

9 Traffic and Transport

Introduction

9.1 This Chapter of the Environmental Statement (ES) assesses the likely effects of the Proposed Development on the environment with respect to traffic and transportation. Where appropriate, the chapter also identifies proposed mitigation measures to prevent, minimise or control likely negative impacts arising from the Proposed Development and the subsequent anticipated residual effects.

9.2 This chapter should be read together with:

- Appendix 9.1: Transport Assessment
- Appendix 9.2: Traffic Flows

Assessment Methodology

Legislation and Planning Policy Context

National Planning Policy Framework (NPPF) (2018) National Planning Policy Framework (Chapter 9: Promoting Sustainable Transport);

9.3 The new National Planning Policy Framework was launched In July 2018 and states that the purpose of the planning system is to contribute to the achievement of sustainable development. The three overarching objectives to achieving this are:

- *“an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*
- *a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities’ health, social and cultural well-being; and*
- *an environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”*

9.4 To ensure that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable development.

9.5 Chapter 9 'Promoting Sustainable Transport' sets out the requirement for transport issues to be considered from the earliest stages of plan making and development proposals so that:

- Impacts on transport networks can be addressed;
- Opportunities from existing and proposed transport infrastructure, technology and usage can be realised;
- Opportunities to promote walking, cycling and public transport can be pursued;
- The transport and infrastructure environmental impacts can be assessed and mitigated; and,
- Scheme design considers patterns of movements, streets, parking and other transport considerations.

9.6 Significant development should be situated in locations which are/ can be made sustainable by minimising the need to travel and offering a range of transport modes to reduce congestion, emissions, and enhance air quality and public health.

9.7 The following should be considered when assessing development sites:

- Sustainable transport modes have been promoted;
- Safe and suitable access to the site can be achieved for all users; and,
- Any significant impacts on the transport network (capacity or congestion), or on safety can be mitigated to an acceptable level.

9.8 Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

National Planning Practice Guidance (NPPG) (2018):

9.9 In March 2014, the Department for Communities and Local Government (DCLG) launched this web-based resource for planning practice guidance, the last update was 2018. It provides advice on travel plans (TPs), transport assessments (TAs) and statements (TSs), including guidance on when they are required, and what they should contain.

9.10 Paragraph 006 of the 'Overarching principles on Travel Plans, Transport Assessment and Statements' states that: Travel Plans, Transport Assessments and Statements can positively contribute to:

- encouraging sustainable travel;
- lessening traffic generation and its detrimental impacts;

- reducing carbon emissions and climate impacts;
 - creating accessible, connected, inclusive communities;
 - improving health outcomes and quality of life;
 - improving road safety; and
 - reducing the need for new development to increase existing road capacity or provide new roads.
- 9.11 The resource goes on to explain that travel plans and transport assessments “support national planning policy which sets out that planning should actively manage patterns of growth in order 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.”

Reading Borough Council Core Strategy with alteration (2015)

- 9.12 Reading Borough Core Strategy states that development must have access to efficient and effective public transport.
- 9.13 The Core Strategy outlines the need for Transport Assessments to be prepared for new developments, to ensure the impact upon the transport network is mitigated.

Draft Reading Borough Council Local Plan (2017)

- 9.14 The Draft Reading Borough Council Local Plan outlines the requirements for new developments to promote and improve sustainable transport facilities.
- 9.15 The Local Plan also sets out the council’s objectives for transport, which new development should contribute to.

Reading Borough Council Third Local Transport Plan 2011 – 2026

- 9.16 The Reading Borough Local Transport Plan (LTP) contains the objectives, policies and schemes intended to improve transport in an area whilst also contributing to wider environmental, social and economic benefits.
- 9.17 The site falls within the Central Area Action Plan for Reading. The LTP recognises that development within this area will increase strain on the traffic network. One of the plans for the Central Area is for Reading Borough Council (RBC) to work with the private sector to secure delivery of integrated transport choices associated with new development.
- 9.18 The LTP states that future developments should seek to minimise their impact on the transport network in order to reduce environmental impacts associated with air quality, noise and carbon.

Reading Station Area Framework (2010)

- 9.19 The Station Area Framework outlines broad development principles and guides the planned redevelopment of the area, individual sites, the public realm and new transport infrastructure.
- 9.20 The framework insists that any development in the area must ensure that the impact upon the surrounding road network is acceptable.

Relevant Guidance

Institute of Environmental Management and Assessment - Guidelines for the Environmental Assessment of Road Traffic (1993).

- 9.21 The guidance sets out the best practice for EIA assessment of highways impact.

British Standard 8300: 2009

- 9.22 British Standard (BS) 8300:2009: Design of buildings and their approaches to meet the needs of disabled people provides guidance and recommendations for good practice for the design of new buildings and their approaches to meet the needs of disabled people.
- 9.23 It covers a wide range of impairments and the use of the built environment by disabled people who may be residents, visitors, spectators, customers, employees, or participants in sports events, performances and conferences. All design elements within the site adhere to BS 8300:2009.

Study Area

- 9.24 The study area consists of the development site, and the surrounding major roads and transport infrastructure. All the committed schemes included within the assessment are located within 1km of the development site. The study area is outlined in Figure 9.1.

Baseline Methodology

- 9.25 The baseline conditions have been informed by desktop research, site visits, and traffic surveys carried out in 2017 and 2018.
- 9.26 Traffic surveys were also undertaken in October 2017 by Traffic Data Centre in the same format as March 2010, to provide comparative data to assess the change in baseline traffic flows over the duration of seven years. The ATC surveys were undertaken between 11 – 17 October 2017, and the MCC survey was undertaken on Wednesday 11 October 2017.
- 9.27 Four areas were surveyed:
- Trooper Potts Way (south of Vastern Road)
 - Vastern Road (west of Troopers Potts Way)
 - Caversham Road (south of Northfield Road)
 - Trooper Potts Way / Bagnall Way / Royal Mail Depot site access

These locations are shown in Figure 9.2.

- 9.28 Where available, the ATC and MCC data above has been supplemented by traffic count data from the Department for Transport (DfT) for 2017, which is the latest published full-year dataset.
- 9.29 It was not possible to collect baseline data for public transport modes, therefore, a qualitative assessment of impacts on public transport has been undertaken.

Consultation

- 9.30 The scope of the assessment on traffic and transport was determined in consultation with RBC planning and highways officers. Meetings were held with RBC on 25 October and 24 November 2017 and drafts of the Transport Assessment (TA) were shared with RBC in November and December 2017. A summary of the comments provided by RBC and our response is given in Table 9.1.

Table 9.1: Consultation Responses Relevant to this Chapter

Date	Consultee and Issues Raised	How/ Where Addressed
15 November 2017	E-mail from Darren Cook (RBC Transport Development Control Manager) to Richard Eatough (RBC Planning Officer)	
	Provide dates of ATC surveys	The traffic surveys were undertaken on 11 to 17 October 2017
	Clarify vehicular access points to avoid rat-running through site	See paragraphs 4.9 of Appendix 9.1, and Annex E.
	Retain existing taxi rank at southern end of Trooper Potts Way	Retained – see paragraph 4.12 of Appendix 9.1
	All servicing and delivery activity to be undertaken within the site boundary	Confirmed – see paragraph 7.1 of Appendix 9.1
	Confirm flows leaving eastern access are lower than those in the previous consent to avoid need for detailed assessment of visibility splay from Aviva site to the north	Confirmed – see paragraph 4.9 of Appendix 9.1
	Amend pass-by assumption for restaurant element to only 50% of trips	Confirmed – see paragraph 5.17 of Appendix 9.1
	Adjust mode shares of residential and office trips to reflect onsite parking provision	Confirmed – see paragraphs 5.22 and 5.25 of Appendix 9.1
	External highways impacts should consider net change in trips between agreed former use of site and current proposals	Confirmed – see paragraph 9.131
	Framework Travel Plan(s) should be provided as part of the application documentation	Confirmed – see Annexes J and K of Appendix 9.1
29 March 2018	Reading Borough Council Scoping Opinion	
	Baseline transport condition is not the lapsed 2012 permission but the lawful use of the site as applied for in the CLP certificate 121483/CLP	Confirmed – see paragraph 9.67
	Confirm flows leaving eastern access are lower than those in the previous consent to avoid need for detailed assessment of visibility splay from Aviva site to the north	Confirmed – see Table 6.4. of Appendix 9.1.
	All servicing being undertaken from within the site is acceptable although tracking analyses are required to demonstrate it is workable	Confirmed – see Annex H Appendix 9.1
	Confirmed that the draft December 2017 Transport Assessment addresses the following points previously raised: 1. Date of ATC surveys 2. Access points to reflect those agreed for the 2012 permission 3. Taxi rank at Northern Interchange retained 4. 50% pass-by assumption for restaurant trips 5. Proposed all modes trip rates for residential and office components are acceptable 6. Appropriate to adjust Census mode shares to reflect on-site parking provision 7. No further junction assessments required as the impacts will generally be less than those of the 2012 permission	1. See paragraph 9.26 2. See paragraphs 4.9 of Appendix 9.1, and Annex E 3. See paragraph 4.12 of Appendix 9.1 4. See paragraph 5.17 of Appendix 9.1 5. See paragraphs 5.22 and 5.25 of Appendix 9.1 6. See paragraphs 5.22 and 5.25 of Appendix 9.1 7. See paragraphs 6.8 and 6.10 of Appendix 9.1

Assessment Criteria and Assignment of Significance

9.31 The 'Guidelines for the Environmental Assessment of Road Traffic, IEMA, 1993' set out several potential environmental effects relating to highways and transport considerations which potentially require assessment. Those which relate to this assessment are:

- Changes in Traffic Flows
- Severance;
- Delay (Driver, Pedestrian, Cycle, Public Transport);
- Amenity, Fear and Intimidation
- Accidents and Safety; and
- Hazardous Loads.

9.32 Changes in traffic flows measures the increase or decrease in road traffic flows resulting from the Proposed Development, compared to baseline conditions.

9.33 Severance is defined by the guidance in paragraph 4.27 of the IEMA guidelines:

"Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to quite minor traffic flows if they impede pedestrian access to essential facilities".

9.34 The guidance refers to potential delays to drivers and to pedestrians. Users of other modes can also experience delays, such as cyclists and those travelling by bus and rail. Drawing upon the IEMA Guidelines and professional experience, delays to road users may change where:

- Traffic flows change at junctions;
- New junctions are introduced;
- Existing junctions are changed;
- Speeds on existing links are changed;
- Existing links are closed;
- New links are opened;
- Frequency of use of controlled pedestrian or cycle crossings change; and
- New controlled pedestrian or cycle crossings are introduced.

9.35 The IEMA Guidelines note that DfT has assumed 30%, 60% and 90% changes in traffic levels should be considered as “slight”, “moderate”, and “substantial” impacts respectively. The IEMA Guidelines also note that increases in traffic of as little as 5% may be significant in terms of the capacity criteria of a highway but not its environmental effects, and the criteria set out within the guidance make the higher thresholds more relevant to the assessment of the environmental effects of traffic increases.

9.36 Delay to bus users may also change where bus routes or bus stops are proposed to be changed or where demand for a bus exceeds capacity.

9.37 Pedestrian and cyclist delay may change where:

- Pedestrians and cyclists cross existing roads where traffic flows are projected to change;
- Pedestrians and cyclists cross new roads;
- Existing roads which pedestrians and cyclists would have crossed are removed;
- Road speeds change;
- Pedestrian and cycle volumes change;
- New crossing facilities are provided; and
- Existing pedestrian crossing facilities change.

9.38 Rail delay may change where:

- Passenger areas within stations become congested; and
- Demand for a train exceeds capacity.

9.39 Amenity is defined by the guidance in paragraph 4.39 of the IEMA guidelines:

“It is broadly defined as the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition, and pavement width/separation from traffic. This definition also includes pedestrian fear and intimidation and, can be considered to be a much broader category including consideration of the exposure to noise and pollution, and the overall relationship between pedestrians and traffic.”

9.40 Fear and intimidation is defined by the guidance in paragraph 4.40 of the IEMA guidelines:

“The impact of this is dependent on the volume of traffic, its HGV composition, its proximity to people or the lack of protection caused by such factors as narrow pavement widths.”

9.41 Amenity, fear and intimidation may be considered for pedestrians, cyclists, bus passengers and rail passengers. Amenity, fear and intimidation can be considered together as they are strongly interrelated.

9.42 The key issue in assessing accidents and safety is in understanding the potential for change. There can be some small changes in prevailing road safety conditions arising simply due to having a greater number of journeys being made on a network; hence, the more people that are travelling, the more people that are liable to become involved in an accident. By far the more important issue to consider is how travel and the design of the transport networks interrelate to affect prevailing road safety.

9.43 In that context, prevailing road safety may change where:

- Material changes are proposed to the form or nature of a transport network such as changes to the geometry of a junction or changing the form of a junction; and
- Material changes are proposed to prevailing travel patterns on transport networks not designed to cater for them such as introducing a pedestrian demand on a rural road without footways or introducing a pedestrian demand across a heavily trafficked and high-speed road without a suitable crossing provision.

9.44 Hazardous loads are discussed in paragraph 4.43 of the IEMA guidelines:

“Some developments may involve the transportation of dangerous or hazardous loads by road and this should be recognised within any Environmental Statement. Such movements should include specialist loads which might be involved in the construction or decommissioning phases of the development, in addition to movement associated with the operation of the establishment”.

9.45 Hazardous loads could include, for example:

- Explosives;
- Gases;
- Flammable liquid;
- Flammable solids;
- Oxidising substances;
- Toxic substances;
- Radioactive material; and
- Corrosive substances.

Receptors and their Sensitivity

- 9.46 Potential Receptors refers to the users of each transport network within the relevant study area. The criteria that has been used to assess Receptor Sensitivity in this study is described in Table 9.2.

Table 9.2: Receptor Sensitivity Criteria or Value

Sensitivity	Typical Descriptors
High	Modes of transport which are heavily used (by all users or particularly by vulnerable road users) relative to other modes within the study area or those which have a low capacity to accommodate change without significant effects arising.
Medium	Modes of transport which are used (by all users or particularly by vulnerable road users) to an average level relative to other modes within the study area or those which have a moderate capacity to accommodate change without significant effects arising.
Low	Modes of transport which are lightly used (by all users or particularly by vulnerable road users) relative to other modes within the study area or those which have a high capacity to accommodate change without significant effects arising.
Negligible	Modes of transport which are very lightly used (by all users or particularly by vulnerable road users) relative to other modes within the study area or those which have a very high capacity to accommodate change without significant effects arising.

Magnitude of Impact

- 9.47 Magnitude of Impact refers to the level of change predicted for each mode within the relevant study area as a result of the Proposed Development. The criteria that has been used to assess Magnitude of Change in this investigation is described in Table 9.3 (with respect to Severance, Delay, Amenity, Fear and Intimidation, Accidents and Safety and Hazardous Loads) and Table 9.4 (with respect to Changes in Traffic Flows).

Table 9.3: Magnitude of Impact Criteria – Severance, Delay, Amenity, Fear and Intimidation, Accidents and Safety and Hazardous Loads

Magnitude	Typical Descriptors
High	Changes which are likely to be perceptible and which would significantly change conditions which would otherwise prevail to the extent that it would significantly affect travel behaviour.
Medium	Changes which are likely to be perceptible and which would materially change conditions which would otherwise prevail to the extent that it may affect travel behaviour to a measurable degree.
Low	Changes which are likely to be perceptible but not to the extent that it would materially change conditions which would otherwise prevail.
Negligible	Changes which are unlikely to be perceptible.

Table 9.4: Magnitude of Impact Criteria – Changes in Traffic Flows

Absolute Change in Flow (or HGV)	Percentage change in flow (or HGV)			
	<30%	<60%	<90%	>90%
<30 vehicles	Negligible	Negligible	Negligible	Negligible
<60 vehicles	Negligible	Slight	Slight	Slight
<90 vehicles	Negligible	Slight	Moderate	Moderate
>90 vehicles	Negligible	Slight	Moderate	Substantial

- 9.48 These criteria reflect the guidance set out in paragraph 4.31 of the IEMA guidance which states the following:

“Changes in traffic flow of 30%, 60% and 90% are regarded as producing ‘slight’, ‘moderate’ and ‘substantial’ changes in severance respectively. These figures have been derived from studies of major changes in traffic flow and therefore should be used cautiously in any environmental assessment”

- 9.49 The inclusion of the absolute change criteria in the leftmost column of Table 9.4 reflects the fact that the percentage change criteria are derived from studies of major changes in traffic flow. This aims to prevent counterintuitive ‘default’ results such as an increase of four vehicles on a road with an existing flow of three vehicles being classified as a ‘large’ change.

Significance of Effects

- 9.50 The scale of a likely effect has been determined using a combination of the Receptor Sensitivity (Table 9.2) and the Magnitude of Impact criteria (Tables 9.3 and 9.4) as displayed in Table 9.5.

Table 9.5: Assessment Matrix

Sensitivity	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
No change	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Negligible	No change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Low	No change	Negligible or Minor	Minor	Moderate	Moderate or Major
Medium	No change	Minor	Minor or Moderate	Moderate or Major	Major or Substantial
High	No change	Minor	Moderate or Major	Major or Substantial	Substantial

- 9.51 In terms of effect significance, substantial, major and moderate effects are considered to be ‘significant’. Effects that are minor and negligible are not considered significant.

- 9.52 Effects are also described by their timescales and outcomes, as follows:

- Permanent or temporary;
- Short (<5 years), medium (5-10 years) or long term (10+ years);
- Direct or Indirect; and
- Reversible or Irreversible.

- 9.53 Temporary, short and medium-term effects are those associated with demolition and construction works and permanent, whilst long-term effects are those associated with the Proposed Development once completed and operational.

9.54 Direct effects result without any intervening factors, whilst indirect or 'secondary' effects are not directly caused by an action or trigger, and may result from external factors.

9.55 The IEMA Guidance has been applied to identify the significance criteria applicable to the assessment. Paragraph 4.5 of the IEMA Guidance states that:

"For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible"

9.56 The nature of effects is described as either:

- Beneficial – meaning that the changes produce benefits in terms of transport and access (such as reduction of traffic, travel time or patronage, or provision of a new service, access or facility); or
- Adverse – meaning that changes produce dis-benefits in terms of transport and access (such as increase of traffic, travel time, patronage or loss of service or facility); or
- Neutral – neither beneficial nor adverse.

Limitations of the Assessment

9.57 Construction vehicle trip generation of all excavation and waste material transported from the Reading Metropolitan site has been calculated from data provided by the Applicant and wider Design Team.

9.58 The forecast trip generation for the cumulative schemes has been derived from associated TAs and where these were not available, the agreed trip rates that have been used to calculate the trip generation for the Proposed Development have been used. The Vastern Road and Broad Street Mall schemes were derived from a similar trip generation as undertaken for the Proposed Development.

9.59 It was not possible to collect baseline information for public transport line loadings. Professional judgement has been used to determine the impact of increases to existing service capacities.

Baseline Environment

9.60 This section provides an overview of the baseline transport conditions within the study area, considering the existing highway network, public transport accessibility and pedestrian and cyclist facilities and access. Following on from this, consideration is given to the likely evolution of the baseline conditions in relation to planned / committed transport improvements including Crossrail.

9.61 The site is located immediately north of Reading Station, bounded by Caversham Road to the west, Vastern Court to the north and the car park link road to the east.

- 9.62 The site is vacant following the departure of Royal Mail in June 2009 but was previously used as the main sorting office for Royal Mail in the Reading area. The disused sorting offices remain on site.
- 9.63 The existing building footprint is approximately 24,000 m² and the existing Royal Mail sorting office which accommodated approximately 140-160 employees on a shift basis and 240-260 car/van/truck parking spaces.
- 9.64 For existing traffic flow data, see Table 9.8.
- 9.65 The former Royal Mail Sorting Office has surface parking spaces for around 150 cars and around 90 service vehicles (Royal Mail vans and trucks). There are areas where parking occurs outside of marked spaces. However, these areas do not generally accommodate more than around 20 vehicles in total.
- 9.66 The former Royal Mail sorting office which was located on the site up to June 2009 was estimated to generate around 34 two-way trips in the AM Peak and around 46 in the PM Peak via its main entrance from Vastern Road (via Trooper Potts Way).
- 9.67 This level of traffic generation has been established through CLP certificate 121483/CLP and reflects the agreed lawful uses which could be reinstated following the cessation of temporary occupation by Network Rail.

Pedestrian Facilities

- 9.68 There is currently no pedestrian access to the site. However, there is a pedestrian crossing to the west of the site on Caversham Road.
- 9.69 The principal pedestrian link from the site to the town centre is via the recently enhanced subway under Reading station adjacent to Station Square. There are also alternative north-south pedestrian routes under the railway via Caversham Road and Vastern Road.
- 9.70 Links to the river are facilitated by pedestrian crossing points to the east and west on Vastern Road.

Cycle Facilities

- 9.71 Within the town centre and in the vicinity to the site, there are several signed cycle routes with or without cycle infrastructure, the closest of which being either end of Vastern Road.
- 9.72 Cycle hire operators, including On Your Bike and Readybike, provide hire cycles within easy walking distances of the site (e.g. adjacent to Reading station's northern and southern accesses).

National Rail Services

- 9.73 Reading station is a major transport hub situated close to the main retail and commercial areas of the town. Around 15 million passengers pass through the station annually and the anticipated growth is expected to double passenger numbers by 2030.

- 9.74 A large number of services currently operate from the station with Great Western Railway, South West Trains and Cross Country. The journey time to London is around 30 minutes and the route is used daily by commuters.
- 9.75 From 2019, Reading station will also be served by Elizabeth Line (Crossrail) services running through Central London towards Shenfield and Abbey Wood. Peak service frequencies will be four trains per hour in each direction.
- 9.76 A summary of the main rail services along with the peak hour and off-peak frequencies is shown in Table 9.6.

Table 9.6: Rail Services and Frequency from Reading Station

Destination	Peak frequency	Off-peak frequency
London Paddington*	Every 5 – 10 minutes	Every 5 – 10 minutes
Oxford/ Didcot Parkway	Every 10 minutes	Every 10 minutes
Swindon	Every 12 minutes	Every 12 minutes
Basingstoke	Every 15 minutes	Every 15 minutes
Guildford	Every 20 minutes	Every 30 minutes
Newbury	Every 20 minutes	Every 20 minutes
Bristol Parkway	Every 30 minutes	Every 30 minutes
Cardiff	Every 30 minutes	Every 30 minutes
Bristol Temple Meads	Every 30 minutes	Every 30 minutes
Moreton in Marsh	Every 30 minutes	Every 60 minutes
London Waterloo	Every 30 minutes	Every 30 minutes
Redhill/Gatwick Airport	Every 30 minutes	Every 30 minutes
Bournemouth	Every 60 minutes	Every 60 minutes
Penzance	Every 60 minutes	Every 60 minutes
Newcastle	Every 60 minutes	Every 60 minutes
Swansea	Every 60 minutes	Every 60 minutes
Manchester Piccadilly	Every 60 minutes	Every 60 minutes
Weston-Super-Mare	Every 60 minutes	Every 60 minutes
Paignton	Every 60 minutes	Every 60 minutes

**Note: Fast services only (less than 35 minutes journey time). Additional services are available to London Paddington via stopping services.*

Bus Services

- 9.77 The site is well served by bus routes. There are a bus stops on Caversham Road, Vastern Road and a number of stops on Trooper Potts Way. The stops are served by bus routes 22, 24, 2, 2a, 27 and 800 on typical days, whilst additional bus services associated with special events (e.g. festivals, football matches) are available from these stops on event days.
- 9.78 There are significantly more services that commence or terminate journeys from stops located at the south entrance to Reading Station which is within walking distance from the site.
- 9.79 A summary of the main bus services along with the peak hour and off-peak frequencies is shown in Table 9.7.

Table 9.7: Bus Services and Frequency from the RMG site

Route no. (provider)	Destinations	Peak frequency	Off-peak frequency
22 (Reading Buses)	Reading Station – Caversham Heights	Every 60 mins	Every 60 mins
23 (Reading Buses)	Reading Station – Caversham Park – Emmer Green	Every 30 mins	Every 30 mins
24 (Reading Buses)	Reading Station – Caversham library – Chalgrove Way	Every 30 mins	Every 30 mins
25 (Reading Buses)	Reading Station – Peppard Common	Every 30 mins	Every 60 mins
27/29 (Reading Buses)	Caversham Road – Nire Road	Every 30 mins	Every 60 mins
42 (Reading Buses)	Rivermead Drive – Caversham Road – Kenavon Drive	Every 40 mins	Every 40 mins
X80 (Carousel)	Reading Station – Caversham – Henley-on-Thames – Marlow – High Wycombe	Every 60 mins	Every 60 mins
X39/40B (Thames Travel)	Reading Station – Caversham – Woodcote – Henley-on-Thames – Wallingford – Oxford	Every 30 mins	Every 30 mins

Public Transport Accessibility Level – PTAL

- 9.80 A PTAL assessment of the existing site has been carried out. The site achieves a Level 6b – “Excellent” in both the peak and off-peak periods. This is due to the high number of bus and rail services available with easy walking distance of the site. The introduction of Crossrail in December 2019 will further enhance the site’s effective accessibility by public transport.

Taxi Services

- 9.81 There is a taxi rank located immediately outside of the northern entrance of Reading railway station and the site’s proposed eastern access. There is an additional taxi rank on the eastern side of Trooper Potts Way. Both of these taxi ranks will be retained as part of the Proposed Development.

Car Clubs

- 9.82 There are three car club vehicles available in close proximity to the site. These comprise:
- A Co-Wheels Car Club vehicle available at Reading Council Magistrates Court car park (12-minute walk from site’s western pedestrian access); and
 - Two Carvenient Car vehicles, including one on Garrard Street (5-minute walk from the site) and one on New Bright Street (15-minute walk from the site).
- 9.83 The provision of car club vehicles within walking distance of the site will enable site users to undertake private vehicle trips when required without the responsibility of owning one themselves.

Local Highway Network

- 9.84 At present, access to the site is possible from the A329 (Caversham Road) and Trooper Potts Way.
- 9.85 The vehicle entrance from the A329 (Caversham Road) southbound provides access to a small on-site car park running along the western border of the site, and to a larger on-site car park on the site's southern side; this is accessible via an access route between the existing buildings.
- 9.86 The vehicle access from Trooper Potts Way provides access to a small on-site car park and on-site servicing yard to the rear of the development. Trooper Potts Way's main carriageway, which is currently owned by Royal Mail, also provides access to Reading station's northern entrance, associated drop-off and car parking facilities.
- 9.87 A separate two-way carriageway is also provided along Trooper Potts Way's eastern side. This carriageway is restricted to bus and cycle use only and supports a series of new bus stops, which form part of the Reading station transport interchange (See: Section 5.21). This carriageway connects to the priority junction with Bagnall Way, and forms a loop with the main carriageway of Trooper Potts Way, permitting buses to leave in forward gear without turning.
- 9.88 The A329, which is referred to as Caversham Road to the site's west and as Vastern Road to the site's north, forms part of the Inner Ring Road. This route acts as a local distributor road for traffic moving to/from different areas of Reading. The junction between the A329 (Caversham Road) and the A329 (Vastern Road) has been signalised since the application for the 2012 Consented Scheme.
- 9.89 Overall, the Site is considered to be in a beneficial position in relation to the highway network, although it is noted that congestion can represent a significant issue on local major routes, particularly at peak times.

Parking Provision and Servicing Activity

- 9.90 The former Royal Mail Sorting Office has surface parking spaces for around 150 cars and around 90 service vehicles (Royal Mail vans and trucks). There are areas where parking occurs outside of marked spaces. However, these areas do not generally accommodate more than around 20 vehicles in total.
- 9.91 The former Royal Mail sorting office which was located on the site up to June 2009 was estimated to generate around 34 two-way trips in the AM Peak and around 46 in the PM Peak via its main entrance from Vastern Road (via Trooper Potts Way).
- 9.92 The 'existing' traffic flows associated with the Sorting Office site have been omitted from this assessment. Baseline traffic for the site is based on an analysis of traffic survey data captured in 2010 and 2017, supplemented with data from DfT from the most recent period. The baseline traffic flow data is shown in Table 9.8.

Table 9.8: Existing Traffic Flows

Survey Location	AM Peak Hour		PM Peak Hour		Daily	
Road Link	Flow	% HGV	Flow	% HGV	Flow	% HGV
Vastern Road	1,762	5.4%	1,837	5.4%	24,929	5.4%
Caversham Road North	1,771	3.3%	2,100	3.3%	27,872	3.3%
Trooper Potts Way	178	4.6%	190	4.6%	1,967	4.6%
Forsbury Road	1,329	1.8%	1,576	1.8%	20,924	1.8%
Forsbury Road/Kings Road	1,358	2.1%	1,611	2.1%	21,382	2.1%
Caversham Road South	2,312	5.7%	2,243	5.7%	32,279	5.7%
Oxford Road	872	3.8%	1,034	3.8%	13,721	3.8%

- 9.93 Traffic surveys were undertaken in March 2010 and October 2017; the results of these surveys can be seen in Table 9.9. These surveys, which were undertaken on neutral weekdays including the following elements.

Automatic Traffic Count (ATC)

- 9.94 ATC surveys, which recorded the speed, classification and direction of vehicles over a 24-hour 7-day period between 2 – 8 March 2010, were undertaken in the following locations:

- Royal Mail Access Road (Trooper Potts Way);
- A329 Vastern Road, immediately west of signalised junction with Trooper Potts Way. Due to the central hatched area, distance and guard, east-bound and west-bound datasets were treated as two separate counts; and
- A329 Caversham Road, immediately south of junction with Northfield Road and the controlled pedestrian crossing. Due to the central island, north-bound and south-bound datasets were treated as two separate counts.

Manual Classified Count (MCC)

- 9.95 The MCC survey was undertaken on a neutral weekday (Wednesday 3 March 2010) between 07:00 – 10:00 (AM period), 12:00 – 15:00 (Lunchtime period) and 16:00 – 19:00 (PM period). This survey was undertaken at the priority junction between Trooper Potts Way / Bagnall Way / Royal Mail Depot site access.
- 9.96 It should be noted that the surveys were undertaken after the closure of the Royal Mail Sorting Office and therefore do not include the ‘existing’ trips described in paragraph 9.92 associated with the Sorting Office.

Table 9.9: March 2010 Traffic Survey Data Summary

Survey Location	AM Peak vehicular flow (08.00-09.00)		PM Peak vehicular flow (17.00-18.00)	
ATC survey	Total Vehicles	Proportion of cyclists and motorcyclists	Total Vehicles	Proportion of cyclists and motorcyclists
Site 1 - Trooper Potts Way (2-way)	76	5%	86	5%
Site 2 - A329 Vastern Road (Eastbound)	1105	2%	595	3%
Site 3 - A329 Vastern Road (Westbound)	780	2%	991	1%
Site 4 - A329 Caversham Road (Northbound)	1418	1%	1273	1%
Site 5 - A329 Caversham Road (Southbound)	1213	1%	1220	1%
MCC Survey				
Site 1 - Trooper Potts Way / Bagnall Way / Royal Mail Depot Site access	171	30%	210	23%

9.97 Traffic surveys were also undertaken in October 2017 by Traffic Data Centre in the same format as March 2010, to provide comparative data to assess the change in baseline traffic flows over the duration of seven years. The ATC surveys were undertaken between 11 – 17 October 2017, and the MCC survey was undertaken on Wednesday 11 October 2017.

9.98 A summary of the 2017 traffic survey data is presented in Table 9.10.

Table 9.10: October 2017 Traffic Survey Data Summary

Survey Location	AM Peak vehicular flow (08.00-09.00)		PM Peak vehicular flow (17.00-18.00)	
ATC survey	Total Vehicles	Proportion of cyclists and motorcyclists	Total Vehicles	Proportion of cyclists and motorcyclists
Site 1 - Trooper Potts Way (2-way)	106	6%	134	6%
Site 2 - A329 Vastern Road (Eastbound)	1022	2%	700	2%
Site 3 - A329 Vastern Road (Westbound)	699	2%	886	2%
Site 4 - A329 Caversham Road (Northbound)	1165	1%	1080	1%
Site 5 - A329 Caversham Road (Southbound)	1132	1%	982	1%

Survey Location	AM Peak vehicular flow (08.00-09.00)		PM Peak vehicular flow (17.00-18.00)	
MCC Survey				
Site 1 - Trooper Potts Way / Bagnall Way / Royal Mail Depot Site access	107	7%	78	8%

- 9.99 The net change in baseline traffic flows and proportion of cyclists and motorcyclists between the 2010 and 2017 surveys is presented in Table 9.11.

Table 9.11: Net Change in Baseline Traffic Flows

Survey Location	AM Peak vehicular flow (08.00-09.00)		PM Peak vehicular flow (17.00-18.00)	
ATC survey	Total Vehicles	Proportion of cyclists and motorcyclists	Total Vehicles	Proportion of cyclists and motorcyclists
Site 1 - Trooper Potts Way (2-way)	30	1%	49	1%
Site 2 - A329 Vastern Road (Eastbound)	-83	0%	105	-1%
Site 3 - A329 Vastern Road (Westbound)	-81	0%	-105	1%
Site 4 - A329 Caversham Road (Northbound)	-253	0%	-193	-1%
Site 5 - A329 Caversham Road (Southbound)	-81	0%	-238	0%
MCC Survey				
Site 1 - Trooper Potts Way / Bagnall Way / Royal Mail Depot Site access	64	23%	132	16%

Traffic Growth

- 9.100 Based on the results of Table 9.11, it is evident that two-way peak hour flows have not changed on Vastern Road between 2010 and 2017 and that two-way peak hour flows have significantly reduced on Caversham Road between 2010 and 2017. On this basis, it is reasonable to make a worst-case assumption that there is no underlying traffic growth on the key roads surrounding the site.

Future Baseline Conditions

- 9.101 Other than the changes set out below, the site and local transport network is assumed to continue operating as existing if the Proposed Development were not to come forward.

Elizabeth Line (Crossrail)

- 9.102 Following its completion and opening in December 2019, Reading station will form the western terminus for Elizabeth Line services on the north-western branch.

- 9.103 Peak services will operate every 15 minutes providing a direct connection to stations in central and east London, including Bond Street, Farringdon and Canary Wharf. Off-peak services will operate every 30 minutes. Fast services to London Paddington operated by Great Western Railway will be unaffected by Crossrail services
- 9.104 The Elizabeth Line (Crossrail) will significantly reduce journey times between Reading and key destinations in London.

Committed Development Traffic Flows

- 9.105 Table 9.12 sets out committed development traffic flows; these take into account the list of cumulative schemes agreed with RBC (For details, see: Appendix 4.6).

Table 9.12: Future Committed Development Traffic Flows

Survey Location	AM Peak Hour		PM Peak Hour		Daily	
Road Link	Flow	% HGV	Flow	% HGV	Flow	% HGV
Vastern Road	431	5.2	473	5.2	6,603	5.2
Caversham Road North	59	3.3	58	3.1	881	3.2
Trooper Potts Way	14	4.9	15	4.4	105	4.6
Forsbury Road	206	1.7	232	1.6	3,194	1.6
Forsbury Road/Kings Road	155	2.2	198	2.1	2,578	2.1
Caversham Road South	477	5.6	426	5.3	6,784	5.5
Oxford Road	36	3.8	33	3.6	524	3.7

Future Baseline Traffic Flows

- 9.106 Table 9.13 sets out future baseline traffic flows (i.e. 2017 observed flows plus the future committed development traffic flows).

Table 9.13: Future Baseline Traffic Flows

Survey Location	AM Peak Hour		PM Peak Hour		Daily	
Road Link	Flow	% HGV	Flow	% HGV	Flow	% HGV
Vastern Road	2,193	5.3	2,310	5.3	31,532	5.3
Caversham Road North	1,829	3.3	2,158	3.3	28,753	3.3
Trooper Potts Way	192	5.1	205	5.1	2,177	6.7
Forsbury Road	1,536	1.7	1,809	1.7	24,118	1.7
Forsbury Road/Kings Road	1,514	2.1	1,808	2.1	23,960	2.1
Caversham Road South	2,789	5.7	2,669	5.6	39,063	5.7
Oxford Road	907	3.8	1,067	3.8	14,245	3.8

- 9.107 These flows are not inclusive of vehicle trips generated by the lawful use of the site. As described in paragraph 9.92, the vehicle trips from the site's lawful use are very low with 34 trips in the AM peak and 46 trips in the PM peak. Nevertheless, this means that the trip generation and vehicle flow will overestimate the net number of trips to the site.

Mitigation Measures Adopted as Part of the Project

Demolition and Construction

- 9.108 The management of construction activities is dealt with in Chapter 2 of the ES and includes proposals for hours of working, wheel-washing facilities etc. A Code of Construction Practice (CoCP) is provided at Appendix 4.1 which states that a Construction Environmental Management Plan (CEMP) would be implemented prior to commencement of demolition and construction works. This would be approved and enforced by the Council under a planning condition in the planning permission sought.
- 9.109 There would be an increase in local LGV/HGV movements during demolition and construction. Management strategies formed as part of the CEMP would be implemented to ensure that any effects associated with their movements to and from the site are minimised.
- 9.110 These would include a routing agreement to ensure that the most appropriate route is used between the site and spoil processing/disposal site, along with wheel-washing and restricting the hours of operation.
- 9.111 To minimise traffic on site, staff and the labour force would be encouraged to use public transport. The proximity of the site to Reading station and a number of bus routes should ensure that this is the case for the majority of employees. No parking on the local roads would be allowed and the Contractor/Construction Manager would collaborate to enforce this. Provision would be made within the site for essential on-site parking only. Site personnel would access the site via bio-metric turnstiles, which would be segregated from vehicular access.

Travel Plan

- 9.112 A Residential Framework Travel Plan and Commercial Travel Plan have been produced and submitted, together with the TA, as part of the planning application for the site. These travel plans include overarching objectives aimed at promoting sustainable travel to, from and within the Proposed Development. The strategic objectives adhere to:
- Promoting Public Transport;
 - Reducing Car Use; and
 - Encouraging Walking and Cycling.
- 9.113 The implementation of the travel plans will improve site accessibility by and uptake of sustainable modes whilst reducing car usage associated with the Proposed Development.
- 9.114 The Travel Plans are included as Annex J and Annex K of the application.

Assessment of Construction Effects

Changes in Traffic Flows

- 9.115 Peak daily construction activity has been considered and construction traffic has been assumed to be generated evenly throughout the day in a 'just in time' approach.
- 9.116 The demolition and construction works will be undertaken within the red line boundary of the site. Primary access and egress to the Site would be provided via a left in/left out turning at Caversham Road.
- 9.117 Although an increase in HGV traffic on the road network is anticipated as a result of the Proposed Development's construction, this increase of vehicles in the context of existing flows is considered to be minimal. Consequently, demolition and construction works are therefore anticipated to result in a direct, reversible, temporary, short term, adverse negligible change in severance on the highway network immediately surrounding the site.

Severance

- 9.118 As the site is currently inaccessible to vehicles, construction activity and associated traffic will have no noticeable impact in terms of severance within and across the site boundary. Vehicle severance is therefore scoped out of the demolition and construction stage assessment.
- 9.119 The site is not currently accessible to pedestrians, cyclists or public transport, so the construction period is not foreseen to have any effect on severance for these users. Pedestrian, cyclist and public transport severance is therefore scoped out of the demolition and construction stage assessment.

Delay

Vehicles

- 9.120 The demolition and construction traffic associated with the construction of the Proposed Development is expected to increase the number of HGV trips per day, spread across the working day. Referring back to the IEMA Guidelines, driver delay can be caused where traffic flows change at junctions or where speeds on existing links are changed. Assuming a 12-hour working day, the peak construction activity would be unlikely to materially affect traffic flows or speeds. This effect is therefore considered a direct, reversible, temporary, short term, adverse negligible change in vehicle delay.

Pedestrian/Cyclist

- 9.121 As the site is inaccessible to pedestrians and cyclists, and will remain so during the demolition and construction period, demolition and construction activity will have a negligible impact on pedestrian or cycle delay. Pedestrian and Cyclist delay is therefore scoped out of the demolition and construction stage assessment.

Public Transport

- 9.122 No changes to existing bus routes are anticipated during the construction phase. As such, the Proposed Development is not expected to result in changes which would significantly affect perceptions of driver/bus delay.
- 9.123 Due to the increase in HGV traffic flows on Caversham Road, there would be a negligible magnitude of impact resulting in a direct, reversible, temporary, short term, minor adverse effect on bus delay.

Amenity, fear and intimidation

- 9.124 During construction, the Proposed Development is not expected to result in changes which could affect perceptions of amenity, fear and intimidation as:
- no changes to the local road network and associated junctions are proposed; and
 - no fundamental changes to prevailing travel patterns are anticipated as a result of demolition or construction activity.
- 9.125 The change in HGV activity relative to the baseline is unlikely to be perceptible on Caversham Road or Vastern Road. It is not proposed to use Trooper Potts Way as a route for construction/demolition vehicles. The presence and movement of construction vehicles will also be managed and mitigated to minimise the potential for effects on amenity, fear and intimidation in the area. Amenity, fear and intimidation is therefore scoped out of the demolition and construction stage assessment.

Accidents and safety

- 9.126 During demolition and construction, HGV activity is not expected to result in changes which could affect accidents and safety. Traffic changes arising from the construction of the Proposed Development will be low and not considered to be perceptible relative to baseline conditions. Road safety will also be further managed and mitigated through the Construction Logistics and Cycle Safety (CLOCS) scheme and use of contractors registered on the Considerate Contractors Scheme. CLOCS brings the construction logistics industry together to improve the management of work-related road risk and ensure a road safety culture is embedded across the industry. An assessment of accidents and safety is therefore scoped out of the demolition and construction stage assessment.

Hazardous Loads

- 9.127 The Proposed Development is not expected to generate or attract hazardous loads during demolition and construction; on this basis, an assessment of hazardous loads has been scoped out of the demolition and construction stage assessment.

Assessment of Operational Effects

- 9.128 Once occupied, the Proposed Development will generate additional movements on the surrounding highway, pedestrian and public transport networks. The forecast site-wide multi modal trip generation has been presented in Table 9.14 which combines all land uses. The trip generation has been calculated based on the total person trip rates and individual mode shares per land use. The methodology for preparing the trip generation is detailed in the TA (Appendix 9.1: Reading Metropolitan Transport Assessment).

Table 9.14: Trip generation of proposed development

Mode	AM Peak Arr	AM Peak Dep	Two-way trips	PM Peak Arr	PM Peak Dep	Two-way trips	Daily Arr	Daily Dep	Two-way trips
Car Driver	7	26	33	32	16	48	186	191	377
Car Passenger	5	4	10	6	6	12	57	57	115
Bus	148	68	216	95	162	256	1322	1311	2633
Rail/ Underground	150	119	269	154	181	336	1601	1601	3202
Pedestrians	164	153	317	197	207	404	1876	1882	3758
Cyclists	33	16	49	22	36	58	298	296	594
Motorcyclist	9	5	14	7	10	17	84	84	168
TOTAL	516	392	907	513	619	1,131	5,424	5,422	10,846

Future with-development Traffic Flows

- 9.129 Table 9.15 sets out the future baseline with-development traffic flows (i.e. 2017 existing traffic flows plus flows generated by the cumulative schemes plus the net operational flows of the Proposed Development).

Table 9.15: Future Baseline with Proposed Development – Gross Traffic Flows

Survey Location	AM Peak Hour		PM Peak Hour		Daily	
Road Link	Flow	% HGV	Flow	% HGV	Flow	% HGV
Vastern Road	2,226	4.9	2,358	4.9	32,400	4.9
Caversham Road North	1,839	3.3	2,172	3.3	28,860	3.3
Trooper Potts Way	225	4.6	253	4.6	2,891	4.6
Forsbury Road	1,542	1.7	1,818	1.7	24,190	1.7
Forsbury Road/Kings Road	1,520	2.1	1,818	2.1	24,032	2.1
Caversham Road South	2,802	5.7	2,689	5.7	39,149	5.7
Oxford Road	909	3.8	1,069	3.8	14,262	3.8

- 9.130 Table 9.16 sets out the net change in traffic flows as an absolute figure and as a percentage.

Table 9.16: Future Baseline with Proposed Development – Net Traffic Flows

Survey Location	AM Peak Hour		PM Peak Hour		Daily	
Road Link	Absolute Change	% Flow Increase	Absolute Change	% Flow Increase	Absolute Change	% Flow Increase
Vastern Road	33	2%	48	2%	357	1%
Caversham Road North	10	1%	14	1%	107	0%
Trooper Potts Way	33	17%	48	23%	714	33%

Survey Location	AM Peak Hour		PM Peak Hour		Daily	
Road Link	Absolute Change	% Flow Increase	Absolute Change	% Flow Increase	Absolute Change	% Flow Increase
Forsbury Road	7	0%	10	0%	71	0%
Forsbury Road/Kings Road	7	0%	10	0%	71	0%
Caversham Road South	13	0%	19	1%	286	1%
Oxford Road	2	0%	2	0%	18	0%
Total	104	1%	151	1%	1,624	1%

- 9.131 As set out in paragraph 9.92, the net traffic flows are not inclusive of trips generated by the lawful use of the site and therefore overstate the change associated with the development. The site is currently inactive and generating no vehicular flow.

Vehicles

- 9.132 As shown in Tables 9.15 and 9.16, operational traffic flows generated by the Proposed Development will result in a minor increase in traffic flows surrounding the site compared with future baseline levels.
- 9.133 On Trooper Potts Way, there will be a greater change to traffic flows. This is primarily because the road will represent the key access point for the site, and the only egress for vehicles onto the main arterial routes. Currently the road exhibits a very low usage, mainly being used by buses and taxis accessing the station.
- 9.134 On all roads around the site, the effect of the change in traffic flows has a direct, permanent, long-term, irreversible, negligible adverse effect.

Severance

Vehicles

- 9.135 As shown in Table 9.16, there will be a limited increase in vehicle traffic flows to areas around the site. Two new roads are being constructed as part of the Proposed Development; these will decrease vehicular severance associated with the existing site. Therefore, this effect is considered to be direct, permanent, long-term, irreversible, minor beneficial for vehicle severance.

Walking and Cycling

- 9.136 The Proposed Development will enable walking and cycling through the site. The site is connected to the new Station Square and will provide a mix of uses, combined with low levels of car parking. It will therefore increase the accessibility of the site and the surrounding area, particularly between destinations on opposing sides of the site.
- 9.137 The Proposed Development will minimise pedestrian and cycle severance caused by the existing site. By providing a permeable development, the site will decrease severance for pedestrian and cycle journeys to the area north of the station, opening up a potential route for pedestrian and cycle

connections to the Thames Path. Therefore, this effect is considered to be direct, permanent, long-term, irreversible, moderate beneficial for walking and cycling severance.

Public Transport

- 9.138 The Proposed Development is not anticipated to have any impact on severance associated with access to and the use of public transport networks. As such an assessment on public transport severance is scoped out of the operational effect assessment.

Delay

Vehicles

- 9.139 As shown in Table 9.14, the number of vehicular trips for the Proposed Development is low, due to the low level of parking provided on the site. The Proposed Development is not expected to result in traffic changes which would significantly affect perceptions of driver delay.
- 9.140 No new junctions or changes to speed limits are planned as part of the Proposed Development.
- 9.141 The Proposed Development will create two new roads as part of the site. These roads will operate a left in/left out turn system, and as such will not affect existing traffic patterns on surrounding streets.
- 9.142 The two roads within the Proposed Development itself will be newly constructed explicitly to serve the development. The roads will operate a 10mph speed limit, and a shared surface area will operate at the junction of the two new roads to facilitate movement of all users with the minimum of delay. Therefore, this effect is considered to be direct, permanent, long-term, irreversible, minor neutral for vehicle delay.

Walking and Cycling

- 9.143 The number of pedestrians and cyclists on existing routes around the site area will increase. There are predicted to be 317 two-way pedestrian trips in the AM peak and 404 two-way pedestrian trips in PM peak. The site enhances pedestrian access to areas north of the station by providing a connection between Trooper Potts Way and Caversham Road, as well as connecting residents and businesses on the site to Reading town centre via a pedestrian-only pathway.
- 9.144 No existing cycle or pedestrian routes or crossings are planned to be removed or altered.
- 9.145 The shared surface area proposed on the site will provide a crossing point for pedestrians and cyclists and minimise potential delays.
- 9.146 For pedestrians the effect is considered to be direct, permanent, long-term, irreversible, substantial beneficial for walking delay.
- 9.147 For cyclists the effect is considered to be direct, permanent, long-term, irreversible, major beneficial for walking delay.

Public Transport

- 9.148 There are no proposed changes to bus routes or bus stops close to the site. As per Table 9.7, there are eight bus services operating on the roads surrounding the site, and several more operating from Station Hill. Looking only at the buses operating on roads surrounding the site, there are 26 buses operating during a typical peak hour. The number of bus trips generated by the site is shown in Table 9.17.

Table 9.17: Trip generation for bus journeys

			Site wide Bus Trips					
AM Peak Arr	AM Peak Dep	Two-way trips	PM Peak Arr	PM Peak Dep	Two-way trips	Daily Arr	Daily Dep	Two-way trips
148	68	216	95	162	256	1,322	1,311	2,633

- 9.149 Under the assumption that 60% of residents at PM peak hour elect to use the bus services which make stops directly outside the site, there is anticipated to be an increase of six passengers per bus stopping directly outside the site. Given that there is direct, covered pedestrian access to the south side of Reading Station, which offers more than 20 additional bus routes, 60% is considered a reasonable assumption. This increase in bus trips can be easily accommodated on existing bus services.
- 9.150 There is an underpass to the south of the site which connects the site to Reading town centre, and permits north-south movement without requiring entry to the station. Caversham Road also provides a direct pedestrian route between the site and the town centre. Therefore, it is unlikely that the Proposed Development will increase congestion in the passenger areas of the station.
- 9.151 As shown in Table 9.6, there are a high number of train services operating from Reading station; in the peak hour, there are 80 trains per hour departing the station. The number of train trips which will be generated by the Proposed Development is shown in Table 9.18.

Table 9.18: Trip generation for rail journeys

			Site wide Rail Trips					
AM Peak Arr	AM Peak Dep	Two-way trips	PM Peak Arr	PM Peak Dep	Two-way trips	Daily Arr	Daily Dep	Two-way trips
150	119	269	154	181	336	1,601	1601	3,202

- 9.152 Using the assumption that 100% of the PM peak rail trips will take place at Reading station, there will be an increase of eight passengers per train.
- 9.153 The increase in train trips can be easily accommodated on the existing train services; therefore, delays to the train services would be negligible.
- 9.154 Therefore, this effect is considered to be direct, permanent, long-term, irreversible, minor adverse for public transport delay.

Amenity, fear and intimidation

Vehicles

- 9.155 As shown in Table 9.16, the volume of traffic on surrounding roads is not due to increase significantly, except on Trooper Potts Way, which currently exhibits very low traffic flows.
- 9.156 Given the access restrictions on to the site, it is predicted that very few HGVs will be accessing the site roads after the construction period. Therefore, this effect is considered to be direct, permanent, long-term, irreversible, minor adverse for vehicle amenity, fear and intimidation.

Walking and Cycling

- 9.157 The Proposed Development will create an attractive and secure environment. The proposed public realm improvements will be well-lit and overlooked by the Proposed Development, providing passive surveillance and reflecting Secure by Design principles.
- 9.158 Pedestrian pathways are designed to be wide and well-lit, providing excellent pedestrian amenity and separation from vehicles.
- 9.159 A shared surface area will be provided on the site, to provide amenity to pedestrians and cyclists and encourage driver awareness of other road users.
- 9.160 A contra-flow cycle lane will be provided on The Avenue, to provide a safe route for cyclists to re-join Caversham Road. Therefore, this effect is considered to be direct, permanent, long-term, irreversible, major beneficial for walking and cycling amenity, fear and intimidation.

Public Transport

- 9.161 As per Tables 9.17 and 9.18, there will be an increase in bus and rail journeys due to the Proposed Development, therefore waiting areas in bus shelters and Reading train stations will be more crowded and decrease the level of amenity available to existing passengers.
- 9.162 Conversely, an increase in passengers at bus shelters increases surveillance on the street and can provide increased perception of safety for passengers on journeys taken outside of daylight hours.
- 9.163 On balance, this effect is considered to be direct, permanent, long-term, irreversible, moderate neutral for public transport amenity, fear and intimidation.

Accidents and Safety

Vehicles

- 9.164 Due to a slight increase in vehicles on the road, it is recognised that there may be a slight increase in road traffic incidents. This is deduced based on an increased number of vehicle-to-vehicle and vehicle-to-pedestrian interactions and does not reflect an increase in the probability of any particular vehicle or pedestrian being involved in an incident.

- 9.165 No fundamental changes are proposed to the form or nature of the local transport network or forecast for the prevailing patterns of travel. The Proposed Development will provide two new roads, both of which will be accessed from existing site access points. These access points will function on a left in/left out configuration in order to conform to the existing road layout. No new junctions are proposed on the public highway.
- 9.166 The Proposed Development has been designed to provide a safe and secure environment as possible. Junctions have been designed to provide acceptable levels of visibility and manoeuvrability.
- 9.167 Overall, this effect is considered to be direct, permanent, long-term, irreversible, minor adverse for vehicle accidents and safety.

Walking and Cycling

- 9.168 The Proposed Development prioritises pedestrian and cycle movement, providing pedestrian pathways through and around the site, flow and contra-flow cycle paths and a shared surface area. The new roads within the site will operate a 10mph speed limit further minimising the risk of road traffic incidents involving pedestrians and cyclists. Therefore, this effect is considered to be direct, permanent, long-term, irreversible, moderate beneficial for walking and cycling accidents and safety.

Public Transport

- 9.169 The Proposed Development is not anticipated to result in any change to existing public transport operations and is not anticipated to result in any changes to the existing pedestrian or highway infrastructure which might increase the frequency or severity of safety incidents. As such an assessment on public transport accidents and safety is scoped out of the operational effect assessment.

Further Mitigation and Monitoring

Traffic Flows and Highway Network

- 9.170 The road most affected by the Proposed Development in terms of traffic flows is Troopers Potts Way. Troopers Potts Way experiences a 33% increase in daily traffic flow which can be attributed to the Proposed Development.
- 9.171 Troopers Potts Way is currently not a sensitive frontage, and due to the lack of active uses on the street and connection to the wider road network, it currently exhibits a very low traffic flow. Trooper Potts Way will be used as the access and sole egress point for the Proposed Development, however it is not foreseen that this will result in a significant impact for the road operation. The site will enforce a 10mph speed limit and will operate a one-way egress route via Trooper Potts Way. These measures are designed to deter the Proposed Development and Trooper Potts Way from becoming a rat-run route for peak hour vehicle users, and safeguard Trooper Potts Way only for those accessing the site or Reading station.

Road Safety

- 9.172 No mitigation for road safety is required as the effects were found to be negligible and not significant.

Rail

- 9.173 The **Travel Plans** for the Proposed Development will actively promote walking and cycling as viable alternatives to road and public transport. It is considered that the number of passengers predicted could be easily accommodated on the existing rail network and therefore no additional mitigation is proposed.

Buses

- 9.174 It is considered that the number of passengers predicted could be easily accommodated on the existing bus network and therefore no additional mitigation is proposed.

Pedestrian and Cyclist Movement and Capacity

- 9.175 As the Proposed Development will open the site to pedestrian and cycle movement and will consequently increase the permeability of the local area by these modes, no additional mitigation is proposed.

Accidents and Safety

- 9.176 The Proposed Development is not expected to result in changes which could affect accidents and safety during operation. Any effects arising from public realm scheme improvements proposed as part of the Proposed Development are designed to have a negligible or beneficial impact. A qualitative discussion of accidents and safety will be included within this ES chapter for the assessment of the Proposed Development in operation.

Potential Changes to the Assessment as a Result of Climate Change

- 9.177 Climate change would not have a direct effect on severance, delay or amenity, fear and intimidation. However, changing travel behaviours in response to climate change concerns is expected to result in a switch to more sustainable modes of travel, lower and zero emission vehicles, sharing of vehicles. At the same time, advances in technology which support improved telecommuting and flexible working will reduce the scale of background peak hour travel in Reading. A reduction in vehicle emissions and traffic volumes would have a benefit for pedestrian and cyclist amenity, fear and intimidation.

Assessment of Cumulative Effects

- 9.178 This site has been assessed alongside an agreed list of cumulative developments; the traffic flows for these cumulative developments are set out in Table 9.12.

- 9.179 The cumulative developments as agreed with Reading Borough Council are set out in Appendix 4.6. Table 9.19 sets out which of those cumulative developments have been included within the cumulative effects assessment.

Table 9.19: Cumulative Developments included within the traffic and transport assessment of cumulative effects

Planning Reference	Location
171814	Cox & Wyman Ltd Cardiff Road Reading RG1 8EX
180358	Bristol & West Arcade Market Place Reading RG1 1JL
170509	Kenavon Drive Reading
181074	33 Blagrove Street Reading
171686, 170326 and 160353	Land at Weldale Street, Reading
181689	Broad Street Mall, Broad Street, Reading
181652	Former Reading Family Centre North Street Reading RG1 7DA
181820	56 Station Hill Reading RG1 1NF
162166	Former Cooper Reading Bmw Kings Meadow Road Reading RG1 8BN
162087	Kings Point 120 Kings Road Reading RG1 3DA

- 9.180 These developments have been selected for inclusion in the traffic and transport assessment based on the following criteria:

- Located within 1km of the Site
- Are a major development
- Request outline or full planning permission

- 9.181 Where the cumulative schemes do not have Transport Assessment or Trip Generation information, the trip generation has been completed using a similar methodology to the Proposed Development.

Inter-relationships

- 9.182 This chapter should be read in conjunction with the other chapters relating to the proposed works that with effects relating to traffic movements.
- 9.183 The assessment of impacts to air quality and noise receptors as a result of traffic associated with the Proposed Development are presented in Chapter 10 – Air Quality and Chapter 11 – Noise and Vibration.

Summary of Effects

- 9.184 The receptors have been assessed against a range of criteria to understand the significance of the effects of the Proposed Development.

- 9.185 The most affected receptor in the construction phase was found to be delay for public transport users. All effects in the construction phase were assessed to be short-term, reversible and not significant.
- 9.186 During the operational phase of the development, there was found to be a negligible adverse effect on traffic flows.
- 9.187 The Proposed development has been assessed to have beneficial or neutral effects on pedestrians, cyclists and public transport users amenity, fear and intimidation. This is partially due to the projected increase in passive and active surveillance as well as improvements to the urban realm and pedestrian and cycle access to and through the Proposed Development.
- 9.188 A summary of the effects assessed is shown in Table 9.20.

Table 9.20: Summary of Likely Environmental Effects on Traffic and Transport

Receptor	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of impact	Significance of effect	Significant / Not significant	Notes
Construction phase							
<i>Vehicle Flows</i>							
Vehicles	Low	Increase of HGV traffic on roads	Short term	Negligible	Negligible adverse	Not significant	
<i>Delay</i>							
Vehicles	Low	TBC	Short term	Negligible	Negligible adverse	Not significant	
Public transport users	High	Delay to bus flows	Short term	Negligible	Minor adverse	Not significant	
Operational phase							
<i>Vehicle Flows</i>							
Vehicles	Low	Increase in traffic flows of up to 33%	Long term	High	Negligible adverse	Not significant	
<i>Severance</i>							
Vehicles	Low	New roads to be made available	Long term	Low	Minor beneficial	Not significant	
Pedestrians	Medium	Increased pedestrian permeability of site	Long term	Low	Moderate beneficial	Significant	
Cyclists	Low	Increased cyclist permeability of site	Long term	Medium	Moderate beneficial	Significant	
<i>Delay</i>							
Vehicles	Low	New roads constructed, but designed to be shared with other users	Long term	Low	Minor neutral	Insignificant	

Pedestrians	Medium	New, safe routes improving access through and around the site	Long term	High	Substantial beneficial	Significant	
Cyclists	Low	New, safe routes improving access through and around the site	Long term	High	Major beneficial	Significant	
Public transport users	High	Increased passengers on existing services	Long term	Negligible	Minor adverse	Not significant	
<i>Amenity, fear and intimidation</i>							
Vehicles	Low	Increase in standard and HGV vehicles	Long term	Low	Minor adverse	Not significant	
Pedestrians	Medium	Passive surveillance, landscaping and public realm improvements	Long term	High	Major beneficial	Significant	
Cyclists	Low	Cycle paths, landscaping and public realm improvements	Long term	High	Major beneficial	Significant	
Public transport users	High	Decrease in space but increase in surveillance	Long term	Low	Moderate neutral	Significant	
<i>Accidents and safety</i>							
Vehicles	Low	Increase in vehicles on road	Long term	Negligible	Minor adverse	Not significant	

Pedestrians	Medium	Increase in pedestrian pathways and access through and around the site	Long term	Medium	Moderate beneficial	Significant	
Cyclists	Low	Dedicated cycle routes (including contra-flow) provided	Long term	Medium	Moderate beneficial	Significant	

References

Institute of Environmental Management and Assessment (1993) Guidelines for the Environmental Assessment of Road Traffic

Ministry of Housing, Communities and Local Government (2018) National Planning Policy Framework.

Department for Communities and Local Government (2018) Planning Practice Guidance

Reading Borough Council (2015) Reading Borough Council Core Strategy with alteration

Reading Borough Council (2017) Draft Reading Borough Council Local Plan

Reading Borough Council (2011) Reading Borough Council Third Local Transport Plan 2011 – 2026

Reading Borough Council (2010) Reading Station Area Framework

British Standards Industry (2009) Design of buildings and their approaches to meet the needs of disabled people