

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
9. Transport	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009283

## 9. TRANSPORT

### 9.1 Introduction

This chapter of the Defence Exempt Environmental Appraisal (DEEA) describes the assessment of the impact of the Proposed Development on the surrounding transport network. It has been written by RPS Group and should be read in conjunction with the Transport Assessment (TA), which is included as *Technical Appendix C* of this DEEA.

The Proposed Development will provide a total of 16,907 square metres (m<sup>2</sup>) Gross Floor Area (GFA), comprising a 14,176m<sup>2</sup> Operations Building, a 2,515m<sup>2</sup> administrative and welfare Support Building and a 216m<sup>2</sup> Electrical Substation. A full description of the Hydrus Facility is set out in *Chapter 5: The Proposed Development* of this DEEA.

The Proposed Development will provide a hydrodynamics research facility that will replace activities carried out elsewhere on the AWE Aldermaston Site. It is estimated that up to 50 operational staff will work in the building, all of whom currently work at AWE Aldermaston. Accordingly, the application proposal will not generate any additional operational worker vehicle movements over and above the existing facilities and the only additional vehicle movements will be generated by construction activity.

This chapter:

- Sets out relevant Government transport policy, at the national, regional and local level which has been considered in relation to the development proposals;
- Explains the assessment methodology and significance criteria that have been used;
- Describes baseline and future year conditions, including traffic flows / travel patterns, road safety issues, and transport infrastructure and service provision;
- Identifies the impact of traffic generated by the Proposed Development and how this traffic can be mitigated;
- Assesses the residual impact on pedestrians, cyclists, passenger transport users and car drivers; and
- Concludes with an overview of the residual impact of the construction phases of the development and a discussion of potential cumulative impacts.

### 9.2 Planning and Policy Context

#### 9.2.1 National Planning Policy

National planning policy on transport is set out in PPG13 Transport (March 2001) (Ref. 9-1). The objectives of this guidance are to integrate planning and transport at the national, regional and local level in order to:

- Promote more sustainable transport choices for both people and for moving freight;

- Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and
- Reduce the need to travel, especially by car.

#### 9.2.2 Regional Planning Policy

Regional planning transport policy is set out in the Regional Spatial Strategy: South East Plan (Ref. 9-2). This replaces the Regional Planning Guidance for the South East (RPG9) (Ref. 9-3). The South East Plan is the regional framework that will ensure that the investment programmes of local authorities, transport providers and other key stakeholders in the transport sector complement and support the wider regional objective of delivering a more sustainable pattern of development.

In summary, the South East Plan identifies the need to reduce average journey lengths, and to promote the use of non-car modes, such as public transport, and for shorter distances, walking and cycling. In addition, the location, design and construction of new transport infrastructure projects should have a positive impact upon local communities and the local environment. The South East Plan also identifies the need to improve the overall level of safety on both trunk roads and local road networks and to reduce, where possible, the dependency on the car and lorry, and to utilise to a greater extent the potential of the rail network.

The Berkshire Structure Plan 2001 (Ref. 9-4) sets the spatial strategy within which the West Berkshire Council's (WBC) Local Transport Plan (LTP) is prepared. The strategy concentrates on the improvement of transport nodes and links. It also advises that planning powers should be used to reduce the need to travel, promote alternative means of travel, and to increase safety and access.

#### 9.2.3 Local Planning Policy

The West Berkshire Local Transport Plan 2 (LTP2) (Ref. 9-5) provides the framework for transport planning and decision making at a local level. The objectives of LTP2 are:

- To improve travel choice and encourage sustainable travel;
- To maintain and make the best use of West Berkshire's transport assets for all modes;
- To improve access to employment, education, healthcare, retail and leisure opportunities;
- To improve and promote opportunities for healthy and safe travel; and
- To minimise the impact of all forms of travel on the environment.

The LTP2 recognises that it will be critical for development at AWE to be supported by the implementation of a comprehensive travel plan and that West Berkshire and Hampshire local authorities work with AWE to achieve this. In addition, the plan recognises that AWE has implications for transport movement as it is a focus of movements in during the morning and out in the evening. These movements place pressure on the transport network, in particular the local highway network given the lack of alternatives from many locations to access AWE by means other than private transport. The freight strategy appended to the LTP2 advises that WBC will work in partnership with AWE to identify the

types and volumes of construction traffic likely to be generated on the main routes into AWE Aldermaston.

The overall objective of the transport policies set out in West Berkshire District Local Plan 1991-2006 (Ref. 9-6) is to reduce the need to travel, encourage the use of the means of transport other than the car, especially public transport, walking and cycling and discourage reliance on the car where there are effective alternatives.

As a result of the Planning and Compulsory Purchase Act 2004 (Ref. 9-7), Local Plans will eventually be replaced by Local Development Frameworks. These are currently being developed by WBC.

### 9.3 Assessment Methodology and Significance Criteria

#### 9.3.1 Assessment Methodology

The methodology used in this chapter generally accords with the Guidelines for the Environmental Assessment of Road Traffic produced by the Institute of Environmental Assessment ('IEA Guidelines') (Ref. 9-8). In addition, the Design Manual for Roads and Bridges – Volume 11 Environmental Assessment (Ref 9-9), published by the Department for Transport, has been considered.

The standard of provision of facilities for each transport user group has been considered using the following definitions:

<b>Poor</b>	Level of service provides cause for concern
<b>Adequate</b>	Satisfactory level of service but with room for improvement
<b>Good</b>	Level of service satisfies most users' requirements

These definitions have been used as a basis to assess the significance of potential residual impacts.

The Proposed Development will provide a facility that will replace activities carried out elsewhere on the AWE Aldermaston Site. It is estimated that up to 50 operational staff will work in the building all of whom currently work at AWE Aldermaston. Accordingly, the application proposal will not generate any additional operational worker vehicle movements over and above the existing facilities and the only additional vehicle movements will be generated by construction activity. It is predicted that construction Heavy Goods Vehicle (HGV) movements will peak in 2013 and that contractor construction vehicle movements will peak in 2014. To assess a worst case situation, the construction traffic assessment year has been taken as 2014, albeit using peak 2013 HGV numbers within total 2014 construction vehicle movements. Accordingly the assessment year is 2014.

The future year 2014 background traffic flows comprise:

- Baseline traffic flows observed in 2008 factored to the 2014 assessment year using National Road Traffic Forecasts (NRTF) low growth;
- Existing AWE generated traffic;

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- Traffic generated by the operation of the New Office Accommodation (NOA) (which was granted planning permission from WBC in February 2007) which is currently being built at AWE Aldermaston;
- Traffic generated by the operation of the High Explosive Fabrication Facility (HEFF) (which was granted planning permission from WBC in February 2008), which is currently being built at AWE Aldermaston.
- Traffic generated by the construction of the Pegasus development (which was granted planning permission from WBC in February 2010); and
- Traffic generated by the operation of the committed development at Easter Park, located to the south east of AWE Aldermaston.

The impact of this traffic, with and without construction traffic generated by the application proposals, has been assessed in 2014.

### 9.3.2 Significance Criteria

The magnitude of the impacts of the Proposed Development is identified together with the level of significance. It should be noted that the Proposed Development incorporates many features designed to reduce or avoid adverse environmental impacts. These features have been taken into account in the assessment of impacts within this chapter.

The IEA Guidelines suggest that the following two broad rules of thumb can be used to identify the scale and extent of assessment:

- “Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%);
- Rule 2: include any other specifically sensitive areas where traffic flows have increased by 10% or more.”

Notwithstanding these rules of thumb, assessments of predicted impacts have been undertaken and are set out within the remainder of this chapter.

The impact assessment identifies the potential need for mitigation, and this section assigns significance to impacts once mitigation measures have been put forward i.e. residual impacts.

The effects of residual impacts have been graded as:

<b>Beneficial</b>	Advantageous or positive impact to an environmental resource or receptor;
<b>Negligible</b>	Imperceptible impacts to an environmental resource or receptor;
<b>Adverse</b>	Detrimental or negative impacts to an environmental resource or receptor.

Where beneficial or adverse impacts have been identified these have been further assessed against the following scale:

<b>Minor</b>	Slight, very short or highly localised impact of no significant consequence;
<b>Moderate</b>	Limited impact (by extent/duration/magnitude) that may be considered significant; and
<b>Major</b>	Considerable impact (by extent, duration or magnitude) of more than local significance, or in breach of recognised acceptability/legislation/policy/standards.

The significance of predicted impacts has been assessed using quantitative assessments, where appropriate, in combination with qualitative judgement.

A list of the environmental impacts which should be assessed is set out in Table 2.1, Column 3 of the IEA Guidelines. Definitions of each of the potential impacts identified in the IEA Guidelines are set out below along with explanatory text relating to assessment criteria.

- **Noise and Vibration:** The environmental implications of noise and vibration arising from changes in traffic flow are assessed in *Chapter 11: Noise and Vibration* of this DEEA.
- **Visual Effects:** The visual impact of traffic is complex and subjective. Development generated construction traffic will route via existing external roads, which already carry existing traffic. The project will not substantially alter the composition of traffic on the road network, with routes affected currently accommodating all vehicle types. The specific visual effect of development generated traffic has not therefore been assessed. *Chapter 13: Landscape & Visual* of this DEEA does, however, include a full assessment of construction and operational phase impacts of the Proposed Development.
- **Severance:** Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. Severance is difficult to measure and by its subjective nature is likely to vary between different groups within a single community. In addition to the volume, composition and speed of traffic, severance is also likely to be influenced by the geometric characteristics of a road, the demand for movement across a road and the variety of land uses and extent of community located on either side of a road. All these factors are considered when determining the likely severance effect. In general terms, according to the IEA Guidelines, a 30% change in traffic flow is likely to produce a ‘slight’ change in severance, with ‘moderate’ and ‘substantial’ changes occurring at 60% and 90% respectively.
- **Driver Delay:** Delay to drivers generally occurs at junctions where opposing vehicle manoeuvres are undertaken with vehicles having to give or receive priority depending upon the type of junction arrangement. A number of traffic modelling computer programs are available which are able to predict the average vehicle delay at junctions. The change in average vehicle delay as a result of the development proposals is then identified and its significance assessed.

- **Pedestrian Delay:** The delay incurred by pedestrians is generally a direct consequence of their ability to cross roads. Thus the provision of crossing facilities, the geometric characteristics of the road, and the traffic volume, composition and speed are all factors that can affect pedestrian delay and have been considered when assessing this impact. It should be noted that the IEA Guidelines advise that, in assessing levels of, and changes in pedestrian delay, assessors do not attempt to use quantitative thresholds. Instead, the guidelines recommend the use of professional judgement to determine whether pedestrian delay is a significant effect.
- **Pedestrian Amenity:** The term ‘pedestrian amenity’ is broadly defined as the relative pleasantness of a journey. It is considered to be affected by traffic flow, speed and composition as well as footway width and the separation/protection from traffic. It encompasses the overall relationship between pedestrians and traffic, including fear and intimidation which is the most emotive and difficult impact to quantify and assess. There are no commonly agreed thresholds for quantifying the significance of changes in pedestrian amenity, although the IEA Guidelines tentatively suggest that where traffic flow (or its HGV component) doubles then significant impact is likely to arise. All the above factors are considered in reaching a professional judgement when assessing this effect.
- **Road Safety:** To establish the effect on the road safety record of the adjoining road network Personal Injury Accident (PIA) statistics have been obtained for the five year period, April 2004 to March 2009. Assessments have considered the incidence of accidents and assessed the likely change in the frequency of accidents as a result of the Proposed Development. In addition consideration has been given to the local circumstances prevailing, in particular traffic speed, flow and composition as well as vehicle conflict and pedestrian activity. A combination of these assessments enables a professional judgement to be made regarding the significance of the effect.
- **Hazardous Loads:** It is not anticipated that there will be any hazardous loads being transported in connection with the construction of the Proposed Development and thus no assessments have been undertaken.
- **Air Pollution:** The air quality effects of the Proposed Development arising from traffic are assessed in *Chapter 10: Air Quality* of this DEEA.
- **Dust and Dirt:** The environmental implications of dust and dirt being generated by construction vehicles departing the site are assessed in *Chapter 10: Air Quality* of this DEEA.
- **Ecological Effects:** The ecological effects of the Proposed Development are considered in detail in *Chapter 15: Ecology* of this DEEA. In relation to the increased traffic flow, it is considered unlikely that any ecological effects would arise as traffic is being introduced onto roads which already accommodate the full range of traffic. Indeed it should be noted the IEA Guidelines suggest that the two most likely causes of ecological effect from changes in traffic would arise from chemical spillage or removal of hedgerow or habitat. It is not anticipated that there will be any hazardous loads being transported and no hedgerows or habitat will be removed.

**9.4 Baseline Conditions**

**9.4.1 Development Context**

The Proposed Development is set within the context of the AWE Aldermaston & Burghfield Site Development Context Plan 2008 (SDCP08) that describes the overall approach to the modernisation of AWE Aldermaston and AWE Burghfield, through the refurbishment and replacement of existing facilities. The SDCP08 sets out the new build projects scheduled for the AWE Aldermaston Site between 2005 and 2015 including the New Office Accommodation (NOA), the High Explosives Fabrication Facility (HEFF) and the Pegasus Facility. NOA was granted planning permission by WBC in January 2007, HEFF received planning permission in February 2008, and Pegasus received planning permission in February 2010.

**9.4.2 General Transport Setting**

The Application Site context is described in *Chapter 1: Introduction* of this DEEA. The location of the AWE Aldermaston Site is shown, in relation to the surrounding highway network, on Figure 9-1.

There are various vehicle weight, height and width restrictions on roads surrounding the AWE Aldermaston Site. These are generally in place to facilitate the crossing of the Kennet and Avon Canal, and the Reading – Bedwyn railway. The restrictions are shown on Figure 9-2.

**9.4.3 Baseline Traffic Data**

Baseline 2008 traffic flows on the highway network surrounding AWE Aldermaston are shown on Figure 9-3.

Baseline traffic flows indicate that the morning AM and evening PM peak hours on the external highway network are 0800 – 0900 hours and 1700 – 1800 hours respectively. This differs to the AWE site generated AM and PM peak hours which are 0715 – 0815 and 1600 – 1700 hours respectively.

85<sup>th</sup> percentile traffic speeds on links surrounding the AWE sites are within the speed limits on the A340 Paices Hill and Red Lane, although slightly exceed the speed limit on Reading Road and the A340, between Falcon Gyrotary and Heath End roundabout.

**9.4.4 Baseline Highway Network**

The highway works that have been secured as part of the planning consent for the NOA development have now been implemented and have therefore been included within the baseline situation (Ref. 9-10). These are shown on Figure 9-4.

Figure 9-1: Existing Transport Network

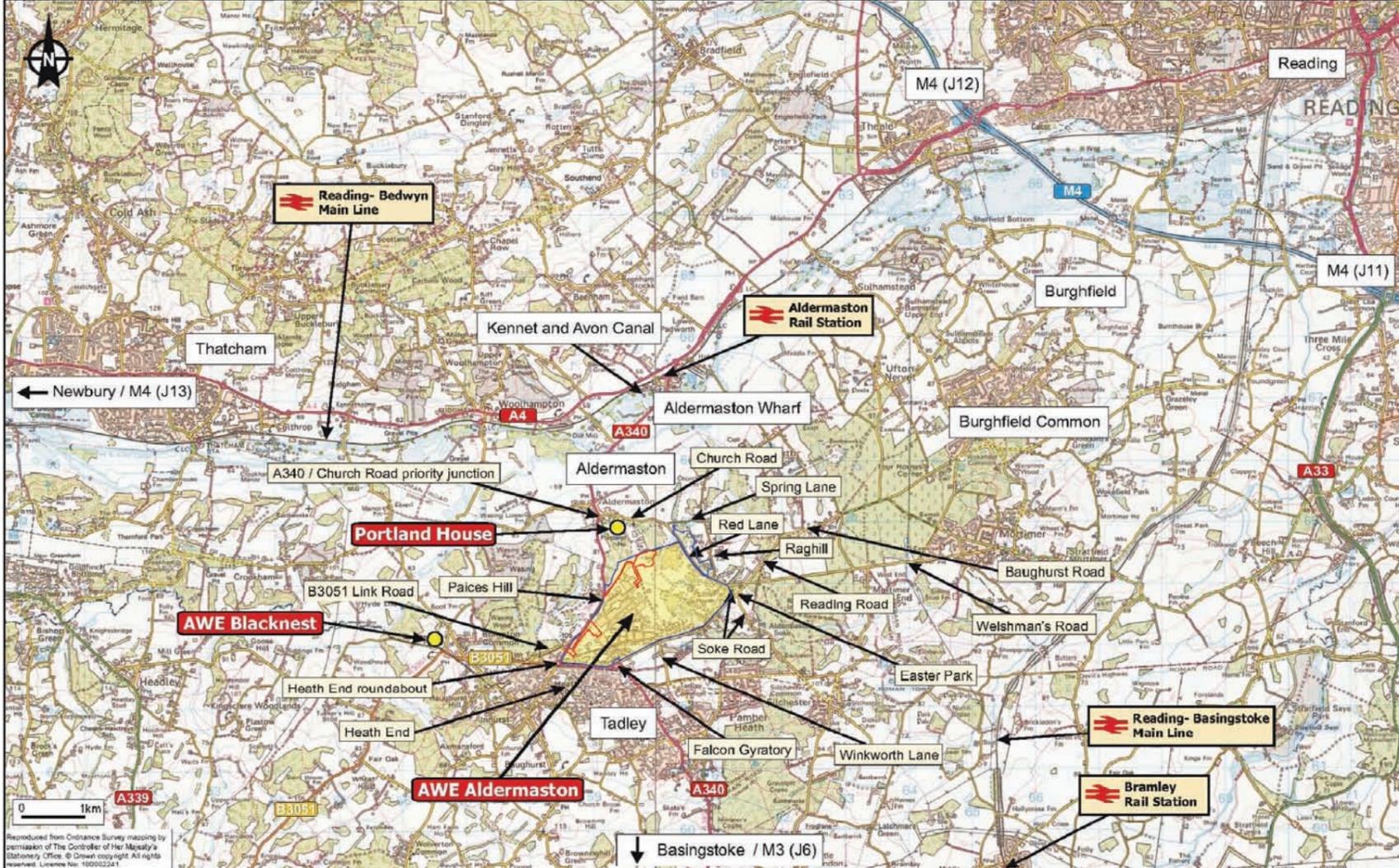
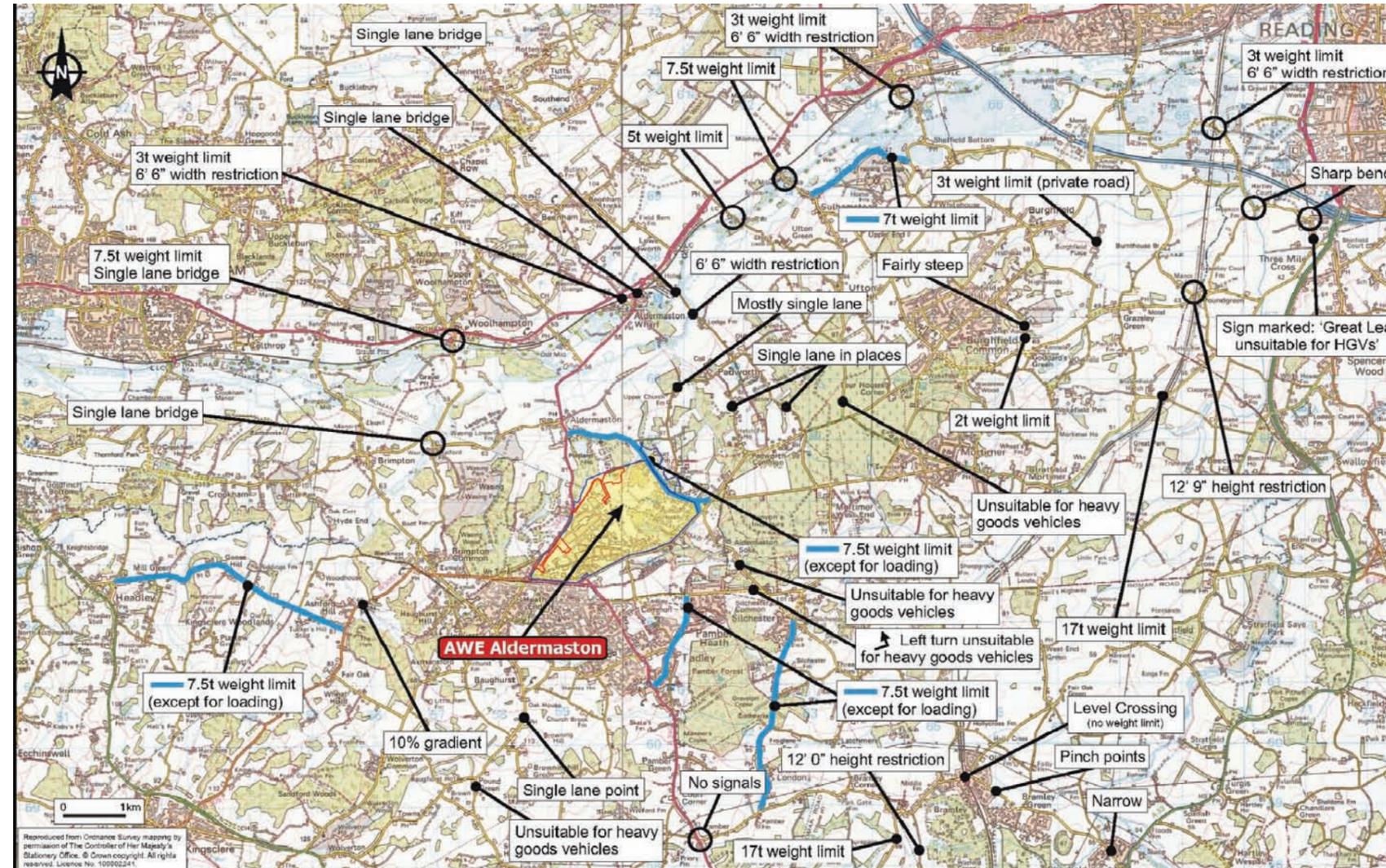


Figure 9-2: Weight, Height and Width Restrictions



#### 9.4.5 Baseline Pedestrian and Cycle Provision

Pedestrian and cycle provision in the vicinity of AWE Aldermaston Site has been substantially improved with the highway works that have been implemented as part of the NOA planning consent. It is generally accepted that commuters will walk up to a maximum distance of 2km and cycle up to a maximum distance of 5km. The implementation of the highway works will encourage walking and cycling to site, particularly from Tadley.

#### 9.4.6 Baseline Passenger Transport Provision

The AWE Aldermaston Site is well served by bus services from Basingstoke, reasonably well served by bus services from Reading, and poorly served by bus services from Newbury.

The 'Jazz' 2 service operates to / from Basingstoke on a 20 minute frequency throughout the day.

The 'Vitality' 2a service operates to / from Reading. The AWE Aldermaston Site is served by two services from Reading in the AM peak period and three services to Reading in the PM peak period.

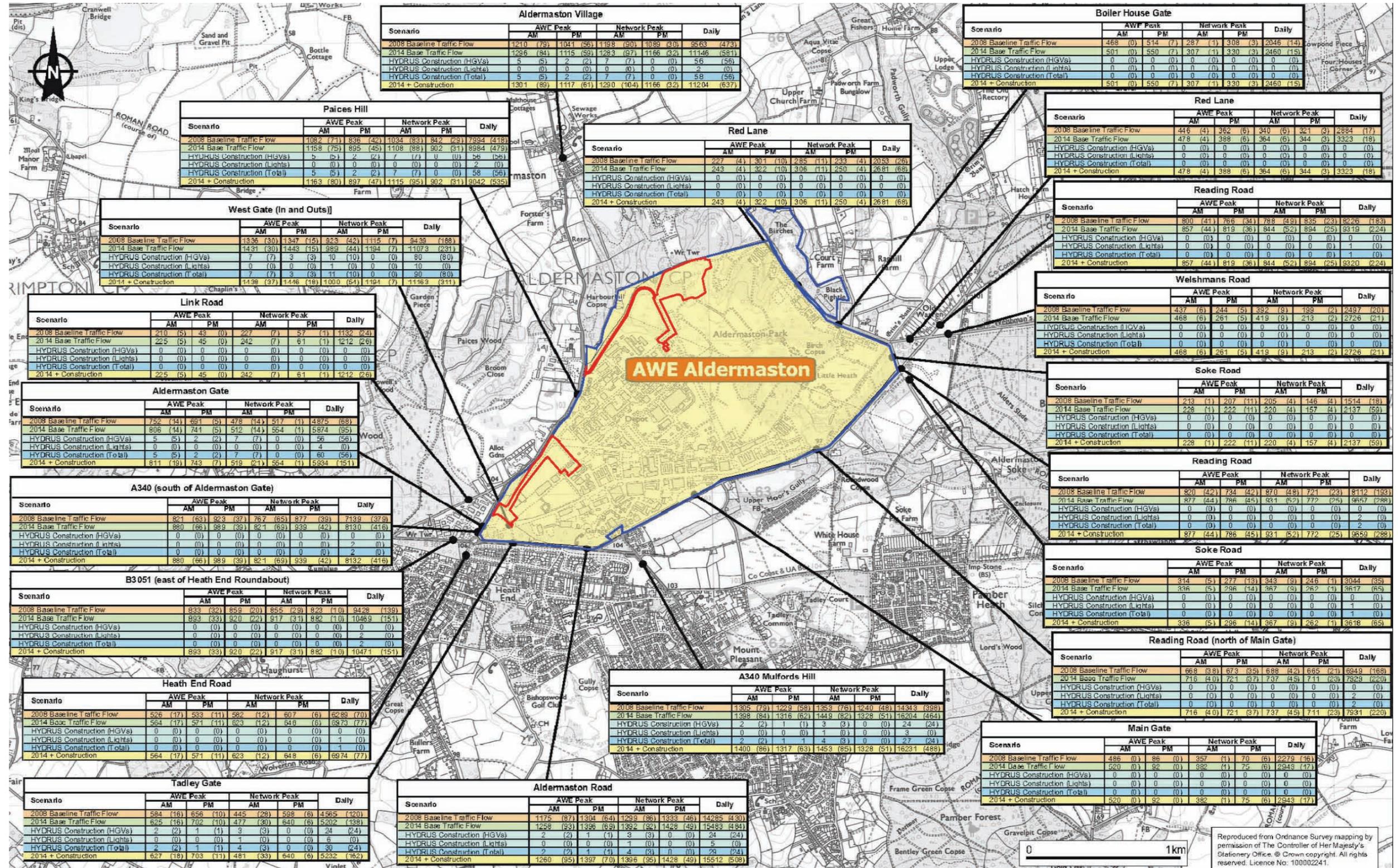
The 104 service operates to / from Newbury, providing one service from Newbury in the AM peak period and one service to Newbury in the PM peak period.

Aldermaston railway station is located on the Reading – Bedwyn main line, approximately 5km from the AWE Aldermaston Site and is served by 6 services, in each direction, during the AM peak period and 4 services in each direction, during the PM peak period. The services that call at Aldermaston essentially serve all stations between Reading and Newbury.

#### 9.4.7 Personal Injury Accidents

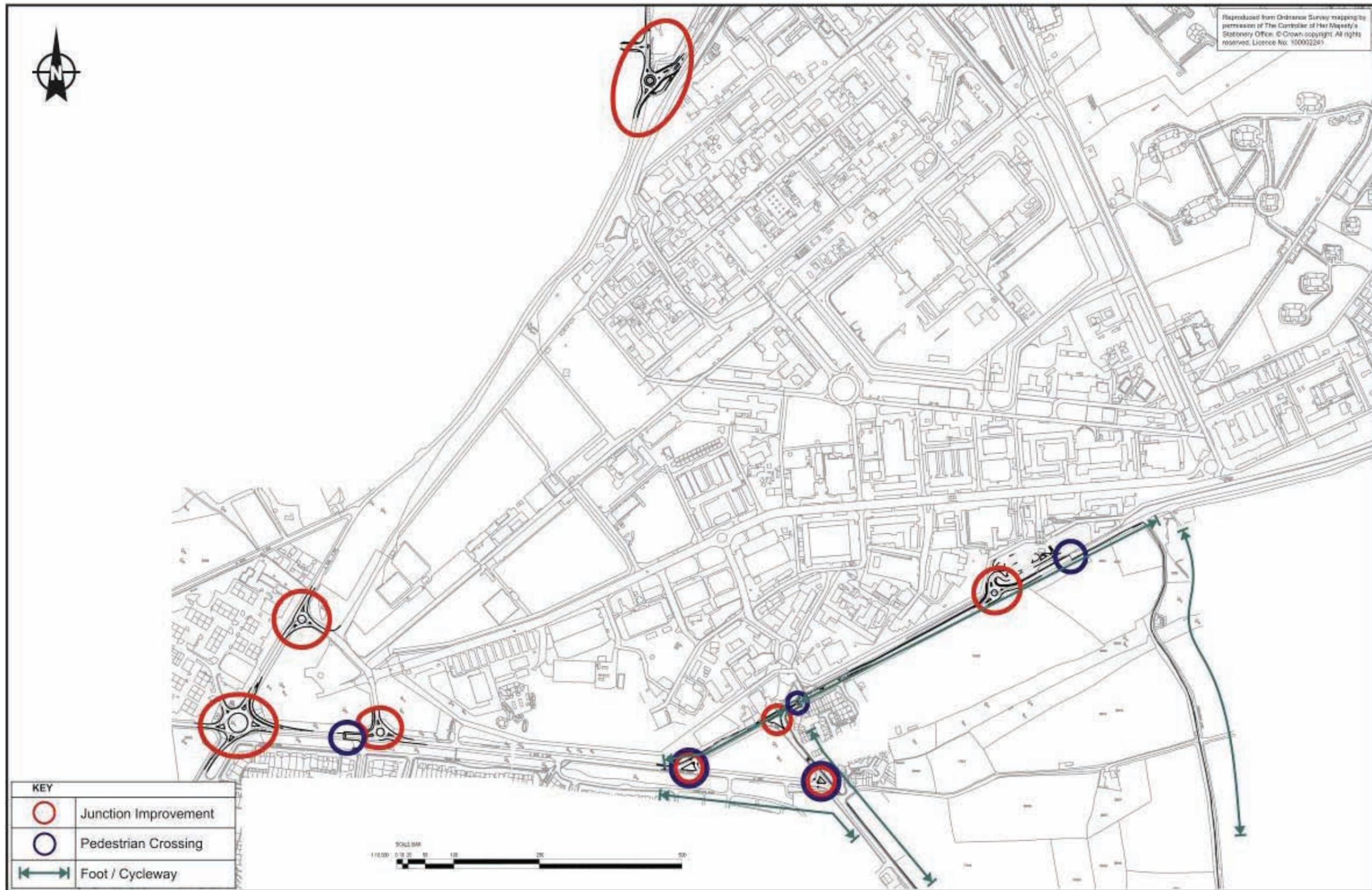
A review of Personal Injury Accidents (PIA) that have occurred in the vicinity of the AWE Aldermaston Site for the latest available five year period, April 2004 to March 2009, indicates that there is a poor safety record on the A340 between Heath End Roundabout and Aldermaston Village (Paices Hill). However, the implementation of the Aldermaston Gate and A340 (N) Gate roundabouts, as part of the NOA development planning consent, should improve road safety on this link.

Figure 9-3: Existing and Projected Traffic Flows (2014)



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Figure 9-4: Key Diagram Showing Location of Highway Improvements Associated with NOA Planning Approval (Ref. 9-13)



#### 9.4.8 Baseline Travel Patterns

The baseline modal split for all movements accessing and egressing AWE Aldermaston, as observed in March 2009, is shown in Table 9-1.

Table 9-1: Travel Modal Split for all Movements Accessing and Egressing AWE Aldermaston as Observed in March 2009

Mode	Proportion
Single occupancy vehicle travel	72%
Car Share	12%
Passenger Transport	4%
Bicycle	5%
Walk	5%
Other	2%
<b>Total</b>	<b>100%</b>

#### 9.4.9 Baseline Operational Worker Distribution

A review of the home location areas of the operational workforce based at AWE Aldermaston indicates that they are relatively evenly distributed in relation to nearby centres of population.

#### 9.4.10 Baseline Car Parking

The NOA planning consent permits the provision of up to 4,345 parking spaces at AWE Aldermaston.

### 9.5 Future Year Situation

#### 9.5.1 Year of Assessment

The Proposed Development will provide a hydrodynamics research facility that will replace activities carried out elsewhere on the AWE Aldermaston Site. It is estimated that up to 50 operational staff will work in the building all of whom currently work at AWE Aldermaston. Accordingly, the application proposal will not generate any additional operational worker vehicle movements over and above the existing facilities and the only additional vehicle movements will be generated by construction activity.

It is predicted that construction HGV movements will peak in 2013 and that total construction vehicle movements will peak in 2014. To assess a worst case situation, the construction traffic assessment year has been taken as 2014, albeit using peak 2013 HGV numbers within total 2014 construction vehicle movements.

Accordingly the assessment year is 2014.

#### 9.5.2 Future Year Traffic Data

In summary, future year traffic flows comprise:

- Baseline traffic flows observed in 2008 factored to the 2014 assessment year using National Road Traffic Forecasts (NRTF) low growth;
- Traffic generated by the operation of the NOA development at AWE Aldermaston;
- Traffic generated by the operation of the HEFF development at AWE Aldermaston;
- Traffic generated by the construction of the Pegasus development at AWE Aldermaston; and
- Traffic generated by the operation of the committed development at Easter Park, located to the south east of AWE Aldermaston.

Baseline traffic flows observed in 2008 were factored to the 2014 assessment year using NRTF low growth.

The AWE Travel Plan (Ref. 9-11) is currently being implemented. The Travel Plan aims to achieve the AWE Aldermaston targets set out in Table 9-2.

Table 9-2: AWE Aldermaston Travel Plan Targets

Mode	2009	2012 (Target)
Single Occupancy Vehicle (SOV)	72%	65%
Car share	12%	18%
Passenger Transport	4%	5%
Bicycle	5%	6%
Walk	5%	4%
Other (e.g. powered two wheelers)	2%	2%
	<b>100%</b>	<b>100%</b>

Given that the Travel Plan targets should be met by 2012, the existing AWE generated traffic should be reduced on a pro-rata basis in line with the targets. However, to assess a worst case situation, the reduction in traffic that would result from the achievement of the Travel Plan targets has not been applied to existing AWE traffic.

The NOA development (at Aldermaston) has planning consent. This will be completed and occupied by the 2014 assessment year. Accordingly, traffic estimated to be generated by the operation of the NOA development has been added to future year 2014 flows. The traffic predicted to be generated by the NOA development is summarised in Table 9-3.

Table 9-3: NOA Development Operational Workforce Trip Generation Estimates

	AWE AM Peak Hour	Network AM Peak Hour	AWE PM Peak Hour	Network PM Peak Hour	Daily
Total Vehicle Movements	456	306	415	283	1658

It should be noted that the above trip generation estimates are based on 1,400 new staff, an estimate that was assumed in the planning application. However, it is now envisaged that the NOA development will only accommodate 1,200 staff and many of these staff will already work at the AWE Aldermaston Site. Accordingly, the trip generation estimates should be considered worst case estimates.

The HEFF development has planning consent at AWE Aldermaston. This will be completed and occupied by the 2014 assessment year. Accordingly, traffic estimated to be generated by the operation of the HEFF development has been added to future year 2014 flows. The traffic predicted to be generated by the HEFF development is summarised in Table 9-4.

Table 9-4: HEFF Development Operational Workforce Trip Generation Estimates

	AWE AM Peak Hour	Network AM Peak Hour	AWE PM Peak Hour	Network PM Peak Hour	Daily
Total Vehicle Movements	4	3	4	2	14

The planning application for the Pegasus development was granted planning approval in February 2010, and it has been assumed that it will be under construction during the 2014 assessment year. Accordingly, traffic estimated to be generated by the construction of the Pegasus development has been added to future year 2014 flows. The traffic predicted to be generated by the Pegasus development is summarised in Table 9-5.

Table 9-5: Pegasus Development Construction Workforce Trip Generation Estimates

	AWE AM Peak Hour	Network AM Peak Hour	AWE PM Peak Hour	Network PM Peak Hour	Daily
Car Movements	58	59	58	59	234
Van Movements	1	3	0	0	30
HGV Movements	3	4	1	0	30
Total Vehicle Movements	62	66	59	59	294

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It should be noted that the construction car movements predicted to be generated by the Pegasus development in 2014 have not been included as committed development flows. This is because at the time the 2008 baseline traffic data was collected, there were approximately 440 cars parked in the construction car park resulting from ongoing construction activity at AWE. This is substantially more than the 117 cars that are predicted to be using the car park at the peak of construction in 2014. Accordingly, car and van movements during construction for the Pegasus committed development have therefore already been included within baseline traffic.

External committed development has also been considered, including the Easter Park development located to the south east of the AWE Aldermaston Site. It has been assumed that this development will be fully occupied by the 2014 assessment year. Accordingly, traffic estimated to be generated by the operation of the Easter Park development has been added to future year 2014 flows. The traffic predicted to be generated by the Easter Park development is summarised in Table 9-6.

Table 9-6: Easter Park Trip Generation Estimates

	<b>AWE AM Peak Hour</b>	<b>Network AM Peak Hour</b>	<b>AWE PM Peak Hour</b>	<b>Network PM Peak Hour</b>	<b>Daily</b>
Total Vehicle Movements	354	267	194	201	1605

These trip generation estimates for Easter Park have been agreed with WBC.

It should be noted that the impact of the new Integrated Waste Management Facility (IWMF) at Padworth, that was granted planning consent in March 2009, has not been taken into account. This is because the Transport Assessment that accompanied the proposal did not assess any of the junctions or links that are assessed in this ES. Accordingly, the transport impact of the proposed IWMF can be considered to be negligible in relation to these application proposals.

### 9.5.3 Future Year Traffic Flows

Future year traffic flows on the highway network surrounding AWE Aldermaston are shown on Figure 9-3.

## 9.6 Development Proposals

### 9.6.1 Land Use Proposals

The Application Site and Proposed Development have been outlined in detail in *Chapter 1: Introduction* and *Chapter 5: The Proposed Development* of this DEEA.

The Proposed Development will provide a total of 16,907 square metres (m<sup>2</sup>) Gross Floor Area (GFA), comprising a 14,176m<sup>2</sup> Operations Building, a 2,515m<sup>2</sup> Support Building and a 216m<sup>2</sup> Electrical Substation. A full description of the Hydrus Facility is set out in *Chapter 5: The Proposed Development* of this DEEA.

The Proposed Development will provide a hydrodynamics research facility that will replace activities carried out elsewhere on the AWE Aldermaston Site. It is

estimated that up to 50 operational staff will work in the building all of whom currently work at AWE Aldermaston. Accordingly, the application proposal will not generate any additional operational worker vehicle movements over and above the existing facilities and the only additional vehicle movements will be generated by construction activity.

### 9.6.2 Access Proposals

It is proposed that the operational workforce will access / egress the Hydrus Development Site via the existing West Gate, Main Gate, Boiler House Gate and Falcon Gate. The location of these gates is shown on Figure 9-5.

To minimise the impact on the external highway network, the operational workforce who travel by car will be encouraged to use gates based on their home postcode location.

It is proposed that construction staff will access the AWE Aldermaston Site via the Burnham Gate, park in the West End Construction Enclave (WECE) car park and catch a bus service that will be provided for construction personnel, routed via Aldermaston Gate, the A340 and the A340 Gate. The Location of these gates is shown on Figure 9-5.

HGVs will be searched at the WECE then escorted via the Burnham Gate along A340 Paices Hill, and will re-enter the AWE Aldermaston Site via the A340 Gate to access the construction site.

### 9.6.3 Car Parking

The Proposed Development will not generate any additional operational worker vehicle movements. Accordingly operational workers will park in existing general car parking areas on site. As a result it will not be necessary to provide any additional car parking for the Hydrus operational workforce.

It is proposed that the Hydrus construction workforce will park in the WECE and catch a shuttle bus to access / egress the construction site; the shuttle bus will be routed out of the AWE via Burnham Gate, then along the A340 Paices Hill, re-entering via A340 Gate.

## 9.7 Potential Impacts and Mitigation Measures

### 9.7.1 Potential Impacts

#### 9.7.1.1 Trip Generation

##### Operational Phase

The Proposed Development will provide a hydrodynamics research facility that will replace activities carried out elsewhere on the AWE Aldermaston Site. It is estimated that up to 50 operational staff will work in the building all of whom currently work at AWE Aldermaston. Accordingly, the application proposal will not generate any additional operational worker vehicle movements over and above the existing facilities and the only additional vehicle movements will be generated by construction activity.

##### Construction Phase

Vehicle movements that will be generated by the construction of the Proposed Development have been derived by the Hydrus Project Team, in conjunction with AWE's Central Logistics Team.

It is estimated that 354 construction car and van movements (comprising 344 construction worker car and 10 van movements), and 80 construction HGV movements, will be generated each day at the peak of construction.

HGV and van arrival / departure profiles observed from construction activity resulting from the Investment Programme at AWE Aldermaston have been applied to daily vehicle estimates to derive peak hour trip generation. It has been assumed that construction car arrivals and departures are spread evenly throughout the AM and PM peak periods (0700 – 0900 hours and 1600 – 1800 hours), to derive peak hour trip generation.

During the peak of construction activity, it is estimated that:

- 7 HGV and 86 car movements will be generated during the AWE AM peak hour;
- 10 HGV and 87 car and van movements (comprising 86 construction worker car movements and 1 van movements) will be generated during the network AM peak hour;
- 3 HGV and 86 construction car movements will be generated during the AWE PM peak hour; and
- No HGV and 86 construction car movements will be generated during the network PM peak hour.

Overall, therefore, at the peak of construction activity, 93 and 89 vehicle movements are estimated to be generated during each of the AWE AM and PM peak hours respectively, and 97 and 86 vehicle movements are estimated to be generated during the network AM and PM peak hours respectively.

The construction phase trip generation estimates (shown in vehicle trips) are summarised in Table 9-7.

Table 9-7: Construction Phase Trip Generation Estimates for the Proposed Development (Vehicle Trips)

	AM Peak Hour		PM Peak Hour		Daily
	AWE	Network	AWE	Network	
Construction Worker Vehicle Trips	86	86	86	86	344
Construction Van Vehicular Trips	0	1	0	0	10
Construction HGV Trips	7	10	3	0	80
<b>Total Construction Trips</b>	<b>93</b>	<b>97</b>	<b>89</b>	<b>86</b>	<b>434</b>

**9.7.1.2 Future Year Traffic Flows**

The assessment year for the Proposed Development is 2014. Predicted development generated traffic flows were added to these 2014 future year flows and are shown on Figure 9-3.

It should be noted that construction worker and management vehicular trips have not been added to the future year flows. This is because at the time the 2008 baseline traffic data was collected, there were approximately 440 cars parked in the construction car park resulting from ongoing construction activity at AWE. This is substantially more than the 289 (172 from Hydrus and 117 from Pegasus) cars that are predicted to be using the car park at the peak of construction in 2014. Accordingly, construction worker and management trip generation has therefore already effectively been included within baseline traffic. Indeed baseline traffic therefore includes some 151 cars over and above that which will actually be generated. Again therefore, a worst case situation has been assessed.

**9.7.2 Mitigation Measures**

Section 9.4.2 has identified that there are various vehicle weight, height and width restrictions on roads surrounding the AWE Aldermaston Site. These are generally in place to facilitate the crossing of the Kennet and Avon Canal and Reading – Bedwyn railway.

With regard to these restrictions, and the desire to restrict construction HGV traffic to the strategic highway network as far as possible, there are limited routing options available to construction HGV traffic. The proposed construction HGV route is shown on Figure 9-6.

Highway infrastructure improvements and Travel Plan initiatives, secured as part of the NOA planning consent, have been implemented. Having regard to the improvements and initiatives, together with the vehicle trips that are predicted to be generated, it is not considered necessary to implement any further mitigation measures over and above these improvements and initiatives.

**9.8 Residual Impact Assessment and Conclusions**

The definitions highlighted in section 9.3 have been used as a basis to assess the significance of potential residual impacts. Residual impact assessments for each of the transport user groups have been considered as set out below:

**Pedestrians and Cyclists:** Good pedestrian and cycle linkages to the site, together with Travel Plan initiatives, secured as part of the NOA development planning consent, have been and will continue to be implemented by the assessment years. This includes the provision of controlled crossing facilities and foot / cycleways. Further foot / cycleways, secured by way of contribution to the Local Highway Authority, West Berkshire Council, as part of the NOA development, are still to be implemented. This includes contributions towards the provision of foot / cycleways between Aldermaston Wharf and Aldermaston Village, and Heath End roundabout and Aldermaston Village. The potential impact on pedestrians and cyclists from the construction of the Proposed Development for severance, safety, amenity and delay, is considered to be **negligible**.

**Passenger Transport Users:** Improved passenger transport services, together with Travel Plan initiatives, secured as part of the NOA development planning consent, have been and will continue to be implemented by the assessment year. Controlled crossings are also in place to aid making connection to services to and from the site. The potential impact for users of passenger transport, from the construction of the Proposed Development, in terms of severance, safety, amenity and delay, is considered to be **negligible**.

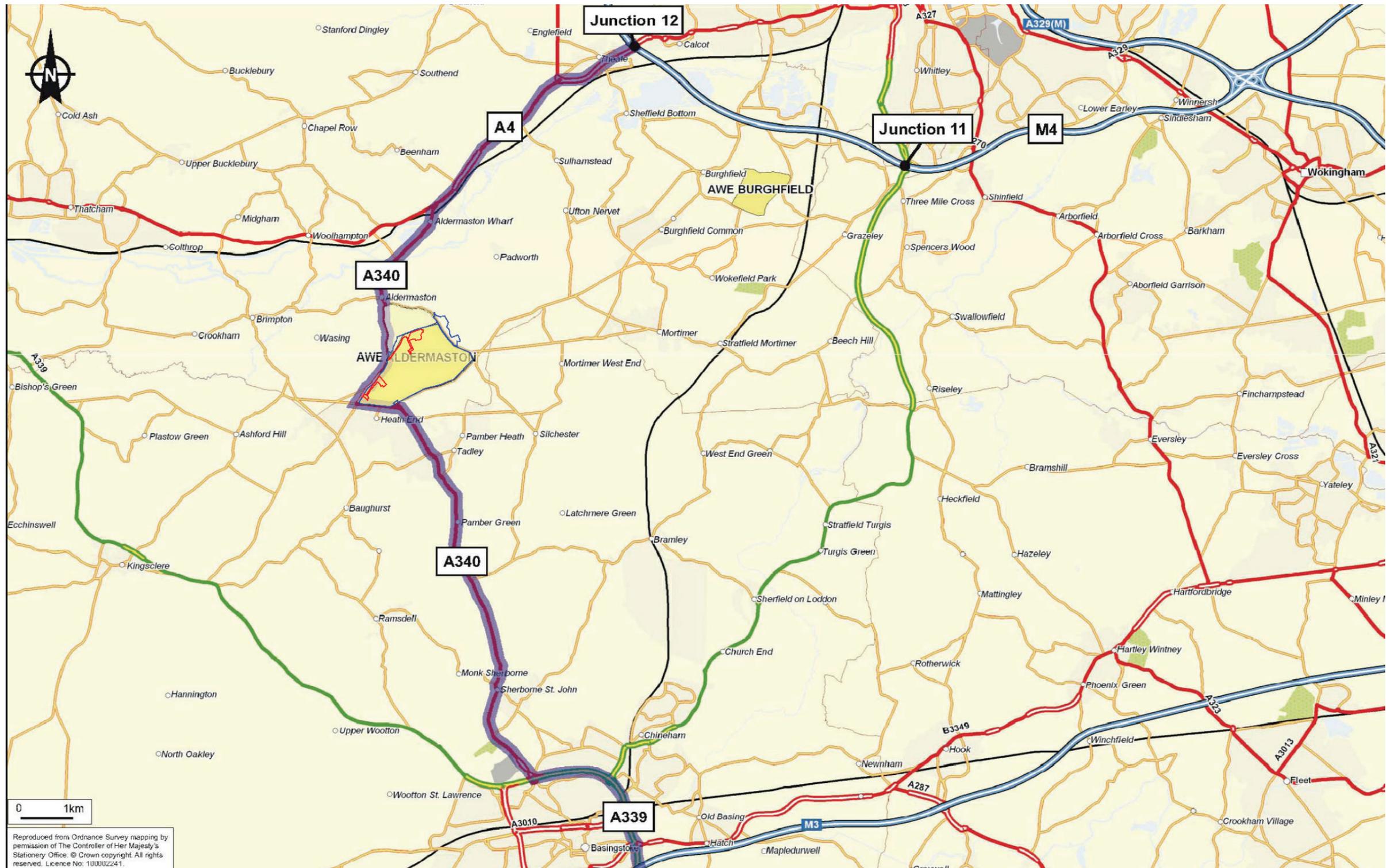
**Car Drivers:** Highway improvements, secured as part of the NOA development planning consent, have been implemented. Delays on key routes to the AWE Aldermaston Site in the AM peak periods are summarised in Table 9-8 for 2014. The potential impact for car drivers in terms of safety and delay is considered to be **negligible**.

The results of the residual impact assessment for each of the transport user groups is summarised in Table 9-9.

Table 9-8: Predicted Impact of Proposed Development on Driver Delay in the AM Peak Period in 2014

From	To	Total Delay (Seconds) (x)			
		AWE Peak		Network Peak	
		2014 Base	2014 Base + Dev	2014 Base	2014 Base + Dev
A340 (N)	West Gate (N)	0< x <30	0< x <30	0< x <30	0< x <30
B3051	West Gate (N)	150< x <180	150< x <180	120< x <150	120< x <150
B3051	West Gate (S)	150< x <180	150< x <180	120< x <150	120< x <150
Heath End Road	West Gate (N)	0< x <30	0< x <30	0< x <30	0< x <30
Heath End Road	West Gate (S)	0< x <30	0< x <30	0< x <30	0< x <30
Burnham Road	West Gate (S)	0< x <30	0< x <30	0< x <30	0< x <30
A340(S)	Main Gate (W)	30< x <60	30< x <60	30< x <60	30< x <60
Soke Road	Boiler House Gate	0< x <30	0< x <30	0< x <30	0< x <30
Welshman's Road / Reading Road (E)	Boiler House Gate	0< x <30	0< x <30	0< x <30	0< x <30

Figure 9-6: Proposed Construction HGV Route



## 9.9 Conclusion

This chapter of the DEEA has described the assessment of the impact of the Proposed Development on the surrounding transport network.

The assessment has primarily been based on the Guidelines for the Environmental Assessment of Road Traffic produced by the Institute of Environmental Assessment (IEA, 1993).

The Proposed Development will provide a hydrodynamics research facility that will replace activities carried out elsewhere on the AWE Aldermaston Site. It is estimated that up to 50 operational staff will work in the building all of whom currently work at AWE Aldermaston. Accordingly, the application proposal will not generate any additional operational worker vehicle movements over and above the existing facilities and the only additional vehicle movements will be generated by construction activity.

The assessment has been carried out in 2014 when construction vehicles are predicted to peak.

Good highway infrastructure improvements and Travel Plan initiatives, secured as part of the NOA development planning consent, have been and will continue to be implemented by the assessment years. Having regard to the improvements and initiatives, together with the vehicle trips that are predicted to be generated, it is not considered necessary to implement any further mitigation measures over and above these improvements and initiatives.

The potential residual impact from the construction and operation of the Proposed Development, on pedestrians, cyclists, passenger transport users and car drivers has been assessed and is considered to be **negligible** for severance, road safety, amenity and delay.

## 9.10 Cumulative Impact Assessment

A cumulative impact assessment of the Investment Programme to sustain key skills and facilities at AWE Aldermaston and AWE Burghfield, as announced by the Secretary of State for Defence on 19 July 2005 (Ref. 9-11) has been carried out.

The results of this exercise are summarised in the document entitled "Preliminary Evaluation of the Transport Implications of the SDCP" (PETIS) (Ref. 9-12).

The PETIS document has been reviewed in the light of updated circumstances and the results of this confirm that the impact of the Investment Programme as a whole, at AWE Aldermaston, will be very similar to the peak transport impacts associated with this planning application. Accordingly, no separate reporting is considered necessary.

Table 9-9: Significance of Residual Impacts for Transport User Groups

Transport User Group	Impact	Without Development			With Development			Significance
		Poor	Adequate	Good	Poor	Adequate	Good	
Pedestrians and Cyclists	Severance		✓			✓		
	Safety		✓			✓		
	Amenity		✓			✓		
	Delay		✓			✓		
Car Drivers	Severance	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Safety		✓			✓		
	Amenity	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Delay		✓			✓		
Passenger Transport Users	Severance		✓			✓		
	Safety		✓			✓		
	Amenity		✓			✓		
	Delay		✓			✓		

### Key:

	Significance following Development		
	Minor	Moderate	Major
Adverse			
Negligible			
Beneficial			

## 9.11 References

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| <p>Ref. 9-1 Department of Environment, Transport and Regions (DETR) (2001) Planning Policy Guidance Note 13 Transport.</p> <p>Ref. 9-2 Government Office for the South East (2009) The South East Plan – Regional Spatial Strategy for the South East of England, TSO.</p> <p>Ref. 9-3 Government Offices for the South East, East of England and London (2006) Regional Planning Guidance for the South East (RPG9).</p> <p>Ref. 9-4 Berkshire Unitary Authorities' Joint Strategic Planning Unit (2005) Berkshire Structure Plan 2001-2016.</p> <p>Ref. 9-5 West Berkshire Council (2006) West Berkshire Local Transport Plan 2, 2006/07 – 2010/11.</p> <p>Ref. 9-6 West Berkshire Council (2002) Berkshire District Local Plan 1991-2006.</p> | <p>Ref. 9-7 ODPM (2004) Planning and Compulsory Purchase Act 2004. HMSO, London.</p> <p>Ref. 9-8 Institute of Environmental Assessment (1993) Guidelines for the Environmental Assessment of Road Traffic.</p> <p>Ref. 9-9 Department of Environment, Transport and the Regions (2000) Design Manual for Roads and Bridges, Volume 11 Environmental Assessment.</p> <p>Ref. 9-10 Agreement under Section 106 of the Town and Country Planning Act relating to the development of New Office Accommodation at the Atomic Weapons Establishment, Aldermaston between West Berkshire District Council and the Secretary of State for Defence dated 29/01/07.</p> <p>Ref. 9-11 Written Ministerial Statement by Dr John Reid, the Secretary of State for Defence, 19 July 2005.</p> <p>Ref. 9-12 AWE (2006) Preliminary Evaluation of the Transport Implications of the SDCP.</p> |
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