

A5036 Tier 1 Governance and Business Case Support T0390 Transport Forecasting Package

HE549387-WSP-HTA-RP-ZZ-0003

Version P01

September 2023

DOCUMENT CONTROL

Document Title	T0390 A5036 Tier 1 Governance and Business Case Support: Transport Data Package
Author	[REDACTED]
Owner	[REDACTED]
Distribution	Project Team, Project Sponsor, TPG Transport
Document Status	Draft

REVISION HISTORY

Version	Description	Author	Date	Checked	Date	Approver	Date
P01	First Draft	[REDACTED]	Sep 2023	[REDACTED]	Sep 2023	[REDACTED]	Sep 2023

REVIEWER LIST

Name	Role
[REDACTED]	WSP Project Manager

ACCEPTANCE

Name	Signature	Title	Date	Version

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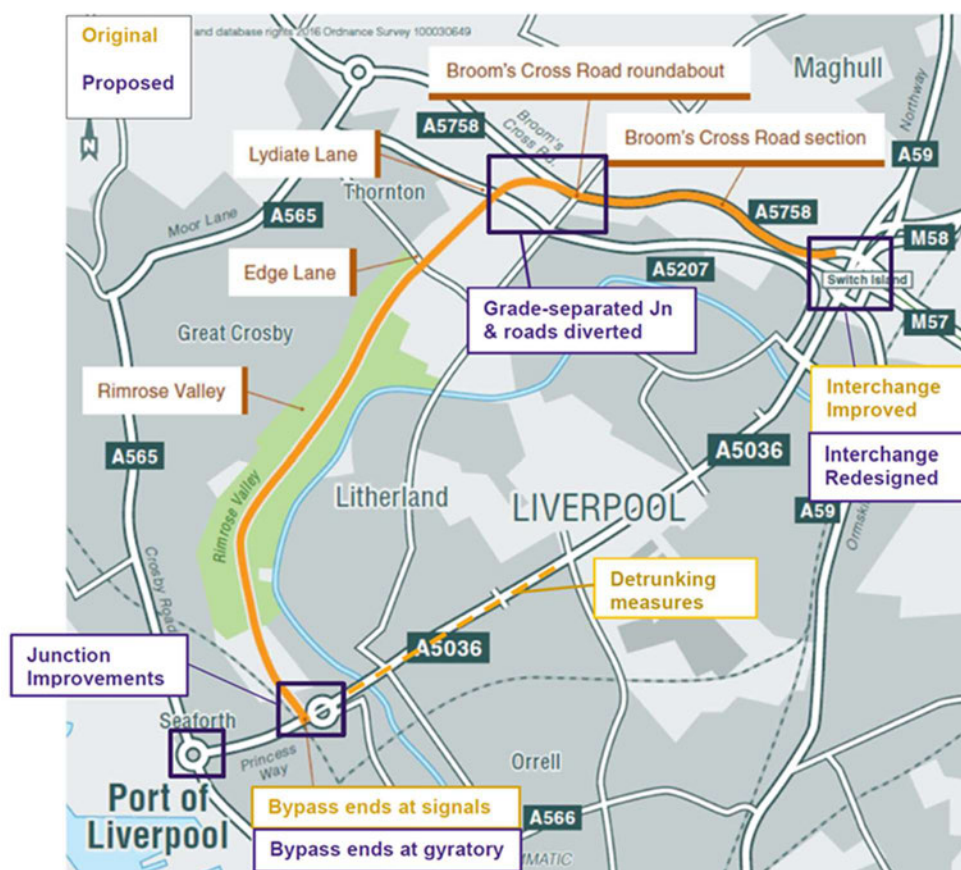
1 Introduction

1.1 Background

The 'A5036 Princess Way – access to the Port of Liverpool' scheme is intended to address problems of congestion, pollution and a poor safety record on the route of the A5036 connecting the Port of Liverpool to the motorway network at Switch Island. The preferred route announced in 2017 proposes to build a new dual-carriageway road through Rimrose Valley in Sefton, connecting with Princess Way at the southern end of the existing route and Brooms Cross Road at the northern end. The PRA scheme includes upgrading Brooms Cross Road between the connection with the new road and Switch Island, and the inclusion of that section into the SRN; and the detrunking of the existing A5036 between Switch Island and the junction of the new road and Princess Way.

In 2020, a review of the scheme led to the addition of improvements to Switch Island and to the junction of Princess Way with the A565 Crosby Road South to the scope of the scheme. The enhanced preferred route is shown in Figure 1 1 below.

Figure 1-1 Enhanced Preferred Route Announcement (PRA)



1.2 Current Status of the Project

Following a review of Kier Highways' recommendations by WSP, the scheme's allocated Technical Assurance supplier, National Highways accepted the merits of the arguments put forward in support of the enhanced PRA scheme, that the new road would not fully deliver against the scheme objectives without the enhancements proposed. This inevitably had cost

implications, however; and a revised assured estimate produced in early 2022 concluded that the cost would be £565 million, exceeding the £500 million limit on National Highways' licence. The scheme therefore needs to transfer to Tier 1, subject to DfT and HM Treasury agreement.

The move to Tier 1 requires an up-to-date Outline Business Case (OBC). The most recent approved OBC was produced for PCF Stage 2. Since then, the transport landscape has changed significantly in respect of:

- The opening of Liverpool 2 container terminal;
- Freeport proposals in the vicinity of the scheme;
- Changing Travel Patterns catalysed by Covid 19;
- Changing patterns of short sea and deep sea trade resulting from the UK's departure from the EU; and
- Revised environmental targets.

This means that the OBC is out of date. WSP were commissioned to update the economic, strategic and environmental appraisals of the scheme..

The analytical requirements for the update are the same as those for PCF Stage 3. .

1.3 Purpose of the Forecasting Package Report

This Transport Forecasting Package summarises the work carried out in the development of the strategic future year forecast highway models used for the assessment of the scheme.

This report describes the scheme, the highway model attributes, the process undertaken to derive the future year demand and develop the highway network, and details of the results of the future year highway models in relation to the scheme.

The forecasts are for both the Do Minimum and Do Something scenarios. The Do Minimum traffic forecasts represent the existing highway network with modification to represent schemes which are currently committed to be constructed within the forecast horizon. The Do Minimum provides a baseline against which the scheme can be assessed. This report details the testing and forecasts for the Core scenario. The Core scenario is constrained to NTEM growth and includes committed development.

1.4 Scheme Objectives

The project objectives have been derived from issues identified within the Port Access Sterring Group (PASG) Feasibility Study, produced by Atkins in 2015. These are subject to change as a result of the additional assessments undertaken during the PCF Options phase. The project objectives summarised for the PCF Options phase are outlined below;

- Contribute to economic growth;
- Improve the operation and efficiency of the existing transport network;
- Support employment and residential/ commercial development opportunities;
- Deliver capacity enhancement to the SRN;
- Improve connectivity and community cohesion;
- Provide maximum value for money;

-
- Improve safety for all road users; and
 - Minimize detrimental environmental impacts and offset by mitigation measures.

The proposed Scheme will contribute to the key performance indicators and performance indicators as outlined in the National Highways Delivery Plan (2020/2025).

1.5 Structure of the Report

This report is structured in accordance with the Product Description Sheet currently available on the National Highways Major Projects Project Control Framework (NH MP PCF) online portal.

The remainder of this document therefore includes the following sections:

- **Section 2:** Summary of Previous Work and Option Assessment ,
- **Section 3:** Forecasting Approach,
- **Section 4:** Forecast Assignment Results,
- **Section 5:** Summary.

2 Summary of Previous Work and Option Assessment

2.1 Introduction

This chapter outlines the future years considered in the transport modelling approach as well as outlining the scenario that is being modelled.

2.2 Previous Assessment

The A5036 Bypass is required to reduce congestions and delays on the A5036 which has worsened since the opening of Liverpool2. Prior to the commissioning of WSP, a Stage 2 Appraisal of the Scheme considered several scheme options, online as well as offline via Primrose Valley. An incomplete assessment was also undertaken by Kier through the PCF3 EO4 stage.

NH has engaged with DfT throughout the process. This has helped to ensure that DfT is supportive of the scheme and that it aligns with future aspirations. The scheme is described below in Table 2-1.

Table 2-1 Scheme Description

Section	Description
Seaforth Interchange	A Left turn filter lane at the interchange for westbound traffic on Princess Way
Princess Way	Signalised roundabout junction for the proposed dual carriageway access road with a connection to Sandy Road into the roundabout.
Brooms Cross	Grade separated junction with two roundabouts, one north and one south of the mainline connecting sideroads and slip roads on either side.
Switch Island	Upgrade to a "through-about" with the main west-east route maintained. On the north side the arms tie into the A59 and M58 with a left turn filter lane for the M58 SB/M57 EB movement. The roundabout will be fully signalised.
A5036	Detrunking between Hawthorne Road and Netherton Way, converting Lane 1 each way to a cycle lane.

2.3 Base Model Development

The base model is a modified version of the Trans-Pennine South Regional Transport Model 2 (TPS RTM2) with increased zone and network granularity added in the area around the scheme. Broadly speaking the additional network and zonal detail is provided in the area contained by the A565, A5758, A59 and A5058.

Full details are provided in the Transport Model Package, HE549387-WSP-HTA-RP-ZZ-0002, September 2023.

3 Forecasting Approach

3.1 Introduction

This chapter discusses the transport forecasting methodology.

3.2 Forecasting Overview

This section outlines the overall approach to demand traffic forecasting from the 2019 base year, including forecast years and scenarios as well as the overall methodology for forecasting transport demand and supply. This has been undertaken in accordance with DfT Transport Analysis Guidance (TAG), with reference to specific TAG Units noted in the relevant Sections below.

3.3 Model Development

A base model has been developed for use on the 'A5036 Princess Way – access to the Port of Liverpool' scheme. The model is an adaptation of the Trans-Pennine Study Regional Transport Model 2 (TPS RTM2) Highway Model. The A5036 model included refinement in the network and demand data in the core study area, encompassing Merseyside and West Lancashire.

As with the TPS RTM2, the A5036 model area is divided into a fully modelled area (The TPS RTM2 study area) and an external area (the rest of the UK). The fully modelled area consists of a 'Detailed Simulation Area' which covers the area between Formby, Liverpool City Centre and the M57. The network for the 'Detailed Simulation Area' was taken from the A5036 Local Area model (LAM) previously developed for this study. The zoning system in this area was refined by dividing the TPS RTM2 zones into smaller zones. The Rest of the Fully Modelled Area remained the same as in the TPS RTM2. Outside of the Fully Modelled Area is the External Area, which was coded as a buffer network. The network and zone system of the external area was also not changed from the TPS RTM2.

Observed data obtained for the A5036 LAM development has also been used in the development of this mode, along with additional observed data use in the construction of the Liverpool City Region model. Both the network and the zone system were refined to improve the accuracy of the representation of the network and movements on and around the A5036.

3.4 Time Periods

The base model has three time periods, and each model represents an average hour within the time period. The time periods are:

- AM Period (Average hour 07:00 – 10:00);
- Interpeak (IP) Period (Average hour 10:00 – 16:00); and
- PM Period (Average hour 16:00 – 19:00)

3.5 User Classes

The traffic demand within the A5036 base model has been segmented into three vehicle classes (Car, LGV and HGV), with cars being split further by trip purpose. The user classes are given in Table 3-1.

Table 3-1 Model User Class

User Class (UC)	Trip Purpose	Vehicle Class (VC)
1	Car – Employer's Business	1 – Car
2	Car – Commute	
3	Car – Other	
4	LGV	2 – LGV
5	HGV	3 - HGV

3.6 Forecast Years

The forecasting approach taken is to apply NTEM and NTP growth to the A5036 base year 2019 model. From the 2019 base year, future year forecasting from this base has been undertaken for the following future years:

- 2031 - proposed opening year for the A5036 scheme,
- 2046 – design year, and
- 2061 – horizon forecast year.

3.7 Core Scenario

For each of the future forecast years listed above, a core scenario has been devised in line with guidance provided in TAG Unit M4: Forecasting and Uncertainty. The core scenario forms the basis for the economic and environmental appraisal reported in the Appraisal Summary Table (AST). The core scenario is based on:

- NTEM growth in demand, at a suitable spatial area,
- Sources of local uncertainty that are more likely to occur than not, and
- Appropriate modelling assumptions.

The core scenario includes unbiased assumptions on economic growth and other trends that may influence transport demand and costs and is based on the TAG Databook (v1.20.2 January 2023). This was the current version at the time of the base model development and has been used in forecasting work to maintain consistency between the highway assignment model and variable demand model.

For HGV and LGV traffic, growth from the NTP22 traffic forecasts were applied. The exception was for HGV traffic to and from the Port of Liverpool, for which growth was estimated from data from the Great Britain Freight Model, as described in Appendix G.

The NTEM and NTP growth factors and the Port of Liverpool HGV growth factors for the core area of the model are given in Appendix B: TEMPRO 8 and NTP22 Growth Factors - Core.

3.8 High and Low Economy Scenarios

The DfT Common Analytical Scenarios provide several projections in addition to the Core Scenario. Of these, the high and low economy growth scenarios have been assessed. As with the Core, the High and Low Economy Growth forecasts use projections from the NTEM8 and NTP22 of those respective Scenarios.

3.9 Development Uncertainty Log

The Uncertainty Log was developed for developments within Merseyside and West Lancashire. Data already compiled for the Liverpool City Region Model was utilised.

Developments that are considered to be 'near certain' or 'more than likely' were included within the development log.

A copy of the uncertainty log is included in Appendix A.

3.10 Reference Case Trip Matrix Construction

The requirement as set out within Unit M4 states that the estimates of demand for the core scenario should be constrained to NTEM forecasted growth. Constraining to NTEM was achieved by limiting trip totals at the zone level to those forecast in TEMPRO v8.0. Constraining was applied to each Local Government District within the TPS RTM2 study area and to within each Region outside of this area. As some zones include significant development trips which exceed TEMPRO growth, the growth in other zones within the same district or region was reduced to ensure that the overall district or region remained within the NTEM growth constraint.

There were cases where the total development trips were greater than the constrained total growth. In these cases, the background growth was assumed to be zero, and the development trips were reduced, such that the overall trips were within the growth constraint.

Trip rates were applied to the employment and housing development sites to calculate the number of trip ends due to the developments. The trip rates were obtained from the Trics database for suitable land use types. The trip rates from the TRICS database are given in Appendix A.

The constraints were applied to calculate forecast trips ends, which were applied to the base year matrices using furnessing. A separate Development matrix was created from the trips ends calculated from Trics, with distribution for each development zone obtained from a suitable doner zone, in terms of land use and location, within the base model. The development matrices were added to the furnessed base matrices to create the forecast reference matrices. LGV and HGV growth was based on growth factors from RTP (2022). These factors were applied to the base year matrices. As with the car forecast matrix, the growth was adjusted to account for development trips, the overall total constrained to RTP forecast growth at district level.

A summary of the forecasting approach is included in Table 3-2.

Table 3-2 Summary of Forecasting approach

Requirement	Approach Adopted
Growth factors	- Car vehicles: TEMPro v8.0 growth rates at MSOA level; - LGV and HGV goods vehicles: RTP 2022;
Development information	- Review of Liverpool City Region Model Uncertainty Log; - Obtain revised dwelling numbers, GFA, site specific details; - Assign trip rates based on TRICS database; - Assign model zone' - Include 'Near Certain' and 'More than Likely' developments only - Calculate the number of development households and jobs in each NTEM zone; - Calculate development trip ends using trip rates from the TRICS database; - Finalise inputs to matrix forecasting
Generalised Costs	- Update PPM and PPK values to current values from National Highways spreadsheet
Constraint methodology	- Review Uncertainty Log to ascertain developments to be specifically modelled; - calculate development matrix for developments, constrain where required - Extract target growth factors and trip-ends and adjust to constraints where required - Apply adjusted growth factors to SATURN zones for car traffic using furnessing procedure; - Constrain trip-ends to target trip-ends - Apply adjusted RTP 2022 growth to goods vehicles using Furnessing procedure; - Check forecast year totals

The Uncertainty Log also includes infrastructure schemes and are included in Appendix A.

3.11 Variable Demand Assignment Methodology & Criteria

The National Highways Trans Pennine Study Regional Transport Model (TPS RTM2) was developed to represent the strategic road network and other roads of importance specifically with the aim of being used to assess schemes on the National Highways network. The area affected by the A5036 scheme is covered by the TPS RTM2 which has been validated to appropriate standards for a strategic model throughout the model area.

However, the level of detail included in the study area is insufficient to fully understand the impact of the scheme options to be assessed. To provide more detail in the scheme area, 39 TPS RTM2 zones were replaced with 256 split zones increasing the number of zones in the A5036 model to 2,229. The splitting process employed a Gravity Model which estimated trips between the A5036 model zones based on population and distance. The gravity model was used only to obtain proportions (as opposed to actual trip totals) to split the 39 TPS RTM2 zones into the 256 A5036 model zones. TPS RTM2 included internal trips. Therefore, no additional internal trips were added during the splitting.

The A5036 base model demand was calibrated and validated. Subsequently, Realism Testing showed that the same Variable Demand Parameters from the TPS RTM2 model were applicable to the A5036 model.

Key TPS RTM2 model parameters, across the demand and supply models are listed below:

- Time Periods
 - AM average hour (07:00 to 10:00)
 - Inter Peak average hour (10:00 to 16:00)
 - PM average hour (16:00 to 19:00)
- Number of model zones: 2,012 in the TPS RTM2, 2,229 in the A5036 model
- Assigned user classes (Highway)

- Car Employers Business
- Car Commute
- Car Other
- Light Goods Vehicles
- Heavy Goods Vehicles
- Public Transport (PT) trip matrices
 - Rail commuting
 - Rail Other
 - Rail Employers business
- VDM segments:
 - Home Based Employers Business
 - Home Based Commute
 - Home Based Other
 - Non Home Based Employers Business
 - Non Home Based Other
 - Fixed – Employers Business
 - Fixed – Commute
 - Fixed – Other
 - Light Goods Vehicles (Fixed Demand)
 - Heavy Goods Vehicles (Fixed Demand)
- VDM modal coverage
 - Highway
 - Rail based Public Transport
- VDM model responses
 - Time of Day
 - Mode
 - Distribution

Reference travel costs for the 2031, 2046 and 2061 forecast scenarios have been pivoted off the 2019 calibrated highway assignments for each model time period providing travel cost differences for input to the logit demand model.

The generalised costs used for the SATURN highway assignments and DIADEM variable demand model have been obtained from the latest DfT TAG Databook v1.20.2 (January 2023) using behavioural values of time and distance for each forecast year.

The uncertainty log has been developed to identify the location, size, timing and likelihood of future developments in the study area as described in Section 3.11. 24 hour trip productions and attractions, required for the demand model, have been derived as follows:

- Split forecast car OD trips into from home, to home and non home based trips using proportions calculated from the TPS RTM2 model;
- Factor inter peak matrices using NTEM to estimate off peak demand;
- Calculate 24 PA matrices for home based cars by adding time period home base car matrices and halving the total to convert from OD to PA;

- Non home based car trips and LGV and HGV trips will remain as modelled hour matrices.

3.12 Matrix Totals and Differences

The resulting trip matrix totals for the Variable Demand Models (VDM) are shown in Table 3-3 and Table 3-4. The Variable Demand Model causes changes in trips due to redistribution and model shift. Redistribution does not change the total number of trips in the model, therefore, all changes between the DM and DS trip totals for the whole matrix are due to modal shift.

Table 3-3 Matrix Totals Forecasts VDM DM

	AM (pcu's)			IP (pcu's)			PM (pcu's)		
	Low	Core	High	Low	Core	High	Low	Core	High
2031 CAR EB	518,382	519,573	530,181	460,478	461,574	471,200	417,550	418,484	427,025
2031 CAR COMMUTE	1,927,755	1,930,774	1,968,831	570,621	570,911	581,902	2,067,669	2,068,260	2,106,928
2031 CAR OTHER	2,990,639	3,044,186	3,134,561	3,974,771	4,048,120	4,165,822	3,526,671	3,575,295	3,675,301
2031 LGV	779,754	816,191	864,623	676,885	708,513	750,553	723,976	757,806	802,773
2031 HGV	894,465	901,458	929,296	894,539	901,534	929,377	554,808	559,145	576,407
2031 TOTAL	7,110,996	7,212,182	7,427,492	6,577,294	6,690,652	6,898,854	7,290,674	7,378,990	7,588,433
2046 CAR EB	520,786	546,967	598,936	459,757	482,573	528,298	416,999	437,809	479,324
2046 CAR COMMUTE	1,925,727	2,019,387	2,208,729	565,968	591,672	645,888	2,060,993	2,154,045	2,349,956
2046 CAR OTHER	3,028,937	3,228,053	3,535,285	4,040,053	4,299,979	4,694,465	3,571,151	3,785,208	4,133,830
2046 LGV	854,676	978,401	1,148,325	741,951	849,350	996,852	793,477	908,351	1,066,116
2046 HGV	926,622	962,208	1,038,240	926,717	962,310	1,038,821	574,772	596,839	643,989
2046 TOTAL	7,256,748	7,735,016	8,529,515	6,734,446	7,185,884	7,904,324	7,417,392	7,882,252	8,673,214
2061 CAR EB	498,340	552,934	654,653	438,465	486,272	575,437	397,955	441,454	522,604
2061 CAR COMMUTE	1,835,674	2,033,268	2,404,138	536,898	592,508	698,805	1,959,409	2,160,380	2,544,827
2061 CAR OTHER	2,950,954	3,346,883	3,942,267	3,936,222	4,464,358	5,236,454	3,464,768	3,902,862	4,584,637
2061 LGV	882,312	1,100,988	1,414,917	765,965	955,790	1,228,301	819,081	1,022,103	1,313,572
2061 HGV	928,408	1,002,524	1,136,958	928,519	1,002,649	1,137,121	575,907	621,866	705,238
2061 TOTAL	7,095,689	8,036,597	9,552,933	6,606,069	7,501,576	8,876,118	7,217,120	8,148,665	9,670,877

Table 3-4 Matrix Totals Forecasts VDM DS

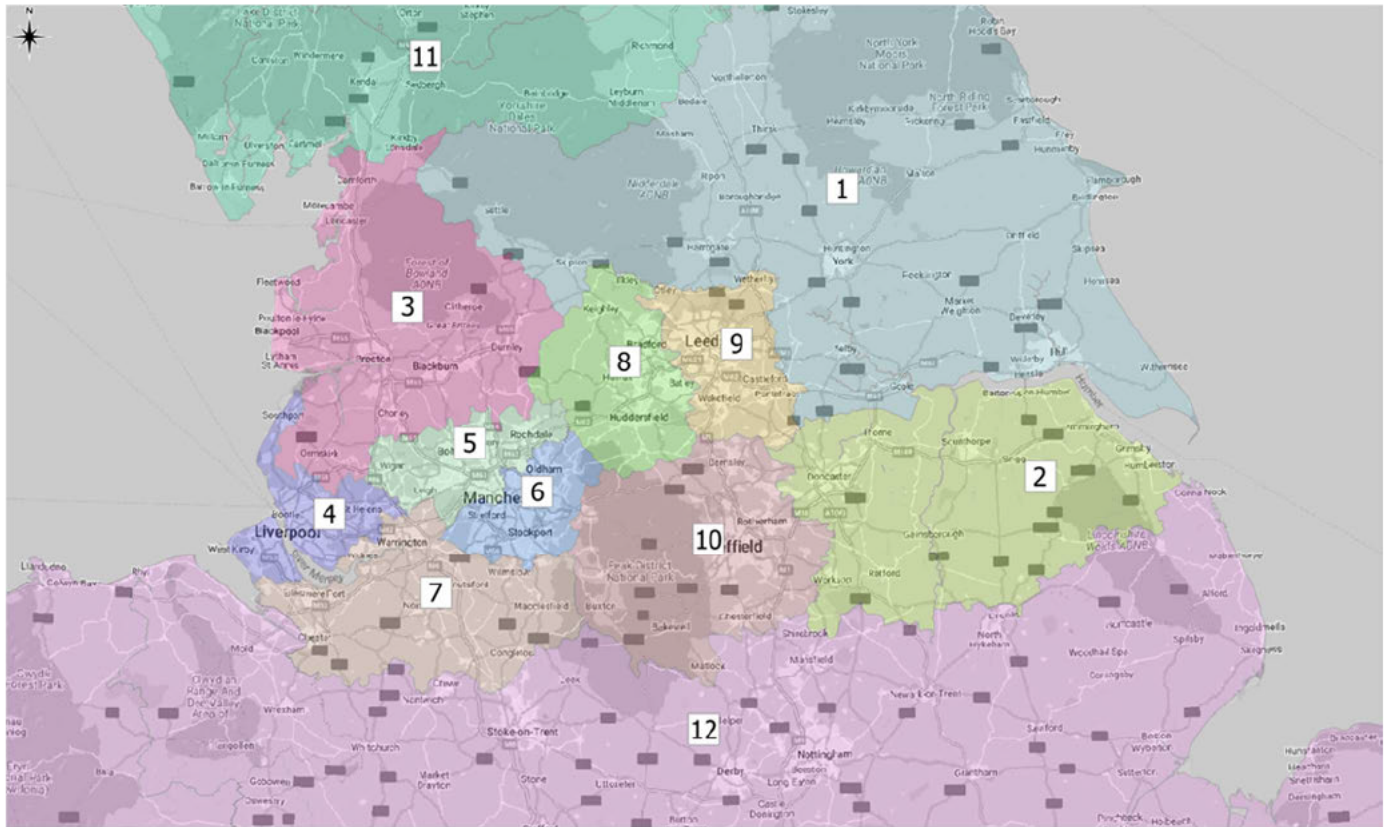
	AM (pcu's)			IP (pcu's)			PM (pcu's)		
	Low	Central	High	Low	Central	High	Low	Central	High
2031 CAR EB	518,403	519,592	530,199	460,473	461,571	471,195	417,554	418,489	427,032
2031 CAR COMMUTE	1,927,790	1,930,810	1,968,862	570,615	570,907	581,895	2,067,689	2,068,281	2,106,957
2031 CAR OTHER	2,990,704	3,044,253	3,134,607	3,974,740	4,048,101	4,165,790	3,526,717	3,575,341	3,675,378
2031 LGV	779,754	816,191	864,623	676,885	708,513	750,553	723,976	757,806	802,773
2031 HGV	894,465	901,458	929,296	894,539	901,534	929,377	554,808	559,145	576,407
2031 TOTAL	7,111,116	7,212,304	7,427,587	6,577,252	6,690,626	6,898,809	7,290,744	7,379,061	7,588,547
2046 CAR EB	520,804	546,986	598,957	459,752	482,580	528,305	417,007	437,810	479,329
2046 CAR COMMUTE	1,925,759	2,019,424	2,208,776	565,961	591,673	645,885	2,061,012	2,154,069	2,349,986
2046 CAR OTHER	3,029,001	3,228,101	3,535,342	4,040,022	4,300,045	4,694,505	3,571,189	3,785,197	4,133,873
2046 LGV	854,676	978,401	1,148,325	741,951	849,350	996,852	793,477	908,351	1,066,116
2046 HGV	926,622	962,208	1,038,240	926,717	962,310	1,038,821	574,772	596,839	643,989
2046 TOTAL	7,256,862	7,735,120	8,529,640	6,734,402	7,185,959	7,904,368	7,417,457	7,882,265	8,673,291
2061 CAR EB	498,358	552,963	654,684	438,462	486,261	575,440	397,975	441,467	522,625
2061 CAR COMMUTE	1,835,716	2,033,311	2,404,190	536,888	592,500	698,800	1,959,477	2,160,418	2,544,914
2061 CAR OTHER	2,950,993	3,346,975	3,942,280	3,936,197	4,464,329	5,236,353	3,464,981	3,902,938	4,584,907
2061 LGV	882,312	1,100,988	1,414,917	765,965	955,790	1,228,301	819,081	1,022,103	1,313,572
2061 HGV	928,408	1,002,524	1,136,958	928,519	1,002,649	1,137,121	575,907	621,866	705,238
2061 TOTAL	7,095,788	8,036,760	9,553,029	6,606,030	7,501,529	8,876,015	7,217,420	8,148,793	9,671,255

To evaluate the sector-to-sector level changes, the sector system was derived, the sector areas are presented in **Table 3-5** and **Figure 3-1**.

Table 3-5 Model Sectors

Sector No	Sector Name
1	North Yorkshire
2	North Lincs
3	Lancashire
4	Merseyside
5	GM North
6	GM South
7	Cheshire
8	Bradford
9	Leeds
10	South Yorkshire
11	External North
12	External South

Figure 3-1 Model Sector Map



In Table 3-6 to **Table 3-14** below, the changes in trip totals by individual sectors which represent areas within the study. The sectorised totals will include some of the changes in trips within sectors due to re-distribution to other sectors, Redistribution within the same sector is not captured. The tables show that the changes due to redistribution between sectors is not very high.

Table 3-6 Core Matrices DS minus DM – Total Vehicles - 2031 AM

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	0	0	0	0	0	0	0	0	0	0	0	0	0
North Lincs	0	1	0	0	0	0	0	0	0	0	0	0	2
Lancashire	0	0	-24	61	-6	-1	-2	0	0	0	0	-1	26
Merseyside	0	0	24	60	5	4	8	0	0	0	1	0	102
GM North	0	0	-7	18	12	2	-1	0	0	0	0	-1	22
GM South	0	0	-1	14	0	-19	1	0	0	-1	0	0	-6
Cheshire	0	0	-2	10	2	-2	-10	0	0	0	0	1	-1
Bradford	0	0	0	1	0	0	0	-11	1	0	0	0	-8
Leeds	0	0	0	0	0	0	0	-1	2	0	0	0	2
South Yorkshire	0	2	0	0	0	0	0	0	1	-2	0	-1	-1
External North	0	0	0	2	0	0	0	0	0	0	0	0	1
External South	0	0	-1	1	0	0	1	0	0	0	0	1	3
Total	0	4	-11	167	12	-15	-3	-12	3	-2	0	1	142

Table 3-7 Core Matrices DS minus DM – Total Vehicles - 2031 IP

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	-1	0	0	0	0	0	0	0	0	0	0	0	-1
North Lincs	0	-1	0	0	0	0	0	0	0	1	0	0	1
Lancashire	0	0	-14	20	-5	-1	-1	0	0	0	0	-1	-2
Merseyside	1	0	20	-14	6	4	6	1	0	0	1	1	24
GM North	0	0	-4	4	1	4	-1	0	0	0	0	0	4
GM South	0	0	-1	4	5	-1	1	0	0	0	0	0	8
Cheshire	0	0	-1	0	1	1	-6	0	0	0	0	1	-3
Bradford	0	0	0	0	0	0	0	-19	-3	0	0	0	-20
Leeds	0	0	0	0	-1	0	0	-2	1	1	0	0	-2
South Yorkshire	0	1	0	0	0	0	0	0	0	0	0	0	2
External North	0	0	0	1	0	0	0	0	0	0	0	0	0
External South	0	0	-1	0	0	0	1	0	0	1	0	-19	-17
Total	-1	1	-1	15	8	7	-1	-18	-2	4	0	-17	-4

Table 3-8 Core Matrices DS minus DM – Total Vehicles - 2031 PM

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	0	0	0	0	0	0	0	-1	0	0	0	0	-2
North Lincs	0	2	0	0	0	0	0	0	0	3	0	1	5
Lancashire	0	0	-11	43	-8	-1	-2	0	0	0	0	-1	19
Merseyside	0	0	22	40	9	3	6	1	0	0	1	1	83
GM North	0	0	-12	14	-6	1	11	0	0	0	0	0	7
GM South	0	0	-2	3	-1	-11	2	0	0	1	0	1	-8
Cheshire	0	0	-5	5	3	0	-6	0	0	0	0	1	-1
Bradford	0	0	0	1	0	0	0	-6	1	0	0	0	-4
Leeds	1	0	0	0	-1	-1	0	-5	5	0	0	0	-2
South Yorkshire	0	0	0	0	0	0	0	0	0	4	0	0	4
External North	0	0	0	1	0	0	0	0	0	0	0	0	0
External South	0	0	-2	0	0	1	2	0	0	1	0	-1	1
Total	0	2	-10	106	-5	-8	12	-11	5	7	0	3	101

Table 3-9 Core Matrices DS minus DM – Total Vehicles - 2046 AM

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	-2	0	0	0	0	0	0	0	0	0	0	0	-2
North Lincs	0	1	0	0	0	0	0	0	0	-5	0	0	-4
Lancashire	-1	0	-34	73	-3	-1	-2	0	0	0	0	-1	30
Merseyside	0	0	29	54	5	5	16	1	0	0	1	1	112
GM North	0	0	-14	20	0	0	-2	0	0	0	0	0	5
GM South	0	0	-2	15	-5	-5	-1	0	0	-2	0	1	0
Cheshire	0	0	-3	21	-2	-3	-7	0	0	0	0	1	7
Bradford	0	0	0	1	0	1	0	9	1	0	0	0	11
Leeds	0	0	0	0	0	0	0	-2	-4	-1	0	0	-6
South Yorkshire	0	-3	0	0	0	1	0	0	1	-7	0	-1	-9
External North	0	0	0	2	0	0	0	0	0	0	-1	0	1
External South	0	-1	-1	3	0	0	1	0	0	-1	0	-1	0
Total	0	-3	-26	190	-5	-1	5	8	-2	-16	0	-2	147

Table 3-10 Core Matrices DS minus DM – Total Vehicles - 2046 IP

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	-2	0	0	1	0	0	0	1	3	1	0	0	3
North Lincs	0	-10	0	0	0	0	0	0	1	2	0	0	-6
Lancashire	-1	0	-21	28	-7	-2	-2	0	0	0	0	-1	-7
Merseyside	2	0	28	-10	10	5	11	1	1	0	1	1	51
GM North	0	0	-4	8	4	13	1	0	0	0	0	0	22
GM South	0	0	-2	5	11	1	-4	1	0	2	0	-1	12
Cheshire	0	0	-2	1	0	-3	8	0	0	0	0	0	5
Bradford	0	0	0	1	1	1	0	20	-6	0	0	0	18
Leeds	2	1	0	1	1	0	0	-1	22	1	0	0	28
South Yorkshire	0	3	0	0	0	1	1	0	2	-1	0	1	7
External North	0	0	0	1	0	0	0	0	0	0	-1	0	1
External South	0	1	-1	0	0	0	1	0	0	0	0	12	13
Total	1	-4	-4	36	21	17	16	22	24	5	0	12	147

Table 3-11 Core Matrices DS minus DM – Total Vehicles - 2046 PM

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	-3	0	-1	0	0	0	0	0	1	0	0	0	-1
North Lincs	0	23	0	0	0	0	0	0	1	8	0	0	33
Lancashire	0	0	-21	63	-12	-2	-3	0	0	0	0	-1	22
Merseyside	1	0	23	42	12	6	18	2	1	0	2	1	107
GM North	0	0	-15	17	-31	-1	0	0	0	0	0	0	-29
GM South	0	0	-5	4	2	5	-4	0	0	0	0	0	4
Cheshire	0	0	-4	20	-1	-2	-23	0	0	-1	0	1	-9
Bradford	0	0	-1	1	-1	0	0	-23	-2	0	0	-1	-25
Leeds	2	0	0	0	-1	0	0	-6	-5	0	0	-1	-11
South Yorkshire	0	-3	0	0	0	-1	-2	0	-1	-1	0	-2	-9
External North	0	0	0	2	0	0	0	0	0	0	0	0	0
External South	0	-1	-2	0	0	0	-2	0	-1	-3	0	-15	-25
Total	0	19	-25	151	-31	5	-16	-28	-6	5	1	-18	56

Table 3-12 Core Matrices DS minus DM – Total Vehicles - 2061 AM

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	2	0	0	0	0	0	0	0	-2	0	0	0	1
North Lincs	0	-1	0	0	0	0	0	0	0	4	0	1	4
Lancashire	-1	0	-36	73	-4	2	-1	-1	0	0	-1	-1	31
Merseyside	0	0	29	64	8	8	26	0	0	0	1	4	142
GM North	0	0	-10	22	-31	-5	-1	0	0	0	0	0	-26
GM South	0	0	-2	17	-2	-28	5	0	0	1	0	1	-7
Cheshire	0	0	-4	28	-3	-1	-5	0	0	1	0	2	19
Bradford	-1	0	0	1	0	1	0	26	-3	0	0	0	22
Leeds	2	0	0	0	0	0	0	2	0	0	0	0	6
South Yorkshire	0	6	0	0	0	0	2	0	-1	-6	0	3	4
External North	0	0	0	2	0	0	0	0	0	0	0	0	1
External South	0	2	-2	4	-1	0	2	0	0	1	-1	-6	-1
Total	3	8	-26	212	-33	-23	29	27	-6	2	0	4	196

Table 3-13 Core Matrices DS minus DM – Total Vehicles - 2061 IP

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	1	0	-1	0	0	0	0	-1	-3	0	0	0	-4
North Lincs	0	-5	0	0	0	0	0	0	-1	2	0	1	-4
Lancashire	0	0	-35	37	-5	-1	-2	0	0	0	-1	-1	-10
Merseyside	0	0	32	-20	9	5	13	0	0	0	1	2	44
GM North	0	0	-4	7	-13	0	-1	0	0	0	0	0	-12
GM South	0	0	-2	5	-6	-5	1	0	0	-1	0	1	-8
Cheshire	0	0	-2	6	0	-1	-15	0	0	1	0	3	-9
Bradford	-1	0	0	1	0	0	0	42	-2	-1	0	-1	36
Leeds	-2	-1	0	0	-1	0	0	5	-45	-2	0	0	-45
South Yorkshire	0	6	0	0	0	0	2	0	-1	-11	0	1	-4
External North	0	0	0	2	0	0	0	0	0	0	0	0	0
External South	0	2	-2	1	-1	0	2	-1	0	1	-1	-4	-3
Total	-2	1	-15	40	-18	-4	-1	44	-52	-11	-1	0	-18

Table 3-14 Core Matrices DS minus DM – Total Vehicles - 2061 PM

OD	North Yorkshire	North Lincs	Lancashire	Merseyside	GM North	GM South	Cheshire	Bradford	Leeds	South Yorkshire	External North	External South	Total
North Yorkshire	1	0	0	1	0	0	0	0	3	0	0	0	3
North Lincs	-1	15	0	0	0	0	0	0	0	5	0	1	20
Lancashire	0	0	-43	66	-13	2	-4	0	0	0	0	-1	5
Merseyside	1	0	23	32	15	6	18	2	1	0	2	2	102
GM North	0	0	-11	20	-18	1	-6	0	0	0	0	0	-13
GM South	0	0	4	4	9	5	-11	1	0	1	0	0	14
Cheshire	0	0	-5	19	-2	0	27	0	0	1	0	1	40
Bradford	0	0	-1	2	0	0	0	-13	0	0	0	0	-12
Leeds	0	0	0	1	1	0	0	-6	4	1	0	0	-1
South Yorkshire	0	-4	0	0	0	1	1	0	1	-2	0	0	-4
External North	0	0	-1	2	0	0	0	0	0	0	0	0	1
External South	0	-1	-1	4	0	2	10	0	0	0	0	7	22
Total	-1	9	-35	151	-8	17	34	-16	9	6	1	8	177

Table 3-15 shows the low and high economy growth differences from the core growth scenario. The totals are for the area of detailed modelling and exclude intra zonal trips that do not get assigned to the network.

Table 3-15 Matrix Low and High Differences from Core Scenario (DM)

	AM (pcu's)				IP (pcu's)				PM (pcu's)			
	Low		High		Low		High		Low		High	
	Diff	% Diff	Diff	% Diff	Diff	% Diff	Diff	% Diff	Diff	% Diff	Diff	% Diff
2031	-101,186	-1.4%	215,310	3.0%	-113,358	-1.7%	208,202	3.1%	-88,316	-1.2%	209,443	2.8%
2046	-478,268	-6.2%	794,499	10.3%	-451,438	-6.3%	718,440	10.0%	-464,860	-5.9%	790,962	10.0%
2061	-940,908	-11.7%	1,516,336	18.9%	-895,507	-11.9%	1,374,542	18.3%	-931,545	-11.4%	1,522,212	18.7%

Table 3-16 Matrix Low and High Differences from Core Scenario (DS)

	AM (pcu's)				IP (pcu's)				PM (pcu's)			
	Low		High		Low		High		Low		High	
	Diff	% Diff	Diff	% Diff	Diff	% Diff	Diff	% Diff	Diff	% Diff	Diff	% Diff
2031	-101,188	-1.4%	215,283	3.0%	-113,374	-1.7%	208,183	3.1%	-88,317	-1.2%	209,486	2.8%
2046	-478,258	-6.2%	794,520	10.3%	-451,557	-6.3%	718,409	10.0%	-464,808	-5.9%	791,026	10.0%
2061	-940,972	-11.7%	1,516,269	18.9%	-895,499	-11.9%	1,374,486	18.3%	-931,373	-11.4%	1,522,462	18.7%

The resulting trip matrix totals for the core DM growth scenario are shown in Table 3-15 and totals for the core DS growth scenario are shown in Table 3-16. The totals are for the area of detailed modelling and exclude intra zonal trips that do not get assigned to the network.

3.13 Forecast Network Development

A list of committed infrastructure schemes was given, any schemes that were more than likely, near certain or completed were included. This log came from the TPSRTM2 forecast modelling and is shown below in Table 3-17.

Table 3-17 Infrastructure Log

ID	Schemes	Local Authority	Likelihood
1	A570 Corridor Improvements	Liverpool	Complete
2	A580/A570 Windle Island Improvement	St Helens	Complete
3	A59 Penwortham Bypass	South Ribble	Complete
4	A63 Castle Street	Kingston Upon Hull	Near Certain
5	A630 Parkway Widening	Rotherham	Complete
6	A650 Hardings Road Improvements	Bradford	Complete
7	Congleton Link Road	Cheshire East	Complete
8	Glasshoughton Southern Link Road	Wakefield	Complete
9	Harrogate Road New Link Junction	Harrogate	Complete
10	Hatfield Link Road	Doncaster	Complete
11	M181	North Lincolnshire	Complete
12	Heyhouse Link	Fylde	Near Certain
13	M56 Junction 6 to 8	Trafford	Complete
14	M6 Junction 21A to 26	Warrington	Near Certain
15	M62 Junction 19 Heywood Link Road	Rochdale	Complete
16	M62 Junction 19 Improvements	Rochdale	Complete
17	M62 Junction 10 - 12	Warrington	Complete
18	Westwood Park A49 Link Road and Marus Bridge Roundabout	Warrington	Complete
19	M62 Junction 25 to 30 ALR	Kirkless/Leeds (Yorkshire)	Near Certain
20	M621 Junction 1 to 7	Leeds	Near Certain
21	Poynton Relief Road	Cheshire East	Complete

ID	Schemes	Local Authority	Likelihood
22	Preston West Distributor and East West Link Road	Lancashire	Complete
23	Warrington Centre Park Link	Warrington	Complete
24	Warrington East Phases 2 & 3	Warrington	Complete
25	Windy Harbour to Skippool	Fylde/Wyre	Near Certain
26	A61 Westwood Roundabout	Barnsley	Near Certain
27	M6 Junction 19	Cheshire East	Complete
28	A582 South Ribble Western Distributor Widening	South Ribble	Near Certain
29	Parkside Link Road	St Helens	Near Certain
30	A565 Dualling	Sefton	Complete
31	M58 Junction 1 Improvement	Sefton	Complete
32	A59 Northway Junction Improvements	Sefton	Complete

The A5036 By pass scheme involves improving existing junctions at Brooms Cross, Switch Island, Seaforth Interchange and Princess Way.

Table 3-18 below describes the layout at each section of the scheme.

Table 3-18 Scheme description

Section	Description
Seaforth Interchange	A Left turn filter lane at the interchange for westbound traffic on Princess Way
Princess Way	Signalised roundabout junction for the proposed dual carriageway access road with a connection to Sandy Road into the roundabout.
Brooms Cross	Grade separated junction with two roundabouts, one north and one south of the mainline connecting sideroads and slip roads on either side.
Switch Island	Upgrade to a "through-about" with the main west-east route maintained. On the north side the arms tie into the A59 and M58 with a left turn filter lane for the M58 SB/M57 EB movement. The roundabout will be fully signalised.
A5036	Detrunking between Hawthorne Road and Netherton Way, converting Lane 1 each way to a cycle lane.

The junctions that will be updated for the A5036 scheme are shown below in the SATURN model network format. Figure 3-2 shows the scheme area, Figure 3-3 shows Seaforth interchange, Figure 3-4 shows Princess Way, Figure 3-5 shows the Brooms Cross roundabouts and Figure 3-6 shows Switch Island.

Figure 3-2 Scheme area shown in SATURN

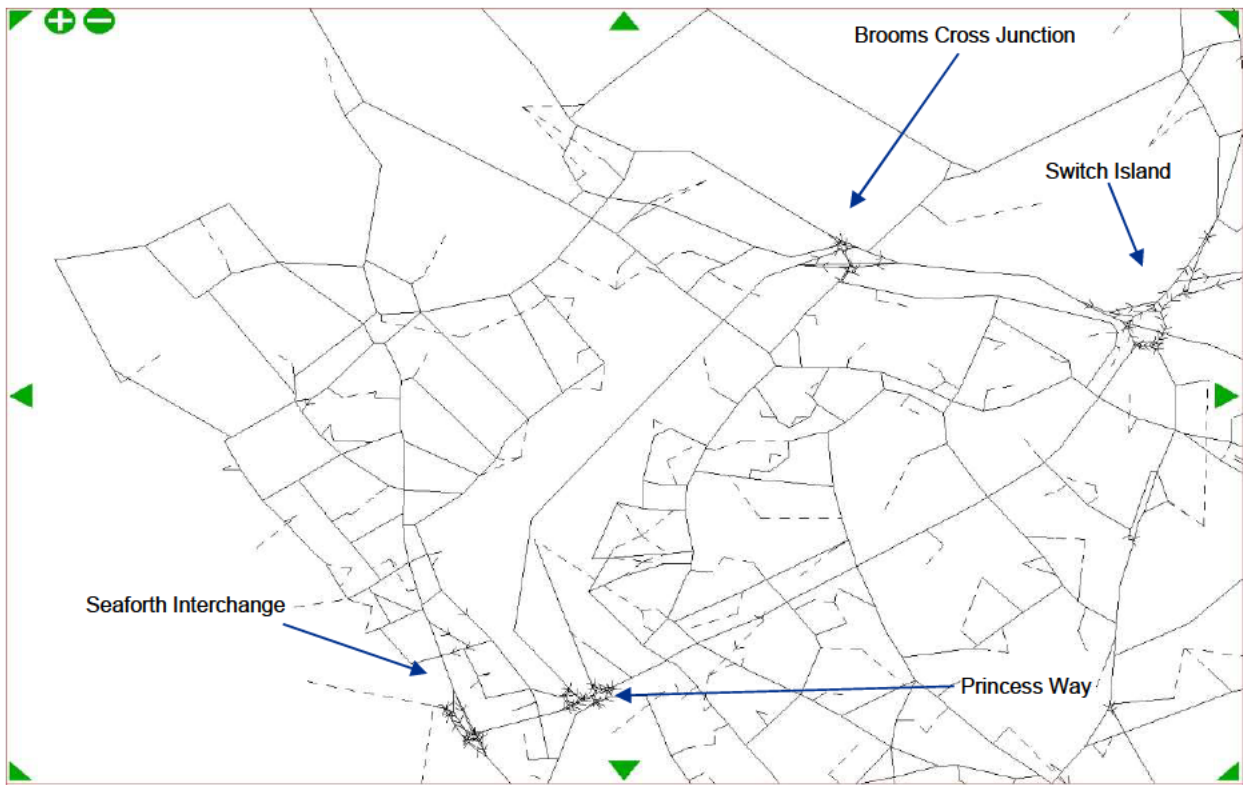


Figure 3-3 Seaforth Interchange shown in SATURN

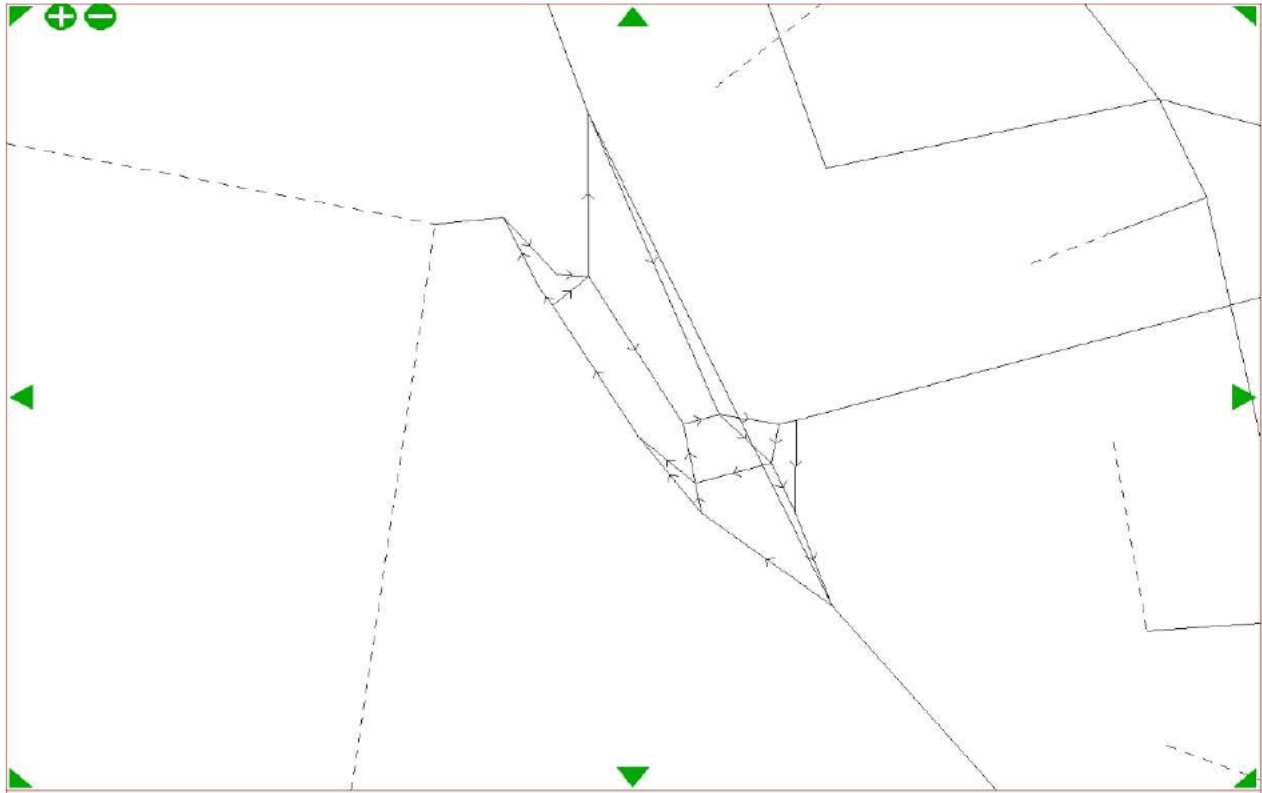


Figure 3-4 Princess Way roundabouts shown in SATURN

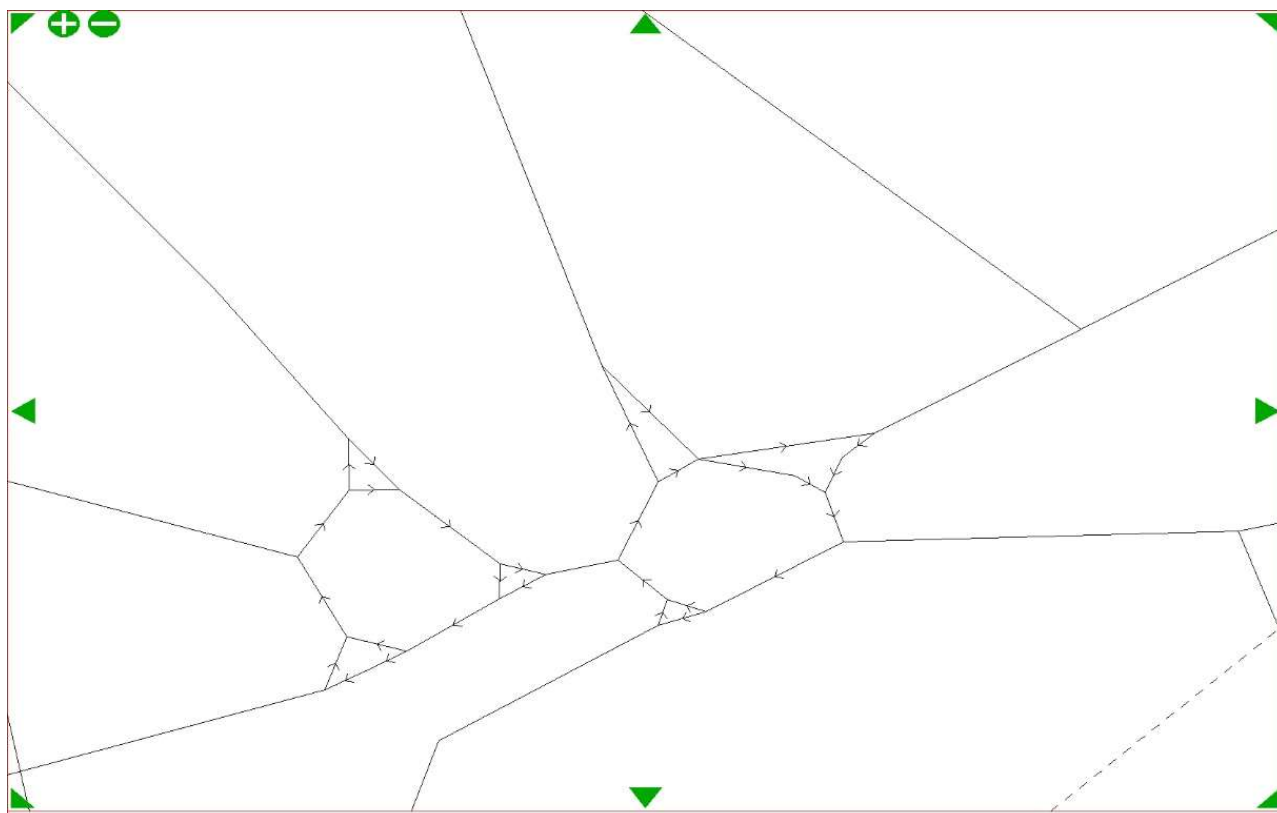


Figure 3-5 Brooms Cross Junctions shown in SATURN

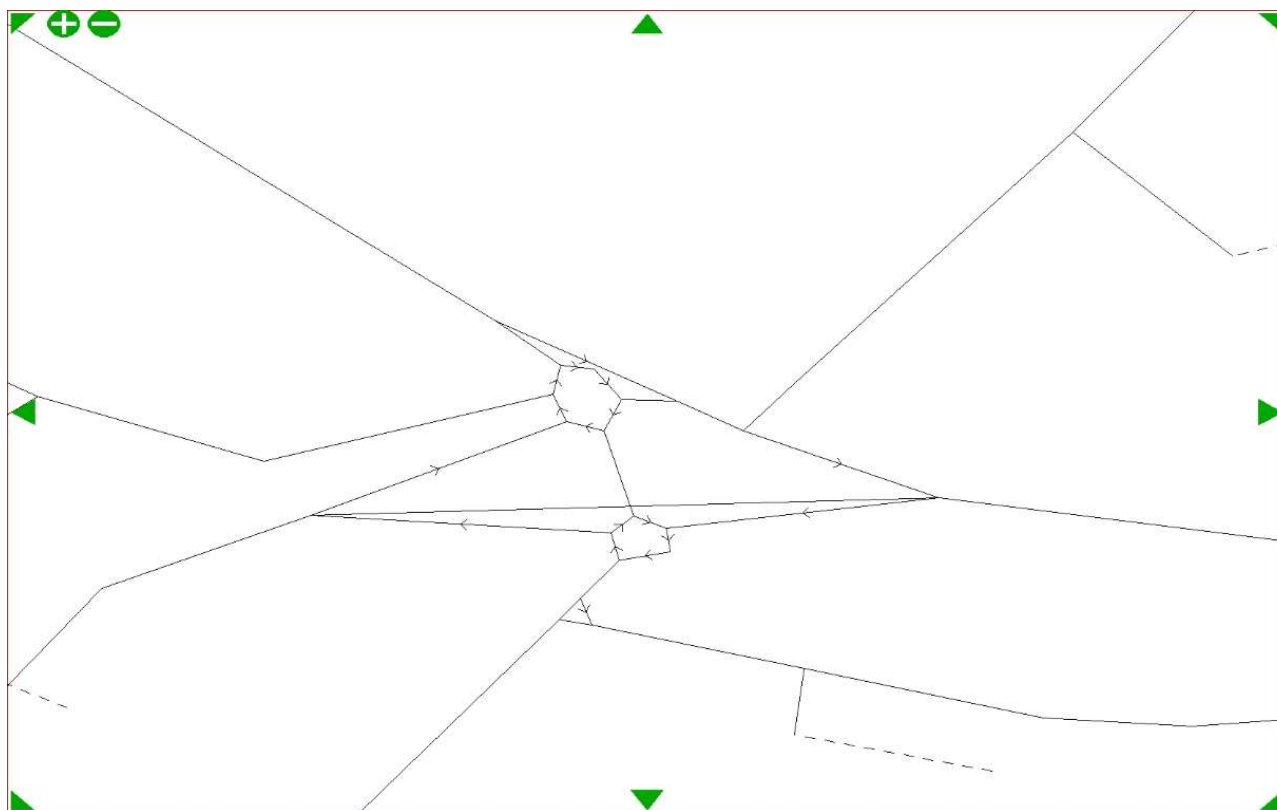
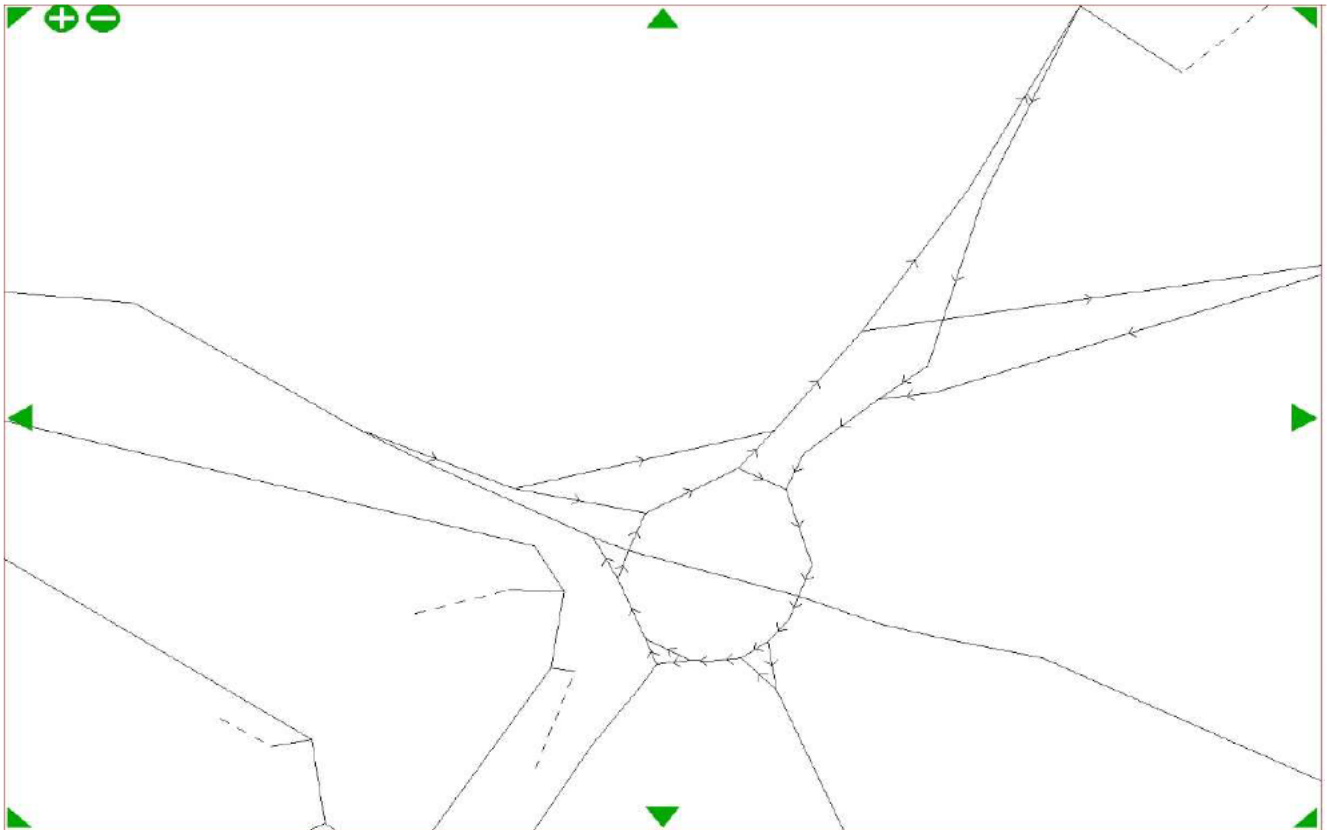


Figure 3-6 Switch Island shown in SATURN



To accurately reflect the forecasted value of time and vehicle operating costs, generalised cost parameters were obtained from the DfT TAG Data Book (January 2023). Within SATURN these generalised cost parameters are used in terms of Pence Per Minute (PPM) and Pence Per Kilometre (PPK). The PPM value for HGV has been factored by 2.3 to account the influence of owners on the routing of these vehicles. This is in line with DfT TAG Unit M3.1 and also applied in the base year highway model.

The generalised cost parameters for each modelled year and user class are below in Table 3-19 and Table 3-20.

Table 3-19 PPM Values

PPM VALUES		2031			2046			2061		
UC	Purpose	AM	IP	PM	AM	IP	PM	AM	IP	PM
1	Business	35.68	36.57	36.20	44.56	45.66	45.20	54.22	55.56	55.00
2	Commuting	23.93	24.32	24.01	29.88	30.37	29.98	36.36	36.95	36.48
3	Other	16.51	17.59	17.29	20.61	21.96	21.59	25.08	26.72	26.27
4	LGV	25.86	25.86	25.86	32.29	32.29	32.29	39.29	39.29	39.29
5	HGV	59.24	59.24	59.24	73.96	73.96	73.96	90.00	90.00	90.00

Table 3-20 PPK Values

PPK VALUES		2031			2046			2061		
UC	Purpose	AM	IP	PM	AM	IP	PM	AM	IP	PM
1	Business	10.75	10.75	10.75	8.81	8.81	8.81	8.65	8.65	8.65
2	Commuting	5.58	5.58	5.58	4.35	4.35	4.35	4.16	4.16	4.16
3	Other	5.58	5.58	5.58	4.35	4.35	4.35	4.16	4.16	4.16
4	LGV	13.35	13.35	13.35	10.64	10.64	10.64	10.22	10.22	10.22
5	HGV	42.9	42.9	42.9	39.63	39.63	39.63	39.25	39.25	39.25

4 Forecast Assignment Results

4.1 Introduction

This section of the report outlines the convergence of the models achieved, summary network statistics and the impact of the scheme on traffic flow, journey times and junction delay.

4.2 Forecast Highway Assignment Model Convergence

TAG Unit M3.1 section 3 contains a set of convergence measures and acceptable values for highway assignment models. These have been used to assess the convergence of the model and are shown in Table 4-1.

Table 4-1 Convergence Measures and Acceptance Values for Highway Assignment Models

Measure of Convergence	Acceptable Values
%GAP	Less than 0.1% or at least stable with convergence fully documented and all other criteria met
Percentage of links with flow change <1%	Four consecutive iterations greater than 98%
Percentage of links with cost change <1%	

Table 4-2, Table 4-3 and Table 4-4 show the convergence statistics for the model including total loops, the assignment delta and flow % for each scheme option for each modelled period.

Table 4-2 Core Growth Forecast Highway Model Convergence

Scenario	Assignment Simulation Loop	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
2031 AM DM	F-3	62	0.0061	98.5	98.6
	F-2	63	0.0063	98.6	98.5
	F-1	64	0.0050	98.5	98.5
	Final Iteration (F)	65	0.0050	98.9	98.7
2031 IP DM	F-3	50	0.0045	99.0	99.1
	F-2	51	0.0051	99.1	99.1
	F-1	52	0.0045	98.7	99.1
	Final Iteration (F)	53	0.0053	99.2	99.2
2031 PM DM	F-3	70	0.0069	98.9	98.8
	F-2	71	0.0051	98.7	98.6
	F-1	72	0.0062	99.1	98.8
	Final Iteration (F)	73	0.0054	98.7	98.8
2031 AM DS	F-3	59	0.0077	98.7	98.6
	F-2	60	0.0058	98.5	98.5
	F-1	61	0.0048	98.6	98.6
	Final Iteration (F)	62	0.0051	99.1	98.7
2031 IP DS	F-3	49	0.0071	98.6	99.0
	F-2	50	0.0053	98.5	99.0
	F-1	51	0.0057	98.7	99.1
	Final Iteration (F)	52	0.0073	98.8	99.0
2031 PM DS	F-3	92	0.0073	98.7	98.6
	F-2	93	0.0062	98.5	98.6
	F-1	94	0.0058	98.8	98.7
	Final Iteration (F)	95	0.0056	98.7	98.7
2046 AM DM	F-3	71	0.0063	98.9	98.7
	F-2	72	0.0046	98.8	98.6
	F-1	73	0.0062	99.0	98.9
	Final Iteration (F)	74	0.0093	99.1	98.5
2046 IP DM	F-3	59	0.0084	98.5	98.5
	F-2	60	0.0062	98.6	98.7
	F-1	61	0.0083	98.9	98.9
	Final Iteration (F)	62	0.0067	98.7	98.8
2046 PM DM	F-3	71	0.0057	98.8	98.6
	F-2	72	0.0065	98.9	98.6

Scenario	Assignment Simulation Loop	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
	F-1	73	0.0079	98.8	98.4
	Final Iteration (F)	74	0.0089	98.7	98.4
2046 AM DS	F-3	80	0.0051	98.9	98.7
	F-2	81	0.0071	99.0	98.7
	F-1	82	0.0059	98.8	98.7
	Final Iteration (F)	83	0.0049	98.9	98.7
2046 IP DS	F-3	55	0.0085	98.8	98.9
	F-2	56	0.0061	98.7	98.8
	F-1	57	0.0062	98.9	99.0
	Final Iteration (F)	58	0.0097	99.0	98.8
2046 PM DS	F-3	119	0.0069	98.7	98.5
	F-2	120	0.0048	98.5	98.5
	F-1	121	0.0064	99.0	98.7
	Final Iteration (F)	122	0.0076	98.7	98.4
2061 AM DM	F-3	71	0.0087	98.8	98.3
	F-2	72	0.0075	98.7	98.3
	F-1	73	0.0078	98.9	98.5
	Final Iteration (F)	74	0.0092	99.0	98.4
2061 IP DM	F-3	83	0.0069	98.9	98.6
	F-2	84	0.0065	98.6	98.7
	F-1	85	0.0057	99.0	98.8
	Final Iteration (F)	86	0.0049	99.0	98.9
2061 PM DM	F-3	104	0.0068	98.5	98.2
	F-2	105	0.0059	98.7	98.3
	F-1	106	0.0058	98.9	98.6
	Final Iteration (F)	107	0.0056	98.9	98.6
2061 AM DS	F-3	97	0.0078	98.6	98.3
	F-2	98	0.0066	99.1	98.6
	F-1	99	0.0061	98.8	98.6
	Final Iteration (F)	100	0.011	99.0	98.3
2061 IP DS	F-3	69	0.0076	98.9	98.8
	F-2	70	0.0058	98.7	98.6
	F-1	71	0.0071	98.9	98.8
	Final Iteration (F)	72	0.0075	98.8	98.8

Scenario	Assignment Simulation Loop	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
2061 PM DS	F-3	77	0.0070	98.7	98.3
	F-2	78	0.0082	98.8	98.4
	F-1	79	0.0080	98.5	98.0
	Final Iteration (F)	80	0.011	98.8	98.1

Table 4-3 High Economy Growth Forecast Highway Model Convergence

Scenario	Assignment Simulation Loop	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
2031 AM DM	F-3	72	0.0066	98.6	98.3
	F-2	73	0.0079	98.7	98.4
	F-1	74	0.0056	98.6	98.5
	Final Iteration (F)	75	0.0069	99.1	98.5
2031 IP DM	F-3	58	0.0051	99.1	99.2
	F-2	59	0.0047	98.8	99.2
	F-1	60	0.0051	99.1	99.1
	Final Iteration (F)	61	0.0043	99.0	99.2
2031 PM DM	F-3	111	0.0050	98.8	98.9
	F-2	112	0.0050	99.0	99.0
	F-1	113	0.0055	98.9	98.9
	Final Iteration (F)	114	0.0061	99.0	98.8
2031 AM DS	F-3	66	0.0062	98.8	98.6
	F-2	67	0.0057	98.8	98.5
	F-1	68	0.0055	98.8	98.6
	Final Iteration (F)	69	0.014	98.7	98.2
2031 IP DS	F-3	65	0.0055	98.7	99.0
	F-2	66	0.0056	98.9	99.0
	F-1	67	0.0044	98.8	99.1
	Final Iteration (F)	68	0.0067	99.0	99.0
2031 PM DS	F-3	114	0.0069	98.7	98.7
	F-2	115	0.0054	98.6	98.6
	F-1	116	0.0054	98.7	98.7
	Final Iteration (F)	117	0.0078	98.9	98.4
2046 AM DM	F-3	78	0.0074	98.7	98.1
	F-2	79	0.0078	98.7	98.1
	F-1	80	0.0093	98.6	98.2
	Final Iteration (F)	81	0.0089	98.6	97.8
2046 IP DM	F-3	60	0.0087	98.6	98.2
	F-2	61	0.0076	98.6	98.3
	F-1	62	0.0072	98.7	98.5
	Final Iteration (F)	63	0.0086	98.7	98.3
2046 PM DM	F-3	147	0.014	98.1	97.0
	F-2	148	0.011	97.2	96.9
	F-1	149	0.0094	98.0	97.7
	Final Iteration (F)	150	0.013	98.4	97.3
2046 AM DS	F-3	74	0.0085	98.7	98.1
	F-2	75	0.010	98.7	98.2

Scenario	Assignment Simulation Loop	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
	F-1	76	0.0070	98.5	98.1
	Final Iteration (F)	77	0.0085	98.8	98.3
2046 IP DS	F-3	78	0.0083	98.9	98.5
	F-2	79	0.0056	98.7	98.6
	F-1	80	0.0071	99.1	98.8
	Final Iteration (F)	81	0.0063	98.9	98.6
2046 PM DS	F-3	93	0.0073	98.7	98.0
	F-2	94	0.0074	98.6	97.9
	F-1	95	0.0069	98.7	98.0
	Final Iteration (F)	96	0.013	98.7	98.2
2061 AM DM	F-3	147	0.011	98.1	96.9
	F-2	148	0.012	98.2	96.9
	F-1	149	0.0084	98.0	97.2
	Final Iteration (F)	150	0.010	98.6	97.4
2061 IP DM	F-3	138	0.008	99.0	98.2
	F-2	139	0.0076	98.9	98.3
	F-1	140	0.0098	99.0	98.4
	Final Iteration (F)	141	0.009	99.0	97.9
2061 PM DM	F-3	147	0.011	97.4	96.6
	F-2	148	0.014	98.0	96.3
	F-1	149	0.014	97.5	96.6
	Final Iteration (F)	150	0.012	97.7	96.7
2061 AM DS	F-3	147	0.019	96.3	95.6
	F-2	148	0.017	97.6	96.4
	F-1	149	0.015	97.4	96.3
	Final Iteration (F)	150	0.013	97.6	96.4
2061 IP DS	F-3	104	0.0074	98.6	98.1
	F-2	105	0.0064	98.9	98.2
	F-1	106	0.0077	99.0	98.2
	Final Iteration (F)	107	0.0061	98.7	98.1
2061 PM DS	F-3	106	0.0071	98.6	98.0
	F-2	107	0.0099	98.9	98.3
	F-1	108	0.010	98.7	97.7
	Final Iteration (F)	109	0.0079	98.5	98.0

Table 4-4 Low Economy Growth Forecast Core Highway Model Convergence

Scenario	Assignment Simulation Loop	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
2031 AM DM	F-3	59	0.0057	98.8	98.7
	F-2	60	0.0047	98.9	98.8
	F-1	61	0.0041	98.7	98.7
	Final Iteration (F)	62	0.0055	99.1	98.6
2031 IP DM	F-3	41	0.0044	99.0	99.2
	F-2	42	0.0051	99.0	99.2
	F-1	43	0.0042	98.8	99.2
	Final Iteration (F)	44	0.0062	99.0	99.2
2031 PM DM	F-3	74	0.0080	98.8	98.5
	F-2	75	0.0075	98.6	98.4
	F-1	76	0.0061	98.6	98.6
	Final Iteration (F)	77	0.0084	98.9	98.6
2031 AM DS	F-3	58	0.0062	98.8	98.5
	F-2	59	0.0044	98.6	98.6
	F-1	60	0.0045	98.9	98.8
	Final Iteration (F)	61	0.0080	99.0	98.6
2031 IP DS	F-3	51	0.0040	98.9	99.3
	F-2	52	0.0048	98.9	99.3
	F-1	53	0.0032	98.8	99.4
	Final Iteration (F)	54	0.0056	99.2	99.3
2031 PM DS	F-3	60	0.0071	98.8	98.6
	F-2	61	0.0068	98.7	98.7
	F-1	62	0.0065	98.8	98.7
	Final Iteration (F)	63	0.0053	98.7	98.7
2046 AM DM	F-3	76	0.0059	98.7	98.4
	F-2	77	0.0049	98.8	98.7
	F-1	78	0.0065	99.0	98.8
	Final Iteration (F)	79	0.0076	98.9	98.5
2046 IP DM	F-3	56	0.0063	98.9	99.1
	F-2	57	0.0046	98.7	99.0
	F-1	58	0.0074	99.1	99.0
	Final Iteration (F)	59	0.0064	98.6	98.9
2046 PM DM	F-3	78	0.0051	98.7	98.6
	F-2	79	0.0061	98.9	98.8

Scenario	Assignment Simulation Loop	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
	F-1	80	0.0063	98.6	98.6
	Final Iteration (F)	81	0.0055	98.6	98.7
2046 AM DS	F-3	85	0.0055	98.8	98.7
	F-2	86	0.0072	98.8	98.6
	F-1	87	0.0065	98.5	98.5
	Final Iteration (F)	88	0.0070	98.5	98.6
2046 IP DS	F-3	59	0.0051	98.8	99.0
	F-2	60	0.0077	98.9	98.9
	F-1	61	0.0058	98.7	99.0
	Final Iteration (F)	62	0.0062	98.9	99.1
2046 PM DS	F-3	87	0.0057	98.6	98.5
	F-2	88	0.0062	98.8	98.7
	F-1	89	0.0069	98.7	98.5
	Final Iteration (F)	90	0.0050	98.5	98.5
2061 AM DM	F-3	85	0.0053	98.7	98.7
	F-2	86	0.0060	99.1	98.8
	F-1	87	0.0043	98.7	98.9
	Final Iteration (F)	88	0.0072	99.1	98.9
2061 IP DM	F-3	54	0.0073	99.0	99.0
	F-2	55	0.0074	98.6	98.9
	F-1	56	0.0068	98.6	99.0
	Final Iteration (F)	57	0.0082	98.8	98.9
2061 PM DM	F-3	55	0.0073	98.7	98.7
	F-2	56	0.0070	98.6	98.7
	F-1	57	0.0057	98.8	98.7
	Final Iteration (F)	58	0.0080	99.0	98.7
2061 AM DS	F-3	90	0.0069	98.7	98.8
	F-2	91	0.0072	98.7	98.9
	F-1	92	0.0053	98.7	99.0
	Final Iteration (F)	93	0.0050	98.9	98.9
2061 IP DS	F-3	39	0.0081	98.8	98.9
	F-2	40	0.0069	98.5	98.9
	F-1	41	0.0081	98.8	99.0
	Final Iteration (F)	42	0.0057	98.6	99.1

Scenario	Assignment Simulation Loop	Loop	Proximity indicator: Delta (δ) / (Gap (%))	Stability Indicator: % Flow (Link Flows Differing by < 1% Between Assignment & Simulation)	Stability Indicator: % Delays (Turn Delays Differing by < 1% Between Assignment & Simulation)
2061 PM DS	F-3	82	0.0058	98.6	98.5
	F-2	83	0.0068	98.9	98.7
	F-1	84	0.0073	98.6	98.6
	Final Iteration (F)	85	0.0058	98.8	98.8

Table 4-2, Table 4-3 and Table 4-4 show that the highway assignment model convergence criteria is met for all scenarios.

4.3 Forecast Demand Model Convergence

The demand model produces various statistics to monitor convergence. TAG Unit M2.1 section 6 states that it is beneficial to monitor and report the %GAP and indicates that gap values of less than 0.1% can be achieved in many cases, although in more problematic systems this may be nearer to 0.2% of convergence measures and acceptable values for highway assignment models. Table 4-5 shows the convergence statistics achieved.

Table 4-5 Core Growth Forecast Variable Demand Model Convergence

Scenario	Iteration	Max Flow Change	Objective Function	Absolute Gap	Relative Gap
2031 DM	7	-449.7	861,882	2,294,716	0.12%
2031 DS	7	-450.2	878,349	2,372,524	0.13%
2046 DM	8	-622.5	1,581,655	2,712,688	0.14%
2046 DS	8	-622.7	1,576,661	2,781,753	0.15%
2061 DM	9	-406.0	676,384	1,972,725	0.12%
2061 DS	9	-406.0	678,291	2,059,689	0.13%

Table 4-5 shows that the full model %GAP is below 0.2% for all scenarios.

4.4 Network Summary Statistics

Table 4-6 to Table 4-17 show the network summary statistics for the area of detailed modelling in terms of total travel time, total distance and average speed for each scheme option for each modelled period.

Table 4-6 2031 Core Growth Highway Assignment Model Summary Statistics

2031	Total Travel Time (pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	2,481,518	2,154,626	2,672,885	171,558,512	153,564,960	183,846,272	69.1	71.3	68.8
DS	2,481,399	2,154,616	2,672,792	171,580,064	153,579,216	183,865,456	69.1	71.3	68.8

Table 4-6 shows that there is a higher travel time and total distance in DM than DS across all time periods. The average speed is the same in DM and DS for each time period.

Table 4-7 2046 Core Growth Highway Assignment Model Summary Statistics

2046	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	2,940,083	2,578,064	3,169,278	202,726,608	183,607,952	217,829,664	69.0	71.2	68.7
DS	2,939,757	2,578,481	3,169,077	202,751,488	183,629,872	217,852,288	69.0	71.2	68.7

Table 4-7 shows that there is a higher travel time and total distance in the DS than the DM across all time periods. The average speed is the same in the DM and the DS for each time period.

Table 4-8 2061 Core Growth Highway Assignment Model Summary Statistics

2061	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	3,153,989	2,786,537	3,388,510	216,941,632	197,922,848	232,488,128	68.8	71.0	68.6
DS	3,153,647	2,786,317	3,388,410	216,971,696	197,939,808	232,519,808	68.8	71.0	68.6

Table 4-8 shows that there is a higher travel time in the DM than the DS in all time periods and that total distance is higher in DS than DM. The average speed is the same in the DM and DS for each time period.

Table 4-9 Core Growth Highway Assignment Model Summary Statistic Differences (DS_DM)

Year	Scheme	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
		AM	IP	PM	AM	IP	PM	AM	IP	PM
2031	DS	-119	-10	-93	21,552	14,256	19,184	0	0	0
2046	DS	-326	417	-201	24,880	21,920	22,624	0	0	0
2061	DS	-342	-220	-100	30,064	16,960	31,680	0	0	0

Table 4-9 shows that there is a small decrease in travel time in the DS compared to the DM in all time periods and years but an increase in total travel distance. Average speed changes are negligible.

Table 4-10 2031 Low Economy Growth Highway Assignment Model Summary Statistics

2031	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	2,449,540	2,120,602	2,643,562	169,543,904	151,293,104	181,998,688	69.2	71.3	68.9
DS	2,449,503	2,120,435	2,643,352	169,565,904	151,304,512	182,015,520	69.2	71.3	68.9

Table 4-10 shows that there is a higher travel time in the DM than the DS across all time periods and a higher total distance in the DS than the DM across all time periods. The average speed is the same in the DM and DS in each time period.

Table 4-11 2046 Low Economy Growth Highway Assignment Model Summary Statistics

2046	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	2,757,872	2,418,428	2,984,401	191,234,288	172,982,752	206,059,520	69.3	71.5	69.0
DS	2,757,757	2,418,190	2,984,193	191,258,448	172,996,848	206,084,736	69.4	71.5	69.1

Table 4-11 shows that there is a higher travel time in the DM than the DS across all time periods and a higher total distance in the DS than the DM across all time periods. The average speed change is negligible.

Table 4-12 2061 Low Economy Growth Highway Assignment Model Summary Statistics

2061	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	2,778,362	2,453,375	2,998,883	193,180,560	175,822,480	207,684,272	69.5	71.7	69.3
DS	2,778,244	2,453,160	2,999,630	193,207,184	175,840,064	207,712,384	69.5	71.7	69.2

Table 4-12 shows that there is a higher travel time in the DM than the DS across all time periods and a higher total distance in the DS than the DM across all time periods. The average speed change is negligible.

Table 4-13 Low Economy Growth Highway Assignment Model Summary Statistics Differences (DS-DM)

Year	Scheme	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
		AM	IP	PM	AM	IP	PM	AM	IP	PM
2031	DS	-37	-167	-210	22,000	11,408	16,832	0	0	0
2046	DS	-115	-238	-208	24,160	14,096	25,216	0	0	0
2061	DS	-118	-215	747	26,624	17,584	28,112	0	0	0

Table 4-13 shows that there is a small decrease in total travel time in the DS compared to the DM for each time period in all years but an increase in total distance. Average speed change is negligible.

Table 4-14 2031 High Economy Growth Highway Assignment Model Summary Statistics

2031	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	2,555,015	2,220,488	2,747,297	176,214,608	157,964,368	188,551,520	69.0	71.1	68.6
DS	2,554,849	2,220,426	2,747,221	176,236,640	157,977,168	188,569,216	69.0	71.1	68.6

Table 4-14 shows that there is a higher travel time in the DM than in the DS in each time period and there is a higher total distance in the DS than in the DM. The average speed is the same in DM and DS for each time period.

Table 4-15 2046 High Economy Growth Highway Assignment Model Summary Statistics

2046	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	3,256,165	2,842,810	3,497,089	222,414,160	200,909,200	238,454,848	68.3	70.7	68.2
DS	3,256,303	2,842,761	3,497,045	222,444,800	200,932,976	238,484,112	68.3	70.7	68.2

Table 4-15 shows that there is a higher travel time in the DS than in the DM in the AM and the DM is higher than the DS in IP and PM. The DS has a higher total distance than DM in all time periods. The average speed is the same in DM and DS for each time period. The increases in travel time during the DS are not expected. Analysis of the model indicated that this is due to model noise in areas of the model far from the core area in Merseyside, which are a result of the large size of the model. These effects do not affect the behaviour of traffic in the core area, and in the subsequent economic assessment, were removed from the assessment by masking of the results in areas outside the Northwest.

Table 4-16 2061 High Economy Growth Highway Assignment Model Summary Statistics

2061	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
Scheme	AM	IP	PM	AM	IP	PM	AM	IP	PM
DM	3,782,773	3,312,913	4,044,956	255,676,736	231,933,456	273,581,856	67.6	70.0	67.6
DS	3,786,440	3,320,836	4,046,840	255,986,928	232,265,472	273,732,960	67.6	70.0	67.6

Table 4-16 shows that there is a higher travel time in the DM than in the DS in each time period. The DS has a higher total distance than the DM in all time periods. The average speed is the same in DM and DS for each time period.

Table 4-17 High Economy Growth Highway Assignment Model Summary Statistics Differences (DS-DM)

Year	Scheme	Total Travel Time (Pcu.hrs)			Total Distance (pcu km)			Average Speed (kph)		
		AM	IP	PM	AM	IP	PM	AM	IP	PM
2031	DS	-166	-62	-76	22,032	12,800	17,696	0	0	0
2046	DS	138	-49	-44	30,640	23,776	29,264	0	0	0
2061	DS	3,667	7,923	1,884	310,192	332,016	151,104	0	0	0

Table 4-17 shows that there is a decrease in total travel time in DS compared to DM for all time periods in 2031, and both the IP and PM in 2046. However there is an increase in total travel time in AM for 2046 and all periods in 2061. The increases in travel time during the DS are not expected. Analysis of the model indicated that this is due to model noise in areas of the model far from the core area in Merseyside, which are a result of the large size of the model. These effects do not affect the behaviour of traffic in the core area, and in the subsequent economic assessment, were removed from the assessment by masking of the results in areas outside the Northwest.

Total distance increases in the DS compared to the DM for each time period in all years. Average speed doesn't change.

4.5 Traffic Flows

Appendix B provides bandwidth plots showing the difference in traffic flow between the do minimum and do something for all core scenarios. Appendix C shows bandwidth plots for low economy growth scenarios and Appendix D shows bandwidth plots for high economy growth

scenarios. Table 4-18 to Table 4-28 show the Annual Average Daily Traffic (AADT) flow at key locations and Figure 4-1 shows the location of the AADTs.

Figure 4-1 AADT locations

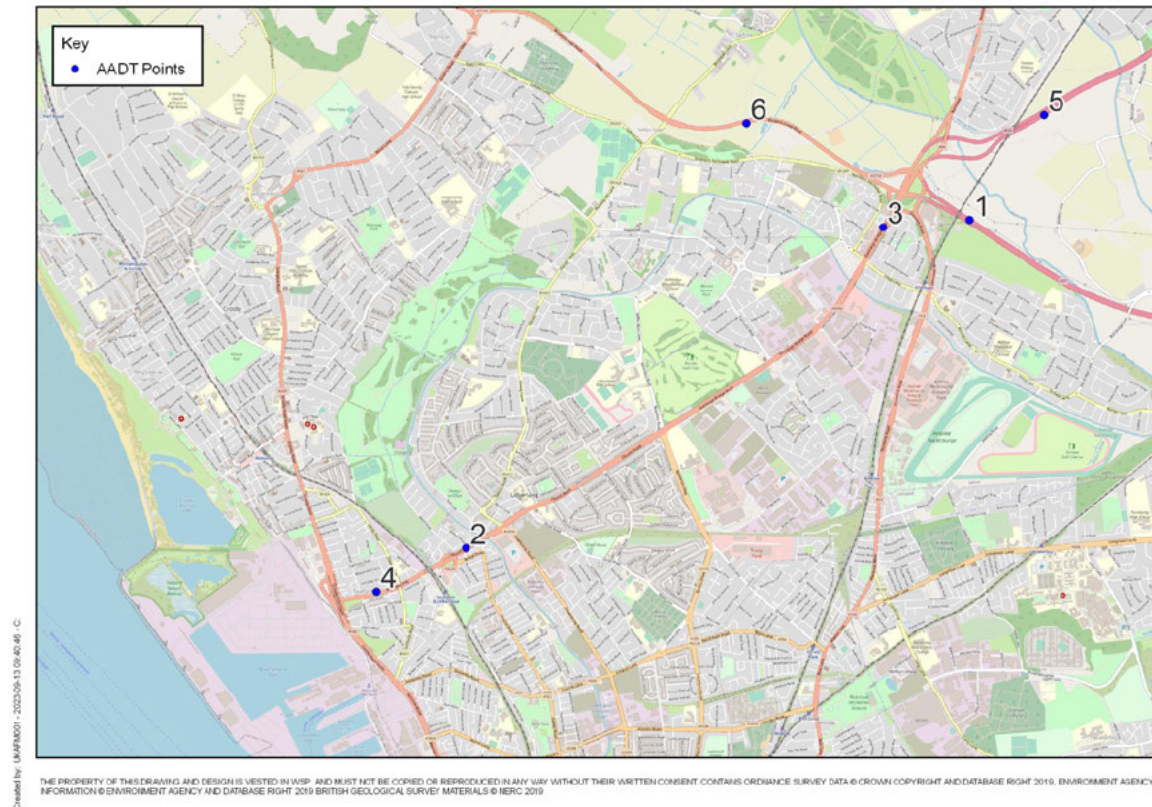


Table 4-18 AADT Flows – Low Growth

Year	Scenario	1 (M57)	2 (Princess Way)	3 (Switch Island)	4 (Seaforth Interchange)	5 (M58)	6 (Brooms Cross Road)
2031	DM	57,100	34,000	49,100	23,900	36,600	28,000
	DS	52,800	14,300	32,000	33,800	39,600	53,500
2046	DM	62,100	35,500	51,300	25,200	41,800	28,900
	DS	54,700	14,800	34,200	35,400	41,300	55,300
2061	DM	62,600	35,300	50,900	25,200	43,100	29,200
	DS	60,400	14,100	33,400	39,800	46,700	62,000

Table 4-18 shows that Point 1 on the M57, Point 2 on Princess Way and Point 3 on Switch Island all have a decrease in flow in the DS compared to the DM for 2031, 2046 and 2061. Point 4 at Seaforth Interchange and Point 6 on Brooms Cross all have an increase in flow in the DS compared to the DM for 2031, 2046 and 2061. Point 5 on the M58 has an increase in flow in the DS compared to the DM for 2031 and 2061, there is a slight decrease in 2046.

Table 4-19 AADT Flows – Core Growth

Year	Scenario	1 (M57)	2 (Princess Way)	3 (Switch Island)	4 (Seaforth Interchange)	5 (M58)	6 (Brooms Cross)
2031	DM	57,500	34,300	49,700	24,100	37,000	27,900
	DS	53,400	14,400	32,600	34,300	40,100	54,000
2046	DM	63,900	36,900	53,400	26,200	43,200	29,200
	DS	62,200	15,200	36,500	40,700	46,700	62,300
2061	DM	66,300	37,900	54,300	26,900	45,700	29,700
	DS	65,700	15,900	38,800	43,100	49,600	65,300

Table 4-19 shows that Point 1 on the M57, Point 2 on Princess Way and Point 3 on Switch Island all have a decrease in flow in the DS compared to the DM for 2031, 2046 and 2061. Point 4 at Seaforth Interchange, Point 5 on the M58 and Point 6 on Brooms Cross all have an increase in flow in the DS compared to the DM for 2031, 2046 and 2061.

Table 4-20 AADT Flows – High Growth

Year	Scenario	1 (M57)	2 (Princess Way)	3 (Switch Island)	4 (Seaforth Interchange)	5 (M58)	6 (Brooms Cross)
2031	DM	58,300	35,100	50,900	24,600	37,900	27,900
	DS	54,700	14,800	34,200	35,400	41,300	55,300
2046	DM	66,400	38,900	55,000	27,600	45,600	29,700
	DS	65,800	16,700	40,000	43,500	49,600	65,100
2061	DM	66,300	37,900	54,300	26,900	45,700	29,700
	DS	71,500	19,000	43,400	47,300	52,800	69,300

Table 4-20 shows that Point 1 on the M57, Point 2 on Princess Way and Point 3 on Switch Island all have a decrease in flow in the DS compared to the DM for 2031, 2046 and 2061. Point 4 at Seaforth Interchange, Point 5 on the M58 and Point 6 on Brooms Cross all have an increase in flow in the DS compared to the DM for 2031, 2046 and 2061.

Table 4-21 AADT absolute Flow Differences Compared to Do Minimum

Growth	Year	Scenario	1 (M57)	2 (Princess Way)	3 (Switch Island)	4 (Seaforth Interchange)	5 (M58)	6 (Brooms Cross)
Core	2031	DS	-4,100	-19,900	-17,100	10,200	3,100	26,100
	2046	DS	-1,700	-21,700	-16,900	14,500	3,500	33,100
	2061	DS	-600	-22,000	-15,500	16,200	3,900	35,600
Low	2031	DS	-4,300	-19,700	-17,100	9,900	3,000	25,500
	2046	DS	-7,400	-20,700	-17,100	10,200	-500	26,400
	2061	DS	-2,200	-21,200	-17,500	14,600	3,600	32,800
High	2031	DS	-3,600	-20,300	-16,700	10,800	3,400	27,400
	2046	DS	-600	-22,200	-15,000	15,900	4,000	35,400
	2061	DS	5,200	-18,900	-10,900	20,400	7,100	39,600

Table 4-22 AADT Flow Differences (%) Compared to Do Minimum

Growth	Year	Scenario	1 (M57)	2 (Princess Way)	3 (Switch Island)	4 (Seaforth Interchange)	5 (M58)	6 (Brooms Cross)
Core	2031	DS	-7.1%	-58.0%	-34.4%	42.3%	8.4%	93.5%
	2046	DS	-2.7%	-58.8%	-31.6%	55.3%	8.1%	113.4%
	2061	DS	-0.9%	-58.0%	-28.5%	60.2%	8.5%	119.9%
Low	2031	DS	-7.5%	-57.9%	-34.8%	41.4%	8.2%	91.1%
	2046	DS	- 11.9 %	-58.3%	-33.3%	40.5%	-1.2%	91.3%
	2061	DS	-3.5%	-60.1%	-34.4%	57.9%	8.4%	112.3%
High	2031	DS	-6.2%	-57.8%	-32.8%	43.9%	9.0%	98.2%
	2046	DS	-0.9%	-57.1%	-27.3%	57.6%	8.8%	119.2%
	2061	DS	7.8%	-49.9%	-20.1%	75.8%	15.5%	133.3%

Table 4-21 and Table 4-22 show that the A5036 bypass takes traffic off Princess Way, Switch Island and some off the motorways. Increasing traffic on Brooms Cross Road which is the entrance/exit onto the bypass and increasing at Seaforth Interchange which has a free flow lane in DS.

4.6 Journey Times

Journey times have been extracted from the model along the A5036 between Switch Island and the M58 (Figure 4-2) and are shown in Table 4-23 to Table 4-31. They show the time savings provided by the scheme to trips using the A5036.

Figure 4-2 Journey time route

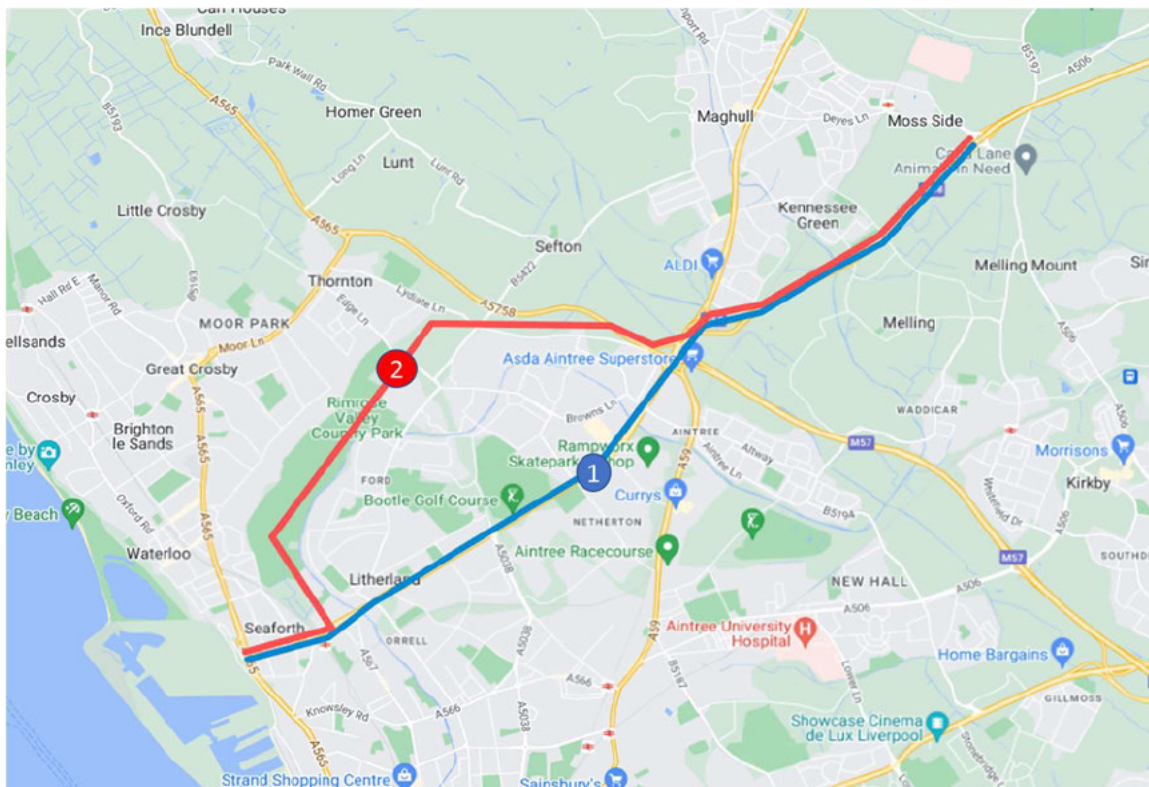


Table 4-23 A5036 Journey Times, Core Growth AM (mm:ss)

Year	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	10:16			
			EB	11:48			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	12:16			
			EB	14:44			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	17:03	17:03	-00:00	0%
			EB	12:44	14:39	01:55	15%
	2	M58 J1 to Seaforth Rbt via scheme	WB		12:35	-04:29	-26%*
			EB		08:59	-03:45	-29%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	18:13	17:56	-00:17	-2%
			EB	13:45	15:02	01:17	9%
	2	M58 J1 to Seaforth Rbt via scheme	WB		13:35	-04:37	-25%
			EB		09:24	-04:21	-32%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	18:49	18:24	-00:25	-2%
			EB	14:29	15:21	00:51	6%
	2	M58 J1 to Seaforth Rbt via scheme	WB		14:07	-04:42	-25%
			EB		09:44	-04:46	-33%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-23 shows that the scheme is expected to provide journey time savings of about 4 to 5 minutes in each direction for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the AM Peak. .

Table 4-24 A5036 Journey Times, Core Growth IP (mm:ss)

Year	Route	Description	Direction	IP			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	10:32			
			EB	11:00			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	11:55			
			EB	13:12			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	14:03	15:21	01:18	9%
			EB	12:08	14:14	02:05	17%
	2	M58 J1 to Seaforth Rbt via scheme	WB		10:52	-03:11	-23%
			EB		08:41	-03:27	-28%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	14:59	15:48	00:49	5%
			EB	12:51	14:37	01:46	14%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:20	-03:40	-24%
			EB		08:57	-03:54	-30%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	15:38	16:05	00:27	3%
			EB	13:24	14:49	01:25	11%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:43	-03:55	-25%
			EB		09:08	-04:16	-32%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-24 shows that the scheme is expected to provide journey time savings of about 3 to 4 minutes in each direction for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the Inter Peak.

Table 4-25 A5036 Journey Times, Core Growth PM (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	12:50			
			EB	12:13			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	12:23			
			EB	13:58			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	15:09	16:00	00:50	6%
			EB	13:03	14:45	01:42	13%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:23	-03:46	-25%
			EB		08:59	-04:05	-31%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	16:20	16:35	00:15	2%
			EB	13:49	15:08	01:19	9%
	2	M58 J1 to Seaforth Rbt via scheme	WB		12:04	-04:16	-26%
			EB		09:20	-04:30	-32%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	17:06	16:56	-00:11	-1%
			EB	14:18	15:24	01:06	8%
	2	M58 J1 to Seaforth Rbt via scheme	WB		12:34	-04:32	-27%
			EB		09:40	-04:38	-32%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-25 shows that the scheme is expected to provide journey time savings of about 4 to 5 minutes in each direction for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the PM Peak.

Table 4-26 A5036 Journey Times, High Growth AM (mm:ss)

Year	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	10:16			
			EB	11:48			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	12:16			
			EB	14:44			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	17:29	17:21	-00:07	-1%
			EB	12:56	14:45	01:49	14%
	2	M58 J1 to Seaforth Rbt via scheme	WB		12:50	-04:05	-27%
			EB		09:01	-03:05	-30%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	19:29	18:53	-00:36	-3%
			EB	14:46	15:26	-00:40	5%
	2	M58 J1 to Seaforth Rbt via scheme	WB		14:24	-05:55	-26%
			EB		9:41	-05:55	-34%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	21:17	20:08	-01:09	-5%
			EB	16:00	16:15	00:15	2%
	2	M58 J1 to Seaforth Rbt via scheme	WB		15:29	-05:48	-27%
			EB		10:36	-05:24	-33%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-26 shows that, with High Growth, the scheme is expected to provide journey time savings of about 4 to 5 minutes in each direction in 2031 and 5 to 6 minutes in 2046 and 2061 for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the AM Peak.

Table 4-27 A5036 Journey Times, High Growth IP (mm:ss)

Year	Route	Description	Direction	IP			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	10:32			
			EB	11:00			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	11:55			
			EB	13:12			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	14:17	15:29	01:11	8%
			EB	12:17	14:20	02:03	17%
	2	M58 J1 to Seaforth Rbt via scheme	WB		10:56	-03:39	-23%
			EB		08:43	-03:26	-29%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	15:54	16:18	00:24	3%
			EB	13:32	15:00	01:28	11%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:41	-04:47	-27%
			EB		09:07	-04:35	-33%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	17:17	17:16	-00:01	0%
			EB	14:48	15:28	01:20	9%
	2	M58 J1 to Seaforth Rbt via scheme	WB		12:39	-04:38	-23%
			EB		09:28	-05:20	-36%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-27 shows that, with High Growth, the scheme is expected to provide journey time savings of about 3 to 4 minutes in each direction in 2031 and 4 to 5 minutes in 2046 and 2061 for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the Inter Peak.

Table 4-28 A5036 Journey Times, High Growth PM (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	12:50			
			EB	12:13			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	12:23			
			EB	13:58			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	15:50	16:24	00:35	4%
			EB	13:15	14:55	01:41	13%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:39	-04:49	-26%
			EB		09:01	-04:46	-32%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	17:16	17:13	00:57	0%
			EB	14:31	15:34	01:03	7%
	2	M58 J1 to Seaforth Rbt via scheme	WB		12:39	-04:23	-27%
			EB		09:36	-04:05	-34%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	19:02	18:47	-00:15	-1%
			EB	15:46	16:09	00:23	2%
	2	M58 J1 to Seaforth Rbt via scheme	WB		14:04	-04:58	-26%
			EB		10:15	-05:31	-35%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-28 shows that, with High Growth, the scheme is expected to provide journey time savings of about 4 to 5½ minutes in each direction for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the PM Peak.

Table 4-29 A5036 Journey Times, Low Growth AM (mm:ss)

Year	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	10:16			
			EB	11:48			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	12:16			
			EB	14:44			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	16:53	16:55	-00:02	0%
			EB	12:38	14:35	01:57	15%
	2	M58 J1 to Seaforth Rbt via scheme	WB		12:28	-04:35	-26%
			EB		08:58	-03:19	-29%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	17:33	17:25	-00:09	-1%
			EB	13:17	14:48	01:31	11%
	2	M58 J1 to Seaforth Rbt via scheme	WB		13:11	-04:38	-25%
			EB		09:17	-04:00	-30%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	17:31	17:17	-00:13	-1%
			EB	13:29	14:52	01:23	10%
	2	M58 J1 to Seaforth Rbt via scheme	WB		13:12	-04:42	-25%
			EB		09:30	-03:59	-30%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-29 shows that, with Low Growth, the scheme is expected to provide journey time savings of about 3 to 5 minutes in each direction, for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the AM Peak.

Table 4-30 A5036 Journey Times, Low Growth IP (mm:ss)

Year	Route	Description	Direction	IP			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	10:32			
			EB	11:00			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	11:55			
			EB	13:12			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	13:57	15:17	00:20	10%
			EB	12:05	14:11	02:07	17%
	2	M58 J1 to Seaforth Rbt via scheme	WB		10:51	-03:54	-22%
			EB		08:40	-03:36	-28%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	14:30	15:30	01:00	7%
			EB	12:30	14:22	01:51	15%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:08	-03:38	-23%
			EB		08:52	-03:21	-29%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	14:40	15:29	00:49	6%
			EB	12:38	14:21	01:44	14%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:14	-03:34	-23%
			EB		08:56	-03:19	-29%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-30 shows that, with Low Growth, the scheme is expected to provide journey time savings of about 3 to 4 minutes in each direction for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the Inter Peak.

Table 4-31 A5036 Journey Times, Low Growth PM (mm:ss)

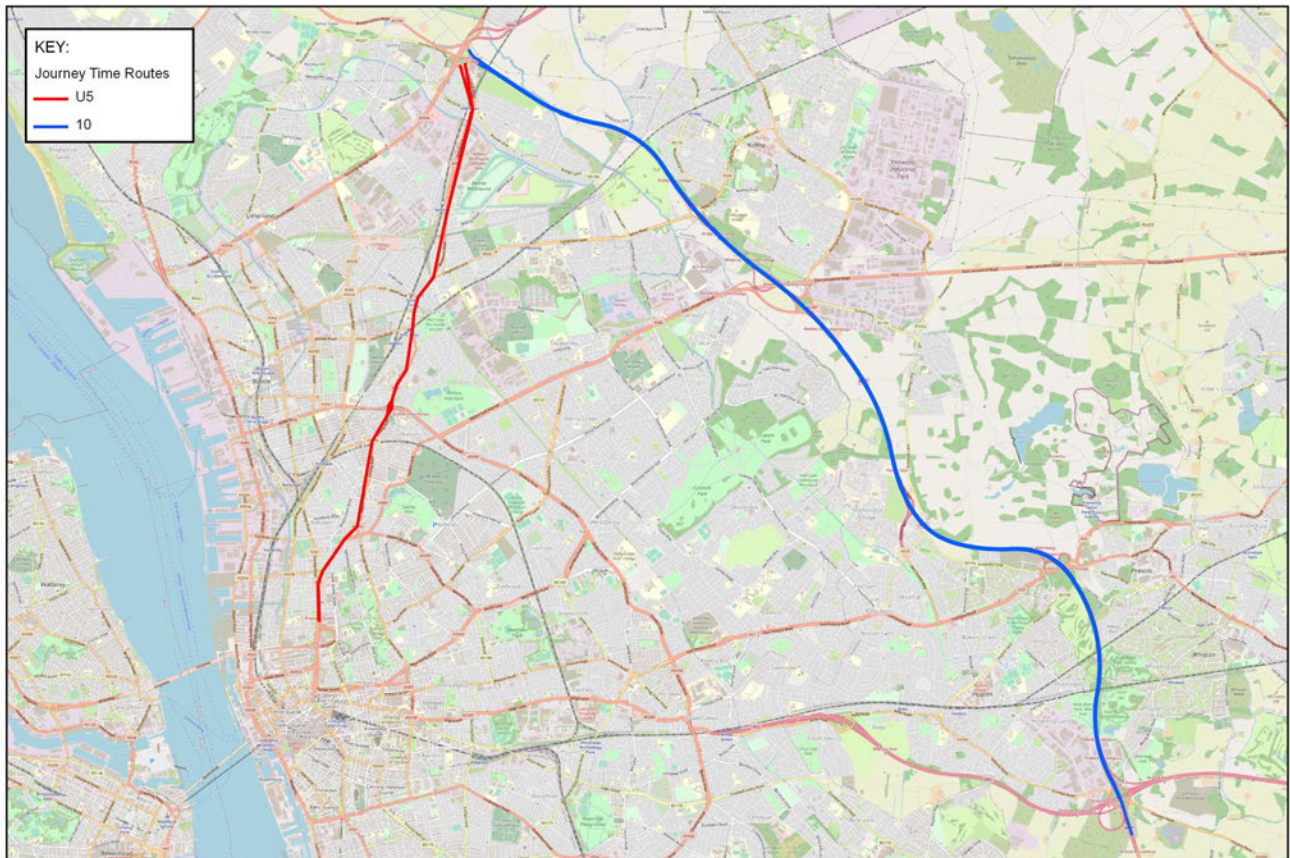
Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	1	M58 J1 to Seaforth Rbt via A5036	WB	12:50			
			EB	12:13			
2019 modelled	1	M58 J1 to Seaforth Rbt via A5036	WB	12:23			
			EB	13:58			
2031	1	M58 J1 to Seaforth Rbt via A5036	WB	15:03	15:57	00:53	6%
			EB	13:00	14:43	01:43	13%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:22	-03:18	-25%
			EB		08:58	-04:58	-31%
2046	1	M58 J1 to Seaforth Rbt via A5036	WB	15:48	16:12	00:25	3%
			EB	13:29	14:55	01:26	11%
	2	M58 J1 to Seaforth Rbt via scheme	WB		11:52	-03:55	-25%
			EB		09:16	-04:13	-31%
2061	1	M58 J1 to Seaforth Rbt via A5036	WB	16:08	16:14	00:06	1%
			EB	13:31	14:52	01:21	10%
	2	M58 J1 to Seaforth Rbt via scheme	WB		12:08	-04:00	-25%
			EB		09:20	-04:11	-31%

*all DS A5036 scheme journey times have been compared with DM existing A5036 route

Table 4-31 shows that, with Low Growth, the scheme is expected to provide journey time savings of about 3 to 5 minutes in each direction for trips travelling on the A5036 between the M58 J1 and Seaforth Roundabout in the PM Peak.

Journey times along the M57 and A59 (Figure 4-3) have been extracted and are shown Table 4-32 to Table 4-49. They show the journey time saving that the scheme has on these 2 key routes.

Figure 4-3 Journey time routes 10 and U5



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Table 4-32 A59 Journey Times (mm:ss)

Year Journey Times,	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	13:17			
		A59 Southbound	SB	16:23			
2019 modelled	U5	A59 Northbound	NB	15:38			
		A59 Southbound	SB	20:58			
2031	U5	A59 Northbound	NB	24:28	23:45	-00:43	-2.93%
		A59 Southbound	SB	17:08	16:40	-00:28	-2.72%
2046	U5	A59 Northbound	NB	27:21	26:42	-00:39	-2.38%
		A59 Southbound	SB	18:55	18:26	-00:29	-2.56%
2061	U5	A59 Northbound	NB	28:32	27:58	-00:34	-1.99%
		A59 Southbound	SB	19:50	19:19	-00:31	-2.61%

Table 4-32 shows that the scheme is expected to provide journey time savings of about half a minute in each direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the AM Peak..

Table 4-33 A59 Journey Times, Core Growth IP (mm:ss)

Year	Route	Description	Direction	IP			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	15:11			
		A59 Southbound	SB	15:32			
2019 modelled	U5	A59 Northbound	NB	16:16			
		A59 Southbound	SB	15:42			
2031	U5	A59 Northbound	NB	17:07	17:21	00:14	1.36%
		A59 Southbound	SB	17:13	17:02	-00:11	-1.06%
2046	U5	A59 Northbound	NB	18:28	18:30	00:02	0.18%
		A59 Southbound	SB	18:37	18:24	-00:13	-1.16%
2061	U5	A59 Northbound	NB	19:21	19:13	-00:08	-0.69%
		A59 Southbound	SB	19:37	19:10	-00:27	-2.29%

Table 4-33 shows that the scheme is expected to provide a small journey time saving in each direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the Inter Peak.

Table 4-34 A59 Journey Times, Core Growth PM (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	18:50			
		A59 Southbound	SB	16:33			
2019 modelled	U5	A59 Northbound	NB	19:41			
		A59 Southbound	SB	16:23			
2031	U5	A59 Northbound	NB	18:20	18:19	-00:01	-0.09%
		A59 Southbound	SB	21:30	20:55	-00:35	-2.71%
2046	U5	A59 Northbound	NB	20:08	19:50	-00:18	-1.49%
		A59 Southbound	SB	23:51	22:55	-00:56	-3.91%
2061	U5	A59 Northbound	NB	21:09	20:51	-00:18	-1.42%
		A59 Southbound	SB	24:48	23:47	-01:01	-4.10%

Table 4-34 shows that the scheme is expected to provide journey time savings of up to a minute in the southbound direction, and a minor reduction in the northbound direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the AM Peak.

Table 4-35 A59 Journey Times, High Growth AM (mm:ss)

Year	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	16:23			
		A59 Southbound	SB	13:17			
2019 modelled	U5	A59 Northbound	NB	20:58			
		A59 Southbound	SB	15:38			
2031	U5	A59 Northbound	NB	25:13	24:30	-00:43	-3%
		A59 Southbound	SB	17:31	17:03	-00:28	-3%
2046	U5	A59 Northbound	NB	29:40	29:00	-00:40	-2%
		A59 Southbound	SB	20:27	19:56	-00:31	-3%
2061	U5	A59 Northbound	NB	33:20	32:46	-00:34	-3%
		A59 Southbound	SB	22:09	21:37	-00:32	-2%

Table 4-35 shows that, with High Growth, the scheme is expected to provide journey time savings of about half a minute in each direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the AM Peak.

Table 4-36 A59 Journey Times, High Growth IP (mm:ss)

Year	Route	Description	Direction	IP			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	15:11			
		A59 Southbound	SB	15:32			
2019 modelled	U5	A59 Northbound	NB	16:16			
		A59 Southbound	SB	15:42			
2031	U5	A59 Northbound	NB	17:28	17:40	00:12	1%
		A59 Southbound	SB	17:34	17:24	-00:10	-1%
2046	U5	A59 Northbound	NB	19:49	19:44	-00:05	0%
		A59 Southbound	SB	20:15	19:42	-00:33	-3%
2061	U5	A59 Northbound	NB	22:31	21:38	-00:53	-4%
		A59 Southbound	SB	22:07	21:42	-00:25	-2%

Table 4-36 shows that with High Growth, the scheme is expected to provide journey time savings of ranging from a few seconds up to 1 minute in each direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the Inter Peak.

Table 4-37 A59 Journey Times, High Growth PM (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	18:50			
		A59 Southbound	SB	16:33			
2019 modelled	U5	A59 Northbound	NB	19:41			
		A59 Southbound	SB	16:23			
2031	U5	A59 Northbound	NB	19:26	19:21	-00:05	0%
		A59 Southbound	SB	21:52	21:10	-00:42	-3%
2046	U5	A59 Northbound	NB	21:47	21:39	-00:08	-1%
		A59 Southbound	SB	25:40	24:33	-01:07	-4%
2061	U5	A59 Northbound	NB	24:22	23:50	-00:32	-2%
		A59 Southbound	SB	28:19	27:03	-01:16	-5%

Table 4-37 shows that with High Growth, the scheme is expected to provide journey time savings of ranging from a few seconds in the Northbound direction up to above 1 minute in the Southbound direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the PM Peak.

Table 4-38 A59 Journey Times, Low Growth AM (mm:ss)

Year	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	13:17			
		A59 Southbound	SB	16:23			
2019 modelled	U5	A59 Northbound	NB	15:38			
		A59 Southbound	SB	20:58			
2031	U5	A59 Northbound	NB	23:56	23:24	-00:32	-2.23%
		A59 Southbound	SB	16:57	16:27	-00:30	-2.95%
2046	U5	A59 Northbound	NB	25:27	24:53	-00:34	-2.23%
		A59 Southbound	SB	17:58	17:17	-00:41	-3.80%
2061	U5	A59 Northbound	NB	25:15	24:39	-00:36	-2.38%
		A59 Southbound	SB	18:04	17:19	-00:45	-4.15%

Table 4-38 shows that, with Low Growth, the scheme is expected to provide journey time savings of about half a minute in each direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the AM Peak.

Table 4-39 A59 Journey Times, Low Growth IP (mm:ss)

Year	Route	Description	Direction	IP			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	15:11			
		A59 Southbound	SB	15:32			
2019 modelled	U5	A59 Northbound	NB	16:16			
		A59 Southbound	SB	15:42			
2031	U5	A59 Northbound	NB	16:54	17:12	00:18	1.78%
		A59 Southbound	SB	17:05	16:49	-00:16	-1.56%
2046	U5	A59 Northbound	NB	17:37	17:43	00:06	0.57%
		A59 Southbound	SB	17:47	17:33	-00:14	-1.31%
2061	U5	A59 Northbound	NB	17:41	17:41	00:00	0.00%
		A59 Southbound	SB	17:45	17:27	-00:18	-1.69%

Table 4-39 shows that, with Low Growth, the scheme is expected to provide journey time savings of a few seconds in each direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the Inter Peak.

Table 4-40 A59 Journey Times, Low Growth PM (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	U5	A59 Northbound	NB	18:50			
		A59 Southbound	SB	16:33			
2019 modelled	U5	A59 Northbound	NB	19:41			
		A59 Southbound	SB	16:23			
2031	U5	A59 Northbound	NB	18:08	18:08	00:00	0.00%
		A59 Southbound	SB	21:23	20:43	-00:40	-3.12%
2046	U5	A59 Northbound	NB	19:08	18:52	-00:16	-1.39%
		A59 Southbound	SB	22:24	21:36	-00:48	-3.57%
2061	U5	A59 Northbound	NB	19:24	18:54	-00:30	-2.58%
		A59 Southbound	SB	22:08	21:19	-00:49	-3.69%

Table 4-40 shows that, with Low Growth, the scheme is expected to provide journey time savings of a few seconds in the Northbound Direction and of above half a minute in the Southbound Direction for trips travelling along the A59 between Liverpool City Centre and Switch Island in the PM Peak.

Table 4-41 M57 Journey Times, Core Growth AM (mm:ss)

Year	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	08:41			
		M57 Southbound	SB	09:22			
2019 modelled	10	M57 Northbound	NB	09:08			
		M57 Southbound	SB	09:26			
2031	10	M57 Northbound	NB	10:03	10:08	00:05	0.69%
		M57 Southbound	SB	9:45	10:25	00:39	6.70%
2046	10	M57 Northbound	NB	12:30	12:26	-00:03	-0.46%
		M57 Southbound	SB	11:02	12:03	01:01	9.12%
2061	10	M57 Northbound	NB	13:40	13:32	-00:08	-1.03%
		M57 Southbound	SB	11:25	12:44	01:19	11.52%

Table 4-41 shows that the scheme is expected to provide journey time savings of a few seconds in the Northbound Direction and about half a minute to more than a minute in the Southbound direction for trips travelling along the M57 between Switch island and the M62 Junction in the AM Peak.

Table 4-42 M57 Journey Times, Core Growth IP (mm:ss)

Year	Route	Description	Direction	IP			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	08:31			
		M57 Southbound	SB	09:03			
2019 modelled	10	M57 Northbound	NB	08:13			
		M57 Southbound	SB	08:56			
2031	10	M57 Northbound	NB	8:16	8:46	00:30	6.00%
		M57 Southbound	SB	8:50	9:15	00:25	4.73%
2046	10	M57 Northbound	NB	8:32	8:59	00:27	5.34%
		M57 Southbound	SB	9:03	9:30	00:27	4.88%
2061	10	M57 Northbound	NB	8:51	9:16	00:24	4.59%
		M57 Southbound	SB	9:15	9:44	00:29	5.29%

Table 4-42 shows that the scheme is expected to provide journey time savings of about half a minute in each direction for trips travelling along the M57 between Switch island and the M62 Junction in the Inter Peak.

Table 4-43 M57 Journey Times, Core Growth PM (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	09:00			
		M57 Southbound	SB	08:49			
2019 modelled	10	M57 Northbound	NB	08:38			
		M57 Southbound	SB	08:55			
2031	10	M57 Northbound	NB	9:04	9:24	00:20	3.67%
		M57 Southbound	SB	9:03	9:29	00:26	4.91%
2046	10	M57 Northbound	NB	10:40	10:55	00:15	2.38%
		M57 Southbound	SB	9:35	10:13	00:38	6.72%
2061	10	M57 Northbound	NB	11:18	11:34	00:16	2.31%
		M57 Southbound	SB	10:22	11:05	00:43	6.92%

Table 4-43 shows that the scheme is expected to provide journey time savings of a few seconds in the Northbound Direction and about half a minute in the Southbound direction for trips travelling along the M57 between Switch island and the M62 Junction in the PM Peak.

Table 4-44 M57 Journey Times, High Growth AM (mm:ss)

Year	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	08:41			
		M57 Southbound	SB	09:22			
2019 modelled	10	M57 Northbound	NB	09:08			
		M57 Southbound	SB	09:26			
2031	10	M57 Northbound	NB	10:25	10:23	-00:02	0%
		M57 Southbound	SB	09:56	10:42	00:45	8%
2046	10	M57 Northbound	NB	13:55	13:34	-00:21	-2%
		M57 Southbound	SB	11:23	12:52	01:29	13%
2061	10	M57 Northbound	NB	15:47	15:30	-00:17	-2%
		M57 Southbound	SB	12:14	14:25	02:11	18%

Table 4-44 shows that, with high growth, the scheme is expected to provide journey time savings of a few seconds in the Northbound Direction and from less than 1 minute to over 2 minutes in the Southbound direction for trips travelling along the M57 between Switch island and the M62 Junction in the AM Peak.

Table 4-45 M57 Journey Times, High Growth IP (mm:ss)

Year	Route	Description	Direction	IP			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	08:31			
		M57 Southbound	SB	09:03			
2019 modelled	10	M57 Northbound	NB	08:13			
		M57 Southbound	SB	08:56			
2031	10	M57 Northbound	NB	8:18	8:47	00:29	6%
		M57 Southbound	SB	8:52	9:17	00:25	5%
2046	10	M57 Northbound	NB	8:54	9:17	00:23	4%
		M57 Southbound	SB	9:14	9:43	00:29	5%
2061	10	M57 Northbound	NB	10:00	10:13	00:13	2%
		M57 Southbound	SB	09:45	10:28	00:43	7%

Table 4-45 shows that with high growth, the scheme is expected to provide journey time savings of a few seconds to over half a minute in each direction for trips travelling along the M57 between Switch island and the M62 Junction in the Inter Peak.

Table 4-46 M57 Journey Times, High Growth PM (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	09:00			
		M57 Southbound	SB	08:49			
2019 modelled	10	M57 Northbound	NB	08:38			
		M57 Southbound	SB	08:55			
2031	10	M57 Northbound	NB	9:23	9:44	00:20	4%
		M57 Southbound	SB	9:08	9:35	00:27	5%
2046	10	M57 Northbound	NB	11:18	11:32	00:14	2%
		M57 Southbound	SB	10:32	11:20	00:48	8%
2061	10	M57 Northbound	NB	12:43	12:53	00:10	1%
		M57 Southbound	SB	11:43	12:32	00:49	7%

Table 4-46 shows that with high growth, the scheme is expected to provide journey time savings of a few seconds to over half a minute in each direction for trips travelling along the M57 between Switch island and the M62 Junction in the PM Peak.

Table 4-47 M57 Journey Times, Low Growth AM (mm:ss)

Year	Route	Description	Direction	AM			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	08:41			
		M57 Southbound	SB	09:22			
2019 modelled	10	M57 Northbound	NB	09:08			
		M57 Southbound	SB	09:26			
2031	10	M57 Northbound	NB	9:52	10:00	00:08	1.38%
		M57 Southbound	SB	9:42	10:18	00:36	6.11%
2046	10	M57 Northbound	NB	11:33	11:36	00:03	0.38%
		M57 Southbound	SB	10:33	11:26	00:53	8.33%
2061	10	M57 Northbound	NB	11:49	11:51	00:02	0.20%
		M57 Southbound	SB	10:36	11:32	00:56	8.73%

Table 4-47 shows that, with low growth, the scheme is expected to provide journey time savings of a few seconds in the Northbound Direction and up to 1 minute in the Southbound direction for trips travelling along the M57 between Switch island and the M62 Junction in the AM Peak.

Table 4-48 M57 Journey Times, Low Growth IP (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	08:31			
		M57 Southbound	SB	09:03			
2019 modelled	10	M57 Northbound	NB	08:13			
		M57 Southbound	SB	08:56			
2031	10	M57 Northbound	NB	8:15	8:45	00:30	6.01%
		M57 Southbound	SB	8:49	9:14	00:25	4.70%
2046	10	M57 Northbound	NB	8:26	8:55	00:29	5.69%
		M57 Southbound	SB	8:58	9:24	00:26	4.80%
2061	10	M57 Northbound	NB	8:29	8:58	00:28	5.54%
		M57 Southbound	SB	8:60	9:26	00:26	4.89%

Table 4-48 shows that, with low growth, the scheme is expected to provide journey time savings of about half a minute in each direction for trips travelling along the M57 between Switch island and the M62 Junction in the Inter Peak.

Table 4-49 M57 Journey Times, Low Growth PM (mm:ss)

Year	Route	Description	Direction	PM			
				DM	DS	DS-DM	
2019 observed	10	M57 Northbound	NB	09:00			
		M57 Southbound	SB	08:49			
2019 modelled	10	M57 Northbound	NB	08:38			
		M57 Southbound	SB	08:55			
2031	10	M57 Northbound	NB	9:00	9:21	00:21	3.94%
		M57 Southbound	SB	9:02	9:28	00:26	4.81%
2046	10	M57 Northbound	NB	10:00	10:22	00:22	3.72%
		M57 Southbound	SB	9:17	9:47	00:30	5.30%
2061	10	M57 Northbound	NB	10:17	10:33	00:16	2.59%
		M57 Southbound	SB	9:19	9:50	00:31	5.55%

Table 4-49 shows that, with low growth, the scheme is expected to provide journey time savings of a few seconds to a half a minute in each direction for trips travelling along the M57 between Switch island and the M62 Junction in the PM Peak.

5 Summary

5.1 Model Development and Convergence

This Section summarises the testing and forecasts for the Core scenario. The Core scenario is constrained to NTEM growth and includes committed development. The preferred scenario has been tested and forecasted for three time periods (AM, IP and PM), three forecast years (2031, 2046, 2061) and three growth scenarios (low economy, core and high economy). The forecast networks and matrices were developed following the current TAG guidance.

For forecasting, reasonable and stable results were achieved with both the highway assignment model and variable demand model. The % gap and flow change highway assignment model convergence criteria are met for all scenarios, years, and periods for the models; therefore it was considered that the models are suitable for use in this study without further refinement.

Some model noise was detected in areas of the model quite far from the core area. “Masking” of these areas from which benefits due to the scheme are not expected will ensure that the model noise will not have an impact on the economic benefits of the scheme.

5.2 Model Output Summary Statistics

Travel times, distances and average speeds for each scheme option were extracted from the relevant forecast models in each time period and forecast year, as part of the general summary statistics for each model and are presented in Section 4.

Traffic flow differences were modelled and compared between a Do Minimum scenario, and each scheme option, for the future years 2031, 2046 and 2061, in each modelled time period – AM peak, inter-peak and PM peak. The key takeaway points for all options in each modelled forecast year, are set out in Section 4, whilst the difference plots for all scheme options, in each modelled year and time period are presented in Appendix B.

A5036, M57 and A59 Journey times for each scheme option were extracted from the relevant forecast models in each time period and forecast year and are presented in Section 4.

The forecast results are summarised in Table 5-1 for Do Something.

Table 5-1 Model Results Summary

Scenario	Network Summary Statistics	Traffic Flows	Journey Times on A5036/New Route (sec)		
DS	Total Travel Time savings	Decreases of 16,000 – 22,000 AADT on Princess Way Decreases of 7,500 to 17,000 AADT at switch island Increases of 25,000 to 40,000 AADT on Brooms Cross Road (A5758) east of the new A5036 junction	Low Growth JT saving (mm:ss)		
				EB	WB
			AM	03:19 to 04:00	04:35 to 04:42
			IP	03:19 to 03:36	03:34 to 03:54
			PM	04:11 to 04:58	03:18 to 04:00
			Core Growth JT saving (mm:ss)		
				EB	WB
			AM	03:45 to 04:46	04:29 to 04:42
			IP	03:27 to 04:16	03:11 to 03:55
			PM	04:05 to 04:28	03:46 to 04:32
			High Growth JT saving (mm:ss)		
				EB	WB
			AM	03:05 to 05:55	04:05 to 05:55
			IP	03:26 to 04:35	03:39 to 04:47
			PM	04:05 to 04:46	04:23 to 04:49

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Appendix A: Uncertainty Log

Table A1 Residential Developments

WSP Ref	Planning Application (if available)	Development	Location	Number of Houses Completed by 2031	Number of Houses Completed by 2046	Number of Houses Completed by 2061
H1		LAND TO EAST OF ALLERTON ROAD/NORTH OF WOOLTON ROAD L25	Liverpool	119	119	119
H2		LAND AT JUNCTION OF ISLINGTON / ASHTON PLACE / GILDART STREET	Liverpool	419	419	419
H3		PRINCES DOCK AREA	Liverpool	378	378	378
H4		PRINCES DOCK AREA	Liverpool	325	325	325
H5		BRUNSWICK ST / DRURY LANE CAR PARK	Liverpool	125	125	125
H6		55-63 GREAT CROSSHALL STREET	Liverpool	124	124	124
H7		BUILDING AT COCKSPUR ST WEST/ PALL MALL / PRUSSIA ST / HIGHFIELD STREET	Liverpool	336	336	336
H8		VICTORIA HOUSE, 7-11 JAMES STREET	Liverpool	98	98	98
H9		KING EDWARD TRIANGLE	Liverpool	1476	2674	2674
H10		FORMER ODEON PICTURE HOUSE, 28 LONDON ROAD L3.	Liverpool	102	102	102
H11		RALLI HOUSE, 60 OLD HALL STREET L1	Liverpool	92	92	92
H12		LAND AT NORTON STREET / ISLINGTON	Liverpool	125	125	125
H13		ERSKINE STREET / MANFRED STREET / PROSPECT STREET	Liverpool	239	239	239
H14		122 OLD HALL STREET	Liverpool	168	168	168
H15		HUGHES HOUSE, 101-113 LONDON ROAD	Liverpool	258	258	258
H16		LAND AT DEVON STREET	Liverpool	27	27	27
H17		33 DEVON STREET	Liverpool	208	208	208
H18		KINGSWAY HOUSE	Liverpool	114	114	114
H19		UNNAMED SITE	Liverpool	80	80	80
H20		OLDHAM PLACE OFF ROSCOE STREET	Liverpool	67	67	67
H21		FORMER CORPORATION YARD. GARSTON OLD ROAD	Liverpool	27	27	27
H22		GREAT HOMER ST SHOPPING CENTRE (PROJECT JENNIFER)	Liverpool	277	277	277
H23		ANFIELD / BRECKFIELD HMRI REGENERATION AREA	Liverpool	84	84	84
H24		LAND AT FOX STREET / ST ANNE STREET, L3	Liverpool	325	325	325
H25		BUILDINGS, CLEGG STREET	Liverpool	127	127	127
H26		FORMER JFK HEIGHTS / EVERTON BROW / SALISBURY ST / HAIGH ST	Liverpool	70	70	70
H27		GREENBANK SYNAGOGUE, GREENBANK DRIVE, L17	Liverpool	52	52	52
H28		SITE IN LAUREL ROAD ADJACENT TO NO:17	Liverpool	48	48	48
H29		209-299 PRESCOT ROAD AND 16-24 PRESCOT DRIVE	Liverpool	28	28	28
H30		SITE OF FORMER KENSINGTON MARKET, PRESCOT ROAD, LIVERPOOL, L7	Liverpool	84	84	84
H31		LAND AT LOW HILL	Liverpool	409	409	409
H32		FORMER NURSERY, LAND CORNER OF BOALER STREET / MADELEY STREET	Liverpool	34	34	34
H33		CENTRAL DOCKS	Liverpool	1824	1824	1824
H34		STANLEY DOCK / NORTH DOCKS	Liverpool	346	346	346
H35		LAND ADJACENT TO SCOTLAND RD / BEVINGTON BUSH / NICHOLAS ST / WELLINGTON ST	Liverpool	614	614	614
H36		LAND AT WALTON ROAD /WOODHOUSE CLOSE	Liverpool	31	31	31
H37		FORMER WILLIAMS GARAGE SITE, 285-289 VAUXHALL ROAD	Liverpool	74	74	74
H39		LAND CORNER BEVINGTON BUSH / GARDNER ROW / EDGAR STREET	Liverpool	381	381	381
H40		9-27 FREEMASONS ROW	Liverpool	656	656	656
H41		STERLING WAY / BLACKFIELD STREET / VESUVIUS PLACE	Liverpool	29	29	29
H42		LAND BOUNDED BY / LEMON STREET / HERIOT STREET / GREAT MERSEY STREET	Liverpool	78	78	78

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H43		DALE HALL, ELMSWOOD ROAD	Liverpool	75	75	75
H44		LAND & BUILDINGS AT EDGE LANE	Liverpool	92	92	92
H45		LAND AND BUILDING AT JUNCTION OF NORFOLK ST / WATKINSON STREET	Liverpool	50	50	50
H46		LAND AT UPPER PITT STREET	Liverpool	48	48	48
H47		LAND AT CORNER OF PARLIAMENT ST & GT GEORGE ST / ST JAMES ST	Liverpool	505	505	505
H48		HERCULANEUM QUAY, ROYDEN WAY, RIVERSIDE DRIVE	Liverpool	119	119	119
H49		LAND BETWEEN SEFTON STREET AND CARYL STREET	Liverpool	198	198	198
H50		SUMMERS ROAD, BRUNSWICK BUSINESS PARK L3.	Liverpool	240	240	240
H51		LAND AT HURST STREET/SPARLING STREET/TABLEY STREET/WAPPING L1.	Liverpool	55	55	55
H52		FORMER WAREHOUSE SITE, BLUNDELL STREET / KITCHEN STREET L1	Liverpool	200	200	200
H53		LAND BOUNDED BY PARK LANE / LIVER STREET & BECKWITH STREET L1	Liverpool	90	90	90
H54		LAND BETWEEN BRIDGEWATER STREET / SIMPSON STREET / WATKINSON STREET	Liverpool	35	35	35
H55		GREENLAND STREET / NEW BIRD STREET / ST JAMES STREET / ST JAMES COURT	Liverpool	217	217	217
H56		LAND ADJACENT TO THE KEEL, KINGS PARADE / HALFTIDE WHARF KINGS DOCK	Liverpool	257	257	257
H57		LAND AT GRENVILLE STREET SOUTH / UPPER PITT STREET	Liverpool	120	120	120
H58		12-30 PARLIAMENT STREET	Liverpool	145	145	145
H59		GREAT GEORGE ST DEVELOPMENT AREA	Liverpool	503	503	503
H60		LAND AT HILL ST / GRAFTON ST & BRASSEY STREET	Liverpool	296	296	296
H61		LAND AT HILL STREET	Liverpool	174	174	174
H62		LAND OFF SPEKE HALL AVENUE L24	Liverpool	185	185	185
H63		FORMER INTERNATIONAL GARDEN FESTIVAL SITE	Liverpool	1480	1480	1480
H64		23 AIGBURTH ROAD AND 34 ALEXANDRA DRIVE	Liverpool	55	55	55
H65		FORMER WAVERTREE TRAIN STATION APPROACH, LAND AT WELLINGTON ROAD	Liverpool	26	26	26
H66		LAND BETWEEN DENFORD ROAD / ACKERS HALL AVENUE / DUNCHURCH ROAD	Liverpool	47	47	47
H67		LAND BETWEEN ACKERS HALL AVENUE / MURCOTE ROAD / ALLESLEY ROAD	Liverpool	58	58	58
H68		LAND TO NORTH OF ORIEL STREET AND SOUTH OF PAUL STREET LIVERPOOL L3#	Liverpool	155	155	155
H69		17-19 AIGBURTH ROAD, 28 ALEXANDRA DRIVE, AND LAND AT 25/27	Liverpool	73	73	73
H70		4 ROSCOE STREET	Liverpool	82	82	82
H71		12-14 MOSS STREET	Liverpool	42	42	42
H72		1-25 DUCIE STREET AND VACANT LAND TO THE SOUTH OF DUCIE STREET LIVERPOOL L8 2UT	Liverpool	80	80	80
H73		4 STONEYCROFT CRESCENT	Liverpool	56	56	56
H74		ALLERTON POLICE AND FIRE STATION	Liverpool	48	48	48
H75		COPPERAS HILL POLICE STATION, COPPERAS HILL	Liverpool	34	34	34
H76		LAND TO THE WEST OF ST BARTHOLOMEWS RD AND N/E OF JUNCTION WITH PAUL ST	Liverpool	240	240	240
H77		CROXTETH LODGE / LATHBURY HOUSE, ULLET ROAD	Liverpool	35	35	35
H78		UNNAMED SITE	Liverpool	34	34	34
H79		SE SIDE FORMER PENNY LANE BUS DEPOT / SMITHDOWN ROAD	Liverpool	34	34	34
H80		18-20 CHURCH STREET	Liverpool	80	80	80
H81		LAND AT FINCH DENE, FINCH LANE	Liverpool	31	31	31
H82		FORMER DERBY ARMA, 86 WEST DERBY ROAD	Liverpool	27	27	27
H83		RECREATION CENTRE SPEKE ROAD / 12-18 CHURCH ROAD	Liverpool	74	74	74
H84		THE DOCKERS CLUB, EDINBURGH PARK, TOWNSEND LANE	Liverpool	231	231	231
H85		LAND BOUNDED BY ST JAMES STREET/NORFOLK STREET/BRICK STREET, LIVERPOOL	Liverpool	56	56	56
H86		FORMER HONDO SUPERMARKET 5-9 UPPER DUKE STREET LIVERPOOL L1 9DU	Liverpool	37	37	37

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H87		LAND BOUNDED BY EAST LANCS ROAD/STONEBRIDGE LANE/STONEDALE CRESCENT	Liverpool	57	57	57
H88		UNNAMED SITE	Liverpool	469	469	469
H89		UNNAMED SITE	Liverpool	212	212	212
H90		UNNAMED SITE	Liverpool	208	208	208
H91		UNNAMED SITE	Liverpool	163	163	163
H92		UNNAMED SITE	Liverpool	99	99	99
H93		NORWICH BUILDING, WATER STREET 18 18 0 0 0	Liverpool	96	96	96
H94		UNNAMED SITE	Liverpool	87	87	87
H95		UNNAMED SITE	Liverpool	76	76	76
H96		UNNAMED SITE	Liverpool	74	74	74
H97		UNNAMED SITE	Liverpool	70	70	70
H98		UNNAMED SITE	Liverpool	56	56	56
H99		UNNAMED SITE	Liverpool	56	56	56
H100		UNNAMED SITE	Liverpool	52	52	52
H101		UNNAMED SITE	Liverpool	51	51	51
H102		FORMER MILLWOOD SCHOOL, GREENWAY ROAD 17 17 0 0 0	Liverpool	96	96	96
H103		UNNAMED SITE	Liverpool	48	48	48
H104		UNNAMED SITE	Liverpool	47	47	47
H105		LAND OFF CENTRAL AVENUE (SURROUNDED BY LOVEL ROAD / DAMWOOD ROAD / HAREFIELD ROAD)	Liverpool	45	45	45
H106		UNNAMED SITE	Liverpool	38	38	38
H107		UNNAMED SITE	Liverpool	37	37	37
H108		UNNAMED SITE	Liverpool	30	30	30
H109		UNNAMED SITE	Liverpool	25	25	25
H110		UNNAMED SITE	Liverpool	34	34	34
H111		UNNAMED SITE	Liverpool	37	37	37
H112		PRINCES DOCK AREA	Liverpool	105	105	105
H113		CENTRAL DOCKS 2624 820 820 820 164	Liverpool	237	237	237
H114		LAND & BUILDINGS AT EDGE LANE 92 92 0 0 0	Liverpool	53	53	53
H115		SWAINBANKS LIMITED, 50 FOX STREET 180 0 180 0 0	Liverpool	220	220	220
H116		UNNAMED SITE	Liverpool	383	383	383
H117		15 - 17 Stanley Street	Liverpool	61	61	61
H118		UNNAMED SITE	Liverpool	200	200	200
H119		UNNAMED SITE	Liverpool	129	129	129
H120		UNNAMED SITE	Liverpool	25	25	25
H121		UNNAMED SITE	Liverpool	126	126	126
H122		UNNAMED SITE	Liverpool	26	26	26
H123		1 Rodney Street	Liverpool	31	31	31
H124		LAND AT HURST STREET/SPARLING STREET/TABLEY STREET/WAPPING L1. 55 55 0 0 0	Liverpool	204	204	204
H125		UNNAMED SITE	Liverpool	136	136	136
H126		LAND SOUTH OF JUNCTION OF PENGALLO HEY / ROSESIDE DRIVE /VANCOUVER ROAD	Liverpool	31	31	31
H127		UNNAMED SITE	Liverpool	142	142	142
H128		UNNAMED SITE	Liverpool	195	195	195
H129		37 VICTORIA STREET	Liverpool	20	20	20
H131		Land East of Birkenhead Road, Seacombe (North)	Wirral	200	200	200

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H132		Land East of Birkenhead Road, Seacombe (South)	Wirral	90	250	250
H133		Rose Brae, Church Street, Woodside	Wirral	120	180	180
H134		WGC Town Centre Plot E, Hemingford Street, Birkenhead	Wirral	43	172	172
H135		WGC Town Centre Plot G, South of Conway Park Station, Birkenhead	Wirral	92	92	92
H136		WGC Town Centre Plots I and J, North of Conway Park Station, Birkenhead	Wirral	185	185	185
H137		Land at Hind Street, Tranmere	Wirral	650	1400	1400
H138		Wirral Waters - Vittoria Studios and Sky City, Duke Street, Birkenhead	Wirral	450	2200	2200
H139		Wirral Waters - Northbank East 1, Dock Road, Seacombe (Peel/Urban Splash)	Wirral	120	120	120
H140		Wirral Waters - Northbank West 2, Dock Road, Seacombe (Peel/Urban Splash)	Wirral	230	230	230
H141		Wirral Waters - Northbank East 3, Dock Road, Seacombe (Tower Road)	Wirral	50	150	150
H142		Wirral Waters - Northbank West 1, Dock Road, Seacombe (Legacy)	Wirral	500	500	500
H143		Wirral Waters - Northbank East 2, Dock Road, Seacombe (Belong Extra Care Village)	Wirral	34	34	34
H144		Former Municipal Buildings, Seaview Road, Liscard	Wirral	100	100	100
H145		New Palace Amusements, Marine Promenade, New Brighton	Wirral	40	40	40
H146		Woodhead Street Car Park, New Ferry	Wirral	37	37	37
H147		100 New Chester Road, New Ferry	Wirral	27	27	27
H148		Rear of Gibson House, Maddock Road, Egremont	Wirral	87	87	87
H149		Former Gladstone Liberals, Dial Road, Tranmere	Wirral	31	31	31
H150		Redcourt School, 7 Devonshire Place, Oxton	Wirral	30	30	30
H151		Sevenoaks Phase 2b, Chatham Road, Rock Ferry	Wirral	43	43	43
H152		Land at Civic Way, Bebington	Wirral	60	60	60
H153		Former MOD, Old Hall Road, Bromborough	Wirral	250	250	250
H154		Riverside Office Park, Riverwood Road, Bromborough	Wirral	200	200	200
H155		Former Croda, Prices Way, Bromborough Pool	Wirral	100	100	100
H156		Former D1 Oils, Dock Road South, Bromborough	Wirral	625	1225	1225
H157		Unilever Research, Quarry Road East, Bebington	Wirral	120	120	120
H158		Moreton Family Centre, Pasture Road	Wirral	75	75	75
H159		East of Typhoo, Reeds Lane, Moreton	Wirral	100	100	100
H160		Former Foxfield School, Douglas Drive, Moreton	Wirral	65	65	65
H161		Former Stirrup PH, Arrowe Park Road, Woodchurch	Wirral	45	45	45
H162		Land at Knutsford Road, Moreton	Wirral	36	36	36
H163		Land at Grange Hill Farm, Grange Old Road, West Kirby	Wirral	35	35	35
H164		Former Heswall Gospel Hall, Pensby Road, Heswall	Wirral	23	23	23
H165		Site of Former Dell Primary School, The Dell, Rock Ferry, Wirral	Wirral	57	57	57
H166		SEACOMBE FERRY HOTEL, VICTORIA PLACE, SEACOMBE	Wirral	28	28	28
H167		Fomer Cole Street Primary School, Cole Street, Birkenhead	Wirral	47	47	47
H168		76 HAMILTON STREET, BIRKENHEAD, WIRRAL	Wirral	72	72	72
H169		The Open Arms, BIDSTON AVENUE, CLAUGHTON, CH41 0BR	Wirral	42	42	42
H170		Burtens Foods, PASTURE ROAD, MORETON, CH46 8SE	Wirral	229	229	229
H171		Eswa Club, 54-56 Park Rd South, Wirral, CH43 4UY	Wirral	28	28	28
H172		LORD STREET & CLEVELAND STREET, BIRKENHEAD, CH41 6BL	Wirral	71	71	71
H173		Land at ACRE LANE AND MEADOWSIDE ROAD, BROMBOROUGH, CH62 7BX	Wirral	110	110	110
H174		Andrew Gibson House, BLENHEIM ROAD, EGREMONT, WIRRAL	Wirral	136	136	136
H175		Storeton Hall Farm, LEVER CAUSEWAY, STORETON	Wirral	5	5	5

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H176		Land at Northbank, Dock Road, Wirral	Wirral	34	34	34
H177		The Lyndale School, LYNDAL AVENUE, EASTHAM, CH62 8DE	Wirral	28	28	28
H178		CLEARED SITE, BEAUFORT ROAD, BIRKENHEAD	Wirral	84	84	84
H179		Rock Station Hotel, HIGHFIELD ROAD, ROCK FERRY, CH42 2BU	Wirral	25	25	25
H180		USP Project Northbank East Phase 1, DOCK ROAD, Bidston, Birkenhead, Wirral Waters	Wirral	30	30	30
H181		Holt Road, TRANMERE, CH41 9HQ	Wirral	30	30	30
H182		Land at the former Rock Ferry High School and Ravenswood, Highfield South, Rock Ferry, Wirral, CH42 4RQ	Wirral	186	186	186
H183		Wirral Business Park, Arrowe Brook Road, Upton, Wirral, CH49 1QZ	Wirral	113	113	113
H184		DOMINICK HOUSE, ST ALBANS ROAD, LISCARD, CH44 5XS	Wirral	70	70	70
H185		Land at DOCK ROAD, SEACOMBE, CH41 1JW	Wirral	500	500	500
H186		238-240 CONWAY STREET, BIRKENHEAD	Wirral	46	46	46
H187		52-54 GREENHEYS ROAD, LISCARD, CH44 5UP	Wirral	53	53	53
H188		WOODHEAD STREETCAR PARK AND LAND OFF NEW CHESTER ROAD, NEW FERRY	Wirral	45	45	45
H189		The Old Town Hall, 4 ALBERT ROAD, HOYLAK, CH47 2AB	Wirral	40	40	40
H190		LAND ABOUNDING TO LIVINGSTONE ROAD AND TWICKENHAM DRIVE, LIVINGSTONE ROAD, LEASOWE, CH46 1PQ	Wirral	30	30	30
H191		Vacant land bound by New Chester Road and Chatham Road, ROCK FERRY, CH42 2AE	Wirral	43	43	43
H192		Land to the north of Pyramids Shopping centre (incorporating land north and south of Conway Street, and north-west of Europa Boulevard), Birkenhead	Wirral	651	651	651
H193		Riverside Park, SOUTHWOOD ROAD, BROMBOROUGH, CH62 3QX	Wirral	96	96	96
H194		Redcourt, 7 DEVONSHIRE PLACE, OXTON, CH43 1TX	Wirral	45	45	45
H195		Gladstone Liberal Club, CHURCH ROAD, TRANMERE, CH42 0LH	Wirral	31	31	31
H196		Land At Rosebank Road/Way (Phase 2C)	Knowsley	19	19	19
H197		Land Between Hillside Ave, Knowsley Lane, Stockbridge Lane (Phase 2B)	Knowsley	181	181	181
H198		Land behind Knowsley Community College (Phase 4)	Knowsley	237	237	237
H199		Land near 24 Kingsnorth	Knowsley	23	23	23
H200		Site At Former Bowring Community Sports College	Knowsley	22	22	22
H201		Site Of Knowsley Skills Academy	Knowsley	10	10	10
H202		Parcel B (Former Prysmian Site)	Knowsley	9	9	9
H203		Land Between Railway Line And Fern Close	Knowsley	55	55	55
H204		Vacant Land The Withen	Knowsley	2	2	2
H205		Parcel E1 (Former Prysmian Site)	Knowsley	17	17	17
H206		Parcel D (Former Prysmian Site)	Knowsley	61	61	61
H207		Knowsley Lane, Huyton	Knowsley	105	105	105
H208		Land North Of M62 Off Windy Arbor Road L35 1RB	Knowsley	360	360	360
H209		Edenhurst Avenue	Knowsley	73	73	73
H210		Former Site Of Longview Social Club, Lyme Grove, Huyton	Knowsley	27	27	27
H211		East of Halewood, RSPCA	Knowsley	162	162	162
H212		Watch Factory Phase 2	Knowsley	191	191	191
H213		East of Halewood, Plot 1 and Plot 3	Knowsley	644	730	730
H214		Land bounded by A58, Prescott / Whitakers	Knowsley	227	227	227
H215		East of Halewood, Plot 2	Knowsley	98	98	98
H216		East of Halewood, Plot 4	Knowsley	315	315	315
H217		Former Astley House Site, Astley Road And Land At Knowsley Lane/Primrose Drive, Huyton, L36 8HY	Knowsley	131	131	131
H218		Former Kirkby Stadium Site	Knowsley	266	266	266

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H219		Land Off Lickers Lane L35 3QE	Knowsley	277	277	277
H220		Mackets Childrens Centre Arncliffe Road Halewood	Knowsley	77	77	77
H221		Former St Joseph, the workers playing field, Bewley Drive, Kirkby	Knowsley	36	36	36
H222		North Huyton, Land off Southdene Road (Phase 5)	Knowsley	245	350	350
H223		Former Prysmian Cables & Systems Site, Hall Lane, Prescott	Knowsley	111	111	111
H224		Carr Lane Sustainable Urban Extension	Knowsley	74	74	74
H225		South of Whiston	Knowsley	353	866	866
H226		Land South of Cherryfield Drive	Knowsley	572	730	730
H227		Little Moss Hey, former Stockbridge comp	Knowsley	216	216	216
H228		Hollow Croft, former Nine Tree school	Knowsley	55	55	55
H229		Former Gas Works, Moss Street	Knowsley	58	58	58
H230		Former St. Clems Croxteth Lane, Stockbridge, Huyton	Knowsley	54	54	54
H231		Klondyke Ph2&3_Monfa Road	Sefton	75	75	75
H232		Land at Aintree Curve_Ridgewood Way	Sefton	23	23	23
H233		Site of fmr Mersey House_St James Drive	Sefton	32	40	40
H234		Former St Raymonds Playing field_Harrop's Croft	Sefton	42	53	53
H235		Land at Former Bootle High School_Brown's Lane	Sefton	50	63	63
H236		Former Dale Acre School_Dale Acre Drive	Sefton	30	37	37
H237		Former People's site_Linacre Lane	Sefton	22	110	110
H238		Former St Mary's school_Irlam Road	Sefton	58	72	72
H239		503 - 509_Hawthorne Road	Sefton	95	119	119
H240		Land at_Capricorn Way	Sefton	28	28	28
H241		Former Littlewoods Sports Ground_Park Lane	Sefton	149	149	149
H242		Z Blocks Site A_Buckley Hill Lane	Sefton	63	63	63
H243		Cabbage Inn_Fleetwoods Lane	Sefton	60	60	60
H244		Former Johnsons Cleaners_Mildmay Road	Sefton	140	230	230
H245		Land, prems between Litherland Rd & Well Lane	Sefton	10	13	13
H247		Land at Southport Old Road_Southport Road	Sefton	68	85	85
H248		Land at Holgate_Holgate	Sefton	206	206	206
H249		Land at Lydiate Lane (Rakes Park)_Lydiate Lane	Sefton	140	268	268
H250		Land rear of 1 to 93_Runnells Lane	Sefton	183	183	183
H251		Land at_Musker Street	Sefton	30	30	30
H252		Windles Green_Runnells Lane	Sefton	36	36	36
H253		Land north of Brackenway_Brackenway	Sefton	230	286	286
H254		Land at West Lane, Formby_West Lane	Sefton	32	40	40
H255		Shorrock's Hill Site_St Lukes Church Road	Sefton	27	34	34
H256		Morris Homes part of alloc site_Liverpool Road	Sefton	68	68	68
H257		Land to the south_Andrews Lane	Sefton	99	99	99
H258		Land at Leonard Cheshire Home_College Path/Lenton Avenue	Sefton	34	34	34
H259		Mayflower Industrial Estate (C3 pt)_Liverpool Road	Sefton	32	32	32
H260		BDW Part of alloc site_Liverpool Road	Sefton	304	304	304
H261		Mushroom Farm, 8-10_Cable Street	Sefton	6	7	7
H262		Former St Wilfrid's School_Orrell Road	Sefton	185	185	185
H263		Site of Sefton Works_Field Lane	Sefton	39	39	39

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H264		Land (Extra Care part) east of_Damfield Lane	Sefton	105	105	105
H265		Parkhaven Trust_Liverpool Road South	Sefton	34	34	34
H266		Fmr Ashworth Hospital Site (South)_School Lane	Sefton	257	257	257
H267		Land north of Kenyon's Lane_Kenyons Lane	Sefton	245	325	325
H268		Land east of Waddicar Lane_Waddicar Lane	Sefton	149	149	149
H269		Wadacre Farm_Chapel Lane	Sefton	149	149	149
H270		Land South of Spencers Lane_Spencers Lane	Sefton	29	29	29
H271		Land at Wango Lane_Wango Lane	Sefton	43	43	43
H272		Land at Turnbridge Road_Turnbridge Road	Sefton	36	36	36
H273		Land East of Maghull (north)_Poverty Lane	Sefton	300	750	750
H274		Land East of Maghull (south)_Poverty Lane	Sefton	841	841	841
H275		Land w of Southport & Formby DGH_Town Lane	Sefton	153	153	153
H276		Sunshine House, 2_Oxford Road	Sefton	31	31	31
H277		51-53_Alexandra Road	Sefton	55	55	55
H278		Town Lane - Extra Care scheme_Town Lane	Sefton	101	126	126
H279		Birkdale Sch Hearing Impaired, 40_Lancaster Road	Sefton	113	113	113
H280		Land adjacent to_Barton's Close	Sefton	30	30	30
H281		Land at Bankfield Lane_Bankfield Lane	Sefton	245	284	284
H282		Former Phillip's Factory_Balmoral Drive	Sefton	157	157	157
H283		Land at Moss Lane_Moss Lane	Sefton	175	385	385
H284		Land at Crowland Street_Crowland Street	Sefton	200	500	500
H285		Land at Broome Road_Broome Road	Sefton	140	174	174
H286		Land West of Lynton Road_Lynton Road	Sefton	20	25	25
H287		Former Ainsdale Hope School_Sandringham Road	Sefton	120	120	120
H288		Former St John Stone RC Primary_Meadow Lane	Sefton	48	48	48
H289		The Meadows ATC_Sandbrook Road	Sefton	40	130	130
H290		Land south of Moor Lane_Moor Lane	Sefton	55	69	69
H291		Town Lane - David Wilson Homes sch_Town Lane	Sefton	695	695	695
H292	P/2021/0015	Moss Nook Urban Village, Watery Lane, Moss Nook	St Helens	337	787	787
H293		Land south of Billinge Road, east of Garswood Road and west of Smock Lane, Garswood	St Helens	216	216	216
H294		Land at Florida Farm, South of A580, Slag Lane, Blackbrook	St Helens	112	522	522
H295		Land bounded by Reginald Road, Bold Road, Travers Entry, Gorsey Lane, Crawford Street, Bold - Bold Forest Garden Suburb	St Helens	90	690	690
H296		Land South of Gartons Lane and former St. Theresa's Social Club, Gartons Lane, Bold	St Helens	247	569	569
H297		Land east of City Road, Cowley Hill, Town Centre	St Helens	292	642	642
H298		Land west of the A49 Mill Lane and to the east of the West Coast Mainline railway line, Newton-le-Willows	St Helens	140	140	140
H299		Land south of Higher Lane and east of Rookery Lane, Rainford	St Helens	247	259	259
H300	P/2018/0060	Former Linkway Distribution Park, Elton Head Road, Thatto Heath	St Helens	292	352	352
H302	P/2019/0217	Vulcan Village Phase 4 Wargrave Road Newton Le Willows St Helens	St Helens	89	89	89
H303	P/2021/0576	LAND AT BAXTERS LANE	St Helens	81	81	81
H304	P/2012/0405	LAND OFF LOWFIELD LANE	St Helens	112	112	112
H305	P/2018/0251	Penlake Industrial Estate Land At Emr Recycling And Former British Rail Club, Railway Embankment And	St Helens	337	337	337
H306	P/2015/0599	Former Istock Brick Roughdales Ltd Chester Lane Clock Face St Helens	St Helens	260	260	260
H307	P/2021/0436	Land Adjacent To Former Little Lea Green Farm Elton Head Road Thatto Heath	St Helens	180	180	180

WSP Ref	Planning Application (if available)	Development	Location	Number of Houses Completed by 2031	Number of Houses Completed by 2046	Number of Houses Completed by 2061
H309	P/2018/0849	Land At Mere Grange Lowfield Lane St Helens Merseyside	St Helens	82	82	82
H310	P/2020/0581	Unit 2 - 10 Lords Fold Rainford	St Helens	55	55	55
H311	P/2018/0848	Land At Former Thatto Heath Royal British Region Club Scholes Lane Thatto Heath St Helens	St Helens	30	30	30
H312	P/2019/0693	Land To Rear Of 18 To 46 Broadgate Avenue And 64 To 94 Marshalls Cross Road St Helens	St Helens	32	32	32
H313	P/2019/0654	1 Millwood Avenue Eccleston St Helens	St Helens	36	36	36
H314	P/2020/0113	Land Between Sutton Road Lancots Lane And Dismantled Railway Line Lancots Lane St Helens	St Helens	63	63	63
H315	P/2020/0473	Land Site Of Former Travellers Rest 21 Crab Street St Helens	St Helens	61	61	61
H316	P/2021/0015	Moss Nook Watery Lane St Helens	St Helens	258	258	258
H317	P/2021/0541	Former Newton Community Hospital Bradlegh Road Newton Le Willows St Helens	St Helens	39	39	39
H318	P/2016/0604	Vulcan Village (Phase 3) Wargrave Road Newton Le Willows St Helens	St Helens	134	134	134
H319	P/2020/0487	Land adjacent to Bold Miners Site	St Helens	50	50	50
H322		Former Halton and St Helens PCT HQ, Cowley Hill	St Helens	32	32	32
H323		Former Red Quarry, Chester Lane	St Helens	57	57	57
H325		College Street Northern Gateway	St Helens	90	103	103
H326		Land at Somerset Street and Sussex Grove	St Helens	66	66	66
H327		Liverpool Arms and Former Sacred Heart RC Church and School, Borough Road	St Helens	29	29	29
H328		Alexandra Park - Former Pilkington HQ	St Helens	135	162	162
H329		Former Central Works, Church Road	St Helens	48	48	48
H330		Vacant land adjacent to Rail Line, Elephant Lane	St Helens	90	112	112
H331		Land North and South of Corporation Street	St Helens	135	169	169
H333		Site of former Parr Community High School, Fleet Lane	St Helens	54	54	54
H334		Atlas Street	St Helens	61	61	61
H335		Land adjacent Laffak Road and Carr Mill Road	St Helens	150	150	150
H337	P/2006/1076	Former AC Complex Site, Shaw Street, St Helens	St Helens	196	260	260
H338	P/2018/0882	Land At Former Flats Springfield Road Thatto Heath St Helens	St Helens	30	30	30
H339		Firwood Road (East) Skelmersdale / Lathom South (appn. pending)	West Lancs	200	200	200
H340		Skelmersdale Town Centre (exc extant permissions)	West Lancs	175	245	245
H341		Skelmersdale TC - Findon (Birch Green Road)	West Lancs	102	102	102
H342		Skelmersdale TC - Delf Clough (Evenwood Court)	West Lancs	35	35	35
H343		Yew Tree Farm, Burscough (Phase 1, Redrow)	West Lancs	110	110	110
H344		Yew Tree Farm, Burscough (Phase 2, Anwyl)	West Lancs	242	242	242
H345		Yew Tree Farm, Burscough (Remainder of Outline)	West Lancs	183	183	183
H346		Grove Farm, Ormskirk	West Lancs	212	212	212
H347		Whalleys 4	West Lancs	120	120	120
H348		Whalleys 2	West Lancs	120	120	120
H349		Whalleys 5	West Lancs	164	164	164
H350		Whalleys Cobbs Clough	West Lancs	160	160	160
H351		Chequer Lane (Ph2), Up Holland	West Lancs	116	116	116
H352		Firwood Road (Ph1) Skelmersdale / Lathom South	West Lancs	70	70	70
H353		Firwood Road (North) Skelmersdale / Lathom South	West Lancs	130	130	130
H354		Fine Janes Farm, Halsall	West Lancs	83	83	83
H355		Former Greaves Hall Hospital, Banks	West Lancs	144	144	144
H356		Alty's Brickworks, Hesketh Bank	West Lancs	212	212	212
H357		Land rear of 38 Newarth Lane	West Lancs	10	10	10

WSP Ref	Planning Application (if available)	Development	Location	Number of Houses Completed by 2031	Number of Houses Completed by 2046	Number of Houses Completed by 2061
H358		Land east of Boundary Lane	West Lancs	10	10	10
H359		Former Silver Birch Hotel, Flordon, Skelmersdale	West Lancs	18	18	18
H360		Land west of Guinea Hall Lane, Banks	West Lancs	12	12	12
H361		Sutches Farm, Skelmersdale	West Lancs	23	23	23
H362		Beechtrees, Skelmersdale	West Lancs	34	34	34
H363		3-13 Southport Road, Scarisbrick	West Lancs	38	38	38
H364		188 Southport Road, Scarisbrick	West Lancs	11	11	11
H365		Ashurst Road, Skelmersdale	West Lancs	39	39	39
H366		Abbeystead, Digmoor, Skelmersdale	West Lancs	45	45	45
H367		Moor Farm, 48 School Lane, Downholland	West Lancs	23	23	23
H368		Land to the west of Oasis Close, Rufford	West Lancs	29	29	29
H369		Halton Castle Inn, Crosshall Brow, Westhead	West Lancs	10	10	10
H370		Tanpit Farm, Broad Lane, Downholland	West Lancs	12	12	12
H371		Former playing fields, Barnes Road, Skelmersdale	West Lancs	30	30	30
H372		Former A&K Site, Atkinson Road, Ormskirk	West Lancs	51	51	51
H373		5 Briars Lane, Burscough	West Lancs	42	42	42
H374		Former Digmoor Sports Centre	West Lancs	72	72	72
H375		291 Hesketh Lane, Tarleton	West Lancs	10	10	10
H376		The Windmill, Wigan Road, Ormskirk	West Lancs	12	12	12
H377		42A Eskbank	West Lancs	13	13	13
H378		Land north of Fairstead, Skelmersdale	West Lancs	14	14	14
H379		Land opposite 16-32 Brierfield, Skelmersdale	West Lancs	17	17	17
H380		Land south of Northfield, Skelmersdale	West Lancs	27	27	27
H381		Former ORM Works, Railway Road, Skelmersdale	West Lancs	65	65	65
H382		Burscough AFC, Mart Lane, Burscough	West Lancs	52	52	52
H383		Land at Valera, Plox Brow, Tarleton	West Lancs	14	14	14
H384		Abbey Lane, Burscough	West Lancs	110	110	110
H385		Land between Daresbury Park and Delph Lane	Halton	119	119	119
H386		Crows Nest Farm	Halton	181	181	181
H387		UNNAMED	Halton	175	317	317
H388		Land between Rail Line, Bridgewater Canal and nor	Halton	369	369	369
H390		E-Scape	Halton	117	117	117
H391		Land between Chester Rd and M56 at Preston-on-the	Halton	146	146	146
H393		Land off Coronation Road	Halton	44	44	44
H394		Land to the east of Runcorn Road	Halton	20	20	20
H400		Boundary Farm and Abbey Farm, South Lane	Halton	278	278	278
H402		Watkinson Way Loop	Halton	42	42	42
H404		Lunt's Bridge Farm and Buildings Lunt's Heath Road Widnes	Halton	375	381	381
H405		Land at Mill Green Farm	Halton	433	433	433
H408		Land between the e'way and the Bridgewater Canal	Halton	158	158	158
H409		Land to the north of Keckwick Lane	Halton	16	16	16
H411		Land between Keckwick Brook and WCML	Halton	236	236	236
H412		Land between Keckwick Lane and Delph Lane	Halton	101	101	101
H413		Sandymoor 17A	Halton	14	14	14

WSP Ref	Planning Application (if available)	Development	Location	Number of Houses Completed by 2031	Number of Houses Completed by 2046	Number of Houses Completed by 2061
H414		Land between Stalbridge Dr and WCML	Halton	48	48	48
H415		Land to the east of Village Street	Halton	189	189	189
H416		Poplar Farm	Halton	183	183	183
H419		The Lord Taverners & land adjacent	Halton	35	35	35
H426		Wharford Farm	Halton	135	310	310
H427		Land to the south of Walsingham Drive	Halton	250	250	250
H428		Land between Preston Brook and Red Brow Lane	Halton	190	190	190
H429		Paramount Foods and Surrounds	Halton	58	58	58
H431		Land to the south of Old Quay Street and Mason St	Halton	20	39	39
H433		Sandy Lane to Queensbury Way	Halton	133	133	133
H434		Chapel Lane to Old Upton Lane	Halton	157	209	209
H454		W of Hale Gate Rd	Halton	484	484	484
H456		Land off Harrison Street	Halton	125	125	125
H459		Land off Birch Road	Halton	21	21	21
H460		Land to the west of Grangeway	Halton	14	14	14
H461		Thorn Road Garages	Halton	6	6	6
H466		Land Off Eagles Way (Incl. the Raven), Hallwood Park	Halton	27	70	70

Table A2 Employment Developments

Source	WSP Ref	Ref	Development	Location	Site Area 2031	Site Area 2046	Site Area 2061	area units	site info	Easting	Northing
MottMacDonald	A5036_E1	115A	Unnamed Site	Liverpool	118	118	118	100sqm	B1/B2/B8	334098	390905
MottMacDonald	A5036_E2	459Y	Unnamed Site	Liverpool	30	30	30	100sqm		341583	382879
MottMacDonald	A5036_E5	6624	Unnamed Site	Liverpool	10	10	10	100sqm		340157	391532
MottMacDonald	A5036_E6	6657	Unnamed Site	Liverpool	129	129	129	100sqm		341744	384594
MottMacDonald	A5036_E7	6910	Unnamed Site	Liverpool	60	60	60	100sqm		341365	382863
MottMacDonald	A5036_E8	6913	Unnamed Site	Liverpool	17	17	17	100sqm		333778	392582
MottMacDonald	A5036_E9	2355	Unnamed Site	Liverpool	17	17	17	100sqm		333917	393600
MottMacDonald	A5036_E10	293	Aldi Supermarket	Liverpool	240	240	240	100sqm		342422	384158
MottMacDonald	A5036_E11	293	Aldi Site employment unit	Liverpool	5.56	5.56	5.56	100sqm	B1a/Eg(i) Other		
MottMacDonald	A5036_E12	293	Aldi Site Drive Through Restaurant	Liverpool	3.37	3.37	3.37	100sqm			
MottMacDonald	A5036_E13	293	Aldi Site Petrol Station	Liverpool	5	5	5	filling bays	petrol Station		
MottMacDonald	A5036_E16	EMP-RA6.2	MEA Park West, Wallasey Bridge Road, Birkenhead	Wirral	4.84	8.84	8.84	hectares	B2/B8	329987	390605
MottMacDonald	A5036_E17	EMP-RA6.3	MEA Park East, Beaufort Road, Birkenhead	Wirral	9.02	9.02	9.02	hectares	B2/B8/Port use	330278	390327
MottMacDonald	A5036_E21	EMP-RA8.1	Northside West, Dock Road, Poulton	Wirral	6.28	6.28	6.28	hectares	B2/B8/Sui generis	330701	390642
MottMacDonald	A5036_E22	EMP-RA8.2	SMM Business Park Dock Road, Seacombe	Wirral	3.41	3.42	3.42	hectares	B2/B8	331351	390530
MottMacDonald	A5036_E26	EMP-SA4.1	Land south of Riverbank Road, Bromborough	Wirral	1.01	1.01	1.01	hectares	B2/B8	335507	383566
MottMacDonald	A5036_E30	EMP-SA4.5	North Road Business Park, North Road, Eastham	Wirral	4.64	4.64	4.64	hectares	B2/B8	337818	379500
MottMacDonald	A5036_E35	08/00474/FUL	Land Opposite Contract Chemicals, Bounded By Penrhyn Road/Villiers Road, Knowsley Business Park	Knowsley	1.3	1.3	1.3	hectares			
MottMacDonald	A5036_E36	18/00553/FUL	Jaguar Plant, North Road, Halewood, Knowsley, L24 9LE	Knowsley	5.24	5.24	5.24	100sqm		345239	384426
MottMacDonald	A5036_E37	19/00094/FUL	Land Adjacent To D Evans Electrical, Wilson Road, Huyton, Knowsley, L36 6JF	Knowsley	10.73	10.73	10.73	100sqm		345811	389354
MottMacDonald	A5036_E38	19/00193/FUL	Land Rear Of Units 79 & 80 North Mersey Business Park, Knowsley Industrial Park	Knowsley	2.03	2.03	2.03	100sqm		343978	399461
MottMacDonald	A5036_E39	19/00004/FUL	Yorkshire Imperial Metals Ltd East Lancashire Road	Knowsley	65.03	65.03	65.03	100sqm		-	-
MottMacDonald	A5036_E40	19/00192/FUL	Commercial House Depot Road Knowsley Industrial Park Kirkby Knowsley ,L33 3AR	Knowsley	3.07	3.07	3.07	100sqm		343860	399511
MottMacDonald	A5036_E41	19/00210/FUL	PB Hardwoods 8 Woodward Road Knowsley Industrial Park Kirkby Knowsley L33 7UZ	Knowsley	3.15	3.15	3.15	100sqm		343318	399541
MottMacDonald	A5036_E42	19/00674/FUL	The Custom Complex Yardley Road Knowsley Industrial Park Kirkby L33 7SS	Knowsley	16.12	16.12	16.12	100sqm		343350	398406
MottMacDonald	A5036_E43	19/00520/FUL	Plot B Image Business Park Acornfield Road Knowsley Industrial Park Kirkby Knowsley L33 7UF	Knowsley	53.77	53.77	53.77	100sqm		343790	398879
MottMacDonald	A5036_E45	19/00545/NMA	Jaguar Land Rover North Road Halewood Knowsley L24 9LE	Knowsley	8.9	8.9	8.9	100sqm		345236	384433
MottMacDonald	A5036_E46	20/00221/FUL	Universal Bags And Pallets Unit A Yardley Road Knowsley Industrial Park Kirkby L33 7SS	Knowsley	9.83	9.83	9.83	100sqm		343344	398391
MottMacDonald	A5036_E47	20/00214/FUL	Henry Diaper Lees Road Knowsley Industrial Park Kirkby Knowsley L33 7SA	Knowsley	3.75	3.75	3.75	100sqm		342802	398646
MottMacDonald	A5036_E49	19/00337/NMA	Academy Business Park Lees Road Knowsley Industrial Park Kirkby Knowsley L33 7SA	Knowsley	72.38	72.38	72.38	100sqm		342834	398581
MottMacDonald	A5036_E50	20/00124/NMA	Former Sonae Tfabra Site Moss Lane Kirkby Knowsley L33 7XQ	Knowsley	776.37	776.37	776.37	100sqm		342902	399226
MottMacDonald	A5036_E51	20/00531/FUL	Kiam House Birchill Road Knowsley Industrial Park Kirkby Knowsley L33 7TD	Knowsley	3.64	3.64	3.64	100sqm		343337	399096
MottMacDonald	A5036_E52	20/00376/OUT	Earlsfield (Land Off Knowsley Lane) Huyton Knowsley L34 4AH	Knowsley	305.3	305.3	305.3	100sqm		344236	392662
MottMacDonald	A5036_E53	20/00770/FUL	4-5 Ropers Court, Harrison Collier Sinclair Way Prescott Business Park Prescott L34 1QN	Knowsley	0.54	0.54	0.54	100sqm		346489	392127
MottMacDonald	A5036_E54	20/00689/FUL	Land Adjacent To 17A School Lane Knowsley Business Park Knowsley L34 9EN	Knowsley	1.92	1.92	1.92	100sqm		341969	396437
MottMacDonald	A5036_E55	20/00379/FUL	The Web Complex Admin Road Knowsley Industrial Park Kirkby Knowsley L33 7SF	Knowsley	37.77	37.77	37.77	100sqm		343122	397823
MottMacDonald	A5036_E56	18/00776/HYB	Former Sonae Site Moss Lane / Marl Road Kirkby Knowsley L33 7XQ	Knowsley	743.22	743.22	743.22	100sqm		342968	399239
MottMacDonald	A5036_E57	n/a	Eastern Compound Land, Speke Boulevard, Halewood	Knowsley	15.58	15.58	15.58	hectares		345765	384297
MottMacDonald	A5036_E58	n/a	Part of Dairy Crest / Kraft site, A580	Knowsley	3.97	3.97	3.97	hectares		342050	396756
MottMacDonald	A5036_E59	n/a	Land adjacent Former Ethel Austin Site, Ainsworth Lane	Knowsley	2.25	2.25	2.25	hectares		342437	396745
MottMacDonald	A5036_E60	n/a	Land at corner of A580 / Moorgate Lane	Knowsley	3.27	3.27	3.27	hectares		342001	396920
MottMacDonald	A5036_E61	08/00474/FUL	Pehryhn / Villiers Road	Knowsley	1.31	1.31	1.31	hectares		342998	396541
MottMacDonald	A5036_E62	n/a	Land Between Units 7 And 19 Randles Road, Knowsley Business Park	Knowsley	1.31	1.31	1.31	hectares		342770	396328

Source	WSP Ref	Ref	Development	Location	Site Area 2031	Site Area 2046	Site Area 2061	area units	site info	Easting	Northing
MottMacDonald	A5036_E63	n/a	Land at junction of Penrhyn Road / School Lane, Knowsley Business Park	Knowsley	0.57	0.57	0.57	hectares		0	0
MottMacDonald	A5036_E64	n/a	Land at corner of A580 / Moorgate Lane, Knowsley Industrial Park	Knowsley	3.27	3.27	3.27	hectares		0	0
MottMacDonald	A5036_E65	n/a	Land at junction of Gores Road / Acornfield Road	Knowsley	0.75	0.75	0.75	hectares		0	0
MottMacDonald	A5036_E66	n/a	North Perimeter Road / Moss End Way	Knowsley	5.31	5.31	5.31	hectares		#N/A	#N/A
MottMacDonald	A5036_E67	19/00533/FUL	Moss End Way (West), Knowsley Industrial Park	Knowsley	4.14	4.14	4.14	hectares		345239	384426
MottMacDonald	A5036_E68	n/a	Moss End Way (East), Knowsley Industrial Park	Knowsley	2.09	2.09	2.09	hectares		0	0
MottMacDonald	A5036_E69	n/a	Land at Britonwood Industrial Estate, Knowsley Industrial Park	Knowsley	6.36	6.36	6.36	hectares		0	0
MottMacDonald	A5036_E70	n/a	Land at Marl Road / Woodward Road, Knowsley Industrial Park	Knowsley	0.47	0.47	0.47	hectares		0	0
MottMacDonald	A5036_E71	n/a	Land Bounded By Dale Lane, North Perimeter Road & Woodward Road, Knowsley Industrial Park	Knowsley	3.17	3.17	3.17	hectares		0	0
MottMacDonald	A5036_E72	n/a	Land adjacent to BASF Coatings & Inks Ltd, Ellis Ashton Street, Huyton Business Park	Knowsley	0.9	0.9	0.9	hectares		0	0
MottMacDonald	A5036_E73	n/a	Plot 5, Whiston Enterprise Park, Fallows Way	Knowsley	1.1	1.1	1.1	hectares		0	0
MottMacDonald	A5036_E74	20/00376/OUT	Land At Knowsley Lane Huyton Knowsley	Knowsley	305.3	305.3	305.3	100sqm		0	0
MottMacDonald	A5036_E75	20/00494/HYB	Land South of M62	Knowsley	929.02	929.02	929.02	100sqm		0	0
MottMacDonald	A5036_E77	n/a	Land to the East of Knowsley Industrial Park	Knowsley	7.20	7.20	7.20	hectares		0	0
MottMacDonald	A5036_E78	n/a	UDP Regional Investment Site – Kings Business Park	Knowsley	7.85	7.85	7.85	hectares		0	0
MottMacDonald	A5036_E79	DP/2014/00124	Olympus	Sefton	93	93	93	100sqm		335572	398132
MottMacDonald	A5036_E80	DP/2014/00124	Olympus	Sefton	5	5	5	100sqm			
MottMacDonald	A5036_E81	DP/2014/00131	Unnamed Site	Sefton	0.53	0.53	0.53	hectares		335639	397843
MottMacDonald	A5036_E82	DP/2014/00132	Mersey Reach Phase 1	Sefton	3.46	3.46	3.46	hectares		336225	398797
MottMacDonald	A5036_E83	DP/2014/00136	Unnamed Site	Sefton	1.53	1.53	1.53	hectares		336629	399101
MottMacDonald	A5036_E85	DP/2016/00030	Unnamed Site	Sefton	0.51	0.51	0.51	hectares		336526	398731
MottMacDonald	A5036_E88	DP/2018/00002	Land East of Maghull	Sefton	15	15	15	100sqm			
MottMacDonald	A5036_E89	DP/2018/00002	Land East of Maghull	Sefton	5	5	5	100sqm			
MottMacDonald	A5036_E90	DP/2019/00005	Unnamed Site	Sefton	0.20	0.20	0.20	hectares		336402	397691
MottMacDonald	A5036_E91	DP/2021/00022	formerly Comben house (unoccupied in 2019)	Sefton	2.34	2.34	2.34	hectares		335816	397839
MottMacDonald	A5036_E92	DP/2021/00023	Mersey Reach Phase 2	Sefton	68	68	68	100sqm		336116	398775
MottMacDonald	A5036_E93	DP/2021/00027	Formerly North West Training Council	Sefton	0.93	0.93	0.93	hectares		336309	398958
MottMacDonald	A5036_E95	DP/2021/00034	Unnamed Site	Sefton	0.08	0.08	0.08	hectares		337411	419883
MottMacDonald	A5036_E96	DP/2014/00037	Unnamed Site	Sefton	0.12	0.12	0.12	hectares		332022	399922
MottMacDonald	A5036_E97	DP/2014/00112	Unnamed Site	Sefton	1.00	1.00	1.00	hectares		334008	397186
MottMacDonald	A5036_E98	DP/2018/00038	Unnamed Site	Sefton	0.67	0.67	0.67	hectares		329848	404079
MottMacDonald	A5036_E99	DP/2018/00044	Unnamed Site	Sefton	1.22	1.22	1.22	hectares		335663	415670
MottMacDonald	A5036_E101	DP/2021/00014	Unnamed Site	Sefton	0.06	0.06	0.06	hectares		332447	398735
MottMacDonald	A5036_E102	DP/2021/00019	Unnamed Site	Sefton	0.90	0.90	0.90	hectares		336460	420088
MottMacDonald	A5036_E103	DP/2020/00014	Unnamed Site	Sefton	0.14	0.14	0.14	hectares		334808	416870
MottMacDonald	A5036_E104	DP/2017/00001	Unnamed Site	Sefton	3.34	3.34	3.34	hectares		336704	416843
MottMacDonald	A5036_E105	DP/2020/00002	Unnamed Site	Sefton	0.03	0.03	0.03	hectares		331067	403882
MottMacDonald	A5036_E106	DP/2014/00139	Unnamed Site	Sefton	1.42	1.42	1.42	hectares		337150	420690
MottMacDonald	A5036_E107	DP/2019/00003	Unnamed Site	Sefton	2.57	2.57	2.57	hectares		335735	398094
MottMacDonald	A5036_E108	DP/2019/00008	Unnamed Site	Sefton	0.04	0.04	0.04	hectares		330357	410977
MottMacDonald	A5036_E109	DP/2020/00011	KTC Edible Oils - increasing from 8 to 12 tanks - assume increase of 505 in trips	Sefton	3.60	3.60	3.60	hectares		336256	399433

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Source	WSP Ref	Ref	Development	Location	Site Area 2031	Site Area 2046	Site Area 2061	area units	site info	Easting	Northing
MottMacDonald	A5036_E110	DP/2021/00008	Unnamed Site	Sefton	0.63	0.63	0.63	hectares		336387	399053
MottMacDonald	A5036_E111	DP/2021/00033	Unnamed Site	Sefton	0.49	0.49	0.49	hectares		336377	416565
MottMacDonald	A5036_E112	DP/2018/00031	Unnamed Site	Sefton	0.01	0.01	0.01	hectares	retail	332128	400073
MottMacDonald	A5036_E113	DP/2014/00056	Unnamed Site	Sefton	0.05	0.05	0.05	hectares	retail	332959	417679
MottMacDonald	A5036_E114	DP/2014/00057	Unnamed Site	Sefton	0.07	0.07	0.07	hectares	retail	333295	417888
MottMacDonald	A5036_E115	DP/2014/00058	Unnamed Site	Sefton	0.13	0.13	0.13	hectares	retail	333312	417866
MottMacDonald	A5036_E116	DP/2014/00060	Unnamed Site	Sefton	0.09	0.09	0.09	hectares	retail	336025	415983
MottMacDonald	A5036_E117	DP/2014/00064	Unnamed Site	Sefton	0.04	0.04	0.04	hectares	retail	333004	417724
MottMacDonald	A5036_E118	DP/2014/00065	Unnamed Site	Sefton	0.09	0.09	0.09	hectares	retail	336045	415912
MottMacDonald	A5036_E119	DP/2016/00028	Sainsburys	Sefton	111	111	111	100sqm	retail	335974	416003
MottMacDonald	A5036_E120	DP/2016/00029	supermarket	Sefton	13	13	13	100sqm	retail	334417	396584
MottMacDonald	A5036_E121	DP/2021/00026	Unnamed Site	Sefton	0.42	0.42	0.42	hectares	retail	337028	398645
MottMacDonald	A5036_E122	DP/2021/00032	Unnamed Site	Sefton	0.04	0.04	0.04	hectares	retail	334414	394564
MottMacDonald	A5036_E123	DP/2021/00036	Aldi supermarket	Sefton	18	18	18	100sqm	retail	337236	400771
MottMacDonald	A5036_E124	DP/2021/00002	Unnamed Site	Sefton	0.03	0.03	0.03	hectares	retail	332141	399614
MottMacDonald	A5036_E125	DP/2018/00033	Unnamed Site	Sefton	0.01	0.01	0.01	hectares	retail	332103	399990
MottMacDonald	A5036_E126	DP/2021/00004	Unnamed Site	Sefton	0.03	0.03	0.03	hectares	retail	336295	418768
MottMacDonald	A5036_E127	DP/2018/00047	Unnamed Site	Sefton	0.02	0.02	0.02	hectares	retail	333660	417174
MottMacDonald	A5036_E128	DP/2020/00005	Unnamed Site	Sefton	0.17	0.17	0.17	hectares	retail	337026	399282
MottMacDonald	A5036_E129	DP/2021/00013	Unnamed Site	Sefton	1.92	1.92	1.92	hectares	retail	339744	402310
MottMacDonald	A5036_E130	DP/2019/00009	Unnamed Site	Sefton	0.02	0.02	0.02	hectares	retail	331915	397966
MottMacDonald	A5036_E131	DP/2021/00003	Unnamed Site	Sefton	0.05	0.05	0.05	hectares	retail	329659	407179
MottMacDonald	A5036_E132	DP/2018/00010	Unnamed Site	Sefton	0.01	0.01	0.01	hectares	retail	333388	400787
MottMacDonald	A5036_E133	DP/2020/00008	Unnamed Site	Sefton	0.01	0.01	0.01	hectares	retail	333629	417036
MottMacDonald	A5036_E134	DP/2021/00017	Unnamed Site	Sefton	0.01	0.01	0.01	hectares	retail	335508	399498
MottMacDonald	A5036_E135	DP/2021/00025	Unnamed Site	Sefton	0.01	0.01	0.01	hectares	retail	333248	397062
MottMacDonald	A5036_E136	DP/2021/00037	Unnamed Site	Sefton	0.01	0.01	0.01	hectares	retail	332606	397456
MottMacDonald	A5036_E137	P/2020/0061	Omega South Western Extension, Land north of Finches Plantation, Bold	St Helens	815.7	1,239	1239.3	100sqm		355246	390438
MottMacDonald	A5036_E139	P/2015/0571	Land north of Penny Lane, Haydock	St Helens	11.05	11.05	11.05	hectares		357545	397938
MottMacDonald	A5036_E141	SEA	Land to the west of Haydock Industrial Estate, Haydock	St Helens	7.75	7.75	7.75	hectares		355900	398144
MottMacDonald	A5036_E144	P/2018/0048	Parkside West, Newton-le-Willows	St Helens	929	929	929	100sqm		360005	394686
MottMacDonald	A5036_E145	9EA	Land to the West of Sandwash Close, Rainford	St Helens	6.9	6.9	6.9	hectares		348824	399602
MottMacDonald	A5036_E146	P/2016/0567, P/2018/0856	Land at Lea Green Farm West, Thatto Heath	St Helens	3.84	3.84	3.84	hectares		350802	392315
MottMacDonald	A5036_E147	P/2016/0903	Gerards Park, College Street, St. Helens Town Centre	St Helens	0.95	0.95	0.95	hectares		351516	396167
MottMacDonald	A5036_E148	P/2018/0044	Unit 33 & 34 Andover Road Industrial Estate Andover Road Haydock	St Helens	58.08	58.08	58.08	100sqm		356273	397972
MottMacDonald	A5036_E149	P/2017/0365	14 Reginald Road Industrial Park Brindley Road Bold St Helens	St Helens	55.1	55.1	55.1	100sqm		353514	392578
MottMacDonald	A5036_E150	P/2019/0826	50 Abbotsfield Road Bold St Helens	St Helens	60.79	60.79	60.79	100sqm		353113	392351
MottMacDonald	A5036_E151	P/2021/0120	Land Site Of Former United Glass Peasley Cross Lane St Helens	St Helens	164.39	164.39	164.39	100sqm		351813	394574

Source	WSP Ref	Ref	Development	Location	Site Area 2031	Site Area 2046	Site Area 2061	area units	site info	Easting	Northing
MottMacDonald	A5036_E152	P/2021/1023	St Helens College Technology Campus Waterside St Helens	St Helens	18.27	18.27	18.27	100sqm		351805	395935
MottMacDonald	A5036_E153	E232	Unnamed Site	West Lancashire	0.85	0.85	0.85	hectares		345007	411269
MottMacDonald	A5036_E154	E227	Unnamed Site	West Lancashire	0.71	0.71	0.71	hectares		342901.5	410686.1
MottMacDonald	A5036_E155	E225	Unnamed Site	West Lancashire	10.90	10.90	10.90	hectares		346397.7	407583.7
MottMacDonald	A5036_E156	E224	Unnamed Site	West Lancashire	0.37	0.37	0.37	hectares		347581.3	404985
MottMacDonald	A5036_E157	E22	Unnamed Site	West Lancashire	4.42	4.42	4.42	hectares		342913.4	410521
MottMacDonald	A5036_E158	E22	Unnamed Site	West Lancashire	0.67	0.67	0.67	hectares		342969	410464.6
MottMacDonald	A5036_E159	E219	Unnamed Site	West Lancashire	0.87	0.87	0.87	hectares		348454.9	406588.6
MottMacDonald	A5036_E160	E218	Unnamed Site	West Lancashire	0.05	0.05	0.05	hectares		344980.1	421897.1
MottMacDonald	A5036_E161	E215	Unnamed Site	West Lancashire	0.21	0.21	0.21	hectares		349481.1	404244
MottMacDonald	A5036_E162	E210	Unnamed Site	West Lancashire	10.00	10.00	10.00	hectares		343521	411367.4
MottMacDonald	A5036_E163	E196	Unnamed Site	West Lancashire	2.09	2.09	2.09	hectares		350112.3	403630.6
MottMacDonald	A5036_E164	E193	Unnamed Site	West Lancashire	4.47	4.47	4.47	hectares		343331.5	400835.9
MottMacDonald	A5036_E165	E191	Unnamed Site	West Lancashire	0.43	0.43	0.43	hectares		350600.8	403899.7
MottMacDonald	A5036_E167	E179	Unnamed Site	West Lancashire	3.26	3.26	3.26	hectares		347251.9	407399
MottMacDonald	A5036_E168	E178	Unnamed Site	West Lancashire	1.09	1.09	1.09	hectares		345281.3	419920.2
MottMacDonald	A5036_E169	E168	Unnamed Site	West Lancashire	1.37	1.37	1.37	hectares		347522.8	405606.8
MottMacDonald	A5036_E170	E163	Unnamed Site	West Lancashire	0.39	0.39	0.39	hectares		342266.6	405264.2
MottMacDonald	A5036_E171	E162	Unnamed Site	West Lancashire	0.26	0.26	0.26	hectares		340826	406726
MottMacDonald	A5036_E172	E154	Unnamed Site	West Lancashire	2.83	2.83	2.83	hectares		348900	406275.3
MottMacDonald	A5036_E173	E154	Unnamed Site	West Lancashire	4.64	4.64	4.64	hectares		348874.7	406244.8
MottMacDonald	A5036_E174	E150	Unnamed Site	West Lancashire	0.67	0.67	0.67	hectares		348289.6	405471.9
MottMacDonald	A5036_E175	E146	Unnamed Site	West Lancashire	0.14	0.14	0.14	hectares		349299.9	404016.5
MottMacDonald	A5036_E176	E145	Unnamed Site	West Lancashire	10.03	10.03	10.03	hectares		339734.8	420398.2
MottMacDonald	A5036_E177	E139	Unnamed Site	West Lancashire	5.53	5.53	5.53	hectares		348594.4	406305.4
MottMacDonald	A5036_E178	E125	Unnamed Site	West Lancashire	4.06	4.06	4.06	hectares		346912.7	407346.4
MottMacDonald	A5036_E179	E125	Unnamed Site	West Lancashire	4.02	4.02	4.02	hectares		346913.7	407345.8
MottMacDonald	A5036_E180	E07	Unnamed Site	West Lancashire	0.48	0.48	0.48	hectares		350729.7	404139.8
MottMacDonald	A5036_E181	A	Unnamed Site	West Lancashire	0.05	0.05	0.05	hectares		344980.1	421897.1
MottMacDonald	A5036_E184	H2177	Former Brake Brothers, Aston Fields Road	Halton	90.19	90.19	90.19	100sqm	B1, B2, B8	356103	379685
MottMacDonald	A5036_E186	H1972	Land north of Ditton Junction	Halton	96.6	96.6	96.6	100sqm	B8	348612	384727
MottMacDonald	A5036_E187	H2309	40 Deacon Road	Halton	0.91	0.91	0.91	100sqm	B1a	351696	386146
MottMacDonald	A5036_E188	H2321	Unit 2, Kingfisher Business Park	Halton	2	2	2	100sqm	B8	352747	385537
MottMacDonald	A5036_E189	H2339	Secanim, Desoto Road	Halton	5.67	5.67	5.67	100sqm	B2	350131	384114
MottMacDonald	A5036_E190	H2342	Superior Sandwiches, Pitt Street	Halton	1.44	1.44	1.44	100sqm	SG	351200	384466
MottMacDonald	A5036_E191	H2350	Land At Edison Road, Astmoor Industrial Estate	Halton	15.6	15.6	15.6	100sqm	B8	352858	383192

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Source	WSP Ref	Ref	Development	Location	Site Area 2031	Site Area 2046	Site Area 2061	area units	site info	Easting	Northing
MottMacDonald	A5036_E192	H2355	Former Smith Brothers Services Yard, Ditton Road (West)	Halton	3.04	3.04	3.04	100sqm	B8	349451	384906
MottMacDonald	A5036_E193	19/00305/COU	Land between Astmoor Road and the busway, Astmoor	Halton	1.02	1.02	1.02	hectares	B8	352575	383175
MottMacDonald	A5036_E194	18/00018/FUL	Manor Park Industrial Estate Stuart Road	Halton	8.24	8.24	8.24	100sqm	E(g), B2, B8	355209	383754
MottMacDonald	A5036_E195	18/00018/FUL	Manor Park Industrial Estate Stuart Road	Halton	17.73	17.73	17.73	100sqm	B2/B8	355209	383754
MottMacDonald	A5036_E197	19/00017/COU	Unit 8 EBL Centre, Picow Farm Road	Halton	0.925	0.925	0.925	100sqm	SG	350353	382324
MottMacDonald	A5036_E198	18/00578/FUL	Inovyn Chlor Vinyls Ltd, Runcorn Site, South Parade.	Halton	67.06	67.06	67.06	100sqm	E(g)(i)	350238	380927
MottMacDonald	A5036_E199	18/00578/FUL	Inovyn Chlor Vinyls Ltd, Runcorn Site, South Parade.	Halton	10.78	10.78	10.78	100sqm	E(e)	350238	380927
MottMacDonald	A5036_E203	19/00482/COU	130-132 Widnes Road	Halton	1.53	1.53	1.53	100sqm	E(e)	351649	385772
MottMacDonald	A5036_E204	19/00261/FUL	Land To The North West Of Foundry House	Halton	11.19	1119	1119	100sqm	B2	349277	384281
MottMacDonald	A5036_E206	20/00093/FUL	The Commercial Hotel, 3 Page Lane	Halton	3.3	3.3	3.3	100sqm	E(g)(i)	352266	386158
MottMacDonald	A5036_E208	20/00257/COU	Unit 7, Teal Business Park Tanhouse Lane	Halton	2.69	2.69	2.69	100sqm	E(d)	352448	385554
MottMacDonald	A5036_E210	14/00546/FUL	Land adjacent to Brindley Road and Astmoor Road	Halton	4.12	4.12	4.12	100sqm	B2	353747	383318
MottMacDonald	A5036_E211	14/00546/FUL	Land adjacent to Brindley Road and Astmoor Road	Halton	0.55	0.55	0.55	100sqm	E(g)(i)	353747	383318
MottMacDonald	A5036_E212	14/00546/FUL	Land adjacent to Brindley Road and Astmoor Road	Halton	4.11	4.11	4.11	100sqm	B8	353747	383318
MottMacDonald	A5036_E213	18/00405/FUL	Everite Road Site	Halton	12.52	12.52	12.52	100sqm	B2	348839	385298
MottMacDonald	A5036_E214	18/00405/FUL	Everite Road Site	Halton	8.6	8.6	8.6	100sqm	E(g)(i)	348839	385298
MottMacDonald	A5036_E215	17/00556/FUL	Land North of Daresbury, Keckwick Lane	Halton	37.75	37.75	37.75	100sqm	E(g)(i)	357855	383157
MottMacDonald	A5036_E216	19/00240/FUL	Unit 1 (Phase 1), Land off Gorse Lane	Halton	365.81	365.81	365.81	100sqm	E(g), B2, B8	353000	386118
MottMacDonald	A5036_E218	19/00415/COU	Priory House, Northway	Halton	9.13	9.13	9.13	100sqm	SG	353793	381545
MottMacDonald	A5036_E220	19/00518/FUL	Former Widnes Timber Centre Land Off Foundry Lane	Halton	3.49	3.49	3.49	100sqm	E(g)(iii)	349007	384240
MottMacDonald	A5036_E221	20/00110/FUL	Land south of Mathieson Road, Viking Park	Halton	35.66	35.66	35.66	100sqm	B8	350305	384321
MottMacDonald	A5036_E222	20/00110/FUL	Land south of Mathieson Road, Viking Park	Halton	4.64	4.64	4.64	100sqm	B1a	350305	384321
MottMacDonald	A5036_E224	19/00389/COU	Bridgewater Park (Formerly Holland House), Hardwick Road, Astmoor	Halton	1.2314			hectares	B2		
MottMacDonald	A5036_E226	20/00414/COU	16 Berkeley Court	Halton	0.2194			hectares	B1/B2/B8		
MottMacDonald	A5036_E227	20/00355/FUL	Unit 2, Goddard Road, Astmoor Industrial Estate	Halton	5.15	5.15	5.15	100sqm	E(g)(i)	353156	383345
MottMacDonald	A5036_E228	20/00355/FUL	Unit 2, Goddard Road, Astmoor Industrial Estate	Halton	4.42	4.42	4.42	100sqm	B2	353156	383345
MottMacDonald	A5036_E229	20/00265/COU	Flat above Appleton Garage, Appleton Village	Halton	1.62	1.62	1.62	100sqm	B1a	351569	386224
MottMacDonald	A5036_E230	21/00046/FUL	Ikon House, Tudor Road	Halton	5.81	5.81	5.81	100sqm	E(g), B2, B8	355079	383314
MottMacDonald	A5036_E231	20/00544/FUL	Former ATS Building, Tanhouse Lane	Halton	43.81	43.81	43.81	100sqm	B8	352466	385674
MottMacDonald	A5036_E232	20/00544/FUL	Former ATS Building, Tanhouse Lane	Halton	1.26	1.26	1.26	100sqm	E(g)(i)	352466	385674
MottMacDonald	A5036_E233	20/00544/FUL	Former ATS Building, Tanhouse Lane	Halton	6.97	6.97	6.97	100sqm	B2	352466	385674
MottMacDonald	A5036_E249	E10	Land between Rail Line, Bridgewater Canal and Keck	Halton	380	380	380	employees	2031	357434	383415
MottMacDonald	A5036_E250	E04	Daresbury Sci Tech	Halton	1518	1518	1518	employees	2023	357917	383112
MottMacDonald	A5036_E252	E05	Land between Rail Line, Bridgewater Canal and Keck	Halton	844	844	844	employees	2028	357329	383324
MottMacDonald	A5036_E253	E11	Land between Delph Lane and Sci Tech Daresbury	Halton	591	591	591	employees	2024	357328	382740

Table A3 Infrastructure

ID	Schemes	Local Authority	Likelihood
1	A570 Corridor Improvements	Liverpool	Complete
2	A580/A570 Windle Island Improvement	St Helens	Complete
3	A59 Penwortham Bypass	South Ribble	Complete
4	A63 Castle Street	Kingston Upon Hull	Near Certain
5	A630 Parkway Widening	Rotherham	Complete
6	A650 Hardings Road Improvements	Bradford	Complete
7	Congleton Link Road	Cheshire East	Complete
8	Glasshoughton Southern Link Road	Wakefield	Complete
9	Harrogate Road New Link Junction	Harrogate	Complete
10	Hatfield Link Road	Doncaster	Complete
11	M181	North Lincolnshire	Complete
12	Heyhouse Link	Fylde	Near Certain
13	M56 Junction 6 to 8	Trafford	Complete
14	M6 Junction 21A to 26	Warrington	Near Certain
15	M62 Junction 19 Heywood Link Road	Rochdale	Complete
16	M62 Junction 19 Improvements	Rochdale	Complete
17	M62 Junction 10 - 12	Warrington	Complete
18	Westwood Park A49 Link Road and Marus Bridge Roundabout	Warrington	Complete
19	M62 Junction 25 to 30 ALR	Kirkless/Leeds (Yorkshire)	Near Certain
20	M621 Junction 1 to 7	Leeds	Near Certain
21	Poynton Relief Road	Cheshire East	Complete
22	Preston West Distributor and East West Link Road	Lancashire	Complete
23	Warrington Centre Park Link	Warrington	Complete
24	Warrington East Phases 2 & 3	Warrington	Complete
25	Windy Harbour to Skippool	Fylde/Wyre	Near Certain
26	A61 Westwood Roundabout	Barnsley	Near Certain
27	M6 Junction 19	Cheshire East	Complete
28	A582 South Ribble Western Distributor Widening	South Ribble	Near Certain
29	Parkside Link Road	St Helens	Near Certain
30	A565 Dualling	Sefton	Complete
31	M58 Junction 1 Improvement	Sefton	Complete
32	A59 Northway Junction Improvements	Sefton	Complete

Table A4Trip Rates

	Cars						LGV						HGV						unit
	AM		IP		PM		AM		IP		PM		AM		IP		PM		
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	
Industrial Estate	0.185	0.045	0.081	0.095	0.054	0.194	0.054	0.049	0.046	0.046	0.015	0.026	0.012	0.014	0.014	0.015	0.006	0.006	employees
Industrial Estate	5.868	1.561	3.047	3.797	1.885	6.196	1.876	1.658	1.495	1.521	0.521	0.903	0.449	0.5	0.546	0.555	0.254	0.204	Site Area hectares
Industrial Estate	0.211	0.056	0.100	0.119	0.067	0.223	0.066	0.059	0.053	0.054	0.018	0.031	0.015	0.017	0.018	0.018	0.010	0.007	GFA 100 sqm
Industrial Unit	0.125	0.01	0.038	0.053	0.021	0.114	0.014	0.01	0.013	0.014	0.004	0.008	0.01	0.008	0.010	0.009	0.004	0.003	employees
Industrial Unit	12.964	1.069	3.989	5.488	2.254	11.934	1.449	1.021	1.344	1.463	0.403	0.782	1.068	0.855	1.016	0.917	0.356	0.261	Site Area hectares
Industrial Unit	0.299	0.025	0.092	0.126	0.052	0.274	0.034	0.024	0.031	0.034	0.009	0.018	0.024	0.019	0.024	0.021	0.008	0.006	GFA 100 sqm
Office - non city centre	0.164	0.016	0.030	0.037	0.015	0.141	0.005	0.003	0.004	0.004	0.001	0.002	0.001	0	0.000	0.000	0	0	employees
Office - non city centre	1.172	0.113	0.210	0.263	0.105	0.988	0.039	0.021	0.026	0.028	0.007	0.015	0.006	0.004	0.002	0.002	0	0.001	GFA 100 sqm
Office - city centre	0.121	0.018	0.040	0.042	0.015	0.089	0.001	0.001	0.004	0.004	0	0.001	0.001	0.001	0.000	0.000	0	0	employees
Office - city centre	0.371	0.045	0.109	0.120	0.048	0.248	0.005	0.003	0.012	0.012	0.003	0.007	0.003	0.003	0.001	0.001	0	0	GFA 100 sqm
Storage B8	0.059	0.015	0.033	0.042	0.022	0.072	0.020	0.014	0.014	0.017	0.008	0.008	0.030	0.036	0.032	0.031	0.036	0.027	employees
Storage B8	0.076	0.020	0.043	0.055	0.028	0.094	0.025	0.019	0.018	0.022	0.011	0.01	0.038	0.047	0.042	0.040	0.047	0.035	GFA 100 sqm
Mixed Private Housing	0.100	0.276	0.113	0.112	0.244	0.129	0.011	0.013	0.018	0.018	0.016	0.012	0.001	0.000	0.002	0.002	0	0.001	dwelling
Local shops	3.732	3.311	4.524	4.519	5.276	5.535	0.606	0.599	0.509	0.515	0.532	0.576	0.074	0.067	0.040	0.039	0.022	0.015	GFA 100 sqm
Indoor sports	0.656	0.588	0.730	0.745	1.958	1.404	0.011	0.011	0.049	0.205	0.079	0.079	0.000	0.000	0.002	0.000	0	0	GFA 100 sqm
Clinics	0.750	0.042	0.806	0.799	0.417	0.75	0.042	0.042	0.042	0.049	0	0	0.000	0.000	0.000	0.000	0	0	GFA 100 sqm
Supermarket	2.623	2.078	4.309	4.229	3.904	4.184	0.158	0.140	0.194	0.186	0.153	0.167	0.027	0.027	0.126	0.121	0.009	0.014	GFA 100 sqm
Petrol Station	4.875	4.625	5.125	5.035	5.125	5.291	1.333	1.083	5.167	5.250	0.542	0.5	0.167	0.208	0.042	0.250	0	0	GFA 100 sqm
College University	0.813	0.218	1.024	1.207	0.182	0.349	0.018	0.009	0.057	0.062	0.007	0.008	0.001	0.001	0.011	0.010	0	0	GFA 100 sqm
Drive Through Restaurant	12.667	11.935	14.400	14.135	18.475	18.507	2.409	2.409	12.311	12.393	0.933	1.046	0.108	0.151	0.499	0.451	0	0.016	GFA 100 sqm
Flats	0.049	0.172	0.063	0.065	0.143	0.066	0.007	0.010	0.010	0.011	0.008	0.005	0.001	0.001	0.001	0.001	0	0.001	dwelling

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Appendix B: TEMPRO 8 and NTP22 Growth Factors - Core

TEMPRO Factors for Merseyside and West Lancashire are given below.

Table B1 Tempro Growth Factors 2019 to 2031 AM Peak Core

2019 to 2031 AM	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
Liverpool	1.152	1.104	1.144	1.106	1.125	1.104	1.159	1.159	1.064	1.064
Knowsley	1.107	1.093	1.105	1.093	1.113	1.100	1.159	1.159	1.064	1.064
Wirral	1.080	1.102	1.086	1.104	1.080	1.097	1.159	1.159	1.064	1.064
Sefton	1.075	1.103	1.083	1.106	1.085	1.100	1.159	1.159	1.064	1.064
St. Helens	1.083	1.086	1.084	1.085	1.084	1.094	1.159	1.159	1.064	1.064
West Lancs	1.059	1.083	1.064	1.084	1.073	1.083	1.159	1.159	1.064	1.064

Table B2 Tempro Growth Factors 2019 to 2031 Inter Peak Core

2019 to 2031 IP	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
Liverpool	1.113	1.123	1.106	1.109	1.112	1.114	1.159	1.159	1.064	1.064
Knowsley	1.091	1.092	1.093	1.090	1.104	1.106	1.159	1.159	1.064	1.064
Wirral	1.088	1.083	1.096	1.095	1.088	1.087	1.159	1.159	1.064	1.064
Sefton	1.084	1.078	1.095	1.095	1.092	1.090	1.159	1.159	1.064	1.064
St. Helens	1.077	1.076	1.082	1.082	1.091	1.092	1.159	1.159	1.064	1.064
West Lancs	1.067	1.062	1.075	1.074	1.078	1.079	1.159	1.159	1.064	1.064

Table B3 Tempro Growth Factors 2019 to 2031 PM Peak Core

2019 to 2031 PM	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
Liverpool	1.102	1.147	1.104	1.134	1.112	1.120	1.159	1.159	1.064	1.064
Knowsley	1.088	1.101	1.093	1.100	1.101	1.106	1.159	1.159	1.064	1.064
Wirral	1.096	1.076	1.100	1.087	1.088	1.082	1.159	1.159	1.064	1.064
Sefton	1.095	1.068	1.101	1.084	1.090	1.084	1.159	1.159	1.064	1.064
St. Helens	1.080	1.077	1.084	1.082	1.091	1.086	1.159	1.159	1.064	1.064
West Lancs	1.077	1.053	1.081	1.065	1.077	1.072	1.159	1.159	1.064	1.064

Table B4 Temporo Growth Factors 2019 to 2046 AM Peak Core

2019 to 2046 AM	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
Liverpool	1.266	1.166	1.249	1.169	1.231	1.185	1.389	1.389	1.134	1.134
Knowsley	1.191	1.152	1.186	1.154	1.199	1.178	1.389	1.389	1.134	1.134
Wirral	1.101	1.159	1.117	1.163	1.129	1.161	1.389	1.389	1.134	1.134
Sefton	1.111	1.160	1.126	1.166	1.143	1.169	1.389	1.389	1.134	1.134
St. Helens	1.125	1.136	1.131	1.138	1.142	1.162	1.389	1.389	1.134	1.134
West Lancs	1.075	1.137	1.092	1.140	1.116	1.146	1.389	1.389	1.134	1.134

Table B5 Temporo Growth Factors 2019 to 2046 Inter Peak Core

2019 to 2046 IP	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
Liverpool	1.183	1.201	1.170	1.175	1.210	1.211	1.389	1.389	1.134	1.134
Knowsley	1.148	1.153	1.152	1.150	1.189	1.192	1.389	1.389	1.134	1.134
Wirral	1.120	1.108	1.144	1.141	1.150	1.148	1.389	1.389	1.134	1.134
Sefton	1.119	1.111	1.145	1.145	1.159	1.157	1.389	1.389	1.134	1.134
St. Helens	1.113	1.110	1.128	1.127	1.160	1.160	1.389	1.389	1.134	1.134
West Lancs	1.094	1.084	1.120	1.118	1.134	1.134	1.389	1.389	1.134	1.134

Table B6 Temporo Growth Factors 2019 to 2046 PM Peak Core

2019 to 2046 PM	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
Liverpool	1.160	1.255	1.164	1.226	1.199	1.216	1.389	1.389	1.134	1.134
Knowsley	1.141	1.176	1.152	1.173	1.180	1.187	1.389	1.389	1.134	1.134
Wirral	1.141	1.089	1.153	1.119	1.140	1.129	1.389	1.389	1.134	1.134
Sefton	1.142	1.096	1.156	1.125	1.149	1.139	1.389	1.389	1.134	1.134
St. Helens	1.122	1.112	1.132	1.126	1.152	1.144	1.389	1.389	1.134	1.134
West Lancs	1.121	1.061	1.132	1.093	1.128	1.114	1.389	1.389	1.134	1.134

Table B7 Temporo Growth Factors 2019 to 2061 AM Peak Core

	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
2019 to 2061 AM										
Liverpool	1.303	1.183	1.282	1.188	1.301	1.244	1.565	1.565	1.173	1.173
Knowsley	1.217	1.169	1.212	1.172	1.262	1.237	1.565	1.565	1.173	1.173
Wirral	1.103	1.174	1.123	1.181	1.173	1.213	1.565	1.565	1.173	1.173
Sefton	1.119	1.176	1.137	1.184	1.191	1.222	1.565	1.565	1.173	1.173
St. Helens	1.131	1.148	1.140	1.152	1.187	1.212	1.565	1.565	1.173	1.173
West Lancs	1.069	1.151	1.091	1.157	1.155	1.196	1.565	1.565	1.173	1.173

Table B8 Temporo Growth Factors 2019 to 2061 Inter Peak Core

	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
2019 to 2061 IP										
Liverpool	1.199	1.220	1.188	1.195	1.279	1.281	1.565	1.565	1.173	1.173
Knowsley	1.161	1.168	1.169	1.167	1.255	1.258	1.565	1.565	1.173	1.173
Wirral	1.125	1.111	1.157	1.154	1.204	1.202	1.565	1.565	1.173	1.173
Sefton	1.125	1.116	1.158	1.159	1.216	1.214	1.565	1.565	1.173	1.173
St. Helens	1.116	1.112	1.139	1.137	1.213	1.213	1.565	1.565	1.173	1.173
West Lancs	1.095	1.081	1.130	1.128	1.182	1.183	1.565	1.565	1.173	1.173

Table B9 Temporo Growth Factors 2019 to 2061 PM Peak Core

	Commute - UC2		Employers Business - UC1		Other - UC3		LGV - UC4		HGV - UC5	
	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest	Origin	Dest
2019 to 2061 PM										
Liverpool	1.172	1.284	1.182	1.254	1.254	1.273	1.565	1.565	1.173	1.173
Knowsley	1.153	1.196	1.169	1.195	1.231	1.242	1.565	1.565	1.173	1.173
Wirral	1.151	1.087	1.168	1.126	1.181	1.168	1.565	1.565	1.173	1.173
Sefton	1.151	1.098	1.171	1.136	1.194	1.182	1.565	1.565	1.173	1.173
St. Helens	1.128	1.113	1.144	1.134	1.192	1.183	1.565	1.565	1.173	1.173
West Lancs	1.129	1.050	1.145	1.095	1.166	1.148	1.565	1.565	1.173	1.173

Table B10 NTP22 Growth Factors – North West

	2019 to 2031	2019 to 2046	2019 to 2061
LGV Core	1.159	1.389	1.565
LGV High Economy	1.229	1.631	2.011
LGV Low Economy	1.108	1.213	1.255
HGV Core	1.064	1.134	1.173
HGV High Economy	1.099	1.227	1.338
HGV Low Economy	1.056	1.090	1.083

Table B11 Liverpool Port Growth Factors

	Core Growth			High Growth			Low Growth		
	2019 to 2031	2019 to 2046	2019 to 2061	2019 to 2031	2019 to 2046	2019 to 2061	2019 to 2031	2019 to 2046	2019 to 2061
Seaforth Dock	1.13	1.38	1.67	1.18	1.51	1.92	1.12	1.33	1.55
Brocklebank Dock	1.06	1.27	1.54	1.11	1.38	1.76	1.06	1.22	1.42

Appendix C: Development Trip Totals

Appendix C shows the number of development trips in PCU.

Table C1 Development Trip Totals (PCU)

	Commute - UC2	Employers Business - UC1	Other - UC3	LGV - UC4	HGV - UC5
2031 AM	12,651	2,832	17,131	3,184	3,248
2046 AM	15,014	3,361	20,348	3,928	4,035
2061 AM	15,014	3,361	20,348	3,928	4,035
2031 IP	2,767	1,771	16,198	3,486	3,517
2046 IP	3,267	2,089	19,146	4,319	4,361
2061 IP	3,267	2,089	19,146	4,319	4,361
2031 PM	11,135	2,021	19,591	2,163	2,595
2046 PM	13,236	2,364	23,207	2,682	3,249
2061 PM	13,236	2,364	23,207	2,682	3,249

Appendix D: Comparison of Core Growth Traffic Flows: DM vs DS

Appendix D shows the differences in flow between the DM and DS, from the SATURN model. The plots only show the differences in existing links. The flows on the new scheme are not shown.

2031 Comparisons

Figure D-0-1 to Figure D-0-3 show the difference in traffic flow between the Do Minimum scenario and Do Something scenario in the future year 2031.

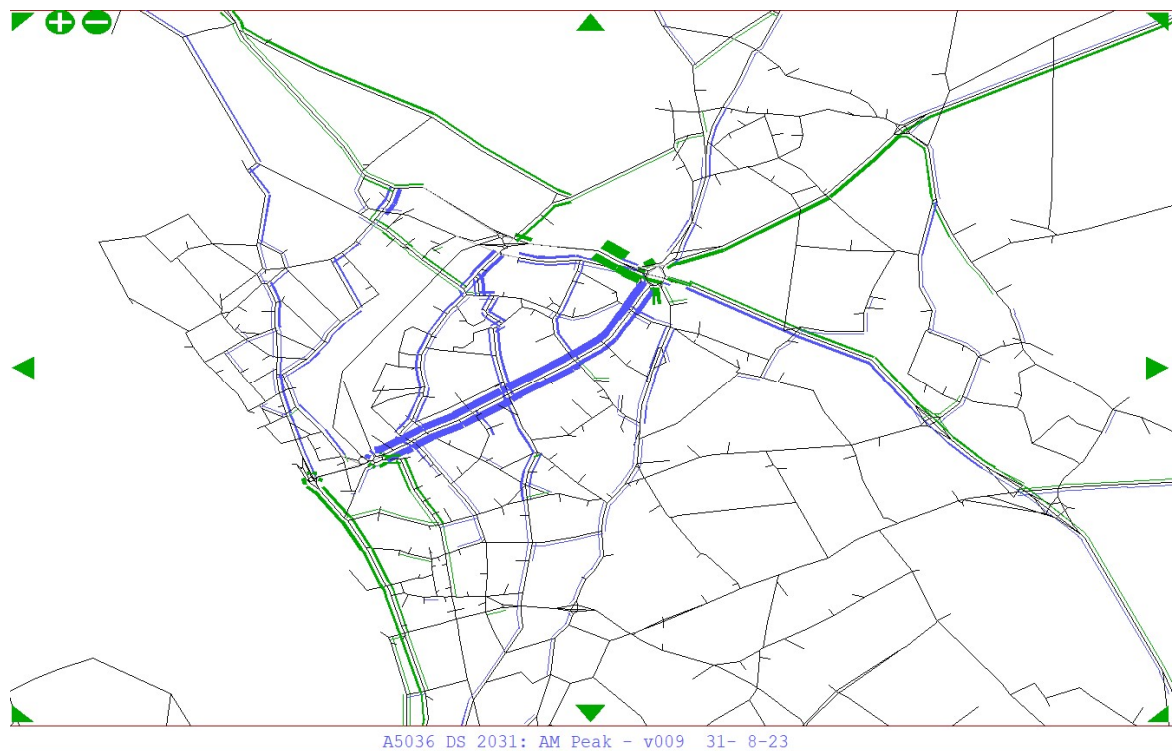


Figure D-0-1 DM vs DS 2031 AM

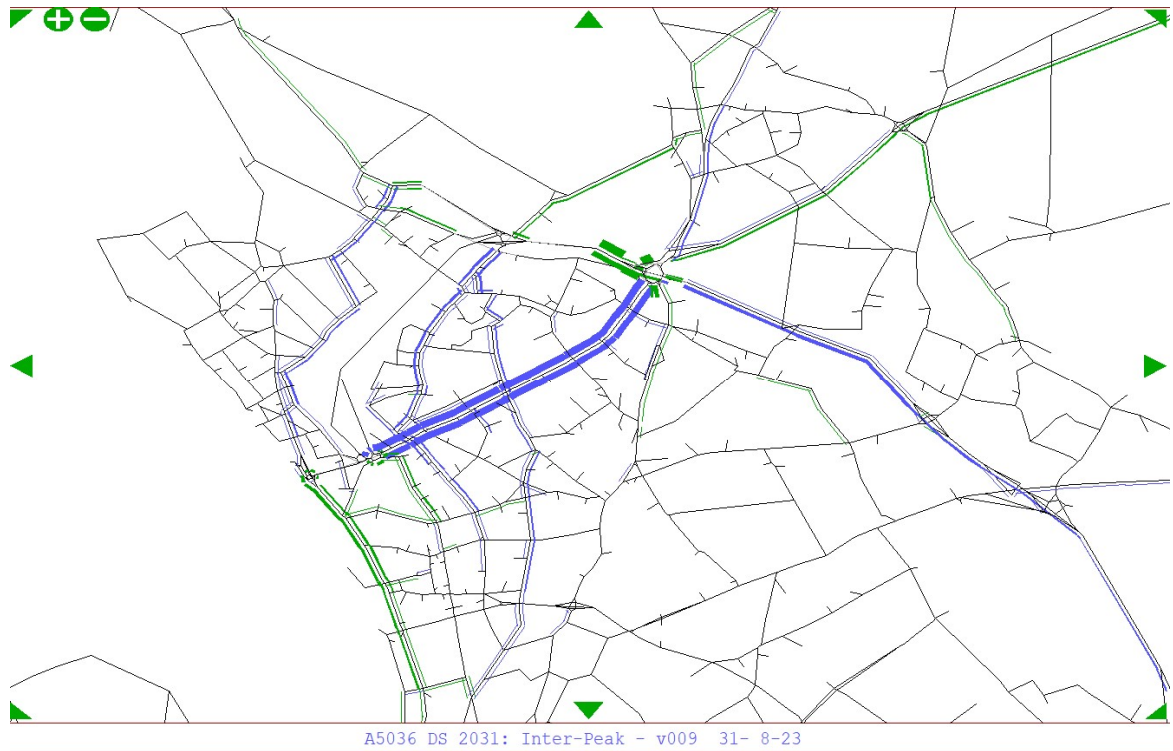


Figure D-0-2 DM vs DS 2031 IP

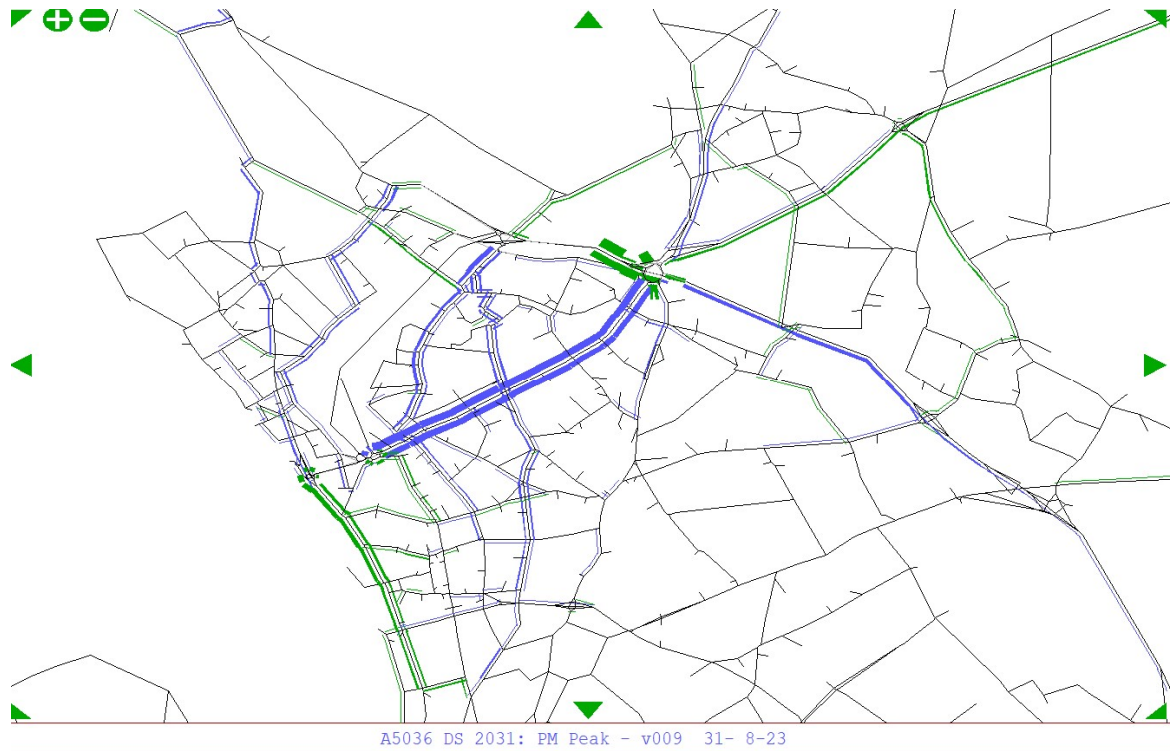


Figure D-0-3 DM vs DS 2031 PM

2046 Comparisons

Figure D-0-4 to Figure D-0-6 show the difference in traffic flow between the Do Minimum scenario and Do Something scenario in the future year 2046.

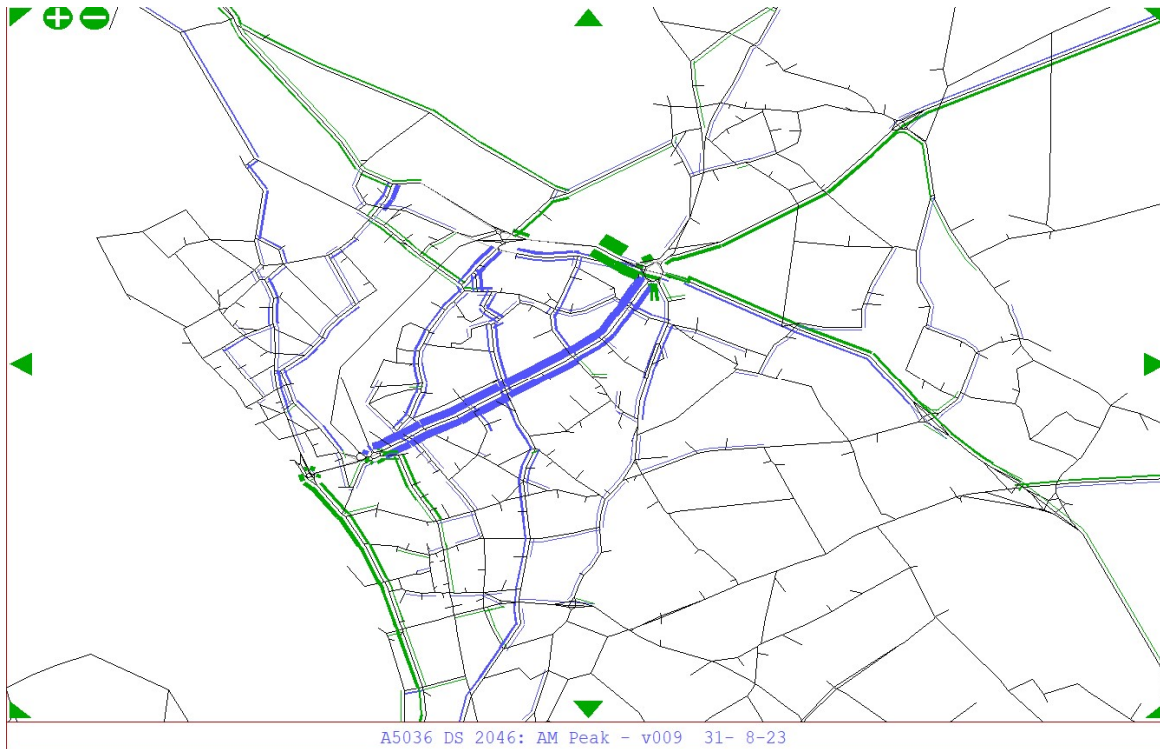


Figure D-0-4 DM vs DS 2046 AM

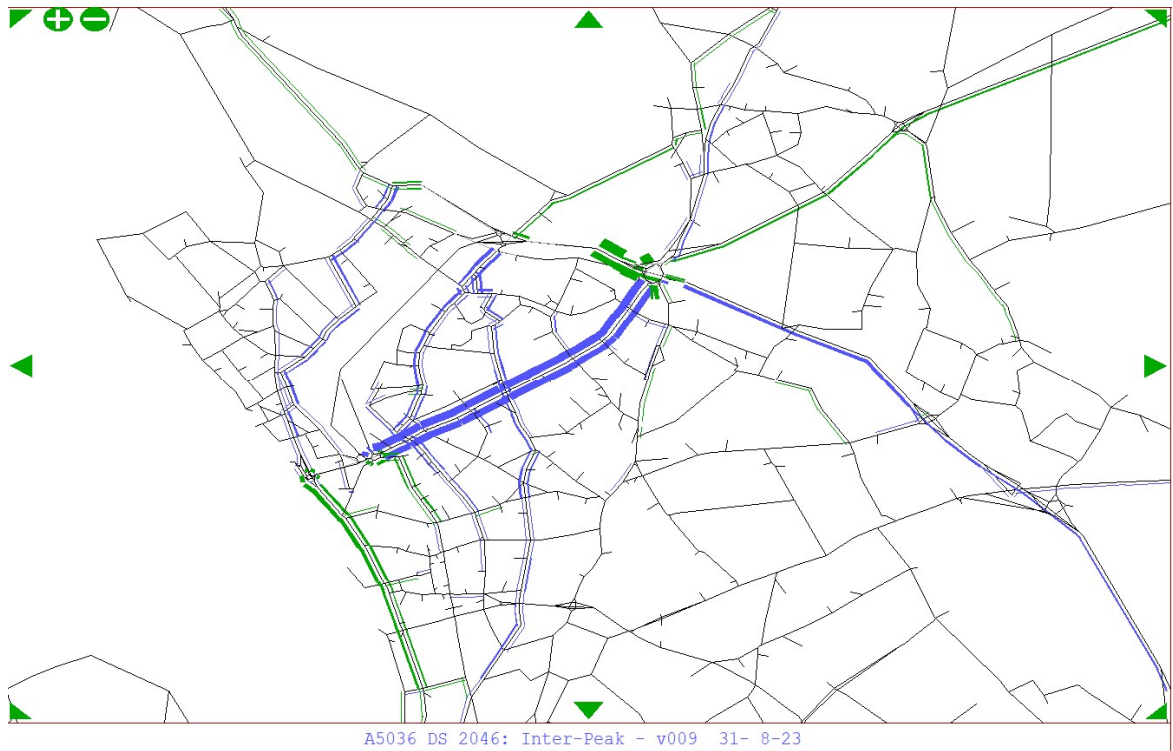


Figure D-0-5 DM vs DS 2046 IP

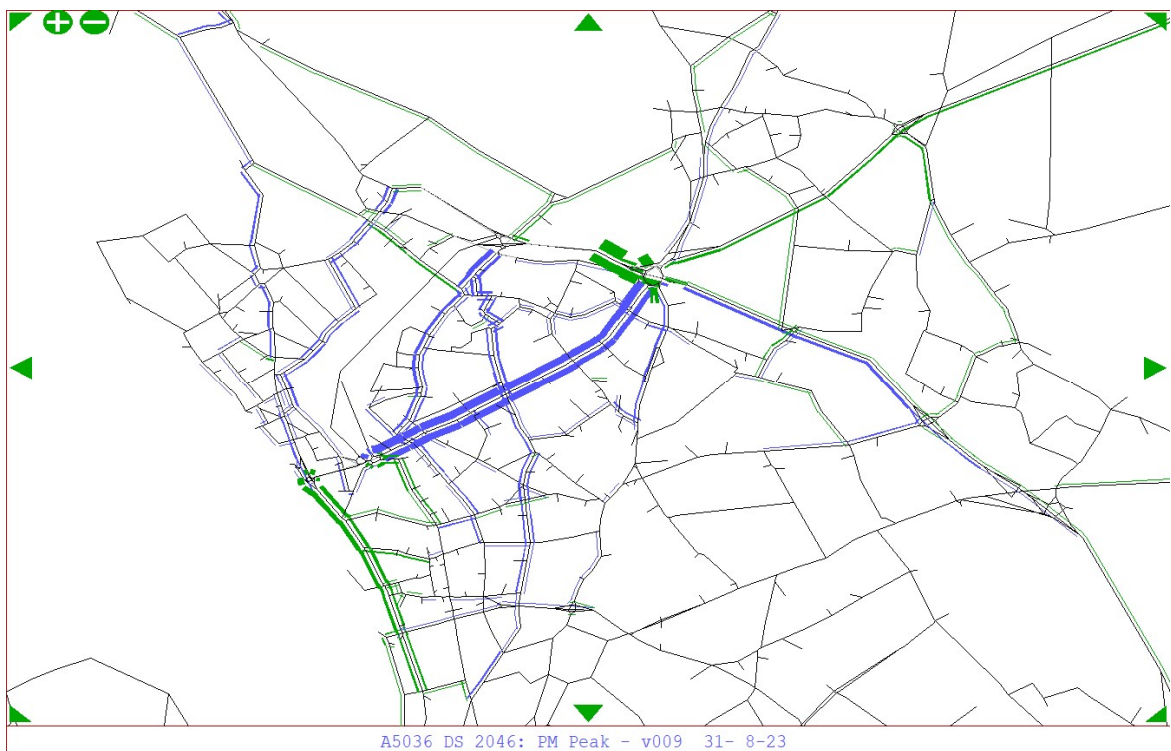


Figure D-0-6 DM vs DS 2046 PM

2061 Comparisons

Figure D-0-7 to Figure D-0-9 show the difference in traffic flow between the Do Minimum scenario and Do Something scenario in the future year 2061.

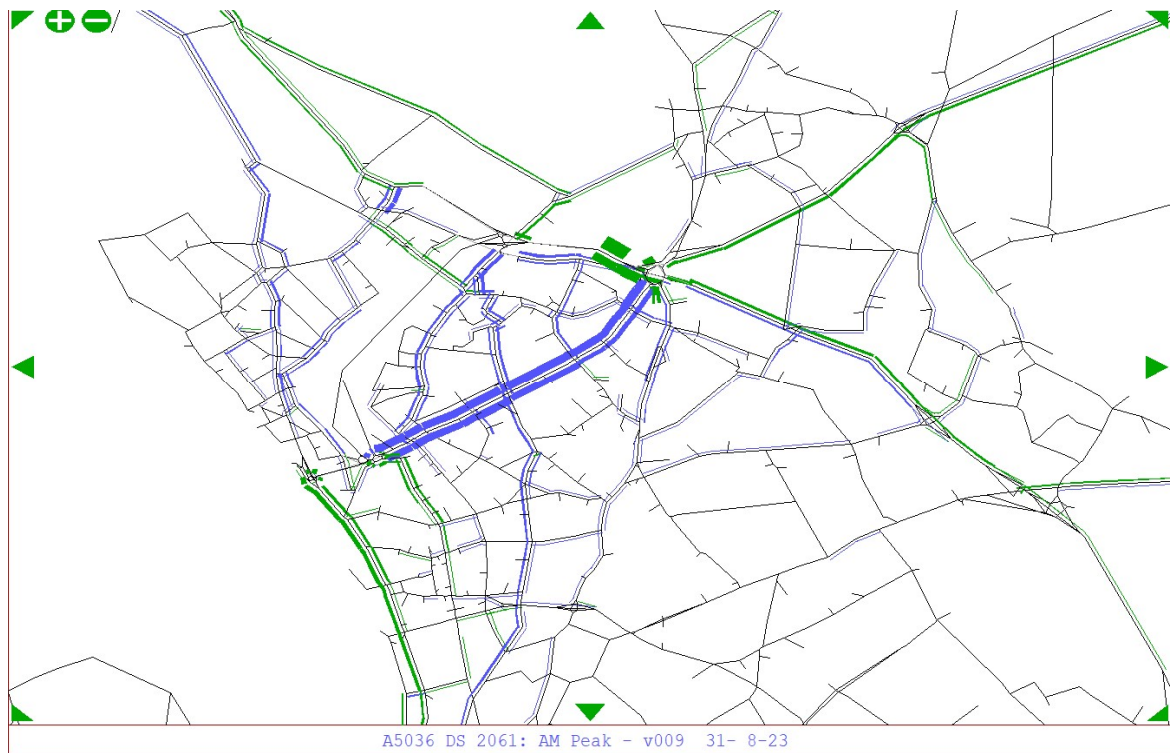


Figure D-0-7 DM vs DS 2061 AM

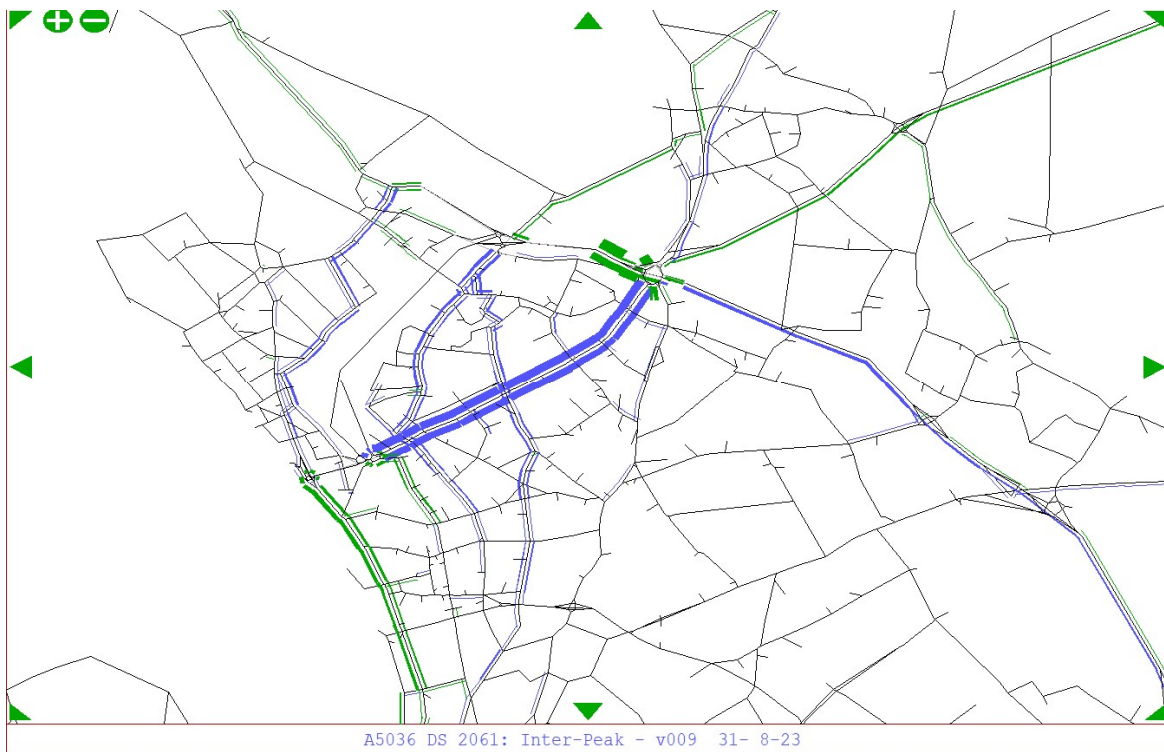


Figure D-0-8 DM vs DS 2061 IP

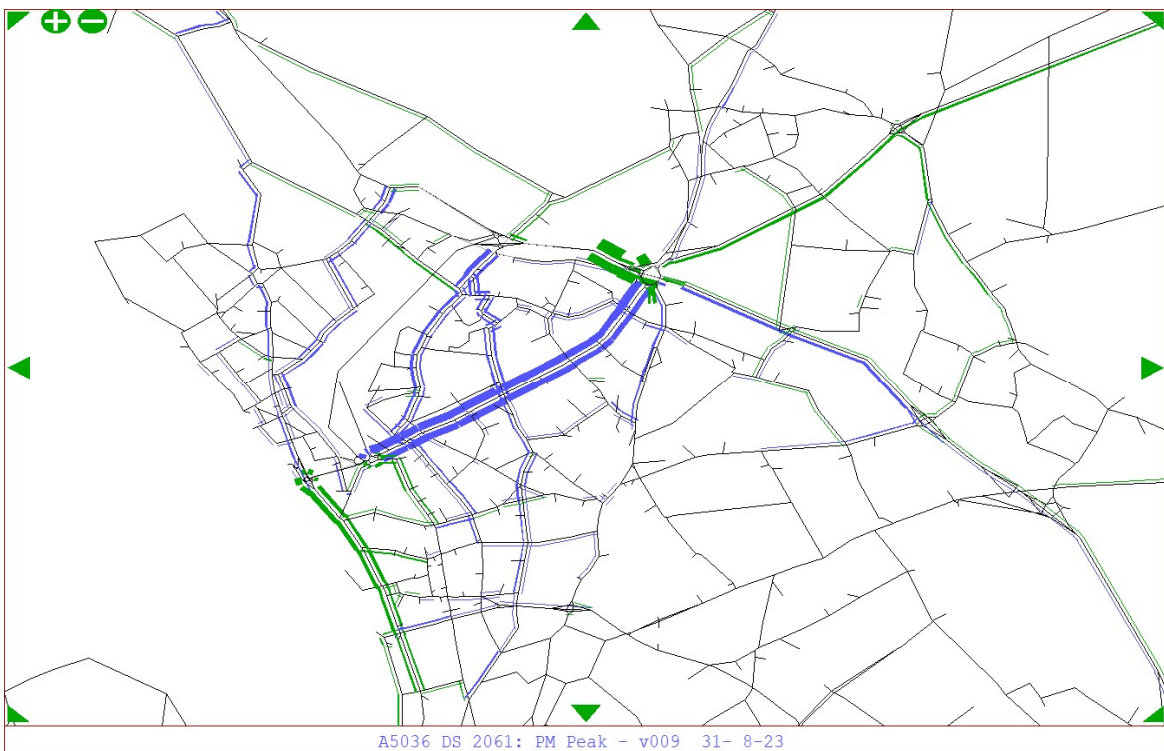


Figure D-0-9 DM vs DS 2061 PM

Appendix E: Comparison of Low Growth Traffic Flows: DM vs DS

2031 Comparisons

Figure E-0-1 to Figure E-0-3 show the difference in traffic flow between the Do Minimum scenario and Do Something Scenario in the future year 2031.

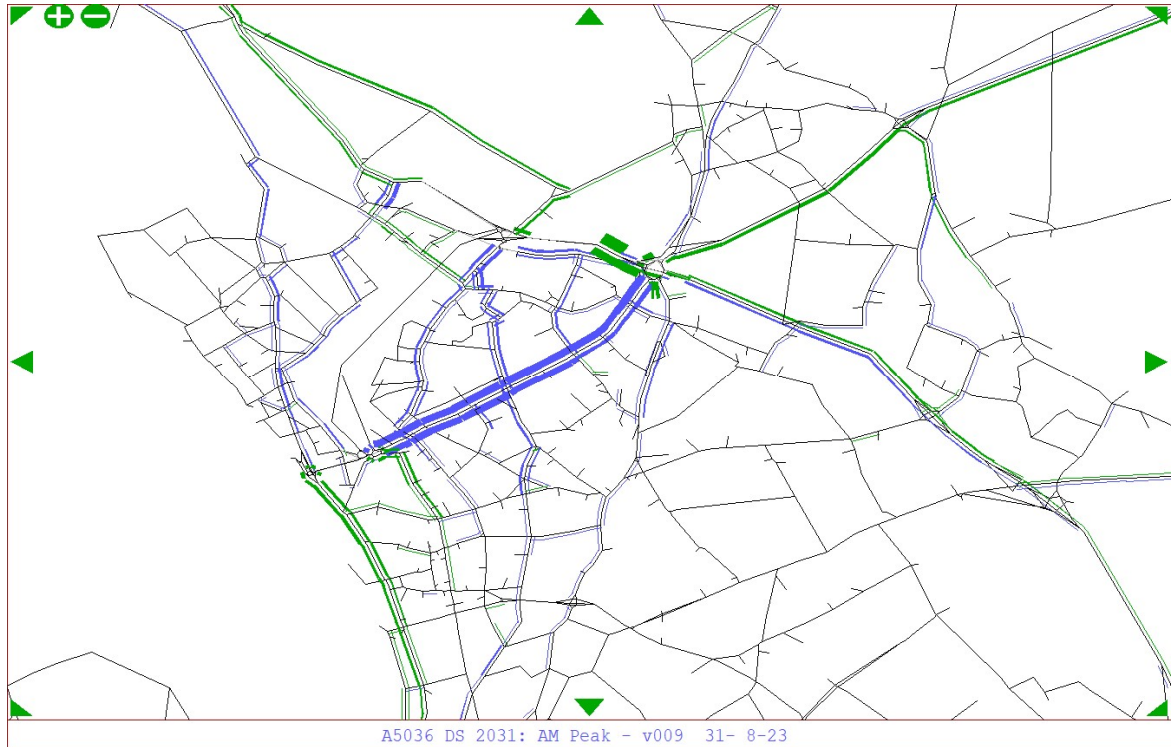


Figure E-0-1 DM vs DS 2031 AM

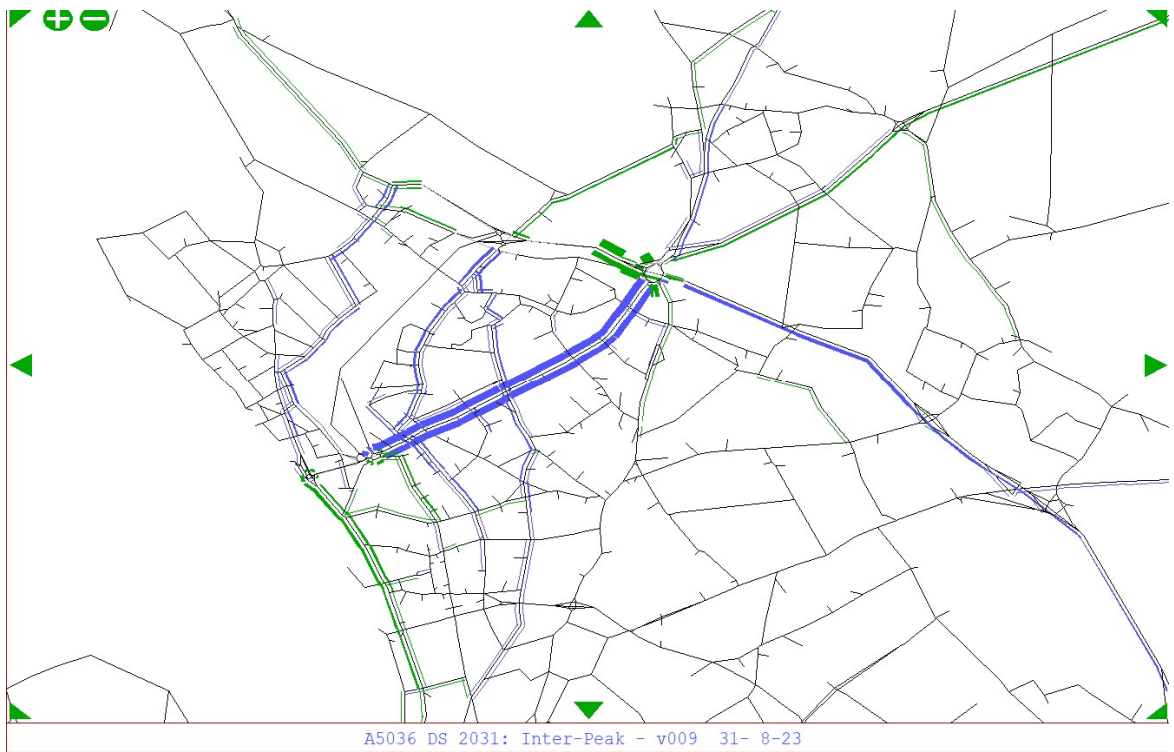


Figure E-0-2 DM vs DS 2031 IP

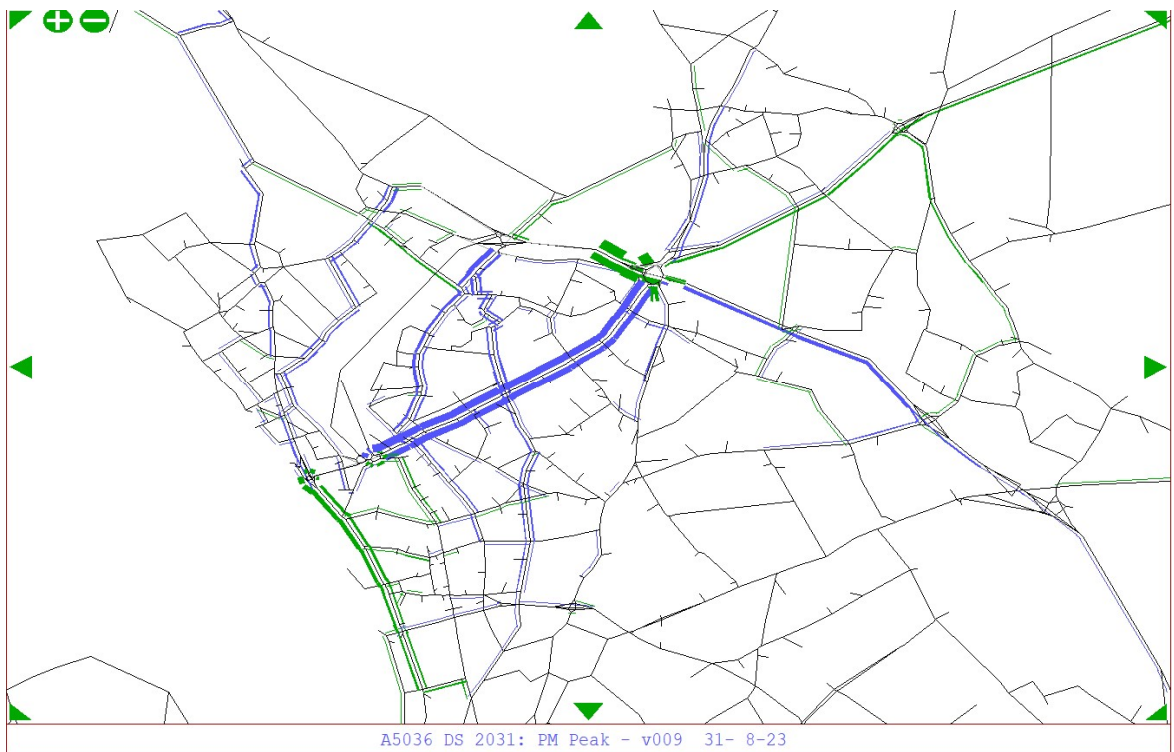


Figure E-0-3 DM vs DS 2031 PM

2046 Comparisons

Figure E-0-4 to Figure E- 0-6 show the difference in traffic flow between the Do Minimum scenario and Do Something Scenario in the future year 2046.

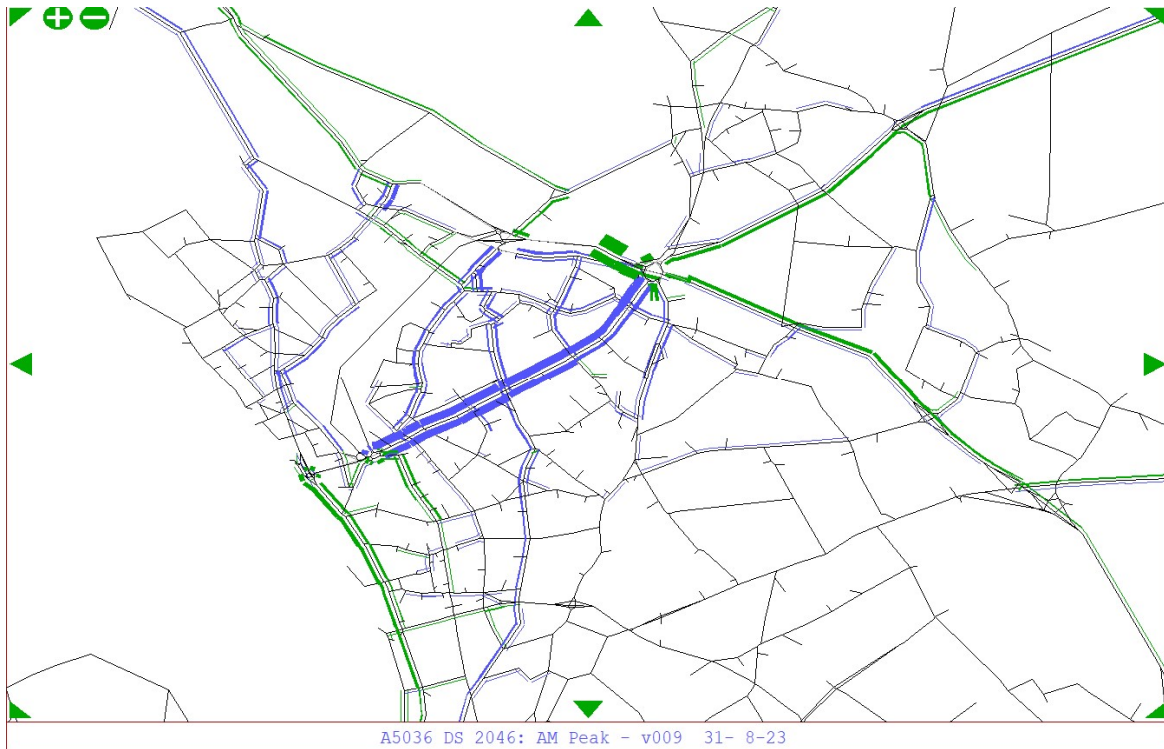


Figure E-0-4 DM vs DS 2046 AM

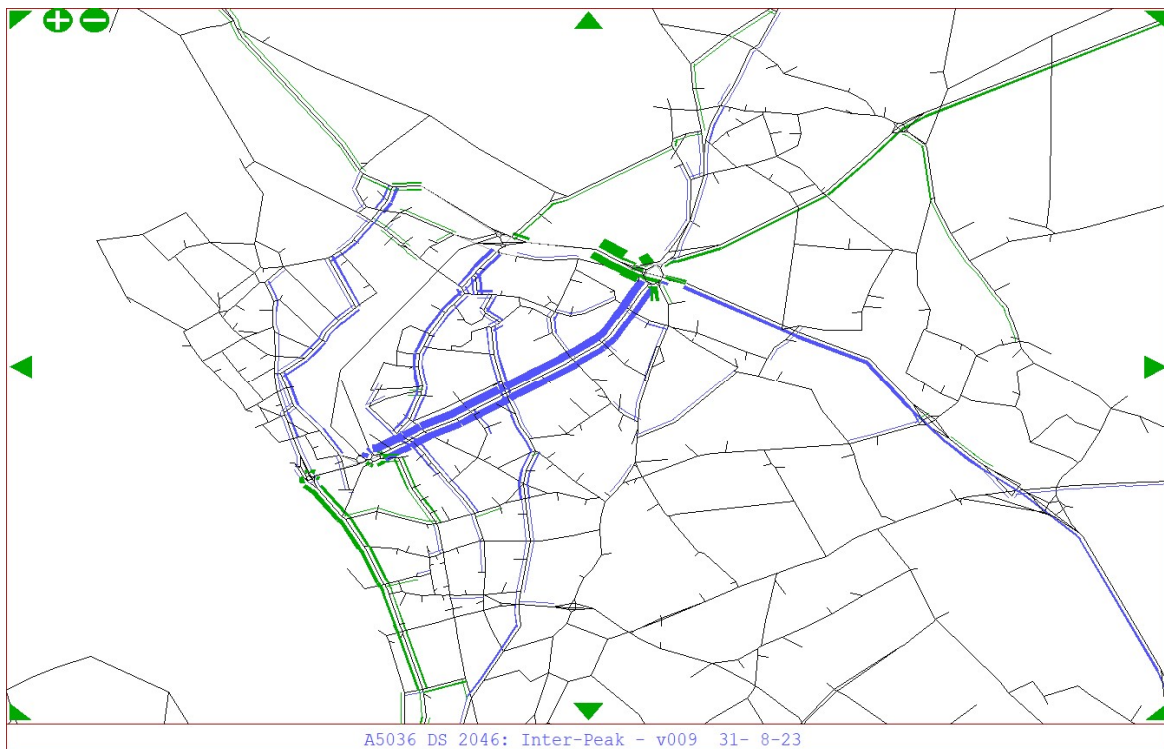


Figure E-0-5 DM vs DS 2046 IP

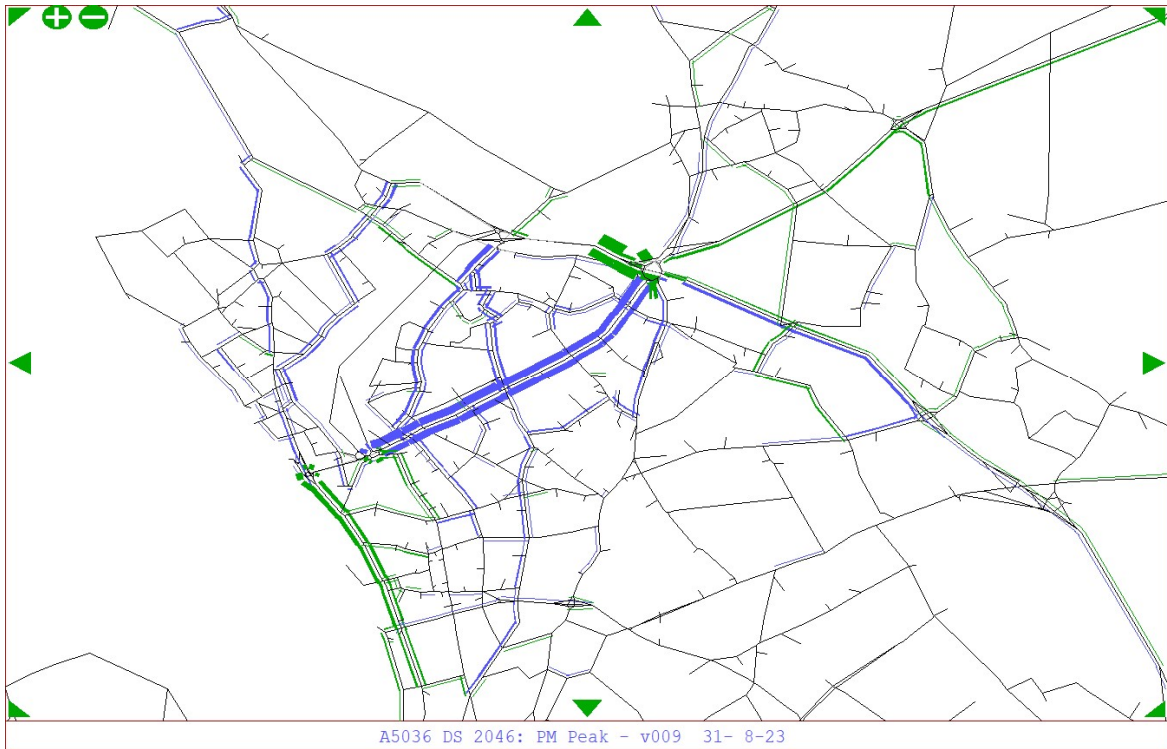


Figure E- 0-6 DM vs DS 2046 PM

2061 Comparisons

Figure E-0-7 to Figure E-0-9 show the difference in traffic flow between the Do Minimum scenario and Do Something scenario in the future year 2061.

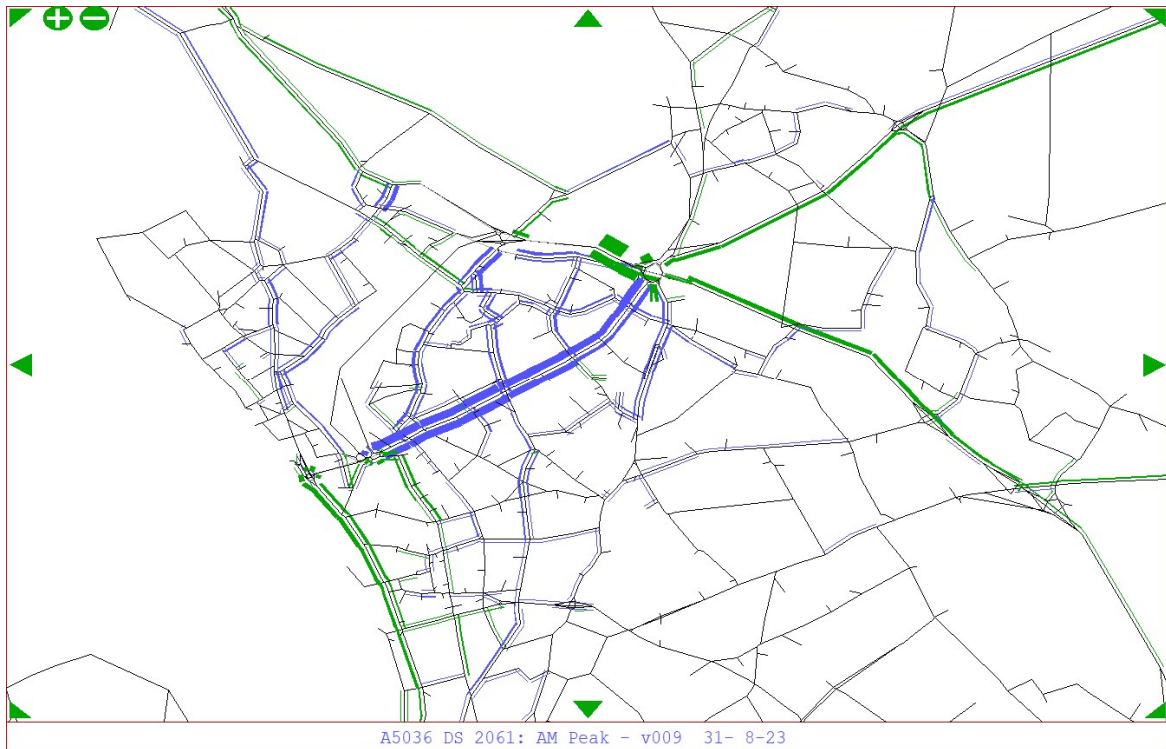


Figure E-0-7 DM vs DS 2061 AM

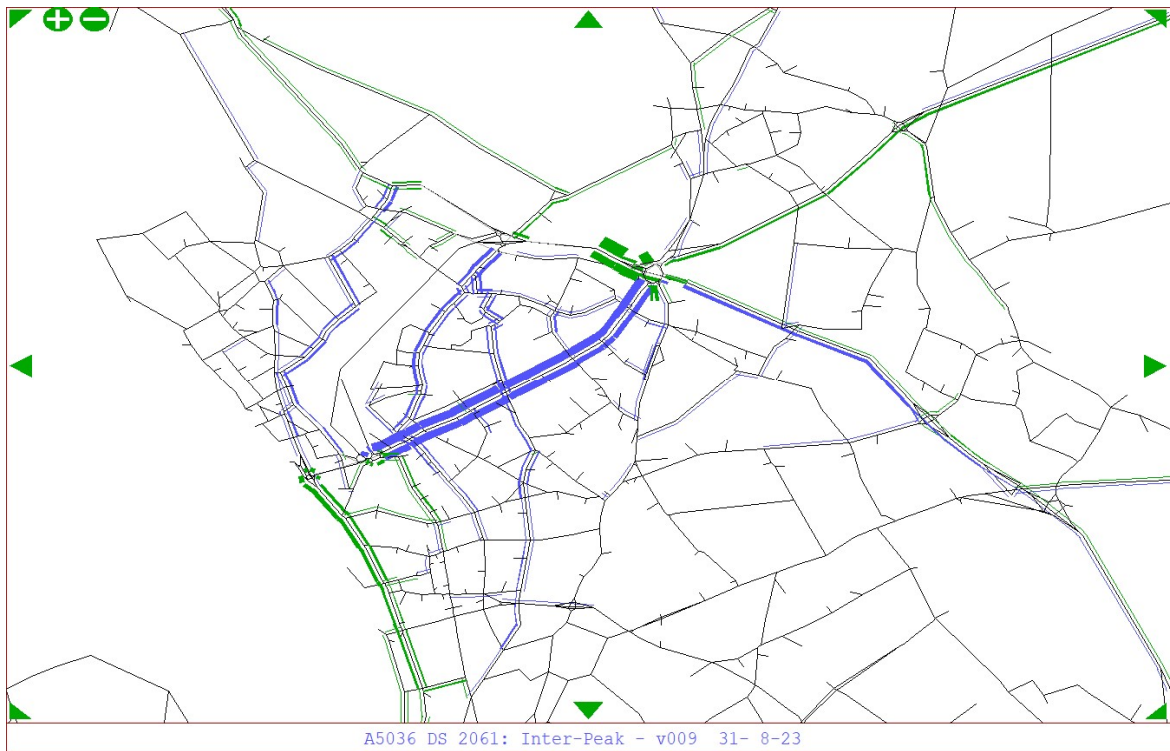


Figure E-0-8 DM vs DS 2061 IP

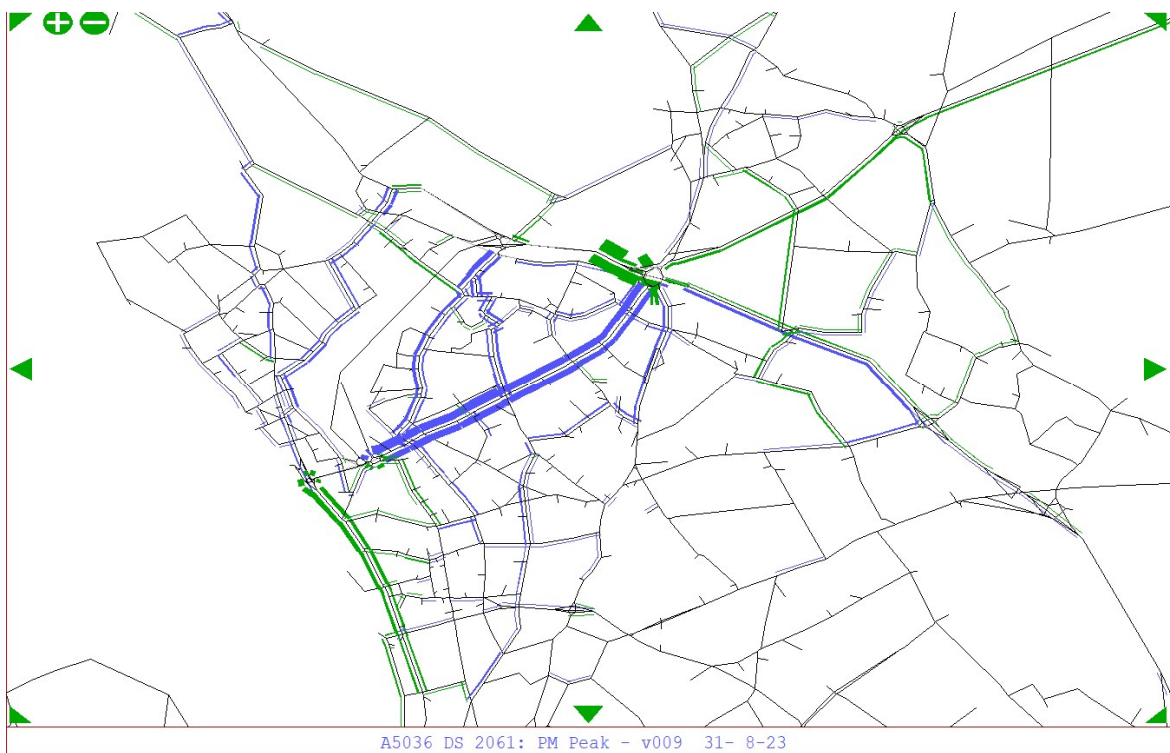


Figure E-0-9 DM vs DS 2061 PM

Appendix F: Comparison of High Growth Traffic Flows: DM vs DS

2031 Comparisons

Figure F-0-1 to Figure F-0-3 show the difference in traffic flow between the Do Minimum scenario and the Do Something scenario in the future year 2031.

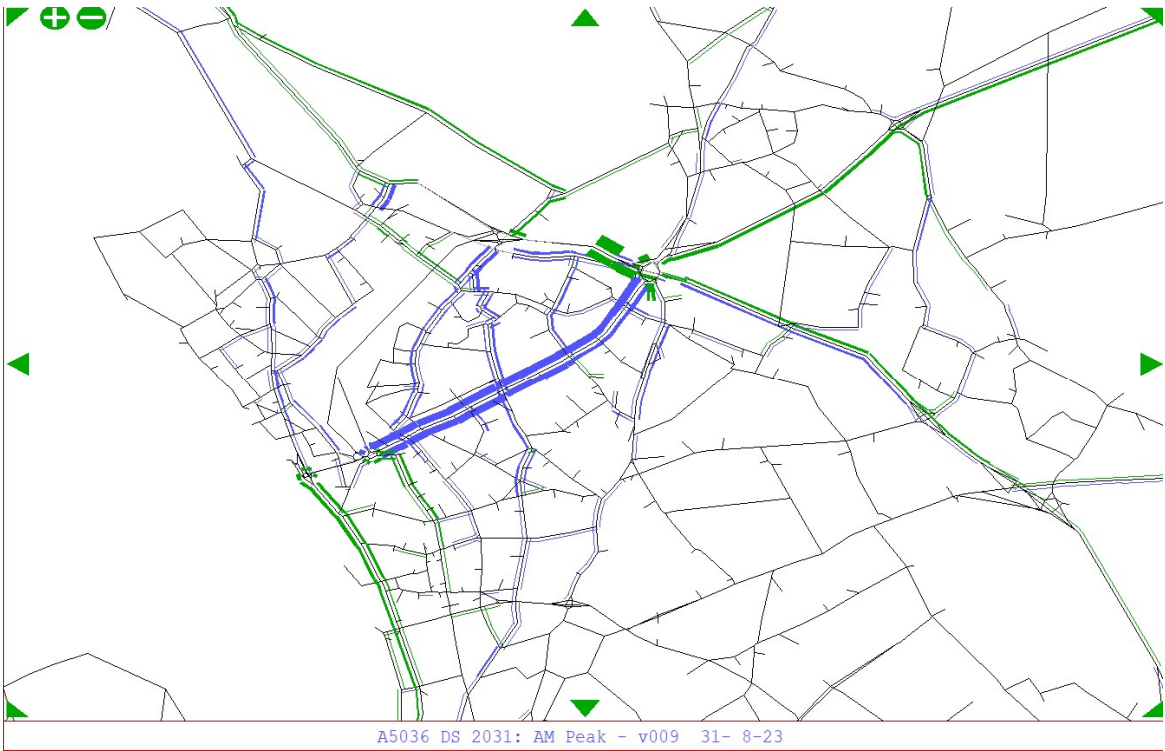


Figure F-0-1 DM vs DS 2031 AM

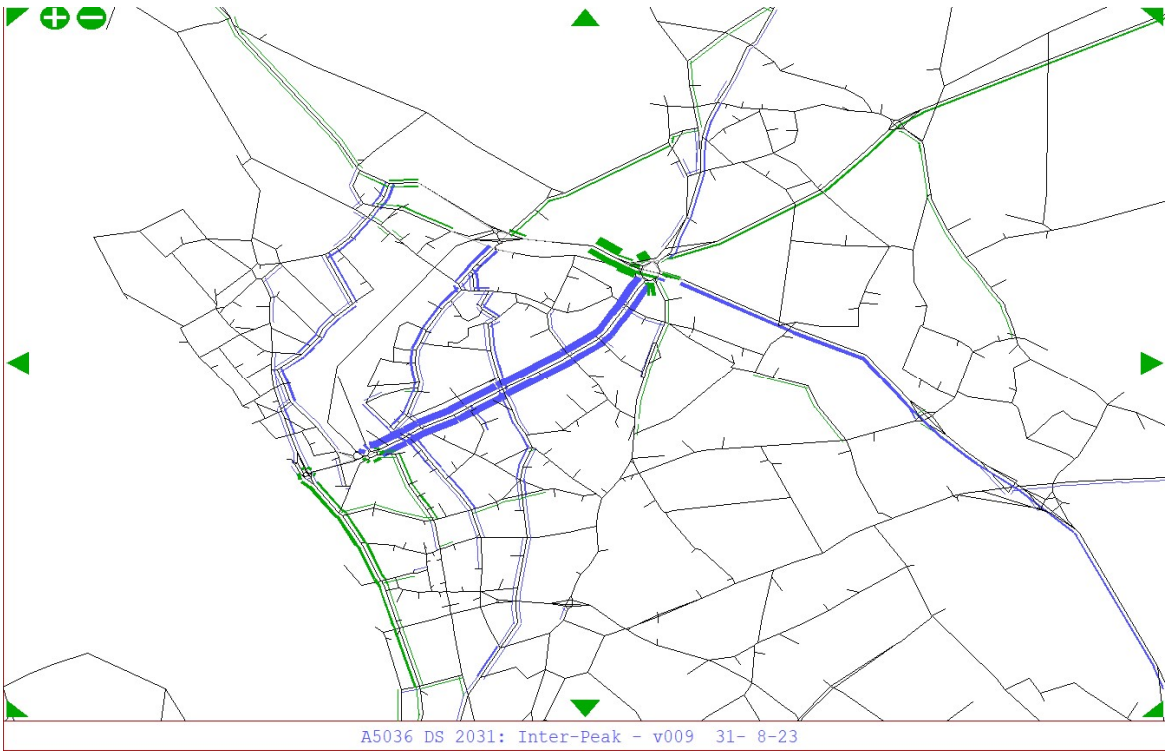


Figure F-0-2 DM vs DS 2031 IP

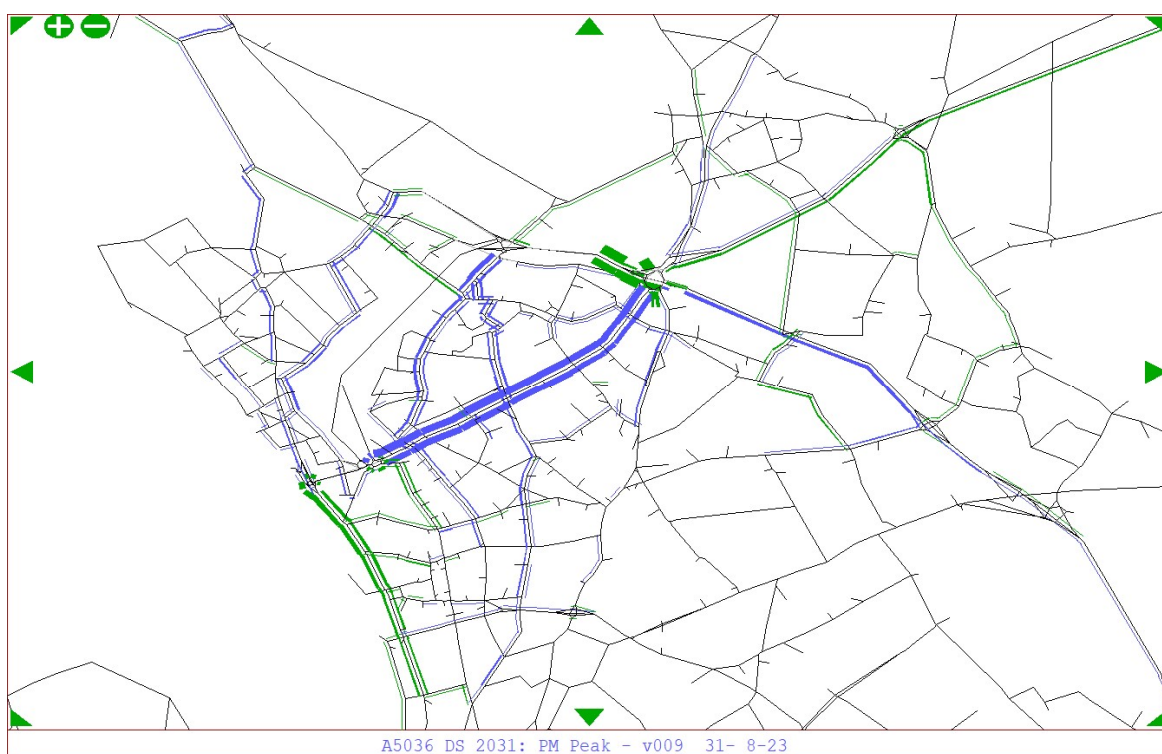


Figure F-0-3 DM vs DS 2031 PM

2046 Comparisons

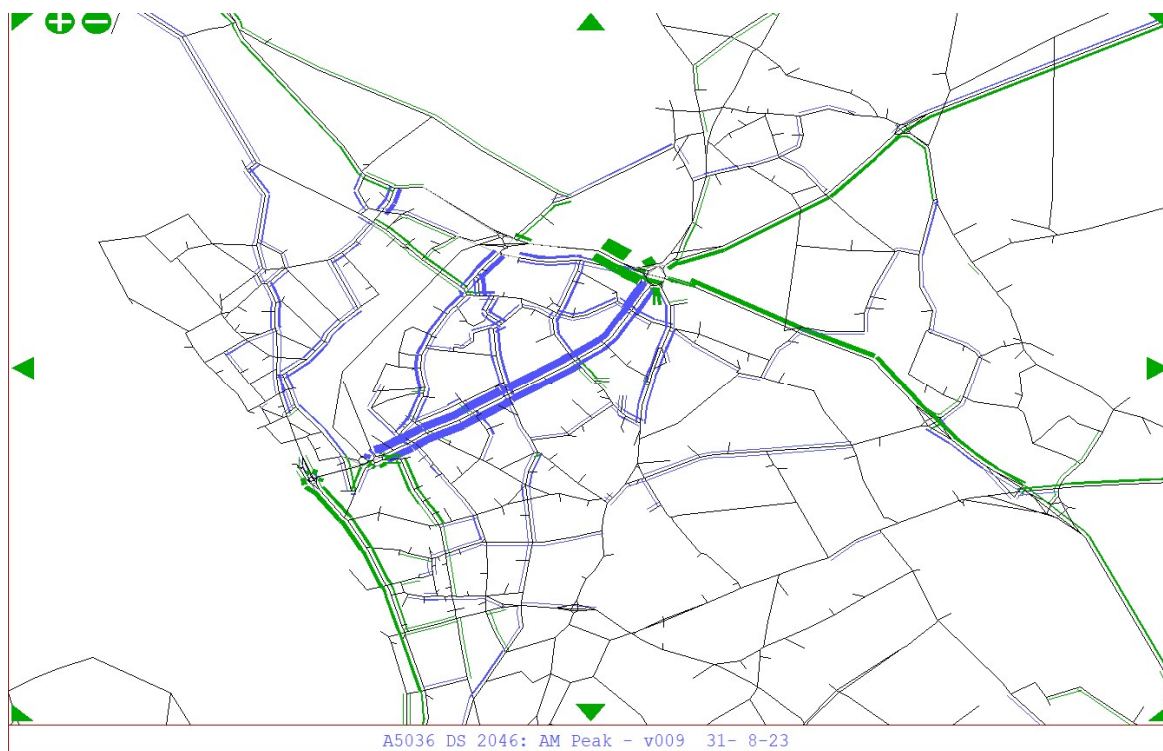


Figure F-0-4 DM vs DS 2046 AM

Figure F-0-5 to Figure F-0-7 show the difference in traffic flow between the Do Minimum scenario and the Do Something scenario in the future year 2046.

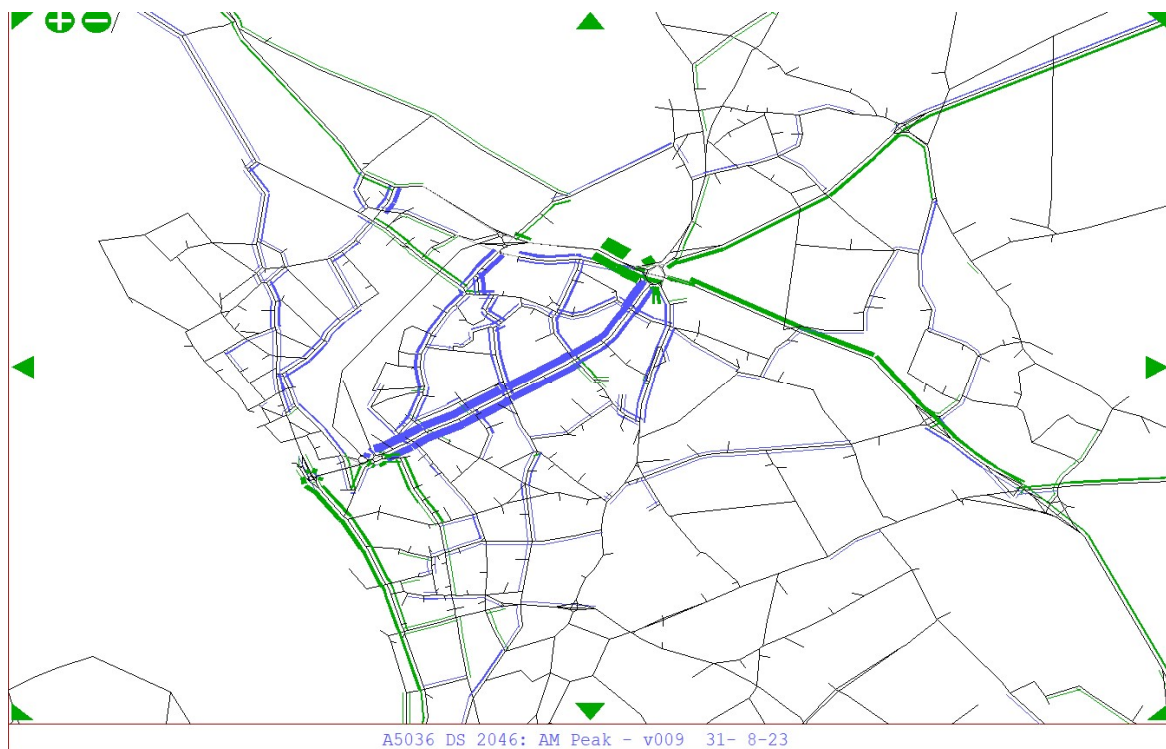


Figure F-0-5 DM vs DS 2046 AM

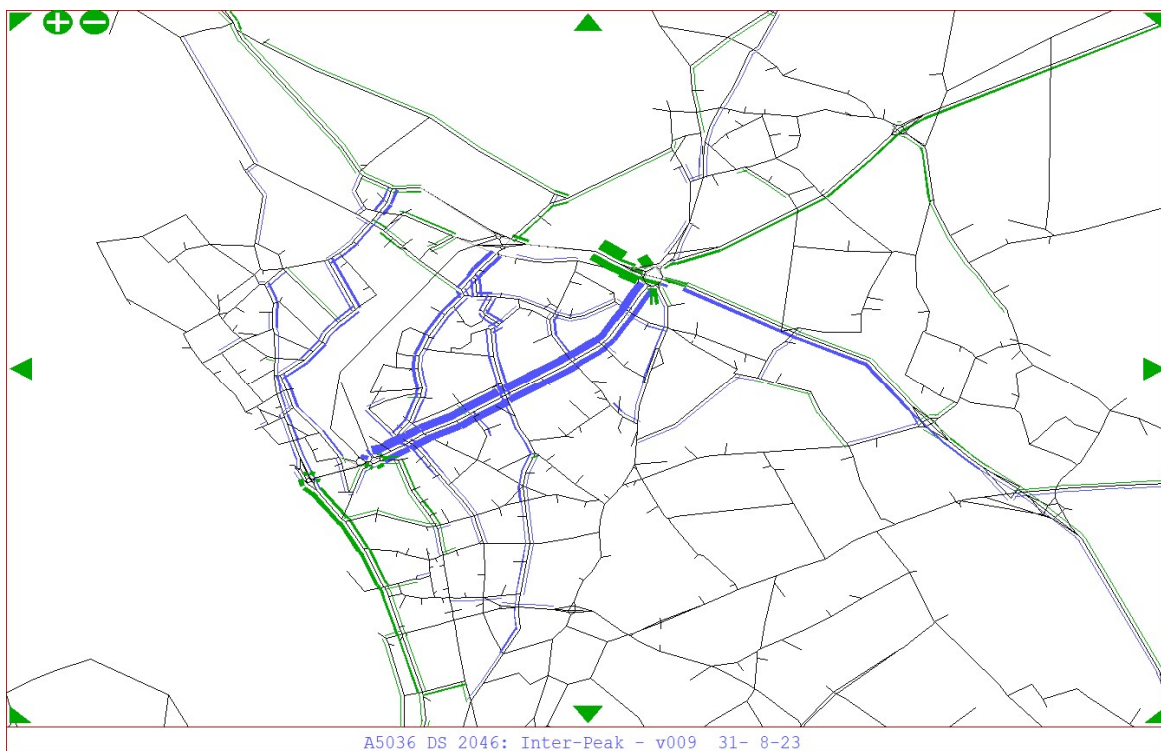


Figure F-0-6 DM vs DS 2046 IP

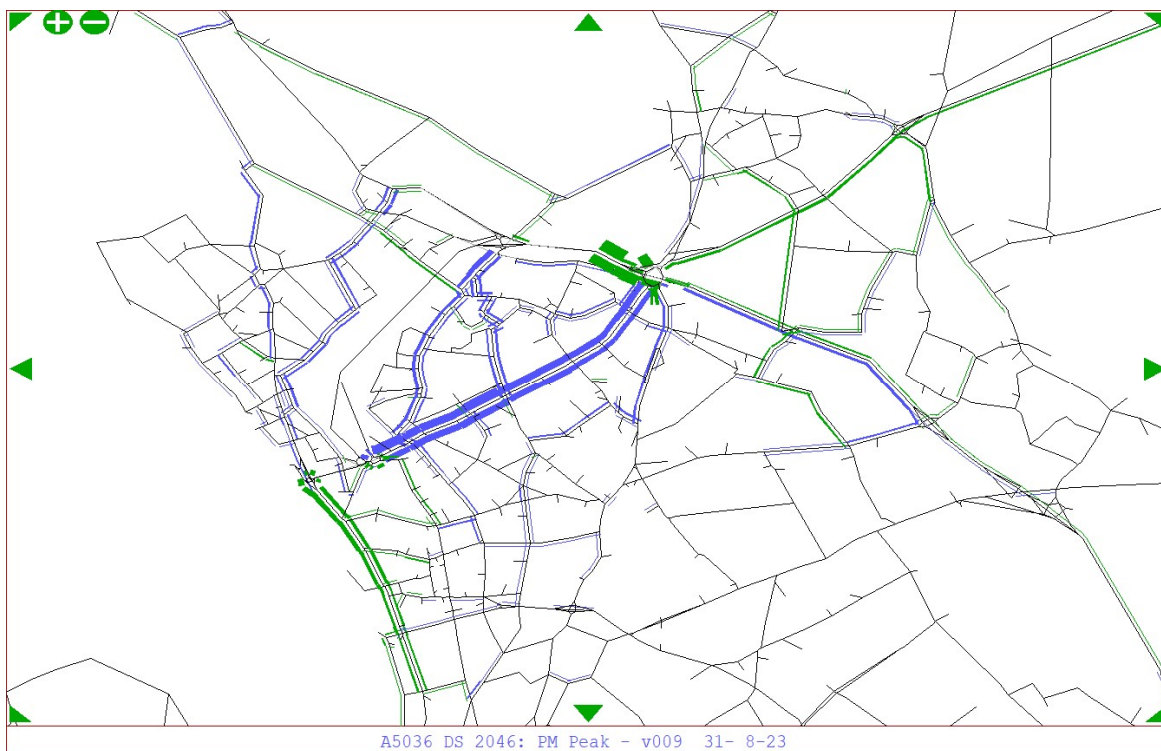


Figure F-0-7 DM vs DS 2046 PM

2061 Comparisons

Figure F-0-8 to Figure F-0-10 show the difference in traffic flow between the Do Minimum scenario and the proposed options in the future year 2061.

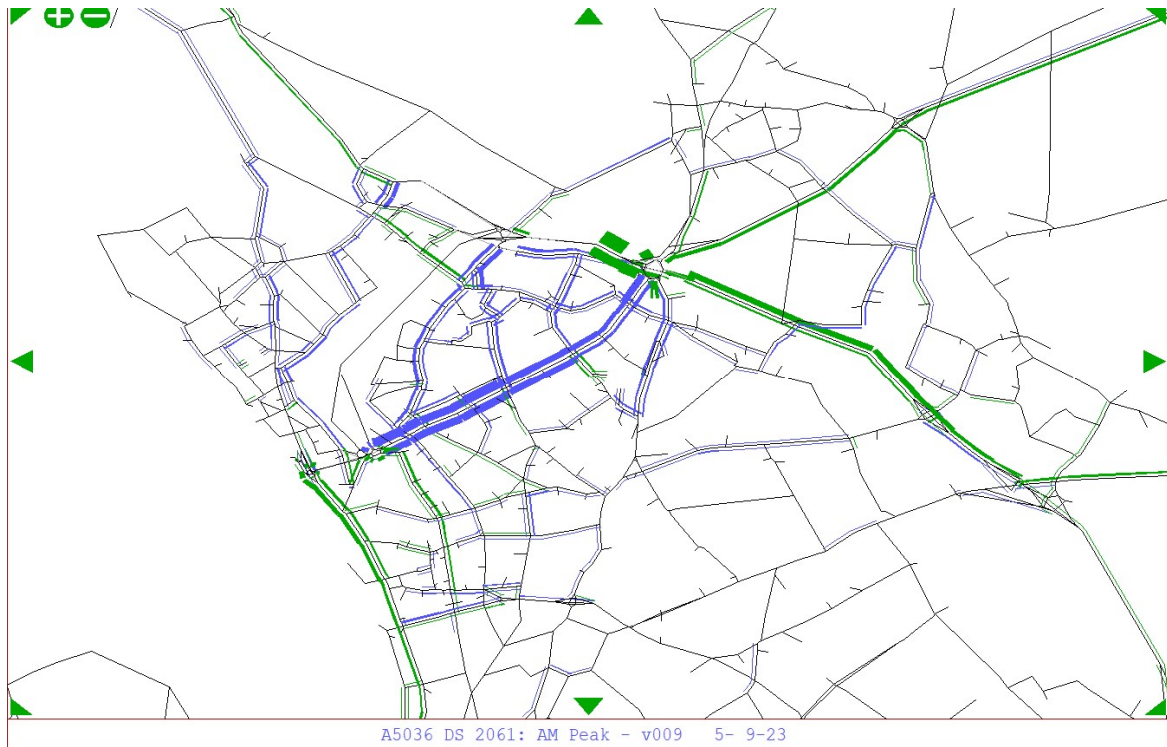


Figure F-0-8 DM vs DS 2061 AM

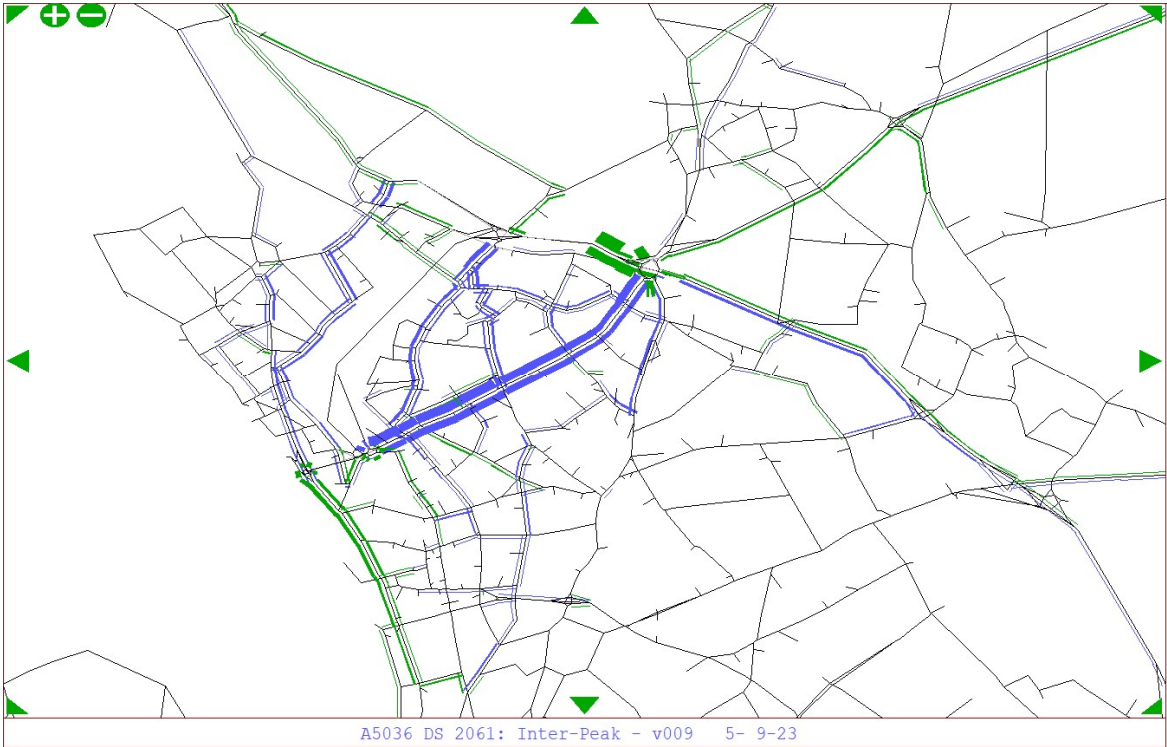


Figure F-0-9 DM vs DS 2061 IP

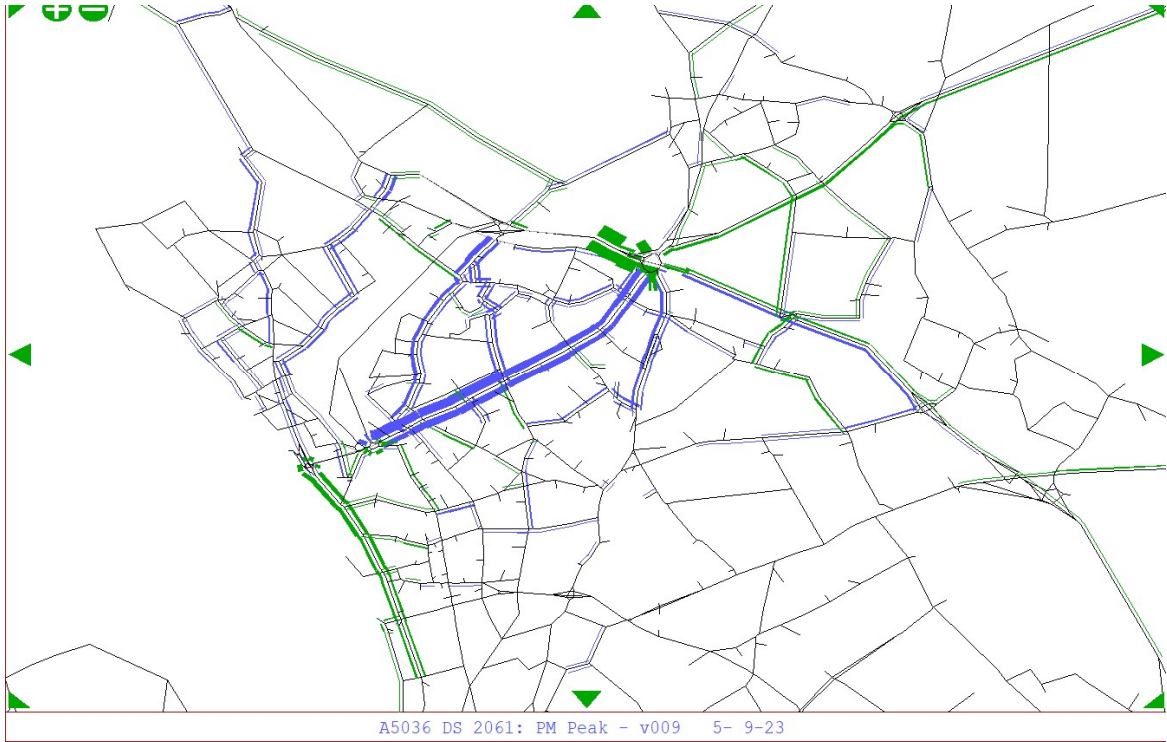


Figure F-0-10 DM vs DS 2061 PM

Appendix G: Port of Liverpool Freight Forecasting

TECHNICAL NOTE 5

DATE:	22 June 2023	CONFIDENTIALITY:	Internal
SUBJECT:	Port of Liverpool Freight Forecasting		
PROJECT:	A5036 Princess - Way Access to Port of Liverpool Scheme	AUTHOR:	
CHECKED:		APPROVED:	

PORT OF LIVERPOOL FREIGHT TRAFFIC GROWTH

The A5036 Port of Liverpool Forecast model employed growth from TEMPRO8 for cars and from NTP22 for LGV and HGV, with the exception of the freight traffic from the Port of Liverpool itself. For the latter, growth has been calculated from information from the Great Britain Freight Model (GBFM).

The GBFMv5 Report (Great Britain Freight Model version 5 – 2022 Updates for DfT, MDS Transmodal, June 2022) provides projected growth at the Port of Liverpool specifically for containerised RORO (Roll On-Roll Off) and containerised LOLO (Lift On-Lift Off) traffic, as shown in Table 1.

Table 1: RORO and LOLO projections at the Port of Liverpool (thousand units)

YEAR	RORO	LOLO
2015	461	304
2018	611	347
2019*	574	342
2021	424	324
2026	546	374
2031	609	409
2036	658	440
2041	778	476
2046	931	511
2051	1,120	548
2056	1,272	584
2061	1,419	617

*interpolated from 2018 and 2021 values

From the above numbers, growth for RORO and containerised LOLO freight to and from the Port of Liverpool was calculated as shown in Table 2.

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Table 2: Increase in RORO and LOLO traffic at the Port of Liverpool

Years	RORO Increase	LOLO increase
2019 to 2031	6%	19%
2019 to 2046	62%	49%
2019 to 2061	147%	80%

The Port of Liverpool includes RORO and LOLO traffic, but in addition, also other types of freight including the movement of bulk goods. It has been assumed that NTP22 based growth factors apply to the non-RORO/LOLO traffic.

PORT OF LIVERPOOL ZONES

The A5036 Model divides the Port of Liverpool docks into five zones as shown in Figure 1 and listed below in Table 3.

Table 3: Port of Liverpool Zones in A5036 Model

Zone	Description	Freight Type	Entry Point
11462	Seaforth Dock and P&O Ferries	RORO, LOLO and bulk	Seaforth Gate
16467	Seaforth Dock and P&O Ferries	RORO, LOLO and bulk	Seaforth Gate
17011	Gladstone Dock and Alexandra Dock	bulk	Strand Road
18016	Langton Dock/Brocklebank Dock – Seatruck Terminal	RORO and bulk	Millers Bridge
16962	Canada/Huskisson Docks	bulk	Bankfield Street

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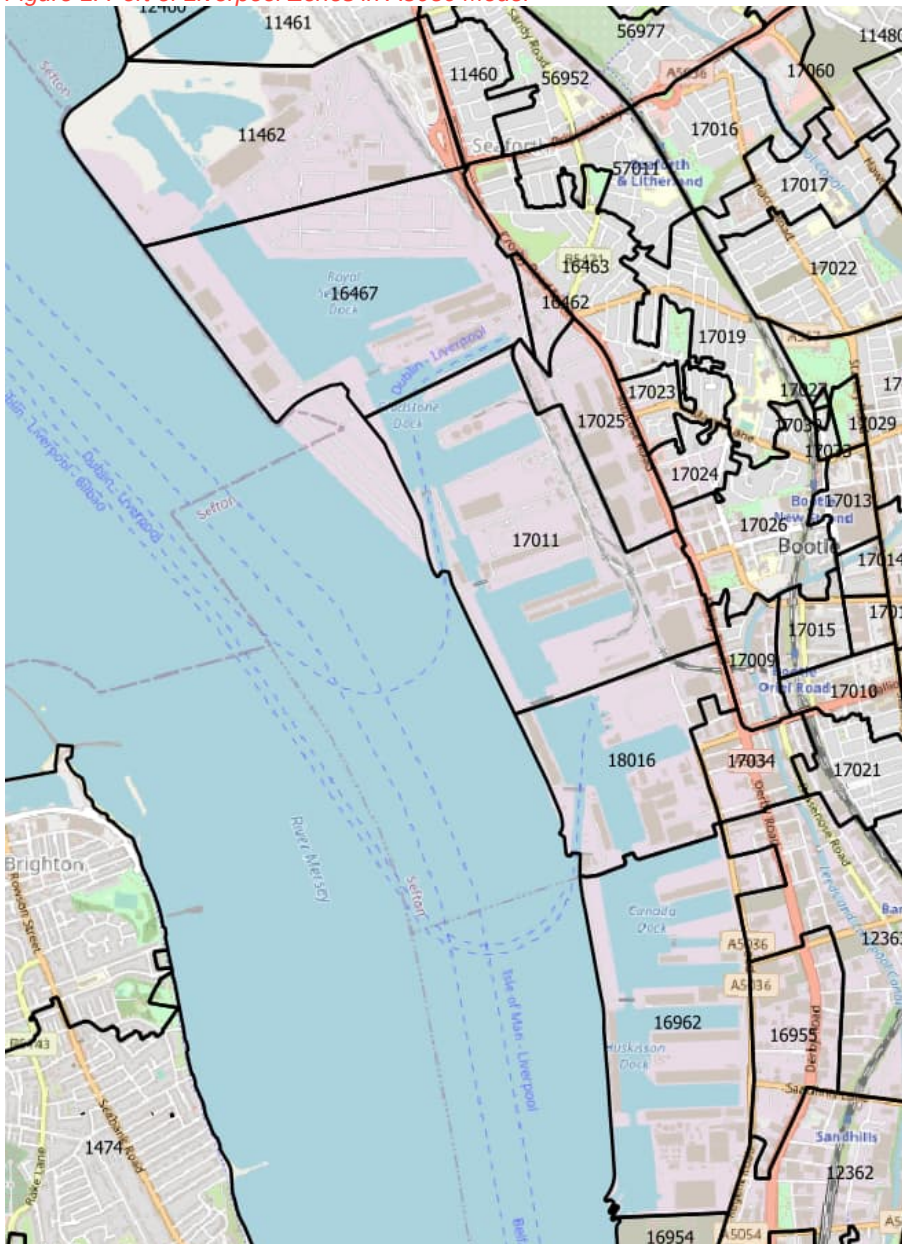
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Figure 1: Port of Liverpool Zones in A5036 Model



Of the above zones, 17011 and 16962 do not have any RORO or LOLO trips, and therefore NTP22 growth is assumed to apply, similar to growth for HGV trips in the rest of the model. Zones 11462, 16467 and 18016 have RORO or LOLO freight operations, and therefore specific growth rates derived from the GBFM have been applied to these zones.

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SURVEY OF PORT FREIGHT TRAFFIC

A survey of the freight traffic using the Seaforth/Crosby Gate was undertaken using video footage obtained at the location. The survey results are given in Table 4.

Table 4: Seaforth Gate Survey Results

Freight type	Number of freight vehicles	% Share
LOLO	1,170	51%
GRAIN	299	13%
RORO	313	14%
AGGREGATE	205	9%
CHEMICAL	112	5%
OTHER	208	9%
TOTAL	2,307	100%

From the above results, the proportions of freight using the Seaforth Gate (zones 11462 and 16467) were calculated as given in Table 5.

Table 5: Freight Type at Seaforth Gate

Freight type	Number of freight vehicles	% Share
LOLO	1,170	51%
RORO	313	14%
OTHER	824	36%

In the absence of data, an assumption has been made for zone 18016 (Langton Dock/Brocklebank Dock – Seatruck Terminal) that the proportion of RORO to other freight (ie not including LOLO) is the same as at the Seaforth/Crosby Gate, as shown in Table 6.

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Table 6: RORO to other freight proportions at zone 18016

Freight type	Number of freight vehicles at Seaforth	% Share
RORO	313	27.5%
OTHER	824	72.5%

GROWTH FACTORS

The growth factors calculated from the GBFM data was weighted using the freight type proportions calculated from the Seaforth/Crosby Gate video survey. For the non RORO/LOLO traffic, a factor from NTP22 was also used.

The growth factors are summarised in Table 7.

Table 7: Growth Factors for Port Zones

Year	RORO growth	LOLO growth	NTP Growth*	Growth at Seaforth Container Terminal/Liverpool2 Terminal/P&O zones (zones 11462 and 16467)	Langton/Brocklebank Dock/Seatruck Zone (zone 18016)
2019 to 2031	1.062	1.195	1.063	1.130	1.063
2019 to 2046	1.623	1.492	1.134	1.382	1.269
2019 to 2061	2.474	1.802	1.179	1.671	1.535

*weighted from regional NTP factors based on GBFM data on registration of vehicles using Port of Liverpool.