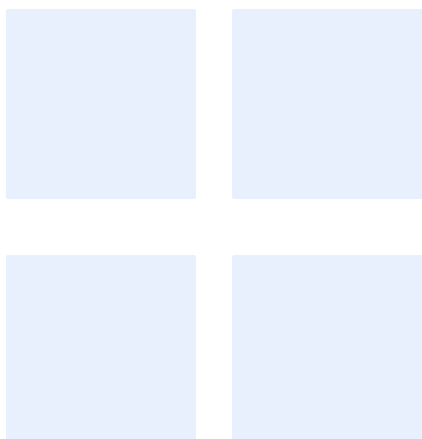**Solent Transport Evidence Base**   **11/06/2018**

Reference number 102891

SRTM MODEL FORECASTING SUMMARY

SOLENT TRANSPORT EVIDENCE BASE

SRTM MODEL FORECASTING SUMMARY

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1 Background

1.1.1 SYSTRA Ltd was commissioned, as part of a wider team, to support Solent Transport with the development and application of a Sub-Regional Transport Model Suite (SRTM) for this nationally important area.

1.1.2 The SRTM is used to support a wide-ranging set of interventions across the South Hampshire sub-region, and is specifically required to be capable of:

- forecasting changes in travel demand, road traffic, public transport patronage and active mode (walking and cycling) use over time as a result of changing economic conditions, land-use policies and development, and transport improvement and interventions;
- testing the impacts of land-use and transport policies and strategies within a relatively short model run time; and
- testing the impacts of individual transport interventions in the increased detail necessary for preparing submissions for inclusion in funding programmes within practical (but probably longer) run times.

1.2 Scope of Report

1.2.1 This Model Forecasting Report covers all components for the Sub Regional Transport Model that are used to forecast travel demand in forecast years. This includes sections covering the operation of the models in forecast mode, input assumptions and future year results for the:

- Main Demand Model (MDM),
- Gateway Demand Mode (GDM);
- Local Economic Impact Model (LEIM);
- Road Traffic Model (RTM); and
- the Public Transport Model (PTM)

1.3 Report Structure

1.3.1 The structure of the chapters following this introduction are as follows:

- Chapter 2 describes how the components of the SRTM fit together and what information is passed between them;
- Chapter 3 details the input assumptions for the Forecast Reference Cases over the years in terms of growth assumptions and committed (and therefore represented) intervention schemes;
- Chapter 4 defines input assumptions for the future years both generic and parameters specific to each of the SRTM model components;
- Chapters 5 & 6 present development and demand results from LEIM and MDM/GDM;
- Chapters 7 & 8 show results pertaining to the Assignment Models (RTM & PTM).

2.   SUB-REGIONAL TRANSPORT MODEL OVERVIEW

2.1   Introduction

2.1.1   This chapter provides an overview of the Sub-Regional Transport Model (SRTM), concentrating on how its modules interact to estimate travel costs and demand across the forecast years: 2019, 2026, 2031, 2036 and 2041.

2.1.2   More detailed technical specifications of these modules can be found in R2: Model Development Report, R4: Road Traffic Model Development Report and R5: Public Transport Model Development Report.

2.2   Model Overview

2.2.1   The Solent Transport Sub-Regional Transport Model (SRTM) is an evidence based Land-Use and Transport Interaction model. It contains a suite of transport models and an associated Local Economic Impact Model (LEIM). The suite of transport models comprises the Main Demand Model (MDM), the Gateway Demand Model (GDM), Road Traffic Model (RTM) and Public Transport Model (PTM).

2.2.2   **Error! Reference source not found.** shows the interaction of the various models within the SRTM. The LEIM takes transport costs from a converged run of the MDM and feeds back population and employment data, which is converted into demand matrices. The public transport and road traffic demand are assigned to the public transport and road traffic networks to estimate travel costs, which are then passed back to the MDM to re-estimate demand. The demand and cost calculations are run iteratively, until convergence.

2.2.3   The MDM, which models travel demand responses to changes in costs, including: macro time of day choice, mode choice and destination choice. Each of these choices is modelled as a function of the time and money cost of each alternative, e.g. car, public transport, park-and-ride or walk/cycle. For HW and PT trips, route choice is modelled using the respective assignment models.

Figure 1. The SRTM and the Interaction of the Various Models
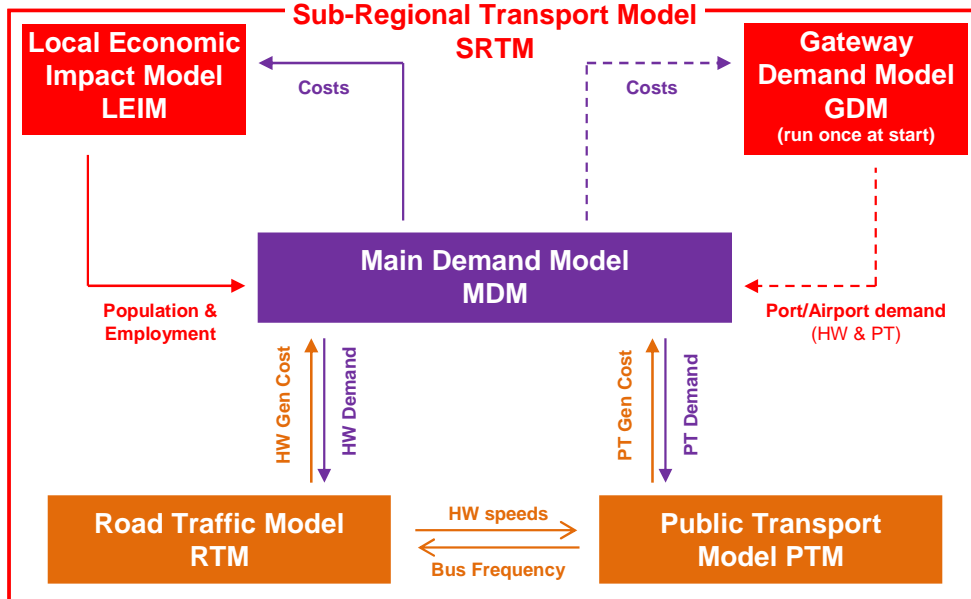
Zoning and Geography

2.2.4 The model has the four model regions shown in Table 1 and Figure 2. In the Core and Marginal Fully Modelled Areas (FMA), the zones are mainly defined as groups of Census Output Areas (COAs) and Census Wards (CWs), respectively. Outside the FMA, the zones are based on Districts and, farther away, on Counties. Largely using COA and CW based zone definitions ensures consistency with the LEIM and the planning data that is used in calculating base year trip ends and future growth.

Table 1. Model Region Definitions

Region	LEIM / MDM Trip Ends Detail	RTM / PTM Detail
Core Fully Modelled Area	Full Land Use Forecast Model (based on building sq metres by zone)	Detailed (Simulation) Network
Marginal Fully Modelled Area		Simpler (Speed Flow) Network
Buffer Area	Coarser (Ward based)	Coarse (Fixed Speed) Network RTM / PTM Detail

Figure 2.   Study Area and Regions
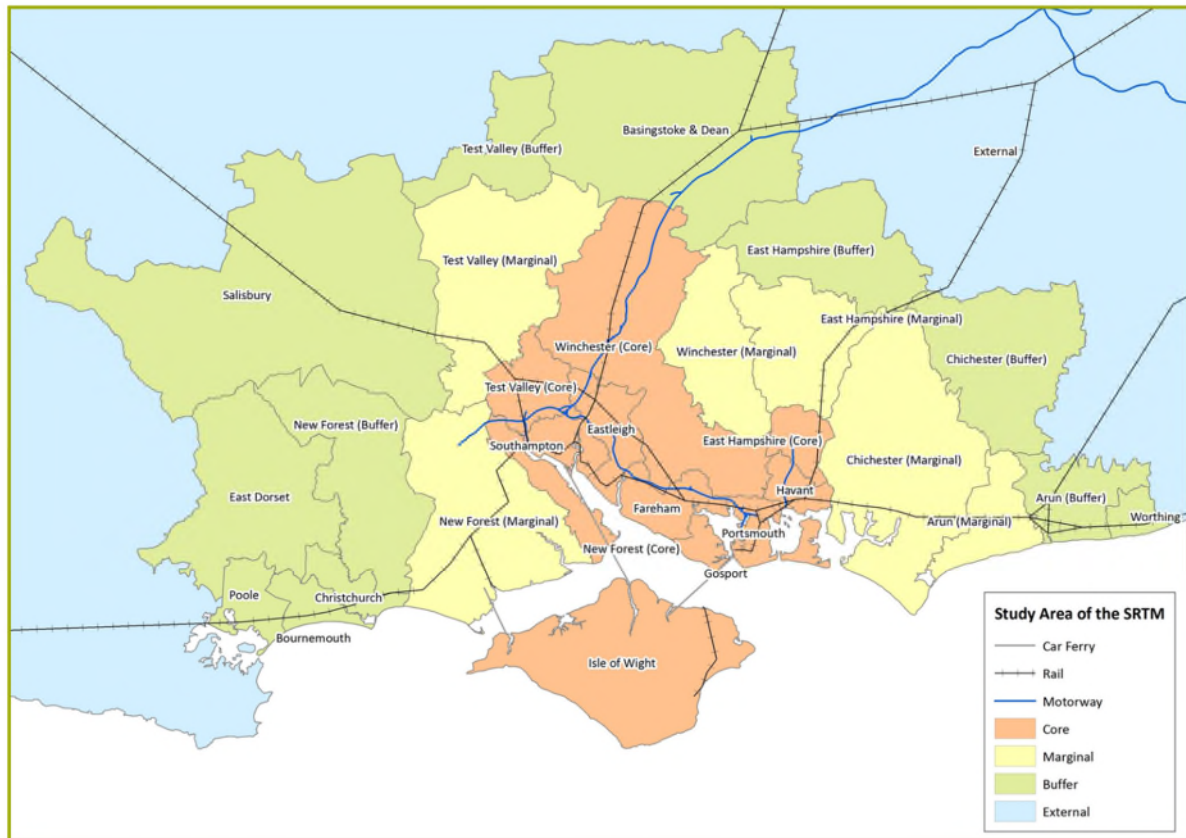
Model Segmentation

2.2.5   The SRTM considers all weekday (Monday to Friday) travel over a 24 hour period. Four distinct travel time periods are modelled:

- morning peak (07:00-10:00);
- inter peak (10:00-1600);
- evening peak (1700-1800); and
- off-peak (1900-0700).

2.2.6   For personal trips, six trip purposes are modelled. These are home-based work (HBW), home-based employer's business (HBB), home-based education (HBE), home-based other (HBO), non home-based employer's business (NHB), and non home-based other (NHO).

2.2.7   Three car availability classes and 4 person-types are also defined. The three car availability classes are defined for households: households with no car, households with car competition (fewer cars than adults) and households with no car competition (number of cars is greater or equal to the number of cars). The four person types are: child, working adult, non working adult, retired.

Travel Demand

2.2.8   A significant proportion of the travel people make is associated with a place of residence. These journeys are represented as an array containing the number of 2-way journeys made from the home zone to a workplace, school, shop, or other attractor. The out and

return time periods are defined for each return journey. These combinations of out and return time periods are referred to as tours.

2.2.9 There are also journeys made from non-home origins to non-home destinations, in particular those made by employees in the course of their employment, denoted as employers' business trips. The demand for these trips is represented on an origin-destination basis.

2.2.10 The demand for goods vehicles is also represented in terms of origin-destination matrices. Only route choice is represented for goods vehicles; demand responses such as destination and time period choice are not modelled.

Transport Supply

2.2.11 The RTM and PTM are used to prepare a representation of transport supply (travel times and costs) for the computations in the demand model.

2.2.12 The RTM contains a comprehensive representation of the highway network across the Core and Marginal Fully Modelled Areas. In the Core FMA, the interaction of different traffic streams is considered when extracting the costs. In the Marginal FMA, flow/delay relationships are used to represent the impacts of congestion on travel costs. Fixed speed networks are assumed outside the FMA.

2.2.13 For public transport, the PTM model includes details of the routes, fares and frequencies of rail, bus and passenger ferries to, from and within the Core FMA. In-vehicle congestion is not modelled in the PTM. On-road travel times are transferred from the RTM to the PTM, with a factor used to reduce car speeds to reflect the fact that buses typically travel more slowly than cars.

2.2.14 For the active modes (walking and cycling), constant speeds are assumed across the forecast years.

2.2.15 The MDM, RTM and PTM have identical zoning systems, designed based on considerations of highway network access, bus stop catchment size, bus corridors and fare zones.

2.3 SRTM in Forecasting Mode

2.3.1 The calibration of all the components of the SRTM is described in R2 (LEIM, MDM and GDM models calibration and validation), R4 (RTM calibration and validation) and R5 (PTM calibration and validation).

2.3.2 In forecasting mode, the SRTM operates as shown in Figure 3. The SRTM produces demand and cost estimates for 2019, 2026, 2031, 2036 and 2041.

2.3.3 Based on the base year (2015) costs, LEIM produces population and employment forecasts for the next forecast year, 2019. Along with the adjusted trip rates, these forecasts are used to calculate growth factors for the productions and attractions.

2.3.4 The from-home production trip rates derived from NTEM were adjusted to match the observed trip volumes on the validated base year RTM and PTM and 2015 population and

employment statistics. The trip rates vary by period and mode of transport, for the 12 person-type/household categories.

2.3.5   Attraction-end growth factors are derived for each zone and purpose using the LEIM outputs and trip attraction weights obtained from NTEM.

2.3.6   For non home-based trips, which are stored as origin destination matrices, the growth in attractions is applied to both ends of the trips.

2.3.7   The LEIM gives population and employment forecasts for zones in the FMA. For zones outside the FMA, growth factors derived from TEMPRO are applied by mode and purpose/car availability segment.

2.3.8   For new developments, where little or no representative demand exists in the base year matrices, travel patterns are derived in absolute terms. The trip ends are derived by the planning variables associated with the new developments with the production trip rates and the attraction weights.

2.3.9   The MDM then calculates the demand responses to the change in costs. Tour choice, mode choice and destination choice responses are modelled in the MDM. Highway and public transport users' route choices are modelled in the RTM and PTM. Route choice is not modelled for walk and cycle trips. The MDM works iteratively with the RTM and PTM. For each period, mode and purpose the MDM calculates demand using some initial cost assumptions. The RTM and PTM calculate the route costs and feed them back to the MDM, which will recalculate the demand.

Figure 3.   SRTM Forecasting – flow chart
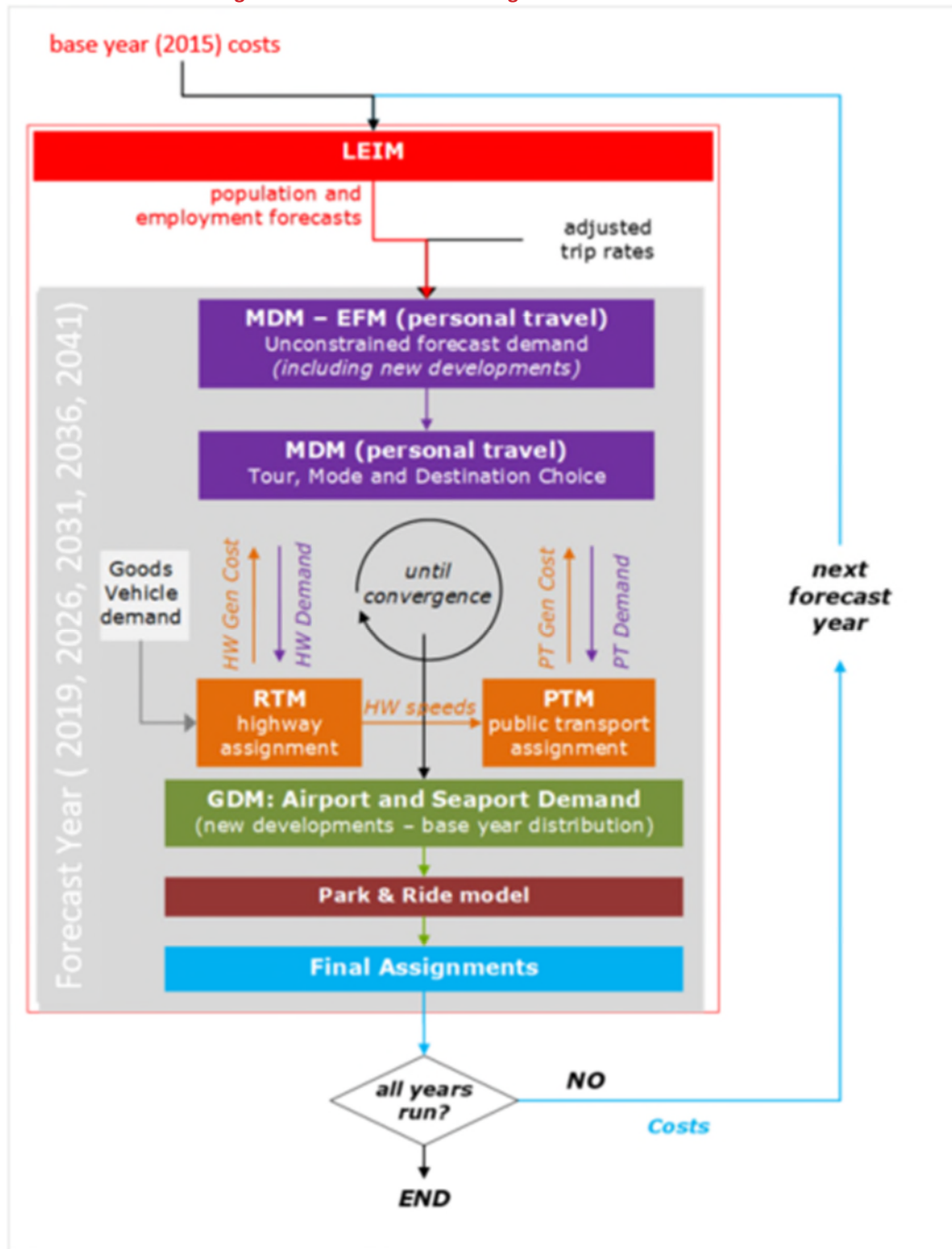
2.3.10   Using the converged highway and public transport costs, the GDM calculates the total number of trips to/from the seaports and Southampton Airport and distributes them appropriately. Demand corresponding to the GDM zones are replaced by the demand from the GDM to produce the final demand that is assigned on the road and public transport networks.

2.3.11   The final RTM and PTM assignments are used to assess the operation of the network and provide costs for the next forecast year (2026, after 2019, and so on).

3. REFERENCE CASE DEFINITIONS

3.1 Introduction

3.1.1 Reference Case definitions have been developed for five forecast year scenarios for use with SRTM, and form the basis of the 2019, 2026, 2031, 2036 and 2041 reference cases.

3.1.2 The key assumptions included in these reference case models are described in this chapter. These cover economic, demographic, land-use and transport supply changes in forecast years. The gateway model inputs for the corresponding years are also described.

3.2 Supply Changes

Highway Network Changes

3.2.1 The schemes included in the reference case networks are shown in Table 2. The schemes are included in the reference case networks for all of the modelled years (2019, 2026, 2031, 2036 and 2041).

Table 2. Road Network Changes Summary

District	Scheme	2019	2026	2031	2036	2041
Eastleigh	Botley Road / Burnett's Lane	✓	✓	✓	✓	✓
Eastleigh	Allington Lane / B3037 Fair Oak Road	✓	✓	✓	✓	✓
Eastleigh	Southampton Road / Chestnut Avenue	✓	✓	✓	✓	✓
Fareham	St Margaret's Rbt.	✓	✓	✓	✓	✓
Fareham	Peel Common Rbt.	✓	✓	✓	✓	✓
Fareham	Gudge Heath Lane	✓	✓	✓	✓	✓
Fareham	A27 Southampton Road, Fareham	✓	✓	✓	✓	✓
Fareham	Newgate Lane South, Fareham	✓	✓	✓	✓	✓
Fareham	Station Roundabout (Avenue approach)	✓	✓	✓	✓	✓
Fareham	Stubbington Bypass		✓	✓	✓	✓
Fareham	Peel Common Rbt.		✓	✓	✓	✓
Fareham, Gosport	Stubbington Bypass mitigation measures		✓	✓	✓	✓
Fareham,W'chester	M27 J9 and Parkway South roundabout	✓	✓	✓	✓	✓
Havant	Hulbert Rd/Purbook Way Jn (Dunsbury Hill)	✓	✓	✓	✓	✓
Havant	Dunsbury Hill Farm Business Park	✓	✓	✓	✓	✓
Havant	A3(M) J3	✓	✓	✓	✓	✓
Havant	Purbook Way / College Road	✓	✓	✓	✓	✓
Havant	Interbridges	✓	✓	✓	✓	✓
Havant	Purbrook Way / Stakes Hill Road		✓	✓	✓	✓
Havant	Purbrook Way f. Stakes Hill Rd to College Rd		✓	✓	✓	✓
Havant	Hulbert Rd / Frendstaple Rd / Tempest Ave		✓	✓	✓	✓
Havant/P'mouth	Hayling Island ferry service	✓	✓	✓	✓	✓
Isle of Wight	Mill Street, Newport	✓	✓	✓	✓	✓
Isle of Wight	St. Georges Way, Newport	✓	✓	✓	✓	✓
Isle of Wight	Forest Road / Parkhurst Rd, Newport	✓	✓	✓	✓	✓
Isle of Wight	Coppins Bridge - St Georges Approach	✓	✓	✓	✓	✓
Portsmouth	Havant Road/Eastern Road	✓	✓	✓	✓	✓
Portsmouth	The Hard, Queen St, Wickham St, Clock St	✓	✓	✓	✓	✓
Southampton	Commercial Rd/Morris Rd/Wyndham Place	✓	✓	✓	✓	✓
Southampton	M271 Redbridge Rbt. (RIS)	✓	✓	✓	✓	✓
Southampton	A33 W Approach/Redbridge Rd/Millbrook Rd W	✓	✓	✓	✓	✓
Southampton	Woolston - Victoria Rd / Woodley Rd	✓	✓	✓	✓	✓
Test Valley	M27 J3	✓	✓	✓	✓	✓
Test Valley	M271 Junction 1 / Brownhill Way	✓	✓	✓	✓	✓
Various	Smart Motorways M27	✓	✓	✓	✓	✓

Public Transport Supply

3.2.2   The equivalent list of public transport schemes are shown in Table 3 As with the road network schemes, the public transport schemes are included in the reference case networks for all of the modelled years.

Table 3.   Public Transport Network Changes

Scheme	2019	2026	2031	2036	2041
Eclipse Bus Rapid Transit Line Extension (Gosport)	✓	✓	✓	✓	✓

3.3   Demand Changes

Planning Input Data

3.3.1   The residential dwelling planning inputs are shown in Table 4 (Note: These are approximate as actual inputs are based on residential floorspace). The inputs are shown by district for the Core Modelled Area. The number of dwellings is shown for each of the modelled years.

3.3.2   The inputs are based on Local Authority data (provided centrally via HCC) as at April 2016 in accordance with adopted Local Plans at that time (it is anticipated that periodic updates of the landuse inputs will be undertaken to account for newly adopted Plans and planning permissions etc). In later model years beyond current Local Plan periods, the landuse module of the SRTM can replicate additional development floorspace over and above the allocated sites through a process of intensification of existing sites. This enables continued growth to be represented within existing developed areas. Intensification is limited to those areas where development already exists because it is not considered appropriate for the model to arbitrarily allocate development to undeveloped areas. It follows that there is less certainty in the actual location of this growth. The impact of intensification is not accounted for in the tables below.

Table 4.   Residential Dwellings LEIM Planning Input (permissible)

District	Total Planning Inputs				
	2015-2019	2015-2026	2015-2031	2015-2036	2015-2041
East Hampshire (Core)	641	1,511	1,599	1,599	1,599
Eastleigh	3,275	5,430	5,680	5,680	5,680
Fareham	1,402	3,996	5,496	6,996	7,796
Gosport	1,070	2,046	2,167	2,167	2,167
Havant	2,162	3,912	4,104	4,104	4,104
New Forest (Core)	257	796	926	1,001	1,062
Test Valley (Core)	1,175	2,824	3,224	3,274	3,282
Winchester (Core)	1,575	5,665	6,389	6,389	6,389
Portsmouth City	1,488	3,356	3,856	3,952	3,952
Southampton City	3,252	5,399	5,486	5,556	5,556
Isle of Wight	2,376	3,960	3,960	3,960	3,960
Core Modelled Area	**18,673**	**34,935**	**38,927**	**40,718**	**41,587**

3.3.3   The employment floorspace planning inputs are shown in Table 5. The inputs are shown by district for the Core Modelled Area. The level of floorspace is shown for each of the modelled years.

Table 5. Employment Floorspace (m^2) LEIM Planning Input (permissible) (Office+Industrial+Warehousing)

Total Planning Inputs					
District	2015-2019	2015-2026	2015-2031	2015-2036	2015-2041
East Hampshire (Core)	6,800	6,800	6,800	6,800	6,800
Eastleigh	25,423	188,283	188,283	188,283	188,283
Fareham	55,212	197,758	197,758	197,758	197,758
Gosport	90,949	131,233	131,233	131,233	131,233
Havant	91,374	150,146	150,146	150,146	150,146
New Forest (Core)	68,624	234,855	234,855	234,855	234,855
Test Valley (Core)	128,062	142,862	142,862	142,862	142,862
Winchester (Core)	94,911	177,395	177,395	177,395	177,395
Portsmouth City	126,001	210,944	210,944	210,944	210,944
Southampton City	-361	175,961	175,961	175,961	175,961
Isle of Wight	89,959	95,195	95,195	95,195	95,195
Core Modelled Area	**776,954**	**1,711,432**	**1,711,432**	**1,711,432**	**1,711,432**

3.3.4   Figure 4 shows the permissible development LEIM input. It is presented by zone and floorspace type.

Figure 4.   LEIM Input Permissible Development (sq metre)

Non-Residential (Net Gain)

NON RESI

60,000

FS2 Retail
FS3 Office
FS4 Industrial
FS5 Warehousing
FS8 Hotel and Other Accomodation
FS10 Leisure
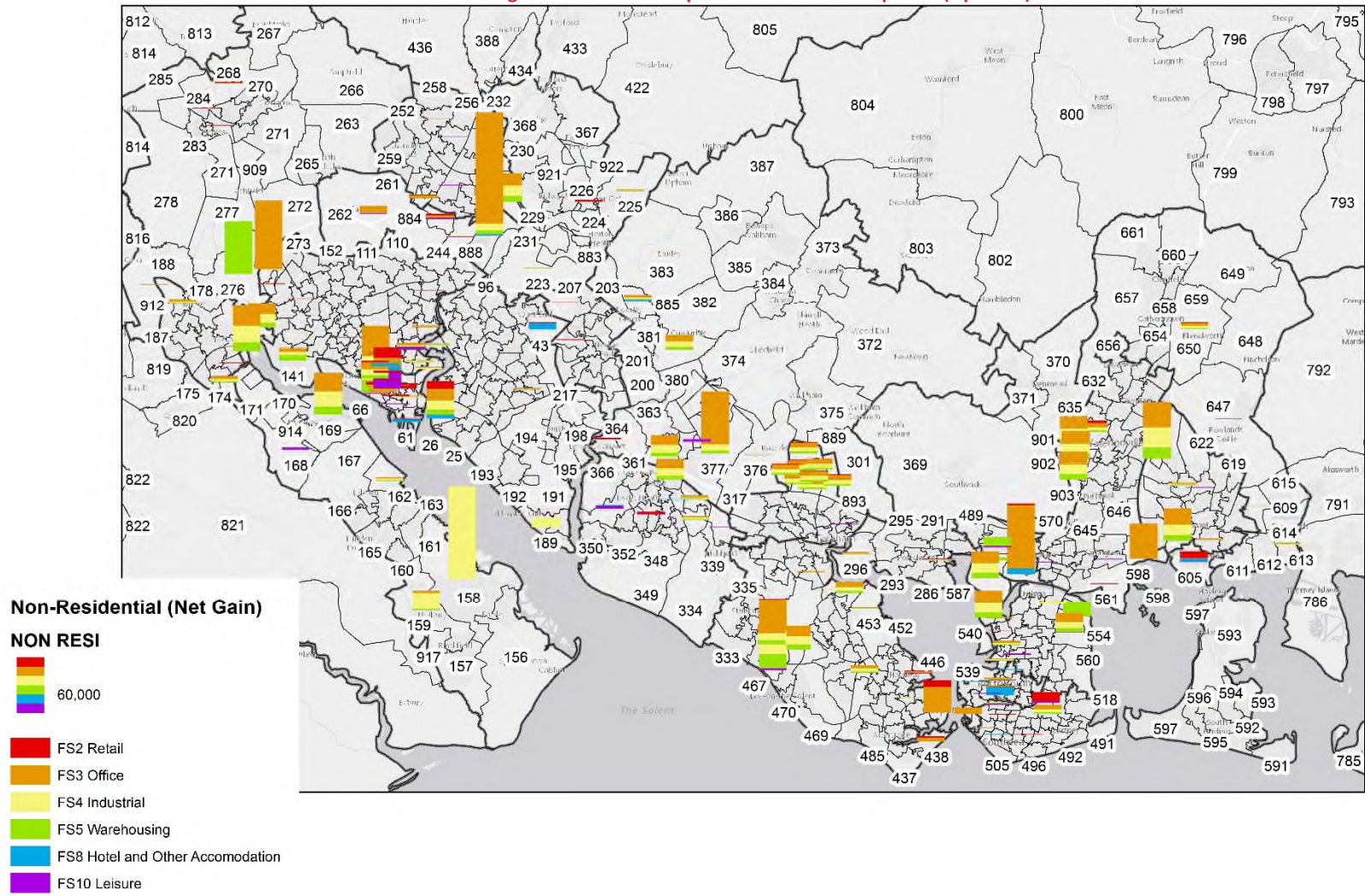
4. MODEL INPUT ASSUMPTIONS & PARAMETERS

4.1 Generic Assumptions

Values of Time

4.1.1 Consistent with WebTAG Databook, March 2017, values of working time have been increased in line with GDP per capita, whilst values for other purposes are related to changes in GDP per capita with an elasticity of 0.8.

4.2 MDM Assumptions

Car Occupancy

4.2.1 For the base year model, 2015, car occupancies were calculated for each purpose based on observed survey data for use in the MDM. Recent updates to car occupancy assumptions in WebTAG mean that occupancy is no longer forecast to change in future years, so the model retains the base year occupancy for the future years as shown in Table 6.

Table 6. Car Occupancies

Purpose	2019	2026	2031	2036	2041
HBW	1.113	1.113	1.113	1.113	1.113
HBB	1.128	1.128	1.128	1.128	1.128
HBE	1.697	1.697	1.697	1.697	1.697
HBO	1.512	1.512	1.512	1.512	1.512
NHB	1.181	1.181	1.181	1.181	1.181
NHO	1.467	1.467	1.467	1.467	1.467

Car Availability Splits

4.2.2 The availability of cars for making journeys is expected to change over time. Early increases in car availability level off, or are eroded slightly, by later years (Table 7).

Table 7. Car Availability Splits

Car Availability	2015	2019	2026	2031	2036
No Car	13.8%	12.7%	9.3%	7.7%	6.2%
Part Car	41.0%	39.7%	38.5%	37.7%	36.6%
Full Car	45.2%	47.6%	52.2%	54.6%	57.2%

Goods Vehicle changes over time

4.2.3 For commercial vehicles, growth factors derived from the National Transport (Freight) Model are used to calculate forecast year demand. For each forecast year and goods vehicle type, these factors are shown in Table 8.

Table 8. Goods Vehicle Growth Factors

Forecast Year	Vehicle Type	Growth Factor (rel. to 2015)
2019	LGVs	1.110
	HGVs	1.032
2026	LGVs	1.300
	HGVs	1.087
2031	LGVs	1.424
	HGVs	1.128
2036	LGVs	1.548
	HGVs	1.169
2041	LGVs	1.672
	HGVs	1.211

4.3 Seaport and Airport Input Assumptions

Southampton Airport

4.3.1 The 2010 modelled growth profile for Southampton Airport was generally based on the 2006 Airport Masterplan[1] but the decision was made in 2010, in consultation with the airport themselves, to delay growth forecasts by 5 years due to the recession.

4.3.2 A recent comparison of projected growth against realised passenger numbers provided by the Civil Aviation Authority[2] against 2006 masterplan forecasts, shown in Figure 5, suggests that passenger growth has been considerably lower than expected.

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[1] https://www.southamptonairport.com/media/1051/southampton_masterplan_final.pdf

[2] http://www.caa.co.uk/Data-and-analysis/UK-aviation-market/Airports/Datasets/UK-Airport-data/

Figure 5. **Southampton Airport passenger numbers forecasts**
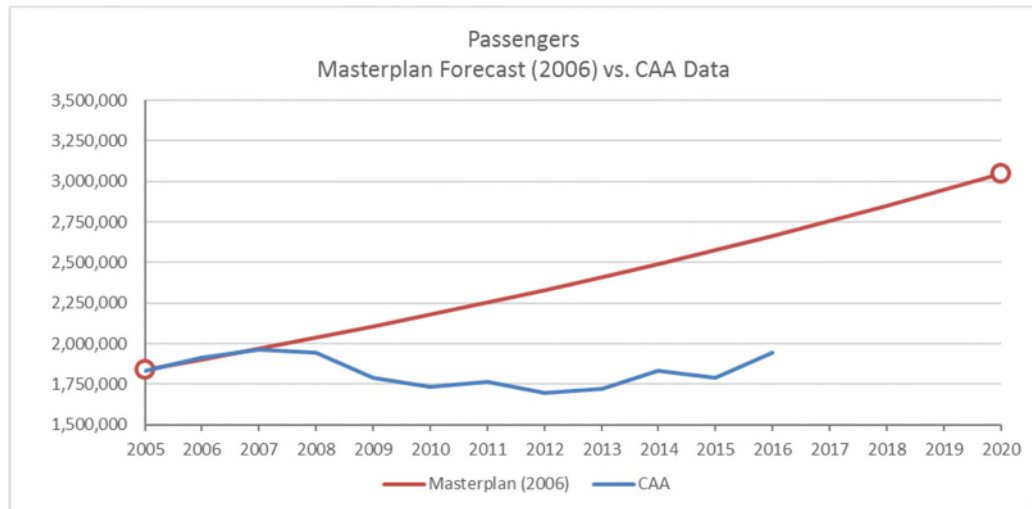
4.3.3   Since no new Southampton Airport Masterplan is available for the 2015 update, passenger growth has instead been assumed to follow the Department for Transport's more recent 2013 UK Aviation forecasts[3] which provide passenger growth for individual airports including Southampton.

4.3.4   Employee growth at the airport is assumed to be unchanged, and remain in line with the 2006 Masterplan (including the five year delay in growth) as no more recent employee data is available and no new Masterplan has been produced. Employee growth is not necessarily linked to passenger growth, and this demand is smaller so the assumption has less impact.

4.3.5   It was noted in the development of the 2010 model that only a very small amount of freight is flown from Southampton Airport, resulting in few LGV and HGV movements. No new or conflicting information is available to counter this, so this assumption is held.

4.3.6   The resulting growth profile for Southampton Airport is shown in **Error! Reference source not found.**.

Table 9. Southampton Airport Growth Profiles (from 2015)

Year	Passenger Growth	Employee Growth
2015	0%	0%
2019	2.43%	12.10%
2026	15.57%	41.91%
2031	27.67%	68.66%
2036	43.36%	100.45%
2041	59.33%	138.24%

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[3] https://www.gov.uk/government/publications/uk-aviation-forecasts-2013

4.4 Portsmouth Port

4.4.1 The 2010 modelled growth profile for Portsmouth Port was based on discussions with port authorities for the period up to 2015 and government forecasts thereafter.

4.4.2 In 2011 a Portsmouth Port masterplan was produced [4]. This included growth forecasts for passengers, at approximately 1.5% per annum, and freight demand, at approximately 2.5% per annum. Freight growth has also been used to inform employee growth at the port. The resulting growth profile is given in Table 10.

Table 10. Portsmouth Port growth profile (from 2015)

Year	Freight & Employee growth	Passenger growth
2015	0%	0%
2019	10.38%	6.17%
2026	31.21%	17.79%
2031	48.45%	26.90%
2036	67.96%	36.71%
2041	90.03%	47.27%

4.5 Southampton Port

4.5.1 Southampton Port growth was originally informed by the 2009 masterplan[5]. For the rebase exercise a draft consultation version of the 2016 masterplan was available [6] which has been used.

4.5.2 Table 6.2 of the 2016 masterplan provides growth forecasts to 2030 in cruise passengers and freight (split by containers, automotive and, bulk and general cargo). Passenger growth is taken directly from the forecast and freight growth is taken from the sum of all types. Employee growth is assumed to be in line with freight growth.

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[4] http://www.portsmouth-port.co.uk/uploads/downloads/PORT_MASTER_PLAN_Final_10_10_11.pdf

[5] http://www.southamptonvts.co.uk/admin/content/files/pdf_downloads/master%20plan/smp.pdf

[6] http://www.southamptonvts.co.uk/port_information/commercial/southampton_master_plan/

Table 11. Southampton Port growth profile (from 2015)

Year	Freight & Employee growth	Passenger growth
2015	0%	0%
2019	29.02%	34.52%
2026	57.84%	63.17%
2031	76.37%	80.17%
2036	96.58%	98.55%
2041	116.79%	116.93%

4.5.3   The 2016 consultation document states that by 2020 it is expected that the existing operational port estate will be operating close to its effective capacity and that expansion is likely to be realised in other areas in order to achieve forecast growth. In particular, the areas of Marchwood Industrial Park and the 'strategic land reserve' (known as Dibden Bay) on are identified as likely areas for expansion.

4.5.4   However, the document does not confirm solid plans or intentions for the new sites. It is anticipated that the existing industrial area of Marchwood will be ready for port use considerably earlier than Dibden Bay, which would require construction work, and that the two sites would handle freight traffic rather than cruise ships.

4.5.5   Although the Southampton Port masterplan mentions that expansion to Marchwood and Dibden Bay is very likely and included in growth forecasts, no solid plans for these zones and importantly no transport interventions have been included. As such, the growth is assumed to occur within the existing port area.

4.6 RTM Specific Assumptions

Vehicle Operation Costs

4.6.1   For the RTM, the values of time and operating costs are expressed using the SATURN software's pence per minute (ppm) and pence per kilometre (ppk) parameters. These parameters are calculated following WebTAG Databook March 2017 see Table 12.

Table 12. RTM PPM and PPK values (in 2010 prices)

	AM				IP				PM			
	PPM	PPK	K/M	Index	PPM	PPK	M/K	Index	PPM	PPK	M/K	Index
Car - Employer's Business												
2015	29.82	12.31	0.41	1.00	30.56	11.74	0.38	1.00	30.25	12.83	0.42	1.00
2019	31.92	12.00	0.38	0.98	32.71	11.44	0.35	0.97	32.38	12.52	0.39	0.98
2026	36.23	11.93	0.33	0.97	37.13	11.37	0.31	0.97	36.75	12.45	0.34	0.97
2031	39.99	11.59	0.29	0.94	40.98	11.04	0.27	0.94	40.57	12.09	0.30	0.94
2036	44.32	11.47	0.26	0.93	45.42	10.93	0.24	0.93	44.96	11.97	0.27	0.93
2041	49.02	11.36	0.23	0.92	50.23	10.82	0.22	0.92	49.73	11.86	0.24	0.92
Car - Other												
2015	17.07	5.66	0.33	1.00	15.49	5.49	0.35	1.00	17.08	5.86	0.34	1.00
2019	18.27	5.33	0.29	0.94	16.58	5.16	0.31	0.94	18.28	5.51	0.30	0.94
2026	20.74	5.35	0.26	0.94	18.82	5.18	0.28	0.94	20.75	5.53	0.27	0.95
2031	22.89	5.03	0.22	0.89	20.78	4.87	0.23	0.89	22.90	5.21	0.23	0.89
2036	25.37	4.90	0.19	0.87	23.03	4.74	0.21	0.86	25.38	5.07	0.20	0.87
2041	28.06	4.77	0.17	0.84	25.47	4.61	0.18	0.84	28.07	4.93	0.18	0.84
LGVs												
2015	19.41	7.55	0.39	1.00	18.37	7.34	0.40	1.00	18.94	7.50	0.40	1.00
2019	20.80	7.34	0.35	0.97	19.72	7.14	0.36	0.97	20.32	7.29	0.36	0.97
2026	23.61	7.42	0.31	0.98	22.38	7.22	0.32	0.98	23.06	7.37	0.32	0.98
2031	26.08	7.19	0.28	0.95	24.73	7.00	0.28	0.95	25.48	7.13	0.28	0.95
2036	28.91	7.07	0.24	0.94	27.41	6.89	0.25	0.94	28.24	7.01	0.25	0.93
2041	31.97	6.95	0.22	0.92	30.32	6.77	0.22	0.92	31.23	6.89	0.22	0.92
HGVs												
2015	21.40	46.30	2.16	1.00	21.40	43.70	2.04	1.00	21.40	48.86	2.28	1.00
2019	22.90	49.23	2.15	1.06	22.90	46.46	2.03	1.06	22.90	51.96	2.27	1.06
2026	26.00	55.66	2.14	1.20	26.00	52.58	2.02	1.20	26.00	58.74	2.26	1.20
2031	28.69	56.57	1.97	1.22	28.69	53.43	1.86	1.22	28.69	59.70	2.08	1.22
2036	31.80	56.57	1.78	1.22	31.80	53.43	1.68	1.22	31.80	59.70	1.88	1.22
2041	35.18	56.57	1.61	1.22	35.18	53.43	1.52	1.22	35.18	59.70	1.70	1.22

Vehicle Operation Costs

4.6.2   The highway network also incorporates car ferry fares and a toll on Itchen Bridge. These are assumed to increase in line with the value of time in future years.

4.6.3   This assumption is particularly important for car ferry fares to/from the Isle of Wight where this constitutes a significant proportion of the total journey costs. Approximations were required in order to ensure constant generalised travel times were passed to the MDM. This was because the RTM operates using two car user classes (In-work and Not in-work), while the MDM operates using 6 car purposes. The values of time and vehicle occupancies assumed varied by purpose and it was therefore not possible to ensure total travel costs to/from the Isle of Wight remained exactly fixed.

4.7 PTM Specific Assumptions

4.7.1   For bus and heavy rail, public transport fares have been assumed to rise at 1% per annum above the growth in RPI. For PT ferry services, public transport fares have been assumed to increase in line with values of time. Table 13 shows the actual and perceived growth in fares. Figures 6 and 7 show the growth graphically.

Table 13. PTM Specific Assumptions

	2015	2019	2026	2031	2036	2041
VOT	100	107	121	134	149	165
Bus Fares	100	104	112	117	123	130
Rail Fares	100	104	112	117	123	130
Ferry Fares	100	100	110	119	129	140
Perceived Bus Fares	100	97	92	87	83	79
Perceived Rail Fares	100	97	92	87	83	79
Perceived Ferry Fares	100	93	91	89	87	85

Figure 6. **Growth in Fares**
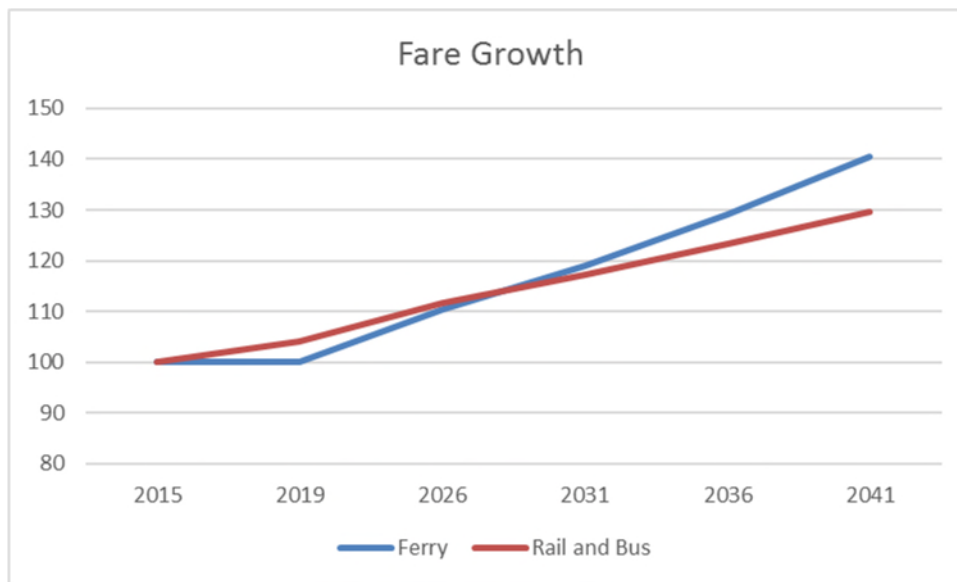
Figure 7. **Perceived Growth In PT Fares**
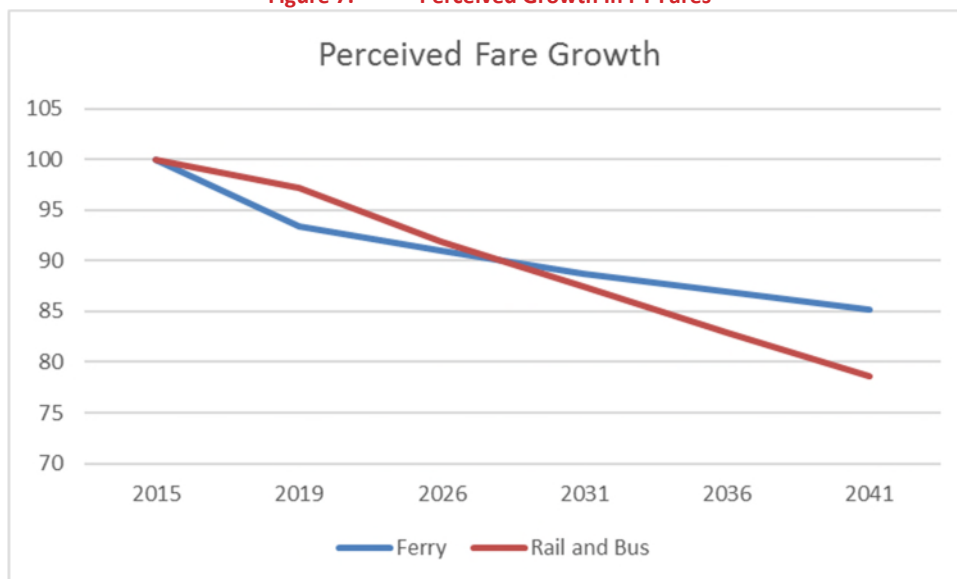
5. LEIM FORECASTS

5.1 Summary

5.1.1 This section presents LEIM forecasts including population, households and employment. In forecasting mode, the SRTM responds to the output network conditions and that influence the take-up of permissible floorspace (both residential and non-residential). This can make some locations/ areas more 'attractive' than others and can effectively supress employment and population growth in certain areas if the provision of new transport services/ infrastructure do not sufficiently mitigate against increased generalised cost of travel.

5.2 Population

5.2.1 Population forecasts for each modelled year are presented in Table 14. Forecasts are presented at district and area level, with the districts shown in Figure 8 below.

Figure 8.   Reported Districts and Areas
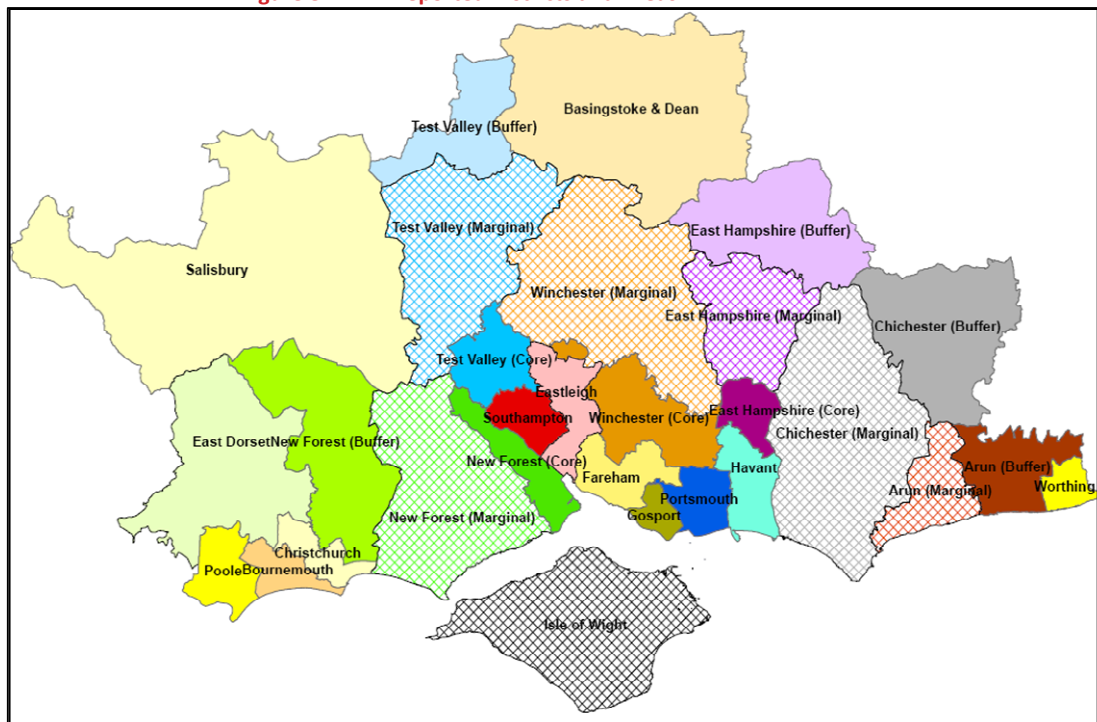
Table 14. Population Forecasts by District and Area

District	Total						Difference					Difference from 2015				
	2015	2019	2026	2031	2036	2041	2019	2026	2031	2036	2041	2019	2026	2031	2036	2041
East Hampshire (Core)	20,983	21,813	22,759	22,489	22,327	22,240	829	1,776	1,506	1,343	1,257	4%	8%	7%	6%	6%
Eastleigh	129,029	130,715	132,356	133,761	133,678	132,743	1,686	3,327	4,732	4,649	3,714	1%	3%	4%	4%	3%
Fareham	114,819	114,901	118,291	122,243	126,690	127,407	83	3,473	7,425	11,871	12,589	0%	3%	6%	10%	11%
Gosport	84,627	86,293	91,475	92,952	93,429	94,150	1,666	6,848	8,325	8,803	9,523	2%	8%	10%	10%	11%
Havant	122,892	122,864	121,420	121,502	122,104	122,837	-27	-1,472	-1,390	-788	-54	0%	-1%	-1%	-1%	0%
New Forest (Core)	71,223	68,729	69,399	70,241	70,429	70,371	-2,495	-1,825	-982	-794	-853	-4%	-3%	-1%	-1%	-1%
Test Valley (Core)	41,618	44,198	46,185	47,788	50,847	51,928	2,580	4,567	6,170	9,229	10,310	6%	11%	15%	22%	25%
Winchester (Core)	108,089	109,104	118,556	121,967	123,966	126,797	1,015	10,467	13,878	15,878	18,708	1%	10%	13%	15%	17%
Portsmouth City	211,696	213,893	222,570	226,878	227,786	228,183	2,196	10,874	15,182	16,090	16,486	1%	5%	7%	8%	8%
Southampton City	249,559	249,146	260,577	265,197	265,491	265,889	-413	11,018	15,638	15,932	16,330	0%	4%	6%	6%	7%
Isle of Wight	139,346	146,780	155,747	160,432	164,491	168,755	7,434	16,401	21,087	25,146	29,409	5%	12%	15%	18%	21%
Hampshire County	693,280	698,617	720,441	732,943	743,470	748,474	5,338	27,161	39,663	50,190	55,194	1%	4%	6%	7%	8%
Portsmouth City	211,696	213,893	222,570	226,878	227,786	228,183	2,196	10,874	15,182	16,090	16,486	1%	5%	7%	8%	8%
Southampton City	249,559	249,146	260,577	265,197	265,491	265,889	-413	11,018	15,638	15,932	16,330	0%	4%	6%	6%	7%
Core Modelled Area	**1,293,881**	**1,308,436**	**1,359,334**	**1,385,450**	**1,401,239**	**1,411,300**	**14,555**	**65,454**	**91,569**	**107,358**	**117,419**	**1%**	**5%**	**7%**	**8%**	**9%**
East Hampshire (Marginal)	30,089	30,842	32,570	33,600	34,112	34,363	753	2,481	3,511	4,023	4,275	3%	8%	12%	13%	14%
New Forest (Marginal)	74,831	77,537	81,058	83,507	85,505	86,890	2,706	6,227	8,677	10,674	12,059	4%	8%	12%	14%	16%
Test Valley (Marginal)	26,229	27,464	29,136	30,340	30,876	31,054	1,235	2,906	4,110	4,647	4,824	5%	11%	16%	18%	18%
Winchester (Marginal)	12,655	12,741	13,162	13,329	13,348	13,315	87	507	674	693	660	1%	4%	5%	5%	5%
Arun (Marginal)	86,375	85,128	84,507	85,590	87,090	87,934	-1,247	-1,868	-785	715	1,559	-1%	-2%	-1%	1%	2%
Chichester (Marginal)	94,766	97,733	107,177	111,220	112,329	112,794	2,967	12,411	16,454	17,563	18,028	3%	13%	17%	19%	19%
Marginal Modelled Area	**324,945**	**331,446**	**347,610**	**357,586**	**363,259**	**366,350**	**6,500**	**22,664**	**32,641**	**38,314**	**41,405**	**2%**	**7%**	**10%**	**12%**	**13%**
Arun (Buffer)	69,354	71,860	75,324	77,240	79,409	81,293	2,506	5,970	7,886	10,055	11,939	4%	9%	11%	14%	17%
Chichester (Buffer)	22,233	23,228	24,372	25,195	26,265	27,377	996	2,140	2,962	4,032	5,144	4%	10%	13%	18%	23%
East Hampshire (Buffer)	67,032	74,850	79,537	82,023	84,436	86,938	7,817	12,505	14,990	17,404	19,906	12%	19%	22%	26%	30%
New Forest (Buffer)	32,971	33,650	35,094	35,910	37,074	37,956	679	2,123	2,939	4,103	4,986	2%	6%	9%	12%	15%
Test Valley (Buffer)	52,879	57,056	59,470	62,115	64,525	66,753	4,177	6,591	9,236	11,646	13,874	8%	12%	17%	22%	26%
Bournemouth	194,538	204,337	220,669	231,254	243,516	255,249	9,799	26,131	36,716	48,978	60,711	5%	13%	19%	25%	31%
Poole	150,580	154,947	163,011	168,106	174,675	180,517	4,367	12,431	17,526	24,095	29,937	3%	8%	12%	16%	20%
Christchurch	49,067	49,879	51,721	52,689	54,094	55,006	813	2,654	3,622	5,027	5,939	2%	5%	7%	10%	12%
East Dorset	88,714	90,127	93,389	95,117	97,726	99,398	1,413	4,675	6,403	9,012	10,684	2%	5%	7%	10%	12%
Basingstoke & Dean	173,856	188,277	204,081	214,047	223,664	232,277	14,421	30,225	40,191	49,808	58,421	8%	17%	23%	29%	34%
Worthing	107,718	113,191	120,677	125,085	130,000	135,119	5,473	12,959	17,367	22,282	27,401	5%	12%	16%	21%	25%
Salisbury	122,045	129,937	130,829	134,627	138,103	141,094	7,892	8,785	12,582	16,058	19,049	6%	7%	10%	13%	16%
Buffer Area	**1,130,986**	**1,191,339**	**1,258,174**	**1,303,406**	**1,353,485**	**1,398,975**	**60,353**	**127,188**	**172,420**	**222,499**	**267,990**	**5%**	**11%**	**15%**	**20%**	**24%**
Total	**2,749,812**	**2,831,220**	**2,965,118**	**3,046,442**	**3,117,983**	**3,176,625**	**81,408**	**215,306**	**296,631**	**368,171**	**426,813**	**3%**	**8%**	**11%**	**13%**	**16%**

5.3 Households

5.3.1 Table 15 shows the growth in residential floorspace over the forecast years and Figure 9 show the uptake of residential households compared to LEIM inputs for the core and marginal areas.

Table 15. Growth of Residential Floorspace by Year

District	2015	2019	2026	2031	2036	2041	2019	2026	2031	2036	2041	2019	2026	2031	2036	2041
East Hampshire (Core)	8,590	9,131	9,775	9,857	9,907	10,066	542	1,185	1,267	1,317	1,476	6%	14%	15%	15%	17%
Eastleigh	54,153	55,878	56,807	58,415	59,686	60,877	1,725	2,654	4,262	5,533	6,724	3%	5%	8%	10%	12%
Fareham	48,137	49,266	51,858	54,184	57,185	58,478	1,129	3,721	6,047	9,048	10,341	2%	8%	13%	19%	21%
Gosport	36,808	37,662	39,603	40,183	40,657	41,699	853	2,795	3,375	3,848	4,890	2%	8%	9%	10%	13%
Havant	52,493	53,120	52,858	53,487	54,587	55,965	627	365	994	2,094	3,472	1%	1%	2%	4%	7%
New Forest (Core)	30,394	29,704	29,207	29,885	30,573	31,141	-690	-1,187	-510	179	746	-2%	-4%	-2%	1%	2%
Test Valley (Core)	17,910	19,375	20,784	21,389	21,769	22,158	1,465	2,875	3,480	3,859	4,248	8%	16%	19%	22%	24%
Winchester (Core)	43,068	44,921	49,815	51,398	52,091	52,983	1,853	6,747	8,330	9,023	9,915	4%	16%	19%	21%	23%
Portsmouth City	89,501	90,546	95,703	98,736	100,296	101,603	1,045	6,202	9,235	10,796	12,103	1%	7%	10%	12%	14%
Southampton City	104,331	106,907	114,028	116,952	118,838	120,737	2,576	9,697	12,621	14,507	16,406	2%	9%	12%	14%	16%
Isle of Wight	62,652	66,216	71,730	74,987	77,570	80,570	3,565	9,079	12,335	14,918	17,918	6%	14%	20%	24%	29%
Hampshire County	291,553	299,057	310,708	318,799	326,454	333,367	7,504	19,155	27,246	34,901	41,814	3%	7%	9%	12%	14%
Portsmouth City	89,501	90,546	95,703	98,736	100,296	101,603	1,045	6,202	9,235	10,796	12,103	1%	7%	10%	12%	14%
Southampton City	104,331	106,907	114,028	116,952	118,838	120,737	2,576	9,697	12,621	14,507	16,406	2%	9%	12%	14%	16%
Core Modelled Area	**548,036**	**562,726**	**592,169**	**609,473**	**623,158**	**636,277**	**14,690**	**44,133**	**61,437**	**75,122**	**88,241**	**3%**	**8%**	**11%**	**14%**	**16%**
East Hampshire (Marginal)	12,695	12,983	13,802	14,438	14,934	15,333	287	1,107	1,742	2,239	2,638	2%	9%	14%	18%	21%
New Forest (Marginal)	34,153	35,420	36,758	38,224	39,627	40,838	1,266	2,604	4,070	5,474	6,685	4%	8%	12%	16%	20%
Test Valley (Marginal)	10,837	11,303	12,086	12,749	13,280	13,684	466	1,249	1,913	2,443	2,847	4%	12%	18%	23%	26%
Winchester (Marginal)	5,410	5,615	6,071	6,353	6,509	6,660	205	660	942	1,099	1,249	4%	12%	17%	20%	23%
Arun (Marginal)	37,933	38,560	38,489	39,131	39,970	40,900	627	556	1,198	2,037	2,967	2%	1%	3%	5%	8%
Chichester (Marginal)	41,999	44,254	48,575	50,994	51,993	52,849	2,256	6,577	8,995	9,994	10,850	5%	16%	21%	24%	26%
Marginal Modelled Area	**143,027**	**148,134**	**155,780**	**161,888**	**166,314**	**170,264**	**5,107**	**12,753**	**18,860**	**23,286**	**27,237**	**4%**	**9%**	**13%**	**16%**	**19%**

Figure 9. Comparison between input and output Residential Households
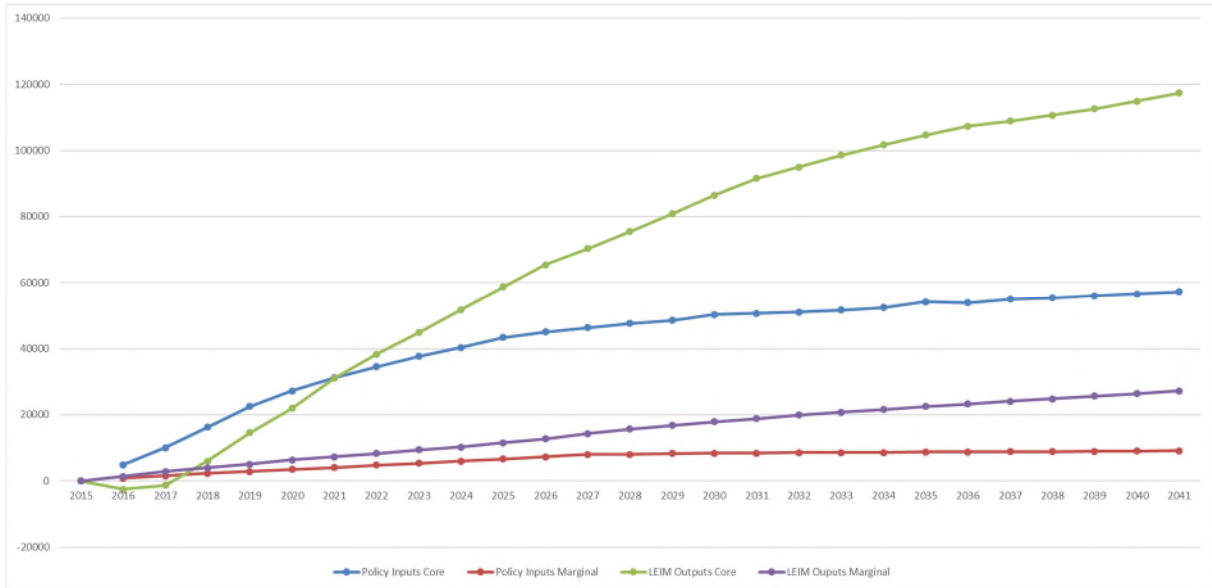
5.4 Employment

5.4.1 Table 16 show the growth in LEIM employment forecasts by district and area. Table 17 shows the growth in employment floorspace and Figure 10 show the uptake of employment floorspace (office, industrial & warehousing floorspace) compared to LEIM inputs for the core and marginal areas.

Table 16. Employment Forecasts by District and Area

District	2015	2019	2026	2031	2036	2041	2019	2026	2031	2036	2041	2019	2026	2031	2036	2041
East Hampshire (Core)	4,934	5,479	5,745	5,581	5,472	5,491	544	811	647	537	557	11%	16%	13%	11%	11%
Eastleigh	64,035	65,137	68,502	72,005	75,890	77,852	1,102	4,467	7,970	11,855	13,817	2%	7%	12%	19%	22%
Fareham	52,571	53,488	58,232	62,836	65,702	67,272	917	5,661	10,265	13,131	14,701	2%	11%	20%	25%	28%
Gosport	28,355	33,550	38,659	42,095	46,330	47,559	5,195	10,304	13,740	17,975	19,205	18%	36%	48%	63%	68%
Havant	51,005	53,299	55,902	54,538	53,382	53,900	2,294	4,897	3,533	2,377	2,895	4%	10%	7%	5%	6%
New Forest (Core)	29,521	31,806	36,851	39,554	38,889	38,525	2,285	7,330	10,032	9,367	9,004	8%	25%	34%	32%	30%
Test Valley (Core)	23,032	27,529	29,724	31,771	33,485	35,416	4,498	6,692	8,739	10,454	12,384	20%	29%	38%	45%	54%
Winchester (Core)	74,610	74,092	72,906	74,331	76,868	78,568	-517	-1,704	-279	2,259	3,958	-1%	-2%	0%	3%	5%
Portsmouth City	110,117	112,013	112,342	109,418	106,699	105,805	1,896	2,225	-699	-3,419	-4,313	2%	2%	-1%	-3%	-4%
Southampton City	123,833	128,312	133,282	135,169	137,596	139,351	4,479	9,449	11,336	13,763	15,518	4%	8%	9%	11%	13%
Isle of Wight	56,849	59,032	60,641	61,421	62,814	64,164	2,182	3,791	4,572	5,964	7,315	4%	7%	8%	10%	13%
Hampshire County	328,063	344,381	366,520	382,711	396,018	404,582	16,318	38,456	54,647	67,955	76,519	5%	12%	17%	21%	23%
Portsmouth City	110,117	112,013	112,342	109,418	106,699	105,805	1,896	2,225	-699	-3,419	-4,313	2%	2%	-1%	-3%	-4%
Southampton City	123,833	128,312	133,282	135,169	137,596	139,351	4,479	9,449	11,336	13,763	15,518	4%	8%	9%	11%	13%
Core Modelled Area	**618,863**	**643,738**	**672,784**	**688,719**	**703,126**	**713,902**	**24,875**	**53,921**	**69,856**	**84,263**	**95,039**	**4%**	**9%**	**11%**	**14%**	**15%**
East Hampshire (Marginal)	12,531	12,937	13,372	13,429	13,574	13,624	406	841	898	1,042	1,093	3%	7%	7%	8%	9%
New Forest (Marginal)	33,691	34,447	35,390	35,495	35,822	36,083	756	1,699	1,804	2,131	2,392	2%	5%	5%	6%	7%
Test Valley (Marginal)	11,454	11,537	11,120	10,274	9,821	9,428	83	-334	-1,180	-1,634	-2,026	1%	-3%	-10%	-14%	-18%
Winchester (Marginal)	8,419	8,175	5,831	4,016	3,083	2,450	-244	-2,588	-4,403	-5,336	-5,969	-3%	-31%	-52%	-63%	-71%
Arun (Marginal)	27,380	27,562	26,028	24,553	24,160	24,181	182	-1,352	-2,827	-3,219	-3,199	1%	-5%	-10%	-12%	-12%
Chichester (Marginal)	55,649	57,464	59,721	61,571	62,158	62,397	1,815	4,072	5,922	6,509	6,748	3%	7%	11%	12%	12%
Marginal Modelled Area	**149,124**	**152,122**	**151,462**	**149,339**	**148,618**	**148,164**	**2,998**	**2,337**	**214**	**-507**	**-961**	**2%**	**2%**	**0%**	**0%**	**-1%**
Arun (Buffer)	23,574	24,282	24,980	25,359	25,846	26,342	708	1,406	1,786	2,272	2,768	3%	6%	8%	10%	12%
Chichester (Buffer)	8,472	8,717	8,944	9,027	9,143	9,244	245	472	555	671	771	3%	6%	7%	8%	9%
East Hampshire (Buffer)	25,726	26,269	26,846	27,204	27,653	28,148	542	1,120	1,478	1,927	2,421	2%	4%	6%	7%	9%
New Forest (Buffer)	16,079	17,307	18,403	19,382	20,410	21,553	1,229	2,324	3,304	4,331	5,475	8%	14%	21%	27%	34%
Test Valley (Buffer)	28,357	29,100	29,053	28,638	28,394	28,116	744	696	281	37	-241	3%	2%	1%	0%	-1%
Bournemouth	89,365	91,936	94,773	96,288	98,519	100,834	2,571	5,408	6,923	9,154	11,469	3%	6%	8%	10%	13%
Poole	83,743	85,383	87,125	87,949	89,377	90,909	1,640	3,382	4,206	5,634	7,166	2%	4%	5%	7%	9%
Christchurch	22,500	22,928	23,395	23,634	24,020	24,428	427	894	1,134	1,520	1,928	2%	4%	5%	7%	9%
East Dorset	34,748	35,473	36,223	36,474	36,964	37,505	725	1,475	1,725	2,216	2,757	2%	4%	5%	6%	8%
Basingstoke & Dean	82,255	84,788	87,003	88,184	90,007	91,865	2,534	4,748	5,929	7,752	9,611	3%	6%	7%	9%	12%
Worthing	50,481	52,100	53,662	54,510	55,568	56,646	1,620	3,182	4,029	5,087	6,165	3%	6%	8%	10%	12%
Salisbury	69,863	68,273	68,225	69,648	71,196	72,850	-1,590	-1,638	-215	1,333	2,987	-2%	-2%	0%	2%	4%
Buffer Area	**535,163**	**546,557**	**558,630**	**566,296**	**577,098**	**588,440**	**11,394**	**23,468**	**31,133**	**41,935**	**53,277**	**2%**	**4%**	**6%**	**8%**	**10%**
Total	**1,303,150**	**1,342,417**	**1,382,876**	**1,404,353**	**1,428,842**	**1,450,505**	**39,267**	**79,726**	**101,203**	**125,692**	**147,355**	**3%**	**6%**	**8%**	**10%**	**11%**

Table 17. Growth of Employment Floorspace (Office, Industrial & Warehousing)

District	Total						Difference					Difference from 2015				
	2015	2019	2026	2031	2036	2041	2019	2026	2031	2036	2041	2019	2026	2031	2036	2041
East Hampshire (Core)	88,987	95,787	95,787	95,787	95,787	95,787	6,800	6,800	6,800	6,800	6,800	8%	8%	8%	8%	8%
Eastleigh	1,859,027	1,885,232	1,989,312	2,072,712	2,117,911	2,122,230	26,205	130,286	213,686	258,885	263,204	1%	7%	11%	14%	14%
Fareham	1,029,171	1,084,442	1,116,389	1,160,830	1,190,739	1,194,450	55,271	87,218	131,659	161,568	165,279	5%	8%	13%	16%	16%
Gosport	435,302	526,251	535,407	546,120	564,299	564,333	90,950	100,105	110,818	128,998	129,032	21%	23%	25%	30%	30%
Havant	920,590	1,026,432	1,040,804	1,050,026	1,069,248	1,082,403	105,842	120,214	129,436	148,658	161,813	11%	13%	14%	16%	18%
New Forest (Core)	565,350	641,680	738,999	803,622	815,298	817,923	76,331	173,650	238,272	249,949	252,574	14%	31%	42%	44%	45%
Test Valley (Core)	631,053	759,116	774,319	774,378	774,438	774,452	128,063	143,266	143,325	143,385	143,399	20%	23%	23%	23%	23%
Winchester (Core)	1,284,876	1,379,801	1,412,585	1,435,105	1,456,176	1,456,176	94,925	127,708	150,229	171,300	171,300	7%	10%	12%	13%	13%
Portsmouth City	1,698,142	1,824,555	1,846,967	1,863,249	1,878,328	1,895,771	126,413	148,825	165,107	180,187	197,630	7%	9%	10%	11%	12%
Southampton City	2,328,373	2,396,154	2,493,702	2,549,185	2,595,739	2,610,305	67,781	165,329	220,812	267,367	281,932	3%	7%	9%	11%	12%
Isle of Wight	713,753	751,907	766,518	784,501	795,679	796,302	38,153	52,765	70,748	81,925	82,549	5%	7%	10%	11%	12%
Hampshire County	6,814,356	7,398,742	7,703,602	7,938,581	8,083,898	8,107,756	584,386	889,246	1,124,226	1,269,542	1,293,400	9%	13%	16%	19%	19%
Portsmouth City	1,698,142	1,824,555	1,846,967	1,863,249	1,878,328	1,895,771	126,413	148,825	165,107	180,187	197,630	7%	9%	10%	11%	12%
Southampton City	2,328,373	2,396,154	2,493,702	2,549,185	2,595,739	2,610,305	67,781	165,329	220,812	267,367	281,932	3%	7%	9%	11%	12%
Core Modelled Area	**11,554,624**	**12,371,358**	**12,810,789**	**13,135,516**	**13,353,645**	**13,410,134**	**816,734**	**1,256,165**	**1,580,892**	**1,799,021**	**1,855,510**	**7%**	**11%**	**14%**	**16%**	**16%**
East Hampshire (Marginal)	197,728	201,232	204,647	207,623	209,797	209,989	3,504	6,919	9,895	12,070	12,261	2%	3%	5%	6%	6%
New Forest (Marginal)	375,242	380,518	389,323	392,479	393,328	393,448	5,276	14,081	17,237	18,086	18,206	1%	4%	5%	5%	5%
Test Valley (Marginal)	312,100	312,100	312,100	312,100	312,100	312,100	0	0	0	0	0	0%	0%	0%	0%	0%
Winchester (Marginal)	154,231	154,231	154,231	154,231	154,231	154,231	1	1	1	1	1	0%	0%	0%	0%	0%
Arun (Marginal)	356,541	356,538	356,538	356,538	356,538	356,538	-3	-3	-3	-3	-3	0%	0%	0%	0%	0%
Chichester (Marginal)	661,015	689,055	724,979	752,455	756,562	759,188	28,041	63,964	91,440	95,547	98,173	4%	10%	14%	14%	15%
Marginal Modelled Area	**2,056,857**	**2,093,675**	**2,141,818**	**2,175,426**	**2,182,557**	**2,185,494**	**36,818**	**84,961**	**118,570**	**125,700**	**128,638**	**2%**	**4%**	**6%**	**6%**	**6%**

Figure 10.   Comparison between Input and Output Employment Floorspace
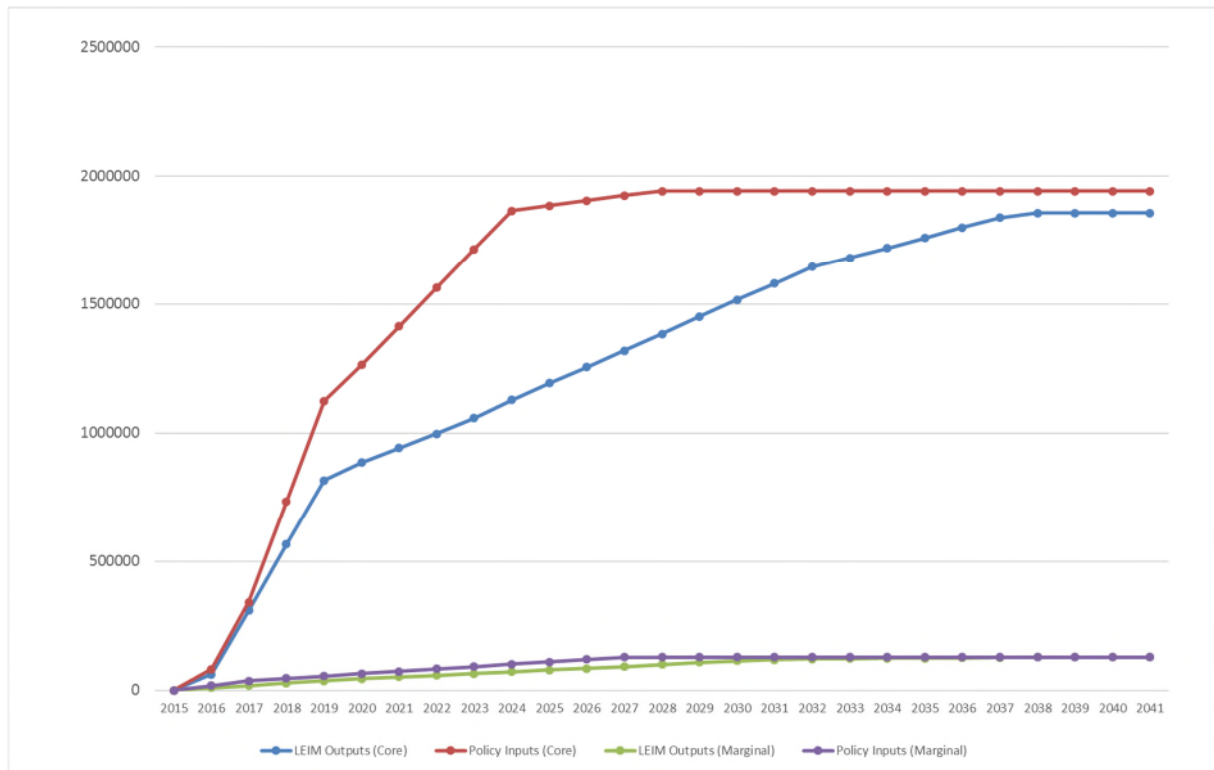
6.   MDM & GDM FORECASTS

6.1   Summary

6.1.1   This section presents forecasts from the MDM and the GDM. MDM forecasts include origin and destination trip data and total trips by mode. GDM forecasts include trips to each port by mode, and car and PT mode share.

6.2   MDM Forecasts

6.2.1   Figure 11[7] shows the total number of trips made to / from or within the Core Fully Modelled Area, broken down by main mode, for each modelled year. Figure 12 shows the percentage change in trips from the base year for each mode.

6.2.2   Tables 18 to 20 show the demand by mode for 2015 and 2031. This has been presented by local authority within the South Hampshire Core Area and also aggregated to marginal, buffer and external. The tables show demand by mode, mode share (separately including and excluding Active Modes) and also absolute and percentage changes in demand. Over the 12 hour period car journeys increase by 20%, public transport by 4% and active modes drop by 1%.

Figure 11.   Total Trips To/From or Within the Core FMA by Mode and Year

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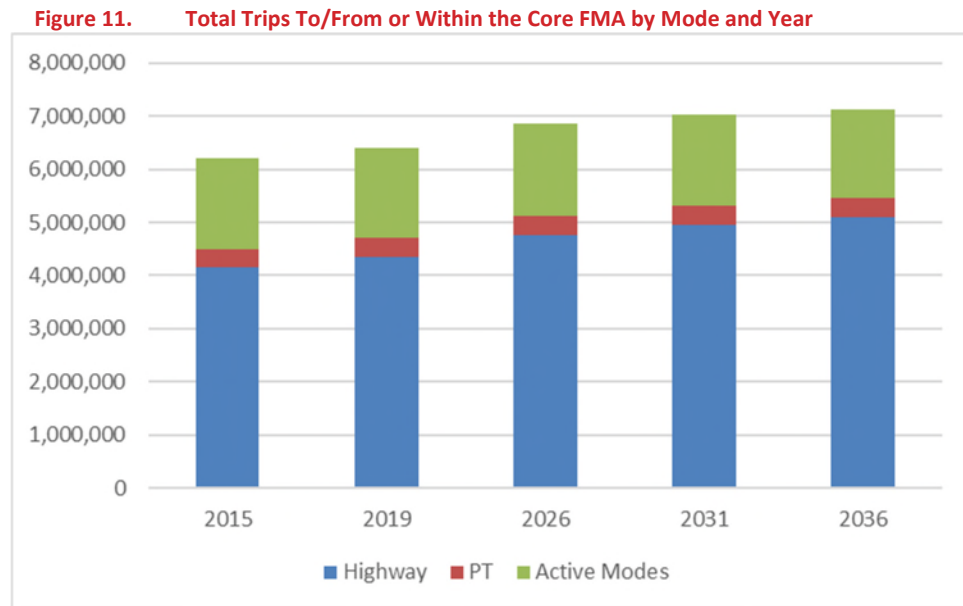
[7] This and all further outputs are based on test DQV.

Figure 12.   Change in Total Trips To/From/Within the Core FMA by Mode from 2015

Table 18. Demand by Core Area Authority by Mode (2015 & 2031)

2015 12hr - Car

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	61445	4533	15982	5492	3782	1303	123	1171	616	87	15	12704	5948	2448	115649
Test Valley	4709	20124	19529	11785	4545	853	67	416	248	41	20	2817	5034	1243	71432
Southampton	16479	19294	222248	46634	11438	11684	480	4671	2319	394	77	7365	10414	5973	359471
Eastleigh	5634	12331	46882	94114	24736	12319	638	5066	2158	292	22	4213	7348	5716	221468
Winchester	3830	4789	12079	24109	60476	14866	1831	8730	7839	965	48	8260	19749	10954	178526
Fareham	1288	877	11954	11937	14701	102105	21090	23144	7889	796	11	2357	2277	3639	204064
Gosport	124	70	535	631	2028	21238	65273	3819	1245	104	7	397	266	702	96439
Portsmouth	1037	393	4926	4795	8344	22497	3915	211696	35865	6149	332	9082	3691	9030	321752
Havant	547	239	2526	2146	7764	7681	1148	34060	111141	17243	56	19810	3895	7110	215368
East Hampshire	104	49	477	348	1001	858	111	7432	19543	6209	18	3293	1181	2065	42687
Isle of Wight	12	20	55	21	49	11	7	240	57	18	240703	116	63	785	242156
Marginal	12830	2963	6875	3993	8138	2639	420	9723	20192	3290	211	39854	18147	12871	142148
Buffer	5865	5602	10433	7515	19846	2522	311	4196	4546	1209	77	17765	5926	23174	108988
External	2213	1364	6479	6222	11716	3758	716	9712	7827	2130	918	12625	21008	33643	120332
Total	116117	72647	360980	219743	178563	204335	96129	324077	221486	38927	242517	140657	104948	119354	2440480

2031 12hr - Car

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	67122	6284	19871	7251	3923	1751	209	1722	804	112	20	14343	7247	2816	133475
Test Valley	6874	24568	26586	14928	5475	1393	167	804	393	55	29	3604	6580	1539	92997
Southampton	22464	27369	264910	56571	13389	14482	1273	6431	2912	499	147	8572	13463	8163	440646
Eastleigh	7490	15867	55284	100117	27747	15815	1644	7153	2951	399	47	5100	9229	7143	255984
Winchester	3956	5888	13397	26721	58765	18993	3207	12882	10175	1527	51	9106	23041	12084	199793
Fareham	1728	1444	14318	15000	18564	110418	27133	29228	10275	1184	14	3027	2854	4127	239313
Gosport	227	190	1310	1580	3416	26643	88939	5853	2096	215	12	677	405	886	132451
Portsmouth	1513	792	6730	6827	12718	29800	6461	240286	40401	7579	589	12410	5311	13409	384827
Havant	688	369	3064	2797	9932	10151	2033	37639	114688	19362	64	25112	4802	7660	238362
East Hampshire	130	66	594	458	1554	1286	247	8644	22341	6792	18	3863	1330	2062	49385
Isle of Wight	17	28	109	42	53	14	12	486	65	17	307418	153	86	1084	309583
Marginal	14308	3702	7703	4723	9009	3360	693	12637	25214	3841	279	46214	21196	15065	167946
Buffer	7025	7289	12736	9068	22885	3168	469	5717	5570	1371	104	20590	7785	28454	132231
External	2420	1662	7992	7333	12503	4181	886	14071	8176	2119	1221	14364	24703	38676	140305
Total	135962	95517	434605	253417	199931	241457	133374	383551	246061	45073	310013	167136	128031	143167	2917296

2015 12hr - PT

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	1912	54	1988	74	132	37	26	46	15	2	58	299	169	386	5200
Test Valley	53	769	1000	331	115	25	4	46	13	0	21	112	183	376	3048
Southampton	1931	1006	28958	3856	1187	945	139	638	145	6	651	1061	1477	2893	44893
Eastleigh	69	309	3702	3807	1490	204	64	244	60	12	199	235	254	1152	11799
Winchester	139	112	1241	1476	1317	416	60	288	104	4	300	273	1093	3691	10523
Fareham	36	25	918	210	407	2452	1197	2075	381	15	140	101	126	762	8846
Gosport	27	4	130	61	59	1177	2660	1941	164	1	164	132	78	276	6873
Portsmouth	49	46	646	240	293	2130	1909	19842	4279	404	1395	1345	574	2008	35158
Havant	18	13	157	47	107	388	173	4333	9709	427	200	954	148	904	17578
East Hampshire	2	0	6	12	12	15	1	393	415	154	52	125	1		1296
Isle of Wight	50	29	656	211	314	162	169	1396	209	58	22701	323	311	1411	27999
Marginal	281	111	1136	216	274	103	127	1341	1015	123	341	2215	852	1517	9654
Buffer	165	208	1544	292	1088	135	80	556	165	1	312	859	545	422	6374
External	388	393	2746	1194	3543	778	315	1980	961	115	1443	1439	381	580	16257
Total	5122	3078	44827	12026	10338	8968	6923	35119	17635	1331	27976	9474	6192	16486	205496

2031 12hr - PT

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	1722	73	2013	98	126	44	37	78	19	2	86	314	198	360	5171
Test Valley	74	762	1460	343	133	30	11	86	24	0	41	133	193	367	3657
Southampton	2099	1546	26598	4175	1267	1115	357	721	154	9	999	1059	1690	3551	45341
Eastleigh	98	324	3856	3675	1423	240	78	347	90	11	282	283	387	1738	12831
Winchester	128	129	1312	1392	3470	477	106	548	270	22	336	283	1119	3645	13235
Fareham	43	29	1060	224	460	2391	1387	2192	428	16	177	130	155	792	9505
Gosport	37	11	285	71	101	1325	3059	2110	246	3	251	149	99	334	8081
Portsmouth	86	89	732	353	554	2292	2134	18180	3843	356	1601	1258	645	2329	34451
Havant	23	24	162	77	266	432	269	3812	8133	389	223	933	163	1092	15999
East Hampshire	2	0	9	12	22	16	3	344	378	146	59	125	1	111	1228
Isle of Wight	74	50	925	285	350	191	258	1544	232	65	23205	400	453	1947	29980
Marginal	296	128	1118	253	284	133	141	1229	984	123	411	2228	936	1572	9835
Buffer	194	219	1693	385	1112	164	105	619	179	1	451	923	494	410	6951
External	358	379	2156	1703	3462	789	363	2156	1120	118	1893	1428	357	668	17888
Total	5234	3763	44317	13067	13030	9640	8309	33966	16100	1262	30013	9646	6891	18917	214154

2015 12hr - Active

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	33100	70	743	0	0	0	0	0	0	0	0	381	0	0	34294
Test Valley	71	16788	1431	496	62	0	0	0	0	0	0	118	0	0	18966
Southampton	727	1329	189137	3692	34	77	0	0	0	0	0	59	0	0	195055
Eastleigh	0	483	3709	53149	845	200	0	0	0	0	0	51	0	0	58387
Winchester	0	65	36	892	51581	854	21	115	366	10	0	144	0	0	54084
Fareham	0	0	81	207	891	51746	1828	876	10	0	0	1	0	0	55639
Gosport	0	0	0	0	20	1843	61881	12	0	0	0	0	0	0	63757
Portsmouth	0	0	0	0	111	856	12	193367	1439	3	0	18	0	0	195806
Havant	0	0	0	0	350	10	0	1487	63194	642	0	819	0	0	66503
East Hampshire	0	0	0	0	10	0	0	3	672	3801	0	52	0	0	4538
Isle of Wight	0	0	0	0	0	0	0	0	0	0	108280	0	0	0	108280
Marginal	400	131	63	0	149	1	0	19	837	53	0	200381	0	0	202035
Buffer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
External	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	34298	18866	195199	58437	54054	55588	63742	195878	66519	4509	108280	201974	0	0	1057344

2031 12hr - Active

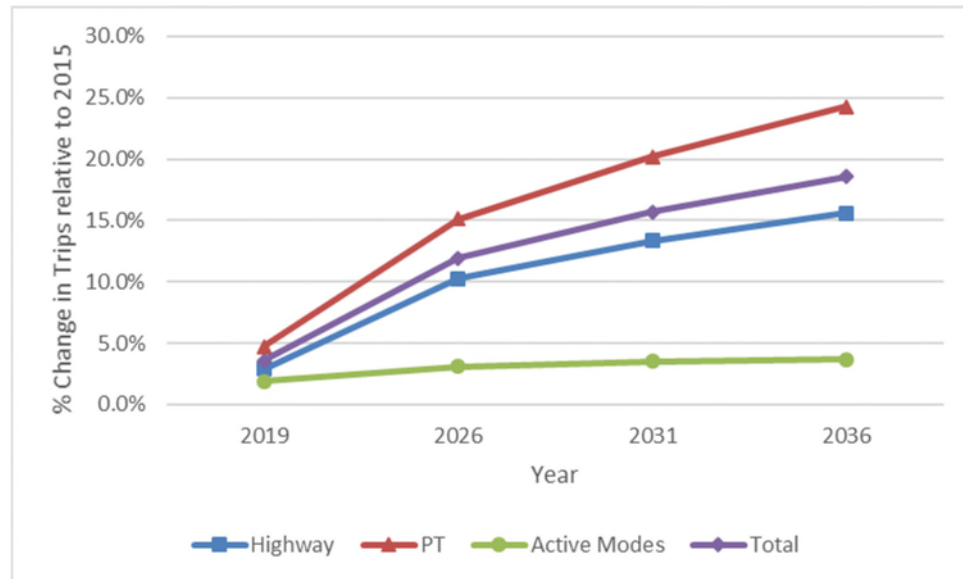|	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	28243	99	883	1	0	0	0	0	0	0	0	305	0	0	29531
Test Valley	99	18378	2006	447	50	0	0	0	0	0	0	116	0	0	21095
Southampton	864	1965	191156	3753	84	74	0	0	0	0	0	48	0	0	197946
Eastleigh	1	439	3745	49562	950	224	0	0	0	0	0	0	0	0	54952
Winchester	0	53	90	1001	50008	1203	38	185	1452	12	0	123	0	0	54165
Fareham	0	0	77	224	1249	49126	2002	825	9	0	0	1	0	0	53514
Gosport	0	0	0	0	37	1996	65195	19	0	0	0	0	0	0	67247
Portsmouth	0	0	0	0	176	815	19	195672	1311	4	0	18	0	0	198014
Havant	0	0	0	0	1399	0	0	1350	55147	565	0	736	0	0	59207
East Hampshire	0	0	0	0	12	0	0	4	585	3837	0	50	0	0	4487
Isle of Wight	0	0	0	0	0	0	0	0	0	0	112653	0	0	0	112653
Marginal	327	126	51	0	127	1	0	18	741	50	0	197114	0	0	198554
Buffer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
External	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	29533	21061	198008	54989	54094	53448	67254	198073	59244	4468	112653	198511	0	0	1051335

Table 19. Mode Share by Core Area Authority (2015 & 2031)

2015 12hr - Car

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	64%	97%	85%	99%	97%	97%	82%	96%	98%	98%	21%	95%	97%	86%	75%
Test Valley	97%	53%	89%	93%	96%	97%	95%	90%	95%	100%	49%	92%	96%	77%	76%
Southampton	86%	89%	50%	86%	90%	92%	78%	88%	94%	99%	11%	87%	88%	67%	60%
Eastleigh	99%	94%	86%	62%	91%	97%	91%	95%	97%	96%	10%	95%	97%	83%	76%
Winchester	96%	96%	90%	91%	53%	92%	96%	96%	94%	98%	14%	95%	95%	75%	73%
Fareham	97%	97%	92%	97%	92%	65%	87%	89%	95%	98%	7%	96%	95%	83%	76%
Gosport	82%	95%	80%	91%	96%	88%	50%	66%	88%	99%	4%	75%	77%	72%	58%
Portsmouth	96%	90%	88%	95%	95%	88%	67%	50%	86%	94%	19%	87%	87%	82%	58%
Havant	97%	95%	94%	98%	94%	95%	87%	85%	60%	94%	22%	92%	96%	89%	72%
East Hampshire	98%	100%	99%	97%	98%	98%	99%	95%	95%	61%	26%	95%	100%	95%	88%
Isle of Wight	20%	41%	8%	9%	14%	6%	4%	15%	21%	23%	65%	26%	17%	36%	64%
Marginal	95%	92%	85%	95%	95%	96%	77%	88%	92%	95%	38%	16%	96%	89%	40%
Buffer	97%	96%	87%	96%	95%	95%	79%	88%	96%	100%	20%	95%	92%	98%	94%
External	85%	78%	70%	84%	77%	83%	69%	83%	89%	95%	39%	90%	98%	88%	88%
Total	75%	77%	60%	76%	73%	76%	58%	58%	72%	87%	64%	40%	94%	88%	66%

2031 12hr - Car

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	69%	97%	87%	99%	97%	98%	85%	96%	98%	98%	19%	96%	97%	89%	79%
Test Valley	98%	56%	88%	95%	97%	98%	94%	90%	94%	100%	42%	94%	97%	81%	79%
Southampton	88%	89%	55%	88%	91%	92%	78%	90%	95%	98%	13%	89%	89%	70%	64%
Eastleigh	99%	95%	88%	65%	92%	95%	95%	95%	97%	97%	14%	95%	96%	80%	79%
Winchester	97%	97%	91%	92%	52%	92%	96%	95%	86%	98%	13%	96%	95%	77%	75%
Fareham	98%	98%	93%	97%	92%	68%	89%	91%	96%	98%	7%	96%	95%	84%	79%
Gosport	86%	95%	82%	96%	96%	89%	57%	73%	89%	99%	4%	82%	80%	73%	64%
Portsmouth	95%	90%	90%	95%	95%	91%	75%	53%	89%	95%	27%	91%	89%	85%	62%
Havant	97%	94%	95%	97%	86%	95%	88%	88%	64%	95%	22%	94%	97%	88%	76%
East Hampshire	99%	100%	98%	97%	98%	99%	99%	96%	96%	63%	23%	96%	100%	95%	90%
Isle of Wight	18%	36%	11%	13%	13%	7%	4%	15%	22%	21%	69%	28%	16%	36%	68%
Marginal	96%	94%	87%	95%	96%	96%	83%	91%	94%	96%	40%	19%	96%	91%	45%
Buffer	97%	97%	88%	96%	95%	95%	82%	90%	97%	100%	19%	96%	94%	99%	95%
External	87%	81%	72%	84%	77%	78%	71%	87%	88%	95%	39%	91%	99%	99%	89%
Total	80%	79%	64%	79%	75%	79%	64%	62%	77%	89%	68%	45%	95%	88%	70%

2015 12hr - PT

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	2%	1%	11%	1%	3%	3%	18%	4%	2%	2%	79%	2%	2%	14%	3%
Test Valley	1%	2%	5%	3%	2%	3%	5%	10%	5%	0%	51%	4%	4%	23%	3%
Southampton	10%	5%	7%	7%	9%	7%	22%	12%	6%	1%	89%	13%	3%	17%	7%
Eastleigh	1%	2%	7%	3%	6%	2%	9%	5%	3%	4%	90%	5%	3%	17%	4%
Winchester	4%	2%	9%	6%	1%	3%	3%	3%	1%	1%	86%	3%	5%	25%	4%
Fareham	3%	3%	7%	2%	3%	2%	5%	8%	5%	2%	93%	4%	5%	17%	3%
Gosport	18%	5%	20%	9%	3%	5%	2%	34%	12%	1%	96%	25%	23%	28%	4%
Portsmouth	4%	10%	12%	5%	3%	8%	33%	5%	10%	6%	81%	13%	13%	18%	6%
Havant	3%	5%	6%	2%	1%	5%	13%	11%	5%	2%	78%	4%	4%	11%	6%
East Hampshire	2%	0%	1%	3%	1%	2%	1%	5%	2%	2%	74%	4%	0%	5%	3%
Isle of Wight	80%	59%	92%	91%	86%	94%	96%	85%	79%	77%	74%	74%	83%	64%	7%
Marginal	2%	3%	14%	5%	3%	4%	23%	12%	5%	4%	62%	1%	4%	11%	3%
Buffer	3%	4%	13%	4%	5%	5%	21%	12%	4%	0%	80%	5%	8%	2%	5%
External	15%	22%	30%	16%	23%	17%	31%	17%	11%	5%	61%	10%	2%	12%	11%
Total	3%	3%	7%	4%	4%	3%	6%	6%	6%	3%	7%	3%	6%	12%	6%

2031 12hr - PT

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	1%	1%	9%	1%	3%	2%	15%	4%	2%	2%	81%	2%	3%	11%	3%
Test Valley	1%	2%	5%	2%	2%	3%	6%	10%	6%	0%	58%	3%	3%	19%	3%
Southampton	8%	5%	6%	6%	9%	7%	22%	10%	5%	2%	87%	11%	11%	20%	7%
Eastleigh	1%	2%	6%	2%	6%	1%	5%	5%	3%	3%	86%	5%	4%	20%	4%
Winchester	3%	2%	9%	5%	3%	2%	3%	4%	2%	1%	87%	3%	5%	23%	5%
Fareham	2%	2%	7%	2%	3%	1%	5%	7%	4%	1%	93%	4%	5%	16%	3%
Gosport	14%	5%	18%	4%	3%	4%	2%	26%	11%	1%	96%	18%	20%	27%	4%
Portsmouth	5%	10%	10%	5%	4%	7%	25%	4%	8%	4%	73%	9%	11%	15%	6%
Havant	3%	6%	5%	3%	2%	4%	12%	9%	5%	2%	78%	3%	3%	12%	5%
East Hampshire	1%	0%	2%	3%	1%	1%	1%	4%	2%	1%	77%	3%	0%	5%	2%
Isle of Wight	82%	64%	89%	87%	87%	93%	96%	76%	78%	79%	87%	72%	84%	64%	7%
Marginal	2%	3%	13%	5%	3%	4%	17%	9%	4%	3%	60%	1%	4%	9%	3%
Buffer	3%	3%	12%	4%	5%	5%	18%	10%	3%	0%	81%	4%	6%	1%	5%
External	13%	19%	28%	19%	22%	16%	29%	13%	12%	5%	61%	9%	1%	2%	11%
Total	3%	3%	7%	4%	5%	3%	6%	6%	5%	2%	7%	3%	5%	12%	5%

2015 12hr - Active

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	34%	2%	4%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	22%
Test Valley	1%	45%	7%	4%	1%	0%	0%	0%	0%	0%	0%	4%	0%	0%	20%
Southampton	4%	6%	43%	7%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	33%
Eastleigh	0%	4%	7%	35%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%	20%
Winchester	0%	1%	0%	3%	45%	5%	1%	1%	4%	1%	0%	2%	0%	0%	22%
Fareham	0%	0%	1%	2%	6%	33%	8%	3%	0%	0%	0%	0%	0%	0%	21%
Gosport	0%	0%	0%	0%	1%	8%	48%	0%	0%	0%	0%	0%	0%	0%	38%
Portsmouth	0%	0%	0%	0%	1%	3%	0%	46%	3%	0%	0%	0%	0%	0%	35%
Havant	0%	0%	0%	0%	0%	0%	0%	4%	34%	4%	0%	4%	0%	0%	22%
East Hampshire	0%	0%	0%	0%	1%	0%	0%	0%	3%	37%	0%	2%	0%	0%	9%
Isle of Wight	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	29%	0%	0%	0%	29%
Marginal	3%	4%	1%	0%	2%	0%	0%	0%	4%	2%	0%	83%	0%	0%	57%
Buffer	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
External	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	22%	20%	32%	20%	22%	21%	38%	35%	22%	10%	29%	57%	0%	0%	29%

2031 12hr - Active

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	29%	2%	4%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	18%
Test Valley	1%	42%	7%	3%	1%	0%	0%	0%	0%	0%	0%	3%	0%	0%	18%
Southampton	3%	6%	40%	6%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	29%
Eastleigh	0%	3%	6%	32%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	17%
Winchester	0%	1%	1%	3%	45%	6%	1%	1%	12%	1%	0%	1%	0%	0%	20%
Fareham	0%	0%	1%	1%	6%	30%	7%	3%	0%	0%	0%	0%	0%	0%	18%
Gosport	0%	0%	0%	0%	1%	6%	41%	0%	0%	0%	0%	0%	0%	0%	32%
Portsmouth	0%	0%	0%	0%	1%	2%	0%	43%	3%	0%	0%	0%	0%	0%	32%
Havant	0%	0%	0%	0%	0%	0%	0%	12%	31%	3%	0%	3%	0%	0%	19%
East Hampshire	0%	0%	0%	0%	1%	0%	0%	0%	3%	36%	0%	1%	0%	0%	8%
Isle of Wight	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	25%
Marginal	2%	3%	1%	0%	1%	0%	0%	0%	3%	1%	0%	80%	0%	0%	53%
Buffer	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
External	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	17%	18%	29%	17%	20%	18%	32%	32%	18%	9%	25%	53%	0%	0%	25%

Table 20. Motorised Mode Share by Core Area Authority (2015 & 2031)

2015 12hr - Car

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	97%	99%	89%	99%	97%	97%	82%	96%	98%	98%	21%	98%	97%	86%	96%
Test Valley	99%	96%	95%	97%	98%	97%	95%	90%	95%	100%	49%	96%	96%	77%	96%
Southampton	90%	95%	88%	92%	91%	93%	78%	88%	94%	99%	11%	87%	88%	67%	89%
Eastleigh	99%	98%	93%	96%	94%	98%	91%	95%	97%	96%	10%	95%	97%	83%	95%
Winchester	96%	98%	91%	94%	98%	97%	97%	97%	99%	99%	14%	97%	95%	75%	94%
Fareham	97%	97%	93%	98%	97%	98%	96%	92%	95%	98%	7%	96%	95%	83%	96%
Gosport	82%	95%	80%	91%	97%	95%	96%	66%	88%	99%	4%	75%	77%	72%	93%
Portsmouth	96%	90%	88%	95%	97%	91%	67%	91%	89%	94%	19%	87%	87%	82%	90%
Havant	97%	95%	94%	98%	95%	95%	87%	89%	92%	98%	22%	95%	96%	89%	92%
East Hampshire	98%	100%	99%	97%	99%	98%	99%	95%	98%	98%	26%	96%	100%	95%	97%
Isle of Wight	20%	41%	8%	9%	14%	6%	4%	15%	21%	23%	91%	26%	17%	36%	90%
Marginal	98%	96%	86%	95%	97%	96%	77%	88%	95%	96%	38%	95%	96%	89%	94%
Buffer	97%	96%	87%	96%	95%	95%	79%	88%	96%	100%	20%	95%	92%	98%	94%
External	85%	78%	70%	84%	77%	83%	69%	83%	89%	95%	39%	90%	98%	98%	88%
Total	96%	96%	89%	95%	95%	96%	93%	90%	93%	97%	90%	94%	94%	88%	92%

2031 12hr - Car

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	97%	99%	91%	99%	97%	98%	85%	96%	98%	98%	19%	98%	97%	89%	96%
Test Valley	99%	97%	95%	98%	98%	98%	94%	90%	94%	100%	42%	96%	97%	81%	96%
Southampton	91%	95%	91%	93%	91%	93%	78%	90%	95%	98%	13%	89%	89%	70%	91%
Eastleigh	99%	98%	93%	96%	95%	99%	95%	95%	97%	97%	14%	95%	96%	80%	95%
Winchester	97%	98%	91%	95%	94%	97%	97%	96%	97%	99%	13%	97%	95%	77%	94%
Fareham	98%	98%	93%	98%	98%	98%	95%	93%	96%	99%	7%	96%	95%	84%	96%
Gosport	86%	95%	82%	96%	97%	95%	97%	73%	89%	99%	4%	82%	80%	73%	94%
Portsmouth	95%	90%	90%	95%	96%	93%	75%	93%	91%	96%	27%	91%	89%	85%	92%
Havant	97%	94%	95%	97%	97%	96%	88%	91%	93%	98%	22%	96%	97%	88%	94%
East Hampshire	99%	100%	98%	97%	99%	99%	99%	96%	98%	98%	23%	97%	100%	95%	98%
Isle of Wight	18%	36%	11%	13%	13%	7%	4%	24%	22%	21%	93%	28%	16%	36%	91%
Marginal	98%	97%	87%	95%	97%	96%	83%	91%	96%	97%	40%	95%	96%	91%	94%
Buffer	97%	97%	88%	96%	95%	95%	82%	90%	97%	100%	19%	96%	94%	99%	95%
External	87%	81%	72%	81%	78%	84%	71%	87%	88%	95%	39%	91%	99%	98%	89%
Total	96%	96%	91%	95%	94%	96%	94%	92%	94%	97%	91%	95%	95%	88%	93%

2015 12hr - PT

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	3%	1%	11%	1%	3%	3%	18%	4%	2%	2%	79%	2%	3%	14%	4%
Test Valley	1%	4%	5%	3%	2%	3%	5%	10%	5%	0%	51%	4%	4%	23%	4%
Southampton	10%	5%	12%	8%	9%	7%	22%	12%	6%	1%	89%	13%	12%	33%	11%
Eastleigh	1%	2%	7%	4%	6%	2%	9%	5%	3%	4%	90%	5%	3%	17%	5%
Winchester	4%	2%	9%	6%	2%	3%	3%	3%	1%	1%	86%	3%	5%	25%	6%
Fareham	3%	3%	7%	2%	3%	2%	4%	8%	5%	7%	93%	4%	5%	17%	4%
Gosport	18%	5%	20%	9%	3%	5%	4%	34%	12%	1%	96%	25%	23%	28%	7%
Portsmouth	4%	10%	12%	5%	3%	9%	33%	9%	11%	6%	81%	13%	13%	18%	10%
Havant	3%	5%	6%	2%	5%	5%	13%	11%	8%	2%	78%	5%	4%	11%	8%
East Hampshire	2%	0%	1%	3%	1%	2%	1%	5%	2%	2%	74%	4%	0%	5%	3%
Isle of Wight	80%	59%	92%	91%	86%	94%	96%	85%	79%	77%	9%	74%	83%	64%	10%
Marginal	2%	4%	14%	5%	3%	4%	23%	12%	5%	4%	62%	5%	4%	11%	6%
Buffer	3%	4%	13%	4%	5%	5%	21%	12%	4%	0%	80%	5%	8%	2%	6%
External	15%	22%	30%	16%	23%	17%	31%	17%	11%	5%	61%	10%	2%	2%	12%
Total	4%	4%	11%	5%	5%	4%	7%	10%	7%	3%	10%	6%	6%	12%	8%

2031 12hr - PT

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	3%	1%	9%	1%	3%	2%	15%	4%	2%	2%	81%	2%	3%	11%	4%
Test Valley	1%	3%	5%	2%	2%	2%	6%	10%	6%	0%	58%	4%	3%	19%	4%
Southampton	9%	5%	9%	7%	9%	7%	22%	10%	5%	2%	87%	11%	11%	30%	9%
Eastleigh	1%	2%	7%	4%	5%	1%	5%	5%	3%	3%	86%	5%	4%	20%	5%
Winchester	3%	2%	9%	5%	6%	2%	3%	4%	3%	1%	87%	3%	5%	23%	6%
Fareham	2%	2%	7%	2%	2%	2%	5%	7%	4%	1%	93%	4%	5%	16%	4%
Gosport	14%	5%	18%	4%	3%	5%	3%	27%	11%	1%	96%	18%	20%	27%	6%
Portsmouth	5%	10%	10%	5%	4%	7%	25%	7%	9%	4%	73%	9%	11%	15%	8%
Havant	3%	6%	5%	3%	3%	4%	12%	9%	7%	2%	78%	4%	3%	12%	6%
East Hampshire	1%	0%	2%	3%	1%	1%	1%	4%	2%	2%	77%	3%	0%	5%	2%
Isle of Wight	82%	64%	89%	87%	87%	93%	96%	76%	78%	79%	7%	72%	84%	64%	9%
Marginal	2%	3%	13%	5%	3%	4%	17%	9%	4%	3%	60%	5%	4%	9%	6%
Buffer	3%	3%	12%	4%	5%	5%	18%	10%	3%	0%	81%	4%	6%	1%	5%
External	13%	19%	28%	19%	22%	16%	29%	13%	12%	5%	61%	9%	1%	2%	11%
Total	4%	4%	9%	5%	6%	4%	6%	8%	6%	3%	9%	5%	5%	12%	7%

Table 21. Change in Demand by Core Area Authority by Mode (2015 & 2031)

2031 - 2015 12hr - Car

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	5677	1751	3889	1759	141	448	86	551	188	25	4	1639	1299	368	17825
Test Valley	2166	4444	7057	3143	930	541	100	388	145	14	9	787	1545	296	21565
Southampton	5985	8075	42662	9937	1951	2798	793	1760	593	105	70	1207	3049	2190	81175
Eastleigh	1856	3535	8402	6003	3011	3496	1005	2087	793	107	25	887	1881	1427	34516
Winchester	125	1099	1317	2612	-1711	4127	1376	4152	2335	561	4	846	3292	1130	21267
Fareham	440	567	2364	3063	3863	8313	6043	6085	2385	388	3	671	576	488	35248
Gosport	104	120	776	948	1388	5405	23666	2034	852	111	4	280	139	184	36012
Portsmouth	477	399	1805	2032	4374	7303	2546	28590	4536	1430	257	3329	1619	4378	63075
Havant	141	130	538	651	2167	2470	886	3579	3546	2119	8	5302	907	550	22994
East Hampshire	26	17	118	110	553	429	136	1212	2799	583	0	570	149	12	6698
Isle of Wight	4	8	55	20	4	3	4	246	8	0	66715	37	23	299	67426
Marginal	1479	740	828	731	871	720	273	2913	5021	552	67	6359	3049	2194	25798
Buffer	1159	1686	2303	1553	3039	646	159	1521	1024	163	27	2825	1859	5280	23243
External	207	298	1513	1110	787	423	170	4359	349	-12	302	1739	3694	5033	19973
Total	19845	22870	73625	33674	21368	37123	37244	59474	24575	6146	67496	26479	23083	23814	476816

2031 - 2015 12hr - Car %

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	9%	39%	24%	32%	4%	34%	70%	47%	51%	30%	29%	13%	22%	15%	15%
Test Valley	46%	22%	36%	27%	20%	63%	150%	93%	58%	34%	42%	28%	31%	24%	30%
Southampton	36%	42%	19%	21%	17%	24%	165%	38%	26%	27%	90%	16%	29%	37%	23%
Eastleigh	33%	29%	18%	6%	12%	28%	158%	41%	37%	37%	115%	21%	26%	25%	16%
Winchester	3%	23%	11%	11%	-3%	28%	75%	48%	30%	58%	8%	10%	17%	10%	12%
Fareham	34%	65%	20%	26%	26%	8%	29%	26%	30%	49%	26%	28%	25%	13%	17%
Gosport	84%	172%	145%	150%	68%	25%	36%	53%	68%	107%	62%	70%	52%	26%	37%
Portsmouth	46%	102%	37%	42%	52%	32%	65%	14%	13%	23%	77%	37%	44%	48%	20%
Havant	26%	55%	21%	30%	28%	32%	77%	11%	3%	12%	14%	27%	23%	8%	11%
East Hampshire	25%	34%	25%	32%	55%	50%	123%	16%	14%	9%	-1%	17%	13%	0%	16%
Isle of Wight	35%	39%	101%	95%	8%	2%	6%	62%	103%	15%	-2%	28%	32%	36%	28%
Marginal	12%	25%	12%	18%	11%	27%	65%	30%	25%	17%	32%	16%	17%	17%	18%
Buffer	20%	30%	22%	21%	15%	26%	51%	36%	23%	13%	35%	16%	31%	23%	21%
External	9%	22%	23%	18%	7%	14%	45%	24%	45%	-1%	33%	14%	18%	15%	17%
Total	17%	31%	20%	15%	12%	18%	39%	18%	11%	16%	28%	19%	22%	20%	20%

2031 - 2015 12hr - PT

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	-190	19	25	25	-5	7	11	32	3	0	28	15	28	-26	-29
Test Valley	21	-7	459	12	18	5	7	40	11	0	20	21	10	-8	609
Southampton	168	540	-2360	320	80	170	218	84	9	3	348	-2	213	657	448
Eastleigh	29	15	154	-132	-67	37	14	103	29	0	83	48	134	586	1032
Winchester	-11	18	71	-84	2153	61	46	259	165	10	35	10	26	-46	2712
Fareham	6	4	142	35	53	-61	191	116	47	1	36	29	29	30	659
Gosport	11	7	155	9	42	148	399	169	83	2	88	16	21	58	1208
Portsmouth	37	43	86	113	261	163	225	-1662	-436	-48	205	-87	72	321	-707
Havant	5	12	5	30	159	44	96	-521	-1576	-38	23	-21	15	188	-1579
East Hampshire	0	0	3	0	10	1	2	-49	-37	-8	7	0	0	2	-68
Isle of Wight	24	21	269	74	36	29	90	148	24	7	504	77	143	536	1982
Marginal	15	17	-18	37	10	29	14	-112	-31	0	70	13	84	55	181
Buffer	28	11	149	94	24	29	25	63	13	0	139	63	-51	-12	577
External	-31	-15	348	509	-80	11	48	176	159	2	450	-11	-24	88	1631
Total	112	685	-511	1041	2692	671	1386	-1152	-1535	-70	2037	172	699	2431	8658

2031 - 2015 12hr - PT %

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	-10%	34%	1%	33%	-4%	19%	41%	70%	23%	-12%	48%	5%	17%	-7%	-1%
Test Valley	40%	-1%	46%	4%	15%	19%	198%	88%	86%	0%	94%	19%	5%	-2%	20%
Southampton	9%	54%	-8%	8%	7%	18%	157%	13%	6%	57%	54%	9%	54%	-8%	1%
Eastleigh	43%	5%	4%	-3%	-4%	18%	23%	42%	48%	-4%	42%	20%	53%	51%	9%
Winchester	-8%	16%	6%	-6%	164%	15%	75%	90%	159%	85%	12%	4%	2%	-1%	26%
Fareham	18%	18%	15%	17%	13%	-2%	16%	12%	6%	26%	28%	23%	4%	7%	7%
Gosport	40%	183%	119%	15%	70%	13%	15%	9%	51%	174%	53%	12%	27%	21%	18%
Portsmouth	75%	94%	13%	47%	89%	8%	-10%	-12%	-12%	205%	-6%	12%	16%	-2%	-2%
Havant	26%	93%	3%	63%	148%	11%	56%	-12%	-16%	-9%	11%	-2%	10%	21%	-9%
East Hampshire	-13%	0%	1%	2%	80%	7%	193%	-2%	-5%	-5%	15%	0%	3%	-5%	-5%
Isle of Wight	47%	73%	41%	35%	12%	18%	53%	11%	11%	12%	2%	24%	46%	38%	7%
Marginal	5%	15%	-2%	17%	3%	28%	11%	-8%	-3%	0%	21%	1%	10%	4%	2%
Buffer	17%	5%	10%	32%	2%	21%	31%	11%	8%	25%	45%	7%	-9%	-3%	9%
External	-8%	-4%	13%	43%	-2%	1%	15%	9%	17%	2%	31%	-1%	-6%	15%	10%
Total	2%	22%	-1%	9%	26%	7%	20%	-3%	-9%	-5%	7%	2%	11%	15%	4%

2031 - 2015 12hr - Active

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	-4856	28	140	0	0	0	0	0	0	0	0	-76	0	0	-4763
Test Valley	28	1590	575	-50	-12	0	0	0	0	0	0	-2	0	0	2129
Southampton	137	636	2019	61	51	-3	0	0	0	0	0	-11	0	0	2890
Eastleigh	0	46	36	-3586	105	24	0	0	0	0	0	0	0	0	-3465
Winchester	0	-12	54	109	-1573	348	17	70	1086	3	0	-21	0	0	81
Fareham	0	0	-3	18	357	-2620	174	-50	-1	0	0	0	0	0	-2125
Gosport	0	0	0	0	17	152	3313	7	0	0	0	0	0	0	3490
Portsmouth	0	0	0	0	65	-41	7	2306	-128	1	0	-1	0	0	2208
Havant	0	0	0	0	1049	-1	0	-137	-8047	-77	0	-83	0	0	-7296
East Hampshire	0	0	0	0	2	0	0	1	-87	36	0	-3	0	0	-51
Isle of Wight	0	0	0	0	0	0	0	0	0	0	4373	0	0	0	4373
Marginal	-73	-5	-12	0	-22	0	0	-1	-97	-3	0	-3266	0	0	-3481
Buffer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
External	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-4765	2194	2809	-3448	40	-2140	3512	2196	-7275	-41	4373	-3463	0	0	-6009

2031 - 2015 12hr - Active %

	New Forest	Test Valley	Southampton	Eastleigh	Winchester	Fareham	Gosport	Portsmouth	Havant	East Hampshire	Isle of Wight	Marginal	Buffer	External	Total
New Forest	-15%	41%	19%	76%	0%	0%	0%	0%	0%	0%	0%	-20%	0%	0%	-14%
Test Valley	40%	9%	40%	-10%	-20%	0%	0%	0%	0%	0%	0%	-2%	0%	0%	11%
Southampton	19%	48%	1%	2%	149%	-3%	0%	0%	0%	0%	0%	-18%	0%	0%	1%
Eastleigh	66%	-9%	1%	-7%	12%	12%	0%	0%	0%	0%	0%	-32%	0%	0%	-6%
Winchester	0%	-18%	149%	12%	-3%	41%	81%	61%	297%	26%	0%	-14%	0%	0%	0%
Fareham	0%	0%	-4%	9%	40%	-5%	10%	-6%	-13%	0%	0%	-31%	0%	0%	-4%
Gosport	0%	0%	0%	0%	86%	8%	5%	-8%	0%	0%	0%	0%	0%	0%	5%
Portsmouth	0%	0%	0%	0%	58%	-5%	58%	1%	-9%	23%	0%	-3%	0%	0%	1%
Havant	0%	0%	0%	0%	300%	-13%	-8%	-9%	-13%	-12%	0%	-10%	0%	0%	-11%
East Hampshire	0%	0%	0%	0%	24%	0%	0%	24%	-13%	1%	0%	-5%	0%	0%	-1%
Isle of Wight	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	4%
Marginal	-18%	-4%	-19%	-33%	-15%	-32%	0%	-4%	-12%	-6%	0%	-2%	0%	0%	-2%
Buffer	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
External	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	-14%	12%	1%	-6%	0%	-4%	6%	1%	-11%	-1%	4%	-2%	0%	0%	-1%

6.1 GDM Forecasts

6.1.1   Summaries of the Port and Airport related demand matrices derived in the GDM for the highway and PT assignment models are shown in Table 22 below. The assignment matrices trips are aggregated by purpose, mode and period, and are presented below by port, mode and forecast year. They represent vehicle trips both to and from the ports, between 07:00 and 19:00.

Table 22. GDM Assignment Matrices Summary

	Trips				% Increase from 2015			
	Car	PT	LGV	OGV	Car	PT	LGV	OGV
Southampton Port – Gate 4								
2015	2542	629	484	539				
2019	3319	801	630	695	31%	27%	30%	29%
2026	4067	955	770	850	60%	52%	59%	58%
2031	4540	1053	858	950	79%	67%	77%	76%
2036	5054	1162	954	1059	99%	85%	97%	97%
Southampton Port – Gate 10								
2015	2507	129	380	545				
2019	3280	166	494	704	31%	29%	30%	29%
2026	4001	204	603	861	60%	58%	59%	58%
2031	4453	227	673	962	78%	76%	77%	76%
2036	4945	253	749	1072	97%	96%	97%	97%
Southampton Port – Gate 20								
2015	1182	21	485	2235				
2019	1527	27	626	2883	29%	28%	29%	29%
2026	1868	33	766	3528	58%	56%	58%	58%
2031	2086	37	855	3942	76%	74%	76%	76%
2036	2325	41	953	4393	97%	95%	97%	97%
Southampton Airport								
2015	5401	346	451	242				
2019	5602	346	462	248	4%	0%	2%	2%
2026	6416	404	521	280	19%	17%	16%	16%
2031	7163	457	576	309	33%	32%	28%	28%
2036	8109	528	647	347	50%	53%	43%	43%
Portsmouth Port								
2015	3757	272	471	605				
2019	5459	395	684	880	45%	45%	45%	45%
2026	7280	527	913	1173	94%	94%	94%	94%
2031	8352	605	1047	1346	122%	122%	122%	122%
2036	9424	682	1181	1519	151%	151%	151%	151%

7. RTM REFERENCE FORECASTS

7.1 Summary

7.1.1 This section presents the results from the RTM reference forecasts. Results include flows, and delays.

7.2 Summary RTM Statistics

7.2.1 Figure 13 to 18 give a graphical representation of the following statistics by period and year:

- ⭘ Demand by userclass;
- ⭘ Delays and Cruise times;
- ⭘ Vehicle Kms;
- ⭘ Average Speeds;
- ⭘ Average Trip Length; and
- ⭘ Average Trip Time.

7.2.2 The modelled time periods are as follows (Note, AM and PM periods represent 3 hours and IP period represents 6 hours):

- ⭘ AM, 07:00-10:00
- ⭘ IP, 10:00-16:00
- ⭘ PM, 16:00-19:00

Figure 13.   Demand by Period and Modelled Year

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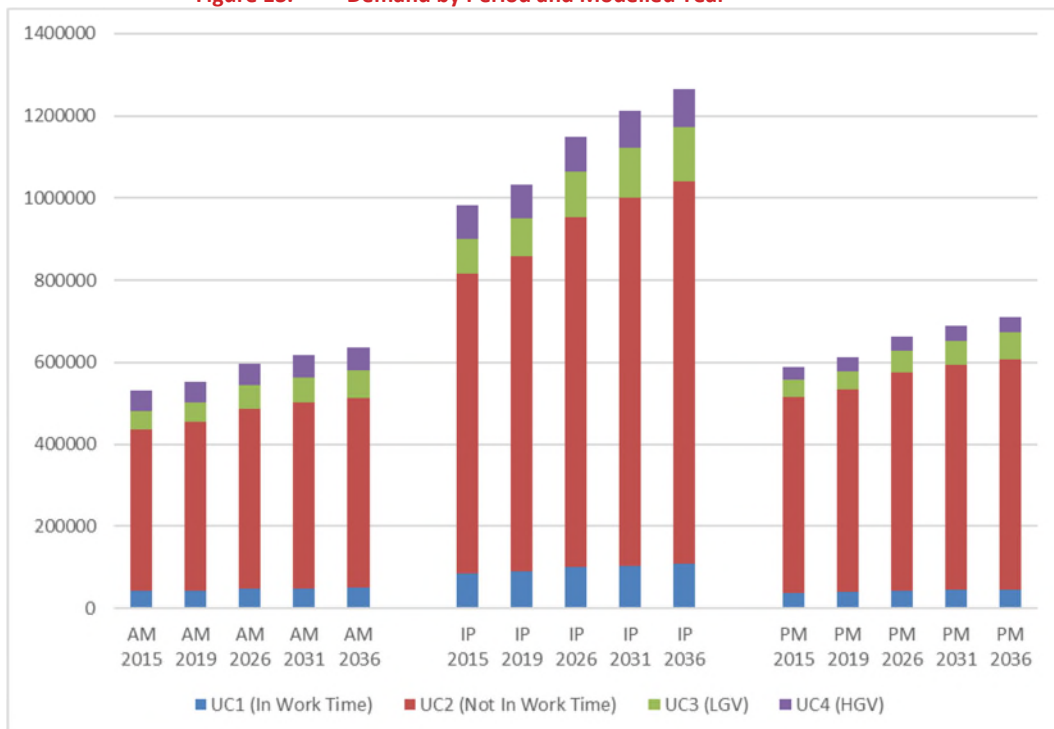
Figure 14.   **Delays and Cruise Times by Period and Modelled Year**
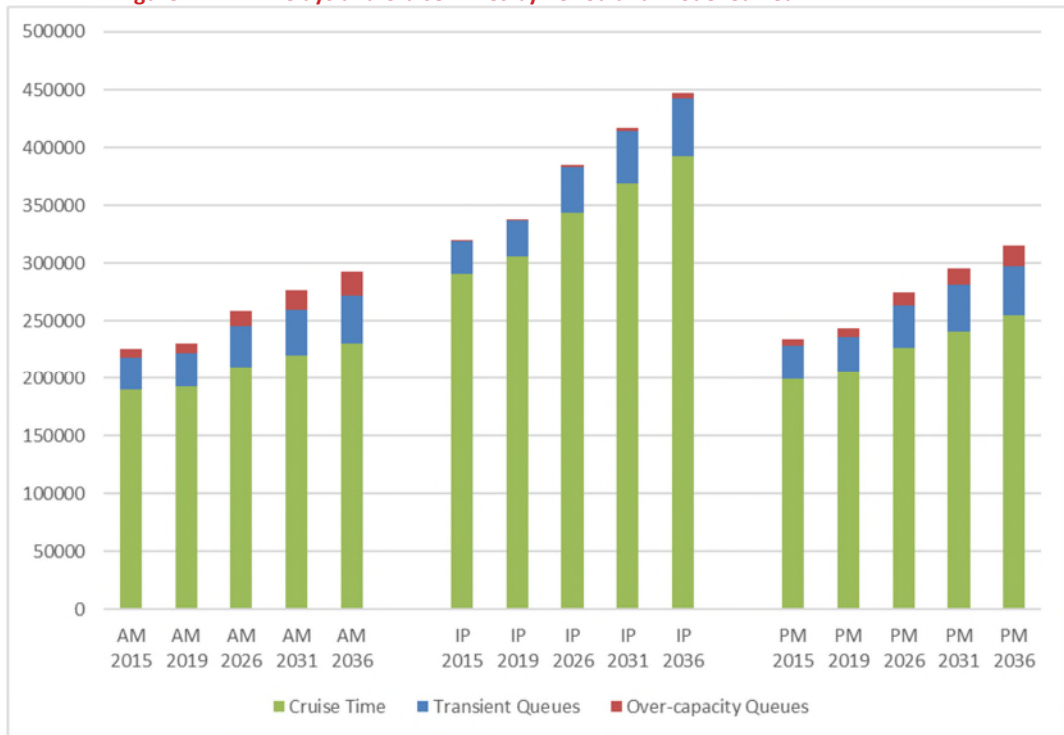
Figure 15.   **Vehicle Kms by Period and Modelled Year**
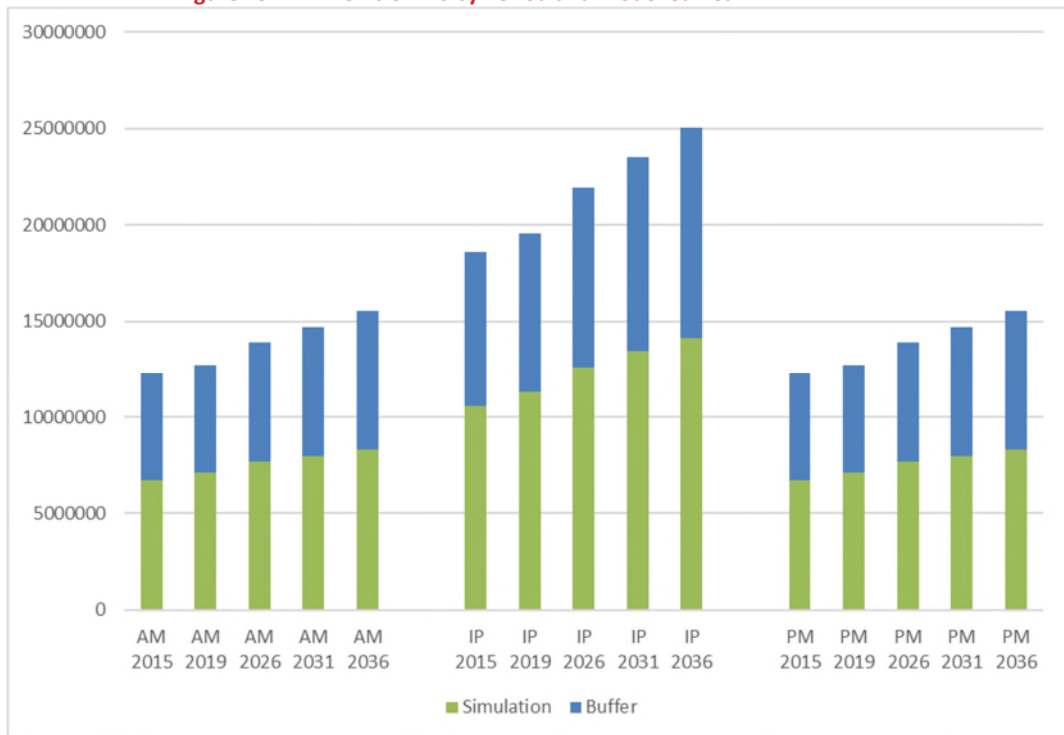
Figure 16. **Average Speeds (kph) in the Core Area by Period and Modelled Year**
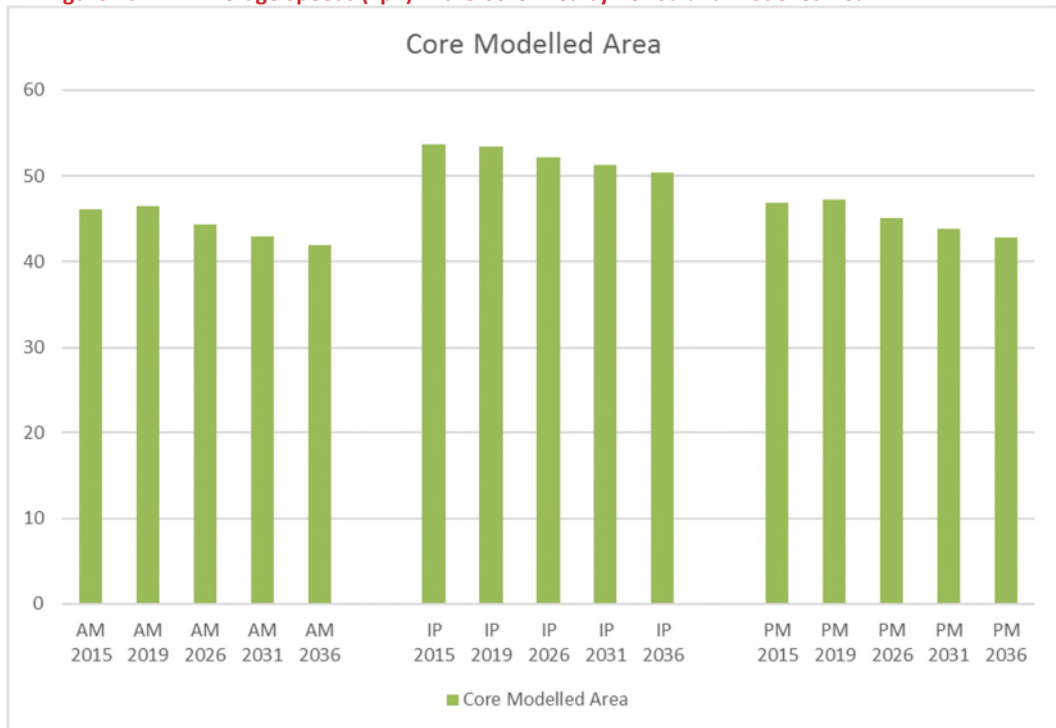
Figure 17. **Average Trip Length (km) by Period and Modelled Year**
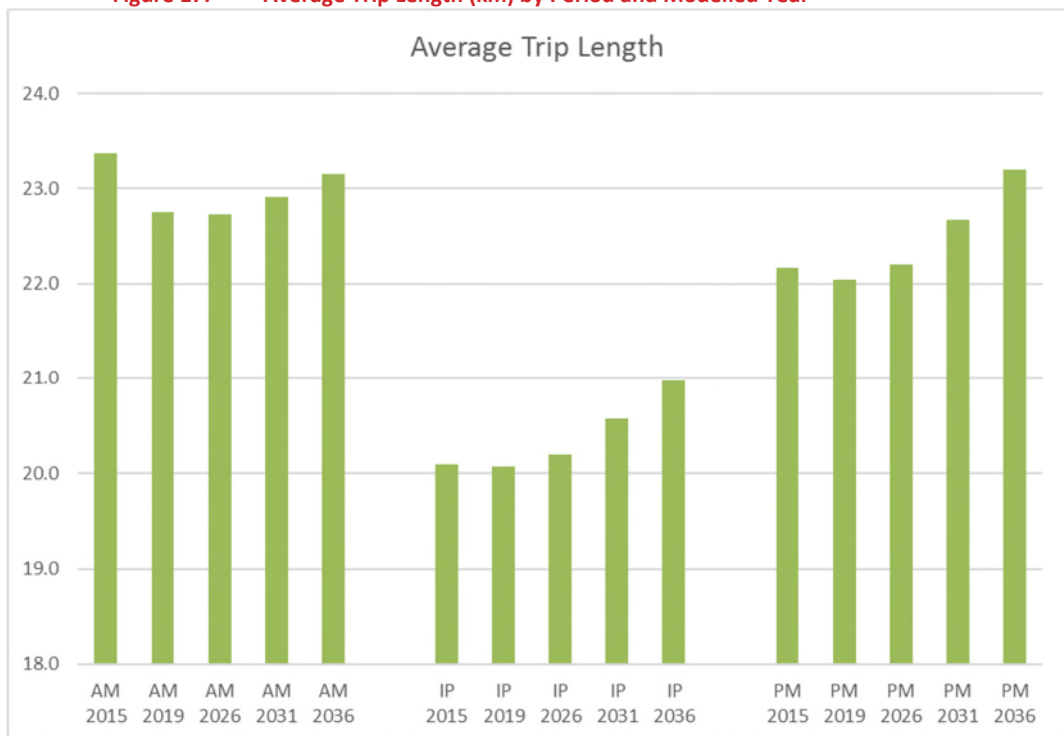
Figure 18. **Average Trip Time (Mins) by Period and Modelled Year**
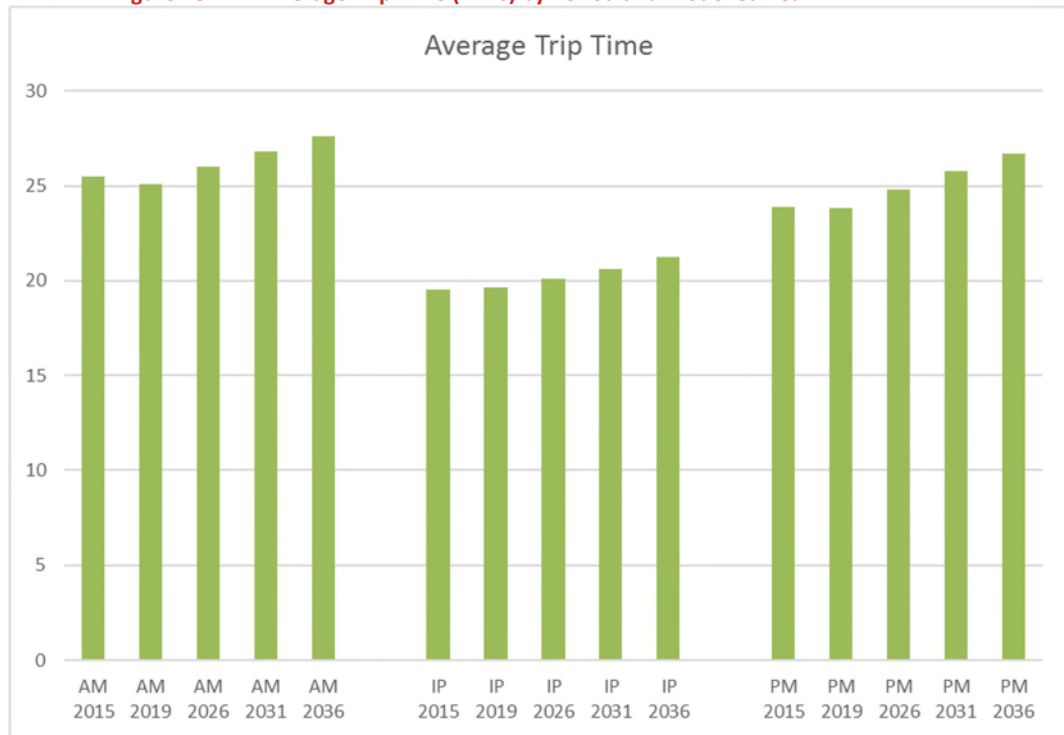
7.3 Highway Delays

7.3.1 Figure 19 shows the highway delays for the base case and the reference case for all years to 2036. Delays are shown for the west of the core area, for the PM peak (as the period with the most highway demand). The delay is presented in terms of the average delay per vehicle.
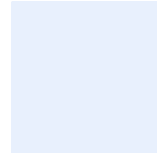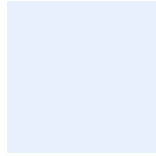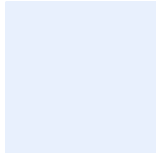
Figure 19. **Average Delay per PCU PM Peak**

Legend:
- 2019 (blue)
- 2026 (yellow)
- 2031 (cyan)
- 2036 (red)

8. PTM REFERENCE FORECASTS

8.1 Summary

8.1.1 This chapter presents the key results from the PTM reference forecasts.

8.1.2 Figure 21 gives a graphical representation of the total public transport demand by period and year. Figure 22 gives PT boardings by mode, period and year.

Figure 20.   **PT Demand by Period and Modelled Year**
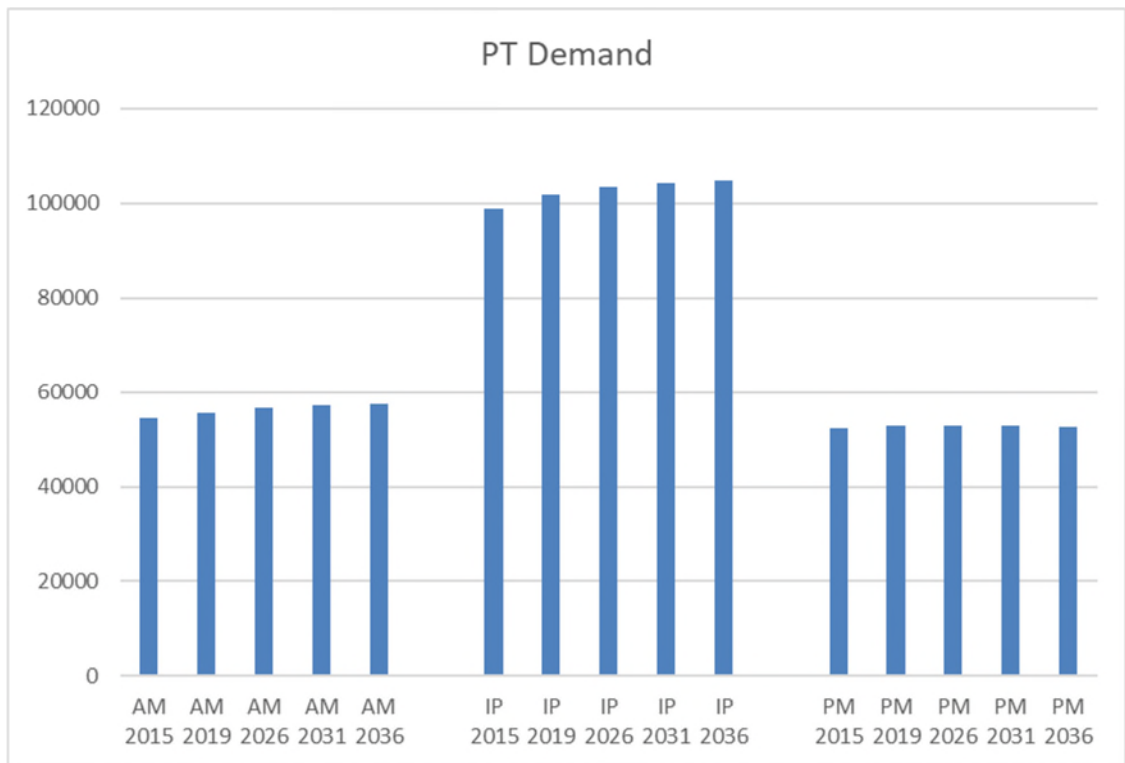
Figure 21.   **PT Boardings by Mode, Period and Modelled Year**
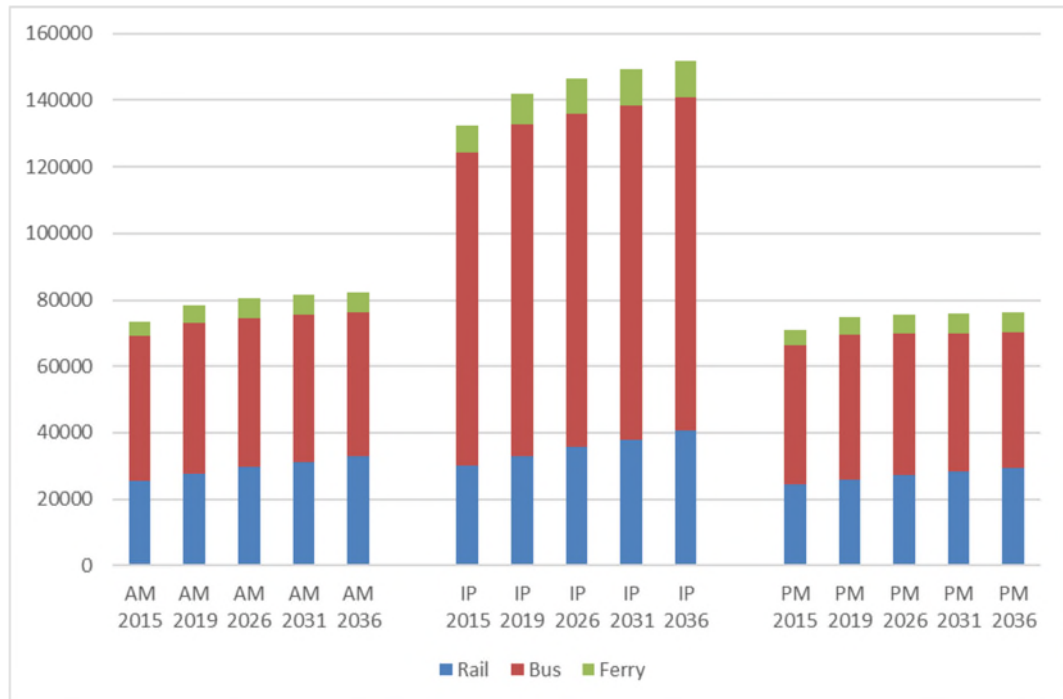
9. CONCLUSIONS

9.1 Summary

9.1.1 The approach and results presented in this note demonstrate that the SRTM components interact as designed and the results produced match the responses that might be expected. Given that these responses are themselves calibrated on both base data and WebTAG sensitivity criteria the model projects for future years represent a compliant projection that reacts to changing inputs assumptions.

9.1.2 Clearly clarity and consensus of these assumptions are required to make use of the model but the reference cases produced thus far provide a working set of future scenarios based on the best available data and assumptions available at the time.

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