



# Blackpool Core Strategy Marton Moss / M55 Hub Traffic Impact Assessment

## Final Study Report



July 2011

**Halcrow**

**Halcrow Group Limited**

North west regional office, Manchester: Deanway Technology Centre  
Wilmslow Road, Handforth, Cheshire, SK9 3FB  
Tel +44 (0)1625 540 456 Fax +44 (0)1625 549 325  
[www.halcrow.com](http://www.halcrow.com)

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Deanway Technology Centre, Wilmslow Road, Handforth  
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tel 01625 540456 fax 01625 549325  
halcrow.com

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# 1 Introduction

## 1.1 Study Context

This report provides the findings of the Blackpool Core Strategy – Marton Moss / M55 Hub Traffic Impact Assessment Study (hereon referred to as “the study”). The study has sought to assess the transport implications associated with a number of development proposals coming forward in the area and has aimed to identify appropriate solutions that seek to deal with the specific issues identified.

The study will advise and inform the ongoing work being undertaken in relation to the progression of Blackpool’s Local Development Framework [LDF], particularly the Core Strategy. The emerging Fylde Core Strategy will similarly, in the future, set out the development aspirations on the Fylde side of the boundary.

In progressing the LDF, and particularly the Core Strategy, it is vital that appropriate consideration is given to a range of issues that the spatial plan could impact on and that appropriate consultation takes place.

One such consideration is in relation to transport and the implications that development proposed in the plan has on the surrounding transport network. Effective transport systems are integral to the successful delivery of the plan, in that to attract the level of growth required, the transport network has to appropriately facilitate effective movement.

The study will provide a vital piece of information in truly considering the synergy between spatial planning and transport in respect of the anticipated growth in Blackpool and potential growth in Fylde, in future years, at Marton Moss / M55 Hub.

While providing a suitable piece of evidence to support the LDF, being a broad and strategic assessment, it should be recognised that the analysis undertaken as part of this study does not provide the detail required to support the aforementioned development proposals through the planning application process. As any development proposal comes forward in the area through the planning process, there will be a need for them to be supported by appropriate supporting transport analysis through the provision of site specific detailed Transport Assessments.

## 1.2 The Purpose of the Report

This report aims to set out the background to the study, the methodology adopted and the findings of the analysis undertaken as part of the study. The study specifically assesses the characteristics of each of the proposed development sites in spatial and transport terms, as well as giving consideration to the transport impacts of development scenarios which involve the progression of multiple sites through to 2027. The report identifies the specific implications at a number of junctions in the area, seeking to identify any measures required to support the development aspirations.

## 1.3 Structure of the Report

This report is presented in the following chapters:

- Chapter 2 – Study Background;
- Chapter 3 – Study Methodology;



- Chapter 4 – Background Traffic Conditions;
- Chapter 5 – Site Analysis;
- Chapter 6 – Scenario Testing;
- Chapter 7 – Junction Modelling;
- Chapter 8 – Improvement Identification; and
- Chapter 9 – Summary and Conclusions.

## 2 Study Background

### 2.1 Introduction

This chapter of the report briefly sets out the context in which the proposed development sites have emerged and aims to provide some background to the study in terms of its aims and objectives.

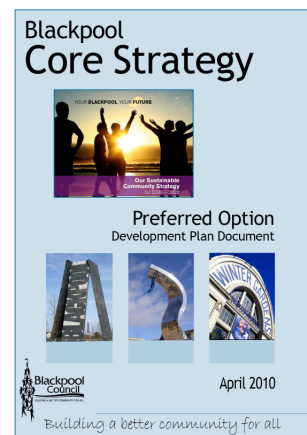
### 2.2 Background

For the purpose of background, it is prudent to consider the key drivers for growth and the development aspirations in the area.

#### Blackpool Local Development Framework / Core Strategy

Once adopted, the emerging Local Development Framework [LDF] will set out the spatial planning framework for the next 15 years and specifically outlines the objectives in relation to spatial regeneration and growth. The Core Strategy of the LDF has evolved over a period of time, summarised as follows:

- March 2010 – Blackpool Core Strategy Preferred Options approved;
- May-July 2010 – Consultation of Core Strategy;
- July 2010 – Proposed revocation of the RSS (and associated housing targets); and
- November 2010 – Consultation on proposals to reduce number of houses required at Marton Moss / M55 Hub.



In terms of where the strategy is going, the aspiration of the council is to seek submission and adoption of the document in the short term.

#### Marton Moss / M55 Hub

While much of the focus of the Core Strategy relates to the regeneration of the town centre and the resort core, the Marton Moss / M55 Hub is identified as a sustainable urban extension required to meet economic and growth aspirations.

Indeed its importance is reflected in Core Strategy policies, highlighted in Table 2.1.

Policy	Summary
S1 (Strategic Direction and Location of Development)	Marton Moss / M55 Hub as a supporting focus for growth and expansion to meet housing and economic development needs as part of a sustainable urban extension
S3 (Housing Need: Blackpool Strategic Housing Sites 2010-2026)	The Strategic Development Site at M55 Hub/ Marton Moss – 2,700 dwellings (November 2010 proposals revised to 1,500 dwellings)

Policy	Summary
S5 (Employment Development and Economic Diversification)	Expanded employment opportunities at the M55 Hub.
M1 (Strategic Allocations of land for residential development at Marton Moss / M55 Hub) & Policies M2 through to M6	- Land between Bennetts Lane and Progress Way – c.500 dwellings - Land between Yeadon Way and Progress Way, east of Midgeland Road – c. 1,000 dwellings
M7 (M55 Hub Transport and Connectivity)	To optimise pedestrian and cycle connectivity between homes, jobs, and supporting community facilities within the M55 Hub.

Table 2.1 - Core Strategy Policies relating to Marton Moss / M55 Hub

### 2.3 Study Aims & Objectives

In developing the LDF, and particularly the Core Strategy, it is vital that appropriate consideration is given to a range of issues that the spatial plan could impact on and that appropriate consultation takes place.



One such consideration is in relation to transport and the implications that development proposed in the plan has on the surrounding transport network. Effective transport systems are integral to the successful delivery of the plan, in that to attract the level of growth required, the transport network has to appropriately facilitate effective movement. The findings of this study will provide a vital piece of information in truly considering the synergy between spatial planning and transport in respect of a major focus of the anticipated growth in Blackpool in future years – Marton Moss / M55 Hub.

In undertaking this study at this stage, it can be recognised that:

- The key relationship between spatial planning and transport has been appreciated;
- The findings of the study have shaped the spatial plan;
- Transport policies and infrastructure plans have been accordingly developed and tailored and are flexible to future growth; and
- An evidence base has been developed that key partners and stakeholders are fully engaged in.



## 2.4 Study Area

The study area covers the range of potential proposed developments identified within the study brief, as outlined in Figure 2.1 with Table 2.2 providing a schedule of the developments.

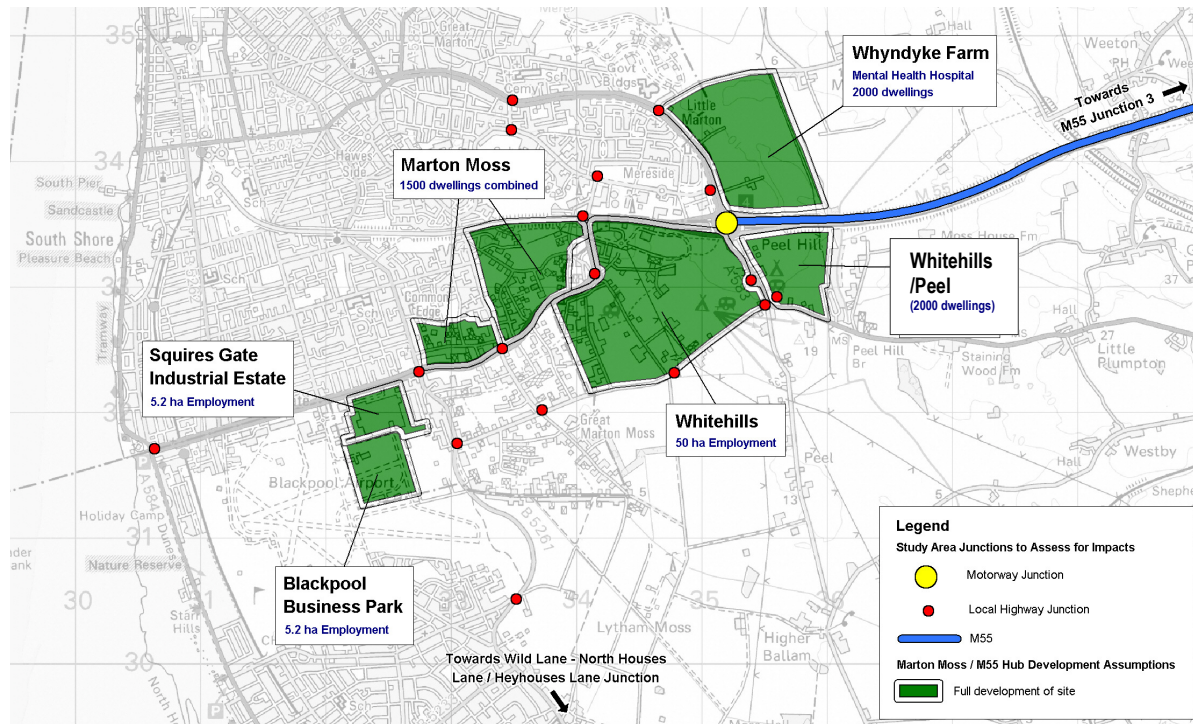


Figure 2.1 – Study Area

Development		Scale	Development Type
1A	Blackpool Business Park	5.2 hectares	Employment
1B	Squires Gate Industrial Estate	5.2 hectares	Employment
1C	Whitehills Commitment	25 hectares	Employment
2A	Marton Moss (Moss House Road Site)	600 dwellings	Residential
2B	Marton Moss (Yeadon Way – Progress Way)	900 dwellings	Residential
3A	Whyndyke Farm Mental Hospital	143 Bed	Mental Health Hospital
3B	Whyndyke Farm Residential	2000 dwellings	Residential
4	Whitehills Additional Employment	25 hectares	Employment
5A	Whitehills/Peel (first 1000 dwellings)	1000 dwellings	Residential
5B	Whitehills/Peel (second 1000 dwellings)	1000 dwellings	Residential

Table 2.2 - Development Proposals

It is important to note that only the 1,500 dwellings at Marton Moss (Sites 2A and 2B) and the employment provisions at Blackpool Business Park / Squires Gate (Sites 1A and 1B) form part of the Core Strategy. The other prospective developments are considered to be potential areas of development over the lifetime that this study will cover and therefore consideration of their implications has been built into the study to enable appropriate consideration. Fylde Council's level and mix of development will be determined in future in the evolving Fylde Core Strategy.

It should also be recognised that the Core Strategy's South Blackpool focus for employment development also includes a number of specific *redevelopment* opportunities within Blackpool. These are:

- redevelopment of Blackpool Council's Progress House offices at Clifton Road;
- potential redevelopment of adjoining gas holder lands which are expected to be decommissioned during the plan period; and
- the development of remaining land and partial redevelopment of the NSI (National Savings and Investment) sites on Preston New Road.

The potential in each of the above instances is that new / replacement employment generation is likely to be lower or no higher than the existing number of jobs on these sites, which will already be part of the background situation allowed for in the study, and therefore do not require to be assessed for new traffic generation.

In relation to the NSI site, while there is the potential for a new direct access from Preston New Road to the site, which is currently accessed off Mythop Road, this has not been modelled within the study, but will be considered when making recommendations at this particular part of the network.

### 3 Study Methodology

#### 3.1 Introduction

The study methodology is split into distinct stages, structured as indicated in Figure 3.1. Further information in relation to the approach to each of the distinct stages is provided subsequently.

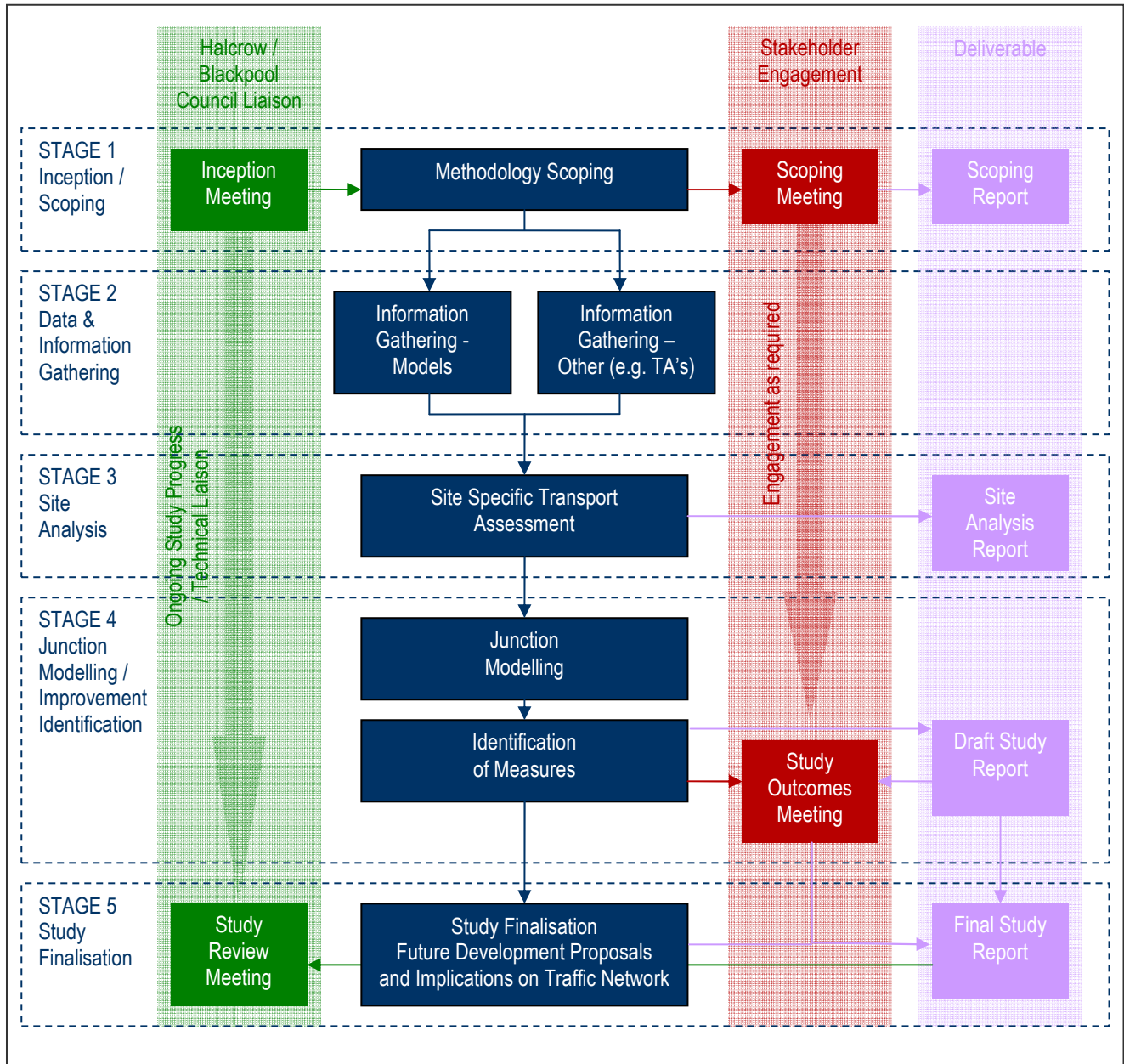


Figure 3.1 - Proposed Study Methodology

#### 3.2 Stage 1 - Inception / Scoping

An inception meeting took place on 23<sup>rd</sup> March 2011 between Halcrow and Blackpool Council in order to clarify the study objectives; review the proposed methodology; further develop the detailed approach; and to seek access to required data and evidence.

The methodology scoping stage aimed to add detail to the proposed method and offered a starting point for discussions with study stakeholders. To aid these discussions a scoping meeting took place on 23<sup>rd</sup> March 2011 to enable a two-way flow of ideas, including the sharing of the study objectives, and an opportunity for stakeholders to identify any specific requirements.

The inception / scoping stage was concluded with the production of the Study Scoping Report which clearly set out the aims and methodologies of the study and was subsequently agreed by all parties.

### **3.3 Stage 2 - Data & Information Gathering**

The data and information gathering stage fell into two key strands. The first strand related to the gathering of model data / information from the CUBE / PARAMICS model available in the area. It should be emphasised at this stage of the report, that the model has not been used for assessments as part of this study as it is not considered fit for purpose, instead being used as a source of data (e.g. traffic count data and signal data).

The second strand focused on the gathering of other data / information specifically in relation to the sites requiring assessment as part of the study. Some of the sites have already been considered in detail as part of their advancement through the planning process. Others have not had any detailed analysis undertaken and required further analysis. Our understanding of the analysis status of each of the sites is outlined in Table 3.1.

Development		Analysis Status
1A	Blackpool Business Park	Transport Assessment (March 2005) – data utilised where appropriate.
1B	Squires Gate Industrial Estate	Transport Assessment (October 2004) – data utilised where appropriate.
1C	Whitehills Committed	Assumed no existing assessment.
2A	Marton Moss Road	Transport Assessment (September 2009) – data utilised where appropriate.
2B	Adjacent to Marton Moss	Assumed no existing assessment.
3A	Whyndyke Farm Hospital	Transport Assessment (February 2010) – data utilised where appropriate.
3B	Whyndyke Farm Residential	Transport Assessment (March 2011) – data utilised where appropriate.
4	Whitehills Additional	Assumed no existing assessment.
5A	Whitehills/Peel Primary	Assumed no existing assessment.
5B	Whitehills/Peel Secondary	Assumed no existing assessment.

Table 3.1 - Development Proposals – Pre-Study Analysis Status

Previous transport analyses have been considered as inputs to the study based on their content and appropriateness to the study, with refinements being undertaken where necessary.

### 3.4 Stage 3 – Site Analysis

As with the whole assessment process for the study, this stage of the study has been completed in line with recognised policy and guidance including:

- The Guidance on Transport Assessments [GTA]; and
- For the elements of assessment involving the Strategic Road Network (i.e. the assessment of the M55 junctions), DfT Circular 02/2007 “Planning and the Strategic Road Network”.

In considering the specifics of this analysis, further detail is provided below in relation to the sub-elements of the assessment. In summary, the proposed site analysis methodology is as detailed in Figure 3.2.



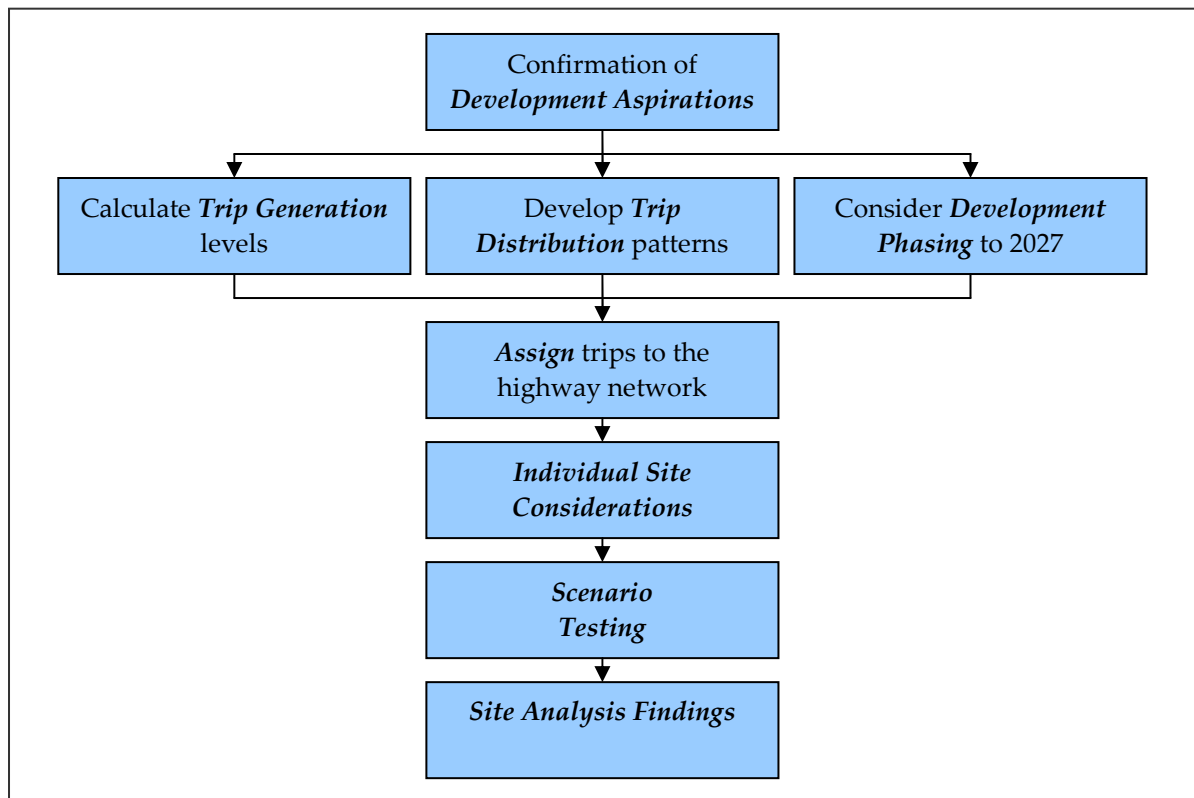


Figure 3.2 - Site Analysis Methodology Overview

### Trip Generation - Development Proposals

Where possible, data from existing sources (e.g. those sites for which there is an agreed Transport Assessment) has been utilised as a starting point for the analysis. In instances where existing trip generation data has not been available, a new analysis has been undertaken using TRICS to gain a site specific understanding of the likely realistic level of trip generation.

The study aims to give consideration to the highway implications associated with the development proposals. However, given that public transport provision will be addressed at a later date and in order to inform future consideration of these issues, the analysis of trip generation has been undertaken at a multi-modal level.

### Trip Generation - Existing Uses / Extant Permissions

As identified as part of the scoping stage of the study, it was identified that there are no significant elements of development trips associated with existing uses or extant permissions at the sites which are being considered as part of the study.

### Trip Distribution

In order to derive typical trip distribution patterns that can be applied to the proposed developments, trip distribution patterns have been derived based upon the use of Census Journey to Work data. This analysis has focussed upon a collection of Output Areas in the location of the proposed site, containing a reasonable level of comparable development (e.g. containing existing surrounding residential areas to apply to new residential development), in order to gain a reasonable reflection of travel patterns. Such was considered to be an appropriate methodology, rather than the analysis of a single output area, in order to achieve a better representation of the distribution patterns (e.g. for Whyndyke Farm, the output areas within which the site is located are

currently of a Greenfield nature and likely to be unrepresentative of the housing site to be located there).

A validation exercise has also been undertaken in Accession to ensure this element of the analysis is representative of travel patterns. This analysis considered the journey time isochrones for each of the sites. For this purpose, it is recognised from DfT data that the average journey time is in the region of 22 minutes.

### **Accessibility**

In order to support the above analysis, assessment has been undertaken that considers the baseline accessibility of each site in relation to Blackpool Town Centre using the existing public transport network within 400m access of each proposed development site (based on October 2010 data). The journey times within this assessment include the time taken to access the nearest bus stop (within 400 metres) and assumes interchange is possible where required. It is important to realise that this assessment has measured access within the morning peak (0800-0900) only and within other time periods, accessibility levels and service availability may vary.

When Transport Assessments are undertaken in support of individual planning applications, it will be required that they appropriately consider the accessibility credentials of the site through use of the accessibility methodology adopted by Blackpool Council. Scoping discussions with the Council will enable this element of assessment to be clearly defined.

### **Development Phasing**

The anticipated phasing of developments has been based on information provided by Blackpool Council. As part of the study, four distinct phases have been considered:

- 2011;
- 2016;
- 2021; and
- 2027.

### **Trip Assignment**

Trips have been assigned to the surrounding highway network based on the above consideration of trip generation and distribution, supplemented with the use of route planning software.

### **Impact Assessment**

Combining the above elements of analysis has enabled an understanding of the impacts of each of the individual developments on the surrounding network to be gained.

### **Scenario Testing**

A number of development scenarios have been tested as part of the assessment process. The full details of these scenarios are set out later in the report, but essentially, the various scenarios amount to an amalgamation of various development aspirations, each coming forward over the period to 2027.

Table 3.2 summarises these development scenarios.

Scenario	A	B	C	D	E	F
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Scenario	A	B	C	D	E	F
1A Blackpool Business Park	✓	✓	✓	✓	✓	✓
1B Squires Gate Industrial Estate	✓	✓	✓	✓	✓	✓
1C Whitehills Commitment	✓	✓	✓	✓	✓	✓
2A Marton Moss (Moss House Road Site)	✓		✓	✓	✓	✓
2B Marton Moss (Yeadon Way – Progress Way)	✓		✓	✓	✓	✓
3A Whyndyke Farm Mental Hospital		✓	✓	✓	✓	✓
3B Whyndyke Farm Residential		✓	✓	✓	✓	✓
4 Whitehills Additional Employment				✓	✓	✓
5A Whitehills/Peel (first 1000 dwellings)					✓	✓
5B Whitehills/Peel (second 1000 dwellings)						✓

Table 3.2 - Development Scenarios

As part of this stage, specific consideration has been given to the linkage between the development sites in order to avoid the potential of double counting (i.e. those trips that are generated between a proposed housing and a proposed employment site).

In order to consider this aspect, within the scenarios in which both employment and residential developments occur, reductions have been made to the employment trip generations by taking account of the trips that are distributed to the Census Output Areas within which the proposed residential development is located. Table 3.3 identifies these reductions (for the employment sites for which they have been applied).

Scenario	A	B	C	D	E	F
1A Blackpool Business Park	-5%	0%	-5%	-5%	-7%	-7%
1B Squires Gate Industrial Estate	-2%	0%	-2%	-2%	-3%	-3%
1C Whitehills Commitment	-3%	-1%	-4%	-4%	-5%	-5%
3A Whyndyke Farm Mental Hospital		-1%	-4%	-4%	-5%	-5%
4 Whitehills Additional Employment				-4%	-5%	-5%

Table 3.3 – Inter-development Trip Generation Reductions to avoid double counting

Given the juxtapositions of the developments and the likely interaction between the sites, the values identified in Table 3.3 are considered reasonable.

### 3.5 Stage 4 - Junction Modelling / Improvement Identification

A key outcome from stage 3 of the analysis has been the identification of the junctions that require analysis in specific scenarios. For this purpose, in line with the thresholds identified in policy and guidance, any junctions that is impacted upon with greater than 50 two way trips in a particular scenario will be analysed. Having identified these, junction modelling has been undertaken.

The study approach to junction modelling focuses on traditionally accepted junction modelling techniques through the use of industry standard software (LINSIG, ARCADY, PICADY etc...). Some existing junction models in the study area have been developed as part of recent Transport Assessments. Where this is the case, these have been utilised in instances where we have been able to gain access to these models.

Where existing models have not been available, we have developed such models using data provided by the Council / obtained from the CUBE / PARAMICS model. Table 3.4 identifies the analyses planned to be undertaken as part of the study, with Figure 3.3 providing a plan of the junctions.

Junction	Junction Type	Model Platform	
1	A583 Preston New Road / Preston Old Road / Cherry Tree Road North	Signalised	LINSIG
2	A583 Preston New Road / Mythop Road	Signalised	LINSIG
3	Cherry Tree Road / Cherry Tree Road North	Signalised	LINSIG
4	Ashworth Road / Clifton Road	Roundabout	ARCADY
5	A583 Preston New Road / Clifton Road	Signalised	LINSIG
6	Yeadon Way / A5230 Progress Way	Roundabout	ARCADY
7	M55 Junction 4	Roundabout	ARCADY
8	M55 Junction 3	Roundabout	ARCADY
9	A584 Promenade / A5230 Squires Gate Lane / A584 Clifton Drive North	Signalised	LINSIG
10	A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane	Signalised	LINSIG
11	A5230 Progress Way / Midgeland Road	Signalised	LINSIG
12	A5230 Progress Way / Cropper Road / Jenny Lane	Roundabout	ARCADY
13	A583 Preston New Road / Hallam Way / Lytham St. Annes Way	Roundabout	ARCADY
14	A583 Preston New Road / Whitehill Road	Signalised	LINSIG

Junction		Junction Type	Model Platform
15	Whitehill Road / Peel Road	Priority	PICADY
16	Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way	Roundabout	ARCADY
17	School Road / Midgeland Road	Priority	PICADY
18	B5261 Common Edge Road / School Road	Signalised	LINSIG
19	B5261 Queensway / Kilnhouse Lane	Signalised	LINSIG
20	Heyhouses Lane / Blackpool Road	Signalised	LINSIG

Table 3.4 - Junction Analyses

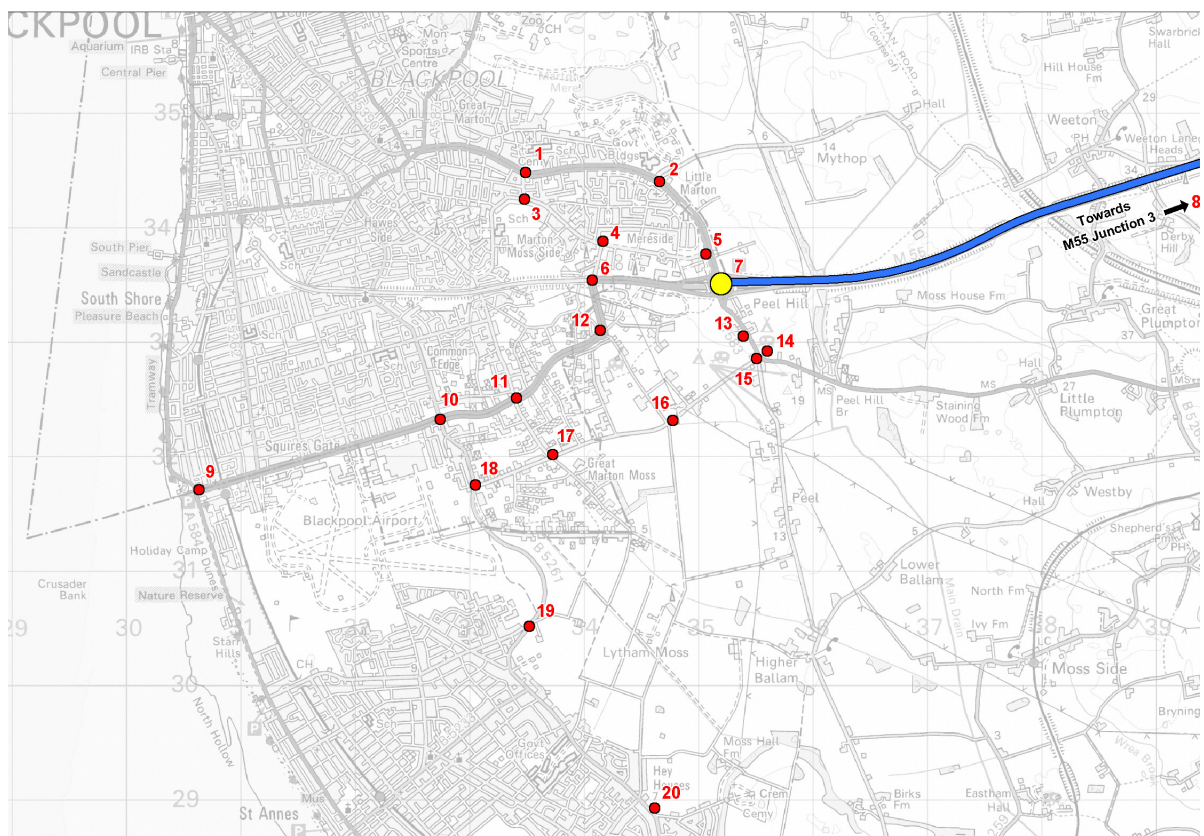


Figure 3.3 – Junction Plan (including Reference Numbers)

This analysis has been informed by the spreadsheet work undertaken as part of stage 3, allowing the analysis of various flow scenarios to be undertaken.

The outcomes of the analysis are appropriately reported to identify the instances in which issues arise, in the form of operational issues at specific locations of the network. This has aided and informed subsequent work undertaken in relation to the identification of measures.

While such operational issues have been identified, the study has taken the approach that physical measures, although likely to be required in some instances, are a last resort. As such, the approach adopted (as outlined in the GTA) is as follows:

- Explore and consider measures that could be adopted to reduce the need to travel (e.g. travel plan measures). For this purpose evidence of typical trip reductions that can be achieved through such mechanisms has been sought, such that the analysis is appropriately evidence based;
- Investigated measures to maximise sustainable accessibility (e.g. public transport measures); and
- Assessed the requirement and scale for physical mitigation measures targeted at those areas of the network where issues are evident and likely to cause operational consequences and potentially impede the development aspirations of the area.

To convey the findings of the study and allow the stakeholders to identify any particular refinements / ideas that should be integrated into the final elements of the study, a study outcomes meeting will take place.

### **3.6 Stage 5 – Study Finalisation**

The final study report will be prepared with reference to this draft study report and the discussions that take place at the study outcomes meeting. This report will form the main outcome from the study but will be supplemented with all the technical analysis (spreadsheets and junctions models) providing the council with a base of information should future analyses be required.

## 4 Background Traffic Conditions

### 4.1 Introduction

This section of the report identifies the origins of the data used in preparing the traffic impact assessment for the proposed developments as identified in this study.

### 4.2 Base Network Flows

#### Baseline Identification

In order to determine the base situation on the study network, data has been utilised from a number of sources. We have used the following approach to inform our base flows for use within the study (in order of precedence):

- Data from Transport Assessments; then
- Other traffic count data; then
- PARAMICS model data; then
- CUBE model data.

In terms of the Transport Assessment data, this was only available for the morning and evening peaks. For these movements, to gain a best estimate of Saturday peak flows, we have used the ratios of flows (weekday to Saturday) for that movement from the PARAMICS (or CUBE) model to factor the weekday Transport Assessment data. A degree of caution should therefore be applied when considering the specific results of the Saturday models that are based on the above assumption. Initial consideration of other available data in the study area has provided some assurance to the study that the traffic flows are of a reasonable nature. Given the differing travel patterns on the network during the Saturday peak (which is more reflective of tourist and shopping patterns) when compared to the weekday peaks (which are more typically associated with commuter travel patterns), Transport Assessments supporting planning applications will need to give full consideration to the weekend peak.

Furthermore, in relation to the base weekday flows for the morning and evening peaks which have been derived from the PARAMICS (or CUBE) model, given the lack of other data, a degree of reliance was placed on the validity of the data within those models. Transport Assessments supporting planning applications should not rely on the PARAMICS (or CUBE) model data for the purpose of their assessments and should be based on actual traffic count data.

A full compliment of data has been gained for the junctions. Table 4.1 highlights the source of each of the junction's base traffic flow data, including the month that the data was collected.

Junction		Data Origin	Data Collection Month
1	A583 Preston New Road / Preston Old Road / Cherry Tree Road North	Whyndyke Transport Assessment	June / July
2	A583 Preston New Road / Mythop Road	Whyndyke Transport Assessment	June / July

Junction		Data Origin	Data Collection Month
3	Cherry Tree Road / Cherry Tree Road North	PARAMICS	Various
4	Ashworth Road / Clifton Road	PARAMICS	Various
5	A583 Preston New Road / Clifton Road	Whyndyke Transport Assessment	June / July
6	Yeadon Way / A5230 Progress Way	PARAMICS	Various
7	M55 Junction 4	Whyndyke Transport Assessment	June / July
8	M55 Junction 3	CUBE	Various
9	A584 Promenade / A5230 Squires Gate Lane / A584 Clifton Drive North	PARAMICS	Various
10	A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane	Moss House Road Transport Assessment	May
11	A5230 Progress Way / Midgeland Road	Moss House Road Transport Assessment	May
12	A5230 Progress Way / Cropper Road / Jenny Lane	Moss House Road Transport Assessment	May
13	A583 Preston New Road / Hallam Way / Lytham St. Annes Way	Queensway Transport Assessment	April
14	A583 Preston New Road / Whitehill Road	Queensway Transport Assessment	April
15	Whitehill Road / Peel Road	Queensway Transport Assessment	April
16	Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way	Queensway Transport Assessment	April
17	School Road / Midgeland Road	Blackpool Council Traffic Data	May
18	B5261 Common Edge Road / School Road	Blackpool Council Traffic Data	May



Junction		Data Origin	Data Collection Month
19	B5261 Queensway / Kilnhouse Lane	Count Data	May
20	Heyhouses Lane / Blackpool Road	CUBE	Various

Table 4.1 - Junction Base Data Origins

The representation of these base flows (brought to a 2011 base) are provided in figures C.1 to C.3 in Appendix C for the morning, evening and Saturday peaks respectively.

It should be recognised that Blackpool has an established season from Easter (around April) until the end of the illuminations (around October), where ATC data indicates that there is approximately 20% more traffic. The majority of visitors to the Blackpool resort attractions arrive by car, and in the main from the M55 via the Yeadon Way / Progress Way and Preston New Road corridors. Given the findings of this report in relation to the additional traffic utilising these corridors, Transport Assessments prepared in support of planning applications should fully consider this seasonality effect and should ensure that operational assessments (potentially in the form of sensitivity tests) are robust, with the aim of ensuring that the operational conditions of these corridors does not in any way detract from the visitor experience.

### 4.3 Background Traffic Growth

As part of the study, the network has been considered in increments of 5 years – 2011, 2016, 2021 and 2027 and in the morning, evening and Saturday peaks. In order to consider background traffic growth, the study has aimed to reflect government guidance, through the use of NTM (factored by TEMPro).

However, in order to consider the likely occurrence of double counting within the analysis (i.e. the fact that some development for which site specific analysis is being undertaken as part of the study will also be included as a contributor to growth in the NTM/TEMPro forecasts), study specific revisions have been made.

For this purpose, it is considered that the development forming Scenario A represents the most likely quantum of development to be included within the NTM/TEMPro forecasts (given that it is this level of development that represents the aspirations of the LDF in the area).

The approach taken to these study specific revisions is set out in summary below (along with a theoretical example, which is considered more easily interpretable than the actual data used in the study):

1. Determine 2008 base traffic across the study network (say, 100 movements).
2. Through direct application of NTM/TEMPro forecasts, determine future year traffic across the study network (say, for 2027, growth of 50% (1.5 growth factor) = 150 movements).
3. Through the analysis of trip generation / distribution / assignment / phasing (as detailed in other elements of this study), determine the specific development related traffic across the study network in each future year, associated with the developments in Scenario A (say, for 2027 Scenario A, 20 movements).
4. Determine the proportion of the traffic growth expected to occur as a result of factors not connected to the developments forming Scenario A (60% in this case (30/50)).

5. Determine a revised growth background growth factor (60% of the 50% growth (1.5 growth factor) = 30% growth (1.3 revised growth factor)).

While using a theoretical example above, to explain the principle of the analysis, Figure 4.1 identifies the findings of this approach to the study using data directly from the study analysis, and therefore identifies the level of background growth considered as part of this study.

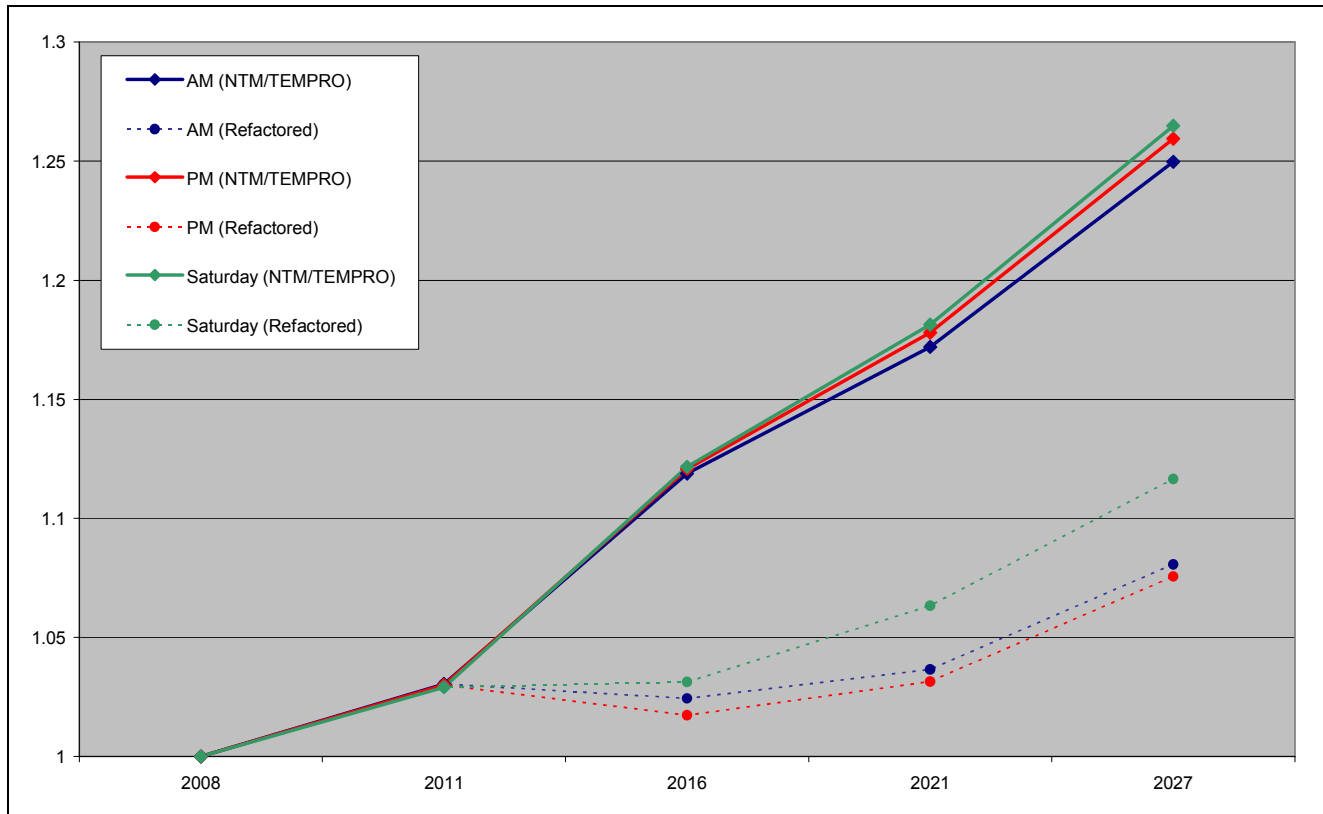


Figure 4.1 - Traffic Growth Revisions

It can be seen that (using 2008 as a base of 1), the determined factors are influenced as follows:

- In 2011, given that it is forecast in the study that no development will have been developed in this year, NTM/TEMPro (without any study specific revisions) have been utilised.
- In all subsequent scenarios, it is forecast that some element of development will have been developed and as such, through the process described above, the factors have been altered to reflect the fact that a large proportion of the traffic growth in the area can be attributed to the Scenario A development.

#### 4.4 Committed Development

It is considered the following list encompasses those sites that need to be considered as committed developments as part of the study:

- Hollywood Nursery (residential development of 95 dwellings at Whitehills between B5140 St Annes Way and Whitehills Road);
- Queensway (residential development of 1150 dwellings south of Queensway) + the associated M55 to Heyhouses Link Road;

- Former Civil Service, Heyhouses (1,860sqm retail foodstore, 930sqm commercial floorspace, retirement village 85 apartments, and residential development of 250 dwellings); and
- Former Pontins Holiday Camp (upto 275 dwellings).

Figure 4.2 provides a map of the committed development locations.

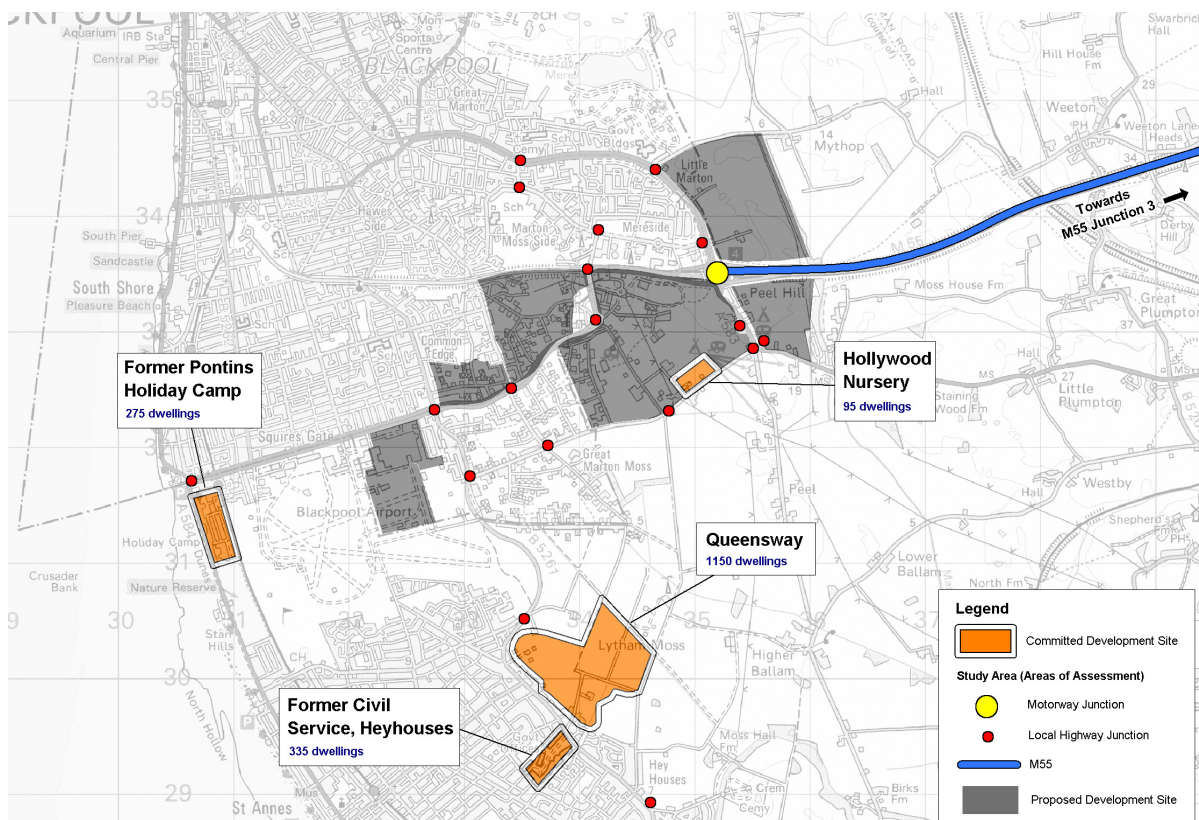


Figure 4.2 - Committed Developments

While the Whitehills development is recognised as a committed development within the study it actually forms part of the developments being considered in the scenario tests and is therefore not considered here, to avoid double counting.

Other development aspirations in the area will be considered as part of background traffic growth patterns as discussed above.

For the purpose of considering the committed developments as part of the study, a similar approach as identified for the study specific developments has been adopted. Table 4.2 identifies the approach adopted for each committed development, specifically outlining the approach taken to deriving trip generation, distribution and development phasing.

Development	Trip Generation	Trip Distribution	Development Phasing
Hollywood Nursery	Average of Trip Rates for Transport Assessments of Sites 2A and 3B	Methodology as per development proposals (Census Journey to Work data) utilised	Assumed all development built out by 2016

Development	Trip Generation	Trip Distribution	Development Phasing
Queensway	Average of Trip Rates for Transport Assessments of Sites 2A and 3B	Methodology as per development proposals (Census Journey to Work data) utilised	Assumed all development built out by 2016
Former Civil Service, Heyhouses	Average of Trip Rates for Transport Assessments of Sites 2A and 3B	Methodology as per development proposals (Census Journey to Work data) utilised	Assumed all development built out by 2016
Former Pontins Holiday Camp	Average of Trip Rates for Transport Assessments of Sites 2A and 3B	Methodology as per development proposals (Census Journey to Work data) utilised	Assumed all development built out by 2016

Table 4.2 - Committed Developments – Information Source

In summarising the trip generating potential of each committed development, Table 4.3 provides a summary.

Development	Scale / Dev. Type	AM Peak			PM Peak			Saturday Peak		
		Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Hollywood Nursery	95 dwellings	11	40	51	36	21	57	22	29	51
Queensway	1150 dwellings *1	128	489	617	442	255	697	269	352	621
Former Civil Service, Heyhouses	335 dwellings *2	37	143	180	129	74	203	78	102	180
Former Pontins Holiday Camp	275 dwellings	31	117	148	106	61	167	64	84	148

Table 4.3 - Committed Development Trip Generation Summary

\*1 – consideration has not been given to non-residential elements

\*2 – consideration has not been given to the specific implications of the M55 to Heyhouses link given the lack of information and effects of missing count data.

## 5 Site Analysis

### 5.1 Introduction

This section of the report summarises the principal characteristics of each of the major sites of proposed development that are considered as part of this study.

Figure 5.1 shows the location of each of the proposed sites in relation to the junctions on the local highway network that were outlined for consideration within the study brief.

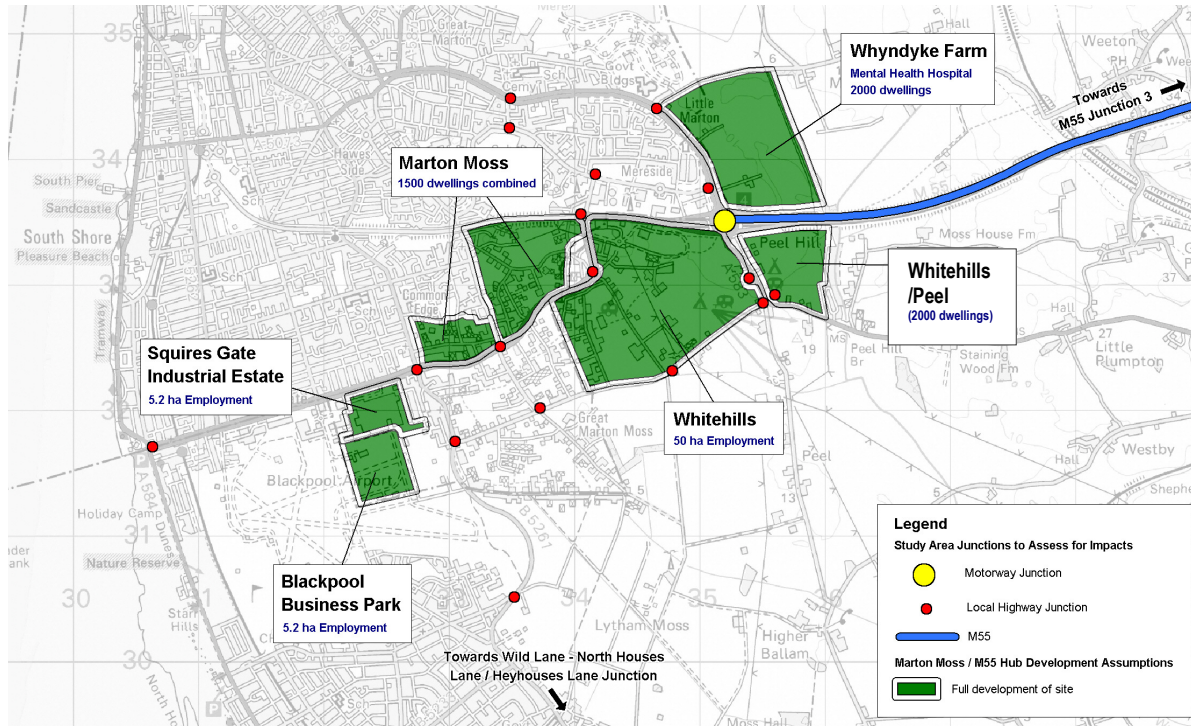


Figure 5.1 - Marton Moss / M55 Hub Key Development Sites and Junctions to Assess within the Study Area

### 5.2 Trip Generation

In summary, Table 5.1 identifies the trip generation levels derived as part of this study.

Development	Scale / Dev. Type	AM Peak			PM Peak			Saturday Peak			Weekday Daily
		Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total	
1A Blackpool Business Park	5.2 hectares Employment	86	27	<b>113</b>	18	73	<b>91</b>	0	0	<b>0</b>	<b>1027</b>
1B Squires Gate Industrial Estate	5.2 hectares Employment	76	25	<b>101</b>	26	69	<b>95</b>	0	0	<b>0</b>	<b>1117</b>
1C Whitehills Commitment	25 hectares Employment	354	102	<b>456</b>	88	308	<b>396</b>	0	0	<b>0</b>	<b>4236</b>
2A Marton Moss (Moss House Road Site)	600 dwellings Residential	79	235	<b>314</b>	245	146	<b>391</b>	153	180	<b>333</b>	<b>3472</b>
2B Marton Moss (Yeadon Way – Progress Way)	900 dwellings Residential	100	383	<b>483</b>	346	199	<b>545</b>	211	275	<b>486</b>	<b>5066</b>
3A Whyndyke Farm Mental Hospital	143 Bed Mental Health Hospital	160	61	<b>221</b>	37	80	<b>117</b>	72	42	<b>114</b>	<b>1667</b>
3B Whyndyke Farm Residential	2000 dwellings Residential	180	920	<b>1100</b>	720	400	<b>1120</b>	426	624	<b>1050</b>	<b>10942</b>
4 Whitehills Additional Employment	25 hectares Employment	354	102	<b>456</b>	88	308	<b>396</b>	0	0	<b>0</b>	<b>4236</b>
5A Whitehills/Peel (first 1000 dwellings)	1000 dwellings Residential	111	426	<b>537</b>	384	222	<b>606</b>	234	306	<b>540</b>	<b>5629</b>
5B Whitehills/Peel (second 1000 dwellings)	1000 dwellings Residential	111	426	<b>537</b>	384	222	<b>606</b>	234	306	<b>540</b>	<b>5629</b>

Table 5.1 - Total (Whole development) Vehicular Trip Generation Summary

Table 5.2 provides detail with regard to the source of the information utilised in undertaking the trip generation analysis.

Development	Weekday Peak Information Source	Saturday Peak Information Source
1A Blackpool Business Park	TRICS analysis	Saturday Employment Trips assumed 0 (based on TRICS research)
1B Squires Gate Industrial Estate	Transport Assessment Trip Rates utilised	Saturday Employment Trips assumed 0 (based on TRICS research)
1C Whitehills Commitment	TRICS analysis	Saturday Employment Trips assumed 0 (based on TRICS research)
2A Marton Moss (Moss House Road Site)	Transport Assessment Trip Rates utilised	Saturday Residential Trip Rates gained from TRICS analysis (and applied proportionally to weekday peak trip rates)
2B Marton Moss (Yeadon Way – Progress Way)	Average of Trip Rates for Transport Assessments of Sites 2A and 3B	Saturday Residential Trip Rates gained from TRICS analysis (and applied proportionally to weekday peak trip rates)
3A Whyndyke Farm Mental Hospital	Transport Assessment Trip Rates utilised	Transport Assessment Trip Rates Utilised
3B Whyndyke Farm Residential	Transport Assessment Trip Rates utilised	Saturday Residential Trip Rates gained from TRICS analysis (and applied proportionally to weekday peak trip rates)
4 Whitehills Additional Employment	TRICS analysis	Saturday Employment Trips assumed 0 (based on TRICS research)
5A Whitehills/Peel (first 1000 dwellings)	Average of Trip Rates for Transport Assessments of Sites 2A and 3B	Saturday Residential Trip Rates gained from TRICS analysis (and applied proportionally to weekday peak trip rates)
5B Whitehills/Peel (second 1000 dwellings)	Average of Trip Rates for Transport Assessments of Sites 2A and 3B	Saturday Residential Trip Rates gained from TRICS analysis (and applied proportionally to weekday peak trip rates)

Table 5.2 - Trip Generation Information - Source

### 5.3 Development Phasing

The anticipated phasing of developments has been based on information provided by Blackpool Council. As part of the study, four distinct phases have been considered: 2011, 2016, 2021 and 2027. As such, the build out of the various developments has been considered specifically at these timescales.

These phasing assumptions are based on a high potential development scenario of full take-up of all lands in Blackpool and high levels of take-up of residential and employment development land in Fylde also. It should therefore be considered that the study assumes a *maximum* development potential growth scenario to 2027. In reality, the pace at which development is delivered will be

substantially influenced by a number of factors, particularly the extent of the recovery of both the local and wider national housing market and economy.

Figure 5.2 highlights the phasing assumptions made within the study.

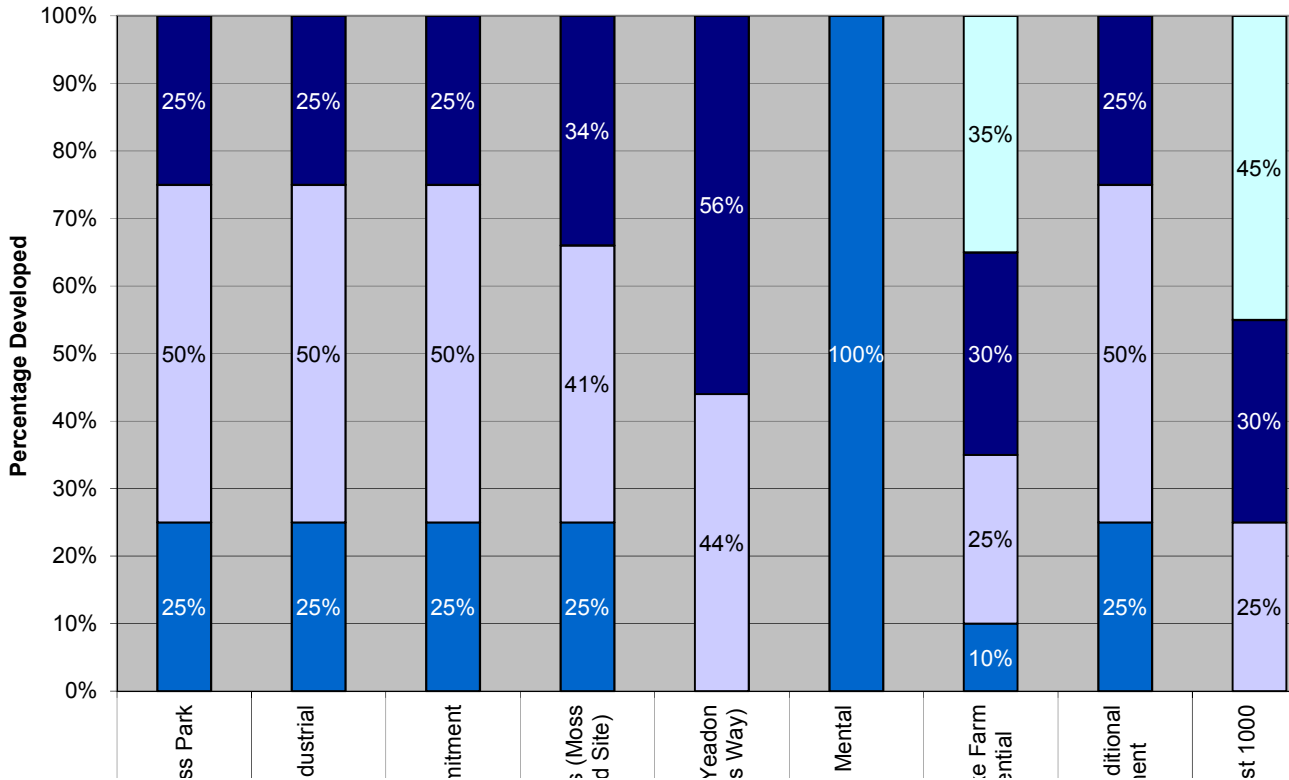


Figure 5.2 - Development Phasing

#### 5.4 Individual Site Analysis

The following information will be presented in relation to each of the above sites:

- 1) Site Description;
- 2) Trip Generation;
- 3) Trip Distribution / Assignment;
- 4) Accessibility; and
- 5) Impact Assessment

Consideration of the combined impact of development traffic on the local highway network is provided separately under the scenario testing which is presented in Chapter 6.



## 5.5 Site 1A – Blackpool Business Park (Employment)

### Site Description

Blackpool Business Park is located adjacent to Blackpool International Airport, which is situated south of the A5230 Squires Gate Lane. This route provides direct access from the M55 to the urban areas to the south of Blackpool town centre and the coastal routes that extend north to Cleveleys and south to Lytham St. Annes.

The site is subject to a proposal to develop 5.2 hectares of employment space. There are already a number of existing industrial units which provide local employment opportunities.

Figure 5.3 shows the Blackpool Business Park site and the associated access points that have been assumed for the purposes of this study.

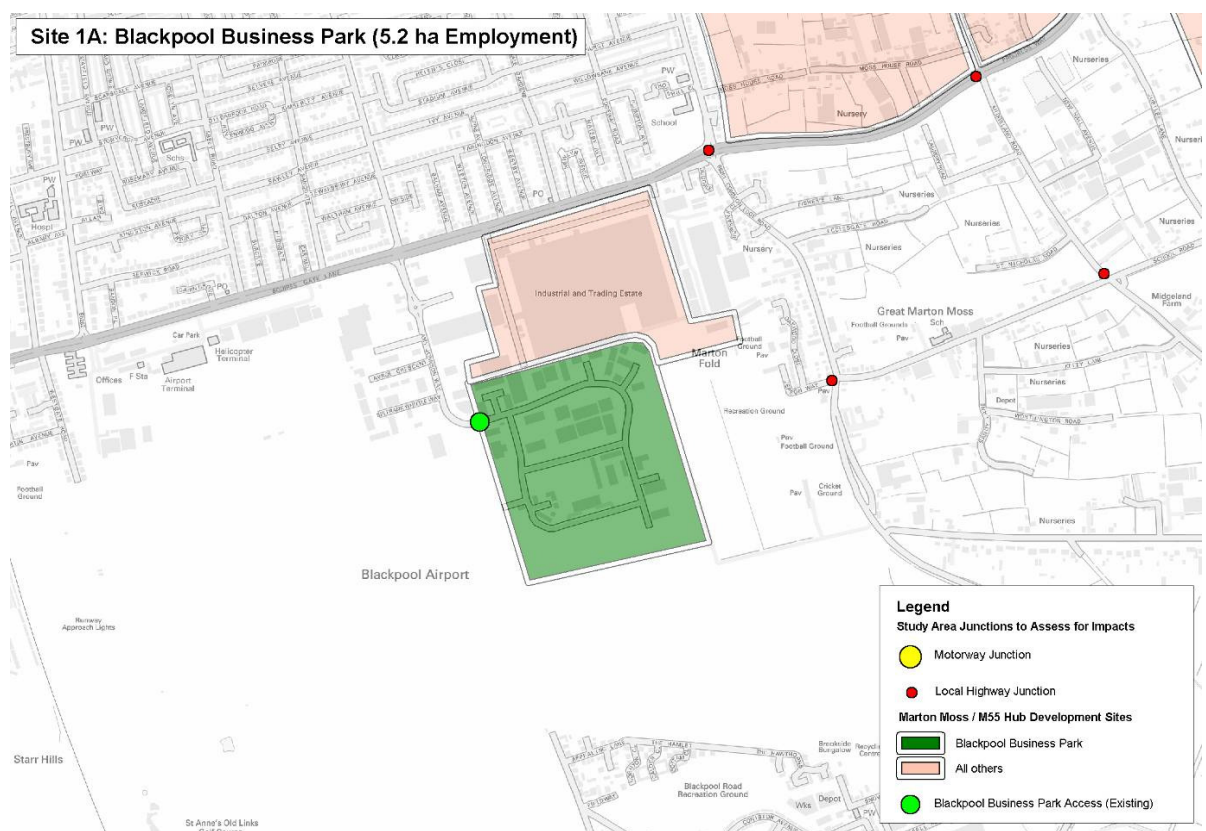


Figure 5.3 - Blackpool Business Park Site Plan

### Trip Generation

The trip generation characteristics for the site have been determined from a TRICS analysis. Table 5.3 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	5.2 hectares								
Development Split	B1 (39.8% of site) / B2 (60.2% of site)								
Development Density	B1 (21% development density) / B2 (31% development density)								
B1 Trip Rate (per 100sqm)	1.164	0.214	-	0.161	0.992	-	0	0	-
B2 Trip Rate (per 100sqm)	0.368	0.179	-	0.113	0.310	-	0	0	-
B1 Trips	51	9	60	7	43	50	0	0	0
B2 Trips	36	17	53	11	30	41	0	0	0
<b>Total Trips</b>	<b>86</b>	<b>27</b>	<b>113</b>	<b>18</b>	<b>73</b>	<b>91</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 5.3 - Blackpool Business Park Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.4 provides a thematic consideration of the spatial distribution.

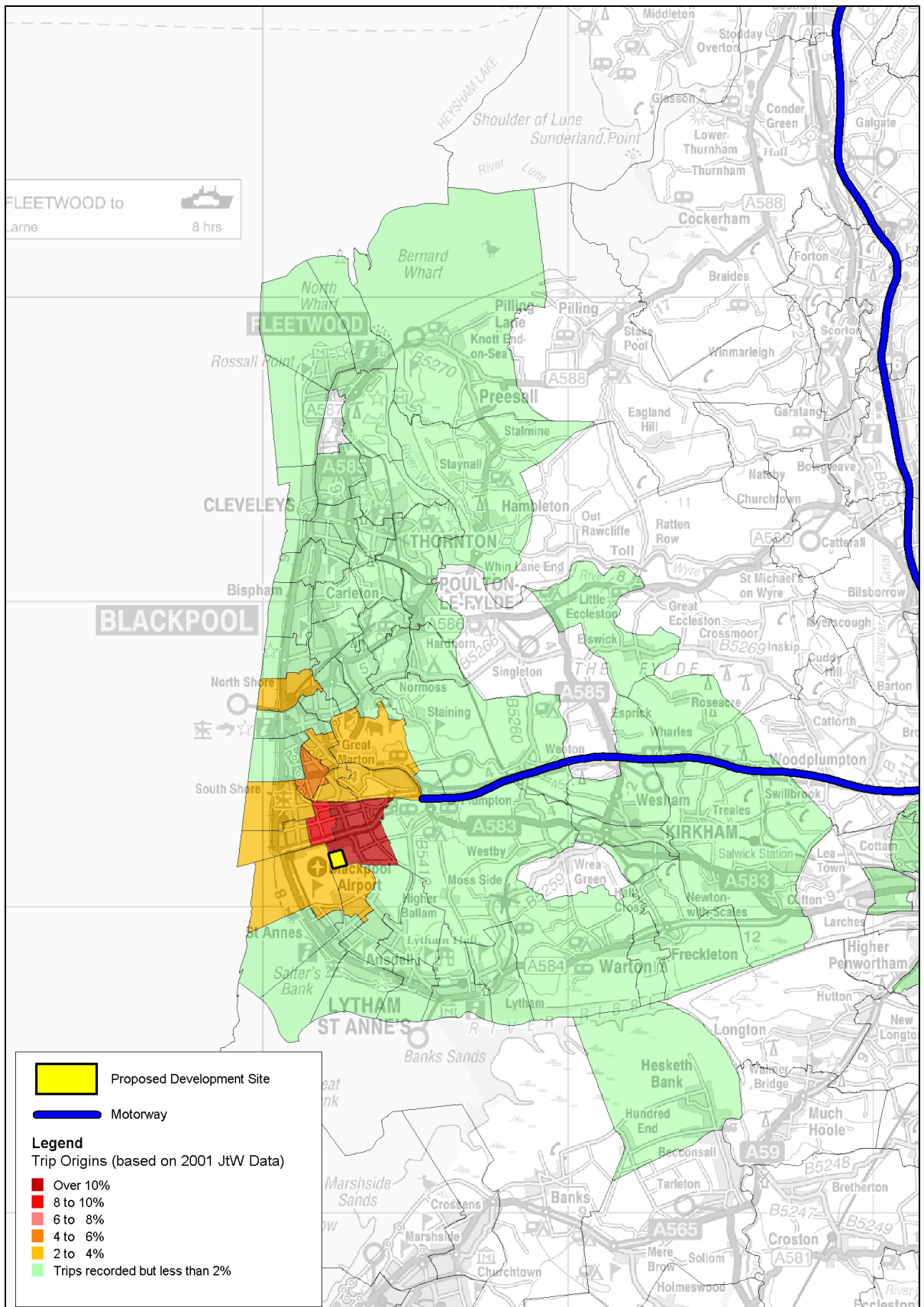


Figure 5.4 - Blackpool Business Park Trip Distribution

The network trip distribution for Blackpool Business Park is shown in Figure A.1 of Appendix A.

The 2027 trip assignment for the AM Peak, PM Peak and Saturday periods for the Blackpool Business Park are shown in Figures A.9 to A.11 in Appendix A.

### **Accessibility**

It is proposed that the Blackpool Business Park site accommodates further employment development. As a result of these proposals analysis has been conducted that seeks to assess the accessibility from Blackpool town centre to this proposed employment site, as shown in Figure 5.5. For comparison purposes, Figure 5.6 provides the car-based accessibility analysis.

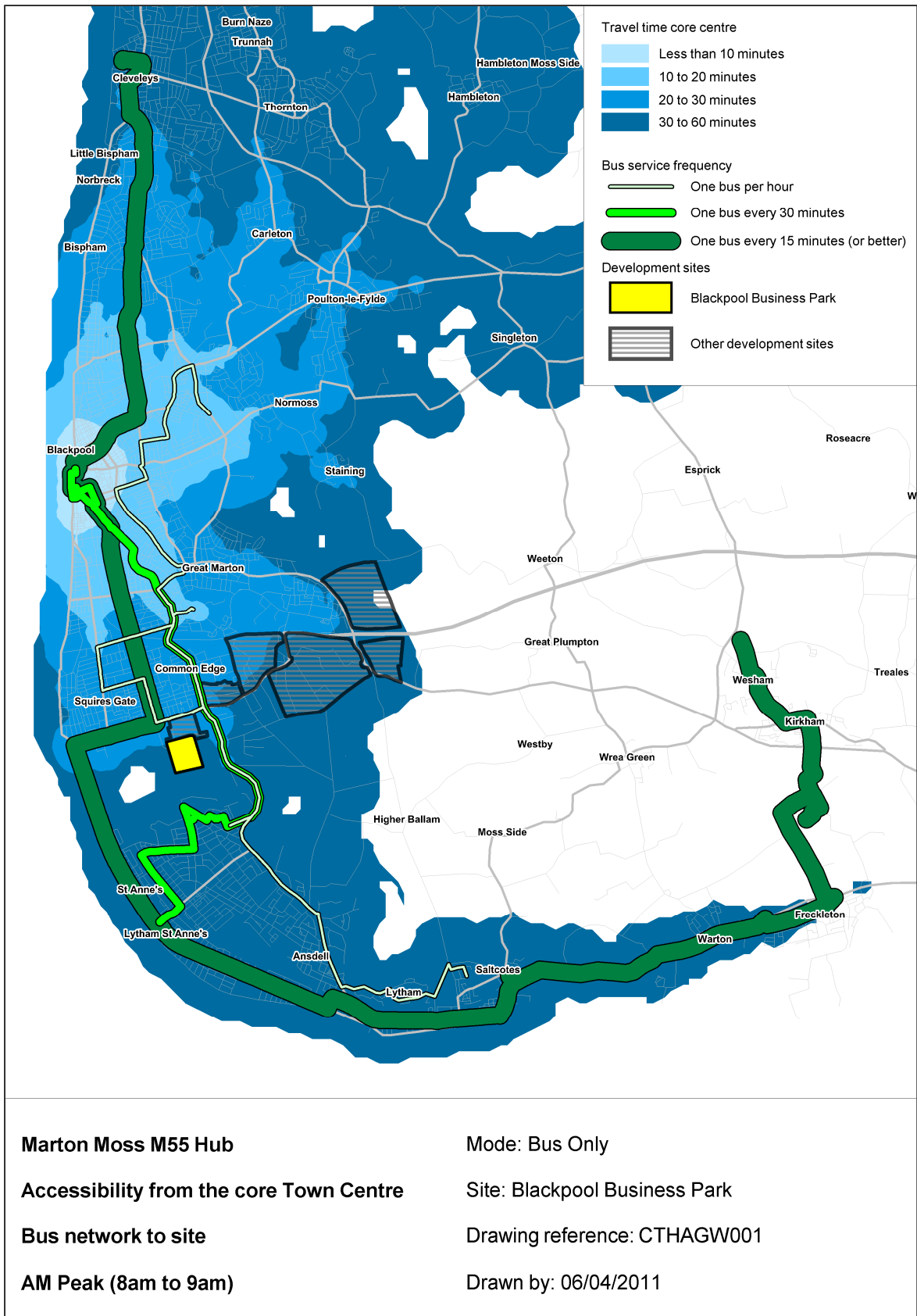


Figure 5.5 - Blackpool Business Park Accessibility Assessment

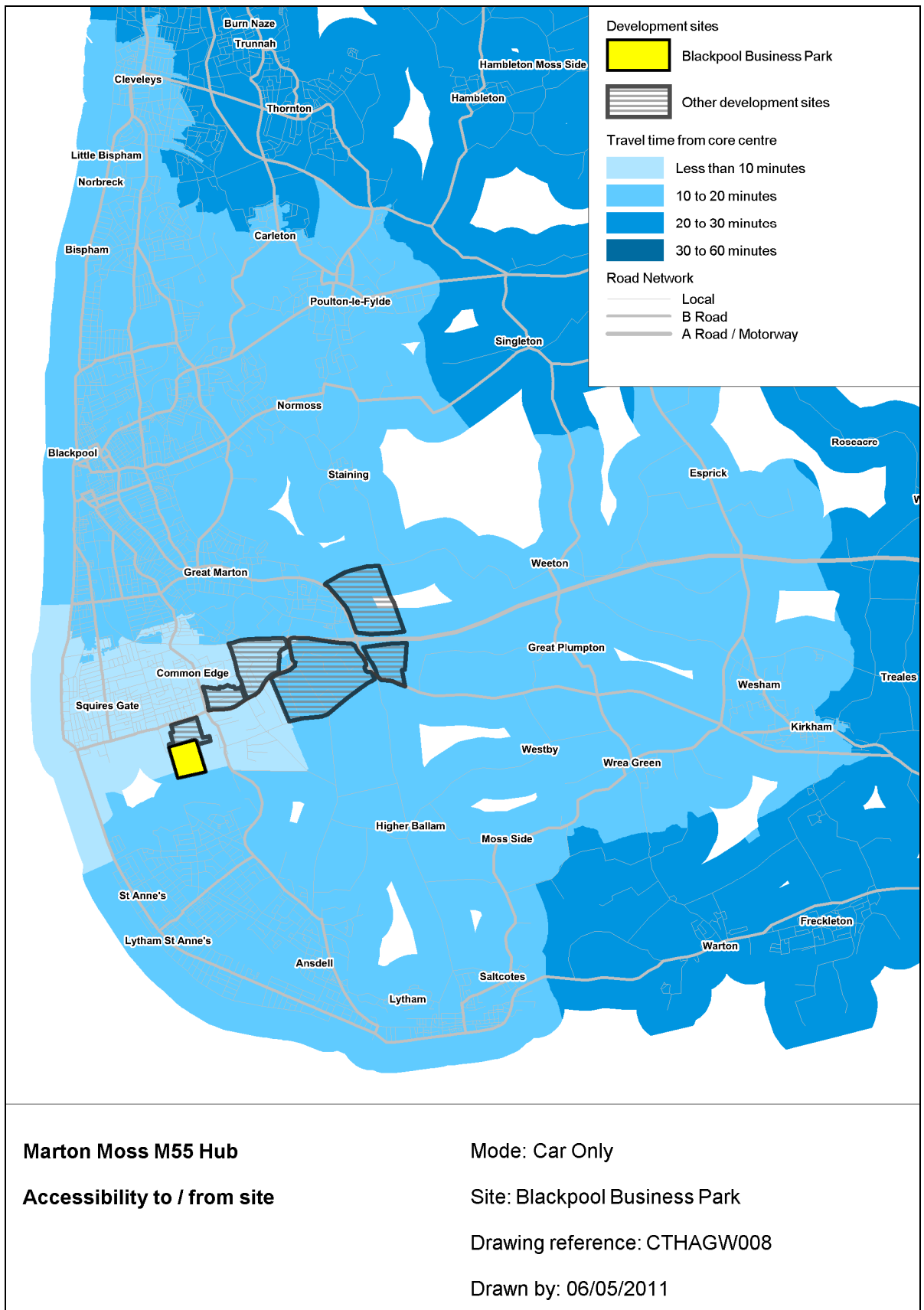


Figure 5.6 - Blackpool Business Park Car Accessibility

## Impact Assessment

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **113 trips** in the **AM peak**;
  - **91 trips** in the **PM peak**; and
  - **0 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **1 junction** in the **AM peak**;
  - **1 junctions** in the **PM peak**; and
  - **no junctions** in the **Saturday peak**.

## 5.6 Site 1B – Squires Gate Industrial Estate (Employment)

### Site Description

Squires Gate Industrial Estate is located immediately to the north of Blackpool Business Park and hence its position is similar in terms of access to the local highway network and its existing use. The site is a long established older industrial area, with a significant level of vacant / underused space following the recent loss of some main employment uses. The proposal is for the potential regeneration and redevelopment of the estate and assumes, in net terms, a similar increase in jobs equivalent to the development of 5.2 hectares of employment space on site 1A.

Figure 5.7 shows the Squires Gate Industrial Estate site and the associated access points that have been assumed for the purposes of this study.



Figure 5.7 - Squires Gate Industrial Estate Site Plan

### Trip Generation

The trip generation characteristics for the site have been determined from data from an existing Transport Assessment of the site. Table 5.4 identifies the analysis of trip generation that has been undertaken for this site.



	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	5.2 hectares								
Development Split	B2 (50% of site) / B8 (50% of site)								
Development Density	B2 (31% development density) / B8 (42% development density)								
B2 Trip Rate (per 100sqm)	0.830	0.240	-	0.200	0.740	-	0	0	-
B8 Trip Rate (per 100sqm)	0.080	0.050	-	0.090	0.090	-	0	0	-
B2 Trips	67	19	86	16	60	76	0	0	0
B8 Trips	9	5	14	10	10	20	0	0	0
<b>Total Trips</b>	<b>76</b>	<b>25</b>	<b>100</b>	<b>26</b>	<b>69</b>	<b>96</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 5.4 - Squires Gate Industrial Estate Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.8 provides a thematic consideration of the spatial distribution.

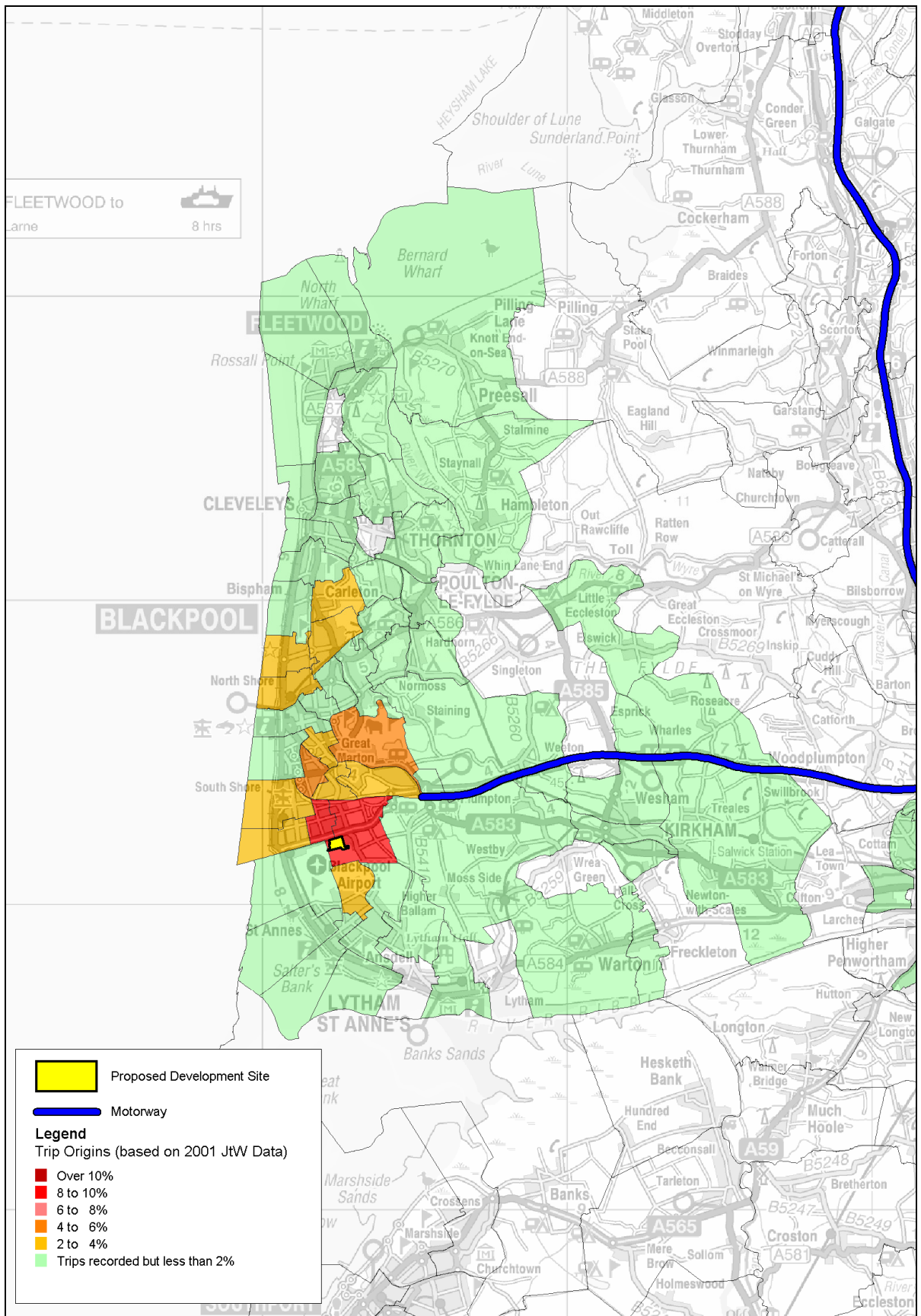


Figure 5.8 - Squires Gate Industrial Estate Trip Distribution

The accession analysis of journey time thresholds is provided in Figure 5.10 and it can be seen that the distribution identified through the analysis of census data is appropriate when considering an average journey time of 22 minutes.

The network trip distribution for Squires Gate Industrial Estate is shown in Figure A.2 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Squires Gate Industrial Estate are shown in Figures A.12 to A.14 in Appendix A.

### **Accessibility**

It is proposed that the Squires Gate Industrial Estate site accommodates further employment development. As a result of these proposals analysis has been conducted that seeks to assess the accessibility from Blackpool town centre to this proposed employment site, as shown in Figure 5.9. For comparison purposes, Figure 5.10 provides the car-based accessibility analysis.

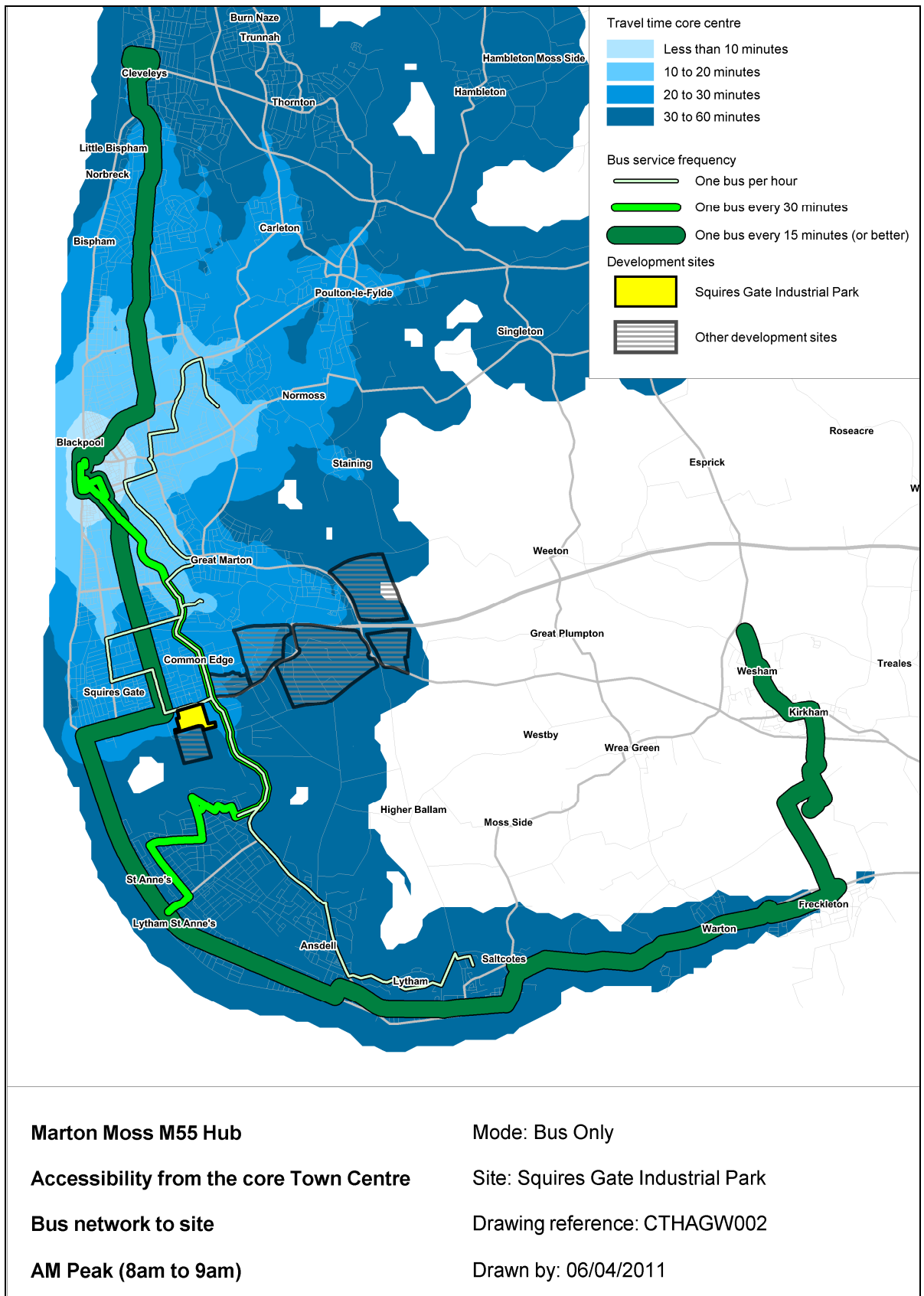


Figure 5.9 - Squires Gate Industrial Estate Accessibility Assessment

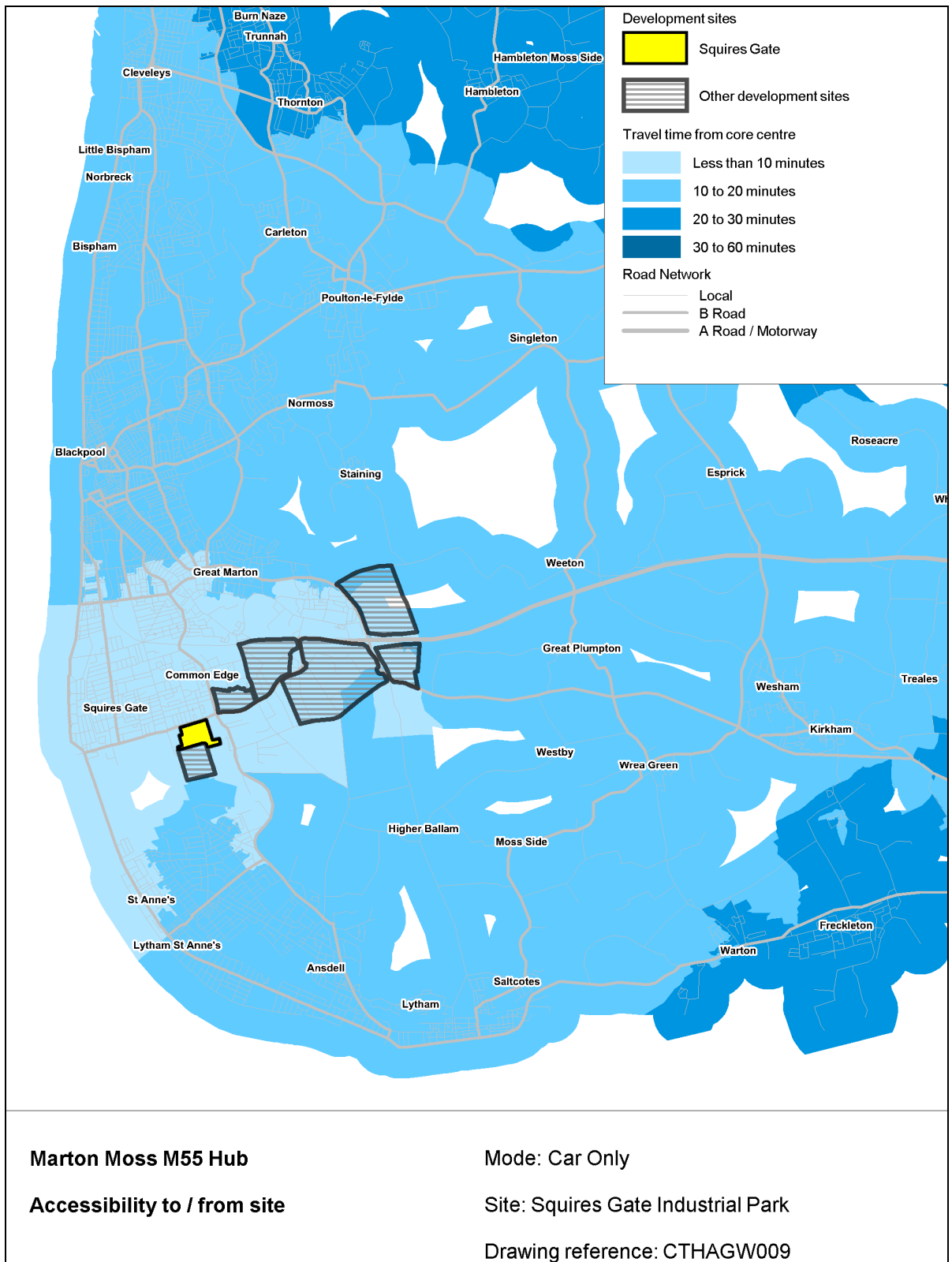


Figure 5.10 – Squires Gate Industrial Estate Car Accessibility

## Impact Assessment

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **101 trips** in the **AM peak**;
  - **95 trips** in the **PM peak**; and
  - **0 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **1 junction** in the **AM peak**;
  - **1 junctions** in the **PM peak**; and
  - **no junctions** in the **Saturday peak**.

## 5.7 Site 1C – Whitehills Commitment (Employment)

### Site Description

Whitehills covers the largest area of any of the sites for proposed development that have been examined as part of this study, covering an area of approximately 1.5 sq km.

Immediately to the northwest of the proposed site lies Junction 4 of the M55. The site boundary to the north follows the alignment of the A5230 Progress Way.

There are a range of existing land uses located within the area proposed for development, including industrial units to the north associated with the Blackpool and Fylde Industrial Estate, alongside a large amount of land that is rural in nature.

It is proposed that an initial 25 hectares of employment land be accommodated within this area, whilst there is also the potential for residential development in conjunction with the Peel Hill site (2000 dwellings overall).

Figure 5.11 shows the Whitehills site and the associated access points that have been assumed for the purposes of this study.

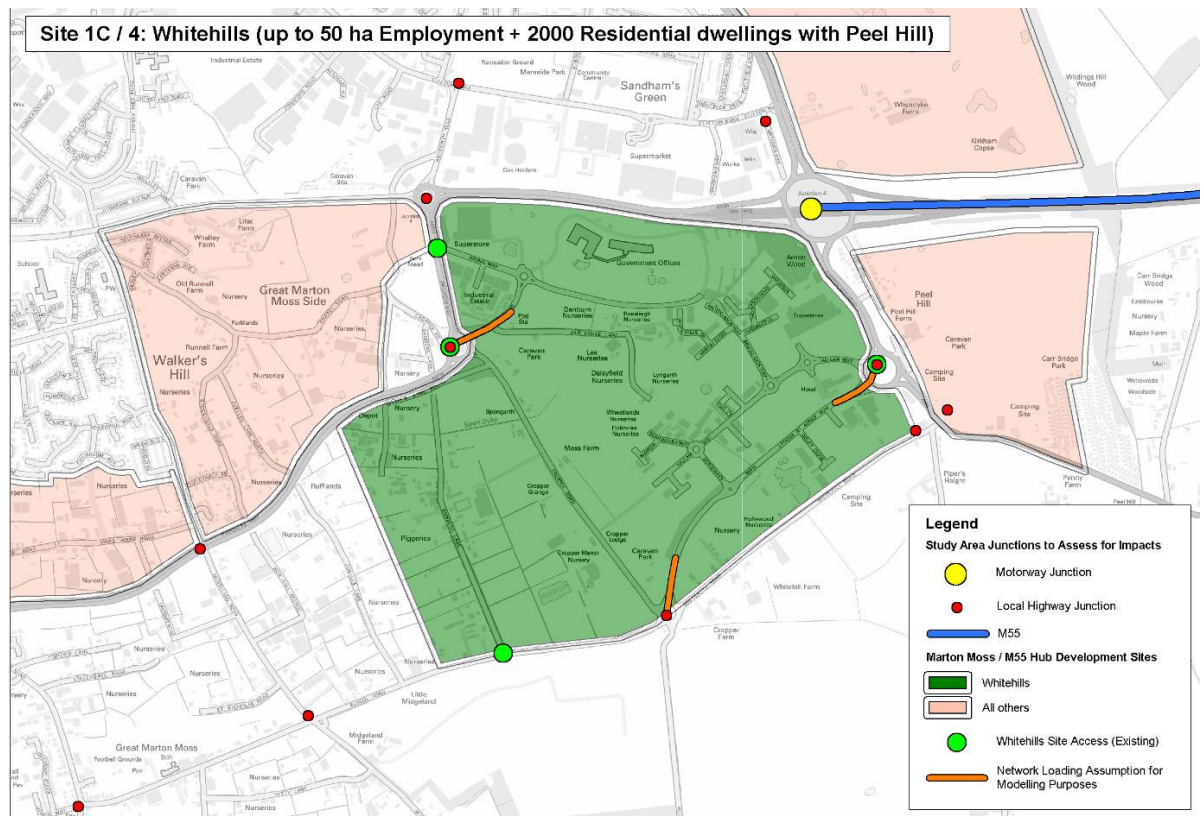


Figure 5.11 - Whitehills Site Plan

### Trip Generation

The trip generation characteristics for the site have been determined from TRICS for the B1 and B2 elements of the development, with the B8 element being based on data from an existing Transport Assessment. Table 5.5 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	25 hectares								
Development Split	B1 (39.8% of site) / B2 (30.1% of site) / B8 (30.1% of site)								
Development Density	B1 (21% of development) / B2 (31% development density) / B8 (42% development density)								
B1 Trip Rate (per 100sqm)	1.164	0.214	-	0.161	0.992	-	0	0	-
B2 Trip Rate (per 100sqm)	0.368	0.179	-	0.113	0.310	-	0	0	-
B8 Trip Rate (per 100sqm)	0.080	0.050	-	0.090	0.090	-	0	0	-
B1 Trips	243	45	288	34	207	241	0	0	0
B2 Trips	86	42	128	26	72	98	0	0	0
B8 Trips	25	16	41	28	28	56	0	0	0
<b>Total Trips</b>	<b>354</b>	<b>102</b>	<b>456</b>	<b>88</b>	<b>308</b>	<b>396</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 5.5 - Whitehills Commitment Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.12 provides a thematic consideration of the spatial distribution.



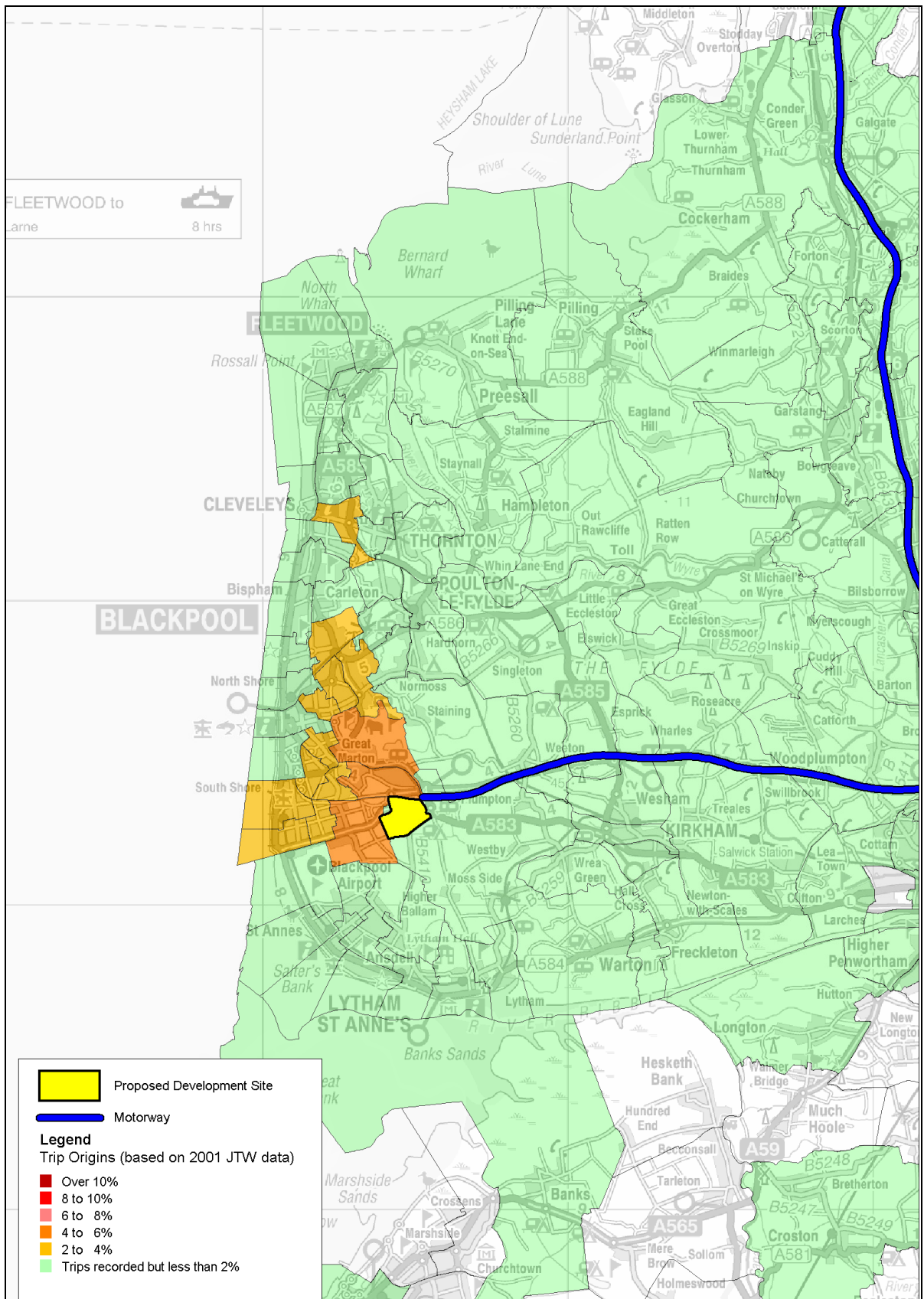


Figure 5.12 - Whitehills Commitment Trip Distribution

The accession analysis of journey time thresholds is provided in Figure 5.14 and it can be seen that the distribution identified through the analysis of census data is appropriate when considering an average journey time of 22 minutes.

The network trip distribution for Whitehills is shown in Figure A.3 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Whitehills Initial development proposals are shown in Figures A.15 to A.17 in Appendix A.

### **Accessibility**

It is proposed that the Whitehills site accommodates further employment development. As a result of these proposals analysis has been conducted that seeks to assess the accessibility from Blackpool town centre to this proposed employment site, as shown in Figure 5.13. For comparison purposes, Figure 5.14 provides the car-based accessibility analysis.

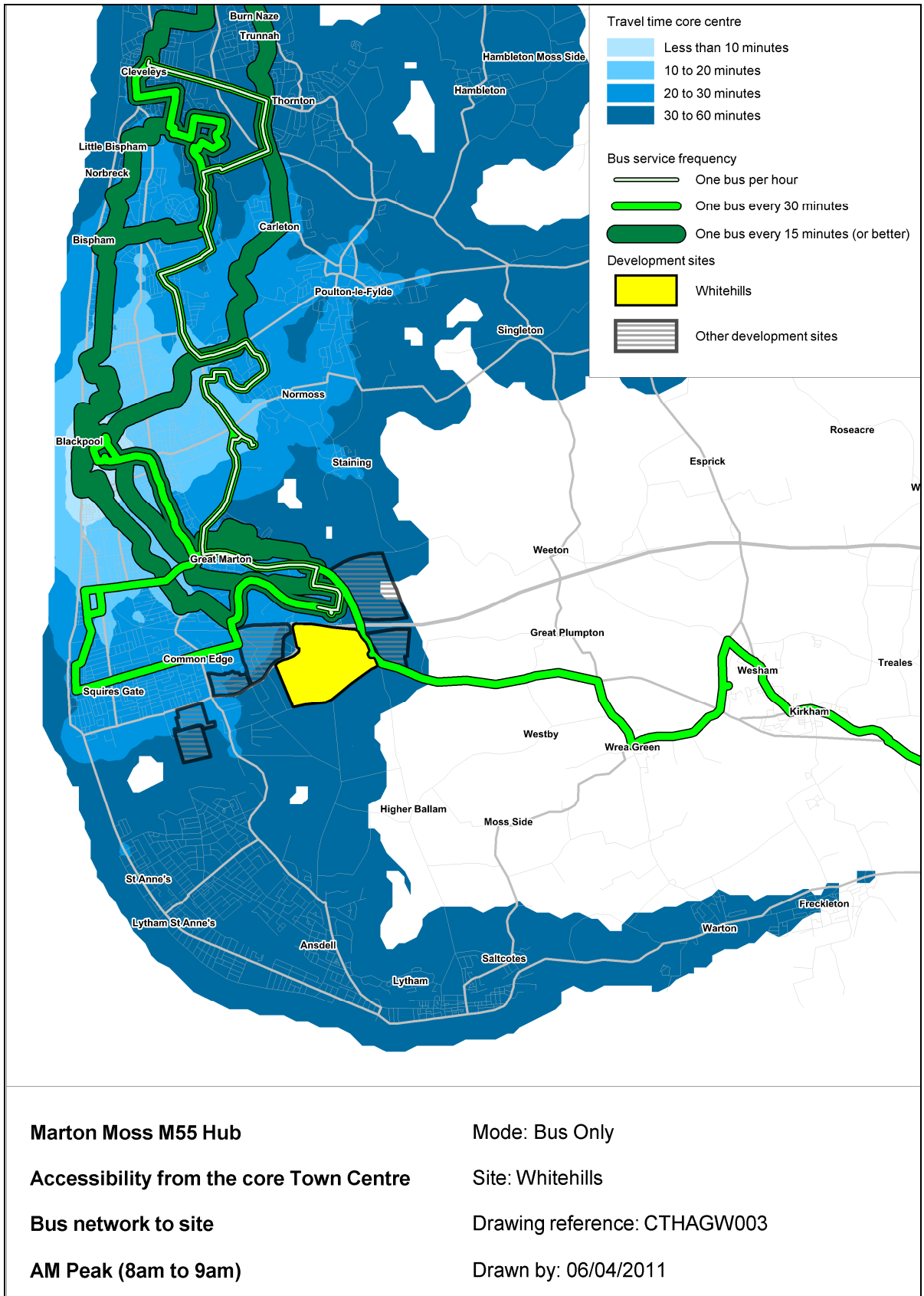


Figure 5.13 - Whitehills Accessibility Assessment

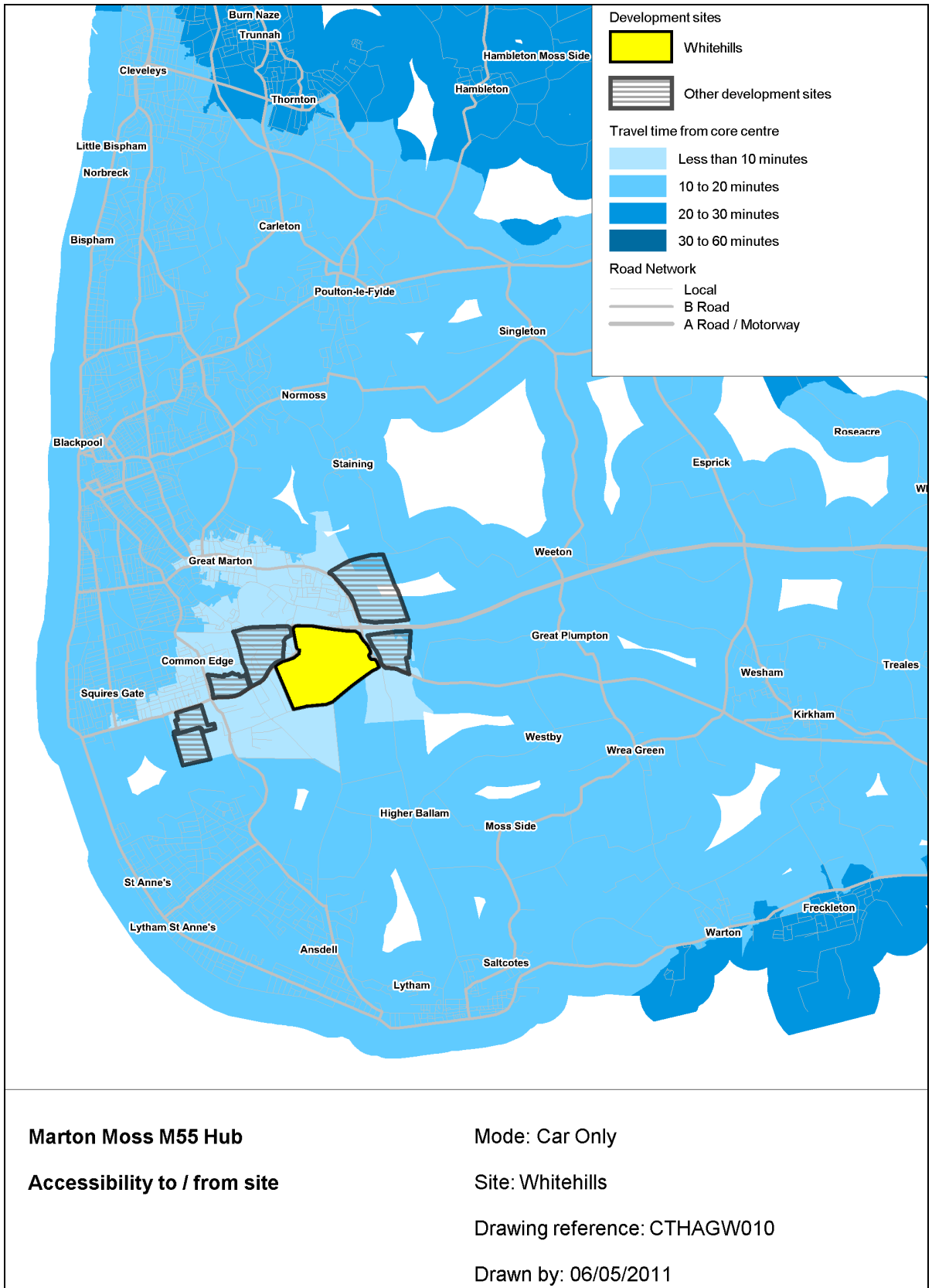


Figure 5.14 – Whitehills Car Accessibility

### Impact Assessment

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **456 trips** in the **AM peak**;
  - **396 trips** in the **PM peak**; and
  - **0 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **9 junctions** in the **AM peak**;
  - **7 junctions** in the **PM peak**; and
  - **no junctions** in the **Saturday peak**.

## 5.8 Site 2A – Marton Moss (Moss House Road Site) (Residential)

### Site Description

This site is the smaller of two sites which together comprise the Marton Moss development. It is proposed that this site will accommodate approximately 600 of the 1500 residential dwellings that are envisaged for the full development, with the site having benefit of planning permission in 2010.

The existing Moss House Road runs through the centre of the site, which is located to the north of the A5230 Progress Way and situated between Blackpool International Airport to the west and M55 Junction 4 to the east. Whilst there are some residential dwellings currently existing on the site, these are sparse in terms of their density with a large proportion of the site being undeveloped.

Figure 5.15 shows the Marton Moss (Moss House Road) site and the associated access points that have been assumed for the purposes of this study.

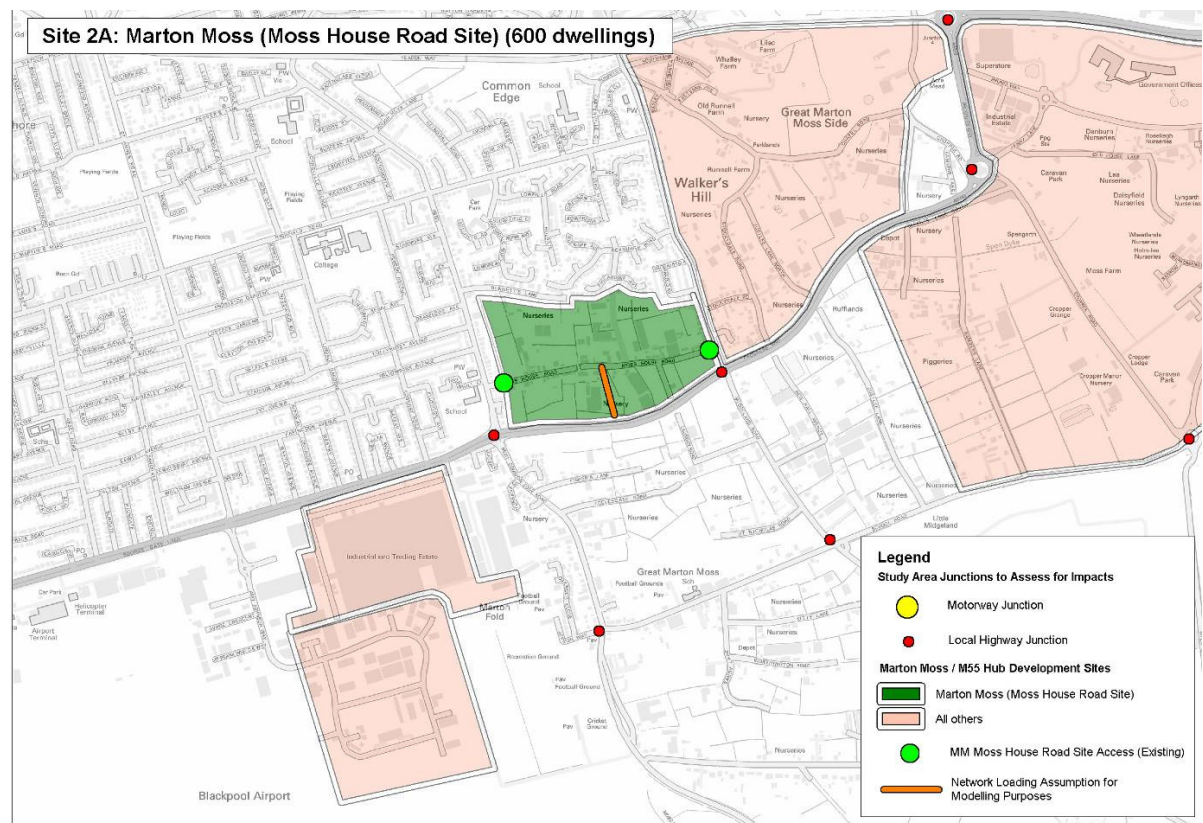


Figure 5.15 - Marton Moss (Moss House Road Site) Site Plan

### Trip Generation

The trip generation characteristics for the site have been determined from data from an existing Transport Assessment for the morning and evening peak periods. For the Saturday peak, the assessment is based on the typical ratio of Saturday peak generation to weekday peak generation, derived from TRICS and then applied to the weekday trip generation rates. Table 5.6 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	600 dwellings								
Residential Trip Rate (per dwelling)	0.132	0.391	-	0.408	0.243	-	0.255	0.300	-
<b>Total Trips</b>	<b>79</b>	<b>235</b>	<b>314</b>	<b>245</b>	<b>146</b>	<b>391</b>	<b>153</b>	<b>180</b>	<b>333</b>

Table 5.6 - Marton Moss (Moss House Road Site) Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.16 provides a thematic consideration of the spatial distribution.

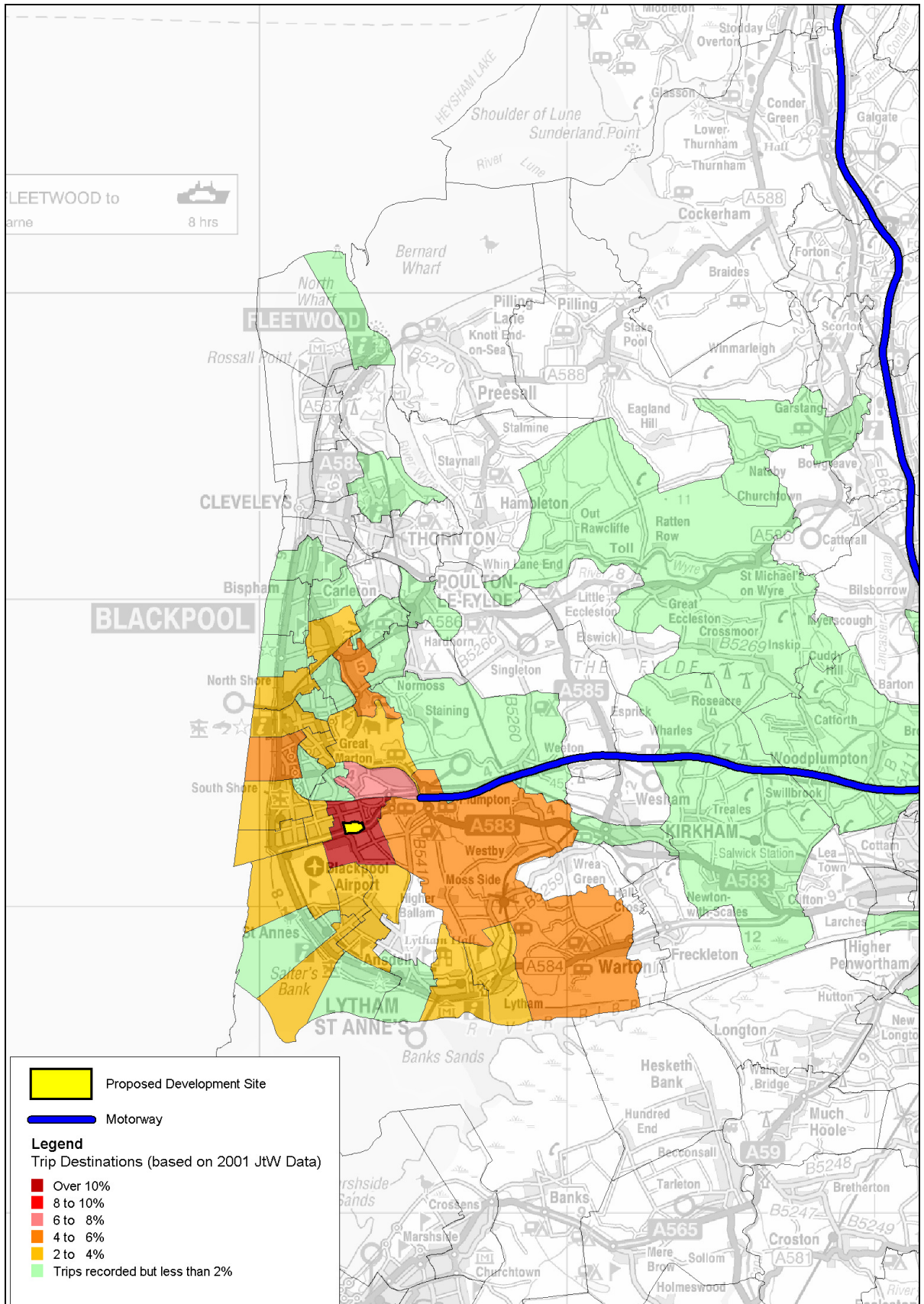


Figure 5.16 - Marton Moss (Moss House Road Site) Trip Distribution



The accession analysis of journey time thresholds is provided in Figure 5.18 and it can be seen that the distribution identified through the analysis of census data is appropriate when considering an average journey time of 22 minutes.

The network trip distribution for Marton Moss (Moss House Road Site) is shown in Figure A.4 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Marton Moss (Moss House Road Site) are shown in Figures A.18 to A.20 in Appendix A.

### **Accessibility**

It is proposed that the Marton Moss (Moss House Road) site accommodates further residential development. As a result of these proposals analysis has been conducted that seeks to assess the accessibility to Blackpool town centre from this proposed residential site, as shown in Figure 5.17. For comparison purposes, Figure 5.18 provides the car-based accessibility analysis.

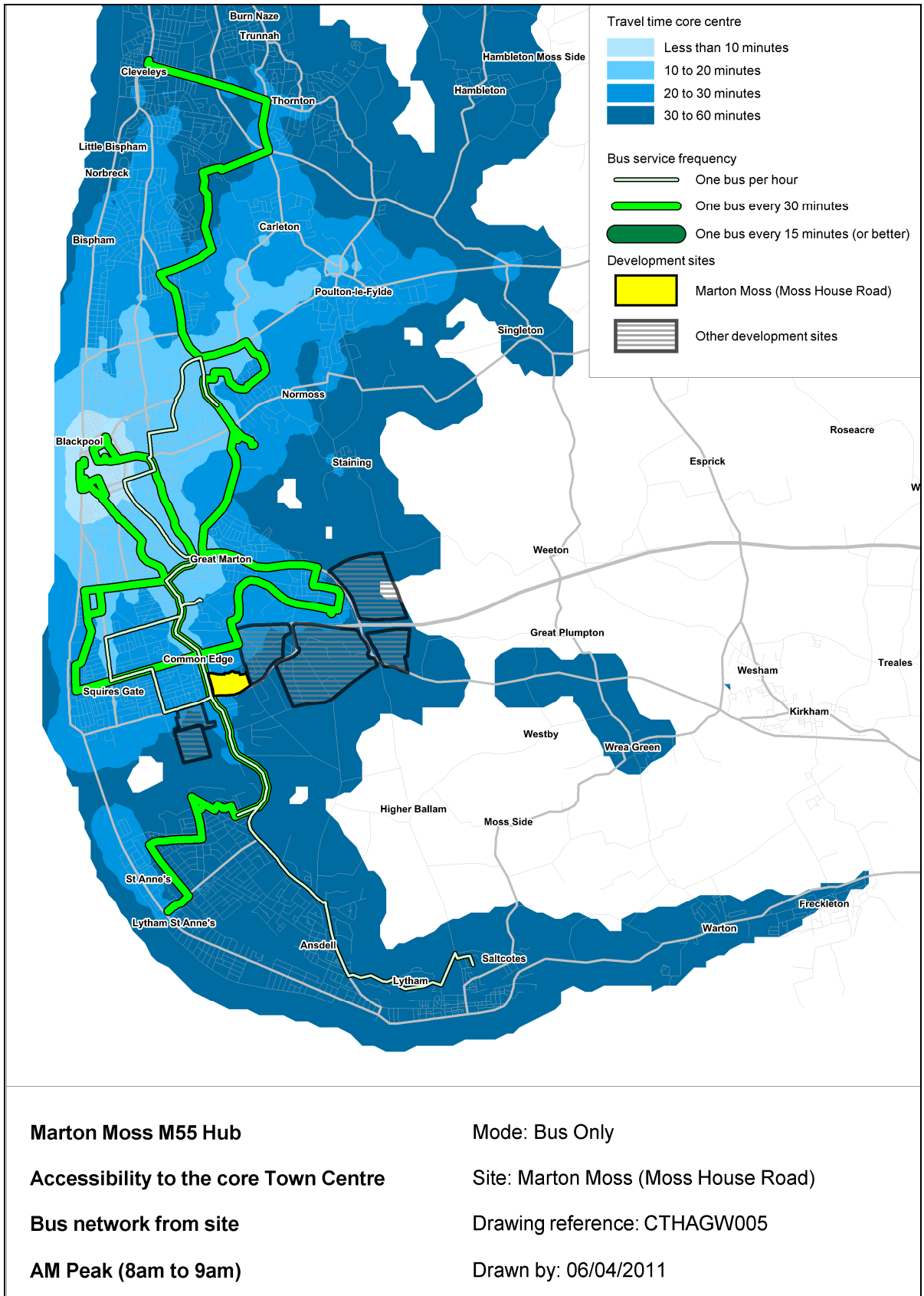


Figure 5.17 - Marton Moss (Moss House Road Site) Accessibility Assessment

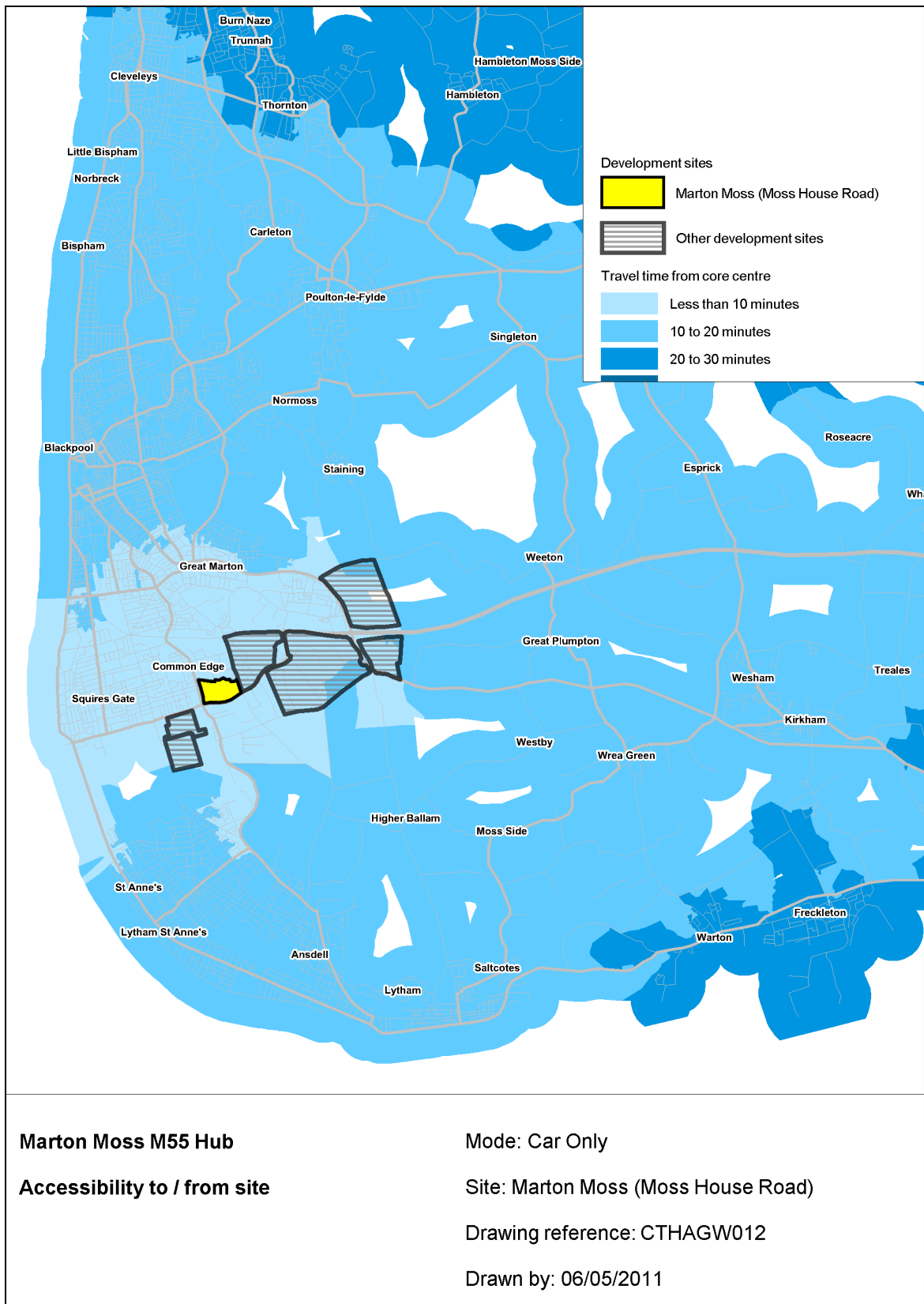


Figure 5.18 – Marton Moss (Moss House Road Site) Car Accessibility

## Impact Assessment

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **314 trips** in the **AM peak**;
  - **391 trips** in the **PM peak**; and
  - **333 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **4 junctions** in the **AM peak**;
  - **5 junctions** in the **PM peak**; and
  - **4 junctions** in the **Saturday peak**.

## 5.9 Site 2B – Marton Moss (Yeadon Way – Progress Way) (Residential)

### Site Description

This site is the larger of two sites which together comprise the Marton Moss development. It is proposed that this site will accommodate approximately 900 of the 1500 residential dwellings that are envisaged for the full development. The site is the largest of the two sites, being the lands proposed to be allocated in the Blackpool Core Strategy, which together with Site 2A comprise the Marton Moss development.

This larger site is enclosed by the existing highway network of Yeadon Way to the north, A5230 Progress Way to the east and south, and Midgeland Road to the west of the site.

Similarly to the smaller Marton Moss site it is situated between Blackpool International Airport to the west and M55 Junction 4 to the east. Whilst there are some residential dwellings currently existing on the site, these are sparse in terms of their density with a large proportion of the site being undeveloped.

Figure 5.19 shows the Marton Moss (adjacent to Moss House Road) site and the associated access points that have been assumed for the purposes of this study.

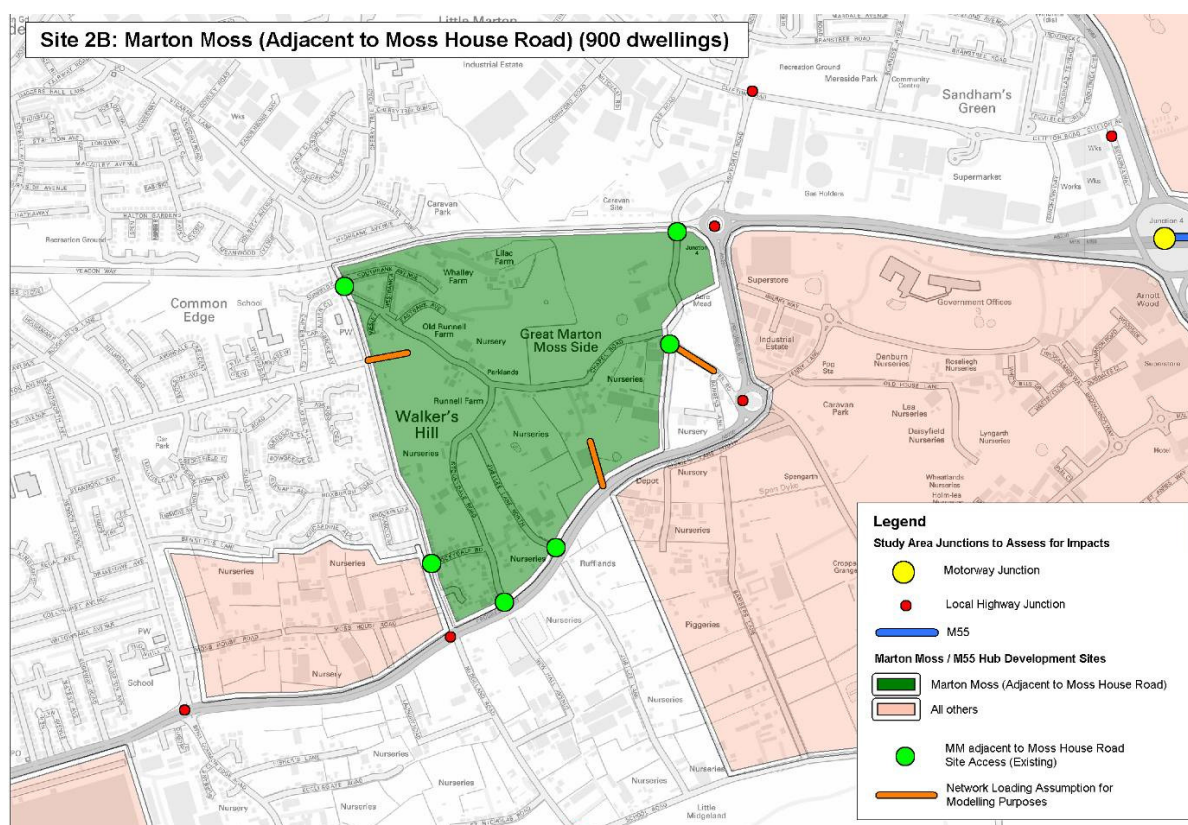


Figure 5.19 - Marton Moss (Yeadon Way – Progress Way) Site Plan

### Trip Generation

The trip generation characteristics for the site have been determined as an average of the existing trip rates gained from Transport Assessments for sites 2A (Marton Moss Road) and 3B (Whyndyke Farm Residential). For the Saturday peak, the assessment is based on the typical ratio of Saturday peak generation to weekday peak generation, derived from TRICS and then applied to the weekday

trip generation rates. Table 5.7 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	900 dwellings								
Residential Trip Rate (per dwelling)	0.111	0.426	-	0.384	0.222	-	0.234	0.306	-
<b>Total Trips</b>	<b>100</b>	<b>383</b>	<b>483</b>	<b>346</b>	<b>199</b>	<b>545</b>	<b>211</b>	<b>275</b>	<b>486</b>

Table 5.7 - Marton Moss (Adjacent to Moss House Road Site) Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.20 provides a thematic consideration of the spatial distribution.

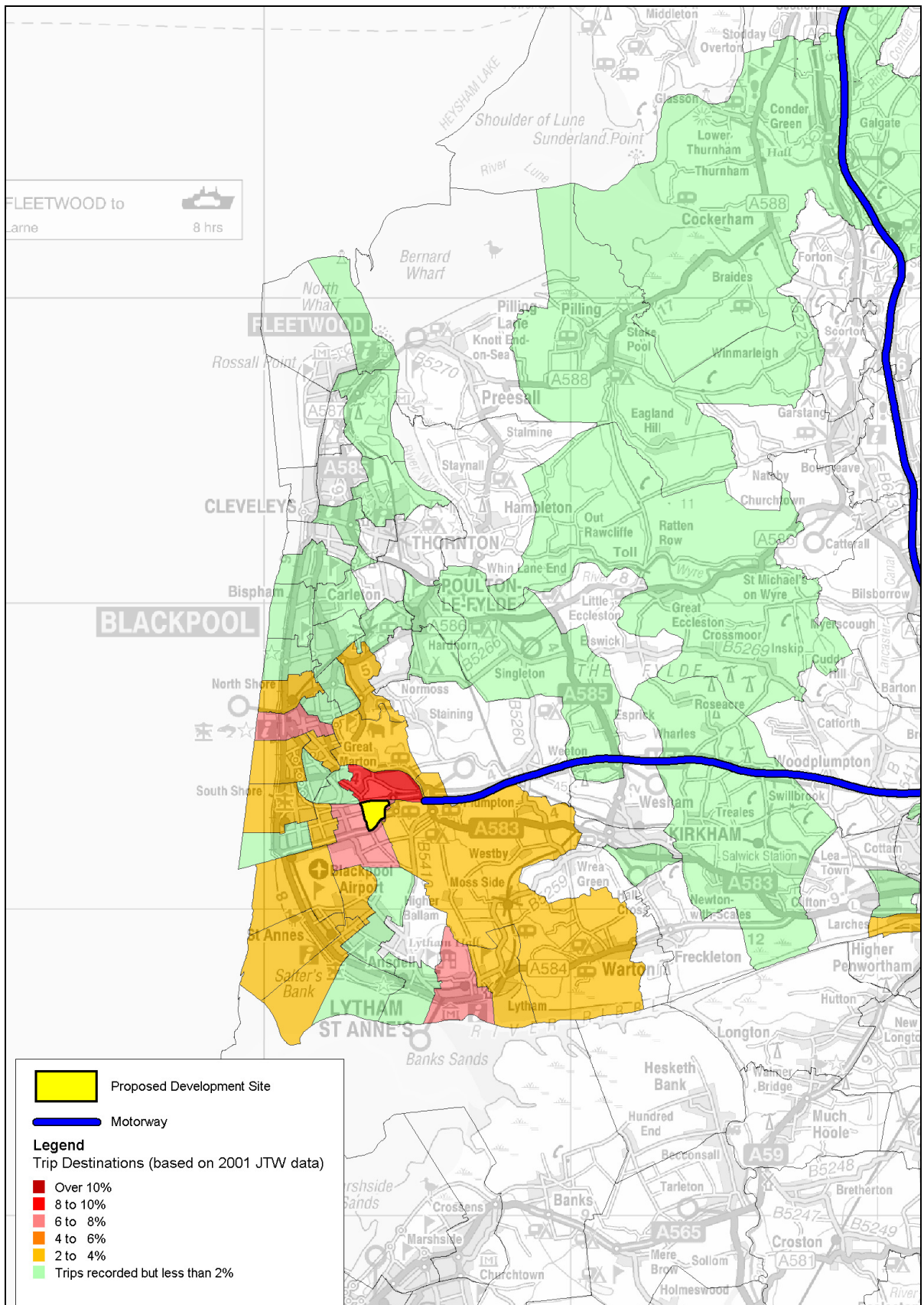


Figure 5.20 - Marton Moss (Yeadon Way – Progress Way) Trip Distribution



The accession analysis of journey time thresholds is provided in Figure 5.22 and it can be seen that the distribution identified through the analysis of census data is appropriate when considering an average journey time of 22 minutes.

The network trip distribution for Marton Moss (Yeadon Way – Progress Way) is shown in Figure A.5 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Marton Moss (Yeadon Way – Progress Way) site are shown in Figures A.21 to A.23 in Appendix A.

### **Accessibility**

It is proposed that the Marton Moss (Yeadon Way – Progress Way) site accommodates further residential development. As a result of these proposals analysis has been conducted that seeks to assess the accessibility to Blackpool town centre from this proposed residential site, as shown in Figure 5.21. For comparison purposes, Figure 5.22 provides the car-based accessibility analysis.

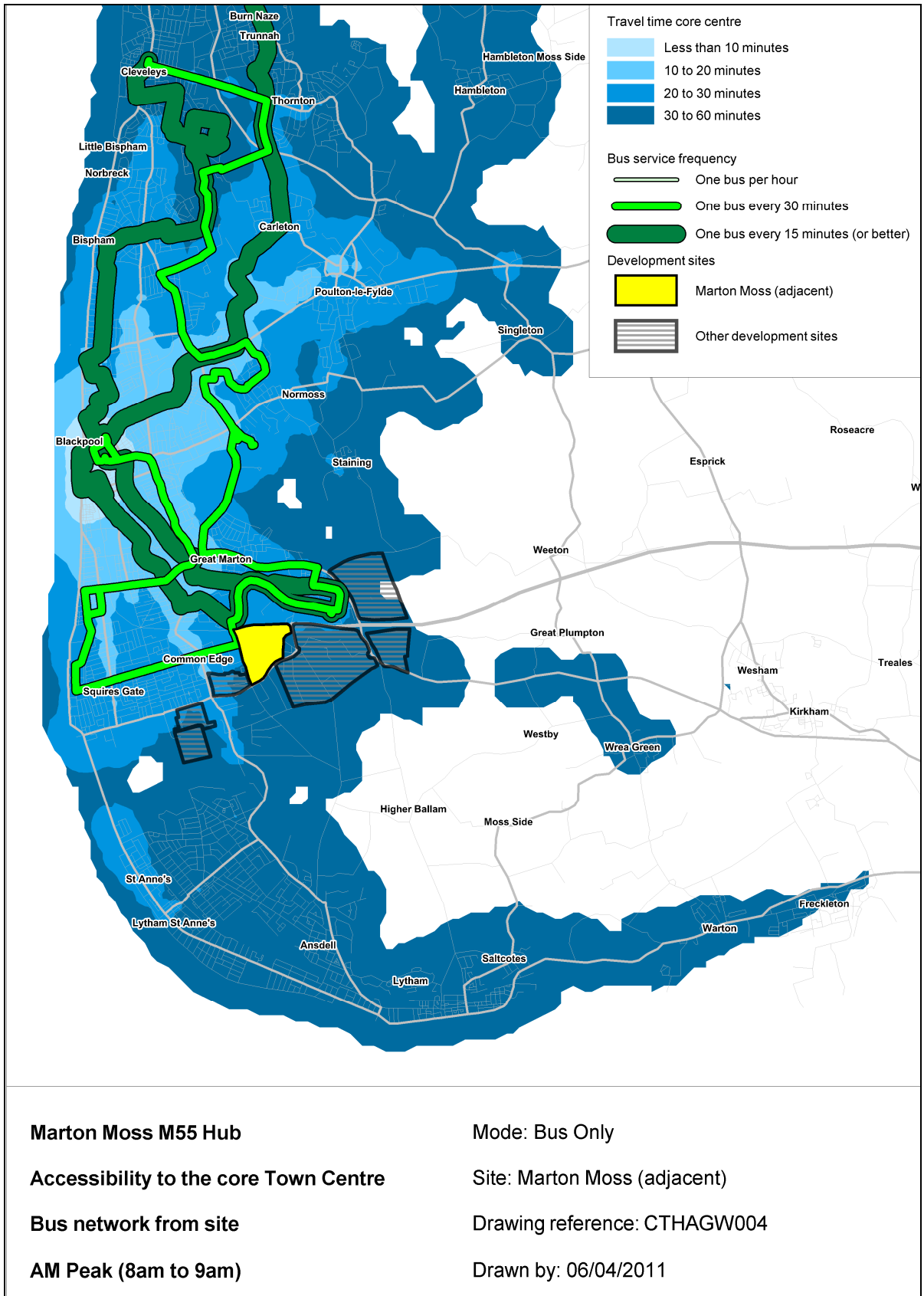


Figure 5.21 - Marton Moss (Yeadon Way – Progress Way) Accessibility Assessment

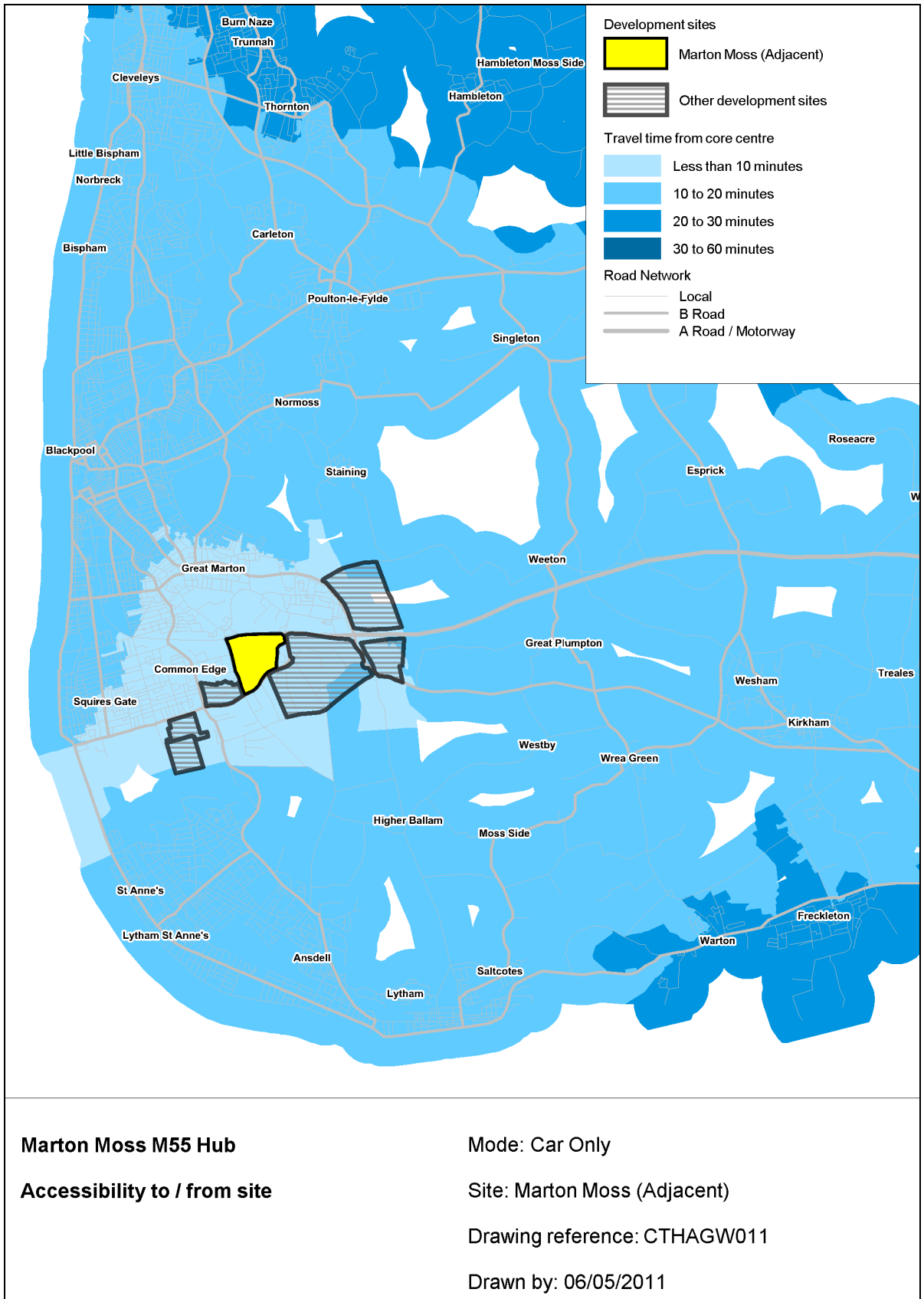


Figure 5.22 – Marton Moss (Yeardon Way – Progress Way) Car Accessibility

## Impact Assessment

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **483 trips** in the **AM peak**;
  - **545 trips** in the **PM peak**; and
  - **486 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **11 junctions** in the **AM peak**;
  - **12 junctions** in the **PM peak**; and
  - **11 junctions** in the **Saturday peak**.

## 5.10 Site 3A – Whyndyke Farm (Mental Health Hospital)

### Site Description

Whyndyke Farm is located to the east of the existing urban area of Blackpool and consequently the site represents an extension to the urban fabric through developing outwards on to land that is currently rural in nature.

The site is situated immediately to the north of Junction 4 of the M55. Access to the site will be provided from the A583 Preston New Road.

It is proposed under this scenario that a Mental Health Hospital which will be situated within the northwest of the site.

Figure 5.23 shows the Whyndyke Farm site and the associated access points that have been assumed for the purposes of this study.

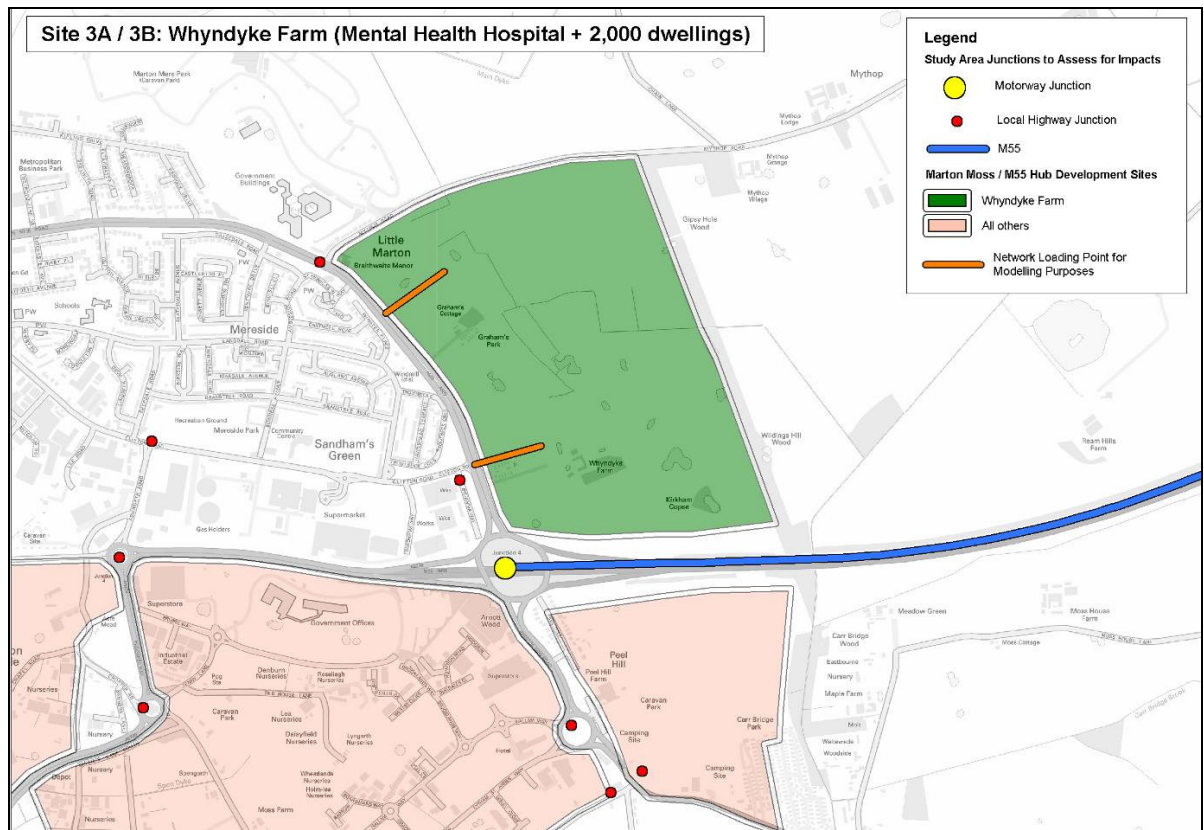


Figure 5.23 - Whyndyke Farm Site Plan

### Trip Generation

The trip generation characteristics for the site have been determined from data from an existing Transport Assessment of the site. Table 5.8 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	143 beds								
Residential Trip Rate (per bed)	1.117	0.427	-	0.262	0.560	-	0.500	0.292	-
<b>Total Trips</b>	<b>160</b>	<b>61</b>	<b>221</b>	<b>37</b>	<b>80</b>	<b>117</b>	<b>72</b>	<b>42</b>	<b>114</b>

Table 5.8 - Whyndyke Farm Hospital Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.24 provides a thematic consideration of the spatial distribution.

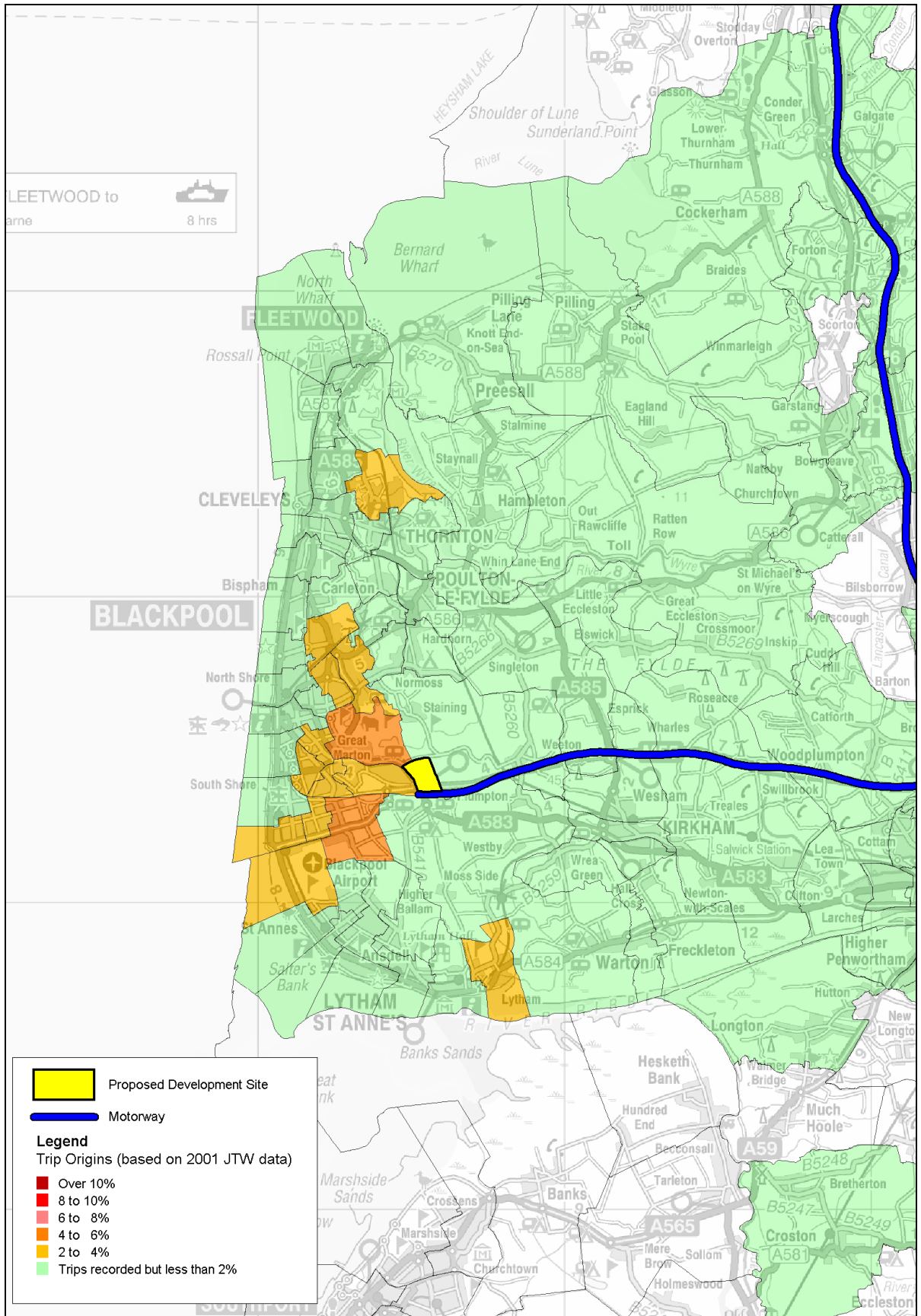


Figure 5.24 - Whyndyke Farm Hospital Trip Distribution

The accession analysis of journey time thresholds is provided in Figure 5.26 and it can be seen that the distribution identified through the analysis of census data is appropriate when considering an average journey time of 22 minutes.

The network trip distribution for Whyndyke Farm (Mental Health Hospital) is shown in Figure A.6 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Whyndyke Farm (Mental Health Hospital) are shown in Figures A.24 to A.26 in Appendix A.

### **Accessibility**

It is proposed under this scenario that the core element of the Whyndyke Farm site accommodates further residential development. As a result of these proposals analysis has been conducted that seeks to assess the accessibility to Blackpool town centre from this proposed residential site, as shown in Figure 5.25. For comparison purposes, Figure 5.26 provides the car-based accessibility analysis.



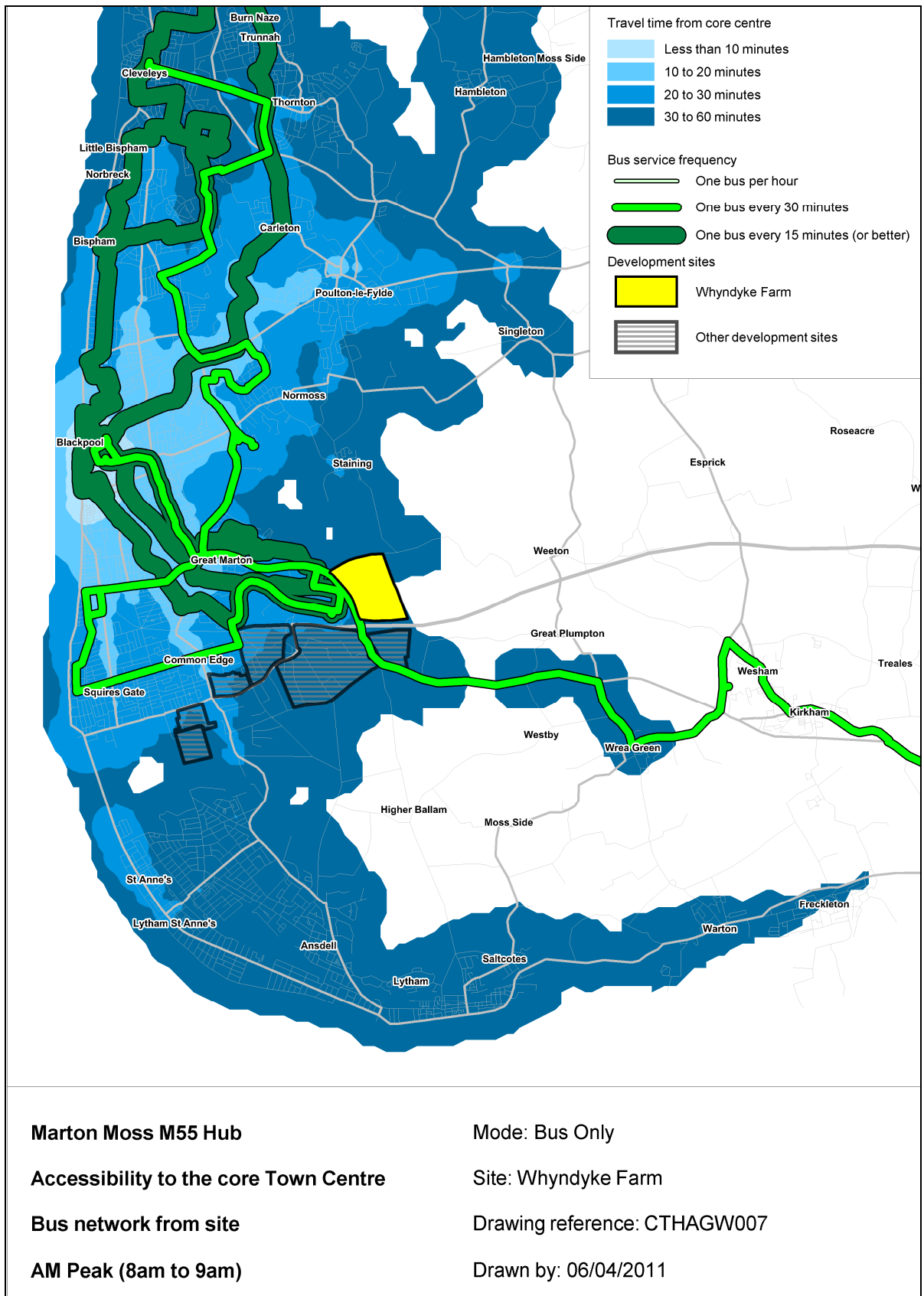


Figure 5.25 - Whyndyke Farm Accessibility Assessment

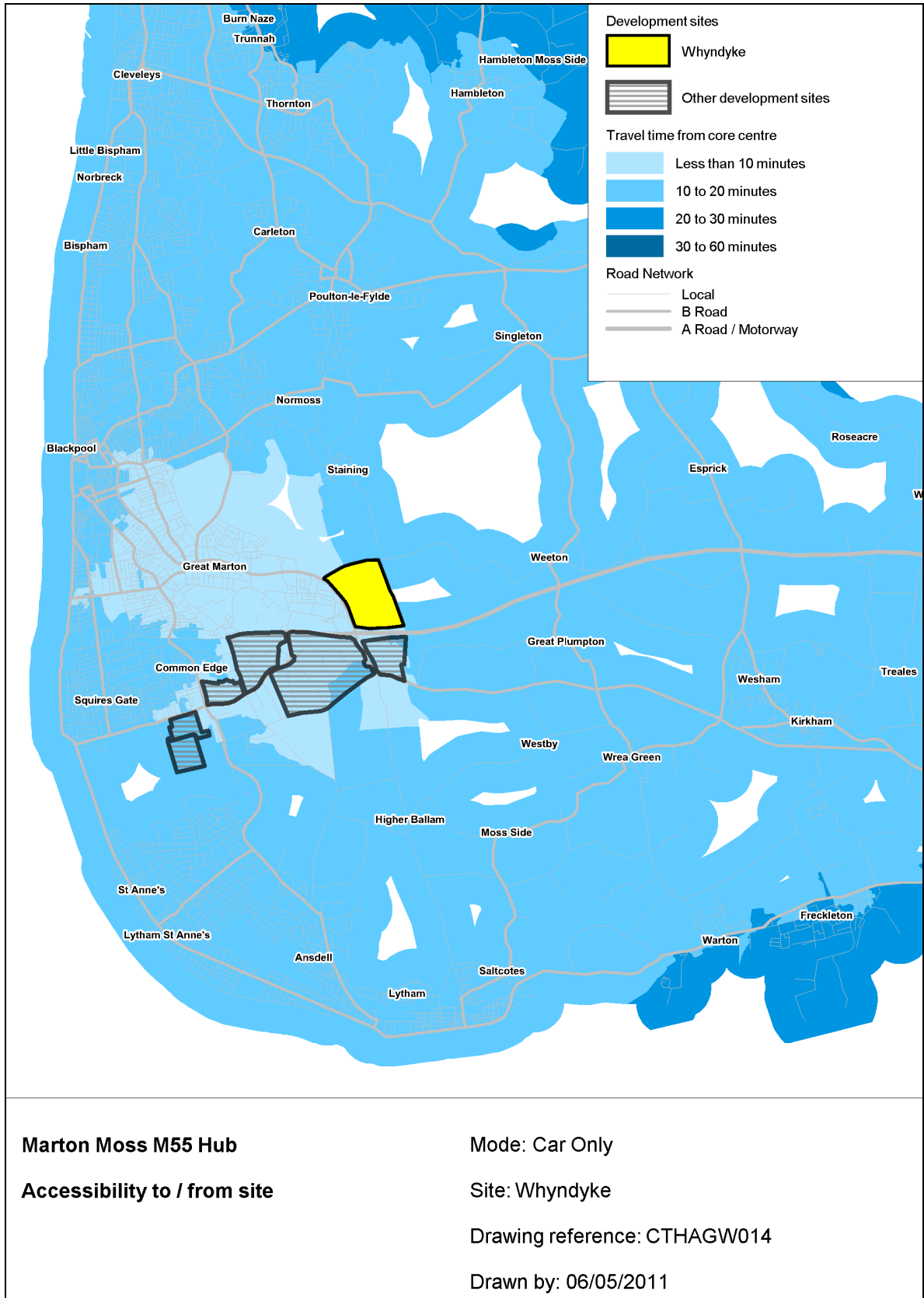


Figure 5.26 – Whyndyke Farm Car Accessibility

## Impact Assessment

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **221 trips** in the **AM peak**;
  - **117 trips** in the **PM peak**; and
  - **114 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **4 junctions** in the **AM peak**;
  - **3 junctions** in the **PM peak**; and
  - **3 junctions** in the **Saturday peak**.

## 5.11 Site 3B – Whyndyke Farm (Residential)

### Site Description

Whyndyke Farm is located to the east of the existing urban area of Blackpool and consequently the site represents an extension to the urban fabric through developing outwards on to land that is currently rural in nature.

The site is situated immediately to the north of Junction 4 of the M55. Access to the site will be provided from the A583 Preston New Road.

It is proposed under this scenario that a total of 2000 residential dwellings are accommodated on the site. It should be recognised that, at the time of writing, there is no commitment to this proposed development.

Figure 5.23 shows the Whyndyke Farm site and the associated access points that have been assumed for the purposes of this study.

### Trip Generation

The trip generation characteristics for the site have been determined from data from an existing Transport Assessment of the site. For the Saturday peak, the assessment is based on the typical ratio of Saturday peak generation to weekday peak generation, derived from TRICS and then applied to the weekday trip generation rates. Table 5.9 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	2000 dwellings								
Residential Trip Rate (per dwelling)	0.090	0.460	-	0.360	0.200	-	0.213	0.312	-
<b>Total Trips</b>	<b>180</b>	<b>920</b>	<b>1100</b>	<b>720</b>	<b>400</b>	<b>1120</b>	<b>426</b>	<b>624</b>	<b>1050</b>

Table 5.9 - Whyndyke Farm Residential Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.27 provides a thematic consideration of the spatial distribution.

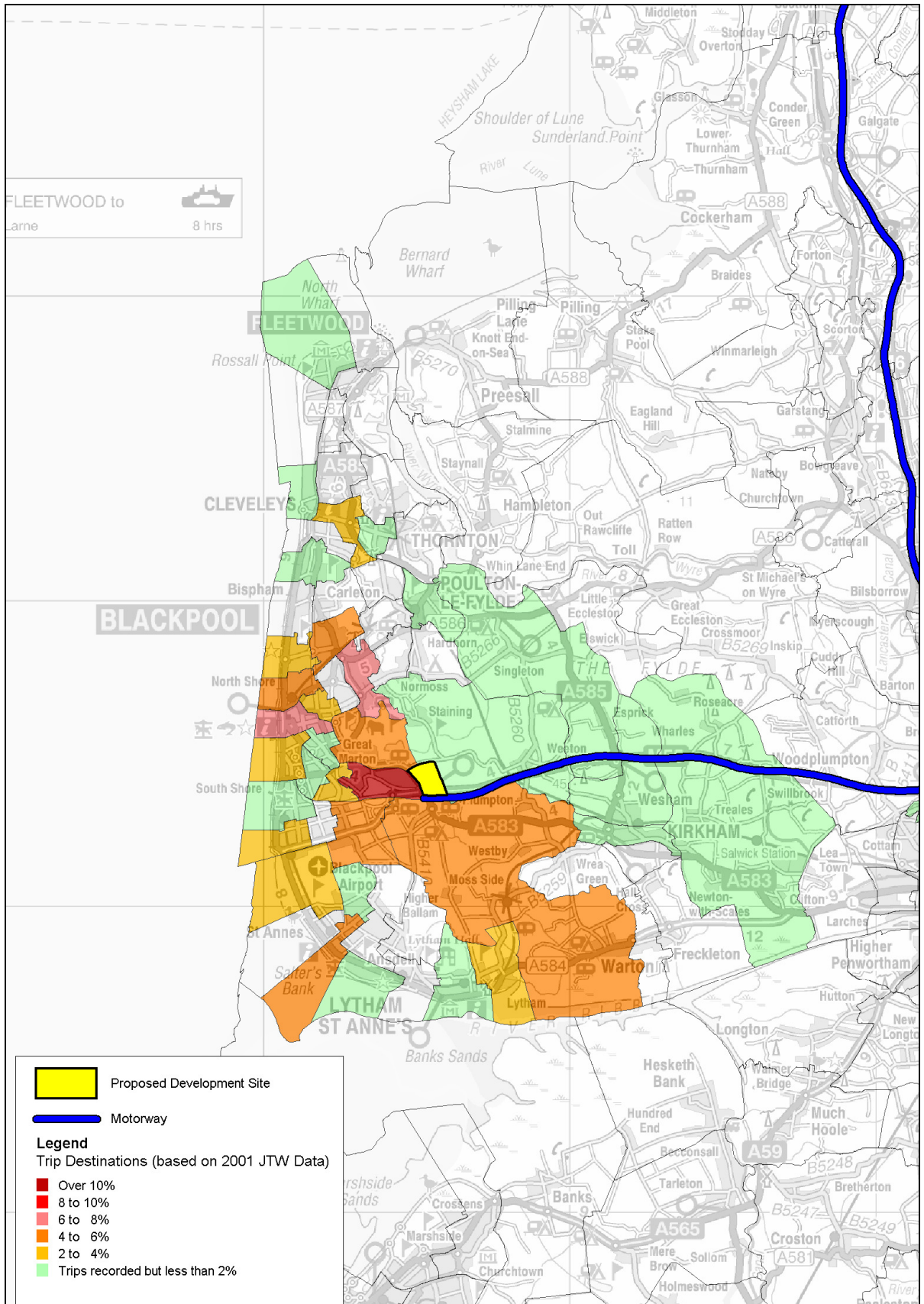


Figure 5.27 - Whyndyke Farm Residential Trip Distribution

The accession analysis of journey time thresholds is provided in Figure 5.26 and it can be seen that the distribution identified through the analysis of census data is appropriate when considering an average journey time of 22 minutes.

The network trip distribution for Whyndyke Farm (Residential) is shown in Figure A.7 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Whyndyke Farm Residential development proposals are shown in Figures A.27 to A.29 in Appendix A.

### **Accessibility**

A single accessibility assessment was completed for the entire Whyndyke Farm site, for details of this refer to Figure 5.25 and the analysis associated with Site 3A - Whyndyke Farm (Mental Health Hospital).

### **Impact Assessment**

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **1100 trips** in the **AM peak**;
  - **1120 trips** in the **PM peak**; and
  - **1050 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **12 junctions** in the **AM peak**;
  - **12 junctions** in the **PM peak**; and
  - **12 junctions** in the **Saturday peak**.

## 5.12 Site 4 – Whitehills Additional (Employment)

### Site Description

See Site 1C – Whitehills Commitment for details. This proposal is the same with the exception that it accounts for an additional 25 ha employment land development, resulting in the potential for a total of 50 ha of employment land to be developed on this site.

### Trip Generation

The trip generation characteristics for the site have been determined from TRICS for the B1 and B2 elements of the development, with the B8 element being based on data from an existing Transport Assessment. Table 5.10 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	25 hectares								
Development Split	B1 (39.8% of site) / B2 (30.1% of site) / B8 (30.1% of site)								
Development Density	B1 (21% of development) / B2 (31% development density) / B8 (42% development density)								
B1 Trip Rate (per 100sqm)	1.164	0.214	-	0.161	0.992	-	0	0	-
B2 Trip Rate (per 100sqm)	0.368	0.179	-	0.113	0.310	-	0	0	-
B8 Trip Rate (per 100sqm)	0.080	0.050	-	0.090	0.090	-	0	0	-
B1 Trips	243	45	288	34	207	241	0	0	0
B2 Trips	86	42	128	26	72	98	0	0	0
B8 Trips	25	16	41	28	28	56	0	0	0
<b>Total Trips</b>	<b>354</b>	<b>102</b>	<b>456</b>	<b>88</b>	<b>308</b>	<b>396</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 5.10 - Whitehills Additional Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.28 provides a thematic consideration of the spatial distribution.

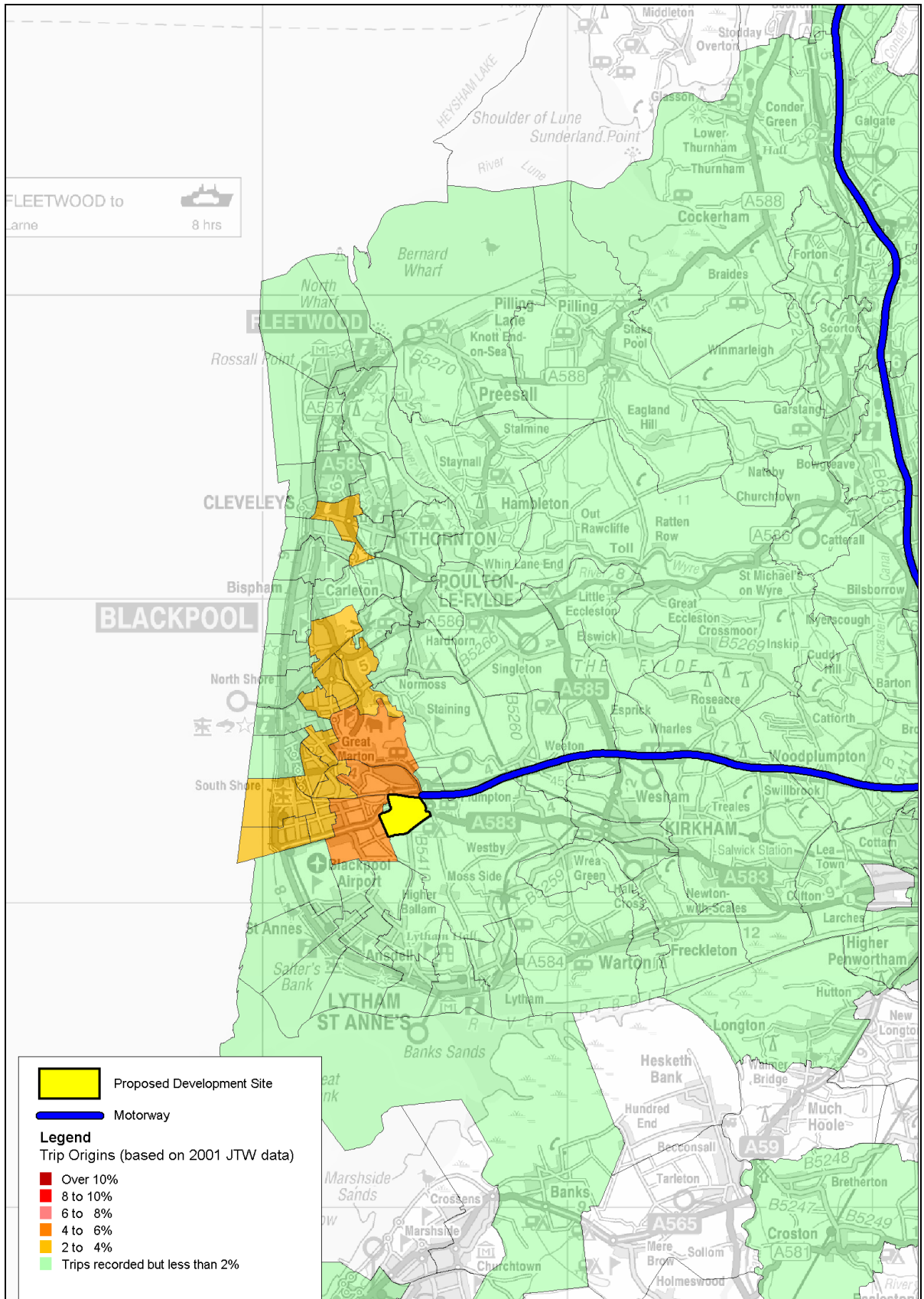


Figure 5.28 - Whitehills Additional Trip Distribution



The accession analysis of journey time thresholds is provided in Figure 5.14 and it can be seen that the distribution identified through the analysis of census data is appropriate when considering an average journey time of 22 minutes.

The network trip distribution for Whitehills is shown in Figure A.3 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Whitehills Additional development proposals are shown in Figures A.30 to A.32 in Appendix A.

### **Accessibility**

A single accessibility assessment was completed for Whitehills, for details of this refer to Figure 5.13 and the analysis associated with Site 1C - Whitehills Commitment.

### **Impact Assessment**

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **456 trips** in the **AM peak**;
  - **396 trips** in the **PM peak**; and
  - **0 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **9 junctions** in the **AM peak**;
  - **7 junctions** in the **PM peak**; and
  - **0 junctions** in the **Saturday peak**.

**5.13 Site 5A – Whitehills/Peel Initial (Residential)**

**Site Description**

Peel Hill like, Whyndyke Farm is located to the east of the existing urban area of Blackpool and consequently the site represents an extension to the urban fabric through developing outwards on to land that is currently rural in nature.

It is proposed that the site will initially be able to accommodate a residential offering of 1000 dwellings in conjunction with the Whitehills proposal.

Figure 5.29 shows the Whitehills/Peel site and the associated access points that have been assumed for the purposes of this study. It should be noted that the development also stretched into the Whitehills (site 4) area and therefore adopts its access points for a proportion of the development.

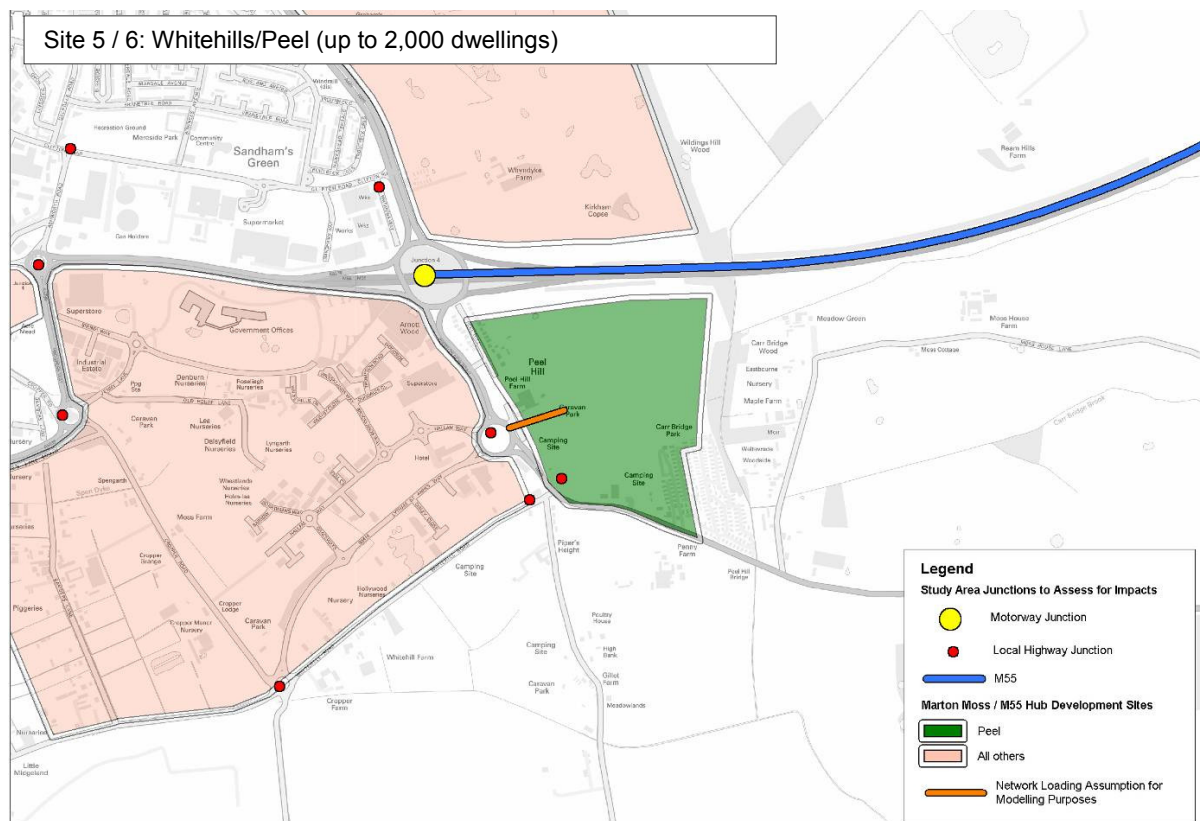


Figure 5.29 – Whitehills/Peel Site Plan

**Trip Generation**

The trip generation characteristics for the site have been determined as an average of the existing trip rates gained from Transport Assessments for sites 2A (Marton Moss Road) and 3B (Whyndyke Farm Residential). For the Saturday peak, the assessment is based on the typical ratio of Saturday peak generation to weekday peak generation, derived from TRICS and then applied to the weekday trip generation rates. Table 5.11 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	1000 dwellings								
Residential Trip Rate (per dwelling)	0.111	0.426	-	0.384	0.222	-	0.234	0.306	-
<b>Total Trips</b>	<b>111</b>	<b>426</b>	<b>537</b>	<b>384</b>	<b>222</b>	<b>606</b>	<b>234</b>	<b>306</b>	<b>540</b>

Table 5.11 – Whitehills/Peel Primary Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.30 provides a thematic consideration of the spatial distribution.

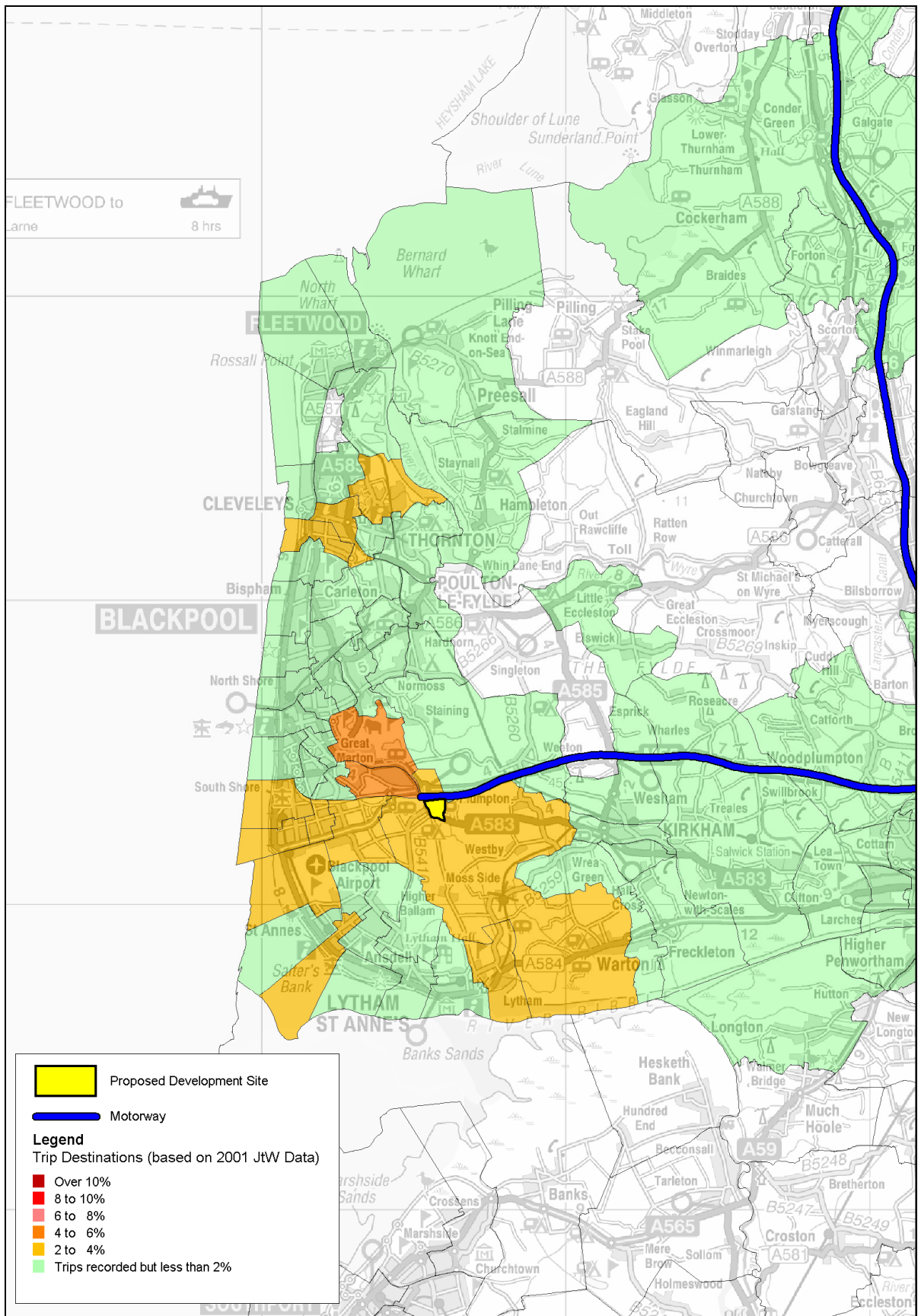


Figure 5.30 – Whitehills/Peel Primary Trip Distribution

The accession analysis of journey time thresholds is provided in Figure 5.32 and it can be seen that the distribution identified through the analysis of census data is appropriate when considering an average journey time of 22 minutes.

The network trip distribution for Whitehills/Peel is shown in Figure A.8 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Whitehills/Peel Initial development proposals are shown in Figures A.33 to A.35 in Appendix A.

### **Accessibility**

It is proposed that the Whitehills/Peel site accommodates further residential development. As a result of these proposals analysis has been conducted that seeks to assess the accessibility to Blackpool town centre from this proposed residential site, as shown in Figure 5.31. For comparison purposes, Figure 5.32 provides the car-based accessibility analysis.

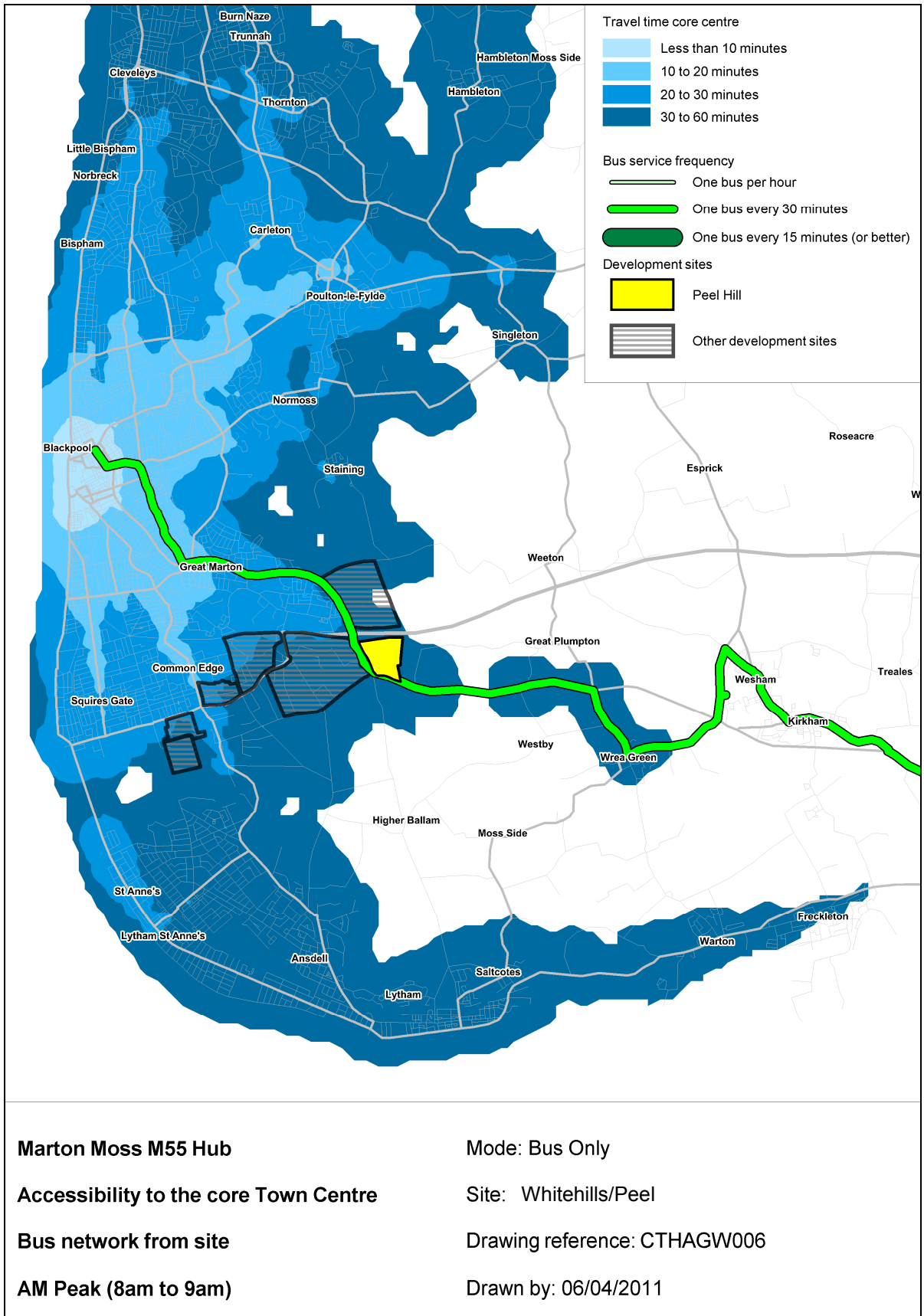


Figure 5.31 – Whitehills/Peel Accessibility Assessment

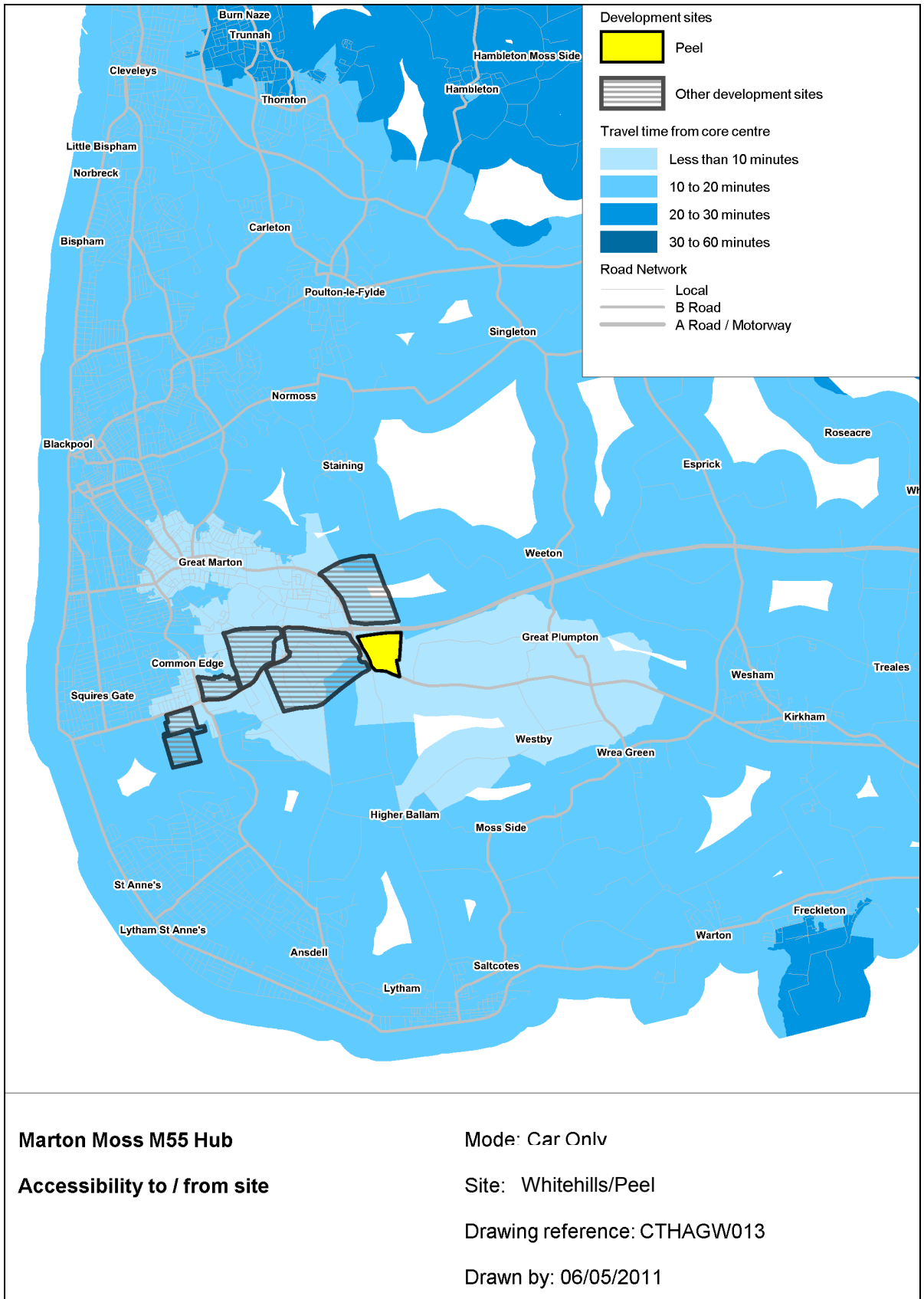


Figure 5.32 – Whitehills/Peel Car Accessibility

## Impact Assessment

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **537 trips** in the **AM peak**;
  - **606 trips** in the **PM peak**; and
  - **540 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **5 junctions** in the **AM peak**;
  - **6 junctions** in the **PM peak**; and
  - **5 junctions** in the **Saturday peak**.



## 5.14 Site 5B – Whitehills/Peel Additional (Residential)

### Site Description

See Site 5 – Whitehills/Peel (Residential) for details. This proposal is the same with the exception that it accounts for an additional 1000 residential dwellings, resulting in the potential for a total of 2000 residential dwellings to be developed on this site (in conjunction with Whitehills).

### Trip Generation

The trip generation characteristics for the site have been determined as an average of the existing trip rates gained from Transport Assessments for sites 2A (Marton Moss Road) and 3B (Whyndyke Farm Residential). For the Saturday peak, the assessment is based on the typical ratio of Saturday peak generation to weekday peak generation, derived from TRICS and then applied to the weekday trip generation rates. Table 5.12 identifies the analysis of trip generation that has been undertaken for this site.

	AM Peak			PM Peak			Saturday Peak		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
Development Scale	1000 dwellings								
Residential Trip Rate (per dwelling)	0.111	0.426	-	0.384	0.222	-	0.234	0.306	-
<b>Total Trips</b>	<b>111</b>	<b>426</b>	<b>537</b>	<b>384</b>	<b>222</b>	<b>606</b>	<b>234</b>	<b>306</b>	<b>540</b>

Table 5.12 - Peel Hill Secondary Trip Generation Summary

### Trip Distribution / Assignment

As identified in Chapter 3, the trip distribution patterns for each development have been based on Census Journey to Work Output Area data. Figure 5.33 provides a thematic consideration of the spatial distribution.

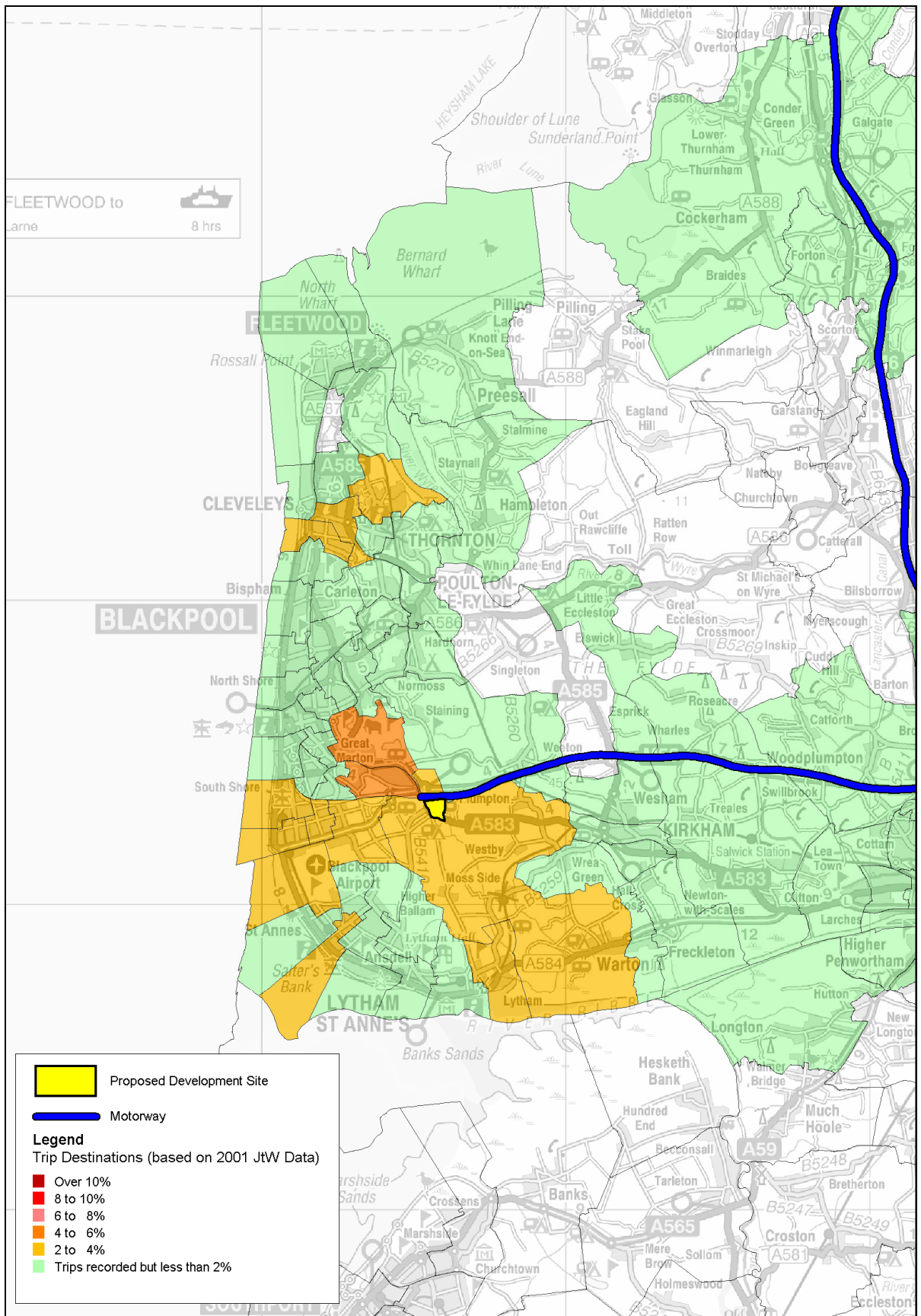


Figure 5.33 – Whitehills/Peel Secondary Trip Distribution

The network trip distribution for Whitehills/Peel is shown in Figure A.8 of Appendix A.

The trip assignment for the AM Peak, PM Peak and Saturday periods for the Whitehills/Peel Additional development proposals are shown in Figures A.36 to A.38 in Appendix A.

### **Accessibility**

A single accessibility assessment was completed for the Whitehills/Peel site, for details of this refer to Figure 5.31 and the analysis associated with Site 5 – Whitehills/Peel Initial.

### **Impact Assessment**

In terms of the impacts of the development, it can be summarised that:

- Once fully developed (by 2027), the development generates:
  - **537 trips** in the **AM peak**;
  - **606 trips** in the **PM peak**; and
  - **540 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **5 junctions** in the **AM peak**;
  - **6 junctions** in the **PM peak**; and
  - **5 junctions** in the **Saturday peak**.

## 5.15 Multi-Modal Trip Generation

Much of this report focuses upon the vehicular trip generating characteristics of the development sites and the implications on the surrounding highway network. However, as identified throughout this report, the solutions that will be sought will aim to have physical measures as a last resort, with measures, such as travel plans and public transport, being the preferred method of mitigation.

In this respect, this section gives consideration to the multi-modal trips for each of the sites. These calculations build upon the vehicle trip rates methodology and assumptions detailed within Section 5. Multi-modal trip numbers by direction, time period and development site are displayed in Table 5.13 overleaf.

		Vehicles		Total People		Pedestrians		PT Users		Cyclists		Occupants		PSVs		OGVs	
		Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
Blackpool Business Park	AM	86	27	137	32	12	3	28	0	3	0	95	29	0	0	2	3
	PM	18	73	25	120	3	10	1	24	0	3	20	83	0	0	1	1
	SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Squires Gate Ind Estate	AM	76	25	93	29	5	1	2	0	3	0	5	1	0	0	0	0
	PM	26	69	32	88	1	4	0	2	0	4	1	4	0	0	0	0
	SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Whitehills Committed	AM	354	102	582	122	53	12	133	2	9	1	361	91	0	0	5	7
	PM	88	308	98	210	12	45	6	116	1	9	65	313	0	0	2	3
	SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marton Moss Road	AM	79	235	164	603	51	131	10	123	4	10	13	214	0	0	0	1
	PM	245	146	446	298	88	68	57	9	5	7	72	13	0	0	0	0
	SAT	153	180	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Adjacent to Marton Moss	AM	100	383	207	984	64	214	13	201	4	16	17	349	0	0	0	1
	PM	346	199	630	407	125	92	80	12	8	9	102	17	0	0	0	0
	SAT	211	275	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Whyndyke Farm Hospital	AM	160	61	138	30	13	4	9	4	4	0	112	23	0	0	1	1
	PM	37	80	21	72	3	7	5	9	0	1	13	55	1	0	0	0
	SAT	72	42	58	30	6	3	5	4	2	0	45	23	0	0	0	0
Whyndyke Farm Residential	AM	180	920	374	2364	115	513	23	482	8	37	30	838	0	1	0	3
	PM	720	400	1313	817	260	186	167	24	16	19	213	34	0	0	0	0
	SAT	426	624	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Whitehills	AM	354	102	582	122	53	12	133	2	9	1	361	91	0	0	5	7

		Vehicles		Total People		Pedestrians		PT Users		Cyclists		Occupants		PSVs		OGVs	
		Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
<b>Additional</b>	<b>PM</b>	88	308	135	539	12	45	6	116	1	9	65	314	0	0	2	3
	<b>SAT</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Whitehills/ Peel Primary</b>	<b>AM</b>	111	426	231	1093	71	237	14	223	5	17	19	387	0	0	0	1
	<b>PM</b>	384	222	700	453	138	103	89	13	9	10	113	19	0	0	0	0
	<b>SAT</b>	234	306	0	0	0	0	0	0	0	0	0	0	0	0	0	2
<b>Whitehills/ Peel Secondary</b>	<b>AM</b>	111	426	231	1093	71	237	14	223	5	17	19	387	0	0	0	1
	<b>PM</b>	384	222	700	453	138	103	89	13	9	10	113	19	0	0	0	0
	<b>SAT</b>	234	306	0	0	0	0	0	0	0	0	0	0	0	0	0	2

Table 5.13 - Multi-Modal Trips by Direction, Time Period and Development Site

## 6 Scenario Testing

### 6.1 Introduction

This study has sought to analyse the impact upon the highway network associated with the development of the sites described in Section 5 of this document.

A number of development scenarios have been tested with a view to assessing the resilience of the highway network to future development proposals. The approach adopted for testing these scenarios has allowed a high level assessment of the impacts upon the traffic network to be made. It is acknowledged however that further detailed assessment will be required prior to further development of these sites.

Initially this chapter will set out the scenario definitions highlighting the scale of development that is associated with each. This will then be followed by analysis that shows the outcomes of the scenario testing.

### 6.2 Scenario Testing Analysis

The network has been considered in increments of 5 years – 2011, 2016, 2021 and 2027 and in the morning, evening and Saturday peaks. This allows the identification of timescales that any identified solutions will be required by and also enable the solutions to be specifically associated with particular development.

The following assessments have been completed for each of the scenarios that are identified in the remainder of this chapter:

<b>2016</b>	<b>2021</b>	<b>2027</b>
• AM Peak;	• AM Peak;	• AM Peak;
• PM Peak;	• PM Peak;	• PM Peak;
• Saturday Peak;	• Saturday Peak;	• Saturday Peak;

All figures showing the results of this testing are displayed in Appendix B.

### 6.3 Scenario Definition / Analysis – Scenario A

This scenario tests the sites that are included as part of Blackpool’s Core Strategy which are outlined in Table 6.1.

Ref	Site Name	Development Proposal
1A	Blackpool Business Park	5.2ha employment
1B	Squire Gate Industrial Estate	5.2ha employment
1C	Whitehills Commitment	25ha employment
2A	Marton Moss (Moss House Road Site)	600 dwellings

Ref	Site Name	Development Proposal
2B	Marton Moss (Yeadon Way – Progress Way)	900 dwellings

Table 6.1 - Scenario A Development Detail

Figure 6.1 shows the development proposals associated with Scenario A and the junctions on the highway network which are being assessed for impacts associated with these development proposals.

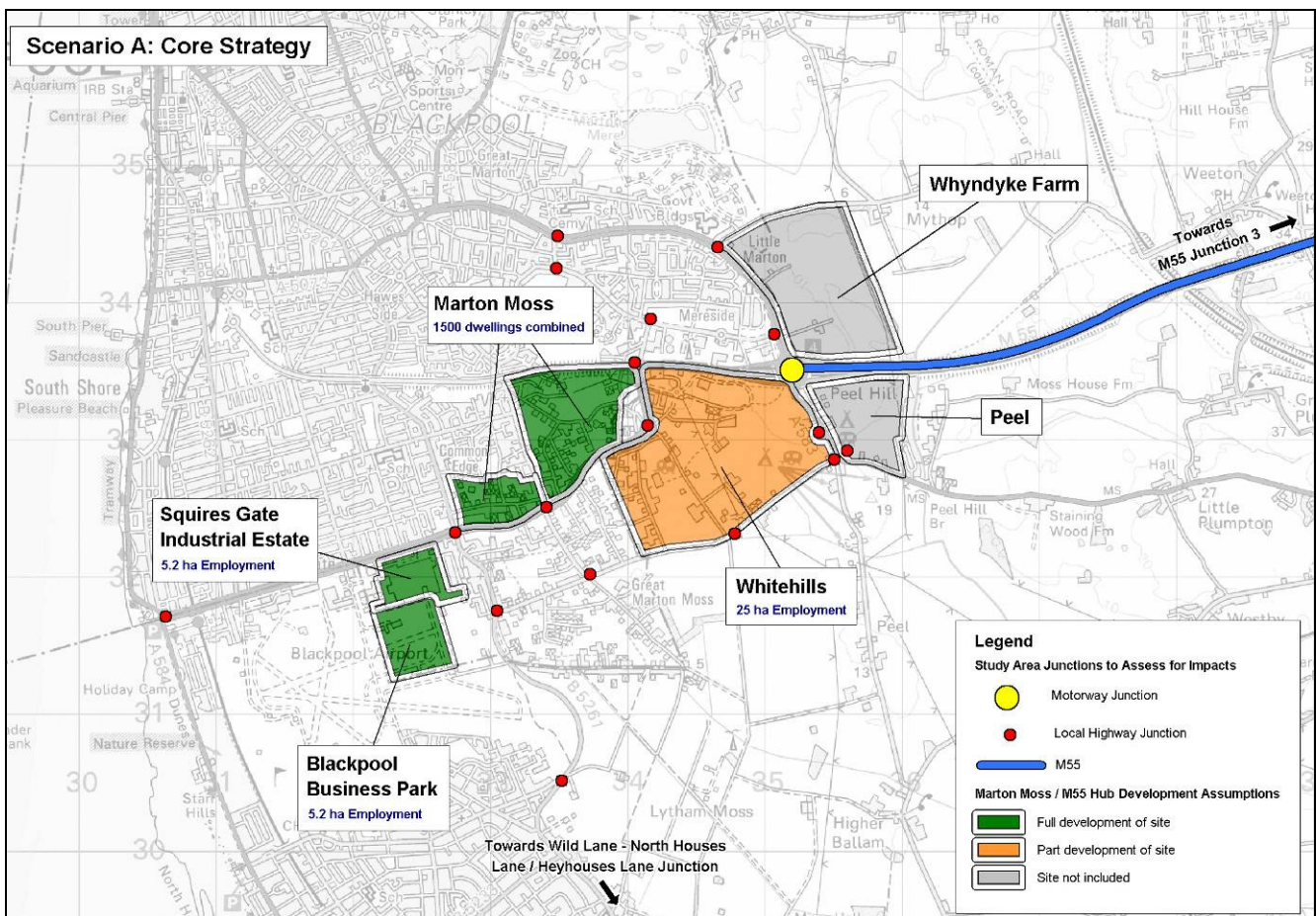


Figure 6.1 - Scenario A Development Plan

The Scenario A assignments are shown in Figures B.1 to B.9 in Appendix B.

In terms of the impacts of the development forming this scenario, it can be summarised that:

- Once fully developed (by 2027), the scenario generates:
  - 1467 trips in the AM peak;
  - 1519 trips in the PM peak; and
  - 819 trips in the Saturday peak.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:



- **17 junctions** in the **AM peak**;
- **17 junctions** in the **PM peak**; and
- **13 junctions** in the **Saturday peak**.

#### 6.4 Scenario Definition / Analysis – Scenario B

This scenario is the same as Scenario A with the exception that the Marton Moss sites are not included and instead replaced by development proposals at Whyndyke Farm. The developments included are identified in Table 6.2.

Ref	Site Name	Development Proposal
1A	Blackpool Business Park	5.2ha employment
1B	Squire Gate Industrial Estate	5.2ha employment
1C	Whitehills Commitment	25ha employment
3A	Whyndyke Farm (Mental Health Hospital)	143 bed Mental Health Hospital
3B	Whyndyke Farm (Residential)	2000 dwellings

Table 6.2 - Scenario B Development Detail

Figure 6.2 shows the development proposals associated with Scenario B and the junctions on the highway network which are being assessed for impacts associated with these development proposals.

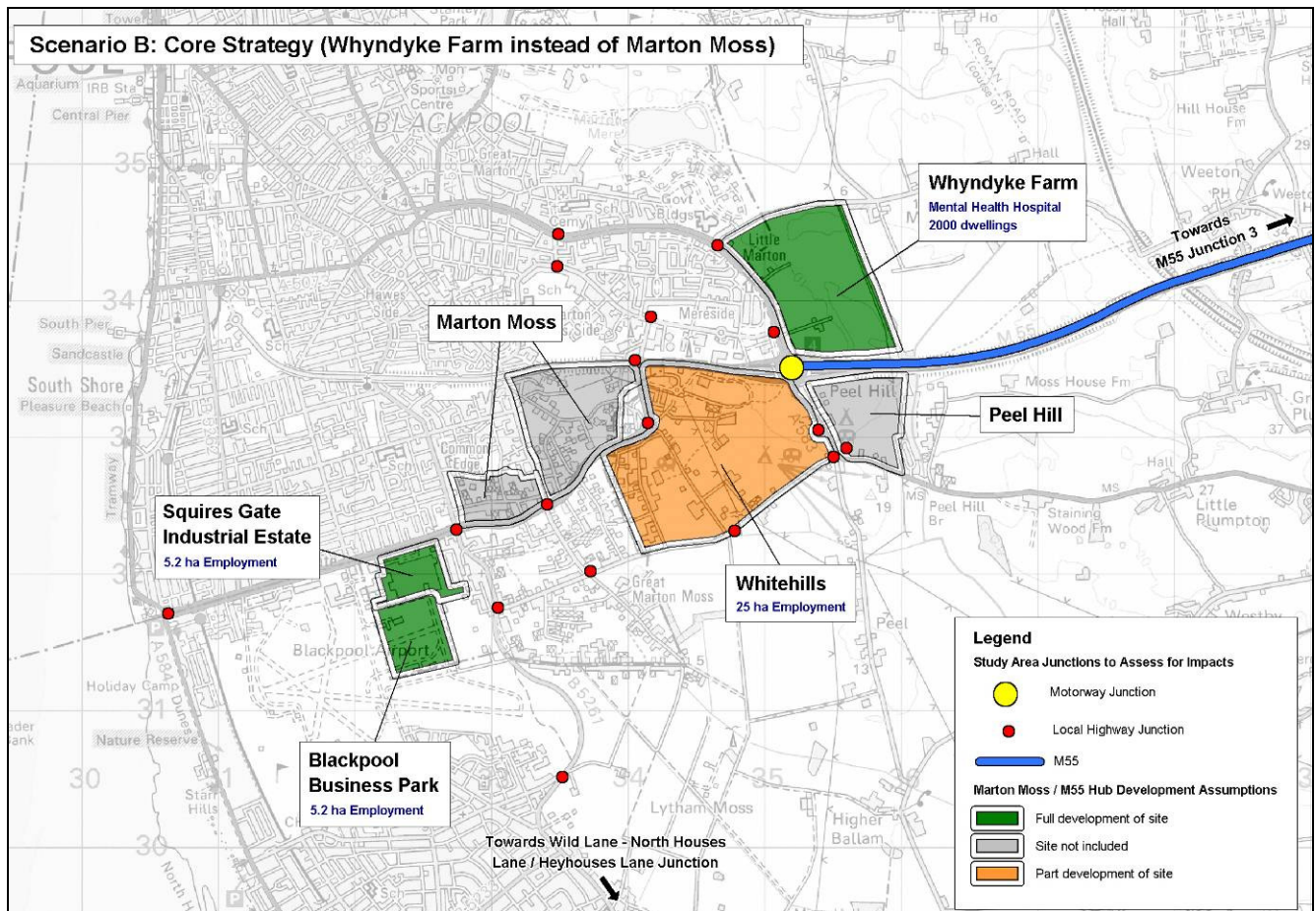


Figure 6.2 - Scenario B Development Plan

The Scenario B assignments are shown in Figures B.10 to B.18 in Appendix B.

In terms of the impacts of the development forming this scenario, it can be summarised that:

- Once fully developed (by 2027), the scenario generates:
  - 1991 trips in the AM peak;
  - 1821 trips in the PM peak; and
  - 1163 trips in the Saturday peak.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - 16 junctions in the AM peak;
  - 15 junctions in the PM peak; and
  - 12 junctions in the Saturday peak.

## 6.5 Scenario Definition / Analysis – Scenario C

This scenario is the same as Scenario A but also includes the development proposals at Whyndyke Farm. The developments included are identified in Table 6.3.

Ref	Site Name	Development Proposal
1A	Blackpool Business Park	5.2ha employment
1B	Squire Gate Industrial Estate	5.2ha employment
1C	Whitehills Commitment	25ha employment
2A	Marton Moss (Moss House Road Site)	600 dwellings
2B	Marton Moss (Yeadon Way – Progress Way)	900 dwellings
3A	Whyndyke Farm (Mental Health Hospital)	143 bed Mental Health Hospital
3B	Whyndyke Farm (Residential)	2000 dwellings

Table 6.3 - Scenario C Development Detail

Figure 6.3 shows the development proposals associated with Scenario C and the junctions on the highway network which are being assessed for impacts associated with these development proposals.

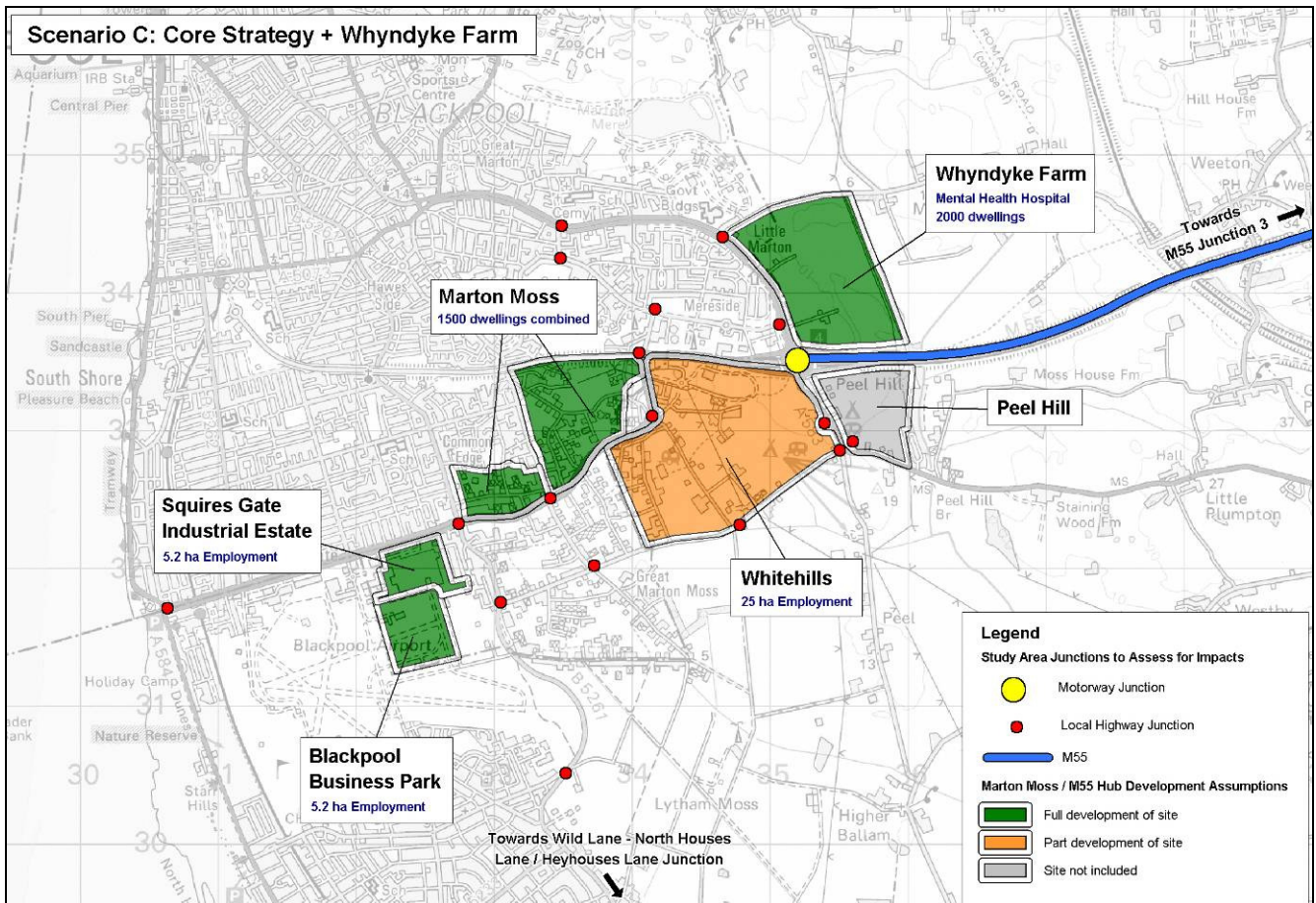


Figure 6.3 - Scenario C Development Plan

The Scenario C assignments are shown in Figures B.19 to B.27 in Appendix B.

In terms of the impacts of the development forming this scenario, it can be summarised that:

- Once fully developed (by 2027), the scenario generates:
  - **2787 trips** in the **AM peak**;
  - **2756 trips** in the **PM peak**; and
  - **1982 trips** in the **Saturday peak**.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - **17 junctions** in the **AM peak**;
  - **17 junctions** in the **PM peak**; and
  - **17 junctions** in the **Saturday peak**.

## 6.6 Scenario Definition / Analysis – Scenario D

This scenario is the same as Scenario C but also includes a further 25ha of employment development proposals at Whitehills. The developments included are identified in Table 6.4.

Ref	Site Name	Development Proposal
1A	Blackpool Business Park	5.2ha employment
1B	Squire Gate Industrial Estate	5.2ha employment
1C	Whitehills Commitment	25ha employment
2A	Marton Moss (Moss House Road Site)	600 dwellings
2B	Marton Moss (Yeadon Way – Progress Way)	900 dwellings
3A	Whyndyke Farm (Mental Health Hospital)	143 bed Mental Health Hospital
3B	Whyndyke Farm (Residential)	2000 dwellings
4	Whitehills Additional	25ha employment

Table 6.4 - Scenario D Development Detail

Figure 6.4 shows the development proposals associated with Scenario D and the junctions on the highway network which are being assessed for impacts associated with these development proposals.

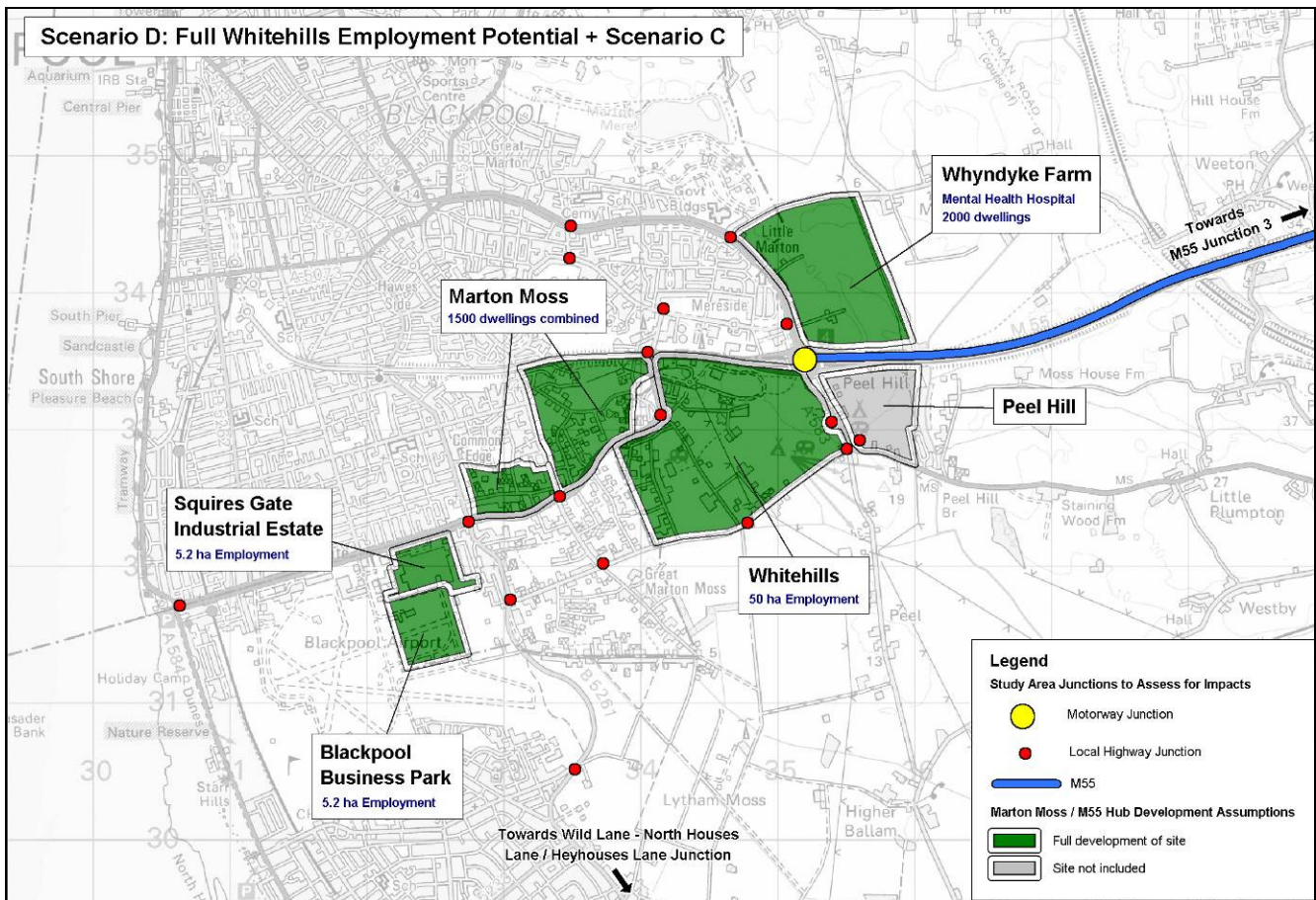


Figure 6.4 - Scenario D Development Plan

The Scenario D assignments are shown in Figures B.28 to B.36 in Appendix B.

In terms of the impacts of the development forming this scenario, it can be summarised that:

- Once fully developed (by 2027), the scenario generates:
  - 3244 trips in the AM peak;
  - 3153 trips in the PM peak; and
  - 1982 trips in the Saturday peak.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - 19 junctions in the AM peak;
  - 19 junctions in the PM peak; and
  - 17 junctions in the Saturday peak.

## 6.7 Scenario Definition / Analysis – Scenario E

This scenario is the same as Scenario D but also includes further residential development of 1000 dwellings across the Whitehills and Peel Hill sites. The developments included are identified in Table 6.5.

Ref	Site Name	Development Proposal
1A	Blackpool Business Park	5.2ha employment
1B	Squire Gate Industrial Estate	5.2ha employment
1C	Whitehills Commitment	25ha employment
2A	Marton Moss (Moss House Road Site)	600 dwellings
2B	Marton Moss (Yeadon Way – Progress Way)	900 dwellings
3A	Whyndyke Farm (Mental Health Hospital)	143 bed Mental Health Hospital
3B	Whyndyke Farm (Residential)	2000 dwellings
4	Whitehills Additional	25ha employment
5A	Whitehills/Peel Primary	1000 dwellings

Table 6.5 - Scenario E Development Detail

Figure 6.5 shows the development proposals associated with Scenario E and the junctions on the highway network which are being assessed for impacts associated with these development proposals.

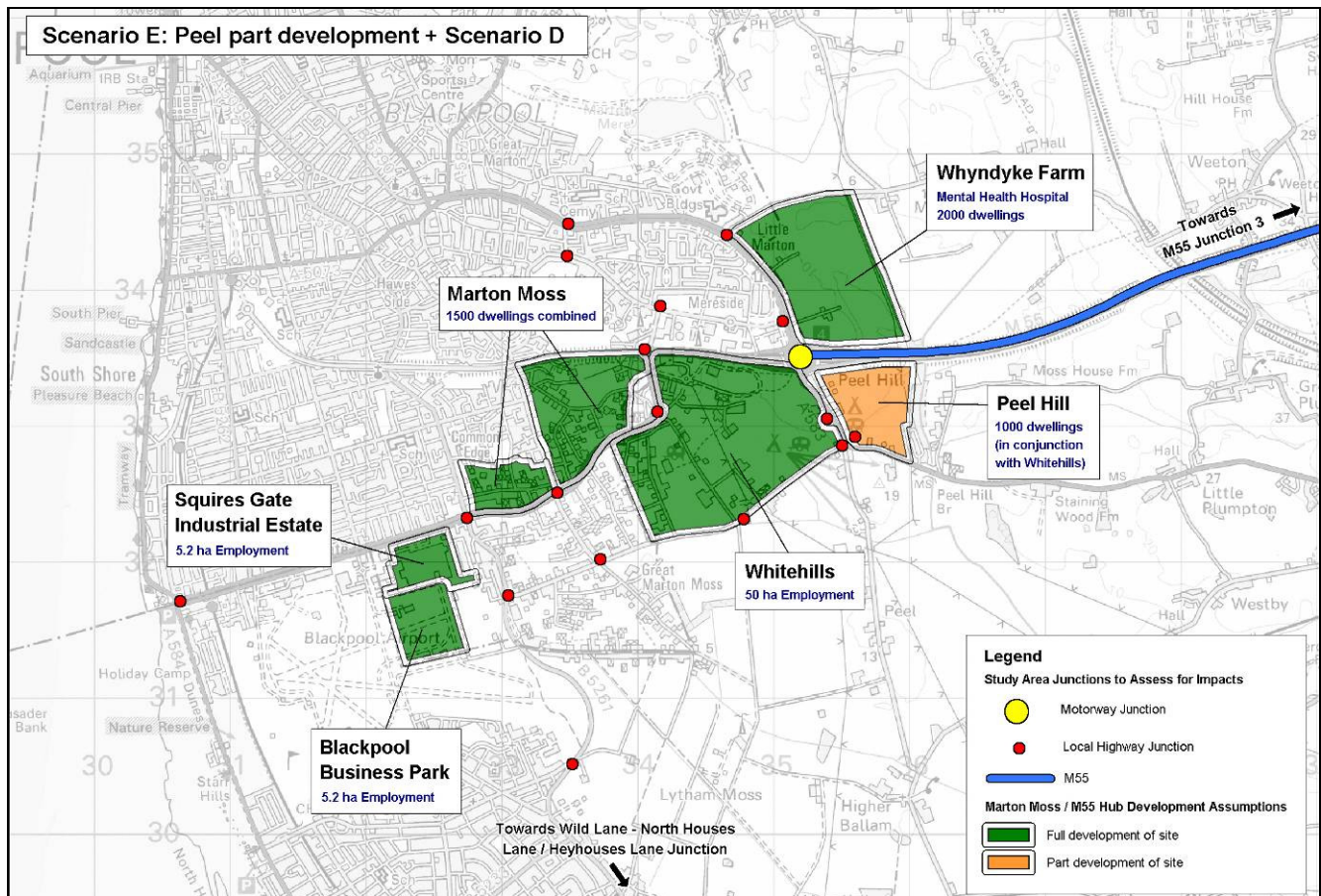


Figure 6.5 - Scenario E Development Plan

The Scenario E assignments are shown in Figures B.37 to B.45 in Appendix B.

In terms of the impacts of the development forming this scenario, it can be summarised that:

- Once fully developed (by 2027), the scenario generates:
  - 3781 trips in the AM peak;
  - 3758 trips in the PM peak; and
  - 2522 trips in the Saturday peak.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - 19 junctions in the AM peak;
  - 19 junctions in the PM peak; and
  - 17 junctions in the Saturday peak.

## 6.8 Scenario Definition / Analysis – Scenario F

This scenario is the same as Scenario E but also includes a further 1000 dwellings across the Whitehills and Peel Hill sites. The developments included are identified in Table 6.6.

Ref	Site Name	Development Proposal
1A	Blackpool Business Park	5.2ha employment
1B	Squire Gate Industrial Estate	5.2ha employment
1C	Whitehills Commitment	25ha employment
2A	Marton Moss (Moss House Road Site)	600 dwellings
2B	Marton Moss (Yeadon Way – Progress Way)	900 dwellings
3A	Whyndyke Farm (Mental Health Hospital)	143 bed Mental Health Hospital
3B	Whyndyke Farm (Residential)	2000 dwellings
4	Whitehills Additional	25ha employment
5A	Whitehills/Peel Primary	1000 dwellings
5B	Whitehills/Peel Secondary	1000 dwellings

Table 6.6 - Scenario F Development Detail

Figure 6.6 shows the development proposals associated with Scenario F and the junctions on the highway network which are being assessed for impacts associated with these development proposals.



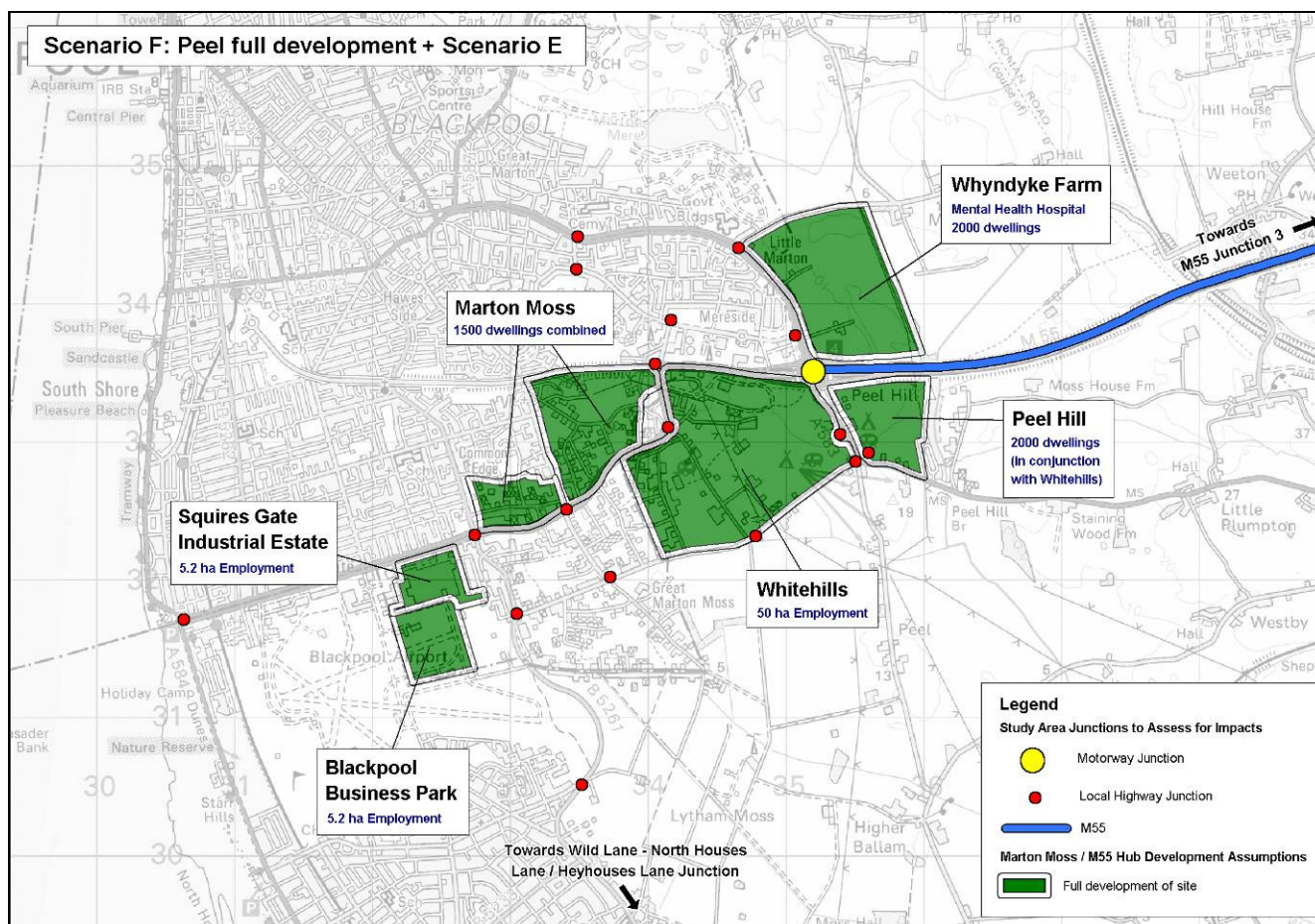


Figure 6.6 - Scenario F Development Plan

The Scenario F assignments are shown in Figures B.46 to B.54 in Appendix B.

In terms of the impacts of the development forming this scenario, it can be summarised that:

- Once fully developed (by 2027), the scenario generates:
  - 4317 trips in the AM peak;
  - 4364 trips in the PM peak; and
  - 3062 trips in the Saturday peak.
- The development causes a material impact (> 50 two way trips), once fully developed (by 2027) at:
  - 20 junctions in the AM peak;
  - 19 junctions in the PM peak; and
  - 18 junctions in the Saturday peak.

## 6.9 Scenario Analysis Findings Summary

In summary, the scenarios involve the testing of a number of development combinations as detailed earlier in this report. Figure 6.7 below provides a summary of the trip generating characteristics associated with each scenario.

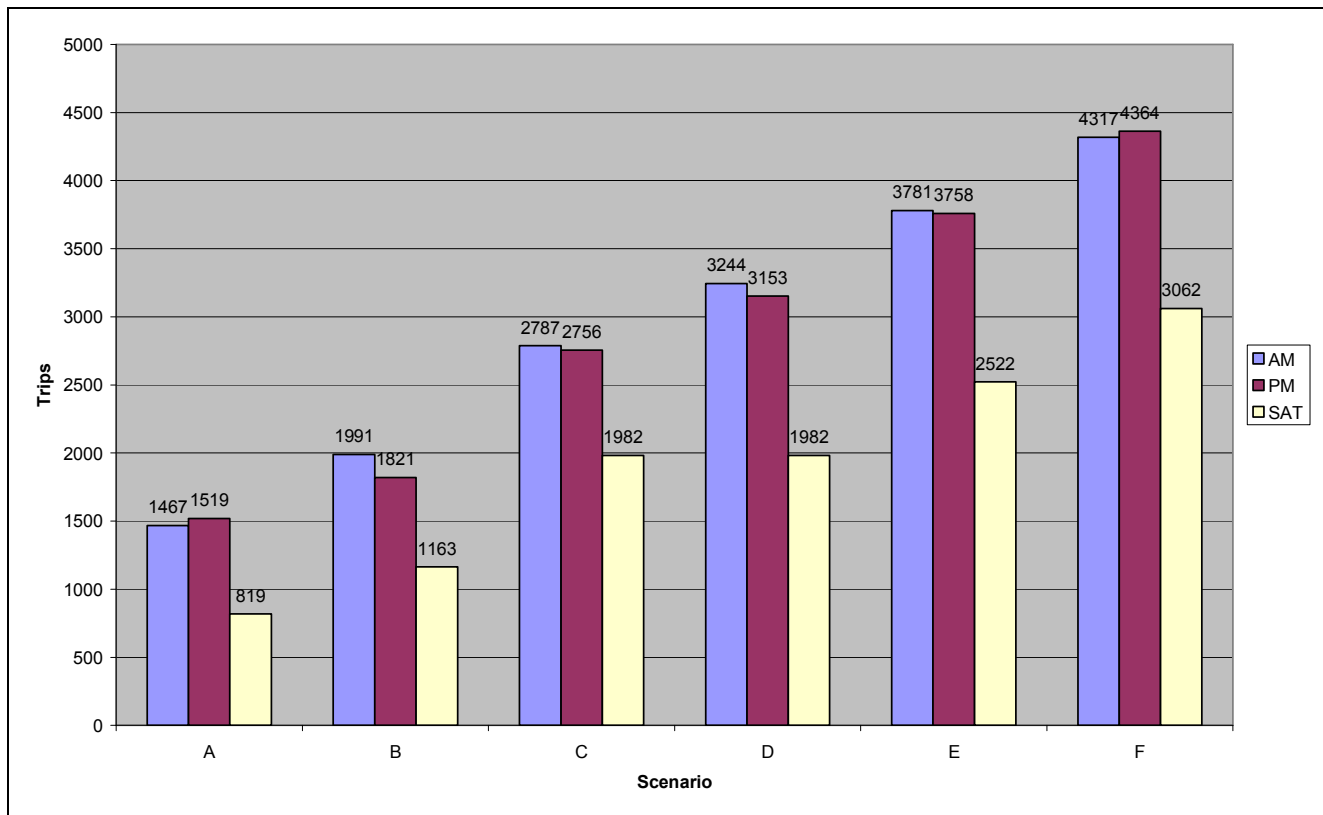


Figure 6.7 - Scenario Trip Generating Characteristics

It is not surprising to find that the highest level of trip generation occurs in scenario F, which includes the full spectrum of development. Consideration of the consequences that these trip generations have on the network and subsequently requiring further consideration are discussed in the following chapter.

In respect of the trip distribution patterns established as part of the study, while each site is considered individually, based on the scale of development built out by 2027, it has been established that approximately:

- 68% of trips are sourced within the Blackpool Local Authority;
- 11% to / from Lytham St Annes;
- 6% to / from the Fylde Peninsula;
- 1% to / from Staining and Poulton;
- 9% to/from the east via the M55 corridor; and
- 4% to/from the east via the A583 corridor.

*(Note, the above list is not intended to sum to 100% and is intended only to provide a summary of the trip distribution patterns established as part of the study)*

Based on the analysis, it has been possible to identify the elements of the network that require further consideration because the development aspirations in a specific scenario generate trips in excess of the 50 two-way trip threshold identified as being critical. Table 6.7 identifies the further

assessments that will be undertaken as part of the study, at each of the junctions, in each scenario and in each assessment year.

Junction	A			B			C			D			E			F		
	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027
1. A583 Preston New Road / Preston Old Road / Cherry Tree Road North		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. A583 Preston New Road / Mythop Road		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Cherry Tree Road / Cherry Tree Road North			✓					✓	✓		✓	✓		✓	✓		✓	✓
4. Ashworth Road / Clifton Road		✓	✓			✓		✓	✓		✓	✓		✓	✓		✓	✓
5. A583 Preston New Road / Clifton Road		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Yeadon Way / A5230 Progress Way		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7. M55 Junction 4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8. M55 Junction 3		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9. A584 Promenade / A5230 Squires Gate Lane / A584 Clifton Drive North												✓			✓			✓

Junction	A			B			C			D			E			F		
	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027
10. A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11. A5230 Progress Way / Midgeland Road	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12. A5230 Progress Way / Cropper Road / Jenny Lane	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13. A583 Preston New Road / Hallam Way / Lytham St. Annes Way	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14/15. A583 Preston New Road / Whitehill Road / Peel Road		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16. Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way		✓	✓			✓		✓	✓		✓	✓		✓	✓		✓	✓
17. School Road / Midgeland Road											✓	✓		✓	✓		✓	✓
18. B5261 Common Edge Road / School Road		✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
19. B5261 Queensway / Kilnhouse Lane		✓	✓		✓	✓		✓	✓		✓	✓		✓	✓		✓	✓
20. Heyhouses Lane / Blackpool Road																		✓

Table 6.7 - Study Area Junctions Requiring Detailed Assessment + Scenarios and Future Years to Assess

## 7 Junction Modelling

### 7.1 Introduction

As part of the final stages of the study, further assessment has been conducted for each specific scenario at each junction where the 50 two way trip threshold is exceeded.

In each of these cases, junction modelling has been undertaken to test whether the increase in traffic associated with the development proposals can be accommodated within the highway network without compromising its operational performance.

As identified at the outset of this study, the approach to this analysis is founded on traditionally accepted junction modelling techniques through the use of industry standard software (LINSIG, ARCADY, PICADY etc...).

Where possible, use has been made of existing junction models available in the study area. Where existing models were not available, base models have been developed using base data provided by the Council / obtained from the CUBE / PARAMICS model.

These analyses have been informed by the spreadsheet work undertaken as part of the previous stages of the study, allowing the analysis of various flow scenarios to be undertaken. The outcomes of this stage of the study will aid and inform subsequent work undertaken in relation to the identification of appropriate mitigation measures.

### 7.2 Approach Overview

Our approach to this element of the exercise and the need to determine any improvement measures is based on the following premise:

- If a junction **operates satisfactorily in the base situation** and continues to **operate satisfactorily in the with development scenarios**, it will be concluded that no further consideration (or the identification of any improvement) is required;
- If a junction **operates satisfactorily in the base situation** but **operates with operational issues in the with development scenarios**, it will be concluded that further consideration is required, with the aim of identifying a measure that brings the junction back to satisfactory performance.
- If a junction **operates with operational issues in the base situation** and continues to **operate with the same intensity of operational issues in the with development scenarios**, it will be concluded that no further consideration (or the identification of any improvement) is required;
- If a junction **operates with operational issues in the base situation** but **operates with intensified operational issues in the with development scenarios**, it will be concluded that further consideration is required, with the aim of identifying a measure that brings the junction back to a position as if the development had not taken place.

It is industry standard practice that satisfactory performance is considered to be:

- a RFC (Ratio of Flow to Capacity) value below 0.85 (85%) for an ARCADY / PICADY model; and
- a DoS (Degree of Saturation) value below 0.90 (90%) for a LINSIG model.

For the purpose of identifying the above within the results table of the following section of this report, a common set of themes are applied. In summary these can be described as follows:

Within all model runs:

- **bold text** - any link which has a value in excess of the critical value identified above.

Within the 'with development' models:

- **xxxx** - any link which, as a result of the development scenario, has operational issues, where in the base there were no operational issues;
- **xxxx** - any link which, whilst has operational issues in the with development scenario, had the same / greater intensity issue in the base; and
- **xxxx** - any link which has operational issues in the with development scenario that is more intense than in the base.

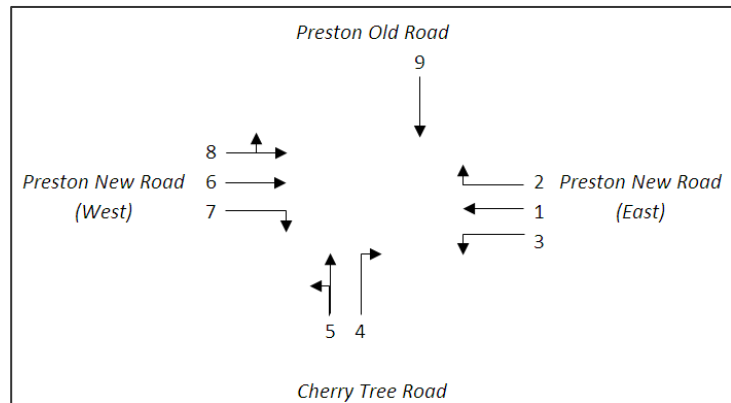
When considering the results of the analyses in the following section, it should be noted that once the RFC and DoS exceeds the critical values highlighted above, the ability of the models to accurately reflect likely queues becomes less reliable. A degree of caution should therefore be taken when considering the queue lengths highlighted, and in this respect, much of the analysis interpretation and the subsequent identification of improvements are focussed on achieving satisfactory levels of performance based on the RFC / DoS values.

All the junction analyses outputs are provided in Appendix D.

### 7.3 Junction 1 - A583 Preston New Road / Preston Old Road / Cherry Tree Road North

Junction 1 is the four arm signalised junction of A583 Preston New Road / Preston Old Road / Cherry Tree Road North. This junction requires operational analysis in the following scenarios:

- 2016 – Base Development and Scenarios B, C, D, E, F; and
- 2021 – Base Development and Scenarios A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios A, B, C, D, E, F.



The results of this analysis are described in the Tables below.

#### 2016 Assessments

Table 7.1 provides the results of the analysis undertaken in the 2016 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	64.7	23	81.4	29	62.3	23
2 – A583 Preston New Road (East) Right	23.6	2	57.4	5	30.4	3
3 – A583 Preston New Road (East) Left	18.2	2	37.0	5	35.2	5
4 – Cherry Tree Road North Right	35.5	3	29.0	3	41.3	4
5 – Cherry Tree Road North Left/Ahead	73.7	10	83.2	17	76.4	11
6 – A583 Preston New Road (West) Ahead	70.1	13	76.9	14	69.7	14
7 – A583 Preston New Road (West) Right	75.9	10	83.5	9	75.0	9
8 – A583 Preston New Road (West) Left/Ahead	75.7	14	83.0	15	75.3	15
9 – Preston Old Road Left/Ahead/Right	71.8	10	51.8	8	66.4	9

Scenario B Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	65.7	24	84.5	31	64.9	24
2 – A583 Preston New Road (East) Right	25.0	3	58.1	5	30.4	3
3 – A583 Preston New Road (East) Left	17.4	2	36.1	5	35.3	5
4 – Cherry Tree Road North Right	37.1	3	30.0	3	41.6	4
5 – Cherry Tree Road North Left/Ahead	76.7	11	85.5	17	76.4	11
6 – A583 Preston New Road (West) Ahead	72.8	15	78.3	15	72.5	15
7 – A583 Preston New Road (West) Right	79.5	10	83.5	9	75.0	9

Scenario B	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
8 – A583 Preston New Road (West) Left/Ahead	78.6	16	84.5	16	78.3	16
9 – Preston Old Road Left/Ahead/Right	75.4	11	53.2	9	66.7	9

Scenario C	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	65.7	24	84.5	31	64.9	24
2 – A583 Preston New Road (East) Right	25.0	3	58.1	5	30.4	3
3 – A583 Preston New Road (East) Left	17.4	2	36.1	5	35.3	5
4 – Cherry Tree Road North Right	37.1	3	30.0	3	41.6	4
5 – Cherry Tree Road North Left/Ahead	76.9	11	85.5	17	76.4	11
6 – A583 Preston New Road (West) Ahead	72.8	15	78.3	15	72.5	15
7 – A583 Preston New Road (West) Right	79.5	10	83.5	9	75.0	9
8 – A583 Preston New Road (West) Left/Ahead	78.6	16	84.5	16	78.3	16
9 – Preston Old Road Left/Ahead/Right	75.4	11	53.2	9	66.7	9

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	64.5	24	86.5	33	64.9	24
2 – A583 Preston New Road (East) Right	25.0	3	58.1	5	30.4	3
3 – A583 Preston New Road (East) Left	17.0	2	36.1	5	35.3	5
4 – Cherry Tree Road North Right	38.6	3	30.0	3	41.6	4
5 – Cherry Tree Road North Left/Ahead	80.1	11	85.5	17	76.4	11
6 – A583 Preston New Road (West) Ahead	72.8	15	78.9	15	72.5	15
7 – A583 Preston New Road (West) Right	79.5	10	83.5	9	75.0	9
8 – A583 Preston New Road (West) Left/Ahead	78.6	16	85.2	16	78.3	16
9 – Preston Old Road Left/Ahead/Right	78.7	11	53.4	9	66.7	9

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	64.5	24	86.5	33	64.9	24
2 – A583 Preston New Road (East) Right	25.0	3	58.1	5	30.4	3
3 – A583 Preston New Road (East) Left	17.0	2	36.1	5	35.3	5
4 – Cherry Tree Road North Right	38.6	3	30.0	3	41.6	4
5 – Cherry Tree Road North Left/Ahead	80.1	11	85.5	17	76.4	11
6 – A583 Preston New Road (West) Ahead	72.8	15	78.9	15	72.5	15



Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
7 – A583 Preston New Road (West) Right	79.5	10	83.5	9	75.0	9
8 – A583 Preston New Road (West) Left/Ahead	78.6	16	85.2	16	78.3	16
9 – Preston Old Road Left/Ahead/Right	78.7	11	53.4	9	66.7	9

Scenario F	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	64.5	24	86.5	33	64.9	24
2 – A583 Preston New Road (East) Right	25.0	3	58.1	5	30.4	3
3 – A583 Preston New Road (East) Left	17.0	2	36.1	4	35.3	5
4 – Cherry Tree Road North Right	38.6	3	30.0	3	41.6	4
5 – Cherry Tree Road North Left/Ahead	80.1	11	85.5	17	76.4	11
6 – A583 Preston New Road (West) Ahead	72.8	15	78.9	15	72.5	15
7 – A583 Preston New Road (West) Right	79.5	10	83.5	9	75.0	9
8 – A583 Preston New Road (West) Left/Ahead	78.6	16	85.2	16	78.3	16
9 – Preston Old Road Left/Ahead/Right	78.7	11	53.4	9	66.7	9

Table 7.1 - Junction 1 2016 Assessments - Results

It can be seen from Table 7.1 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2016.

### 2021 Assessments

Table 7.2 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	71.0	26	89.7	34	69.9	27
2 – A583 Preston New Road (East) Right	26.0	3	63.5	6	34.0	3
3 – A583 Preston New Road (East) Left	20.1	3	40.8	5	39.5	6
4 – Cherry Tree Road North Right	38.8	4	32.1	4	46.4	4
5 – Cherry Tree Road North Left/Ahead	81.2	12	<b>91.9</b>	21	86.0	13
6 – A583 Preston New Road (West) Ahead	76.9	16	84.7	17	78.2	17
7 – A583 Preston New Road (West) Right	83.4	12	<b>92.1</b>	12	84.1	11
8 – A583 Preston New Road (West) Left/Ahead	83.1	17	<b>91.5</b>	19	84.5	18
9 – Preston Old Road Left/Ahead/Right	79.0	12	57.1	9	74.7	10

Scenario A	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ

Scenario A	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	70.8	27	96.0	42	71.8	27
2 – A583 Preston New Road (East) Right	27.3	3	60.4	6	34.0	3
3 – A583 Preston New Road (East) Left	19.5	3	40.8	5	40.6	6
4 – Cherry Tree Road North Right	39.0	4	33.0	4	44.7	4
5 – Cherry Tree Road North Left/Ahead	86.1	14	96.5	15	86.3	14
6 – A583 Preston New Road (West) Ahead	80.8	17	86.5	17	80.4	17
7 – A583 Preston New Road (West) Right	88.9	13	92.9	13	87.3	13
8 – A583 Preston New Road (West) Left/Ahead	87.3	19	93.4	20	86.8	19
9 – Preston Old Road Left/Ahead/Right	79.6	12	58.8	10	72.1	10

Scenario B	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	76.4	31	96.5	45	74.5	30
2 – A583 Preston New Road (East) Right	27.5	3	64.5	6	35.9	4
3 – A583 Preston New Road (East) Left	19.0	2	38.7	5	38.8	6
4 – Cherry Tree Road North Right	42.4	4	34.5	4	47.0	4
5 – Cherry Tree Road North Left/Ahead	88.0	14	97.1	26	86.0	13
6 – A583 Preston New Road (West) Ahead	82.1	19	89.5	20	81.5	18
7 – A583 Preston New Road (West) Right	87.3	13	92.1	12	88.3	12
8 – A583 Preston New Road (West) Left/Ahead	88.6	21	96.6	25	88.0	20
9 – Preston Old Road Left/Ahead/Right	86.7	13	60.5	9	74.9	10

Scenario C	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	71.0	29	96.5	45	76.4	31
2 – A583 Preston New Road (East) Right	30.4	3	64.5	6	34.2	4
3 – A583 Preston New Road (East) Left	17.6	2	38.7	5	39.9	6
4 – Cherry Tree Road North Right	44.2	4	34.5	4	47.0	4
5 – Cherry Tree Road North Left/Ahead	97.3	19	99.2	29	89.8	15
6 – A583 Preston New Road (West) Ahead	92.2	26	89.5	20	83.7	19
7 – A583 Preston New Road (West) Right	98.2	18	98.7	16	87.3	13
8 – A583 Preston New Road (West) Left/Ahead	99.5	35	96.6	25	90.3	21
9 – Preston Old Road Left/Ahead/Right	90.4	15	60.7	10	75.2	11

Scenario D	AM	PM	Saturday
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Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	76.1	33	99.3	54	76.4	31
2 – A583 Preston New Road (East) Right	29.2	3	65.2	6	34.2	4
3 – A583 Preston New Road (East) Left	18.5	2	37.6	5	39.9	6
4 – Cherry Tree Road North Right	42.4	4	35.5	4	47.0	4
5 – Cherry Tree Road North Left/Ahead	93.3	16	102.1	34	89.8	15
6 – A583 Preston New Road (West) Ahead	85.6	21	88.5	20	83.7	19
7 – A583 Preston New Road (West) Right	93.3	15	98.7	16	87.3	13
8 – A583 Preston New Road (West) Left/Ahead	92.5	24	95.5	24	90.3	21
9 – Preston Old Road Left/Ahead/Right	87.1	14	62.5	10	75.2	11

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	77.8	33	100.4	59	77.7	32
2 – A583 Preston New Road (East) Right	29.4	3	65.2	6	34.5	4
3 – A583 Preston New Road (East) Left	18.5	2	37.6	5	39.9	6
4 – Cherry Tree Road North Right	42.4	4	35.5	4	47.0	4
5 – Cherry Tree Road North Left/Ahead	93.3	16	102.1	34	89.8	15
6 – A583 Preston New Road (West) Ahead	86.1	21	90.3	21	84.7	20
7 – A583 Preston New Road (West) Right	93.3	15	98.7	16	87.3	13
8 – A583 Preston New Road (West) Left/Ahead	92.9	24	97.5	26	91.5	22
9 – Preston Old Road Left/Ahead/Right	87.4	14	62.6	10	75.2	11

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	75.9	34	101.4	64	76.9	32
2 – A583 Preston New Road (East) Right	29.7	3	65.5	6	36.5	4
3 – A583 Preston New Road (East) Left	18.5	2	37.6	5	38.8	6
4 – Cherry Tree Road North Right	42.4	4	35.5	4	47.0	4
5 – Cherry Tree Road North Left/Ahead	93.3	16	102.1	34	89.8	15
6 – A583 Preston New Road (West) Ahead	86.5	21	92.1	22	83.5	19
7 – A583 Preston New Road (West) Right	93.3	15	98.7	16	91.7	14
8 – A583 Preston New Road (West) Left/Ahead	93.4	25	99.5	30	90.2	22
9 – Preston Old Road Left/Ahead/Right	87.4	14	62.8	10	75.4	11

Table 7.2 - Junction 1 2021 Assessments - Results

It can be seen from Table 7.2 that in the 2021 base, several specific turning movements are over capacity during the PM peak; movements 5, 7 and 8. All turning movements are operating satisfactorily in all other time periods.

In development scenarios A and B, the PM peak congestion is exacerbated on the specified arms above. Additionally, traffic flow on movement 1 now exceeds capacity. All turning movements are operating satisfactorily in all other time periods.

Similar trends are observed within development scenarios C and D in regards to the PM peak. However, in the AM peak movements 5, 7 and 8 are now congested. Further, movement 8 is also overcapacity in the Saturday peak.

Within scenario E, movement 6 is overcapacity in the PM peak. This is also true within scenario F with the addition of congestion on movement 8 in the Saturday peak.

Taking into account the above, it is necessary to identify junction improvements for 2021.

### 2027 Assessments

Table 7.3 provides the results of the analysis undertaken in the 2027 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	77.4	30	98.3	48	77.3	31
2 – A583 Preston New Road (East) Right	28.2	3	69.6	7	37.6	4
3 – A583 Preston New Road (East) Left	21.9	3	44.7	6	43.8	6
4 – Cherry Tree Road North Right	42.6	4	35.2	4	51.5	5
5 – Cherry Tree Road North Left/Ahead	88.7	15	100.6	33	95.1	18
6 – A583 Preston New Road (West) Ahead	84.0	19	92.6	21	86.4	20
7 – A583 Preston New Road (West) Right	91.1	15	101.1	18	93.2	15
8 – A583 Preston New Road (West) Left/Ahead	90.7	21	100.0	29	93.3	24
9 – Preston Old Road Left/Ahead/Right	86.3	14	62.6	11	82.6	12

Scenario A Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	79.8	31	106.6	88	81.6	32
2 – A583 Preston New Road (East) Right	29.8	3	66.1	6	35.9	4
3 – A583 Preston New Road (East) Left	21.9	3	44.9	6	46.2	7
4 – Cherry Tree Road North Right	41.1	4	36.2	4	49.6	5
5 – Cherry Tree Road North Left/Ahead	96.1	20	107.9	53	99.6	23
6 – A583 Preston New Road (West) Ahead	92.2	23	95.0	23	91.2	22
7 – A583 Preston New Road (West) Right	99.0	20	109.5	30	95.7	18
8 – A583 Preston New Road (West) Left/Ahead	99.6	31	102.6	34	98.5	29
9 – Preston Old Road Left/Ahead/Right	84.1	14	64.6	11	79.6	12

Scenario B	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	89.5	41	106.6	96	83.9	37
2 – A583 Preston New Road (East) Right	30.1	3	75.3	7	39.7	4
3 – A583 Preston New Road (East) Left	21.1	3	41.2	6	42.2	6
4 – Cherry Tree Road North Right	46.6	4	38.2	4	54.4	5
5 – Cherry Tree Road North Left/Ahead	96.1	18	106.5	48	99.1	24
6 – A583 Preston New Road (West) Ahead	91.8	24	100.7	34	90.3	23
7 – A583 Preston New Road (West) Right	95.4	17	107.8	25	97.8	18
8 – A583 Preston New Road (West) Left/Ahead	99.2	32	108.9	54	97.5	30
9 – Preston Old Road Left/Ahead/Right	94.8	18	66.3	11	86.2	13

Scenario C	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	91.9	43	109.9	116	88.4	39
2 – A583 Preston New Road (East) Right	30.1	2	66.4	7	37.8	4
3 – A583 Preston New Road (East) Left	21.6	3	42.5	6	44.4	6
4 – Cherry Tree Road North Right	44.8	4	39.3	4	52.3	5
5 – Cherry Tree Road North Left/Ahead	103.8	30	114.2	71	103.6	29
6 – A583 Preston New Road (West) Ahead	94.2	26	103.7	41	95.0	27
7 – A583 Preston New Road (West) Right	99.0	20	109.5	30	100.2	22
8 – A583 Preston New Road (West) Left/Ahead	101.8	38	112.0	63	102.6	40
9 – Preston Old Road Left/Ahead/Right	91.1	16	68.4	12	83.0	13

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	91.7	44	114.2	151	88.4	39
2 – A583 Preston New Road (East) Right	31.9	3	71.6	7	37.8	4
3 – A583 Preston New Road (East) Left	21.1	3	41.2	6	44.4	6
4 – Cherry Tree Road North Right	44.8	4	39.3	4	52.3	5
5 – Cherry Tree Road North Left/Ahead	103.8	30	114.2	71	103.6	29
6 – A583 Preston New Road (West) Ahead	99.4	35	102.8	39	95.0	27
7 – A583 Preston New Road (West) Right	103.9	26	116.3	39	100.2	22
8 – A583 Preston New Road (West) Left/Ahead	107.3	56	111.0	61	102.6	40
9 – Preston Old Road Left/Ahead/Right	91.9	16	68.6	12	83.0	13

Scenario E	AM		PM		Saturday	
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Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	93.2	47	116.5	168	91.2	42
2 – A583 Preston New Road (East) Right	32.7	3	72.3	7	38.3	4
3 – A583 Preston New Road (East) Left	20.6	3	41.2	6	44.4	6
4 – Cherry Tree Road North Right	46.6	4	39.3	4	52.3	5
5 – Cherry Tree Road North Left/Ahead	108.1	38	114.2	71	103.6	29
6 – A583 Preston New Road (West) Ahead	97.9	32	106.8	52	97.2	30
7 – A583 Preston New Road (West) Right	103.9	26	116.3	39	100.2	22
8 – A583 Preston New Road (West) Left/Ahead	105.7	52	115.3	76	105.0	47
9 – Preston Old Road Left/Ahead/Right	96.0	19	68.9	12	83.2	13

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	97.0	54	115.4	164	91.6	44
2 – A583 Preston New Road (East) Right	33.5	3	72.6	7	40.8	4
3 – A583 Preston New Road (East) Left	20.6	3	40.1	5	43.2	6
4 – Cherry Tree Road North Right	46.6	4	40.5	4	52.3	5
5 – Cherry Tree Road North Left/Ahead	108.1	38	117.7	81	103.6	30
6 – A583 Preston New Road (West) Ahead	98.9	34	107.6	56	96.9	30
7 – A583 Preston New Road (West) Right	103.9	26	116.3	39	105.2	28
8 – A583 Preston New Road (West) Left/Ahead	106.8	56	116.2	81	104.6	47
9 – Preston Old Road Left/Ahead/Right	96.0	18	71.5	12	83.6	13

Table 7.3 - Junction 1 2027 Assessments - Results

It can be seen from Table 7.3 that in the 2027 Base several specific turning movements are overcapacity in all time periods; movements 7 and 8. Additionally in the PM and Saturday peak movement 5 is also overcapacity, while movement 1 and 5 are also overcapacity in the PM peak only.

Congestion on the turning movements outlined above increases within all development scenarios. Within Scenario A, movement 5 and 6 are overcapacity in all time periods. The same is true for scenario B with the addition of movement 9 becoming congested.

Scenarios C, D, E and F show the same capacity issues as within scenario B, although movement 1 is overcapacity within the AM peak in scenarios C and D and all time periods within scenarios E and F.

Taking into account the above, it is necessary to identify junction improvements for 2027.

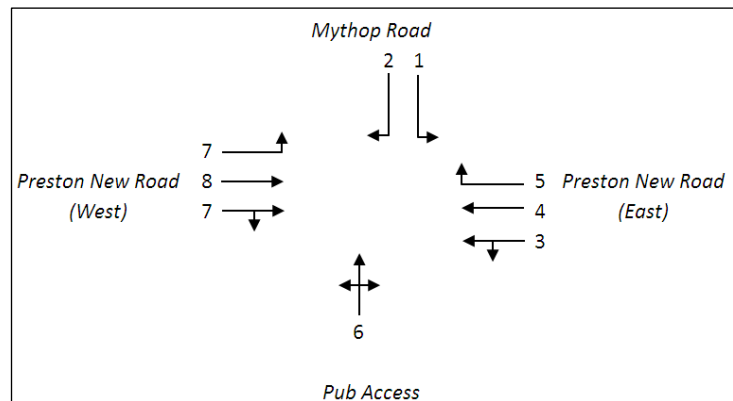
### Junction 1 Summary

Although no junction improvements are necessary for 2016, the above results and analysis shows that junction improvements are required for the 2021 and 2027 assessment years. Increased congestion from the Base is observed throughout the junction arms and turning movements.

## 7.4 Junction 2 - A583 Preston New Road / Mythop Road

Junction 2 is the three arm signalised junction of A583 Preston New Road / Mythop Road. This junction requires operational analysis in the following scenarios:

- 2016 – Base Development and Scenarios B, C, D, E, F; and
- 2021 – Base Development and Scenarios A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios A, B, C, D, E, F.



The results of this analysis are described in the Tables below:

### 2016 Assessments

Table 7.4 provides the results of the analysis undertaken in the 2016 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	115.5	57	116.8	40	115.0	48
2 – Mythop Road Right	22.7	2	62.3	5	35.2	3
3 – A583 Preston New Road (East) Left/Ahead	55.6	9	53.8	9	49.8	8
4 – A583 Preston New Road (East) Ahead	51.8	9	50.2	9	46.4	8
5 – A583 Preston New Road (East) Right	112.8	26	117.5	54	120.2	46
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	22.1	3	28.5	4	25.6	3
8 – A583 Preston New Road (West) Ahead	114.4	51	114.6	51	120.3	65
9 – A583 Preston New Road (West) Ahead/Right	114.4	51	114.6	51	120.3	65

Scenario B Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	122.9	74	118.4	43	121.7	60
2 – Mythop Road Right	23.6	2	62.3	5	36.9	3
3 – A583 Preston New Road (East) Left/Ahead	58.7	10	57.7	10	51.0	8
4 – A583 Preston New Road (East) Ahead	54.7	9	53.8	10	47.5	8
5 – A583 Preston New Road (East) Right	155.4	29	119.4	58	121.1	47



Scenario B	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	22.1	3	28.5	4	25.6	3
8 – A583 Preston New Road (West) Ahead	<b>119.9</b>	67	<b>120.5</b>	65	<b>119.5</b>	66
9 – A583 Preston New Road (West) Ahead/Right	<b>119.9</b>	67	<b>120.5</b>	65	<b>119.5</b>	66

Scenario C	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>122.9</b>	74	<b>118.4</b>	43	<b>122.0</b>	60
2 – Mythop Road Right	23.6	2	62.3	5	36.9	3
3 – A583 Preston New Road (East) Left/Ahead	58.7	10	57.7	10	51.0	8
4 – A583 Preston New Road (East) Ahead	54.7	9	53.8	10	47.5	8
5 – A583 Preston New Road (East) Right	<b>155.8</b>	29	<b>119.4</b>	58	<b>121.1</b>	47
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	22.1	3	28.5	4	25.6	3
8 – A583 Preston New Road (West) Ahead	<b>119.9</b>	67	<b>120.5</b>	65	<b>119.5</b>	66
9 – A583 Preston New Road (West) Ahead/Right	<b>119.9</b>	67	<b>120.5</b>	65	<b>119.5</b>	66

Scenario D	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>123.7</b>	76	<b>118.8</b>	43	<b>122.0</b>	60
2 – Mythop Road Right	23.6	2	62.3	5	36.9	3
3 – A583 Preston New Road (East) Left/Ahead	59.2	10	59.1	11	51.0	8
4 – A583 Preston New Road (East) Ahead	55.2	10	55.1	10	47.5	8
5 – A583 Preston New Road (East) Right	<b>116.2</b>	30	<b>120.3</b>	60	<b>121.1</b>	47
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	22.1	3	28.5	4	25.6	3
8 – A583 Preston New Road (West) Ahead	<b>123.1</b>	75	<b>121.4</b>	67	<b>119.5</b>	66
9 – A583 Preston New Road (West) Ahead/Right	<b>123.1</b>	75	<b>121.4</b>	67	<b>119.5</b>	66

Scenario E	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>123.7</b>	76	<b>118.8</b>	43	<b>122.0</b>	60
2 – Mythop Road Right	23.6	2	62.3	5	36.9	3

Scenario E	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
3 – A583 Preston New Road (East) Left/Ahead	59.2	10	59.0	11	51.0	8
4 – A583 Preston New Road (East) Ahead	55.2	10	55.0	10	47.5	8
5 – A583 Preston New Road (East) Right	<b>116.2</b>	30	<b>120.3</b>	60	<b>121.1</b>	47
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	22.1	3	28.5	4	25.6	3
8 – A583 Preston New Road (West) Ahead	<b>123.1</b>	75	<b>121.4</b>	67	<b>119.5</b>	66
9 – A583 Preston New Road (West) Ahead/Right	<b>123.1</b>	75	<b>121.4</b>	67	<b>119.5</b>	66

Scenario F	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>123.7</b>	76	<b>118.8</b>	43	<b>122.0</b>	60
2 – Mythop Road Right	23.6	2	62.3	5	36.9	3
3 – A583 Preston New Road (East) Left/Ahead	59.2	10	59.0	11	51.0	8
4 – A583 Preston New Road (East) Ahead	55.2	10	55.0	10	47.5	8
5 – A583 Preston New Road (East) Right	<b>116.2</b>	30	<b>120.3</b>	60	<b>121.1</b>	47
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	22.1	3	28.5	4	25.6	3
8 – A583 Preston New Road (West) Ahead	<b>123.1</b>	75	<b>121.4</b>	67	<b>119.5</b>	66
9 – A583 Preston New Road (West) Ahead/Right	<b>123.1</b>	75	<b>121.4</b>	67	<b>119.5</b>	66

Table 7.4 - Junction 2 2016 Assessments - Results

It can be seen from Table 7.4 that the junction is overcapacity in the 2016 Base. Congestion occurs for at least one turning movement from each arm in each time period except movement 6 for which no traffic flow has been modelled. Those movements experiencing congestion include 1, 5, 8 and 9.

The modelled congestion is exacerbated within all development scenarios and time periods, with the exception of movement 8 and 9 for which the DoS marginally decreases but is still overcapacity.

Taking into account the above, junction congestion mitigation measures need to be identified for the 2016 assessment year.

### 2021 Assessments

Table 7.5 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>126.7</b>	87	<b>128.8</b>	60	<b>129.1</b>	79

BASE Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
2 – Mythop Road Right	24.8	3	68.8	6	39.6	4
3 – A583 Preston New Road (East) Left/Ahead	60.9	10	59.3	11	55.8	9
4 – A583 Preston New Road (East) Ahead	56.8	10	55.3	10	52.0	9
5 – A583 Preston New Road (East) Right	<b>124.0</b>	39	<b>129.5</b>	81	<b>134.6</b>	70
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	24.3	3	31.5	4	28.7	4
8 – A583 Preston New Road (West) Ahead	<b>125.6</b>	78	<b>126.1</b>	79	<b>135.0</b>	101
9 – A583 Preston New Road (West) Ahead/Right	<b>125.6</b>	78	<b>126.1</b>	79	<b>135.0</b>	101

Scenario A Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>135.4</b>	107	<b>131.7</b>	65	<b>129.8</b>	80.6
2 – Mythop Road Right	25.9	3	68.8	6	39.6	3.8
3 – A583 Preston New Road (East) Left/Ahead	60.9	10	63.4	12	55.8	9.3
4 – A583 Preston New Road (East) Ahead	56.8	10	59.1	11	52.0	9.1
5 – A583 Preston New Road (East) Right	<b>127.8</b>	44	<b>133.1</b>	89	<b>135.9</b>	72.2
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0.0
7 – A583 Preston New Road (West) Left	24.3	3	31.5	4	28.7	3.5
8 – A583 Preston New Road (West) Ahead	<b>129.5</b>	91	<b>128.6</b>	85	<b>135.0</b>	100.5
9 – A583 Preston New Road (West) Ahead/Right	<b>129.5</b>	91	<b>128.6</b>	85	<b>135.0</b>	100.5

Scenario B Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>136.7</b>	110	<b>132.1</b>	66	<b>137.1</b>	93
2 – Mythop Road Right	25.9	3	68.8	6	41.6	4
3 – A583 Preston New Road (East) Left/Ahead	71.0	13	68.1	13	60.6	11
4 – A583 Preston New Road (East) Ahead	66.1	12	63.4	13	56.4	10
5 – A583 Preston New Road (East) Right	<b>129.7</b>	45	<b>140.8</b>	102	<b>136.5</b>	73
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	24.3	3	31	4	28.7	4
8 – A583 Preston New Road (West) Ahead	<b>139.1</b>	116	<b>135.6</b>	107	<b>138.4</b>	114
9 – A583 Preston New Road (West) Ahead/Right	<b>139.1</b>	116	<b>135.6</b>	107	<b>138.4</b>	114

Scenario C Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	137.1	111	133.7	69	131.3	84
2 – Mythop Road Right	25.9	3	68.9	6	39.6	4
3 – A583 Preston New Road (East) Left/Ahead	71.0	13	68.1	13	62.0	11
4 – A583 Preston New Road (East) Ahead	66.1	12	63.4	13	57.8	11
5 – A583 Preston New Road (East) Right	131.3	48	134.5	93	137.8	76
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	24.3	3	31.5	4	28.7	4
8 – A583 Preston New Road (West) Ahead	139.1	116	139.1	111	135.4	102
9 – A583 Preston New Road (West) Ahead/Right	139.1	116	139.1	111	135.4	102

Scenario D Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	145.8	128	143.6	81	137.8	94
2 – Mythop Road Right	27.0	3	73.3	7	41.6	4
3 – A583 Preston New Road (East) Left/Ahead	70.8	13	70.6	14	60.6	11
4 – A583 Preston New Road (East) Ahead	65.9	13	65.8	14	56.4	10
5 – A583 Preston New Road (East) Right	133.0	50	136.8	98	137.8	76
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	24.3	3	31.5	4	28.7	4
8 – A583 Preston New Road (West) Ahead	142.1	129.9	138.0	113	138.4	114
9 – A583 Preston New Road (West) Ahead/Right	142.1	129.9	138.0	113	138.4	114

Scenario E Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	146.0	129	144.3	82	138.4	96
2 – Mythop Road Right	27.0	3	73.3	7	41.6	4
3 – A583 Preston New Road (East) Left/Ahead	72.6	14	71.4	15	61.8	11
4 – A583 Preston New Road (East) Ahead	67.6	13	66.6	14	57.6	11
5 – A583 Preston New Road (East) Right	134.3	51	137.3	99	138.4	77
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	24.3	3	31.5	4	28.7	4
8 – A583 Preston New Road (West) Ahead	142.9	132	141.0	121	140.1	119

Scenario E		AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q	
9 – A583 Preston New Road (West) Ahead/Right	<b>142.9</b>	132	<b>141.0</b>	121	<b>140.1</b>	119	

Scenario F		AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q	
1 – Mythop Road Left	<b>146.0</b>	129	<b>136.3</b>	73	<b>138.6</b>	96	
2 – Mythop Road Right	27.0	3	68.8	6	41.6	4	
3 – A583 Preston New Road (East) Left/Ahead	74.4	14	73.8	15	63.0	11	
4 – A583 Preston New Road (East) Ahead	69.3	13	68.7	14	58.7	11	
5 – A583 Preston New Road (East) Right	<b>135.1</b>	53	<b>144.8</b>	110	<b>139.0</b>	78	
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0	
7 – A583 Preston New Road (West) Left	24.3	3	30.8	4	28.7	4	
8 – A583 Preston New Road (West) Ahead	<b>143.7</b>	134	<b>144.0</b>	129	<b>141.9</b>	123	
9 – A583 Preston New Road (West) Ahead/Right	<b>143.7</b>	134	<b>144.0</b>	129	<b>141.9</b>	123	

Table 7.5 - Junction 2 2021 Assessments - Results

It can be seen from Table 7.5 that the junction is overcapacity in the 2021 Base. Congestion occurs for at least one turning movement from each arm in each time period except movement 6 for which no traffic flow has been modelled. Those movements experiencing congestion include 1, 5, 8 and 9.

The modelled congestion is exacerbated within all development scenarios and time periods, with the exception of movement 8 and 9 within scenario A for which the DoS remains the same as the 2021 Base but is still overcapacity.

Taking into account the above, junction congestion mitigation measures need to be identified for the 2021 assessment year.

### 2027 Assessments

Table 7.6 provides the results of the analysis undertaken in the 2027 assessment year.

BASE		AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q	
1 – Mythop Road Left	<b>138.3</b>	119	<b>141.2</b>	82	<b>142.6</b>	110	
2 – Mythop Road Right	27.2	3	75.5	7	43.8	4	
3 – A583 Preston New Road (East) Left/Ahead	66.3	11	64.9	12	61.5	11	
4 – A583 Preston New Road (East) Ahead	61.8	11	60.5	12	57.3	10	
5 – A583 Preston New Road (East) Right	<b>135.1</b>	53	<b>141.8</b>	109	<b>149.1</b>	95	
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0	

BASE Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
7 – A583 Preston New Road (West) Left	26.5	3	34.5	4	31.9	4
8 – A583 Preston New Road (West) Ahead	<b>137.0</b>	106	<b>137.8</b>	108	<b>149.0</b>	135
9 – A583 Preston New Road (West) Ahead/Right	<b>137.0</b>	106	<b>137.8</b>	108	<b>149.0</b>	135

Scenario A Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>148.8</b>	142	<b>146.0</b>	90	<b>144.4</b>	114
2 – Mythop Road Right	28.3	3	75.5	7	43.8	4
3 – A583 Preston New Road (East) Left/Ahead	66.8	12	70.4	14	61.5	11
4 – A583 Preston New Road (East) Ahead	62.3	11	65.6	13	57.3	10
5 – A583 Preston New Road (East) Right	<b>142.0</b>	61	<b>147.0</b>	121	<b>151.3</b>	99
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	26.5	3	34.5	4	31.9	4
8 – A583 Preston New Road (West) Ahead	<b>143.7</b>	128	<b>141.3</b>	116	<b>149.0</b>	135
9 – A583 Preston New Road (West) Ahead/Right	<b>143.7</b>	128	<b>141.3</b>	116	<b>149.0</b>	135

Scenario B Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>150.1</b>	145	<b>155.8</b>	100	<b>152.1</b>	126
2 – Mythop Road Right	28.3	3	80.5	8	46.0	4
3 – A583 Preston New Road (East) Left/Ahead	84.8	18	76.0	17	70.7	14
4 – A583 Preston New Road (East) Ahead	78.9	16	70.8	15	65.9	13
5 – A583 Preston New Road (East) Right	<b>143.3</b>	63	<b>155.2</b>	133	<b>151.9</b>	100
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	26.5	3	33.7	4	31.9	4
8 – A583 Preston New Road (West) Ahead	<b>155.8</b>	160	<b>150.4</b>	153	<b>157.6</b>	164.7
9 – A583 Preston New Road (West) Ahead/Right	<b>155.8</b>	160	<b>150.4</b>	153	<b>157.6</b>	164.7

Scenario C Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>150.8</b>	147	<b>148.9</b>	95	<b>153.7</b>	129
2 – Mythop Road Right	28.3	3	75.5	7	46.0	4
3 – A583 Preston New Road (East) Left/Ahead	84.1	18	77.7	17	70.7	14

Scenario C	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
4 – A583 Preston New Road (East) Ahead	78.4	16	72.4	16	65.9	13
5 – A583 Preston New Road (East) Right	<b>147.6</b>	68	<b>156.7</b>	137	<b>154.1</b>	104
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	26.5	3	33.7	4	31.9	4
8 – A583 Preston New Road (West) Ahead	<b>155.8</b>	160	<b>157.6</b>	165	<b>157.6</b>	165
9 – A583 Preston New Road (West) Ahead/Right	<b>155.8</b>	160	<b>157.6</b>	165	<b>157.6</b>	165

Scenario D	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>160.9</b>	166	<b>160.3</b>	108	<b>153.7</b>	129
2 – Mythop Road Right	29.5	3	80.5	8	46.0	4
3 – A583 Preston New Road (East) Left/Ahead	84.1	18	81.3	19	70.7	14
4 – A583 Preston New Road (East) Ahead	78.3	17	75.8	17	65.9	13
5 – A583 Preston New Road (East) Right	<b>149.7</b>	71	<b>160.2</b>	144	<b>154.1</b>	104
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	26.5	3	33.7	4	31.9	4
8 – A583 Preston New Road (West) Ahead	<b>161.2</b>	183	<b>153.5</b>	161	<b>157.6</b>	165
9 – A583 Preston New Road (West) Ahead/Right	<b>161.2</b>	183	<b>153.5</b>	161	<b>157.6</b>	165

Scenario E	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	<b>161.4</b>	168	<b>162.3</b>	111	<b>154.5</b>	131
2 – Mythop Road Right	29.5	3	80.5	8	46.0	4
3 – A583 Preston New Road (East) Left/Ahead	88.1	20	83.1	20	73.4	14
4 – A583 Preston New Road (East) Ahead	82.1	18	77.4	18	68.4	14
5 – A583 Preston New Road (East) Right	<b>152.3</b>	74	<b>160.9</b>	146	<b>155.4</b>	106
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	26.5	3	33.7	4	31.9	4
8 – A583 Preston New Road (West) Ahead	<b>163.0</b>	188	<b>159.7</b>	178	<b>161.6</b>	175
9 – A583 Preston New Road (West) Ahead/Right	<b>163.0</b>	188	<b>159.7</b>	178	<b>161.6</b>	175

Scenario F	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q

Scenario F Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Mythop Road Left	161.6	168	164.1	114	163.4	143
2 – Mythop Road Right	0.0	0	80.5	7	48.4	5
3 – A583 Preston New Road (East) Left/Ahead	92.2	23	84.9	21	74.3	15
4 – A583 Preston New Road (East) Ahead	85.9	20	79.1	19	69.3	14
5 – A583 Preston New Road (East) Right	154.9	77	161.7	148	157.0	109
6 – Pub Access Left/Ahead/Right	0.0	0	0.0	0	0.0	0
7 – A583 Preston New Road (West) Left	26.5	3	33.7	4	31.9	4
8 – A583 Preston New Road (West) Ahead	164.8	192	165.9	196	158.0	174
9 – A583 Preston New Road (West) Ahead/Right	164.8	192	165.9	196	158.0	174

Table 7.6 - Junction 2 2027 Assessments - Results

It can be seen from Table 7.6 that the junction is overcapacity in the 2027 Base. Congestion occurs for at least one turning movement from each arm in each time period except movement 6 for which no traffic flow has been modelled. Those movements experiencing congestion include 1, 5, 8 and 9.

The modelled congestion is exacerbated within all development scenarios and time periods, with the exception of 8 and 9 within scenario A for which the DoS remains the same as the 2027 Base but is still overcapacity. Additionally, movement 3 becomes congested in the AM peak within scenario F.

Taking into account the above, junction congestion mitigation measures need to be identified for the 2027 assessment year.

### Junction 2 Summary

Junction 2 is overcapacity in the Base for all assessment years. This congestion is exacerbated by each development scenario for the vast majority of turning movements. Only movement 3 (Preston New Road South Left Ahead) becomes congested in the 2027 AM peak within scenario F.

Taking into account the above, it is necessary to identify junction improvements for all assessment years.

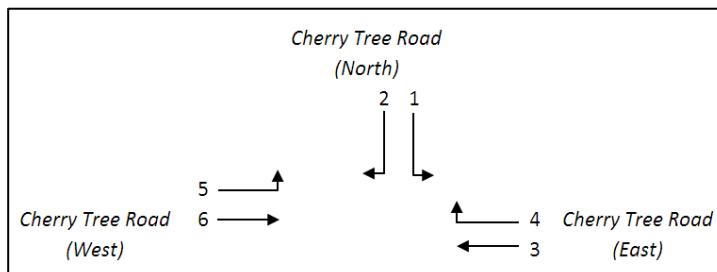


## 7.5 Junction 3 - Cherry Tree Road / Cherry Tree Road North

Junction 3 is the three arm signalised junction of Cherry Tree Road / Cherry Tree Road North. This junction requires operational analysis in the following scenarios:

- 2021 – Base Development and Scenarios C, D, E, F: and
- 2027 – Base Development and Scenarios A, C, D, E, F.

The results of this analysis are described in the Tables below:



### 2021 Assessments

Table 7.7 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	29.2	3	29.9	3	30.2	3
2 – Cherry Tree Road North Right	50.7	4	52.6	4	52.6	4
3 – Cherry Tree Road (East) Ahead	40.2	2	40.7	2	55.6	3
4 – Cherry Tree Road (East) Right	47.8	3	52.6	3	40.6	2
5 – Cherry Tree Road (West) Left	35.0	3	51.7	4	42.0	3
6 – Cherry Tree Road (West) Ahead	50.1	3	48.8	3	47.8	3

Scenario C	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	30.1	3	31.7	3	32.2	3
2 – Cherry Tree Road North Right	54.9	4	56.7	4	56.1	4
3 – Cherry Tree Road (East) Ahead	43.6	2	43.3	1	52.5	3
4 – Cherry Tree Road (East) Right	50.6	3	52.6	3	46.9	2
5 – Cherry Tree Road (West) Left	35.0	3	51.7	4	39.5	3
6 – Cherry Tree Road (West) Ahead	51.1	3	51.5	3	44.4	3

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	30.1	3	31.8	3	32.2	3
2 – Cherry Tree Road North Right	54.9	4	56.7	4	56.1	4
3 – Cherry Tree Road (East) Ahead	43.6	2	43.7	2	52.5	3
4 – Cherry Tree Road (East) Right	50.9	3	53.4	4	46.9	1
5 – Cherry Tree Road (West) Left	35.0	3	51.7	4	39.5	3

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
6 – Cherry Tree Road (West) Ahead	51.4	3	51.5	3	44.4	3

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	30.1	3	31.8	3	32.2	3
2 – Cherry Tree Road North Right	54.9	4	56.7	4	56.1	4
3 – Cherry Tree Road (East) Ahead	44.5	3	44.1	2	52.8	3
4 – Cherry Tree Road (East) Right	50.9	3	53.4	4	46.9	2
5 – Cherry Tree Road (West) Left	35.0	3	51.7	4	39.5	3
6 – Cherry Tree Road (West) Ahead	51.7	3	52.5	3	44.7	3

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	30.1	3	31.8	3	32.2	3
2 – Cherry Tree Road North Right	54.9	4	56.7	4	56.1	4
3 – Cherry Tree Road (East) Ahead	45.4	3	44.5	2	53.4	3
4 – Cherry Tree Road (East) Right	50.9	3	53.4	4	46.9	2
5 – Cherry Tree Road (West) Left	35.0	3	51.7	4	39.5	3
6 – Cherry Tree Road (West) Ahead	51.9	3	53.2	3	45.2	3

Table 7.7 - Junction 3 2021 Assessments - Results

It can be seen from Table 7.7 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2021.

### 2027 Assessments

Table 7.8 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	32.0	3	32.7	1	33.4	3
2 – Cherry Tree Road North Right	55.5	4	57.7	2	58.2	5
3 – Cherry Tree Road (East) Ahead	43.9	2	44.9	1	61.7	4
4 – Cherry Tree Road (East) Right	52.2	3	57.7	2	44.9	2
5 – Cherry Tree Road (West) Left	38.2	3	56.8	2	46.4	4
6 – Cherry Tree Road (West) Ahead	54.6	4	53.2	2	52.9	3

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ

Scenario A	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	32.6	3	36.8	3	36.0	3
2 – Cherry Tree Road North Right	60.1	4	62.1	5	58.2	5
3 – Cherry Tree Road (East) Ahead	49.4	3	45.6	2	62.1	4
4 – Cherry Tree Road (East) Right	57.6	4	62	4	59.4	3
5 – Cherry Tree Road (West) Left	40.6	3	57	4	46.4	4
6 – Cherry Tree Road (West) Ahead	61.3	4	54	3	53.2	3

Scenario C	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	32.6	3	36.8	3	37.0	4
2 – Cherry Tree Road North Right	60.1	4	62.1	5	62.1	5
3 – Cherry Tree Road (East) Ahead	55.6	3	48.7	2	59.5	4
4 – Cherry Tree Road (East) Right	57.6	4	61.5	4	59.4	3
5 – Cherry Tree Road (West) Left	40.6	3	56.8	4	43.7	3
6 – Cherry Tree Road (West) Ahead	62.5	4	58.5	3	50.1	3

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	32.8	3	36.8	3	37.0	4
2 – Cherry Tree Road North Right	60.1	4	62.1	5	62.1	5
3 – Cherry Tree Road (East) Ahead	55.9	3	49.5	2	59.5	4
4 – Cherry Tree Road (East) Right	58.1	4	62.8	4	59.4	3
5 – Cherry Tree Road (West) Left	40.6	3	56.8	4	43.7	3
6 – Cherry Tree Road (West) Ahead	63.1	4	58.9	3	50.1	3

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	33.7	3	36.8	3	37.0	4
2 – Cherry Tree Road North Right	60.1	4	62.1	5	62.1	5
3 – Cherry Tree Road (East) Ahead	51.9	3	50.6	3	60.8	4
4 – Cherry Tree Road (East) Right	63.4	4	62.8	4	59.4	3
5 – Cherry Tree Road (West) Left	38.2	3	56.8	4	43.7	3
6 – Cherry Tree Road (West) Ahead	57.3	4	60.6	4	50.9	3

Scenario F	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ

Scenario F Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Cherry Tree Road North Left	33.7	3	36.8	3	37.0	4
2 – Cherry Tree Road North Right	60.1	4	62.1	5	62.1	5
3 – Cherry Tree Road (East) Ahead	53.7	3	51.8	3	62.0	4
4 – Cherry Tree Road (East) Right	63.4	4	62.8	4	59.4	3
5 – Cherry Tree Road (West) Left	38.2	3	56.8	4	43.7	3
6 – Cherry Tree Road (West) Ahead	57.6	4	62.2	4	51.7	3

Table 7.8 - Junction 3 2027 Assessments - Results

It can be seen from Table 7.8 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2027.

### Junction 3 Summary

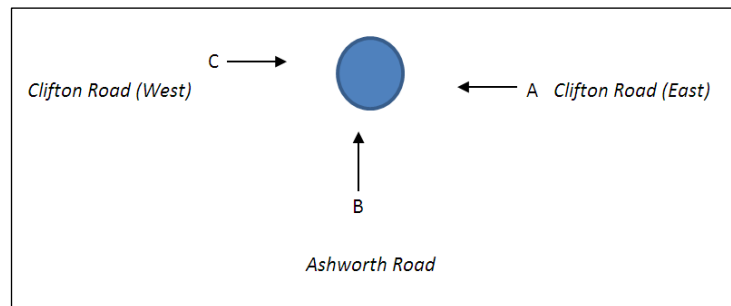
In all instances of the analysis, junction 3 can be seen to be operating satisfactorily. Further consideration of the junction is therefore not required.

## 7.6 Junction 4 - Ashworth Road / Clifton Road

Junction 4 is the three arm mini roundabout junction of Clifton Road / Ashworth Road. This junction requires operational analysis in the following scenarios:

- 2021 – Base and Development Scenarios A, C, D, E, F; and
- 2027 – Base and Development Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report.



It should be noted that the following analysis was based on data available at the time of the study. As part of Transport Assessments supporting Planning Applications, base models will need to be fully validated against queue data. This step in the process has not been undertaken as part of the study and as such the detail of the following analysis should be considered with a degree of caution.

### 2021 Assessments

Table 7.9 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.31	0	0.30	0	0.36	1
B – Ashworth Road	0.48	1	0.52	1	0.49	1
C – Clifton Road (West)	0.40	1	0.43	1	0.44	1

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.31	0	0.32	0	0.37	1
B – Ashworth Road	0.54	1	0.56	1	0.53	1
C – Clifton Road (West)	0.42	1	0.46	1	0.46	1

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.35	1	0.34	1	0.40	1
B – Ashworth Road	0.55	1	0.57	1	0.54	1
C – Clifton Road (West)	0.43	1	0.48	1	0.47	1

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.35	1	0.34	1	0.40	1

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
B – Ashworth Road	0.55	1	0.58	1	0.54	1
C – Clifton Road (West)	0.43	1	0.48	1	0.47	1

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.36	1	0.35	1	0.41	1
B – Ashworth Road	0.55	1	0.58	1	0.54	1
C – Clifton Road (West)	0.43	1	0.49	1	0.47	1

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.36	1	0.35	1	0.41	1
B – Ashworth Road	0.55	1	0.58	1	0.54	1
C – Clifton Road (West)	0.43	1	0.49	1	0.47	1

Table 7.9 - Junction 4 2021 Assessments - Results

It can be seen from Table 7.9 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2021.

### 2027 Assessments

Table 7.10 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.34	1	0.34	1	0.41	1
B – Ashworth Road	0.53	1	0.58	1	0.55	1
C – Clifton Road (West)	0.45	1	0.48	1	0.50	1

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.35	1	0.38	1	0.44	1
B – Ashworth Road	0.64	2	0.65	2	0.63	2
C – Clifton Road (West)	0.48	1	0.55	1	0.54	1

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.42	1	0.37	1	0.46	1
B – Ashworth Road	0.55	1	0.62	2	0.57	1

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
C – Clifton Road (West)	0.46	1	0.52	1	0.51	1

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.43	1	0.42	1	0.49	1
B – Ashworth Road	0.67	2	0.68	2	0.65	2
C – Clifton Road (West)	0.49	1	0.58	1	0.56	1

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.43	1	0.42	1	0.49	1
B – Ashworth Road	0.67	2	0.69	2	0.65	2
C – Clifton Road (West)	0.49	1	0.59	1	0.56	1

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.45	1	0.43	1	0.51	1
B – Ashworth Road	0.68	2	0.69	2	0.67	2
C – Clifton Road (West)	0.49	1	0.60	1	0.57	1

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
A – Clifton Road (East)	0.45	1	0.43	1	0.51	1
B – Ashworth Road	0.68	2	0.69	2	0.67	2
C – Clifton Road (West)	0.49	1	0.60	1	0.57	1

Table 7.10 - Junction 4 2027 Assessments - Results

It can be seen from Table 7.10 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2027.

#### Junction 4 Summary

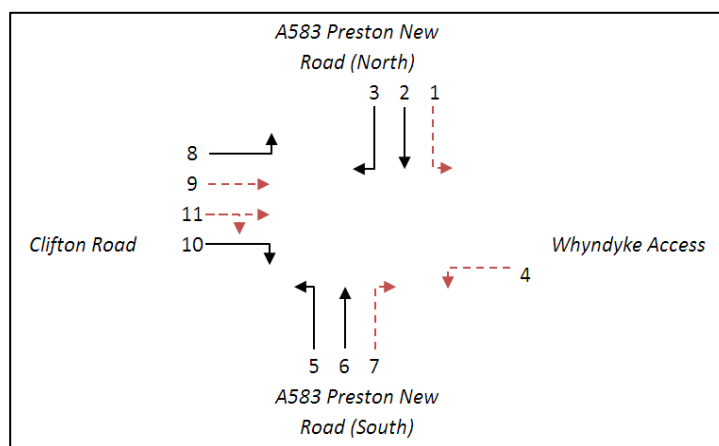
In all instances of the analysis, junction 4 can be seen to be operating satisfactorily. Further consideration of the junction is therefore not required.

## 7.7 Junction 5 – A583 Preston New Road / Clifton Road

Junction 5 is the four arm signalised junction of Clifton Road / Preston New Road. This junction requires operational analysis in the following scenarios:

- 2016 – Base Development and Scenarios B, C, D, E, F; and
- 2021 – Base Development and Scenarios A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios A, B, C, D, E, F.

The results of this analysis are described in the Tables below:



### 2016 Assessments

Table 7.11 provides the results of the analysis undertaken in the 2016 assessment year.

It should be noted that there is a scheme associated with the Whyndyke proposals for this junction. While the base and scenario A tests are therefore founded on the current junction arrangement, all other scenarios assume this junction scheme in place.

BASE Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left						
2 – A583 Preston New Road (North) Ahead	32.2	13	38.4	16	33.2	14
3 – A583 Preston New Road (North) Right	53.1	5	77.0	6	59.9	5
4 – Whyndyke Access Left						
5 – A583 Preston New Road (South) Left	23.1	3	23.6	3	23.4	3
6 – A583 Preston New Road (South) Ahead	53.5	19	75.1	29	59.6	22
7 – A583 Preston New Road (South) Right						
8 – Clifton Road Left	21.6	2	58.5	8	43.4	4
9 – Clifton Road Ahead						
10 – Clifton Road Right	53.7	4	74.9	11	60.9	6
11 – Clifton Road Ahead/Right						

Scenario B Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	77.4	32	82.8	31	77.2	31



Scenario B	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
3 – A583 Preston New Road (North) Right	72.3	5	84.7	7	74.8	6
4 – Whyndyke Access Left	19.9	2	16.4	1	13.4	1
5 – A583 Preston New Road (South) Left	21.7	2	23.3	3	22.3	3
6 – A583 Preston New Road (South) Ahead	59.6	21	86.6	33	64.4	24
7 – A583 Preston New Road (South) Right	18.0	2	10.9	1	10.1	1
8 – Clifton Road Left	31.6	2	83.6	11	70.1	6
9 – Clifton Road Ahead	3.7	0	2.9	0	4.3	0
10 – Clifton Road Right	47.0	2	58.6	5	60.9	3
11 – Clifton Road Ahead/Right	47.0	2	58.6	5	60.9	3

Scenario C	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	77.4	32	82.9	31	77.3	31
3 – A583 Preston New Road (North) Right	72.3	5	84.7	7	74.8	6
4 – Whyndyke Access Left	19.6	2	16.1	1	13.4	1
5 – A583 Preston New Road (South) Left	21.7	2	23.3	3	22.3	3
6 – A583 Preston New Road (South) Ahead	59.6	21	86.6	33	64.4	24
7 – A583 Preston New Road (South) Right	17.8	2	10.7	1	9.9	1
8 – Clifton Road Left	31.6	2	83.6	11	70.1	6
9 – Clifton Road Ahead	2.7	0	2.9	0	3.7	0
10 – Clifton Road Right	47.0	2	58.6	5	60.9	3
11 – Clifton Road Ahead/Right	47.0	2	58.6	5	60.9	3

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	79.3	33	81.0	30	77.3	31
3 – A583 Preston New Road (North) Right	72.3	5	84.7	7	74.8	6
4 – Whyndyke Access Left	19.6	2	16.1	1	13.4	1
5 – A583 Preston New Road (South) Left	21.7	2	23.3	3	22.3	3
6 – A583 Preston New Road (South) Ahead	60.2	22	86.0	34	64.4	24
7 – A583 Preston New Road (South) Right	17.8	2	10.7	1	9.9	1
8 – Clifton Road Left	31.6	2	87.8	12	70.1	6

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
9 – Clifton Road Ahead	2.7	0	3.1	0	3.7	0
10 – Clifton Road Right	47.0	2	62.6	6	60.9	3
11 – Clifton Road Ahead/Right	47.0	2	62.6	6	60.9	3

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	79.3	33	81.0	30	77.3	31
3 – A583 Preston New Road (North) Right	72.3	5	84.7	7	74.8	6
4 – Whyndyke Access Left	19.6	2	16.1	1	13.1	1
5 – A583 Preston New Road (South) Left	21.7	2	23.3	3	22.3	3
6 – A583 Preston New Road (South) Ahead	60.2	22	86.0	34	64.4	24
7 – A583 Preston New Road (South) Right	17.6	2	10.7	1	9.9	1
8 – Clifton Road Left	31.6	2	87.8	12	70.1	6
9 – Clifton Road Ahead	2.1	0	3.1	0	3.7	0
10 – Clifton Road Right	47.0	2	62.4	6	60.9	3
11 – Clifton Road Ahead/Right	47.0	2	62.4	6	60.9	3

Scenario F	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	79.3	33	81.0	30	77.3	31
3 – A583 Preston New Road (North) Right	72.3	5	84.7	7	74.8	6
4 – Whyndyke Access Left	19.6	2	16.1	1	13.1	1
5 – A583 Preston New Road (South) Left	21.7	2	23.3	3	22.3	3
6 – A583 Preston New Road (South) Ahead	60.2	22	86.0	34	64.4	24
7 – A583 Preston New Road (South) Right	17.6	2	10.7	1	9.9	1
8 – Clifton Road Left	31.6	2	87.8	12	0.0	0
9 – Clifton Road Ahead	2.1	0	3.1	0	0.0	0
10 – Clifton Road Right	47.0	2	62.4	6	0.0	0
11 – Clifton Road Ahead/Right	47.0	2	62.4	6	0.0	0

Table 7.11 - Junction 5 2016 Assessments - Results

It can be seen from Table 7.11 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2016.

## 2021 Assessments

Table 7.12 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left						
2 – A583 Preston New Road (North) Ahead	35.3	15	38.3	18	37.8	17
3 – A583 Preston New Road (North) Right	58.3	5	85.0	7	63.1	6
4 – Whyndyke Access Left						
5 – A583 Preston New Road (South) Left	25.3	3	26.0	3	26.7	4
6 – A583 Preston New Road (South) Ahead	58.6	22	82.7	33	66.0	25
7 – A583 Preston New Road (South) Right						
8 – Clifton Road Left	23.6	2	64.5	10	46.6	5
9 – Clifton Road Ahead						
10 – Clifton Road Right	58.9	5	82.7	13	64.3	6
11 – Clifton Road Ahead/Right						

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left						
2 – A583 Preston New Road (North) Ahead	37.9	16	38.5	18	37.9	17
3 – A583 Preston New Road (North) Right	58.3	5	85.0	7	63.1	6
4 – Whyndyke Access Left						
5 – A583 Preston New Road (South) Left	25.4	3	26.1	3	26.7	4
6 – A583 Preston New Road (South) Ahead	60.5	23	86.1	37	66.2	25
7 – A583 Preston New Road (South) Right						
8 – Clifton Road Left	23.6	2	66.8	10	46.6	5
9 – Clifton Road Ahead						
10 – Clifton Road Right	59.5	5	86.2	14	64.3	6
11 – Clifton Road Ahead/Right						

Scenario B	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	86.5	40	89.5	36	86.7	38
3 – A583 Preston New Road (North) Right	87.5	8	93.5	9	84.2	8
4 – Whyndyke Access Left	46.8	4	28.1	2	31.9	3

Scenario B	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
5 – A583 Preston New Road (South) Left	23.5	3	25.7	3	25.1	3
6 – A583 Preston New Road (South) Ahead	64.7	24	96.3	46	67.7	25
7 – A583 Preston New Road (South) Right	23.9	3	27.3	3	18.2	2
8 – Clifton Road Left	34.5	2	96.8	17	78.9	7
9 – Clifton Road Ahead	7.5	0	10.5	1	12.3	1
10 – Clifton Road Right	51.8	3	68.9	6	68.3	4
11 – Clifton Road Ahead/Right	51.8	3	68.9	6	68.3	4

Scenario C	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	86.6	40	89.9	37	86.9	38
3 – A583 Preston New Road (North) Right	87.5	8	93.5	9	84.2	8
4 – Whyndyke Access Left	46.5	4	28.1	2	31.6	3
5 – A583 Preston New Road (South) Left	23.5	3	25.7	3	25.1	3
6 – A583 Preston New Road (South) Ahead	64.9	25	96.5	47	67.9	25
7 – A583 Preston New Road (South) Right	23.7	3	27.3	3	18.0	2
8 – Clifton Road Left	34.5	2	96.8	17	78.9	7
9 – Clifton Road Ahead	5.9	1	10.3	1	11.8	1
10 – Clifton Road Right	51.8	3	68.9	6	68.3	4
11 – Clifton Road Ahead/Right	51.8	3	68.9	6	68.3	4

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	92.2	46	88.8	37	86.9	38
3 – A583 Preston New Road (North) Right	87.5	8	93.5	9	84.2	8
4 – Whyndyke Access Left	46.5	4	28.1	2	31.6	3
5 – A583 Preston New Road (South) Left	23.5	3	25.7	3	25.1	3
6 – A583 Preston New Road (South) Ahead	66.6	26	99.5	57	67.9	25
7 – A583 Preston New Road (South) Right	23.7	3	27.3	3	18.0	2
8 – Clifton Road Left	34.5	2	101.9	23	78.9	7
9 – Clifton Road Ahead	5.9	0	11.0	1	11.8	1
10 – Clifton Road Right	51.8	3	73.9	7	68.3	4

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
11 – Clifton Road Ahead/Right	51.8	3	73.9	7	68.3	4

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	92.7	47	90.8	39	87.9	39
3 – A583 Preston New Road (North) Right	87.5	8	93.5	9	84.2	8
4 – Whyndyke Access Left	46.5	4	27.8	2	31.6	3
5 – A583 Preston New Road (South) Left	24.2	2.8	26.0	3	25.7	3
6 – A583 Preston New Road (South) Ahead	68.4	26	100.6	62	69.3	26
7 – A583 Preston New Road (South) Right	23.5	3	27.3	3	18.0	2
8 – Clifton Road Left	34.5	2	101.9	23	78.9	7
9 – Clifton Road Ahead	5.9	0	11.0	1	11.8	1
10 – Clifton Road Right	52.4	3	75.5	7	70.0	4
11 – Clifton Road Ahead/Right	52.4	3	75.5	7	70.0	4

Scenario F	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	93.2	47	92.7	41	88.9	40
3 – A583 Preston New Road (North) Right	87.5	8	93.5	9	84.2	8
4 – Whyndyke Access Left	46.5	4	27.8	2	31.6	3
5 – A583 Preston New Road (South) Left	25.0	3	26.5	3	26.3	3
6 – A583 Preston New Road (South) Ahead	70.2	28	101.7	69	70.7	27
7 – A583 Preston New Road (South) Right	23.5	3	27.3	3	18.0	2
8 – Clifton Road Left	34.5	2	101.9	23	78.9	7
9 – Clifton Road Ahead	5.9	0	11.0	1	11.8	1
10 – Clifton Road Right	53.2	3	77.1	7	71.7	4
11 – Clifton Road Ahead/Right	53.2	3	77.1	7	71.7	4

Table 7.12 - Junction 5 2021 Assessments - Results

Table 7.12 indicates that the junction is operating satisfactorily within the 2021 Base. This is also true within development scenario A.

Within development scenarios B, C, D, E and F movements 3, 6 and 8 become congested in the PM peak. Additionally, movement 2 becomes congested within the PM peak in scenarios E and F. Further, movement 2 is also overcapacity within scenario D, E and F.

Taking into account the above, it is necessary to identify junction improvement measures in 2021. Schemes identified should focus on the A538 and Clifton Road.

## 2027 Assessments

Table 7.13 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left						
2 – A583 Preston New Road (North) Ahead	38.6	16	41.9	21	41.8	19
3 – A583 Preston New Road (North) Right	63.6	6	85.7	8	69.8	7
4 – Whyndyke Access Left						
5 – A583 Preston New Road (South) Left	27.7	4	29.0	4	29.6	4
6 – A583 Preston New Road (South) Ahead	63.8	25	93.1	43	70.5	27
7 – A583 Preston New Road (South) Right						
8 – Clifton Road Left	25.9	2	70.7	11	51.6	6
9 – Clifton Road Ahead						
10 – Clifton Road Right	64.4	6	90.7	16	71.3	7
11 – Clifton Road Ahead/Right						

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left						
2 – A583 Preston New Road (North) Ahead	42.0	19	42.4	21	41.9	19
3 – A583 Preston New Road (North) Right	63.6	6	93.5	10	69.8	7
4 – Whyndyke Access Left						
5 – A583 Preston New Road (South) Left	27.7	4	28.6	4	29.6	4
6 – A583 Preston New Road (South) Ahead	66.5	26	95.7	49	70.9	28
7 – A583 Preston New Road (South) Right						
8 – Clifton Road Left	25.9	2	73.2	11	51.6	6
9 – Clifton Road Ahead						
10 – Clifton Road Right	65.1	6	94.5	18	71.3	7
11 – Clifton Road Ahead/Right						

Scenario B	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	95.8	52	98.3	52	95.7	50

Scenario B	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
3 – A583 Preston New Road (North) Right	95.4	10	102.8	15	93.1	10
4 – Whyndyke Access Left	79.2	8	42.4	4	53.8	5
5 – A583 Preston New Road (South) Left	25.6	3	28.1	3	27.8	3
6 – A583 Preston New Road (South) Ahead	70.9	28	106.9	104	72.4	28
7 – A583 Preston New Road (South) Right	28.9	3	47.1	5	27.9	4
8 – Clifton Road Left	37.8	3	106.1	31	87.3	9
9 – Clifton Road Ahead	11.8	1	19.4	2	22.4	1
10 – Clifton Road Right	56.4	3	75.6	7	75.7	5
11 – Clifton Road Ahead/Right	56.4	3	75.6	7	75.7	5

Scenario C	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	95.9	53	99.0	54	96.1	51
3 – A583 Preston New Road (North) Right	95.4	10	102.8	15	93.1	10
4 – Whyndyke Access Left	79.2	8	42.1	4	53.8	5
5 – A583 Preston New Road (South) Left	25.6	3	28.1	3	27.8	3
6 – A583 Preston New Road (South) Ahead	71.5	28	107.3	107	72.8	28
7 – A583 Preston New Road (South) Right	28.5	3	47.1	5	27.7	3
8 – Clifton Road Left	37.8	3	106.1	31	87.3	9
9 – Clifton Road Ahead	10.2	1	19.1	2	21.4	1
10 – Clifton Road Right	56.4	3	75.6	7	75.7	5
11 – Clifton Road Ahead/Right	56.4	3	75.6	7	75.7	5

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	103.5	94	98.3	53	96.1	51
3 – A583 Preston New Road (North) Right	95.4	10	102.8	15	93.1	10
4 – Whyndyke Access Left	79.2	8	42.1	4	53.8	5
5 – A583 Preston New Road (South) Left	25.7	3	28.1	3	27.8	3
6 – A583 Preston New Road (South) Ahead	73.6	30	111.9	148	72.8	28
7 – A583 Preston New Road (South) Right	28.5	3	47.1	5	27.7	3
8 – Clifton Road Left	37.8	3	111.7	40	87.3	9

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
9 – Clifton Road Ahead	10.2	1	20.5	2	21.4	1
10 – Clifton Road Right	56.6	3	81.0	8	75.7	5
11 – Clifton Road Ahead/Right	56.6	3	81.0	8	75.7	5

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	104.5	103	99.6	59	98.4	58
3 – A583 Preston New Road (North) Right	95.4	10	114.3	23	93.1	10
4 – Whyndyke Access Left	78.9	8	41.8	4	53.5	5
5 – A583 Preston New Road (South) Left	27.4	3	28.5	3	29.0	4
6 – A583 Preston New Road (South) Ahead	77.6	32	111.0	145	75.8	30
7 – A583 Preston New Road (South) Right	28.5	3	52.1	5	27.7	3
8 – Clifton Road Left	37.8	3	111.7	40	87.3	9
9 – Clifton Road Ahead	9.6	1	20.5	2	21.4	1
10 – Clifton Road Right	58.1	3	84.4	9	79.4	5
11 – Clifton Road Ahead/Right	58.1	3	84.4	9	79.4	5

Scenario F	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (North) Left	0.0	0	0.0	0	0.0	0
2 – A583 Preston New Road (North) Ahead	105.6	112	103.7	85	100.8	70
3 – A583 Preston New Road (North) Right	95.4	10	114.3	23	93.1	10
4 – Whyndyke Access Left	78.9	8	41.8	4	53.5	5
5 – A583 Preston New Road (South) Left	29.0	3	29.4	3	30.3	4
6 – A583 Preston New Road (South) Ahead	81.6	35	113.4	166	78.9	32
7 – A583 Preston New Road (South) Right	28.5	3	52.1	5	27.7	3
8 – Clifton Road Left	37.8	3	111.7	40	87.3	9
9 – Clifton Road Ahead	9.6	1	20.5	2	21.4	1
10 – Clifton Road Right	60.1	3	88.0	10	83.1	6
11 – Clifton Road Ahead/Right	60.1	3	88.0	10	83.1	6

Table 7.13 - Junction 5 2027 Assessments - Results



Table 7.13 indicates that the junction is overcapacity in the 2027 PM Base in regards to movements 6 and 10. Congestion on movement 6 is accentuated within all scenarios, whilst movement 10 operates satisfactorily.

Within scenarios B, C, D, E and F movements 2 and 3 become congested in all time periods, whilst movement 8 becomes congested in the PM peak only. Within scenario A, only movement 2 becomes congested in the PM peak.

Taking into account the above, it is necessary to identify junction improvement measures in 2027. Schemes identified should focus on the A538 and Clifton Road.

### **Junction 5 Summary**

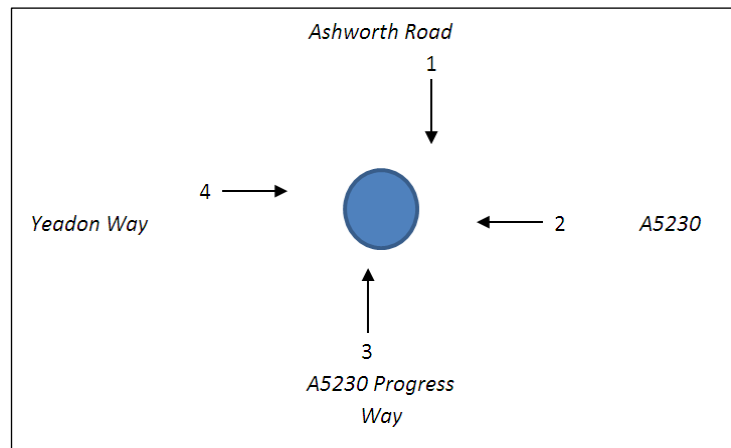
Junction 5 operates satisfactorily in 2016, but is overcapacity in the 2021 and 2027 assessment years. Junction improvement schemes will therefore be identified for the 2021 and 2027 assessment years, focusing on the A538 and Clifton Road arms.

## 7.8 Junction 6 - Yeadon Way / A5230 Progress Way

Junction 6 is the four arm roundabout junction of Yeadon Way / Progress Way. This junction requires operational analysis in the following scenarios:

- 2016 – Base Development and Scenarios B, C, D, E, F; and
- 2021 – Base Development and Scenarios A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report.



It should be noted that the following analysis was based on data available at the time of the study. As part of Transport Assessments supporting Planning Applications, base models will need to be fully validated against queue data. This step in the process has not been undertaken as part of the study and as such the detail of the following analysis should be considered with a degree of caution.

### 2016 Assessments

Table 7.14 provides the results of the analysis undertaken in the 2016 assessment year.

BASE Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.33	0	0.31	0	0.34	1
2 – A5230 (East)	0.67	2	0.67	2	0.71	2
3 – A5230 Progress Way (South)	0.42	1	0.38	1	0.38	1
4 – Yeadon Way (West)	0.51	1	0.52	1	0.52	1

Scenario B Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.34	1	0.32	0	0.34	1
2 – A5230 (East)	0.67	2	0.67	2	0.71	2
3 – A5230 Progress Way (South)	0.43	1	0.39	1	0.39	1
4 – Yeadon Way (West)	0.52	1	0.52	1	0.53	1

Scenario C Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.34	1	0.32	0	0.34	1

Scenario C	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
2 – A5230 (East)	0.67	2	0.67	2	0.71	2
3 – A5230 Progress Way (South)	0.44	1	0.39	1	0.39	1
4 – Yeadon Way (West)	0.52	1	0.52	1	0.53	1

Scenario D	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.34	1	0.32	0	0.34	1
2 – A5230 (East)	0.67	2	0.67	2	0.71	2
3 – A5230 Progress Way (South)	0.44	1	0.39	1	0.39	1
4 – Yeadon Way (West)	0.53	1	0.52	1	0.53	1

Scenario E	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.34	1	0.32	0	0.34	1
2 – A5230 (East)	0.67	2	0.67	2	0.71	2
3 – A5230 Progress Way (South)	0.44	1	0.39	2	0.39	1
4 – Yeadon Way (West)	0.53	1	0.52	1	0.53	1

Scenario F	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.34	1	0.32	0	0.34	1
2 – A5230 (East)	0.67	2	0.67	2	0.71	2
3 – A5230 Progress Way (South)	0.44	1	0.39	1	0.39	1
4 – Yeadon Way (West)	0.53	1	0.52	1	0.53	1

Table 7.14 - Junction 6 2016 Assessments – Results

It can be seen from Table 7.14 that the junction operates within capacity in the 2016 Base. This continues to be the case in all of the development scenarios. Therefore, it is not necessary to identify junction improvements for 2016.

### 2021 Assessments

Table 7.15 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.38	1	0.36	1	0.41	1
2 – A5230 (East)	0.74	3	0.75	3	0.81	4
3 – A5230 Progress Way (South)	0.47	1	0.43	1	0.44	1

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
4 – Yeadon Way (West)	0.59	1	0.59	1	0.61	2

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.41	1	0.41	1	0.44	1
2 – A5230 (East)	0.75	3	0.76	3	0.81	4
3 – A5230 Progress Way (South)	0.52	1	0.47	1	0.48	1
4 – Yeadon Way (West)	0.61	3	0.61	2	0.63	2

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.39	1	0.37	1	0.41	1
2 – A5230 (East)	0.74	3	0.75	3	0.81	4
3 – A5230 Progress Way (South)	0.47	1	0.45	1	0.45	1
4 – Yeadon Way (West)	0.59	1	0.60	2	0.61	2

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.42	1	0.42	1	0.44	1
2 – A5230 (East)	0.75	3	0.76	3	0.81	4
3 – A5230 Progress Way (South)	0.53	1	0.48	1	0.49	1
4 – Yeadon Way (West)	0.62	2	0.62	2	0.63	2

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.43	1	0.42	1	0.52	1
2 – A5230 (East)	0.75	3	0.76	3	0.81	4
3 – A5230 Progress Way (South)	0.53	1	0.49	1	0.64	2
4 – Yeadon Way (West)	0.63	2	0.62	2	0.72	3

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.42	1	0.42	1	0.44	1
2 – A5230 (East)	0.75	3	0.76	3	0.81	4
3 – A5230 Progress Way (South)	0.54	1	0.49	1	0.50	1
4 – Yeadon Way (West)	0.63	2	0.62	2	0.64	2

Scenario F	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.42	1	0.42	1	0.45	1
2 – A5230 (East)	0.75	3	0.76	3	0.81	4
3 – A5230 Progress Way (South)	0.54	1	0.49	1	0.50	1
4 – Yeadon Way (West)	0.63	2	0.63	2	0.64	2

Table 7.15 - Junction 6 2021 Assessments – Results

It can be seen from Table 7.15 that the junction operates within capacity in the 2021 Base. This continues to be the case in all of the development scenarios. Therefore, it is not necessary to identify junction improvements for 2021.

### 2027 Assessments

Table 7.16 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.44	1	0.42	1	0.48	1
2 – A5230 (East)	0.82	4	0.83	5	<b>0.90</b>	8
3 – A5230 Progress Way (South)	0.52	1	0.48	1	0.50	1
4 – Yeadon Way (West)	0.66	2	0.67	2	0.70	2

Scenario A	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.51	1	0.53	1	0.55	1
2 – A5230 (East)	0.83	5	<b>0.85</b>	6	<b>0.92</b>	10
3 – A5230 Progress Way (South)	0.62	2	0.55	1	0.58	1
4 – Yeadon Way (West)	0.73	3	0.71	2	0.74	3

Scenario B	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.46	1	0.44	1	0.49	1
2 – A5230 (East)	0.82	4	0.83	5	<b>0.90</b>	8
3 – A5230 Progress Way (South)	0.53	1	0.53	1	0.52	1
4 – Yeadon Way (West)	0.67	2	0.70	2	0.71	2

Scenario C	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Ashworth Road (North)	0.52	1	0.54	1	0.56	1
2 – A5230 (East)	0.83	5	<b>0.85</b>	6	<b>0.92</b>	10

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
3 – A5230 Progress Way (South)	0.64	2	0.58	1	0.60	2
4 – Yeadon Way (West)	0.75	3	0.73	3	0.76	3

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.54	1	0.55	1	0.56	1
2 – A5230 (East)	0.84	5	0.86	6	0.92	10
3 – A5230 Progress Way (South)	0.66	2	0.59	1	0.60	2
4 – Yeadon Way (West)	0.76	3	0.73	3	0.76	3

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.53	1	0.55	1	0.57	1
2 – A5230 (East)	0.83	5	0.86	6	0.92	10
3 – A5230 Progress Way (South)	0.65	2	0.59	1	0.61	2
4 – Yeadon Way (West)	0.75	3	0.74	3	0.77	3

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.53	1	0.56	1	0.57	1
2 – A5230 (East)	0.83	5	0.86	6	0.92	10
3 – A5230 Progress Way (South)	0.66	1	0.60	1	0.62	2
4 – Yeadon Way (West)	0.76	3	0.75	3	0.77	3

Table 7.16 - Junction 6 2027 Assessments - Results

It can be seen from Table 7.16 that the junction is overcapacity in the 2027 Base. This congestion is exclusive to the A5230 arm and is exacerbated slightly within each Scenario. Therefore, it is necessary to identify junction improvements for 2027, focusing on the A5230 arm.

### Junction 6 Summary

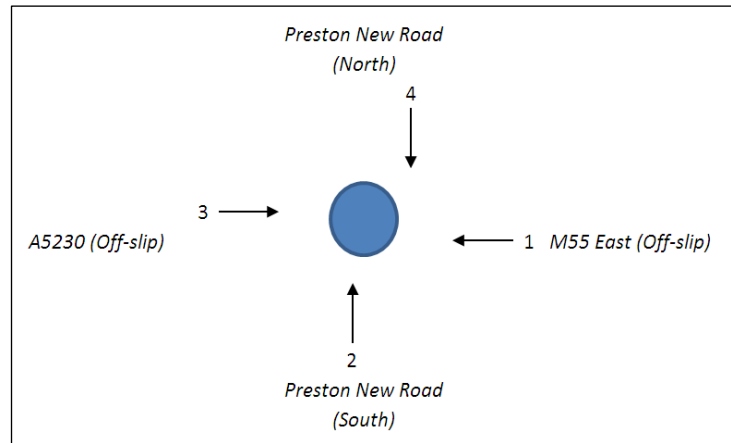
Junction 6 is overcapacity in the base by 2027. In all cases, this congestion is exclusive to the A5230 arm and is exacerbated slightly within each Scenario. Therefore, it is necessary to identify junction improvements in 2027, focusing on the A5230 arm.

## 7.9 Junction 7 - M55 Junction 4

Junction 7 is the four arm grade separated roundabout junction of the M55 Junction 4. This junction requires operational analysis in the following scenarios:

- 2016 – Base Development and Scenarios A, B, C, D, E, F; and
- 2021 – Base Development and Scenarios A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report.



It should be noted that the following analysis was based on data available at the time of the study. As part of Transport Assessments supporting Planning Applications, base models will need to be fully validated against queue data. This step in the process has not been undertaken as part of the study and as such the detail of the following analysis should be considered with a degree of caution.

### 2016 Assessments

Table 7.17 provides the results of the analysis undertaken in the 2016 assessment year.

BASE	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.67	2	0.50	1	0.58	1
2 – Preston New Road (South)	0.62	2	0.41	0	0.48	1
3 – A5230 (Off-slip)	0.32	0	0.24	0	0.25	0
4 – Preston New Road (North)	0.39	1	0.46	1	0.43	1

Scenario A	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.69	2	0.51	1	0.58	1
2 – Preston New Road (South)	0.63	2	0.44	1	0.48	1
3 – A5230 (Off-slip)	0.32	0	0.25	0	0.25	0
4 – Preston New Road (North)	0.41	1	0.47	1	0.43	1

Scenario B	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.70	2	0.52	1	0.59	1

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
2 – Preston New Road (South)	0.64	2	0.44	1	0.49	1
3 – A5230 (Off-slip)	0.33	0	0.25	0	0.25	0
4 – Preston New Road (North)	0.42	1	0.47	1	0.43	1

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.73	3	0.53	1	0.60	2
2 – Preston New Road (South)	0.67	2	0.45	1	0.50	1
3 – A5230 (Off-slip)	0.37	1	0.26	0	0.27	0
4 – Preston New Road (North)	0.42	1	0.48	1	0.44	1

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.76	3	0.57	1	0.60	2
2 – Preston New Road (South)	0.68	2	0.48	1	0.50	1
3 – A5230 (Off-slip)	0.37	1	0.27	0	0.27	0
4 – Preston New Road (North)	0.44	1	0.49	1	0.44	1

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.76	3	0.54	1	0.46	1
2 – Preston New Road (South)	0.68	2	0.48	1	0.40	1
3 – A5230 (Off-slip)	0.37	1	0.27	0	0.27	0
4 – Preston New Road (North)	0.44	1	0.49	1	0.26	0

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.76	3	0.54	1	0.60	2
2 – Preston New Road (South)	0.68	2	0.48	1	0.50	1
3 – A5230 (Off-slip)	0.37	1	0.27	0	0.27	0
4 – Preston New Road (North)	0.44	1	0.49	1	0.44	1

Table 7.17 - Junction 7 2016 Assessments – Results

It can be seen from Table 7.17 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2016.

### 2021 Assessments

Table 7.18 provides the results of the analysis undertaken in the 2021 assessment year.



BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.78	4	0.60	2	0.72	3
2 – Preston New Road (South)	0.73	3	0.48	1	0.58	1
3 – A5230 (Off-slip)	0.40	1	0.28	0	0.31	0
4 – Preston New Road (North)	0.43	1	0.51	1	0.49	1

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.88	7	0.63	2	0.72	3
2 – Preston New Road (South)	0.76	3	0.55	1	0.58	1
3 – A5230 (Off-slip)	0.42	1	0.32	0	0.31	0
4 – Preston New Road (North)	0.49	1	0.54	1	0.49	1

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.93	11	0.68	2	0.77	3
2 – Preston New Road (South)	0.79	4	0.59	1	0.61	2
3 – A5230 (Off-slip)	0.43	1	0.36	1	0.37	1
4 – Preston New Road (North)	0.51	1	0.55	1	0.51	1

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.96	16	0.70	2	0.79	4
2 – Preston New Road (South)	0.82	4	0.60	1	0.62	2
3 – A5230 (Off-slip)	0.49	1	0.37	1	0.35	1
4 – Preston New Road (North)	0.52	1	0.56	1	0.51	1

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.09	71	0.72	3	0.79	4
2 – Preston New Road (South)	0.82	4	0.67	2	0.62	2
3 – A5230 (Off-slip)	0.48	1	0.41	1	0.35	1
4 – Preston New Road (North)	0.57	1	0.59	1	0.51	1

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.10	79	0.76	3	0.81	4

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
2 – Preston New Road (South)	0.85	5	0.69	2	0.65	2
3 – A5230 (Off-slip)	0.51	1	0.43	1	0.37	1
4 – Preston New Road (North)	0.58	1	0.61	2	0.53	1

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.11	87	0.80	4	0.84	5
2 – Preston New Road (South)	0.89	7	0.71	3	0.67	2
3 – A5230 (Off-slip)	0.54	1	0.45	1	0.38	1
4 – Preston New Road (North)	0.59	1	0.63	2	0.54	1

Table 7.18 - Junction 7 2021 Assessments – Results

It can be seen from Table 7.18 that the junction operates satisfactorily in the 2021 Base. However, within all development scenarios the M55 East arms are over capacity. The Preston New Road South arm is also over capacity in scenario F.

As the results presented in Table 7.18 indicate that the junction will be over capacity in 2021 as a result of the development proposals, it is therefore necessary to identify junction improvements. These improvements should primarily focus on the M55 East, with consideration also given to Preston New Road South in the event of development scenario F being progressed.

### 2027 Assessments

Table 7.19 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.91	9	0.73	3	0.89	7
2 – Preston New Road (South)	0.85	6	0.55	1	0.69	2
3 – A5230 (Off-slip)	0.50	1	0.33	0	0.38	1
4 – Preston New Road (North)	0.48	1	0.57	1	0.55	1

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.08	66	0.77	3	0.90	8
2 – Preston New Road (South)	0.87	6	0.66	2	0.69	2
3 – A5230 (Off-slip)	0.52	1	0.39	1	0.39	1
4 – Preston New Road (North)	0.55	1	0.61	2	0.55	1

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.20	138	0.88	6	1.01	28
2 – Preston New Road (South)	0.88	7	0.73	3	0.74	3
3 – A5230 (Off-slip)	0.50	1	0.50	1	0.43	1
4 – Preston New Road (North)	0.61	2	0.63	2	0.58	1

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.25	167	0.91	8	1.04	40
2 – Preston New Road (South)	0.90	8	0.75	3	0.76	3
3 – A5230 (Off-slip)	0.55	1	0.51	1	0.46	1
4 – Preston New Road (North)	0.61	2	0.64	2	0.59	1

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.48	291	0.95	13	1.04	40
2 – Preston New Road (South)	0.87	7	0.86	6	0.76	3
3 – A5230 (Off-slip)	0.53	1	0.63	2	0.46	1
4 – Preston New Road (North)	0.68	2	0.68	2	0.59	1

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.53	312	1.07	48	1.12	77
2 – Preston New Road (South)	0.95	14	0.88	7	0.79	4
3 – A5230 (Off-slip)	0.59	1	0.66	2	0.49	1
4 – Preston New Road (North)	0.71	2	0.73	3	0.62	2

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	1.58	335	1.21	109	1.20	119
2 – Preston New Road (South)	1.02	40	0.89	7	0.83	5
3 – A5230 (Off-slip)	0.65	2	0.68	2	0.52	1
4 – Preston New Road (North)	0.73	3	0.78	3	0.66	2

Table 7.19 - Junction 7 2027 Assessments – Results

Table 7.19 shows the M55 East arm to be overcapacity during all assessed peak periods in the 2027 Base. Additionally, Preston New Road South is overcapacity in the AM peak.

The congestion on the M55 East arm is exacerbated in all development scenarios except scenario A, in which the arm now operates satisfactorily in the PM peak and shows no change in the Saturday peak.

The level of congestion on Preston New Road South in the AM peak decreases or remains constant in scenarios A, B, C, D and E before increasing within scenario F. Within scenarios D, E and F, the arm is now overcapacity also in the PM peak.

Taking into account the above, as the development scenarios generally exacerbate the congestion modelled in the 2027 Base, it is considered necessary to identify junction improvements.

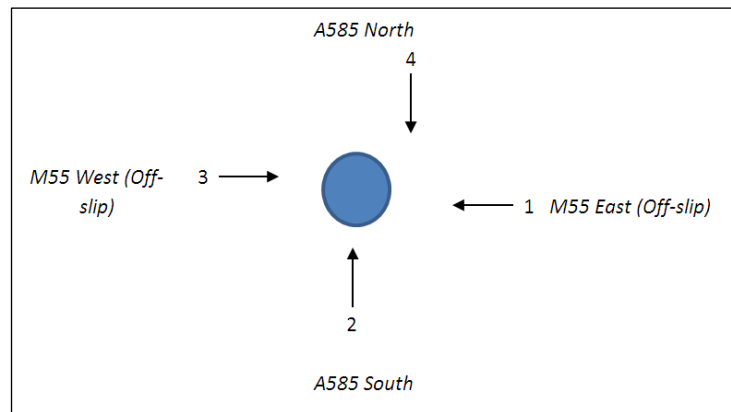
### **Junction 7 Summary**

It is not considered necessary to consider junction improvements for 2016, but improvement options are to be considered for 2021 and 2027. These improvements will primarily focus on the M55 East and Preston New Road South arms.

## 7.10 Junction 8 - M55 Junction 3

Junction 8 is the four arm grade separated roundabout junction of the M55 Junction 3. This junction requires operational analysis in the following scenarios:

- 2016 – Base Development and Scenarios – B, C, D, E, F; and
- 2021 – Base Development and Scenarios – A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios – A, B, C, D, E, F.



The results of this analysis are described in the following section of the report.

It should be noted that the following analysis was based on data available at the time of the study. As part of Transport Assessments supporting Planning Applications, base models will need to be fully validated against queue data. This step in the process has not been undertaken as part of the study and as such the detail of the following analysis should be considered with a degree of caution.

### 2016 Assessments

Table 7.20 provides the results of the analysis undertaken in the 2016 assessment year.

BASE Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.25	0	0.21	0	0.16	0
2 – A585 (South)	0.18	0	0.19	0	0.14	0
3 – M55 West (Off-slip)	0.27	0	0.22	0	0.13	0
4 – A585 (North)	0.32	0	0.20	0	0.25	0

Scenario B Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.26	0	0.21	0	0.16	0
2 – A585 (South)	0.18	0	0.20	0	0.14	0
3 – M55 West (Off-slip)	0.27	0	0.22	0	0.13	0
4 – A585 (North)	0.33	0	0.20	0	0.25	0

Scenario C Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.26	0	0.21	0	0.16	0
2 – A585 (South)	0.18	0	0.20	0	0.14	0

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
3 – M55 West (Off-slip)	0.28	0	0.23	0	0.13	0
4 – A585 (North)	0.33	1	0.21	0	0.25	0

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.26	0	0.21	0	0.16	0
2 – A585 (South)	0.19	0	0.20	0	0.14	0
3 – M55 West (Off-slip)	0.28	0	0.23	0	0.13	0
4 – A585 (North)	0.34	1	0.21	0	0.25	0

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.26	0	0.21	0	0.16	0
2 – A585 (South)	0.19	0	0.20	0	0.14	0
3 – M55 West (Off-slip)	0.28	0	0.23	0	0.13	0
4 – A585 (North)	0.34	1	0.21	0	0.25	0

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.26	0	0.21	0	0.16	0
2 – A585 (South)	0.19	0	0.20	0	0.14	0
3 – M55 West (Off-slip)	0.28	0	0.23	0	0.13	0
4 – A585 (North)	0.34	1	0.21	0	0.25	0

Table 7.20 - Junction 8 2016 Assessments – Results

It can be seen from Table 7.20 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2016.

### 2021 Assessments

Table 7.21 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.29	0	0.24	0	0.18	0
2 – A585 (South)	0.20	0	0.22	0	0.16	0
3 – M55 West (Off-slip)	0.30	0	0.25	0	0.15	0
4 – A585 (North)	0.36	1	0.22	0	0.28	0

Scenario A	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.30	0	0.24	0	0.18	0
2 – A585 (South)	0.21	0	0.22	0	0.16	0
3 – M55 West (Off-slip)	0.32	0	0.27	0	0.15	0
4 – A585 (North)	0.37	1	0.23	0	0.28	0

Scenario B	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.30	0	0.24	0	0.18	0
2 – A585 (South)	0.21	0	0.23	0	0.16	0
3 – M55 West (Off-slip)	0.32	0	0.27	0	0.15	0
4 – A585 (North)	0.37	1	0.23	0	0.28	0

Scenario C	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.31	0	0.24	0	0.19	0
2 – A585 (South)	0.21	0	0.23	0	0.16	0
3 – M55 West (Off-slip)	0.33	0	0.28	0	0.16	0
4 – A585 (North)	0.38	1	0.24	0	0.29	0

Scenario D	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.31	0	0.24	0	0.19	0
2 – A585 (South)	0.22	0	0.23	0	0.16	0
3 – M55 West (Off-slip)	0.33	1	0.30	0	0.16	0
4 – A585 (North)	0.39	1	0.24	0	0.29	0

Scenario E	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.31	0	0.24	0	0.19	0
2 – A585 (South)	0.22	0	0.23	0	0.16	0
3 – M55 West (Off-slip)	0.34	1	0.30	0	0.16	0
4 – A585 (North)	0.39	1	0.24	0	0.29	0

Scenario F	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.31	0	0.24	0	0.19	0

Scenario F	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
2 – A585 (South)	0.22	0	0.23	0	0.16	0
3 – M55 West (Off-slip)	0.34	1	0.30	0	0.16	0
4 – A585 (North)	0.39	1	0.24	0	0.29	0

Table 7.21 - Junction 8 2021 Assessments – Results

It can be seen from Table 7.21 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2021.

### 2027 Assessments

Table 7.22 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.34	1	0.27	0	0.21	0
2 – A585 (South)	0.23	0	0.25	0	0.18	0
3 – M55 West (Off-slip)	0.35	1	0.29	0	0.17	0
4 – A585 (North)	0.39	1	0.25	0	0.31	0

Scenario A	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.35	1	0.27	0	0.21	0
2 – A585 (South)	0.24	0	0.26	0	0.18	0
3 – M55 West (Off-slip)	0.37	1	0.32	0	0.18	0
4 – A585 (North)	0.41	1	0.26	0	0.31	0

Scenario B	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.35	1	0.27	0	0.21	0
2 – A585 (South)	0.24	0	0.26	0	0.18	0
3 – M55 West (Off-slip)	0.37	1	0.32	0	0.18	0
4 – A585 (North)	0.41	1	0.26	0	0.31	0

Scenario C	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – M55 East (Off-slip)	0.36	1	0.28	0	0.22	0
2 – A585 (South)	0.24	0	0.26	0	0.18	0
3 – M55 West (Off-slip)	0.39	1	0.33	1	0.19	0



Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
4 – A585 (North)	0.42	1	0.27	0	0.32	0

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.37	1	0.28	0	0.22	0
2 – A585 (South)	0.25	0	0.27	0	0.18	0
3 – M55 West (Off-slip)	0.40	1	0.35	1	0.19	0
4 – A585 (North)	0.44	1	0.27	0	0.32	0

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.37	1	0.28	0	0.22	0
2 – A585 (South)	0.25	0	0.27	0	0.18	0
3 – M55 West (Off-slip)	0.40	1	0.36	1	0.19	0
4 – A585 (North)	0.44	1	0.27	0	0.32	0

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.37	1	0.28	0	0.22	0
2 – A585 (South)	0.25	0	0.27	0	0.18	0
3 – M55 West (Off-slip)	0.41	1	0.36	1	0.20	0
4 – A585 (North)	0.44	1	0.28	0	0.33	0

Table 7.22 - Junction 8 2027 Assessments – Results

It can be seen from Table 7.22 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2027.

### Junction 8 Summary

In all instances of the analysis, junction 8 can be seen to be operating satisfactorily. Further consideration of the junction is therefore not required.

## 7.11 Junction 9 - A584 Promenade / A5230 Squires Gate Lane / A584 Clifton Drive North

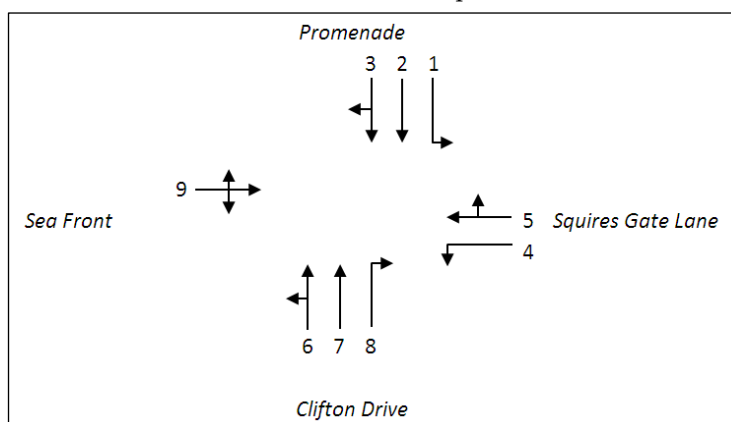
Junction 9 is the three arm signalised junction of A584 Promenade / A5230 Squires Gate Lane / A584 Clifton Drive North. This junction requires operational analysis in the following scenarios:

- 2027 – Base Development and Scenarios D, E, F.

The results of this analysis are described in the following section of the report:

### 2027 Assessments

Table 7.23 provides the results of the analysis undertaken in the 2027 assessment year.



BASE	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A584 Promenade Left	14.3	0	12.9	0	15.8	0
2 – A584 Promenade Ahead	52.7	6	57.7	7	56.0	7
3 – A584 Promenade Ahead/Right	52.7	6	57.7	7	56.0	7
4 – A5230 Squires Gate Lane Left	54.5	7	56.6	7	57.6	7
5 - A5230 Squires Gate Lane Ahead/Right	35.5	2	30.8	2	35.9	2
6 – A584 Clifton Drive North Left/Ahead	29.8	3	28.2	3	31.4	3
7 – A584 Clifton Drive North Ahead	27.0	3	25.6	3	28.5	3
8 – A584 Clifton Drive North Right	34.6	3	33.7	3	35.7	4
9 – Sea Front Left/Ahead/Right	0.0	0	0.0	0	0.0	0

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A584 Promenade Left	14.6	0	13.1	0	16.0	0
2 – A584 Promenade Ahead	55.0	6	57.7	7	58.6	7
3 – A584 Promenade Ahead/Right	55.0	6	57.7	7	58.6	7
4 – A5230 Squires Gate Lane Left	55.8	7	59.1	8	57.7	7
5 - A5230 Squires Gate Lane Ahead/Right	37.2	2	32.1	2	36.8	2
6 – A584 Clifton Drive North Left/Ahead	31.8	3	30.2	3	30.8	3
7 – A584 Clifton Drive North Ahead	28.9	3	27.4	3	27.9	3
8 – A584 Clifton Drive North Right	37.8	4	37.4	4	35.8	4
9 – Sea Front Left/Ahead/Right	0.0	0	0.0	0	0.0	0

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A584 Promenade Left	14.6	0	13.7	0	16.0	0
2 – A584 Promenade Ahead	55.0	6	57.7	7	58.6	7
3 – A584 Promenade Ahead/Right	55.0	6	57.7	7	58.6	7
4 – A5230 Squires Gate Lane Left	56.6	7	59.4	8	58.3	8
5 - A5230 Squires Gate Lane Ahead/Right	37.2	2	32.1	2	36.8	2
6 – A584 Clifton Drive North Left/Ahead	31.8	3	29.5	3	30.8	3
7 – A584 Clifton Drive North Ahead	28.9	3	26.8	3	27.9	3
8 – A584 Clifton Drive North Right	37.9	4	37.3	4	36.2	4
9 –Sea Front Left/Ahead/Right	0.0	0	0.0	0	0.0	0

Scenario F	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A584 Promenade Left	14.6	0	13.1	0	16.0	0
2 – A584 Promenade Ahead	55.0	6	57.7	7	58.6	7
3 – A584 Promenade Ahead/Right	55.0	6	57.7	7	58.6	7
4 – A5230 Squires Gate Lane Left	57.3	7	59.7	8	58.7	8
5 - A5230 Squires Gate Lane Ahead/Right	37.2	2	32.1	2	36.8	2
6 – A584 Clifton Drive North Left/Ahead	31.8	3	29.5	3	30.8	3
7 – A584 Clifton Drive North Ahead	28.9	3	26.8	3	27.9	3
8 – A584 Clifton Drive North Right	38.1	4	37.8	4	36.5	4
9 –Sea Front Left/Ahead/Right	0.0	0	0.0	0	0.0	0

Table 7.23 - Junction 9 2027 Assessments – Results

It can be seen from Table 7.23 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2027.

### Junction 9 Summary

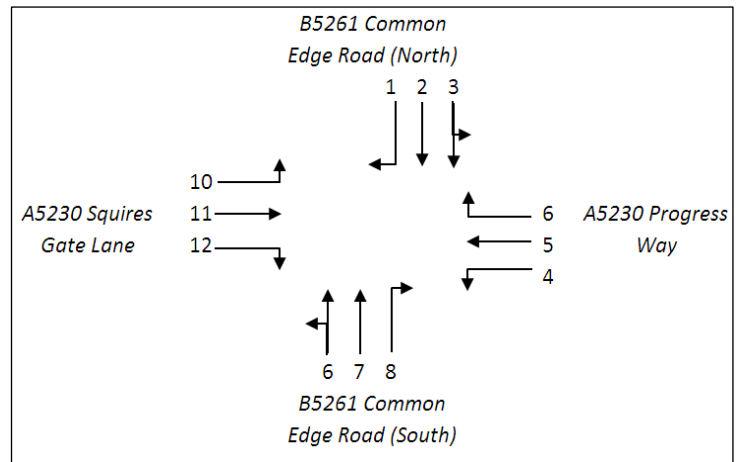
In all instances of the analysis, junction 9 can be seen to be operating satisfactorily. Further consideration of the junction is therefore not required.

## 7.12 Junction 10 - B5261 Common Edge Road / A5230 Progress Way / A5230 Squires Gate Lane

Junction 10 is the four arm signalised junction of B5261 Common Edge Road/ A5230 Progress Way. This junction requires operational analysis in the following scenarios:

- 2016 – Base Development and Scenarios A, B, C, D, E, F; and
- 2021 – Base Development and Scenarios A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report:



### 2016 Assessments

Table 7.24 provides the results of the analysis undertaken in the 2016 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	44.8	3	21.7	2	36.0	3
2 – B5261 Common Edge Road (North) Ahead	69.1	3	62.4	6	66.6	6
3 – B5261 Common Edge Road (North) Left/Ahead	77.4	7	68.4	6	73.7	7
4 – A5230 Progress Way Left	30.4	4	49.5	7	36.3	5
5 – A5230 Progress Way Ahead	80.7	17	70.2	13	74.8	16
6 – A5230 Progress Way Right	12.7	1	18.4	1	19.3	2
7 – B5261 Common Edge Road (South) Right	78.6	9	71.0	6	78.6	8
8 – B5261 Common Edge Road (South) Ahead	47.9	10	56.3	9	44.8	8
9 - B5261 Common Edge Road (South) Left	35.5	5	32.6	5	35.5	5
10 – A5230 Squires Gate Lane (West) Left	8.9	1	15.7	2	14.1	2
11 – A5230 Squires Gate Lane (West) Ahead	80.9	17	71.0	18	77.5	18
12 – A5230 Squires Gate Lane (West) Right	71.3	7	47.5	5	60.3	6

Scenario A Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q

Scenario A	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	49.0	4	24.7	2	38.6	3
2 – B5261 Common Edge Road (North) Ahead	70.2	7	67.2	6	71.3	7
3 – B5261 Common Edge Road (North) Left/Ahead	78.8	7	73.7	6	78.9	7
4 – A5230 Progress Way Left	31.3	4	48.7	7	36.2	5
5 – A5230 Progress Way Ahead	82.4	18	71.2	14	75.2	16
6 – A5230 Progress Way Right	13.2	1	20.2	2	19.3	2
7 – B5261 Common Edge Road (South) Right	79.3	10	68.9	6	75.6	8
8 – B5261 Common Edge Road (South) Ahead	47.9	10	52.5	9	42.3	8
9 – B5261 Common Edge Road (South) Left	36.0	5	31.9	5	34.7	5
10 – A5230 Squires Gate Lane (West) Left	9.4	1	17.1	2	14.4	2
11 – A5230 Squires Gate Lane (West) Ahead	81.8	18	72.1	19	77.7	18
12 – A5230 Squires Gate Lane (West) Right	71.9	7	48.3	6	60.3	6

Scenario B	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	49.0	4	23.0	2	38.6	3
2 – B5261 Common Edge Road (North) Ahead	71.6	7	63.1	6	71.9	7
3 – B5261 Common Edge Road (North) Left/Ahead	80.6	7	69.4	6	79.7	7
4 – A5230 Progress Way Left	31.6	5	50.6	7	36.3	5
5 – A5230 Progress Way Ahead	82.7	18	71.4	14	75.3	16
6 – A5230 Progress Way Right	14.7	1	21.7	2	20.2	2
7 – B5261 Common Edge Road (South) Right	82.0	10	73.1	6	76.4	8
8 – B5261 Common Edge Road (South) Ahead	47.9	10	56.3	9	42.3	8
9 – B5261 Common Edge Road (South) Left	36.0	5	32.7	5	34.7	5
10 – A5230 Squires Gate Lane (West) Left	9.4	1	16.8	2	14.4	2
11 – A5230 Squires Gate Lane (West) Ahead	82.4	18	72.1	19	78.0	18
12 – A5230 Squires Gate Lane (West) Right	71.9	7	48.3	6	60.3	6

Scenario C	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	49.0	4	24.7	2	38.6	3

Scenario C	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
2 – B5261 Common Edge Road (North) Ahead	71.5	7	67.6	6	71.9	7
3 – B5261 Common Edge Road (North) Left/Ahead	80.4	7	74.3	7	79.7	7
4 – A5230 Progress Way Left	32.4	5	49.9	7	37.0	5
5 – A5230 Progress Way Ahead	83.0	18	71.7	14	75.7	16
6 – A5230 Progress Way Right	14.4	1	21.7	2	20.2	2
7 – B5261 Common Edge Road (South) Right	82.5	10	70.8	6	77.8	9
8 – B5261 Common Edge Road (South) Ahead	47.9	10	52.5	9	42.3	8
9 – B5261 Common Edge Road (South) Left	36.0	5	31.9	5	34.7	5
10 – A5230 Squires Gate Lane (West) Left	9.4	1	17.1	2	14.4	2
11 – A5230 Squires Gate Lane (West) Ahead	82.5	18	72.5	19	78.2	18
12 – A5230 Squires Gate Lane (West) Right	71.9	7	48.3	6	60.3	6

Scenario D	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	49.0	4	24.7	2	38.6	3
2 – B5261 Common Edge Road (North) Ahead	72.6	7	68.0	6	71.9	7
3 – B5261 Common Edge Road (North) Left/Ahead	81.8	8	74.7	7	79.7	7
4 – A5230 Progress Way Left	32.4	5	49.9	7	37.0	5
5 – A5230 Progress Way Ahead	83.2	18	72.1	14	75.7	16
6 – A5230 Progress Way Right	15.0	1	23.6	2	20.2	2
7 – B5261 Common Edge Road (South) Right	82.5	10	70.8	6	77.8	9
8 – B5261 Common Edge Road (South) Ahead	47.9	10	52.5	9	42.3	8
9 – B5261 Common Edge Road (South) Left	36.0	5	31.9	5	34.7	5
10 – A5230 Squires Gate Lane (West) Left	9.4	1	17.1	2	14.4	2
11 – A5230 Squires Gate Lane (West) Ahead	82.9	18	72.6	19	78.2	18
12 – A5230 Squires Gate Lane (West) Right	71.9	7	48.3	6	60.3	6

Scenario E	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	49.0	4	24.7	2	38.6	3
2 – B5261 Common Edge Road (North) Ahead	72.6	7	68.0	6	71.9	9

Scenario E	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
3 – B5261 Common Edge Road (North) Left/Ahead	81.8	8	74.7	7	79.7	7
4 – A5230 Progress Way Left	32.4	5	49.9	7	37.0	5
5 – A5230 Progress Way Ahead	83.2	18	72.1	14	75.7	16
6 – A5230 Progress Way Right	15.0	1	23.6	2	20.2	2
7 – B5261 Common Edge Road (South) Right	82.5	10	70.8	6	77.8	9
8 – B5261 Common Edge Road (South) Ahead	47.9	10	52.5	9	42.3	8
9 – B5261 Common Edge Road (South) Left	36.0	5	31.9	5	34.7	5
10 – A5230 Squires Gate Lane (West) Left	9.4	1	17.1	2	14.4	2
11 – A5230 Squires Gate Lane (West) Ahead	82.9	18	72.6	19	78.2	18
12 – A5230 Squires Gate Lane (West) Right	71.9	7	48.3	6	60.3	6

Scenario F	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	49.0	4	24.7	2	38.6	3
2 – B5261 Common Edge Road (North) Ahead	72.6	7	68.0	6	71.9	7
3 – B5261 Common Edge Road (North) Left/Ahead	81.8	8	74.7	7	79.7	7
4 – A5230 Progress Way Left	32.4	5	49.9	7	37.0	5
5 – A5230 Progress Way Ahead	83.2	18	72.1	14	75.7	16
6 – A5230 Progress Way Right	15.0	1	23.6	2	20.2	2
7 – B5261 Common Edge Road (South) Right	82.5	10	70.8	6	77.8	9
8 – B5261 Common Edge Road (South) Ahead	47.9	10	52.5	9	42.3	8
9 – B5261 Common Edge Road (South) Left	36.0	5	31.9	5	34.7	5
10 – A5230 Squires Gate Lane (West) Left	9.4	1	17.1	2	14.4	2
11 – A5230 Squires Gate Lane (West) Ahead	82.9	18	72.6	19	78.2	18
12 – A5230 Squires Gate Lane (West) Right	71.9	7	48.3	6	60.3	6

Table 7.24 - Junction 10 2016 Assessments – Results

It can be seen from Table 7.24 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2016.

### 2021 Assessments

Table 7.25 provides the results of the analysis undertaken in the 2021 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	49.3	4	24.0	2	40.2	3
2 – B5261 Common Edge Road (North) Ahead	75.3	7	67.3	6	73.6	7
3 – B5261 Common Edge Road (North) Left/Ahead	84.4	8	73.9	7	81.5	8
4 – A5230 Progress Way Left	33.0	5	52.7	8	39.7	6
5 – A5230 Progress Way Ahead	83.6	19	77.0	15	83.8	18
6 – A5230 Progress Way Right	13.1	1	20.2	2	21.6	2
7 – B5261 Common Edge Road (South) Right	87.6	12	75.5	7	85.0	10
8 – B5261 Common Edge Road (South) Ahead	54.1	11	61.2	10	49.1	9
9 – B5261 Common Edge Road (South) Left	40.0	6	35.9	5	40.0	6
10 – A5230 Squires Gate Lane (West) Left	9.9	1	17.3	2	15.8	2
11 – A5230 Squires Gate Lane (West) Ahead	88.4	21	78.2	21	86.7	22
12 – A5230 Squires Gate Lane (West) Right	78.4	8	52.5	6	67.6	7

Scenario A Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.5	5	29.2	2	43.1	3
2 – B5261 Common Edge Road (North) Ahead	78.8	9	72.9	7	78.8	8
3 – B5261 Common Edge Road (North) Left/Ahead	88.8	9	80.2	8	87.3	9
4 – A5230 Progress Way Left	37.4	6	54.3	8	42.1	6
5 – A5230 Progress Way Ahead	88.7	22	80.2	16	85.2	19
6 – A5230 Progress Way Right	14.7	1	26.0	2	21.6	2
7 – B5261 Common Edge Road (South) Right	90.5	13	82.6	8	86.5	11
8 – B5261 Common Edge Road (South) Ahead	54.1	11	57.2	10	46.4	9
9 – B5261 Common Edge Road (South) Left	41.5	6	35.5	5	39.0	6
10 – A5230 Squires Gate Lane (West) Left	11.2	1	20.9	3	16.1	2
11 – A5230 Squires Gate Lane (West) Ahead	91.1	22	81.8	23	87.8	22
12 – A5230 Squires Gate Lane (West) Right	79.5	9	55.0	7	67.6	7

Scenario B Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	62.2	5	27.2	2	43.1	3



Scenario B	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
2 – B5261 Common Edge Road (North) Ahead	80.4	9	69.1	7	79.8	8
3 – B5261 Common Edge Road (North) Left/Ahead	90.8	10	76.1	7	88.5	7
4 – A5230 Progress Way Left	35.6	5	54.7	8	40.5	6
5 – A5230 Progress Way Ahead	88.7	22	80.0	16	85.0	19
6 – A5230 Progress Way Right	17.1	1	28.5	2	23.3	2
7 – B5261 Common Edge Road (South) Right	91.5	13	81.1	8	84.1	10
8 – B5261 Common Edge Road (South) Ahead	54.1	11	61.2	10	46.4	7
9 – B5261 Common Edge Road (South) Left	41.5	6	36.3	5	39.0	6
10 – A5230 Squires Gate Lane (West) Left	11.3	1	20.7	3	16.1	2
11 – A5230 Squires Gate Lane (West) Ahead	91.7	23	81.5	23	87.6	22
12 – A5230 Squires Gate Lane (West) Right	79.5	9	55.0	7	67.6	7

Scenario C	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.5	5	29.2	2	43.1	3
2 – B5261 Common Edge Road (North) Ahead	80.6	8	73.9	7	79.8	8
3 – B5261 Common Edge Road (North) Left/Ahead	90.9	10	81.4	8	88.5	9
4 – A5230 Progress Way Left	39.9	6	54.8	9	44.0	7
5 – A5230 Progress Way Ahead	90.3	23	81.3	17	86.4	20
6 – A5230 Progress Way Right	17.1	1	27.8	2	23.3	2
7 – B5261 Common Edge Road (South) Right	94.6	15	82.3	9	90.0	12
8 – B5261 Common Edge Road (South) Ahead	54.1	11	53.6	9	46.4	9
9 – B5261 Common Edge Road (South) Left	41.5	6	35.5	5	39.0	6
10 – A5230 Squires Gate Lane (West) Left	11.2	1	21.4	3	16.1	2
11 – A5230 Squires Gate Lane (West) Ahead	92.2	23	86.5	24	88.7	23
12 – A5230 Squires Gate Lane (West) Right	79.5	9	57.5	7	67.6	7

Scenario D	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.5	5	29.2	2	43.1	3
2 – B5261 Common Edge Road (North) Ahead	83.6	9	74.8	7	79.8	8

Scenario D	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
3 – B5261 Common Edge Road (North) Left/Ahead	94.8	12	82.5	8	88.5	10
4 – A5230 Progress Way Left	39.9	6	54.8	9	44.0	7
5 – A5230 Progress Way Ahead	90.7	23	82.4	17	86.4	20
6 – A5230 Progress Way Right	18.8	2	33.4	3	23.3	2
7 – B5261 Common Edge Road (South) Right	94.6	15	82.3	9	90.0	12
8 – B5261 Common Edge Road (South) Ahead	54.1	11	53.6	9	46.4	9
9 – B5261 Common Edge Road (South) Left	41.5	6	35.5	5	39.0	6
10 – A5230 Squires Gate Lane (West) Left	11.2	1	21.4	3	16.1	2
11 – A5230 Squires Gate Lane (West) Ahead	93.3	24	86.7	25	88.7	23
12 – A5230 Squires Gate Lane (West) Right	79.5	9	57.5	7	67.6	7

Scenario E	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.5	5	29.2	2	43.1	3
2 – B5261 Common Edge Road (North) Ahead	83.6	9	75.3	7	80.1	8
3 – B5261 Common Edge Road (North) Left/Ahead	94.8	12	83.2	8	88.9	10
4 – A5230 Progress Way Left	39.9	6	54.8	9	44.0	7
5 – A5230 Progress Way Ahead	91.2	12	82.6	17	86.8	20
6 – A5230 Progress Way Right	19.6	2	34.0	3	23.9	2
7 – B5261 Common Edge Road (South) Right	94.6	15	82.3	9	90.0	12
8 – B5261 Common Edge Road (South) Ahead	54.1	11	53.6	9	46.4	9
9 – B5261 Common Edge Road (South) Left	41.5	6	35.5	5	39.0	6
10 – A5230 Squires Gate Lane (West) Left	11.2	1	21.4	3	16.1	2
11 – A5230 Squires Gate Lane (West) Ahead	93.5	24	87.1	25	88.9	23
12 – A5230 Squires Gate Lane (West) Right	79.5	9	57.5	7	67.6	7

Scenario F	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.5	5	29.2	2	43.1	3
2 – B5261 Common Edge Road (North) Ahead	83.8	9	75.8	7	80.3	8
3 – B5261 Common Edge Road (North) Left/Ahead	95.0	12	83.8	8	89.1	10

Scenario F Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
4 – A5230 Progress Way Left	39.9	6	54.8	9	44.0	7
5 – A5230 Progress Way Ahead	91.7	14	82.9	19	87.2	20
6 – A5230 Progress Way Right	20.7	2	34.6	3	24.8	2
7 – B5261 Common Edge Road (South) Right	94.6	15	82.3	9	90.0	12
8 – B5261 Common Edge Road (South) Ahead	54.1	11	53.6	9	46.4	9
9 – B5261 Common Edge Road (South) Left	41.5	6	35.5	5	39.0	6
10 – A5230 Squires Gate Lane (West) Left	11.2	1	21.4	3	16.1	2
11 – A5230 Squires Gate Lane (West) Ahead	93.6	24	87.5	25	89.3	23
12 – A5230 Squires Gate Lane (West) Right	79.5	9	57.5	7	67.6	7

Table 7.25 - Junction 10 2021 Assessments – Results

It can be seen from Table 7.25 that the junction operates satisfactorily in the 2021 Base. However, within development scenarios A and B, movements 7 and 12 become congested in the AM peak only. Additionally, within development scenarios C, D, E and F, movements 3 and 5 also become congested in the AM peak. Further, movement 7 is also overcapacity in the Saturday peak within scenarios C, D, E and F.

As the results presented in Table 7.25 indicate that the junction will be over capacity in 2021 as a result of the development proposals, it is therefore necessary to identify junction improvements. The improvements necessary will depend on the development scenario progressed, but are likely to include amelioration schemes on the B5261 and A5230.

### 2027 Assessments

Table 7.26 provides the results of the analysis undertaken in the 2027 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	53.9	4	28.1	2	44.4	4
2 – B5261 Common Edge Road (North) Ahead	82.0	9	77.5	8	80.6	9
3 – B5261 Common Edge Road (North) Left/Ahead	92.0	11	85.2	9	89.3	10
4 – A5230 Progress Way Left	35.7	5	56.3	9	42.9	6
5 – A5230 Progress Way Ahead	91.3	23	84.0	18	92.4	23
6 – A5230 Progress Way Right	14.4	1	22.3	2	23.9	2
7 – B5261 Common Edge Road (South) Right	92.3	14	80.4	8	91.0	12
8 – B5261 Common Edge Road (South) Ahead	58.0	12	66.2	11	53.3	9
9 – B5261 Common Edge Road (South) Left	43.6	7	38.4	6	44.2	7

BASE Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
10 – A5230 Squires Gate Lane (West) Left	10.7	1	19.0	3	17.4	2
11 – A5230 Squires Gate Lane (West) Ahead	<b>96.2</b>	27	81.9	24	<b>95.6</b>	29
12 – A5230 Squires Gate Lane (West) Right	85.8	10	55.1	7	74.7	9

Scenario A Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	69.8	6	35.2	2	47.6	4
2 – B5261 Common Edge Road (North) Ahead	86.5	10	84.7	9	86.3	10
3 – B5261 Common Edge Road (North) Left/Ahead	<b>97.6</b>	14	<b>93.2</b>	11	<b>95.6</b>	13
4 – A5230 Progress Way Left	43.8	7	58.5	9	48.3	7
5 – A5230 Progress Way Ahead	<b>98.7</b>	32	88.6	20	<b>94.9</b>	25
6 – A5230 Progress Way Right	16.6	1	29.7	2	23.9	2
7 – B5261 Common Edge Road (South) Right	<b>97.7</b>	19	81.2	12	<b>97.4</b>	16
8 – B5261 Common Edge Road (South) Ahead	5.8	1	57.9	10	50.4	10
9 – B5261 Common Edge Road (South) Left	45.8	7	38.1	6	43.2	7
10 – A5230 Squires Gate Lane (West) Left	12.5	2	24.2	3	17.8	2
11 – A5230 Squires Gate Lane (West) Ahead	<b>100.1</b>	34	<b>90.8</b>	28	<b>97.4</b>	31
12 – A5230 Squires Gate Lane (West) Right	87.2	11	60.9	7	74.7	9

Scenario B Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	71.2	6	33.0	2	44.4	4
2 – B5261 Common Edge Road (North) Ahead	88.6	10	80.3	8	81.8	9
3 – B5261 Common Edge Road (North) Left/Ahead	<b>100.1</b>	16	88.6	10	<b>90.7</b>	11
4 – A5230 Progress Way Left	39.9	6	59.1	7	45.9	7
5 – A5230 Progress Way Ahead	<b>98.7</b>	32	88.4	20	<b>94.4</b>	25
6 – A5230 Progress Way Right	20.4	2	33.0	3	26.5	2
7 – B5261 Common Edge Road (South) Right	<b>97.2</b>	19	<b>90.2</b>	10	<b>96.8</b>	15
8 – B5261 Common Edge Road (South) Ahead	58.0	12	66.2	11	53.3	10
9 – B5261 Common Edge Road (South) Left	45.8	7	39.0	6	44.2	7

Scenario B	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
10 – A5230 Squires Gate Lane (West) Left	12.6	2	23.4	3	17.4	2
11 – A5230 Squires Gate Lane (West) Ahead	<b>100.4</b>	35	86.6	26	<b>97.0</b>	31
12 – A5230 Squires Gate Lane (West) Right	87.2	11	58.3	7	74.7	9

Scenario C	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	69.8	6	35.2	2	47.6	4
2 – B5261 Common Edge Road (North) Ahead	88.1	10	86.4	9	87.6	10
3 – B5261 Common Edge Road (North) Left/Ahead	<b>99.5</b>	15	<b>95.4</b>	12	<b>97.2</b>	14
4 – A5230 Progress Way Left	48.2	8	61.2	10	51.3	8
5 – A5230 Progress Way Ahead	<b>101.5</b>	40	<b>96.3</b>	25	<b>96.8</b>	30
6 – A5230 Progress Way Right	20.1	2	34.6	3	26.5	2
7 – B5261 Common Edge Road (South) Right	<b>102.6</b>	23	<b>93.6</b>	13	<b>102.8</b>	23
8 – B5261 Common Edge Road (South) Ahead	58.0	12	54.5	10	50.4	10
9 – B5261 Common Edge Road (South) Left	45.8	7	37.3	6	43.2	7
10 – A5230 Squires Gate Lane (West) Left	12.5	2	24.2	3	17.8	2
11 – A5230 Squires Gate Lane (West) Ahead	<b>101.3</b>	37	<b>92.5</b>	30	<b>98.8</b>	34
12 – A5230 Squires Gate Lane (West) Right	87.2	11	60.9	7	74.7	9

Scenario D	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	69.8	6	35.2	2	47.6	4
2 – B5261 Common Edge Road (North) Ahead	<b>92.6</b>	12	87.6	9	87.6	10
3 – B5261 Common Edge Road (North) Left/Ahead	<b>105.2</b>	21	<b>96.9</b>	13	<b>97.2</b>	14
4 – A5230 Progress Way Left	48.2	8	59.6	10	75.6	12
5 – A5230 Progress Way Ahead	<b>102.0</b>	41	<b>91.8</b>	22	<b>95.3</b>	26
6 – A5230 Progress Way Right	22.3	2	39.8	3	37.5	2
7 – B5261 Common Edge Road (South) Right	<b>102.6</b>	23	<b>93.6</b>	13	84.1	12
8 – B5261 Common Edge Road (South) Ahead	58.0	12	54.5	10	41.2	9
9 – B5261 Common Edge Road (South) Left	45.8	7	38.1	6	38.7	6

Scenario D	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
10 – A5230 Squires Gate Lane (West) Left	12.5	2	24.8	4	17.4	2
11 – A5230 Squires Gate Lane (West) Ahead	102.8	42	97.0	35	93.9	28
12 – A5230 Squires Gate Lane (West) Right	87.2	11	63.6	8	71.0	8

Scenario E	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	69.8	6	35.2	2	47.6	4
2 – B5261 Common Edge Road (North) Ahead	92.9	12	88.7	10	88.3	10
3 – B5261 Common Edge Road (North) Left/Ahead	105.5	21	98.2	13	98.0	14
4 – A5230 Progress Way Left	48.2	8	59.6	10	51.3	8
5 – A5230 Progress Way Ahead	103.7	45	92.5	22	97.8	29
6 – A5230 Progress Way Right	24.5	2	41.0	3	27.9	2
7 – B5261 Common Edge Road (South) Right	102.6	23	93.6	13	102.8	23
8 – B5261 Common Edge Road (South) Ahead	58.0	12	54.5	10	50.4	10
9 – B5261 Common Edge Road (South) Left	45.8	7	38.1	6	43.2	7
10 – A5230 Squires Gate Lane (West) Left	12.5	2	24.8	4	17.8	2
11 – A5230 Squires Gate Lane (West) Ahead	103.2	43	97.9	36	99.4	35
12 – A5230 Squires Gate Lane (West) Right	87.2	11	63.6	8	74.7	9

Scenario F	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	69.8	6	32.7	2	47.6	4
2 – B5261 Common Edge Road (North) Ahead	93.2	12	83.5	9	88.9	10
3 – B5261 Common Edge Road (North) Left/Ahead	105.9	22	92.6	11	98.8	15
4 – A5230 Progress Way Left	48.2	8	61.2	10	51.3	8
5 – A5230 Progress Way Ahead	104.3	49	99.4	29	98.7	31
6 – A5230 Progress Way Right	26.4	2	45.0	4	29.7	3
7 – B5261 Common Edge Road (South) Right	102.6	23	93.6	13	102.8	23
8 – B5261 Common Edge Road (South) Ahead	58.0	12	54.5	10	50.4	10
9 – B5261 Common Edge Road (South) Left	45.8	7	38.1	6	43.2	7

Scenario F Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
10 – A5230 Squires Gate Lane (West) Left	12.5	2	24.2	3	17.8	2
11 – A5230 Squires Gate Lane (West) Ahead	103.5	44	98.8	38	100.1	37
12 – A5230 Squires Gate Lane (West) Right	87.2	11	63.6	8	74.7	9

Table 7.26 - Junction 10 2027 Assessments – Results

It can be seen from Table 7.26 that the junction is overcapacity in the 2027 Base for several turning movements in the AM and Saturday peak. The congestion on these movements is accentuated within each development scenario. The junction operates within capacity in the 2027 Base PM peak.

Within scenario A, movement 3 becomes congested in the PM and Saturday peak, as does movement 11 in the PM peak. The same is true in scenario B, with the exception of movement 3 in the PM peak which operates within capacity.

Within development scenarios C, D, E and F in the PM peak, movements 3, 5, 6 and 11 all become congested. In addition, movement 3 becomes congested in the Saturday peak. Within scenarios D, E and F, movement 2 also becomes congested in the AM peak.

As the results presented in Table 7.26 indicate that the junction will be over capacity in 2027 as a result of the development proposals, it is therefore necessary to identify junction improvements. The improvements necessary will depend on the development scenario progressed and could involve a junction wide amelioration scheme.

### Junction 10 Summary

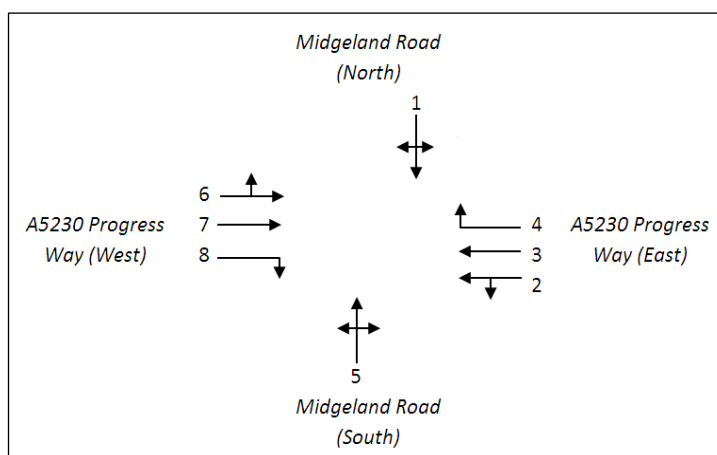
No junction improvements are necessary on Junction 10 in 2016; however improvements are necessary for 2021 and 2027. In both assessment years, the improvements necessary will depend on the development scenario progressed, but are likely to include amelioration schemes on the B5261 and A5230 for 2021 as well as the remaining arms for 2027.

### 7.13 Junction 11 A5230 Progress Way / Midgeland Road

Junction 11 is the four arm signalised junction of A5230 Progress Way / Midgeland Road. This junction requires operational analysis in the following scenarios:

- 2016 – Base Development and Scenarios A, B, C, D, E, F; and
- 2021 – Base Development and Scenarios A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report:



#### 2016 Assessments

Table 7.27 provides the results of the analysis undertaken in the 2016 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	97.4	16	86.4	9	88.9	10
2 – A5230 Progress Way (East) Left/Ahead	92.2	11	84.3	9	92.6	11
3 – A5230 Progress Way (East) Ahead	84.5	9	77.1	8	84.5	9
4 – A5230 Progress Way (East) Right	26.1	2	17.5	1	30.4	2
5 – Midgeland Road (South) Left/Ahead/Right	72.2	6	68.9	5	65.1	5
6 – A5230 Progress Way (West) Left/Ahead	98.4	17	89.4	11	95.1	15
7 – A5230 Progress Way (West) Ahead	87.8	11	81.4	10	84.7	11
8 – A5230 Progress Way (West) Right	23.6	2	10.2	1	14.8	1

Scenario A Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	97.4	16	86.4	9	95.7	13
2 – A5230 Progress Way (East) Left/Ahead	94.2	12	87.6	10	93.9	12
3 – A5230 Progress Way (East) Ahead	86.3	9	80.2	8	85.8	9
4 – A5230 Progress Way (East) Right	26.1	2	17.5	1	30.4	2
5 – Midgeland Road (South) Left/Ahead/Right	72.2	6	68.9	5	70.2	5
6 – A5230 Progress Way (West) Left/Ahead	101.4	21	91.3	12	91.0	12
7 – A5230 Progress Way (West) Ahead	90.6	12	83.2	10	81.2	10



Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
8 – A5230 Progress Way (West) Right	23.6	2	10.4	1	14.0	1

Scenario B	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	97.9	16	86.4	9	95.9	13
2 – A5230 Progress Way (East) Left/Ahead	96.0	13	87.6	10	94.1	12
3 – A5230 Progress Way (East) Ahead	88.0	10	80.2	8	86.0	9
4 – A5230 Progress Way (East) Right	26.3	2	17.7	1	30.4	2
5 – Midgeland Road (South) Left/Ahead/Right	72.2	6	68.9	5	70.2	5
6 – A5230 Progress Way (West) Left/Ahead	102.4	23	91.6	13	91.2	13
7 – A5230 Progress Way (West) Ahead	91.6	13	83.4	10	81.3	10
8 – A5230 Progress Way (West) Right	23.6	2	10.4	1	14.0	1

Scenario C	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	97.4	16	86.4	9	95.7	13
2 – A5230 Progress Way (East) Left/Ahead	96.6	14	89.5	10	95.5	13
3 – A5230 Progress Way (East) Ahead	88.6	10	81.9	9	87.2	10
4 – A5230 Progress Way (East) Right	26.1	2	17.5	1	30.4	2
5 – Midgeland Road (South) Left/Ahead/Right	72.2	6	68.9	5	70.2	5
6 – A5230 Progress Way (West) Left/Ahead	104.0	26	92.6	13	92.3	13
7 – A5230 Progress Way (West) Ahead	93.1	14	84.4	10	82.4	10
8 – A5230 Progress Way (West) Right	23.6	2	10.4	1	14.0	1

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	104.4	24	86.4	9	95.7	13
2 – A5230 Progress Way (East) Left/Ahead	97.0	14	90.5	11	95.5	13
3 – A5230 Progress Way (East) Ahead	88.9	10	82.9	9	87.2	10
4 – A5230 Progress Way (East) Right	26.1	2	17.5	1	30.4	2
5 – Midgeland Road (South) Left/Ahead/Right	77.4	7	68.9	5	70.2	5
6 – A5230 Progress Way (West) Left/Ahead	98.9	19	92.8	13	92.3	13
7 – A5230 Progress Way (West) Ahead	88.5	12	84.5	10	82.4	10
8 – A5230 Progress Way (West) Right	22.3	2	10.4	1	14.0	1

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	104.4	24	86.4	9	95.7	13
2 – A5230 Progress Way (East) Left/Ahead	97.0	14	90.5	11	95.5	13
3 – A5230 Progress Way (East) Ahead	88.9	11	82.9	9	87.2	10
4 – A5230 Progress Way (East) Right	26.1	2	17.5	1	30.4	2
5 – Midgeland Road (South) Left/Ahead/Right	77.4	7	68.9	5	70.2	5
6 – A5230 Progress Way (West) Left/Ahead	98.9	19	92.8	13	92.3	13
7 – A5230 Progress Way (West) Ahead	88.5	12	84.5	10	82.4	10
8 – A5230 Progress Way (West) Right	22.3	2	10.4	1	14.0	1

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	104.4	24	86.4	9	95.7	13
2 – A5230 Progress Way (East) Left/Ahead	97.0	14	90.5	11	95.5	13
3 – A5230 Progress Way (East) Ahead	88.9	10	82.9	9	87.2	10
4 – A5230 Progress Way (East) Right	26.1	2	17.5	1	30.4	2
5 – Midgeland Road (South) Left/Ahead/Right	77.4	7	68.9	5	70.2	5
6 – A5230 Progress Way (West) Left/Ahead	98.9	19	92.8	13	92.3	13
7 – A5230 Progress Way (West) Ahead	88.5	12	84.5	10	82.4	10
8 – A5230 Progress Way (West) Right	22.3	2	10.4	1	14.0	1

Table 7.27 - Junction 11 2016 Assessments – Results

It can be seen within Table 7.27 that the junction is overcapacity in the 2016 Base. Congestion is present for movement 2 and 6 in the AM and Saturday peaks. Movement 1 is also congested in the AM peak while the whole junction operates satisfactorily in the PM peak.

The congestion on the above turning movements is accentuated within each development scenario. In addition, movement 1 and 6 become over capacity in the Saturday and PM peaks respectively. Movement 7 becomes overcapacity in the AM peak within development scenarios A, B C and D.

Taking the above into account, junction improvement schemes will be identified for the 2016 assessment year. These improvements will focus on the Midgeland Road North and both Progress Way arms of the junction.

### 2021 Assessments

Table 7.28 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	106.8	30	95.2	13	99.9	17
2 – A5230 Progress Way (East) Left/Ahead	100.8	18	91.3	11	102.6	21
3 – A5230 Progress Way (East) Ahead	92.4	12	83.5	9	93.7	12
4 – A5230 Progress Way (East) Right	28.6	2	19.1	1	34.1	2
5 – Midgeland Road (South) Left/Ahead/Right	79.2	8	76.0	6	73.1	6
6 – A5230 Progress Way (West) Left/Ahead	106.3	31	97.8	18	105.4	31
7 – A5230 Progress Way (West) Ahead	94.8	15	89.1	12	93.9	15
8 – A5230 Progress Way (West) Right	26.1	2	11.3	1	16.7	1

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	114.7	45	103.2	20	107.6	29
2 – A5230 Progress Way (East) Left/Ahead	109.6	33	101.9	21	108.5	31
3 – A5230 Progress Way (East) Ahead	100.4	19	93.2	13	99.1	17
4 – A5230 Progress Way (East) Right	28.6	2	19.3	1	34.1	2
5 – Midgeland Road (South) Left/Ahead/Right	85.3	9	83.4	7	79.3	7
6 – A5230 Progress Way (West) Left/Ahead	108.4	37	99.1	20	103.8	29
7 – A5230 Progress Way (West) Ahead	97.1	18	90.3	13	92.6	15
8 – A5230 Progress Way (West) Right	24.6	2	10.9	1	15.8	1

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (North) Left/Ahead/Right	108.0	33	103.4	20	107.6	28
2 – A5230 Progress Way (East) Left/Ahead	110.3	34	98.2	16	106.3	27
3 – A5230 Progress Way (East) Ahead	101.1	20	89.9	11	97.1	15
4 – A5230 Progress Way (East) Right	29.1	2	20.0	1	34.1	2
5 – Midgeland Road (South) Left/Ahead/Right	79.2	8	82.3	7	78.7	7
6 – A5230 Progress Way (West) Left/Ahead	113.4	47	97.8	18	102.0	25
7 – A5230 Progress Way (West) Ahead	101.5	24	89.2	13	91.0	14
8 – A5230 Progress Way (West) Right	26.1	2	10.9	1	15.8	1

Scenario C	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	114.7	45	103.2	20	107.6	28

Scenario C	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
2 – A5230 Progress Way (East) Left/Ahead	114.9	43	105.1	26	112.1	37
3 – A5230 Progress Way (East) Ahead	105.2	27	96.2	15	102.3	22
4 – A5230 Progress Way (East) Right	28.6	2	19.3	1	34.1	2
5 – Midgeland Road (South) Left/Ahead/Right	85.3	9	83.4	7	79.3	7
6 – A5230 Progress Way (West) Left/Ahead	111.4	45	101.9	25	106.2	34
7 – A5230 Progress Way (West) Ahead	99.9	22	93.0	15	94.8	16
8 – A5230 Progress Way (West) Right	24.6	2	10.9	1	15.8	1

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	114.7	45	103.2	20	107.6	28
2 – A5230 Progress Way (East) Left/Ahead	115.9	45	108.1	32	112.1	37
3 – A5230 Progress Way (East) Ahead	106.2	29	99.0	18	102.3	22
4 – A5230 Progress Way (East) Right	28.6	2	19.3	1	34.1	2
5 – Midgeland Road (South) Left/Ahead/Right	85.3	9	83.4	7	76.4	6
6 – A5230 Progress Way (West) Left/Ahead	114.2	52	102.7	26	106.2	34
7 – A5230 Progress Way (West) Ahead	102.5	27	93.7	15	94.8	16
8 – A5230 Progress Way (West) Right	24.6	2	10.9	1	15.8	1

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	114.7	45	103.4	20	107.6	28
2 – A5230 Progress Way (East) Left/Ahead	116.9	47	108.6	33	112.8	39
3 – A5230 Progress Way (East) Ahead	107.1	30	99.4	18	103.0	23
4 – A5230 Progress Way (East) Right	28.9	2	19.6	1	34.1	2
5 – Midgeland Road (South) Left/Ahead/Right	85.3	9	83.4	7	79.3	7
6 – A5230 Progress Way (West) Left/Ahead	114.4	52	103.2	28	106.5	35
7 – A5230 Progress Way (West) Ahead	102.7	27	94.2	16	95.2	16
8 – A5230 Progress Way (West) Right	24.6	2	10.9	1	15.8	1

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	115.0	46	103.7	21	107.8	29
2 – A5230 Progress Way (East) Left/Ahead	117.9	49	109.0	34	105.4	27

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
3 – A5230 Progress Way (East) Ahead	108.0	32	99.8	19	96.3	15
4 – A5230 Progress Way (East) Right	29.1	2	19.6	1	31.9	2
5 – Midgeland Road (South) Left/Ahead/Right	85.3	9	83.4	7	79.3	7
6 – A5230 Progress Way (West) Left/Ahead	114.6	53	103.8	29	113.1	49
7 – A5230 Progress Way (West) Ahead	102.8	27	94.7	16	101.1	24
8 – A5230 Progress Way (West) Right	24.6	2	10.9	1	16.7	1

Table 7.28 - Junction 11 2021 Assessments – Results

It can be seen within Table 7.28 that the junction is overcapacity in the 2021 Base. Congestion is present for movements 1, 2 and 6 within all time periods. Congestion is also present on movements 3 and 7 in the AM and Saturday peaks only.

The congestion on the above turning movements is accentuated within each development scenario, with the exception of movement 7 in the Saturday peak where congestion has reduced but remains overcapacity. Additionally, in all development scenarios except scenario A, movements 3 and 7 become over capacity in the PM peak.

Taking the above into account, junction improvement schemes will be identified for the 2021 assessment year. These improvements will focus on the Midgeland Road North and both Progress Way arms of the junction.

### 2027 Assessments

Table 7.29 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	116.7	53	104.1	22	110.2	35
2 – A5230 Progress Way (East) Left/Ahead	109.6	33	106.0	26	112.3	38
3 – A5230 Progress Way (East) Ahead	100.4	19	97.0	15	102.5	22
4 – A5230 Progress Way (East) Right	31.1	2	22.6	1	37.6	3
5 – Midgeland Road (South) Left/Ahead/Right	86.6	9	83.3	8	80.9	7
6 – A5230 Progress Way (West) Left/Ahead	114.6	50	100.5	22	115.4	55
7 – A5230 Progress Way (West) Ahead	102.2	25	91.5	14	102.7	27
8 – A5230 Progress Way (West) Right	28.3	2	11.8	1	18.4	1

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	125.5	70	112.7	35	118.7	50
2 – A5230 Progress Way (East) Left/Ahead	124.5	63	115.0	46	122.9	60

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
3 – A5230 Progress Way (East) Ahead	<b>114.0</b>	45	<b>105.2</b>	28	<b>112.2</b>	41
4 – A5230 Progress Way (East) Right	31.4	2	21.2	1	37.6	3
5 – Midgeland Road (South) Left/Ahead/Right	<b>93.5</b>	12	<b>92.1</b>	10	87.9	9
6 – A5230 Progress Way (West) Left/Ahead	<b>120.3</b>	68	<b>111.6</b>	48	<b>116.1</b>	60
7 – A5230 Progress Way (West) Ahead	<b>107.8</b>	40	<b>101.8</b>	26	<b>103.7</b>	31
8 – A5230 Progress Way (West) Right	27.1	2	12.0	1	17.6	1

Scenario B	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	<b>118.6</b>	57	<b>113.3</b>	36	<b>118.9</b>	51
2 – A5230 Progress Way (East) Left/Ahead	<b>123.9</b>	62	<b>108.3</b>	32	<b>118.3</b>	50
3 – A5230 Progress Way (East) Ahead	<b>113.6</b>	44	<b>99.1</b>	18	<b>108.0</b>	32
4 – A5230 Progress Way (East) Right	31.6	2	22.1	2	37.6	3
5 – Midgeland Road (South) Left/Ahead/Right	86.9	9	<b>90.2</b>	9	87.2	9
6 – A5230 Progress Way (West) Left/Ahead	<b>123.6</b>	72	<b>108.9</b>	41	<b>112.6</b>	50
7 – A5230 Progress Way (West) Ahead	<b>110.6</b>	45	<b>99.2</b>	22	<b>100.4</b>	24
8 – A5230 Progress Way (West) Right	28.5	2	12.0	1	17.4	1

Scenario C	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	<b>125.5</b>	70	<b>112.7</b>	35	<b>118.7</b>	50
2 – A5230 Progress Way (East) Left/Ahead	<b>123.7</b>	66	<b>119.5</b>	56	<b>119.7</b>	57
3 – A5230 Progress Way (East) Ahead	<b>113.3</b>	46	<b>109.4</b>	37	<b>109.3</b>	37
4 – A5230 Progress Way (East) Right	29.1	2	21.2	1	34.9	2
5 – Midgeland Road (South) Left/Ahead/Right	<b>93.5</b>	12	<b>92.1</b>	10	87.9	8
6 – A5230 Progress Way (West) Left/Ahead	<b>131.6</b>	93	<b>116.4</b>	62	<b>126.6</b>	85
7 – A5230 Progress Way (West) Ahead	<b>118.0</b>	65	<b>106.3</b>	37	<b>113.2</b>	55
8 – A5230 Progress Way (West) Right	28.7	2	12.0	1	18.6	1

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	<b>125.8</b>	70	<b>123.0</b>	50	<b>118.7</b>	50
2 – A5230 Progress Way (East) Left/Ahead	<b>134.7</b>	85	<b>115.3</b>	50	<b>119.7</b>	57
3 – A5230 Progress Way (East) Ahead	<b>123.4</b>	66	<b>105.6</b>	31	<b>109.3</b>	37

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
4 – A5230 Progress Way (East) Right	31.4	2	19.8	1	34.9	2
5 – Midgeland Road (South) Left/Ahead/Right	<b>93.5</b>	12	<b>100.5</b>	15	87.9	9
6 – A5230 Progress Way (West) Left/Ahead	<b>127.6</b>	88	<b>117.2</b>	64	<b>126.6</b>	85
7 – A5230 Progress Way (West) Ahead	<b>114.6</b>	59	<b>107.1</b>	40	<b>113.2</b>	55
8 – A5230 Progress Way (West) Right	27.1	2	12.0	1	18.6	1

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	<b>135.4</b>	85	<b>123.6</b>	52	<b>118.9</b>	51
2 – A5230 Progress Way (East) Left/Ahead	<b>127.0</b>	73	<b>116.2</b>	52	<b>121.0</b>	60
3 – A5230 Progress Way (East) Ahead	<b>116.3</b>	54	<b>106.3</b>	32	<b>110.5</b>	40
4 – A5230 Progress Way (East) Right	29.6	2	20.0	1	35.2	3
5 – Midgeland Road (South) Left/Ahead/Right	<b>100.7</b>	17	<b>100.5</b>	15	87.9	9
6 – A5230 Progress Way (West) Left/Ahead	<b>128.0</b>	89	<b>118.6</b>	68	<b>127.5</b>	87
7 – A5230 Progress Way (West) Ahead	<b>115.0</b>	60	<b>108.3</b>	43	<b>114.1</b>	57
8 – A5230 Progress Way (West) Right	27.1	2	12.0	1	18.6	1

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	<b>135.8</b>	86	<b>124.3</b>	53	<b>119.2</b>	51
2 – A5230 Progress Way (East) Left/Ahead	<b>128.9</b>	78	<b>117.2</b>	55	<b>122.5</b>	63
3 – A5230 Progress Way (East) Ahead	<b>118.1</b>	58	<b>107.3</b>	35	<b>111.9</b>	43
4 – A5230 Progress Way (East) Right	30.1	2	20.2	1	35.6	3
5 – Midgeland Road (South) Left/Ahead/Right	<b>100.7</b>	17	<b>100.5</b>	15	87.9	9
6 – A5230 Progress Way (West) Left/Ahead	<b>128.4</b>	90	<b>119.9</b>	72	<b>128.5</b>	90
7 – A5230 Progress Way (West) Ahead	<b>115.3</b>	61	<b>109.6</b>	47	<b>115.0</b>	60
8 – A5230 Progress Way (West) Right	27.1	2	12.0	1	18.6	1

Table 7.29 - Junction 11 2027 Assessments – Results

It can be seen within Table 7.29 that the junction is overcapacity in the 2027 Base. Congestion is present for movements 1, 2, 3, 6 and 7 within all time periods.

The congestion on the above turning movements is accentuated within each development scenario. Additionally, movement 5 becomes congested in the AM and PM peak within all scenarios except scenario B in the AM peak.

Taking the above into account, junction improvement schemes will be identified for the 2027 assessment year. Depending on the development scenario progressed, junction wide improvements may be required.

### **Junction 11 Summary**

Junction 11 is overcapacity within the 2016, 2021 and 2027 Base and this congestion is accentuated within each development scenario. Further, several additional turning movements become congested in one or more development scenarios. Therefore, junction improvement and amelioration schemes will be identified for the 2016, 2021 and 2027 assessment years.

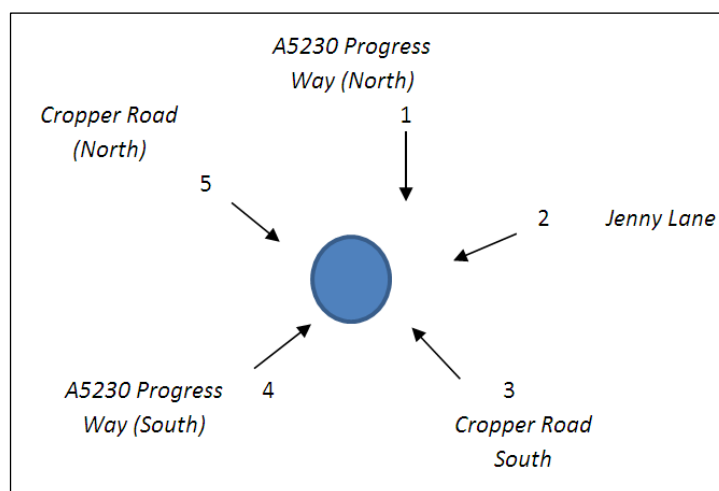


## 7.14 Junction 12 – A5230 Progress Way / Cropper Road / Jenny Lane

Junction 12 is the five arm roundabout junction of A5230 Progress Way / Cropper Road / Jenny Lane. This junction requires operational analysis in the following scenarios:

- 2016 – Base and Development Scenarios A, B, C, D, E, F; and
- 2021 – Base and Development Scenarios A, B, C, D, E, F; and
- 2027 – Base and Development Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report:



### 2016 Assessments

Table 7.30 provides the results of the analysis undertaken in the 2016 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.48	1	0.57	1	0.44	1
2 – Jenny Lane	0.11	0	0.46	1	0.16	0
3 – Cropper Road (South)	0.27	0	0.44	1	0.20	0
4 – A5230 Progress Way (South)	0.41	1	0.62	2	0.39	1
5 – Cropper Road (North)	0.08	0	0.24	0	0.07	0

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.49	1	0.38	1	0.44	1
2 – Jenny Lane	0.12	0	0.23	0	0.16	0
3 – Cropper Road (South)	0.27	0	0.22	0	0.21	0
4 – A5230 Progress Way (South)	0.42	1	0.43	1	0.40	1
5 – Cropper Road (North)	0.08	0	0.05	0	0.07	0

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.50	1	0.38	1	0.45	1
2 – Jenny Lane	0.12	0	0.23	0	0.16	0
3 – Cropper Road (South)	0.27	0	0.21	0	0.21	0

Scenario B		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
4 – A5230 Progress Way (South)	0.43	1	0.43	1	0.40	1	
5 – Cropper Road (North)	0.08	0	0.05	0	0.07	0	

Scenario C		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – A5230 Progress Way (North)	0.50	1	0.39	1	0.45	1	
2 – Jenny Lane	0.12	0	0.23	0	0.17	0	
3 – Cropper Road (South)	0.28	0	0.22	0	0.21	0	
4 – A5230 Progress Way (South)	0.43	1	0.43	1	0.41	1	
5 – Cropper Road (North)	0.08	0	0.05	0	0.07	0	

Scenario D		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – A5230 Progress Way (North)	0.50	1	0.39	1	0.45	1	
2 – Jenny Lane	0.12	0	0.24	0	0.16	0	
3 – Cropper Road (South)	0.28	0	0.22	0	0.21	0	
4 – A5230 Progress Way (South)	0.44	1	0.43	1	0.41	1	
5 – Cropper Road (North)	0.08	0	0.05	0	0.07	0	

Scenario E		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – A5230 Progress Way (North)	0.50	1	0.39	1	0.45	1	
2 – Jenny Lane	0.12	0	0.24	0	0.16	0	
3 – Cropper Road (South)	0.27	0	0.21	0	0.16	0	
4 – A5230 Progress Way (South)	0.44	1	0.43	1	0.41	1	
5 – Cropper Road (North)	0.08	0	0.05	0	0.07	0	

Scenario F		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – A5230 Progress Way (North)	0.50	1	0.39	1	0.45	1	
2 – Jenny Lane	0.12	0	0.24	0	0.16	0	
3 – Cropper Road (South)	0.28	0	0.22	0	0.21	0	
4 – A5230 Progress Way (South)	0.44	1	0.43	1	0.41	1	
5 – Cropper Road (North)	0.08	0	0.05	0	0.07	0	

Table 7.30 - Junction 12 2016 Assessments – Results

It can be seen from Table 7.30 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2016.

### 2021 Assessments

Table 7.31 provides the results of the analysis undertaken in the 2021 assessment year.

<b>BASE</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A5230 Progress Way (North)	0.53	1	0.41	1	0.49	1
2 – Jenny Lane	0.13	0	0.25	0	0.19	0
3 – Cropper Road (South)	0.31	0	0.23	0	0.24	0
4 – A5230 Progress Way (South)	0.44	1	0.46	1	0.44	1
5 – Cropper Road (North)	0.09	0	0.05	0	0.08	0

<b>Scenario A</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A5230 Progress Way (North)	0.57	1	0.45	1	0.52	1
2 – Jenny Lane	0.15	0	0.30	0	0.20	0
3 – Cropper Road (South)	0.33	0	0.29	0	0.27	0
4 – A5230 Progress Way (South)	0.48	1	0.50	1	0.46	1
5 – Cropper Road (North)	0.21	0	0.11	0	0.16	0

<b>Scenario B</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A5230 Progress Way (North)	0.57	1	0.42	1	0.50	1
2 – Jenny Lane	0.15	0	0.29	0	0.20	0
3 – Cropper Road (South)	0.32	0	0.24	0	0.24	0
4 – A5230 Progress Way (South)	0.47	1	0.49	1	0.45	1
5 – Cropper Road (North)	0.10	0	0.06	0	0.08	0

<b>Scenario C</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A5230 Progress Way (North)	0.59	2	0.47	1	0.54	1
2 – Jenny Lane	0.15	0	0.30	0	0.21	0
3 – Cropper Road (South)	0.34	1	0.30	0	0.28	0
4 – A5230 Progress Way (South)	0.50	1	0.51	1	0.48	1
5 – Cropper Road (North)	0.21	0	0.12	0	0.16	0

<b>Scenario D</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>

Scenario D	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – A5230 Progress Way (North)	0.60	2	0.47	1	0.54	1
2 – Jenny Lane	0.16	0	0.34	1	0.21	0
3 – Cropper Road (South)	0.34	1	0.31	0	0.28	0
4 – A5230 Progress Way (South)	0.51	1	0.52	1	0.48	1
5 – Cropper Road (North)	0.22	0	0.12	0	0.16	0

Scenario E	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – A5230 Progress Way (North)	0.60	2	0.47	1	0.53	1
2 – Jenny Lane	0.18	0	0.34	1	0.22	0
3 – Cropper Road (South)	0.35	1	0.31	0	0.28	0
4 – A5230 Progress Way (South)	0.52	1	0.52	1	0.48	1
5 – Cropper Road (North)	0.22	0	0.12	0	0.16	0

Scenario F	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – A5230 Progress Way (North)	0.61	2	0.47	1	0.54	1
2 – Jenny Lane	0.19	0	0.35	1	0.22	0
3 – Cropper Road (South)	0.35	1	0.31	0	0.28	0
4 – A5230 Progress Way (South)	0.52	1	0.52	1	0.48	1
5 – Cropper Road (North)	0.22	0	0.13	0	0.16	0

Table 7.31 - Junction 12 2021 Assessments – Results

It can be seen from Table 7.31 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2021.

### 2027 Assessments

Table 7.32 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – A5230 Progress Way (North)	0.59	1	0.44	1	0.55	1
2 – Jenny Lane	0.15	0	0.28	0	0.22	0
3 – Cropper Road (South)	0.35	1	0.26	0	0.28	0
4 – A5230 Progress Way (South)	0.48	1	0.50	1	0.48	1
5 – Cropper Road (North)	0.10	0	0.06	0	0.09	0

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.65	2	0.53	1	0.60	2
2 – Jenny Lane	0.18	0	0.37	1	0.25	0
3 – Cropper Road (South)	0.40	1	0.40	1	0.35	1
4 – A5230 Progress Way (South)	0.54	1	0.57	1	0.53	1
5 – Cropper Road (North)	0.39	1	0.21	0	0.28	0

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.65	2	0.46	1	0.57	1
2 – Jenny Lane	0.17	0	0.34	1	0.23	0
3 – Cropper Road (South)	0.38	1	0.28	0	0.29	0
4 – A5230 Progress Way (South)	0.51	1	0.55	1	0.50	1
5 – Cropper Road (North)	0.12	0	0.07	0	0.09	0

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.69	2	0.55	1	0.63	2
2 – Jenny Lane	0.19	0	0.38	1	0.25	0
3 – Cropper Road (South)	0.42	1	0.42	1	0.37	1
4 – A5230 Progress Way (South)	0.56	1	0.60	1	0.54	1
5 – Cropper Road (North)	0.40	1	0.21	0	0.28	0

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.70	2	0.55	1	0.63	2
2 – Jenny Lane	0.20	0	0.43	1	0.25	0
3 – Cropper Road (South)	0.42	1	0.43	1	0.37	1
4 – A5230 Progress Way (South)	0.58	1	0.60	2	0.54	1
5 – Cropper Road (North)	0.42	1	0.22	0	0.28	0

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.71	2	0.56	1	0.64	1
2 – Jenny Lane	0.24	0	0.45	1	0.28	0
3 – Cropper Road (South)	0.43	1	0.43	1	0.37	1
4 – A5230 Progress Way (South)	0.59	1	0.61	2	0.55	1

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
5 – Cropper Road (North)	0.42	1	0.23	0	0.30	0

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A5230 Progress Way (North)	0.72	2	0.57	1	0.64	2
2 – Jenny Lane	0.27	0	0.46	1	0.30	0
3 – Cropper Road (South)	0.44	1	0.44	1	0.38	1
4 – A5230 Progress Way (South)	0.59	1	0.62	2	0.56	1
5 – Cropper Road (North)	0.43	1	0.24	0	0.30	0

Table 7.32 - Junction 12 2027 Assessments – Results

It can be seen from Table 7.32 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2027.

#### Junction 12 Summary

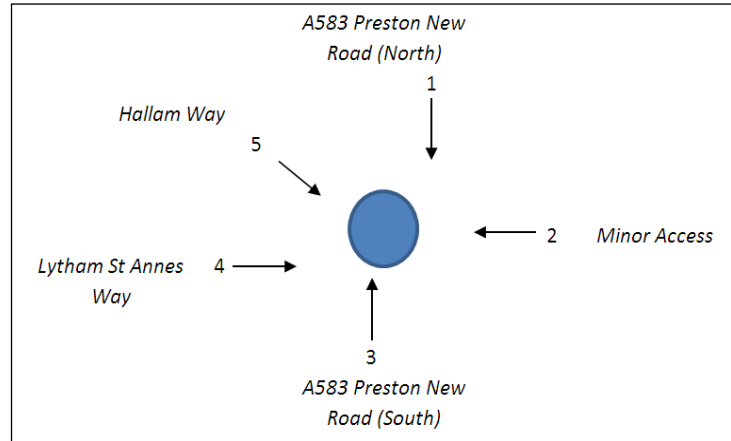
In all instances of the analysis, junction 12 can be seen to be operating satisfactorily. Further consideration of the junction is therefore not required.

## 7.15 Junction 13 - A583 Preston New Road / Hallam Way / Lytham St. Annes Way

This junction requires operational analysis in the following scenarios:

- 2016 – Base and Development Scenarios A, B, C, D, E, F;
- 2021 – Base and Development Scenarios A, B, C, D, E, F; and
- 2027 – Base and Development Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report:



### 2016 Assessments

Table 7.33 provides the results of the analysis undertaken in the 2016 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.45	1	0.40	1	0.42	1
2 – Minor Access (East)	0.01	0	0.01	0	0.01	0
3 – A583 Preston New Road (South)	0.33	0	0.39	1	0.35	1
4 – Lytham St Annes Way	0.32	0	0.20	0	0.24	0
5 – Hallam Way	0.09	0	0.24	0	0.16	0

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.45	1	0.41	1	0.42	1
2 – Minor Access (East)	0.01	0	0.01	0	0.01	0
3 – A583 Preston New Road (South)	0.33	0	0.40	1	0.35	1
4 – Lytham St Annes Way	0.28	0	0.23	0	0.24	0
5 – Hallam Way	0.08	0	0.25	0	0.16	0

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.45	1	0.41	1	0.42	1
2 – Minor Access (East)	0.01	0	0.01	0	0.01	0
3 – A583 Preston New Road (South)	0.33	1	0.40	1	0.36	1

Scenario B		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
4 – Lytham St Annes Way	0.27	0	0.23	0	0.24	0	
5 – Hallam Way	0.08	0	0.25	0	0.16	0	

Scenario C		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – A583 Preston New Road (North)	0.45	1	0.41	1	0.42	1	
2 – Minor Access (East)	0.01	0	0.01	0	0.01	0	
3 – A583 Preston New Road (South)	0.33	1	0.40	1	0.36	1	
4 – Lytham St Annes Way	0.27	0	0.23	0	0.24	0	
5 – Hallam Way	0.08	0	0.25	0	0.16	0	

Scenario D		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – A583 Preston New Road (North)	0.47	1	0.42	1	0.42	1	
2 – Minor Access (East)	0.01	0	0.01	0	0.01	0	
3 – A583 Preston New Road (South)	0.30	0	0.41	1	0.36	1	
4 – Lytham St Annes Way	0.28	0	0.25	0	0.24	0	
5 – Hallam Way	0.09	0	0.26	0	0.16	0	

Scenario E		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – A583 Preston New Road (North)	0.47	1	0.41	1	0.42	1	
2 – Minor Access (East)	0.01	0	0.01	0	0.01	0	
3 – A583 Preston New Road (South)	0.34	1	0.40	1	0.36	1	
4 – Lytham St Annes Way	0.30	0	0.25	0	0.24	0	
5 – Hallam Way	0.09	0	0.26	0	0.16	0	

Scenario F		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – A583 Preston New Road (North)	0.47	1	0.43	1	0.42	1	
2 – Minor Access (East)	0.01	0	0.01	0	0.01	0	
3 – A583 Preston New Road (South)	0.34	1	0.44	1	0.36	1	
4 – Lytham St Annes Way	0.30	0	0.27	0	0.24	0	
5 – Hallam Way	0.09	0	0.28	0	0.16	0	

Table 7.33 - Junction 13 2016 Assessments – Results



It can be seen from Table 7.33 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2016.

### 2021 Assessments

Table 7.34 provides the results of the analysis undertaken in the 2021 assessment year.

<b>BASE</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A583 Preston New Road (North)	0.50	1	0.45	1	0.49	1
2 – Minor Access (East)	0.02	0	0.11	0	0.14	0
3 – A583 Preston New Road (South)	0.39	1	0.45	1	0.43	1
4 – Lytham St Annes Way	0.34	1	0.24	0	0.31	0
5 – Hallam Way	0.11	0	0.40	1	0.22	0

<b>Scenario A</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A583 Preston New Road (North)	0.53	1	0.46	1	0.47	1
2 – Minor Access (East)	0.02	0	0.01	0	0.02	0
3 – A583 Preston New Road (South)	0.40	1	0.47	1	0.41	1
4 – Lytham St Annes Way	0.35	1	0.32	0	0.29	0
5 – Hallam Way	0.11	0	0.34	1	0.21	0

<b>Scenario B</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A583 Preston New Road (North)	0.54	1	0.47	1	0.48	1
2 – Minor Access (East)	0.02	0	0.01	0	0.02	0
3 – A583 Preston New Road (South)	0.41	1	0.47	1	0.42	1
4 – Lytham St Annes Way	0.36	1	0.33	0	0.30	0
5 – Hallam Way	0.11	0	0.35	1	0.21	0

<b>Scenario C</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A583 Preston New Road (North)	0.54	1	0.50	1	0.50	1
2 – Minor Access (East)	0.02	0	0.01	0	0.02	0
3 – A583 Preston New Road (South)	0.41	1	0.47	1	0.44	1
4 – Lytham St Annes Way	0.36	1	0.33	0	0.34	1
5 – Hallam Way	0.11	0	0.35	1	0.23	0

<b>Scenario D</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – A583 Preston New Road (North)	0.54	1	0.50	1	0.50	1
2 – Minor Access (East)	0.02	0	0.01	0	0.02	0
3 – A583 Preston New Road (South)	0.41	1	0.47	1	0.44	1
4 – Lytham St Annes Way	0.36	1	0.33	0	0.34	1
5 – Hallam Way	0.11	0	0.35	1	0.23	0

Scenario D	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.59	1	0.48	1	0.53	1
2 – Minor Access (East)	0.03	0	0.01	0	0.03	0
3 – A583 Preston New Road (South)	0.46	1	0.49	1	0.49	1
4 – Lytham St Annes Way	0.38	1	0.41	1	0.37	1
5 – Hallam Way	0.12	0	0.41	1	0.23	0

Scenario E	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.60	2	0.51	1	0.49	1
2 – Minor Access (East)	0.13	0	0.05	0	0.06	0
3 – A583 Preston New Road (South)	0.47	1	0.50	1	0.43	1
4 – Lytham St Annes Way	0.41	1	0.42	1	0.32	0
5 – Hallam Way	0.12	0	0.43	1	0.22	0

Scenario F	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.61	2	0.52	1	0.52	1
2 – Minor Access (East)	0.23	0	0.08	0	0.11	0
3 – A583 Preston New Road (South)	0.48	1	0.52	1	0.44	1
4 – Lytham St Annes Way	0.43	1	0.44	1	0.34	1
5 – Hallam Way	0.13	0	0.46	1	0.31	0

Table 7.34 - Junction 13 2021 Assessments – Results

It can be seen from Table 7.34 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2021.

### 2027 Assessments

Table 7.35 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.53	1	0.49	1	0.53	1
2 – Minor Access (East)	0.03	0	0.02	0	0.03	0
3 – A583 Preston New Road (South)	0.40	1	0.51	1	0.47	1
4 – Lytham St Annes Way	0.38	1	0.29	0	0.36	1
5 – Hallam Way	0.13	0	0.37	1	0.27	0

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.59	1	0.52	1	0.53	1
2 – Minor Access (East)	0.03	0	0.02	1	0.03	0
3 – A583 Preston New Road (South)	0.46	1	0.53	1	0.47	1
4 – Lytham St Annes Way	0.42	1	0.41	1	0.36	1
5 – Hallam Way	0.11	0	0.47	0	0.27	0

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.62	2	0.53	1	0.54	1
2 – Minor Access (East)	0.04	0	0.02	0	0.03	0
3 – A583 Preston New Road (South)	0.48	1	0.55	1	0.49	1
4 – Lytham St Annes Way	0.43	1	0.42	1	0.36	1
5 – Hallam Way	0.14	0	0.49	1	0.27	0

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.64	2	0.51	1	0.54	1
2 – Minor Access (East)	0.26	0	0.02	0	0.03	0
3 – A583 Preston New Road (South)	0.51	1	0.54	1	0.49	1
4 – Lytham St Annes Way	0.46	1	0.41	1	0.37	1
5 – Hallam Way	0.16	0	0.42	1	0.28	0

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.69	2	0.55	1	0.54	1
2 – Minor Access (East)	0.06	0	0.02	0	0.03	0
3 – A583 Preston New Road (South)	0.56	1	0.57	1	0.49	1
4 – Lytham St Annes Way	0.46	1	0.54	1	0.37	1
5 – Hallam Way	0.16	0	0.66	2	0.28	0

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.68	2	0.59	1	0.57	1
2 – Minor Access (East)	0.40	1	0.12	0	0.16	0
3 – A583 Preston New Road (South)	0.61	2	0.61	2	0.52	1
4 – Lytham St Annes Way	0.48	1	0.58	1	0.41	1

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
5 – Hallam Way	0.17	0	0.77	3	0.31	0

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.75	3	0.36	1	0.59	1
2 – Minor Access (East)	1.10	26	0.10	0	0.30	0
3 – A583 Preston New Road (South)	0.65	2	0.65	2	0.55	1
4 – Lytham St Annes Way	0.60	1	0.63	2	0.47	1
5 – Hallam Way	0.37	1	0.94	11	0.36	1

Table 7.35 - Junction 13 2027 Assessments – Results

It can be seen from Table 7.35 that the junction operates satisfactorily in all scenarios, except scenario F in the AM and PM peaks. There is therefore a requirement to identify an improvement at this junction in 2027 for scenario F.

#### Junction 13 Summary

In all but one instance of the analysis, junction 13 can be seen to be operating satisfactorily. There is a requirement to identify an improvements at this junction in 2027 for scenario F.

## 7.16 Junction 14/15 - A583 Preston New Road / Whitehill Road / Peel Road

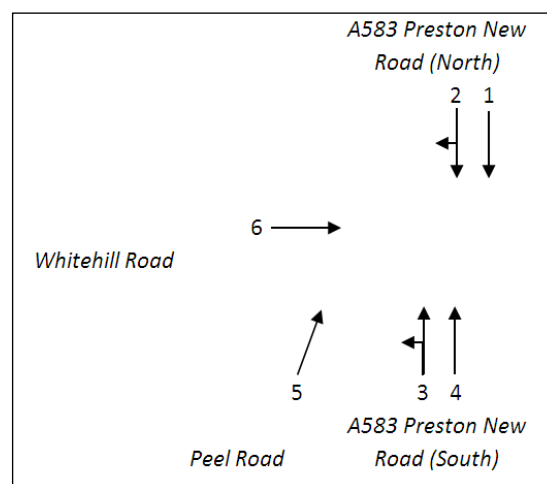
Junction 14/15 is a four arm signalised junction consisting of Preston New Road (North and South), Peel Road and Whitehill Road. This junction requires operational analysis in the following scenarios:

- 2016 – Base and Development Scenarios D, E, F;
- 2021 – Base and Development Scenarios A, B, C, D, E, F; and
- 2027 – Base and Development Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report:

### 2016 Assessments

Table 7.36 provides the results of the analysis undertaken in the 2016 assessment year.



BASE Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	69.9	15	67.9	13	78.7	15
2. A583 Preston New Road (North) Ahead/Right	81.8	16	65.2	13	83.8	16
3. A583 Preston New Road (South) Left/Ahead	59.3	11	82.7	17	79.3	15
4. A583 Preston New Road Ahead	52.6	11	72.2	15	69.7	14
5. Peel Road	82.5	13	83.1	17	84.8	15
6. Whitehill Road	82.3	14	83.0	12	83.1	16

Scenario D Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	72.9	15	69.9	13	79.6	16
2. A583 Preston New Road (North) Ahead/Right	85.0	17	66.9	13	84.7	16
3. A583 Preston New Road (South) Left/Ahead	62.5	12	83.8	18	80.1	15
4. A583 Preston New Road Ahead	55.4	12	73.1	16	70.4	14
5. Peel Road	82.2	13	84.5	18	86.0	16
6. Whitehill Road	83.8	15	84.7	12	84.1	16

Scenario E Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	72.9	15	69.8	13	79.6	16
2. A583 Preston New Road (North) Ahead/Right	85.0	17	66.9	13	84.7	16

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
3. A583 Preston New Road (South) Left/Ahead	62.4	12	83.7	18	80.1	15
4. A583 Preston New Road Ahead	55.3	12	73.1	16	70.4	14
5. Peel Road	82.2	13	84.5	18	86.0	16
6. Whitehill Road	83.8	15	84.7	12.	84.1	16

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	72.9	15	69.8	13	79.6	16
2. A583 Preston New Road (North) Ahead/Right	85.0	17	66.9	13	84.7	16
3. A583 Preston New Road (South) Left/Ahead	62.4	12	83.7	18	80.2	15
4. A583 Preston New Road Ahead	55.3	12	73.1	16	70.6	14
5. Peel Road	82.2	13	84.5	18	86.0	16
6. Whitehill Road	83.8	15	84.7	12	83.6	16

Table 7.36 - Junction 14/15 2016 Assessments – Results

It can be seen within Table 7.36 that the junction operates within capacity in all scenarios in 2016.

Taking the above into account, no junction improvement schemes will need to be identified for the 2016 assessment year.

### 2021 Assessments

Table 7.37 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	70.8	14.9	68.9	13.2	81.1	16.1
2. A583 Preston New Road (North) Ahead/Right	82.8	16.8	66.2	12.8	86.3	17.0
3. A583 Preston New Road (South) Left/Ahead	60.0	11.5	83.7	17.5	81.5	15.7
4. A583 Preston New Road Ahead	53.2	11.0	73.1	15.7	71.7	14.4
5. Peel Road	83.4	13.1	84.3	17.6	87.3	16.3
6. Whitehill Road	82.9	14.3	83.5	11.7	85.1	16.2

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	74.7	15.7	72.4	13.9	83.5	16.5
2. A583 Preston New Road (North) Ahead/Right	86.9	18.1	69.2	13.5	88.6	17.9
3. A583 Preston New Road (South) Left/Ahead	65.0	12.4	88.0	19.0	84.9	16.5

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
4. A583 Preston New Road Ahead	57.6	11.8	76.7	16.6	74.6	14.8
5. Peel Road	86.8	14.2	88.8	19.8	90.1	17.7
6. Whitehill Road	86.9	16.5	87.9	13.6	88.6	18.1

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1. A583 Preston New Road (North) Ahead	73.9	16.0	72.3	14.1	83.4	16.9
2. A583 Preston New Road (North) Ahead/Right	86.1	18.3	69.4	13.7	88.8	18.2
3. A583 Preston New Road (South) Left/Ahead	62.3	12.2	85.4	18.2	82.6	16.1
4. A583 Preston New Road Ahead	55.3	11.6	74.6	16.1	72.7	14.6
5. Peel Road	84.1	13.7	86.7	18.7	86.5	16.3
6. Whitehill Road	86.0	14.9	84.6	12.0	87.7	16.9

Scenario C	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	75.6	16.3	74.2	14.4	85.8	17.5
2. A583 Preston New Road (North) Ahead/Right	88.0	18.9	71.1	14.0	91.2	19.2
3. A583 Preston New Road (South) Left/Ahead	64.3	12.5	89.2	19.7	86.0	17.1
4. A583 Preston New Road Ahead	57.0	11.8	77.8	16.9	75.6	15.2
5. Peel Road	88.8	15.1	90.8	21.0	89.3	17.8
6. Whitehill Road	89.7	17.3	87.9	13.6	91.3	19.2

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	79.9	17.2	75.9	14.9	85.8	17.5
2. A583 Preston New Road (North) Ahead/Right	92.5	21.2	72.5	14.4	91.2	19.2
3. A583 Preston New Road (South) Left/Ahead	68.8	13.3	89.6	19.9	86.0	17.1
4. A583 Preston New Road Ahead	61.0	12.5	78.2	17.0	75.6	15.2
5. Peel Road	91.4	17.1	91.2	21.2	89.3	17.8
6. Whitehill Road	89.7	17.3	87.9	13.6	91.3	19.2

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	76.8	16.7	76.1	15.0	86.3	17.7
2. A583 Preston New Road (North) Ahead/Right	89.0	19.6	72.9	14.4	91.6	19.5

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
3. A583 Preston New Road (South) Left/Ahead	65.5	12.8	89.9	20.1	86.2	17.2
4. A583 Preston New Road Ahead	58.1	12.2	78.5	17.3	75.8	15.3
5. Peel Road	90.8	15.9	91.5	21.5	89.7	17.9
6. Whitehill Road	89.7	17.3	87.9	13.6	91.3	19.2

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	77.6	17.0	76.4	15.1	87.0	18.0
2. A583 Preston New Road (North) Ahead/Right	89.8	20.0	73.1	14.6	92.3	20.0
3. A583 Preston New Road (South) Left/Ahead	65.6	12.8	90.5	20.4	86.6	17.3
4. A583 Preston New Road Ahead	58.1	12.2	79.0	17.4	76.2	15.4
5. Peel Road	90.8	15.9	90.3	21.1	89.9	18.0
6. Whitehill Road	89.7	17.3	91.8	14.8	91.3	19.2

Table 7.37 - Junction 14/15 2021 Assessments – Results

It can be seen within Table 7.37? that the junction operates within capacity in the 2021 Base.

Congestion arises in a number of development scenarios, except for Development scenario B.

Taking the above into account, junction improvement schemes will be identified for the 2021 assessment year.

### 2027 Assessments

Table 7.38 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	73.8	16.0	71.8	13.9	85.2	17.5
2. A583 Preston New Road (North) Ahead/Right	86.3	18.4	69.0	13.5	90.6	19.2
3. A583 Preston New Road (South) Left/Ahead	62.5	12.2	86.9	18.8	85.3	17.1
4. A583 Preston New Road Ahead	55.3	11.6	75.8	16.6	75.0	15.3
5. Peel Road	87.1	14.3	87.8	19.3	88.9	17.4
6. Whitehill Road	85.1	15.0	86.4	12.6	91.0	18.7

Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	76.5	17.4	77.6	15.2	90.2	19.2
2. A583 Preston New Road (North) Ahead/Right	99.2	29.3	74.3	14.6	95.7	22.3



Scenario A	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
3. A583 Preston New Road (South) Left/Ahead	62.5	12.6	95.1	23.6	92.2	20.0
4. A583 Preston New Road Ahead	55.3	11.9	82.9	18.5	81.0	16.6
5. Peel Road	100.2	22.5	96.3	25.8	97.6	23.7
6. Whitehill Road	99.3	24.9	93.1	16.4	94.9	22.8

Scenario B	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	77.3	17.4	76.6	15.4	86.6	18.6
2. A583 Preston New Road (North) Ahead/Right	90.2	20.9	73.6	14.9	92.5	20.9
3. A583 Preston New Road (South) Left/Ahead	64.1	12.8	89.6	20.4	84.5	17.2
4. A583 Preston New Road Ahead	56.9	12.2	78.4	17.5	74.4	15.4
5. Peel Road	88.7	15.3	89.7	20.6	91.7	19.1
6. Whitehill Road	91.6	17.2	91.8	14.3	93.9	20.1

Scenario C	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	80.9	18.3	80.8	16.2	94.2	22.1
2. A583 Preston New Road (North) Ahead/Right	94.2	23.2	77.5	15.6	100.2	28.0
3. A583 Preston New Road (South) Left/Ahead	67.9	13.5	97.3	26.1	93.9	21.2
4. A583 Preston New Road Ahead	60.2	12.8	84.9	19.4	82.5	17.2
5. Peel Road	95.5	19.0	97.7	28.2	97.6	24.2
6. Whitehill Road	96.1	21.9	97.0	18.8	97.7	25.3

Scenario D	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	83.4	19.0	83.2	17.1	94.2	22.1
2. A583 Preston New Road (North) Ahead/Right	96.7	25.6	79.2	16.3	100.2	28.0
3. A583 Preston New Road (South) Left/Ahead	71.2	14.2	97.8	26.7	93.9	21.2
4. A583 Preston New Road Ahead	63.1	13.5	85.4	19.6	82.5	17.2
5. Peel Road	94.5	18.7	98.0	28.6	97.6	24.2
6. Whitehill Road	96.1	21.9	97.0	18.8	97.7	25.3

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	85.0	19.8	83.8	17.3	92.9	21.5

Scenario E	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
2. A583 Preston New Road (North) Ahead/Right	98.3	27.8	80.1	16.5	98.7	26.4
3. A583 Preston New Road (South) Left/Ahead	71.1	14.2	98.7	28.1	91.9	20.3
4. A583 Preston New Road Ahead	63.1	13.4	86.2	20.1	80.8	17.0
5. Peel Road	98.4	21.7	99.2	30.5	98.4	25.3
6. Whitehill Road	97.5	23.8	97.0	18.8	100.6	29.1

Scenario F	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	86.6	20.5	84.8	17.8	94.4	22.7
2. A583 Preston New Road (North) Ahead/Right	99.7	30.1	81.0	16.8	100.1	28.6
3. A583 Preston New Road (South) Left/Ahead	71.4	14.3	99.9	29.8	92.6	20.7
4. A583 Preston New Road Ahead	63.3	13.5	87.3	20.5	81.5	17.2
5. Peel Road	98.9	22.3	100.4	32.8	99.2	26.3
6. Whitehill Road	97.5	23.8	97.0	18.8	100.6	29.1

Table 7.38 - Junction 14/15 2027 Assessments – Results

It can be seen within Table 7.38 that the junction operates over capacity in the 2027 Base in a couple of locations.

Further congestion arises in all of the development scenarios.

Taking the above into account, junction improvement schemes will be identified for the 2027 assessment year.

#### Junction 14/15 Summary

Junction 14/15 becomes overcapacity in the 2027 base in a couple of locations. Most of the development scenarios (excepting scenario B in 2021) create further or more intense issues. Therefore, junction improvement and amelioration schemes will be identified for the 2021 and 2027 assessment years.

## 7.17 Junction 16 - Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way

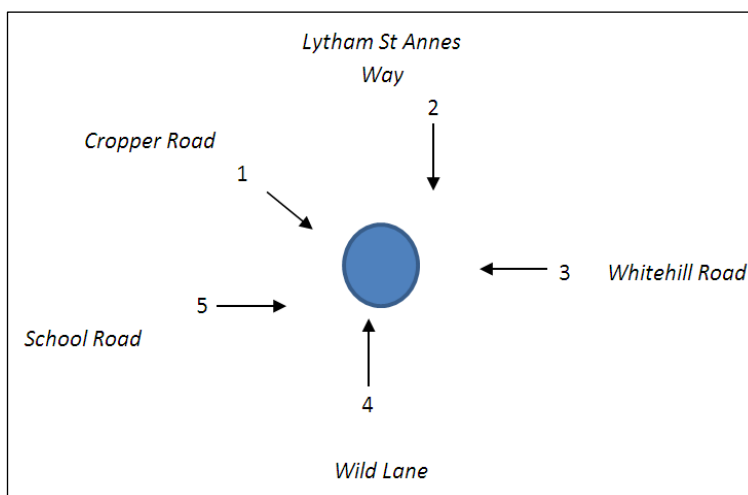
Junction 16 is a five arm priority roundabout consisting of Lytham St Annes Way, Whitehill Road, Wild Lane, School Road and Cropper Road. This junction requires operational analysis in the following scenarios:

- 2021 – Base and Development Scenarios A, C, D, E, F; and
- 2027 – Base and Development Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report:

### 2021 Assessments

Table 7.39 provides the results of the analysis undertaken in the 2021 assessment year.



BASE Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.47	1	0.82	4	0.66	2
2 – Lytham St Annes Way	0.38	1	0.47	1	0.42	1
3 – Whitehill Road	0.32	0	0.11	0	0.23	0
4 – Wild Lane	<b>1.16</b>	77	0.69	2	<b>0.92</b>	9
5 – School Road	0.31	0	0.47	1	0.41	1

Scenario A Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.48	1	<b>0.86</b>	6	0.67	2
2 – Lytham St Annes Way	0.40	1	0.51	1	0.45	1
3 – Whitehill Road	0.32	0	0.12	0	0.23	0
4 – Wild Lane	<b>1.21</b>	95	0.71	2	<b>0.94</b>	10
5 – School Road	0.36	1	0.49	1	0.45	1

Scenario C Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.49	1	<b>0.86</b>	6	0.67	2
2 – Lytham St Annes Way	0.40	1	0.51	1	0.45	1
3 – Whitehill Road	0.33	0	0.12	0	0.23	0

Scenario C		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
4 – Wild Lane	1.21	97	0.71	2	0.94	10	
5 – School Road	0.36	1	0.49	1	0.45	1	

Scenario D		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – Cropper Road	0.49	1	0.89	7	0.67	2	
2 – Lytham St Annes Way	0.40	1	0.52	1	0.45	1	
3 – Whitehill Road	0.33	0	0.12	0	0.23	0	
4 – Wild Lane	1.24	111	0.72	3	0.94	10	
5 – School Road	0.36	1	0.50	1	0.45	1	

Scenario E		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – Cropper Road	0.51	1	0.89	7	0.79	4	
2 – Lytham St Annes Way	0.40	1	0.52	1	0.53	1	
3 – Whitehill Road	0.33	1	0.12	0	0.28	0	
4 – Wild Lane	1.25	114	0.74	3	1.08	43	
5 – School Road	0.36	1	0.50	1	0.54	1	

Scenario F		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – Cropper Road	0.52	1	0.90	8	0.69	2	
2 – Lytham St Annes Way	0.40	1	0.52	1	0.45	1	
3 – Whitehill Road	0.33	1	0.12	0	0.23	0	
4 – Wild Lane	1.25	116	0.75	3	0.96	13	
5 – School Road	0.36	1	0.50	1	0.45	1	

Table 7.39 - Junction 16 2021 Assessments – Results

It can be seen from Table 7.39 that Junction 16 is overcapacity in the 2021 Base, with congestion present on Wild Lane in the AM and Saturday Peak. This congestion is exacerbated within each development scenario. Additionally within each development scenario, Cropper Road becomes congested within the PM peak only.

As congestion is observed to increase within each of the development scenarios, junction improvements will be identified for 2021. These improvements should focus on the Cropper Road and Wild Lane arms.

### 2027 Assessments

Table 7.40 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.51	1	0.93	9	0.74	2
2 – Lytham St Annes Way	0.42	1	0.52	1	0.48	1
3 – Whitehill Road	0.36	1	0.13	0	0.26	0
4 – Wild Lane	1.29	132	0.76	3	1.03	27
5 – School Road	0.34	1	0.52	1	0.47	1

Scenario A	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.54	1	0.72	2	0.76	3
2 – Lytham St Annes Way	0.45	1	0.52	1	0.52	1
3 – Whitehill Road	0.37	1	0.58	1	0.27	0
4 – Wild Lane	1.35	171	0.99	15	1.05	35
5 – School Road	0.44	1	0.61	2	0.54	1

Scenario B	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.52	1	0.96	14	0.67	2
2 – Lytham St Annes Way	0.43	1	0.53	1	0.45	1
3 – Whitehill Road	0.37	1	0.14	0	0.23	0
4 – Wild Lane	1.34	165	0.77	3	0.94	10
5 – School Road	0.34	1	0.53	1	0.45	1

Scenario C	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.55	1	0.99	18	0.76	3
2 – Lytham St Annes Way	0.45	1	0.62	2	0.53	1
3 – Whitehill Road	0.38	1	0.14	0	0.28	0
4 – Wild Lane	1.36	174	0.80	4	1.06	35
5 – School Road	0.44	1	0.58	1	0.54	1

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.55	1	1.02	26	0.76	3
2 – Lytham St Annes Way	0.45	1	0.62	2	0.53	1
3 – Whitehill Road	0.38	1	0.15	0	0.28	0

Scenario D	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
4 – Wild Lane	1.40	204	0.81	4	1.06	35
5 – School Road	0.44	1	0.58	1	0.54	1

Scenario E	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.59	1	1.04	32	0.69	2
2 – Lytham St Annes Way	0.46	1	0.62	2	0.45	1
3 – Whitehill Road	0.38	1	0.15	0	0.23	0
4 – Wild Lane	1.41	212	0.84	5	0.96	13
5 – School Road	0.44	1	0.59	1	0.45	1

Scenario F	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.62	2	1.06	38	0.81	4
2 – Lytham St Annes Way	0.46	1	0.62	2	0.54	1
3 – Whitehill Road	0.39	1	0.15	0	0.28	0
4 – Wild Lane	1.42	220	0.88	6	1.10	50
5 – School Road	0.44	1	0.60	1	0.54	1

Table 7.40 - Junction 16 2027 Assessments – Results

It can be seen from Table 7.40 that Junction 16 is overcapacity in the 2027 Base, with congestion present on Wild Lane in the AM and Saturday Peak as well as Cropper Road in the PM peak. This congestion is exacerbated within each development scenario. Additionally within scenarios A and F, Wild Lane also becomes congested within the PM peak.

As congestion is observed to increase within each of the development scenarios, junction improvements will be identified for 2027. These improvements should focus on the Cropper Road and Wild Lane arms.

### Junction 16 Summary

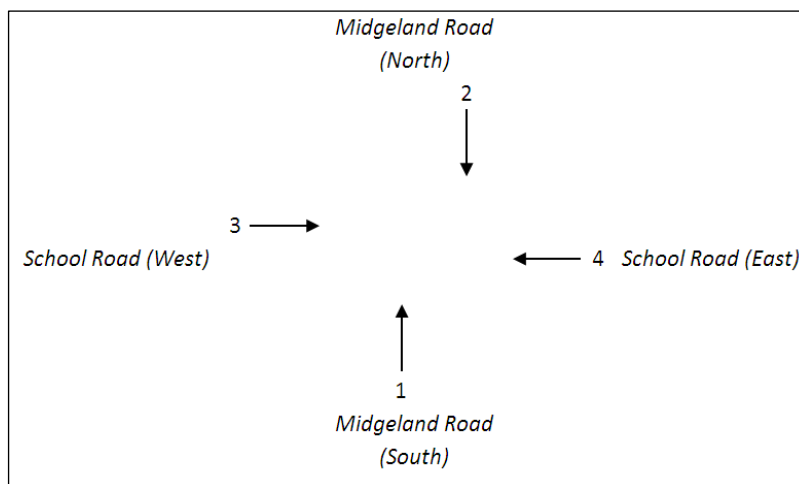
Junction 16 is overcapacity in both the 2016 and 2021 Base, with the congestion being accentuated within all development scenarios. Therefore, junction improvement schemes will be identified for the junction, focusing on the Cropper Road and Wild Lane arms.

## 7.18 Junction 17 - School Road / Midgeland Road

Junction 17 is a four arm priority junction consisting of Midgeland Road and School Road. This junction requires operational analysis in the following scenarios:

- 2021 – Base and Development Scenarios D, E, F; and
- 2027 – Base and Development Scenarios D, E, F.

The results of this analysis are described in the following section of the report:



### 2021 Assessments

Table 7.41 provides the results of the analysis undertaken in the 2021 assessment year.

BASE Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.367	1	0.361	1	0.373	1
2 – Midgeland Road (North)	0.832	4	0.777	3	0.828	4
3 – School Road (West)	0.020	0	0.012	0	0.018	0
4 – School Road (East)	0.299	1	0.726	5	0.514	2

Scenario D Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.436	1	0.405	1	0.379	2
2 – Midgeland Road (North)	0.889	6	0.818	4	0.837	0
3 – School Road (West)	0.021	0	0.012	0	0.018	4
4 – School Road (East)	0.314	1	0.769	6	0.518	1

Scenario E Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.449	1	0.421	1	0.391	1
2 – Midgeland Road (North)	0.898	6	0.833	4	0.847	4
3 – School Road (West)	0.021	0	0.012	0	0.018	0
4 – School Road (East)	0.318	1	0.799	6	0.524	2

Scenario F Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.449	1	0.421	1	0.391	1
2 – Midgeland Road (North)	0.898	6	0.833	4	0.847	4
3 – School Road (West)	0.021	0	0.012	0	0.018	0
4 – School Road (East)	0.318	1	0.799	6	0.524	2

Scenario F Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.457	1	0.437	1	0.403	1
2 – Midgeland Road (North)	<b>0.907</b>	6	0.847	4	<b>0.858</b>	5
3 – School Road (West)	0.021	0	0.012	0	0.018	0
4 – School Road (East)	0.322	1	0.790	6	0.531	2

Table 7.41 - Junction 17 2021 Assessments – Results

Table 7.41 indicates that the junction operates satisfactorily within the 2021 Base and development scenarios D and E. Within development scenario F, congestion is observed on the Midgeland Road North arm in the AM peak only.

Junction improvement schemes in 2021 are only necessary in the event that scenario F is progressed. In this case, improvement measures should focus on the Midgeland Road North arm.

### 2027 Assessments

Table 7.42 provides the results of the analysis undertaken in the 2027 assessment year.

BASE Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.451	1	0.482	1	0.494	1
2 – Midgeland Road (North)	<b>1.001</b>	12	<b>0.995</b>	10	<b>1.047</b>	15
3 – School Road (West)	0.210	0	0.017	0	0.020	0
4 – School Road (East)	0.358	1	0.891	12	0.635	3

Scenario D Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.591	1	0.630	2	0.510	1
2 – Midgeland Road (North)	<b>1.121</b>	22	<b>1.117</b>	17	<b>1.072</b>	17
3 – School Road (West)	0.022	0	0.018	0	0.020	0
4 – School Road (East)	0.384	1	<b>0.972</b>	23	0.640	3

Scenario E Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.620	2	0.718	2	0.543	1
2 – Midgeland Road (North)	<b>1.151</b>	24	<b>1.195</b>	22	<b>1.108</b>	20
3 – School Road (West)	0.023	0	0.019	0	0.020	0
4 – School Road (East)	0.396	1	<b>0.986</b>	27	0.660	4

Scenario F Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q



Scenario F Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.660	2	0.832	3	0.589	1
2 – Midgeland Road (North)	<b>1.183</b>	27	<b>1.288</b>	28	<b>1.148</b>	23
3 – School Road (West)	0.023	0	0.020	0	0.020	0
4 – School Road (East)	0.408	2	<b>1.001</b>	32	0.679	4

Table 7.42 - Junction 17 2027 Assessments – Results

Table 7.42 indicates that the junction is overcapacity in the 2027 Base on the Midgeland Road North arm. This congestion is exacerbated within each of the assessed development scenarios. Further, the School Road East arm becomes congested within the assessed development scenarios in the PM peak only.

Taking into account the above, it is necessary to identify potential junction improvement options. Schemes identified should focus on the Midgeland Road North and School Road East arms of Junction 17.

#### Junction 17 Summary

The junction assessment results indicate that the junction operates satisfactorily within the 2021 assessment year, except within the AM peak if development scenario F is progressed. Any junction improvement measures should focus on the Midgeland Road North arm.

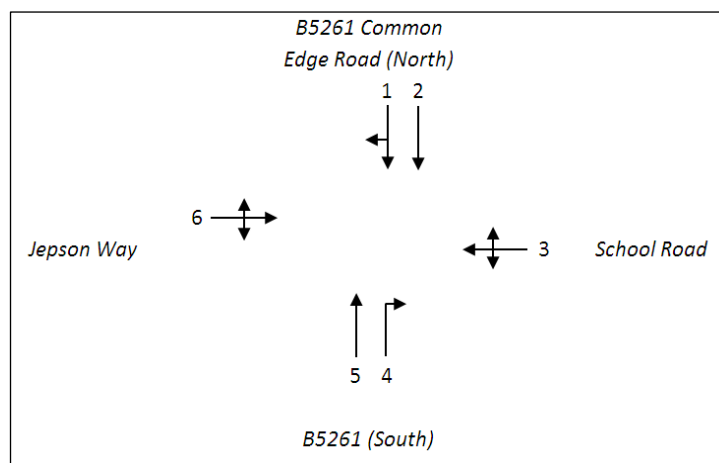
Junction 17 is congested in the 2027 Base, which is exacerbated within development scenarios D, E and F. Junction improvement options are therefore required to be identified, which should focus on the Midgeland Road North and School Road East arm.

## 7.19 Junction 18 – B5261 Common Edge Road / School Road

Junction 18 is a four arm signalised junction consisting of the B5261 Common Edge Road, Jepson Way and School Road. This junction requires operational analysis in the following scenarios:

- 2016 – Base and Development Scenarios E and F; and
- 2021 – Base and Development Scenarios A, B, C, D, E, F; and
- 2027 – Base and Development Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report:



### 2016 Assessments

Table 7.43 provides the results of the analysis undertaken in the 2016 assessment year.

BASE	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	48.2	8	70.5	15.9	64.1	13.4
2 – B5261 Common Edge Road (North) Left	19.8	2	4.8	0.5	13.5	1.5
3 – School Road Left/Ahead/Right	81.4	15	71.6	13.0	78.6	17.6
4 – B5261 (South) Right	51.9	7	49.0	6.0	54.5	7.3
5 – B5261 (South) Left/Ahead	80.1	19	67.3	13.4	79.5	18.8
6 – Jepson Way Left/Ahead/Right	14.3	1	4.4	0.3	7.5	0.7

Scenario E	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	49.6	9	83.2	22	65.2	14
2 – B5261 Common Edge Road (North) Left	19.8	2	5.6	1	13.5	2
3 – School Road Left/Ahead/Right	82.0	15	80.0	21	78.6	18
4 – B5261 (South) Right	53.0	7	56.8	8	54.5	7
5 – B5261 (South) Left/Ahead	81.6	20	79.1	18	80.6	19
6 – Jepson Way Left/Ahead/Right	14.3	1	3.1	0	7.5	1

Scenario F	AM		PM		Saturday	
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Arm	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	49.6	9	83.2	22	65.2	14
2 – B5261 Common Edge Road (North) Left	19.8	2	5.6	1	13.5	2
3 – School Road Left/Ahead/Right	82.0	15	80.0	21	78.6	18
4 – B5261 (South) Right	53.0	7	56.8	8	54.5	7
5 – B5261 (South) Left/Ahead	81.6	20	79.1	18	80.6	19
6 – Jepson Way Left/Ahead/Right	14.3	1	3.1	0	7.5	1

Table 7.43 - Junction 18 2016 Assessments – Results

It can be seen from Table 7.43 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2016.

### 2021 Assessments

Table 7.44 provides the results of the analysis undertaken in the 2021 assessment year.

BASE Arm	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	53.6	10	88.4	25	71.0	16
2 – B5261 Common Edge Road (North) Left	22.2	3	6.2	1	15.2	2
3 – School Road Left/Ahead/Right	84.5	17	86.6	24	87.8	21
4 – B5261 (South) Right	57.1	8	61.9	9	60.4	9
5 – B5261 (South) Left/Ahead	87.8	25	84.8	21	87.7	24
6 – Jepson Way Left/Ahead/Right	15.1	1	3.6	0	8.4	1

Scenario A Arm	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	56.6	11	91.0	27	73.2	17
2 – B5261 Common Edge Road (North) Left	22.3	3	6.3	1	15.2	2
3 – School Road Left/Ahead/Right	85.4	17	88.0	25	87.8	21
4 – B5261 (South) Right	58.8	8	62.5	9	60.5	9
5 – B5261 (South) Left/Ahead	89.4	27	88.3	24	89.6	26
6 – Jepson Way Left/Ahead/Right	15.1	1	3.6	0	8.4	1

Scenario B Arm	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	55.4	10	90.4	27	72.1	17

Scenario B	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
2 – B5261 Common Edge Road (North) Left	22.3	3	6.3	1	15.2	2
3 – School Road Left/Ahead/Right	85.4	17	88.0	25	87.8	21
4 – B5261 (South) Right	58.8	8	62.5	9	60.4	9
5 – B5261 (South) Left/Ahead	89.8	27	86.5	22	88.9	25
6 – Jepson Way Left/Ahead/Right	15.1	1	3.6	0	8.4	1

Scenario C	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	57.3	11	90.4	27	74.4	17
2 – B5261 Common Edge Road (North) Left	21.9	2	6.2	1	15.2	2
3 – School Road Left/Ahead/Right	90.4	19	91.6	27	87.8	21
4 – B5261 (South) Right	57.9	8	61.3	9	60.5	9
5 – B5261 (South) Left/Ahead	89.2	26	88.1	24	90.8	27
6 – Jepson Way Left/Ahead/Right	16.0	1	3.8	0	8.4	1

Scenario D	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	58.3	11	92.2	29	74.4	17
2 – B5261 Common Edge Road (North) Left	22.3	3	6.3	1	15.2	2
3 – School Road Left/Ahead/Right	86.1	17	89.4	26	87.8	21
4 – B5261 (South) Right	60.4	9	63.0	9	60.5	9
5 – B5261 (South) Left/Ahead	90.7	28	89.8	25	90.8	27
6 – Jepson Way Left/Ahead/Right	15.1	1	3.6	0	8.4	1

Scenario E	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	58.3	11	92.2	29	74.4	17
2 – B5261 Common Edge Road (North) Left	22.3	3	6.3	1	15.2	2
3 – School Road Left/Ahead/Right	87.5	18	89.9	26	88.7	22
4 – B5261 (South) Right	60.8	9	64.1	10	61.1	9
5 – B5261 (South) Left/Ahead	90.7	28	89.8	25	90.8	27
6 – Jepson Way Left/Ahead/Right	15.1	1	3.6	0	8.4	1

Scenario F Arm	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	58.3	11	92.2	29	74.4	17
2 – B5261 Common Edge Road (North) Left	22.3	3	6.3	1	15.2	2
3 – School Road Left/Ahead/Right	89.1	19	90.5	26	89.6	23
4 – B5261 (South) Right	61.2	9	65.3	10	61.8	9
5 – B5261 (South) Left/Ahead	90.7	28	89.8	25	90.8	27
6 – Jepson Way Left/Ahead/Right	15.1	1	3.6	0	8.4	1

Table 7.44 - Junction 18 2021 Assessments – Results

It can be seen from Table 7.44 that the junction operates satisfactorily the 2016 Base and development scenario B. However, turning movement 1 becomes congested in scenarios A, C, D, E and F within the PM peak only. Further, movement 3 also becomes congested in scenario F within the PM peak.

The results displayed within Table 7.44 indicate that junction improvements are necessary for 2021. These improvements should focus on the B5261 and School Road arms depending on the development scenario progressed.

### 2027 Assessments

Table 7.45 provides the results of the analysis undertaken in the 2027 assessment year.

BASE Arm	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	58.2	11	95.3	33	77.5	19
2 – B5261 Common Edge Road (North) Left	24.2	3	6.8	1	16.8	2
3 – School Road Left/Ahead/Right	92.1	21	94.3	30	96.6	29
4 – B5261 (South) Right	61.6	9	67.4	10	66.2	10
5 – B5261 (South) Left/Ahead	94.3	33	92.0	27	95.6	33
6 – Jepson Way Left/Ahead/Right	16.5	1	3.9	0	9.3	1

Scenario A Arm	AM		PM		Saturday	
	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	63.7	13	99.7	44	81.6	21
2 – B5261 Common Edge Road (North) Left	24.4	3	7.0	1	16.8	2
3 – School Road Left/Ahead/Right	93.2	22	96.1	33	96.6	29
4 – B5261 (South) Right	63.9	9	68.2	11	66.2	10
5 – B5261 (South) Left/Ahead	96.9	38	98.4	38	99.1	42

Scenario A	AM		PM		Saturday	
Arm	Do S	M MQ	Do S	M MQ	Do S	M MQ
6 – Jepson Way Left/Ahead/Right	16.5	1	3.9	0	9.3	1

Scenario B	AM		PM		Saturday	
Arm	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	61.3	12	98.1	39	79.5	20
2 – B5261 Common Edge Road (North) Left	24.4	3	7.0	1	16.8	2
3 – School Road Left/Ahead/Right	93.2	22	96.1	33	96.6	29
4 – B5261 (South) Right	63.8	9	68.2	11	66.2	10
5 – B5261 (South) Left/Ahead	96.8	38	94.9	31	97.4	37
6 – Jepson Way Left/Ahead/Right	16.5	1	3.9	0	9.3	1

Scenario C	AM		PM		Saturday	
Arm	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	66.5	14	99.5	44	83.6	23
2 – B5261 Common Edge Road (North) Left	24.4	3	6.9	1	16.8	2
3 – School Road Left/Ahead/Right	93.2	22	100.0	40	96.6	29
4 – B5261 (South) Right	63.9	9	66.9	10	66.2	10
5 – B5261 (South) Left/Ahead	98.4	42	99.1	40	100.9	49
6 – Jepson Way Left/Ahead/Right	16.5	1	4.0	0	9.3	1

Scenario D	AM		PM		Saturday	
Arm	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	66.5	14	101.5	50	83.6	223
2 – B5261 Common Edge Road (North) Left	24.4	3	7.0	1	16.8	2
3 – School Road Left/Ahead/Right	94.1	22	98.0	36	96.6	29
4 – B5261 (South) Right	66.1	10	68.8	11	66.2	10
5 – B5261 (South) Left/Ahead	98.4	42	101.0	46	100.9	49
6 – Jepson Way Left/Ahead/Right	16.5	1	3.9	0	9.3	1

Scenario E	AM		PM		Saturday	
Arm	Do S	M MQ	Do S	M MQ	Do S	M MQ

Scenario E	AM		PM		Saturday	
Arm	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	66.5	14	101.5	50	83.6	23
2 – B5261 Common Edge Road (North) Left	24.4	3	7.0	1	16.8	2
3 – School Road Left/Ahead/Right	97.5	26	99.2	39	98.6	33
4 – B5261 (South) Right	66.7	10	71.3	11	67.7	11
5 – B5261 (South) Left/Ahead	98.4	42	101.0	46	100.9	49
6 – Jepson Way Left/Ahead/Right	16.5	1	3.9	0	9.3	1

Scenario F	AM		PM		Saturday	
Arm	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	67.6	15	101.5	50	83.6	23
2 – B5261 Common Edge Road (North) Left	24.8	3	7.0	1	16.8	2
3 – School Road Left/Ahead/Right	95.4	25	100.4	43	100.6	38
4 – B5261 (South) Right	68.6	11	73.9	12	69.2	11
5 – B5261 (South) Left/Ahead	100.1	48	101.0	46	100.9	49
6 – Jepson Way Left/Ahead/Right	15.6	1	3.9	0	9.3	1

Table 7.45 - Junction 18 2027 Assessments – Results

It can be seen from Table 7.45 that the junction is overcapacity in the 2027 Base within the PM and Saturday peaks. Movement 1 is congested in both the PM and Saturday peak, while movement 3 is congested within the PM peak only. The junction is observed as operating satisfactorily in the AM peak within the 2027 Base and all development scenarios.

The congestion specified for the turning movements identified above, is accentuated within each of the development scenarios. Additionally, movement 3 also becomes congested within the Saturday peak.

The results displayed within Table 7.45 indicate that junction improvements are necessary for 2027. These improvements should focus on the B5261 and School Road arms.

### Junction 18 Summary

The junction assessment results indicate that the junction improvements are not required for 2016. However, improvements are required for 2021 and 2027. Depending on the development scenario progressed, identified amelioration schemes should focus on the B5261 and School Road arms.

## 7.20 Junction 19 - B5261 Queensway / Kilnhouse Lane

This junction requires operational analysis in the following scenarios:

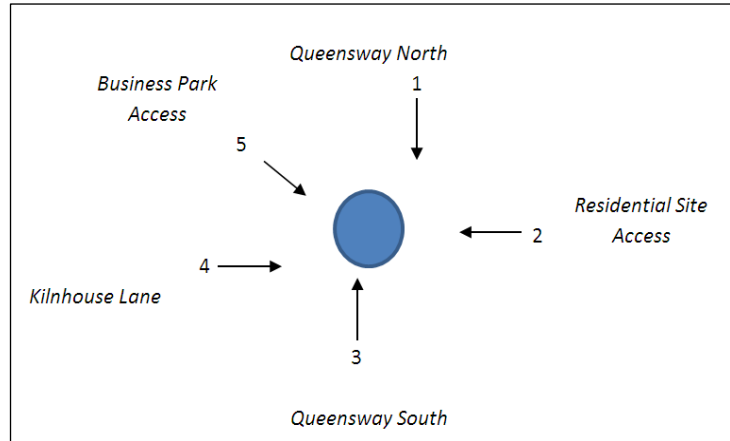
- 2021 – Base Development and Scenarios A, B, C, D, E, F; and
- 2027 – Base Development and Scenarios A, B, C, D, E, F.

The results of this analysis are described in the following section of the report:

### 2021 Assessments

It should be noted that there is a scheme associated with the Queensway proposals for this junction. The tests are therefore founded on this junction scheme being in place.

Table 7.46 provides the results of the analysis undertaken in the 2021 assessment year.



BASE Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – B5261 Queensway (North)	0.58	1	0.76	3	0.52	1
2 – Residential Site Access	0.29	0	0.21	0	0.17	0
3 – B5261 Queensway (South)	0.53	1	0.54	1	0.41	0
4 – Kilnhouse Lane	0.49	1	0.32	0	0.36	0
5 – Business Park Access	0.08	0	0.05	0	0.05	0

Scenario A Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – B5261 Queensway (North)	0.59	1	0.78	4	0.53	1
2 – Residential Site Access	0.29	0	0.22	0	0.18	0
3 – B5261 Queensway (South)	0.55	1	0.56	1	0.42	1
4 – Kilnhouse Lane	0.52	1	0.34	1	0.36	1
5 – Business Park Access	0.10	0	0.06	0	0.05	0

Scenario B Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – B5261 Queensway (North)	0.60	2	0.78	3	0.53	1
2 – Residential Site Access	0.30	0	0.22	0	0.18	0
3 – B5261 Queensway (South)	0.56	1	0.55	1	0.42	1



Scenario B		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
4 – Kilnhouse Lane	0.51	1	0.33	1	0.36	1	
5 – Business Park Access	0.10	0	0.05	0	0.05	0	

Scenario C		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – B5261 Queensway (North)	0.62	2	0.79	4	0.54	1	
2 – Residential Site Access	0.31	0	0.23	0	0.18	0	
3 – B5261 Queensway (South)	0.56	1	0.57	1	0.43	1	
4 – Kilnhouse Lane	0.52	1	0.34	1	0.37	1	
5 – Business Park Access	0.10	0	0.06	0	0.06	0	

Scenario D		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – B5261 Queensway (North)	0.62	2	0.79	4	0.54	1	
2 – Residential Site Access	0.31	0	0.23	0	0.18	0	
3 – B5261 Queensway (South)	0.57	1	0.58	1	0.43	1	
4 – Kilnhouse Lane	0.53	1	0.34	1	0.37	1	
5 – Business Park Access	0.10	0	0.06	0	0.06	0	

Scenario E		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – B5261 Queensway (North)	0.62	2	0.80	4	0.54	1	
2 – Residential Site Access	0.32	0	0.24	0	0.18	0	
3 – B5261 Queensway (South)	0.57	1	0.58	1	0.43	1	
4 – Kilnhouse Lane	0.53	1	0.35	1	0.37	1	
5 – Business Park Access	0.10	0	0.06	0	0.06	0	

Scenario F		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – B5261 Queensway (North)	0.63	2	0.80	4	0.55	1	
2 – Residential Site Access	0.32	0	0.24	0	0.18	0	
3 – B5261 Queensway (South)	0.57	1	0.59	1	0.44	1	
4 – Kilnhouse Lane	0.53	1	0.35	1	0.37	1	
5 – Business Park Access	0.10	0	0.06	0	0.06	0	

Table 7.46 - Junction 19 2021 Assessments – Results

Table 7.46 indicates that Junction 19 operates within capacity in the base and continues to do so in all development scenarios in 2021.

As a result of the above, no measures are required to be investigated in 2021.

### 2027 Assessments

Table 7.47 provides the results of the analysis undertaken in the 2027 assessment year.

<b>BASE</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – B5261 Queensway (North)	0.64	2	0.82	5	0.57	1
2 – Residential Site Access	0.33	1	0.26	0	0.19	0
3 – B5261 Queensway (South)	0.59	1	0.61	2	0.46	1
4 – Kilnhouse Lane	0.57	1	0.37	1	0.41	1
5 – Business Park Access	0.12	0	0.06	0	0.06	0

<b>Scenario A</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – B5261 Queensway (North)	0.67	2	0.85	6	0.59	1
2 – Residential Site Access	0.36	1	0.29	0	0.20	0
3 – B5261 Queensway (South)	0.62	2	0.65	2	0.48	1
4 – Kilnhouse Lane	0.60	1	0.40	1	0.43	1
5 – Business Park Access	0.14	0	0.07	0	0.07	0

<b>Scenario B</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – B5261 Queensway (North)	0.66	2	0.84	5	0.58	1
2 – Residential Site Access	0.35	1	0.28	0	0.20	0
3 – B5261 Queensway (South)	0.61	2	0.63	2	0.47	1
4 – Kilnhouse Lane	0.60	1	0.39	1	0.42	1
5 – Business Park Access	0.14	0	0.06	0	0.06	0

<b>Scenario C</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – B5261 Queensway (North)	0.67	2	0.86	6	0.60	1
2 – Residential Site Access	0.36	1	0.30	0	0.20	0
3 – B5261 Queensway (South)	0.63	2	0.67	2	0.49	1
4 – Kilnhouse Lane	0.61	2	0.41	1	0.43	1
5 – Business Park Access	0.15	0	0.07	0	0.07	0

Scenario D		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – B5261 Queensway (North)	0.69	2	0.87	6	0.60	1	
2 – Residential Site Access	0.38	1	0.31	0	0.20	0	
3 – B5261 Queensway (South)	0.64	2	0.68	2	0.49	1	
4 – Kilnhouse Lane	0.63	2	0.41	1	0.43	1	
5 – Business Park Access	0.16	0	0.07	0	0.07	0	

Scenario E		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – B5261 Queensway (North)	0.70	2	0.87	7	0.61	2	
2 – Residential Site Access	0.39	1	0.32	0	0.21	0	
3 – B5261 Queensway (South)	0.64	2	0.69	2	0.50	1	
4 – Kilnhouse Lane	0.62	2	0.42	1	0.44	1	
5 – Business Park Access	0.16	0	0.07	0	0.07	0	

Scenario F		AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q	
1 – B5261 Queensway (North)	0.71	2	0.88	7	0.61	2	
2 – Residential Site Access	0.41	1	0.32	0	0.21	0	
3 – B5261 Queensway (South)	0.65	2	0.70	2	0.51	1	
4 – Kilnhouse Lane	0.63	2	0.43	1	0.44	1	
5 – Business Park Access	0.17	0	0.08	0	0.07	0	

Table 7.47 - Junction 19 2027 Assessments – Results

Table 7.47 indicates that Junction 19 operates within capacity in the base scenario. Within scenarios A, C, D, E and F congestion arises in the PM peak on the Queensway North approach to the junction.

As congestion is observed to become present in the development scenarios, junction improvements will be identified for 2027. These improvements will focus on the Queensway North approach to the junction.

### Junction 19 Summary

Junction 19 operates within capacity in the base scenarios. By 2027 in the A, C, D, E and F development scenarios, congestion arises. Therefore junction improvements will be identified for this junction, focusing on the Queensway North approach.

## 7.21 Junction 20 - Heyhouses Lane / Blackpool Road

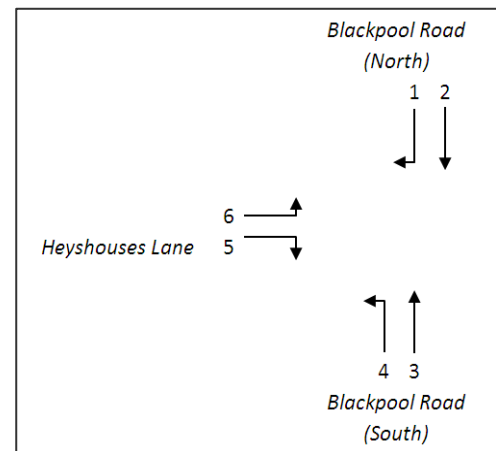
Junction 20 is a three arm signalised junction consisting of Blackpool Road and Heyhouses Lane. This junction requires operational analysis in the following scenarios:

- 2027 – Base Development and Scenario F.

The results of this analysis are described in the following section of the report:

### 2027 Assessments

Table 7.48 provides the results of the analysis undertaken in the 2027 assessment year.



BASE Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Blackpool Road (North) Right	0.8	0	0.4	0	2.7	0
2 – Blackpool Road (North) Ahead	31.6	3	21.3	2	23.4	2
3 – Blackpool Road (South) Ahead	39.1	3	22.1	2	34.6	2
4 – Blackpool Road (South) Left	12.5	0	18.8	0	10.9	0
5 – Heyhouses Lane Right	38.5	4	23.3	2	34.1	4
6 – Heyhouses Lane Left	3.4	0	5.3	1	0.6	0

Scenario F Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Blackpool Road (North) Right	1.0	0	0.5	0	2.7	0
2 – Blackpool Road (North) Ahead	32.1	3	23.5	2	23.4	2
3 – Blackpool Road (South) Ahead	40.2	3	24.1	2	33.5	2
4 – Blackpool Road (South) Left	12.8	0	19.2	0	11.1	0
5 – Heyhouses Lane Right	40.7	4	24.2	2	35.8	4
6 – Heyhouses Lane Left	3.7	0	5.4	0	0.6	0

Table 7.48 - Junction 20 2027 Assessments – Results

It can be seen from Table 7.48 that the junction operates satisfactorily in all scenarios. There is therefore no requirement to identify any improvements at this junction in 2027.

### Junction 20 Summary

In all instances of the analysis, junction 20 can be seen to be operating satisfactorily. Further consideration of the junction is therefore not required.

## 8 Improvement Identification

### 8.1 Introduction

Having presented and analysed the detailed junction assessment results within Section 7, a summary of the findings by junction are displayed within Table 8.1 below.

Junction		Analysis Findings Summary	Need to identify "Improvement"
1	A583 Preston New Road / Preston Old Road / Cherry Tree Road North	Satisfactory operation in 2016. Congestion within 2021 and 2027	2021 and 2027
2	A583 Preston New Road / Mythop Road	Congestion within 2016, 2021 and 2027.	2016, 2021 and 2027
3	Cherry Tree Road / Cherry Tree Road North	Junction operates satisfactorily in all instances	None
4	Ashworth Road / Clifton Road	Junction operates satisfactorily in all instances	None
5	A583 Preston New Road / Clifton Road	Satisfactory operation in 2016. Congestion within 2021 and 2027	2021 and 2027
6	Yeadon Way / A5230 Progress Way	Congestion within 2027.	2027
7	M55 Junction 4	Satisfactory operation in 2016. Congestion within 2021 and 2027	2021 and 2027
8	M55 Junction 3	Junction operates satisfactorily in all instances	None
9	A584 Promenade / A5230 Squires Gate Lane / A584 Clifton Drive North	Junction operates satisfactorily in all instances	None
10	A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane	Satisfactory operation in 2016. Congestion within 2021 and 2027	2021 and 2027
11	A5230 Progress Way / Midgeland Road	Congestion within 2016, 2021 and 2027.	2016, 2021 and 2027
12	A5230 Progress Way / Cropper Road / Jenny Lane	Junction operates satisfactorily in all instances	None
13	A583 Preston New Road / Hallam Way / Lytham St. Annes Way	Congestion within 2027.	2027

Junction		Analysis Findings Summary	Need to identify "Improvement"
14/ 15	A583 Preston New Road / Whitehill Road / Peel Road	Congestion within 2021 and 2027	2021 and 2027
16	Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way	Congestion within 2021 and 2027	2021 and 2027
17	School Road / Midgeland Road	Congestion within 2021 and 2027	2021 and 2027
18	B5261 Common Edge Road / School Road	Satisfactory operation in 2016. Congestion within 2021 and 2027	2021 and 2027
19	B5261 Queensway / Kilnhouse Lane	Congestion within 2027.	2027
20	Heyhouses Lane / Blackpool Road	Junction operates satisfactorily in all instances	None

Table 8.1 - Junction Analysis Findings Summary

The junction assessment findings can also be summarised by development scenario, assessment year and modelled time period as shown within Table 8.2 overleaf.

	Scenario A									Scenario B									Scenario C									Scenario D									Scenario E									Scenario F								
	2016			2021			2027			2016			2021			2027			2016			2021			2027			2016			2021			2027			2016			2021			2027											
	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT						
1. A583 Preston New Road / Preston Old Road / Cherry Tree Road North																																																						
2. A583 Preston New Road / Mythop Road																																																						
3. Cherry Tree Road / Cherry Tree Road North																																																						
4. Ashworth Road / Clifton Road																																																						
5. A583 Preston New Road / Clifton Road																																																						
6. Yeadon Way / A5230 Progress Way																																																						
7. M55 Junction 4																																																						
8. M55 Junction 3																																																						
9. A584 Promenade / A5230 Squires Gate Lane / A584 Clifton Drive North																																																						
10. A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane																																																						
11. A5230 Progress Way / Midgeland Road																																																						
12. A5230 Progress Way / Cropper Road / Jenny Lane																																																						
13. A583 Preston New Road / Hallam Way / Lytham St. Annes Way																																																						
14/15. A583 Preston New Road / Whitehill Road / Peel Road																																																						
16. Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way																																																						
17. School Road / Midgeland Road																																																						
18. B5261 Common Edge Road / School Road																																																						
19. B5261 Queensway / Kilnhouse Lane																																																						
20. Heyhouses Lane / Blackpool Road																																																						

Table 8.2 - Junction Analysis Results Summary by Scenario and Assessment Year

– Junction assessment not required
  – Junction assessed and not considered to require consideration in scenario
  – Junction assessed and considered to require consideration in scenario

## 8.2 Improvement Measures

In view of the findings of the above analysis, it is clear that the impact of the development proposals results in the need to consider appropriate supporting mitigation measures. This section of the report aims to consider the measures required. As identified in the methodology section, the approach adopted is as follows:

- Explore and consider measures that could be adopted to reduce the need to travel (e.g. travel plan measures). For this purpose evidence of typical trip reductions that can be achieved through such mechanisms has been sought, such that the analysis is appropriately evidence based;
- Investigated measures to maximise sustainable accessibility (e.g. public transport measures); and
- Assessed the requirement and scale for physical mitigation measures targeted at those areas of the network where issues are evident and likely to cause operational consequences and potentially impede the development aspirations of the area.

Further information in relation to each of these is provided below.

## 8.3 Reduce the Need to Travel

### Overview

It would be beneficial to the delivery of the development proposals that package of smarter choices measures be delivered as part of an area-wide travel plan approach. On this basis it is suggested that such is adopted with a framework for its delivery setup prior to the first element of development, with a view to the implementation of the Travel Plan upon delivery of the first element of the development.

In the same manner, the implementation of the Travel Plan measures prior to occupation of the development proposals will enable their aims to be reached prior to a car-based travel pattern being established.

Emphasising such an approach within the Core Strategy will enable a policy driven approach to be adopted with a clear message that the site delivery stages need to critically adhere to the 'Reducing the Need to Travel' policy of the Core Strategy.

Further, access to employment, education, healthcare, foodstore and leisure are likely to be important issues to future residents, and can contribute greatly to reducing the need to travel for such services. As such, appropriate local community provision within close proximity to, and within the proposed development sites, will be critical to ensuring that people without access to a car are provided with sustainable alternative travel options and are attracted to live in these locations. Without such provision and improvements, car dependency would otherwise be likely to increase.

### Consideration in Analysis

It is widely acknowledged within transport studies that Smarter Choices interventions, when delivered as part of a cohesive package of complementary measures, have the potential to reduce traffic levels. Despite this general acceptance however, there remains a considerable amount of uncertainty as to what scale of reduction can be expected. This is largely attributable to the complexity of the variables that must be considered when comparing given scenarios.



Within the DfT document *The Essential Guide to Travel Planning*, which provides a guide for the development and implementation of travel plans, it is highlighted that:

“A well-designed travel plan can typically cut 15% of commuter car use...”

From investigation of the background evidence, this 15% value has been achieved for travel plans which have been initiated at already occupied sites, where users have already established travel patterns. In implementing a travel plan prior to occupation there exists a greater opportunity to meet this target.

Further, the DfT has commissioned research in this field that has attempted to quantify the scale of traffic reduction that can be directly associated with Smarter Choices initiatives. The *Effects of Smarter Choices Programmes in the Sustainable Travel Towns: Research Report* by Sloman et al. (2010) is one such example. Based upon household surveys this study concluded that the Smarter Choices Programmes delivered in the towns of Darlington, Peterborough and Worcester had delivered an overall reduction in car trips per person of 9%.

Sloman et al. (2010) refers to previous research also undertaken for the DfT by Cairns et al. (2004), *Smarter Choices – Changing the Way We Travel*, which concluded that the efficient delivery of a 10 year Smarter Choices programme with an annual cost of approximately £20 per head (November 2009 prices) had the potential to achieve a 14% reduction in urban traffic, with an 18% reduction in urban car traffic.

It is noted that the three Sustainable Travel Towns achieved less than this, but critically the rate of expenditure and duration were also less as demonstrated below:

“They achieved about 30-40% of the previously estimated full potential reduction in car driver kilometres, in about 40% of the time period which the 2004 study estimated would be required, with a rate of expenditure per head slightly over half as great, and without the supporting effect of simultaneous programmes in neighbouring towns. Therefore, allowing for the differences in scale, circumstances, duration and budget, our judgement is that the exercise has produced results that are broadly proportionate to the 2004 estimate of full potential. At the same time, the measures implemented have by no means exhausted the full potential.”

On the basis of the evidence presented above and the high-level nature of this study, it has been deemed reasonable to assume that the implementation of a large scale Smarter Choices programme within the study area, would have the **potential to reduce the volume of vehicle trips by 10%**.

## 8.4 Improvement Identification – Sustainable Accessibility

### Overview

The 2<sup>nd</sup> step in the process is to identify solutions which offer improvements to sustainable accessibility. Based on the scale of development being proposed within each scenario of the study, significant improvements to the sustainability offer can be made which would be of a scale appropriate to the proposed aspirations.

It is therefore considered that an approach is developed based a bus and cycle based approach, which, based on the characteristics of the area, is considered to offer the greatest potential to deliver sustainable travel results for the development proposals.

The multi-modal analysis undertaken as part of this study has identified that if all the development proposals were to be brought forward, in the region of 9,000 person trips (all modes) would be

generated in the morning peak and 7,500 in the evening peak. Even in the scenario containing the least number of person trips in the region of 3,000 person trips (all modes) would be generated in the morning peak and 2,500 in the evening peak.

### Bus

Based on the scale of development proposed as part of each scenario, there is significant opportunity to improve bus transport provisions in the area to offer sustainable transport options that could compete with the use of the private car. While there may be opportunity to divert or extend existing bus routes, it is considered that a new service(s) specifically targeting the travel patterns of the area, is the most appropriate way forward.

As with the Travel Plan, it is again considered that such provision be provided prior to first occupation of the development, in order to avoid a situation of occupants adopting car-based travel patterns when they move to the area.

Based on the travel patterns determined as part of the individual site analyses, it could be identified that the main “draw” of people was to the urban areas of Blackpool to the north of the study area, and specifically Blackpool Town Centre. To a lesser extent, Lytham St Annes, to the south, offered an area of further attraction. To this extent, while further analysis would be required to determine exact routes that would need to be targeted, new services are likely to be required to be targeted at such movements in order to maximise potential use. In summary, the following summarises the likely requirements of the bus-based option:

- New services operating on routes targeting the origins and destinations of future users (Blackpool Town Centre / Blackpool Urban Areas / Lytham St Annes);
- Operational prior to first occupation of the developments;
- High frequency and quality services;
- Appropriately located and quality of bus stop facilities; and
- Complemented within the Travel Plan to provide appropriate information to potential users in the area.

### Cycle

It is recognised that Blackpool, as a Cycling Demonstration Town ([www.cycle](http://www.cycle)



blackpool.co.uk), is already making strives to provide for journeys by cycle, with the aim of increasing cycling journeys. There therefore exists the opportunity to support this existing work, both within the study area and along key links between the study area and the key locations to / from which people are drawn.

In summary, the following summarises the likely requirements of the cycle-based option:

- Provision of on site provisions, including a requirement for parking and shower / changing facilities along with the appropriate design of internal street layouts to cater for cyclists;
- Provision of off site provisions, including user friendly cycle routes and lanes, to create linkages to existing cycle routes and to key areas of future “draw”;
- Complemented within the Travel Plan to provide appropriate information to potential users in the area; and
- Consideration of the feasibility of the extension of the Blackpool Bike Hire system to the area.

### Consideration in Analysis

On the basis of the high-level nature of this study, it has been deemed reasonable to assume that the implementation of the sustainable accessibility improvements **will offer a further 5% reduction in vehicle trips**. As such, when combined with the smarter choice programme, would have the **potential to reduce the volume of vehicle trips by 15%**.

A strong level of commitment from all parties, and significant investment in walking, cycling and public transport infrastructure, will be required to deliver this target. Quality facilities to encourage active travel will be required to be provided and it will need to be ensured that bus service provision will need to be sustainable in the longer term. The importance of this is recognised within the Blackpool Core Strategy, where Policy S8 ( Connectivity) and Policy M7 (M55 Hub Transport and Connectivity) specifically outline that there will be a “comprehensive public transport improvement strategy” including extending routes and service frequency; creating direct rapid transport connections; and potential park and ride facilities. At the planning application stage, planning / transport authorities will need to adopt a strong stance and support ensuing travel planning activity, with the emphasis on the need for applicants to invest and commit to improvements to site accessibility and sustainability.

Further, while such transport improvements will also offer benefits to other non-development related movements, the above mentioned reductions have been applied only to the development trips. It could be expected that the public transport improvements could also contribute to trip savings in the background traffic levels considered as part of this study as they will also increase the opportunity for shifting from car to other modes for an element of those trips.

## 8.5 Improvement Identification – Physical Mitigation Measures

Where the above application of smarter choices measures and public transport improvements does not provide the level of mitigation required to bring the operational performance of specific junctions to an acceptable level, physical mitigation measures have been identified. Based on the results of the junction analyses undertaken in chapter 7, these physical improvements have been targeted at the specific issues that have been identified.

In some instances, it has been identified that signal enhancements will provide the opportunity to maintain or improve the level of performance at the junction when the development traffic is added. As part of this analysis, consideration has been given to the opportunity to achieve such operational

improvements, through the optimisation as part of the junction modelling. It is recognised that, in reality, the signal timings will also need to reflect specific issues at the junctions associated with safety and the needs of vulnerable road users. However, the broad performance improvements identified could be achieved through the implementation of signal control strategies such as MOVA.

## **8.6 Improvement Identification – Analysis Methodology**

In order to consider the above, further operational analysis has been undertaken of those junctions for which operational issues were identified. Given the linkage between the smarter choice measures and public transport improvements, the first test focuses on the combined 15% reduction in vehicle trips. Subsequently the application of physical improvements is assessed.

Each junction is considered in turn below.

## 8.7 Junction 1 – A583 / Preston New Road / Preston Old Road / Cherry Tree Road North

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2021 – Development Scenarios A, B, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

### 2021 Assessments

In 2021, analysis has focussed on the implementation of an optimisation of the signal timings in addition to the smarter choices and public transport improvements.

Table 8.3 provides the results of the analysis undertaken in the 2021 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	71.0	26	89.7	34	69.9	27
2 – A583 Preston New Road (East) Right	26.0	3	63.5	6	34.0	3
3 – A583 Preston New Road (East) Left	20.1	3	40.8	5	39.5	6
4 – Cherry Tree Road North Right	38.8	4	32.1	4	46.4	4
5 – Cherry Tree Road North Left/Ahead	81.2	12	91.9	21	86.0	13
6 – A583 Preston New Road (West) Ahead	76.9	16	84.7	17	78.2	17
7 – A583 Preston New Road (West) Right	83.4	12	92.1	12	84.1	11
8 – A583 Preston New Road (West) Left/Ahead	83.1	17	91.5	19	84.5	18
9 – Preston Old Road Left/Ahead/Right	79.0	12	57.1	9	74.7	10

Scenario A Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	68.2	30.3	91.2	42.7	69.5	31.2
2 – A583 Preston New Road (East) Right	25.9	3.1	60.4	6.6	32.3	3.9
3 – A583 Preston New Road (East) Left	18.9	2.8	39.2	5.9	39.3	6.5
4 – Cherry Tree Road North Right	38.8	4.2	31.9	4.1	44.4	4.8
5 – Cherry Tree Road North Left/Ahead	84.3	15.1	92.5	25.1	84.8	15.2
6 – A583 Preston New Road (West) Ahead	77.3	19.1	82.8	18.9	77.7	19.2
7 – A583 Preston New Road (West) Right	84.2	13.6	92.0	14.0	82.5	13.1
8 – A583 Preston New Road (West) Left/Ahead	83.5	20.5	89.4	20.8	83.9	20.6
9 – Preston Old Road Left/Ahead/Right	78.5	13.5	56.6	10.9	71.1	11.6

Scenario B Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	73.1	34.7	91.9	45.4	71.8	33.7

Scenario B	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
2 – A583 Preston New Road (East) Right	26.2	3.1	63.9	6.8	33.8	4.0
3 – A583 Preston New Road (East) Left	18.4	2.8	37.6	5.8	37.9	6.3
4 – Cherry Tree Road North Right	41.7	4.3	33.3	4.2	46.4	5.0
5 – Cherry Tree Road North Left/Ahead	85.6	14.8	93.0	24.9	84.3	14.8
6 – A583 Preston New Road (West) Ahead	78.5	20.2	85.4	20.8	78.8	20.3
7 – A583 Preston New Road (West) Right	83.0	13.2	91.3	13.1	83.1	12.8
8 – A583 Preston New Road (West) Left/Ahead	84.8	21.8	92.2	23.6	85.1	21.9
9 – Preston Old Road Left/Ahead/Right	84.2	14.6	58.0	11.2	73.5	11.9

Scenario C	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	67.3	32.4	94.3	47.5	73.3	34.1
2 – A583 Preston New Road (East) Right	29.6	3.2	60.7	6.7	33.8	4.0
3 – A583 Preston New Road (East) Left	16.9	2.7	38.6	5.8	38.7	6.4
4 – Cherry Tree Road North Right	43.1	4.4	33.3	4.2	44.9	4.9
5 – Cherry Tree Road North Left/Ahead	93.4	18.2	94.7	26.6	84.8	15.2
6 – A583 Preston New Road (West) Ahead	87.8	26.8	87.6	21.6	80.5	20.9
7 – A583 Preston New Road (West) Right	95.2	17.4	92.0	14.0	85.8	13.7
8 – A583 Preston New Road (West) Left/Ahead	94.8	31.4	94.6	25.2	86.9	22.5
9 – Preston Old Road Left/Ahead/Right	87.2	15.2	58.1	11.2	71.3	11.7

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	74.3	35.3	96.6	53.4	73.3	34.1
2 – A583 Preston New Road (East) Right	27.5	3.2	64.2	6.9	33.8	4.0
3 – A583 Preston New Road (East) Left	18.4	2.8	37.6	5.8	38.7	6.4
4 – Cherry Tree Road North Right	40.3	4.2	33.3	4.2	44.9	4.9
5 – Cherry Tree Road North Left/Ahead	87.1	15.8	94.7	26.6	84.8	15.2
6 – A583 Preston New Road (West) Ahead	83.2	22.5	86.8	21.6	80.5	20.9
7 – A583 Preston New Road (West) Right	87.6	14.4	96.8	16.3	85.8	13.7
8 – A583 Preston New Road (West) Left/Ahead	89.9	24.9	93.7	24.9	86.9	22.5
9 – Preston Old Road Left/Ahead/Right	81.8	14.2	58.1	11.2	71.3	11.7

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	74.2	36.0	95.2	51.5	72.8	34.5
2 – A583 Preston New Road (East) Right	27.5	3.2	64.2	6.9	34.1	4.1
3 – A583 Preston New Road (East) Left	18.0	2.8	36.7	5.7	37.9	6.3
4 – Cherry Tree Road North Right	41.7	4.3	34.0	4.3	46.4	5.0
5 – Cherry Tree Road North Left/Ahead	90.2	16.8	96.9	28.9	87.6	16.0
6 – A583 Preston New Road (West) Ahead	81.9	22.2	86.2	21.6	79.6	20.8
7 – A583 Preston New Road (West) Right	87.6	14.4	96.8	16.3	85.8	13.7
8 – A583 Preston New Road (West) Left/Ahead	88.4	24.3	93.0	24.7	86.0	22.5
9 – Preston Old Road Left/Ahead/Right	84.8	14.8	59.6	11.4	73.7	11.9

Scenario F	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	77.9	38.8	96.1	53.0	73.8	35.1
2 – A583 Preston New Road (East) Right	27.7	3.2	64.6	6.9	34.3	4.1
3 – A583 Preston New Road (East) Left	12.6	1.9	36.7	5.7	37.9	6.3
4 – Cherry Tree Road North Right	41.7	4.3	34.0	4.3	46.4	5.0
5 – Cherry Tree Road North Left/Ahead	90.2	16.8	96.9	28.9	87.6	16.0
6 – A583 Preston New Road (West) Ahead	82.2	22.3	87.7	22.4	80.4	21.1
7 – A583 Preston New Road (West) Right	87.6	14.4	96.8	16.3	85.8	13.7
8 – A583 Preston New Road (West) Left/Ahead	88.8	24.5	94.7	26.3	86.9	22.9
9 – Preston Old Road Left/Ahead/Right	84.8	14.8	59.6	11.4	73.9	12.0

Table 8.3 - Junction 1 2021 Mitigation Assessments – Results

Table 8.3 identifies that the identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction close to acceptable operational performance, when compared to the base. Given the constraints at the junction, further discussion may be required in relation to any further opportunity to improve the performance of the junction back to base conditions.

### 2027 Assessments

Table 8.4 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	77.4	30	98.3	48	77.3	31
2 – A583 Preston New Road (East) Right	28.2	3	69.6	7	37.6	4
3 – A583 Preston New Road (East) Left	21.9	3	44.7	6	43.8	6

BASE Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
4 – Cherry Tree Road North Right	42.6	4	35.2	4	51.5	5
5 – Cherry Tree Road North Left/Ahead	88.7	15	100.6	33	95.1	18
6 – A583 Preston New Road (West) Ahead	84.0	19	92.6	21	86.4	20
7 – A583 Preston New Road (West) Right	91.1	15	101.1	18	93.2	15
8 – A583 Preston New Road (West) Left/Ahead	90.7	21	100.0	29	93.3	24
9 – Preston Old Road Left/Ahead/Right	86.3	14	62.6	11	82.6	12

Scenario A Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	78.2	35.7	103.8	79.1	78.5	36.6
2 – A583 Preston New Road (East) Right	29.5	3.5	63.0	7.3	35.7	4.4
3 – A583 Preston New Road (East) Left	21.5	3.2	44.2	6.7	44.5	7.4
4 – Cherry Tree Road North Right	38.7	4.4	35.0	4.5	47.8	5.4
5 – Cherry Tree Road North Left/Ahead	88.2	17.9	103.2	43.8	94.2	20.7
6 – A583 Preston New Road (West) Ahead	89.6	24.6	93.4	24.6	87.8	23.9
7 – A583 Preston New Road (West) Right	97.3	20.4	102.2	23.0	94.3	18.5
8 – A583 Preston New Road (West) Left/Ahead	96.8	29.9	100.8	33.3	94.8	28.0
9 – Preston Old Road Left/Ahead/Right	97.0	25.0	62.2	12.4	76.1	13.2

Scenario B Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	83.0	42.9	101.5	73.3	80.8	41.2
2 – A583 Preston New Road (East) Right	29.7	3.5	69.6	7.6	38.9	4.6
3 – A583 Preston New Road (East) Left	20.0	3.1	40.2	6.3	41.2	7.1
4 – Cherry Tree Road North Right	45.7	4.8	37.5	4.8	51.7	5.7
5 – Cherry Tree Road North Left/Ahead	93.5	18.8	104.4	45.6	93.2	19.1
6 – A583 Preston New Road (West) Ahead	85.7	24.2	95.9	29.5	87.3	25.2
7 – A583 Preston New Road (West) Right	94.3	18.0	100.1	19.0	95.9	18.5
8 – A583 Preston New Road (West) Left/Ahead	92.6	27.6	103.5	43.1	94.3	29.3
9 – Preston Old Road Left/Ahead/Right	92.1	18.2	65.0	12.8	81.2	13.9

Scenario C Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	86.6	44.8	104.1	86.9	84.3	42.8
2 – A583 Preston New Road (East) Right	29.7	3.5	66.1	7.4	37.4	4.5



Scenario C	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
3 – A583 Preston New Road (East) Left	20.9	3.2	41.2	6.4	43.0	7.3
4 – Cherry Tree Road North Right	42.8	4.7	37.5	4.8	50.1	5.6
5 – Cherry Tree Road North Left/Ahead	96.8	22.6	108.2	57.8	97.2	23.0
6 – A583 Preston New Road (West) Ahead	89.4	25.8	98.2	32.4	91.1	27.0
7 – A583 Preston New Road (West) Right	97.3	20.4	107.3	29.0	98.0	21.1
8 – A583 Preston New Road (West) Left/Ahead	96.6	31.3	106.1	49.6	98.4	34.2
9 – Preston Old Road Left/Ahead/Right	86.2	16.1	65.1	12.9	78.7	13.5

Scenario D	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	84.7	44.5	110.5	132.2	84.3	42.8
2 – A583 Preston New Road (East) Right	31.3	3.6	67.1	7.6	37.4	4.5
3 – A583 Preston New Road (East) Left	20.0	3.1	41.2	6.4	43.0	7.3
4 – Cherry Tree Road North Right	44.2	4.7	37.5	4.8	50.1	5.6
5 – Cherry Tree Road North Left/Ahead	100.0	25.9	108.2	57.8	97.2	23.0
6 – A583 Preston New Road (West) Ahead	91.9	28.7	100.0	35.7	91.1	27.0
7 – A583 Preston New Road (West) Right	101.4	24.4	107.3	29.0	98.0	21.1
8 – A583 Preston New Road (West) Left/Ahead	99.3	37.4	108.0	55.4	98.4	34.2
9 – Preston Old Road Left/Ahead/Right	89.9	17.4	65.3	12.9	78.7	13.5

Scenario E	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	87.9	48.1	109.7	129.5	86.6	44.8
2 – A583 Preston New Road (East) Right	31.8	3.6	67.7	7.7	37.9	4.6
3 – A583 Preston New Road (East) Left	20.0	3.1	40.2	6.3	43.0	7.3
4 – Cherry Tree Road North Right	44.2	4.7	38.4	4.8	50.1	5.6
5 – Cherry Tree Road North Left/Ahead	100.0	25.9	110.8	65.5	97.2	23.0
6 – A583 Preston New Road (West) Ahead	92.7	29.5	100.9	38.8	92.9	28.7
7 – A583 Preston New Road (West) Right	101.4	24.4	107.3	29.0	98.0	21.1
8 – A583 Preston New Road (West) Left/Ahead	100.1	39.4	109.0	59.9	100.3	38.7
9 – Preston Old Road Left/Ahead/Right	90.1	17.5	67.0	13.2	78.9	13.6

Scenario F	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – A583 Preston New Road (East) Ahead	91.1	51.8	111.6	143.6	87.0	46.1

Scenario F Arm	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
2 – A583 Preston New Road (East) Right	32.6	3.7	68.0	7.7	38.1	4.6
3 – A583 Preston New Road (East) Left	20.0	3.1	40.2	6.3	42.1	7.2
4 – Cherry Tree Road North Right	44.2	4.7	38.4	4.8	51.7	5.7
5 – Cherry Tree Road North Left/Ahead	100.0	25.9	110.8	65.5	100.4	26.7
6 – A583 Preston New Road (West) Ahead	93.6	30.5	104.3	48.3	92.7	29.0
7 – A583 Preston New Road (West) Right	101.4	24.4	107.3	29.0	98.0	21.1
8 – A583 Preston New Road (West) Left/Ahead	101.0	41.8	112.6	72.1	100.1	38.7
9 – Preston Old Road Left/Ahead/Right	90.1	17.5	67.5	13.3	81.8	14.2

Table 8.4 - Junction 1 2027 Mitigation Assessments – Results

The identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction close to acceptable operational performance, when compared to the base. Given the constraints at the junction, further discussion may be required in relation to any further opportunity to improve the performance of the junction back to base conditions.

## 8.8 Junction 2 – A583 Preston New Road / Mythop Road / Junction 5 – A583 Preston New Road / Clifton Road

Given the locations of these junctions and the current issues prevalent at these locations, the future development potential in the area (which a large element is currently at planning application stage) and the requirement for the development of a clear strategy, this study has not taken these junctions through the process of “improvement identification” undertaken for all other junctions.

However, from the initial junction modelling, it was identified that some level of mitigation was required at Junction2 in the following scenarios:

- 2016 - Development Scenarios B, C, D, E, F;
- 2021 – Development Scenarios A, B, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

It was identified that some level of mitigation was required at Junction 5 in the following scenarios:

- 2021 – Development Scenarios B, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

Rather than identify fixed solutions at these locations, the recommendation of this study is that a corridor based strategy be adopted for the Preston New Road Corridor, which aims to safeguard its future operation while accommodating the growth aspirations of the area. Transport Assessments associated with those developments specifically impacting upon this corridor, and its junctions, should seek to contribute to such a strategy rather than aim to develop individual approaches which may not offer the most appropriate way forward for the corridor.

## 8.9 Junction 6 – Yeadon Way / A5230 Progress Way

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2027 – Development Scenarios A, C, D, E, F.

### 2027 Assessments

The analysis has focussed on the implementation of a junction improvement in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

This junction improvement consists of:

- Widening the approach from the east in converting the currently hatched area to carriageway to provide a two lane entry; and
- Potential enhancement of the markings on the roundabout to better define lane movements.

An indicative plan of the proposed layout is provided in Figure 8.1.

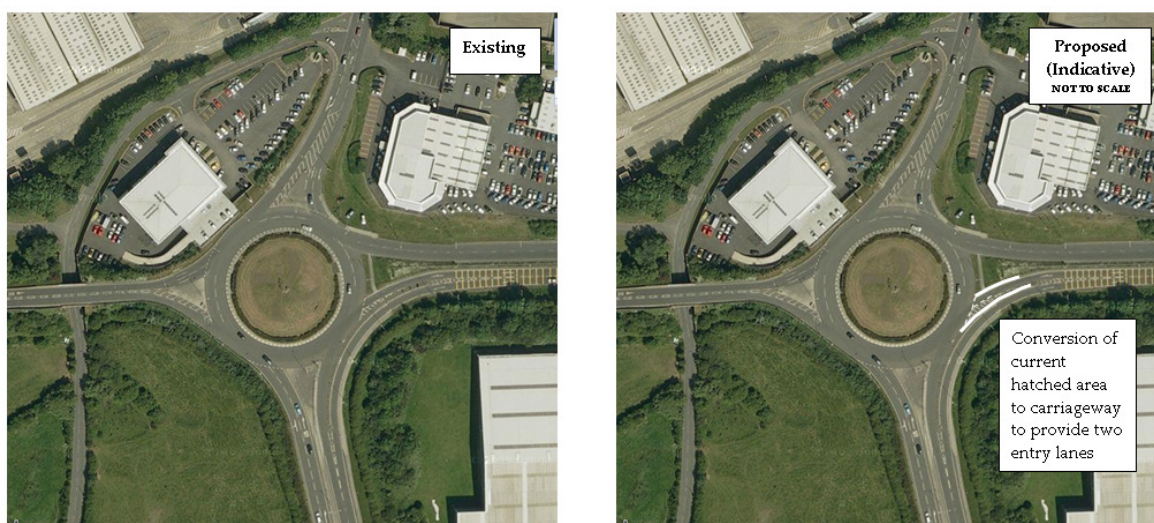


Figure 8.1 - Junction 6 Junction Improvement

Table 8.5 provides the results of the analysis undertaken in the 2027 assessment year.

BASE Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.44	1	0.42	1	0.48	1
2 – A5230 (East)	0.82	4	0.83	5	<b>0.90</b>	8
3 – A5230 Progress Way (South)	0.52	1	0.48	1	0.50	1
4 – Yeadon Way (West)	0.66	2	0.67	2	0.70	2
<b>Scenario A + Smarter Choices / PT + Physical Improvement</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	

Arm	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.50	1	0.51	1	0.54	1
2 – A5230 (East)	0.76	3	0.78	3	0.84	5
3 – A5230 Progress Way (South)	0.61	2	0.54	1	0.7	1
4 – Yeadon Way (West)	0.72	3	0.70	2	0.74	3

Scenario C + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.51	1	0.53	1	0.55	1
2 – A5230 (East)	0.76	3	0.78	3	0.83	8
3 – A5230 Progress Way (South)	0.64	2	0.57	1	0.59	1
4 – Yeadon Way (West)	0.74	3	0.72	3	0.74	3

Scenario D + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.52	1	0.53	1	0.55	1
2 – A5230 (East)	0.77	3	0.78	3	0.84	9
3 – A5230 Progress Way (South)	0.64	2	0.57	1	0.59	1
4 – Yeadon Way (West)	0.75	3	0.72	3	0.75	3

Scenario E + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.51	1	0.53	1	0.56	1
2 – A5230 (East)	0.76	3	0.78	4	0.84	5
3 – A5230 Progress Way (South)	0.63	2	0.58	1	0.60	1
4 – Yeadon Way (West)	0.74	3	0.73	3	0.75	3

Scenario F + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Ashworth Road (North)	0.51	1	0.54	1	0.56	1
2 – A5230 (East)	0.76	3	0.79	4	0.84	5
3 – A5230 Progress Way (South)	0.64	2	0.58	1	0.60	2
4 – Yeadon Way (West)	0.74	3	0.74	3	0.76	3

*Table 8.5 - Junction 6 2027 Mitigation Assessments – Results*

The identified mitigation (Junction Improvement and Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance.

## 8.10 Junction 7 – M55 Junction 4

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2021 – Development Scenarios A, B, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

The analysis has focussed on the implementation of a series of signalisation schemes in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

These junction improvements consist of:

- **Improvement 1** – The signalisation of the M55 Westbound Off-slip and the associated circulatory carriageway; and
- **Improvement 2** – In addition to Improvement 1, the signalisation of the Preston New Road Northbound entry to the roundabout and the associated circulatory carriageway.

An indicative plan of the proposed layouts is provided in Figure 8.2.

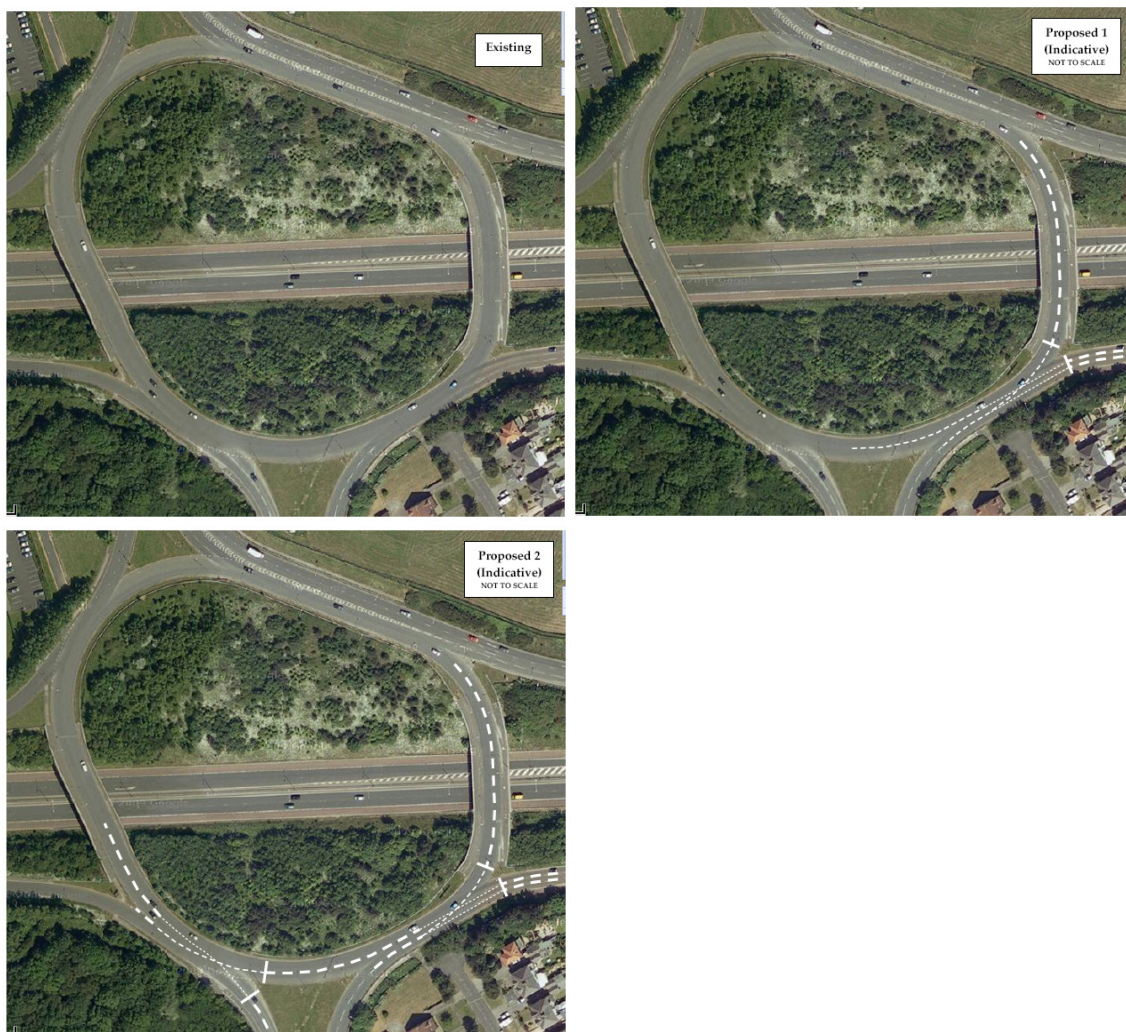


Figure 8.2 - Junction 7 Junction Improvement

## 2021 Assessments

Table 8.6 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	0.78	4	0.60	2	0.72	3
2 – Preston New Road (South)	0.73	3	0.48	1	0.58	1
3 – A5230 (Off-slip)	0.40	1	0.28	0	0.31	0
4 – Preston New Road (North)	0.43	1	0.51	1	0.49	1

Scenario A + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
Link	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.50	8	0.52	7	0.48	7
12 - M55 East off-slip (middle lane)	0.42	7	0.40	5	0.39	6
13 - M55 East off-slip (offside lane)	0.60	12	0.55	8	0.55	9
14 – Circulatory at M55 East off-slip (nearside lane)	0.65	14	0.59	12	0.60	13
15 - Circulatory at M55 East off-slip (offside lane)	0.63	14	0.53	11	0.55	12
21 – Preston New Road South (nearside lane)	0.64	6	0.48	2	0.53	3
22 - Preston New Road South (offside lane)	0.64	6	0.47	2	0.46	3
23 - Circulatory at Preston New Road South	0.13	0	0.10	0	0.11	0
31 – A5230 off-slip (nearside lane)	0.33	0	0.25	0	0.22	0
32 - A5230 off-slip (offside lane)	0.32	0	0.27	0	0.28	0
33 – Circulatory at A5230 off-slip	0.18	0	0.14	0	0.14	0
41 - Preston New Road North (nearside lane)	0.36	0	0.43	0	0.37	0
42 - Preston New Road North (offside lane)	0.51	0	0.54	0	0.50	0



Scenario A + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Scenario B + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.52	8	0.50	7	0.48	7
12 - M55 East off-slip (middle lane)	0.43	7	0.41	6	0.40	6
13 - M55 East off-slip (offside lane)	0.63	12	0.59	9	0.58	10
14 – Circulatory at M55 East off-slip (nearside lane)	0.66	14	0.60	13	0.62	13
15 - Circulatory at M55 East off-slip (offside lane)	0.65	15	0.54	12	0.57	13
21 – Preston New Road South (nearside lane)	0.66	6	0.51	3	0.55	4
22 - Preston New Road South (offside lane)	0.66	6	0.50	3	0.48	3
23 - Circulatory at Preston New Road South	0.13	0	0.10	0	0.11	0
31 – A5230 off-slip (nearside lane)	0.33	0	0.29	0	0.30	0
32 - A5230 off-slip (offside lane)	0.33	0	0.28	0	0.29	0
33 – Circulatory at A5230 off-slip	0.18	0	0.14	0	0.15	0
41 - Preston New Road North (nearside lane)	0.38	0	0.43	0	0.38	0
42 - Preston New Road North (offside lane)	0.54	0	0.55	0	0.52	0
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Scenario C + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q

Scenario C + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.50	8	0.50	7	0.48	7
12 - M55 East off-slip (middle lane)	0.43	7	0.41	6	0.40	6
13 - M55 East off-slip (offside lane)	0.64	13	0.60	9	0.59	10
14 – Circulatory at M55 East off-slip (nearside lane)	0.68	15	0.61	13	0.62	14
15 - Circulatory at M55 East off-slip (offside lane)	0.68	16	0.56	12	0.58	13
21 – Preston New Road South (nearside lane)	0.69	7	0.51	3	0.56	4
22 - Preston New Road South (offside lane)	0.69	7	0.51	3	0.49	3
23 - Circulatory at Preston New Road South	0.14	0	0.11	0	0.12	0
31 – A5230 off-slip (nearside lane)	0.41	0	0.31	0	0.27	0
32 - A5230 off-slip (offside lane)	0.34	0	0.28	0	0.29	0
33 – Circulatory at A5230 off-slip	0.19	0	0.14	0	0.15	0
41 - Preston New Road North (nearside lane)	0.38	0	0.44	0	0.39	0
42 - Preston New Road North (offside lane)	0.55	0	0.57	0	0.53	0
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Scenario D + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.59	10	0.52	7	0.48	7
12 - M55 East off-slip (middle lane)	0.47	8	0.42	6	0.40	6

Scenario D + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
13 - M55 East off-slip (offside lane)	0.67	13	0.60	9	0.59	10
14 – Circulatory at M55 East off-slip (nearside lane)	0.73	17	0.63	14	0.62	14
15 - Circulatory at M55 East off-slip (offside lane)	0.68	16	0.56	12	0.58	13
21 – Preston New Road South (nearside lane)	0.70	8	0.56	4	0.56	4
22 - Preston New Road South (offside lane)	0.72	8	0.60	4	0.49	3
23 - Circulatory at Preston New Road South	0.14	0	0.11	0	0.12	0
31 – A5230 off-slip (nearside lane)	0.42	0	0.33	0	0.27	0
32 - A5230 off-slip (offside lane)	0.35	0	0.30	0	0.29	0
33 – Circulatory at A5230 off-slip	0.19	0	0.16	0	0.15	0
41 - Preston New Road North (nearside lane)	0.45	0	0.46	0	0.39	0
42 - Preston New Road North (offside lane)	0.57	0	0.59	0	0.53	0
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Scenario E + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.59	10	0.54	7	0.49	7
12 - M55 East off-slip (middle lane)	0.47	8	0.43	6	0.41	6
13 - M55 East off-slip (offside lane)	0.67	13	0.60	9	0.59	10
14 – Circulatory at M55 East off-slip (nearside lane)	0.74	17	0.65	15	0.64	14

Scenario E + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
15 - Circulatory at M55 East off-slip (offside lane)	0.68	16	0.57	13	0.59	13
21 – Preston New Road South (nearside lane)	0.73	9	0.57	4	0.57	4
22 - Preston New Road South (offside lane)	0.76	10	0.61	5	0.51	3
23 - Circulatory at Preston New Road South	0.14	0	0.11	0	0.12	0
31 – A5230 off-slip (nearside lane)	0.44	0	0.34	0	0.28	0
32 - A5230 off-slip (offside lane)	0.37	0	0.31	0	0.30	0
33 – Circulatory at A5230 off-slip	0.20	0	0.16	0	0.15	0
41 - Preston New Road North (nearside lane)	0.46	0	0.49	0	0.40	0
42 - Preston New Road North (offside lane)	0.58	0	0.60	0	0.54	0
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Scenario F + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.59	10	0.58	8	0.52	8
12 - M55 East off-slip (middle lane)	0.47	8	0.45	6	0.42	6
13 - M55 East off-slip (offside lane)	0.67	13	0.62	9	0.61	10
14 – Circulatory at M55 East off-slip (nearside lane)	0.75	18	0.67	16	0.65	14
15 - Circulatory at M55 East off-slip (offside lane)	0.68	16	0.57	13	0.58	13
21 – Preston New Road South (nearside lane)	0.76	9	0.58	4	0.59	5

Scenario F + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
22 - Preston New Road South (offside lane)	0.77	10	0.63	5	0.54	4
23 - Circulatory at Preston New Road South	0.14	0	0.11	0	0.12	0
31 – A5230 off-slip (nearside lane)	0.46	0	0.35	0	0.28	0
32 - A5230 off-slip (offside lane)	0.39	0	0.33	0	0.31	0
33 – Circulatory at A5230 off-slip	0.21	0	0.17	0	0.16	0
41 - Preston New Road North (nearside lane)	0.47	0	0.52	0	0.42	0
42 - Preston New Road North (offside lane)	0.59	0	0.61	0	0.55	0
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Table 8.6 - Junction 7 2021 Mitigation Assessments – Results

The identified mitigation (Junction Improvement and Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance.

### 2027 Assessments

Table 8.7 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – M55 East (Off-slip)	<b>0.91</b>	9	0.73	3	<b>0.89</b>	7
2 – Preston New Road (South)	<b>0.85</b>	6	0.55	1	0.69	2
3 – A5230 (Off-slip)	0.50	1	0.33	0	0.38	1
4 – Preston New Road (North)	0.48	1	0.57	1	0.55	1

Scenario A + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.56	10	0.58	8	0.53	8
12 - M55 East off-slip (middle lane)	0.46	8	0.44	6	0.43	7

Scenario A + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
13 - M55 East off-slip (offside lane)	0.66	13	0.60	9	0.61	11
14 – Circulatory at M55 East off-slip (nearside lane)	0.73	17	0.65	15	0.67	15
15 - Circulatory at M55 East off-slip (offside lane)	0.69	16	0.58	13	0.61	14
21 – Preston New Road South (nearside lane)	0.75	9	0.56	4	0.61	5
22 - Preston New Road South (offside lane)	0.75	9	0.56	4	0.54	4
23 - Circulatory at Preston New Road South	0.14	0	0.11	0	0.12	0
31 – A5230 off-slip (nearside lane)	0.41	0	0.30	0	0.27	0
32 - A5230 off-slip (offside lane)	0.40	0	0.32	0	0.34	0
33 – Circulatory at A5230 off-slip	0.20	0	0.15	0	0.16	0
41 - Preston New Road North (nearside lane)	0.42	0	0.48	0	0.42	0
42 - Preston New Road North (offside lane)	0.57	0	0.61	0	0.57	0
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Scenario B + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.59	10	0.54	7	0.53	8
12 - M55 East off-slip (middle lane)	0.49	8	0.45	7	0.45	7
13 - M55 East off-slip (offside lane)	0.71	15	0.66	11	0.66	12
14 – Circulatory at M55 East off-slip (nearside lane)	0.74	18	0.68	16	0.70	16

Scenario B + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
15 - Circulatory at M55 East off-slip (offside lane)	0.74	18	0.62	14	0.65	16
21 – Preston New Road South (nearside lane)	0.79	10	0.61	5	0.66	6
22 - Preston New Road South (offside lane)	0.80	11	0.61	5	0.58	5
23 - Circulatory at Preston New Road South	0.15	0	0.12	0	0.13	0
31 – A5230 off-slip (nearside lane)	0.43	0	0.40	0	0.32	0
32 - A5230 off-slip (offside lane)	0.42	0	0.35	0	0.36	0
33 – Circulatory at A5230 off-slip	0.20	0	0.17	0	0.16	0
41 - Preston New Road North (nearside lane)	0.45	0	0.49	0	0.44	0
42 - Preston New Road North (offside lane)	0.63	1	0.63	1	0.60	0
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Scenario C + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.58	10	0.54	7	0.53	8
12 - M55 East off-slip (middle lane)	0.49	9	0.46	7	0.45	7
13 - M55 East off-slip (offside lane)	0.72	15	0.67	11	0.67	12
14 – Circulatory at M55 East off-slip (nearside lane)	0.76	18	0.69	17	0.70	17
15 - Circulatory at M55 East off-slip (offside lane)	0.77	19	0.64	15	0.66	16
21 – Preston New Road South (nearside lane)	0.82	12	0.63	5	0.67	6

Scenario C + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
22 - Preston New Road South (offside lane)	0.83	13	0.63	5	0.59	5
23 - Circulatory at Preston New Road South	0.15	0	0.12	0	0.13	0
31 – A5230 off-slip (nearside lane)	0.53	0	0.42	0	0.35	0
32 - A5230 off-slip (offside lane)	0.43	0	0.35	0	0.36	0
33 – Circulatory at A5230 off-slip	0.21	0	0.17	0	0.17	0
41 - Preston New Road North (nearside lane)	0.45	0	0.50	0	0.44	0
42 - Preston New Road North (offside lane)	0.64	1	0.65	1	0.62	0
43 - Circulatory at Preston New Road North	0.04	0	0.04	0	0.04	0

Scenario D + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.69	12	0.56	8	0.53	8
12 - M55 East off-slip (middle lane)	0.54	10	0.46	7	0.45	7
13 - M55 East off-slip (offside lane)	0.76	16	0.67	11	0.67	12
14 – Circulatory at M55 East off-slip (nearside lane)	0.84	23	0.71	17	0.70	17
15 - Circulatory at M55 East off-slip (offside lane)	0.77	20	0.64	15	0.66	16
21 – Preston New Road South (nearside lane)	0.85	0	0.69	6	0.67	6
22 - Preston New Road South (offside lane)	0.88	16	0.76	8	0.59	5
23 - Circulatory at Preston New Road South	0.15	20	0.12	0	0.13	0



Scenario D + Smarter Choices / PT + Improvement 1	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
31 – A5230 off-slip (nearside lane)	0.56	0	0.48	0	0.35	0
32 - A5230 off-slip (offside lane)	0.46	0	0.40	0	0.36	0
33 – Circulatory at A5230 off-slip	0.22	0	0.19	0	0.17	0
41 - Preston New Road North (nearside lane)	0.54	0	0.54	0	0.44	0
42 - Preston New Road North (offside lane)	0.68	1	0.67	1	0.62	0
43 - Circulatory at Preston New Road North	0.04	0	0.05	0	0.04	0

Scenario E + Smarter Choices / PT + Improvement 1 (PM/SAT) / Improvement 2 (AM)	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.73	13	0.62	9	0.57	9
12 - M55 East off-slip (middle lane)	0.57	10	0.49	7	0.48	7
13 - M55 East off-slip (offside lane)	0.80	17	0.69	11	0.69	12
14 – Circulatory at M55 East off-slip (nearside lane)	0.83	22	0.76	20	0.73	18
15 - Circulatory at M55 East off-slip (offside lane)	0.74	19	0.65	16	0.66	16
21 – Preston New Road South (nearside lane)	0.59	12	0.72	7	0.71	8
22 - Preston New Road South (offside lane)	0.57	12	0.80	12	0.65	6
23 - Circulatory at Preston New Road South	0.49	27	0.12	0	0.13	0
31 – A5230 off-slip (nearside lane)	0.57	2	0.51	0	0.38	0
32 - A5230 off-slip (offside lane)	0.47	2	0.43	0	0.39	0
33 – Circulatory at A5230 off-slip	0.23	0	0.19	0	0.18	0

Scenario E + Smarter Choices / PT + Improvement 1 (PM/SAT) / Improvement 2 (AM)	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
41 - Preston New Road North (nearside lane)	0.57	0	0.60	0	0.48	0
42 - Preston New Road North (offside lane)	0.69	1	0.70	1	0.63	1
43 - Circulatory at Preston New Road North	0.05	0	0.05	0	0.04	0

Scenario F + Smarter Choices / PT + Improvement 1 (PM/SAT) / Improvement 2 (AM)	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
11 – M55 East off-slip (nearside lane)	0.75	14	0.66	10	0.61	9
12 - M55 East off-slip (middle lane)	0.57	10	0.50	7	0.49	8
13 - M55 East off-slip (offside lane)	0.80	17	0.69	11	0.71	13
14 – Circulatory at M55 East off-slip (nearside lane)	0.84	23	0.82	24	0.75	19
15 - Circulatory at M55 East off-slip (offside lane)	0.75	20	0.67	16	0.66	16
21 – Preston New Road South (nearside lane)	0.61	12	0.74	8	0.75	9
22 - Preston New Road South (offside lane)	0.61	13	0.84	17	0.71	8
23 - Circulatory at Preston New Road South	0.52	29	0.12	0	0.13	0
31 – A5230 off-slip (nearside lane)	0.63	3	0.53	0	0.40	0
32 - A5230 off-slip (offside lane)	0.53	2	0.47	0	0.43	0
33 – Circulatory at A5230 off-slip	0.24	0	0.20	0	0.19	0
41 - Preston New Road North (nearside lane)	0.59	0	0.66	1	0.52	0
42 - Preston New Road North (offside lane)	0.71	1	0.73	1	0.65	1

Scenario F + Smarter Choices / PT + Improvement 1 (PM/SAT) / Improvement 2 (AM)	AM		PM		Saturday	
	DoS	Q	DoS	Q	DoS	Q
43 - Circulatory at Preston New Road North	0.05	0	0.05	0	0.04	0

Table 8.7 - Junction 7 2027 Mitigation Assessments – Results

The identified mitigation (Junction Improvement and Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance.

## 8.11 Junction 10 – A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2021 – Development Scenarios A, B, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

### 2021 Assessments

In 2021, analysis has focussed on the implementation of an optimisation of the signal timings in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

Table 8.8 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	49.3	4	24.0	2	40.2	3
2 – B5261 Common Edge Road (North) Ahead	75.3	7	67.3	6	73.6	7
3 – B5261 Common Edge Road (North) Left/Ahead	84.4	8	73.9	7	81.5	8
4 – A5230 Progress Way Left	33.0	5	52.7	8	39.7	6
5 – A5230 Progress Way Ahead	83.6	19	77.0	15	83.8	18
6 – A5230 Progress Way Right	13.1	1	20.2	2	21.6	2
7 – B5261 Common Edge Road (South) Right	87.6	12	75.5	7	85.0	10
8 – B5261 Common Edge Road (South) Ahead	54.1	11	61.2	10	49.1	9
9 – B5261 Common Edge Road (South) Left	40.0	6	35.9	5	40.0	6
10 – A5230 Squires Gate Lane (West) Left	9.9	1	17.3	2	15.8	2
11 – A5230 Squires Gate Lane (West) Ahead	88.4	21	78.2	21	86.7	22
12 – A5230 Squires Gate Lane (West) Right	78.4	8	52.5	6	67.6	7

Scenario A + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	54.6	6	26.3	3	39.3	4
2 – B5261 Common Edge Road (North) Ahead	71.5	9	66.4	8	72.0	9
3 – B5261 Common Edge Road (North) Left/Ahead	80.5	10	73.0	9	79.7	10
4 – A5230 Progress Way Left	35.5	7	53.1	10	40.5	8
5 – A5230 Progress Way Ahead	82.7	25	75.5	20	78.5	23

Scenario A + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
6 – A5230 Progress Way Right	13.5	2	23.8	3	20.0	2
7 – B5261 Common Edge Road (South) Right	82.5	13	75.1	9	80.5	12
8 – B5261 Common Edge Road (South) Ahead	49.6	14	53.2	12	43.6	11
9 - B5261 Common Edge Road (South) Left	39.7	8	33.8	6	37.8	7
10 – A5230 Squires Gate Lane (West) Left	10.9	2	19.8	4	15.9	3
11 – A5230 Squires Gate Lane (West) Ahead	83.8	25	73.9	27	80.4	26
12 – A5230 Squires Gate Lane (West) Right	73.2	10	49.6	8	62.1	9

Scenario B + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	54.9	6	26.0	3	39.3	4
2 – B5261 Common Edge Road (North) Ahead	72.7	9	67.3	8	72.7	9
3 – B5261 Common Edge Road (North) Left/Ahead	82.0	10	74.1	9	80.6	10
4 – A5230 Progress Way Left	34.0	6	52.2	10	39.1	8
5 – A5230 Progress Way Ahead	82.7	25	72.3	19	78.4	23
6 – A5230 Progress Way Right	15.6	2	24.7	3	21.3	2
7 – B5261 Common Edge Road (South) Right	83.5	14	73.4	9	78.4	11
8 – B5261 Common Edge Road (South) Ahead	49.6	14	55.9	12	43.6	11
9 - B5261 Common Edge Road (South) Left	39.7	8	34.4	7	37.8	7
10 – A5230 Squires Gate Lane (West) Left	11.0	2	20.2	4	15.9	3
11 – A5230 Squires Gate Lane (West) Ahead	84.2	25	73.7	27	80.3	26
12 – A5230 Squires Gate Lane (West) Right	73.2	10	49.6	8	62.1	9

Scenario C + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	54.6	6	26.3	3	39.3	4
2 – B5261 Common Edge Road (North) Ahead	73.0	9	67.2	8	72.7	9
3 – B5261 Common Edge Road (North) Left/Ahead	82.3	10	73.9	9	80.6	10
4 – A5230 Progress Way Left	37.6	7	53.6	11	42.0	8

Scenario C + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
5 – A5230 Progress Way Ahead	83.9	26	76.4	20	82.9	24
6 – A5230 Progress Way Right	15.6	2	25.3	3	22.2	2
7 – B5261 Common Edge Road (South) Right	85.9	14	75.8	10	80.1	12
8 – B5261 Common Edge Road (South) Ahead	49.6	14	50.8	12	41.9	11
9 - B5261 Common Edge Road (South) Left	39.7	8	33.8	6	37.1	7
10 – A5230 Squires Gate Lane (West) Left	10.9	2	20.3	4	15.9	3
11 – A5230 Squires Gate Lane (West) Ahead	84.7	25	77.0	28	81.2	26
12 – A5230 Squires Gate Lane (West) Right	73.2	10	51.2	8	62.1	9

Scenario D + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	54.6	6	26.3	3	39.3	4
2 – B5261 Common Edge Road (North) Ahead	75.2	10	67.9	8	72.7	9
3 – B5261 Common Edge Road (North) Left/Ahead	85.1	11	74.8	9	80.6	10
4 – A5230 Progress Way Left	37.6	7	53.6	11	42.0	8
5 – A5230 Progress Way Ahead	84.1	26	77.3	21	82.9	24
6 – A5230 Progress Way Right	16.9	2	29.9	3	22.2	2
7 – B5261 Common Edge Road (South) Right	85.9	14	75.8	10	80.1	12
8 – B5261 Common Edge Road (South) Ahead	49.6	14	50.8	12	41.9	11
9 - B5261 Common Edge Road (South) Left	39.7	8	33.8	6	37.1	7
10 – A5230 Squires Gate Lane (West) Left	10.9	2	20.3	4	15.9	3
11 – A5230 Squires Gate Lane (West) Ahead	85.5	26	77.0	28	81.2	26
12 – A5230 Squires Gate Lane (West) Right	73.2	10	51.2	8	62.1	9

Scenario E + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	54.6	6	26.3	3	39.3	4
2 – B5261 Common Edge Road (North) Ahead	75.2	10	68.3	8	73.0	9
3 – B5261 Common Edge Road (North) Left/Ahead	85.1	11	75.4	9	80.9	10

Scenario E + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
4 – A5230 Progress Way Left	37.6	7	53.6	11	42.0	8
5 – A5230 Progress Way Ahead	84.6	26	77.6	21	79.8	23
6 – A5230 Progress Way Right	17.4	2	30.2	3	21.8	2
7 – B5261 Common Edge Road (South) Right	85.9	14	75.8	10	83.3	13
8 – B5261 Common Edge Road (South) Ahead	49.6	14	50.8	12	43.6	11
9 – B5261 Common Edge Road (South) Left	39.7	8	33.8	6	37.8	7
10 – A5230 Squires Gate Lane (West) Left	10.9	2	20.3	4	15.9	3
11 – A5230 Squires Gate Lane (West) Ahead	85.6	26	77.4	28	81.3	26
12 – A5230 Squires Gate Lane (West) Right	73.2	10	51.2	8	62.1	9

Scenario F + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	54.6	6	26.3	3	39.3	4
2 – B5261 Common Edge Road (North) Ahead	75.3	10	68.8	8	73.1	9
3 – B5261 Common Edge Road (North) Left/Ahead	85.3	11	75.9	9	81.2	10
4 – A5230 Progress Way Left	37.6	7	53.6	11	42.0	8
5 – A5230 Progress Way Ahead	84.9	27	77.7	21	80.0	23
6 – A5230 Progress Way Right	18.4	2	30.8	3	22.4	3
7 – B5261 Common Edge Road (South) Right	85.9	14	75.8	10	83.3	13
8 – B5261 Common Edge Road (South) Ahead	49.6	14	50.8	12	43.6	11
9 – B5261 Common Edge Road (South) Left	39.7	8	33.8	6	37.8	7
10 – A5230 Squires Gate Lane (West) Left	10.9	2	20.3	4	15.9	3
11 – A5230 Squires Gate Lane (West) Ahead	85.7	26	77.7	28	81.6	26
12 – A5230 Squires Gate Lane (West) Right	73.2	10	51.2	8	62.1	9

Table 8.8 - Junction 10 2021 Mitigation Assessments – Results

The identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance.

### 2027 Assessments

Table 8.9 provides the results of the analysis undertaken in the 2027 assessment year.

BASE Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	53.9	4	28.1	2	44.4	4
2 – B5261 Common Edge Road (North) Ahead	82.0	9	77.5	8	80.6	9
3 – B5261 Common Edge Road (North) Left/Ahead	<b>92.0</b>	11	85.2	9	89.3	10
4 – A5230 Progress Way Left	35.7	5	56.3	9	42.9	6
5 – A5230 Progress Way Ahead	<b>91.3</b>	23	84.0	18	<b>92.4</b>	23
6 – A5230 Progress Way Right	14.4	1	22.3	2	23.9	2
7 – B5261 Common Edge Road (South) Right	<b>92.3</b>	14	80.4	8	<b>91.0</b>	12
8 – B5261 Common Edge Road (South) Ahead	58.0	12	66.2	11	53.3	9
9 – B5261 Common Edge Road (South) Left	43.6	7	38.4	6	44.2	7
10 – A5230 Squires Gate Lane (West) Left	10.7	1	19.0	3	17.4	2
11 – A5230 Squires Gate Lane (West) Ahead	<b>96.2</b>	27	81.9	24	<b>95.6</b>	29
12 – A5230 Squires Gate Lane (West) Right	85.8	10	55.1	7	74.7	9

Scenario A + Smarter Choices / PT + Signal Time Adjustment Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.6	7	30.7	3	43.5	5
2 – B5261 Common Edge Road (North) Ahead	78.4	10	75.5	9	78.8	10
3 – B5261 Common Edge Road (North) Left/Ahead	88.3	12	83.0	10	87.3	12
4 – A5230 Progress Way Left	41.2	8	57.2	12	46.0	9
5 – A5230 Progress Way Ahead	<b>91.7</b>	31	83.4	23	87.3	27
6 – A5230 Progress Way Right	15.3	2	27.0	3	22.1	2
7 – B5261 Common Edge Road (South) Right	88.9	16	83.6	12	89.9	15
8 – B5261 Common Edge Road (South) Ahead	5.3	1	54.9	13	47.3	12
9 – B5261 Common Edge Road (South) Left	43.6	9	36.5	7	41.7	8
10 – A5230 Squires Gate Lane (West) Left	12.2	2	23.0	4	17.6	3
11 – A5230 Squires Gate Lane (West) Ahead	<b>91.9</b>	30	81.8	32	89.2	31
12 – A5230 Squires Gate Lane (West) Right	80.3	12	55.0	9	68.6	10

Scenario B + Smarter Choices / PT + Signal Time Adjustment Arm	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q



Scenario B + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	62.8	7	29.5	3	43.5	5
2 – B5261 Common Edge Road (North) Ahead	80.0	11	72.8	9	79.9	11
3 – B5261 Common Edge Road (North) Left/Ahead	90.3	13	80.3	10	88.6	12
4 – A5230 Progress Way Left	38.7	8	56.2	11	43.9	9
5 – A5230 Progress Way Ahead	91.7	31	79.6	22	86.9	27
6 – A5230 Progress Way Right	18.4	2	28.6	3	24.2	3
7 – B5261 Common Edge Road (South) Right	91.9	17	81.1	10	88.6	14
8 – B5261 Common Edge Road (South) Ahead	55.2	15	60.4	14	49.3	12
9 – B5261 Common Edge Road (South) Left	43.6	9	37.8	7	41.7	8
10 – A5230 Squires Gate Lane (West) Left	12.1	2	22.7	4	17.3	3
11 – A5230 Squires Gate Lane (West) Ahead	88.4	29	81.5	32	85.6	30
12 – A5230 Squires Gate Lane (West) Right	77.1	11	55.0	9	66.1	10

Scenario C + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.6	7	30.7	3	43.5	5
2 – B5261 Common Edge Road (North) Ahead	79.6	11	76.7	10	79.9	11
3 – B5261 Common Edge Road (North) Left/Ahead	89.8	12	84.5	11	88.6	12
4 – A5230 Progress Way Left	44.7	9	58.3	12	48.5	10
5 – A5230 Progress Way Ahead	93.8	33	84.7	24	92.7	30
6 – A5230 Progress Way Right	18.1	2	29.3	3	25.3	3
7 – B5261 Common Edge Road (South) Right	92.7	18	86.4	13	90.6	16
8 – B5261 Common Edge Road (South) Ahead	53.2	15	52.6	13	45.5	12
9 – B5261 Common Edge Road (South) Left	43.6	9	36.5	7	41.0	8
10 – A5230 Squires Gate Lane (West) Left	12.2	2	23.3	4	17.6	3
11 – A5230 Squires Gate Lane (West) Ahead	92.9	31	85.8	33	90.3	32
12 – A5230 Squires Gate Lane (West) Right	80.3	12	56.7	9	68.6	10

Scenario D + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
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Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.6	7	30.7	3	43.5	5
2 – B5261 Common Edge Road (North) Ahead	83.1	11	77.6	10	79.9	11
3 – B5261 Common Edge Road (North) Left/Ahead	94.2	14	85.7	11	88.6	12
4 – A5230 Progress Way Left	44.7	9	58.3	12	48.5	10
5 – A5230 Progress Way Ahead	94.3	34	85.9	24	92.7	30
6 – A5230 Progress Way Right	19.9	2	35.1	4	25.3	3
7 – B5261 Common Edge Road (South) Right	92.7	18	86.4	13	90.6	16
8 – B5261 Common Edge Road (South) Ahead	53.2	15	52.6	13	45.5	12
9 – B5261 Common Edge Road (South) Left	43.6	9	36.5	7	41.0	8
10 – A5230 Squires Gate Lane (West) Left	12.2	2	23.3	4	17.6	3
11 – A5230 Squires Gate Lane (West) Ahead	94.1	32	86.0	34	90.3	32
12 – A5230 Squires Gate Lane (West) Right	80.3	12	56.7	9	68.6	10

Scenario E + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.6	7	30.7	3	43.5	5
2 – B5261 Common Edge Road (North) Ahead	83.4	12	78.4	10	80.3	11
3 – B5261 Common Edge Road (North) Left/Ahead	94.5	15	86.6	11	89.1	12
4 – A5230 Progress Way Left	44.7	9	58.3	12	48.5	10
5 – A5230 Progress Way Ahead	95.1	35	86.5	25	93.6	31
6 – A5230 Progress Way Right	21.5	2	36.3	4	26.4	3
7 – B5261 Common Edge Road (South) Right	92.7	18	86.4	13	90.6	16
8 – B5261 Common Edge Road (South) Ahead	53.2	15	52.6	13	45.5	12
9 – B5261 Common Edge Road (South) Left	43.6	9	36.5	7	41.0	8
10 – A5230 Squires Gate Lane (West) Left	12.2	2	23.3	4	17.6	3
11 – A5230 Squires Gate Lane (West) Ahead	94.4	33	86.7	34	90.7	32
12 – A5230 Squires Gate Lane (West) Right	80.3	11	56.7	9	68.6	10

Scenario F + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q

Scenario F + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – B5261 Common Edge Road (North) Right	61.6	7	30.7	3	43.5	5
2 – B5261 Common Edge Road (North) Ahead	83.5	12	79.3	10	80.9	11
3 – B5261 Common Edge Road (North) Left/Ahead	94.7	15	87.8	12	89.9	13
4 – A5230 Progress Way Left	44.7	9	58.3	12	48.5	10
5 – A5230 Progress Way Ahead	96.1	36	87.1	25	90.4	29
6 – A5230 Progress Way Right	23.0	3	37.2	4	26.6	3
7 – B5261 Common Edge Road (South) Right	92.7	18	86.4	13	94.3	18
8 – B5261 Common Edge Road (South) Ahead	53.2	15	52.6	13	47.3	12
9 – B5261 Common Edge Road (South) Left	43.6	9	36.5	7	41.7	8
10 – A5230 Squires Gate Lane (West) Left	12.2	2	23.3	4	17.6	3
11 – A5230 Squires Gate Lane (West) Ahead	94.5	33	87.4	34	91.2	33
12 – A5230 Squires Gate Lane (West) Right	80.3	12	56.7	9	68.6	10

Table 8.9 - Junction 10 2027 Mitigation Assessments – Results

The identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction close to acceptable operational performance. Given the constraints at the junction, further discussion may be required in relation to any further opportunity to improve the performance of the junction back to base conditions.

## 8.12 Junction 11 – A5230 Progress Way / Midgeland Road

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2016 – Development Scenarios A, B, C, D, E, F;
- 2021 – Development Scenarios A, B, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

### 2016 Assessments

In 2016, analysis has focussed on the implementation of an optimisation of the signal timings in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

Table 8.10 provides the results of the analysis undertaken in the 2016 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	97.4	16	86.4	9	88.9	10
2 – A5230 Progress Way (East) Left/Ahead	92.2	11	84.3	9	92.6	11
3 – A5230 Progress Way (East) Ahead	84.5	9	77.1	8	84.5	9
4 – A5230 Progress Way (East) Right	26.1	2	17.5	1	30.4	2
5 – Midgeland Road (South) Left/Ahead/Right	72.2	6	68.9	5	65.1	5
6 – A5230 Progress Way (West) Left/Ahead	98.4	17	89.4	11	95.1	15
7 – A5230 Progress Way (West) Ahead	87.8	11	81.4	10	84.7	11
8 – A5230 Progress Way (West) Right	23.6	2	10.2	1	14.8	1

Scenario A + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	80.8	16	72.5	12	77.7	13
2 – A5230 Progress Way (East) Left/Ahead	81.4	14	73.8	13	78.5	14
3 – A5230 Progress Way (East) Ahead	74.6	13	67.5	12	71.7	13
4 – A5230 Progress Way (East) Right	22.6	3	14.8	2	25.5	3
5 – Midgeland Road (South) Left/Ahead/Right	59.9	10	57.8	8	56.9	8
6 – A5230 Progress Way (West) Left/Ahead	82.2	17	74.9	16	77.2	16
7 – A5230 Progress Way (West) Ahead	73.4	16	68.2	15	68.8	15
8 – A5230 Progress Way (West) Right	19.3	3	8.5	1	11.9	2

Scenario B + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
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Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	81.2	16	75.0	12	77.9	13
2 – A5230 Progress Way (East) Left/Ahead	82.8	15	73.8	13	78.7	14
3 – A5230 Progress Way (East) Ahead	75.9	14	67.5	12	71.9	13
4 – A5230 Progress Way (East) Right	22.9	3	15.0	2	25.5	3
5 – Midgeland Road (South) Left/Ahead/Right	59.9	10	59.8	9	56.9	8
6 – A5230 Progress Way (West) Left/Ahead	83.0	18	73.2	15	77.3	16
7 – A5230 Progress Way (West) Ahead	74.2	16	66.7	15	69.0	15
8 – A5230 Progress Way (West) Right	19.3	3	8.3	1	11.9	2

Scenario C + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	83.2	16	75.0	12	77.7	13
2 – A5230 Progress Way (East) Left/Ahead	83.3	15	75.1	13	79.7	14
3 – A5230 Progress Way (East) Ahead	76.3	14	68.7	13	72.8	13
4 – A5230 Progress Way (East) Right	22.6	3	14.8	2	25.5	3
5 – Midgeland Road (South) Left/Ahead/Right	61.6	10	59.8	9	56.9	8
6 – A5230 Progress Way (West) Left/Ahead	81.9	18	73.9	16	78.2	17
7 – A5230 Progress Way (West) Ahead	73.2	16	67.4	15	69.7	16
8 – A5230 Progress Way (West) Right	18.8	3	8.3	1	11.9	2

Scenario D + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	83.2	16	75.0	12	77.7	13
2 – A5230 Progress Way (East) Left/Ahead	83.5	15	75.9	14	79.7	14
3 – A5230 Progress Way (East) Ahead	76.5	14	69.5	13	72.8	13
4 – A5230 Progress Way (East) Right	22.6	3	14.8	2	25.5	3
5 – Midgeland Road (South) Left/Ahead/Right	61.6	10	59.8	9	56.9	8
6 – A5230 Progress Way (West) Left/Ahead	82.6	18	74.1	16	78.2	17
7 – A5230 Progress Way (West) Ahead	74.0	16	67.5	15	69.7	16
8 – A5230 Progress Way (West) Right	18.8	3	8.3	1	11.9	2

Scenario E + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ

Scenario E + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	83.2	16	75.0	12	77.7	13
2 – A5230 Progress Way (East) Left/Ahead	83.5	15	75.9	14	79.7	14
3 – A5230 Progress Way (East) Ahead	76.5	14	69.5	13	72.8	13
4 – A5230 Progress Way (East) Right	22.6	3	14.8	2	25.5	3
5 – Midgeland Road (South) Left/Ahead/Right	61.6	10	59.8	9	56.9	8
6 – A5230 Progress Way (West) Left/Ahead	82.6	18	74.1	16	78.2	17
7 – A5230 Progress Way (West) Ahead	74.0	16	67.5	15	69.7	16
8 – A5230 Progress Way (West) Right	18.8	3	8.3	1	11.9	2

Scenario F + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	83.2	16	72.5	12	77.7	13
2 – A5230 Progress Way (East) Left/Ahead	83.5	15	70.8	12	79.7	14
3 – A5230 Progress Way (East) Ahead	76.5	14	64.7	11	72.8	13
4 – A5230 Progress Way (East) Right	22.6	3	15.8	2	25.5	3
5 – Midgeland Road (South) Left/Ahead/Right	61.6	10	57.8	8	56.9	8
6 – A5230 Progress Way (West) Left/Ahead	82.6	18	72.3	15	78.2	17
7 – A5230 Progress Way (West) Ahead	74.0	16	65.9	15	69.7	16
8 – A5230 Progress Way (West) Right	18.8	3	8.1	1	11.9	2

Table 8.10 - Junction 11 2016 Mitigation Assessments – Results

The identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance.

### 2021 Assessments

Table 8.11 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1 – Midgeland Road (North) Left/Ahead/Right	<b>106.8</b>	30	<b>95.2</b>	13	<b>99.9</b>	17
2 – A5230 Progress Way (East) Left/Ahead	<b>100.8</b>	18	<b>91.3</b>	11	<b>102.6</b>	21
3 – A5230 Progress Way (East) Ahead	<b>92.4</b>	12	83.5	9	<b>93.7</b>	12
4 – A5230 Progress Way (East) Right	28.6	2	19.1	1	34.1	2

BASE	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
5 – Midgeland Road (South) Left/Ahead/Right	79.2	8	76.0	6	73.1	6
6 – A5230 Progress Way (West) Left/Ahead	<b>106.3</b>	31	<b>97.8</b>	18	<b>105.4</b>	31
7 – A5230 Progress Way (West) Ahead	<b>94.8</b>	15	89.1	12	<b>93.9</b>	15
8 – A5230 Progress Way (West) Right	26.1	2	11.3	1	16.7	1

Scenario A + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	<b>91.4</b>	20	82.6	14	87.3	17
2 – A5230 Progress Way (East) Left/Ahead	<b>90.9</b>	19	84.9	17	87.4	17
3 – A5230 Progress Way (East) Ahead	83.3	16	77.7	15	79.8	16
4 – A5230 Progress Way (East) Right	24.0	3	16.4	2	27.7	4
5 – Midgeland Road (South) Left/Ahead/Right	68.0	11	66.8	10	64.3	10
6 – A5230 Progress Way (West) Left/Ahead	<b>92.8</b>	23	83.4	19	89.9	22
7 – A5230 Progress Way (West) Ahead	83.0	19	76.0	18	80.2	19
8 – A5230 Progress Way (West) Right	21.3	3	9.2	1	13.7	2

Scenario B + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (North) Left/Ahead/Right	<b>92.0</b>	21	82.8	14	87.3	17
2 – A5230 Progress Way (East) Left/Ahead	<b>91.3</b>	19	82.3	16	85.9	17
3 – A5230 Progress Way (East) Ahead	83.7	16	75.4	15	78.4	15
4 – A5230 Progress Way (East) Right	24.4	3	16.8	2	27.7	4
5 – Midgeland Road (South) Left/Ahead/Right	67.6	11	65.9	10	63.9	10
6 – A5230 Progress Way (West) Left/Ahead	<b>91.6</b>	22	82.5	19	88.6	21
7 – A5230 Progress Way (West) Ahead	81.9	19	75.2	17	79.0	19
8 – A5230 Progress Way (West) Right	21.3	3	9.2	1	13.7	2

Scenario C + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	<b>94.2</b>	22	84.3	14	<b>90.2</b>	18

Scenario C + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
2 – A5230 Progress Way (East) Left/Ahead	94.6	21	83.8	17	89.9	18
3 – A5230 Progress Way (East) Ahead	86.7	18	76.6	16	82.1	16
4 – A5230 Progress Way (East) Right	24.0	3	15.4	2	27.7	4
5 – Midgeland Road (South) Left/Ahead/Right	70.1	12	71.7	10	66.5	10
6 – A5230 Progress Way (West) Left/Ahead	92.6	23	85.4	20	89.4	22
7 – A5230 Progress Way (West) Ahead	83.0	20	77.9	18	79.8	19
8 – A5230 Progress Way (West) Right	20.7	3	9.2	1	13.4	2

Scenario D + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	93.5	21	85.6	15	90.2	18
2 – A5230 Progress Way (East) Left/Ahead	94.1	21	86.7	18	89.9	18
3 – A5230 Progress Way (East) Ahead	86.2	18	79.4	16	82.1	16
4 – A5230 Progress Way (East) Right	23.2	3	15.9	2	27.7	4
5 – Midgeland Road (South) Left/Ahead/Right	72.3	12	69.2	10	64.1	10
6 – A5230 Progress Way (West) Left/Ahead	94.6	25	86.0	20	89.4	22
7 – A5230 Progress Way (West) Ahead	84.8	21	78.4	19	79.8	19
8 – A5230 Progress Way (West) Right	20.7	3	9.2	1	13.4	2

Scenario E + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	94.2	22	85.8	15	90.2	18
2 – A5230 Progress Way (East) Left/Ahead	96.2	23	87.0	18	90.4	19
3 – A5230 Progress Way (East) Ahead	88.1	18	79.6	16	82.5	17
4 – A5230 Progress Way (East) Right	24.2	3	16.1	2	27.7	4
5 – Midgeland Road (South) Left/Ahead/Right	70.1	12	69.2	10	66.5	10
6 – A5230 Progress Way (West) Left/Ahead	94.7	25	86.4	21	89.6	22
7 – A5230 Progress Way (West) Ahead	84.9	21	78.8	19	80.0	19
8 – A5230 Progress Way (West) Right	20.7	3	9.2	1	13.4	2



Scenario F + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	94.4	22	86.0	15	90.4	18
2 – A5230 Progress Way (East) Left/Ahead	96.8	23	87.4	18	90.9	19
3 – A5230 Progress Way (East) Ahead	88.6	19	80.0	16	83.0	17
4 – A5230 Progress Way (East) Right	24.4	3	16.1	2	27.9	4
5 – Midgeland Road (South) Left/Ahead/Right	70.1	12	69.2	10	66.5	10
6 – A5230 Progress Way (West) Left/Ahead	94.8	25	86.7	21	89.9	22
7 – A5230 Progress Way (West) Ahead	85.0	21	79.1	19	80.3	19
8 – A5230 Progress Way (West) Right	20.7	3	9.2	1	13.4	2

Table 8.11 - Junction 11 2021 Mitigation Assessments – Results

The identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction back to acceptable operational performance when compared to the base performance.

#### 2027 Assessments

Table 8.12 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	116.7	53	104.1	22	110.2	35
2 – A5230 Progress Way (East) Left/Ahead	109.6	33	106.0	26	112.3	38
3 – A5230 Progress Way (East) Ahead	100.4	19	97.0	15	102.5	22
4 – A5230 Progress Way (East) Right	31.1	2	22.6	1	37.6	3
5 – Midgeland Road (South) Left/Ahead/Right	86.6	9	83.3	8	80.9	7
6 – A5230 Progress Way (West) Left/Ahead	114.6	50	100.5	22	115.4	55
7 – A5230 Progress Way (West) Ahead	102.2	25	91.5	14	102.7	27
8 – A5230 Progress Way (West) Right	28.3	2	11.8	1	18.4	1

Scenario A + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	100.0	29	93.5	19	99.5	26
2 – A5230 Progress Way (East) Left/Ahead	102.6	32	92.5	21	98.5	26

Scenario A + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
3 – A5230 Progress Way (East) Ahead	93.9	22	84.6	18	89.9	20
4 – A5230 Progress Way (East) Right	26.3	4	17.4	2	30.5	4
5 – Midgeland Road (South) Left/Ahead/Right	74.5	13	76.2	12	73.5	12
6 – A5230 Progress Way (West) Left/Ahead	102.5	38	93.4	25	97.7	30
7 – A5230 Progress Way (West) Ahead	91.8	24	85.2	22	87.2	23
8 – A5230 Progress Way (West) Right	23.4	4	10.2	2	14.9	2

Scenario B + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	101.0	31	90.7	17	96.5	23
2 – A5230 Progress Way (East) Left/Ahead	102.1	31	90.4	19	95.3	22
3 – A5230 Progress Way (East) Ahead	93.6	22	82.7	17	87.1	18
4 – A5230 Progress Way (East) Right	26.5	4	18.5	3	30.5	4
5 – Midgeland Road (South) Left/Ahead/Right	74.2	13	72.3	11	70.7	11
6 – A5230 Progress Way (West) Left/Ahead	99.6	32	91.4	24	97.6	29
7 – A5230 Progress Way (West) Ahead	89.1	23	83.4	21	87.0	22
8 – A5230 Progress Way (West) Right	23.3	4	10.2	2	15.1	2

Scenario C + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	103.1	35	93.5	19	99.5	26
2 – A5230 Progress Way (East) Left/Ahead	105.4	39	95.6	24	102.5	33
3 – A5230 Progress Way (East) Ahead	96.5	25	87.5	19	93.6	22
4 – A5230 Progress Way (East) Right	25.5	4	17.4	2	30.5	4
5 – Midgeland Road (South) Left/Ahead/Right	76.8	13	76.4	12	73.7	12
6 – A5230 Progress Way (West) Left/Ahead	105.1	44	96.9	29	100.3	35
7 – A5230 Progress Way (West) Ahead	94.2	26	88.4	24	89.6	24
8 – A5230 Progress Way (West) Right	23.4	4	10.2	2	14.9	2

Scenario D + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	106.5	42	97.0	21	99.5	26
2 – A5230 Progress Way (East) Left/Ahead	106.2	41	95.5	24	102.5	33
3 – A5230 Progress Way (East) Ahead	97.3	26	87.4	20	93.6	22
4 – A5230 Progress Way (East) Right	25.5	4	16.9	2	30.5	4
5 – Midgeland Road (South) Left/Ahead/Right	79.2	14	79.2	12	73.7	12
6 – A5230 Progress Way (West) Left/Ahead	105.1	45	97.5	30	100.3	35
7 – A5230 Progress Way (West) Ahead	94.4	27	89.0	24	89.6	24
8 – A5230 Progress Way (West) Right	22.8	4	10.2	2	14.9	2

Scenario E + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	106.5	42	97.5	22	103.2	31
2 – A5230 Progress Way (East) Left/Ahead	107.7	44	96.2	258	100.4	29
3 – A5230 Progress Way (East) Ahead	98.7	28	88.0	20	91.6	21
4 – A5230 Progress Way (East) Right	25.9	4	17.1	2	29.8	4
5 – Midgeland Road (South) Left/Ahead/Right	79.2	14	79.0	12	76.0	12
6 – A5230 Progress Way (West) Left/Ahead	105.4	46	98.4	32	100.9	36
7 – A5230 Progress Way (West) Ahead	94.6	27	89.9	25	90.2	25
8 – A5230 Progress Way (West) Right	22.8	4	10.2	2	14.9	2

Scenario F + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
Arm	DoS	MM Q	DoS	MM Q	DoS	MM Q
1 – Midgeland Road (North) Left/Ahead/Right	106.7	43	97.7	22	103.4	32
2 – A5230 Progress Way (East) Left/Ahead	105.7	41	96.9	26	101.4	31
3 – A5230 Progress Way (East) Ahead	96.8	26	88.7	21	92.6	22
4 – A5230 Progress Way (East) Right	25.2	4	17.3	2	30.2	4
5 – Midgeland Road (South) Left/Ahead/Right	79.2	14	79.0	12	76.0	12
6 – A5230 Progress Way (West) Left/Ahead	108.5	54	99.5	34	101.6	38
7 – A5230 Progress Way (West) Ahead	97.4	30	90.9	25	90.8	25

Scenario F + Smarter Choices / PT + Signal Time Adjustment	AM		PM		Saturday	
	DoS	MM Q	DoS	MM Q	DoS	MM Q
8 – A5230 Progress Way (West) Right	23.4	4	10.2	2	14.9	2

Table 8.12 - Junction 11 2027 Mitigation Assessments – Results

The identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction back to acceptable operational performance when compared to the base performance.

### 8.13 Junction 13 - A583 Preston New Road / Hallam Way / Lytham St. Annes Way

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2027 – Development Scenario F.

#### 2027 Assessments

The analysis has focussed on the implementation of smarter choices and public transport improvements.

Table 8.13 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.53	1	0.49	1	0.53	1
2 – Minor Access (East)	0.03	0	0.02	0	0.03	0
3 – A583 Preston New Road (South)	0.40	1	0.51	1	0.47	1
4 – Lytham St Annes Way	0.38	1	0.29	0	0.36	1
5 – Hallam Way	0.13	0	0.37	1	0.27	0

Scenario F + Smarter Choices / PT	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – A583 Preston New Road (North)	0.72	3	0.34	1	0.58	1
2 – Minor Access (East)	0.72	2	0.09	0	0.23	0
3 – A583 Preston New Road (South)	0.61	2	0.63	2	0.54	1
4 – Lytham St Annes Way	0.57	1	0.58	1	0.45	1
5 – Hallam Way	0.34	1	0.76	3	0.34	1

Table 8.13 - Junction 13 2027 Mitigation Assessments – Results

The identified mitigation (Smarter Choices / Public Transport measures) bring the junction back to acceptable operational performance when compared to the base performance.

## 8.14 Junction 14/15 – A583 Preston New Road / Whitehill Road / Peel Road

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2021 – Development Scenarios A, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

The analysis has focussed on the implementation of a series of junction improvements in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

This junction improvements consist of:

- **Improvement 1** – The widening of the Peel Road approach to create a two lane approach;
- **Improvement 2** – In addition to Improvement 1, the widening of the Preston Road North approach to provide for a dedicated right turn lane; and
- **Improvement 3** – In addition to Improvements 1 and 2, the widening of the Whitehills Road approach to create a two lane approach.

An indicative plan of the proposed layout is provided in Figure 8.3.



Figure 8.3 - Junction 14/15 Junction Improvement

**2021 Assessments**

Table 8.14 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	70.8	14.9	68.9	13.2	81.1	16.1
2. A583 Preston New Road (North) Ahead/Right	82.8	16.8	66.2	12.8	86.3	17.0
3. A583 Preston New Road (South) Left/Ahead	60.0	11.5	83.7	17.5	81.5	15.7
4. A583 Preston New Road Ahead	53.2	11.0	73.1	15.7	71.7	14.4

BASE	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
5. Peel Road	83.4	13.1	84.3	17.6	87.3	16.3
6. Whitehill Road	82.9	14.3	83.5	11.7	85.1	16.2

Scenario A + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	68.1	14.6	65.3	12.9	74.9	15.0
2. A583 Preston New Road (North) Ahead/Right	79.7	16.1	62.7	12.6	80.0	15.6
3. A583 Preston New Road (South) Left/Ahead	59.2	11.6	79.3	16.6	76.0	14.8
4. A583 Preston New Road Ahead	52.4	11.1	69.1	15.2	66.8	13.8
5. Peel Road	77.2	12.5	79.5	17.1	81.5	15.4
6. Whitehill Road	78.1	14.5	80.1	11.9	80.5	16.0

Scenario C + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	68.7	14.9	66.6	13.2	76.6	15.4
2. A583 Preston New Road (North) Ahead/Right	80.4	16.6	64.3	12.9	81.9	16.2
3. A583 Preston New Road (South) Left/Ahead	58.5	11.6	80.2	17.1	76.7	15.0
4. A583 Preston New Road Ahead	51.8	11.1	70.0	15.6	67.5	13.9
5. Peel Road	78.7	12.8	81.1	17.7	80.8	15.4
6. Whitehill Road	80.4	14.8	80.1	11.9	82.7	16.4

Scenario D + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	70.7	15.4	68.2	13.7	76.6	15.4
2. A583 Preston New Road (North) Ahead/Right	82.4	17.3	65.3	13.3	81.9	16.2
3. A583 Preston New Road (South) Left/Ahead	60.7	12.1	80.3	17.1	76.8	15.0
4. A583 Preston New Road Ahead	53.8	11.5	70.1	15.6	67.5	13.9
5. Peel Road	81.5	14.4	81.7	17.9	80.8	15.4
6. Whitehill Road	82.8	15.3	79.4	11.7	82.7	16.4

Scenario E + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ



Scenario E + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Arm						
1. A583 Preston New Road (North) Ahead	69.6	15.3	68.2	13.7	77.0	15.6
2. A583 Preston New Road (North) Ahead/Right	81.1	16.9	65.7	13.3	82.3	16.4
3. A583 Preston New Road (South) Left/Ahead	59.3	11.9	80.7	17.2	77.1	15.2
4. A583 Preston New Road Ahead	52.6	11.3	70.5	15.7	67.8	14.0
5. Peel Road	80.3	13.3	81.5	17.9	81.0	15.5
6. Whitehill Road	80.4	14.8	80.1	11.9	82.7	16.4

Scenario F + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Arm						
1. A583 Preston New Road (North) Ahead	70.4	15.5	68.3	13.7	77.7	15.8
2. A583 Preston New Road (North) Ahead/Right	81.8	17.3	65.7	13.3	83.0	16.7
3. A583 Preston New Road (South) Left/Ahead	59.5	11.9	81.2	17.4	77.3	15.3
4. A583 Preston New Road Ahead	52.7	11.4	70.9	15.8	68.0	14.0
5. Peel Road	80.7	13.4	82.6	18.2	81.2	15.5
6. Whitehill Road	80.4	14.8	80.1	11.9	82.7	16.4

Table 8.14 - Junction 14/15 2021 Mitigation Assessments – Results

The identified mitigation (Junction Improvement and Smarter Choices / Public Transport measures) bring the junction back to acceptable operational performance.

### 2027 Assessments

Table 8.15 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Arm						
1. A583 Preston New Road (North) Ahead	73.8	16.0	71.8	13.9	85.2	17.5
2. A583 Preston New Road (North) Ahead/Right	86.3	18.4	69.0	13.5	<b>90.6</b>	19.2
3. A583 Preston New Road (South) Left/Ahead	62.5	12.2	86.9	18.8	85.3	17.1
4. A583 Preston New Road Ahead	55.3	11.6	75.8	16.6	75.0	15.3
5. Peel Road	87.1	14.3	87.8	19.3	88.9	17.4
6. Whitehill Road	85.1	15.0	86.4	12.6	<b>91.0</b>	18.7

Scenario A + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Arm						

Scenario A + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Arm						
1. A583 Preston New Road (North) Ahead	71.1	15.5	69.7	13.8	80.7	16.6
2. A583 Preston New Road (North) Ahead/Right	83.3	17.5	67.2	13.5	86.1	17.7
3. A583 Preston New Road (South) Left/Ahead	62.1	12.5	85.3	18.8	82.2	16.6
4. A583 Preston New Road Ahead	55.0	11.8	74.3	16.7	72.2	15.1
5. Peel Road	82.5	14.0	85.9	19.8	88.0	18.0
6. Whitehill Road	82.5	15.9	84.4	13.5	85.8	18.3

Scenario B + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Arm						
1. A583 Preston New Road (North) Ahead	70.3	15.9	68.8	14.1	79.5	16.7
2. A583 Preston New Road (North) Ahead/Right	82.3	17.8	66.5	13.8	85.3	18.0
3. A583 Preston New Road (South) Left/Ahead	58.5	11.9	80.9	17.7	77.9	15.8
4. A583 Preston New Road Ahead	51.8	11.4	70.8	16.1	68.6	14.5
5. Peel Road	81.4	13.6	82.3	18.1	83.2	16.3
6. Whitehill Road	80.2	14.1	80.5	11.7	83.2	16.3

Scenario C + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Arm						
1. A583 Preston New Road (North) Ahead	73.2	16.5	72.2	14.6	83.7	17.7
2. A583 Preston New Road (North) Ahead/Right	85.7	18.9	69.6	14.2	89.6	19.3
3. A583 Preston New Road (South) Left/Ahead	61.6	12.5	87.0	19.7	83.4	17.1
4. A583 Preston New Road Ahead	54.5	11.8	75.9	17.2	73.4	15.4
5. Peel Road	84.2	14.5	86.7	20.7	87.8	18.2
6. Whitehill Road	85.0	16.5	87.7	14.3	88.1	19.0

Scenario D + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Arm						
1. A583 Preston New Road (North) Ahead	73.7	16.6	74.1	15.2	83.7	17.7
2. A583 Preston New Road (North) Ahead/Right	86.0	19.2	70.9	14.7	89.6	19.3
3. A583 Preston New Road (South) Left/Ahead	62.8	12.8	87.4	19.9	83.4	17.1
4. A583 Preston New Road Ahead	55.7	12.2	76.3	17.3	73.4	15.4

Scenario D + Smarter Choices / PT + Junction Improvement 1	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
5. Peel Road	86.2	15.3	87.0	20.8	87.8	18.2
6. Whitehill Road	85.6	16.7	87.7	14.3	88.1	19.0

Scenario E + Smarter Choices / PT + Junction Improvement 2	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	42.2	14.9	47.2	15.9	49.8	16.1
2. A583 Preston New Road (North) Ahead/Right	86.1	18.1	68.7	11.1	86.7	16.1
3. A583 Preston New Road (South) Left/Ahead	64.1	13.1	88.1	20.4	84.0	17.3
4. A583 Preston New Road Ahead	56.9	12.4	77.0	17.7	73.9	15.7
5. Peel Road	86.4	15.4	87.9	21.2	88.4	18.6
6. Whitehill Road	86.6	17.5	87.7	14.3	88.1	19.0

Scenario F + Smarter Choices / PT + Junction Improvement 3	AM		PM		Saturday	
Arm	DoS	MMQ	DoS	MMQ	DoS	MMQ
1. A583 Preston New Road (North) Ahead	36.0	13.2	32.6	12.0	42.6	14.9
2. A583 Preston New Road (North) Ahead/Right	73.8	14.8	88.9	23.2	75.3	13.7
3. A583 Preston New Road (South) Left/Ahead	53.9	11.3	60.8	13.8	71.5	15.0
4. A583 Preston New Road Ahead	47.8	10.8	53.1	12.9	62.9	14.0
5. Peel Road	75.0	13.8	88.9	22.1	75.1	15.8
6. Whitehill Road	74.8	15.2	86.8	14.1	74.9	16.2

Table 8.15 - Junction 14/15 2027 Mitigation Assessments – Results

The identified mitigation (Junction Improvement and Smarter Choices / Public Transport measures) bring the junction back to acceptable operational performance.

### 8.15 Junction 16 – Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2021 – Development Scenarios A, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

#### 2021 Assessments

In 2021, analysis has focussed on the implementation of a junction improvement in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

This junction improvement consists of:

- Widening the Cropper Road entry and approach to the roundabout for a short length; and
- Widening the Wild Lane entry and approach to the roundabout for a short length.

An indicative plan of the proposed layout is provided in Figure 8.4.



Figure 8.4 - Junction 16 Junction Improvement

Table 8.16 provides the results of the analysis undertaken in the 2021 assessment year.

BASE Arm	AM		PM		Saturday	
	RFC	Q	RFC	Q	RFC	Q
1 – Cropper Road	0.47	1	0.82	4	0.66	2
2 – Lytham St Annes Way	0.38	1	0.47	1	0.42	1
3 – Whitehill Road	0.32	0	0.11	0	0.23	0
4 – Wild Lane	<b>1.16</b>	77	0.69	2	<b>0.92</b>	9
5 – School Road	0.31	0	0.47	1	0.41	1

Scenario A + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.39	1	0.67	2	0.52	1
2 – Lytham St Annes Way	0.40	1	0.51	1	0.44	1
3 – Whitehill Road	0.32	0	0.11	0	0.23	0
4 – Wild Lane	0.80	4	0.48	1	0.62	2
5 – School Road	0.39	1	0.49	1	0.45	1

Scenario C + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.39	1	0.68	2	0.53	1
2 – Lytham St Annes Way	0.40	1	0.51	1	0.44	1
3 – Whitehill Road	0.33	0	0.11	0	0.23	0
4 – Wild Lane	0.80	4	0.48	1	0.62	2
5 – School Road	0.39	1	0.49	1	0.45	1

Scenario D + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.40	1	0.70	2	0.53	1
2 – Lytham St Annes Way	0.40	1	0.51	1	0.44	1
3 – Whitehill Road	0.33	0	0.11	0	0.23	0
4 – Wild Lane	0.82	4	0.48	1	0.62	2
5 – School Road	0.39	1	0.49	1	0.45	1

Scenario E + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.41	1	0.70	2	0.53	1
2 – Lytham St Annes Way	0.40	1	0.51	1	0.44	1
3 – Whitehill Road	0.33	0	0.11	0	0.23	0
4 – Wild Lane	0.82	4	0.49	1	0.63	2
5 – School Road	0.39	1	0.49	1	0.45	1

Scenario F + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.42	1	0.71	2	0.54	1
2 – Lytham St Annes Way	0.40	1	0.51	1	0.45	1
3 – Whitehill Road	0.33	1	0.11	0	0.23	0
4 – Wild Lane	0.83	5	0.50	1	0.64	2
5 – School Road	0.39	1	0.49	1	0.45	1

Table 8.16 - Junction 16 2021 Mitigation Assessments – Results

The identified mitigation (Junction Improvement and Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance.

### 2027 Assessments

In 2027, analysis has focussed on the implementation of a junction improvement in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

Table 8.17 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.51	1	<b>0.93</b>	9	0.74	2
2 – Lytham St Annes Way	0.42	1	0.52	1	0.48	1
3 – Whitehill Road	0.36	1	0.13	0	0.26	0
4 – Wild Lane	<b>1.29</b>	132	0.76	3	<b>1.03</b>	27
5 – School Road	0.34	1	0.52	1	0.47	1

Scenario A + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.44	1	0.76	3	0.60	1
2 – Lytham St Annes Way	0.45	1	0.61	2	0.52	1
3 – Whitehill Road	0.37	1	0.13	0	0.26	0
4 – Wild Lane	<b>0.89</b>	7	0.49	1	0.70	2
5 – School Road	0.51	1	0.57	1	0.55	1

Scenario B + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.44	1	0.76	3	0.60	1
2 – Lytham St Annes Way	0.45	1	0.61	2	0.52	1
3 – Whitehill Road	0.37	1	0.13	0	0.26	0
4 – Wild Lane	<b>0.89</b>	7	0.49	1	0.70	2
5 – School Road	0.51	1	0.57	1	0.55	1

Scenario B + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.43	1	0.76	3	0.59	1
2 – Lytham St Annes Way	0.43	1	0.53	1	0.48	1
3 – Whitehill Road	0.37	1	0.14	0	0.27	0
4 – Wild Lane	0.88	7	0.52	1	0.69	2
5 – School Road	0.39	1	0.53	1	0.48	1

Scenario C + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.44	1	0.77	3	0.60	1
2 – Lytham St Annes Way	0.45	1	0.62	2	0.52	1
3 – Whitehill Road	0.37	1	0.13	0	0.27	0
4 – Wild Lane	0.89	7	0.53	1	0.70	2
5 – School Road	0.51	1	0.57	1	0.55	1

Scenario D + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.45	1	0.79	4	0.60	1
2 – Lytham St Annes Way	0.45	1	0.62	2	0.52	1
3 – Whitehill Road	0.37	1	0.13	0	0.27	0
4 – Wild Lane	0.92	9	0.54	1	0.70	2
5 – School Road	0.51	1	0.57	1	0.55	1

Scenario E + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.47	1	0.81	4	0.62	2
2 – Lytham St Annes Way	0.45	1	0.62	2	0.53	1
3 – Whitehill Road	0.38	1	0.13	0	0.27	0
4 – Wild Lane	0.92	10	0.56	1	0.71	2
5 – School Road	0.51	1	0.58	1	0.55	1

Scenario F + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – Cropper Road	0.50	1	0.82	4	0.64	2
2 – Lytham St Annes Way	0.45	1	0.63	2	0.53	1
3 – Whitehill Road	0.38	1	0.13	0	0.27	0
4 – Wild Lane	0.93	10	0.58	1	0.73	3
5 – School Road	0.51	1	0.58	1	0.55	1

Table 8.17 - Junction 16 2027 Mitigation Assessments – Results

The identified mitigation (Junction Improvement and Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance. While elements of the junction operate over the capacity threshold in the with development scenarios, a betterment is provided when compared to the base situation.



## 8.16 Junction 17 – School Road / Midgeland Road

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2021 – Development Scenario F; and
- 2027 – Development Scenarios D, E, F.

### 2021 Assessments

In 2021, analysis has focussed on the implementation of the smarter choices and public transport improvements.

Table 8.18 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.367	1	0.361	1	0.373	1
2 – Midgeland Road (North)	0.832	4	0.777	3	0.828	4
3 – School Road (West)	0.020	0	0.012	0	0.018	0
4 – School Road (East)	0.299	1	0.726	5	0.514	2

Scenario F + Smarter Choices / PT	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.446	1	0.423	1	0.402	1
2 – Midgeland Road (North)	0.898	6	0.838	4	0.854	5
3 – School Road (West)	0.021	0	0.012	0	0.018	0
4 – School Road (East)	0.319	1	0.781	6	0.530	2

Table 8.18 - Junction 17 2021 Mitigation Assessments – Results

The identified mitigation (Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance.

### 2027 Assessments

In 2027, analysis has focussed on the implementation of a junction improvement in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

This junction improvement consists of:

- Ghost Island provisions – providing right turning facilities for movements from School Road to Midgeland Road; and
- The widening of the Midgeland Road North approach to provide a two laned approach, for left and straight/ahead movements.

An indicative plan of the proposed layout is provided in Figure 8.5.



Figure 8.5 - Junction 17 Junction Improvement

Table 8.19 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.451	1	0.482	1	0.494	1
2 – Midgeland Road (North)	<b>1.001</b>	12	<b>0.995</b>	10	<b>1.047</b>	15
3 – School Road (West)	0.21	0	0.017	0	0.020	0
4 – School Road (East)	0.358	1	0.891	12	0.635	3

Scenario D + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.550	1	0.541	1	0.492	1
2 – Midgeland Road (North)	0.706	1	0.681	2	0.673	2
3 – School Road (West)	0.013	0	0.011	0	0.012	0
4 – School Road (East)	0.213	0	0.416	1	0.325	1

Scenario E + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
Arm	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)	0.570	1	0.573	1	0.516	1
2 – Midgeland Road (North)	0.722	2	0.709	2	0.694	2
3 – School Road (West)	0.013	0	0.011	0	0.012	0
4 – School Road (East)	0.213	0	0.420	1	0.327	1

Scenario F + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday		
	Arm	RFC	Q	RFC	Q	RFC	Q
1 – Midgeland Road (South)		0.597	1	0.623	2	0.550	1
2 – Midgeland Road (North)		0.740	3	0.742	2	0.716	2
3 – School Road (West)		0.013	0	0.011	0	0.012	0
4 – School Road (East)		0.214	0	0.425	1	0.330	1

Table 8.19 - Junction 17 2027 Mitigation Assessments – Results

The identified mitigation (Junction Improvement in addition to Smarter Choices / Public Transport measures) brings the junction to acceptable operational performance.

## 8.17 Junction 18 – B5261 Common Edge Road / School Road

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2021 – Development Scenarios A, B, C, D, E, F; and
- 2027 – Development Scenarios A, B, C, D, E, F.

### 2021 Assessments

In 2021, analysis has focussed on the implementation of an optimisation of the signal timings in addition to the smarter choices and public transport improvements, as the latter alone did not provide the required mitigation.

Table 8.20 provides the results of the analysis undertaken in the 2021 assessment year.

BASE	AM		PM		Saturday	
Arm	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	53.6	10	88.4	25	71.0	16
2 – B5261 Common Edge Road (North) Left	22.2	3	6.2	1	15.2	2
3 – School Road Left/Ahead/Right	84.5	17	86.6	24	87.8	21
4 – B5261 (South) Right	57.1	8	61.9	9	60.4	9
5 – B5261 (South) Left/Ahead	87.8	25	84.8	21	87.7	24
6 – Jepson Way Left/Ahead/Right	15.1	1	3.6	0	8.4	1

Scenario A + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
Arm	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	53.8	11.9	86.6	29.0	70.7	19.3
2 – B5261 Common Edge Road (North) Left	21.3	2.8	6.0	0.8	14.8	2.0
3 – School Road Left/Ahead/Right	85.3	20.4	87.2	29.1	84.3	24.4
4 – B5261 (South) Right	56.7	8.9	60.3	10.2	59.3	10.0
5 – B5261 (South) Left/Ahead	86.1	28.1	84.5	25.6	87.3	28.8
6 – Jepson Way Left/Ahead/Right	15.1	1.5	3.6	0.4	8.0	0.9

Scenario B + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
Arm	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	52.8	11.5	86.1	28.8	69.8	18.8
2 – B5261 Common Edge Road (North) Left	21.3	2.8	6.0	0.8	14.8	2.0
3 – School Road Left/Ahead/Right	85.3	20.4	87.1	29.0	84.3	24.4

Scenario B + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
4 – B5261 (South) Right	56.7	8.9	60.3	10.2	59.3	10.0
5 – B5261 (South) Left/Ahead	86.4	28.6	83.0	24.5	86.7	28.2
6 – Jepson Way Left/Ahead/Right	15.1	1.5	3.6	0.4	8.0	0.9

Scenario C + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	55.2	12.5	87.5	29.9	70.7	19.3
2 – B5261 Common Edge Road (North) Left	21.3	2.8	6.0	0.8	14.6	1.9
3 – School Road Left/Ahead/Right	85.3	20.4	86.3	28.5	87.4	25.3
4 – B5261 (South) Right	56.8	8.9	60.3	10.2	58.5	9.7
5 – B5261 (South) Left/Ahead	87.2	29.4	85.7	26.5	87.1	28.8
6 – Jepson Way Left/Ahead/Right	15.1	1.5	3.6	0.4	8.3	0.9

Scenario D + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	55.2	12.5	87.5	29.9	70.7	19.3
2 – B5261 Common Edge Road (North) Left	21.3	2.8	6.0	0.8	14.6	1.9
3 – School Road Left/Ahead/Right	86.0	20.7	88.4	30.0	87.4	25.3
4 – B5261 (South) Right	58.0	9.3	60.8	10.5	58.5	9.7
5 – B5261 (South) Left/Ahead	87.2	29.4	85.7	26.5	87.1	28.8
6 – Jepson Way Left/Ahead/Right	15.1	1.5	3.6	0.4	8.3	0.9

Scenario E + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	55.2	12.5	87.5	29.9	70.7	19.3
2 – B5261 Common Edge Road (North) Left	21.3	2.8	6.0	0.8	14.6	1.9
3 – School Road Left/Ahead/Right	87.1	21.2	88.0	29.5	88.2	25.7
4 – B5261 (South) Right	58.4	9.4	61.6	10.6	59.1	9.8
5 – B5261 (South) Left/Ahead	87.2	29.4	85.7	26.5	87.1	28.8
6 – Jepson Way Left/Ahead/Right	15.1	1.5	3.6	0.4	8.3	0.9

Scenario F + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	57.4	13.3	88.9	30.9	71.7	19.9
2 – B5261 Common Edge Road (North) Left	21.6	2.9	6.1	0.8	14.8	2.0
3 – School Road Left/Ahead/Right	84.5	20.8	86.6	29.5	85.9	25.1
4 – B5261 (South) Right	59.4	9.8	63.6	11.3	60.5	10.2
5 – B5261 (South) Left/Ahead	88.3	30.3	87.1	27.3	88.4	29.7
6 – Jepson Way Left/Ahead/Right	14.5	1.4	3.5	0.4	8.0	0.9

Table 8.20 - Junction 18 2021 Mitigation Assessments – Results

The identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction to acceptable operational performance.

### 2027 Assessments

Table 8.21 provides the results of the analysis undertaken in the 2027 assessment year.

BASE	AM		PM		Saturday	
	Do S	MM Q	Do S	MM Q	Do S	MM Q
1 – B5261 Common Edge Road (North) Ahead/Right	58.2	11	95.3	33	77.5	19
2 – B5261 Common Edge Road (North) Left	24.2	3	6.8	1	16.8	2
3 – School Road Left/Ahead/Right	92.1	21	94.3	30	96.6	29
4 – B5261 (South) Right	61.6	9	67.4	10	66.2	10
5 – B5261 (South) Left/Ahead	94.3	33	92.0	27	95.6	33
6 – Jepson Way Left/Ahead/Right	16.5	1	3.9	0	9.3	1

Scenario A + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	60.2	14.4	94.5	38.5	77.5	23.2
2 – B5261 Common Edge Road (North) Left	23.4	3.1	6.7	0.8	16.1	2.1
3 – School Road Left/Ahead/Right	93.1	25.1	95.2	36.5	96.2	33.3
4 – B5261 (South) Right	61.5	10.3	65.8	11.9	64.1	11.4
5 – B5261 (South) Left/Ahead	93.1	37.1	93.8	35.1	95.1	38.9
6 – Jepson Way Left/Ahead/Right	16.5	1.6	3.8	0.5	9.2	1.0

Scenario B + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	58.3	13.6	94.7	38.2	76.8	22.6
2 – B5261 Common Edge Road (North) Left	23.4	3.1	6.8	0.9	16.3	2.2
3 – School Road Left/Ahead/Right	93.1	25.1	92.3	34.0	92.8	30.2
4 – B5261 (South) Right	61.5	10.3	66.8	12.3	65.0	11.8
5 – B5261 (South) Left/Ahead	93.0	37.0	92.3	32.9	95.0	38.6
6 – Jepson Way Left/Ahead/Right	16.5	1.6	3.7	0.4	8.9	1.0

Scenario C + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	62.5	15.4	96.0	41.3	79.1	24.4
2 – B5261 Common Edge Road (North) Left	23.4	3.1	6.7	0.8	16.1	2.1
3 – School Road Left/Ahead/Right	93.1	25.1	95.2	36.5	96.2	33.3
4 – B5261 (South) Right	61.5	10.3	65.8	11.9	64.1	11.4
5 – B5261 (South) Left/Ahead	94.3	39.2	93.3	34.2	96.5	42.2
6 – Jepson Way Left/Ahead/Right	16.5	1.6	3.8	0.5	9.2	1.0

Scenario D + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	62.5	15.4	96.0	41.3	79.1	24.4
2 – B5261 Common Edge Road (North) Left	23.4	3.1	6.7	0.8	16.1	2.1
3 – School Road Left/Ahead/Right	93.8	25.7	96.7	39.2	96.2	33.3
4 – B5261 (South) Right	63.4	11.0	66.3	12.0	64.1	11.4
5 – B5261 (South) Left/Ahead	94.3	39.2	96.0	38.9	96.5	42.2
6 – Jepson Way Left/Ahead/Right	16.5	1.6	3.8	0.5	9.2	1.0

Scenario E + Smarter Choices / PT + Signal Optimisation	AM		PM		Saturday	
	Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right	63.3	15.7	97.6	44.3	79.1	24.4
2 – B5261 Common Edge Road (North) Left	23.7	3.2	6.8	0.9	16.1	2.1

Scenario E + Smarter Choices / PT + Signal Optimisation		AM		PM		Saturday	
Arm		Do S	M MQ	Do S	M MQ	Do S	M MQ
3 – School Road Left/Ahead/Right		92.6	25.5	94.8	37.0	97.8	36.2
4 – B5261 (South) Right		64.8	11.5	69.5	13.1	65.3	11.8
5 – B5261 (South) Left/Ahead		95.6	41.6	97.5	41.9	96.5	42.2
6 – Jepson Way Left/Ahead/Right		15.8	1.6	3.7	0.4	9.2	1.0

Scenario F + Smarter Choices / PT + Signal Optimisation		AM		PM		Saturday	
Arm		Do S	M MQ	Do S	M MQ	Do S	M MQ
1 – B5261 Common Edge Road (North) Ahead/Right		63.3	15.7	97.6	44.3	80.3	25.1
2 – B5261 Common Edge Road (North) Left		23.7	3.2	6.8	0.9	16.3	2.2
3 – School Road Left/Ahead/Right		95.1	28.0	95.8	38.6	96.0	34.0
4 – B5261 (South) Right		65.4	11.8	71.6	13.8	67.5	12.4
5 – B5261 (South) Left/Ahead		95.6	41.6	97.5	41.9	97.9	45.5
6 – Jepson Way Left/Ahead/Right		15.8	1.6	3.7	0.4	8.9	1.0

Table 8.21 - Junction 18 2027 Mitigation Assessments – Results

The identified mitigation (Signal Optimisation and Smarter Choices / Public Transport measures) bring the junction close to acceptable operational performance. Given the constraints at the junction, further discussion may be required in relation to any further opportunity to improve the performance of the junction back to base conditions.



## 8.18 Junction 19 – B5261 Queensway / Kilnhouse Lane

From the initial junction modelling, it was identified that some level of mitigation was required in the following scenarios:

- 2027 – Development Scenarios A, C, D, E, F.

### 2027 Assessments

The analysis has focussed on the implementation of smarter choices and public transport improvements (for Scenario A), with a slight widening (1 metre) of the Queensway North entry to the roundabout (in Scenarios C, D, E and F).

Table 8.22 provides the results of the analysis undertaken in the 2027 assessment year (for the PM only).

<b>BASE</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – B5261 Queensway (North)	-	-	0.82	5	-	-
2 – Residential Site Access	-	-	0.26	0	-	-
3 – B5261 Queensway (South)	-	-	0.61	2	-	-
4 – Kilnhouse Lane	-	-	0.37	1	-	-
5 – Business Park Access	-	-	0.06	0	-	-

<b>Scenario A + Smarter Choices / PT</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – B5261 Queensway (North)	-	-	0.84	5	-	-
2 – Residential Site Access	-	-	0.28	0	-	-
3 – B5261 Queensway (South)	-	-	0.65	2	-	-
4 – Kilnhouse Lane	-	-	0.39	1	-	-
5 – Business Park Access	-	-	0.07	0	-	-

<b>Scenario C + Smarter Choices / PT + Physical Improvement</b>	<b>AM</b>		<b>PM</b>		<b>Saturday</b>	
<b>Arm</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>	<b>RFC</b>	<b>Q</b>
1 – B5261 Queensway (North)	-	-	0.83	5	-	-
2 – Residential Site Access	-	-	0.30	0	-	-
3 – B5261 Queensway (South)	-	-	0.67	2	-	-
4 – Kilnhouse Lane	-	-	0.40	1	-	-
5 – Business Park Access	-	-	0.07	0	-	-

Scenario D + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – B5261 Queensway (North)	-	-	0.84	5	-	-
2 – Residential Site Access	-	-	0.30	0	-	-
3 – B5261 Queensway (South)	-	-	0.67	2	-	-
4 – Kilnhouse Lane	-	-	0.41	1	-	-
5 – Business Park Access	-	-	0.07	0	-	-

Scenario E + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – B5261 Queensway (North)	-	-	0.84	5	-	-
2 – Residential Site Access	-	-	0.31	0	-	-
3 – B5261 Queensway (South)	-	-	0.68	2	-	-
4 – Kilnhouse Lane	-	-	0.41	1	-	-
5 – Business Park Access	-	-	0.07	0	-	-

Scenario F + Smarter Choices / PT + Physical Improvement	AM		PM		Saturday	
	Arm	RFC	Q	RFC	Q	RFC
1 – B5261 Queensway (North)	-	-	0.84	5	-	-
2 – Residential Site Access	-	-	0.31	0	-	-
3 – B5261 Queensway (South)	-	-	0.69	2	-	-
4 – Kilnhouse Lane	-	-	0.42	1	-	-
5 – Business Park Access	-	-	0.07	0	-	-

Table 8.22 - Junction 19 2027 Mitigation Assessments – Results

The identified mitigation (smarter choices and public transport improvements (for Scenario A), with a physical improvement scheme (in Scenarios C, D, E and F)) bring the junction back to acceptable operational performance.

## 8.19 Improvement Identification - Summary

In summary, Table 8.23 identifies the need for improvement in each identified scenario, considering the scale of improvement required and the year at which this is required.

In addition to those measures specifically considered in the above analysis, it is considered that there exists potential to deliver technology based solutions in the area, which aim to make best use of the existing network through its appropriate management. These measures have not been explored as part of this study but should be considered further as a mechanism to offer benefits to the operation of the transport network.

A particular solution could be the management of the route choice that exists between the Yeadon Way corridor and Preston New Road corridor for movements between the east (potentially via the M55) and the resort core, as indicated in Figure 8.6.



Figure 8.6 – Potential Technology Solution

Through techniques adopted in other locations across the country, the performance of the two corridors could be monitored to allow information to be provided to road users to advise of the most appropriate route to use – adaptable based on the transport conditions along those corridors.

	Scenario A			Scenario B			Scenario C			Scenario D			Scenario E			Scenario F		
	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027	2016	2021	2027
1. A583 Preston New Road / Preston Old Road / Cherry Tree Road North	-	+ Sig *	+ Sig *	-	+ Sig *	+ Sig *	-	+ Sig *	+ Sig *	-	+ Sig *	+ Sig *	-	+ Sig *	+ Sig *	-	+ Sig *	+ Sig *
2. A583 Preston New Road / Mythop Road	-	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy	Strategy
3. Cherry Tree Road / Cherry Tree Road North	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Ashworth Road / Clifton Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. A583 Preston New Road / Clifton Road	-	-	Strategy	-	Strategy	Strategy	-	Strategy	Strategy	-	Strategy	Strategy	-	Strategy	Strategy	-	Strategy	Strategy
6. Yeadon Way / A5230 Progress Way	-	-	Phys	-	-	-	-	-	Phys	-	-	Phys	-	-	Phys	-	-	Phys
7. M55 Junction 4	-	Phys 1	Phys 1	-	Phys 1	Phys 1	-	Phys 1	Phys 1	-	Phys 1	Phys 1	-	Phys 1	Phys 2	-	Phys 1	Phys 2
8. M55 Junction 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. A584 Promenade / A5230 Squires Gate Lane / A584 Clifton Drive North	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *
11. A5230 Progress Way / Midgeland Road	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig	+ Sig
12. A5230 Progress Way / Cropper Road / Jenny Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13. A583 Preston New Road / Hallam Way / Lytham St. Annes Way	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SM/PT
14/15. A583 Preston New Road / Whitehill Road / Peel Road	-	Phys 1	Phys 1	-	-	Phys 1	-	Phys 1	Phys 1	-	Phys 1	Phys 1	-	Phys 1	Phys 2	-	Phys 1	Phys 3
16. Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way	-	Phys	Phys	-	-	Phys	-	Phys	Phys	-	Phys	Phys	-	Phys	Phys	-	Phys	Phys
17. School Road / Midgeland Road	-	-	-	-	-	-	-	-	-	-	-	Phys	-	-	Phys	-	SM/PT	Phys
18. B5261 Common Edge Road / School Road	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *	-	+ Sig	+ Sig *
19. B5261 Queensway / Kilnhouse Lane	-	-	SM/PT	-	-	-	-	-	Phys	-	-	Phys	-	-	Phys	-	-	Phys
20. Heyhouses Lane / Blackpool Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 8.23 - Improvement Specification by Scenario and Assessment Year

- Mitigation not required
- + Sig - Mitigation achieved through Signal Time Adjustments (in conjunction with Smarter Choices / Sustainable Accessibility Improvements) - see report section 8.5
- Strategy - Future Strategy aimed at the Preston New Road corridor
- SM/PT - Mitigation achieved through Smarter Choices / Sustainable Accessibility Improvements
- Phys - Mitigation achieved through Physical Mitigation Measure (in conjunction with Smarter Choices / Sustainable Accessibility Improvements)

\* - where indicated by an asterisk, slight operational issues (when compared to base) still prevalent, but solution brings performance close to base

## 9 Summary and Conclusions

### 9.1 Introduction

This study has sought to assess the transport implications associated with a number of development proposals coming forward in the area and has aimed to identify appropriate solutions that seek to deal with the specific issues identified. The study will advise and inform the ongoing work being undertaken in relation to the progression of Blackpool's Local Development Framework [LDF], particularly the Core Strategy.

The study specifically assesses the characteristics of each of the proposed development sites in spatial and transport terms, as well as giving consideration to the transport impacts of development scenarios which involve the progression of multiple sites through to 2027. The report identifies the specific implications at a number of junctions in the area, seeking to identify any measures required to support the development aspirations.

While providing a suitable piece of evidence to support the LDF, being a broad and strategic assessment, it should be recognised that the analysis undertaken as part of this study does not provide the detail required to support the aforementioned development proposals through the planning application process. As any development proposal comes forward in the area through the planning process, there will be a need for them to be supported by appropriate supporting transport analysis through the provision of site specific detailed Transport Assessments.

### 9.2 Study Background

The key driver for growth and the development aspirations in the area arise from the Blackpool Local Development Framework / Core Strategy, which sets out the spatial planning framework for the next 15 years and specifically outlines the objectives in relation to spatial regeneration and growth. The emerging Fylde Core Strategy will similarly, in the future, set out the development aspirations on the Fylde side of the boundary.

While much of the focus of the Blackpool Core Strategy relates to the regeneration of the town centre and the resort core, the Marton Moss / M55 Hub is identified as a sustainable urban extension required to meet economic and growth aspirations.

In developing the LDF, and particularly the Core Strategy, it is vital that appropriate consideration is given to a range of issues that the spatial plan could impact on and that appropriate consultation takes place. One such consideration is in relation to transport and the implications that development proposed in the plan has on the surrounding transport network. Effective transport systems are integral to the successful delivery of the plan, in that to attract the level of growth required, the transport network has to appropriately facilitate effective movement. The findings of this study will provide a vital piece of information in truly considering the synergy between spatial planning and transport in respect of the anticipated growth in Blackpool and potential growth in Fylde, in future years, at Marton Moss / M55 Hub.

### 9.3 Background Traffic Conditions

In order to determine the base situation on the study network, data has been utilised from a number of sources, including data from Transport Assessments; traffic count data; and PARAMICS / CUBE

model data. It should be noted that the PARAMICS / CUBE model has not been used as the analysis tool for this study as it is not considered fit for purpose.

As part of the study, the network has been considered in increments of 5 years – 2011, 2016, 2021 and 2027 and in the morning, evening and Saturday peaks. In order to consider background traffic growth, the study has aimed to reflect government guidance, through the use of NTM (factored by TEMPro). However, in order to consider the likely occurrence of double counting within the analysis (i.e. the fact that some development for which site specific analysis is being undertaken as part of the study will also be included as a contributor to growth in the NTM/TEMPro forecasts), study specific revisions have been made.

The following list encompasses those sites that have been considered as committed developments as part of the study:

- Hollywood Nursery (residential development of 95 dwellings at Whitehills between B5140 St Annes Way and Whitehills Road);
- Queensway (residential development of 1150 dwellings south of Queensway) + the associated M55 to Heyhouses Link Road;
- Former Civil Service, Heyhouses (1,860sqm retail foodstore, 930sqm commercial floorspace, retirement village 85 apartments, and residential development of 250 dwellings); and
- Former Pontins Holiday Camp (upto 275 dwellings).

Other development aspirations in the area will be considered as part of background traffic growth patterns as discussed above.

## 9.4 Site Analysis

Each of the sites has been assessed in relation to their trip generating potential. The anticipated phasing of developments has been based on information provided by Blackpool Council.

## 9.5 Scenario Testing

A number of development scenarios have been tested with a view to assessing the resilience of the highway network to future development proposals. The approach adopted for testing these scenarios has allowed a high level assessment of the impacts upon the traffic network to be made. It is acknowledged however that further detailed assessment will be required prior to further development of these sites.

In relation to the phasing of developments assumed within this report, it should be noted that they are based on a high potential development scenario of full take-up of all lands in Blackpool and high levels of take-up of residential and employment development land in Fylde also. It should therefore be considered that the study assumes a *maximum* development potential growth scenario to 2027. In reality, the pace at which development is delivered will be substantially influenced by a number of factors, particularly the extent of the recovery of both the local and wider national housing market and economy.

The network has been considered in increments of 5 years – 2011, 2016, 2021 and 2027 and in the morning, evening and Saturday peaks. This allows the identification of timescales that any identified solutions will be required by and also enable the solutions to be specifically associated with particular development.

Based on the analysis, it has been possible to identify the elements of the network that require further consideration because the development aspirations in a specific scenario generate trips in excess of the 50 two-way trip threshold identified as being critical.

## 9.6 Junction Modelling

As part of the final stages of the study, further assessment has been conducted for each specific scenario at each junction where the 50 two way trip threshold is exceeded. In each of these cases, junction modelling has been undertaken to test whether the increase in traffic associated with the development proposals can be accommodated within the highway network without compromising its operational performance.

The approach to this analysis is founded on traditionally accepted junction modelling techniques through the use of industry standard software (LINSIG, ARCADY, PICADY etc...).

The approach to this element of the exercise and the need to determine any improvement measures is based on the following premise:

- If a junction operates satisfactorily in the base situation and continues to operate satisfactorily in the with development scenarios, it will be concluded that no further consideration (or the identification of any improvement) is required;
- If a junction operates satisfactorily in the base situation but operates with operational issues in the with development scenarios, it will be concluded that further consideration is required, with the aim of identifying a measure that brings the junction back to satisfactory performance.
- If a junction operates with operational issues in the base situation and continues to operate with the same intensity of operational issues in the with development scenarios, it will be concluded that no further consideration (or the identification of any improvement) is required;
- If a junction operates with operational issues in the base situation but operates with intensified operational issues in the with development scenarios, it will be concluded that further consideration is required, with the aim of identifying a measure that brings the junction back to a position as if the development had not taken place.

## 9.7 Improvement Identification

The impact of the development proposals has resulted in the need to consider appropriate supporting mitigation measures. The approach adopted is as follows:

- Explore and consider measures that could be adopted to reduce the need to travel (e.g. travel plan measures). For this purpose evidence of typical trip reductions that can be achieved through such mechanisms has been sought, such that the analysis is appropriately evidence based;
- Investigated measures to maximise sustainable accessibility (e.g. public transport measures); and
- Assessed the requirement and scale for physical mitigation measures targeted at those areas of the network where issues are evident and likely to cause operational consequences and potentially impede the development aspirations of the area.

In order to consider the above, further operational analysis has been undertaken of those junctions for which operational issues were identified. Given the linkage between the smarter choice measures and public transport improvements, the first test focuses on the combined 15% reduction in vehicle trips. Subsequently the application of physical improvements has been assessed (if required).

## **9.8 Conclusion / Recommendations**

Based on the analysis undertaken as part of this study, a number of key conclusions and recommendations can be drawn. Given the specific differences between each of the scenarios considered within the study, it is most feasible to provide these conclusions and recommendations for each specific scenario. Table 9.1 to Table 9.6 provide these recommendations, for scenarios A through to F respectively.

In addition to the specific operational conditions assessed within this study, and the subsequent operational recommendations made, there are a number of wider issues that need appropriate thought and analysis as part of detailed assessments supporting planning applications. Consideration will need to be given to the full range of issues, including those of an environmental nature, where direct and indirect transport-related implications (such as air quality and noise pollution) will need to be investigated, with particular reference to the relevant statutory limits. Developers may be required to propose further mitigation measures that will avoid breach of these statutory limits and such would be a material consideration in the assessment of planning applications.



Scenario A	
1A Blackpool Business Park 1C Whitehills Commitment 2B Marton Moss (Yeadon Way – Progress Way)	1B Squires Gate Industrial Estate 2A Marton Moss (Moss House Road Site)
Prior to occupation of any development:	<ul style="list-style-type: none"> <li>- Committed measures associated with committed development proposals</li> <li>- Smarter Choices Measures + Public Transport Measures</li> <li>- Appropriate vehicle access arrangements at identified access locations</li> </ul>
By 2016:	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 11 (A5230 Progress Way / Midgeland Road)</li> </ul>
By 2021 (in addition to 2016 measures):	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 1 (A583 / Preston New Road / Preston Old Road / Cherry Tree Road North)</li> <li>- Preston New Road Corridor Strategy Recommendations (Junctions 2 and 5)</li> <li>- Physical junction improvement stage 1 to Junction 7 (M55 Junction 4)</li> <li>- Signal Enhancements at Junction 10 (A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane)</li> <li>- Physical junction improvement stage 1 to Junction 14/15 (A583 Preston New Road / Whitehill Road / Peel Road)</li> <li>- Physical junction improvement to Junction 16 (Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way)</li> <li>- Signal Enhancements at Junction 18 (B5261 Common Edge Road / School Road)</li> </ul>
By 2027 (in addition to 2016/2021 measures):	<ul style="list-style-type: none"> <li>- Physical junction improvement to Junction 6 (Yeadon Way / A5230 / Progress Way)</li> </ul>
Further consideration:	Technology Solutions

Table 9.1 - Scenario A – Required Measures

**Note** - The phasing assumptions within the study are based on a high potential development scenario of full take-up of all lands in Blackpool and high levels of take-up of residential and employment development land in Fylde also. It should therefore be considered that the study assumes a *maximum* development potential growth scenario to 2027. In reality, the pace at which development is delivered will be substantially influenced by a number of factors, particularly the extent of the recovery of both the local and wider national housing market and economy.

Scenario B	
1A Blackpool Business Park 1C Whitehills Commitment 3B Whyndyke Farm Residential	1B Squires Gate Industrial Estate 3A Whyndyke Farm Mental Hospital
Prior to occupation of any development:	<ul style="list-style-type: none"> <li>- Committed measures associated with committed development proposals</li> <li>- Smarter Choices Measures + Public Transport Measures</li> <li>- Appropriate vehicle access arrangements at identified access locations</li> </ul>
By 2016:	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 11 (A5230 Progress Way / Midgeland Road)</li> <li>- Preston New Road Corridor Strategy Recommendations (Junctions 2 and 5)</li> </ul>
By 2021 (in addition to 2016 measures):	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 1 (A583 / Preston New Road / Preston Old Road / Cherry Tree Road North)</li> <li>- Physical junction improvement stage 1 to Junction 7 (M55 Junction 4)</li> <li>- Signal Enhancements at Junction 10 (A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane)</li> <li>- Signal Enhancements at Junction 18 (B5261 Common Edge Road / School Road)</li> </ul>
By 2027 (in addition to 2016/2021 measures):	<ul style="list-style-type: none"> <li>- Physical junction improvement stage 1 to Junction 14/15 (A583 Preston New Road / Whitehill Road / Peel Road)</li> <li>- Physical junction improvement to Junction 16 (Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way)</li> </ul>
Further consideration:	Technology Solutions

Table 9.2 - Scenario B – Required Measures (highlighted where measure is new / different to this scenario compared to previous scenarios)

**Note** - The phasing assumptions within the study are based on a high potential development scenario of full take-up of all lands in Blackpool and high levels of take-up of residential and employment development land in Fylde also. It should therefore be considered that the study assumes a *maximum* development potential growth scenario to 2027. In reality, the pace at which development is delivered will be substantially influenced by a number of factors, particularly the extent of the recovery of both the local and wider national housing market and economy.

Scenario C	
1A Blackpool Business Park 1C Whitehills Commitment 2B Marton Moss (Yeadon Way – Progress Way) 3B Whyndyke Farm Residential	
1B Squires Gate Industrial Estate 2A Marton Moss (Moss House Road Site) 3A Whyndyke Farm Mental Hospital	
Prior to occupation of any development:	<ul style="list-style-type: none"> <li>- Committed measures associated with committed development proposals</li> <li>- Smarter Choices Measures + Public Transport Measures</li> <li>- Appropriate vehicle access arrangements at identified access locations</li> </ul>
By 2016:	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 11 (A5230 Progress Way / Midgeland Road)</li> <li>- Preston New Road Corridor Strategy Recommendations (Junctions 2 and 5)</li> </ul>
By 2021 (in addition to 2016 measures):	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 1 (A583 / Preston New Road / Preston Old Road / Cherry Tree Road North)</li> <li>- Physical junction improvement stage 1 to Junction 7 (M55 Junction 4)</li> <li>- Signal Enhancements at Junction 10 (A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane)</li> <li>- Physical junction improvement stage 1 to Junction 14/15 (A583 Preston New Road / Whitehill Road / Peel Road)</li> <li>- Physical junction improvement to Junction 16 (Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way)</li> <li>- Signal Enhancements at Junction 18 (B5261 Common Edge Road / School Road)</li> </ul>
By 2027 (in addition to 2016/2021 measures):	<ul style="list-style-type: none"> <li>- Physical junction improvement to Junction 6 (Yeadon Way / A5230 Progress Way)</li> <li>- Physical junction improvement to Junction 19 (B5261 Queensway / Kilnhouse Lane)</li> </ul>
Further consideration:	Technology Solutions

Table 9.3 - Scenario C – Required Measures (highlighted where measure is new / different to this scenario compared to previous scenarios)

Note - The phasing assumptions within the study are based on a high potential development scenario of full take-up of all lands in Blackpool and high levels of take-up of residential and employment development land in Fylde also. It should therefore be considered that the study assumes a *maximum* development potential growth scenario to 2027. In reality, the pace at which development is delivered will be substantially influenced by a number of factors, particularly the extent of the recovery of both the local and wider national housing market and economy.

Scenario D	
1A Blackpool Business Park	1B Squires Gate Industrial Estate
1C Whitehills Commitment	2A Marton Moss (Moss House Road Site)
2B Marton Moss (Yeadon Way – Progress Way)	3A Whyndyke Farm Mental Hospital
3B Whyndyke Farm Residential	4 Whitehills Additional Employment
Prior to occupation of any development:	<ul style="list-style-type: none"> <li>- Committed measures associated with committed development proposals</li> <li>- Smarter Choices Measures + Public Transport Measures</li> <li>- Appropriate vehicle access arrangements at identified access locations</li> </ul>
By 2016:	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 11 (A5230 Progress Way / Midgeland Road)</li> <li>- Preston New Road Corridor Strategy Recommendations (Junctions 2 and 5)</li> </ul>
By 2021 (in addition to 2016 measures):	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 1 (A583 / Preston New Road / Preston Old Road / Cherry Tree Road North)</li> <li>- Physical junction improvement stage 1 to Junction 7 (M55 Junction 4)</li> <li>- Signal Enhancements at Junction 10 (A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane)</li> <li>- Physical junction improvement stage 1 to Junction 14/15 (A583 Preston New Road / Whitehill Road / Peel Road)</li> <li>- Physical junction improvement to Junction 16 (Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way)</li> <li>- Signal Enhancements at Junction 18 (B5261 Common Edge Road / School Road)</li> </ul>
By 2027 (in addition to 2016/2021 measures):	<ul style="list-style-type: none"> <li>- Physical junction improvement to Junction 6 (Yeadon Way / A5230 Progress Way)</li> <li>- Physical junction improvement to Junction 17 (School Road / Midgeland Road)</li> <li>- Physical junction improvement to Junction 19 (B5261 Queensway / Kilnhouse Lane)</li> </ul>
Further consideration:	Technology Solutions

Table 9.4 - Scenario D – Required Measures (highlighted where measure is new / different to this scenario compared to previous scenarios)

**Note** - The phasing assumptions within the study are based on a high potential development scenario of full take-up of all lands in Blackpool and high levels of take-up of residential and employment development land in Fylde also. It should therefore be considered that the study assumes a *maximum* development potential growth scenario to 2027. In reality, the pace at which

development is delivered will be substantially influenced by a number of factors, particularly the extent of the recovery of both the local and wider national housing market and economy.

Scenario E	
1A Blackpool Business Park 1C Whitehills Commitment 2B Marton Moss (Yeadon Way – Progress Way) 3B Whyndyke Farm Residential 5A Whitehills/Peel (first 1000 dwellings)	1B Squires Gate Industrial Estate 2A Marton Moss (Moss House Road Site) 3A Whyndyke Farm Mental Hospital 4 Whitehills Additional Employment
Prior to occupation of any development:	<ul style="list-style-type: none"> <li>- Committed measures associated with committed development proposals</li> <li>- Smarter Choices Measures + Public Transport Measures</li> <li>- Appropriate vehicle access arrangements at identified access locations</li> </ul>
By 2016:	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 11 (A5230 Progress Way / Midgeland Road)</li> <li>- Preston New Road Corridor Strategy Recommendations (Junctions 2 and 5)</li> </ul>
By 2021 (in addition to 2016 measures):	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 1 (A583 / Preston New Road / Preston Old Road / Cherry Tree Road North)</li> <li>- Physical junction improvement stage 1 to Junction 7 (M55 Junction 4)</li> <li>- Signal Enhancements at Junction 10 (A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane)</li> <li>- Physical junction improvement stage 1 to Junction 14/15 (A583 Preston New Road / Whitehill Road / Peel Road)</li> <li>- Physical junction improvement to Junction 16 (Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way)</li> <li>- Signal Enhancements at Junction 18 (B5261 Common Edge Road / School Road)</li> </ul>
By 2027 (in addition to 2016/2021 measures):	<ul style="list-style-type: none"> <li>- Physical junction improvement to Junction 6 (Yeadon Way / A5230 Progress Way)</li> <li>- Physical junction improvement stage 2 to Junction 7 (M55 Junction 4)</li> <li>- Physical junction improvement stage 2 to Junction 14/15 (A583 Preston New Road / Whitehill Road / Peel Road)</li> <li>- Physical junction improvement to Junction 17 (School Road / Midgeland Road)</li> <li>- Physical junction improvement to Junction 19 (B5261 Queensway / Kilnhouse Lane)</li> </ul>
Further consideration:	Technology Solutions

Table 9.5 - Scenario E – Required Measures (highlighted where measure is new / different to this scenario compared to previous scenarios)

Note - The phasing assumptions within the study are based on a high potential development scenario of full take-up of all lands in Blackpool and high levels of take-up of residential and employment development land in Fylde also. It should therefore be considered that the study assumes a *maximum* development potential growth scenario to 2027. In reality, the pace at which development is delivered will be substantially influenced by a number of factors, particularly the extent of the recovery of both the local and wider national housing market and economy.

Scenario F	
1A Blackpool Business Park	1B Squires Gate Industrial Estate
1C Whitehills Commitment	2A Marton Moss (Moss House Road Site)
2B Marton Moss (Yeadon Way – Progress Way)	3A Whyndyke Farm Mental Hospital
3B Whyndyke Farm Residential	4 Whitehills Additional Employment
5A Whitehills/Peel (first 1000 dwellings)	5B Whitehills/Peel (second 1000 dwellings)
Prior to occupation of any development:	<ul style="list-style-type: none"> <li>- Committed measures associated with committed development proposals</li> <li>- Smarter Choices Measures + Public Transport Measures</li> <li>- Appropriate vehicle access arrangements at identified access locations</li> </ul>
By 2016:	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 11 (A5230 Progress Way / Midgeland Road)</li> <li>- Preston New Road Corridor Strategy Recommendations (Junctions 2 and 5)</li> </ul>
By 2021 (in addition to 2016 measures):	<ul style="list-style-type: none"> <li>- Signal Enhancements at Junction 1 (A583 / Preston New Road / Preston Old Road / Cherry Tree Road North)</li> <li>- Physical junction improvement stage 1 to Junction 7 (M55 Junction 4)</li> <li>- Signal Enhancements at Junction 10 (A5230 Progress Way / B5261 Common Edge Road / A5230 Squires Gate Lane)</li> <li>- Physical junction improvement stage 1 to Junction 14/15 (A583 Preston New Road / Whitehill Road / Peel Road)</li> <li>- Physical junction improvement to Junction 16 (Cropper Road / Whitehill Road / Wild Lane / School Road / Lytham St. Annes Way)</li> <li>- Signal Enhancements at Junction 18 (B5261 Common Edge Road / School Road)</li> </ul>
By 2027 (in addition to 2016/2021 measures):	<ul style="list-style-type: none"> <li>- Physical junction improvement to Junction 6 (Yeadon Way / A5230 Progress Way)</li> <li>- Physical junction improvement stage 2 to Junction 7 (M55 Junction 4)</li> <li>- Physical junction improvement stage 3 to Junction 14/15 (A583 Preston New Road / Whitehill Road / Peel Road)</li> <li>- Physical junction improvement to Junction 17 (School Road / Midgeland Road)</li> <li>- Physical junction improvement to Junction 19 (B5261 Queensway / Kilnhouse Lane)</li> </ul>
Further consideration:	Technology Solutions

Table 9.6 - Scenario F – Required Measures (highlighted where measure is new / different to this scenario compared to previous scenarios)



Note - The phasing assumptions within the study are based on a high potential development scenario of full take-up of all lands in Blackpool and high levels of take-up of residential and employment development land in Fylde also. It should therefore be considered that the study assumes a *maximum* development potential growth scenario to 2027. In reality, the pace at which development is delivered will be substantially influenced by a number of factors, particularly the extent of the recovery of both the local and wider national housing market and economy.

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