

# Anglia Square, Norwich

Environmental Statement

## **Chapter 6: Highways, Traffic and Transport**

WSP Ltd on behalf of Weston  
Homes Plc and Columbia  
Threadneedle

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# CHAPTER 6: HIGHWAYS, TRAFFIC AND TRANSPORT

## INTRODUCTION

- 6.1 This chapter of the ES assesses the likely significant effects of the proposed Development with respect to traffic and transport. This chapter also: describes the methods used to assess the effects of the proposed Development; the baseline conditions currently existing at the site and surrounding area; the mitigation measures required to prevent, reduce or offset any significant negative effects; and the likely residual effects after these measures have been adopted.
- 6.2 This chapter is supported by the Transport Assessment
- 6.3 (TA) and Travel Plan (TP) and should be read alongside these documents which are included within the Technical Appendix. The scope of the assessment was discussed and agreed with Norfolk County Council (NCoC) and Norwich City Council (NCC) during meetings held on Monday 7th November 2016, Monday 27th March 2017 and Tuesday 30th April 2017. A Scoping Statement was subsequently compiled based on the comments and discussions at those meetings and is contained in **Appendix A** of the Transport Assessment (TA).<sup>1</sup>
- 6.4 This chapter of the ES has been prepared by Tim Parker BEng (Hons) MCIHT AMIMEchE who has an extensive background in Transport and Development Planning with over 16 years of experience within the consultancy sector covering development control, strategic and development planning fields. He is an accomplished Associate Transport Planner with WSP based in the UK and has experience in a broad range of major regeneration projects that require the production of Transport Assessments, Travel Plans, and Environmental Statements.
- 6.5 Section 2 of this chapter outlines national and local government policies related to transport matters relevant to the Development proposals. Section 3 introduces the methodology and assessment criteria to review the impact of the development in relation to severance, driver stress and delay, cyclist and pedestrian amenity/delay, accidents and safety, fear and intimidation from any increase in traffic in accordance with the 'Guidelines for the Environmental Assessment of Road Traffic' <sup>2</sup>. Section 4 reviews the baseline conditions and reviews the existing highway and public transport accessibility of the Site. Section 4 outlines the proposed Development and details the proposed

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<sup>1</sup> WSP, Transport Assessment Anglia Square Norwich, March 2018

<sup>2</sup> Institute of Environmental Management and Assessment (IEMA), Guidelines for the Environmental Assessment of Road Traffic (Guidance Note. 1), 2003.

Development access, servicing strategy, car parking arrangements and cycle parking provision for the Site.

- 6.6 Section 5 sets out the assessment of potential effects from construction or from the operation of the Development in terms of change in traffic flows at locations within the scope of the assessment methodology. Section 6 sets out the traffic generation, distribution and the impact of the Development. Section 7 provides the summary and conclusions of the chapter.

## POLICY CONTEXT

### National Policy

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- 6.7 The National Planning Policy Framework (NPPF) states that encouragement should be given to solutions that support reductions in greenhouse gas emissions and reduce congestion.

#### National Planning Policy Framework (2012)

Paragraph 29 states:

*“Transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. Smarter use of technologies can reduce the need to travel. The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel. However, the government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas.”*

Paragraph 32 states:

*“All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account whether:*

- The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure*
- Safe and suitable access to the site can be achieved for all people; and*
- Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.”*

Paragraph 34 states;

*“That plans and decisions should ensure developments that generate significant movements are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised.”*

- 6.8 The proposed Development would be located within easy walking distance of a broad range of bus services that serve the city and wider community. Norwich rail station is also within an acceptable walking and cycling distance to maximise the opportunity for using sustainable modes of travel.”

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#### **National Planning Policy Framework (2012)**

Paragraph 35 states that;

*“Developments should be located and designed where practical to accommodate the efficient delivery of goods and supplies; give priority to pedestrian and cycle movements, and have access to high quality public transport facilities and create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians.”*

- 6.9 The location of the proposed Development would enable easy and efficient access to public transport and the planning of permeable cycling and pedestrian links to improve permeability and connectivity with existing infrastructure.
- 6.10 The National Planning Practice Guidance (NPPG), which is a supporting document to the NPPF, further reinforces the importance of Travel Plans and Transport Assessments in the planning context. NPPG states:

*"The development of Travel Plans and Transport Assessments or Transport Statements should be an iterative process as each may influence the other."*

- 6.11 To expand on Paragraph 32 of the NPPF, the NPPG states:

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

- 6.12 In relation to Travel Plans, the NPPG states that Travel Plans should be considered in parallel to development proposals and readily integrated into the design and occupation of the new site, and that they should support Transport Assessments in taking forward the identified mitigation measures which relate to on-going occupation and operation of the development.

## Local Policy

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### Norwich Local Plan (2014)

- 6.13 The Norwich Local Plan (NLP) has been prepared to set out the planning strategies and local policies to shape and deliver the growth Norwich needs, sustainability and responsibly, and was adopted in November 2014.
- 6.14 The Development Management Policies Plan (DM Policies) sets out the policies which will apply across the whole city, as well as policies which apply in designated areas.
- 6.15 The Spatial Planning Objectives outlined in the DM Policies document that relate to the Anglia Square development include:
- To minimise the contributors to climate change and address its impact;
  - To allocate enough land for housing, and affordable housing, in the most sustainable settlements;
  - To promote economic growth and diversity and provide a wide range of jobs;
  - To promote regeneration and reduce deprivation;
  - To enhance transport provision to meet the needs of existing and future populations while reducing travel need and impact; and
  - To encourage the development of healthy and active lifestyles.
- 6.16 In relation to 'Sustainable development principles for Norwich', Policy DM1 states:

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### Norwich Local Plan (2014)

Subject to the detailed policies which follow, development proposals will be expected (through their design, configuration, visual appearance, location, means of access and spatial and functional relationship to existing uses and facilities), to:

- Enhance and extend accessible opportunities for employment, education and training, stimulate competition and support business whilst enabling balanced, sustainable economic growth in the Norwich economy;
- Protect and enhance the physical, environmental and heritage assets of the city and to safeguard the special visual and environmental qualities of Norwich for all users;
- Help to combat the effects of climate change and achieve national and local carbon reduction targets by making the most efficient practicable use of resources, minimising the overall need to travel, reducing dependency on the private car and high-emission vehicles and ensuring ease of access to facilities and services for all users both now and in the future;

- Provide for a high level of safety and security, maximising opportunities for improved health and well-being and safeguarding the interests of the elderly and vulnerable groups;
- Help to promote mixed, diverse, inclusive and equitable communities, by increasing opportunities for social interaction, community cohesion, cultural participation and lifelong learning.

6.17 The Site is in an accessible location which will encourage travel by sustainable means, and the Development proposals look to combat the effects of climate change by encouraging sustainable transport from the outset through the provision of a Residential Travel Plan and a Travel Plan covering the retail and commercial aspects for the Site.

6.18 In relation to 'Encouraging sustainable travel', Policy DM28 states that:

#### **Norwich Local Plan (2014)**

Cumulatively, development proposals must ensure, so far as is practicable, that they would not result in overall net growth across the city in travel by private car and that any anticipated increase in travel demand resulting from the development can be accommodated or diverted to non-car modes.

To this end, consistent with their scale and location, new developments must be designed to ensure that:

- a) cycle and pedestrian links and public transport corridors are incorporated to maximise the opportunity for sustainable transport, both from within the development and the wider area. Links must be an integral part of the design of the development. Where relevant, developments should take opportunities to link with, improve and enhance the strategic and local cycle network as defined within the Norwich Area Transport Strategy or any successor strategic transport planning document which may be adopted during the currency of this plan;
- b) developments maximise accessibility to and permeability within the site for pedestrians, ensuring that all new pedestrian routes proposed are coherent, convenient and legible in accordance with the design and layout requirements of policy DM3. Development proposals with a river frontage to the rivers Wensum and Yare which includes the route of the Riverside Walk (as shown on the Policies map) will be required to make provision for the relevant section of the walk as part of the overall design of the development. Design in these cases should allow for bankside access for essential river bank maintenance in accordance with

the advice of the Environment Agency. Where development adjoins a navigable section of the river, opportunities should be taken to provide residential and/or commercial moorings to facilitate access by water where this is appropriate and reasonably practicable to achieve;

c) cycle and pedestrian links to nearby services (including bus stops), are enhanced where necessary. This may include the provision of pedestrian crossing points. All parts of the development should have easy access to bus services and bus stops with appropriate levels of information, lighting, cycle parking (on high speed bus corridors) and other relevant services;

d) parking areas and vehicle movements do not dominate, but create convenient, safe and attractive environments;

e) travel planning is integral to the design and operation of the development, and travel plans or travel information plans are provided as part of development proposals, in accordance with the criteria and thresholds set out in appendix 3; and

f) provision is made for the inclusion of a car club parking space and car club vehicle where this is required, in accordance with the criteria and thresholds set out in appendix 3.

- 6.19 The Development is located 800m north of the core of Norwich City Centre and is therefore highly sustainable in terms of access to local amenities and public transport. The Site is surrounded by a cycle route along Edward Street and also via Magdalen Street, and the Development will provide links to the cycle routes to integrate the Site within the existing cycle network and encourage travel by bike. In addition, many bus services linking the centre of Norwich with the northern and western parts of the city are served by the bus stops on Magdalen Street and Edward Street. Further detail regarding the level of bus provision that the Site currently benefits from is included in section 4 of this ES chapter and is reviewed with section 3 of the Transport Assessment (TA).
- 6.20 Rail services are located within a 20 minute walk from the Site, which will further encourage sustainable travel.
- 6.21 The Development also creates additional high quality pedestrian links through the Site to connect with existing pedestrian routes and crossings. The proposed infrastructure to be provided as part of the Development proposals is detailed within section 4 of the TA.
- 6.22 As noted, travel plans have been prepared as part of the planning application and details of car club provision will be discussed during the determination process.

6.23 In relation to 'Car parking and servicing', Policy DM31 states that:

#### **Norwich Local Plan (2014)**

To ensure appropriate levels of parking and service, developments should incorporate parking, servicing and other facilities in accordance with the advice and standards set out within appendix 3. Development will be acceptable where the following criteria are addressed where relevant:

- a) car parking is provided within the limits prescribed (at least the minimum, and not more than the maximum);
- b) cycle parking is provided to at least the levels prescribed;
- c) the required level of parking is provided for disabled drivers;
- d) provision is made for electric car charging points;
- e) it is demonstrated that adequate provision has been made for access to, and servicing of the proposed development, and in particular, that adequate and appropriately designed provision has been made for the storage and collection of refuse taking account of the current requirements for waste segregation for recycling;
- f) provision of or alteration to on-street parking controls is made to ensure the safe and effective operation of the development; and
- g) space is provided for the operation of a car club vehicle within the site.

Where it is demonstrated that the provision of essential facilities (for example, the required levels of cycle parking) on-site is not feasible they may be secured nearby where an appropriate solution is identified, at the developers expense.

- 6.24 The proposals for the Development currently include for a total overall parking provision of 0.75 spaces per residential unit. This correlates well with the existing parking provision permitted for other residential developments across the city, with a commitment to monitor residential car parking take up in phase 1, so as to determine whether a lesser ratio should be used in subsequent phases. The appropriate level of parking will also be provided for disabled drivers along with a provision for electric car charging points. This provision is in line with current policy.
- 6.25 Given the size of the Site, the level of parking provision and the locations of these secure parking areas has been discussed with NCC to ensure the proposals are acceptable.
- 6.26 Details of the servicing and refuse/recycling are included within the TA. The proposals provide adequate space for servicing and the segregation of waste for recycling. Vehicle swept path tracks

are also included with the TA to demonstrate that access to the proposed Development can be appropriately accommodated by a range of necessary vehicle types.

- 6.27 The Site is located within a CPZ, therefore no further alteration to on-street parking controls is required to facilitate the effective operation of the Development.
- 6.28 Whilst space cannot be provided within the site for car club vehicles, as the keyless entry mechanism does not work within multi-storey car parks, there is space on Edward Street for the potential to provide car club bays. This is beneficial to the community, since it provides more direct member access to the vehicles.

#### **Greater Norwich Local Plan**

- 6.29 Broadland District Council, NCC and South Norfolk Council are currently working together with Norfolk County Council (NCoC) to prepare the Greater Norwich Local Plan (GNLP).
- 6.30 The GNLP will build on the long-established joint working arrangements for Greater Norwich, which have delivered the current Joint Core Strategy (JCS) for the area. The JCS plans for the housing and jobs needs of the area to 2026 and the GNLP will ensure that these needs continue to be met to 2036.
- 6.31 Like the Joint Core Strategy, the GNLP will include strategic planning policies to guide future development, and plans to protect the environment. It will look to ensure that delivery of development is done in a way which promotes sustainability and the effective functioning of the whole area.
- 6.32 At present the GNLP Regulation 18 Consultation was launched on the 8th January 2018, and will run until the 15th March 2018. Accordingly, currently the plan can be afforded little weight in decision-making.

#### **Norwich Area Transportation Strategy (2010)**

- 6.33 The Norwich Area Transportation Strategy (NATS) has evolved and delivered improvements over a number of years. NATS4, the latest version of the Strategy, was adopted in 2004 and its Implementation Plan (NATSIP) was adopted in March 2010.
- 6.34 The NATSIP envisages some radical changes to the city centre's transport system. These are aimed to improve the environment of the city and to ensure that the transport system can support delivery of the Joint Core Strategy (discussed subsequently) and does not become a constraining factor in Norwich's development.
- 6.35 Development at the Site would benefit from the city centre proposals as they seek to make it easier for people to get about by all modes, focusing particularly on: removing barriers to pedestrians

caused by traffic; completing the bus-only route between the train station and bus station; and creating cycle routes across the centre of the city.

6.36 The NATSIP proposals also include the following schemes to improve travel within and around Norwich:

- Provision of up to 6 Bus Rapid Transit (BRT) routes;
- Core bus route improvements;
- Increase to the existing Park and Ride provision;
- Improve facilities for walking and cycling by joining-up existing provisions, improve links and implement schemes at casualty hotspots;
- Promoting and securing improvements to the strategic rail connections, and upgrading the commuter services into Norwich;
- Further rolling out of Smart Travel Choices; and
- Various highway works and improvements.

#### **Community Infrastructure Levy**

6.37 The Community Infrastructure Levy (CIL) enables funds to be raised from new developments to support development in the local area and contribute towards new infrastructure necessary to support growth in the greater Norwich area, for example schools, transport initiatives and leisure facilities.

6.38 The CIL applies to new development which adds 100m<sup>2</sup> of new floor space or an additional dwelling. However, it is understood that as part of the review of the financial viability appraisal of the Development by Norwich City Council (NCC), consideration is being given as to whether a claim for exemption from the CIL payment would be justified.

#### **Joint Core Strategy for Broadland, Norwich and South Norfolk (2014)**

6.39 The Joint Core Strategy (JCS) for Broadland, Norwich and South Norfolk was adopted in March 2011 with amendments adopted in January 2014, and sets out the long-term vision and objectives for the area, including strategic policies for steering and shaping development.

6.40 Section 4 of the document sets out the Spatial Planning Objectives, which set out the Councils' aim to:

- Allocate enough land for housing, and affordable housing, in the most sustainable settlements;
- Promote regeneration and reduce deprivation;

- Enhance transport provision to meet the needs of existing and future populations while reducing travel need and impact; and
- Encourage the development of healthy and active lifestyles.

6.41 It can be seen that the proposals for the redevelopment of Anglia Square reflect the Spatial Planning Objectives as the regeneration of the Site will provide housing and affordable housing in a sustainable location, and the Travel Plan that accompanies the application will seek to reduce the need to travel and encourage travel by potentially healthier and more sustainable means.

6.42 Section 5 of the document sets out the 'Area-wide policies', and Policy 6 relates to access and transportation and states that development should be concentrated close to essential services and facilities to:

*"...encourage walking and cycling as the primary means of travel with public transport for wider access"*

6.43 The Site is in an accessible location with a variety of walking and cycle routes in the vicinity, and access to a large number of bus services from stops located on the Site itself, as detailed below in Existing Baseline Conditions.

6.44 Section 6 of the document sets out the 'Policies for places', and Policy 9 sets out that development in NCC area is expected to contribute 3,000 dwellings towards the 21,000 dwellings that need to be provided across the boroughs to meet the housing need.

6.45 Policy 11 considers the aspirations for Norwich City Centre to be the main focus in the sub-region for retail, leisure and office development, with housing and educational development also reinforcing the vibrancy of the city centre.

6.46 The master plan for the Development includes for a residential-led scheme with up to 1,250 residential units, a foodstore, cinema, a mixture of retail, restaurants and bars, a hotel, office, replacement chapel and community uses, and a multi-storey car park (MSCP). It can therefore be seen that the proposals are in line with the Policies for Places in the JCS.

**Connecting Norfolk: Norfolk's Local Transport Plan for 2026 (2011)**

6.47 Norfolk's 3rd Local Transport Plan (LTP), 'Connecting Norfolk' sets out the strategy and policy framework for transport up to 2026. Norfolk's transport vision is:

*"A transport system that allows residents and visitors a range of low carbon options to meet their transport needs and attracts and retains business investment in the county."*

6.48 The LTP sets out how transport activity will be delivered under six areas:

- Managing and maintaining the transport network;
- Sustainable growth;
- Strategic connections;
- Accessibility;
- Emissions; and
- Road safety.

6.49 In relation to sustainable growth, Policy 5: 'Growth' states:

*"New development should be well located and connected to existing facilities so as to minimise the need to travel and reduce reliance on the private car or the need for new infrastructure. Local planning authorities should implement policies as part of their Local Development Frameworks to help achieve this."*

6.50 In relation to transport emissions, Policy 9: 'Travel Choice' states:

*"Emphasis should be on enhancing travel choice where options offer a viable alternative to single occupancy car travel and potential for modal shift. Improving and promoting active travel options (walking and cycling in particular) for short journeys to schools, services and places of employment in market towns and urban areas should be the priority."*

6.51 Policy 10: 'Air Quality Management Areas' also states that:

*"The first priority in town centres and urban areas should be to reduce the level of traffic or, if as a result of heavy polluters like buses, to work with operators to reduce emission levels in Air Quality Management Areas. Where a solution is required that will take many years to implement, measures like pollution barriers should be investigated in the short term to enhance the liveability of the area."*

6.52 In relation to safety the document states:

*"Road safety continues to be a major public concern and this is reflected in our conversations with residents. Connecting Norfolk will address this by:*

- *Prioritising measures to reduce the number of people killed or seriously injured on Norfolk's roads*
- *Providing education, training and publicity to promote safer travel*
- *Creating a safer environment for travel*

*- Working in partnership with those agencies that share our goals."*

6.53 In relation to accessibility, Policy 13: 'Access to Town and Urban Centres' states:

*"Efficient movement to town and urban centres should be enabled for all modes. Priority should be on achieving a balance between access for car drivers, including the availability of car parking, and the attractiveness of sustainable travel options like walking, cycling and public transport."*

6.54 Policy 15: 'Access for all' also states that:

*"Accessibility for all, especially for disabled people, should be considered as part of all transport maintenance and improvement works and opportunities sought to ensure adequate facilities are provided."*

6.55 It is clear that the Development proposals are in accordance with the Norfolk LTP policies, in terms of:

- i) the sustainable location of the Site which will reduce the need to travel and therefore reduce harmful emissions;
- ii) the implementation of the Travel Plans which support this application, to encourage and enable travel by sustainable means;
- iii) the provision of accessible vehicle parking spaces at the Development, and ensuring access for all through design.

6.56 Overall, the proposed Development satisfies the key principles, strategies and objectives set by current national, regional and local policies and guidance. The proposed level of parking is also in accordance with the standards set out by NCC and NCoC.

# METHODOLOGY AND ASSESSMENT CRITERIA

## Impact Assessment Methodology

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- 6.57 The following guidance documents have been considered in this assessment:
- Department for Communities and Local Government (DCLG)/Department for Transport (DfT) Guidance on Transport Assessment (2007) (although it is noted that this has been superseded with the release of NPPF)
  - Department for Communities and Local Government (DCLG) National Planning Policy Framework (2012);
  - Department for Communities and Local Government (DCLG) National Planning Practice Guidance (2014); and
  - Institute of Environmental Management and Assessment (IEMA) has prepared Guidelines for the Environmental Assessment of Road Traffic (Guidance Note. 1, 2003).
- 6.58 Independent traffic survey contractors undertook comprehensive traffic counts of junctions that would potentially be affected by the Development. In accordance with the DfT's Guidance on TAs<sup>3</sup> and as per the agreed scope with both NCoC and NCC, the counts were undertaken during 'neutral' conditions in November 2016. The counts were also timed to avoid the school holidays and can therefore be considered to be robust.
- 6.59 The extent of the study area and the junctions to be included within the traffic survey were scoped and agreed with both NCoC and NCiC. All junctions which were deemed to be impacted by the proposed development were included within the study area, which is detailed in Figure 6.1 below;

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<sup>3</sup> Department for Communities and Local Government (DCLG)/Department for Transport (DfT), Guidance on Transport Assessment, 2007.

Figure 6.1: Extent of Agreed Study Area



6.60 Traffic surveys of the junctions identified within the Study Area were undertaken in order to observe traffic movements and obtain the existing baseline traffic conditions.

6.61 Manual Classified Counts (MCC) were completed using video surveys covering weekday morning and evening peaks, the Friday peak and Saturday peak. Automatic Traffic Counters (ATC) were also used to cover an entire 7-day period to ensure that the turning count days were representative of normal daily traffic patterns on the network.

6.62 This chapter of the ES considers the effect of both construction and operational traffic associated with the Development, identifying suitable routes for the expected increase in traffic on the local highway network in both absolute and percentage terms during the weekday AM and PM peak hours, and 24-hour periods.

6.63 It considers both the construction and operational phases of the proposed Development, with reference to each of the following, in accordance with the Institute of Environmental Management (IEMA) Guidelines for the Environmental Assessment of Road Traffic (Guidance Note 1):

- Severance
- Driver stress and delay

- Pedestrian and cyclist amenity and delay
- Accidents and safety
- Fear and Intimidation

6.64 The methodology for assessing each of the above criteria is outlined below.

6.65 It should be noted that the management and control of construction related traffic associated with the proposed Development will be set out within a Construction Environmental Management Plan (CEMP), which will be agreed with Norfolk County Council (NCoC) and NCC prior to commencement.

### Severance

6.66 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic route. The assessment of severance pays full regards to specific local conditions, in particular the location of pedestrian routes to key local facilities and whether crossing facilities are provided or not. Several factors are considered in determining the existing level of severance. These include: road width, traffic flow and composition, vehicle speed and the availability of pedestrian crossing facilities.

6.67 The IEMA guidelines suggest that a 30%, 60% and 90% increase in traffic flows would have a slight, moderate and substantial change in severance respectively. Severance can be associated with residents, local employees, motorists, cyclists or pedestrians.

### Driver Stress and Delay

6.68 Traffic delays to non-development traffic can occur:

- At the site entrances where there will be additional turning movements;
- On the highways passing the site where there may be additional flow; and
- At key junctions on the local highway network.

6.69 Values for delay are based upon computer junction assessment programs: LinSig for signalised junctions; Junctions 8 for roundabouts and for priority junctions. LinSig and Junctions 8 programs have been utilised within the TA (**Technical Appendix F**).

### Cyclist and Pedestrian Amenity and Delay

6.70 The importance of walking and cycling amenity in contributing towards sustainable travel patterns is outlined in the NPPF<sup>4</sup>, which places focus on the roles that walking and cycling can play as both the

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<sup>4</sup> Ministry of Housing Communities and Local Government, National Planning Policy Framework, March 2012

main modes of transport or as part of a longer journey by public transport. The IEMA guidance broadly defines amenity as:

*“The relative pleasantness of a journey, and is considered to be affected by traffic flows, traffic composition and pavement width/separation from traffic”.*

- 6.71 A tentative threshold for changes in pedestrian amenity are where traffic flows are halved or doubled.
- 6.72 Few quantitative methods of assessing pedestrian and cyclist delay exist. The IEMA guidelines recommend that rather than rely on thresholds for pedestrian and cycle delay; the assessor should use judgement to determine whether there will be a significant impact.
- 6.73 Increases in traffic levels as a consequence of a development are likely to lead to increased delay to pedestrians and cyclists wishing to cross roads. The degree of pedestrian and cycle delay therefore corresponds to the level of severance.

**Accidents and Safety**

- 6.74 The IEMA Guidelines state that an assessment of road safety on the highway network should be undertaken based on recent collision records. Personal Injury Collision (PIC) data has been obtained for the study area noted above for the 5-year period to the end of August 2016 (appended to the TA) and summarised later in the baseline conditions section of this ES chapter.

**Fear and Intimidation**

- 6.75 A further impact that traffic may have on pedestrians is fear and intimidation. This impact is dependent on the volume of traffic, its HGV composition and its proximity to people and/or lack of protection caused by factors such as narrow pavement widths.
- 6.76 The IEMA guidelines suggest thresholds based on 18-hour daily flow and vehicle speeds, as shown in Table 6.1.

**Table 6.1: Fear and Intimidation Thresholds**

Degree of Hazard	Average Traffic Flow over 18-hour day (veh/hr)	Total 18-hour HGV Flow	Average Speed over 18-hour day (mph)
Extreme	1800+	3000+	20+
Great	1200-1800	2000-3000	15-20
Moderate	600-1200	1000-2000	10-15

### **Affected Parties**

6.77 The groups or locations which may be sensitive to change in traffic conditions are identified below:

- Local residents and employees
- Sensitive groups including children, elderly and disabled
- Sensitive locations e.g. hospitals, churches, schools, historical buildings
- Pedestrians and cyclists
- Open spaces, recreational sites, shopping areas
- Sites of ecological/nature conservation value
- Sites of tourist/visitor attraction

6.78 The above list will be considered in relation to each of the assessment criteria.

## EXISTING BASELINE CONDITIONS

### Site Location

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- 6.79 The Site is located 800m north of the core of Norwich City Centre. The Site is bounded to the south by A147 St Crispins Road (Norwich Inner Ring Road) which is a dual carriageway, to the west by Pitt Street / New Botolph Street / St Augustines Street, to the north by Edward Street and to the east by Magdalen Street.

### Local Highways Network

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- 6.80 The local highway network consists of A and B classified roads and local roads. The A147 St Crispins Road is a dual carriageway which forms part of the Norwich Inner Ring Road and gives access to the Site via Botolph Street and Upper Green Lane at high level. A147 St Crispins Road gives access to the city centre and Central Norwich as well as giving access in all directions out of Norwich city centre towards the Outer Ring Road and beyond.
- 6.81 Botolph Street gives one-way northbound access into the Site, providing access to a variety of privately operated surface level car parks before connecting with New Botolph Street with a left turn only junction. As part of the partially implemented consent (NCC planning reference 08/00974/F), this road has been 'stopped up' and no longer forms part of the public highway.
- 6.82 Upper Green Lane gives one-way northbound access through the Site, travelling through the disused MSCP and connecting to Edward Street. The southbound lane that used to give access to the MSCP is currently fenced off to prevent access, and no southbound access is provided past the MSCP.
- 6.83 A1402 Pitt Street binds the Site to the west, and has two lanes travelling southbound towards the roundabout junction with St Crispins Road / Duke Street, and one lane travelling northbound which becomes a one-way link to St Augustines Street at the junction with New Botolph Street. A1402 Pitt Street gives access to the Outer Ring Road and A140 Cromer Road to the north towards Norwich International Airport.
- 6.84 New Botolph Street runs along the north-western perimeter of the Site and provides one-way southbound access from Edward Street to Pitt Street, and one-way northbound access to St Augustines Street.
- 6.85 Edward Street binds the Site to the north with a 'left in left out' junction with New Botolph Street to the west, and a 'left in left out' junction with Magdalen Street to the east.

- 6.86 Magdalen Street binds the Site to the east, and runs one-way northbound with a southbound bus and cycle only lane from the junction with Edward Street to the junction with Colegate to the south of the Site. To the north Magdalen Street gives access to A1151 Magdalen Road, which connects to B1150 Magdalen Road and A1151 Sprowston Road, both of which give access to A1402 Outer Ring Road.
- 6.87 The A class roads are the responsibility of NCoC and the other roads fall under the jurisdiction of NCiC. All roads in the vicinity of Anglia Square are subject to a 30 mph speed restriction.

### **Air Quality Management Area**

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6.88 A foodstore led planning application was previously consented for the Site in October 2009 (NCC planning reference 08/00974/F), this included the following quantum of development;

- Foodstore 8,752sqm GFA
- Retained food retail 1,112sqm GFA
- Retained non-food retail 4,605sqm GFA
- New non-food retail 9,552sqm GFA
- Retained office 855sqm
- New office 1,035sqm
- Retained cinema 2,078sqm
- Residential units 197no

6.89 As part of this previously consented development (NCC planning reference 08/00974/F), the configuration of the 'one way system' of Edward St/New Botolph St/St Augustines St/Magpie Rd was also granted consent. The 'one way system' has subsequently been constructed and the consent has therefore been partially implemented.

6.90 As part of the October 2009 consented planning application for the Site (NCC planning reference 08/00974/F) noted above, the provision of a new link road (New Botolph Street) between Edward Street and St Augustines Street / Pitt Street was proposed, to facilitate a one-way system (clockwise along Magpie Road / Edward Street / New Botolph Street / St Augustines Street).

6.91 These improvements together with improvements to the junctions, links and pedestrian facilities in the area were subsequently constructed and hence the October 2009 consent has therefore been partially implemented.

- 6.92 These highway improvements were implemented in response to the designation of St Augustines Street, which binds the Site to the west, as an Air Quality Management Area (AQMA).
- 6.93 The new link road (New Botolph Street) required land within the Anglia Square site to accommodate the proposals; that land was subsequently adopted as public highway.
- 6.94 Stopping up orders were also introduced to stop up Botolph Street and new / modified Traffic Regulation Orders were introduced to restrict movements around the St Augustines Street / Magpie Road / Edward Street / New Link Road gyratory to restrict movements. All traffic movements except buses between Edward Street and Magdalen Street were also banned.
- 6.95 As a result, changes in traffic activity have materially reduced in the area which has resulted in a more pedestrian/cyclist friendly environment.

#### **Baseline Traffic Data**

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- 6.96 Traffic surveys were required to review the operation of the local highway network. The surveys determine the volume, speed and mix of traffic on the roads local to the Site.
- 6.97 MCCs were completed using video surveys on Friday 18th November 2016 between 1500-1900, Saturday 19th November 2016 between 1100-1400 and Tuesday 22nd November 2016 between 0700-1000 and 1600-1900.
- 6.98 ATCs, which record volume, speed and classification of vehicles data (24 hours a day), were installed for a period of 7 full days from Friday 18th November to Friday 25th November 2016.
- 6.99 It should be noted that the surveys do not take into account the traffic flows which would arise were the MSCP on the Site still operational, and the vacant office and leisure accommodation was in use. In these circumstances, they reflect a lower level of traffic activity than could exist without the need for planning permission.

#### **Personal Injury Collisions**

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- 6.100 The Personal Injury Collisions (PIC) data for the area surrounding the Site has been obtained for the most recent five-year period (November 2011 – August 2016).
- 6.101 82 collisions are recorded within the area of interest in the 5-year period. Overall, 73 collisions were classified as slight in severity, 8 as serious and 1 resulted in a fatality. The fatal collision involved a pedestrian impaired by alcohol failing to judge the vehicle's speed, and a motorcyclist who hit the pedestrian, lost control and collided with a wall.

- 6.102 Within the 82 collisions that were recorded there were 100 casualties, of which 90% were slightly injured, 9% were seriously injured and 1% suffered fatal injuries.
- 6.103 There were 16 collisions on or near Magdalen Street, most of which were classified as slight except one. This serious accident involved a car turning right out of a junction onto Magdalen Street where it collided with a cyclist.
- 6.104 Six of the collisions involved a right turn manoeuvre onto Magdalen Street and a collision with a cyclist; the majority of these collisions occurred in the vicinity of the Cowgate and Magdalen Close junctions. Another cyclist collision also occurred in this area when a parked vehicle's door was opened without the occupant looking.
- 6.105 Four of the collisions involved a bus and pedestrians. Two of these collisions occurred on the section of Magdalen Street which borders Anglia Square, and one of the contributing factors was the narrow road layout.
- 6.106 The remaining 5 collisions involved a car and a pedestrian, and 3 of these occurred on the section of road which borders Anglia Square.
- 6.107 There was also a cluster of collisions around both the A147 St Crispins Road / Barrack Street roundabout and the A147 St Crispins Road / Pitt Street roundabout.
- 6.108 In total, 18 collisions occurred on or around Barrack Street roundabout, and one collision resulted in a serious injury. This incident was caused by a pedestrian being careless and failing to look before stepping onto A147 towards Kett's Hill. There were 2 rear end collisions, both of which were driver errors, and 6 of the collisions involved cyclists, 4 of which occurred when a car pulled out onto the roundabout without looking properly or giving way to the cyclist. There were also a couple of collisions which occurred due to debris in the road, however these occurred on the same day.
- 6.109 St Crispins Road / Pitt Street roundabout has a similar cluster pattern to Barrack Street roundabout. There were 22 collisions in this area, 8 of which involved cyclists and 1 involved a pedestrian. 4 of the collisions were serious and occurred on the roundabout. 1 involved a pedestrian stepping out in front of car, 1 involved a cyclist being hit, 1 was caused by ignoring the traffic signals and one was due to driver illness.
- 6.110 There were 2 other serious collisions: 1 occurred on Aylsham Road and involved a pedestrian stepping out from in front of a bus into the path of the overtaking car; and the other occurred on A147 St Crispins Road involving a car changing lane and hitting a motorcyclist.

- 6.111 In summary, the PICs in the immediate area of the Site have a wide range of contributory factors. One common factor involves poor driver behaviour. The majority of collisions occur with no particular causal pattern and there do not appear to be any inherent highway design features that influence highway safety.

## **Walking and Cycling**

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### **Pedestrian Network**

- 6.112 The highway authority (NCoC) have closed the pedestrian subway across A147 St Crispins Road. This is to be replaced with a Toucan surface level crossing. The scheme is anticipated to be constructed and delivered towards the end of 2018. This will significantly enhance the access to Anglia Square and connectivity to the wider network for both pedestrians and cyclists.
- 6.113 Public pedestrian access to and from Anglia Square is also available from Edward Street, Pitt Street (via New Botolph Street) and at several points along Magdalen Street.
- 6.114 All roads in the vicinity of Anglia Square have footways on either side and are illuminated with street lighting. Overall, the proposal to redevelop Anglia Square would provide a material improvement in pedestrian accessibility, permeability and connectivity to key routes to the city centre, transport nodes and the wider catchment.

### **Cycle Network**

- 6.115 The Site is currently surrounded by cycle routes that provide connections to the centre of Norwich, the train station, employment areas and other local amenities. These also provide cycle access to employment areas and amenities to the north of the city, including Norwich Airport along the 'Lakenham Pedalway' (which is circa 4.5km away).
- 6.116 A shared cycleway/footway currently runs along the eastern side of Edward St ('Lakenham Pedalway'), this becomes an 'on-road' route along the northern boundary of the site before joining Magdalen St where the 'Lakenham Pedalway' links to the City Centre with a southbound Cycle/Bus Lane. In addition, the 'Cringleford Pedalway' runs extends to the north along Magdalen St and also runs south into the City Centre.
- 6.117 A shared cycleway/footway currently also runs along the western boundary of the Site along Pitt Street which joins up with the shared cycleway/footway facilities which extend to the west along St Crispins Road, and south along Duke St.
- 6.118 A shared cycleway/footway also currently exists on the southern side of St Crispins Road which runs east west and connects Magdalen St with the Pitt St/ Junction

- 6.119 NCiC's cycling plan for Norwich, which details routes in the vicinity of the Site is included within **Appendix E** of the TA.

## **Public Transport Accessibility**

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### **Bus Network**

- 6.120 There are a total of 20 bus stops within a 640m radius (approximate 8 minute walk) from the Site. These bus stops are served by 26 bus routes providing connections to a variety of destinations such as Stalham, Attleborough, Aylsham and Mundesley.
- 6.121 The nearest bus stops to the Site are the 'Anglia Square' stops on Magdalen Street and the Edward Street bus stop. The 'Anglia Square' bus stops 'A', 'B' and 'C' which are located within 140m of the centre of the Site provide northbound service access, and stop 'D', providing southbound service access, is approximately 170m from the centre of the Site. This equates to an approximate walk time of 2 minutes to the northbound and southbound stops from the centre of the Site.
- 6.122 There are 23 routes that serve the 'Anglia Square' stops which makes the Site highly accessible by bus.
- 6.123 The majority of the bus routes which serve the Anglia Square bus stops operate with high frequencies. Buses 21/21A/22/22A, 501 and 502 operate the highest number of services with bus services every 15 minutes on weekdays. The routes with the lowest frequency weekday service are X10-11, 50, 50A and X29, which operate with a frequency of one bus every hour.
- 6.124 A summary of weekday and weekend bus frequencies within 640m radius of the Site is provided in Section 3 of the TA<sup>5</sup>.

### **Rail Network**

- 6.125 Norwich Railway Station provides services operated by East Midlands Trains (Stagecoach Group) and Greater Anglia, and is located to the southeast of the city centre, approximately 1.5km from the Site.
- 6.126 From Norwich, East Midlands Trains provides a direct service towards Liverpool Lime Street, including destinations such as Nottingham, Sheffield and Manchester Piccadilly, with a frequency of 1 train per hour at peak times. On Saturdays the service runs once an hour, and 4 services operate on a Sunday.

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<sup>5</sup> WSP, Transport Assessment Anglia Square Norwich, March 2018

6.127 Greater Anglia direct services operate towards Great Yarmouth, Lowestoft, Sheringham and Ipswich, Colchester, and London Liverpool Street, as well as Ely, Cambridge and Peterborough, with a weekday frequency of 1-3 trains per hour at peak times. Non-direct services also provide access to destinations such as Stansted Airport and Southend Victoria.

## ASSESSMENT OF POTENTIAL EFFECTS

6.128 This section considers the impact of the proposed Development upon the baseline conditions for both the construction period and post completion of the Development, in respect to the following;

- Driver Delay and Stress
- Pedestrian / Cycle Delay and Amenity
- Accidents and Safety
- Hazardous Loads
- Severance
- Fear and Intimidation

### Construction Effects

#### Introduction

6.129 Increased traffic flows during construction – IEMA guidance states:

*“detailed environmental impact studies will normally only be triggered where road links experience change in traffic level greater than 30% or 10% where links contain sensitive interest”.*

6.130 The former is considered relevant to the proposed Development as there are limited sensitive receptors in the vicinity (e.g. amenities with road side frontages, roads with narrow footways etc. Table 6.2 (below) summarises the anticipated construction timescales and vehicular numbers.

6.131 The construction period and approximate daily volume of Heavy Goods Vehicle (HGV) traffic have been based on experience of schemes of a similar scale.

**Table 6.2: Average Daily Construction Traffic**

Construction period	Average daily construction traffic flows (two way flows)			
	Total traffic - low	Total traffic - high	HGVs - low	HGVs - high
2019-2028	162	310	32	60

- 6.132 The total daily two-way traffic flows recorded on St Crispins Road in 2016 were 25,192 vehicles of which 1,813 were HGVs. With background traffic growth and the reduction in flows due to the Norwich Northern Distributer Road (NDR) up to 2019, this is anticipated to change flows on this section of St Crispins Road to 24,624 vehicles, of which 1,790 are HGVs. The anticipated construction traffic in 2019 will therefore result in a 0.8% increase in overall traffic and a 2.4% increase in HGVs in 2019. Therefore the anticipated peak construction traffic would not increase average daily traffic flows greater than 30% (or 10%).
- 6.133 All HGV movements will occur during the normal working hours with much being outside the AM and PM peak periods. The proposed Development would be subject to a CEMP and HGV routes would be agreed with NCC and NCoC. This will dictate the hours of operation and the HGV routing on the local highway network.
- 6.134 It is concluded that HGV traffic generated during the construction period would have a negligible magnitude of change on the local road network resulting in slight effect that is not significant.

#### **Driver Delay and Stress**

- 6.135 Delays to drivers using the local highway network is identified by assessing the increased traffic congestion and delay arising from the additional traffic generated by the Development. The IEMA guidelines note that these additional delays are only likely to be significant when the local highway network is already operating at or above capacity.
- 6.136 The A147 St Crispins Road / Pitt Street / Duke Street / New Botolph St signalised junctions are currently congested at peak times. The junction of Magdalen Road/Bull Close Road/Magdalen Street/Magpie Road is also currently congested. However, the redistribution of traffic as a result of the NDR helps to alleviate some of the traffic delays in the overall area (especially in the am peak).
- 6.137 In addition, the junction modelling assessment contained within section 6 of the TA<sup>6</sup> demonstrates that the occupation of the full Development only has a minor impact on the operation of the surrounding highway network in the anticipated year of opening of Phase 1 and on completion for the full Development in 2028.
- 6.138 The proposed construction traffic would therefore result in temporary negligible effect on driver delay and stress.

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<sup>6</sup> WSP, Transport Assessment Anglia Square Norwich, March 2018

### **Pedestrian / Cycle Delay and Amenity**

- 6.139 Pedestrian and cycle delay is measured as the potential effects on pedestrians and cyclists associated with delays caused by changes in traffic volume or speed of traffic.
- 6.140 The anticipated traffic associated with the construction phase of the Development will be very low and spread across the course of the day. The proposed construction traffic will result in temporary negligible impact on pedestrian and cycle delay and amenity.

### **Accidents and Safety**

- 6.141 The construction phase will only result in a small increase in traffic on the local highway network and is therefore expected to have a local temporary **negligible effect** on accidents and highway safety. All construction traffic will be subject to a CMP which will route HGV traffic along the most suitable roads.

### **Hazardous Loads**

- 6.142 It is not anticipated that the proposed construction of the Development will result in the need for any hazardous loads, however, this will be managed through a CEMP, which will be prepared by Weston Homes and agreed with NCC and NCoC prior to commencement of construction.

### **Severance**

- 6.143 It is not predicted that noticeable severance will occur during the construction period. The IEMA guidelines suggest that only changes in traffic flow in excess of 30% or more are likely to result in increased severance. The proposed increase in traffic during the construction phase is significantly less at 0.8% (increase in overall traffic) on St Crispins Road. It is therefore considered that the effect on severance during construction will be temporary in nature and the significance will therefore be **negligible**.

### **Fear and Intimidation**

- 6.144 The HGV traffic associated with the construction of the Development is well below the thresholds outlined in Table 6.1 at <100 HGV movements per day. Therefore the construction traffic is considered to have a temporary **negligible impact** on the fear and intimidation.

### **Summary**

- 6.145 The increase in daily traffic during the construction period is predicted to be low on the highway network within the study area. Therefore, there is likely to be a local temporary **negligible effect** on: severance; driver stress and delay; pedestrian and cycle amenity and delay; and accidents and safety as a result of traffic movements during the construction period.

## Operational Effects

### Introduction

- 6.146 The IEMA Guidelines states “detailed environmental impact studies will normally only be triggered where road links experience change in traffic level greater than 30% or 10% where links contain sensitive interest”. The former is considered relevant to the proposed Development. The impact of the Development has been assessed for the Opening Year for Phase 1 (2020) and the anticipated year of full occupation following completion and hence, the full Development in 2028.
- 6.147 Traffic growth has been applied to the November 2016 surveyed traffic flows for each road in accordance with the growth indicated for these roads from the Norwich Northern Distributor Road traffic model (NDR model), which is a SATURN strategic model and covers Norwich.
- 6.148 The NDR Traffic Forecasting Report describes the changes in traffic and network performance that would occur with the implementation of the proposed NDR. The report indicates that there would likely be substantial reductions in traffic on existing orbital routes as a result of the reassignment of strategic traffic to the NDR. There would also be substantial reductions on a number of proposed developer link roads which would not be appropriate routes for carrying strategic traffic. Traffic levels would be reduced on routes in the Thorpe St Andrew, Old Catton and Hellesdon suburbs, including on the Outer Ring Road. Traffic flows in the city centre would also be reduced substantially as a result of the city centre measures that could be implemented with the introduction of the NDR.
- 6.149 The NDR Traffic Forecasting report indicates that traffic flows travelling through the city would also be reduced significantly with the NDR fully operational in 2018. The analysis shows that through the city centre the forecast traffic in 2032 would be almost half of that in the 2012 base year as a result of city centre measures. Traffic forecasts on the Inner Ring Road would be reduced in 2017 and 2032 to levels only just higher than in the base year. On the Outer Ring Road forecast traffic would reduce to levels below those in the base year.
- 6.150 The NDR model takes account of committed development and planned road schemes, including the Norwich Northern Distributor Road (NDR) which will reduce congestion and traffic on the roads and strategic routes to the north of the city.
- 6.151 Traffic flows from the NDR model for the roads in the vicinity of the Site and within the study area were provided by NCC. Flows from the NDR model for the 2017 and 2032 ‘with’ and ‘without’ the NDR scheme scenarios were provided. The difference in traffic flows from the 2017 base to the 2032 ‘with NDR scheme’, which represents the changes in traffic flows and growth on the network up to 2032 were obtained.

- 6.152 The 'Housing Development Forecasts' (**Appendix C4**) for the NDR model assumes an additional 198 residential units would be built at Anglia Square up to a forecast year of 2032. Therefore, the additional traffic from 198 units should be discounted from the NDR model 2032 scenario traffic flows to obtain a base level on which to add the proposed Development traffic. Notwithstanding this, and to be robust, traffic flows from the NDR model have not been discounted.
- 6.153 As scoped and agreed with NCoC this change in traffic flows between 2017 and 2032 has been linearly applied to the base surveyed 2016 flows, to obtain the anticipated base 2020 and 2028 traffic flow scenarios.
- 6.154 In order to calculate the proposed Development impact, the vehicular trip rates previously consented for development at the Site (NCC planning references 08/00974/F 11/00160/F, 11/00161/F and 11/00162/O) have been used for the non-food retail, food retail units and the cinema elements of the proposed Development.
- 6.155 The trip rates for the proposed food store will be different from those previously consented, as the even the largest floor area specified in the range of the proposed food store is far smaller. The TRICS online database identifies that smaller food stores generally have a higher trip rate. Therefore a new TRICS assessment for the food store has been undertaken.
- 6.156 In order to derive trip rates for the residential element of the Development, three existing residential developments in Norwich have been surveyed and the trip rates for the average peak hours were calculated. Details of this are set out in Section 5 of the TA<sup>7</sup>.
- 6.157 These surveyed trip rates were compared with those derived from a bespoke TRICS analysis for Privately Owned Flats, and were found to be very comparable. As agreed with NCC and NCoC, trip rates from the surveyed residential developments within Norwich have therefore been used in the assessment of residential trips, as this provides a more accurate reflection of residential development within Norwich and also provides a higher AM peak trip rate).
- 6.158 The traffic flows with and without the proposed Development are shown in Table 6.3, and the percentage change in traffic is presented in Table 6.4

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<sup>7</sup> WSP, Transport Assessment Anglia Square Norwich, March 2018

**Table 6.3: Traffic Flows**

Link	2016 Base				2028 Base				2028 with occupation of full Development			
	Week day AM Peak Hour	Week day PM Peak Hour	Week day Daily	Saturday Peak Hour	Week day AM Peak Hour	Week day PM Peak Hour	Week day Daily	Saturday Peak Hour	Week day AM Peak Hour	Week day PM Peak Hour	Week day Daily	Saturday Peak Hour
Pitt Street	1,513	1,413	20,271	1,490	1,448	1,503	20,176	1,502	1,535	1,730	22,461	1,637
Edward Street	165	235	2,922	251	178	246	3,197	263	399	706	5,031	869
Magdalen Street	275	449	5,870	342	202	299	4,238	230	202	298	4,231	230
Esdelle Street/ Edward Street (one way)	1,201	871	12,318	865	1,246	889	12,629	897	1,335	1,184	14,832	1,200
Magpie Road (one way)	1,200	829	11,495	873	1,100	852	11,372	834	1,115	1,102	12,934	1,128
St Augustines Street	798	1,300	14,574	1,052	798	1,364	15,165	1,084	872	1,496	16,688	1,232

(one way)												
St Crispins Road	1,910	2,048	25,192	1,897	1,697	1,632	21,970	1,582	1,801	1,698	22,553	1,637
Duke Street (one way)	275	808	9,276	657	371	891	10,815	747	371	891	10,815	747
Aylsham Road	1,088	1,329	17,263	1,166	959	1,424	17,036	1,149	994	1,544	18,155	1,265
Bull Close Lane	855	833	10,124	790	629	849	8,735	685	656	921	9,236	767
Whitefairs	1,220	1,095	13,603	958	910	647	9,049	579	910	647	9,049	579

**Table 6.4: Percentage change in traffic as a result of the Development**

Link	2028 increase in traffic with occupation of full Development)			
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily	Saturday Peak Hour
Pitt Street	6.0%	15.1%	11.3%	9.0%
Edward Street	123.7%	187.6%	57.4%	230.6%
Magdalen Street	0.0%	-0.3%	-0.2%	0.0%
Esdelle Street/Edward Street (one way)	7.1%	33.2%	17.4%	33.8%
Magpie Road (one way)	1.4%	29.4%	13.7%	35.2%
St Augustines Street (one way)	9.2%	9.7%	10.0%	13.6%
St Crispins Road	6.1%	4.1%	2.7%	3.5%
Duke Street (one way)	0.0%	0.0%	0.0%	0.0%
Aylsham Road	3.7%	8.5%	6.6%	10.1%

Bull Close Lane	4.3%	8.5%	5.7%	11.9%
Whitefrairs	0.0%	0.0%	0.0%	0.0%

6.159 The table below identifies the magnitude of change (in percentage terms) in traffic flows and its effect (negligible, small, medium and large).

**Table 6.5 Magnitude of Change in Traffic Flows**

Large	Medium	Small	Negligible
Exceeding the road's traffic capacity or a junction with a predicted ratio of flow to capacity greater than 0.9 for signalised junctions and 0.85 for priority junctions			
Change in total traffic, HGV or hazardous load flows more than 90%			
	Change in total traffic, HGV or hazardous loads flows of 60% to 90%		
		Change in total traffic, HGV or hazardous load flows of 30% to 60%	
			Change in total traffic, HGV or hazardous load flows of less than 30%

### Severance and Driver Delay

- 6.182 The IEMA guidelines suggest that only changes in traffic flow in excess of 30% or more are likely to result in increased severance. The proposed increase in traffic associated with the Development on the majority of links in the vicinity of the Site is identified as being less than 30%, with the exception of Edward Street, Magpie Road and Esdelle Street/Edward Street (one way).
- 6.183 The increase in traffic on Edward Street is anticipated to be up to circa 188% in the weekday peak periods and 231% on a Saturday. In accordance with table 6.5 this would result in a “large” effect. However this is due to Edward Street currently having low traffic volumes and the existing MSCP not currently being used.
- 6.184 The change in traffic flows on Magpie Road are anticipated to exceed 30% on the Saturday peak period. In addition, the change in traffic flows are anticipated to exceed 30% on Esdelle Street/Edward Street (one way) in the Saturday peak and weekday PM peak. Although in accordance with table 6.5 this would only result in a “small” effect, which is also partly due to the existing MSCP not currently being used.
- 6.185 There will be no delay to drivers at the proposed Site entrances. The junction modelling within the TA <sup>8</sup> shows that the occupation of the Development only has a minor impact on the operation of the surrounding highway network in the anticipated year of opening of Phase 1 and on completion for the full Development in 2028.
- 6.186 It is not predicted that any noticeable severance will occur during the operation of the Development. An increase in vehicle movements will occur, **but it is not considered that communities will be severed by the increase.**

### Pedestrian / Cycle Delay and Amenity

- 6.187 An adverse effect is anticipated on pedestrian and cycle delay as there will inevitably be more traffic on the network in the vicinity of the site. However, the increase will be negligible and will be partially offset by the time saving offered by use of the new pedestrian and cycle routes through the Development with improved crossings over the surrounding road network.
- 6.188 The only location where the change in traffic flows is anticipated to reach the threshold for a change in pedestrian amenity is on Edward Street. However this is due to Edward Street currently having low traffic volumes and the existing MSCP not currently being used.

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<sup>8</sup> WSP, Transport Assessment Anglia Square Norwich, March 2018

6.189 However, the Development will provide a **significant benefit** to amenity for pedestrians and cyclists crossing the Site as part of the routes to and from the city centre. The Development also offers an opportunity for improvements as outlined in the mitigation section below which includes improved crossings over the surrounding road network.

#### Accidents and Safety

6.190 The TA assesses five years of collision records and concludes that the increased level of traffic is **unlikely** to give rise to an increase in collisions on the local highway network.

6.191 The magnitude of effect arising from an increase in traffic during the operation of the Development will be small, and a neutral impact upon accidents and safety is anticipated. It is therefore considered that the effect upon accidents and safety during the operation of the Development will be permanent and of **negligible significance**.

#### Fear and Intimidation

6.192 The increase in traffic associated with the Development is well below the thresholds outlined in Table 6.1. Whilst traffic will increase in the vicinity of the site, the levels of increase are considered to have a **negligible effect on fear and intimidation**.

### Mitigation Measures

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#### Construction

6.193 In order to minimise the impact of the construction vehicles on traffic flows on the local road network, and on the amenity of residents in the local vicinity, it is proposed that HGV traffic will be restricted as far as reasonably possible to avoid peak travel periods (i.e. from 0800 to 09:00 and 17:00 to 18:00).

6.194 The CEMP will include details of the restrictions, routes and control (e.g. routing, parking) of construction vehicles (including HGVs and contractors' vans / cars). These measures will form a key part of the construction environmental management procedures and will be agreed with both highway authorities in advance of commencing works on the Site.

#### Operational (with the Development occupied)

6.195 The impact of the proposed Development post construction is considered to be negligible due to the additional infrastructure that is included as an integral part of the proposed Development as detailed within the TA and below;

- Provision of an improved crossing facility for cyclists and pedestrians across Edward Street to align with the 'north – south' pedestrian/cycle route that is proposed through the Site;
- Provision of a layby on Magdalen Street to relocate the existing inbound Magdalen Street bus stop to prevent blocking of the bus lane while buses are alighting. Space within the layby for at

least 1 new further inbound bus stand which could assist to relocate the Edward Street bus stop onto Magdalen Street:

- Provision of an unsignalised crossing south of the flyover on Magdalen Street;
  - Construction Environmental Management Plan to be completed and approved prior to commencement of demolition/construction;
  - New areas of high quality public realm within the Development;
  - Two new principal north-south and east-west pedestrian/cycle routes running across the Site;
  - Two public open spaces (a retained and enhanced Anglia Square and a new public space to the west);
  - CCTV provided for monitoring public realm areas and providing security;
  - Provision of secure cycle parking spaces for use by the public at Anglia Square;
  - Reconciliation of parking at the Site and provision of higher quality parking within a new MSCP for public use;
  - Travel Plan to be implemented prior to first occupation of the residential development and a Shopping Centre Travel Plan to be implemented prior to occupation of the new retail/commercial units. The travel plans also include the following;
  - Include provision for monitoring travel modes and patterns at regular intervals from the first occupation;
  - Appointment of a Travel Plan Co-ordinator as point of contact for the purpose of the Residential Travel Plan and Designation of an employee of Anglia Square Shopping Centre as the single point of contact for the Shopping Centre Travel Plan, who, with appropriate support from other members of staff, would undertake the role of Travel Plan Co-ordinator for Anglia Square.
- 6.196 These proposed improvements will minimise the impact of the Development on pedestrian delay and severance and improve pedestrian/cycle permeability and connectivity to the wider network. The locational characteristics of the Site would provide future residents and employees with a high level of accessibility to public transport services located along Magdalen Street.
- 6.197 No other further mitigation measures are proposed as it is considered that the Development proposals would offer improvements in terms of provision of dwellings well located for walking, cycling and access to public transport.
- 6.198 In accordance with NCoC requirements, Travel Plans (TP) will be provided to cover both the residential and commercial elements of the development. The primary aim of the TP is to reduce reliance on the car by promoting, and thereby encouraging the use of alternative modes of travel including walking, cycling and public transport.

## Residual Effects following Mitigation

Table 6.6: Summary of Effects

Topic	Magnitude of change	Duration	Nature	Significance
Driver delay & severance	Negligible other than; Edward Street – Major Esdelle Street – Minor Magpie Road – Minor	Permanent	Adverse	Negligible other than; Edward Street – Major Adverse Esdelle Street – Minor Adverse Magpie Road – Minor Adverse
Pedestrian & cycle delay & amenity	Moderate	Permanent	Beneficial	Moderate Beneficial
Accidents & safety	Negligible	Permanent	Adverse	Negligible
Fear and Intimidation	Negligible	Permanent	Adverse	Negligible
Driver delay & stress	Negligible	Construction period	Adverse	Negligible
Pedestrian & cycle delay & amenity	Negligible	Construction period	Adverse	Negligible
Accidents & safety	Negligible	Construction period	Adverse	Negligible
Severance	Negligible	Construction period	Adverse	Negligible
Fear and Intimidation	Negligible	Construction period	Adverse	Negligible

6.199 The increase in daily traffic during the construction period is predicted to be **negligible** on the roads that surround the Site and across the wider highway network. Following implementation of the CEMP and proposed routing strategy (avoiding local residential roads wherever possible), the construction activities are expected to have a **temporary negligible effect on: severance; driver stress and delay; pedestrian amenity and delay; and accidents and safety.**

6.200 The increase in daily traffic during the operational phase of the completed and occupied Development is predicted to be **negligible** on the roads that surround the Site and the wider highway

network. The only exception would be Edward Street, which is due to the existing Multi Storey Car Park not currently being used.

- 6.201 Subsequent to the implementation of appropriate mitigation, (which includes the provision of pedestrian/cycleway crossings and other highway and transport improvements) as detailed in paragraph 5.45, the completed and occupied Development is expected to have a permanent **negligible effect** on: severance; driver stress and delay; pedestrian amenity and delay; fear and intimidation; and accidents and safety.

## Cumulative Effects

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### Introduction

- 6.202 The cumulative effect of the Development has been considered in the context of other developments in the area.

### Construction

- 6.203 It is considered that the cumulative effect of development in the area will result in a temporary increase in traffic during construction (due to the construction vehicles), however this is considered to be only a **negligible temporary issue**.

### Operational

- 6.204 The Norwich Northern Distributor Road (NDR) strategic model has been used to inform the growth in traffic on the surrounding highway network. This model takes into consideration the planned and committed schemes in Norwich, South Norfolk and Broadland Districts and was informed by NCC.
- 6.205 The St Marys Works site, which is on the opposite corner of the St Crispins Road / Pitt Street roundabout to the Site has only recently been the subject of a resolution to grant planning consent for mixed use redevelopment. However, the Transport Assessment for that scheme highlighted that the proposals would generate less traffic than the current land use assuming the site is fully operational. Application of the existing traffic data from the St Marys Works site (which would be included within the NDR, model) would therefore provide a robust analysis. Therefore the assessment undertaken within the Transport Assessment <sup>9</sup> for the Development, and the traffic flows indicated within this ES chapter already take into account planned and committed developments.

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<sup>9</sup> WSP, Transport Assessment Anglia Square Norwich, March 2018

## SUMMARY

- 6.206 The baseline characteristics of the surrounding highway network show that in close proximity to the Development, traffic flows are not excessive and are typical of city centre conditions. There are no identifiable safety issues in the area surrounding the Site.
- 6.207 The baseline for pedestrians, cyclists and public transport users is one of a good standard of infrastructure and service provision with a wide variety of bus services available within walking distance along Magdalen Street. . The Site is located in proximity to a good range of local facilities.
- 6.208 Implementation of the Travel Plans for the residential and commercial elements of the scheme, will provide the management and operational framework to influence future travel behaviour and encourage the use of more sustainable modes in conjunction with reducing the overall need to travel.
- 6.209 The assessment has shown that there will be a negligible effect on all aspects of the highway network assessed during the construction phase.
- 6.210 During the operation of the Development there is considered to be a negligible effect on traffic and severance for the majority of links in the vicinity of the Site with the exception of Edward Street, Magpie Road and Esdelle Street/Edward Street (one way).
- 6.211 There is anticipated to be a “large” effect on Edward Street. However this is due to Edward Street currently having low traffic volumes and the existing MSCP not currently being used.
- 6.212 The Development is anticipated to have a “minor” effect on Magpie Road in the Saturday peak period. In addition, the Development is anticipated to have a “small” effect on Esdelle Street/Edward Street (one way) in the Saturday peak and weekday PM peak. Although this is also partly due to the existing MSCP not currently being used.
- 6.213 There will be no delay to drivers at the proposed points of access to the Site. The junction modelling within the TA<sup>10</sup> shows that the occupation of the full Development only has a minor impact on the operation of the surrounding highway network in the anticipated year of opening of Phase 1 and on completion for the full development in 2028 with the mitigation as detailed in paragraph 5.45 of this report.

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<sup>10</sup> WSP, Transport Assessment Anglia Square Norwich, March 2018

- 6.214 The effect on pedestrian and cycle delay is considered negligible, and on pedestrian and cycle amenity around the Site is considered negligible although the Development will also provide a significant benefit to amenity for pedestrians and cyclists crossing the Site as part of the routes to and from the city centre.
- 6.215 The effect on accidents & safety is also considered negligible. It is also not predicted that any noticeable severance will occur during the operation of the Development. An increase in vehicle movements will occur, **but it is not considered that communities will be severed by the increase.**
- 6.216 In conclusion, the analysis of the likely impacts of the proposed Development demonstrates that the Site can accommodate the proposed Development without undue effect upon the safe and efficient operation of the local highway and transport network and the surrounding environment. Development generated traffic would result in minimal additional queuing and delay during peak travel periods on a few junctions. This is anticipated to be confined to the peak periods only. Finally, the Development accords with national and local planning policies and will be sustainable in terms of the provision of housing and local retailing, leisure and community uses in a location highly accessible via modes of travel other than the private car.