust assessment parameters has been undertaken to establish the likely number of car journeys associated with the provision of primary education on the site.
- 7.5.24 In order to robustly calculate the number of escort education movements and car trips, the analysis takes into account the expected primary school age pupil yield per dwelling, the likely number of primary school age children residing within the new development that will attend the proposed school, the likely proportion of primary school children who will travel to school by car and the average car occupancy. The full analysis is provided in **Appendix F** and summarised in the following section of this report.

On-Site Pupils

- 7.5.25 WSCC Education Officers have advised that the primary school pupil yield for a new development equates to 25 children per 100 dwellings (a factor of 0.25). On the basis of the development providing 1,500 new homes, the site is therefore expected to produce a yield of 375 primary school places (1,500 x 0.25), and the associated movements will remain internal to the site. The remaining 45 places are likely to be occupied by pupils residing outside of the development site (i.e. external trips).
- 7.5.26 Data provided within the DfT's National Travel Survey (NTS) 2016 indicates that 20% of primary school children travel to school by car where journeys are less than one mile¹, and an average occupancy of 1.5 pupils per car has been assumed². On this basis, the 375 pupils generated by the Ford Airfield development will equate to 50 arrivals and 50 departures.
- 7.5.27 In order identify when these movements will occur, data from the TRICS database has been used to establish the proportion of trips generated during the peak hours and **Table 7.15** provides a summary of the percentage of trips generated in each hour during the morning and evening peaks. **Table 7.16** assigns the car trips associated with pupils originating from within the development site in accordance with the identified proportions.

¹ Table NTS0614 'Trips to school by main mode, trip length and age: England, 2016', National Travel Survey 2016

² Table F.3 'Journeys to school by number of people in party: 1996/98' within 'Characteristics of the Escort Education Journey', Transport Trends 2000 Edition indicates that the average number of primary school pupils by car is 1.78. Therefore, an assumption of 1.5 is robust.

Table 7.15: Primary School (2FE) Internal Trip Proportions – Pupils

Time	Arrivals	Departures
AM Peak Period		
08:00-09:00	100%	75%
09:00-10:00	0%	25%
PM Peak Period		
16:00-17:00	0%	20%
17:00-18:00	0%	15%

Source: TRICS Database

Table 7.16: Primary School (2FE) Internal Trip Generation – Pupils

Time	Arrivals	Departures	Two Way
AM Peak Period			
08:00-09:00	50	38	88
09:00-10:00	0	12	12
PM Peak Period			
16:00-17:00	0	10	10
17:00-18:00	0	8	8

Source: Consultants Calculations

Off-Site Pupils

7.5.28 As set out in para 7.5.26, the residual capacity of the primary school (i.e. 45 places) could be utilised by pupils residing outside of the Ford Airfield development site. These movements are likely to originate from existing residential development to the north and west of Rollaston Park and the area of housing to the south of Horsemere Green Lane.

7.5.29 Whilst parts of these areas are situated within 1km of the development site, pupils attending the new primary school originating from these locations are more likely to attend the site by car. Therefore, a review of the mode of travel to school data within the Department for Education School Census (January 2011) has been undertaken. Aldingbourne Primary School has been selected as a comparable location on the basis that:

- It serves a similar size residential catchment from a central location;
- It is a non-faith school; and
- It is located in close proximity to an inter-urban 'A' road.

7.5.30 A summary of the mode splits for the identified primary schools is presented in **Table 7.17**.

Table 7.17: Aldingbourne Primary School – Existing Mode Splits

School	No of Pupils	Car	Foot	Other
Aldingbourne Primary School	215	29%	70%	1%

Source: 2011 School Census

7.5.31 Against this background, a mode split of 60% by car for pupils residing off-site has been adopted. This equates to a weighted average of 29% for the proportion of pupils travelling to the school overall (375 x 20% and 45 x 60%), which is consistent with the identified mode share at Aldingbourne Primary School.

7.5.32 On this basis, applying a modal split by car of 60% to the total number of off-site children at the 2 FE primary school equates to some 27 pupils arriving by car. Assuming an average occupancy of 1.5 vehicles per car this equates to some 18 external education escort arrivals and departures.

7.5.33 By applying the trip proportions established in **Table 7.15**, the traffic generation of the proposed primary school during peak periods is set out in **Table 7.18**.

Table 7.18: Primary School (2FE) External Trip Generation – Pupils

Time	Arrivals	Departures	Two Way
AM Peak Period			
08:00-09:00	18	14	32
09:00-10:00	0	4	4
PM Peak Period			
16:00-17:00	0	4	4
17:00-18:00	0	3	3

Source: Consultants Calculations

7.5.34 However, it should be noted that the provision of a school itself does not generate the demand for places in education but instead provides accommodation for an existing demand generated by population growth. Future demand for places in education which are not attributable to the development of Ford Airfield would be included within future background growth figures (which make allowance for increases in the number of households in the District based on planning data) and the inclusion of committed development traffic flows.

7.5.35 On this basis, the external movements associated with education escort trips identified in **Table 7.18** will not be treated as new movements on the local highway network. The movements will, however, be used to assist the design and layout of the school site.

Staff

7.5.36 In respect of a 2 FE primary school, there would be a maximum of some 25 car parking spaces (assuming 1 space per 2 staff, in accordance with WSCC Car Parking Standards).

7.5.37 It has been assumed that 33% of the staff arrive during 07:00-08:00 and the remaining 67% arrive during 08:00-09:00. For departures, it has been assumed that 33% will occur during 16:00-17:00 and the remaining 67% during 17:00-18:00, as set out in **Table 7.19**. The resultant trip generation is summarised in **Table 7.20**.

Table 7.19: Primary School (2FE) Peak Period Trip Proportion - Staff

Time	Arrivals	Departures
07:00-08:00	33%	0%
08:00-09:00	67%	0%
16:00-17:00	0%	67%
17:00-18:00	0%	33%

Source: Consultants Estimates

Table 7.20: Primary School (2FE) Peak Period Trip Generation – Staff

Time	Arrivals	Departures	Two Way
AM Peak Period			
07:00-08:00	8	0	8
08:00-09:00	17	0	17
PM Peak Period			
16:00-17:00	0	17	17
17:00-18:00	0	8	8

Source: Consultants Calculations

7.5.38 For the purposes of the assessment it has been assumed all staff reside off-site and will be distributed onto the wider highway network in accordance with the employment distribution and assignment methodology (Section 7.6).

Internalisation of Education Escort Trips from Garden Gate Residential Trips

7.5.39 The forecast trip generation of the proposed residential uses on site will intrinsically include trips to/from education uses, since these journeys make up a proportion of vehicle arrivals and departures from homes in the weekday morning and evening peak hours.

7.5.40 Therefore, a proportion of the internal escort education trips identified in **Table 7.16** can be deducted from the forecast garden gate traffic generation of the residential element, since an arrival at the proposed primary school is a departure from a dwelling and vice versa and will not form part of an onward journey (i.e. from education to employment).

7.5.41 It has been assumed that 34% of car driver trips to school will continue onto work or another destination after dropping their child at school (rather than returning home)³. As such, the remaining 66% of the internal escort education trips will be deducted from the garden gate residential traffic generation as shown in **Table 7.21** below, as they will return home after completing the education escort trip and not leave the site.

Table 7.21: Internalised Primary Escort Education Trips

Time	Arrivals	Departures	Two Way
AM Peak Period			
08:00-09:00	-25	-33	-58
09:00-10:00	-8	0	-8
PM Peak Period			
17:00-18:00	0	0	0
18:00-19:00	0	0	0

Source: Consultants Calculations

7.5.42 It has been assumed that no internalised escort education trips will occur in the evening PM, since any pupil arrivals or departures during this time is likely to be a trip linked with a return journey from employment or similar (e.g. a collection from an after-school club).

Employment Trip Generation

7.5.43 The emerging masterplan includes 9,000sqm of commercial floorspace located towards the eastern boundary of the site.

³ Table NTS0408 'Purpose of next trip by gender and previous trip (car driver trips only): England, 2016, National Travel Survey 2016, indicates a minimum of 66% of escort education trips (by car) return home, i.e. 34% continue onto another destination.

7.5.44 The Arun Transport Study Stage 3 Final Report (ATS) identifies employment trip rates that have been applied to the development locations as part of the strategic transport assessment. The trip rates have been derived from the TRICS database and are based on gross floor area (GFA) of office building space. The trip rates identified in the ATS are summarised in **Table 7.22**.

Table 7.22: Employment Trip Generation – Arun Transport Study Stage 3 Final Report

Time	Arrivals	Departures	Two Way
08:00-09:00	0.542	0.035	0.577
17:00-18:00	0.020	0.476	0.496

Source: Arun Transport Study Stage 3 Final Report

7.5.45 In examining the Arun Local Plan, the Inspector stated that **“realistic trip rates”** (ref: para 199, Report to Arun District Council, 4 July 2018) have been applied and that **“... the Council has applied robust and consistent parameters relating to base flows, trip generation and assessing severe impacts”** (ref: para 126, Report to Arun District Council, 4 July 2018). The Inspector therefore concludes that the trip rates used in the Local Plan’s evidence base are sound.

7.5.46 Notwithstanding the above, as part of the Transport Assessment Scoping Meeting held on the 18 May 2018, WSCC requested that the trip rates applied in the ATS were assessed to determine whether they were suitable for the Transport Assessment supporting the Ford Airfield development site, on the basis that the trip rates can be refined in accordance with site specific characteristics.

7.5.47 The nature and location of the site lends itself to light industrial units, as evidenced by existing employment opportunities in the local area. The existing Ford Airfield Industrial Estate provides accommodation for engineering and brewery companies, Rudford Industrial Estate provides accommodation for skip hire and irrigation companies and consent has been granted for a waste transfer facility on the former Tarmac Topblock Ltd production facility at Ford Airfield.

7.5.48 On this basis, light industrial trip rates have been derived from the TRICS database for a suburban/edge of town location. The full TRICS outputs are provided at **Appendix G** and the trip rates are summarised in **Table 7.23**.

Table 7.23: Employment Trip Rates (vehicles per 100sqm)

	Time Period	Arrivals	Departures	Two Way
Morning	07:00-08:00	0.261	0.050	0.311
	08:00-09:00	0.257	0.079	0.336
	09:00-10:00	0.203	0.110	0.313
Evening	16:00-17:00	0.056	0.275	0.331
	17:00-18:00	0.037	0.219	0.256
	18:00-19:00	0.023	0.134	0.157

Source: TRICS

7.5.49 Whilst trip rates presented in **Table 7.23** are derived from surveys of sites that are most representative of the local characteristics of the proposed development, and would therefore be suitable to inform the employment trip generation of the Transport Assessment, the trip rates established through the Arun Transport Study, summarised in **Table 7.22**, will be used to inform the Transport Assessment to ensure a robust assessment and consistency with the Arun Transport Study. On this basis, **Table 7.24** sets out the network peak hour trip generation of 9,000sqm of commercial floorspace at Ford Airfield.

Table 7.24: Employment Trip Generation (vehicles) (9,000sqm)

Time	Arrivals	Departures	Two Way
08:00-09:00	49	3	52
17:00-18:00	2	43	45

Source: Consultants Calculations

7.5.50 As illustrated in **Table 7.24**, up to 9,000 sqm of commercial floorspace is expected to generate some 52 two-way trips in the morning peak hour (08:00-09:00) and 45 two-way trips in the evening peak hour (17:00-18:00).

Internalisation of Residential – Employment Trips

7.5.51 The forecast trip generation of the proposed residential uses on site will intrinsically include trips to/from employment uses, as these journeys make up a proportion of vehicle arrivals and departures to and from homes in the weekday morning and evening peak hour periods.

7.5.52 The likely journey purpose for the generated car driver peak hour trips has been determined using data derived from the National Travel Survey (NTS) 2014 (DfT). The proportion of peak hour trips by journey purpose by car is presented in **Table 7.25**.

Table 7.25: Proportion of Peak Hour Trips by Journey Purpose (Car Driver Only)

Trip Purpose	AM Peak (0800-0900)	PM Peak (1700-1800)
Commuting/ Business	39%	45%
All Other Journey Purposes	61%	55%
Total	100%	100%

Source: Car Driver trip start time by trip purpose (Monday to Friday only); Great Britain, 2013/17, National Travel Survey, DfT, 2018

7.5.53 By applying the factors set out in **Table 7.25** to the residential trip generation set out in **Table 7.14**, the number of trips relating to employment during the morning and evening peak hour are summarised in **Table 7.26**.

Table 7.26: Number of Commuting Journeys (Car Drivers Only)

Time	Arrivals	Departures	Two Way
08:00-09:00	55	156	211
17:00-18:00	168	69	237

Source: Consultants Calculations

7.5.54 Analysis of Journey to Work data from the 2011 Census establishes that 9.6% of the existing population of the Ford/Yapton output area travel to work by car to destinations within Yapton or Ford. On this basis, the number of movements generated by the residential element of the development that will travel by car to work in Ford or Yapton are summarised in **Table 7.27**.

Table 7.27: Number of Commuting Journeys - Ford and Yapton (Car Drivers Only)

Time	Arrivals	Departures	Two Way
08:00-09:00	5	14	19
17:00-18:00	16	7	23

Source: Consultants Calculations

7.5.55 It has been assumed that 50% of the movements identified in **Table 7.27** will travel between the proposed residential and employment uses within the Ford Airfield development site. The remaining 50% of the movements will travel to destinations external to the site (i.e. Rudford Industrial Estate and Ford Lane Industrial Estate). On this basis, the number of internalised trips is set out in **Table 7.28**. These reductions apply to both the residential and employment trip generation totals, since an arrival at the industrial unit represents a departure from a residential dwelling, and vice versa.

Table 7.28: Internalised Trips (vehicles)

Time	Arrivals	Departures	Two-Way
Employment			
0800-0900	-14	-3	-17
1700-1800	-3	-8	-11
Residential			
1700-1800	-3	-14	-17
1800-1900	-8	-3	-11

Source: Consultants Calculations

Local Centre Trip Generation

7.5.56 A local centre is proposed on site. Whilst the details of this local centre are not confirmed, it is likely that the local centre will include a small-scale mix of the following uses, either as a whole or comprising of a series of small units, intended to provide facilities for future residents of the development.

- Retail/convenience store;
- Services/health care; and
- Community space.

7.5.57 The community and health uses are likely to be contained within the local centre and would be primarily intended to serve new residents of the proposed development; it is not considered that the local centre would generate primary purpose trips (i.e. trips that are intended solely as a trip to or from the service) in the morning and evening peak hours that are external to the site.

7.5.58 Retail trips are generally made up of pass by and diverted trips rather than being new network trips. Furthermore, the store would be primarily for new residents of the proposed development at Ford Airfield, with the existing population centres in the vicinity of the site served by existing convenience store provision. For example, a Co-Op is located approximately 2.0km to the north west of the site serving Yapton and Tesco located approximately 2.5km to the south east of the site serving Littlehampton. Existing population centres would need to travel past these competing stores in order to access facilities at the Ford Airfield development.

7.5.59 On this basis, and when considering that residential trip rates already include retail as a trip attraction, it is not considered that the retail store would generate any new primary purpose trips in the morning and evening peak periods with origins or destinations that are external to the site.

Total Traffic Generation

7.5.60 The morning and evening traffic generation for 1,500 dwellings, a primary school and 9,000sqm of employment are summarised in **Table 7.29** and **7.30** respectively.

Table 7.29: Morning Peak Hour (0800-0900) Trip Generation – All Vehicles

Use	Arrivals	Departures	Two-Way
Residential (1,500 dwellings)	137	389	526
Employment (9,000sqm)	49	3	52
Primary School (staff)	17	0	17
Residential to Primary Education Internalisation	-25	-33	-58
Total	178	359	537

Source: Consultants' calculations

Table 7.30: Evening Peak Hour (1700-1800) Trip Generation – All Vehicles

Use	Arrivals	Departures	Two-Way
Residential (1,500 dwellings)	365	150	515
Employment (9,000sqm)	2	43	45
Primary School (staff)	0	17	17
Residential to Primary Education Internalisation	0	0	0
Total	367	210	577

Source: Consultants' calculations

7.5.61 The analysis demonstrates that the development proposal is likely to generate approximately 537 two-way vehicle movements in the morning peak and 577 in the evening peak hour, equivalent to around 10 additional movements per minute on the highway network.

7.6 Development Traffic Distribution and Assignment

Residential

- 7.6.1 Data derived from the National Travel Survey (NTS) 2017 outlines the proportion of peak hour trips made by car, split into journey purpose. The summary results are presented in **Table 7.31**.

Table 7.31: Proportion of Peak Hour Trips by Journey Purpose (Car Driver Only)

Trip Purpose	AM Peak (0800-0900)	PM Peak (1700-1800)
Commuting/ Business	39%	45%
All Other Journey Purposes	61%	55%
Total	100%	100%

Source: Car Driver trip start time by trip purpose (Monday to Friday only); Great Britain, 2013/17, National Travel Survey, DfT, 2018

- 7.6.2 The analysis demonstrates that 39% of the total vehicular trips in the morning peak hour period are likely to be employment journeys. The remaining 61% of the vehicular trips are likely to be for other purposes, such as: education, shopping, leisure and personal business. In the evening peak hour, the proportion of employment related trips is similar accounting for 45% whilst other journeys comprise of 55% of the total vehicular trips. For the purpose of this assessment the analysis has been undertaken based on the evening peak hour percentages. This is the most robust appraisal as employment journeys, on average, are longer and therefore are likely to have greater impact on the wider highway network.
- 7.6.3 In order to provide an accurate assessment of the likely distribution of traffic from the site, separate methodologies have been applied to consider the destinations of commuting and business trips to other trip purposes:
- For commuting and business trips, the 2011 National Census Journey to Work data (for car journeys) for the Arun 006 Super Output Area – have been used. This dataset identifies existing resident's employment locations and so existing commuter patterns; and

- For the other journey purpose trips, a P/T² of gravity model has been undertaken using the population of key urban areas (from the 2011 Census) within a 35-minute drive time of the site (estimate from Google Maps Directions facility). This includes Littlehampton, Chichester, Arundel, Bognor Regis and Tangmere.

7.6.4 The two sets of data are then combined to generate a single set of distribution parameters to inform the development trip assignment. The combined data is set out in **Table 7.32** with the full analysis included in **Appendix H**.

Table 7.32: Distribution of Car Drivers

Destination	Work 45%	Non-Work 55%	Total Combined
Angmering	1.3%		1.3%
Arundel	1.8%	0.7%	2.6%
Basingstoke	0.1%		0.1%
Bognor Regis	4.5%	8.7%	13.2%
Brighton	0.5%		0.5%
Burgess Hill	0.2%		0.2%
Chichester	9.4%	8.2%	17.6%
Crawley	0.7%		0.7%
East Grinstead	0.1%		0.1%
Eastergate/Barnham/Westergate	2.6%	6.4%	9.0%
Felpham	1.1%		1.1%
Ferring	0.2%		0.2%
Ford / Yapton	3.8%	10.7%	14.5%
Hastings	0.1%		0.1%
Haywards Heath	0.1%		0.1%
Horsham	1.3%		1.3%
Lancing	0.2%		0.2%
Lewes	0.3%		0.3%
Littlehampton	4.4%	16.9%	21.3%
London	0.8%		0.8%
North Bersted	1.9%	2.9%	4.8%
Other East	0.3%		0.3%
Other North	1.4%		1.4%
Other West	1.8%		1.8%
Reading	0.0%		0.0%
Shoreham - by - Sea	0.4%		0.4%
Slough	0.0%		0.0%

Destination	Work 45%	Non-Work 55%	Total Combined
Sompting	0.1%		0.1%
Southampton	0.1%		0.1%
Tangmere	1.7%	0.4%	2.1%
Winchester	0.1%		0.1%
Worthing	3.6%		3.6%
	45.0%	55.0%	100.0%

Source: 2011 Census / Gravity Model and Consultant Estimates

Primary School – Pupils

7.6.5 Education escort trips are intrinsically included within the residential garden gate trip rates – i.e. they represent one of a number of destinations that residential journeys may journey to. As primary education is to be provided on-site, in order to cater for the demand for additional places in primary education, the level of internalisation between the new homes and the primary school has been calculated. These trips have been removed from the external trip generation of the site, since they will not leave the confines of the site (although it should be noted that trips with an onward destination, such as to a place of employment, have not been removed).

7.6.6 The residual capacity of the school, some 15% (ref: *paragraph 7.5.31*), is expected to be filled by pupils residing outside of the confines of the development. However, the provision of a school does not generate pupils; rather, pupils (and their journeys) are generated as a result of the growth of residential accommodation. As such, these movements are included within the growth associated with the planned residential growth strategy, by both the application of TEMPro growth and committed development traffic flows. Therefore, the assignment of any further trips associated with journeys to a primary school would result in 'double counting'.

Primary School – Staff

7.6.7 The assignment of staff trips associated with the provision of education within the site, has been undertaken using the employment assignment methodology.

7.6.8 This uses a similar approach to that used to consider the assignment of residential traffic. Journey to Work Data from the 2011 Census has been obtained for the Arun 006 Mid Super Output Area; this data establishes employee residential origins.

7.6.9 As the school will be located in the residential element of the development site, the trips have been assigned from the most convenient and direct residential access to the origin/destination.

Employment

7.6.9.1 For the employment traffic, an approach similar to that used to consider the assignment of residential commuter traffic has been used. Journey to Work Data from the 2011 Census has been obtained for the Arun 006 Mid Super Output Area. This data establishes employee residential origins.

7.6.9.2 This data has been used to forecast the origin and destination of employment trips. **Table 7.33** summarises the main destinations that employees are travelling from, with the full analysis provided in **Appendix I**.

Table 7.33: Employees origins from 2011 Census Data- Arun 006

Destination	Total %
Littlehampton	20.5%
Bognor Regis	16.2%
Felpham	9.6%
Ford/ Yapton	9.6%
Chichester	9.3%
Worthing	9.3%
Eastergate	5.6%
Angmering	4.8%
Horsham	3.0%
Arundel	2.2%
Shoreham -- by- Sea	1.4%
Brighton	1.1%
Ferring	0.7%
Havant	0.7%
Portsmouth	0.7%
Lancing	0.5%
Fareham	0.4%
Haywards Heath	0.4%
Sompting	0.4%
London	0.3%
Burgess Hill	0.3%

Destination	Total %
Other	3.0%
Total	100.0%

Source: 2011 Census Data

7.7 Proposed Development – Assignment

- 7.7.1 The expected traffic that the site would generate (**Table 7.29 and 7.30**) has been distributed onto the local network to the destinations identified in **Table 7.32**.
- 7.7.2 To determine the routing of trips to these destinations, trips were assigned to the road network based on the quickest route from the site to the destination location using the Google Maps 'Directions' facility. Within the Directions facility, a start time for journeys of 08:00 was utilised to ensure that peak period traffic conditions are reflected.
- 7.7.3 In some cases, there was a single route option identified by the assessment, however for the majority of destinations the assessment identified multiple routes. In these cases, the forecast development trips were distributed amongst the routes based upon the journey times identified, with the quickest route assigned to the greatest proportion of the trips than slower comparable routes. The assignment of total traffic generated by the development is summarised for the 0800-0900 and 1700-1800 periods in figures **TF9 and TF10**.

7.8 Proportional Impact

- 7.8.1 Development traffic has been compared to the baseline traffic flows at key junctions to consider the proportional impact of the development and is set out in **Table 7.33**.

Table 7.33: Proportional impact of local highway network

Junction	Observed Flows 2018		Development Trips		Proportional Impact	
	AM	PM	AM	PM	AM	PM
Ford Road/ Ford Lane	923	904	155	167	16.8%	18.5%
Ford Lane/ North End Road/Maypole Lane	800	880	152	164	19.0%	18.6%
North End Road/ B2233	1,279	1,158	211	227	16.5%	19.6%
Bilsham Road/ Burndell Road	1,384	1,269	127	139	9.2%	11.0%
Rollaston Park/ Yapton Road	809	894	91	100	11.2%	11.2%

Junction	Observed Flows 2018		Development Trips		Proportional Impact	
Yapton Road/ A259	1,848	2,517	150	161	8.1%	6.4%
B2132 Bilsham Road/A259/B2132	2,299	2,670	124	133	5.4%	5.0%
A259/ Hoe Lane/ B2259	2,236	2,668	123	130	5.5%	4.9%
A259/Church Lane/ Crookthorn Lane	2,601	3,095	184	195	7.1%	6.3%
A259/Broad Piece/ B2187	2,878	3,498	158	167	5.5%	4.8%
A27/ A284/ Maltravers St/ Ford Road	3,025	2,799	54	59	1.8%	2.1%
A27/Yapton Lane	2,617	2,357	32	36	1.2%	1.5%
Yapton Lane/ The St	832	786	32	36	3.8%	4.6%

7.8.2 The assessment demonstrates that the impact of the proposed development on the local highway network with a maximum impact of 19.6% on the North End Road/ B2233 junction. Impact on the A259 junctions are much smaller, with the greatest impact being a 8.1% increase in traffic at the A259/ Yapton Road junction. Impact at the A27 junctions are some 1 to 3%.

7.8.3 However, the proportional impact is not a true reflection of the likely impact that the proposed development would have on a junction since they are influenced by the baseline traffic conditions; roads with low baseline flows will result in a higher proportional impact; and roads with high baseline flows are likely to have a lower proportional impact. Therefore, it is necessary to consider the impact of the development from the outputs of the Arun Transport Study and through detailed junction operation modelling where relevant.

SECTION 8 OPERATIONAL ASSESSMENTS

8.1 Introduction

8.1.1 Using the parameters established in Section 7 of this TA, analysis has been undertaken across the highway network to test its ability to accommodate the additional traffic from the proposed development and identify where mitigation is necessary to accommodate the development. The assessments can be defined into three categories:

- i Site Accesses;
- ii Local Junctions; and
- iii Strategic Junctions.

8.1.2 Where appropriate, detailed junction capacity has been undertaken; this uses the weekday morning and evening peak hours of 0800-0900 and 1700-1800 as assessment periods. The assessments have been informed by the following Traffic Flow diagrams.

Table 8.1: Assessment Scenarios

Year	TEMPro	Committed	Development	AM/PM	Diagram No.
2018	✗	✗	✗	AM	TF1
	✗	✗	✗	PM	TF2
2021	✓	✓	✗	AM	TF5
	✓	✓	✗	PM	TF6
	✓	✓	✓	AM	TF11
	✓	✓	✓	PM	TF12
2031	✓	✓	✗	AM	TF7
	✓	✓	✗	PM	TF8
	✓	✓	✓	AM	TF13
	✓	✓	✓	PM	TF14

8.1.3 Priority junctions and roundabouts have been tested using TRL software Junctions 9. The assessments outputs are provided in **Appendix J** of this report.

8.2 Site Accesses

8.2.1 Analysis has been undertaken for the following junctions:

- Proposed site access with Yapton Road;
- Proposed site access with Ford Lane; and
- Existing site access with Ford Road.

Site Access with Yapton Road

8.2.2 The site would be accessed by the creation of a new 4-arm roundabout with Yapton Road, as shown in principle on **Drawing ITB13091-GA-001 Rev E**.

8.2.3 Junctions 9 has been used to assess the capacity of the proposed site access, with the junction modelled as a 3-arm roundabout given that the 4th arm will operate as a stub arm to access agricultural fields and thus generate few movements. The principle outputs derived from the model are the Ratio to Flow to Capacity (RFC), average queue lengths and delay. The results are summarised in **Table 8.2**.

Table 8.2: Site Access/ Yapton Road Roundabout Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 with Development						
Yapton Road N	1	4	0.33	1	5	0.42
Site Access	<1	4	0.16	<1	4	0.07
Yapton Road S	<1	4	0.27	1	4	0.35
2031 with Development						
Yapton Road N	1	4	0.33	1	5	0.43
Site Access	<1	4	0.16	<1	4	0.07
Yapton Road S	<1	4	0.27	1	4	0.35

Source: Junctions 9

8.2.4 The results demonstrate that the proposed access will operate well within capacity in all scenarios with little queuing or delay on any arm during peak conditions.

Site Access with Ford Lane

- 8.2.5 A second point of access to the site is to be provided from Ford Lane; the junction will take the form of a 4-arm roundabout with, with an arm providing access to Wicks Farm to the north of Ford Lane; the arrangement is shown on **Drawing ITB13091-GA-004 Rev A** and the outputs of the Junctions 9 assessment are summarised in **Table 8.3**.

Table 8.3: Site Access/ Ford Lane Roundabout Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 with Development						
Ford Lane E	<1	4	0.27	<1	4	0.26
Site Access	<1	4	0.13	<1	3	0.09
Ford Lane W	<1	4	0.29	<1	4	0.30
Commercial Access	0	0	0.00	0	4	0.01
2031 with Development						
Ford Lane E	<1	4	0.27	<1	4	0.26
Site Access	<1	4	0.13	<1	3	0.09
Ford Lane W	<1	4	0.30	<1	4	0.31
Commercial Access	0	0	0.00	0	4	0.01

Source: Junctions 9

- 8.2.6 The results demonstrate that the proposed access will operate well within capacity in all scenarios with little queuing or delay on any arm.

Existing Site Access with Ford Road

- 8.2.7 Access to the employment element of the site is to be provided via the existing ghost island right turn priority junction with Ford Road. No general vehicular access between the employment and residential elements of the site is to be provided.
- 8.2.8 The junction arrangement is shown on **Drawing ITB13091-GA-021** and the outputs of the Junctions 9 assessments are summarised in **Table 8.4**.

Table 8.4: Existing Site Access to Ford Road Junction Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2018 Baseline						
Access	0	21	0.03	0	19	0.02
Ford Road	0	7	0.02	0	7	0.02
2021 Base with Grundon						
Access	<1	22	0.08	0	20	0.10
Ford Road	0	8	0.02	0	7	0.01
2021 with Grundon + Development						
Access	<1	25	0.10	<1	29	0.30
Ford Road	<1	8	0.06	0	7	0.02

Source: Junctions 9

8.3 Strategic Junctions

8.3.1 The Arun Transport Study Stage 3 Final Report (ATS) assessed the impact of planned growth arising from the Adoption Arun Local Plan upon strategic junctions across the network. The ATS identifies junctions that would experience a 'severe' impact as a result of traffic associated with planned development and establishes the proportional impact of each strategic development upon the junction.

8.3.2 The ATS identifies that the following junctions are impacted by the development of Ford Airfield:

- A27/B2233
- A27/A29 (East)
- A27/A284
- A27/The Causeway
- A27/A280
- A259/Church Lane
- A259/B2187

8.3.3 The ATS also sets out a mitigation strategy that addresses the cumulative impact of planned development upon the junctions; the mitigation is discussed in Section 9 of this TA.

8.3.4 In addition to the junctions listed above, the ATS also establishes that planned development is expected to have a severe safety impact on the performance of both of the A259/Yapton Road (the 'Oystercatcher') and the A259/Bilsham Road (the 'Comer Corner') junction. However, the ATS does not define any schemes to address the forecast impact and expects that means of mitigation will be explored through transport assessments accompanying planning applications.

8.3.5 Therefore, Junctions 9 has been used to establish the baseline position upon which mitigation schemes will be tested.

A259/Yapton Road (the 'Oystercatcher')

8.3.6 The Yapton Road/A259 junction, known locally as the 'Oystercatcher', is situated to the south of the site. It is a priority junction with a right turn lane facility connecting Yapton with the A259. The results of the capacity assessment are presented in **Table 8.5** below.

Table 8.5: Yapton Road/A259 Priority Junction Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 Baseline						
Yapton Road	2	22	0.63	161	4037	4.01
A259	1	18	0.55	4	31	0.79
2021 with Development						
Yapton Road	19	195	1.10	252	2441	9999.9
A259	2	20	0.60	13	43	0.94
2031 Baseline						
Yapton Road	2	24	0.65	196	12634	10.4
A259	1	19	0.56	4	32	10.2
2031 with Development						
Yapton Road	26	254	1.16	263	2569	9999.9
A259	2	21	0.61	16	50	9999.9

Source: Junctions 9

8.3.7 The results demonstrate that the Yapton Road/ A259 priority junction will be operating over operational capacity on the Yapton Road arm in the evening peak hour.

8.3.8 In the future, and with the addition of the development, the queuing and delay is predicted to exacerbate both conditions in the morning and evening peaks on all arms, particularly for drivers turning from Yapton Road onto the A259.

8.3.9 Means of mitigating the impact of development at this junction is discussed in **Section 9** of this TA.

B2132 Bilsham Road/ A259 (the 'Comet Corner')

8.3.10 The B2132 Bilsham Road/ A259 junction, known locally as 'Comet Corner', is situated to the southwest of the site. It is a staggered crossroads with a right turn lane facility to Bilsham Road to the north and Yapton Road to the south.

8.3.11 When assessing the junction using Junctions 9 it was not possible to reflect observed operating conditions despite calibration of the model; this is primarily as it is not possible to replicate waiting in the central reservation as part of the stagger crossroad arrangement. Therefore, the junction has been modelled using LinSig and calibrated so that observed queue length corresponds with the observed data. The model outputs are summarised in **Table 8.6**.

Table 8.6: Bilsham Road/ A259 'Comet Corner' Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Max DoS %	Mean Max Q	Delay per PCU (Secs)	Max DoS %	Mean Max Q	Delay per PCU (Secs)
2021 Baseline						
A259 Grevatts Lane	42.7%	<1	2	60.2%	1	2
B2132 Yapton Road	97.3%	6	93	94.4%	4	105
A259 Worms Lane	70.8%	1	3	75.8%	2	4
B2132 Bilsham Road	145.7%	59	651	150.1%	54	694
2021 with Development						
A259 Grevatts Lane	45.7%	<1	2	62.2%	1	3
B2132 Yapton Road	109.3%	29	231	118.0%	22	365
A259 Worms Lane	73.1%	1	4	80.1%	2	5
B2132 Bilsham Road	178.6%	83	900	187.9%	74	959
2031 with Development						
A259 Grevatts Lane	46.4%	<1	2	63.1%	1	3
B2132 Yapton Road	115.4%	34	310	131.2%	28	513
A259 Worms Lane	74.4%	1	4	81.3%	2	5
B2132 Bilsham Road	191.6%	90	973	202.1%	80	1033

Source: LinSig

8.3.12 Means of mitigating the impact of development at this junction is discussed in **Section 9** of this TA.

8.4 Local Junctions

8.4.1 The scope of the ATS extends to the assessment of the cumulative impact of planned development upon strategic junctions (i.e. those on the A27 and A259). It does not extend to local junctions (i.e. those within Yapton or on the approach to principle roads), which are to be assessed as part of transport assessments accompanying planning applications.

8.4.2 Therefore, detailed capacity testing has been undertaken at junctions where the volume of additional traffic could have a material impact upon its operation. The following junctions have been assessed:

- Ford Lane/ Ford Road;
- Ford Lane/North End Road/Maypole Lane;
- North End Road/ B2233 Mini Roundabout;
- Bilsham Road/ Burndeil Road Mini Roundabout;
- Rollaston Park/ Yapton Road;
- Yapton Lane/ The St Mini Roundabout.

8.4.3 Priority junctions and roundabouts have been tested using TRL software Junctions 9. The assessments outputs are provided in **Appendix J** of this report.

Ford Lane/Ford Road

8.4.4 Ford Lane/ Ford Road is a simple priority junction with a right turn lane situated to the north eastern corner of the site. Junctions 9 has been used to assess its operation and the results are summarised in **Table 8.7**.

Table 8.7: Ford Road/ Ford Lane Priority Junction Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 Baseline						
Ford Road	1	18	0.46	2	25	0.66
Ford Lane	<1	8	0.08	<1	8	0.12
2021 with Development						
Ford Road	2	32	0.70	4	44	0.80
Ford Lane	<1	8	0.11	<1	9	0.20
2031 Baseline						
Ford Road	1	18	0.47	2	26	0.68
Ford Lane	<1	8	0.08	<1	8	0.12
2031 with Development						
Ford Road	2	34	0.71	4	48	0.82
Ford Lane	<1	8	0.11	<1	9	0.21

Source: Junctions 9

- 8.4.5 The results demonstrate that the Ford Road/Ford Lane junction will operate within capacity in all scenarios.

Ford Lane/North End Road/Maypole Lane

- 8.4.6 Ford Lane/ North End Road/Maypole Lane is a simple crossroad arrangement situated to the north west of the site. Junctions 9 has been used to assess the capacity of the junction and the results of the assessment are presented in **Table 8.8**.

Table 8.8: Ford Lane/ North End Road/ Maypole Lane Junction Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 Baseline						
Ford Lane	3	40	0.79	1	19	0.55
North End Road N	0	5	0.01	0	4	0.01
Maypole Lane	0	9	0.02	0	12	0.05
North End Road S	<1	6	0.21	<1	7	0.11
2021 with Development						
Ford Lane	14	124	1.00	2	31	0.72
North End Road N	0	5	0.01	0	4	0.01
Maypole Lane	0	10	0.02	<1	13	0.05
North End Road S	1	7	0.32	1	9	0.30
2031 Baseline						
Ford Lane	4	43	0.80	1	20	0.56
North End Road N	0	5	0.01	0	4	0.01
Maypole Lane	0	10	0.02	0	12	0.05
North End Road S	<1	6	0.22	<1	7	0.11
2031 with Development						
Ford Lane	16	139	1.02	3	32	0.73
North End Road N	0	5	0.01	0	4	0.01
Maypole Lane	0	10	0.02	<1	13	0.05
North End Road S	1	7	0.32	1	9	0.31

Source: Junctions 9

8.4.7 The results demonstrate that the Ford Lane/ North End Road junction currently operates within capacity during the PM peak period and will continue to do so in 2021 and 2031.

8.4.8 However, with the addition of development traffic in the AM peak period, it is forecast that the Ford Lane arm of the junction (i.e. vehicles waiting to emerge from Ford Lane onto North End Road), will start to exceed operating capacity; as a result, drivers will be faced with additional queuing and delay. Therefore, means of mitigating the impact of development at this junction is discussed in **Section 9** of this TA.

North End Road/ B2233 Mini Roundabout

8.4.9 North End Road/ B2233 junction is a mini roundabout situated to the west of the site. To assess the capacity of this junction, 'Junctions 9' has been used. The results of the assessment are presented in Table 8.9.

Table 8.9: North End Road/ B2233 Mini Roundabout Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 Baseline						
North End Road	1	10	0.35	6	45	0.87
B2233 East	10	41	0.93	1	7	0.47
B2233 West	2	13	0.62	1	9	0.33
2021 with Development						
North End Road	1	12	0.50	23	144	1.04
B2233 East	37	119	1.04	1	8	0.36
B2233 West	2	16	0.69	2	14	0.69
2031 Baseline						
North End Road	1	10	0.36	6	49	0.89
B2233 East	12	48	0.95	1	7	0.48
B2233 West	2	14	0.63	1	10	0.36
2031 with Development						
North End Road	1	13	0.51	26	158	1.06
B2233 East	44	136	1.06	1	8	0.37
B2233 West	2	16	0.69	2	14	0.69

Source: Junctions 9

8.4.10 The results demonstrate that the North End Road mini roundabout is currently operating marginally over a design capacity of 0.85 RFC on the on the eastern arm of the B2233 during the morning peak, and on the North End Road arm during the evening peak.

8.4.11 In the future, and with the addition of the development, the queuing and delay is forecast to increase, with the aforementioned arms operating in excess of 1.0 RFC in 2021. Means of mitigating the impact of development at this junction is discussed in **Section 9** of this TA.

Bilsham Road/ Burndell Road Mini Roundabout

8.4.12 The Bilsham Road/Burndell Road junction is a mini roundabout situated to the west of the site. To assess the capacity of this junction, 'Junctions 9' has been used. The results of the assessment are presented in **Table 8.10** below.

Table 8.10: Bilsham Road/ Burndell Road Mini Roundabout Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 Baseline						
B2233 East	2	14	0.69	1	11	0.66
Bilsham Road	47	260	1.15	1	12	0.30
B2233 West	1	8	0.52	5	23	0.84
2021 with Development						
B2233 East	4	22	0.80	2	12	0.60
Bilsham Road	72	451	1.26	1	14	0.36
B2233 West	1	8	0.56	11	45	0.94
2031 Baseline						
B2233 East	2	15	0.70	1	11	0.37
Bilsham Road	54	301	1.17	1	12	0.51
B2233 West	1	8	0.52	5	24	0.86
2031 with Development						
B2233 East	4	23	0.81	2	13	0.61
Bilsham Road	80	513	1.29	1	14	0.57
B2233 West	1	9	0.57	12	50	0.95

Source: Junctions 9

8.4.13 The results demonstrate that the Bilsham Road mini roundabout is currently operating over operational capacity on the Bilsham Road arm during the morning peak, and in excess of design capacity on the B2233 arm during the evening peak.

8.4.14 In the future, and with the addition of development traffic, the queuing and delay is predicted to increase. Means of mitigating the impact of development at this junction are discussed in **Section 9** of this TA.

Rollaston Park/ Yapton Road

8.4.15 The Rollaston Park/ Yapton Road is a priority junction with right turn lane situated to the west of the site. 'Junctions 9' has been used to assess the operation of the junction and the results of the assessment are summarised in Table **8.11**.

Table 8.11: Rollaston Park/ Yapton Road Priority Junction Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 Baseline						
Rollaston Park	<1	11	0.29	<1	9	0.24
Yapton Road	<1	8	0.11	<1	8	0.19
2021 with Development						
Rollaston Park	<1	12	0.30	<1	10	0.25
Yapton Road	<1	8	0.11	<1	8	0.20
2031 Baseline						
Rollaston Park	<1	11	0.29	<1	9	0.24
Yapton Road	<1	8	0.11	<1	8	0.20
2031 with Development						
Rollaston Park	<1	12	0.31	<1	10	0.26
Yapton Road	<1	8	0.11	<1	8	0.20

Source: Junctions 9

- 8.4.16 The results demonstrate that the Rollaston Park/ Yapton Road priority junction will operate well within capacity in all scenarios with little queuing or delay on any arm.

Yapton Lane/ The St Mini Roundabout

- 8.4.17 The Yapton Lane/ The St junction is a mini roundabout situated to the west of the site providing access to Walberton. To assess the capacity of this junction, 'Junctions 9' has been used. The results of the assessment are presented in **Table 8.12**.

Table 8.12: Yapton Lane/ The St Mini Roundabout Assessment Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 Baseline						
Yapton Lane North	1	6	0.32	1	10	0.39
Yapton Lane South	2	13	0.67	1	6	0.32
The Street	<1	7	0.22	<1	5	0.19
2021 with Development						
Yapton Lane North	1	6	0.33	2	11	0.62
Yapton Lane South	2	14	0.70	1	6	0.34
The Street	<1	7	0.22	<1	6	0.19
2031 Baseline						
Yapton Lane North	1	6	0.33	2	10	0.60
Yapton Lane South	2	13	0.68	1	6	0.33
The Street	<1	7	0.23	<1	5	0.19
2031 with Development						
Yapton Lane North	1	6	0.34	2	11	0.63
Yapton Lane South	2	14	0.71	1	6	0.34
The Street	<1	7	0.23	<1	6	0.20

Source: Junctions 9

- 8.4.18 The results demonstrate that Yapton Road/The Street mini roundabout will operate within capacity in all scenarios with little queuing or delay on any arm. No mitigation of the junction is necessary.

8.5 Summary

- 8.5.1 Detailed assessments have been undertaken to establish the operating conditions of the proposed and existing site accesses. The analysis demonstrates that all site accesses will operate within capacity.
- 8.5.2 The Arun Transport Study identifies various strategic junctions that require mitigation to address capacity impacts arising from planned growth and sets out proportional contributions required from each of the strategic development sites to mitigate their traffic impact. However, as no means of mitigating the Comet Corner and Oystercatcher junctions has been identified as part of the ATS, operational assessments have been undertaken to establish the baseline to which mitigation schemes will be tested.

8.5.3 Where traffic flows arising from the development may have a material impact upon the operation of a local junctions, detailed capacity analysis has been undertaken using Junctions 9. The assessments establish that the following local junctions require mitigation:

- North End Road/Burndell Road Mini-Roundabout;
- Bilsham Road/Burndell Road Mini-Roundabout; and
- Ford Lane/North End Road/Maypole Lane Crossroads.

SECTION 9 HIGHWAY NETWORK MITIGATION

9.1 Introduction

9.1.1 The operational assessment of strategic and local junctions set out in **Section 8** identifies locations where mitigation is required to mitigate the cumulative impact of development. The following section of this TA sets out the means by which the 'significant impacts of development' can be 'cost effectively mitigated' in order to satisfy paragraph 108 of the National Planning Policy Framework.

9.2 Strategic Junctions

A27 Junctions

9.2.1 Highways England (HE) is responsible for the management of the Strategic Road Network, which includes the A27. Pre-application engagement with the HE has taken place, and a copy of their advice is provided in **Appendix K**. Highways England has advised that, on the basis that development is consistent with the Arun Local Plan allocation, then mitigation of the Strategic Road Network will be in accordance with the strategy set out within the Arun Transport Study.

9.2.2 The submitted planning application is consistent with the Adoption Arun Local Plan Strategic Development Site SD8 in Policy H SP2c; it includes the delivery of up to 1,500 new homes (30% affordable), a local centre, a primary school including nursery, employment/ business uses (B1) and a number of sports and recreational facilities.

9.2.3 As the extent of the employment land is not defined within the policy, clarification has been sought from Highways England that they are satisfied that the inclusion of up to 9,000 sqm of B1 employment floorspace would not have a material impact upon the findings of the ATS; Highways England has confirmed that they are satisfied that this is the case. Therefore, the A27 mitigation strategy as set out in the ATS will be followed and no further mitigation assessment of A27 junctions is necessary.

9.2.4 The Arun Transport Study (EBR 2017) has been reviewed to establish where it will be necessary to provide financial contributions towards mitigation schemes along the A27 corridor. The junctions identified for improvement, the cost of the scheme and the contribution required from development at Ford Airfield is summarised in **Table 9.1**.

Table 9.1: Arun Transport Study A27 Mitigation Schedule

Junction	Type	Cost (High Estimate)	Impact	Contribution Required
A27/B2233	Capacity	£300,000	11%	£33,000
A27/A259	Capacity	£915,000	5%	£45,750
A27/A284	Capacity	£113,000	43%	£129,430
A27/The Causeway	Capacity	Lining Scheme (assumed £15,000)	15%	£4,350

Source: Arun Transport Study EBR 2017

Yapton Road/ A259 'Oystercatcher'

- 9.2.5 The Yapton Road/A259 'Oystercatcher' junction has been included in the scope of the ATS and identified as a junction requiring strategic intervention in order to address concerns related to safety. The ATS did not define an improvement scheme for the junction, but the study indicates that a large roundabout improvement is a preferred option.
- 9.2.6 As part of the S106 Agreement associated with planning consent CM/1/17, which was allowed on appeal, West Sussex County Council sought for an area of land within the Climping strategic allocation to be safeguarded for the County-led delivery of a strategic junction improvement. Financial contributions, totalling £1,000,000 were also sought by the County Council towards the delivery of an improvement at the Oystercatcher junction from the recently approved strategic development locations at Yapton (Y/91/18 and Y/92/18).
- 9.2.7 In the absence of an identified and costed scheme, a roundabout improvement has been designed which takes into account the land safeguarded from the Climping strategic development location; the improvement is presented in **Drawing ITB13091-GA-025**. The improvement comprises a roundabout with an inscribed circle diameter of 60 metres designed in accordance with TD16/07 for a 70kph design speed.
- 9.2.8 The capacity of the junction has been assessed using Junctions 9 and the outputs are summarised in **Table 9.2**. The assessment demonstrates that the improvement more than mitigates the impact of Local Plan development.

Table 9.2: Yapton Road/ A259 Improvement Scheme Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 with Development						
Yapton Road	1	9	0.49	2	12	0.64
A259 East	1	4	0.51	4	9	0.79
Climping Street	0	5	0.04	<1	9	0.08
A259 West	1	4	0.52	1	4	0.54
2031 with Development						
Yapton Road	1	9	0.51	2	13	0.66
A259 East	1	4	0.52	4	9	0.81
Climping Street	0	5	0.05	<1	9	0.09
A259 West	1	4	0.53	1	4	0.55

Source: Junctions 9

- 9.2.9 On this basis, a proportional contribution will be paid to WSCC through a Section 106 Agreement to deliver an improvement at the Oystercatcher junction either in accordance with the scheme identified through this TA or an alternative scheme of works identified by the Council.

B2132/ Bilsham Road/ A259 'Comet Corner'

- 9.2.10 The Bilsham Road/A259 'Comet Corner' junction has been included in the scope of the ATS and identified as a junction requiring strategic intervention in order to address concerns related to safety. However, the ATS did not identify an improvement scheme for the junction and cites that an unspecified junction improvement is the preferred option.
- 9.2.11 On this basis, various junction improvements were explored including, for example, to replicate the diverge lane on the southern side of the junction to provide a similar arrangement for the eastbound carriageway. However, junction capacity testing established that such provision would not provide adequate capacity at the junction to mitigate the cumulative impact of planned development.
- 9.2.12 Therefore, alternative schemes have been explored and the assessment established that a scheme of traffic signals would be necessary to provide sufficient capacity at the junction. A preliminary design has been prepared and is presented in **Drawing ITB13091-GA-012**.

9.2.13 The arrangement comprises signalisation of all arms allowing for all movements, including the provision of a dedicated right turn lane into Bilsham Road and dedicated left turns from the A259 onto the B2132 to both the north and south. The design utilises land within the highway boundary only.

9.2.14 The operation of the junction has been modelled using LinSig and a copy of the outputs is provided in **Table 9.3**.

Table 9.3: "Comet Corner" Improvement Signal Scheme Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Max DoS %	Mean Max Q	Delay per PCU (Secs)	Max DoS %	Mean Max Q	Delay per PCU (Secs)
2021 with Development						
A259 Grevatts Lane	83.7%	20	30	95.0%	33	42
B2132 Yapton Road	72.0%	7	53	56.6%	4	52
A259 Worms Lane	93.1%	25	33	94.4%	30	32
B2132 Bilsham Road	91.7%	11	57	104.1%	17	202
2031 with Development						
A259 Grevatts Lane	85.1%	21	32	100.3%	46	77
B2132 Yapton Road	73.2%	7	54	54.0%	4	49
A259 Worms Lane	94.7%	28	57	97.2%	36	44
B2132 Bilsham Road	93.2%	12	95	97.3%	13	130

Source: LinSig

9.2.15 On this basis, a proportional contribution will be paid to WSCC through a Section 106 Agreement to deliver an improvement at the Comet Corner junction either in accordance with the scheme identified through this TA or an alternative scheme of works identified by the Council.

A259/ Church Lane/ Crookthorn Lane Roundabout

9.2.16 The A259/ Church Lane/ Crookthorn Lane Roundabout is situated to the south east of the site. The junction has been identified for strategic intervention as part of the ATS, with the identified mitigation scheme comprising the flaring of the westbound approach to the junction.

9.2.17 As part of the Climping Strategic Development (planning reference CM/1/17 and appeal reference APP/C3810/W/17/3187601) it has been agreed that the development will deliver a comprehensive junction improvement at the, secured by Section 106 Agreement, comprising the realignment of Church Lane and the construction of a replacement 50m ICD roundabout. As set out in paragraph 14 of the Inspector's Decision, the existing capacity constraints at the junction will:

"...not only be fully mitigated by the proposed new roundabout and Church Lane realignment, but that it would be a significant improvement over the existing current situation. Furthermore, the Highway Statement of Common Ground notes that sufficient spare capacity would be created to accommodate traffic generated by other sites identified within the new Local Plan".

9.2.18 The development of Ford Airfield is identified as a Local Plan development, and traffic associated with the development site has been taken into account in developing the roundabout improvement at the Church Lane/A259 junction. Therefore, no further testing of the junction is necessary.

9.3 Local Junctions

Ford Lane/ North End Road/ Maypole Lane

9.3.1 The Ford Lane/North End Road/Maypole Lane junction was not included in the scope of the strategic level intervention identified as part of the Arun Transport Study. Therefore, in order to mitigate the impact of the development, a scheme of junction improvements has been identified to address capacity constraints on the Ford Lane arm of the junction.

9.3.2 The junction improvement comprises increasing the entry width of the Ford Lane arm of the junction to enable vehicles to pass a stationary vehicle waiting to turn right out of the access, in order to continue a southbound manoeuvre. The junction improvement is set out in **Drawing ITB13091-GA-028 Rev A**.

9.3.3 Junctions 9 has been used to assess the impact of the mitigation scheme, and the results of the are summarised in **Table 9.4**. The assessment establishes that the impact of the development upon the Ford Lane/North End Road/Maypole Lane junction can be *"...cost effectively mitigated to an acceptable degree."*

Table 9.4: Ford Lane/ North End Road Improvement Scheme Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 without Development						
Ford Lane	3	40	0.79	1	19	0.55
North End Road N	0	5	0.01	0	4	0.01
Maypole Lane	0	9	0.02	0	12	0.05
North End Road S	<1	6	0.21	<1	7	0.11
2021 with Development + Mitigation Scheme						
Ford Lane	3	43	0.79	1	21	0.49
North End Road N	0	5	0.01	0	4	0.01
Maypole Lane	0	10	0.02	<1	13	0.05
North End Road S	1	7	0.32	1	9	0.30

Source: Junctions 9

North End Road/ B2233 Mini Roundabout

- 9.3.4 The North End Road/B2233 Mini Roundabout junction was not included in the scope of the strategic level intervention identified as part of the Arun Transport Study. Therefore, in order to mitigate the impact of the development, a scheme of junction improvements has been identified to address capacity constraints on the B2233 East arm during the morning peak, and the North End Road arm during evening peak.
- 9.3.5 The improvement scheme comprises the conversion of the existing mini roundabout to a small kerbed roundabout arrangement, and alteration to the approach, entry and exit geometries. The mitigation is set out in **Drawing ITB13091-GA-026**.
- 9.3.6 The improvement has been modelled using Junctions 9 and the results are summarised in **Table 9.5**. The assessment demonstrates that the mitigation scheme more than mitigates the impact of the development, with all arms returning to a level where they work within capacity. On this basis, the impact of the development upon the North End Road/B2233 mini roundabout can be *"...cost effectively mitigated to an acceptable degree."* (paragraph 108, NPPF).

Table 9.5: North End Road/ B2233 Mini Roundabout Improvement Scheme Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 without Development						
North End Road	1	10	0.35	6	45	0.87
B2233 East	10	41	0.93	1	7	0.47
B2233 West	2	13	0.62	1	9	0.33
2021 with Development + Mitigation Scheme						
North End Road	<1	3	0.21	1	4	0.41
B2233 East	4	14	0.61	1	5	0.47
B2233 West	1	7	0.48	1	6	0.43

Source: Junctions 9

- 9.3.7 On this basis, it is proposed a contribution will be paid to WSCC through a Section 106 Agreement to either deliver an improvement at the junction either in accordance with the scheme identified through this TA, or to be used collectively with contributions already secured by WSCC towards a Yapton-Barnham cycle route to deliver a comprehensive scheme of corridor improvements.

Bilsham Road/ Burndell Road Mini Roundabout

- 9.3.8 The Bilsham Road/B2233 Mini Roundabout junction was not included in the scope of the strategic level intervention identified as part of the Arun Transport Study. Therefore, in order to mitigate the impact of the development, a scheme of junction improvements has been identified to address capacity constraints on the Bilsham Road arm during the morning peak and the B2233 West arm during the afternoon peak.
- 9.3.9 The improvement scheme comprises the conversion of the existing mini roundabout to a small kerbed roundabout arrangement and alteration to the approach, entry and exit geometries. The mitigation is set out in **Drawing ITB13091-GA-027**.
- 9.3.10 The improvement has been modelled using Junctions 9 and the results are summarised in **Table 9.6**. The assessment demonstrates that the mitigation scheme more than mitigates the impact of the development, with all arms returning to a level where they work within capacity. On this basis, the impact of the development upon the North End Road/B2233 mini roundabout can be *"...cost effectively mitigated to an acceptable degree."* (paragraph 108, NPPF).

Table 9.6: Bilsham Road/ Burndell Road Mini Roundabout Improvement Scheme Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Queue	Delay (s)	Max RFC	Queue	Delay (s)	Max RFC
2021 without Development						
B2233 East	2	14	0.69	1	11	0.66
Bilsham Road	47	260	1.15	1	12	0.30
B2233 West	1	8	0.52	5	23	0.84
2021 with Development + Mitigation Scheme						
B2233 East	1	7	0.56	1	6	0.41
Bilsham Road	1	7	0.54	<1	4	0.26
B2233 West	1	6	0.46	3	12	0.75

Source: Junctions 9

- 9.3.11 On this basis, it is proposed a contribution will be paid to WSCC through a Section 106 Agreement to either deliver an improvement at the junction either in accordance with the scheme identified through this TA or to be used collectively with contributions already secured by WSCC towards a Yapton-Barnham cycle route to deliver a comprehensive scheme of corridor improvements.

9.4 Summary

- 9.4.1 In order to mitigate the traffic impact of the proposed development, the transport mitigation strategy set out in **Tables 9.7** and **9.8** is to be provided.

Table 9.7: Strategic Network Mitigation Strategy Summary

Junction	Type	Cost (High Estimate)	Impact	Contribution Required
A27/B2233	Capacity	£300,000	11%	£33,000
A27/A259	Capacity	£915,000	5%	£45,750
A27/A284	Capacity	£301,000	43%	£129,430
A27/The Causeway	Capacity	Lining Scheme (assumed £15,000)	15%	£4,350

Table 9.8: Local Network Mitigation Strategy

Junction	Type	Delivery Mechanism
Ford Lane Roundabout	Access – Safety/Capacity	Works
Yapton Road Roundabout	Access – Safety/Capacity	Works
A259 Oystercatcher	Safety	Contribution
A259 Comet Corner	Safety	Contribution
Burdell Road/Bilsham Road	Capacity	Contribution
Burdell Road/North End Road	Capacity	Contribution
Ford Lane/North End Road	Capacity	Works

- 9.4.2 It has been demonstrated that the traffic impacts the proposed development can be cost effectively mitigated to an acceptable degree, consistent with the paragraph 108 of the National Planning Policy Framework.

SECTION 10 LEVEL CROSSING IMPACT ASSESSMENT

10.1 Introduction

10.1.1 There are level crossings on Ford Road, adjacent to Ford railway station, and Yapton Lane approximately 2.2km to the west of the Ford Lane crossing. To assess the impact of the proposed development scheme on both level crossings, traffic surveys were undertaken on the 5 July 2018. These identify:

- Typical peak hour queue lengths (average and maximum queue lengths) at the level crossing when the barriers are down;
- The frequency of the barrier closures;
- The duration of the barrier closures; and
- The Saturation Flows of the level crossing approaches.

10.1.2 At the time of the surveys the Yapton Lane level crossing operated as a half barrier closure which allow for short barrier down times. However, Network Rail have subsequently replaced the half barrier with a full barrier as part of a scheme of safety improvement works undertaken in January 2019.

10.1.3 Therefore, to assess the impact of the development on the crossing in its current form, the barrier down times have been used from the Ford Road level crossing to replicate full barrier conditions for the Yapton Lane level crossing. To allow for a robust assessment, no adjustment has been made to the number of vehicles using the crossing, whereas in practice some drivers are likely to use alternative routes as a consequence of the longer closures.

10.2 Queue Lengths

10.2.1 A full queue length analysis has been undertaken and the results are summarised in **Table 10.1**. To simulate the operation of a full barrier arrangement at the Yapton Lane level crossing, the number of PCUs passing over the crossing per minute during peak periods was calculated and multiplied by the barrier down times to inform the updated baseline queue lengths.

Table 10.1: Level Crossing Baseline Queue Length Survey Results

	Morning Peak		Evening Peak	
	Average Queue	Maximum Queue	Average Queue	Maximum Queue
Ford Road (North)	17	39	39	68
Ford Road (South)	23	38	22	32
Yapton Lane (North)	15	23	43	78
Yapton Lane (South)	34	56	17	29

Source: Level crossing surveys

10.2.2 Increases in queues have been assessed by increasing each surveyed queue in proportion to the increase in traffic during each closure expected from:

- Background traffic growth and committed development; and
- Development traffic.

10.2.3 The full analysis of queue lengths is included at **Appendix L** and are summarised in **Tables 10.2 and 10.3**.

Table 10.2: Level Crossing Queue Length Survey Results – Without Development

	Morning Peak		Evening Peak	
	Average Queue	Maximum Queue	Average Queue	Maximum Queue
2021 with Committed Development without Development				
Ford Road (North)	17	41	41	71
Ford Road (South)	24	39	22	33
Yapton Lane (North)	14	26	44	83
Yapton Lane (South)	34	60	17	32
2031 with Committed Development without Development				
Ford Road (North)	18	41	41	72
Ford Road (South)	24	40	23	34
Yapton Lane (North)	15	27	45	85
Yapton Lane (South)	34	61	18	33

Source: Level Crossing Surveys and Consultants' calculations

Table 10.3: Level Crossing Queue Length Survey Results – With Development

	Morning Peak		Evening Peak	
	Average Queue	Maximum Queue	Average Queue	Maximum Queue
2021 with Committed Development plus Development				
Ford Road (North)	19	44	46	80
Ford Road (South)	27	44	25	37
Yapton Lane (North)	17	28	51	92
Yapton Lane (South)	43	71	20	36
2031 with Committed Development plus Development				
Ford Road (North)	19	45	47	81
Ford Road (South)	27	45	26	38
Yapton Lane (North)	18	28	52	94
Yapton Lane (South)	43	71	22	37

Source: Level Crossing Surveys and Consultants' calculations

- 10.2.4 The assessment demonstrates that the development will have a minimal impact on existing average and maximum queue lengths when compared to a without development scenario.

Queue Dispersal

- 10.2.5 A factor in establishing whether the level crossing is operating within capacity is whether the level crossing queues are able to discharge fully during the periods when the barriers are raised (i.e. no vehicles are getting caught at the barrier through two closure cycles).
- 10.2.6 The recorded saturation flows have been used to establish the headway required for a vehicle to clear the crossing, by dividing the number of seconds in an hour (3600 seconds) by the average directional saturation flows of both crossings. It should be noted that the type of barrier arrangement does not impact this calculation, and therefore no adjustment has been made to the Yapton Lane saturation data. The results are presented in **Table 10.4**.

Table 10.4: Summary of Average Saturation Flows and Vehicle Headway

Crossing	Saturation (PCU)	Headway (seconds)
Ford Road (North)	1710	2.1
Ford Road (South)	1609	2.2
Yapton Lane (North)	1597	2.3
Yapton Lane (South)	1681	2.1

10.2.7 The time required for the maximum queue to be dispersed has been calculated by multiplying the headway by the length of the maximum queue. The results of this assessment are summarised in **Table 10.5** and presented alongside the average barrier up time during the morning and evening peak hours. The average barrier up time for Yapton Lane has been based on the observed Ford Road barrier cycles to replicate the full barrier conditions at Yapton Lane.

Table 10.5: Baseline Queue Dispersal Results

Crossing/ Direction	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Ave. Dispersal (seconds)	Max. Dispersal (seconds)	Ave. Barrier Up (seconds)	Ave. Dispersal (seconds)	Max. Dispersal (seconds)	Ave. Barrier Up (seconds)
Ford Road (North)	36	82	215	82	143	221
Ford Road (South)	51	84	215	48	70	221
Yapton Lane (North)	35	53	215	95	179	221
Yapton Lane (South)	71	118	215	36	61	221

Source: Level Crossing Surveys and Consultants' calculations

10.2.8 The queue dispersal assessment identifies that both average and maximum queues at both crossings can disperse within typical barrier up conditions.

10.2.9 The average and maximum queue lengths from the 'with development' future year assessment scenarios, as set out in Tables 10.2 and 10.3, have been multiplied by the vehicle headways, set out in Table 10.4, to calculate the future year queue dispersal times. The results of the assessment are summarised in **Table 10.6**.

Table 10.6: Assessment Year Queue Dispersal Results

Crossing/ Direction	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	Ave. Dispersal (seconds)	Max. Dispersal (seconds)	Ave. Barrier Up (seconds)	Ave. Dispersal (seconds)	Max. Dispersal (seconds)	Ave. Barrier Up (seconds)
2021 with Committed Development plus Development						
Ford Road (North)	40	95	215	95	166	221
Ford Road (South)	59	95	215	57	86	221
Yapton Lane (North)	35	62	215	106	200	221
Yapton Lane (South)	71	132	215	38	71	221
2031 with Committed Development plus Development						
Ford Road (North)	42	97	215	97	168	221
Ford Road (South)	59	97	215	57	86	221
Yapton Lane (North)	35	64	215	108	202	221
Yapton Lane (South)	71	134	215	38	71	221

Source: Level Crossing Surveys and Consultants' calculations

10.2.10 The assessment demonstrates that both average and maximum queues can continue to disperse during the average cycle time, and therefore the proposed development does not alter the operation of the crossing.

Degree of Saturation

10.2.11 The 'Degree of Saturation' (DoS)⁴ is the amount of capacity at the level crossings that is used up. A DoS of less than 100% indicates that there is spare capacity, whereas a DoS greater than 100% means that traffic demand exceeds the available capacity. The existing DoS at both of the level crossing approaches is summarised in **Table 10.7**. The Yapton Lane crossings assume the same barrier closure time as that observed at the Ford Road crossing to replicate conditions of the full barrier arrangement.

⁴ Degree of Saturation = Saturation Flow/3600 x (3600-total closure)

Table 10.7: Degree of Saturation (Ford Road Level Crossing)

	Sat Flows (PCUs)	Total Closure time in the Peak hours (seconds)	Capacity of level crossing (PCUs)	2018 Traffic Flows Vehicles per hour (VPH)	DoS (%)
Morning Peak					
Ford Road (North)	1700	1475	1003	249	24.8%
Ford Road (South)	1623	1475	958	367	38.3%
Yapton Lane (North)	1521	1475	898	247	27.5%
Yapton Lane (South)	1590	1475	938	535	57.0%
Evening Peak					
Ford Road (North)	1720	1956	785	326	41.5%
Ford Road (South)	1595	1956	728	221	30.6%
Yapton Lane (North)	1672	1956	763	553	72.5%
Yapton Lane (South)	1772	1956	809	229	28.3%

Source: Level Crossing Surveys and Consultants' calculations

10.2.12 **Tables 10.8** and **10.9** set out the peak hour traffic demand on each approach 'without' development and 'with' development respectively for both the Ford Road and Yapton Lane level crossings. On this basis the amount of capacity used up (the 'degree of saturation') has been calculated.

Table 10.8: Assessment Year Degree of Saturation – Without Development

	Capacity (PCU)	2021		2031	
		Demand (vph)	DoS (%)	Demand (vph)	DoS (%)
Morning Peak					
Ford Road (North)	1003	258	25.7%	262	26.1%
Ford Road (South)	958	385	40.2%	392	40.9%
Yapton Lane (North)	898	278	31.0%	282	31.4%
Yapton Lane (South)	938	572	60.1%	582	62.0%
Evening Peak					
Ford Road (North)	785	338	43.1%	344	43.9%
Ford Road (South)	728	231	31.8%	234	32.1%
Yapton Lane (North)	763	594	77.8%	603	79.0%
Yapton Lane (South)	809	258	31.9%	261	32.3%

Table 10.9: Assessment Year Degree of Saturation – With Development

	Capacity (PCU)	2021		2031	
		Demand (vph)	DoS (%)	Demand (vph)	DoS (%)
Morning Peak					
Ford Road (North)	1003	292	29.1%	296	29.6%
Ford Road (South)	958	423	44.1%	430	44.8%
Yapton Lane (North)	898	290	32.2%	294	32.7%
Yapton Lane (South)	938	595	63.4%	605	64.5%
Evening Peak					
Ford Road (North)	785	377	48.0%	383	48.7%
Ford Road (South)	728	267	36.7%	270	37.0%
Yapton Lane (North)	763	618	80.1%	627	82.1%
Yapton Lane (South)	809	272	33.7%	275	34.0%

Source: Level Crossing Surveys and Consultants' calculations

10.2.13 The assessment demonstrates that the crossings will continue to operate within their operating capacity during the weekday network peak periods and, therefore, the proposed development does not have a severe impact upon their operation.

SECTION 11 SUMMARY AND CONCLUSIONS

11.1 Overview

- 11.1.1 Redrow Homes Limited and Wates Development Limited have appointed i-Transport LLP to provide highways and transport advice to support an outline planning application, with all matters reserved except for access, for the proposed development of Ford Airfield.
- 11.1.2 This Transport Assessment (TA) has considered the potential transport impacts that would arise from the development of the former airfield to provide 1,500 new homes, a local centre, a primary school including nursery, 9,000sqm of employment/business uses (comprising a mixture of B1, B2 and B8 use classes) and sport and recreation facilities (i.e. playing fields).
- 11.1.3 The TA has been informed in part by pre-application engagement with a range of stakeholders including the County, District and Parish Councils, local residents and public transport service providers.

11.2 Site Access Arrangements

- 11.2.1 Vehicular access is proposed to the residential area of the site from Yapton Road and Ford Lane via new roundabout junctions. The proposed access arrangements have been designed in accordance with the relevant design guidance contained in the DMRB; they deliver sufficient geometry and visibility to ensure safe movement of vehicles through each access junction.
- 11.2.2 Access to the employment floorspace will be provided from Ford Road, utilising the existing access to Ford Airfield. The junction comprises a ghost island right turn lane. No alteration to the junction arrangement is necessary.
- 11.2.3 The development will deliver a permeable site layout and will offer a number of different connections to the existing local walking and cycling network to ensure the site is accessible by all. This includes pedestrian and cycle access to points along Ford Road, Ford Lane, Rollaston Park and Horsemere Green Lane.
- 11.2.4 In this regard, it is demonstrated that the site will deliver safe and suitable access, and that the proposed development compiles with the paragraph 108 of the NPPE.

11.3 Transport Sustainability

- 11.3.1 Residents of the development will benefit from a range of facilities provided on site, including education, employment, retail, community and leisure uses. In addition, Yapton and Ford provide a good range of everyday facilities and services which the future residents of the proposed development will visit on a regular basis. This includes a local convenience store, primary school and leisure facilities.
- 11.3.2 Future residents of the proposed development will have the opportunity to access a range of everyday destinations by a choice of different travel modes. Walking is a realistic means of travel to and from the site, with well-connected routes providing direct access to local facilities which are located within a short walk of the site. A Non-Motorised User Audit was undertaken and outlines a series of walking improvements to make the routes more attractive for pedestrian to use.
- 11.3.3 Facilities and services located in the vicinity of the site including Barnham and Littlehampton are within reasonable cycle distance from the site. NCN 2 runs along Yapton Road (and will be diverted to the new facility alongside the A259 in due course). Local roads support the use of cycling and the site is promoted in a manner to encourage cycle travel.
- 11.3.4 A 20 min frequency bus service operates 500m from the centre of the site providing a good connection with Littlehampton and Chichester which provides opportunities for future residents to access further facilities including employment opportunities. The bus also connects with Littlehampton Rail Station for onward travel.
- 11.3.5 Ford Rail Station is located approximately 1,500m from the site and provides regular services to destinations including Chichester, Portsmouth, Southampton and London. Infrastructure improvements brought forward by the development will provide safe and suitable pedestrian and cycle access to the Station.
- 11.3.6 The Development will help bring forward enhancements to the local pedestrian and cycle network as summarised in **Table 11.1:**

Table 11.1: Pedestrian and Cycle Improvements

Junction	Type	Delivery Mechanism
Yapton Road	Pedestrian Enhancements	Works
Church Lane	Off-road Pedestrian/Cycle Route	Works or Contribution
Ford Road	Off-road Pedestrian/Cycle Route	Contribution
On-site connections to existing Public Rights of Way	Connectivity Improvements	Works

11.3.7 The development will be served by regular bus services; discussions with Stagecoach are on-going and the diversion of the 700 'Coastliner' service through the site is being considered.

11.3.8 The FTP identifies opportunities for the effective promotion of delivery of sustainable transport initiatives e.g. walking, cycling, public transport to reduce the demand for travel by less sustainable modes.

11.3.9 Future residents of the proposed development therefore have the opportunity to access a range of destinations by choice of sustainable modes. The proposed development is located where the need to travel will be minimised and through the FTP, the use of sustainable transport modes can be maximised. In line with the NPPF requirements, it is therefore demonstrated that the opportunities for sustainable travel can be and have been taken up.

11.4 Traffic Impact

11.4.1 Detailed assessments have been undertaken to establish the operating conditions of the proposed and existing site accesses. The analysis demonstrates that all site accesses will operate within capacity.

11.4.2 Where traffic flows arising from the development may have a material impact upon the operation of a local junctions, detailed capacity analysis has been undertaken using Junctions 9.

11.4.3 The Arun Transport Study identifies various strategic junctions that require mitigation to address capacity impacts arising from planned growth and sets out proportional contributions required from each of the strategic development sites to mitigate their traffic impact. However,

as no means of mitigating the Comet Corner and Oystercatcher junctions has been identified as part of the ATS, operational assessments have been undertaken to establish mitigation requirements at the junctions.

11.4.4 A detailed assessment of the Ford and Yapton Level Crossings has identified that both junctions will operate within capacity and that mitigation is not required.

11.4.5 Therefore, in order to mitigate the impact of the proposed development, the transport mitigation strategy set out in **Tables 11.2 and 11.3** is to be provided.

Table 11.2: Strategic Network Mitigation Strategy Summary

Junction	Type	Cost (High Estimate)	Impact	Contribution Required
A27/B2233	Capacity	£300,000	11%	£33,000
A27/A259	Capacity	£915,000	5%	£45,750
A27/A284	Capacity	£301,000	43%	£129,430
A27/The Causeway	Capacity	Lining Scheme (assumed £15,000)	15%	£4,350

Table 11.3: Local Network Mitigation Strategy

Junction	Type	Delivery Mechanism
Ford Lane Roundabout	Access – Safety/Capacity	Works
Yapton Road Roundabout	Access – Safety/Capacity	Works
A259 Oystercatcher	Safety	Contribution
A259 Comet Corner	Safety	Contribution
Burndell Road/Bilsham Road	Capacity	Contribution
Burndell Road/North End Road	Capacity	Contribution
Ford Lane/North End Road	Capacity	Works

11.4.6 It has been demonstrated that the traffic impacts the proposed development can be cost effectively mitigated to an acceptable degree, consistent with the paragraph 108 of the National Planning Policy Framework.

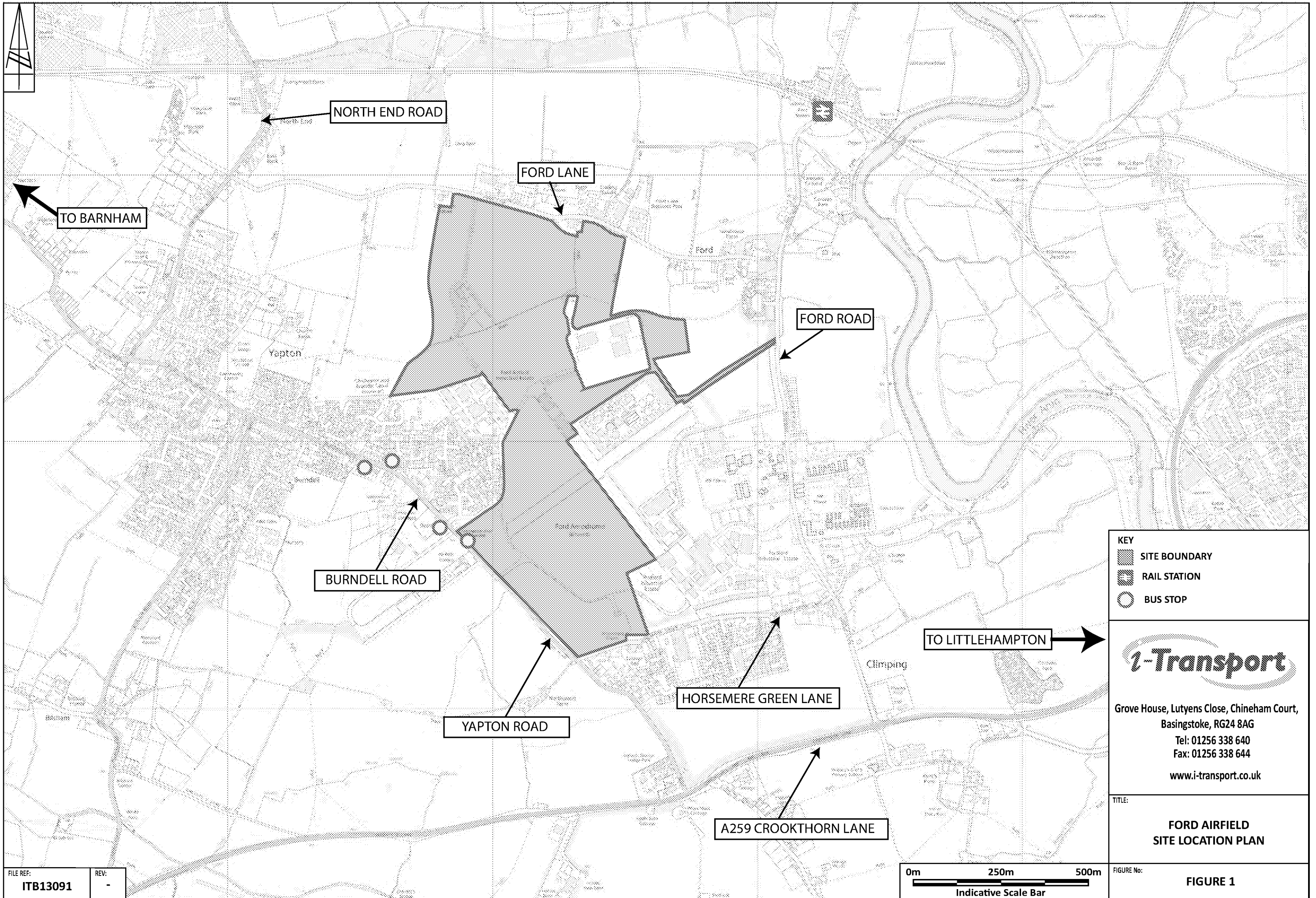
11.5 Conclusions

11.5.1 On this basis, it is concluded that:

- The site is in an accessible location that is suitable for residential development. With the package of improvement proposed in supporting the development, the site will be well connected to local services and facilities and appropriate infrastructure will be in place to ensure opportunities for travel by sustainable modes are appropriately taken up;
- The site access arrangements comply with the relevant design guidance and will deliver safe and suitable access for all people; and
- With the delivery of the mitigation via an appropriate contribution to enable WSCC to deliver strategic highway improvements, the impact of the development on the operation of the highway network within Ford, Yapton and the surrounding area will not be significant and fall considerably short of the 'severe' test set by the NPPF.

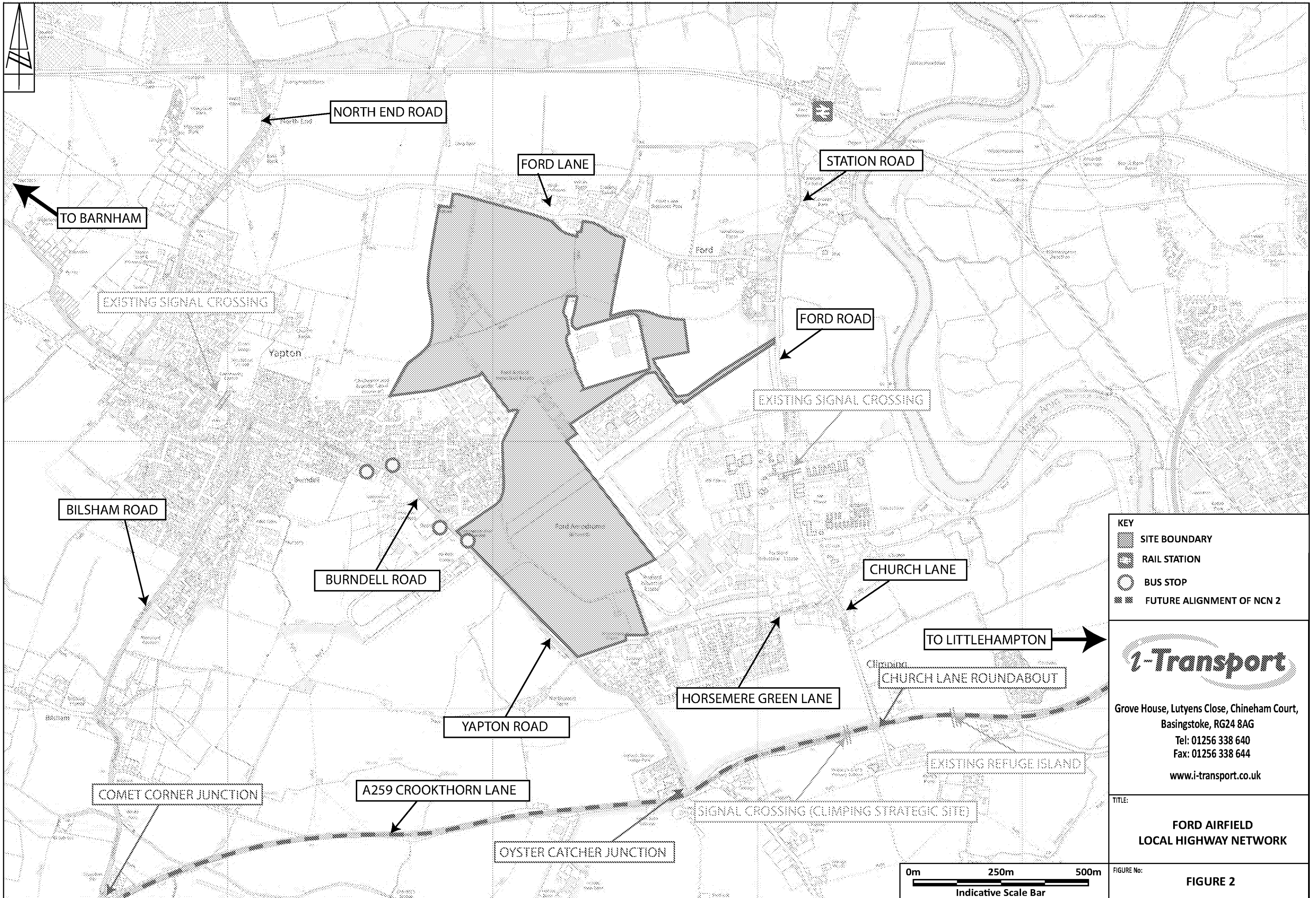
11.5.2 Overall, it has been demonstrated that the proposed development complies with relevant transport policy, particularly the NPPF and the Adoption Arun Local Plan (2018) and is shown to be acceptable in highways and transport terms.

FIGURES



KEY	
	SITE BOUNDARY
	RAIL STATION
	BUS STOP
Grove House, Lutyens Close, Chineham Court, Basingstoke, RG24 8AG Tel: 01256 338 640 Fax: 01256 338 644 www.i-transport.co.uk	
TITLE: FORD AIRFIELD SITE LOCATION PLAN	
FIGURE No:	FIGURE 1

FILE REF:	REV:
ITB13091	-



KEY

- SITE BOUNDARY
- RAIL STATION
- BUS STOP
- FUTURE ALIGNMENT OF NCN 2

1-Transport

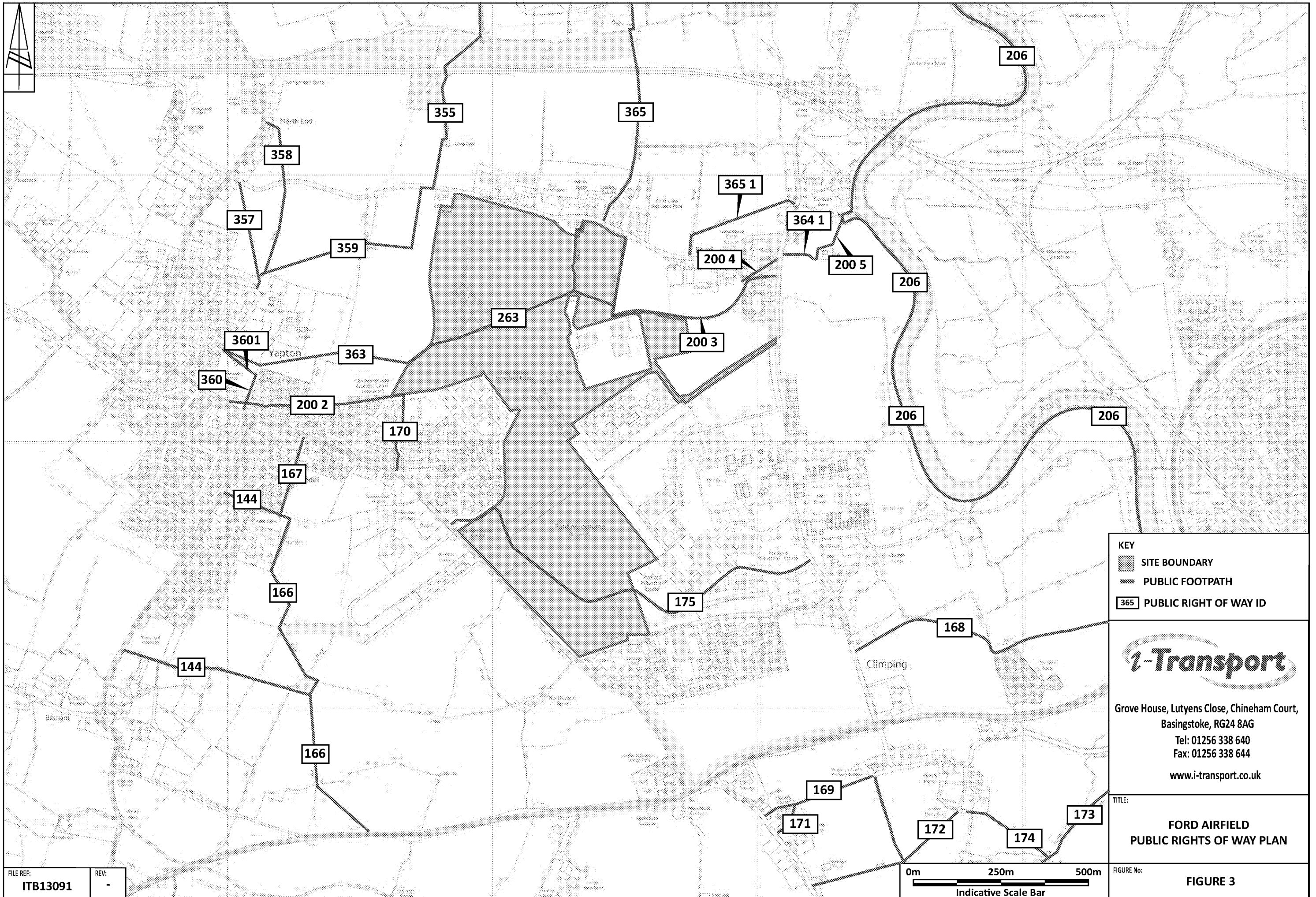
Grove House, Lutyens Close, Chineham Court,
Basingstoke, RG24 8AG
Tel: 01256 338 640
Fax: 01256 338 644
www.i-transport.co.uk

TITLE:

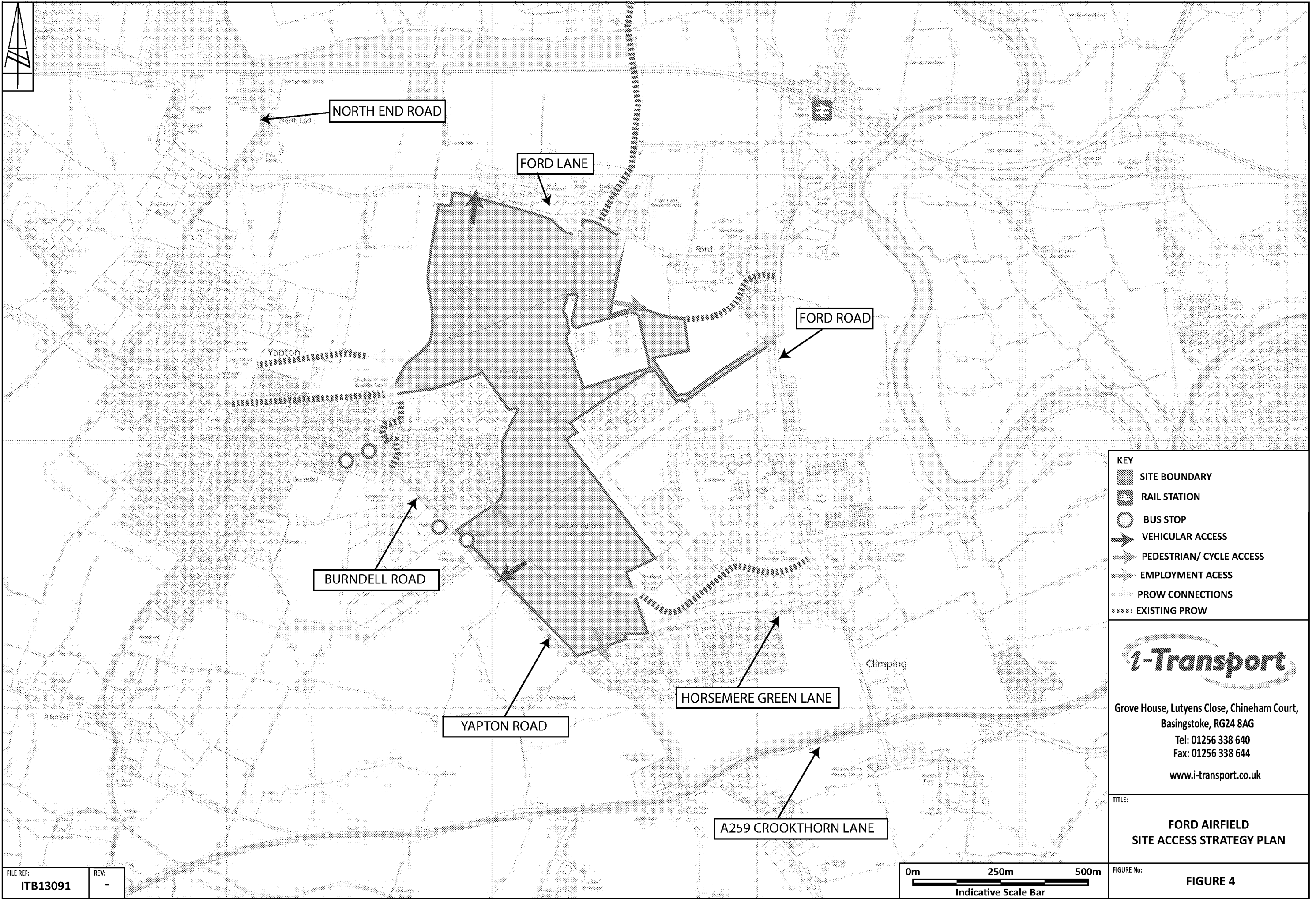
**FORD AIRFIELD
LOCAL HIGHWAY NETWORK**

FIGURE No:

FIGURE 2

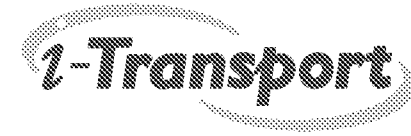


FILE REF: ITB13091
REV: -



KEY

- SITE BOUNDARY
- RAIL STATION
- BUS STOP
- VEHICULAR ACCESS
- PEDESTRIAN/ CYCLE ACCESS
- EMPLOYMENT ACCESS
- PROW CONNECTIONS
- EXISTING PROW



Grove House, Lutyens Close, Chineham Court,
Basingstoke, RG24 8AG
Tel: 01256 338 640
Fax: 01256 338 644
www.i-transport.co.uk

TITLE:

FORD AIRFIELD
SITE ACCESS STRATEGY PLAN

FIGURE No:

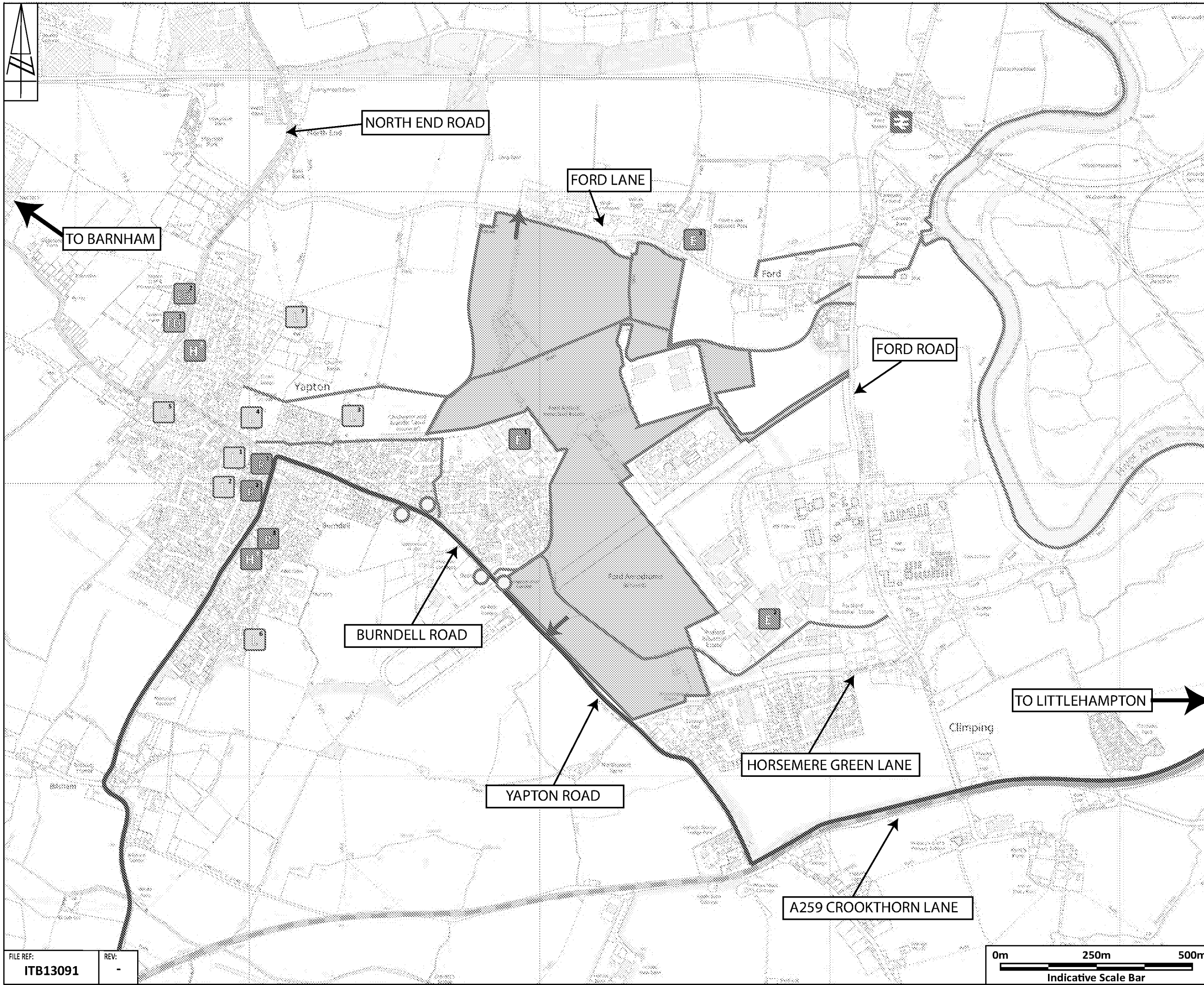
FIGURE 4

FILE REF:
ITB13091

REV:
-

0m 250m 500m
Indicative Scale Bar

Reproduced from ordnance survey by the permission of the controller of her majestys
stationary office. Crown copyright. All rights reserved. Licence number 100022432



- KEY**
- SITE BOUNDARY
 - RAIL STATION
 - BUS STOP
 - LEISURE**
 - 1 YAPTON TAKEAWAY
 - 2 SILHOUETTE HAIR SALON
 - 3 YAPTON RECREATION GROUND
 - 4 VILLAGE HALL
 - 5 YAPTON FREE CHURCH
 - 6 ALLOTMENTS
 - 7 ST MARYS C OF E CHURCH
 - EMPLOYMENT**
 - 8 RUDFIELD INDUSTRIAL ESTATE
 - 9 FORD AIRFIELD INDUSTRIAL ESTATE
 - 10 FORD LANE INDUSTRIAL ESTATE
 - RETAIL**
 - 11 YAPTON CO-OP (INC. PO)
 - 12 MERRY MEATS BUTCHERS
 - 13 BLISHAM LOCAL STORE
 - EDUCATION**
 - 14 YAPTON C OF E PRIMARY SCHOOL
 - 15 YAPTON COMMUNITY PRE SCHOOL
 - HEALTHCARE**
 - 16 AVISFORD MEDICAL GROUP
 - 17 MEADOWSCROFT SURGERY
 - 18 NATIONAL CYCLE ROUTE 2
 - 19 NATIONAL CYCLE ROUTE 2 IMPROVEMENTS
 - 20 VEHICULAR ACCESS
 - 21 PUBLIC FOOTPATH
 - 22 BUS SERVICE 700



Grove House, Lutyens Close, Chineham Court,
Basingstoke, RG24 8AG
Tel: 01256 338 640
Fax: 01256 338 644
www.i-transport.co.uk

TITLE:
**FORD AIRFIELD
LOCAL FACILITIES PLAN**

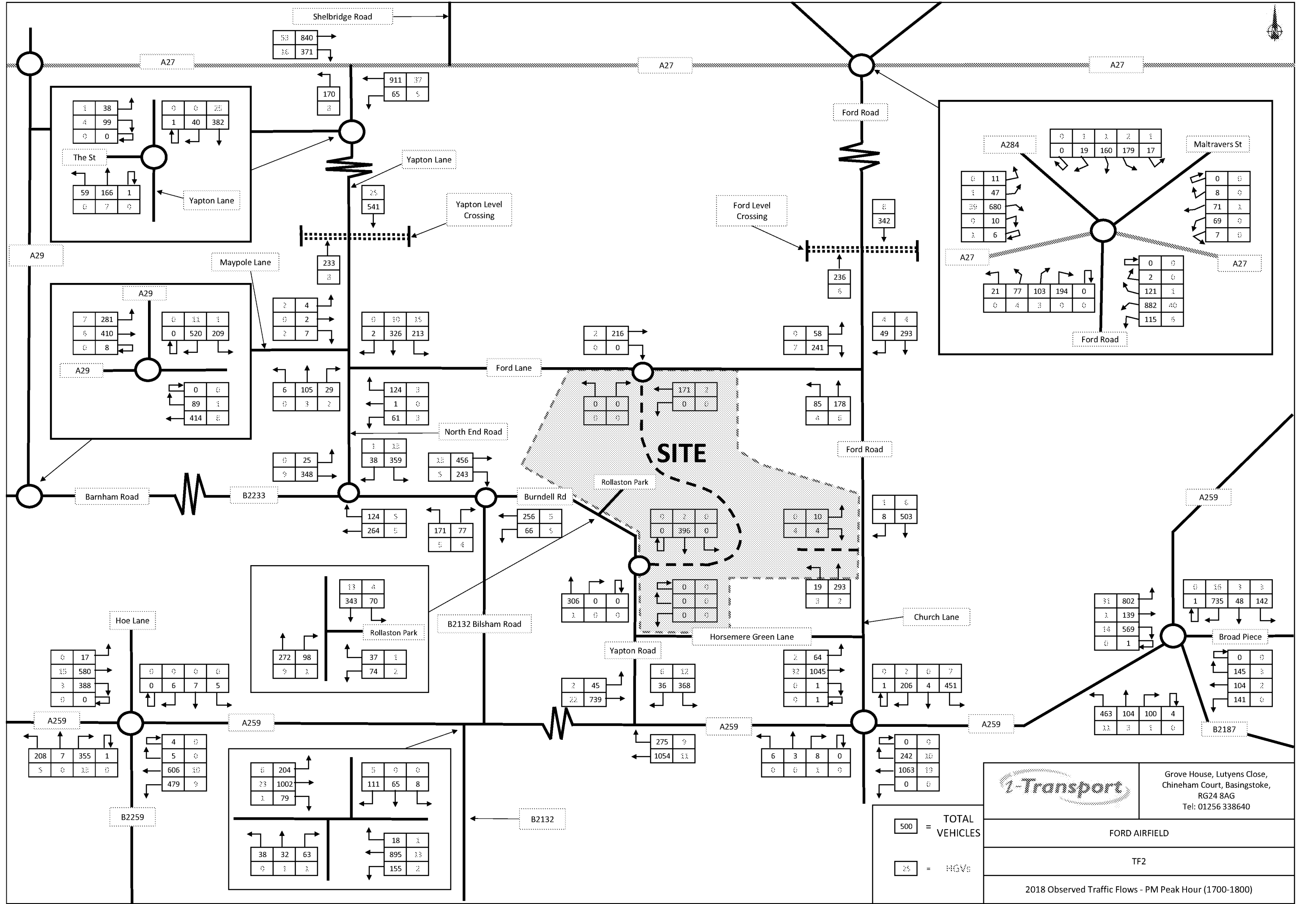
FIGURE No: **FIGURE 5**

FILE REF:
ITB13091

REV:
-

0m 250m 500m
Indicative Scale Bar

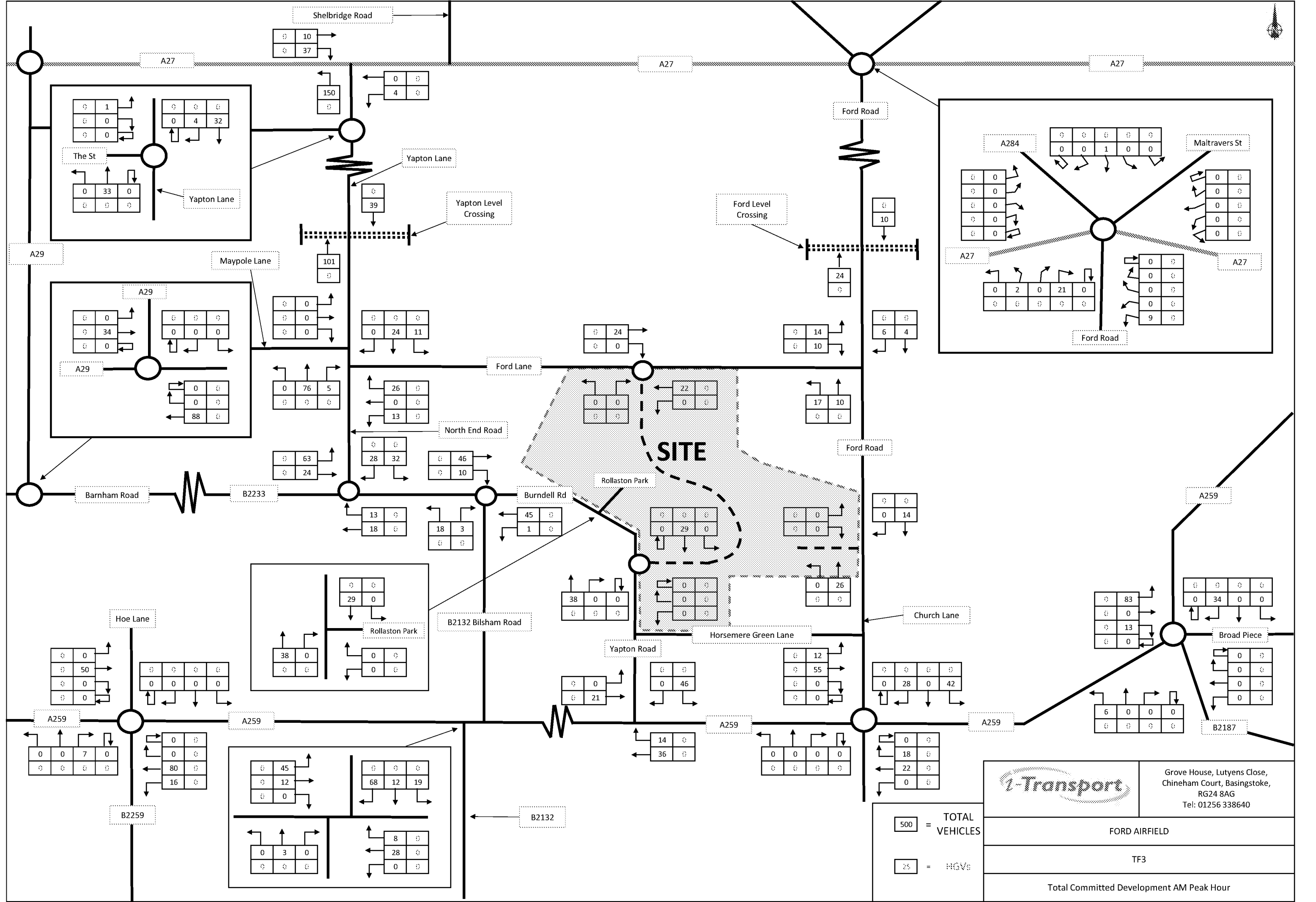
Reproduced from ordnance survey by the permission of the controller of her majestys
stationery office. Crown copyright. All rights reserved. Licence number 100022432





Grove House, Lutyens Close,
Chineham Court, Basingstoke,
RG24 8AG
Tel: 01256 338640

FORD AIRFIELD
TF2
2018 Observed Traffic Flows - PM Peak Hour (1700-1800)



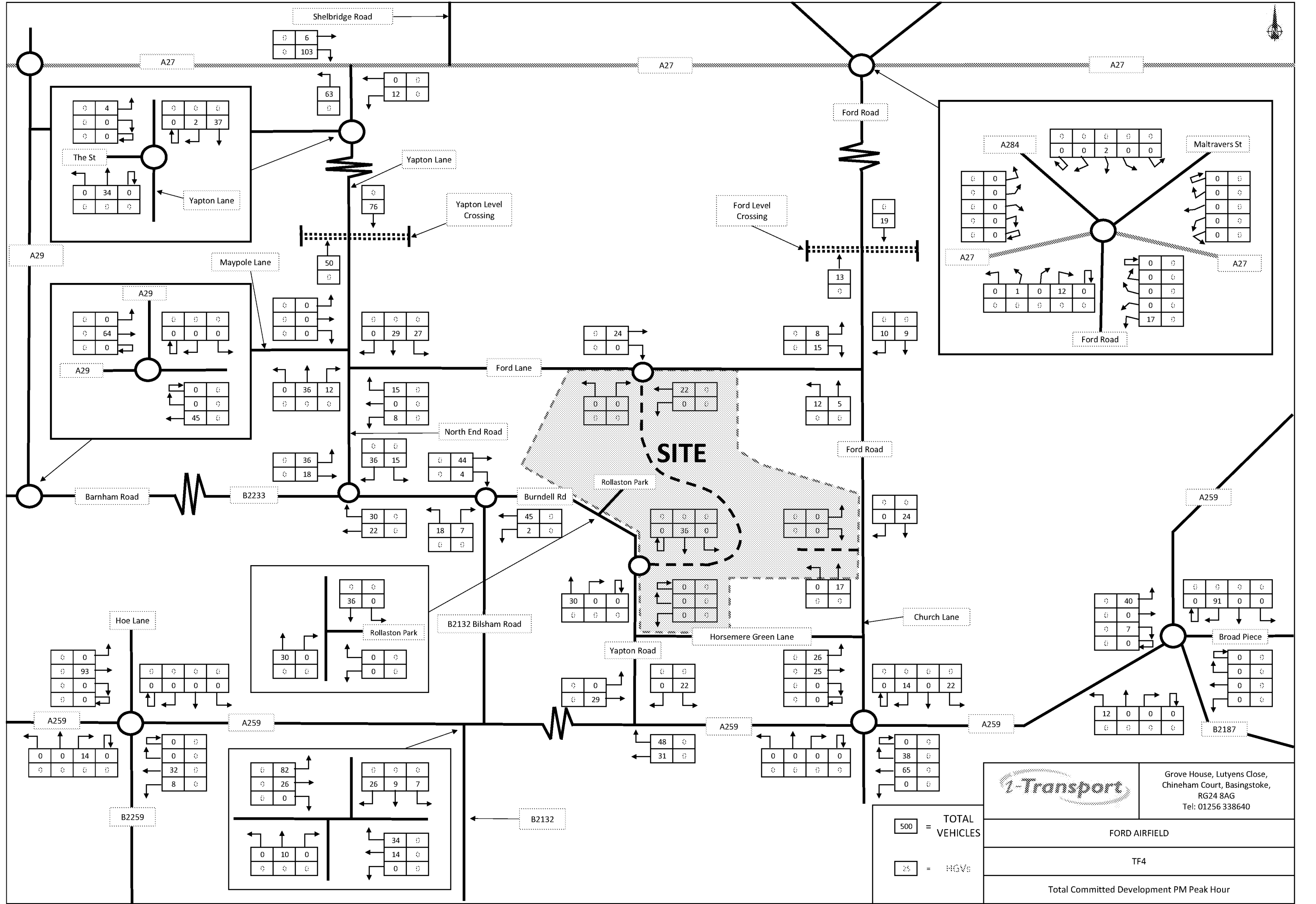


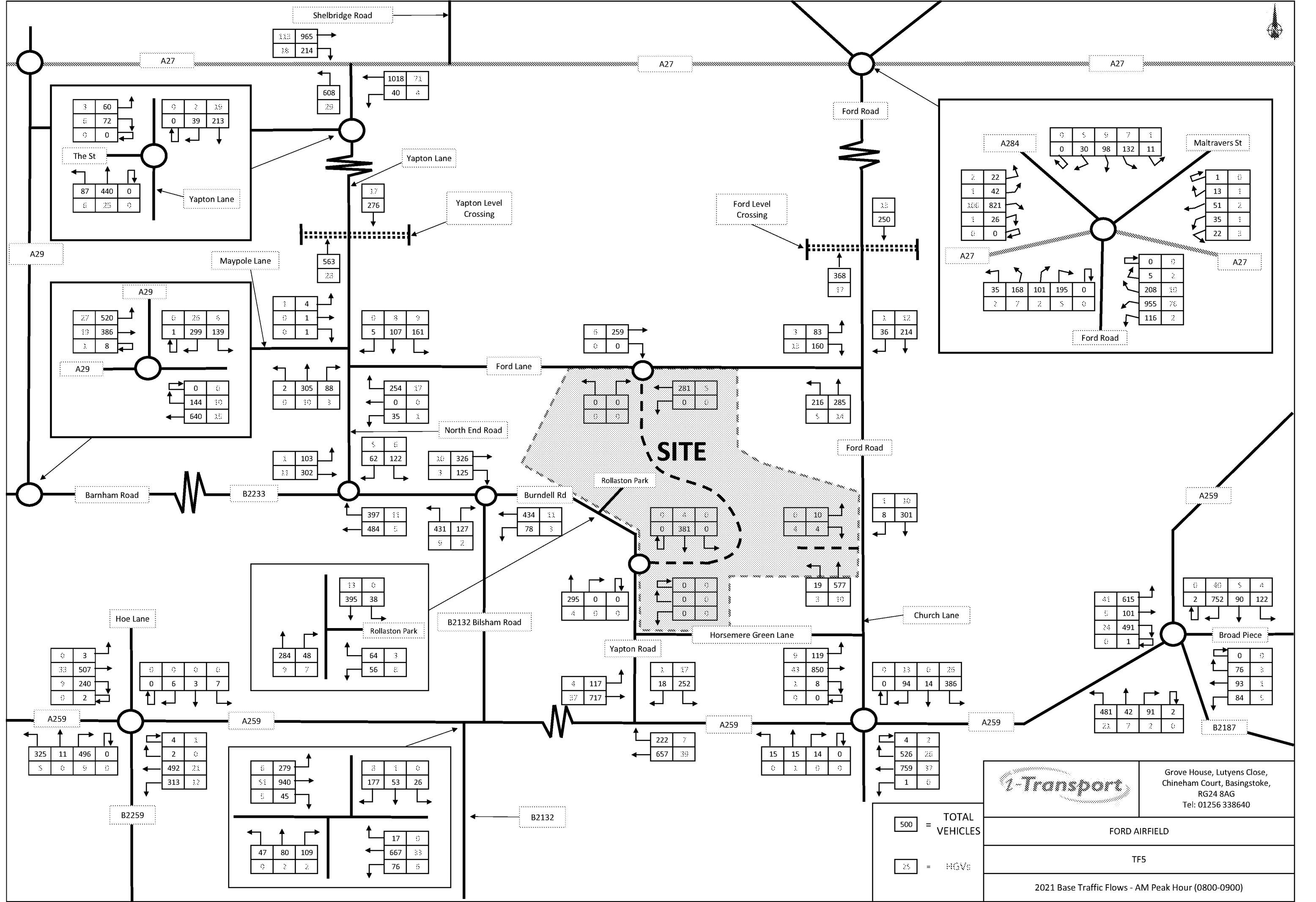
Grove House, Lutyens Close,
Chineham Court, Basingstoke,
RG24 8AG
Tel: 01256 338640

FORD AIRFIELD	
TF3	
Total Committed Development AM Peak Hour	

500 = TOTAL VEHICLES

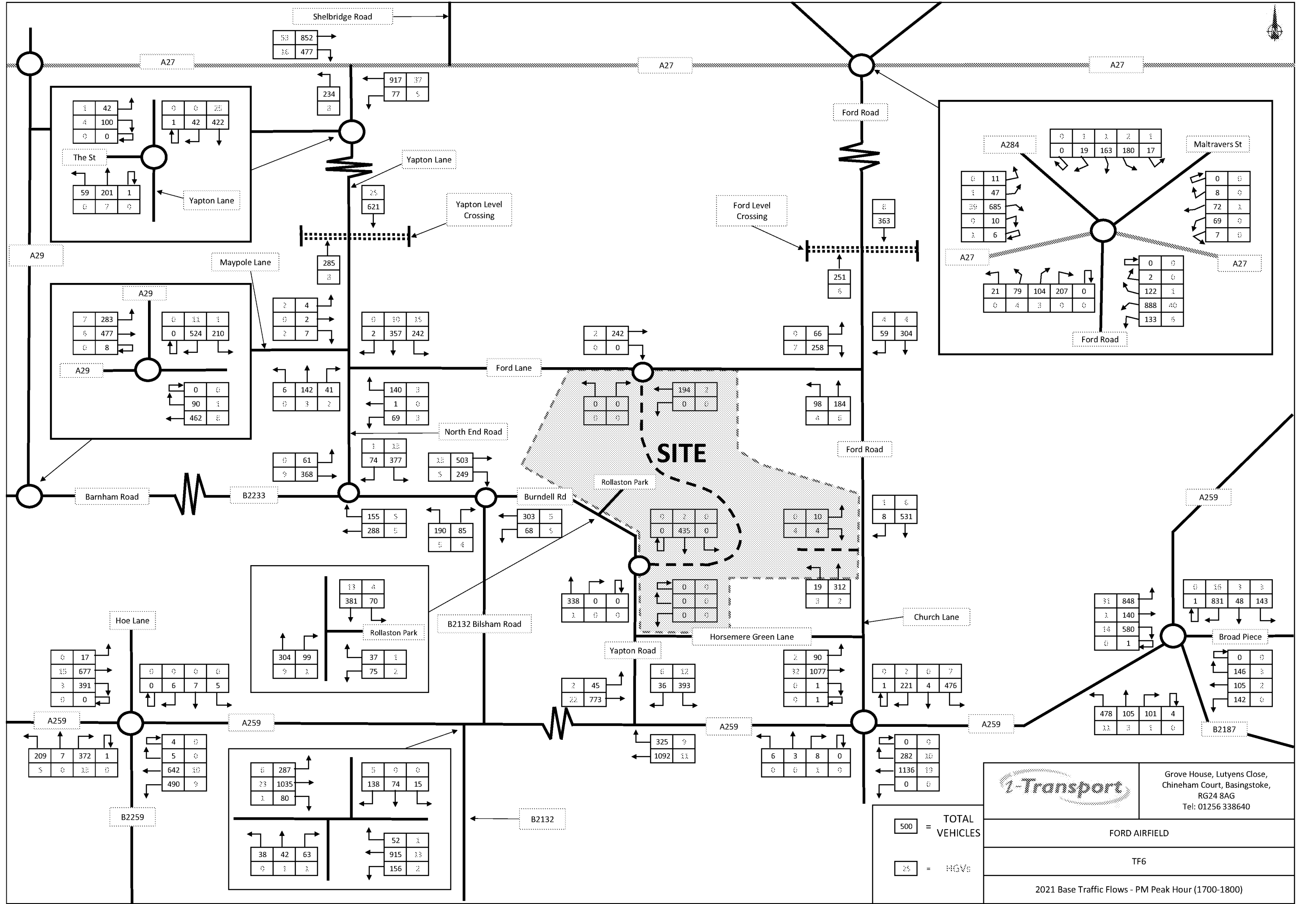
25 = NGVs





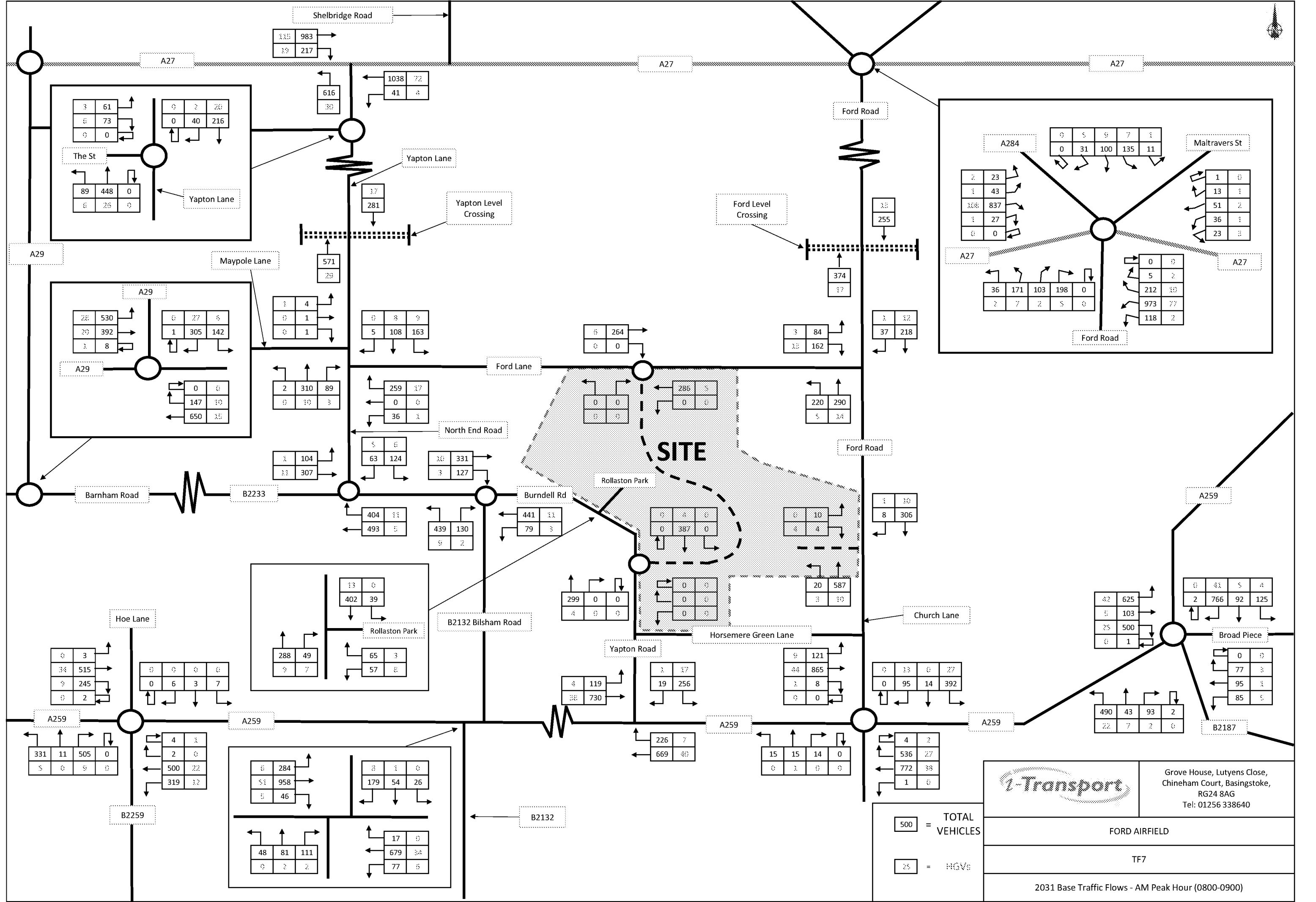
Grove House, Lutyens Close,
Chineham Court, Basingstoke,
RG24 8AG
Tel: 01256 338640

FORD AIRFIELD
TF5
2021 Base Traffic Flows - AM Peak Hour (0800-0900)



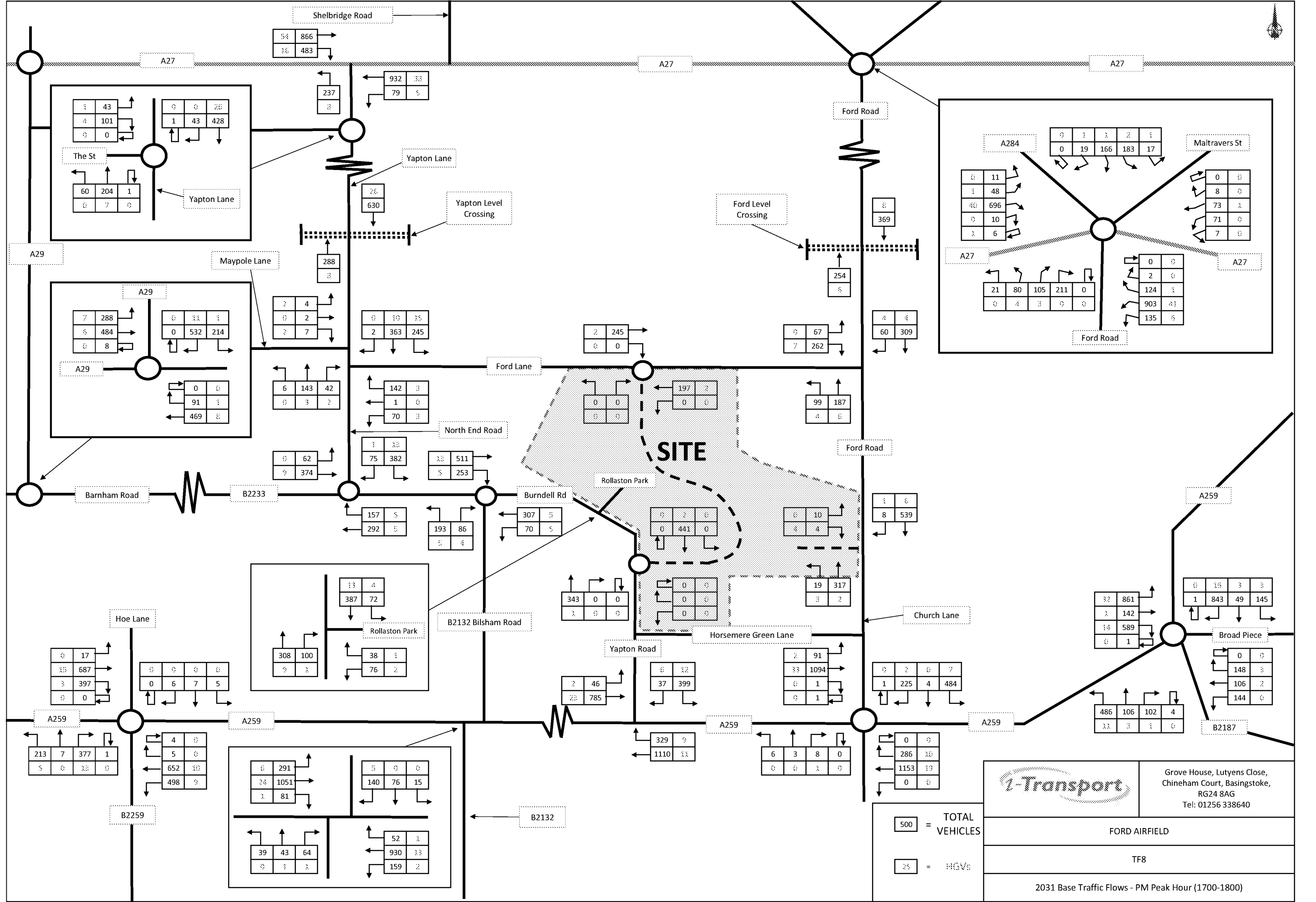
Grove House, Lutyens Close,
Chineham Court, Basingstoke,
RG24 8AG
Tel: 01256 338640

FORD AIRFIELD
TF6
2021 Base Traffic Flows - PM Peak Hour (1700-1800)



Grove House, Lutyens Close,
Chineham Court, Basingstoke,
RG24 8AG
Tel: 01256 338640

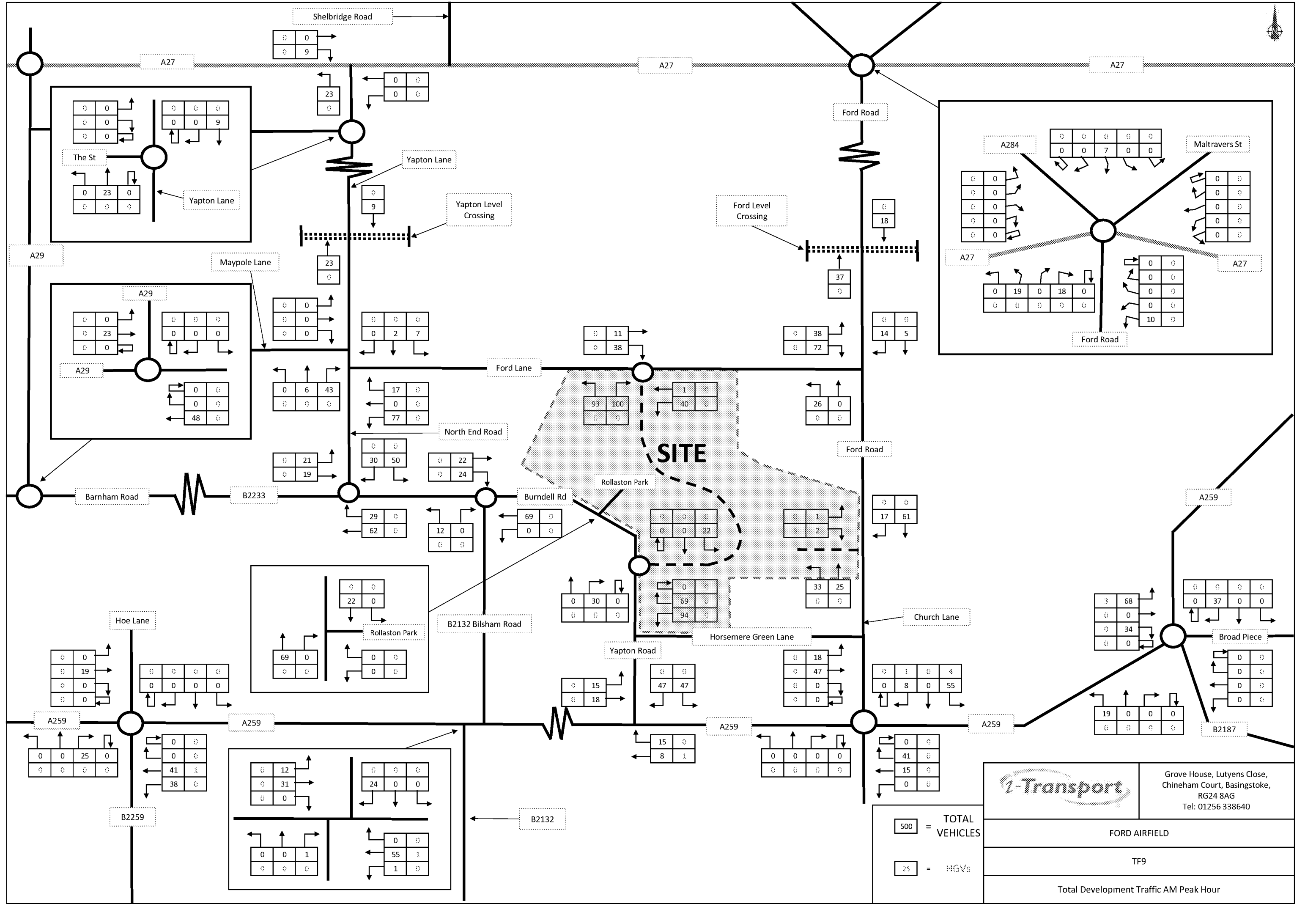
FORD AIRFIELD
TF7
2031 Base Traffic Flows - AM Peak Hour (0800-0900)



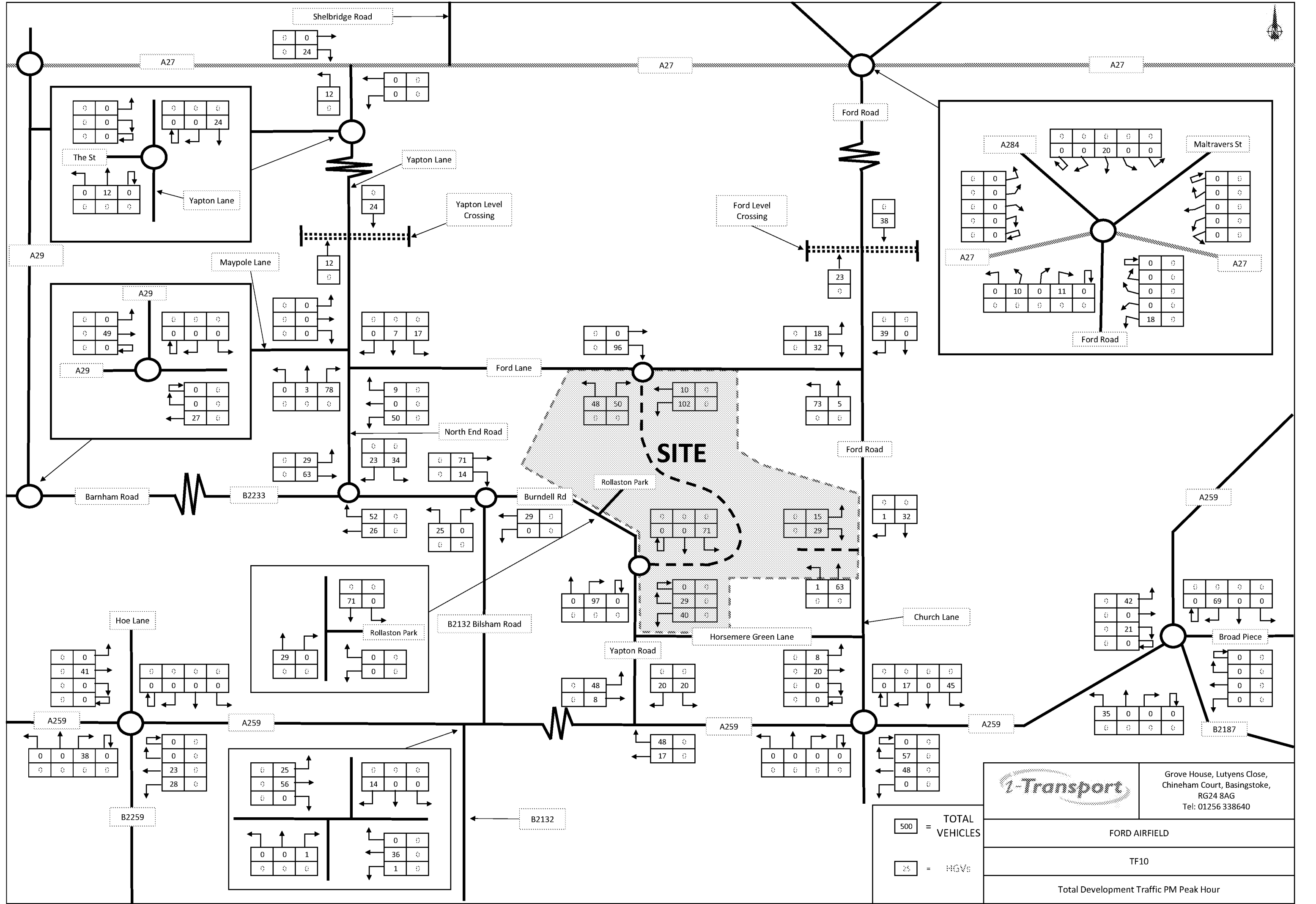


Grove House, Lutyens Close,
Chineham Court, Basingstoke,
RG24 8AG
Tel: 01256 338640

FORD AIRFIELD
TF8
2031 Base Traffic Flows - PM Peak Hour (1700-1800)



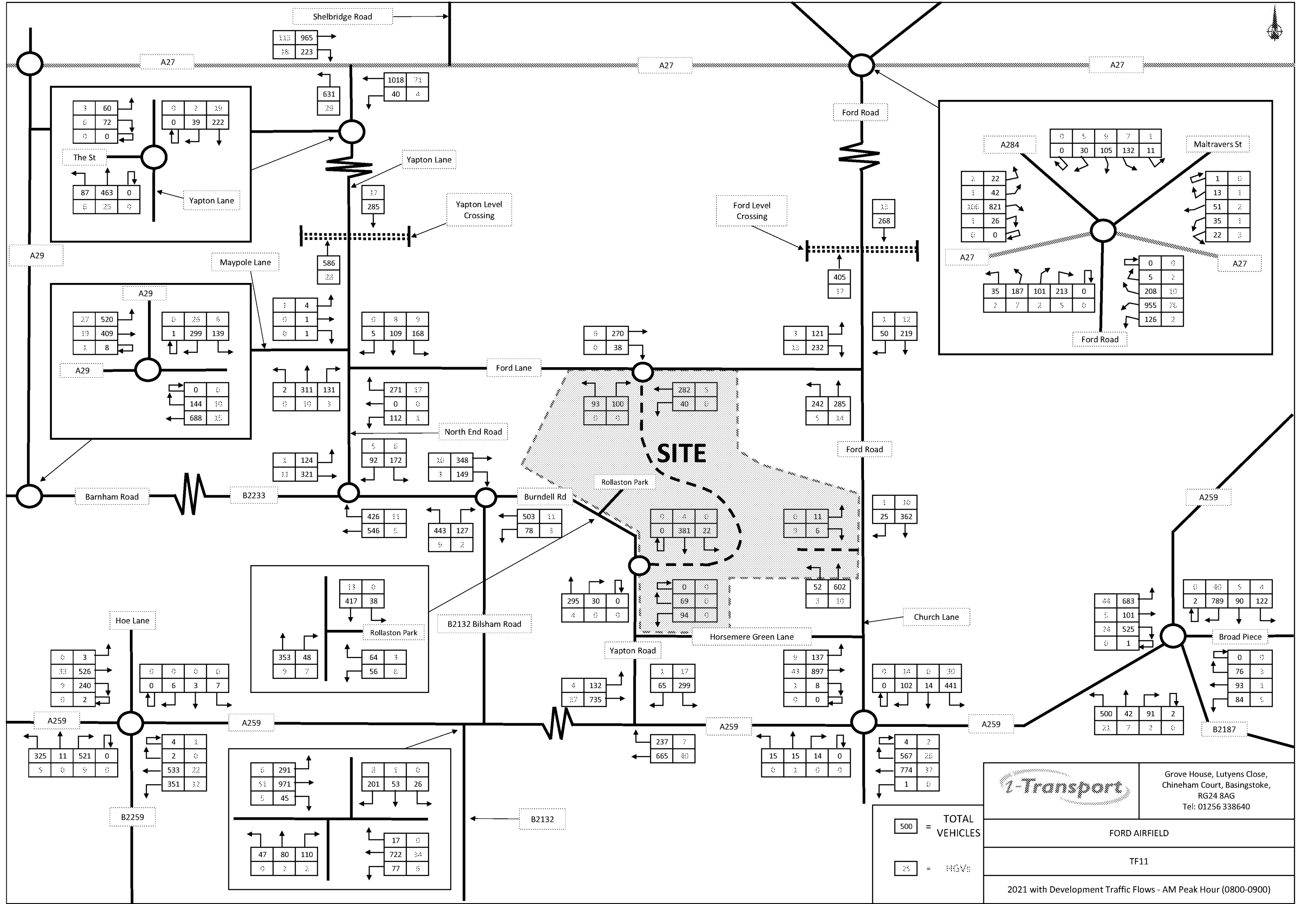
	Grove House, Lutyens Close, Chineham Court, Basingstoke, RG24 8AG Tel: 01256 338640
	FORD AIRFIELD
	TF9
	Total Development Traffic AM Peak Hour

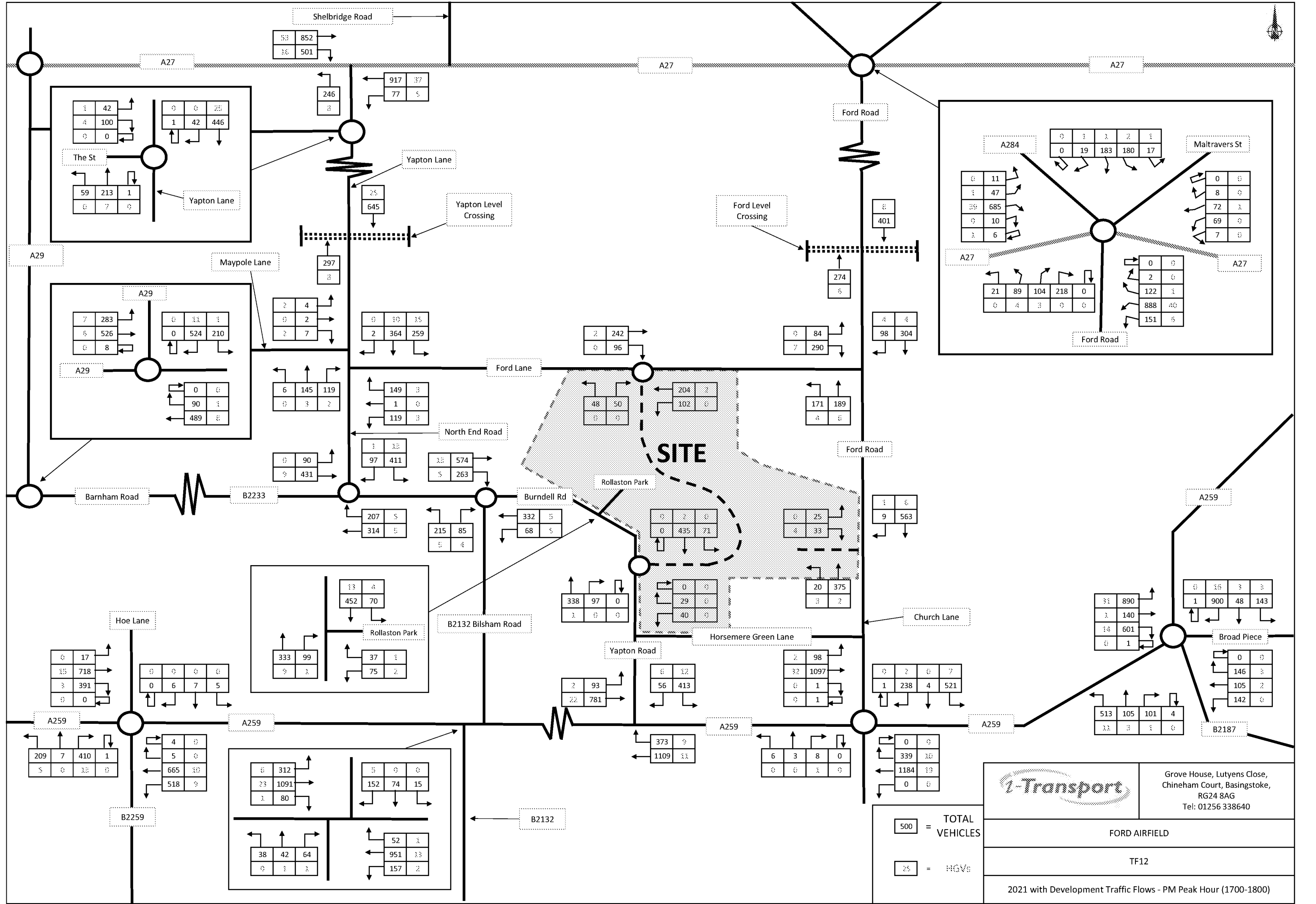


	Grove House, Lutyens Close, Chineham Court, Basingstoke, RG24 8AG Tel: 01256 338640
	FORD AIRFIELD
	TF10
	Total Development Traffic PM Peak Hour

500 = TOTAL
VEHICLES

25 = HGVs





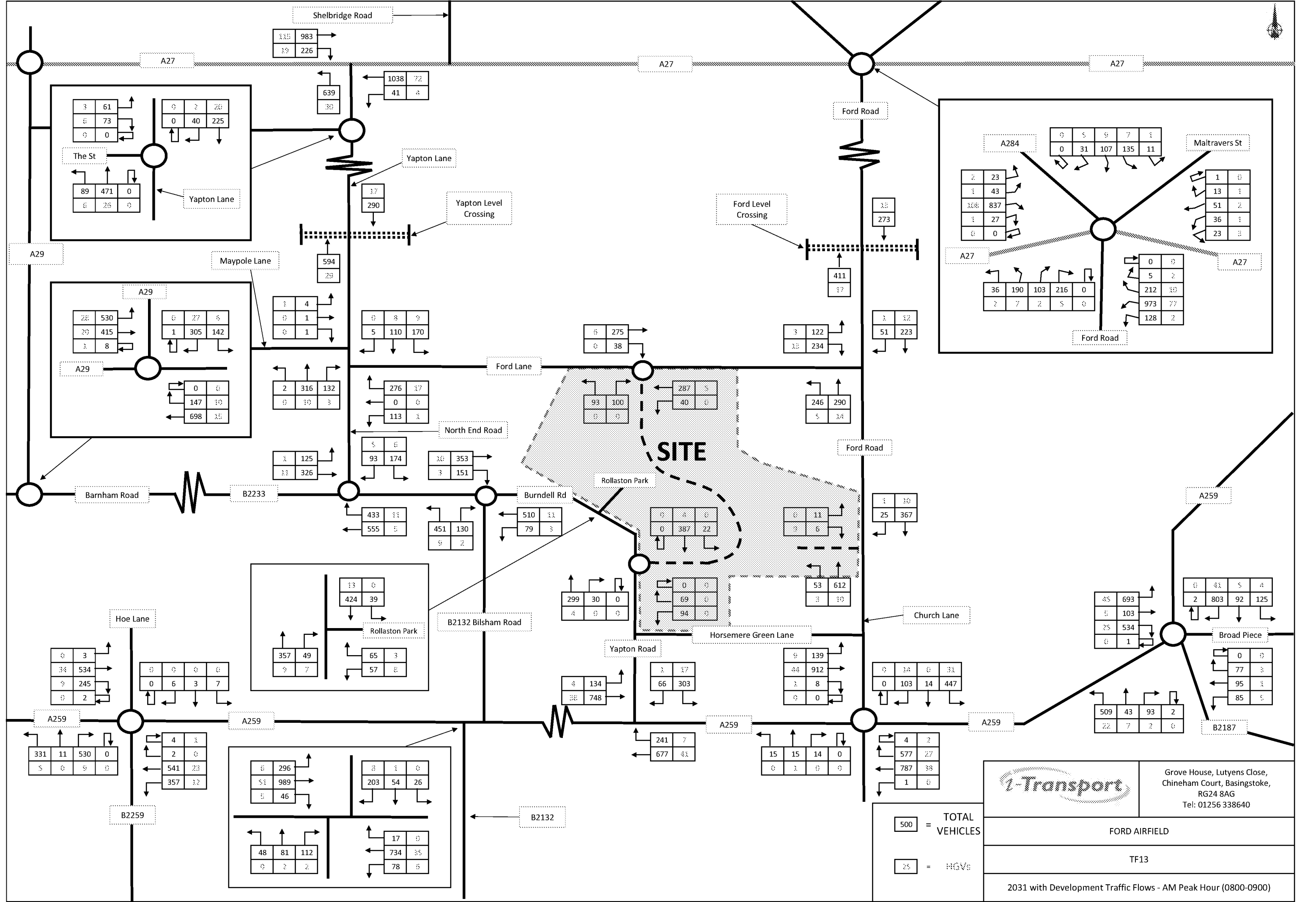


Grove House, Lutyens Close,
Chineham Court, Basingstoke,
RG24 8AG
Tel: 01256 338640

FORD AIRFIELD

TF12

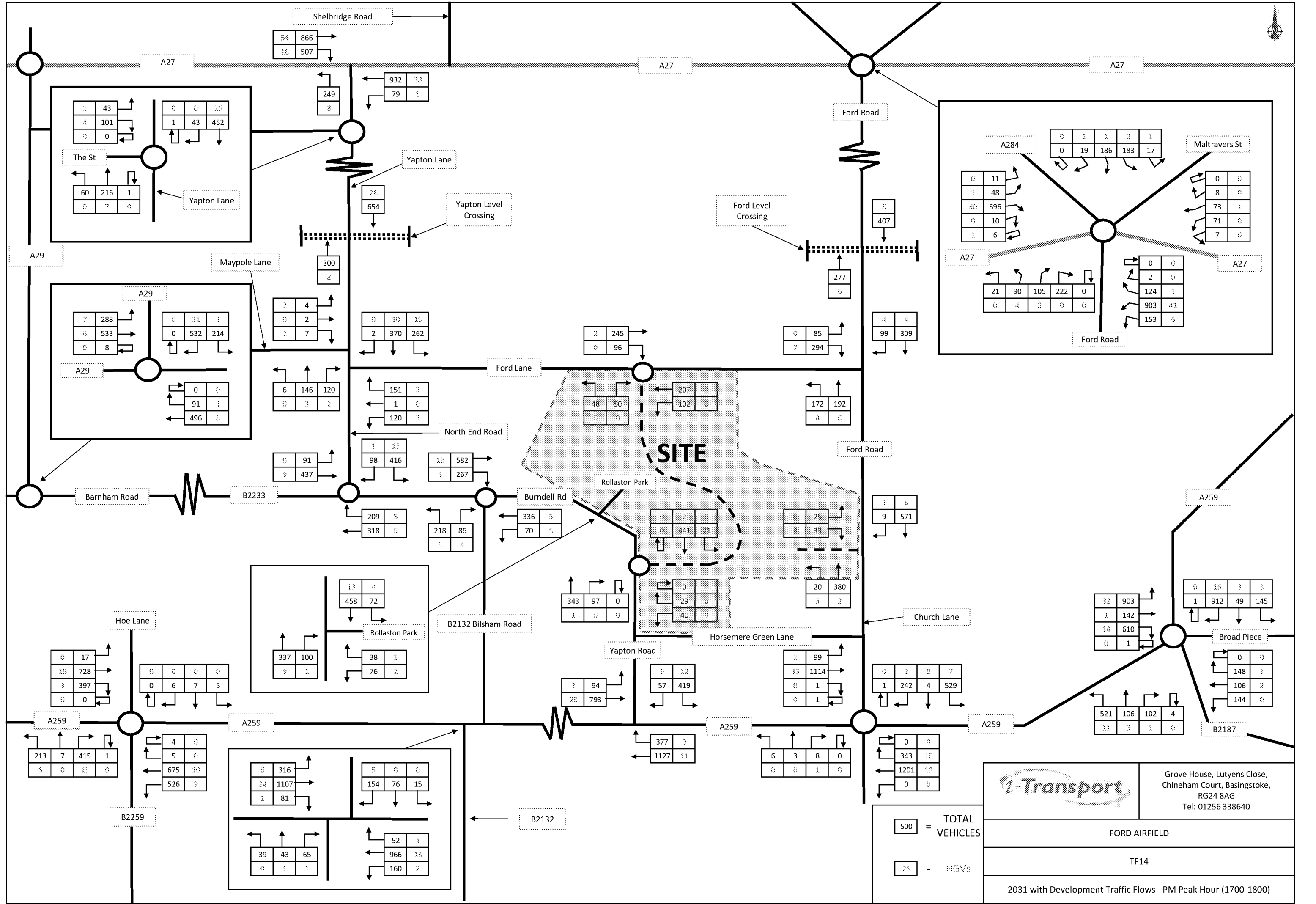
2021 with Development Traffic Flows - PM Peak Hour (1700-1800)



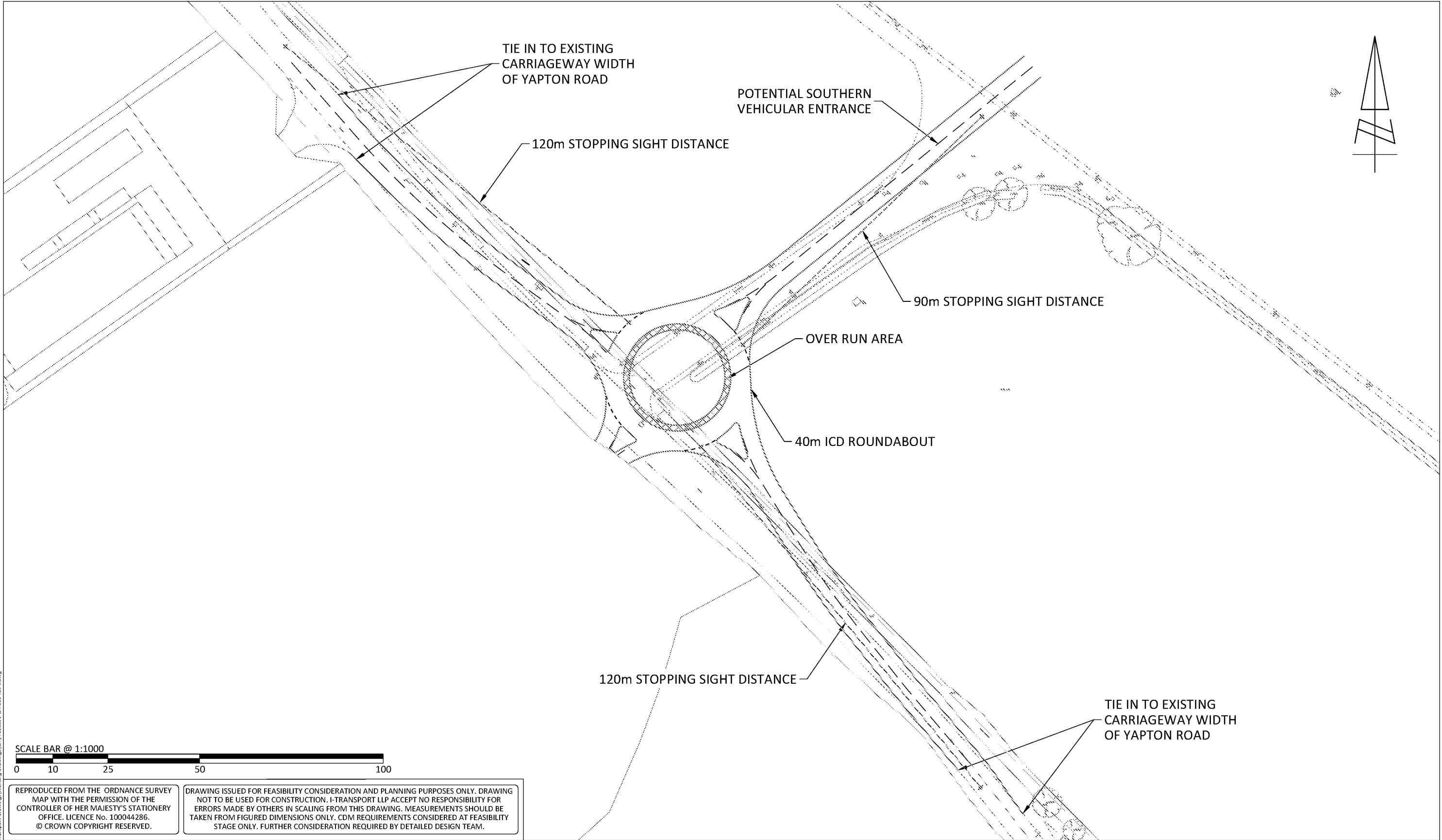


Grove House, Lutyens Close,
Chineham Court, Basingstoke,
RG24 8AG
Tel: 01256 338640

FORD AIRFIELD
TF13
2031 with Development Traffic Flows - AM Peak Hour (0800-0900)



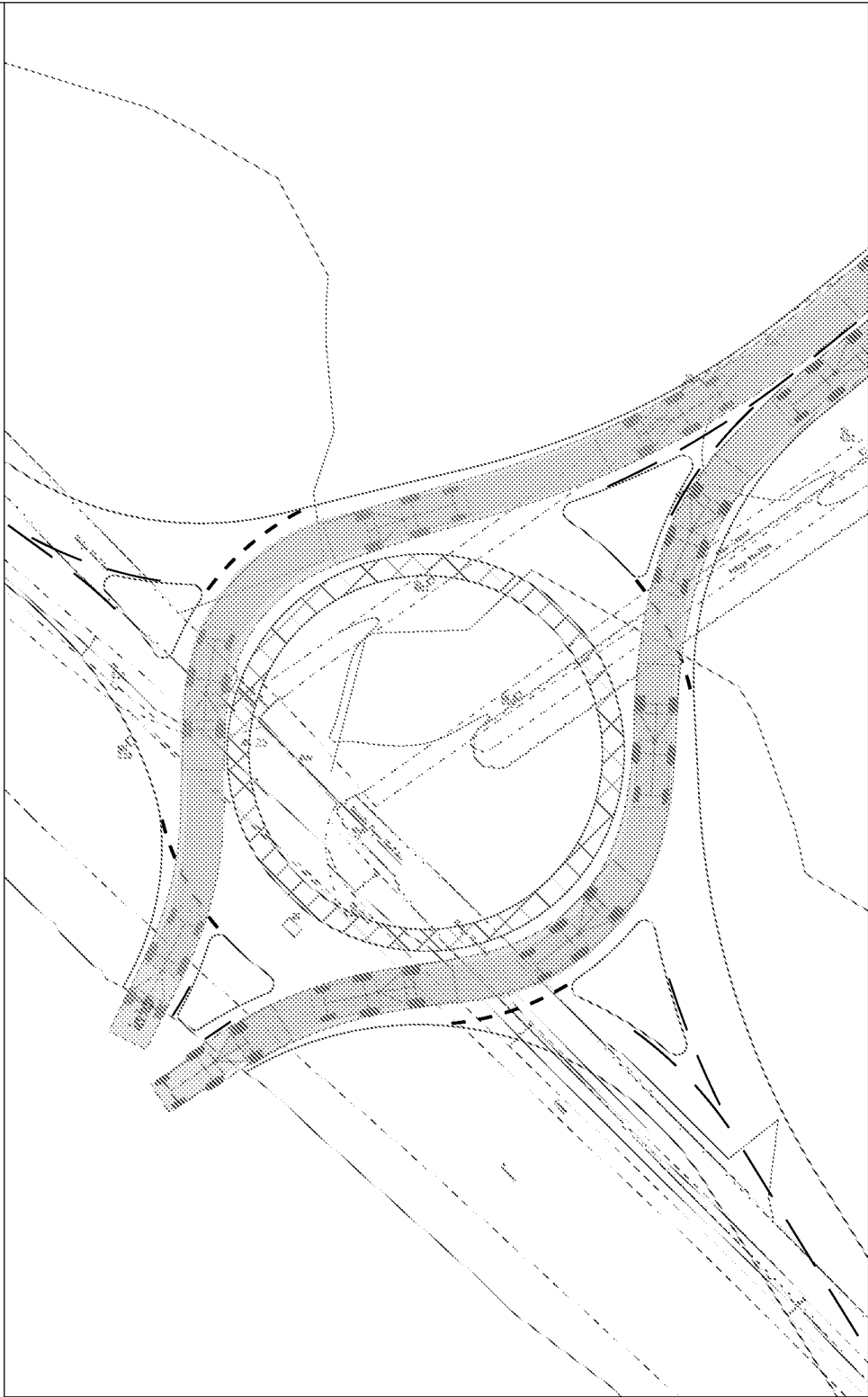
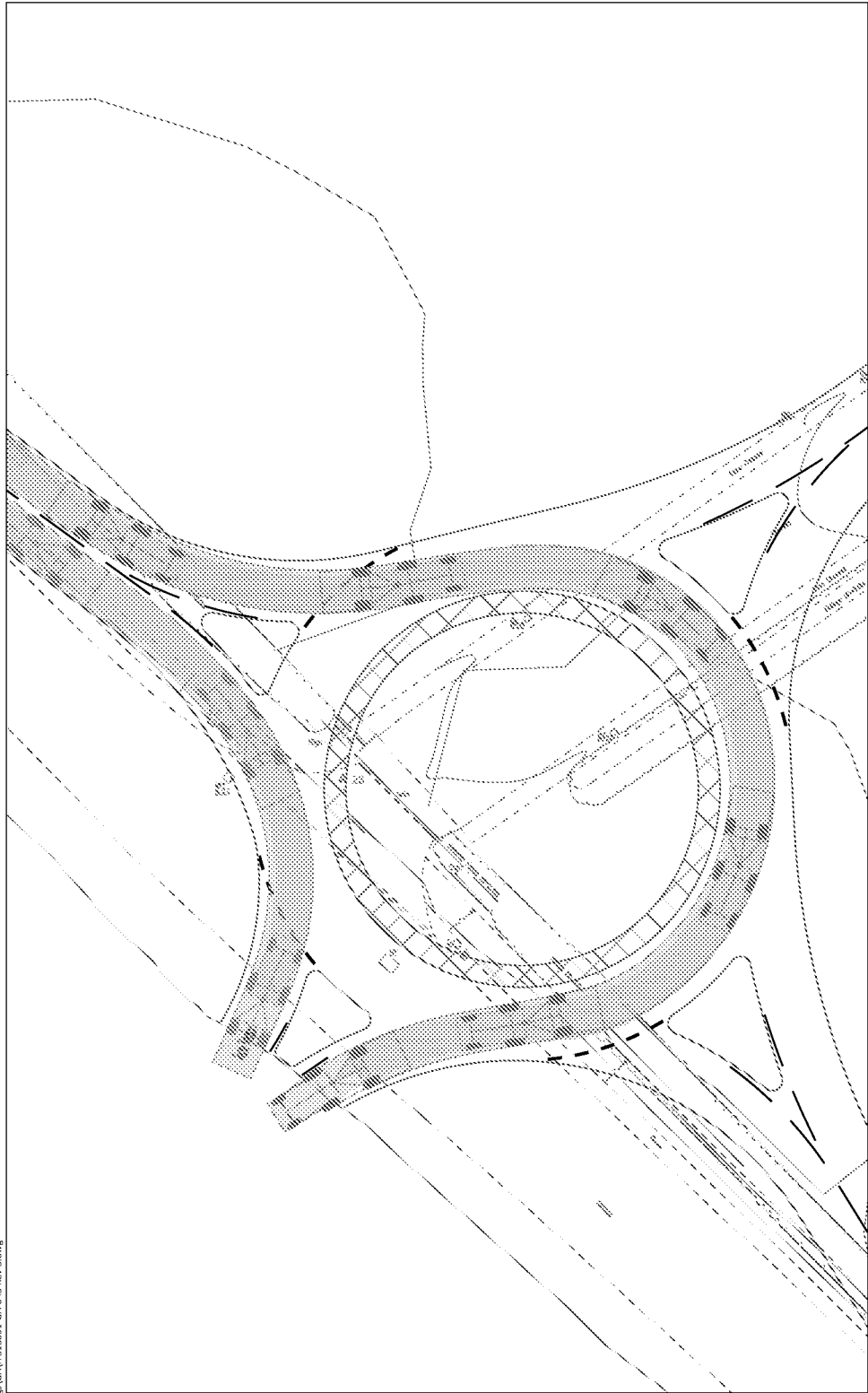
DRAWINGS



 Grove House, Lutyens Close, Chineham Basingstoke, Hampshire, RG24 8AG Tel: 01256 338640 Fax: 01256 338644 www.i-transport.co.uk							TITLE:		POTENTIAL SOUTHERN VEHICULAR ACCESS FROM YAPTON ROAD		SCALE @ A3: 1:1000	CHECKED: DS	APPROVED: BH
	E	10.09.19	SH	ROUNDAABOUT ICD REVISED	DS	DS	PROJECT:		FORD AIRFIELD, WEST SUSSEX	REDROW HOMES LIMITED & WATES DEVELOPMENTS LIMITED	FILE REF: ITB13091	DRAWN: PH	DATE: 29.03.18
	REV	DATE	BY	DESCRIPTION	CHK	APD	DRAWING No:				ITB13091-GA -001		
	STATUS:						PROJECT No:				ITB13091		REV: E
	FOR INFORMATION												

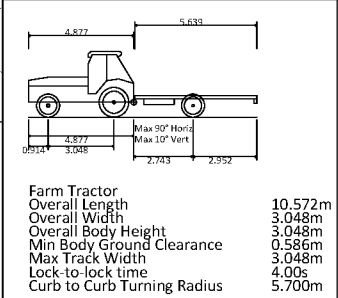
T:\Projects\13000 Series\13091 ITB Ford Airfield\Tech\Acad\I-Transport Drawings\Working Drawings\GA\ITB13091-GA-001 Rev E.dwg

T:\Projects\13000 Series\1301175 Ford Airfield\Tech\Acad\Transport Drawings\Working Drawings\GA\ITB13091-GA-043 Rev 2.dwg



REPRODUCED FROM THE ORDNANCE SURVEY
MAP WITH THE PERMISSION OF THE
CONTROLLER OF HER MAJESTY'S STATIONERY
OFFICE. LICENCE No. 100044286.
© CROWN COPYRIGHT RESERVED.

DRAWING ISSUED FOR FEASIBILITY CONSIDERATION AND PLANNING PURPOSES ONLY.
DRAWING NOT TO BE USED FOR CONSTRUCTION. I-TRANSPORT LLP ACCEPT NO RESPONSIBILITY
FOR ERRORS MADE BY OTHERS IN SCALING FROM THIS DRAWING. MEASUREMENTS SHOULD BE
TAKEN FROM FIGURED DIMENSIONS ONLY. CDM REQUIREMENTS CONSIDERED AT FEASIBILITY
STAGE ONLY. FURTHER CONSIDERATION REQUIRED BY DETAILED DESIGN TEAM.



 Grove House, Lutyens Close, Chineham Basingstoke, Hampshire, RG24 8AG www.i-transport.co.uk							TITLE: SWEPT PATH ANALYSIS - FARM TRACTOR & TRAILER		DRAWN: SH	CHECKED: DS	APPROVED: DS
	B A	21.10.19 05.06.19	SH SH	HIGHWAY ALIGNMENT REVISED FIELD ACCESS REVISED	DS DS	DS DS			PROJECT No: ITB13091	SCALE @ A3: 1:500	DATE: 16.05.19
	REV	DATE	BY	DESCRIPTION	CHK	APD	PROJECT: FORD AIRFIELD	CLIENT: REDROW HOMES & WATES DEVELOPMENTS LIMITED	DRAWING No: ITB13091-GA-043		REV: B
	STATUS: FOR INFORMATION										