

Elettra Avenue, Waterlooville

Transport Assessment

On behalf of **Bridgehouse (Bradford IoM) Limited**

Project Ref: 29169 | Rev: - | Date: September 2013



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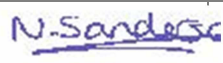
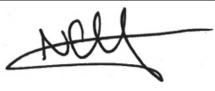
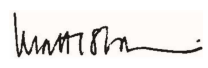
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1 Introduction

1.1 Background

- 1.1.1 This Transport Assessment Report (TAR) has been prepared by Peter Brett Associates LLP (PBA) on behalf of Bridgehouse (Bradford IOM) Limited to accompany an outline planning application, all matters reserved except access for the proposed mixed use development at the former BAE site, Elettra Avenue, Waterlooville.
- 1.1.2 A Framework Travel Plan (FTP) has also been prepared and submitted by PBA under separate cover and should be read in conjunction with this TAR.
- 1.1.3 The transport strategy outlined in this TAR has been developed around a balanced and integrated package of measures which seek to enhance movement by alternative modes to the car and to support the sustainable development of the site.

1.2 Planning and Development Background

- 1.2.1 Planning consent was granted at the former BAE site in 1982 for 28,300m² of light industrial, and research and development uses with ancillary buildings. The consent was implemented generally as approved and remains largely unchanged today.
- 1.2.2 The uses on site included:
 - Main Building (also referred to as C-block): 19,498sqm of B1b land use which is currently largely unoccupied;
 - Restaurant: 973sqm of ancillary use that is not currently operational but historically catered for employees on site; and
 - Parking areas associated with the above.
- 1.2.3 Over recent years a significant proportion of the site has become surplus to operational requirements leaving much of the buildings unoccupied.
- 1.2.4 In 2012 a planning application (APP/12/00652) was submitted by BAE Systems, supported by a Transport Assessment (PBA, June 2012) and Framework Travel Plan (PBA, September 2012) for the following land uses:
 - Multiple buildings delivering 9,085sqm of Class B uses;
 - A 60-bedroom hotel;
 - A 685sqm restaurant in the south-east of the site;
 - A 300sqm restaurant with drive-through facility in the north-east of the development; and
 - A 1,020sqm car showroom and forecourt to the east of the access from Elettra Avenue from the north.
- 1.2.5 In addition, the following existing uses on site were retained, and were excluded from the development proposals:
 - Retained Existing Land Uses:

- E-Block: 6,726sqm of B1c land use; and
- Beam Plot: 927sqm of B1c land use.

1.2.6 Planning consent was subsequently granted for the BAE development proposals, however, following extensive site marketing an alternative mix of uses is now being sought by Bridgehouse (Bradford IOM) Limited, this TAR examines this revised development proposals.

1.3 Development Proposals

1.3.1 Bridgehouse (Bradford IOM) Limited is seeking outline planning permission to redevelop the site with the following mix of uses:

- A discount foodstore (1,532sqm of which 1,125sqm is net sales area);
- 20 lane bowling alley (approx. 2,320sqm) within the converted existing E-Block;
- A gym (approx. 1,720sqm) within the converted existing E-Block;
- An 8 screen cinema (approx. 3,250sqm);
- A 60-bedroom budget hotel;
- A restaurant with drive-through facility (approx. 335sqm);
- A public house (approx. 555sqm);
- Four restaurants (approx. 370sqm for each restaurant); and
- Associated access and parking provisions.

1.3.2 The land uses outlined above will be provided in addition to the retained land uses:

- Beam Plot: 927sqm of B1c land use.

1.3.3 A copy of the proposed masterplan is enclosed at **Appendix A**.

1.4 Scoping of the Transport Assessment

1.4.1 This TAR has been prepared in accordance with advice set out within 'Guidance on Transport Assessment' (GTA) (Department for Transport, March 2007), and accordingly it seeks to address the following key issues:

- Reducing the need to travel, especially by car;
- Sustainable accessibility;
- Dealing with residual trips; and
- Mitigation measures.

1.4.2 GTA advises that a Transport Assessment should help Local Planning Authorities assess the compatibility of a development proposal with relevant planning policy framework, usually the Local Development Framework and relevant transport strategy, usually the Local Transport Plan.

- 1.4.3 It should also allow the transport implications of the proposed development to be properly considered and help identify suitable measures to achieve a more sustainable and environmentally sound outcome.
- 1.4.4 The scope of this TAR is consistent with the approach adopted for the 2012 BAE planning application as reported within the associated Transport Assessment (PBA, June 2012).
- 1.4.5 PBA have undertaken limited consultation with Hampshire County Council (HCC) and Havant Borough Council (HBC) pre-submission due to time constraints; however this TAR has sought to appropriately respond to the matters raised at the time of the 2012 BAE planning application submission and subsequent determination.

1.5 Aims of the Transport Assessment

- 1.5.1 The purpose of the TAR is to demonstrate that:
- The development proposals conform with national and local transport policy;
 - The site is well located in respect of local facilities and amenities and is accessible by pedestrians and cyclists via an extensive network of local pedestrian and cycle routes;
 - The site is accessible by public transport from a range of destinations primarily by local bus services and also through interchange with rail services;
 - Appropriate mitigation measures have been identified to address the residual impacts of the development proposals on the transport network, including measures detailed within the FTP prepared under separate cover; and
 - There are no material transport reasons why the principle of development proposals should not be approved.
- 1.5.2 This TAR presents a comprehensive assessment of the transport implications of the development proposals and outlines a package of measures identified to mitigate the development impact on the local transport network, with a focus on encouraging sustainable travel choices. The developer will be responsible for securing the implementation of these measures.

1.6 Contents of the Transport Assessment

- **Section 2** sets out a review of transport policy relevant to the site;
- **Section 3** provides a description of the site in its strategic and local context with regard to access to existing local facilities and amenities, pedestrian, cycle and public transport facilities. This section also contains a review of local Personal Injury Collision data and a review of committed local development sites;
- **Section 4** provides a description of the development proposals;
- **Section 5** sets out the travel demand in relation to the existing site and the development proposals, and provides detailed analysis of predicted person and vehicle trip generation;
- **Section 6** sets out the transport strategy for the proposed development, considering access and movement to and from the site for pedestrians, cyclists, public transport and vehicular traffic. Vehicular and cycle parking provision is also considered within this section;

- **Section 7** considers the residual transport impacts of the proposed development. Information on committed development traffic, development traffic generation and distribution, the proportional impact and detailed junction capacity assessments are presented;
- **Section 8** considers the mitigation measures proposed as part of this TAR; and
- **Section 9** presents the conclusions of this TAR.

2 Policy Review

2.1 Introduction

- 2.1.1 Transport policy is detailed within a comprehensive national and local planning and transport policy framework. This section of the TAR provides a review of the planning policy context relevant to transport in the area around the site.

2.2 National Policy Guidance

National Planning Policy Framework (March 2012)

- 2.2.1 The National Planning Policy Framework (NPPF) is the government's fundamental policy instrument to guide delivery of development and infrastructure.
- 2.2.2 Achieving and delivering sustainable development is at the heart of the NPPF. Underlying this is the motivation to build a strong, competitive economy. In accordance with this, *"planning should operate to encourage and not act as an impediment to sustainable growth"* (paragraph. 9).
- 2.2.3 The NPPF recognises that sustainable transport is key to facilitating sustainable development. It is however recognised that policies and measures to maximise sustainable transport solutions need to be location-specific.
- 2.2.4 A core planning principle of the NPPF is to manage patterns of growth to make *"the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable"* (paragraph. 17).
- 2.2.5 Developments should seek to exploit all site-specific opportunities for the use of sustainable modes to reduce the need for major transport infrastructure and to limit the impact of the development on the transport network.
- 2.2.6 Additionally, developments should be located where the need to travel will be minimised and a Travel Plan is required of all developments which generate significant amounts of traffic.

2.3 Local Policy Guidance

Hampshire Local Transport Plan (2011-2031)

- 2.3.1 The third Hampshire Local Transport Plan (LTP3) sets out the highway authority's detailed policies and proposals for developing an integrated transport strategy from 2011 to 2031. LTP3 comprises of two parts, the first is the 20-year strategy and the second is a three-year implementation plan which runs until March 2014.
- 2.3.2 LTP3 is a step towards realising the County's vision of *"safe, efficient and reliable ways to get around a prospering and sustainable Hampshire"*.
- 2.3.3 Hampshire has three main transport priorities over the next 20 years:
- To support economic growth by ensuring the safety, soundness and efficiency of the transport network in Hampshire;
 - Provide a safe, well-maintained, and more resilient road network in Hampshire; and
 - Manage traffic to maximise the efficiency of existing network capacity.

- 2.3.4 Overlaying these priorities are fourteen policy objectives covering the areas of the economy, traffic management, public transport, quality of life and growth areas.
- 2.3.5 To monitor the progress towards meeting the LTP3 priorities and objectives indicators and targets have been set. These cover the areas of management, maintenance and provision of transport infrastructure and sustainable transport. Relevant to the BAE development are the following targets and indicators:
- **Road safety:** to reduce the number of people killed or seriously injured in road traffic accidents on Hampshire's roads by 20% from the 2004 to 2008 average by 2020. To reduce the number of children killed or seriously injured in road traffic accidents on Hampshire's roads by 20% from the 2004 to 2008 average by 2020;
 - **Level of congestion at local priority sites:** to address issues within local priority areas with congestion using a programme of practical interventions;
 - **Reduce Carbon Emissions;**
 - **Increase public transport usage;** and
 - **Good local accessibility:** to reduce the need to travel in terms of trip length and frequency.
- 2.3.6 Additionally, the area of Waterlooville is covered by the South Hampshire Joint Strategy. The transport vision for South Hampshire is to create:
- "A resilient, cost effective, fully-integrated sub-regional transport network, enabling economic growth whilst protecting and enhancing health, quality of life and environment"*
- 2.3.7 In order to deliver this vision, seven key outcomes have been identified each of which have their associated policies:
- Reduced dependence on the private car;
 - Improved awareness of the different travel options available;
 - Improved journey time reliability;
 - Improved road safety;
 - Improved accessibility within and beyond South Hampshire;
 - Improved air quality and environment and reduced greenhouse gas emissions; and
 - Promoting a higher quality of life.

Shaping our Future Together, Hampshire Sustainable Community Strategy 2008-2018

- 2.3.8 This document sets out how HCC and its partners will achieve the vision that *"Hampshire continues to prosper, providing greater opportunity for all without risking the environment."*
- 2.3.9 Regarding traffic growth, it is recognised that increasing road capacity is neither economically feasible nor environmentally desirable as the only means to tackling congestion. It is stressed that plans must be put in place to reduce the need to travel and to use the transport system more intelligently. Additionally, service reliability and availability are stressed as key to encouraging public transport use in the future.

- 2.3.10 Set out as a strategy ambition is the need for infrastructure, including transport infrastructure, to be developed to support economic growth whilst protecting the environment and quality of life.

Havant Core Strategy (March 2011)

- 2.3.11 The Core Strategy was adopted in March 2011 and is the principal document in Havant Borough Council's Local Development Framework. The Core Strategy outlines the Council's vision for the spatial development of the borough up to 2026 setting out policies and objectives at a strategic level.
- 2.3.12 The Core Strategy states that improved public transport is an important aspiration for the future of the area of Waterlooville which is separated by the rest of the borough by the A3(M). The Major Development Area (MDA) planned directly to the west of Waterlooville is identified as one of five strategic sites in the borough. The Core Strategy states that the MDA, which runs directly adjacent to the site, must be sustainable and integrated with the existing community and town centre.
- 2.3.13 PBA understands that planning consent for the MDA was granted in March 2011; a comprehensive package of associated transport proposals was identified to integrate the development proposal with the local community and to promote access by sustainable modes.
- 2.3.14 The Vision for Havant Borough in 2026 is for it to be a cleaner, safer and more prosperous place which will be delivered through the Core Strategy policies. One policy in particular is relevant to the transport aspect of the proposals at the BAE site:
- Policy CS20, Transport and Access Strategy, states that a development will be permitted that meets the following criteria:
 - Is consistent with the 'Reduce, Manage and Invest¹' strategy;
 - Does not increase congestion and promotes better use of existing transport networks;
 - Improves accessibility to goods, services and employment and promotes equality in the transport system;
 - Provides transport management measures to ensure the safe and efficient operation of the strategic and local road network;
 - Ensures that highway design responds positively to the characteristics of the area and delivers a high quality public realm for all users;
 - Maintains or improves the range of transport modes accessible to the users of the development site with specific emphasis on public transport and includes walking and cycling where appropriate; and
 - Improves highway, cycling and pedestrian links between the western built up area of the borough (Waterlooville) and the eastern area of the borough (centred on Havant) to create a strong east/west communication axis that passes through Dunsbury Hill Farm/Leigh Park.

¹ The Reduce, Manage and Invest strategy is to deliver efficiency through better use of existing infrastructure; reducing demand by promoting behavioural change and providing additional capacity by extending or providing new infrastructure (Havant Core Strategy, March 2011, para 9.01)

2.4 Summary

- 2.4.1 It is evident from review of the transport policy context that there is an underlying requirement to deliver sustainable development supported by an integrated transport network prioritising movement by walking, cycling and public transport.
- 2.4.2 This TAR demonstrates that the development proposals will comply with this policy context.

3 Existing Conditions

3.1 Introduction

- 3.1.1 This section of the TAR considers the existing transport conditions providing details in respect of site location; access to local facilities and amenities; and the local transport network, including a review of local Personal Injury Collision (PIC) data. Additionally, details in respect of local committed development proposals are also provided.

3.2 Site Location and Access

- 3.2.1 The site is situated within the Brambles Business Park to the west of Waterlooville town centre. Waterlooville is approximately 1 mile west of the A3(M) and 5 miles north of Portsmouth.
- 3.2.2 The A3(M) provides the primary link to the A27 to the south, which in turn connects with the M27. The A27 and M27 provide access along the South Coast to the east and west.
- 3.2.3 Approximately 3 miles to the north of Waterlooville, the A3(M) joins the A3 providing access to the north.
- 3.2.4 The location of the site in its strategic context is illustrated within **Figure 3.1**.
- 3.2.5 Access to the wider Brambles Business Park is provided off the B2150 Hambledon Road via the B2150 Hambledon Road / Milton Road / Elettra Avenue (all moves) roundabout or the Hambledon Road / Silverthorne Way (left-in / left-out) priority junction.
- 3.2.6 The primary means of access to the site is provided off Elettra Avenue via the Elettra Avenue / Waterberry Drive / BAE site access roundabout as illustrated in **Figure 3.2**.
- 3.2.7 Pedestrian and cycle access is provided via a pedestrian and cycle route approximately 2.0m wide along the south west kerb line of the Elettra Avenue / Waterberry Drive / BAE site access roundabout.
- 3.2.8 A secondary pedestrian and cycle access is also provided off Silverthorne Way to the south of the site via a gated access which also serves as an emergency vehicular access. There is no footway provision along the northern kerb line of Silverthorne Way, however, an informal crossing point with tactile paving is provided to link up with the footway provided along the southern kerb line of Silverthorne Way.

3.3 Local Facilities and Amenities

- 3.3.1 **Figure 3.3** illustrates the location of local facilities and amenities, demonstrating that there exists a wide range of retail, employment and health opportunities within close proximity of the site.

Town Centre

- 3.3.2 Waterlooville town centre is located within 1km of the site, providing a wide range of facilities and amenities including various retail outlets, ASDA and Waitrose supermarkets, banks, cafes, public houses, post office, dentist and pharmacies.

Local Centres

- 3.3.3 There are two local centres located within close proximity to the site:

- Hambledon Parade (Local Centre 1), located off the B2150 Hambledon Road within 1km of the site, accommodates:
 - A convenience store and post office;
 - An off-licence;
 - Restaurant;
 - Butchers;
 - Beauty salon;
 - Swimming shop;
 - Public house;
 - Take-away outlets; and
 - Sandwich shop.
- Milton Parade (Local Centre 2), located off Milton Road within 1.2km of the site, accommodates:
 - A food store;
 - Pharmacy;
 - Florist;
 - Beauty salon;
 - Public house; and
 - Take-away outlets.

Retail

- Wellington Retail Park is located to the south east of the Brambles Business Park off Maurepas Way and the B2150 Hambledon Road, accommodating:
 - A Halfords store;
 - TK Maxx;
 - Argos;
 - Matalan; and
 - Other major retail brands.

Leisure

- Horizon Leisure Centre is located in Brambles Business Park off Waterberry Drive, approximately 200m from the site.

Health

- 3.3.4 The WaterlooVille Health Centre is located on Dryden Close off Milton Road approximately 1km to the east of the site. Additionally, Forest End Surgery is located on Forest End, off Maurepas Way approximately 1.2km to the south of the site.
- 3.3.5 In addition to dentists within WaterlooVille town centre, a further dentist is located off London Road, approximately 1.4km east of the site.

3.4 Walking and Cycling

- 3.4.1 The Brambles Business Park and adjacent local community is served by an extensive network of formal footways with street lighting.
- 3.4.2 Additionally, **Figure 3.3** illustrates the primary pedestrian and cycle routes local to the site as observed by PBA during a site visit on 25th May 2012. As illustrated there is an extensive network of primary walk and cycle routes offering connections to local residential areas and WaterlooVille town centre.
- 3.4.3 Existing off-road pedestrian and cycle routes are provided on both sides of Elettra Avenue providing good links into/out of Brambles Business Park and the site.
- 3.4.4 The off-road pedestrian and cycle route adjacent to the southern carriageway of Elettra Avenue continues in a southerly direction adjacent to the southern carriageway of Hambledon Road all the way through to the toucan crossing north of the Maurepas Way / A3 London Road / Rockville Drive roundabout; this crossing provides for access into to the town centre.
- 3.4.5 The town centre can also be accessed more directly via the signalised crossing at the B2150 Hambledon Road / Aston Road junction which provides a connection to the off-road pedestrian and cycle route that runs through the Wellington Retail Park connecting to WaterlooVille town centre via a subway.
- 3.4.6 The pedestrian and cycle route adjacent to the northern carriageway of Elettra Avenue provides a link to the residential areas accessed off Milton Road via the signalised crossing to the north of the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout.
- 3.4.7 Elettra Avenue also provides a connection from the site to the Horizon Leisure Centre located in Brambles Business Park via an informal crossing on Elettra Avenue.
- 3.4.8 The existing network provides extensive pedestrian and cycle infrastructure connecting the BAE site to WaterlooVille town centre and surrounding residential areas to the east.
- 3.4.9 On-site observations indicate that pedestrian and cycle routes are typically well signed, although directional signing to the town centre could be improved to help pedestrians and cyclists identify the most direct route.

Accessibility Modelling

- 3.4.10 Accessibility modelling to assess the site has been undertaken using GeoConcept for pedestrians and cyclists. As standard the pedestrian walk isochrones and cycle isochrones have been based on walk and cycle speeds of 5km per hour (3mph) and 16km per hour (10mph) respectively. **Figure 3.4** illustrates walk isochrones whilst **Figure 3.5** illustrates cycle isochrones from the site, confirming that:
- Brambles Business Park including Horizon Leisure Centre and Hambledon Road including the local bus stops (see **Section 3.5**) are within a 5 minute walk or cycle;

- Wellington Retail Park is within a 10 minute walk or 5 minute cycle;
- Waterlooville town centre is within a 20 minute walk and 5-10 minute cycle;
- Both local centres, Waterlooville Health Centre and Forest End Surgery are within a 10-20 minute walk and a 5-10 minute cycle;
- Much of the residential area of Waterlooville is within a 30 minute walk and 10 minute cycle;
- The wider area, including Waterlooville, Horndean, Denmead and Purbrook, are accessible within a 20 minute cycle; and
- Havant, Bedhampton and Cosham train stations are all within a 30 minute cycle.

National Travel Statistics 2010

- 3.4.11 *The National Travel Survey 2010* (Table NTS0306) identifies that the average trip length by walking is 0.7 miles (1.1km) and by bicycle is 2.8 miles (4.5km). Adopting the same walk and cycle speeds considered above, this equates to a 13 minute walk time and 10 minute cycle time.
- 3.4.12 These statistics suggest that in view of the general accessibility of the site future development related trips to the majority of the local facilities and services could reasonably be expected to be undertaken on foot or by cycle, except where car use is an obvious prerequisite or indeed the reason for the trip.

3.5 Public Transport

- 3.5.1 **Figure 3.6** illustrates the existing network of bus routes local to the site. Local bus services operate close to the site along Hambledon Road and also serve the Brambles Business Park directly via Waterberry Drive.

- 3.5.2 The following services currently operate close to the site as shown in **Table 3.1**:

Table 3.1: Existing Bus Services

Service/ Operator	Route	Frequency	
		Mon – Sat	Eve & Sun
39 Stagecoach	Wecock Farm – Waterlooville – Crookhorn – Asda – Havant	13 mins	20-40 mins eve; 60 mins Sun
7 First	Wecock Farm – Waterlooville – Crookhorn – Cosham – Hilsea – Southsea	8-10 mins	30 mins eve; 20-30 mins Sun
300 Emsworth & District	Denmead – Waterlooville – Wecock Farm – Horndean – Rowlands Castle – Emsworth – Southbourne – Chichester	1 journey Mon-Fri	No Service
8/8X	Gunwharf- City Centre- Cosham- Waterlooville-Cowplain-Clanfield	15-20 mins	30 mins eve. 20 mins Sun

Service/ Operator	Route	Frequency	
X9	Gunwharf-City Centre-Cosham QA Hops-Waterlooville-Hambledon/ Denmead	15-30 mins	No service eve; no Sun service

3.5.3 All of the above bus services currently serve stops close to the B2150 Hambledon Road / Milton Road roundabout. There are three stops in the immediate vicinity of the site:

- B2150 Hambledon Road (southbound) approximately 320m from the site to the south of the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout served by services 39,7, X9 and 300;
- B2150 Hambledon Road (northbound) approximately 340m from the site to the north of the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout served by service 300; and
- Milton Road (north-eastbound) approximately 400m from the site, north-eastbound to the east of the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout served by services X9, 39, 7 and 300.

3.5.4 Bus lay-bys and bus shelters are provided at both the B2150 Hambledon Road bus stops, the southbound bus stop provides service information and timetables, at the time of our site visit no service information was provided at the northbound bus stop.

3.5.5 A bus flag with service information and timetable was provided at the Milton Road stop.

3.5.6 The site is well connected to major local destinations with 10 buses per hour to Waterlooville town centre, 4 per hour to Portsmouth and Southsea and 4 per hour to Havant. Residential areas in the immediate vicinity also have a good level of service to the BAE site.

3.5.7 Additional bus services operate to Waterlooville Precinct, approximately 1km from the site. These include First's 'Zip' branded route 8/8X which provides a 15 minute frequency 'rapid transit' style service between Clanfield, Waterlooville and Portsmouth, and Stagecoach service 37 which provides an hourly link to Havant and Petersfield (and two hourly on to Alton).

3.5.8 Therefore at present, the site has excellent bus connections to Waterlooville town centre, Havant, Portsmouth, Southsea, Denmead, and wider residential areas in the south-east Hampshire area.

3.5.9 There are three railway stations locally accessible to Waterlooville although not located in Waterlooville itself. These are Bedhampton, Havant and Cosham which are located approximately 4.6km, 5.3km and 5.1km from the site respectively. Trains serving these stations provide direct links to destinations including Portsmouth, Chichester, Littlehampton, Worthing, Hove and Brighton.

3.5.10 Cosham train station is accessible via bus service 40 which operates close to the site.

Accessibility Modelling

3.5.11 Accessibility modelling has been undertaken to assess the accessibility of the site by local bus services. Accession software has been used to generate bus isochrones based on the following criteria:

- 400m access to bus stops from the site;

- 50m interchange distance allowed when changing services;
- A walk distance factor of 1.2 has been adopted to compensate for the fact that it is not generally possible to walk in an 'as-the-crow-flies' line to a bus stop; and
- The isochrones represent travel time and accessibility between 07:00 and 09:00 on a Monday, to represent normal peak hour accessibility.

3.5.12 **Figure 3.7** illustrates bus isochrones from the site, demonstrating that Waterlooville town centre is accessible within a 10 minute bus journey. Purbrook to the south, and Denmead and Horndean to the north are accessible within a 20 minutes bus journey.

3.5.13 Looking across a wider area, the northern part of Portsmouth is accessible within 40 minutes with the majority of Portsmouth and parts of Hayling Island and Fareham accessible within a 50-60 minute bus journey.

3.5.14 This analysis confirms that a large area serving a number of key local destinations is accessible within a 60 minute bus journey of the site.

3.6 Local Highway Network

3.6.1 The site is located to the west of Waterlooville and accessed via the Elettra Avenue / Waterberry Drive / BAE site access roundabout to the north of the site. This roundabout provides connection to the B2150 Hambledon Road via the roundabout with Elettra Avenue / Milton Road located approximately 100m to the east.

3.6.2 Elettra Avenue, between the Elettra Avenue / Waterberry Drive / site access roundabout and B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout, is a 10m wide carriageway with three lanes. In both the eastbound and westbound direction, a single exit lane is provided from each roundabout which flares to two lanes on the approach to the next roundabout.

3.6.3 Elettra Avenue continues west of roundabout with Waterberry Drive / site access as a single carriageway approximately 7m wide. Elettra Avenue is subject to a 30mph speed limit.

3.6.4 The B2150 Hambledon Road runs adjacent to the eastern boundary of the site and provides a key strategic link via connections with the A3(M), to the east of Waterlooville, which provides further connections to the A27 and M27.

3.6.5 The B2150 Hambledon Road to the north of the roundabout with Elettra Avenue / Milton Road is a single carriageway approximately 7.3m in width and subject to a 30mph speed limit.

3.6.6 The B2150 Hambledon Road to the south of the roundabout with Milton Road / Elettra Avenue is a dual carriageway of approximately 7.3m width in each direction and subject to a 40mph speed limit.

3.6.7 Manual traffic surveys were undertaken at two local junctions: Elettra Avenue / Waterberry Drive / site access roundabout and the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout. The surveys were undertaken by Community Systems Ltd (CSL) on behalf of PBA on Thursday 26th April 2012 between the hours of 07.00-10.00 and 16.00-19.00. Further details of the surveys are contained in **Section 7**.

3.6.8 Vehicle speeds were recorded by an ATC survey (also undertaken by CSL on April 26th 2012) on B2150 Hambledon Road to the south of the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout. The 85th percentile northbound speed was recorded as 39.1 mph and southbound as 39.0mph.

3.7 Personal Injury Collision Data (PIC)

- 3.7.1 PIC data was obtained from the Hampshire Constabulary and analysis has been undertaken for a three year period (2009/10 – 2011/12). A copy of the raw data is provided within **Appendix B**.
- 3.7.2 **Figure 3.8** illustrates the study area assessed, the location of each accident and its severity. The figure should be viewed in conjunction with the full PIC report (provided in **Appendix B**), which sets out each collision in detail.
- 3.7.3 Over the three year period, there were a total of 56 collisions within the study area. Of these, 40 were listed as 'slight' in severity and 10 as 'severe'. There were no fatalities.
- 3.7.4 Of the 56 collisions, a total of 13 collisions involved vulnerable road users; for this review vulnerable users have been classed as pedestrians and cyclists, 9 collisions were listed as 'slight' in severity and 4 as 'serious'.
- 3.7.5 Our detailed review has focused on the following locations along the B2150 Hambledon Road Corridor that runs adjacent to the site boundary:
- B2150 Hambledon Road / Hambledon Parade Junction;
 - B2150 Hambledon Road / Milton Road / Elettra Avenue Roundabout Junction;
 - Elettra Avenue / Waterberry Drive / BAE site access Roundabout Junction;
 - B2150 Hambledon Road / Ashton Road Junction; and
 - B2150 Hambledon Road / Maurepas Way Roundabout Junction.

B2150 Hambledon Road / Hambledon Parade Junction

- 3.7.6 Five collisions were recorded at this location; all collisions were listed as 'slight' in severity, with 1 collision involving a vulnerable road user (cyclist). The vulnerable road user collision occurred as the cyclist rode into the back of an unattended parked car.
- 3.7.7 Of the remaining 4 collisions, one occurred as the driver failed to look and cut across a motorbike as they turned into Hambledon Parade; one occurred when a vehicle, waiting to turn out of Hambledon Parade alongside a van, failed to see a vehicle on the main carriageway with which it collided. The remaining 2 collisions were due to rear shunts.

B2150 Hambledon Road / Milton Road / Elettra Avenue Roundabout Junction

- 3.7.8 Eight collisions were recorded at this location: all collisions were listed as 'slight' in severity, with 1 collision involving a vulnerable road user (cyclist). The vulnerable road user collision occurred as car driver entered the roundabout from the north and collided with the cyclist on the roundabout. The cause of collision was recorded as the driver's failure to look properly.
- 3.7.9 Of the remaining 7 collisions at the roundabout, the cause of 6 were listed as the drivers' failure to look properly; 3 collisions occurred as drivers failed to see traffic queuing and 3 occurred due to drivers failing to give-way to vehicles on the roundabout. The remaining accident occurred on a bus when a chair dislodged under braking and hit a passenger.

Elettra Avenue / Waterberry Drive / BAE Site Access Roundabout Junction

- 3.7.10 One collision was recorded at this location which occurred when a van approaching Elettra Avenue from Waterberry Avenue collided with the back of a car; the cause of collision was recorded as careless/reckless driving.

B2150 Hambledon Road / Aston Road Junction

- 3.7.11 Three collisions were recorded at this location, none of which involved a vulnerable road user. However, one collision was 'serious' which occurred when a motorbike disobeyed a red signal and collided with a van turning right into Aston Road.
- 3.7.12 Of the remaining two collisions at the roundabout, one was also due to the disobeying of a red signal and the other when the driver's foot slipped off the brake and hit a stationary vehicle in front.

B2150 Hambledon Road / Maurepas Way Roundabout Junction

- 3.7.13 Six collisions were recorded at this location, of these 3 were recorded as 'serious' with 2 involving cyclists. One collision involving a cyclist occurred when a car tried to overtake a cyclist on the roundabout and struck the cyclist; the other occurred as a car entered the roundabout and failed to look properly and struck the cyclist on the roundabout. The other serious accident occurred when an inexperienced motorcyclist lost control and struck a kerb.
- 3.7.14 The 3 remaining slight collisions occurred when a car driver failed to look properly and struck a motorbike on the roundabout; a taxi driver braked hard causing his passenger to hit his head; and due to a rear shunt.

PIC Data Summary

- 3.7.15 Analysis of PIC data over a three year period identified a total of 56 collisions within the study area. Of these, 40 were listed as 'slight' in severity and 10 as 'severe'. There were no fatalities.
- 3.7.16 Analysis of PIC data for the Elettra Avenue / Waterberry Drive / BAE site access roundabout detailed above confirms that there is no historical record of safety issues.
- 3.7.17 Across the wider area, analysis of PIC data indicates that collisions with vulnerable road users show 'human error' to be the cause – i.e. failing to look properly, misjudging speed/distance, being distracted, or ignoring road markings/traffic signals.
- 3.7.18 The B2150 Hambledon Road / Aston Road signalised junction will be improved as part of the committed development proposals (as considered further in **Section 3.8**) within the local area which it is anticipated will help reduce historical accidents at this junction.
- 3.7.19 In summary there does not appear to be any local safety concerns or inherent highway design problems that would preclude of the development proposals.

3.8 Committed Development

- 3.8.1 There are three committed developments that specifically warrant consideration as part of this TAR, these developments are:

- Sainsbury's, Hambledon Road; and

- West of Waterloooville MDA which comprises of:
 - Taylor Wimpey 'Wellington Park', and
 - Newlands Common.

3.8.2 **Figure 3.9** illustrates the location of these sites which are considered in more detail below.

Sainsbury's Hambledon Road

- Application no: APP/10/00793;
- Application Received: 22nd October 2010; and
- Application Approved: 22nd December 2011.

3.8.3 The Sainsbury's development is located off Hambledon Road, and will involve the redevelopment of former industrial land.

3.8.4 The Sainsbury's development will consist of a food retail building with a Gross Floor Area (GFA) of 7,745sqm, a six pump petrol filling station with associated kiosk facilities and 438 car parking spaces.

3.8.5 The site will be accessed via the B2150 Hambledon Road/Aston Road signalised junction.

West of Waterloooville Major Development Area (MDA)

3.8.6 The Havant & Winchester Local Plans required a development of mixed use new community comprising at least 2,000 dwellings, 30 hectares of employment land and associated physical and social infrastructure.

3.8.7 Two planning permissions have been granted for the MDA site:

- Taylor Wimpey 'Wellington Park', and
- Newlands Common.

Taylor Wimpey

- Application no.: 05/40000/000;
- Application Received: 7th March 2005;
- Application Revised: 24th April 2006; and
- Application Approved: 4th January 2008.

3.8.8 The Taylor Wimpey development is located within the northern area of the MDA site, north of Brambles Business Park. The site is also referred to as Old Park Farm.

3.8.9 The Taylor Wimpey Transport Assessment Report, November 2004, states that the development is for 474 residential dwellings, 7.7 ha of employment and 2.8 ha of mixed use land. However, the Transport Assessment Addendum Report, March 2006, states the development is for 474 residential dwellings, 7.10 ha of employment and 2.46 ha of mixed use land.

- 3.8.10 The Taylor Wimpey site is currently under construction with a number of units occupied, access is provided directly off the B2150 Hambledon Road.

Newlands Common

- Application no.: APP/10/00828;
 - Application Received: November 2010; and
 - Application Approved: March 2011.
- 3.8.11 The Newlands Common development is located within the remainder of the MDA site (Plant Farm), to the west and south of Brambles Business Park.
- 3.8.12 The Newlands development is for around 2,650 residential dwellings, 19.25ha of employment land a local community centre, healthcare and elderly care facilities, two primary schools and a nursery.
- 3.8.13 The primary access is provided directly off the B2150 Hambledon Road / A3 Maurepas Way Roundabout and the site is currently under construction. The proposed internal road network provides a link to the proposed Taylor Wimpey site.

Committed Development Transport Proposals

- 3.8.14 A review of available information for the committed development sites has been undertaken. Transport Assessment Reports and Travel Plans, where prepared, were sourced for each development, although copies of the Section 106/278 documents were not readily available and therefore the final transport proposals could not be confirmed.
- 3.8.15 From review of the available documents the key transport proposals of relevance to the site include;
- Improvements to the B2150 Hambledon Road / Aston Road signalised junction;
 - New surface crossing of Maurepas Way and pedestrian ramp to provide a Disability Discrimination Act compliant pedestrian link to the town centre at the location of the existing subway to the south of Wellington Retail Park;
 - Possible pedestrian and cycle link on Maurepas Way approximately 100m south of the B2150 Hambledon Road / A3 Maurepas Way roundabout;
 - Provision of a shared pedestrian / cycle link between the MDA site and Brambles Business Park;
 - New bus service X39 which would divert via Newlands between Waterlooville and Crookhorn; and
 - Improvements to the existing bus services 39; the frequency of the 39/X39 combined will be every 10 minutes Monday to Saturday and every 30 minutes evenings and Sunday.
- 3.8.16 Traffic flows resulting from these committed developments are considered further within **Section 7.5** of this report.

3.9 Summary

- 3.9.1 The site is located within close proximity to an extensive range of local facilities and amenities; linked to the site via an established network of existing pedestrian and cycle routes and local bus services.
- 3.9.2 Accessibility modelling has shown the site to be accessible by pedestrians, cyclists and also bus users at a local and more strategic level. Local bus stops are located within a 5 minute walk of the site and the town centre can be accessed within a 5 minute cycle or a 10-20 minute walk.
- 3.9.3 Against this background, the site is well positioned in terms of access by sustainable modes.
- 3.9.4 The site is also located close to the key local and strategic road network, providing good connections within Waterloooville and the wider area.
- 3.9.5 A review of PIC data demonstrated that there is no record of local safety concerns or inherent highway design issues that would affect highway safety in the vicinity of the site.
- 3.9.6 Local committed development sites have been considered. It is anticipated that the transport measures proposed by these proposals will further enhance sustainable transport opportunities across the local area.

4 Development Proposals

4.1 Background

4.1.1 Bridgehouse (Bradford IOM) Limited is seeking outline planning permission to redevelop the site with the following mix of uses:

- A discount foodstore (1,532sqm of which 1,125sqm is net sales area);
- 20 lane bowling alley (approx. 2,320sqm) within the converted existing E-Block;
- A gym (approx. 1,720sqm) within the converted existing E-Block;
- An 8 screen cinema (approx. 3,250sqm);
- A 60-bedroom budget hotel;
- A restaurant with drive-through facility (approx. 335sqm);
- A public house (approx. 555sqm);
- Four restaurants (approx. 370sqm for each restaurant); and
- Associated access and parking provisions.

4.1.2 The land uses outlined above will be provided in addition to the retained land uses:

- Beam Plot: 927sqm of B1c land use.

4.1.3 A copy of the proposed masterplan is enclosed at **Appendix A**.

5 Travel Demand

5.1 Introduction

- 5.1.1 This section of the TAR provides an assessment of the baseline and proposed development vehicular and person trip generation, re-presenting the existing operational site baseline as established and agreed at the time of the 2012 BAE planning application and providing a comparison with the current development proposals.

5.2 Baseline Overview

- 5.2.1 The existing baseline land uses at the site as currently operated are summarised as follows:

- Main Building (also referred to as C-block): 19,498sqm of B1b land use ;
- E-Block: 6,726sqm of B1c land use;
- Beam Plot: 927sqm of B1c land use; and
- Restaurant: 973sqm ancillary use that historically catered for employees on site.

- 5.2.2 The existing site is significantly under occupied and there is no data available from when the site was fully operational; accordingly it has not been possible to define the baseline AM and PM peak hour vehicular generation through historical or new surveys.

- 5.2.3 As agreed during scoping discussions with HCC in 2012, the TRICS database has been extensively reviewed to identify appropriate donor trip rates which can then be applied to the site land uses to define the baseline.

- 5.2.4 The Main Building is an office block; the TRICS database has been reviewed to identify an appropriate donor B1b trip rate.

- 5.2.5 The E-Block is an industrial style unit; the TRICS database has been reviewed to identify an appropriate donor B1c trip rate.

- 5.2.6 The Beam Plot is an industrial style unit accommodating a unique operational activity. A comparable 'donor' site is not available in the TRICS database, neither is there a comparable site from which to source information. Given the small scale of the Beam Plot relative to the wider site land uses and to ensure a consistent approach is adopted for all of the B1c land uses, the baseline B1c trip rate determined for the E-Block will also be applied to the Beam Plot.

- 5.2.7 The Restaurant is an ancillary use catering for the site based employees and is not considered to have generated additional trips.

- 5.2.8 In summary, the baseline has been determined by applying appropriate donor trip rates to the following existing land use schedule:

- B1b land use (the Main building): 19,498sqm; and
- B1c land use (E-Block and Beam Plot): 7,653sqm.

5.3 Baseline Vehicle Trip Generation

- 5.3.1 A comprehensive review of the TRICS database has been undertaken to determine B1b and B1c land use trip generation rates from comparable donor sites; detailed analysis is provided within **PBA Technical Note 003 Rev A**, attached at **Appendix C**.
- 5.3.2 **Table 5.1** details the donor trip rates identified for the existing consented site B1b and B1c land uses, and **Table 5.2** sets out the resulting baseline equivalent site vehicular trip generation.

Table 5.1: B1b and B1c Donor Trip Rates

Land use	AM Peak			PM Peak		
	Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
B1b	1.191	0.078	1.269	0.086	0.914	1.0
B1c	1.3	0.35	1.65	0.2	0.983	1.183

Table 5.2: BAE Site Baseline Vehicular Trip Generation

	AM Peak			PM Peak		
	Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
Main Building	232	15	247	17	178	195
E Block	87	24	111	13	66	80
Beam Plot	12	3	15	2	9	11
Total	332	42	374	32	253	286

- 5.3.3 As agreed during scoping discussions with HCC in 2012, the baseline should represent the total trip generation predicted to arise from the existing consented uses based on full occupation of the site; accordingly the vehicular trip generation detailed in **Table 5.2** defines the site traffic baseline. It is against this traffic baseline that the development proposals should be assessed.
- 5.3.4 For comparative purposes only, the AM and PM peak hour trips currently generated by the existing activities at the (significantly under occupied) site, as recorded by manual traffic count surveys on 19th April 2012, are summarised in **Table 5.3**.

Table 5.3: Existing BAE Site Vehicular Trip Generation

Time Period	Arrivals	Departures	Two-way
AM Peak (0800-0900)	45	2	47
PM Peak (1645-1745)	1	41	42

- 5.3.5 **Table 5.3** indicates that observed traffic generation (two-way) associated with the current under-utilised site is approximately 13% and 15% of the site baseline traffic in the AM and PM peaks respectively.

5.4 Development Trip Generation

- 5.4.1 The proposed development comprises of a mixture of retail and leisure uses as detailed in **Section 4** of this TAR.

- 5.4.2 The TRICS database has been reviewed to determine peak hour vehicular trip rates for each land use as summarised in **Table 5.4**; a copy of the associated TRICS outputs are provided in **Appendix D**.

Table 5.4: Proposed Development Vehicular Trip Rates

	AM Peak			PM Peak		
	Arrivals	Departures	Two Way	Arrivals	Departures	Two Way
Discount Foodstore	1.06	0.674	1.734	3.355	4.041	7.396
20 Lane Bowling	0.00	0.00	0.00	0.997	1.026	2.023
Gym	0.397	1.126	1.523	3.477	2.649	6.126
8 Screen Cinema	0.00	0.00	0.00	1.373	0.918	2.291
Drive Thru	5.94	4.409	10.349	10.78	10.486	21.266
Restaurant (x4)	0.00	0.00	0.00	3.451	2.271	5.722
Public House	0.00	0.00	0.00	3.732	2.449	6.181
60 Bed Hotel	0.097	0.227	0.324	0.205	0.078	0.283
Total	7.494	6.436	13.93	27.37	23.918	51.288

- 5.4.3 The resulting development vehicular trip generation predicted to arise from the development proposals is presented in **Table 5.5**; for completeness the traffic generation from the retained Beam plot is also presented.

Table 5.5: Proposed Development Vehicular Traffic Generation

Land Use	AM Peak			PM Peak		
	Arrivals	Departures	Two Way	Arrivals	Departures	Two Way
Discount Foodstore	16	10	26	51	62	113
20 Lane Bowling	0	0	0	23	24	47
Gym	7	19	26	60	46	106
8 Screen Cinema	0	0	0	45	30	75
Drive Thru	20	15	35	36	35	71
Restaurant (x4)	0	0	0	51	34	85
Public House	0	0	0	21	14	35
60 Bed Hotel	6	14	20	12	5	17
Total	49	58	107	299	250	549
Beam Plot	12	3	15	2	9	11
Total	61	61	122	301	259	560

- 5.4.4 **Table 5.5** indicates the proposed development vehicular trip generation; however, the mixed use nature of the proposals creates significant potential for cross visitation or linked trips between various land uses. These are now considered in turn and a rationale set out for adjusting the level of traffic generation identified in **Table 5.5**.

Discount Foodstore

- 5.4.5 Research has shown (for example, the '*Before and After Study of New Superstores*' by A. MacIver and K.W. Dickinson of the Transportation Engineering Research Unit (TERU) and

TRICS Research Report 95/2, 'Pass By and Diverted Traffic: A Resume') that a significant proportion of traffic associated with food retail is likely to already be on the highway network. The vehicle trips that are undertaken to a new food retail facility will consist of existing shopping trips diverted from their existing shopping destination. Therefore the majority of trips are not new to the highway network.

- 5.4.6 The type of trips undertaken to a food store can be classed as 'Primary' and 'Non-Primary' trips. Primary trips are those trips that would undertake a sole purpose trip to the development, for example, those who travel from home to the shop before returning home. Journeys that are not sole purpose trips can be described as 'non-primary' trips.
- 5.4.7 Non-primary trips can be broken down into three further parts:
- Linked trips, where a trip is combined with other trips;
 - Pass-by trips, where the traveller can call into the shop on route between the origin and destination without needing to alter their route; and
 - Diverted trips, which are trips where the traveller alters their route between the origin and destination in order to call at the shop.
- 5.4.8 Research on discount foodstores has also shown that people are more likely to undertake a trip between a discount foodstore and other foodstores such as Tesco's, ASDA, Sainsbury's and Waitrose. Accordingly, the proximity of the discount foodstore to the proposed Sainsbury's store and the foodstores located in Waterlooville Town Centre increase the prospect for linked trips.
- 5.4.9 Against this background, the following approach is considered to be appropriate in relation to the vehicular trip generation predicted to arise from the discount foodstore:
- 50% of all trips are assumed to be a linked or pass-by trip, re-assigned from the traffic flows on the network; and
 - The remaining trips are assumed to be new trips.
- 5.4.10 This approach is considered to be appropriate when considered against the available evidence and remains robust in comparison to the assumptions adopted within the Transport Assessment (produced by Mayer Brown dated October 2010) accompanying the proposed Sainsbury's store.
- 5.4.11 The methodology for re-assignment is considered in more detail within **Section 7** of this TAR.

Cinema / Bowling Alley / Pub / Drive Thru / Restaurant / Gym/ Hotel Units

- 5.4.12 The mix of the remaining land uses proposed creates significant potential for cross visitation or linked trips between various land uses.
- 5.4.13 In order to determine the potential level of cross visitation, reference has been made to the TRICS report 05/1 prepared by the consultant JMP entitled, 'Trip Attraction of Developments with Multiple Retail and Leisure Uses' (included at **Appendix E**). This report suggests that:
- "Multi-use sites with 4 or more developments reduce on average the total number of external trips by about 20% through trip linking."*
- 5.4.14 Given that the proposals for the development include the provision of restaurants, bowling alley, drive thru, pub and gym as well as a cinema and hotel, it is envisaged that there is

significant potential for cross visitation. On this basis, it is considered that a 20% reduction in vehicular trips as specified within the TRICS report represents an appropriate adjustment.

- 5.4.15 The adjusted level of vehicular trip generation predicted to arise from the development proposals is shown in **Table 5.6**; for completeness the traffic generation from the retained Beam Plot is also presented.

Table 5.6: Proposed Development Vehicular Trip Generation: ADJUSTED

SK10 Land Use	AM Peak			PM Peak		
	Arrivals	Departures	Two Way	Arrivals	Departures	Two Way
Discount Foodstore*	16	10	26	51	62	113
20 Lane Bowling	0	0	0	18	19	37
Gym	6	15	21	48	37	85
8 Screen Cinema	0	0	0	36	24	60
Drive Thru	16	12	28	29	28	57
Restaurant (x4)	0	0	0	41	27	68
Public House	0	0	0	17	11	28
60 Bed Hotel	5	11	16	10	4	14
Total	43	48	91	250	212	462
Beam Plot	12	3	15	2	9	11
Total	55	51	106	252	221	473
*50% of these trips will be re-assigned from the existing network (ie will not be new trips to the external road network)						

5.5 Net Vehicular Traffic Development Impact versus Baseline

- 5.5.1 A comparison between the baseline traffic generation and the traffic predicted to be generated by the proposed land uses has been undertaken to understand the net impact of the development proposals. The results are shown in **Table 5.7**.

Table 5.7: Net Impact of Proposed Development Vehicular Trip Generation (relative to the Baseline)

Comparison	AM Peak			PM Peak		
	Arrivals	Departures	Two Way	Arrivals	Departures	Two Way
Proposed Development	55	51	106	252	221	473
Established Baseline	332	42	374	32	253	286
Proposed Development vs Baseline	-277	9	-268	220	-32	187

- 5.5.2 **Table 5.7** confirms that the development proposals will result in significantly less traffic in the AM peak period and significantly more traffic in the PM peak period. The change in the balance of in/out movements is also notable in the PM peak period, with the development proposals generating a relatively even number of arrivals and departures whilst the baseline

has a significant bias toward departures. This is to be expected when considering the change of land uses and in summary a shift away from primarily employment generating uses toward a mix of retail and leisure uses.

- 5.5.3 It should be noted that the total combined AM and PM peak period traffic generation for the development proposals (579) is less than the established baseline (660).
- 5.5.4 For reference, a comparison of the predicted traffic generation arising from the Bridgehouse (Bradford IOM) Limited development proposals considered within this TAR against the traffic generation associated with the approved 2012 BAE planning application has also been undertaken. The results are shown in **Table 5.8**.

Table 5.8: Net Impact of Proposed Development Vehicular Trip Generation (relative to the 2012 BAE Planning Application)

Comparison	AM Peak			PM Peak		
	Arrivals	Departures	Two Way	Arrivals	Departures	Two Way
Bridgehouse Proposals 2013	55	51	106	252	221	473
BAE Proposals 2012 (Scenario 2)*	263	94	358	108	234	342
Bridgehouse vs BAE	-208	-43	-252	+144	-13	+131
*Source: Table 5.7 of the BAE Waterloooville Transport Assessment (PBA, June 2012)						

- 5.5.5 **Table 5.8** confirms a similar comparison of development impacts against the 2012 BAE planning application development proposals to the established baseline. Again, the total combined AM and PM peak period traffic generation for the development proposals (579) is less than the 2012 proposals (700).

5.6 Person Trip Generation

- 5.6.1 The peak hour person trips associated with the development proposals has been determined through analysis of the TRICS database and the resulting predicted person trip generation for all development proposals is presented in **Table 5.9** below. The breakdown of person trip generation by land use and associated person trip generation rates are detailed in **Appendix F**.

Table 5.9: Proposed Person Trip Generation for all Land Uses

Land Use	AM Peak			PM Peak		
	Arrivals	Departures	Two Way	Arrivals	Departures	Two Way
Vehicle	61	61	122	301	259	560
Vehicle Passenger	4	6	10	177	97	274
Public Transport	3	4	7	30	30	60
Cycle	0	2	2	4	4	8
Walk	12	13	25	118	91	209
Total	80	86	166	630	481	1,111

5.7 Summary

- 5.7.1 This section of the TAR presents details in respect of the established vehicular trip baseline of the existing site and the predicted vehicular and person trip generation of the Bridgehouse (Bradford IOM) Limited development proposal. From this analysis, the following observations are made:
- Development proposals will result in a reduced traffic impact in the AM peak period and increased impact in the PM peak period when compared to the established site baseline and the consented 2012 BAE planning application;
 - Development proposals will result in a different balance of arrivals and departures when compared to the established baseline and the consented 2012 BAE planning application;
 - Development proposals will result in a reduced combined AM and PM peak period impact when compared to the established baseline and the consented 2012 BAE planning application; and
 - A significant number of trips are predicted to be undertaken by alternative / sustainable modes.
- 5.7.2 The vehicular and person trip generation detailed within this section of the TAR have informed the strategy and assessment works presented in the following sections confirming the need for a comprehensive site access strategy catering for all modes and the requirement to undertake robust detailed traffic impact assessments to consider the operational traffic impacts on the local road network.

6 Transport Strategy

6.1 Introduction

6.1.1 This section of the TAR sets out the transport strategy for the development proposals, based upon the findings presented in previous sections including the following:

- Review of the national and local transport policy context has confirmed an underlying requirement to deliver sustainable development supported by an integrated transport network prioritising movement by walking, cycling and public transport;
- The site is located within close proximity to an extensive range of local facilities and amenities; linked to the site via an established network of existing pedestrian and cycle routes and local bus services;
- Accessibility modelling has shown the existing site to be accessible by pedestrians, cyclists and also bus users at a local and more strategic level. Local bus stops are located within a 5 minute walk of the site and the town centre can be accessed within a 5 minute cycle or a 10-20 minute walk;
- Review of PIC data has not identified any specific issues in respect of providing safe access to the site for users of all modes;
- It has been identified that other committed development proposals are expected to deliver localised improvements to the transport network that would also benefit future employees and visitors to the redeveloped site; and
- The vehicular and person trip generation of the proposed development is predicted to be broadly comparable to the site baseline.

6.1.2 The proposed transport strategy set out below has been prepared against this background.

6.2 Pedestrian and Cycle Access

6.2.1 The main point of access for pedestrians and cyclists will be maintained from the Elettra Avenue / Waterberry Drive / site access roundabout through the continuation of the existing route into the site. This is shown on the development proposals masterplan at **Appendix A**.

6.2.2 Four further pedestrian and cycle access pointed are proposed onto the B2150 Hambledon Road, Silverthorne Way, Elettra Avenue (south-west corner) and Elettra Avenue (north-west corner).

6.2.3 Footways will be provided as part of the masterplan layout and dedicated areas have been identified to accommodate safe and secure cycle parking in accordance with HCC's '*Hampshire Parking Strategy and Standards, Spring 2002*'.

6.2.4 Further to the on-site proposals, additional land under control of the developer will be dedicated to the local highway authority to facilitate delivery of a new pedestrian and cycle link to the MDA site at the south western corner of the Bramble Farm Industrial Estate. This development benefit will improve connectivity across the local area. This is illustrated within **PBA Drawing Number 29169/101/001**.

6.3 Public Transport

- 6.3.1 The site will continue to be served by the existing bus connections to Waterlooville town centre, Havant, Portsmouth, Southsea, Denmead, and wider residential areas in the south-east Hampshire area.
- 6.3.2 Bus stops are located close to the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout, within a 400m walk distance of the development proposals, and are served by routes 7, 39, X9, 300. These existing services remain subject to service frequency / route improvements associated with the MDA development proposals.
- 6.3.3 Improved pedestrian and cycle linkages from the site onto the B2150 Hambledon Road will improve access to these services.

6.4 Vehicular Access

- 6.4.1 As illustrated on the masterplan attached at **Appendix A**, the existing point of vehicular access from the Elettra Avenue / Waterberry Drive / BAE site access roundabout will be retained to serve the site.
- 6.4.2 Access to the Beam plot is proposed via the existing access junctions on Silverthorne Way; these points of access will also provide service access to the rear of the (converted) E-block land uses. Access from Silverthorne Way could also serve as an emergency access should the primary access junction be temporarily closed for any reason.
- 6.4.3 Access and circulation through the site is described further within the accompanying Design and Access Statement prepared by Davis Weatherill and submitted with the planning application.

6.5 Parking Strategy

- 6.5.1 As illustrated in the development proposals masterplan attached at **Appendix A**, vehicle and cycle parking for the development will be provided in accordance with HCC's '*Hampshire Parking Strategy and Standards, Spring 2002*'.
- 6.5.2 The level of car parking proposed is reflective of the mix of uses and expected cross-visitation and the associated HCC standards.

6.6 Framework Travel Plan

- 6.6.1 A package of Travel Plan measures has been set out within the FTP (provided under separate cover). These measures will encourage the adoption of sustainable modes of transport and are anticipated to include:
 - Site Travel Plan Co-ordinator managing travel planning across the whole site;
 - Travel Plan Representatives at each place of occupation (in accordance with HCC standards);
 - Travel Information Packs;
 - Travel Information notice boards;
 - Site Travel Plan website including details of local car share scheme(s); and
 - Site Travel Plan Forum.

- 6.6.2 Through delivery of the FTP measures, a provisional modal shift target has been identified aiming for a reduction in single occupancy car drivers of 8.8% in the AM peak and 1.4% in the PM peak, with a commensurate increase in sustainable modes.

7 Traffic Impact

7.1 Introduction

- 7.1.1 This section of the TAR provides details in respect of residual development impacts on the local road network. It considers the impacts of local committed development sites and reports the proportional impact of the development proposals and junction capacity assessments undertaken to determine the existing and future capacity at key local junctions.
- 7.1.2 The approach adopted is consistent with the 2012 BAE planning application Transport Assessment (PBA, June 2012) and adapted where appropriate to respond to the revised development proposals.

7.2 Study Area

- 7.2.1 The junctions identified for assessment include:
- Elettra Avenue / Waterberry Drive / BAE site access roundabout; and
 - B2150 Hambledon Road/Elettra Avenue /Milton Road roundabout.

7.3 Observed 2012 Traffic Data

- 7.3.1 Manual traffic surveys were undertaken at the two key junctions identified within the study area; fully classified turning count and queue length surveys were undertaken on Thursday 26th April 2012 between the hours of 07.00-10.00 and 16.00-19.00 by Community Systems Ltd (CSL). A copy of the traffic survey data is provided within **Appendix G**.
- 7.3.2 The traffic surveys were undertaken in accordance with GTA, which states:
- “The recommended periods for data collection are spring and autumn, which include the neutral months of April, May, June, September and October as described in DMRB Volume 13, Section 1, Part 4.”*
- 7.3.3 Analysis of the survey data identified the AM and PM peak traffic hours to be:
- AM Peak – 08.00-09.00; and
 - PM peak – 16.45-17.45.
- 7.3.4 **Figures 7.1 & 7.2** provide details of the AM and PM peak hour 2012 Observed Base traffic flows respectively.
- 7.3.5 **Figures 7.3 & 7.4** provide details of the proportion of HGV vehicles in the AM and PM peak hour 2012 Observed Base traffic flows respectively.

7.4 Committed Development

- 7.4.1 Three committed developments have been considered within this TAR, these developments are:
- Sainsbury's, Hambledon Road; and
 - West of Waterlooville MDA which comprises of:

- Taylor Wimpey 'Wellington Park', and
- Newlands Common.

- 7.4.2 More information in respect of these developments and associated planning applications is provided within **Section 3.8** of this TAR.
- 7.4.3 The resulting traffic flows associated from these committed developments have been sourced to inform assessment work completed within this TAR, as considered further below.

Sainsbury's Hambledon Road

- 7.4.4 The Sainsbury's development is for a food retail building with a Gross Floor Area (GFA) of 7,745sqm and a 6 pump petrol filling station with associated kiosk facilities. The site is proposed to include 438 car parking spaces.
- 7.4.5 The proposed opening year for the Sainsbury's development was 2011, however, the site has not yet been completed and therefore traffic has not been accounted for in the traffic surveys commissioned by PBA. It is assumed that the full site will be fully developed and operational before completion of the proposed site. Therefore the full development traffic associated with the Sainsbury's site has been included in the 2015 scenario.
- 7.4.6 Sainsbury's development traffic for the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout was taken from Figures 38 and 39 of the Sainsbury's Transport Assessment (STA), dated October 2010.
- 7.4.7 The STA did not include proposed development flows through the site access roundabout, in the absence of any alternative distribution and assignment assumptions any development traffic arising from the Sainsbury's proposals travelling through the site access roundabout has been distributed in accordance with existing turning movements.

Taylor Wimpey 'Wellington Park'

- 7.4.8 The Taylor Wimpey Transport Assessment report, November 2004, states that the development is for 474 residential dwellings, 7.7 ha of employment and 2.8 ha of mixed use land. However, the Transport Assessment Addendum Report, March 2006, states the development is for 474 residential dwellings, 7.10 ha of employment and 2.46 ha of mixed use land.
- 7.4.9 PBA are aware that a number of dwellings at the Taylor Wimpey development have already been occupied; the Taylor Wimpey on-site sales office confirmed that at the time of the surveys in April 2012, 144 dwellings of the approved 474 had been occupied.
- 7.4.10 Therefore the traffic generated by 144 dwellings is already accounted for in the 2012 traffic survey data. Accordingly, the trips generated by the 144 dwellings have been removed from the total proposed residential traffic generated by the Taylor Wimpey site. The full development traffic associated with the Taylor Wimpey site has been included in the 2015 scenario.
- 7.4.11 The Transport Assessment Addendum Report does not readily enable the extraction of peak hour development flows as no details of the background traffic are provided. Therefore the AM peak hour flows associated with the Taylor Wimpey development have been taken from the Transport Assessment report, November 2004 as a worst case due to the higher development quantum.

7.4.12 PBA have not been able to source the corresponding PM peak hour flows. Due to the lack of available information, the PM peak hour flows have been determined by PBA based on the following:

- The PM trip rates provided in the Transport Assessment report, November 2004 (Tables 6.3, 6.5, 6.8 and 6.9) and related development information; and
- An assumption that the distribution of PM trips is the reverse of the AM distribution.

7.4.13 The Transport Assessment Addendum Report also takes into account the net impact of relocating a household waste recycling centre onto the Old Park Farm site. Therefore the net impact of relocating the recycling centre traffic has also been taken into account.

Newlands Common

7.4.14 The Newlands development is for around 2,650 residential dwellings, 19.25ha of employment land a local community centre, healthcare and elderly care facilities, two primary schools and a nursery. Since the development is yet to commence it has been assumed that no traffic associated with the Newlands development is currently on the network.

7.4.15 In accordance with the proposed development phasing for the Newlands development it is assumed that the total development will be complete by 2020 and therefore has been included within the 2020 assessments.

7.4.16 The traffic associated with the Newlands development at the B2150 Hambledon Road / Elettra Avenue / Milton Road roundabout was taken from the Newlands Transport Assessment (NTA), October 2010.

7.4.17 The NTA did not include proposed development flows through the site access roundabout, in the absence of any alternative distribution and assignment assumptions any development traffic arising from the Newlands proposals travelling through the site access roundabout has been distributed in accordance with existing turning movements.

7.5 Assessment Years and Traffic Growth

Assessment Years

7.5.1 The following assessment years have been identified:

- 2015: anticipated year of opening + Committed Development;
- 2020: base + Committed Development; and
- 2020: base + Committed Development + Proposed Development.

Traffic Growth

7.5.2 Due to the location and scale of the committed developments taken into consideration, it is proposed that no additional background traffic growth be added to the 2012 base traffic flows to create the 2020 future year base. This remains as agreed for the purposes of the 2012 BAE planning application.

7.6 Distribution & Assignment

7.6.1 The predicted traffic generation for the discount foodstore, bowling alley, gym, cinema, restaurants, drive thru and public house have been distributed based on the relative size of

the population at the ward level within a local distribution study area as illustrated within **Figure 7.5**.

7.6.2 This study area covers the area anticipated to represent the core catchment market for the proposed land uses and covers the wards of Waterlooville and Denmead with population data taken from the latest available 2011 Census population data for the following wards:

- E05004570 – Cowplain (pop.9,353);
- E05004572 – Hart Plain (pop.9,907);
- E05004575 – Purbrook (pop.9,171);
- E05004577 – Stakes (pop.10,007);
- E05004579 – Waterloo (pop.9,549); and
- E05004657 – Denmead (pop.6,736).

7.6.3 The total population of the above wards is 54,723. The resulting percentage proportion of each ward is set out below:

- Cowplain – 17%;
- Hart Plain – 18%;
- Purbrook – 17%;
- Stakes – 18%;
- Waterloo – 17%; and
- Denmead – 12%.

7.6.4 The traffic generation has then been assigned a route to/ from the site based on the most likely direct route from each of the wards. The routes identified are as follows:

- Cowplain – this ward straddles two potential routes; A3 London Road and Milton Road. The distribution has therefore been split equally between the two routes with 8.5% routing along the A3 London Road, and 8.5% routing along Milton Road;
- Hart Plain – 18% routing along Milton Road;
- Purbrook – 17% routing along the A3 London Road, A3 Maurepas Way and the B2150 Hambledon Road;
- Stakes – 18% routing along the A3 London Road, A3 Maurepas Way and the B2150 Hambledon Road;
- Waterloo – this ward straddles three potential routes; the B2150 Hambledon Road, Milton Road and A3 Maurepas Way. The distribution has therefore been split equally between these routes with 5.6% routing along the B2150 Hambledon Road, 5.6% routing along Milton Road and 5.6% routing along the A3 Maurepas Way; and
- Denmead – 12% routing along the B2150 Hambledon Road.

7.6.5 The resulting assignments are summarised in **Table 7.1** below.

Table 7.1: Development Trip Assignment on local road network (Foodstore, Bowling Alley, Gym, Cinema, Restaurants, Drive Thru and Public House)

Road	Assignment
Milton Road	32.5%
B2150 Hambledon Road North Arm	18%
B2150 Hambledon Road South Arm	49.5%

- 7.6.6 As considered in **Section 5.4**, 50% of the discount foodstore trips are assumed to be a linked or pass-by trip, re-assigned from the traffic flows on the network. This reassignment has been undertaken based on the assignment above and the proportion of existing turning movements on the approach to the B2150 Hambledon Road / Elettra Avenue / Milton Road roundabout.
- 7.6.7 The proposals for the 60 bed budget hotel are included within the consented BAE 2012 planning application scheme. The Transport Assessment for the consented scheme (PBA, June 2012) based the hotel trip distribution on 2001 Census Journey to Work Data. The same methodology has therefore been applied for the hotel in the revised proposals. The proposed traffic assignment for the hotel is set out in **Table 7.2** below.

Table 7.2: Development Trip Assignment on Local Road Network (Hotel)

Road	Assignment
Milton Road	13.6%
Aston Road	0.2%
B2150 West	5.8%
B2150 East	61.9%
A3 North	6.2%
A3 South	10.1%
B2150 Hambledon Road South	2.2%

- 7.6.8 The assignment of HGV traffic has been based on existing turning movements; **Table 7.3** sets out the assignment of HGV trips from the BAE site onto the local road network:

Table 7.3: HGV Development Trip Assignment on Local Road Network

Road	AM		PM	
	IN	OUT	IN	OUT
Milton Road	0.0%	7.1%	20.0%	60.0%
B2150 West	42.9%	14.3%	20.0%	0.0%
B2150 East	57.1%	78.6%	60.0%	40.0%

7.7 Assessment Scenarios

- 7.7.1 The assessment scenarios are:

- 2015 Base: comprising:
 - 2012 Observed Base flows;
 - Established Site Baseline flows;
 - Taylor Wimpey development proposals (full development); and
 - Sainsbury's development proposals.

- 2020 Base: comprising:
 - 2012 Observed Base flows;
 - Established Site Baseline flows;
 - Taylor Wimpey development proposals (full development);
 - Sainsbury's development proposals; and
 - Newlands development proposals.
- 2020 Base + Development: comprising:
 - 2012 Observed Base flows;
 - Taylor Wimpey development proposals (full development);
 - Sainsbury's development proposals;
 - Newlands development proposals; and
 - Development Proposals (including retained Beam Plot).

7.8 Proportional Impact

- 7.8.1 **Table 7.4** sets out the proportional impact of the 2020 Base + Development relative to the 2020 Base at the roundabout junctions of B2150 Hambledon Road / Milton Road / Elettra Avenue and Elettra Avenue / Waterberry Drive / BAE site access. The proportional difference is set out by junction total and for each individual junction arm.
- 7.8.2 As shown within **Table 7.4**, the 2020 Base + Development assessment scenario has a positive impact (i.e. a reduction in traffic flows) on both roundabouts in the AM peak period.
- 7.8.3 In the PM peak period, the development traffic has a slight negative (i.e. an increase in traffic flows) impact on both roundabouts. On the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout there is an overall impact of +5.2%. On the Elettra Avenue / Waterberry Drive / BAE site access roundabout there is an overall impact of +17%.

Table 7.4: 2020 Proportional Development Impact:

Junction / Link	AM Peak (0800-0900)	PM Peak (1645-1745)
B2150 Hambledon Road/Elettra Ave/Milton Road roundabout	-7.9%	5.2%
Hambledon Road North approach	-1.0%	5.8%
Milton Road approach	-3.9%	15.6%
Hambledon Road South approach	-16.8%	6.6%
Elettra Avenue approach	3.1%	-3.8%
Elettra Ave/Waterberry Drive/ Site Access roundabout	-23.2%	17.0%
Elettra Avenue East approach	-32.3%	98.6%
Site Access approach	21.4%	-12.7%
Elettra Avenue West approach	0.0%	0.0%
Waterberry Drive approach	0.0%	0.0%

7.9 Junction Capacity Assessments

- 7.9.1 The Transport Research Laboratories junction capacity assessment program ARCADY (Version 8) has been used to model the roundabout junctions contained in the study area.
- 7.9.2 The assessed junctions have been modelled in the weekday AM and PM network peak hours, determined from the observed traffic flows as 08.00 – 09.00 and 16.45 – 17.45 respectively.
- 7.9.3 The AM peak hour traffic flows display a flat profile with a maximum 3.6% difference in flow across the four 15 minute periods; traffic flows remain fairly constant over the hour with no significant peak.
- 7.9.4 The PM peak hour traffic flows also display a flat profile with a maximum 4.3% difference in flow across the four 15 minute periods; traffic flows also remain fairly constant over the hour with no significant peak.
- 7.9.5 Accordingly the junction assessments in Arcady were undertaken using a flat traffic flow profile.
- 7.9.6 Junction capacity assessments presented within this section of the TAR also reflect comments received from HCC in respect of the 2012 BAE planning application Transport Assessment (PBA, June 2012) and specifically those subsequently addressed within Technical Note TN007 (PBA, 30th August 2012); in summary this has included the incorporation of an appropriate intercept value for the B2150 Hambledon Road / Elettra Avenue / Milton Road roundabout junction.

2015 Base Assessments

- 7.9.7 The 2015 Base vehicular traffic flows for the local road network are illustrated in **Figures 7.6** and **7.7** in the AM and PM peaks respectively with HGV percentage figures illustrated in **Figures 7.8** and **7.9**.
- 7.9.8 A summary of the 2015 Base year ARCADY assessments results are provided in **Table 7.5**.

Table 7.5: 2015 Base ARCADY Assessment Results

Junction	2020 Base Flows					
	AM			PM		
	RFC	MMQ	Max Delay (s)	RFC	MMQ	Max Delay (s)
Elettra Avenue / Waterberry Drive / site access roundabout						
Elettra Avenue (East)	0.43	0.75	3.22	0.15	0.18	2.85
Site Access	0.05	0.06	4.89	0.25	0.33	4.63
Elettra Avenue (West)	0.06	0.07	4.65	0.17	0.21	5.01
Waterberry Drive	0.17	0.21	3.72	0.45	0.82	6.45
B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout						
Milton Road	0.74	2.75	15.00	0.63	1.69	14.38
Hambledon Road (South)	0.87	6.50	17.77	0.64	1.80	4.21
Elettra Avenue	0.21	0.26	3.27	1.00	27.89	122.48
Hambledon Road (North)	0.57	1.30	4.94	0.78	3.47	19.54

- 7.9.9 It can be seen from **Table 7.5** that the Elettra Avenue / Waterberry Drive / site access roundabout is predicted to operate under capacity in both the AM and PM peak periods with a maximum RFC of 0.45 on the Waterberry Drive arm in the PM peak.

7.9.10 It can also be seen from **Table 7.5** that the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout is predicted to operate over capacity in the PM peak period with a maximum RFC of 1.12 on the Elettra Avenue arm in the PM peak period.

7.9.11 A copy of the full output files are provided within **Appendix H**.

2020 Base Assessments

7.9.12 The 2020 Base vehicular traffic flows for the local road network are illustrated in **Figures 7.10** and **7.11** in the AM and PM peaks respectively with HGV percentage figures illustrated in **Figures 7.12** and **7.13**.

7.9.13 A summary of the 2020 Base year ARCADY assessments results are provided in **Table 7.6**.

Table 7.6: 2020 Base ARCADY Assessment Results

Junction	2020 Base Flows					
	AM			PM		
	RFC	MMQ	Max Delay (s)	RFC	MMQ	Max Delay (s)
Elettra Avenue / Waterberry Drive /Site access roundabout						
Elettra Avenue (East)	0.44	0.78	3.26	0.15	0.18	2.84
Site Access	0.05	0.06	4.98	0.25	0.33	4.64
Elettra Avenue (West)	0.06	0.07	4.71	0.18	0.22	5.04
Waterberry Drive	0.17	0.21	3.72	0.47	0.88	6.68
B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout						
Milton Road	0.81	4.09	20.63	0.75	2.94	22.34
Hambledon Road (South)	0.91	9.34	24.69	0.66	1.93	4.52
Elettra Avenue	0.21	0.27	3.36	1.04	46.09	192.30
Hambledon Road (North)	0.58	1.35	5.08	0.86	5.58	28.93

7.9.14 It can be seen from **Table 7.6** that the Elettra Avenue / Waterberry Drive / site access roundabout is predicted to continue operating under capacity in both the AM and PM peak periods with a maximum RFC of 0.47 on the Waterberry Drive arm in the PM peak.

7.9.15 It can also be seen from **Table 7.6** that the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout is predicted to operate over capacity in the PM peak period with a maximum RFC of 1.20 on the Elettra Avenue arm in the PM peak period.

7.9.16 A copy of the full output files are provided within **Appendix I**.

2020 Base + Development

7.9.17 The 2020 Base + Development vehicular traffic flows for the local road network are illustrated in **Figures 7.14** and **7.15** in the AM and PM peaks respectively with HGV percentage figures illustrated in **Figures 7.16** and **7.17**.

7.9.18 A summary of the 2020 Base + Development ARCADY assessments results are provided in **Table 7.7**.

7.9.19 The assessments have been undertaken with revised geometry for the access arm to reflect the revised access as shown on the development proposals masterplan provided within **Appendix A**.

Table 7.7: 2020 Base + Development ARCADY Assessment Results

Junction	2020 Base + Development					
	AM			PM		
	RFC	MMQ	Max Delay (s)	RFC	MMQ	Max Delay (s)
Elettra Avenue / Waterberry Drive /site access roundabout						
Elettra Avenue (East)	0.37	0.58	3.67	0.26	0.34	2.80
Site Access	0.06	0.07	4.59	0.21	0.26	4.26
Elettra Avenue (West)	0.06	0.07	4.72	0.17	0.21	4.88
Waterberry Drive	0.18	0.21	3.74	0.46	0.84	6.40
B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout						
Milton Road	0.76	3.18	16.85	0.83	4.55	30.86
Hambledon Road (South)	0.70	2.35	7.24	0.76	3.18	7.08
Elettra Avenue	0.21	0.27	3.37	0.95	13.83	66.35
Hambledon Road (North)	0.57	1.31	4.98	0.88	6.50	32.18

- 7.9.20 It can be seen from **Table 7.7** that the Elettra Avenue / Waterberry Drive / BAE site access roundabout is predicted to operate under capacity in both the AM and PM peak periods with a maximum RFC of 0.46 on the Waterberry Drive arm in the PM peak.
- 7.9.21 It can also be seen from **Table 7.7** that the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout is predicted to operate under capacity in the AM peak and approaching capacity in the PM peak with a maximum RFC of 0.95 on the Elettra Avenue arm in the PM peak period.
- 7.9.22 The B2150 Hambledon Road / Milton Road / Elettra Avenue PM peak assessment predicts an improved operational performance relative to the 2020 base assessment, with a reduced maximum RFC on the Elettra Avenue arm and significantly reduced queue; this is despite an increase in total traffic generation arising from the development proposals when compared to the established site baseline and results due to the revised composition of arrivals and departures into the site which result in the improved operation of the junction.
- 7.9.23 A copy of the full output files are provided within **Appendix J**.

7.10 Summary

- 7.10.1 This section of the TAR has considered the impact of the development proposals in respect of vehicular trip generation and impacts on the local highway network.
- 7.10.2 The approach adopted is consistent with the 2012 BAE planning application Transport Assessment (PBA, June 2012) adapted where appropriate to respond to the revised development proposals.
- 7.10.3 The future impacts of local committed development sites have been taken into consideration with regard to the defined study area; and the outcomes of proportional impact and detailed junction capacity assessments have been presented.
- 7.10.4 The results of the proportional impact of the development proposals shows that during the AM peak there is a reduction in traffic flow through both the Elettra Avenue / Waterberry Drive / site access roundabout and B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout.

- 7.10.5 During the PM peak period, analysis indicates that traffic flows at the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout and Elettra Avenue / Waterberry Drive / site access roundabout would increase between 5.2% and 17% respectively.
- 7.10.6 Junction capacity assessments have confirmed the Elettra Avenue / Waterberry Drive / site access roundabout will operate within capacity under base and future year assessment scenarios with and without redevelopment of the site.
- 7.10.7 Junction capacity assessments indicate that the Elettra Avenue arm of the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout would operate above capacity in the 2020 base year (PM peak) without the redevelopment of the site.
- 7.10.8 With the development proposals, there are operational improvements at the junction and specifically the Elettra Avenue arm which is demonstrated to be approaching capacity during the PM peak with significantly reduced queues relative to the 2020 base assessment.
- 7.10.9 Against this background it is considered that whilst there is an increase in traffic flow through the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout during the PM peak this would not materially affect the operational performance. Indeed, analysis suggests that with the development proposals in place there would be operational betterment when compared to the 2020 base scenario.

8 Mitigation

8.1 Overview

- 8.1.1 The following mitigation measures are proposed to complement the proposals detailed within the proposed masterplan attached at **Appendix A**.

8.2 Framework Travel Plan (FTP)

- 8.2.1 As detailed in **Section 6**, a package of measures will be provided as part of an FTP. The FTP aims to encourage the use of sustainable transport modes for journeys to and from the site and reduce single car occupancy trips.
- 8.2.2 A Framework Travel Plan (FTP) has also been prepared and submitted by PBA under separate cover and should be read in conjunction with this TAR.
- 8.2.3 Subsidiary Travel Plans would be prepared by future occupiers of the site adhering to the aims objectives and targets of the FTP.
- 8.2.4 The FTP identifies a minimum target reduction in single occupancy car trips of 8.8% in the AM peak and 1.4% in the PM peak to offset the traffic impacts of development proposals over and above the traffic baseline equivalent to the current consented uses on the site.
- 8.2.5 Performance against agreed targets would be monitored for a minimum period of five years.
- 8.2.6 In the event that agreed targets are not met at the end of the monitoring period it may be appropriate to consider 'failsafe' measures in order to manage future travel demand to and from the development to the baseline level.

8.3 Provision of Land to Facilitate Delivery of MDA Pedestrian / Cycle Link

- 8.3.1 Further to the on-site proposals, additional land under control of the developer will be dedicated to the local highway authority to facilitate delivery of a new pedestrian and cycle link to the MDA site at the south western corner of the Bramble Farm Industrial Estate. This development benefit will improve connectivity across the local area. This is illustrated within **PBA Drawing Number 29169/101/001**.

9 Conclusion

- 9.1.1 This Transport Assessment Report (TAR) has been prepared by Peter Brett Associates LLP on behalf of Bridgehouse (Bradford IOM) Limited and considers the transport implications associated with the proposed mixed use development at the former BAE site, Elettra Avenue, Waterlooville .
- 9.1.2 In 2012 a planning application (APP/12/00652) was submitted by BAE Systems, supported by a Transport Assessment (PBA, June 2012) and Framework Travel Plan (PBA, September 2012).
- 9.1.3 Planning consent was subsequently granted for the BAE development proposals, however, following extensive site marketing an alternative mix of uses is now being sought by Bridgehouse (Bradford IOM) Limited. This TAR examines this revised development proposal.
- 9.1.4 The assessment approach adopted in this TAR is consistent with the 2012 BAE planning application Transport Assessment (PBA, June 2012) adapted where appropriate to respond to the revised development proposals.
- 9.1.5 Bridgehouse (Bradford IOM) Limited is seeking outline planning permission to redevelop the site with the following mix of uses:
- A discount foodstore (1,532sqm of which 1,125sqm is net sales area);
 - 20 lane bowling alley (approx. 2,320sqm) within the converted existing E-Block;
 - A gym (approx. 1,720sqm) within the converted existing E- Block;
 - An 8 screen cinema (approx. 3,250sqm);
 - A 60-bedroom budget hotel;
 - A restaurant with drive-through facility (approx. 335sqm);
 - A public house (approx. 555sqm);
 - Four restaurants (approx. 370sqm for each restaurant); and
 - Associated access and parking provisions.
- 9.1.6 The land uses outlined above will be provided in addition to the retained land uses:
- Beam Plot: 927sqm of B1c land use.
- 9.1.7 The assessment has included a review of relevant national and local policy documents as well as an overview of the existing conditions in the locality of the BAE site including a description of local facilities, walk and cycle routes in the area, public transport, the local highway network and traffic flows, a review of personal injury collision data and the anticipated impacts of local committed development sites.
- 9.1.8 Future travel demand associated with the development proposals has been predicted and compared with the site baseline. The residual impacts of the development proposals on the local road network in the immediate vicinity of the site have also been assessed. The conclusions drawn from the assessment are summarised below.

- 9.1.9 The site is situated within the Brambles Business Park within close proximity to a wide range of local facilities and services, WaterlooVille town centre and adjacent residential areas.
- 9.1.10 The site is considered to be readily accessible by walking, cycling and public transport modes as demonstrated by accessibility modelling undertaken within this TAR; future employees and visitors to the site will readily be able to access local residential areas and the extensive local facilities and amenities located in WaterlooVille.
- 9.1.11 The site access strategy has been identified with proposals to retain the primary point of access via the Elettra Avenue / Waterberry Drive / BAE site access roundabout. Access to the retained Beam Plot is proposed via the existing access junctions on Silverthorne Way; these points of access will also provide service access to the rear of the (converted) E-block land uses. Access from Silverthorne Way could also serve as an emergency access should the primary access junction be temporarily closed for any reason.
- 9.1.12 A supporting transport strategy has also been identified, incorporating measures designed into the proposed masterplan to provide an accessible and functional scheme which seeks to encourage access by sustainable modes.
- 9.1.13 The travel demand for the existing consented uses on the site has been estimated to establish the current site traffic baseline. This has been compared with predicted demand arising from the development proposals which indicates that future site traffic conditions are expected to result in a reduction in vehicle trips in the AM peak and an increase in trips during the PM peak compared to the site baseline situation. It should be noted that the total combined AM and PM peak period traffic generation for the development proposals (579) is less than the established baseline (660).
- 9.1.14 Detailed junction capacity assessments have been undertaken for the 2015 and 2020 future years. The capacity assessments indicate that the Elettra Avenue / Waterberry Drive / BAE site access roundabout would operate with spare capacity during both the AM and PM network peak travel periods with and without development at the site.
- 9.1.15 Junction capacity assessments indicate that the Elettra Avenue arm of the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout would operate above capacity in the 2020 base year (PM peak) without the redevelopment of the site.
- 9.1.16 With the development proposals, there are significant operational improvements on the Elettra Avenue arm of the junction which operates within albeit approaching capacity during the PM peak. This is due to a better balanced pattern of traffic entering and leaving Elettra Avenue as a result of the proposed development.
- 9.1.17 Against this background it is considered that whilst development would result in a relatively small increase in traffic flow through the B2150 Hambledon Road / Milton Road / Elettra Avenue roundabout during the PM peak this would not materially affect the operational performance of the junction under future traffic conditions. Indeed, analysis suggests that with the development proposals there would be operational betterment over the 2020 base situation without development.
- 9.1.18 In view of the above, it is considered that the residual impacts of development can be satisfactorily addressed through travel plan measures which target the reduction in single car occupancy for journeys to and from the site. Measures would be secured under the provisions of a Framework Travel Plan including commitments to the implementation of Subsidiary Travel Plans to be delivered by future site occupiers.
- 9.1.19 Provisional targets have been identified in the FTP accompanying this TAR which seeks to reduce single car occupancy journeys by a minimum of 8.8% in the AM peak and 1.4% in the PM peak on full occupation of the proposed development.

- 9.1.20 Further to the on-site proposals, additional land under control of the developer will be dedicated to the local highway authority to facilitate delivery of a new pedestrian and cycle link to the MDA site at the south western corner of the Bramble Farm Industrial Estate. This development benefit will improve connectivity across the local area. This is illustrated within **PBA Drawing Number 29169/101/001**.
- 9.1.21 The implementation and delivery of the FTP and the provision of land to facilitate HCC delivery of the pedestrian and cycle link to the MDA site are expected to be secured through S106 agreement.
- 9.1.22 The conclusions drawn from the Transport Assessment process would be subject to further consultation with HCC as the Local Highway Authority during the post application review period and serve as a basis for agreeing the package of transport measures to support the site and mechanisms for future delivery.

References

PBA (June 2012) *BAE Waterlooville Transport Assessment Report*

PBA (September 2012) *BAE Waterlooville Framework Travel Plan*

Department for Transport. (2007) *Guidance on Transport Assessment*

Department of Communities and Local Government. (2012) *National Planning Policy Framework*

Hampshire County Council. (2011) *Hampshire Local Transport Plan 2011-2031*

Hampshire County Council. *Shaping our future together, Hampshire Sustainable Community Strategy, 2008-2018*

Havant Borough Council. (Adopted March 2011) *Havant Borough Core Strategy*

Mayer Brown (2010) *Proposed Sainsbury's Supermarket Hambledon Road, Waterlooville, Transport Assessment*

WSP (2004) *Old Park Farm, Waterlooville, Transport Assessment Report*

WSP (2006) *Old Park Farm, Waterlooville, Transport Assessment Addendum Report*

Mayer Brown (2010) *Newlands Development, West of Waterlooville MDA, Transport Assessment*

Hampshire County Council. *Hampshire County Structure Plan 1996-2011*

Hampshire County Council. (Spring 2002) *Hampshire Parking Strategy and Standards*

Drawings

29169/012/002 Rev A – Land Transfer to Deliver Link from MDA Site to Brambles Business Park

Figures

- 3.1 – Strategic Site Location
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- 7.14 – 2020 Base + Development Flows AM
- 7.15 – 2020 Base + Development Flows PM
- 7.16 – 2020 Base + Development Flows HGVs AM
- 7.17 – 2020 Base + Development Flows HGVs PM