

Plot E1-E3 - Airport City North

Transport Statement

Airport City LP

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Quality information

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1. Introduction

1.1 Introduction

This Transport Statement (TS) has been prepared by AECOM on behalf of Airport City Limited Partnership (LP) to support a planning application for the proposed development of two office units and a multi-storey car park (MSCP), to be located on Plots E1 and E2/E3 of the Airport City development at Manchester Airport. Plot E1 will comprise a 1,497-space MSCP with a retail area of approximately 920 m^2 allocated at the ground floor and potentially additional mezzanine retail area of approximately 895 m^2. The proposal also includes a coach drop-off in front of E1 and a coach turning head, extending onto part of the existing Thorley Lane. The planning application will also include for the provision of 200 temporary surface car parking spaces within an area of existing car parking immediately to the west of the access into the development site from Enterprise Way. Plots E2 and E3 will each comprise approximately 8,360m^2 of B1 office or commercial land use.

A comprehensive Transport Assessment (TA) for the full Airport City North masterplan area was prepared by AECOM in 2012. Outline planning consent for Airport City North was granted in 2013, allowing the development of up to 113,500m^2 of office floor space, and 4,182 car parking spaces. The development proposals to be considered in this TS therefore comprise one of the initial phases of delivery of the total consented office use and associated parking provision.

1.2 Site Location

The Airport City site is situated to the north of the existing Manchester Airport boundary. The site is bordered by Woodhouse Park, Wythenshawe to the north, the M56 / Outwood Lane Spur to the south, M56 Junction 5 to the west, and Ringway Road West / Aviator Way to the east. The recently constructed Enterprise Way, which links Ringway Road West with the Terminal 2 roundabout, passes through the centre of the site.

The application site is located at the southern edge of the Airport City site, adjacent to the M56 / Outwood Lane spur. The development sites are identified as ‘Plot E1’, ‘Plot E2’ and ‘Plot E3’ in the Airport City Masterplan, and are currently used as long-stay car parking for the airport. The site location is illustrated in **Figure 1.1**.



Figure 1.1. Airport City North Masterplan Site Location

Figure 1.2 below shows the proposed site layout plan, illustrating the relative positions of Plots E1 and E2/E3.

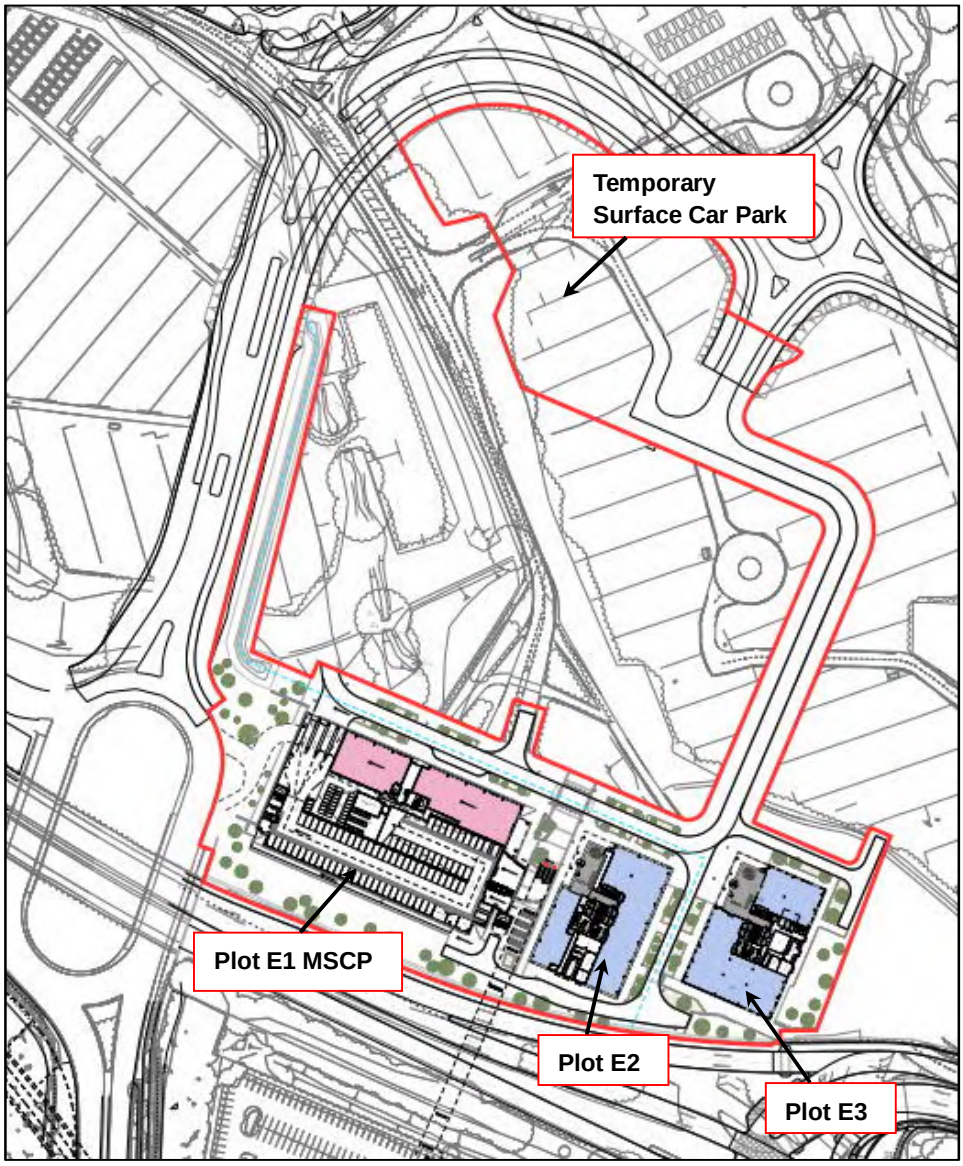


Figure 1.2. Proposed Site Layout Plan

1.3 Manchester Airport Planning Background

The Manchester Airport Sustainable Development Plan defines the context for the growth and development strategy for the Airport to 2030. The key aspiration of the Sustainable Development Plan is to ensure development growth and sufficient infrastructure provision to support a throughput of up to 55 million passengers per annum. In order to achieve this, the Sustainable Development Plan and particularly the Land Use Plan aspect, provides the framework for the Airport's comprehensive investment and capacity planning.

A number of planning applications have been submitted for developments forming part of this strategic growth. Manchester Airport has planning approval for a Transit Unit on Runger Lane, to the west of the existing Cargo and Logistics Centre, as well as an extension to the existing Airport cargo handling centre to the north of Wilmslow Road (the World Logistics Hub). Two separate planning consents were also granted for the development of a business park on land to the north of the M56 Spur, between Thorley Lane and Ringway Road West. These proposals were then further developed and resubmitted for approval as Airport City North.

Outline planning consent for the ACN development was granted in February 2013 (Application Ref: 100831/OO/2012/S2). This permission allowed for the development of up to 113,433 sqm of B1 office land use, 49,046 sqm of B2 light industrial floor space, and 47,398 sqm of hotel space, alongside 5,761 sqm of ancillary retail and 5,182 car parking spaces.

Outline planning consent for Plots H3 and H6 of the Airport City CBD, was granted in April 2015 (Application Ref: 107906/OO/2015/S2). This permission included the development of up to 14,300 sqm of office development, or 7,000 sqm of office and 9,000 sqm of hotel space. However, this permission lapsed in April 2018 without being implemented.

Planning consent for the proposed redevelopment and extension of Terminal 2 was granted in December 2015 (Application Ref: 110720/FO/2015/S2). This will comprise an 82,395 sqm extension of Terminal 2, creation of an elevated access road providing direct access from the Outwood Lane / M56 spur roundabout, demolition of Terminal 1 and the associated multi-storey car park, and the construction of new multi-storey car parks at Terminal 2 to provide a net increase of 2,553 parking spaces.

A planning application for the development of two hotels on Plots G1 and G2 of the Airport City CBD was submitted in December 2017 (118409/FO/2017). Plot G1 comprises a 375-bed hotel, and Plot G2 a 254-bed hotel. Neither of these hotels constitutes an element of the hotel provision allowed by either of the extant Airport City planning consents referenced above. Further detail regarding the allocation of car parking spaces within the MSCP is provided in Chapter 6.

Another recent planning application (119802/FO/2018) for the development of two hotels on Plot P1 (Palma Avenue to the east of Terminal 2) has been approved in July 2018. The application comprises 7 storey 262 bed hotel (Use Class C1) and a 7 storey 280 bed hotel (C1) with associated landscaping, car parking, cycle storage, substation and a service area.

To enable the delivery of this growth, and as required by the conditions of the planning approvals for Terminal 2 and the Second Runway, the Airport is obliged to deliver improved infrastructure to accommodate increased passenger numbers. In particular, these infrastructure improvements will include the provision of a new link road between Terminal 2 and M56 Junction 6. The proposed transport infrastructure improvements in the vicinity of the site are outlined further in Chapter 3.

1.4 Report Structure

Following this introductory chapter, this report will comprise the following chapters:

- **Chapter 2** provides a summary of the planning policy background;
- **Chapter 3** presents the existing conditions related to traffic and vehicular movements at the site;
- **Chapter 4** outlines the existing conditions for sustainable moves of travel;
- **Chapter 5** details the development proposals;
- **Chapter 6** summarises the trip generation data and likely impact analysis,
- **Chapter 7** sets out an outline Travel Plan setting the proposed development in the context of the site-wide Airport Travel Plan; and
- **Chapter 8** provides a summary and presents the conclusions of the Assessment.

2. Planning Policy Framework

2.1 Introduction

The purpose of this chapter is to outline the relevant transport related policies, which influence the development, from a national, regional and local level and demonstrates the transport policy understanding which has helped shape the proposals. The primary planning policies have been sourced from the new National Planning Policy Framework (NPPF) policy document (Released in July 2018) and the Greater Manchester Local Transport Plan (GM Transport Strategy 2040).

2.2 National Planning Policy

The NPPF was issued in July 2018 to replace its previous version from March 2012. National planning policies have been revised to place a greater emphasis on the need to promote development, to assist in driving the economy forward, whilst also maintaining a need for sustainability. The following subsection will present the key national policies within the guidance of relevance to the proposed site.

National Planning Policy Framework (2018)

This national planning guidance has been designed for local planning authorities and decision makers, both in drawing up plans and as a material consideration in determining applications.

Essentially, the NPPF identifies a presumption in favour of sustainable development. This is not intended to replace the development plan as the starting point for decision-making, but means that proposals in accordance with the development plan should be approved without delay.

It calls on the planning system to do “everything it can to support sustainable economic growth”, and that “significant weight should be placed on the need to support economic growth.” It specifically states in paragraph 31 that local authorities should co-operate to develop strategies for the provision of viable infrastructure necessary to support strategies for the growth of “Ports, Airports or other major generators of travel demand in their areas.”

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

– The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;

– Safe and suitable access to the site can be achieved for all people; and

– Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to:

– Accommodate the efficient delivery of goods and supplies;

– Prioritise to pedestrian and cycle movements, and have access to high quality public transport facilities;

– Ensure safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;

– Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and

– Consider the needs of people with disabilities by all modes of transport.

Planning policies should aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment, shopping, leisure, education and other activities. If setting local parking standards for residential and non-residential development, local planning authorities should take into account:

– The accessibility of the development;

– The type, mix and use of development;

– The availability of and opportunities for public transport;
– Local car ownership levels; and
– An overall need to reduce the use of high-emission vehicles.

2.3 Regional Policy

The Greater Manchester Strategy 'Our Peoples, Our Place' (2017)

A comprehensive new strategy for Greater Manchester region was issued in October 2017. It sets out an ambition to make Greater Manchester's more inclusive and productive city-region by 2020 by harnessing the strengths of its people and places. The strategy declares 10 priorities for achieving this vision. Specifically, this set of priorities covers health and wellbeing, jobs and housing provision, transportation, education, skills, training and economic growth.

Priority 3 'Good jobs, with opportunities for people to progress and develop' highlights the importance of job provision to deliver local economic benefit. This stresses the importance of commercial development sites.

Priority 4 'A thriving and productive economy in all parts of Greater Manchester' targets unemployment rates and business environment of Greater Manchester. An overriding theme of this priority is a prosperous and productive economy in all parts of the region, in particular:

– It aims 21,500 more Greater Manchester residents to be in employment (relative to a 2016 baseline 1,273,000) by 2020;
– Paragraph 6.11 states that 'Greater Manchester has made significant progress in recent years in developing its support infrastructure for businesses' and how important it is to work with businesses to overcome key barriers to growth. This aspiration is reflected in 'Manchester Enterprise Zone' initiative, which summary can be found later in this Chapter.

Priority 5 'World-class connectivity that keeps Greater Manchester moving' is the policy directly targeting sustainable transport provision and connectivity of the Greater Manchester region, in particular it states that it is crucial to 'improve the transport network so everyone can get to where they need to go - especially to jobs and opportunities'. Among the targets set to achieve by 2020 within this priority are the following:
– The proportion of journeys to work by modes other than the car to reach 32%;
– 90% of journeys by road during the morning peak period will be completed within the typical journey time;
– 50% reduction in the number of times exceeded in 2016for NO2, and a 20% reduction for PM10 at all sites.

Greater Manchester Fourth Local Transport Plan (GM Transport Strategy 2040)

The most relevant local policy documentation in the context of this Transport Statement is the Fourth Greater Manchester Local Transport Plan, known as the GM Transport Strategy 2040, published in February 2017. It sets out the long-term vision for the development of the transport network within Greater Manchester to 2040, as well as identifying a 5-year Delivery Plan, which sets out short-term delivery priorities. The plan provides a strategy for the management, maintenance, development and monitoring of the areas transport system and is developed by the ten Town and Metropolitan Borough Councils, and Greater Manchester Passenger Transport Authority (GMPTA), with the input of local stakeholders.

The overall vision of the Strategy is to deliver "world class connections that support long-term, sustainable economic growth and access to opportunity for all". This vision is supported by four key goals, to deliver a transport network that:-

– Supports sustainable economic growth;
– Protects the environment;
– Develops an innovative city-region; and
– Improves the quality of life for all.

The key policies of the plan are the provision of safe, integrated, efficient and economic transport to and within the area. The policies contained within the plan build upon the transport direction set out in the previous Local Transport Plans LTP2 and LTP3.

The core objectives for the GM Transport Strategy 2040 are as follows:

- To deliver a fully-integrated transport network which supports the Greater Manchester economy to improve the life chances of residents and business;
- To ensure that carbon emissions from transport are reduced in line with UK Government targets in order to minimise the impact of climate change;
- To ensure that the transport system facilitates active, healthy lifestyles and a reduction in the number of causalities, and that other adverse health impacts are minimised;
- To ensure that the design and maintenance of the transport network and provision of services supports sustainable neighbourhoods and public spaces and provides equality of transport services; and
- To maximise value for money in the provision and maintenance of transport infrastructure and services.

2.4 Local Planning Policy

The purpose of local planning policy is to provide a coherent strategy that local authorities can refer to for guidance in making planning decisions either in the process of approving private development projects or making decisions surrounding public infrastructure.

Manchester Core Strategy (2012 – 2027)

Manchester's Core Strategy was adopted by the City Council in July 2012. Policy MA1 (Manchester Airport Strategic Site) sets out the policy context for the development of the proposed Airport City development. The document states that the area provides significant opportunity for employment in Manchester.

Policy MA1 Manchester Airport Strategic Site

This sets out the policy context for the development of the Airport. It identifies areas for expansion of the Airport and shows amendments to the Green Belt required to deliver that expansion. In table 8.1 of that Policy, the area subject to this application falls within Existing Area Strategic Site, which identified as being suitable for the development of "Terminal, taxiways, aircraft apron, ancillary operational facilities, offices, hotels and other uses, surface access and car parking".

Policy MA1 goes on to state "All development proposed as part of the Airport expansion should seek to ensure that any environmental effects of development are assessed at the planning application stage to ensure that any impact is acceptable. It will be necessary to mitigate or compensate any negative effects. In particular:

- Minimise any adverse impact on areas of international or national conservation, ecological and landscape value. In particular, development should avoid Cotterill Clough SSSI. Where it is not possible to avoid harm, mitigation measures to compensate for any adverse impact will be necessary. Development within the expansion areas must implement the mitigation measures agreed with the Council, informed by an up to date environmental assessment;
- Support the retention and preservation of heritage assets. Detailed proposals which impact upon heritage assets within or close to the site, including listed buildings, will be required to show they have met the tests within PPS5. Development which has a detrimental impact on heritage assets should be necessary to meet operational capacity requirements, taking account of the availability of preferable development options within the Airport site;
- Retain or relocate the allotments;
- Include surface car access and car parking arrangements which encourage the use of public transport, walking and cycling, and satisfactorily manage impacts upon the highway network;
- Seek the maximum possible reductions in noise through compliance with the Manchester Airport Noise Action Plan and the Manchester Airport Environment Plan;
- Demonstrate that the number of people affected by atmospheric pollution is minimised and the extent to which any impact can be mitigated; and
- Improve access to training and job opportunities, particularly for people in Wythenshawe".

Policy EC 11 relates to the Airport City Strategic Employment Location. This identifies that the area to the north of Manchester Airport is a significant opportunity for employment development in Manchester. The development of this location will be promoted as the core of a wider Airport City opportunity, promoting functional and spatial links

with nearby parts of Wythenshawe to maximise the catalytic potential of the Airport to attract investment and increase economic activity.

The area is suitable for high technology industries, logistics, offices; warehousing and ancillary commercial facilities which will support further the business destination role at Airport City Manchester. Any development in this area should support the vision of the Core Strategy and complement the role of the Regional Centre and other centres in Greater Manchester.

Development should also:

– Maximise the employment and training opportunities and other regeneration benefits for local communities; and

– Take full advantage of the existing transport hub at Manchester Airport and proposed extension of Metrolink and the South East Manchester Multi Modal Scheme (SEMMMS) road scheme, through layout and traffic management measures, such as the quantity of parking.

Any development proposal should be set within the context of a comprehensive scheme for the Strategic Location. This will have regard to access, delivery, design and layout, flood risk through the Manchester - Salford - Trafford SFRA, energy infrastructure, the scale of uses within the area and take full account of Baguley Brook and any wildlife in this corridor, in accordance with relevant Development Plan policies.

Policy T1 relates to Sustainable Transport. This policy advises the Council will support proposals that deliver a sustainable, high quality, integrated transport system to encourage modal shift away from car travel to public transport, cycling and walking, to support the needs of residents and businesses and to prepare for carbon free modes of transport.

Policy T2 seeks to actively manage the pattern of development to ensure that new development is located to ensure good access to the City's main economic drivers (including the Airport) and to ensure good national and international connections. In addition this policy seeks to ensure that new economic development is easily accessible by walking, cycling and public transport and that residents in the south of Manchester benefit from improved connectivity with the Airport. The proposed scheme specifically supports Policies T1 and T2. The development will:

– Improve choice by developing alternatives to the car, through the incorporation of excellent links with the Manchester Airport Station providing rail, bus and Metrolink links with the wider region;

– Promote regeneration and economic vitality by improving public transport and other vehicular access to a range of employment opportunities and services;

– Provide a scheme that is designed to be entirely DDA compliant, and fully accessible to disabled people and people with mobility impairments;

– Retain and improve pedestrian routes through the site linking Wythenshawe and the Airport and to provide a high quality pedestrian environment through the provision of significant public realm including the central park;

– Improve and develop further Manchester’s cycle network through the provision of comprehensive cycle routes throughout the site linking with the existing wider cycle network;

– Contribute to improvements to the extent and reliability of the public transport network through encouraging the use of The Station and where possible seeking the delivery of improved bus and rail links with the site;

– Seek to reduce the negative impacts of road traffic, for example, congestion, air pollution and road accident casualties through the adoption of a Managed Travel Plan;

– Be designed to take account of the needs of road users according to a hierarchy consisting of, in order of priority:

Manchester Airport City Enterprise Zone

In the March 2011 Budget, the Government announced the creation of a number of Enterprise Zones across the country to stimulate business growth by providing financial incentives directly to businesses and to Local Authorities to promote business growth in their area. Enterprise Zones are areas planned, through a combination of financial incentives and reduced planning restrictions, to encourage businesses and generate jobs, and drive local and national growth.

An Enterprise based in the designated zone may benefit from:

- Business rate discount up to 100% (worth up to £275,000 per enterprise over 5 years);
- Simplified local authority planning;
- Support to ensure broadband is rolled out throughout the designated area.

The Manchester Airport City Enterprise Zone is one of 4 vanguard Enterprise Zones and focuses around the Airport, realising the economic potential and strategic significance of the Airport as a driver of growth and the unique connectivity it brings. The Manchester Airport City Enterprise Zone was subject to public consultation through the Development and Infrastructure Framework (March – June 2011), which formed part of the evidential base for the Manchester Core Strategy Examination in Public (November 2011). The boundary of the EZ has since been considered by the City Council (September 2011).

The main focus of the Airport City strategy will be to attract business that would not otherwise locate in the region and which demands the levels of connectivity and business synergy associated with a location in close proximity to a major International Airport.

Being adjacent to Manchester Airport, the zone is supposed to attract business with the UK, Europe and the world. The concept of the zone also presupposes the surrounding areas to offer an attractive lifestyle for those who relocate, which requires mix-use development with outstanding residential, education and leisure facilities.

The proposed Airport City development falls within the boundary of the Enterprise Zone as well as sitting within the extended Airport Operational Area and Manchester Airport Strategic Site.

Aviation Policy Framework

The UK Aviation Policy Framework was published by the previous Government in 2013 and outlines national objectives and principles to guide plans and decisions at the local and regional level. The Framework's primary objective is to achieve long-term economic growth and aviation is viewed as a key enabler in this regard by providing domestic and international connectivity which links business communities and markets. Aviation also benefits the UK economy through direct contributions to gross domestic product and employment, with the sector estimated to directly provide 220,000 jobs. The overall objective in the UK Aviation Policy Framework is to ensure that the UK's air links continue to make it one of the best connected countries in the world.

The number of passengers using non-London airports has increased by over a third since 2000. Recognising the importance of airports such as Manchester, the framework states 'a key priority is to work with the aviation industry and other stakeholders to make better use of existing runway capacity at all UK airports'. The framework also places importance on ensuring these airports are better integrated into the wider transport network. The UK Aviation Policy Framework seeks to promote improved surface access to airports and that future development schemes should be accompanied by clear proposals that demonstrate how the airport will ensure easy and reliable access for passengers and staff, increase the use of public transport and minimise the impact of the operation in the local area. The UK Aviation Policy Framework continues to encourage airport operators to publish plans that set out their approach to growth and future development.

Manchester Airport Sustainable Development Plan (SDP)

MAG published the Manchester Airport Sustainable Development Plan in June 2016. This sets out the strategic context for the long-term development of the Airport. The SDP comprises a high level summary and four detailed plans that deal with the Economy and Surface Access, Environment, Community and Land Use. These plans set out in greater detail how MAG will realise future opportunities and deal with the principal issues faced.

The Sustainable Development Plan updates the 2007 Manchester Airport Master Plan and develops the land use, environmental and community programmes and sets a context for the economic growth strategy that is strongly linked to the surface access strategy. The overall approach to surface access is to improve the airport's accessibility with quick, convenient and reliable access from all parts of the airport's catchment area. The aim is to extend and improve rail services, making the airport a major node in the wider network. It is intended to manage growth in road traffic, and promote the improvement in public transport links for passengers and staff. The airport's public transport connections are also important in local access to airport employment.

Embedded within this plan is the detailed surface access strategy which has reemphasised the airport's long-standing commitment to delivering sustainable travel and managing the growth in road traffic. A key element of this commitment has been the setting of long term modal split targets for both passengers and staff which reflects the on-going commitment to delivering a fully integrated surface access network.

2.5 Summary

The prevailing theme of national policy is that developments must be accessible by sustainable means of transport as well as to all members of the local community. Regional policy specifies regional growth direction, improvement priorities and opportunities available. Local policy echoes the sustainability sentiment of national policy and provides more detail relevant to the proposed development site. The following chapters of this report will demonstrate that the proposed development is compliant with local, regional and national policies outlined within the chapter.

3. Existing and Proposed Highway Conditions

3.1 Introduction

The proposed Plot E1-E3 development site is located at the southern edge of the Airport City North site, adjacent to the M56 / Outwood Lane spur, just to the north of the existing Manchester Airport boundary. The site is bordered by Woodhouse Park, Wythenshawe to the north, the M56 / Outwood Lane Spur to the south, M56 Junction 5 to the west, and Ringway Road West / Aviator Way to the east.

The site is accessed via the recently constructed Enterprise Way, which links the Terminal 2 roundabout to the west of the site, and Ringway Road West to the east of the site.

3.2 Existing Site

The wider Airport City site currently comprises a mixture of open land and former Airport long-stay parking. The proposed Plot E1-E3 site is located along the former link road between the Terminal 2 and Outwood Lane / Ringway Road West roundabouts. This link road was removed following the completion of Enterprise Way. The construction of Enterprise Way and the provision of access into the various Airport City plots will also necessitate the closure of the Jet Parks 2 car park, which provided approximately 828 parking spaces. It is anticipated that these spaces will be relocated within redeveloped car parks elsewhere the Airport boundary, although the Plot E1-E3 planning application will include for the retention of 200 of these spaces within a temporary surface car park immediately to the south of Enterprise Way.

3.3 Existing Highway Conditions

The location of the site within the Manchester Airport boundary is afforded excellent connectivity to the Strategic Road Network both within the North West and Nationally, an overview of the routes are provided in this section of the report.

The location of the site within the Manchester Airport boundary is afforded excellent connectivity to the Strategic Road Network both within the North West and Nationally, an overview of the routes are provided in this section of the report.

M56 - The M56 Junction 5 Airport Spur Road provides direct access to Manchester Airport via Junction 5. The M56 forms a strategic east west route from the M60 in the east to the M53 in the west, providing access to the Greater Manchester and Cheshire areas. The M56 also provides direct links to the M6, which is approximately 15km to the west.

M60 - The M60 forms an orbital ring road around Manchester and is approximately 7km to the north of the proposed site. The M60 provides direct access into Manchester City Centre via the M602. The M60 also provides links to other areas of Greater Manchester via other strategic motorways such as the M62, M61, M66 and M67.

M6 - The M6 provides a major national strategic route in a north-south direction and is approximately 15km from the proposed site via Junction 20. As well as providing the main north-south movement from Greater Manchester, the M6 also provides direct links to the M62 and M58 to Liverpool.

Thorley Lane - Thorley Lane is a single carriageway road with a 40mph speed limit, providing access to Wythenshawe via Bailey Lane to the north, and to Runger Lane and the Airport to the south, including the World Freight Terminal. Thorley Lane links with Outwood Lane to provide access to the T1 and T2 roundabouts providing access to the Airport's passenger terminals.

Outwood Lane - Outwood Lane forms the link between the T1 and T2 roundabouts, and continues south from the T1 roundabout to provide direct access to Terminals 1 and 3. From the Airport Outwood Lane also provides direct access onto the M56 spur. The Outwood Lane (west side) roundabout provides slip roads on and off the M56 spur and also provides access to Terminal 2 and the station via World Way. The Outwood Lane (east side) roundabout is a signal controlled junction and provides access to Ringway Road and Aviator Way to the east and direct access to Terminals 1 and 3 via Outwood Lane.

Ringway Road West - This is a 50mph dual-carriageway between Outwood Lane and the Aviator Way (RB2) roundabout. After this point, Ringway Road West becomes a 40mph single-carriageway road linking to Styal Road. Ringway Road West has recently been enhanced from its junction with Shadowmoss Road to the east as part of the A6 to Manchester Airport Relief Road.

Enterprise Way – Enterprise Way is a recently opened dual-carriageway road with a landscaped central reserve planted with semi-mature trees. The link road forms a loop between the Terminal 2 roundabout and Ringway Road West running through the north-east part of the proposed development site. Enterprise Way serves as the main spine road for Airport City. Provision of the link road has required a diversion of Thorley Lane and Outwood Lane West, and a connection is provided to Bailey Lane to the north.

3.4 Collision Data

Road collision statistic data has been obtained from the CrashMap.co.uk website. A road collision is classified as one that involved personal injury and took place on the public highway. In summary 'road collisions' include the following:

- Collisions which commence on the highway but which involve casualties off the highway;
- Collisions involving the boarding and alighting of buses or coaches and accidents in which passengers already aboard a bus/coach are injured, whether or not another vehicle or pedestrian is involved;
- Collisions with pedal cyclists or horse riders, where they injure themselves or another road user. Only accidents occurring on the public highway are included. The public highway usually includes the adjacent footway; and
- Some local authorities and organisations refer to road collisions as road accidents or road crashes.

A relevant search area within the vicinity of the site has been identified, as shown in the figure following. Road collision data for the search area has been obtained for the latest five year period from 2013 to 2017. Within the table following, the data has been classified in terms of the number and severity of incidents.

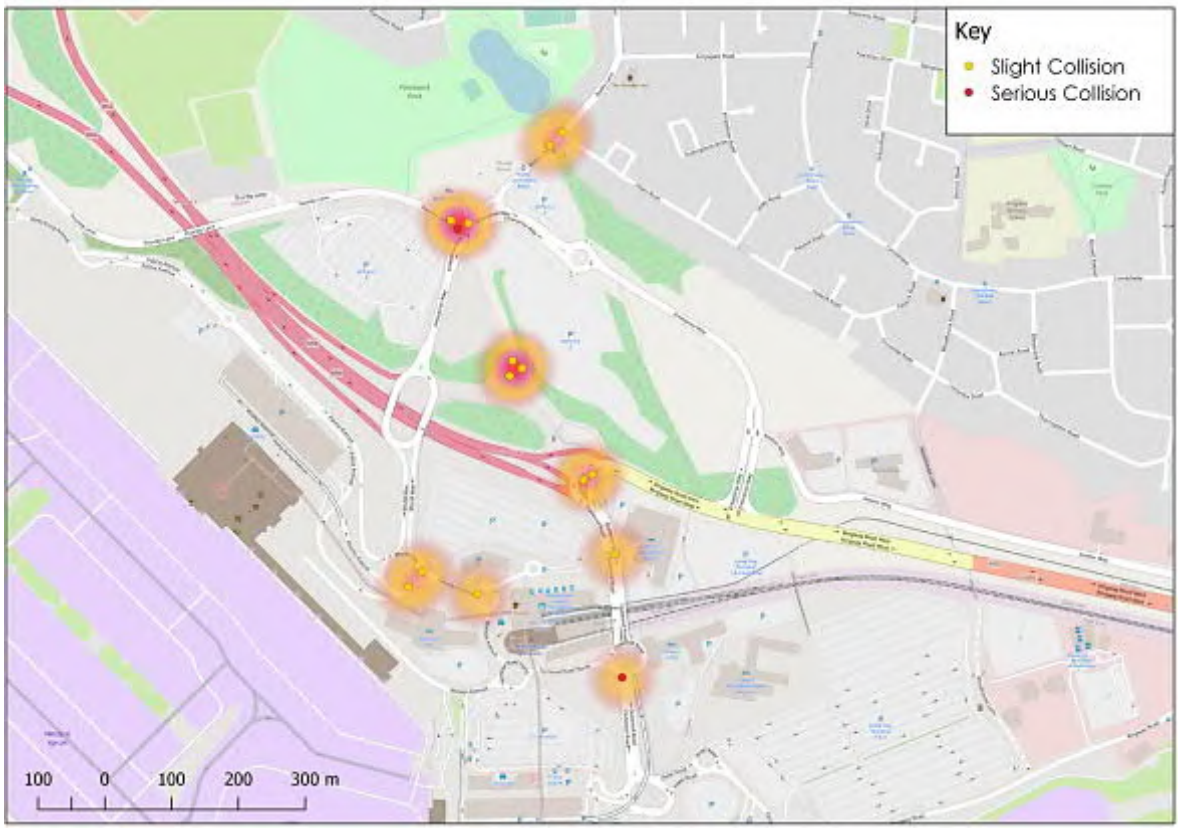


Figure 3.1 Collision History Plot 2013 – 2017 Highway Layout Improvements Included (Source: CrashMap)

Year	Collision Severity			Total
	Slight	Serious	Fatal	
2013	5	1	0	6
2014	1	0	0	1
2015	1	1	0	2
2016	3	0	0	3
2017	3	0	0	2
Total	**13**	**2**	**0**	**15**

Table 3.1 Summary of Collision Data (Source: CrashMap)

In total, 15 collisions have been recorded within the study area during the past 60 months, of which 13 can be classified as slight, 2 as serious and no fatal.

A serious collision occurred on Thorley lane in 2013 resulted in a pedal cycle causality, however the road layout has been changed and the junction is not present anymore. Five pedestrian casualties including one serious occurred over 5 year period in the immediate vicinity of the Airport Terminal on Malaga Avenue, Outwood Lane and Domestic Approach.

Whilst 15 collisions have been recorded during the most recent 60 month period, the data does not show any significant grouping of collisions or a statistically high occurrence of incidents near to the proposed site. Small groupings of collisions occurred at the Thorley Lane / Bailey Lane junction, the Thorley Lane / Outwood Lane junction, and at the Outwood Lane / Ringway Road West junction. The construction of Enterprise Way has resulted in the reconfiguration of the highway layout, and as such these junctions no longer exist in their previous form.

The proposed development is unlikely to have a detrimental effect on road safety in the area.

3.5 Planned Airport City Highway Improvement Schemes

Airport City Highway Infrastructure Enhancements

As part of the wider Airport City development proposals, as well as other committed highways works around the Airport, improvements to the highway network in the vicinity of the proposed development will be provided which will support the growth of Airport City and enhance access to the proposed development. These improvements will also build on the existing public transport connections as described in Chapter 4, enabling the city and region beyond to become better connected to the employment opportunities at the Airport.

As part of the wider Airport City development, the new ‘Enterprise Way’ link road opened to traffic in November 2017. The link road forms a loop between the Terminal 2 roundabout and Ringway Road West to the east of the proposed development site. Enterprise Way will serve as the main spine road for Airport City. Provision of the link road has required a diversion of Thorley Lane and Outwood Lane West, and a connection is provided to Bailey Lane to the north.

As part of the development proposals for Plot E1, in conjunction with the development of Plots G1 and G2 on the opposite side of the M56 spur, a new pedestrian and cyclist bridge (‘Airport City Bridge’), which already has planning permission, will be installed. This will provide a direct connection between the proposed development site and the Airport’s public transport interchange.

Terminal 2 to M56 Junction 6 Highway Improvements (Rainbow Works)

A collective package of highway improvements to the local and strategic highway around the Airport between Terminal 2 and M56 Junction 6 were agreed as part of the Second Runway development to enable the long-term growth of the Airport. These works comprise a sequential series of improvements, summarised as follows:

- The ‘Blue Works’ scheme will replace the existing ‘through-about’ on the east side and the roundabout on the west side of M56 Junction 6 with conventional signalised crossroads junctions, and provide partial widening of Runger Lane and improvements to Avro Way;
- The ‘Yellow Works’ scheme is a dualling and realignment of Runger Lane and Thorley Lane, which link Junction 6 with Terminal 2, as well as the proposed hotel site; and

– The 'Red Works' scheme would widen the M56 slip roads in the area of Junction 5 and Junction 6, although the scheme is not finalised yet.

These agreed schemes will greatly increase the capacity of the local highway network. They will also provide improved cycling facilities in the form of on- and off-carriageway cycle lanes. Additional pedestrian crossing facilities will also be provided in key locations. They would also benefit the proposed development by reducing the traffic flow on the existing primary route into the site from Junction 6, by allowing traffic to route via Junction 5 or 6. The detailed design of these schemes is yet to be finalised, and the proposals may change to accommodate the proposed expansion of Terminal 2.

Terminal 2 Expansion

The expansion of Terminal 2 to allow the airport to accommodate proposed passenger growth will require modifications to the highway network in the vicinity of Terminal 2. This will involve changes to the road layout on approach to the Terminal; this will also provide accesses into car parks surrounding the Airport.

A6 to Manchester Airport Relief Road (formerly SEMMMS)

The A6 to Manchester Airport Relief Road (A6MARR, formerly the South East Manchester Multi-Modal Study (SEMMMS)) is currently under construction and due to be delivered in Summer 2018. In the vicinity of the Airport, this includes the dualling of Ringway Road West (which has been completed), a revised junction of Outwood Lane / Ringway Road West and access to the aviator Way business park is also being delivered as part of this Relief Road Scheme. As well as the delivery of A6MARR, a revision to the existing Outwood Lane / Terminal Road North junction is currently under construction. These works comprise the provision of a new roundabout in place of the existing left-in/left-out junction, and will help to improve access to Terminal 2 from the east.

3.6 Summary

The proposed office developments and associated MSCP are in an excellent location to take advantage of the strategic and local road network. In addition, a number of highway infrastructure improvements have been agreed to support the planned strategic expansion of the Airport. These will further improve access to the proposed development.

The road collision history in the vicinity of the proposed development for the most recent 5-year period has been assessed. It is considered that the proposed development is unlikely to have a detrimental effect on road safety in the area.

4. Sustainable Access

4.1 Introduction

Manchester Airport provides a high quality public transport interchange (The Station). The interchange provides direct heavy rail services to Manchester Piccadilly and Crewe Station, amongst other local destinations. In addition, numerous bus services are in operation, providing further access to the Airport for the Greater Manchester area. The Metrolink network which was expanded to the Airport in 2016 provides regular services approximately every 12 minutes. This further enhances the public transport catchment of the airport, providing a full multi-modal offer.

It is noted that The Station is situated approximately 200m south of the proposed development site, and is therefore within easy walking distance. As part of the wider Airport City proposals, direct links for pedestrians will be provided from The Station to the development.

4.2 Rail Services

Heavy Rail Services

Manchester Airport is already well served by heavy rail services and the facility has been improved via the opening of a third platform at the airport in 2009 and a fourth platform as part of the Northern Hub works in 2015. The Station is operational 24 hours a day. The Airport station provides direct links to Manchester Piccadilly every 10 minutes with a journey time of approximately 20 minutes. This allows interchanges to other regional and national services.

This allows interchanges to other regional and national services. The tables following illustrate the direct service routes to the Manchester Airport Rail Station, which forms part of the Ground Transport Interchange.

Direct Train Services

Regional Routes	National
Deansgate – Oxford Road – Piccadilly – Mauldeth Road – Burnage – East Didsbury – Gatley – Heald Green	Stockport – Sheffield – Doncaster – Scunthorpe – Grimsby – Cleethorpes
Lancaster – Windermere – Barrow in Furness	Selby – Brough – Hull
St Helen's Junction – Liverpool Lime Street	Carlisle – Glasgow – Edinburgh
Styal – Wilmslow – Alderley Edge – Chelford – Goostrey – Holmes Chapel - Sandbach – Crewe	Huddersfield – Dewsbury – Leeds – York – Darlington – Durham –Scarborough – Middlesbrough – Newcastle
Chorley – Preston – Kirkham – Poulton-le-Fylde – Layton – Blackpool North	York – Edinburgh – Glasgow

Table 4.1 Direct Rail Services to Manchester Airport (Source: TfGM)

Further, from Manchester Piccadilly Station there are frequent national services to London, Birmingham, Cardiff, Nottingham and Bristol amongst other destinations. The importance and attractiveness of rail access is likely to further improve over time as both pressure on parking increases and the cost of fuel escalates for private motorists. The frequencies and approximate average duration of the journey to the key destinations are presented in the table below.

Route	Frequency (approximate)	Average Duration of a Journey
Glasgow Central	Every 60 mins	3 h 40 mins
Edinburgh	Every 60 mins	4 h
Newcastle	Every 40 mins	3 h
York	Every 30 mins	1 h 50 mins
Liverpool Lime Street	Every 30 mins	1 h 40 mins
Manchester Piccadilly	Every 30 mins	20 mins
Birmingham	Every 30 mins	2 h
London Euston	Every 40 mins	2 h 10 mins

Table 4.2 Manchester Airport Station Rail Service Frequencies

Metrolink

The Manchester Airport Metrolink Line, opened in November 2014, connects the Airport to St Werburghs Road Metrolink Stop. The route of the Airport Line to The Station at Manchester Airport is illustrated in **Figure 4.1**. The provision of a connection to the Metrolink network adds considerably to the accessibility of the Airport, increasing the public transport catchment of the proposed development and the Airport as a whole and improving the quality of the journey for passengers.

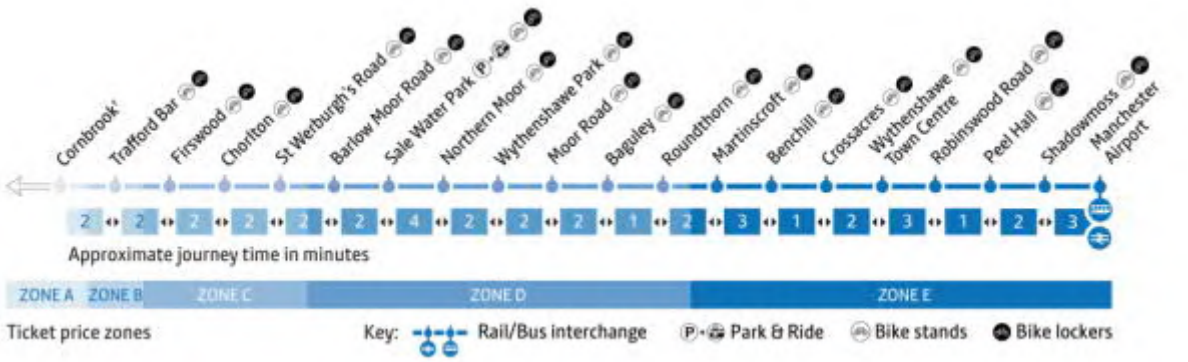


Figure 4.1. Manchester Airport Metrolink Line

The Airport line currently operates with a 12-minute frequency between Manchester Airport and Victoria. Trams depart from Manchester Airport stop from 05:49 daily, with last departure times of 22:42 on Sunday and Bank Holidays, 23:25 Monday to Thursday, and 00:25 on Friday and Saturday.

4.3 Bus Services

Local Bus Services

A number of bus services operate in the vicinity of the proposed development. **Table 4.3** summarises the bus services currently provided at The Station.

Route No.	Route	Frequency
5	Telford - Wrexham - Manchester Airport	Mon-Sun: Every 90 mins
18	Manchester Airport – Wythenshawe – Baguley – Sale – Stretford – Trafford Park – Trafford Centre	Mon-Sun: Every 30 mins
19	Manchester Airport – Wythenshawe – Sale - Altrincham	Mon-Sun: Every 20 mins
43	Manchester Airport – Wythenshawe – Manchester	Mon-Sun: Every 10 mins
44	Manchester Airport – Gatley – East Didsbury – Fallowfield – Manchester	Mon-Sun: Every 60 mins
103	Manchester Airport – Wythenshawe – Manchester	Mon-Sun: Every 30 mins
199	Buxton - Dove Holes - New Mills - High Lane - Hazel Grove - Stockport – Manchester Airport	Mon-Sun: Every 25 min
200	Wilmslow – Styal – Manchester Airport – Manchester Viewing Park	Mon-Sun: Every 60 mins
288	Manchester Airport – Hale Barns – Altrincham	Mon-Sun: Every 60 mins
330	Manchester Airport – Stockport – Hyde – Ashton	Mon-Sun: Every 30 mins
386A	Stockport - Wythenshawe - Manchester Airport	Mon-Fri: at 06:08 and 06:23 Sat: Every 60 mins from 05:56 to 08:56

Table 4.3 Manchester Airport Interchange Bus Services (Source:TfGM)

From the table above, it can be seen that the site is already served by a number of high frequency bus services, connecting the site to destinations across Greater Manchester.

Local bus services are provided by Stagecoach, Arriva and Trent Barton. Together, they provide a significant network, particularly across south Manchester. Bus is a flexible and adaptable form of public transport, without the constraints of fixed track infrastructure and with lower operating and infrastructure costs.

The airport's 24 hour, 7 day a week operation can pose a commercial challenge for operators, especially for early morning, late evening and weekend / Bank Holiday services. Operators have invested in modern, low emission vehicles, providing a good quality of service. Various discounted tickets schemes have been introduced, aiming to encourage regular use e.g. staff commuting. Bus services compete with tram and rail services, offering choice and competition.

In addition, a large number of coach services operate daily from Manchester Airport, connecting The Station with cities across the region and further afield across the U.K. National Express coach services provide direct access to The Station from Birmingham, Liverpool, Leeds, London, Edinburgh and Glasgow amongst other locations.

4.4 Cycling

As indicated on **Figure 4.2**, Cycle Route Number 85 is currently situated to the north and east of the proposed development site, which provides links to the main passenger terminals.

Two National Cycle routes are situated in the vicinity of the proposed development as indicated within the figure following. Cycle Route Number 85 is located to the north of the development site, and provides links to the main passenger terminals. The cycle route also connects to Manchester City Centre via Hulme and Fallowfield to the north. This cycle route forms part of the 8 mile Manchester Airport Orbital Cycleway, which is predominantly traffic free with the exception of Thorley Lane.

The Manchester Airport Cycle Centre is located within The Station. The centre provides route maps and bicycle repairs and raises awareness of the pool bikes available to employees.

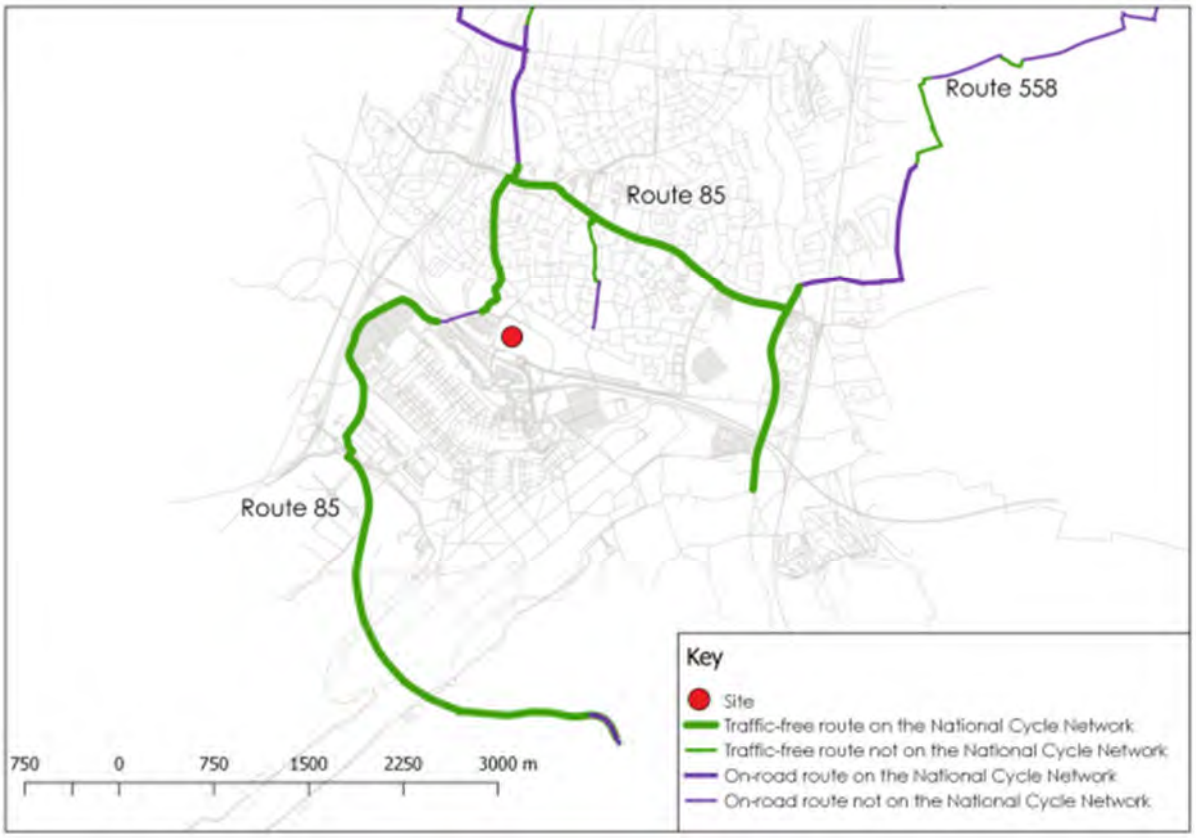


Figure 4.2 Cycling Routes in Vicinity of Proposed Development (Source: Sustrans.org.uk)

A number of cycle storage facilities are also available at:

– Manchester Airport Station (main entrance);

– The Voyager building (main entrance);

– T1/T3 behind Stanley Park (outside T1 ground level check-in); and

– T2 - at the far side of the terminal building (at arrivals level).

The Plot E1-E3 development proposals will also include provision of cycle facilities. This is described in more detail in Chapter 5.

4.5 Pedestrian Access

Given the nature of the site, it is unlikely that employees and visitors to the Plot E developmnts will travel to the site on foot as their main mode of transport. However, the proposed development is located in close proximity to The Station at Manchester Airport, meaning that arriving by public transport and completing the journey to the Plot E site on foot is a feasible mode choice.

The development proposals will ensure that design for pedestrians will be a fundamental element of the proposals. Pedestrian movement from the proposed development to the Airport will be facilitated by footways providing a continuous walking route to The Station, at which point elevated footways provide links to Terminals 1, 2 and 3.

As part of the wider Airport City development proposals, pedestrian and cycle facilities will be provided and improved in the area. The layout of the Thorley Lane / Outwood Lane West diversion to the north of the hotel site will be designed to ensure that junctions and crossing points allow safe, convenient and attractive access for pedestrians and cyclists. The core of the Airport City development will be arranged around a network of pedestrian friendly and vibrant routes which will allow the formation of linkages northwards towards Wythenshawe. The proposed hotel site will be connected to the rest of the Airport City development through the provision of a new 'Airport City Bridge' across the M56 spur. This will increase the connectivity of the site by public transport modes, and enhance the continuous network of safe and direct routes for pedestrians and cyclists.

4.6 Accessibility Review

TRACC is an in industry standard software package developed by Basemap that enables assessments to be made of different locations based on their relative accessibility by numerous modes of travel including by public transport, bicycle and on foot. TRACC assists in identifying potential solutions to accessibility issues such as improvements to public transport services and to pedestrian routes via its clear visual output of a development's level of accessibility.

TRACC analysis has been undertaken in the vicinity of the site to illustrate the walking and public transport accessibility to assist in reviewing the sites accessibility to local amenities. **Table 4.4** presents the preferred maximum walking distance of 2km indicated by guidance from the Institute of Highways and Transportation (IHT).

Criteria	Town Centre	Commuting / Sight Seeing	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1,000m	800m
Preferred Maximum	800m	2,000m	1,200m

Table 4.4. IHT Suggested Acceptable Walking Distances

Walk Isochrones

A walking accessibility assessment has been undertaken to determine the locations that are accessible within a 30 minute walk from the site. The accessibility analysis is shown in **Figure 4.3**, whilst **Table 4.5** provides a summary of the areas accessible within 5 minute segments from the proposed site.

Journey Time	Locations
0 – 5 minutes	The Station, Terminal 2, Aviator Way
5 – 10 minutes	Terminal 1 & 3, Portway
10 – 15 minutes	All Areas of the Proposed Airport City
15 – 20 minutes	Woodhouse Park
20 – 25 minutes	Wythenshawe Town Centre, Simonsway
25 –30 minutes	Davenport Green, Styal Road, Moss Nook

Table 4.5. Walk destinations

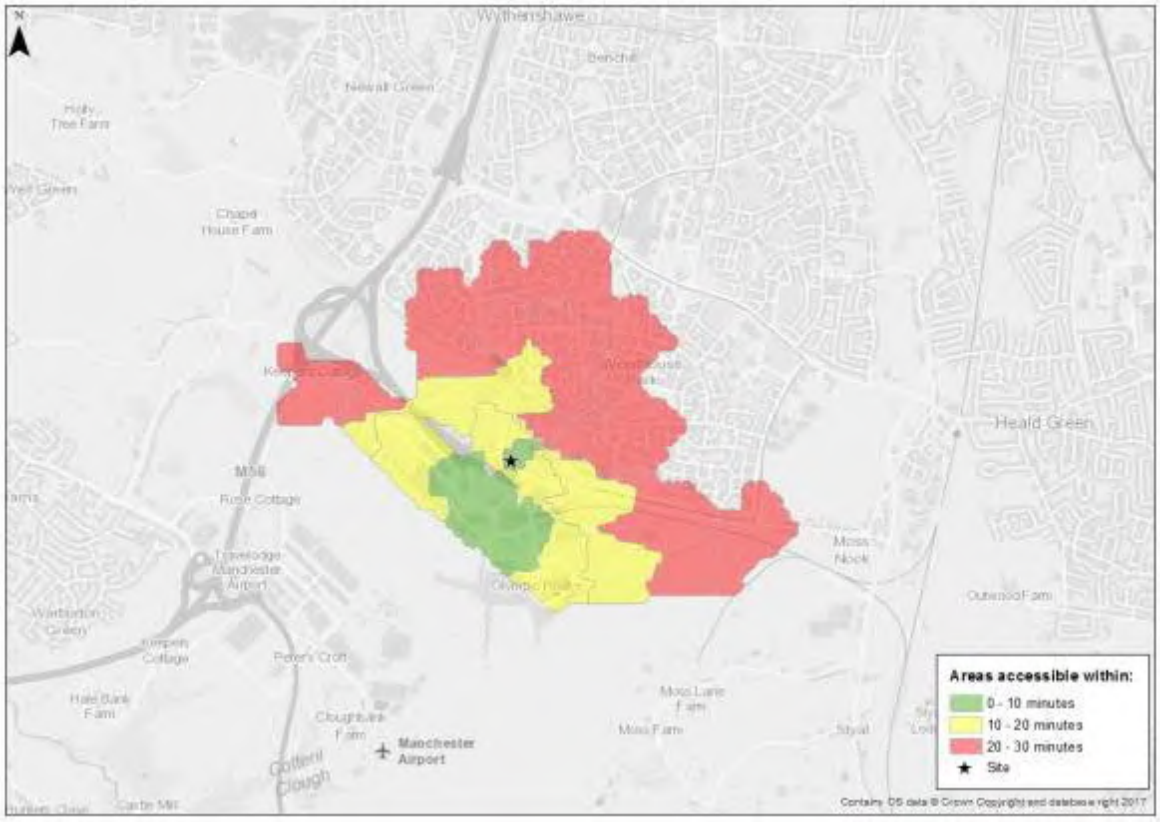


Figure 4.3. Areas Accessible to the Site on Foot within 30 Minutes Travel Time

Cycle Isochrones

A cycling accessibility assessment has been undertaken to determine the locations that are accessible within a 8 km cycle from the site. The accessibility analysis is shown in **Figure 4.4**, whilst **Table 4.5** provides a summary of the areas accessible within reasonable cycling distance of the proposed site.

Journey Distance	Locations
0 – 5 km	Moss Nook, Woodhouse Park
5 – 8 km	Heald Green, Gatley, Wythenshawe, Hale

Table 4.6. Cycle destinations

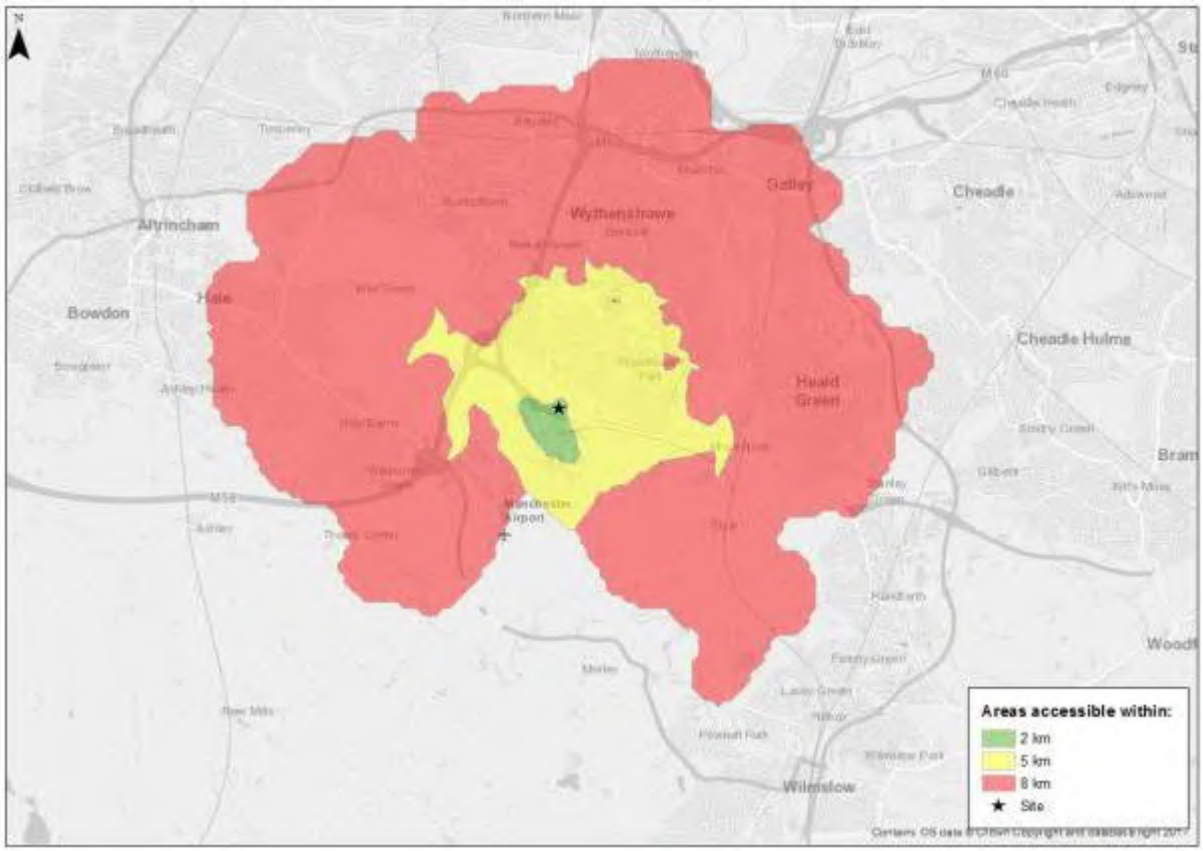


Figure 4.4. Areas Accessible to the Site by Bicycle within 8km Travel Distance

Public Transport Isochrones

A public transport accessibility plot has been produced to determine the locations that are accessible within a 60 minute public transport journey from the proposed site, as shown in

Figure 4.5. **Table 4.7** illustrates a summary of areas accessible within each journey time period.

Journey Time	Locations
0 – 10 minutes	Airport Interchange, Wythenshawe, Woodhouse Park, Cargo and Logistics Centre,
10 – 20 minutes	Heald Green, Wilmslow, Alderley Edge, Burnage
20 – 30 minutes	East Didsbury, Hale, Wilmslow, Styal, Manchester Piccadilly and Oxford Road Stations, Burnage Station, Heaviley, Holmes Chapel,
30 – 40 minutes	Gatley, Altrincham, Didsbury, Cheadle, Stockport, Manchester City Centre, Nether Alderley, Chelford, Bredbury, Audenshaw, Hazel Grove, Sandbach
40 – 50 minutes	Levenshulme, Rusholme, Sale, Handforth, Mobberley, Romiley, Hyde, Stretford, Bolton, Disley, Furness Vale, Hyde, Crewe, Macclesfield,
50 –60 minutes	Weston, Middlewich, Knutsford, Salford, Bramhall, Newton-le-Willows, Chorley, Ashton-under-Lyne, Marple, Urmston, Warrington, Wigan, St Helen's Junction, Chapel-en-le-Frith

Table 4.7. Public Transport Accessibility

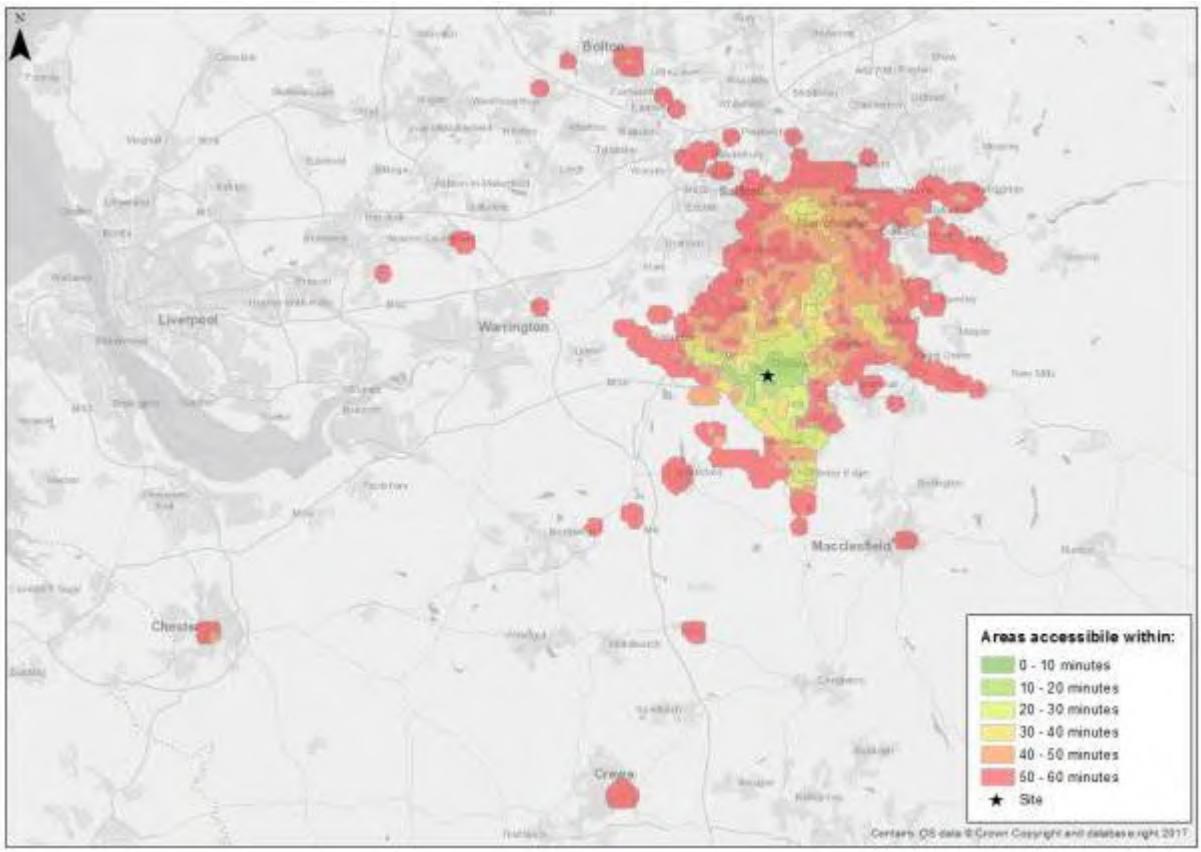


Figure 4.5. Public Transport Accessibility

4.7 Summary

The proposed development site is in an excellent location to take advantage of the various modes of sustainable travel that currently serve the Airport. The development is within close proximity to the Airport Ground Transport Interchange (The Station), which provides direct rail services to areas within the region and nationally.

The Station provides numerous bus services, which connect to areas across Greater Manchester and Cheshire. The Metrolink expansion to the Airport, completed in 2016, further increased the public transport catchment and provides access to local centres such as Wythenshawe, Ashton-under-Lyne, and Warrington.

As part of the Airport City North proposals, pedestrian connectivity from the site to the station will be enhanced via dedicated pedestrian paths. From the Station, frequent rail and bus services are available to destinations across Greater Manchester.

5. Proposed Development

5.1 Introduction

This chapter of the report will present the details of the proposed development, detailing the location, changes to the existing use, and the level of parking provision to be provided.

5.2 Development Proposals

The development proposals comprise:

- Plot E1 MSCP, which will provide a total of 1,497 parking spaces;
- Plot E1 ancillary retail area of 919.8m^2 allocated at the ground floor, and a potentially additional mezzanine retail area of 892.9 m^2;
- Plots E2 and E3 B1 office or commercial land use, with each plot provided a total gross floor area (GFA) of approximately 8,580m^2 (90,000 sq.ft);
- 200 temporary surface car parking spaces within an area of existing car parking immediately west of the Enterprise Way access into the development;
- A coach drop-off in front of E1 and a coach turning head, extending onto part of the existing Thorley Lane.

The design of the Plot E1 MSCP will also allow for the potential future provision of a direct egress from Level 01 of the car park onto the Terminal 2 roundabout, which would reduce the overall capacity of the MSCP by 6 spaces. However, provision of this access does not comprise a specific element of the current planning application, and would be subject to a separate, formal planning application and road safety audit.

The figure below illustrates the layout of the Plot E development proposals, including the proposed landscaping.

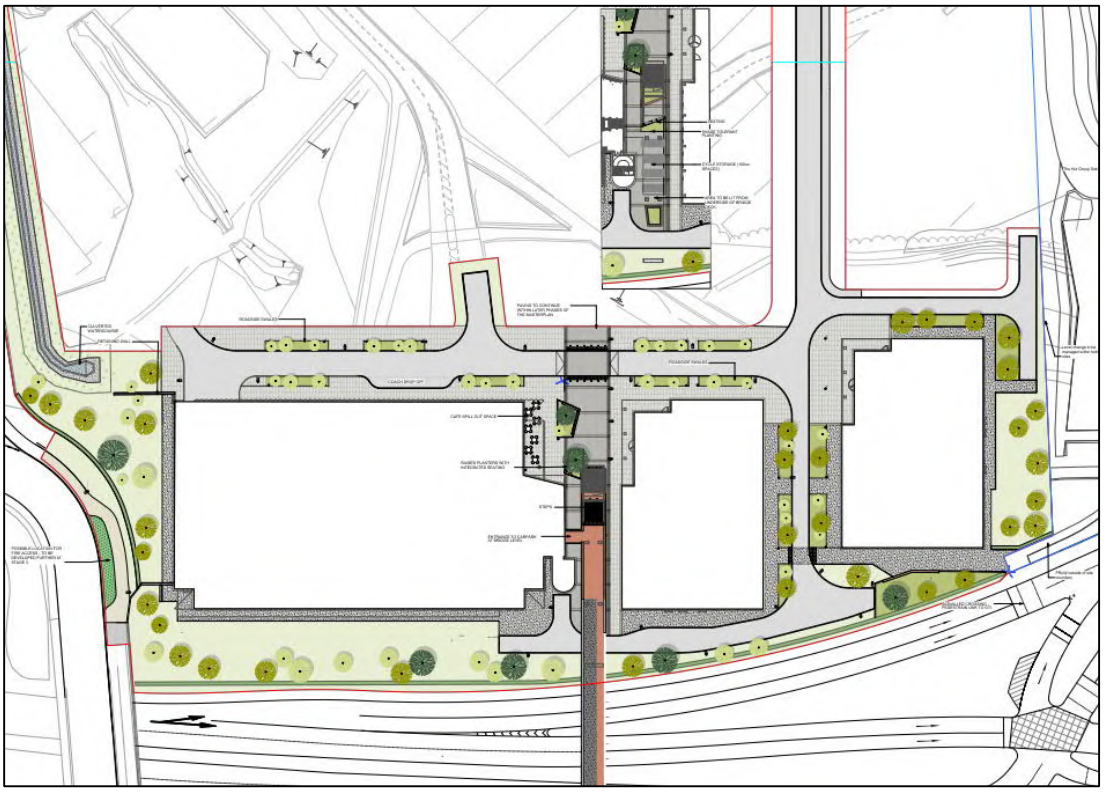


Figure 5.1. Plot E1-E3 Site Layout and Proposed Landscaping

5.3 Pedestrian and Vehicular Access

Vehicular access to the proposed Plot E1 MSCP and the Plot E2/E3 office blocks will be via Enterprise Way. Enterprise Way will serve as the main internal spine road for the Airport City site, with primary vehicular access into individual plots provided by a roundabout located approximately 180m east of the Enterprise Way / Thorley Lane junction. This will enable the site to be effectively integrated into the wider network and will improve the visibility and accessibility of the development.

Access to Enterprise Way from the west will be via the Terminal 2 roundabout, which will provide the 'gateway' to the development to create a high quality 'sense of place'. Access to Enterprise Way from the east will be via Ringway Road West. As noted above. The proposed scheme design also allows for the potential to provide a one-way, egress-only connection to the Terminal 2 roundabout from the MSCP, allowing vehicles to exit the development site directly onto the external highway network. Provision of such an egress would be subject to a separate planning application.

A Coach drop-off is proposed in front of Plot E1. A coach turning head will also be provided at the western end of Plot E1, extending onto part of the existing Thorley Lane.

As part of the wider Airport City development proposals, pedestrian and cycle facilities will be improved in the area. The layout of Enterprise Way has been design to ensure that it remains functional, but that junctions and crossing points are provided to allow safe, convenient and attractive access for pedestrians and cyclists. The new Enterprise Way / Thorley Lane junction includes signal-controlled pedestrian crossing facilities, with dedicated pedestrian crossing phases incorporated in the signal timings.

The core of the Airport City development will be arranged around a network of pedestrian friendly routes. In addition, the Airport City site will be connected to the main Airport site via a new bridge for pedestrians and cyclists across the M56 Spur. The bridge will provide direct access to The Station, therefore increasing the connectivity of the site by public transport modes and enhancing the sustainability of the site. As part of the Plot G1 and G2 development, a covered walkway will be provided to connect complete the pedestrian connection to The Station. Where the pedestrian route crosses the bus station exit road, a new zebra crossing will be provided, incorporating shared-space road surfacing.

The site access arrangements for vehicles and pedestrians are illustrated in 5plus Architects Drawing Number 05042 MP_00_0210 in **Appendix A**.

5.4 Servicing

It is expected that service trips to the Plot E2 and E3 offices will be relatively infrequent (assumed to be approximately 1 or 2 trips per day), and will be scheduled to occur outside of the main highway peak hours. Delivery and service vehicles will access Plots E1, E2 and E3 via the main site access road. This will provide access to a service road which runs between Plots E2 and E3 and connects to a shared service yard for Plots E1 and E2 on the southern side of each plot. A service yard for Plot E3 will be accessed via a service road to the north of this plot. Sufficient space will be provided within each service yard to allow for service vehicles to execute a three-point turn within the service yard in order to exit the yard in a forward gear. Swept path analysis has been undertaken to demonstrate that the service yard design allows this movement.

In addition, a coach lay-by is proposed to the northern side of Plot E1, adjacent to the proposed ancillary retail units. A temporary turning head will be constructed, using part of the old Thorley Lane alignment, to allow coaches to turn round. Coaches will need to reverse out of the lay-by into the turning head in order to turn round. Swept path analysis has also been undertaken to demonstrate that coaches up to 15m in length can undertake this manoeuvre.

The initial swept path analysis has considered access for the largest available size of refuse vehicle, a 4-axle 11.3m vehicle. The analysis indicated that this size of vehicle could access the service yard, but with a slight overrun of the kerbs on the access road to the north of Plot E3. Similarly, the swept path analysis for the coach lay-by indicates that a 15m vehicle would also slightly overrun the kerbs based on the current design. Prior to construction, further swept-path analysis will be undertaken to ensure that the service road design will adequately accommodate the movement of service vehicles and coaches.

The service yard provision and swept path analysis is illustrated in Drawing Numbers 60489357-P-0000-002 and 60489357-P-0000-003 in **Appendix B**.

The access road into the service yard has a minimum width of 4.0m, which will allow access for emergency vehicles.

5.5 Parking Requirements

5.5.1 MCC Car Parking Standards

The parking provided will be in line with the parking standards set out in Manchester City Council's Core Strategy. The following table presents the maximum number of car parking spaces and minimum number of cycle parking spaces for the proposed development.

Table 5.1. Core Strategy Parking Standards

Land Use	Maximum Number of car parking spaces	Minimum number of spaces required for:		
	Areas not within the City Centre or District Centres	Disabled people's parking as percentage of total		Cycles
		Up to 200 in total	Over 200 in total	
Business Parks Plot E2/E3	1 space per 35sqm	Individual bays for each disabled employee plus 2 bays or 5% of total capacity – whichever is greater	6 bays plus 2% of total capacity	1 space per 200sqm – minimum of 2 spaces
Food Retail* Plot E1	1 space per 14sqm	3 bays or 6% of total capacity whichever is greater	4 bays plus 4% of total capacity	1 space per 140sqm – minimum of 2 spaces

** MSCP Ground Floor Retail proposal and potential additional mezzanine retail area are assumed to be food retail areas to represent the worst-case scenario. However, these plots are considered to be ancillary to the office or commercial uses provided at Plots E2 and E3, and as such are not likely to generate additional car-based trips which would require dedicated retail-specific car parking provision.*

Based on the above car parking standards, providing a combined total for the two office units (GFA 16,720 m^2) and retail area (Max GFA 1,813 m^2), the development would be permitted a maximum of 478 car parking spaces. It is proposed that 460 spaces within the Plot E1 MSCP will be allocated to the Plot E2/E3 offices. This is compliant with the Manchester City Council parking standards.

There will be a total provision of 78 disabled parking bays within the Plot E1 MSCP. In line with the above parking standards, a minimum of 16 disabled bays should be allocated to each of Plots E2 and E3.

As set out in more detail in Chapter 6, the estimated trip generation of the office developments has been calculated using the TRICS database, and this demonstrates that the expected level of usage can be catered for within the allocated parking spaces in the Plot E1 MSCP.

It should be noted that the proposed delivery of 1,497 parking spaces within the Plot E1 multi-storey car park, plus the provision of a temporary 200-space surface car park, is not solely to serve the Plot E2/E3 developments. The table above addresses the allocation set aside for Plots E2 and E3 within the overall Plot E1 provision. The remainder of the car parking proposed as part of this planning application will serve the wider Airport City North development, including the Plot G and Plot P hotel developments. The wider allocation of spaces within the MSCP is considered further in Chapter 6.

5.5.2 BREEAM Car Parking Requirements

Tra 04 of the BREEAM Manual provides recognition for developments that encourage use of alternative means of transport other than the private car by limiting the provision of car parking spaces, thereby helping to reduce transport-related emissions and traffic congestion associated with the building's operation.

The maximum parking capacity is defined by BREEAM as the number of building users per car parking space. Tra 04 sets out a range of benchmark maximum parking capacities for various development types, and these benchmarks are cross-referenced against the Building's Accessibility Index (a measure of a site's accessibility by public transport, defined in BREEAM Tra 01 – Public Transport), in order to identify the relevant number of BREEAM credits awarded. This is required to ensure that the building's car parking capacity is relative to the development's accessibility to the public transport network.

In order to calculate the approximate number of building users for the proposed development, Tra 04 provides occupancy rates by building types. For offices, default occupancy rates are provided for different elements of the development as follows:

	Occupancy (per sqm)	Office Use Area (sqm)	Number of Users
Office area (including reception areas)	0.111	16720	1856
Food preparation area (staffed)	0.108	x	x
Small workshop / category lab space	0.068	x	x
Total	x	16720	1856

*Office Use area comprises total GFA for both E2 and E3 office buildings

**No detailed building schedule has been made available at this stage, so the number of users has been calculated assuming the highest occupancy per sqm

Table 5.2 Site Office Use Estimated Number of Users

It is proposed to allocated car parking provision at the site available to allocate Plot E2/E3 parking demand is 460 spaces within the MSCP. This therefore equates to a maximum parking capacity of approximately 1 space per 4 building users.

The Accessibility Index of the proposed development is 11.46. The accessibility index calculation is provided in **Appendix C**. The table below presents an extract from BREEAM Table 33, which identifies the number of car parking capacity BREEAM credits available for office developments, which fall under the BREEAM category 'Office, industrial, student residences and key worker accommodation'.

Building's Accessibility Index	**<4**	**>4-<8**	**>8**	**Credits Available**
Building Type	Max. Parking Capacity – 1 space per x building users, where x is:			
Office, industrial, student residences and key worker accommodation	3	4	5	1
	4	5	6	2

Table 5.3 Maximum Car Parking Capacity (BREEAM)

It can be seen from the above table that the proposed development does not qualify for a BREEAM credit for car parking capacity.

5.6 Cycle Parking

MCC Parking strategy suggests provision of:

- 1 cycling storage space per 200sqm (minimum of 2 spaces) for business park land use; and
- 1 space per 140sqm – minimum of 2 spaces for food retail land use.

In order to comply with the MCC standards it is necessary to provide up to 97 cycle parking spaces, comprising 84 for Plot E2/E3 and potentially 13 spaces for Plot E1 retail area. However, as noted previously the Plot E1 retail area is ancillary to the main office or commercial uses at the site, and so is unlikely to generate retail-specific cycle storage demand.

The BREEAM Standards on cycle parking (BREEAM Tra 03) advocate the encouragement of building users to cycle, so promoting exercise and helping reduce congestion and emissions, by ensuring adequate provision of cyclist facilities.

A site wide approach will be followed for this 'minimum' cycle parking provision. The development site can be awarded with up to 2 credits for meeting BREEAM requirements. Compliant cycle storage spaces are required that meet the minimum levels set out in Table 32, (Based on Other Building - Commercial: Offices, Industrial, of the BREEAM standards. The total requirement based on BREEAM is presented within the table following:

Building type	No. spaces per unit of measure	Unit of measure	Notes	No' of cycle parking spaces required
Offices, Industrial	1	10 staff	None	186*

*Estimated number of users = 1856 (Table 5.2)

Table 5.4 Cycle Parking Requirements (BREEAM)

However, in accordance with the BREEAM Compliance Notes, in order to 'recognise the increased confidence in availability that occurs where there is larger scale provision of facilities, it is acceptable to reduce the provision requirement for building users by increasing the standard unit of measure and potentially the provision of cyclist facilities on a sliding scale'. This sliding scale is as follows:

Number of Users	Measure	Number of Cycling Storage Spaces Required
1-200 users	1 space per 10 users	20
201-300 users	1 space per 15 users	7
301-400 users	1 space per 20 users	5
401+ users	1 space per 25 users	59
Total		**91**

**(1856 – 400)/25=91*

Table 5.5 Sliding Scale of Compliance (BREEAM)

A total of 91 cycle parking spaces should be provided in order the development to be awarded with a BREEAM credit for cycling storage facilities.

A total of 100 cycle parking spaces will be provided to serve Plots E2 and E3. This is therefore in excess of the minimum provision required by the MCC Core Strategy parking standards, and in compliance with BREEAM requirements. The cycle parking will be provided in a secure, covered location close to the main entrance of each office block.

One credit for meeting BREEAM cyclist storage provision numbers can only be awarded if the cyclist storage is BREEAM compliant. The following paragraphs identify the requirements for providing BREEAM-compliant cycling facilities.

Cyclist storage: All storage spaces provided must be located within, or in close proximity to, the assessed building. It should be clear from access arrangements, demarcation and positioning that the cycle storage provided is clearly associated with the assessed building only. The number of cycle storage spaces is compliant based on the number of users on site or within a group of local buildings. The sliding scale of compliance can be used (where applicable) when determining the number of storage spaces required. All new storage spaces must be BREEAM compliant. Existing storage spaces may also be counted provided they allow bikes to be easily stored and accessed with the ability to be locked securely against a fixed structure.

Compliant cycle storage spaces: Compliant cycle storage spaces are defined as those that meet the following:

– Cycles can be secured within spaces in rack(s). They are covered overhead and the cycle racks are set in or fixed to a permanent structure (building or hardstanding). Alternatively the cycle storage may be located in a locked structure fixed to, or part of, a permanent structure with appropriate surveillance.

– The distance between each cycle rack, and cycle racks and other obstructions, e.g. a wall, allows for appropriate access to the cycle storage space to enable bikes to be easily stored and accessed.

– The storage facility or entrance to the facility is in a prominent site location that is viewable / overlooked from either an occupied building or a main access to a building.

– The cycle storage facility has adequate lighting; this could be demonstrated with the lighting criteria defined in BREEAM issue Hea 01 Visual comfort. The lighting must be controlled to avoid out-of-hours use and operation during daylight hours, where there is sufficient daylight in or around the facility.

Another credit can be awarded for meeting BREEAM requirements for cyclists facilities on site (showers, changing facilities, lockers, drying spaces) if the cyclist storage is BREEAM compliant.

Cyclist facilities: Facilities should be located within the assessed building, or in an accessible adjacent building and for the sole use of the assessed building's users. The number of compliant cyclist facilities is based on the

number of users on site who would be able to use these facilities. Cyclist facilities may be located anywhere on site. However, the path taken to access the nearest cycle storage, cyclist facilities and building entrance(s) must be no greater than 500m via a safe and convenient route. The distances should be measured from the first to the last point on the route. Where possible, different types of cyclist facilities should be grouped together in designated areas for ease of access and use. Existing facilities may be included provided they are BREEAM compliant and conform to the 500m requirement above.

Compliant showers: Compliant showers are defined as those that meet the following:
1. Provision of one shower for every 10 cycle storage spaces, subject to a minimum provision of one shower.
2. Any building providing eight showers or more will comply regardless of the number of cycle storage spaces provided.
3. Both male and female users must be catered for, i.e. either separate showers within shared gender-specific facilities (required provision split 50-50) or single shower cubicles and changing space for mixed use.
4. The showers do not need to be dedicated to cyclists and can be those shared with other users/uses.

Compliant changing facilities: Compliant changing facilities are defined as those that meet the following:
1. Appropriately sized for the likely/required number of users. The assessor should use their judgement to determine whether the changing area is appropriately sized given the number of cycle storage spaces or showers provided.
2. Changing areas must include adequate space and facilities to hang or store clothing and equipment while changing or showering, e.g. bench seat and/or hooks.
3. Toilet/shower cubicles cannot be counted as changing facilities.

Compliant lockers: Compliant lockers are defined as those that meet the following:
1. The number of lockers is at least equal to the number of cycle spaces required.
2. Lockers are either in, or adjacent to, compliant changing rooms, where provided.
3. The lockers are sized appropriately for the storage of a cyclist's equipment.

Compliant drying spaces: A compliant drying space is defined as a space that is specifically designed and designated with adequate heating/ventilation for the drying of wet clothes. A plant room, for example, is not a compliant drying space.

5.7 Summary

This chapter has considered the development proposals in detail, including both the Plot E1 MSCP and ancillary retail units, and the Plot E2/E3 office or commercial uses. The proposed vehicular and pedestrian site access arrangements for the development have been appraised, including the proposed servicing arrangements.

The proposed car and cycle parking provision has been assessed in line with relevant guidance, and the proposed provision is in compliance with the relevant standards.

6. Trip Generation Assessment

6.1 Introduction

Although the proposed development is within the consented use permitted by the wider Airport City North outline application, in order to appreciate the potential vehicular impact associated with the development proposals, a trip generation assessment has been undertaken. This is intended to demonstrate that the proposed Plot E1 car parking provision is suitable to support the parking needs of the various Airport City developments, including the Plot E2/E3 office/commercial use, without representing either an over-provision of parking, or an under provision which would result in the need for overflow parking elsewhere.

6.2 Trip Generation – Proposed Office Development

The proposed Plot E2 and E3 development will comprise a combined total of 16,720m^2 GFA. Based on this size of development, vehicular trip rates for a 12-hour period (07:00 – 09:00) have been calculated using the TRICS database Version 7.5.2. The search criteria were therefore based on the following parameters:

- Excludes all NI, Eire and Greater London count sites;
- Count data for Mondays to Fridays only;
- Excludes Town Centre sites; and
- Includes sites from 1,000 to 10,000m^2 GFA.

Based on the above criteria, a sample of 27 sites was returned. The table below illustrates the daily profile of trips derived from average trip rates identified from this sample within TRICS. The full TRICS output is included as **Appendix D**.

	ARRIVALS		DEPARTURES		Two-way Trips	Accumulation
Time Range	Trip Rate	Trip Gen	Trip Rate	Trip Gen		
07:00-08:00	0.937	157	0.135	23	179	134
08:00-09:00	2.218	**371**	0.304	51	**422**	454
09:00-10:00	1.18	197	0.385	64	262	587
10:00-11:00	0.411	69	0.337	56	125	599
11:00-12:00	0.394	66	0.341	57	123	**608**
12:00-13:00	0.451	75	0.561	94	169	590
13:00-14:00	0.511	85	0.499	83	169	592
14:00-15:00	0.344	58	0.463	77	135	572
15:00-16:00	0.282	47	0.475	79	127	540
16:00-17:00	0.289	48	1.319	221	269	368
17:00-18:00	0.191	32	1.781	**298**	330	102
18:00-19:00	0.046	8	0.551	92	100	17

Table 6.1. Daily Profile of Forecast Trips for Plots E2 and E3

Based on these trip rates, the maximum number of two-way office arrivals and departures in any one hour is 422. The TRICS data also indicates a maximum accumulation of 608 vehicles. The Plot E1 MSCP will need to accommodate the potential maximum accumulation of office-based trips, in this case 608, plus an allowance for busy periods. The development proposals also include the allocation within the Plot E1 MSCP of 601 car parking spaces for use by consented and proposed hotel developments on Plots G1, G2, H3 and P1. The car park will therefore also need to accommodate the potential maximum accumulation of trips associated with these developments. The total estimated parking accumulation at the MSCP is analysed in more detail below.

6.3 Estimated Parking Accumulation – Plot E1 MSCP

The proposed Plot E1 MSCP will provide a total of 1,497 parking spaces. As noted above, 230 of these will be allocated to the Plot E2 office. In addition to this, a total of 601 spaces will be allocated to the consented hotel developments on Plots G1 and G2, and the proposed hotel developments on Plot P1 and Plot H3, with a further 200 spaces allocated to the existing 4M/Voyager offices. This will leave a surplus of 466 spaces, which will be used by later phases of the Airport City development, including Plot E3. It is anticipated that approximately 230 of these surplus spaces will be allocated to the Plot E3 office, although there is currently no designated allowance of spaces for this plot.

The proposed breakdown of allocated spaces within the MSCP is shown in **Table 6.2**.

Total spaces	Plot E2	Plots G1 & G2	Plot P1	Plot H3	4M/Voyager	Short-term surplus
1,497	230	402	99	100	200	466

Table 6.2. Proposed Allocation of Parking Spaces within Plot E1 MSCP

The Table above summarises the forecast parking accumulation based on the currently allocated parking spaces, and assuming an allocation of 230 spaces for Plot E2. The parking accumulation for each of the hotel developments has been based on the following assumptions regarding the size of each development:

- Plot G1 – 375 bedrooms;
- Plot G2 – 254 bedrooms;
- Plot H3 – 250 bedrooms; and
- Plot P1 – 480 bedrooms.

Parking accumulation for the hotel developments has been calculated using TRICS trip rates, based on the following parameters:

- Excludes all NI, Eire and Greater London count sites;
- Count data for Mondays to Fridays only;
- Excludes Town Centre and Edge of Town centre sites;
- Only includes sites with >100 bedrooms; and
- Includes sites with conference facilities.

The full TRICS output for the hotel developments is included as **Appendix D**.

Time Range	Arrivals (Hotels)		Departures (Hotels)		Accumulation		Plot E1 Total Accumulation
	Trip Rate	Trip Gen	Trip Rate	Trip Gen	Hotel	Plot E2/E3 Office	
07:00-08:00	0.075	102	0.180	245	210	134	344
08:00-09:00	0.142	193	0.244	332	72	454	526
09:00-10:00	0.180	245	0.138	188	129	587	716
10:00-11:00	0.105	143	0.113	154	118	599	**717**
11:00-12:00	0.097	132	0.134	182	68	**608**	676
12:00-13:00	0.120	163	0.090	122	108	590	698
13:00-14:00	0.127	173	0.150	204	77	592	669
14:00-15:00	0.096	130	0.107	145	62	572	634
15:00-16:00	0.110	149	0.156	212	0	540	540
16:00-17:00	0.148	201	0.126	171	30	368	398
17:00-18:00	0.217	295	0.124	169	156	102	258
18:00-19:00	0.228	310	0.130	177	289	17	306

19:00-20:00	0.189	257	0.126	171	375	0	375
20:00-21:00	0.108	147	0.076	103	**418**	0	418
21:00-22:00	0.058	79	0.073	99	398	0	398

Table 6.3. Daily Profile of Forecast Trips for all Allocated Parking within Plot E1

As noted in **Table 6.2**, a total of 1,497 spaces will be provided within the MSCP, with 831 currently allocated to Plot E2 and hotel parking, as well as a short-term surplus of 466 spaces. As illustrated in **Table 6.3**, The TRICS data indicates that the periods of maximum car parking demand for the hotel uses and Plot E2/E3 uses will not coincide. Furthermore, the proposed allocation of car parking spaces will be sufficient to accommodate the likely hotel and office trips, including trips associated with Plot E3, as well as allowing adequate provision of additional spaces for busy periods. Since all of the development sites are located in close proximity to the excellent public transport links afforded by The Station, it is considered that the proposed parking provision will be adequate to accommodate staff and visitor trips for both office and hotel land uses, without a requirement to provide any overspill parking facilities.

6.4 Impact of Proposed Development

6.4.1 Summary of Previous Assessments

This proposed development forms part of the strategic growth of the Airport. It comprises an element of the land uses which have been approved as part of the Airport City North (ACN) application, and the appropriate supporting infrastructure as part of the Airport's growth. Outline planning permission was granted for the wider Airport City North development in February 2013. The proposed Plot E1 and E2 developments fall within this quantum of B1 office land use permitted by the ACN outline permission.

The TA prepared for the wider ACN development was undertaken based on output flows extracted from the SEMMMS model that was used by TfGM to model the proposed diversion of Thorley Lane / Outwood Lane West, and the A6 to Manchester Airport Relief Road. The SEMMMS future growth scenarios assumed a level of development for the Airport City developments up to 112,861m^2 of B1 office space, in line with earlier planning consents for the Airport City North site.

The version of the SEMMMS model used to inform the Traffic Impact Assessment included in the October 2012 Airport City Manchester TA included assumed B1 land use trip rates which were approximately 60% higher than might be expected based on a TRICS analysis of the various individual land uses. The TA concluded that the trip rates included in the SEMMMS model took into account a scale of Airport City development comprising 138,700m^2 of Office, 49,000m^2 of Advanced Manufacturing and 16,700m^2 of additional uses, sufficient to provide 1,293 hotel rooms.

In addition to including robust assumptions specifically related to the ACN development, the SEMMMS model includes assumptions for general future Airport growth related to an Airport operation of 30 million passengers per annum by 2016. This threshold has long been factored into TfGM modelling assumptions, and mitigation measures agreed to handle this growth. The future growth assumptions for the Airport take into account the delivery of a number of developments, which includes the provision of hotels. Furthermore, the SEMMMS model only assumes a level of public transport use around 10%. This is lower than the current level at the Airport, and some way lower than the aspirational target of approximately 50% public transport use by 45 million passengers per annum, as set out in the Economy and Surface Access element of the Airport's Sustainable Development Plan. Finally, the SEMMMS model includes the proposed highway infrastructure improvements summarised in section 3.5 of this report.

The junction capacity assessments presented in the ACN TA, undertaken using traffic flows based on the above assumptions, clearly demonstrated that the local highway network would operate within capacity with no significant queues or delays in 2030. This clearly indicates that based on the previous traffic impact assessment undertaken for the wider development, the likely impact of the proposed Plot E1 and E2 office development has been accounted for and is considered to be acceptable in principle.

6.4.2 ACN VISSIM Model

In order to provide an updated picture of the likely impact on the local highway network with specific regard to the Plot E development proposals, an assessment of the impact of the Airport City development, has been undertaken using VISSIM Microsimulation modelling. This takes into account the initial phases of the Airport City Masterplan, including Plots E1, E2 and E3, and the proposed THG Site. The THG site will occupy Plots C, D and O of Airport City North, located to the west and north of Plots E1-E3, and will comprise the delivery of up to 66,476 sqm off office space and 1,979 car parking spaces.

This latest assessment has reviewed the highway impacts associated with all of these phases of development in relation to the already approved Airport City masterplan, as described above.

This assessment is required to understand the highway impacts within the Airport City development and on the key access points to Airport City. The model forecast years are proposed to align with existing modelling tools, and key development dates relating to Airport City and wider developments. A 2021 forecast year assessment is proposed, which will represent this early phase of Airport City and capture the completion dates of a number of highway modifications within the vicinity of Airport City, including:

- Completion of Enterprise Way;
- Completion of new junction at Ringway Road W / Outwood Lane;
- Opening of the A6MARR highway link; and
- Completion of new roundabout at Outwood Lane / Terminal Road North.

Two scenarios have been assessed within the model:

- Do Minimum: 2021 scenario without HUT Group and E1/2/3 Plots; and
- Do Something: 2021, including HUT Group and E1/2/3 plots.

Further detail of the VISSIM modelling process is set out within the 'Airport City Development – Traffic Impacts Report' (AECOM, August 2018), which is included for reference as **Appendix E** in this report.

The VISSIM model represents core commuter peak periods, and also the anticipated airport morning peak period. The peak periods included within the model are:

- AM Peak: 06:00 to 09:00; and
- PM Peak: 16:00 to 19:00.

As Airport City related traffic flows in the inter-peak period are relatively low, no inter-peak modelling is proposed for this assessment. Do Minimum traffic flows, primarily representing arrivals and departures associated with airport-related demand, are presented in following table. The Do Minimum scenario also includes traffic flows associated with the existing MAG surface car parks, and existing office developments located off Aviator Way.

Table 6.4. Summary of Airport-Related Traffic Volumes by Hour

Peak	Peak Hour	Inbound	Outbound
AM	06:00 to 07:00	3,808	2,588
	07:00 to 08:00	2,650	1,946
	08:00 to 09:00	2,831	1,782
PM	16:00 to 17:00	2,125	1,935
	17:00 to 18:00	2,025	1,946
	18:00 to 19:00	1,391	1,195

As shown above in the AM Peak, the airport traffic flows are indicated to peak in advance of the general commuter peak. This is likely to be directly impacted by the airport flight schedules and highway mode shares in the later hours when a better offer of PT mode share is available. The airport is currently trying to increase the public transport mode share for travel to the airport through a range of measures, including forecourt management.

The proposed Airport City developments included in the Do Something scenario are as follows:

- **THG development site:** including proposed MSCP and surface car park; and
- **Plot E1 MSCP:** including associated uses, including Plot E2/E3 offices.

Trip generation within the VISSIM model for each of these sites was estimated using the TRICS trip rates as set out in Table 6.3 above. The following paragraphs summarise the impact of the proposed development as forecast by the latest VISSIM model outputs. The model outputs for this scenario are included in Appendix C of the Traffic

Impacts Report. The impact on the local highway network has also been assessed with a proposed egress in place connecting from Level 01 of the Plot E1 MSCP directly onto the Terminal 2 roundabout (as per the model outputs in the main body of the Traffic Impacts Report). This egress will be considered in the future with a separate application. However, the highway network is indicated to operate acceptably in the with-egress scenario.

- In the AM peak, the model outputs indicate localised increases in queue lengths on Bailey Lane, mainly due to the limited gaps in traffic for vehicles joining Enterprise Way. Also some queues were observed on the right turn from Ringway Road West to Enterprise Way. As a result the modelling recommended a longer right turn pocket on Ringway Road West to accommodate these queues.

- In the PM peak small queues were observed on the car park exits, in particular the Technology Campus MSCP car park. Minor queues were also indicated on Enterprise Way, for the right turn between Enterprise Way and Ringway Road West, although these were accommodated within the existing highway network, as the majority of traffic leaving the development site leaves Airport City via the elevated roundabout towards the M56 spur.

- With regard to journey times, the model outputs indicate that in the AM peak the proposed development results in minor increases in travel time on eastbound routes through the modelled network from 08:15 onwards. The journey time increase is greatest for through traffic travelling from the M56 Spur to Ringway Road. In the PM peak, journey times are indicated to remain generally consistent throughout the modelled period in the Do Something scenario compared to the Do Minimum, although with some minor increases forecast between 07:45 and 18:15.

- Overall the assessment of the initial plots of Airport City has identified that the proposed development can be accommodated within the local highway network at Airport City. To accommodate the development sites, a number of minor amendments to the highway network have been included within the do something modelling to provide access to the proposed car parks within Airport City. These highway adjustments include the following measures:

  – Car park access right turn pockets: right turn pockets to accommodate right turning traffic without delay to the highway network;

  – Car park egress two lanes: two lane exits assumed – one left, one right lane, to distribute exit traffic; and

  – A6MARR / Outwood Lane – provision of advance signage to encourage traffic travelling from the M56 to Outwood Lane to mainly use the right hand lane, freeing more capacity for A6MARR and Airport city traffic.

6.5 Summary

This chapter has identified the anticipated traffic generations as a consequence of the proposed development, and considered the potential impact of these trips. It is considered that the proposed development has been taken into account in previous traffic modelling work undertaken to consider the wider implications of the strategic growth of the airport. These previous assessments have shown that the level of assumed future development can be accommodated on the local highway network. An up-to-date assessment of the development proposals specific to Plot E and the THG development site has been undertaken using the ACN VISSIM model. This indicates that the initial phase of the ACN Masterplan development can be accommodated within the local highway network in the 2021 assessment year. The modelling has also indicated that the impact of a potential direct egress from Plot E1 onto the Terminal 2 roundabout could also be accommodated on the local highway network, and would be beneficial compared to the without-egress scenario. It should be noted that the provision of a direct MSCP egress does not form part of the Plot E1-E3 planning application.

It should be noted that for any subsequent ACN planning application, other than the two currently being progressed, which would take the quantum of development above that previously approved for ACN, additional modelling would be undertaken to fully understand the additional impacts on the local highway network.

7. Outline Travel Plan

7.1 Introduction

A Travel Plan Framework (TPF) was prepared by AECOM for the ACN development proposals to support the planning application for that development. This was developed further into a full Sustainable Travel Strategy (STS) by Atkins, which was issued in Draft form in September 2013. This STS identifies overarching Aims and Objectives for encouraging sustainable travel use covering all land uses within Airport City North.

As well as this, as part of the Manchester Airport Sustainable Development Plan, MAG have also produced an Economy and Surface Access Plan. This supersedes the previous Ground Transport Plan, and covers the whole of Manchester Airport, setting out a site-wide strategy for improving and encouraging the use of sustainable modes of travel for journeys to the Airport.

It is proposed that an updated full Travel Plan will be updated developed to cover the whole of the Airport City North Masterplan site, including the Plot E2 and E3 office blocks. This will tie these sites in to these wider sustainable transport strategies. The full TP will include a more detailed toolkit of potential measures for staff and visitors, and set out timescales for undertaking accurate baseline travel surveys in order to set modal shift targets. It is considered that this should be a planning condition should planning permission be forthcoming.

This chapter summarises the wider Airport TP initiatives, and identifies how the proposed development will accord with the site-wide TP, providing a basis for the end user to take forward.

7.2 Manchester Airport Economy and Surface Access Plan

The Economy and Surface Access Plan is one of a series of documents making up the Manchester Airport Sustainable Development Plan. It sets out how the Airport will achieve fast efficient and safe access to the Airport for passengers and staff. This includes setting out a vision for surface access in order to support a throughput of up to 45 million passengers per annum. It includes the following objectives:

- To support the wider economy and better serve the Airport's catchment area by providing a transport network that improves journey time reliability and allows for the fast and efficient movement of people and freight;
- To deliver an integrated transport network with high quality, safe and affordable facilities for customers and staff;
- To influence travel behaviour in order to significantly increase the numbers of passengers and staff using sustainable transport modes;
- To support infrastructure projects that will improve surface access to the Airport;
- To ensure transport encourages access to employment at the Airport and Enterprise Zone; and
- To be a beacon of best practice through the delivery of innovative transport solutions.

7.3 Airport City North Sustainable Transport Strategy

The Sustainable Transport Strategy for Airport City North has been prepared to inform future service provision and act as a framework for Behavioural Change activities at the ACN development. It sets out the following objectives:

- To secure improvements in infrastructure and services for sustainable travel that support economic growth of the Airport city Enterprise Zone and the accessibility of the ACN site;
- To deliver a comprehensive package of behavioural change measures and initiatives that assist and incentivise ACN employees in making sustainable travel choices;
- To maximise opportunities for sustainable travel to the ACN site from the Greater Manchester conurbation, and wider commuter hinterland;
- To maximise linkages to the wider Airport City Enterprise Zone, and foster collaborative working relations with key Enterprise Zone organisations; and

- To work in partnership with TfGM, Manchester City Council, Cheshire East Council and transport operators to oversee implementation of the strategy.

7.4 Key Travel Plan Policy

The full TP for Plots E2 and E3 will be developed with reference to specific policy and guidance. This documentation will ensure that a good quality TP is developed. This documentation includes:

- DfT (2008) Delivering a Sustainable Transport System (DaSTS);
- DfT (2009) 'Good Practice Guidelines: Delivering Travel Plans through the Planning Process';
- National Planning Policy Framework (2012);
- Manchester Core Strategy 2012-2027;
- Greater Manchester 4th Local Transport Plan (GM Transport Strategy 2040);
- Manchester Airport Sustainable Development plan; and
- Manchester Airport Economy and Surface Access Plan.

7.5 Outline Travel Plan

Aims

The aims of the TP would tie in with the aims set out in the Airport City North TPF. These will include:

- To reduce single occupancy car journeys for trips to and from the site;
- To manage travel to and from the site by ensuring accessibility for all by a choice of modes;
- Ensure accessibility by sustainable modes is safe and attractive for users;
- Promote a healthy workforce and local community; and
- Provide a commitment to improving local air quality and reducing the carbon footprint of the development.

Objectives

The objectives of the TP would include the following:

- Support and encourage active travel (walking and cycling) to staff and visitors through raising awareness and facilitating travel pattern changes;
- Support and encourage the use of public transport by staff and visitors;
- Reduce unnecessary journeys by car while ensuring that those car journeys which are necessary can be accommodated;
- Discourage and disincentivise single-occupancy car journeys by staff and visitors;
- Encourage the attractiveness of sustainable alternatives for accessing the site and ensuring that these alternatives are safe and feasible, and
- Encourage a working partnership between employers, staff, the Airport and visitors to influence travel behaviour.

Targets

TP targets are measurable goals against which progress towards the objectives of the TP can be assessed. However, it will not be possible to set firm targets for achieving modal shift until after baseline travel surveys are carried out following occupation of the development. This section therefore sets out the process for establishing appropriate targets.

Guidance produced by the DfT suggests that the main target should be to reduce the number of car trips generated by the site per day. It is also suggested that targets could also be set for other modes of transport, for example, bus patronage or walking and cycling trips. Qualitative targets may also be appropriate, such as membership of cycling groups.

Following the completion of the baseline travel surveys, a range of targets would be developed, with a view to:

- Minimising the number of single occupancy vehicles trips generated by the site;
- Maximising the number of trips made by bus, on foot and by cycle;
- Improve safety on-site and provide safe and equitable access to the site for staff and visitors; and
- Supporting access to the site by all.

It is important that the targets are SMART (Specific, Measurable, Achievable, Relevant and Time-based) and meaningful to all hotel staff and guests.

Measures

It would be necessary to implement a number of “hard” and “soft” measures in order to achieve the objectives and targets. The Airport City North TPF identifies a range of suggested measures for implementation across the whole development, including an action plan with suggested timescales. Through the airport access strategy, MAG already discusses accessibility with a range of stakeholders including TfGM and Manchester City Council. It is likely that through this discussion platform more strategic accessibility improvements to the proposed development will be formulated.

Measures which could be implemented at the proposed office developments include:

- Develop or include sustainable travel information on internet sites;
- Include sustainable travel information within any welcome packs and induction materials for new staff;
- Put up a travel information notice board;
- Promote Cycle2Work scheme where staff can save up to 30% on the cost of a new cycle;
- Obtain copies of local walking and cycle route maps and make available to staff and visitors;
- Ensure there are adequate cycle parking facilities on site;
- Ensure there are adequate pedestrian crossings and footways to facilitate walking;
- Ensure that on-site pedestrian linkages are kept clear from obstructions such as parked cars; and
- Encourage regular Travel Planning meetings with Travel Plan Co-ordinators for other site occupiers.

7.6 Travel Plan Management

In order to implement the Travel Plan, the site occupants will appoint a Travel Plan Co-ordinator (TPC), who will be the contact for staff and visitors with regard to sustainable transport. The TPC should also liaise with the Travel Plan representatives for the other individual plots within Airport City Manchester to collaborate in implementing TP measures and initiatives across the wider site.

Progress towards Travel Planning measures and Travel Plan monitoring and review will be undertaken through liaison between the TP representatives of the various plots, and through existing staff meetings. Travel Planning agenda items and responsibilities include:

- To set tasks and priorities for the TPC;
- To monitor and review progress;
- To provide management support required to take ideas forward; and
- To identify any necessary funding required to deliver the Travel Plan.

7.7 Marketing, Monitoring and Review

The following range of marketing tools and media could be utilised to inform staff and visitors about the TP:

- Distribution of the TP document and annual progress reports and action plans;
- Encouragement of staff involvement in meetings where the TP is discussed;
- Production and distribution of a summary of sustainable travel options;
- Feeding of TP news and events to staff via staff meetings;
- Distribution of promotional materials, e.g. cycle and bus maps;

- TP information and car park management on the internet / intranet, e.g. the Airport website and tourism websites;
- Introducing the TP in welcome packs for new employees; and
- Travel information on noticeboards.

TPs are dynamic documents that require monitoring and review to ensure that they remain relevant and continue to be implemented. Once the office development is occupied it would be necessary to monitor the plan on a regular basis.

TP monitoring will be in the form of progress against the measures put in place. It will also include the collection of data on car parking, cycle parking and motorcycle parking usage. Annual snap shot surveys should be undertaken, with a full TP survey at the end of the fifth year after introduction of the TP to determine the success of the strategy. An updated plan should then be produced after this initial 5 year period.

Annual reports could be produced to detail progress to date and to provide an annual action plan for the forthcoming year.

8. Conclusion

8.1 Introduction

AECOM has been commissioned by Airport City JV to produce a Transport Statement (TS) in support of a planning application for a 1,497 space Multi-Storey Car Park with ancillary retail land use up to 1,800m^2, plus approximately 16,720m^2 gross floor area of B1 office or commercial land use. The proposed developments will be located on Plots E1, E2 and E3 within the Airport City Manchester Masterplan area. The development forms part of the array of mixed use developments which have been approved as part of the Airport City Manchester outline planning application. The application also include the provision of 200 temporary surface car parking spaces within an area of existing car parking immediately to the west of the access into the development site from Enterprise Way.

8.2 Summary

The TS has considered the following:

- The site and the local transport conditions;
- Access to the site by sustainable modes of transport;
- The vehicle access strategy and parking proposals; and
- The implications with regard to traffic impact on the local road network.

8.3 Conclusion

The TS has:

- Demonstrated that the proposed development is in compliance with the relevant transport policies within existing and emerging documents and with the priorities set out within the NPPF;
- Shown that the proposed development site is in an accessible location in terms of pedestrian, cyclist and public transport routes in the vicinity of the development site. The proposed development is located approximately 300m north of The Station at Manchester Airport, which provides a 24-hour transport interchange hub served by frequent heavy rail, light rail (Metrolink), bus and coach services. Cycle Route Number 85 is currently situated to the north and east of the proposed development site, which provides links to the main passenger terminals. The cycle route also connects to Manchester City Centre via Hulme and Fallowfield to the north. This cycle route forms part of the 8 mile Manchester Airport Orbital Cycleway, which is predominantly traffic free with the exception of Thorley Lane;
- Considered the recent collision history for the latest five year period, covering the extent of the local highway network in the vicinity of the development site. It is considered that the proposed development is unlikely to have a detrimental effect on road safety in the area;
- Considered site access arrangements including access for service vehicles, as well as provision of pedestrian linkages between the site and the Airport Ground Transport Interchange (The Station);
- Predicted the traffic impact of the proposals. The development trip generation has been based on the trip rates extracted from the latest TRICS database. This demonstrates that the proposed level of parking is sufficient to accommodate the expected trip generation. It should be noted that the proposed delivery of 1,497 parking spaces within the Plot E1 multi-storey car park, plus the provision of a temporary 200-space surface car park, is not solely to serve the Plot E2/E3 developments. The remainder of the car parking proposed as part of this planning application will serve the wider Airport City North development, including the Plot G and Plot P hotel developments. The assessment has identified that the proposed allocation of parking set aside for Plots E2 and E3 within the overall Plot E1 provision is adequate to accommodate the estimated maximum demand.
- It is considered that the traffic impact assessment undertaken for the 2013 Airport City North TA was based on assumptions which accounted for the proposed development site. This assessment indicated that the local highway network would operate within capacity with no significant queues or delays in 2030. This clearly indicates that based on the previous traffic impact assessment undertaken for the wider development, the likely impact of the proposed Plot E1-E3 development has been accounted for and is considered to be acceptable in principle.

- The TS also presents a summary of the outcome of an updated VISSIM modelling assessment which considers the potential impact of the initial phase of ACN development for an assessment year of 2021. This indicates that the impact of the proposed Plot E1-E3 development can be accommodated on the local highway network; and
- Set out an outline Travel Plan for the development. This can be developed into a full Travel Plan by the future occupier of the site, and will link the proposed development into the wider aspirations of the Airport City North Sustainable Transport Strategy, and the Manchester Airport Economy and Surface Access Plan.

It is therefore considered that there are no significant transport reasons why the proposed Plot E1-E3 development should not be granted planning permission.

Appendix A Site Layout

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Figured dimensions only are to be taken from this drawing. Do not scale from this drawing.

All Contractors must visit the site and are responsible for taking and checking all dimensions relative to their work. 5plus Architects are to be advised of any variation between drawings and site conditions.

Electronic data/ drawings issued as 'read only' and should not be interrogated for measurement.
All dimensions and levels should be 'read only' from those values noted in text, on the drawings

⚠ CONSTRUCTION - It is considered that the proposed works are within the scope of a competent Contractor and as such no unusual hazards have been identified, refer to relevant Keyr Scheduled Designers Risk Assessment

KEY PLAN:

P1

P2

World Way

G1

G2

Chicago Avenue

REV:	DATE:	DETAILS:
A	17/08/18	Revised for Planning Issue

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www.5plusarchitects.com

PROJECT:
Airport City
Manchester

TITLE:
Ground Level Site Plan
Proposed Site Plan - Emerging Illustrative Masterplan

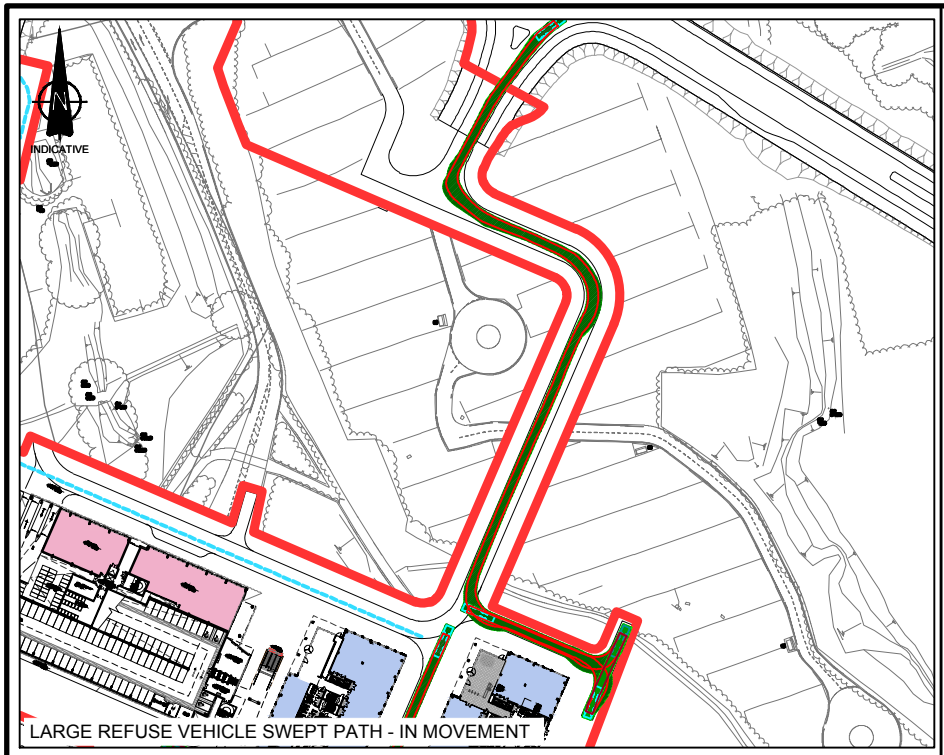
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1:1250 @ A1	02.08.18	HF	JB

STATUS:
Planning

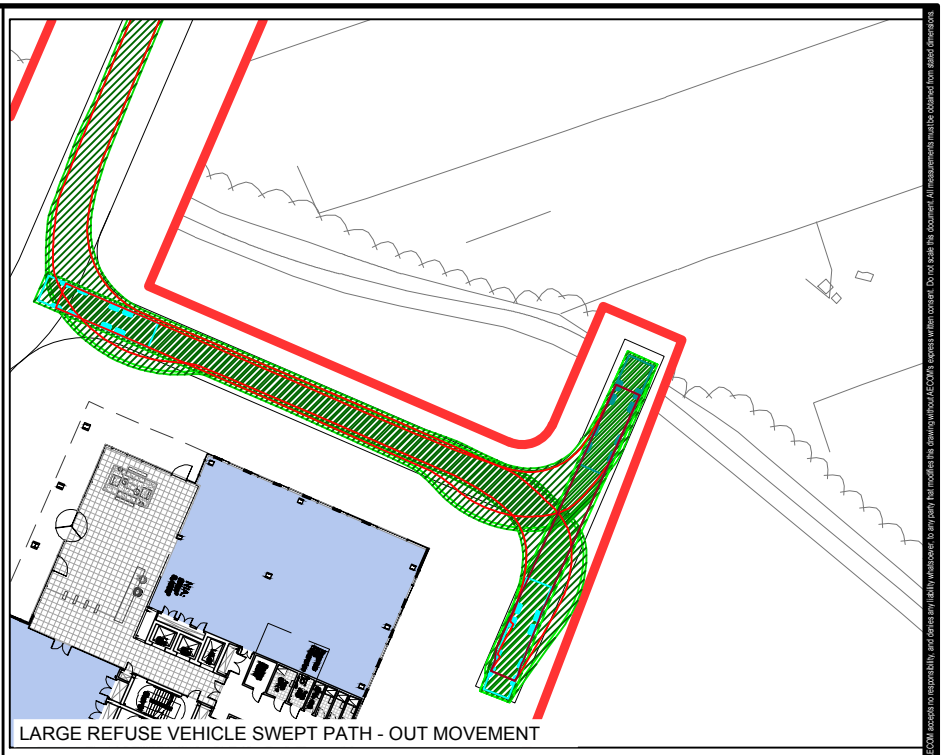
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05042	MP_00_0210	A

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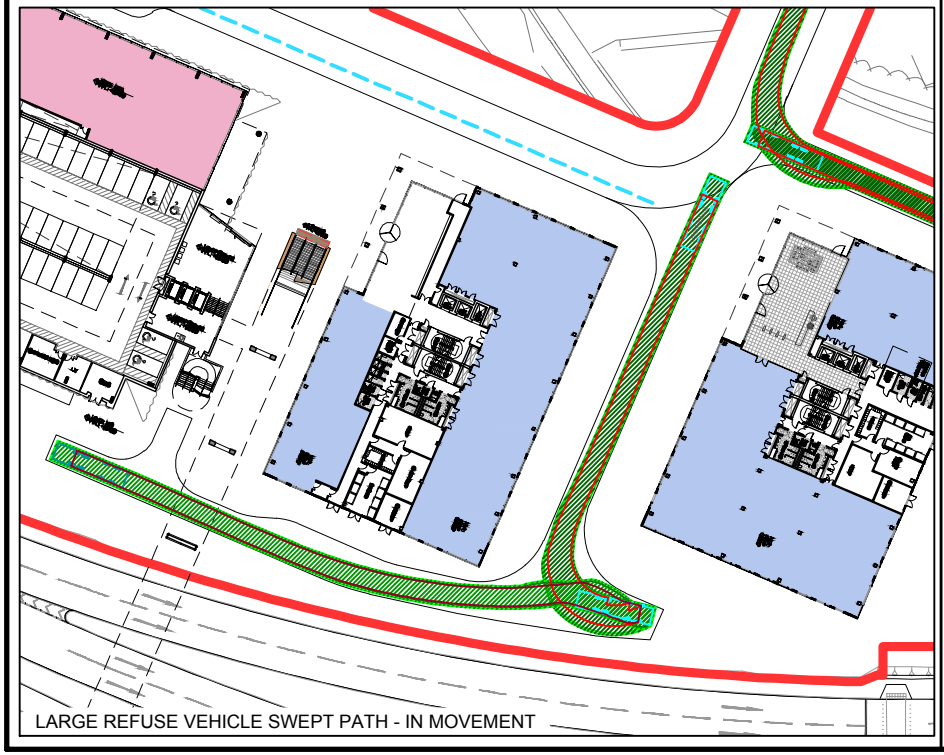
Appendix B Swept Path Analysis



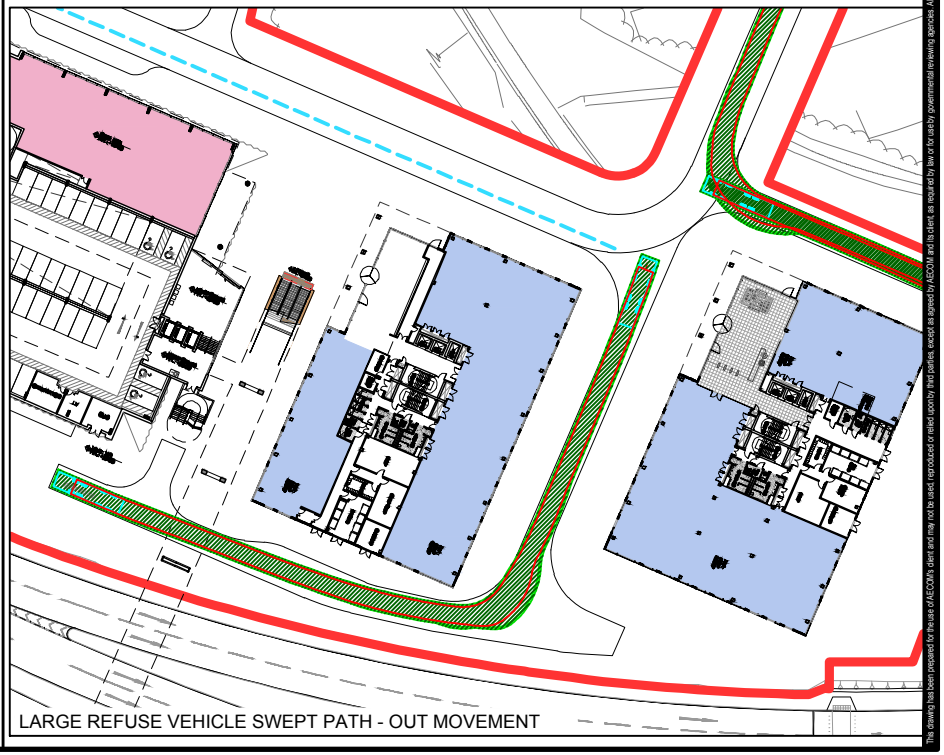
LARGE REFUSE VEHICLE SWEPT PATH - IN MOVEMENT



LARGE REFUSE VEHICLE SWEPT PATH - OUT MOVEMENT



LARGE REFUSE VEHICLE SWEPT PATH - IN MOVEMENT



LARGE REFUSE VEHICLE SWEPT PATH - OUT MOVEMENT

Project Management Initials: Designer: JF Checked: RT Approved: DC ISO A1 594mm x 841mm

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PROJECT

PLOT E2 / E3

CLIENT

AIRPORT CITY JV

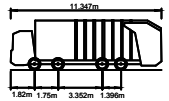
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LARGE REFUSE VEHICLE (4 AXLE)



OVERALL LENGTH	11.347m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	3.751m
MIN BODY GROUND CLEARANCE	0.304m
TRACK WIDTH	2.500m
LOCK TO LOCK TIME	6.00s
WALL TO WALL TURNING RADIUS	11.330m

0 12.5 25 m
1:500 @ A1; 1:1000 @ A3

ISSUED FOR COMMENT

ISSUE/REVISION

I/R	DATE	DESCRIPTION
-	29/08/2018	FIRST ISSUE

PROJECT NUMBER

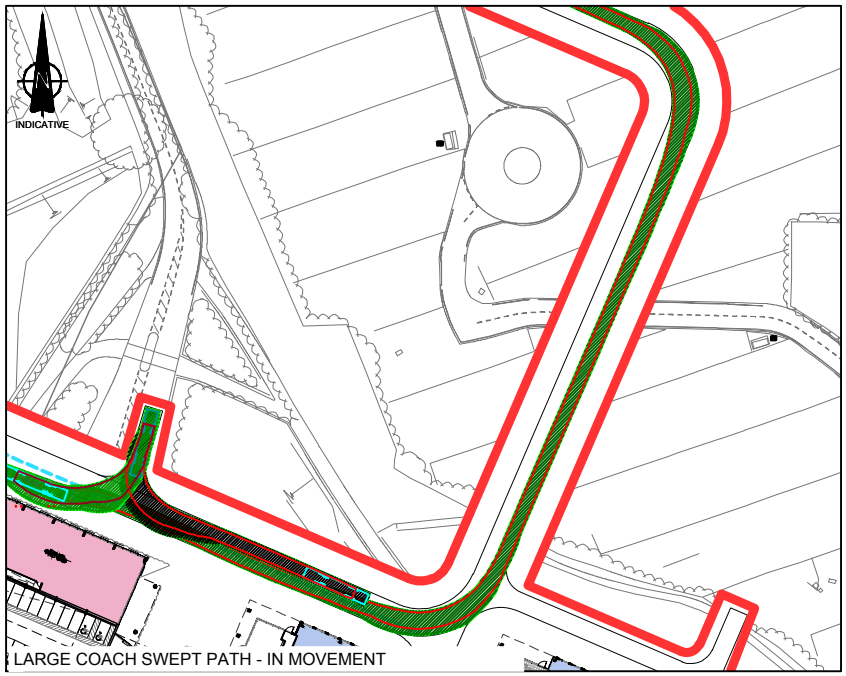
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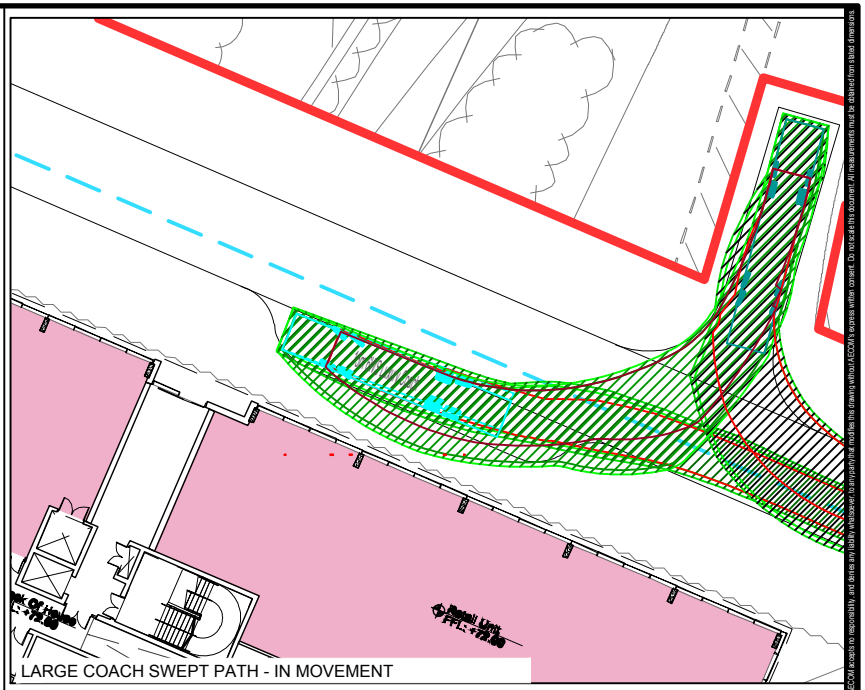
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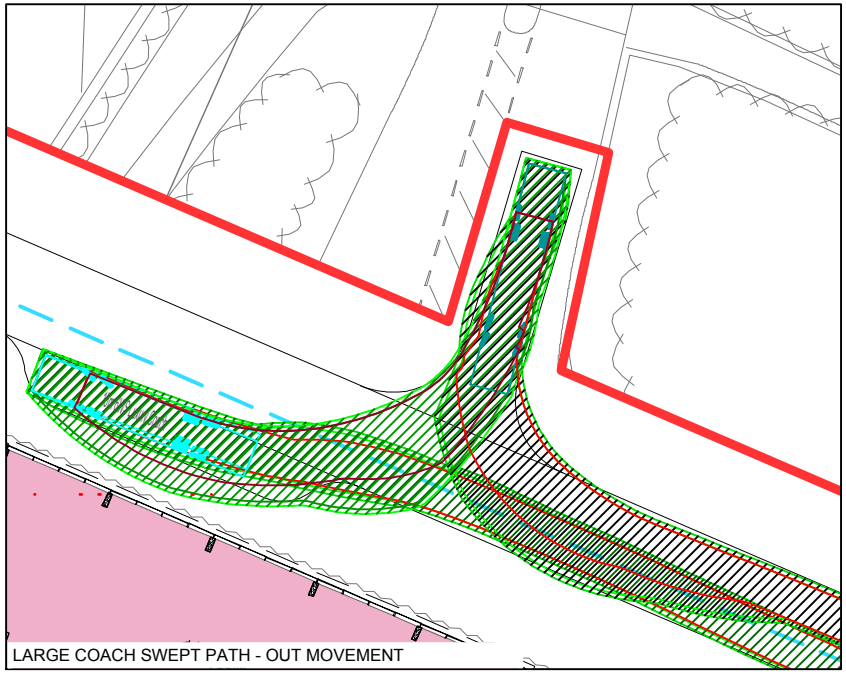
PROPOSED SERVICE ROAD
SWEPT PATH ANALYSIS
LARGE REFUSE VEHICLE

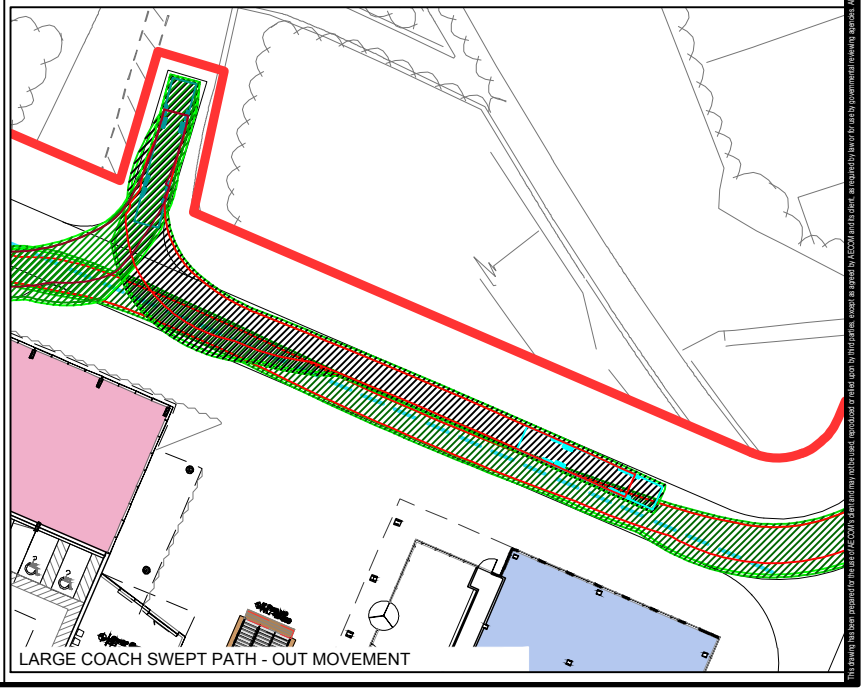
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PROJECT

PLOT E2 / E3

CLIENT

AIRPORT CITY JV

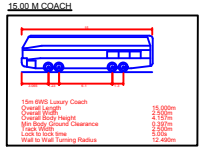
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15.00 M COACH



0 12.5 25 m
1:500 @ A1; 1:1000 @ A3

ISSUED FOR COMMENT

ISSUE/REVISION

I/R	DATE	DESCRIPTION
-	29/09/2018	FIRST ISSUE

PROJECT NUMBER

SHEET TITLE

PROPOSED SERVICE ROAD
SWEPT PATH ANALYSIS
15.00 M COACH

SHEET NUMBER

60489357-P-0000-003

Appendix C BREEAM Tra 01Public Transport Accessibility Calculation

BREEAM 2014 Tra01 Public Transport Accessibility calculator

Using the drop down boxes make the relevant selections and press the 'Select' button

Building type: Offices/Industrial

No. nodes required: 3

Building in Greater London?

Dedicated bus service: No

Select

NODE 1

Public transport type	Bus
Distance to node (m)	400

	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	2	3	6	1	2	1	1	2		

NODE 2

Public transport type	Rail
Distance to node (m)	400

	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	11									

NODE 3

Public transport type	Rail
Distance to node (m)	400

	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	5									

Accessibility Index	11.46
Tra01 total credits achieved	3

Appendix D TRICS Output

TRICS 7.5.2

Trip Rate Parameter:	Gross floor area		
Filtering Summary			
Land Use	02/A	EMPLOYMENT/OFFICE	
Selected Trip Rate Calculation Parameter Range	1000-10000 sqm GFA		
Actual Trip Rate Calculation Parameter Range	1230-8000 sqm GFA		
Date Range	Minimum: 01/01/10	Maximum: 12/09/17	
Days of the week selected	Monday	6	
	Tuesday	7	
	Wednesday	3	
	Thursday	8	
	Friday	3	
Main Location Types selected	Edge of Town Centre	15	
	Suburban Area (PPS6 Out of Centre)	6	
	Edge of Town	6	
Population <1 Mile ranges selected	1 001 to 5	0	3
	5 001 to 10	0	7
	10 001 to 15	0	2
	15 001 to 20	0	4
	20 001 to 25	0	1
	25 001 to 50	0	10
Population <5 Mile ranges selected	5 001 to 25	0	1
	25 001 to 50	0	3
	75 001 to 100	0	4
	100 001 to 125	0	1
	125 001 to 250	0	15
	500 001 or More	3	
Car Ownership <5 Mile ranges selected	0.5 or Less	1	
	0.6 to 1.0	10	
	1.1 to 1.5	16	
PTAL Rating	No PTAL Present	27	

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use	02 - EMPLOYMENT
Category	A - OFFICE
VEHICLES	

Selected regions and areas:

2	SOUTH EAST		
	BD	BEDFORDSHIRE	1 days
	ES	EAST SUSSEX	1 days
	HF	HERTFORDSHIRE	1 days
	KC	KENT	4 days
	SC	SURREY	1 days
4	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	2 days
	NF	NORFOLK	2 days
	SF	SUFFOLK	2 days
6	WEST MIDLANDS		
	WM	WEST MIDLANDS	1 days
	WO	WORCESTERSHIRE	1 days
7	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	2 days
8	NORTH WEST		
	GM	GREATER MANCHESTER	1 days
	LC	LANCASHIRE	1 days
9	NORTH		
	DH	DURHAM	2 days
10	WALES		
	MT	MERTHYR TYDFIL	1 days
	PS	POWYS	1 days
	SW	SWANSEA	2 days
11	SCOTLAND		
	DU	DUNDEE CITY	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Gross floor area
Actual Range:	1230 to 8000 (units: sqm)
Range Selected by User:	1000 to 10000 (units: sqm)
Public Transport Provision:	
Selection by:	Include all surveys
Date Range:	01/01/10 to 12/09/17

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:	
Monday	6 days
Tuesday	7 days
Wednesday	3 days
Thursday	8 days
Friday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:	
Manual count	27 days
Directional ATC Count	0 days

This data displays the number of manual classified surv the total adding up to the overall number i whilst ATC surveys are undertaking using machines.

Selected Locations:	
Town Centre	0
Edge of Town Centre	15
Suburban Area (PPS6 Out of Centre)	6
Edge of Town	6
Neighbourhood Centre (PPS6 Local Centre)	0
Free Standing (PPS6 Out of Town)	0
Not Known	0

This data displays the number of surveys per main loca Edge of Town Suburban Area Neighbourh Edge of Tc Town Centre and Not Known.

Selected Location Sub Categories:	
Industrial Zone	3
Commercial Zone	5
Development Zone	3
Residential Zone	5
Retail Zone	0
Built-Up Zone	8
Village	0
Out of Town	0
High Street	0
No Sub Category	3

This data displays the number of surveys per location s Industrial Zone Development Zone Residential Z Retail Zon Built-Up Z Village Out of Tov High Street and No Sub Category.

Secondary Filtering selection:

Use Class:	
B1	27 days

This data displays the number of surveys per Use Class which can be found within the Library module of TRICS®.

Population within 1 mile:	
1,001 to 5,000	3 days
5,001 to 10,000	7 days
10,001 to 15,000	2 days
15,001 to 20,000	4 days
20,001 to 25,000	1 days
25,001 to 50,000	10 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:	
5,001 to 25,000	1 days
25,001 to 50,000	3 days

75,001 to 100,000	4 days
100,001 to 125,000	1 days
125,001 to 250,000	15 days
500,001 or More	3 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	10 days
1.1 to 1.5	16 days

This data displays the number of selected surveys within within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	9 days
No	18 days

This data displays the number of surveys within the sele and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	27 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

Site(1):	BD-02-A-03	Gross floor area:	1469 sqm
Development Name:	OFFICES		
Location:	BEDFORD		
Postcode:	MK40 2BJ	Number of Employees:	240
Main Location Type:	Edge of Town Centre	Survey Date:	14/10/2013
Sub-Location Type:	No Sub Category	Survey Day:	Monday
PTAL:	n/a	Parking Spaces:	55
Site(2):	CA-02-A-04	Gross floor area:	6483 sqm
Development Name:	OFFICE		
Location:	PETERBOROUGH		
Postcode:	PE3 8BG	Number of Employees:	350
Main Location Type:	Edge of Town	Survey Date:	20/10/2011
Sub-Location Type:	Commercial Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	315
Site(3):	CA-02-A-06	Gross floor area:	4040 sqm
Development Name:	OFFICES		
Location:	PETERBOROUGH		
Postcode:	PE2 6WZ	Number of Employees:	400
Main Location Type:	Edge of Town	Survey Date:	19/10/2016
Sub-Location Type:	Commercial Zone	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	343
Site(4):	DH-02-A-01	Gross floor area:	3372 sqm
Development Name:	RPMI OFFICES		
Location:	DARLINGTON		
Postcode:	DL3 6EH	Number of Employees:	250
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	05/11/2010
Sub-Location Type:	Residential Zone	Survey Day:	Friday
PTAL:	n/a	Parking Spaces:	99
Site(5):	DH-02-A-02	Gross floor area:	2000 sqm
Development Name:	CONSTRUCTION COMPANY		
Location:	NEAR DURHAM		
Postcode:	DH6 5PF	Number of Employees:	115
Main Location Type:	Edge of Town	Survey Date:	27/11/2012
Sub-Location Type:	Industrial Zone	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	125
Site(6):	DU-02-A-01	Gross floor area:	3200 sqm
Development Name:	OFFICES		
Location:	DUNDEE		
Postcode:	DD1 4QB	Number of Employees:	146
Main Location Type:	Edge of Town Centre	Survey Date:	27/04/2017
Sub-Location Type:	Development Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	67
Site(7):	ES-02-A-12	Gross floor area:	3640 sqm
Development Name:	COUNCIL OFFICES		
Location:	HAILSHAM		
Postcode:	BN27 2AX	Number of Employees:	341
Main Location Type:	Edge of Town Centre	Survey Date:	26/11/2015
Sub-Location Type:	Built-Up Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	78
Site(8):	GM-02-A-09	Gross floor area:	2500 sqm
Development Name:	LEASED OFFICES		
Location:	MANCHESTER		
Postcode:	M4 4DE	Number of Employees:	670
Main Location Type:	Edge of Town Centre	Survey Date:	26/09/2016
Sub-Location Type:	Built-Up Zone	Survey Day:	Monday
PTAL:	n/a	Parking Spaces:	
Site(9):	HF-02-A-04	Gross floor area:	5000 sqm
Development Name:	OFFICES		
Location:	ST ALBANS		
Postcode:	AL1 5HE	Number of Employees:	365
Main Location Type:	Edge of Town Centre	Survey Date:	02/10/2014
Sub-Location Type:	Residential Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	205
Site(10):	KC-02-A-07	Gross floor area:	2525 sqm
Development Name:	KCC HIGHWAYS REG.		
Location:	ASHFORD		
Postcode:	TN24 8AD	Number of Employees:	233
Main Location Type:	Edge of Town	Survey Date:	05/12/2011
Sub-Location Type:	Commercial Zone	Survey Day:	Monday
PTAL:	n/a	Parking Spaces:	147
Site(11):	KC-02-A-08	Gross floor area:	3168 sqm
Development Name:	KCC HIGHWAYS REG. OFFICE		
Location:	AYLESFORD		
Postcode:	ME20 7BU	Number of Employees:	190
Main Location Type:	Edge of Town	Survey Date:	28/11/2011
Sub-Location Type:	Industrial Zone	Survey Day:	Monday
PTAL:	n/a	Parking Spaces:	155
Site(12):	KC-02-A-09	Gross floor area:	1500 sqm
Development Name:	COUNCIL OFFICES		
Location:	MAIDSTONE		
Postcode:	ME14 1XQ	Number of Employees:	200
Main Location Type:	Edge of Town Centre	Survey Date:	19/10/2011
Sub-Location Type:	Built-Up Zone	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	25
Site(13):	KC-02-A-10	Gross floor area:	2900 sqm
Development Name:	COUNCIL OFFICES		
Location:	MAIDSTONE		
Postcode:	ME14 1QX	Number of Employees:	430
Main Location Type:	Edge of Town Centre	Survey Date:	19/10/2011
Sub-Location Type:	Built-Up Zone	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	0
Site(14):	LC-02-A-09	Gross floor area:	2600 sqm
Development Name:	OFFICES		
Location:	BLACKBURN		
Postcode:	BB1 3HQ	Number of Employees:	150
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	04/06/2013
Sub-Location Type:	Built-Up Zone	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	89
Site(15):	MT-02-A-02	Gross floor area:	5250 sqm
Development Name:	COUNCIL OFFICES		
Location:	MERTHYR TYDFIL		
Postcode:	CF47 8AN	Number of Employees:	0
Main Location Type:	Edge of Town Centre	Survey Date:	17/10/2013
Sub-Location Type:	Built-Up Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	56
Site(16):	NF-02-A-01	Gross floor area:	5500 sqm
Development Name:	COUNCIL OFFICE		
Location:	KING'S LYNN		
Postcode:	PE30 1EX	Number of Employees:	408
Main Location Type:	Edge of Town Centre	Survey Date:	30/09/2010
Sub-Location Type:	Built-Up Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	5
Site(17):	NF-02-A-03	Gross floor area:	5500 sqm
Development Name:	OFFICES		
Location:	GREAT YARMOUTH		
Postcode:	NR30 1HD	Number of Employees:	380
Main Location Type:	Edge of Town Centre	Survey Date:	12/09/2017
Sub-Location Type:	Commercial Zone	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	72
Site(18):	PS-02-A-01	Gross floor area:	3920 sqm
Development Name:	COUNCIL OFFICES		
Location:	WELSHPOOL		

Postcode:	SY21 7AS	Number of Employees:	140
Main Location Type:	Edge of Town Centre	Survey Date:	12/05/2015
Sub-Location Type:	No Sub Category	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	121
Site(19):	SC-02-A-15	Gross floor area:	1896 sqm
Development Name:	ACCOUNTANTS		
Location:	GUILDFORD		
Postcode:	GU1 1UW	Number of Employees:	140
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	05/10/2010
Sub-Location Type:	Residential Zone	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	63
Site(20):	SF-02-A-01	Gross floor area:	8000 sqm
Development Name:	COUNCIL OFFICES		
Location:	BURY ST. EDMUNDS		
Postcode:	IP33 3YU	Number of Employees:	700
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	27/09/2010
Sub-Location Type:	Industrial Zone	Survey Day:	Monday
PTAL:	n/a	Parking Spaces:	342
Site(21):	SF-02-A-02	Gross floor area:	6505 sqm
Development Name:	OFFICES		
Location:	IPSWICH		
Postcode:	IP2 8SD	Number of Employees:	218
Main Location Type:	Edge of Town Centre	Survey Date:	19/07/2013
Sub-Location Type:	Commercial Zone	Survey Day:	Friday
PTAL:	n/a	Parking Spaces:	160
Site(22):	SW-02-A-01	Gross floor area:	6630 sqm
Development Name:	OFFICES		
Location:	SWANSEA		
Postcode:	SA1 8AG	Number of Employees:	1221
Main Location Type:	Edge of Town Centre	Survey Date:	25/10/2013
Sub-Location Type:	Development Zone	Survey Day:	Friday
PTAL:	n/a	Parking Spaces:	184
Site(23):	SW-02-A-02	Gross floor area:	2225 sqm
Development Name:	OFFICE		
Location:	SWANSEA		
Postcode:	SA1 8PG	Number of Employees:	155
Main Location Type:	Edge of Town Centre	Survey Date:	24/10/2013
Sub-Location Type:	Development Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	131
Site(24):	WM-02-A-04	Gross floor area:	1800 sqm
Development Name:	OFFICE		
Location:	BIRMINGHAM		
Postcode:	B30 1QY	Number of Employees:	50
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	10/11/2015
Sub-Location Type:	Residential Zone	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	78
Site(25):	WO-02-A-02	Gross floor area:	2000 sqm
Development Name:	OFFICE		
Location:	WORCESTER CITY COUNCIL		
Postcode:	WR1 3DB	Number of Employees:	125
Main Location Type:	Edge of Town Centre	Survey Date:	14/11/2016
Sub-Location Type:	Built-Up Zone	Survey Day:	Monday
PTAL:	n/a	Parking Spaces:	15
Site(26):	WY-02-A-03	Gross floor area:	2696 sqm
Development Name:	OFFICE		
Location:	LEEDS		
Postcode:	LS6 1LG	Number of Employees:	243
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	17/06/2010
Sub-Location Type:	Residential Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	
Site(27):	WY-02-A-05	Gross floor area:	1230 sqm
Development Name:	OFFICES		
Location:	CASTLEFORD		
Postcode:	WF10 5TG	Number of Employees:	115
Main Location Type:	Edge of Town	Survey Date:	23/05/2017
Sub-Location Type:	No Sub Category	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	47

This section provides a list of all survey sites and days in it displays a unique site reference code an the selected trip rate calc the day of th and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
Calculation Factor: 100 sqm
Count Type: VEHICLES

			ARRIVALS			DEPARTURES			TOTALS
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00		27 3613	0.937	27	3613	0.135	27	3613	1.072
08:00-09:00		27 3613	2.218	27	3613	0.304	27	3613	2.522
09:00-10:00		27 3613	1.18	27	3613	0.385	27	3613	1.565
10:00-11:00		27 3613	0.411	27	3613	0.337	27	3613	0.748
11:00-12:00		27 3613	0.394	27	3613	0.341	27	3613	0.735
12:00-13:00		27 3613	0.451	27	3613	0.561	27	3613	1.012
13:00-14:00		27 3613	0.511	27	3613	0.499	27	3613	1.01
14:00-15:00		27 3613	0.344	27	3613	0.463	27	3613	0.807
15:00-16:00		27 3613	0.282	27	3613	0.475	27	3613	0.757
16:00-17:00		27 3613	0.289	27	3613	1.319	27	3613	1.608
17:00-18:00		27 3613	0.191	27	3613	1.781	27	3613	1.972
18:00-19:00		26 3705	0.046	26	3705	0.551	26	3705	0.597
19:00-20:00									
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			7.254			7.151			14.405

Parameter summary

Trip rate parameter range selected:	1230 - 8000 (units: sqm)
Survey date date range:	01/01/10 - 12/09/17
Number of weekdays (Monday-Friday):	27
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	3
Surveys manually removed from selection:	0

This section displays a quick summary of some of the d followed by the range of minimum and ma the total number of selec the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRICS 7.4.2
Trip Rate P Number of bedrooms

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use 06 - HOTEL FOOD & DRINK
Category A - HOTELS
VEHICLES

Selected regions and areas:

2	SOUTH EAST		
	BU	BUCKINGH	1 days
	WS	WEST SUS	1 days
3	SOUTH WEST		
	DV	DEVON	1 days
	GS	GLOUCEST	1 days
4	EAST ANGLIA		
	CA	CAMBRIDG	1 days
	NF	NORFOLK	1 days
6	WEST MIDLANDS		
	WM	WEST MID	1 days
7	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORI	1 days
8	NORTH WEST		
	LC	LANCASHIF	1 days
9	NORTH		
	TV	TEES VALLE	1 days
	TW	TYNE & WE	1 days
10	WALES		
	WR	WREXHAM	1 days
11	SCOTLAND		
	AG	ANGUS	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.
Parameter Number of bedrooms
Actual Ran 4 to 139 (units:)
Range Sele 100 to 380 (units:)

Public Transport Provision:
Selection b Include all surveys

Date Rang 01/01/09 to 26/09/16

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.
Selected survey days:

Monday	2 days
Tuesday	1 days
Wednesda	2 days
Thursday	3 days
Friday	5 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual co 13 days
Directional 0 days
This data d the total a whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Cent	0
Edge of To	0
Suburban A	6
Edge of To	5
Neighbour	1
Free Stand	1
Not Known	0

This data d Edge of Tc Suburban Neighbour Edge of Tc Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Z	1
Commercia	0
Developme	1
Residential	4
Retail Zone	0
Built-Up Zc	1
Village	1
Out of Tow	2
High Street	0
No Sub Cat	3

This data d Industrial Z Developm Residentia Retail Zon Built-Up Z Village Out of Tov High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
C1 13 days
This data d which can be found within the Library module of TRICS®.

Population within 1 mile:
1,000 or Le 1 days
1,001 to 5, 1 days
5,001 to 1(4 days
10,001 to 1 2 days
20,001 to 2 4 days
100,001 or 1 days
This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
25,001 to 2 days
75,001 to 1 days
100,001 to 1 days
125,001 to 4 days
250,001 to 4 days
500,001 or 1 days
This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:
0.6 to 1.0 3 days
1.1 to 1.5 10 days
This data d within a radius of 5-miles of selected survey sites.

Travel Plan:
No 13 days
This data d and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
No PTAL Pr 13 days
This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters
1 AG-06-A-0: BOUTIQUE ANGUS
CLIFFBURN ROAD
HAYSHEAD
ARBROATH
Edge of Town
Residential Zone
Total Number of bedr 4
Survey dat TUESDAY ######## Survey Typ MANUAL
2 BU-06-A-0: HOLIDAY IN BUCKINGHAMSHIRE
NEW ROAD
WESTON TURVILLE
AYLESBURY
Edge of Town
Out of Town
Total Number of bedr 139
Survey dat WEDNESD/ ######## Survey Typ MANUAL
3 CA-06-A-0: TRAVELOD CAMBRIDGESHIRE
CLIFTON WAY
CAMBRIDGE LEISURE PARK
CAMBRIDGE
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Number of bedr 120
Survey dat FRIDAY ######## Survey Typ MANUAL
4 DV-06-A-0: FUTURE IN DEVON
WILLIAM PRANCE ROAD

PLYMOUTH
Edge of Town
Industrial Zone
Total Number of bedr 110
Survey dat WEDNESD ######## Survey Typ MANUAL
5 GS-06-A-02 PREMIER II GLOUCESTERSHIRE
GLOUCESTER ROAD
SAINT MARKS
CHELTENHAM SPA
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of bedr 67
Survey dat THURSDAY ######## Survey Typ MANUAL
6 LC-06-A-04 BEST WEST LANCASHIRE
LEYLAND WAY

LEYLAND
Edge of Town
Residential Zone
Total Number of bedr 93
Survey dat FRIDAY ######## Survey Typ MANUAL
7 NF-06-A-02 HOLIDAY II NORFOLK
IPSWICH ROAD
HARFORD PARK
NORWICH
Edge of Town
No Sub Category
Total Number of bedr 119
Survey dat THURSDAY ######## Survey Typ MANUAL
8 TV-06-A-02 HOTEL TEES VALLEY
MARTON ROAD

MIDDLESBROUGH
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of bedr 74
Survey dat FRIDAY ######## Survey Typ MANUAL
9 TW-06-A-0 TRAVELOD TYNE & WEAR
CASPER WAY
SWALWELL
GATESHEAD
Suburban Area (PPS6 Out of Centre)
Development Zone
Total Number of bedr 60
Survey dat FRIDAY ######## Survey Typ MANUAL
10 WM-06-A-(HOTEL WEST MIDLANDS
BIRMINGHAM ROAD
HOPWOOD
BIRMINGHAM
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Number of bedr 56
Survey dat MONDAY ######## Survey Typ MANUAL
11 WR-06-A-0 HOTEL WREXHAM
WREXHAM ROAD
HOLT
NEAR WREXHAM
Free Standing (PPS6 Out of Town)
Out of Town
Total Number of bedr 37
Survey dat THURSDAY ######## Survey Typ MANUAL
12 WS-06-A-0 EXPRESS B\ WEST SUSSEX
HASLETT AVENUE EAST

CRAWLEY
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of bedr 74
Survey dat MONDAY ######## Survey Typ MANUAL
13 WY-06-A-0 HOTEL WEST YORKSHIRE
CLIFF ROAD
HEADINGLEY
LEEDS
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of bedr 24
Survey dat FRIDAY ######## Survey Typ MANUAL

This sectio it displays the selecte the day of and whether the survey was a manual classified count or an ATC count.

TRIP RATE : FOOD & DRINK/A - HOTELS
Calculation Factor: 1 BEDRMS
Count Type: VEHICLES

	ARRIVALS			DEPARTURES			TOTALS		
Time Rang	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	13	75	0.075	13	75	0.18	13	75	0.255
08:00-09:0	13	75	0.142	13	75	0.244	13	75	0.386
09:00-10:0	13	75	0.18	13	75	0.138	13	75	0.318
10:00-11:0	13	75	0.105	13	75	0.113	13	75	0.218
11:00-12:0	13	75	0.097	13	75	0.134	13	75	0.231
12:00-13:0	13	75	0.12	13	75	0.09	13	75	0.21
13:00-14:0	13	75	0.127	13	75	0.15	13	75	0.277
14:00-15:0	13	75	0.096	13	75	0.107	13	75	0.203
15:00-16:0	13	75	0.11	13	75	0.156	13	75	0.266
16:00-17:0	13	75	0.148	13	75	0.126	13	75	0.274
17:00-18:0	13	75	0.217	13	75	0.124	13	75	0.341
18:00-19:0	13	75	0.228	13	75	0.13	13	75	0.358
19:00-20:0	13	75	0.189	13	75	0.126	13	75	0.315
20:00-21:0	13	75	0.108	13	75	0.076	13	75	0.184
21:00-22:0	13	75	0.058	13	75	0.073	13	75	0.131
22:00-23:0	1	74	0.081	1	74	0.068	1	74	0.149
23:00-24:0	1	74	0.014	1	74	0	1	74	0.014
Daily Trip Rates:			2.095			2.035			4.13

Parameter summary

Trip rate p	4 - 139 (units:)
Survey dat	01/01/09 - 26/09/16
Number of	13
Number of	0
Number of	0
Surveys au	2
Surveys ma	0

This sectio followed b the total n the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix E Airport City Development Traffic Impacts Report



Airport City Development Initial Phase - Draft

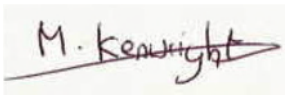
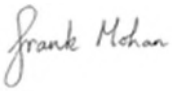
Traffic Impacts Report

Airport City

15 August 2018

Version 2.0

Quality information

Prepared by	Checked by	Verified by	Approved by
			
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Revision History

Revision	Revision date	Details	Authorized	Name	Position
0.1	10/07/2018	Internal Draft		Oliver Baldwin	Associate Director
1.0	08/08/2018	Client Issue		Frank Mohan	Regional Director
2.0	15/08/2018	Client Issue		Laura Appleton	Senior Consultant

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1. Introduction

1.1 Overview

Three planning applications are being brought forward at Airport City North (ACN):

1. The Hut Group (THG H!VE) Hybrid Application (Phase 1 Full [Plots C, D & O – MSCP and associated office] / Phase 2 Outline [Plot X car parking and associated office development);
2. Plot E (sites E1/E2/E3) Full Application; and
3. Outline Application for the remainder of the ACN site.

This report presents the assessment of applications 1 and 2 above, where the quantum of development falls within the overall quantum of development previously found acceptable and approved under the 2013 Outline Planning Permission.

Application 3 will be submitted at a later date and as this application is likely to result in the overall quantum of development on ACN exceeding that previously approved, at this stage further modelling work will be undertaken (the scope of which will be agreed with Manchester City Council (MCC) at the appropriate time).

Scope of Assessment

The assessment of the Airport City development, in relation to initial phases of the Airport City Masterplan, including the THG Site, and Plot E Sites has been undertaken using VISSIM Microsimulation modelling. This assessment has reviewed the highway impacts associated with these phases of development in relation to the already approved Airport City masterplan. Previous approved versions of the Airport City Masterplan include:

- Arlington assorted consents (dating from 1997), and the more recent Burford approved consent (2008). These consents which were granted outline planning permission by MCC in 2012, identified 1 parking space per 20m^2 of development, a total of around 5,600 parking spaces; and
- Also, the Airport City North Transport Assessment, approved in 2012, included 4,182 parking spaces and 547 cycle storage spaces. This was less than the MCC parking standards in the Core Strategy (max of 5,912), but showed a commitment to encouraging sustainable access to the site.

This assessment is required to understand the highway impacts within the Airport City development and on the key access points to Airport City.

1.2 Background

An overview of the agreed study area and extent of the VISSIM modelling is summarised in **Figure 1**.

Overview of Development Sites (Technology Campus / Plot E)

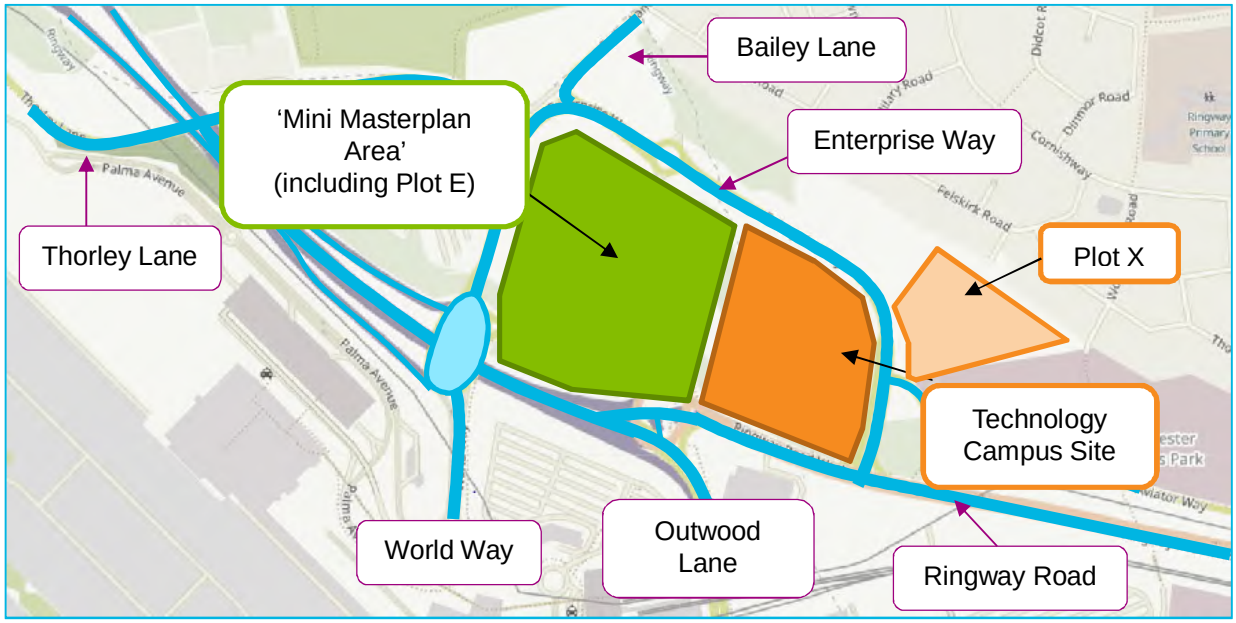
The existing site is served by Jet Parks 2 Long Stay airport parking, providing in the region of 2,000 parking spaces. Demand for these car parking spaces are typically serving longer term car parking. In addition, nearby, there are existing office developments located off Aviator Way and Bailey Lane, plus the Etrop Hotel. This traffic was also accounted for within the assumptions / uncertainty log for the A6MARR strategic model. The A6MARR strategic model is a strategic highway model developed using SATURN software, by TfGM. This modelling was developed to support the assessment and approval of the proposed A6MARR link road (currently under construction). As a result, this model includes a detailed assessment of wider none airport through traffic flows.

This part of the Airport City masterplan includes for new office development, with associated car parking, largely within two multi-storey (MSCP) car parks comprising:

- A 1,147 space MSCP for the technology campus site, plus a 832 space car park located to the north east of Enterprise Way at Plot X; and
- A 1,497 space MSCP serving the Plot E sites[1].

These development sites will be accessed off Enterprise Way. The overall quantum of development for Airport City was agreed in the original Transport Assessment for the area within the Airport City Red Line Boundary, included within the already approved outline consent for the Airport City site. This development forms a part of this approved development site.

Figure 1 – Study Area / Scope of Model Network



1.3 Structure of Report

Following this introduction, the remainder of this report includes the following:

- **Chapter 2:** Background information of the collection and collation of existing data;
- **Chapter 3:** Network development, providing details of the development of the model;
- **Chapter 4:** Explaining the matrices development process;
- **Chapter 5:** Discussing the results of the modelling exercise; and
- **Chapter 6:** Key Findings and Recommendations.

[1] The Plot E planning application includes demand for approximately 200 temporary surface car parking spaces, within an area of existing car parking. Once E1 is built, it is proposed that these spaces will move into E1. The modelling refers to the completion of the MSCP.

2. Data Collation

2.1 Data Collection

To support the assessment of the scheme, data has been collected to understand the existing highway conditions in the vicinity of airport city. Given that the existing sites are largely vacant plots of land, with almost no trip generation a future year baseline is recommended, instead of a 2018 base model. This will include a 2021 forecast year assessment.

The VISSIM model to be used for the assessment forms part of the existing Manchester Airport VISSIM Model and the network coding is considered appropriate for this assessment. Further details on the modelling methodology and approach can be found in **Chapter 3**.

However, to support the review of traffic conditions on the existing network, a series of data has been collated to support the assessment.

Existing data collated:

- Existing traffic count information ATCs (Automatic Traffic Counts); and
- Output from 2016 airport ANPR surveys.

Additional data collection in the form of:

- ATCs on key links such as Enterprise Way, Outwood Lane, and World Way; and
- Manual Classified traffic counts (MCCs) at key junctions relevant to Airport City.

The above data will be collated for verification purposes.

A summary of the observed data is provided in Appendix B. A summary of the traffic flows for the peak commute hours is shown in Figure 2 and Figure 3.

Figure 2 – AM Peak observed traffic flows (08:00 to 09:00)

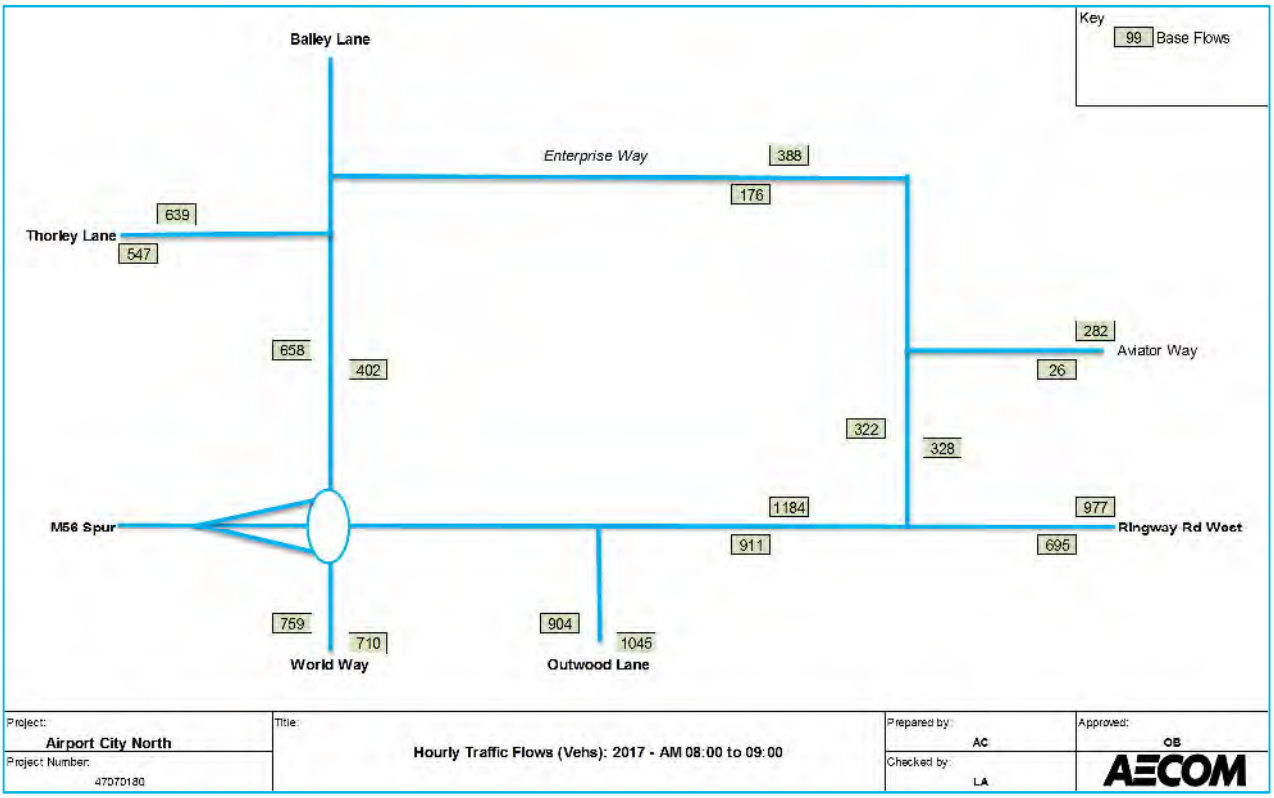
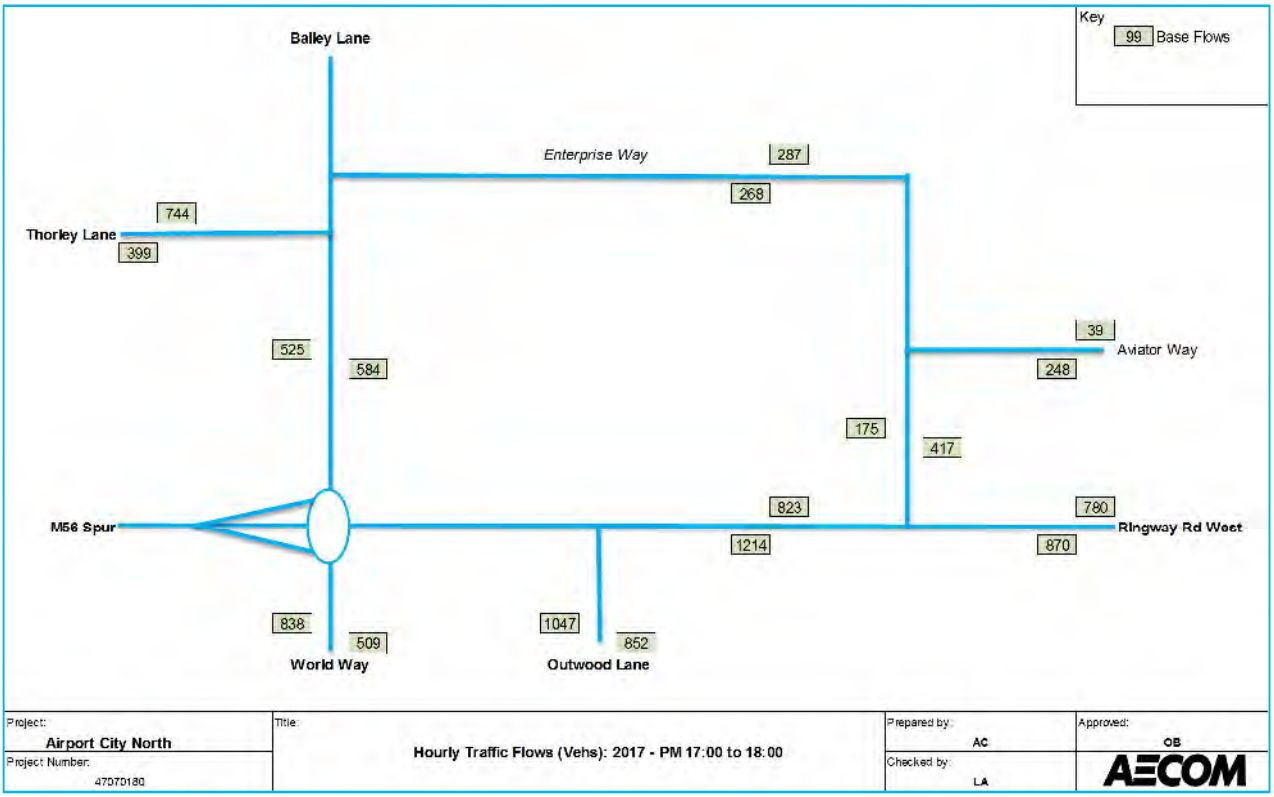


Figure 3 – PM Peak Observed traffic flows (17:00 to 18:00)



3. Network Development

3.1 Overview of Modelling Approach

The assessment has been undertaken using a cordoned version of the Manchester Airport VISSIM model, with increased model detail provided in the vicinity of Airport City to reflect the most appropriate baseline conditions.

To ensure the modelling aligns with best practice, the following approach has been undertaken when preparing the VISSIM model:

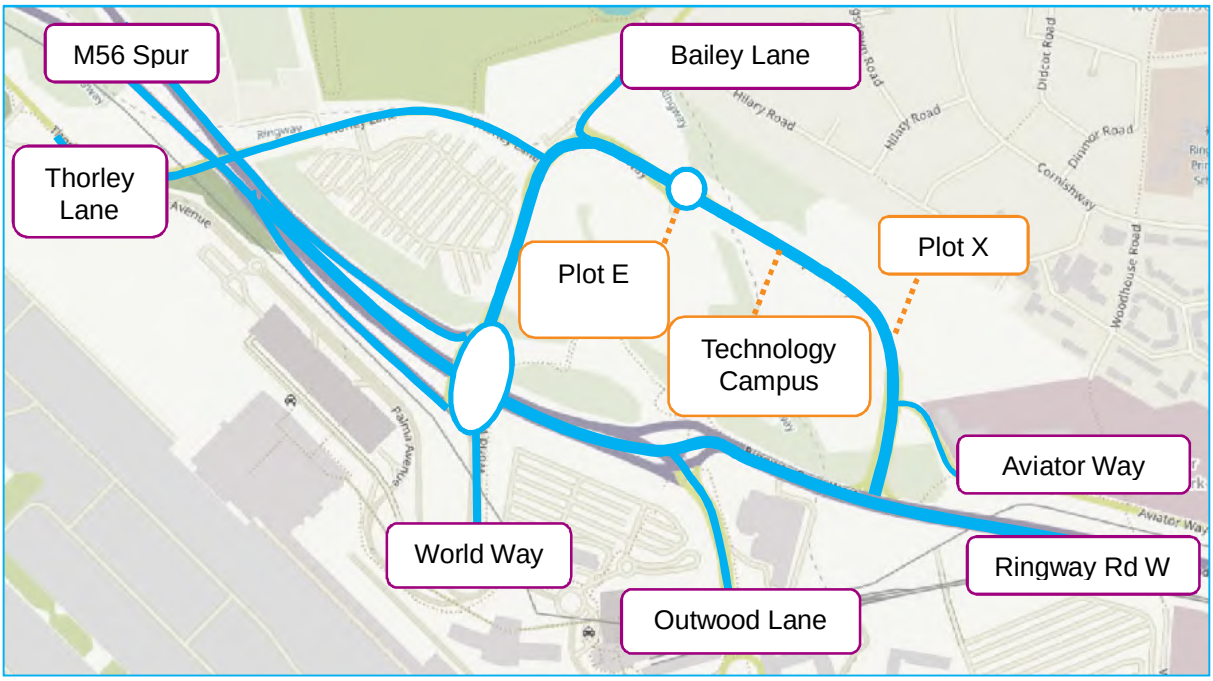
- Developed using VISSIM Version 9.0;
- Traffic flows applied using dynamic assignment (variable route choice allowed);
- Model traffic flows run to convergence in line with industry practices; and
- Model outputs generated based on an average of several random seeds.

This aligns with standard modelling approach and is consistent with other work undertaken for the airport by AECOM.

3.2 Starting Model

The existing VISSIM model consists of the airport's landside highway network including access to all terminals and car parks, as far west as the Airport Spur, north as Bailey Lane, and east along Ringway Rd W. A cordoned version of this model has been used, providing additional detail within the vicinity of Airport City. An overview of the extent of modelled network is shown in **Figure 4**; network shown in orange reflects the introduction of proposed car parks to serve the development.

Figure 4 – Model Coverage



3.3 Network Development Assumptions

3.3.1 Forecast Year Assessment

Model forecast years have been chosen to align with existing modelling tools and key development dates relating to Airport City and wider developments. A 2021 forecast year assessment was identified, which will

represent this early phase of Airport City, though capturing the completion of a number of highway modifications within the vicinity including:

- Completion of Enterprise Way;
- Completion of new junction at Ringway Road W / Outwood Lane;
- Opening of the A6MARR highway link; and
- Completion of new roundabout at Outwood Lane / Terminal Road North.

3.3.2 Scenarios Developed

The purpose of the scheme is to provide parking facilities for Airport City, thus producing additional movements within the network. Two scenarios have been assessed:

- Do Minimum: 2021 scenario without Technology Campus site and E1/2/3 Plots; and
- Do Something: 2021, including Technology Campus site and E1/2/3 plots.

3.3.3 Time Periods Modelled

The modelling represents core commuter peak periods and the airport passenger morning peak. The peak periods modelled are:

- AM Peak: 06:00 to 09:00; and
- PM Peak: 16:00 to 19:00.

For the AM Peak the start of the model at 06:00 is timed to assess the end of the airport peak, and the build-up of the standard commuter peak traffic. As Airport City related traffic flows in the inter-peak period are relatively low, no inter-peak modelling has been undertaken as part of this assessment.

3.3.4 Model Zoning

Traffic demand for the Airport City development will be represented, covering key building plots within the development. These are represented by zones within the model. A description of each of the model zones is provided in **Table 1**.

Table 1 – Modelled Zones

Type	Zone Number	Description
External	1	**M56 spur** from north (Junction 5)
	2	**M56 spur** from south (Junction 5)
	3	**Thorley Lane** - Single lane road entering on the west side of the model.
	4	**Ringway Road West** - Dual carriageway entering the model from the east side.
	5	**Bailey Lane** - Single lane road entering from the north of the model into Airport City.
Airport	6	**World Way** - Dual carriageway entering from the south of the model onto the T2 Roundabout.
	7	**Outwood Lane** - Dual carriageway joining from the south of the model serving T1 & T3 access.
	8	**Sydney Avenue** - Single carriage road entering from the west of the model.
	9	**Hilton Hotel** - Situated north of T1/T3
	10	**Ringway Rd** - Single lane road on the east side of the model, linking onto Ringway Road West.
Airport City	11	**Aviator Way** - Single Lane road with left and right turn lanes onto Enterprise Way, located on the east of Airport City.
	12	**Plot X (Proposed)** - Situated north east corner of the Airport City site.
	13	**Plot E (Proposed)** - Situated in the centre of Airport City, at the southern exit of the Enterprise Way Roundabout.
	14	**Technology Campus MSCP (Proposed)** - Located on the eastern side of Airport City, accessed from the south of Enterprise Way
	15	**Jet Parks 1** – Access to the existing Jet Parks 1 car park from Thorley Lane.
	16	**Airport City Additional (Proposed)** – zone included for future airport city plots – not modelled as part of this assessment
	17	**Plot L – (Proposed)** – access to the north of the Enterprise Way Roundabout – Note no demand to this zone is associated with this project

3.3.5 Assembling the Model

This VISSIM model was created using a wider model of Manchester Airport. As this is based on an existing model and given the recent changes to the highway network, no 2018 base model was developed. The section below discusses the key assumptions in assembling the model network.

Model link structure

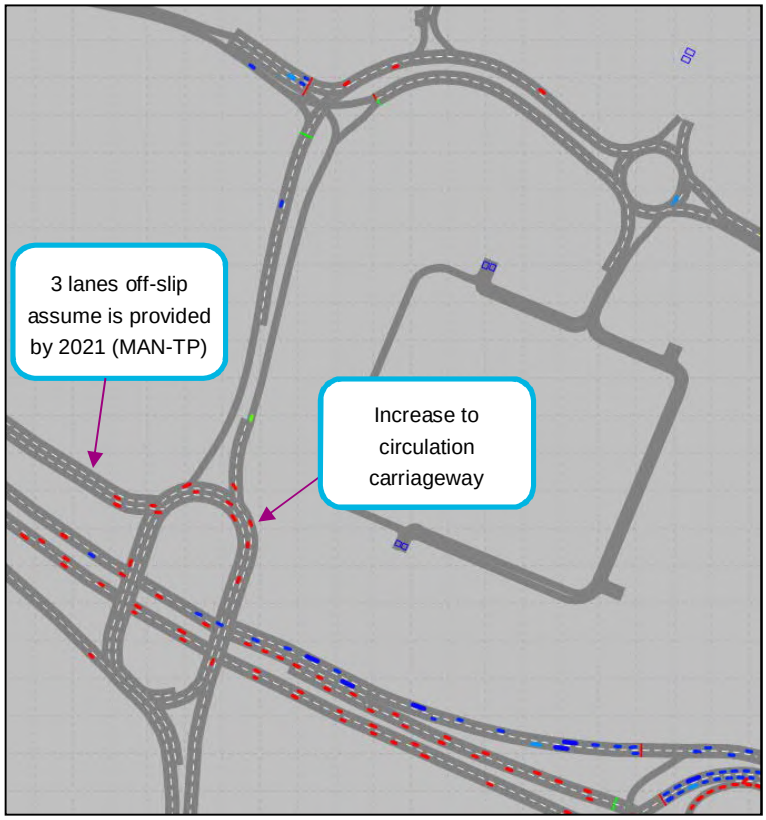
Links were inserted to create the road system in and around Airport City. Some of the road network including the Airport Spur, Ringway Road and the M56 motorway were already pre-existing from the previous model. These were kept unchanged from the original model. In addition to the committed highway schemes identified in Section 3.3.1, further MAN-TP[2] committed highway modifications to include the following, were also captured within the do minimum model:

[2] MAN-TP is the Manchester Airport Transformational Programme, which is focused on the expansion of the airport to incorporate growth in passenger numbers and includes the relocation of airlines from T1 to an expanded T2.

- Third lane for T2 off-slip from M56 spur; and
- Increase gyratory to three lanes.

A summary of the location of these measures is identified in **Figure 5**.

Figure 5 – Summary of Do Minimum Highway Modifications



Desired speeds and reduced speed areas

Desired speeds have been placed on links that lead onto a new road whereby a vehicle may need to increase or decrease its speed; this ensures that traffic best reflects the correct speed of any given area.

Reduced speeds placed in areas where traffic is likely to need to slow down; these have been placed on corners, roundabouts and stretches of road before a traffic signal.

Priority markers, and conflict areas

Conflict areas edited to reflect give way behaviour at priority junction. Certain routes were prioritised so vehicles had to give way to traffic coming from certain directions. Major roads such as Enterprise Way were prioritised over minor roads such as Bailey Lane.

Model zoning (parking lots)

Parking lots were included onto the ends of links at the external parts of the model as well as the car parks within Airport City. All parking lots were selected as zone connectors to allow the traffic to enter and exit the model.

Traffic signals

Traffic signals are present at the following locations:

- Ringway Road W / Outwood Lane;
- Ringway Road W / Enterprise Way;

- Enterprise Way / Aviator Way; and
- Enterprise Way / Thorley Lane.

Signal heads were placed in the model at these junctions and fixed time signals were included, based on signal staging and times from the source models (existing Airport model and A6MARR SATURN model).

Public Transport and MAG buses

Times and routes for public transport has also been entered; partly by using the previous model as well as using TfGM bus timetables; the local buses include route 43 and 44. Furthermore, using the National Express timetables the Liverpool - Leeds, Inverness – Birmingham, Leeds – Liverpool, and Birmingham – Inverness coaches were added to the model. Finally, shuttle buses from the previous model have also been added, these include Hilton Hotel to T1, T2 and T3; Britannia Hotel to T1, T2, T3 and finally the Britannia Country House Shuttle to T1, T2, T3.

Public Transport Stops have been used from the previous model and did not need to be altered.

Vehicle routing restrictions and junction nodes

Nodes were placed on the end of the links, and also over key junctions and areas of interest. As the model has been developed using dynamic assessment (variable route choice), these measures ensure realistic routing and lane usage through key junctions.

Edges created in the model have been edited to prevent traffic from taking routes that are unlikely to occur in reality, or using lanes that are incorrect and would otherwise not reflect realistic driver behaviour.

Vehicle routes have been altered to stop any traffic from taking any unlikely routes through the model; such as traffic using Airport City to get from the M56 to the Ringway Road West.

Data Collection Outputs

Queue counters were used from the previous model, as well as inserting them at all junctions within the Airport City model.

Vehicle Travel Times have been included in the model to get the average journey times of key routes throughout the model e.g. Ringway road to the M56.

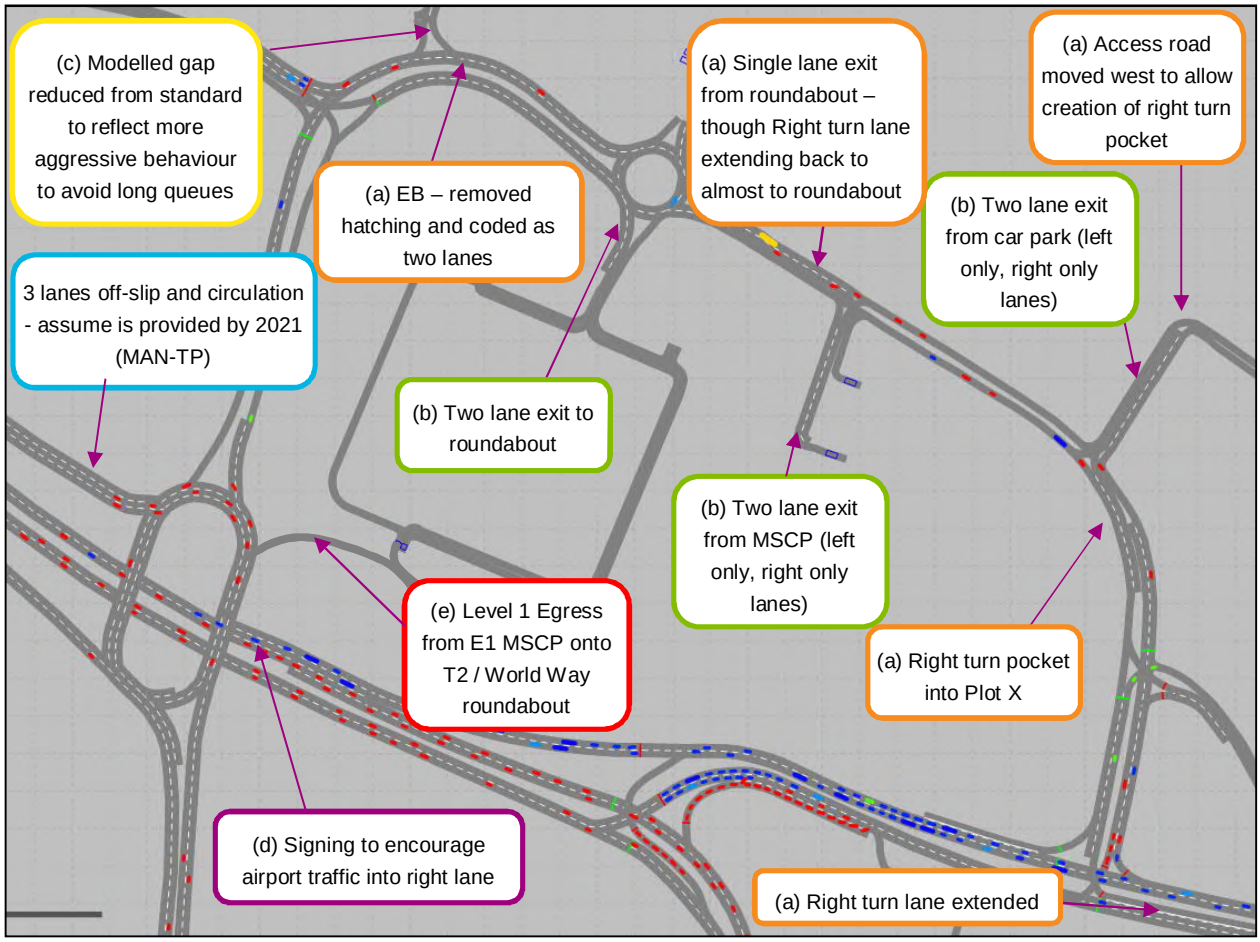
3.3.6 Do Something Highway modifications

To support the assessment of the proposed car parks at Airport City, a number of small modifications to the model were applied to provide access into these car parks. A summary of these modifications are illustrated in **Figure 6**.

These changes can be summarised into the following categories:

- **Car park access right turn pockets (a)**: right turn pockets to accommodate right turning traffic without delay to the highway network. Weightings were applied to the right turn movements to discourage high volumes of M56 traffic from right turning into the car park, favouring left turn in;
- **Car park egress two lanes (b):** two lane exits assumed – one left, one right lane, to distribute exit traffic;
- **Bailey Lane queue reduction (c):** more aggressive give way behaviour modelled to minimise queues on Bailey Lane;
- **A6MARR / Outwood Lane - lane allocations (d):** assumed signage, encouraging traffic from M56 to Outwood Lane to mainly use the right hand lane, freeing more capacity for A6MARR and Airport city traffic (modelled lane allocations adjusted slightly to reflect this behaviour); and
- **Level 1 Egress (e)**: proposal for a Level 1 egress within E1 MSCP onto the T2 / World Way roundabout.

Figure 6 – Overview of Do Something Highway Modifications



4. Matrices Development

4.1 Overview

A number of recently approved planning applications in the vicinity have included a representation of Airport City and related developments and these have been used to inform the demand inputs for this assessment. These include:

- Airport City Transport Assessment (2012, Airport City Transport Assessment, and Previous Burford and Arlington approved development site) – Previously developed to inform the development of Enterprise Way. These approved assumptions for Airport City have been included in a number of subsequent studies. Our assessment aligns with this total quantum of development at Airport City which was included within the previously approved outline consent;
- A6 to Manchester Airport Relief Road (A6MARR - 2015) – The assessment of the A6 MARR scheme included an estimate of external traffic flows, through and adjacent to the Airport City site. In addition, this modelling also aligned with the Airport City Transport Assessment (above); and
- The MAN-TP (T2 Expansion) Transport Assessment (November 2015) - provided an assessment of the landside highway requirements for highway access following the expansion of T2. This modelling provides a robust assessment of the airport related highway demand forecasts.

This assessment will align with these already approved studies, though latest Airport City site layouts and phasing of the development sites will be used to align with the latest proposals. **Table 2** shows how the demand will be allocated.

Table 2 – Key Existing Demand Studies

		To		
		External	**Airport**	**Airport City(1)**
From	**External**	A6MARR	MAN-TP	A6MARR / (Airport City TA)
	Airport	MAN-TP	MAN-TP	A6MARR / (Airport City TA)
	Airport City(1)	A6MARR / (Airport City TA)	A6MARR / MAN-TP	N/A

(1) – Airport City Development flows will be reviewed and aligned to the Airport City Transport Assessment (Oct 2012) – Uncertainty Logs from the A6MARR model will be used to verify the development assumptions.

To support the VISSIM model the following matrices have been developed:

- External Car, derived directly for the cordoned A6MARR SATURN model (User classes 1 to 3 combined);
- External LGV, derived directly from A6MARR (user class 4);
- External HGV, derived directly from A6MARR (user class 5);
- Airport, derived from MAN-TP modelling; and
- Airport City, derived from previous Airport City Transport Assessments, and aligned to latest development phasing.

4.2 External Traffic Flows

External traffic flows relate to traffic which passes the Airport and Airport City, without a destination in this vicinity. The A6MARR modelling undertaken using the Greater Manchester SATURN Model (GMSM) is the most valid tool for predicting these traffic flows. This model includes an AM Peak hour of 08:00 to 09:00 and a PM Peak model of 17:00 to 18:00.

To inform the Airport City assessment, TfGM provided a cordoned version of the Greater Manchester model. This included a 2017 forecast which included the A6MARR scheme. The cordon model provided included coverage of model zoning in the vicinity of the airport, the demand matrices that inform this cordon model was interrogated to derive details of through traffic movements.

The following adjustments were then applied.

4.2.1 Adjustment from 2017 to 2021

Traffic flows were uplifted from 2017 estimates to 2021 forecasts based on NTEM dataset Version 7.2. This was undertaken at the county level as a large number of traffic flows are strategic in nature and may come from other districts of Greater Manchester and beyond. This identified an increase in external traffic flows by 5% to convert from 2017 to 2012.

4.2.2 Forecasts for Alternative Time Periods

In the absence of SATURN model forecast hours of 06:00 to 07:00 and 07:00 to 08:00, existing ATC data from nearby locations on Ringway Road West (between Outwood Lane and Enterprise Way) were used to factor the traffic flows to derive estimates for other time periods. The ATC data was obtained from recent surveys. A summary of the time period adjustments factors are shown in **Table 3**.

Table 3 – Summary of traffic adjustments for alternative hours

Modelled Period	Modelled Hour	Proportion applied	Hour modelled in external model
AM Peak	06:00 to 07:00	87%	
	07:00 to 08:00	97%	
	08:00 to 09:00	100%	✓
PM Peak	16:00 to 17:00	85%	
	17:00 to 18:00	100%	✓
	18:00 to 19:00	100.3%	

4.2.3 User Classes

As the TfGM model includes a disaggregation of vehicles by user class, external traffic flow data was provided segregated into the following user classes:

- Car (combined of Commute, Business, other);
- Light Goods Vehicles (LGV); and
- Heavy Good Vehicles (HGV).

Traffic flows applied within the model are documented in **Appendix A**.

4.3 Airport Traffic Flows

To support the expansion of T2, the MAN-TP team has undertaken traffic modelling to assess the highway modifications required to deliver the T2 expansion with these forecasts being used to inform the Transport Statement for the new terminal and associated highway network. This modelling was focused around T2, though benefited from a demand model, which enables the relocation of demand between terminals, based on the changes in the flight schedule.

4.3.1 MAN-TP Demand Model

The airport highway demand is largely dominated by the aircraft movements from the airport's flight schedule. After accounting for lag times for travel through the terminal buildings, this has a direct impact on the traffic demand on the surrounding highway network.

The development of this model enables the forecasting of highway demand for the airport, as a consequence of changes to the flight schedule, i.e. departure/arrival times, aircraft type/size and terminal served. It forecasts both passenger and staff highway travel.

The expansion of T2, and closure of T1, will transfer a significant number of flights to T2, along with the associated highway demand. The output of this model is a landside highway demand forecast which is input in the MAN-TP VISSIM model.

This demand model was run for a core T2 peak hour of 06:00 to 07:00 to inform the assessment of MAN-TP, though also has the functionality to predict highway demand for other hours of the day, further runs of the model was undertaken to include alternative hours of the day.

4.3.2 MAN-TP VISSIM Model

Taking outputs from the MAN-TP demand model, a bespoke version of the Manchester Airport VISSIM model was developed to assess the expansion of T2. This model includes considerable model detail around T2, though with less model detail further away from T2. The model was developed using fixed routes, therefore assumed best/shortest path modelling – i.e. a single route option between journey origin and destination, which is pre-defined.

Taking the outputs from the MAN-TP demand model, the VISSIM model was run for each hour of the assessment for AM and PM peak time periods.

The MAN-TP forecasts include a design year of 2021 (T2 Interim Highway layout[3]), representing an interim stage of T2 expansion. These models were run for each hour and traffic flows extracted for travel between external zones and the airport.

A summary of the hourly demand into and out of the airport by hour is summarised in **Table 4**.

[3] The interim highway network to support T2 expansion is referenced as 'Network B'.

Table 4 – Summary of Airport related volumes by hour

Peak	Peak Hour	Inbound	Outbound
AM	06:00 to 07:00	3,808	2,588
	07:00 to 08:00	2,650	1,946
	08:00 to 09:00	2,831	1,782
PM	16:00 to 17:00	2,125	1,935
	17:00 to 18:00	2.025	1,946
	18:00 to 19:00	1,391	1,195

As shown above in the AM Peak, the airport traffic flows peak in advance of the general commuter peak. This is a direct consequence of the flight schedules and also reflects anticipated mode shares in the later hours when a better public transport offer is available. The airport is currently trying to increase the public transport mode share for travel to the airport through a range of measures, including forecourt management.

4.4 Airport City Traffic

Airport City comprises four key components of traffic flows:

- **Existing MAG surface car parks:** Jet Parks 1, Jet Parks 2, and Free Drop Off. It should be noted that the proposed Plot E development removes Jet Parks 2;
- **Existing Offices:** located off Aviator Way;
- **Technology Campus development site:** including proposed MSCP and surface car park; and
- **Plot E1 MSCP:** including and associated uses including office, hotels, and level 1 egress onto T2/World Way roundabout.

Traffic flows for each component, and their incorporation into the model is discussed in the sections below.

4.4.1 Existing MAG Surface Car Parks (Do Minimum)

Traffic flows associated with the existing long stay Jet Parks passenger car parks have been included within the model based on MAG barrier data. Given the long durations of stay, demand for these car parks is typically quite low, in the region of 30 vehicles per hour for each car park during the peak periods.

Manchester Airport's Forecourt Management project recently implemented charged access to the forecourt areas for drop off to manage congestion levels within the forecourt. A free drop off zone was provided in Jet Parks 1. At the time of modelling, the free drop off area was not operational and so no knowledge of forecast demand for this area was available. As a result the free drop off area was not modelled.

4.4.2 Existing Offices (Do Minimum)

Office developments are already in place and operational. These are located off Aviator Way. Traffic demand associated with these offices was included within the TfGM modelling. Therefore, to maintain consistency with these models, traffic flows associated with the Aviator Way area were input directly from the SATURN model – in line with the treatment of the External demand as discussed above.

4.4.3 Technology Campus Site (Do Something Only)

The proposed Technology Campus Site is to be located within the eastern section of Airport City. From a highway perspective, this site will comprise of two components. These include:

- A 1,147 space MSCP, accessed from a new link on the southern side of Enterprise Way; and

– An 832 space surface car park (Plot X) accessed from the northern side of Enterprise Way.

The development traffic associated with this site, plus the Plot E site, was included within the previous modelling of the Airport City Masterplan and is included within the previous Airport city proposals. To reflect the inclusion of just the Technology Campus, and Plot E elements of the Airport City development, the do something highway demand was developed specific to these elements.

The approach to identifying the traffic demand was as follows:

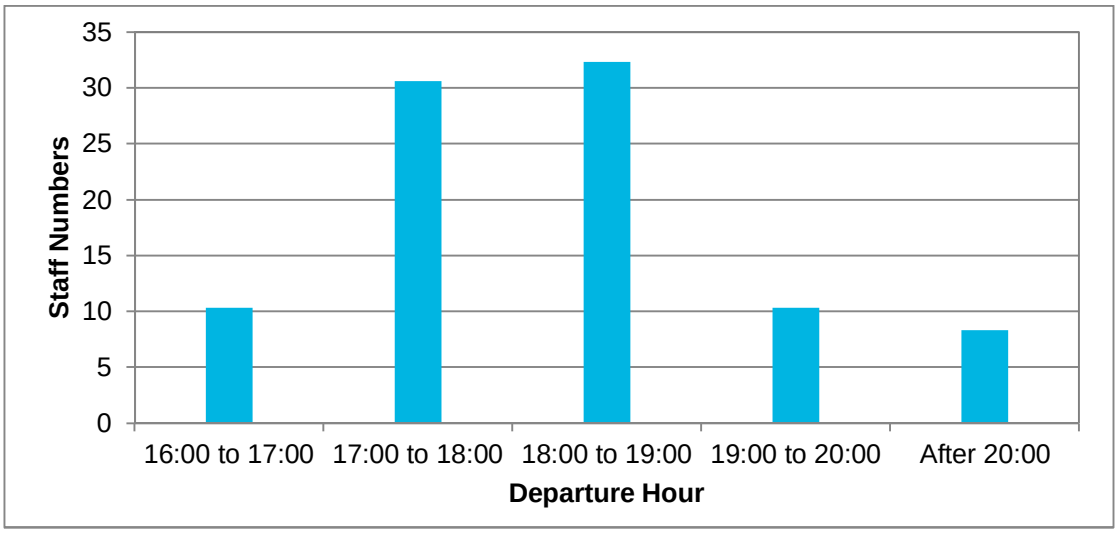
– Plot size for Technology Campus plots was provided by MAG; and
– Trip rates developed from TRICS to identify car parking demand for the car park (see **Table 5** for trip rates);

Table 5 – Assumed Trip Rates applied within the modelling per 100sqm GIA

Hour	Trip Rate – Arrivals	Trip Rate Departures
07:00 to 08:00	0.887	0.126
08:00 to 09:00	2.160	0.291
09:00 to 10:00	1.317	0.398
16:00 to 17:00	0.292	1.342
17:00 to 18:00	0.187	1.820
18:00 to 19:00	0.052	0.576

– The car parking demand based on TRICs exceeded the number of car parking spaces available, therefore the demand for the site was capacity constrained assuming that the car park would be full between 10am to 16:00;
– The volumes were reduced by 16% in the am and 7% in the PM to account for this oversupply as no additional parking would be available in the vicinity of airport city;
– When applying the capacity constraints it was assumed that car parking spaces would be available on a permit basis rather than a first arrivals basis, this assumed that the reduction in demand was applied equally across the peak rather than assuming the car park fills to capacity and is then capped;
– Data from the existing employment with the proposed occupiers of the technology campus was provided for employee departure times in the PM peak (see **Table** 6);

Table 6 – Summary of Employee Departure Times



- Based on the employee data provided the profile of PM peak departures was applied, this profile indicated a longer PM peak spread over several hours, rather than around a central peak of 17:00 to 18:00;
- The distribution of predicted traffic flows to external zones was identified based on employee home postcode data for the proposed occupier. The proposed occupier of the site is currently based South West of Airport City in the Northwich area, as a result the majority of employee home addresses are located south west of the airport, this identified that the majority of demand would access the airport from the M56 spur; and
- Demand for the two car parks was split based on the proportion of overall spaces provided.

A summary of the allocated demand for the technology campus is provided in **Appendix A**.

4.4.4 Plot E car parking (Do Something Only)

For Plot E, a 1,497 space MSCP is proposed. The demand for this car park was derived as follows:

- Plot sizes for each plot was derived, this included the Plot E office development, plus the other plots that would utilise this car park. This also includes the proposed hotels located north of the Ground Transport Interchange (Plots G1&G2), plus the hotels located on the vacant T2 petrol station (P1/P2 hotels).
- TRICs trip rates were applied for these developments (office related rates are shown above), hotel related rates are shown in **Table 7**. Whilst this exercise is not assessing the highway volumes associated with these developments (as these have previously been approved), demand associated with these car parks will be allocated to the Plot E MSCP, therefore when assessing the highway impacts, demand for the MSCP also includes this hotel demand in addition to the demand for the Plot E office development.

Table 7 – Hotel Related Trip rates

Hour	Trip Rate – Arrivals	Trip Rate Departures
07:00 to 08:00	0.750	0.180
08:00 to 09:00	0.142	0.244
09:00 to 10:00	0.180	0.113
16:00 to 17:00	0.148	0.126
17:00 to 18:00	0.217	0.124
18:00 to 19:00	0.228	0.130

- Distribution of demand was based on trip origins / destinations from nearby sites

Airport City traffic flows have been included in **Appendix A**.

5. Forecasting Results

5.1 Introduction

The assessment of the Airport City development, in relation to initial phases of the Airport City Masterplan, including the Technology Campus Site, and Plot E sites has been undertaken using VISSIM Microsimulation modelling.

This assessment has reviewed the highway impacts associated with these phases of development in relation to the already approved Airport City masterplan. This assessment is required to understand the highway impacts within the Airport City development and on the key access points to Airport City.

The remainder of this chapter presents the results of this assessment assuming the egress link from E1 MSCP to T2 / World Way roundabout is operational. Results assuming no egress link are presented in **Appendix C**.

Figure 7 shows the egress link and its connection with the highway network.

Figure 7 - Egress Link from E1 MSCP to Terminal 2 Roundabout



Each version of the model was assigned in Version 9.0 of VISSIM and run to convergence; this typically took in the region of 30 to 40 model runs to converge model route choice. The VISSIM model contains minimal route choice, though dynamic (variable) routing was assumed for Airport City traffic.

The model was run for eight simulation runs prior to obtaining queue lengths and journey times throughout the network. From these eight model runs the five model runs with results closest to the total average were taken forward and further interrogated.

For each location where results were taken, the difference between the Do Minimum and Do Something average results for each peak were calculated. From this, we were able to establish where the largest variance in queue lengths and journey times occurred. The three locations with the greatest variance between the two scenarios in each peak have been extracted and are presented in the subsequent sections below.

In summary, for queue results the locations with greatest variance are:

- The right turn from Ringway Road West onto Enterprise Way;
- The ahead movement at the same junction;

- The left turn from Enterprise Way onto Ringway Road West; and
- And the right turn at the same junction.

For the travel time results the locations are:

- From Enterprise Way Loop eastbound;
- From Enterprise Way to Thorley Lane;
- From Airport Spur to Outwood Lane;
- From Airport Spur to Ringway Road; and
- From Outwood Lane to the Airport Spur.

5.2 AM Modelling Results

5.2.1 Congestion Comparison

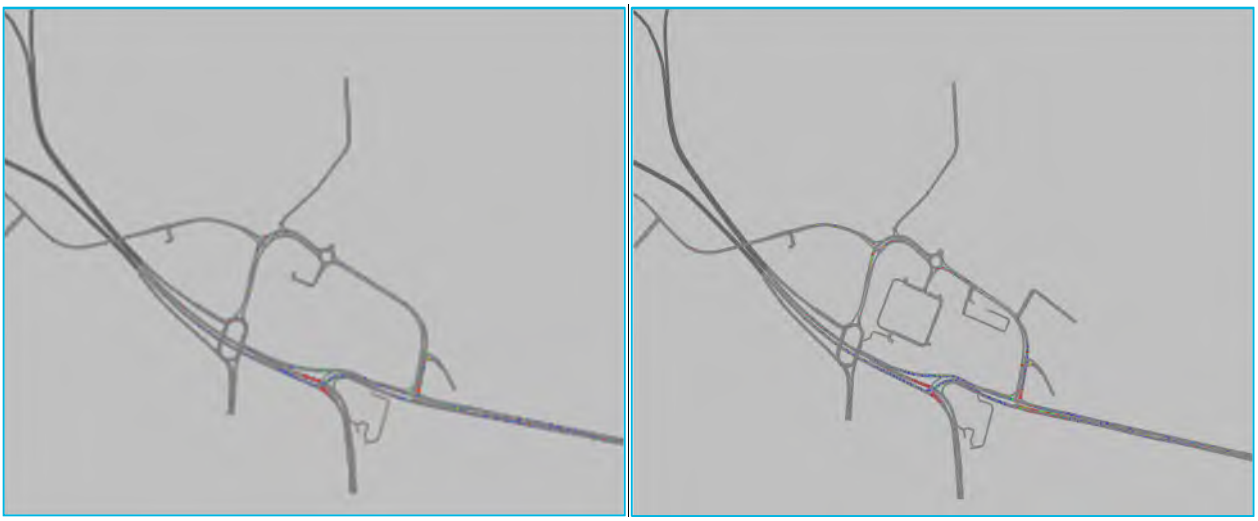
Shown below are a series of screenshots to provide a clear representation of the variation in congestion between the models over the AM simulation period.

Figure 8 - Overview at 06:30



Do Minimum AM **Do Something AM**

Figure 9 - Overview at 07:30



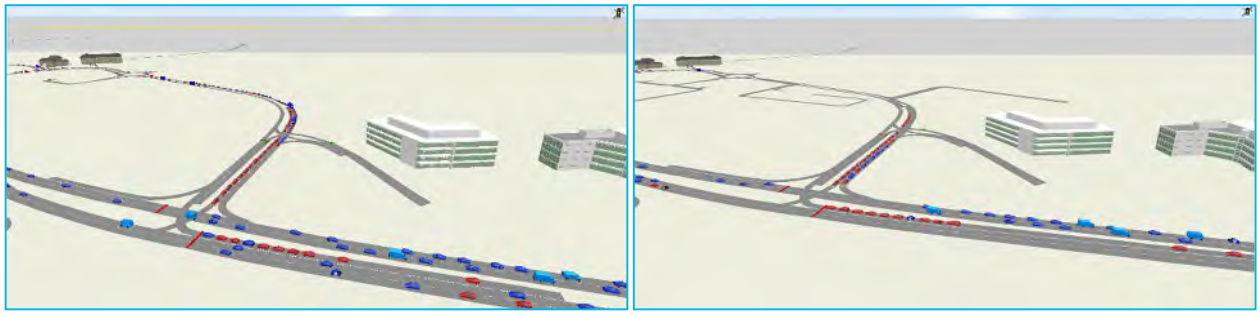
Do Minimum AM **Do Something AM**

Figure 10 - Overview at 08:30



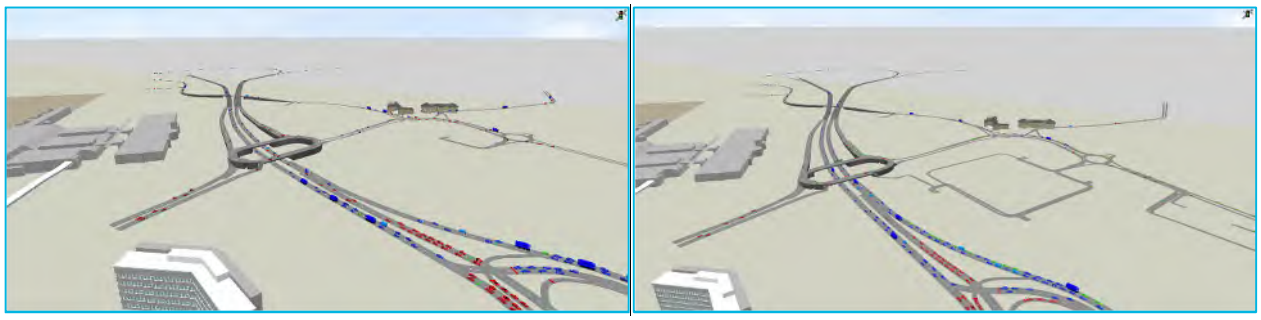
Do Minimum AM **Do Something AM**

Figure 11 – Ringway Road West / Enterprise Way at 06:58



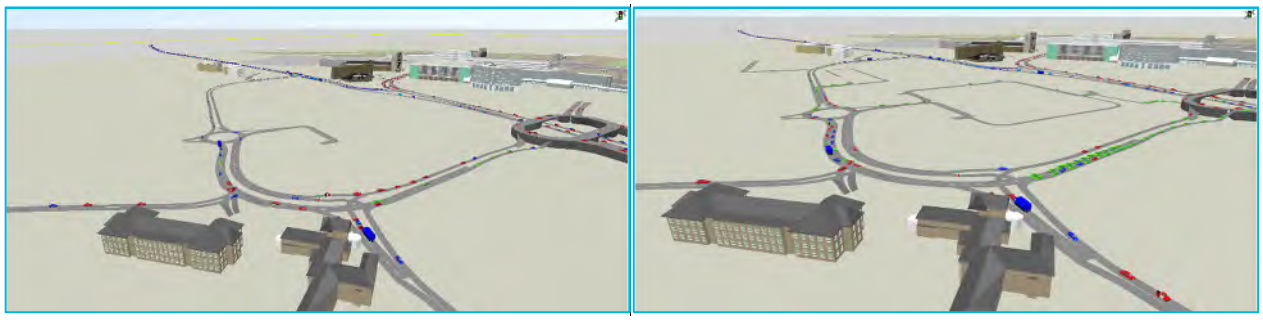
Do Minimum AM **Do Something AM**

Figure 12 - Airport Spur / T2 Roundabout at 08:46



Do Minimum AM **Do Something AM**

Figure 13 - Enterprise Way / Bailey Lane at 08:10

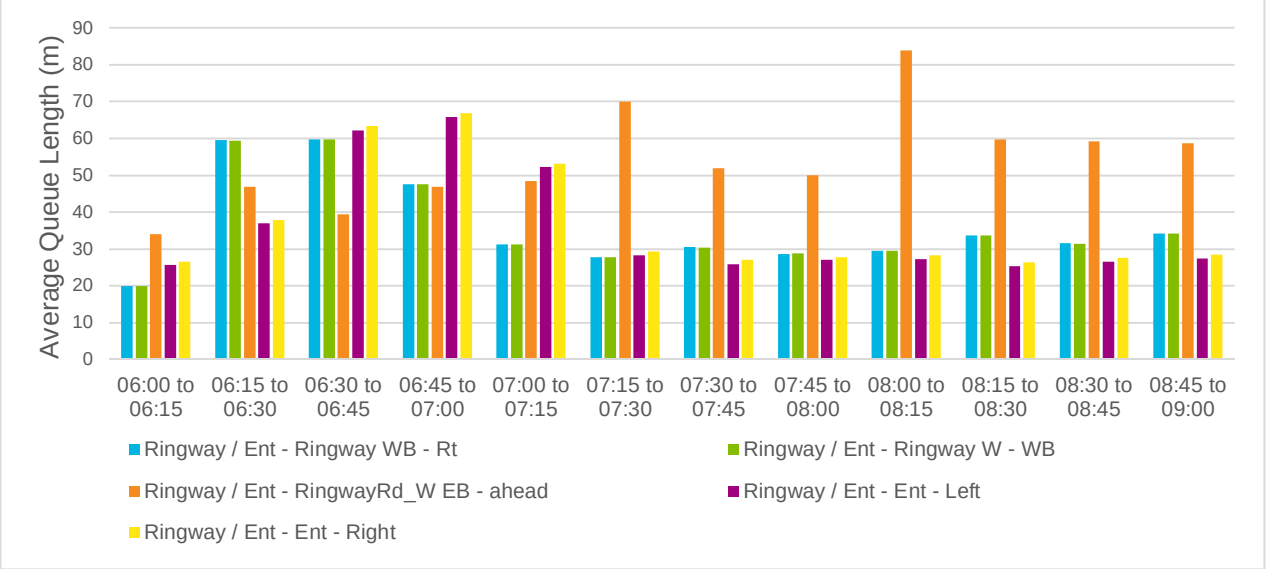


Do Minimum AM **Do Something AM**

5.2.2 Queue Lengths

In the AM peak for the Do Minimum model the largest average queue lengths are between 08:00 and 08:15 at approximately 83 metres for the eastbound ahead movement at the junction of Enterprise Way and Ringway Road West. Average queue lengths for the right and left hand turn from Enterprise Way towards Ringway Road West peak at 65 metres between 06:45 and 07:00. Elsewhere at Ringway Road West on the westbound approach we see average queue lengths peaking at 06:30 to 06:45 at 60 metres for both the right turn and for the westbound ahead movement. However Bailey Lane's left turn towards Enterprise Way doesn't produce any queuing.

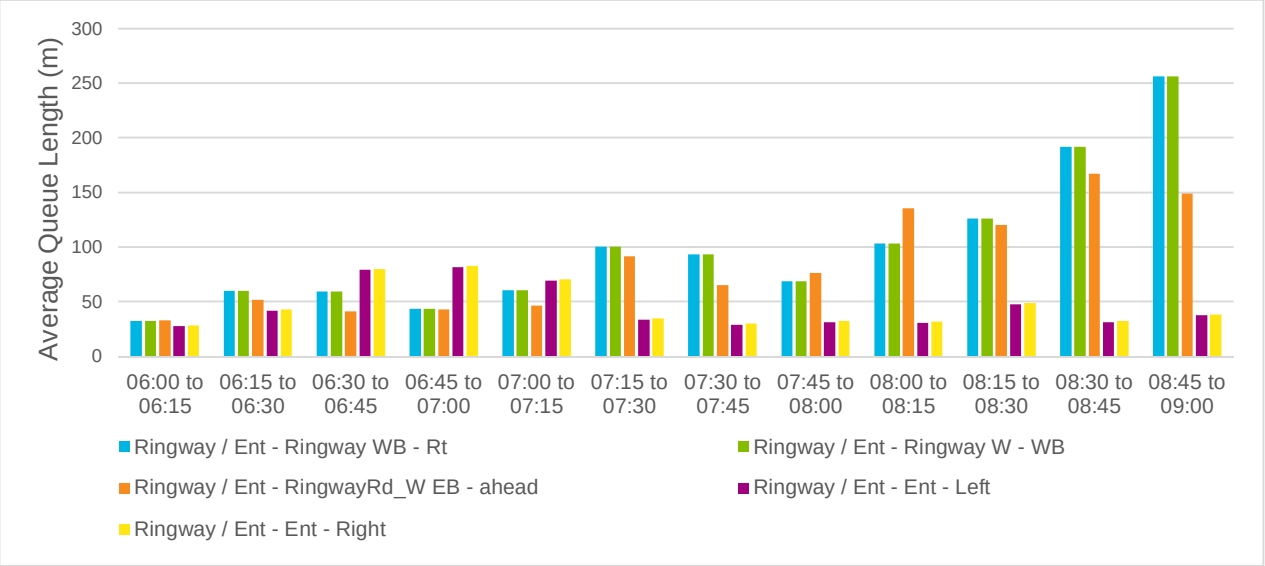
Figure 14 - Average Queue Lengths in the AM Do Minimum model



In the Do Something average queues are at their highest between 08:45 and 09:00 for the westbound ahead movement and right turn on Ringway Road West at the junction with Enterprise Way, at 256 metres each, meaning they have risen by more than seven times the Do Minimum queue lengths observed at the same location.

The right turn and eastbound ahead movement from Ringway Road West to Enterprise Way average queue length peaked between 06:45 and 07:00 with 82 and 81 metres respectively, thus approximately a 20% increase on the Do Minimum queue lengths.

Figure 15 - Average Queue Lengths in AM Do Something model



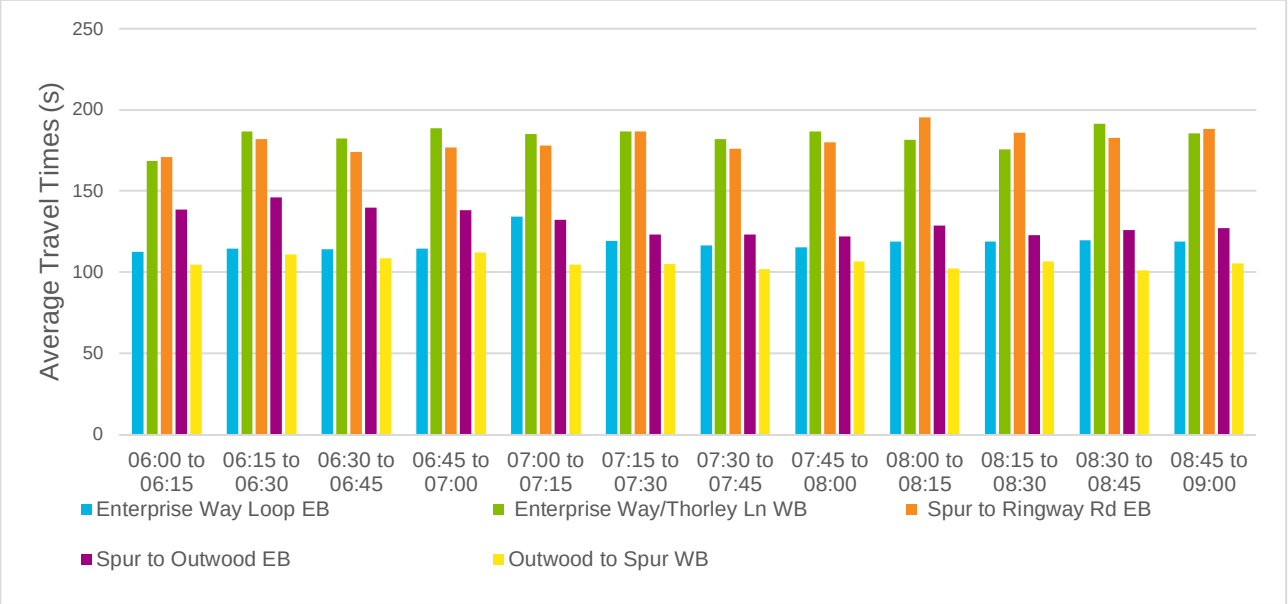
In terms of maximum queue lengths observed in the AM peak for the Do Minimum scenario the longest queues can be found between 06:30 and 06:45 at Enterprise Way to the extent of 200 metres for the right turn and ahead movements. This increases to 380m in the Do Something (reached between 08:45 and 09:00).

5.2.3 Journey Times

In terms of travel times for the Do Minimum scenario we see the longest average journeys between:

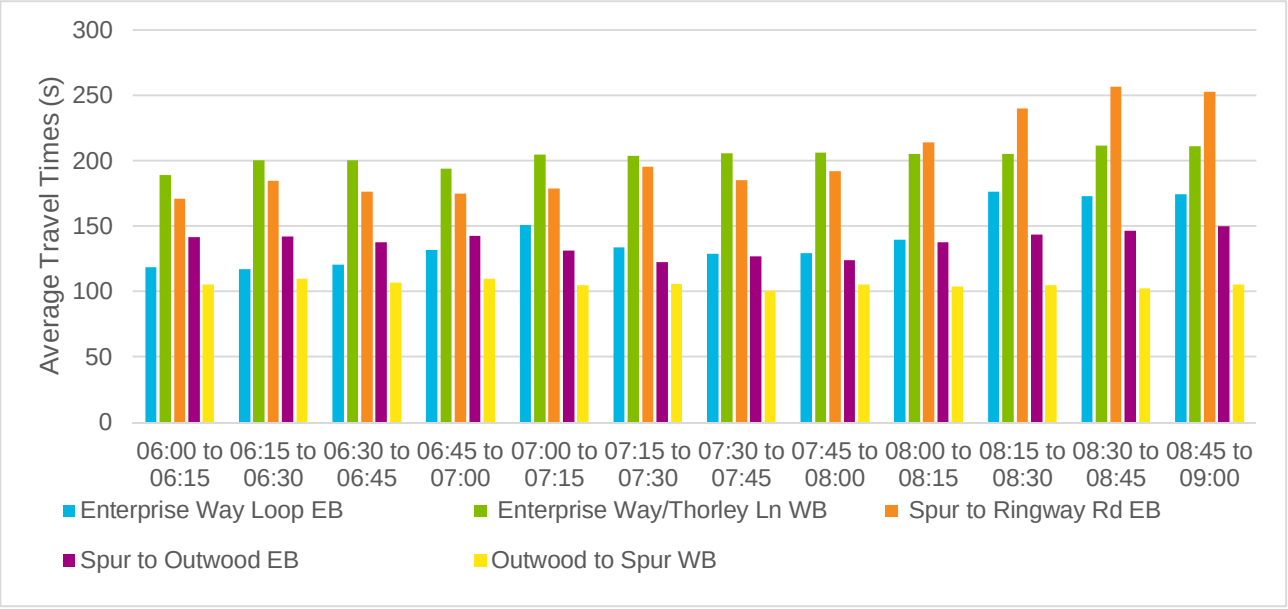
- 08:00 and 08:15 from the Airport Spur to Ringway Road at 196 seconds;
- 08:30 and 08:45 from Enterprise Way to Thorley Lane at 191 seconds;
- The Airport Spur to Outwood Lane route peaks between 06:15 and 06:30 taking an average of 146 seconds;
- The Enterprise Way Loop peaks between 07:00 and 07:15 taking 135 seconds on average to complete; and
- Outwood Lane to the Airport Spur peaking between 06:45 and 07:00 at 112 seconds.

Figure 16 - Average Travel Times for the AM Do Minimum Model



The Do Something scenario provides a similar trend to the Do Minimum for the route from the Airport Spur to Ringway Road with an increase in the travel time required as the period moves on. This route reaches an average journey time of 250 seconds between 08:30 and 09:00, thus adding around a minute in travel time compared to the time taken in the Do Minimum.

Figure 17 - Average Travel Time for the AM Do Something Model



5.3 PM Modelling Results

5.3.1 Congestion Comparison

Shown below are a series of screenshots to provide a clear representation of the variation in congestion between the models over the PM simulation period.

Figure 18 - Overview at 16:30



Do Minimum PM



Do Something PM

Figure 19 - Overview at 17:30



Do Minimum PM



Do Something PM

Figure 20 - Overview at 18:30



Do Minimum PM



Do Something PM

Figure 21 - Ringway Road West / Enterprise Way at 17:15



Do Minimum PM



Do Something PM

Figure 22 - Airport Spur / T2 Roundabout at 16:44



Do Minimum PM



Do Something PM





5.3.2 Queue Lengths

In the PM peak for the Do Minimum model we can see that the period where the average queue length is the longest is between 17:45 and 18:00 for the eastbound ahead movement on Ringway Road West, with average queues of 75 metres. Average queue lengths peak between 17:30 and 17:45 for the right turn and westbound ahead movement at the same junction at 50 metres. Whereas the right and left turns from Ringway Road onto Enterprise Way both peak between 17:15 and 17:30 at around 20 metres each. Elsewhere, as in the AM, there is no queuing observed at Bailey Lane.

Figure 23 - Average Queue Lengths in the PM Do Minimum model

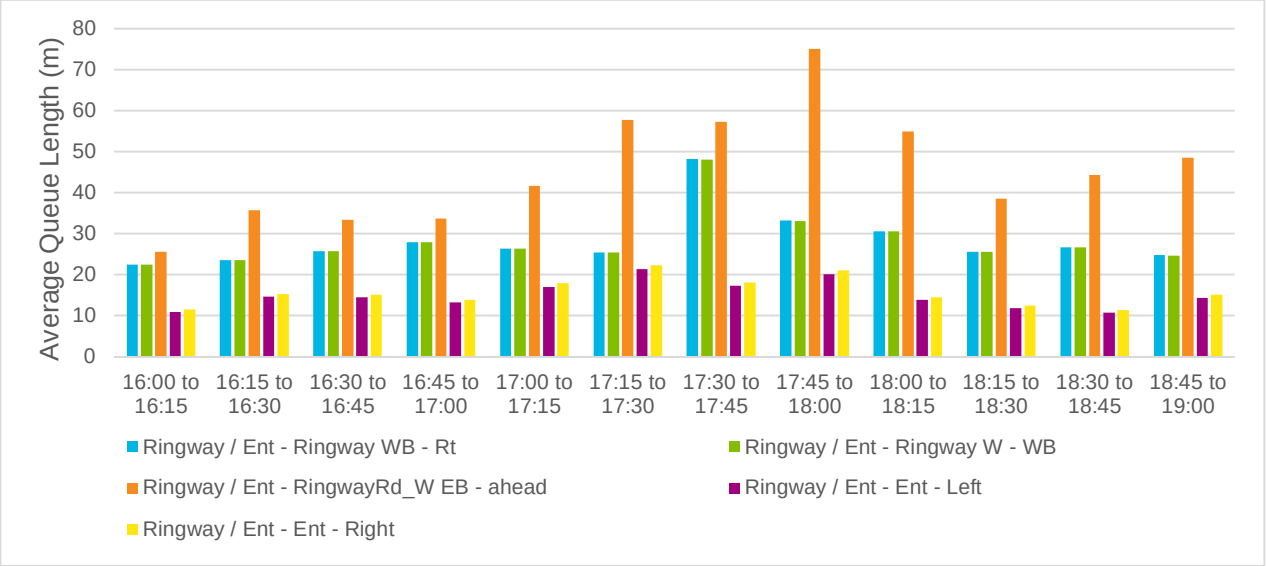
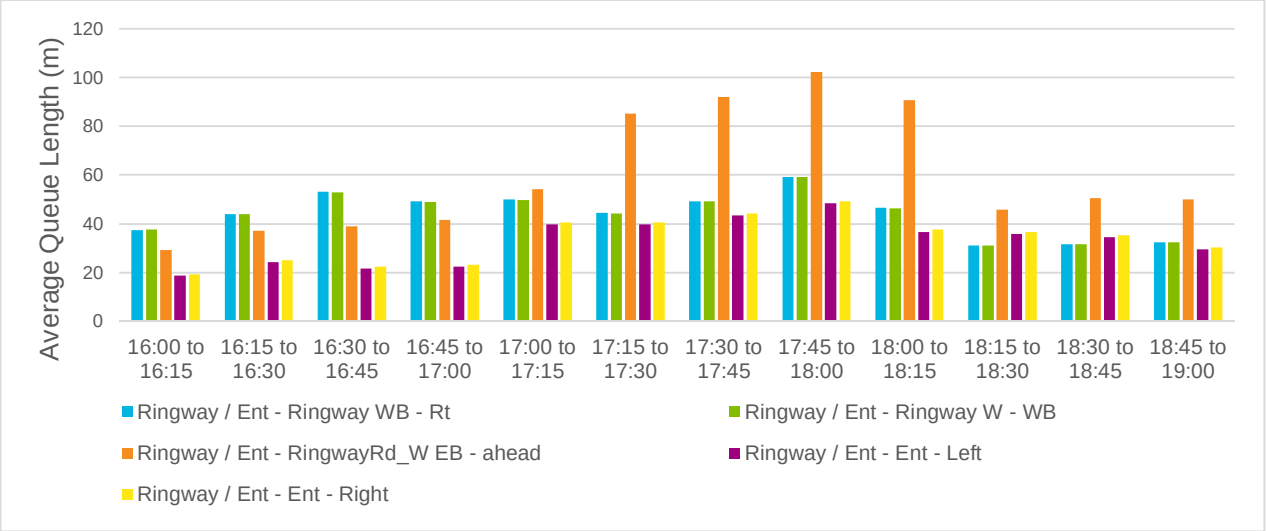


Figure 24 - Average Queue Lengths in the PM Do Something model



In the PM peak there is a small difference in average queues between the Do Minimum and Do Something scenarios. The introduction of the Airport City related development does result in increased queues during the PM peak hours, though these are typically less than 40 metres on average.

The maximum queue length observed (in the Do Minimum) appears between 18:00 to 18:15 reaching 200 metres at the right turn from Enterprise Way onto Ringway Road West, and for the ahead movement. In the Do Something this is lower at 160 metres.

The Do Something recorded maximum queues of 175m on Enterprise Way at the junction with Aviator Way between 17:45 and 18:00; an increase of over 100m compared to the Do Minimum.

5.3.3 Journey Times

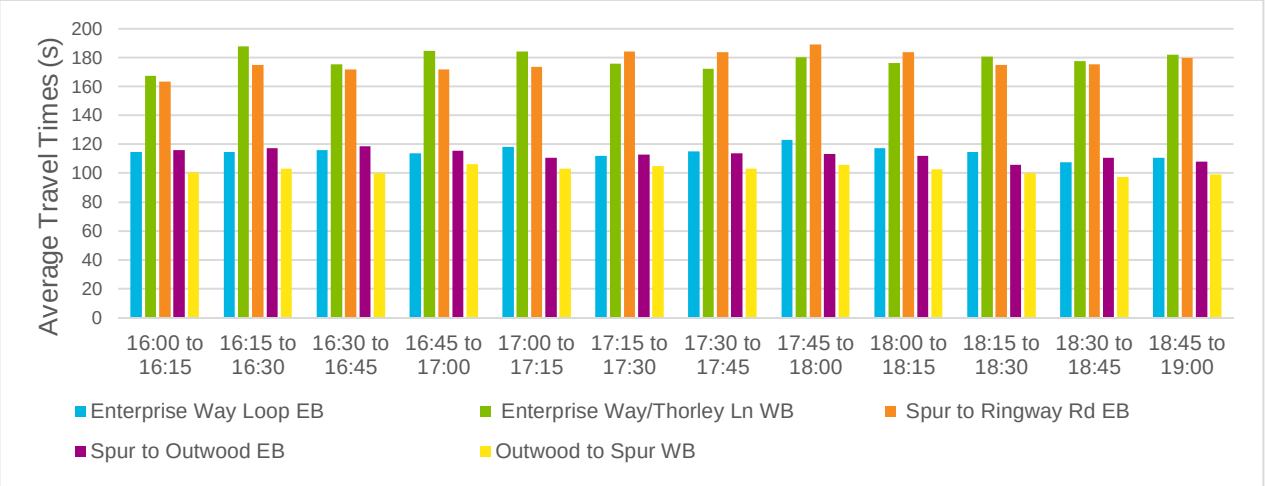
In terms of travel times for the Do Minimum scenario we see the longest average journeys between:

- 17:45 and 18:00 from the Airport Spur to Ringway Road at 189 seconds;
- 16:15 and 16:30 from Enterprise Way to Thorley Lane at 188 seconds;
- The Enterprise Way Loop peaks between 17:45 and 18:00 taking 124 seconds on average to complete;

- The Airport Spur to Outwood Lane route peaks between 16:15 and 16:30 taking an average of 118 seconds;
- Outwood Lane to the Airport Spur peaking between 16:45 and 17:00 at 106 seconds.

The other routes produced rather consistent average journey times throughout the period with the Airport Spur to Outwood Lane taking roughly 115 seconds and the opposite direction taking 100 seconds.

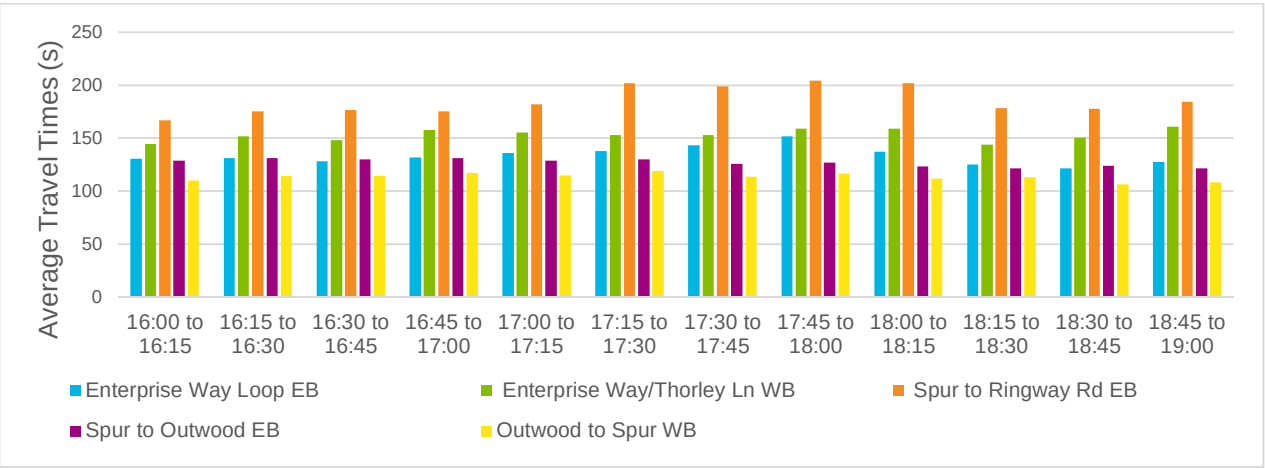
Figure 25 - Average Travel Times for the PM Do Minimum model



In terms of travel times for the Do Something scenario we see the longest average journeys between:

- 17:45 and 18:00 from the Airport Spur to Ringway Road at 204 seconds;
- 18:45 and 19:00 from Enterprise Way to Thorley Lane at 161 seconds;
- The Enterprise Way Loop peaks between 17:45 and 18:00 taking 152 seconds on average to complete;
- The Airport Spur to Outwood Lane route peaks between 16:15 and 16:30 taking an average of 132 seconds;
- Outwood Lane to the Airport Spur peaking between 16:45 and 17:00 at 117 seconds.

Figure 26 - Average Travel Times for the PM Do Something model



6. Key Findings and Conclusions

6.1 Summary

This report has presented traffic modelling of the development of several plots of the Airport City development site to assess the impacts of:

- The Hut Group (THG H!VE) Hybrid Application (Phase 1 Full [Plots C, D & O – MSCP and associated office] / Phase 2 Outline [Plot X car parking and associated office development); and
- Plots E1/E2/E3 Full Application.

The assessment of the Airport City development, in relation to initial phases of the Airport City Masterplan, including the THG Site and Plot E sites, has been undertaken using VISSIM Microsimulation modelling. This assessment has reviewed the highway impacts associated with these phases of development in relation to the already approved Airport City masterplan. Previous approved versions of the Airport City Masterplan include:

- Arlington assorted consents (dating from 1997), and the more recent Burford approved consent (2008). These consents which were granted outline planning permission by MCC in 2012, identified 1 parking space per 20m^2 of development, a total of around 5,600 parking spaces; and
- Also, the Airport City North Transport Assessment, approved in 2012, included 4,182 parking spaces and 547 cycle storage spaces. This was less than the MCC parking standards in the Core Strategy (max of 5,912), but showed a commitment to encouraging sustainable access the site.

This assessment is required to understand the highway impacts within the Airport City development and on the key access points to Airport City.

6.2 Key Findings

The assessment of the initial plots of Airport City, has identified that this level of development can be accommodated within the local highway network at Airport City. To accommodate the development sites, a number of minor amendments to the highway network have been included within the do something modelling to provide access to the proposed car parks within Airport City. These highway adjustments include the following measures:

- **Car park access right turn pockets:** right turn pockets to accommodate right turning traffic without delay to the highway network, for all car parks. Weightings were applied to the right turn movements to discourage high volumes of M56 traffic from right turning into the car park, favouring left turn in;
- **Car park egress two lanes:** two lane exits assumed – one left, one right lane, to distribute exit traffic, for all car proposed car parks;
- **Bailey Lane queue reduction:** more aggressive give way behaviour modelled to minimise queues on Bailey Lane;
- **A6MARR / Outwood Lane** - lane allocations, assumed signage, encouraging traffic from M56 to Outwood Lane to mainly use the right hand lane, freeing more capacity for A6MARR and Airport City traffic (modelled lane allocations adjusted slightly to reflect this behaviour); and
- **Level 1 Egress (e)**: proposal for a Level 1 egress within E1 MSCP onto the T2 / World Way roundabout.

The completed models identified mainly small increase in queues at key junctions and small increases in travel times due to the additional traffic flows generated by the Airport City development. With minor mitigation measures these were accommodated within the highway network.

In the AM peak, some queues were observed on the right turn from Ringway Road West to Enterprise Way. As a result the modelling recommended a longer right turn pocket on Ringway Road West to accommodate these queues. Also heavy traffic flows were observed travelling along Enterprise Way in the eastbound

direction, to accommodate the additional development related traffic flows traffic signals were optimised. Also, to accommodate the mix of background traffic, airport traffic for T2, and Airport City traffic, the right turn pocket from Ringway Road W to Enterprise Way was extended to accommodate queuing traffic.

In the PM peak small queues were observed on exits to the car parks, in particular the Technology Campus MSCP car park. Also small queues were shown on Enterprise Way, for the right turn between Enterprise Way and Ringway Road West though were accommodated within the existing highway network as the majority of traffic leaving the development site, leaves Airport City via the elevated roundabout on the M56 spur.

It should be noted that the provision of the E1 MSCP Level 1 Egress has been identified as a key finding which will help to accommodate the accommodate the forecast development traffic. This will be considered as an option in the future.

Appendix A – Modelled Traffic Flows

Appendix A provides details of the traffic flows included within the modelling disaggregated by external, airport, and airport city related traffic.

AM Peak

06:00 to 07:00

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	0	22	298	0	510	601	0	0	0	39	0	0	0	6	0	0	6
2	0	0	0	985	77	510	601	0	0	0	22	0	0	0	4	0	0	4
3	4	0	0	234	77	24	128	52	0	0	8	0	0	0	1	0	0	1
4	256	1059	103	0	0	338	602	76	0	165	18	0	0	0	3	0	0	3
5	0	37	0	34	0	55	136	11	0	0	4	0	0	0	1	0	0	1
6	386	386	0	139	39	0	0	0	0	0	0	0	0	0	0	0	0	0
7	578	578	0	287	23	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	73	79	10	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	6	4	1	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	3	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	3	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0

07:00 to 08:00

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	0	24	332	0	351	447	0	0	0	102	22	269	30	8	0	0	8
2	0	0	0	1098	86	351	447	0	0	0	58	151	153	208	5	0	0	5
3	4	0	0	260	86	20	82	29	0	0	21	15	56	21	2	0	0	2
4	285	1181	115	0	0	221	440	67	0	62	48	15	126	20	4	0	0	4
5	0	41	0	38	0	31	92	11	0	0	12	5	31	6	1	0	0	1
6	295	295	0	91	26	0	0	0	0	0	0	0	0	0	0	0	0	0
7	431	431	0	208	16	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	51	83	10	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	8	6	2	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12	4	26	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
13	46	32	11	43	7	0	0	0	0	0	0	0	0	0	0	0	0	0
14	5	35	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0
15	3	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	3	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0

08:00 to 09:00

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	0	25	342	0	374	475	0	0	0	120	54	182	74	6	0	0	6
2	0	0	0	1132	88	374	475	0	0	0	68	367	104	506	4	0	0	4
3	4	0	0	268	89	17	84	42	0	0	25	36	38	50	1	0	0	1
4	294	1217	119	0	0	248	445	59	0	90	56	35	85	49	3	0	0	3
5	0	43	0	39	0	30	109	9	0	2	14	11	21	15	1	0	0	1
6	260	260	0	92	26	0	0	0	0	0	0	0	0	0	0	0	0	0
7	400	400	0	193	17	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	58	61	7	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	9	6	2	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12	9	59	6	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0
13	69	47	17	64	10	0	0	0	0	0	0	0	0	0	0	0	0	0
14	12	82	8	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0
15	4	3	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	4	3	1	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0

16:00 to 17:00

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	0	9	175	0	316	338	0	0	0	10	9	53	12	2	0	0	2
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6	250	250	0	78	34	0	0	0	0	0	0	0	0	0	0	0	0	0
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8	0	0	52	72	13	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	72	35	33	56	10	0	0	0	0	0	0	0	0	0	0	0	0	0
12	12	80	8	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0
13	102	50	46	80	14	0	0	0	0	0	0	0	0	0	0	0	0	0
14	16	110	11	11	3	0	0	0	0	0	0	0	0	0	0	0	0	0
15	5	3	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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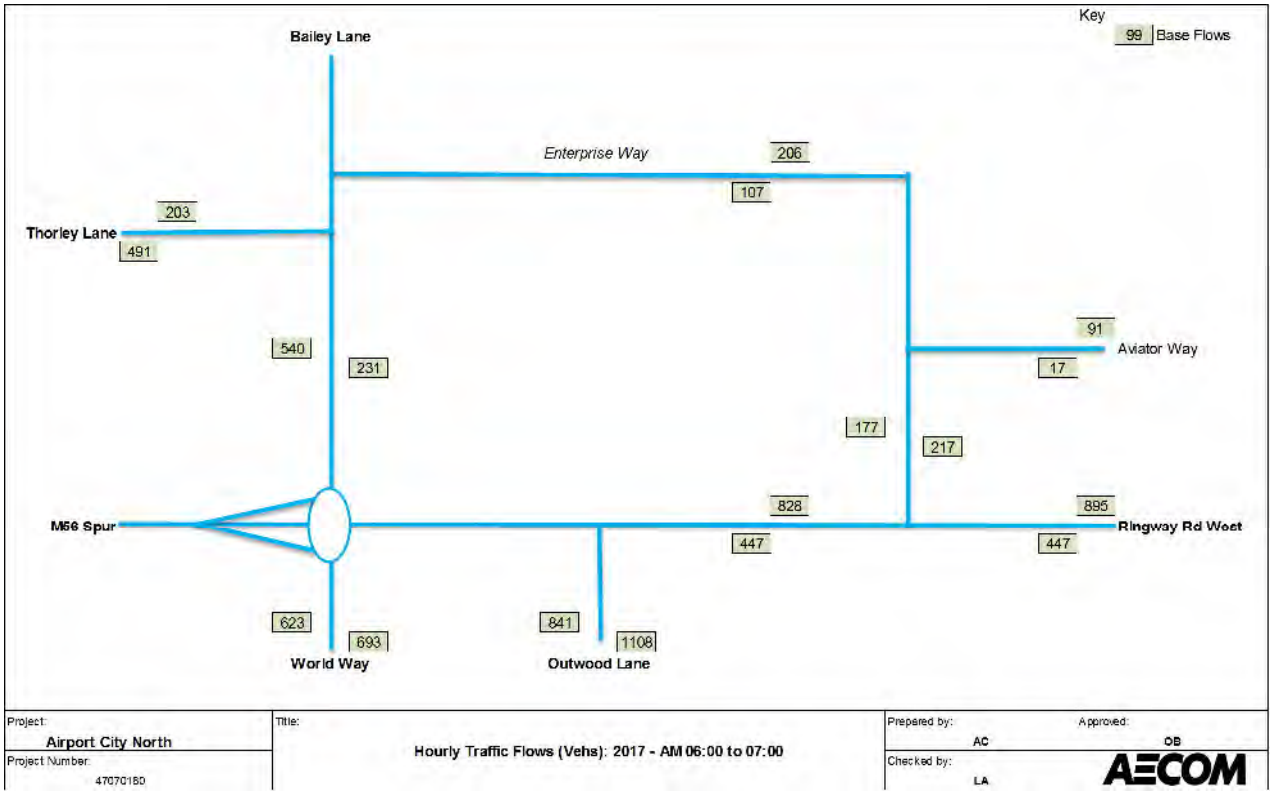
17:00 to 18:00

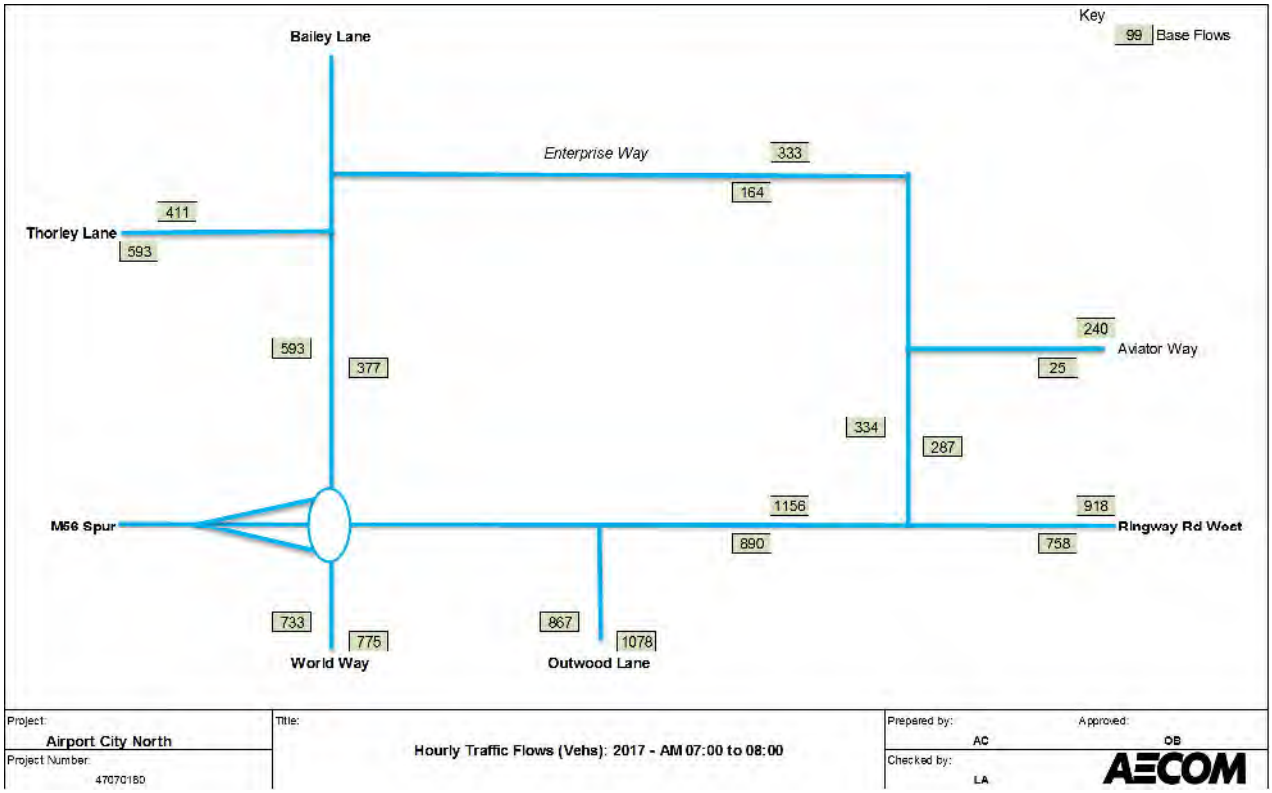
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3	11	0	0	251	126	8	55	28	0	0	3	4	15	5	0	0	0	0
4	516	922	132	0	0	161	320	59	0	69	8	4	34	5	1	0	0	1
5	0	58	0	1	0	40	107	11	0	0	7	1	30	2	1	0	0	1
6	237	237	0	71	57	0	0	0	0	0	0	0	0	0	0	0	0	0
7	424	424	0	224	34	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	120	79	22	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	87	42	39	68	12	0	0	0	0	0	0	0	0	0	0	0	0	0
12	35	236	23	23	7	0	0	0	0	0	0	0	0	0	0	0	0	0
13	128	62	58	100	18	0	0	0	0	0	0	0	0	0	0	0	0	0
14	48	326	32	31	10	0	0	0	0	0	0	0	0	0	0	0	0	0
15	6	3	3	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	6	3	3	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0

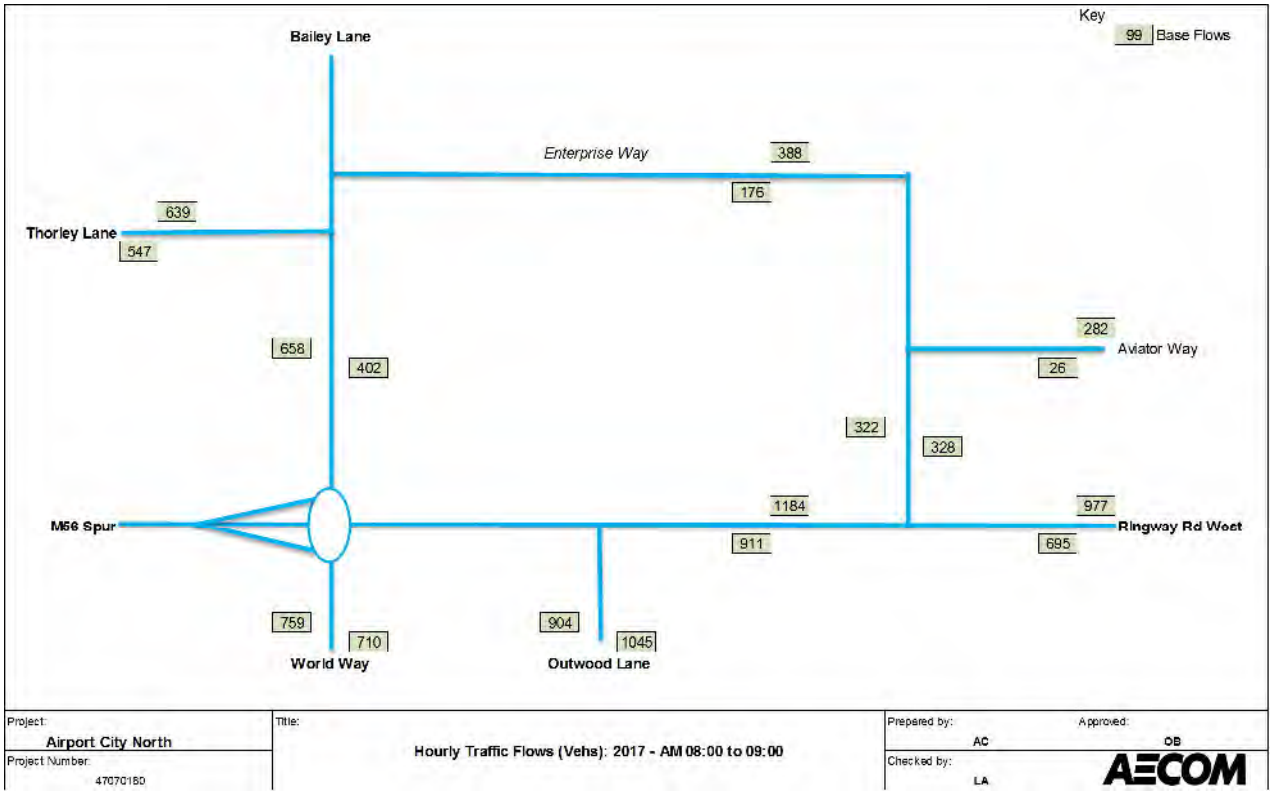
18:00 to 19:00

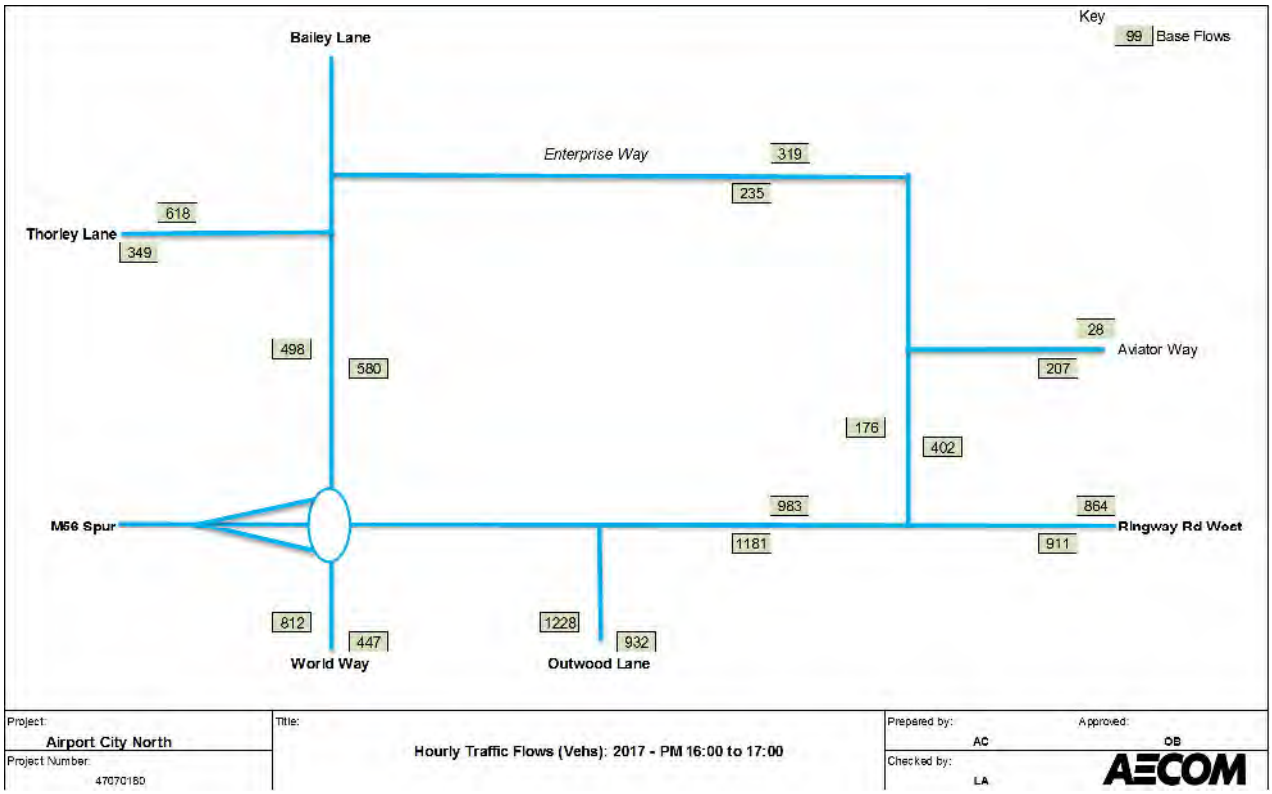
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	0	11	206	0	207	207	0	0	0	6	2	58	2	2	0	0	2
2	0	0	0	1077	132	207	207	0	0	0	3	11	28	15	1	0	0	1
3	12	0	0	252	126	5	37	19	0	0	1	1	13	1	0	0	0	0
4	517	925	132	0	0	107	208	32	0	50	3	1	32	1	1	0	0	1
5	0	59	0	1	0	30	70	7	0	0	3	0	28	0	1	0	0	1
6	145	145	0	33	34	0	0	0	0	0	0	0	0	0	0	0	0	0
7	266	266	0	142	22	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	73	45	13	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	44	22	20	34	6	0	0	0	0	0	0	0	0	0	0	0	0	0
12	36	249	25	24	8	0	0	0	0	0	0	0	0	0	0	0	0	0
13	61	30	28	48	9	0	0	0	0	0	0	0	0	0	0	0	0	0
14	50	343	34	33	10	0	0	0	0	0	0	0	0	0	0	0	0	0
15	4	2	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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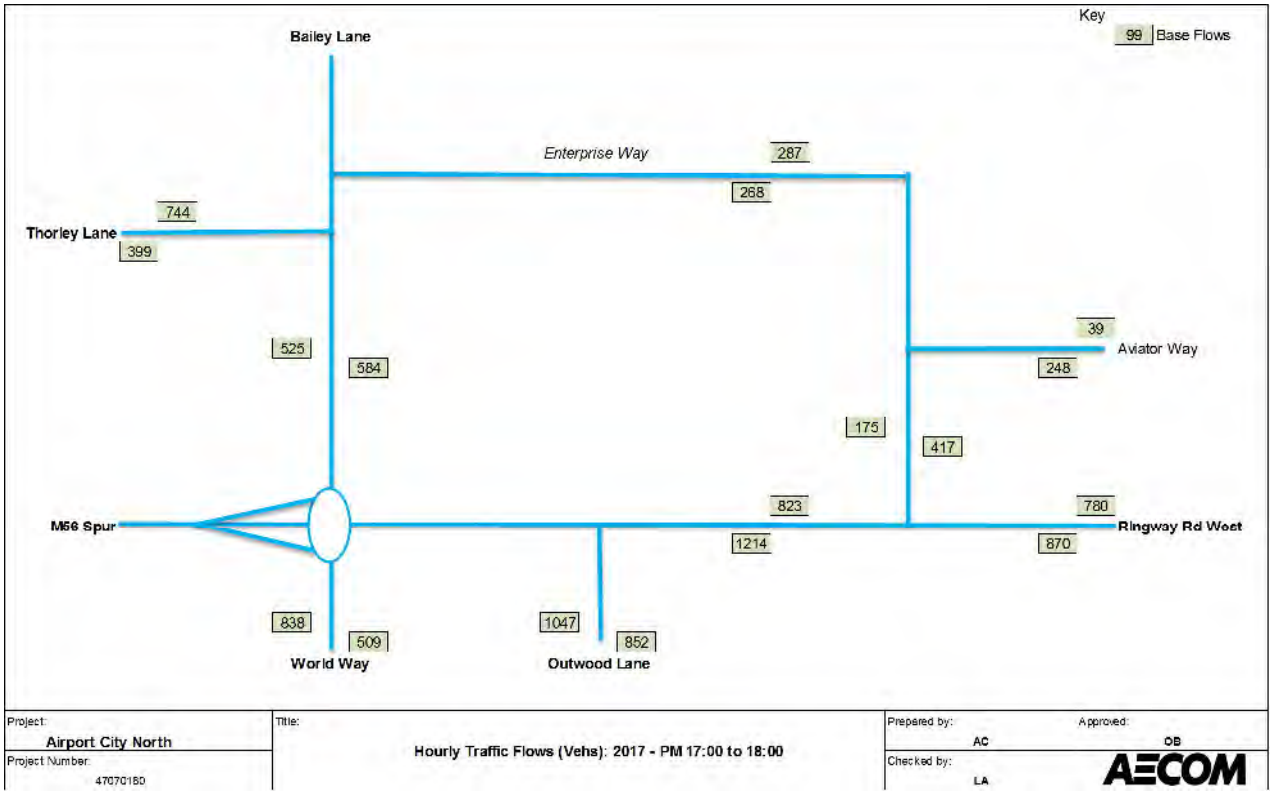
Appendix B Observed Base Traffic Data

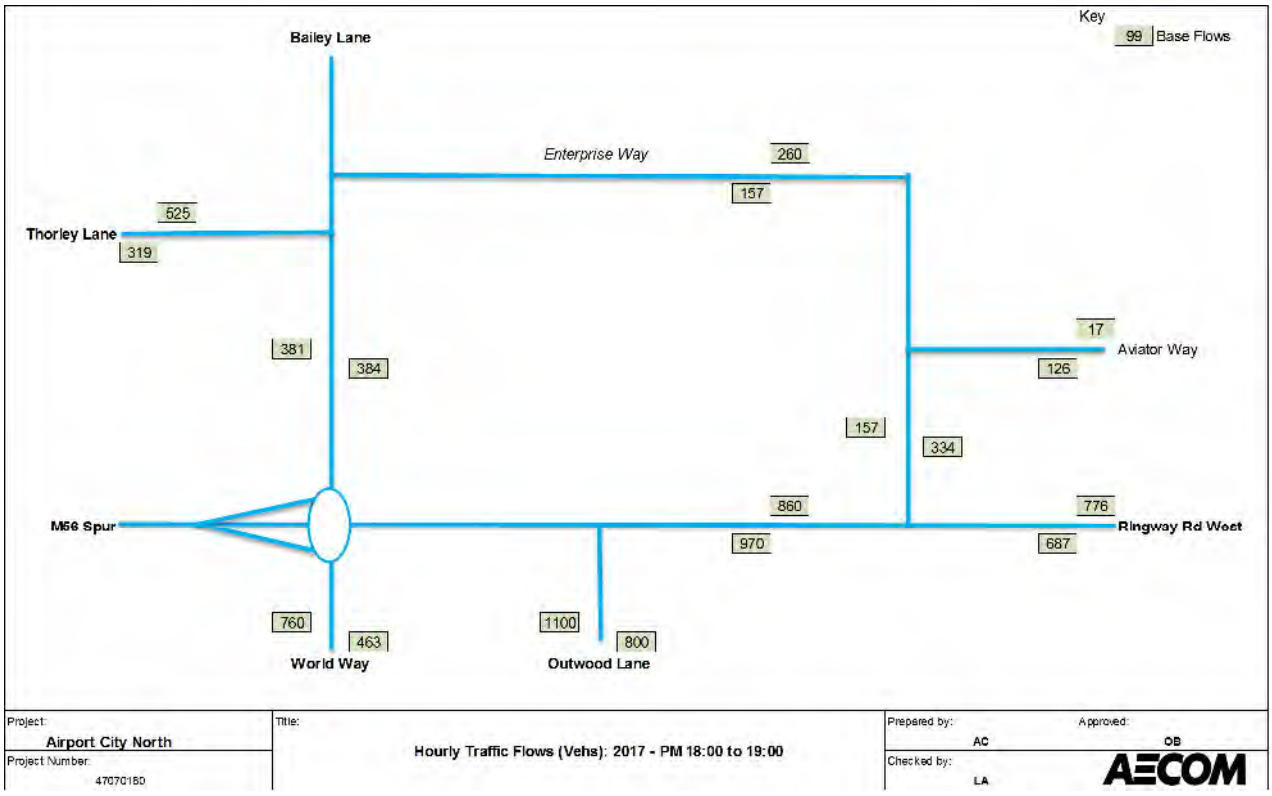





Key
99 Base Flows
Bailey Lane
Enterprise Way
388
176
639
Thorley Lane
547
658
402
282
Aviator Way
26
322
328
M56 Spur
1184
911
977
Ringway Rd West
695
759
710
904
1045
World Way
Outwood Lane
Project:
Airport City North
Project Number:
47070160
Title:
Hourly Traffic Flows (Vehs): 2017 - AM 08:00 to 09:00
Prepared by:
AC
Approved:
OB
Checked by:
LA
AECOM


Key
99 Base Flows
Bailey Lane
Enterprise Way
319
235
618
Thorley Lane
349
498
580
28
Aviator Way
207
176
402
M56 Spur
983
1181
864
Ringway Rd West
911
812
447
1228
932
World Way
Outwood Lane
Project:
Airport City North
Project Number:
47070160
Title:
Hourly Traffic Flows (Vehs): 2017 - PM 16:00 to 17:00
Prepared by:
AC
Approved:
OB
Checked by:
LA
AECOM


Key
99 Base Flows
Bailey Lane
Enterprise Way
287
268
744
Thorley Lane
399
525
584
39
Aviator Way
248
175
417
823
780
M56 Spur
Ringway Rd West
1214
870
838
509
1047
852
World Way
Outwood Lane
Project:
Airport City North
Project Number:
47070160
Title:
Hourly Traffic Flows (Vehs): 2017 - PM 17:00 to 18:00
Prepared by:
AC
Approved:
OB
Checked by:
LA
AECOM


Key
99 Base Flows
Bailey Lane
Enterprise Way
260
157
525
Thorley Lane
319
381
384
17
Aviator Way
126
157
334
860
776
M56 Spur
Ringway Rd West
970
687
760
463
1100
800
World Way
Outwood Lane
Project:
Airport City North
Project Number:
47070160
Title:
Hourly Traffic Flows (Vehs): 2017 - PM 18:00 to 19:00
Prepared by:
AC
Approved:
OB
Checked by:
LA
AECOM

Appendix C Model Results – Do Something without E1 Egress Link

The assessment of the Airport City development, in relation to initial phases of the Airport City Masterplan, including the Technology Campus Site, and E1, E2 site has been undertaken using VISSIM Microsimulation modelling.

This assessment has reviewed the highway impacts associated with these phases of development in relation to the already approved Airport City masterplan. This assessment is required to understand the highway impacts within the Airport City development and on the key access points to Airport City

The remainder of this appendix presents the results of this assessment assuming the egress link from the E1 MSCP to T2 / World Way roundabout is not present.

Each version of the model was assigned in Version 9.0 of VISSIM and run to convergence, this typically took in the region of 30 to 40 model runs to converge model route choice. The VISSIM model contains minimal route choice, though dynamic (variable) routing was assumed for Airport City traffic.

The model was run for eight simulation runs prior to obtaining queue lengths and journey times throughout the network. From these eight model runs the five model runs with results closest to the total average were taken forward and further interrogated.

For each location where results were taken, the difference between the Do Minimum and Do Something average results for each peak were calculated. From this, we were able to establish where the largest variance in queue lengths and journey times occurred. The three locations with the greatest variance between the two scenarios in each peak have been extracted and are presented in the subsequent sections below.

In summary, for queue results the locations with greatest variance are:

- The left turn from Bailey Lane onto Enterprise Way;
- The right turn from Ringway Road West onto Enterprise Way;
- The ahead movement at the same junction;
- The left turn from Enterprise Way onto Ringway Road West; and
- And the right turn at the same junction.

For the travel time results the locations are:

- From Enterprise Way Loop eastbound;
- From Airport Spur to Outwood Lane;
- From Airport Spur to Ringway Road; and

From Outwood Lane to the Airport Spur

AM Results

Congestion comparison

Shown below are a series of screenshots to provide a clear representation of the variation in congestion between the models over the AM simulation period.

Figure 27 - Overview at 06:30



Do Minimum AM



Do Something AM

Figure 28 - Overview at 07:30



Do Minimum AM

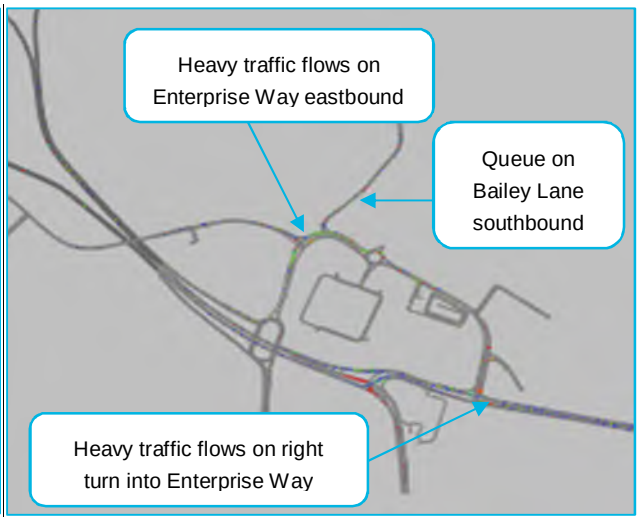


Do Something AM

Figure 29 - Overview at 08:30

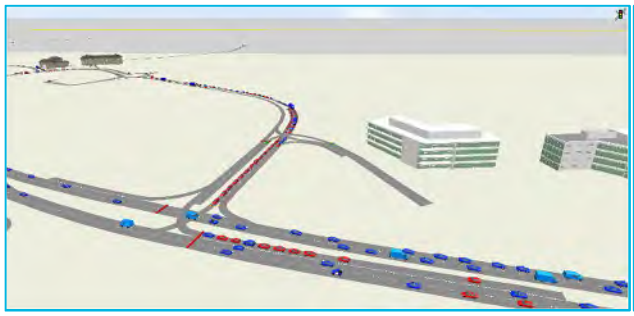


Do Minimum AM



Do Something AM

Figure 30 – Ringway Road West / Enterprise Way at 06:58



Do Minimum AM



Do Something AM

Figure 31 - Airport Spur / T2 Roundabout at 08:46



Do Minimum AM



Do Something AM

Figure 32 - Enterprise Way / Bailey Lane at 08:10



Do Minimum AM

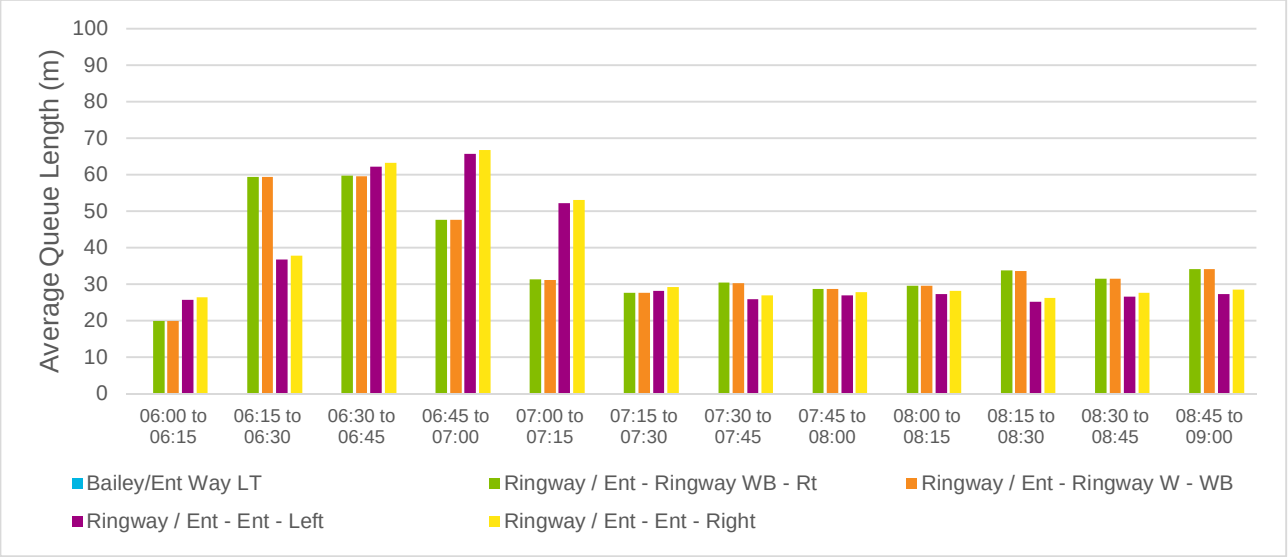


Do Something AM

Queue Lengths

In the AM peak for the Do Minimum model the largest average queue lengths are between 06:45 and 07:00 at approximately 70 metres for the right hand turn from Ringway Road West towards Enterprise Way and 65 metres at the left turn. Elsewhere at Enterprise Way onto Ringway Road West we see average queue lengths peaking at 06:30 to 06:45 at 60 metres for both the right turn and for the ahead movement. Whereas Bailey Lane's left turn towards Enterprise Way doesn't produce any queuing.

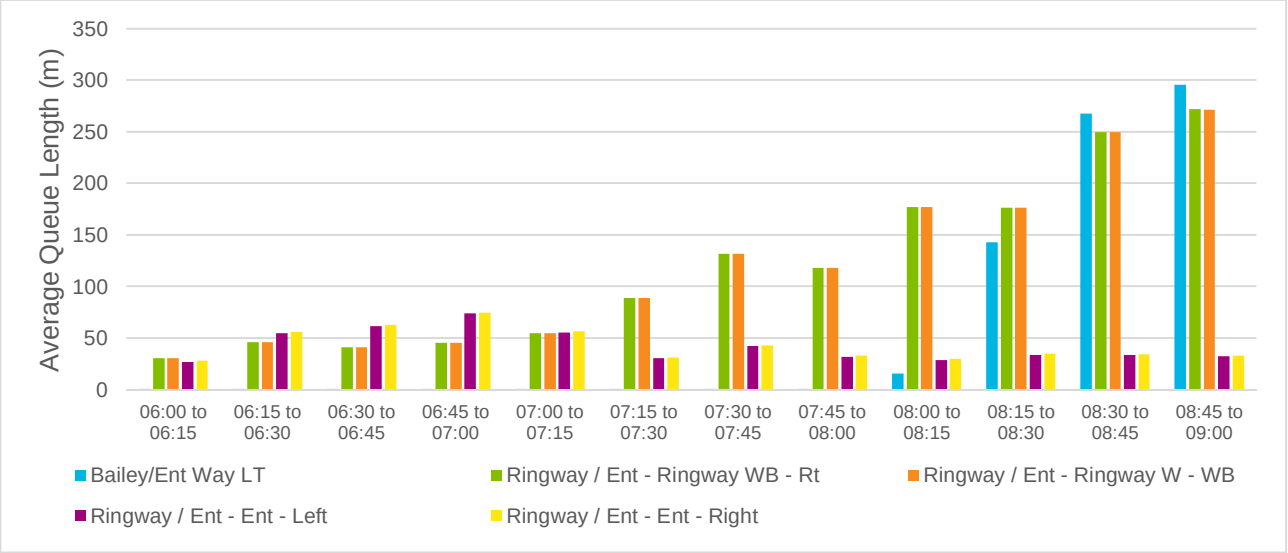
Figure 33 - Average Queue Lengths in the AM Do Minimum model



In the Do Something scenario average queue lengths continuously increase at both the Bailey Lane junction with Enterprise Way and Enterprise Way's junction with Ringway Road West. The largest of these average queue lengths are seen at the left turn from Bailey Lane onto Ringway Road West at 300 metres between 08:45 and 09:00. During the same period we also see the highest average queueing at Enterprise Way with 275 metres at the right and left turns; thereby more than quadrupling the peak of the Do Minimum scenario.

However, queuing from Ringway Road West onto Enterprise Way remains relatively unchanged in comparison to the other locations with the largest average queues again being seen between 06:45 and 07:00 with 75 metres from the left turn and 75 from the left; thus an increase of about 15 metres for both.

Figure 34 - Average Queue Lengths in AM Do Something model



In terms of maximum queue lengths observed in the AM peak for the Do Minimum scenario the longest queues can be found between 06:30 and 06:45 at Enterprise Way to the extent of 200 metres for the right turn and ahead movements.

Between 06:45 and 07:00 we find the longest queues for Ringway Road reaching 129 metres at the right turn and 130 metres for left turns towards Enterprise Way.

The trend of increasing queue lengths in the Do Something compared to the Do Minimum is also present for maximum queues for Bailey Lane and Enterprise Way in the Do Something scenario; reaching a maximum of 350 metres between 08:45 and 09:00.

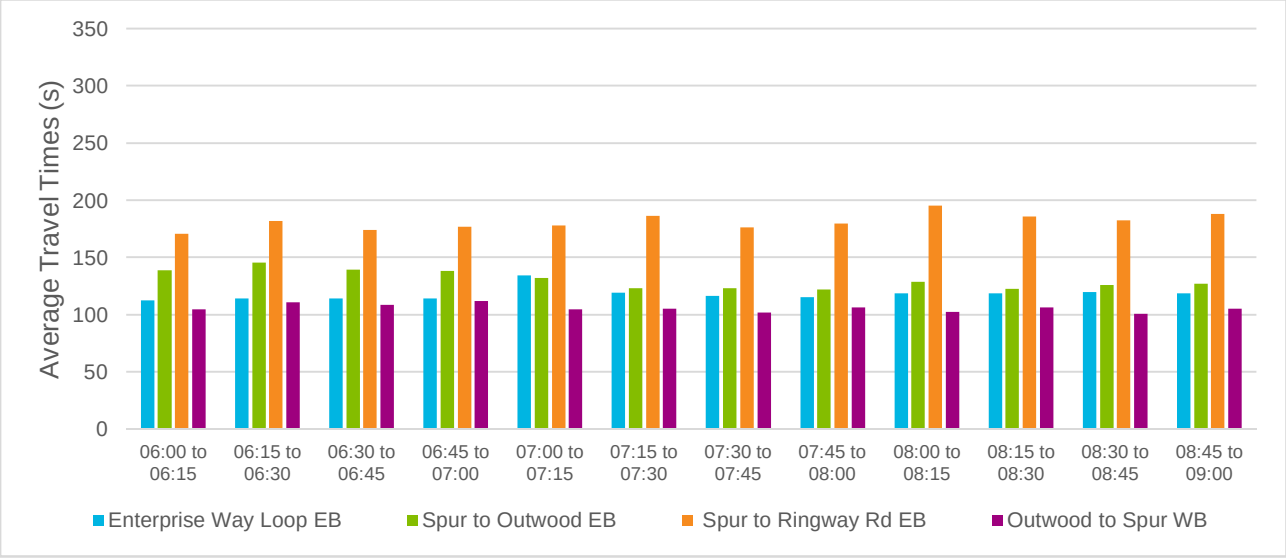
In the latter part of the modelled time period we see the largest variations from Do Minimum to Do Something peaking between 08:30 and 08:45 with queues at Enterprise Way reaching 375 metres turning right and moving ahead, more than trebling that of the Do Minimum model.

Journey Times

In terms of travel times for the Do Minimum scenario we see the longest average journeys between:

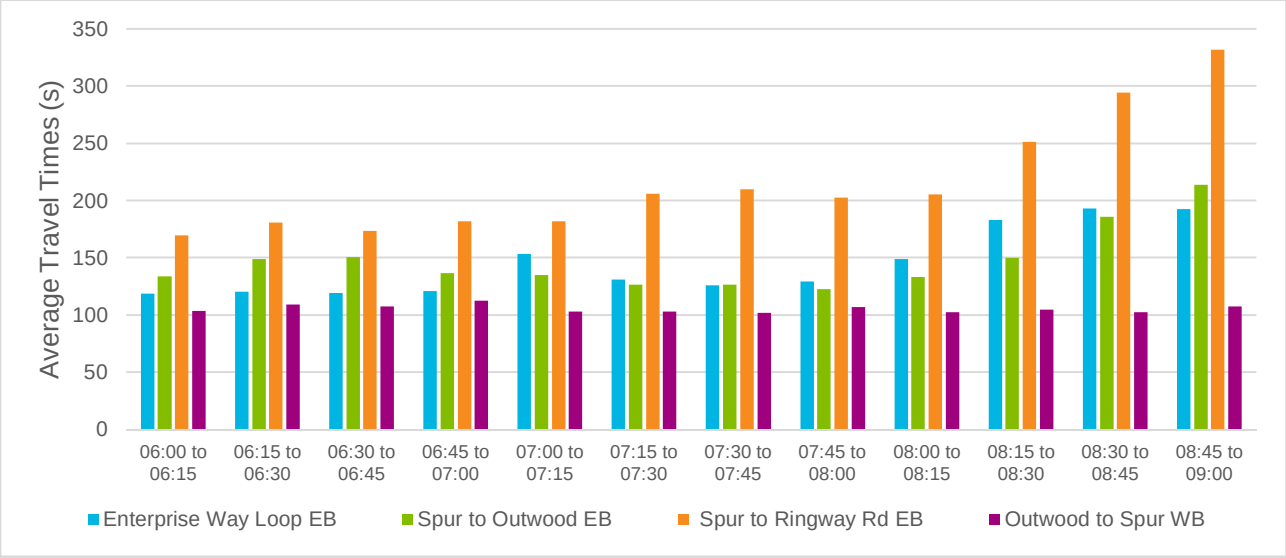
- 08:00 and 08:15 from the Airport Spur to Ringway Road at 196 seconds;
- The Airport Spur to Outwood Lane route peaks between 06:15 and 06:30 taking an average of 146 seconds;
- The Enterprise Way Loop peaks between 07:00 and 07:15 taking 135 seconds on average to complete; and
- Outwood Lane to the Airport Spur peaking between 06:45 and 07:00 at 112 seconds.

Figure 35 - Average Travel Times for the AM Do Minimum Model



The Do Something scenario provides a different trend from the Do Minimum from the Airport Spur to Ringway Road by continuously increasing the travel time required as the period moves on. This route reaches an average journey time of 330 seconds between 08:45 and 09:00, thus almost doubling the time taken in the Do Minimum.

Figure 36 - Average Travel Time for the AM Do Something Model

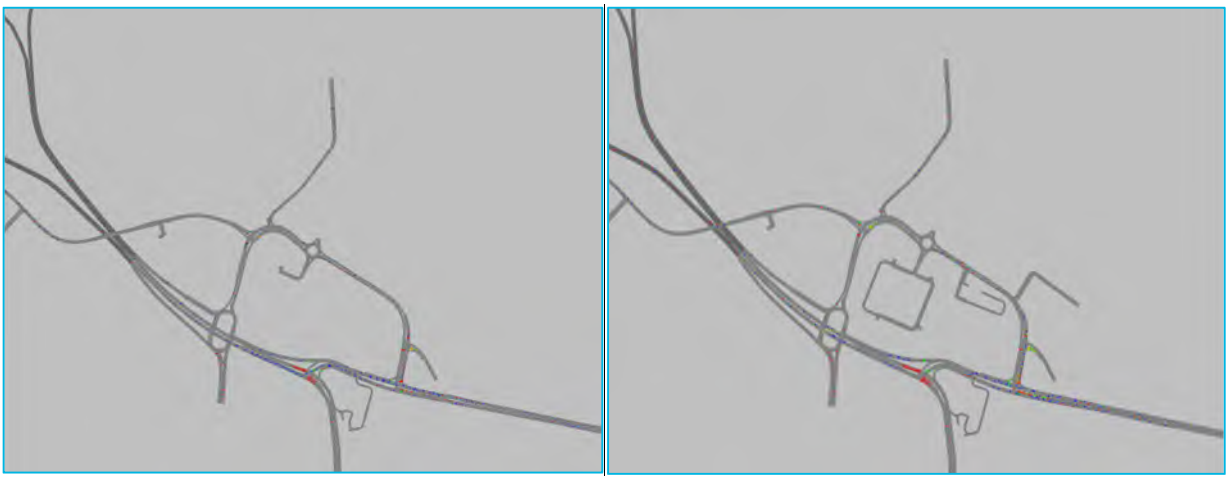


PM Results

Congestion comparison

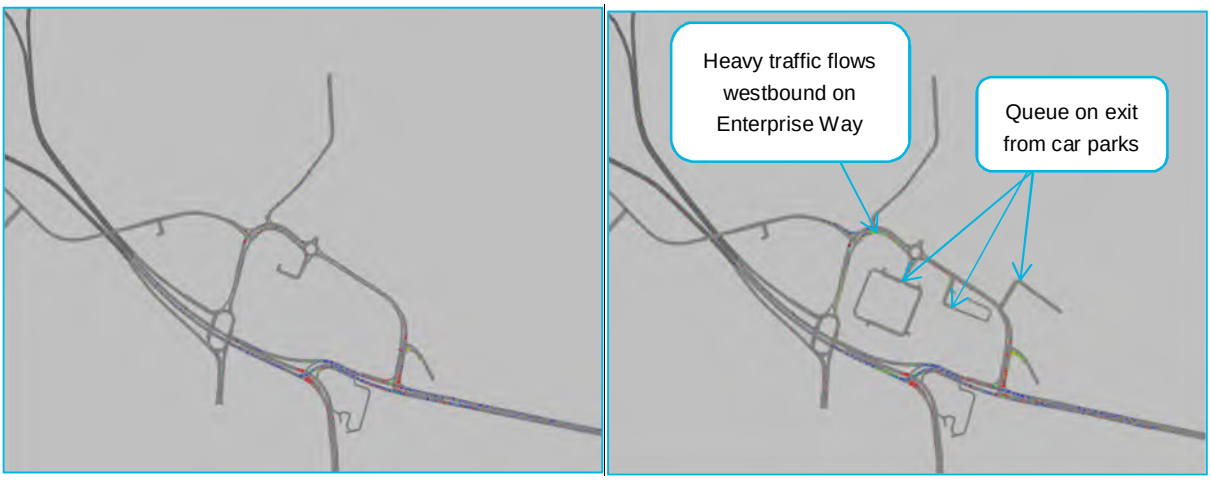
Shown below are a series of screenshots to provide a clear representation of the variation in congestion between the models over the PM simulation period.

Figure 37 - Overview at 16:30



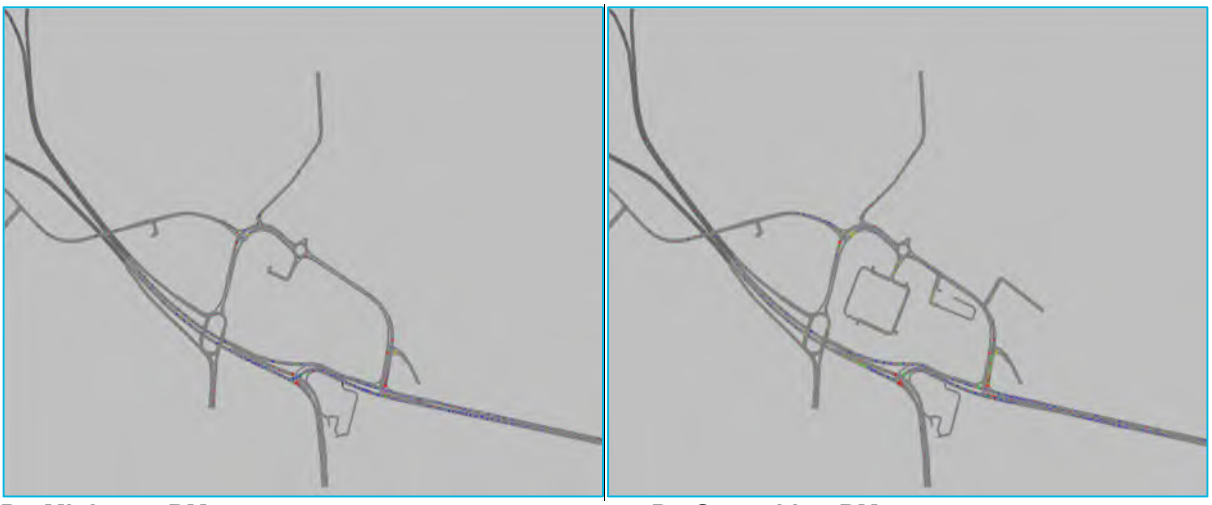
Do Minimum PM **Do Something PM**

Figure 38 - Overview at 17:30



Do Minimum PM **Do Something PM**

Figure 39 - Overview at 18:30



Do Minimum PM **Do Something PM**

Figure 40 - Ringway Road West / Enterprise Way at 17:15



Do Minimum PM



Do Something PM

Figure 41 - Airport Spur / T2 Roundabout at 16:44



Do Minimum PM



Do Something PM





Queue Lengths

In the PM peak for the Do Minimum model we can see that the period where the average queue length is the longest is between 17:30 and 17:45 at Enterprise Way onto Ringway Road West, with average queues of 50 metres turning right or left respectively. Elsewhere, as in the AM, there is no queuing observed at Bailey Lane.

Figure 42 - Average Queue Lengths in the PM Do Minimum model

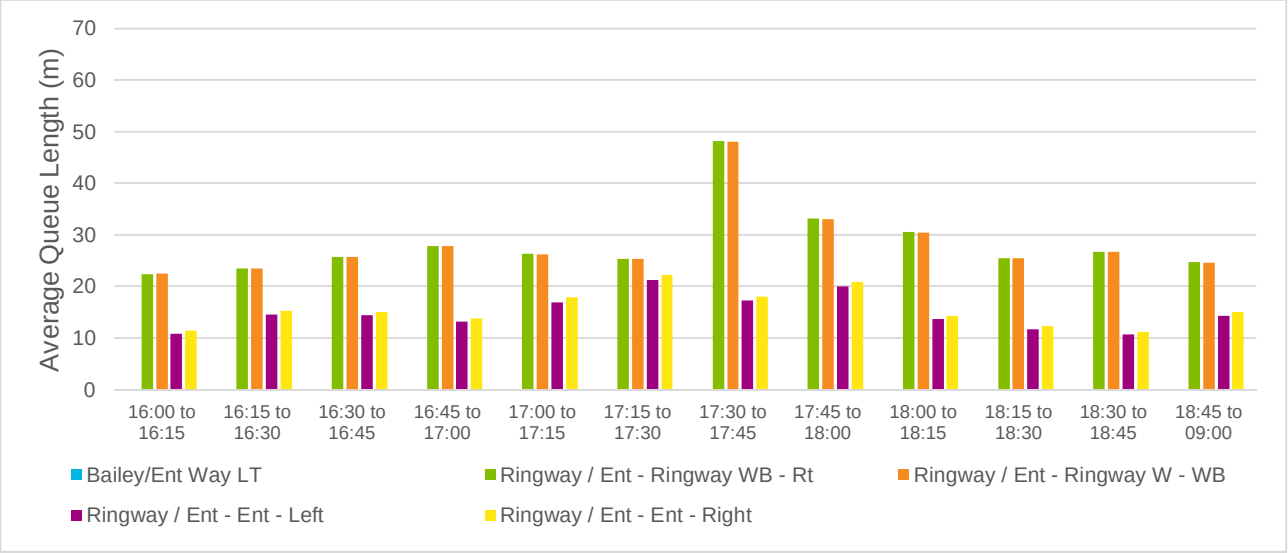
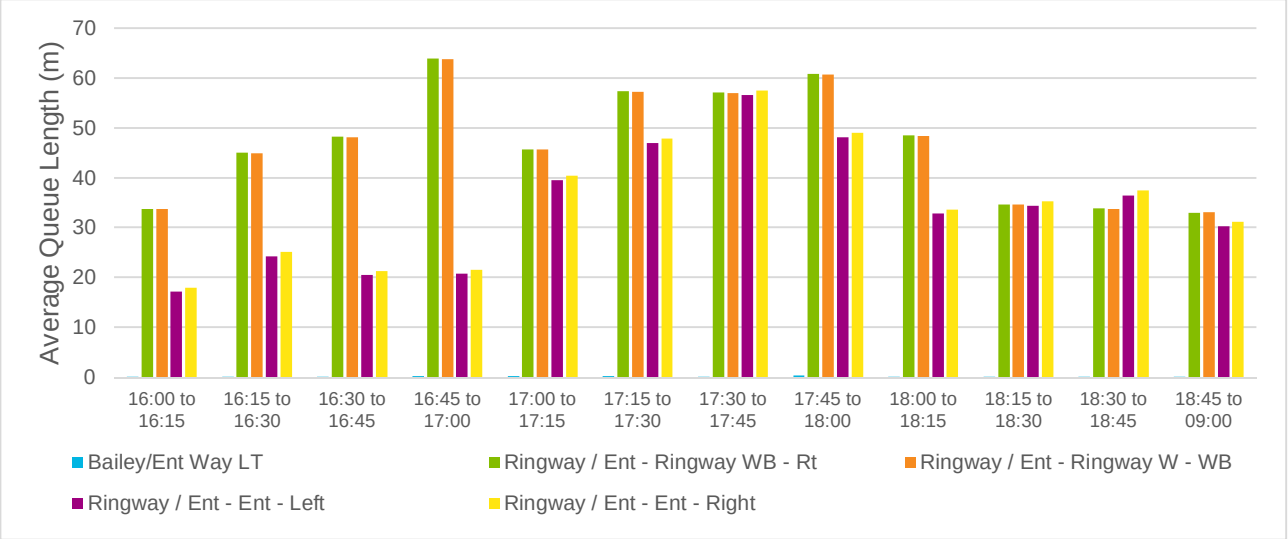


Figure 43 - Average Queue Lengths in the PM Do Something model



In the PM peak there is a small difference in average queues, prior to the introduction of the Airport City related development average queues within the study area are typically small, this introduction of this development does result in increased queues during the peak hours, though these are typically less than 70 metres on average.

The maximum queue length observed appears between 18:00 to 18:15 reaching 200 metres at the right turn from Enterprise Way onto Ringway Road West, and for the ahead movement.

At Ringway Road West on Enterprise Way we see the maximum queue length between 17:15 to 17:30 to the extent of 90 metres for the right and left turns.

Journey Times

In terms of travel times the longest average journey times are:

- From the Airport Spur to Ringway Road taking 189 secs between 17:45 and 18:00; and
- Enterprise Way Loop in the same period with 123 seconds.

The other routes produced rather consistent average journey times throughout the period with the Airport Spur to Outwood Lane taking roughly 115 seconds and the opposite direction taking 100 seconds.

Figure 44 - Average Travel Times for the PM Do Minimum model

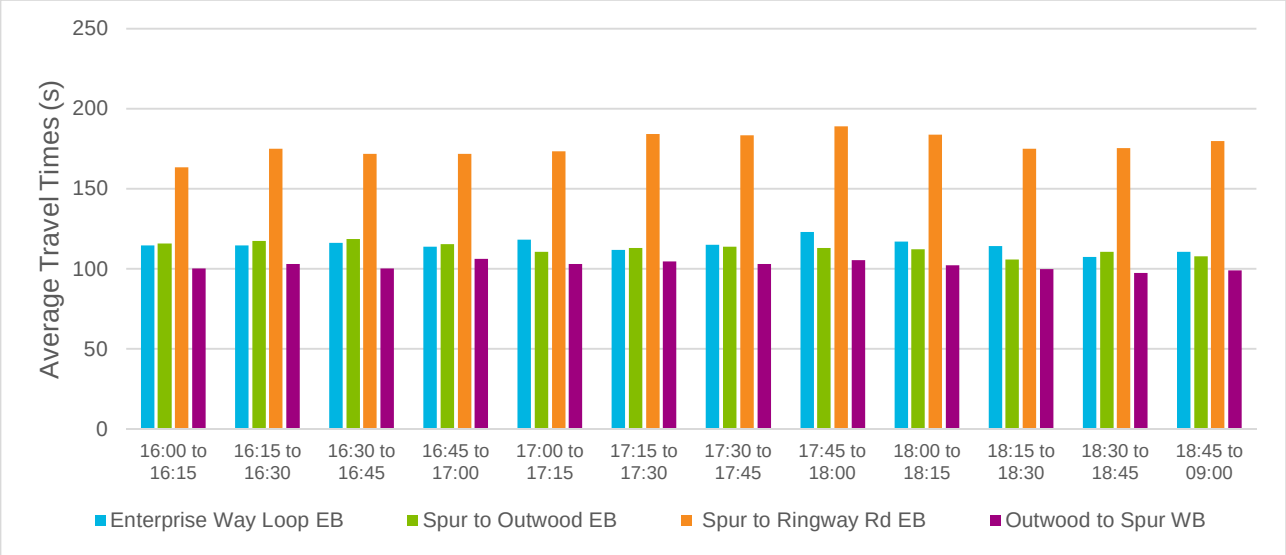
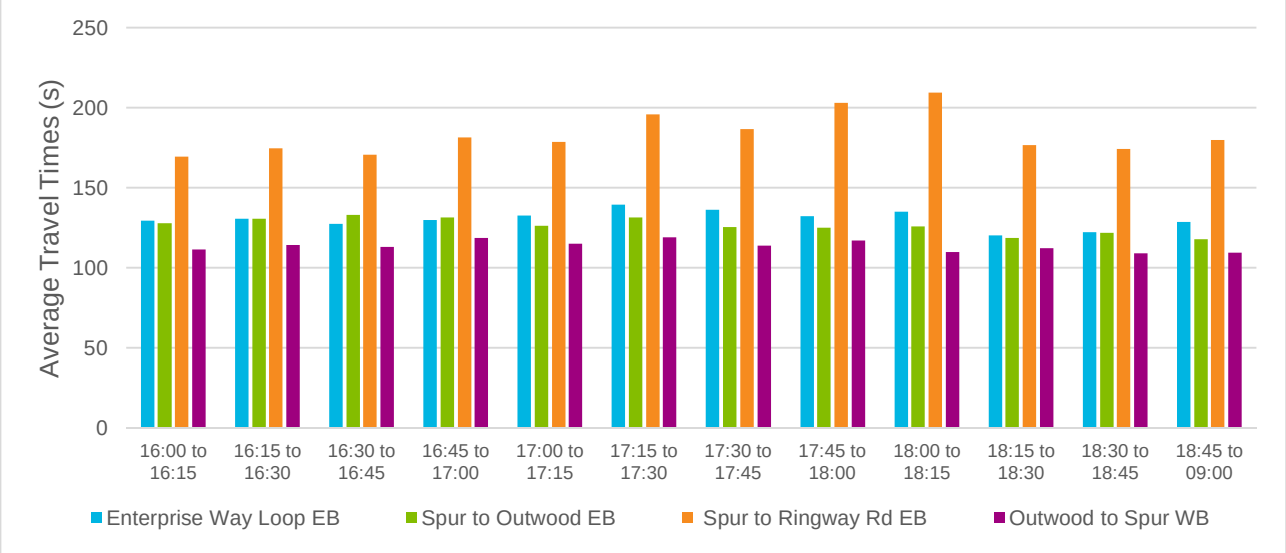


Figure 45 - Average Travel Times for the PM Do Something model



Summary & Key Findings

The assessment of the initial plots of Airport City, has identified that this level of development can be accommodated within the local highway network at Airport City. To accommodate the development sites, a number of minor amendments to the highway network have been included within the do something modelling to provide access to the proposed car parks within Airport City. These highway adjustments include the following measures:

- **Car park access right turn pockets:** right turn pockets to accommodate right turning traffic without delay to the highway network, for all car parks. Weightings were applied to the right turn movements to discourage high volumes of M56 traffic from right turning into the car park, favouring left turn in;
- **Car park egress two lanes:** two lane exits assumed – one left, one right lane, to distribute exit traffic, for all car proposed car parks;
- **Bailey Lane queue reduction:** more aggressive give way behaviour modelled to minimise queues on Bailey Lane; and
- **A6MARR / Outwood Lane** - lane allocations, assumed signage, encouraging traffic from M56 to Outwood Lane to mainly use the right hand lane, freeing more capacity for A6MARR and Airport city traffic (modelled lane allocations adjusted slightly to reflect this behaviour).

The completed models identified mainly small increase in queues at key junctions and small increases in travel times due to the additional traffic flows generated by the Airport City development. With minor mitigation measures these were accommodated within the highway network.

In the AM peak, Bailey Lane was subject to queues, mainly due to the limited gaps in traffic to join Enterprise Way. Also some queues were observed on the right turn from Ringway Road West to Enterprise Way. As a result the modelling recommended a longer right turn pocket on Ringway Road West to accommodate these queues. Also heavy traffic flows were observed travelling along Enterprise Way in the eastbound direction, to accommodate the additional development related traffic flows traffic signals were optimised. Also the hatched out area on Enterprise Way eastbound between Thorley Lane and Bailey Lane was removed to provide two lanes between the Thorley Lane junction and the Enterprise Way roundabout. Also, to accommodate the mix of background traffic, airport traffic for T2, and Airport City traffic, the right turn pocket from Ringway Road W to Enterprise Way was extended to accommodate queuing traffic.

In the PM peak small queues were observed on exits to the car parks, in particular the Technology Campus MSCP car park. Also small queues were shown on Enterprise Way, for the right turn between Enterprise Way and Ringway Road West though were accommodated within the existing highway network as the majority of traffic leaving the development site, leaves Airport City via the elevated roundabout on the M56 spur.

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