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Mersey Gateway Highway Model

Traffic Forecasting Report : Volume 1

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Contents

1. INTRODUCTION

BACKGROUND

1.1 Mott MacDonald has been commissioned by Halton Borough Council (HBC) to build a comprehensive transport modelling system to assist in the development of a demand forecast model as part of the business case for the Mersey Gateway.

1.2 The Highway Local Model Validation Report (LMVR) describes the development and validation of the highway model that has been used in the appraisal of options for transport improvements associated with the proposed Mersey Gateway development.

1.3 This highway model has been developed to be consistent with the guidance set out in WebTAG and the Design Manual for Roads and Bridges. A public transport model has also been developed as part of the overall modelling system, though this is much less detailed and comprehensive in scope than the highway model, reflecting the fact that public transport has an important but marginal effect on the appraisal of the highway scheme.

1.4 This Forecasting Report describes the traffic forecasts produced for the Mersey Gateway scheme and sets out the assumptions on which these forecasts have been based. These traffic forecasts have been carried out using a variable demand modelling procedure implemented using the Department for Transport (DfT) supplied demand modelling software package known as DIADEM. The estimation of the demand model parameters used in DIADEM is also set out in this report.

1.5 This report present the current Variable Demand Modelling (VDM) traffic forecasts for the Most Likely scenario.

1.6 Most Likely is the term used to describe the central case used in the appraisal of the Mersey Gateway scheme. It is used in the context of the future year Reference Case, Do-minimum and Do-something scenarios.

1.7 The Most Likely Reference Case is made up of a specific set of changes from the 2006 base year for the forecast years of 2015 and 2030. These are:

- a set of highway network changes
- assumptions about changes in values of time and vehicle operating costs over time
- a specific set of development assumptions
- application of TEMPRO growth factors as a constraint on trip growth.

1.8 The Most Likely also assumes use of the DIADEM forecasting procedures (for Do-minimum and Do-something) and a specific set of demand model parameters dictating the sensitivity of destination, mode and frequency choices to changes in generalised cost. A specific set of public transport demands and travel costs is also an integral part of the Most Likely.

1.9 The Do-minimum is post the application of variable demand modelling to the Reference Case demand. The process of creating the Reference Case takes no account of congestion changes that would arise from the increased demand .

1.10 The Do-Something case is made up of the above plus:

- all highway changes associated with the scheme, including the new bridge and associated changes to the SJB and to arrangements for the access/egress routes for the crossings
- a specific set of tolls applied on both bridges on a 24hr/7 day basis.

SCHEME OBJECTIVES

1.11 The Silver Jubilee Bridge (SJB) linking Runcorn and Widnes is one of the main routes for trips across the River Mersey in the North West region, with the Mersey Tunnels (Queensway and Kingsway) to the west, A49 Bridgefoot and A50 Kingsway North crossings in Warrington and the M6 Thelwall Viaduct to the east, being the alternative crossing points. As such, the SJB has both local and regional significance.

1.12 The approaches to the SJB are currently congested during peak periods, and this congestion is further increased when emergency closures force traffic onto the Silver Jubilee Bridge that would normally use one of the alternative crossing points.

1.13 A second road crossing of the River Mersey in Halton has been proposed with the aim of relieving this congestion and improving the links between Halton and the wider North West area, as well as promoting economic and social regeneration. This second crossing, known as the Mersey Gateway, will aim to fulfil the following objectives:

O1. To relieve the congested SJB, thereby removing the constraint on local and regional development and better provide for local transport needs;

O2. To apply minimum toll charges to both Mersey Gateway and SJB consistent with the amount required to satisfy affordability constraints;

O3. To improve accessibility in order to maximise local development and regional economic growth opportunities;

O4. To improve local air quality and enhance the general urban environment;

O5. To improve public transport links across the river;

O6. To encourage the increased use of cycling and walking; and

O7. To restore effective network resilience for road transport across the River Mersey.

DESCRIPTION OF MERSEY GATEWAY

1.14 The Mersey Gateway comprises 4.2 km of new dual 3-lane highway, a major river estuary crossing and numerous minor structures notably a crossing of the Manchester Ship Canal. The scheme and its context are illustrated in Figure 1.1. The most striking feature of this scheme is the River and Ship Canal Crossing Bridge which has a total length of 2.4km. The bridge crossing will consist of approximately 600m of approach spans to the north of the Mersey Tidal Estuary and 800m to the south. The tidal estuary crossing itself will consist of 1000m of cable-stayed bridge consisting of 4 spans supported by 3 towers.

1.15 The route starts on the north side of the River Mersey to the north west of the existing Ditton Roundabout. Initially the route passes along existing highway that will be widened to the south to create a toll plaza into an area of previous public recreation (i.e. a disused golf

course). The route then passes through an area of light industry on either side of a railway crossing. Next the route crosses a modern light industrial estate (the Catalyst Trading Estate) and a chemical works before crossing the St Helens canal and out over the Upper Mersey Estuary. Both banks of the estuary are fringed with extensive widths of salt marsh and the estuary has extensive areas of sand banks at most states of the tidal range.

1.16 On the south bank of the river, the route passes over Wigg Island (a nature reserve created on the site of former chemical works) and over the Manchester Ship Canal. The crossing's landfall is in the Astmoor Industrial Estate, comprising modern industrial units. The route ties into the existing expressway system of Runcorn at the junction between the Central and Daresbury Expressways. The route then uses the Central Expressway before eventually linking to the motorway system at Junction 12 of the M56.

1.17 Improving accessibility locally within Halton and also within the region is one of the strategic scheme objectives. The improvement of access will be achieved at all levels such as private vehicle transport, public transport and walking and cycling. Reduced traffic on the Silver Jubilee Bridge will enable improved public transport and pedestrian and cycling provision to be delivered.

1.18 The proposals for the main route through Widnes include provision of large open structures and landscaped urban areas to encourage the linking of the communities to the north and south of the Mersey Gateway. It is hoped that this will help establish improved links between the currently disaggregated communities within this area of Widnes.

1.19 Future access arrangements to the Silver Jubilee Bridge will provide opportunities for landscaping and public realm improvements to the north and south of the river. The form of any changes to access arrangements in Runcorn is being explored through the development of a sustainable transport strategy for Halton.

MODELLING BACKGROUND

1.20 The Programme Entry approval stipulated a number of conditions that were required to be satisfied for DfT support for the project to be maintained. One of the conditions was to develop a new variable demand traffic model which is an important element of the project plan designed to deliver the Mersey Gateway main project objectives as stated under paragraph 1.13.

1.21 The Highway Model Local Model Validation Report (LMVR) described the procedure followed for the development of the Mersey Gateway highway model, and the subsequent model calibration and validation. This is based upon making best use of the various sources of data made available for the study, supplemented by selected data collected specifically for the purpose.

1.22 This Forecasting Report describes the procedure followed for the preparation of a range of traffic forecasts. The initial tasks were to identify anticipated future development projects and infrastructure schemes and to prepare Reference Case Most Likely matrices for two design years (2015 and 2030). Variable demand traffic forecasts were then produced for the Do-Minimum and the Do-Something which the latter incorporated the Mersey Gateway scheme, including the introduction of tolls on both the new crossing and the existing Silver Jubilee Bridge.

FORMAT OF REPORT

1.23 This Forecasting Report comprises the following Chapters:

1 Introduction
2 Traffic Forecasts - Overview
3 Forecast Year Networks
4 Traffic Growth
5 Forecast Most Likely Reference Case Demand Matrices
6 Forecast Most Likely Variable Demand Matrices
7 Variable Demand Most Likely Traffic Forecasts
8 Summary and Conclusions

1.24 **Tables and Figures for this report are to be found in Volume 2**.

2. TRAFFIC FORECAST – OVERVIEW

REQUIREMENTS FOR THE MODEL

2.1 To deliver the required support for the Mersey Gateway Project the new traffic model was designed to achieve the following.

- Produce Base Year model results that, following appraisal against the DfT's model validation criteria, demonstrate the appropriateness of the model for appraisal of the new bridge.
- forecast the impact of the proposed Mersey Gateway on existing travel behaviour taking into account strategic and local reassignment, changes in trip distribution and induced traffic effects.
- demonstrate the influence of toll charging options for the Silver Jubilee Bridge (SJB) and Mersey Gateway (MG).
- Provide the output required for economic evaluation, including the wider economic effects, and environmental appraisal, accommodating the full scope of investigation required to complete the outline business case and to produce the evidence required to support the orders, planning applications and public inquiry process.
- Enable operational assessments to be undertaken in selected future years to inform the final scheme reference design and level of service specifications to be used to support the planning process and procurement.
- Appraise options for re-balancing the local transport infrastructure based on the adjusted role of SJB in providing a local river crossing, to support the Council's future Local Transport Policy, including outline appraisal of options to improve public transport.

2.2 This Forecasting Report follows on from the Highway Local Model Validation Report and presents the traffic forecasts produced to meet these requirements.

LOCAL MODEL VALIDATION

2.3 The development, calibration and validation of the Highway Model are presented in the Highway Local Model Validation Report (LMVR), dated December 2008.

FORECAST YEAR NETWORKS

2.4 Following the latest guidance from the DfT, future Do-Minimum highway and public transport networks have been developed on the basis of the best available local knowledge on current and anticipated commitments, as described in Chapter 3. The Mersey Gateway scheme design years adopted for these current forecasts are 2015 for the opening year and 2030 for the future design year, i.e. 15 years after opening.

TRAFFIC GROWTH

2.5 Following the latest guidance from the DfT on the treatment of uncertainty, Chapter 4 presents a schedule of development projects throughout the model area together with a consensus view as to the scale of each development that is likely to be completed by each of the Mersey Gateway scheme forecast years. This local knowledge has been adopted together with the overall controls from TEMPRO projections by District to develop future car and public transport trip forecasts. Goods vehicle forecasts have also been prepared, based on growth factors from the National Road Traffic Forecast 1997 (NRTF'97).

FORECAST MOST LIKELY REFERENCE CASE DEMAND MATRICES

2.6 Chapter 5 then summarises the results of applying the anticipated traffic growth to the 2006 base year matrices to produce the Reference Case matrices.

FORECAST MOST LIKELY VARIABLE DEMAND MATRICES

2.7 One of the key model requirements is for forecast methodology to be capable of adopting a variable demand modelling (VDM) approach. This has been implemented by means of the DfT supplied software known as DIADEM. The choice parameters in DIADEM have been calibrated such that the overall model replicates a -0.3 fuel cost elasticity (as required by WebTAG). This process is described in Chapter 6 which then goes on to summarise the results of applying VDM at a matrix level, and provides comparisons with the Reference Case demand matrices.

MOST LIKELY TRAFFIC FORECASTS

2.8 In Chapter 7 a series of tables and figures present the Most Likely traffic forecasts by time period (AM peak, Inter peak, PM peak, Overnight and 24 hour Annual Average Weekday Traffic (AAWT)) for the Do-Minimum and Do-Something scenarios for both 2015 and 2030, together with comparisons with the 2006 base year. Comparisons are presented of traffic flows across the River Mersey, for each link separately, and for traffic flows by sector to provide a wider perspective. Comparisons of traffic flows are also provided on key links to highlight any particular issues. Information is also provided on changes in travel times between the various scenarios. Further tables then present travel time savings as a result of the Mersey Gateway scheme. Finally the scheme toll revenues implied by the traffic forecasts are presented for completeness.

SUMMARY AND CONCLUSIONS

2.9 The final chapter provides a summary of the report and also the main conclusions reached concerning the Mersey Gateway scheme, as currently envisaged, on the basis of the traffic forecasts presented.

3. FORECAST YEAR NETWORKS

DO-MINIMUM NETWORKS

3.1 This Chapter sets out information gathered about future infrastructure projects in the Mersey Gateway model area that need to be taken into account for the Mersey Gateway transport forecasts.

3.2 The forecast years of interest are the planned opening year, 2015, and the design year, 2030. Department for Transport (DfT) guidance on the treatment of uncertainty in forecasting indicates that future development and network changes should be categorised as either Most Likely, Optimistic or Pessimistic (in terms of economic output). Note that all the forecasting work for the Mersey Gateway scheme as reported in this document relates to the Most Likely scenario.

3.3 Table 3.1 outlines how development and network changes should be treated in terms of uncertainty.

3.4 The DfT guidance states that outcomes categorised as near certain and more than likely are expected to be included in a 'Most Likely' scenario. Outcomes in the reasonably foreseeable and hypothetical categories are expected to be excluded from the 'Most Likely' scenario.

3.5 The following local authorities were consulted in order to gather the information on network changes:

- Cheshire County Council
- Halton Borough Council
- Knowsley Metropolitan Borough Council
- Liverpool City Council
- St Helens Metropolitan Borough Council
- Sefton Metropolitan Borough Council
- Warrington Borough Council
- Wirral Borough Council.

3.6 The following regional bodies were consulted in order to verify the status of information provided:

- North West Regional Assembly
- Highways Agency
- Government Office North West
- North West Development Agency.

3.7 Other organisations including Peel Holdings and Liverpool Airport were also consulted as part of this process. Documents such as the Regional Funding Agreement (RFA) and the draft Regional Spatial Strategy (RSS) have also been reviewed.

3.8 Table 3.2 presents significant infrastructure developments. For each entry, we have identified whether the scheme should be included in either the Most Likely, Optimistic or Pessimistic scenarios for both 2015 and 2030. The location and general nature of these Do-Minimum schemes are illustrated in Figures 3.1. Note that in this figure the ramp metering schemes on the M6 motorway listed in Table 3.2 are excluded. This is because such schemes are concerned with the detailed operation of the motorway and cannot be represented in the link based coding used for the outer areas of the Mersey Gateway model network. Even if within the simulation area, the impacts of such schemes are not sufficiently clear or well understood to permit modelling with certainty.

DO-SOMETHING NETWORKS

3.9 The Mersey Gateway scheme has been coded into the 2015 and 2030 Do-minimum networks. The detailed layout adopted for these traffic forecasts reflects the Reference Design, including improvements to the M56 J12, but excluding the detail of the de-linking in Runcorn associated with the SJB. The assumed scheme layout is presented in Figure 3.2. The new Mersey Gateway Bridge has been coded as a dual 3-lane facility, with a free flow speed of 96kph. The proposed layout for the SJB when the new bridge is implemented includes for one lane in each direction (rather than two each way as at present). The coded speed across the bridge is 64kph. The links shown in pink in Figure 3.2 are those to be removed when MG is introduced.

FUTURE TOLLS AT THE MERSEY GATEWAY AND SILVER JUBILEE BRIDGE

3.10 The only locations within the model area where tolls are currently applied are the Mersey Tunnels. Table 3.3 presents the base year (2006) tolls.

3.11 Future tolls have based on the current values as for the Mersey Tunnels and a treatment for future increases. The two alternative scenarios that were considered for future increases were:

- Tolls to increase in line with inflation from 2006, i.e. no change in real terms;
- Tolls to increase in line with national GDP/capita;

3.12 For the traffic forecasts presented in this Forecasting Report and used for subsequent project appraisal, it has been assumed that tolls will increase in line with inflation, i.e. they remain constant in real terms. For the purposes of these traffic forecasts, it is also assumed that VAT is not levied. Furthermore no adjustment is planned to be applied for the possible increase in proportion of vehicles making use of electronic tags.

3.13 The above assumptions apply to both the existing Mersey Tunnels and to proposals for tolling at the Halton bridges.

3.14 Data on the proportion of traffic using electronic tags to pay the tolls through the Mersey Tunnels is not available. There is an 11.5% discount applicable (from £1.30 to £1.15). In the absence of real data we have assumed the following average toll paid by purpose for the Mersey Tunnels in the 2006 base year validation and for all future forecasts:

Car Commute High Income	£1.20	
Car Commute Medium Income	£1.20	
Car Commute Low Income	£1.20	
Car Employer's Business	£1.30	i.e. no discount
Car Other High Income	£1.25	
Car Other Medium Income	£1.25	
Car Other Low Income	£1.25	
LGV	£1.30	i.e. no discount
OGV	£4.65	weighted average, i.e. no discount

3.15 The tolls in the model are applied as part of the assignment procedure as a monetary value. They are applied to individual links and hence to vehicles passing through these links. The monetary toll is then converted into a generalised cost expressed in seconds for application in the routeing algorithm within SATURN. This calculation is made by dividing the monetary value by the pence per minute value used to represent value of time for the respective user class.

BEHAVIOURAL ROUTING PARAMETERS

3.16 The behavioural routing parameters adopted for the traffic forecasts are based on those calibrated for the 2006 base year adjusted for the future according to WebTAG. The behavioural routing parameters adopted are presented in Table 3.4. The units for PPM are pence per minute (to reflect user's value of time) and for PPK are pence per kilometre (reflecting vehicle operating costs). These values act as coefficients in the generalised cost function which drives route choice decision making in the assignment model, and destination and mode choice in the demand modelling.

3.17 Base year values of time for car commute and car other were derived from local Stated Preference survey exercise as described in the LMVR. Future year VoT growth factors were calculated using forecast VoT growth in WebTAG 3.5.6 (February 2007). Similarly vehicle operating costs for these user classes are growthed using WebTAG data. The values for OGVs are presented per pcu (passenger car unit) as these are the units used in the network assignment model.

3.18 It can be seen from Table 3.4 that whilst values of time are increasing over time (driven by income growth) vehicle operating costs are falling (other than for LGV and OGV in 2030 where there has been a slight rise on 2015, but in absolute terms remaining lower than 2006). This reduction in operating cost is as a result of an assumption in WebTAG of relatively stable fuel prices over time and improved fuel efficiency of vehicles.

FUTURE PUBLIC TRANSPORT NETWORKS

3.19 Public transport provision has been assumed to be the same for both the Do-minimum and with scheme cases. Improved public transport for the Halton area in conjunction with the implementation of the new bridge is being considered as part of a Sustainable Transport Strategy (MGSTS) being developed for the Borough. It is therefore not appropriate to speculate on the form of specific improvements to public transport within the current forecasting process.

3.20 The definition of the do-minimum public transport schemes has been based upon an examination of the following sources:

- Local Transport Plan commitments/investments;
- Network Rail 2007 Business Plan;
- Network Rail; and
- services commitments in the relevant local rail franchises.

Rail

3.21 The changes made to the rail network were as follows.

- AM : Service 711 (Liverpool - Norwich Central Trains Service) and Service 721 (Liverpool - Birmingham Central Trains Service) both stop at Liverpool South Parkway in 2015 and 2030. Journey Time is adjusted to reflect this additional stop.
- Inter Peak : Service 721 (Liverpool - Birmingham Central Trains Service) has reduced headway from 120 mins to 60 mins. This service and Service 723 (Liverpool - Norwich Central Trains Service) both stop at Liverpool South Parkway in 2015 and 2030. Journey Time is adjusted to reflect this additional stop.
- PM : Service 723 (Liverpool - Cambridge Central Trains Service) stops at Liverpool South Parkway in 2015 and 2030. Journey Time is adjusted to reflect this additional stop.

Bus

3.22 There are no known plans to change the nature of the bus network or of the supporting infrastructure as contained in Local Transport Plans. The Halton LTP2 contains commitments to upgrade the current busway and to provide real time information, improve the main bus stations and to work with the operators to improve the quality of buses used. These are being considered within the MGSTS. We have therefore assumed no changes to the bus network compared to the base.

Fares

3.23 Future fares policy may be derived from rail franchise commitments and the High Level Output Statement of July 2007, “Delivering a Sustainable Railway”. From the former source, for the West Midlands franchise, the following applies:

> “As with all franchises, unregulated fares will be the responsibility of the operator. In the West Midlands, London and Birmingham Railway Ltd is expected to increase fares for journeys on the London to Northampton route by 3% above inflation per annum. Average rises on all other routes within the franchise including those in the West Midlands conurbation are expected to be no higher than RPI+1%.”.

3.24 For the East Midlands franchise, regulated fares will rise annually by RPI +1% in line with Government policy, while unregulated fares are expected to increase by an average of RPI + 3.4% per annum.

3.25 For Virgin West Coast, it is stated that "fares will continue to be set in a manner consistent with current policy".

3.26 From the HLOS document it is apparent that the policy is that "Government will continue to limit annual rises of regulated fares in line with national policy, which is currently RPI+1%."

3.27 Correspondence with DfT Rail Appraisal Guidance provided instruction to adopt RPI+1% for all fares into the future.

3.28 Due to the commercial freedom enjoyed by bus operators outside of London there is no national guidance over bus fares increases. Based upon advice from DfT the best assumption is that recent trends are carried forward into future years. Reference to Transport Statistics Great Britain in Chapter 5 provides information on the recent trend of bus fares.

3.29 Focussing upon the two areas of English Metropolitan areas and English other areas, and removing the effects of background price increases using the Retail Prices Index (RPI) shows quite clearly that bus fares have increased by approximately 25% in real terms over and above background inflation in the ten years between 1995 and 2005/6. Taking these figures with the advice from DfT, the best assumption for bus fares in the future is that they will continue to rise at this rate, equivalent to RPI+2.1% per annum when averaged between the two English areas.

3.30 On the basis of this analysis, it was concluded that rail fares should increase by RPI+1% and bus fares by RPI+2.1% into the future. Table 3.5 presents the resulting increases in fares, in real terms, adopted between 2006 and 2015 and between 2006 and 2030.

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4. TRAFFIC GROWTH

FACTORS INFLUENCING TRAFFIC GROWTH ASSUMPTIONS

4.1 There are a range of input assumptions required for any traffic forecasts. This chapter briefly discusses these and attempts to put the main assumptions into a national and regional perspective. The key issues discussed include the following:

- historic national and regional traffic growth;
- economic growth assumptions;
- the treatment of uncertainty;
- TEMPRO socio-economic and demographic growth; and
- current issues.

HISTORIC NATIONAL AND REGIONAL TRAFFIC GROWTH

4.2 Information on recent trends in traffic growth, in terms of vehicle kilometres, is available from the DfT's "National Road Traffic Survey". Table 4.1 summarises the most recent data available, distinguishing the various Districts within the model area. The growth trend since 1995 is also presented graphically in Figure 4.1. Overall growth amounts to 1.5% per annum over the last 10 years, this is consistent between the national, regional and the model area.

ECONOMIC GROWTH ASSUMPTIONS

4.3 Consideration was given to whether it was reasonable to assume that the North West Region GDP/capita would catch up with the UK national average at some stage over the period to 2030. However the most recent evidence, from "State of the Northwest Economy Long-term Forecasts", March 2007, prepared by Regional Economic Forecasting Panel suggests that outcome might not be achieved. Therefore it was decided to adopt the future economic growth assumptions set out in WebTAG; these are consistent at a national level.

4.4 WebTAG assumptions from unit 3.5.6 have been used for the calculation of values of time, fuel costs and non-fuel operating costs. Growth factors are provided in Table 4.2. The three inputs external to WebTAG are network speed, vehicle occupancy and vehicle splits by road type from the COBA manual table 8.1. This is shown as 4.3. Network speed is taken from the base year model. Vehicle occupancy rates are taken from the RSI data used in the matrix build. The vehicle occupancies closely match those to be found in WebTAG 3.5.6 Table 5. Growth factors are then applied from WebTAG 3.5.6 Table 6 to give the occupancies used for 2015 and 2030. Note that for VoT growth, WebTAG forecast *changes* are applied to locally derived base year values.

THE TREATMENT OF UNCERTAINTY

4.5 The approach adopted for the treatment of uncertainty for future developments is the same as for transport infrastructure, as described in Chapter 3. Table 4.4 presents a schedule of significant proposed development and redevelopment schemes. For each entry, we have identified whether the scheme should be included in either the Most Likely, the Optimistic or the Pessimistic scenarios for both 2015 and 2030. This classification has been adopted for the development of the Mersey Gateway transport forecasts. The location of all development sites included in the Do-Minimum forecasts is illustrated in Figure 4.2.

4.6 In order to calculate future trips as a result of the proposed new developments, TRICS 2007(b) was used. TRICS is a database system comprising a large number of records containing traffic counts for individual developments across a wide range of land-use categories. TRICS analyses individual or selected sets of survey counts to produce trip rate information.

4.7 Within the TRICS database, the following survey site locations were selected for use within the Mersey Gateway project:

- Local
- East Anglia
- East Midlands
- West Midlands
- Yorkshire & Lincolnshire
- North West
- North.

4.8 To coincide with the transport model time periods, the surveys used from the TRICS database were those undertaken during the week (Monday to Friday) and excluded weekend surveys (Saturday and Sunday). The modelled peak and off peak hours were adopted.

4.9 Surveys from the TRICS database were generally obtained for post 2002. However, in some instances this gave a very small number of surveys to generate a trip rate, and in order to use data from a greater number of observations, the time period was extended to the year 2000.

4.10 At a number of sites, where there is more than a single land-use, the data does not always show a breakdown for the different land uses. Therefore an equal split between the different land uses was generally assumed.

4.11 The information available has inevitably some degree of uncertainty associated with it, and, a range of assumptions have had to be made. Therefore there exists the potential for differences in the trip totals produced from those derived for other appraisals than that carried out for this project. However since the overall traffic growth has been constrained to the TEMPRO projections by district council area, any discrepancies only affect the local distribution of trips from new developments. Since development is a small proportion of total trip activity, any discrepancies will not have a significant impact on demand for the scheme.

4.12 For this analysis it was assumed that all development trips were car trips, except for warehousing and industrial developments, where 80% of trips were assumed to be OGV movements.

4.13 Due to the large geographical area covered by the Mersey Gateway model, the zonal system developed included several land uses for some zones. Given the zone structure, it was not always possible to use the distribution of a nearby zone with the same land use. The alternative method adopted involved using, wherever possible, the existing distribution for the associated zone in the validated base. The number of development trips allocated to each of the seven car user classes was then in accordance with the proportion of trips contained in the validated base matrix for each zone.

4.14 The only zones where no trips existed in the base were 499 and 500 representing the Omega developments around Junction 8 of the M62. For these zones, the distribution for development trips was taken from zone 259, the nearby Gemini Retail Park, which is a similar type of development.

TEMPRO GROWTH FACTORS

4.15 For the core forecasts for any major scheme the DfT expect projects to adopt TEMPRO projections for employment and demographic change, and these have been used for the forecasts as set out in this report. Table 4.5 presents a summary of the TEMPRO v5.3 population and employment growth for the base and forecast years.

4.16 However, there is no consensus on future employment growth in Merseyside (an area of considerable significance for the Mersey Gateway scheme) and the three main public bodies with an economic remit (Central Government, the North West Development Agency, and the Mersey Partnership) subscribe to different employment growth forecasts. The employment projections published in TEMPRO are the most pessimistic of the available recent forecasts with a prediction of approximately zero change for Merseyside. A report for the North West Development Agency (North West Rail Productivity Study: Employment Forecasts. Volterra Consulting Ltd, March 2008) states that employment is forecast to grow at around one percent per annum in Liverpool and around 0.7 percent per annum in the Merseyside area. This is broadly consistent with the Merseyside Economic Partnership's central view of employment growth, and highlights that TEMPRO projections are likely to be on the pessimistic side..

GROWTH IN CAR TRIPS

4.17 Table 4.6 then presents the corresponding 'central case' for car driver trip growth projections based on national economic growth and demographic changes. The overall growth adopted for Mersey Gateway has been constrained to these figures although the detailed zonal location of developments has been based on the content of Table 4.4.

4.18 For car growth, TEMPRO growth factors were applied to the trip ends of the base-year matrices. In this process the trip end growth was adjusted to take account of the trip matrices for the committed developments as set out in Table 4.4. TEMPRO factors were derived separately for commute, employer's business and other user classes, and were generated by network area, with 70 areas being defined. Having applied these growth factors to the trip ends, the base matrices underwent a doubly-constrained Furness procedure with column totals factored to match row totals.

4.19 Table 4.7 then presents the corresponding changes in car vehicle occupancy. These changes are based on the observed car occupancy derived from the RSI survey database and the future trends set out in WebTAG.

GROWTH IN PUBLIC TRANSPORT TRIPS

4.20 TEMPRO V5.3 has also been used to generate the growth in future public transport trips, as summarised in Table 4.8.

GROWTH IN LIGHT GOODS VEHICLE TRIPS

4.21 National Road Traffic Forecasts 1997 (NRTF 1997) were used to generate the growth in Light Goods Vehicle Trips. The growth for the central forecasts, given in Table 4.9, was applied globally across the trip matrices.

GROWTH IN OTHER GOODS VEHICLE TRIPS

4.22 National Road Traffic Forecasts 1997 (NRTF97) were used to generate the growth in Other Goods Vehicle (OGV) Trips. NRTF gives growth figures separately for rigid and articulated goods vehicles. In order to derive a figure for overall OGV growth, a split of rigid goods vehicles and articulated goods vehicles had to be calculated.

4.23 Using detailed classified count data for 2007 at the Silver Jubilee Bridge, this split was calculated to be 48.2% rigid goods vehicles and 51.8% articulated goods vehicles. The resulting growth for the central forecasts is given in Table 4.10. As with Light Goods Vehicles, this growth was applied globally across the trip matrices.

5. FORECAST MOST LIKELY REFERENCE CASE DEMAND MATRICES

SUMMARY OF MOST LIKELY TRAFFIC GROWTH

5.1 On the basis of the growth projections and methodology set out in Chapter 4, the Most Likely Reference Case trip matrices by User Class have been produced, as summarised in Tables 5.1 to 5.4 respectively for each modelled time period, while Table 5.5 presents the corresponding 24 hour AAWT. Key features to note include:

- forecast growth in Car Other trips when considered at the overall daily period is greater than growth in Car Commuting;
- the highest growth rates are however for light goods vehicles and other goods vehicles respectively, which are both substantially higher than the overall growth in car trips;
- forecast growth is highest in the Inter peak period and lowest in both of the peak periods;
- all vehicle growth, in terms of 24 hour AAWT, amounts to 9.7% to 2015 and 23.4% to 2030; and
- in comparison, overall growth in car trips amounts to 6.8% to 2015 and only 13.1% to 2030; this demonstrates the relative importance of the projected growth in goods vehicle trips.

5.2 Although corresponding historic trip matrices are not available for comparison purposes, it is possible to compare the assigned traffic volumes, in vehicle kilometres, with the historic trends presented in Chapter 4. Figure 5.1 presents this comparison for the trend growth from 1995 to 2006 with the reference case demand forecasts to 2015 and 2030. It is clear that the future growth trend is very much in line with historic trend data.

5.3 Corresponding forecasts of transport trips are presented in Tables 5.6 to 5.8 respectively for each modelled time period. It should be noted that these matrices only include public transport trips that start or end in Halton and cross the River Mersey; i.e. they are not comparable with the car or goods vehicle trips that include all trips made to, from within and across the full model area. Also it has been considered reasonable for Mersey Gateway demand forecasting purposes to assume that there are no overnight public transport trips and this period is not therefore modelled for public transport. The overall growth pattern is, as might be expected, that there is a small absolute growth (from a low base) in public transport trips for people who had access to a car for their journey (i.e. car available) but a substantially larger reduction in trips for those who did not, with a resulting overall reduction in public transport trips. This trend applies in both 2015 and 2030, with proportionately larger changes in 2030.

LOCAL TRAFFIC GROWTH WITHIN HALTON

5.4 In order to illustrate the distribution of growth within the model area, Tables 5.9 to 5.13 present similar comparisons by sector, for trip origins for each time period and the 24 hour AAWT respectively. Tables 5.14 to 5.18 then present corresponding comparisons for trip destinations by display sector, again for each time period and 24 hour AAWT respectively. The sectors used for this analysis are illustrated in Figure 5.2.

5.5 These tables illustrate that there is considerable variation in traffic growth within the model area, and comparison of the trip generations and trip attractions also demonstrates that this pattern also applies for trip ends. However the pattern is very similar between 2015 and 2030 as there are few committed developments in this latter time frame. Points to note include the following:

- forecast growth from Widnes (Sector 1) are invariably lower than average whereas for Runcorn (Sector 2) tends to be slightly above average;
- growth from South Widnes (Sector 10) is also generally substantially higher than average but this relates to a relatively small sector;
- growth to West Warrington (Sector 3) is generally high as this includes the massive Omega development; although only Phases I and II have been assumed to be completed;
- significantly higher than average growth is forecast for South Liverpool (Sector 7), which includes Liverpool John Lennon Airport;
- growth to Liverpool city centre (Sector 11) is also forecast to be generally higher than average;
- growth to/from Greater Manchester and further east (Sector 17) is also well above average.

Annual Average Weekly Traffic (AAWT)

5.6 The factors combining the modelled hours to produce 24 hour AAWT figures hours have been derived from long term count data on SJB. These factors are set out in Table 5.19.

6. FORECAST MOST LIKELY VARIABLE DEMAND MATRICES

6.1 This chapter describes the process of setting up the variable demand modelling application for Mersey Gateway and then presents the matrix forecasts for the Do-minimum and the with scheme cases. DIADEM software (version 2.1.4) as provided by the DfT was used for the variable demand modelling in Mersey Gateway.

THE DIADEM APPLICATION

6.2 The following choices are explicitly modelled in the DIADEM demand model:

- increases or decreases in the frequency of trips made;
- changes in mode of travel; and
- changes in destination.

6.3 For the variable demand model, the hierarchy of responses reflects that in the WebTAG advice (unit 3.10.3) with frequency (the least sensitive) at the top of the hierarchy and trip distribution (the most sensitive) at the bottom of the hierarchy.

6.4 The DIADEM application in Mersey Gateway consists of independent models of each of the three main time periods (0800-0900, 1000-1600 average hour and 1600-1700). The two peak hour models are deemed to represent travel in the peak periods, i.e. including the hours before and after the modelled hour. Adjustments for variations in flow over the three hours of the peak periods are made at the appraisal stage. For the off peak (overnight) demand changes calculated for the inter-peak period have been applied to the base matrices, i.e. there is no off-peak application of DIADEM.

6.5 The primary inputs to each model are the Reference Case matrices as discussed in previous chapters and travel costs from the base year highway and public transport assignment models. The demand segmentation in DIADEM is the same as for the assignment models, but only car available public transport demand is included in the DIADEM process.

6.6 The demand modelling process in DIADEM is entirely incremental. For the creation of a forecast year do-minimum, base year costs are compared with costs that result from application of Reference Case demands (i.e. from development proposals and growth as forecast in TEMPRO) to revised supply (e.g. new highway and public transport schemes). Resulting cost changes are input to DIADEM, which then adjusts the demand taking account of possible traveller responses – i.e. changes of destination, mode or trip frequency. These revised demands are then re-loaded to the supply to generate a new set of costs, and the process continues in an iterative manner until satisfactory convergence is achieved. For forecasts of the impact of the Mersey Gateway scheme, the process is essentially the same except that only network and money cost changes are included. Costs with the scheme are compared with costs in the Do-minimum as the basis for driving the demand modelling.

6.7 The DIADEM model parameters have been calibrated to reflect an overall car travel fuel cost elasticity of the order of -0.3, a firm requirement of WebTAG. In line with standard practice, supported by WebTAG for general demand modelling purposes, goods vehicle parameters have not been calibrated, and the Mersey Gateway model operates a fixed matrix approach for LGVs and OGVs.

6.8 The demand model parameter calibration process started with median destination choice parameters as advised in WebTAG (unit 3.10.3, Table following Para 1.11.12). The relative sensitivity between destination, and mode as set out in WebTAG was retained in the calibration process. Trip frequency in the model is the least sensitive response, reflecting both real trip frequency effects and modal choices that are not directly reflected in the model (ie that between car travel and walking and cycling and some elements of public transport). The destination parameter values for public transport were not allowed to change from the WebTAG mid point values. Parameter values are different by trip purpose, but within a particular purpose the values are the same across all income bands. Differences in response by willingness to pay band are therefore driven by a combination of differences in the value of time and by differences in trip distribution patterns

6.9 The operation of the modelling system is summarised in Figure 6.1. This description is for a single time period. The same structure is employed for each of the three time periods modelled in DIADEM. The key parts of the system are the DIADEM demand model (Box 1) and SATURN assignment model (Box 2). The process described is for creating a future year do-minimum. The process for option testing is essentially a simplification of this.

6.10 Reference demands (base year) are amended using development projections (Box 4) and TEMPRO controls (Box 5) to generate unconstrained future year highway demand (Box 6). These demands are assigned in SATURN using revised networks (Box 7) to generate revised highway costs (Box 8). DIADEM uses these revised costs along with base year costs (Box 9) and reference car and public transport demands (Boxes 3 and 10) to generate revised demands that reflect frequency, mode and destination responses to cost change (Box 11 for car demand and Box 12 for PT).

6.11 There is then an iterative process between DIADEM and SATURN (boxes 2, 8, 1, 11) until satisfactory level of convergence is achieved. At each stage in the iterative process the SATURN model is converged to the required level. Note that public transport costs do not change in this process. Also note that goods vehicle demands are not part of the DIADEM process. At the unconstrained demand stage, they are factored to reflect growth over time and then left unchanged.

ESTABLISHING THE DEMAND MODEL

6.12 As required by WebTAG, the variable demand model (VDM) has been calibrated in the base year to reproduce the overall national vehicle km fuel cost elasticity of -0.30. For this process a fuel cost increase of 20% has been employed. The median demand model lambda[1] and θ[2] parameters given as illustrative values in WebTAG guidance are used as the starting point and then the lambdas are systematically modified until an overall vehicle km fuel cost elasticity of -0.30 for the base year is achieved. This uses a two-staged calibration method.

1. Changing the distance coefficient in the validated base model to reflect a 20% fuel cost increase. This has a different impact for different trip purposes as values of time differ by trip purpose.

2. Modifying the model parameters to achieve the overall target fuel cost elasticity of minus 0.30 with the revised distance coefficient. The individual purposes are calibrated to different values as suggested in WebTAG (Unit 3.10.3, section 1.11): Car Employer Business is calibrated to a target elasticity of around -0.10; Car Home-Based Work to a target elasticity of -0.30; and Car Other to around -0.36.

[1] Lambdas are the choice model parameters.

[2] Θ parameters are the ratio of the lambda values for a specific choice to the next more sensitive choice in the hierarchy.

Calculating generalised cost parameters to reflect fuel cost increase

6.13 The nine assignment user classes all have their own generalised cost parameters that reflect the relevant Values Of Time (VoTs) and Vehicle Operating Costs (VoCs). For each user class the new SATURN VoC parameter (the PPK) is calculated by applying the following factor to the validated model PPK for that user class:

$$\left(\frac{1.2b + c}{b + c}\right)$$

where, b is the fuel operating cost and c is the non-fuel operating cost for the relevant purposes.

6.14 Note that when following standard WebTAG advice the distance coefficient is made up of fuel and non-fuel components. This means that a 20% increase in fuel cost translates into a smaller increase in the overall distance coefficient of the generalised cost (i.e. less than 20%).

6.15 Table 6.1 presents the SATURN pence per kilometre (PPK) values used in the validated base assignment model and the corresponding PPK values that reflect a 20% fuel cost increase. It may be noted that the corresponding SATURN pence per minute (PPM) do not change.

Calculating Demand Model parameters

6.16 The second stage of the calibration process calculates the demand model parameters required to achieve the overall target vehicle km fuel cost elasticity of -0.30.

6.17 The process starts from WebTAG median parameters and adjusts the distribution parameters while keeping the ***relative*** strength of other responses fixed. The model is run after each adjustment and the elasticity calculated using the arc-elasticity formulation, which for a 20% fuel increase, is given by:

$$Fuel\_Cost\_Elasticity = \frac{\ln\left(\frac{veh\_kms^{1}}{veh\_kms^{0}}\right)}{\ln(1.2)}$$

where the superscript *0* indicates the value from the base year model and *1* indicates the results from the model run with the increased distance coefficient. New distribution λ s, if the overall target fuel cost elasticity of -0.30 is not achieved, are obtained by making the following adjustment to current λ s:

$$\lambda^{N+1} = \frac{-0.30\lambda^{N}}{Fuel\_Cost\_Elasticity^{N}}$$

where N represents the iteration number during the calibration process.

6.18 An overall outturn vehicle km fuel cost elasticity of -0.30 was ultimately achieved using the lambda parameters given in Table 6.2. The parameters in the response hierarchy are shown in Table 6.3. These are within the range recommended in WebTAG except for Car Other purpose.

Model Convergence Parameters

6.19 Work done by TRL[3] and later by Mott MacDonald and Faber Maunsell[4] established that tight assignment convergence is critical to achieving demand/supply convergence - without a well converged assignment model it is difficult to get a well converged demand-supply model.

6.20 DMRB requires that the assignment model gap is not greater than 1%. However, the study by Mott MacDonald and Maunsell showed that even this is not good enough to achieve a well converged demand-supply. In line with those findings, all assignment runs for Mersey Gateway model have sought to achieve an assignment gap of 0.1% or less – 10 times smaller than the DMRB recommended assignment gap. This has been achieved by adopting the SATURN assignment convergence parameters as set out in Table 6.4 (noting that this is a higher degree of convergence than was applied in the base year model as reported in the LMVR).

6.21 For demand-supply convergence, WebTAG (unit 3.10.4, para 1.5.5) recommends 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%. Where the convergence level, as measured by the %GAP, is over 0.2% remedial steps should be taken to improve the convergence, by increasing the assignment accuracy. More recent research work undertaken for the DfT showed that improved levels of demand/supply convergence are often possible, and this is required where economic scheme user benefits are likely to be small in relation to total network costs. Because of this, for the Mersey Gateway model, the aim has been to achieve a lower target of 0.05% as the model stopping criteria.

IMPACT OF DIADEM ON TRIP MATRICES – DO-MINIMUM

6.22 The impact of variable demand, applied using DIADEM, on the Reference Case matrices for the Do-Minimum is presented in Tables 6.5 to 6.9 for each model time period and the 24 hour AAWT, respectively. For 2015 the overall impact amounts to an increase in trips of between 1.3% and 1.7% depending on time period. However it should be noted that goods vehicle traffic is assumed fixed so the changes apply only to car trips. For these, the increase in trips ranges up to 3.1% for Commute and up to 1.5% for Other; in each case the increase is largest for the low income band as these are most sensitive to changes in travel costs. The drivers of the demand increases are lower vehicle operating costs and higher values of time, which compound together to make the money cost of car travel significantly less important than in the base year.

6.23 The impact of VDM is different by trip purpose and income group. Lower income groups benefit most from the reduced vehicle operating costs and exhibit the highest growth. Commuting growth is generally higher than for 'Other' resulting from the fact they have longer trip lengths and thus experience bigger absolute cost reductions. Employers business experiences a slight decline as these high value trips are inhibited by increased journey times resulting from higher levels of Commuting and Other trip making.

6.24 For 2030, the overall impact of variable demand is slightly lower than in 2015, mainly due to the effect of fixed goods vehicle trips, the overall pattern of growth in car trips is very similar. However it is significant that growth in peak hour car trips resulting from VDM is lower in 2030 than 2015 whereas the reverse is the case for inter-peak and off peak car trips. This will be due to the effect of increased congestion in peak periods outweighing any travel vehicle

[3] TRL Unpublished Report UPR/T/019/05 – Report on Additional Tests on VADMA Advice, 2004.
[4] Use of Elasticity Models to Model Variable Demand, Published DfT Report, Mott MacDonald and Faber Maunsell, 2007

operating cost savings that would accrue due to real increases in income and reduced car operating costs. This is consistent with the fact that car employers' business trips reduce in both years; these are the least sensitive category of car travel to changes in travel money costs as they have the highest values of time.

6.25 It is also useful to assess the impact of variable demand on the distribution of trip ends. Tables 6.10 to 6.14 present comparisons, between the 2006 base year and 2015 Reference Case and VDM matrices, of trips generated by display sector for each model time period and the 24 hour AAWT. Tables 6.15 to 6.19 then present corresponding comparisons for 2030. The general pattern is one of VDM adding to the Reference Case trips, though this is not universal. Instances of small reductions do occur, and these are most noticeable in the peak periods in 2030.

6.26 The impact of variable demand on car trip kilometres is markedly stronger than for trips. Trip lengths increase because of the lower vehicle operating costs and higher values of time outweigh any impacts of increasing congestion. Trip kilometre increases between the Reference Case and the Do-minimum are of the order of:

- +9% for car commuting;
- -2% for car employers business;
- +13% for car other; and
- +9% for all car travel.

6.27 The slight decline for employers business is because traffic growth for other trip purposes has increased travel times for this very time sensitive trip purpose (which is not greatly influenced by the lower money costs for car operation). Good vehicle trip kilometres are almost unchanged between the Do-minimum and the Reference case, because they are not subject to the variable demand process in DIADEM.

IMPACT OF DIADEM ON TRIP MATRICES – DO-SOMETHING

6.28 The impact of variable demand, applied using DIADEM, on the Reference Case matrices for the Do-Something is presented in Tables 6.20 to 6.24 for each model time period and the 24 hour AAWT, respectively. For 2015 the overall impact amounts to an increase in trips of between 1.2% and 1.6% depending on time period. However it should be noted that goods vehicle traffic is assumed fixed in any event so the changes apply only to car trips. For these, the increase in trips ranges up to 3% for car commute and up to 1.8% for car other; in each case the increase is largest for the low income band as these are most sensitive to changes in travel costs.

6.29 For 2030, the overall impact of variable demand is slightly lower than in 2015, including for car trips. As for the Do-Minimum, it is noticeable that growth in peak hour car trips is lower in 2030 than 2015 whereas the reverse is the case for off peak car trips. This is thought to be due to the effect of increased congestion in peak periods outweighing any travel cost savings that would accrue due to real increases in income and reduced car operating costs. This is also consistent with the fact that car employers' business trips reduce in both years; these are the least sensitive to changes in travel costs as they have the highest values of time.

6.30 It is also necessary to assess the impact of variable demand on the distribution of trip ends. Tables 6.25 to 6.29 present comparisons, between the 2006 base year and 2015 Reference Case and VDM Do-Something matrices, of trips generated by display sector for each model time period and the 24 hour AAWT, respectively. Tables 6.30 to 6.34 then present corresponding comparisons for 2030.

6.31 For the Do-Something VDM the pattern of changes to trip ends is complex due to the impact of the tolling of the bridges combined with a significant increase in capacity. If there were no tolls then the effect of the Mersey Gateway scheme would be to reduce journey times and VDM would then generate increased traffic for movements across the MG/SJB. As compared to the Do-Minimum there should be minimal changes elsewhere, except possibly for second order changes due to reduced delays for traffic in Runcorn/Widnes that is not crossing the river.

6.32 However the effect of tolls is to increase the generalised cost of travel between Widnes and Runcorn relative to the no-toll situation. This has two main effects. Firstly, a very significant number of car trips now avoid crossing the river, switching to destinations on the same side. Secondly, many river crossings are undertaken at other locations than Halton, and these points experience increased flows. Finally, there is an element of modal change from car to alternatives such as public transport and cycling. These changes also have second order impacts on travel times throughout the model area which then create further changes through VDM. These impacts vary by time period and user class depending on the general levels of congestion, and hence the potential time savings from relieving that congestion, and the relative values of time for the different user classes.

IMPACT OF DIADEM ON PUBLIC TRANSPORT TRIP MATRICES

6.33 VDM forecasts of public transport trip changes between the Reference Case and the Do-Minimum are presented in Tables 6.35 to 6.37 respectively for each modelled time period. Note that it has been assumed that there are effectively no overnight public transport trips and this period is not therefore modelled for public transport. The results generally show a small reduction in car available public transport trips as a result of variable demand modelling, resulting from lower car vehicle operating costs. However the number of trips affected is insignificant.

HIGHWAY ASSIGNMENT CONVERGENCE

6.34 As described in the LMVR, it is important that the highway assignment achieves a satisfactory convergence, and meets the appropriate convergence criteria. This is accomplished by setting the necessary parameters in SATURN to appropriate values. Table 6.38 summarises the results for each of the assignments and presents the number of iterations required to achieve satisfactory convergence.

6.35 The Do-Minimum and Do-Something VDM forecasts achieve very good levels of convergence: assignment convergence is more than 10 times better than recommended in DMRB; demand/supply convergence is well below the value recommended in WebTAG, as summarised in Table 6.39.

7. VARIABLE DEMAND MOST LIKELY TRAFFIC FORECAST

OVERVIEW

7.1 This Chapter presents the results of Variable Demand Modelling (VDM) forecasts assigned to the Mersey Gateway scheme, with tolls applied to both the Mersey Gateway and SJB.

7.2 For these traffic forecasts it has been necessary to code the Do-Minimum and agreed Do-Something networks for both 2015 and 2030, as described in Chapter 3. The Do-Something reflects the Mersey Gateway scheme with tolls applied to both the SJB and Mersey Gateway at the same levels as applied at the Mersey Tunnels. The following runs have been carried out:

- VDM forecasts for each time period for the Do-Minimum for 2015 and 2030.
- VDM forecasts for each time period for the Do-Something for 2015 and 2030.

7.3 It should be re-iterated that all of these model results have been reviewed to check that they are not distorted by excessive localised delays occurring anywhere in the network due to changes in the pattern of traffic. In order to achieve this, signal timings at a substantial number of junctions have had to be adjusted to reflect future traffic patterns. However, substantial traffic congestion arises by 2030 in several locations for which a simple adjustment to signal timings is not sufficient.

7.4 The only location where the 2030 network has been assumed to be upgraded beyond that assumed for 2015 is at the junction of Speke Hall Avenue and the entrance to the Estuary Business Park where substantial delays are forecast due to high growth in traffic to/from Liverpool Airport and the business park. This junction has been assumed to be upgraded to satisfy the forecast traffic demand on the basis that either Liverpool Airport or the developers of the Estuary Business Park will implement improvements at this junction as and when the need arises.

7.5 The 2015 and 2030 forecasts include the development projects and infrastructure schemes expected to occur, as described in Chapter 3. Future traffic growth, as embodied within TEMPRO forecasts, takes into account local growth. The distribution of specific local developments is accommodated within the scheme forecasts with the scale of those local developments constrained to the TEMPRO forecasts, generally by District. Growth of goods vehicle traffic is taken from NRTF97.

TRAFFIC FLOWS ACROSS THE RIVER MERSEY

7.6 Tables 7.1 to 7.5 present comparisons of the assigned traffic flows across the River Mersey for the 2015 Do-Minimum compared to the 2006 base year for each model time period and for the 24 hour AAWT respectively. Tables 7.6 to 7.10 then presents corresponding comparisons for the 2030 Do-Minimum, also compared to the 2006 base year.

7.7 The following key conclusions can be drawn from these model results.

- Traffic across the SJB in 2015 is forecast to increase by over 12% in the Do-Minimum situation over a 24 hour period, broadly in line with overall traffic growth-as might be expected.
- Traffic across the SJB in 2030 is only forecast to increase by a further 3% over 2015 in the Do-Minimum situation; this is significantly lower than the overall traffic growth in the modelled area.
- In respect of changes in traffic flows by time period it can be seen that for both forecast years the AM and PM peak flows over SJB are little changed from the 2006 base year, as flows in 2006 are at the capacity of the approach roads (of around 3,700[5] pcus per hour).
- The growth is therefore concentrated in the inter-peak and overnight periods. By 2015 the SJB will be operating at 95% of capacity in the inter-peak and by 2030 this will have risen to 100%.

TRAFFIC FLOWS BY SECTOR

7.8 Tables 7.11 to 7.15 present comparisons of the assigned traffic flows by Sector for the 2015 Do-Minimum compared to the 2006 base year for each model time period and for the 24 hour AAWT respectively. Tables 7.16 to 7.20 then present corresponding comparisons for the 2030 Do-Minimum, also compared to the 2006 base year.

7.9 The following key conclusions can be drawn from these model results.

- Overall traffic growth is higher than traffic growth across the River Mersey, especially in 2030; this reflects the lack of available capacity across the river.
- Traffic growth is highest on the motorways, with West Warrington and South Liverpool both showing greater than average traffic growth. This might have been expected as the large Omega development is in West Warrington and South Liverpool includes Liverpool Airport and substantial associated commercial development.
- Changes in traffic flows by time period illustrate the different traffic patterns and the relative balance of peak period congestion as compared to the impacts of the increased capacity and of tolls.

7.10 There are a number of locations where the 2030 forecasts indicate that substantial traffic congestion may be expected. Of critical importance is that there are high levels of delay associated with the SJB. The key other locations and traffic movements identified as problematic are as follows:

- traffic to/from North Wales on the A55 where peak hour traffic demand exceeds available capacity;
- traffic on the M62 east of Birchwood, connecting to the M60/M602, where again peak hour traffic demand exceeds available capacity;
- traffic on the M6 south of the M56 junction, where peak hour traffic demand northbound exceeds available capacity;
- traffic on the M6 between the junctions with the M62 and the A580, where peak hour traffic demand exceeds available capacity, southbound in the morning peak and northbound in the evening peak;

[5] The capacity of the carriageway on the bridge is slightly higher at 3,950 pcus per hour.

- traffic on the M56 west of Junction 12 where peak hour traffic demand exceeds available capacity;
- the junction of Speke Hall Avenue and the entrance to the Estuary Business Park where substantial delays are forecast due to high growth in traffic to/from Liverpool Airport and the business park – this junction has been upgraded and signalised in the 2030 Do-Minimum;
- around the Liverpool shopping district and Lime Street station where local traffic volumes apparently exceed available capacity, although the true situation may differ according to the provision and location of parking; and
- in Woolton, East Liverpool where the junction of Woolton Road/Blackwood Avenue is overloaded; although this is exacerbated by the size of the model zones in this area.

COMPARISON OF TRAFFIC FLOWS

7.11 Tables 7.21 to 7.25 present comparisons of the assigned traffic flows across the River Mersey for the 2015 Do-Something compared to the corresponding 2015 Do-Minimum for each model time period and for the 24 hour AAWT respectively. Tables 7.26 to 7.30 then present corresponding comparisons for the 2030 Do-Something, also compared to the corresponding 2030 Do-Minimum.

7.12 The following key conclusions that can be drawn from the model results referred to in these tables are set out below.

- In 2015, traffic across the SJB is expected to reduce by about 87% as compared to the corresponding Do-Minimum, as a result of the combined effect of construction of the Mersey Gateway scheme and the introduction of tolls on both crossings. The daily traffic (AAWT) traffic across the River Mersey for the SJB+MG combined is reduced by about 22% in comparison with the Do-Minimum.
- In 2030, traffic across the SJB is also expected to reduce by 83% as compared to the corresponding Do-Minimum, as a result of the combined effect of construction of the Mersey Gateway and the introduction of tolls on both crossings. Overall 24 hour AAWT across the River Mersey for the SJB+MG combined is reduced by 2% in comparison with the Do-Minimum.
- In 2030, forecast traffic flows amount to over 78,000 vehicles per weekday across the MG and over 16,000 vehicles per weekday across the SJB; this compares with almost 84,000 vehicles per weekday across the SJB in 2006;
- In 2015, traffic flows across the River Mersey as a whole are expected to decrease by about 3% as a result of the Mersey Gateway scheme, with this decrease spread over all time periods except PM peak, where flows increase slightly by 0.9%. This can be explained by the increase in overall generalised cost as a result of the toll. However in 2030, there is a net increase in the all day flow across the Mersey of around 0.9% and this is concentrated in the peak periods. Higher congestion levels in 2030 mean the capacity increase from the new bridge is outweighing the toll effect.

7.13 The overall figures for reductions in flows across the Mersey at Halton that are forecast to occur following the construction of the new bridge, and the tolling of both bridges, masks some considerable variation in usage by trip purpose within the car mode. For example, across the day relative to the Do-minimum:

- Employers Business trips increase by 38% in 2015 and by 64% in 2030;
- High Income Commuting trips decrease by 12% in 2015 but increase by 13% in 2030;
- Medium Income Commuting trips decrease by 24% in 2015 but increase by 3% in 2030;
- Low Income Commuting trips decrease by 58% in 2015 and by 36% in 2030.
- High Income Other trips decrease by 28% in 2015 and by 10% in 2030;
- Medium Income Other trips decrease by 37% in 2015 and by 19% in 2030;
- Low Income Other trips decrease by 51% in 2015 and by 34% in 2030.

7.14 It can therefore be seen that the scheme is encouraging business and high value commuter trips whilst discouraging low income consumers. This is indicative of the scheme having a positive economic performance, as the tolling provides a mechanism whereby the time saving benefits of the increased capacity are not eroded by induced traffic, and thus benefit trips with high economic worth. This positive indication is re-enforced by significant increases in goods vehicle crossings at Halton (see Tables 7.20 and 7.30) even though this is only a route choice impact (as wider demand responses are not represented for goods vehicles).

7.15 From the model results it can be seen that some sections of the motorways modelled within the study area, show Volume/Capacity (V/C) ratios in 2030 close to or in excess of the modelled capacity in the peak hour.

7.16 Tables 7.31 to 7.35 present comparisons of the assigned traffic flows by Sector for the 2015 Do-Something compared to the corresponding 2015 Do-Minimum for each model time period and for the 24 hour AAWT respectively. Tables 7.36 to 7.40 then present corresponding comparisons for the 2030 Do-Something, also compared to the corresponding 2030 Do-Minimum.

7.17 From an assessment of these traffic flows by Sector, the main conclusion that can be drawn is that the effect of the Mersey Gateway scheme with regard to change in traffic flows is limited in geographical extent; the only sectors with significant reductions in traffic are Runcorn and South Widnes, both of which are directly adjacent to the scheme, and also South Liverpool in 2015 (but not 2030). These comparisons also show that the impact of the Mersey Gateway scheme is to slightly reduce overall traffic flows; by 2.5% in 2015 and 1.1% in 2030.

7.18 Tables 7.41 to 7.45 then present comparisons of the assigned traffic flows at selected key links within the model area for the 2015 Do-Something compared to the corresponding 2015 Do-Minimum for each model time period and for the 24 hour AAWT respectively. Tables 7.46 to 7.50 then present corresponding comparisons for the 2030 Do-Something, also compared to the corresponding 2030 Do-Minimum. The key locations selected for this presentation are illustrated in Figure 7.1; these reflect key links on the surrounding motorway network and also key routes within Halton.

7.19 From an assessment of these traffic flows at selected key links which are referred to in the above mentioned tables, the following conclusions can be drawn.

- Forecast traffic flows on the motorway network do not vary significantly between the Do-Minimum and Do-Something scenarios in either 2015 or 2030. This is at least in part, due to the factor that the reported Volume/Capacity (V/C) ratios on the M56 are close to or in excess of the modelled capacity in the peak hours.
- Similarly the M62 is also forecast to experience by 2030, volume/capacity (V/C) close to or in excess of the modelled capacity in the peaks.
- In contrast, traffic flows within Halton do vary substantially between individual routes as a result of the Mersey Gateway scheme. Nevertheless, this is not forecast to result in significant congestion on the local expressway network. Hence it may be concluded that, in general terms, the local network within Halton is sufficient to cater for the different traffic patterns that will result from construction of the scheme, subject to any detailed junction design considerations.

JOURNEY TIME COMPARISONS

7.20 Journey time comparisons are provided for all routes defined in the LMVR, as illustrated in Figure 7.2. For the Do-Something scenarios, there are also equivalent journey time routes via the Mersey Gateway to complement those via the Silver Jubilee Bridge, as illustrated in Figure 7.3. Tables 7.51 to 7.54 present comparisons of the 2006 base year and the Do-Minimum scenarios for each model time period. Tables 7.55 to 7.58 then present comparisons of the Do-Minimum and Do-Something scenarios for each design year for each model time period. Each of these comparisons is also shown graphically in Figures 7.4 to 7.7 for each model time period.

7.21 These journey time comparisons between the base (2006) and future Do-Minimum model runs demonstrate that, as might have been anticipated, journey times will increase over time. In the AM peak hour, journey times overall (across the 20 modelled journey time routes) are expected to increase by 12.8% by 2015 and by 25% by 2030. In the inter peak, the corresponding increases are 5.0% by 2015 and 15.5% by 2030. For the PM peak the increases are 9.7% by 2015 and 22.2% by 2030. In the overnight period, when traffic volumes are very low, the increase in journey times is no more than 0.8%, even by 2030.

7.22 For the Do-Something, peak period journey times are forecast to improve overall, compared to the same routes across the SJB in the Do-Minimum, by 4.4% in 2015 and 6.2% in 2030 for the AM peak hour and 5.9% in 2015 and 8.1% in 2030 for the PM peak hour. Changes in the inter-peak are insignificant. Furthermore, routes via the Mersey Gateway are almost invariably substantially faster than via the alternative SJB crossing in all time periods.

7.23 The following key conclusions can be drawn from these model results.

- Changes in journey times are as would be expected. On all routes, Do-Minimum journey times increase relative to the 2006 base as traffic and congestion increases, especially in peak periods.
- In the Do-Something, journey times are generally significantly reduced by comparison with the Do-minimum, with routes via the MG almost always being faster than the corresponding routes via the SJB. In the inter peak and overnight periods there is a smaller change as traffic is perhaps more likely to divert away from the MG/SJB to avoid the tolls at times where congestion on alternative routes is less severe.

CHANGES IN TRAVEL TIMES

7.24 One of the objectives of the Mersey Gateway scheme is to relieve the congested Silver Jubilee Bridge. It is therefore useful to compare travel times across the River Mersey from Runcorn and Widnes. These are illustrated by presenting travel times for the following movements:

- from Halton Lea for travel to destinations north of the River Mersey; and
- from Widnes town centre for travel to destinations south of the river.

7.25 The purposes of comparison, Figures 7.8 to 7.12 present AM peak hour cross-river journey times from both these origins, on each figure, for the following scenarios:

- 2006 base year
- 2015 Do-Minimum
- 2030 Do-Minimum
- 2015 Do-Something
- 2030 Do-Something.

7.26 Similarly Figures 7.13 to 7.17 present corresponding inter peak average hour cross-river journey times for the same scenarios and Figures 7.18 to 7.22 present corresponding journey times for the PM peak hour.

7.27 These show that in the Do-Minimum there is a general deterioration in travel times across the River Mersey over the period 2006 to 2015 and 2030, across all time periods, although some improvement can be seen between 2006 and 2015 towards St Helens; this occurs as a result of the A58 Blackwood diversion included in the Do-Minimum. This deterioration in travel times is particularly evident for the PM peak hour. The impact of the Mersey Gateway scheme in the Do-Something results in significantly improved travel times as compared to the Do-Minimum, although the improvements are more pronounced in 2015 rather than 2030.

TRAVEL TIME SAVINGS

7.28 Since the journey time routes concentrate on travel across the River Mersey via the various alternative routes it is also useful to consider specific origin-destination movements to identify changes in travel times between the various scenarios. For this purpose, a select number of key locations have been identified throughout the model area. The chosen key locations, with the corresponding zone number, are all illustrated in Figure 7.23, are:

- 82 Halton Lea
- 141 Widnes town centre
- 468 St Helens
- 200 Warrington town centre
- 484 Frodsham
- 429 Ellesmere Port
- 409 Liverpool Airport
- 361 Liverpool city centre
- 355 Old Swan
- 819 M6 (south) – Congleton.

7.29 For each movement between these key locations the corresponding travel times have been tabulated and the following comparisons prepared. Tables 7.59 to 7.61 present comparisons between the 2006 base year and the 2015 Do-Minimum, for the AM peak, Inter peak and PM peak periods. Tables 7.62 to 7.64 then present comparisons between the 2006 base year and the 2030 Do-Minimum, for the same model time periods. Tables 7.65 to 7.70 then present similar comparisons between the Do-Minimum and Do-Something scenarios, for the AM peak, Inter peak and PM peak periods, for 2015 and 2030 separately.

7.30 For these key movements, the tables illustrate that the 2015 Do-Minimum generally has longer travel times than in 2006, up to 9 minutes longer in the AM peak and up to 9 minutes longer in the PM peak. By 2030, travel times will increase further, by up to 17 - 19 minutes for these key movements in peak periods. By comparison, travel times during the inter peak period are only up to 4 minutes longer in 2015 than in 2006 but up to 11 minutes longer by 2030.

7.31 Comparison of the 2015 Do-Something and Do-Minimum scenarios demonstrates that there are indeed time savings as a result of the Mersey Gateway scheme, up to 9 minutes in the AM peak, up to 11 minutes in the PM peak and up to 6 minutes in the inter peak. By 2030, time savings increase up to 12 minutes in the AM peak, 13 minutes in the PM peak, and up to 7 minutes in the inter peak.

7.32 In addition to these tables, a series of isochrone plots have also been prepared to illustrate the travel time savings that arise as a result of the Mersey Gateway scheme. Figure 7.24 presents AM peak hour travel time saving isochrones for trips across the River Mersey by comparison of the 2015 Do-Minimum and 2015 Do-Something, using Halton Lea and Widnes town centre respectively as the origin for all trips. Figure 7.25 presents a corresponding comparison for 2030. Figures 7.26 to 7.29 then present equivalent comparisons for the Inter peak and PM peak hours respectively.

7.33 The important conclusion that may be drawn from these isochrones is that the overall impact of the Mersey Gateway scheme in terms of travel time savings throughout the region is relatively modest during off peak periods but is more substantial during peak periods.

AREA OF INFLUENCE

7.34 An important aspect of the analyses of traffic forecasts is to identify the area of influence of the Mersey Gateway scheme. This is a key determinant of the geographical scope for various environmental, social and economic assessments. The criteria for change varies depending on the assessment to be carried out. For the purposes of this Forecasting Report a 5% change in traffic flows has been taken as potentially significant.

7.35 The area of influence of the Mersey Gateway scheme is illustrated in Figure 7.30 based on the 24 hour AAWT comparison between the 2030 Do-Minimum and Do-Something. The comparisons indicate that significant changes are largely limited to Halton, with few significant changes elsewhere in the model network. Within Halton, there are a mix of increases and decreases that reflect the diversion of traffic from routes serving the SJB to alternative routes serving the Mersey Gateway. There are also some changes on less important traffic routes due to the wider effects of re-routing and the impact on delays at specific junctions.

TOLL REVENUE FORECASTS

7.36 This section presents the annual toll revenues produced corresponding to the traffic forecasts for the two bridges at Halton. Tables 7.71 and 7.72 present the forecast toll revenues for the Mersey Gateway and Silver Jubilee Bridge respectively in 2006 prices. These toll revenues are based on the agreed toll assumptions and the associated traffic forecasts. They are a linear interpolation from the 2015 and 2030 model forecasts. There has been no allowance for toll discounts in these forecasts, other than for the use of electronic tags as specified in Chapter 3.

7.37 In terms of the trend in annual toll revenues over time, which are wholly determined by changes in traffic flows as the toll charges are assumed to remain constant in real terms, these traffic forecasts show an increase between 2015 and 2030 of 28% for the combined MG and SJB.

COMPARISONS OF PUBLIC TRANSPORT TRIPS

7.38 The Mersey Gateway modelling system has also been used to prepare corresponding public transport forecasts, based on the matrices described in Chapters 5 and 6. However, in respect of the change between the Do-minimum and the with scheme case the demand changes for cross river public transport movement at Halton were minimal.

8. SUMMARY AND CONCLUSIONS

8.1 This Forecasting Report describes the traffic forecasts produced for the Mersey Gateway scheme and sets out the assumptions on which these forecasts are based. The traffic forecasts have been prepared on a variable demand basis using the DfT's DIADEM software. The calibration of travel choice parameters for DIADEM is set out in this report. The DIADEM demand model interfaces with a very detailed highway assignment model and with a public transport model.

8.2 This report present the current Variable Demand Modelling (VDM) traffic forecasts for the Most Likely scenario. These are for Do-minimum and with scheme scenarios in 2015 and 2030.

BASIS OF TRAFFIC FORECASTS

8.3 The latest guidance from the DfT has been followed for determining the basis for the forecast year assumptions. The Mersey Gateway scheme design years adopted for these forecasts are 2015 for the opening year and 2030 for the future design year, i.e. 15 years after opening.

8.4 The Mersey Gateway scheme has been coded into the future year Do-minimum networks. The detailed layout adopted for these traffic forecasts reflects the Reference Design, including improvements to the M56 J12.

8.5 Future tolls for the Silver Jubilee Bridge and Mersey Gateway have been set to the same values as for the Mersey Tunnels. For the traffic forecasts, it has been assumed that tolls will increase in line with inflation, i.e. they remain constant in real terms. Their impact therefore declines over time, because forecast increases in incomes lead to higher values of time.

8.6 Consideration was given to whether it was reasonable to assume that the North West Region GDP/capita would catch up with the UK national average at some stage over the period to 2030. However the most recent evidence, from "State of the Northwest Economy Long-term Forecasts", March 2007, prepared by Regional Economic Forecasting Panel suggests that this outcome might not be realised. Therefore it was decided to adopt the future economic growth assumptions set out in WebTAG, which are for the UK taken as a whole.

8.7 On the basis of these assumptions and growth projections, the Most Likely Reference Case trip matrices have been produced. Note that these exclude any variable demand effects resulting from travel cost changes. Key features to note include:

- forecast growth in Car Other daily (AAWT) trips is greater than growth in Car Commuting;
- the highest growth rates are for light goods vehicles and other goods vehicles respectively, which are both substantially higher than the overall growth in car trips;
- forecast growth is highest in the Inter peak period and lowest on both of the peak periods;
- overall growth, in terms of 24 hour AAWT, amounts to 9.7% to 2015 and 23.4% to 2030;
- in comparison, overall growth in car trips amounts to 6.8% to 2015 and only 13.1% to 2030; this demonstrates the relative importance of the projected growth in goods vehicle trips.

8.8 Corresponding forecasts of public transport trips have also been produced. The overall growth pattern is as might be expected; there is a small growth in car available public transport trips but a substantially larger reduction in non-car available public transport trips, with a resulting overall reduction. This trend applies in both 2015 and 2030, with proportionately larger changes in 2030.

MOST LIKELY TRAFFIC FORECASTS

Variable Demand Modelling

8.9 One of the key model requirements was that the forecast methodology is to be capable of adopting a variable demand approach. This has been implemented by means of the DfT supplied software known as DIADEM. The DIADEM application requires calibration of travel choice parameters such that the overall model replicates a -0.30 fuel cost elasticity. This is a requirement of WebTAG.

8.10 The following choices are explicitly modelled in the DIADEM demand model:

- increases or decreases in the frequency of trips made;
- changes in mode of travel; and
- changes in destination.

These choices are driven by changes in the time and money costs of travel (the latter being made up of vehicle operating costs and tolls).

Impact of Variable Demand Process on Trip Growth

8.11 The overall impact of variable demand, applied using DIADEM, on the Reference Case matrices for the Do-Minimum amounts to an increase in trips of between 1.3% and 1.7% depending on time period. However as goods vehicle traffic is assumed fixed, the changes apply only to car trips. For these, the increase in trips ranges up to 3.1% for car commute and up to 1.5% for car other; in each case the increase is largest for the low income band as these are most sensitive to changes in travel costs. Travel costs are reducing over time as a result of lower vehicle operating costs (combined with higher values of time that reduce the importance of money costs).

8.12 For 2030, the overall impact of variable demand is slightly lower than in 2015. Growth in peak hour car trips is lower in 2030 than 2015 whereas the reverse is the case for off peak car trips. This is thought to be due to the effect of increased congestion in peak periods outweighing any travel cost savings that would accrue due to real increases in income and reduced car operating costs. This is consistent with the fact that car employers' business trips reduce in both years; these are the least sensitive to changes in travel costs as they have the highest values of time. They are sensitive to rising travel times resulting from growth in traffic related to Commuting and Other purposes. Note that the VDM process has not been applied to goods vehicles, in line with DfT recommendations.

8.13 The Do-Minimum traffic forecasts show an increase in traffic because the Reference Case matrices do not include any allowances for income growth and reducing vehicle operating costs.

8.14 The overall impact of variable demand, applied using DIADEM, on the Reference Case matrices for the Do-Something amounts to an increase in trips of between 1.2% and 1.6% depending on time period, which is similar to the impact for the Do-Minimum.

8.15 For 2030, the overall impact of variable demand is slightly lower than in 2015. As for the Do-Minimum, it is noticeable that growth in peak hour car trips is lower in 2030 than 2015 whereas the reverse is the case for off peak car trips. This is thought to be due to the effect of increased congestion in peak periods offsetting the travel cost savings that would accrue due to real increases in income and reduced car operating costs. This effect is not noticeably different between the Do-Minimum and Do-Something situations.

8.16 For the Do-Something VDM the pattern is more complicated due to the effect of the tolls. If there were no tolls then the effect of the Mersey Gateway scheme would be to reduce journey times and VDM would then generate increased traffic for movements across the MG/SJB.

8.17 However the effect of tolls is to increase the generalised cost of travel between Widnes and Runcorn. This has two main effects. Firstly VDM will reduce the volume of traffic crossing the river at this location due to the increased costs; which is very evident from the model assignments. Secondly however there is also a re-assignment effect; i.e. traffic that would use the MG/SJB if un-tolled transfers to another crossing when tolls are applied. Hence the Do-Something flows across the MG/SJB are further reduced but there are corresponding increases on alternative crossings. This has second order impacts on travel times throughout the model area which creates further changes through VDM. In general the re-assignment causes increased congestion, and hence longer journey times, on alternative routes and hence a reduction in other trips using these routes, whether or not they cross the river.

8.18 These impacts vary by time period and trip purpose depending on the general levels of congestion, and hence the potential time savings from relieving that congestion, and the relative values of time for the different user classes. These change over time, but it is clear that by 2030 the overall levels of congestion will substantially increase, hence there is a larger potential time saving as a result of the Mersey Gateway scheme. An added complication is that congestion also occurs by 2030 throughout the network, especially on the motorways, and hence the scope for re-assignment appears to be reduced as compared to 2015.

Forecast Traffic Flows across the River Mersey

8.19 Table 8.1 presents comparisons of the assigned traffic flows across the River Mersey for the Do-Minimum compared to the 2006 base year for the 24 hour AAWT. Table 8.2 then presents corresponding comparisons for the Do-Minimum and Do-Something.

8.20 The following conclusions can be drawn from the Do-Minimum results:

- traffic across the SJB in 2015 is forecast to increase by over 12% in the Do-Minimum situation, broadly in line with overall traffic growth;
- traffic across the SJB in 2030 is only forecast to increase by a further 3% over 2015; this is significantly lower than the overall traffic growth;
- substantial growth in traffic across the M6 Thelwall viaduct is forecast by 2015; this can only exacerbate any congestion that arises on the M6 and hence further reduce journey time reliability - further traffic growth by 2030 can only exacerbate this situation.

8.21 From comparisons of the assigned traffic flows across the River Mersey for the Do-Something compared to the corresponding Do-Minimum, the following conclusions can be drawn.

- In 2015, traffic across the SJB is expected to reduce by 87% as compared to the corresponding Do-Minimum, as a result of the combined effect of construction of the Mersey Gateway scheme and the introduction of tolls on both crossings. Overall traffic across the River Mersey for the SJB+MG combined is reduced by about 22% in comparison with the Do-Minimum.
- In 2030, traffic across the SJB is also expected to reduce by 83% as compared to the corresponding Do-Minimum. Overall 24 hour AAWT across the River Mersey for the SJB+MG combined is reduced by 2% in comparison with the Do-Minimum.
- In 2030, forecast traffic flows amount to over 78,000 vehicles per weekday across the MG and over 16,000 vehicles per weekday across the SJB; this compares with almost 84,000 vehicles per weekday across the SJB in 2006.
- In 2015, traffic flows across the River Mersey as a whole are expected to decrease by about 3% as a result of the Mersey Gateway scheme, with this decrease spread over all time periods except PM peak, where flows increase slightly by 0.9%. This can be explained by the increase in overall generalised cost as a result of the toll. However in 2030, the corresponding net increase in daily flow amounts to only 0.9% and this is concentrated in the peak periods; during the off peak periods traffic flows are forecast to reduce after introduction of the Mersey Gateway scheme. This reflects the impact of congestion on the wider highway network such that additional traffic cannot reach the River Mersey crossings during peak periods. However the pattern of change is complicated by the impact of the introduction of tolls on the Silver Jubilee Bridge/Mersey Gateway.

8.22 The overall figures for reductions in flows across the Mersey that are forecast to occur following the construction of the new bridge and the tolling of both bridges masks some considerable variation in usage by trip purpose within the car mode. For example, across the day relative to the Do-minimum:

- Employers Business trips increase by 38% in 2015 and by 64% in 2030;
- High Income Commuting trips decrease by 12% in 2015 but increase by 13% in 2030;
- Medium Income Commuting trips decrease by 24% in 2015 but increase by 3% in 2030;
- Low Income Commuting trips decrease by 58% in 2015 and by 36% in 2030.
- High Income Other trips decrease by 28% in 2015 and by 10% in 2030;
- Medium Income Other trips decrease by 37% in 2015 and by 19% in 2030;
- Low Income Other trips decrease by 51% in 2015 and by 34% in 2030.

8.23 It can therefore be seen that the scheme is encouraging business and high value commuter trips whilst discouraging low income consumers. This is indicative of the scheme having a positive economic performance, as the tolling provides a mechanism whereby the time saving benefits of the increased capacity are not eroded by induced traffic, and benefit trips with high economic worth. This positive indication is re-enforced by significant increases in goods vehicle crossings at Halton (see Tables 7.20 and 7.30) even though this is only a route choice impact (as wider demand responses are not represented for goods vehicles).

Traffic Flows on Key Links

8.24 From an assessment of the traffic flows on key links, selected to reflect key movements on the surrounding motorway network and also key routes within Halton, the following conclusions can be drawn.

- Forecast traffic flows on the motorway network does not vary significantly between the do-Minimum and Do-Something scenarios in either 2015 or 2030.
- This is at least in part, due to the factor that the reported Volume/Capacity (V/C) ratios on the M56 are close to or in excess of the modelled capacity in the peak hours.
- Similarly the M62 is also forecast to experience by 2030, volume/capacity (V/C) ratios close to or in excess of the modelled capacity in the peak hours.
- In contrast, traffic flows within Halton do vary substantially between individual routes as a result of the Mersey Gateway scheme, as would be expected.
- Nevertheless, this is not forecast to result in significant congestion on the local expressway network. Hence it may be concluded that, in general terms, the local network within Halton is sufficient to cater for the different traffic patterns that will result from construction of the scheme, subject to any detailed junction design considerations.

8.25 In overall terms therefore, it may be seen from these traffic forecasts that traffic flows across the planned Mersey Gateway may be constrained by congestion on the surrounding motorway network rather than specifically local congestion within Halton. This condition is forecast to occur by 2015, or soon thereafter, for the SJB in any event, and the planned Mersey Gateway scheme.

Journey Time Comparisons

8.26 From analyses of journey time comparisons for routes across the River Mersey, the following conclusions can be drawn.

- On all routes, Do-Minimum journey times increase as traffic and congestion increases, especially in peak periods.
- In the Do-Something, journey times are generally significantly reduced by comparison with the Do-minimum, with routes via the MG almost always being faster than the corresponding routes via the SJB. In the inter peak and overnight periods there is a smaller change as traffic is more likely to divert away for the MG/SJB to avoid the tolls at times when congestion on alternative routes is less likely.

8.27 These results confirm that the Mersey Gateway scheme does achieve the objective to relieve the congested Silver Jubilee Bridge and result in improvements in journey times which are particularly significant for trips between Runcorn and Widnes.

Travel Time Savings

8.28 Comparison of the 2015 Do-Something and Do-Minimum demonstrates that there are time savings as a result of the Mersey Gateway scheme for a selection of movements crossing the river at Halton, up to 9 minutes in the AM peak and up to 11 minutes in the PM peak. By 2030, time savings increase by up to 12 minutes in the AM peak period, 13 minutes in the PM peak and up to 7 minutes in the inter peak.

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Mersey Gateway Highway Model

Traffic Forecasting Report

Volume 2: Tables and Figures

January 2009

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Explanatory notes on the contents of the report

1. This volume of the Forecasting Report contains the tables and figures that are referred to in the Forecasting Report Volume 1 dated January 2009.

2. The chapters which include tables and figures have been clearly marked with a dividing sheet for ease of reference.

3. The table below shows the illustrations (tables and figures) which are expected to be found for each chapter followed by listing of individual tables and figures.

Table and Figure Numbers for Each Chapter

Chapter	Tables and Figures
1 - Introduction	• Tables: None • Figures: 1.1
2 - Traffic Forecasts – Overview	None
3 - Forecast Year Networks	• Tables: 3.1 to 3.5 • Figures: 3.1 to 3.2
4 - Traffic Growth	• Tables: 4.1 to 4.10 • Figures: 4.1 to 4.2
5 - Forecast Most Likely Reference Case Demand Matrices	• Tables: 5.1 to 5.19 • Figures: 5.1 to 5.2
6 - Forecast Most Likely Variable Demand Matrices	• Tables: 6.1 to 6.39 • Figures: 6.1
7 - Variable Demand Most Likely Traffic Forecasts	• Tables: 7.1 to 7.72 • Figures: 7.1 to 7.30
8 - Summary and Conclusions	• Tables: 8.1 to 8.2 • Figures: None

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List of Tables and Figures

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Chapter 1 Figure

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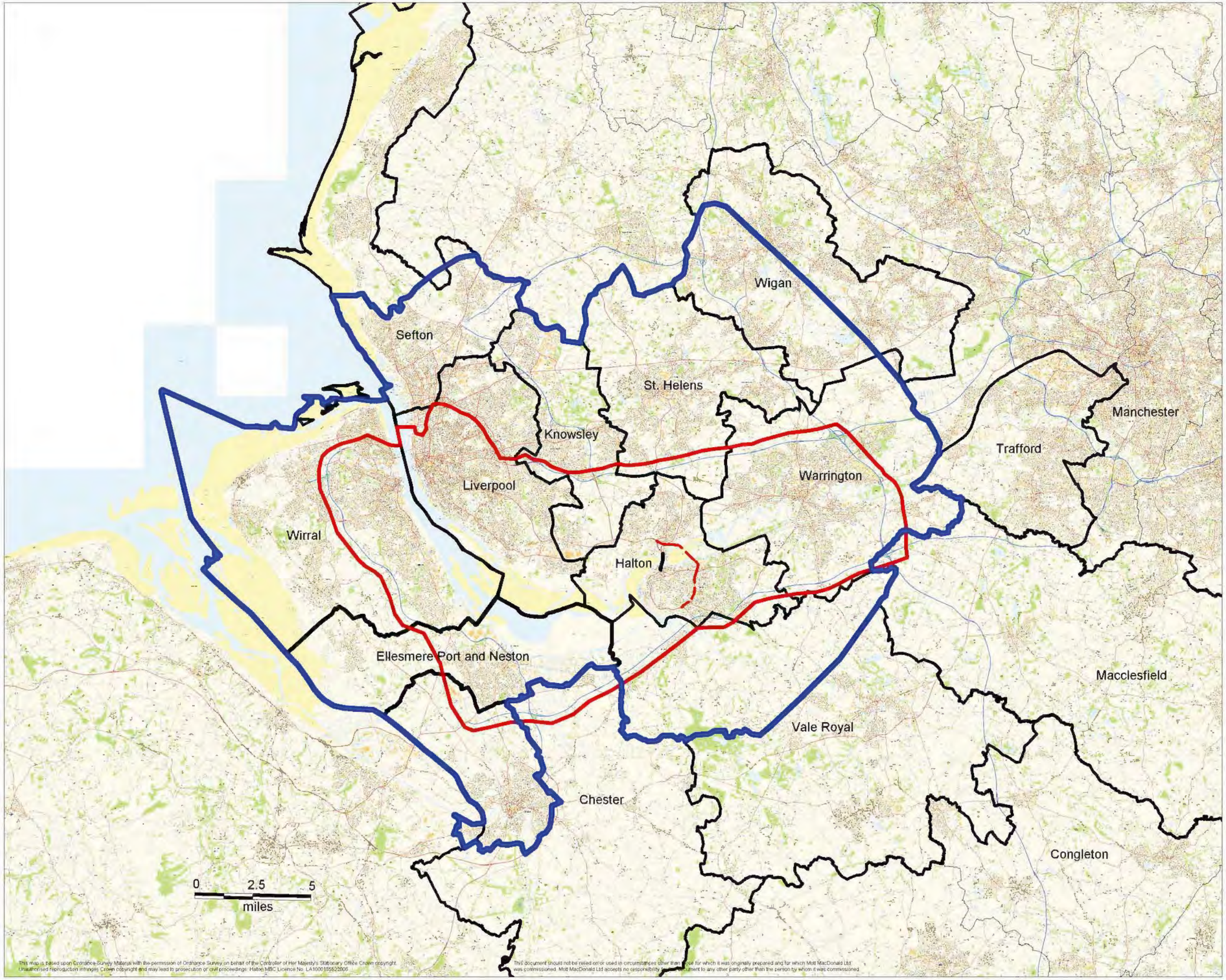

Notes

Key

- Simulation Area
- Model Area
- Mersey Gateway
- Silver Jubilee Bridge
- Local Authority Boundary

Rev	Date	Drawn	Description	Chkd	Apprd
P1	22/01/2009	TA	For Issue	JH	HF

Mott MacDonald

HALTON BOROUGH COUNCIL

Mersey Gateway Study

Figure 1.1 - Mersey Gateway Scheme

Drawn	TA			
Dwg. Chk.	JH	Approved	HF	
Scale at A3 NTS	Project	Mersey Gateway		Status PRE
	File			
Drawing No.	231775/TP/			Rev P1

Chapter 3 Tables and Figures

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Table 3.1 – The Treatment of Uncertainty

Probability of input	Status
Near certain: the outcome will happen or there is a high probability that it will happen.	• Intent announced by proponent to regulatory authorities • Approved development proposals • Projects under construction.
More than likely: the outcome is likely to happen but there is some uncertainty.	• Submission of planning or consent application imminent • Development application within the consent process
Reasonably foreseeable: the outcome may happen but there is significant uncertainty.	• Identified within a development plan • Not directly associated with the transport strategy/scheme, but may occur if the scheme is implemented • Development conditional upon the transport scheme proceeding.
Hypothetical: there is considerable uncertainty whether the outcome will ever happen.	• Conjecture based upon currently available information • Discussed on a conceptual basis • One of a number of possible inputs in an initial consultation process.

Source: WebTAG 3.15.5 – The Treatment of Uncertainty in Model Forecasting

Table 3.2 - Schedule of Do-Minimum Infrastructure Schemes

Development	Summary	Location	Access/ Infrastructure changes	Quantification in 2015			Quantification in 2030		
				Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Atlantic Gateway SIA	Phase 5 and 6 - dualling of carriage way between Great Howard Street junction and previously widened section near Blackstone street. Phase 6 is from Millers Bridge to north of Bankfield Street	Liverpool	Dual carriageway sections of A565	✓	✓	✓	✓	✓	✓
M62 junction 6	Improvements to the Tarbock interchange, junction 6 M62. Awaiting decision from Public Inquiry. *Permission given February 2007, expected completion date 2009*	Knowsley	Two new link roads connecting M57and M62.	✓	✓	✓	✓	✓	✓
Switch Island link	Link between Switch Island and the A565 bypassing the communities of Netherton and Thornton at Thornton. Not yet in RFA programme.	Sefton	Proposals for a new single carriageway road link between the Switch Island junction (where the M57, M58, A5036 and A59 meet) and the A565 at Thornton.	✓	✓	✓	✓	✓	✓
Port access at Seaforth -	Not yet in RFA programme.	Sefton	Improvements to the A5036(T). Details still to be obtained.						
Eastern Approaches SIA	Edge Lane - measures to widen and improve Edge Lane corridor for cyclists and pedestrians. In RFA for funding in next 3 years.	Liverpool	Improvements within the boundaries of existing highway and widening at Edge Lane West. Re-	✓	✓	✓	✓	✓	✓

Development	Summary	Location	Access/ Infrastructure changes	Quantification in 2015			Quantification in 2030		
				Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
			landscaping central reservation, new kerbs, new street lighting etc. Widening to dual carriage way at Edge Lane West						
Hall Lane Strategic Gateway	Hall Lane, major gateway to the City Centre and a key link road from the M62. Planning a scheme to improve access and reduce the delays to the City Centre. In RFA for funding in next 3 years.	Liverpool	Detailed layout and signal staging provided.	✓	✓	✓	✓	✓	✓
A58 Blackbrook Diversion	This scheme consists of a new single carriageway road centred on West End Road (A58),.In RFA for funding in next 3 years.	St Helens	This scheme consists of 1.1 km of new single carriageway road centred on West End Road (A58), It will also include an improved junction to the A580 (T) and environmental treatment of West End Road.	✓	✓	✓	✓	✓	✓
A556 Improvements	Convert to 2 lane dual carriage way M6 to M56 along existing route. Public consultation due late 2007. Not yet in RFA programme.	Cheshire		✓	✓	×	✓	✓	✓
M6 widening	Widening to 4 lanes between junctions 11 and 19	Cheshire/ Staffs		Outside model area					
M6 Junction 22 southbound, Newton-le-Willows	Ramp metering		Started 19 June	✓	✓	✓	✓	✓	✓

Development	Summary	Location	Access/ Infrastructure changes	Quantification in 2015			Quantification in 2030		
				Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
M6 junction 25 southbound, Bryn	Ramp metering	Greater Manchester	Started 19 June	✓	✓	✓	✓	✓	✓
M62 junction 11 eastbound, Risley	Ramp metering		Started 19 June	✓	✓	✓	✓	✓	✓
M6 junction 23 southbound, Haydock	Ramp metering		Started 26 June	✓	✓	✓	✓	✓	✓
M6 junction 22 northbound, Newton-le-Willows	Ramp metering		Started 26 June	✓	✓	✓	✓	✓	✓
M6 junction 24 northbound, Ashton in Makerfield	Ramp metering		Started 26 June	✓	✓	✓	✓	✓	✓
M6 junction 23 northbound, Haydock	Ramp metering		Started 3 July	✓	✓	✓	✓	✓	✓
M6 junction 18 northbound, Middlewich	Ramp metering		Started 3 July	✓	✓	✓	✓	✓	✓
M62 junction 19 eastbound, Heywood	Ramp metering	Greater Manchester	Started 3 July	✓	✓	✓	✓	✓	✓

Table 3.3 - 2006 Base Year Tolls at the Mersey Tunnels

Mersey Tunnel Tolls as from 2 April 2006		Toll Per Vehicle	
Toll Class		Cash Payments £	Fast Tag £
1	Motorcycle with sidecar and 3-wheeled vehicle Private/light goods vehicle up to 3.5 tonnes gross vehicle weight Passenger carrying vehicle with seating capacity for under 9 persons	1.30	1.15
2	Private/light goods vehicle up to 3.5 tonnes gross vehicle weight with trailer Heavy goods vehicle over 3.5 tonnes gross vehicle weight, with two axles Passenger carrying vehicle with seating capacity for 9 or more persons with two axles	1.30	1.15
3	Heavy goods vehicle over 3.5 tonnes gross vehicle weight with three axles Passenger carrying vehicle with seating capacity for 9 or more persons with three axles	3.90	3.45
4	Heavy goods vehicle over 3.5 tonnes gross vehicle weight, with four or more axles	5.20	4.60

Table 3.4 - Behavioural Routing Parameters for SATURN

Vehicle type/Trip purpose	2006 Base Year		2015		2030	
	PPM	PPK	PPM	PPK	PPM	PPK
Car Commute High Income	11.88	5.92	13.66	4.22	16.44	3.94
Car Commute Medium Income	10.35	5.92	11.89	4.22	14.32	3.94
Car Commute Low Income	6.26	5.92	7.20	4.22	8.66	3.94
Car Employer's Business	46.09	12.83	55.26	11.08	70.45	10.80
Car Other High Income	11.12	5.92	12.68	4.22	15.05	3.94
Car Other Medium Income	9.19	5.92	10.47	4.22	12.43	3.94
Car Other Low Income	7.25	5.92	8.27	4.22	9.82	3.94
LGV	17.88	14.59	21.51	12.56	27.62	12.66
OGV (pcus)	24.87	44.24	30.02	37.74	38.70	38.10

Notes: Parameters are in 2006 prices. PPM is Pence Per Minute. PPK is Pence Per Kilometre.

Table 3.5 - Assumed Increases in future Public Transport Fares

Period	Rail	Bus
2006-2015	9.4%	20.6%
2006-2030	27.0%	64.7%

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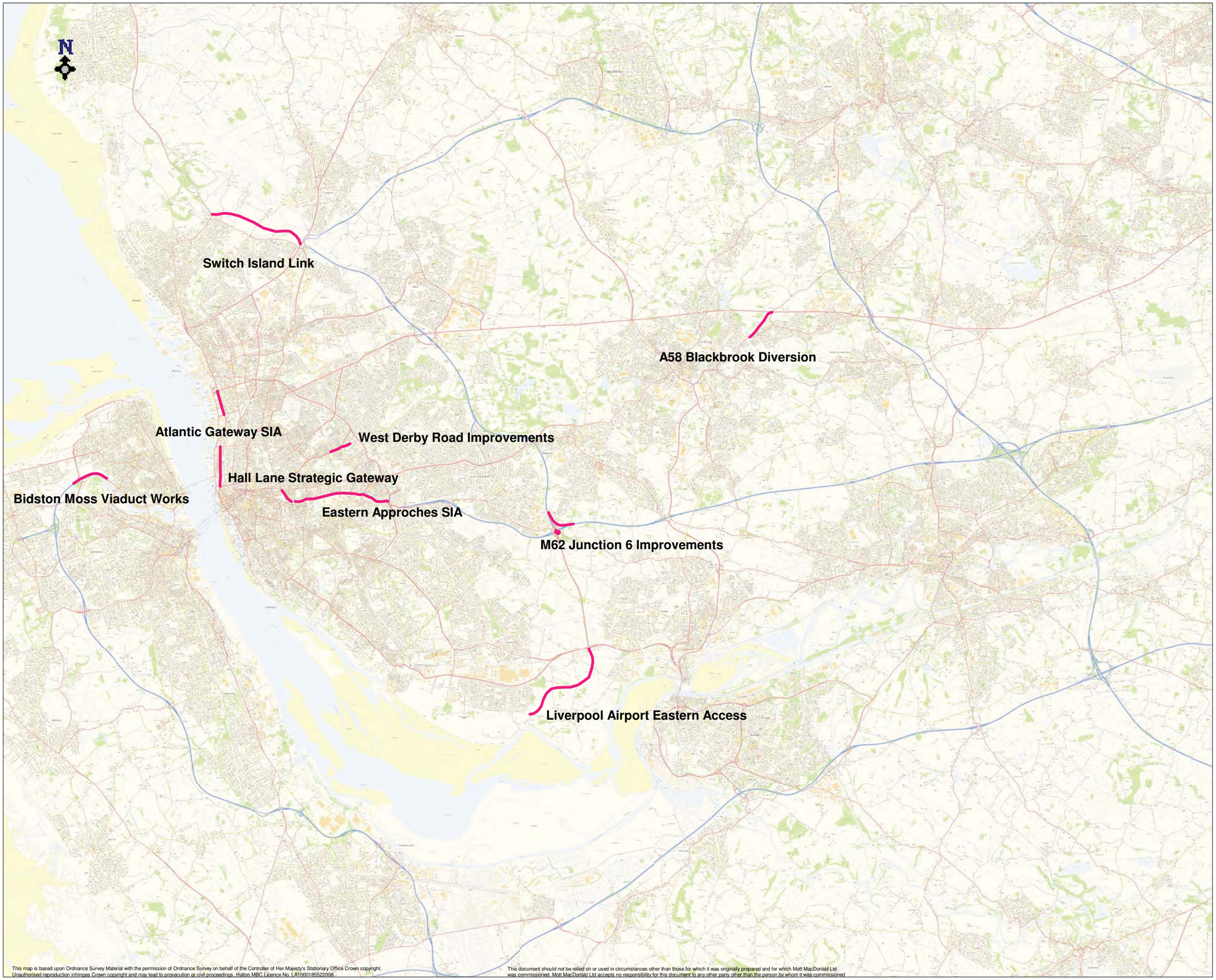

Notes

Key

Rev	Date	Drawn	Description	Ch'ked	App'd
P1	08/11/2007	MJR	For Issue	CS	HF

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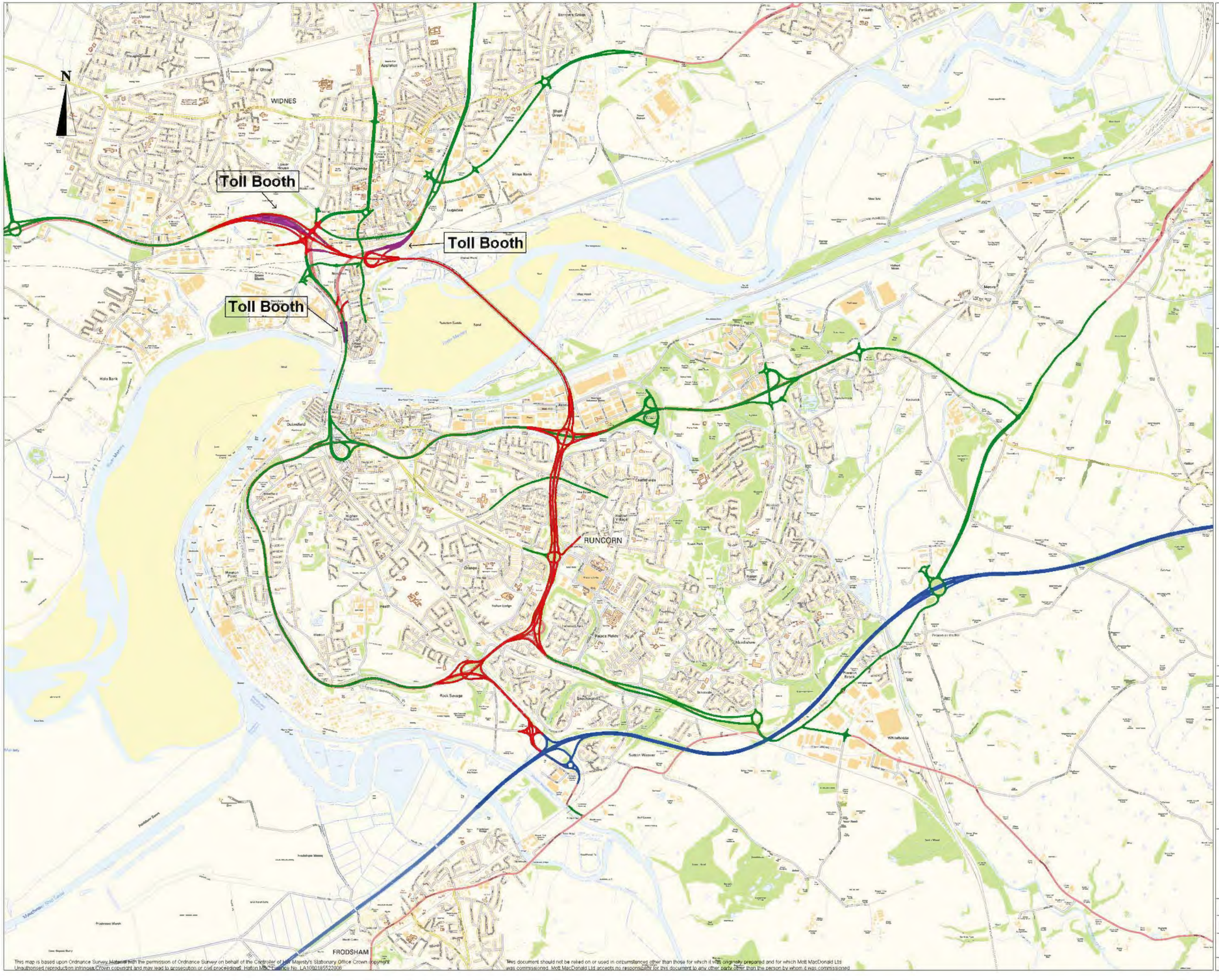
Mersey Gateway Study

Figure 3.1 - Committed Highway Schemes

Drawn	MJR			
Dwg. Chk.	CS	Approved	HF	
Scale at A3 NTS	Project Mersey Gateway			Status PRE
	File P:\Manchester\Northwest\Projects\250\227705 Mersey Gateway\TP\6.0 Technical\6.4 Technical Notes\Graphics\plans for report			
Drawing No. 231775/TP/				Rev P1



Notes

Key

- MG Scheme
- Existing Highway
- Existing Motorway
- Scheme Toll Booth

Rev	Date	Drawn	Description	Chkd	Appd
P1	23/01/2009	TA	For Issue	JH	HF

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Mersey Gateway Study

Figure 3.2 - Mersey Gateway Scheme

Drawn	TA			
Dwg. Chk.	JH	Approved	HF	
Scale at A3 NTS	Project Mersey Gateway			Status PRE
	File			
Drawing No. 231775/TP/				Rev P1

Chapter 4 Tables and Figures

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Table 4.1 - Estimated traffic flows for all motor vehicles by local authority in the North West: 1995-2006 (million vehicle kilometres)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
North West Region	**48,387**	**49,601**	**50,678**	**51,661**	**52,474**	**52,609**	**53,583**	**54,823**	**55,296**	**56,548**	**56,427**	**57,044**
Cheshire (exc Halton and Warrington)	7,183	7,473	7,680	7,824	7,948	7,994	8,158	8,075	8,285	8,476	8,437	8,634
Halton	832	862	889	917	920	946	946	965	1,002	1,000	997	1,022
Knowsley	1,153	1,128	1,174	1,209	1,229	1,261	1,285	1,331	1,331	1,358	1,403	1,410
Liverpool	2,080	2,095	2,112	2,130	2,154	2,169	2,185	2,264	2,284	2,305	2,357	2,360
Sefton	1,083	1,094	1,111	1,093	1,071	1,125	1,135	1,161	1,141	1,171	1,176	1,187
St Helens	1,123	1,168	1,187	1,198	1,227	1,240	1,232	1,257	1,285	1,284	1,253	1,327
Warrington	2,161	2,220	2,282	2,340	2,368	2,415	2,444	2,435	2,473	2,455	2,487	2,588
Wirral	1,448	1,482	1,512	1,554	1,572	1,582	1,607	1,687	1,688	1,709	1,787	1,767
Total (Merseyside + Cheshire)	**17,063**	**17,522**	**17,947**	**18,265**	**18,489**	**18,732**	**18,992**	**19,175**	**19,489**	**19,758**	**19,897**	**20,295**
Percentage Growth		2.7%	2.4%	1.8%	1.2%	1.3%	1.4%	1.0%	1.6%	1.4%	0.7%	2.0%
Great Britain	429,722	441,123	450,324	458,491	466,960	467,086	474,445	486,514	490,398	498,448	499,457	506,070
Percentage Growth		2.7%	2.1%	1.8%	1.8%	0.0%	1.6%	2.5%	0.8%	1.6%	0.2%	1.3%

Source: Department for Transport's National Road Traffic Survey, 2007

Table 4.2 - Growth Factors for VOT and VOC (from 2006)

	Employer's business		Commute		Other		LGV		OGV	
Year	**VOT**	**VOC**	**VOT**	**VOC**	**VOT**	**VOC**	**VOT**	**VOC**	**VOT**	**VOC**
2006	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.207	0.863	1.162	0.712	1.162	0.712	1.203	0.860	1.207	0.852
2030	1.555	0.841	1.424	0.666	1.424	0.666	1.545	0.868	1.555	0.861

Source: - WebTAG Unit 3.5.6 February 2007.

Table 4.3 – Annual Average Category Proportions by Class of Road (2002)

Class Of Road	Cars (1)	LGV (2)	OGV1 (3)	OGV2 (4)	PSV (5)
Motorways	0.762	0.107	0.041	0.085	0.005
Built Up Trunk	0.825	0.112	0.030	0.024	0.009
Built Up Principal	0.848	0.103	0.022	0.010	0.017
Non-Built Up Trunk	0.787	0.110	0.038	0.059	0.006
Non-Built Up Principal	0.826	0.113	0.031	0.022	0.008
Average All Roads (Includes Minor Roads)	**0.816**	**0.114**	**0.028**	**0.031**	**0.011**

Table 4.4 - Schedule of Planned Developments

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Ditton Strategic Rail Freight Park	10,000m^2 of distribution warehousing	114	Widnes	B8	Connecting freight park to A5300 at southern end, developing a road system to connect to main sites within the freight park.	✓	✓	x	✓ total of 400,000m^2 of rail served buildings	✓ further 25,000m^2 B8 on Greenfield land.	×
Halebank Regeneration Area	Housing on former Asda site, planning permission granted for 200 units. Further housing development planned on Golden Triangle site and in the north-west of the regeneration area.	107	Widnes	C3	Unknown	✓ 200 residential units on Asda site, further 200 on Golden Triangle and other site	✓ 200 residential units on Asda site	✓ 200 residential units on Asda site	✓ 200 residential units on Asda site, further 200 on Golden Triangle and other site	✓ 200 residential units on Asda site, further 200 on Golden Triangle and other site	✓ 200 residential units on Asda site
Widnes Waterfront - Economic development zone	Land off Earle Road (Venture Fields), 110 bed hotel with 100 car parking spaces, 1,213 square metre cinema, 4,859 square metre ice rink and laser facility, 815m^2 climbing wall 5,874m^2 bowling and bingo facility, A3 retail of 557m^2, 650 square metre family pub. Also B2/B8 uses of 1,634 m^2. Due to begin immediately permissions are in place.	150/152	Widnes	B1, D2, A1, A3, C1	Junction improvement at Earle Road/Ashley Way/Fiddlers Ferry Road junction. Land reserved for new boulevard route.	✓	✓ 50% complete	×	✓	✓	✓
	East of Tan House Lane. B2/B8 use of 1,634m^2. Due to begin immediately permissions are in place.	150/152	Widnes	B2, B8		✓	✓	✓	✓	✓	✓
Daresbury Business Park	49,000m^2 Business Park	73	Runcorn	B1		✓	✓	✓	✓	✓	✓
Manor Park	30,000m^2 storage/distribution, 5,000m^2 Industrial	62	Runcorn	B2, B8		✓	✓	✓	✓	✓	✓
The Heath	Former ICI headquarters, now a business and technology park. Outline planning permission granted for 17,350 square metres expansion for business uses.	59	Runcorn	B1		✓	✓	✓	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Approach 580 SIA	New district centre at Stonebridge Cross - retail (27,000 square metres), residential (300 units), community facilities.	450	Liverpool	A1, C3, D1		✓	✓	✓	✓	✓	✓
	Stonebridge business park. 10,000m^2 Business Park, 10,000m^2 Industrial Estate, 13,400m^2 storage/ distribution	447	Liverpool	B1, B2	Improvements within the boundaries of existing highway and widening at Edge Lane West. Re-landscaping central reservation, new kerbs, new street lighting etc. Widening to dual carriage way at Edge Lane West	✓	✓	✓	✓	✓	✓
	Liverpool Science Park (Edge Lane) - 67 hectare site, already substantially developed. Existing Wavertree Technology Park allocated for B1, B2, B8 in the adopted UDP, and the former MTL site allocated for B1 and B2. Outline planning permission for B1 and B2 uses covering the former Marconi site, former MTL site and part of Wavertree Technology Park given in March 2005.	370	Liverpool			✓ 25% increase in employment	✓ Assume 10% increase in employment	×	✓	✓	✓
Estuary Business Park	40,500m^2 Business Park, 24,000m^2 Warehousing	409	Liverpool	B1, B8		✓	✓	✓	✓	✓	✓
Speke/ Halewood SIA	Blue Lands/Wings Leisure Park - leisure facilities	494	Liverpool	D2		✓ 8,000m^2	✓ 8,000 m^2	✓	✓	✓	✓
	Edwards Lane - residential	118	Liverpool	C3		✓ 148 residential units	✓ 148 residential units	✓	✓	✓	✓
	Blue Lands South - light industrial, hotel, distribution, car showroom, day nursery	407	Liverpool	B1c, C1, B8, B2, A1, D1		✓ 22,000m^2, 100 room hotel	✓ 22,000m^2, 100 room hotel	✓	✓	✓	✓
	Redrow Cressington Heath - high and low density housing	403	Liverpool	C3		✓ 66 residential units	✓ 66 residential units	✓	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
	Evans Road (Venturepoint) - office, light industrial, industrial and distribution development	118	Liverpool	B1a, B1c, B2, B8		✓ 11,686 square metres	✓ 11,686 square metres	✓	✓	✓	✓
	Dunlop Playing Fields - office and light industrial, distribution, hotel development	494	Liverpool	B1, B8, C1		✓ 30,100m^2	✓ 30,100m^2	✓	✓	✓	✓
	Glaxo - office and light industrial and industrial development	406	Liverpool	B1, B2		✓ 8,800 square metres	✓ 8,800 square metres	✓	✓	✓	✓
Paradise Street	New mixed development, under construction due for completion in 2008. Retail 145,000m^2 and additional 39500m^2 for 2 department stores. Leisure 21500m^2. Redidential 600 units, 2100 new car parking spaces, 2 hotels with 377 rooms.	361	Liverpool	A1, D2, C3, C1		✓	✓	✓	✓	✓	✓
Kings Dock	Multi-use arena under construction, capacity of 15,000, 1350 seat conference centre, 18,000m2 of office space, 9,000m2 of new retail and leisure space, 3,500 car parking spaces, up to 1,800 residential units. Construction underway, arena and conference centre due to open 2008.	376	Liverpool			✓	✓	✓	✓	✓	✓
G Park (formerly Axis)	10,000m^2 Business Park, 55,000m^2 Warehousing	447	Liverpool			✓	✓	✓	✓	✓	✓
Knowsley Industrial Park	32,000m^2 Industrial Estate, 85,000m^2 Warehousing	449	Knowsley	B2, B8		✓	✓	✓	✓	✓	✓
Knowsley Business Park	24,000m^2 Business park	452	Knowsley	B1		✓	✓	✓	✓	✓	✓
Kings Business Park	Located within Huyton/Prescot SIA. Approx. 3 hectares of 20 hectares remaining undeveloped. Allocated as a strategic employment site in adopted UDP. Already substantially developed site.	455	Knowsley	B1		✓	✓	✓	✓	✓	✓
Prescott Business Park (Former BICC site)	8,792m^2 Business Park, 9,280m^2 Industrial Estate	458	Knowsley	B1 & B2		✓	✓	✓	✓	✓	✓
North Huyton Action Area	1,200 residential units, net increase of 400 units	453	Knowsley	C3		✓	✓	×	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Port of Liverpool Post-Panamax terminal	Capability to accommodate post-Panamax container ships. Investment of £90-100 million, awaiting decision of Public Inquiry. Likely to generate an extra 10,000 HGV movements per week by 2030	489	Sefton	B2, B8		✓ 16 million tonnes p.a.	✓ 10 million tonnes p.a.?	×	✓	✓	✓
Port of Liverpool - new warehousing	Likely investment in 100,000 m^2 of warehousing	316	Sefton	B8		✓ 35,000	✓ 20,000	×	✓ 100,000m^2	✓ 65,000m^2	✓ 30,000m^2
Liverpool John Lennon Airport - terminal extension	Increase in terminal floor space of 73,000 square metres including a new public transport interchange. Planning permission	409	Liverpool			✓	✓	✓	✓	✓	✓
Liverpool John Lennon Airport - eastern access road	from A562 to airport	409	Liverpool/ Knowsley			✓	✓	✓	✓	✓	✓
Woodside	Master plan being prepared for a small business park and possibly up to 500 residential units	283	Wirral	B1, C3		✓	✓	×	✓	✓	✓
Wirral International Business Park	28,800m^2 Business Park, 30,000m^2 Industrial Estate, 40,000m^2 Storage/distribution	308	Wirral	B1, B2, B8		✓	✓	✓	✓	✓	✓
Wirral Waters - Birkenhead Docks.	High density redevelopment of Birkenhead docks, but fairly modest delivery rate. Twelve Quays (SIA) remain in operation as a Ro-Ro facility. East Float and Victoria Dock will be the site of 15,000 residential units and office space for 27,000 jobs. South of Birkenhead dock will be a 30,000 square metres of business use development. Bidston Moss will be the site of retail development of 20,000 square metres, comparable to the Trafford Centre in Greater Manchester.	A1 - 277, B1, C3 - 274, 275, 282, 283	Wirral	A1, B1, C3		✓ 2,000 residential, 10,000 square metres office/retail	half Peel's estimate - 1,000 residential, 5,000 square metres office/retail	×	✓ 10,000 residential, 50,000 square metres office/retail	✓ 7,500 residential, 25,000 square metres office/retail	×
Vulcan Works Urban Village	650 residential units, Public Inquiry January 2007	475	St Helens			✓	✓ 50%	×	✓	✓	✓
Worsley Brow Urban Village	1200 residential units, waiting for the result of Public Inquiry	469	St Helens			✓	✓ 50%	×	✓	✓	✓
Lea Green Urban Village	Planning permission granted for 550 residential units, very likely to be completed by 2015	462	St Helens				✓		✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
St Helens town centre	Replacement of retail units, 1000 residential units, new railway station. Underway currently	468	St Helens	A1, C3, D2		✓	✓ Assume 1,000 residential units	×	✓	✓	✓
Cowley Hill	Cowley Hill planning application for 200 residential units and 500,000 square metres at Pilkington-owned site	464	St Helens	C3, B1		✓ 200 residential units	✓ 200 residential units	×	✓	✓	✓
	Pilkington surplus land, 10,300m^2 Business park, 12,200m^2 Storage/distribution	464	St Helens	B1, B8		✓	✓	✓	✓	✓	✓
Parkside Former Colliery	660,000m^2 Storage/distribution	273	St Helens	B8		✓	✓	✓	✓	✓	✓
Mere Grange	29,600m^2 Business Park	462	St Helens	B1		✓	✓	✓	✓	✓	✓
North Road / Pioneer Business Park	32,388m^2 Business park	428	Ellesmere Port & Neston	B1		✓	✓	✓	✓	✓	✓
Omega - employment site	297,289m^2 business park/148,500 square metres industrial and distribution space, 130,000 square metres office development. HA unsupportive of further phases. Development led by English Partnerships. Business Park Development at zone 499. Industrial Estate at zone 500.	499 & 500	Warrington	B1		✓	✓	✓	✓	✓	✓
Birchwood Park	Birchwood Park Parcel 7 - 52,721m^2 gfa Business park/Industrial estate.	271	Warrington	B1 & B2		✓	✓	✓	✓	✓	✓
	Birchwood Park - Parcel 3, Powell Avenue - 12,668m^2 gfa business park/industrial estate	271	Warrington	B1		✓	✓	✓	✓	✓	✓
	Birchwood Park - Parcel 2, Cavendish Avenue - 4,517m^2 gfa Business park/Industrial estate	271	Warrington			✓	✓	✓	✓	✓	✓
	Birchwood Park (Site 1) Buildings 107,108, Dalton Avenue - 3,762m^2 gfa Business park/Industrial estate	271	Warrington			✓	✓	✓	✓	✓	✓
	Birchwood Park - Parcel 3, Powell Avenue 2,592 m^2 gfa Business park/Industrial estate	271	Warrington			✓	✓	✓	✓	✓	✓
	Birchwood Corporate 3.75 site area ha	253	Warrington	B1		✓	✓	✓	✓	✓	✓
	Birchwood Corporate (Expansion Zone) 1.73 site area ha	253	Warrington	B1		✓	✓	✓	✓	✓	✓
Gemini	Gemini 16.1, Gemini Business Park, Warrington 5,853m2 gfa business park	259	Warrington	B1		✓	✓	✓	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
	Gemini 16 - 7.6 site area ha	259	Warrington	B1		✓	✓	✓	✓	✓	✓
	Gemini 14c - 1.24 site area ha. Part of temp M&S Overspill Car Park	259	Warrington	B1, B2, B8		✓	✓	✓	✓	✓	✓
Gateway 49	(formerly Kerfoot Business Park / Record Business Park), Kerfoot Street - 10,796m^2 gfa. Business Park/Storage/distribution	235	Warrington	B1 & B8		✓	✓	✓	✓	✓	✓
New World Ltd,	New World House, Thelwall Lane, Warrington - 10,227m^2 gfa. Mixed use inc 50 dwellings.	229	Warrington	mixed use inc C3		✓	✓	✓	✓	✓	✓
Warrington Collegiate	Winwick Road Campus, Winwick Road - 8,965m^2 gfa. Pub/Restaurant with 78 bed budget hotel with parking	234	Warrington	A3, C1		✓	✓	✓	✓	✓	✓
Sterile Technologies (UK) Clinical Waste Treatment Centre	5,718 m^2 gfa industrial use. Healthcare waste treatment & recycling centre (Steam cleaning).	235	Warrington	B2		✓	✓	✓	✓	✓	✓
Juniper Lane	5,089m^2 gfa Business park	251	Warrington	B1		✓	✓	✓	✓	✓	✓
Blocks 6 - 10, Mandarin Court (Phase 2), Centre Park	4,831m2 gfa business park	211	Warrington	B1		✓	✓	✓	✓	✓	✓
Stanford House, Garrett Field, Birchwood Science Park South	4,692m2 gfa business park. Proposed demolition of existing office block & replacement with 4 no. office blocks. Superseded by Carphone Warehouse taking existing unit	271	Warrington	B1		✓	✓	✓	✓	✓	✓
Land east of Latchford Locks	3,714 gfa m^2 storage/distribution	229	Warrington	B8		✓	✓	✓	✓	✓	✓
Fiddlers Ferry Power Station, Ash Processing Plant, Widnes Road	3,600m^2 gfa Industrial use	187	Warrington	B2		✓	✓	✓	✓	✓	✓
Business Homes (Phase 2 & 3), Birchwood One, Dewhu	3,397m^2 gfa Business park. 10 No. small 2 storey B1 business units	271	Warrington	B1		✓	✓	✓	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Imco Recycling (UK) Ltd - Aluminium Recycling Cent	3,340m^2 gfa Industrial use. Speciallist plant to process aluminium bearing drosses & aluminium scrap from adjacent British Alcan facility	229	Warrington	B2		✓	✓	✓	✓	✓	✓
Burtonwood Brewery, Bold Lane	3,327m^2 gfa Storage/ distribution. Warehouse for product & bottle storage	273	Warrington	B8		✓	✓	✓	✓	✓	✓
WRDC Site 26, behind Spencer House, Birchwood Cent	2,601m^2 gfa Storage/ distribution. Proposed 2 storey office block	271	Warrington	B1		✓	✓	✓	✓	✓	✓
Fiddlers Ferry Power Station Biomass Store	2,500m^2 gfa storage/distribution	187	Warrington	B8		✓	✓	✓	✓	✓	✓
Trident Industrial Estate, Daten Avenue, Risley	2,200m^2 gfa business park/ industrial/ storage/ distribution	271	Warrington	B1, B2, B8		✓	✓	✓	✓	✓	✓
Park Royal International Hotel, Stretton Road, Stretton	1,922m^2 gfa. Redevelopment of 2 pairs of semi-detached house with extension to hotel to provide 43 additional bedrooms	266	Warrington	C1		✓	✓	✓	✓	✓	✓
Next Warehouse (Phase 1)	1,512m^2 gfa warehousing	259	Warrington	B8		✓	✓	✓	✓	✓	✓
Capitol Park	6.03 site area ha - New Town employment development site. Section 7.1 permissions (general employment), Section 7.2 (Truck Stop). Former household waste site	257	Warrington	B1, B2, B8		✓	✓	✓	✓	✓	✓
Behind former Lever's Distribution / Excel Logistics	1.71 ha site area, 5,750 m^2 gfa	267	Warrington	B8		✓	✓	✓	✓	✓	✓
Warrington Central Trading Estate, Bewsey Road, Warrington	1.4 ha site area	220	Warrington	B1, B2 & B8		✓	✓	✓	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Eddie Stobbart (prev. TNT/Shell National Distribution	0.96 ha site area	251	Warrington	B1, B2, B8		✓	✓	✓	✓	✓	✓
Sites F, G1 and G2 Trident Industrial Estate, Daten Avenue	0.41 site area ha business/industrial/storage/distribution	271	Warrington	B1, B2, B8		✓	✓	✓	✓	✓	✓
(behind Asics / HT Electrical), Europa Boulevard	0.4 ha site area	259	Warrington	B1, B2, B8		✓	✓	✓	✓	✓	✓
Golden Square	30,424m^2 gfa extension to golden square shopping centre	200	Warrington	A1		✓	✓	✓	✓	✓	✓
Farrell Street South	550 units outstanding	207	Warrington	C3		✓	✓	✓	✓	✓	✓
Howley Quay, Howley Lane	82 units outstanding	207	Warrington	C3		✓	✓	✓	✓	✓	✓
Land off Howley Lane	80 units outstanding	207	Warrington	C3		✓	✓	✓	✓	✓	✓
Edwards Cheshire, Navigation Street	77 units outstanding	207	Warrington	C3		✓	✓	✓	✓	✓	✓
Former Tinsley Wire Works, Dalton Bank	2 units under construction + 81 units outstanding Total = 83	207	Warrington	C3		✓	✓	✓	✓	✓	✓
John St/Winwick St	284 units outstanding	208	Warrington	C3		✓	✓	✓	✓	✓	✓
Cheshire Lines Warehouse	222 units outstanding	208	Warrington	C3		✓	✓	✓	✓	✓	✓
Winwick Bridge, Winwick Street / Bewsey Street	Mixed use including 613 apartments. Inquiry Feb 2007	208	Warrington	C3		✓	✓	✓	✓	✓	✓
Saxon Park Off Forest Way, WA5 1DF	38 units under construction + 227 units outstanding Total = 265	210	Warrington	C3		✓	✓	✓	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Site at junction of Wilderspool Causeway/ Gainsborough Road	108 units outstanding	212	Warrington	C3		✓	✓	✓	✓	✓	✓
J&G Greenall's Distillery, Loushers Lane	2006/08117 - Outline application - App withdrawn. resubmission imminent 250 units	213	Warrington	C3		✓	✓	✓	✓	✓	✓
Beers Timber & Building, Station Road	110 units outstanding	214	Warrington	C3		✓	✓	✓	✓	✓	✓
Cantilever Garden Centre, Latchford East	54 under construction	214	Warrington	C3		✓	✓	✓	✓	✓	✓
Kingsway South / Grange Avenue, Latchford	65 units under construction	215	Warrington	C3		✓	✓	✓	✓	✓	✓
Cardinal Newman High School	110 units outstanding	216	Warrington	C3		✓	✓	✓	✓	✓	✓
Land at Former Carrington Wire works and site of Mayne coaches, Battersby Lane	569 units outstanding	218	Warrington	C3		✓	✓	✓	✓	✓	✓
Warrington Central Trading Estate, Bewsey Road	123 units outstanding	220	Warrington	C3		✓	✓	✓	✓	✓	✓
Marsden Vanplan Ltd, Longshaw Street	100 units outstanding	221	Warrington	C3		✓	✓	✓	✓	✓	✓
Former Brittannia Wire Works, Bewsey Road, Bewsey	17 units under construction + 287 units outstanding Total = 304	221	Warrington	C3		✓	✓	✓	✓	✓	✓
George Howard Scrap Yard Ltd, 94 Folly Lane	152 units outstanding	221	Warrington	C3		✓	✓	✓	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Thelwall Lane, Latchford	122 units outstanding	228	Warrington	C3		✓	✓	✓	✓	✓	✓
New World Ltd, New World House, Thelwall Lane	450 units outstanding	229	Warrington	C3		✓	✓	✓	✓	✓	✓
Chapelford Urban Village	Remainder - 1,014 units outstanding	238	Warrington	C3		✓	✓	✓	✓	✓	✓
	(Phase 4) - 11 units under construction + 102 units remaining = 113	238	Warrington	C3		✓	✓	✓	✓	✓	✓
	Harvard Grange (Phase 3) - 6 units under construction + 70 units outstanding = 76	238	Warrington	C3		✓	✓	✓	✓	✓	✓
	North Square - 146 units outstanding	239	Warrington	C4		✓	✓	✓	✓	✓	✓
	Chandler Place (Parcel 2) Chapelford Urban Village, Whittle Hall - 17 units under construction + 41 units outstanding = 58	260	Warrington	C3		✓	✓	✓	✓	✓	✓
Phase 4, Washington Drive	188 units outstanding	240	Warrington	C3		✓	✓	✓	✓	✓	✓
GH Grappenhall Heys (Remainder)	573 units outstanding	239	Warrington	C3		✓	✓	✓	✓	✓	✓
KW8 N (Tourney Green North), Kingswood	90 units outstanding	260	Warrington	C3		✓	✓	✓	✓	✓	✓
PG11/14 Stretton Road / Pewterspear Green Road	148 units outstanding	266	Warrington	C3		✓	✓	✓	✓	✓	✓
PG13 Pewterspear Green Road	66 units outstanding	266	Warrington	C3		✓	✓	✓	✓	✓	✓
AC Appleton Cross	400 units outstanding	267	Warrington	C3		✓	✓	✓	✓	✓	✓
Land at Oughtrington Lane / Longbutt Lane, Lymm	214 units outstanding	269	Warrington	C3		✓	✓	✓	✓	✓	✓

Development	Summary	Zone	Location	Land Use	Access/Infra-structure changes	Quantification in 2015			Quantification in 2030		
						Optimistic	Most Likely	Pessimistic	Optimistic	Most Likely	Pessimistic
Hubert Jones Tankworks Site, Birchbrook Road, Heatley	38 units under construction + 150 units outstanding Total = 188	269	Warrington	C3		✓	✓	✓	✓	✓	✓
Anson Close / Blenheim Close, Blackbrook, Poulton North	88 units under construction + 45 units outstanding Total = 133	495	Warrington	C3		✓	✓	✓	✓	✓	✓
Cables Park	400 residential units near to retail park	458	Knowsley	C3		✓	×	×	✓	✓	×
Port of Liverpool - central docks redevelopment	Likely to be comparable investment as Wirral Waters - £4-5 billion mixed residential and leisure development. No planning application or press release issued, aspirational only. However it is considered viable by Peel.	341 Princes Dock	Liverpool	Mixed leisure and residential - A3, A4, C1, C3, D2		✓ 16 million tonnes p.a.	✓ 10 million tonnes p.a.?	×	✓ assume 5,000 residential units	✓ assume 1,000 residential units	×
Liverpool Football Club - new stadium	Mixed use development - retail, offices, residential, community and hotel uses, plus new public open space.	330	Liverpool	D2		×	×	×	✓	✓	×
The wireworks site	Winwick Street - retail	208	Warrington	A1		×	×	×	✓	✓ 5,490m^2	✓

Table 4.5 - Planning Assumption

Authority	Population			Employment		
	2006	2015	2030	2006	2015	2030
Halton	118,394	119,816	118,980	61,317	64,082	67,608
Knowsley	149,493	148,126	144,150	60,145	59,424	59,428
Liverpool	435,494	443,237	442,041	199,741	198,218	198,944
Sefton	385,579	379,632	376,257	136,092	134,471	134,900
St. Helens	175,231	167,769	161,881	62,699	60,759	60,786
Warrington	366,865	369,006	374,394	238,876	249,215	263,078
Wirral	306,862	303,731	305,165	96,625	95,452	95,720

Source: TEMPRO v5.0 dataset 53

Table 4.6 – Forecast Car Driver Trip Growth

Authority	Car Trip Growth 2006 to 2015	Car Trip Growth 2006 to 2030
Halton	7.6%	13.8%
Knowsley	6.6%	11.9%
Liverpool	8.6%	16.8%
Sefton	4.8%	9.9%
St. Helens	4.9%	8.3%
Warrington	6.4%	12.8%
Wirral	4.2%	9.4%
North West Region average	**6.2%**	**14.4%**

Source: TEMPRO v5.0 dataset 53

Table 4.7 - Projected Changes in Car Occupancy

	Car Occupancies		
Trip Purpose	**2006**	**2015**	**2030**
Car Commute	1.2772	1.2628	1.2405
Car Other	1.6119	1.5802	1.5309
Car Employers Business	1.3016	1.2898	1.2713

Source: WebTAG Unit 3.5.6

Table 4.8 - Forecast Public Transport Trip Growth

Authority	Bus Trip Growth 2006 to 2015	Rail Trip Growth 2006 to 2015	Bus Trip Growth 2006 to 2030	Rail Trip Growth 2006 to 2030
Halton	-4.9%	-1.8%	-10.9%	-4.1%
Knowsley	-6.2%	-2.5%	-15.2%	-10.5%
Liverpool	-3.8%	-1.5%	-12.0%	-8.1%
Sefton	-6.6%	-3.6%	-15.0%	-9.4%
St. Helens	-8.8%	-5.3%	-21.4%	-2.5%
Warrington	-5.3%	-0.8%	-11.6%	-3.9%
Wirral	-6.4%	-3.7%	-14.4%	-9.1%
North West Region average	**-4.1%**	**-0.8%**	**-10.2%**	**-3.7%**

Source: TEMPRO v5.0 dataset 53

Table 4.9 – Forecast Light Goods Vehicle Trip Growth

Reference Years	% LGV Growth
2006 to 2015	21.9%
2006 to 2030	66.0%

Source: National Road Traffic Forecast (NRTF) 1997
(OGV values based on local proportions of Rigid/Artic)

Table 4.10 - Forecast Other Goods Vehicle Trip Growth

Reference Years	% Rigid Growth from NRTF	% Artic Growth from NRTF	% Overall OGV Growth Applied
2006 to 2015	7.9%	24.6%	16.6%
2006 to 2030	24.7%	75.0%	50.8%

Source: Growth rates are derived from NRTF1997. Proportions used for combining OGV1 and OGV2 have been derived based on local data.

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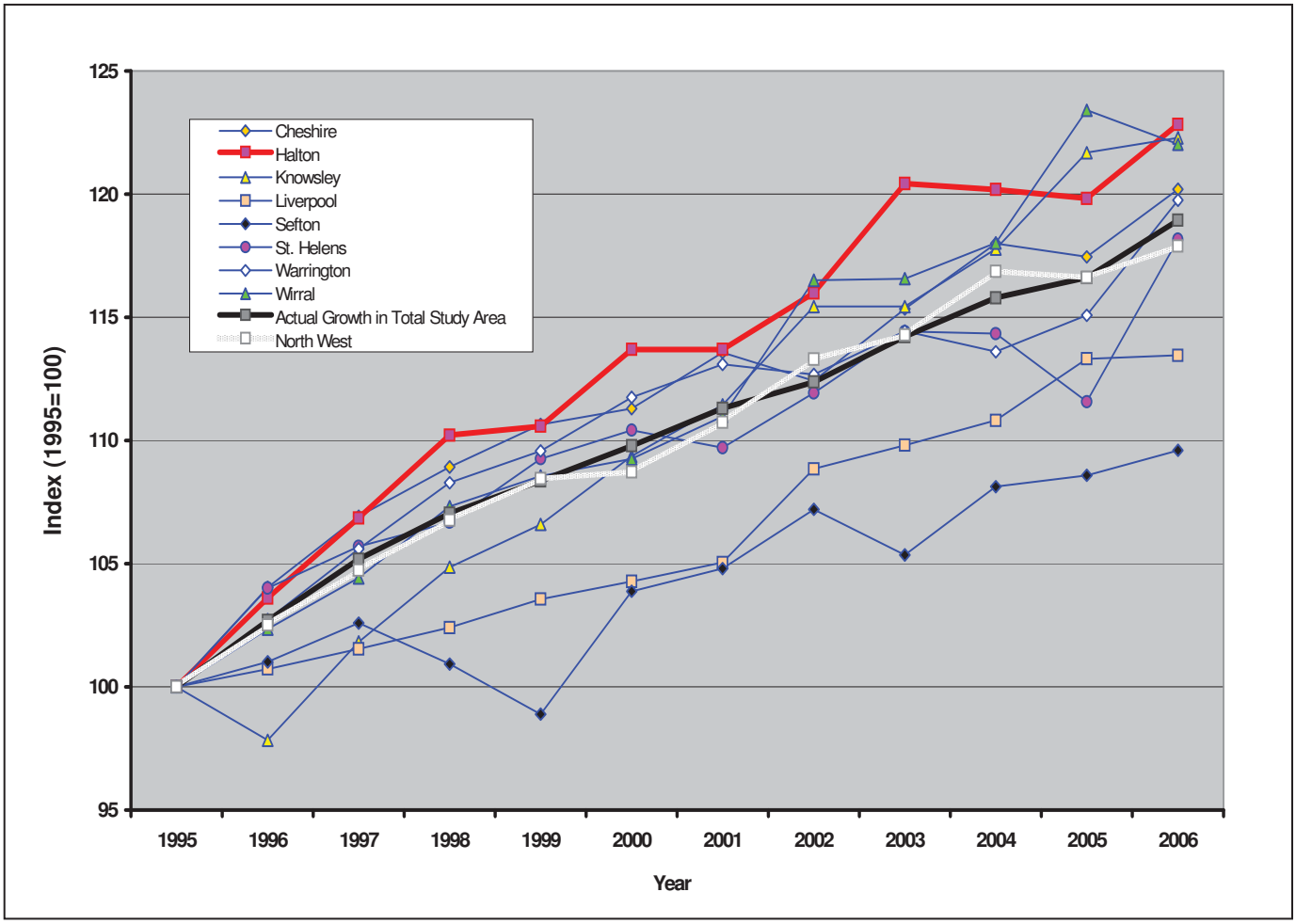
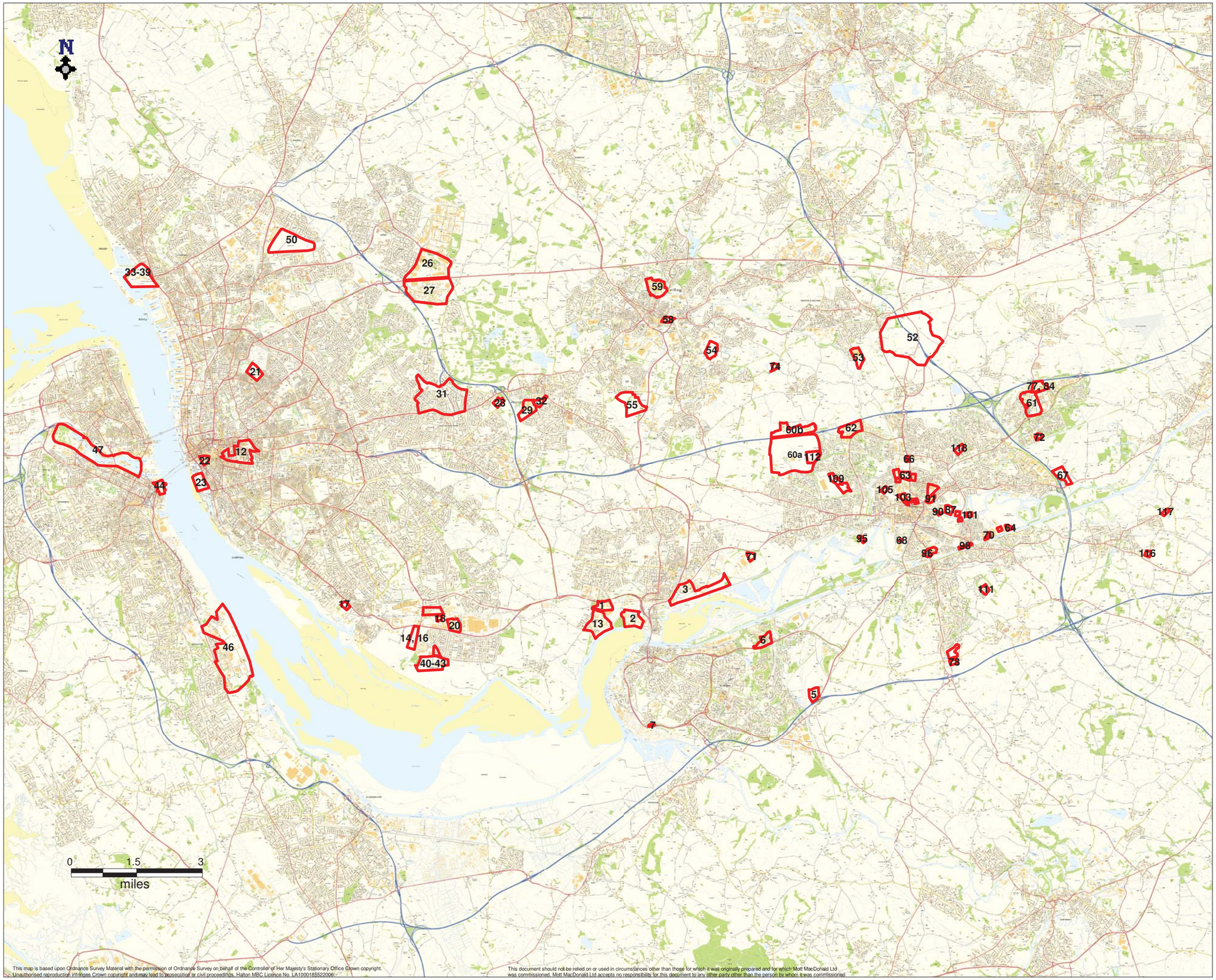
Figure 4.1 Increase in Vehicle Kilometres by Local Authority

Source: Department for Transport's National Road Traffic Survey



HALTON BOROUGH COUNCIL / Mott MacDonald			
	Design: DOB	CAD:	Checked: JH / Approved: CS
	Drawing Number:		Date: 14/11/2007
	Project: Mersey Gateway	File:	
Mersey Gateway Study	Drawing Title: Figure 4.1 Increase in Vehicle Kilometres by Local Authority		



Key

Development Description	Number
Ditton Rail Freight Depot	1
Halebank Regeneration Area	2
Widnes Waterfront EDZ	3
Daresbury Business Park	5
Manor Park	6
The Heath	7
Liverpool City Centre SIA	12
Estuary Business Park	13
Blue Lands South / Blue Lands Leisure Park	14, 16
Edward's Lane Residential Area	15
Redrow Homes - Cressington Heath	17
Venture Point Business Park	18
Dunlop Playing Fields	19
Glaxo Development	20
Liverpool FC Stadium Development	21
Paradise Street Development	22
King's Dock	23
Knowsley Industrial Park	26
Knowsley Business Park	27
King's Business Park	28
Prescott Business Park	29
North Huyton Action Area	31
Cables Retail Park	32
Port of Liverpool	33-39
Liverpool Airport Developments	40-43
Woodside Development	44
Wirral International Business Park	46
Wirral Waters - Birkenhead Docks	47
Aintree Racecourse	50
Parkside Rail Freight Terminal	52
Vulcan Works Urban Village	53
Worsley Brow Urban Village	54
Lea Green Urban Village	55
St. Helens Town Centre & Station Dev.	58
Cowley Hill	59
OMEGA South Development	60a
OMEGA North Development	60b
Birchwood Park	61
Gemini Retail Park Development	62
Gateway 49	63
New World Ltd	64
Warrington Collegiate	66
Stenle Technologies	66
Juniper Lane	67
Mandarin Court	68
Stenford House	69
Latchford Locks	70
Fiddler's Ferry Power Station	71
Birchwood One	72
IMCO Recycling UK	73
Burtonwood Brewery	74
WRDC Site 26	75
Trident Industrial Estate	77, 84
Park Royal Int. Hotel	78
Farrell Street South	87
Howley Quay	88
Howley Lane	89
Edwards Cheshire, Navigation Street	90
Tinsley Wire Works	91
John Street / Winwick Street	92
Cheshire Lines Warehousing	93
Bewsey Street Apartments	94
Saxon Park, Forrest Way	95
Wilderspool C'way / Gainsborough Road	96
J&G Greenall's Distillery	97
Beers Timber and Building	98
Cantilever Garden Centre	99
Kingsway South / Grange Avenue	103
Cardinal Newman High School	101
Carrington Wire Works	102
Warrington Central Trading Estate	103
Marsden VanPlan Ltd.	104
Britania Wire Works	105
George Howard Scrap Yard	106
Thelwall Lane	107
Chapelford Urban Village	109
Phase 4, Washington Drive	110
Grappenhall Heys	111
Tourney Green North	112
Pewterspear Green Road	113, 114
Oughtington Lane / Longbutt Lane	116
Hubert Jones Tankworks	117
Anson Close / Blenheim Close	118

Rev	Date	Drawn	Description	Ch'ked	App'd
P1	08/11/2007	MJR	For Issue	CS	HF

Mott MacDonald

HALTON BOROUGH COUNCIL

Mersey Gateway Study

Figure 4.2 - Location of Development Sites

Drawn	MJR			
Dwg. Chk.	CS	Approved	HF	
Scale at A3 NTS	Project Mersey Gateway			Status PRE
	File P:\Manchester\Northwest\Projects\246612\27709 Mersey Gateway\TP\5.0 Technical\5.4 Technical Notes\Maps\fig plans for report			
Drawing No. 231775/TP/				Rev P1

Chapter 5 Tables and Figures

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Table 5.1 - Total Most Likely Reference Case Trip Matrices by User Class – AM Peak Hour

Vehicle Type and purpose	Total Trips in 2006 Validated Matrix	2015 Total Trips	% Growth 2006 to 2015	2030 Total Trips	% Growth 2006 to 2030
Car Commuting High Income	70,119	73,751	5.2%	76,644	9.3%
Car Commuting Medium Income	48,928	51,607	5.5%	53,857	10.1%
Car Commuting Low Income	30,901	32,686	5.8%	34,255	10.9%
Total Car Commuting	149,948	158,044	5.4%	164,756	9.9%
Car Employers' Business	9,849	10,665	8.3%	11,539	17.2%
Car Other High Income	17,266	18,788	8.8%	20,256	17.3%
Car Other Medium Income	15,576	16,962	8.9%	18,355	17.8%
Car Other Low Income	14,967	16,295	8.9%	17,680	18.1%
Total Car Other	47,809	52,046	8.9%	56,291	17.7%
Total Car	**207,606**	**220,755**	**6.3%**	**232,586**	**12.0%**
LGV	32,648	39,798	21.9%	54,196	66.0%
OGV	14,929	17,400	16.6%	22,507	50.8%
Total vehicles	**255,183**	**277,954**	**8.9%**	**309,289**	**21.2%**

Table 5.2 - Total Most Likely Reference Case Trip Matrices by User Class – Inter Peak Hour

Vehicle Type and purpose	Total Trips in 2006 Validated Matrix	2015 Total Trips	% Growth 2006 to 2015	2030 Total Trips	% Growth 2006 to 2030
Car Commuting High Income	17,808	19,138	7.5%	19,975	12.2%
Car Commuting Medium Income	12,628	13,561	7.4%	14,175	12.3%
Car Commuting Low Income	8,408	9,017	7.2%	9,433	12.2%
Total Car Commuting	38,844	41,717	7.4%	43,583	12.2%
Car Employers' Business	9,994	10,935	9.4%	11,856	18.6%
Car Other High Income	22,294	23,993	7.6%	25,692	15.2%
Car Other Medium Income	19,761	21,236	7.5%	22,765	15.2%
Car Other Low Income	27,071	29,022	7.2%	31,091	14.8%
Total Car Other	69,126	74,251	7.4%	79,548	15.1%
Total Car	**117,964**	**126,904**	**7.6%**	**134,987**	**14.4%**
LGV	27,780	33,864	21.9%	46,115	66.0%
OGV	15,850	18,473	16.6%	23,894	50.8%
Total vehicles	**161,594**	**179,240**	**10.9%**	**204,996**	**26.9%**

Table 5.3 - Total Most Likely Reference Case Trip Matrices by User Class – PM Peak Hour

Vehicle Type and purpose	Total Trips in 2006 Validated Matrix	2015 Total Trips	% Growth 2006 to 2015	2030 Total Trips	% Growth 2006 to 2030
Car Commuting High Income	44,676	47,578	6.5%	50,072	12.1%
Car Commuting Medium Income	29,620	31,515	6.4%	33,171	12.0%
Car Commuting Low Income	19,319	20,542	6.3%	21,643	12.0%
Total Car Commuting	93,615	99,635	6.4%	104,886	12.0%
Car Employers' Business	10,456	11,119	6.3%	11,807	12.9%
Car Other High Income	26,838	28,196	5.1%	29,776	10.9%
Car Other Medium Income	21,253	22,347	5.1%	23,653	11.3%
Car Other Low Income	19,941	20,955	5.1%	22,200	11.3%
Total Car Other	68,032	71,499	5.1%	75,629	11.2%
Total Car	**172,103**	**182,253**	**5.9%**	**192,322**	**11.7%**
LGV	34,290	41,800	21.9%	56,922	66.0%
OGV	13,211	15,398	16.6%	19,916	50.8%
Total vehicles	**219,604**	**239,450**	**9.0%**	**269,160**	**22.6%**

Table 5.4 - Total Most Likely Reference Case Trip Matrices by User Class – Overnight Hour

Vehicle Type and purpose	Total Trips in 2006 Validated Matrix	2015 Total Trips	% Growth 2006 to 2015	2030 Total Trips	% Growth 2006 to 2030
Car Commuting High Income	6,037	6,488	7.5%	6,772	12.2%
Car Commuting Medium Income	4,281	4,597	7.4%	4,805	12.2%
Car Commuting Low Income	2,850	3,057	7.3%	3,198	12.2%
Total Car Commuting	13,168	14,142	7.4%	14,775	12.2%
Car Employers' Business	0	0		0	
Car Other High Income	7,558	8,134	7.6%	8,710	15.2%
Car Other Medium Income	6,699	7,199	7.5%	7,717	15.2%
Car Other Low Income	9,177	9,838	7.2%	10,540	14.9%
Total Car Other	23,433	25,171	7.4%	26,967	15.1%
Total Car	**36,601**	**39,313**	**7.4%**	**41,742**	**14.0%**
LGV	3,806	4,639	21.9%	6,318	66.0%
OGV	2,869	3,343	16.5%	4,325	50.8%
Total vehicles	**43,276**	**47,295**	**9.3%**	**52,385**	**21.0%**

Table 5.5 - Total Most Likely Reference Case Trip Matrices by User Class – 24 Hour AAWT

Vehicle Type and purpose	Total Trips in 2006 Validated Matrix	2015 Total Trips	% Growth 2006 to 2015	2030 Total Trips	% Growth 2006 to 2030
Car Commuting High Income	500,625	532,329	6.3%	555,861	11.0%
Car Commuting Medium Income	346,959	369,162	6.4%	386,282	11.3%
Car Commuting Low Income	225,215	239,777	6.5%	251,438	11.6%
Total Car Commuting	1,072,799	1,141,268	6.4%	1,193,581	11.3%
Car Employers' Business	116,943	126,738	8.4%	136,636	16.8%
Car Other High Income	348,444	373,632	7.2%	399,290	14.6%
Car Other Medium Income	302,425	324,230	7.2%	347,186	14.8%
Car Other Low Income	370,615	396,817	7.1%	425,027	14.7%
Total Car Other	1,021,484	1,094,679	7.2%	1,171,502	14.7%
Total Car	**2,211,226**	**2,362,684**	**6.8%**	**2,501,720**	**13.1%**
LGV	400,178	487,817	21.9%	664,303	66.0%
OGV	208,417	242,910	16.5%	314,201	50.8%
Total vehicles	**2,819,821**	**3,093,412**	**9.7%**	**3,480,224**	**23.4%**

Table 5.6 - Most Likely Reference Case Public Transport Trip Matrices – AM Peak Hour

	Trips in 2006 Validated PT Matrix	2015 Total PT Trips	% Growth 2006 to 2015	2030 Total PT Trips	% Growth 2006 to 2030
Car Available – Bus	56	74	33.1%	91	63.8%
Car Available – Rail	43	52	18.8%	61	39.9%
Sub-total Car Available	99	126	26.8%	152	53.3%
Non-Car Available – Bus	389	329	-15.4%	264	-32.2%
Non-Car Available – Rail	9	8	-10.4%	7	-22.2%
Sub-total Non-Car Available	398	337	-15.3%	271	-31.9%
Total	**497**	**463**	**-6.9%**	**423**	**-15.0%**

Table 5.7 - Most Likely Reference Case Public Transport Trip Matrices – Inter Peak Hour

	Trips in 2006 Validated PT Matrix	2015 Total PT Trips	% Growth 2006 to 2015	2030 Total PT Trips	% Growth 2006 to 2030
Car Available – Bus	43	57	31.9%	71	62.0%
Car Available – Rail	7	9	18.8%	11	60.5%
Sub-total Car Available	50	66	26.8%	82	61.8%
Non-Car Available – Bus	284	254	-15.4%	220	-22.5%
Non-Car Available – Rail	6	5	-10.4%	4	-28.7%
Sub-total Non-Car Available	290	259	-15.3%	224	-22.6%
Total	**340**	**325**	**-6.9%**	**306**	**-10.1%**

Table 5.8 - Most Likely Reference Case Public Transport Trip Matrices – PM Peak Hour

	Trips in 2006 Validated PT Matrix	2015 Total PT Trips	% Growth 2006 to 2015	2030 Total PT Trips	% Growth 2006 to 2030
Car Available – Bus	49	65	34.2%	80	65.0%
Car Available – Rail	11	14	24.9%	18	55.2%
Sub-total Car Available	60	79	32.4%	98	63.1%
Non-Car Available – Bus	283	251	-11.3%	215	-24.0%
Non-Car Available – Rail	9	8	-14.3%	6	-31.2%
Sub-total Non-Car Available	292	259	-11.4%	221	-24.2%
Total	**352**	**338**	**-4.0%**	**319**	**-9.4%**

Table 5.9 Most Likely Reference Case Total Vehicle Trips by Origin Sector – AM Peak Hour

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	10,913	11,601	6.3%	12,650	15.9%
2	Runcorn	9,628	10,526	9.3%	11,552	20.0%
3	West Warrington	5,445	6,540	20.1%	6,945	27.5%
4	Warrington	7,635	8,807	15.4%	9,821	28.6%
5	South Warrington	7,969	8,683	9.0%	9,077	13.9%
6	East Warrington	5,091	5,369	5.5%	5,578	9.6%
7	South Liverpool	5,966	6,899	15.6%	7,989	33.9%
8	Birkenhead	2,471	2,859	15.7%	3,948	59.8%
9	East Wirral	23,506	24,597	4.6%	26,644	13.3%
10	South Widnes	421	521	23.6%	683	62.3%
11	Liverpool	22,087	24,652	11.6%	28,799	30.4%
12	South Knowsley	11,568	12,480	7.9%	13,749	18.9%
13	Ellesmere Port	6,741	7,176	6.5%	7,657	13.6%
14	West Wirral & Wales	28,341	29,859	5.4%	31,956	12.8%
15	St Helens & Sth Lancs	82,610	89,518	8.4%	99,085	19.9%
16	North	2,709	2,866	5.8%	3,189	17.7%
17	East	15,690	17,946	14.4%	21,878	39.4%
18	The South	6,393	7,052	10.3%	8,087	26.5%
Total		**255,184**	**277,954**	**8.9%**	**309,288**	**21.2%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.10 Most Likely Reference Case Total Vehicle Trips by Origin Sector -Inter Peak Hour

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	7,277	7,903	8.6%	8,748	20.2%
2	Runcorn	6,579	7,339	11.5%	8,429	28.1%
3	West Warrington	3,844	4,986	29.7%	5,384	40.1%
4	Warrington	6,426	7,274	13.2%	8,209	27.8%
5	South Warrington	4,076	4,528	11.1%	4,866	19.4%
6	East Warrington	3,613	3,969	9.8%	4,152	14.9%
7	South Liverpool	4,858	5,715	17.6%	6,707	38.1%
8	Birkenhead	4,293	4,745	10.5%	5,628	31.1%
9	East Wirral	12,767	13,827	8.3%	15,566	21.9%
10	South Widnes	638	744	16.6%	919	44.1%
11	Liverpool	18,072	19,683	8.9%	23,143	28.1%
12	South Knowsley	5,956	6,206	4.2%	6,815	14.4%
13	Ellesmere Port	3,827	4,255	11.2%	4,834	26.3%
14	West Wirral & Wales	16,350	17,679	8.1%	19,853	21.4%
15	St Helens & Sth Lancs	45,816	50,724	10.7%	57,550	25.6%
16	North	1,492	1,624	8.9%	1,877	25.8%
17	East	11,764	13,573	15.4%	16,892	43.6%
18	The South	3,944	4,466	13.2%	5,424	37.5%
Total		**161,592**	**179,240**	**10.9%**	**204,996**	**26.9%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.11 Most Likely Reference Case Total Vehicle Trips by Origin Sector – PM Peak Hour

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	9,214	9,732	5.6%	11,030	19.7%
2	Runcorn	9,298	10,287	10.6%	11,415	22.8%
3	West Warrington	4,299	5,875	36.7%	6,520	51.7%
4	Warrington	9,005	10,037	11.5%	11,100	23.3%
5	South Warrington	5,443	5,995	10.2%	6,407	17.7%
6	East Warrington	5,470	5,955	8.9%	6,211	13.6%
7	South Liverpool	6,769	8,018	18.4%	9,423	39.2%
8	Birkenhead	5,086	5,542	9.0%	6,593	29.6%
9	East Wirral	15,374	16,343	6.3%	18,231	18.6%
10	South Widnes	772	870	12.7%	1,085	40.6%
11	Liverpool	26,805	28,289	5.5%	31,896	19.0%
12	South Knowsley	6,996	7,182	2.7%	7,767	11.0%
13	Ellesmere Port	7,065	7,686	8.8%	8,612	21.9%
14	West Wirral & Wales	22,947	24,446	6.5%	27,044	17.9%
15	St Helens & Sth Lancs	61,434	66,459	8.2%	73,758	20.1%
16	North	1,661	1,776	6.9%	2,013	21.2%
17	East	16,247	18,600	14.5%	22,702	39.7%
18	The South	5,719	6,357	11.2%	7,354	28.6%
Total		**219,604**	**239,450**	**9.0%**	**269,160**	**22.6%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.12 Most Likely Reference Case Total Vehicle Trips by Origin Sector – Overnight Hour

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	2,042	2,190	7.2%	2,349	15.0%
2	Runcorn	1,760	1,946	10.6%	2,186	24.2%
3	West Warrington	1,077	1,376	27.8%	1,452	34.8%
4	Warrington	1,665	1,866	12.0%	2,037	22.3%
5	South Warrington	1,149	1,268	10.4%	1,327	15.5%
6	East Warrington	1,018	1,107	8.8%	1,140	12.0%
7	South Liverpool	1,270	1,473	16.0%	1,681	32.3%
8	Birkenhead	1,221	1,340	9.8%	1,558	27.6%
9	East Wirral	3,598	3,831	6.5%	4,166	15.8%
10	South Widnes	142	164	15.9%	197	39.2%
11	Liverpool	5,040	5,410	7.3%	6,217	23.4%
12	South Knowsley	1,761	1,812	2.9%	1,943	10.3%
13	Ellesmere Port	1,017	1,122	10.3%	1,244	22.3%
14	West Wirral & Wales	4,439	4,734	6.6%	5,149	16.0%
15	St Helens & Sth Lancs	12,599	13,749	9.1%	15,092	19.8%
16	North	350	375	7.1%	419	19.5%
17	East	2,271	2,576	13.5%	3,105	36.7%
18	The South	857	955	11.4%	1,123	30.9%
Total		**43,276**	**47,296**	**9.3%**	**52,384**	**21.0%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.13 Most Likely Reference Case Total Vehicle Trips by Origin Sector – 24 Hour AAWT

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	124,586	133,494	7.1%	147,059	18.0%
2	Runcorn	113,674	125,769	10.6%	141,238	24.2%
3	West Warrington	63,293	81,243	28.4%	87,487	38.2%
4	Warrington	105,256	118,930	13.0%	132,420	25.8%
5	South Warrington	75,798	83,493	10.2%	88,486	16.7%
6	East Warrington	63,532	68,886	8.4%	71,685	12.8%
7	South Liverpool	80,142	93,847	17.1%	109,300	36.4%
8	Birkenhead	61,678	68,193	10.6%	82,106	33.1%
9	East Wirral	228,623	243,564	6.5%	269,047	17.7%
10	South Widnes	8,881	10,343	16.5%	12,849	44.7%
11	Liverpool	306,201	331,640	8.3%	383,817	25.3%
12	South Knowsley	108,820	113,993	4.8%	124,401	14.3%
13	Ellesmere Port	73,909	80,702	9.2%	89,594	21.2%
14	West Wirral & Wales	295,097	315,076	6.8%	346,285	17.3%
15	St Helens & Sth Lancs	829,586	906,261	9.2%	1,010,586	21.8%
16	North	25,383	27,242	7.3%	30,843	21.5%
17	East	187,440	214,892	14.6%	263,697	40.7%
18	The South	67,914	75,851	11.7%	89,311	31.5%
Total		**2,819,812**	**3,093,420**	**9.7%**	**3,480,211**	**23.4%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.14 Most Likely Reference Case Total Vehicle Trips by Destination Sector – AM Peak Hour

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	9,904	10,447	5.5%	12,008	21.2%
2	Runcorn	9,632	10,870	12.8%	12,051	25.1%
3	West Warrington	4,813	6,914	43.6%	7,640	58.7%
4	Warrington	10,213	11,159	9.3%	12,170	19.2%
5	South Warrington	6,934	7,365	6.2%	7,742	11.7%
6	East Warrington	6,356	7,259	14.2%	7,601	19.6%
7	South Liverpool	7,443	8,944	20.2%	10,464	40.6%
8	Birkenhead	6,004	6,576	9.5%	7,521	25.3%
9	East Wirral	18,879	20,169	6.8%	22,250	17.9%
10	South Widnes	896	988	10.3%	1,197	33.7%
11	Liverpool	30,756	32,847	6.8%	36,702	19.3%
12	South Knowsley	8,365	8,653	3.4%	9,352	11.8%
13	Ellesmere Port	6,796	7,497	10.3%	8,510	25.2%
14	West Wirral & Wales	26,554	28,147	6.0%	31,077	17.0%
15	St Helens & Sth Lancs	77,637	83,182	7.1%	91,070	17.3%
16	North	1,972	2,084	5.7%	2,307	17.0%
17	East	16,290	18,555	13.9%	22,460	37.9%
18	The South	5,739	6,297	9.7%	7,166	24.9%
Total		**255,184**	**277,954**	**8.9%**	**309,288**	**21.2%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.15 Most Likely Reference Case Total Vehicle Trips by Destination Sector – Inter Peak Hour

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	7,216	7,820	8.4%	8,758	21.4%
2	Runcorn	6,535	7,221	10.5%	8,198	25.5%
3	West Warrington	3,392	4,477	32.0%	4,796	41.4%
4	Warrington	6,010	6,871	14.3%	7,848	30.6%
5	South Warrington	4,508	4,997	10.8%	5,381	19.4%
6	East Warrington	3,521	3,869	9.9%	4,079	15.8%
7	South Liverpool	4,836	5,831	20.6%	6,935	43.4%
8	Birkenhead	4,277	4,716	10.3%	5,590	30.7%
9	East Wirral	12,559	13,608	8.4%	15,333	22.1%
10	South Widnes	594	700	17.9%	887	49.3%
11	Liverpool	17,690	19,266	8.9%	22,584	27.7%
12	South Knowsley	5,989	6,253	4.4%	6,869	14.7%
13	Ellesmere Port	3,877	4,314	11.3%	4,907	26.6%
14	West Wirral & Wales	16,751	18,082	7.9%	20,194	20.6%
15	St Helens & Sth Lancs	47,169	52,130	10.5%	59,133	25.4%
16	North	1,452	1,608	10.7%	1,895	30.5%
17	East	11,539	13,367	15.8%	16,727	45.0%
18	The South	3,678	4,109	11.7%	4,881	32.7%
Total		**161,592**	**179,240**	**10.9%**	**204,996**	**26.9%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.16 Most Likely Reference Case Total Vehicle Trips by Destination Sector – PM Peak Hour

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	9,686	10,315	6.5%	11,308	16.7%
2	Runcorn	8,989	9,732	8.3%	10,705	19.1%
3	West Warrington	5,260	6,299	19.8%	6,680	27.0%
4	Warrington	6,770	7,895	16.6%	8,950	32.2%
5	South Warrington	5,828	6,507	11.7%	6,902	18.4%
6	East Warrington	4,159	4,398	5.8%	4,646	11.7%
7	South Liverpool	6,044	7,047	16.6%	8,245	36.4%
8	Birkenhead	3,408	3,712	8.9%	4,699	37.9%
9	East Wirral	17,862	18,773	5.1%	20,714	16.0%
10	South Widnes	440	541	23.0%	712	62.1%
11	Liverpool	20,284	22,078	8.8%	25,647	26.4%
12	South Knowsley	8,790	9,221	4.9%	10,101	14.9%
13	Ellesmere Port	6,499	6,932	6.7%	7,471	14.9%
14	West Wirral & Wales	24,811	26,294	6.0%	28,601	15.3%
15	St Helens & Sth Lancs	67,152	72,861	8.5%	81,445	21.3%
16	North	2,190	2,351	7.3%	2,648	20.9%
17	East	16,714	19,262	15.2%	23,638	41.4%
18	The South	4,716	5,233	11.0%	6,048	28.2%
Total		**219,604**	**239,450**	**9.0%**	**269,160**	**22.6%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.17 Most Likely Reference Case Total Vehicle Trips by Destination Sector – Overnight Hour

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	2,072	2,220	7.1%	2,411	16.4%
2	Runcorn	1,749	1,900	8.6%	2,101	20.1%
3	West Warrington	978	1,264	29.2%	1,326	35.5%
4	Warrington	1,544	1,758	13.9%	1,949	26.2%
5	South Warrington	1,260	1,387	10.1%	1,454	15.4%
6	East Warrington	981	1,066	8.7%	1,102	12.4%
7	South Liverpool	1,113	1,340	20.3%	1,580	41.9%
8	Birkenhead	1,176	1,288	9.5%	1,495	27.2%
9	East Wirral	3,574	3,811	6.6%	4,154	16.2%
10	South Widnes	128	150	17.2%	184	43.8%
11	Liverpool	4,991	5,356	7.3%	6,124	22.7%
12	South Knowsley	1,775	1,829	3.0%	1,957	10.3%
13	Ellesmere Port	1,030	1,138	10.4%	1,261	22.3%
14	West Wirral & Wales	4,576	4,876	6.6%	5,277	15.3%
15	St Helens & Sth Lancs	12,963	14,123	8.9%	15,494	19.5%
16	North	331	360	9.0%	411	24.3%
17	East	2,190	2,502	14.2%	3,037	38.6%
18	The South	844	928	10.0%	1,067	26.4%
Total		**43,276**	**47,296**	**9.3%**	**52,384**	**21.0%**

Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.18 Most Likely Reference Case Total Vehicle Trips by Destination Sector – 24 Hour AAWT

Sector		Total Vehicle Trips in 2006 Validated Matrix	2015 Total Vehicle Trips	% Growth 2006 to 2015	2030 Total Vehicle Trips	% Growth 2006 to 2030
1	Widnes	123,111	131,805	7.1%	146,870	19.3%
2	Runcorn	112,423	123,885	10.2%	138,204	22.9%
3	West Warrington	60,361	79,080	31.0%	84,832	40.5%
4	Warrington	102,134	115,683	13.3%	129,640	26.9%
5	South Warrington	77,936	85,520	9.7%	90,789	16.5%
6	East Warrington	62,334	68,630	10.1%	71,970	15.5%
7	South Liverpool	80,170	95,874	19.6%	112,991	40.9%
8	Birkenhead	66,104	72,530	9.7%	85,685	29.6%
9	East Wirral	221,293	236,591	6.9%	262,330	18.5%
10	South Widnes	8,831	10,273	16.3%	12,869	45.7%
11	Liverpool	308,930	333,657	8.0%	383,606	24.2%
12	South Knowsley	105,369	109,618	4.0%	119,291	13.2%
13	Ellesmere Port	72,915	80,000	9.7%	89,372	22.6%
14	West Wirral & Wales	299,461	319,682	6.8%	351,837	17.5%
15	St Helens & Sth Lancs	844,459	919,719	8.9%	1,024,422	21.3%
16	North	24,364	26,423	8.4%	30,215	24.0%
17	East	188,117	216,334	15.0%	266,156	41.5%
18	The South	61,500	68,114	10.8%	79,135	28.7%
Total		**2,819,812**	**3,093,420**	**9.7%**	**3,480,211**	**23.4%**

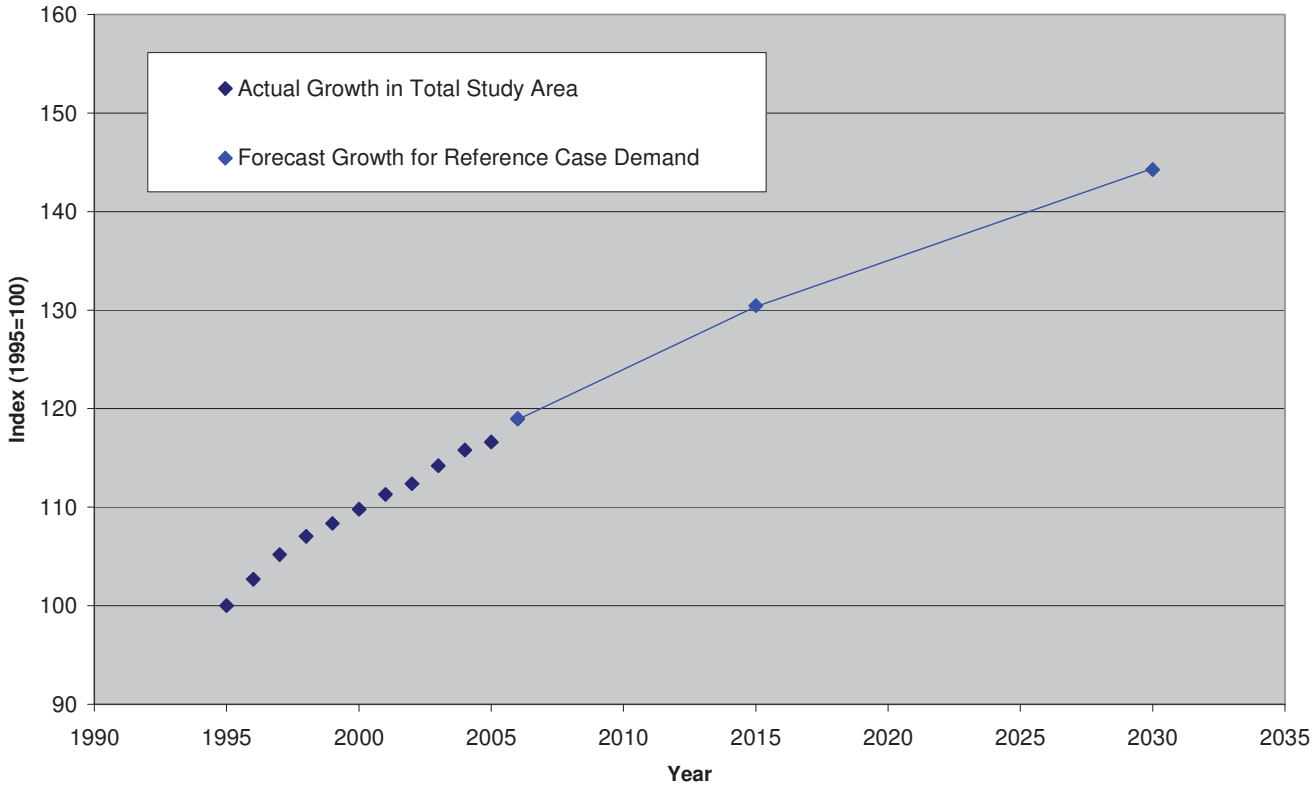
Note: Refer to Figure 5.2 for definition of Display Sectors

Table 5.19 –24 Hour AAWT Conversion Factors

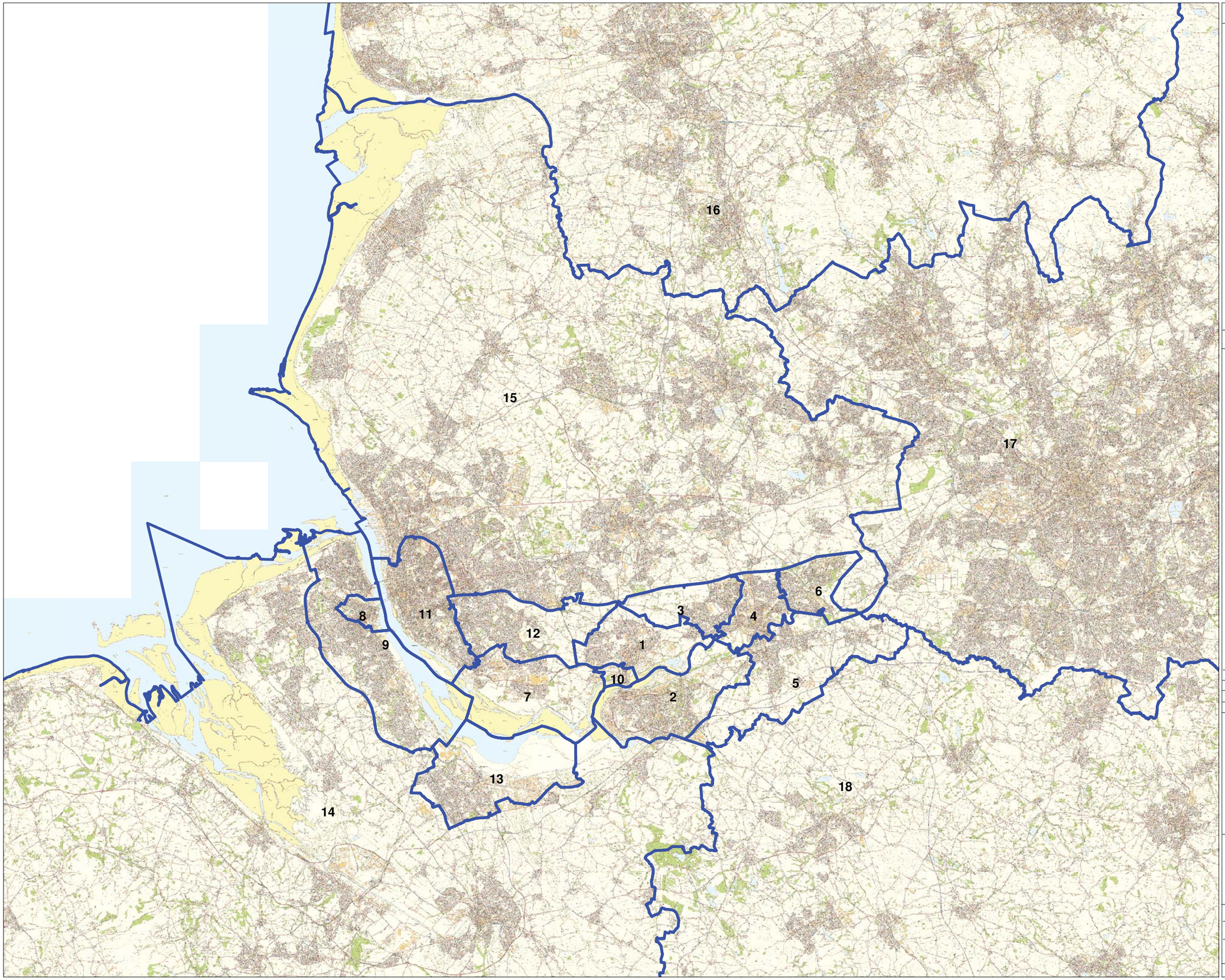
Modelled Period	Conversion Factor
AM Peak Hour	2.77778
Inter Peak Hour	6
PM Peak Hour	2.83286
Overnight Hour	12

Figure 5.1 Comparison of Trend Growth in Vehicle Kilometres and Reference Case Demand Forecasts

Source: Department for Transport's National Road Traffic Survey



HALTON BOROUGH COUNCIL Mott MacDonald		Design DOB	CAD	Checked JH	Approved CS
		Drawing Number		Date 14/11/2007	
		Project Mersey Gateway	File		
Mersey Gateway Study		Drawing Title: Figure 5.1 Comparison of Trend Growth in Vehicle Kilometres and Reference Case Demand Forecasts			



Notes

Key

Rev	Date	Drawn	Description	Ch'ked	App'd
P1	21/05/2007	MJR	For Issue	HF	RIG

Mott MacDonald

HALTON BOROUGH COUNCIL

Mersey Gateway Study

Figure 5.2 - Definition of Display sectors

Drawn	MJR			
Dwg. Chk.	HF	Approved	RIG	
Scale at A3 NTS	Project Mersey Gateway			Status PRE
	File P:\Manchester\Northwest\Projects\Odell\237709 Mersey Gateway\TP\5.0 Technical\5.4 Technical Notes\Maps\Info plans for report			
Drawing No. 231775/TP/				Rev P1

Chapter 6 Tables and Figures

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Table 6.1 - SATURN Distance coefficients used for Realism Tests

Vehicle Type and purpose	Pence per Kilometre (PPK)	
	2006 validated base year	2006 with 20% fuel price increase
Car Commuting High Income	5.92	7.10
Car Commuting Medium Income	5.92	7.10
Car Commuting Low Income	5.92	7.10
Car Employers' Business	12.83	14.06
Car Other High Income	5.92	7.10
Car Other Medium Income	5.92	7.10
Car Other Low Income	5.92	7.10
LGV	14.59	16.31
OGV	44.24	49.91

Table 6.2 - Comparison of calibrated VDM λ Values and WebTAG Values

Trip Purpose	WebTag Minimum	WebTag Median	WebTag Maximum	Calibrated
Highway Model				
Car Commute	-0.054	-0.065	-0.113	-0.061
Car Employer's Business	-0.038	-0.067	-0.106	-0.052
Car Other	-0.074	-0.090	-0.160	-0.057
PT Model				
Car Commute	-0.023	-0.033	-0.043	-0.033
Car Employer's Business	-0.030	-0.036	-0.044	-0.036
Car Other	-0.033	-0.036	-0.045	-0.036

Table 6.3 - VDM Lambda and Theta Parameters used in the Demand Model Hierarchy

Trip Purpose	Highway λ	PT Model λ	Mode Choice θ	Frequency θ
Car Commute	-0.061	-0.033	0.68	0.245
Car Employer's Business	-0.052	-0.036	0.45	0.245
Car Other	-0.057	-0.036	0.53	0.245

Table 6.4 - SATURN Assignment Convergence Parameters

Parameter	Description	Value
PCNEAR	Percentage change in link flows	1%
ISTOP	Percentage of links satisfying PCNEAR value	99%
MASL	Maximum Assignment/Simulation Iteration	100
NITA	Number of interactions within SATASS	10
NITAS	Number of interactions within SATSIM	10
NITA_S	Number of interactions within SATSIM for final assignment (SAVEIT=T)	150
UNCRTS	Monitor for assignment parameter, Epsilon	0.01
NISTOP	Number of successive iterations satisfying convergence criteria	4

Table 6.5 - Most Likely Variable Demand Do-Minimum Total Trip Matrices by User Class – AM Peak Hour

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	73,751	74,836	1.5%	76,644	77,163	0.7%
Car Commuting Medium Income	51,607	52,558	1.8%	53,857	54,496	1.2%
Car Commuting Low Income	32,686	34,100	4.3%	34,255	35,845	4.6%
Total Car Commuting	158,044	161,494	2.2%	164,756	167,504	1.7%
Car Employers' Business	10,665	10,555	-1.0%	11,539	11,305	-2.0%
Car Other High Income	18,788	18,839	0.3%	20,256	20,239	-0.1%
Car Other Medium Income	16,962	17,056	0.6%	18,355	18,406	0.3%
Car Other Low Income	16,295	16,468	1.1%	17,680	17,850	1.0%
Total Car Other	52,046	52,363	0.6%	56,291	56,495	0.4%
Total Car	220,755	224,412	1.7%	232,586	235,304	1.2%
LGV	39,798	39,783	0.0%	54,196	54,190	0.0%
OGV	17,400	17,395	0.0%	22,507	22,502	0.0%
Total vehicles	**277,954**	**281,590**	**1.3%**	**309,289**	**311,996**	**0.9%**

Table 6.6 - Most Likely Variable Demand Do-Minimum Total Trip Matrices by User Class – Inter Peak Hour

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	19,138	19,612	2.5%	19,975	20,488	2.6%
Car Commuting Medium Income	13,561	13,949	2.9%	14,175	14,619	3.1%
Car Commuting Low Income	9,017	9,456	4.9%	9,433	10,007	6.1%
Total Car Commuting	41,717	43,017	3.1%	43,583	45,114	3.5%
Car Employers' Business	10,935	10,924	-0.1%	11,856	11,801	-0.5%
Car Other High Income	23,993	24,250	1.1%	25,692	25,992	1.2%
Car Other Medium Income	21,236	21,527	1.4%	22,765	23,130	1.6%
Car Other Low Income	29,022	29,617	2.0%	31,091	31,875	2.5%
Total Car Other	74,251	75,394	1.5%	79,548	80,997	1.8%
Total Car	126,904	129,335	1.9%	134,987	137,912	2.2%
LGV	33,864	33,851	0.0%	46,115	46,097	0.0%
OGV	18,472	18,468	0.0%	23,894	23,890	0.0%
Total vehicles	**179,240**	**181,654**	**1.3%**	**204,996**	**207,899**	**1.4%**

Table 6.7 - Most Likely Variable Demand Do-Minimum Total Trip Matrices by User Class – PM Peak Hour

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	47,578	48,547	2.0%	50,072	50,726	1.3%
Car Commuting Medium Income	31,515	32,295	2.5%	33,171	33,826	2.0%
Car Commuting Low Income	20,542	21,564	5.0%	21,643	22,830	5.5%
Total Car Commuting	99,635	102,406	2.8%	104,886	107,382	2.4%
Car Employers' Business	11,119	11,045	-0.7%	11,807	11,634	-1.5%
Car Other High Income	28,196	28,471	1.0%	29,776	29,949	0.6%
Car Other Medium Income	22,347	22,647	1.3%	23,653	23,911	1.1%
Car Other Low Income	20,955	21,378	2.0%	22,200	22,648	2.0%
Total Car Other	71,499	72,496	1.4%	75,629	76,508	1.2%
Total Car	182,253	185,947	2.0%	192,322	195,524	1.7%
LGV	41,800	41,790	0.0%	56,922	56,918	0.0%
OGV	15,398	15,392	0.0%	19,916	19,911	0.0%
Total vehicles	**239,450**	**243,129**	**1.5%**	**269,160**	**272,353**	**1.2%**

Table 6.8 - Most Likely Variable Demand Do-Minimum Total Trip Matrices by User Class – Overnight Hour

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	6,488	6,649	2.48%	6,772	6,946	2.57%
Car Commuting Medium Income	4,597	4,729	2.87%	4,805	4,956	3.14%
Car Commuting Low Income	3,057	3,206	4.87%	3,198	3,392	6.07%
Total Car Commuting	14,142	14,584	3.13%	14,775	15,294	3.51%
Car Employers' Business	0	0	0.00%	0	0	0.00%
Car Other High Income	8,134	8,221	1.07%	8,710	8,811	1.16%
Car Other Medium Income	7,199	7,298	1.38%	7,717	7,841	1.61%
Car Other Low Income	9,838	10,040	2.05%	10,540	10,806	2.52%
Total Car Other	25,171	25,559	1.54%	26,967	27,458	1.82%
Total Car	39,313	40,143	2.11%	41,742	42,752	2.42%
LGV	4,639	4,639	0.00%	6,318	6,318	0.00%
OGV	3,343	3,343	0.00%	4,325	4,325	4.62%
Total vehicles	**47,295**	**48,125**	**1.75%**	**52,385**	**53,395**	**2.31%**

Table 6.9 - Most Likely Variable Demand Do-Minimum Total Trip Matrices by User Class – 24 Hour AAWT

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	532,330	542,865	2.0%	555,861	564,321	1.5%
Car Commuting Medium Income	369,160	377,924	2.4%	386,282	394,388	2.1%
Car Commuting Low Income	239,773	251,018	4.7%	251,438	264,990	5.4%
Total Car Commuting	1,141,269	1,171,807	2.7%	1,193,581	1,223,699	2.5%
Car Employers' Business	126,734	126,152	-0.5%	136,636	135,166	-1.1%
Car Other High Income	373,630	377,137	0.9%	399,290	402,745	0.9%
Car Other Medium Income	324,227	328,272	1.2%	347,186	351,736	1.3%
Car Other Low Income	396,815	404,487	1.9%	425,027	434,664	2.3%
Total Car Other	1,094,677	1,109,896	1.4%	1,171,502	1,189,145	1.5%
Total Car	2,362,686	2,407,855	1.9%	2,501,720	2,548,011	1.9%
LGV	487,816	487,668	0.0%	664,303	664,167	0.0%
OGV	242,902	242,847	0.0%	314,203	314,151	0.0%
Total vehicles	**3,093,403**	**3,138,369**	**1.5%**	**3,480,225**	**3,526,328**	**1.3%**

Table 6.10 - Most Likely Variable Demand 2015 Do-Minimum Total Vehicle Trip Matrices by Sector – AM Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change from 2006
1	Widnes	10,913	11,601	6.3%	11,556	5.9%
2	Runcorn	9,628	10,526	9.3%	10,534	9.4%
3	West Warrington	5,445	6,540	20.1%	6,535	20.0%
4	Warrington	7,635	8,807	15.4%	8,817	15.5%
5	South Warrington	7,969	8,683	9.0%	8,711	9.3%
6	East Warrington	5,091	5,369	5.5%	5,517	8.4%
7	South Liverpool	5,966	6,899	15.6%	6,970	16.8%
8	Birkenhead	2,471	2,859	15.7%	2,848	15.2%
9	East Wirral	23,506	24,597	4.6%	24,784	5.4%
10	South Widnes	421	521	23.6%	515	22.3%
11	Liverpool	22,087	24,652	11.6%	24,692	11.8%
12	South Knowsley	11,568	12,480	7.9%	12,447	7.6%
13	Ellesmere Port	6,741	7,176	6.5%	7,286	8.1%
14	West Wirral & Wales	28,341	29,859	5.4%	30,777	8.6%
15	St Helens & Sth Lancs	82,610	89,518	8.4%	90,348	9.4%
16	North	2,709	2,866	5.8%	3,156	16.5%
17	East	15,690	17,946	14.4%	18,642	18.8%
18	The South	6,393	7,052	10.3%	7,455	16.6%
Total		**255,184**	**277,954**	**8.9%**	**281,590**	**10.3%**

Table 6.11 - Most Likely Variable Demand 2015 Do-Minimum Total Vehicle Trip Matrices by Sector – Inter Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change from 2006
1	Widnes	7,277	7,903	8.6%	7,777	6.9%
2	Runcorn	6,579	7,339	11.5%	7,243	10.1%
3	West Warrington	3,844	4,986	29.7%	5,055	31.5%
4	Warrington	6,426	7,274	13.2%	7,148	11.2%
5	South Warrington	4,076	4,528	11.1%	4,507	10.6%
6	East Warrington	3,613	3,969	9.8%	4,047	12.0%
7	South Liverpool	4,858	5,715	17.6%	5,838	20.2%
8	Birkenhead	4,293	4,745	10.5%	4,676	8.9%
9	East Wirral	12,767	13,827	8.3%	14,033	9.9%
10	South Widnes	638	744	16.6%	738	15.8%
11	Liverpool	18,072	19,683	8.9%	19,885	10.0%
12	South Knowsley	5,956	6,206	4.2%	6,208	4.2%
13	Ellesmere Port	3,827	4,255	11.2%	4,268	11.5%
14	West Wirral & Wales	16,350	17,679	8.1%	18,357	12.3%
15	St Helens & Sth Lancs	45,816	50,724	10.7%	51,142	11.6%
16	North	1,492	1,624	8.9%	1,857	24.4%
17	East	11,764	13,573	15.4%	14,122	20.0%
18	The South	3,944	4,466	13.2%	4,753	20.5%
Total		**161,592**	**179,240**	**10.9%**	**181,654**	**12.4%**

Table 6.12 - Most Likely Variable Demand 2015 Do-Minimum Total Vehicle Trip Matrices by Sector – PM Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change From 2006
1	Widnes	9,214	9,732	5.6%	9,684	5.1%
2	Runcorn	9,298	10,287	10.6%	10,178	9.5%
3	West Warrington	4,299	5,875	36.7%	5,985	39.2%
4	Warrington	9,005	10,037	11.5%	9,961	10.6%
5	South Warrington	5,443	5,995	10.2%	5,933	9.0%
6	East Warrington	5,470	5,955	8.9%	6,160	12.6%
7	South Liverpool	6,769	8,018	18.4%	8,237	21.7%
8	Birkenhead	5,086	5,542	9.0%	5,493	8.0%
9	East Wirral	15,374	16,343	6.3%	16,380	6.5%
10	South Widnes	772	870	12.7%	869	12.6%
11	Liverpool	26,805	28,289	5.5%	28,975	8.1%
12	South Knowsley	6,996	7,182	2.7%	7,247	3.6%
13	Ellesmere Port	7,065	7,686	8.8%	7,631	8.0%
14	West Wirral & Wales	22,947	24,446	6.5%	25,186	9.8%
15	St Helens & Sth Lancs	61,434	66,459	8.2%	67,224	9.4%
16	North	1,661	1,776	6.9%	2,068	24.5%
17	East	16,247	18,600	14.5%	19,115	17.7%
18	The South	5,719	6,357	11.2%	6,804	19.0%
Total		**219,604**	**239,450**	**9.0%**	**243,128**	**10.7%**

Table 6.13 - Most Likely Variable Demand 2015 Do-Minimum Total Vehicle Trip Matrices by Sector – Overnight Hour

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change From 2006
1	Widnes	2,042	2,190	7.2%	2,154	5.5%
2	Runcorn	1,760	1,946	10.6%	1,922	9.2%
3	West Warrington	1,077	1,376	27.8%	1,401	30.0%
4	Warrington	1,665	1,866	12.0%	1,830	9.9%
5	South Warrington	1,149	1,268	10.4%	1,265	10.1%
6	East Warrington	1,018	1,107	8.8%	1,139	11.8%
7	South Liverpool	1,270	1,473	16.0%	1,516	19.4%
8	Birkenhead	1,221	1,340	9.8%	1,319	8.0%
9	East Wirral	3,598	3,831	6.5%	3,897	8.3%
10	South Widnes	142	164	15.9%	163	14.9%
11	Liverpool	5,040	5,410	7.3%	5,484	8.8%
12	South Knowsley	1,761	1,812	2.9%	1,815	3.1%
13	Ellesmere Port	1,017	1,122	10.3%	1,129	11.0%
14	West Wirral & Wales	4,439	4,734	6.6%	4,953	11.6%
15	St Helens & Sth Lancs	12,599	13,749	9.1%	13,896	10.3%
16	North	350	375	7.1%	446	27.4%
17	East	2,271	2,576	13.5%	2,748	21.0%
18	The South	857	955	11.4%	1,046	22.1%
Total		**43,276**	**47,296**	**9.3%**	**48,122**	**11.2%**

Table 6.14 -Most Likely Variable Demand 2015 Do-Minimum Total Vehicle Trip Matrices by Sector – 24 Hour AAWT

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Chang e From 2006
1	Widnes	124,582	133,492	7.2%	132,049	6.0%
2	Runcorn	113,678	125,767	10.6%	124,614	9.6%
3	West Warrington	63,291	81,238	28.4%	82,244	29.9%
4	Warrington	105,254	118,933	13.0%	117,561	11.7%
5	South Warrington	75,799	83,486	10.1%	83,221	9.8%
6	East Warrington	63,531	68,882	8.4%	70,719	11.3%
7	South Liverpool	80,136	93,844	17.1%	95,914	19.7%
8	Birkenhead	61,682	68,191	10.6%	67,353	9.2%
9	East Wirral	228,625	243,556	6.5%	246,209	7.7%
10	South Widnes	8,888	10,344	16.4%	10,278	15.6%
11	Liverpool	306,200	331,635	8.3%	335,785	9.7%
12	South Knowsley	108,820	113,992	4.8%	114,134	4.9%
13	Ellesmere Port	73,905	80,701	9.2%	81,007	9.6%
14	West Wirral & Wales	295,099	315,076	6.8%	326,416	10.6%
15	St Helens & Sth Lancs	829,590	906,262	9.2%	915,008	10.3%
16	North	25,382	27,236	7.3%	31,116	22.6%
17	East	187,445	214,891	14.6%	223,646	19.3%
18	The South	67,907	75,853	11.7%	81,057	19.4%
Total		**2,819,816**	**3,093,415**	**9.7%**	**3,138,327**	**11.3%**

Table 6.15 - Most Likely Variable Demand 2030 Do-Minimum Total Vehicle Trip Matrices by Sector – AM Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change From 2006
1	Widnes	10,913	12,650	15.9%	12,540	14.9%
2	Runcorn	9,628	11,552	20.0%	11,665	21.2%
3	West Warrington	5,445	6,945	27.5%	6,974	28.1%
4	Warrington	7,635	9,821	28.6%	9,810	28.5%
5	South Warrington	7,969	9,077	13.9%	9,194	15.4%
6	East Warrington	5,091	5,578	9.6%	5,737	12.7%
7	South Liverpool	5,966	7,989	33.9%	8,004	34.2%
8	Birkenhead	2,471	3,948	59.8%	3,917	58.5%
9	East Wirral	23,506	26,644	13.3%	26,795	14.0%
10	South Widnes	421	683	62.3%	678	60.9%
11	Liverpool	22,087	28,799	30.4%	28,748	30.2%
12	South Knowsley	11,568	13,749	18.9%	13,552	17.2%
13	Ellesmere Port	6,741	7,657	13.6%	7,833	16.2%
14	West Wirral & Wales	28,341	31,956	12.8%	33,239	17.3%
15	St Helens & Sth Lancs	82,610	99,085	19.9%	98,919	19.7%
16	North	2,709	3,189	17.7%	3,493	29.0%
17	East	15,690	21,878	39.4%	22,490	43.3%
18	The South	6,393	8,087	26.5%	8,408	31.5%
Total		**255,184**	**309,288**	**21.2%**	**311,998**	**22.3%**

Table 6.16 - Most Likely Variable Demand 2030 Do-Minimum Total Vehicle Trip Matrices by Sector – Inter Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change From 2006
1	Widnes	7,277	8,748	20.2%	8,592	18.1%
2	Runcorn	6,579	8,429	28.1%	8,317	26.4%
3	West Warrington	3,844	5,384	40.1%	5,467	42.2%
4	Warrington	6,426	8,209	27.8%	8,099	26.0%
5	South Warrington	4,076	4,866	19.4%	4,793	17.6%
6	East Warrington	3,613	4,152	14.9%	4,217	16.7%
7	South Liverpool	4,858	6,707	38.1%	6,844	40.9%
8	Birkenhead	4,293	5,628	31.1%	5,506	28.2%
9	East Wirral	12,767	15,566	21.9%	15,799	23.7%
10	South Widnes	638	919	44.1%	920	44.3%
11	Liverpool	18,072	23,143	28.1%	23,212	28.4%
12	South Knowsley	5,956	6,815	14.4%	6,842	14.9%
13	Ellesmere Port	3,827	4,834	26.3%	4,855	26.9%
14	West Wirral & Wales	16,350	19,853	21.4%	20,856	27.6%
15	St Helens & Sth Lancs	45,816	57,550	25.6%	58,272	27.2%
16	North	1,492	1,877	25.8%	2,228	49.3%
17	East	11,764	16,892	43.6%	17,317	47.2%
18	The South	3,944	5,424	37.5%	5,764	46.1%
Total		**161,592**	**204,996**	**26.9%**	**207,900**	**28.7%**

Table 6.17 - Most Likely Variable Demand 2030 Do-Minimum Total Vehicle Trip Matrices by Sector – PM Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change From 2006
1	Widnes	9,214	11,030	19.7%	11,016	19.6%
2	Runcorn	9,298	11,415	22.8%	11,295	21.5%
3	West Warrington	4,299	6,520	51.7%	6,563	52.7%
4	Warrington	9,005	11,100	23.3%	10,899	21.0%
5	South Warrington	5,443	6,407	17.7%	6,360	16.9%
6	East Warrington	5,470	6,211	13.6%	6,317	15.5%
7	South Liverpool	6,769	9,423	39.2%	9,551	41.1%
8	Birkenhead	5,086	6,593	29.6%	6,424	26.3%
9	East Wirral	15,374	18,231	18.6%	18,211	18.5%
10	South Widnes	772	1,085	40.6%	1,086	40.6%
11	Liverpool	26,805	31,896	19.0%	32,378	20.8%
12	South Knowsley	6,996	7,767	11.0%	7,901	12.9%
13	Ellesmere Port	7,065	8,612	21.9%	8,408	19.0%
14	West Wirral & Wales	22,947	27,044	17.9%	27,757	21.0%
15	St Helens & Sth Lancs	61,434	73,758	20.1%	74,974	22.0%
16	North	1,661	2,013	21.2%	2,446	47.2%
17	East	16,247	22,702	39.7%	23,042	41.8%
18	The South	5,719	7,354	28.6%	7,727	35.1%
Total		**219,604**	**269,160**	**22.6%**	**272,353**	**24.0%**

Table 6.18 - Most Likely Variable Demand 2030 Do-Minimum Total Vehicle Trip Matrices by Sector – Overnight Hour

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change From 2006
1	Widnes	2,042	2,349	15.0%	2302	12.7%
2	Runcorn	1,760	2,186	24.2%	2158	22.6%
3	West Warrington	1,077	1,452	34.8%	1479	37.3%
4	Warrington	1,665	2,037	22.3%	2005	20.4%
5	South Warrington	1,149	1,327	15.5%	1307	13.8%
6	East Warrington	1,018	1,140	12.0%	1168	14.7%
7	South Liverpool	1,270	1,681	32.3%	1732	36.4%
8	Birkenhead	1,221	1,558	27.6%	1518	24.4%
9	East Wirral	3,598	4,166	15.8%	4239	17.8%
10	South Widnes	142	197	39.2%	198	39.5%
11	Liverpool	5,040	6,217	23.4%	6245	23.9%
12	South Knowsley	1,761	1,943	10.3%	1953	10.9%
13	Ellesmere Port	1,017	1,244	22.3%	1252	23.1%
14	West Wirral & Wales	4,439	5,149	16.0%	5471	23.2%
15	St Helens & Sth Lancs	12,599	15,092	19.8%	15333	21.7%
16	North	350	419	19.5%	524	49.8%
17	East	2,271	3,105	36.7%	3272	44.1%
18	The South	857	1,123	30.9%	1235	44.1%
Total		**43,276**	**52,384**	**21.0%**	**53391**	**23.4%**

Table 6.19 - Most Likely Variable Demand 2030 Do-Minimum Total Vehicle Trip Matrices by Sector – 24 Hour AAWT

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change From 2006
1	Widnes	124,586	147,059	18.0%	145,214	16.6%
2	Runcorn	113,674	141,238	24.2%	140,198	23.3%
3	West Warrington	63,293	87,487	38.2%	88,513	39.8%
4	Warrington	105,256	132,420	25.8%	130,775	24.2%
5	South Warrington	75,798	88,486	16.7%	88,002	16.1%
6	East Warrington	63,532	71,685	12.8%	73,151	15.1%
7	South Liverpool	80,142	109,300	36.4%	111,134	38.7%
8	Birkenhead	61,678	82,106	33.1%	80,337	30.2%
9	East Wirral	228,623	269,047	17.7%	271,684	18.8%
10	South Widnes	8,881	12,849	44.7%	12,857	44.7%
11	Liverpool	306,201	383,817	25.3%	385,792	26.0%
12	South Knowsley	108,820	124,401	14.3%	124,518	14.4%
13	Ellesmere Port	73,909	89,594	21.2%	89,733	21.4%
14	West Wirral & Wales	295,097	346,285	17.3%	361,745	22.6%
15	St Helens & Sth Lancs	829,586	1,010,586	21.8%	1,020,797	23.0%
16	North	25,383	30,843	21.5%	36,291	43.0%
17	East	187,440	263,697	40.7%	270,908	44.5%
18	The South	67,914	89,311	31.5%	94,645	39.4%
Total		**2,819,812**	**3,480,211**	**23.4%**	**3,526,296**	**25.1%**

Table 6.20 - Most Likely Variable Demand Do-Something Total Trip Matrices by User Class – AM Peak Hour

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	73,751	74,741	1.3%	76,644	77,224	0.8%
Car Commuting Medium Income	51,607	52,468	1.7%	53,857	54,522	1.2%
Car Commuting Low Income	32,686	33,960	3.9%	34,255	35,778	4.5%
Total Car Commuting	158,044	161,170	2.0%	164,756	167,525	1.7%
Car Employers' Business	10,665	10,565	-0.9%	11,539	11,325	-1.9%
Car Other High Income	18,788	18,827	0.2%	20,256	20,247	-0.1%
Car Other Medium Income	16,962	17,041	0.5%	18,355	18,409	0.3%
Car Other Low Income	16,295	16,446	0.9%	17,680	17,846	0.9%
Total Car Other	52,046	52,314	0.5%	56,291	56,501	0.4%
Total Car	220,755	224,048	1.5%	232,586	235,351	1.2%
LGV	39,798	39,783	-0.0%	54,196	54,190	-0.0%
OGV	17,400	17,395	-0.0%	22,507	22,502	-0.0%
Total vehicles	**277,954**	**281,226**	**1.2%**	**309,289**	**312,043**	**0.9%**

Table 6.21 - Most Likely Variable Demand Do-Something Total Trip Matrices by User Class – Inter Peak Hour

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	19,138	19,567	2.2%	19,975	20,465	2.5%
Car Commuting Medium Income	13,561	13,914	2.6%	14,175	14,598	3.0%
Car Commuting Low Income	9,017	9,418	4.5%	9,433	9,979	5.8%
Total Car Commuting	41,717	42,900	2.8%	43,583	45,042	3.4%
Car Employers' Business	10,935	10,926	-0.1%	11,856	11,814	-0.4%
Car Other High Income	23,993	24,212	0.9%	25,692	25,969	1.1%
Car Other Medium Income	21,236	21,486	1.2%	22,765	23,103	1.5%
Car Other Low Income	29,022	29,545	1.8%	31,091	31,820	2.4%
Total Car Other	74,251	75,244	1.3%	79,548	80,892	1.7%
Total Car	126,904	129,070	1.7%	134,987	137,749	2.1%
LGV	33,864	33,851	-0.0%	46,115	46,097	-0.0%
OGV	18,472	18,468	-0.0%	23,894	23,890	-0.0%
Total vehicles	**179,240**	**181,389**	**1.2%**	**204,996**	**207,736**	**1.3%**

Table 6.22 - Most Likely Variable Demand Do-Something Total Trip Matrices by User Class – PM Peak Hour

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	47,578	48,447	1.8%	50,072	50,733	1.3%
Car Commuting Medium Income	31,515	32,212	2.2%	33,171	33,815	1.9%
Car Commuting Low Income	20,542	21,453	4.4%	21,643	22,775	5.2%
Total Car Commuting	99,635	102,112	2.5%	104,886	107,323	2.3%
Car Employers' Business	11,119	11,056	-0.6%	11,807	11,652	-1.3%
Car Other High Income	28,196	28,448	0.9%	29,776	29,943	0.6%
Car Other Medium Income	22,347	22,617	1.2%	23,653	23,895	1.0%
Car Other Low Income	20,955	21,335	1.8%	22,200	22,617	1.9%
Total Car Other	71,499	72,401	1.3%	75,629	76,455	1.1%
Total Car	182,253	185,569	1.8%	192,322	195,431	1.6%
LGV	41,800	41,790	-0.0%	56,922	56,918	-0.0%
OGV	15,398	15,392	-0.0%	19,916	19,911	-0.0%
Total vehicles	**239,450**	**242,751**	**1.4%**	**269,160**	**272,260**	**1.2%**

Table 6.23 - Most Likely Variable Demand Do-Something Total Trip Matrices by User Class – Overnight Hour

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	6,488	6,633	2.2%	6,772	6,938	2.5%
Car Commuting Medium Income	4,597	4,717	2.6%	4,805	4,949	3.0%
Car Commuting Low Income	3,057	3,193	4.5%	3,198	3,383	5.8%
Total Car Commuting	14,142	14,543	2.8%	14,775	15,269	3.4%
Car Employers' Business						
Car Other High Income	8,134	8,208	0.9%	8,710	8,804	1.1%
Car Other Medium Income	7,199	7,284	1.2%	7,717	7,832	1.5%
Car Other Low Income	9,838	10,016	1.8%	10,540	10,787	2.3%
Total Car Other	25,171	25,508	1.3%	26,967	27,423	1.7%
Total Car	39,313	40,051	1.9%	41,742	42,692	2.3%
LGV	4,639	4,638	-0.0%	6,318	6,315	-0.0%
OGV	3,343	3,343	-0.0%	4,325	4,324	-0.0%
Total vehicles	**47,295**	**48,031**	**1.6%**	**52,385**	**53,331**	**1.8%**

Table 6.24 - Most Likely Variable Demand Do-Something Total Trip Matrices by User Class – 24 Hour AAWT

Vehicle Type and purpose	Total Trips in 2015 Reference Matrix	Total Trips in 2015 VDM Matrix	% change in 2015	Total Trips in 2030 Reference Matrix	Total Trips in 2030 VDM Matrix	% change in 2030
Car Commuting High Income	532,329	541,859	1.8%	555,861	564,274	1.5%
Car Commuting Medium Income	369,162	377,085	2.2%	386,282	394,219	2.1%
Car Commuting Low Income	239,777	249,934	4.2%	251,438	264,371	5.1%
Total Car Commuting	1,141,268	1,168,878	2.4%	1,193,581	1,222,864	2.5%
Car Employers' Business	126,738	126,227	-0.4%	136,636	135,352	-0.9%
Car Other High Income	373,632	376,657	0.8%	399,290	402,526	0.8%
Car Other Medium Income	324,230	327,731	1.1%	347,186	351,425	1.2%
Car Other Low Income	396,817	403,585	1.7%	425,027	434,008	2.1%
Total Car Other	1,094,679	1,107,973	1.2%	1,171,502	1,187,959	1.4%
Total Car	2,362,684	2,403,078	1.7%	2,501,720	2,546,175	1.8%
LGV	487,817	487,650	-0.0%	664,303	664,139	-0.0%
OGV	242,909	242,838	-0.0%	314,201	314,139	-0.0%
Total vehicles	**3,093,411**	**3,133,566**	**1.3%**	**3,480,224**	**3,524,453**	**1.3%**

Table 6.25 -- Most Likely Variable Demand 2015 Do-Something Total Vehicle Trip Matrices by Sector – AM Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change
1	Widnes	10,913	11,601	6.3%	11,564	6.0%
2	Runcorn	9,628	10,526	9.3%	10,442	8.5%
3	West Warrington	5,445	6,540	20.1%	6,540	20.1%
4	Warrington	7,635	8,807	15.4%	8,804	15.3%
5	South Warrington	7,969	8,683	9.0%	8,666	8.7%
6	East Warrington	5,091	5,369	5.5%	5,509	8.2%
7	South Liverpool	5,966	6,899	15.6%	6,965	16.7%
8	Birkenhead	2,471	2,859	15.7%	2,850	15.3%
9	East Wirral	23,506	24,597	4.6%	24,737	5.2%
10	South Widnes	421	521	23.6%	516	22.7%
11	Liverpool	22,087	24,652	11.6%	24,708	11.9%
12	South Knowsley	11,568	12,480	7.9%	12,464	7.7%
13	Ellesmere Port	6,741	7,176	6.5%	7,258	7.7%
14	West Wirral & Wales	28,341	29,859	5.4%	30,672	8.2%
15	St Helens & Sth Lancs	82,610	89,518	8.4%	90,366	9.4%
16	North	2,709	2,866	5.8%	3,155	16.5%
17	East	15,690	17,946	14.4%	18,598	18.5%
18	The South	6,393	7,052	10.3%	7,414	16.0%
Total		**255,184**	**277,954**	**8.9%**	**281,226**	**10.2%**

Table 6.26 - Most Likely Variable Demand 2015 Do-Something Total Vehicle Trip Matrices by Sector – Inter Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change
1	Widnes	7,277	7,903	8.6%	7,723	6.1%
2	Runcorn	6,579	7,339	11.5%	7,146	8.6%
3	West Warrington	3,844	4,986	29.7%	5,072	31.9%
4	Warrington	6,426	7,274	13.2%	7,170	11.6%
5	South Warrington	4,076	4,528	11.1%	4,513	10.7%
6	East Warrington	3,613	3,969	9.8%	4,055	12.2%
7	South Liverpool	4,858	5,715	17.6%	5,780	19.0%
8	Birkenhead	4,293	4,745	10.5%	4,682	9.1%
9	East Wirral	12,767	13,827	8.3%	14,035	9.9%
10	South Widnes	638	744	16.6%	735	15.2%
11	Liverpool	18,072	19,683	8.9%	19,879	10.0%
12	South Knowsley	5,956	6,206	4.2%	6,204	4.2%
13	Ellesmere Port	3,827	4,255	11.2%	4,241	10.8%
14	West Wirral & Wales	16,350	17,679	8.1%	18,236	11.5%
15	St Helens & Sth Lancs	45,816	50,724	10.7%	51,188	11.7%
16	North	1,492	1,624	8.9%	1,866	25.1%
17	East	11,764	13,573	15.4%	14,133	20.1%
18	The South	3,944	4,466	13.2%	4,733	20.0%
Total		**161,592**	**179,240**	**10.9%**	**181,389**	**12.3%**

Table 6.27 - Most Likely Variable Demand 2015 Do-Something Total Vehicle Trip Matrices by Sector – PM Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change
1	Widnes	9,214	9,732	5.6%	9,626	4.5%
2	Runcorn	9,298	10,287	10.6%	10,249	10.2%
3	West Warrington	4,299	5,875	36.7%	5,979	39.1%
4	Warrington	9,005	10,037	11.5%	9,960	10.6%
5	South Warrington	5,443	5,995	10.2%	5,919	8.8%
6	East Warrington	5,470	5,955	8.9%	6,149	12.4%
7	South Liverpool	6,769	8,018	18.4%	8,167	20.7%
8	Birkenhead	5,086	5,542	9.0%	5,489	7.9%
9	East Wirral	15,374	16,343	6.3%	16,366	6.5%
10	South Widnes	772	870	12.7%	865	12.1%
11	Liverpool	26,805	28,289	5.5%	28,859	7.7%
12	South Knowsley	6,996	7,182	2.7%	7,264	3.8%
13	Ellesmere Port	7,065	7,686	8.8%	7,602	7.6%
14	West Wirral & Wales	22,947	24,446	6.5%	25,111	9.4%
15	St Helens & Sth Lancs	61,434	66,459	8.2%	67,180	9.4%
16	North	1,661	1,776	6.9%	2,061	24.1%
17	East	16,247	18,600	14.5%	19,099	17.6%
18	The South	5,719	6,357	11.2%	6,805	19.0%
Total		**219,604**	**239,450**	**9.0%**	**242,751**	**10.5%**

Table 6.28 - Most Likely Variable Demand 2015 Do-Something Total Vehicle Trip Matrices by Sector – Overnight Hour

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change
1	Widnes	2,042	2,190	7.2%	2,135	4.6%
2	Runcorn	1,760	1,946	10.6%	1,890	7.4%
3	West Warrington	1,077	1,376	27.8%	1,405	30.5%
4	Warrington	1,665	1,866	12.0%	1,838	10.4%
5	South Warrington	1,149	1,268	10.4%	1,266	10.2%
6	East Warrington	1,018	1,107	8.8%	1,141	12.1%
7	South Liverpool	1,270	1,473	16.0%	1,495	17.7%
8	Birkenhead	1,221	1,340	9.8%	1,321	8.2%
9	East Wirral	3,598	3,831	6.5%	3,898	8.4%
10	South Widnes	142	164	15.9%	162	14.3%
11	Liverpool	5,040	5,410	7.3%	5,482	8.8%
12	South Knowsley	1,761	1,812	2.9%	1,814	3.0%
13	Ellesmere Port	1,017	1,122	10.3%	1,120	10.2%
14	West Wirral & Wales	4,439	4,734	6.6%	4,913	10.7%
15	St Helens & Sth Lancs	12,599	13,749	9.1%	13,908	10.4%
16	North	350	375	7.1%	448	28.0%
17	East	2,271	2,576	13.5%	2,753	21.2%
18	The South	857	955	11.4%	1,040	21.3%
Total		**43,276**	**47,296**	**9.3%**	**48,031**	**11.0%**

Table 6.29 - Most Likely Variable Demand 2015 Do-Something Total Vehicle Trip Matrices by Sector – 24 Hour AAWT

Sector		Total Trips in 2006 Validated Matrix	2015 Total Reference Case Trips	% Growth 2006 to 2015	2015 Total VDM Trips	% Change
1	Widnes	124,586	133,494	7.1%	131,348	5.4%
2	Runcorn	113,674	125,769	10.6%	123,598	8.7%
3	West Warrington	63,293	81,243	28.4%	82,400	30.2%
4	Warrington	105,256	118,930	13.0%	117,751	11.9%
5	South Warrington	75,798	83,493	10.2%	83,114	9.7%
6	East Warrington	63,532	68,886	8.4%	70,745	11.4%
7	South Liverpool	80,142	93,847	17.1%	95,098	18.7%
8	Birkenhead	61,678	68,193	10.6%	67,411	9.3%
9	East Wirral	228,623	243,564	6.5%	246,070	7.6%
10	South Widnes	8,881	10,343	16.5%	10,241	15.3%
11	Liverpool	306,201	331,640	8.3%	335,443	9.6%
12	South Knowsley	108,820	113,993	4.8%	114,188	4.9%
13	Ellesmere Port	73,909	80,702	9.2%	80,586	9.0%
14	West Wirral & Wales	295,097	315,076	6.8%	324,704	10.0%
15	St Helens & Sth Lancs	829,586	906,261	9.2%	915,350	10.3%
16	North	25,383	27,242	7.3%	31,175	22.8%
17	East	187,440	214,892	14.6%	223,596	19.3%
18	The South	67,914	75,851	11.7%	80,747	18.9%
Total		**2,819,812**	**3,093,420**	**9.7%**	**3,133,566**	**11.1%**

Table 6.30 - Most Likely Variable Demand 2030 Do-Something Total Vehicle Trip Matrices by Sector – AM Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change
1	Widnes	10,913	12,650	15.9%	12,602	15.5%
2	Runcorn	9,628	11,552	20.0%	11,539	19.9%
3	West Warrington	5,445	6,945	27.5%	6,997	28.5%
4	Warrington	7,635	9,821	28.6%	9,830	28.7%
5	South Warrington	7,969	9,077	13.9%	9,148	14.8%
6	East Warrington	5,091	5,578	9.6%	5,736	12.7%
7	South Liverpool	5,966	7,989	33.9%	8,047	34.9%
8	Birkenhead	2,471	3,948	59.8%	3,913	58.3%
9	East Wirral	23,506	26,644	13.3%	26,765	13.9%
10	South Widnes	421	683	62.3%	684	62.4%
11	Liverpool	22,087	28,799	30.4%	28,887	30.8%
12	South Knowsley	11,568	13,749	18.9%	13,592	17.5%
13	Ellesmere Port	6,741	7,657	13.6%	7,790	15.6%
14	West Wirral & Wales	28,341	31,956	12.8%	33,081	16.7%
15	St Helens & Sth Lancs	82,610	99,085	19.9%	99,081	19.9%
16	North	2,709	3,189	17.7%	3,498	29.1%
17	East	15,690	21,878	39.4%	22,468	43.2%
18	The South	6,393	8,087	26.5%	8,387	31.2%
Total		**255,184**	**309,288**	**21.2%**	**312,043**	**22.3%**

Table 6.31 - Most Likely Variable Demand 2030 Do-Something Total Vehicle Trip Matrices by Sector – Inter Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change
1	Widnes	7,277	8,748	20.2%	8,581	17.9%
2	Runcorn	6,579	8,429	28.1%	8,235	25.2%
3	West Warrington	3,844	5,384	40.1%	5,476	42.4%
4	Warrington	6,426	8,209	27.8%	8,109	26.2%
5	South Warrington	4,076	4,866	19.4%	4,801	17.8%
6	East Warrington	3,613	4,152	14.9%	4,222	16.8%
7	South Liverpool	4,858	6,707	38.1%	6,827	40.5%
8	Birkenhead	4,293	5,628	31.1%	5,498	28.1%
9	East Wirral	12,767	15,566	21.9%	15,792	23.7%
10	South Widnes	638	919	44.1%	911	42.7%
11	Liverpool	18,072	23,143	28.1%	23,232	28.6%
12	South Knowsley	5,956	6,815	14.4%	6,848	15.0%
13	Ellesmere Port	3,827	4,834	26.3%	4,830	26.2%
14	West Wirral & Wales	16,350	19,853	21.4%	20,763	27.0%
15	St Helens & Sth Lancs	45,816	57,550	25.6%	58,294	27.2%
16	North	1,492	1,877	25.8%	2,236	49.9%
17	East	11,764	16,892	43.6%	17,328	47.3%
18	The South	3,944	5,424	37.5%	5,755	45.9%
Total		**161,592**	**204,996**	**26.9%**	**207,736**	**28.6%**

Table 6.32 - Most Likely Variable Demand 2030 Do-Something Total Vehicle Trip Matrices by Sector – PM Peak Hour

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change
1	Widnes	9,214	11,030	19.7%	10,926	18.6%
2	Runcorn	9,298	11,415	22.8%	11,385	22.4%
3	West Warrington	4,299	6,520	51.7%	6,570	52.8%
4	Warrington	9,005	11,100	23.3%	10,924	21.3%
5	South Warrington	5,443	6,407	17.7%	6,356	16.8%
6	East Warrington	5,470	6,211	13.6%	6,306	15.3%
7	South Liverpool	6,769	9,423	39.2%	9,513	40.5%
8	Birkenhead	5,086	6,593	29.6%	6,427	26.4%
9	East Wirral	15,374	18,231	18.6%	18,209	18.4%
10	South Widnes	772	1,085	40.6%	1,075	39.3%
11	Liverpool	26,805	31,896	19.0%	32,416	20.9%
12	South Knowsley	6,996	7,767	11.0%	7,897	12.9%
13	Ellesmere Port	7,065	8,612	21.9%	8,395	18.8%
14	West Wirral & Wales	22,947	27,044	17.9%	27,732	20.9%
15	St Helens & Sth Lancs	61,434	73,758	20.1%	74,893	21.9%
16	North	1,661	2,013	21.2%	2,447	47.3%
17	East	16,247	22,702	39.7%	23,041	41.8%
18	The South	5,719	7,354	28.6%	7,747	35.5%
Total		**219,604**	**269,160**	**22.6%**	**272,260**	**24.0%**

Table 6.33 - Most Likely Variable Demand 2030 Do-Something Total Vehicle Trip Matrices by Sector – Overnight Hour

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change
1	Widnes	2,042	2,349	15.0%	2,296	12.5%
2	Runcorn	1,760	2,186	24.2%	2,128	20.9%
3	West Warrington	1,077	1,452	34.8%	1,482	37.6%
4	Warrington	1,665	2,037	22.3%	2,010	20.7%
5	South Warrington	1,149	1,327	15.5%	1,309	14.0%
6	East Warrington	1,018	1,140	12.0%	1,171	15.0%
7	South Liverpool	1,270	1,681	32.3%	1,722	35.6%
8	Birkenhead	1,221	1,558	27.6%	1,517	24.2%
9	East Wirral	3,598	4,166	15.8%	4,238	17.8%
10	South Widnes	142	197	39.2%	195	37.6%
11	Liverpool	5,040	6,217	23.4%	6,254	24.1%
12	South Knowsley	1,761	1,943	10.3%	1,956	11.0%
13	Ellesmere Port	1,017	1,244	22.3%	1,244	22.4%
14	West Wirral & Wales	4,439	5,149	16.0%	5,438	22.5%
15	St Helens & Sth Lancs	12,599	15,092	19.8%	15,340	21.8%
16	North	350	419	19.5%	526	50.3%
17	East	2,271	3,105	36.7%	3,275	44.2%
18	The South	857	1,123	30.9%	1,230	43.5%
Total		**43,276**	**52,384**	**21.0%**	**53,331**	**23.2%**

Table 6.34 - Most Likely Variable Demand 2030 Do-Something Total Vehicle Trip Matrices by Sector – 24 Hour AAWT

Sector		Total Trips in 2006 Validated Matrix	2030 Total Reference Case Trips	% Growth 2006 to 2030	2030 Total VDM Trips	% Change
1	Widnes	124,586	147,059	18.0%	144,998	16.4%
2	Runcorn	113,674	141,238	24.2%	139,248	22.5%
3	West Warrington	63,293	87,487	38.2%	88,680	40.1%
4	Warrington	105,256	132,420	25.8%	131,028	24.5%
5	South Warrington	75,798	88,486	16.7%	87,935	16.0%
6	East Warrington	63,532	71,685	12.8%	73,174	15.2%
7	South Liverpool	80,142	109,300	36.4%	110,924	38.4%
8	Birkenhead	61,678	82,106	33.1%	80,266	30.1%
9	East Wirral	228,623	269,047	17.7%	271,545	18.8%
10	South Widnes	8,881	12,849	44.7%	12,753	43.6%
11	Liverpool	306,201	383,817	25.3%	386,510	26.2%
12	South Knowsley	108,820	124,401	14.3%	124,683	14.6%
13	Ellesmere Port	73,909	89,594	21.2%	89,335	20.9%
14	West Wirral & Wales	295,097	346,285	17.3%	360,286	22.1%
15	St Helens & Sth Lancs	829,586	1,010,586	21.8%	1,021,232	23.1%
16	North	25,383	30,843	21.5%	36,379	43.3%
17	East	187,440	263,697	40.7%	270,947	44.6%
18	The South	67,914	89,311	31.5%	94,531	39.2%
Total		**2,819,812**	**3,480,211**	**23.4%**	**3,524,453**	**25.0%**

Table 6.35 - Most Likely Variable Demand Do-Something Public Transport Trip Matrices – AM Peak Hour

	2015 Reference Case PT Trips	2015 VDM PT Trips	% change	2030 Reference Case PT Trips	2030 VDM PT Trips	% change
Car Available	126	106	-18.87%	152	129	-15.13%
Non-Car Available	337	337	0%	271	271	0%
Total	**463**	**443**	**-4.32%**	**423**	**400**	**-5.44%**

Table 6.36 - Most Likely Variable Demand Do-Something Public Transport Trip Matrices – Inter Peak Hour

	2015 Reference Case PT Trips	2015 VDM PT Trips	% change	2030 Reference Case PT Trips	2030 VDM PT Trips	% change
Car Available	66	64	-3.03%	82	77	-6.10%
Non-Car Available	259	259	0%	224	224	0%
Total	**325**	**323**	**-0.62%**	**306**	**301**	**-1.63%**

Table 6.37 - Most Likely Variable Demand Do-Something Public Transport Trip Matrices – PM Peak Hour

	2015 Reference Case PT Trips	2015 VDM PT Trips	% change	2030 Reference Case PT Trips	2030 VDM PT Trips	% change
Car Available	79	75	-5.06%	98	92	-6.12%
Non-Car Available	259	259	0%	221	221	0%
Total	**338**	**334**	**-1.18%**	**319**	**313**	**-1.88%**

Table 6.38- Number of Iterations Required to Achieve Highway Assignment Convergence

	2015		2030	
Time Period	Do-Minimum	Do-Something	Do-Minimum	Do-Something
AM peak hour	40	34	38	41
Inter peak hour	14	19	31	29
PM peak hour	39	35	50	47
Overnight hour	11	11	13	15

Table 6.39 - Convergence Levels Achieved with DIADEM

	DIADEM %Gap (WebTAG target: 0.2%)	Assignment %Gap (DMRB target: 1.0%)
2015 Do-Minimum		
AM peak hour	0.10	0.03
Inter peak hour	0.05	0.02
PM peak hour	0.10	0.03
Overnight hour	0.05	0.01
2015 Do-Something		
AM peak hour	0.10	0.03
Inter peak hour	0.05	0.02
PM peak hour	0.10	0.03
Overnight hour	0.05	0.01
2030 Do-Minimum		
AM peak hour	0.11	0.03
Inter peak hour	0.05	0.02
PM peak hour	0.11	0.03
Overnight hour	0.05	0.01
2030 Do-Something		
AM peak hour	0.10	0.03
Inter peak hour	0.05	0.02
PM peak hour	0.10	0.03
Overnight hour	0.05	0.01

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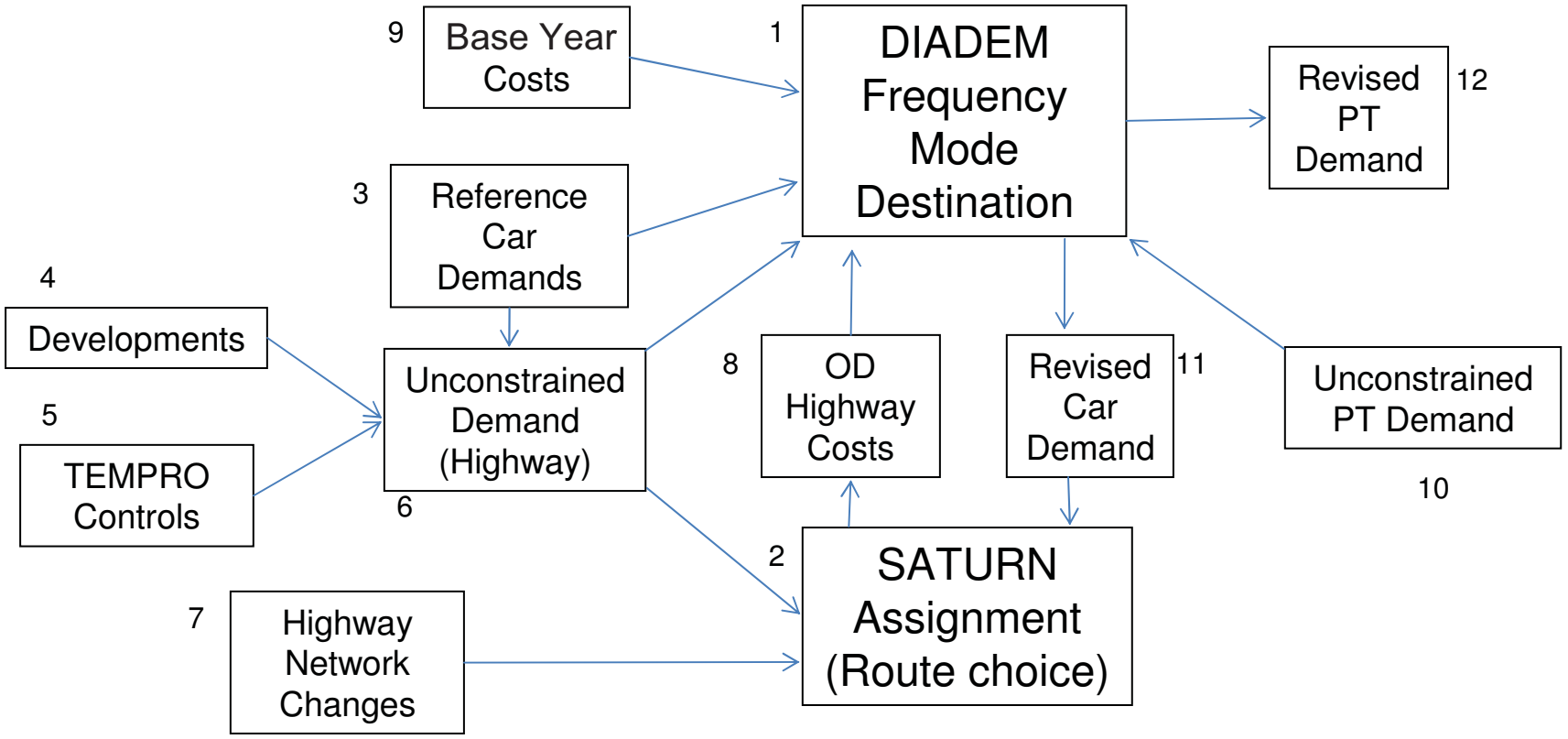

Notes
1.Flow chart is for one time period. The same process is applied for each of the four time periods in Mersey Gateway
2.The process in the chart is for creating a forecast year. The process for option testing is essentially a simplification
3.Public transport demand is for the crossing of the Mersey at Halton only.

Figure 6.1 Mersey Gateway Modelling System

Chapter 7 Tables and Figures

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Table 7.1 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows across the River Mersey – AM Peak Hour

Link Description	Direction	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	2,637	164	129	2,930	2,594	172	143	2,909	-0.7%
Queensway Tunnel	nb	1,695	113	0	1,808	1,828	139	0	1,968	8.8%
Silver Jubilee Bridge	nb	3,123	295	136	3,554	3,016	326	167	3,510	-1.2%
A5060 Chester Road	nb	723	53	35	811	694	50	47	792	-2.4%
A49 Wilderspool Causeway	nb	762	26	34	822	762	31	34	827	0.6%
A5061 Knutsford Road	nb	547	41	129	717	632	50	115	797	11.2%
A50 Kingsway Bridge	nb	891	36	19	946	968	48	25	1,041	10.0%
M6 Thelwall Viaduct	nb	5,163	583	875	6,621	5,608	694	996	7,298	10.2%
Sub-Total	**nb**	**15,541**	**1,310**	**1,357**	**18,208**	**16,103**	**1,510**	**1,528**	**19,140**	**5.1%**
Kingsway Tunnel	sb	751	214	173	1,139	1,311	259	182	1,752	53.8%
Queensway Tunnel	sb	1,199	190	0	1,389	1,489	253	0	1,742	25.4%
Silver Jubilee Bridge	sb	2,770	330	159	3,259	2,832	349	156	3,337	2.4%
A5060 Chester Road	sb	497	62	57	617	448	66	76	590	-4.3%
A49 Wilderspool Causeway	sb	355	18	10	384	264	17	7	289	-24.6%
A5061 Knutsford Road	sb	288	35	20	343	426	54	21	501	45.7%
A50 Kingsway Bridge	sb	934	93	34	1,061	980	87	31	1,098	3.4%
M6 Thelwall Viaduct	sb	4,529	553	923	6,005	4,722	654	1,030	6,406	6.7%
Sub-Total	**sb**	**11,324**	**1,496**	**1,376**	**14,197**	**12,473**	**1,739**	**1,503**	**15,714**	**10.7%**
Total	**2-way**	**26,865**	**2,807**	**2,733**	**32,405**	**28,575**	**3,249**	**3,030**	**34,855**	**7.6%**

Table 7.2 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows across the River Mersey – Inter Peak Hour

Link Description	Direction	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	775	134	184	1,093	1,123	170	210	1,503	37.6%
Queensway Tunnel	nb	771	136	0	908	917	158	0	1,074	18.4%
Silver Jubilee Bridge	nb	1,964	324	207	2,496	2,483	378	251	3,111	24.7%
A5060 Chester Road	nb	426	73	55	554	533	77	61	670	21.1%
A49 Wilderspool Causeway	nb	245	34	22	302	255	46	23	323	7.2%
A5061 Knutsford Road	nb	538	56	217	811	608	65	208	881	8.6%
A50 Kingsway Bridge	nb	292	35	17	344	371	50	31	452	31.2%
M6 Thelwall Viaduct	nb	3,446	706	1,091	5,243	4,049	855	1,306	6,210	18.4%
Sub-Total	**nb**	**8,458**	**1,498**	**1,793**	**11,749**	**10,337**	**1,799**	**2,089**	**14,224**	**21.1%**
Kingsway Tunnel	sb	716	145	177	1,037	1,093	156	207	1,456	40.3%
Queensway Tunnel	sb	862	177	0	1,039	998	221	0	1,219	17.3%
Silver Jubilee Bridge	sb	1,906	350	306	2,562	2,220	419	348	2,986	16.5%
A5060 Chester Road	sb	430	63	73	567	577	74	80	731	29.0%
A49 Wilderspool Causeway	sb	349	43	20	411	340	52	25	418	1.7%
A5061 Knutsford Road	sb	400	31	43	474	438	40	39	517	9.1%
A50 Kingsway Bridge	sb	689	39	34	762	719	43	40	802	5.2%
M6 Thelwall Viaduct	sb	3,366	627	967	4,960	3,870	766	1,150	5,787	16.7%
Sub-Total	**sb**	**8,718**	**1,476**	**1,619**	**11,812**	**10,255**	**1,771**	**1,889**	**13,916**	**17.8%**
Total	**2-way**	**17,175**	**2,974**	**3,412**	**23,561**	**20,592**	**3,570**	**3,978**	**28,140**	**19.4%**

Table 7.3 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows across the River Mersey – PM Peak Hour

Link description	Direction	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	1,369	114	137	1,620	1,713	228	146	2,087	28.8%
Queensway Tunnel	nb	1,179	168	0	1,346	1,416	117	0	1,533	13.8%
Silver Jubilee Bridge	nb	3,015	350	158	3,523	2,995	356	165	3,516	-0.2%
A5060 Chester Road	nb	499	65	27	591	633	84	38	756	27.8%
A49 Wilderspool Causeway	nb	473	23	18	514	440	23	19	482	-6.2%
A5061 Knutsford Road	nb	656	59	83	799	789	95	73	957	19.8%
A50 Kingsway Bridge	nb	659	47	14	720	962	63	16	1,041	44.6%
M6 Thelwall Viaduct	nb	5,287	824	934	7,045	5,447	943	1,055	7,444	5.7%
Sub-Total	**nb**	**13,137**	**1,650**	**1,370**	**16,157**	**14,395**	**1,909**	**1,512**	**17,816**	**10.3%**
Kingsway Tunnel	sb	2,162	302	90	2,554	2,830	384	107	3,321	30.0%
Queensway Tunnel	sb	1,727	117	0	1,844	1,774	134	0	1,908	3.5%
Silver Jubilee Bridge	sb	2,786	372	164	3,321	2,724	396	180	3,300	-0.6%
A5060 Chester Road	sb	810	91	27	928	771	114	34	919	-1.0%
A49 Wilderspool Causeway	sb	409	12	11	432	413	14	10	437	1.2%
A5061 Knutsford Road	sb	510	46	30	586	765	70	29	864	47.5%
A50 Kingsway Bridge	sb	1,013	28	22	1,063	1,034	37	20	1,091	2.6%
M6 Thelwall Viaduct	sb	4,666	778	773	6,216	5,004	935	953	6,891	10.9%
Sub-Total	**sb**	**14,083**	**1,745**	**1,117**	**16,945**	**15,313**	**2,084**	**1,333**	**18,730**	**10.5%**
Total	**2-way**	**27,220**	**3,395**	**2,487**	**33,102**	**29,709**	**3,993**	**2,845**	**36,546**	**10.4%**

Table 7.4 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows across the River Mersey – Overnight Hour

Link Description	Direction	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	170	16	34	220	257	20	39	315	43.0%
Queensway Tunnel	nb	265	22	0	286	307	26	0	333	16.4%
Silver Jubilee Bridge	nb	521	45	37	603	701	54	47	802	33.1%
A5060 Chester Road	nb	127	10	10	148	169	12	10	191	29.3%
A49 Wilderspool Causeway	nb	91	5	4	100	89	6	5	100	-0.1%
A5061 Knutsford Road	nb	146	7	11	164	150	9	7	167	1.3%
A50 Kingsway Bridge	nb	65	3	3	71	69	4	5	78	8.7%
M6 Thelwall Viaduct	nb	962	98	227	1,286	1,199	121	268	1,588	23.5%
Sub-Total	**nb**	**2,346**	**207**	**326**	**2,879**	**2,941**	**251**	**381**	**3,573**	**24.1%**
Kingsway Tunnel	sb	183	16	33	232	269	19	38	326	40.7%
Queensway Tunnel	sb	259	29	0	288	310	35	0	345	19.5%
Silver Jubilee Bridge	sb	544	48	55	648	689	59	64	812	25.3%
A5060 Chester Road	sb	125	9	8	142	127	7	12	146	2.6%
A49 Wilderspool Causeway	sb	110	6	3	119	103	7	5	115	-3.9%
A5061 Knutsford Road	sb	86	1	6	94	81	1	6	88	-6.1%
A50 Kingsway Bridge	sb	164	7	5	176	166	7	6	179	2.0%
M6 Thelwall Viaduct	sb	991	88	184	1,262	1,211	111	215	1,538	21.8%
Sub-Total	**sb**	**2,463**	**204**	**295**	**2,962**	**2,956**	**248**	**345**	**3,549**	**19.8%**
Total	**2-way**	**4,809**	**410**	**621**	**5,841**	**5,897**	**500**	**726**	**7,123**	**21.9%**

Table 7.5 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows across the River Mersey – 24 Hour AAWT

Link Description	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	32,604	4,288	4,439	41,331	43,312	5,357	5,040	53,709	30.0%
Queensway Tunnel	32,358	4,134	0	36,492	37,140	4,800	0	41,941	14.9%
Silver Jubilee Bridge	68,800	8,945	5,923	83,667	77,340	10,145	6,800	94,286	12.7%
A5060 Chester Road	15,259	1,809	1,401	18,470	17,368	2,019	1,645	21,032	13.9%
A49 Wilderspool Causeway	11,575	819	547	12,941	11,143	992	598	12,733	-1.6%
A5061 Knutsford Road	14,040	1,135	2,500	17,675	16,396	1,505	2,305	20,207	14.3%
A50 Kingsway Bridge	18,446	1,133	652	20,231	20,416	1,349	817	22,583	11.6%
M6 Thelwall Viaduct	119,417	17,920	27,098	164,435	134,735	21,580	31,855	188,171	14.4%
Total	**312,500**	**40,183**	**42,560**	**395,242**	**357,852**	**47,748**	**49,061**	**454,661**	**15.0%**

Table 7.6 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows across the River Mersey – AM Peak Hour

Link Description	Direction	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	2,637	164	129	2,930	2,478	224	169	2,871	-2.0%
Queensway Tunnel	nb	1,695	113	0	1,808	1,810	181	0	1,991	10.2%
Silver Jubilee Bridge	nb	3,123	295	136	3,554	2,825	431	203	3,459	-2.7%
A5060 Chester Road	nb	723	53	35	811	794	47	53	894	10.2%
A49 Wilderspool Causeway	nb	762	26	34	822	500	39	43	582	-29.1%
A5061 Knutsford Road	nb	547	41	129	717	505	47	137	689	-3.9%
A50 Kingsway Bridge	nb	891	36	19	946	1,174	88	29	1,292	36.5%
M6 Thelwall Viaduct	nb	5,163	583	875	6,621	5,200	856	1,164	7,220	9.1%
Sub-Total	**nb**	**15,541**	**1,310**	**1,357**	**18,208**	**15,287**	**1,914**	**1,799**	**19,000**	**4.3%**
Kingsway Tunnel	sb	751	214	173	1,139	1,513	375	229	2,117	85.9%
Queensway Tunnel	sb	1,199	190	0	1,389	1,640	302	0	1,942	39.8%
Silver Jubilee Bridge	sb	2,770	330	159	3,259	2,706	435	174	3,315	1.7%
A5060 Chester Road	sb	497	62	57	617	494	90	95	679	10.0%
A49 Wilderspool Causeway	sb	355	18	10	384	257	24	8	289	-24.7%
A5061 Knutsford Road	sb	288	35	20	343	428	63	26	516	50.3%
A50 Kingsway Bridge	sb	934	93	34	1,061	1,127	152	40	1,320	24.3%
M6 Thelwall Viaduct	sb	4,529	553	923	6,005	4,451	803	1,230	6,485	8.0%
Sub-Total	**sb**	**11,324**	**1,496**	**1,376**	**14,197**	**12,616**	**2,244**	**1,802**	**16,662**	**17.4%**
Total	**2-way**	**26,865**	**2,807**	**2,733**	**32,405**	**27,903**	**4,158**	**3,601**	**35,661**	**10.0%**

Table 7.7 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows across the River Mersey – Inter Peak Hour

Link Description	Direction	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	775	134	184	1,093	1,534	236	278	2,049	87.5%
Queensway Tunnel	nb	771	136	0	908	1,068	215	0	1,283	41.4%
Silver Jubilee Bridge	nb	1,964	324	207	2,496	2,483	515	305	3,304	32.4%
A5060 Chester Road	nb	426	73	55	554	511	98	73	682	23.2%
A49 Wilderspool Causeway	nb	245	34	22	302	200	54	25	278	-7.9%
A5061 Knutsford Road	nb	538	56	217	811	649	87	198	934	15.2%
A50 Kingsway Bridge	nb	292	35	17	344	385	66	37	488	41.7%
M6 Thelwall Viaduct	nb	3,446	706	1,091	5,243	3,840	1,114	1,677	6,630	26.5%
Sub-Total	**nb**	**8,458**	**1,498**	**1,793**	**11,749**	**10,670**	**2,384**	**2,594**	**15,647**	**33.2%**
Kingsway Tunnel	sb	716	145	177	1,037	1,421	269	263	1,953	88.3%
Queensway Tunnel	sb	862	177	0	1,039	1,107	261	0	1,368	31.6%
Silver Jubilee Bridge	sb	1,906	350	306	2,562	2,025	536	406	2,967	15.8%
A5060 Chester Road	sb	430	63	73	567	653	91	129	873	54.1%
A49 Wilderspool Causeway	sb	349	43	20	411	325	68	30	422	2.6%
A5061 Knutsford Road	sb	400	31	43	474	611	59	42	713	50.4%
A50 Kingsway Bridge	sb	689	39	34	762	683	66	53	802	5.3%
M6 Thelwall Viaduct	sb	3,366	627	967	4,960	3,647	1,027	1,448	6,122	23.4%
Sub-Total	**sb**	**8,718**	**1,476**	**1,619**	**11,812**	**10,472**	**2,376**	**2,373**	**15,221**	**28.9%**
Total	**2-way**	**17,175**	**2,974**	**3,412**	**23,561**	**21,142**	**4,760**	**4,966**	**30,868**	**31.0%**

Table 7.8 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows across the River Mersey – PM Peak Hour

Link Description	Direction	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	1,369	114	137	1,620	1,610	270	170	2,050	26.6%
Queensway Tunnel	nb	1,179	168	0	1,346	1,586	151	0	1,737	29.0%
Silver Jubilee Bridge	nb	3,015	350	158	3,523	2,875	441	181	3,496	-0.7%
A5060 Chester Road	nb	499	65	27	591	713	124	50	886	50.0%
A49 Wilderspool Causeway	nb	473	23	18	514	393	29	15	437	-15.0%
A5061 Knutsford Road	nb	656	59	83	799	850	126	68	1,044	30.7%
A50 Kingsway Bridge	nb	659	47	14	720	912	88	15	1,015	41.1%
M6 Thelwall Viaduct	nb	5,287	824	934	7,045	4,921	1,128	1,234	7,283	3.4%
Sub-Total	**nb**	**13,137**	**1,650**	**1,370**	**16,157**	**13,859**	**2,356**	**1,734**	**17,949**	**11.1%**
Kingsway Tunnel	sb	2,162	302	90	2,554	2,916	500	125	3,541	38.6%
Queensway Tunnel	sb	1,727	117	0	1,844	1,766	184	0	1,950	5.8%
Silver Jubilee Bridge	sb	2,786	372	164	3,321	2,484	503	235	3,222	-3.0%
A5060 Chester Road	sb	810	91	27	928	713	147	44	904	-2.7%
A49 Wilderspool Causeway	sb	409	12	11	432	362	18	12	391	-9.3%
A5061 Knutsford Road	sb	510	46	30	586	770	99	37	906	54.7%
A50 Kingsway Bridge	sb	1,013	28	22	1,063	1,018	45	24	1,087	2.3%
M6 Thelwall Viaduct	sb	4,666	778	773	6,216	4,557	1,197	1,157	6,910	11.2%
Sub-Total	**sb**	**14,083**	**1,745**	**1,117**	**16,945**	**14,585**	**2,693**	**1,634**	**18,912**	**11.6%**
Total	**2-way**	**27,220**	**3,395**	**2,487**	**33,102**	**28,445**	**5,049**	**3,368**	**36,861**	**11.4%**

Table 7.9 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows across the River Mersey – Overnight Hour

Link Description	Direction	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	170	16	34	220	338	28	50	417	89.3%
Queensway Tunnel	nb	265	22	0	286	345	33	0	378	32.0%
Silver Jubilee Bridge	nb	521	45	37	603	775	69	61	906	50.3%
A5060 Chester Road	nb	127	10	10	148	193	15	14	222	50.7%
A49 Wilderspool Causeway	nb	91	5	4	100	87	9	4	100	-0.6%
A5061 Knutsford Road	nb	146	7	11	164	151	11	9	171	3.7%
A50 Kingsway Bridge	nb	65	3	3	71	69	6	6	80	11.9%
M6 Thelwall Viaduct	nb	962	98	227	1,286	1,212	166	346	1,724	34.0%
Sub-Total	**nb**	**2,346**	**207**	**326**	**2,879**	**3,169**	**338**	**490**	**3,997**	**38.8%**
Kingsway Tunnel	sb	183	16	33	232	337	27	49	413	78.0%
Queensway Tunnel	sb	259	29	0	288	354	41	0	395	37.2%
Silver Jubilee Bridge	sb	544	48	55	648	704	81	83	868	34.0%
A5060 Chester Road	sb	125	9	8	142	137	10	14	160	12.8%
A49 Wilderspool Causeway	sb	110	6	3	119	101	10	6	116	-2.6%
A5061 Knutsford Road	sb	86	1	6	94	80	2	6	88	-5.9%
A50 Kingsway Bridge	sb	164	7	5	176	170	9	8	187	6.2%
M6 Thelwall Viaduct	sb	991	88	184	1,262	1,229	153	278	1,660	31.5%
Sub-Total	**sb**	**2,463**	**204**	**295**	**2,962**	**3,113**	**333**	**443**	**3,888**	**31.3%**
Total	**2-way**	**4,809**	**410**	**621**	**5,841**	**6,282**	**671**	**933**	**7,885**	**35.0%**

Table 7.10 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows across the River Mersey – 24 Hour AAWT

Link Description	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	32,604	4,288	4,439	41,331	49,746	7,532	6,381	63,659	54.0%
Queensway Tunnel	32,358	4,134	0	36,492	40,518	6,039	0	46,557	27.6%
Silver Jubilee Bridge	68,800	8,945	5,923	83,667	75,345	13,195	8,221	96,761	15.6%
A5060 Chester Road	15,259	1,809	1,401	18,470	18,562	2,580	2,223	23,365	26.5%
A49 Wilderspool Causeway	11,575	819	547	12,941	9,638	1,256	666	11,559	-10.7%
A5061 Knutsford Road	14,040	1,135	2,500	17,675	17,517	1,969	2,375	21,861	23.7%
A50 Kingsway Bridge	18,446	1,133	652	20,231	21,127	2,020	1,005	24,152	19.4%
M6 Thelwall Viaduct	119,417	17,920	27,098	164,435	127,863	27,868	39,667	195,398	18.8%
Total	**312,500**	**40,183**	**42,560**	**395,242**	**360,316**	**62,459**	**60,537**	**483,311**	**22.3%**

Table 7.11 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows by Sector – AM Peak Hour

Sector	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	31,685	4,022	1,801	37,508	35,136	4,834	2,056	42,027	12.0%
2i - Runcorn	44,323	4,752	2,951	52,026	45,722	5,335	3,307	54,364	4.5%
3i - West Warrington	16,035	1,989	1,284	19,308	18,396	2,426	1,330	22,152	14.7%
4i - Warrington	17,684	1,750	1,137	20,570	20,128	2,198	1,265	23,591	14.7%
5i - South Warrington	3,474	627	1,019	5,120	3,927	758	1,094	5,780	12.9%
6i - East Warrington	15,704	1,614	2,174	19,492	16,803	1,915	2,530	21,247	9.0%
7i - South Liverpool	10,457	1,346	729	12,532	11,900	1,557	843	14,301	14.1%
8i - Birkenhead Town Centre	18,625	2,149	1,006	21,779	20,655	2,563	964	24,182	11.0%
9i - East Wirral	22,425	2,625	1,366	26,416	24,888	3,279	1,397	29,565	11.9%
10i - South Widnes	12,239	1,566	758	14,562	12,430	1,760	839	15,030	3.2%
11i - Liverpool	46,546	5,159	1,685	53,390	51,740	6,167	1,773	59,680	11.8%
12i - South Knowsley	18,124	1,647	554	20,325	19,824	1,973	608	22,405	10.2%
13i - Ellesmere Port	2,524	185	153	2,862	2,705	219	190	3,114	8.8%
14i - West Wirral & Wales	15,538	1,476	500	17,515	17,367	1,807	579	19,753	12.8%
15i - St Helens & S Lancs	70,650	9,586	3,870	84,106	76,207	11,489	4,724	92,420	9.9%
Motorways	108,787	12,615	16,631	138,033	128,084	15,037	19,511	162,632	17.8%
Total	**454,819**	**53,108**	**37,619**	**545,546**	**505,913**	**63,317**	**43,011**	**612,241**	**12.2%**

Table 7.12 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows by Sector – Inter Peak Hour

Sector	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	23,031	3,517	2,513	29,060	25,656	4,443	3,201	33,300	14.6%
2i - Runcorn	27,723	4,329	3,363	35,415	33,077	5,273	3,866	42,216	19.2%
3i - West Warrington	11,752	1,684	1,892	15,329	14,247	2,115	2,210	18,572	21.2%
4i - Warrington	12,980	1,603	1,539	16,121	14,513	1,832	1,704	18,050	12.0%
5i - South Warrington	1,795	600	946	3,341	2,023	730	1,089	3,842	15.0%
6i - East Warrington	10,214	1,686	2,492	14,391	11,948	2,060	3,010	17,018	18.3%
7i - South Liverpool	6,669	1,212	890	8,772	7,855	1,399	1,042	10,296	17.4%
8i - Birkenhead Town Centre	12,286	1,986	1,235	15,506	13,955	2,299	1,338	17,591	13.4%
9i - East Wirral	13,969	2,193	1,667	17,829	15,658	2,671	1,918	20,248	13.6%
10i - South Widnes	9,204	1,602	1,166	11,972	10,501	1,925	1,375	13,801	15.3%
11i - Liverpool	30,754	4,768	1,874	37,396	34,257	5,761	2,097	42,115	12.6%
12i - South Knowsley	10,948	1,679	675	13,303	12,383	2,020	822	15,225	14.5%
13i - Ellesmere Port	1,740	178	96	2,013	1,852	217	96	2,165	7.6%
14i - West Wirral & Wales	10,814	1,339	519	12,671	11,960	1,636	577	14,174	11.9%
15i - St Helens & S Lancs	39,676	8,350	4,408	52,434	44,192	9,940	5,247	59,379	13.2%
Motorways	64,955	13,755	18,756	97,466	82,156	16,983	22,257	121,396	24.6%
Total	**288,508**	**50,480**	**44,030**	**383,018**	**336,234**	**61,304**	**51,851**	**449,389**	**17.3%**

Table 7.13 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows by Sector – PM Peak Hour

Sector	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	33,184	4,427	1,693	39,303	35,324	5,240	1,744	42,308	7.6%
2i - Runcorn	44,661	5,387	2,102	52,150	47,592	6,139	2,368	56,099	7.6%
3i - West Warrington	16,863	2,144	968	19,975	19,572	2,746	1,114	23,432	17.3%
4i - Warrington	18,334	1,625	890	20,849	20,628	2,092	1,120	23,840	14.3%
5i - South Warrington	2,799	751	738	4,287	3,019	902	820	4,742	10.6%
6i - East Warrington	15,276	2,124	2,004	19,405	16,224	2,531	2,448	21,203	9.3%
7i - South Liverpool	11,060	1,538	633	13,231	12,029	1,769	770	14,567	10.1%
8i - Birkenhead Town Centre	18,036	2,269	856	21,161	19,722	2,640	877	23,239	9.8%
9i - East Wirral	19,381	2,557	1,235	23,173	20,001	2,691	1,177	23,869	3.0%
10i - South Widnes	12,610	1,772	765	15,146	12,749	1,932	815	15,496	2.3%
11i - Liverpool	46,617	5,257	1,345	53,219	51,451	6,446	1,505	59,402	11.6%
12i - South Knowsley	16,347	1,928	487	18,762	17,346	2,281	562	20,188	7.6%
13i - Ellesmere Port	3,139	214	151	3,505	3,363	267	192	3,822	9.0%
14i - West Wirral & Wales	15,431	1,476	314	17,221	16,740	1,794	368	18,902	9.8%
15i - St Helens & S Lancs	65,494	9,887	3,361	78,743	70,314	11,417	3,987	85,718	8.9%
Motorways	106,259	16,972	14,717	137,948	125,147	20,836	16,890	162,873	18.1%
Total	**445,493**	**60,326**	**32,260**	**538,079**	**491,221**	**71,723**	**36,756**	**599,700**	**11.5%**

Table 7.14 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows by Sector – Overnight Hour

Sector	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	6,552	479	443	7,474	7,362	577	568	8,508	13.8%
2i - Runcorn	7,642	591	596	8,829	9,468	704	681	10,853	22.9%
3i - West Warrington	3,393	227	199	3,820	3,776	264	224	4,263	11.6%
4i - Warrington	3,539	207	212	3,957	3,751	234	214	4,200	6.1%
5i - South Warrington	530	83	168	781	615	102	188	906	16.0%
6i - East Warrington	2,736	234	455	3,425	3,304	276	545	4,125	20.5%
7i - South Liverpool	1,845	167	161	2,173	2,542	209	196	2,947	35.6%
8i - Birkenhead Town Centre	3,777	274	233	4,284	4,266	326	254	4,846	13.1%
9i - East Wirral	4,321	292	280	4,893	4,830	347	289	5,467	11.7%
10i - South Widnes	2,526	223	211	2,960	3,008	271	257	3,537	19.5%
11i - Liverpool	9,046	662	349	10,057	10,173	762	382	11,317	12.5%
12i - South Knowsley	3,495	224	119	3,838	4,142	278	145	4,565	18.9%
13i - Ellesmere Port	538	25	18	581	588	31	18	637	9.6%
14i - West Wirral & Wales	3,283	183	100	3,566	3,639	221	104	3,964	11.2%
15i - St Helens & S Lancs	12,084	1,137	817	14,039	13,727	1,375	952	16,054	14.4%
Motorways	18,720	1,898	3,665	24,283	24,594	2,443	4,419	31,456	29.5%
Total	**84,026**	**6,906**	**8,025**	**98,957**	**99,786**	**8,422**	**9,435**	**117,644**	**18.9%**

Table 7.15 - Comparison of 2006 Base Year and 2015 Do-Minimum Traffic Flows by Sector – 24 Hour AAWT

Sector	2006 Base Year Model Traffic Flow (vehicles)				2015 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	398,826	50,560	30,199	479,585	439,953	61,857	36,680	538,491	12.3%
2i - Runcorn	507,677	61,525	41,482	610,684	573,908	72,294	47,259	693,461	13.6%
3i - West Warrington	203,547	24,430	20,050	248,026	237,342	30,372	22,796	290,510	17.1%
4i - Warrington	221,402	21,558	17,454	260,414	246,442	25,838	19,481	291,761	12.0%
5i - South Warrington	34,702	8,467	12,613	55,782	38,986	10,270	14,152	63,408	13.7%
6i - East Warrington	181,013	23,419	32,127	236,559	203,974	28,159	38,566	270,699	14.4%
7i - South Liverpool	122,534	17,375	11,086	150,995	144,760	20,243	13,123	178,127	18.0%
8i - Birkenhead Town Centre	221,863	27,605	15,420	264,889	248,160	32,307	16,240	296,707	12.0%
9i - East Wirral	252,861	31,197	20,649	304,708	277,710	36,929	22,191	336,830	10.5%
10i - South Widnes	155,253	21,656	13,797	190,707	169,745	25,170	15,980	210,894	10.6%
11i - Liverpool	554,429	65,775	23,927	644,131	617,092	79,104	26,353	722,550	12.2%
12i - South Knowsley	204,279	22,797	8,404	235,480	228,210	27,392	9,951	265,553	12.8%
13i - Ellesmere Port	32,801	2,487	1,643	36,931	35,207	3,037	1,867	40,111	8.6%
14i - West Wirral & Wales	191,152	18,513	6,585	216,249	211,087	22,574	7,358	241,018	11.5%
15i - St Helens & S Lancs	764,851	118,387	56,526	939,763	840,752	140,403	67,315	1,048,471	11.6%
Motorways	1,217,576	188,421	244,399	1,650,396	1,498,378	232,005	288,619	2,019,001	22.3%
Total	**5,264,765**	**704,174**	**556,360**	**6,525,298**	**6,011,706**	**847,954**	**647,931**	**7,507,591**	**15.1%**

Table 7.16 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows by Sector – AM Peak Hour

Sector	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	31,685	4,022	1,801	37,508	37,535	6,665	2,782	46,982	25.3%
2i - Runcorn	44,323	4,752	2,951	52,026	45,693	7,034	3,969	56,696	9.0%
3i - West Warrington	16,035	1,989	1,284	19,308	18,788	3,220	1,783	23,792	23.2%
4i - Warrington	17,684	1,750	1,137	20,570	20,649	2,926	1,560	25,135	22.2%
5i - South Warrington	3,474	627	1,019	5,120	4,377	962	1,211	6,550	27.9%
6i - East Warrington	15,704	1,614	2,174	19,492	16,540	2,494	2,977	22,011	12.9%
7i - South Liverpool	10,457	1,346	729	12,532	11,720	1,972	995	14,687	17.2%
8i - Birkenhead Town Centre	18,625	2,149	1,006	21,779	21,641	3,411	1,096	26,148	20.1%
9i - East Wirral	22,425	2,625	1,366	26,416	23,843	4,091	1,550	29,484	11.6%
10i - South Widnes	12,239	1,566	758	14,562	12,054	2,308	1,073	15,434	6.0%
11i - Liverpool	46,546	5,159	1,685	53,390	54,217	8,210	2,308	64,735	21.2%
12i - South Knowsley	18,124	1,647	554	20,325	20,088	2,568	747	23,404	15.1%
13i - Ellesmere Port	2,524	185	153	2,862	2,901	308	231	3,440	20.2%
14i - West Wirral & Wales	15,538	1,476	500	17,515	18,898	2,557	753	22,208	26.8%
15i - St Helens & S Lancs	70,650	9,586	3,870	84,106	80,028	15,569	6,081	101,678	20.9%
Motorways	108,787	12,615	16,631	138,033	127,694	19,717	24,056	171,466	24.2%
Total	**454,819**	**53,108**	**37,619**	**545,546**	**516,668**	**84,011**	**53,172**	**653,850**	**19.9%**

Table 7.17 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows by Sector – Inter Peak Hour

Sector	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	23,031	3,517	2,513	29,060	27,014	5,863	4,254	37,131	27.8%
2i - Runcorn	27,723	4,329	3,363	35,415	34,135	6,929	4,849	45,913	29.6%
3i - West Warrington	11,752	1,684	1,892	15,329	15,484	2,883	2,543	20,909	36.4%
4i - Warrington	12,980	1,603	1,539	16,121	16,032	2,604	2,132	20,769	28.8%
5i - South Warrington	1,795	600	946	3,341	1,868	971	1,397	4,236	26.8%
6i - East Warrington	10,214	1,686	2,492	14,391	11,720	2,763	3,795	18,278	27.0%
7i - South Liverpool	6,669	1,212	890	8,772	8,656	1,925	1,337	11,917	35.9%
8i - Birkenhead Town Centre	12,286	1,986	1,235	15,506	16,240	3,040	1,456	20,736	33.7%
9i - East Wirral	13,969	2,193	1,667	17,829	16,605	3,536	2,124	22,264	24.9%
10i - South Widnes	9,204	1,602	1,166	11,972	10,307	2,513	1,757	14,578	21.8%
11i - Liverpool	30,754	4,768	1,874	37,396	37,769	7,704	2,719	48,192	28.9%
12i - South Knowsley	10,948	1,679	675	13,303	13,073	2,682	1,085	16,840	26.6%
13i - Ellesmere Port	1,740	178	96	2,013	1,978	295	123	2,396	19.0%
14i - West Wirral & Wales	10,814	1,339	519	12,671	12,806	2,226	797	15,828	24.9%
15i - St Helens & S Lancs	39,676	8,350	4,408	52,434	48,672	13,583	6,693	68,949	31.5%
Motorways	64,955	13,755	18,756	97,466	84,696	22,591	28,790	136,078	39.6%
Total	**288,508**	**50,480**	**44,030**	**383,018**	**357,055**	**82,108**	**65,852**	**505,015**	**31.9%**

Table 7.18 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows by Sector – PM Peak Hour

Sector	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	33,184	4,427	1,693	39,303	37,641	7,214	2,356	47,211	20.1%
2i - Runcorn	44,661	5,387	2,102	52,150	48,359	8,186	2,910	59,454	14.0%
3i - West Warrington	16,863	2,144	968	19,975	20,529	3,698	1,345	25,571	28.0%
4i - Warrington	18,334	1,625	890	20,849	21,270	2,879	1,400	25,549	22.5%
5i - South Warrington	2,799	751	738	4,287	2,906	1,142	985	5,034	17.4%
6i - East Warrington	15,276	2,124	2,004	19,405	15,466	3,202	2,917	21,585	11.2%
7i - South Liverpool	11,060	1,538	633	13,231	12,319	2,174	928	15,422	16.6%
8i - Birkenhead Town Centre	18,036	2,269	856	21,161	21,142	3,509	1,027	25,678	21.3%
9i - East Wirral	19,381	2,557	1,235	23,173	20,553	3,634	1,440	25,626	10.6%
10i - South Widnes	12,610	1,772	765	15,146	12,686	2,537	1,107	16,331	7.8%
11i - Liverpool	46,617	5,257	1,345	53,219	53,982	8,627	1,924	64,533	21.3%
12i - South Knowsley	16,347	1,928	487	18,762	17,360	3,009	702	21,071	12.3%
13i - Ellesmere Port	3,139	214	151	3,505	3,507	367	202	4,076	16.3%
14i - West Wirral & Wales	15,431	1,476	314	17,221	17,611	2,643	507	20,761	20.6%
15i - St Helens & S Lancs	65,494	9,887	3,361	78,743	76,408	15,726	5,176	97,310	23.6%
Motorways	106,259	16,972	14,717	137,948	123,503	27,080	20,744	171,327	24.2%
Total	**445,493**	**60,326**	**32,260**	**538,079**	**505,241**	**95,627**	**45,670**	**646,539**	**20.2%**

Table 7.19 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows by Sector – Overnight Hour

Sector	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	6,552	479	443	7,474	7,722	823	757	9,302	24.5%
2i - Runcorn	7,642	591	596	8,829	10,369	975	873	12,217	38.4%
3i - West Warrington	3,393	227	199	3,820	3,864	354	272	4,490	17.6%
4i - Warrington	3,539	207	212	3,957	3,872	309	257	4,439	12.2%
5i - South Warrington	530	83	168	781	653	143	235	1,031	32.0%
6i - East Warrington	2,736	234	455	3,425	3,315	378	701	4,394	28.3%
7i - South Liverpool	1,845	167	161	2,173	2,902	285	253	3,440	58.3%
8i - Birkenhead Town Centre	3,777	274	233	4,284	4,908	426	323	5,656	32.0%
9i - East Wirral	4,321	292	280	4,893	5,144	452	360	5,956	21.7%
10i - South Widnes	2,526	223	211	2,960	3,161	367	342	3,870	30.8%
11i - Liverpool	9,046	662	349	10,057	11,291	1,015	500	12,806	27.3%
12i - South Knowsley	3,495	224	119	3,838	4,529	377	191	5,097	32.8%
13i - Ellesmere Port	538	25	18	581	620	42	23	685	17.9%
14i - West Wirral & Wales	3,283	183	100	3,566	3,854	301	140	4,296	20.5%
15i - St Helens & S Lancs	12,084	1,137	817	14,039	15,011	1,866	1,224	18,101	28.9%
Motorways	18,720	1,898	3,665	24,283	26,802	3,441	5,751	35,994	48.2%
Total	**84,026**	**6,906**	**8,025**	**98,957**	**108,018**	**11,556**	**12,201**	**131,775**	**33.2%**

Table 7.20 - Comparison of 2006 Base Year and 2030 Do-Minimum Traffic Flows by Sector – 24 Hour AAWT

Sector	2006 Base Year Model Traffic Flow (vehicles)				2030 Do-Minimum Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	398,826	50,560	30,199	479,585	465,637	84,010	49,012	598,658	24.8%
2i - Runcorn	507,677	61,525	41,482	610,684	593,155	96,002	58,834	747,991	22.5%
3i - West Warrington	203,547	24,430	20,050	248,026	249,619	40,971	27,277	317,866	28.2%
4i - Warrington	221,402	21,558	17,454	260,414	260,274	35,622	24,183	320,079	22.9%
5i - South Warrington	34,702	8,467	12,613	55,782	39,433	13,446	17,361	70,240	25.9%
6i - East Warrington	181,013	23,419	32,127	236,559	199,858	37,115	47,719	284,692	20.3%
7i - South Liverpool	122,534	17,375	11,086	150,995	154,215	26,607	16,446	197,268	30.6%
8i - Birkenhead Town Centre	221,863	27,605	15,420	264,889	276,344	42,761	18,559	337,664	27.5%
9i - East Wirral	252,861	31,197	20,649	304,708	285,809	48,301	25,442	359,551	18.0%
10i - South Widnes	155,253	21,656	13,797	190,707	169,196	33,086	20,763	223,045	17.0%
11i - Liverpool	554,429	65,775	23,927	644,131	665,638	105,646	34,176	805,460	25.0%
12i - South Knowsley	204,279	22,797	8,404	235,480	237,773	36,272	12,868	286,913	21.8%
13i - Ellesmere Port	32,801	2,487	1,643	36,931	37,302	4,167	2,227	43,697	18.3%
14i - West Wirral & Wales	191,152	18,513	6,585	216,249	225,471	31,555	9,991	267,017	23.5%
15i - St Helens & S Lancs	764,851	118,387	56,526	939,763	910,914	191,694	86,403	1,189,011	26.5%
Motorways	1,217,576	188,421	244,399	1,650,396	1,534,374	308,325	367,341	2,210,040	33.9%
Total	**5,264,765**	**704,174**	**556,360**	**6,525,298**	**6,305,009**	**1,135,581**	**818,604**	**8,259,193**	**26.6%**

Table 7.21 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows across the River Mersey – AM Peak Hour

Link Description	Direction	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	2,594	172	143	2,909	2,599	169	142	2,911	0.1%
Queensway Tunnel	nb	1,828	139	0	1,968	1,837	141	0	1,978	0.5%
Silver Jubilee Bridge	nb	3,016	326	167	3,510	421	111	54	586	-83.3%
Mersey Gateway *	nb	0	0	0	0	2,038	275	142	2,454	-13.4%
A5060 Chester Road	nb	694	50	47	792	707	32	50	789	-0.4%
A49 Wilderspool Causeway	nb	762	31	34	827	783	32	34	849	2.6%
A5061 Knutsford Road	nb	632	50	115	797	620	42	108	770	-3.3%
A50 Kingsway Bridge	nb	968	48	25	1,041	1,105	64	27	1,196	14.9%
M6 Thelwall Viaduct	nb	5,608	694	996	7,298	5,589	676	973	7,239	-0.8%
Sub-Total	**nb**	**16,103**	**1,510**	**1,528**	**19,140**	**15,699**	**1,542**	**1,531**	**18,772**	**-1.9%**
Kingsway Tunnel	sb	1,311	259	182	1,752	1,309	260	178	1,747	-0.3%
Queensway Tunnel	sb	1,489	253	0	1,742	1,505	240	0	1,745	0.2%
Silver Jubilee Bridge	sb	2,832	349	156	3,337	304	94	49	448	-86.6%
Mersey Gateway *	sb	0	0	0	0	2,328	332	136	2,796	-2.8%
A5060 Chester Road	sb	448	66	76	590	465	50	75	591	0.1%
A49 Wilderspool Causeway	sb	264	17	7	289	261	12	8	281	-2.6%
A5061 Knutsford Road	sb	426	54	21	501	465	47	20	532	6.2%
A50 Kingsway Bridge	sb	980	87	31	1,098	963	102	32	1,098	0.0%
M6 Thelwall Viaduct	sb	4,722	654	1,030	6,406	4,773	650	1,026	6,449	0.7%
Sub-Total	**sb**	**12,473**	**1,739**	**1,503**	**15,714**	**12,375**	**1,788**	**1,525**	**15,688**	**-0.2%**
Total	**2-way**	**28,575**	**3,249**	**3,030**	**34,855**	**28,074**	**3,330**	**3,056**	**34,460**	**-1.1%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.22 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows across the River Mersey – Inter Peak Hour

Link Description	Direction	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	1,123	170	210	1,503	1,192	173	212	1,577	4.9%
Queensway Tunnel	nb	917	158	0	1,074	967	157	0	1,124	4.6%
Silver Jubilee Bridge	nb	2,483	378	251	3,111	182	106	53	341	-89.0%
Mersey Gateway *	nb	0	0	0	0	1,329	247	191	1,767	-32.2%
A5060 Chester Road	nb	533	77	61	670	571	89	63	723	7.9%
A49 Wilderspool Causeway	nb	255	46	23	323	215	45	21	281	-12.9%
A5061 Knutsford Road	nb	608	65	208	881	706	63	173	943	7.0%
A50 Kingsway Bridge	nb	371	50	31	452	390	48	33	471	4.2%
M6 Thelwall Viaduct	nb	4,049	855	1,306	6,210	4,137	864	1,346	6,347	2.2%
Sub-Total	**nb**	**10,337**	**1,799**	**2,089**	**14,224**	**9,690**	**1,793**	**2,091**	**13,574**	**-4.6%**
Kingsway Tunnel	sb	1,093	156	207	1,456	1,113	155	207	1,475	1.3%
Queensway Tunnel	sb	998	221	0	1,219	1,052	211	0	1,263	3.6%
Silver Jubilee Bridge	sb	2,220	419	348	2,986	187	117	137	442	-85.2%
Mersey Gateway *	sb	0	0	0	0	1,305	312	210	1,827	-24.0%
A5060 Chester Road	sb	577	74	80	731	652	66	82	800	9.5%
A49 Wilderspool Causeway	sb	340	52	25	418	344	51	25	421	0.7%
A5061 Knutsford Road	sb	438	40	39	517	457	38	35	529	2.3%
A50 Kingsway Bridge	sb	719	43	40	802	719	44	40	803	0.2%
M6 Thelwall Viaduct	sb	3,870	766	1,150	5,787	3,934	771	1,156	5,861	1.3%
Sub-Total	**sb**	**10,255**	**1,771**	**1,889**	**13,916**	**9,763**	**1,765**	**1,893**	**13,421**	**-3.6%**
Total	**2-way**	**20,592**	**3,570**	**3,978**	**28,140**	**19,453**	**3,558**	**3,984**	**26,995**	**-4.1%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.23 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows across the River Mersey – PM Peak Hour

Link Description	Direction	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	1,713	228	146	2,087	1,729	219	143	2,091	0.2%
Queensway Tunnel	nb	1,416	117	0	1,533	1,439	113	0	1,552	1.3%
Silver Jubilee Bridge	nb	2,995	356	165	3,516	439	122	72	633	-82.0%
Mersey Gateway *	nb	0	0	0	0	2,771	388	150	3,310	12.1%
A5060 Chester Road	nb	633	84	38	756	651	76	38	765	1.3%
A49 Wilderspool Causeway	nb	440	23	19	482	442	22	19	483	0.1%
A5061 Knutsford Road	nb	789	95	73	957	843	67	64	974	1.7%
A50 Kingsway Bridge	nb	962	63	16	1,041	975	64	17	1,056	1.4%
M6 Thelwall Viaduct	nb	5,447	943	1,055	7,444	5,387	912	1,032	7,331	-1.5%
Sub-Total	**nb**	**14,395**	**1,909**	**1,512**	**17,816**	**14,676**	**1,984**	**1,535**	**18,195**	**2.1%**
Kingsway Tunnel	sb	2,830	384	107	3,321	2,835	381	104	3,321	0.0%
Queensway Tunnel	sb	1,774	134	0	1,908	1,774	132	0	1,906	-0.1%
Silver Jubilee Bridge	sb	2,724	396	180	3,300	315	131	66	512	-84.5%
Mersey Gateway *	sb	0	0	0	0	2,164	363	150	2,677	-3.4%
A5060 Chester Road	sb	771	114	34	919	810	89	28	927	0.9%
A49 Wilderspool Causeway	sb	413	14	10	437	404	14	10	427	-2.2%
A5061 Knutsford Road	sb	765	70	29	864	813	51	26	890	3.1%
A50 Kingsway Bridge	sb	1,034	37	20	1,091	1,031	37	21	1,089	-0.2%
M6 Thelwall Viaduct	sb	5,004	935	953	6,891	5,046	935	949	6,930	0.6%
Sub-Total	**sb**	**15,313**	**2,084**	**1,333**	**18,730**	**15,192**	**2,133**	**1,355**	**18,680**	**-0.3%**
Total	**2-way**	**29,709**	**3,993**	**2,845**	**36,546**	**29,868**	**4,117**	**2,890**	**36,875**	**0.9%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.24 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows across the River Mersey – Overnight Hour

Link Description	Direction	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	257	20	39	315	276	20	39	335	6.4%
Queensway Tunnel	nb	307	26	0	333	349	27	0	376	12.8%
Silver Jubilee Bridge	nb	701	54	47	802	43	16	9	68	-91.5%
Mersey Gateway *	nb	0	0	0	0	273	30	32	335	-49.7%
A5060 Chester Road	nb	169	12	10	191	195	13	13	221	15.9%
A49 Wilderspool Causeway	nb	89	6	5	100	91	7	5	102	2.2%
A5061 Knutsford Road	nb	150	9	7	167	141	8	8	158	-5.7%
A50 Kingsway Bridge	nb	69	4	5	78	81	5	5	91	16.3%
M6 Thelwall Viaduct	nb	1,199	121	268	1,588	1,264	122	269	1,655	4.2%
Sub-Total	**nb**	**2,941**	**251**	**381**	3,573	**2,714**	**247**	**381**	**3,341**	**-6.5%**
Kingsway Tunnel	sb	269	19	38	326	275	19	38	333	2.0%
Queensway Tunnel	sb	310	35	0	345	350	31	0	381	10.4%
Silver Jubilee Bridge	sb	689	59	64	812	51	16	22	89	-89.1%
Mersey Gateway *	sb	0	0	0	0	293	40	37	370	-43.6%
A5060 Chester Road	sb	127	7	12	146	173	8	16	196	34.5%
A49 Wilderspool Causeway	sb	103	7	5	115	111	7	5	123	7.1%
A5061 Knutsford Road	sb	81	1	6	88	87	2	6	94	6.9%
A50 Kingsway Bridge	sb	166	7	6	179	165	7	6	179	-0.2%
M6 Thelwall Viaduct	sb	1,211	111	215	1,538	1,272	113	216	1,601	4.1%
Sub-Total	**sb**	**2,956**	**248**	**345**	3,549	**2,776**	**243**	**345**	**3,364**	**-5.2%**
Total	**2-way**	**5,897**	**500**	**726**	**7,123**	**5,490**	**490**	**726**	**6,706**	**-5.9%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.25 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows across the River Mersey – 24 Hour AAWT

Link Description	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	43,312	5,357	5,040	53,710	44,230	5,331	5,037	54,598	1.7%
Queensway Tunnel	37,141	4,801	0	41,940	38,889	4,646	0	43,535	3.8%
Silver Jubilee Bridge	77,341	10,145	6,800	94,286	7,499	3,000	2,197	12,696	-86.5%
Mersey Gateway *	0	0	0	0	48,703	8,007	4,850	61,559	-21.2%
A5060 Chester Road	17,368	2,019	1,645	21,032	19,143	1,882	1,753	22,778	8.3%
A49 Wilderspool Causeway	11,143	992	597	12,733	11,073	971	591	12,635	-0.8%
A5061 Knutsford Road	16,396	1,506	2,305	20,207	17,418	1,305	2,026	20,749	2.7%
A50 Kingsway Bridge	20,416	1,349	817	22,582	21,036	1,448	842	23,326	3.3%
M6 Thelwall Viaduct	134,735	21,580	31,855	188,171	137,200	21,553	31,994	190,746	1.4%
Total	357,852	47,749	49,059	454,661	345,190	48,143	49,289	442,622	-2.6%

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.26 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows across the River Mersey – AM Peak Hour

Link Description	Direction	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	2,478	224	169	2,871	2,487	224	166	2,876	0.2%
Queensway Tunnel	nb	1,810	181	0	1,991	1,783	182	0	1,965	-1.3%
Silver Jubilee Bridge	nb	2,825	431	203	3,459	548	157	67	772	-77.7%
Mersey Gateway *	nb	0	0	0	0	2,375	368	182	2,924	6.9%
A5060 Chester Road	nb	794	47	53	894	789	46	46	881	-1.5%
A49 Wilderspool Causeway	nb	500	39	43	582	561	40	44	644	10.7%
A5061 Knutsford Road	nb	505	47	137	689	529	42	135	706	2.4%
A50 Kingsway Bridge	nb	1,174	88	29	1,292	1,165	81	35	1,281	-0.9%
M6 Thelwall Viaduct	nb	5,200	856	1,164	7,220	5,239	854	1,163	7,256	0.5%
Sub-Total	**nb**	**15,287**	**1,914**	**1,799**	**19,000**	**15,475**	**1,993**	**1,836**	**19,304**	**1.6%**
Kingsway Tunnel	sb	1,513	375	229	2,117	1,528	362	223	2,113	-0.2%
Queensway Tunnel	sb	1,640	302	0	1,942	1,636	296	0	1,932	-0.5%
Silver Jubilee Bridge	sb	2,706	435	174	3,315	422	131	51	604	-81.8%
Mersey Gateway *	sb	0	0	0	0	2,952	466	194	3,611	27.2%
A5060 Chester Road	sb	494	90	95	679	545	92	92	730	7.4%
A49 Wilderspool Causeway	sb	257	24	8	289	268	18	8	294	1.7%
A5061 Knutsford Road	sb	428	63	26	516	414	54	20	489	-5.3%
A50 Kingsway Bridge	sb	1,127	152	40	1,320	1,129	148	42	1,319	0.0%
M6 Thelwall Viaduct	sb	4,451	803	1,230	6,485	4,411	791	1,224	6,425	-0.9%
Sub-Total	**sb**	**12,616**	**2,244**	**1,802**	**16,662**	**13,305**	**2,358**	**1,854**	**17,517**	**5.1%**
Total	**2-way**	**27,903**	**4,158**	**3,601**	**35,661**	**28,780**	**4,351**	**3,690**	**36,822**	**3.3%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.27 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows across the River Mersey – Inter Peak Hour

Link Description	Direction	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	1,534	236	278	2,049	1,589	239	279	2,107	2.8%
Queensway Tunnel	nb	1,068	215	0	1,283	1,074	212	0	1,285	0.2%
Silver Jubilee Bridge	nb	2,483	515	305	3,304	250	155	79	484	-85.4%
Mersey Gateway *	nb	0	0	0	0	1,825	374	252	2,452	-11.2%
A5060 Chester Road	nb	511	98	73	682	519	84	75	677	-0.7%
A49 Wilderspool Causeway	nb	200	54	25	278	184	42	25	251	-9.7%
A5061 Knutsford Road	nb	649	87	198	934	728	97	194	1,019	9.1%
A50 Kingsway Bridge	nb	385	66	37	488	461	80	39	579	18.7%
M6 Thelwall Viaduct	nb	3,840	1,114	1,677	6,630	3,817	1,109	1,676	6,602	-0.4%
Sub-Total	**nb**	**10,670**	**2,384**	**2,594**	**15,647**	**10,446**	**2,392**	**2,618**	**15,456**	**-1.2%**
Kingsway Tunnel	sb	1,421	269	263	1,953	1,455	233	261	1,949	-0.2%
Queensway Tunnel	sb	1,107	261	0	1,368	1,105	262	0	1,367	-0.1%
Silver Jubilee Bridge	sb	2,025	536	406	2,967	224	149	158	531	-82.1%
Mersey Gateway *	sb	0	0	0	0	1,529	448	304	2,281	-5.2%
A5060 Chester Road	sb	653	91	129	873	726	72	107	906	3.7%
A49 Wilderspool Causeway	sb	325	68	30	422	328	68	30	425	0.8%
A5061 Knutsford Road	sb	611	59	42	713	510	52	32	594	-16.7%
A50 Kingsway Bridge	sb	683	66	53	802	850	72	61	984	22.6%
M6 Thelwall Viaduct	sb	3,647	1,027	1,448	6,122	3,611	1,023	1,447	6,080	-0.7%
Sub-Total	**sb**	**10,472**	**2,376**	**2,373**	**15,221**	**10,337**	**2,379**	**2,399**	**15,115**	**-0.7%**
Total	**2-way**	**21,142**	**4,760**	**4,966**	**30,868**	**20,783**	**4,771**	**5,018**	**30,572**	**-1.0%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.28 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows across the River Mersey – PM Peak Hour

Link Description	Direction	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	1,610	270	170	2,050	1,626	267	165	2,058	0.4%
Queensway Tunnel	nb	1,586	151	0	1,737	1,595	149	0	1,744	0.4%
Silver Jubilee Bridge	nb	2,875	441	181	3,496	597	180	78	855	-75.6%
Mersey Gateway *	nb	0	0	0	0	3,356	515	199	4,069	40.8%
A5060 Chester Road	nb	713	124	50	886	743	123	44	910	2.7%
A49 Wilderspool Causeway	nb	393	29	15	437	405	28	17	450	2.9%
A5061 Knutsford Road	nb	850	126	68	1,044	895	86	58	1,039	-0.5%
A50 Kingsway Bridge	nb	912	88	15	1,015	949	92	18	1,059	4.4%
M6 Thelwall Viaduct	nb	4,921	1,128	1,234	7,283	4,927	1,092	1,233	7,251	-0.4%
Sub-Total	**nb**	**13,859**	**2,356**	**1,734**	**17,949**	**15,092**	**2,532**	**1,812**	**19,436**	**8.3%**
Kingsway Tunnel	sb	2,916	500	125	3,541	2,910	493	120	3,524	-0.5%
Queensway Tunnel	sb	1,766	184	0	1,950	1,763	177	0	1,940	-0.5%
Silver Jubilee Bridge	sb	2,484	503	235	3,222	393	181	85	659	-79.5%
Mersey Gateway *	sb	0	0	0	0	2,605	492	223	3,320	23.5%
A5060 Chester Road	sb	713	147	44	904	741	127	41	909	0.5%
A49 Wilderspool Causeway	sb	362	18	12	391	372	18	12	402	2.8%
A5061 Knutsford Road	sb	770	99	37	906	804	83	28	914	0.9%
A50 Kingsway Bridge	sb	1,018	45	24	1,087	1,013	39	25	1,077	-0.9%
M6 Thelwall Viaduct	sb	4,557	1,197	1,157	6,910	4,536	1,187	1,148	6,872	-0.6%
Sub-Total	**sb**	**14,585**	**2,693**	**1,634**	**18,912**	**15,138**	**2,796**	**1,683**	**19,617**	**3.7%**
Total	**2-way**	**28,445**	**5,049**	**3,368**	**36,861**	**30,229**	**5,328**	**3,495**	**39,053**	**5.9%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.29 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows across the River Mersey – Overnight Hour

Link Description	Direction	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	nb	338	28	50	417	371	28	51	451	8.1%
Queensway Tunnel	nb	345	33	0	378	383	33	0	416	10.1%
Silver Jubilee Bridge	nb	775	69	61	906	48	21	12	81	-91.1%
Mersey Gateway *	nb	0	0	0	0	370	43	43	456	-40.7%
A5060 Chester Road	nb	193	15	14	222	214	18	16	248	11.7%
A49 Wilderspool Causeway	nb	87	9	4	100	89	9	6	104	3.8%
A5061 Knutsford Road	nb	151	11	9	171	142	10	10	162	-5.1%
A50 Kingsway Bridge	nb	69	6	6	80	81	7	6	93	16.5%
M6 Thelwall Viaduct	nb	1,212	166	346	1,724	1,308	168	347	1,823	5.8%
Sub-Total	**nb**	**3,169**	**338**	**490**	**3,997**	**3,008**	**336**	**490**	**3,835**	**-4.1%**
Kingsway Tunnel	sb	337	27	49	413	351	27	49	426	3.1%
Queensway Tunnel	sb	354	41	0	395	395	41	0	436	10.4%
Silver Jubilee Bridge	sb	704	81	83	868	56	19	25	101	-88.4%
Mersey Gateway *	sb	0	0	0	0	359	58	52	469	-34.3%
A5060 Chester Road	sb	137	10	14	160	171	11	19	200	25.3%
A49 Wilderspool Causeway	sb	101	10	6	116	110	10	6	126	8.5%
A5061 Knutsford Road	sb	80	2	6	88	88	2	7	97	9.9%
A50 Kingsway Bridge	sb	170	9	8	187	171	9	8	188	0.3%
M6 Thelwall Viaduct	sb	1,229	153	278	1,660	1,305	154	278	1,738	4.7%
Sub-Total	**sb**	**3,113**	**333**	**443**	**3,888**	**3,006**	**332**	**443**	**3,781**	**-2.8%**
Total	**2-way**	**6,282**	**671**	**933**	**7,885**	**6,014**	**668**	**933**	**7,615**	**-3.4%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.30 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows across the River Mersey – 24 Hour AAWT

Link Description	Direction	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	
Kingsway Tunnel	2-way	49,745	7,533	6,381	63,659	50,925	7,275	6,327	64,526	1.4%
Queensway Tunnel	2-way	40,518	6,038	0	46,557	41,414	5,988	0	47,402	1.8%
Silver Jubilee Bridge	2-way	75,345	13,195	8,221	96,761	9,595	4,129	2,655	16,379	-83.1%
Mersey Gateway *	2-way	0	0	0	0	60,563	11,311	6,713	78,587	-1.9%
A5060 Chester Road	2-way	18,562	2,580	2,223	23,365	20,003	2,363	2,138	24,504	4.9%
A49 Wilderspool Causeway	2-way	9,637	1,256	666	11,559	9,965	1,175	692	11,832	2.4%
A5061 Knutsford Road	2-way	17,516	1,969	2,375	21,861	17,629	1,783	2,227	21,638	-1.0%
A50 Kingsway Bridge	2-way	21,127	2,020	1,004	24,152	22,817	2,110	1,094	26,021	7.7%
M6 Thelwall Viaduct	2-way	127,863	27,868	39,667	195,398	129,544	27,684	39,608	196,836	0.7%
Sub-Total	**2-way**	**360,313**	**62,459**	**60,537**	**483,312**	**362,454**	**63,817**	**61,453**	**487,724**	**0.9%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined

Table 7.31 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows by Sector – AM Peak Hour

Sector	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	35,136	4,834	2,056	42,027	34,676	5,292	2,173	42,141	0.3%
2 - Runcorn	45,722	5,335	3,307	54,364	40,701	5,442	3,400	49,543	-8.9%
3 - West Warrington	18,396	2,426	1,330	22,152	18,569	2,374	1,312	22,255	0.5%
4 - Warrington	20,128	2,198	1,265	23,591	20,342	2,162	1,259	23,763	0.7%
5 - South Warrington	3,927	758	1,094	5,780	3,907	762	1,124	5,794	0.2%
6 - East Warrington	16,803	1,915	2,530	21,247	17,030	1,923	2,518	21,471	1.1%
7 - South Liverpool	11,900	1,557	843	14,301	11,021	1,646	886	13,553	-5.2%
8 - Birkenhead Town Centre	20,655	2,563	964	24,182	20,673	2,529	951	24,153	-0.1%
9 - East Wirral	24,888	3,279	1,397	29,565	24,734	3,232	1,379	29,345	-0.7%
10 - South Widnes	12,430	1,760	839	15,030	9,078	1,644	737	11,460	-23.8%
11 - Liverpool	51,740	6,167	1,773	59,680	51,635	6,177	1,796	59,608	-0.1%
12 - South Knowsley	19,824	1,973	608	22,405	19,860	1,955	614	22,429	0.1%
13 - Ellesmere Port	2,705	219	190	3,114	2,687	225	169	3,081	-1.0%
14 - West Wirral & Wales	17,367	1,807	579	19,753	17,302	1,809	579	19,690	-0.3%
15 - St Helens & S Lancs	76,207	11,489	4,724	92,420	76,048	11,441	4,708	92,197	-0.2%
Motorways	128,084	15,037	19,511	162,632	128,773	14,914	19,389	163,076	0.3%
Total	**505,913**	**63,317**	**43,011**	**612,241**	**497,036**	**63,528**	**42,995**	**603,559**	**-1.4%**

Table 7.32 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows by Sector – Inter Peak Hour

Sector	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1i - Widnes	25,656	4,443	3,201	33,300	23,702	4,459	3,321	31,482	-5.5%
2i - Runcorn	33,077	5,273	3,866	42,216	26,515	4,878	3,663	35,057	-17.0%
3i - West Warrington	14,247	2,115	2,210	18,572	14,672	2,069	1,994	18,735	0.9%
4i - Warrington	14,513	1,832	1,704	18,050	14,928	1,805	1,667	18,399	1.9%
5i - South Warrington	2,023	730	1,089	3,842	2,058	736	1,091	3,886	1.1%
6i - East Warrington	11,948	2,060	3,010	17,018	12,197	2,077	3,063	17,336	1.9%
7i - South Liverpool	7,855	1,399	1,042	10,296	6,729	1,378	1,048	9,155	-11.1%
8i - Birkenhead Town Centre	13,955	2,299	1,338	17,591	14,256	2,293	1,345	17,894	1.7%
9i - East Wirral	15,658	2,671	1,918	20,248	15,852	2,674	1,924	20,451	1.0%
10i - South Widnes	10,501	1,925	1,375	13,801	6,320	1,501	1,121	8,942	-35.2%
11i - Liverpool	34,257	5,761	2,097	42,115	34,212	5,746	2,091	42,049	-0.2%
12i - South Knowsley	12,383	2,020	822	15,225	12,201	2,010	839	15,050	-1.2%
13i - Ellesmere Port	1,852	217	96	2,165	1,815	217	97	2,130	-1.6%
14i - West Wirral & Wales	11,960	1,636	577	14,174	11,947	1,634	578	14,158	-0.1%
15i - St Helens & S Lancs	44,192	9,940	5,247	59,379	44,192	9,948	5,217	59,357	0.0%
Motorways	82,156	16,983	22,257	121,396	81,785	17,061	22,469	121,314	-0.1%
Total	**336,234**	**61,304**	**51,851**	**449,389**	**323,380**	**60,486**	**51,528**	**435,394**	**-3.1%**

Table 7.33 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows by Sector – PM Peak Hour

Sector	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	35,324	5,240	1,744	42,308	35,616	5,661	1,857	43,134	2.0%
2 - Runcorn	47,592	6,139	2,368	56,099	45,014	6,271	2,591	53,876	-4.0%
3 - West Warrington	19,572	2,746	1,114	23,432	19,833	2,608	1,077	23,518	0.4%
4 - Warrington	20,628	2,092	1,120	23,840	20,856	1,958	1,092	23,906	0.3%
5 - South Warrington	3,019	902	820	4,742	3,058	896	826	4,780	0.8%
6 - East Warrington	16,224	2,531	2,448	21,203	16,209	2,501	2,425	21,136	-0.3%
7 - South Liverpool	12,029	1,769	770	14,567	11,857	1,921	830	14,608	0.3%
8 - Birkenhead Town Centre	19,722	2,640	877	23,239	19,808	2,619	861	23,288	0.2%
9 - East Wirral	20,001	2,691	1,177	23,869	20,009	2,681	1,157	23,847	-0.1%
10 - South Widnes	12,749	1,932	815	15,496	9,865	1,723	710	12,298	-20.6%
11 - Liverpool	51,451	6,446	1,505	59,402	51,421	6,480	1,536	59,436	0.1%
12 - South Knowsley	17,346	2,281	562	20,188	17,004	2,250	562	19,816	-1.8%
13 - Ellesmere Port	3,363	267	192	3,822	3,346	268	194	3,807	-0.4%
14 - West Wirral & Wales	16,740	1,794	368	18,902	16,725	1,788	368	18,882	-0.1%
15 - St Helens & S Lancs	70,314	11,417	3,987	85,718	70,285	11,432	3,969	85,686	0.0%
Motorways	125,147	20,836	16,890	162,873	125,105	20,705	16,868	162,677	-0.1%
Total	**491,221**	**71,723**	**36,756**	**599,700**	**486,009**	**71,762**	**36,924**	**594,695**	**-0.8%**

Table 7.34 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows by Sector – Overnight Hour

Sector	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	7,362	577	568	8,508	6,581	573	555	7,709	-9.4%
2 - Runcorn	9,468	704	681	10,853	6,960	641	663	8,264	-23.9%
3 - West Warrington	3,776	264	224	4,263	3,884	263	227	4,374	2.6%
4 - Warrington	3,751	234	214	4,200	3,940	238	234	4,412	5.1%
5 - South Warrington	615	102	188	906	630	103	187	921	1.6%
6 - East Warrington	3,304	276	545	4,125	3,450	281	550	4,281	3.8%
7 - South Liverpool	2,542	209	196	2,947	2,027	201	188	2,416	-18.0%
8i- Birkenhead Town Centre	4,266	326	254	4,846	4,458	321	258	5,037	3.9%
9 - East Wirral	4,830	347	289	5,467	5,025	357	292	5,674	3.8%
10 - South Widnes	3,008	271	257	3,537	1,578	205	196	1,979	-44.1%
11 - Liverpool	10,173	762	382	11,317	10,226	754	381	11,360	0.4%
12 - South Knowsley	4,142	278	145	4,565	4,039	272	140	4,452	-2.5%
13 - Ellesmere Port	588	31	18	637	570	31	18	618	-2.9%
14 - West Wirral & Wales	3,639	221	104	3,964	3,634	221	104	3,959	-0.1%
15 - St Helens & S Lancs	13,727	1,375	952	16,054	13,692	1,366	959	16,018	-0.2%
Motorways	24,594	2,443	4,419	31,456	24,778	2,462	4,406	31,646	0.6%
Total	**99,786**	**8,422**	**9,435**	**117,644**	**95,474**	**8,289**	**9,357**	**113,120**	**-3.8%**

Table 7.35 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows by Sector – 24 Hour AAWT

Sector	2015 Do-Minimum Traffic Flow (vehicles)				2015 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	439,953	61,857	36,680	538,491	418,399	64,363	37,887	520,649	-3.3%
2 - Runcorn	573,908	72,294	47,259	693,461	483,191	69,849	46,714	599,754	-13.5%
3i- West Warrington	237,342	30,372	22,796	290,510	242,408	29,552	21,385	293,344	1.0%
4 - Warrington	246,442	25,838	19,481	291,761	252,434	25,240	19,400	297,074	1.8%
5 - South Warrington	38,986	10,270	14,152	63,408	39,427	10,314	14,256	63,997	0.9%
6 - East Warrington	203,974	28,159	38,566	270,699	207,807	28,258	38,836	274,901	1.6%
7 - South Liverpool	144,760	20,243	13,123	178,127	128,903	20,692	13,359	162,954	-8.5%
8 - Birkenhead Town Centre	248,160	32,307	16,240	296,707	252,567	32,055	16,244	300,867	1.4%
9 - East Wirral	277,710	36,929	22,191	336,830	280,808	36,897	22,157	339,862	0.9%
10 - South Widnes	169,745	25,170	15,980	210,894	110,017	20,910	13,140	144,068	-31.7%
11 - Liverpool	617,092	79,104	26,353	722,550	617,080	79,040	26,453	722,572	0.0%
12 - South Knowsley	228,210	27,392	9,951	265,553	225,015	27,127	10,014	262,156	-1.3%
13 - Ellesmere Port	35,207	3,037	1,867	40,111	34,670	3,057	1,816	39,543	-1.4%
14 - West Wirral & Wales	211,087	22,574	7,358	241,018	210,733	22,550	7,360	240,643	-0.2%
15 - St Helens & S Lancs	840,752	140,403	67,315	1,048,471	839,810	140,246	67,135	1,047,191	-0.1%
Motorways	1,498,378	232,005	288,619	2,019,001	1,500,150	231,990	289,323	2,021,463	0.1%
Total	**6,011,706**	**847,954**	**647,931**	**7,507,591**	**5,843,419**	**842,141**	**645,479**	**7,331,040**	**-2.4%**

Table 7.36 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows by Sector – AM Peak Hour

Sector	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	37,535	6,665	2,782	46,982	38,720	7,162	3,051	48,933	4.2%
2i- Runcorn	45,693	7,034	3,969	56,696	44,845	7,326	4,191	56,361	-0.6%
3 - West Warrington	18,788	3,220	1,783	23,792	19,023	3,168	1,756	23,947	0.6%
4 - Warrington	20,649	2,926	1,560	25,135	20,919	2,882	1,530	25,331	0.8%
5 - South Warrington	4,377	962	1,211	6,550	4,293	965	1,242	6,500	-0.8%
6 - East Warrington	16,540	2,494	2,977	22,011	16,509	2,460	2,984	21,953	-0.3%
7 - South Liverpool	11,720	1,972	995	14,687	12,241	2,174	1,101	15,516	5.6%
8 - Birkenhead Town Centre	21,641	3,411	1,096	26,148	21,722	3,409	1,086	26,218	0.3%
9 - East Wirral	23,843	4,091	1,550	29,484	23,822	4,063	1,559	29,445	-0.1%
10 - South Widnes	12,054	2,308	1,073	15,434	10,024	2,229	976	13,229	-14.3%
11 - Liverpool	54,217	8,210	2,308	64,735	54,774	8,346	2,392	65,512	1.2%
12 - South Knowsley	20,088	2,568	747	23,404	20,186	2,570	752	23,507	0.4%
13 - Ellesmere Port	2,901	308	231	3,440	2,896	314	205	3,415	-0.7%
14 - West Wirral & Wales	18,898	2,557	753	22,208	18,785	2,556	751	22,092	-0.5%
15 - St Helens & S Lancs	80,028	15,569	6,081	101,678	80,276	15,450	6,047	101,772	0.1%
Motorways	127,694	19,717	24,056	171,466	128,033	19,531	23,935	171,498	0.0%
Total	**516,668**	**84,011**	**53,172**	**653,850**	**517,067**	**84,603**	**53,560**	**655,229**	**0.2%**

Table 7.37 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows by Sector – Inter Peak Hour

Sector	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	27,014	5,863	4,254	37,131	26,430	6,155	4,486	37,072	-0.2%
2i- Runcorn	34,135	6,929	4,849	45,913	30,631	6,667	4,789	42,087	-8.3%
3 - West Warrington	15,484	2,883	2,543	20,909	15,521	2,830	2,501	20,852	-0.3%
4 - Warrington	16,032	2,604	2,132	20,769	16,357	2,537	2,057	20,951	0.9%
5 - South Warrington	1,868	971	1,397	4,236	1,885	969	1,411	4,265	0.7%
6 - East Warrington	11,720	2,763	3,795	18,278	11,809	2,768	3,799	18,376	0.5%
7 - South Liverpool	8,656	1,925	1,337	11,917	7,903	1,945	1,364	11,211	-5.9%
8 - Birkenhead Town Centre	16,240	3,040	1,456	20,736	16,339	3,007	1,449	20,796	0.3%
9 - East Wirral	16,605	3,536	2,124	22,264	16,641	3,553	2,116	22,310	0.2%
10 - South Widnes	10,307	2,513	1,757	14,578	7,263	2,120	1,437	10,820	-25.8%
11 - Liverpool	37,769	7,704	2,719	48,192	37,744	7,726	2,742	48,211	0.0%
12 - South Knowsley	13,073	2,682	1,085	16,840	12,955	2,627	1,064	16,646	-1.2%
13 - Ellesmere Port	1,978	295	123	2,396	1,954	295	125	2,374	-0.9%
14 - West Wirral & Wales	12,806	2,226	797	15,828	12,818	2,226	796	15,841	0.1%
15 - St Helens & S Lancs	48,672	13,583	6,693	68,949	48,701	13,477	6,688	68,866	-0.1%
Motorways	84,696	22,591	28,790	136,078	84,394	22,547	28,807	135,748	-0.2%
Total	**357,055**	**82,108**	**65,852**	**505,015**	**349,345**	**81,450**	**65,630**	**496,425**	**-1.7%**

Table 7.38 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows by Sector – PM Peak Hour

Sector	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	37,641	7,214	2,356	47,211	39,633	7,893	2,578	50,103	6.1%
2i- Runcorn	48,359	8,186	2,910	59,454	49,639	8,397	3,281	61,317	3.1%
3 - West Warrington	20,529	3,698	1,345	25,571	20,167	3,555	1,279	25,002	-2.2%
4 - Warrington	21,270	2,879	1,400	25,549	21,704	2,759	1,402	25,865	1.2%
5 - South Warrington	2,906	1,142	985	5,034	2,973	1,142	1,013	5,128	1.9%
6 - East Warrington	15,466	3,202	2,917	21,585	15,519	3,144	2,900	21,564	-0.1%
7 - South Liverpool	12,319	2,174	928	15,422	12,970	2,413	1,035	16,419	6.5%
8 - Birkenhead Town Centre	21,142	3,509	1,027	25,678	21,196	3,486	995	25,677	0.0%
9 - East Wirral	20,553	3,634	1,440	25,626	20,604	3,624	1,433	25,661	0.1%
10 - South Widnes	12,686	2,537	1,107	16,331	11,324	2,384	933	14,640	-10.4%
11 - Liverpool	53,982	8,627	1,924	64,533	54,196	8,727	1,972	64,895	0.6%
12 - South Knowsley	17,360	3,009	702	21,071	17,529	3,008	701	21,237	0.8%
13 - Ellesmere Port	3,507	367	202	4,076	3,495	368	204	4,067	-0.2%
14 - West Wirral & Wales	17,611	2,643	507	20,761	17,556	2,647	507	20,711	-0.2%
15 - St Helens & S Lancs	76,408	15,726	5,176	97,310	76,500	15,641	5,147	97,288	0.0%
Motorways	123,503	27,080	20,744	171,327	123,462	26,833	20,675	170,971	-0.2%
Total	**505,241**	**95,627**	**45,670**	**646,539**	**508,468**	**96,020**	**46,056**	**650,544**	**0.6%**

Table 7.39 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows by Sector – Overnight Hour

Sector	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	7,722	823	757	9,302	7,088	811	746	8,645	-7.1%
2i- Runcorn	10,369	975	873	12,217	7,990	882	838	9,710	-20.5%
3 - West Warrington	3,864	354	272	4,490	3,943	353	280	4,575	1.9%
4 - Warrington	3,872	309	257	4,439	4,027	313	283	4,623	4.2%
5 - South Warrington	653	143	235	1,031	673	144	236	1,052	2.1%
6 - East Warrington	3,315	378	701	4,394	3,507	383	706	4,596	4.6%
7 - South Liverpool	2,902	285	253	3,440	2,389	277	242	2,908	-15.5%
8 - Birkenhead Town Centre	4,908	426	323	5,656	5,110	429	325	5,864	3.7%
9 - East Wirral	5,144	452	360	5,956	5,323	459	363	6,145	3.2%
10 - South Widnes	3,161	367	342	3,870	1,785	281	252	2,318	-40.1%
11 - Liverpool	11,291	1,015	500	12,806	11,368	1,014	499	12,881	0.6%
12 - South Knowsley	4,529	377	191	5,097	4,448	375	182	5,005	-1.8%
13 - Ellesmere Port	620	42	23	685	603	42	23	668	-2.5%
14 - West Wirral & Wales	3,854	301	140	4,296	3,848	301	140	4,289	-0.2%
15 - St Helens & S Lancs	15,011	1,866	1,224	18,101	14,999	1,864	1,240	18,103	0.0%
Motorways	26,802	3,441	5,751	35,994	27,298	3,447	5,726	36,471	1.3%
Total	**108,018**	**11,556**	**12,201**	**131,775**	**104,398**	**11,375**	**12,081**	**127,854**	**-3.0%**

Table 7.40 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows by Sector – 24 Hour AAWT

Sector	2030 Do-Minimum Traffic Flow (vehicles)				2030 Do-Something Traffic Flow (vehicles)				% Diff
	Car	LGV	OGV	Total	Car	LGV	OGV	Total	
1 - Widnes	465,637	84,010	49,012	598,658	463,467	88,921	51,643	604,031	0.9%
2i- Runcorn	593,155	96,002	58,834	747,991	544,849	94,720	59,734	699,304	-6.5%
3 - West Warrington	249,619	40,971	27,277	317,866	250,409	40,087	26,865	317,361	-0.2%
4 - Warrington	260,274	35,622	24,183	320,079	266,065	34,797	23,956	324,818	1.5%
5 - South Warrington	39,433	13,446	17,361	70,240	39,731	13,457	17,612	70,801	0.8%
6 - East Warrington	199,858	37,115	47,719	284,692	202,764	36,942	47,770	287,476	1.0%
7 - South Liverpool	154,215	26,607	16,446	197,268	146,827	27,869	17,081	191,777	-2.8%
8 - Birkenhead Town Centre	276,344	42,761	18,559	337,664	279,740	42,531	18,438	340,709	0.9%
9 - East Wirral	285,809	48,301	25,442	359,551	288,263	48,385	25,442	362,089	0.7%
10 - South Widnes	169,196	33,086	20,763	223,045	124,915	29,034	17,002	170,951	-23.4%
11 - Liverpool	665,638	105,646	34,176	805,460	668,564	106,429	34,666	809,658	0.5%
12 - South Knowsley	237,773	36,272	12,868	286,913	236,829	35,921	12,638	285,389	-0.5%
13 - Ellesmere Port	37,302	4,167	2,227	43,697	36,912	4,187	2,167	43,267	-1.0%
14 - West Wirral & Wales	225,471	31,555	9,991	267,017	225,002	31,564	9,987	266,553	-0.2%
15 - St Helens & S Lancs	910,914	191,694	86,403	1,189,011	911,891	190,458	86,383	1,188,731	0.0%
Motorways	1,534,374	308,325	367,341	2,210,040	1,539,337	306,916	366,607	2,212,859	0.1%
Total	**6,305,009**	**1,135,581**	**818,604**	**8,259,193**	**6,225,564**	**1,132,218**	**817,992**	**8,175,775**	**-1.0%**

Table 7.41 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – AM Peak Hour

Link Description	Direction	2015 Do-Minimum Traffic Flow (veh.)				V/C	2015 Do-Something Traffic Flow (veh.)				V/C	% Diff
		Car	LGV	OGV	Total		Car	LGV	OGV	Total		in flows
M53 (north of j4)	wb	2,535	269	225	3,028	0.54	2,607	270	225	3,102	0.55	2.4%
M53 (north of j4)	eb	3,133	362	178	3,673	0.63	3,118	364	178	3,659	0.62	-0.4%
M56 (west of j12)	wb	4,339	622	621	5,582	1.03	4,442	644	639	5,724	1.06	2.6%
M56 (west of j12)	eb	4,722	454	437	5,613	1	4,598	426	442	5,467	0.97	-2.6%
M56 (west of j9 @ M6)	wb	4,541	551	575	5,667	1.04	4,388	552	604	5,545	1.02	-2.2%
M56 (west of j9 @ M6)	eb	4,646	464	435	5,546	0.67	4,748	481	448	5,677	0.68	2.4%
M62 (west of j8)	wb	3,343	404	458	4,205	0.78	3,395	387	452	4,235	0.78	0.7%
M62 (west of j8)	eb	3,702	282	615	4,599	0.88	3,753	271	609	4,633	0.88	0.7%
M62 (west of j5)	wb	3,714	506	159	4,379	0.73	3,593	497	153	4,244	0.71	-3.1%
M62 (west of j5)	eb	2,751	320	155	3,226	0.55	2,734	312	153	3,200	0.55	-0.8%
Motorway Sub-Total	**2-way**	**37,426**	**4,233**	**3,859**	**45,518**		**37,377**	**4,204**	**3,904**	**45,485**		**-0.1%**
Rocksavage Expressway	wb	1,839	183	122	2,144	0.55	1,539	195	171	1,905	0.52	-11.2%
Rocksavage Expressway	eb	1,080	231	166	1,477	0.41	1,278	288	194	1,761	0.49	19.2%
Daresbury Expressway	wb	1,631	149	108	1,887	0.49	1,481	151	118	1,749	0.46	-7.3%
Daresbury Expressway	eb	1,197	128	121	1,446	0.39	1,189	143	131	1,463	0.40	1.1%
Knowsley Expressway	wb	1,636	172	130	1,938	0.51	1,591	176	133	1,899	0.50	-2.0%
Knowsley Expressway	eb	1,781	235	149	2,165	0.57	1,757	233	148	2,138	0.56	-1.2%
Speke Road, Ditton	wb	2,158	264	170	2,591	0.68	1,921	291	187	2,398	0.64	-7.4%
Speke Road, Ditton	eb	2,019	249	139	2,408	0.62	1,746	257	142	2,145	0.56	-10.9%
Ashley Way West, Widnes	wb	1,288	134	124	1,546	0.41	1,218	153	123	1,494	0.40	-3.4%
Ashley Way West, Widnes	eb	1,332	170	141	1,642	0.44	1,203	212	146	1,561	0.42	-4.9%
Halton Sub-Total	**2-way**	**15,959**	**1,915**	**1,371**	**19,245**		**14,923**	**2,097**	**1,493**	**18,513**		**-3.8%**
Grand Total	**2-way**	**53,385**	**6,148**	**5,230**	**64,763**		**52,299**	**6,301**	**5,397**	**63,998**		**-1.2%**

Note: See Figure 7.1 for locations of key links

Table 7.42 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – Inter Peak Hour

Link Description	Direction	2015 Do-Minimum Traffic Flow (veh.)				V/C	2015 Do-Something Traffic Flow (veh.)				V/C	% Diff
		Car	LGV	OGV	Total		Car	LGV	OGV	Total		in flows
M53 (north of j4)	wb	1,784	340	209	2,333	0.42	1,825	346	209	2,379	0.43	2.0%
M53 (north of j4)	eb	1,533	258	180	1,971	0.36	1,539	258	180	1,978	0.36	0.4%
M56 (west of j12)	wb	2,904	427	626	3,957	0.78	2,750	439	630	3,818	0.76	-3.5%
M56 (west of j12)	eb	2,727	491	661	3,880	0.77	2,452	502	659	3,613	0.73	-6.9%
M56 (west of j9 @ M6)	wb	2,717	399	536	3,652	0.71	2,639	396	529	3,563	0.69	-2.4%
M56 (west of j9 @ M6)	eb	2,289	452	617	3,358	0.46	2,308	452	614	3,374	0.46	0.5%
M62 (west of j8)	wb	2,723	442	511	3,676	0.71	2,703	445	529	3,677	0.71	0.0%
M62 (west of j8)	eb	2,310	356	648	3,314	0.68	2,287	359	671	3,317	0.69	0.1%
M62 (west of j5)	wb	1,870	433	205	2,507	0.45	1,855	429	203	2,488	0.44	-0.8%
M62 (west of j5)	eb	2,068	418	209	2,695	0.48	2,057	419	213	2,689	0.48	-0.2%
Motorway Sub-Total	**2-way**	**22,924**	**4,015**	**4,403**	**31,342**		**22,414**	**4,045**	**4,437**	**30,896**		**-1.4%**
Rocksavage Expressway	wb	1,259	171	141	1,572	0.43	849	171	161	1,181	0.34	-24.9%
Rocksavage Expressway	eb	1,033	187	172	1,393	0.39	871	230	199	1,299	0.38	-6.7%
Daresbury Expressway	wb	972	148	105	1,225	0.33	882	150	111	1,143	0.31	-6.7%
Daresbury Expressway	eb	679	124	125	928	0.27	579	120	112	812	0.23	-12.5%
Knowsley Expressway	wb	1,211	206	152	1,569	0.43	1,103	205	166	1,474	0.41	-6.0%
Knowsley Expressway	eb	1,122	165	222	1,509	0.44	1,087	163	225	1,475	0.43	-2.3%
Speke Road, Ditton	wb	1,462	228	181	1,871	0.51	1,097	223	193	1,513	0.43	-19.1%
Speke Road, Ditton	eb	1,297	231	245	1,773	0.51	973	226	244	1,442	0.43	-18.7%
Ashley Way West, Widnes	wb	973	213	245	1,432	0.43	861	236	262	1,359	0.42	-5.1%
Ashley Way West, Widnes	eb	1,216	227	217	1,660	0.47	852	208	218	1,277	0.38	-23.1%
Halton Sub-Total	**2-way**	**11,225**	**1,901**	**1,806**	**14,932**		**9,153**	**1,930**	**1,891**	**12,975**		**-13.1%**
Grand Total	**2-way**	**34,150**	**5,917**	**6,208**	**46,275**		**31,567**	**5,975**	**6,328**	**43,871**		**-5.2%**

Note: See Figure 7.1 for locations of key links

Table 7.43 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – PM Peak Hour

Link Description	Direction	2015 Do-Minimum Traffic Flow (veh.)				V/C	2015 Do-Something Traffic Flow (veh.)				V/C	% Diff
		Car	LGV	OGV	Total		Car	LGV	OGV	Total		in flows
M53 (north of j4)	wb	3,183	526	106	3,815	0.63	3,198	519	119	3,836	0.64	0.5%
M53 (north of j4)	eb	2,171	407	118	2,697	0.46	2,175	404	118	2,697	0.46	0.0%
M56 (west of j12)	wb	4,641	527	262	5,431	0.93	4,759	543	261	5,563	0.95	2.4%
M56 (west of j12)	eb	4,296	747	474	5,517	0.99	4,224	743	487	5,454	0.98	-1.1%
M56 (west of j9 @ M6)	wb	4,593	532	229	5,355	0.91	4,502	580	237	5,319	0.90	-0.7%
M56 (west of j9 @ M6)	eb	3,848	663	415	4,926	0.6	3,963	704	424	5,091	0.62	3.4%
M62 (west of j8)	wb	4,233	610	381	5,224	0.92	4,190	615	380	5,185	0.91	-0.8%
M62 (west of j8)	eb	3,127	513	481	4,121	0.77	3,115	505	476	4,097	0.76	-0.6%
M62 (west of j5)	wb	2,563	488	98	3,149	0.52	2,507	482	94	3,083	0.51	-2.1%
M62 (west of j5)	eb	3,045	460	92	3,596	0.59	2,875	445	86	3,406	0.56	-5.3%
Motorway Sub-Total	**2-way**	**35,700**	**5,473**	**2,657**	**43,829**		**35,509**	**5,540**	**2,682**	**43,732**		**-0.2%**
Rocksavage Expressway	wb	1,867	188	114	2,169	0.56	1,620	227	126	1,972	0.52	-9.1%
Rocksavage Expressway	eb	1,190	194	95	1,478	0.39	1,880	245	128	2,254	0.58	52.5%
Daresbury Expressway	wb	1,385	193	78	1,656	0.42	1,536	235	95	1,866	0.48	12.7%
Daresbury Expressway	eb	1,291	133	73	1,496	0.38	1,121	161	81	1,362	0.35	-8.9%
Knowsley Expressway	wb	1,785	216	110	2,112	0.54	1,819	231	111	2,162	0.56	2.4%
Knowsley Expressway	eb	1,277	225	125	1,627	0.43	1,281	220	124	1,625	0.43	-0.1%
Speke Road, Ditton	wb	2,203	257	120	2,579	0.66	2,268	322	145	2,735	0.70	6.0%
Speke Road, Ditton	eb	2,290	272	152	2,715	0.7	2,024	276	154	2,455	0.64	-9.6%
Ashley Way West, Widnes	wb	1,225	226	117	1,568	0.42	1,078	260	125	1,462	0.39	-6.7%
Ashley Way West, Widnes	eb	1,635	253	133	2,021	0.53	1,685	340	153	2,178	0.57	7.8%
Halton Sub-Total	**2-way**	**16,147**	**2,156**	**1,118**	**19,421**		**16,312**	**2,517**	**1,242**	**20,071**		**3.3%**
Grand Total	**2-way**	**51,847**	**7,629**	**3,775**	**63,250**		**51,821**	**8,057**	**3,924**	**63,802**		**0.9%**

Note: See Figure 7.1 for locations of key links

Table 7.44 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – Overnight Hour

Link Description	Direction	2015 Do-Minimum Traffic Flow (veh.)				V/C	2015 Do-Something Traffic Flow (veh.)				V/C	% Diff
		Car	LGV	OGV	Total		Car	LGV	OGV	Total		in flows
M53 (north of j4)	wb	541	41	44	626	0.11	548	44	44	636	0.11	1.6%
M53 (north of j4)	eb	432	35	31	498	0.09	432	35	31	498	0.09	0.1%
M56 (west of j12)	wb	882	57	115	1,054	0.19	800	61	114	975	0.18	-7.5%
M56 (west of j12)	eb	804	69	120	993	0.19	685	69	119	873	0.17	-12.1%
M56 (west of j9 @ M6)	wb	805	58	100	963	0.18	785	59	99	942	0.17	-2.1%
M56 (west of j9 @ M6)	eb	650	64	111	825	0.11	640	65	111	815	0.11	-1.2%
M62 (west of j8)	wb	733	61	121	915	0.17	760	61	119	940	0.18	2.8%
M62 (west of j8)	eb	736	53	135	924	0.18	757	54	133	944	0.18	2.1%
M62 (west of j5)	wb	551	58	31	640	0.11	541	54	31	626	0.11	-2.2%
M62 (west of j5)	eb	646	62	44	752	0.13	641	62	44	747	0.13	-0.7%
Motorway Sub-Total	**2-way**	**6,780**	**559**	**852**	**8,192**		**6,588**	**563**	**846**	**7,996**		**-2.4%**
Rocksavage Expressway	wb	372	23	30	425	0.11	223	23	28	274	0.08	-35.6%
Rocksavage Expressway	eb	344	25	33	402	0.11	233	30	34	297	0.08	-26.2%
Daresbury Expressway	wb	272	20	19	311	0.08	211	19	21	251	0.07	-19.1%
Daresbury Expressway	eb	193	17	20	230	0.06	133	17	21	170	0.05	-25.9%
Knowsley Expressway	wb	381	34	31	446	0.12	309	29	27	365	0.10	-18.2%
Knowsley Expressway	eb	326	26	42	395	0.11	293	25	42	360	0.10	-8.8%
Speke Road, Ditton	wb	449	36	36	521	0.14	255	30	31	317	0.09	-39.1%
Speke Road, Ditton	eb	405	36	46	487	0.13	253	34	45	333	0.10	-31.7%
Ashley Way West, Widnes	wb	311	35	49	394	0.11	207	33	41	281	0.08	-28.7%
Ashley Way West, Widnes	eb	341	28	41	410	0.11	250	27	38	315	0.09	-23.2%
Halton Sub-Total	**2-way**	**3,395**	**279**	**347**	**4,022**		**2,367**	**268**	**328**	**2,963**		**-26.3%**
Grand Total	**2-way**	**10,175**	**839**	**1,200**	**12,214**		**8,955**	**830**	**1,174**	**10,959**		**-10.3%**

Note: See Figure 7.1 for locations of key links

Table 7.45 - Comparison of 2015 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – 24 Hour AAWT

Link Description	Direction	2015 Do-Minimum Traffic Flow (veh.)				2015 Do-Something Traffic Flow (veh.)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	in flows
M53 (north of j4)	2-way	62,499	8,893	4,992	76,383	63,063	8,951	5,022	77,036	0.85%
M56 (west of j12)	2-way	104,514	13,613	15,571	133,698	99,582	13,814	15,662	129,059	-3.47%
M56 (west of j9 @ M6)	2-way	96,927	12,781	14,081	123,789	96,144	13,074	14,160	123,379	-0.33%
M62 (west of j8)	2-way	88,236	11,249	15,452	114,937	88,692	11,202	15,603	115,496	0.49%
M62 (west of j5)	2-way	71,830	11,529	4,795	88,154	70,476	11,352	4,765	86,594	-1.77%
Motorway Sub-Total	**2-way**	**424,006**	**58,065**	**54,891**	**536,961**	**417,958**	**58,393**	**55,212**	**531,563**	**-1.01%**
Rocksavage Expressway	2-way	39,124	4,956	4,036	48,116	33,520	5,715	4,645	43,880	-8.80%
Daresbury Expressway	2-way	30,924	3,769	2,908	37,600	27,836	3,989	3,031	34,856	-7.30%
Knowsley Expressway	2-way	40,657	5,327	4,566	50,550	38,447	5,269	4,622	48,338	-4.38%
Speke Road, Ditton	2-way	51,134	6,540	5,171	62,844	40,868	6,682	5,297	52,848	-15.91%
Ashley Way West, Widnes	2-way	36,328	5,597	5,298	47,222	30,314	6,095	5,357	41,767	-11.55%
Halton Sub-Total	**2-way**	**198,167**	**26,189**	**21,979**	**246,332**	**170,985**	**27,750**	**22,952**	**221,688**	**-10.00%**

Note: See Figure 7.1 for locations of key links

Table 7.46 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – AM Peak Hour

Link Description	Direction	2030 Do-Minimum Traffic Flow (veh.)				V/C	2030 Do-Something Traffic Flow (veh.)				V/C	% Diff
		Car	LGV	OGV	Total		Car	LGV	OGV	Total		in flows
M53 (north of j4)	wb	2,750	380	304	3,434	0.62	2,751	377	299	3,427	0.62	-0.2%
M53 (north of j4)	eb	3,311	526	261	4,098	0.71	3,312	513	256	4,081	0.71	-0.4%
M56 (west of j12)	wb	4,198	775	759	5,732	1.09	4,260	809	784	5,853	1.12	2.1%
M56 (west of j12)	eb	4,622	600	524	5,746	1.04	4,441	568	540	5,549	1.01	-3.4%
M56 (west of j9 @ M6)	wb	4,339	663	677	5,679	1.06	4,197	668	705	5,570	1.05	-1.9%
M56 (west of j9 @ M6)	eb	4,568	594	525	5,688	0.7	4,681	619	556	5,856	0.72	2.9%
M62 (west of j8)	wb	3,257	532	593	4,383	0.84	3,337	521	585	4,443	0.84	1.4%
M62 (west of j8)	eb	3,892	384	745	5,020	0.97	3,900	378	735	5,013	0.97	-0.1%
M62 (west of j5)	wb	3,385	617	215	4,218	0.72	3,395	611	208	4,214	0.72	-0.1%
M62 (west of j5)	eb	2,789	393	178	3,360	0.58	2,743	382	171	3,296	0.57	-1.9%
Motorway Sub-Total	**2-way**	**37,111**	**5,465**	**4,780**	**47,356**		**37,017**	**5,445**	**4,839**	**47,301**		**-0.1%**
Rocksavage Expressway	wb	1,779	238	132	2,149	0.56	1,635	248	189	2,072	0.56	-3.6%
Rocksavage Expressway	eb	1,024	299	215	1,538	0.44	1,557	388	262	2,206	0.62	43.5%
Daresbury Expressway	wb	1,635	195	135	1,966	0.52	1,675	202	143	2,020	0.53	2.7%
Daresbury Expressway	eb	1,342	172	144	1,658	0.45	1,367	201	167	1,736	0.47	4.7%
Knowsley Expressway	wb	1,731	233	144	2,108	0.55	1,695	234	150	2,079	0.55	-1.4%
Knowsley Expressway	eb	1,713	273	196	2,181	0.59	1,887	282	195	2,364	0.63	8.4%
Speke Road, Ditton	wb	1,948	337	196	2,480	0.66	2,051	401	236	2,688	0.73	8.4%
Speke Road, Ditton	eb	1,926	275	159	2,360	0.62	2,144	329	177	2,649	0.70	12.3%
Ashley Way West, Widnes	wb	1,367	236	180	1,783	0.49	1,308	246	206	1,760	0.49	-1.3%
Ashley Way West, Widnes	eb	1,218	214	194	1,625	0.46	1,276	266	219	1,762	0.50	8.4%
Halton Sub-Total	**2-way**	**15,682**	**2,472**	**1,694**	**19,849**		**16,595**	**2,797**	**1,944**	**21,336**		**7.5%**
Grand Total	**2-way**	**52,794**	**7,937**	**6,474**	**67,205**		**53,612**	**8,242**	**6,783**	**68,637**		**2.1%**

Note: See Figure 7.1 for locations of key links

Table 7.47 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – Inter Peak Hour

Link Description	Direction	2030 Do-Minimum Traffic Flow (veh.)				V/C	2030 Do-Something Traffic Flow (veh.)				V/C	% Diff
		Car	LGV	OGV	Total		Car	LGV	OGV	Total		in flows
M53 (north of j4)	wb	1,988	461	346	2,794	0.53	2,005	491	347	2,842	0.53	1.7%
M53 (north of j4)	eb	1,702	380	309	2,391	0.45	1,702	368	309	2,380	0.45	-0.5%
M56 (west of j12)	wb	2,922	541	797	4,259	0.87	2,871	581	806	4,258	0.87	0.0%
M56 (west of j12)	eb	2,796	659	858	4,313	0.89	2,612	659	857	4,128	0.86	-4.3%
M56 (west of j9 @ M6)	wb	2,745	554	673	3,972	0.79	2,715	561	678	3,954	0.79	-0.4%
M56 (west of j9 @ M6)	eb	2,395	606	795	3,796	0.53	2,428	624	803	3,854	0.54	1.5%
M62 (west of j8)	wb	2,770	578	709	4,057	0.81	2,759	585	712	4,056	0.81	0.0%
M62 (west of j8)	eb	2,415	454	804	3,674	0.77	2,396	449	805	3,651	0.77	-0.6%
M62 (west of j5)	wb	1,931	545	270	2,745	0.5	1,932	539	265	2,736	0.50	-0.3%
M62 (west of j5)	eb	2,157	523	274	2,953	0.53	2,147	517	274	2,938	0.53	-0.5%
Motorway Sub-Total	**2-way**	**23,821**	**5,300**	**5,834**	**34,954**		**23,567**	**5,375**	**5,855**	**34,797**		**-0.4%**
Rocksavage Expressway	wb	1,427	226	177	1,829	0.5	1,060	236	209	1,505	0.43	-17.7%
Rocksavage Expressway	eb	922	224	207	1,353	0.4	948	301	243	1,492	0.44	10.3%
Daresbury Expressway	wb	937	212	139	1,288	0.36	1,027	223	141	1,391	0.38	8.0%
Daresbury Expressway	eb	691	160	147	998	0.29	663	170	153	986	0.29	-1.2%
Knowsley Expressway	wb	1,226	294	212	1,731	0.49	1,197	268	217	1,683	0.48	-2.8%
Knowsley Expressway	eb	1,370	240	266	1,875	0.54	1,208	217	243	1,667	0.48	-11.1%
Speke Road, Ditton	wb	1,553	327	241	2,121	0.59	1,413	321	259	1,993	0.57	-6.1%
Speke Road, Ditton	eb	1,401	327	305	2,032	0.59	1,154	312	290	1,756	0.52	-13.6%
Ashley Way West, Widnes	wb	992	274	361	1,627	0.52	855	289	392	1,536	0.50	-5.6%
Ashley Way West, Widnes	eb	1,289	298	309	1,896	0.56	1,003	292	299	1,594	0.49	-15.9%
Halton Sub-Total	**2-way**	**11,808**	**2,580**	**2,362**	**16,750**		**10,527**	**2,629**	**2,447**	**15,603**		**-6.8%**
Grand Total	**2-way**	**35,628**	**7,880**	**8,196**	**51,704**		**34,095**	**8,004**	**8,302**	**50,400**		**-2.5%**

Note: See Figure 7.1 for locations of key links

Table 7.48 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – PM Peak Hour

Link Description	Direction	2030 Do-Minimum Traffic Flow (veh.)				V/C	2030 Do-Something Traffic Flow (veh.)				V/C	% Diff
		Car	LGV	OGV	Total		Car	LGV	OGV	Total		in flows
M53 (north of j4)	wb	3,153	681	138	3,972	0.67	3,139	676	137	3,952	0.66	-0.5%
M53 (north of j4)	eb	2,257	549	183	2,990	0.52	2,255	540	185	2,981	0.52	-0.3%
M56 (west of j12)	wb	4,432	666	301	5,399	0.93	4,586	695	310	5,590	0.96	3.5%
M56 (west of j12)	eb	3,990	960	627	5,577	1.04	3,865	989	635	5,488	1.02	-1.6%
M56 (west of j9 @ M6)	wb	4,408	667	253	5,328	0.91	4,375	729	263	5,367	0.92	0.7%
M56 (west of j9 @ M6)	eb	3,955	862	523	5,340	0.66	3,952	884	546	5,382	0.67	0.8%
M62 (west of j8)	wb	4,247	759	436	5,441	0.97	4,319	733	427	5,478	0.97	0.7%
M62 (west of j8)	eb	3,041	679	586	4,306	0.82	3,033	680	576	4,290	0.82	-0.4%
M62 (west of j5)	wb	2,555	568	107	3,230	0.54	2,555	541	101	3,197	0.53	-1.0%
M62 (west of j5)	eb	3,057	606	138	3,801	0.64	3,082	595	129	3,806	0.64	0.1%
Motorway Sub-Total	**2-way**	**35,094**	**6,997**	**3,292**	**45,384**		**35,161**	**7,062**	**3,308**	**45,531**		**0.3%**
Rocksavage Expressway	wb	1,882	267	153	2,301	0.6	1,946	303	181	2,429	0.64	5.6%
Rocksavage Expressway	eb	1,169	249	115	1,533	0.41	1,907	315	157	2,379	0.62	55.2%
Daresbury Expressway	wb	1,401	267	84	1,751	0.45	1,574	304	106	1,984	0.51	13.3%
Daresbury Expressway	eb	1,466	191	87	1,744	0.45	1,380	220	106	1,706	0.44	-2.2%
Knowsley Expressway	wb	1,834	294	144	2,272	0.59	1,858	295	145	2,298	0.60	1.2%
Knowsley Expressway	eb	1,226	269	141	1,636	0.44	1,249	263	141	1,653	0.44	1.1%
Speke Road, Ditton	wb	2,309	334	149	2,792	0.72	2,689	418	184	3,292	0.85	17.9%
Speke Road, Ditton	eb	2,144	354	187	2,685	0.71	2,159	351	195	2,706	0.71	0.8%
Ashley Way West, Widnes	wb	1,227	311	218	1,756	0.5	1,241	365	230	1,836	0.52	4.5%
Ashley Way West, Widnes	eb	1,569	323	191	2,083	0.56	1,828	435	236	2,499	0.68	20.0%
Halton Sub-Total	**2-way**	**16,227**	**2,859**	**1,467**	**20,553**		**17,832**	**3,269**	**1,681**	**22,782**		**10.8%**
Grand Total	**2-way**	**51,322**	**9,856**	**4,760**	**65,937**		**52,993**	**10,332**	**4,988**	**68,314**		**3.6%**

Note: See Figure 7.1 for locations of key links

Table 7.49 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – Overnight Hour

Link Description	Direction	2030 Do-Minimum Traffic Flow (veh.)				V/C	2030 Do-Something Traffic Flow (veh.)				V/C	% Diff
		Car	LGV	OGV	Total		Car	LGV	OGV	Total		in flows
M53 (north of j4)	wb	541	41	44	626	0.11	548	44	44	636	0.11	1.6%
M53 (north of j4)	eb	432	35	31	498	0.09	432	35	31	498	0.09	0.1%
M56 (west of j12)	wb	882	57	115	1,054	0.19	800	61	114	975	0.18	-7.5%
M56 (west of j12)	eb	804	69	120	993	0.19	685	69	119	873	0.17	-12.1%
M56 (west of j9 @ M6)	wb	805	58	100	963	0.18	785	59	99	942	0.17	-2.1%
M56 (west of j9 @ M6)	eb	650	64	111	825	0.11	640	65	111	815	0.11	-1.2%
M62 (west of j8)	wb	733	61	121	915	0.17	760	61	119	940	0.18	2.8%
M62 (west of j8)	eb	736	53	135	924	0.18	757	54	133	944	0.18	2.1%
M62 (west of j5)	wb	551	58	31	640	0.11	541	54	31	626	0.11	-2.2%
M62 (west of j5)	eb	646	62	44	752	0.13	641	62	44	747	0.13	-0.7%
Motorway Sub-Total	**2-way**	6,780	559	852	8,192		6,588	563	846	7,996		-2.4%
Rocksavage Expressway	wb	372	23	30	425	0.11	223	23	28	274	0.08	-35.6%
Rocksavage Expressway	eb	344	25	33	402	0.11	233	30	34	297	0.08	-26.2%
Daresbury Expressway	wb	272	20	19	311	0.08	211	19	21	251	0.07	-19.1%
Daresbury Expressway	eb	193	17	20	230	0.06	133	17	21	170	0.05	-25.9%
Knowsley Expressway	wb	381	34	31	446	0.12	309	29	27	365	0.10	-18.2%
Knowsley Expressway	eb	326	26	42	395	0.11	293	25	42	360	0.10	-8.8%
Speke Road, Ditton	wb	449	36	36	521	0.14	255	30	31	317	0.09	-39.1%
Speke Road, Ditton	eb	405	36	46	487	0.13	253	34	45	333	0.10	-31.7%
Ashley Way West, Widnes	wb	311	35	49	394	0.11	207	33	41	281	0.08	-28.7%
Ashley Way West, Widnes	eb	341	28	41	410	0.11	250	27	38	315	0.09	-23.2%
Halton Sub-Total	**2-way**	3,395	279	347	4,022		2,367	268	328	2,963		-26.3%
Grand Total	**2-way**	10,175	839	1,200	12,214		8,955	830	1,174	10,959		-10.3%

Note: See Figure 7.1 for locations of key links

Table 7.50 - Comparison of 2030 Do-Minimum and Do-Something Traffic Flows on Key Highway Links – 24 Hour AAWT

Link Description	Direction	2030 Do-Minimum Traffic Flow (veh.)				2030 Do-Something Traffic Flow (veh.)				% Diff
		Car	LGV	OGV	Total	Car	LGV	OGV	Total	in flows
M53 (north of j4)	2-way	67,759	12,461	7,696	87,916	68,067	12,492	7,676	88,236	0.36%
M56 (west of j12)	2-way	104,754	17,766	19,778	142,297	100,799	18,166	19,978	138,943	-2.36%
M56 (west of j9 @ M6)	2-way	98,129	16,818	17,631	132,578	97,409	17,298	17,943	132,651	0.05%
M62 (west of j8)	2-way	90,850	14,837	19,566	125,253	91,982	14,738	19,429	126,148	0.72%
M62 (west of j5)	2-way	73,619	14,418	6,174	94,211	73,407	14,178	6,066	93,651	-0.59%
Motorway Sub-Total	**2-way**	**435,111**	**76,300**	**70,844**	**582,255**	**431,665**	**76,872**	**71,092**	**579,629**	**-0.45%**
Rocksavage Expressway	2-way	39,959	6,507	5,006	51,471	38,619	7,617	5,888	52,125	1.27%
Daresbury Expressway	2-way	32,335	5,160	3,554	41,049	31,423	5,554	3,834	40,810	-0.58%
Knowsley Expressway	2-way	43,744	7,152	5,764	56,661	41,963	6,855	5,570	54,388	-4.01%
Speke Road, Ditton	2-way	52,859	8,709	6,465	68,033	48,407	9,087	6,662	64,156	-5.70%
Ashley Way West, Widnes	2-way	37,096	7,521	7,793	52,410	33,400	8,169	8,022	49,591	-5.38%
Halton Sub-Total	**2-way**	**205,993**	**35,049**	**28,582**	**269,624**	**193,812**	**37,282**	**29,976**	**261,070**	**-3.17%**

Note: See Figure 7.1 for locations of key links

Table 7.51 - Comparison of 2006 Base Year and Do-Minimum Journey Times –AM Peak Hour

Description of Route	2006 Base Year (A)	2015 Do-Minimum (B)	% increase B/A	2030 Do-Minimum (C)	% increase C/A
Route 1 EB - M53 J1 to M62 J1	27.7	30.1	9%	32.3	17%
Route 1 WB - M62 J1 to M53 J1	31.5	30.6	-3%	35.0	11%
Route 2 NB - M56/M53 Chester to Garston	48.3	51.2	6%	55.7	15%
Route 2 SB – Garston to M56/M53 Chester	46.6	51.5	11%	59.2	27%
Route 3 NB - M56 J14 to M62 J6 via SJB	25.5	30.1	18%	32.2	26%
Route 3 SB - M62 J6 to M56 J14 via SJB	28.5	36.4	28%	42.9	51%
Route 4 NB - Preston Brook to M62 J7 via SJB	16.7	18.4	10%	18.7	12%
Route 4 SB - M62 J7 to Preston Brook via SJB	17.5	21.0	20%	23.3	34%
Route 5 NB – M56 J11 to A574 Birchwood	22.8	25.6	12%	24.9	9%
Route 5 SB – A574 Birchwood to M56 J11	20.2	22.9	13%	24.5	21%
Route 6 EB – M62 J7 to M6 J20	29.1	31.9	10%	35.5	22%
Route 6 WB – M6 J20 to M62 J7	27.8	30.6	10%	31.7	14%
Route 7 NB – M56 J10 to M62 J9	20.6	23.6	14%	25.8	25%
Route 7 SB – M62 J9 to M56 J10	22.1	25.0	13%	26.4	19%
Route 8 NB – Frodsham to Widnes Rugby Ground via SJB	20.3	21.7	7%	24.5	21%
Route 8 SB – Widnes Rugby Ground to Frodsham via SJB	25.2	28.7	14%	32.1	28%
Route 9 NB – Preston Brook to Green Oaks Centre via SJB	15.5	17.1	11%	18.4	19%
Route 9 SB – Green Oaks Centre to Preston Brook via SJB	14.7	17.7	20%	21.2	45%
Route 10 NB – Daresbury Park to Garston via SJB	23.8	25.6	7%	26.7	12%
Route 10 SB – Garston to Daresbury Park via SJB	23.4	26.3	12%	32.8	40%
Route 11 EB – M53 J3 to Wavertree Business Park (via Queensway)	23.8	24.4	3%	25.7	8%
Route 11 WB – Wavertree Business Park to M53 J3 (via Queensway)	19.4	22.2	15%	24.0	24%
Route 12 EB – M53 J3 to Wavertree Business Park (via Kingsway)	20.5	22.9	12%	24.7	21%
Route 12 WB – Wavertree Business Park to M53 J3 (via Kingsway)	18.9	20.4	8%	23.1	22%
Route 13 NB – M56 J10 to M62 J9 (via M6)	13.5	16.0	18%	18.2	34%
Route 13 SB – M62 J9 to M56 J10 (via M6)	16.5	21.7	31%	25.7	55%
Route 14 NB - M56 J10 to Smith Street (Warrington)	12.7	15.1	19%	16.4	30%
Route 14 SB - Smith Street (Warrington) to M56 J10	13.3	14.2	7%	15.9	20%
Route 15 NB – M6 J20 to A49 Winwick Road	16.2	19.0	18%	18.7	16%
Route 15 SB – A49 Winwick Road to M6 J20	14.8	17.0	15%	19.4	31%
Route 16 NB – A56 Chester Road to A49 Mersey Street	9.6	11.9	24%	11.3	18%
Route 16 SB – A49 Mersey Street to A56 Chester Road	8.1	9.1	12%	10.7	32%
Route 17 – A57 Sankey Way to A5060 Chester Road	11.3	12.8	13%	16.5	46%
Route 18 – A5060 Chester Road to A57 Sankey Way	8.5	11.2	32%	13.0	52%
Route 19 – Chester to Knowsley Ind Park via Kingsway Tunnel	44.6	49.4	11%	54.8	23%
Route 19 – Knowsley Ind Park to Chester via Kingsway Tunnel	43.7	48.3	11%	55.5	27%
Route 20 – Chester to Knowsley Ind Park via SJB	39.8	45.4	14%	50.4	27%
Route 20 – Knowsley Ind Park to Chester via SJB	42.5	51.6	22%	59.2	39%
Total	**885.4**	**998.8**	**13%**	**1107.1**	**25%**

Table 7.52 - Comparison of 2006 Base Year and Do-Minimum Journey Times –Inter Peak Hour

Description of Route	2006 Base Year (A)	2015 Do-Minimum (B)	% increase B/A	2030 Do-Minimum (C)	% increase C/A
Route 1 EB - M53 J1 to M62 J1	23.2	23.5	1%	24.5	6%
Route 1 WB - M62 J1 to M53 J1	24.9	25.0	1%	26.1	5%
Route 2 NB - M56/M53 Chester to Garston	42.4	42.4	0%	44.8	6%
Route 2 SB – Garston to M56/M53 Chester	45.5	45.6	0%	48.2	6%
Route 3 NB - M56 J14 to M62 J6 via SJB	19.0	22.1	17%	25.7	35%
Route 3 SB - M62 J6 to M56 J14 via SJB	20.3	24.2	19%	27.6	36%
Route 4 NB - Preston Brook to M62 J7 via SJB	13.4	13.9	4%	16.0	20%
Route 4 SB - M62 J7 to Preston Brook via SJB	14.4	16.4	14%	18.8	31%
Route 5 NB – M56 J11 to A574 Birchwood	19.2	20.0	4%	22.6	18%
Route 5 SB – A574 Birchwood to M56 J11	18.4	18.7	2%	19.6	7%
Route 6 EB – M62 J7 to M6 J20	24.1	24.3	1%	26.5	10%
Route 6 WB – M6 J20 to M62 J7	23.6	24.7	5%	27.7	17%
Route 7 NB – M56 J10 to M62 J9	20.4	21.3	4%	23.8	16%
Route 7 SB – M62 J9 to M56 J10	19.6	20.6	5%	21.2	8%
Route 8 NB – Frodsham to Widnes Rugby Ground via SJB	17.8	18.0	1%	20.6	16%
Route 8 SB – Widnes Rugby Ground to Frodsham via SJB	20.8	20.2	-3%	23.5	13%
Route 9 NB – Preston Brook to Green Oaks Centre via SJB	12.1	12.6	4%	15.6	29%
Route 9 SB – Green Oaks Centre to Preston Brook via SJB	11.6	13.9	19%	15.8	36%
Route 10 NB – Daresbury Park to Garston via SJB	19.5	20.5	5%	23.6	21%
Route 10 SB – Garston to Daresbury Park via SJB	18.8	20.3	8%	23.0	23%
Route 11 EB – M53 J3 to Wavertree Business Park (via Queensway)	18.3	18.5	1%	19.1	4%
Route 11 WB – Wavertree Business Park to M53 J3 (via Queensway)	18.9	19.5	3%	21.0	11%
Route 12 EB – M53 J3 to Wavertree Business Park (via Kingsway)	16.3	16.5	1%	17.2	5%
Route 12 WB – Wavertree Business Park to M53 J3 (via Kingsway)	18.2	18.4	1%	19.2	6%
Route 13 NB – M56 J10 to M62 J9 (via M6)	11.9	13.6	14%	16.3	37%
Route 13 SB – M62 J9 to M56 J10 (via M6)	13.0	14.8	14%	17.1	31%
Route 14 NB - M56 J10 to Smith Street (Warrington)	12.9	13.3	3%	15.2	18%
Route 14 SB - Smith Street (Warrington) to M56 J10	12.7	12.8	1%	13.2	4%
Route 15 NB – M6 J20 to A49 Winwick Road	14.6	15.0	3%	17.2	17%
Route 15 SB – A49 Winwick Road to M6 J20	14.5	14.7	1%	16.0	10%
Route 16 NB – A56 Chester Road to A49 Mersey Street	6.9	7.3	6%	9.3	35%
Route 16 SB – A49 Mersey Street to A56 Chester Road	7.4	7.5	2%	8.2	11%
Route 17 – A57 Sankey Way to A5060 Chester Road	9.0	9.9	9%	11.0	21%
Route 18 – A5060 Chester Road to A57 Sankey Way	7.6	8.3	8%	10.2	33%
Route 19 – Chester to Knowsley Ind Park via Kingsway Tunnel	38.4	39.7	3%	42.0	9%
Route 19 – Knowsley Ind Park to Chester via Kingsway Tunnel	39.0	40.1	3%	41.9	8%
Route 20 – Chester to Knowsley Ind Park via SJB	31.6	35.1	11%	39.4	25%
Route 20 – Knowsley Ind Park to Chester via SJB	32.9	37.4	14%	41.3	26%
Total	**753.2**	**790.7**	**5%**	**869.9**	**15%**

Table 7.53 - Comparison of 2006 Base Year and Do-Minimum Journey Times – PM Peak Hour

Description of Route	2006 Base Year (A)	2015 Do-Minimum (B)	% increase B/A	2030 Do-Minimum (C)	% increase C/A
Route 1 EB - M53 J1 to M62 J1	28.9	30.3	5%	34.6	20%
Route 1 WB - M62 J1 to M53 J1	30.1	28.9	-4%	30.5	1%
Route 2 NB - M56/M53 Chester to Garston	44.3	48.1	8%	53.9	22%
Route 2 SB – Garston to M56/M53 Chester	49.8	51.8	4%	55.6	12%
Route 3 NB - M56 J14 to M62 J6 via SJB	26.2	34.0	29%	37.7	44%
Route 3 SB - M62 J6 to M56 J14 via SJB	27.9	32.9	18%	36.5	31%
Route 4 NB - Preston Brook to M62 J7 via SJB	19.5	21.9	12%	25.9	33%
Route 4 SB - M62 J7 to Preston Brook via SJB	16.7	19.1	14%	20.4	22%
Route 5 NB – M56 J11 to A574 Birchwood	21.7	23.2	7%	25.2	16%
Route 5 SB – A574 Birchwood to M56 J11	20.1	21.2	6%	22.4	12%
Route 6 EB – M62 J7 to M6 J20	28.1	28.4	1%	30.8	10%
Route 6 WB – M6 J20 to M62 J7	29.4	31.4	7%	33.6	14%
Route 7 NB – M56 J10 to M62 J9	25.2	25.0	-1%	27.1	8%
Route 7 SB – M62 J9 to M56 J10	21.5	23.7	10%	25.6	19%
Route 8 NB – Frodsham to Widnes Rugby Ground via SJB	22.5	25.2	12%	29.4	31%
Route 8 SB – Widnes Rugby Ground to Frodsham via SJB	26.6	28.4	7%	31.8	20%
Route 9 NB – Preston Brook to Green Oaks Centre via SJB	18.1	20.6	13%	25.6	41%
Route 9 SB – Green Oaks Centre to Preston Brook via SJB	14.6	17.0	17%	20.3	39%
Route 10 NB – Daresbury Park to Garston via SJB	25.0	29.0	16%	34.5	38%
Route 10 SB – Garston to Daresbury Park via SJB	23.5	25.9	10%	30.0	28%
Route 11 EB – M53 J3 to Wavertree Business Park (via Queensway)	20.0	22.0	10%	25.2	26%
Route 11 WB – Wavertree Business Park to M53 J3 (via Queensway)	22.5	22.4	-1%	23.6	5%
Route 12 EB – M53 J3 to Wavertree Business Park (via Kingsway)	17.0	19.2	13%	23.1	36%
Route 12 WB – Wavertree Business Park to M53 J3 (via Kingsway)	20.9	19.9	-5%	20.2	-3%
Route 13 NB – M56 J10 to M62 J9 (via M6)	14.3	17.0	19%	19.8	39%
Route 13 SB – M62 J9 to M56 J10 (via M6)	15.3	18.4	20%	21.8	43%
Route 14 NB - M56 J10 to Smith Street (Warrington)	14.2	15.3	8%	16.4	16%
Route 14 SB - Smith Street (Warrington) to M56 J10	14.0	14.7	6%	16.3	17%
Route 15 NB – M6 J20 to A49 Winwick Road	16.2	16.9	5%	17.9	11%
Route 15 SB – A49 Winwick Road to M6 J20	16.6	17.1	3%	19.0	14%
Route 16 NB – A56 Chester Road to A49 Mersey Street	8.2	9.4	15%	10.6	29%
Route 16 SB – A49 Mersey Street to A56 Chester Road	8.7	9.3	8%	10.7	23%
Route 17 – A57 Sankey Way to A5060 Chester Road	12.5	13.4	7%	15.5	24%
Route 18 – A5060 Chester Road to A57 Sankey Way	9.4	11.6	23%	12.2	30%
Route 19 – Chester to Knowsley Ind Park via Kingsway Tunnel	42.6	48.3	13%	55.0	29%
Route 19 – Knowsley Ind Park to Chester via Kingsway Tunnel	41.9	44.5	6%	49.0	17%
Route 20 – Chester to Knowsley Ind Park via SJB	39.8	48.7	22%	53.7	35%
Route 20 – Knowsley Ind Park to Chester via SJB	41.6	47.6	14%	52.1	25%
Total	**895.0**	**981.6**	**10%**	**1093.2**	**22%**

Table 7.54 - Comparison of 2006 Base Year and Do-Minimum Journey Times – Overnight Hour

Description of Route	2006 Base Year (A)	2015 Do-Minimum (B)	% increase B/A	2030 Do-Minimum (C)	% increase C/A
Route 1 EB - M53 J1 to M62 J1	19.7	19.9	1%	20.1	2%
Route 1 WB - M62 J1 to M53 J1	21.4	21.6	1%	21.8	2%
Route 2 NB - M56/M53 Chester to Garston	37.4	38.0	1%	38.1	2%
Route 2 SB – Garston to M56/M53 Chester	40.5	41.0	1%	41.1	1%
Route 3 NB - M56 J14 to M62 J6 via SJB	16.3	16.5	1%	16.6	2%
Route 3 SB - M62 J6 to M56 J14 via SJB	17.6	17.8	1%	17.9	2%
Route 4 NB - Preston Brook to M62 J7 via SJB	12.3	12.4	0%	12.5	1%
Route 4 SB - M62 J7 to Preston Brook via SJB	12.8	12.8	1%	12.9	1%
Route 5 NB – M56 J11 to A574 Birchwood	17.4	17.5	0%	17.5	0%
Route 5 SB – A574 Birchwood to M56 J11	17.0	17.0	0%	17.0	0%
Route 6 EB – M62 J7 to M6 J20	23.3	23.2	0%	23.2	0%
Route 6 WB – M6 J20 to M62 J7	21.3	21.3	0%	21.3	0%
Route 7 NB – M56 J10 to M62 J9	18.7	18.6	-1%	18.6	-1%
Route 7 SB – M62 J9 to M56 J10	19.0	18.9	0%	19.0	0%
Route 8 NB – Frodsham to Widnes Rugby Ground via SJB	16.3	16.3	0%	16.4	1%
Route 8 SB – Widnes Rugby Ground to Frodsham via SJB	17.2	17.3	0%	17.4	1%
Route 9 NB – Preston Brook to Green Oaks Centre via SJB	11.0	11.0	1%	11.8	8%
Route 9 SB – Green Oaks Centre to Preston Brook via SJB	10.7	10.7	1%	10.8	1%
Route 10 NB – Daresbury Park to Garston via SJB	17.0	17.1	1%	17.2	1%
Route 10 SB – Garston to Daresbury Park via SJB	16.7	16.9	1%	16.9	1%
Route 11 EB – M53 J3 to Wavertree Business Park (via Queensway)	15.7	15.7	0%	15.8	1%
Route 11 WB – Wavertree Business Park to M53 J3 (via Queensway)	16.7	16.8	1%	16.9	1%
Route 12 EB – M53 J3 to Wavertree Business Park (via Kingsway)	15.1	15.1	0%	15.1	1%
Route 12 WB – Wavertree Business Park to M53 J3 (via Kingsway)	16.5	16.4	-1%	16.5	0%
Route 13 NB – M56 J10 to M62 J9 (via M6)	9.6	9.6	0%	9.7	1%
Route 13 SB – M62 J9 to M56 J10 (via M6)	10.6	10.7	0%	10.7	1%
Route 14 NB - M56 J10 to Smith Street (Warrington)	12.1	12.0	-1%	12.0	-1%
Route 14 SB - Smith Street (Warrington) to M56 J10	12.6	12.5	0%	12.5	0%
Route 15 NB – M6 J20 to A49 Winwick Road	14.3	14.3	0%	14.3	0%
Route 15 SB – A49 Winwick Road to M6 J20	13.9	13.9	0%	13.9	0%
Route 16 NB – A56 Chester Road to A49 Mersey Street	6.1	6.1	0%	6.1	0%
Route 16 SB – A49 Mersey Street to A56 Chester Road	6.5	6.5	0%	6.5	0%
Route 17 – A57 Sankey Way to A5060 Chester Road	8.5	8.5	0%	8.5	0%
Route 18 – A5060 Chester Road to A57 Sankey Way	6.6	6.6	0%	6.7	0%
Route 19 – Chester to Knowsley Ind Park via Kingsway Tunnel	36.3	36.4	0%	36.5	1%
Route 19 – Knowsley Ind Park to Chester via Kingsway Tunnel	36.8	36.9	0%	37.1	1%
Route 20 – Chester to Knowsley Ind Park via SJB	28.6	28.5	0%	28.7	0%
Route 20 – Knowsley Ind Park to Chester via SJB	29.6	29.7	0%	29.9	1%
Total	**679.7**	**682.2**	**0%**	**685.4**	**0.8%**

Table 7.55 - Comparison of Do-Minimum and Do-Something Journey Times – AM Peak Hour

Description of Route	2015 DM (A)	2015 DS (B)	% increase B/A	2030 DM (C)	2030 DS (D)	% increase D/C
Route 1 EB - M53 J1 to M62 J1	30.1	30.4	1%	32.3	32.9	2%
Route 1 WB - M62 J1 to M53 J1	30.6	30.7	0%	35.0	34.4	-2%
Route 2 NB - M56/M53 Chester to Garston	51.2	52.0	2%	55.7	56.2	1%
Route 2 SB – Garston to M56/M53 Chester	51.5	51.8	0%	59.2	59.0	0%
Route 3 NB - M56 J14 to M62 J6 via SJB	30.1	25.6	-15%	32.2	27.6	-14%
Route 3 SB - M62 J6 to M56 J14 via SJB	36.4	30.5	-16%	42.9	34.4	-20%
Route 3M NB - M56 J14 to M62 J6 via MG		24.4	**-19%**		26.6	**-17%**
Route 3M SB - M62 J6 to M56 J14 via MG		28.1	**-23%**		32.4	**-24%**
Route 4 NB - Preston Brook to M62 J7 via SJB	18.4	15.7	-15%	18.7	16.6	-11%
Route 4 SB - M62 J7 to Preston Brook via SJB	21.0	18.0	-14%	23.3	18.3	-22%
Route 4M NB - Preston Brook to M62 J7 via MG		11.0	**-40%**		11.3	**-40%**
Route 4M SB - M62 J7 to Preston Brook via MG		12.9	**-39%**		13.3	**-43%**
Route 5 NB – M56 J11 to A574 Birchwood	25.6	26.5	3%	24.9	26.3	5%
Route 5 SB – A574 Birchwood to M56 J11	22.9	22.3	-2%	24.5	24.1	-2%
Route 6 EB – M62 J7 to M6 J20	31.9	32.0	0%	35.5	34.6	-3%
Route 6 WB – M6 J20 to M62 J7	30.6	31.6	3%	31.7	32.4	2%
Route 7 NB – M56 J10 to M62 J9	23.6	24.5	4%	25.8	25.8	0%
Route 7 SB – M62 J9 to M56 J10	25.0	25.3	1%	26.4	25.3	-4%
Route 8 NB – Frodsham to Widnes Rugby Ground via SJB	21.7	18.4	-16%	24.5	20.2	-18%
Route 8 SB – Widnes Rugby Ground to Frodsham via SJB	28.7	21.3	-26%	32.1	23.4	-27%
Route 8M NB – Frodsham to Widnes Rugby Ground via MG		17.6	**-19%**		19.6	**-20%**
Route 8M SB – Widnes Rugby Ground to Frodsham via MG		19.7	**-31%**		22.3	**-31%**
Route 9 NB – Preston Brook to Green Oaks Shopping Centre via SJB	17.1	14.5	-15%	18.4	15.5	-16%
Route 9 SB – Green Oaks Shopping Centre to Preston Brook via SJB	17.7	15.2	-14%	21.2	16.4	-23%
Route 9M NB – Preston Brook to Green Oaks Centre via MG		9.8	**-43%**		10.2	**-44%**
Route 9M SB – Green Oaks Centre to Preston Brook via MG		10.1	**-43%**		11.5	**-46%**
Route 10 NB – Daresbury Park to Garston via SJB	25.6	21.5	-16%	26.7	22.7	-15%
Route 10 SB – Garston to Daresbury Park via SJB	26.3	21.1	-20%	32.8	25.0	-24%
Route 10M NB – Daresbury Park to Garston via MG		18.4	**-28%**		19.6	**-27%**
Route 10M SB – Garston to Daresbury Park via MG		18.0	**-32%**		22.3	**-32%**
Route 11 EB – M53 J3 to Wavertree Business Park (via Queensway)	24.4	24.6	1%	25.7	26.4	3%
Route 11 WB – Wavertree Business Park to M53 J3 (via Queensway)	22.2	22.1	0%	24.0	23.5	-2%
Route 12 EB – M53 J3 to Wavertree Business Park (via Kingsway)	22.9	23.2	1%	24.7	25.2	2%
Route 12 WB – Wavertree Business Park to M53 J3 (via Kingsway)	20.4	20.3	-1%	23.1	22.5	-3%
Route 13 NB – M56 J10 to M62 J9 (via M6)	16.0	17.0	6%	18.2	19.3	6%
Route 13 SB – M62 J9 to M56 J10 (via M6)	21.7	21.4	-1%	25.7	24.6	-4%
Route 14 NB - M56 J10 to Smith Street (Warrington)	15.1	15.8	5%	16.4	16.5	0%
Route 14 SB - Smith Street (Warrington) to M56 J10	14.2	14.0	-2%	15.9	15.1	-5%
Route 15 NB – M6 J20 to A49 Winwick Road	19.0	19.4	2%	18.7	19.1	2%
Route 15 SB – A49 Winwick Road to M6 J20	17.0	17.1	1%	19.4	18.9	-2%
Route 16 NB – A56 Chester Road to A49 Mersey Street	11.9	12.8	7%	11.3	12.4	10%
Route 16 SB – A49 Mersey Street to A56 Chester Road	9.1	8.8	-3%	10.7	9.7	-9%
Route 17 – A57 Sankey Way to A5060 Chester Road	12.8	12.6	-1%	16.5	15.2	-8%
Route 18 – A5060 Chester Road to A57 Sankey Way	11.2	12.3	9%	13.0	13.0	0%
Route 19 – Chester to Knowsley Ind Park via Kingsway Tunnel	49.4	49.7	1%	54.8	55.3	1%
Route 19 – Knowsley Ind Park to Chester via Kingsway Tunnel	48.3	48.2	0%	55.5	54.7	-1%
Route 20 – Chester to Knowsley Ind Park via SJB	45.4	40.6	-11%	50.4	45.6	-10%
Route 20 – Knowsley Ind Park to Chester via SJB	51.6	45.6	-12%	59.2	50.7	-14%
Total (excluding routes via MG)	**998.8**	**954.6**	**-4%**	**1107.1**	**1038.7**	**-6%**

Note: percentage changes shown in shaded cells are calculated for Do-Something route via Mersey Gateway is compared to Do-Minimum route via Silver Jubilee Bridge

Table 7.56 - Comparison of Do-Minimum and Do-Something Journey Times – Inter Peak Hour

Description of Route	2015 DM (A)	2015 DS (B)	% increase B/A	2030 DM (C)	2030 DS (D)	% increase D/C
Route 1 EB - M53 J1 to M62 J1	23.5	23.3	-1%	24.5	24.6	0%
Route 1 WB - M62 J1 to M53 J1	25.0	25.0	0%	26.1	26.1	0%
Route 2 NB - M56/M53 Chester to Garston	42.4	42.7	1%	44.8	44.9	0%
Route 2 SB – Garston to M56/M53 Chester	45.6	45.9	1%	48.2	48.3	0%
Route 3 NB - M56 J14 to M62 J6 via SJB	22.1	21.4	-3%	25.7	23.4	-9%
Route 3 SB - M62 J6 to M56 J14 via SJB	24.2	22.6	-7%	27.6	25.3	-8%
Route 3M NB - M56 J14 to M62 J6 via MG		19.7	**-11%**		22.0	**-14%**
Route 3M SB - M62 J6 to M56 J14 via MG		19.7	**-19%**		22.6	**-18%**
Route 4 NB - Preston Brook to M62 J7 via SJB	13.9	15.6	12%	16.0	16.5	3%
Route 4 SB - M62 J7 to Preston Brook via SJB	16.4	16.4	0%	18.8	17.5	-7%
Route 4M NB - Preston Brook to M62 J7 via MG		10.5	**-25%**		10.9	**-32%**
Route 4M SB - M62 J7 to Preston Brook via MG		11.0	**-33%**		12.0	**-36%**
Route 5 NB – M56 J11 to A574 Birchwood	20.0	20.5	3%	22.6	23.0	2%
Route 5 SB – A574 Birchwood to M56 J11	18.7	18.8	1%	19.6	19.4	-1%
Route 6 EB – M62 J7 to M6 J20	24.3	24.7	2%	26.5	26.2	-1%
Route 6 WB – M6 J20 to M62 J7	24.7	25.0	1%	27.7	27.3	-1%
Route 7 NB – M56 J10 to M62 J9	21.3	21.7	2%	23.8	24.1	1%
Route 7 SB – M62 J9 to M56 J10	20.6	20.7	1%	21.2	21.3	0%
Route 8 NB – Frodsham to Widnes Rugby Ground via SJB	18.0	18.2	1%	20.6	18.6	-10%
Route 8 SB – Widnes Rugby Ground to Frodsham via SJB	20.2	19.2	-5%	23.5	20.6	-12%
Route 8M NB – Frodsham to Widnes Rugby Ground via MG		17.0	**-6%**		17.6	**-15%**
Route 8M SB – Widnes Rugby Ground to Frodsham via MG		17.2	**-15%**		18.8	**-20%**
Route 9 NB – Preston Brook to Green Oaks Shopping Centre via SJB	12.6	14.3	13%	15.6	15.2	-3%
Route 9 SB – Green Oaks Shopping Centre to Preston Brook via SJB	13.9	13.9	0%	15.8	14.4	-9%
Route 9M NB – Preston Brook to Green Oaks Centre via MG		9.2	**-27%**		9.6	**-39%**
Route 9M SB – Green Oaks Centre to Preston Brook via MG		8.5	**-38%**		9.0	**-43%**
Route 10 NB – Daresbury Park to Garston via SJB	20.5	20.5	0%	23.6	21.9	-7%
Route 10 SB – Garston to Daresbury Park via SJB	20.3	20.1	-1%	23.0	20.8	-10%
Route 10M NB – Daresbury Park to Garston via MG		17.1	**-17%**		18.7	**-21%**
Route 10M SB – Garston to Daresbury Park via MG		16.6	**-18%**		17.5	**-24%**
Route 11 EB – M53 J3 to Wavertree Business Park (via Queensway)	18.5	18.8	1%	19.1	19.6	2%
Route 11 WB – Wavertree Business Park to M53 J3 (via Queensway)	19.5	19.6	1%	21.0	21.0	0%
Route 12 EB – M53 J3 to Wavertree Business Park (via Kingsway)	16.5	16.6	0%	17.2	17.2	0%
Route 12 WB – Wavertree Business Park to M53 J3 (via Kingsway)	18.4	18.4	0%	19.2	19.2	0%
Route 13 NB – M56 J10 to M62 J9 (via M6)	13.6	13.8	2%	16.3	16.2	0%
Route 13 SB – M62 J9 to M56 J10 (via M6)	14.8	14.8	0%	17.1	16.8	-1%
Route 14 NB - M56 J10 to Smith Street (Warrington)	13.3	13.8	3%	15.2	15.7	3%
Route 14 SB - Smith Street (Warrington) to M56 J10	12.8	12.9	0%	13.2	13.0	-2%
Route 15 NB – M6 J20 to A49 Winwick Road	15.0	15.3	2%	17.2	16.5	-4%
Route 15 SB – A49 Winwick Road to M6 J20	14.7	15.0	2%	16.0	15.4	-4%
Route 16 NB – A56 Chester Road to A49 Mersey Street	7.3	7.9	8%	9.3	9.8	5%
Route 16 SB – A49 Mersey Street to A56 Chester Road	7.5	7.5	1%	8.2	8.0	-2%
Route 17 – A57 Sankey Way to A5060 Chester Road	9.9	10.2	3%	11.0	11.1	1%
Route 18 – A5060 Chester Road to A57 Sankey Way	8.3	9.1	10%	10.2	11.1	9%
Route 19 – Chester to Knowsley Ind Park via Kingsway Tunnel	39.7	39.8	0%	42.0	42.2	0%
Route 19 – Knowsley Ind Park to Chester via Kingsway Tunnel	40.1	40.2	0%	41.9	41.9	0%
Route 20 – Chester to Knowsley Ind Park via SJB	35.1	33.9	-3%	39.4	36.6	-7%
Route 20 – Knowsley Ind Park to Chester via SJB	37.4	35.7	-5%	41.3	39.0	-6%
Total (excluding routes via MG)	**790.7**	**793.7**	**0%**	**869.9**	**849.8**	**-2%**

Note: percentage changes shown in shaded cells are calculated for Do-Something route via Mersey Gateway is compared to Do-Minimum route via Silver Jubilee Bridge

Table 7.57 - Comparison of Do-Minimum and Do-Something Journey Times – PM Peak Hour

Description of Route	2015 DM (A)	2015 DS (B)	% increase B/A	2030 DM (C)	2030 DS (D)	% increase D/C
Route 1 EB - M53 J1 to M62 J1	30.3	30.9	2%	34.6	34.5	0%
Route 1 WB - M62 J1 to M53 J1	28.9	29.4	2%	30.5	30.5	0%
Route 2 NB - M56/M53 Chester to Garston	48.1	48.8	2%	53.9	54.4	1%
Route 2 SB – Garston to M56/M53 Chester	51.8	52.0	0%	55.6	55.6	0%
Route 3 NB - M56 J14 to M62 J6 via SJB	34.0	27.1	-20%	37.7	31.0	-18%
Route 3 SB - M62 J6 to M56 J14 via SJB	32.9	26.3	-20%	36.5	29.0	-21%
Route 3M NB - M56 J14 to M62 J6 via MG		26.0	**-23%**		30.5	**-19%**
Route 3M SB - M62 J6 to M56 J14 via MG		23.8	**-28%**		26.0	**-29%**
Route 4 NB - Preston Brook to M62 J7 via SJB	21.9	16.7	-24%	25.9	17.6	-32%
Route 4 SB - M62 J7 to Preston Brook via SJB	19.1	16.8	-12%	20.4	17.0	-17%
Route 4M NB - Preston Brook to M62 J7 via MG		11.4	**-48%**		12.2	**-53%**
Route 4M SB - M62 J7 to Preston Brook via MG		11.5	**-40%**		11.6	**-43%**
Route 5 NB – M56 J11 to A574 Birchwood	23.2	23.1	0%	25.2	25.1	0%
Route 5 SB – A574 Birchwood to M56 J11	21.2	21.5	2%	22.4	22.0	-2%
Route 6 EB – M62 J7 to M6 J20	28.4	28.7	1%	30.8	30.3	-2%
Route 6 WB – M6 J20 to M62 J7	31.4	31.9	2%	33.6	32.9	-2%
Route 7 NB – M56 J10 to M62 J9	25.0	25.1	0%	27.1	26.9	-1%
Route 7 SB – M62 J9 to M56 J10	23.7	24.3	3%	25.6	25.4	-1%
Route 8 NB – Frodsham to Widnes Rugby Ground via SJB	25.2	18.9	-25%	29.4	20.7	-30%
Route 8 SB – Widnes Rugby Ground to Frodsham via SJB	28.4	22.1	-22%	31.8	23.9	-25%
Route 8M NB – Frodsham to Widnes Rugby Ground via MG		18.1	**-28%**		20.6	**-30%**
Route 8M SB – Widnes Rugby Ground to Frodsham via MG		20.5	**-28%**		21.8	**-32%**
Route 9 NB – Preston Brook to Green Oaks Shopping Centre via SJB	20.6	15.4	-25%	25.6	16.9	-34%
Route 9 SB – Green Oaks Shopping Centre to Preston Brook via SJB	17.0	14.4	-16%	20.3	15.7	-22%
Route 9M NB – Preston Brook to Green Oaks Centre via MG		10.1	**-51%**		11.5	**-55%**
Route 9M SB – Green Oaks Centre to Preston Brook via MG		9.0	**-47%**		10.3	**-49%**
Route 10 NB – Daresbury Park to Garston via SJB	29.0	23.8	-18%	34.5	27.4	-21%
Route 10 SB – Garston to Daresbury Park via SJB	25.9	21.6	-17%	30.0	23.7	-21%
Route 10M NB – Daresbury Park to Garston via MG		20.5	**-29%**		24.4	**-29%**
Route 10M SB – Garston to Daresbury Park via MG		18.3	**-29%**		20.7	**-31%**
Route 11 EB – M53 J3 to Wavertree Business Park (via Queensway)	22.0	22.0	0%	25.2	25.1	0%
Route 11 WB – Wavertree Business Park to M53 J3 (via Queensway)	22.4	22.4	0%	23.6	23.5	0%
Route 12 EB – M53 J3 to Wavertree Business Park (via Kingsway)	19.2	19.3	1%	23.1	23.1	0%
Route 12 WB – Wavertree Business Park to M53 J3 (via Kingsway)	19.9	19.8	0%	20.2	20.1	-1%
Route 13 NB – M56 J10 to M62 J9 (via M6)	17.0	16.7	-2%	19.8	19.7	-1%
Route 13 SB – M62 J9 to M56 J10 (via M6)	18.4	18.5	1%	21.8	21.5	-1%
Route 14 NB - M56 J10 to Smith Street (Warrington)	15.3	15.3	0%	16.4	15.9	-3%
Route 14 SB - Smith Street (Warrington) to M56 J10	14.7	15.4	4%	16.3	16.2	-1%
Route 15 NB – M6 J20 to A49 Winwick Road	16.9	17.4	3%	17.9	17.6	-1%
Route 15 SB – A49 Winwick Road to M6 J20	17.1	17.2	1%	19.0	18.7	-1%
Route 16 NB – A56 Chester Road to A49 Mersey Street	9.4	9.4	0%	10.6	10.0	-5%
Route 16 SB – A49 Mersey Street to A56 Chester Road	9.3	9.9	6%	10.7	10.4	-3%
Route 17 – A57 Sankey Way to A5060 Chester Road	13.4	14.1	5%	15.5	15.0	-3%
Route 18 – A5060 Chester Road to A57 Sankey Way	11.6	11.6	0%	12.2	11.9	-2%
Route 19 – Chester to Knowsley Ind Park via Kingsway Tunnel	48.3	48.7	1%	55.0	55.0	0%
Route 19 – Knowsley Ind Park to Chester via Kingsway Tunnel	44.5	44.6	0%	49.0	48.8	-1%
Route 20 – Chester to Knowsley Ind Park via SJB	48.7	41.5	-15%	53.7	46.9	-13%
Route 20 – Knowsley Ind Park to Chester via SJB	47.6	41.1	-14%	52.1	44.7	-14%
Total (excluding routes via MG)	**981.6**	**923.4**	**-6%**	**1093.2**	**1004.8**	**-8%**

Note: percentage changes shown in shaded cells are calculated for Do-Something route via Mersey Gateway is compared to Do-Minimum route via Silver Jubilee Bridge

Table 7.58 - Comparison of Do-Minimum and Do-Something Journey Times –Overnight Hour

Description of Route	2015 DM (A)	2015 DS (B)	% increase B/A	2030 DM (C)	2030 DS (D)	% increase D/C
Route 1 EB - M53 J1 to M62 J1	19.9	19.9	0%	20.1	20.0	0%
Route 1 WB - M62 J1 to M53 J1	21.6	21.6	0%	21.8	21.7	0%
Route 2 NB - M56/M53 Chester to Garston	38.0	38.0	0%	38.1	38.1	0%
Route 2 SB – Garston to M56/M53 Chester	41.0	41.0	0%	41.1	41.1	0%
Route 3 NB - M56 J14 to M62 J6 via SJB	16.5	18.4	12%	16.6	18.4	11%
Route 3 SB - M62 J6 to M56 J14 via SJB	17.8	18.7	5%	17.9	18.8	5%
Route 3M NB - M56 J14 to M62 J6 via MG		16.4	**0%**		16.5	**-1%**
Route 3M SB - M62 J6 to M56 J14 via MG		15.8	**-11%**		15.8	**-12%**
Route 4 NB - Preston Brook to M62 J7 via SJB	12.4	14.7	19%	12.5	14.7	18%
Route 4 SB - M62 J7 to Preston Brook via SJB	12.8	14.8	16%	12.9	14.9	15%
Route 4M NB - Preston Brook to M62 J7 via MG		10.0	**-19%**		10.0	**-19%**
Route 4M SB - M62 J7 to Preston Brook via MG		9.8	**-23%**		9.9	**-24%**
Route 5 NB – M56 J11 to A574 Birchwood	17.5	17.5	0%	17.5	17.5	0%
Route 5 SB – A574 Birchwood to M56 J11	17.0	17.0	0%	17.0	17.0	0%
Route 6 EB – M62 J7 to M6 J20	23.2	23.3	0%	23.2	23.3	0%
Route 6 WB – M6 J20 to M62 J7	21.3	21.5	1%	21.3	21.6	1%
Route 7 NB – M56 J10 to M62 J9	18.6	18.5	0%	18.6	18.6	0%
Route 7 SB – M62 J9 to M56 J10	18.9	19.0	0%	19.0	19.0	0%
Route 8 NB – Frodsham to Widnes Rugby Ground via SJB	16.3	17.8	9%	16.4	17.8	9%
Route 8 SB – Widnes Rugby Ground to Frodsham via SJB	17.3	17.7	2%	17.4	17.7	2%
Route 8M NB – Frodsham to Widnes Rugby Ground via MG		16.3	**0%**		16.3	**-1%**
Route 8M SB – Widnes Rugby Ground to Frodsham via MG		15.6	**-10%**		15.6	**-10%**
Route 9 NB – Preston Brook to Green Oaks Shopping Centre via SJB	11.0	13.4	21%	11.8	13.4	13%
Route 9 SB – Green Oaks Shopping Centre to Preston Brook via SJB	10.7	12.7	19%	10.8	12.8	18%
Route 9M NB – Preston Brook to Green Oaks Centre via MG		8.7	**-22%**		8.7	**-26%**
Route 9M SB – Green Oaks Centre to Preston Brook via MG		7.7	**-28%**		7.7	**-28%**
Route 10 NB – Daresbury Park to Garston via SJB	17.1	18.4	7%	17.2	18.5	8%
Route 10 SB – Garston to Daresbury Park via SJB	16.9	18.3	8%	16.9	18.4	9%
Route 10M NB – Daresbury Park to Garston via MG		15.0	**-12%**		15.1	**-12%**
Route 10M SB – Garston to Daresbury Park via MG		15.0	**-11%**		15.1	**-11%**
Route 11 EB – M53 J3 to Wavertree Business Park (via Queensway)	15.7	15.7	0%	15.8	15.8	0%
Route 11 WB – Wavertree Business Park to M53 J3 (via Queensway)	16.8	16.8	0%	16.9	16.9	0%
Route 12 EB – M53 J3 to Wavertree Business Park (via Kingsway)	15.1	15.1	0%	15.1	15.2	0%
Route 12 WB – Wavertree Business Park to M53 J3 (via Kingsway)	16.4	16.4	0%	16.5	16.5	0%
Route 13 NB – M56 J10 to M62 J9 (via M6)	9.6	9.6	0%	9.7	9.7	0%
Route 13 SB – M62 J9 to M56 J10 (via M6)	10.7	10.7	0%	10.7	10.7	0%
Route 14 NB - M56 J10 to Smith Street (Warrington)	12.0	12.0	0%	12.0	12.0	0%
Route 14 SB - Smith Street (Warrington) to M56 J10	12.5	12.5	0%	12.5	12.5	0%
Route 15 NB – M6 J20 to A49 Winwick Road	14.3	14.3	0%	14.3	14.3	0%
Route 15 SB – A49 Winwick Road to M6 J20	13.9	13.9	0%	13.9	13.9	0%
Route 16 NB – A56 Chester Road to A49 Mersey Street	6.1	6.1	0%	6.1	6.1	0%
Route 16 SB – A49 Mersey Street to A56 Chester Road	6.5	6.5	0%	6.5	6.5	0%
Route 17 – A57 Sankey Way to A5060 Chester Road	8.5	8.6	0%	8.5	8.6	0%
Route 18 – A5060 Chester Road to A57 Sankey Way	6.6	6.7	0%	6.7	6.7	0%
Route 19 – Chester to Knowsley Ind Park via Kingsway Tunnel	36.4	36.4	0%	36.5	36.5	0%
Route 19 – Knowsley Ind Park to Chester via Kingsway Tunnel	36.9	36.9	0%	37.1	37.1	0%
Route 20 – Chester to Knowsley Ind Park via SJB	28.5	30.1	6%	28.7	30.2	5%
Route 20 – Knowsley Ind Park to Chester via SJB	29.7	30.7	3%	29.9	30.8	3%
Total (excluding routes via MG)	**682.2**	**701.2**	**3%**	**685.4**	**702.7**	**3%**

Note: percentage changes shown in shaded cells are calculated for Do-Something route via Mersey Gateway is compared to Do-Minimum route via Silver Jubilee Bridge

Table 7.59 - Comparison of 2006 Base Year and 2015 Do-Minimum Travel Times between Key Locations – AM Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	2	3	2	4	3	4	4	1	1
141	Widnes town centre	3	0	2	2	2	2	7	2	5	5
200	Warrington town centre	2	0	0	2	2	2	6	1	3	1
355	Old Swan	5	1	3	0	0	2	1	1	6	6
361	Liverpool city centre	4	1	2	-1	0	3	2	1	6	6
409	Liverpool Airport	2	-2	0	1	2	0	6	-2	3	4
429	Ellesmere Port	3	5	6	2	2	7	0	7	1	5
468	St Helens	5	2	3	1	2	2	9	0	6	6
484	Frodsham	1	2	3	3	4	4	1	4	0	2
819	M6 (south) - Congleton	4	4	3	7	6	6	7	5	5	0

Note: Travel time savings are 2015 Do-Minimum minus 2006 Base Year in minutes

Table 7.60 - Comparison of 2006 Base Year and 2015 Do-Minimum Travel Times between Key Locations – Inter Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	0	1	2	1	1	2	1	0	1
141	Widnes town centre	1	0	0	1	1	1	3	1	2	2
200	Warrington town centre	1	0	0	1	1	2	2	1	2	0
355	Old Swan	2	1	1	0	0	0	1	0	3	3
361	Liverpool city centre	1	0	-1	-2	0	0	1	-1	2	1
409	Liverpool Airport	0	-1	-1	0	0	0	1	-1	1	1
429	Ellesmere Port	2	3	3	-2	0	4	0	4	1	3
468	St Helens	2	0	0	1	0	1	3	0	3	2
484	Frodsham	0	1	1	2	2	2	0	2	0	2
819	M6 (south) - Congleton	1	2	1	4	4	3	2	3	2	0

Note: Travel time savings are 2015 Do-Minimum minus 2006 Base Year in minutes

Table 7.61 - Comparison of 2006 Base Year and 2015 Do-Minimum Travel Times between Key Locations – PM Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	2	1	4	3	4	2	2	0	1
141	Widnes town centre	3	0	0	2	1	2	5	1	3	3
200	Warrington town centre	1	1	0	2	1	3	3	1	2	0
355	Old Swan	5	3	3	0	-2	1	0	1	6	6
361	Liverpool city centre	2	0	-2	-5	0	-1	0	-2	3	1
409	Liverpool Airport	2	0	0	1	0	0	4	0	2	3
429	Ellesmere Port	4	7	5	1	2	9	0	8	1	4
468	St Helens	3	1	1	2	2	1	5	0	3	4
484	Frodsham	1	4	2	6	5	6	1	4	0	1
819	M6 (south) - Congleton	3	6	3	9	7	8	5	7	3	0

Note: Travel time savings are 2015 Do-Minimum minus 2006 Base Year in minutes

Table 7.62 - Comparison of 2006 Base Year and 2030 Do-Minimum Travel Times between Key Locations – AM Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	2	4	5	9	4	7	6	1	5
141	Widnes town centre	6	0	3	4	8	4	13	4	8	11
200	Warrington town centre	5	1	0	4	4	5	11	3	6	6
355	Old Swan	9	4	5	0	2	3	12	5	11	14
361	Liverpool city centre	10	5	6	0	0	4	7	4	10	15
409	Liverpool Airport	6	1	5	4	6	0	13	1	8	11
429	Ellesmere Port	6	8	9	6	6	10	0	12	2	10
468	St Helens	11	5	6	4	6	5	16	0	12	14
484	Frodsham	3	5	6	8	12	7	3	9	0	6
819	M6 (south) - Congleton	13	11	10	16	16	15	17	14	11	0

Note: Travel time savings are 2030 Do-Minimum minus 2006 Base Year in minutes

Table 7.63 - Comparison of 2006 Base Year and 2030 Do-Minimum Travel Times between Key Locations – Inter Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	2	3	4	5	5	4	5	0	1
141	Widnes town centre	4	0	0	2	3	3	7	2	5	5
200	Warrington town centre	3	0	0	2	3	4	5	3	3	2
355	Old Swan	5	2	2	0	1	2	3	1	6	7
361	Liverpool city centre	5	2	2	0	0	3	2	2	6	7
409	Liverpool Airport	6	2	3	1	1	0	9	3	7	8
429	Ellesmere Port	4	6	7	1	2	9	0	9	1	5
468	St Helens	5	1	1	1	2	3	8	0	6	7
484	Frodsham	0	3	4	5	6	6	0	6	0	3
819	M6 (south) - Congleton	3	6	5	10	11	9	6	10	4	0

Note: Travel time savings are 2030 Do-Minimum minus 2006 Base Year in minutes

Table 7.64 - Comparison of 2006 Base Year and 2030 Do-Minimum Travel Times between Key Locations – PM Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	5	4	9	10	8	5	7	2	5
141	Widnes town centre	4	0	0	5	6	4	9	3	5	8
200	Warrington town centre	4	3	0	6	7	7	7	5	5	4
355	Old Swan	8	2	2	0	1	3	5	2	9	9
361	Liverpool city centre	11	7	2	-2	0	4	2	2	4	9
409	Liverpool Airport	9	4	5	4	4	0	12	6	10	12
429	Ellesmere Port	6	13	10	10	9	15	0	15	3	10
468	St Helens	7	2	3	3	5	5	10	0	8	9
484	Frodsham	2	9	6	13	14	12	2	11	0	6
819	M6 (south) - Congleton	8	15	9	18	19	18	11	16	8	0

Note: Travel time savings are 2030 Do-Minimum minus 2006 Base Year in minutes

Table 7.65 - Comparison of 2015 Do-Minimum and Do-Something Travel Times between Key Locations – AM Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	7	-1	7	7	7	2	8	1	-1
141	Widnes town centre	8	0	0	-1	0	0	8	1	8	4
200	Warrington town centre	0	0	0	0	0	0	0	2	1	0
355	Old Swan	9	0	0	0	0	0	1	0	9	0
361	Liverpool city centre	9	0	0	0	0	0	0	0	9	0
409	Liverpool Airport	9	0	-1	0	0	0	8	0	9	7
429	Ellesmere Port	1	5	0	0	0	6	0	7	0	0
468	St Helens	9	1	0	0	0	0	8	0	9	0
484	Frodsham	0	5	-1	5	5	6	0	6	0	-1
819	M6 (south) - Congleton	1	-1	0	-2	-1	-1	0	-1	0	0

Note: Travel time savings are 2015 Do-Minimum minus 2015 Do-Something in minutes

Table 7.66 - Comparison of 2015 Do-Minimum and Do-Something Travel Times between Key Locations – Inter Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	3	-1	5	5	5	1	4	0	0
141	Widnes town centre	4	0	0	0	0	0	4	0	3	-5
200	Warrington town centre	0	0	0	0	0	1	0	0	0	-1
355	Old Swan	4	0	0	0	0	0	0	0	4	0
361	Liverpool city centre	4	0	0	0	0	0	0	0	4	0
409	Liverpool Airport	4	0	-1	0	0	0	4	0	4	4
429	Ellesmere Port	0	1	0	0	0	3	0	2	0	1
468	St Helens	6	0	0	0	0	0	5	0	5	0
484	Frodsham	0	1	-1	3	3	3	0	3	0	0
819	M6 (south) - Congleton	0	-6	-1	0	0	4	0	0	0	0

Note: Travel time savings are 2015 Do-Minimum minus 2015 Do-Something in minutes

Table 7.67 - Comparison of 2015 Do-Minimum and Do-Something Travel Times between Key Locations – PM Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	9	0	9	9	9	3	11	1	0
141	Widnes town centre	8	0	0	-1	-1	-1	9	0	9	5
200	Warrington town centre	-1	0	0	-1	-1	-1	0	0	0	0
355	Old Swan	7	0	-1	0	0	0	-1	-1	9	-1
361	Liverpool city centre	7	0	0	0	0	0	0	0	9	0
409	Liverpool Airport	7	0	-1	-1	0	0	9	0	9	7
429	Ellesmere Port	0	7	0	0	0	7	0	9	0	0
468	St Helens	8	0	0	0	0	-1	9	0	9	0
484	Frodsham	0	8	0	7	7	8	0	9	0	0
819	M6 (south) - Congleton	0	5	0	-1	-1	8	0	0	0	0

Note: Travel time savings are 2015 Do-Minimum minus 2015 Do-Something in minutes

Table 7.68 - Comparison of 2030 Do-Minimum and Do-Something Travel Times between Key Locations – AM Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	7	-1	8	9	8	2	9	1	-1
141	Widnes town centre	10	0	0	1	2	1	10	1	10	8
200	Warrington town centre	1	0	0	1	1	1	1	1	1	2
355	Old Swan	11	1	1	0	1	0	5	1	11	1
361	Liverpool city centre	12	2	2	0	0	1	1	2	10	2
409	Liverpool Airport	11	2	1	1	1	0	11	0	11	10
429	Ellesmere Port	1	6	1	1	0	7	0	7	1	0
468	St Helens	12	1	1	1	1	1	10	0	12	1
484	Frodsham	1	6	0	7	8	6	0	7	0	-1
819	M6 (south) - Congleton	2	-1	1	1	1	2	0	0	0	0

Note: Travel time savings are 2030 Do-Minimum minus 2030 Do-Something in minutes

Table 7.69 - Comparison of 2030 Do-Minimum and Do-Something Travel Times between Key Locations – Inter Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	5	-1	6	6	6	1	6	0	0
141	Widnes town centre	6	0	0	0	0	0	5	0	5	5
200	Warrington town centre	0	0	0	0	0	0	0	0	0	0
355	Old Swan	5	-1	0	0	0	0	0	0	5	0
361	Liverpool city centre	6	-1	0	0	0	0	0	0	5	0
409	Liverpool Airport	7	0	0	0	0	0	6	1	6	6
429	Ellesmere Port	0	3	0	0	0	4	0	4	0	0
468	St Helens	7	0	0	0	0	0	7	0	6	0
484	Frodsham	0	3	-1	4	4	5	0	4	0	0
819	M6 (south) - Congleton	0	3	0	0	0	5	0	0	0	0

Note: Travel time savings are 2030 Do-Minimum minus 2030 Do-Something in minutes

Table 7.70 - Comparison of 2030 Do-Minimum and Do-Something Travel Times between Key Locations – PM Peak Hour

		Zone									
Zone	Location	82	141	200	355	361	409	429	468	484	819
82	Halton Lea	0	12	0	11	11	10	4	12	2	2
141	Widnes town centre	9	0	-1	-1	-1	-1	11	0	10	8
200	Warrington town centre	-1	1	0	0	1	-1	1	1	1	1
355	Old Swan	11	1	1	0	0	0	4	1	13	1
361	Liverpool city centre	12	3	1	1	0	1	1	0	5	1
409	Liverpool Airport	9	0	-1	0	-1	0	11	0	11	8
429	Ellesmere Port	0	10	1	5	1	8	0	10	1	1
468	St Helens	10	0	0	0	0	0	11	0	11	0
484	Frodsham	1	11	1	9	10	9	1	11	0	1
819	M6 (south) - Congleton	0	11	1	1	1	9	0	1	0	0

Note: Travel time savings are 2030 Do-Minimum minus 2030 Do-Something in minutes

Table 7.71 - Annual Toll Revenue Forecasts for MG (£ thousands)

Year	Car	LGV	OGV	Bus	Total
2015	19,015	3,286	7,119	0	29,420
2016	19,323	3,376	7,302	0	30,001
2017	19,631	3,467	7,484	0	30,582
2018	19,938	3,557	7,666	0	31,161
2019	20,246	3,648	7,849	0	31,743
2020	20,554	3,738	8,031	0	32,323
2021	20,862	3,828	8,214	0	32,904
2022	21,169	3,919	8,396	0	33,484
2023	21,477	4,009	8,578	0	34,064
2024	21,785	4,100	8,761	0	34,646
2025	22,093	4,190	8,943	0	35,226
2026	22,400	4,280	9,126	0	35,806
2027	22,708	4,371	9,308	0	36,387
2028	23,016	4,461	9,490	0	36,967
2029	23,323	4,552	9,673	0	37,548
2030	23,631	4,642	9,855	0	38,128

Note: - Revenues are in 2006 prices.

Table 7.72 - Annual Toll Revenue Forecasts for SJB (£ thousands)

Year	Car	LGV	OGV	Bus	Total
2015	2,924	1,231	3,225	0	7,380
2016	2,978	1,262	3,270	0	7,510
2017	3,032	1,293	3,314	0	7,639
2018	3,086	1,324	3,359	0	7,769
2019	3,140	1,355	3,404	0	7,899
2020	3,194	1,386	3,449	0	8,029
2021	3,248	1,417	3,494	0	8,159
2022	3,303	1,447	3,539	0	8,289
2023	3,357	1,478	3,583	0	8,418
2024	3,411	1,509	3,628	0	8,548
2025	3,465	1,540	3,673	0	8,678
2026	3,519	1,571	3,718	0	8,808
2027	3,573	1,602	3,763	0	8,938
2028	3,627	1,633	3,808	0	9,068
2029	3,682	1,664	3,852	0	9,198
2030	3,736	1,694	3,897	0	9,327

Note: - Revenues are in 2006 prices.

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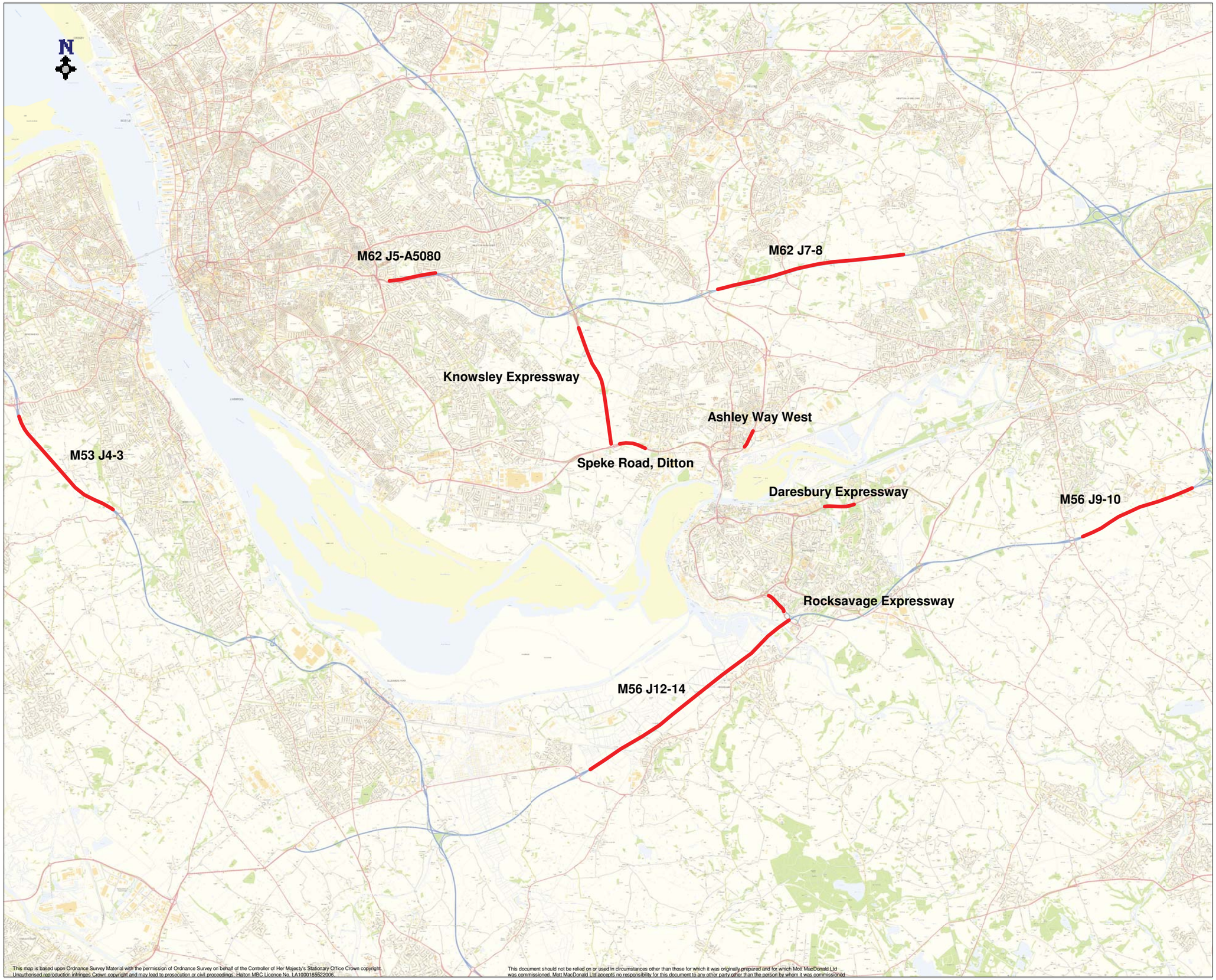

Notes

Key

Rev	Date	Drawn	Description	Ch'ked	App'd
P1	08/11/2007	MJR	For Issue	CS	HF

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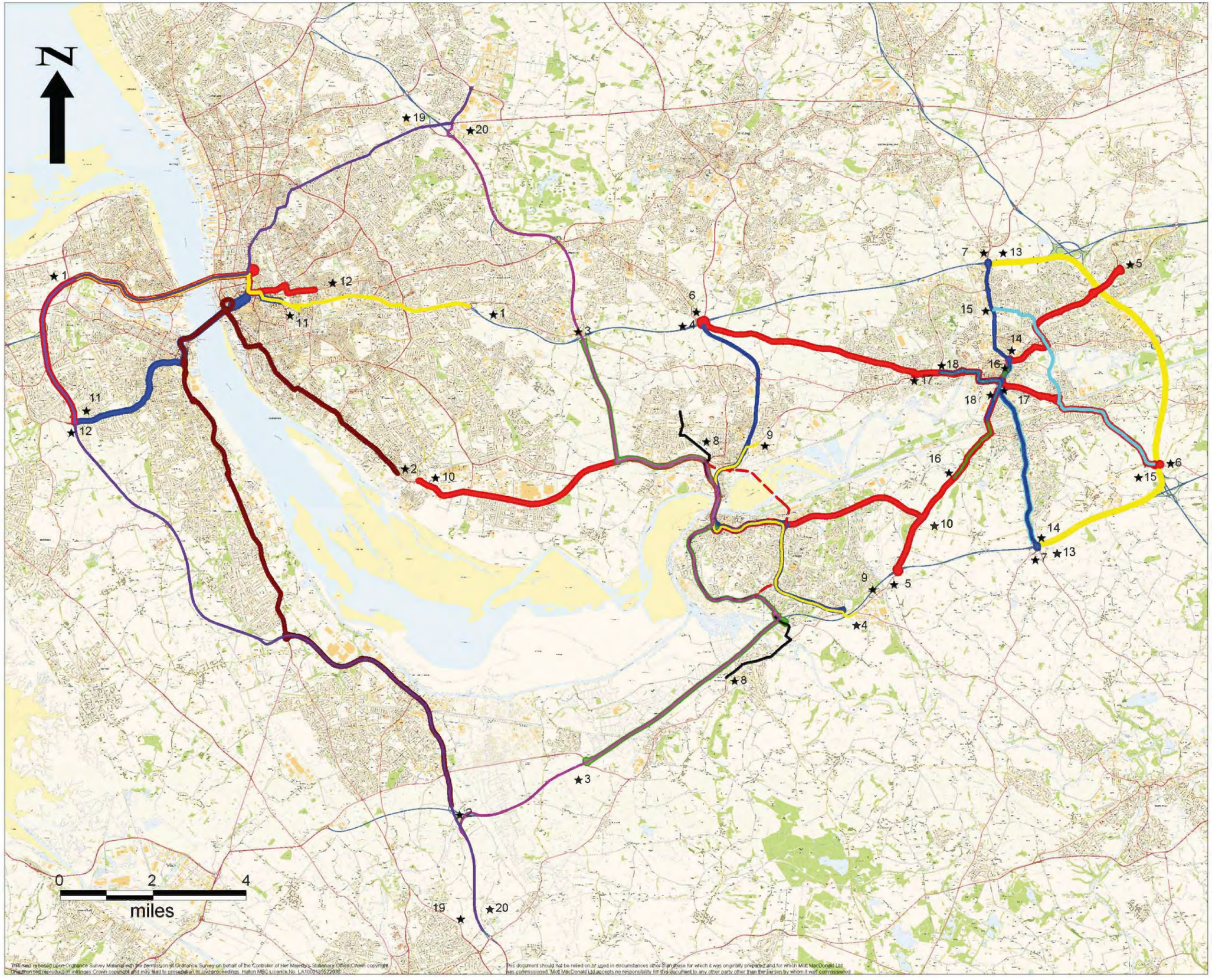
Mersey Gateway Study

Figure 7.1 - Key Locations

Drawn	MJR			
Dwg. Chk.	CS	Approved	HF	
Scale at A3 NTS	Project Mersey Gateway			Status PRE
	File P:\Manchester\Northwest\Projects\Old\227709 Mersey Gateway\TP\5.0 Technical\5.4 Technical Notes\Maps\Hy plans for report			
Drawing No. 231775/TP/				Rev P1



Notes

Key

- Route 17
- Route 5
- Route 16
- Route 8
- Route 15
- Route 9
- Route 4
- Route 10
- Route 3
- Route 11
- Route 1
- Route 12
- Route 2
- Route 13
- Route 6
- Route 18
- Route 7
- Route19
- Route 14
- Route20

Rev	Date	Drawn	Description	Ch'ked	App'd
P1	15-12-08	TA	For Issue	DOB	HF

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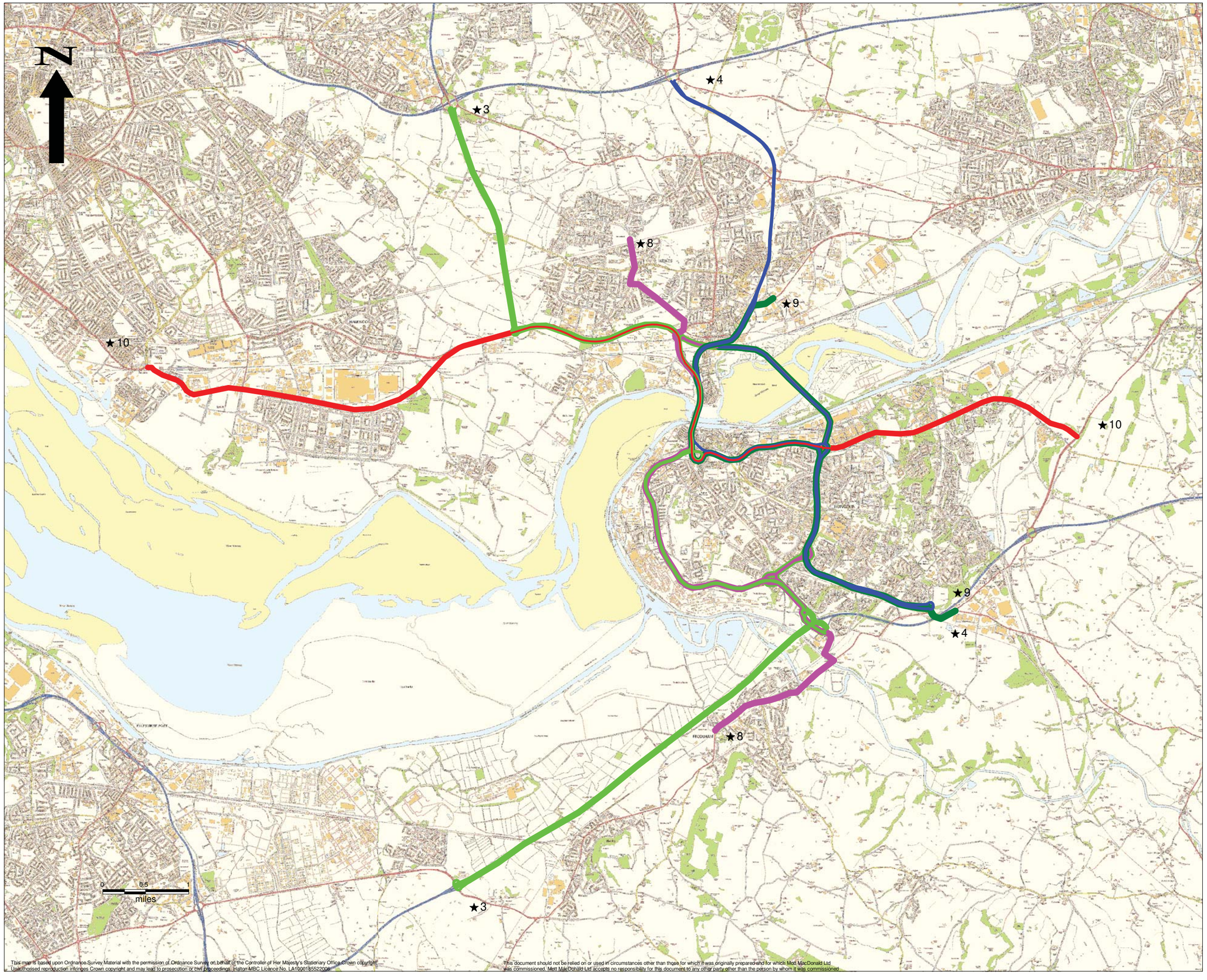
Figure 7.2 - Journey Time routes

Drawn	TA			
Dwg. Chk.	DOB	Approved	HF	
Scale at A3 NTS	Project	Mersey Gateway		Status PRE
	File			
Drawing No.	231775/TP/			Rev P1



Notes

Key

- Route 3 via SJB
- Route 4 via SJB
- Route 8 via SJB
- Route 9 via SJB
- Route 10 via SJB
- Route 3 via MG
- Route 4 via MG
- Route 8 via MG
- Route 9 via MG
- Route 10 via MG

Rev	Date	Drawn	Description	Ch'ked	App'd
P1	18/07/07	GD	For Issue	DOB	CS

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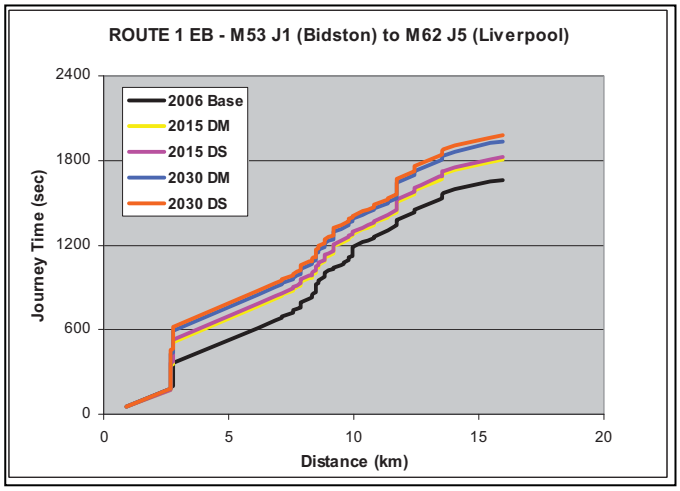
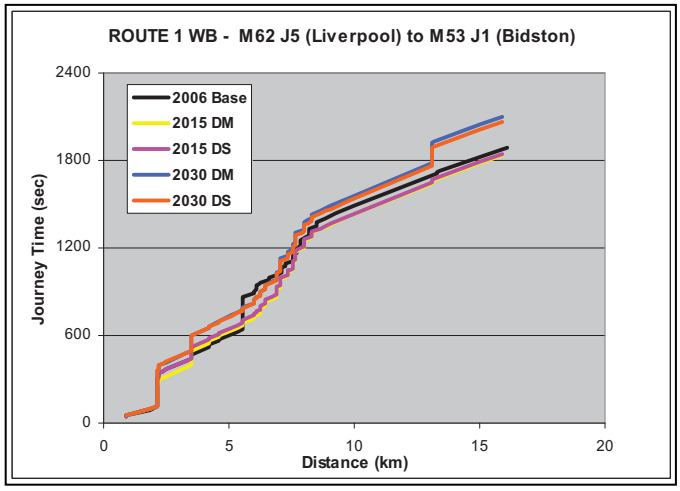
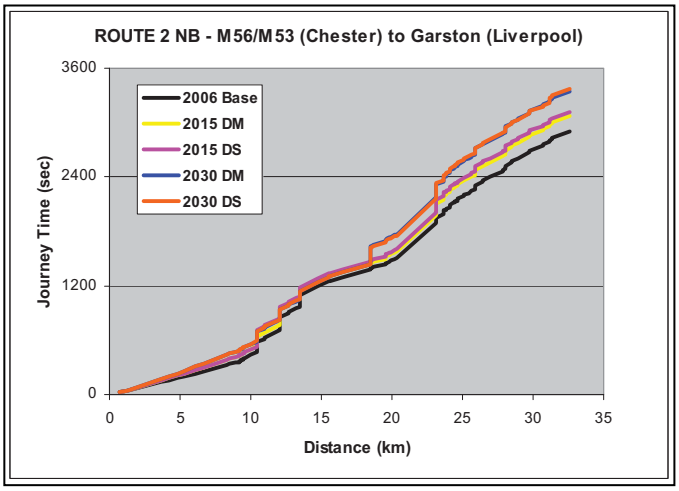
Mersey Gateway Study

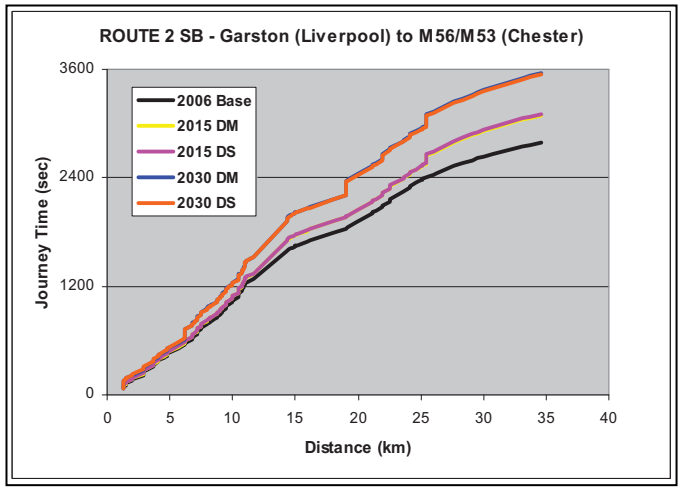
Figure 7.3 - Journey Time Routes via Mersey Gateway

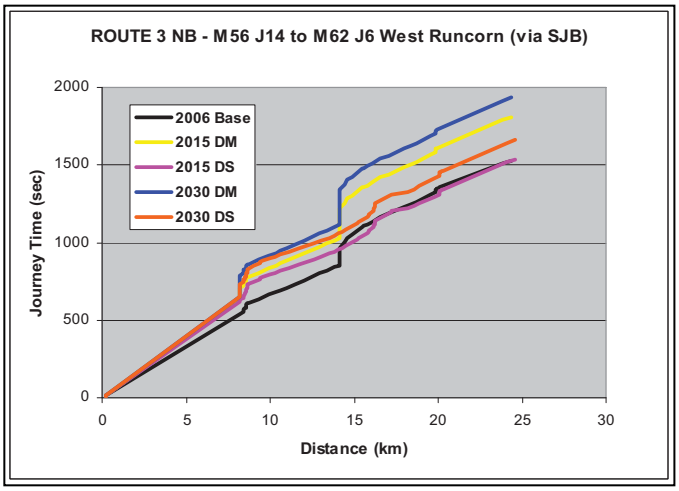
Drawn	JH	TN40		
Dwg. Chk.	DOB	Approved	CS	
Scale at A3 NTS	Project	Mersey Gateway		Status PRE
	File	P:\Manchester\Northwest\Projects\Old\227709 Mersey Gateway\TP\5.0 Technical\5.4 Technical Notes\Graphic plans for report		
Drawing No.	231775/TP/			Rev P1

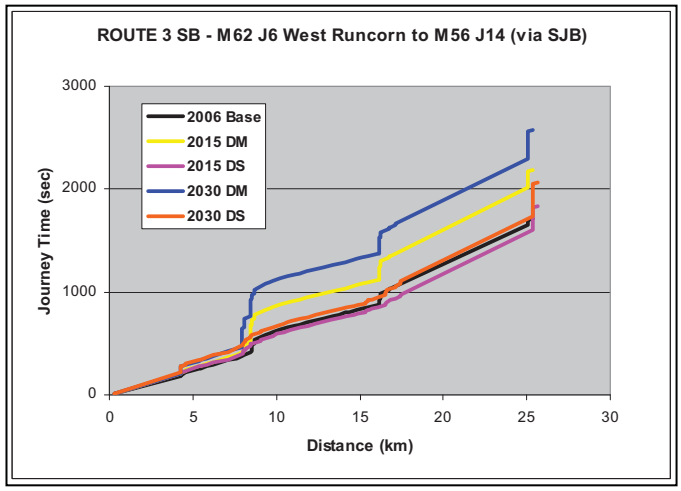




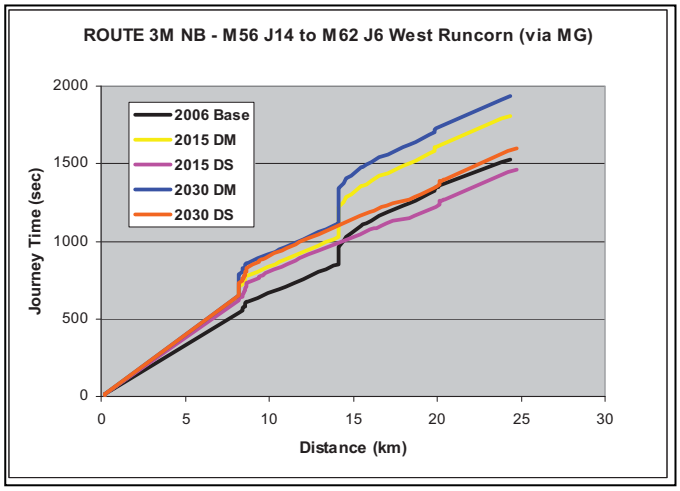


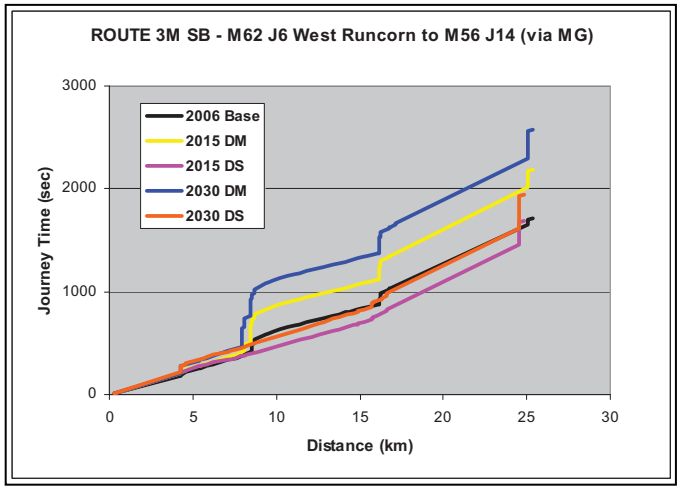


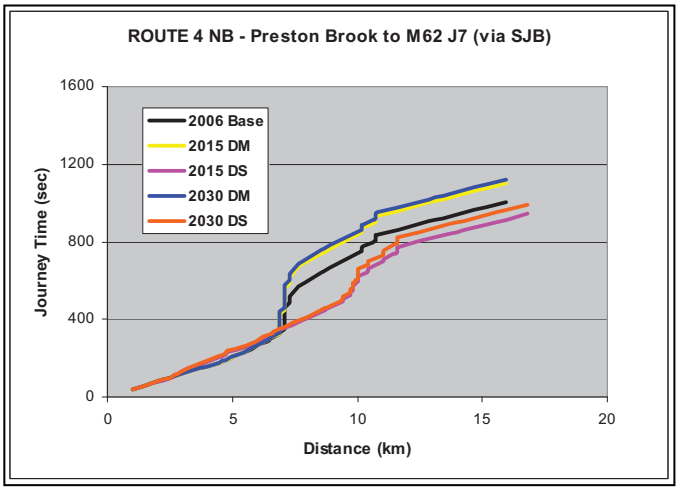


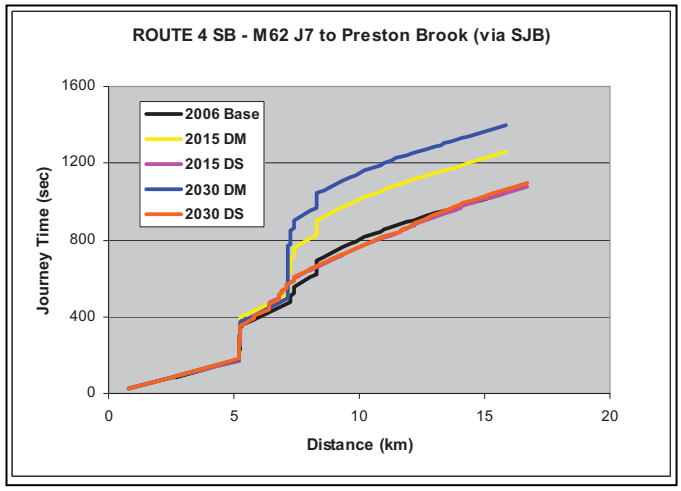


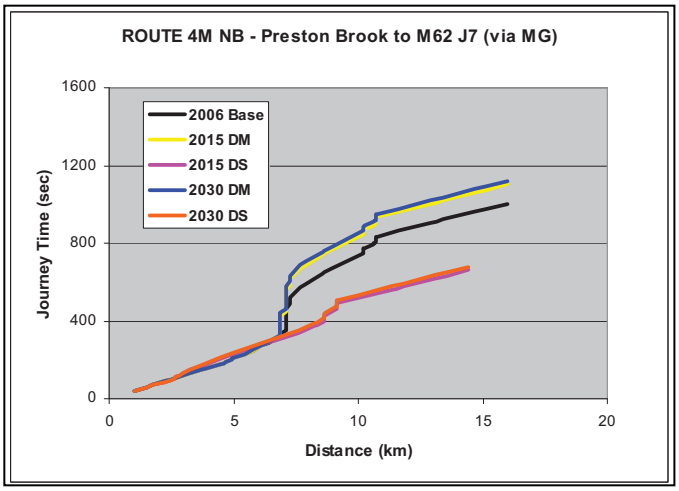
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.4 Comparison of Journey Times – AM Peak Hour (Sheet 1 of 8)**			

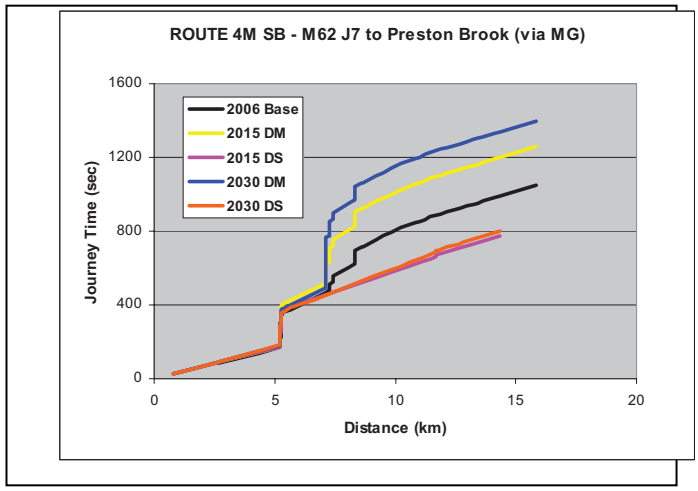




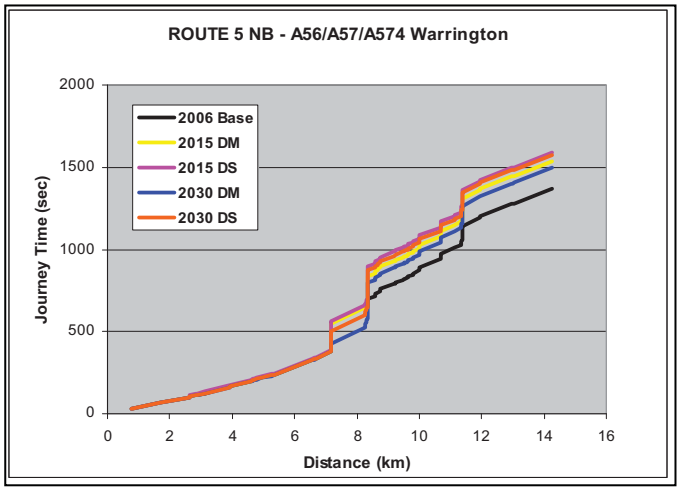


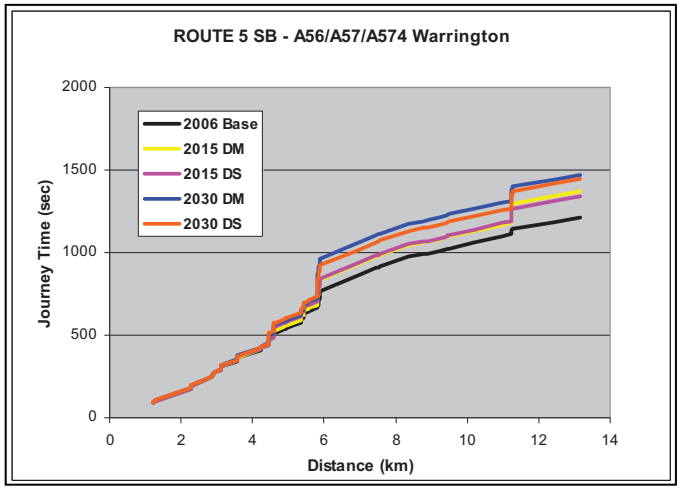


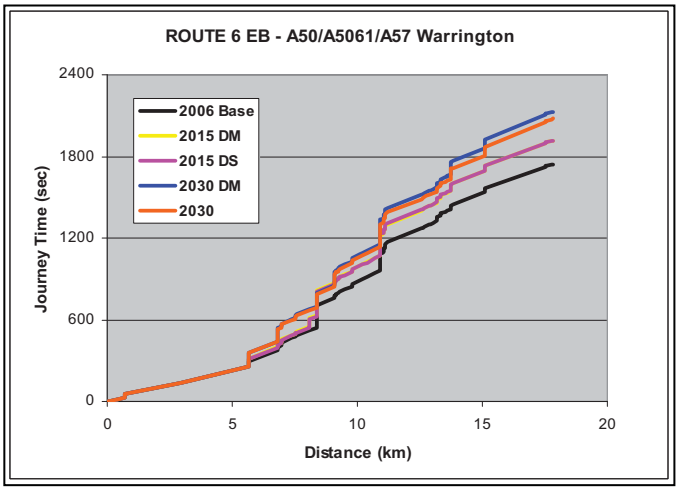


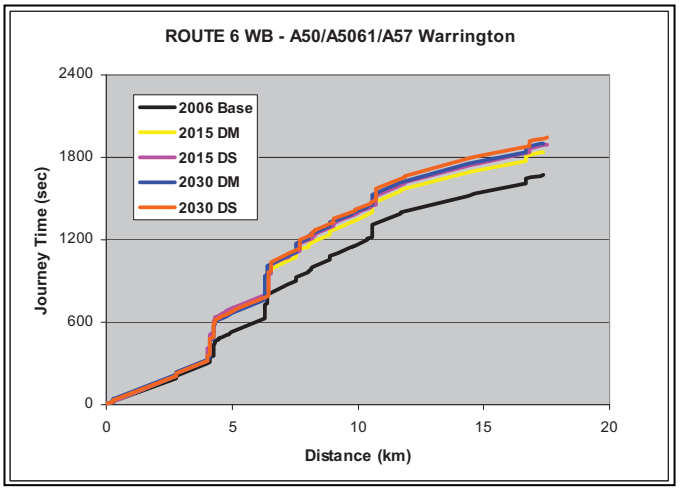


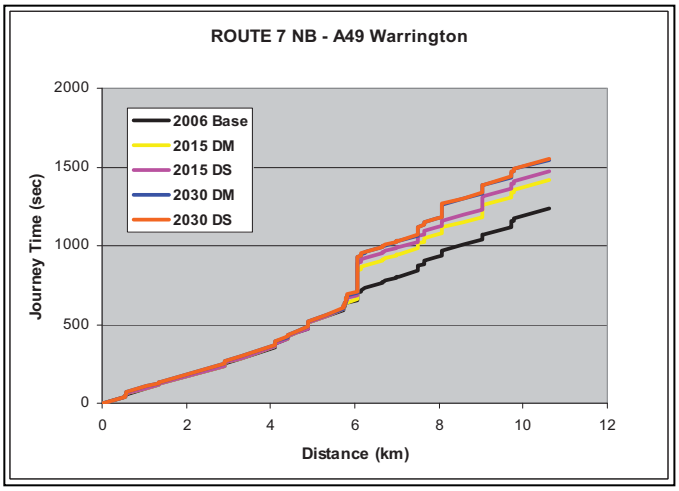
HALTON BOROUGH COUNCIL / Mott MacDonald			
	Design: JEH	CAD	Checked: HF / Approved
	Drawing Number		Date: 16/12/08
	Project: Mersey Gateway		File
Mersey Gateway Study	**Figure 7.4 Comparison of Journey Times – AM Peak Hour (Sheet 2 of 8)**		

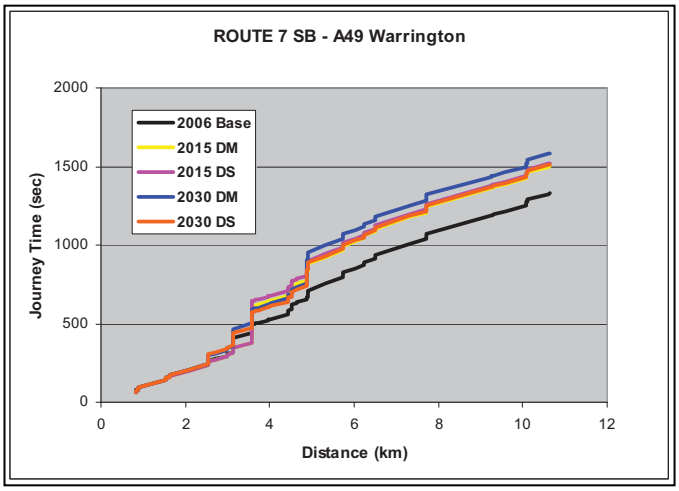




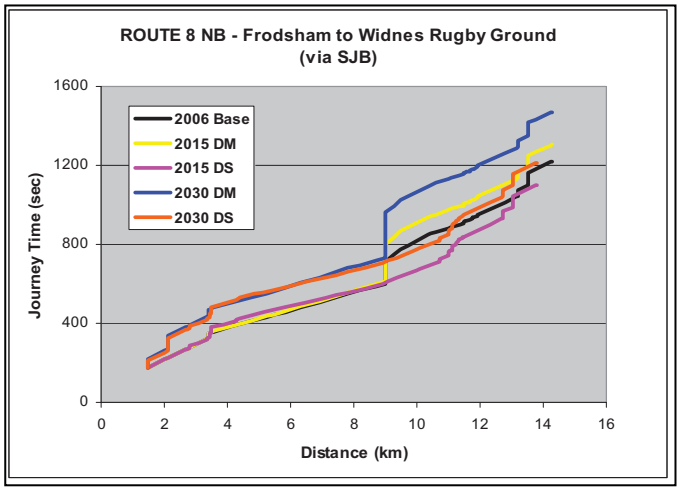


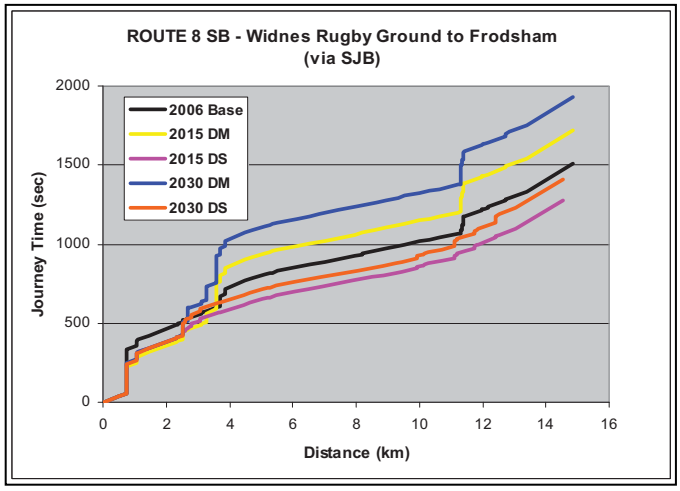


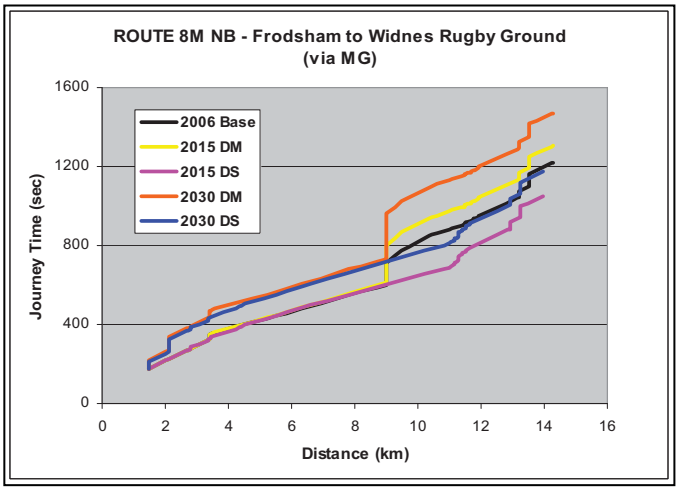


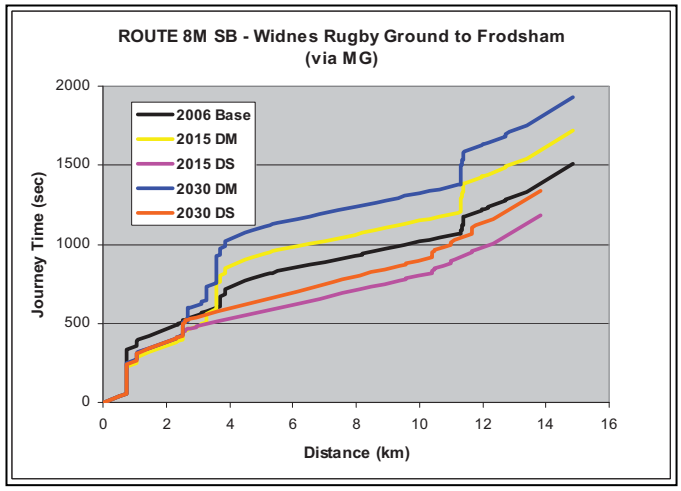


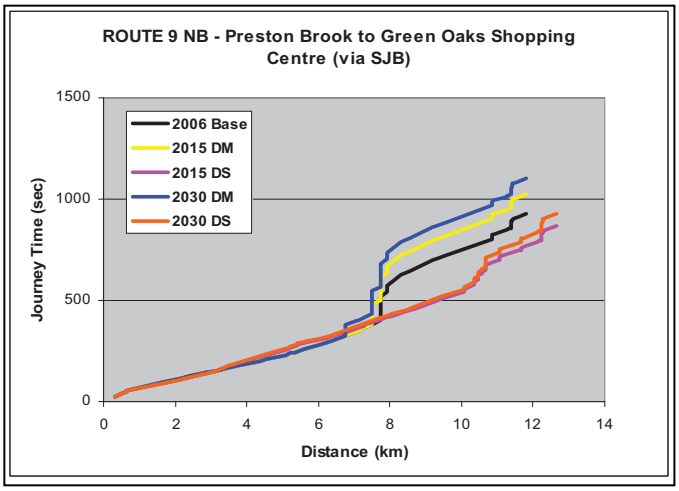
HALTON BOROUGH COUNCIL / Mott MacDonald			
	Design: JEH	CAD	Checked: HF / Approved
	Drawing Number		Date: 16/12/08
	Project: Mersey Gateway	File	
Mersey Gateway Study	**Figure 7.4 Comparison of Journey Times – AM Peak Hour (Sheet 3 of 8)**		

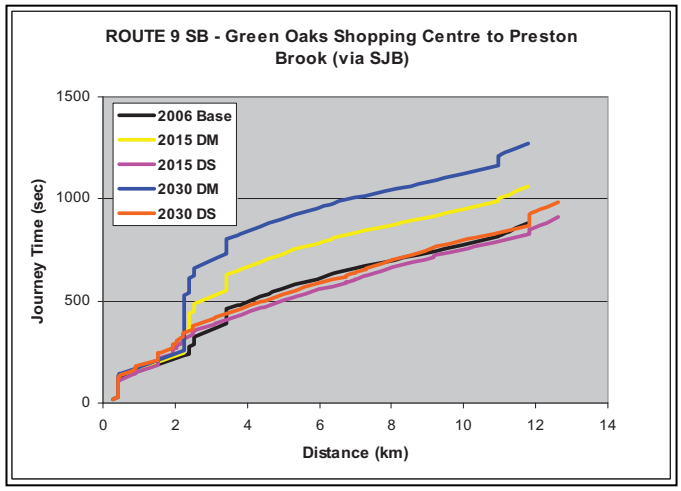




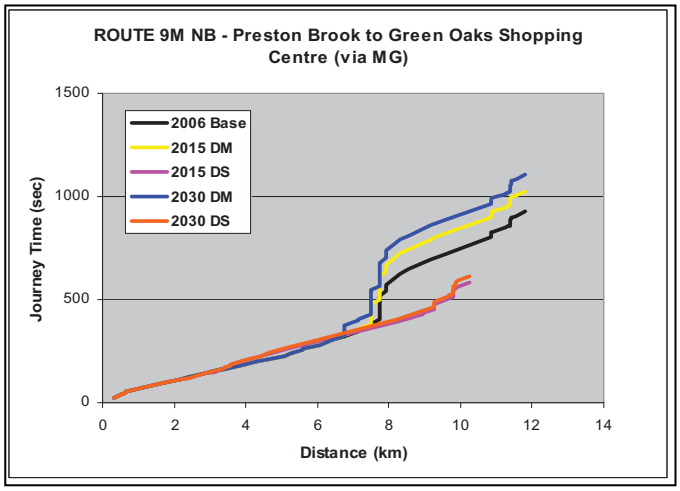


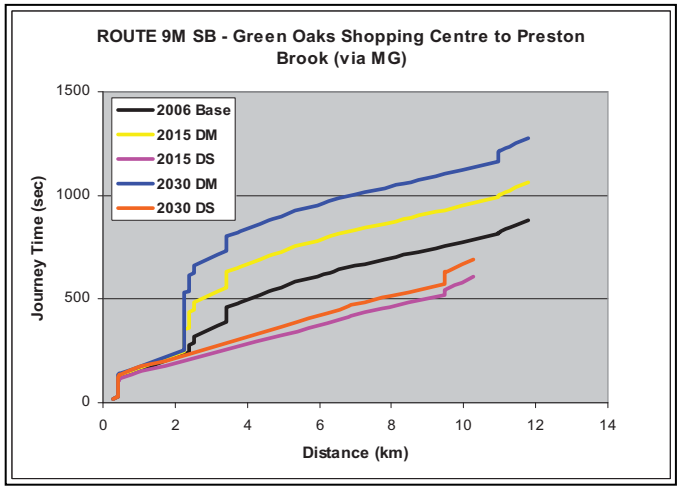


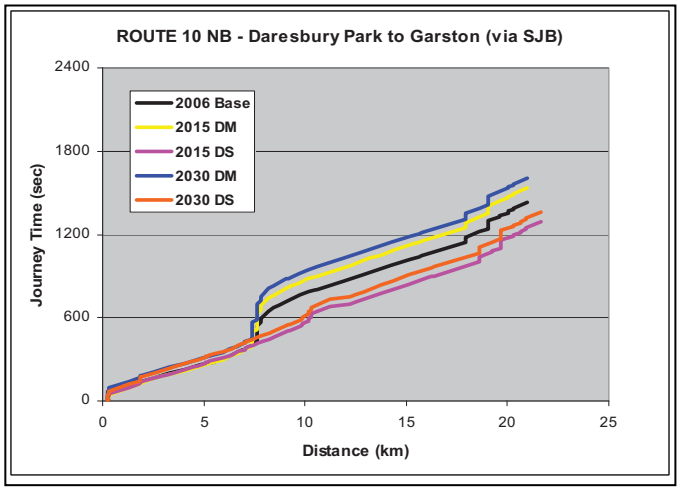


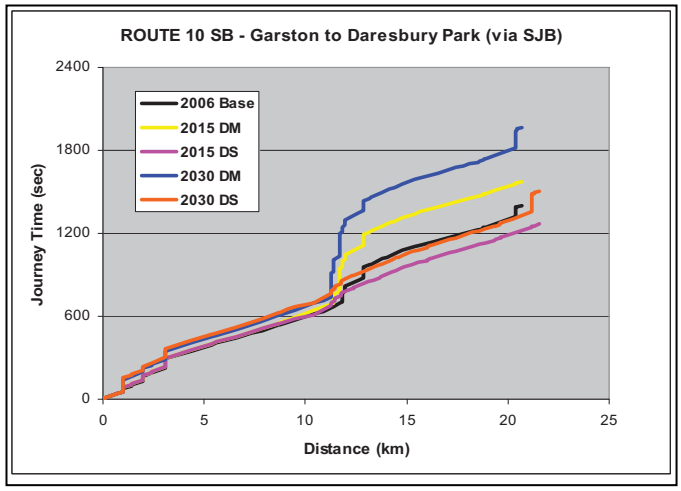


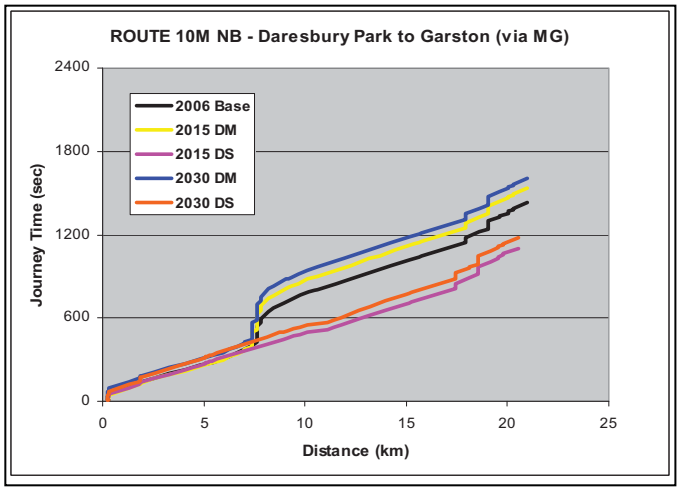
	Design JEH	CAD	Checked HF / Approved
	Drawing Number		Date 16/12/08
	Project Mersey Gateway	File	
Mersey Gateway Study	**Figure 7.4 Comparison of Journey Times – AM Peak Hour (Sheet 4 of 8)**		

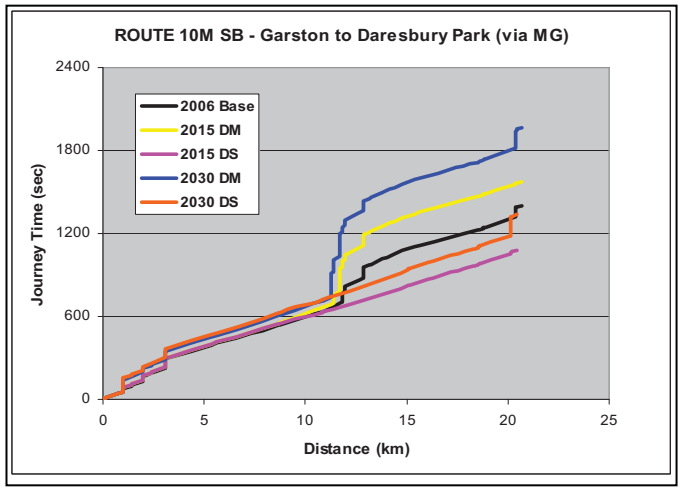




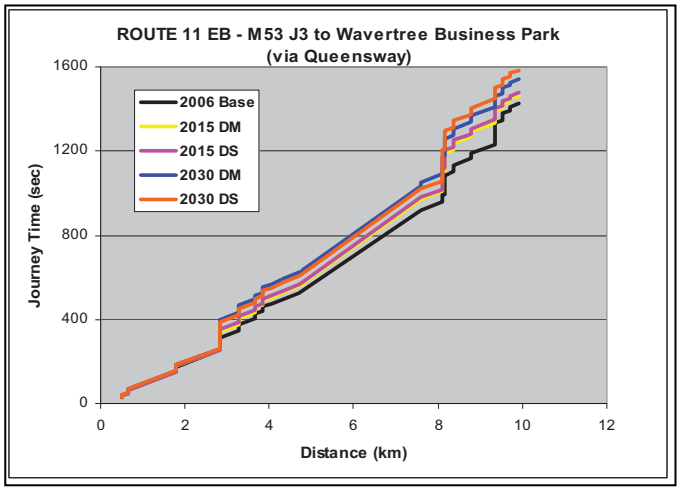


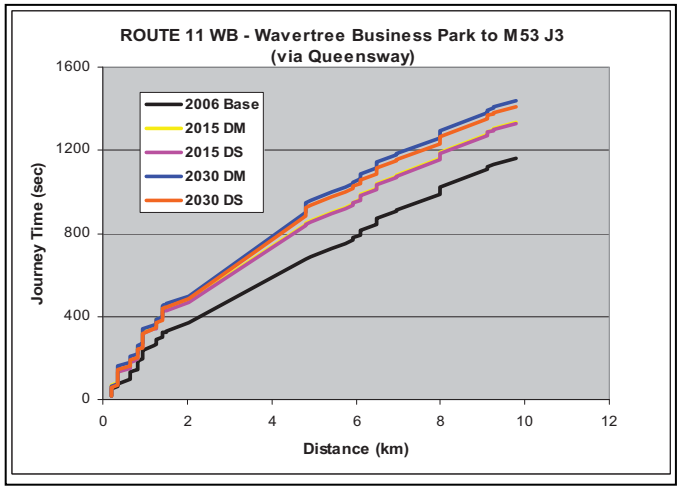


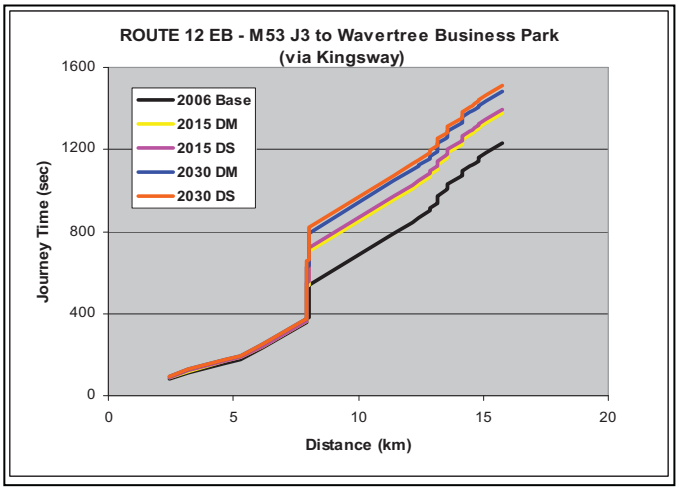


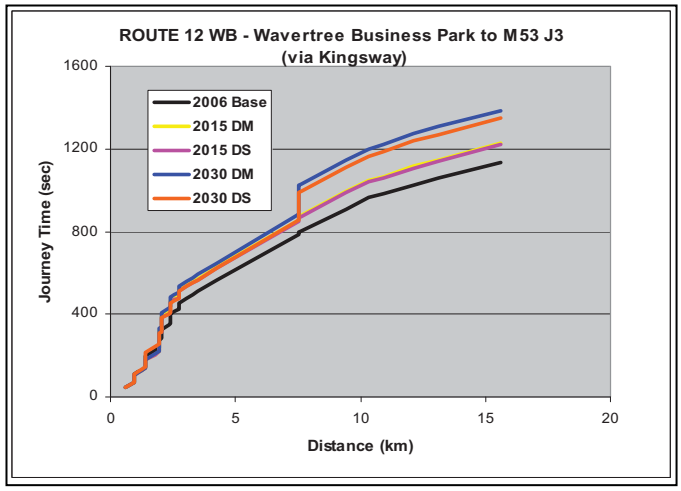


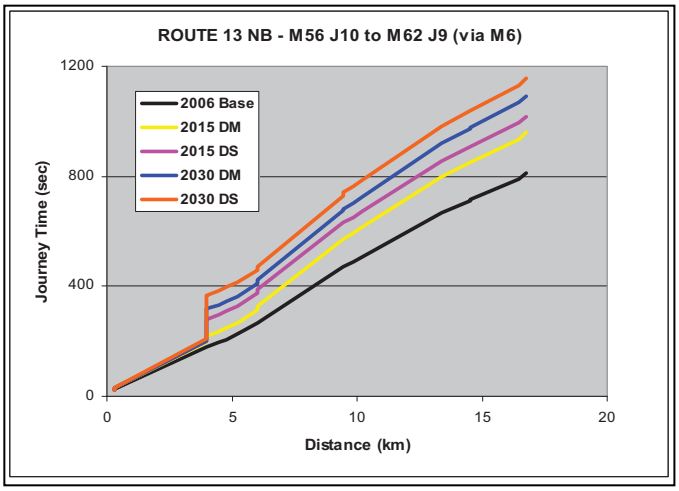
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.4 Comparison of Journey Times – AM Peak Hour (Sheet 5 of 8)**			

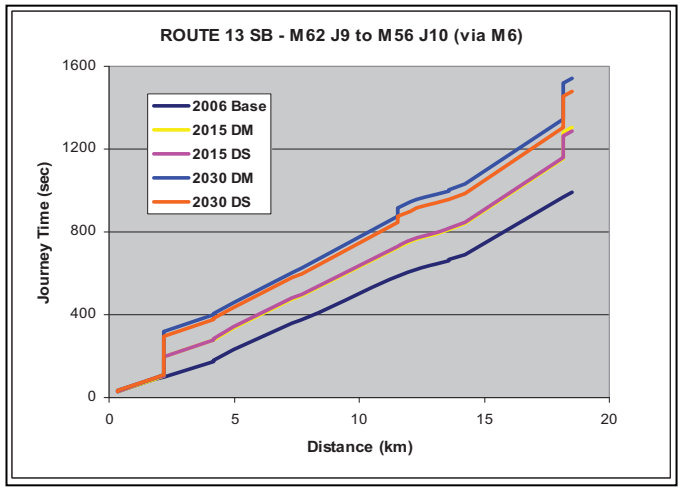




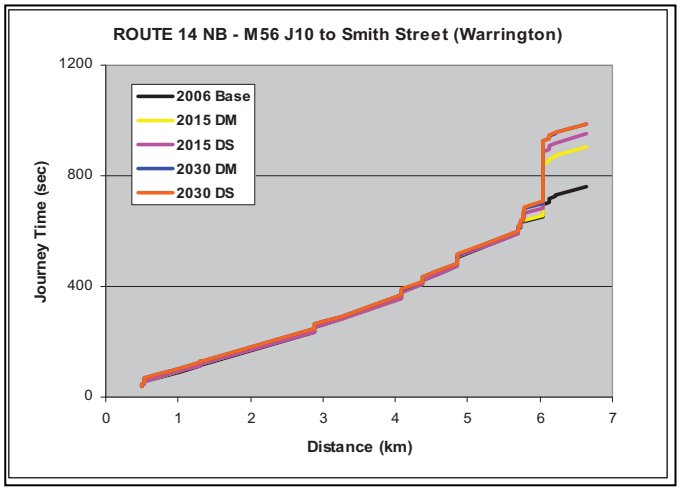


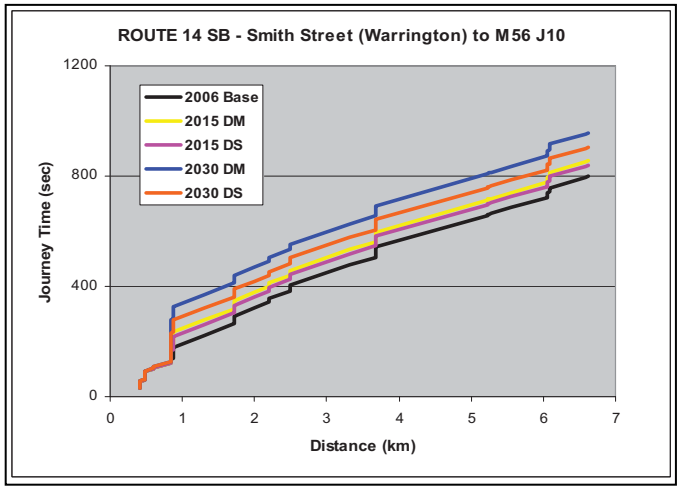


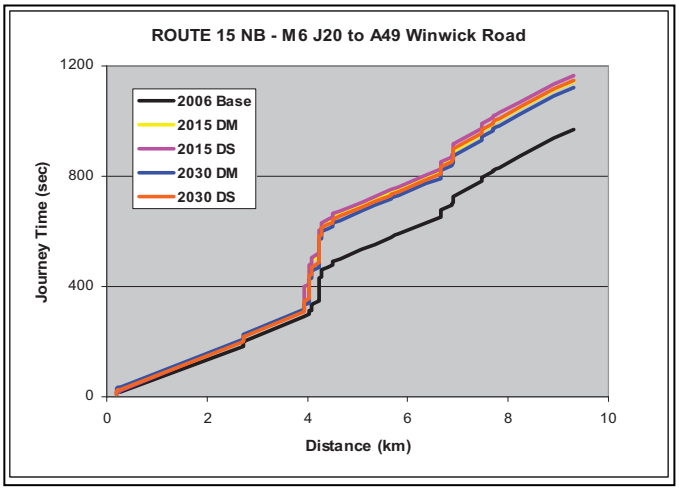


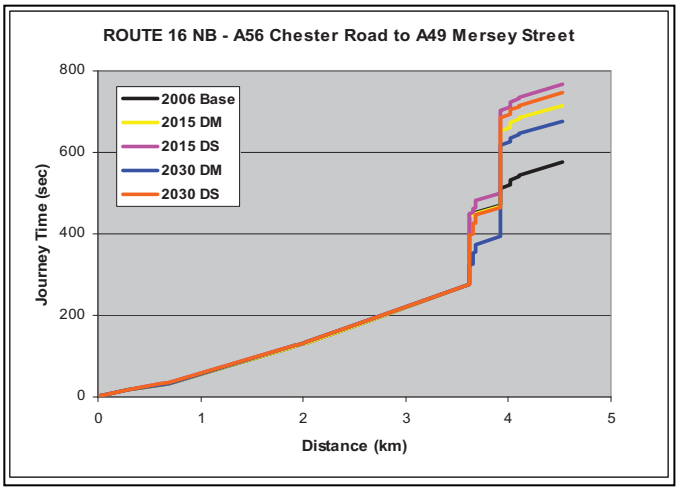


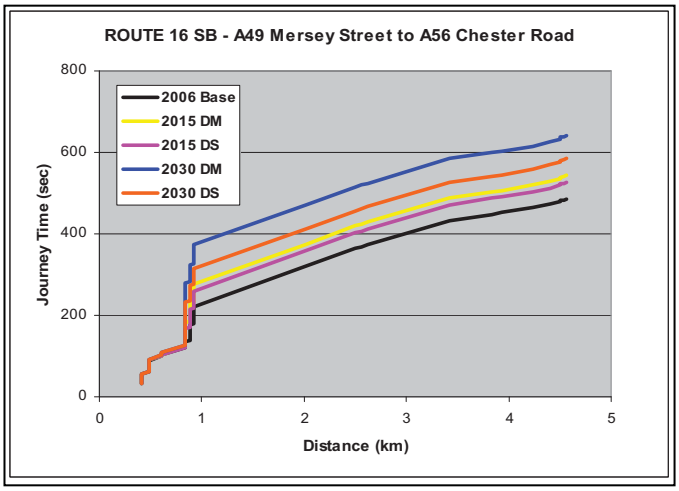
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.4 Comparison of Journey Times – AM Peak Hour (Sheet 6 of 8)**			



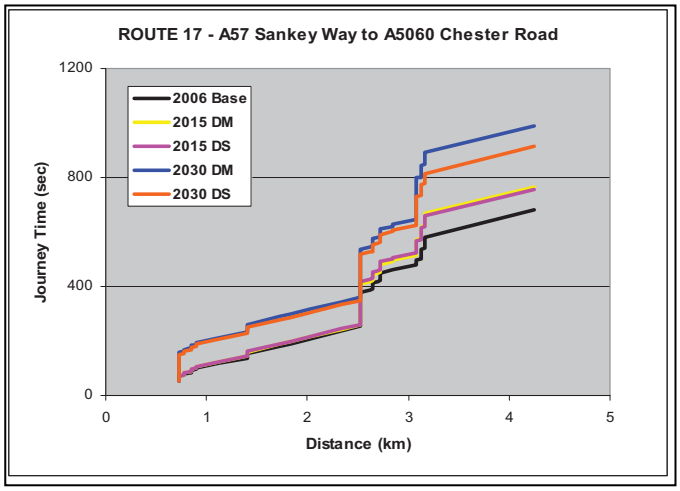


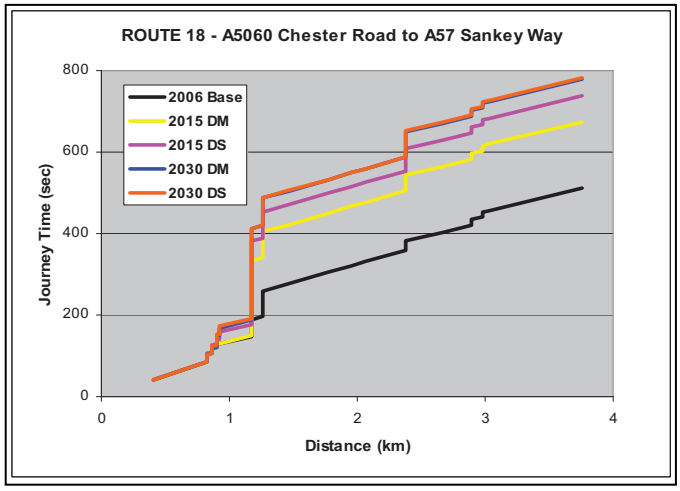


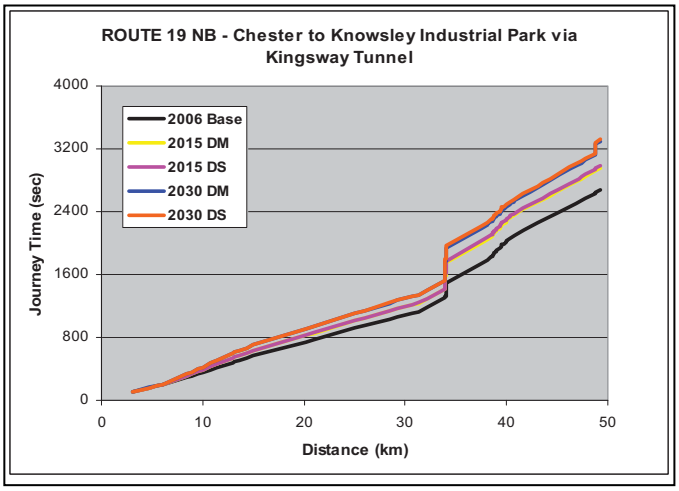


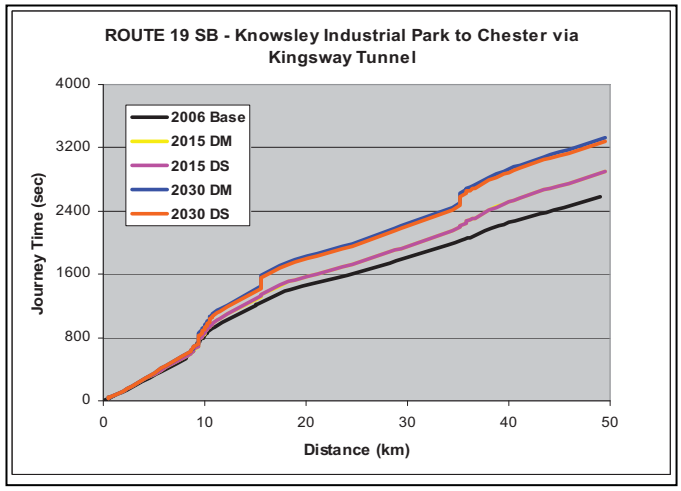


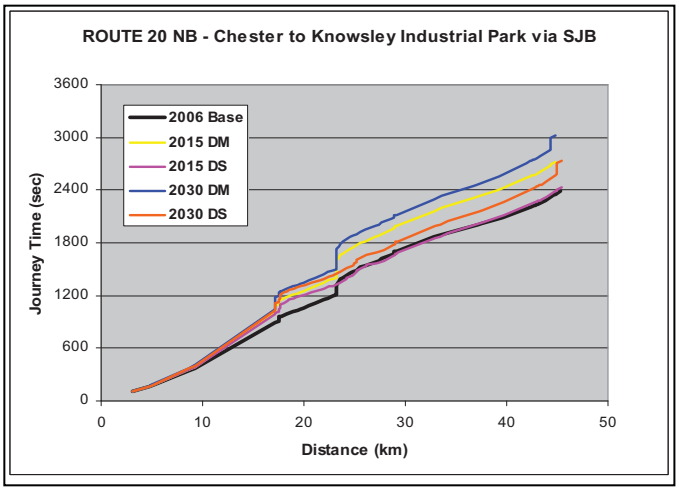
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.4 Comparison of Journey Times – AM Peak Hour (Sheet 7 of 8)**			

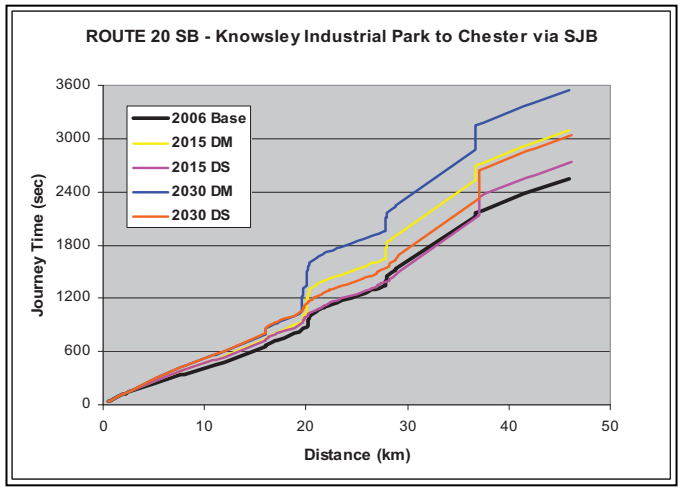




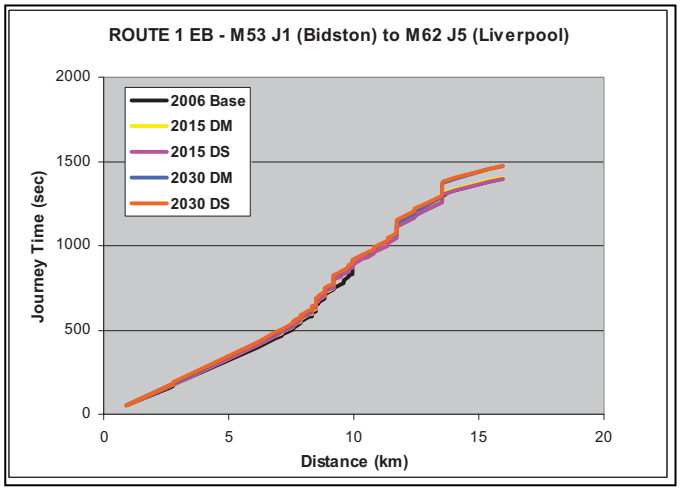


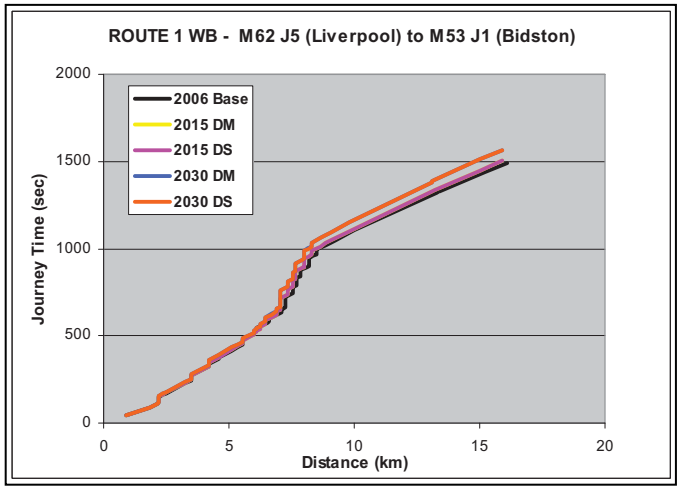


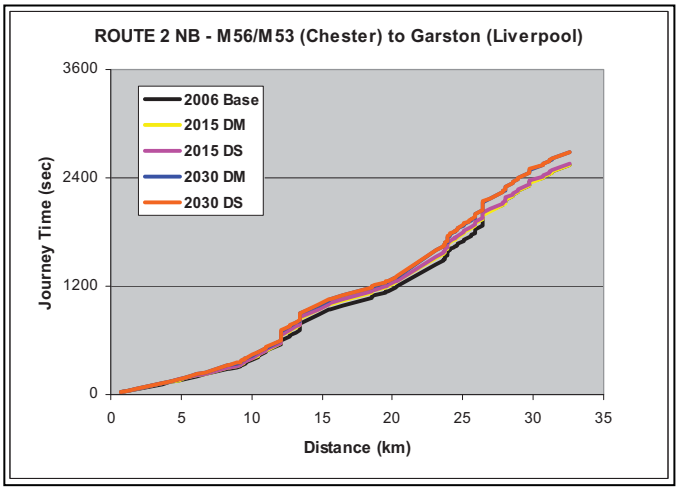


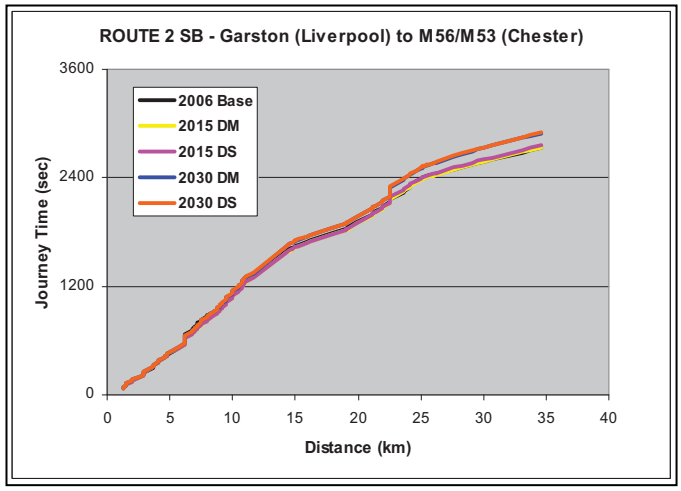


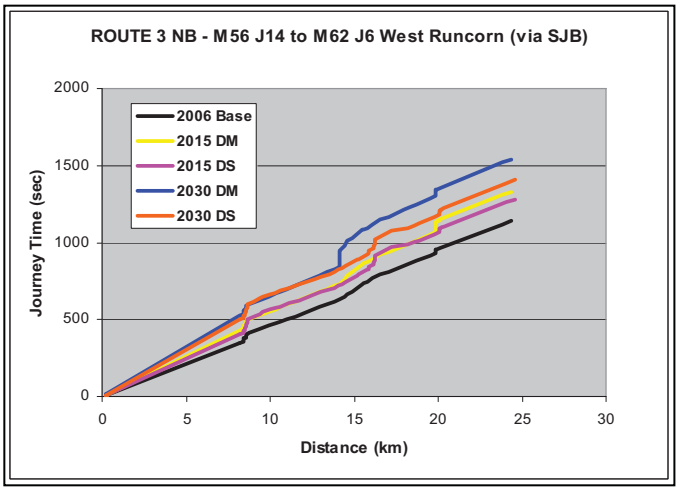
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.4 Comparison of Journey Times – AM Peak Hour (Sheet 8 of 8)**			

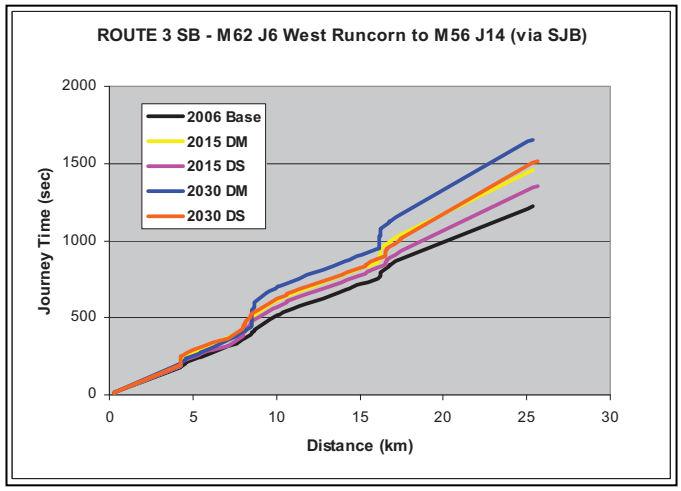












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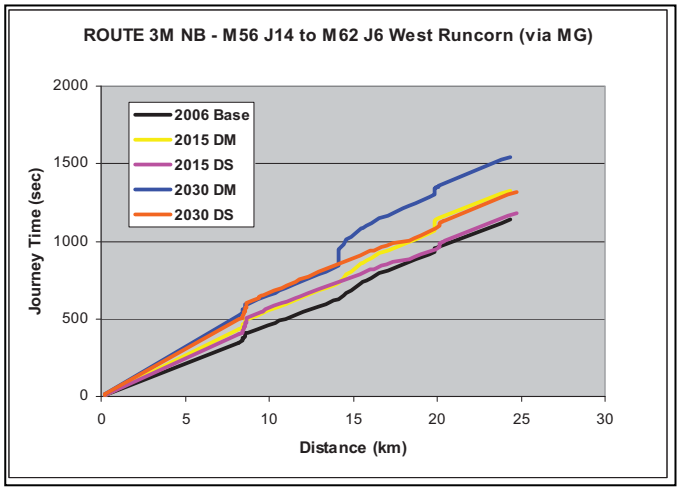
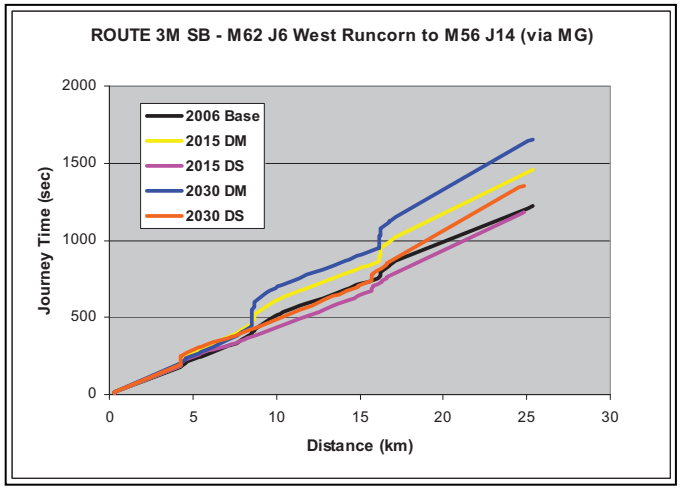
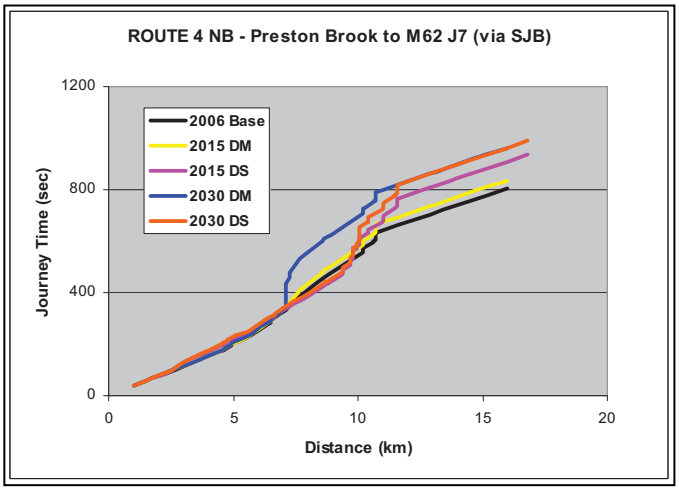
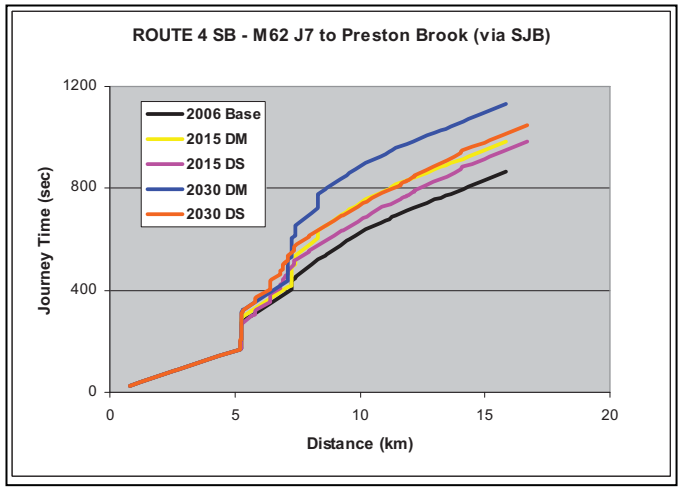
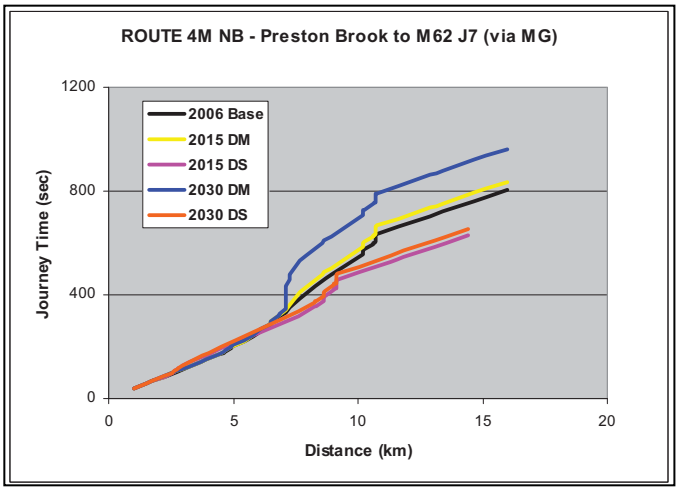
	Design JEH	CAD	Checked HF / Approved
	Drawing Number		Date 16/12/08
	Project Mersey Gateway	File	
Mersey Gateway Study	**Figure 7.5 Comparison of Journey Times – Inter Peak Hour (Sheet 1 of 8)**		

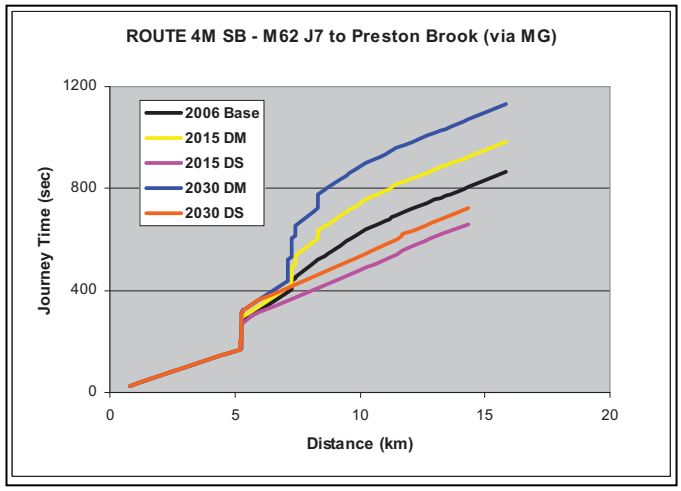




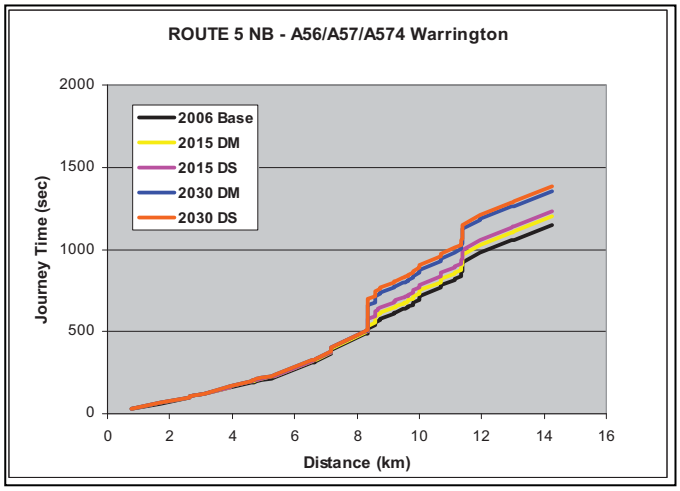


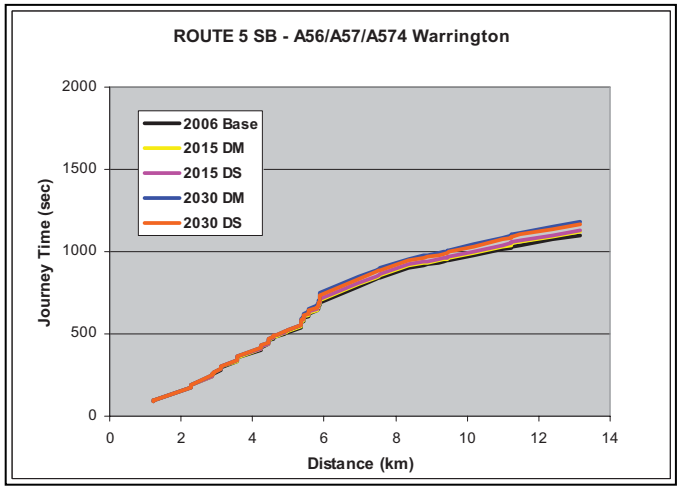


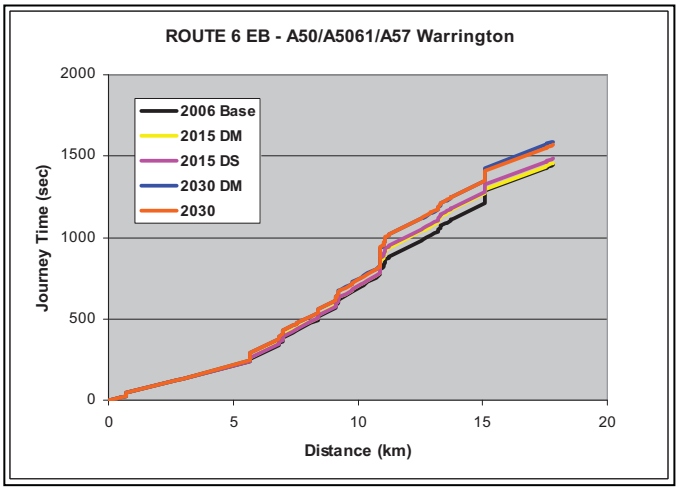


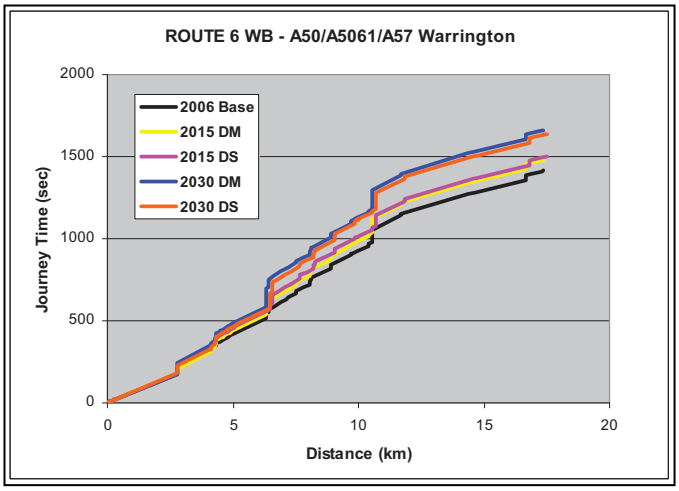


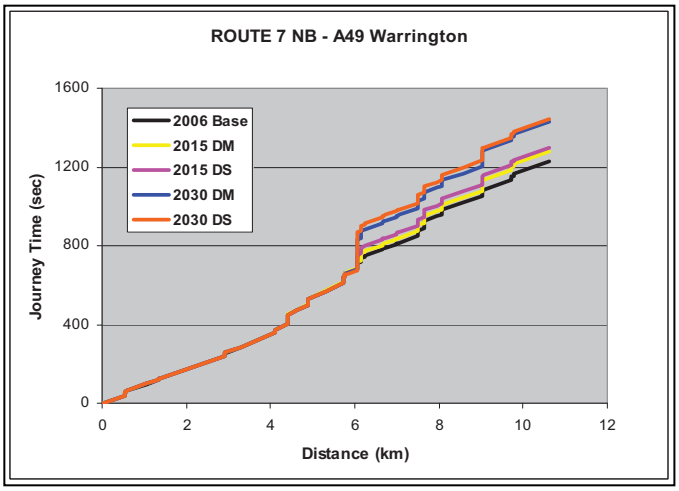
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.5 Comparison of Journey Times – Inter Peak Hour (Sheet 2 of 8)**			

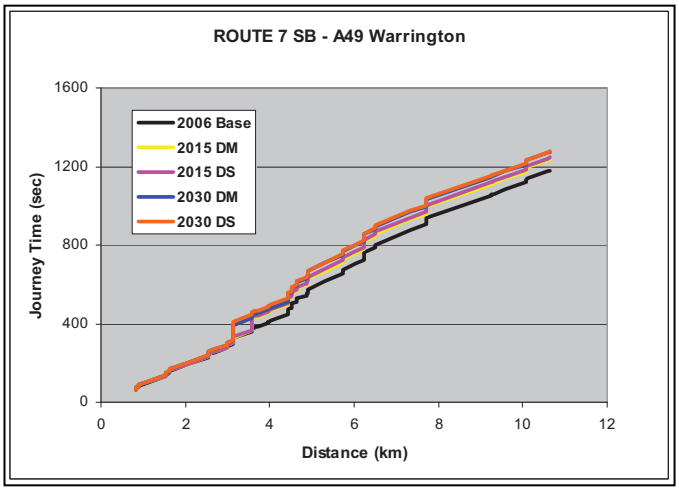












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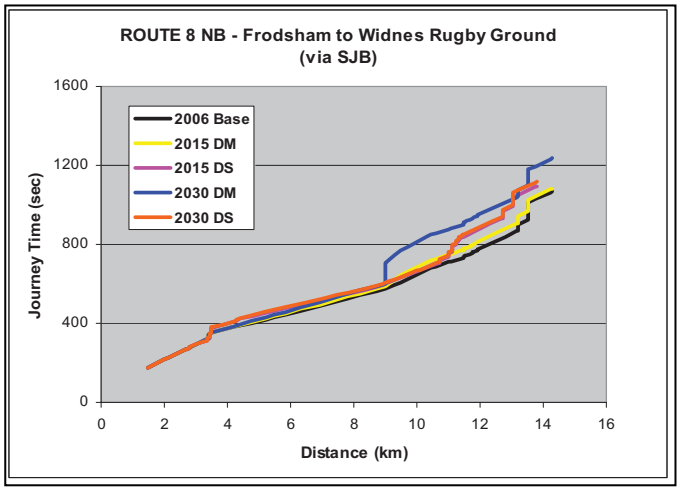
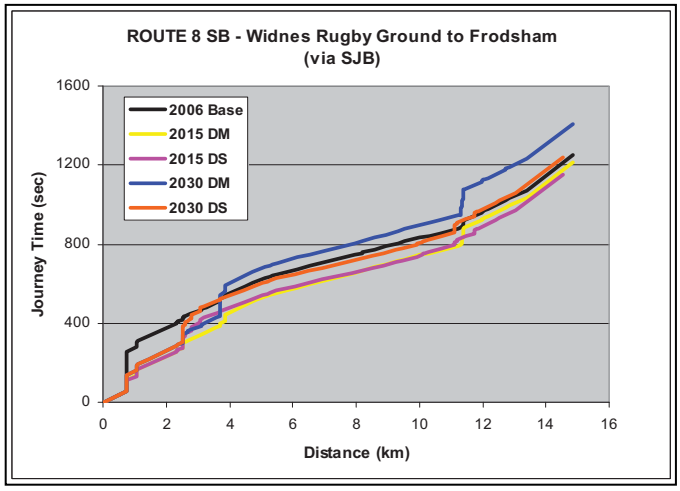
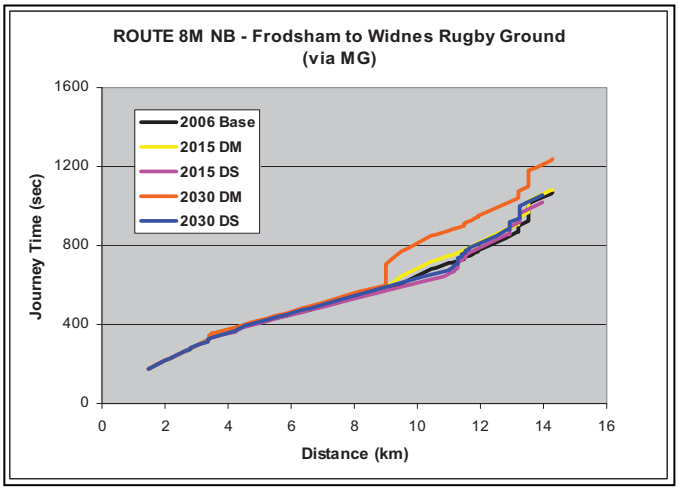
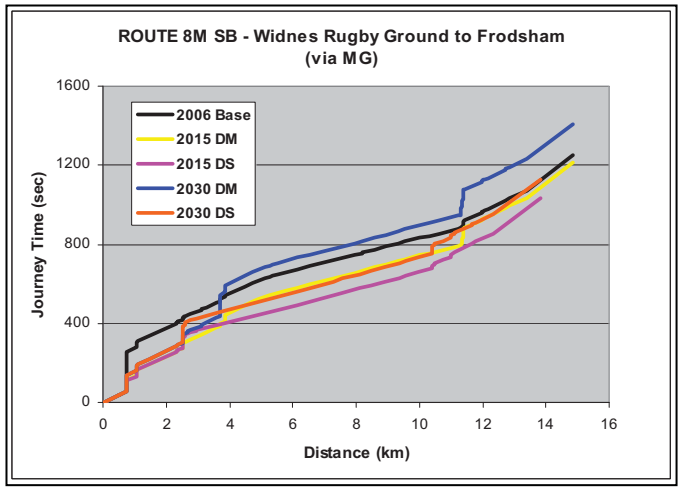
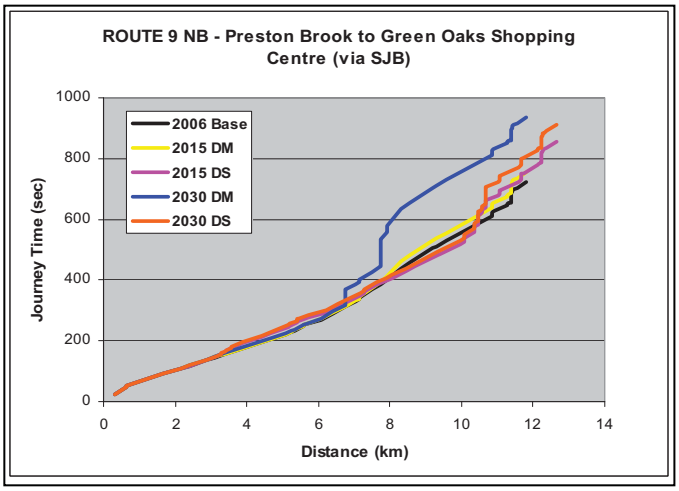
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.5 Comparison of Journey Times – Inter Peak Hour (Sheet 3 of 8)**			

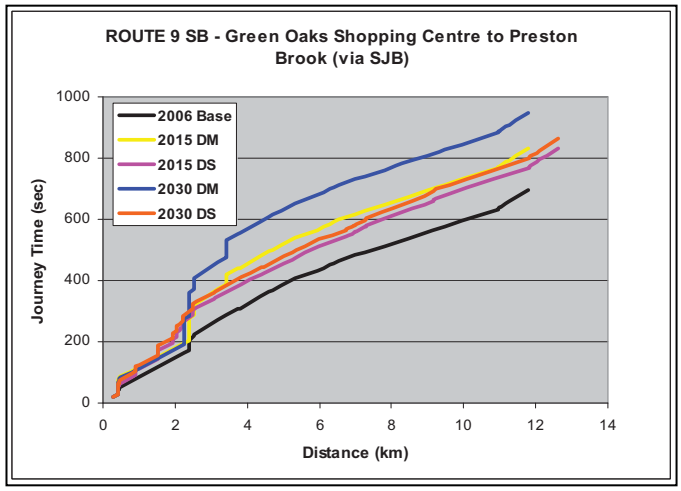




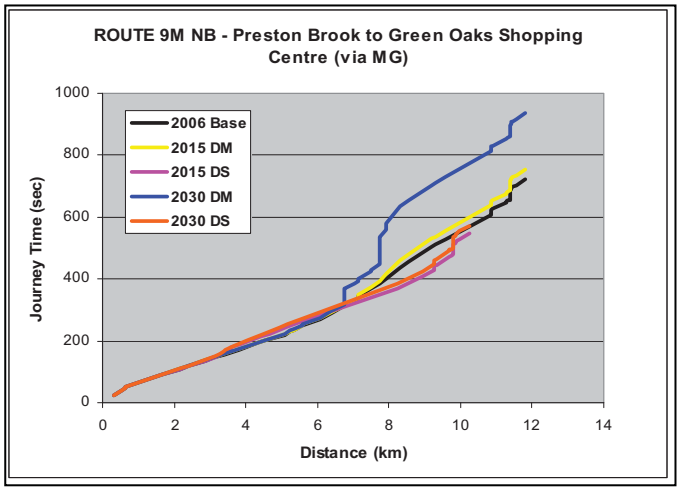


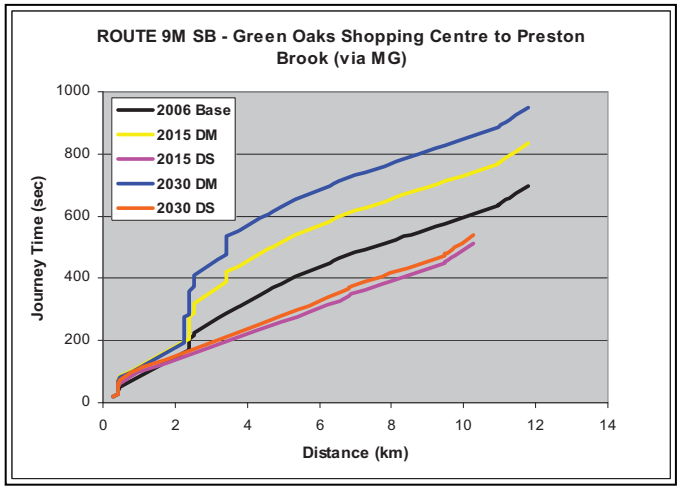


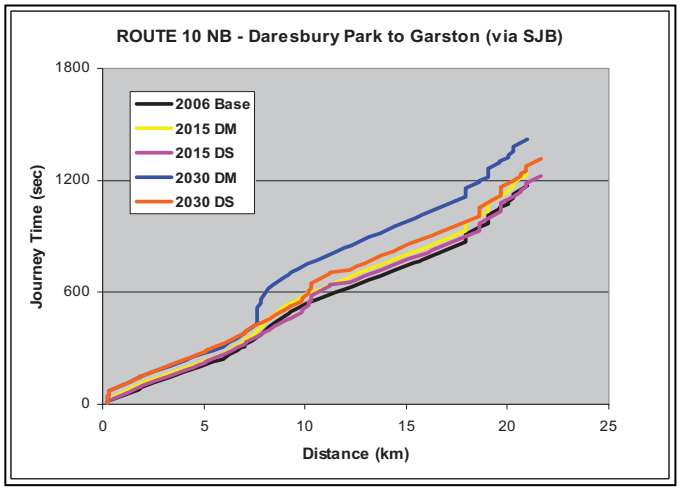


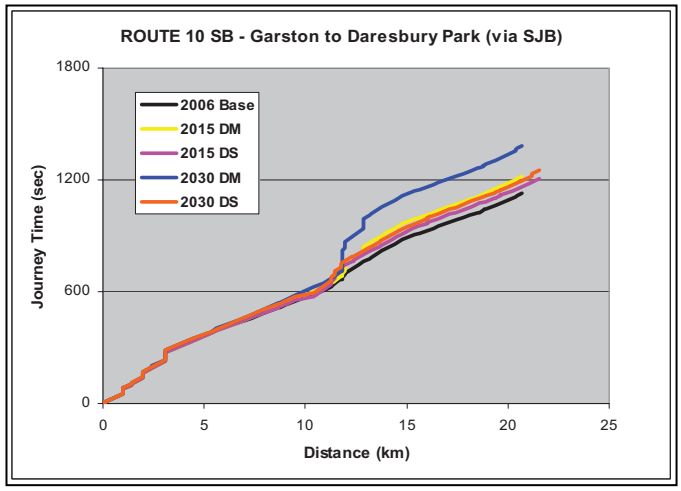


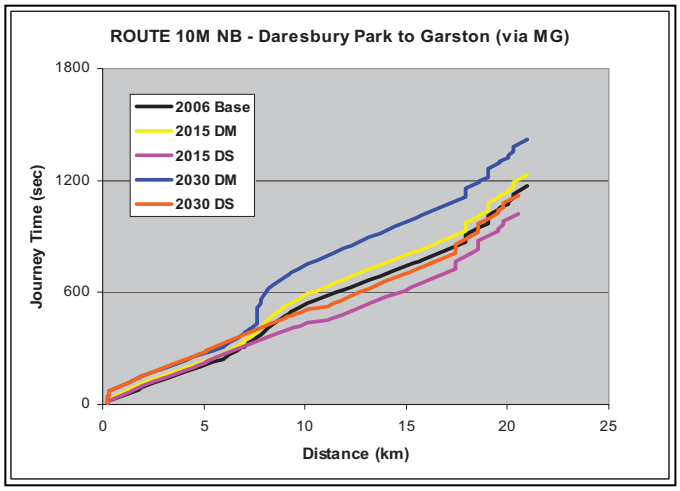
	Design JEH	CAD	Checked HF / Approved
	Drawing Number		Date 16/12/08
	Project Mersey Gateway	File	
Mersey Gateway Study	**Figure 7.5 Comparison of Journey Times – Inter Peak Hour (Sheet 4 of 8)**		

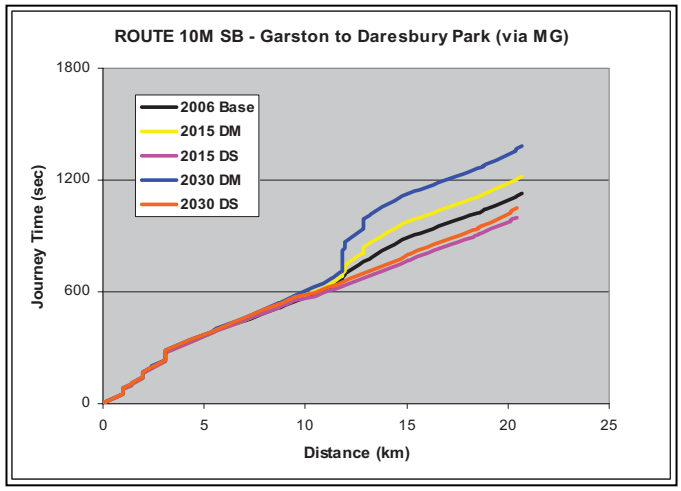












	Design JEH	CAD	Checked HF	Approved
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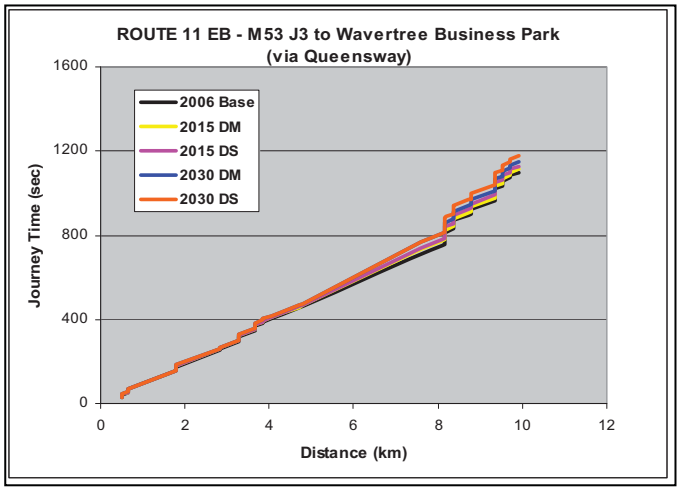
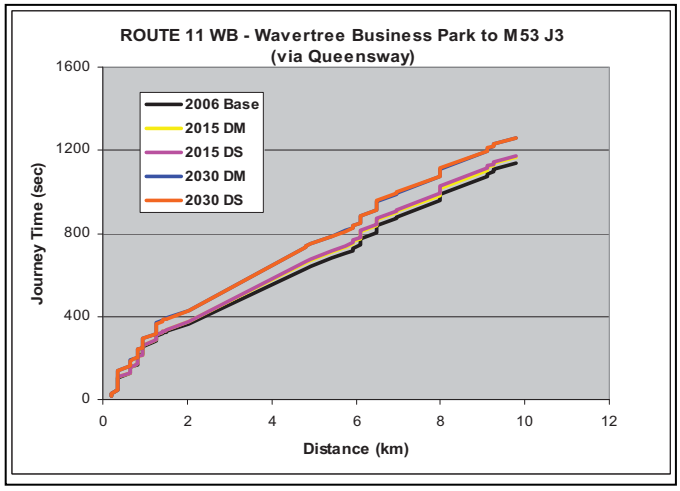
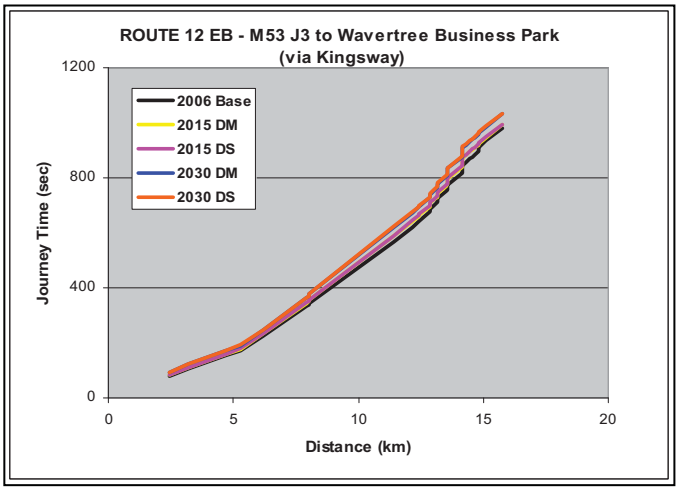
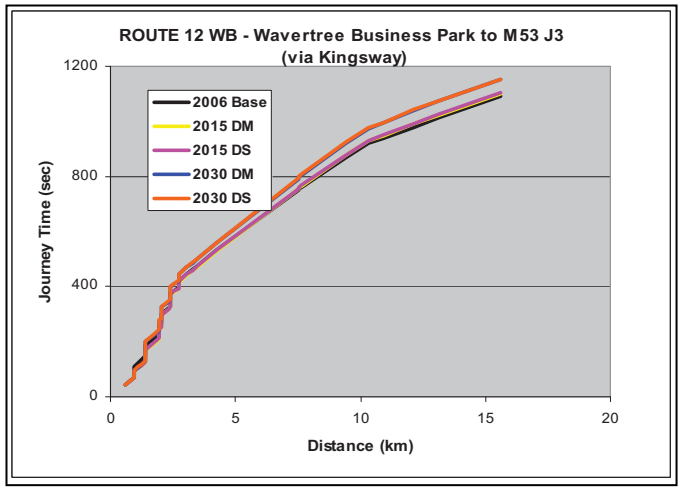
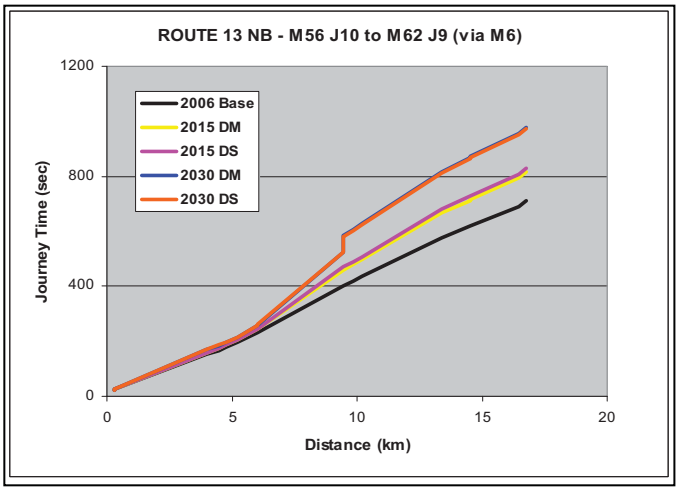
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.5 Comparison of Journey Times – Inter Peak Hour (Sheet 5 of 8)**			

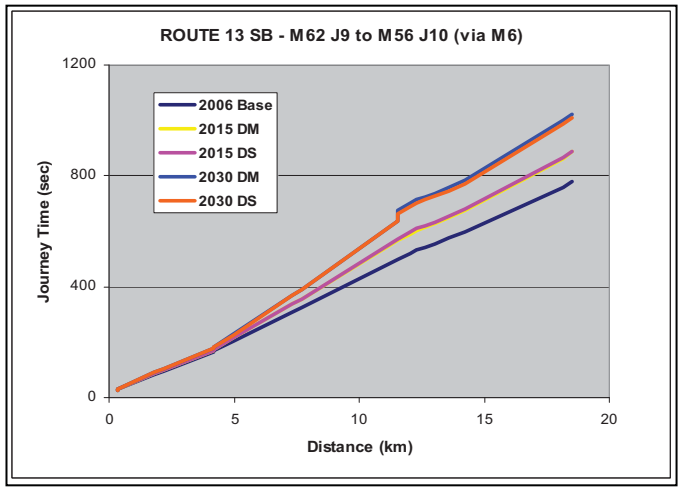












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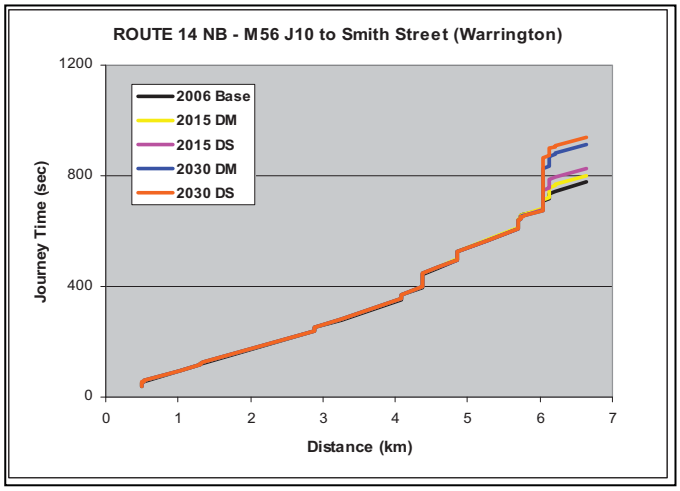
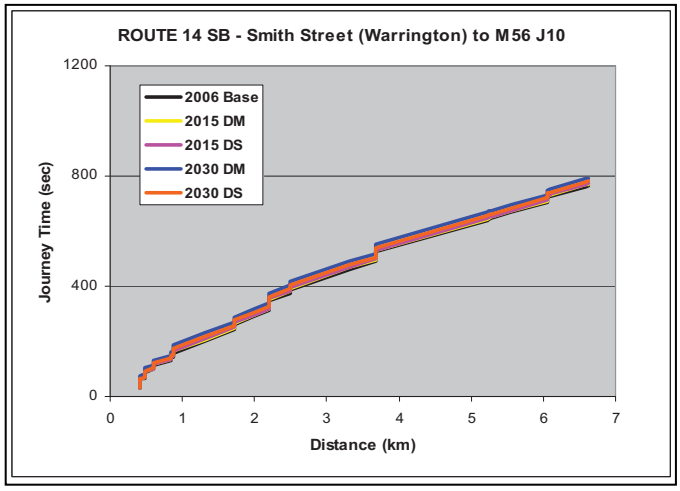
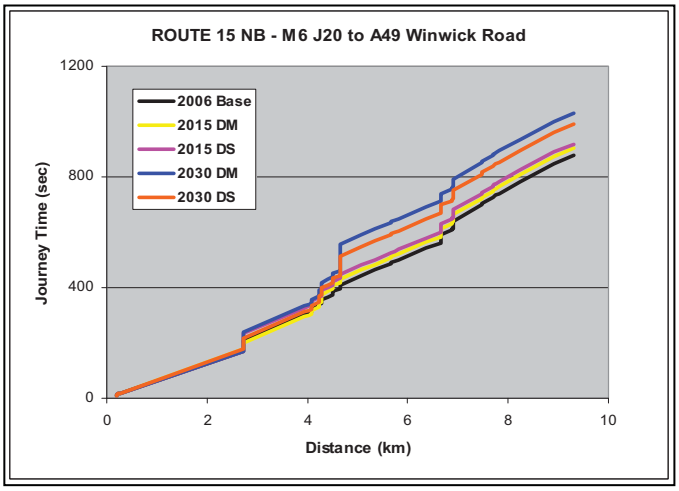
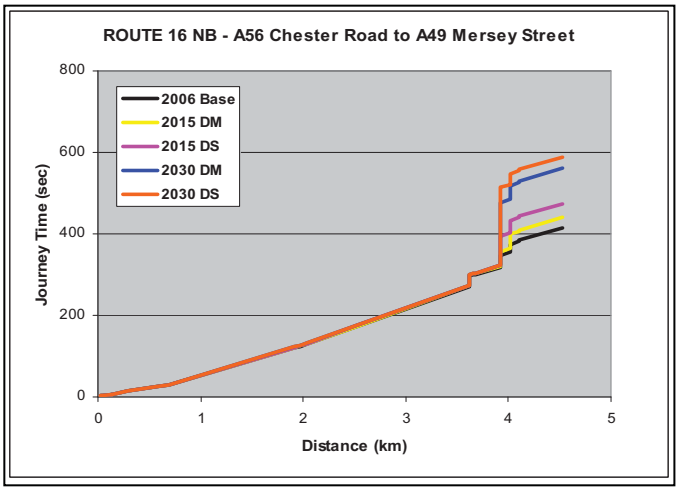
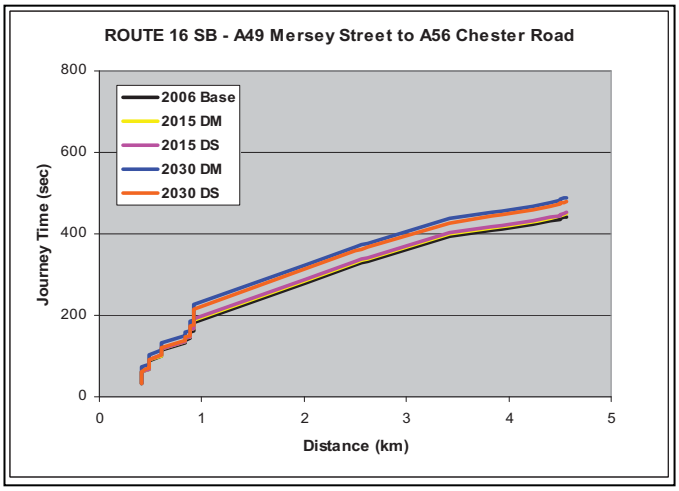
	Project Mersey Gateway	File		
Mersey Gateway Study	**Figure 7.5 Comparison of Journey Times – Inter Peak Hour (Sheet 6 of 8)**			



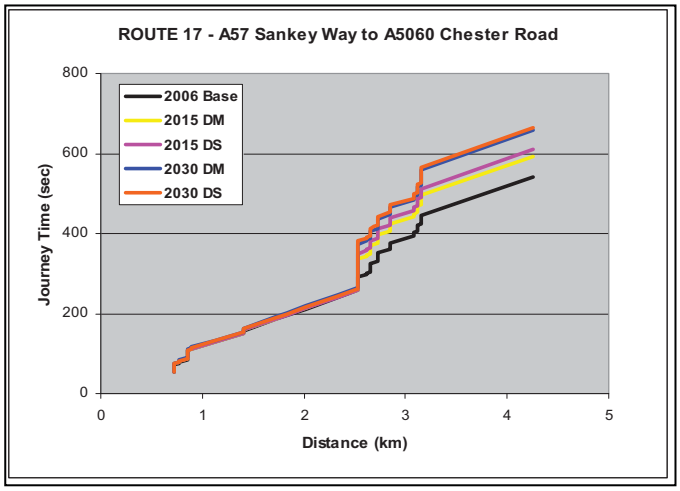


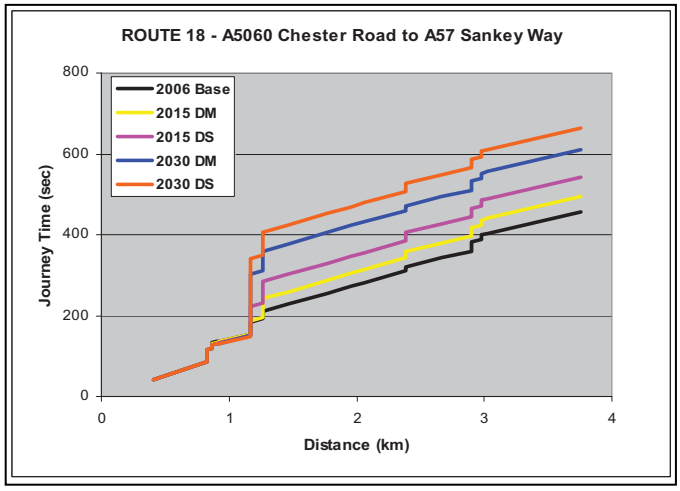


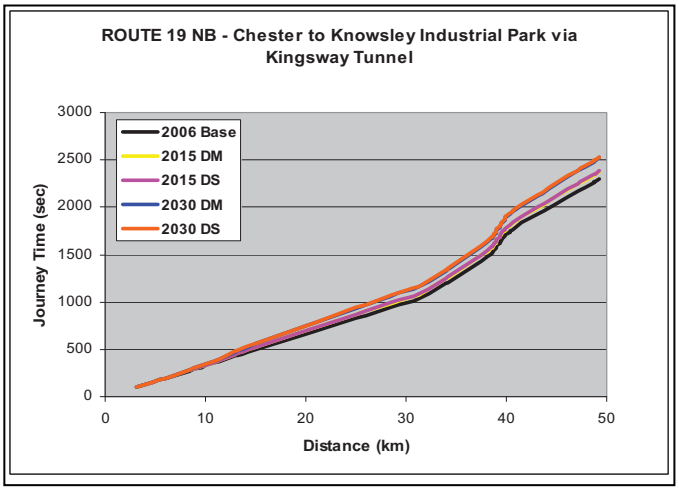


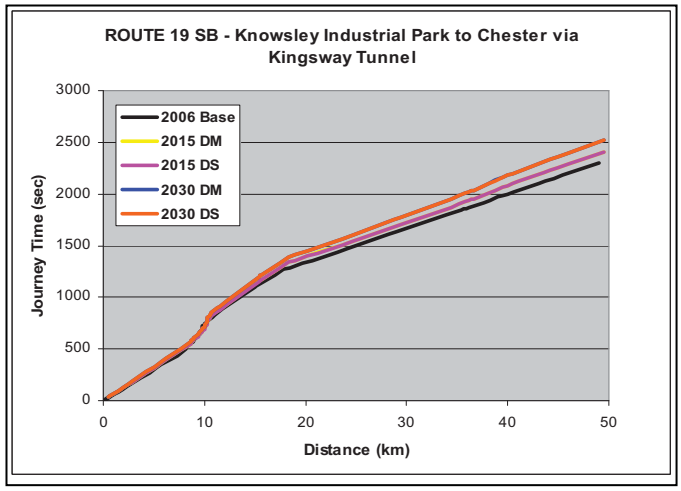


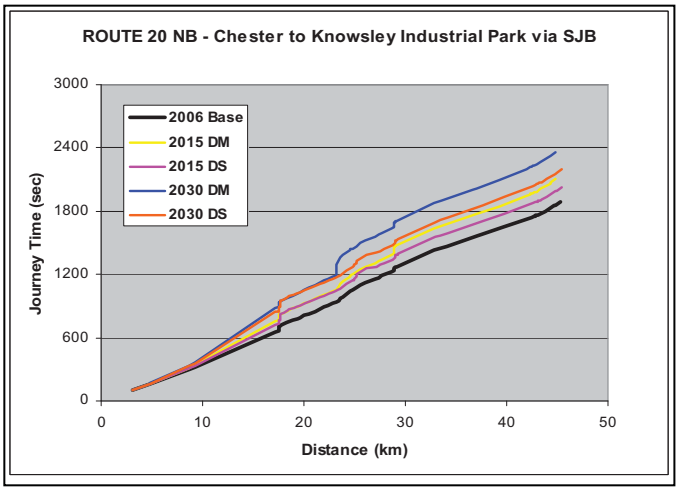
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.5 Comparison of Journey Times – Inter Peak Hour (Sheet 7 of 8)**			

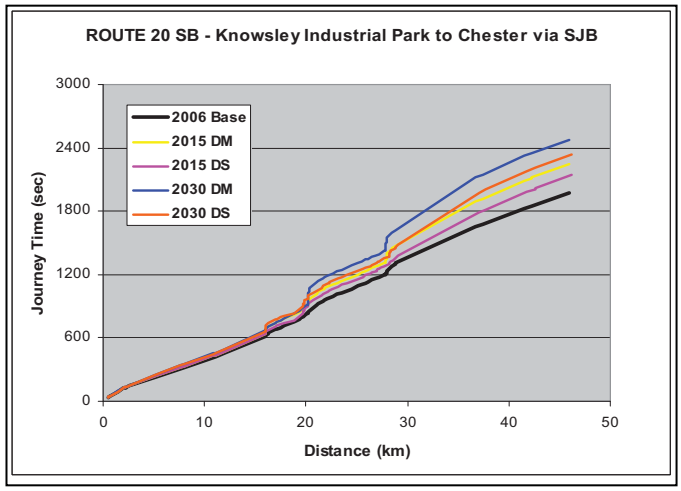












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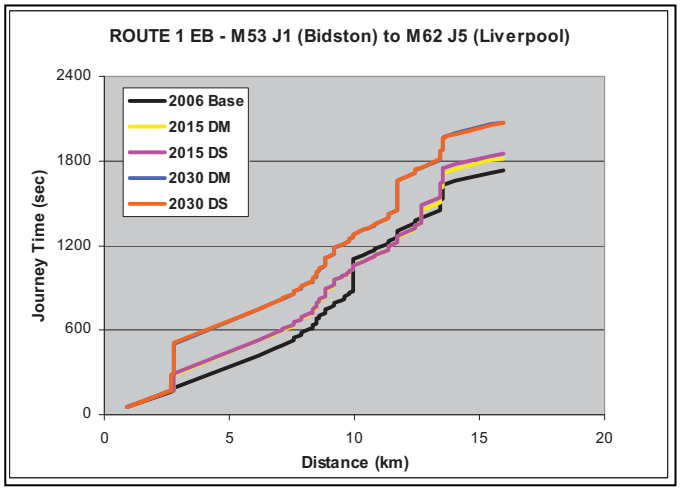
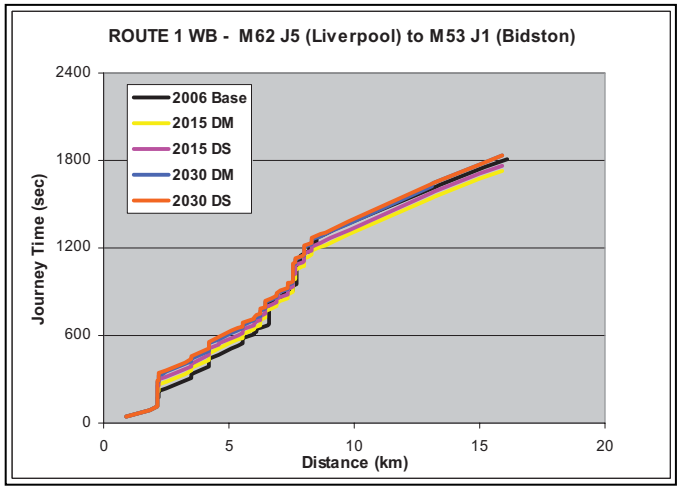
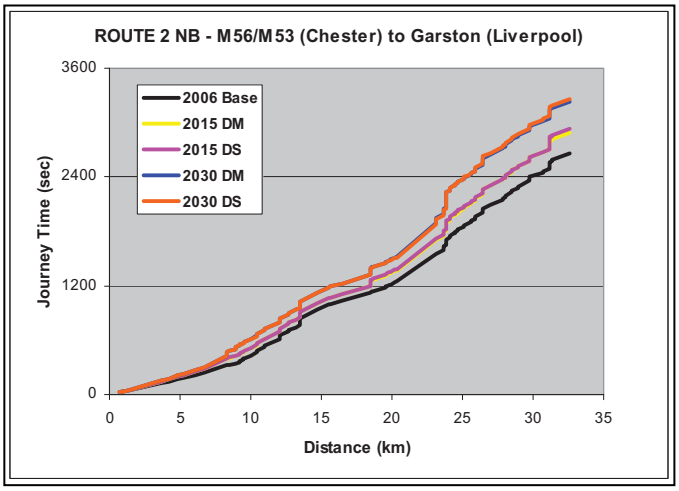
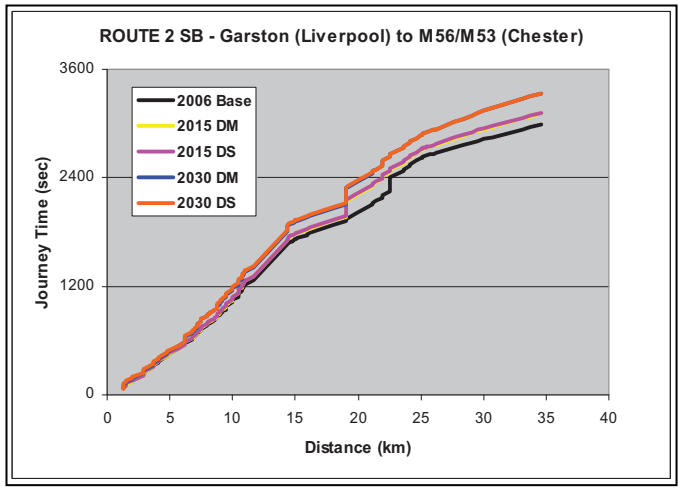
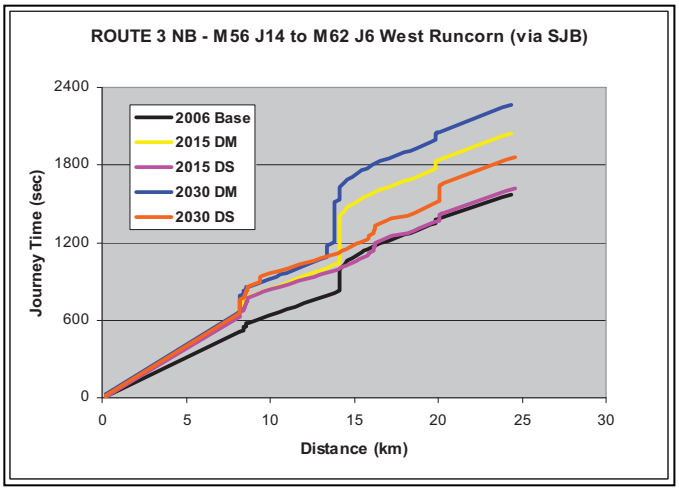
Mersey Gateway Study	**Figure 7.5 Comparison of Journey Times – Inter Peak Hour (Sheet 8 of 8)**			

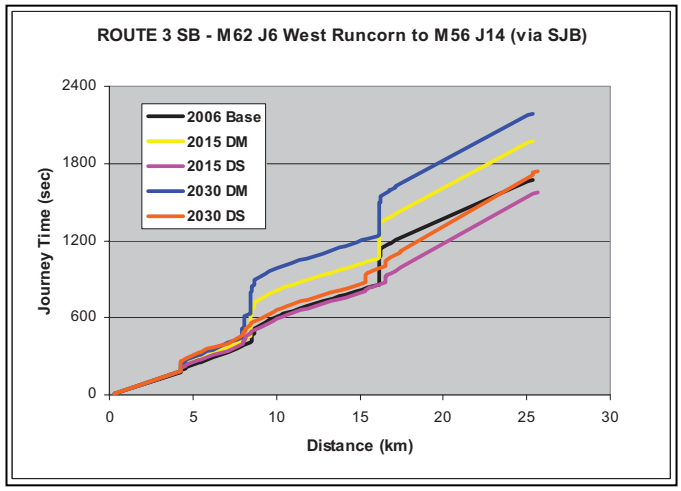




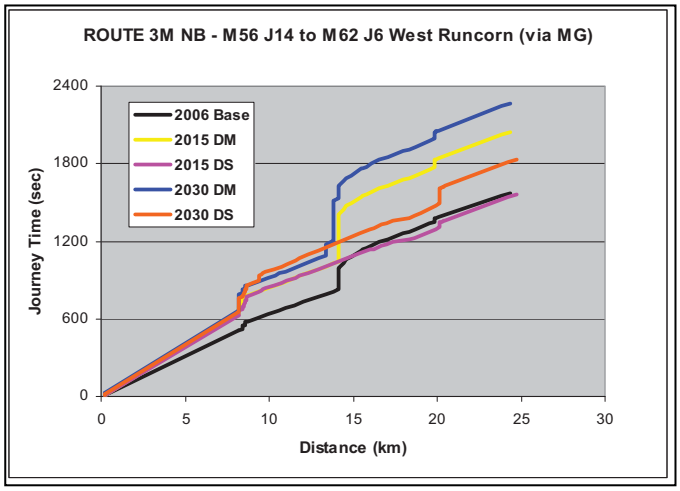


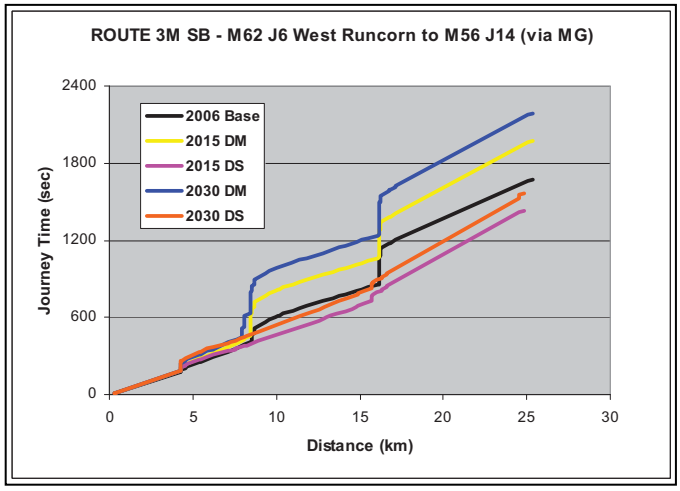


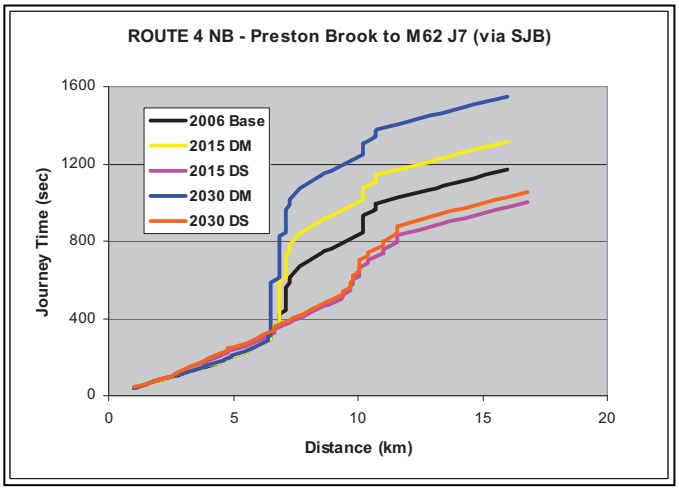


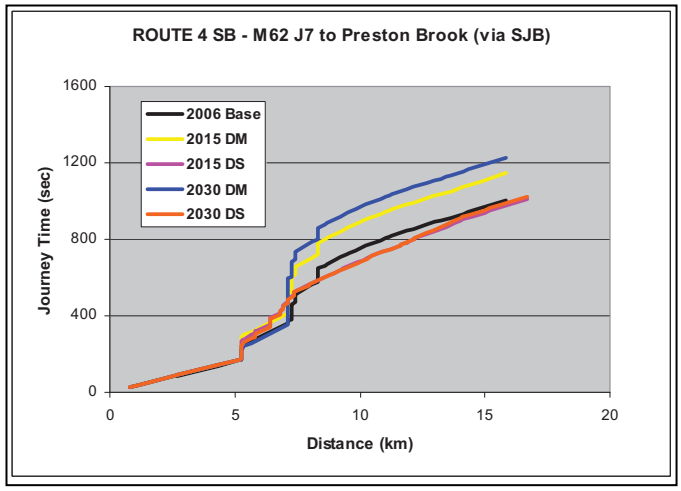


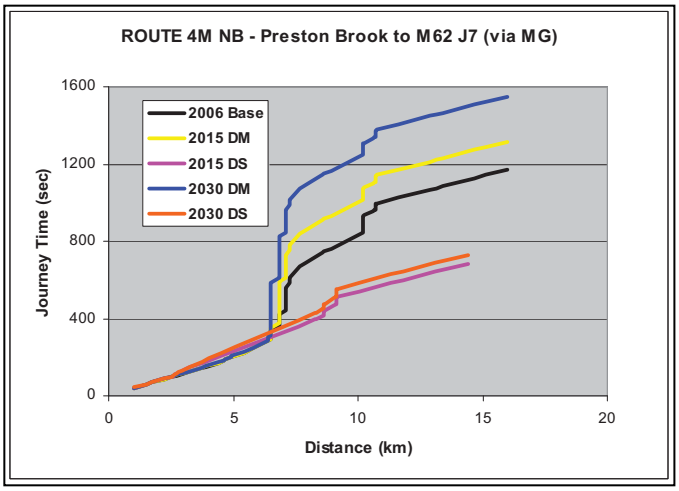
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.6 Comparison of Journey Times – PM Peak Hour (Sheet 1 of 8)**			

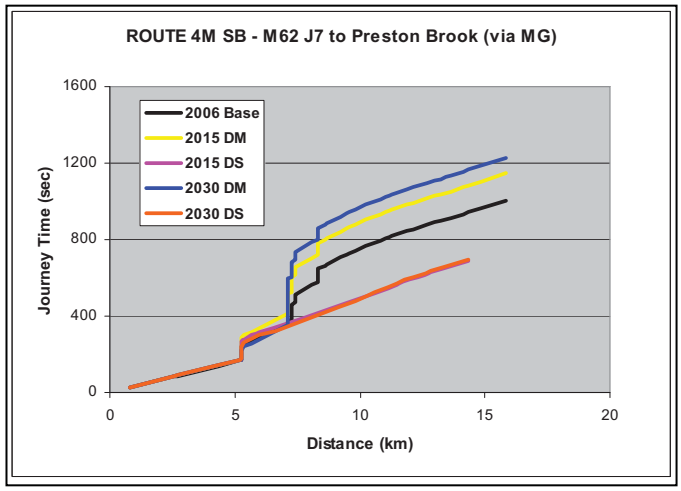




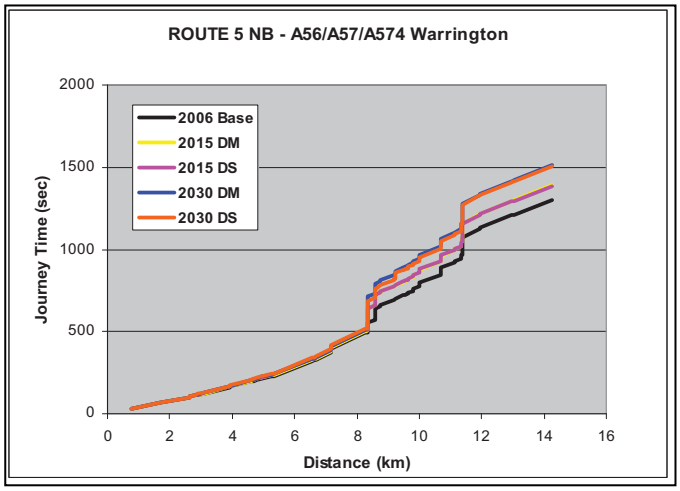


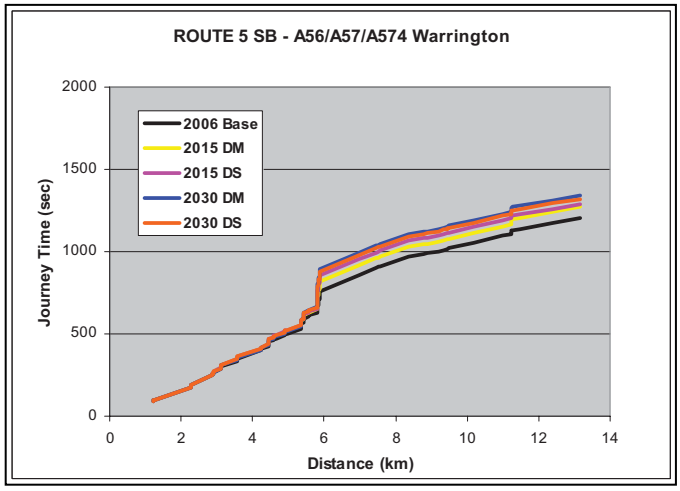


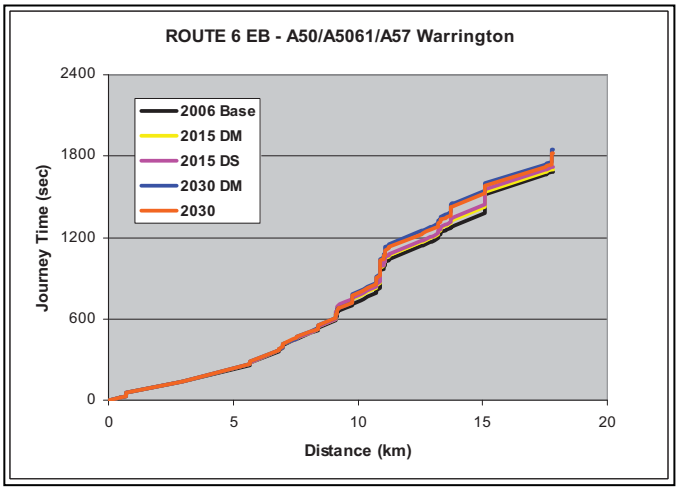


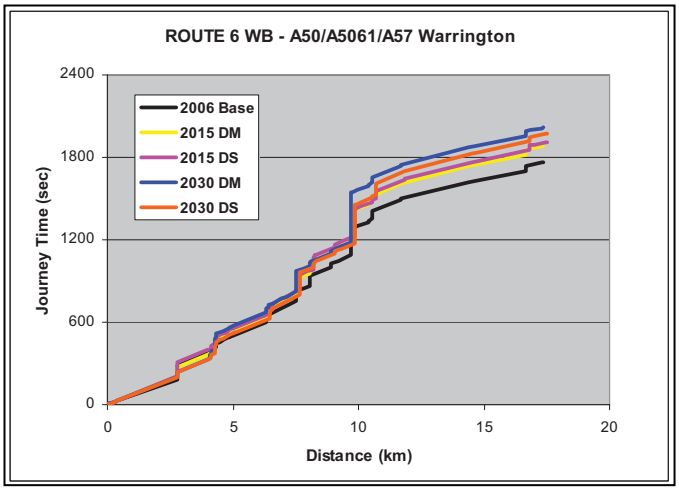


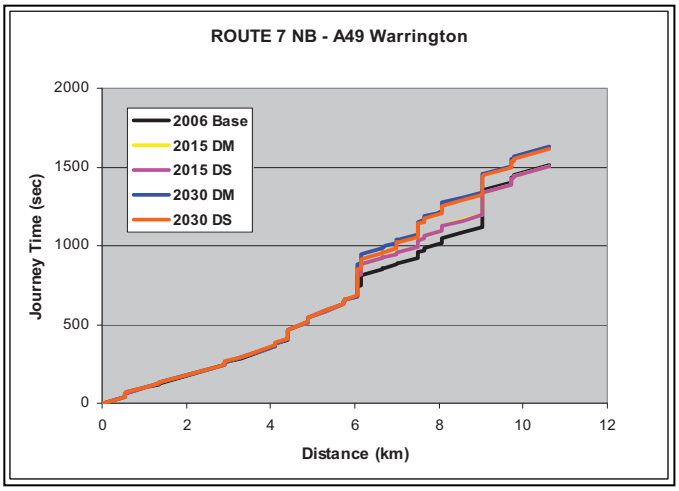
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.6 Comparison of Journey Times – PM Peak Hour (Sheet 2 of 8)**			

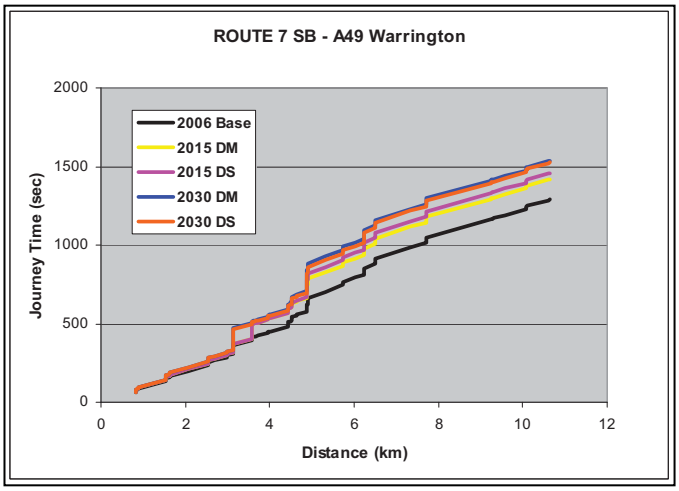












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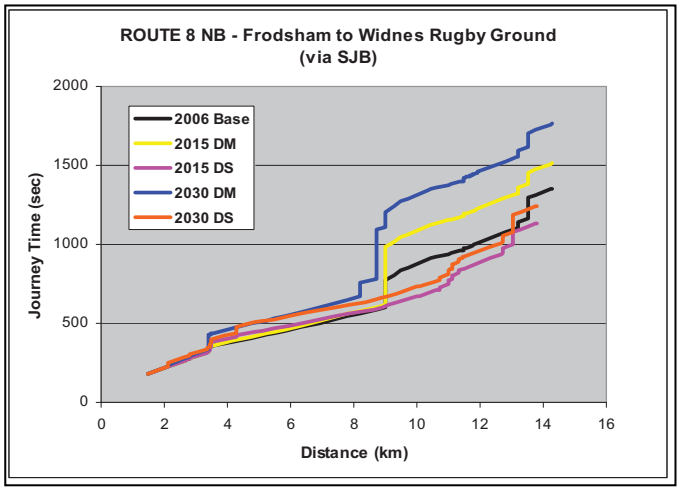
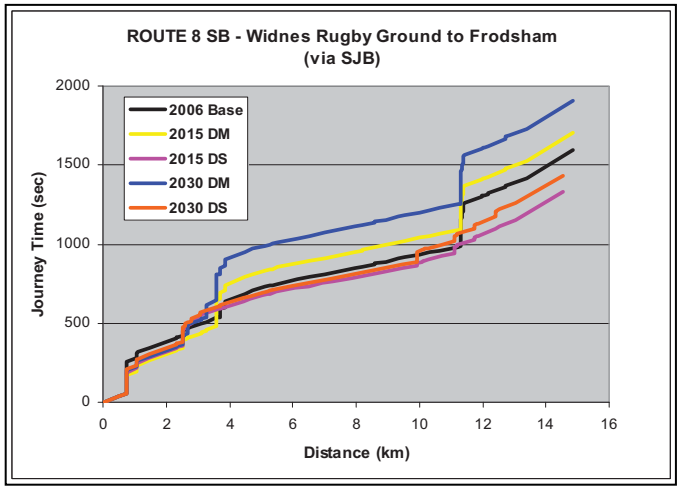
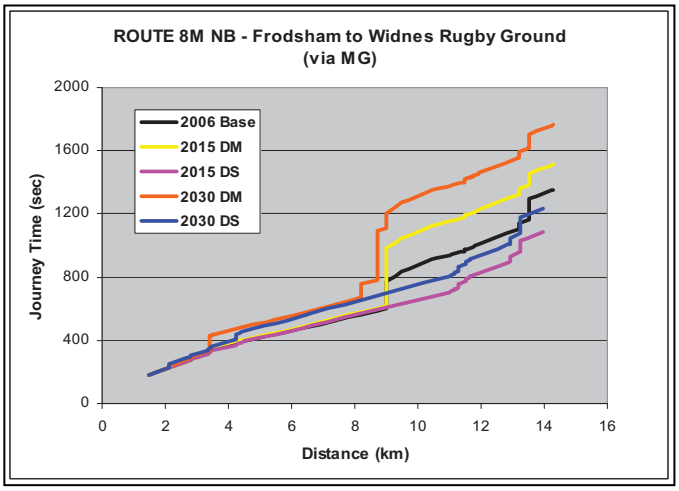
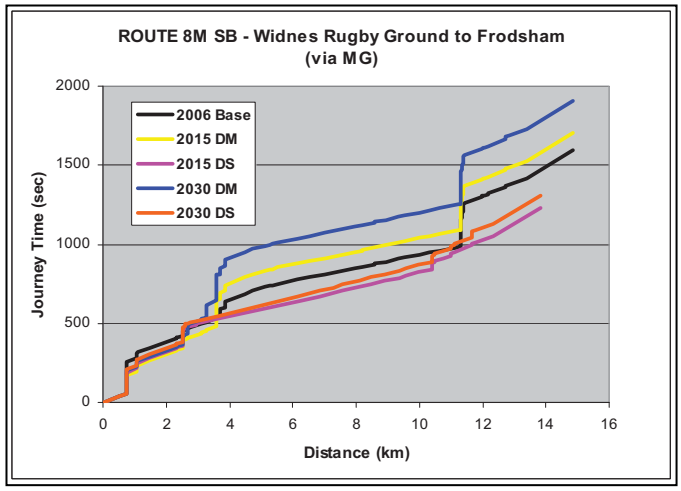
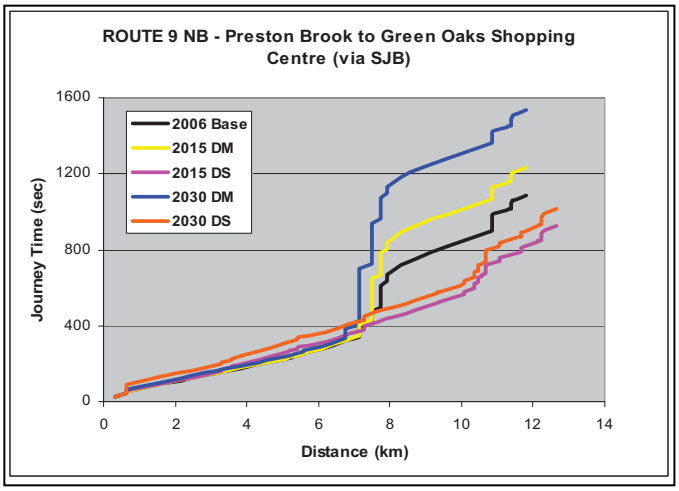
	Design: JEH	CAD	Checked: HF / Approved
	Drawing Number		Date: 16/12/08
	Project: Mersey Gateway	File	
Mersey Gateway Study	**Figure 7.6 Comparison of Journey Times – PM Peak Hour (Sheet 3 of 8)**		

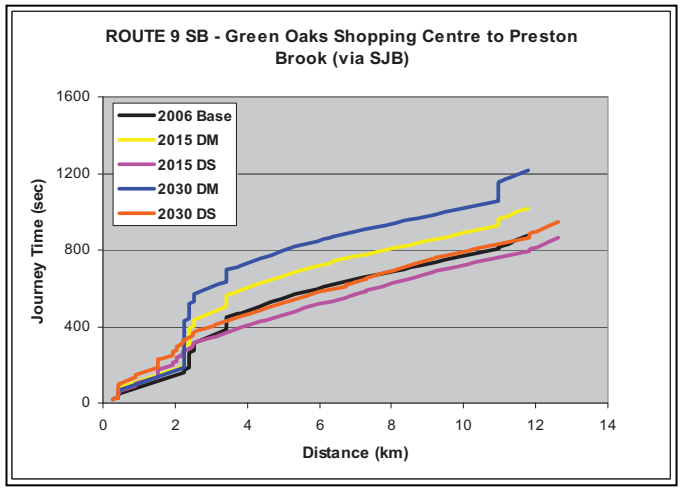




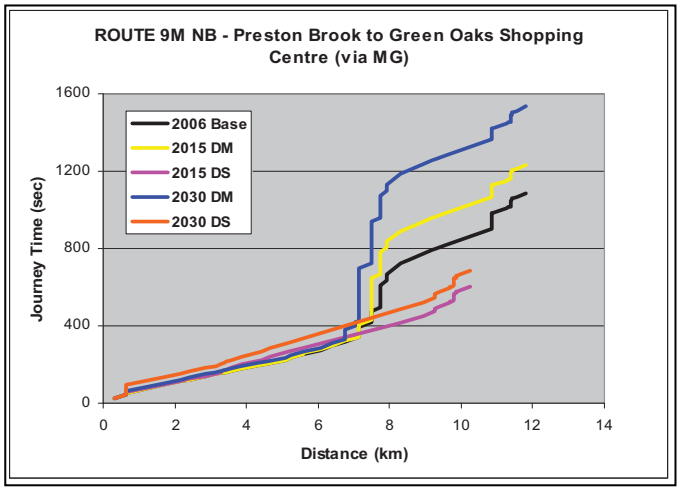


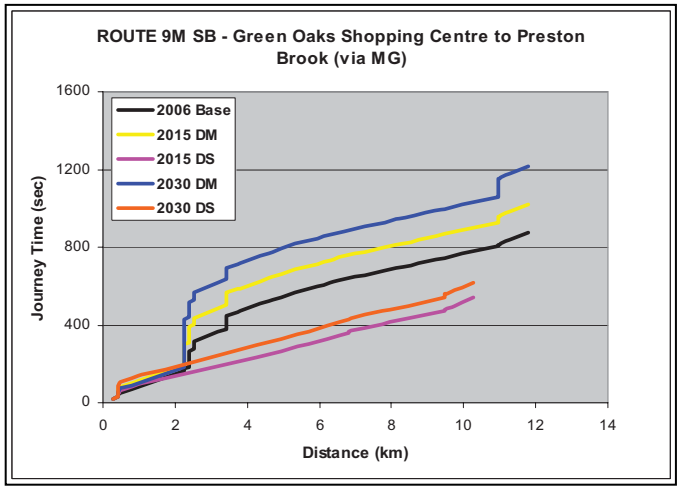


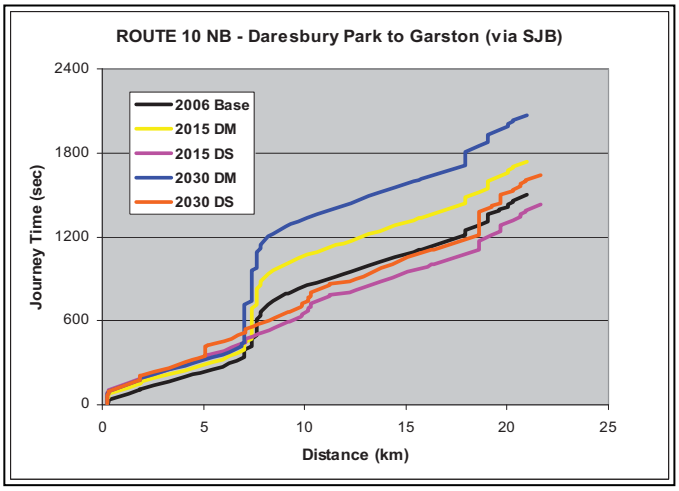


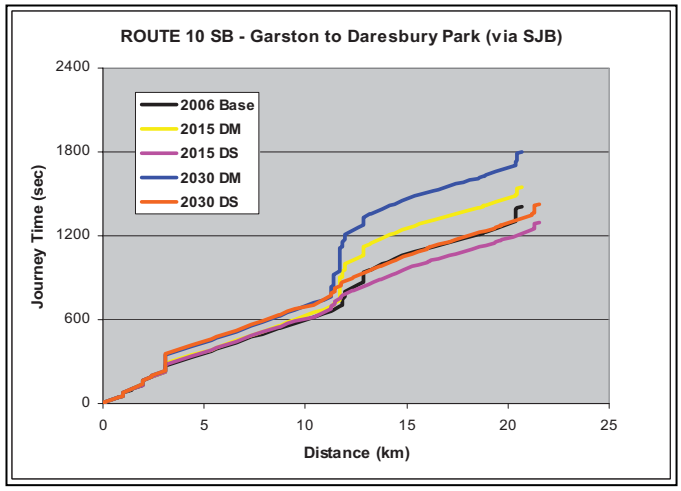


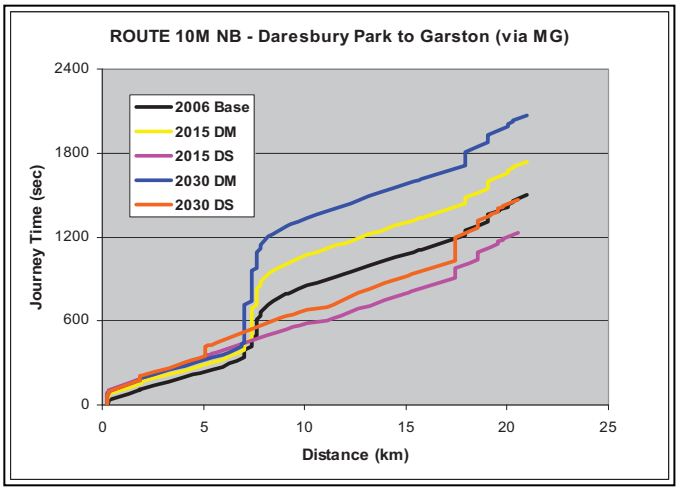
	Design JEH	CAD	Checked HF / Approved
	Drawing Number		Date 16/12/08
	Project Mersey Gateway	File	
Mersey Gateway Study	**Figure 7.6 Comparison of Journey Times – PM Peak Hour (Sheet 4 of 8)**		

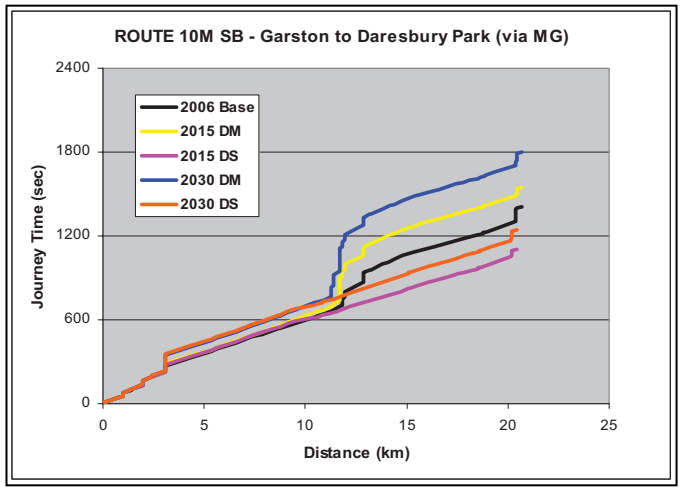




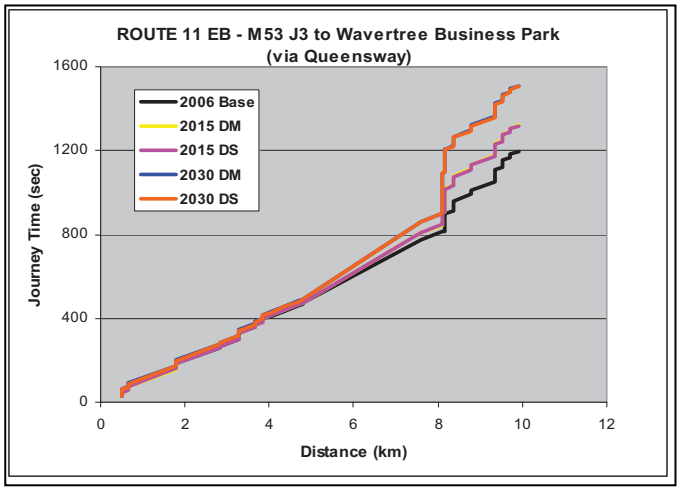


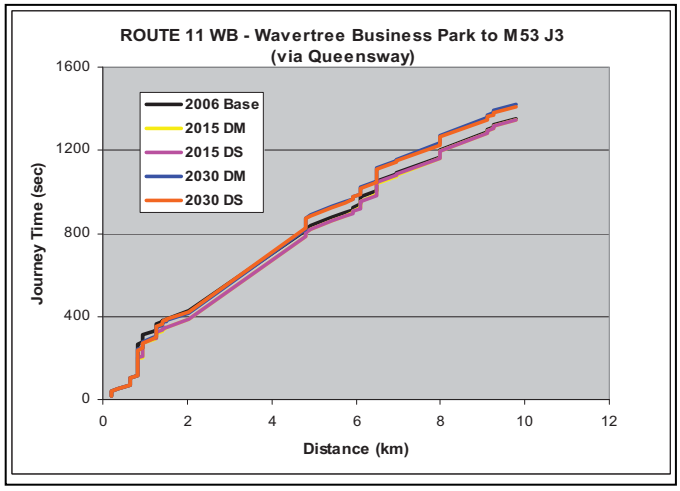


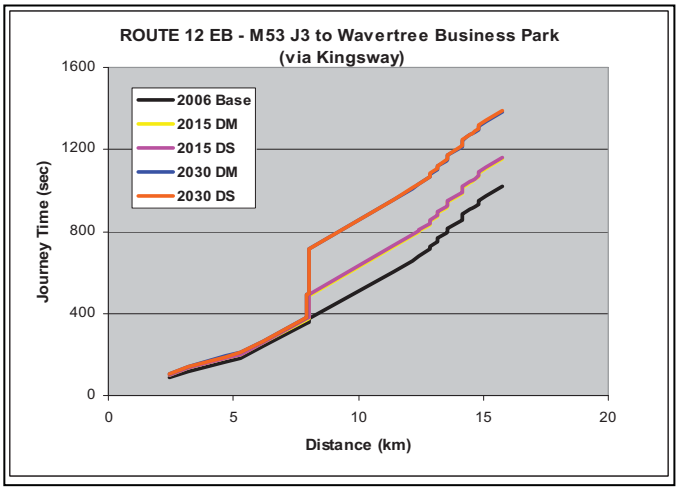


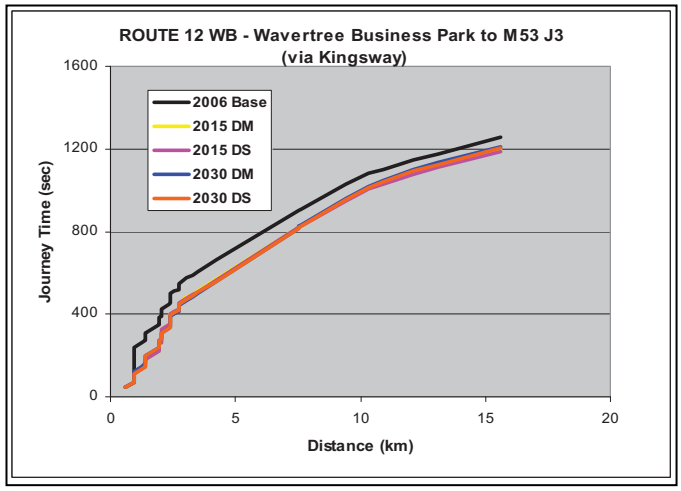


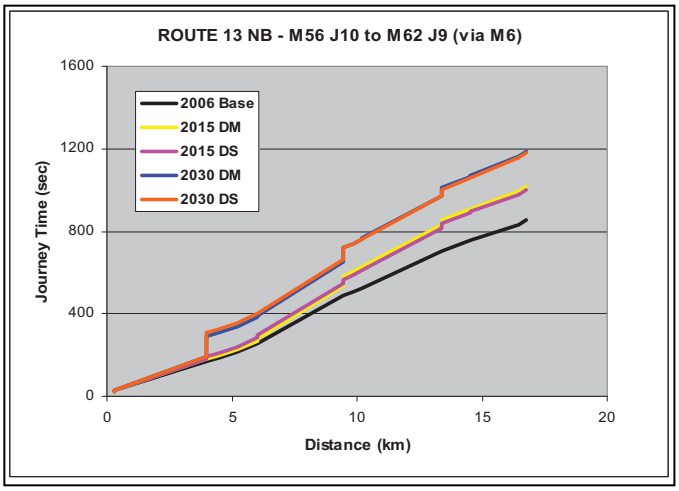
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.6 Comparison of Journey Times – PM Peak Hour (Sheet 5 of 8)**			

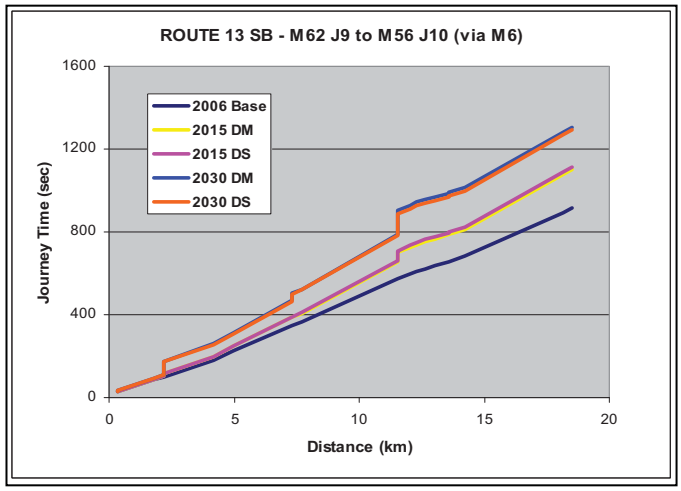












	Design JEH	CAD	Checked HF	Approved
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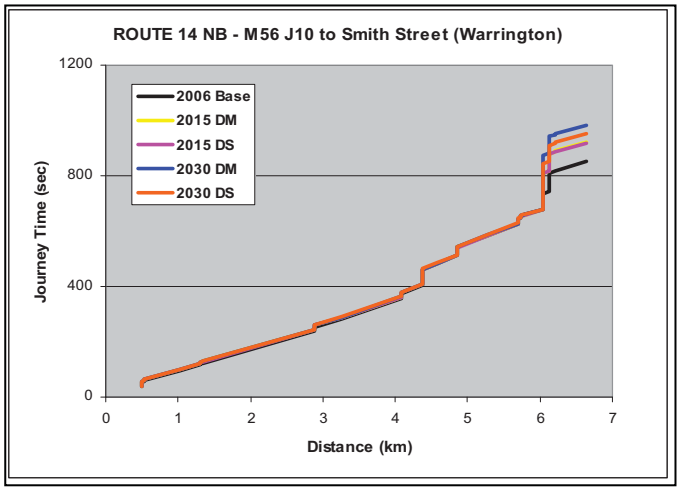
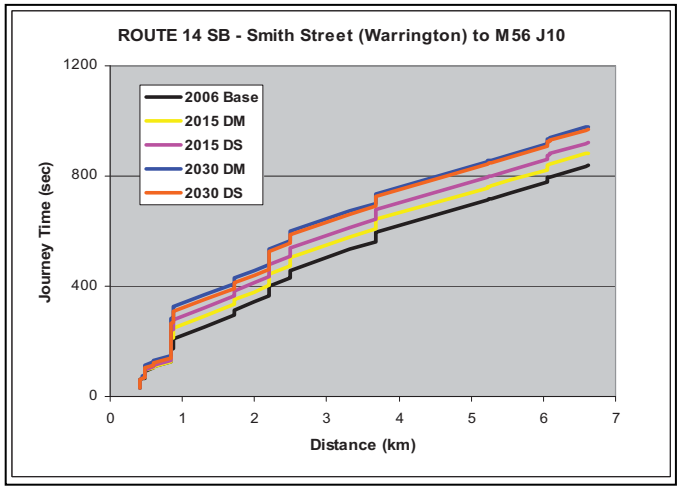
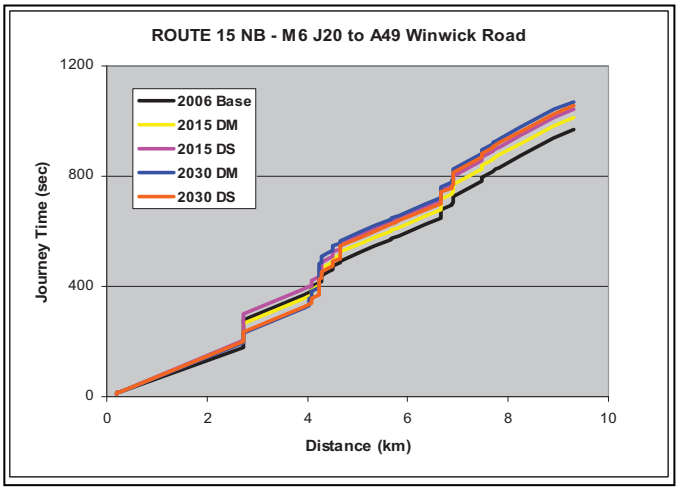
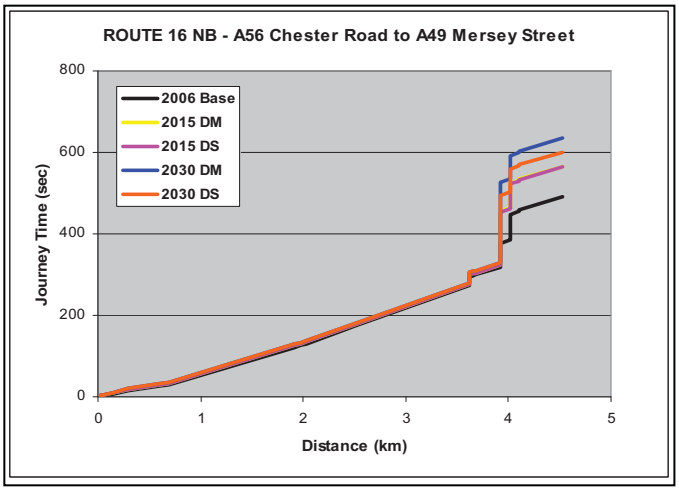
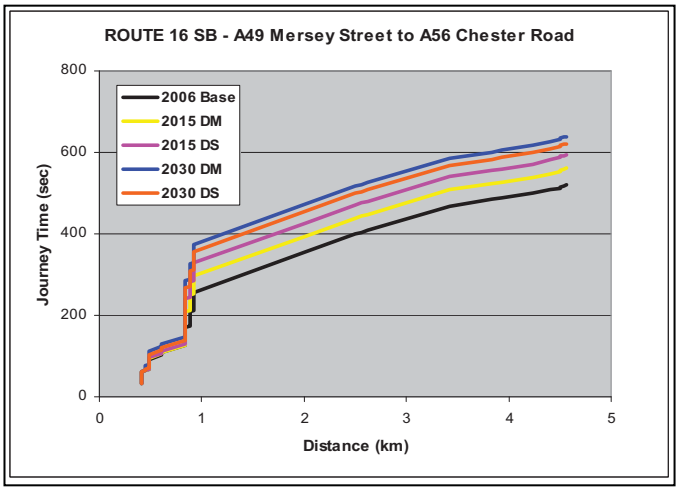
Mersey Gateway Study	**Figure 7.6 Comparison of Journey Times – PM Peak Hour (Sheet 6 of 8)**			



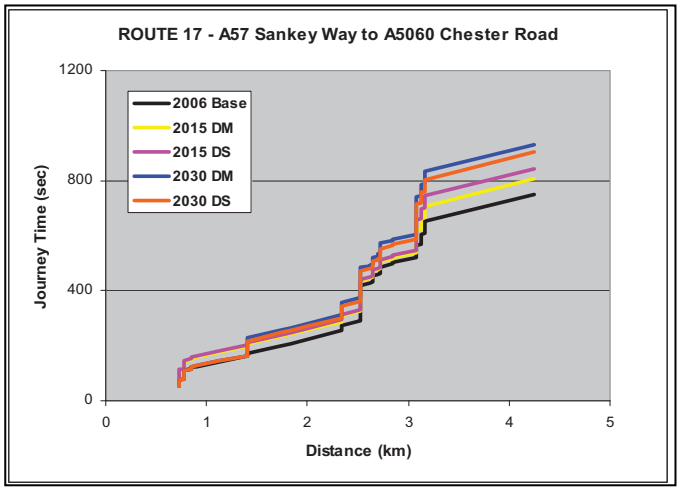


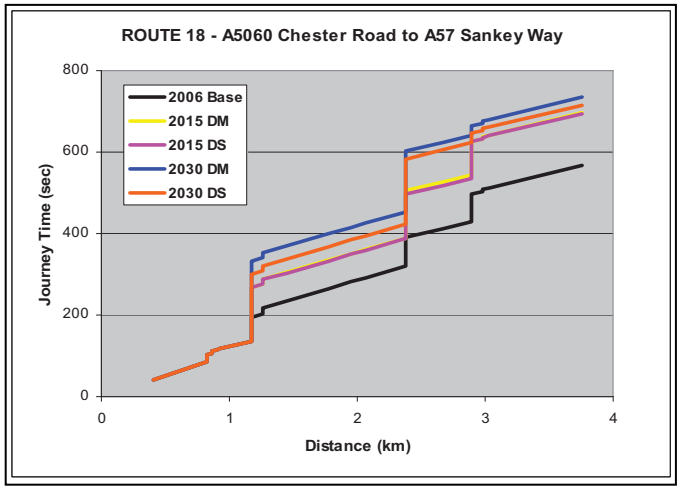


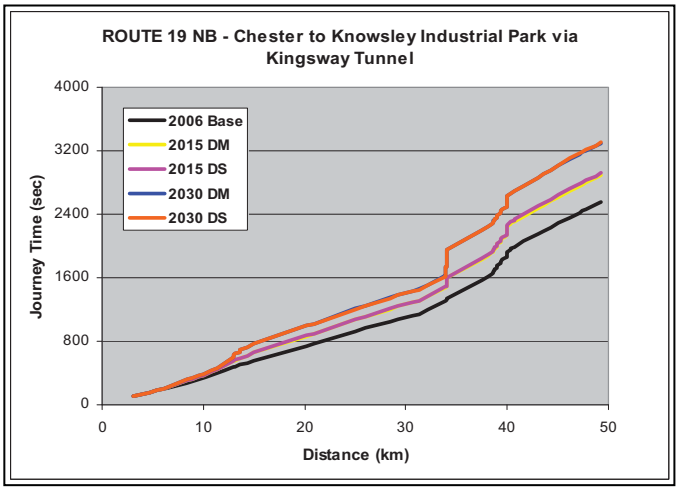


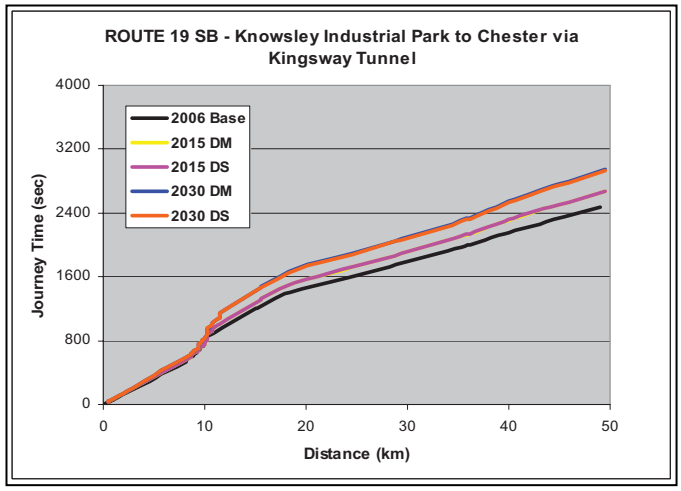


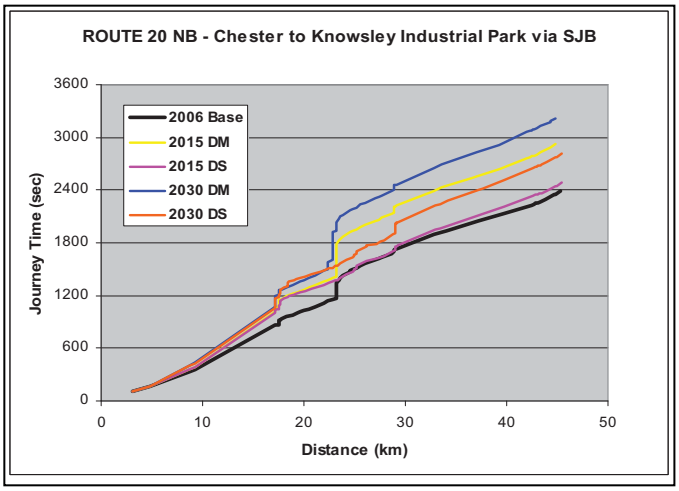
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.6 Comparison of Journey Times – PM Peak Hour (Sheet 7 of 8)**			

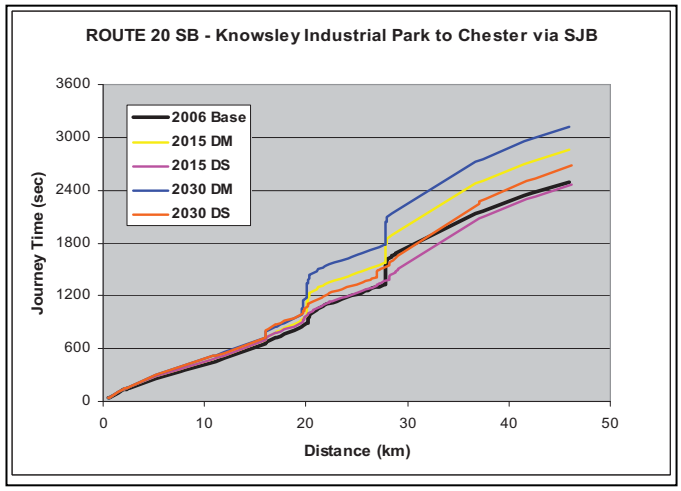












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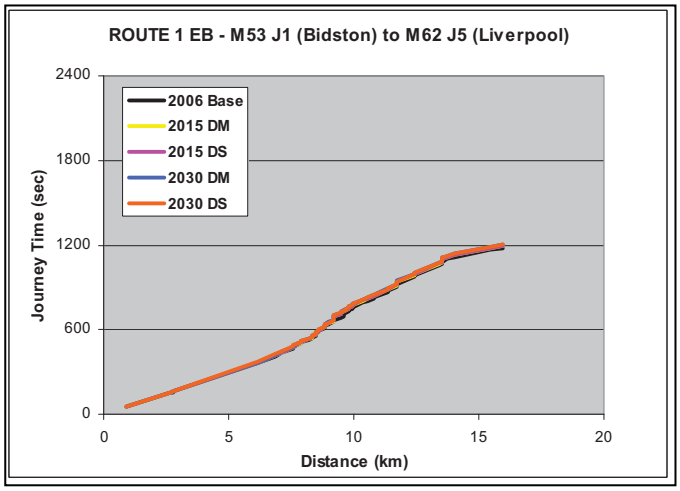
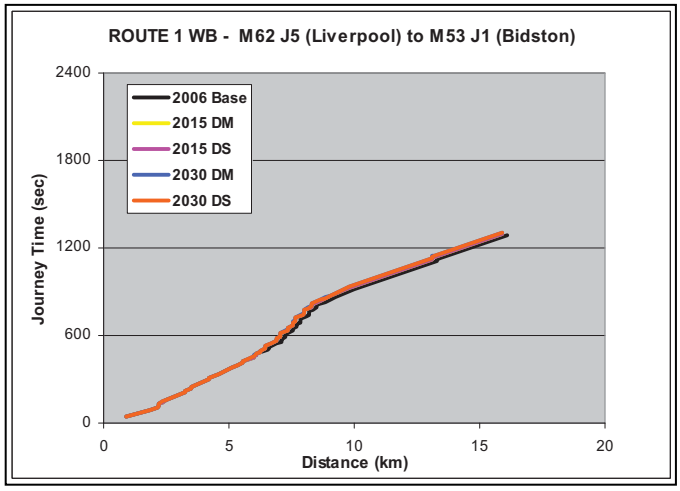
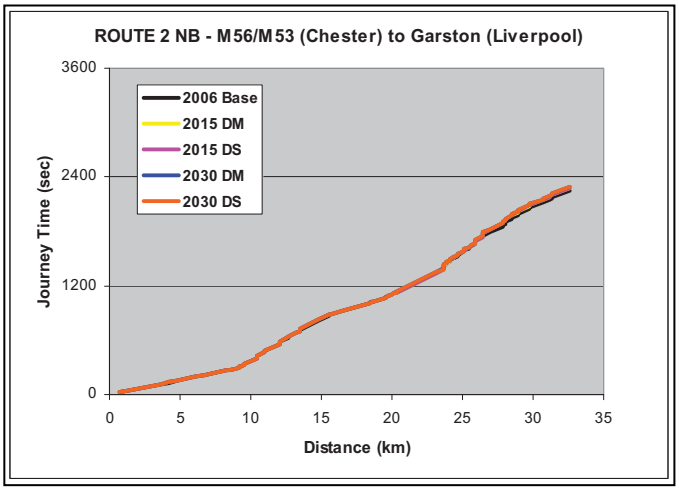
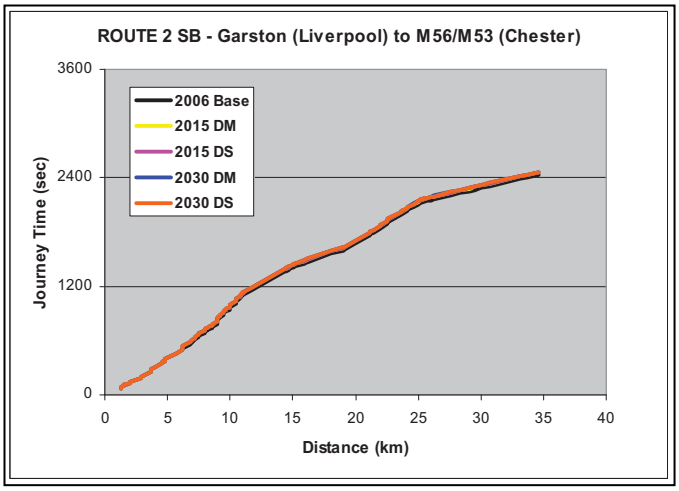
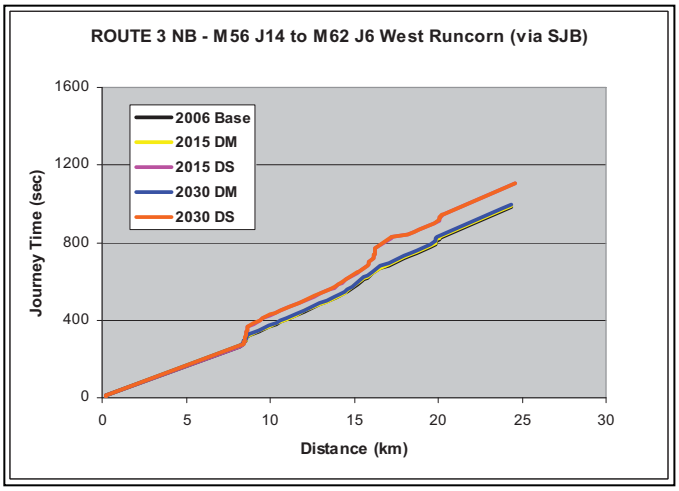
Mersey Gateway Study	**Figure 7.6 Comparison of Journey Times – PM Peak Hour (Sheet 8 of 8)**			

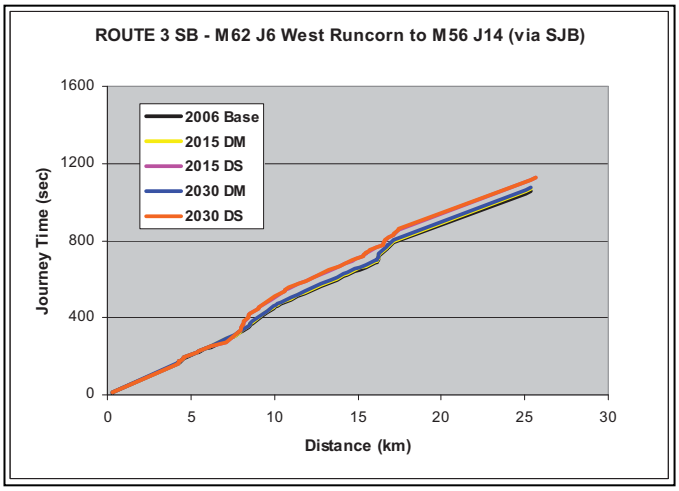












	Design JEH	CAD	Checked HF	Approved
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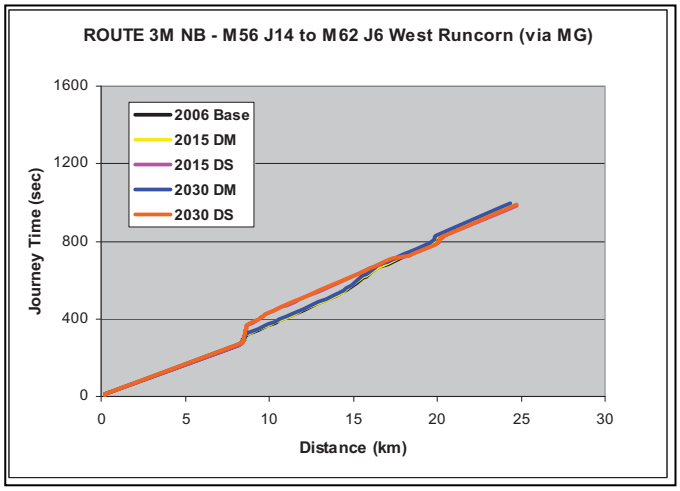

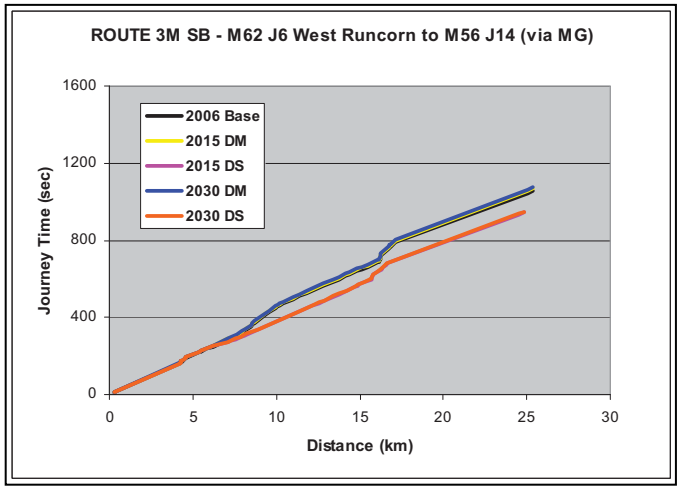

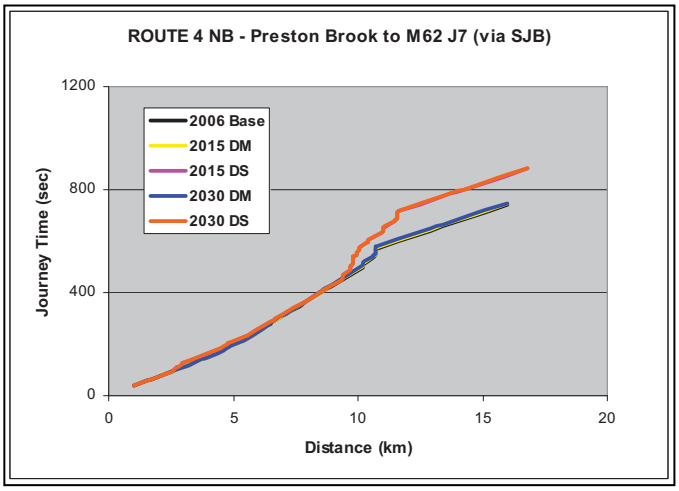

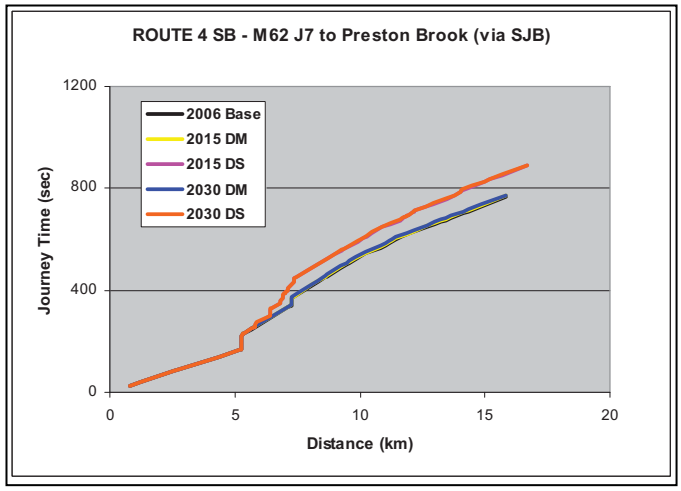

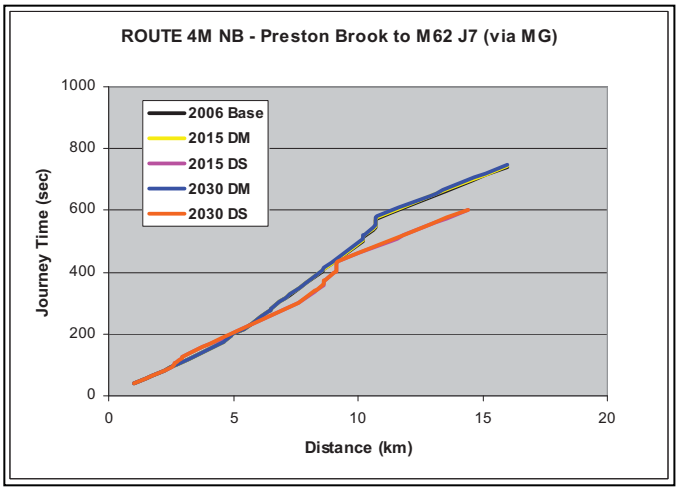

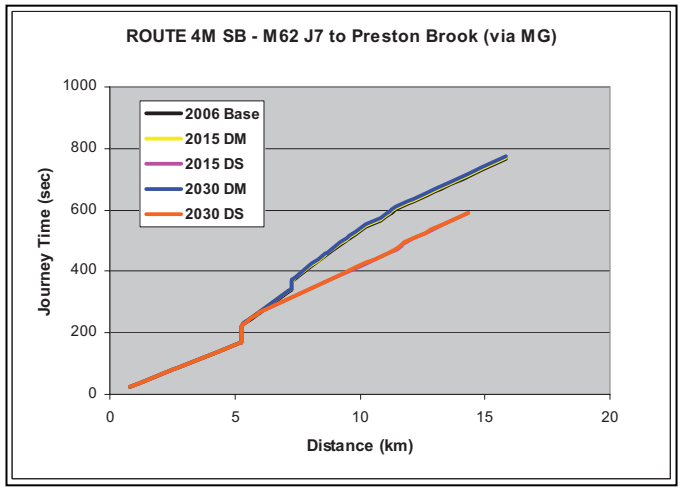

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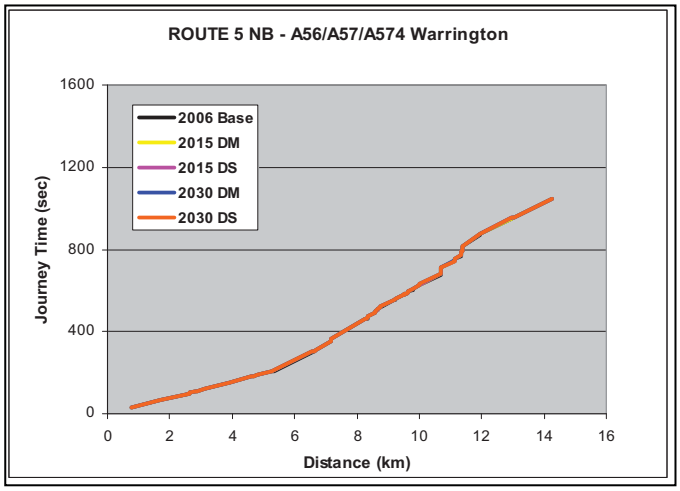
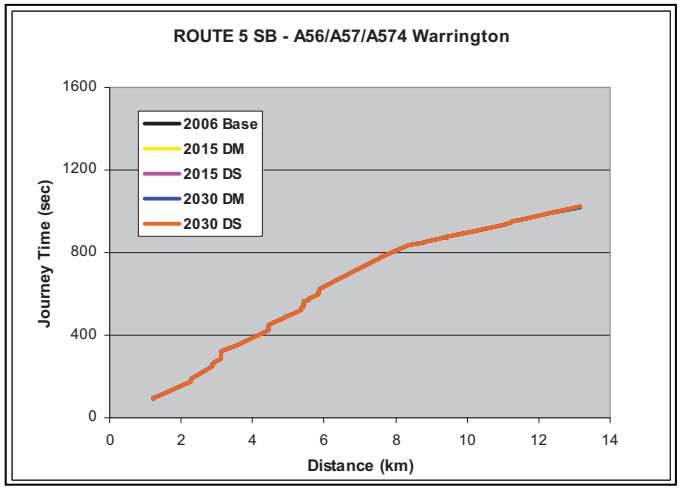
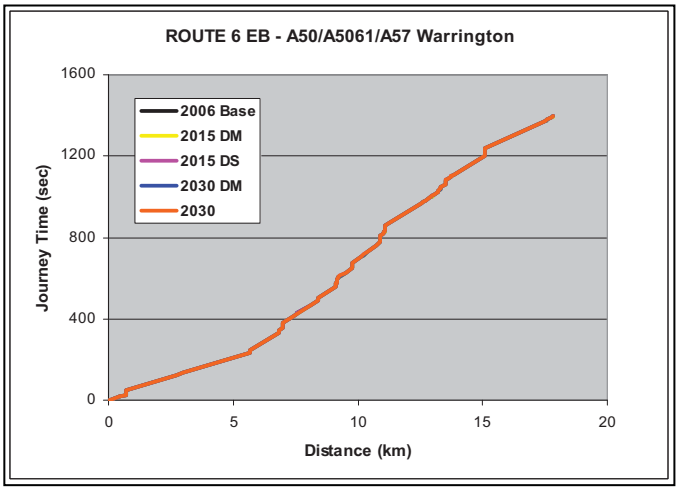
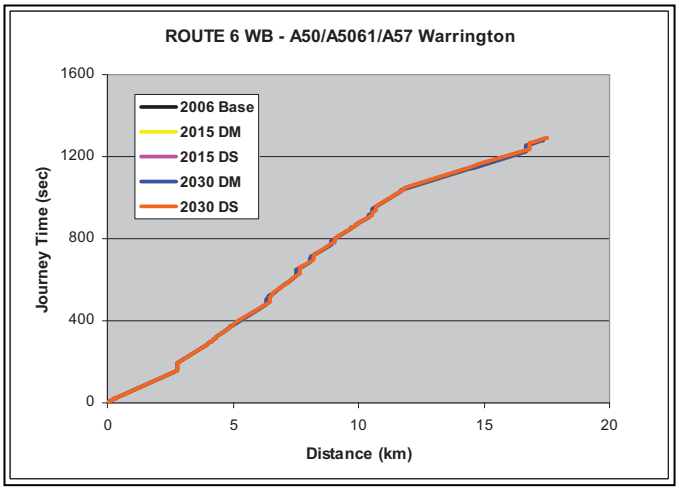
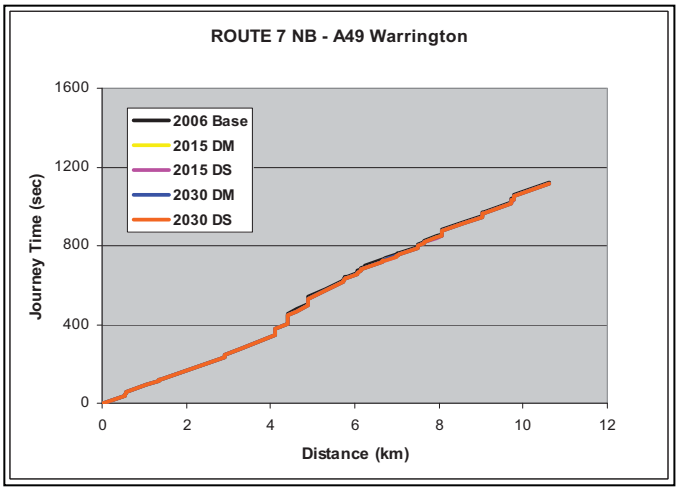
	Design JEH	CAD	Checked HF / Approved
	Drawing Number		Date 16/12/08
	Project Mersey Gateway	File	
Mersey Gateway Study	**Figure 7.7 Comparison of Journey Times – Overnight Hour (Sheet 2 of 8)**		

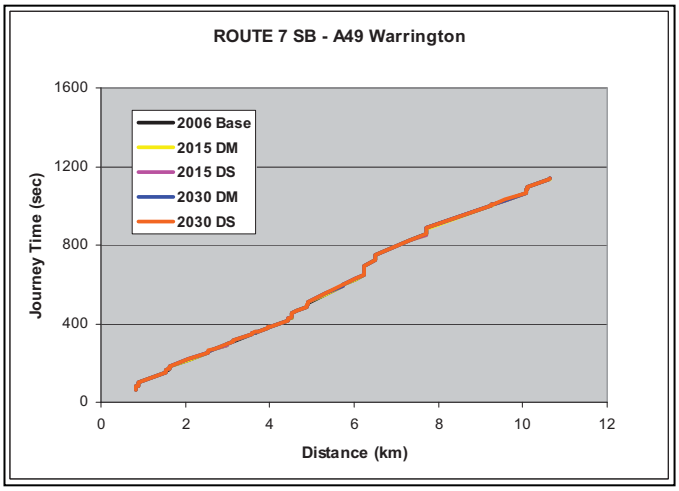












	Design JEH	CAD	Checked HF	Approved
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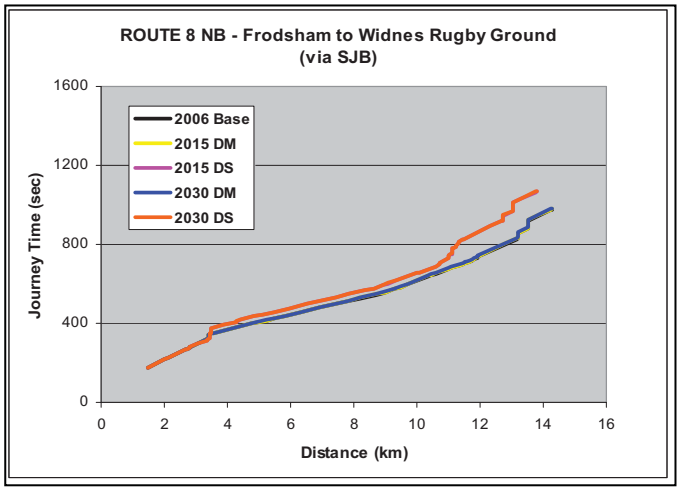
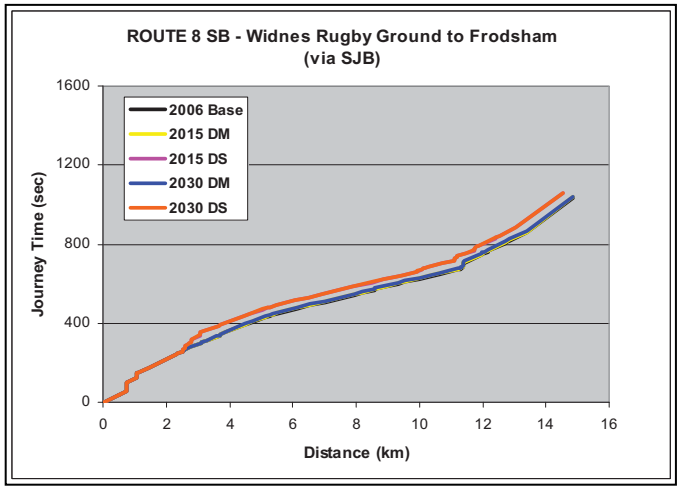
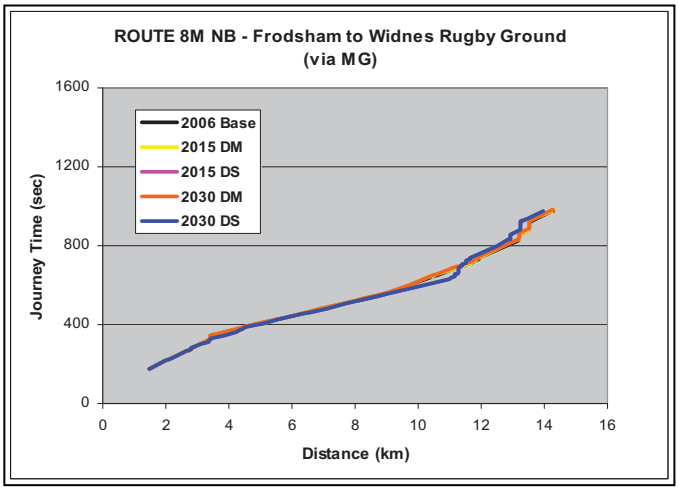
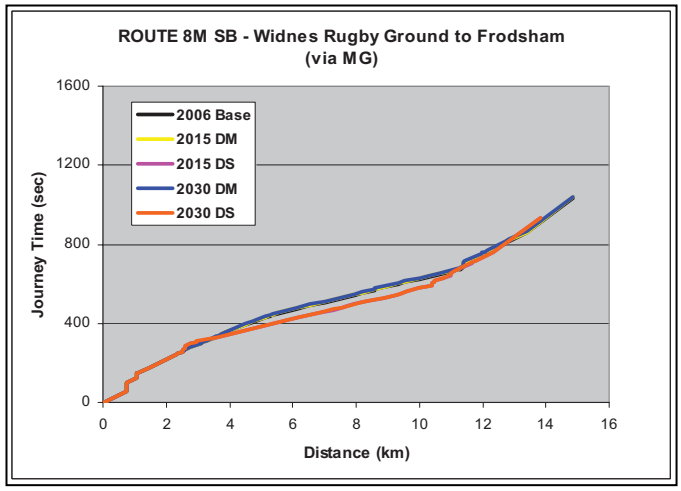
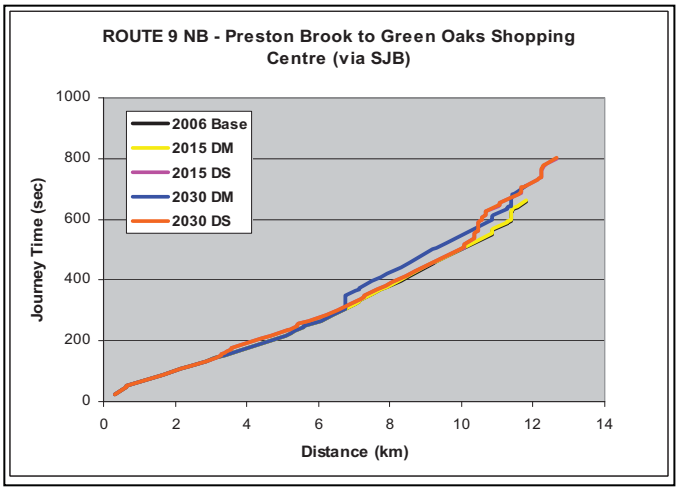
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.7 Comparison of Journey Times – Overnight Hour (Sheet 3 of 8)**			

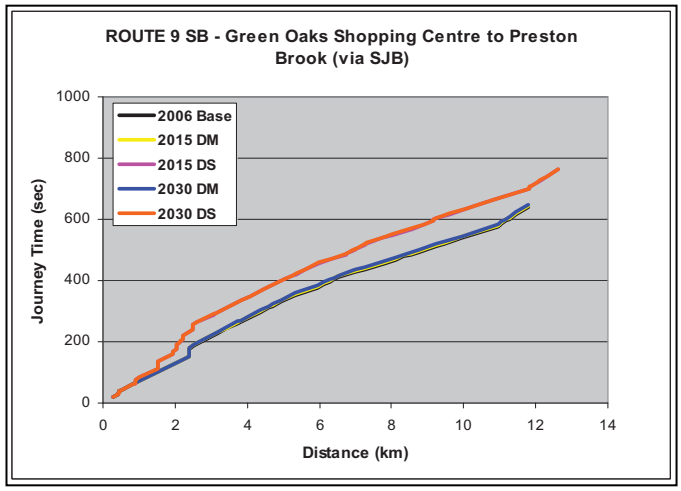












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	Drawing Number		Date 16/12/08
	Project Mersey Gateway	File	
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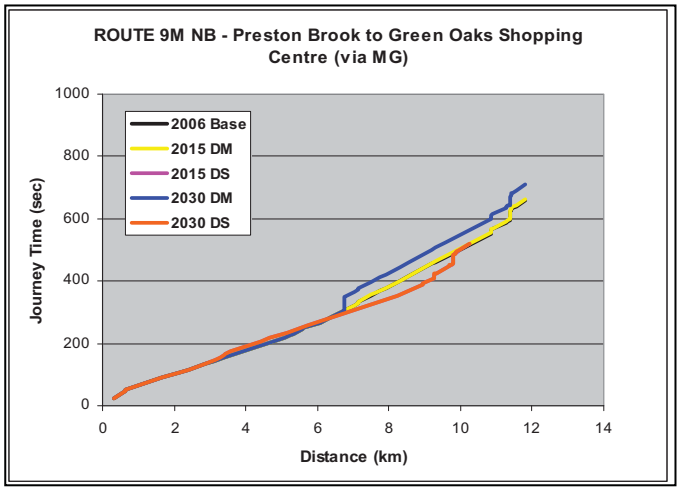

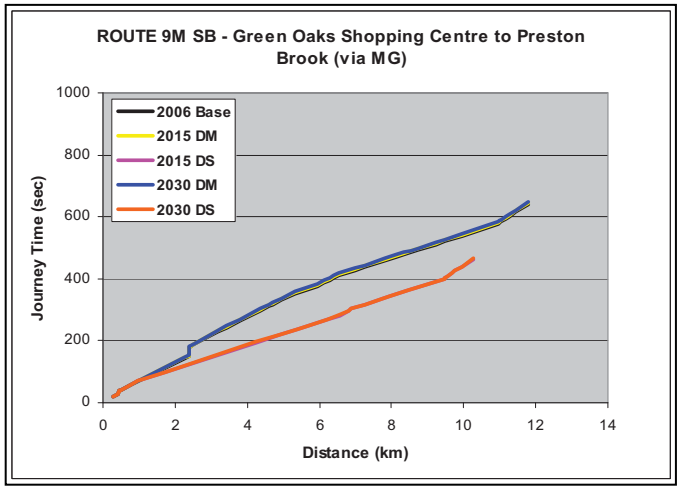

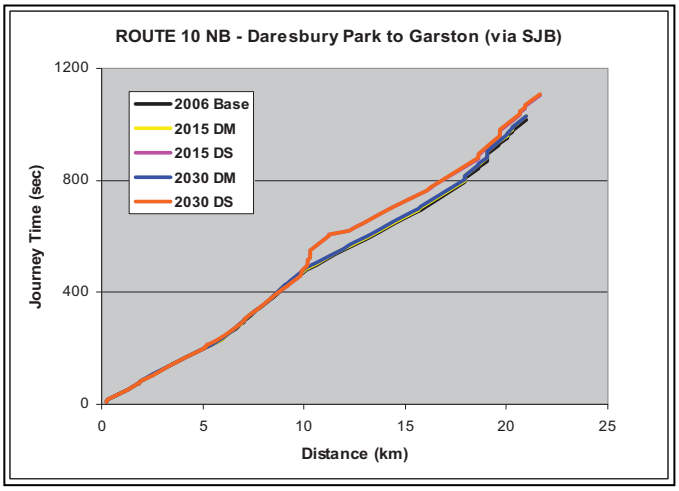

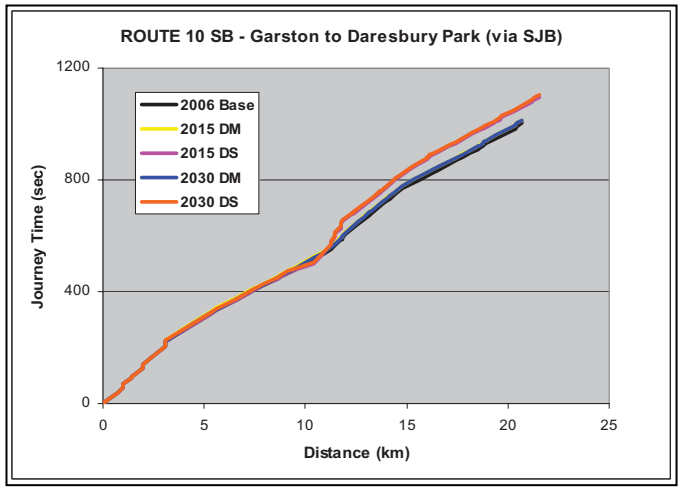

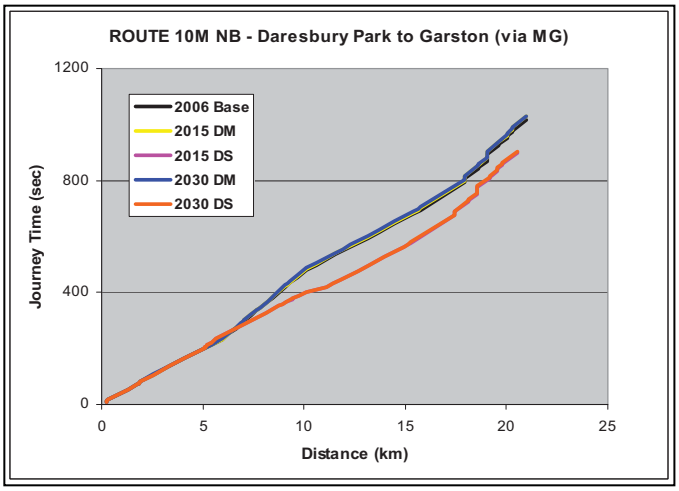

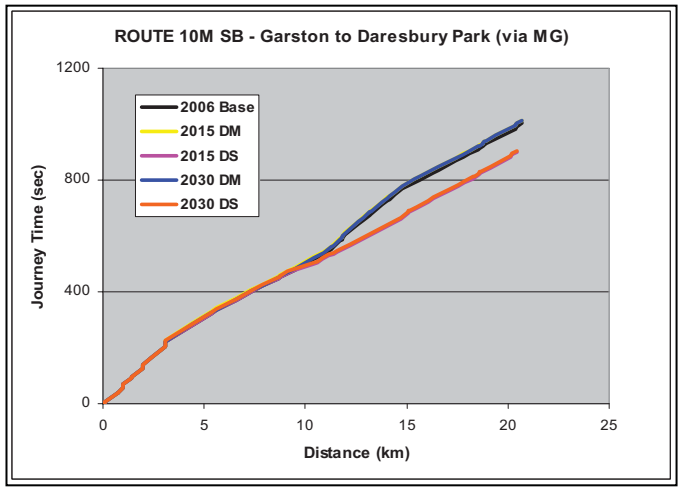

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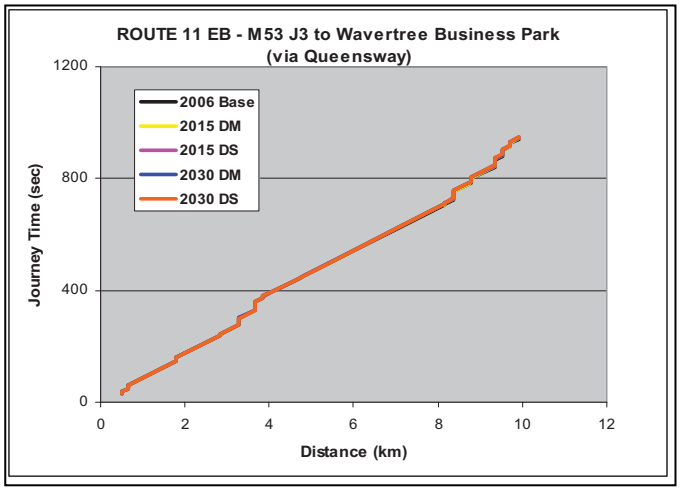

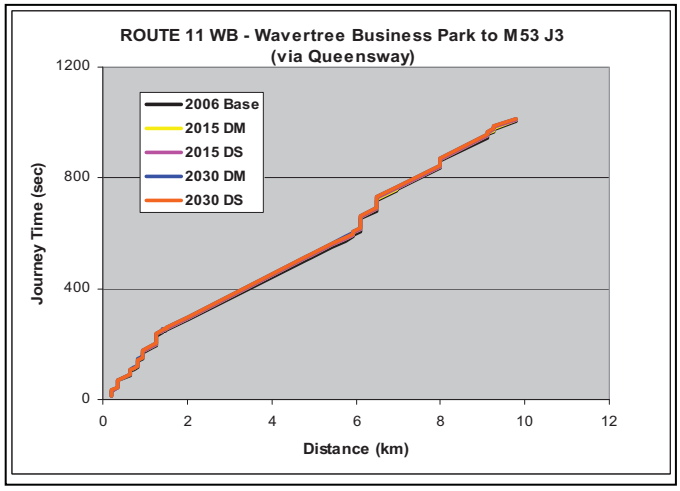

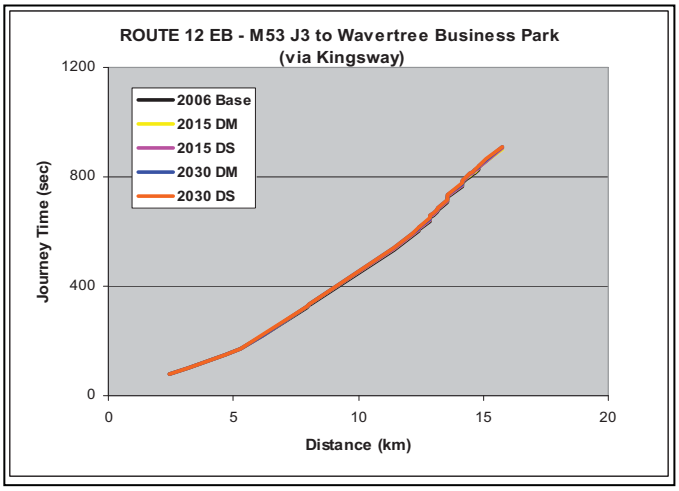

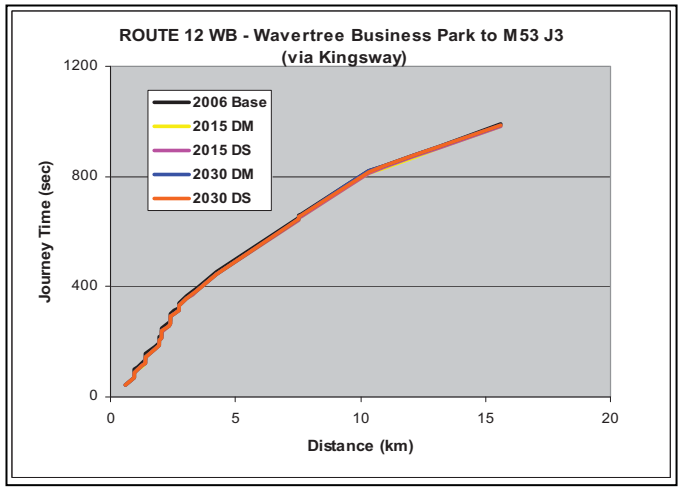

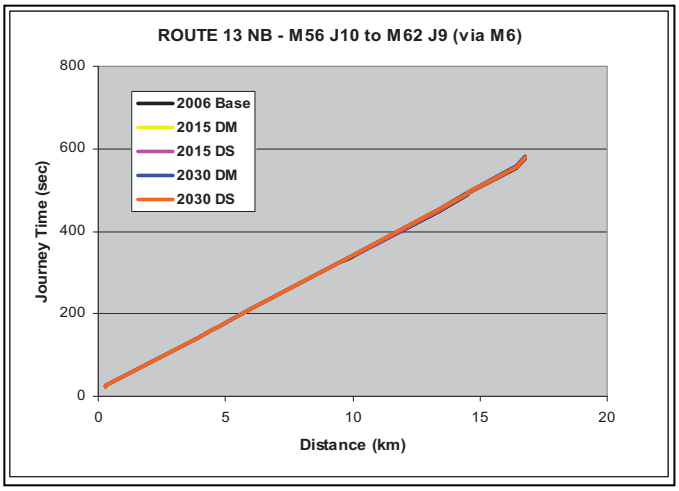

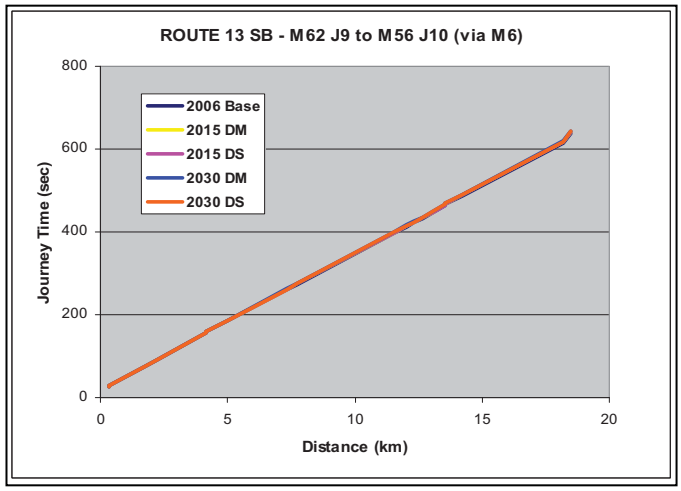

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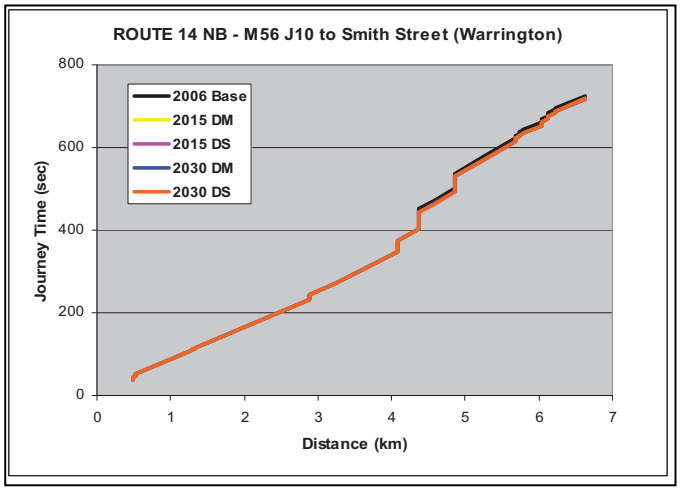
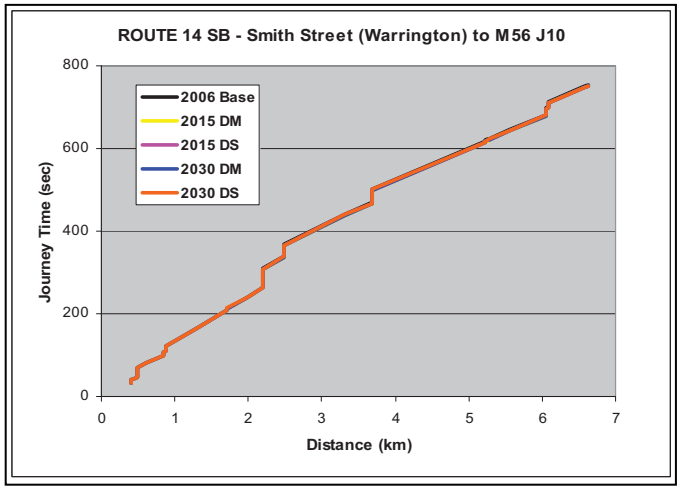
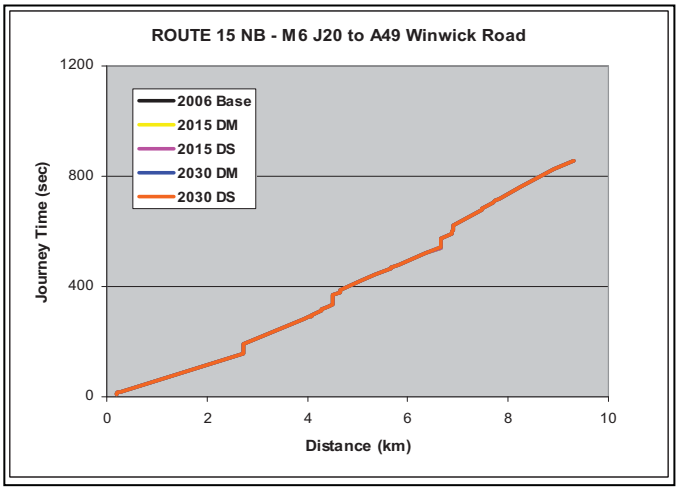
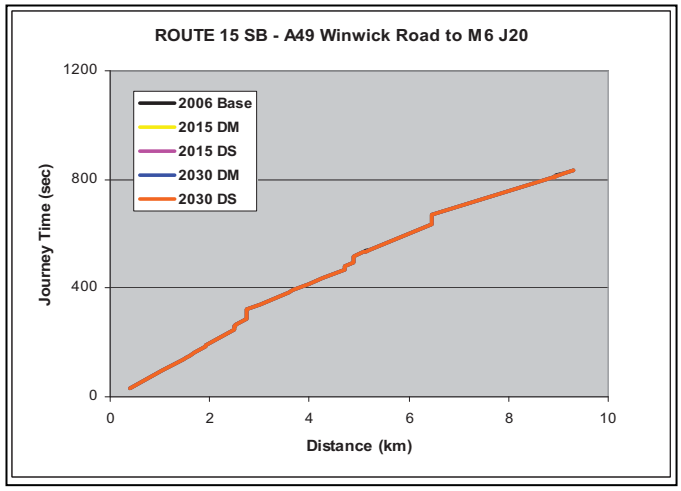
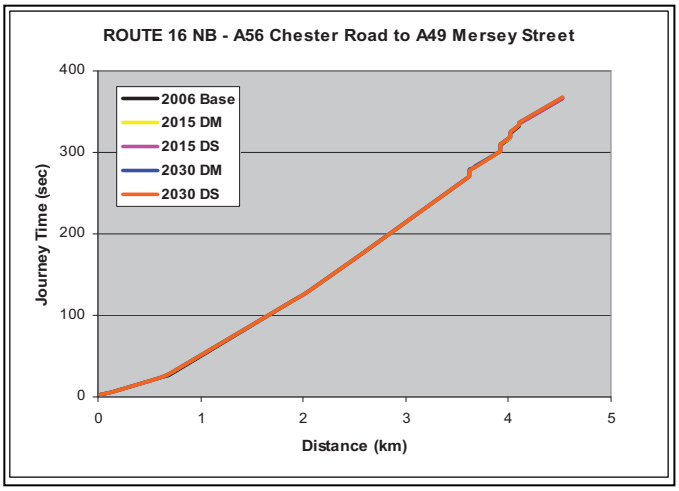
	Design JEH	CAD	Checked HF	Approved
	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.7 Comparison of Journey Times – Overnight Hour (Sheet 6 of 8)**			

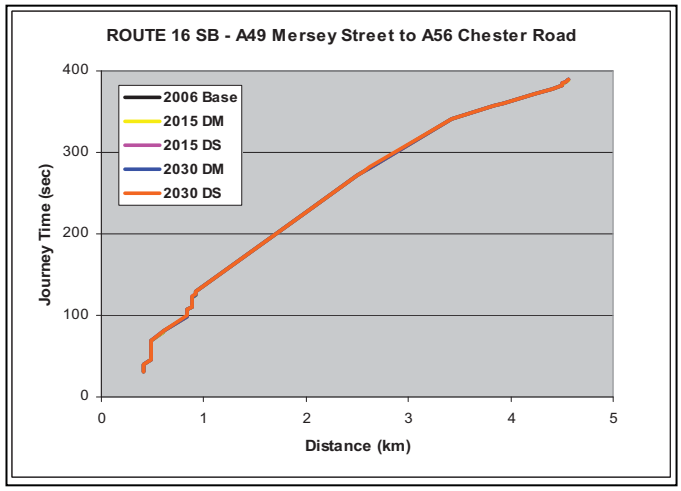












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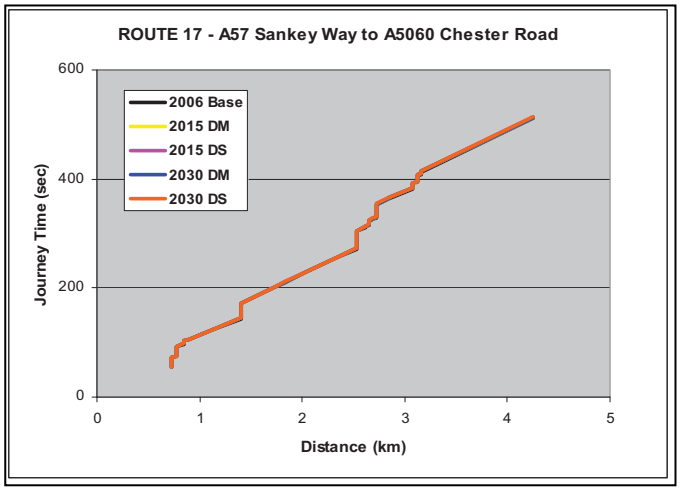
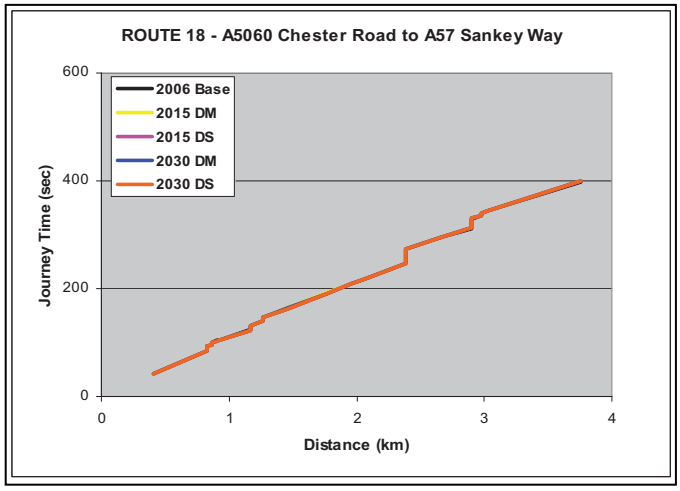
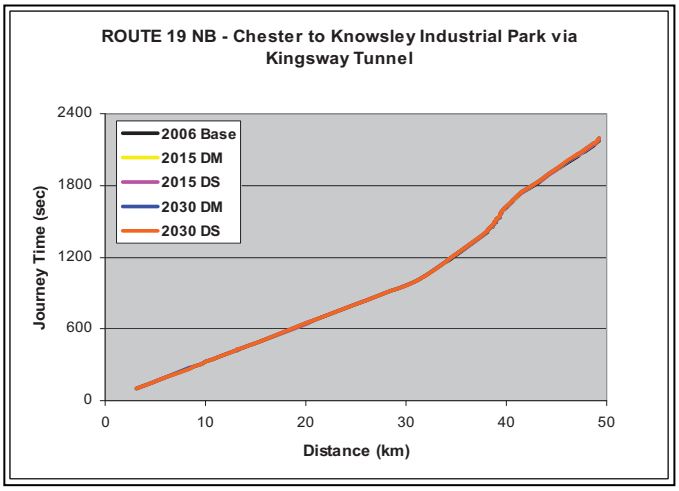
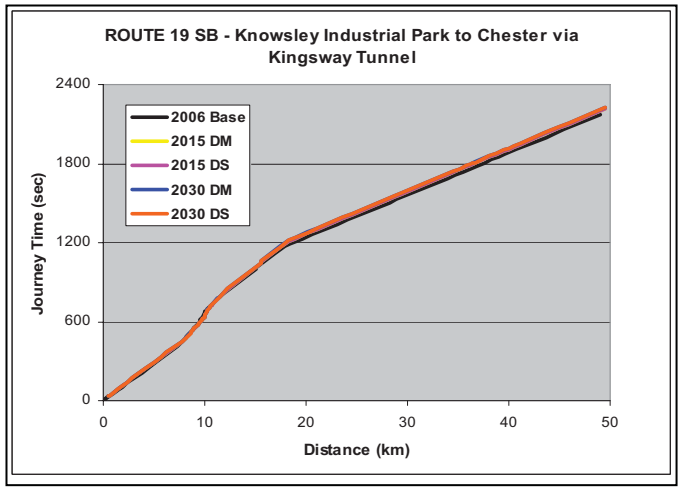
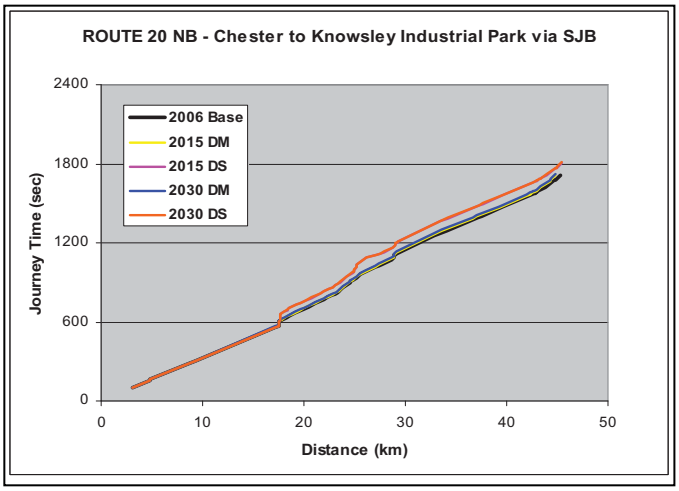
	Project: Mersey Gateway	File	
Mersey Gateway Study	**Figure 7.7 Comparison of Journey Times – Overnight Hour (Sheet 7 of 8)**		

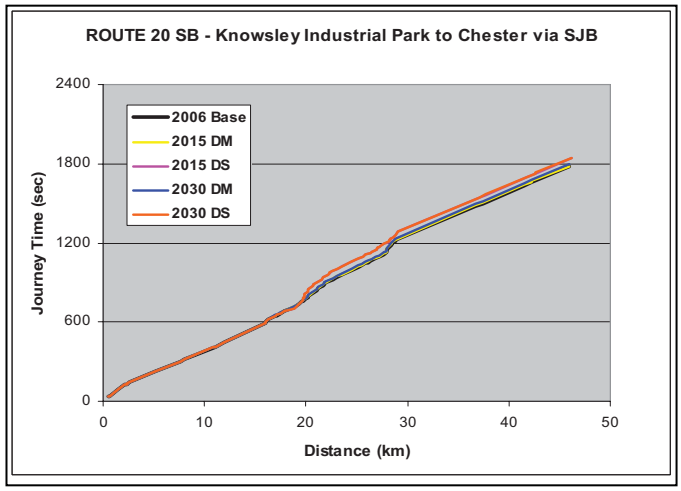












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	Drawing Number		Date 16/12/08	
	Project Mersey Gateway		File	
Mersey Gateway Study	**Figure 7.7 Comparison of Journey Times – Overnight Hour (Sheet 8 of 8)**			

Figure 7.8 Journey Times across the River Mersey - 2006 Base Year AM peak hour

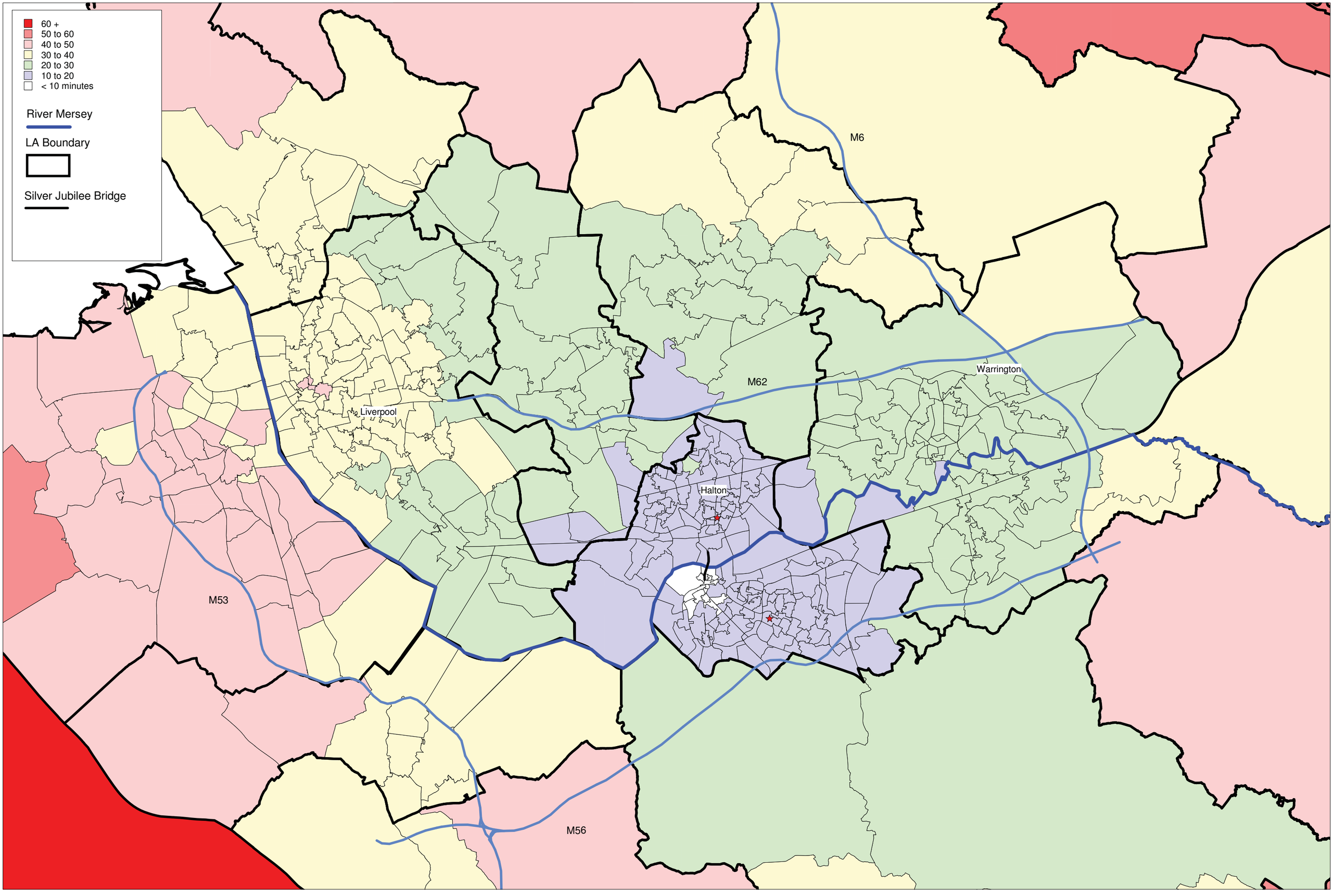


Figure 7.9 Journey Times across the River Mersey - 2015 Do-Minimum AM peak hour

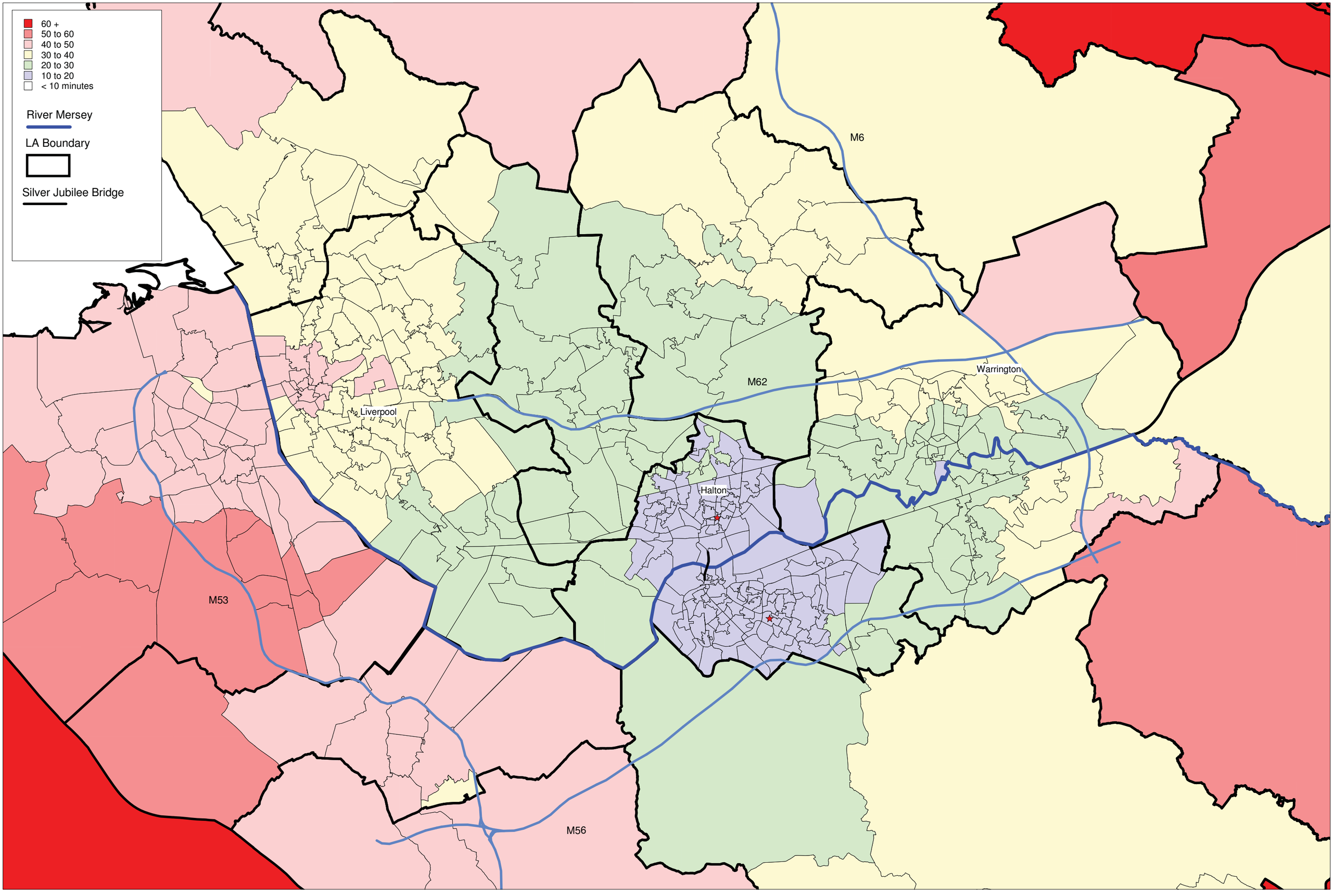


Figure 7.10 Journey Times across the River Mersey - 2015 Do-Something AM peak hour

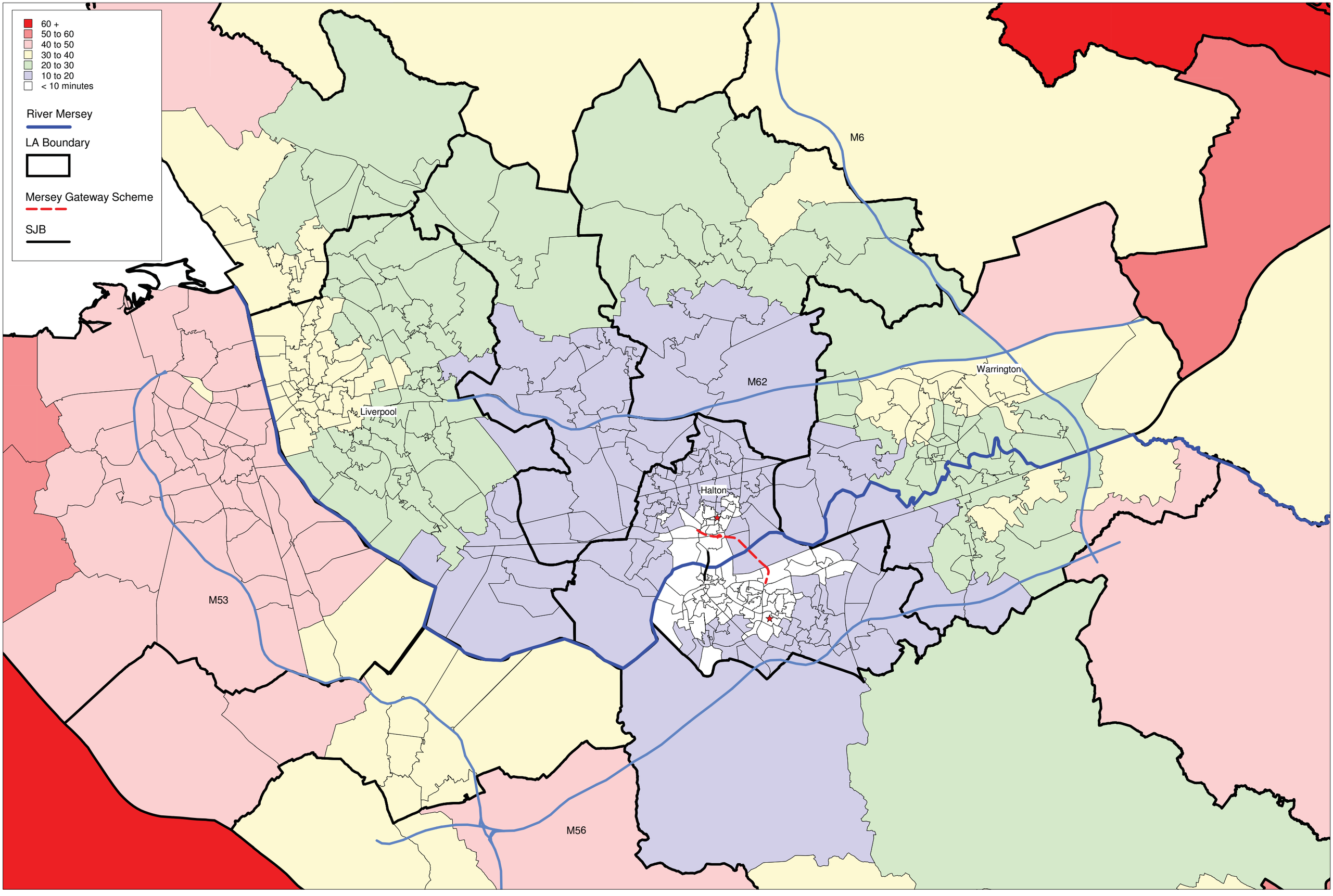


Figure 7.11 Journey Times across the River Mersey - 2030 Do-Minimum AM peak hour

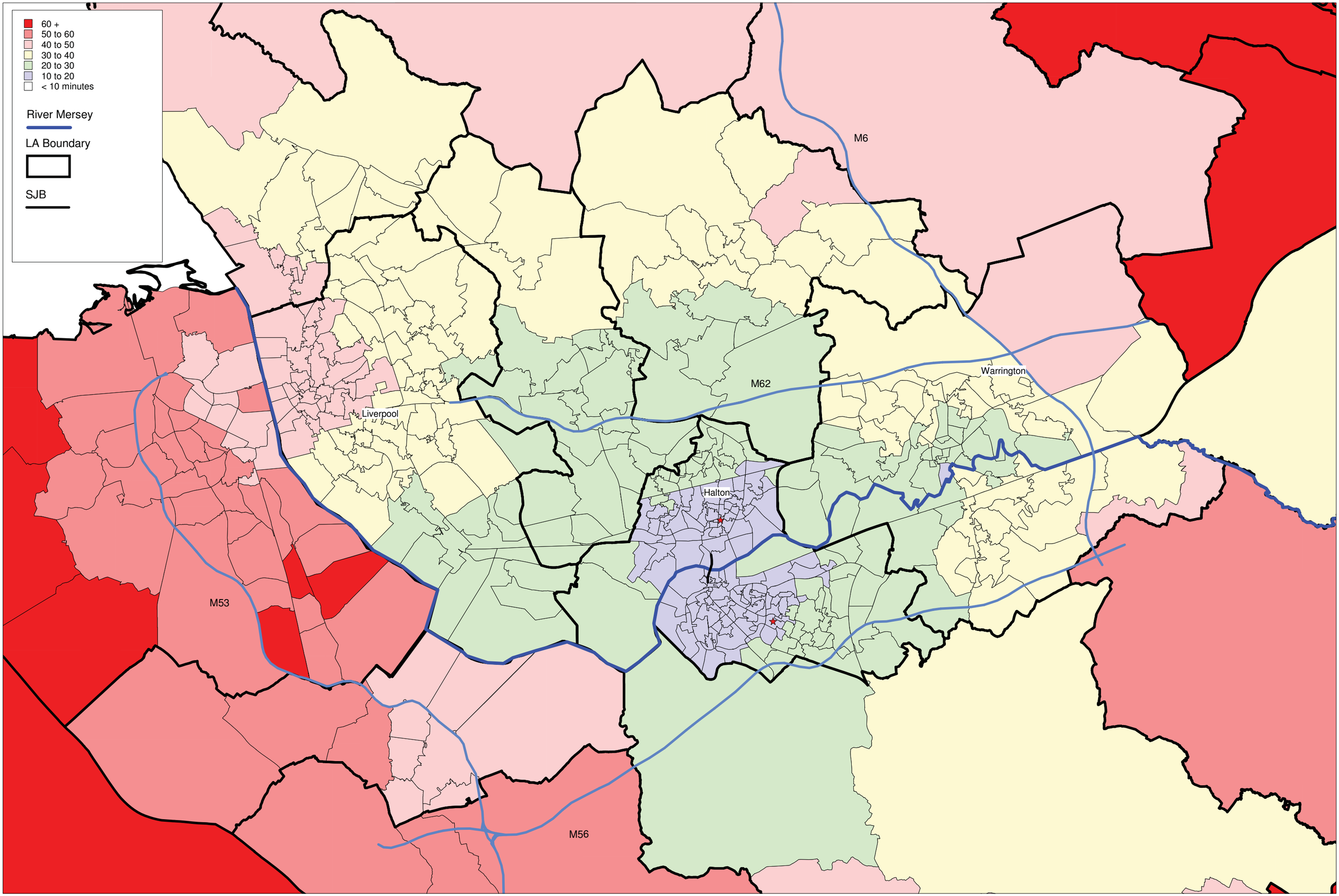


Figure 7.12 Journey Times across the River Mersey - 2030 Do-Something AM peak hour

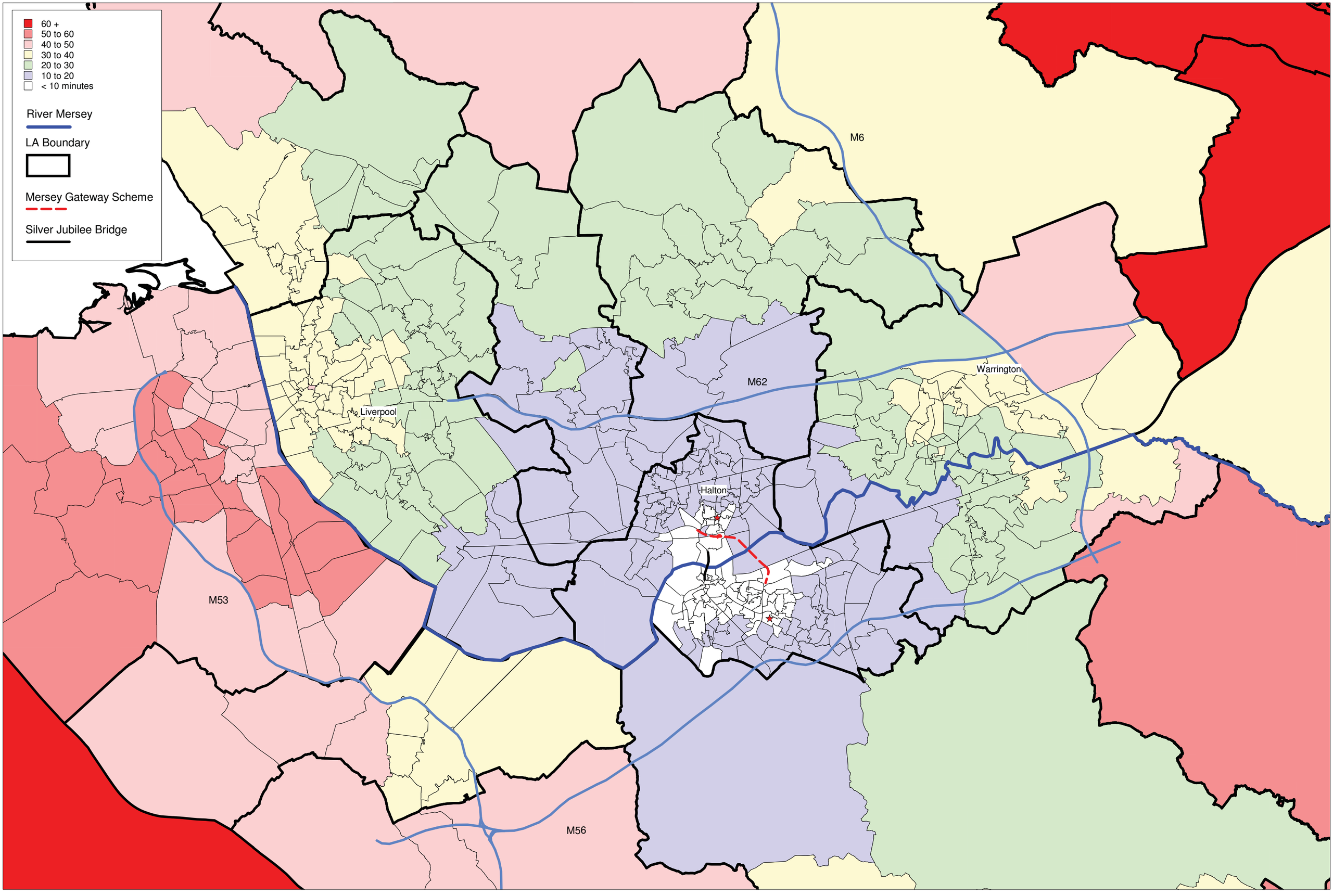


Figure 7.13 Journey Times across the River Mersey - 2006 Base Year Inter peak hour

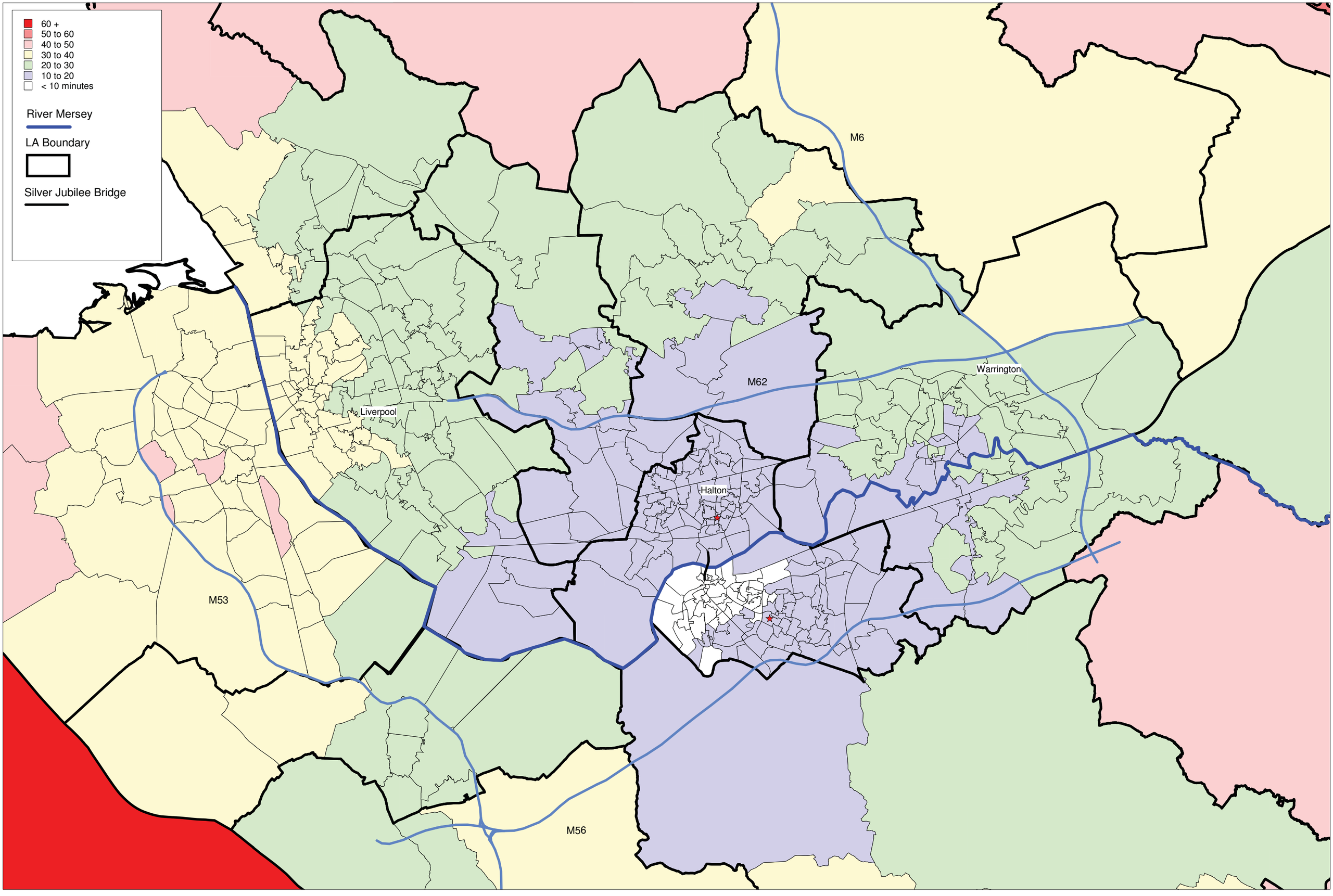


Figure 7.14 Journey Times across the River Mersey - 2015 Do-Minimum Inter peak hour

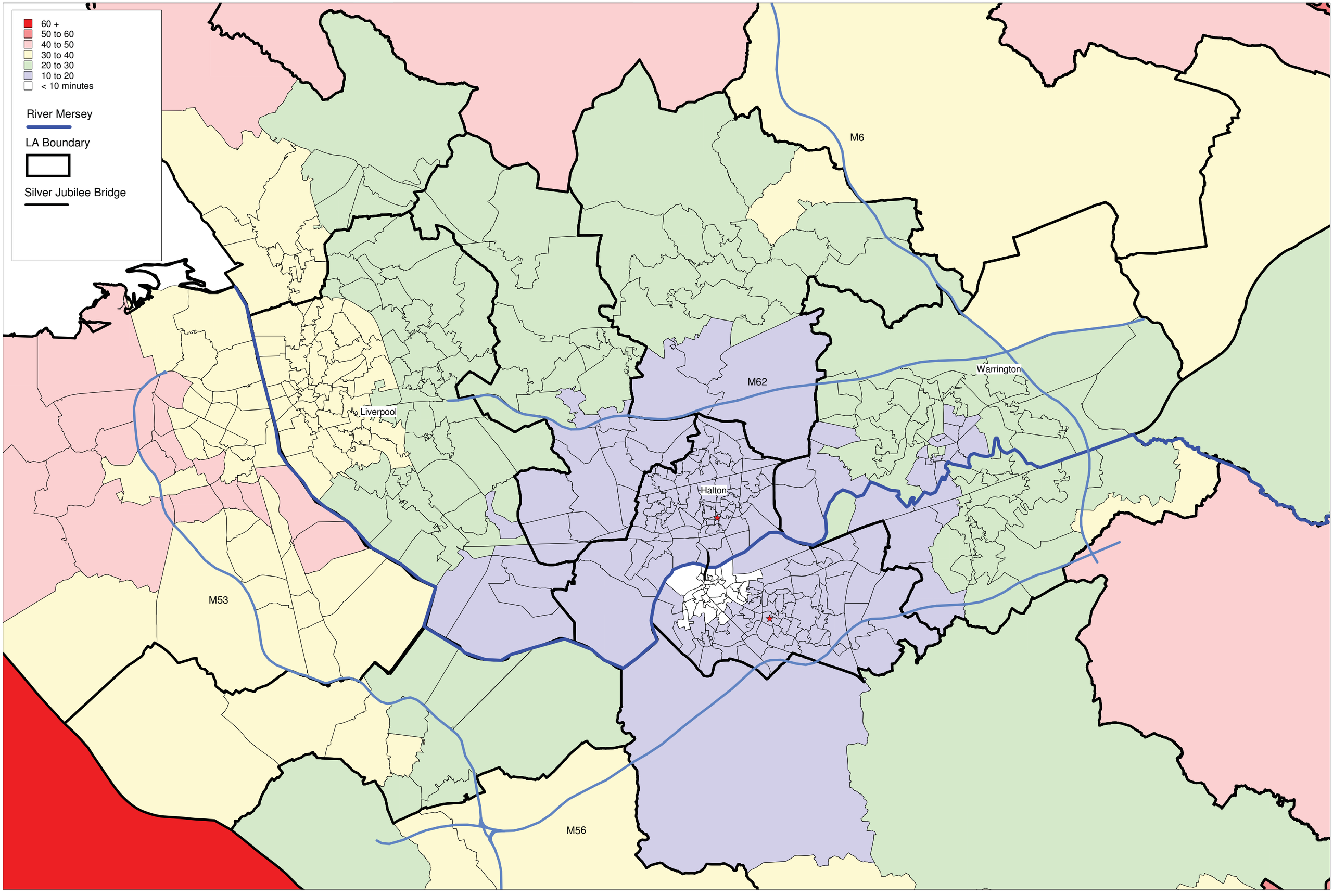


Figure 7.15 Journey Times across the River Mersey - 2015 Do-Something Inter peak hour

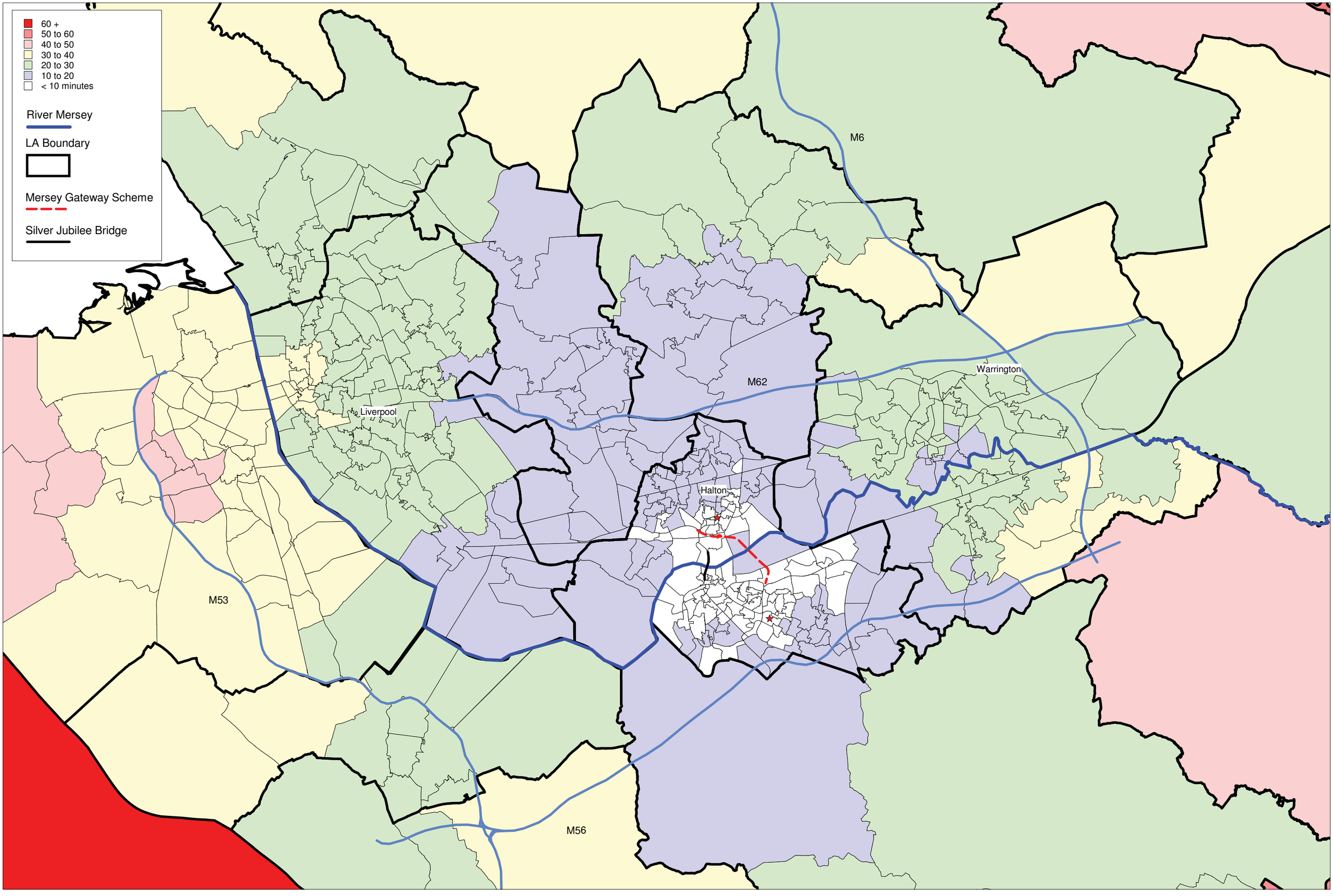


Figure 7.16 Journey Times across the River Mersey - 2030 Do-Minimum Inter peak hour

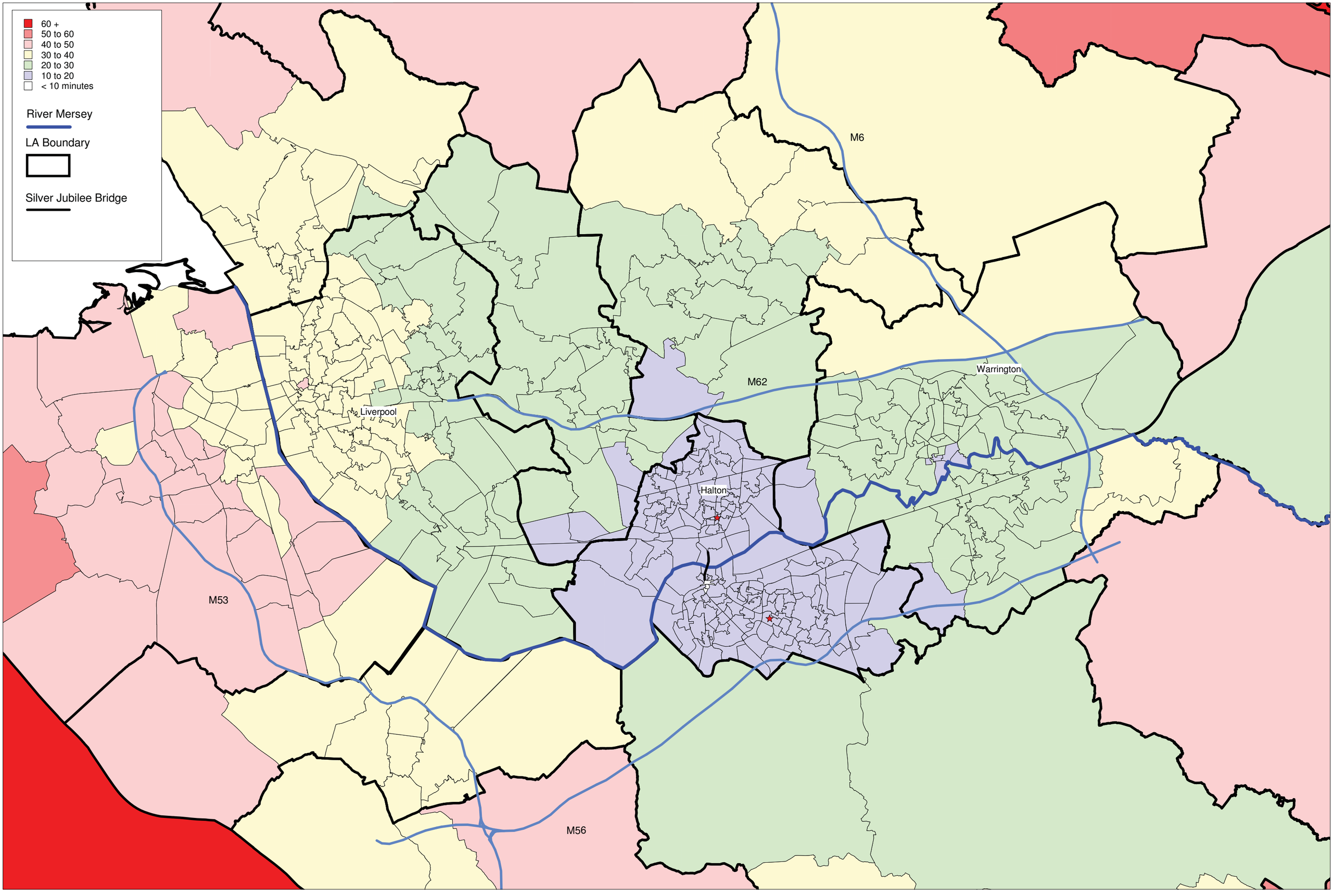


Figure 7.17 Journey Times across the River Mersey - 2030 Do-Something Inter peak hour

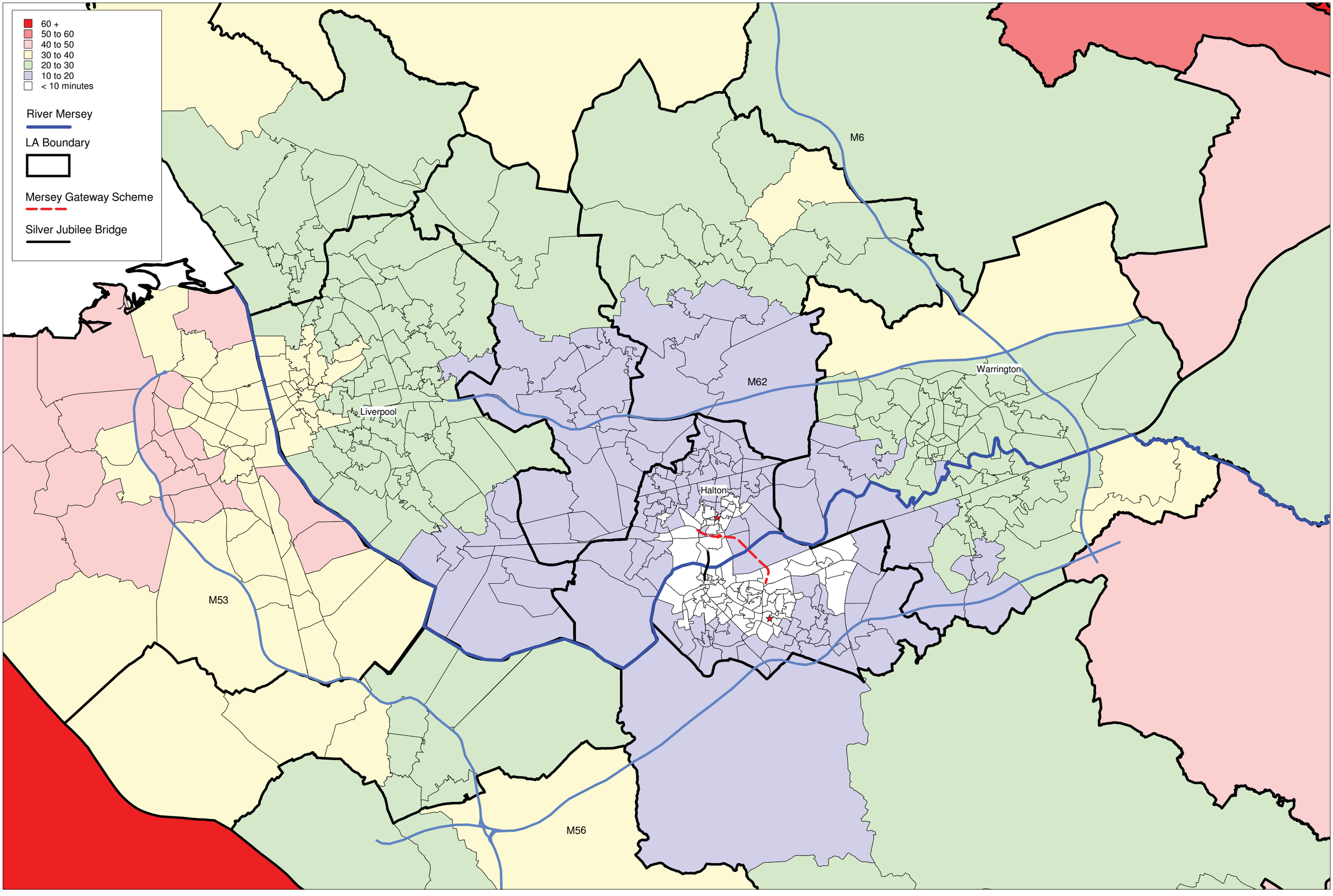


Figure 7.18 Journey Times across the River Mersey - 2006 Base Year PM peak hour

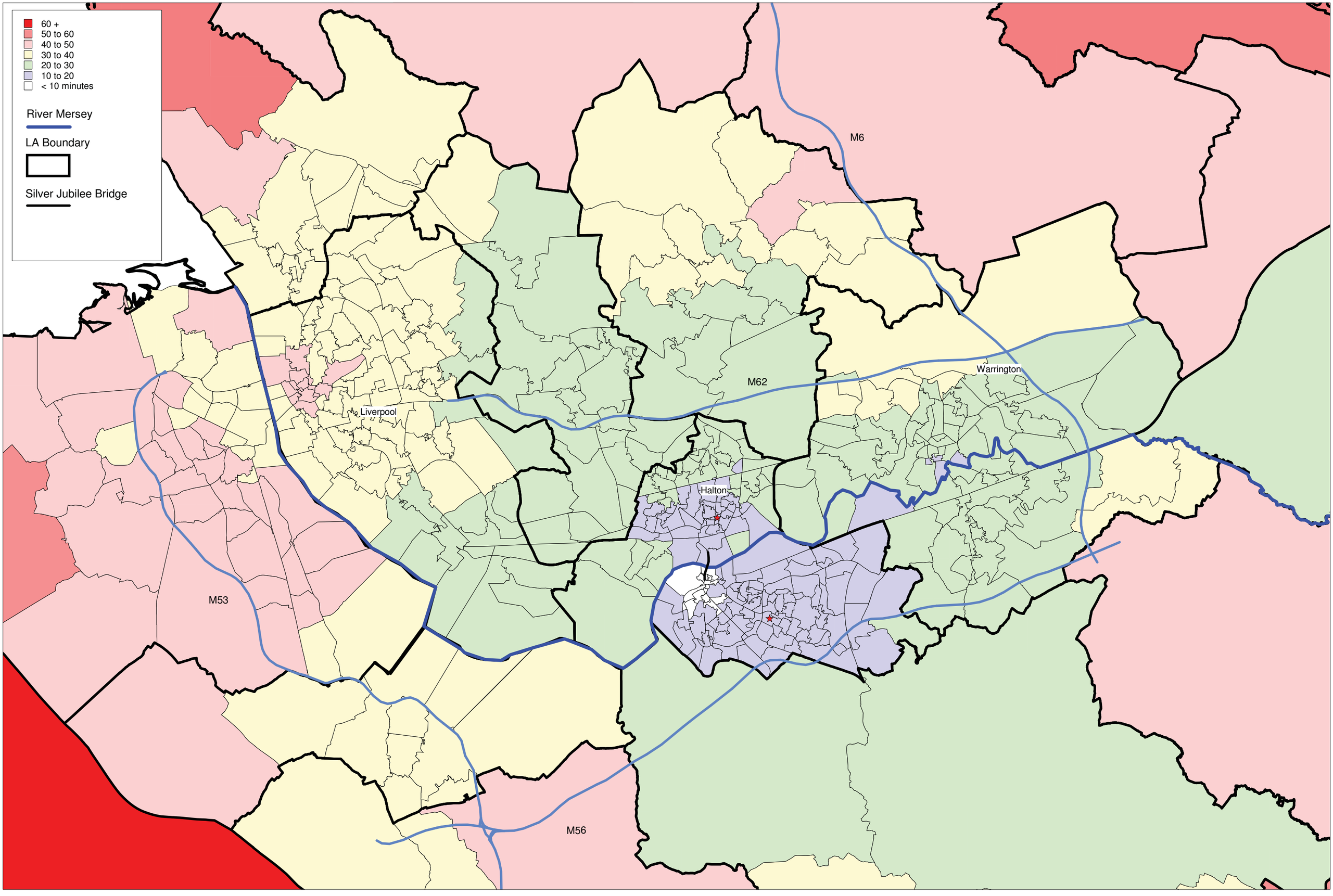


Figure 7.19 Journey Times across the River Mersey - 2015 Do-Minimum PM peak hour

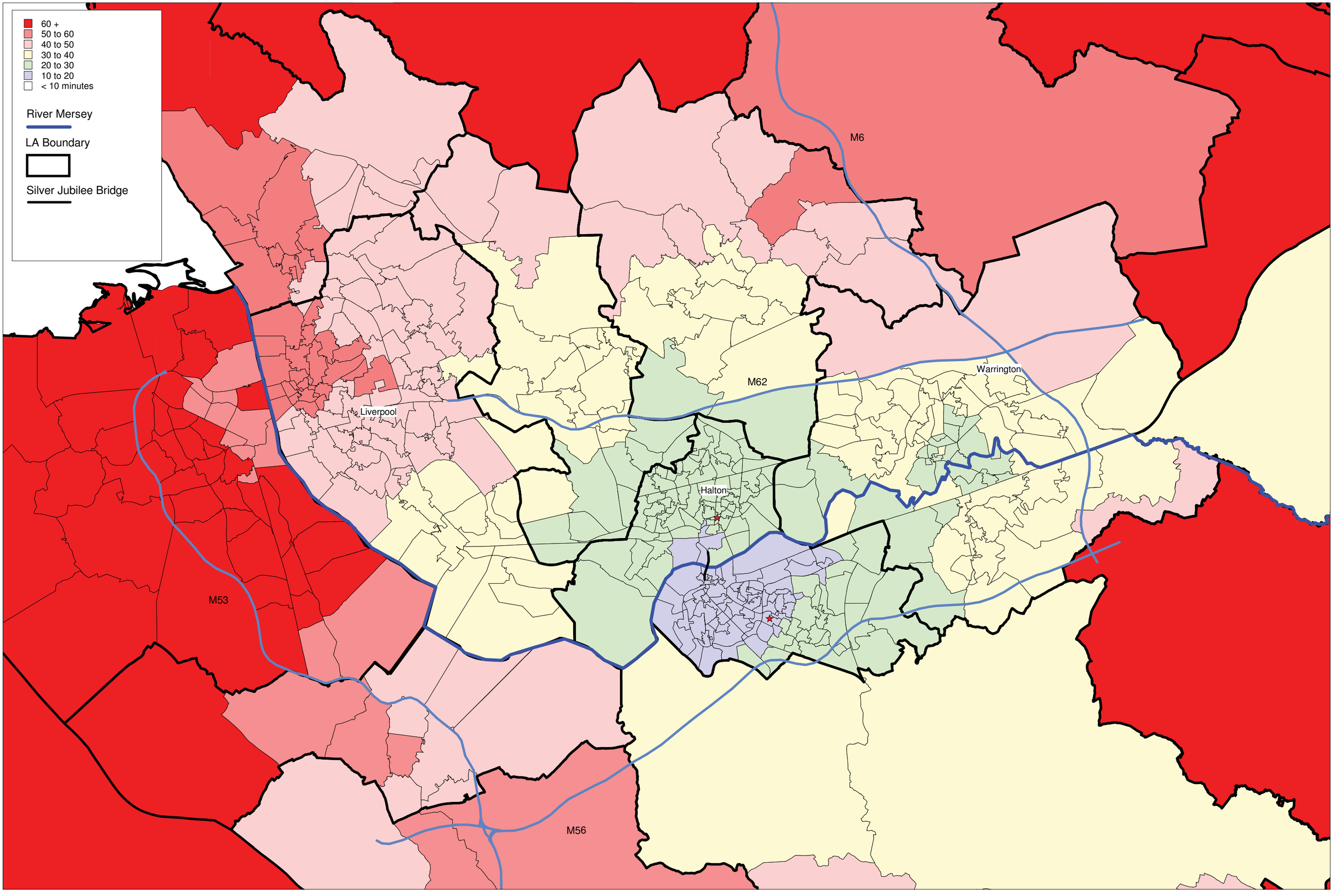


Figure 7.20 Journey Times across the River Mersey - 2015 Do-Something PM peak hour

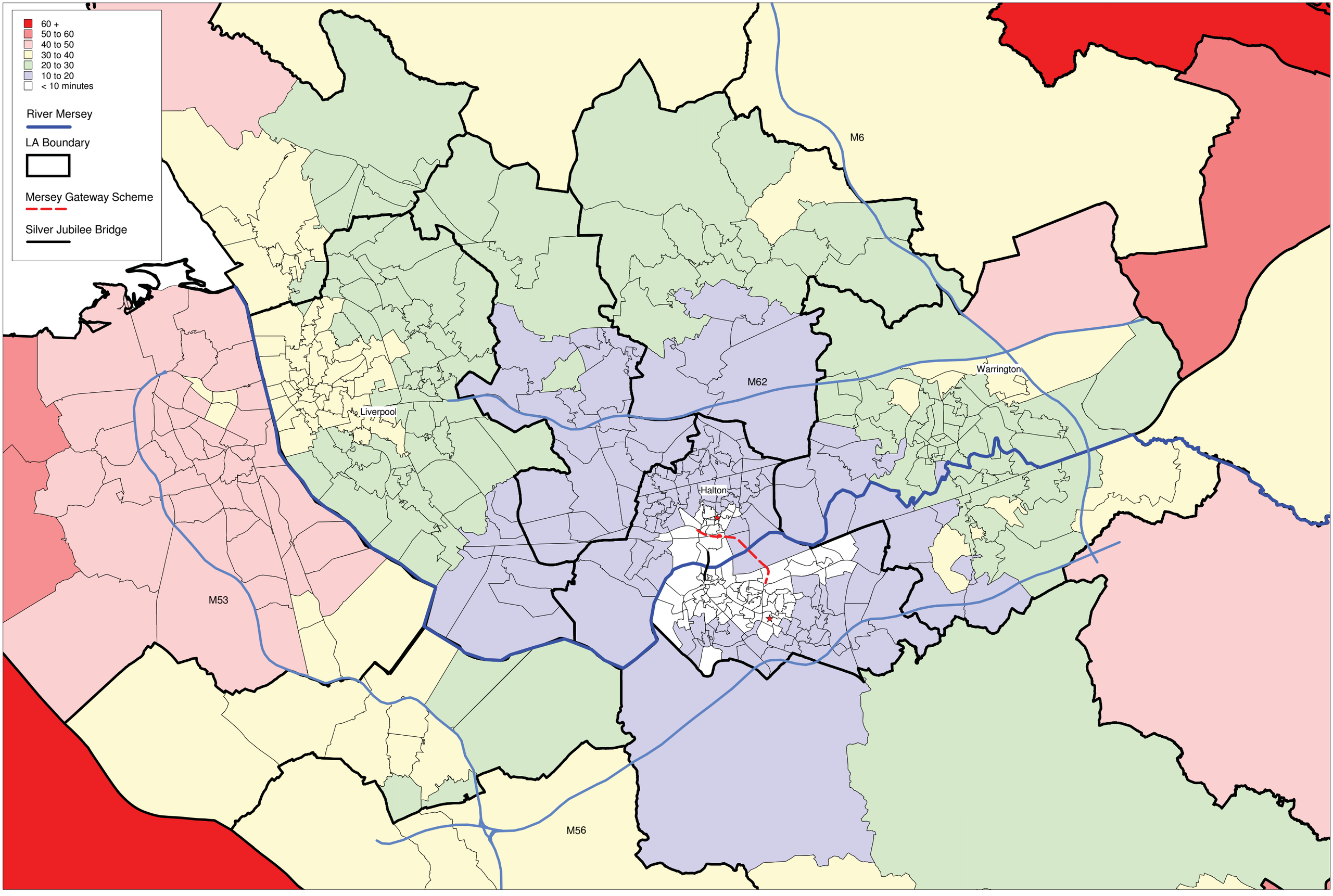


Figure 7.21 Journey Times across the River Mersey - 2030 Do-Minimum PM peak hour

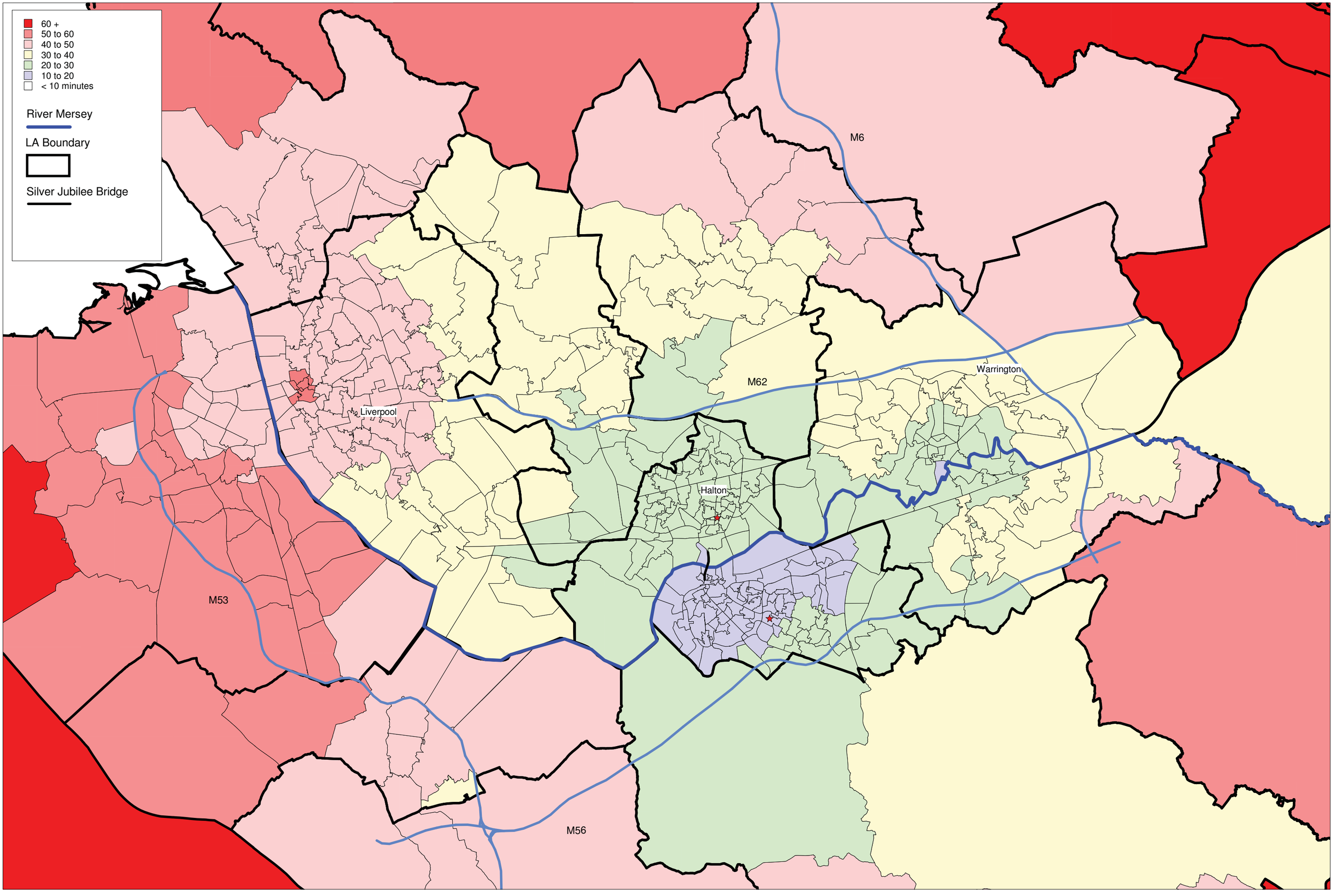
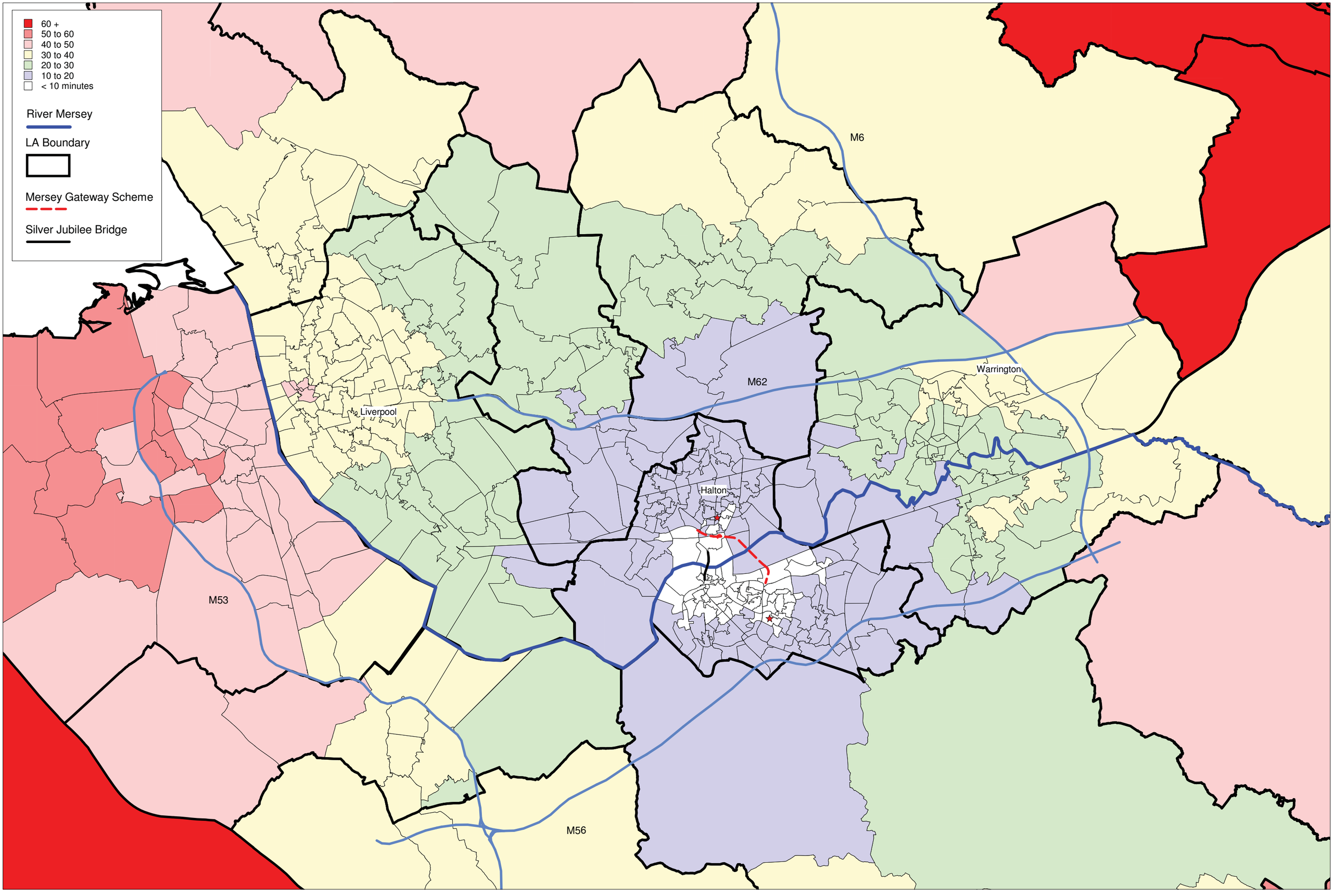
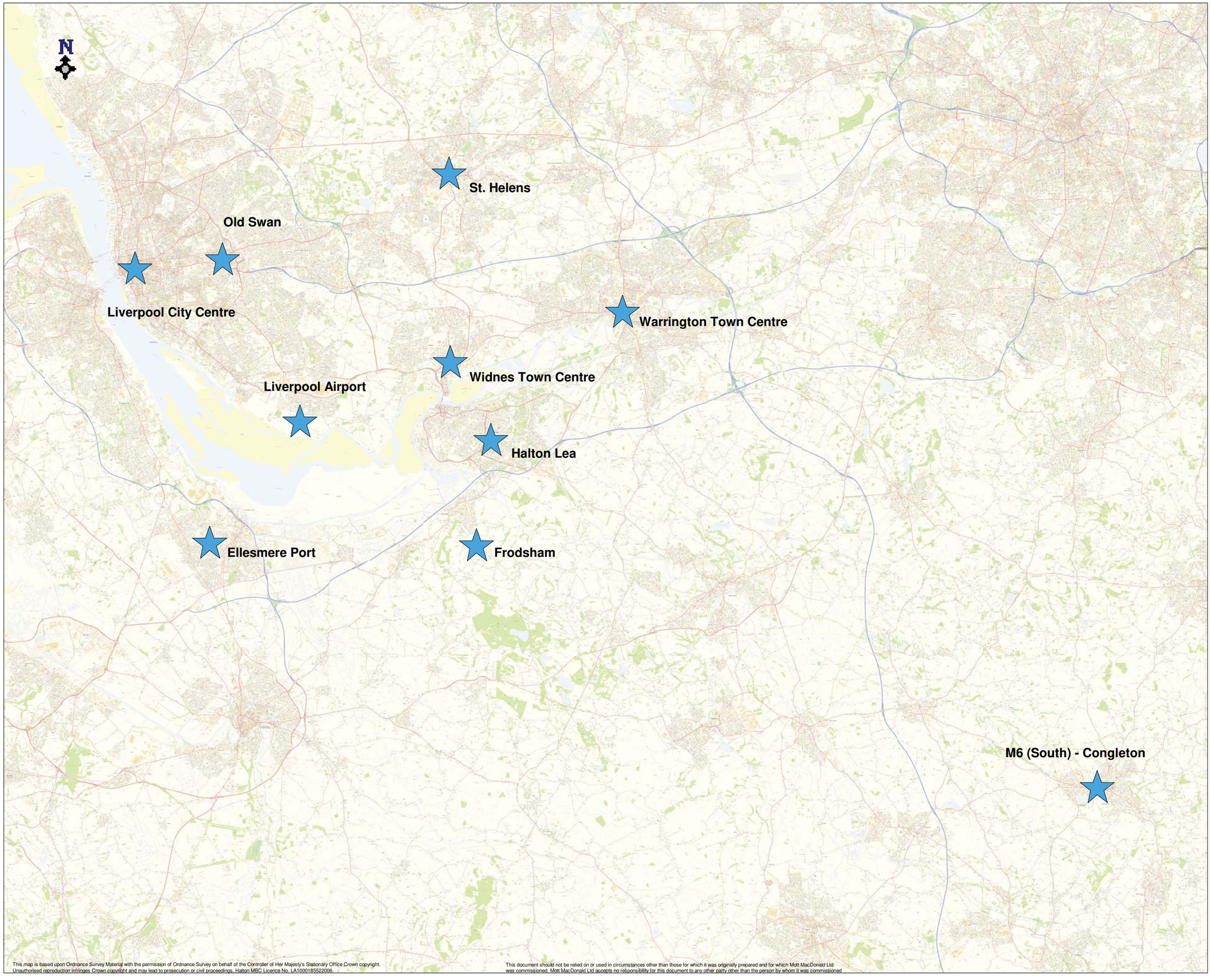


Figure 7.22 Journey Times across the River Mersey - 2030 Do-Something PM peak hour





Notes

Key

Rev	Date	Drawn	Description	Ch'ked	App'd
P1	08/11/2007	MJR	For Issue	CS	HF

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Mersey Gateway Study

Figure 7.23 - Key Origins/Destination

Drawn	MJR			
Dwg. Chk.	CS	Approved	HF	
Scale at A3 NTS	Project Mersey Gateway			Status PRE
	File P:\Manchester\Northwest\Projects\250\227705\Mersey Gateway\TP\6.0 Technical\6.4 Technical Notes\Mapinfo plans for report			
Drawing No. 231775/TP/				Rev P1

Figure 7.24 Travel Time Saving Isochrones - 2015 Do-Minimum and Do-Something AM Peak Hour

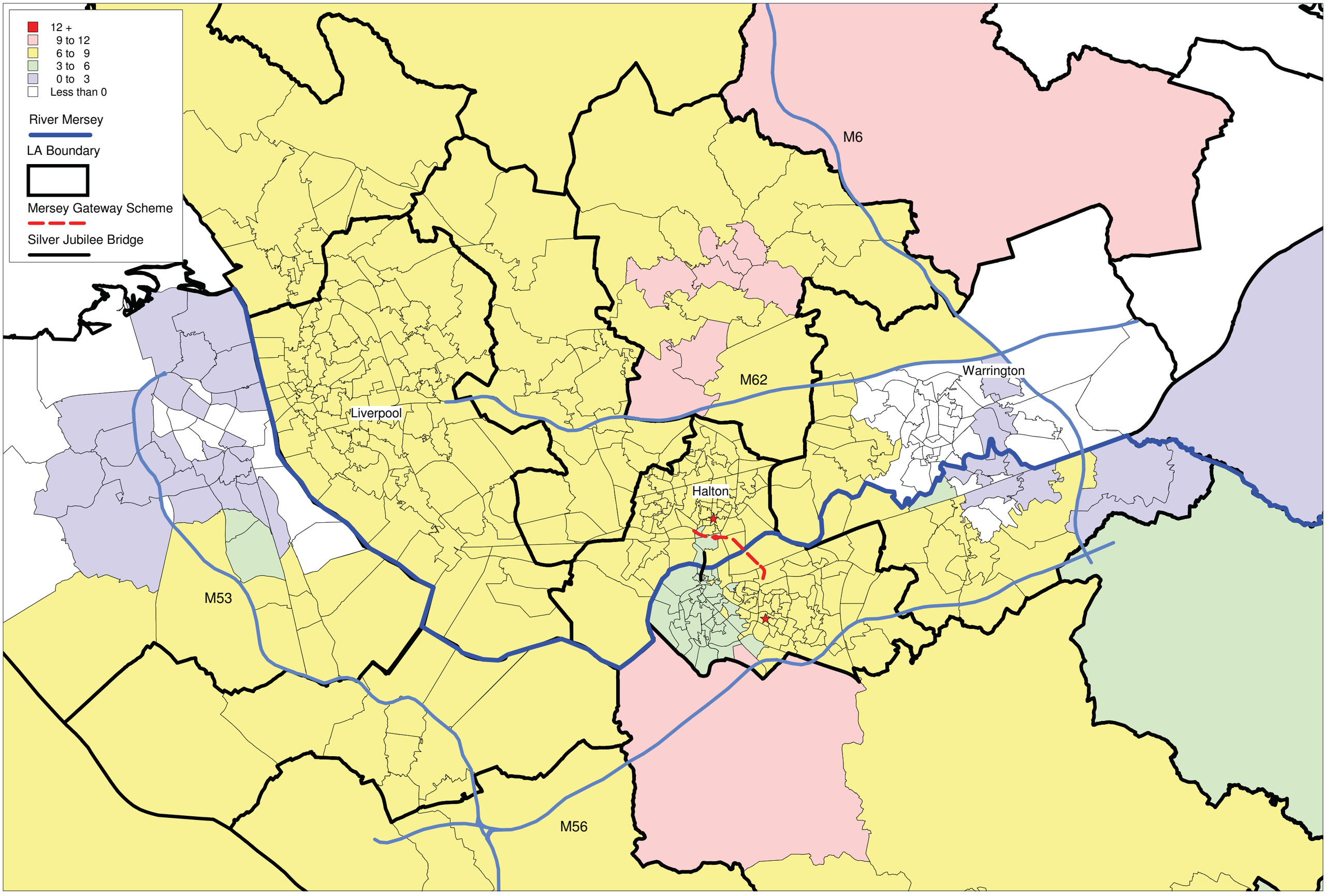


Figure 7.25 Travel Time Saving Isochrones - 2030 Do-Minimum and Do-Something AM Peak Hour

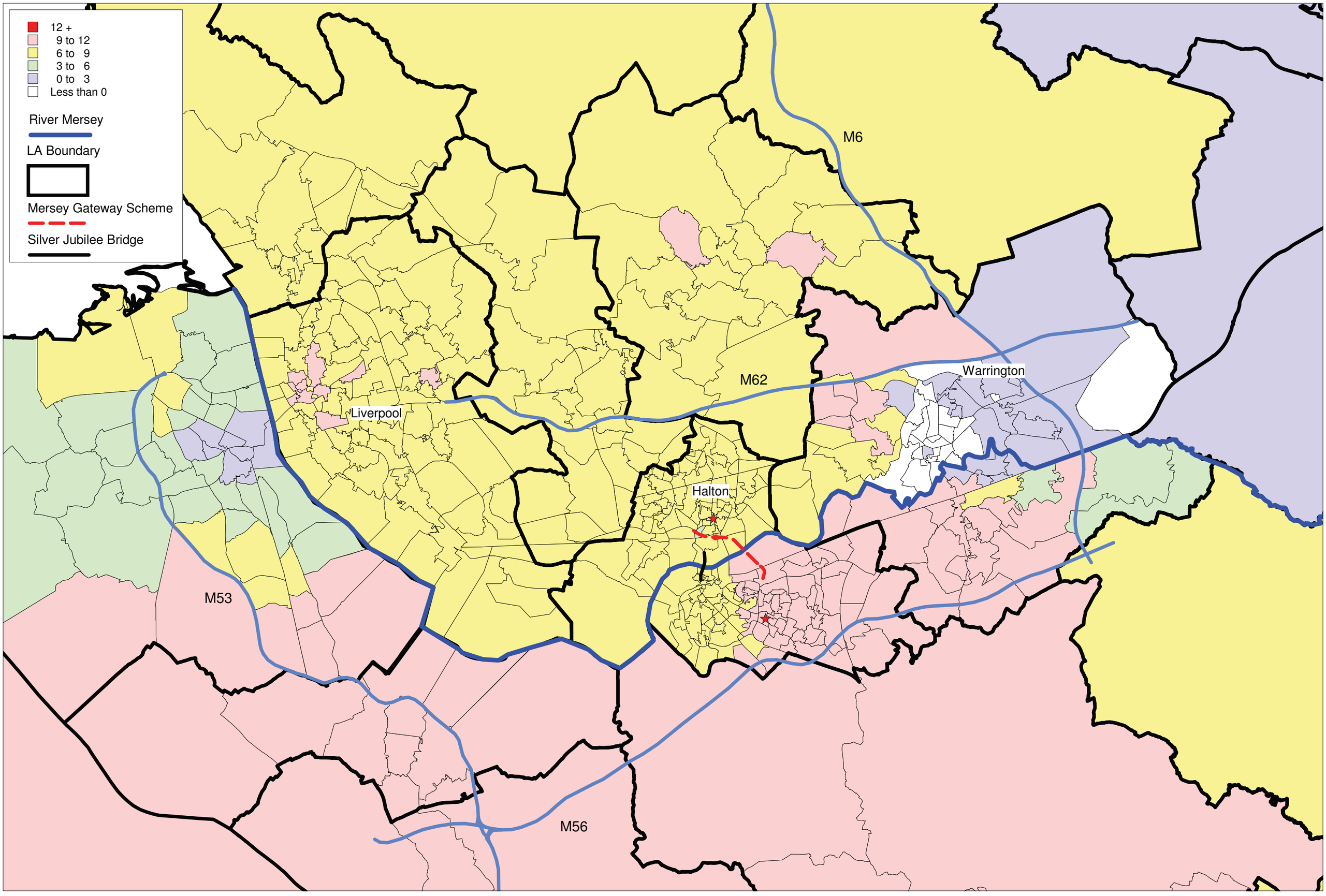


Figure 7.26 Travel Time Saving Isochrones - 2015 Do-Minimum and Do-Something Inter Peak Hour

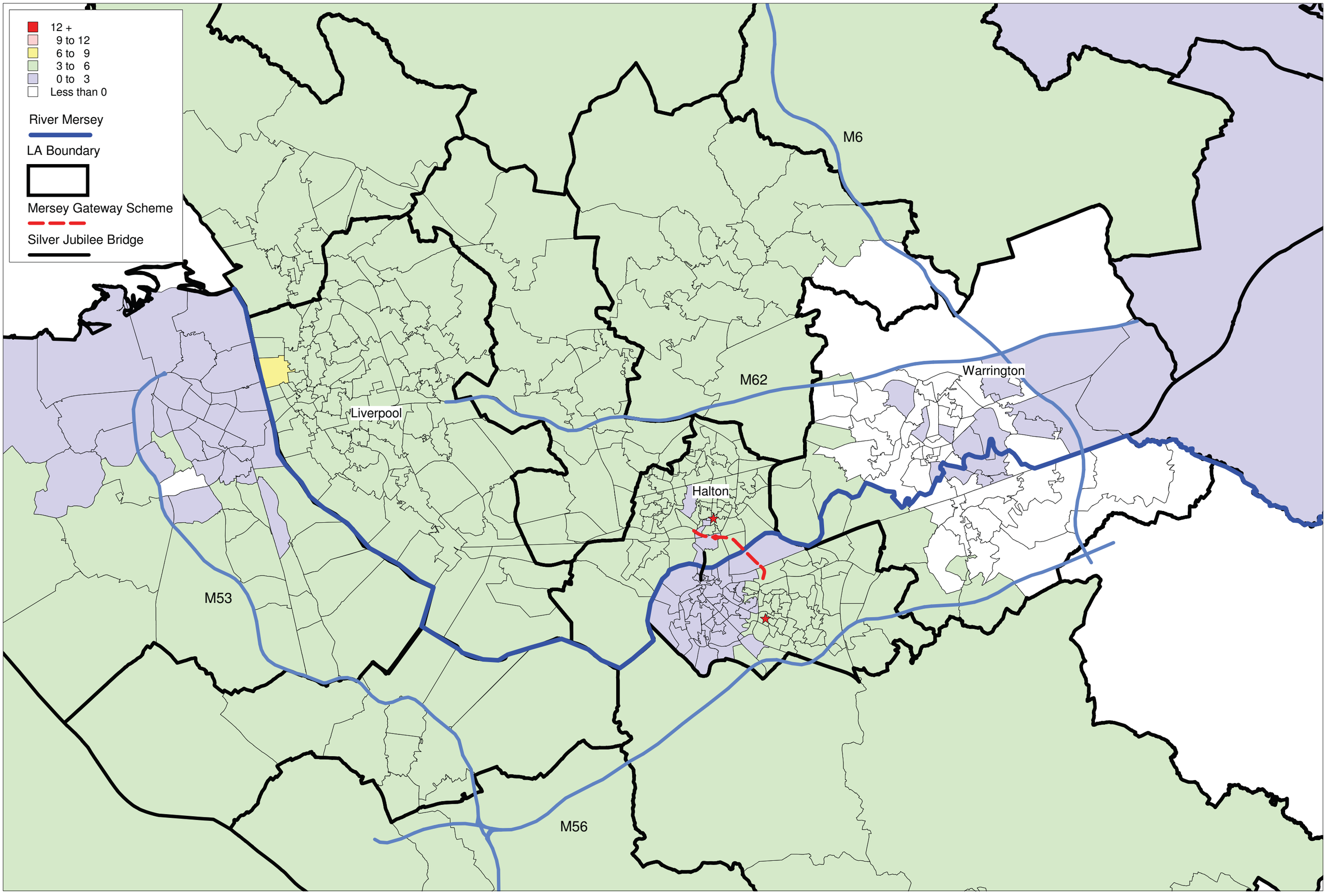


Figure 7.27 Travel Time Saving Isochrones - 2030 Do-Minimum and Do-Something Inter Peak Hour

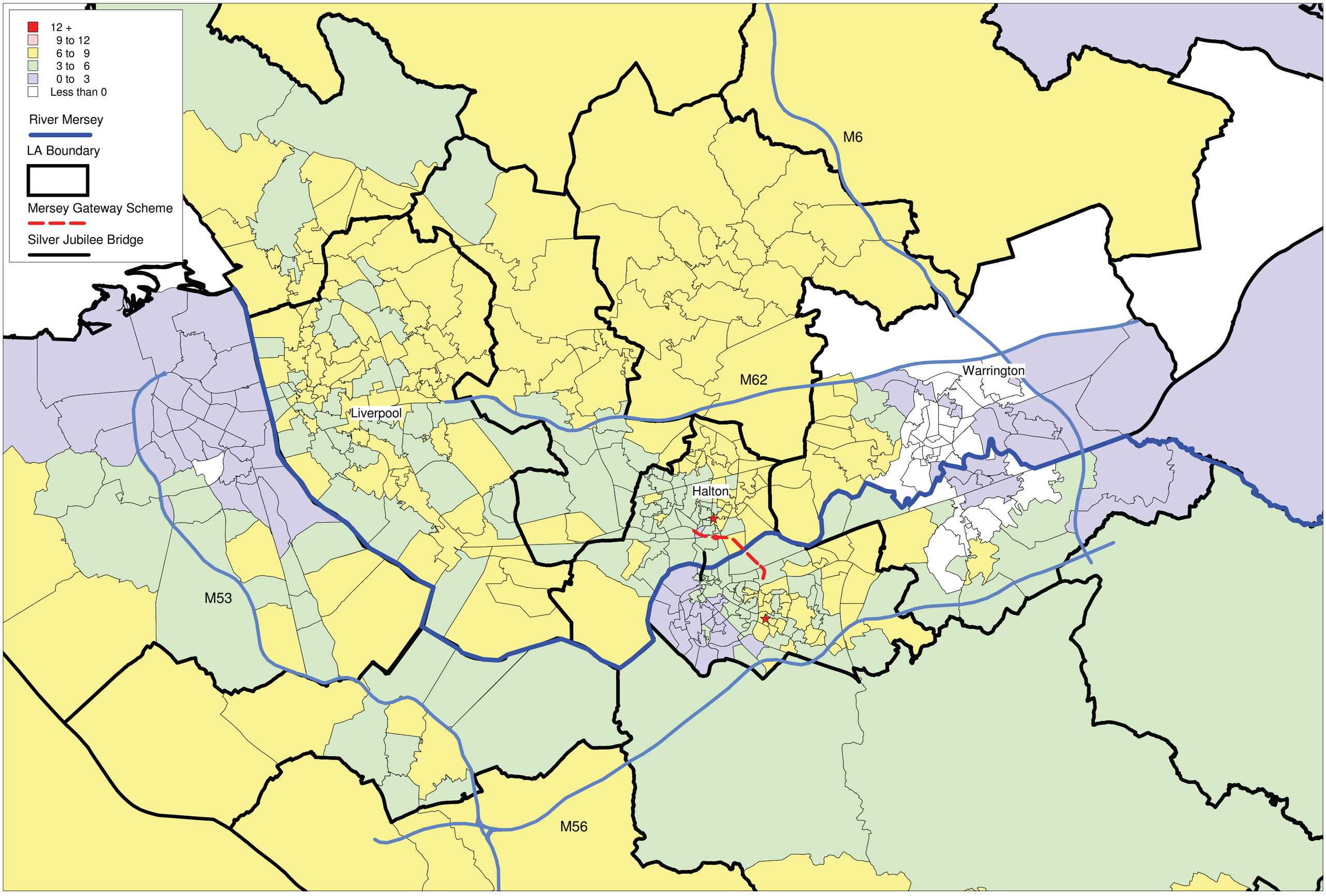


Figure 7.28 Travel Time Saving Isochrones - 2015 Do-Minimum and Do-Something PM Peak Hour

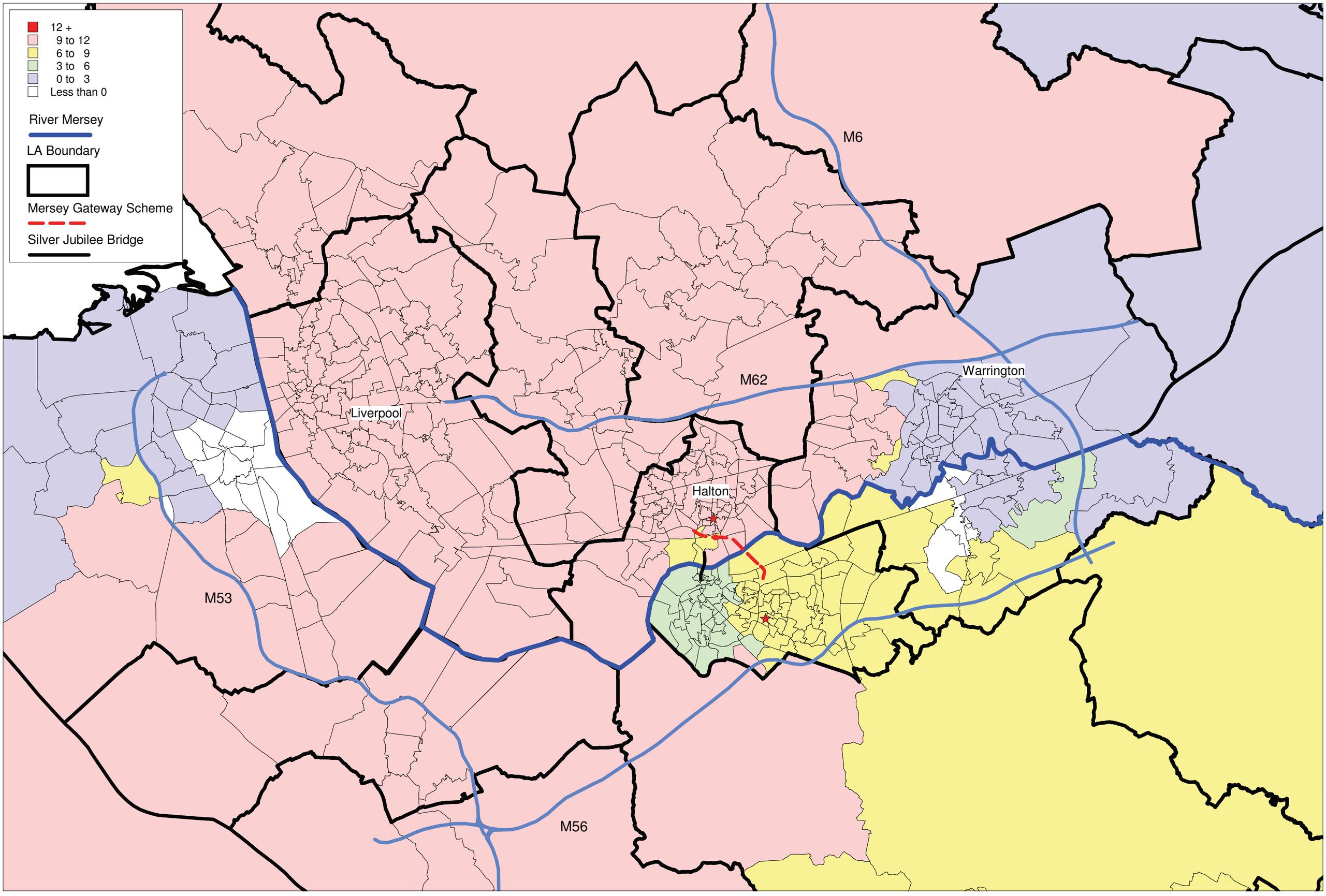
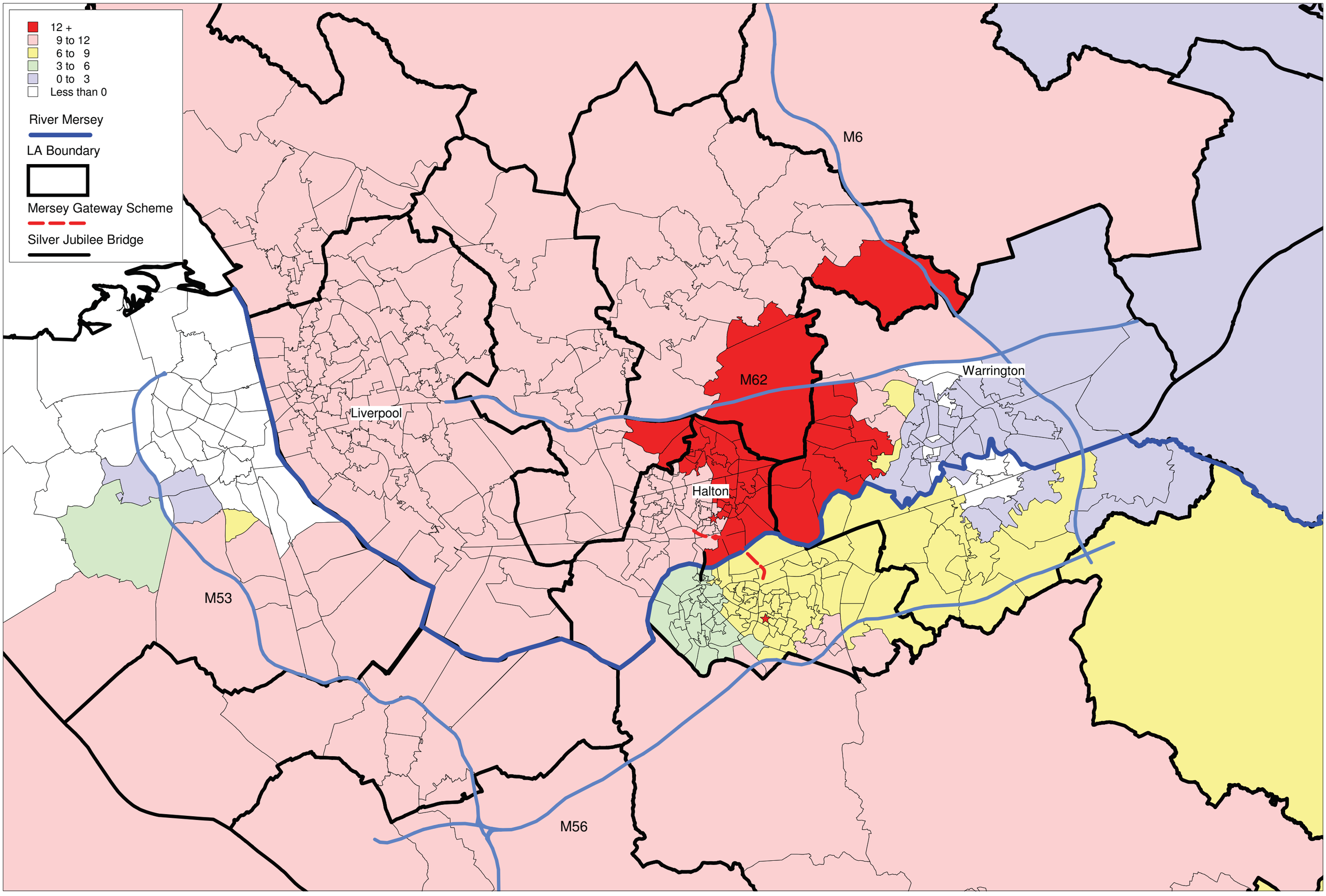


Figure 7.29 Travel Time Saving Isochrones - 2030 Do-Minimum and Do-Something PM Peak Hour



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Notes

Key

Percentage Difference
- Greater than 15
- 5 to 15
- -5 to 5
- -15 to -5
- Less than -15

Rev	Date	Drawn	Description	Chk'ed	App'd
P1	20/05/08	GD	For Issue	JH	CS

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Mersey Gateway Study

Figure 7.30- Area of Influence of Mersey Gateway scheme (based on 2030 AAWT)

Drawn	GD			
Dwg. Chk.	JH	Approved	CS	
Scale at A3 NTS	Project Mersey Gateway			Status PRE
	File			
Drawing No. 231775/TP/				Rev P1

Chapter 8 Tables

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Table 8.1 – Comparison of 2006 Base Year and Do-Minimum Total Two Way Vehicle Traffic Flows across the River Mersey – 24 Hour AAWT

Link Description	2006 Base	2015 Do-Minimum	% change	2030 Do-Minimum	% change
Kingsway Tunnel	41,331	53,709	30.0%	63,659	54.0%
Queensway Tunnel	36,492	41,941	14.9%	46,557	27.6%
Silver Jubilee Bridge	83,667	94,286	12.7%	96,761	15.6%
A5060 Chester Road	18,470	21,032	13.9%	23,365	26.5%
A49 Wilderspool Causeway	12,941	12,733	-1.6%	11,559	-10.7%
A5061 Knutsford Road	17,675	20,207	14.3%	21,861	23.7%
A50 Kingsway Bridge	20,231	22,583	11.6%	24,152	19.4%
M6 Thelwall Viaduct	164,435	188,171	14.4%	195,398	18.8%
Total	**395,242**	**454,661**	**15.0%**	**483,311**	**22.3%**

Table 8.2 – Comparison of Do-Minimum and Do-Something Total Vehicle Two Way Traffic Flows across the River Mersey – 24 Hour AAWT

Link Description	2015 Do-Minimum	2015 Do-Something	% change	2030 Do-Minimum	2030 Do-Something	% change
Kingsway Tunnel	53,709	54,598	1.7%	63,659	64,526	1.4%
Queensway Tunnel	41,941	43,535	3.8%	46,557	47,402	1.8%
Silver Jubilee Bridge	94,286	12,696	-86.5%	96,761	16,379	-83.1%
Mersey Gateway *	0	61,559	-21.2%	0	78,587	-1.9%
A5060 Chester Road	21,032	22,778	8.3%	23,365	24,504	4.9%
A49 Wilderspool Causeway	12,733	12,635	-0.8%	11,559	11,832	2.4%
A5061 Knutsford Road	20,207	20,749	2.7%	21,861	21,638	-1.0%
A50 Kingsway Bridge	22,583	23,326	3.3%	24,152	26,021	7.7%
M6 Thelwall Viaduct	188,171	190,746	1.4%	195,398	196,836	0.7%
Total	**454,661**	**442,622**	**-2.6%**	**483,311**	**487,724**	**0.9%**

Note: * % Difference calculated for Mersey Gateway and Silver Jubilee Bridge combined