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Preston Western Distributor

Traffic Forecasting Report

December 2018

Lancashire County Council

Lancashire County Council

Preston Western Distributor

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1. Introduction

1.1 This Report

This report is an updated version of Preston Western Distributor (PWD) Traffic Forecasting Report (July 2017) and details the forecasting assumptions and processes used in the development of the forecast years of the Central Lancashire Highway Transport Model (CLHTM) to support the PWD Scheme Full Business Case.

As required by WebTAG Unit M4, this document details the methodology used to create a Core Scenario, along with other sensitivity scenarios 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 PWD Scheme.

1.2 Background & Context

Preston and Lancashire is a prestigious City Deal Area. This is a landmark agreement to achieve a once-in-a-lifetime transformation of the area, creating thousands of new jobs and homes.

By 2026, Central Lancashire is expected to have 22,200 additional homes, of which over 5,000 will be in North West Preston, a large office-based service sector and as many as 23,000 new jobs. The newly established Enterprise Zone covering the BAE Systems sites at Warton and Samlesbury has the potential to create up to 6,000 jobs in advanced engineering and manufacturing in the long term.

The effective operation of the area's transport network is essential if Preston and Lancashire are to remain competitive both nationally and internationally, yet against this backdrop, and by 2026, Central Lancashire's transport network will no longer be able to cope with the additional demands placed on it as a result of associated population increase and economic growth.

As detailed in the Option Assessment report (OAR) and supporting Central Lancashire Transport Masterplan, the highway network in the area is already reaching a critical point in terms of the level of traffic that can be accommodated, as demonstrated by existing Traffic Master data and journey time data. The level of new development coming forward, and now underway will add high volumes of additional traffic onto already busy roads around the north and west of Preston. Access to the motorway network currently involves accessing the strategic road network via an already congested M55 Junction 1, and/or longer journeys to/from M55 J3 and/ or other slow moving arterial routes to/from Preston City Centre.

Therefore, the Central Lancashire Transport Masterplan was prepared which represents the county council's priorities for future investment in highways and transport across Central Lancashire; of which the PWD scheme is the largest of the four major highways schemes in the City Deal.

1.3 Scheme Description

The scheme is located to the west of Preston between the M55 near Bartle and the A583 at Lea Gate. The preferred option of the PWD route is shown in Figure 1-1.

The PWD scheme consists of construction of a new 4.3km dual carriageway road to support delivery of the North West Preston strategic housing location (more than 5,000 dwellings) and improve access to the Strategic Road Network from the Enterprise Zone at Warton.

The scheme includes a new full access junction with the M55 (Junction 2). It also provides direct links into existing Cottam development areas, the potential Cottam Parkway Rail Station, and direct connection to the East West Link Road.

As part of the scheme, several minor roads (e.g. Lea Road, Sidgreaves Ln) will be altered with the provision of a new roundabout to connect north/south and to/from the East West Link Road. The East West Link (EWL) Road provides the spine through the Strategic Housing Development and therefore provides connectivity to the proposed 5000+ houses. Additionally, it connects the PWD scheme directly with the existing highway network at Lightfoot Lane.

The scheme is one of the four major highways schemes in the Preston, South Ribble and Lancashire City Deal and is in Transport for Lancashire's (TfL) agreed and prioritised Investment Programme.

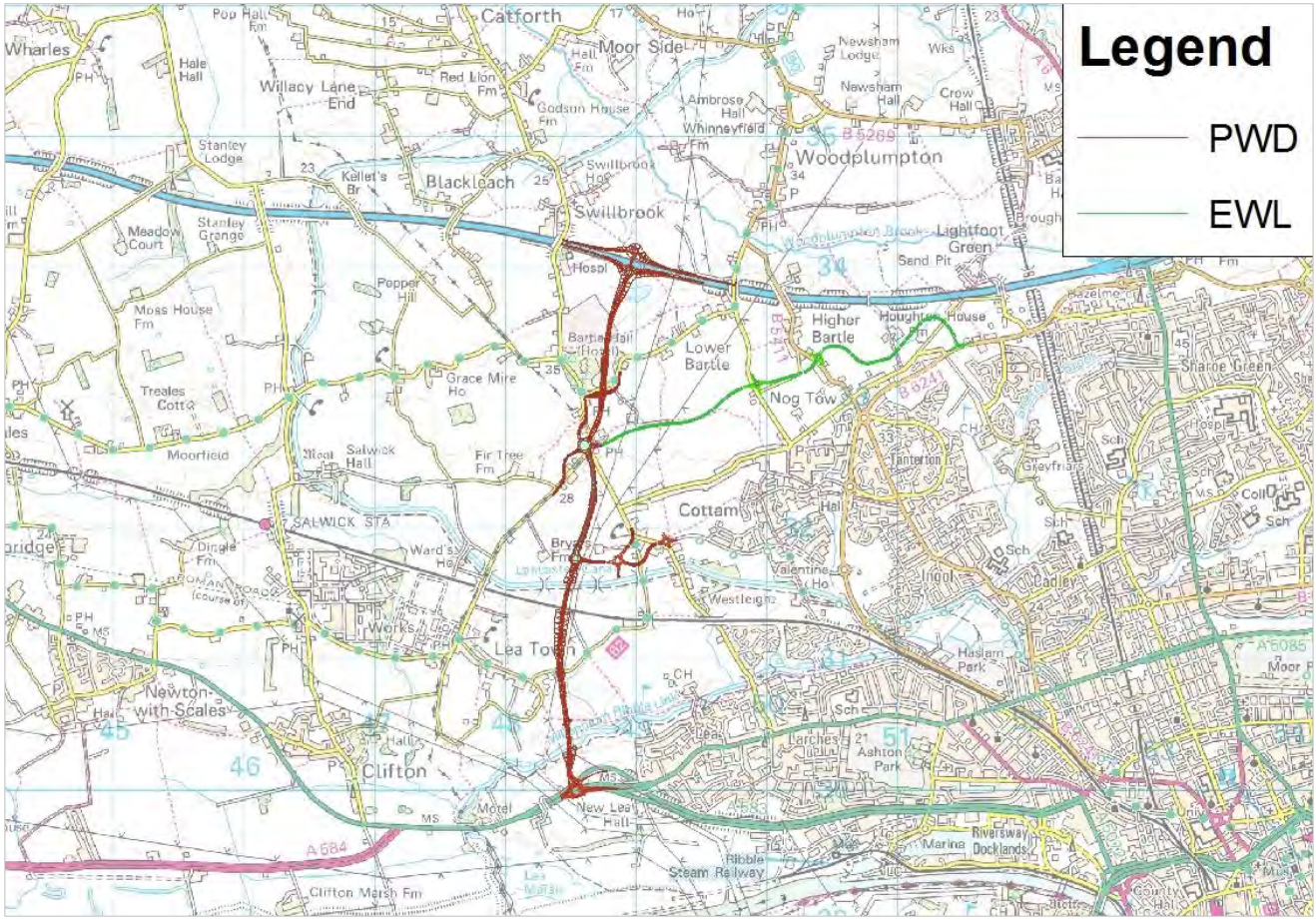

Figure 1-1: PWD Preferred Route and East-West Link Connection

1.4 Scheme Objectives

The PWD 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:

- Supports delivery of over 5,000 new houses in North West Preston;
- Significantly improves access to the Enterprise Zone at Warton;
- Reduces congestion in and around Preston City Centre;
- Provides direct access to the M55 from North West Preston;
- Reduces traffic and existing congestion at M55 Junction 1 and Junction 3, and on key arterial routes to/from Preston.
- Facilitate access to/from the provision of a new 'parkway' railway station at Cottam on the soon to be electrified Preston to Blackpool North railway line to serve the North West Preston strategic housing location; and,
- Supports the provision of future bus priority and public realm improvements on routes into Preston city centre from the north and west.

The scheme will deliver the above outputs and benefits through the following measures:

- New road infrastructure with sufficient capacity to support traffic generated by the new housing and employment sites;
- A new junction on the M55 as an integral part of the scheme;
- Removal of east-west through traffic from Preston city centre;
- Access to a new 'parkway' railway station at Cottam to serve the new development will also act as a Park and Ride location for the wider area with enhanced public transport access to Preston, Manchester and Liverpool; and,
- Once delivered, bus priority measures, public realm enhancements and improvements to promote walking and cycling along the A6 Garstang Road, B5411 Tag Lane/ Woodplumpton Road and A583 Riversway corridors, and at the Lane Ends district centre.

Together, and facilitated through the PWD scheme, the above outputs will continue to ensure that Preston & Lancashire is a key part of an interconnected North, playing a pivotal role as part of the long term sustainability of the North's economy, within a growing Northern Powerhouse. Connectivity and access to employment and transport hubs is fundamental in maximising the growth above, and strengthening the city as a transport hub which is already of national significance, and in future, to enhanced strategic road networks, and to HS2.

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 Output 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 PWD 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 of this report.

From the development of associated 'do minimum' forecasts, the model scenarios also then test the PWD 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.

As part of the OBC study, each of the above organisations was specifically consulted in late 2015, and provided scheme details for all potential, likely or committed schemes; incorporating this data into the CLHTM uncertainty log. The uncertainty log was further updated during the FBC forecasting in 2018 in consultation with LCC to ensure that latest data for the highway schemes, in terms of design and opening year, were reflected in the study.

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 and 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. Similar to the future highway scheme, the planning data was originally obtained in late 2015, following the approval of Preston City Council's Local Plan. During the FBC modelling revision, the existing planning information was reviewed and updated to ensure the most recent and up-to-date information was used.

The likelihood of each development being realised was also indicated, 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 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 furnessed 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) based on the National Transport Model were used in place of NTEM. It is acknowledged that RTF18 has been released in September 2018. The new dataset was not incorporated into the goods vehicle forecasting since it was issued after the completion of the FBC forecasting. In addition, given that the NTM base year is now 2015, it was not appropriate to utilise the new forecast into the study, as the CLHTM base year is 2013.

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 Model

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 PWD FBC 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. Additional details on the VDM parameters and elasticity tests are included within the LMVR (December 2018).

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

Table 2-A below indicates the DIADEM responses which have been modelled for the PWD scheme.

Table 2-A: Scope of VDM for PWD

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 fixed reference case matrices and were used in variable demand model to capture any potential change in demand due to the PWD scheme intervention.

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 v1.9.1 December 2017 WebTAG values). It should be noted that new set of values of time were issued by the DfT in May 2018. However, December 2017 WebTAG values were incorporated into the forecast models in order to be consistent with the base year model. A comparison of the two datasets has been undertaken to ensure that the impact of new values on the assignment results would be minor.

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

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 PWD scheme, identified in the Options Assessment Report (January, 2016) 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 PWD scheme) and Do Something network (i.e. the future highway network with the PWD 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 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 below. 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-A: List of Future Transport Schemes

No	Location	Scheme	Likelihood	Opening Year
1	M65 Terminus Junction	Junction Improvements and Cuerden site access junction	Near Certain	2020
2	M6/M55	M6 J32 and M55 Jn1 junction improvements	Completed	Completed
3	M6/M61	Extension of the Northbound Merge	More than likely	2019
4	M55	J1 improvements – approach and circulatory widening	Completed	Completed
5	M55	J3 improvements – Signalisation and approach widening of the roundabout	Near Certain	2019
6	M6	J31 improvements – Junction widening	Near Certain	2019
7	A6	Wigan Road junction widening	Near Certain	2020
8	A6	M6 J29 Rbt junction improvements – approach and circulatory widening	Near Certain	2020
9	A6	Preston Lancaster New Road / Cockerham Road junction improvements	Near Certain	2022
10	A6	Longmoor Lane / Moss Lane junction improvements	Near Certain	2022
11	A6	A586 junction improvements	Near Certain	2022
12	A6	Queen Street Junction Improvements	Near Certain	2020

No	Location	Scheme	Likelihood	Opening Year
13	A6 Broughton	Broughton Congestion relief and public realm	Completed	Completed
14	Lightfoot Lane	Eastway junction improvements – signalisation	Completed	2017
15	D'Urton Lane	D'Urton Link Road – connecting D'Urton Lane and B6241 Eastway	Near Certain	2018
16	North West Preston	East West Link Road – connecting PWD and Lightfoot Lane	Near Certain	2022
17	Wigan Road	Cuerden Site access junction – Junction widening and provision of new site access	Near Certain	2020
18	Stanifield Lane	Cuerden Site access junction – provision of a new signalised junction	Near Certain	2020
19	A584 Lytham Road	Church Road junction improvements	Near Certain	2022
20	Lostock Hall	Cross Borough Link Road- connecting Carrwood Road and the Cawsey	Near Certain	2020
21	Bamber Bridge Local Centre	Brownedge Lane/ Collins Road junction improvements - Public Realm	Near Certain	2017
22	New Hall Lane Local Centre	New Hall Lane / Skeffington Road & New Hall Lane / Acregate Lane	Near Certain	2017
23	Fishergate	Fishergate bus lane and traffic circulation modifications	In progress	2019
24	Central Preston	Tithebarn Street, Lune Street and Fishergate	Completed	2017
25	UClan Campus	Plan of Highway Improvements	Near Certain	2020
26	A582	A582 South Ribble Western Distributor (dualling)	Near Certain	2022
27	A582	Oakswood rbt improvements	In progress	2019
28	A582	Pope Lane- converting the roundabout to a signalised crossroads junction	Completed	Completed
29	A582	Chain House Lane junction widening and further improvements to accommodate dual carriageway on A582	Completed	Completed
30	A582	Tank Roundabout widening and signalisation	Completed	Completed
31	A583	Croston Road – conversion of roundabouts to signalised junctions	Near Certain	2022
32	A582	Stansfield Lane Junction improvements – signalisation and widening of the roundabout	Completed	Completed
33	A582	Golden Way North/South – signalisation and junction widening	Completed	Completed
34	A582	A6 Junction improvements – full signalisation and widening	Near Certain	2020
35	Longmeanygate	Flensburg Way – Widening and signalisation of the roundabout	Completed	Completed
36	B6243 Ribbleton Lane	Public Realm - Ribbleton Lane	Near Certain	post 2022
37	A59	Cop Lane junction improvements and Tesco access	Near Certain	2019 / 2020
38	Penwortham	Liverpool Road/ Leyland Road junction improvements	Near Certain	2019
39	Penwortham	Pickering Farm Link Road	Near Certain	post 2022
40	Penwortham	Penwortham Bypass and Public Realm – from Goldenway roundabout to A59 Liverpool Road	In progress	2019
41	Leyland	Public Realm - Leyland Centre	Near Certain	2019
42	Leyland	Public Realm - Seven Stars	Near Certain	2034
43	Warton	A584 Junction improvements	Near Certain	2022

An overview of four major road schemes in Preston, which were identified in Central Lancashire Transport Masterplan, is illustrated in Figure 3-1. The East-West Link Road (EWLR) is the most notable scheme pertaining to the Preston Western Distributor which will run parallel to Hoyles Lane to provide access to the local and through traffic to use the PWD, including the Strategic North West Preston development, which will accommodate over 5,000 new homes. Due to different funding arrangement for the EWLR it was not considered part of the PWD assessment for the business case, and subsequently the cost and benefits associated with the EWLR have not

been included in the Value for Money assessment of the scheme. Therefore, the EWLR was included in the Do-Minimum scenario.

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.

Another major scheme is the upgrade of the A582 corridor to a dual carriageway along its full length between Cuerden and Preston city centre, including the B5253 spur south to Longmeanygate. A number of junction improvements (junction widening and signalisation) have been completed along this corridor, as presented in Table 3-A. Full planning application preparation works for the dualling of the A582 corridor is currently underway.

Design drawings for the highway schemes are available upon request.

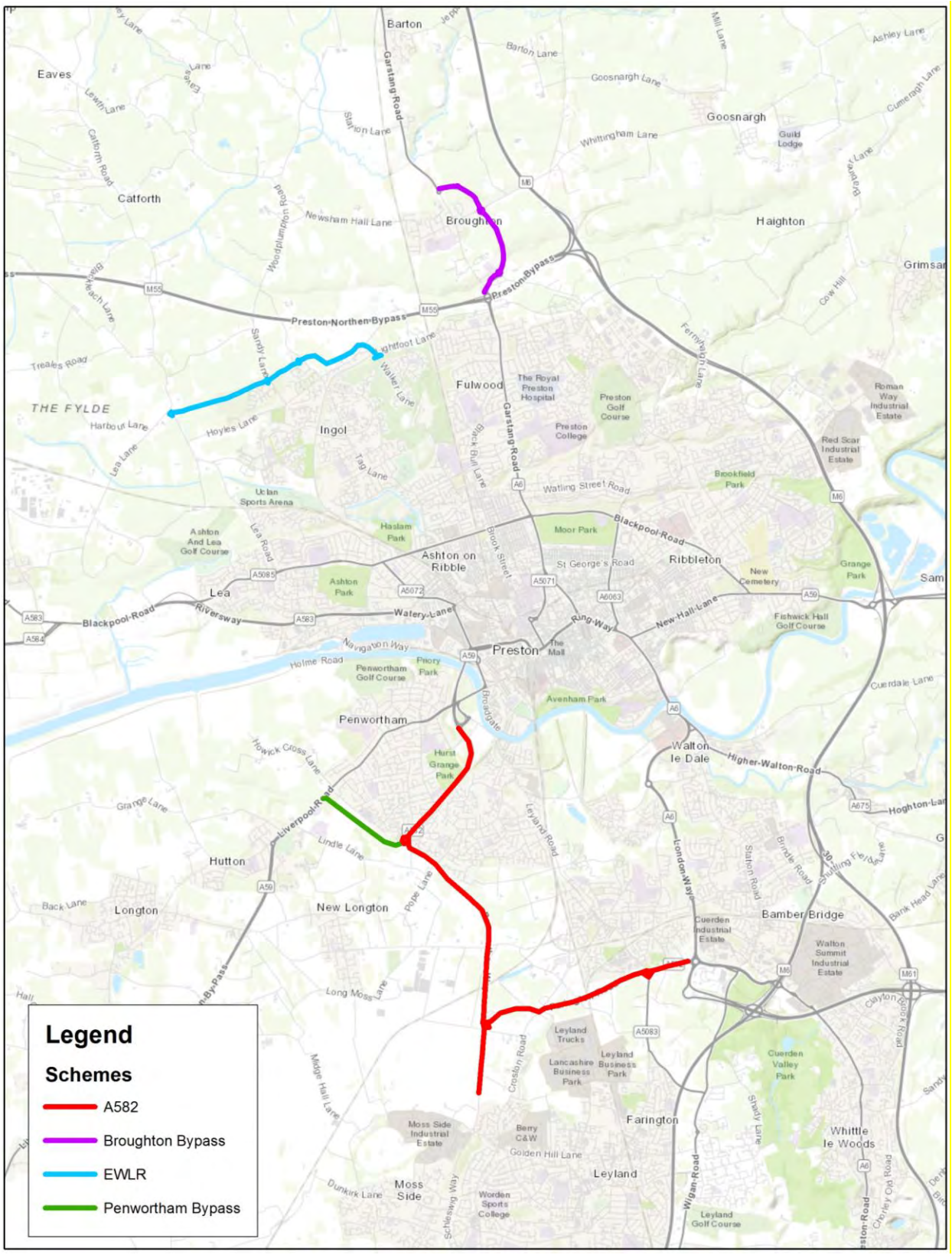

Figure 3-1: Major Highway Schemes in Preston

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 a new all moves junction with the M55 (Junction 2), and also provides direct links into Cottam development areas, Cottam Parkway Rail Station, and direct connection to the East West Link.

As part of the scheme several minor roads (e.g. Lea Road, Sidgreaves Ln) will be altered in the provision of a new roundabout to connect north/south to Cottam Link Road and to/from the East West Link. This link connects the PWD scheme directly with Lightfoot Lane and Eastway.

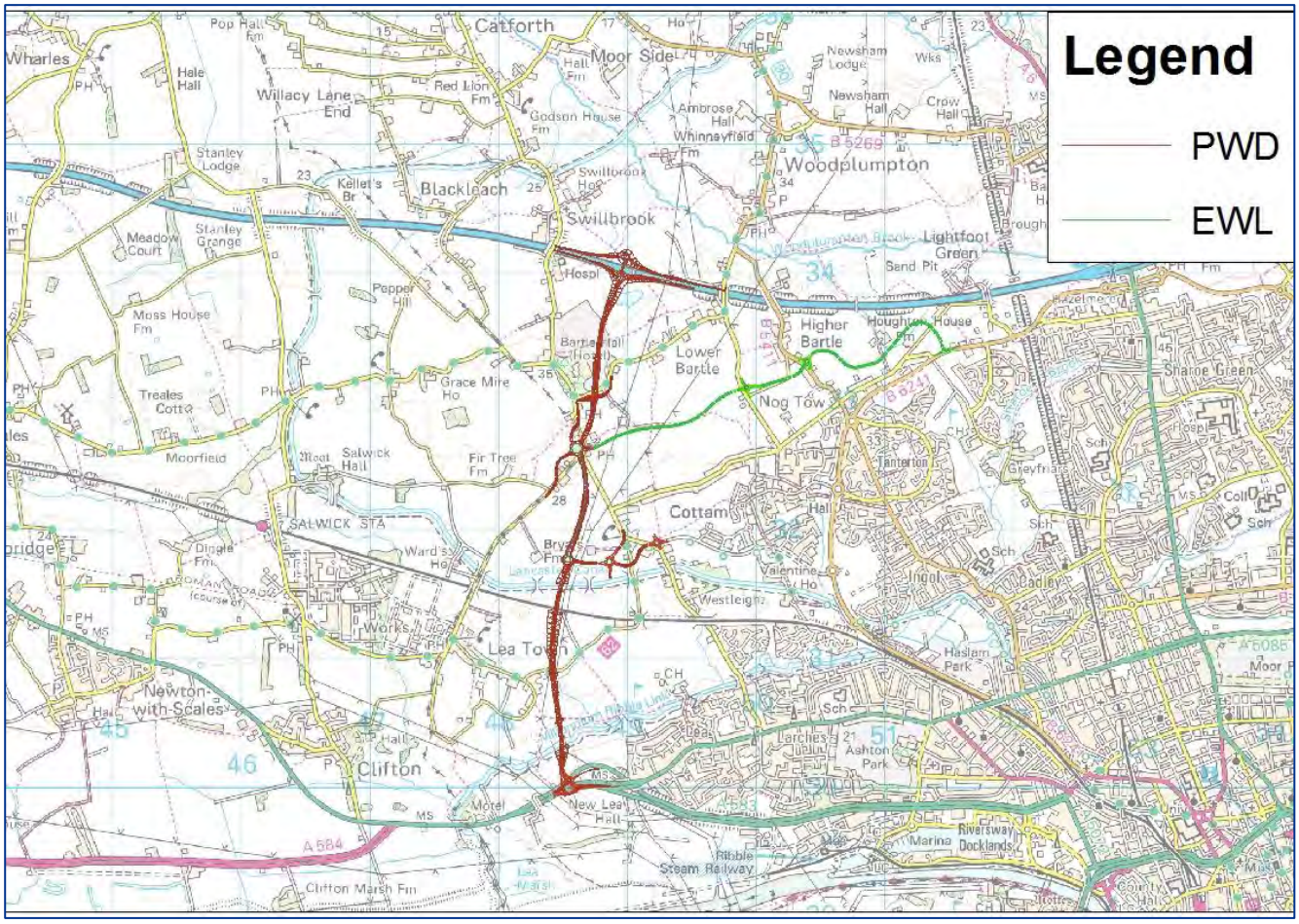

Figure 3-2: PWD Preferred Option

Figures below show the parameters of the links representing the PWD in the Do Something network.

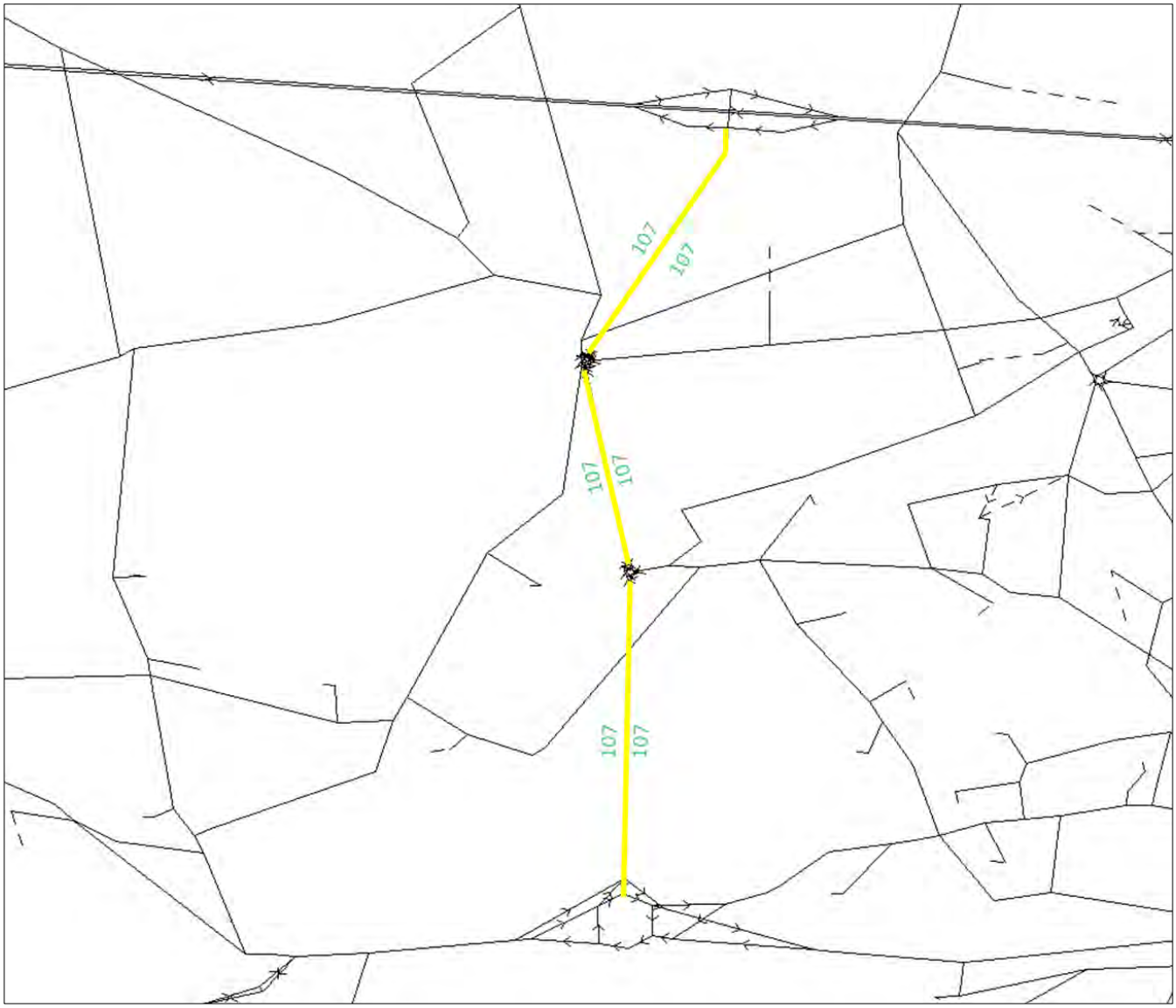

Figure 3-3: Dual PWD - Free Flow Speed

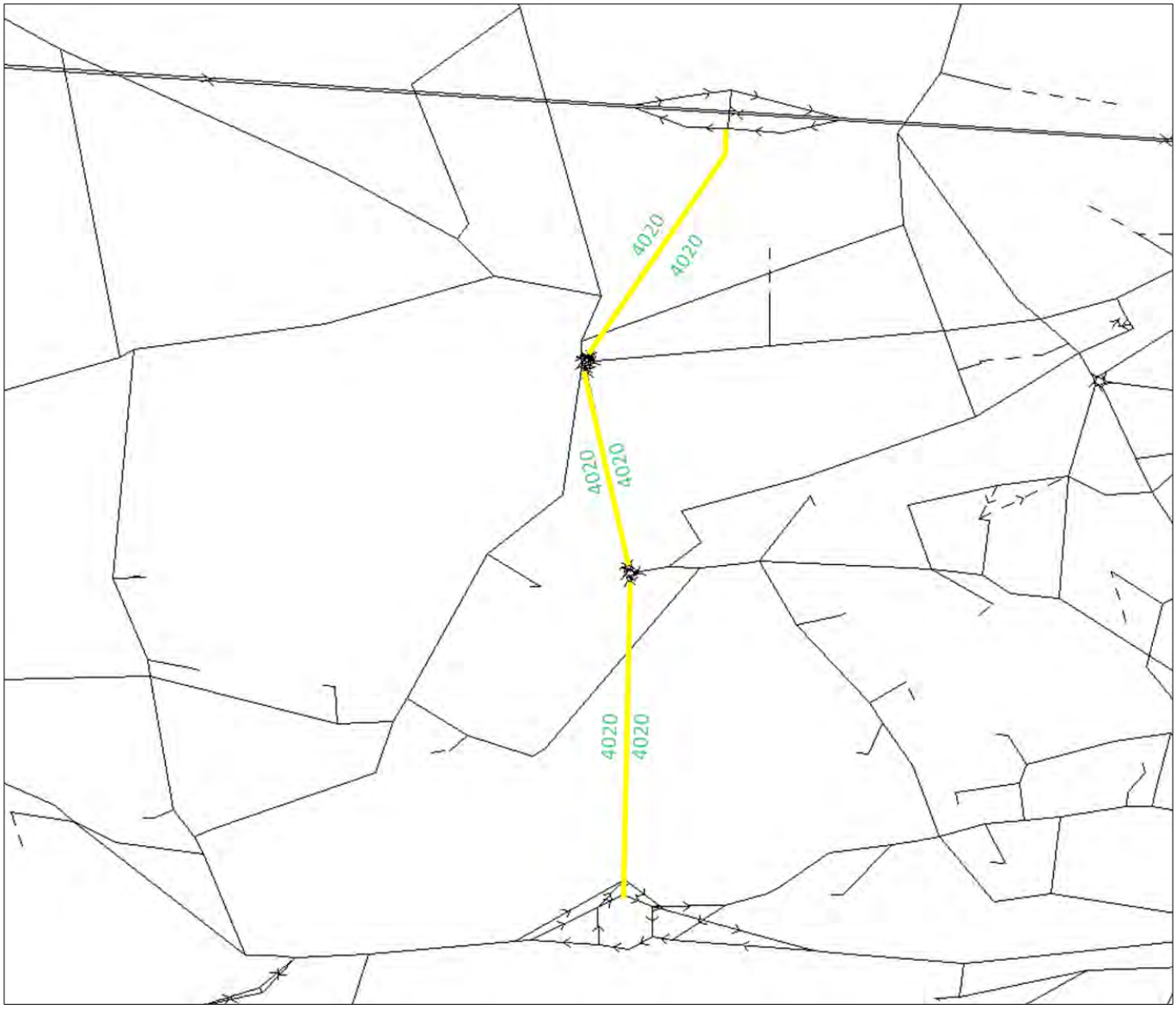

Figure 3-4: Dual PWD – Capacity

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 on A583 Riversway to improve both model convergence and reduce implausible delays. It was applied in all modelled years for the time periods, which deemed necessary to be optimised.

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.

Signals that fall into the above categories are shown in Figure 3-5.

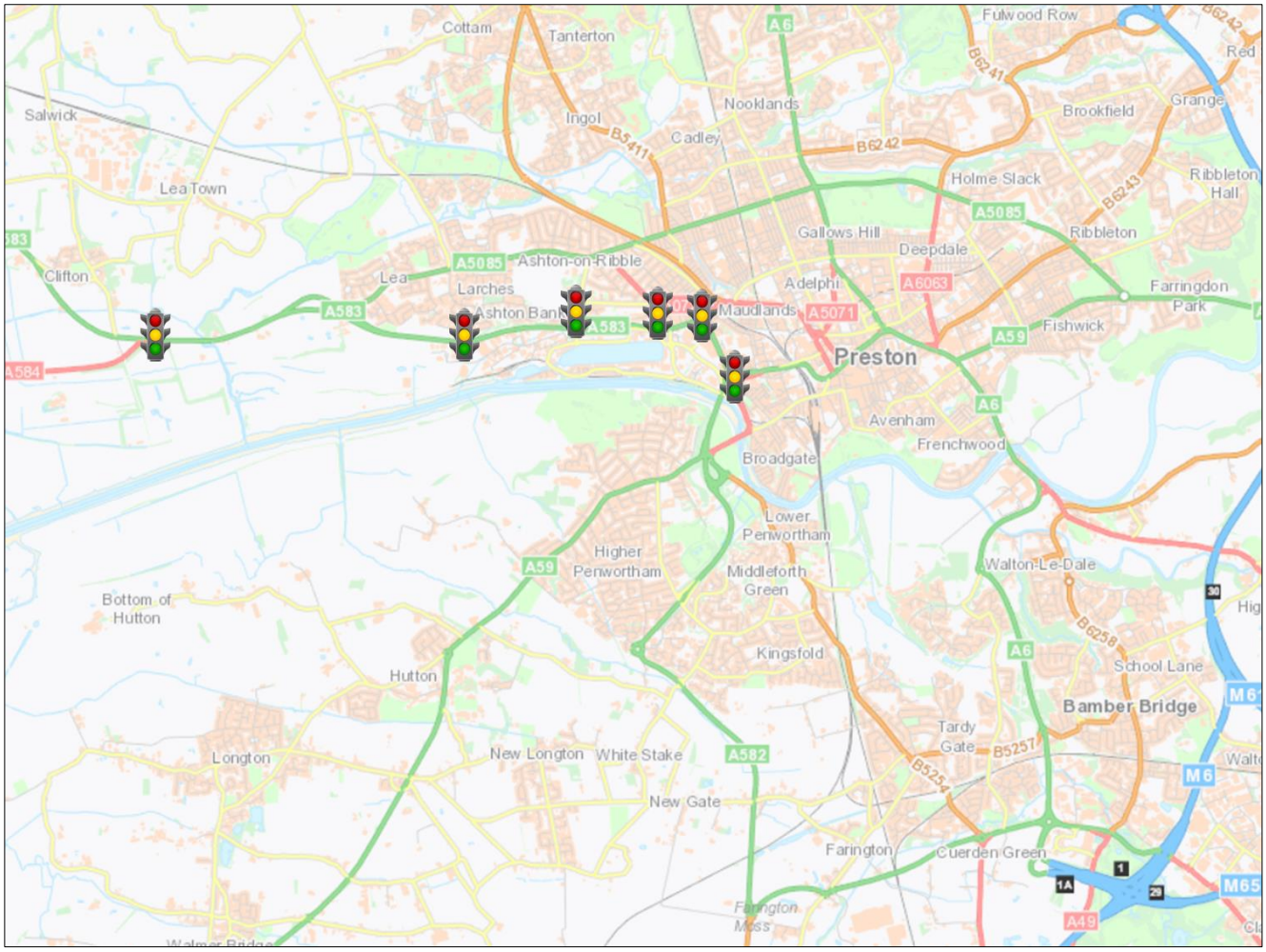

Figure 3-5: Optimised Junctions

3.5 Generalised Cost Changes

The values of time (VOT) in pence per minute (PPM) and vehicle operating costs (VOC) in pence per kilometre (PPK) updated for each forecast year to represent changes in the perceived VOT and VOC in line with WebTAG (December 2017) are presented in Table 3-B below.

In line with TAG unit M3.1, the HGV VOT were doubled to better take into account the driver's and employer's VOT.

As discussed above in view of the new TAG databook (May 2018) a comparison of the cost values is provided in Table 3-B. There is only a very small difference in VOT and the VOC values are slightly different with the percentage difference not exceeding 4%, suggesting there will be little change in route assignment.

Table 3-B: Generalised Cost Parameters

Year	Time Period	Vehicle Type	Trip Purpose	WebTAG - Dec 2017		WebTAG - May 2018		Difference (%)	
				Value of Time (p/min)	Vehicle Operating Cost (p/km)	Value of Time (p/min)	Vehicle Operating Cost (p/km)	Value of Time (p/min)	Vehicle Operating Cost (p/km)
2022	AM	Car	Commute	21.31	5.63	21.36	5.59	0%	-1%
			Business	31.78	11.92	31.85	11.85	0%	-1%
			Other	14.70	5.63	14.74	5.59	0%	-1%
		LGV	Business	22.46	13.71	22.51	13.61	0%	-1%
		HGV	Business	45.61	43.77	45.71	43.89	0%	0%
	IP	Car	Commute	21.66	5.58	21.71	5.54	0%	-1%
			Business	32.56	11.77	32.64	11.70	0%	-1%
			Other	15.66	5.58	15.70	5.54	0%	-1%
		LGV	Business	22.46	13.75	22.51	13.65	0%	-1%
		HGV	Business	45.61	43.77	45.71	43.89	0%	0%
	PM	Car	Commute	21.39	5.67	21.43	5.63	0%	-1%
			Business	32.24	12.04	32.31	11.97	0%	-1%
			Other	15.40	5.67	15.43	5.63	0%	-1%
		LGV	Business	22.46	13.70	22.51	13.61	0%	-1%
		HGV	Business	45.61	43.77	45.71	43.89	0%	0%
2037	AM	Car	Commute	27.81	5.35	27.61	5.32	-1%	-1%
			Business	41.46	10.91	41.17	10.72	-1%	-2%
			Other	19.18	5.35	19.05	5.32	-1%	-1%
		LGV	Business	29.31	13.39	29.10	13.36	-1%	0%
		HGV	Business	59.51	48.63	59.08	49.39	-1%	2%
	IP	Car	Commute	28.26	5.31	28.06	5.28	-1%	-1%
			Business	42.49	10.75	42.19	10.57	-1%	-2%
			Other	20.44	5.31	20.29	5.28	-1%	-1%
		LGV	Business	29.31	13.42	29.10	13.39	-1%	0%
		HGV	Business	59.51	48.63	59.08	49.39	-1%	2%
	PM	Car	Commute	27.90	5.39	27.70	5.35	-1%	-1%
			Business	42.06	11.02	41.76	10.84	-1%	-2%
			Other	20.09	5.39	19.95	5.35	-1%	-1%
		LGV	Business	29.31	13.38	29.10	13.35	-1%	0%
		HGV	Business	59.51	48.63	59.08	49.39	-1%	2%
2042	AM	Car	Commute	30.74	5.45	30.42	5.28	-1%	-3%
			Business	45.84	10.99	45.37	10.57	-1%	-4%
			Other	21.21	5.45	20.99	5.28	-1%	-3%
		LGV	Business	32.40	13.51	32.07	13.18	-1%	-2%
		HGV	Business	65.79	49.29	65.11	50.19	-1%	2%
	IP	Car	Commute	31.24	5.41	30.92	5.24	-1%	-3%
			Business	46.98	10.84	46.49	10.42	-1%	-4%
			Other	22.60	5.41	22.36	5.24	-1%	-3%
		LGV	Business	32.40	13.54	32.07	13.21	-1%	-2%
		HGV	Business	65.79	49.29	65.11	50.19	-1%	2%

Year	Time Period	Vehicle Type	Trip Purpose	WebTAG - Dec 2017		WebTAG - May 2018		Difference (%)	
				Value of Time (p/min)	Vehicle Operating Cost (p/km)	Value of Time (p/min)	Vehicle Operating Cost (p/km)	Value of Time (p/min)	Vehicle Operating Cost (p/km)
	PM	Car	Commute	30.85	5.49	30.53	5.31	-1%	-3%
			Business	46.51	11.11	46.02	10.68	-1%	-4%
			Other	22.21	5.49	21.98	5.31	-1%	-3%
		LGV	Business	32.40	13.50	32.07	13.17	-1%	-2%
		HGV	Business	65.79	49.29	65.11	50.19	-1%	2%

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

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

- TEMPRO planning assumptions and growth factors – NTEM v7.2 dataset
- RTF15 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