MARCH 2022

Commercial Framework Travel Plan

Anglia Square, Norwich

Iceni Projects Limited on behalf of Weston Homes Ltd.

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Commercial Framework Travel Plan
ANGLIA SQUARE, NORWICH

CONTENTS

1. INTRODUCTION

1.1 This Commercial Framework Travel Plan (CFTP) on behalf of Weston Homes Plc (the Applicant) in support of a hybrid (part full/part outline) planning application, (the Application), submitted to Norwich City Council (NCC) for the comprehensive redevelopment of Anglia Square and various parcels of mostly open surrounding land, (the Site), as shown within a red line on drawing 'ZZ-00-DR-A-01-0200'.

1.2 The Site is located in a highly accessible position within the northern part of Norwich City Centre and comprises a significant element of the Anglia Square/Magdalen Street/St Augustines Large District Centre, (the LDC). It is thus of strategic importance to the City, and accordingly has been identified for redevelopment for many years within various local planning policy documents, including the Northern City Centre Area Action Plan 2010, (NCCAAP), (now expired), the Joint Core Strategy for Broadland, Norwich and South Norfolk 2014, (JCS), and NCC's Anglia Square and Surrounding Area Policy Guidance Note 2017, (PGN). The Site forms the principal part of an allocation (GNLP 0506) in the emerging Greater Norwich Local Plan (GNLP).

1.3 This application follows a previous application on a somewhat smaller development parcel, (NCC Ref. 18/00330/F) made jointly by Weston Homes Plc as development partner and Columbia Threadneedle Investments, (CTI), the Site's owner, for a residential-led mixed use scheme consisting of up to 1,250 dwellings with decked parking, and 11,000 sqm GEA flexible ground floor retail/commercial/non-residential institution floorspace, hotel, cinema, multi-storey public car park, place of worship, and associated public realm and highway works. This was subject to a Call-in by the Secretary of State (PINS Ref. APP/G2625/V/19/3225505) who refused planning permission on 12th November 2020, (the 'Call in Scheme').

1.4 In April 2021, following new negotiations with Site owner CTI, Weston Homes decided to explore the potential for securing planning permission for an alternative scheme via an extensive programme of public and stakeholder engagement, from the earliest concepts to a fully worked up application. The negotiations with CTI have secured a "Subject to Planning" contract to purchase the Site, (enlarged to include the southeastern part of Anglia Square fronting Magdalen Street and St Crispins Road), which has enabled a completely fresh approach to establishing a redevelopment scheme for Anglia Square. This has resulted in a different development brief for the scheme, being to create a replacement part of the larger LDC suited to the flexible needs of a wide range of retail, service, business and community uses, reflective of trends in town centre character, integrated with the introduction of homes across the Site, within a highly permeable layout, well connected to its surroundings.

1.5 The new development proposal seeks to comprehensively redevelop the Site to provide up to 1,100 dwellings and up to 8,000sqm (NIA) flexible retail, commercial and other non-residential floorspace including Community Hub, up to 450 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses), car club spaces and associated works to the highway and public realm areas (the Proposed Development). These figures are maxima in view of the hybrid nature of the application. This proposes part of the scheme designed in full, to accommodate 367 dwellings, 5,808 sqm non-residential floorspace, and 146 car parking spaces (at least 95% spaces for residential use, and up to 5% for non-residential use), with the remaining large part of the Site for later detailed design as a "Reserved Matters" application, up to those maxima figures.

1.6 This CFTP provides NCC, and Norfolk County Council (NCoC) as the local highway authority, with the framework for the Travel Plan to be implemented for the commercial element of the Proposed Development, which will be secured via a planning condition / legal agreement.

1.7 This CFTP therefore relates directly to the commercial element of the Proposed Development, and is applicable to the entirety of the commercial development, with the plan being implemented with the first phase of commercial units. A separate Framework Travel Plan has been prepared for the residential element.

1.8 The Site is currently at the planning application stage and therefore not occupied by the proposed commercial use, which remains flexible as part of this hybrid planning application. As such, the employee and visitor travel patterns cannot be exactly determined at this stage. This CFTP has therefore been produced to provide an overarching, site wide approach to promote and encourage sustainable travel at the Site as a whole.

1.9 As part of the planning application submission, details regarding bus, cycle and pedestrian requirements for the Site have also been provided within an associated Transport Assessment (TA).

1.10 This CFTP identifies a range of outline initiatives to increase and encourage the use of sustainable modes of travel to and from the commercial units proposed on the Site, which will be supplemented by targets as necessary.

1.11 This CFTP represents a commitment by the developer to encourage that the measures proposed are adopted. Once planning permission is confirmed, the occupier will submit a detailed Travel Plan (TP) prior to occupation that is in accordance with this CFTP. These outline initiatives will be reviewed and agreed for inclusion within the TP once the development is occupied.

What is a Travel Plan?

1.12 Travel Plans provide a long-term management strategy to support sustainable and active travel at new developments. Every development has potential implications for local transport systems to a lesser or greater degree. The way that these implications are managed is fundamental to the scale of transport effects associated with the development.

1.13 The TP is therefore essentially a series of initiatives that are introduced by an organisation to provide all users of a development with an enhanced range of sustainable transport opportunities. The overriding objective of a TP is to reduce the level of single occupancy car use for all journeys and to maximise the use of other sustainable forms of travel such as walking, cycling and public transport.

2. SITE DESCRIPTION AND SUSTAINABLE TRAVEL MODES

Site Location

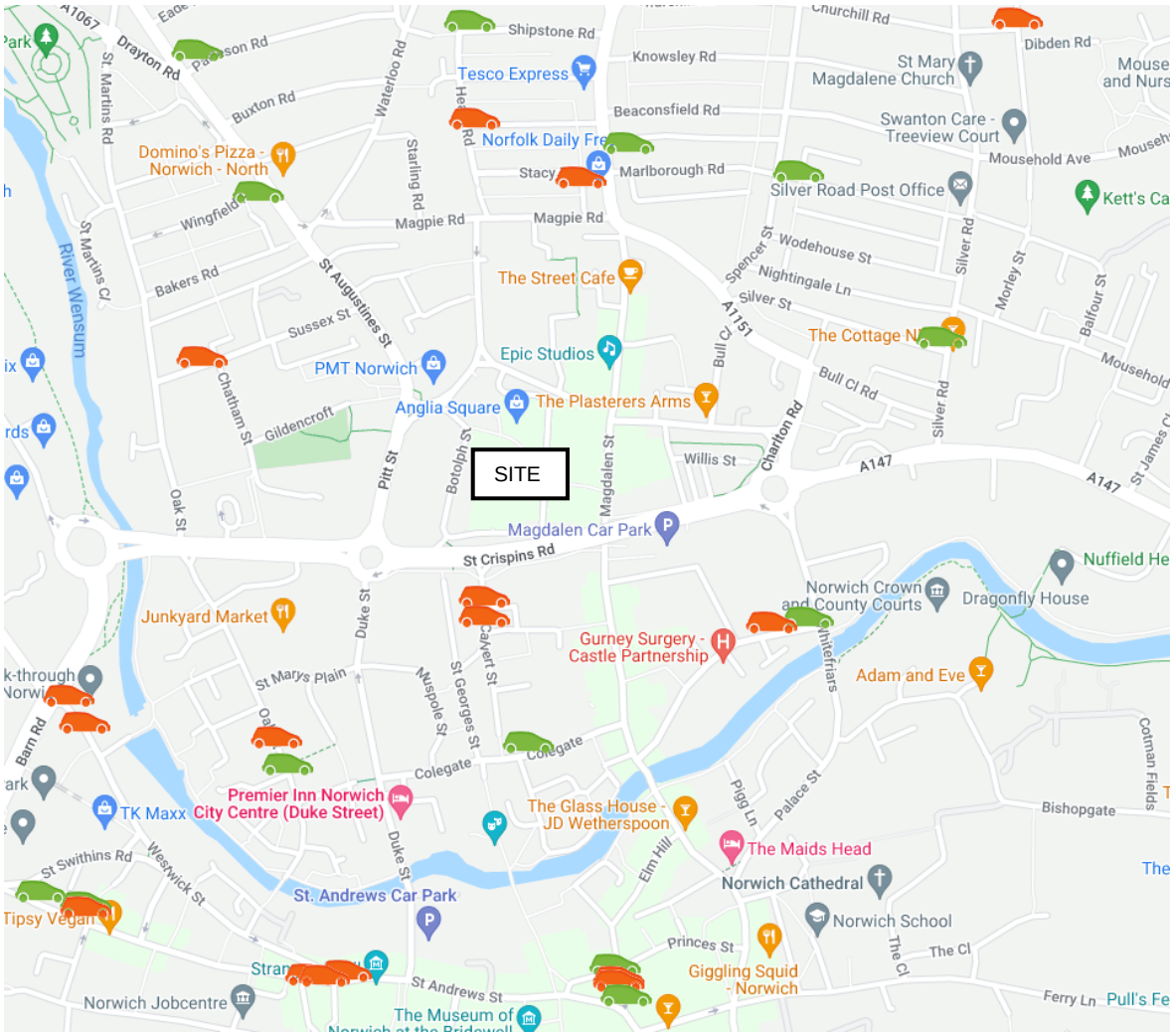
2.1 The main site area (Anglia Square) is bounded by New Botolph Street and Pitt Street to the west, Edward Street to the north, Magdalen Street to the east and St Crispin's Road to the south. The Site comprises the entirety of the land within this area, except for a vacant two storey retail unit (the former Barclays Bank) site within the north-eastern corner of the site and the two storey Surrey Chapel site within the south-west frontage of the site (which are both in separate ownerships). In addition, the Site comprises a parcel of land to the northwest of New Botolph Street/west of Edward Street, and an area of land to the north of Edward Street and west of Beckham Place, both currently unsurfaced and used for surface-level car parking.

2.2 A full description of the site location and local highway network / accessibility of the site is provided within the TA which accompanies this application.

Car Clubs

2.3 Norwich, and the wider Norfolk area, benefits from car club provision in the form of 'Norfolk Car Club', which provides access to vehicles available on a pay-as-you-go basis, operated by Co-wheels. There are a number of cars already available within Norwich, as well as more areas that have designated bays ready to accommodate a car when one becomes available. The location of these car clubs within the vicinity of the Site is shown in **Figure 2.1**, with the active vehicles shown as green, and the designated bays as orange.

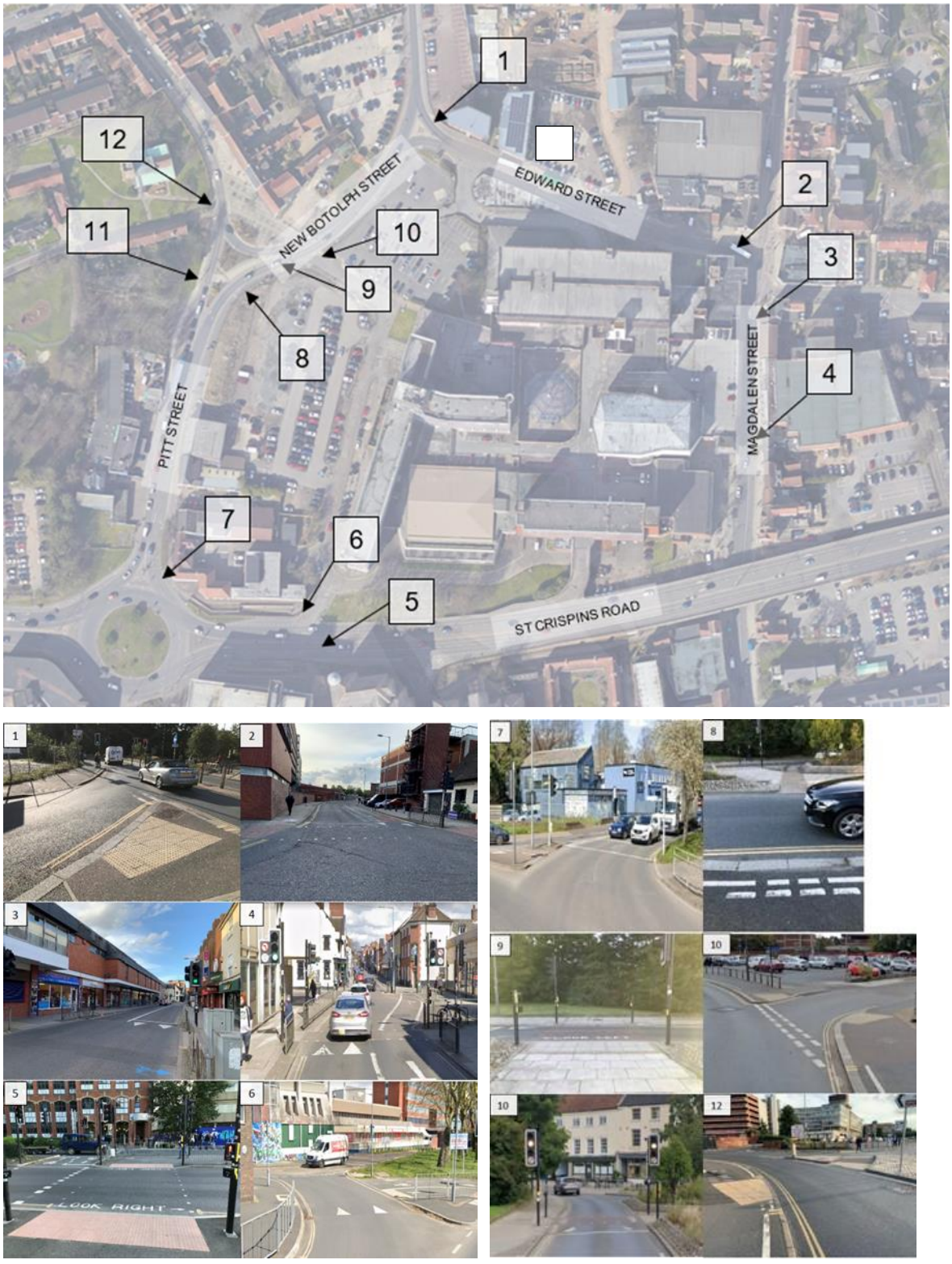
Figure 2.1 – Local Car Club Provision



Walking and Cycling Connectivity

2.4 Given the site's location within Norwich City Centre, it benefits from immediate access onto the established network of pedestrian footways which connect to multiple modes of public transport and the array of local amenities. Footways within the immediate vicinity of the Site are predominantly of good width, well-lit and in good state of repair. There also several pedestrian crossing facilities available within the vicinity of the Site, which are detailed in **Figure 2.2**.

Figure 2.2 – Local Crossing Facilities



2.5 With regards to cycling, the Site benefits from having a number of cycle routes within its vicinity which provide connections to the centre of Norwich, the train station, employment and leisure areas, amongst a number of other local amenities as well as the wider cycling network. Details of the main local cycle routes surrounding the Site are as follows:

- A shared cycleway / footway currently runs along the eastern side of Edward St, this becomes an ‘on-road’ route along the northern boundary of the Site before joining Magdalen Street where the ‘Lakenham Pedalway’ links to the City Centre with a southbound cycle / bus Lane. In addition, the ‘Cringleford Pedalway’ extends to the north along Magdalen St and also runs south into the City Centre.
- 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 to the west along St Crispins Road, and south along Duke Street.
- A shared cycleway / footway also exists on the southern side of St Crispins Road which runs east west and connects Magdalen Street with the Pitt Street Junction.
- Additionally, a cycle route continues in a southernly direction from St Crispins Road, utilising St Georges Street.

2.6 The NCC cycle route map is included at **Appendix A1** for reference, although it should be noted that this plan does not appear to show the cycle routes available along Botolph Street, St Crispins Road, Pitt Street and St Georges Street, which were noted from on-site observations.

Public Transport Accessibility

2.7 The Site benefits from a high number of bus stops located within the immediate vicinity, as shown in the extract from NCoC Interactive Map in **Figure 2.3** which plots the bus stops as red dots. As can be seen, there are a cluster of bus stops on Magdalen Street which provide access to the majority of services, but also further stops on Edward Street and then Maple Road / Aylsham Road heading north.

Figure 2.3 – Local Bus Stops (Red Dots)

2.8 These bus stops provided access to a multitude of services, providing frequent bus access to a range of destinations, as shown by the network route map attached at **Appendix A2**.

2.9 Norwich Railway Station, which provides access to rail services operated by Greater Anglia and East Midlands Rail, is located approximately 1.5km to the south east of the Site. The station can therefore be reached within less than a 20-minute walk or a circa 5-minute cycle ride.

2.10 From this station, trains provide a direct service to London, as well as other key destinations such as Ipswich, Cambridge, Nottingham, Manchester and Liverpool.

Scheduled Improvements

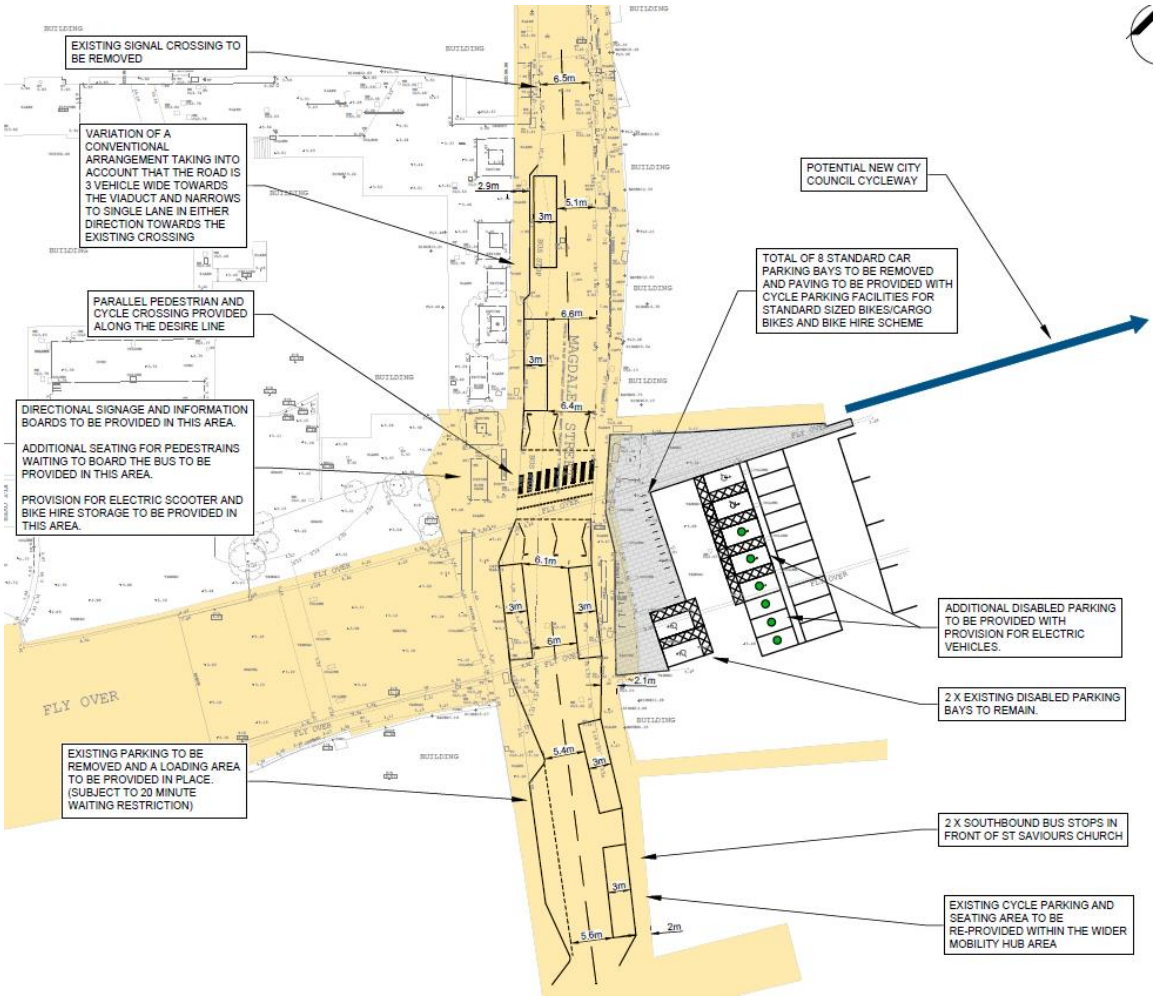
2.11 In conjunction with the preparation of this planning application, discussions have been held with NCC, NCoC and various other stakeholders regarding the provision of a 'Mobility Hub' on Magdalen Street. However, this will be subject to a separate planning application and is not being delivered by the Applicant.

2.12 Notwithstanding, it is acknowledged that all parties are looking to bring this facility forward and therefore it is expected to be approved and implemented within the near future.

2.13 The potential proposals are shown in **Figure 2.4**, and the potential improvements / changes include:

- Provide a total of 6 bus stops (3 x northbound and 3 x southbound) to increase capacity and ensure buses can stop within dedicated areas.
- Revision to Magdalen Street car park to provide improved public realm area, including a generous amount of cycle parking provision. This will also include conversation of standard spaces to disabled parking, and the provision of active electric charging points for electric vehicles.
- Provide a parallel pedestrian and cycling crossing on Magdalen Street to follow the desire line between the Site and the existing pedestrian route to the east, with NCC having aspirations to upgrade to a cycleway.
- Removal of the existing crossing on Magdalen Street to facilitate the new crossing mentioned above.
- Provision of cycle hire facilities (including for electric bikes), modern public signage, information boards, seating, lighting and planting.

Figure 2.4 – Potential Mobility Hub Improvements



2.14 Whilst these changes do not form part of this planning application, it is clear there is an aspiration to make these changes from all parties and it is therefore expected that there will be a significant improvement to the quality and quantity of sustainable transport and public realm within this area over future years.

2011 Census Data

2.15 The TA also includes a review of local 2011 Census data available. **Table 2.1** provides a summary of the modes of travel to work that are used by local workforce based on this data.

Table 2.1 Method of Travel to Work Census Data (Norwich 007)

Mode of Travel	Percentage Split
Rail	4%
Bus	31%
Taxi	1%
Motorbike	2%
Car Passenger	11%
Cycling	11%
Walking	40%
Other	0%
Total	**100%**

2.16 The data therefore demonstrates that for the existing workforce travelling to the area there is a high usage of sustainable modes of transport, with 86% either walking, cycling or using the bus or rail services. It is therefore considered that there is a strong precedent set within the area to travel using these sustainable non-car modes.

3. OBJECTIVES AND TARGETS

The Focus of the Travel Plan

3.1 This CFTP is focussed on employees and visitors of the Proposed Development and the majority of measures proposed are intended to encourage them to decrease their reliance on private car travel, instead utilising the excellent sustainable transport facilities available within the vicinity of the Site.

Objectives

3.2 There are several objectives that the implementation of this CFTP, and the future finalised TP, is intended to help fulfil. These objectives are:

- To influence the travel behaviour of employees and visitors;
- To generate fewer single-occupancy car trips than would otherwise be the case by encouraging a modal shift in travel;
- To help improve the health of occupiers; and
- To ensure sufficient facilities are available to accommodate the journeys that would otherwise be undertaken by the private vehicle.

Targets

3.3 The objectives set out above provide the structure for the CFTP. Where applicable, targets can also be included within a CFTP to help achieve the objectives. Targets are measurable goals which provide an assessment criteria to determine the progress of the TP, and are therefore essential for monitoring the success of the TP. Targets should be designed to be SMART (Specific, Measurable, Achievable, Realistic and Time-bound).

3.4 It is considered that targets can fall under two categories; quantifiable actions i.e. a modal shift in transport or non-quantifiable actions i.e. achieving something by a certain milestone.

3.5 The targets for this development will be finalised within the TP, however, the below provides an early indication on what these are likely to be:

- Appointing a Travel Plan Co-Ordinator (TPC) prior to the first occupation of the Site;
- Undertaking a monitoring survey on an annual basis, starting from a year after first occupation. This will include undertaking initial surveys to determine the baseline travel splits for the Proposed Development;

- Reduce the percentage split of vehicular trips by a set percentage, to be determined within the TP once initial baseline surveys have been undertaken;
- Promote the opportunities to travel by public transport, walking and cycling for visitors to the Site.

3.6 To help achieve these targets, the following sections set out how the TP will be managed and what measures will be implemented. Consideration will need to be given towards both the targets and their monitoring as the intention is to provide a development from the outset with low car use. As such, subsequent shift may be difficult to achieve and this will require discussion with officers.

Travel Surveys

3.7 In order to ensure the TP remains focussed and applicable to the Proposed Development, it will be essential to undertake travel surveys. Initially, this will be required to determine the baseline, which will help inform the targets of the TP as set out above, and then moving forward the surveys will allow for monitoring. The monitoring via the surveys will illustrate the impact of the TP measures, and whether they are helping to achieve the intended targets. Should the future travel surveys demonstrate that the targets are not due to be met, then revised measures could be set.

3.8 In order to determine the baseline data, travel surveys will therefore be undertaken 6 months after first occupation of the commercial units to allow a sufficient sample size to become available.

3.9 An example of the Travel Survey is attached at **Appendix A3** for reference, to illustrate the types of questions that will be asked. The Travel Survey will be provided to the manager of each individual commercial unit, who will then be tasked with asking their staff to complete it.

4. TRAVEL PLAN MANAGEMENT

4.1 In order to ensure that the CFTP and subsequent TP are as successful as possible it is essential that it is managed in such a way that all parties are aware of the aims, objectives and options available to them in terms of travelling to the site using sustainable modes of transport. It is essential that there is a point of contact for the employees / visitors and the local authority and also a driving force behind the implementation of the measures contained within the plan. To achieve this, a TPC will be appointed.

The Travel Plan Co-ordinator and Associated Support

4.2 It is proposed that the TPC will be a named individual staff member at the managing agents appointed by the management company for the development, who will commence this role on first occupation of a commercial unit. The principles of this CFTP and TPC is intended to continue through all phases of development.

4.3 The role of the TPC will be as follows:

- To promote and encourage the use of travel modes other than the car.
- To provide a point of contact and travel information for employees / visitors.
- To ensure that all relevant information is provided to the occupiers and that up-to-date information is clearly displayed on the TP notice boards, website, etc.
- To arrange for travel surveys to be undertaken where necessary.

Monitoring and Review Mechanisms

4.4 An objective of the CFTP is that there will be an on-going improvement process including annual monitoring to be conducted at the end of each year for a 5-year period. As stated previously, this process will start 6 months after first occupation, when the first surveys will be undertaken to provide the baseline data. The monitoring will then be undertaken on the anniversary of this date each year. The TPC will form a contact point for communication with the local authority who will be involved in the monitoring process.

Sustaining Interest

4.5 It is important to sustain interest and commitment to the CFTP to ensure its success. The TPC will need to be proactive in ensuring information is available and up-to-date. The TPC will also need to ensure that employees / visitors are aware of the TP and the travel options available to them.

Marketing and Communication

4.6 In addition to the initiatives already outlined with the CFTP, there will need to be an ongoing marketing and communication of information following on from the launch.

4.7 It is proposed that each commercial unit will receive a 'Welcome Pack' following occupation of their dwelling, which will include a summarised version of the TP and all relevant information on public transport facilities, car club facilities, local walking routes, cycling networks and contact details for local taxi operators.

4.8 The TP will be continually marketed through the provision and updating of travel information. It is considered that this travel information can be provided on notice boards within the respective units.

Funding

4.9 The implementation of the TP is to be funded by the overarching management company for the commercial development. This will include all costs associated with the implementation, management, marketing and monitoring of the TP.

5. TRAVEL PLAN MEASURES

5.1 Where applicable, measures can be included in a CFTP to help achieve the targets / objectives. These measures are set out in this chapter and predominantly include initiatives to promote increases in the use of cycling, walking and public transport. CFTPs are evolving documents that need to remain adaptable to changing working practices and local conditions. Therefore, the list of measures is by no means exhaustive and additional measures could be identified and implemented in the future, which will form part of the ongoing monitoring process.

5.2 These measures will be implemented and encouraged by the TPC as necessary.

Measures to increase the use of public transport

5.3 Increased accessibility to, and use of, public transport is considered to be a key element of any TP. As detailed within the TA, the Site benefits from excellent public transport accessibility, with a wide range of bus services accessible within the immediate vicinity, and rail facilities from Norwich railway station also accessible. The welcome packs to be provided to all commercial units will include up-to-date public transport information, including bus / train timetables and company contact information.

Measures to encourage cycling

5.4 Cycle parking will be provided across the development as appropriate which will ensure that cycle parking facilities are available for all staff and visitors in safe and secure locations. The provision of cycle parking will be monitored by the TPC and if demand is consistently met then further spaces will be provided. This in itself is likely to encourage cycle use, which will then be further promoted via the provision of information on the local cycle network routes and details of local cycle stores. Lastly, as detailed in the TA, the Proposed Development includes significant improvements to the local cycle network, both in terms of crossing facilities and routes within and near the Site which connect to the existing, external network.

Measures to encourage walking

5.5 Pedestrian access and connectivity throughout the site is to be enhanced via the provision of dedicated pedestrianised routes and the provision of crossing facilities to connect with the local pedestrian network. Employees will be made aware of the pedestrian network available to them and also what facilities are available within a reasonable walking distance.

Measures to promote the Travel Plan

5.6 In order to ensure the TP is successfully promoted to occupiers of the commercial units, the Management Company should consider developing a website which will provide a digital base for the information as detailed above. This website would also include information on the reasons for the development of the TP and provide updates as part of the monitoring progress.

6. SUMMARY & CONCLUSIONS

6.1 The measures and initiatives recommended within this CFTP are considered to be sufficient to encourage employees / visitors to travel in a sustainable manner by promoting and securing initiatives and incentives which would minimise the need to travel by private car.

6.2 The monitoring and review process will ensure the CFTP and subsequent TPs remain live documents and will sustain the necessary efforts for it to reach its objectives.

6.3 This framework identifies that the site has good opportunities for employees / visitors to use existing modes of transport other than the car.

6.4 Taking all of the above into account, it is considered that this proposed development not only has good access to the existing walking, cycling and public transport networks, but will also ensure that with the additional measures incorporated as part of the development, occupiers will be encouraged to use modes of transport other than the car.

6.5 The final TP should be secured via S106 agreement as could any appropriate contributions towards off-site physical enhancements to sustainable travel.

A1. NCC CYCLE ROUTE MAP

Norwich network

0 0.5 1Km
0 0.25 0.5 1 Mile

Norwich and beyond
great to explore by bike

The pace is right to spot a bargain in a quirky shop, pause for a conversation with a friend in the park, or explore a neighbouring beauty spot. The city is compact, making it manageable to ride from the edge to the centre in under twenty minutes. For those looking for more leisurely rides, the Broads, Loddon and Wymondham can be discovered in a few hours.

Welcome to the cycle network!

It features seven pedalways, each represented by a colour. Five cross the city from one side to the other and meet in the middle at St Andrew's Plain. Two others encircle the city – orange near the centre and purple on the edge. They are complemented by neighbourhood routes that help you get around from your home to schools and shops. Four looping leisure rides – circulars – take you into the beautiful countryside around Norwich.

Discover Norwich and beyond.

Happy pedalling!

How to use this map

Planning your route

Use this side of the map for planning your route within Norwich. It shows where the pedalways go and how they relate to facilities. The main routes are coloured and the colours can be found on signs and stickers along the way.

Turn over to see four looping leisure rides that take you out into the beautiful countryside and neighbouring towns.

Route conditions

The quality of the network varies from place to place and we are implementing a long-term plan to improve it. The maps show the busy traffic areas and the traffic-free parts of the pedalways and leisure routes so you can match your route to your level of cycling confidence and skill. The traffic-free parts are usually shared with pedestrians so please be considerate and use a bell. Their surfaces can also be slippery, uneven or unlit so please take care. Some parts of the network are privately owned and not maintained by the city or county councils.

Pedalways

- Bowthorpe ↔ Broadland Business Park
- Drayton ↔ Whitlingham (National Cycle Route 1)
- Lakenham ↔ Aviation Academy
- N&N Hospital ↔ Heartsease
- Wymondham ↔ Sprowston
- Inner circuit
- Outer circuit
- Neighbourhood routes
- St Andrew's Plain (centre of the network)
- Pedalway destination

Cycle network route conditions

- Cyclists dismount
- One way
- Route along busy road (with speed limit over 20mph and without off carriageway option)
- Steep hill (arrows point uphill)
- Traffic free path

Attractions and facilities

- Airport
- Bus station (including cycle hire)
- City wall
- Cycle sport venue
- Cycle stand parking
- Football stadium
- Higher and further education
- Local shopping centres
- Long stay secure cycle parking
- NHS walk in centre
- Norwich Market
- Park & Ride (cycle parking available)
- Riverside walk/pathway
- Toilets, public and customer
- Tourist Information Centre
- Train station (including cycle hire)

Schools

- First, infant or primary
- A City Academy Norwich
- B City of Norwich School
- C Hellesdon High
- D Hewett Academy
- E Jane Austen Free School
- F Norwich High School for Girls
- G Norwich School
- H Notre Dame
- I Open Academy
- J Ormiston Victory Academy
- K Sewell Park Academy
- L Sir Isaac Newton 6th Form
- M Sprowston Community Academy
- N Thorpe St Andrew School
- O Wherry School

Sports facilities

- A Carrow Park
- B Football Development Centre
- C Norfolk Snowsports Club
- D Norman Centre
- E Norwich Rowing Club
- F Riverside Leisure Centre
- G Sewell Park Academy Sports Centre
- H UEA Sports Park
- I Whitlingham Outdoor Education Centre

Bicycle shops

- A A.P. Cycles
- B Bicycle Links
- C Cycloservices
- D Cycle Republic
- E Cycles UK
- F Dr Bike @ UEA
- G Evans Cycles
- H Freemans
- I Go Outdoors
- J Halfords
- K John Borwell
- L Leisure Cycles
- M Mandarin
- N Not About The Bike
- O Pedal Revolution
- P Sorens
- Q The Bike Man
- R Wilco 'Bike' (Aylsham Rd)
- S Wilco 'Bike' (Dereham Rd)
- T Wilco 'Bike' (Reepham Rd)
- U Wilco 'Bike' (Salhouse Rd)

- Employment areas
- Libraries

0 125 250 500 Metres
0 0.125 0.25 0.5 Miles

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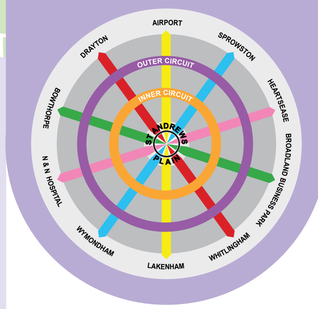
Norfolk County Council
NORWICH City Council

Norwich CYCLE MAP



Supported by:

Broadland District Council
South Norfolk
Transport for Norwich
NEWANGLIA Local Enterprise Partnership for Norfolk and Suffolk
Department for Transport
PUSHING AHEAD
NORWICH CYCLING CAMPAIGN

Leisure routes

Marriott's Way circular

22.6 miles / 36.4 km

1. Train Wood – the site of Norwich City Station

Train Wood is the site of Norwich City Station, one of three mainline stations that once served Norwich. It was the end of William Marriott's M&GN railway line and you can follow it on a bike through Hellesdon, Drayton and Thorpe Marriott and seek out the remaining platforms, gates and mile markers along the trail.

2. The A-Frame bridge at Drayton – views along the Wensum Valley

The first section of Marriott's Way to Drayton runs through the Wensum Valley Special Area of Conservation. The landscape hosts rare and protected birds, reptiles, mammals, plants and invertebrates. Up to ten bat species have been recorded on evening forays. The railway bridge offers great views back along the river; you might be lucky enough to see water voles and otters.

Credit: Dkirkham for Norfolk Trails

Broads circular

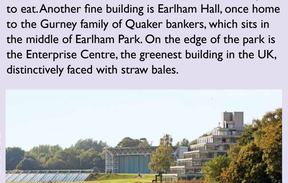
24.5 miles / 39.4km

3. Catton Park

Catton Park is a beautiful 70 acre country park that was the first commission of Humphry Repton as a landscape gardener. It is open at all times for people to wander through the open wildflower meadow and explore the woodland.

4. Ranworth Church and Broad

St Helen's Church, sometimes called the 'Cathedral of the Broads', dates from 1450 and contains painted images of saints on one of the finest rood screens in England. You can climb the church tower and look out across the Broads' landscape. Nearby is a boardwalk leading to Ranworth Broad, which passes through woodland and reed-bed habitats. At the end is the thatched and floating visitor centre run by Norfolk Wildlife Trust.



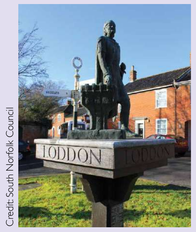
Credit: Ray Jones for Norfolk Wildlife Trust

Loddon circular

29.6 miles / 47.7 km

5. Loddon

Loddon sits at the heart of the southern Norfolk Broads and its lively history is reflected in its Georgian and Victorian architecture – reminders of an age when graceful wherries brought trade to Loddon along the River Chet. It's a centre for boating with shops, cafés, pubs and a market.



Credit: South Norfolk Council

6. Caistor roman town

Venta Icenorum was founded in the valley of the River Tas during the AD60s. It was the largest and most important Roman centre of northern East Anglia. The archaeology of the site continues to be investigated to further unlock its history. Why not hop off your bike and tour the site on foot?

Wymondham circular

28.1 miles / 45.2km

7. Wymondham

See inset map and text to the right.

8. University of East Anglia (UEA)

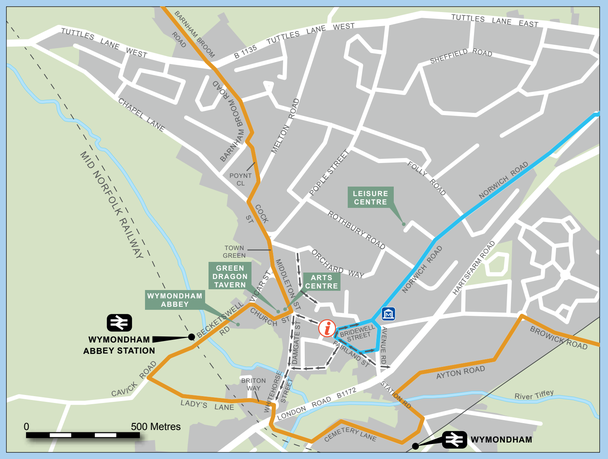
UEA has more than 15,000 students. The campus is located in 320 acres of rolling parkland punctuated by architecturally ambitious buildings and a growing collection of sculpture. Denys Lasdun's Ziggurats and Norman Foster's Sainsbury Centre for the Visual Arts face the University Broad and the valley of the River Yare. The centre contains wonderful artworks and places to eat. Another fine building is Earlham Hall, once home to the Gurney family of Quaker bankers, which sits in the middle of Earlham Park. On the edge of the park is the Enterprise Centre, the greenest building in the UK, distinctively faced with straw bales.

Credit: Joakim Boren, UEA

Wymondham

Wymondham is a thriving market town ten miles south-west of Norwich. At its heart is a 17th century market cross, which is occupied by the tourist information centre. Wymondham is also home to the magnificent 900 year old Wymondham Abbey with its carved angels, the Green Dragon tavern dating back to the 14th century, an arts centre and a heritage museum. You can also take a steam train on the mid-Norfolk heritage railway from Wymondham Abbey to Dereham. It is a good place to break up your ride to refuel at a café or pub. You can also return to Norwich by train.

Credit: South Norfolk Council



Cycle network route conditions

- Bridge/tunnel over/under Broadland Northway/Sourthern bypass
- Busy junction or location (on leisure route, take particular care)
- One way traffic
- Route along busy road (without off carriageway option, take particular care)
- Traffic free path

Attractions and facilities

- Airport
- Hospitals
- Tourist Information Centre
- Train station
- Wymondham Heritage Museum

Leisure Routes

- Marriott's Way Circular
- Broads Circular
- Loddon Circular
- Wymondham Circular
- Blue pedalway (direct route to Wymondham)

Disclaimer

The routes shown on the map are subject to change as the network develops. Some sections may be affected by construction activity and only become available later in 2018. No responsibility will be accepted by the publishers of this map for any loss, harm or injury resulting from its use.

Feedback

What are your thoughts about this map? Please give us your feedback here:

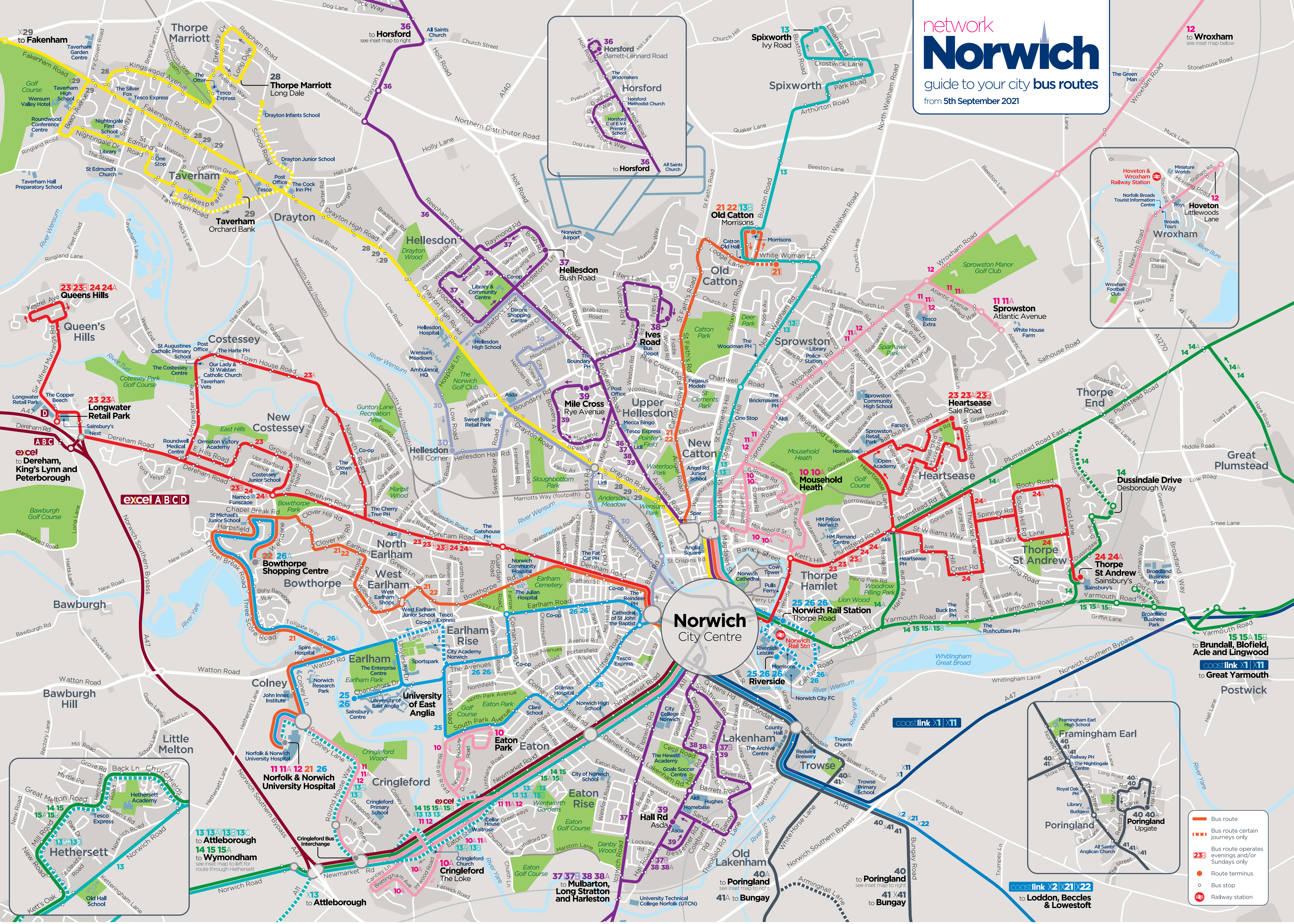
www.bit.ly/NorwichCycle

0 0.5 1 2 3 Kilometres

0 0.5 1 2 3 Miles

N

A2. BUS INFORMATION

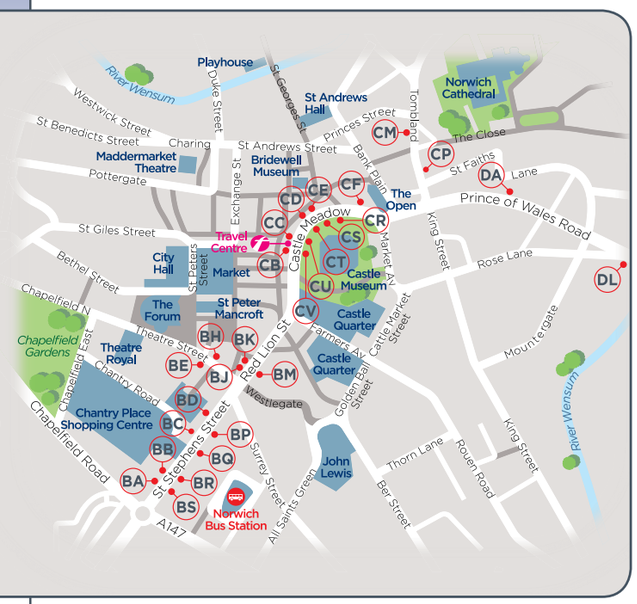


All information given in this leaflet, including stops, routes & frequencies are correct at 05/09/21. We reserve the right to modify these during the life of this publication. Please check our website (firstbus.co.uk/easterncounties) for up to date information.

you can check out the timetables for all routes at **firstbus.co.uk/easterncounties**

where to catch your bus in

Norwich city centre



all change...

If you're changing buses in the city centre, you can find the best place to make the switch using the chart to the right and the map above.

your city centre **bus stops** in	St Stephens Street	Red Lion Street	Theatre Street	Castle Meadow	Tombland/U King St	Prince of Wales Rd
PINK LINE 10 11 12						
towards **Mousehold Heath**	BC			CB	CP	
towards **Eaton** or **N&NU Hospital**	BR			CU	CP	
towards **Sprowston** & **Wroxham**	BB			CD	CM	
TURQUOISE LINE 13						
towards **Wymondham** & **Attleborough**	BP			CR	CP	
towards **Old Catton** & **Spixworth**	BB			CD	CM	
GREEN LINE 14 15						
towards **Hethersett** & **Wymondham**	BP			CR		DL
towards **Dussindale** or **Brundall**	BA			CC		DA
ORANGE LINE 21 22						
towards **Bowthorpe**			BE	CT	CP	
towards **Old Catton**		BJ		CF	CM	
RED LINE 23 24						
towards **Costessey**			BE	CT		DL
towards **Heartsease**			BH	CF		DA
BLUE LINE 25 26						
towards the **University of East Anglia**		BM		CS		DL
towards the **Rail Station** & **Riverside**		BK		CC		DA
YELLOW LINE 28 29 X29						
towards **Taverham**, **Thorpe Marriott** & **Fakenham**	BA			CB	CM	
PURPLE LINE						
towards **Lakenham**, **Mulbarton** or **Long Stratton**	BS			CV	CP	
towards **Hellesdon**, **Horsford**, **Mile Cross** & **The Boundary**	BD			CE	CM	
CHARCOAL LINE 40 41 X41						
towards **Poringland** & **Bungay**	BQ					
service 30						
towards **Heigham St** & **Hellesdon**			BE	CR		

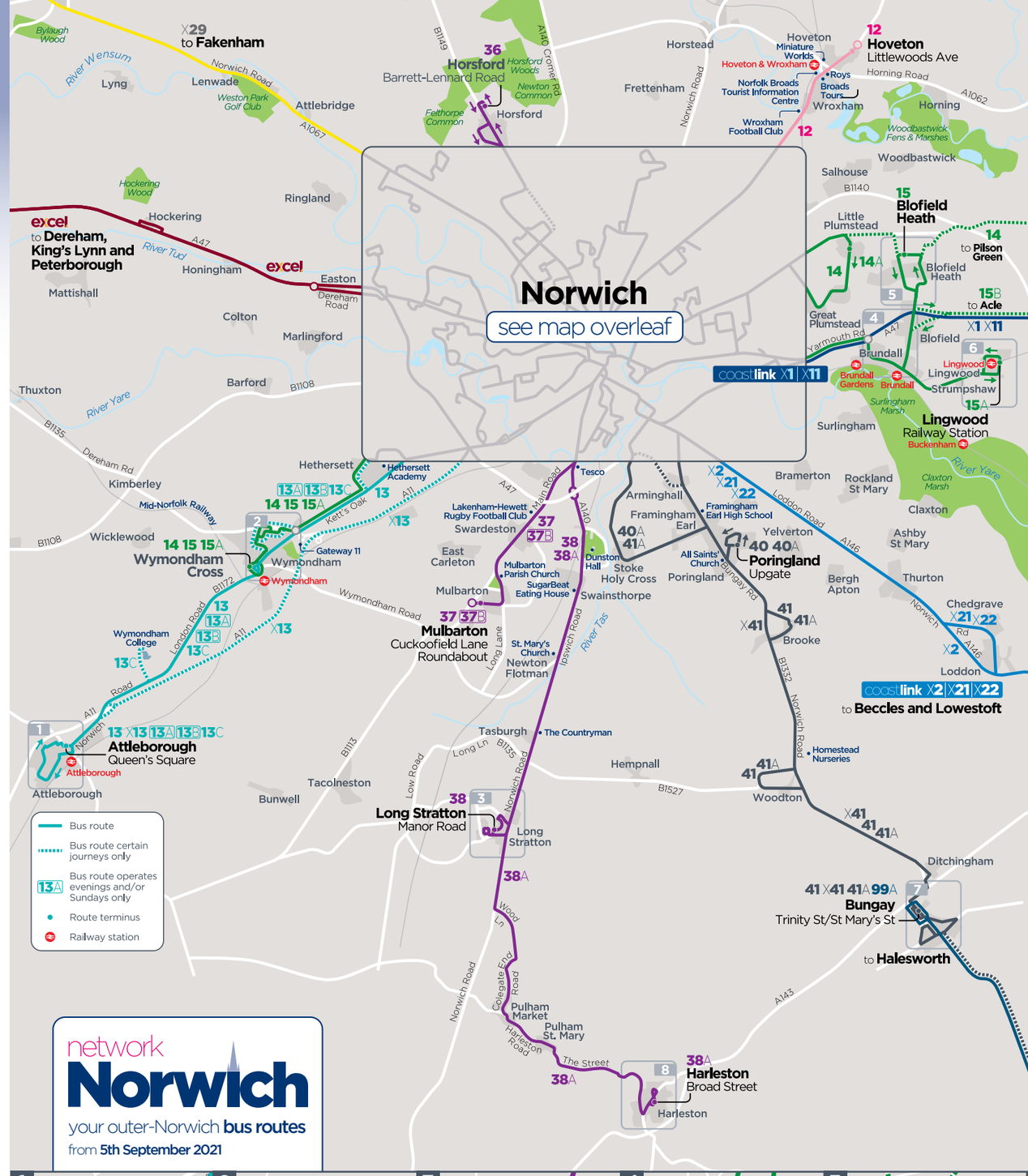
daytime frequency guide

network **Norwich**	buses run about every … shown in mins	Monday - Friday	Saturday	Sunday
PINK LINE 10 11 12				
Eaton & Cringleford - City Centre - Mousehold		30	30	-
N&NUH - City Centre - Sprowston		10	15	30
continuing to **Wroxham**		30	30	-
TURQUOISE LINE 13				
Attleborough - Wymondham - City Centre - Old Catton - Spixworth*		30	30	60
GREEN LINE 14 15				
Wymondham to **City Centre** & **Station**		30	30	-
continuing to & from **Dussindale**		30	30	60
continuing to & from **Brundall**		30	30	-
to & from **Blofield Heath** or **Acle**		60	60	-
ORANGE LINE 21 22				
Bowthorpe - City Centre - Old Catton		15	15	30
continuing to & from **N&HUH**		30	30	30
RED LINE 23 24				
between **Larkman Ln** & **Heartsease PH**		10	10	20
to & from **Heartsease (Sale Rd)**		20	20	20
to & from **Thorpe St Andrew**		20	20	-
to & from **Queen's Hills**		20	20	60
to & from **Longwater Retail Pk (Sainsbury's)**		10	10	20
to & from **Old** or **New Costessey**		30	30	60

network **Norwich**	buses run about every … shown in mins	Monday - Friday	Saturday	Sunday
BLUE LINE 25 26				
Rail Station - City Centre - UEA		7-8	7-8	10
continuing to & from **N&NUH** or **Bowthorpe**		30	30	-
YELLOW LINE 28 29 X29				
Fakenham Rd - Drayton - City Centre		15	15	30
to & from **Thorpe Marriott**		30	30	30
to & from **Taverham village** or **Fakenham**		60	60	-
PURPLE LINE				
between **City Centre** & **The Boundary**		8-10	8-10	30
to & from **Hellesdon**		10-20	10-20	30
to & from **Mile Cross** or **Lakenham**		20	20	-
to & from **Ives Road***, **Horsford**, **Mulbarton*** or **Long Stratton***		30	30	see timetable
to & from **Harleston** and **The Pulhams**		see timetable	see timetable	-
CHARCOAL LINE 40 41 X41				
Poringland - City Centre		15-30	15-30	-
to & from **Brooke**, **Ditchingham** & **Bungay**		30-60	30-60	-
service 30				
to & from **Heigham Street** & **Hellesdon**		60	60	-

* buses to here don't run on Sundays

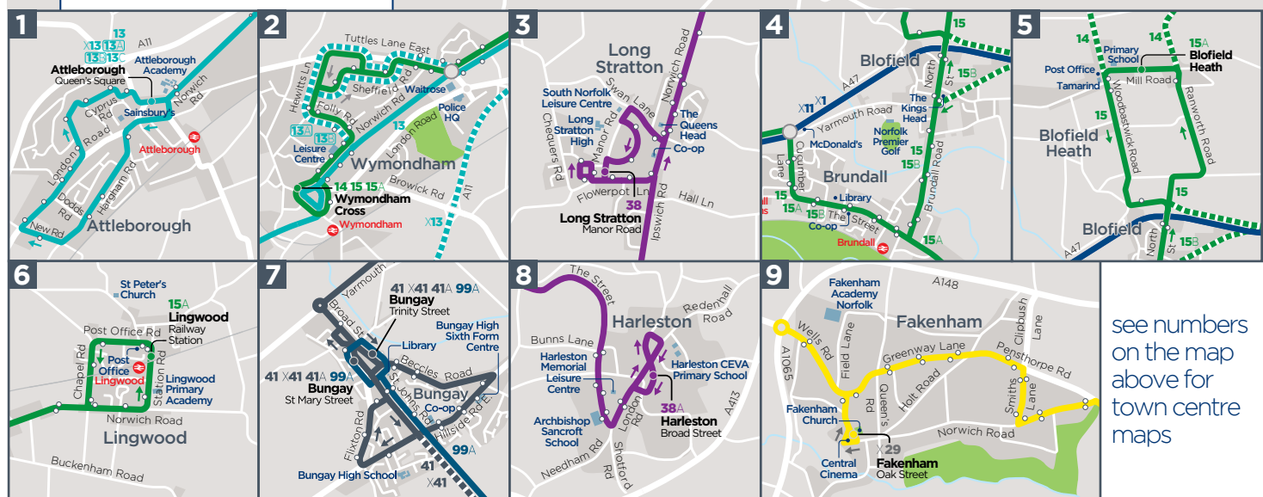
you can check out the timetables for all routes at **firstbus.co.uk/easterncounties**



network **Norwich**

your outer-Norwich **bus routes**

from **5th September 2021**



see numbers on the map above for town centre maps

A3. EXAMPLE TRAVEL QUESTIONAIRE

Staff Travel Questionnaire

We are undertaking this survey in order to understand the travel behaviour to the store. We would be grateful if you could complete the following questionnaire in order that we can ascertain how our staff travel to work. Your answers will be treated in confidence and will not be disclosed to third parties. The purpose of this survey is to assist in future planning and, as such, your answers are very important to us.

1. Your postcode ……..

2. Do you have access to a car? ☐ Yes ☐ No

3. Do you have a full driving licence? ☐ Yes ☐ No

4. How do you normally travel to the site? (Tick one box only)

☐ Car driver (where do you park?……..)

☐ Car passenger (where do they park?……..…..)

☐ Dropped off by car driver ☐ Bus (which route(s)…….……)

☐ Train/Underground ☐ Bicycle ☐ Walk

☐ Motorcycle ☐ Other (……..)

If you do not drive to the site, please ignore the remaining questions.

5. If you currently drive to the site, could you, in theory, use any of the following options instead? (Tick all that apply)

☐ Walk ☐ Cycle ☐ Bus

☐ Train ☐ Car-share

☐ None of these **(if this is the case, please do not answer any more questions)**

The questions continue on the other side of this page

6. Would you be prepared to travel using any of the options that are potentially available?

☐ Yes

☐ No (Please give reasons - tick all that apply)

☐	Distance from the site	☐	Inconvenience
☐	Personal security	☐	Lack of pedestrian routes
☐	Lack of cycle routes	☐	Frequency of public transport
☐	Medical	☐	Cost
☐	Other ……		

7. What would encourage you to use other modes of transport to get to the site? (Tick all appropriate)

☐	Improved cycle routes	☐	Improvements to bus services
☐	Improved cycle storage	☐	Improved pedestrian routes
☐	Walking buddy scheme	☐	Improved facilities at the site (showers/lockers)

☐ Other ……

Thank you for completing this questionnaire.

Please return the completed form to [insert name of relevant person]

MARCH 2022

Residential Framework Travel Plan

Anglia Square, Norwich

ICENI PROJECTS LIMITED ON BEHALF OF WESTON HOMES LTD.

Iceni Projects Limited on behalf of Weston Homes Ltd.

March 2022

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Residential Framework Travel Plan
ANGLIA SQUARE, NORWICH

CONTENTS

1. INTRODUCTION

1.1 This Residential Framework Travel Plan (RFTP) on behalf of Weston Homes Plc (the Applicant) in support of a hybrid (part full/part outline) planning application, (the Application), submitted to Norwich City Council (NCC) for the comprehensive redevelopment of Anglia Square and various parcels of mostly open surrounding land, (the Site), as shown within a red line on drawing 'ZZ-00-DR-A-01-0200'.

1.2 The Site is located in a highly accessible position within the northern part of Norwich City Centre and comprises a significant element of the Anglia Square/Magdalen Street/St Augustines Large District Centre, (the LDC). It is thus of strategic importance to the City, and accordingly has been identified for redevelopment for many years within various local planning policy documents, including the Northern City Centre Area Action Plan 2010, (NCCAAP), (now expired), the Joint Core Strategy for Broadland, Norwich and South Norfolk 2014, (JCS), and NCC's Anglia Square and Surrounding Area Policy Guidance Note 2017, (PGN). The Site forms the principal part of an allocation (GNLP 0506) in the emerging Greater Norwich Local Plan (GNLP).

1.3 This application follows a previous application on a somewhat smaller development parcel, (NCC Ref. 18/00330/F) made jointly by Weston Homes Plc as development partner and Columbia Threadneedle Investments, (CTI), the Site's owner, for a residential-led mixed use scheme consisting of up to 1,250 dwellings with decked parking, and 11,000 sqm GEA flexible ground floor retail/commercial/non-residential institution floorspace, hotel, cinema, multi-storey public car park, place of worship, and associated public realm and highway works. This was subject to a Call-in by the Secretary of State (PINS Ref. APP/G2625/V/19/3225505) who refused planning permission on 12th November 2020, (the 'Call in Scheme').

1.4 In April 2021, following new negotiations with Site owner CTI, Weston Homes decided to explore the potential for securing planning permission for an alternative scheme via an extensive programme of public and stakeholder engagement, from the earliest concepts to a fully worked up application. The negotiations with CTI have secured a "Subject to Planning" contract to purchase the Site, (enlarged to include the southeastern part of Anglia Square fronting Magdalen Street and St Crispins Road), which has enabled a completely fresh approach to establishing a redevelopment scheme for Anglia Square. This has resulted in a different development brief for the scheme, being to create a replacement part of the larger LDC suited to the flexible needs of a wide range of retail, service, business and community uses, reflective of trends in town centre character, integrated with the introduction of homes across the Site, within a highly permeable layout, well connected to its surroundings.

1.5 The new development proposal seeks to comprehensively redevelop the Site to provide up to 1,100 dwellings and up to 8,000sqm (NIA) flexible retail, commercial and other non-residential floorspace including Community Hub, up to 450 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses), car club spaces and associated works to the highway and public realm areas (the Proposed Development). These figures are maxima in view of the hybrid nature of the application. This proposes part of the scheme designed in full, to accommodate 367 dwellings, 5,808 sqm non-residential floorspace, and 146 car parking spaces (at least 95% spaces for residential use, and up to 5% for non-residential use), with the remaining large part of the Site for later detailed design as a "Reserved Matters" application, up to those maxima figures.

1.6 This RFTP provides NCC, and Norfolk County Council (NCoC) as the local highway authority, with the framework for the Travel Plan to be implemented for the residential element of the Proposed Development, which will be secured via a planning condition / legal agreement.

1.7 This RFTP therefore relates directly to the residential element of the Proposed Development. It is intended to cover the totality of the residential dwellings (up to 1,100) and would be implemented with the first phase of units. A separate Framework Travel Plan has been prepared for the commercial element.

1.8 The Site is currently at the planning application stage and therefore not occupied by the proposed residential use. As such, the resident and visitor travel patterns cannot be exactly determined at this stage. This RFTP has therefore been produced to provide an overarching, site wide approach to promote and encourage sustainable travel at the Site as a whole.

1.9 As part of the planning application submission, details regarding bus, cycle and pedestrian requirements for the Site have also been provided within an associated Transport Assessment (TA).

1.10 This RFTP identifies a range of outline initiatives to increase and encourage the use of sustainable modes of travel to and from the residential units proposed on the Site, which will be supplemented by targets as necessary.

1.11 This RFTP represents a commitment by the developer to encourage that the measures proposed are adopted. Once planning permission is confirmed, the occupier will submit a detailed Travel Plan (TP) prior to occupation that is in accordance with this RFTP. These outline initiatives will be reviewed and agreed for inclusion within the TP once the development is occupied.

What is a Travel Plan?

1.12 Travel Plans provide a long-term management strategy to support sustainable and active travel at new developments. Every development has potential implications for local transport systems to a lesser or greater degree. The way that these implications are managed is fundamental to the scale of transport effects associated with the development.

1.13 The TP is therefore essentially a series of initiatives that are introduced by an organisation to provide all users of a development with an enhanced range of sustainable transport opportunities. The overriding objective of a TP is to reduce the level of single occupancy car use for all journeys and to maximise the use of other sustainable forms of travel such as walking, cycling and public transport.

2. SITE DESCRIPTION AND SUSTAINABLE TRAVEL MODES

Site Location

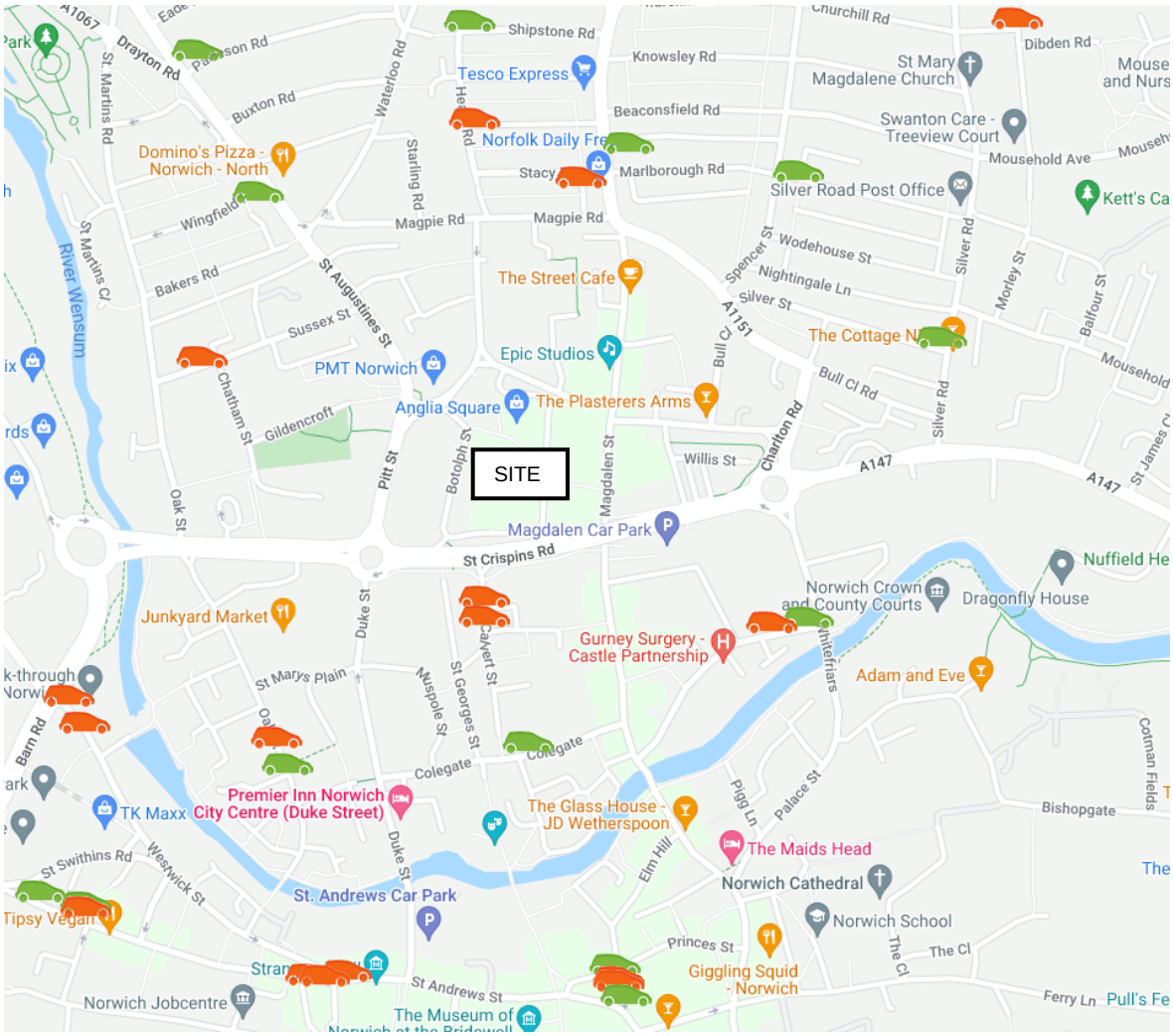
2.1 The main site area (Anglia Square) is bounded by New Botolph Street and Pitt Street to the west, Edward Street to the north, Magdalen Street to the east and St Crispin's Road to the south. The Site comprises the entirety of the land within this area, except for a vacant two storey retail unit (the former Barclays Bank) site within the north-eastern corner of the site and the two storey Surrey Chapel site within the south-west frontage of the site (which are both in separate ownerships). In addition, the Site comprises a parcel of land to the northwest of New Botolph Street/west of Edward Street, and an area of land to the north of Edward Street and west of Beckham Place, both currently unsurfaced and used for surface-level car parking.

2.2 A full description of the site location and local highway network / accessibility of the Site is provided within the TA which accompanies this application.

Car Clubs

2.3 Norwich, and the wider Norfolk area, benefits from car club provision in the form of 'Norfolk Car Club', which provides access to vehicles available on a pay-as-you-go basis, operated by Co-wheels. There are a number of cars already available within Norwich, as well as more areas that have designated bays ready to accommodate a car when one becomes available. The location of these car clubs within the vicinity of the Site is shown in **Figure 2.1**, with the active vehicles shown as green, and the designated bays as orange.

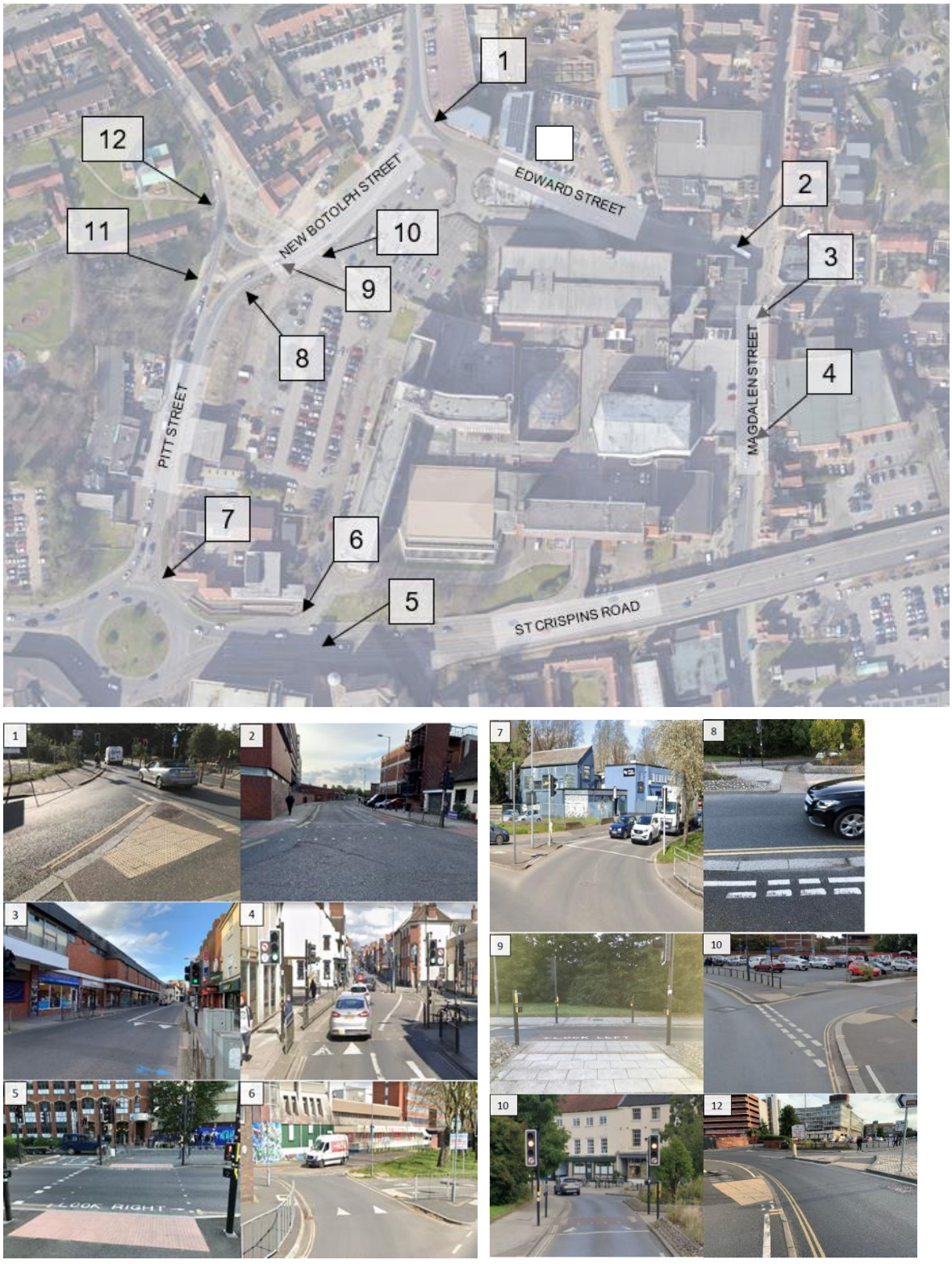
Figure 2.1 – Local Car Club Provision



Walking and Cycling Connectivity

2.4 Given the site's location within Norwich City Centre, it benefits from immediate access onto the established network of pedestrian footways which connect to multiple modes of public transport and the array of local amenities. Footways within the immediate vicinity of the Site are predominantly of good width, well-lit and in good state of repair. There are also several pedestrian crossing facilities available within the vicinity of the Site, which are detailed in **Figure 2.2**.

Figure 2.2 – Local Crossing Facilities



2.5 With regards to cycling, the Site benefits from having a number of cycle routes within its vicinity which provide connections to the centre of Norwich, the train station, employment and leisure areas, amongst a number of other local amenities as well as the wider cycling network. Details of the main local cycle routes surrounding the Site are as follows:

- A shared cycleway / footway currently runs along the eastern side of Edward St, this becomes an ‘on-road’ route along the northern boundary of the Site before joining Magdalen Street where the ‘Lakenham Pedalway’ links to the City Centre with a southbound cycle / bus Lane. In addition, the ‘Cringleford Pedalway’ extends to the north along Magdalen St and also runs south into the City Centre.
- 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 to the west along St Crispins Road, and south along Duke Street.
- A shared cycleway / footway also exists on the southern side of St Crispins Road which runs east west and connects Magdalen Street with the Pitt Street Junction.
- Additionally, a cycle route continues in a southernly direction from St Crispins Road, utilising St Georges Street.

2.6 The NCC cycle route map is included at **Appendix A1** for reference, although it should be noted that this plan does not appear to show the cycle routes available along Botolph Street, St Crispins Road, Pitt Street and St Georges Street, which were noted from on-site observations.

Public Transport Accessibility

2.7 The Site benefits from a high number of bus stops located within the immediate vicinity, as shown in the extract from NCoC Interactive Map in **Figure 2.3** which plots the bus stops as red dots. As can be seen, there are a cluster of bus stops on Magdalen Street which provide access to the majority of services, but also further stops on Edward Street and then Maple Road / Aylsham Road heading north.

Figure 2.3 – Local Bus Stops (Red Dots)

2.8 These bus stops provided access to a multitude of services, providing frequent bus access to a range of destinations, as shown by the network route map attached at **Appendix A2**.

2.9 Norwich Railway Station, which provides access to rail services operated by Greater Anglia and East Midlands Rail, is located approximately 1.5km to the south east of the Site. The station can therefore be reached within less than a 20-minute walk or a circa 5 minute cycle ride.

2.10 From this station, trains provide a direct service to London, as well as other key destinations such as Ipswich, Cambridge, Nottingham, Manchester and Liverpool.

Scheduled Improvements

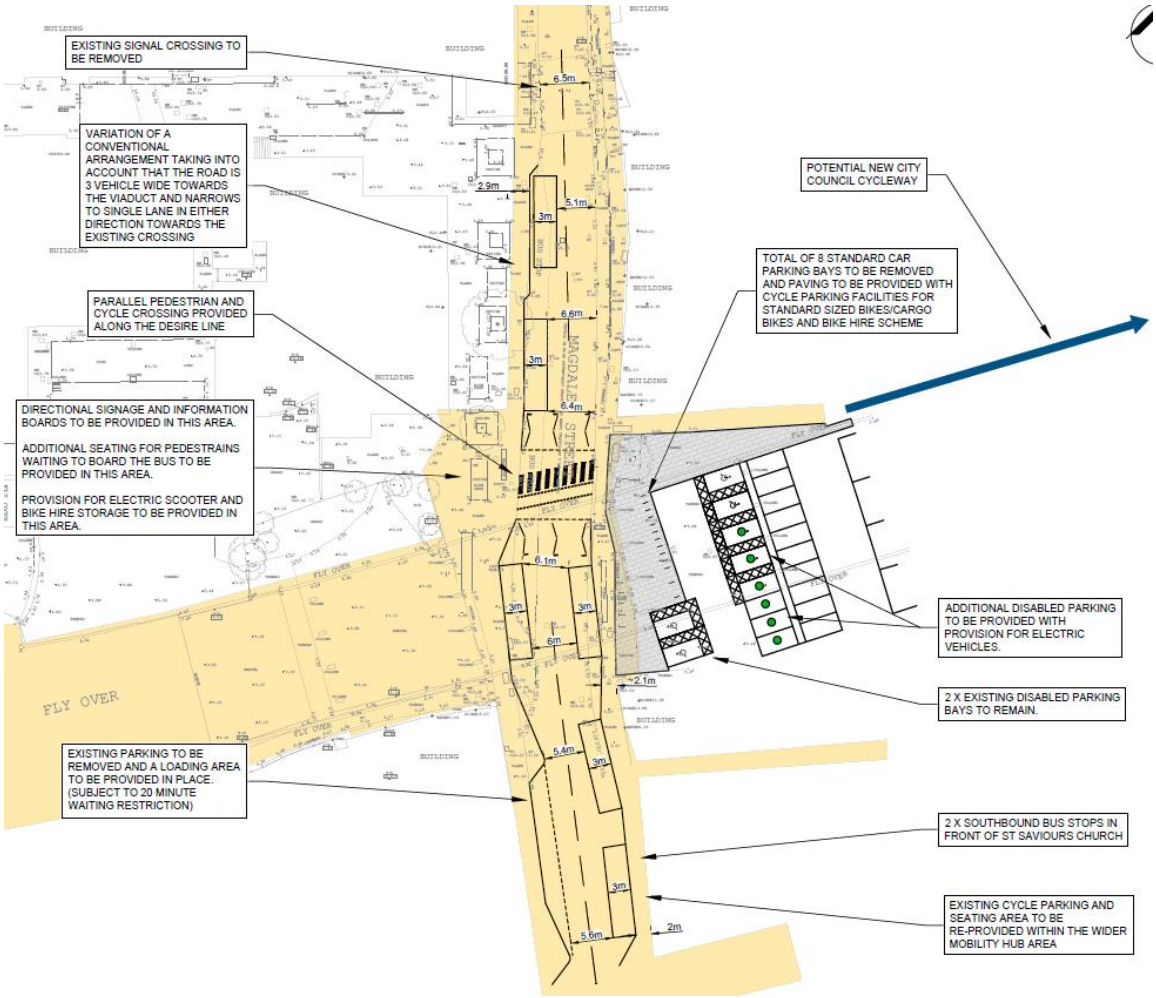
2.11 In conjunction with the preparation of this planning application, discussions have been held with NCC, NCoC and various other stakeholders regarding the provision of a 'Mobility Hub' on Magdalen Street. However, this will be subject to a separate planning application and is not being delivered by the Applicant.

2.12 Notwithstanding, it is acknowledged that all parties are looking to bring this facility forward and therefore it is expected to be approved and implemented within the near future.

2.13 The potential proposals are shown in **Figure 2.4**, and the potential improvements / changes include:

- Provide a total of 6 bus stops (3 x northbound and 3 x southbound) to increase capacity and ensure buses can stop within dedicated areas.
- Revision to Magdalen Street car park to provide improved public realm area, including a generous amount of cycle parking provision. This will also include conversation of standard spaces to disabled parking, and the provision of active electric charging points for electric vehicles.
- Provide a parallel pedestrian and cycling crossing on Magdalen Street to follow the desire line between the Site and the existing pedestrian route to the east, with NCC having aspirations to upgrade to a cycleway.
- Removal of the existing crossing on Magdalen Street to facilitate the new crossing mentioned above.
- Provision of cycle hire facilities (including for electric bikes), modern public signage, information boards, seating, lighting and planting.

Figure 2.4 – Potential Mobility Hub Improvements



2.14 Whilst these changes do not form part of this planning application, it is clear there is an aspiration to make these changes from all parties and it is therefore expected that there will be a significant improvement to the quality and quantity of sustainable transport and public realm within this area over future years.

2011 Census Data

2.15 The TA also includes a review of local 2011 Census data available. **Table 2.1** provides a summary of the modes of travel to work that are used by local residents based on this data.

Table 2.1 Method of Travel to Work Census Data (Norwich 007)

Mode of Travel	Percentage Split
Rail	3%
Bus	13%
Taxi	1%
Motorbike	1%
Car Passenger	6%
Cycling	14%
Walking	60%
Other	2%
Total	**100%**

2.16 The data therefore demonstrates that for existing residents there is a high usage of sustainable modes of transport, with 90% of residents either walking, cycling or using the bus or rail services. It is therefore considered that there is a strong precedent set within the area to travel using these sustainable non-car modes.

3. OBJECTIVES AND TARGETS

The Focus of the Travel Plan

3.1 This RFTP is focussed on residents of the Proposed Development and the majority of measures proposed are intended to encourage them to decrease their reliance on private car travel, instead utilising the excellent sustainable transport facilities available within the vicinity of the Site.

Objectives

3.2 There are several objectives that the implementation of this RFTP, and the future finalised TP, is intended to help fulfil. These objectives are:

- To influence the travel behaviour of residents;
- To generate fewer single-occupancy car trips than would otherwise be the case by encouraging a modal shift in travel;
- To help improve the health of occupiers; and
- To ensure sufficient facilities are available to accommodate the journeys that would otherwise be undertaken by the private vehicle.

Targets

3.3 The objectives set out above provide the structure for the RFTP. Where applicable, targets can also be included within a RFTP to help achieve the objectives. Targets are measurable goals which provide an assessment criteria to determine the progress of the TP, and are therefore essential for monitoring the success of the TP. Targets should be designed to be SMART (Specific, Measurable, Achievable, Realistic and Time-bound).

3.4 It is considered that targets can fall under two categories; quantifiable actions i.e. a modal shift in transport or non-quantifiable actions i.e. achieving something by a certain milestone.

3.5 The targets for this development will be finalised within the TP, however, the below provides an early indication on what these are likely to be:

- Appointing a Travel Plan Co-Ordinator (TPC) prior to the first occupation of the Site, who would ideally continue through the total site development (all 1,100 dwellings);
- Undertaking a monitoring survey on an annual basis, starting from a year after first occupation, for a five-year period. This will include undertaking initial surveys to determine the baseline travel splits for the Proposed Development;

- Reduce the percentage split of vehicular trips by a set percentage, to be determined within the TP once initial baseline surveys have been undertaken;
- Promote the opportunities to travel by public transport, walking and cycling for visitors to the Site.

3.6 To help achieve these targets, the following sections set out how the TP will be managed and what measures will be implemented.

Travel Surveys

3.7 In order to ensure the TP remains focussed and applicable to the Proposed Development, it will be essential to undertake travel surveys. Initially, this will be required to determine the baseline, which will help inform the targets of the TP as set out above, and then moving forward the surveys will allow for monitoring. The monitoring via the surveys will illustrate the impact of the TP measures, and whether they are helping to achieve the intended targets. Should the future travel surveys demonstrate that the targets are not due to be met, then revised measures could be set.

3.8 It must be remembered that the Proposed Development will seek to ensure a measured shift away from the car through good design from the outset. As such, further shifts will be more difficult to achieve and this should be considered during he annual reviews.

3.9 In order to determine the baseline data, travel surveys will therefore be undertaken 1 year after first occupation to allow a sufficient sample size to become available.

3.10 An example of a the Travel Survey is attached at **Appendix A3** for reference, to illustrate the types of questions that will be asked.

4. TRAVEL PLAN MANAGEMENT

4.1 In order to ensure that the RFTP and subsequent TP are as successful as possible it is essential that it is managed in such a way that all parties are aware of the aims, objectives and options available to them in terms of travelling to the site using sustainable modes of transport. It is essential that there is a point of contact for the residents and the local authority and also a driving force behind the implementation of the measures contained within the plan. To achieve this, a TPC will be appointed.

4.2 It is also important there is synergy between all the phases over the 1,100 dwellings. As such, this RFTP will cover the total development.

The Travel Plan Co-ordinator and Associated Support

4.3 It is proposed that the TPC will be a named individual staff member at the managing agents appointed by the management company for the development, who will commence this role on first occupation of a dwelling.

4.4 The role of the TPC will be as follows:

- To promote and encourage the use of travel modes other than the car.
- To provide a point of contact and travel information for residents.
- To ensure that all relevant information is provided to the occupiers and that up-to-date information is clearly displayed on the TP notice boards, website, etc.
- To arrange for travel surveys to be undertaken where necessary.

Monitoring and Review Mechanisms

4.5 An objective of the RFTP is that there will be an on-going improvement process including annual monitoring to be conducted at the end of each year for a 5-year period. As stated previously, this process will start 1 year after first occupation, when the first surveys will be undertaken to provide the baseline data. The monitoring will then be undertaken on the anniversary of this date each year. The TPC will form a contact point for communication with the local authority who will be involved in the monitoring process.

Sustaining Interest

4.6 It is important to sustain interest and commitment to the RFTP to ensure its success. The TPC will need to be proactive in ensuring information is available and up-to-date. The TPC will also need to ensure that residents are aware of the TP and the travel options available to them.

Marketing and Communication

4.7 In addition to the initiatives already outlined with the RFTP, there will need to be an ongoing marketing and communication of information following on from the launch.

4.8 It is proposed that each residential unit will receive a ‘Welcome Pack’ following occupation of their dwelling, which will include a summarised version of the TP and all relevant information on public transport facilities, car club facilities, local walking routes, cycle hire scheme, cycling networks and contact details for local taxi operators.

4.9 The TP will be continually marketed through the provision and updating of travel information. It is considered that this travel information can be provided on notice boards within the residential lobbies associated with each of the blocks.

Funding

4.10 The implementation of the TP is to be funded by the management company for the residential development. This will include all costs associated with the implementation, management, marketing and monitoring of the TP.

5. TRAVEL PLAN MEASURES

5.1 Where applicable, measures can be included in a RFTP to help achieve the targets / objectives. These measures are set out in this chapter and predominantly include initiatives to promote increases in the use of cycling, walking and public transport. RFTPs are evolving documents that need to remain adaptable to changing working practices and local conditions. Therefore, the list of measures is by no means exhaustive and additional measures could be identified and implemented in the future, which will form part of the ongoing monitoring process.

5.2 These measures will be implemented and encouraged by the TPC as necessary.

Measures to reduce car use for residents

5.3 As detailed within the TA, the Proposed Development will benefit from a restricted number of car parking spaces, with a ratio proposed of less than 0.4 spaces per dwelling for the detailed element. Residents will also be restricted from applying for local car parking permits through a clause proposed for inclusion within the Section 106 Agreement. It is considered that this will limit car ownership at the Site and resultingly limit associated car trips. Residents will be made aware of both these points prior to moving in.

5.4 Further, all of the car parking spaces are proposed to be electric vehicle charging points (EVCPs). This will therefore encourage the use of electric vehicles at the site, facilitating a more sustainable method of travelling by the private vehicle.

5.5 Lastly, for residents who do wish to drive, they will be able to utilise both the existing car club spaces within Norwich, as well as the new car club 'hub' proposed which includes the provision of 5 new car club vehicle spaces. The use of car clubs will therefore be promoted to residents via the welcome packs.

Measures to reduce the need to travel

5.6 All residential units at the Site will be provided with adequate facilities to work from home, including where possible high-speed internet connections. Information on the benefits of working from home will be provided to the residents via the TPC.

5.7 The Site is also located within a highly accessible location with regards to retail opportunities which will therefore encourage trips to these facilities by sustainable modes. The provision of a residential hub at the site, which will allow for deliveries to be stored prior to collection, will also increase the

use of web-based home shopping and therefore reduce the number of residents having to make car-borne shopping trips.

Measures to increase the use of public transport

5.8 Increased accessibility to, and use of, public transport is considered to be a key element of any TP. As detailed within the TA, the Site benefits from excellent public transport accessibility, with a wide range of bus services accessible within the immediate vicinity, and rail facilities from Norwich railway station also accessible. The welcome packs to be provided to all residents will include up-to-date public transport information, including bus / train timetables and company contact information.

Measures to encourage cycling

5.9 Cycle parking will be provided across the development in accordance with standards which will ensure that cycle parking facilities are available for all dwellings in safe and secure locations. This in itself is likely to encourage cycle use, which will then be further promoted via the provision of information on the local cycle network routes, details of local cycle stores and the local cycle hire scheme. Lastly, as detailed in the TA, the Proposed Development includes significant improvements to the local cycle network, both in terms of crossing facilities and routes within the Site which connect to the existing, external network.

Measures to encourage walking

5.10 Pedestrian access and connectivity throughout the site is to be enhanced via the provision of dedicated pedestrianised routes and the provision of crossing facilities to connect with the local pedestrian network. Residents will be made aware of the pedestrian network available to them and also what facilities are available within a reasonable walking distance.

Measures to promote the Travel Plan

5.11 In order to ensure the TP is successfully promoted to residents, the Management Company should consider developing a website which will provide a digital base for the information as detailed above. This website would also include information on the reasons for the development of the TP and provide updates as part of the monitoring progress.

6. SUMMARY & CONCLUSIONS

6.1 The measures and initiatives recommended within this RFTP are considered to be sufficient to encourage residents to travel in a sustainable manner by promoting and securing initiatives and incentives which would minimise the need to travel by private car.

6.2 The monitoring and review process will ensure the RFTP and subsequent TPs remain live documents and will sustain the necessary efforts for it to reach its objectives.

6.3 This framework identifies that the site has good opportunities for residents to use existing modes of transport other than the car.

6.4 Taking all of the above into account, it is considered that this proposed development not only has good access to the existing walking, cycling and public transport networks, but will also ensure that with the additional measures incorporated as part of the development, occupiers will be encouraged to use modes of transport other than the car.

6.5 The final TP should be secured via S106 agreement.

A1. NCC CYCLE ROUTE MAP

Norwich network

0 0.5 1Km
0 0.25 0.5 1 Mile

Norwich and beyond
great to explore by bike

The pace is right to spot a bargain in a quirky shop, pause for a conversation with a friend in the park, or explore a neighbouring beauty spot. The city is compact, making it manageable to ride from the edge to the centre in under twenty minutes. For those looking for more leisurely rides, the Broads, Loddon and Wymondham can be discovered in a few hours.

Welcome to the cycle network!

It features seven pedalways, each represented by a colour. Five cross the city from one side to the other and meet in the middle at St Andrew's Plain. Two others encircle the city – orange near the centre and purple on the edge. They are complemented by neighbourhood routes that help you get around from your home to schools and shops. Four looping leisure rides – circulars – take you into the beautiful countryside around Norwich.

Discover Norwich and beyond.

Happy pedalling!

How to use this map

Planning your route

Use this side of the map for planning your route within Norwich. It shows where the pedalways go and how they relate to facilities. The main routes are coloured and the colours can be found on signs and stickers along the way.

Turn over to see four looping leisure rides that take you out into the beautiful countryside and neighbouring towns.

Route conditions

The quality of the network varies from place to place and we are implementing a long-term plan to improve it. The maps show the busy traffic areas and the traffic-free parts of the pedalways and leisure routes so you can match your route to your level of cycling confidence and skill. The traffic-free parts are usually shared with pedestrians so please be considerate and use a bell. Their surfaces can also be slippery, uneven or unlit so please take care. Some parts of the network are privately owned and not maintained by the city or county councils.

Pedalways

- Bowthorpe ↔ Broadland Business Park
- Drayton ↔ Whitlingham (National Cycle Route 1)
- Lakenham ↔ Aviation Academy
- N&N Hospital ↔ Heartsease
- Wymondham ↔ Sprowston
- Inner circuit
- Outer circuit
- Neighbourhood routes
- St Andrew's Plain (centre of the network)
- Pedalway destination

Cycle network route conditions

- Cyclists dismount
- One way
- Route along busy road (with speed limit over 20mph and without off carriageway option)
- Steep hill (arrows point uphill)
- Traffic free path

Attractions and facilities

- Airport
- Bus station (including cycle hire)
- City wall
- Cycle sport venue
- Cycle stand parking
- Football stadium
- Higher and further education
- Local shopping centres
- Long stay secure cycle parking
- NHS walk in centre
- Norwich Market
- Park & Ride (cycle parking available)
- Riverside walk/pathway
- Toilets, public and customer
- Tourist Information Centre
- Train station (including cycle hire)

Schools

- First, infant or primary
- A City Academy Norwich
- B City of Norwich School
- C Hellesdon High
- D Hewett Academy
- E Jane Austen Free School
- F Norwich High School for Girls
- G Norwich School
- H Notre Dame
- I Open Academy
- J Ormiston Victory Academy
- K Sewell Park Academy
- L Sir Isaac Newton 6th Form
- M Sprowston Community Academy
- N Thorpe St Andrew School
- O Wherry School

Sports facilities

- A Carrow Park
- B Football Development Centre
- C Norfolk Snowsports Club
- D Norman Centre
- E Norwich Rowing Club
- F Riverside Leisure Centre
- G Sewell Park Academy Sports Centre
- H UEA Sports Park
- I Whitlingham Outdoor Education Centre

Bicycle shops

- A A.P. Cycles
- B Bicycle Links
- C Cycloservices
- D Cycle Republic
- E Cycles UK
- F Dr Bike @ UEA
- G Evans Cycles
- H Freemans
- I Go Outdoors
- J Halfords
- K John Borwell
- L Leisure Cycles
- M Mandarin
- N Not About The Bike
- O Pedal Revolution
- P Sorens
- Q The Bike Man
- R Wilco 'Bike' (Aylsham Rd)
- S Wilco 'Bike' (Dereham Rd)
- T Wilco 'Bike' (Reepham Rd)
- U Wilco 'Bike' (Salhouse Rd)

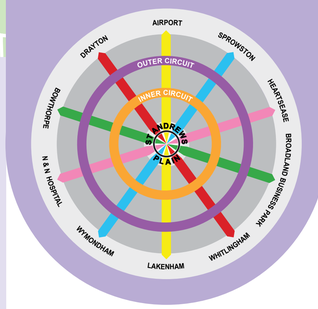
- Employment areas
- Libraries

0 125 250 500 Metres
0 0.125 0.25 0.5 Miles

3rd edition June 2018 • £4.95 • Tough and waterproof

Norfolk County Council
NORWICH City Council

Norwich CYCLE MAP



Supported by:

Broadland District Council
South Norfolk
Transport for Norwich
NEWANGLIA Local Enterprise Partnership for Norfolk and Suffolk
Department for Transport
PUSHING AHEAD
NORWICH CYCLING CAMPAIGN

Leisure routes

Marriott's Way circular

22.6 miles / 36.4 km

1. Train Wood – the site of Norwich City Station

Train Wood is the site of Norwich City Station, one of three mainline stations that once served Norwich. It was the end of William Marriott's M&GN railway line and you can follow it on a bike through Hellesdon, Drayton and Thorpe Marriott and seek out the remaining platforms, gates and mile markers along the trail.

2. The A-Frame bridge at Drayton – views along the Wensum Valley

The first section of Marriott's Way to Drayton runs through the Wensum Valley Special Area of Conservation. The landscape hosts rare and protected birds, reptiles, mammals, plants and invertebrates. Up to ten bat species have been recorded on evening forays. The railway bridge offers great views back along the river; you might be lucky enough to see water voles and otters.

Credit: Dkirkham for Norfolk Trails

Broads circular

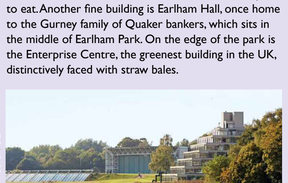
24.5 miles / 39.4km

3. Catton Park

Catton Park is a beautiful 70 acre country park that was the first commission of Humphry Repton as a landscape gardener. It is open at all times for people to wander through the open wildflower meadow and explore the woodland.

4. Ranworth Church and Broad

St Helen's Church, sometimes called the 'Cathedral of the Broads', dates from 1450 and contains painted images of saints on one of the finest rood screens in England. You can climb the church tower and look out across the Broads' landscape. Nearby is a boardwalk leading to Ranworth Broad, which passes through woodland and reed-bed habitats. At the end is the thatched and floating visitor centre run by Norfolk Wildlife Trust.



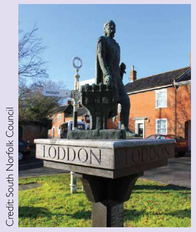
Credit: Ray Jones for Norfolk Wildlife Trust

Loddon circular

29.6 miles / 47.7 km

5. Loddon

Loddon sits at the heart of the southern Norfolk Broads and its lively history is reflected in its Georgian and Victorian architecture – reminders of an age when graceful wherries brought trade to Loddon along the River Chet. It's a centre for boating with shops, cafés, pubs and a market.



Credit: South Norfolk Council

6. Caistor roman town

Venta Icenorum was founded in the valley of the River Tas during the AD60s. It was the largest and most important Roman centre of northern East Anglia. The archaeology of the site continues to be investigated to further unlock its history. Why not hop off your bike and tour the site on foot?

Wymondham circular

28.1 miles / 45.2km

7. Wymondham

See inset map and text to the right.

8. University of East Anglia (UEA)

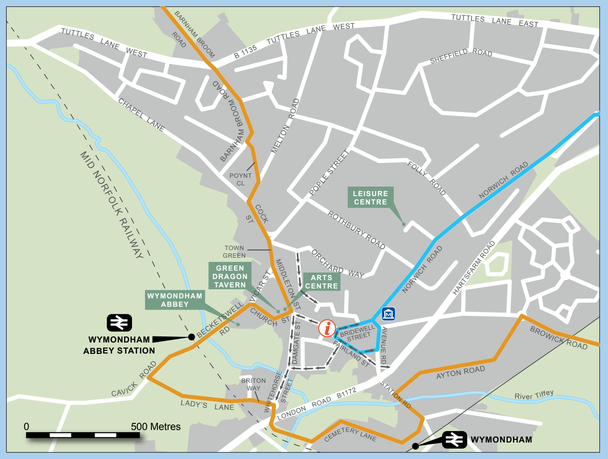
UEA has more than 15,000 students. The campus is located in 320 acres of rolling parkland punctuated by architecturally ambitious buildings and a growing collection of sculpture. Denys Lasdun's Ziggurats and Norman Foster's Sainsbury Centre for the Visual Arts face the University Broad and the valley of the River Yare. The centre contains wonderful artworks and places to eat. Another fine building is Earlham Hall, once home to the Gurney family of Quaker bankers, which sits in the middle of Earlham Park. On the edge of the park is the Enterprise Centre, the greenest building in the UK, distinctively faced with straw bales.

Credit: Joakim Boren, UEA

Wymondham

Wymondham is a thriving market town ten miles south-west of Norwich. At its heart is a 17th century market cross, which is occupied by the tourist information centre. Wymondham is also home to the magnificent 900 year old Wymondham Abbey with its carved angels, the Green Dragon tavern dating back to the 14th century, an arts centre and a heritage museum. You can also take a steam train on the mid-Norfolk heritage railway from Wymondham Abbey to Dereham. It is a good place to break up your ride to refuel at a café or pub. You can also return to Norwich by train.

Credit: South Norfolk Council



Cycle network route conditions

- Bridge/tunnel over/under Broadland Northway/Sourthern bypass
- Busy junction or location (on leisure route, take particular care)
- One way traffic
- Route along busy road (without off carriageway option, take particular care)
- Traffic free path

Attractions and facilities

- Airport
- Hospitals
- Tourist Information Centre
- Train station
- Wymondham Heritage Museum

Leisure Routes

- Marriott's Way Circular
- Broads Circular
- Loddon Circular
- Wymondham Circular
- Blue pedalway (direct route to Wymondham)

Disclaimer

The routes shown on the map are subject to change as the network develops. Some sections may be affected by construction activity and only become available later in 2018. No responsibility will be accepted by the publishers of this map for any loss, harm or injury resulting from its use.

Feedback

What are your thoughts about this map? Please give us your feedback here:

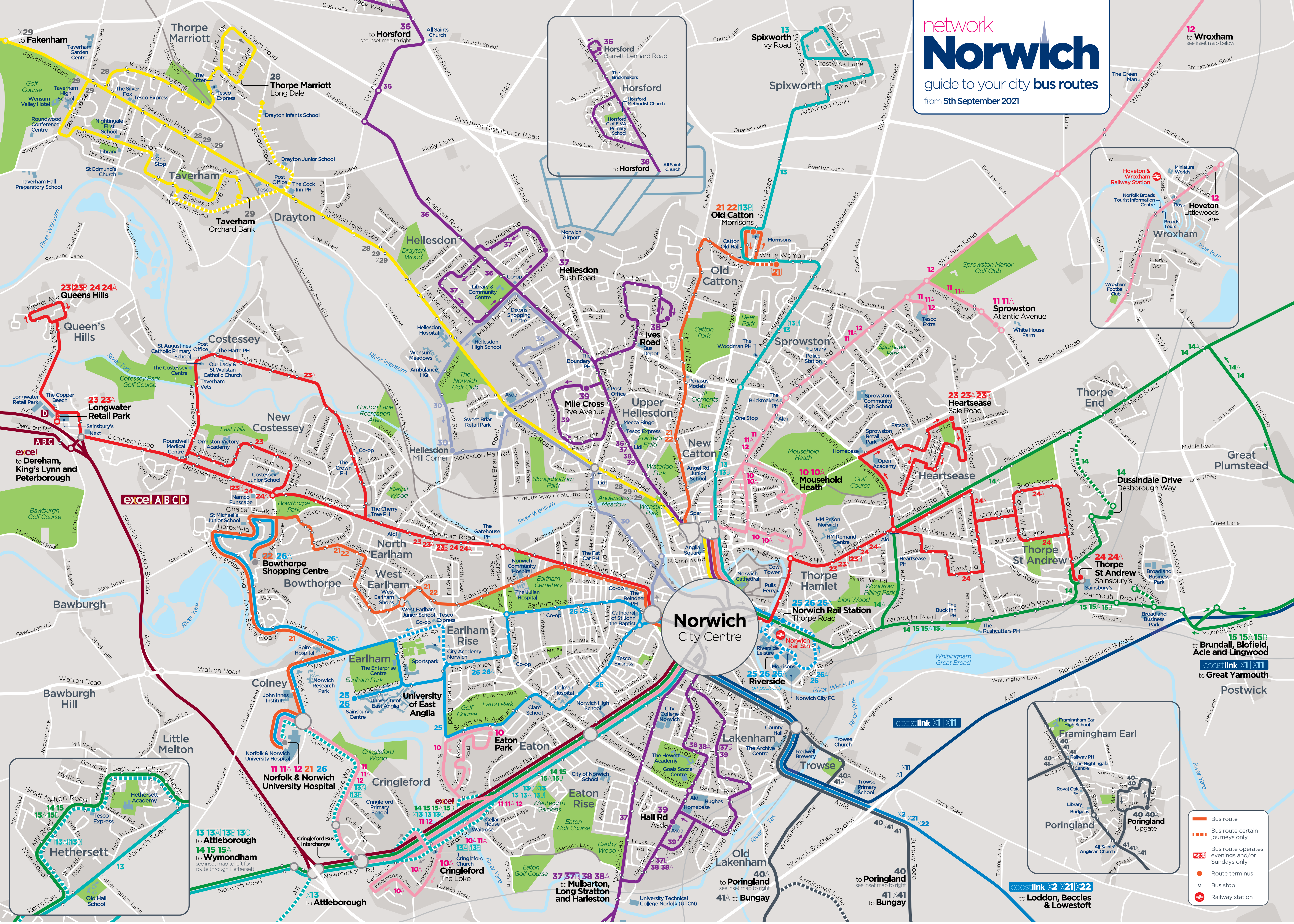
www.bit.ly/NorwichCycle

0 0.5 1 2 3 Kilometres

0 0.5 1 2 3 Miles

N

A2. BUS INFORMATION

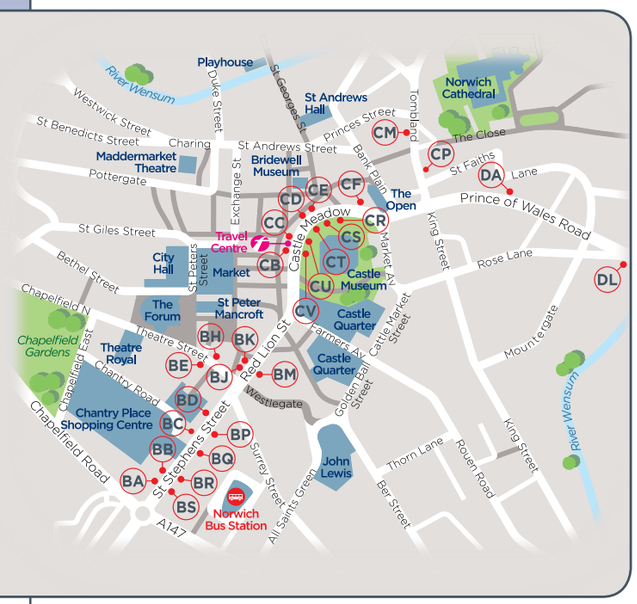


All information given in this leaflet, including stops, routes & frequencies are correct at 05/09/21. We reserve the right to modify these during the life of this publication. Please check our website (firstbus.co.uk/easterncounties) for up to date information.

you can check out the timetables for all routes at **firstbus.co.uk/easterncounties**

where to catch your bus in

Norwich city centre



all change...

If you're changing buses in the city centre, you can find the best place to make the switch using the chart to the right and the map above.

your city centre **bus stops** in	St Stephens Street	Red Lion Street	Theatre Street	Castle Meadow	Tombland/U King St	Prince of Wales Rd
PINK LINE 10 11 12						
towards **Mousehold Heath**	BC			CB	CP	
towards **Eaton** or **N&NU Hospital**	BR			CU	CP	
towards **Sprowston** & **Wroxham**	BB			CD	CM	
TURQUOISE LINE 13						
towards **Wymondham** & **Attleborough**	BP			CR	CP	
towards **Old Catton** & **Spixworth**	BB			CD	CM	
GREEN LINE 14 15						
towards **Hethersett** & **Wymondham**	BP			CR		DL
towards **Dussindale** or **Brundall**	BA			CC		DA
ORANGE LINE 21 22						
towards **Bowthorpe**			BE	CT	CP	
towards **Old Catton**		BJ		CF	CM	
RED LINE 23 24						
towards **Costessey**			BE	CT		DL
towards **Heartsease**			BH	CF		DA
BLUE LINE 25 26						
towards the **University of East Anglia**		BM		CS		DL
towards the **Rail Station** & **Riverside**		BK		CC		DA
YELLOW LINE 28 29 X29						
towards **Taverham**, **Thorpe Marriott** & **Fakenham**	BA			CB	CM	
PURPLE LINE						
towards **Lakenham**, **Mulbarton** or **Long Stratton**	BS			CV	CP	
towards **Hellesdon**, **Horsford**, **Mile Cross** & **The Boundary**	BD			CE	CM	
CHARCOAL LINE 40 41 X41						
towards **Poringland** & **Bungay**	BQ					
service 30						
towards **Heigham St** & **Hellesdon**			BE	CR		

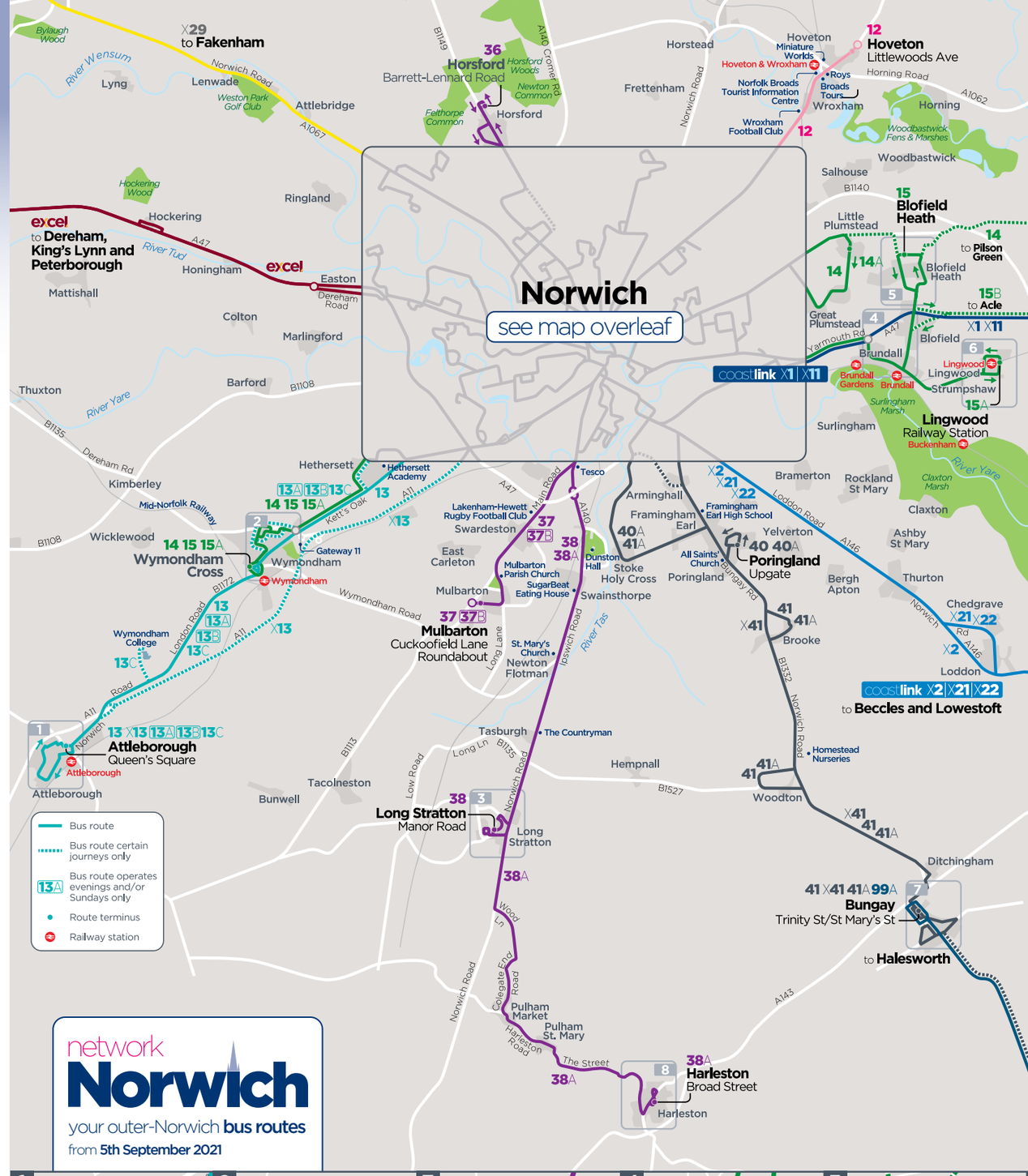
daytime frequency guide

network **Norwich**	buses run about every … shown in mins	Monday - Friday	Saturday	Sunday
PINK LINE 10 11 12				
Eaton & Cringleford - City Centre - Mousehold		30	30	-
N&NUH - City Centre - Sprowston		10	15	30
continuing to **Wroxham**		30	30	-
TURQUOISE LINE 13				
Attleborough - Wymondham - City Centre - Old Catton - Spixworth*		30	30	60
GREEN LINE 14 15				
Wymondham to **City Centre** & **Station**		30	30	-
continuing to & from **Dussindale**		30	30	60
continuing to & from **Brundall**		30	30	-
to & from **Blofield Heath** or **Acle**		60	60	-
ORANGE LINE 21 22				
Bowthorpe - City Centre - Old Catton		15	15	30
continuing to & from **N&HUH**		30	30	30
RED LINE 23 24				
between **Larkman Ln** & **Heartsease PH**		10	10	20
to & from **Heartsease (Sale Rd)**		20	20	20
to & from **Thorpe St Andrew**		20	20	-
to & from **Queen's Hills**		20	20	60
to & from **Longwater Retail Pk (Sainsbury's)**		10	10	20
to & from **Old** or **New Costessey**		30	30	60

network **Norwich**	buses run about every … shown in mins	Monday - Friday	Saturday	Sunday
BLUE LINE 25 26				
Rail Station - City Centre - UEA		7-8	7-8	10
continuing to & from **N&NUH** or **Bowthorpe**		30	30	-
YELLOW LINE 28 29 X29				
Fakenham Rd - Drayton - City Centre		15	15	30
to & from **Thorpe Marriott**		30	30	30
to & from **Taverham village** or **Fakenham**		60	60	-
PURPLE LINE				
between **City Centre** & **The Boundary**		8-10	8-10	30
to & from **Hellesdon**		10-20	10-20	30
to & from **Mile Cross** or **Lakenham**		20	20	-
to & from **Ives Road***, **Horsford**, **Mulbarton*** or **Long Stratton***		30	30	see timetable
to & from **Harleston** and **The Pulhams**		see timetable	see timetable	-
CHARCOAL LINE 40 41 X41				
Poringland - City Centre		15-30	15-30	-
to & from **Brooke**, **Ditchingham** & **Bungay**		30-60	30-60	-
service 30				
to & from **Heigham Street** & **Hellesdon**		60	60	-

* buses to here don't run on Sundays

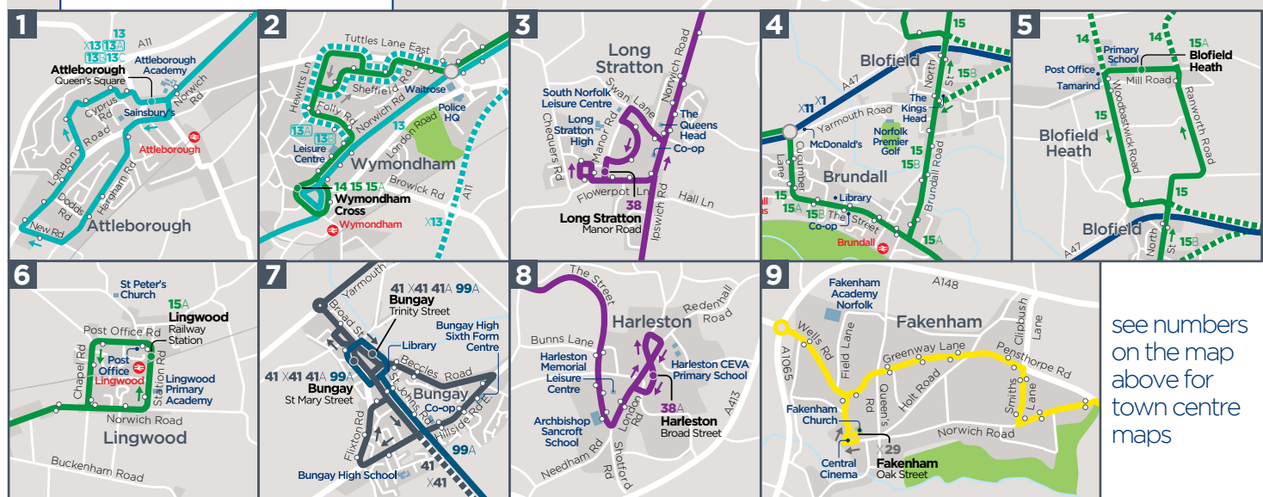
you can check out the timetables for all routes at **firstbus.co.uk/easterncounties**



network **Norwich**

your outer-Norwich **bus routes**

from **5th September 2021**



see numbers on the map above for town centre maps

A3. EXAMPLE TRAVEL QUESTIONAIRE

Resident Travel Questionnaire

We are undertaking this survey in order to understand the travel behaviour associated with the development. We would be grateful if you could complete the following questionnaire in order that we can ascertain how our residents travel to work. Your answers will be treated in confidence and will not be disclosed to third parties. The purpose of this survey is to assist in future planning and, as such, your answers are very important to us.

1. What is your employment status?

Employed	☐	Student	☐
Retired	☐	Unemployed	☐
Work from home	☐	Other (……..)	

If you do not travel to work, please ignore the remaining questions.

2. Your work postcode ……..

3. Do you have access to a car? ☐ Yes ☐ No

4. Do you have a full driving licence? ☐ Yes ☐ No

5. How do you normally travel to work? (Tick one box only)

☐ Car driver (where do you park?……..)

☐ Car passenger (where do they park?……..…..)

☐ Dropped off by car driver ☐ Bus (which route(s)……)

☐ Train ☐ Bicycle ☐ Walk

☐ Motorcycle ☐ Other (……..)

If you do not drive to work, please ignore the remaining questions.

5. If you currently drive to work, could you, in theory, use any of the following options instead? (Tick all that apply)

☐ Walk ☐ Cycle ☐ Bus

☐ Train ☐ Car-share

☐ None of these **(if this is the case, please do not answer any more questions)**

6. Would you be prepared to travel using any of the options that are potentially available?

☐ Yes

☐ No (Please give reasons - tick all that apply)

☐	Distance from the site	☐	Inconvenience
☐	Personal security	☐	Lack of pedestrian routes
☐	Lack of cycle routes	☐	Frequency of public transport
☐	Medical	☐	Cost
☐	Other ……		

7. What would encourage you to use other modes of transport to get to work? (Tick all appropriate)

☐	Improved cycle routes	☐	Improvements to bus services
☐	Improved cycle storage	☐	Improved pedestrian routes
☐	Walking buddy scheme	☐	Improved facilities at the site (showers/lockers)
☐	Other ……		

Thank you for completing this questionnaire.

Please return the completed form to [insert name of relevant person]

MARCH 2022

Delivery and Servicing Plan

Anglia Square, Norwich

Iceni Projects Limited on behalf of Weston Homes Plc

March 2022

ICENI PROJECTS LIMITED ON BEHALF OF WESTON HOMES PLC

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CONTENTS

1. INTRODUCTION

1.1 This Delivery and Servicing Plan (DSP) on behalf of Weston Homes Plc (the Applicant) in support of a hybrid (part full/part outline) planning application, (the Application), submitted to Norwich City Council (NCC) for the comprehensive redevelopment of Anglia Square and various parcels of mostly open surrounding land, (the Site), as shown within a red line on drawing 'ZZ-00-DR-A-01-0200'.

1.2 The Site is located in a highly accessible position within the northern part of Norwich City Centre and comprises a significant element of the Anglia Square/Magdalen Street/St Augustines Large District Centre, (the LDC). It is thus of strategic importance to the City, and accordingly has been identified for redevelopment for many years within various local planning policy documents, including the Northern City Centre Area Action Plan 2010, (NCCAAP), (now expired), the Joint Core Strategy for Broadland, Norwich and South Norfolk 2014, (JCS), and NCC's Anglia Square and Surrounding Area Policy Guidance Note 2017, (PGN). The Site forms the principal part of an allocation (GNLP 0506) in the emerging Greater Norwich Local Plan (GNLP).

1.3 This application follows a previous application on a somewhat smaller development parcel, (NCC Ref. 18/00330/F) made jointly by Weston Homes Plc as development partner and Columbia Threadneedle Investments, (CTI), the Site's owner, for a residential-led mixed use scheme consisting of up to 1,250 dwellings with decked parking, and 11,000 sqm GEA flexible ground floor retail/commercial/non-residential institution floorspace, hotel, cinema, multi-storey public car park, place of worship, and associated public realm and highway works. This was subject to a Call-in by the Secretary of State (PINS Ref. APP/G2625/V/19/3225505) who refused planning permission on 12th November 2020, (the 'Call in Scheme').

1.4 In April 2021, following new negotiations with Site owner CTI, Weston Homes decided to explore the potential for securing planning permission for an alternative scheme via an extensive programme of public and stakeholder engagement, from the earliest concepts to a fully worked up application. The negotiations with CTI have secured a "Subject to Planning" contract to purchase the Site, (enlarged to include the southeastern part of Anglia Square fronting Magdalen Street and St Crispins Road), which has enabled a completely fresh approach to establishing a redevelopment scheme for Anglia Square. This has resulted in a different development brief for the scheme, being to create a replacement part of the larger LDC suited to the flexible needs of a wide range of retail, service, business and community uses, reflective of trends in town centre character, integrated with the introduction of homes across the Site, within a highly permeable layout, well connected to its surroundings.

1.5 The new development proposal seeks to comprehensively redevelop the Site to provide up to 1,100 dwellings and up to 8,000sqm (NIA) flexible retail, commercial and other non-residential

floorspace including Community Hub, up to 450 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses), car club spaces and associated works to the highway and public realm areas (the Proposed Development). These figures are maxima in view of the hybrid nature of the application. This proposes part of the scheme designed in full, to accommodate 367 dwellings, 5,808 sqm non-residential floorspace, and 146 car parking spaces (at least 95% spaces for residential use, and up to 5% for non-residential use), with the remaining large part of the Site for later detailed design as a "Reserved Matters" application, up to those maxima figures.

1.6 This DSP provides NCC, and Norfolk County Council (NCoC) as the local highway authority, with the framework strategy to be put in place to manage delivery and servicing trips that will be made to the Proposed Development.

1.7 The DSP there provides information including likely timings of deliveries, frequency, type of delivery vehicle and servicing arrangements.

1.8 The occupiers / tenants for the proposed uses at the site are currently unknown and therefore this DSP aims to establish the policies and principles that these future occupiers must adhere to.

1.9 The DSP will be implemented prior to occupation of the units and will be regularly reviewed by future occupants, in conjunction with NCC / NCoC, to ensure it remains current. If it is deemed that a revised strategy is necessary, then an updated DSP will be provided.

1.10 This DSP is intended to be a living document, and the site occupants (both residents and commercial enterprises) will be made aware. The residents will be provided with the relevant information via the 'Home Owners Manual' given to each purchaser on completion of their purchase of the dwelling, and the occupiers of the commercial units will be provided with a copy of the DSP. A management company on-site will be able to both assist residents and commercial occupiers as well as enforce any procedures.

2. SERVICING STRATEGY

Site Location

2.1 The main site area (Anglia Square) is bounded by New Botolph Street and Pitt Street to the west, Edward Street to the north, Magdalen Street to the east and St Crispin's Road to the south. The Site comprises the entirety of the land within this area, except for a vacant two storey retail unit (the former Barclays Bank) site within the north-eastern corner of the site and the two storey Surrey Chapel site within the south-west frontage of the site (which are both in separate ownerships). In addition, the Site comprises a parcel of land to the northwest of New Botolph Street/west of Edward Street, and an area of land to the north of Edward Street and west of Beckham Place, both currently unsurfaced and used for surface level car parking.

2.2 A full description of the site location and local highway network / accessibility of the site is provided within the Transport Assessment which accompanies this application.

Surrounding Highway Network (Existing Situation)

2.3 The local highway network predominantly consists of A and B classified roads, along with local roads.

2.4 The A147 St Crispins Road runs parallel to the Site along its southern frontage, and is a dual carriageway which forms part of the Norwich Inner Ring Road. St Crispins Road provides vehicular access to the Site via Botolph Street and Upper Green Lane, both of which are left-in only.

2.5 From St Crispins Road, Botolph Street continues one-way northbound across the Site, providing access to Cherry Lane, an internal service road, to parking associated with the Surrey Chapel and the units fronting onto Pitt Street, as well as to two surface car parks. Botolph Street then connects with New Botolph Street via a left turn only junction.

2.6 Likewise, Upper Green Lane takes access from St Crispins Road on the flyover and continues one-way northbound through the Site, providing access to the MSCP and the northern surface car park previously mentioned, before forming a two-way working priority junction with Edward Street.

2.7 Edward Street continues to run across the northern boundary of the Site (with the exception of the separate parcels of land previously mentioned) and then forms a 'left in left out' junction with Magdalen Street to the east, with the exception of buses / taxis which can turn right down Magdalen Street. To the west, Edward Street also forms a 'left in left out' junction with New Botolph Street, with Edward Street continuing northbound (i.e. the left in).

2.8 Heading south of this junction, New Botolph Street connects with the A1402 Pitt Street, which bounds the Site to the west. This road 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.

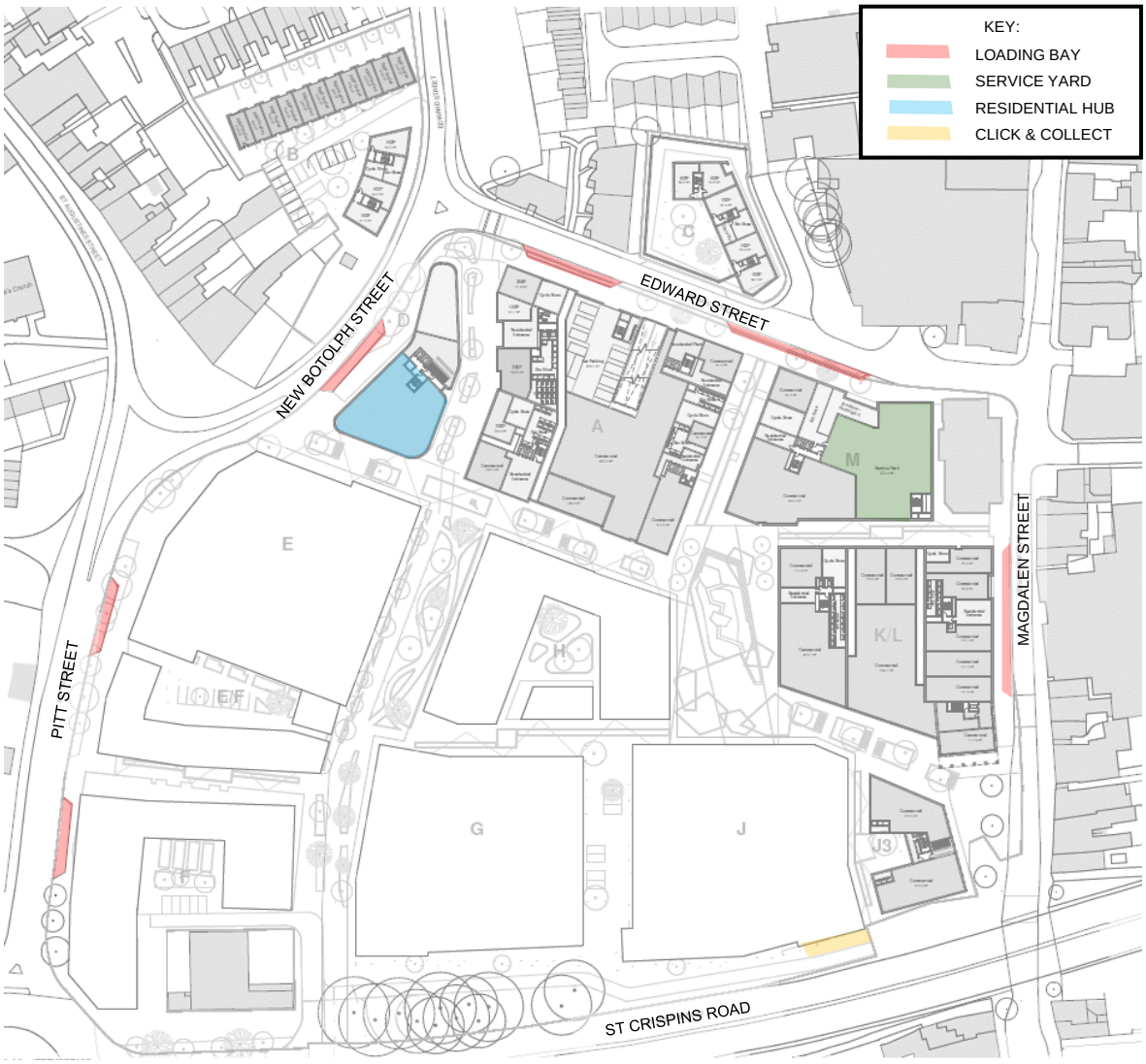
2.9 Magdalen Street bounds the Site to the east, and runs one-way northbound with a southbound bus and cycle only lane from the junction with Edward Street to the junction with Colegate to the south of the Site. To the north Magdalen Street gives access to A1151 Magdalen Road, which connects to B1150 Magdalen Road and A1151 Sprowston Road, both of which give access to A1402 Outer Ring Road.

2.10 All roads in the vicinity of Anglia Square are subject to a 30-mph speed restriction..

Proposed Servicing Strategy

2.11 Delivery and servicing associated with the Proposed Development is to be kept to the edge of the Site wherever possible, in order to keep the internal areas vehicle-lite and dedicated towards being pedestrian / cycle friendly spaces with associated landscaping and active frontages. It is therefore proposed to have several loading bays along the roads bounding the Site, as shown in **Figure 2.1**. However, there is also a dedicated internal servicing yard proposed in the north-eastern corner of the development, and two internal servicing routes in the southern section of the Site. The locations of the bays and internal servicing areas are shown in more detail at **Figure 2.1**.

Figure 2.1 – Proposed Delivering / Servicing Facilities



2.12 As can be seen, loading bays are proposed on Pitt Street (x2), New Botolph Street, Edward Street (x2) and Magdalen Street. These bays have been designed in accordance with the standards and have also been subject to a SPA assessment to ensure the necessary vehicles can enter and exit them in a forward gear – this is shown at **Appendix A1**.

2.13 To prevent abuse of the laybys, restrictions will be put in place to limit the amount of time a vehicle can set down here, and the associated use. In line with other loading bays within the vicinity, the restrictions are likely to be a 30-minute set down with no return within the hour for deliveries, but this can be discussed further should planning permission be granted.

2.14 For the bay on Edward Street adjacent to the service yard, it is proposed for this to predominantly serve as a bay for short stay parking, with a 20-minute restriction and no return within 4 hours. However, it is considered that it can also be used for refuse collection as necessary.

2.15 The Proposed Development also includes a residential hub, located in Block D and adjacent to the loading bay on New Botolph Street. This residential hub will have storage area for parcels and will therefore be the focus of residential deliveries, hence why it benefits from a dedicated loading bay immediately to its frontage. This bay is therefore likely to be subject to higher use than the remainder of the bays and thus is designed to accommodate delivery / servicing vehicles at all times. For the remainder of the bays, it is proposed for them to be designed so that they can operate as footway when not in use, similar to the existing bay on St Augustines Street just north west of the Site.

2.16 In addition to the bays, Block M features a service yard at the ground floor level to serve the adjoining commercial units. This service yard has been designed to accommodate 3 10m Rigid Vehicles, and can also accommodate a 16.5m Articulated Lorry should it ever be required. SPA has been undertaken for this yard, which demonstrates these vehicles can enter and exit in forward gear, as shown at **Appendix A1**. There is also an area set out for 'click & collect' style vehicles to the front on Block J – further details on this will be provided at the reserved matters stage.

2.17 A description of the proposed strategy for each block is provided in the following paragraphs, although as mentioned for each of the blocks the residential units are expected to predominantly utilise the residential hub / associated loading bay.

2.18 For Block A, any delivery / servicing vehicles that need to serve these units directly will be able to do so from the loading bay provided on the western end of Edward Street.

2.19 For Block B, in the north western corner of the Site (separate land parcel), it is proposed for delivery and servicing vehicles to enter this parcel from Edward Street via the access, and they will be able to set down / turn within the car parking area to the rear. SPA has been undertaken to ensure that the required vehicles can undertake this manoeuvre. Block B will only comprise 25 residential units and therefore the associated delivery and servicing movements are expected to be minimal.

2.20 For Block C, the separate parcel of land adjacent to Beckham Place, delivery and servicing vehicles will be able to continue with existing practices where they turn at the end of Beckham Place, and will then be able to stop on the road to serve the site before exiting back to Edward Street in forward gear. Similar to Block B, this block only has 21 units so again will be the subject of a minimal number of delivery and servicing trips, especially when accounting for the residential hub.

2.21 Block D features the residential hub so all deliveries and servicing are expected to take place via that, making use of the bay on New Botolph Street.

2.22 Blocks E and F, on the western front of the Site, benefit from the proposed loading bays on Pitt Street. Block F also provides an internal turning head which allows a refuse vehicle to enter the Site and collect the refuse for this block internally, before exiting and turning in forward gear.

2.23 For the blocks to the southern side of the Site, i.e. G, J (within the Outline parcel) and J3 it is proposed for delivery / servicing vehicles to enter the Site via the new St Crispins Road access and then route along the internal road running parallel to St Crispins Road, where they will be able to stop and serve the respective blocks. A turning head is provided between Blocks G and J which will allow the vehicles to exit the Site in forward gear.

2.24 Block H, which is located in the centre of the Site, will have a managed solution where vehicles will have to park at the alternative locations and then walk to the Block, or make use of the residential hub. For refuse / recycling, the management team will transfer the waste associated with Block H to an alternative block on collection days.

2.25 The commercial units with Block K / L will also be utilise this service yard, with a dedicated route between the units and the yard provided. For the residential units in these blocks, the proposed loading bay on Magdalen Street will be suitable to accommodate deliveries that are not made via the hub.

2.26 Access through the Site is also maintained for Alladins Cave, although this unit falls outside of the site demise.

Types, Times and Frequency of Delivery Vehicles

2.27 Both the residential and the commercial elements of the Proposed Development will generate a level of delivery and servicing trips. As part of the Call in Scheme, the Transport Assessment estimated that residential developments typically generate 8 to 9 deliveries per 100 dwellings, per day. This estimation was based on the TRICS database. Applying this to the Proposed Development of 1,100 dwellings, between 88 and 99 deliveries per day. Most of these deliveries will already be on the network delivering to existing residential properties within the local area.

2.28 The majority of these deliveries will be made by light goods vehicles (LGVs), typically a transit van or smaller. There will be the occasional larger vehicle i.e. a 7.5t box van, and on the rare occasion a larger vehicle such as a 10m Rigid.

2.29 Where possible, these residential deliveries should be requested outside of peak hours. The provision of the residential hub (and associated parcel storage space) should help facilitate this as it will allow residents to organise deliveries and then collect at a later time, and also greatly minimise aborted / repeated visits.

2.30 For the commercial element, it is difficult to predict the exact delivery and servicing characteristics given the flexibility of the planning application and, therefore, the future occupiers are not known. However, it should be noted that there is a significant level of extant commercial floorspace at the Site which generate a high number of servicing trips. The information provided by the on-site

management showed that with higher operation needs of Anglia Square, as it was in 2021, the dedicated loading areas provided within the Site accommodated a total of approximately 250 movements associated with deliveries and servicing on a typical day. For the Proposed Development, this number is expected to reduce given the decrease in quantum of floorspace.

2.31 Once occupied, the commercial units will be made aware of the servicing opportunities available to them – specifically the dedicated service yard in the north western corner which is adjacent to a number of the proposed commercial units.

3. SERVICING MANAGEMENT

3.1 As mentioned previously, the Site will benefit from internal servicing areas providing opportunities for services vehicles to load / unload off-street.

3.2 Further servicing management systems for both the commercial and residential elements are provided in the section below. Notwithstanding, if any problems are identified, the occupiers will work with the local authority and any necessary third parties to provide an appropriate solution.

Residential Use

3.3 The Proposed Development will benefit from a residential hub / concierge area, which will be the main facility for managing deliveries on-site. It is proposed the majority of deliveries will go via this hub, with the adjacent loading bay on New Botolph Street facilitating vehicle set-down. The hub will therefore act as a storage area for residents to collect from i.e. a delivery will take place to the hub during the day and the specific resident would collect this delivery from the hub when convenient (likely to be as they return back to their apartment after work). When the hub receives a delivery it will be stored and then the specified resident will be contacted to let them know they have a delivery to collect.

3.4 This management strategy is proposed to ensure that delivery vehicles predominantly have one central area to go to rather than each individual unit, thereby reducing their dwell time considerably.

3.5 Residents who move into the development will be provided with an information pack on their arrival day. This information pack will provide information on the delivery and servicing arrangements at the site. Residents will therefore let delivery drivers know the restrictions in place and the opportunities available for them to stop at the site i.e. the hub, or if necessary the alternative loading bays. Residents will also be encouraged to arrange for deliveries / servicing to take place at a convenient time i.e. outside of peak hours.

3.6 Any site maintenance style servicing trips will be pre-arranged where necessary, with the delivery time and duration agreed with the site management company to help minimise the impact upon the daily servicing requirements.

Commercial Use

3.7 For the proposed commercial units, the responsibility for the management of associated servicing will be with the individual unit, and coordinated with site management where it relates to the use of the service yard.

3.8 The following procedures will be put in place to manage the servicing and deliveries associated with the commercial units:

- The Manager will look to set up and manage a booking system by which all occupiers and suppliers should adhere to.
- Where possible, suppliers will book deliveries with the specific unit, and they will be asked to provide a delivery time spot. The manager will also ensure wherever possible that deliveries are undertaken outside of peak hours and will not be occurring within the same timeframes.
- If a servicing vehicle is expected to arrive earlier or later than planned, they will be expected to phone ahead in advance to alert members of staff, and follow subsequent instructions. They will be advised on the phone if a revised booking slot is available at their anticipated arrival time. If a revised booking slot is not available for when the supplier expects to arrive, they will be advised of the next available booking slot in advance of arriving at the site.
- Occupiers will be encouraged to re-load the delivery vehicles with waste packaging etc. where possible to both ensure that the number of vehicles serving the site is kept to a minimum, and improve sustainability.
- A formal letter will be provided to all potential unit occupiers to request deliveries are timed to adhere to the restrictions and inform which access route to take. An example letter is provided at **Appendix A2**.
- Where possible, drivers will be fully briefed on, and provided with, the routing strategy.
- The Manager will also provide a point of contact for any necessary external stakeholders, including NCC to discuss any matters relating to servicing at the Site.
- The Manager will monitor deliveries and servicing of the units and the management plan can be modified as appropriate to respond to any issues as they arise.

4. REFUSE COLLECTION

4.1 Significant consideration has been made to establish the most appropriate location for refuse storage and collection.

4.2 All refuse bins associated with the proposed development will be stored off the highway and not on the footway. The site benefits from dedicated refuse storage areas at the ground floor level which are strategically located close to the collection areas. The ground between the storage location for bulk bins and the loading position will be smooth, hard surfaced and without any kerbs.

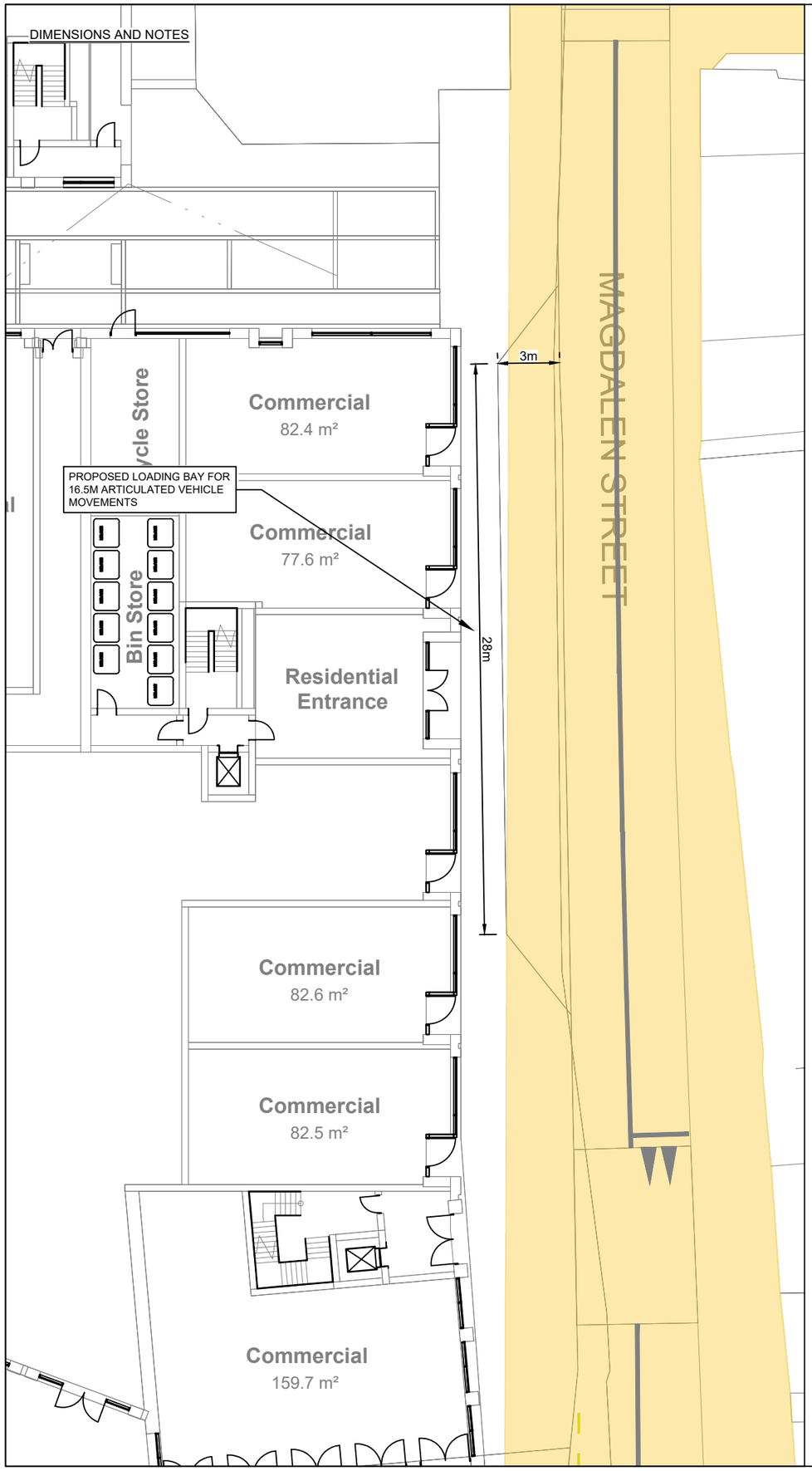
4.3 No refuse will be moved, removed or placed outside of the designated areas prior to collection.

4.4 The scheme will provide traditional storage and collection methods in line with policy and existing practices currently employed within Norwich. Separate refuse services would serve the commercial and residential elements, with the residential served from the periphery of the Site.

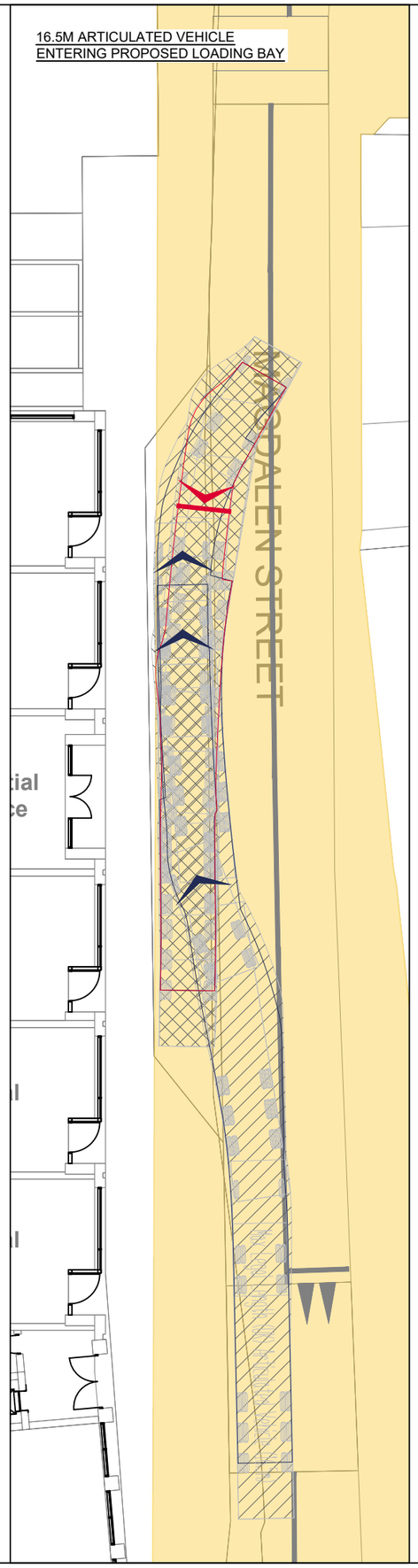
4.5 Further detail on the refuse collection strategy to be employed will be provided at the reserved matters stage.

A1. SWEPT PATH ANALYSIS

DIMENSIONS AND NOTES



16.5M ARTICULATED VEHICLE ENTERING PROPOSED LOADING BAY



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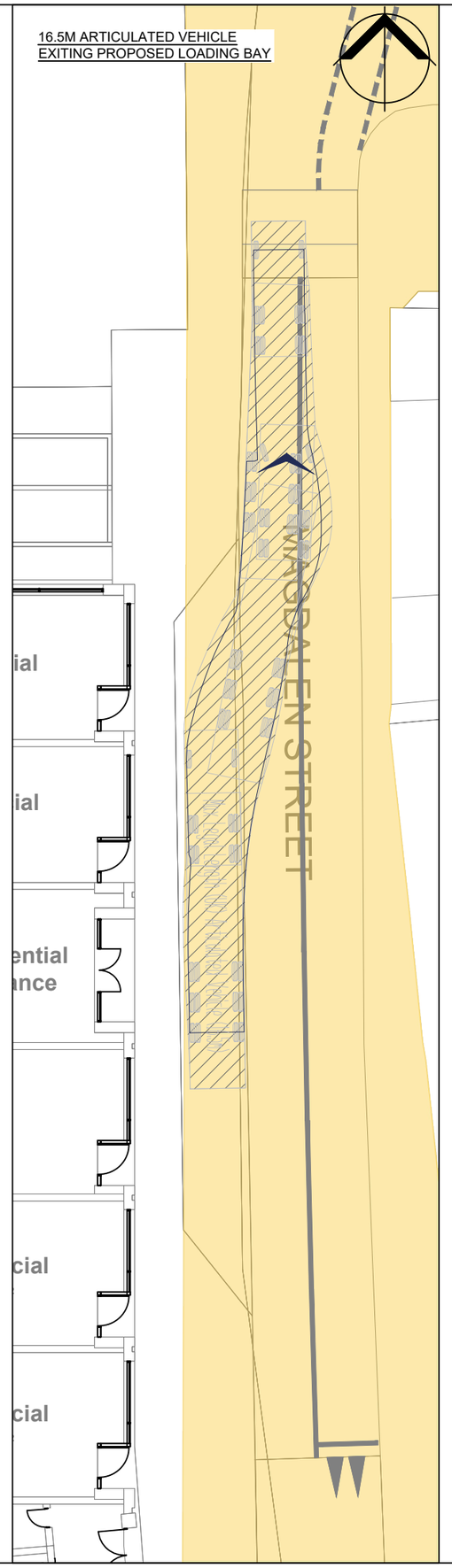

NOTES:

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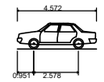
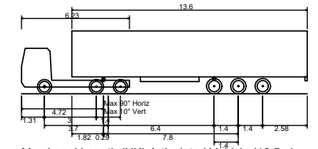
VEHICLE PROFILE:



Skoda Octavia	
Overall Length	4.572m
Overall Width	1.769m
Overall Body Height	1.488m
Min Body Ground Clearance	0.249m
Max Track Width	1.713m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.100m



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.632m
Min Body Ground Clearance	0.396m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.870m

REV	DATE	AMENDMENTS	DRAWN	CHK	APP
D	29.03.2022	REVISED LAYOUT	AP	RJ	CB
C	24.03.2022	UPDATED SITE LAYOUT	AP	RJ	CB
B	14.03.2022	REVISED LAYOUT AND MINOR AMENDMENTS	AP	RJ	CB
A	18.01.2022	MINOR AMENDMENTS	AP	RJ	CB

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CLIENT

WESTON HOMES PLC

PROJECT

ANGLIA SQUARE

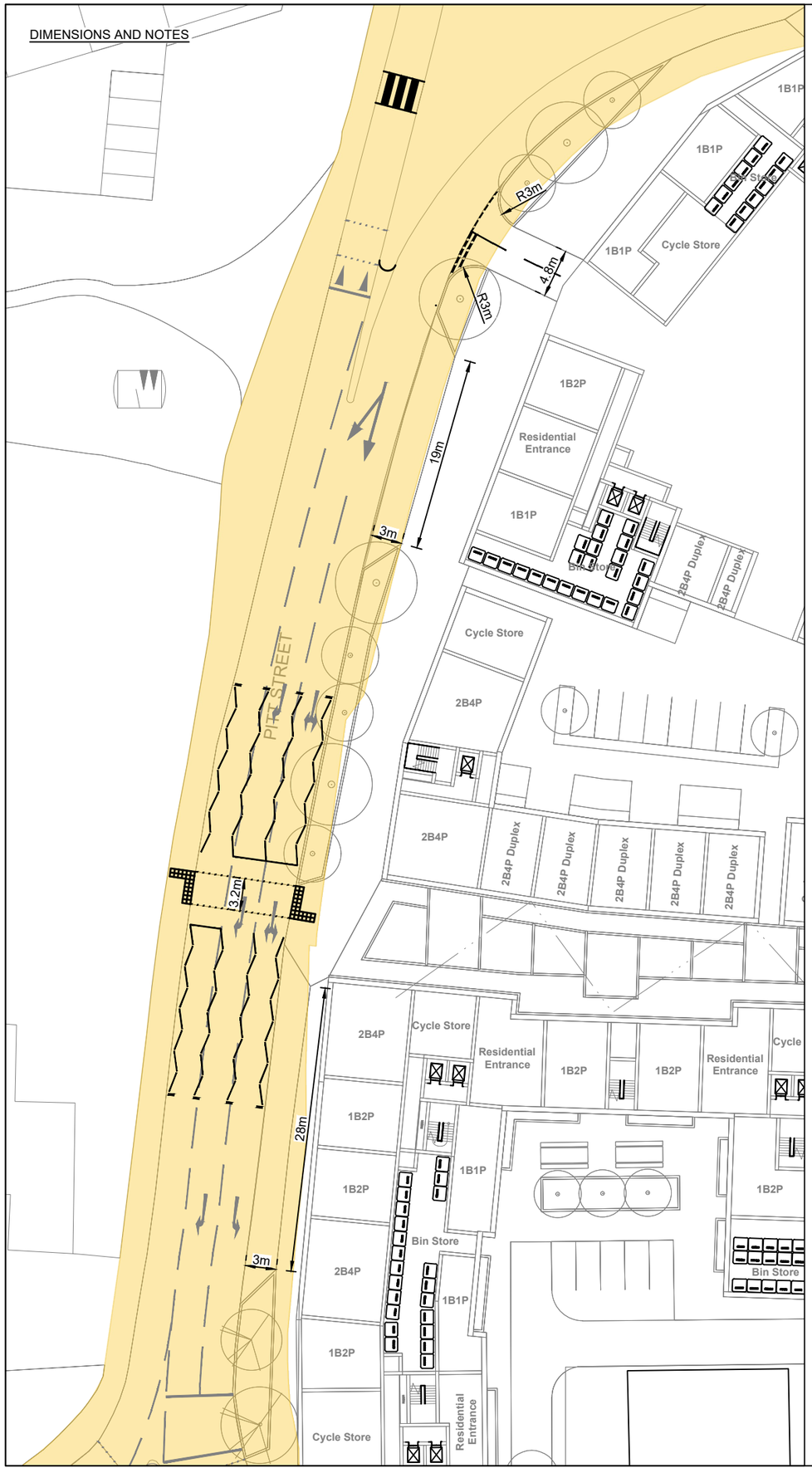
TITLE

INITIAL HIGHWAYS WORKS

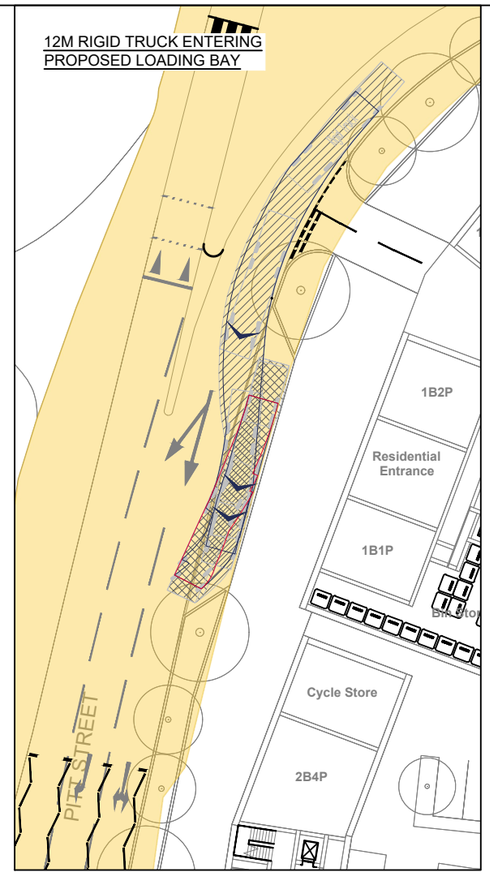
DRAWN BY	CHECKED BY	APPROVED BY
AP	RJ 17.12.2021	CB 17.12.2021

SCALE @ A3	DATE	
1 : 250	17.12.2021	
PROJECT NO.	DRAWING NO.	REV.
21-T123	14 (SHEET 5 OF 5)	D

DIMENSIONS AND NOTES



12M RIGID TRUCK ENTERING PROPOSED LOADING BAY



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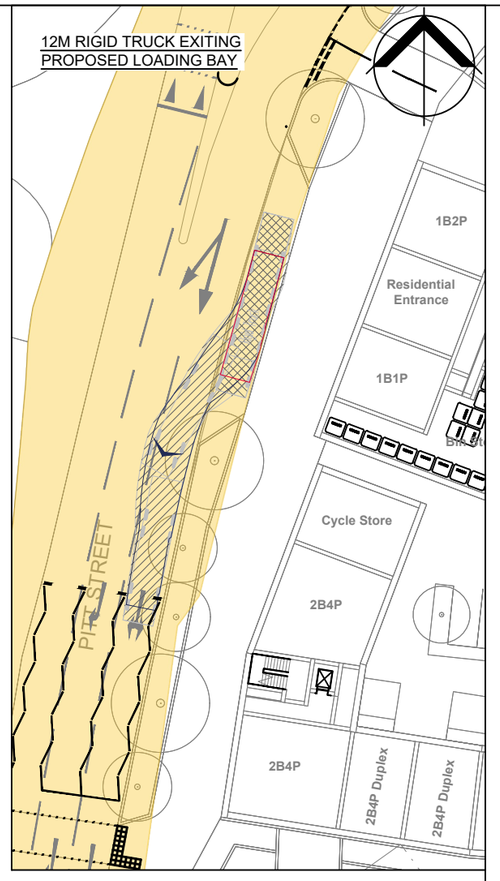

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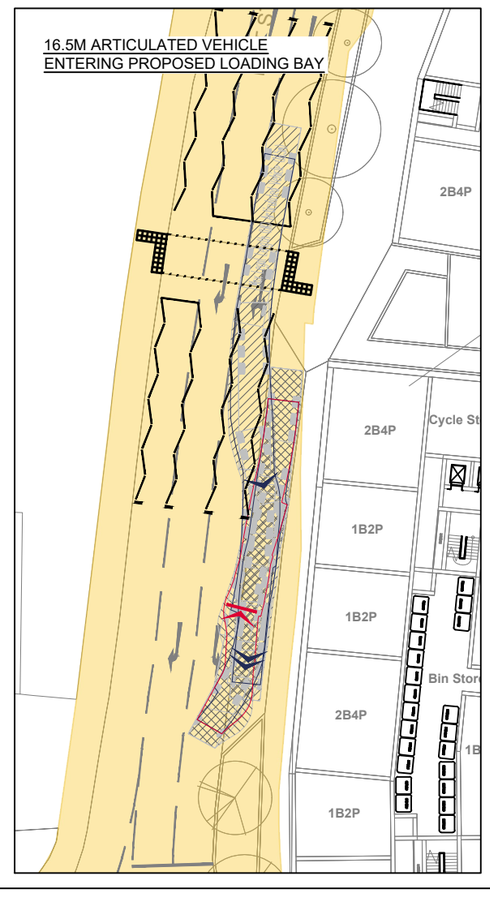

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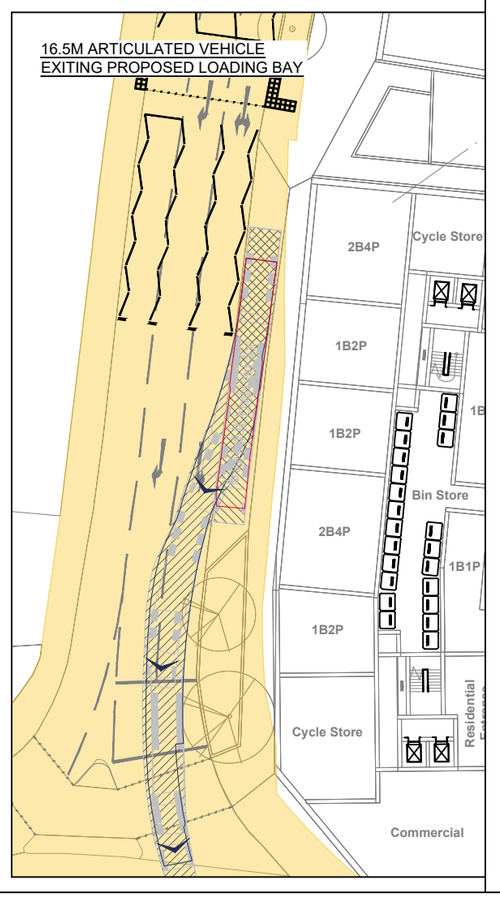

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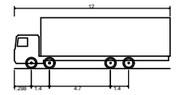

Rigid Truck	
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Overall Width	2.500m
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Track Width	2.471m
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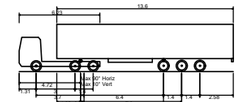
Kerb to Kerb Turning Radius	11.900m



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PROJECT

ANGLIA SQUARE

TITLE

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PROJECT NO.	DRAWING NO.	REV.
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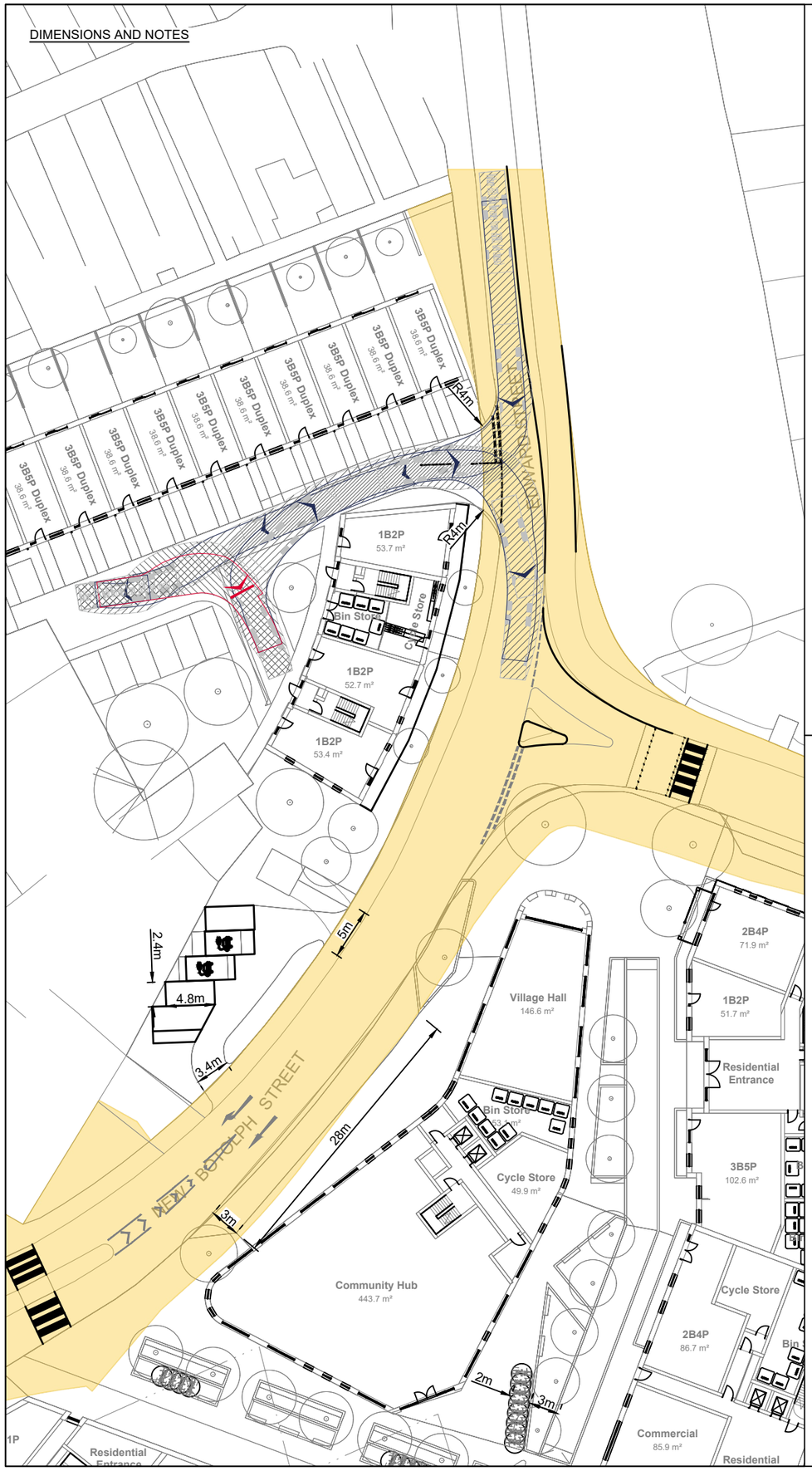
DIMENSIONS AND NOTES



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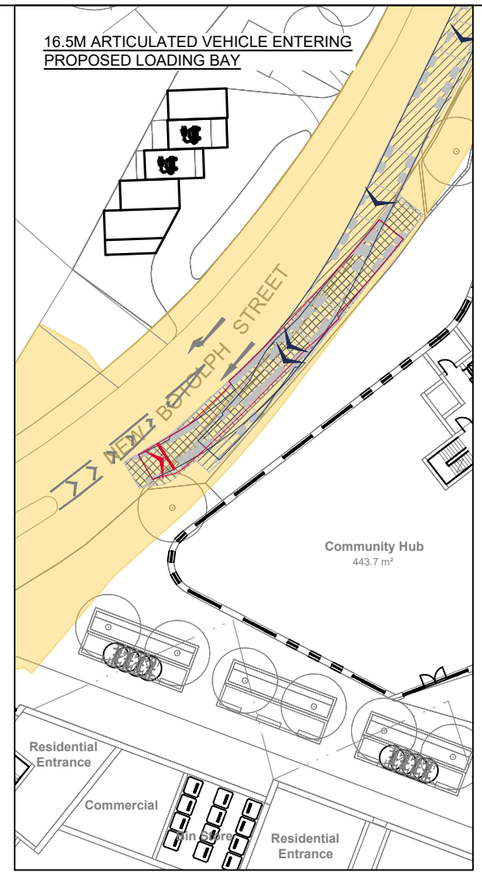

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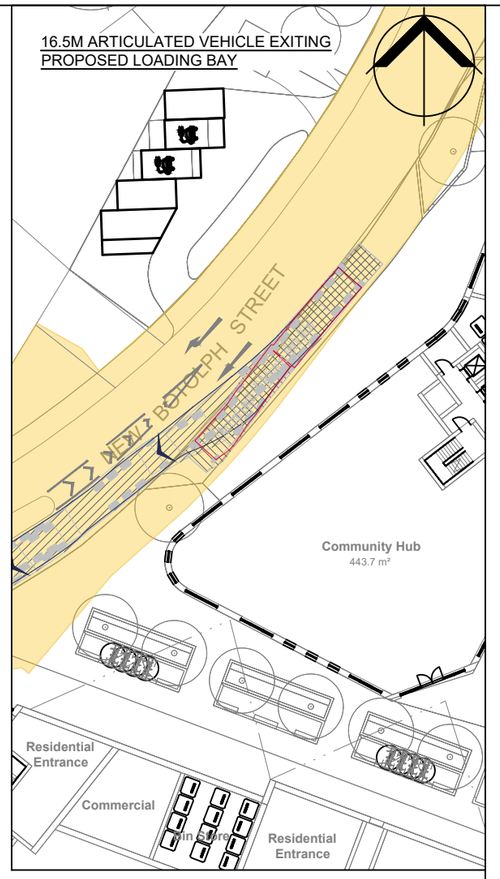
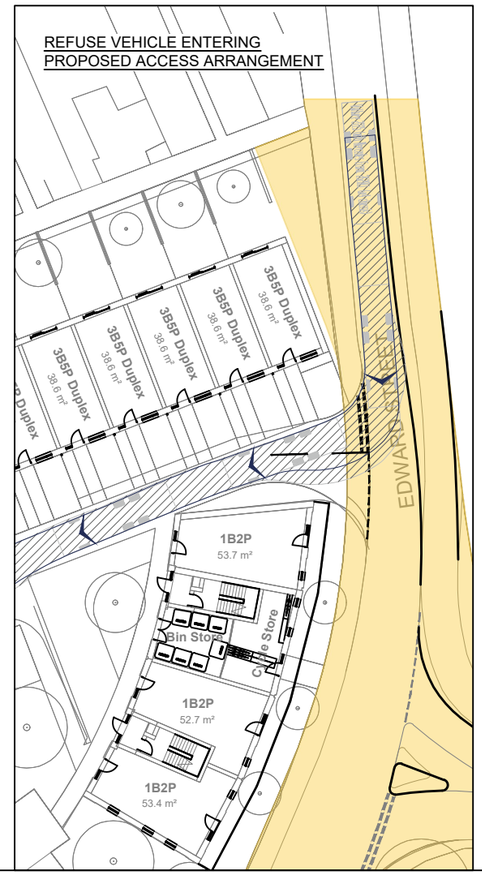


REFUSE VEHICLE ENTERING PROPOSED ACCESS ARRANGEMENT



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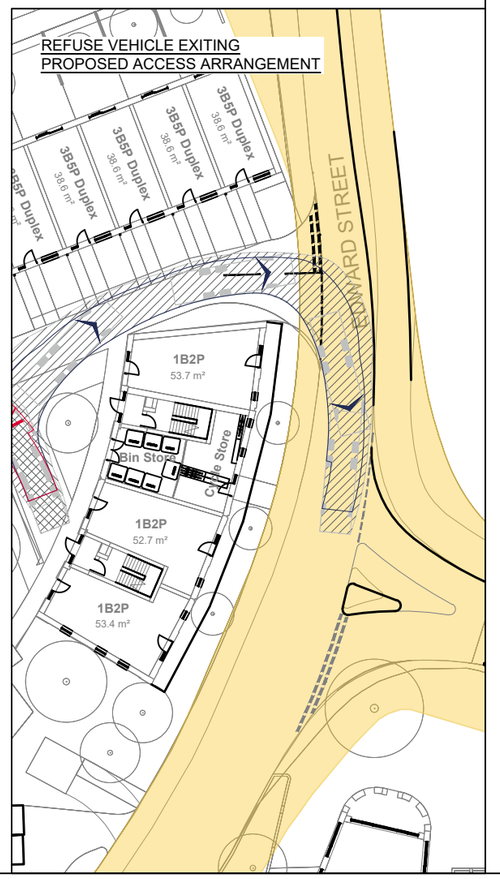

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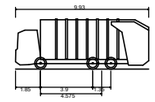
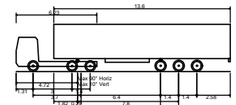
VEHICLE PROFILE:

Skoda Octavia	
Overall Length	4.572m
Overall Width	1.769m
Overall Body Height	1.489m
Min Body Ground Clearance	0.249m
Max Track Width	1.713m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.100m



Vulture 2225 (with Mercedes Econic 2628LL 6x4 chassis)	
Overall Length	9.930m
Overall Width	2.490m
Overall Body Height	3.749m
Min Body Ground Clearance	0.302m
Track Width	2.490m
Lock to lock time	4.00s
Wall to Wall Turning Radius	9.250m



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.632m
Min Body Ground Clearance	0.396m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.870m

REV	DATE	AMENDMENTS	DRAWN	CHK	APP
D	29.03.2022	REVISED LAYOUT	AP	RJ	CB
C	24.03.2022	UPDATED SITE LAYOUT	AP	RJ	CB
B	14.03.2022	REVISED LAYOUT AND MINOR AMENDMENTS	AP	RJ	CB
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WESTON HOMES PLC

PROJECT

ANGLIA SQUARE

TITLE

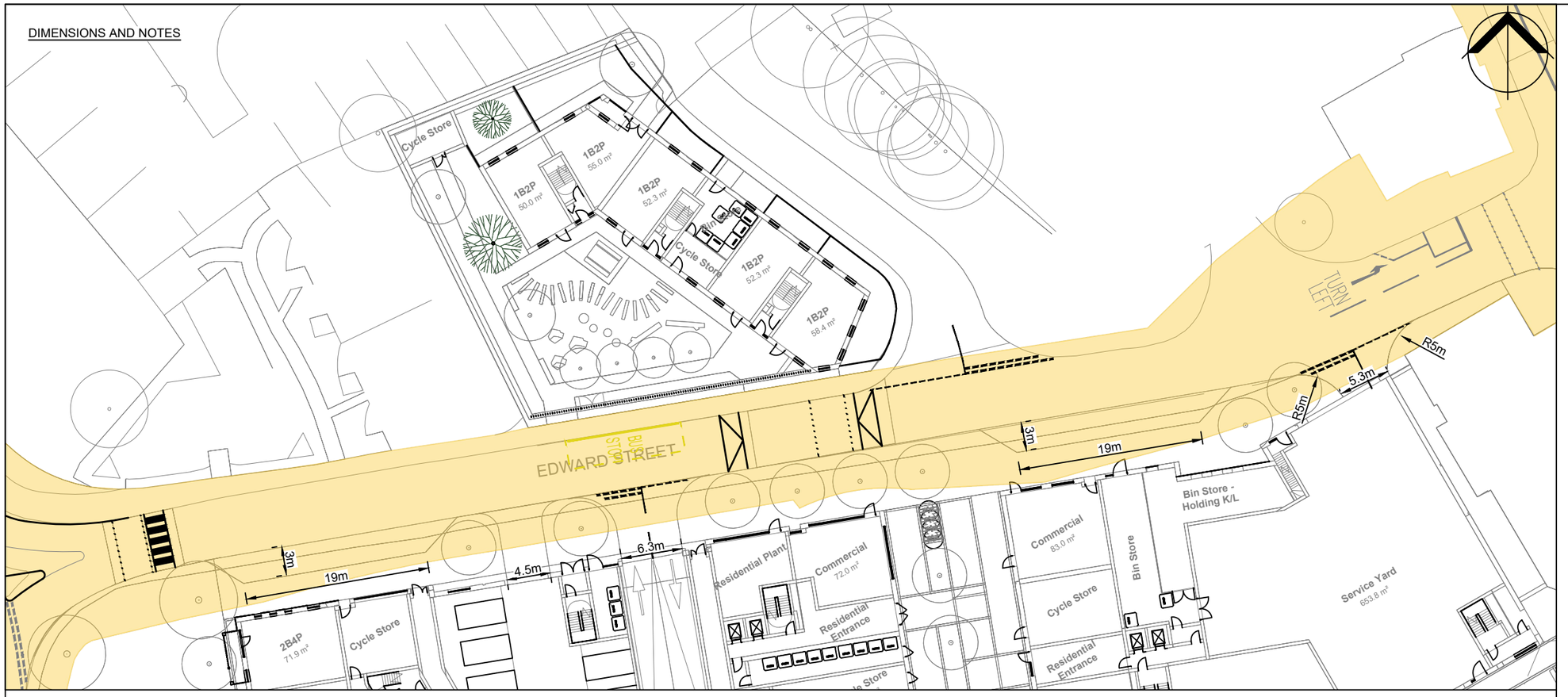
INITIAL HIGHWAYS WORKS

DRAWN BY	CHECKED BY	APPROVED BY
AP	RJ 17.12.2021	CB 17.12.2021

SCALE @ A3	DATE
1 : 500	17.12.2021

PROJECT NO.	DRAWING NO.	REV.
21-T123	14 (SHEET 3 OF 5)	D

DIMENSIONS AND NOTES



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VEHICLE PROFILE:

Skoda Octavia	
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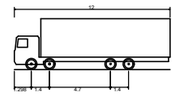
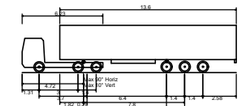
Overall Body Height	1.488m
Min Body Ground Clearance	0.249m
Max Track Width	1.713m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.100m



Rigid Truck	
Overall Length	12.000m
Overall Width	2.500m
Overall Body Height	3.928m
Min Body Ground Clearance	0.412m
Track Width	2.471m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	11.900m



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
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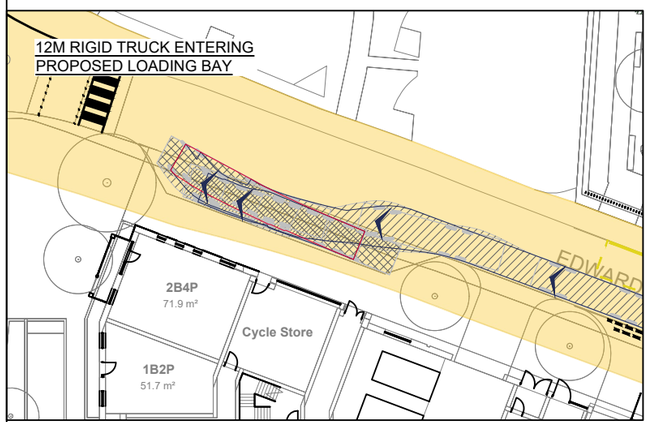
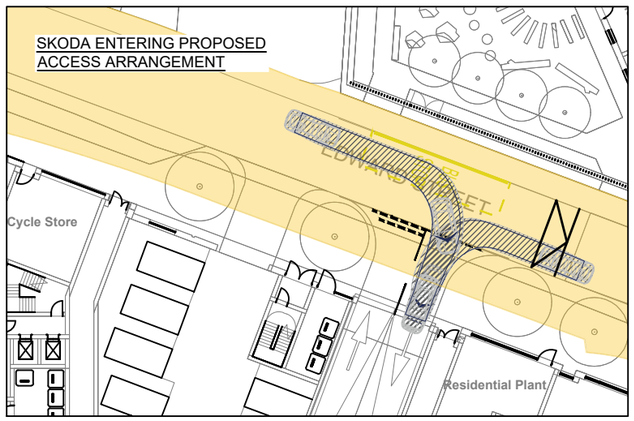
Min Body Ground Clearance	0.396m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.870m

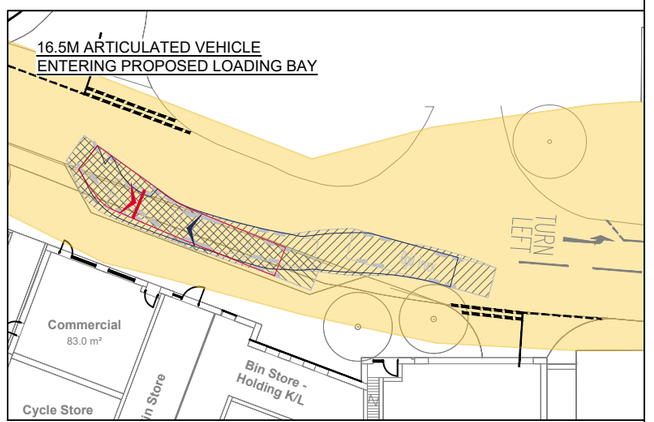
12M RIGID TRUCK ENTERING PROPOSED LOADING BAY



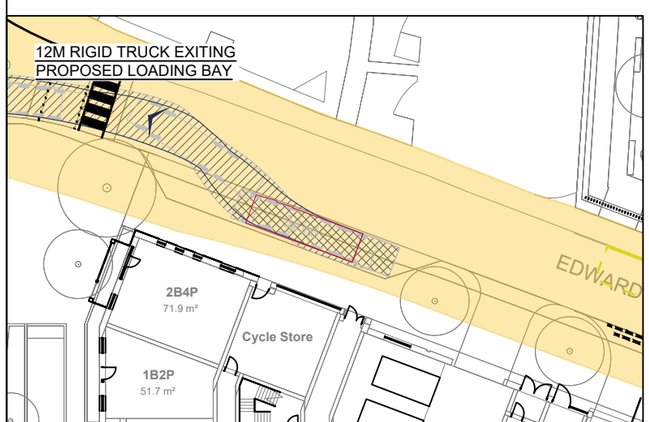
SKODA ENTERING PROPOSED ACCESS ARRANGEMENT



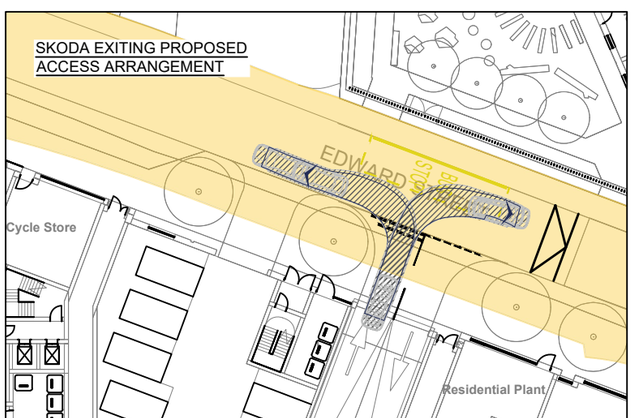
16.5M ARTICULATED VEHICLE ENTERING PROPOSED LOADING BAY



12M RIGID TRUCK EXITING PROPOSED LOADING BAY



SKODA EXITING PROPOSED ACCESS ARRANGEMENT



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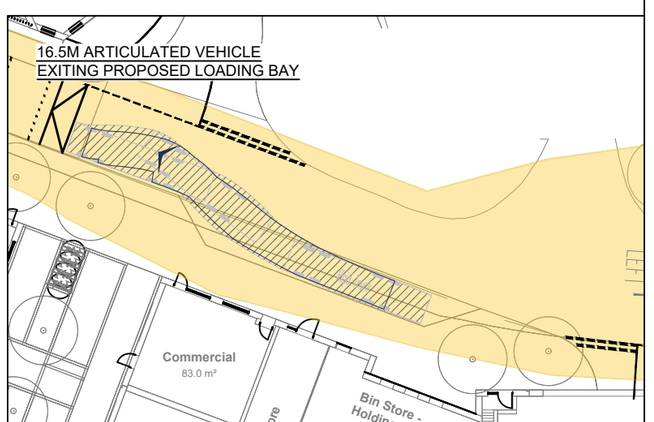

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ANGLIA SQUARE

TITLE

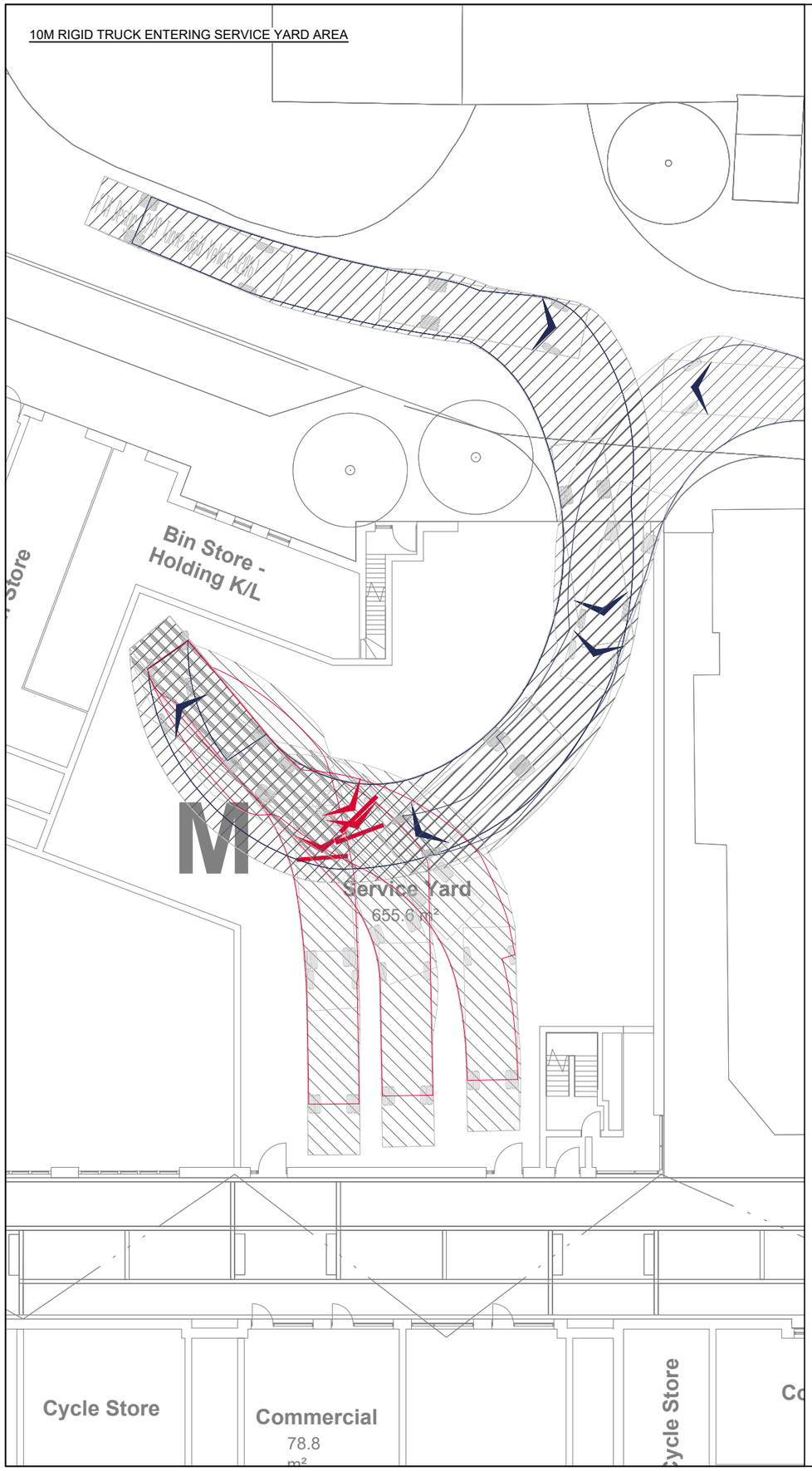
INITIAL HIGHWAYS WORKS

DRAWN BY	CHECKED BY	APPROVED BY
AP	RJ 17.12.2021	CB 17.12.2021

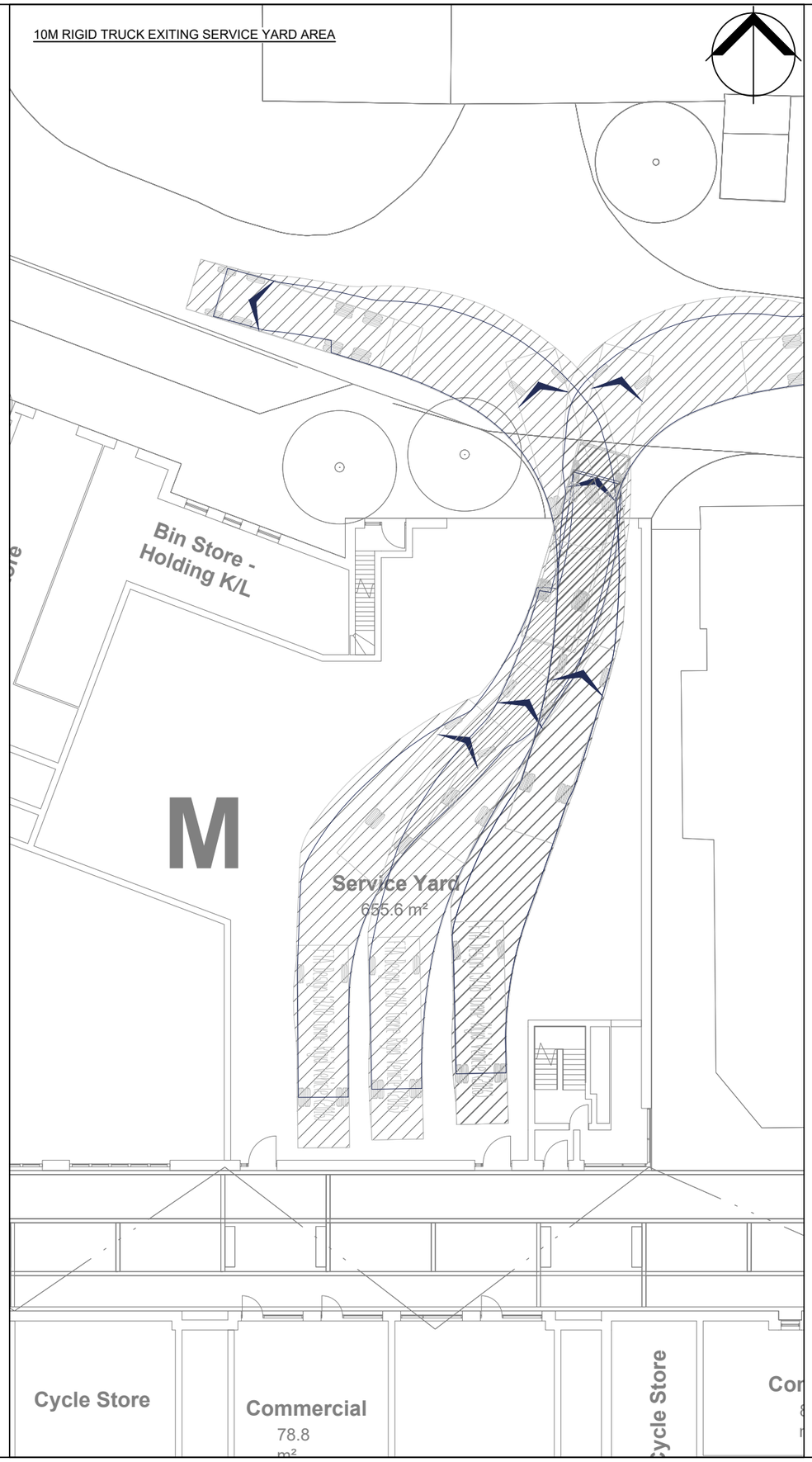
SCALE @ A3	DATE
1 : 500	17.12.2021

PROJECT NO.	DRAWING NO.	REV.
21-T123	14 (SHEET 4 OF 5)	D

10M RIGID TRUCK ENTERING SERVICE YARD AREA



10M RIGID TRUCK EXITING SERVICE YARD AREA



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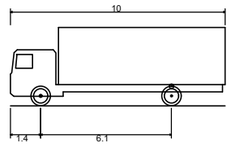
VEHICLE PROFILE:



FTA Design 13/18 Tonne Rigid Vehicle (2016)	
Overall Length	10.000m
Overall Width	2.550m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	11.000m

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PROJECT

ANGLIA SQUARE

TITLE

SITE LAYOUT REVIEW

(BLOCK M SERVICE YARD)

DRAWN BY	CHECKED BY	APPROVED BY
AP	RJ 29.03.2022	CB 29.03.2022

SCALE @ A3	DATE	
1 : 250	29.03.2022	
PROJECT NO.	DRAWING NO.	REV.
21-T123	34	-

A2. EXAMPLE COMMERCIAL LETTER

INSERT LOGO HERE

TYPE OCCUPIER ADDRESS HERE

INSERT DATE HERE

Dear [Addressee name],

[Operator name] has adopted a Delivery and Servicing Plan to address matters concerning the number and timings of deliveries, the routes taken by vehicles and to look at potential operational practices to be put in place by [Operator name] to ensure the safe and efficient movement of all vehicles within the area.

The site benefits from a number of servicing areas, which should therefore be utilised when delivering to the site. Please can you deliver to [INSERT APPROPRIATE SERVICING LOCATION]. Please can you ensure that the plan is carefully reviewed to ensure you are undertaking deliveries in accordance with the guidelines set out.

Yours sincerely,

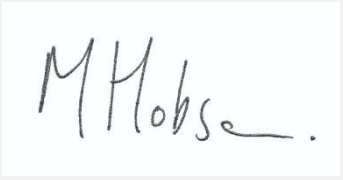
Air Quality Assessment for the proposed re-development at Anglia Square, Norwich

Report to Weston Homes Plc

ES Vol 1 Appendix 8.1

March 22

Title	Air quality assessment for the proposed re-development at Anglia Square, Norwich. ES Vol 1 Appendix 8.1
Customer	Weston Homes Plc
Recipient	Weston Homes Plc
Report Reference	AQ_assessment/2022/Anglia_Square
Report Status	Version 2
Revisions	Version 2 – updated report taking into account comments Version 1 – draft for customer comment (22nd March 2022)
File	Aether_AQ_assessment_Anglia_Square_29March22

Author	Lotte Gleeson, Rosie Brook
Reviewed by	Melanie Hobson
Signature	
Date	29th March 2022

Company Details:	Aether Ltd Oxford Centre for Innovation New Road Oxford OX1 1BY UK Registered in England 6630896
Contact:	enquiries@aether-uk.com +44(0)1865 261466 www.aether-uk.com

Contents

1 Introduction

This Air Quality Assessment (AQA) has been prepared by Aether on behalf of Weston Homes Plc (the Applicant) in support of a hybrid (part full /part outline) planning application, (the Application), submitted to Norwich City Council (NCC) for the comprehensive redevelopment of Anglia Square and various parcels of mostly open surrounding land, (the Site), as shown within a red line on Drawing '35301-ZZ-00-DR-A-01-0200'.

The Site is located in a highly accessible position within the northern part of Norwich City Centre and comprises a significant element of the Anglia Square/Magdalen Street/St Augustines Large District Centre, (the LDC). It is thus of strategic importance to the City, and accordingly has been identified for redevelopment for many years within various local planning policy documents, including the Northern City Centre Area Action Plan 2010, (NCCAAP), (now expired), the Joint Core Strategy for Broadland, Norwich and South Norfolk 2014, (JCS), and NCC's Anglia Square and Surrounding Area Policy Guidance Note 2017, (PGN). The Site forms the principal part of an allocation (GNLP 0506) in the emerging Greater Norwich Local Plan (GNLP).

This application follows a previous application on a somewhat smaller development parcel, (NCC Ref. 18/00330/F) made jointly by Weston Homes Plc as development partner and Columbia Threadneedle Investments, (CTI), the Site's owner, for a residential-led mixed use scheme consisting of up to 1,250 dwellings with decked parking, and 11,000 sqm GEA flexible ground floor retail/commercial/non-residential institution floorspace, hotel, cinema, multi-storey public car park, place of worship, and associated public realm and highway works. This was subject to a Call-in by the Secretary of State (PINS Ref. APP/G2625/V/19/3225505) who refused planning permission on 12th November 2020, (the 'Call in Scheme'). An AQA with subsequent revisions was undertaken in respect of the Call in Scheme. The Secretary of State concluded at paragraph 60 of his decision letter that he ***"agrees with the Inspector that the information before him is sufficient for air quality to be properly taken into account in this decision."*** Thus, he endorsed the methodology of that AQA, which has been followed, with updates as set out below, in respect of this AQA.

In April 2021, following new negotiations with the Site owner CTI, Weston Homes decided to explore the potential for securing planning permission for an alternative scheme via an extensive programme of public and stakeholder engagement, from the earliest concepts to a fully worked up application. The negotiations with CTI have secured a "Subject to Planning" contract to purchase the Site, (enlarged to include the southeastern part of Anglia Square fronting Magdalen Street and St Crispins Road), which has enabled a completely fresh approach to establishing a redevelopment scheme for Anglia Square. This has resulted in a different development brief for the scheme, being to create a replacement part of the larger LDC suited to the flexible needs of a wide range of retail, service, business and community uses, reflective of trends in town centre character, integrated with the introduction of homes across the Site, within a highly permeable layout, well connected to its surroundings.

The new development proposal seeks to comprehensively redevelop the Site to provide up to 1,100 dwellings and up to 8,000sqm (NIA) flexible retail, commercial and other non-residential floorspace including Community Hub, up to 450 car parking spaces (at least 95% spaces for class C3 use, and up to 5% for class E/F1/F2/Sui Generis uses), car

club spaces and associated works to the highway and public realm areas (the Proposed Development). These figures are maxima in view of the hybrid nature of the application. This proposes part of the scheme designed in full, to accommodate 367 dwellings, 5,808 sqm non-residential floorspace, and 146 car parking spaces (at least 95% spaces for residential use, and up to 5% for non-residential use), with the remaining large part of the Site for later detailed design as a "Reserved Matters" application, up to those maxima figures.

This AQA provides Norwich City Council with an assessment of the impact the Proposed Development will have on air quality of the Site and surrounding area.

The assessment utilises local monitoring data and dispersion modelling to estimate the nitrogen dioxide and particulate matter pollutant concentrations and their compliance with Air Quality Strategy objectives at relevant receptor locations in 2034. The reason for use of 2034 is set out at footnote 1 below.

The Transport Assessment establishes that the Proposed Development will not result in any increase in traffic flows on the surrounding road network in 2034, three years after the first full year of occupation, (See data in Appendix B to this report). The reason for this has been described by the Transport Consultants as follows:

The total public car parking available across the Site currently is 1,172 spaces. The Proposed Development includes 146 car parking spaces within the detailed element of the Proposed Application, and the Outline element could provide up to a further 304 car parking spaces (albeit in reality this number is likely to be lower). This equates to a total of 450 parking spaces, which is the limit set by the application's description of development. Therefore, even if the full 450 parking spaces are to be provided, which is considered unlikely, this would be a reduction of 722 spaces compared to what is at the Site currently, and also less than the total existing number of spaces in the public surface car parks currently open, ignoring the spaces within the multi storey which still benefits from its extant use as well as the existing staff parking on Site. Furthermore, it should be noted that the existing 1,172 spaces are public car parking associated with Anglia Square shopping centre and the other commercial facilities within the vicinity and will therefore have a much higher turnover than car parking associated with residential use. As such, the Proposed Development is expected to result in a net decrease in vehicular traffic on the local road network and this has been agreed with NCiC and NCoC during the scoping stage.

Accordingly, for the purposes of the AQA, it is not necessary to model "with development" or "without development" scenarios separately, and therefore only two future scenarios based on predicted traffic flows for 2034 have been modelled[1]. The first, ("without policy applied") uses a conservative approach with regards to expected improvements to air quality, in that no improvement in the pollutant background concentrations or road transport emission factors has been assumed between the base year (2019) and the future year (2034). The second future scenario ("with policy applied") utilises the projected improvements in pollutant background concentrations and road transport emission factors in 2034.

[1] It is worth noting that since the modelling has been undertaken, the year of opening has now been brought forward and is expected to be 2030, with the first full year of occupation being 2031. Therefore, the results presented in this report for 2034 as a first full year of occupation are likely to be an over-estimate for the actual opening year, as traffic levels are forecast to be approx. 2.7% higher in 2034 compared to 2031.

Thus, in total the following scenarios have been modelled:

- **2019 Baseline**: to enable model verification to be undertaken. This year has been chosen as it is the last full calendar year before the Covid-19 pandemic had any impact on activity levels.
- **2034 "with no policy applied"**: As set out in the Transport Assessment supporting the Application, no changes in traffic levels on roads surrounding the Site are expected because of the development, and therefore, taking the full occupation year of 2034, but assuming no improvement in the air pollutant emissions arising from the road traffic fleet from the baseline year, just one scenario has been necessary to model for 'without Proposed Development' which also applies to 'with Proposed Development';
- **2034 "with policy applied"**: Taking again the finding that no changes in traffic levels are expected on roads surrounding the Site because of the development, and once again taking 2034, but this time assuming the expected improvement in the air pollutant emissions arising from the application of government policy to change the road traffic fleet, it has also only been necessary to model just one scenario for 'without Proposed Development' and 'with Proposed Development'. This takes into account Defra's predicted impact (as provided in the latest version of the Emission Factor Toolkit (EFT) published in November 2021[2]) of improvements to vehicle fleet emission factors and background concentrations. Further information on this is provided in Section 2.2 (Traffic Data).

It is worth noting that a "with policy applied" scenario was provided in the AQA to support the Call in Scheme. That utilised version 9 of the EFT (the latest version at the time of undertaking the work). In response to this, Paragraph 557 of the Call in Inspector's Report states: *At the inquiry there was discussion as to whether, in principle, it is right to take account of anticipated improvements in air quality as a result of government policy. Although the Council did not take account of such improvements at the time it considered the application, it now considers that it is right to do so. I agree. The EFT User Guide 2019* [version 9]*, which is published by Defra states that: "It is a tool that allows users to calculate road vehicle pollutant emission rates for oxides of nitrogen and particulate matter for a specified year, road type, vehicle speed and vehicle fleet composition". To my mind that makes it clear that Defra is expecting anticipated changes in vehicle emissions to be factored in to assessments such as this. The Wealden Local Plan examination, where the Inspector commented that it would be unreasonable to assume no improvements over time, is an example of this approach in action.* Therefore, it is appropriate that this scenario of "with policy applied" is included in this assessment, and that it is considered to be the most applicable methodology, factoring in expected air quality improvements in the future as a result of enhancements to the emissions performance of the road traffic fleet.

The Proposed Development includes 100% passive electric vehicle charging point provision for all car parking spaces. In addition, there will be no gas fired boilers, with air source heat pumps being used for hot water and electric panel heaters for heating. Therefore, the emissions arising from the Site are being minimised as much as possible.

[2] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/

1.1 The Location of the Development

The Proposed Development is located in the northern part of Norwich City Centre, north of St Crispins Road (**Figure 1**). The location of each block referred to in the assessment is shown in **Figure 2**.

Figure 1: Location of the Site

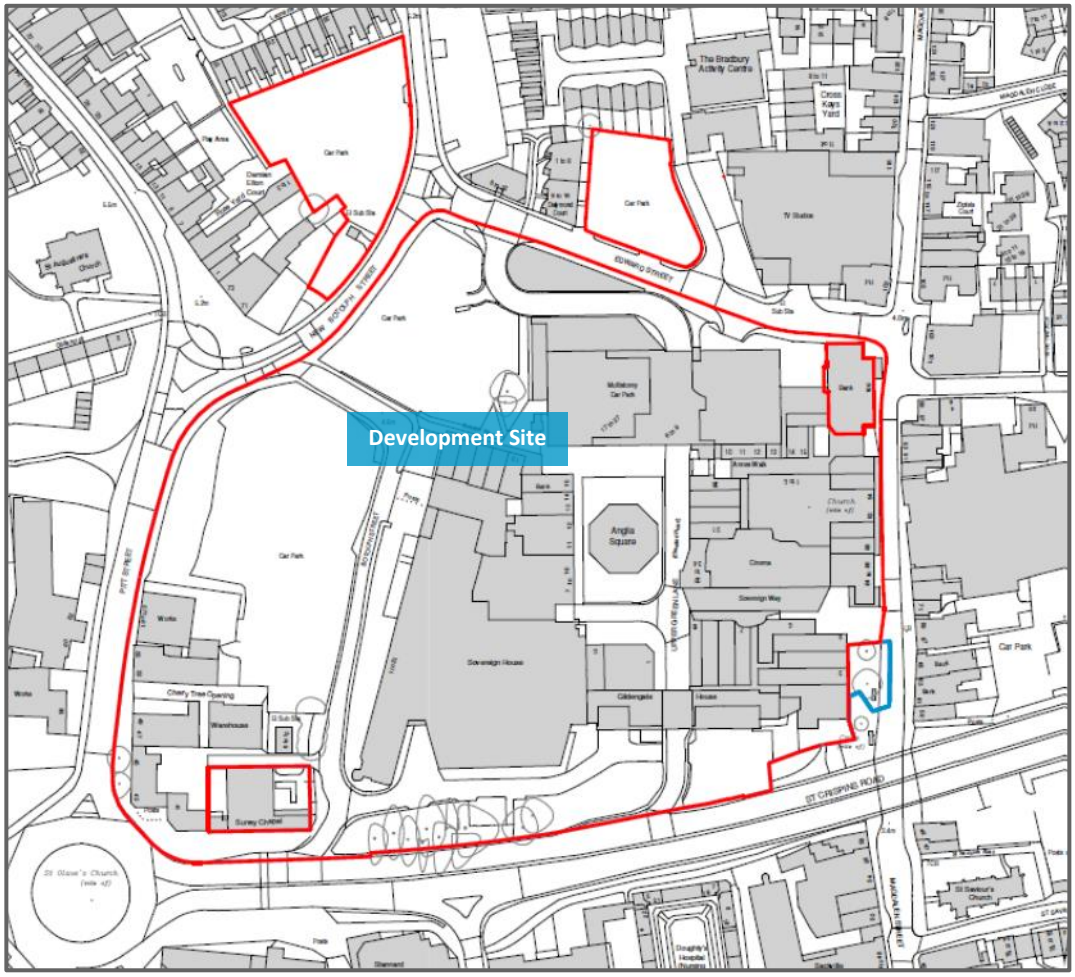
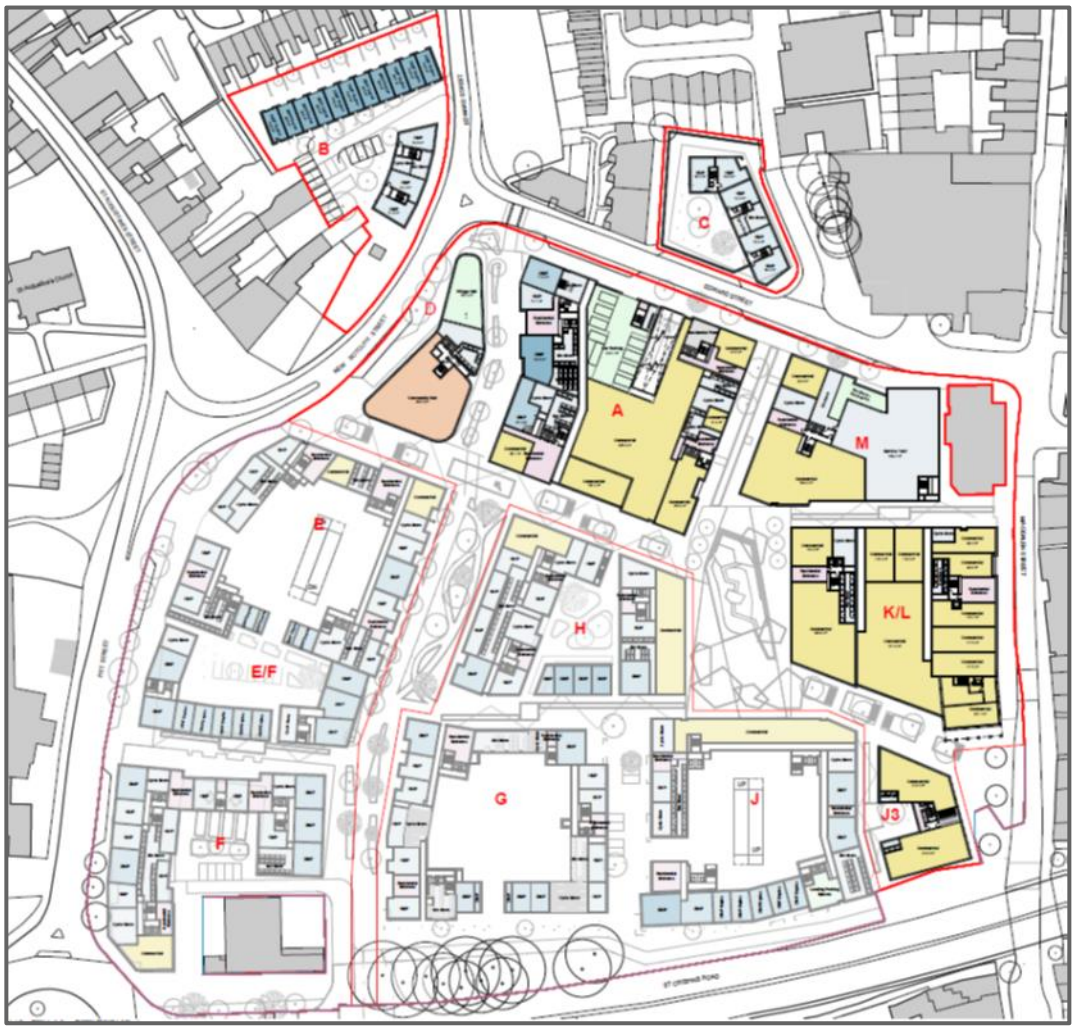


Figure 2: Block names and ground level land uses across the Proposed Development



Note: those blocks shown in a lighter shade are not part of the full application phases of the development, but rather the outline application, which does nevertheless fix building layout. Those buildings shaded in blue will be used for residential use, but note that Building M ground floor is not habitable residential accommodation.

1.2 Assessment Criteria

A summary of the air quality objectives, identifying the type of mean values used to assess the pollutant concentration, relevant to the Proposed Development, as set out in the UK Air Quality Strategy[3], is presented in **Table 1** below.

Table 1: UK Air Quality Objectives for NO_2 and PM_{10}

Pollutant	Concentration	Measured as
Nitrogen Dioxide (NO_2)	40 µg/m^3	**Annual mean**
	200 µg/m^3	**Hourly mean** not to be exceeded more than 18 times per year (99.8th percentile)

[3] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007), Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland

Particulate Matter (PM_{10})	40 µg/m^3	**Annual mean**
	50 µg/m^3	**24 hour mean** not to be exceeded more than 35 times a year (90.4th percentile)

The oxides of nitrogen (NO_X) comprise principally of nitric oxide (NO) and nitrogen dioxide (NO_2). NO_2 is a reddish brown gas (at sufficiently high concentrations) and occurs as a result of the oxidation of NO, which in turn originates from the combination of atmospheric nitrogen and oxygen during combustion processes. NO_2 can also form in the atmosphere due to a chemical reaction between NO and ozone (O_3). Health based standards for NO_X generally relate to NO_2, where acute and long-term exposure may adversely affect the respiratory system.

Particulate matter, (PM), is a term used to describe all suspended solid matter, sometimes referred to as Total Suspended Particulate matter (TSP). Sources of particles in the air include road transport, power stations, quarrying, mining and agriculture. Chemical processes in the atmosphere can also lead to the formation of particles. Particulate matter with an aerodynamic diameter of less than 10 µm is the subject of health concerns because of its ability to penetrate deep within the lungs and is known in its abbreviated form as PM_{10}.

A growing body of research has also pointed towards the smaller particles as a metric more closely associated with adverse health impacts, in particular, particulate matter with an aerodynamic diameter of less than 2.5 micrometres, known as $PM_{2.5}$. Local Authorities in England have a flexible role[4] in working towards reducing emissions and concentrations of $PM_{2.5}$ as there is no specific objective for them, since the pollutant is often transboundary in nature and therefore beyond a Local Authority's control. However, there is a UK (excluding Scotland) annual mean objective of 25 µg/m^3. In addition, there is a World Health Organisation recommended guideline annual average level of 10µg/m^3 and the government is currently considering whether this is appropriate and how it could be met[5]. The UK's Committee on the Medical Effects of Air Pollutants (COMEAP) has agreed that reducing concentrations below the World Health Organization's Air Quality Guideline (10 µg/m^3) would benefit public health and therefore it is expected that this will be incorporated as a UK standard at some point.

Further information on the health effects of air pollution can be found in the reports produced by COMEAP[6].

As defined by the regulations, the air quality objectives for the protection of human health are applicable:

- Outside of buildings or other natural or man-made structures above or below ground
- Where members of the public are regularly present.

Using these definitions, the **annual mean** objectives will apply at locations where members of the public might be regularly exposed, such as building façades of residential properties, schools and hospitals and will not apply at the building façades of offices or other places of work, where members of the public do not have regular

[4] LAQM TG16 – paragraph 1.09
[5] https://www.who.int/publications/i/item/9789240034228 It is worth noting that the 2021 WHO air quality guidelines now recommend an annual average $PM_{2.5}$ concentration of 5µg/m^3. However, this has not been considered by the UK government at the current time.
[6] https://www.gov.uk/government/collections/comeap-reports

access. The **24 hour objective** will apply at all locations where the annual mean objective would apply. Therefore, in this assessment, different objectives will apply at different locations on different floor levels around the Proposed Development. Please see **Figure 2** for scheme block labelling and ground level land uses.

Ground floor residential accommodation will be provided in Blocks A, B, C, E, E/F, F, G, H, & J and therefore the annual mean and 24 hour mean objectives will apply at these locations

On the first floor and above, the annual mean and 24 hour mean objectives will also apply at blocks D, J3, K/L and M.

The hourly objective will apply at all locations where members of the public could reasonably be expected to spend that amount of time. Therefore, in this assessment the hourly objective will apply at all levels and across the Proposed Development site.

1.3 Local Air Quality Management

Local authorities are required to periodically review and assess the current and future quality of air in their areas. Where it is determined that an air quality objective is not likely to be met, the authority must designate an Air Quality Management Area (AQMA) and produce an Air Quality Action Plan (AQAP).

Norwich City Council (NCC) has declared one AQMA[7] covering the centre of the city, broadly covering an area within the inner link road. This AQMA was declared in 2012 due to exceedances of the annual mean NO_2 objective. The latest AQAP[8] was published in 2021. The Proposed Development site is located within this AQMA.

The Council have developed mitigation actions that can be considered under ten broad topics:

- Introduction of Low Emission Zone
- Reducing vehicle idling through engine switch-off legislation
- Promoting low emission transport
- Promoting travel alternatives
- Alternatives to private vehicle use
- Transport planning and infrastructure
- Freight and delivery management
- Traffic management
- Policy guidance and development control
- Public information
- Vehicle fleet efficiency
- Environmental permits

The main priorities are to reduce emissions from public transport (Buses, Private Hire Vehicles and Taxis) and promote alternative modes of travel. To achieve this, Norwich City Council in conjunction with Norfolk County Council are proposing the following measures to be carried out over the next 5 years:

- Expansion of the Low Emission Zone (LEZ)

[7] https://www.norwich.gov.uk/info/20212/pollution/1491/air_pollution
[8] https://www.norwich.gov.uk/download/downloads/id/7493/2021_air_quality_action_plan.pdf

- Restricting traffic in the LEZ to a much tougher Euro emission standard by end of 2023 following discussions with transport operators
- Extending engine switch off powers to accommodate extended LEZ
- Promote low emission public transport through the use of external grant schemes and private investment
- Reviewing traffic light junctions to reduce congestion and improve traffic flow – this could include updating traffic lights to smarter technology
- Make road junctions safer and easier for cycles & pedestrians
- Expand the cycle networks (Pedalways) and create safe more connected corridors for pedestrians and cyclists
- Build upon School Travel Plans and introduce School Streets. Encourage schools to participate in air quality initiatives such as Clean Air Day
- Introduce Mobility Hubs at key transport interchanges
- Engage the public through a behaviour change programme, including the use of social media, to be more aware of taking personal responsibility for reducing air pollution, such as engine switch off, walking/cycling/car share/car club, using an open fire responsibly.

2 Methodology

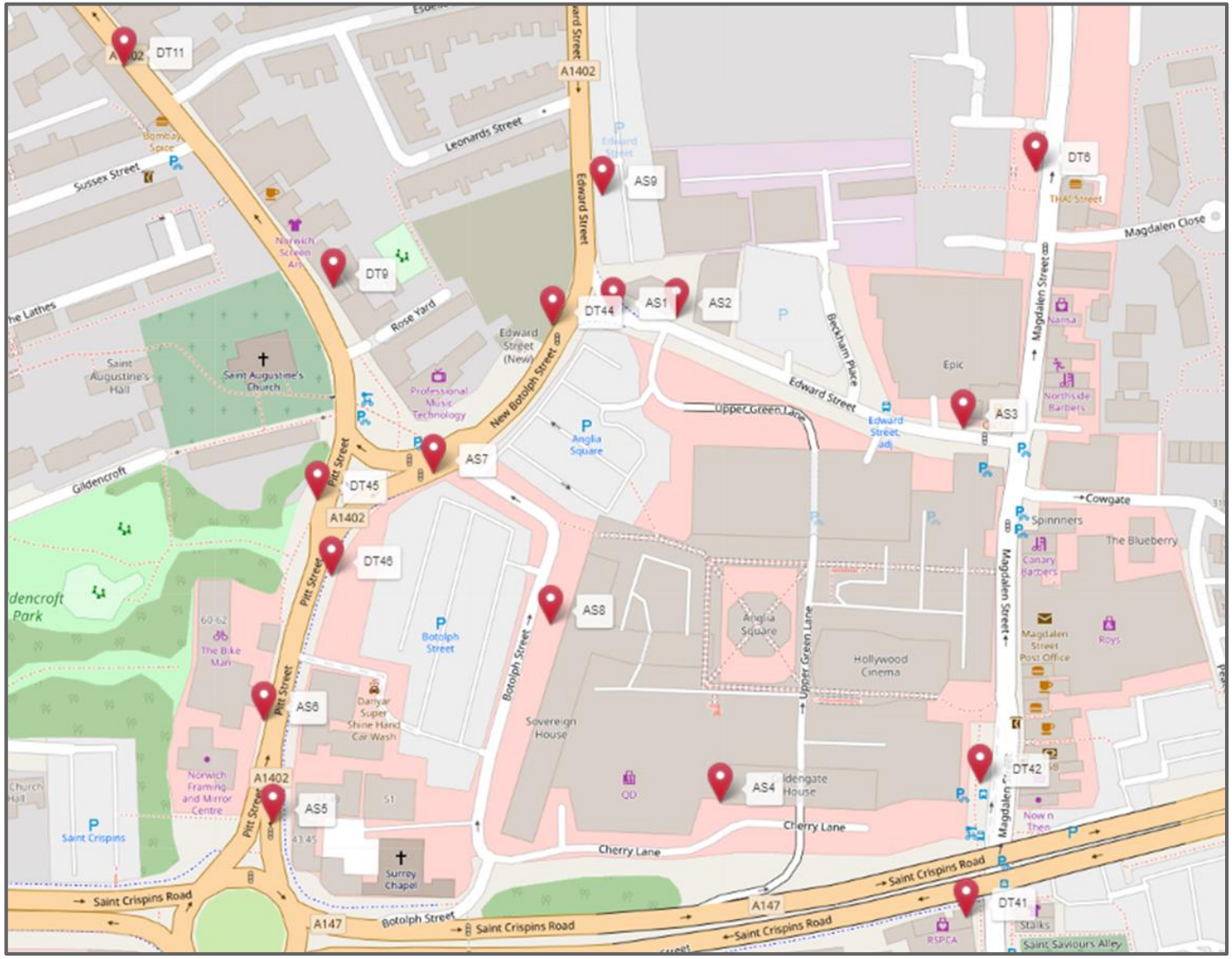
2.1 Local Pollutant Concentrations

It is good practice to include up-to-date local background pollutant concentrations in the assessment model, and also to verify modelled outputs against local monitoring data where available. This section provides an overview of the local data available for use in the assessment.

2.1.1 Local monitoring data

Norwich City Council has two automatic monitoring sites which measure nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$); however neither of these are located within close proximity of the Site and are therefore not discussed further for NO_2 as they are unlikely to be representative. The results are however presented for PM as this provides the only source of information in Norwich and therefore provides indicative levels for the whole city area. NO_2 concentrations are also measured passively at diffusion tube sites across the Borough. Details of those in the roads surrounding the Site are provided in **Table 2.** In addition, the Applicant has instigated via Aether a diffusion tube monitoring survey which is being undertaken at nine locations across the Site, agreed with NCC, from November 2021 to April 2022 inclusive, and details of these are provided in **Table 3**. It is worth noting that the on-Site survey results are provided as indicative only, as it is understood that due to the Covid-19 pandemic, air pollutant concentrations may currently be artificially low and therefore not representative of future years. The location of the monitoring sites listed in **Tables 2 and 3** are provided in **Figure 3**.

Figure 2: The location of the Diffusion Tube (DT) monitoring sites.



Note: NCCs long term diffusion tube locations are prefaced with "DT" and those that are part of the Applicant's short-term survey are prefaced with "AS". Map source: Open Street Map

Table 2: NCC's diffusion tube sites around Anglia Square

Site Name	Site Type	Grid Reference	Distance to Kerb (m)
CM1 (Castle Meadow) *	K	623202,308615	1.0
CM2 (Lakenfields) *	UB	623637,306940	N/A
DT 6: 130 Magdalen St	R	623161,309550	4.0
DT 9: 13 St Augustines St	K	622906,309496	1.5
DT 11: 52 St Augustines St	K	622826,309573	1.0
DT16: Zipfel House	R	623186,309650	3.0
DT 41: Magdalen Street (RSPCA)	R	623148,309277	3.5
DT 42: Magdalen St (bus stop)	R	623151,309326	2.5
DT 44: Botolph Street / Edward St jcn	R	622987,309486	2.0
DT 45: Pitt Street W	R	622904,309418	2.2
DT 46: Pitt Street E	R	622910,309391	2.1

*Note: R = roadside, K = kerbside, UB = urban background. *= automatic monitor, N/A = not applicable*

Table 3: The Applicant's Short term diffusion tube sites around Anglia Square

Site Name	Site Type	Grid Reference	Distance to Kerb (m)
AS1: South side of Edward Street	R	623009,309490	1.6
AS2: Dalymond Court, Edward Street	R	623032,309491	1.9
AS3: Epic Studios, Edward Street	R	623139,309455	4.4
AS4: St Crispins Road (Cherry Lane)	UB	623056,309315	N/A
AS5: St Crispins / Pitt Street	R	622893,309300	6
AS6: South end of Pitt Street	R	622888,309337	1
AS7: New Botolph Street	R	622946,309430	3
AS8: St George's Street	UB	622991,309377	N/A
AS9: Edward Street - north of AS	R	623003,309534	2.5

Note: R = roadside, UB = urban background

Both sets of diffusion tubes have been supplied and analysed by Gradko International Ltd using the 50% TEA in acetone method. Grakdo participate in the Proficiency scheme[9]. Whilst diffusion tubes provide an indicative estimate of pollutant concentrations, they tend to under or over read. The data is therefore corrected using a bias adjustment factor. There are two types of bias adjustment factor – local and national. The local factor is derived from co-locating diffusion tubes (usually in triplicate) with automatic monitors, whereas the national factor is obtained from the average bias from all local authorities using the same laboratory. NCC has applied a local bias adjustment factor (0.88) to their 2020 diffusion tube results. In 2019 (the base year used in the assessment) the Council used a national adjustment factor (0.89). The short-term diffusion tube survey results have not been bias corrected and are therefore likely to be an over-estimate of actual concentrations during the monitoring period, which is

[9] This is a national QA/QC scheme.

therefore a robust approach. Whilst three diffusion tubes each month have been placed at the Council's automatic monitoring site in Lakenfields and to date (covering the results for Nov, Dec and Jan) a bias adjustment factor of 0.74 has been calculated, it was decided that as this was a relatively short period of time, as a robust, worst case approach a bias adjustment factor would not be applied.

Results have been taken from the Council's latest Annual Status Report (ASR)[10] and supplemented with more recent data for 2021 that is yet to be published. The methodology for the Anglia Square diffusion tube survey is provided in the Monitoring Survey Report.

Monitoring results are presented in **Tables 4, 5 and 6**. The data shows that the annual mean NO_2 objective was exceeded at the DT11 (52 St Augustines St) monitoring location in 2019 and 2021, with the result being very close in 2020. In addition, the DT9 (13 St Augustines St recorded an exceedance in 2019 and a value close to the objective in 2021. However, at the other sites, the objective was met in all years shown.

The Anglia Square monitoring survey results have so far only recorded values over 40µg/m^3 at the AS5 (St Crispins / Pitt Street) site, with many of the sites recording values substantially below the objective.

Diffusion tubes do not provide information on hourly exceedances, but research[11] identified a relationship between the annual and 1 hour mean objective, such that exceedances of the latter were considered unlikely where the annual mean was below 60 µg/m^3. Therefore, no exceedances of the 1 hour mean objective are expected.

Table 4: Monitoring results for NCC tubes, 2019 - 2021

Objective	Site Name	2019	2020	2021*
Annual mean NO_2 (µg/m^3)	DT6 130 Magdalen St	29.8	21.7	26.3
	DT9 13 St Augustines St	**40.1**	33.0	39.5
	DT11 52 St Augustines St	**46.0**	39.4	**48.4**
	DT16 Zipfel House	36.1	30.5	N/A
	DT 41: Magdalen Street (RSPCA)	34.2	27.4	35.4
	DT 42: Magdalen St (bus stop)	33.0	21.4	33.0
	DT 44: Botolph Street / Edward St jcn	N/A	22.5	25.7
	DT 45: Pitt Street W	N/A	25.4	27.3
	DT 46: Pitt Street E	N/A	25.4	28.8

*Note: Values exceeding the 40 µg/m^3 annual mean objective are shown in bold. *2021 data has not been bias corrected and is therefore likely to be an over-estimate. N/A= not available*

[10]https://www.norwich.gov.uk/downloads/download/1917/air_quality_monitoring_reports_and_assessments

[11] As described in Box 5.2 of LAQM Technical Guidance (TG16).

Table 5: Monitoring results from the Anglia Square survey (Nov 2021 to April 2022 inclusive)

Objective	Site Name	Nov	Dec	Jan	Feb	Mar	Apr
Annual mean NO_2 ($\mu g/m^3$)	AS1: South side of Edward St	28.7	28.9	33.2	19.6		
	AS2: Dalymond Court	28.6	24.3	27.1	19.3		
	AS3: Epic Studios, Edward St	32.9	31.7	32.0	26.0		
	AS4: St Crispins Road (Cherry Ln)	23.4	21.1	22.4	17.4		
	AS5: St Crispins / Pitt St	**42.3**	38.3	**45.0**	33.8		
	AS6: South end of Pitt St	35.6	32.1	37.8	31.6		
	AS7: New Botolph St	32.9	28.0	35.5	22.6		
	AS8: St George's St	27.5	26.2	27.4	17.4		
	AS9: Edward Street - north of Anglia Square	33.3	28.8	37.7	23.5		

Note: Values exceeding the 40 $\mu g/m^3$ annual mean objective are shown in bold. All data has not been bias corrected and is therefore likely to be an over-estimate.

Table 6: PM Monitoring results for NCC (2019 to 2020)

Objective	Site Name	2019	2020	2021
Annual mean PM_{10} ($\mu g/m^3$)	CM1 (Castle Meadow) *	19	19	19
	CM2 (Lakenfields) *	14	13	N/A
Number of PM_{10} daily means >50 $\mu g/m^3$	CM1 (Castle Meadow) *	5	0	0
	CM2 (Lakenfields) *	4	0	N/A
Annual mean $PM_{2.5}$ ($\mu g/m^3$)	CM1 (Castle Meadow) *	10	10	9
	CM2 (Lakenfields) *	10	8	N/A

The PM_{10} monitoring shows that even at the busy Castle Meadows site, which is effectively a bus interchange / terminus, concentrations were substantially below the objectives. In addition, $PM_{2.5}$ concentrations met the WHO annual mean standard of 10 $\mu g/m^3$ at both automatic monitoring locations.

NCC's Annual Status Report[10] provides information to show that there were very significant decreases in NO_2 levels at the Castle Meadow site due to the Covid lockdown but that there was an insignificant impact on particulate matter levels. The report also provides information to show that in Norwich $PM_{2.5}$ is primarily a transboundary pollutant and that the Lakenfields site, which is outside the urban area, is just as likely to have elevated levels of $PM_{2.5}$ as the urban kerbside site, thus indicating traffic pollution is not the primary source of $PM_{2.5}$.

2.1.2 Background mapped data

Background pollutant concentration maps are available from the Defra LAQM website[12] and data has been extracted for the local vicinity of the Proposed Development for this assessment. These 2018 baseline, 1 kilometre grid resolution maps are derived from a complex modelling exercise that takes into account emissions inventories and measurements of ambient air pollution from both automated and non-automated sites. The projections in the 2018 LAQM background maps are based on assumptions which were current before the Covid-19 outbreak in the UK. In consequence these maps do not reflect short or longer term impacts on emissions in 2020 and beyond, resulting from behavioural change during the national or local lockdowns.

The estimated mapped background NO_x, NO_2 and PM_{10} concentrations around the Site are 23.2 µg/m³, 16.6 µg/m³ and 16.2 µg/m³ respectively in 2019. For 2030 (the latest year for which projected mapped background concentrations are available), the concentrations obtained for the same pollutants are 17.0 µg/m³, 12.5 µg/m³ and 14.9 µg/m³ respectively.

Due to the lack of a nearby urban background monitoring site, the 2019 mapped background concentrations have been used for the 'with no policy applied' scenarios in this assessment. This provides a worst-case scenario as it does not take into account predicted improvements to the road traffic fleet which should reduce background pollutant concentrations. These predicted improvements that reduce background concentrations have been factored in for the 'with policy applied' scenarios by using the 2030 projected values. This could potentially be an over-estimate as pollutant concentrations would be expected to decrease further for 2034, the year modelled as the previously expected first full year of occupation.

2.2 Traffic data

Information on traffic flows both 'without Proposed Development' and 'with Proposed Development' is provided in the Transport Assessment. The values are shown in Appendix B. These demonstrate that the Proposed Development does not increase traffic flows on roads surrounding the Site. However, general anticipated increases in traffic between 2019 and 2034 are taken into account in the assessment.

Average speeds for the major roads have been supplied in the Transport Assessment. In the absence of any other data being available, average speeds on local minor roads have been assumed based on the speed limit.

2.2.1 Queuing Traffic

Special consideration has been given to junctions modelled in this assessment. Junctions on the following roads qualified for traffic queue modelling as based on expert judgment: Edward Street Magdalen Street, St Augustines Street and on the intersection between Magpie Road and Bull Close Road. CERC Note 60[13] has been used for estimating emissions from queuing traffic. This defines a representative AADT for queuing traffic to be 30,000 at 5 kph, assuming an average vehicle length of 4 m. These figures, along with the traffic composition of the corresponding roads were inputted into the Emission

[12] http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html
[13] Cambridge Environmental Research Consultants Ltd, Modelling Queuing Traffic – Note 60, 20th August 2004

Factor Toolkit (EFT)[14] to calculate emission rates. The emission rates were used within the dispersion model as separate road sources of pre-defined length, representing each queue with time-varying emission profiles applied to represent busy periods.

2.2.2 Emission rates

The latest version of Defra's Emission Factor Toolkit (EFT) (Version 11, published in November 2021) has been used to derive vehicle emission rates. The toolkit provides emission rates for 2018 through to 2050 for England. The EFT takes into consideration the following information from the National Atmospheric Emissions Inventory:

- Fleet composition data for motorway, urban and rural roads in the UK
- Fleet composition based on European Emission standards from pre Euro I to Euro6 / VI
- Scaling factors reflecting improvements in the quality of fuel and some degree of retrofitting; and
- Technology conversions in the national fleet.

The EFT guidance document[15] states that *it is published by Defra and the Devolved Administrations to assist Local Authorities in carrying out Review and Assessment of local air quality as part of their duties under the 1995 Environment Act. It is of particular interest for use in the assessment of measures implemented as part of LAQM Air Quality Action Plans (AQAPs) and policy interventions on road traffic emissions, such as Clean Air Zones and other measures that form part of the UK national plan on compliance with Air Quality Standards*.

2.3 Model input data

Hourly meteorological data from Norwich for 2019 has been used in the model. The wind-rose diagram, (**Figure 4**), presents this below.

[14] Latest version 9.0, http://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html
[15] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/

Figure 4: Wind-rose diagram for Norwich meteorological data, 2019

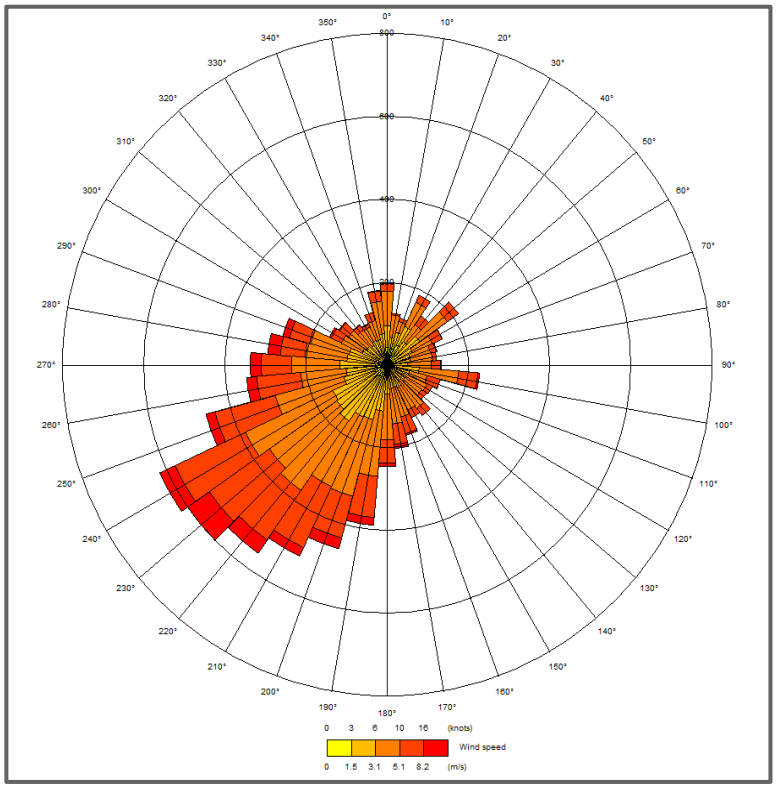
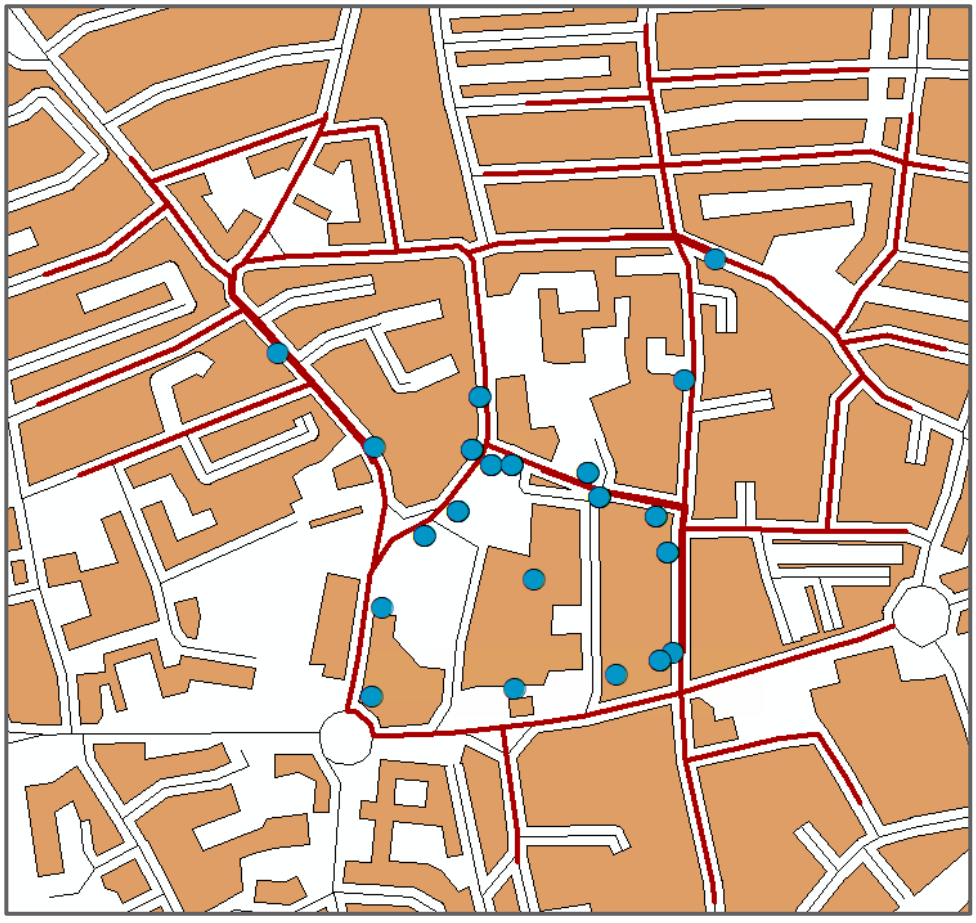


Figure 5: Road sources and receptors



Contains Ordnance Survey data © Crown copyright and database right [2022]

ArcMap software has been used to model the road source locations (red lines) that are within 200 metres of the receptor locations (blue circles). This data can then be automatically uploaded to ADMS-Roads. This generates an accurate representation of the surrounding area to be assessed in the model in terms of the length of roads and distances between sources and receptors. This is shown in **Figure 5** above. It is assumed that the contribution of other sources to NO_2 and PM_{10} is included in the background concentrations.

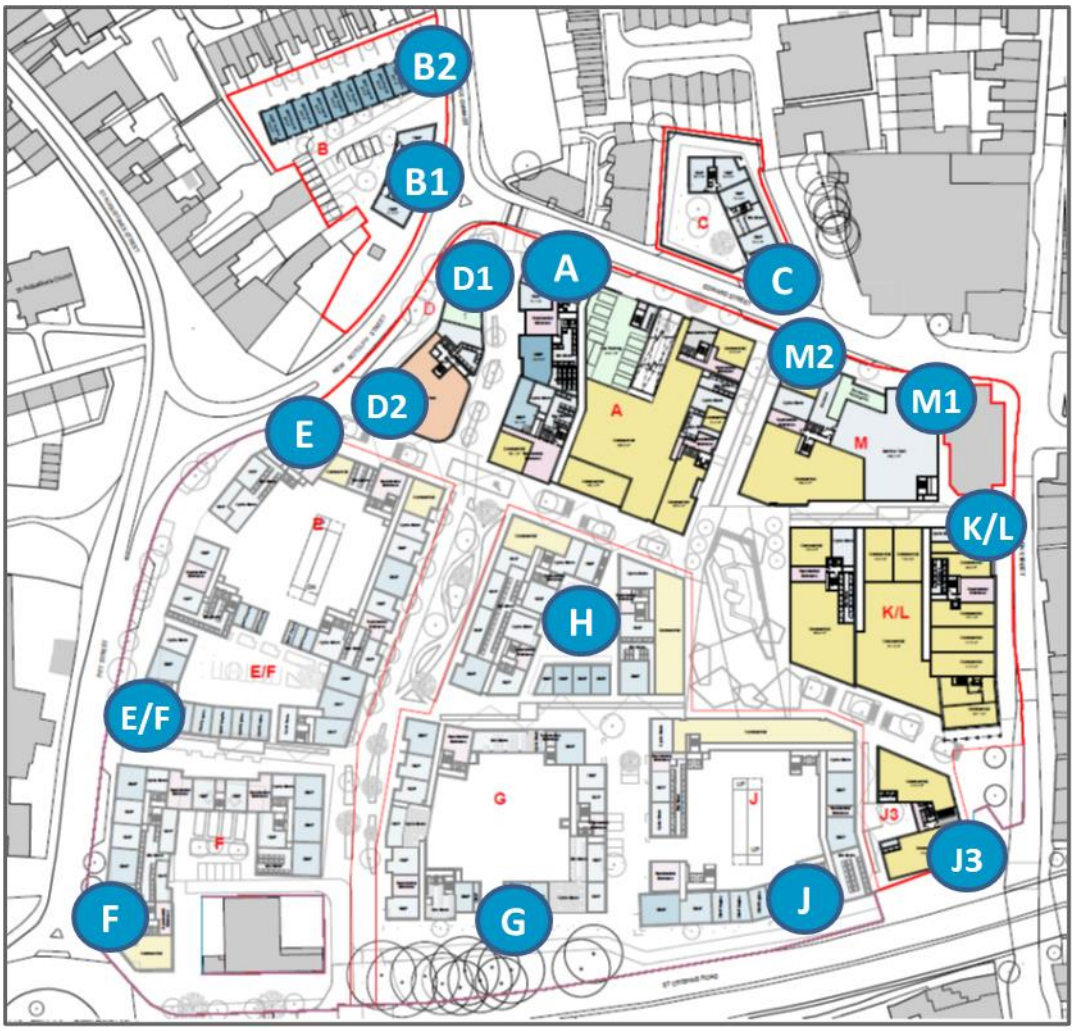
Sixteen sensitive receptor locations have been selected for the assessment:

- A:northwest corner of block A
- B1: east façade of block B
- B2: northeast corner of block B
- C: south façade of block C
- D1: north façade of block D
- D2: southwest corner of block D
- E: northwest corner of block E
- E/F: western façade of block E/F
- F: southwest corner of block F
- G: southern façade of block G
- H: centre of block H, representing the drop off in concentrations with distance from the road
- J: southern façade of block J
- J3: southeast corner of block J3, located closest to Magdalen Street at the St Crispins Road flyover
- K/L: northeast corner of block K/L
- M1:northeast corner of block M
- M2: northwest corner of block M

These receptor sites have been chosen to reflect the façades of buildings within the Proposed Development and their proximity to road traffic sources. The layout plan (**Figure 6**) shows the Proposed Development in more detail with receptor locations highlighted (blue circles). An assessment is made for the receptors at varying heights to assess likely concentrations across floor levels. It has been assumed that background concentrations remain constant at all heights of the Proposed Development based on the 2017 City Air Quality at Height report[16]. Exposure has been assumed to be represented at the mid-point of each floor. The heights of the floors have been taken from architectural drawings provided.

[16] http://www.wsp-pb.com/PageFilesn/80156/WSPPB%20City%20Air%20Quality%20at%20Height.pdf

Figure 6: The location of the receptors around the Proposed Development used in the modelling



Note: those locations shaded in dark and light blue are proposed for residential use, but this does not include the light grey area in Block M, which is a service yard

2.4 Conversion of NO_X to NO_2

Evidence shows that the proportion of primary NO_2 in vehicle exhaust has increased[17]. This means that the relationship between NO_X and NO_2 at the roadside has changed from that currently used in the ADMS model. A NO_X to NO_2 calculator (Published in August 2020)[18] has therefore been developed and has been used in conjunction with the ADMS model to obtain a more accurate picture of NO_2 concentrations.

2.5 Model Verification

Model verification refers to checks that are carried out on model performance at a local level. This involves the comparison of predicted versus measured concentrations. Where there is a disparity, the first step is to check the input data and the model parameters in

[17] http://uk-air.defra.gov.uk/assets/documents/reports/aqeg/primary-no-trends.pdf
[18] https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOXNO2calc

order to minimise the errors. If required, the second step will be to determine an appropriate adjustment factor that can be applied.

In the case of NO_2, the model should be verified for NO_X as the initial step and should be carried out separately for the background contribution and the source (i.e. road traffic)[19]. Once the NO_X has been verified and adjusted as necessary, a final check should be made against the measured NO_2 concentration.

For this project, modelled annual mean road-NO_X estimates in 2019 have been verified against the concentrations measured at the three most appropriate local diffusion tube sites: DT9, DT16 and DT42. For further detail on the methodology see **Appendix A**.

The adjustment factor determined for annual mean NO_X concentrations was also applied to the modelled annual mean PM_{10} concentrations. This was done as no PM_{10} monitoring data that is representative of the Site is available from NCC, and this approach was considered more appropriate than not applying any adjustment[20].

[19] In accordance with Box 7.16, page 7-132 of LAQM TG16
[20] Paragraph 7.529 of LAQM TG(16)

3 Results

3.1 Results of the Dispersion Modelling

Table 7 below provides the estimated annual mean NO_2 concentrations in:

- The base year (2019)
- The development year plus three, (2034), in a "with no policy applied" and a "with policy applied" scenario[21].

Table 8 provides the estimated annual mean PM_{10} concentrations for the same respective scenarios.

[21] For this assessment, as traffic levels are not predicted to increase as a result of the development, so the "without" and "with" development scenario will be the same.

Table 7: Estimated NO_2 concentrations ($\mu g/m^3$)

Annual mean NO_2 concentration ($\mu g/m^3$)					
Floor level	**Receptor**	**2019 Baseline**	**2034 Without Policy Applied**	**2034 With Policy Applied**	**Difference in 2034 without and with Policy Applied**
Ground	A	26.5	27.1	17.1	10.0
	B1	25.8	26.8	16.3	10.6
	B2	26.1	27.2	16.3	11.0
	C	**52.5**	**52.8**	34.6	18.3
	D1	25.9	26.8	16.5	10.3
	D2	24.1	24.8	15.5	9.3
	E	24.5	25.5	15.6	10.0
	E/F	24.7	26.0	15.6	10.5
	F	24.7	26.1	15.5	10.6
	G	21.6	22.2	14.5	7.8
	H	21.3	21.5	14.8	6.7
	J	22.0	22.5	14.9	7.6
	J3	25.2	25.7	16.8	8.9
	K/L	39.7	**40.0**	26.0	14.0
	M1	**46.3**	**46.6**	30.5	16.1
	M2	**56.2**	**56.4**	37.2	19.2
First	A	23.0	23.2	15.5	7.7
	B1	22.5	23.0	15.1	8.0
	B2	22.2	22.6	14.9	7.7
	C	30.5	30.7	20.6	10.1
	D1	22.6	23.0	15.2	7.8
	D2	21.7	22.1	14.7	7.4
	E	21.5	22.0	14.5	7.5
	E/F	20.8	21.4	14.2	7.2
	F	20.3	20.9	14.0	6.9
	G	20.3	20.8	14.0	6.7
	H	20.7	20.9	14.5	6.4
	J	21.5	21.9	14.6	7.2
	J3	22.9	23.3	15.5	7.8
	K/L	26.4	26.6	18.0	8.6
	M1	22.6	22.8	15.8	7.0
	M2	27.4	27.4	18.6	8.8
Second	A	20.4	20.5	14.3	6.2
	B1	20.5	20.8	14.3	6.5
	B2	20.3	20.5	14.2	6.3
	C	21.4	21.5	15.0	6.5
	D1	20.3	20.5	14.2	6.3

	D2	20.0	20.2	14.0	6.2
	E	19.7	20.0	13.8	6.1
	E/F	19.0	19.2	13.5	5.7
	F	18.4	18.6	13.3	5.3
	G	19.2	19.4	13.6	5.8
	H	19.9	20.0	14.1	6.0
	J	20.2	20.5	14.1	6.4
	J3	20.6	20.9	14.4	6.6
	K/L	20.6	20.7	14.6	6.1
	M1	21.4	21.5	15.1	6.5
	M2	20.8	20.8	14.6	6.2
Third	A	18.9	19.0	13.6	5.4
	B1	19.3	19.4	13.8	5.7
	C	19.1	19.1	13.7	5.5
	D1	19.0	19.1	13.6	5.5
	D2	18.8	19.0	13.5	5.4
	K/L	18.5	18.6	13.4	5.2
	M2	18.8	18.9	13.6	5.3
Fourth	A	18.1	18.2	13.2	5.0
	D2	18.1	18.2	13.2	5.0
	M2	18.0	18.0	13.1	4.9
Firth	A	17.6	17.6	13.0	4.6
	D2	17.6	17.7	13.0	4.7

Note 1: Exceedances of the annual mean objective are highlighted.

Table 8: Estimated PM_{10} concentrations ($\mu g/m^3$)

Annual mean PM_{10} concentration ($\mu g/m^3$)					
Floor level	**Receptor**	**2019 Baseline**	**2034 Without Policy Applied**	**2034 With Policy Applied**	**Difference in 2034 without and with Policy Applied**
Ground	A	17.2	17.5	17.2	0.4
	B1	17.4	17.9	17.5	0.4
	B2	17.5	18.2	17.7	0.5
	C	18.3	18.6	18.1	0.5
	D1	17.3	17.8	17.4	0.4
	D2	17.2	17.5	17.2	0.3
	E	17.4	17.7	17.4	0.3
	E/F	17.5	17.8	17.6	0.2
	F	17.5	17.8	17.6	0.2
	G	17.0	17.2	17.1	0.2
	H	16.6	16.8	16.6	0.2
	J	16.9	17.1	16.9	0.2
	J3	17.0	17.2	17.0	0.2

	K/L	17.5	17.7	17.4	0.3
	M1	17.8	18.1	17.7	0.4
	M2	18.4	18.6	18.2	0.5
First	A	16.8	17.1	16.8	0.3
	B1	16.9	17.3	16.9	0.3
	B2	16.9	17.4	16.9	0.5
	C	17.0	17.3	17.0	0.3
	D1	16.9	17.2	16.9	0.3
	D2	16.8	17.1	16.8	0.2
	E	16.8	17.1	16.9	0.2
	E/F	16.8	17.0	16.9	0.2
	F	16.8	16.9	16.8	0.1
	G	16.8	16.9	16.8	0.1
	H	16.6	16.7	16.6	0.2
	J	16.8	17.0	16.9	0.1
	J3	16.9	17.1	16.9	0.2
	K/L	16.8	17.0	16.8	0.2
	M1	16.6	16.8	16.6	0.2
	M2	16.9	17.1	16.8	0.2
Second	A	16.6	16.8	16.6	0.2
	B1	16.6	16.9	16.6	0.3
	B2	16.6	17.0	16.6	0.4
	C	16.6	16.8	16.6	0.2
	D1	16.6	16.8	16.6	0.2
	D2	16.6	16.8	16.6	0.2
	E	16.6	16.8	16.6	0.2
	E/F	16.5	16.7	16.5	0.1
	F	16.4	16.5	16.4	0.1
	G	16.5	16.7	16.6	0.1
	H	16.5	16.7	16.5	0.1
	J	16.6	16.8	16.7	0.1
	J3	16.7	16.8	16.7	0.1
	K/L	16.5	16.6	16.5	0.1
	M1	16.6	16.7	16.5	0.2
	M2	16.5	16.7	16.5	0.2
Third	A	16.4	16.6	16.4	0.2
	B1	16.5	16.7	16.5	0.2
	C	16.4	16.6	16.4	0.2
	D1	16.4	16.6	16.4	0.2
	D2	16.4	16.6	16.4	0.2
	K/L	16.4	16.5	16.4	0.1

	M2	16.4	16.6	16.4	0.1
Fourth	A	16.3	16.5	16.4	0.2
	D2	16.3	16.5	16.4	0.1
	M2	16.3	16.5	16.3	0.1
Firth	A	16.3	16.4	16.3	0.1
	D2	16.3	16.4	16.3	0.1
	M2	16.3	16.4	16.3	0.1

3.1.1 Without Policy Applied scenarios

In the scenarios modelled without the predicted impact of UK air quality and climate change policy, the model predicts annual mean NO_2 concentrations to be below the annual mean NO_2 objective at all modelled receptor locations on the first floor and higher floors. At ground floor level, NO_2 concentrations are estimated to exceed the annual mean NO_2 objective at modelled locations towards the east of the site at receptors K/L, M1, M2 and C. The ground floor receptor K/L is proposed for commercial use and therefore the annual mean NO_2 objective does not apply at this location. In addition, where receptors M1 and M2 will be located will be a commercial unit with a service yard, and bin / cycle store respectively, and therefore the annual mean objective will also not apply at this location. Receptor C will however be used for residential use and therefore the annual mean objective will apply at this location.

Research[22] suggests that the 1-hour mean NO_2 objective is likely to be exceeded where annual NO_2 concentrations exceed 60 µg/m^3. At all receptors, modelled concentrations are below 60 µg/m^3 and therefore exceedance of the hourly objective is not an issue.

With regards to PM_{10}, concentrations at all receptors on all floors were modelled to be below the annual mean objective. Indicative results also show that there are no estimated exceedances of the daily mean PM_{10} objective.

3.1.2 With Policy Applied scenarios

This assessment has also considered the UK's commitment to improving air quality as a result of improving transport fleet emission factors through the promotion of electric vehicles (EVs) (primarily driven by climate change concerns and the commitment for all new cars and vans to be effectively zero emission by 2040[23]) and the increasingly stringent Euro standards that vehicles need to meet. The predicted improvements to air quality have been incorporated into the model through improvements to the fleet emission factors (projected in the latest version of Defra's EFT) and background concentrations (projected in Defra's background concentration maps). It is worth noting that these are potentially under estimates of improvements as projections are only available up to 2030, and improvements are expected to continue post this year.

[22] As described in Box 5.2 of LAQM Technical Guidance (TG16).
[23] Set out in 'The Road to Zero', Department for Transport, published July 2018, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/739460/road-to-zero.pdf

In the scenarios modelled with the predicted impact of UK air quality and climate change policy, the model predicts annual mean NO_2 concentrations to be below the annual mean NO_2 objective at all modelled receptor locations including ground floor.

The 'With Policy Applied' scenario results indicate that annual mean NO_2 concentrations would be substantially lower compared to the 'Without Policy Applied' scenario.

It is worth noting that the ADMS results using 2019 as the base year are substantially higher than the 2021 – 2022 short term diffusion tube survey results, giving confidence that air quality will not an issue across the Site.

There are no concerns related to PM_{10} concentrations in the 'With Policy Applied' scenario.

For estimating $PM_{2.5}$ concentrations, where no appropriate sites measuring both PM_{10} and $PM_{2.5}$ are available, then a nationally derived correction ratio of 0.7 can be used. If this factor is used, then all locations in the modelling meet the EU Directive annual mean $PM_{2.5}$ limit value of 25 µg/m^3 by a substantial amount. This is likely to be an over-estimate of the values, given the $PM_{2.5}$ concentrations recorded at the two continuous monitoring sites in Norwich.

3.2 Mitigation Measures

Based on the ADMS results for the 'With Policy Applied' scenario, no mitigation is required to reduce residents or employees' exposure to air pollution as the air quality strategy objectives are estimated to be met by at least 10% at relevant receptor locations. This scenario is the most likely outcome and was endorsed by the planning inspector in the previous Call in Scheme application (see Section 1, page 3).

As identified previously, the Proposed Development will not give rise to an increase in traffic levels and there will be no air pollutant emitting on-site energy generation. Therefore, the emissions arising from the Site are being minimised as much as possible.

4 Summary and Conclusions

An air quality assessment has been undertaken in support of a hybrid (part full /part outline) planning application, submitted to Norwich City Council for the comprehensive redevelopment of Anglia Square and various parcels of mostly open surrounding land (the Site). The Proposed Development comprises the redevelopment of the Site as it currently exists to provide up to 8,000 sq m Net Internal Area, flexible commercial and other non-residential floorspace and up to 1,100 new residential dwellings with up to 450 parking spaces, of which at least 95% would be for residents of the scheme. All parking spaces would have EV charging capability and there would be no gas boilers within the Proposed Development.

The Transport Assessment establishes that the Proposed Development will not result in any increase in traffic flows on the surrounding road network in 2034, which is 3 years after the first full year of occupation. Accordingly, for the purposes of the air quality assessment, it is not necessary to model "with development" or "without development" scenarios separately, and therefore only two future scenarios based on predicted traffic flows for 2034 have been modelled. The first ("without policy applied") uses a conservative approach with regards to expected improvements to air quality in that no improvement in the pollutant background concentrations or road transport emission factors has been assumed between the base year (2019) and the future year (2034). The second more likely future scenario ("with policy applied") utilises the projected improvements in pollutant background concentrations and road transport emission factors in 2034.

The ADMS-Roads dispersion model has been used to determine the impact of emissions from road traffic on sensitive receptors under two scenarios – without and with policy. Predicted concentrations have been compared with the air quality objectives. The results of the assessment indicate that annual mean nitrogen dioxide (NO_2) concentrations are above the objective in 2034 (in the "without policy applied" scenario) at Block C at ground floor level. However, in the "with policy applied" scenario, the annual mean objective is met by more than 10%, giving confidence that air quality will not be an issue across the Site. These results are also in accordance with the 2021 – 2022 short term diffusion tube survey results, which to date has not highlighted any concerns around block C.

Concentrations of particulate matter (PM_{10} and $PM_{2.5}$) are predicted to be below the annual and daily mean objectives. at all sensitive receptors, and therefore these results do not indicate any need for mitigation measures .

Appendix A – Model Verification

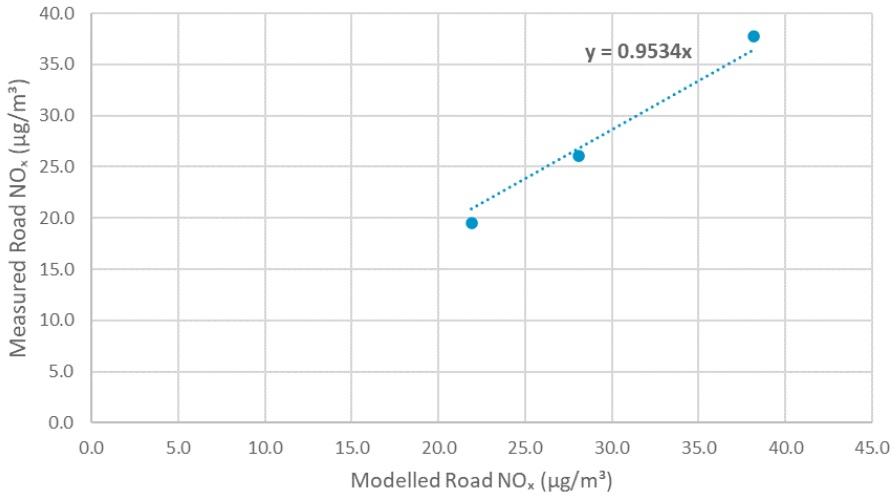
In order to verify modelled pollutant concentrations generated in the assessment, the model has been run to predict the annual mean road-NO_X concentration during 2019 at the DT9, DT16, and DT42 diffusion tube sites described in **Table 2**.

The model output of road-NO_X has been compared with the 'measured' road-NO_X. Measured NO_X for the monitoring sites was calculated using the NO_X to NO_2 calculator[18].

A primary adjustment factor was determined to convert between the 'measured' road contribution and the model derived road contribution (**Figure A.1**). This factor was then applied to the modelled road-NO_X concentration for each receptor to provide adjusted modelled road-NO_X concentrations. Total NO_2 concentrations were then determined by combining the adjusted modelled road-NO_X concentrations with the background NO_2 concentration.

The results imply that the model was very accurate at predicting the road-NO_X contribution. In addition, the same adjustment factor was applied to the modelled road-PM_{10} concentrations.

Figure A.1: Comparison of Measured road-NO_X to unadjusted modelled road-NO_X concentrations



RMSE

The root mean square error (RMSE) is used to define the average error or uncertainty of the model. The following RMSE value has been calculated:

NO_2: 0.86

If the RMSE values are higher than ±25 % of the objective being assessed, it is recommended that the model inputs and verification should be revisited in order to make improvements. Ideally an RMSE within 10 % of the objective would be derived. In this case the model is being assessed against the annual mean objective, which is 40 µg/m^3 for NO_2. An RMSE value of less than 10 % of the objective (less than 4 µg/m^3) is obtained and therefore the model behaviour is acceptable.

Appendix B – Traffic Data

Table B.1: Traffic data for 2019 (and prediction for 2034 with and without development

Road links	Annual Average Daily Traffic (AADT) 2019	Annual Average Daily Traffic (AADT) 2034 without Development	Annual Average Daily Traffic (AADT) 2034 with Development	% Heavy Duty Vehicles (HDV)	Speed (kph)
Pitt Street	20,255	24,437	24,437	4.1	29.3
Edward Street (South)	3,004	3,624	3,624	27.9	33.0
Magdalen Street North	3,993	4,817	4,817	13.6	30.2
Magdalen Street South	1,580	1,906	1,906	19.7	30.1
Edwards Street North	12,374	14,929	14,929	8.4	36.3
New Botolph Street	11,377	13,726	13,726	4.1	32.8
Magpie Road	11,486	13,858	13,858	7.1	39.4
St Augustines Street	14,733	17,775	17,775	6.4	28.1
St Crispins Road	24,624	29,708	29,708	7.3	53.1
Duke Street	9,556	11,529	11,529	4.6	30.8
Bull Close Lane	9,873	11,912	11,912	5.2	35.2
Minor Roads	1,500	1,810	1,810	2.0	48.3

Note 1: % HDV assumed to remain constant in all scenarios. Note 2: the Proposed Development is not expected to cause an increase in traffic. The increase shown between 2019 and 2034 in the table above is due to predicted general local traffic increases.

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