



A582 South Ribble Western Distributor Upgrade

Lancashire County Council

Traffic Forecasting Report

B2327FT6 - 5 | Rev0a

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Business Case Supporting Document



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1. Introduction

1.1 Purpose of Report

This document represents the Traffic Forecasting Report (TFR) for the A582 South Ribble Western Distributor (SRWD) Upgrade scheme for Lancashire County Council (LCC). This report details the forecasting assumptions and processes used in the development of the forecast year models of the Central Lancashire Highway Transport Model (CLHTM) to support the economic appraisal of the SRWD scheme as part of the Strategic Outline Business Case (SOBC).

As required by WebTAG Unit M4, this document details the methodology used to create a Core Scenario, and a dependent development scenario, developed to be consistent with the guidance. It also provides the model outputs and checks to ensure the suitability of forecast models to be used to support the Business Case for the A582 Scheme.

The methodological approach taken was inherited from the Preston Western Distributor (PWD) scheme resulting in the same study area being used encompassing South Ribble, Preston and Fylde, using the same network coding where relevant, and the same uncertainty log being adopted for this scheme which was previously signed off by the DfT. The approach taken to forecasting this scheme is proportionate at the SOBC stage of appraisal. The Appraisal Specification Report (2019) for the SRWD scheme which details the methodological approach has been reviewed and approved by the DfT.

1.2 Background and Context

Lancashire County Council (LCC) is seeking MRN funding to enhance economic growth and housing provision through the delivery of a significant road improvement scheme on the A582 in South Ribble to the south of Preston.

The A582 South Ribble Western Distributor (SRWD) is identified in the Transport for the North's (TfN) Investment Programme as one of the schemes to be delivered before 2027, which will contribute towards delivery of the pan-Northern objectives of the TfN Strategic Transport Plan.

It is also the last of the four major highway schemes identified in the Preston, South Ribble and Lancashire City Deal, agreed with Government in September 2013 to deliver transformative, nationally significant levels of housing and employment growth in the Preston City Region (comprising the City of Preston, the Borough of South Ribble and the Borough of Fylde).

As set out in the Investment Planning Guidance, for the MRN schemes that are scheduled to begin by April 2023, they should be developed to at least SOBC stage. The A582 SOBC will however benefit from the detailed traffic modelling and economic assessment and therefore it is expected that some elements of the of the Business Case, particularly Economic Case will largely meet requirements for the Outline Business Case.

1.3 Scheme Description

The A582 South Ribble Western Distributor is located in Central Lancashire and is one of the radial routes connecting Preston with the M65 (Figure 1-1). It is a modern standard, part single, part dual two-lane road with access generally restricted to major junctions that are either roundabouts or controlled by traffic signals, and a partial grade-separated junction providing a link with the local road network in the Cop Lane area of Penwortham.

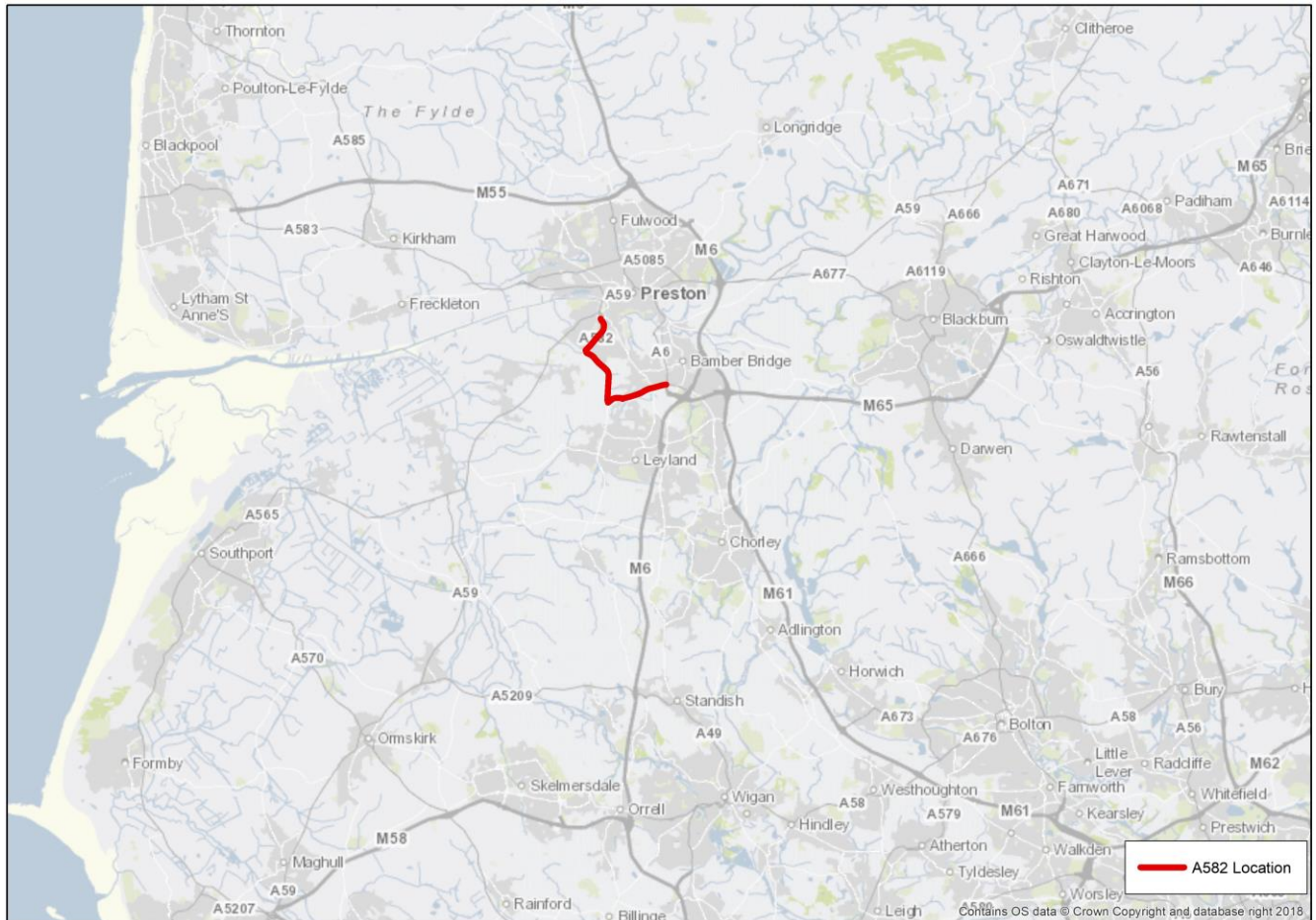


Figure 1-1: A582 Location

The A582 SRWD upgrade scheme was identified a key component of the programme of measures set out in the adopted Central Lancashire Highways and Transport Masterplan that collectively will support the scale of development set out in the approved Central Lancashire Core Strategy and mitigate its impact on the transport network.

It is also one of the four major highway schemes that will be delivered as part of the Preston, South Ribble and Lancashire City Deal signed with the government in September 2013. The City Deal aims to transform Central Lancashire, creating 20,000 net new private sector jobs and delivering over 17,000 new homes, growing the local economy by over £1 billion.

The SRWD preferred option consists of the dualling and widening of the existing A582 corridor to support delivery of South Ribble's strategic housing allocations (consisting over 2,700 dwellings) and the Cuerden, Leyland Business Park and Lancashire Business Park strategic employment sites.

The scheme includes provision of a 5.2 kilometre stretch of dual two-lane carriageway with solid concrete central reservation barrier with a parallel segregated combined cycle track/footway, providing a total transport corridor generally 35 metres wide, along the existing A582 corridor between Broad Oak Roundabout and Stanifield Lane Roundabout. Additionally, 0.5 kilometres of narrow widening from dual two-lane to dual three lane on the westbound carriageway between the South Rings Roundabout and Stanifield Lane and 0.25 kilometre of widening from dual two-lane to dual three-lane of the northbound carriageway between the M65 Terminus Roundabout and South Rings Roundabout will be provided. The segregated 3-metre-wide combined

cycle track/footway will be provided along one side of the carriageway, separated from the carriageway by a 0.5m buffer strip, and will be built along the east side of the A582 Penwortham Way, and the South side of the A582 Flensburg Way and Farington Road.

The scheme has been designed in accordance with the Design Manual for Roads and Bridges (DMRB), which is the accepted industry standard, as well as IAN 149, 195, and the Traffic Signs Manual. The speed limit along the upgraded road will be 50mph. The route will be lit along its full length including at junctions and crossings.

The scheme includes construction of a new bridge adjacent to the existing structure over the West Coast Main Line (A582 Farington Link) and replacement of the Woodfield Railway Bridge on the Preston to Ormskirk line to accommodate the new dual carriageway. The scheme will also require widening and adaptation of existing structures providing underpasses and crossing waterways. The County Council has recently completed major improvement schemes at four of the five junctions along the route, shown in Table 3-2, including provision to accommodate an upgrade of the route to dual carriageway. The scheme will tie in with these improvement schemes at these junctions, requiring no further improvements. Improvement of the Croston Road junction forms part of the scheme. This will replace the existing dumbbell roundabout junction with a new staggered signalised junction.

In addition, the scheme will include junction improvements at the Penwortham Triangle and M65 Terminus junctions to accommodate the additional future demand anticipated because of strategic developments and changes in route choice resulting from the dualling/widening of the A582. The Penwortham Triangle improvement will replace the existing A59/B5254 priority roundabout with a signalised junction to de-prioritise the B5254 and prioritise through traffic on the A59 connection, as well as upgrading the A59/Liverpool Road signalised junction to provide a dedicated right turning lane onto Liverpool Rd for the Ribble crossing access to Fishergate and Preston Station.

The M65 Terminus junction improvement will create a new access to the Cuerden Strategic Employment Site from a new western arm of the roundabout, segregation of traffic from the M65 and M6 into separate lanes on the approach to the junction, and signalisation of the roundabout to improve safety. The junction improvements will take place within Lancashire County Council's highway ownership but will involve some alterations to the approach which includes Highway England's network. Highway England have been consulted and are supportive of the proposed highway changes.

The extent of the scheme is shown in Figure 1-2.

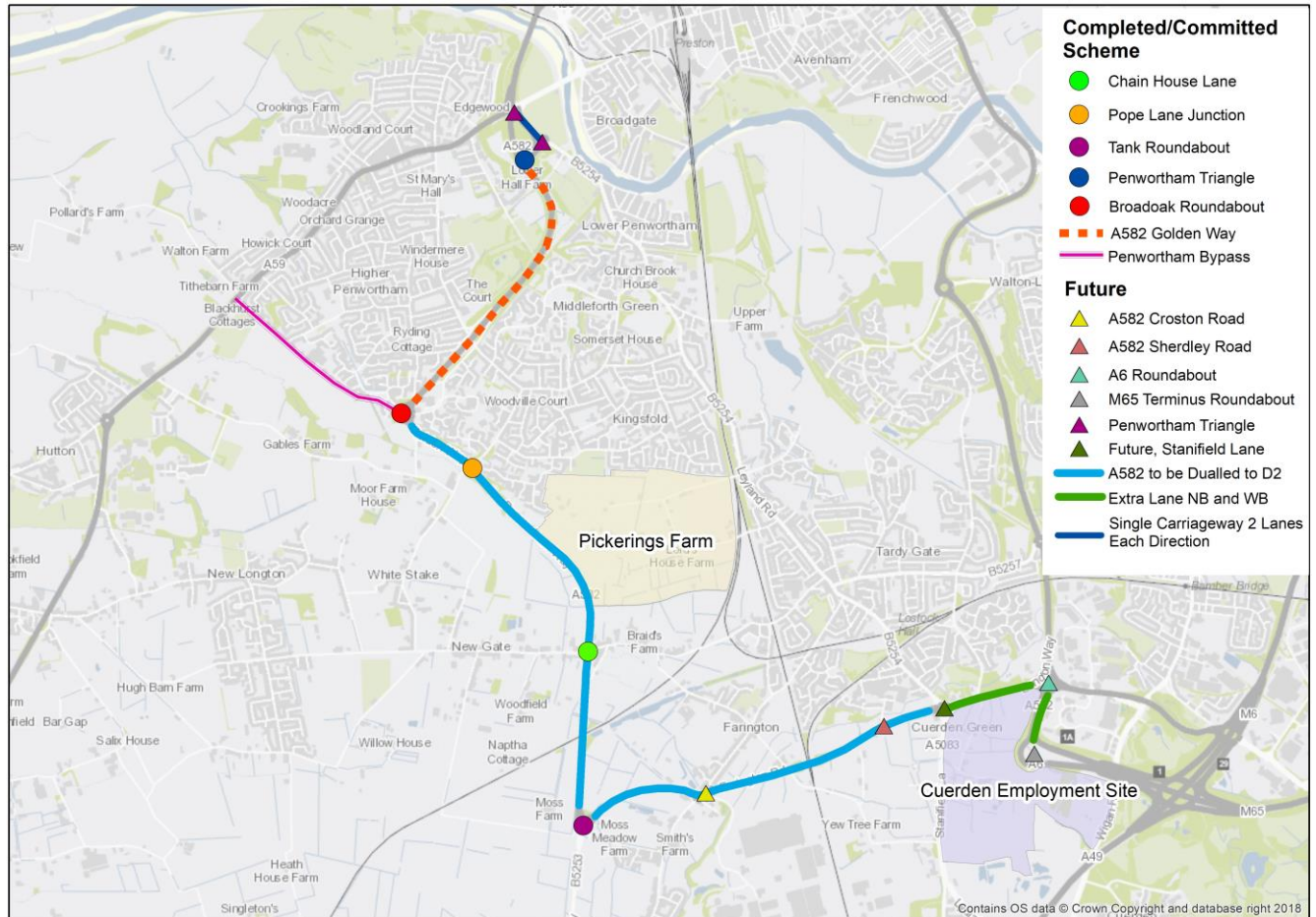


Figure 1-2: Extent of the A582 South Ribble Western Distributor Upgrade Scheme (including upgraded junctions)

1.4 Scheme Objectives

The A582 scheme is a key component of the programme of measures set out in the Central Lancashire Transport Masterplan that collectively will support the scale of development set out in the approved Central Lancashire Core Strategy and will mitigate its impact on the transport network.

The scheme is expected to offer the following outputs and benefits:

- Primary Objectives
 - Reduce congestion on arterial routes between Preston city centre and the Strategic Road Network
 - Support Economic Growth in South Ribble through full development of, and access to, the Cuerden Strategic Employment Site
 - Support delivery of housing sites accommodating over 2,700 new dwellings south of Preston

- Support sustainable and active modes by facilitating the provision of bus network improvements and enhanced walking and cycling facilities on routes connecting South Ribble to key economic sites in Preston City Centre and the Cuerden Strategic Employment Site
- Reduce pressure on the SRN, particularly the M6 between Junctions 29 and 32, by reducing local traffic movements using the SRN
- Supporting Objectives
 - Enhance the public realm and local centres in South Ribble and Preston.
 - Improve road safety by reducing the frequency and severity of road traffic accidents in the study area.
 - Improve air quality and reduce noise pollution in residential areas of South Ribble and Preston.
 - Support further housing and employment growth potential in South Ribble.
 - Support the delivery of and access to a new Ribble Crossing with the A583 west of Penwortham.

1.5 Report Structure

The remainder of this report is set out as follows:

- Chapter 2 – Forecasting Methodology
- Chapter 3 – Forecast Network
- Chapter 4 – Forecast Demand
- Chapter 5 – Model Outputs and Checks
- Chapter 6 – Summary and Conclusion

2. Forecasting Methodology

2.1 Introduction

The approach to forecasting has been developed to be consistent with WebTAG guidance, specifically TAG Unit M4.

TAG Unit A1.1 – Cost Benefit Analysis also provides guidance on the forecasts that are required to analyse an intervention under a given set of forecasting assumptions. At least four future forecasts are usually required:

- Appraisal of an intervention for a given year requires the comparison of two model runs – a without-scheme forecast excluding the intervention, and a with-scheme forecast that includes it;
- Usually it will be necessary to appraise the intervention for at least two different future years and make a sensible assumption about the profile of the change in benefits over time.

For the A582 scheme, *three* forecast years have been developed, which along with TAG guidance over national uncertainty and use of **NTEM v7.2**, each also take into account future uncertainty of proposed developments, and the likelihood of future transport schemes through an agreed uncertainty log.

In the context of future development growth, specific analysis of the *dependent development* has also been undertaken as part of the scheme outline business case; and associated development excluded from the core scenario. This is discussed in more detail in section 4.4.5 and 4.4.7 of this report.

From the development of associated ‘do minimum’ forecasts, the model scenarios also then test the A582 SRWD scheme, in order to provide a Do-Something network, with network and flow changes between these scenarios also incorporated in this forecasting report.

2.2 Forecast years

In order to demonstrate the long-term benefits of proposed transport interventions three forecast years have been modelled.

- The first forecast year is **2022**; to provide a suitable projected opening year for the scheme.
- The second forecast year is **2037**; providing a long-term design year 15 year after schemes have been implemented.
- A third forecast year of **2042** has also been developed.

The third forecast year also meets TAG’s ‘desirability’ for more than 2 forecast years to be undertaken.

2.3 Forecast Networks

For each forecast year, a list of committed highway schemes was drawn up in conjunction with the relevant local highway authorities and agreed with Highways England.

In line with WebTAG Unit M-4, only schemes that have a sufficient level of certainty of being realised have been coded into the forecast networks. Of the schemes identified, only those currently under construction or with a likelihood of ‘near certain’ or ‘more than likely’ are included in the core model scenario.

These were modelled in the forecast network using drawings made available to the project team.

The schemes were added to the network in a manner consistent with the network coding employed in the base year, as defined in the model's Coding Manual agreed in development of the base model.

Further details of the schemes incorporated, their uncertainty, and the uncertainty log, are discussed further in Chapter 3 of this Forecasting Report.

2.4 Forecast Demand

Forecast demand for travel was generated using national, regional and local data sets to inform the amount of travel growth that could be expected from the base year.

Detailed planning data from three local authorities (Preston, South Ribble and Fylde) were used to identify the locations of new development, and the size and type of development proposed. The planning information was provided by Local Councils in 2018 and further reviewed in 2019 to ensure the most recent and up-to-date information was used.

Due to inheriting the PWD uncertainty log, the decision was made to include Fylde planning data within the forecast, despite the area not being in close proximity to the scheme. In addition, this has resulted in the omission of Chorley from the study area. While this is considered to be a proportionate approach at the SOBC stage, at the Outline Business Case stage the study area will be redefined to include Chorley, thus ensuring that the most appropriate local authorities have been included.

For the purposes of the A582 forecasting, the Preston and Fylde planning assumptions remain unchanged compared to those used for the PWD. Minor adjustments were however made for the South Ribble area where the Pickerings Farm and Cuerden Strategic site were classed as dependent developments, while the level of housing predicted at the Moss Side Test Track site was reduced.

The likelihood of each development being realised was also updated, allowing an uncertainty log to be compiled following WebTAG guidance. Based on this, core demand matrices for each forecast year have been produced.

Information on future land use was combined with national data from the National Trip End Model (NTEM) to infer car trip generation for the modelled forecast years.

The growth factors/trip rates were applied to trip ends from the final set of matrices in the validated base year model to give target trip ends to use in a Furness process. The base year matrices were furnished to match the target trip ends. This process ensures that the trip distribution used in the base year model is preserved.

For new developments identified in the uncertainty log the trip distribution was based on that of adjacent zones of similar land use to avoid potential bias in trip distributions.

The process for factoring up LGV and HGV trips was different, as required by WebTAG.

In those cases, Road Traffic Forecasts (RTF15 and RTF18) based on the National Transport Model were used in place of NTEM.

The decision to use a combination of RTF15 and RTF18 was made due to the base year model being situated in 2013. As a result, the RTF18 growth factors do not include data for years before 2015. Therefore, data preceding 2015 comes from RTF15 while the years after use RTF18.

Further details of the processes above and outputs of this process as required by WebTAG are discussed further in Chapter 4 of this Forecasting Report.

2.5 Variable Demand Modelling

Variable Demand Modelling (VDM) captures the principle that demand will be potentially affected by any proposed policy/scheme. WebTAG states that “any change to transport conditions will, in principle, cause a change in demand”. The purpose of variable demand modelling is to predict and quantify these changes.

The demand model for the A582 SOBC has been implemented using DIADEM (Dynamic Integrated Assignment and Demand Modelling) 5.0 software. DIADEM is a computer software package that was developed to assess variable demand for traffic models.

The demand model has been calibrated in accordance with the methodology laid out in WebTAG Unit M2. This process has involved adjusting the model parameters, in accordance with the values outlined in WebTAG Unit M2 until plausible results were produced from the realism testing.

As described in detail in the CLHTM LMVR section 13.10 the realism test uses a two-step calibration method:

- Changing model generalised cost coefficients (the distance coefficient) in the validated base model to reflect a 20% fuel increase. This has a different impact for different trip purposes. (WebTAG Unit M2 recommends a 10%-20% fuel increase). In line with PWD scheme, the 20% increase has been used to reduce the impact that model noise has on the calculations
- Modifying the model parameters to achieve the overall target fuel cost elasticity in the range -0.30 to -0.35. The individual purposes are calibrated to different values as suggested in WebTAG Unit M2.

As part of CLHTM realism test, calibration of the destination model for parameters was conducted in line with guidance from WebTAG Unit M2 para 6.6.5 using median values taken from Table 5.1 of the same document. A sequence of model runs was conducted, as described in section 13.11.1 of the CLHTM LMVR, to achieve calibration. The parameters used for the final run of the realism test as part of PWD Full Business Case was used in the initial run for realism test for SRWD Strategic Outline Business Case.

The Variable Demand model is an incremental Origin-Destination based model using the same journey purpose definitions as the SATURN assignment model.

Table 2-1 below indicates the DIADEM responses which have been modelled for the A582 scheme.

Table 2-1: Scope of VDM for A582

Modelled	Not Modelled
Trip Frequency (for optional trip purposes)	Mode choice
Trip Distribution	Time of day choice
Cost damping	Micro time choice

The car forecast matrices formed the reference case matrices and were used in variable demand model to capture any potential change in demand due to changes in travel cost with and without the scheme.

2.6 Forecast Assignment

The forecast demand matrices were assigned to the forecast networks using the same method, and general parameters as used in the base year assignment.

However, in line with Unit M-4, generalised cost parameters were updated to reflect the changes in value of time and vehicle operating costs anticipated in the WebTAG data book (based on v1.11 November 2018 WebTAG values).

Further details of these and the outputs of these processes as required by WebTAG are discussed further in Chapters 3 and 4 of this Traffic Forecasting Report.

Chapter 5 details the flow changes associated with the scheme specifically, and to support required checks and analysis to support the Economic Assessment Report for the scheme.

3. Forecast Networks

3.1 Introduction

This chapter describes the supply side and network elements of the traffic model that have been updated for the future years, including the preferred SRWD scheme, and other highway improvement schemes. It also includes changes to vehicle operating costs and the driver's perceived value of time as these parameters are required in the SATURN data input network file.

Forecasting requires the development of the following scenarios:

- assignment of the future year trip matrices to the future year network without the scheme, to produce the future year traffic flows without the scheme (Do Minimum scenario).
- assignment of the future year trip matrices to the future year network with the scheme, to produce the future year traffic flows with the scheme (Do Something scenario).

The base year traffic model network provided the starting point for the development of the Do Minimum network (i.e. the future highway network without the A582 scheme) and Do Something network (i.e. the future highway network with the A582 upgrades in place).

For each future year (2022, 2037 and 2042), networks have been produced for the AM peak, inter peak and PM peak.

3.2 Do Minimum Scenario

Data on highway schemes completed since the 2013 base year and proposed future highway schemes was provided by LCC and compiled in an uncertainty log spreadsheet. In addition, Highway England spatial planning teams were consulted on any schemes on the surrounding strategic road network which would have an impact on trips through the study area.

The uncertainty log lists the highway scheme developments, their expected opening year and their perceived likelihood of being realised.

A list of all schemes considered for inclusion in the model, and for which information was received, is given in Table 3-1 and Table 3-2. This does not include schemes that are considered as only reasonably foreseeable or hypothetical. A full uncertainty log, incorporating all schemes, at any level of certainty, is available on request.

Table 3-1: List of Schemes Completed Since Base Year and Future Transport Schemes

No	Location	Scheme	Likelihood	Opening Year
1	M6/M55	M6 J32 and M55 Jn1 junction improvements	Completed	2015
2	M6/M61	Extension of the Northbound Merge	More than likely	2019
3	M55	J1 improvements – approach and circulatory widening	Completed	2015
4	M55	J3 improvements – Signalisation and approach widening of the roundabout	Near Certain	2019
5	M6	J31 improvements – Junction widening	Near Certain	2019
6	A6	Wigan Road junction widening	Near Certain	2020
7	A6	M6 J29 Rbt junction improvements – approach and circulatory widening	Near Certain	2020

No	Location	Scheme	Likelihood	Opening Year
8	A6	Preston Lancaster New Road / Cockerham Road junction improvements	Near Certain	2022
9	A6	Longmoor Lane / Moss Lane junction improvements	Near Certain	2022
10	A6	A586 junction improvements	Near Certain	2022
11	A6	Queen Street Junction Improvements	Near Certain	2020
12	A6 Broughton	Broughton Congestion relief and public realm	Completed	2017
13	Lightfoot Lane	Eastway junction improvements – signalisation	Completed	2017
14	D'Urton Lane	D'Urton Link Road – connecting D'Urton Lane and B6241 Eastway	In progress	2019
15	North West Preston	East West Link Road – connecting PWD and Lightfoot Lane	Near Certain	2022
16	Wigan Road	Cuerden Site access junction – Junction widening and provision of new site access	Near Certain	2020
17	Stanifield Lane	Cuerden Site access junction – provision of a new signalised junction	Near Certain	2020
18	A584 Lytham Road	Church Road junction improvements	Near Certain	2022
19	Lostock Hall	Cross Borough Link Road- connecting Carrwood Road and the Cawsey	Near Certain	2020
20	Bamber Bridge Local Centre	Brownedge Lane/ Collins Road junction improvements - Public Realm	Completed	2018
21	New Hall Lane Local Centre	New Hall Lane / Skeffington Road & New Hall Lane / Acregate Lane	Completed	2017
22	Fishergate	Fishergate bus lane and traffic circulation modifications	In progress	2019
23	Central Preston	Tithebarn Street, Lune Street and Fishergate	Completed	2017
24	UClan Campus	Plan of Highway Improvements	Near Certain	2020
25	North West Preston	PWD – Dual Carriageway linking M55 to A583	Near Certain	2023
26	North West Preston	Cottam Link Road – Connecting PWD to Cottam Way	Near Certain	2023
27	B6243 Ribbleton Lane	Public Realm - Ribbleton Lane	Near Certain	post 2022
28	A59	Cop Lane junction improvements and Tesco access	Near Certain	2019 / 2020
29	Penwortham	Liverpool Road/ Leyland Road junction improvements	Near Certain	2019
30	Penwortham	Pickering Farm Link Road	Near Certain	post 2022
31	Penwortham	Penwortham Bypass and Public Realm – from Goldenway roundabout to A59 Liverpool Road	In progress	2019
32	Leyland	Public Realm - Leyland Centre	In progress	2019
33	Leyland	Public Realm - Seven Stars	Near Certain	post 2022
34	Warton	A584 Junction improvements	Near Certain	2022
35	Longmeanygate	Flensburg Way – Dualing between Tank Roundabout and Longmeanygate	Near Certain	2022

Table 3-2: Completed A582 Schemes since 2013

No	Location	Scheme	Likelihood	Opening Year
1	A582	Pope Lane- converting the roundabout to a signalised crossroads junction	Completed	2017
2	A582	Chain House Lane junction widening and further improvements to accommodate dual carriageway on A582	Completed	2014
3	A582	Tank Roundabout widening and signalisation	Completed	2016
4	A582	Stanifield Lane Junction improvements – signalisation and widening of the roundabout	Completed	2016
5	A582	Golden Way North/South – signalisation and junction widening	Completed	2015

An overview of five major road schemes in Preston, which were identified in Central Lancashire Transport Masterplan, is illustrated in Figure 3-1.

The Preston Western Distributor is a 2.5-mile dual carriageway linking M55 to A583, the dual carriageway will contain three junctions giving access to the areas along the road.

The East West Link Road will comprise of a 2-mile-long single carriageway connecting the PWD to Lightfoot lane.

Cottam Link Road will be a 0.4-mile single carriageway connecting the PWD to Cottam Way.

The A6 Broughton Bypass scheme became operational to the public in October 2017 and the construction work on the Penwortham Bypass started in early 2018.

Design drawings for the highway schemes are available upon request.

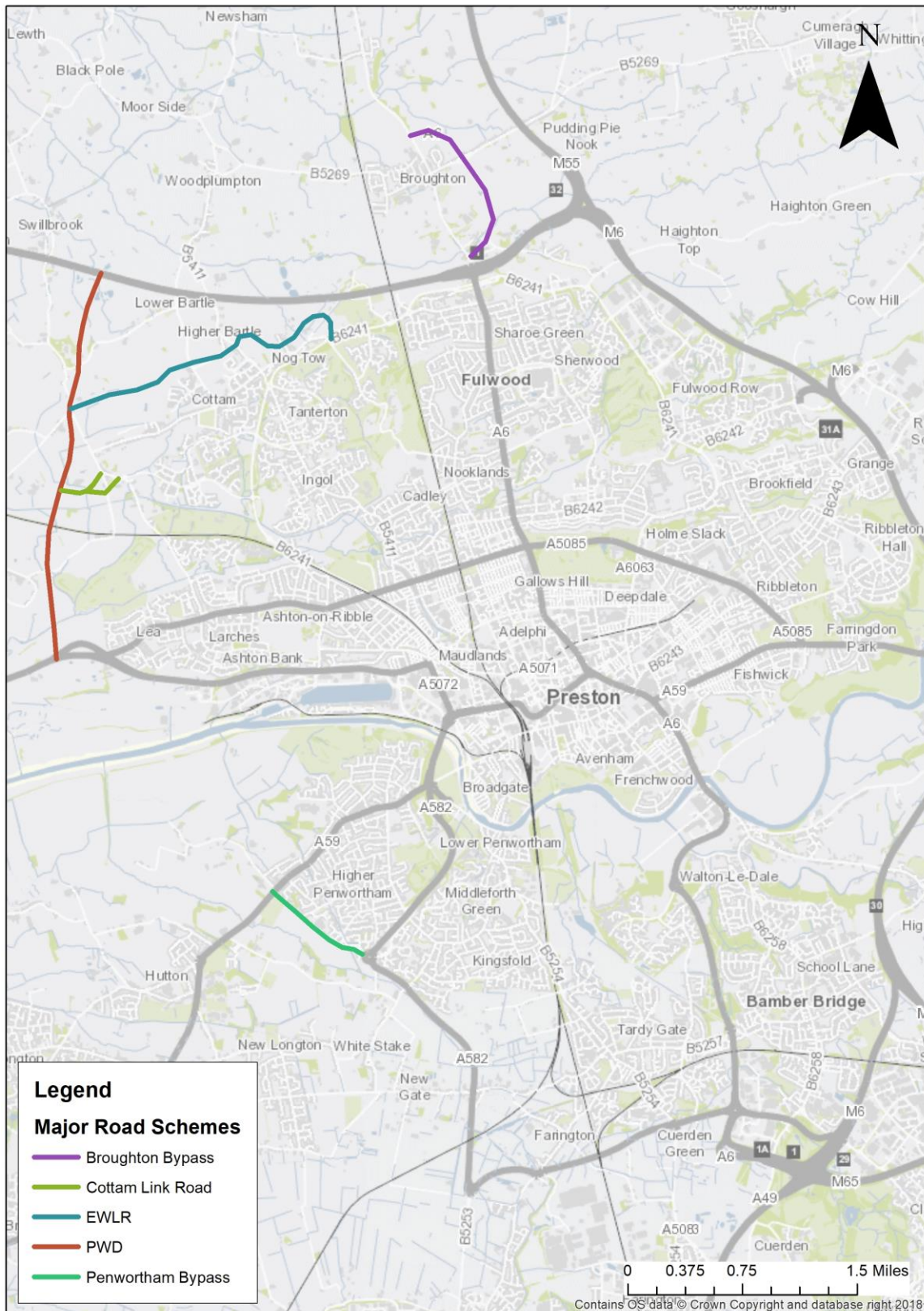


Figure 3-1: Major Road Schemes

3.3 Do Something Scenario

The Do Something networks have been prepared for each of the future years, for the preferred scheme option only.

The preferred option of the scheme is shown in Figure 3-2 below.

The scheme includes:

- Penwortham Triangle: these improvements will include upgrading the eastern roundabout layout of Penwortham Triangle to a signalised junction. The layout of the movement from Liverpool Road East and A59 South signalised roundabout will change to provide two lanes in each direction for the movements between east to south. Only one lane will be provided for east to west movements.
- Croston Road: The Croston Road improvements will include the removal of the dumbbell roundabout arrangement and to be upgraded to a signalised junction. The improvements will also include severance of Croston Road south with access to Fidler Lane retained with left in/left out arrangement, while a bus gate will also be included allowing access to the A582 from Croston Road for buses.
- Sherdley Road: The Sherdley Road junction will have a new layout which includes a signalised junction.
- Stanifield Lane (Cuerden Associated Works): Minor improvements will be made to the Stanifield Lane roundabout where additional exit lanes will be provided for the northern and eastern arms.
- A582 Link between Stanifield Lane and A6: The westbound carriageway will be widened to three lanes. This widening is undertaken by narrow widening of the existing carriageway.
- A6 Roundabout: The roundabout will include an additional circulation lane.
- M65 Terminus Roundabout: The junction will be upgraded to provide additional lanes on the eastern arm where M65 terminates and a new access arm for the Cuerden Strategic site.
- The proposed dualling is approximately 5.2 kilometres long and comprises provision of a segregated 3-metre-wide combined cycle track/footway with a 0.5 metre buffer strip providing separation from the carriageway along the full length of the road on one side, with connections to existing cycle routes. This will be built along the east side of the A582 Penwortham Way, and the south side of the A582 Flensburg Way and Farington Road.

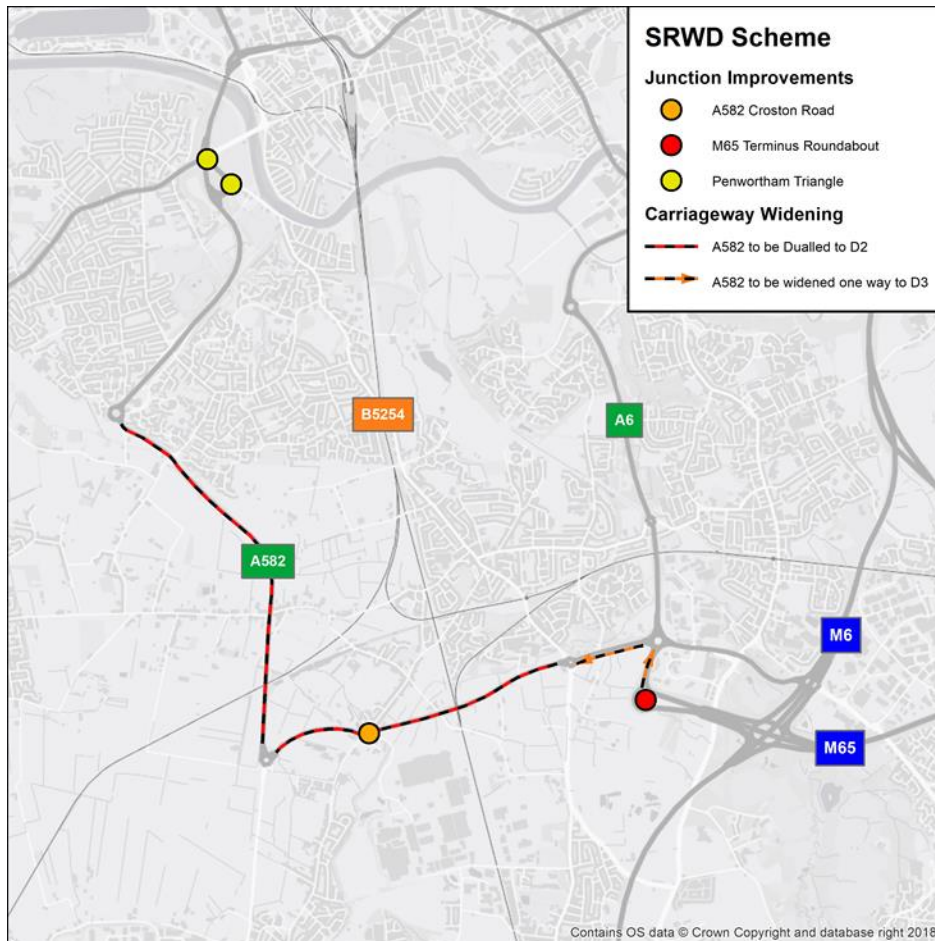


Figure 3-2: Location of Do-Something Scheme

3.4 Signal Optimisation

Signal timings were developed from observed data in 2014 for the base year CLHTM model.

Aside from the coding of the committed schemes, signal timings, and the potential for signal optimisation to occur in future years was also considered.

Signal optimisation was undertaken using the signal optimisation facilities in SATURN to update small number of junctions in locations including the A59, A6, Port Way, and Longmeanygate, to improve both model convergence and reduce implausible delays. Signal optimisation away from the scheme was carried out in both the Do Minimum and Do Something scenarios and these signals are identical between scenarios.

This assumption is appropriate given that a study to investigate options for signal configuration improvements at these junctions are currently underway by Lancashire County Council. The study aims to provide smooth flow from North West Preston via the proposed PWD and A583 all the way to M6 via A582 corridor, which is planned to be dualled.

The location of the junctions is displayed in Figure 3-3.

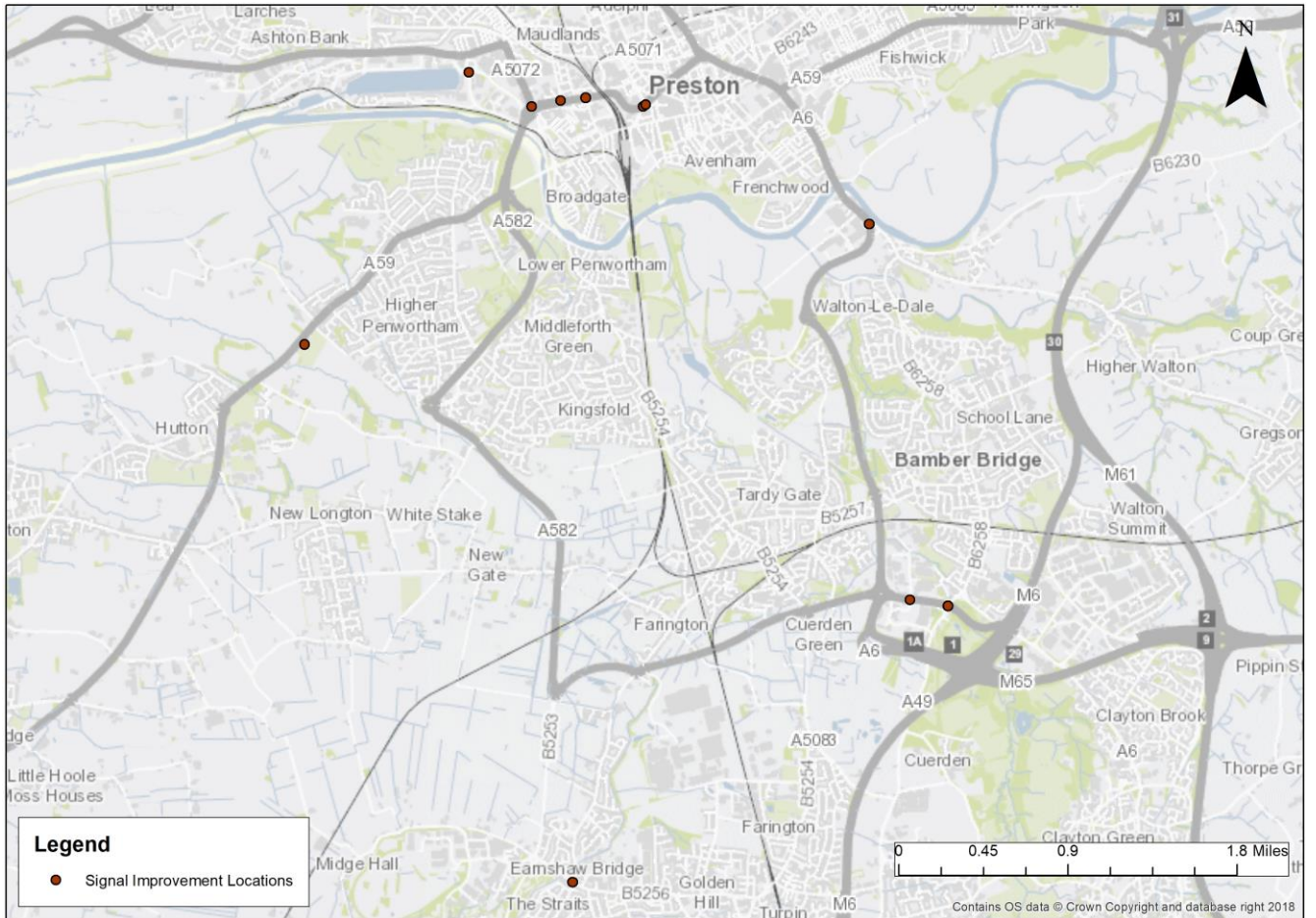


Figure 3-3: Optimised Junctions

4. Forecast Demand Development

4.1 Introduction

This section details how the forecast demand matrices have been developed consistent with guidance detailed in WebTAG Unit M-4.

Trip matrices associated with future developments in the vicinity of the scheme were produced using the local planning assumptions obtained from the relevant local authorities through the use of the associated uncertainty log.

In line with WebTAG the traffic growth forecasts have been constrained to the latest version of NTEM (version 7.2).

4.2 Data Sources and Other Information

The data that was used to calculate traffic growth is as follows:

- TEMPRO planning assumptions and growth factors – NTEM v7.2 dataset
- RTF15 and RTF18 growth factors
- Data from Preston City Council on employment and housing developments
- Data from Fylde Council on employment and housing developments
- Data from South Ribble on employment and housing developments
- Transport Assessments and Development Site Masterplans.

4.3 Methodology Overview

Figure 4-1 below shows a flowchart illustrating the methodology for creating reference forecast matrices (i.e. fixed demand) for cars to be used in VDM. Forecast matrices for LGVs and HGVs are explained separately in Section 4.8.

In summary, the development details obtained from the local authorities along with TRICS trip rates and trips extracted from Transport Assessments were used to generate development trips.

These trips were distributed using parental zones in the base year to create a development matrix for each trip purpose and time period.

Jobs and households associated with future developments were aggregated by TEMPRO area and subtracted from NTEM forecast jobs and houses using the Alternative Assumptions to derive adjusted TEMPRO growth factors.

The adjusted factors have been applied to the Base year trips to produce the background growth matrix.

The development matrix was then added to the background matrix to create a final Core matrix, as recommended by WebTAG.

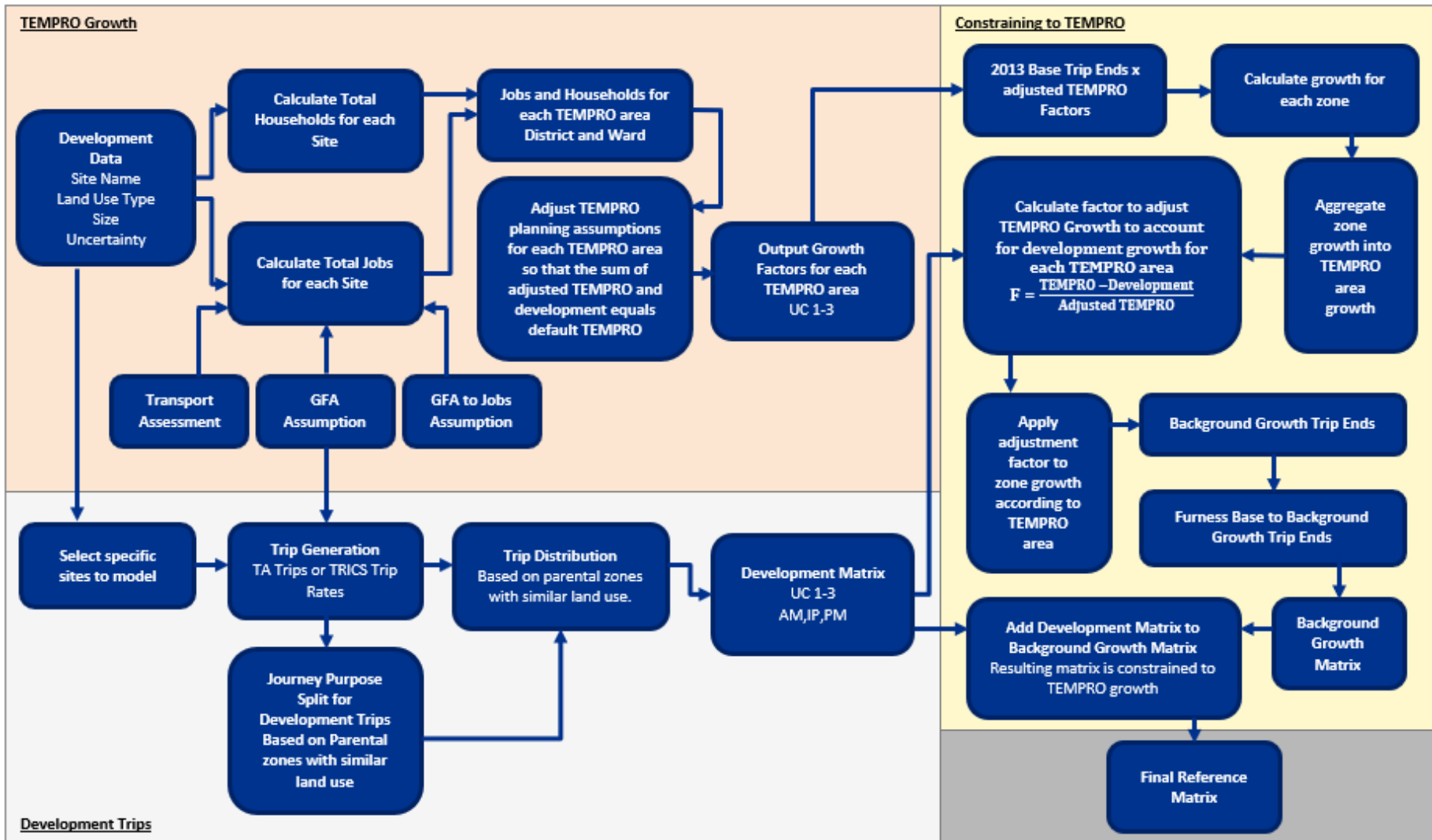


Figure 4-1: Car Reference Forecast Matrix Building Process

4.4 Development Trips

4.4.1 Introduction

In line with TAG Unit M-4, future developments in the vicinity of the scheme should be modelled explicitly rather than as part of growth factors extracted from NTEM.

For each development the modelling process involves estimating the trip generation and trip distribution of the development when fully completed for each time period.

Each development is assigned a model zone (or zones) and the trip distribution uses the model zone system. This provides a development trip matrix which is then added to the forecast matrix derived from applying TEMPRO growth to the base year matrix.

4.4.2 Local Area

TAG Unit M4 requires that uncertainty should be assessed in relation to developments located 'in the vicinity of the scheme' being appraised.

For trunk road improvement schemes such as the A582, this Local Area should include:

- All district/unitary council areas through which the scheme passes, either in whole or in part;
- Any adjacent district/unitary council areas where the results of the appraisal and design are likely to be sensitive to different development scenarios in those areas.

Figure 4-2 displays the areas included within the forecast for this scheme.

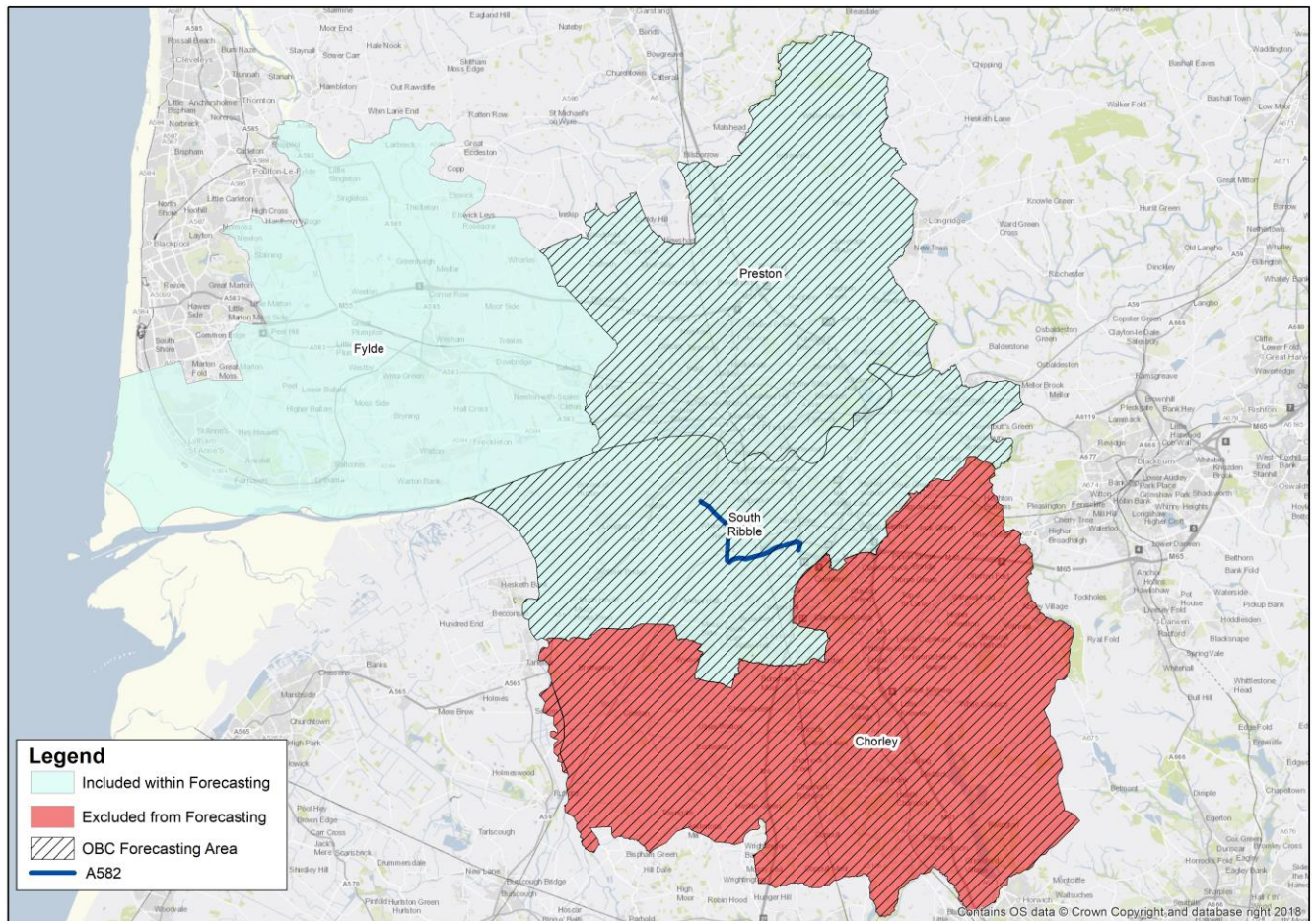


Figure 4-2: Forecast areas for A582 SRWD

As proportional approach was favoured for the SOBC, the development uncertainty log used for the Preston Western Distributor was used as it was recently updated and contains developments for South Ribble, Preston and Fylde.

It is recognised that Fylde is remote from the scheme and unlikely to add development sensitivity. Therefore, whilst it was considered proportional to maintain its usage as part of the A582 forecasting, the focus of the forecasting process and TEMPRO constraining was on the South Ribble and Preston areas.

Inclusion of Chorley developments into the uncertainty log will be considered for OBC, while data for Fylde will be omitted at the OBC stage.

Trip ends associated with future committed developments within the identified Local Area have been modelled individually and added to the corresponding model zones.

Trip growth associated with future developments in the model zones outside the area have been modelled by applying unadjusted NTEM v7.2 TEMPRO growth factors for corresponding areas.

4.4.3 Uncertainty Log

TAG Unit M-4 recommends the production of an Uncertainty Log to summarise the local planning assumptions in relation to the nature, timing, size and other details of the future developments.

The uncertainty log used for the A582 scheme was developed in 2018 as part of the PWD FBC forecasting. It contains the above information in relation to both housing and employment development sites within the three districts.

For the purposes of the A582, the uncertainty log remains mostly unchanged, except for the Moss Side Test Track development where the number of homes was changed to 950. It should also be noted that the NWP developments dependent on the PWD were included in the core demand given that the PWD is considered a committed scheme as part of this assessment.

Minor developments which are not expected to have any impact on the forecasts have been removed from the uncertainty log. The criteria for removing a development from the uncertainty log have been defined as follows:

- For housing development - <50 dwellings
- For employment development - <30 jobs.

In line with TAG only those development sites which can be categorised as 'Near Certain' or 'More than Likely' based on the Table A2 of TAG Unit M4 have been included in the Core Scenario which represents the most likely outcome and forms the basis for the scheme appraisal.

The uncertainty log is included as Appendix A to this report.

4.4.4 Trip Generation – Residential Developments

Housing development sites planned within Preston and South Ribble are shown in Figure 4-3 by level of certainty.

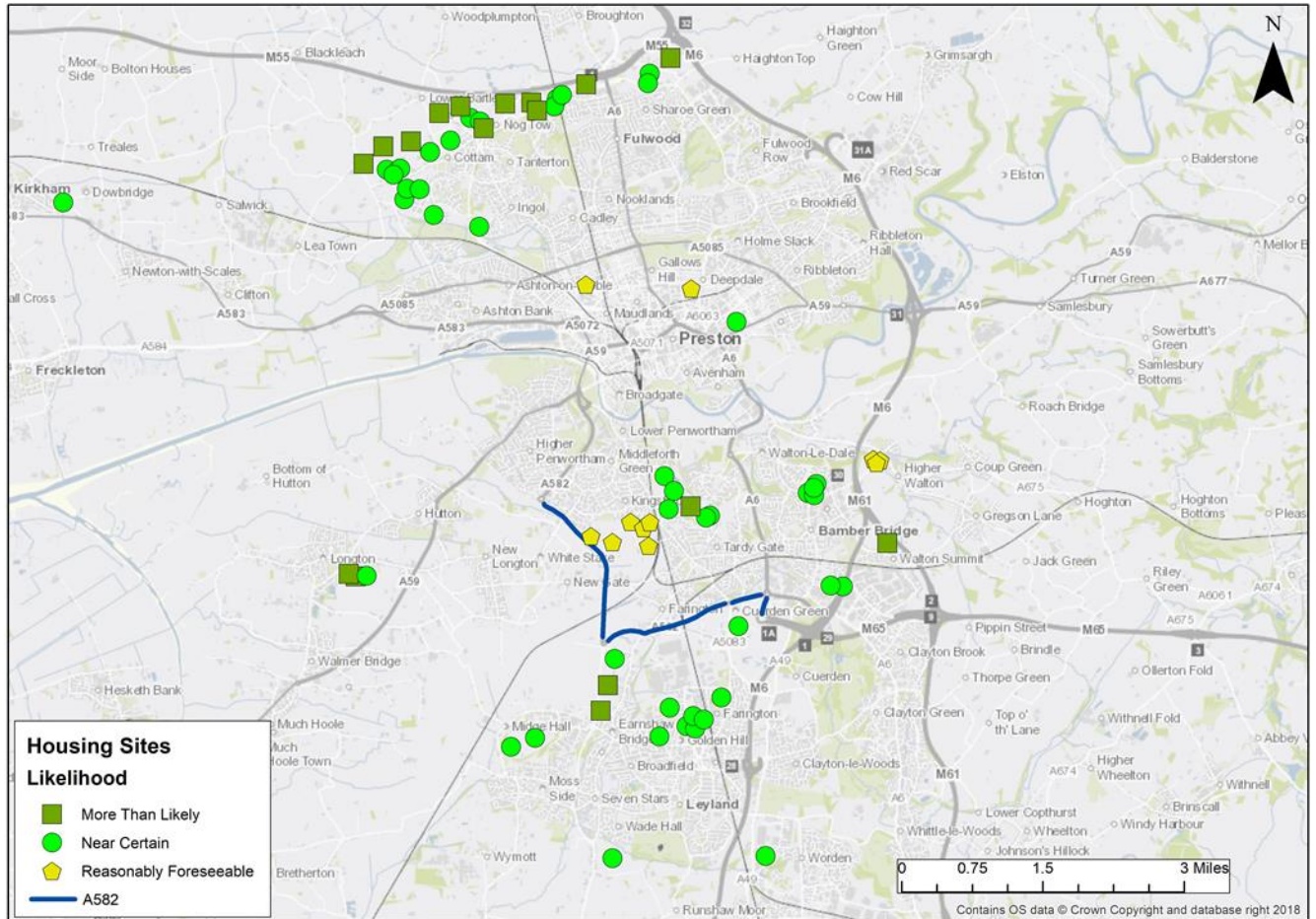


Figure 4-3: Housing Development Sites

WebTAG recommends that trip generation for the developments should be consistent with available Transport Assessments. However, given the significant number of residential sites in the local area and to ensure the proportionate approach a single set of appropriate trip rates was used across all residential sites. The trip rates were derived from TRICS and were applied to the number of households associated with each development to calculate origin and destination trips.

The TRICS car vehicle trip rates presented in Table 4-1 have been calculated using mean average for private housing sites across the North of England.

Table 4-1: Residential Trip Rates

Trip Rate	AM Peak (0800-0900)		Interpeak (1000-1600)		PM Peak (1700-1800)	
	Arrival	Departure	Arrival	Departure	Arrival	Departure
Residential (per dwelling)	0.13	0.39	0.18	0.17	0.33	0.22

To ensure the rates are reasonable they have been benchmarked against the residential trip rates used in the previous studies and found to be appropriate.

4.4.5 Dependent Development Housing

In line with TAG Unit M-4 explicit modelling should be undertaken where the development is potentially dependent on the scheme. However, given that the dependent development is conditional to the provision of the scheme it can only be categorised as Reasonably Foreseeable and therefore should not be included in the Core Scenario.

Based on information provided by LCC, the following housing development site was considered to be dependent on the A582 scheme:

- Pickerings Farm, 1350 Dwellings

4.4.6 Trip Generation – Employment Developments

Employment development sites planned within the local area are shown in Figure 4-4 by level of certainty.

Similar to residential developments the ‘Near Certain’ and ‘More than Likely’ employment sites have been identified in the uncertainty log to be included into the Core Scenario.

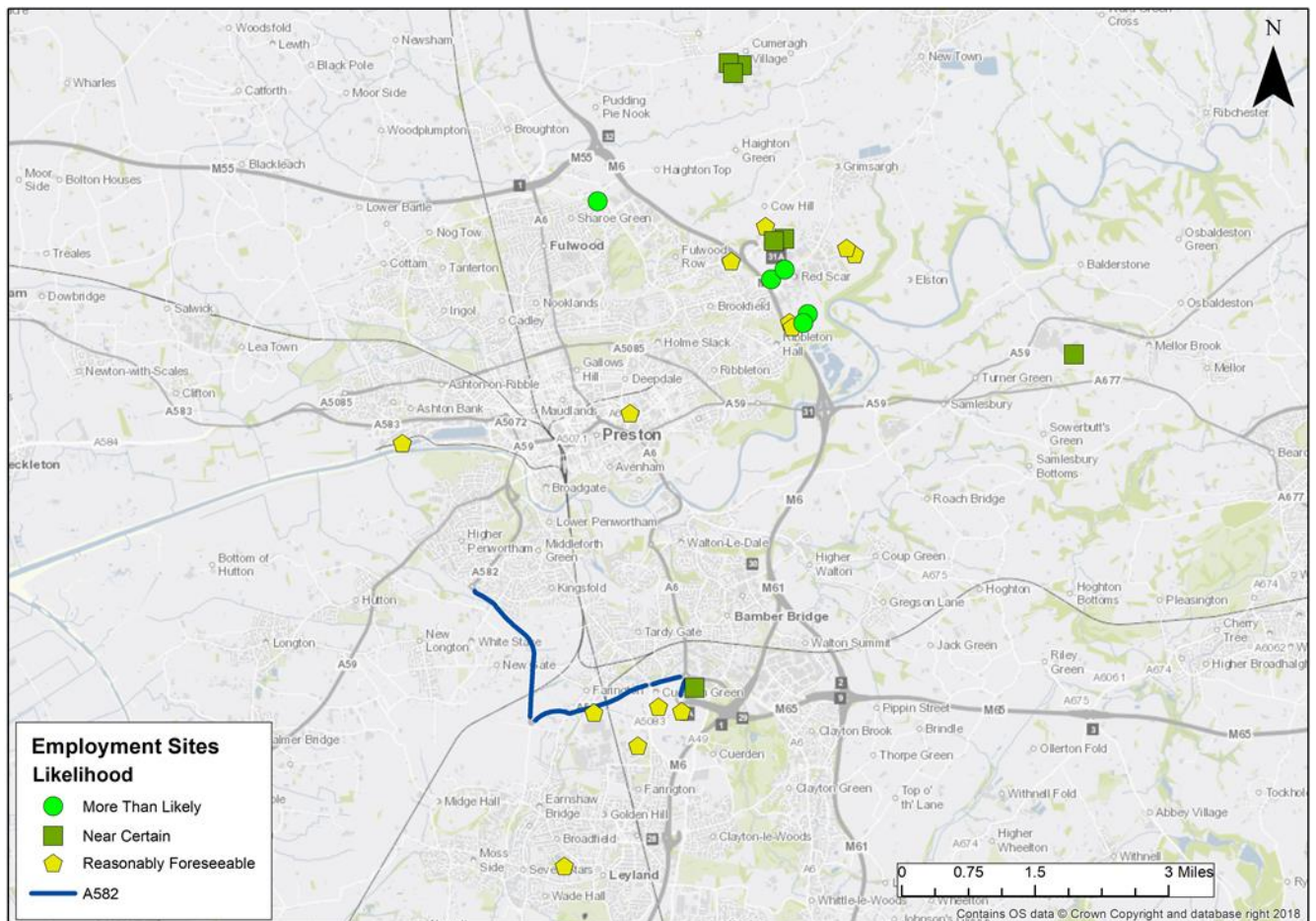


Figure 4-4: Employment Development Sites

Transport Assessments and other relevant documents containing estimated trip generation have been reviewed and, where appropriate, were used to derive trip ends for the employment sites.

For the sites which do not have TA's or the information is limited it was agreed to use TRICS trip rates to estimate the trip generation. The TRICS trip rates for employment sites are expressed in vehicle trips per 100sqm of GFA and are presented in Table 4-2 below.

Table 4-2: Employment Trip Rates

Trip Rate per 100sqm of GFA	AM Peak (0800-0900)		Interpeak (1000-1600)		PM Peak (1700-1800)	
	Arrival	Departure	Arrival	Departure	Arrival	Departure
B1	1.70	0.24	0.41	0.44	0.13	1.65
B2	0.47	0.17	0.23	0.27	0.09	0.33
B8	0.27	0.14	0.11	0.14	0.03	0.17
D1	0.44	0.07	0.15	0.14	0.13	0.46
D2	0.69	0.81	0.75	0.82	20.4	1.08

4.4.7 Dependent Development Employment

In line with TAG Unit M-4 explicit modelling should be undertaken where the development is potentially dependent on the scheme. However, given that the dependent development is conditional to the provision of the scheme it can only be categorised as Reasonably Foreseeable and therefore should not be included in the Core Scenario.

Based on information provided by LCC, the only employment site considered to be dependent on the A582 was:

- Cuerden Strategic Site, 3000 Jobs

4.4.8 Journey Purpose Split

In line with the WebTAG for scheme appraisal the car trips within the CLHTM model have been broken down into user classes representing three journey purposes: Commute, Business and Others.

Therefore, trip ends generated by future developments have been disaggregated further by journey purpose.

This was achieved by applying base year journey purpose proportions of the corresponding model zone.

However, where a land use is expected to significantly change from the base year, the journey purpose split from a zone with the similar land use has been applied.

4.4.9 Trip Distribution

Given that the majority of the developments are large sites allocated to 'greenfield zones' the parental zone distribution approach was used to distribute the development trips.

The parental zones were selected to represent the same area and similar land use as the development zones.

The distributed trips to and from each development site formed a final development matrix so that trip ends could be calculated and summed up for each TEMPRO area, the development trip ends for each TEMPRO area were then used in calculating background growth and constraining to TEMPRO.

4.5 Background Growth

4.5.1 Introduction

The National Trip End Model (NTEM v7.2) provides growth factors for forecasting changes in car trips between the model base year and each forecast year.

Within the TEMPRO software are a set of adjustable planning assumptions which predict the number of households and jobs per TEMPRO zone for each year between 2011 and 2051.

Given that the development matrix accounts for some of the trips associated with the increase in numbers of jobs and houses within the local area, the planning assumptions within TEMPRO need to be adjusted accordingly to avoid the double counting.

WebTAG recommends that this can be achieved by deducting the number of households or jobs associated with the developments from the number in the NTEM zone that the developments are located in.

TEMPRO then generates growth factors based on adjusted assumptions which exclude the explicitly modelled developments.

The TEMRPO factors, are then applied to the base year matrix to calculate the background growth.

The background growth trip ends are further adjusted to ensure that the total of the background growth trip ends and development matrix trip ends match the TEMPRO forecast growth at a district and overall model scale.

4.5.2 TEMPRO Areas and Alternative Assumptions

As described in Section 4.4 the total number of jobs and households associated with future developments were estimated and aggregated by NTEM zone.

In line with WebTAG where it is not possible to constrain to TEMPRO at NTEM zone level it is appropriate to aggregate the jobs and household assumptions by NTEM Authority area and constrain at a local authority level.

Table 4-3 and Table 4-4 below demonstrate the uncertainty log planning assumptions and how they compare with the TEMPRO default planning assumptions for Preston and South Ribble.

Table 4-3: Jobs and Household Assumptions 2022 (NTEM7.2 vs Local Planning Data)

NTEM Zones for Local Growth Assumptions	2022					
	Local Plan		TEMPRO Development Growth		Difference (TEMPRO - Local Plan)	
	HH	Jobs	HH	Jobs	HH	Jobs
Preston	1,602	2,045	3,436	2,857	1,834	812
South Ribble	2,655	530	3,530	1,365	875	835

Table 4-4: Jobs and Household Assumptions 2037 (NTEM7.2 vs Local Planning Data)

NTEM Zones for Local Growth Assumptions	2037					
	Local		TEMPRO Development Growth		Difference (TEMPRO - Local Plan)	
	HH	Jobs	HH	Jobs	HH	Jobs
Preston	6,190	4,145	8,534	6,890	1,624	2,745
South Ribble	5,425	1,567	8,256	3,620	2,831	2,052

Figure 4-5 shows how the CLHTM model zones are allocated to TEMPRO areas for the purpose of calculating the background growth.

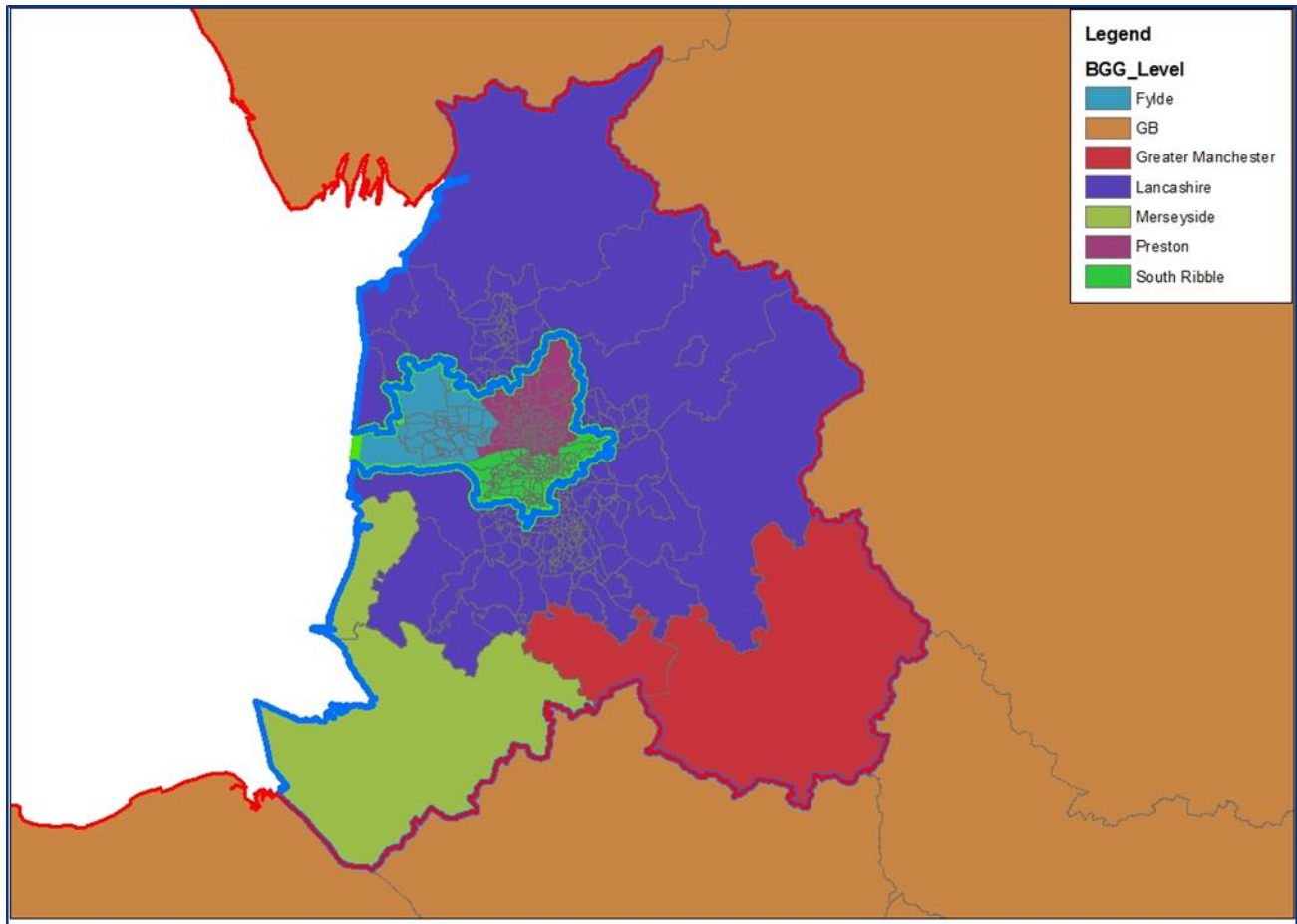


Figure 4-5: TEMPRO to CLHTM Zone Correspondence

The model zones within the Local Area were increased by the adjusted TEMPRO factors for the corresponding districts.

The zones outside the Local Area were increased by unadjusted TEMPRO factors for either the corresponding County area or the GB depending on how far away they are from the scheme.

4.5.3 Background Growth Calculation and Constraining to TEMPRO

After applying the alternative assumptions on number of jobs and households the adjusted growth factors for the three districts by journey purpose and time period were calculated in TEMPRO.

The forecast demand growth then needed to be constrained to TEMPRO forecast growth.

The adjusted factors for the three district areas and unadjusted factors for other zones were applied to the base year demand of the corresponding model zones. The growth due to TEMPRO in each TEMPRO area was then further adjusted based on the following factor:

$$F = \frac{\text{Default TEMPRO Growth} - \text{Development Trips}}{\text{Adjusted TEMPRO Growth}}$$

This creates a revised growth for each TEMPRO area which represents final background growth, i.e. growth not including development.

It should be noted that external to external trips are not affected by the development growth and therefore they were excluded from the background growth calculation. These trips were factored by default TEMPRO NTEM v7.2 growth for the corresponding area and added to the final forecast matrices to ensure the through traffic is present in the model. Appendix B provides the default and adjusted TEMPRO factors used in this assessment.

4.5.4 Trip Distribution and Reference Forecast Matrix

The base matrix was furnished to the background growth trip ends to create a background growth trip matrix, using the furnishing process (doubly constrained) in SATURN. Details of the reference matrix development are provided in Appendix C.

The development matrix was then added to the background growth matrix to create a final Core reference forecast matrix constrained to TEMPRO. Subsequently, these matrices were used in the variable demand model, pivoted from the base year skim costs to capture the changes in demand pattern as a result of the travel cost changes. The impacts of VDM on demand are further discussed in Section 5.5.

4.6 2042 Car Matrices

Given there is no data on local developments between 2037 and 2042, a simplified approach was used to create the 2042 matrices.

The 2037 to 2042 default factors by journey purpose and time period were extracted from TEMPRO (NTEM v7.2) and applied to the 2037 background growth trip ends.

The furnishing process was then used to distribute the trips using the base matrices as a basis for applying growth.

4.7 Dependent Development Trips

One of the key objectives of the A582 scheme is to unlock future housing development in South Ribble which is a critical driver for the LEP and the government as part of the agreed City Deal.

WebTAG categorises new development that is dependent on the provision of a transport scheme as Dependent Development. In the case of the A582 scheme, dependency refers to land use development that cannot be realised without the introduction of the A582 South Ribble Western Distributor upgrade.

Given that the dependent development is conditional to the provision of the scheme and to ensure a fair comparison between With and Without Scheme scenarios WebTAG suggests that the dependent development should not be included in to the Core matrices and therefore the benefits associated with the trips generated by the dependent development would not be included in calculation of the Value for Money of the scheme.

To determine the level and extent of dependency of the development on the scheme the guidance suggests that new housing is dependent on the provision of the transport scheme if, with the new housing, but in the absence of the transport scheme, the transport network would not provide a ‘reasonable level of service’ to existing and/or new users.

A network test was not undertaken for the Outline Business Case. The Pickering’s Farm site (1,350 dwellings) and Cuerden Employment site (3,000 jobs) were considered dependent on the A582 scheme based on information from LCC.

Demand for the above sites was produced using the above dwelling and job totals using the same methodology as outlined in Section 4.3. Trip rates were applied and parental zones with similar land use provided the generation of user class splits and trip distributions. These trips are then added to the post-VDM core matrix.

It is important to note that the dependant development trips are only used to calculate dependent development transport external costs. It should also be noted that the dependency test has not been undertaken in line with the proportionate approach agree in the ASR but will be done at the OBC stage.

4.8 LGV and HGV Growth

LGV and HGV growth were based on growth factors calculated for principal roads in England using RTF 2015 and RTF 2018.

These growth factors were applied to the 2013 base year matrices.

This approach is consistent with TAG Unit M4 guidance on forecasting changes in freight traffic which recommends applying a single growth factor for the whole matrix based on NTM forecast growth.

As the CLTM model does not differentiate between OGV1 and OGV2, the HGV factors have been calculated using the split of 47% and 53% for OGV1 and OGV2, respectively, based on national average splits from COBA Manual Part 4 Chapter 8 (“Table 8/1. Annual Average Category Proportions by Class of Road”). The factors are presented in Table 4-5 below.

Table 4-5: RTF Growth Factors

Year	Vehicle Type	North West Region Growth Factor from 2013
2022	LGV	1.15
	HGV	0.99
2037	LGV	1.37
	HGV	1.01
2042	LGV	1.45
	HGV	1.02

5. Model Outputs and Checks

5.1 2042 Model Year

As described in the preceding chapters, 3 forecast years were modelled to assess the A582 scheme impacts. In addition to the opening year (2022) and design year (2037), a 2042 year was modelled with the aim of providing a final forecast year as described in WebTAG Unit M4, Section 1.2.

The year 2042 was picked to provide consistency with several scheme economic appraisals undertaken recently, including: Preston Western Distributor, Penwortham Bypass and Broughton Bypass. This is despite NTEM v7.2 forecasts running to 2051.

For proportionality of modelling work undertaken at this early Strategic Outline Business Case stage, focus was placed on the 2022 and 2037 forecast years with 2042 assigned using the 2037 network given it only includes 5 years extra traffic growth with no further changes to local developments.

However, this 2042 model failed to converge to WebTAG criteria within the DIADEM PM variable demand model, achieving a GAP value of just 0.26% after 50 iterations.

In addition, a comparison of total delay per link (given by: demand (PCUs) multiplied by delay (seconds per PCU)) showed large increases on the motorways and sections of the A6 in the Do Minimum peaks for 2042 compared to 2037. This led to instances of doubled total delay for the DS-DM comparison on M65 links and previously non-existing delay at the M6 J31.

The 2042 model also gave unstable decreases in delay, with sections of the A6 seeing a 2.5x greater reduction in delay with the scheme in 2042 than in 2037 despite just 5 years of additional traffic flow.

Given these large assignment variances in the east of the simulation area and the lack of PM demand convergence, it was decided to exclude the 2042 model from the economic analysis. The model outputs were inconsistent with 2037 in the peak hours and the scale of likely alterations required was considered disproportionate for the Outline Business Case and its timescales.

The remainder of the model outputs chapter records only the 2022 and 2037 results used for economic appraisal.

5.2 Trip Matrix Comparison

Trip totals for the base year and the 2 forecast years for all time periods are presented in Table 5-1 for both Do Minimum and Do Something scenarios.

The percentage growth is also given to provide an overall sense check of the levels of growth forecast and applied within models.

Table 5-1: Forecast Trip Matrix Totals

Scenario	Base	2022 Forecast	2037 Forecast	% Change 2022	% Change 2037
AM					
DM	1,130,256	1,225,552	1,386,453	8.4%	22.7%
DS	1,130,256	1,225,561	1,386,464	8.4%	22.7%
IP					
DM	1,038,802	1,134,674	1,289,721	9.2%	24.2%
DS	1,038,802	1,134,685	1,289,734	9.2%	24.2%
PM					
DM	1,095,391	1,196,019	1,362,917	9.2%	24.4%
DS	1,095,391	1,196,034	1,362,934	9.2%	24.4%

Appendix D details the total forecast matrices on a sector to sector basis, used in economic assessment. This is important for the economic appraisal of the scheme and is discussed in more detail within the Economic Assessment Report.

5.3 Convergence Statistics

5.3.1 SATURN Convergence

Convergence is the measurement of the stability of the traffic model, whereby the spread (or “distribution”) of trips does not vary significantly between iterations and so the model is said to be in “equilibrium”. A converged model is therefore stable and produces results that are consistent and robust.

Achieving convergence in the future year forecasts is just as critical as the base year and is particularly important for economic appraisal purposes.

The acceptability values for convergence (TAG Unit M3.1) are less than 0.1% for %GAP and 4 consecutive iterations where the percentage of links with flow changes less than <1% is greater than 98%.

As demonstrated in Table 5-2 and Table 5-3 all the forecast models converge to an acceptable level.

Table 5-2: SATURN Assignment Convergence Statistics for Do Minimum Scenarios

Year	Time Period	Iteration	%GAP	% Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	% Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
2022	AM	23	0.00037	98.2	99.6
		24	0.00052	98.1	99.7
		25	0.00023	98.1	99.8
		26	0.00017	98.9	99.8
	IP	15	0.00061	98.3	99.8
		16	0.00024	98.7	99.8
		17	0.00042	98.5	99.7
		18	0.00018	98.9	99.8
	PM	35	0.0025	98.7	99.4
		36	0.0023	98.5	99.5
		37	0.0017	98.9	99.6
		38	0.0016	99.3	99.7
2037	AM	36	0.00067	98.9	99.6
		37	0.0017	99.2	99.6
		38	0.00047	98.6	99.7
		39	0.0016	99.4	99.7
	IP	30	0.00045	98.6	99.7
		31	0.00090	98.0	99.7
		32	0.00046	98.1	99.6
		33	0.00065	98.0	99.7
	PM	43	0.0032	98.9	99.3
		44	0.0032	98.7	99.3
		45	0.0036	98.9	99.3
		46	0.0033	98.7	99.3

Table 5-3: SATURN Assignment Convergence Statistics for Do Something Scenarios

Year	Time Period	Iteration	%GAP	% Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	% Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
2022	AM	28	0.00100	99.0	99.8
		29	0.00027	98.0	99.9
		30	0.00025	99.1	99.8
		31	0.00110	99.1	99.8
	IP	16	0.00014	98.7	99.8
		17	0.00020	99.0	99.9
		18	0.00017	98.8	99.9
		19	0.00016	98.9	99.9
	PM	33	0.0036	98.1	99.5
		34	0.0028	98.1	99.5
		35	0.0031	98.7	99.6
		36	0.0030	98.3	99.3
2037	AM	38	0.00097	98.1	99.6
		39	0.00140	98.8	99.7
		40	0.00063	99.1	99.7
		41	0.00240	98.6	99.5
	IP	27	0.00036	98.8	99.8
		28	0.00068	98.9	99.7
		29	0.00053	98.3	99.7
		30	0.00032	98.9	99.8
	PM	36	0.0056	98.1	98.8
		37	0.0047	98.6	98.9
		38	0.0032	98.3	99.2
		39	0.0046	99.1	99.1

5.3.2 DIADEM Convergence

Based on the lambda and theta parameters derived in the realism tests, the forecast models have been run through DIADEM. In assessing the outputs of the model runs, the main parameter of importance is the ‘relative gap’, which is the measure of convergence between demand and supply. Current WebTAG guidance recommends a maximum relative gap of 0.2%. However, to further increase the robustness of the modelling of the A582 scheme, the DIADEM criterion has been set to achieve a relative gap of 0.145%.

Consequently, the DIADEM models achieved a relative gap convergence level of 0.14% or less in all cases, which suggests the demand - supply convergence of the variable demand traffic model is acceptable. As

presented in Table 5-4, it has therefore been shown that the traffic model is stable and has converged to an acceptable standard.

Table 5-4: DIADEM Convergence Statistics

Model Scenario	Measurement	2022 DM	2037 DM	2022 DS	2037 DS
AM	Final Iteration	8	9	8	8
	% GAP	0.08%	0.12%	0.09%	0.13%
IP	Final Iteration	7	8	7	8
	% GAP	0.14%	0.10%	0.14%	0.11%
PM	Final Iteration	8	9	9	10
	% GAP	0.11%	0.12%	0.10%	0.09%

5.4 Highway Traffic Model Performance

Table 5-5 below presents high level assignment statistics for forecast years 2022 and 2037. The statistics have been extracted for the simulation area only of the SATURN model. The results presented are for all vehicle types and journey purposes combined.

Table 5-5: Simulation Area Assignment Statistics

Model Scenario	Measurement	Base	2022 DM	2037 DM	2022 DS	2037 DS
AM	Distance Travelled (PCU km)	1,296,464	1,484,713	1,656,363	1,488,087	1,663,333
	Travel Time (PCU Hrs)	23,971	26,874	31,966	26,805	31,916
	Average Speed (Km/Hr)	54.1	55.2	51.8	55.5	52.1
IP	Distance Travelled (PCU km)	998,225	1,155,825	1,337,564	1,158,184	1,340,676
	Travel Time (PCU Hrs)	17,146	19,307	22,759	19,254	22,702
	Average Speed (Km/Hr)	58.2	59.9	58.8	60.2	59.1
PM	Distance Travelled (PCU km)	1,348,436	1,563,507	1,739,617	1,567,239	1,744,215
	Travel Time (PCU Hrs)	25,128	28,629	34,216	28,613	34,152
	Average Speed (Km/Hr)	53.7	54.6	50.8	54.8	51.1

The total travel time is a summation of cruise time, transient queued time (e.g. waiting at a red light at signals) and overcapacity queued time. The total travel distance is summed over full journey lengths for all modelled trips. The average speed is determined based upon the total travel time and total travel distance.

The Do Minimum and Do Something results show a general deterioration in highway conditions over time between 2022 and 2037. The increased model average speed between the base year and 2022 DM model indicates lower levels of delay and congestion and is due to several large-scale highway schemes in the DM (notably the Preston Western Distributor, Broughton Bypass, Penwortham Bypass and staggered A582 junction improvements prior to dualling).

In future years, total travel time is increasing faster than travel distance indicating increasing levels of congestion in all time periods. Reductions in speed are greatest in the AM and PM peak periods. The Do Something scenario which includes the proposed link road mitigation improves the highway conditions.

The introduction of the scheme (Do Something scenario) has the impact of reducing travel times through the area and increasing the distance travelled, resulting in an increase of average vehicle speeds in all time periods in each forecast year.

5.5 Impacts of Variable Demand Modelling

5.5.1 Impact of Variable Demand Modelling – Matrix Total Analysis

Following the completion of the VDM runs, the matrix totals between the pre and post VDM runs were compared to understand the impacts of variable demand responses. Table 5-6 presents the comparison of demand for the 2022 DM scenario. The comparisons for all other scenarios, years and time periods are provided in Appendix E.

The comparison of pre and post VDM results indicates that there is induced traffic in Do Minimum UC3 (Other) due to VDM. There are also more intra zonal trips and fewer inter zonal trips in all demand segments as a result of origin-destination choice.

Table 5-6: Comparison of pre-VDM vs post-VDM Matrices - 2022 Do minimum scenario

Time Period	UC	Pre VDM - 2022			Post VDM DM - 2022			Difference			% Difference		
		Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal
AM	1	237,075	112,111	124,964	237,075	111,982	125,093	0	-129	129	0.00%	-0.12%	0.10%
	2	34,972	14,106	20,866	34,972	14,092	20,880	-0	-14	14	0.00%	-0.10%	0.07%
	3	176,421	101,348	75,073	177,218	101,063	76,155	797	-285	1,082	0.45%	-0.28%	1.44%
	Total	448,468	227,565	220,903	449,265	227,136	222,129	797	-428	1,225	0.18%	-0.19%	0.55%
IP	1	53,744	25,153	28,590	53,744	25,128	28,615	0	-25	25	0.00%	-0.10%	0.09%
	2	31,260	11,963	19,297	31,260	11,951	19,309	0	-12	12	0.00%	-0.10%	0.06%
	3	232,414	123,865	108,548	233,552	123,530	110,022	1,139	-335	1,474	0.49%	-0.27%	1.36%
	Total	317,417	160,981	156,436	318,556	160,609	157,947	1,139	-372	1,511	0.36%	-0.23%	0.97%
PM	1	204,263	98,556	105,707	204,263	98,434	105,829	0	-122	122	0.00%	-0.12%	0.12%
	2	34,838	14,510	20,329	34,838	14,496	20,342	0	-13	13	0.00%	-0.09%	0.07%
	3	260,987	143,629	117,358	262,305	143,243	119,062	1,318	-386	1,704	0.50%	-0.27%	1.45%
	Total	500,089	256,695	243,394	501,406	256,173	245,233	1,318	-521	1,839	0.26%	-0.20%	0.76%

The trip length distributions (TLD) for the pre and post VDM were also compared to further understand the effect of VDM. Figure 5-1 compares the TLD of the pre and post VDM demand (excluding external-external trips) for the AM peak car trips in the 2022 Do Minimum scenario. The blue and red represent pre-VDM and post-VDM trips respectively.

The post-VDM bars are lower than the pre-VDM bars for the distance travelled of up to 10 miles (Band 5), after which the opposite pattern occurs. From Band 6 onwards (trips greater than 10 miles), the proportion of post-VDM trips travelling longer distance becomes higher than the pre-VDM trip proportions.

The TLD comparison is shown only for the 2022 DM AM scenario. All other years and scenarios are provided in Appendix F.

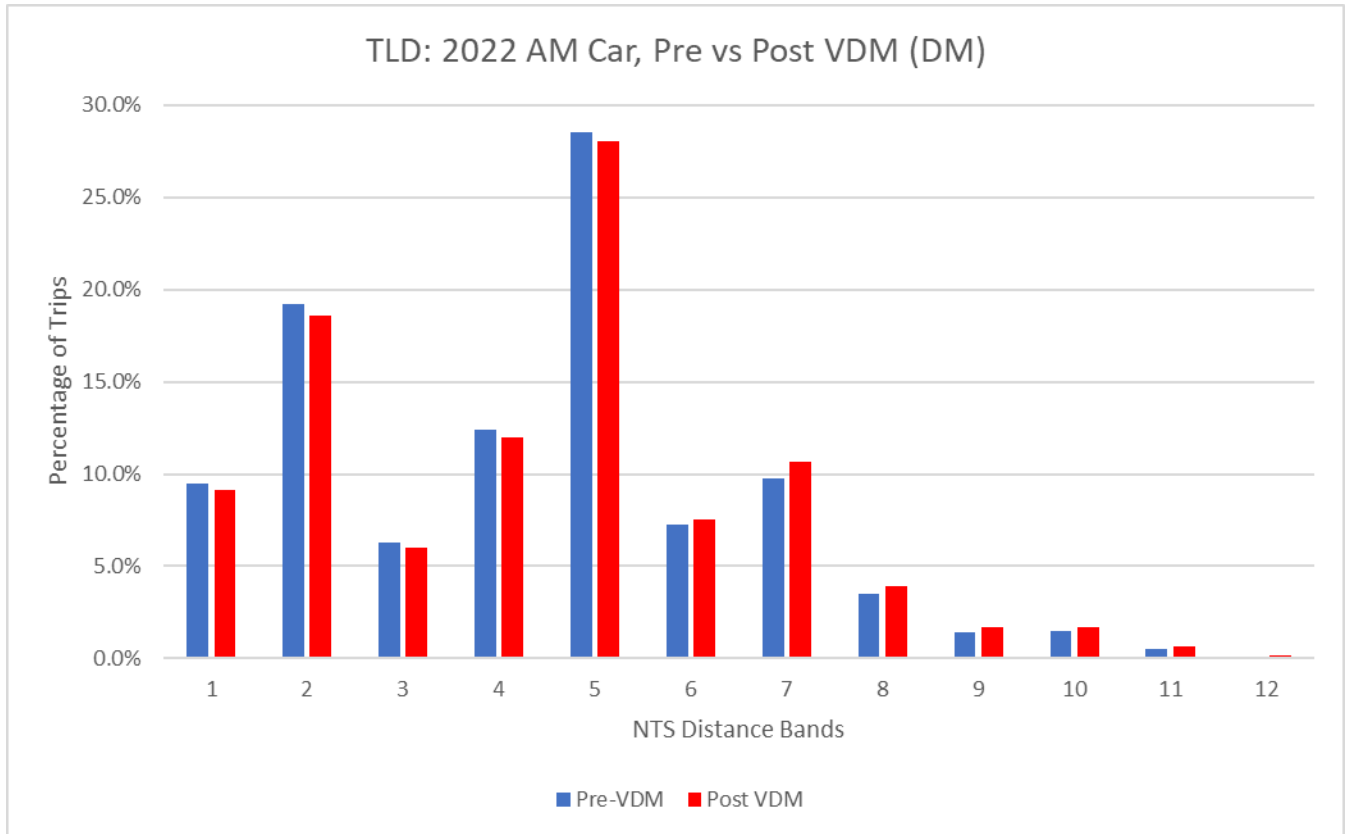


Figure 5-1: TLD 2022 AM All Cars, Pre vs Post VDM

The induced traffic impact in Do Minimum can be explained through comparison of the vehicle operating cost element of the generalised cost in the base year (2013) to other forecast years. Figure 5-2 is a graph of fuel prices based on the data from Table A1.3.7 of TAG data book November 2018 and shows that fuel prices were relatively high in 2013 compared to the other years. Given that the forecast scenarios were pivoted off the 2013 base year skim costs (i.e. the reference case scenario in DIADEM), the cost of traveling decreases in the forecast years and consequently there are fewer intra-zonal trips and more longer trips compared to the base.

The map of junction delays and journey routes comparison in Section 5.6 also demonstrate that delays generally increase except where the committed schemes are coded into the Do Minimum network.

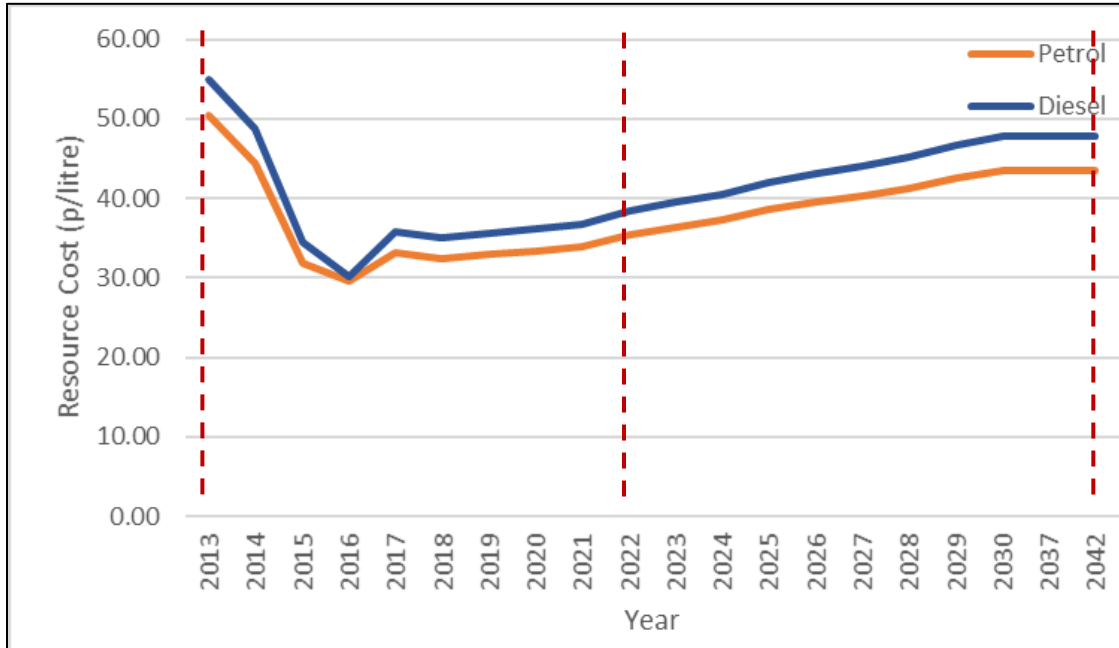


Figure 5-2: Fuel Prices (2010 Prices – Resource Cost, Table A1.3.7 Tag databook Nov. 2018)

5.5.2 Impact of Variable Demand Modelling – Sector Analysis

To further understand the effect of VDM, the fixed demand forecast matrices have been compared against the post VDM matrices, as presented in Appendix G for all modelled time periods and years.

To facilitate this comparison, the sector system shown in Figure 5-3 has been used, which consists of 11 sectors. For this comparison, only the car user classes have been assessed as the LGV and HGV user classes are excluded from the VDM process.

The comparison exercise concludes that the main increases in demand between the fixed and post-VDM demand matrices are focused on sectors around the edge of the study area, such as sectors 6 (east Lancashire), 9 (southeast Lancashire) and 11 (south GB). These changes were mainly centred on the far east and far south of the model where less congestion exists in the buffer coding. Trip increases are balanced for commuting and business purposes (and offset for other purposes) by decreases in intra-sector flow where traffic delay is higher. Intra-sector changes appear proportionately small because intra-sector trip numbers are higher.

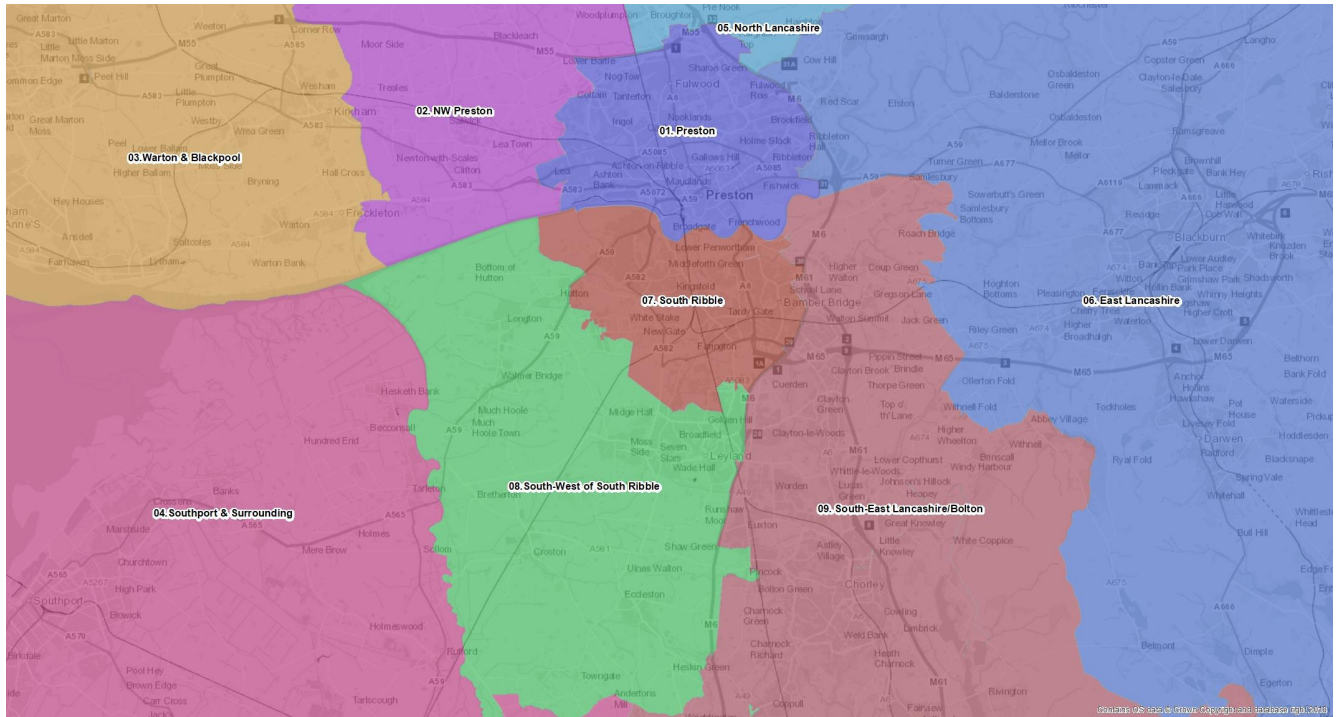


Figure 5-3: 11x11 Sector System

5.6 Flow Changes from Base Year

The increases in traffic flows on the key roads expected in the future are presented in Appendix H.

Figure 5-4 to Figure 5-9 show forecast flow changes (over 50 PCUs) from the base year to 2022 and 2037. Green (Dark to Light) bars represent increase in traffic while Red (Dark Red to Amber) bars represent decreases.

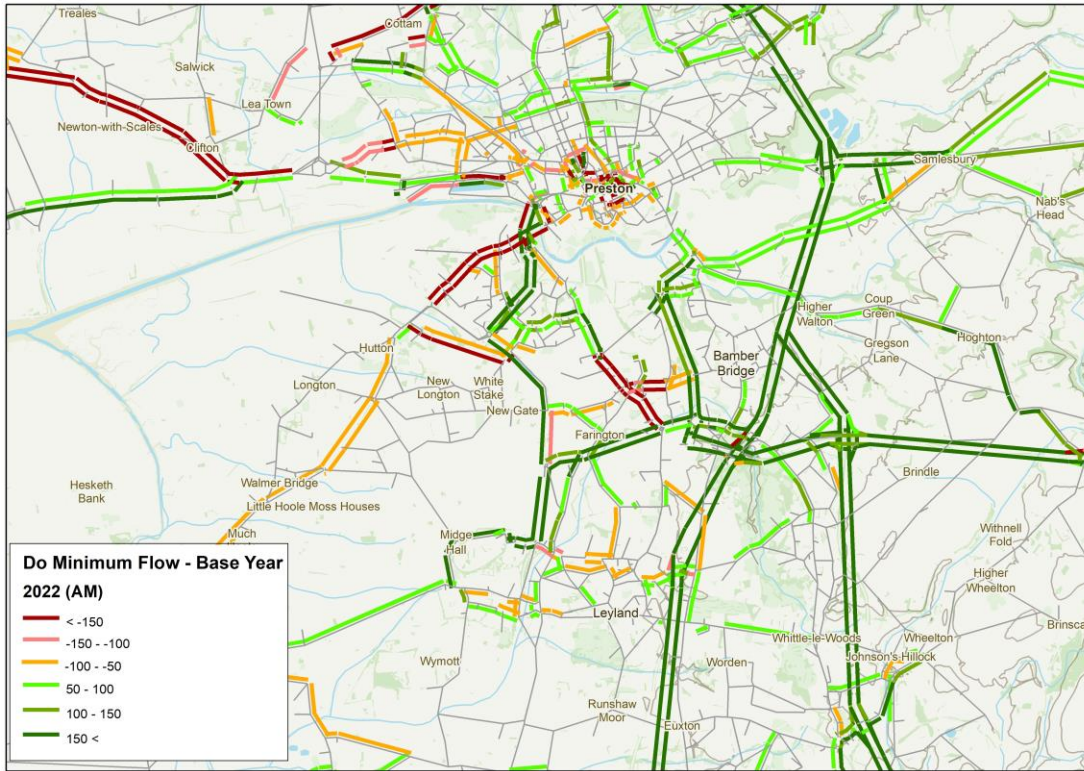


Figure 5-4: Flows 2022 AM (DM - Base Year)

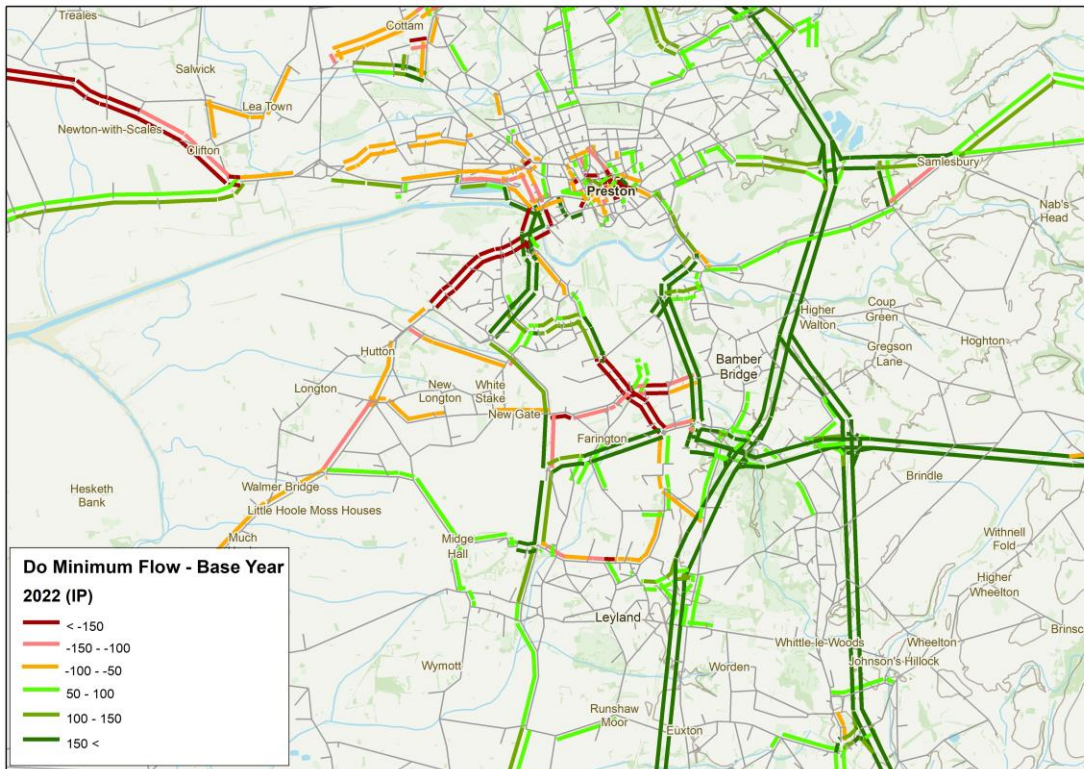


Figure 5-5: Flows 2022 IP (DM - Base Year)

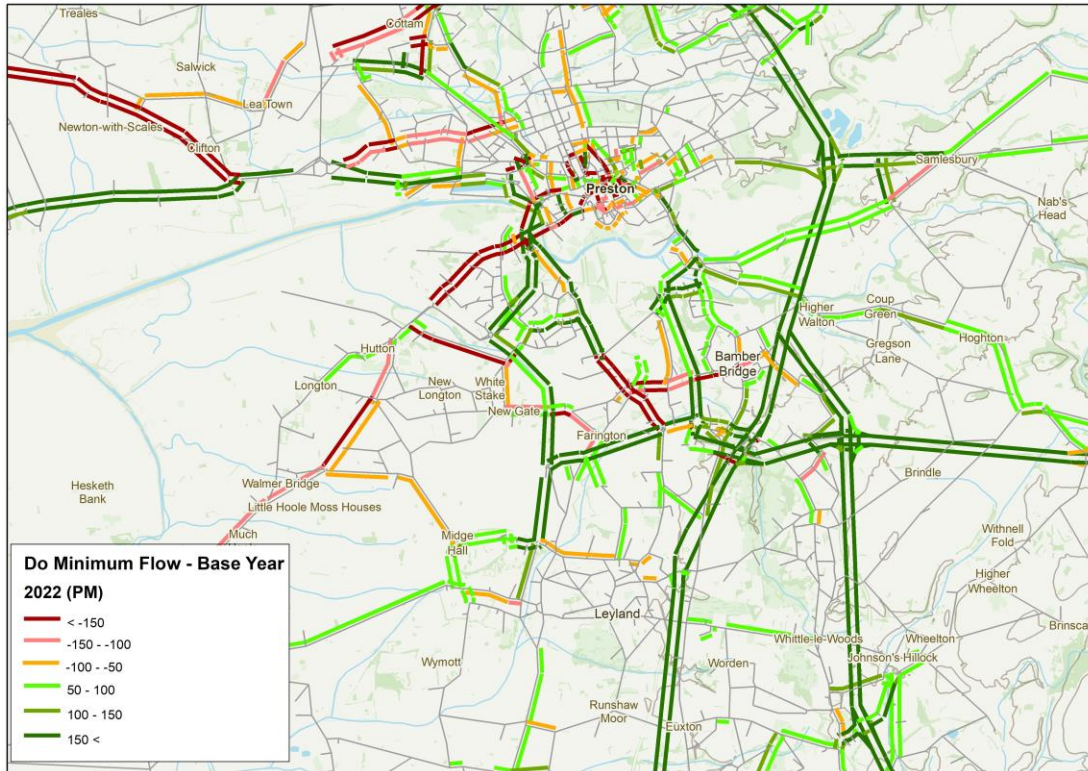


Figure 5-6: Flows 2022 PM (DM - Base Year)

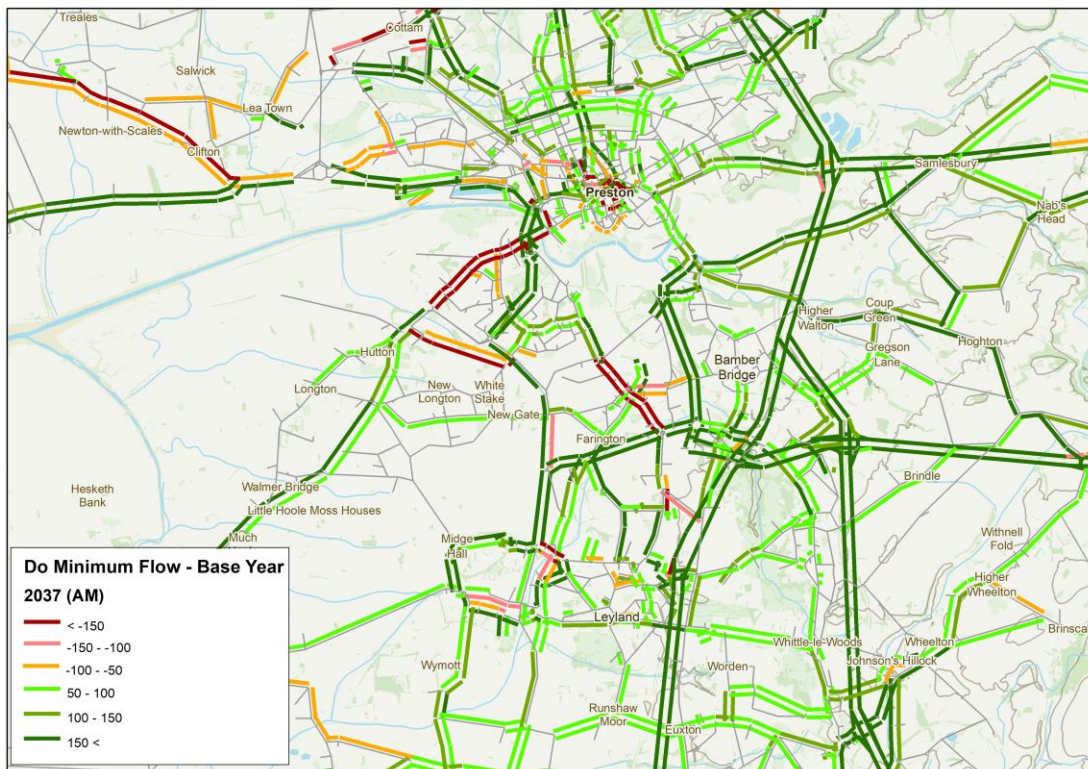


Figure 5-7: Flows 2037 AM (DM - Base Year)

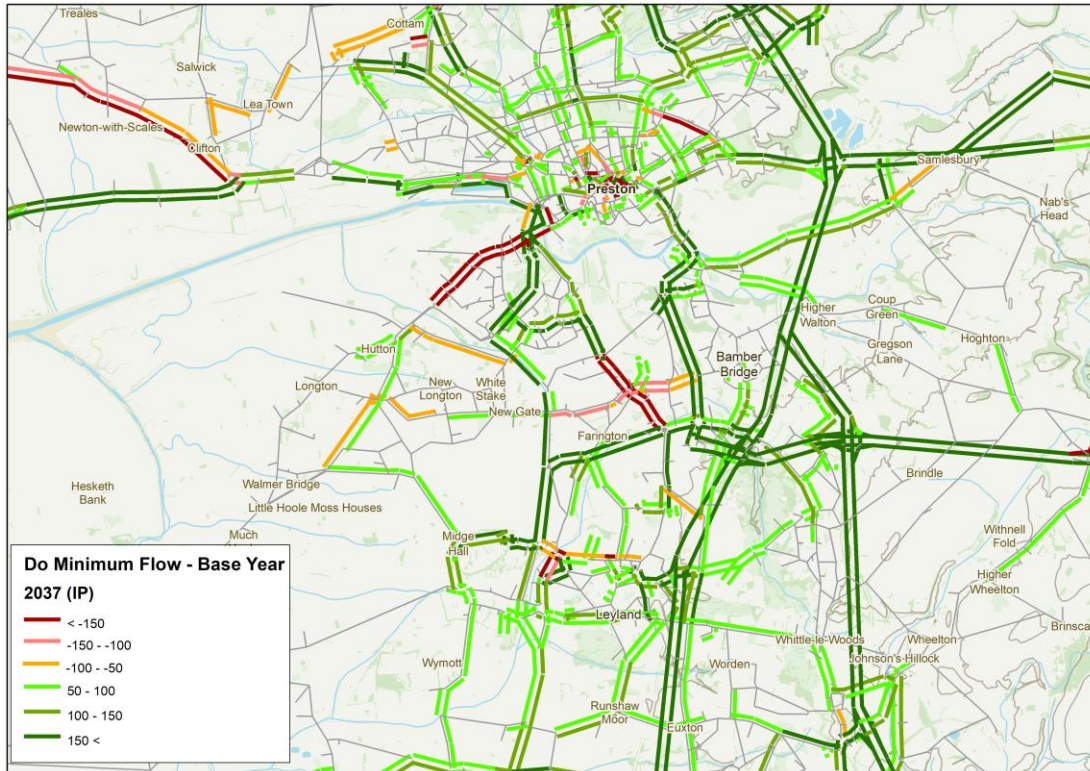


Figure 5-8: Flows 2037 IP (DM - Base Year)

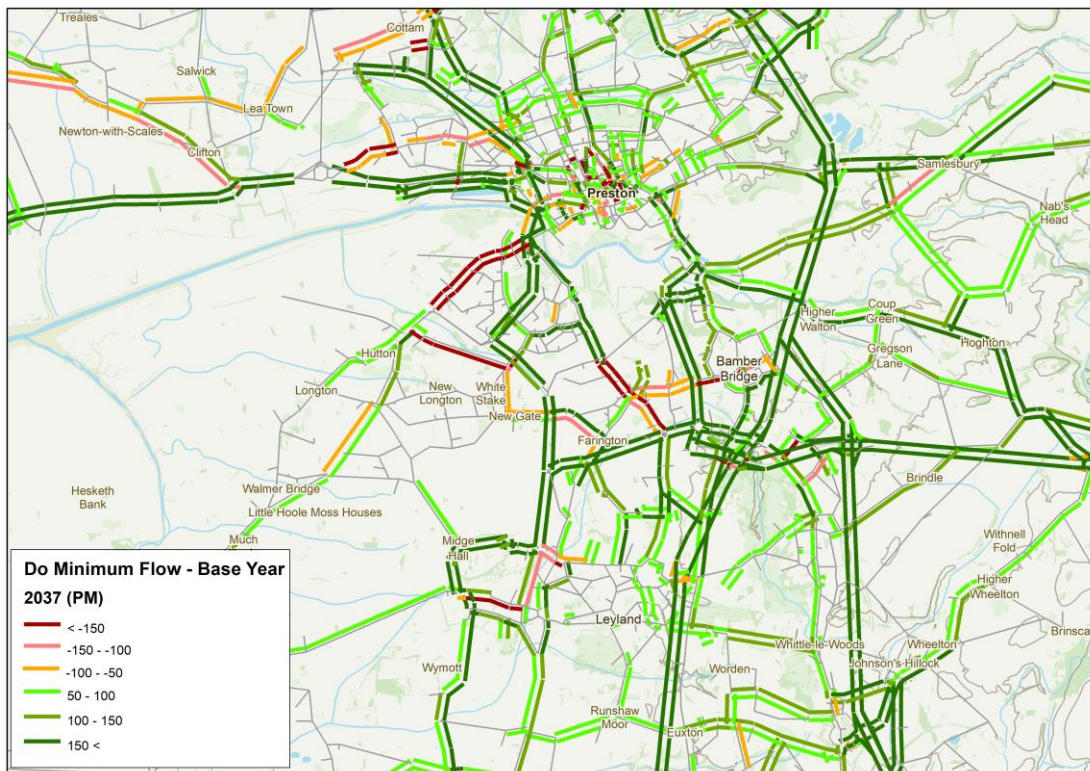


Figure 5-9: Flows 2037 PM (DM - Base Year)

Appendix H and the figures above clearly show a general increase (green bands) in traffic on most routes, with the Strategic Road network showing the largest absolute increase, as would be expected.

However, there are notable exceptions, indicated in Red, which represent roads relieved by the new schemes. The Penwortham Bypass and Golden Way dualling shift traffic from the A59 through Penwortham onto the A582. The Cross Borough Link Road, connecting the B5254 Leyland Road and A6 in Lostock Hall, re-routes flow from Leyland road to the A582 and A6 to access the motorway or travel further south.

It should be noted that schemes which do not exist in the base year yet exist in the future years, such as the PWD and Penwortham bypass, are not displayed in the above plots as they do not have any flows in the base year scenarios.

In addition, schemes in central Preston, around Fishergate and University of Central Lancashire (UCLan), are expected to reduce flows on the surrounding roads. The opening of the PWD and junction changes at M55 J3 re-route traffic off the A583 past Kirkham and to a lesser extent the A5085 in western Preston onto the A584, A583 Riversway and the PWD itself.

5.7 Delay and Journey Time Changes from Base Year

Similar to traffic flow changes, changes in traffic delays expected in the future are illustrated in Figure 5-10 to Figure 5-15. They display forecast delay changes (over 15 seconds) from the base year to 2022 and 2037.

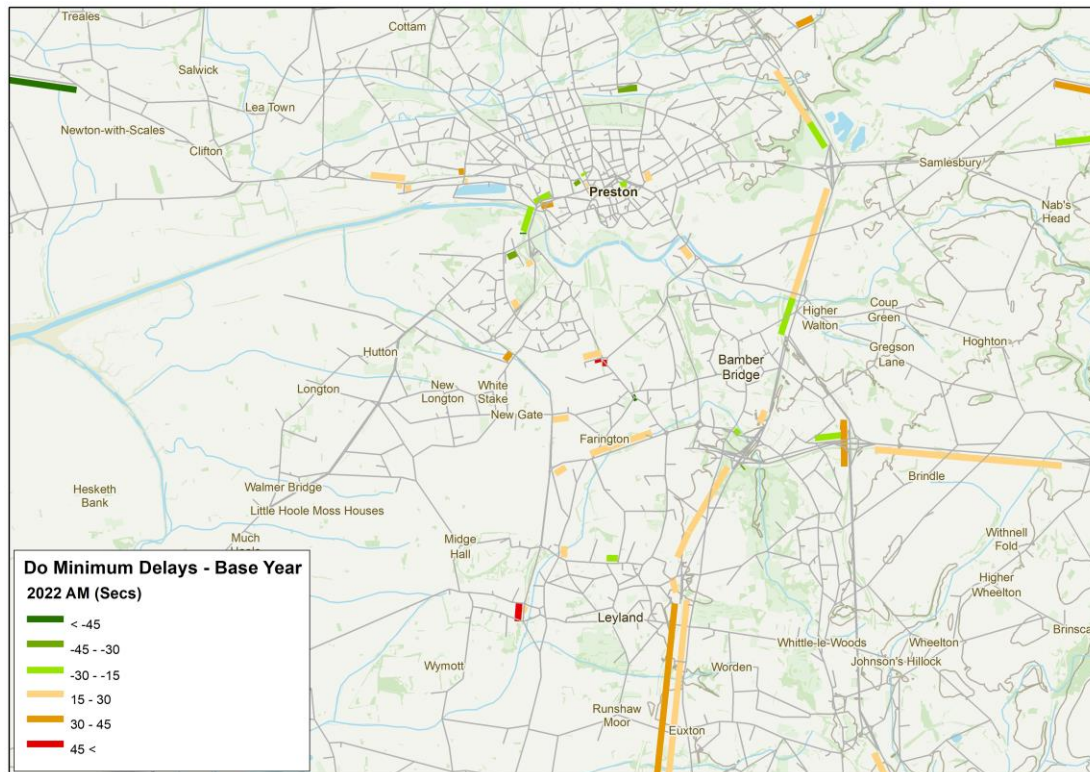


Figure 5-10: Delays 2022 AM (DM - Base Year)

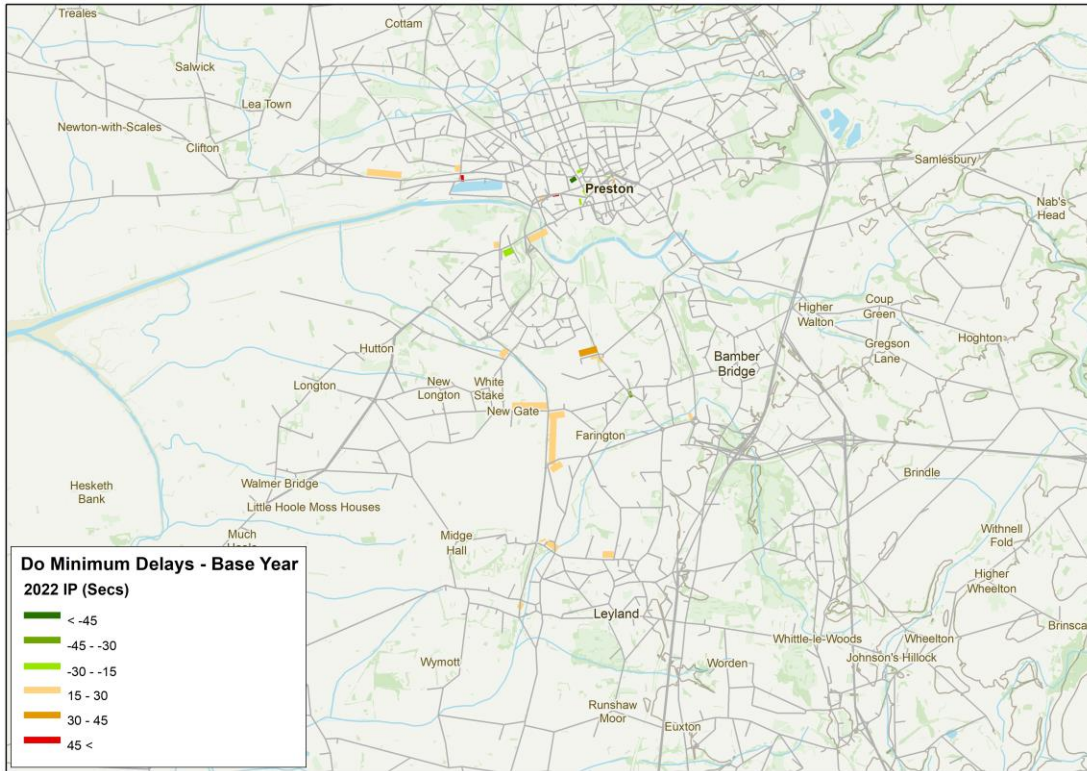


Figure 5-11: Delays 2022 IP (DM - Base Year)

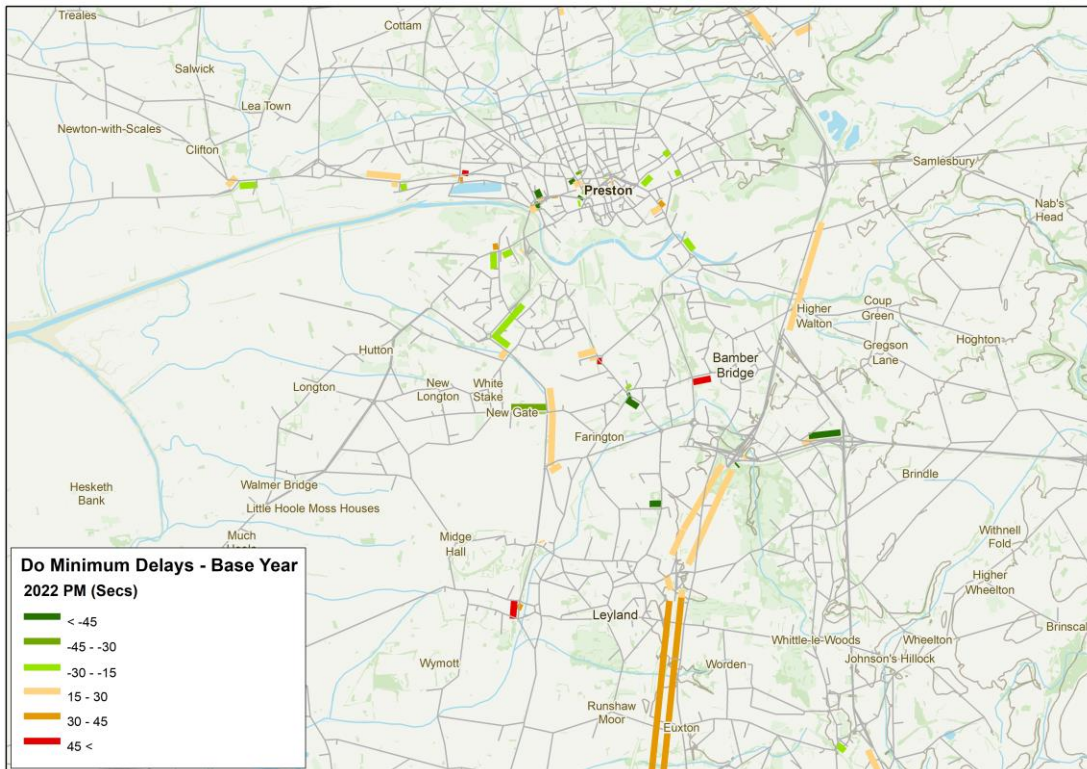


Figure 5-12: Delays 2022 PM (DM - Base Year)

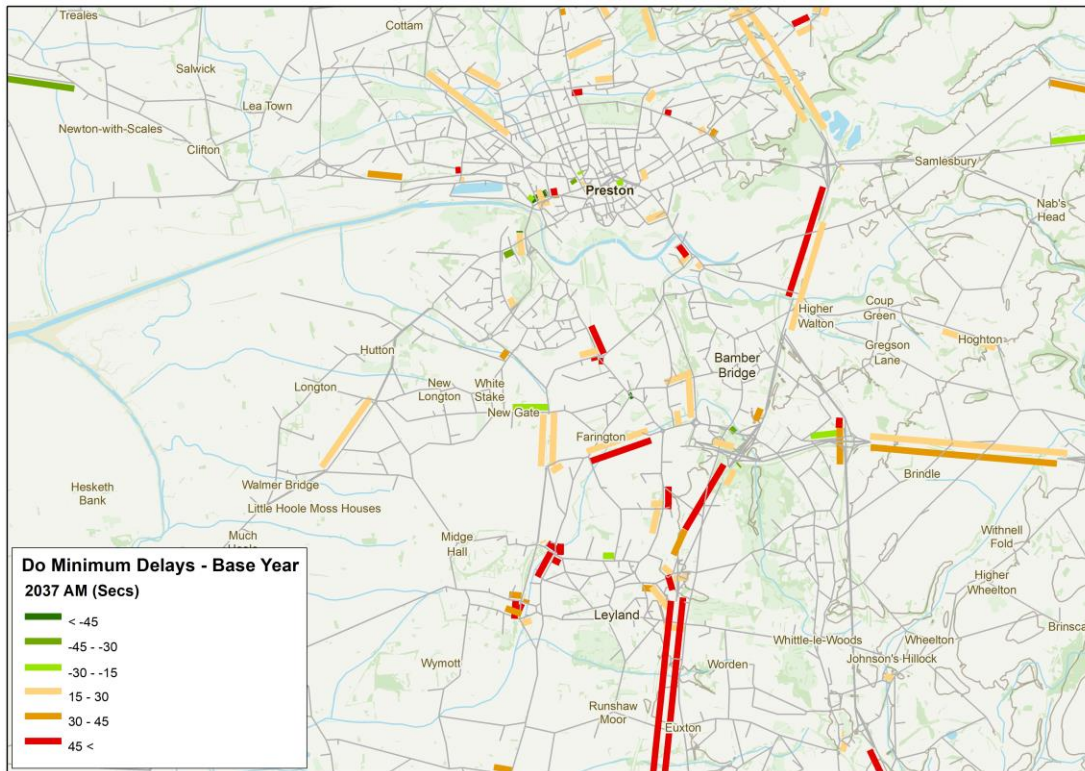


Figure 5-13: Delays 2037 AM (DM - Base Year)

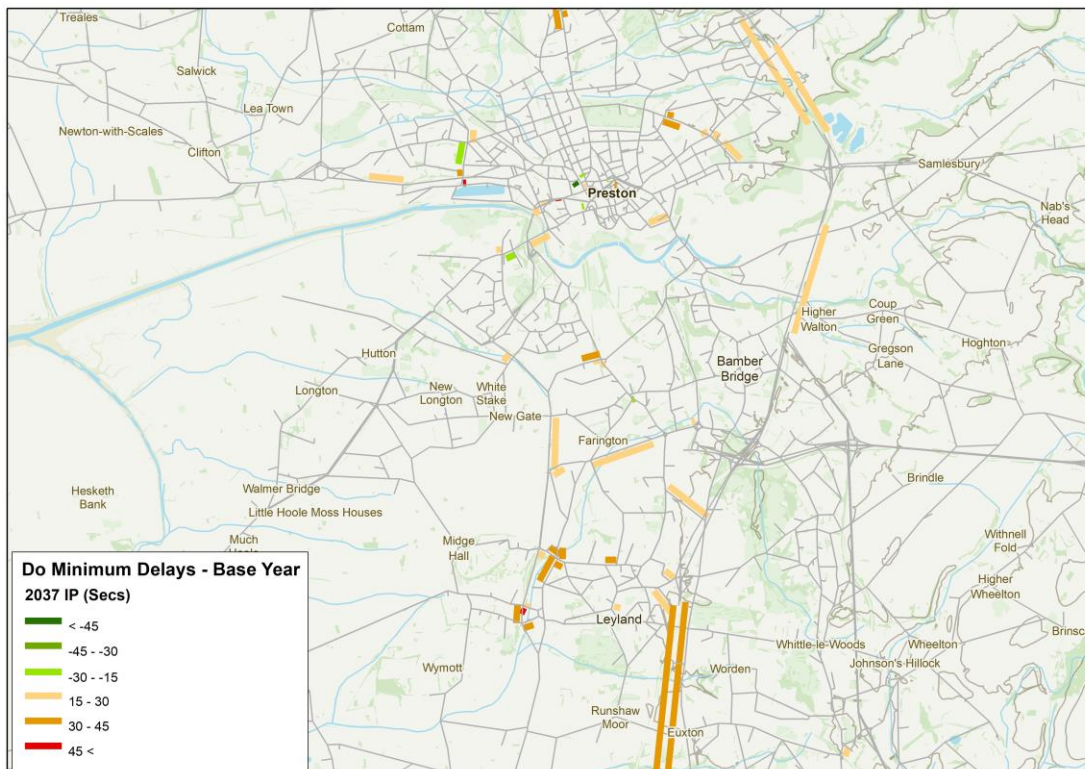


Figure 5-14: Delays 2037 IP (DM - Base Year)

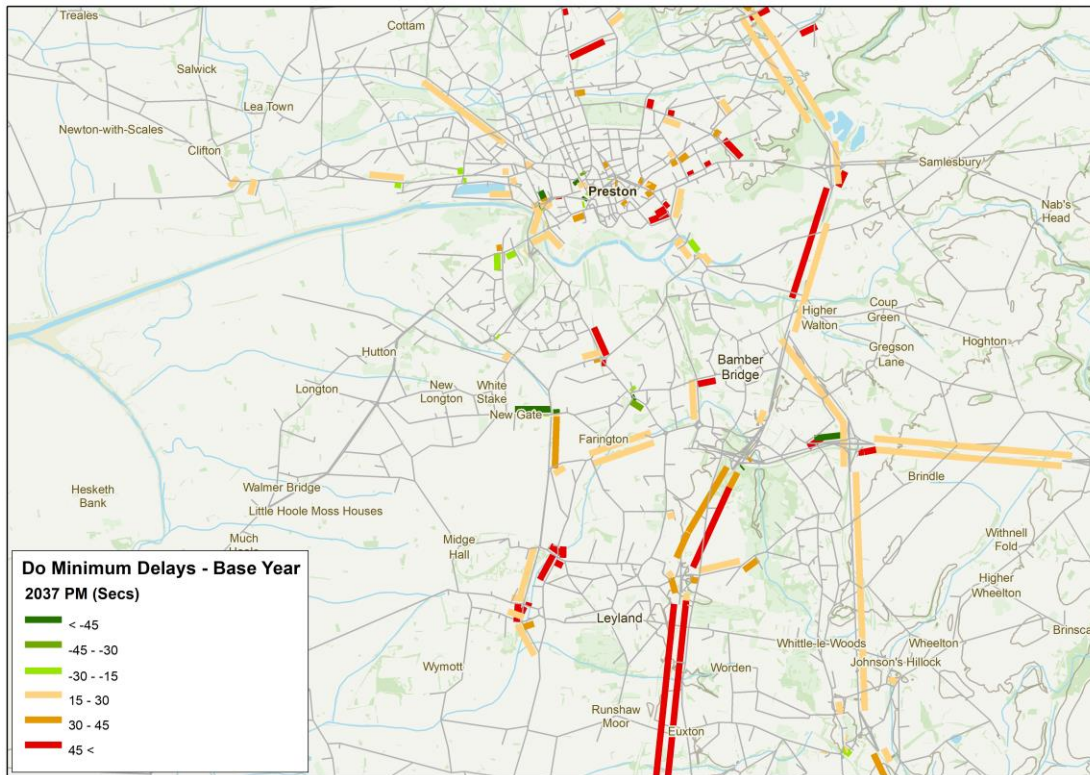


Figure 5-15: Delays 2037 PM (DM - Base Year)

The figures above show that there are some increases and decreases in delays in 2022 due to a combination of traffic growth and introduction of new schemes (differences are not shown on new road sections e.g. Preston Western Distributor, Penwortham Bypass). Delay decreases shown on the A582 Golden Way are due to the dualling of that section prior to 2022, however by 2037 the additional traffic growth has increased delay over base year levels.

In 2037 increases in delays are more pronounced, especially in the peak on the A582, A59 and A6 arterial routes to/from Preston, routes within Preston city centre such as the A6 and A5085, and the M6 and M65.

This demonstrates that without the scheme, the existing network in and around Preston will experience severe delays by 2037 even with the planned improvements in Penwortham and junction improvements along the A582 corridor.

The changes in delay are consistent with the changes in journey times. Table 5-7 shows the difference in journey times between the base year and future modelled years without the scheme. The journey time routes are shown in Figure 5-29.

The journey times along all routes increase by 2037. In 2022, there are some mixed results due to highway improvements. The Flensburg Way dualling reduces journey times on the B5253, whilst junction changes for the Pickerings Farm development on the B5254 reduce the impact of traffic growth.

Similarly, the early building of junction improvements along the A582 in readiness for full dualling limits the impact of traffic growth in 2022 compared to the base year. However, by 2037 the AM northbound shows 4 minutes additional travel time (+41%) compared to the base year.

Table 5-7: Journey Time Changes (in seconds) Do Minimum vs Base Year

Route	Base year			2022			Difference			2037			Difference		
	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM
A582 (A6 to A59)															
Northbound	607	571	637	707	651	705	100 (16%)	80 (14%)	67 (11%)	800	687	757	194 (32%)	117 (20%)	120 (19%)
Southbound	608	558	735	641	585	651	34 (6%)	28 (5%)	-84 (-11%)	679	620	725	71 (12%)	63 (11%)	-10 (-1%)
A59 (Liverpool Rd to A5072)															
Northbound	578	521	528	663	631	641	85 (15%)	110 (21%)	113 (21%)	690	635	649	111 (19%)	114 (22%)	121 (23%)
Southbound	629	602	664	732	718	778	102 (16%)	117 (19%)	114 (17%)	740	724	798	111 (18%)	122 (20%)	134 (20%)
B5254 (A582 to A59)															
Northbound	624	531	638	629	541	578	6 (1%)	10 (2%)	-60 (-9%)	700	547	612	76 (12%)	16 (3%)	-26 (-4%)
Southbound	526	505	569	533	527	572	7 (1%)	22 (4%)	3 (1%)	573	532	691	47 (9%)	27 (5%)	122 (22%)
A6 (M65 to A59)															
Northbound	539	472	442	570	470	458	32 (6%)	-1 (0%)	17 (4%)	677	488	489	138 (26%)	16 (3%)	48 (11%)
Southbound	387	383	465	390	395	475	3 (1%)	12 (3%)	10 (2%)	395	415	540	7 (2%)	32 (8%)	75 (16%)
M65 (J4 to Terminus)															
Eastbound	490	438	486	519	450	521	29 (6%)	12 (3%)	35 (7%)	557	469	550	67 (14%)	31 (7%)	64 (13%)
Westbound	552	469	528	599	487	566	47 (8%)	18 (4%)	38 (7%)	660	509	594	107 (19%)	40 (9%)	66 (12%)

Route	Base year			2022			Difference			2037			Difference		
	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM
M6 (J27 to J32)															
Northbound	1097	908	995	1194	949	1094	98 (9%)	41 (4%)	99 (10%)	1413	1014	1251	317 (29%)	105 (12%)	256 (26%)
Southbound	930	907	1034	1010	965	1222	80 (9%)	58 (6%)	188 (18%)	1118	1048	1392	188 (20%)	141 (16%)	358 (35%)
B5253 (Leyland Ln to A582)															
Northbound	305	299	306	321	276	322	17 (5%)	-22 (-7%)	16 (5%)	358	321	374	53 (17%)	23 (8%)	67 (22%)
Southbound	304	312	329	274	301	323	-30 (-10%)	-10 (-3%)	-5 (-2%)	339	312	379	35 (12%)	1 (0%)	51 (15%)

5.8 Flow Changes Due to the Scheme

The flow changes on the key roads that occur due to the presence of the A582 scheme are presented in Appendix H.

Figure 5-16 to Figure 5-21 show the increases and decreases in traffic flow of over 50 PCUs across the simulation network.

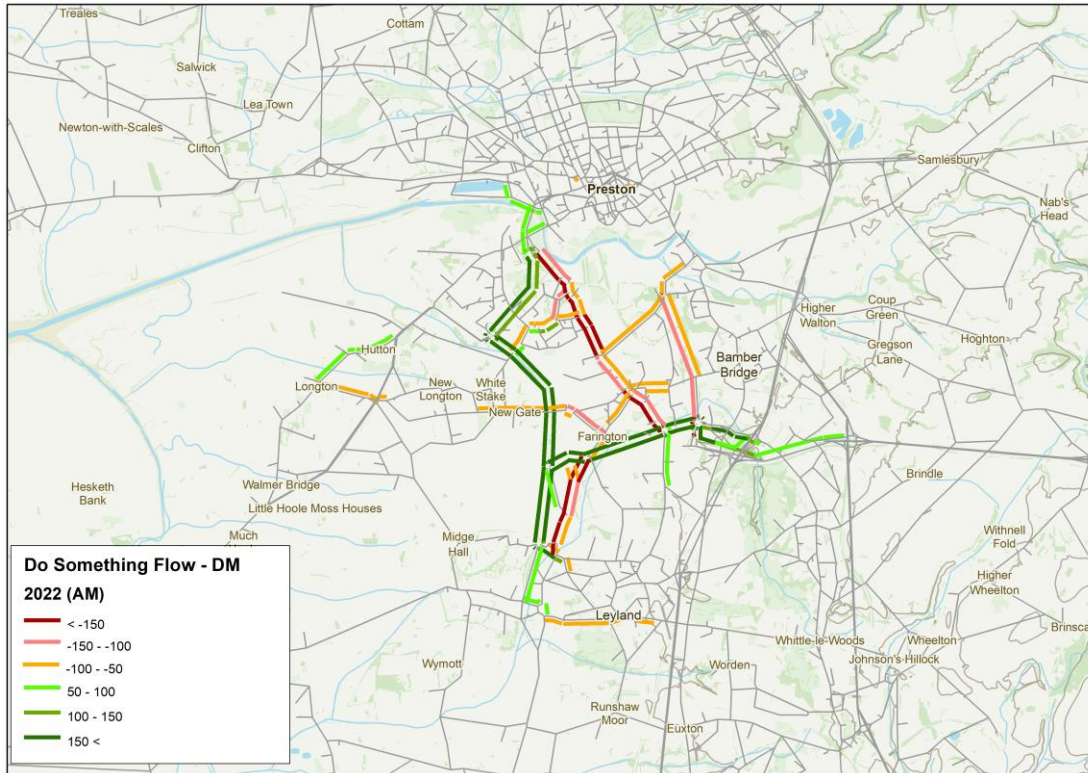


Figure 5-16: Flows 2022 AM (DS - DM)

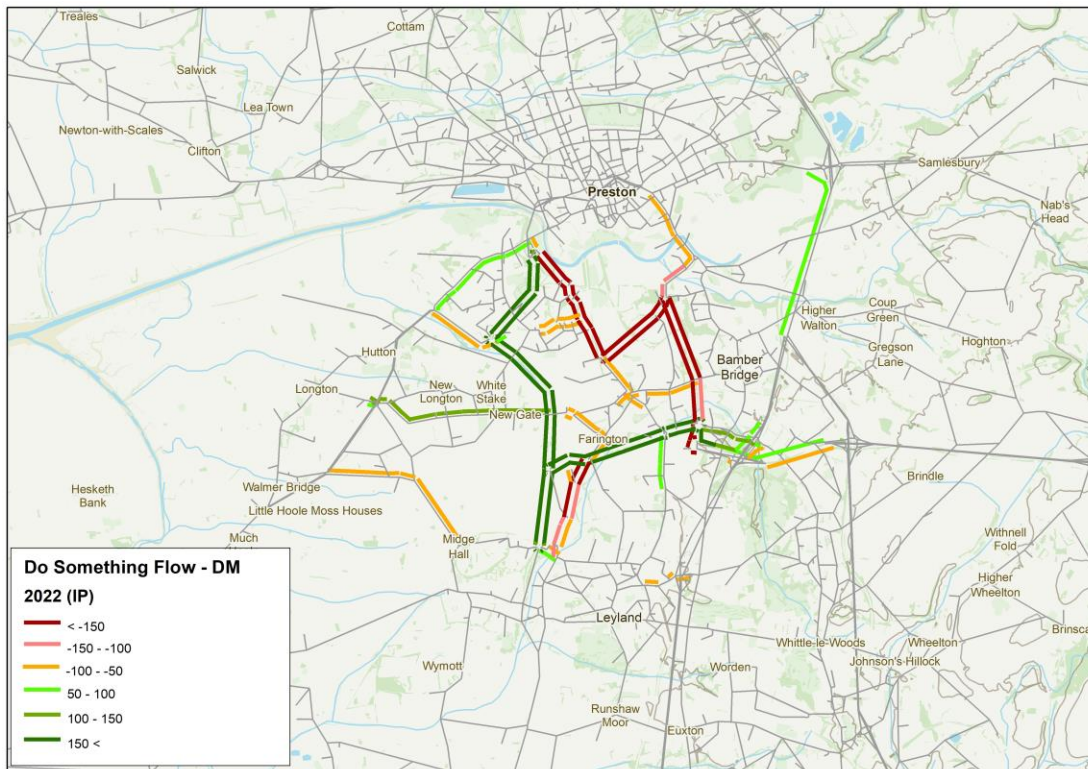


Figure 5-17: Flows 2022 IP (DS - DM)

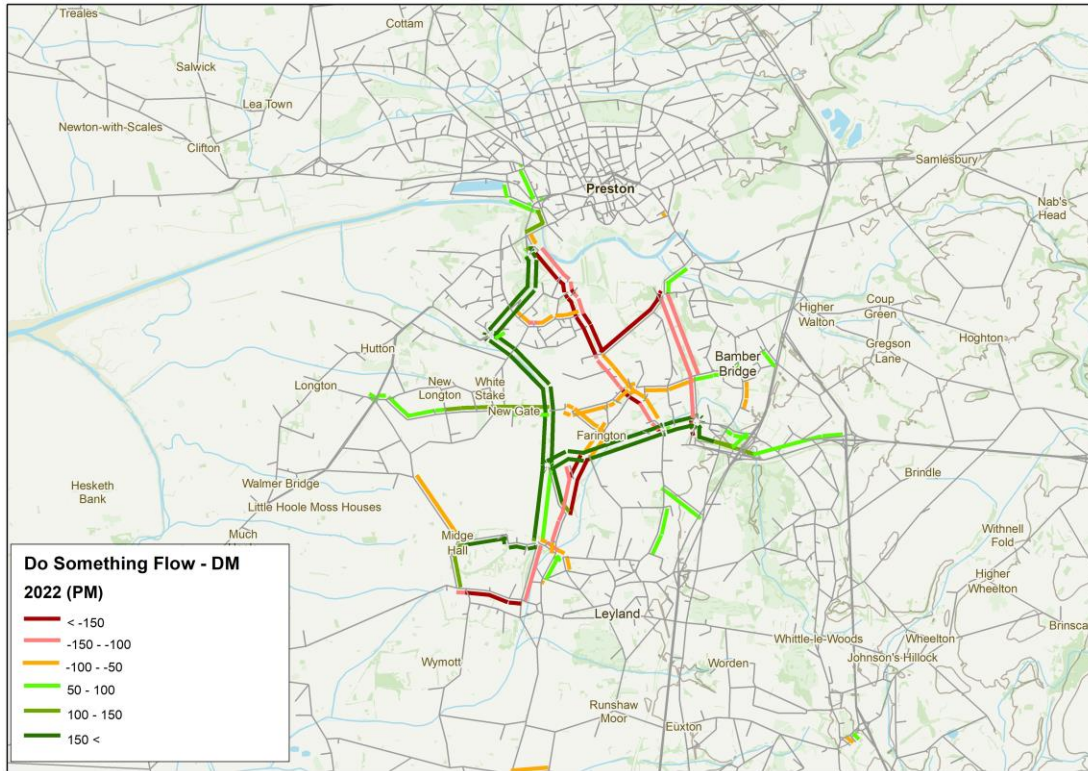


Figure 5-18: Flows 2022 PM (DS - DM)

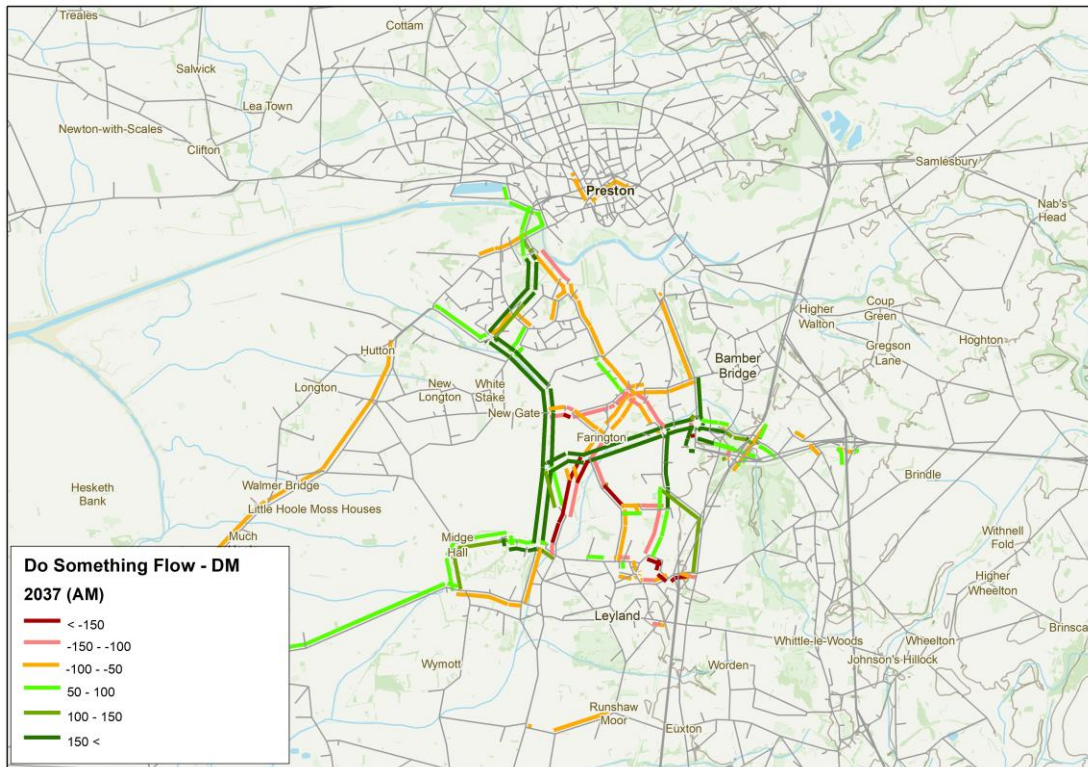


Figure 5-19: Flows 2037 AM (DS - DM)

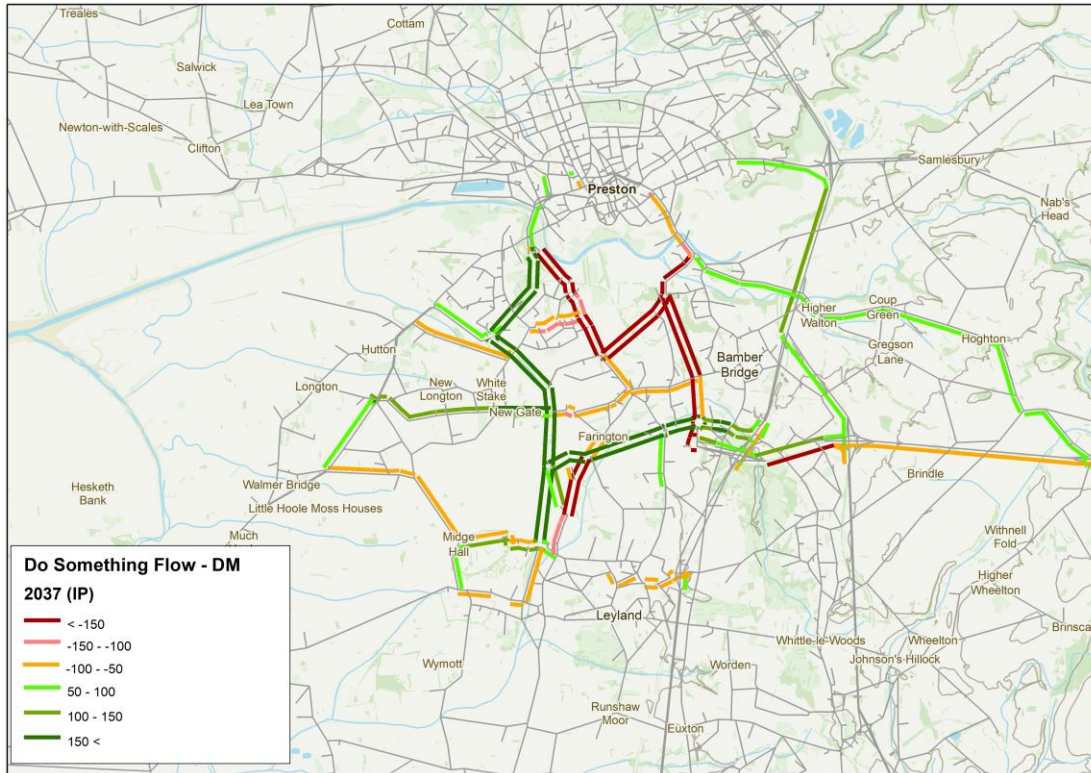


Figure 5-20: Flows 2037 IP (DS - DM)

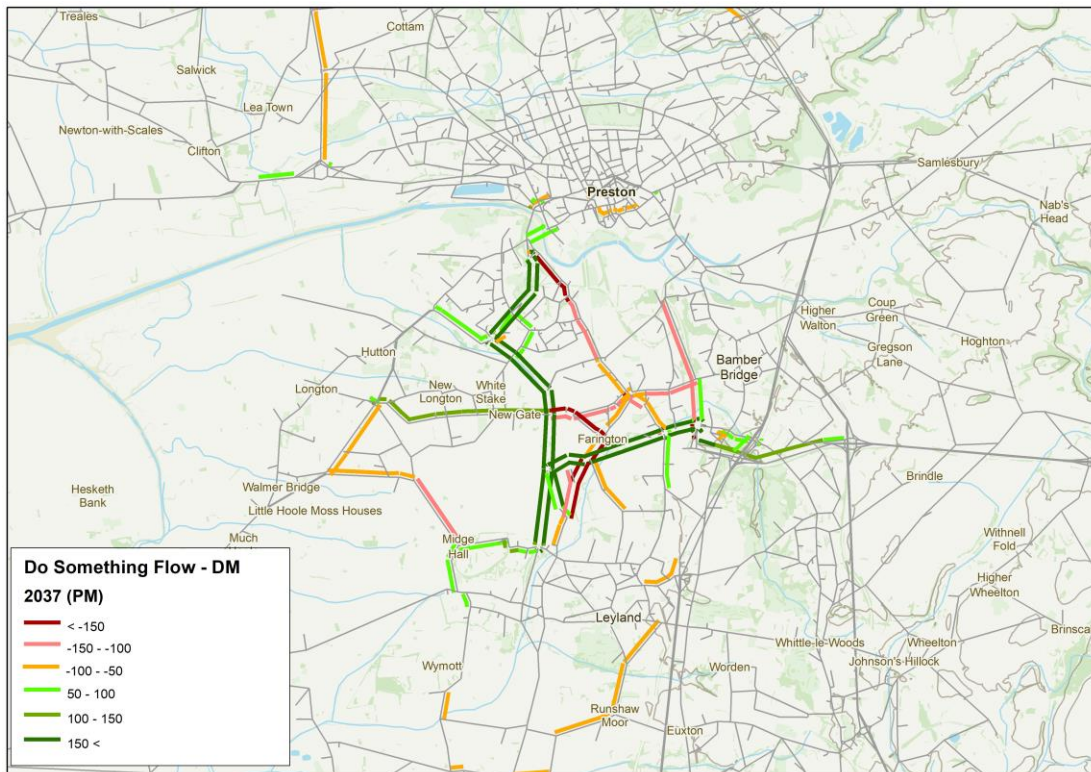


Figure 5-21: Flows 2037 PM (DS - DM)

As expected, the majority of impacts on traffic flow will occur on the road network south of the River Ribble. The A582 South Ribble Western Distributor upgrade increases traffic by more than 150 PCUs per hour along its length between the A6 and the A59 throughout the day in all years. There are corresponding flow increases on approaches to the A582 around the A6 and M65 terminus, the B5253 Flensburg Way, Chain House Lane, Penwortham Bypass and the A59 Ribble Bridge.

Decreases in flow too are consistent across years and time periods. The largest decreases are seen on the B5254 through Lower Penwortham and Lostock Hall. This also includes the dog-leg north-south routing to/from the M65 using the A6 and then the Cross Borough Link and B5254. A slight decrease is seen on the A6 Ribble Bridge in the IP. Local road flows decrease along Coote Lane and Browndedge Road and south of the A582 along Croston Road and Wheelton Lane/Centurion Way.

There are few impacts beyond the expected alternative routes to the A582.

5.9 Delay Changes Due to the Scheme

Figure 5-22 to Figure 5-27 provide the change in delay between the Do Something and Do Minimum scenarios. Only the increases and decreases in traffic delay of over 15 seconds across the simulation network are shown.

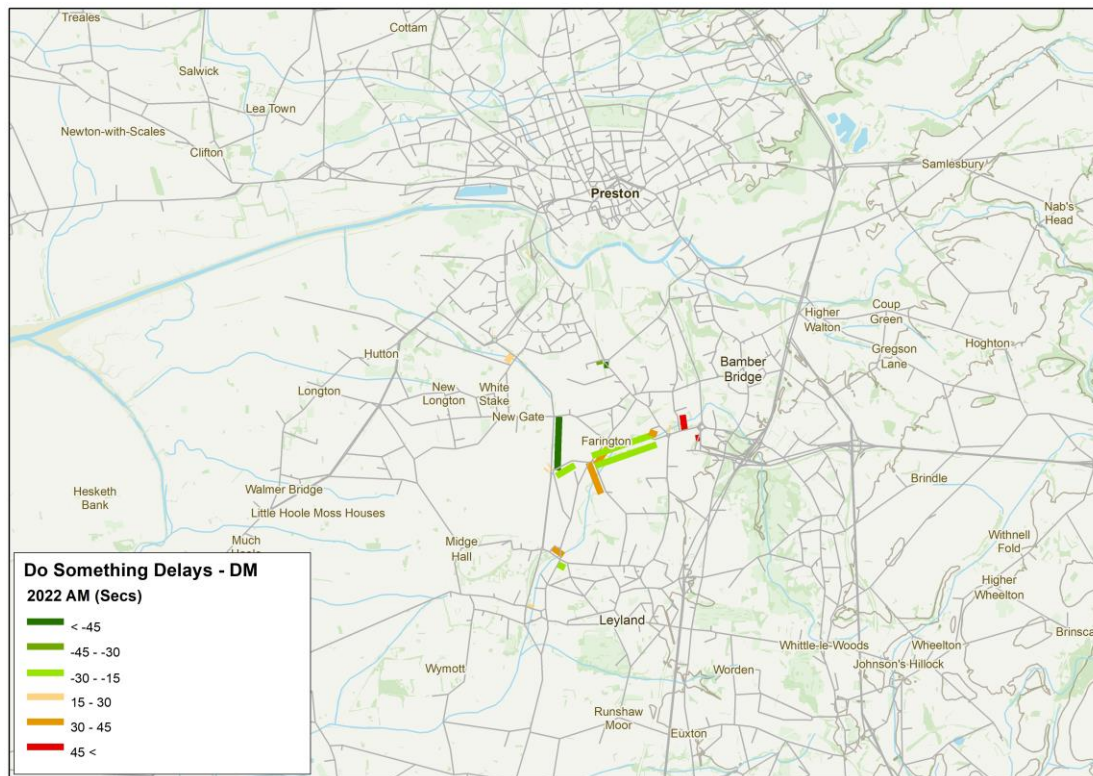


Figure 5-22: Delays 2022 AM (DS - DM)

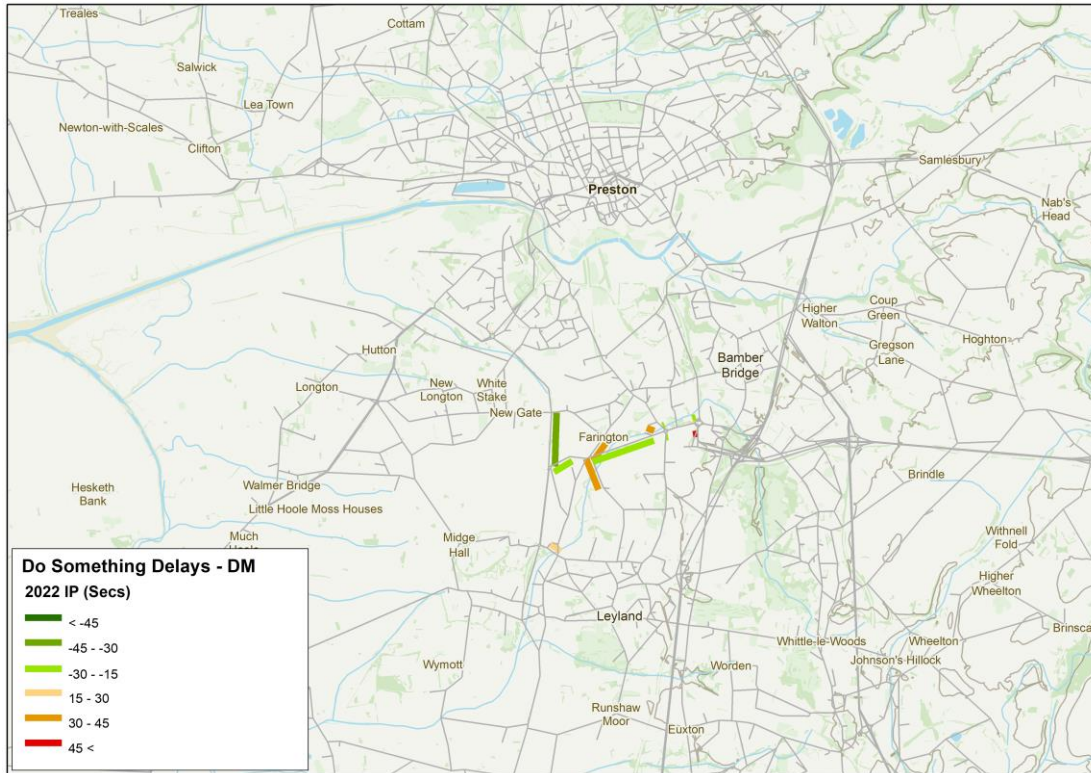


Figure 5-23: Delays 2022 IP (DS - DM)

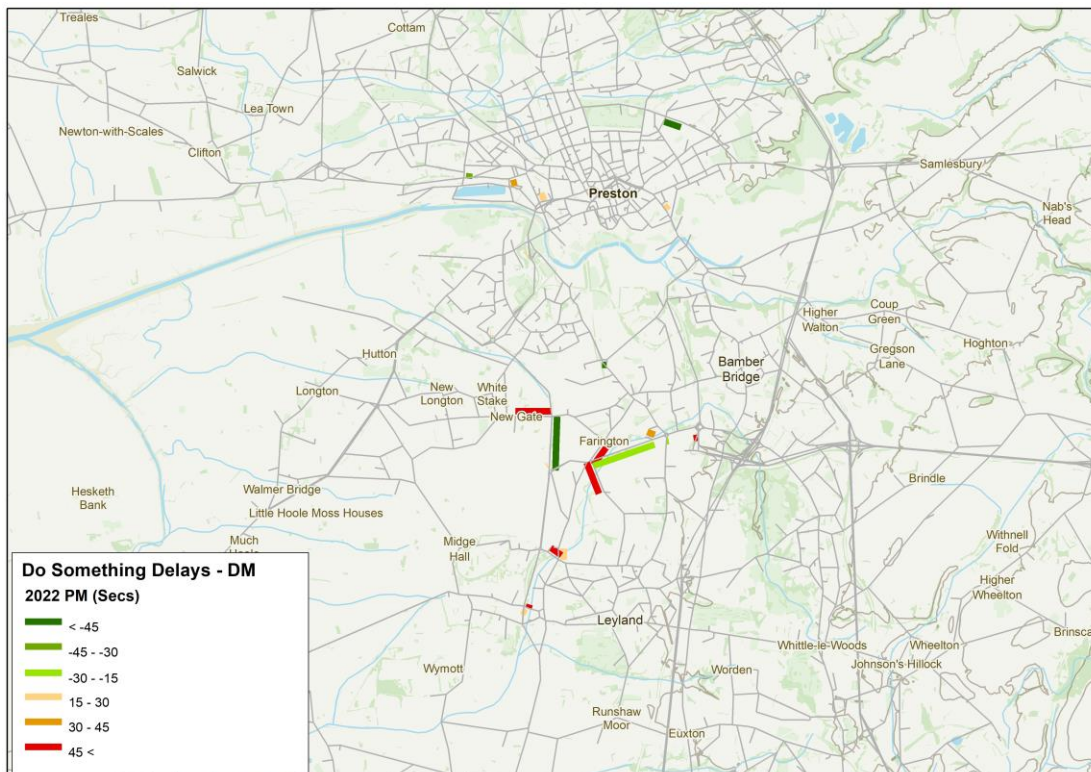


Figure 5-24: Delays 2022 PM (DS - DM)

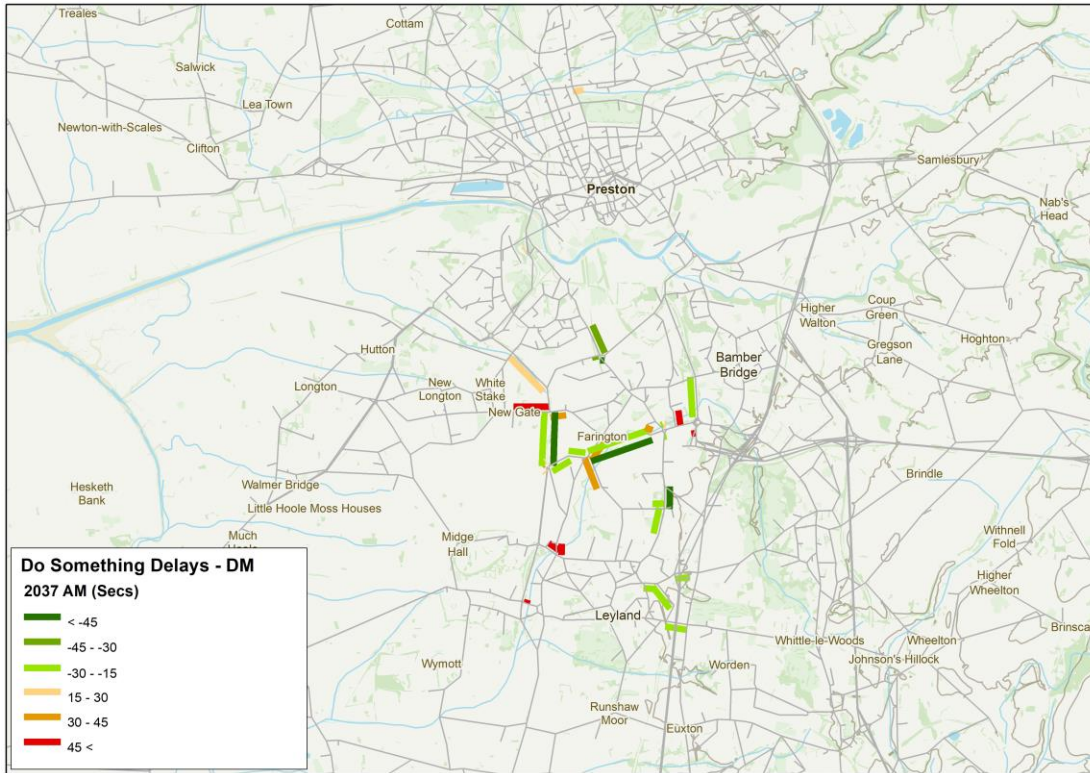


Figure 5-25: Delays 2037 AM (DS - DM)

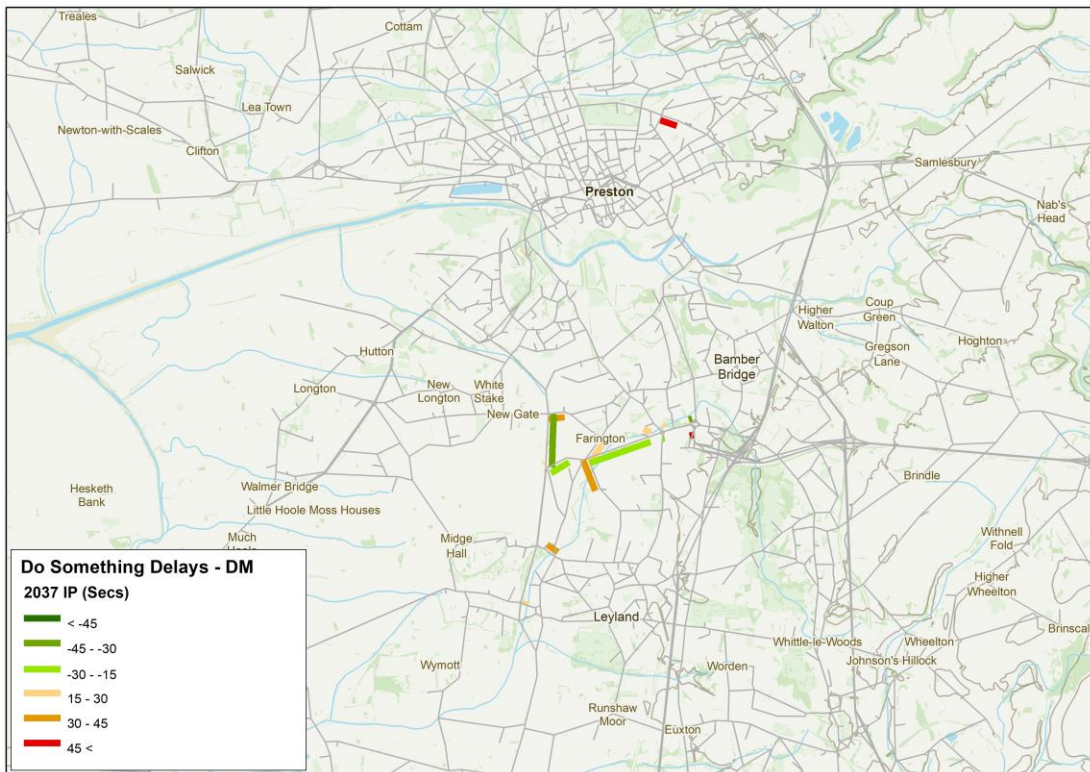


Figure 5-26: Delays 2037 IP (DS - DM)

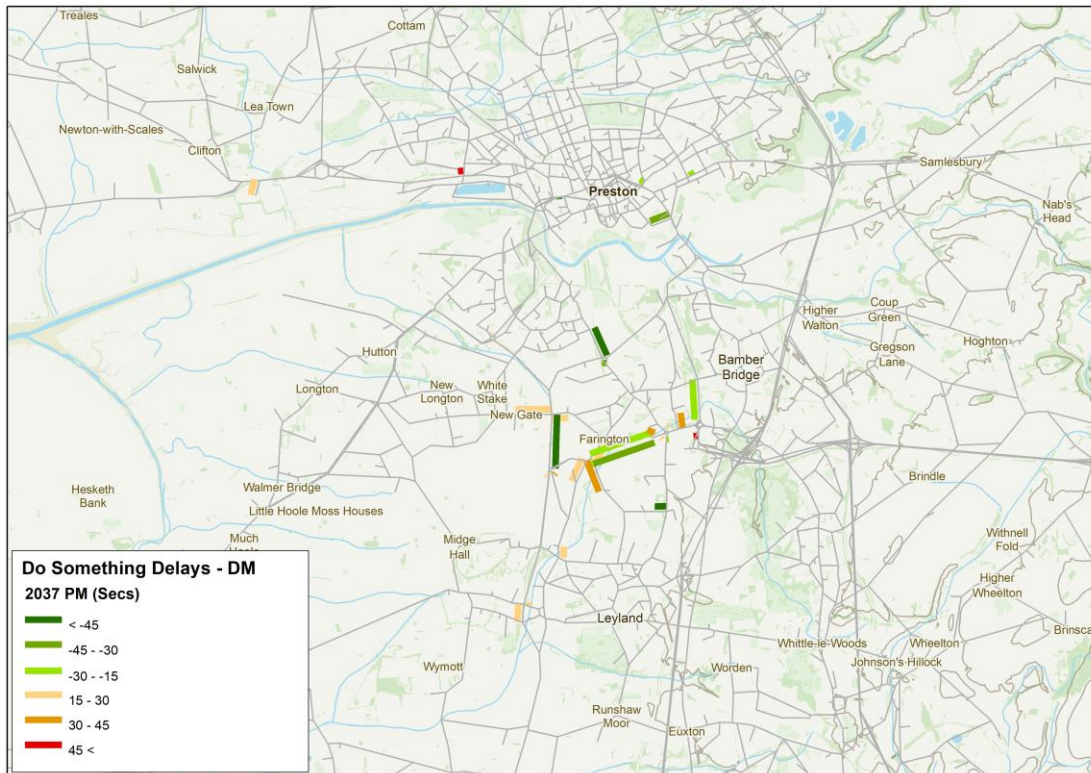


Figure 5-27: Delays 2037 PM (DS - DM)

As expected, the changes are more noticeable in the AM and PM peak hours. The main areas which experience delay reductions are the southern sections of the A582 between Chain House Lane and Stanifield Lane.

The plots also show that delay is anticipated to reduce to a lesser extent at several locations along the B5254, and slight decreases along the A6, as a result of traffic re-routing to the A582.

There are expected delay increases on Croston Road and Wheelton Lane/Centurion Way. This result is consistent with the flow difference plots in the previous section, which showed a decrease in flow to the A582 here as the mainline gets priority at the junction.

5.10 A582 Forecast Flows

The forecast flows on three different sections of the A582 have been extracted from the SATURN core scenario for each forecast year and time period. The three sections are illustrated in Figure 5-28 and described below:

- Section 1: A582 between A6 and Stanifield Rbt
- Section 2: A582 between Tank Rbt and Chain House Lane
- Section 3: A582 Golden Way between Golden Way Rbt and Cop Lane

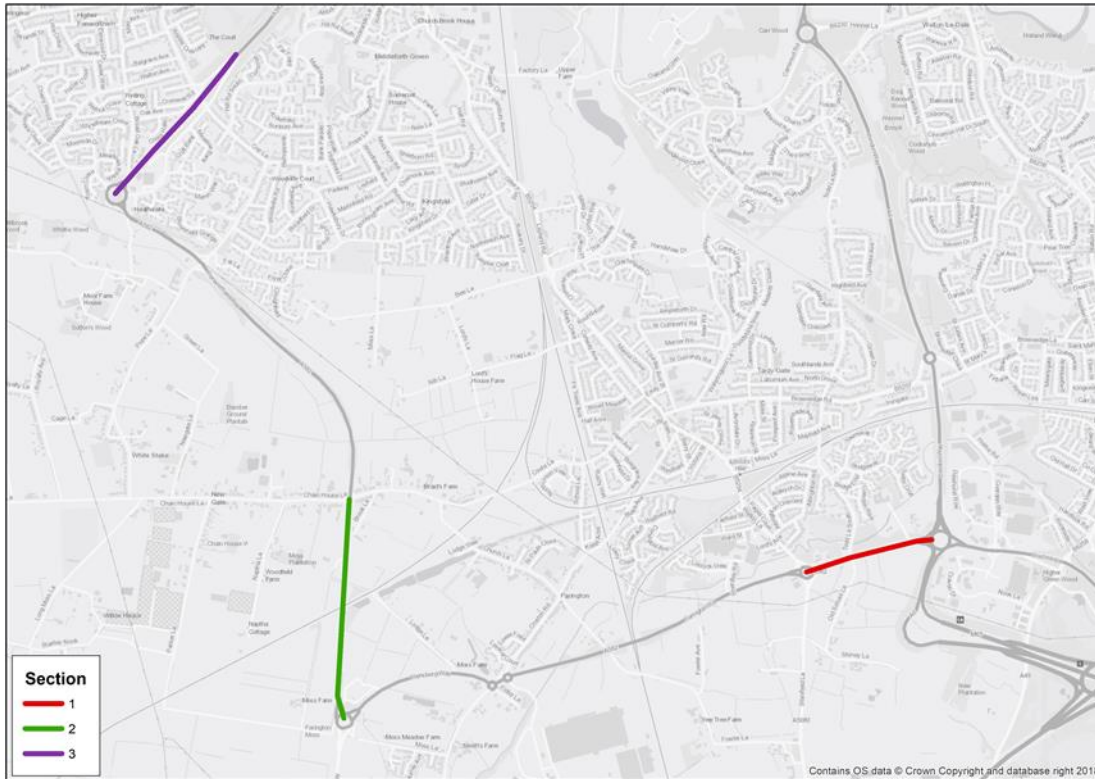


Figure 5-28: Selected A582 links for traffic flow analysis

Table 5-8 presents the flow (vehicles per hour) on each of the three sections in each modelled year and time period by direction with the scheme in place.

Table 5-8: Forecast traffic flow on the A582 (veh/hr)

Period	Section	2022			2037		
		NB / WB	SB / EB	Two-Way	NB / WB	SB / EB	Two-Way
AM	1	2,502	2,331	4,832	2,769	2,858	5,627
	2	1,672	1,468	3,141	1,874	1,485	3,360
	3	1,919	967	2,886	2,156	1,115	3,271
IP	1	1,802	1,696	3,498	2,059	2,246	4,304
	2	1,378	1,305	2,683	1,532	1,471	3,004
	3	1,211	1,256	2,467	1,369	1,514	2,883
PM	1	2,189	2,388	4,577	2,458	2,926	5,384
	2	1,761	1,721	3,482	1,697	1,975	3,673
	3	1,387	2,052	3,439	1,544	2,443	3,988
AADT	1	24,885	24,332	49,217	28,032	30,827	58,859
	2	18,568	17,396	35,963	19,908	19,211	39,118
	3	17,185	16,593	33,779	19,314	19,760	39,074

The traffic flow on the A582 ranges from 1,000veh/hr to 2,500veh/hr per direction during the AM and PM peak hours in 2022 and increases to 1,100 - 2,900veh/hr in 2037. As expected, the IP average peak hour flow is not as high as the other two peak hours. The flows also show tidal flow pattern, meaning that during the AM peak hour the northbound traffic is higher than southbound; while the opposite pattern prevails during the PM peak hour.

The table also presents Average Annual Daily Traffic (AADT), which varies from 17,000veh to over 31,000veh on average in each direction across the modelled years.

The two-way hourly flows, which are either close to or above 2,500 veh/hr in the opening year and reaching 5,600 veh/hr in the design year, cannot be accommodated only by 2 lanes and clearly justify the dual carriageway design. Furthermore, DMRB (Volume 5, Section 1, Part 3) Table 5-9, shown below, provides an indication of range of traffic flows for which each carriageway standard is likely to be warranted for a new rural road. It recommends that for the opening year AADT between 11,000veh to 39,000veh, which the model suggests the magnitude of trips in South Ribble justify.

It should be noted that the above flow does not include trips from Pickerings Farm housing development or the Cuerden Strategic site, as the dependent developments are not considered in the core scenario. Therefore, the flows presented in this section could be potentially higher with the developments in place.

Table 5-9: Opening Year Economic Flow Changes

Carriageway Standard	Opening Year AADT	
	Minimum	Maximum
S2	Up to 13,000	
WS2	6,000	21,000
D2AP	11,000	39,000
D3AP	23,000	54,000
D2M	Up to 41,000	
D3M	25,000	67,000
D4M	52,000	90,000

5.11 Journey Time Changes Due to the Scheme

Table 5-10 shows the impact of the scheme on journey times along the key routes in the study area. Figure 5-29 shows the routes considered for the analysis.

Journey times on the A582 itself show a consistent decrease between years of 16-19% northbound and 19-25% southbound. This equates to time savings of between 2 and 3 minutes across time periods.

At the northern end of the dualling scheme, the A582 meets the A59. There is no change in journey times on the A59 route (using the Liverpool Road bridge to the Fishergate junction). Since traffic from both the A59 and A582 must share bridge capacity over the Ribble, this suggests that the Liverpool Road bridge is not acting as a capacity restraint with the scheme in place.

The 2 major alternative routes to the A582 are the B5254 (through Lostock Hall) and A6. B5254 journey times typically show a decrease of 2-9% except for 2037 PM which shows a 17% decrease. The shorter journey times are due to lower traffic flows along this route.

The A6 route journey times from M65 terminus to the A59 New Hall Lane show limited decreases in both years. This is expected, as flows show single figure percentage decreases in traffic.

The scheme has no impact on M6 journey times between J27 and J32, however M65 journey times do increase between the terminus and J4. This is more noticeable eastbound with increases of more than 1 minute (14%), due to the A582 offering a more attractive route for traffic to/from East Lancashire.

The B5253 forms the southern arm to Tank roundabout and as expected the increased volumes of traffic heading to/from the A582 in the DS scenario mean increased journey times of up to 54 seconds (around 15%) southbound with a more limited impact northbound.

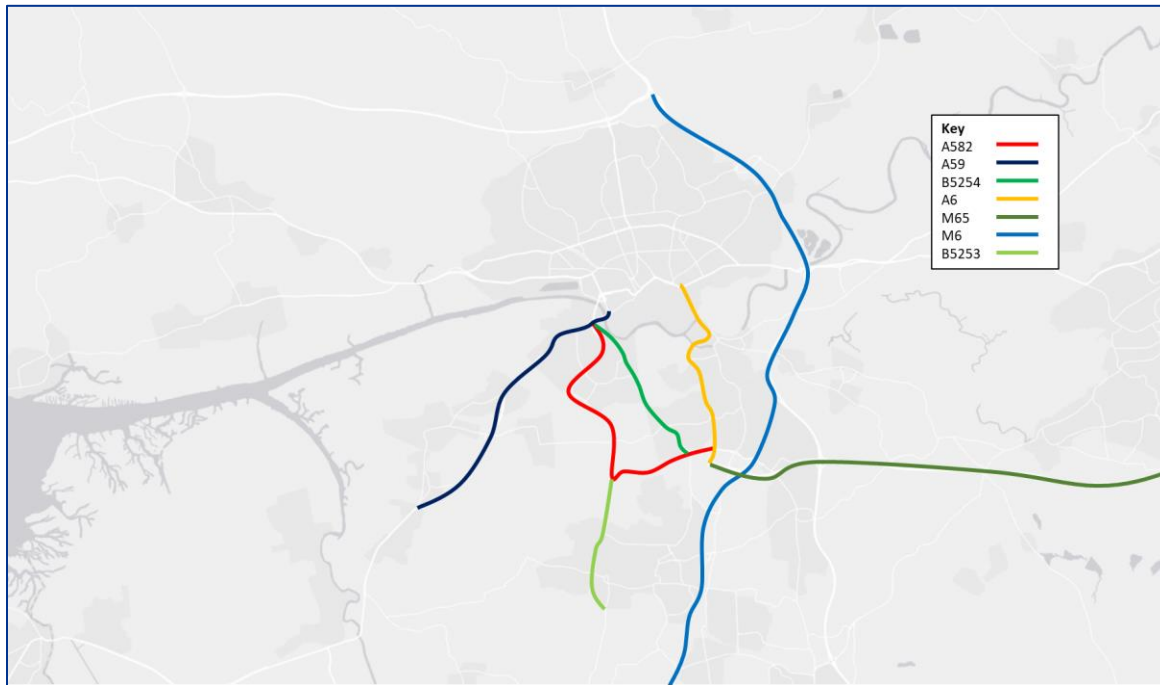


Figure 5-29: Key Journey Time Routes

Table 5-10: DS-DM Journey Time Changes

Route	Direction	Scenario	2022			2037		
			AM	IP	PM	AM	IP	PM
A582 (A6 to A59)	NB	DM	707	651	705	800	687	757
		DS	591	528	577	669	563	638
		Diff	-115 (-16%)	-123 (-19%)	-128 (-18%)	-132 (-16%)	-124 (-18%)	-119 (-16%)
	SB	DM	641	585	651	679	620	725
		DS	499	477	514	509	493	562
		Diff	-143 (-22%)	-109 (-19%)	-138 (-21%)	-170 (-25%)	-128 (-21%)	-164 (-23%)

Route	Direction	Scenario	2022			2037		
			AM	IP	PM	AM	IP	PM
A59 (Liverpool Rd to A5072 Strand Rd)	NB	DM	663	631	641	690	635	649
		DS	664	631	641	688	636	650
		Diff	1 (0%)	0 (0%)	0 (0%)	-2 (0%)	1 (0%)	1 (0%)
	SB	DM	732	718	778	740	724	798
		DS	734	726	787	744	722	798
		Diff	2 (0%)	8 (1%)	9 (1%)	4 (1%)	-2 (0%)	0 (0%)
B5254 (A582 to A59)	NB	DM	629	541	578	700	547	612
		DS	594	550	572	650	555	605
		Diff	-36 (-6%)	9 (2%)	-6 (-1%)	-51 (-7%)	7 (1%)	-6 (-1%)
	SB	DM	533	527	572	573	532	691
		DS	525	519	557	522	519	571
		Diff	-8 (-2%)	-8 (-2%)	-15 (-3%)	-51 (-9%)	-13 (-2%)	-120 (-17%)
A6 (M65 Terminus to A59 New Hall Ln)	NB	DM	570	470	458	677	488	489
		DS	551	470	458	636	488	487
		Diff	-20 (-3%)	0 (0%)	-1 (0%)	-40 (-6%)	0 (0%)	-3 (-1%)
	SB	DM	390	395	475	395	415	540
		DS	388	393	467	402	409	540
		Diff	-2 (-1%)	-2 (0%)	-8 (-2%)	8 (2%)	-6 (-1%)	0 (0%)
M65 (J4 to J1 Terminus)	EB	DM	519	450	521	557	469	550
		DS	587	515	587	623	535	620
		Diff	68 (13%)	65 (15%)	66 (13%)	66 (12%)	66 (14%)	70 (13%)
	WB	DM	599	487	566	660	509	594
		DS	619	504	586	694	527	619
		Diff	20 (3%)	17 (3%)	20 (4%)	34 (5%)	18 (4%)	25 (4%)
M6 (J27 to J32)	NB	DM	1194	949	1094	1413	1014	1251
		DS	1196	950	1093	1410	1015	1244
		Diff	2 (0%)	1 (0%)	-1 (0%)	-3 (0%)	1 (0%)	-7 (-1%)
	SB	DM	1010	965	1222	1118	1048	1392
		DS	1010	966	1223	1116	1048	1396
		Diff	0 (0%)	1 (0%)	1 (0%)	-2 (0%)	0 (0%)	4 (0%)
B5253 (Leyland Ln to A582 Tank rdbt)	NB	DM	321	276	322	358	321	374
		DS	324	277	332	360	319	390
		Diff	3 (1%)	0 (0%)	10 (3%)	2 (1%)	-2 (-1%)	17 (4%)
	SB	DM	274	301	323	339	312	379
		DS	295	315	377	384	344	402
		Diff	21 (8%)	13 (4%)	54 (17%)	45 (13%)	32 (10%)	22 (6%)

6. Summary and Conclusions

The traffic forecasts for the A582 scheme have been developed from the validated Base Year model, based on current WebTAG guidance Unit M-4.

Three forecast years have been developed for 2022, 2037 and 2042 to best support the appraisal of the scheme, and to meet WebTAG desirability for three forecast years. Only the 2022 and 2037 years were used for economic appraisal after 2042 failed PM demand convergence criteria and showed large inconsistent total link delays compared to 2037.

An agreed uncertainty log was used to identify all significant developments in the study area, and appropriate developments were modelled explicitly in the forecast, as they pertain to each forecast year and planning authority.

Checks of housing and employment growth are presented in Section 4.5 and have been demonstrated to be in line with TEMPRO / NTEM v7.2 at the overall model level and planning authority level.

The dependent developments, Pickerings Farm (1350 dwellings) and Cuerden Strategic site (3000 jobs) were identified during the outline business case of the proposed scheme based on LCC information in line with the City Deal strategy. A further network impacts test was not completed at this stage and will be part of the Outline Business Case.

The modelled networks have considered for all proposed future highway schemes, as consulted with local authorities, and incorporated into the future forecast years; where there was enough certainty over these schemes they were included in the network.

Variable Demand Modelling has been undertaken and model convergence, both for SATURN assignments and DIADEM runs, have been checked. All forecast models meet and exceed requirements as set out in WebTAG Unit M3.1 and Unit M2.

Outputs from the model have shown that the modelled effects of the A582 South Ribble Western Distributor upgrade are sensible, and that there is a significant increase of trips using the A582 with the scheme in place. Trips have rerouted onto the A582 from the B5254 and Coote Lane / Browndge Road and to a lesser extent the A6. The strategic road network (M65) is not expected to experience significantly higher flows due to rerouting of traffic onto the A582.

Changes in delays and journey times are also logical and generally consistent with the traffic flow changes.

Future year flow and delay changes with and without the scheme have been checked and confirmed as suitable based on local knowledge of the network.

The forecast models are therefore considered suitable for appraising of the A582 scheme, with further value for money evidence supporting the scheme detailed in the Economic Assessment Report (EAR) for the A582 Scheme.

Appendix A. Uncertainty Logs

Table A.1: Uncertainty Log – Housing

Description	Zone	Site_Area	Total_No	Type	No_2022	Per_2022	No_2037	Per_2037	Likelihood OBC	AUTHORITY
H7 Land North of Dowbridge, Kirkham	361	13.47	170	Dwellings	75		170	100%	Near Certain	Fylde
M1 Land East of Cropper Road, Fylde-Blackpool Periphery	328	13.7	529	Dwellings	229		529	100%	Near Certain	Fylde
M2 Whyndyke Farm, Fylde-Blackpool Periphery	327	53.53	1310	Dwellings	0		930		More Than Likely	Fylde
4A822 - Land adj Richmond Avenue, Wrea Green	365	3.44	54	Dwellings	0	100%	54	100%	Near Certain	Fylde
Land at NSI Site, Mythop Road	534	8.38	20	Dwellings	0	54%	0	100%	Near Certain	Fylde
Whyndyke Farm	327	4.93	147	Dwellings	0	0%	0	100%	N/A	Fylde
H1 Land at Queensway, St Annes	535	64.8	992	Dwellings	0		0	100%	Near Certain	Fylde
H2 Land West of North Houses Lane, St Annes	535	18.88	340	Dwellings	0	0%	0	100%	Hypothetical	Fylde
H3 Land North of Moss Hall Lane, Lytham	535	16.86	140	Dwellings	0	0%	0	100%	Hypothetical	Fylde
H5 Former Pontins Holiday Centre, Fylde-Blackpool Periphery	535	15.63	353	Dwellings	241		353	100%	Near Certain	Fylde
H4 Former EDS Site, Heyhouses Lane, St Annes	535	11.95	332	Dwellings	237		332	100%	Near Certain	Fylde
1A677 - Land to rear of 11-63 (odds), Westgate Road, St. Annes	535	0.86	72	Dwellings	72	100%	72	100%	Near Certain	Fylde
H13 Land North of Mowbreck Lane, Wesham	379	14.87	264	Dwellings	0		264	100%	Near Certain	Fylde
H13 Land North of Mowbreck Lane, Wesham	379	14.87	0	Dwellings	0	0%	0	100%	N/A	Fylde
M3 Land North of Blackpool Road (Kirkham Triangle), Kirkham	344	17.35	291	Dwellings	75		291	100%	Near Certain	Fylde
H8 Land West of Warton	371	27.63	82	Dwellings	82	100%	82	100%	Near Certain	Fylde
H8 Land West of Warton	371	27.63	360	Dwellings	125		360	100%	Near Certain	Fylde
H9 Land North of Warton	371	9.68	180	Dwellings	0	22%	0	100%	Hypothetical	Fylde
H10 Land East of Warton	375	32.54	380	Dwellings	0	37%	0	100%	Hypothetical	Fylde
H12 Former GEC Marconi Factory Site, Warton	375	7.82	254	Dwellings	190		254	100%	Near Certain	Fylde
HS1.14 - Land at Whittingham Road, Longridge.	300	0	3	Dwellings	0	34%	0	100%	Near Certain	Preston
HS1.14 - Land at Whittingham Road, Longridge.	300	0	53	Dwellings	0	34%	53	100%	Near Certain	Preston
MD2(A) with pp	428	0	210	Dwellings	105	50%	210	100%	Near Certain	Preston
MD2(A) with pp	429	0	90	Dwellings	0	50%	0	100%	Near Certain	Preston
MD2(A) without pp	428	12.6	150	Dwellings	0	20%	150	100%	More Than Likely	Preston
MD2(B) with pp	343	0	121	Dwellings	73	60%	121	100%	Near Certain	Preston
MD2(B) without pp	343	0	862	Dwellings	0	3%	0	100%	More Than Likely	Preston
MD2 (C) without pp	343	0	52	Dwellings	0	0%	0	100%	More Than Likely	Preston
MD2(D) with pp	322	0	88	Dwellings	0	17%	0	100%	Near Certain	Preston
MD2(D) without pp	322	0	1084	Dwellings	0	2%	0	40%	More Than Likely	Preston
MD2(D) without pp	322	0	77	Dwellings	0	2%	0	40%	More Than Likely	Preston
MD1	349	0	390	Dwellings	203	52%	390	100%	Near Certain	Preston
MD1	381	0	260	Dwellings	135	52%	260	100%	Near Certain	Preston
HS1.2 - Argyll Road Depot	450	4.3	300	Dwellings	0	10%	0	100%	Reasonably Forese	Preston
HS1.3 - Parker Street	417	1.3	50	Dwellings	0	0%	0	100%	Reasonably Forese	Preston
HS1.5 - Tetrad New Hall Lane	453	2.85	114	Dwellings	0	45%	114	100%	Near Certain	Preston
MD2(B) with pp	402	0	4	Dwellings	0	60%	0	100%	Near Certain	Preston
MD2(B) with pp	429	5.4	140	Dwellings	76	54%	140	100%	Near Certain	Preston
MD2(B) without pp	402	0	123	Dwellings	0	3%	123	100%	More Than Likely	Preston
MD2(B) without pp	429	0	246	Dwellings	0	3%	0	100%	More Than Likely	Preston
MD2(C) with pp	323	19.4	450	Dwellings	104	23%	450	100%	Near Certain	Preston
MD2(C) with pp	2	0	264	Dwellings	63	24%	264	100%	Near Certain	Preston
MD2(C) with pp	342	0	66	Dwellings	0	24%	66	100%	Near Certain	Preston
MD2 (C) without pp	323	0	138	Dwellings	0	0%	138	100%	More Than Likely	Preston
MD2 (C) without pp	2	0	138	Dwellings	0	0%	0	100%	More Than Likely	Preston
MD2 (C) without pp	342	0	17	Dwellings	0	0%	0	100%	More Than Likely	Preston
MD2(D) with pp	323	0	53	Dwellings	0	17%	0	100%	Near Certain	Preston
MD2(D) with pp	322	0	210	Dwellings	0	17%	210	100%	Near Certain	Preston
MD2(D) with pp	323	11.3	350	Dwellings	70	20%	350	100%	Near Certain	Preston
MD2(D) without pp	323	0	387	Dwellings	0	2%	0	40%	More Than Likely	Preston

Table A.2: Uncertainty Log – Housing cont.

Description	Zone	Site_Area	Total_No	Type	No_2022	Per_2022	No_2037	Per_2037	Likelihood OBC	AUTHORITY
MD1	341	0	325	Dwellings	169	52%	325	100%	Near Certain	Preston
MD1	340	0	195	Dwellings	101	52%	195	100%	Near Certain	Preston
MD1	399	0	130	Dwellings	68	52%	130	100%	Near Certain	Preston
HS1.14 - Land at Whittingham Road, Longridge.	299	8.39	322	Dwellings	109	34%	322	100%	Near Certain	Preston
HS1.14 - Land at Whittingham Road, Longridge.	299	0	31	Dwellings	0	34%	0	100%	Near Certain	Preston
HS1.14 - Land at Whittingham Road, Longridge.	299	0	79	Dwellings	0	34%	79	100%	Near Certain	Preston
Moss Side Test Track	94	0	950	dwellings	276	29%	950	100%	Near Certain	South Ribble
Land off Croston Road	523	0	719	dwellings	510	71%	719	100%	Near Certain	South Ribble
The Foundry, Kittlingborne Brow	264	0	80	dwellings	0	0%	0	100%	Reasonably Fores	South Ribble
Land off Wateringpool Lane	44	0	60	dwellings	0	100%	60	100%	Near Certain	South Ribble
Land off Wateringpool Lane	45	0	20	dwellings	0	100%	0	100%	Near Certain	South Ribble
Wesley Street Mill	251	0	10	dwellings	0	73%	0	100%	Near Certain	South Ribble
Wesley Street Mill	252	0	178	dwellings	130	73%	178	100%	Near Certain	South Ribble
Pickerings Farm	24	0	12	dwellings	0	20%	0	100%	More Than Likely	South Ribble
Pickerings Farm	27	0	88	dwellings	0	20%	88	100%	More Than Likely	South Ribble
Pickerings Farm	39	0	293	dwellings	0	20%	293	100%	More Than Likely	South Ribble
Pickerings Farm	40	0	632	dwellings	126	20%	632	100%	More Than Likely	South Ribble
Pickerings Farm	41	0	146	dwellings	0	20%	146	100%	More Than Likely	South Ribble
Pickerings Farm	42	0	29	dwellings	0	20%	0	100%	More Than Likely	South Ribble
Vernon Carus	21	0	192	dwellings	102	53%	192	100%	Near Certain	South Ribble
Vernon Carus	45	0	234	dwellings	124	53%	234	100%	Near Certain	South Ribble
Arla Foods	60	0	84	dwellings	84	100%	84	100%	Near Certain	South Ribble
Arla Foods	62	0	73	dwellings	73	100%	73	100%	Near Certain	South Ribble
Arla Foods	258	0	10	dwellings	0	100%	0	100%	Near Certain	South Ribble
Arla Foods	259	0	42	dwellings	0	100%	0	100%	Near Certain	South Ribble
Lostock Hall Gasworks	45	0	281	dwellings	222	79.00%	281	100%	More Than Likely	South Ribble
The Cawsey	42	0	75	dwellings	75	100.00%	75	100%	Near Certain	South Ribble
Land off Brindle Road	175	0	260	dwellings	130	50.00%	260	100%	More Than Likely	South Ribble
Moss Side Test Track	95	0	950	dwellings	276	29%	950	100%	Near Certain	South Ribble
Land off Croston Road	130	0	48	dwellings	0	25%	0	100%	More Than Likely	South Ribble
Land off Croston Road	247	0	671	dwellings	168	25%	671	100%	More Than Likely	South Ribble
Farington Business Park	234	0	65	dwellings	0	40.00%	65	100%	Near Certain	South Ribble
Farington Business Park	242	0	87	dwellings	0	40.00%	87	100%	Near Certain	South Ribble
Farington Business Park	244	0	281	dwellings	112	40.00%	281	100%	Near Certain	South Ribble
Group One, Buckshaw Village	228	0	220	dwellings	220	100.00%	220	100%	Near Certain	South Ribble
West and South of Farintgon Lodge Hotel	243	0	68	dwellings	68	100.00%	68	100%	Near Certain	South Ribble
Land West of Grasmere Avenue	244	0	160	dwellings	0	25.00%	160	100%	Near Certain	South Ribble
Roadferry, Carr Lane	244	0	80	dwellings	80	100.00%	80	100%	Near Certain	South Ribble
Prestolite	234	0	79	dwellings	79	100.00%	79	100%	Near Certain	South Ribble
Altcar Lane/Shawbrook Road	101	0	400	dwellings	0	0.00%	400	100%	Near Certain	South Ribble
Land off School Lane, Longton	69	0	33	dwellings	0	100%	0	100%	More Than Likely	South Ribble
Land off School Lane, Longton	74	0	50	dwellings	0	100%	0	100%	More Than Likely	South Ribble
South of Longton Hall	69	0	80	dwellings	80	100.00%	80	100%	Near Certain	South Ribble
The Foundry, Kittlingborne Brow	173	0	40	dwellings	0	0%	0	100%	Reasonably Fores	South Ribble
The Foundry, Kittlingborne Brow	265	0	40	dwellings	0	0%	0	100%	Reasonably Fores	South Ribble
HS1.15 - Former Whittingham Hospital	299		650	Dwellings	104	16%	650	100%	Near Certain	Preston
SP4.1 - City Centre Plan; Former St Josephs Orphanage, Theatre Street	424		81	Dwellings	0	26%	0	100%	Reasonably Fores	Preston
SP4.5 - City Centre Plan; Grimshaw Street/Queen Street/Manchester Rd	424		70	Dwellings	0	0%	0	100%	Reasonably Fores	Preston
Cuerden Strategic Site	245		128	dwellings	128	100%	128	100%	Near Certain	South Ribble

Table A.3: Uncertainty Log – Employment

Description	Zone	GFA	Type	Jobs_2022	Per_2022	Jobs_2037	Per_2037	Likelihood	AUTHORITY
M1 Land East of Cropper Road, Fylde-Blackpool Periphery	328	9357		198	37.50%	529	100.00%	Near Certain	Fylde
M2 Whyndyke Farm, Fylde-Blackpool Periphery	327	120000	Jobs	257	28.57%	900	60.00%	More Than Likely	Fylde
E2 Land at Blackpool International Airport	535			0	25.00%	0	100.00%	Near Certain	Fylde
M3 Land North of Blackpool Road (Kirkham Triangle), Kirkham	344	0	Jobs	0		0		Hypothetical	Fylde
E4 Land West of Fleetwood Road, Wesham	335	13644		75	28.57%	263	100.00%	Near Certain	Fylde
EP1.1 Former Whittingham Hospital	307	1350	Jobs	56	50.00%	113	100.00%	Near Certain	Preston
EP1.1 Former Whittingham Hospital	305	450	Jobs	19	50.00%	38	100.00%	Near Certain	Preston
EP1.1 Former Whittingham Hospital	306	7200	Jobs	300	50.00%	600	100.00%	Near Certain	Preston
EP1.3 Preston East Employment Area	302	20569	Jobs	164	44.44%	368	100.00%	Near Certain	Preston
EP1.10 - Preston East J31A M6	302	0	Jobs	0		0		Reasonably Foreseeable	Preston
EP1.2 Red Scar Site H	552	0	Jobs	0		0		Reasonably Foreseeable	Preston
EP1.2 Red Scar Site H	296	0	Jobs	0		0		Reasonably Foreseeable	Preston
EP1.3 Preston East Employment Area	469	47994	Jobs	184	44.44%	858	100.00%	Near Certain	Preston
EP1.4 - Red Scar Industrial Estate	552	38617		315	50.00%	630	100.06%	More Than Likely	Preston
EP1.4 - Red Scar Industrial Estate	296	38617		315	50.00%	630	100.06%	More Than Likely	Preston
EP1.5 - Millennium City Park	298	1161.5	Jobs	48	50.00%	97	100.00%	More Than Likely	Preston
EP1.5 - Millennium City Park	298	1161.5	Jobs	48	50.00%	97	100.00%	More Than Likely	Preston
EP1.6 - Site at Junction 31A M6 West Loop	470	17198.7	Jobs	0		0		Reasonably Foreseeable	Preston
EP1.7 Land North of Eastway	485	12500	Jobs	596	83.33%	715	100.00%	More Than Likely	Preston
EP1.8 Deepdale Street / Fletcher Road	456	0		0		0		Reasonably Foreseeable	Preston
EP1.9 - Riversway	388	5480	Jobs	0		0		Reasonably Foreseeable	Preston
EP1.11 - Roman Road Farm	552	0	Jobs	0		0		Reasonably Foreseeable	Preston
EP1.11 - Roman Road Farm	297	0	Jobs	0		0		Reasonably Foreseeable	Preston
BAE Systems Enterprise Zone	277	41365	Jobs	381	30.00%	1270	100.00%	Near Certain	South Ribble
Land North of Lancashire Business Park	244	36800	Jobs	0		0		Reasonably Foreseeable	South Ribble
West Paddock	231	7600	Jobs	0		0		Reasonably Foreseeable	South Ribble
Land adjacent to Leyland Business Park	245	8400	Jobs	0		0		Reasonably Foreseeable	South Ribble
South Rings	246	4877	Jobs	148	50.00%	297	100.00%	Near Certain	South Ribble
Cuerden Strategic Site	245		Jobs	0	100.00%	0	100.00%	Near Certain	South Ribble
Cuerden Strategic Site	246		Jobs	0	0.00%	0	100.00%	Near Certain	South Ribble
Warton Enterprise Zone	378		Jobs	343	28.57%	1200	100.00%	More Than Likely	Fylde
ITSA, Brunel Way	328			0		0		Reasonably Foreseeable	Fylde
Blackpool and Fylde Industrial State, Whitehills	328			0		0		Reasonably Foreseeable	Fylde
Whitehills Business Park, Whitehills	328			0		0		Reasonably Foreseeable	Fylde
Queensway Industrial Estate, Snowden Road, St Annes	328			0		0		Reasonably Foreseeable	Fylde
Naze Lane, Freckleton	328			0		0		Reasonably Foreseeable	Fylde

Appendix B. TEMPro Growth Factors

TEMPRO Zone	TEMPRO	2022									2037								
		AM			IP			PM			AM			IP			PM		
		UC1	UC2	UC3	UC1	UC2	UC3	UC1	UC2	UC3	UC1	UC2	UC3	UC1	UC2	UC3	UC1	UC2	UC3
GB	Default - Origin	1.029	1.073	1.060	1.020	1.059	1.067	1.024	1.065	1.057	1.114	1.168	1.197	1.095	1.149	1.214	1.103	1.157	1.188
Greater Manchester	Default - Origin	1.071	1.107	1.053	1.046	1.075	1.052	1.045	1.080	1.055	1.193	1.229	1.185	1.137	1.172	1.187	1.133	1.177	1.179
Lancashire	Default - Origin	1.012	1.052	1.032	0.999	1.036	1.038	1.003	1.042	1.030	1.100	1.148	1.131	1.074	1.125	1.138	1.082	1.134	1.124
Fylde	Default - Origin	0.966	1.020	1.023	0.983	1.030	1.037	1.001	1.040	1.028	1.011	1.086	1.112	1.044	1.112	1.134	1.080	1.130	1.116
Preston	Default - Origin	1.041	1.067	1.037	1.013	1.043	1.039	1.011	1.048	1.032	1.159	1.180	1.149	1.101	1.137	1.149	1.096	1.143	1.135
South Ribble	Default - Origin	1.000	1.046	1.033	0.996	1.037	1.040	1.003	1.043	1.027	1.075	1.133	1.129	1.068	1.127	1.140	1.083	1.135	1.120
Merseyside	Default - Origin	1.029	1.072	1.049	1.016	1.050	1.053	1.016	1.055	1.045	1.138	1.186	1.154	1.105	1.150	1.158	1.109	1.158	1.147
Fylde	Adjusted - Origin	0.932	0.990	0.993	0.959	1.007	1.009	0.981	1.018	1.001	0.919	0.997	1.021	0.970	1.039	1.048	1.012	1.058	1.034
Preston	Adjusted - Origin	1.018	1.044	1.014	0.991	1.020	1.016	0.989	1.025	1.009	1.078	1.110	1.082	1.044	1.084	1.088	1.047	1.092	1.076
South Ribble	Adjusted - Origin	0.942	1.004	0.992	0.968	1.017	1.007	0.989	1.027	0.996	0.973	1.045	1.042	1.006	1.077	1.067	1.044	1.094	1.052

TEMPRO Zone	TEMPRO	2022									2037								
		AM			IP			PM			AM			IP			PM		
		UC1	UC2	UC3	UC1	UC2	UC3	UC1	UC2	UC3	UC1	UC2	UC3	UC1	UC2	UC3	UC1	UC2	UC3
GB	Default - Destination	1.029	1.073	1.060	1.020	1.059	1.067	1.024	1.065	1.057	1.114	1.168	1.197	1.095	1.149	1.214	1.103	1.157	1.188
Greater Manchester	Default - Destination	1.051	1.092	1.050	1.049	1.075	1.053	1.062	1.091	1.057	1.147	1.193	1.172	1.145	1.172	1.189	1.173	1.203	1.186
Lancashire	Default - Destination	1.009	1.050	1.031	0.999	1.036	1.038	1.005	1.043	1.030	1.098	1.147	1.130	1.075	1.125	1.138	1.084	1.135	1.125
Fylde	Default - Destination	1.008	1.050	1.035	0.974	1.029	1.035	0.962	1.017	1.022	1.097	1.147	1.134	1.026	1.112	1.131	1.001	1.084	1.106
Preston	Default - Destination	1.017	1.058	1.031	1.016	1.045	1.040	1.030	1.059	1.034	1.109	1.157	1.136	1.107	1.140	1.150	1.135	1.167	1.140
South Ribble	Default - Destination	1.011	1.052	1.030	0.994	1.037	1.039	0.995	1.038	1.030	1.101	1.150	1.130	1.062	1.125	1.140	1.063	1.123	1.123
Merseyside	Default - Destination	1.022	1.066	1.051	1.016	1.050	1.053	1.022	1.060	1.045	1.126	1.176	1.155	1.106	1.150	1.158	1.120	1.166	1.147
Fylde	Adjusted - Destination	0.989	1.030	1.012	0.947	1.006	1.007	0.929	0.988	0.991	1.030	1.077	1.058	0.947	1.038	1.044	0.912	0.999	1.017
Preston	Adjusted - Destination	0.994	1.035	1.009	0.994	1.022	1.017	1.007	1.035	1.011	1.061	1.107	1.083	1.044	1.087	1.089	1.058	1.100	1.075
South Ribble	Adjusted - Destination	0.998	1.040	1.010	0.958	1.017	1.005	0.946	1.001	0.990	1.065	1.114	1.080	0.987	1.076	1.065	0.964	1.043	1.037

Appendix C. Reference Case Matrix Development Trip Totals

TEMPRO Zone	Final Base Trip Ends																	
	AM						IP						PM					
	UC1		UC2		UC3		UC1		UC2		UC3		UC1		UC2		UC3	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Preston	9,662	12,013	1,508	1,783	8,650	9,944	2,471	2,375	1,741	1,644	12,291	12,459	9,720	7,958	1,710	1,367	12,998	12,966
South Ribble	8,854	7,110	1,334	1,117	7,013	6,393	2,162	2,039	1,340	1,225	10,566	10,043	7,264	6,938	1,275	1,163	10,130	10,013
Fylde	5,739	7,186	726	827	3,867	3,687	1,465	1,550	769	875	5,575	5,812	6,230	4,943	857	800	5,864	6,073
Lancashire	65,484	59,934	8,373	7,712	46,021	44,460	14,475	14,774	7,500	7,505	63,532	63,173	50,323	56,232	7,848	8,366	68,254	68,582
Merseyside	12,513	11,474	1,535	1,442	8,902	8,360	2,531	2,589	1,297	1,244	11,251	11,166	9,665	10,621	1,446	1,548	12,622	12,849
Greater Manchester	25,354	25,679	3,911	3,744	18,013	18,306	6,237	6,307	3,298	3,238	23,269	23,198	24,806	24,383	3,751	3,880	27,255	26,840
GB	102,740	106,949	15,214	15,977	75,422	76,740	23,390	23,098	13,634	13,848	93,616	94,250	91,622	88,555	15,890	15,653	111,648	111,448
Total	230,346	230,346	32,601	32,601	167,889	167,889	52,731	52,731	29,578	29,578	220,101	220,101	199,629	199,629	32,777	32,777	248,772	248,772

TEMPRO Zone	2022 Trip Ends - Background Growth (Post Furnessing)																	
	AM						IP						PM					
	UC1		UC2		UC3		UC1		UC2		UC3		UC1		UC2		UC3	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Preston	9,721	11,847	1,546	1,841	8,708	10,039	2,404	2,322	1,746	1,650	12,459	12,676	9,537	7,975	1,746	1,394	13,096	13,135
South Ribble	8,297	6,948	1,313	1,137	6,819	6,367	2,073	1,947	1,337	1,219	10,633	10,096	7,028	6,550	1,287	1,147	10,021	9,876
Fylde	5,220	6,934	687	836	3,717	3,675	1,361	1,442	748	854	5,551	5,787	5,947	4,559	855	775	5,817	5,950
Lancashire	66,213	60,544	8,814	8,094	47,539	45,717	14,461	14,757	7,768	7,777	65,929	65,555	50,510	56,358	8,177	8,721	70,269	70,662
Merseyside	12,873	11,764	1,647	1,536	9,349	8,765	2,571	2,628	1,361	1,305	11,847	11,747	9,833	10,814	1,526	1,639	13,193	13,423
Greater Manchester	27,147	27,080	4,333	4,086	18,997	19,214	6,524	6,601	3,543	3,477	24,477	24,398	25,949	25,740	4,050	4,228	28,738	28,328
GB	105,650	110,004	16,338	17,149	80,001	81,355	23,873	23,570	14,439	14,661	99,853	100,492	93,936	90,747	16,934	16,672	118,037	117,795
Total	235,121	235,121	34,679	34,679	175,131	175,131	53,267	53,267	30,944	30,944	230,750	230,750	202,742	202,742	34,576	34,576	259,170	259,170

TEMPRO Zone	2037 Trip Ends - Background Growth (Post Furnessing)																	
	AM						IP						PM					
	UC1		UC2		UC3		UC1		UC2		UC3		UC1		UC2		UC3	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Preston	10,095	12,470	1,601	1,953	9,136	10,768	2,497	2,389	1,816	1,713	13,272	13,554	9,980	8,317	1,847	1,440	13,856	13,943
South Ribble	8,390	7,258	1,348	1,197	7,020	6,765	2,142	1,997	1,402	1,270	11,285	10,696	7,301	6,642	1,360	1,185	10,509	10,270
Fylde	4,964	6,975	582	843	3,581	3,780	1,280	1,385	717	814	5,636	5,869	5,829	4,400	858	747	5,939	5,910
Lancashire	72,001	65,900	9,634	8,815	52,196	49,910	15,556	15,865	8,434	8,453	72,314	71,915	54,600	60,640	8,899	9,494	76,716	77,261
Merseyside	14,231	12,968	1,825	1,691	10,301	9,607	2,798	2,858	1,490	1,431	13,031	12,917	10,745	11,799	1,675	1,804	14,475	14,737
Greater Manchester	30,224	29,585	4,817	4,455	21,404	21,378	7,096	7,204	3,862	3,796	27,633	27,528	28,181	28,328	4,413	4,665	32,127	31,776
GB	114,412	119,159	17,804	18,657	90,548	91,979	25,634	25,306	15,661	15,906	113,643	114,336	101,339	97,848	18,390	18,108	132,532	132,258
Total	254,315	254,315	37,611	37,611	194,186	194,186	57,002	57,002	33,382	33,382	256,814	256,814	217,974	217,974	37,442	37,442	286,153	286,153

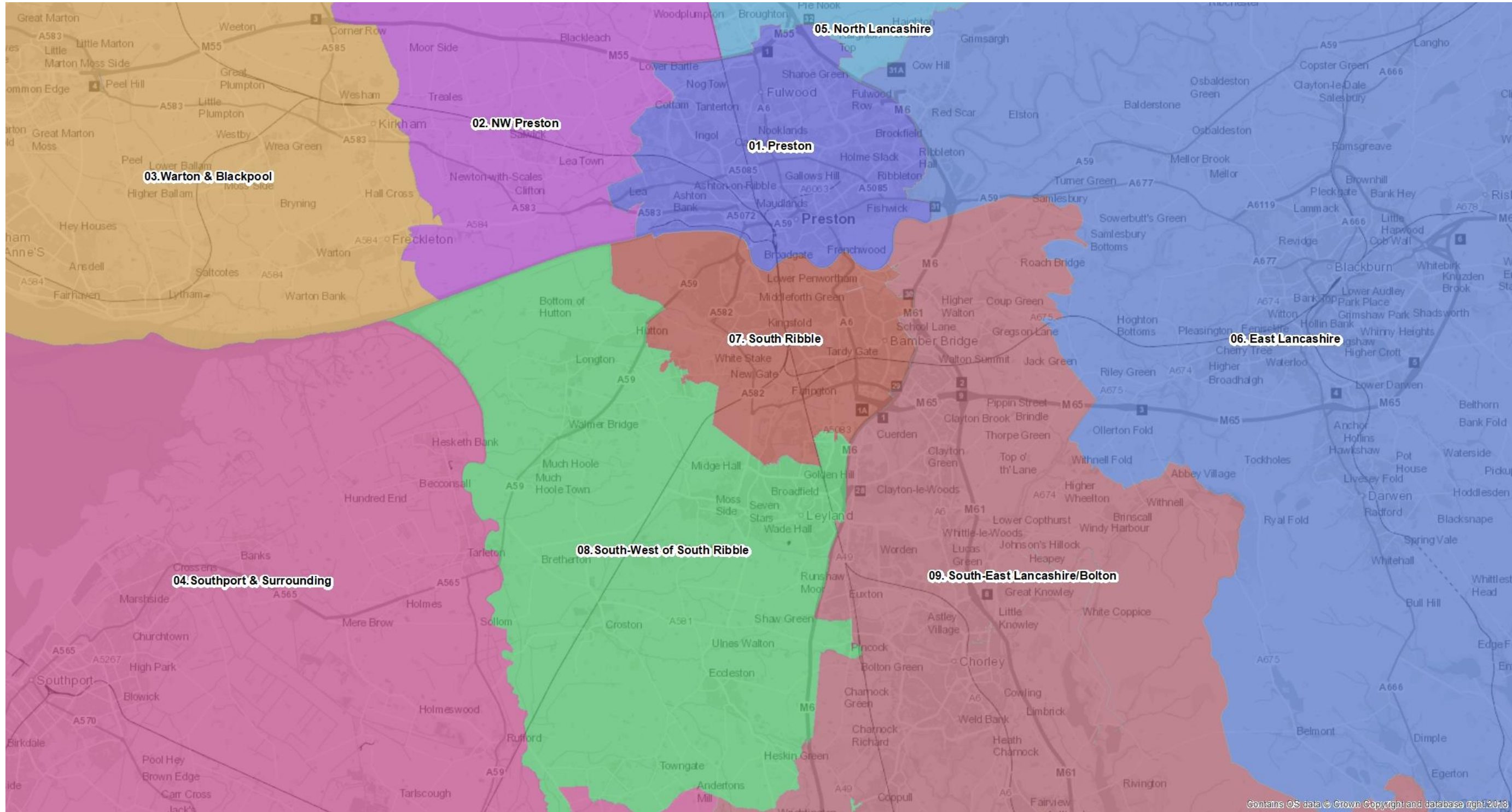
TEMPRO Zone	Development Trip Ends 2022																	
	AM						IP						PM					
	UC1		UC2		UC3		UC1		UC2		UC3		UC1		UC2		UC3	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Preston	689	673	107	95	435	409	189	159	140	113	691	570	555	409	101	77	745	592
South Ribble	717	541	100	73	571	512	124	141	72	83	540	639	406	540	62	88	601	795
Fylde	372	402	56	46	272	204	99	90	52	61	317	311	381	267	49	44	319	323
Lancashire	231	365	24	63	94	234	72	88	39	43	194	214	212	324	41	46	248	205
Merseyside	14	12	3	4	4	5	3	4	6	4	4	4	6	9	4	3	5	5
Greater Manchester	19	39	4	10	4	9	7	12	6	11	10	14	21	35	8	8	14	12
GB	11	23	11	13	3	10	4	3	12	13	8	13	13	9	10	8	12	12
Total	2,053	2,053	304	304	1,383	1,383	497	497	327	327	1,766	1,766	1,594	1,594	274	274	1,944	1,944

TEMPRO Zone	Development Trip Ends 2037																	
	AM						IP						PM					
	UC1		UC2		UC3		UC1		UC2		UC3		UC1		UC2		UC3	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Preston	1,997	1,670	303	242	1,285	1,138	467	387	358	262	1,894	1,530	1,404	1,130	259	204	2,135	1,681
South Ribble	1,725	1,385	229	176	1,423	1,358	298	336	168	197	1,333	1,627	970	1,313	144	205	1,508	2,024
Fylde	1,012	1,121	214	147	845	576	304	262	158	194	955	904	1,160	751	146	139	941	983
Lancashire	553	1,015	58	214	255	701	178	251	99	125	515	618	576	889	117	124	662	563
Merseyside	37	30	6	10	9	12	8	9	16	8	12	11	17	22	8	7	14	12
Greater Manchester	42	114	9	27	13	26	15	28	16	27	27	37	56	87	21	21	35	32
GB	25	58	29	32	6	26	11	9	28	30	23	32	31	22	24	20	33	33
Total	5,392	5,392	848	848	3,837	3,837	1,282	1,282	843	843	4,760	4,760	4,213	4,213	720	720	5,329	5,329

TEMPRO Zone	Total Trip Ends 2022																	
	AM						IP						PM					
	UC1		UC2		UC3		UC1		UC2		UC3		UC1		UC2		UC3	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Preston	10,410	12,519	1,653	1,936	9,143	10,448	2,593	2,481	1,886	1,763	13,150	13,246	10,091	8,384	1,847	1,471	13,841	13,727
South Ribble	9,014	7,489	1,413	1,210	7,390	6,879	2,197	2,088	1,410	1,302	11,173	10,735	7,435	7,090	1,349	1,234	10,622	10,671
Fylde	5,592	7,336	743	883	3,990	3,878	1,459	1,532	800	915	5,869	6,097	6,328	4,826	904	819	6,136	6,274
Lancashire	66,444	60,908	8,838	8,157	47,633	45,951	14,533	14,845	7,807	7,820	66,124	65,769	50,723	56,682	8,218	8,767	70,517	70,867
Merseyside	12,888	11,776	1,649	1,540	9,353	8,770	2,574	2,632	1,367	1,309	11,851	11,751	9,840	10,823	1,530	1,641	13,198	13,428
Greater Manchester	27,166	27,119	4,337	4,096	19,002	19,223	6,530	6,613	3,550	3,488	24,487	24,412	25,970	25,775	4,058	4,236	28,752	28,340
GB	105,661	110,028	16,349	17,162	80,004	81,365	23,877	23,573	14,452	14,674	99,862	100,505	93,950	90,756	16,944	16,680	118,049	117,807
Total	237,174	237,174	34,984	34,984	176,514	176,514	53,764	53,764	31,271	31,271	232,515	232,515	204,336	204,336	34,850	34,850	261,114	261,114

TEMPRO Zone	Total Trip Ends 2037																	
	AM						IP						PM					
	UC1		UC2		UC3		UC1		UC2		UC3		UC1		UC2		UC3	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Preston	12,092	14,140	1,904	2,195	10,421	11,906	2,964	2,776	2,174	1,974	15,166	15,084	11,384	9,447	2,105	1,643	15,991	15,624
South Ribble	10,114	8,643	1,577	1,373	8,443	8,123	2,440	2,333	1,570	1,467	12,619	12,323	8,271	7,955	1,505	1,390	12,017	12,293
Fylde	5,976	8,095	796	990	4,426	4,356	1,584	1,647	876	1,008	6,591	6,773	6,988	5,151	1,004	886	6,880	6,893
Lancashire	72,554	66,915	9,692	9,029	52,451	50,611	15,735	16,116	8,532	8,578	72,829	72,534	55,176	61,530	9,016	9,617	77,378	77,824
Merseyside	14,268	12,998	1,831	1,700	10,310	9,619	2,806	2,866	1,506	1,439	13,043	12,927	10,762	11,821	1,683	1,811	14,489	14,749
Greater Manchester	30,266	29,699	4,827	4,483	21,417	21,404	7,111	7,232	3,878	3,823	27,660	27,565	28,237	28,415	4,435	4,686	32,162	31,808
GB	114,437	119,217	17,834	18,689	90,554	92,005	25,645	25,314	15,689	15,936	113,666	114,368	101,370	97,869	18,415	18,128	132,565	132,291
Total	259,708	259,708	38,459	38,459	198,023	198,023	58,284	58,284	34,225	34,225	261,574	261,574	222,187	222,187	38,161	38,161	291,483	291,483

Appendix D. Sector-Sector Demand Matrices



Sector

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	12,994	631	1,453	161	455	1,725	896	513	751	355	730	20,664
NW Preston	708	184	624	26	103	83	75	28	31	60	87	2,009
Warton & Blackpool	1,853	468	32,962	194	613	717	265	216	454	1,211	1,248	40,201
Southport & West Lancs	304	17	161	9,899	23	410	158	382	1,642	291	2,894	16,180
North Lancs	577	63	467	12	951	169	89	33	66	619	100	3,147
East Lancs	2,337	82	666	295	195	24,945	588	505	8,761	1,912	11,279	51,565
South Ribble	2,190	69	628	182	101	921	2,004	1,636	1,314	197	389	9,632
SW of South Ribble	711	31	241	397	48	620	1,105	4,252	2,251	246	906	10,806
SE Lancs / Bolton	1,506	82	580	1,528	100	8,458	1,195	2,137	30,092	1,246	14,626	61,549
GB North	618	50	1,164	153	637	2,103	105	156	881	187,680	9,082	202,631
GB South	973	65	1,446	1,725	164	9,217	290	552	11,978	11,018	769,741	807,169
Total	24,770	1,743	40,392	14,572	3,388	49,368	6,771	10,410	58,222	204,835	811,082	1,225,552

DM 2022 AM: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	10,707	432	1,016	181	574	1,312	1,329	738	801	344	657	18,091
NW Preston	515	118	374	8	54	33	46	32	27	28	68	1,303
Warton & Blackpool	886	403	32,446	136	415	317	272	178	441	817	1,211	37,522
Southport & West Lancs	168	10	149	7,543	17	231	135	262	965	280	1,791	11,552
North Lancs	520	55	517	24	770	123	45	33	69	436	198	2,790
East Lancs	1,316	82	383	225	138	18,710	440	347	5,386	1,617	6,954	35,598
South Ribble	1,439	44	279	127	63	516	1,562	1,123	1,003	152	367	6,676
SW of South Ribble	641	22	193	368	42	360	1,128	5,266	1,793	227	553	10,594
SE Lancs / Bolton	793	35	405	918	69	5,296	971	1,628	27,063	1,162	8,860	47,198
GB North	333	47	1,346	190	559	1,360	94	160	1,009	186,736	11,892	203,726
GB South	628	52	901	2,006	171	6,421	276	473	8,737	9,923	730,035	759,625
Total	17,946	1,301	38,010	11,725	2,872	34,680	6,299	10,242	47,295	201,721	762,586	1,134,674

DM 2022 IP: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	13,994	556	1,774	310	571	1,772	2,193	1,045	1,301	377	1,061	24,954
NW Preston	481	183	475	9	91	48	50	51	69	48	70	1,576
Warton & Blackpool	1,517	572	38,680	440	709	636	569	417	599	1,218	1,310	46,666
Southport & West Lancs	157	13	217	10,905	20	223	210	293	1,441	187	1,640	15,307
North Lancs	618	96	512	11	1,015	188	56	49	95	706	120	3,467
East Lancs	1,978	80	683	309	229	26,622	851	546	8,864	1,174	9,750	51,086
South Ribble	1,542	76	242	173	66	725	2,111	1,387	1,463	156	440	8,382
SW of South Ribble	499	36	286	505	43	411	1,228	4,613	2,522	177	795	11,114
SE Lancs / Bolton	1,071	46	562	1,584	103	9,107	1,454	2,484	37,286	892	12,543	67,130
GB North	468	65	1,256	216	671	1,371	192	208	1,146	171,391	12,509	189,495
GB South	697	109	1,383	2,818	267	10,866	421	715	14,496	9,603	735,465	776,841
Total	23,024	1,833	46,070	17,279	3,785	51,969	9,334	11,808	69,282	185,930	775,705	1,196,019

DM 2022 PM: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	14,192	714	1,879	172	526	2,087	958	597	793	398	803	23,119
NW Preston	930	207	709	32	129	115	98	46	46	66	104	2,482
Warton & Blackpool	1,978	582	35,997	239	700	861	406	242	481	1,335	1,376	44,197
Southport & West Lancs	352	21	198	10,817	26	443	179	433	1,817	324	3,260	17,870
North Lancs	634	71	530	13	1,022	202	95	53	73	673	112	3,479
East Lancs	2,685	99	741	325	235	27,543	656	593	9,677	2,201	12,374	57,129
South Ribble	2,334	77	724	200	113	995	2,167	1,865	1,464	222	435	10,597
SW of South Ribble	759	33	293	429	52	657	1,200	4,709	2,444	279	1,021	11,876
SE Lancs / Bolton	1,623	93	671	1,727	111	9,299	1,308	2,371	32,958	1,444	16,344	67,948
GB North	689	59	1,324	160	686	2,290	116	172	946	213,698	9,956	230,096
GB South	1,127	77	1,690	1,967	188	10,213	351	655	13,386	12,370	875,637	917,659
Total	27,303	2,033	44,755	16,080	3,788	54,705	7,535	11,737	64,084	233,010	921,422	1,386,453

DM 2037 AM: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	11,643	500	1,504	203	635	1,541	1,427	886	884	398	764	20,385
NW Preston	646	131	428	9	67	53	55	38	32	33	80	1,572
Warton & Blackpool	990	531	35,405	156	473	491	447	228	505	938	1,418	41,583
Southport & West Lancs	189	12	173	8,238	19	253	149	290	1,082	320	2,045	12,769
North Lancs	575	63	584	28	819	150	52	56	81	482	233	3,123
East Lancs	1,567	104	457	256	161	20,609	493	417	5,953	1,851	7,784	39,652
South Ribble	1,550	54	339	145	69	578	1,668	1,291	1,107	183	435	7,420
SW of South Ribble	705	28	227	415	48	401	1,234	5,644	1,986	273	651	11,613
SE Lancs / Bolton	870	46	482	1,027	77	5,836	1,067	1,774	29,712	1,383	10,053	52,328
GB North	360	54	1,476	205	601	1,537	104	183	1,112	213,190	13,210	232,032
GB South	698	64	1,015	2,263	191	6,996	309	533	9,720	10,987	834,466	867,243
Total	19,793	1,588	42,092	12,945	3,161	38,446	7,004	11,339	52,174	230,038	871,140	1,289,721

DM 2037 IP: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	15,436	674	2,256	334	640	2,005	2,253	1,215	1,327	438	1,181	27,761
NW Preston	660	202	543	10	105	68	69	69	71	57	81	1,934
Warton & Blackpool	1,637	775	42,148	472	803	871	861	475	638	1,416	1,495	51,589
Southport & West Lancs	171	20	242	11,859	21	245	227	321	1,623	212	1,907	16,848
North Lancs	707	108	585	12	1,098	228	62	78	107	780	141	3,907
East Lancs	2,320	101	777	337	278	29,292	939	644	9,716	1,331	10,953	56,689
South Ribble	1,634	90	294	198	71	810	2,233	1,571	1,625	181	528	9,234
SW of South Ribble	535	42	326	554	45	453	1,339	4,925	2,793	208	941	12,162
SE Lancs / Bolton	1,119	59	613	1,755	106	9,964	1,559	2,653	40,739	1,024	14,177	73,766
GB North	513	75	1,397	238	719	1,582	211	230	1,298	197,771	14,394	218,429
GB South	765	120	1,564	3,205	289	11,747	466	822	16,128	10,951	844,540	890,599
Total	25,498	2,265	50,746	18,974	4,176	57,265	10,219	13,002	76,066	214,368	890,338	1,362,917

DM 2037 PM: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	12,977	631	1,454	161	455	1,725	898	524	753	354	731	20,665
NW Preston	707	184	624	26	103	83	75	29	31	60	87	2,009
Warton & Blackpool	1,846	468	32,962	194	613	718	265	219	455	1,211	1,250	40,201
Southport & West Lancs	305	17	160	9,898	23	411	159	381	1,643	291	2,893	16,181
North Lancs	576	63	468	12	951	169	88	34	66	619	100	3,147
East Lancs	2,346	82	669	295	195	24,940	587	510	8,754	1,914	11,273	51,566
South Ribble	2,189	68	622	182	100	925	2,001	1,645	1,317	196	390	9,634
SW of South Ribble	717	31	243	396	48	627	1,111	4,223	2,258	247	909	10,809
SE Lancs / Bolton	1,520	82	581	1,528	100	8,451	1,199	2,143	30,079	1,244	14,624	61,550
GB North	618	50	1,164	153	636	2,103	106	157	881	187,680	9,082	202,631
GB South	981	65	1,446	1,725	164	9,213	290	554	11,975	11,017	769,739	807,170
Total	24,783	1,743	40,392	14,570	3,387	49,365	6,779	10,419	58,212	204,834	811,077	1,225,561

DS 2022 AM: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	10,692	432	1,014	180	574	1,313	1,330	755	804	344	657	18,093
NW Preston	515	118	374	8	54	33	46	33	27	28	68	1,303
Warton & Blackpool	885	402	32,444	136	415	317	274	181	441	817	1,210	37,522
Southport & West Lancs	170	10	149	7,542	17	232	135	262	964	280	1,791	11,552
North Lancs	520	55	517	24	769	123	45	34	69	436	198	2,790
East Lancs	1,314	81	382	227	138	18,708	442	352	5,385	1,617	6,953	35,599
South Ribble	1,437	44	278	127	63	518	1,558	1,129	1,004	152	368	6,679
SW of South Ribble	650	23	194	366	43	364	1,135	5,241	1,799	227	556	10,597
SE Lancs / Bolton	793	35	404	918	69	5,294	973	1,635	27,057	1,161	8,859	47,198
GB North	333	47	1,346	191	559	1,360	95	161	1,009	186,735	11,891	203,726
GB South	627	52	901	2,006	171	6,421	276	475	8,738	9,923	730,034	759,625
Total	17,935	1,300	38,004	11,725	2,872	34,682	6,309	10,257	47,296	201,720	762,586	1,134,685

DS 2022 IP: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	13,974	556	1,770	309	571	1,775	2,191	1,068	1,305	377	1,063	24,959
NW Preston	481	183	475	9	91	48	50	52	69	48	71	1,576
Warton & Blackpool	1,516	572	38,672	438	709	637	572	422	599	1,219	1,311	46,666
Southport & West Lancs	159	14	219	10,903	20	223	208	293	1,441	188	1,640	15,308
North Lancs	619	96	512	11	1,014	188	56	50	95	706	120	3,467
East Lancs	1,982	80	683	310	228	26,615	856	552	8,861	1,172	9,749	51,087
South Ribble	1,541	76	242	173	66	727	2,109	1,391	1,463	156	441	8,386
SW of South Ribble	508	36	290	504	43	415	1,229	4,583	2,532	178	799	11,116
SE Lancs / Bolton	1,080	46	563	1,584	103	9,103	1,455	2,490	37,273	892	12,543	67,132
GB North	469	65	1,255	216	671	1,371	192	209	1,145	171,391	12,509	189,495
GB South	704	110	1,386	2,819	268	10,862	423	714	14,493	9,603	735,461	776,843
Total	23,031	1,832	46,067	17,275	3,785	51,964	9,342	11,823	69,277	185,931	775,707	1,196,034

DS 2022 PM: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	14,162	714	1,885	173	525	2,088	958	617	797	397	805	23,121
NW Preston	929	206	708	32	129	115	98	48	46	66	105	2,482
Warton & Blackpool	1,973	582	35,988	241	700	861	413	247	482	1,334	1,377	44,197
Southport & West Lancs	353	21	198	10,815	26	446	180	430	1,818	324	3,258	17,870
North Lancs	632	71	530	13	1,022	201	96	56	73	672	112	3,479
East Lancs	2,706	100	746	326	236	27,526	658	610	9,662	2,201	12,361	57,131
South Ribble	2,333	76	721	199	112	1,000	2,156	1,877	1,465	220	438	10,599
SW of South Ribble	765	34	293	429	52	669	1,205	4,664	2,461	280	1,027	11,879
SE Lancs / Bolton	1,645	93	672	1,725	111	9,286	1,319	2,394	32,928	1,443	16,334	67,951
GB North	689	58	1,322	160	685	2,290	118	175	945	213,698	9,955	230,096
GB South	1,141	77	1,691	1,965	188	10,207	353	658	13,379	12,369	875,630	917,658
Total	27,328	2,033	44,754	16,079	3,786	54,689	7,553	11,777	64,057	233,006	921,402	1,386,464

DS 2037 AM: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	11,617	500	1,501	204	635	1,544	1,428	913	886	397	764	20,390
NW Preston	645	131	428	9	67	53	55	38	32	33	80	1,572
Warton & Blackpool	988	531	35,402	157	472	491	449	232	505	938	1,418	41,583
Southport & West Lancs	191	12	174	8,236	19	254	148	289	1,081	320	2,044	12,769
North Lancs	575	63	584	28	819	150	52	58	81	482	233	3,123
East Lancs	1,566	104	457	257	161	20,605	494	424	5,951	1,851	7,783	39,653
South Ribble	1,548	53	338	146	69	581	1,665	1,295	1,108	183	436	7,423
SW of South Ribble	717	29	229	414	49	407	1,235	5,615	1,994	275	655	11,617
SE Lancs / Bolton	872	46	482	1,027	77	5,834	1,066	1,785	29,706	1,382	10,052	52,329
GB North	360	54	1,476	205	601	1,537	104	184	1,111	213,190	13,210	232,032
GB South	698	64	1,015	2,263	191	6,995	309	536	9,720	10,986	834,465	867,243
Total	19,776	1,587	42,085	12,946	3,161	38,451	7,005	11,369	52,178	230,037	871,140	1,289,734

DS 2037 IP: Total PCU Demand

Sector	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	15,396	672	2,254	335	636	2,013	2,263	1,247	1,339	437	1,185	27,777
NW Preston	659	201	542	10	105	68	70	69	71	57	81	1,934
Warton & Blackpool	1,629	771	42,145	465	803	873	869	475	640	1,417	1,499	51,587
Southport & West Lancs	173	20	243	11,857	22	245	227	320	1,623	213	1,906	16,848
North Lancs	707	108	586	12	1,098	228	62	79	107	779	141	3,907
East Lancs	2,323	101	779	338	278	29,286	937	650	9,712	1,332	10,951	56,687
South Ribble	1,632	90	293	198	71	811	2,234	1,574	1,625	181	529	9,237
SW of South Ribble	544	42	328	552	45	459	1,339	4,899	2,804	209	944	12,166
SE Lancs / Bolton	1,127	59	615	1,756	107	9,959	1,560	2,659	40,723	1,025	14,174	73,764
GB North	513	75	1,397	238	719	1,582	211	232	1,297	197,770	14,394	218,428
GB South	771	121	1,568	3,206	290	11,743	469	820	16,124	10,952	844,534	890,599
Total	25,474	2,261	50,749	18,967	4,175	57,267	10,239	13,025	76,065	214,371	890,340	1,362,934

DS 2037 PM: Total PCU Demand

Appendix E. Matrix Total Changes

Time Period	UC	Pre VDM - 2022			Post VDM DM - 2022			Difference			% Difference		
		Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal
AM	1	237,075	112,111	124,964	237,075	111,982	125,093	0	-129	129	0.00%	-0.12%	0.10%
	2	34,972	14,106	20,866	34,972	14,092	20,880	-0	-14	14	0.00%	-0.10%	0.07%
	3	176,421	101,348	75,073	177,218	101,063	76,155	797	-285	1,082	0.45%	-0.28%	1.44%
	Total	448,468	227,565	220,903	449,265	227,136	222,129	797	-428	1,225	0.18%	-0.19%	0.55%
IP	1	53,744	25,153	28,590	53,744	25,128	28,615	0	-25	25	0.00%	-0.10%	0.09%
	2	31,260	11,963	19,297	31,260	11,951	19,309	0	-12	12	0.00%	-0.10%	0.06%
	3	232,414	123,865	108,548	233,552	123,530	110,022	1,139	-335	1,474	0.49%	-0.27%	1.36%
	Total	317,417	160,981	156,436	318,556	160,609	157,947	1,139	-372	1,511	0.36%	-0.23%	0.97%
PM	1	204,263	98,556	105,707	204,263	98,434	105,829	0	-122	122	0.00%	-0.12%	0.12%
	2	34,838	14,510	20,329	34,838	14,496	20,342	0	-13	13	0.00%	-0.09%	0.07%
	3	260,987	143,629	117,358	262,305	143,243	119,062	1,318	-386	1,704	0.50%	-0.27%	1.45%
	Total	500,089	256,695	243,394	501,406	256,173	245,233	1,318	-521	1,839	0.26%	-0.20%	0.76%

DM 2022 Matrix Totals: pre-VDM vs post-VDM

Time Period	UC	Pre VDM - 2022			Post VDM DS - 2022			Difference			% Difference		
		Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal
AM	1	237,075	112,111	124,964	237,075	111,981	125,094	0	-130	130	0.00%	-0.12%	0.10%
	2	34,972	14,106	20,866	34,972	14,091	20,880	-0	-14	14	0.00%	-0.10%	0.07%
	3	176,421	101,348	75,073	177,227	101,059	76,168	806	-288	1,095	0.46%	-0.28%	1.46%
	Total	448,468	227,565	220,903	449,274	227,132	222,142	806	-433	1,239	0.18%	-0.19%	0.56%
IP	1	53,744	25,153	28,590	53,744	25,128	28,616	0	-25	25	0.00%	-0.10%	0.09%
	2	31,260	11,963	19,297	31,260	11,950	19,310	0	-12	12	0.00%	-0.10%	0.06%
	3	232,414	123,865	108,548	233,563	123,526	110,037	1,149	-339	1,488	0.49%	-0.27%	1.37%
	Total	317,417	160,981	156,436	318,567	160,605	157,962	1,149	-377	1,526	0.36%	-0.23%	0.98%
PM	1	204,263	98,556	105,707	204,263	98,433	105,831	0	-124	124	0.00%	-0.13%	0.12%
	2	34,838	14,510	20,329	34,838	14,496	20,342	0	-13	13	0.00%	-0.09%	0.07%
	3	260,987	143,629	117,358	262,320	143,239	119,081	1,333	-390	1,723	0.51%	-0.27%	1.47%
	Total	500,089	256,695	243,394	501,422	256,168	245,254	1,333	-527	1,860	0.27%	-0.21%	0.76%

DS 2022 Matrix Totals: pre-VDM vs post-VDM

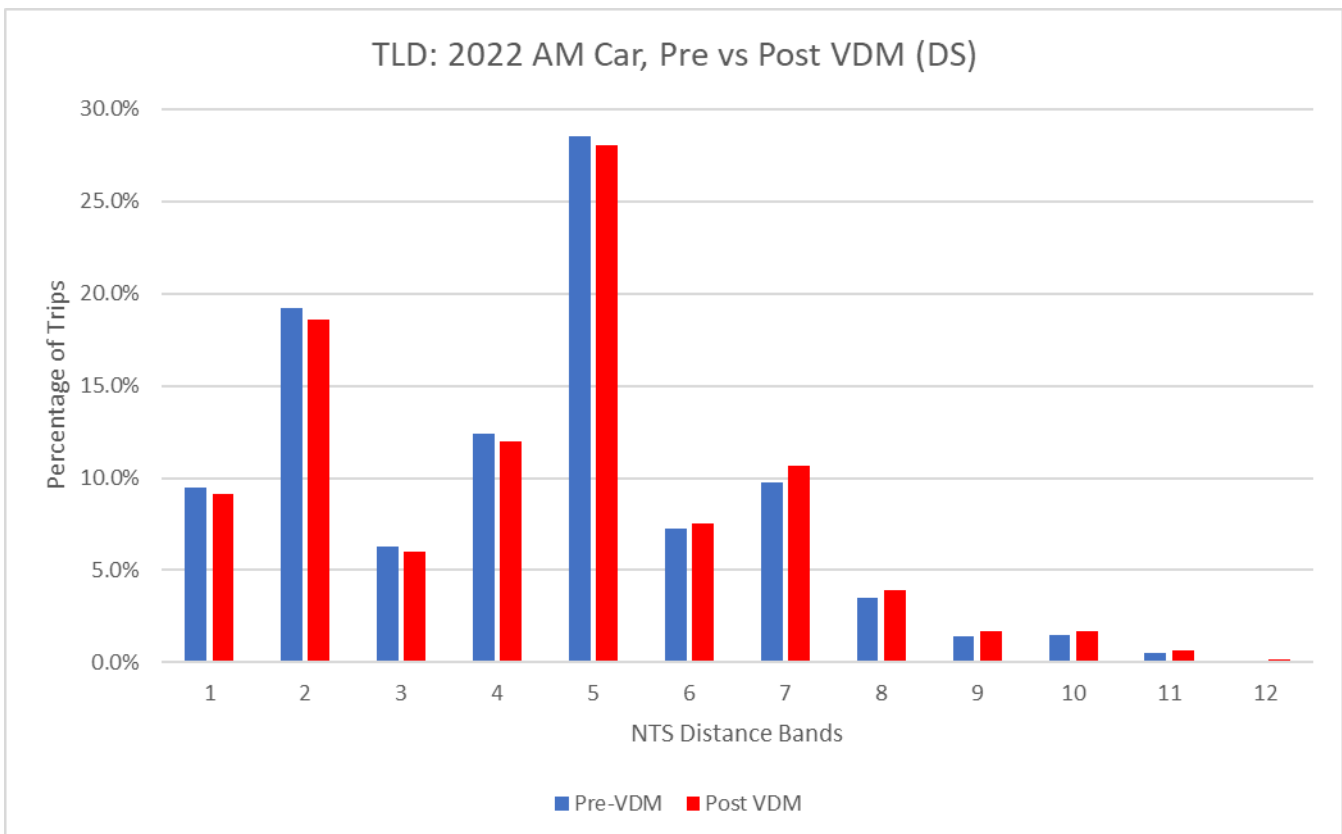
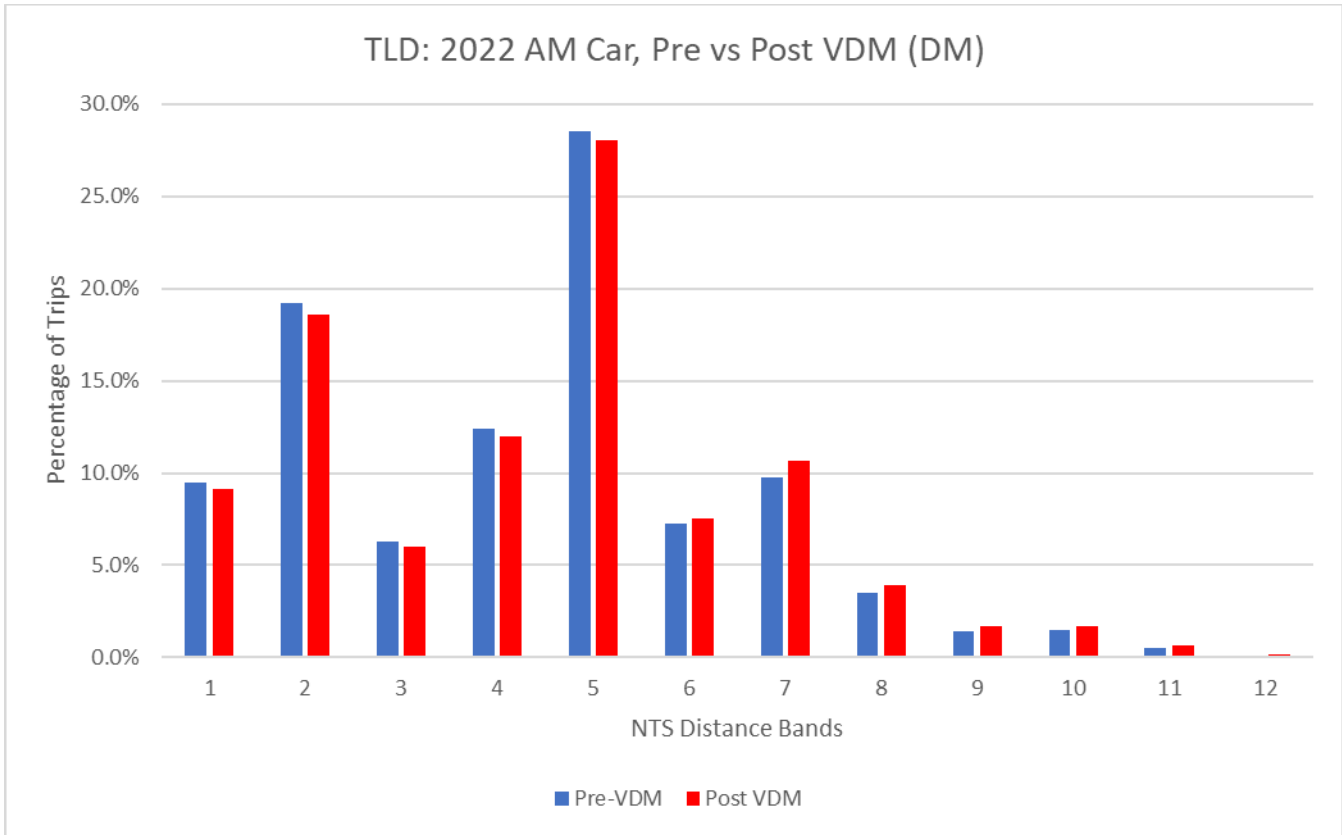
Time Period	UC	Pre VDM - 2037			Post VDM DM - 2037			Difference			% Difference		
		Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal
AM	1	259,201	121,991	137,210	259,201	121,825	137,376	0	-166	166	0.00%	-0.14%	0.12%
	2	38,402	15,412	22,990	38,402	15,385	23,016	-0	-26	26	0.00%	-0.17%	0.11%
	3	197,538	113,292	84,246	198,691	112,883	85,808	1,153	-409	1,562	0.58%	-0.36%	1.85%
	Total	495,141	250,695	244,446	496,295	250,094	246,201	1,153	-601	1,754	0.23%	-0.24%	0.72%
IP	1	58,180	27,106	31,075	58,180	27,070	31,110	-0	-35	35	0.00%	-0.13%	0.11%
	2	34,170	13,004	21,166	34,170	12,980	21,190	-0	-24	24	0.00%	-0.18%	0.11%
	3	261,059	139,227	121,831	262,824	138,721	124,103	1,766	-506	2,272	0.68%	-0.36%	1.86%
	Total	353,409	179,337	174,072	355,175	178,772	176,403	1,766	-565	2,331	0.50%	-0.32%	1.34%
PM	1	221,811	106,642	115,169	221,811	106,490	115,321	0	-152	152	0.00%	-0.14%	0.13%
	2	38,104	15,802	22,302	38,104	15,778	22,326	-0	-24	24	0.00%	-0.15%	0.11%
	3	290,838	159,954	130,885	292,722	159,411	133,311	1,884	-543	2,426	0.65%	-0.34%	1.85%
	Total	550,752	282,398	268,355	552,636	281,679	270,957	1,884	-719	2,603	0.34%	-0.25%	0.97%

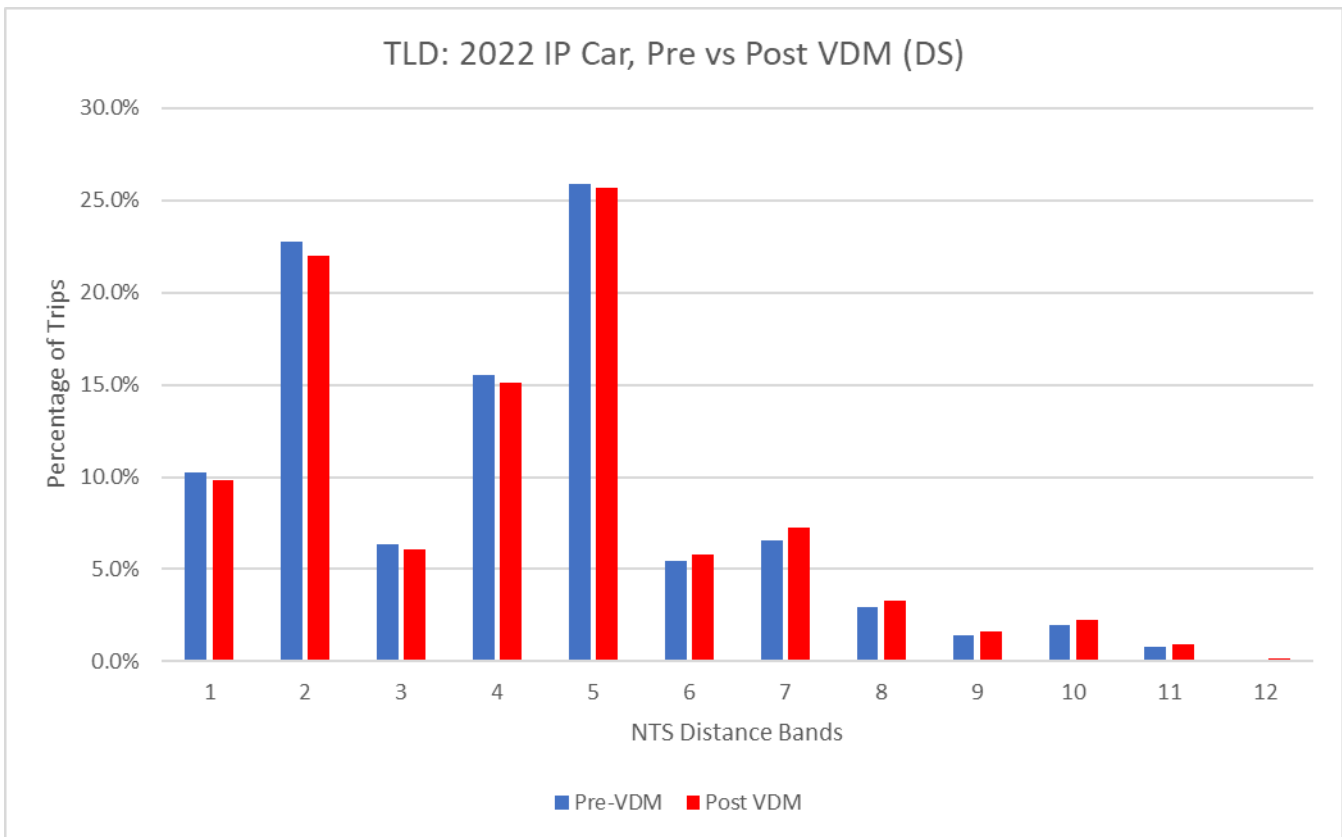
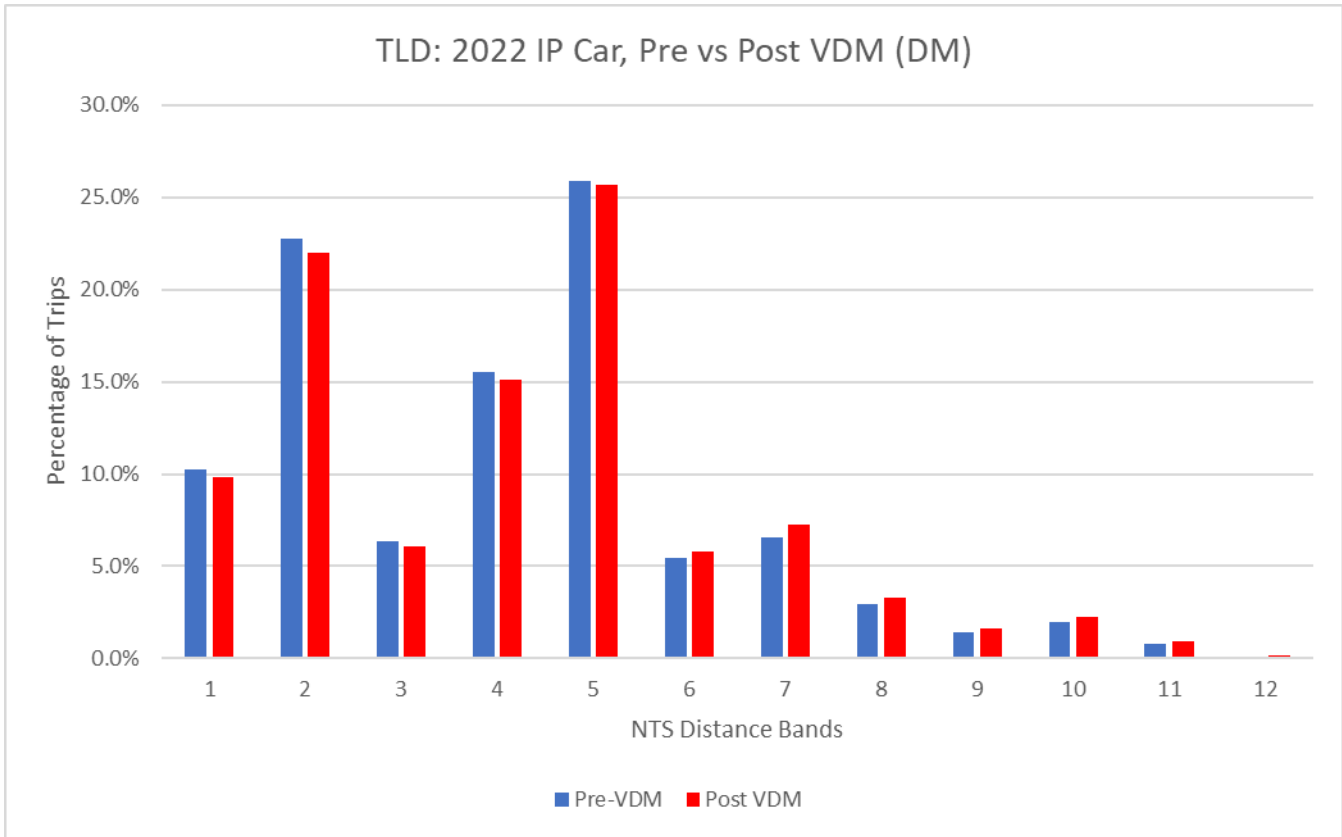
DM 2037 Matrix Totals: pre-VDM vs post-VDM

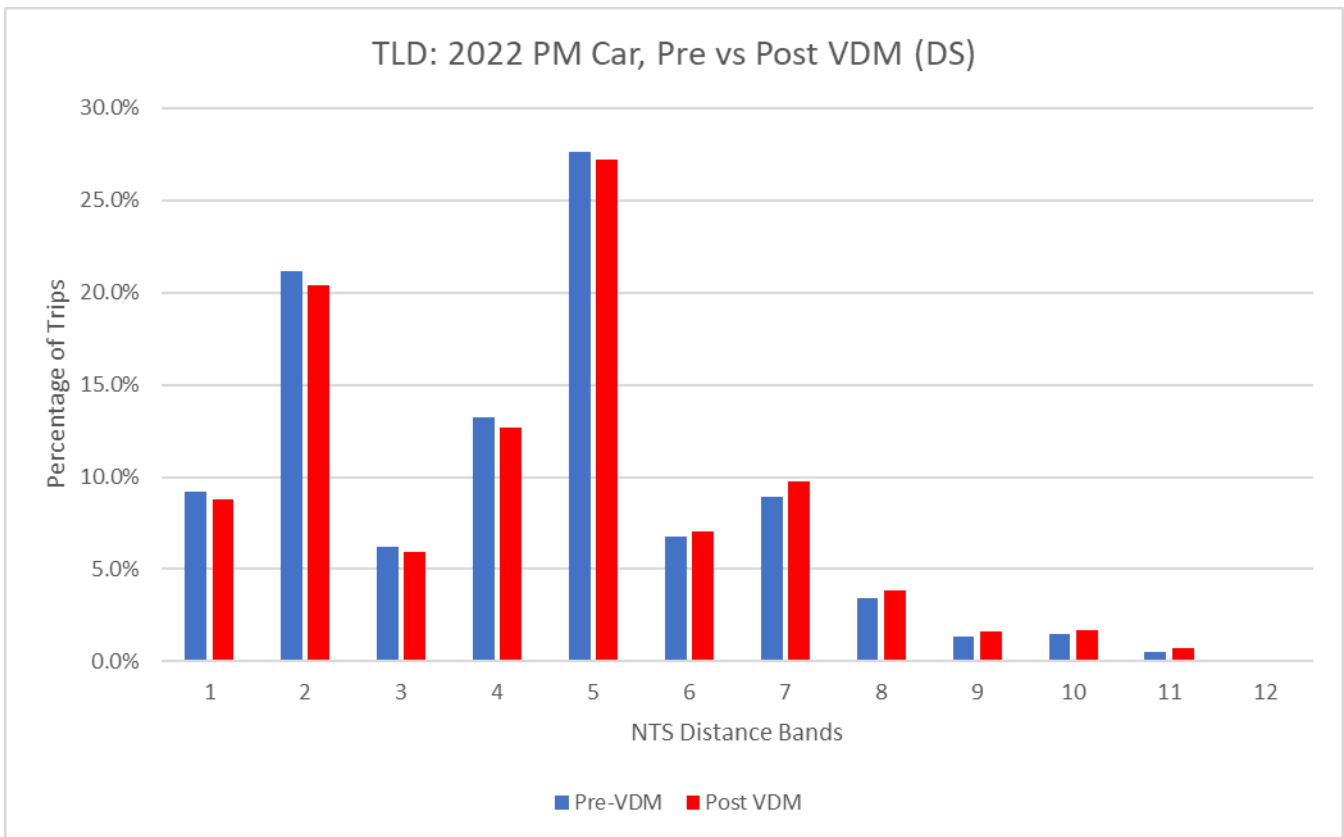
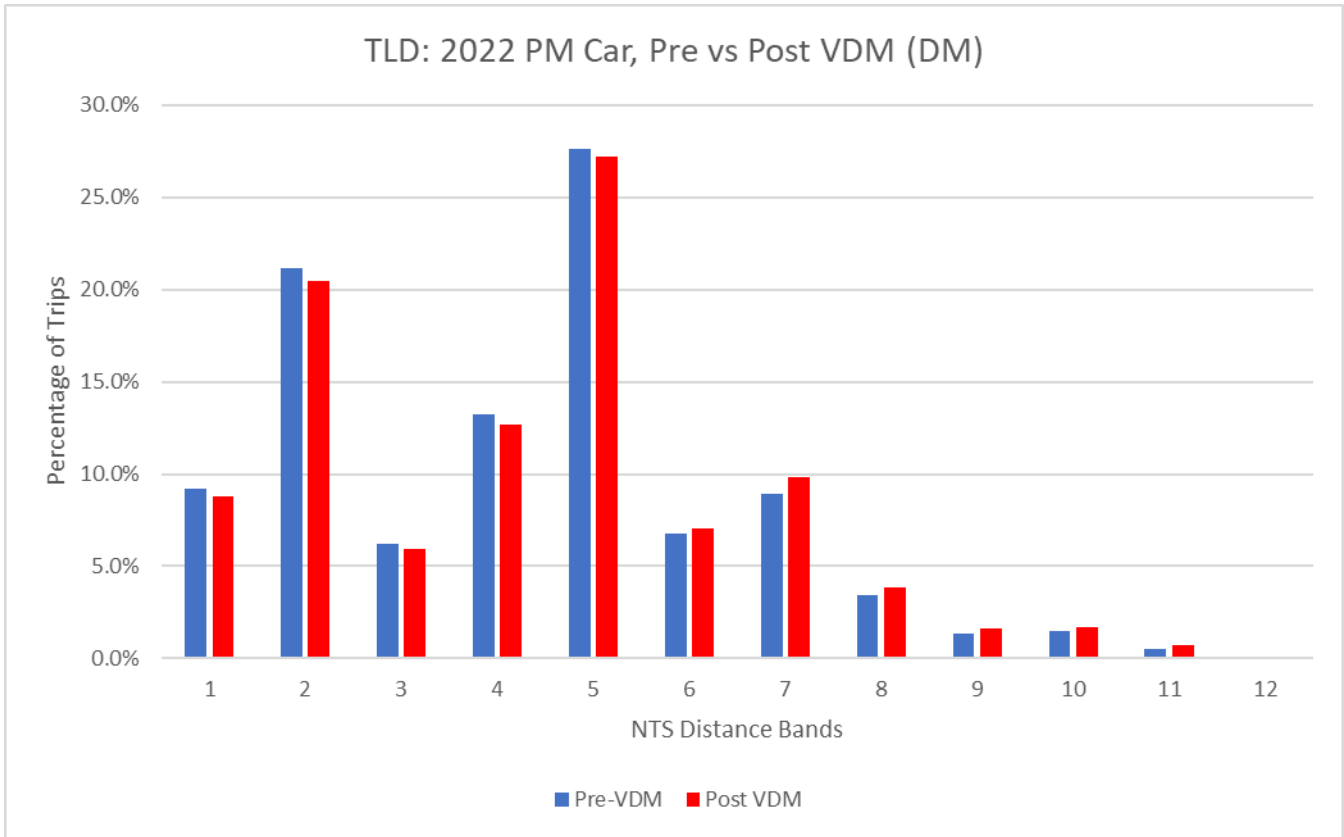
Time Period	UC	Pre VDM - 2037			Post VDM DS - 2037			Difference			% Difference		
		Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal	Grand Total	IntraZonal	InterZonal
AM	1	259,201	121,991	137,210	259,201	121,823	137,379	0	-168	168	0.00%	-0.14%	0.12%
	2	38,402	15,412	22,990	38,402	15,385	23,016	-0	-27	27	0.00%	-0.17%	0.12%
	3	197,538	113,292	84,246	198,702	112,879	85,823	1,164	-413	1,577	0.59%	-0.36%	1.87%
	Total	495,141	250,695	244,446	496,305	250,087	246,219	1,164	-608	1,772	0.24%	-0.24%	0.72%
IP	1	58,180	27,106	31,075	58,180	27,070	31,110	-0	-35	35	0.00%	-0.13%	0.11%
	2	34,170	13,004	21,166	34,170	12,980	21,190	-0	-24	24	0.00%	-0.19%	0.11%
	3	261,059	139,227	121,831	262,838	138,717	124,121	1,779	-511	2,290	0.68%	-0.37%	1.88%
	Total	353,409	179,337	174,072	355,189	178,767	176,422	1,779	-570	2,349	0.50%	-0.32%	1.35%
PM	1	221,811	106,642	115,169	221,811	106,488	115,322	0	-154	154	0.00%	-0.14%	0.13%
	2	38,104	15,802	22,302	38,104	15,778	22,326	-0	-24	24	0.00%	-0.15%	0.11%
	3	290,838	159,954	130,885	292,739	159,406	133,332	1,901	-547	2,448	0.65%	-0.34%	1.87%
	Total	550,752	282,398	268,355	552,653	281,672	270,981	1,900	-725	2,626	0.35%	-0.26%	0.98%

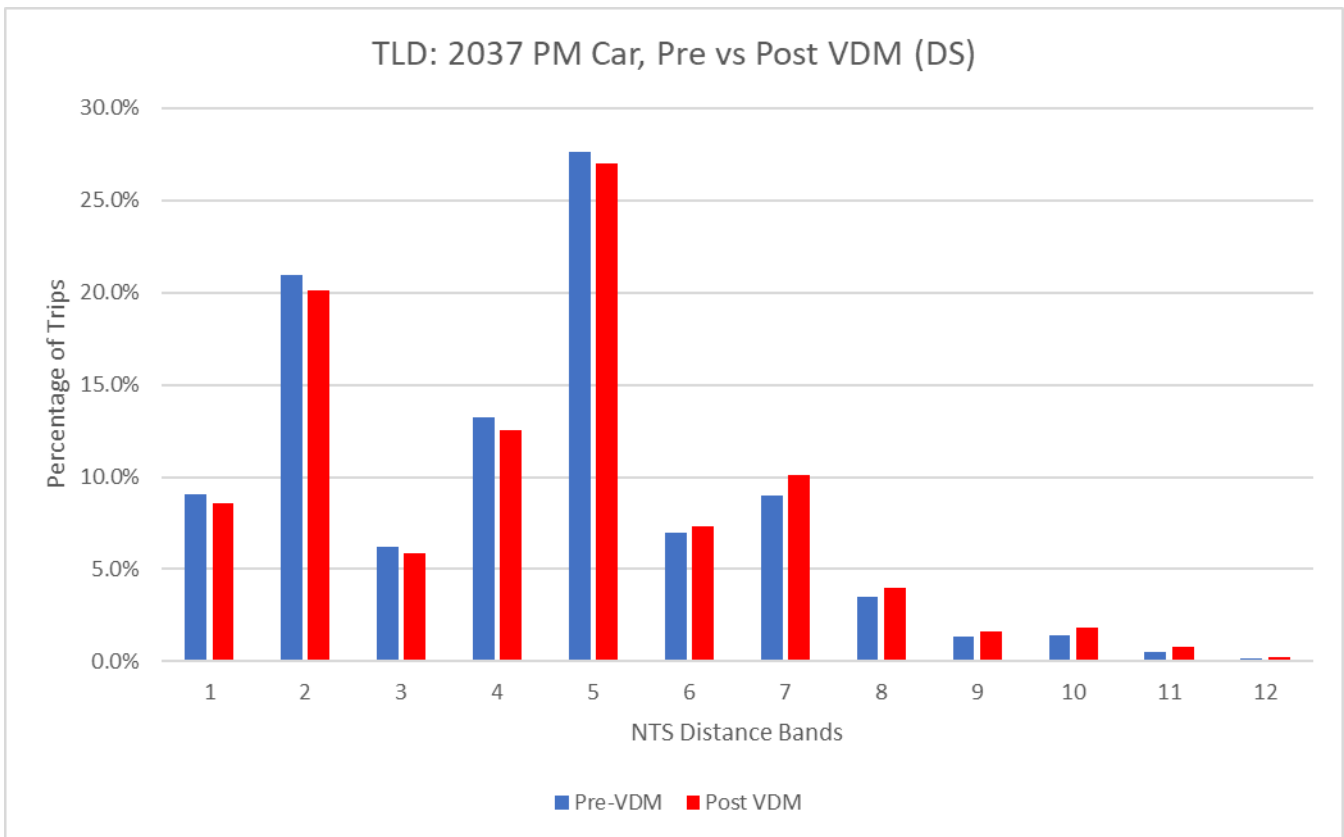
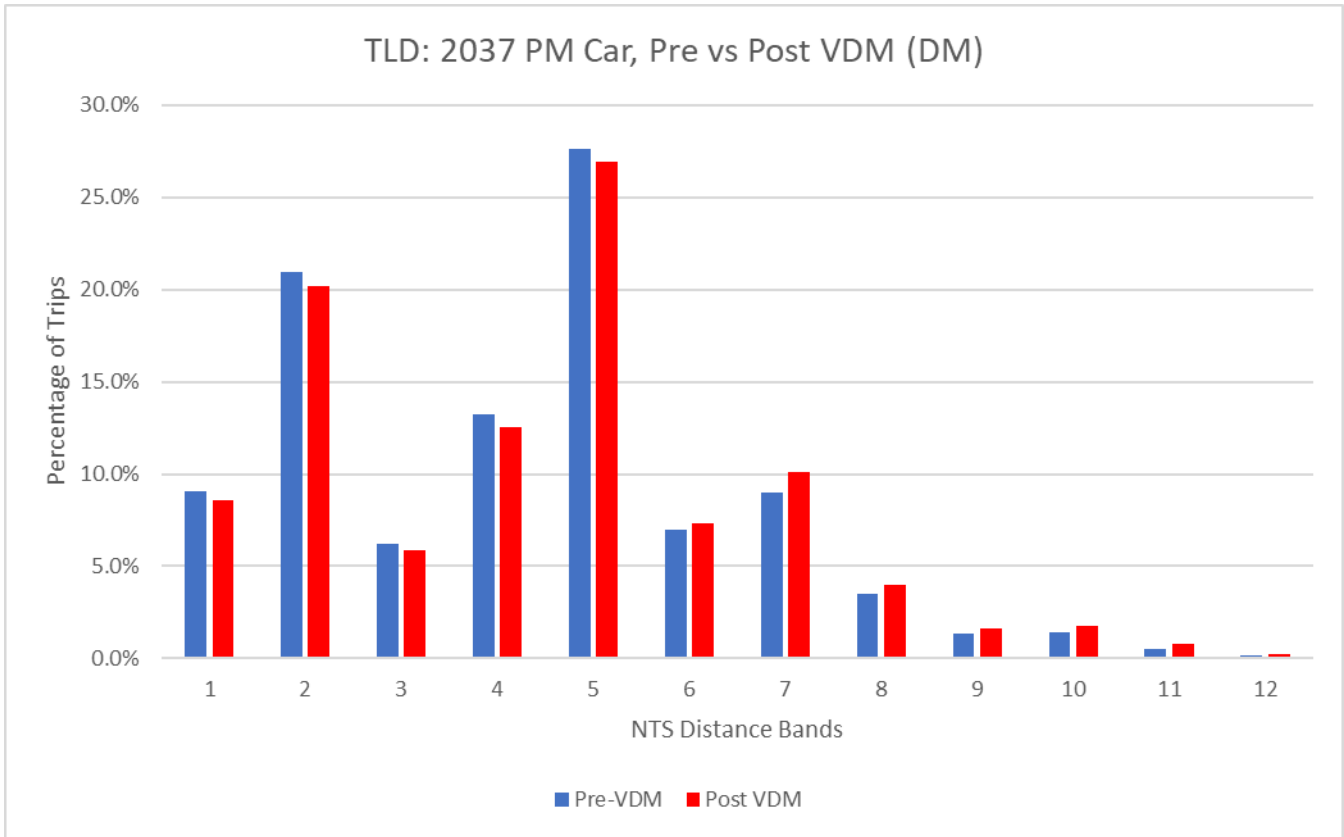
DS 2037 Matrix Totals: pre-VDM vs post-VDM

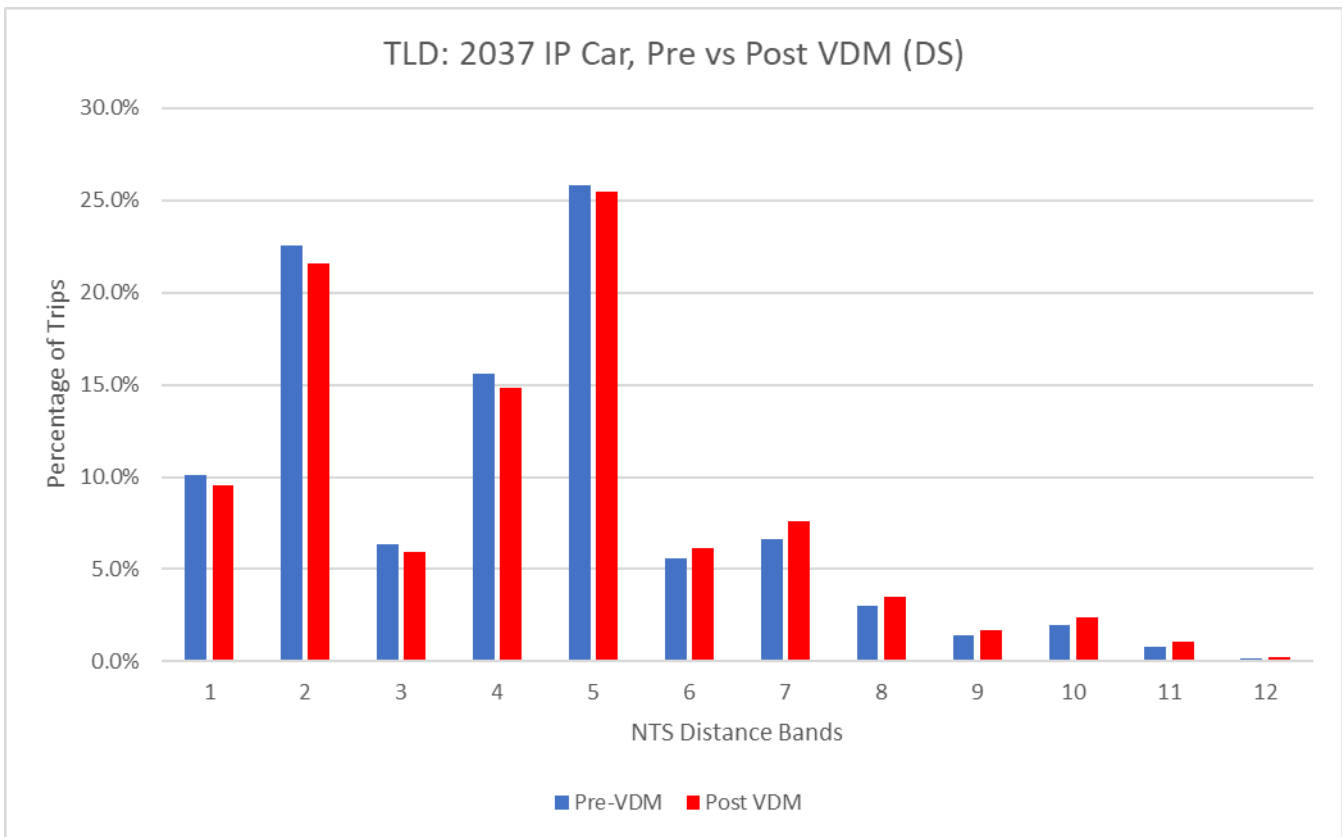
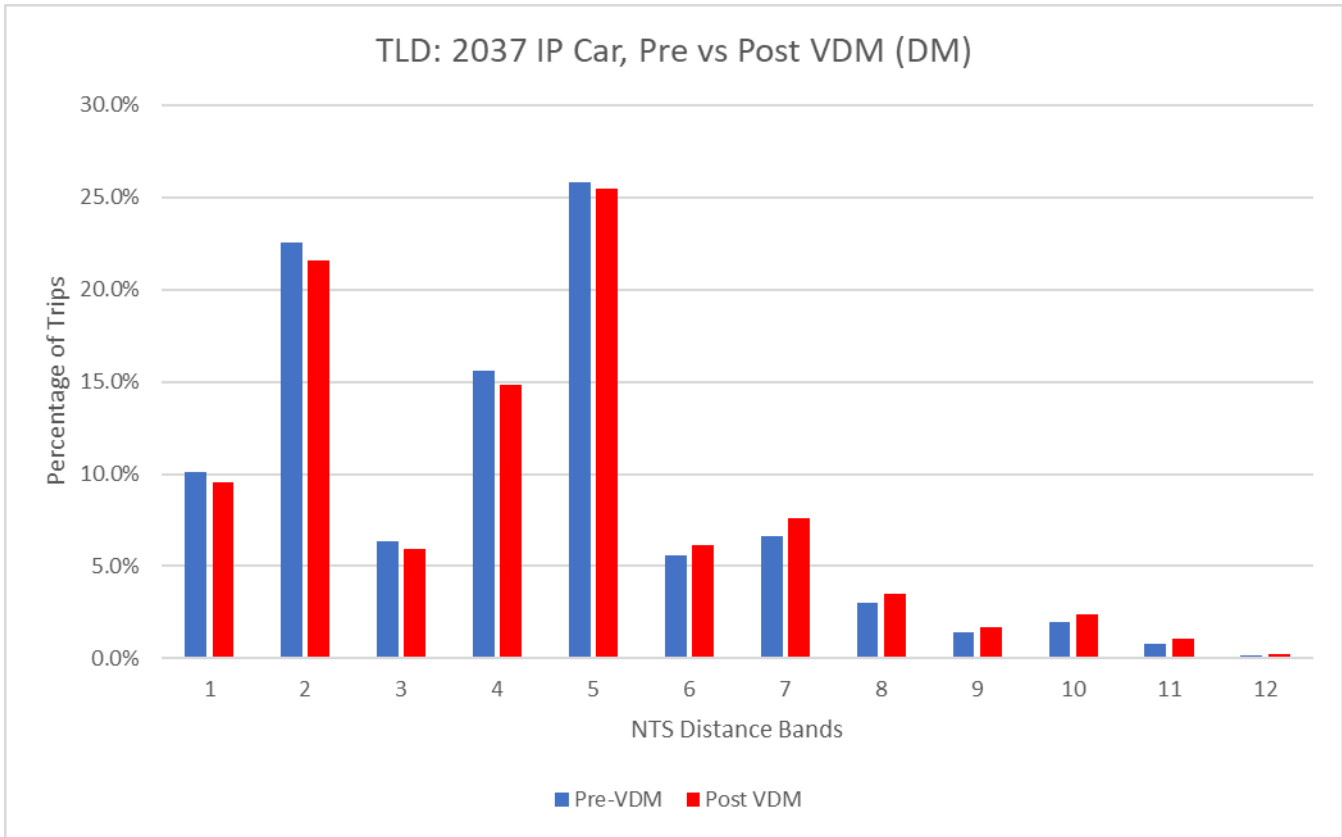
Appendix F. Trip Length Distributions

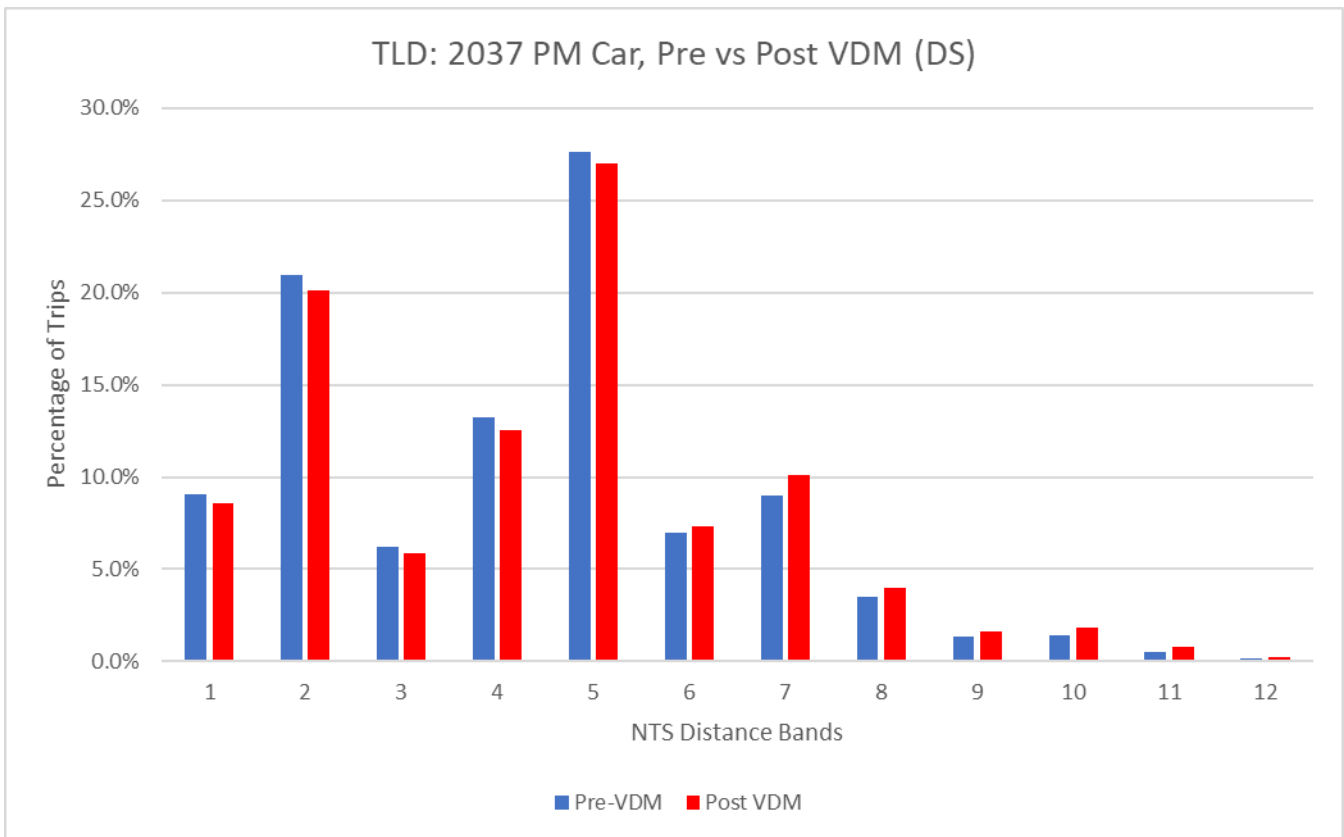
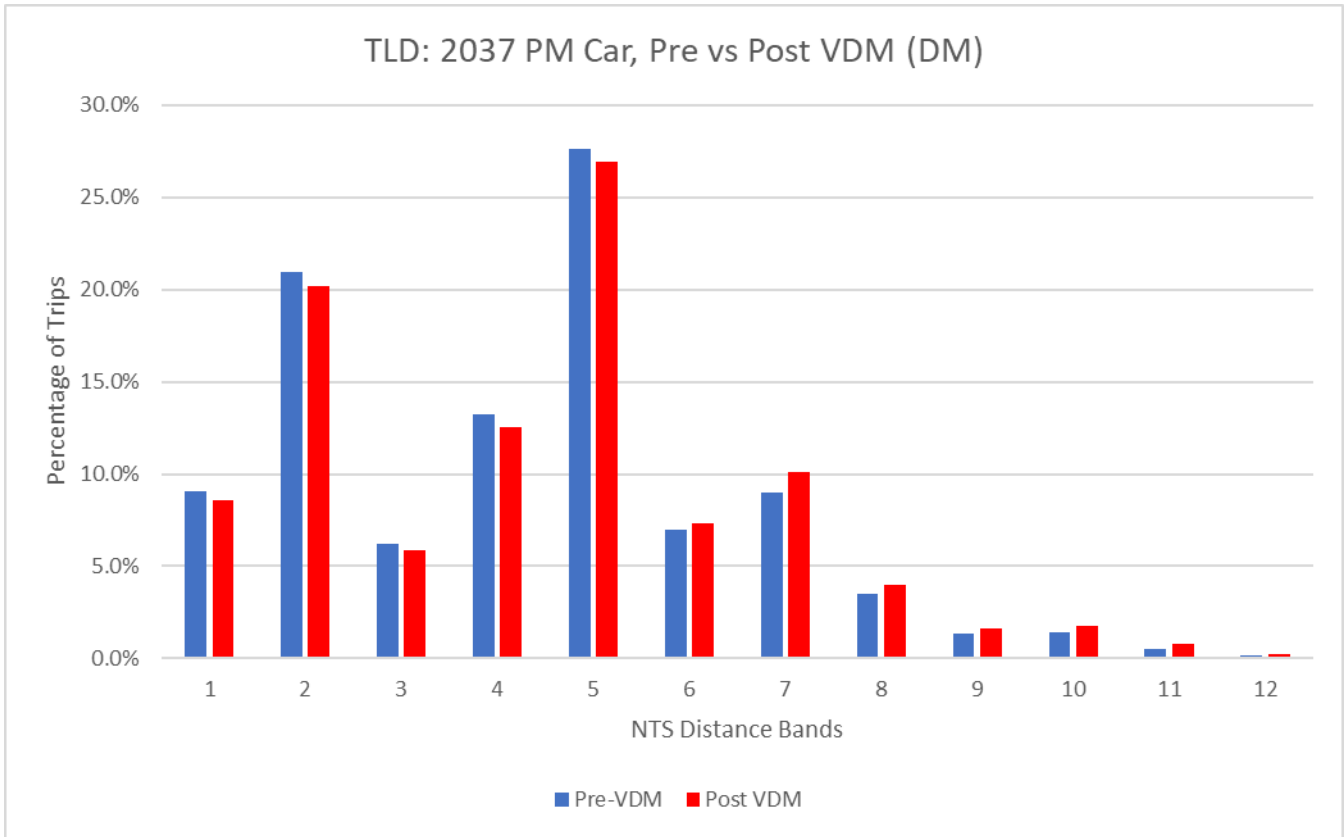












Appendix G. Pre and Post VDM Sector Analysis

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	12,305	461	1,140	133	411	1,345	797	357	597	203	424	18,173
NW Preston	616	204	543	22	96	58	42	20	22	41	48	1,713
Warton & Blackpool	1,489	372	30,637	125	331	507	214	142	305	912	708	35,743
Southport & West Lancs	273	17	95	9,349	16	209	139	354	1,284	125	1,687	13,546
North Lancs	525	60	342	8	992	150	76	23	50	601	57	2,886
East Lancs	1,814	61	417	139	168	21,767	512	345	7,865	567	9,237	42,891
South Ribble	1,856	59	475	159	75	722	1,927	1,462	1,092	107	231	8,164
SW of South Ribble	564	26	177	373	35	393	951	3,972	1,807	126	566	8,991
SE Lancs / Bolton	1,245	59	398	1,270	74	7,464	1,072	1,855	27,610	649	11,117	52,813
GB North	447	32	742	37	614	411	62	70	456	31,045	438	34,353
GB South	642	38	892	489	109	5,707	158	305	8,371	425	212,059	229,196
Total	21,775	1,390	35,857	12,105	2,921	38,733	5,951	8,905	49,458	34,801	236,572	448,468

2022 AM: pre-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	11,974	451	1,241	143	421	1,398	801	371	644	231	546	18,221
NW Preston	589	178	559	23	99	71	43	20	26	48	67	1,722
Warton & Blackpool	1,664	380	29,997	150	350	605	242	161	381	942	949	35,822
Southport & West Lancs	277	15	113	9,086	18	240	136	350	1,350	159	1,834	13,579
North Lancs	544	59	393	8	929	152	82	26	56	583	67	2,900
East Lancs	1,881	73	504	165	175	21,260	522	371	8,060	667	9,343	43,021
South Ribble	1,825	61	550	164	79	757	1,825	1,437	1,094	121	280	8,194
SW of South Ribble	569	28	206	372	38	429	937	3,797	1,823	155	666	9,021
SE Lancs / Bolton	1,285	73	490	1,338	83	7,584	1,048	1,848	26,931	778	11,520	52,977
GB North	434	35	758	41	560	418	63	71	481	31,020	503	34,384
GB South	759	49	1,041	531	134	5,606	211	361	8,410	533	211,791	229,425
Total	21,802	1,402	35,851	12,021	2,886	38,518	5,911	8,814	49,257	35,237	237,565	449,265

DM 2022 AM: post-VDM

	Preston	Warton & NW Preston	Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South	SE Lancs / Bolton	GB North	GB South	Total
Preston	11,956	451	1,242	143	421	1,399	803	383	646	231	547	18,222	
NW Preston	588	178	559	23	99	71	43	21	26	48	67	1,722	
Warton & Blackpool	1,658	379	29,997	151	351	606	243	164	381	942	951	35,822	
Southport & West Lancs	278	15	113	9,085	18	242	137	348	1,351	159	1,833	13,579	
North Lancs	543	59	394	8	929	152	82	27	56	582	67	2,900	
East Lancs	1,891	73	506	166	176	21,254	521	376	8,054	669	9,337	43,021	
South Ribble	1,824	61	543	164	78	760	1,822	1,446	1,096	120	281	8,196	
SW of South Ribble	576	28	207	371	38	437	943	3,769	1,830	156	669	9,024	
SE Lancs / Bolton	1,300	73	491	1,338	83	7,576	1,052	1,854	26,919	776	11,518	52,979	
GB North	434	35	758	41	559	418	64	73	481	31,019	503	34,384	
GB South	767	49	1,041	531	134	5,601	211	363	8,407	533	211,789	229,425	
Total	21,815	1,401	35,851	12,020	2,885	38,515	5,920	8,823	49,247	35,236	237,561	449,274	

DS 2022 AM: post-VDM

	Preston	Warton & NW Preston	Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South	SE Lancs / Bolton	GB North	GB South
Preston	-3%	-2%	9%	7%	2%	4%	0%	4%	8%	14%	29%	
NW Preston	-4%	-13%	3%	3%	3%	23%	1%	2%	19%	18%	39%	
Warton & Blackpool	12%	2%	-2%	20%	6%	19%	13%	13%	25%	3%	34%	
Southport & West Lancs	2%	-8%	20%	-3%	10%	15%	-2%	-1%	5%	28%	9%	
North Lancs	4%	-2%	15%	1%	-6%	1%	8%	15%	11%	-3%	18%	
East Lancs	4%	20%	21%	19%	4%	-2%	2%	8%	2%	18%	1%	
South Ribble	-2%	4%	16%	3%	6%	5%	-5%	-2%	0%	14%	21%	
SW of South Ribble	1%	4%	17%	0%	8%	9%	-1%	-4%	1%	23%	18%	
SE Lancs / Bolton	3%	23%	23%	5%	12%	2%	-2%	0%	-2%	20%	4%	
GB North	-3%	9%	2%	11%	-9%	2%	2%	2%	6%	0%	15%	
GB South	18%	29%	17%	9%	23%	-2%	33%	18%	0%	25%	0%	

2022 AM: Difference (DM - pre-VDM)

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South
Preston	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%
NW Preston	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%
Warton & Blackpool	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Southport & West Lancs	0%	-1%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%
North Lancs	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	0%
East Lancs	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%
South Ribble	0%	-1%	-1%	0%	-1%	0%	0%	1%	0%	-1%	0%	0%
SW of South Ribble	1%	2%	1%	0%	0%	2%	1%	-1%	0%	0%	0%	0%
SE Lancs / Bolton	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
GB North	0%	0%	0%	0%	0%	0%	1%	2%	0%	0%	0%	0%
GB South	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%

2022 AM: DS – DM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	9,949	377	749	148	467	961	1,100	632	612	193	378		15,567
NW Preston	368	125	315	5	50	24	37	28	17	17	37		1,022
Warton & Blackpool	683	329	29,235	76	200	189	199	123	239	488	620		32,380
Southport & West Lancs	147	7	84	6,830	10	58	119	218	670	104	684		8,930
North Lancs	434	51	302	16	813	102	22	22	44	403	122		2,332
East Lancs	995	50	251	100	112	14,888	331	192	4,563	431	4,384		26,299
South Ribble	1,212	36	196	102	43	372	1,462	962	814	85	211		5,496
SW of South Ribble	475	15	134	312	24	172	956	5,075	1,379	122	304		8,969
SE Lancs / Bolton	606	20	272	661	42	4,570	797	1,303	24,165	656	5,536		38,629
GB North	209	30	866	88	486	431	55	94	610	20,702	708		24,279
GB South	387	29	512	551	107	4,117	167	239	5,452	694	141,259		153,514
Total	15,464	1,071	32,915	8,889	2,355	25,884	5,243	8,890	38,566	23,895	154,244		317,417

2022 IP: pre-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	9,619	385	851	156	497	1,029	1,101	637	658	242	465		15,639
NW Preston	354	113	329	5	51	29	36	26	21	21	48		1,032
Warton & Blackpool	764	348	28,855	90	221	225	229	137	293	565	795		32,521
Southport & West Lancs	147	7	92	6,663	11	68	116	216	709	140	803		8,970
North Lancs	447	52	333	19	743	106	24	25	50	405	152		2,354
East Lancs	1,021	59	296	117	118	14,597	352	212	4,669	546	4,458		26,446
South Ribble	1,187	37	227	107	47	397	1,397	943	806	109	274		5,531
SW of South Ribble	500	16	157	327	29	194	958	4,886	1,408	161	379		9,014
SE Lancs / Bolton	638	26	335	694	50	4,643	798	1,311	23,661	840	5,853		38,848
GB North	210	32	863	93	445	437	55	96	629	20,706	788		24,354
GB South	430	35	581	566	124	3,958	186	260	5,469	850	141,387		153,846
Total	15,316	1,109	32,919	8,836	2,335	25,682	5,251	8,749	38,373	24,585	155,402		318,556

DM 2022 IP: post-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	9,603	384	849	156	497	1,031	1,102	654	661	241	465		15,642
NW Preston	354	113	328	5	51	29	36	27	21	21	48		1,032
Warton & Blackpool	763	348	28,853	90	221	225	230	139	293	565	794		32,522
Southport & West Lancs	148	7	92	6,662	11	68	116	216	708	140	803		8,970
North Lancs	447	51	333	19	742	106	24	25	50	405	152		2,354
East Lancs	1,019	59	296	118	118	14,595	354	217	4,668	546	4,457		26,446
South Ribble	1,185	36	225	107	47	399	1,394	949	807	110	275		5,534
SW of South Ribble	508	17	158	326	30	197	965	4,860	1,414	161	381		9,018
SE Lancs / Bolton	638	26	335	694	49	4,642	800	1,318	23,656	839	5,852		38,849
GB North	210	32	863	93	445	436	55	97	629	20,705	788		24,354
GB South	429	35	581	566	124	3,957	186	261	5,469	850	141,387		153,846
Total	15,305	1,108	32,913	8,835	2,335	25,685	5,261	8,765	38,374	24,584	155,402		318,567

DS 2022 IP: post-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South
Preston	-3%	2%	14%	5%	6%	7%	0%	1%	7%	25%	23%	
NW Preston	-4%	-10%	4%	3%	2%	21%	-3%	-4%	20%	21%	29%	
Warton & Blackpool	12%	6%	-1%	18%	11%	19%	15%	11%	23%	16%	28%	
Southport & West Lancs	-1%	5%	9%	-2%	3%	17%	-2%	-1%	6%	34%	18%	
North Lancs	3%	0%	10%	15%	-9%	4%	7%	10%	14%	1%	25%	
East Lancs	3%	16%	18%	16%	6%	-2%	7%	10%	2%	27%	2%	
South Ribble	-2%	0%	16%	4%	8%	7%	-4%	-2%	-1%	29%	30%	
SW of South Ribble	5%	11%	18%	5%	21%	12%	0%	-4%	2%	32%	25%	
SE Lancs / Bolton	5%	26%	23%	5%	17%	2%	0%	1%	-2%	28%	6%	
GB North	1%	7%	0%	6%	-9%	1%	0%	2%	3%	0%	11%	
GB South	11%	21%	13%	3%	16%	-4%	12%	9%	0%	22%	0%	

2022 IP: Difference (DM - pre-VDM)

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South
Preston	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%
NW Preston	0%	0%	0%	0%	0%	0%	1%	2%	0%	0%	0%	0%
Warton & Blackpool	0%	0%	0%	0%	0%	0%	1%	2%	0%	0%	0%	0%
Southport & West Lancs	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
North Lancs	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
East Lancs	0%	0%	0%	1%	0%	0%	0%	2%	0%	0%	0%	0%
South Ribble	0%	0%	-1%	0%	0%	0%	0%	1%	0%	0%	0%	0%
SW of South Ribble	2%	2%	1%	0%	2%	2%	1%	-1%	0%	0%	0%	1%
SE Lancs / Bolton	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
GB North	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
GB South	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%

2022 IP: DS – DM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	13,256	507	1,451	299	514	1,471	1,918	890	1,101	263	730		22,401
NW Preston	482	204	424	6	87	36	38	40	49	31	39		1,435
Warton & Blackpool	1,252	509	37,511	348	506	447	458	323	379	860	744		43,337
Southport & West Lancs	143	13	160	10,379	14	94	203	277	1,194	78	750		13,305
North Lancs	574	92	374	9	1,066	161	48	40	74	680	78		3,196
East Lancs	1,693	60	479	197	199	23,629	745	402	7,945	595	6,836		42,780
South Ribble	1,431	60	168	167	48	618	2,083	1,320	1,349	107	266		7,616
SW of South Ribble	428	30	198	496	31	291	1,121	4,586	2,189	99	474		9,943
SE Lancs / Bolton	893	28	379	1,318	72	8,295	1,331	2,225	35,223	522	9,432		59,720
GB North	310	40	879	120	658	504	135	106	715	33,832	634		37,932
GB South	467	64	838	1,606	174	8,705	321	503	11,363	658	233,729		258,426
Total	20,927	1,607	42,860	14,945	3,369	44,252	8,399	10,711	61,581	37,725	253,713		500,089

2022 PM: pre-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	12,684	498	1,639	304	528	1,564	1,929	934	1,177	295	923		22,476
NW Preston	461	177	434	7	87	42	42	44	62	38	53		1,446
Warton & Blackpool	1,425	533	36,671	398	563	558	524	367	472	962	976		43,447
Southport & West Lancs	147	12	195	10,110	16	111	203	283	1,269	103	886		13,336
North Lancs	590	93	410	9	992	172	52	43	84	670	94		3,210
East Lancs	1,750	71	588	222	210	23,161	781	421	8,093	696	6,913		42,906
South Ribble	1,418	67	206	167	52	652	1,986	1,288	1,342	129	337		7,644
SW of South Ribble	448	32	236	491	35	320	1,114	4,390	2,208	122	579		9,976
SE Lancs / Bolton	952	34	480	1,395	83	8,488	1,316	2,218	34,442	638	9,867		59,914
GB North	322	44	897	130	593	537	137	110	767	33,806	739		38,084
GB South	552	89	1,102	1,686	221	8,496	360	565	11,534	819	233,546		258,968
Total	20,750	1,652	42,859	14,918	3,381	44,101	8,446	10,663	61,449	38,276	254,912		501,406

DM 2022 PM: post-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lincs	North Lincs	East Lincs	South Ribble	Ribble	SW of South Ribble	SE Lincs / Bolton	GB North	GB South	Total
Preston	12,665	498	1,635	304	528	1,567	1,928	957	1,181	294	925		22,482
NW Preston	460	177	434	7	87	42	42	44	62	38	53		1,446
Warton & Blackpool	1,423	532	36,663	396	563	558	528	372	472	962	976		43,446
Southport & West Lincs	148	12	197	10,108	16	111	202	282	1,270	103	886		13,337
North Lincs	590	94	410	9	992	172	52	44	84	670	93		3,210
East Lincs	1,754	71	588	222	210	23,154	786	426	8,090	694	6,911		42,906
South Ribble	1,416	67	206	167	52	654	1,985	1,291	1,342	129	338		7,648
SW of South Ribble	457	33	240	490	35	325	1,116	4,360	2,218	123	583		9,978
SE Lincs / Bolton	962	34	482	1,395	83	8,484	1,316	2,225	34,429	638	9,867		59,916
GB North	322	44	897	130	593	537	137	111	767	33,806	739		38,084
GB South	559	89	1,105	1,686	221	8,492	362	564	11,531	820	233,542		258,970
Total	20,757	1,652	42,855	14,914	3,380	44,096	8,454	10,678	61,445	38,278	254,914		501,422

DS 2022 PM: post-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lincs	North Lincs	East Lincs	South Ribble	Ribble	SW of South Ribble	SE Lincs / Bolton	GB North	GB South
Preston	-4%	-2%	13%	2%	3%	6%	1%	5%	7%	12%	27%	
NW Preston	-4%	-13%	2%	19%	0%	16%	13%	9%	26%	21%	38%	
Warton & Blackpool	14%	5%	-2%	14%	11%	25%	14%	13%	25%	12%	31%	
Southport & West Lincs	3%	-4%	22%	-3%	12%	18%	0%	2%	6%	32%	18%	
North Lincs	3%	1%	10%	3%	-7%	7%	8%	9%	13%	-2%	19%	
East Lincs	3%	20%	23%	12%	5%	-2%	5%	5%	2%	17%	1%	
South Ribble	-1%	12%	22%	0%	9%	6%	-5%	-2%	-1%	20%	26%	
SW of South Ribble	5%	7%	19%	-1%	13%	10%	-1%	-4%	1%	24%	22%	
SE Lincs / Bolton	7%	21%	27%	6%	15%	2%	-1%	0%	-2%	22%	5%	
GB North	4%	12%	2%	8%	-10%	7%	2%	4%	7%	0%	17%	
GB South	18%	38%	31%	5%	27%	-2%	12%	12%	2%	24%	0%	

2022 PM: Difference (DM - pre-VDM)

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South
Preston	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%
NW Preston	0%	0%	0%	-1%	0%	0%	0%	2%	0%	0%	0%	0%
Warton & Blackpool	0%	0%	0%	-1%	0%	0%	1%	1%	0%	0%	0%	0%
Southport & West Lancs	1%	1%	1%	0%	0%	0%	-1%	0%	0%	0%	0%	0%
North Lancs	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%
East Lancs	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%
South Ribble	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SW of South Ribble	2%	2%	1%	0%	1%	1%	0%	-1%	0%	1%	1%	1%
SE Lancs / Bolton	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
GB North	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
GB South	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%

2022 PM: DS – DM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	13,430	537	1,568	139	469	1,653	860	437	628	210	433		20,363
NW Preston	854	230	607	27	120	85	62	39	36	41	55		2,157
Warton & Blackpool	1,580	460	33,497	161	380	618	340	164	317	960	724		39,203
Southport & West Lancs	317	21	117	10,262	19	236	157	399	1,396	138	1,826		14,887
North Lancs	578	67	385	9	1,079	176	83	41	57	650	61		3,186
East Lancs	2,191	77	487	154	204	23,918	582	430	8,582	630	10,041		47,296
South Ribble	1,998	66	529	170	86	772	2,069	1,700	1,201	112	245		8,947
SW of South Ribble	612	29	210	399	40	425	1,027	4,404	1,946	132	597		9,821
SE Lancs / Bolton	1,400	69	473	1,405	88	8,156	1,178	2,070	30,325	727	12,114		58,005
GB North	501	37	844	40	676	450	71	80	488	34,166	472		37,823
GB South	756	46	1,070	548	127	6,405	182	354	9,310	474	234,181		253,453
Total	24,216	1,639	39,787	13,314	3,288	42,894	6,612	10,117	54,285	38,241	260,749		495,141

2037 AM: pre-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	13,066	527	1,640	152	487	1,719	852	435	672	260	605		20,416
NW Preston	806	200	638	29	124	101	60	38	40	52	83		2,170
Warton & Blackpool	1,768	484	32,655	191	419	738	381	179	399	1,042	1,060		39,315
Southport & West Lancs	323	19	145	9,869	21	267	154	395	1,486	190	2,068		14,937
North Lancs	597	66	449	9	997	182	88	46	63	631	77		3,206
East Lancs	2,179	89	568	189	212	23,330	584	443	8,885	772	10,230		47,482
South Ribble	1,920	69	634	180	89	816	1,961	1,638	1,217	136	320		8,981
SW of South Ribble	598	30	253	402	41	451	1,007	4,187	1,962	176	752		9,859
SE Lancs / Bolton	1,373	82	573	1,517	93	8,303	1,140	2,047	29,383	927	12,807		58,246
GB North	484	41	873	44	597	452	71	78	516	34,140	576		37,872
GB South	897	59	1,259	617	156	6,229	263	442	9,355	659	233,876		253,813
Total	24,011	1,666	39,688	13,198	3,236	42,588	6,563	9,929	53,978	38,984	262,455		496,295

DM 2037 AM: post-VDM

	Warton &			Southport &			SW of South		SE Lancs /		GB North	GB South	Total
	Preston	NW Preston	Blackpool	West Lancs	North Lancs	East Lancs	South Ribble	Ribble	Bolton				
Preston	13,036	526	1,647	154	486	1,720	853	455	675	259	608	20,418	
NW Preston	805	200	637	29	124	101	60	40	40	52	83	2,170	
Warton & Blackpool	1,763	484	32,646	192	418	738	388	184	400	1,041	1,061	39,315	
Southport & West Lancs	324	19	145	9,867	21	270	155	392	1,488	190	2,066	14,937	
North Lancs	595	66	449	9	996	182	89	49	62	631	77	3,206	
East Lancs	2,201	90	573	190	213	23,314	585	460	8,870	772	10,217	47,483	
South Ribble	1,918	68	631	180	88	820	1,950	1,650	1,219	135	323	8,983	
SW of South Ribble	604	30	253	401	42	463	1,012	4,142	1,980	177	758	9,862	
SE Lancs / Bolton	1,395	83	574	1,515	93	8,290	1,151	2,070	29,353	927	12,797	58,248	
GB North	483	41	871	44	597	451	73	81	516	34,140	575	37,872	
GB South	911	60	1,261	615	156	6,224	265	445	9,349	658	233,870	253,812	
Total	24,036	1,666	39,686	13,198	3,234	42,572	6,581	9,969	53,950	38,980	262,434	496,305	

DS 2037 AM: post-VDM

	Warton &			Southport &			SW of South		SE Lancs /		GB North	GB South
	Preston	NW Preston	Blackpool	West Lancs	North Lancs	East Lancs	South Ribble	Ribble	Bolton			
Preston	-3%	-2%	5%	9%	4%	4%	-1%	0%	7%	24%	40%	
NW Preston	-6%	-13%	5%	7%	4%	19%	-3%	-3%	12%	25%	49%	
Warton & Blackpool	12%	5%	-3%	18%	10%	19%	12%	9%	26%	9%	46%	
Southport & West Lancs	2%	-7%	24%	-4%	8%	13%	-2%	-1%	6%	37%	13%	
North Lancs	3%	-1%	17%	-1%	-8%	4%	6%	11%	10%	-3%	27%	
East Lancs	-1%	15%	17%	23%	4%	-2%	0%	3%	4%	22%	2%	
South Ribble	-4%	5%	20%	6%	3%	6%	-5%	-4%	1%	22%	31%	
SW of South Ribble	-2%	3%	21%	1%	3%	6%	-2%	-5%	1%	33%	26%	
SE Lancs / Bolton	-2%	19%	21%	8%	5%	2%	-3%	-1%	-3%	28%	6%	
GB North	-3%	11%	3%	11%	-12%	0%	0%	-2%	6%	0%	22%	
GB South	19%	28%	18%	12%	23%	-3%	44%	25%	0%	39%	0%	

2037 AM: Difference (DM - pre-VDM)

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South
Preston	0%	0%	0%	1%	0%	0%	0%	5%	0%	0%	0%	0%
NW Preston	0%	0%	0%	1%	0%	0%	0%	5%	0%	0%	0%	0%
Warton & Blackpool	0%	0%	0%	1%	0%	0%	2%	3%	0%	0%	0%	0%
Southport & West Lancs	0%	-1%	0%	0%	0%	1%	1%	-1%	0%	0%	0%	0%
North Lancs	0%	0%	0%	1%	0%	0%	1%	7%	0%	0%	0%	0%
East Lancs	1%	1%	1%	0%	0%	0%	0%	4%	0%	0%	0%	0%
South Ribble	0%	-1%	-1%	0%	-1%	1%	-1%	1%	0%	-1%	1%	1%
SW of South Ribble	1%	2%	0%	0%	1%	3%	0%	-1%	1%	1%	1%	1%
SE Lancs / Bolton	2%	1%	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%
GB North	0%	0%	0%	0%	0%	0%	2%	4%	0%	0%	0%	0%
GB South	2%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%

2037 AM: DS – DM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	10,921	440	1,131	160	521	1,131	1,176	760	660	209	411		17,521
NW Preston	501	142	356	6	62	38	45	32	20	20	42		1,265
Warton & Blackpool	742	426	32,009	83	227	319	331	153	265	531	688		35,774
Southport & West Lancs	162	9	96	7,484	12	67	128	238	733	115	752		9,794
North Lancs	482	58	341	19	891	124	25	41	52	441	137		2,611
East Lancs	1,219	68	294	115	130	16,344	367	241	4,988	480	4,864		29,109
South Ribble	1,312	44	230	113	48	411	1,583	1,126	900	93	233		6,093
SW of South Ribble	518	19	150	342	27	192	1,048	5,506	1,512	134	336		9,785
SE Lancs / Bolton	656	28	311	723	46	4,981	871	1,411	26,652	722	6,115		42,516
GB North	229	35	947	97	532	481	60	110	672	23,193	786		27,142
GB South	422	36	562	606	118	4,550	184	270	6,017	771	158,264		171,799
Total	17,165	1,305	36,428	9,747	2,613	28,637	5,819	9,890	42,470	26,707	172,627		353,409

2037 IP: pre-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	10,401	446	1,320	177	547	1,229	1,169	773	720	289	555		17,626
NW Preston	477	124	378	6	63	48	44	31	25	25	59		1,282
Warton & Blackpool	854	470	31,345	105	263	393	397	181	344	663	979		35,994
Southport & West Lancs	166	9	110	7,211	12	81	126	235	790	175	940		9,856
North Lancs	490	59	388	22	788	131	27	47	60	447	185		2,644
East Lancs	1,239	80	364	140	139	15,907	397	270	5,138	679	4,985		29,338
South Ribble	1,269	45	280	122	52	451	1,481	1,087	887	136	337		6,147
SW of South Ribble	545	22	187	368	34	223	1,042	5,214	1,555	200	461		9,851
SE Lancs / Bolton	694	36	406	773	56	5,093	869	1,416	25,857	1,035	6,619		42,854
GB North	230	37	941	104	469	488	61	112	699	23,201	919		27,260
GB South	487	46	670	627	142	4,292	214	302	6,021	1,044	158,477		172,324
Total	16,853	1,375	36,390	9,656	2,565	28,336	5,827	9,669	42,094	27,894	174,516		355,175

DM 2037 IP: post-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lincs	North Lincs	East Lincs	South Ribble	Ribble	SW of South	SE Lincs / Bolton	GB North	GB South	Total
Preston	10,374	445	1,318	178	547	1,232	1,170	800	722	288	556		17,631
NW Preston	477	124	378	6	63	48	44	32	25	25	59		1,282
Warton & Blackpool	852	470	31,342	105	263	393	400	184	343	663	978		35,994
Southport & West Lincs	168	9	111	7,210	13	82	126	235	790	176	939		9,857
North Lincs	490	59	388	22	787	131	27	48	60	447	184		2,644
East Lincs	1,238	80	364	142	139	15,904	398	277	5,136	678	4,984		29,338
South Ribble	1,267	45	278	123	52	454	1,478	1,091	888	136	337		6,150
SW of South Ribble	558	22	189	366	35	228	1,044	5,184	1,563	201	465		9,855
SE Lincs / Bolton	696	36	405	773	55	5,091	868	1,427	25,851	1,034	6,618		42,854
GB North	230	37	941	104	469	487	61	114	698	23,201	918		27,260
GB South	487	46	670	627	142	4,292	213	305	6,021	1,043	158,476		172,324
Total	16,836	1,374	36,384	9,657	2,565	28,340	5,828	9,699	42,097	27,893	174,516		355,189

DS 2037 IP: post-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lincs	North Lincs	East Lincs	South Ribble	Ribble	SW of South	SE Lincs / Bolton	GB North	GB South
Preston	-5%	1%	17%	10%	5%	9%	-1%	2%	9%	38%	35%	
NW Preston	-5%	-12%	6%	7%	2%	25%	-3%	-3%	24%	30%	40%	
Warton & Blackpool	15%	10%	-2%	26%	16%	23%	20%	18%	30%	25%	42%	
Southport & West Lincs	2%	8%	15%	-4%	7%	22%	-1%	-1%	8%	53%	25%	
North Lincs	2%	1%	14%	20%	-12%	6%	7%	12%	15%	1%	35%	
East Lincs	2%	18%	24%	22%	7%	-3%	8%	12%	3%	42%	2%	
South Ribble	-3%	2%	21%	8%	9%	10%	-6%	-3%	-1%	45%	45%	
SW of South Ribble	5%	14%	24%	8%	25%	16%	-1%	-5%	3%	49%	37%	
SE Lincs / Bolton	6%	31%	30%	7%	20%	2%	0%	0%	-3%	43%	8%	
GB North	1%	8%	-1%	7%	-12%	1%	0%	2%	4%	0%	17%	
GB South	16%	26%	19%	4%	21%	-6%	16%	12%	0%	35%	0%	

2037 IP: Difference (DM - pre-VDM)

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South
Preston	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	0%
NW Preston	0%	0%	0%	1%	0%	0%	1%	2%	0%	0%	0%	0%
Warton & Blackpool	0%	0%	0%	0%	0%	0%	1%	2%	0%	0%	0%	0%
Southport & West Lancs	1%	1%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%
North Lancs	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%
East Lancs	0%	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	0%
South Ribble	0%	-1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
SW of South Ribble	2%	1%	1%	0%	3%	2%	0%	-1%	1%	1%	1%	1%
SE Lancs / Bolton	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
GB North	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
GB South	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%

2037 IP: DS – DM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	14,516	618	1,910	328	567	1,670	2,030	1,093	1,198	286	807		25,022
NW Preston	662	226	473	7	99	55	57	56	55	35	45		1,770
Warton & Blackpool	1,376	691	40,908	375	558	643	730	379	417	937	834		47,850
Southport & West Lancs	156	19	172	11,333	15	104	215	296	1,311	85	825		14,532
North Lancs	653	103	428	10	1,167	193	55	71	88	743	92		3,605
East Lancs	1,999	79	558	219	234	25,815	822	508	8,658	657	7,581		47,130
South Ribble	1,546	72	201	187	53	680	2,208	1,507	1,493	117	299		8,365
SW of South Ribble	473	36	221	542	33	322	1,228	4,927	2,417	109	529		10,838
SE Lancs / Bolton	961	39	415	1,425	78	8,976	1,414	2,357	38,576	567	10,385		65,193
GB North	335	45	946	132	716	560	144	119	789	37,245	704		41,736
GB South	505	71	898	1,748	187	9,465	341	551	12,399	725	257,825		284,713
Total	23,183	1,999	47,130	16,307	3,708	48,484	9,243	11,864	67,401	41,507	279,926		550,752

2037 PM: pre-VDM

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South	Total
Preston	14,006	607	2,102	328	590	1,768	1,954	1,091	1,184	347	1,028		25,004
NW Preston	636	195	496	8	100	61	60	60	63	45	62		1,786
Warton & Blackpool	1,531	731	39,890	424	650	784	810	418	490	1,121	1,126		47,974
Southport & West Lancs	160	19	217	10,924	17	125	220	309	1,429	123	1,038		14,580
North Lancs	674	105	477	10	1,072	210	58	72	94	737	112		3,621
East Lancs	2,056	91	672	244	257	25,253	861	501	8,823	802	7,718		47,279
South Ribble	1,491	80	253	191	56	727	2,088	1,457	1,491	150	411		8,395
SW of South Ribble	477	38	268	538	35	352	1,209	4,669	2,445	145	697		10,873
SE Lancs / Bolton	981	45	519	1,542	84	9,246	1,400	2,351	37,470	737	11,080		65,454
GB North	347	52	992	144	629	617	150	124	873	37,222	881		42,030
GB South	605	97	1,246	1,890	237	9,148	399	652	12,726	980	257,661		285,641
Total	22,964	2,058	47,133	16,243	3,727	48,291	9,208	11,704	67,087	42,407	281,813		552,636

DM 2037 PM: post-VDM

	Preston	Warton & NW Preston	Blackpool	Southport & West Lincs	North Lincs	East Lincs	South Ribble	Ribble	SW of South	SE Lincs / Bolton	GB North	GB South	Total
Preston	13,965	605	2,100	329	587	1,776	1,963	1,123	1,196	345	1,032		25,021
NW Preston	635	195	495	8	100	61	61	61	63	45	62		1,786
Warton & Blackpool	1,522	727	39,888	417	650	786	817	419	492	1,122	1,130		47,971
Southport & West Lincs	162	19	218	10,922	17	125	219	308	1,429	124	1,037		14,580
North Lincs	674	105	478	10	1,071	210	58	73	94	736	112		3,621
East Lincs	2,060	91	674	245	257	25,247	859	507	8,819	802	7,716		47,277
South Ribble	1,490	80	252	191	55	728	2,089	1,461	1,490	150	412		8,397
SW of South Ribble	486	38	270	536	36	358	1,209	4,643	2,456	146	700		10,877
SE Lincs / Bolton	989	45	521	1,544	84	9,240	1,401	2,357	37,454	738	11,078		65,452
GB North	347	52	992	144	628	616	150	125	871	37,221	881		42,029
GB South	611	97	1,249	1,891	239	9,144	402	651	12,722	980	257,655		285,641
Total	22,941	2,054	47,136	16,236	3,726	48,294	9,228	11,727	67,086	42,410	281,815		552,653

DS 2037 PM: post-VDM

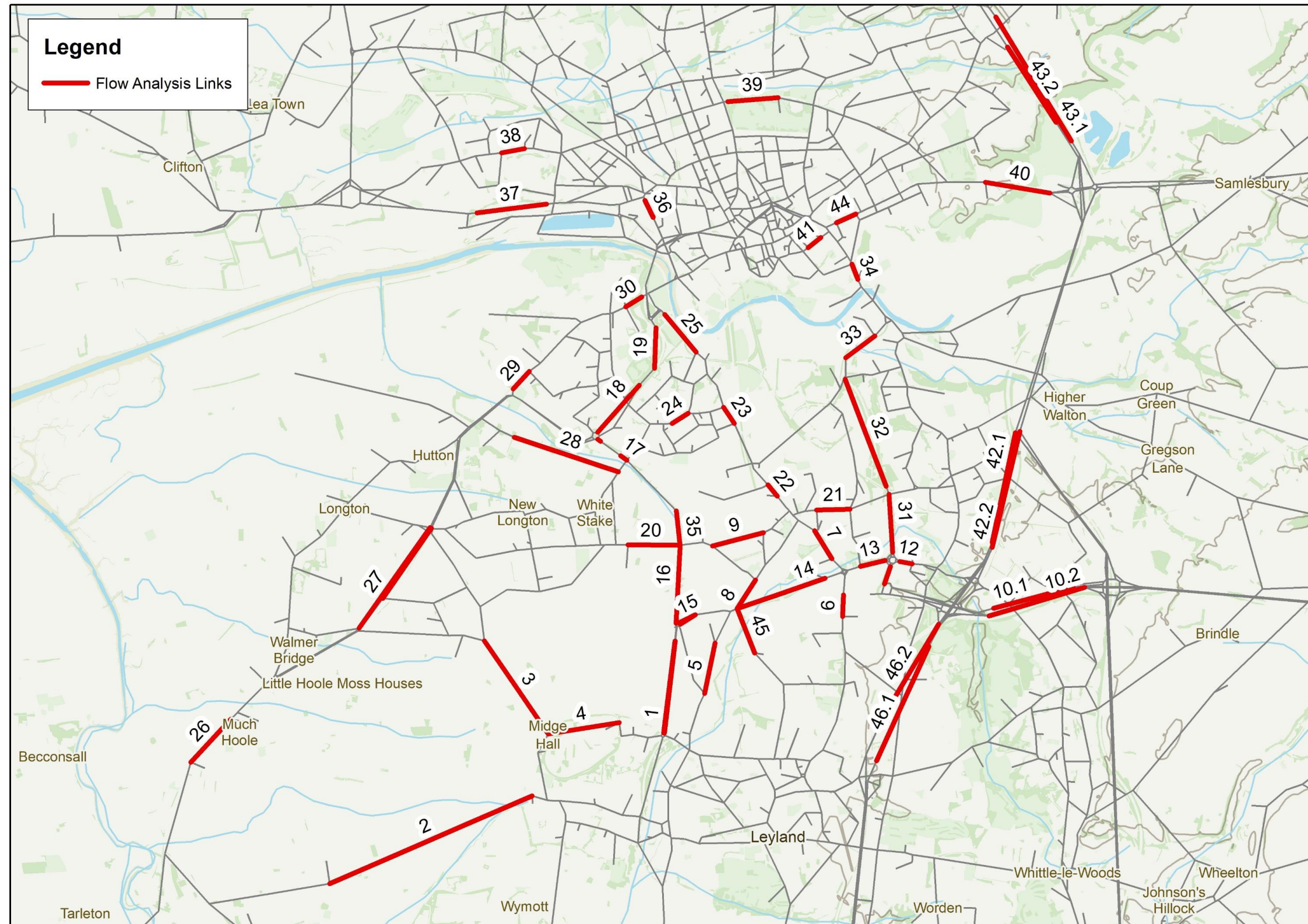
	Preston	Warton & NW Preston	Blackpool	Southport & West Lincs	North Lincs	East Lincs	South Ribble	Ribble	SW of South	SE Lincs / Bolton	GB North	GB South
Preston	-4%	-2%	10%	0%	4%	6%	-4%	0%	-1%	21%	27%	
NW Preston	-4%	-14%	5%	17%	1%	11%	6%	6%	15%	28%	38%	
Warton & Blackpool	11%	6%	-2%	13%	16%	22%	11%	10%	18%	20%	35%	
Southport & West Lincs	2%	0%	26%	-4%	9%	20%	2%	4%	9%	45%	26%	
North Lincs	3%	2%	11%	0%	-8%	9%	4%	2%	6%	-1%	21%	
East Lincs	3%	14%	20%	11%	10%	-2%	5%	-1%	2%	22%	2%	
South Ribble	-4%	12%	26%	2%	6%	7%	-5%	-3%	0%	28%	38%	
SW of South Ribble	1%	6%	21%	-1%	6%	9%	-2%	-5%	1%	33%	32%	
SE Lincs / Bolton	2%	15%	25%	8%	8%	3%	-1%	0%	-3%	30%	7%	
GB North	3%	15%	5%	9%	-12%	10%	5%	4%	11%	0%	25%	
GB South	20%	37%	39%	8%	27%	-3%	17%	18%	3%	35%	0%	

2037 PM: Difference (DM - pre-VDM)

	Preston	NW Preston	Warton & Blackpool	Southport & West Lancs	North Lancs	East Lancs	South Ribble	Ribble	SW of South Ribble	SE Lancs / Bolton	GB North	GB South
Preston	0%	0%	0%	0%	-1%	0%	0%	3%	1%	-1%	0%	
NW Preston	0%	0%	0%	0%	0%	0%	2%	1%	0%	0%	0%	
Warton & Blackpool	-1%	0%	0%	-2%	0%	0%	1%	0%	0%	0%	0%	
Southport & West Lancs	1%	1%	0%	0%	1%	0%	0%	0%	0%	1%	0%	
North Lancs	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	
East Lancs	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	
South Ribble	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	
SW of South Ribble	2%	1%	1%	0%	1%	2%	0%	-1%	0%	1%	0%	
SE Lancs / Bolton	1%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	
GB North	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	
GB South	1%	1%	0%	0%	1%	0%	1%	0%	0%	0%	0%	

2037 PM: DS – DM

Appendix H. Traffic Flow Changes



Flows on Key Links BY vs DM - 2022

ID	Road Name	Between	Base			Without Scheme (2022)			Change (%)		
			AM	IP	PM	AM	IP	PM	AM	IP	PM
1	Flensburg Way	Tank roundabout and Longmeanygate	1717.48	1482.40	1881.01	2308.52	1939.41	2594.30	34%	31%	38%
2	B5428 North Road	Carrhouse Lane and Dunkirk Lane	437.87	327.38	368.75	509.93	382.52	428.64	16%	17%	16%
3	Midge Hall Lane	Gill Lane and Longmeanygate	529.84	394.56	616.28	509.06	431.36	566.11	-4%	9%	-8%
4	Longmeanygate	Midge Hall Lane and Comet Road	385.91	260.44	442.59	574.17	350.36	591.55	49%	35%	34%
5	Croston Road	Leyland Lane and A582	341.81	290.31	432.09	437.35	344.26	388.52	28%	19%	-10%
6	Stanifield Lane	Lydiat Lane and A582	1713.52	1110.48	1492.72	1725.96	1132.30	1581.91	1%	2%	6%
7	B5254 Watkin Lane	A582 and Brownedge Road	1291.88	1045.12	1197.38	822.42	445.12	743.97	-36%	-57%	-38%
8	Croston Road	A582 and Church Lane	160.58	124.75	373.22	246.04	160.24	319.22	53%	28%	-14%
9	Coot Lane	Chainhouse Lane and Leyland Road	319.90	326.74	286.75	251.86	205.59	265.46	-21%	-37%	-7%
10.1	M65 EB	J1 and J2	2411.52	1695.95	2750.92	2721.00	2013.13	3129.76	13%	19%	14%
10.2	M65 WB	J1 and J2	2552.87	1639.98	2531.95	2926.93	1918.63	3005.08	15%	17%	19%
11	Above Cuerden Roundabout	A582 and Cuerden Roundabout	3303.37	2673.93	3643.33	3800.94	3207.00	4294.09	15%	20%	18%
12	A6 Lostock Lane	A582 and Wigan Road	1363.09	1052.49	1722.70	1744.28	1264.41	1972.65	28%	20%	15%
13	A582 Lostock Lane	A6 and Stanifield Rbt	3819.13	2776.78	3676.50	4129.30	2663.57	3824.21	8%	-4%	4%
14	A582 Farington Road	Stanifield Rbt and Croston Junction	1703.49	1267.30	1692.58	2494.89	1841.58	2276.03	46%	45%	34%
15	A582 Flensburg Way	Tank Rbt and Croston Junction	1572.75	1122.96	1248.83	2087.85	1537.51	1818.61	33%	37%	46%
16	A582 Penwortham Way	Tank Rbt and Chainhouse Lane	1951.71	1547.34	1744.54	2189.98	1714.68	2290.88	12%	11%	31%
17	Golden Way	Pope Lane and Golden Way Rbt	1415.04	1344.73	1652.24	1703.81	1446.71	2038.98	20%	8%	23%
18	Golden Way	Golden Way Rbt and Cop Lane	1201.52	1249.11	1608.99	2386.03	2132.33	2927.27	99%	71%	82%
19	Golden Way	Cop Lane and Penwortham Triangle	1406.62	1536.41	1973.49	2815.33	2562.79	3399.90	100%	67%	72%
20	Chainhouse Lane	A582 and Long Moss Lane	710.93	612.63	799.55	734.14	595.78	770.44	3%	-3%	-4%
21	Brownedge Road	Watkin Lane and A6	999.39	717.83	1112.44	684.52	408.02	760.99	-32%	-43%	-32%
22	Leyland Road	Flag Lane and Coot Lane	1343.62	1024.92	1345.58	657.36	331.08	578.07	-51%	-68%	-57%
23	Leyland Road	New Lane and Studholme Avenue	1271.23	924.77	1198.86	1610.74	1258.80	1787.59	27%	36%	49%
24	Pope Lane	Cop Lane and Marshalls Brow	387.08	273.18	383.51	622.19	514.78	662.43	61%	88%	73%
25	Leyland Road	Penwortham Triangle and Marshalls Brow	1456.15	963.76	1111.91	1463.59	958.18	1245.56	1%	-1%	12%
26	A59 Liverpool Road	Longton By-Pass and Town Lane	1426.07	1004.69	1655.63	1325.08	884.17	1525.12	-7%	-12%	-8%
27	A59 Longton Bypass	Gill Lane and Chapel Lane	1616.32	1295.26	1884.44	1466.76	1135.15	1668.76	-9%	-12%	-11%
28	Lindle Lane	Pope Lane and Liverpool Road	642.49	277.75	448.13	323.13	186.78	260.31	-50%	-33%	-42%
29	A59 Liverpool Road	Penwortham Bypass and Central Drive	1672.82	1369.62	1808.31	538.89	361.15	622.62	-68%	-74%	-66%
30	A59 Liverpool Road	Penwortham Triangle and Cop Lane	2101.88	1688.84	2278.83	734.01	585.71	919.74	-65%	-65%	-60%
31	A6 London Way	A582 and Brownedge Road	2592.07	2129.02	3105.33	3117.82	2953.10	3807.66	20%	39%	23%
32	A6 London Way	Brownedge Road and Carrwood Road	2470.02	2111.50	2847.03	2924.54	2796.97	3485.89	18%	32%	22%
33	A6 London Way	Carrwood Road and A675 Victoria Road	2293.27	2056.87	2726.30	2628.14	2542.97	3136.76	15%	24%	15%
34	London Road	New Hall Lane and Victoria Road	3199.83	2605.44	3330.33	3299.93	2740.11	3478.62	3%	5%	4%
35	A582 Penwortham Way	Chainhouse Lane and Pope Lane	1592.40	1297.26	1436.79	1794.66	1363.93	1869.53	13%	5%	30%
36	Strand Road	A59 and A583	1675.53	1439.77	1693.79	1719.56	1259.85	1675.85	3%	-12%	-1%
37	A583 Watery Lane	Portway and Pedders Way	1848.66	1507.82	1829.11	1887.47	1473.00	2118.40	2%	-2%	16%
38	Blackpool Road	West Park Avenue and Broadway	1082.53	841.23	1357.78	911.14	736.81	1106.33	-16%	-12%	-19%
39	Blackpool Road	A6 and Sir Tom Finney Way	1481.06	1261.90	1377.89	1485.73	1290.44	1358.32	0%	2%	-1%
40	A59 Brockholes Brow	Samlesbury Interchange and Blackpool Road	1976.33	1529.09	2132.80	2108.57	1741.91	2304.40	7%	14%	8%
41	Queen St	London Road and Avenham Lane	1149.76	924.30	1162.38	1098.09	928.94	1035.52	-4%	1%	-11%
42.1	M6 NB	J29 and J30	3622.29	2505.77	3263.31	4410.50	3193.92	4279.27	22%	27%	31%
42.2	M6 SB	J29 and J30	2716.96	2539.46	3703.92	3487.38	3244.21	4441.39	28%	28%	20%
43.1	M6 SB	J31 and J31A	4963.25	4302.62	6408.31	6466.97	5553.45	7813.99	30%	29%	22%
43.2	M6 NB	J31 and J31A	6324.91	4325.00	5890.77	7972.41	5663.50	7619.75	26%	31%	29%
44	New Hall Lane	London Road and Scotforth Road	1363.44	1409.52	1710.63	1439.35	1472.32	1813.16	6%	4%	6%
45	Centurion Way	Croston Junction and Enterprise Drive	164.50	148.81	235.52	244.97	235.53	355.80	49%	58%	51%
46.1	M6 SB	J28 and J29	3695.16	3279.77	4742.16	4684.92	4089.10	5678.78	27%	25%	20%
46.2	M6 NB	J28 and J29	4438.07	3133.83	4364.14	5024.97	3817.20	5107.45	13%	22%	17%

All Values expressed in vehicles. All values are two way flows except for motorway links

Flows on Key Links BY vs DM - 2037

ID	Road Name	Between	Base			Without Scheme (2037)			Change (%)		
			AM	IP	PM	AM	IP	PM	AM	IP	PM
1	Flensburg Way	Tank roundabout and Longmeanygate	1717.48	1482.40	1881.01	2451.60	2300.02	2927.67	43%	55%	56%
2	B5428 North Road	Carrhouse Lane and Dunkirk Lane	437.87	327.38	368.75	516.65	414.51	479.70	18%	27%	30%
3	Midge Hall Lane	Gill Lane and Longmeanygate	529.84	394.56	616.28	554.07	477.05	636.53	5%	21%	3%
4	Longmeanygate	Midge Hall Lane and Comet Road	385.91	260.44	442.59	760.09	563.38	1026.68	97%	116%	132%
5	Croston Road	Leyland Lane and A582	341.81	290.31	432.09	506.49	400.41	456.65	48%	38%	6%
6	Stanifield Lane	Lydiat Lane and A582	1713.52	1110.48	1492.72	1821.02	1347.25	1857.99	6%	21%	24%
7	B5254 Watkin Lane	A582 and Browndge Road	1291.88	1045.12	1197.38	892.94	499.17	891.82	-31%	-52%	-26%
8	Croston Road	A582 and Church Lane	160.58	124.75	373.22	330.23	190.29	483.85	106%	53%	30%
9	Coote Lane	Chainhouse Lane and Leyland Road	319.90	326.74	286.75	388.86	233.30	303.34	22%	-29%	6%
10.1	M65 EB	J1 and J2	2411.52	1695.95	2750.92	3005.10	2359.64	3524.38	25%	39%	28%
10.2	M65 WB	J1 and J2	2552.87	1639.98	2531.95	3302.36	2242.10	3419.93	29%	37%	35%
11	Above Cuerden Roundabout	A582 and Cuerden Roundabout	3303.37	2673.93	3643.33	4270.15	3768.37	4649.31	29%	41%	28%
12	A6 Lostock Lane	A582 and Wigan Road	1363.09	1052.49	1722.70	1636.72	1491.51	2327.78	20%	42%	35%
13	A582 Lostock Lane	A6 and Stanifield Rbt	3819.13	2776.78	3676.50	4445.06	3157.57	4391.60	16%	14%	19%
14	A582 Farington Road	Stanifield Rbt and Croston Junction	1703.49	1267.30	1692.58	2722.80	2223.34	2662.21	60%	75%	57%
15	A582 Flensburg Way	Tank Rbt and Croston Junction	1572.75	1122.96	1248.83	2381.94	1870.66	2016.01	51%	67%	61%
16	A582 Penwortham Way	Tank Rbt and Chainhouse Lane	1951.71	1547.34	1744.54	2398.05	1876.91	2477.81	23%	21%	42%
17	Golden Way	Pope Lane and Golden Way Rbt	1415.04	1344.73	1652.24	1990.15	1607.65	2467.79	41%	20%	49%
18	Golden Way	Golden Way Rbt and Cop Lane	1201.52	1249.11	1608.99	2898.08	2412.29	3536.37	141%	93%	120%
19	Golden Way	Cop Lane and Penwortham Triangle	1406.62	1536.41	1973.49	3356.43	2897.89	4094.45	139%	89%	107%
20	Chainhouse Lane	A582 and Long Moss Lane	710.93	612.63	799.55	830.56	663.45	788.68	17%	8%	-1%
21	Browndge Road	Watkin Lane and A6	999.39	717.83	1112.44	771.62	444.98	884.52	-23%	-38%	-20%
22	Leyland Road	Flag Lane and Coote Lane	1343.62	1024.92	1345.58	651.86	356.46	676.54	-51%	-65%	-50%
23	Leyland Road	New Lane and Studholme Avenue	1271.23	924.77	1198.86	1572.77	1473.14	1745.97	24%	59%	46%
24	Pope Lane	Cop Lane and Marshalls Brow	387.08	273.18	383.51	601.66	599.10	619.63	55%	119%	62%
25	Leyland Road	Penwortham Triangle and Marshalls Brow	1456.15	963.76	1111.91	1560.10	1105.98	1349.43	7%	15%	21%
26	A59 Liverpool Road	Longton By-Pass and Town Lane	1426.07	1004.69	1655.63	1617.34	990.75	1735.27	13%	-1%	5%
27	A59 Longton Bypass	Gill Lane and Chapel Lane	1616.32	1295.26	1884.44	1845.88	1274.82	1913.20	14%	-2%	2%
28	Lindle Lane	Pope Lane and Liverpool Road	642.49	277.75	448.13	337.10	196.12	246.01	-48%	-29%	-45%
29	A59 Liverpool Road	Penwortham Bypass and Central Drive	1672.82	1369.62	1808.31	655.73	367.68	665.14	-61%	-73%	-63%
30	A59 Liverpool Road	Penwortham Triangle and Cop Lane	2101.88	1688.84	2278.83	910.72	638.12	1026.69	-57%	-62%	-55%
31	A6 London Way	A582 and Browndge Road	2592.07	2129.02	3105.33	3149.68	3387.37	4030.97	22%	59%	30%
32	A6 London Way	Browndge Road and Carrwood Road	2470.02	2111.50	2847.03	3145.79	3201.93	3814.60	27%	52%	34%
33	A6 London Way	Carrwood Road and A675 Victoria Road	2293.27	2056.87	2726.30	2725.07	2804.75	3379.69	19%	36%	24%
34	London Road	New Hall Lane and Victoria Road	3199.83	2605.44	3330.33	3366.36	2976.92	3766.17	5%	14%	13%
35	A582 Penwortham Way	Chainhouse Lane and Pope Lane	1592.40	1297.26	1436.99	2120.52	1520.27	2246.50	33%	17%	56%
36	Strand Road	A59 and A583	1675.53	1439.77	1693.79	1846.89	1533.38	1976.83	10%	7%	17%
37	A583 Watery Lane	Portway and Pedders Way	1848.66	1507.82	1829.11	2212.60	1586.95	2074.67	20%	5%	13%
38	Blackpool Road	West Park Avenue and Broadway	1082.53	841.23	1357.78	1010.30	840.78	1196.67	-7%	0%	-12%
39	Blackpool Road	A6 and Sir Tom Finney Way	1481.06	1261.90	1377.89	1649.13	1362.94	1432.98	11%	8%	4%
40	A59 Brockholes Brow	Samlesbury Interchange and Blackpool Road	1976.33	1529.09	2132.80	2278.09	1911.41	2316.25	15%	25%	9%
41	Queen St	London Road and Avenham Lane	1149.76	924.30	1162.38	1166.83	1087.99	1157.09	1%	18%	0%
42.1	M6 NB	J29 and J30	3622.29	2505.77	3263.31	4815.89	3727.64	4679.71	33%	49%	43%
42.2	M6 SB	J29 and J30	2716.96	2539.46	3703.92	4082.50	3975.43	4683.66	50%	57%	26%
43.1	M6 SB	J31 and J31A	4963.25	4302.62	6408.31	7461.29	6788.97	8221.45	50%	58%	28%
43.2	M6 NB	J31 and J31A	6324.91	4325.00	5890.77	8494.55	6873.35	8239.15	34%	59%	40%
44	New Hall Lane	London Road and Scotforth Road	1363.44	1409.52	1710.63	1587.98	1624.47	1859.80	16%	15%	9%
45	Centurion Way	Croston Junction and Enterprise Drive	164.50	148.81	235.52	551.19	301.88	514.76	235%	103%	119%
46.1	M6 SB	J28 and J29	3695.16	3279.77	4742.16	5188.36	4774.47	5856.60	40%	46%	24%
46.2	M6 NB	J28 and J29	4438.07	3133.83	4364.14	5396.59	4412.59	5504.75	22%	41%	26%

All Values expressed in vehicles. All values are two way flows except for motorway links

Flows on Key Links DM vs DS - 2022

ID	Road Name	Between	Without Scheme (2022)			With Scheme (2022)			Change (%)		
			AM	IP	PM	AM	IP	PM	AM	IP	PM
1	Flensburg Way	Tank roundabout and Longmeanygate	2308.52	1939.41	2594.30	2836.89	2262.98	2812.65	23%	17%	8%
2	B5428 North Road	Carrhouse Lane and Dunkirk Lane	509.93	382.52	428.64	549.20	410.92	463.85	8%	7%	8%
3	Midge Hall Lane	Gill Lane and Longmeanygate	509.06	431.36	566.11	502.93	362.37	482.16	-1%	-16%	-15%
4	Longmeanygate	Midge Hall Lane and Comet Road	574.17	350.36	591.55	620.39	319.38	727.24	8%	-9%	23%
5	Croston Road	Leyland Lane and A582	437.35	344.26	388.52	24.60	50.96	57.64	-94%	-85%	-85%
6	Stanifield Lane	Lydiat Lane and A582	1725.96	1132.30	1581.91	1811.14	1199.56	1643.12	5%	6%	4%
7	B5254 Watkin Lane	A582 and Brownedge Road	822.42	445.12	743.97	536.04	385.76	601.65	-35%	-13%	-19%
8	Croston Road	A582 and Church Lane	246.04	160.24	319.22	190.47	83.52	186.73	-23%	-48%	-42%
9	Coote Lane	Chainhouse Lane and Leyland Road	251.86	205.59	265.46	198.84	138.51	189.44	-21%	-33%	-29%
10.1	M65 EB	J1 and J2	2721.00	2013.13	3129.76	2804.87	2069.81	3221.05	3%	3%	3%
10.2	M65 WB	J1 and J2	2926.93	1918.63	3005.08	2920.23	1841.32	3013.13	0%	-4%	0%
11	Above Cuerden Roundabout	A582 and Cuerden Roundabout	3800.94	3207.00	4294.09	3963.99	3240.08	4576.86	4%	1%	7%
12	A6 Lostock Lane	A582 and Wigan Road	1744.28	1264.41	1972.65	1855.12	1389.54	1953.38	6%	10%	-1%
13	A582 Lostock Lane	A6 and Stanifield Rbt	4129.30	2663.57	3824.21	4832.07	3498.48	4576.70	17%	31%	20%
14	A582 Farington Road	Stanifield Rbt and Croston Junction	2494.89	1841.58	2276.03	3662.04	2824.57	3425.30	47%	53%	50%
15	A582 Flensburg Way	Tank Rbt and Croston Junction	2087.85	1537.51	1818.61	3808.15	3047.38	3480.12	82%	98%	91%
16	A582 Penwortham Way	Tank Rbt and Chainhouse Lane	2189.98	1714.68	2290.88	3140.53	2682.60	3482.09	43%	56%	52%
17	Golden Way	Pope Lane and Golden Way Rbt	1703.81	1446.71	2038.98	2456.90	1996.17	2764.56	44%	38%	36%
18	Golden Way	Golden Way Rbt and Cop Lane	2386.03	2132.33	2927.27	2885.78	2467.16	3439.44	21%	16%	17%
19	Golden Way	Cop Lane and Penwortham Triangle	2815.33	2562.79	3399.90	3340.55	2932.94	3897.89	19%	14%	15%
20	Chainhouse Lane	A582 and Long Moss Lane	734.14	595.78	770.44	712.78	772.01	939.61	-3%	30%	22%
21	Brownedge Road	Watkin Lane and A6	684.52	408.02	760.99	562.33	328.34	645.03	-18%	-20%	-15%
22	Leyland Road	Flag Lane and Coote Lane	657.36	331.08	578.07	493.31	262.20	396.66	-25%	-21%	-31%
23	Leyland Road	New Lane and Studholme Avenue	1610.74	1258.80	1787.59	1259.06	779.83	1337.53	-22%	-38%	-25%
24	Pope Lane	Cop Lane and Marshalls Brow	622.19	514.78	662.43	641.37	411.71	558.84	3%	-20%	-16%
25	Leyland Road	Penwortham Triangle and Marshalls Brow	1463.59	958.18	1245.56	1024.85	578.03	918.07	-30%	-40%	-26%
26	A59 Liverpool Road	Longton By-Pass and Town Lane	1325.08	884.17	1525.12	1279.00	843.53	1483.88	-3%	-5%	-3%
27	A59 Longton Bypass	Gill Lane and Chapel Lane	1466.76	1135.15	1668.76	1414.40	1164.48	1656.73	-4%	3%	-1%
28	Lindle Lane	Pope Lane and Liverpool Road	323.13	186.78	260.31	333.45	193.55	279.71	3%	4%	7%
29	A59 Liverpool Road	Penwortham Bypass and Central Drive	538.89	361.15	622.62	586.60	435.17	672.84	9%	20%	8%
30	A59 Liverpool Road	Penwortham Triangle and Cop Lane	734.01	585.71	919.74	774.30	618.32	933.34	5%	6%	1%
31	A6 London Way	A582 and Brownedge Road	3117.82	2953.10	3807.66	2974.94	2509.01	3694.84	-5%	-15%	-3%
32	A6 London Way	Brownedge Road and Carrwood Road	2924.54	2796.97	3485.89	2707.59	2296.73	3229.12	-7%	-18%	-7%
33	A6 London Way	Carrwood Road and A675 Victoria Road	2628.14	2542.97	3136.76	2567.05	2395.03	3143.83	-2%	-6%	0%
34	London Road	New Hall Lane and Victoria Road	3299.93	2740.11	3478.62	3268.97	2656.78	3454.47	-1%	-3%	-1%
35	A582 Penwortham Way	Chainhouse Lane and Pope Lane	1794.66	1363.93	1869.53	2621.65	2030.14	2739.37	46%	49%	47%
36	Strand Road	A59 and A583	1719.56	1259.85	1675.85	1735.39	1283.56	1762.91	1%	2%	5%
37	A583 Watery Lane	Portway and Pedders Way	1887.47	1473.00	2118.40	1895.49	1487.59	2117.63	0%	1%	0%
38	Blackpool Road	West Park Avenue and Broadway	911.14	736.81	1106.33	942.10	742.05	1134.47	3%	1%	3%
39	Blackpool Road	A6 and Sir Tom Finney Way	1485.73	1290.44	1358.32	1467.57	1275.59	1324.34	-1%	-1%	-3%
40	A59 Brockholes Brow	Samlesbury Interchange and Blackpool Road	2108.57	1741.91	2304.40	2091.01	1777.67	2291.72	-1%	2%	-1%
41	Queen St	London Road and Avenham Lane	1098.09	928.94	1035.52	1059.52	896.99	1005.54	-4%	-3%	-3%
42.1	M6 NB	J29 and J30	4410.50	3193.92	4279.27	4426.14	3239.01	4278.34	0%	1%	0%
42.2	M6 SB	J29 and J30	3487.38	3244.21	4441.39	3493.34	3262.92	4448.81	0%	1%	0%
43.1	M6 SB	J31 and J31A	6466.97	5553.45	7813.99	6458.16	5549.14	7809.57	0%	0%	0%
43.2	M6 NB	J31 and J31A	7972.41	5663.50	7619.75	7936.81	5680.78	7582.75	0%	0%	0%
44	New Hall Lane	London Road and Scotforth Road	1439.35	1472.32	1813.16	1431.22	1500.58	1829.75	-1%	2%	1%
45	Centurion Way	Croston Junction and Enterprise Drive	244.97	235.53	355.80	200.97	233.90	328.47	-18%	-1%	-8%
46.1	M6 SB	J28 and J29	4684.92	4089.10	5678.78	4661.87	4103.91	5679.90	0%	0%	0%
46.2	M6 NB	J28 and J29	5024.97	3817.20	5107.45	5027.21	3781.94	5100.77	0%	-1%	0%

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Flows on Key Links DM vs DS - 2037

ID	Road Name	Between	Without Scheme (2037)			With Scheme (2037)			Change (%)		
			AM	IP	PM	AM	IP	PM	AM	IP	PM
1	Flensburg Way	Tank roundabout and Longmeanygate	2451.60	2300.02	2927.67	2993.95	2687.32	3239.34	22%	17%	11%
2	B5428 North Road	Carrhouse Lane and Dunkirk Lane	516.65	414.51	479.70	617.62	452.60	516.61	20%	9%	8%
3	Midge Hall Lane	Gill Lane and Longmeanygate	554.07	477.05	636.53	516.70	387.76	535.51	-7%	-19%	-16%
4	Longmeanygate	Midge Hall Lane and Comet Road	760.09	563.38	1026.68	967.77	609.93	1100.21	27%	8%	7%
5	Croston Road	Leyland Lane and A582	506.49	400.41	456.65	83.63	46.47	74.21	-83%	-88%	-84%
6	Stanifield Lane	Lydiat Lane and A582	1821.02	1347.25	1857.99	2009.84	1416.75	1913.55	10%	5%	3%
7	B5254 Watkin Lane	A582 and Brownedge Road	892.94	499.17	891.82	748.67	470.10	800.29	-16%	-6%	-10%
8	Croston Road	A582 and Church Lane	330.23	190.29	483.85	191.72	109.25	255.17	-42%	-43%	-47%
9	Coote Lane	Chainhouse Lane and Leyland Road	388.86	233.30	303.34	227.24	149.46	179.43	-42%	-36%	-41%
10.1	M65 EB	J1 and J2	3005.10	2359.64	3524.38	3038.54	2454.50	3629.85	1%	4%	3%
10.2	M65 WB	J1 and J2	3302.36	2242.10	3419.93	3322.84	2071.05	3409.36	1%	-8%	0%
11	Above Cuerden Roundabout	A582 and Cuerden Roundabout	4270.15	3768.37	4649.31	4592.64	3697.94	4914.63	8%	-2%	6%
12	A6 Lostock Lane	A582 and Wigan Road	1636.72	1491.51	2327.78	1911.97	1718.36	2353.14	17%	15%	1%
13	A582 Lostock Lane	A6 and Stanifield Rbt	4445.06	3157.57	4391.60	5627.43	4304.29	5383.79	27%	36%	23%
14	A582 Farington Road	Stanifield Rbt and Croston Junction	2722.80	2223.34	2662.21	4434.16	3458.16	3952.38	63%	56%	48%
15	A582 Flensburg Way	Tank Rbt and Croston Junction	2381.94	1870.66	2016.01	4377.51	3674.64	3951.88	84%	96%	96%
16	A582 Penwortham Way	Tank Rbt and Chainhouse Lane	2398.05	1876.91	2477.81	3359.62	3003.64	3672.52	40%	60%	48%
17	Golden Way	Pope Lane and Golden Way Rbt	1990.15	1607.65	2467.79	2621.46	2202.70	3074.81	32%	37%	25%
18	Golden Way	Golden Way Rbt and Cop Lane	2898.08	2412.29	3536.37	3271.00	2883.00	3987.73	13%	20%	13%
19	Golden Way	Cop Lane and Penwortham Triangle	3356.43	2897.89	4094.45	3764.55	3413.52	4539.38	12%	18%	11%
20	Chainhouse Lane	A582 and Long Moss Lane	830.56	663.45	788.68	827.59	869.60	958.61	0%	31%	22%
21	Brownedge Road	Watkin Lane and A6	771.62	444.98	884.52	635.97	351.17	751.38	-18%	-21%	-15%
22	Leyland Road	Flag Lane and Coote Lane	651.86	356.46	676.54	684.96	286.90	565.76	5%	-20%	-16%
23	Leyland Road	New Lane and Studholme Avenue	1572.77	1473.14	1745.97	1503.20	940.69	1600.30	-4%	-36%	-8%
24	Pope Lane	Cop Lane and Marshalls Brow	601.66	599.10	619.63	635.78	437.83	601.03	6%	-27%	-3%
25	Leyland Road	Penwortham Triangle and Marshalls Brow	1560.10	1105.98	1349.43	1393.60	702.86	1137.14	-11%	-36%	-16%
26	A59 Liverpool Road	Longton By-Pass and Town Lane	1617.34	990.75	1735.27	1517.14	946.37	1686.29	-6%	-4%	-3%
27	A59 Longton Bypass	Gill Lane and Chapel Lane	1845.88	1274.82	1913.20	1743.20	1334.29	1904.81	-6%	5%	0%
28	Lindle Lane	Pope Lane and Liverpool Road	337.10	196.12	246.01	337.38	143.70	232.69	0%	-27%	-5%
29	A59 Liverpool Road	Penwortham Bypass and Central Drive	655.73	367.68	665.14	632.34	396.42	658.86	-4%	8%	-1%
30	A59 Liverpool Road	Penwortham Triangle and Cop Lane	910.72	638.12	1026.69	839.90	580.57	998.50	-8%	-9%	-3%
31	A6 London Way	A582 and Brownedge Road	3149.68	3387.37	4030.97	3321.09	2818.17	3994.14	5%	-17%	-1%
32	A6 London Way	Brownedge Road and Carrwood Road	3145.79	3201.93	3814.60	3050.39	2603.05	3656.04	-3%	-19%	-4%
33	A6 London Way	Carrwood Road and A675 Victoria Road	2725.07	2804.75	3379.69	2713.56	2601.38	3423.64	0%	-7%	1%
34	London Road	New Hall Lane and Victoria Road	3366.36	2976.92	3766.17	3399.79	2872.01	3783.17	1%	-4%	0%
35	A582 Penwortham Way	Chainhouse Lane and Pope Lane	2120.52	1520.27	2246.50	2749.87	2278.17	2992.11	30%	50%	33%
36	Strand Road	A59 and A583	1846.89	1533.38	1976.83	1873.45	1542.20	2049.98	1%	1%	4%
37	A583 Watery Lane	Portway and Pedders Way	2212.60	1586.95	2074.67	2232.02	1586.54	2085.86	1%	0%	1%
38	Blackpool Road	West Park Avenue and Broadway	1010.30	840.78	1196.67	1026.04	853.79	1198.22	2%	2%	0%
39	Blackpool Road	A6 and Sir Tom Finney Way	1649.13	1362.94	1432.98	1621.11	1351.60	1425.67	-2%	-1%	-1%
40	A59 Brockholes Brow	Samlesbury Interchange and Blackpool Road	2278.09	1911.41	2316.25	2258.13	1945.43	2314.39	-1%	2%	0%
41	Queen St	London Road and Avenham Lane	1166.83	1087.99	1157.09	1131.70	1031.02	1092.46	-3%	-5%	-6%
42.1	M6 NB	J29 and J30	4815.89	3727.64	4679.71	4786.57	3776.48	4685.50	-1%	1%	0%
42.2	M6 SB	J29 and J30	4082.50	3975.43	4683.66	4071.23	3992.89	4681.56	0%	0%	0%
43.1	M6 SB	J31 and J31A	7461.29	6788.97	8221.45	7465.82	6776.31	8221.79	0%	0%	0%
43.2	M6 NB	J31 and J31A	8494.55	6873.35	8239.15	8498.01	6898.55	8202.41	0%	0%	0%
44	New Hall Lane	London Road and Scotforth Road	1587.98	1624.47	1859.80	1595.72	1672.56	1885.21	0%	3%	1%
45	Centurion Way	Croston Junction and Enterprise Drive	551.19	301.88	514.76	455.93	245.91	477.67	-17%	-19%	-7%
46.1	M6 SB	J28 and J29	5188.36	4774.47	5856.60	5142.81	4763.76	5858.42	-1%	0%	0%
46.2	M6 NB	J28 and J29	5396.59	4412.59	5504.75	5403.37	4399.78	5464.11	0%	0%	-1%

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