

# Great Yarmouth Third River Crossing

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OUTLINE BUSINESS CASE

MARCH 2017

Supporting Document 5 – Local Model Validation Report (SATURN)

# Great Yarmouth Traffic Model

## Local Model Validation Report

**March 2017**

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# 1 Introduction

## 1.1 Background

Mouchel was appointed by Norfolk County Council (NCC) to produce traffic forecasts and economic appraisal outputs as part of a Value for Money (VfM) appraisal for the proposed Great Yarmouth Third River Crossing (TRC). The VfM case will form a part of an Outline Business Case (OBC) which will be submitted to the Department of Transport (DfT).

## 1.2 Purpose of this Report

This Local Model Validation Report (LMVR) describes the development of the Great Yarmouth Traffic Model (GYTM) based on a comprehensive set of 2016 traffic and demographic data. The model has been developed in accordance with the DfT's Transport Appraisal Guidance (TAG) for the purpose of supporting an Outline Business Case (OBC) for a Third River Crossing (TRC). The focus of the model calibration and validation is on the area of influence of the proposed TRC. The overall model extent and form of the model has been developed based on the feedback from DfT following a site visit and follow up discussions. The model includes elements from a previous SATURN model and the supporting data produced by Mott MacDonald (MM), with an increased amount of technical rigour and assurance required to support an OBC. This report demonstrates that the GYTM provides an accurate representation of highway travel patterns in the Great Yarmouth area and can therefore be used to assess the impact of future transport initiatives and in particular the proposed TRC.

## 1.3 Structure of this Report

This report is structured as follows:

- Section 2 - Describes the application of the model and how this has influenced its design
- Section 3 - Defines the standards adopted for model calibration and validation and for assignment convergence
- Section 4 - Describes the key features of the highway model and its development
- Section 5 - Describes the traffic count data that has been used for model calibration and validation
- Section 6 - Describes the highway network development
- Section 7 - Describes the trip matrix development
- Section 8 - Provides information on the network calibration and validation
- Section 9 - Demonstrates matrix calibration and validation
- Section 10 - Covers assignment calibration and validation
- Section 11 - Highlights route choice calibration and validation

- Section 12 - Provides summary of model development, standards achieved and appropriateness for use.

## 2 Proposed Model Application and Design Considerations

### 2.1 Introduction

The objective of this model validation exercise is to produce a model that is fit for the purpose of appraising the proposed Great Yarmouth Third River Crossing (GYTRC). An Outline Business Case (OBC) for this proposal will be submitted to DfT for consideration, with the model forecasts providing inputs to the OBC Economic Case. The base year model must therefore be fit for this purpose, including model validation to a satisfactory standard.

The modelling methodology was reviewed and shared with the peer group consisting of representatives from NCC, DfT and Mouchel. The specification has taken into account key comments from DfT in particular and is considered to offer the optimum balance of technical rigour whilst delivering the model platform in a timely manner.

The model has been developed to be consistent with WebTAG unit M3.1, Highway Assignment Modelling.

### 2.2 Key Model Considerations

#### 2.2.1 Scheme Details

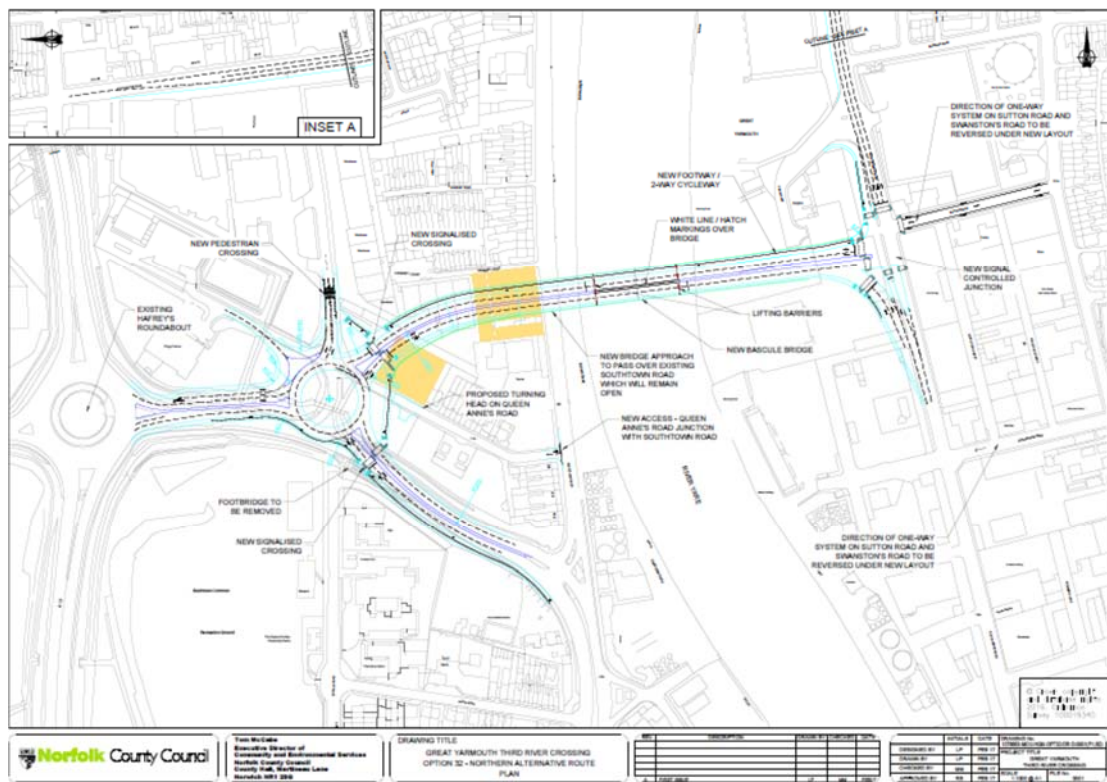
Before detailing the model requirements and specification it is necessary to define the project scope, the ultimate objectives and desired outcomes of the Great Yarmouth Third River Crossing scheme.

The scheme will comprise of a new bascule bridge between A12 Harfrey's Roundabout over the River Yare and a new three-arm junction on South Denes Road between Sutton Road and Swanston's Road. While the general form and alignment of the scheme are fixed, there are a number of variations to consider as follows:

- Dual or single carriageway (or three lane tidal option)
- Bridge height/opening frequency
- Alternative tie-in designs to local network and SRN

Indicative detail of the proposed crossing is provided in Figure 2.1

Figure 2-1 Proposed Third River Crossing Design



An option development process has been followed to refine the various options to a short list that will be subject to full appraisal using the strategic model detailed in this report.

### 2.2.2 Model Background

The current model development has made use of historic data where it adds value to the process. A model was developed by NCC to support the 2002 Norwich Area Transport Strategy. The 2002 model was updated to 2003 traffic levels by MM to represent Great Yarmouth in simulation detail with a greatly expanded zone structure within the urban area to assist in reviewing the Great Yarmouth Area Transportation Strategy. Conversely, the zone structure in the Norwich conurbation was compressed to remove unnecessary detail from the model, and the network detail removed from the city centre to improve assignment times.

The 2003 Great Yarmouth model was subsequently revalidated to 2008 traffic levels by MM. The 2008 model comprises of three time periods (AM 07:30-09:30, IP 09:30-16:00 and PM 16:00-18:00), each period being represented by a peak hour, and consists of 5 user classes.

The latest model has been developed to represent 2016 traffic levels, including:

- Collection of new Roadside interview data;

- Re-specification of background traffic patterns to reflect most recent travel behaviour;
- Addition of specific development sites that have been introduced between 2008 and 2016;
- Refinement of the zone structure particularly in the vicinity of the TRC on both sides;
- Comprehensive review of the network structure taking into account any changes to the highway infrastructure such as the new A12/A143 link; and
- Update of signalised junction timings where data is available.

### 2.2.3 Model Considerations

Given the information about the existing Great Yarmouth SATURN model set out above and the requirements of the scheme appraisal, the following specification has been drawn up to create an updated Local Traffic Model for Great Yarmouth which is 'fit for purpose'.

Table 2-1 Model Design Considerations

Model Attribute	Description
Modelled Area	This was defined in the previous study and has been maintained as it is deemed to be appropriate to capture the traffic impact of the scheme.
Demand Matrices	The existing demand matrices were redeveloped using new RSI survey, count data and other data sources
Zoning	The existing zoning system has been reviewed to ensure zone density and the location of connectors are sufficiently detailed to assess the proposed scheme. Zones have been evaluated according to land use type, geographical features including transport links and location of new count data.
Network Structure	The existing network has been reviewed to ensure that the network is sufficiently detailed in the fully modelled area. Where necessary, new junctions and links have been added. The existing coding has been reviewed to ensure the modelled network adequately represents local conditions.
Capacity Restraint	The model has been built using SATURN software. The software employs an iterative process of assigning flows and simulating delay. Within the 'simulated' model area, capacity has been restrained at junctions.
User Classes	Multi user class assignment including car (commute), car (employer business), car (other), LGV and OGV was developed for the process. The user classes map directly to appraisal requirements in TUBA
Use with variable demand and public transport	Guidance in TAG Unit M2 was followed to evaluate the need for demand modelling for forecasting. A Variable

Model Attribute	Description
	Demand Model has been developed and is reported under separate cover.
Data Collection Area	An extensive data collection exercise was undertaken across the whole area with a focus around the TRC scheme location, including targeted RSIs to capture traffic likely to use the scheme.

## 3 Model Standards

### 3.1 Introduction

Throughout the model development process reported here, reference was made to the guidance provided in DfT TAG Unit M3.1, *Highway Assignment Modelling*. Specific reference was made to the criteria and standards appropriate for highway assignment validation and for model convergence.

The general objective of model development has been to exceed the minimum standards wherever possible.

### 3.2 Calibration/ Validation

The following criteria was used to assess the model's validation levels.

#### 3.2.1 Trip Matrix Validation

The following criteria for matrix validation and acceptability guidelines for matrix validation were targeted in terms of screenline flow validation:

Table 3-1 Screenline Validation Criteria

Measure	Acceptability Guideline
Differences between modelled flows and counts should be less than 5% of counts	all or nearly all screenlines

Others measures and their associated criteria are also described in Chapter 7 of this report.

#### 3.2.2 Link Flow and Turning Movement Validation

The criteria for followed for link flow validation are set out below.

Table 3-2 Link flow Validation Criteria

Criteria		Acceptability Guideline
1	individual flows within 100 veh/h of counts for flows less than 700 veh/h	> 85% of cases
	Individual flows within 15% of counts for flows from 700 to 2,700 veh/h	> 85% of cases
	Individual flows within 400 veh/h of counts for flows more than 2,700 veh/h	> 85% of cases
2	GEH <5 for individual flows	> 85% of cases

### 3.2.3 Journey Time Validation

Journey time comparisons were undertaken as part of the GYTM validation process, to match the objectives set out as follows.

Table 3-3 Journey Time Validation Criteria

Criteria	Acceptability Guideline
Modelled times along routes should be within 15% of observed times (or 1 minute if higher than 15%)	> 85% of routes

In all cases, these criteria were applied to combined all-vehicle flows and journey times.

### 3.3 Model Convergence

TAG guidelines suggested the criteria listed in Table 3-4 to measure model convergence.

Table 3-4 TAG Convergence Criteria

Measure of Convergence	Base Model Acceptable Values
Delta and % Gap	less than 0.1% or at least stable with convergence fully documented and all other criteria met
percentage of links with flow change (P) < 1%	four consecutive iterations greater than 98%
percentage of links with cost change (P2) < 1%	four consecutive iterations greater than 98%
Percentage change in total user costs (V)	Four consecutive iterations > 0.1%



## 4 Key Features of the Model

### 4.1 Introduction

The Great Yarmouth Traffic Model (GYTM) has been developed using the latest SATURN version (v11.3.12U) and validated against October 2016 traffic conditions. The following section provides a summary of the key model features with consideration of the appropriateness of the model to support the modelling to develop the scheme OBC.

Specific elements of detail will be covered in:

- Chapter 5 – data availability;
- Chapter 6 – network development;
- Chapter 7 matrix development; and
- Chapter 8 onwards model calibration and validation.

### 4.2 Study Area

The GYTM simulation area covers the whole of the Great Yarmouth conurbation. The model covers all the urban areas in simulation detail between Caister-on-Sea to the north, Gorleston-on-Sea to the south and the village of Belton to the west, as shown in Figure 4-1.

Figure 4-1 Great Yarmouth Traffic Model Simulation and Study Area



This boundary of the simulation area of the model is considered wide enough to capture the biggest impacts expected due to the TRC and also includes an area

where impacts are quite likely but relatively weak in magnitude. This has been informed by the earlier model which has been used to test the TRC and improvements on the A12. In both cases the assignment impact is adequately captured within the simulation area.

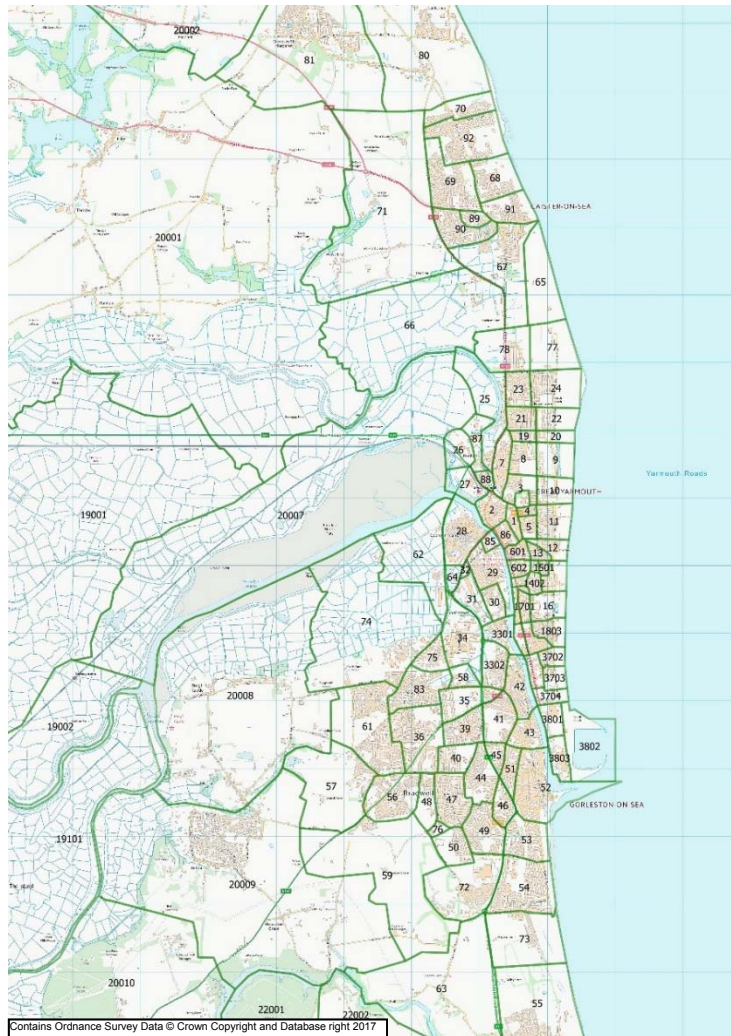
### 4.3 Zoning System

The zoning system is based on the 227 zones MM model, including 14 spare zones for development sites in the forecast network. It has been expanded to 240 zones based on detailed review focussed on:

- Density of existing zone system;
- Modelling of future development sites;
- Location of proposed traffic counts; and
- Number and location of zone connectors.

The zoning system is shown in **Figure 4-2**. Of note are improvements in zone detail on the peninsula which is pertinent to the TRC tests. The geographic size of zones are appropriate being dense where required, and increasingly coarse beyond the simulation area.

Figure 4-2 Zone Plan



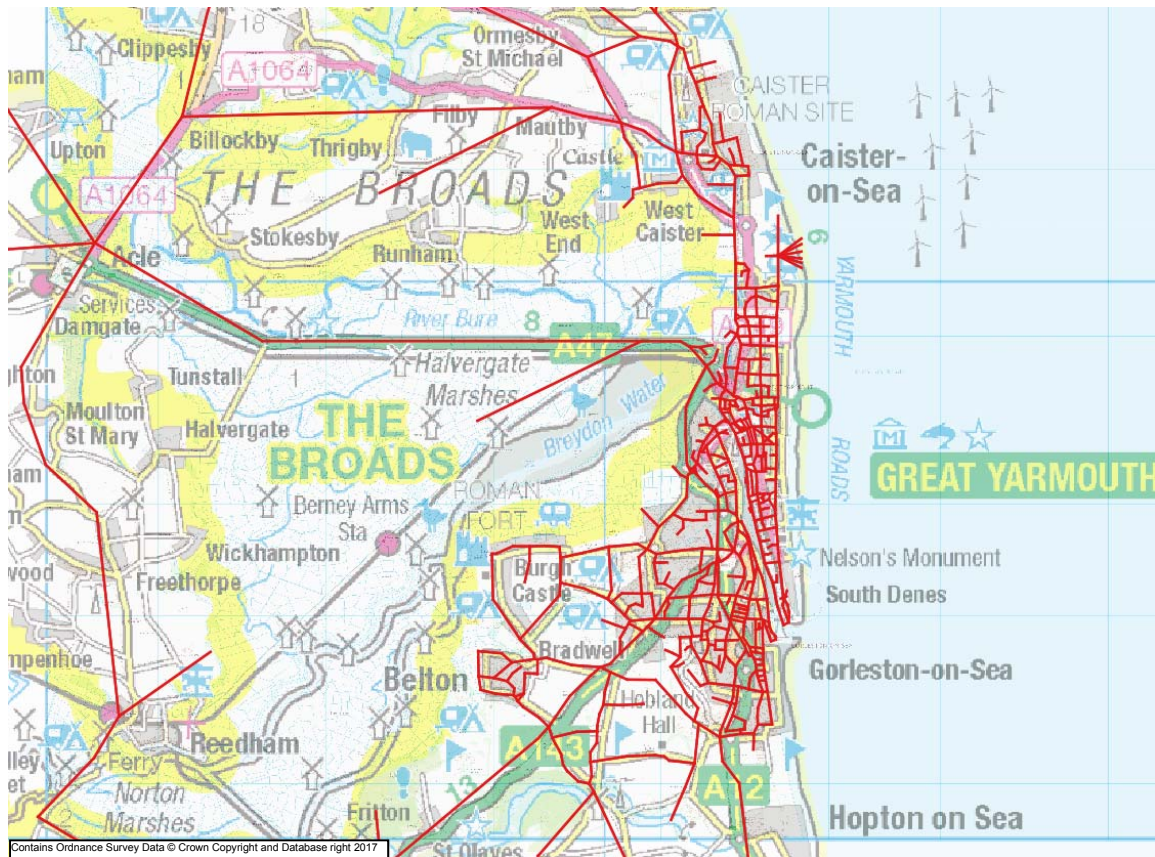
Some zones in the local area were disaggregated as part of the update to more accurately represent traffic movements in the vicinity of the TRC scheme. Twenty one new zones were created by splitting eight existing zones to represent a clear split in land use with rather different network loading points. These changes are explained in full in Chapter 7.

#### 4.4 Modelled Highway Network

A thorough review was conducted of the local highway network, resulting in amendments to the model network. These checks and the network changes are described further in Chapter 6.

The specific network detail in the simulation area of the model network is shown in Figure 4-3. This demonstrates the appropriateness of route coverage.

Figure 4-3 Great Yarmouth Model Network Simulation Area



#### 4.5 Matrix Development

RSI data was used to capture fully observed movements which are directly impacted by the opening of the TRC. This provides a sound basis for model development and enhances assurance during the model application stage. Additional Census survey data was also employed. Further, the matrices from the 2008 MM Model were updated by scaling up to represent the overall magnitude of trips in 2016 (from count data) and used to infill trips that were not provided by the RSIs or Census survey.

The Matrix Building Methodology is detailed in Section 7 below.

#### 4.6 Modelled Date and Time Periods

Origin-destination surveys were undertaken in order to build traffic models representing the morning peak, inter-peak and evening peak periods.

Based on the traffic count survey data, three time periods have been modelled in order to represent the different travel patterns that exist during a typical weekday, based on the analysis of traffic flow data:

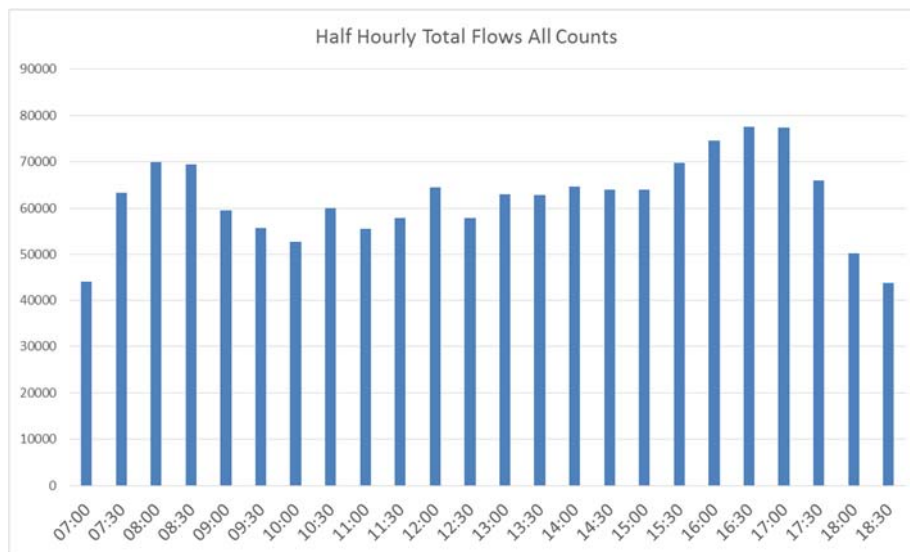
- AM Peak period (07:00 - 10:00)
- Inter-Peak (IP) period (10:00 - 15:30)
- PM Peak period (15:30 - 18:00)

The above peak periods are represented by modelled peak hours:

- AM Peak hour (08:00 - 09:00);
- Inter-Peak average hour (10:00 - 15:30)
- PM Peak hour (16:30 - 17:30)

The above peak hours were determined from the traffic count data which showed that the PM peak lasts until 18:00 after which off peak levels of traffic are seen. Therefore, the overall weekday peak period is 11 hours and the off peak period is 13 hours. The traffic count data from all the available traffic counts were totalled by half hourly intervals, as shown in the graph below.

Figure 4-4 Half Hourly Total Flows All Counts



The above graph shows that, based on the observed data, the peak hours are as listed above.

#### 4.7 Vehicle Classes

Five user classes have been modelled;

- UC1: Cars - employer business;
- UC2: Cars - commute;
- UC3: Cars - other;
- UC4: Light Goods Vehicles (LGVs); and
- UC5: Other Goods Vehicles (OGVs).

#### 4.8 Passenger Car Unit

The highway assignment models operate in passenger car units (PCU) as opposed to vehicle units. It was therefore required that traffic counts and demand matrices be converted to the PCU unit prior to the assignment.

The following PCUs per vehicle apply to each user class in the GYTM:

- Car - 1.00

- LGV - 1.00
- HGV - 2.30

The HGV PCU factor was calculated from the OGV1 PCU factor (1.90) and the OGV2 PCU factor (2.90). These were averaged based on observed proportions of the two OGV classes to calculate the HGV PCU factor.

#### 4.9 Assignment Methodology

The Great Yarmouth model uses SATURN v11.3.12U. The standard Wardrop User Equilibrium, using the Frank-Wolfe algorithm, has been used as the assignment procedure.

The cost of travel is expressed in terms of generalised cost minutes, which can be related to the value of time and out of pocket costs. A multiple user class assignment method was used that allows different user classes to be assigned simultaneously to the same network but using different generalised cost functions.

The components of the generalised cost function used in the traffic model were based on TAG unit M3.1 and data contained in the latest DfT approved WebTAG databook (July 2016). WebTAG calculates the costs of travel based on the assumptions of the value of money which a traveller is willing to pay to compensate for the time spent driving on the road (pence per minute) and the out of pocket costs which are based on travel time and travel distance (pence per kilometre).

#### 4.10 Generalised Costs

The cost of travel is expressed in terms of generalised cost minutes, which can be related to the value of time and out of pocket costs. A multiple user class assignment method was used that allows Cars, LGV's and HGV's to be assigned simultaneously to the same network but using different generalised cost functions.

The components of the generalised cost function used in the traffic model were based on TAG A1.3 (July 2016). It calculates the costs of travel based on the assumptions of the value of money which a traveller is willing to pay to compensate for the time and out of pocket expenses spent driving on the road.

For modelling purposes, generalised costs were calculated based on the assumptions of average travel speed on the road, vehicle fuel consumption, values of time, and average vehicle occupancies of each trip purpose. Non-fuel vehicle operating costs, such as maintenance or insurance etc., were not taken into account as drivers generally only perceive the fuel and time elements of their journey in making route choices.

Based on the above and the TAG guidance, values of pence per kilometre (PPK) and pence per minute (PPM) for three vehicle classes (Car, LGV, HGV) by purpose type (Work, Commute, Other) were calculated for all three time periods for input to SATURN. Monetary time (PPM) and distance (PPK) costs have also been converted into generalised costs and are shown in Table 4-1.

TAG Unit M3-1 indicates that the VoT given for HGV's accounts for the driver only. However, there are additional costs to the business owners due to the travel time. To take these into account, TAG recommends using a VoT around twice the driver value (see paragraph 2.8.8 of TAG Unit M3-1). Accordingly, this approach has been adopted in calculating the HGV VoTs shown in Table 4-1 below.

Table 4-1 Generalised Cost Parameters

User Class	Time Period	Monetary Values	
		Time (pence per minute)	Distance (pence per kilometre)
Car Work	AM Peak	47.46	12.16
	Inter-Peak	46.38	12.16
	PM Peak	45.63	12.16
Car Commute	AM Peak	17.79	5.63
	Inter-Peak	18.49	5.63
	PM Peak	19.04	5.63
Car Other	AM Peak	14.00	5.63
	Inter-Peak	13.89	5.63
	PM Peak	13.70	5.63
LGV	AM Peak	21.34	12.68
	Inter-Peak	21.34	12.68
	PM Peak	21.34	12.68
HGV	AM Peak	49.84	46.75
	Inter-Peak	49.84	46.75
	PM Peak	49.84	46.75

#### 4.11 Capacity Restraint Mechanisms: Junction Modelling and Speed/Flow Relationships

Simulated junction coding was used across the study network including all of the Great Yarmouth urban network and the surrounding villages of Caister-on-Sea, Gorleston-on-Sea and Bradwell. The rest of the model is coded as 'buffer network' which simulates the network in less detail. Cruise speeds were coded on all local roads with speed flow relationships used on the main A-roads (A12, A47, A143 and A149). This approach is consistent with the coding employed in the original MM model. Speed flow relationships are identified in Appendix A.

## 5 Traffic Count Data

### 5.1 Introduction

Traffic data was compiled within the Great Yarmouth area for a number of tasks in calibration and validation, including:

- Traffic counts for matrix estimation and calibration;
- Traffic counts for assignment validation;
- RSI surveys for matrix development; and
- Journey time surveys for calibration and validation.

This section of the report provides a summary of the data used in each of these stages. A comprehensive description of the data collection and checking programme is included in the Great Yarmouth Model Traffic Data Report.

### 5.2 Summary of Traffic Surveys

#### 5.2.1 Existing Data

To assist with the development of this model, Mouchel has received data from a large traffic survey carried out by AECOM in the Great Yarmouth area between 2015 and 2016. The data set included ANPR (Automatic Number Plate Recognition), MCCs (Manual Classified Counts), ATCs (Automatic Traffic Counts) and queue measurements in relevant locations.

Mouchel also received a set of MCCs produced for Norfolk County Council from October 2015 at various locations in the town centre.

In addition to this, there are two permanent traffic count stations within the study area and one more close to the model's boundaries. This information was taken from the TRADS internet site. The data was summarised into three vehicle classes: cars, Light Goods Vehicles (LGV) and Heavy Goods Vehicles (HGV).

Trafficmaster Origin/Destination (O/D) data has been collected to assist with matrix development by supplementing RSI data where the sample size is insufficient to provide a realistic trip distribution once expanded. For the purposes of model validation, Trafficmaster journey time data was also obtained to provide a source of information to compare modelled journey times.

Detailed information including lists of sites and location maps are included in the Traffic Data Report<sup>1</sup>.

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<sup>1</sup> 1076653-MOU-GEN-XX-TN-TP-0001



### 5.2.2 Roadside Interview Surveys

In order to produce a model that gives a realistic representation of road traffic, it is essential not only to model traffic flows accurately, but also the origins and destinations of vehicles. A set of nine Roadside Interview surveys (RSI) were commissioned in November 2016 that involved both face to face and postcard interviews with drivers in various locations around Great Yarmouth to gather data concerning origin/ destination and trip purpose.

Survey locations are shown in Figure 5-1 and listed in Table 5-1. An example survey form is demonstrated in Appendix B.

Figure 5-1 RSI Locations for Great Yarmouth



Table 5-1 RSI Site Descriptions Great Yarmouth

Site	Location Description	RSI Direction
1	South Quay	NB
2	Marine Parade	NB
3	A12 (for Breydon Bridge)	NB
4	A149 Haven Bridge	WB
5	A12 Lowestoft Road	SB
6	A143 Beccles Road	SB
7	Mill Road	SB
8	A47 New Road	NB
9	Yarmouth Road	NB

Of the RSIs listed in Table 5-1, those for South Quay, Marine Parade, the A12 (Breydon Bridge) and Haven Bridge were used in the RSI matrix building.

A more detailed description of the RSI surveys, including sample sizes and information gathered can be found in the Traffic Data Report.

### 5.2.3 Manual Classified Counts

Manual Classified Counts (MCC) provide an indication of turning movements observed at key junctions in the network. Turning counts were commissioned at several key locations identified within the study area on Tuesday 4<sup>th</sup> and Wednesday 5<sup>th</sup> October 2016, between 07:00-19:00. These counts have been used to support the calibration and validation of the base year models. Site locations are shown in Figure 5-2 and listed in Table 5-2. MCCs were also undertaken at the RSI locations given in Figure 5-1.

Figure 5-2 MCC Locations

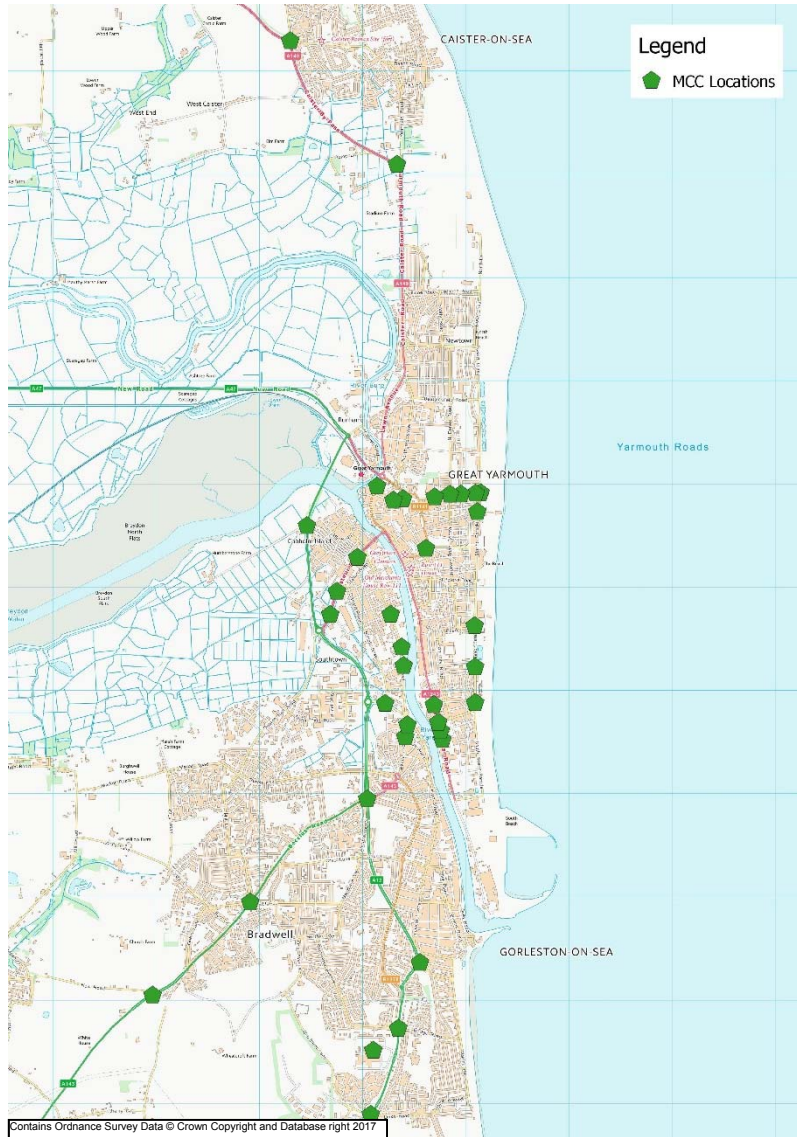


Table 5-2 MCC Location Descriptions

Location	Surveyed Area	ID Junction
Euston Rd / North Dr Roundabout	1	Junction 1
Euston Rd / Marine Parade	1	Junction 2
Euston Rd / Wellesley Rd	1	Junction 3
St Nicholas Rd / Nelson Rd	1	Junction 4
St Nicholas Rd (Sainsbury's)	1	Junction 5
The Conge / Fuller's Hill / King St / Car Park	1	Junction 6
Alexandra Rd / Trafalgar Rd	1	Junction 7/8
Yarmouth Way / King St	1	Junction 7/8
N quay/Aldi	1	Junction 9/10
Brewery Street /Aldi	1	Junction 9/10
The Conge / Howards St N/Northern road	1	Junction 11
Howard Street South Car Park	1	Howard St Car Park
King Street Car Park	1	King Street Car Park
Norwich Rd / Caister By-Pass Roundabout	2	Junction 1

Location	Surveyed Area	ID Junction
Yarmouth Rd / Caister By-Pass Roundabout	2	Junction 2
Marine Parade / North Dr	2	Junction 3
S Beach Parade / Kings Rd Roundabout	2	Junction 4
S Beach Parade / Harbord Cres (north junction)	2	Junction 5
S Beach Parade / Harbord Cres (south junction)	2	Junction 6
S Denes Rd / Salmon Rd	2	Junction 7
S Denes Rd / Suffling Rd	2	Junction 8
S Denes Rd / Main Cross Rd	2	Junction 9
S Denes Rd / Swanston's Rd	2	Junction 10
South Beach Parade Car Park	2	South Beach Car Park
A12 (Rugby Club)	3	Junction 12
Pasteur Rd / Jones Way Roundabout	3	Junction 13
A12 / Beccles Rd	3	Junction 14
Beccles Rd / High Rd	3	Junction 15
Beccles Rd / Malthouse Ln / Alpha Rd	3	Junction 16
William Adams Way / Suffolk Rd	3	Junction 17
Southtown Rd / Boundary Rd	3	Junction 18
Southtown Rd / Tollgate Rd	3	Junction 19
Southtown Rd / Gordon Rd	3	Junction 20
Pasteur Road/GC Way road (Pasta Foods/API Capacitors)	3	Junction 21
Beccles Rd / New Rd Roundabout	3	Junction 22
Beccles Rd / Church Ln / Long Ln	3	Junction 23
A12 / Links Rd / Beaufort Way Roundabout	3	Junction 24
A12 / Brasenose Ave / Bridge Rd	3	Junction 25
A12 / Victoria Rd Roundabout	3	Junction 26
Lidl Car Park	3	Lidl Car Park
James Paget University Hospital	3	James Paget Hospital

#### 5.2.4 Automatic Traffic Counts

Three ATCs have been undertaken at locations to the north of Great Yarmouth. These will be used to analyse the flow in and out of town to the north and to support calibration and validation. These counts were collected between 5th November 2016 and 20th November 2016. Additional ATCs were obtained from AECOM who are commissioned by Highways England to investigate RIS programme improvements to the A12. This data has been collected to a high specification equalling the requirements of DfT. The site locations of the ATCs are shown in Figure 5-3 and Figure 5-4 and listed in Table 5.3.

Figure 5-3 ATC Locations



Figure 5-4 ATC Locations Within Great Yarmouth

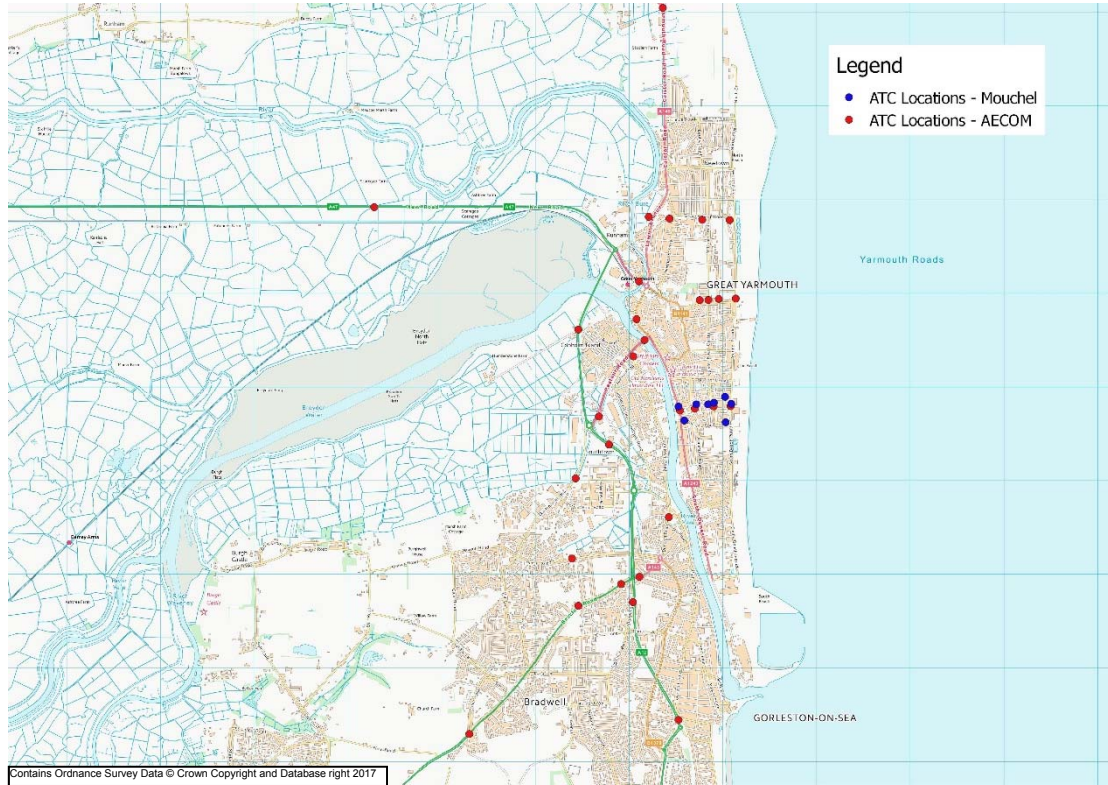


Table 5-3 ATC Site Locations and Dates

Site Code	ATC Site Location	week commencing	Source
	Ormesby Road	10/11/2016 to 20/11/2016	Mouchel
	Caister Bypass	07/11/2016 to 20/11/2016	Mouchel
	Norwich Road	05/11/2016 to 18/11/2016	Mouchel
A2	Lawn Avenue	Week Commencing 11/04/2016	AECOM
A3	Northgate Street	Week Commencing 11/04/2016	AECOM
A4	North Denes Road	Week Commencing 11/04/2016	AECOM
A5	North Drive	Week Commencing 11/04/2016	AECOM
A6	A149 Acle New Road	Week Commencing 11/04/2016	AECOM
A7	Factory Road	Week Commencing 11/04/2016	AECOM
A8	Nelson Road North	Week Commencing 11/04/2016	AECOM

Site Code	ATC Site Location	week commencing	Source
A9	Wellesley Road	Week Commencing 11/04/2016	AECOM
A10	North Drive	Week Commencing 11/04/2016	AECOM
A13	A1243 South Quay	Week Commencing 11/04/2016	AECOM
A14	Blackfriar's Road	Week Commencing 11/04/2016	AECOM
A15	Nelson Road South	Week Commencing 11/04/2016	AECOM
A16	South Beach Parade	Week Commencing 11/04/2016	AECOM
AN3	Pasteur Road	Week Commencing 11/04/2016	AECOM
AN5	Beccles Road	Week Commencing 11/04/2016	AECOM
AN7	A413 Beccles Road	Week Commencing 11/04/2016	AECOM
AN8	A143 Beccles Road	Week Commencing 11/04/2016	AECOM
AN10	Burgh Road	Week Commencing 11/04/2016	AECOM
AN11	Gapton Hall Road	Week Commencing 11/04/2016	AECOM
AN12	A143 Beccles Road	Week Commencing 11/04/2016	AECOM
B1	A1064 Main Road	Week Commencing 11/04/2016	AECOM
B2	A146 Norwich Road	Week Commencing 11/04/2016	AECOM
B4	B1136	Week Commencing 11/04/2016	AECOM
B5	A143 Beccles Road	Week Commencing 11/04/2016	AECOM
B6	A146 Beccles Road	Week Commencing 11/04/2016	AECOM
B7	B1074 Flixton Road	Week Commencing 11/04/2016	AECOM
B9	A143 Beccles Road	Week Commencing 11/04/2016	AECOM

### 5.3 Overview of Data Analysis

This section provides an overview of the processing and analysis of the received traffic data. More detail on this processing can be found in the Traffic Data Report. The key processing elements carried out were:

- All traffic count data has been standardised into Cars, LGVs and HGVs and each link count has been assigned to an A node and B node in the network.
- ATC data has been processed in order to derive the average weekday flow for that site by removing outliers and taking the mean.
- Counts have been normalised to account for monthly and yearly variation using factors from long term Highways England counts.
- Flow profiles from various sites have been analysed and they confirm the peak hours as 08:00-09:00 and 16:30-17:30.
- Journey time data has been processed to calculate the average travel times along each route and sense checks have been conducted against the directionality of trips.

## 5.4 Rationalisation of Counts

Following the data collection stage, a process was undertaken to rationalise conflicts within the count dataset. The actions taken can be categorised into three cases.

### 5.4.1 *An ATC sharing a link with an MCC*

ATCs generally provide greater confidence for reporting the link flows compared to MCCs, which are only undertaken for a single day. However, the MCC offers the opportunity to understand the flows for all links at a junction whereas a downstream ATC only covers one link. In these instances, the MCC was expanded to the ATC observed flows by comparing the flow differences between the two count sources on the shared link. It was verified that the expansion did not cause a discrepancy between the total inbound and total outbound flows at an MCC.

### 5.4.2 *Multiple MCCs on the same junction*

The MCC data was taken from multiple sources including new commissions plus the existing datasets from AECOM and NCC. There were some locations where the datasets overlapped, with an MCC for a particular junction surveyed by more than one of these sources. The count quality, based on the surveyed year and month, was used to decide which one should be taken forward in such instances.

### 5.4.3 *MCCs on adjacent junctions*

There were some instances where MCC data was available for adjacent junctions. In such instances, it is likely that the flow on the shared link will differ to some extent, even if they were part of the same commission. For these cases, the shared link flows were checked to confirm that any difference was minimal so that this did not adversely affect the calibration and validation.

## 5.5 Traffic Counts for Roadside Interview Surveys

For the four RSI surveys used for this model build, two directional MCCs were undertaken on the day of the RSI along with two week ATCs around the same time of the RSI.

For the two RSI sites located on the peninsula, the streets in between also had ATCs so any vehicles that diverted off the two main roads to avoid the survey queues



would be captured and adjustments could be made. The ATC locations on the peninsula can be seen in Figure 5.4 above.

These counts have been used to expand the RSI surveys to give an accurate representation of trips on an average weekday, including adjustments made to offset any irregular behaviour exhibited as a result of the RSI such as diverting onto parallel minor roads.

## **5.6 Traffic Counts for Matrix Estimation and Validation**

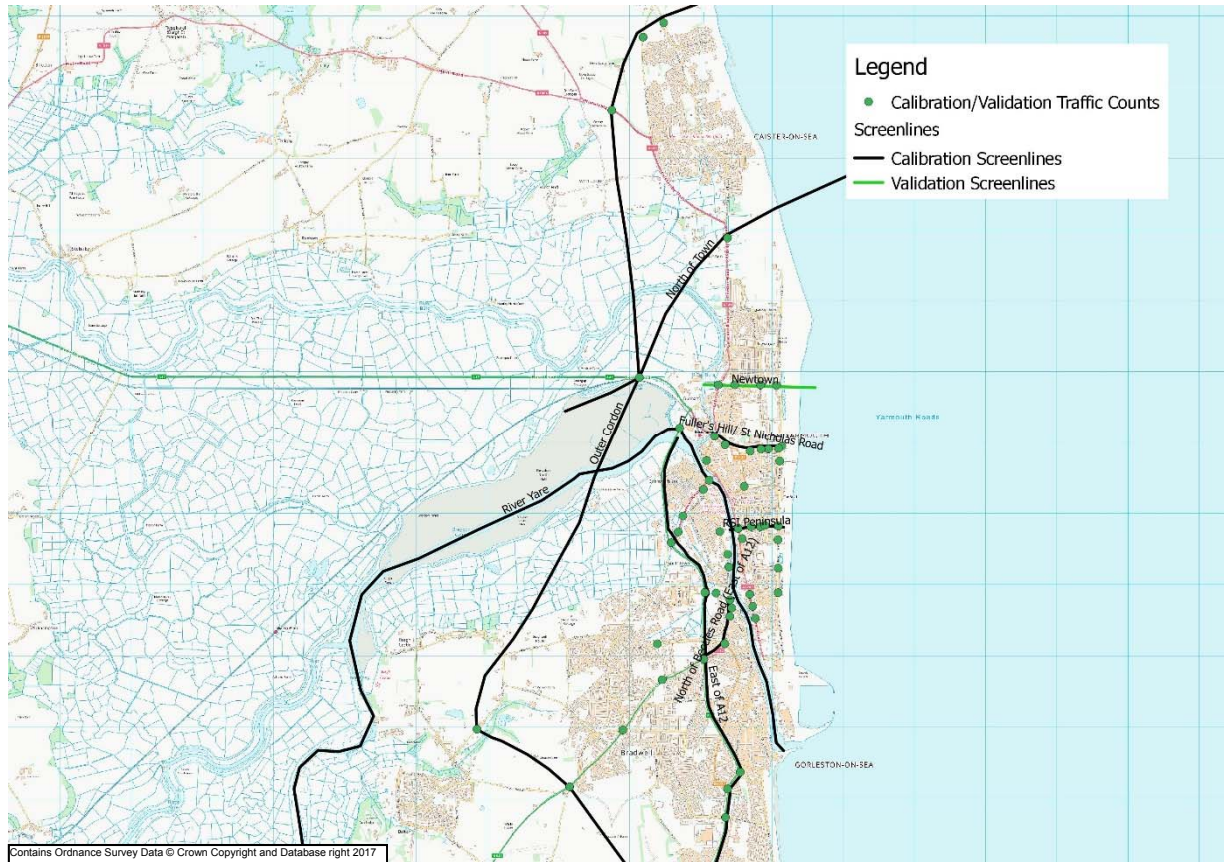
The traffic counts described above were grouped into a series of screenlines for the matrix estimation and validation of the base model matrices.

The screenlines are defined to provide comprehensive coverage of the modelled area and to ensure appropriateness of the model calibration. A number of counts did not fit into a screenline but were also included in the calibration or validation to further enhance the model performance.

Based on their location, some counts were reserved for the purpose of independent validation of the model and therefore were not included in the matrix estimation.

Figure 5-5 shows the locations of all traffic counts including the cordon and calibration screenline.

Figure 5-5 Cordon and screen-lines in the Great Yarmouth area.



Count data was obtained from a range of sources including surveys commissioned specifically for this job by Mouchel as well as previous surveys by AECOM.

The traffic counts used are given in Appendix G.

## 5.7 Journey Time Surveys for Validation

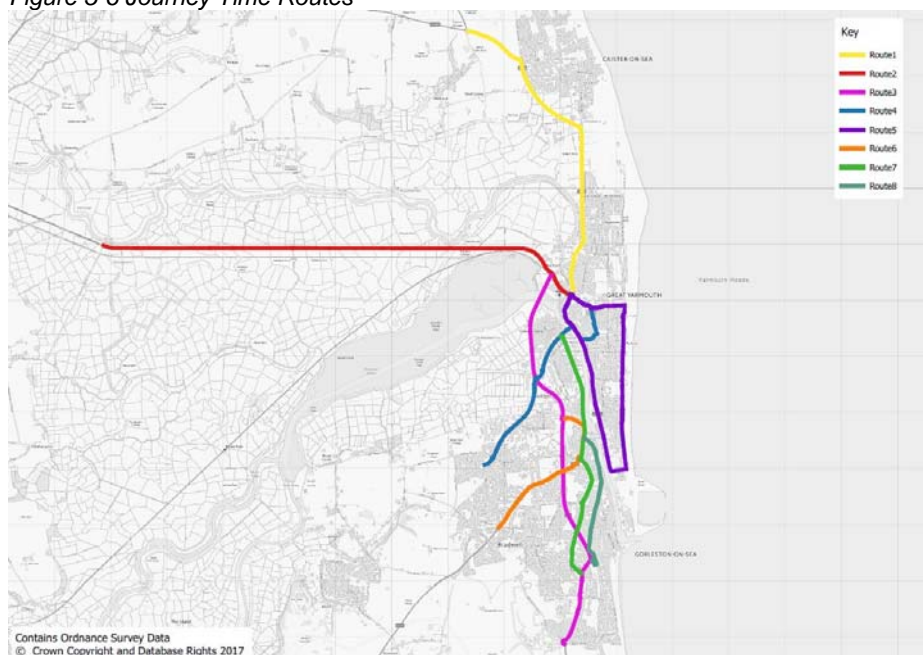
Journey time data was collected for eight routes across the study area reflecting the range of journeys which take place and covering all of the significant roads within the area of impact. For these eight routes, Trafficmaster origin/destination (TMOD) data was obtained from the BaseMap 'Highways Analyst' tool. The journey time data is described in detail in the Great Yarmouth Model Traffic data Report.

A route description is provided in Table 5-4. The journey time routes for which data has been received can be seen in Figure 5-6.

Table 5-4 Journey Time Route Descriptions

Route	Description
1 NB	A149 from Fuller's Hill Roundabout to Main Road Roundabout
1 SB	A149 from Main Road Roundabout to Fuller's Hill Roundabout
2 EB	A47 from Branch Road junction to Fuller's Hill Roundabout
2 WB	A47 from Fuller's Hill Roundabout to Branch Road junction
3 NB	A12 from Beaufort Way Roundabout to A47 Roundabout
3 SB	A12 from A47 Roundabout to Beaufort Way Roundabout
4 NB	Blackbird close/Gapton Hall Road/Pasteur Road from Mill Lane to A12 Roundabout
4 SB	Blackbird close/Gapton Hall Road/Pasteur Road from A12 Roundabout to Mill Lane
5 CW	Peninsular Clockwise from A47 roundabout via South Beach Parade/A1243/B1141
5 ACW	Peninsular Anticlockwise from A47 roundabout via South Beach Parade/A1243/B1141
6 NB	A143 Beccles Road from Long Lane to Southtown A12 Roundabout
6 SB	A143 Beccles Road from Southtown A12 Roundabout to Long Lane
7 NB	Middleton Road/Southdown Road from A12 Roundabout to Pasteur Road
7 SB	Middleton Road/Southdown Road from Pasteur Road to A12 Roundabout
8 NB	Gorleston Lowestoft Road/ High Street from A12 Roundabout to Pasteur Road
8 SB	Gorleston Lowestoft Road/ High Street from Pasteur Road to A12 Roundabout

Figure 5-6 Journey Time Routes



## 6 Network Development

### 6.1 Introduction

The road network represents the supply side of the modelling process. The network is a system of nodes, representing junctions, which are connected by a number of links, which represent stretches of road between junctions.

The model road network is shown in Figure 4.3.

This section of the report describes the steps that have been taken to develop the highway network for assessing the Great Yarmouth TRC.

### 6.2 Network Development

#### 6.2.1 *Buffer Network*

All roads outside the core model area are coded as buffer links. This includes the highway network in and around Norwich which was coded as a simulation network in the MM model but was converted to a buffer network for this model update. There is no buffer network in the model as it has been created by cordoning a larger model's simulation network. The only exception is the group of external zones and their connectors which are located at the ends of the links that were cut by the cordon.

#### 6.2.2 *Simulation Network*

The simulation network consists of approximately 2650 links and 697 nodes (467 priority, 32 roundabouts, 51 traffic signals and 147 external nodes) and covers Great Yarmouth and the surrounding areas of Caister, Gorleston and Belton.

### 6.3 Junction Modelling

In order to represent the effects of traffic delay and queues at junctions, junction operation has been modelled in detail in the study (simulation) area. Traffic flows and movement conflicts which may lead to delays are thereby taken into account. The development of the GYTM includes updating the junction coding from the MM model. The junction coding amendments have been based on the Regional Traffic Models Network Coding Manual (Highways England, Dec 2015). Where new junctions have been added or adjustments made to existing nodes the coding standards set out below have been adopted. This ensures a consistent approach to coding and means that the network is standardised before the process of calibration begins.

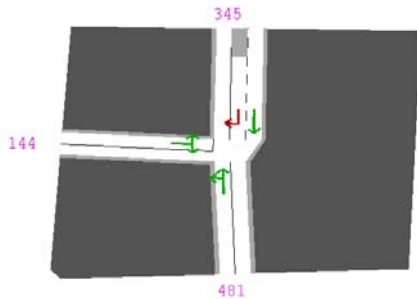
#### 6.3.1 *Priority Junction Modelling*

A total of 467 priority junctions were modelled in the simulation network. The Regional Traffic Models Network Coding Manual provided the saturation flows used for the priority junctions.

Saturation flows for some junctions were adjusted further during the calibration/validation process to take into account more detailed junction attributes such as lane width and lane markings.

An example of a priority junction from the updated model is given in Figure 6.1 below.

Figure 6-1 Priority Junction

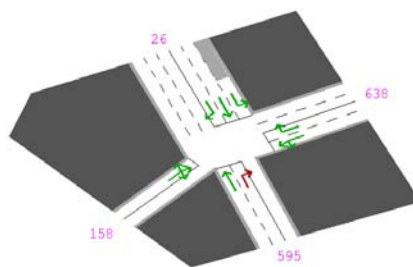
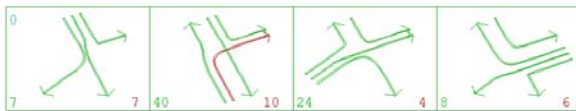


### 6.3.2 Signalised Junction

A total of 51 signalised junctions including pedestrian crossings were modelled in the simulation network. The Regional Traffic Models Network Coding Manual provided the saturation flows used for the signalised junctions.

An example of a signalised junction from the updated model is given in Figure 6.2 below.

Figure 6-2 Signalised Junction

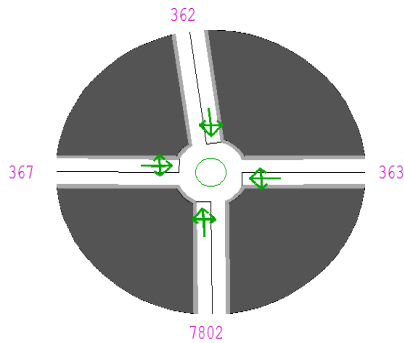


### 6.3.3 Roundabout Modelling

All roundabouts within the simulation network were modelled either as single node junction type 2 nodes or 'exploded' roundabouts in SATURN. The Regional Traffic Models Network Coding Manual provided the saturation flows used for the roundabouts.

An example of a roundabout junction from the updated model is given in Figure 6.3 below.

Figure 6-3 Roundabout Junction



#### 6.4 Zone (Centroid) Connectors

The loading of traffic onto the network from zones has been achieved through coding centroid connectors at appropriate locations. The loading points and centroids were carefully reviewed for each zone, with the distance from the zone centroid to the loading point calculated from OS background mapping.

A review of zone connectors was conducted in the study area to ensure trips were loading onto the network in realistic locations. Some changes were made to the network as the existing model was thought to give a good representation of the real world.

14 additional zones were added to represent future development sites within the Great Yarmouth area. These zones will represent various developments in the future year that have no trips in the base year model so access arrangements were not considered at this stage.

#### 6.5 Public Transport Services

Bus services are coded into the model but not assigned as a demand category. Traffic volume and network delays would likely be underestimated if they were not included. This is particularly important for the peak periods when services are likely to have a higher frequency plus extra demand including school services, for example in the AM peak.

The bus routes were therefore included in the models with information of the bus frequency. This was then translated into fixed volume or pre-loaded flows to the network. The following routes are included within the model.

Figure 6-4 Public Transport Services

Bus Route	Description	Average Weekday Frequency (per hour)
1	Martham - Lowestoft	2
1A	Martham - Lowestoft	3
2	Great Yarmouth Town Centre - Barrack Estate Circular	6
3	Vauxhall Holiday Park - Britannia Pier Circular	1
4	Great Yarmouth Market Gates - Caister	1
5	Great Yarmouth Market Gates - Burgh Castle	1
6	Great Yarmouth - Bradwell (via Gorleston)	2
6A	Cromer - Great Yarmouth Market Gates	1
7	Belton - Great Yarmouth Market Gates	2
8	Caister - James Paget University Hospital	4
9	Great Yarmouth Market Gates - James Paget University Hospital	2
X11	Norwich - Great Yarmouth - Belton	2
X1	Norwich - Great Yarmouth - Lowestoft	2
61	Kessingland - Great Yarmouth Market Gates	2
71	Belton - Great Yarmouth Market Gates	1
580	Bungay - Beccles - Great Yarmouth Market Gates	1

## 6.6 Pre-Calibration Network Checks

A number of checks were carried out on the network in order to identify any parts of the network that have change since the Motts model was built in 2003. These checks included:

- Speed checks against speed limits and for model consistency;
- Distance checks (same distance coded in both directions and against measured distance in GIS);
- Location of signalised junctions;
- Checks of recently built (since base network development in 2003) schemes to ensure these are included in the network.
- Checks of TROs of vehicle restrictions (HGV bans).

These checks identified a number of changes in the local area and as a result the following pre-calibration network amendments were made:

- Update links in the town centre to reflect current network configuration and one-way system in the King Street / Dene Side area.
- Update links on Marine Parade to reflect new layout at the Euston Road / North Drive junction and replace priority junctions with roundabouts at various locations.

- Review and amend junction situation flows across the simulation network using FLAREF and FLAREX coding where appropriate.
- Modify coding at all zone centroid connector loading points to remove network error warnings.
- Add new Beacon Park link road between A143 and A12.
- Explode roundabout coding at Harfrey's roundabout and Vauxhall roundabout.
- Check timing / staging at all signalised junctions and update where appropriate.
- Split a number of zones local to the proposed bridge crossing to improve routing in this area.
- Replace remnants of simulation coding with buffer coding on links in Norwich area.



## 7 Matrix Development

### 7.1 Introduction

This chapter provides an overview of the steps that were taken to ensure the prior matrices used in calibration and validation provided a robust basis for modelling.

Road Site Interview (RSI) data was the main source of new data (described in section 7.2. These were supplemented with Trafficmaster Origin Destination (TMOD) data (the methodology for this is explained in section 7.3).

Data associated with Census journey to work has been employed for background traffic. Additional data has been synthesised for other trip purposes. Goods Vehicle data has been taken from the previous model and updated to reflect 2016 conditions.

The methodology for updating the existing matrices is described in section 7.4, whilst section 7.5 outlines how the RSI/TMOD and background matrices are combined.

Finally the updates applied to the zoning system are described in section 7.6.

### 7.2 Production of RSI Matrices

#### 7.2.1 Introduction

Four new road side interview (RSI) sites are included in the new model, covering movements between the north and south of the peninsula as well as cross-river traffic at Haven Bridge and Breydon Bridge. Site locations are illustrated in Table 7-1.

Table 7-1 RSI locations used in model

Site	Road	RSI Direction	Date Undertaken
1	South Quay	NB	10 November 2016
2	Marine Parade	NB	10 November 2016
3	A12 (for Breydon Bridge)	NB	23 November 2016
4	A149 Haven Bridge	WB	23 November 2016

The peninsula surveys were conducted on Thursday 10<sup>th</sup> November and the bridge crossing surveys on Wednesday 23<sup>rd</sup> November.

Periods and peak hours are defined in the model as shown in Table 7-2.

Table 7-2 Modelled Periods and Peak Hours

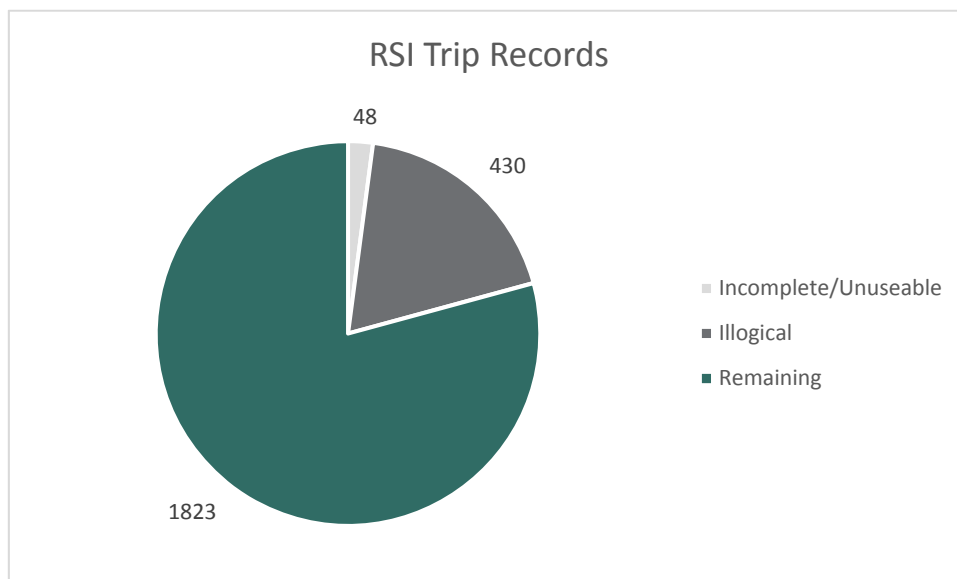
Period	Period Definition	Peak Hour
AM	7:00 - 10:00	8:00 - 09:00
IP	10:00 - 15:30	--
PM	15:30 - 18:00	16:30 - 17:30

### 7.2.2 Review of RSI Data

The RSI data provided by the survey company showed some records flagged as illogical due to trip-angle based logic. In order to retain as many trips as possible whilst removing any trips which seemed genuinely illogical, a separate cleaning process was undertaken on all provided records (including those marked as illogical or void). This method used a sector system consisting of ten sectors formed from an aggregation of the zone system to identify groups of illogical trips. Considerations were RSI direction, number of required river crossings for a journey and whether the sectoral movements were away from the area of interest with no advantage to deviating through one of the RSI locations.

In order to improve the sample size, particularly at the bridge sites where the sample was very low, any trips which were classed as illogical were reversed and logic checked again. If the reversed trips were classed as logical they were retained in the sample in the reversed format. Trips were classed as void if missing an origin or destination. A summary of the record retention for the four sites can be seen in Figure 7-1.

Figure 7-1 Summary of RSI trip records after cleaning



The sample rates by site, vehicle type and time period are summarised in Table 7-3. Site 2 demonstrates the highest response rate. Both Sites 1 and 2 were conducted as site based interviews however Site 1 was constrained by heavier traffic volumes. Sites 3 and 4 (cross river) were conducted as postcard response and hence the successful sample rate was significantly lower. The sample rate has been taken into account in subsequent processing.

Table 7-3 RSI sample rates by site, vehicle class and period

Site	Location	Period	Interview Direction	Count			Records	Clean Records			Removal %	Sample Rate		
				Cars	LGV	HGV		Cars	LGV	HGV		Cars	LGV	HGV
1	South Quay	AM	NB	740	182	104	148	62	18	4	43%	8%	10%	4%
		IP		1692	479	186	291	123	42	4	42%	7%	9%	2%
		PM		928	226	27	135	92	15	1	20%	10%	7%	4%
2	Marine Parade	AM	NB	226	39	17	137	70	14	5	35%	31%	36%	29%
		IP		621	107	19	347	176	41	6	36%	28%	38%	32%
		PM		415	39	10	177	117	16	2	24%	28%	41%	20%
3	A12 (for Breydon Bridge)	AM	NB	2277	549	94	195	175	12	0	4%	8%	2%	0%
		IP		4033	777	177	429	368	29	2	7%	9%	4%	1%
		PM		2055	331	36	139	123	10	1	4%	6%	3%	3%
4	A149 Haven Bridge	AM	WB	1225	220	103	69	53	13	2	1%	4%	6%	2%
		IP		3762	478	232	129	106	15	3	4%	3%	3%	1%
		PM		2171	176	64	105	92	10	1	2%	4%	6%	2%

### 7.2.3 *RSI Expansion Process*

The intention was to use RSI records where possible to either replace the existing (2008) records for corresponding movements or take a blend of the equivalent figures from RSI records and the existing figures. In some cases, however, poor sample sizes mean that expansion to ATC peak hour was not sufficiently reliable and so Trafficmaster OD (TMOD) data were sought to boost the sample. This was most significant in the case of HGVs at the bridge sites and appears to be due to RSIs being conducted as postcard-only surveys as can be seen in Table 7-3.

The TMOD data provided a strong sample only for movements across the strategic network, and provided a negligible sample for local movements across Great Yarmouth Peninsula and Gorleston. This meant RSI site 3 (Haven Bridge) was the only site to benefit from the use of TMOD data. The method of blending in TMOD data is discussed further in section 7.3.

The RSI records were first expanded to MCC counts by each half hour period before being expanded to normalised ATC peak-hour counts. Expansion by half hour period provides more confidence in post expansion totals as it has the effect of limiting the post-expansion totals in instances where sample rate is very low (for example HGV counts).

Whilst this results in a lower than target trip total, the purpose and OD splits are more likely to be representative of the full population. The total number of records can then be boosted to meet the required count by the inclusion of TMOD data. The ATC counts were normalised to an average weekday by removing days with a count that was more than two standard deviations from the mean and excluding the day on which the RSI was conducted. This was due to observed avoidance of the RSI sites on the days when RSIs were conducted.

### 7.2.4 *Non Interview Direction*

For the non-interview direction, the interview direction RSI matrix was transposed and NTS data from the surrounding regional area (across the East and East Midlands) were used to update the time of the transposed trip.

For a trip recorded as 'From Home' the RSI matrix, an equivalent 'To Home' return trip was assumed to exist for the transpose of that zone movement. Therefore the time of the return trip was calculated from NTS data, based on the probability of returning at a particular hour given the hour of the initial From Home trip.

For a trip recorded as 'To Home' in the RSI matrix, an equivalent 'From Home' outbound trip was assumed to exist for the transpose of that movement earlier in the day. The time of the outbound non-interview direction trip was calculated from NTS data, based on the probability of making an outbound trip at a particular hour given the hour of the later returning To Home trip.

The transposed, non-interview direction matrix is 'smoother' than the interview direction in that there are multiple trip records based on the probability of a trip occurring. For example, if a From-Home trip in the RSI matrix occurs at 08:00, NTS

data would likely indicate that return trips for the given departure hour of 08:00-09:00 could occur at various times across the day. This would yield non-interview direction trip records at, say, 15:00, 16:00, and 17:00. These trip records would be a fraction of a trip, summing to one, hence retaining the total number of trips present in the RSI matrix in the interview direction.

The non-interview direction transposing is performed at an aggregate level across all trip purposes, ensuring the purpose split present in the interview direction is retained in the non-interview direction.

### 7.2.5 Infill of Peninsula Screenline

The RSI sites in the peninsula screenlines were not watertight, however a series of ATC counts were included on roads which enable passage around the interview locations. In the matrix build the OD data was blended from Sites 1 and 2 and expanded to reflect the additional traffic volumes observed at the ATC sites. The detail behind this is covered in the Table below.

Table 7-4 RSI sample rates by site, vehicle class and period

Count Site	Road	RSI Expanded	Direction	Traffic Flow (Vehs)		
				AM Peak Hour	Inter-Peak Hour	PM Peak Hour
<b>Interview Direction</b>						
RSI Site 1	South Quay	RSI Site 1	NB	348	417	600
ATC Site 9	Blackfriars Road	RSI Sites 1 & 2	NB	54	71	85
ATC Site 10	Havelock Road	RSI Sites 1 & 2	NB	25	19	26
ATC Site 11	Nelson Road	RSI Sites 1 & 2	NB	33	38	42
RSI Site 2	South Beach Parade	RSI Site 2	NB	127	156	264
<b>Reverse Direction</b>						
RSI Site 1	South Quay	RSI Site 1	SB	549	371	287
ATC Site 9	Havelock Road	RSI Sites 1 & 2	SB	20	19	30
ATC Site 10	Blackfriars Road	RSI Sites 1 & 2	SB	80	69	84
ATC Site 11	Nelson Road	RSI Sites 1 & 2	SB	48	41	53
RSI Site 2	South Beach Parade	RSI Site 2	SB	227	140	112

This demonstrates that the ATC flow distributions are synthesised by up to 30% of the observed (site 1 and 2) volumes in the case of the PM peak reverse direction.

### 7.2.6 Variance Weighted Blending

Variance weighting, using the methods described in the DfT sponsored ERICA program have been used in order to increase confidence in the records included in the matrix. The method involves up-weighting the record with lower variance in cases where the same trip has been recorded at two RSI sites. The corresponding, lower confidence record is down-weighted and the figure is normalised. This

effectively performs de-duplication whilst ensuring the retained record gives the best representation of the movement.

The variance weighted blending was applied in a step-wise manner, for each time period:

- Step 1: blending was applied between each pair of adjacent RSI sites (interview and non-interview direction aggregated together), yielding one variance weighted blended matrix from RSI sites 1 and 2, and one variance weighted blended matrix from sites 3 and 4.
- Step 2: blending was applied to the two resulting matrices from step 1.

The first step only accounts for vehicles that cross two adjacent sites (e.g. a trip that crosses both Braydon Bridge and Haven Bridge would cross RSI site 3 and 4). The second step accounts for vehicles that travel between the peninsula (south of RSI sites 1 and 2) and areas west of the River Yare (i.e. trips that would have passed through site 1 or 2 and additionally site 3 or 4).

#### 7.2.7 *Cordon Gaps on Peninsula*

Whilst the RSI sites 1 and 2 recorded traffic volumes on the two main routes from the south peninsula, the cordon was not 'water-tight' at this point as there are minor routes available to traffic between South Quay and Marine Parade. In order to represent this difference the ATC counts at sites 1 and 2 were boosted by a factor calculated from counts recorded on routes crossing a screenline drawn between the two sites. The expansion factors for the RSI data were increased accordingly. As the routes are 'rat-runs', and the survey company reported avoidance of the RSI sites onto these routes it is reasonable to retain the vehicle and purpose splits from the RSI sites in this expansion.

#### 7.2.8 *Demand Segmentation*

The expanded RSI data are partitioned for each site into the following demand segments:

- Car;
- Home-based work;
- Home-based education;
- Home-based employer business;
- Non-home based employer business;
- Home-based other;
- Non-home based other;
- LGV; and
- HGV.

### 7.2.9 Expansion of RSI Records

The below tables show the resultant totals after expanding to normalised ATC peak hour as described. The target count was achieved for cars, however in several cases for goods vehicles the RSI records are somewhat lower due to the low sample. In these cases it would be unrepresentative to increase the expansion factor and so highlights the need for the inclusion of Trafficmaster OD data.

Table 7-5 Interview direction expanded RSI trips

Site	Location	Period	Dir	Count			Expanded RSI Trips		
				Car	LGV	HGV	Car	LGV	HGV
1	South Quay	AM	NB	320.3	72.9	35.5	320.3	69.7	15.4
		IP		374.7	100.4	32.9	374.7	91.4	12.7
		PM		565.4	124.2	14.0	565.4	80.8	5.2
2	Marine Parade	AM	NB	129.8	20.7	7.7	129.8	20.7	5.9
		IP		161.9	26.4	4.0	161.9	26.4	1.9
		PM		282.7	24.0	5.8	282.7	24.0	2.3
3	A12 (for Breydon Bridge)	AM	NB	996.5	240.3	0.0	996.5	207.4	0.0
		IP		830.3	160.0	36.4	830.3	131.3	8.4
		PM		1102.2	177.5	19.3	1102.2	177.5	4.3
4	A149 Haven Bridge	AM	WB	536.1	96.3	45.1	536.1	96.3	18.8
		IP		565.0	71.8	34.8	565.0	56.5	9.5
		PM		707.9	57.4	20.9	707.9	57.4	7.8

Table 7-6 Non-interview direction RSI trips

Site	Location	Period	Dir	Count			Expanded RSI Trips		
				Car	LGV	HGV	Car	LGV	HGV
1	South Quay	AM	SB	487.4	123.8	41.0	487.4	123.8	41.0
		IP		317.8	109.6	34.3	317.8	109.6	34.3
		PM		312.4	69.5	20.1	312.4	69.5	20.1
2	Marine Parade	AM	SB	228.6	31.3	12.2	228.6	31.3	12.2
		IP		147.5	25.3	5.4	147.5	25.3	5.4
		PM		148.1	12.8	2.3	148.1	12.8	2.3
3	A12 (for Breydon Bridge)	AM	SB	1148.0	249.6	46.3	1148.0	249.6	46.3
		IP		1077.8	190.0	39.3	1077.8	190.0	39.3
		PM		1148.2	255.6	22.7	1148.2	255.6	22.7
4	A149 Haven Bridge	AM	EB	893.2	168.0	39.9	893.2	168.0	39.9
		IP		790.1	119.4	32.8	790.1	119.4	32.8
		PM		887.8	87.5	24.2	887.8	87.5	24.2

The non-interview direction does not display the same discrepancy as the interview direction. This is due to the 'smoothing' which occurs when the transposed matrix is created, whereby the time of a non-interview direction trip is based on the probability of the trip occurring at that time based on NTS data effectively blending distributions from constituent time periods.

### 7.2.10 Conversion to Peak Hour Matrices

Prior to the blending, the 12 hour RSI data was converted to peak hour matrices. The RSI records were allocated to their respective period (AM, Inter-Peak or PM) as defined in Table 7-2. Subsequently, the period data was converted to the model peak hours. ATC data was used to calculate the conversion factors. Figures 7-2 to 7-5 below show the ATC traffic profile at each RSI Site.

Figure 7-2 Flow Profile at RSI Site 1

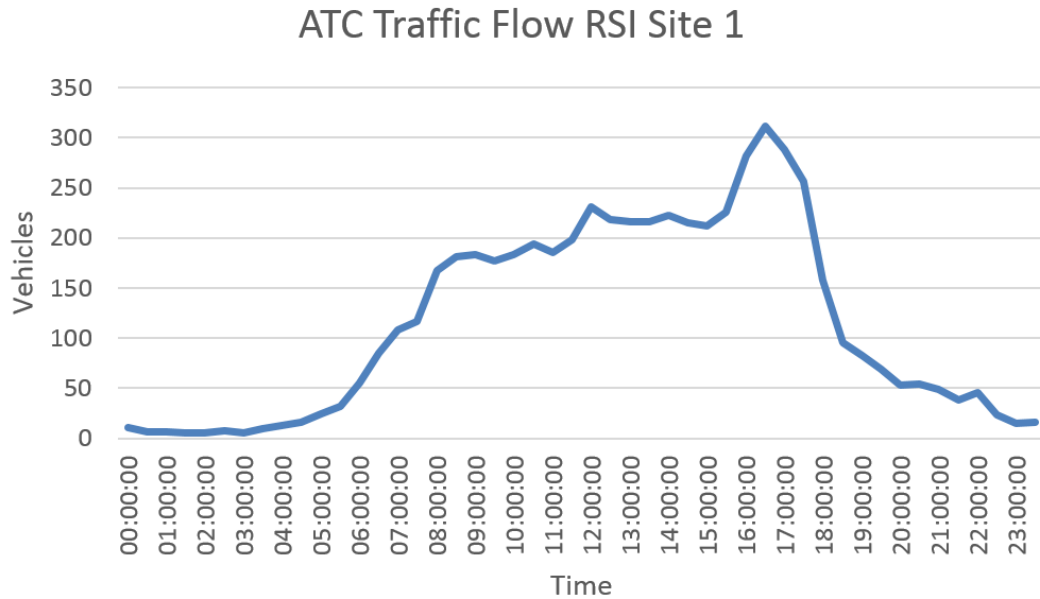


Figure 7-3 Flow Profile at RSI Site 2

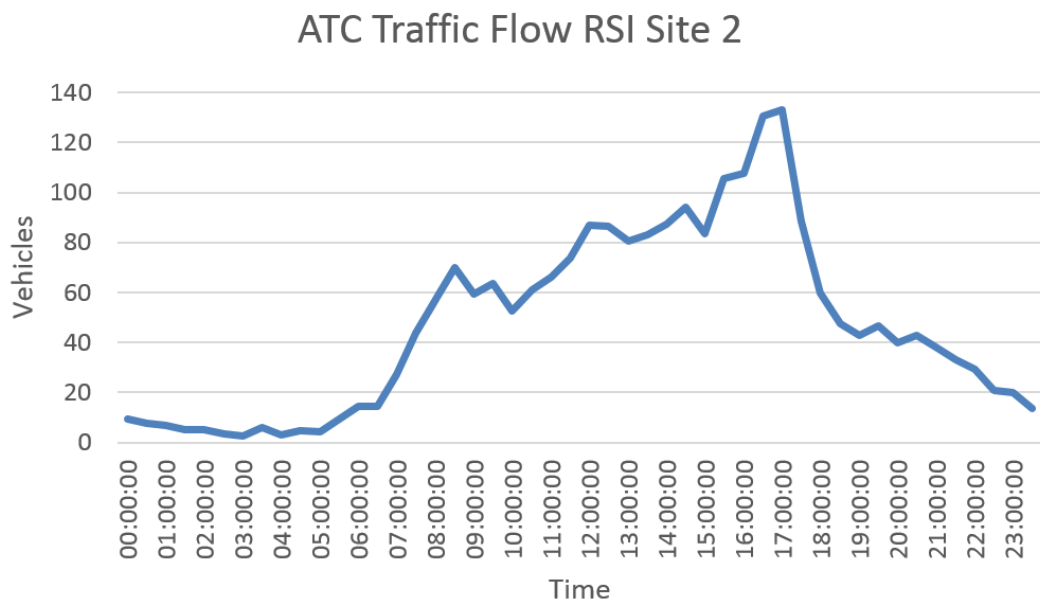




Figure 7-4 Flow Profile at RSI Site 3

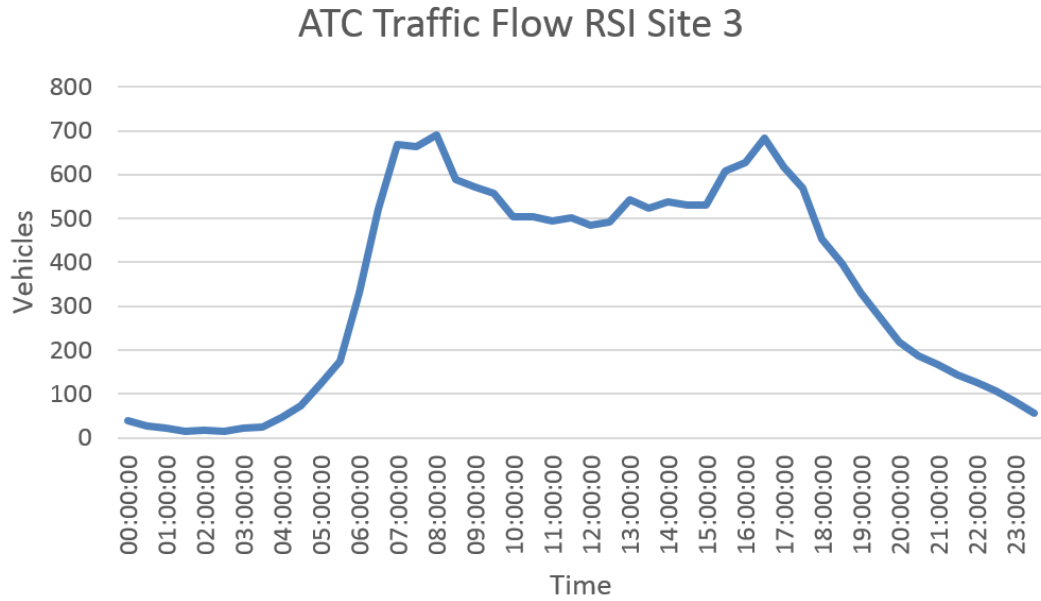
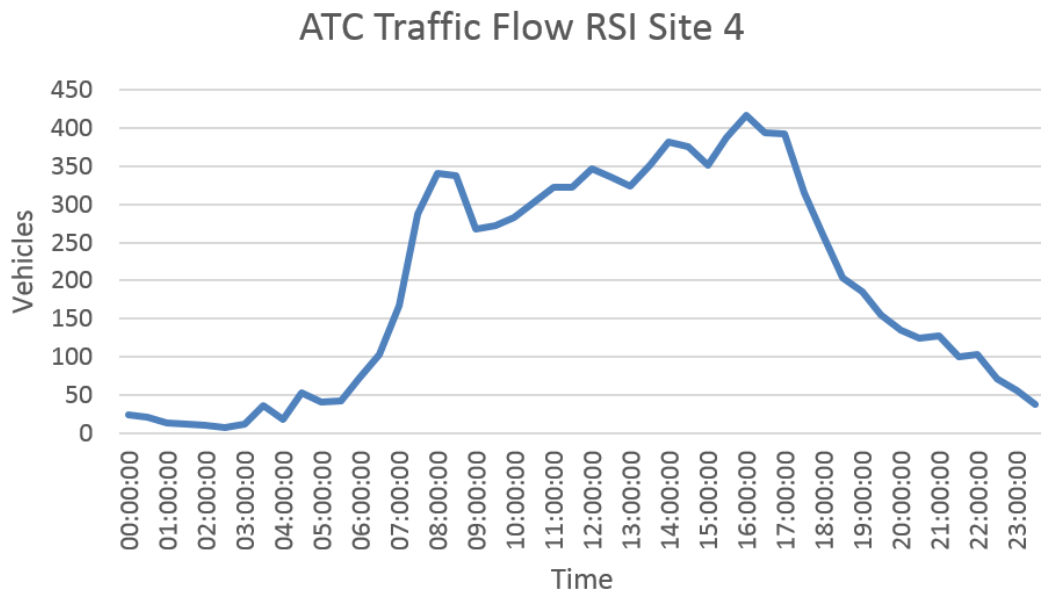


Figure 7-5 Flow Profile at RSI Site 4



The conversion was undertaken by factoring the MCC period total for each time period to the observed peak hour ATC flow. This factoring was undertaken for each RSI site. The factors are provided in Table 7-6 below.

Table 7-7 Factors for converting RSI trips to model hours

RSI Site	AM Peak Period MCC to AM Peak Hour ATC conversion factor	Inter-Peak Period MCC to Inter-Peak Hour ATC conversion factor	Inter-Peak Period MCC to AM Peak Hour ATC conversion factor
1	0.34	0.18	0.51
2	0.45	0.21	0.57
3	0.44	0.21	0.54
4	0.44	0.15	0.33

### 7.3 RSI / TMOD Blending Process

The RSI data was blended with the other data sources to create complete trip matrices. Initially, the TMOD matrices in a form of records were assigned to a Great Yarmouth network, and records that pass through the model link of a particular RSI site are extracted through the Select Link Analysis (SLA) in order to provide sample that captured trips that passed through each RSI sites. These data were then compared with RSI sample data from that site. The TMOD data only provided a strong sample for Haven Bridge (RSI site 3). For this site, the following methodology was adopted to blend RSI with TMOD records.

The RSI trips were blended with Trafficmaster OD data by vehicle type separately. The blending proportions reflect the sample sizes and therefore the level of confidence that can be had in the sources of data. Compared to RSI matrices alone, the blending provides a wider, more representative split of traffic routes for Goods Vehicles, in particular Heavy Goods Vehicles. Car trips remain predominantly sourced from RSI data (which has a higher sample rate for cars than does Trafficmaster).

The following steps provide a high level description of the blending process:

- Produce RSI matrix for site 3 (Braydon bridge), by direction, time period and vehicle class;
- Extract records from Trafficmaster OD data at the location of site 3, by direction, time period and vehicle class. This was accomplished by assigning the TMOD data to the network and subsequently carrying out Select Link Analysis by time period and direction at the location of site 3.

- Expand Trafficmaster OD records to observed counts, by direction, time period and vehicle class
- Compare RSI records and TM OD records to produce blending factors, by direction, period and vehicle class
- Calculate blended trips following equation:
- $$\text{blended Trip}_{r,d,t,v} = \frac{\text{RSI Trip}_{r,d,t,v} * \text{RSI record}_{r,d,t,v} + \text{TMOD Trip}_{r,d,t,v} * \text{TMOD record}_{r,d,t,v}}{\text{RSI record}_{r,d,t,v} + \text{TMOD record}_{r,d,t,v}}$$

Where:

- $\text{RSI record}_{r,d,t,v}$  and  $\text{RSI Trip}_{r,d,t,v}$  are the RSI records RSI expanded trips to the observed counts by RSI site, direction, period and vehicle class
- $\text{TMOD record}_{r,d,t,v}$  and  $\text{TMOD Trip}_{r,d,t,v}$  are the TMOD records TMOD expanded trips to the observed counts by RSI site, direction, period and vehicle class

The following ratios in Table 7-7 are used to blend data based from the relative number of records of each data source. The blending ratios reflect the number of records and therefore the effective level of confidence of the source data. For cars, blending is heavily weighted in favour of the RSI records.

Table 7-8 Factors for converting RSI trips to model hours

Period	Direction	Vehicle Class	RSI	TMOD
AM	NB	Car	0.89	0.11
		LGV	0.16	0.84
		HGV	0.00	1.00
	SB	Car	0.81	0.19
		LGV	0.08	0.92
		HGV	0.06	0.94
IP	NB	Car	0.85	0.15
		LGV	0.17	0.83
		HGV	0.22	0.78
	SB	Car	0.79	0.21
		LGV	0.13	0.87
		HGV	0.17	0.83
PM	NB	Car	0.86	0.14
		LGV	0.21	0.79
		HGV	0.63	0.38
	SB	Car	0.87	0.13
		LGV	0.26	0.74
		HGV	0.48	0.52

This approach could have been adopted for each RSI site, as the low sample from TMOD would have been reflected in the weighting factor applied to the TMOD records. However this would have resulted in small fractions of records, and would therefore have introduced challenges to the calculation of variance (necessary to the variance weighted blending), whilst adding negligible benefit to the origin/distribution split of matrices at RSI sites 1, 2 and 4.

## 7.4 Development of Background Matrix

### 7.4.1 Overview

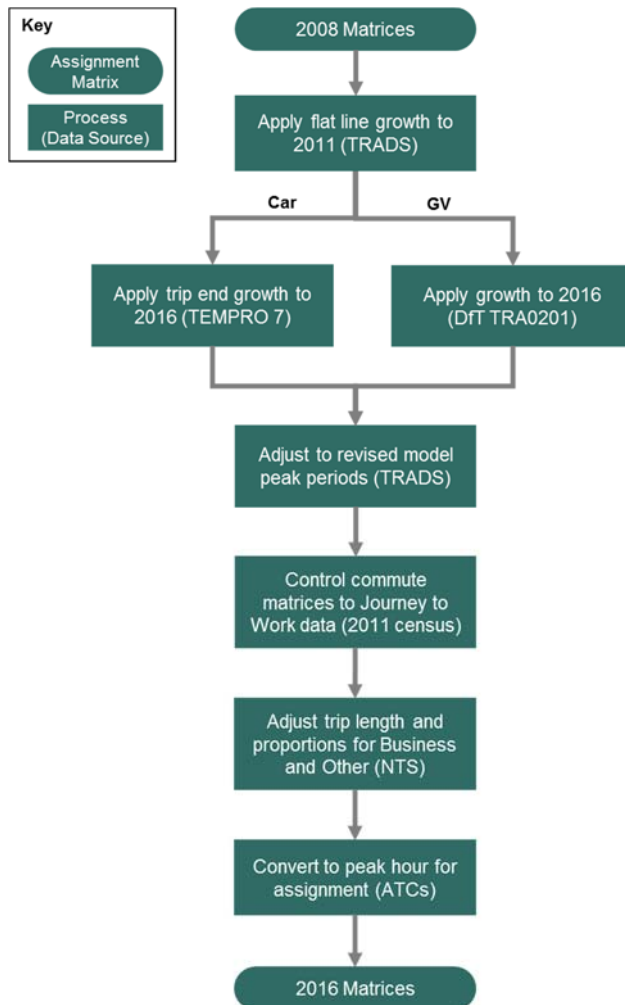
The RSI matrices yielded a partial matrix for the study area, and trips that would not pass through those surveyed locations would not be included. One such example are trips within the peninsula that do not travel as far north as the cordon. These trips add to congestion on the network and need to have a presence within the assignment, since significant changes to the network within the peninsula including a new bridge could impact their routing.

As described in an earlier section, the original Great Yarmouth model was updated to 2008 traffic levels by MM. The matrices associated with the updated 2008 traffic levels are herein referred to as the background matrices. It was decided that the background matrices would be merged with the blended RSI matrices to infill the unobserved trip movements, since, despite the age of the data, they had previously been calibrated for Great Yarmouth using RSI survey data.

However, it was considered prudent to update the background matrices to 2016 traffic levels. The methodology is summarised in Figure 7-6.

The approach contains a series of adjustments and controls to ensure that the original matrices are shaped to reflect latest volumes and patterns but with the relative magnitudes of zonal traffic from the original RSI observation retained to provide spatial differentiation attuned to land use and transport. The following sections consider the processing methods and sense checks undertaken at each step of the process.

Figure 7-6 Background Matrix Adjustment Process



#### 7.4.2 Phase 1 – Growth to 2016

The first adjustment was to apply high level adjustments to uplift the traffic in the background matrices from 2008 levels to 2016 levels. The most reliable source of data for trip rate changes was TEMPRO 7, however the earliest TEMPRO base year is 2011. Therefore, growth from 2008 to 2011 had to be calculated from other data.

Analysis of historical ATC data from TRADs for three locations on the A12 and A47 between the years 2008 and 2011 showed a minimal change in traffic flow around Great Yarmouth for that time period. Therefore, a universal growth factor was calculated to convert from 2008 to 2011 traffic levels. The DfT time series data table TRA0201 was used to control this change by vehicle class, to account for the trend of a decrease in HGV trips and increase in LGV trips over that period.

Origin and destination trip rate changes were extracted from TEMPRO by assignment purpose - Business, Commute and Other - and by time period. These were applied as origin factors and as destination factors separately, and then the factored matrices were furnished in SATURN controlled to row totals. Since TEMPRO does not offer trip rate information for GVs, TRA0201 was used to calculate universal factors from 2011 to 2016 for LGV and HGV separately.

### 7.4.3 Phase 2 – Adjustment to revised model peak periods

There was a discrepancy between the peak period definitions which the background matrices were developed for and the peak periods being used for this update. To compensate for this, a three-step adjustment process was required. This process is presented in Figure 7-7 below.

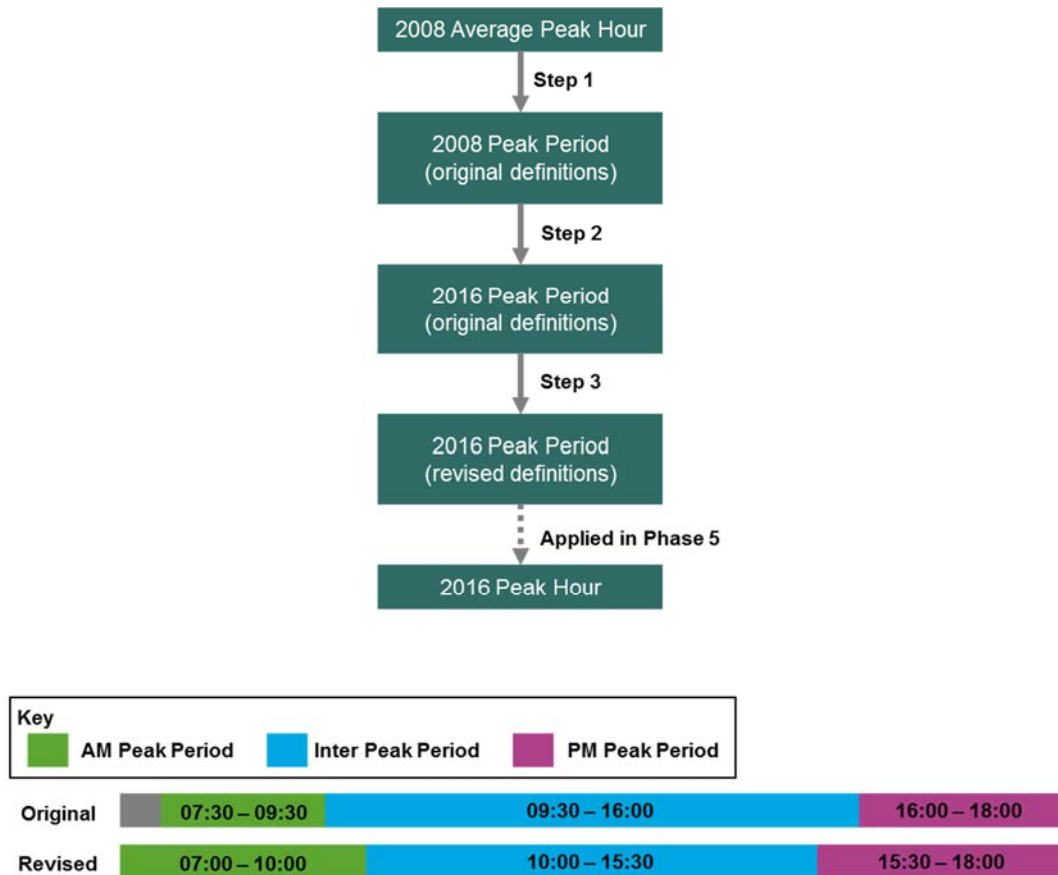
- Step 1: Factor from average peak hour (as received) to original peak period;
- Step 2: Factor from original peak period with 2008 traffic volumes to original peak period with 2016 traffic volumes - this is to compensate for changes in the daily profile over time between 2008 and 2016; and
- Step 3: Factor from original peak period with 2016 traffic volumes to revised peak periods with 2016 traffic volumes, since the inter-peak period duration has reduced with further time added into the AM and PM.

The factors are summarised in Table 7-8 below.

Table 7-9 Background Matrix Time Period Adjustment Factors

	AM Period	IP Period	PM Period
Step 1	2	6.5	2
Step 2	0.99889	1.01459	1.00414
Step 3	1.46903	0.84252	1.21378
Composite	2.93481	5.55627	2.43761

Figure 7-7 Peak Period Definition Adjustment Overview



#### 7.4.4 Phase 3 – Control to census journey to work (J2W) for Commute

The census data table WU03EW ‘Method of Journey to Work’ provides one-way origin-destination movements for commute trips at an MSOA level for Great Britain at a daily level. It was decided that the commute components of each time period should be controlled to the J2W magnitude and distribution at a sector level, as a more up to date source than the data used to build the background matrices. The J2W matrix was as processed as follows, to prepare it for direct comparison at time period level with the commute assignment matrices:

- Data uplifted from 2011 (census survey year) to 2016 using TEMPRO factors for population and employment change;
- Uplifted matrix split to time period outbound matrices using commute outbound travel time factors derived from NTS;
- Time period inbound matrices derived using outbound matrices and trip return time factors from NTS, with the inbound total controlled by a ‘commute out, commute in’ factor derived from NTS to account for three-legged tours; and
- Outbound and inbound matrices combined by time period.

The sector controls were then applied at time period level for all trips to, from or within Great Yarmouth district. This restriction was to avoid adding an excess of external trips for just one user class which were not in the background matrices to begin with.

#### 7.4.5 *Phase 4 - Trip length and purpose control for Business and Other*

Since the magnitude of the commute components were adjusted by Phase 3, the business and other components were scaled relative to that adjustment to closely match NTS purpose splits derived for Norfolk. Since the distribution of the commute components were adjusted by Phase 3, the trip length distributions for business and other were also adjusted to closely match trip length distributions for Norfolk derived from NTS. This was to assure consistency in the range of adjustments applied for the car user classes.

#### 7.4.6 *Phase 5 – Conversion to Peak Hour*

Peak period to peak hour divisors for AM and PM were derived from the November 2016 ATC data commission; these were 0.370 and 0.419 (3.d.p.) respectively. The inter-peak period was converted to average inter-peak peak hour with a divisor of 0.182 (3.d.p) due to the 5.5 hour duration of the period definition.

### 7.5 **Merging RSI Matrix with Background Matrix**

In order to retain the records highest confidence records in the model, weighting factors were devised to indicate a utilisation ratio between RSI/TMOD data and background data for each sectoral movement. Movements between sectors where there was a good sample from the RSI/TMOD data largely retained the RSI/TMOD records in favour of background records (with a ratio of 80/20). For movements between sectors where the likelihood of the trip passing through an RSI site is lower, an even split was taken between RSI/TMOD and the background matrices. The target proportion was a minimum of 60% 'new' data (RSI/TMOD) to be retained overall for sector to sector movements where an RSI trip could logically be observed, which was achieved across each time period (63% for AM, 62% for IP and PM).

A PCU factor of 2.3 was calculated from the ratio of OGV1 to OGV2 factors, taken as 1.9 and 2.9 respectively, according to MCC values across all four sites.

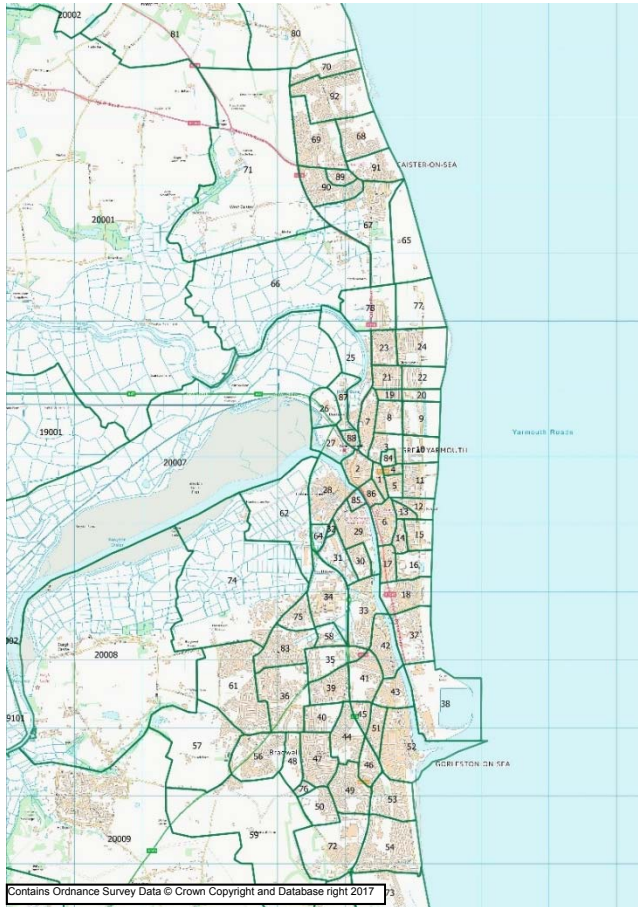
### 7.6 **Great Yarmouth Zone Disaggregation**

#### 7.6.1 *Existing Zone Disaggregation*

The original model had a total of 227 zones with the Great Yarmouth area covered in some detail shown in Figure 7-8.



Figure 7-8 Peak Period Definition Adjustment Overview

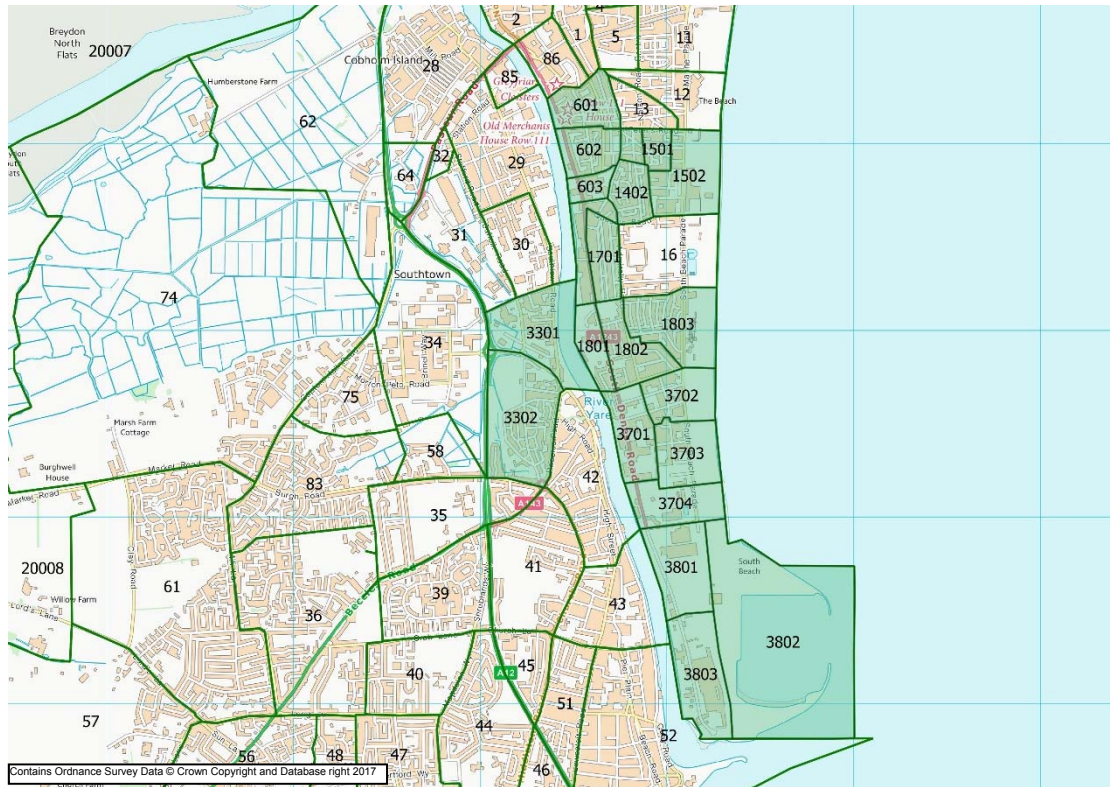


Prior to beginning model calibration a further review of model zones within the area of impact was undertaken taking into account the following zone attributes:

- Zone size and proximity to scheme;
- Mix of land use types;
- Network density; and
- Location of traffic counts/ surveys.

Following this process zones 6, 14, 15, 17, 18, 33, 37 and 38 were identified as zones which should be split. The splitting applied is shown in Figure 7-9.

Figure 7-9 Peninsula Zone Splits



This decision was based on the zones' close proximity to the scheme, the mix of land uses which fall within the zone (residential and employment) and the location at which these different land uses will load onto the network. Trips in the existing zone were divided between the new zones based on land area.

### 7.6.2 Proposed Development Zones

Fourteen new zones were added to represent proposed future developments (zones numbered 701 to 714). These zones do not include any trips during the base year and will not influence the base year assignments. The forecast development trips to be added to these zones will be described in the Traffic Forecasting Report.

## 7.7 Prior Matrix Composition

The resultant prior assignment matrices have been developed from the methods detailed above. They demonstrate the following composition.

Table 7-10 Prior Matrix Composition

Geographical Area	Data Type	Data Content	AM Peak		Inter-Peak		PM Peak	
			Total	%	Total	%	Total	%
<i>Cross River Traffic</i>	<b>Observed</b>	Expanded RSI Census JTW	2,480	71%	1,884	59%	2,612	69%
	<b>Synthesised</b>	Other, EB	724	21%	1,049	33%	917	24%
	<b>Updated</b>	GV	301	9%	235	7%	243	6%
<b>SUB TOTAL</b>			3,505		3,168		3,772	
<i>Total Matrix</i>	<b>Observed</b>	Expanded RSI Census JTW	6,842	44%	3,724	27%	6,357	39%
	<b>Synthesised</b>	Other, EB	6,615	43%	8,463	60%	8,069	50%
	<b>Updated</b>	GV	1,961	13%	1,822	13%	1,763	11%
<b>TOTAL</b>			15,418		14,009		16,189	

For the main focus of the model, cross river traffic, a robust observed dataset is available covering upwards of 60% of traffic. Synthesised data or data updated from the 2008 model remains a small proportion of the total, although this content is increased over the entire modelled area. Nevertheless it is clear that the proposed scheme can be evaluated through the focus of new data.

As GV was the only component of the demand derived from the original model (albeit updated based on growth and land use) an additional sense check of LGV and HGV zonal volumes is included in Appendix C. Distribution and trip length are plausible and appropriate for Great Yarmouth.

## 7.8 Use of 2008 Data

A number of elements have been used from the Great Yarmouth 2008 model. HBW trips have been projected forward. However these trips have been controlled to reflect updated Census JTW patterns using MSO zonal aggregations. Hence this has removed an element of uncertainty.

GV volumes have also been used however updated based on NRTF has been undertaken and a sense check on outputs produced.

Reporting of the original 2008 model used as a basis to project this latter element is included in Appendix D.

## 8 Network Calibration & Validation

### 8.1 Introduction

The process of model calibration is effectively continuous throughout the model building process but the step from network building to network calibration occurs with the loading of trip matrices to the network. Neither the networks nor the matrices are at this stage the 'final product' and many refinements take place following these initial assignments.

### 8.2 Network Calibration

Initial assignments using the 'prior' synthetic matrices revealed a number of network related issues which were addressed in this calibration stage. Areas of the network were targeted that were shown to have poor validation against count data. In many of these instances the coding was not 'wrong' as such, it reflected the real world layout and the standard coding practice set out in section 6 of this report. However this standard set of attributes do not always provide an adequate representation of the unique local characteristics which dictate highway capacity. Table 8-1 provides a summary of the network calibration which took place to improve the model's representation of local conditions:

Table 8-1 Network calibration changes

Network Characteristic	Description
Link Speed	Network speeds were reviewed following comparisons of modelled and observed flows. Where modelled flows were found to vary from the observed flow, link speeds were reviewed to gauge whether speed could be influencing flow. Speed is a particularly important factor when judging the relative attractiveness of competing routes. Link speeds were changed when the quality of two competing routes were similar but the modelled free flow speeds had been coded with different values.
Saturation Flow	Saturation flows are initially coded with the standards set out in section 6. These flows were generally changed in calibration when a count was available and model flows differed from the observation. Changes are often made to reflect local conditions which are not necessarily picked up by the generic standards used in the network build, examples include reduced saturation flow for very short flares or narrow lanes, poor visibility etc.
Number of lanes	The number of approach lanes at junctions were reviewed at junctions where large delays occurred or there was only very limited capacity for movements from minor arms or opposed right turns. Although there is now an option to explicitly model flared approaches to junctions this function was not available in older versions of SATURN including the version used to build the original network. This means that in the past a coder would often have to make a decision to under-represent or over-represent capacity by excluding or including short flare lanes and right turn pockets coded as full lanes. With additional count data now available it became evident that too much or too little capacity had been provided at certain junctions. This can become an issue in SATURN if not enough capacity is provided causing excessive queues to form and leading to blocking back, which in turn leads to model instability and convergence issues.  Where large queues and delays formed in assignments, node coding was checked against junction layouts including number of lanes and turn allocations in satellite images.
GAP times	At a small number of junctions GAP times were altered to allow for increased capacity on minor arms or opposed movements. These changes were made when insufficient capacity was available for model flow to meet observed count data.

### 8.3 Network Validation

Further network checks at the validation stage were based on journey time data and included:

- Checks on delays at junctions;
- Checks on speed-flow curves to ensure that they reflect the existing situation;
- Checks to ensure that link speeds reflect speed limits, road quality and are relative to other similar and / or competing routes.
- Checks to ensure that vehicle routeings are realistic.

Where required coding refinements were undertaken similar to those at the calibration stage.

The checks undertaken are described in Appendix E.

## 9 Matrix Calibration & Validation

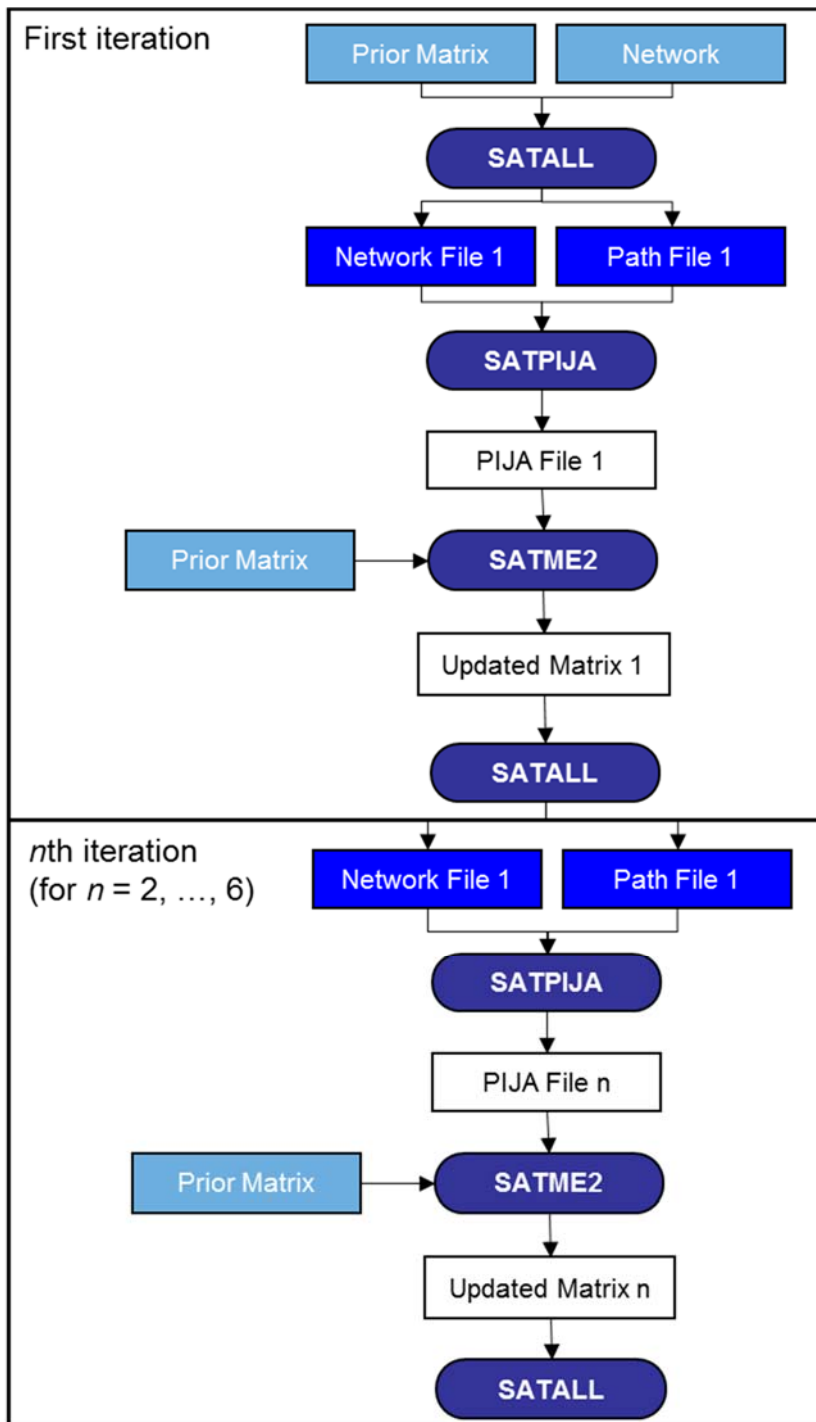
### 9.1 Introduction

This section of the report explains the process involved in validating the trip matrix including matrix estimation. Before running matrix estimation, checks were undertaken on the prior matrix at a screenline level, matrix estimation followed these checks.

### 9.2 Matrix Estimation Methodology

The matrix estimation process employed as part of the calibration process is designed to refine the travel patterns using the observed traffic counts. Trips are adjusted in the matrix to produce the estimated matrix, which is most likely to be consistent with the traffic counts. The matrix of trips input to matrix estimation is known as the prior matrix, while the output matrix from matrix estimation is known as the post matrix. The calibration process has used matrix estimation procedures as contained in the SATME2 program in the SATURN suite of software. The process of the Matrix Estimation employed within SATURN is illustrated in Figure 10-1 below.

Figure 9-1 Matrix Estimation Process in SATURN



SATME2 requires a PIJA file which represents the proportion (P) of trips between a particular origin-destination pair (IJ) which uses the counted link (A). The PIJA data is obtained through the program SATPIJA following a SATURN assignment using the SAVEIT option.

This produces PIJA output files for each user class which are used by SATME2 along with the prior matrix to produce an updated 2016 estimated highway demand matrices which were then combined into a 'stacked' estimated matrix for assignment.

Cells passing through RSI observed sites were frozen to limit changes to those areas of the matrix with lesser confidence.

Matrix estimation often involves an iterative process, where the first post matrix is assigned to the network and is used to update assignment costs, creating a new set of PIJA factors to create a second post matrix. This process can continue to be repeated, updating assignment costs but retaining the original prior matrix each time to prevent undue distortion of observed trip patterns.

The benefit of this approach is that the post matrix will contain a better representation of the PIJA factors on counted links than the prior matrix assignment, which should result in an improved post matrix the second time around. Further iterations can be undertaken to further improve the ‘goodness-of-fit’ to the Prior matrices.

For the calibration of the GYTM base year traffic model, it was decided that 6 Matrix Estimation loops would be sufficient to produce an improved goodness of fit to the prior matrices. There are no specific convergence criteria for matrix estimation, but the aim of the procedure is to improve the goodness of fit between modelled flows and counts. The parameters that were adopted for the Matrix Estimation within SATURN are listed in Table 9-1 below.

Table 9-1 Parameters Used for Matrix Estimation

Parameter	Description	Value
XAMAX	The maximum balancing factor to be applied to avoid large changes to the prior matrix. (The minimum balancing factor is taken as the inverse)	5.00
EPSILN	The convergence criteria for the difference between individual observed counts and their respective model flow.	0.001
ITERMX	The maximum number of iterations that will be run to achieve convergence.	99

### 9.3 Matrix Calibration

Matrix estimation was undertaken using selected traffic counts in the calibration count set.

The change in the matrix totals by each user class is summarised in Table 9-2 below.

Table 9-2 Changes in Matrix Totals due to ME

User Class	AM Peak		Inter-Peak		PM Peak	
	Prior	PostME	Prior	PostME	Prior	PostME
Business	830	868	944	950	831	895
%Change		4.62%		0.68%		7.63%
Commute	4,870	5,114	1,457	1,507	4,357	4,605
%Change		5.00%		3.44%		5.68%
Other	7,054	7,895	9,281	9,967	8,759	10,082



User Class	AM Peak		Inter-Peak		PM Peak	
	Prior	PostME	Prior	PostME	Prior	PostME
%Change		11.92%		7.39%		15.12%
LGV	2,175	2,453	1,901	1,875	1,963	2,093
%Change		12.78%		-1.37%		6.61%
HGV	1124	1318	978	1,249	642	745
%Change		17.25%		27.67%		16.12%
<b>Totals</b>	<b>16,054</b>	<b>17,648</b>	<b>14,562</b>	<b>15,549</b>	<b>16,552</b>	<b>18,420</b>
%Change		<b>9.93%</b>		<b>6.78%</b>		<b>11.29%</b>

The results of the statistical analysis of the prior and post matrix estimation matrices for both AM, IP and PM are presented below, against the relevant TAG criteria.

### 9.3.1 Matrix Zonal Cell Values

Table 9-1 states the guidance for significance criteria regarding matrix zonal cell value changes during the matrix estimation process, as defined in Table 5 of TAG Unit M3.1.

Table 9-3: Matrix Estimation Effects, TAG Criteria - Matrix Zonal Cell Values.

Measure	Significance Criteria
matrix zonal cell values	Slope within 0.98 and 1.02 intercept near zero R <sup>2</sup> in excess of 0.95

Table 9-2 shows the outcome of regression analysis of the post matrix estimation and prior matrices, at the zonal cell level for the AM and PM models.

Table 9-4: Regression Statistics - Matrix Zonal Cell Values, AM Peak and PM Peak Models.

Measure	AM	IP	PM
Slope	0.7086	0.8583	0.8053
Intercept	0.7278	0.2764	0.5986
R <sup>2</sup>	0.4784	0.6579	0.5746

Comparison of the regression output against TAG indicates that the validated matrix does not meet the criteria for changes in matrix zonal cell values. This is an indication that the Origin-Destination (O-D) data used in the prior matrices are not sufficiently comprehensive. This is considered to be acceptable for an interim model, but subsequent model updates will require more comprehensive O-D data.

### 9.3.2 Trip Length Distributions

Table 9-3 states the guidance for measuring the effects of matrix estimation on trip lengths as defined in DfT TAG.

Table 9-5: Matrix Estimation Effects, TAG Criteria - Trip Length Distribution

Measure	Significance Criteria
Trip Length Distribution	Means within 5%

Table 9-6 shows mean trip length in the prior and post matrix estimation assignments for all vehicle types. The difference between the prior and post ME assignments are less than 5% and are therefore well within the criteria set out within TAG.

Table 9-6: Mean Trip Length

Measure	AM	IP	PM
Mean Trip Length Prior (km)	17.93	15.42	16.36
Mean Trip Length Post (km)	16.26	14.06	15.55
% Difference between means	-9.3%	-8.8%	-4.9%

### 9.3.3 Matrix Zonal Trip Ends

Table 9-7 states the guidance for significance criteria regarding matrix zonal trip end changes during the matrix estimation process, as defined in DfT TAG.

Table 9-7: Matrix Estimation Effects, TAG Criteria - Matrix Zonal Trip Ends.

Measure	Significance Criteria
matrix zonal trip ends	Slope within 0.99 and 1.01 intercept near zero R <sup>2</sup> in excess of 0.98

Table 9-8 shows the outcome of regression analysis of the post matrix estimation and prior matrices, at the zonal trip end level for the AM Peak, Inter-Peak and PM Peak models.

Table 9-8: Regression Statistics - Matrix Zonal Trip Ends, AM Peak and PM Peak Models.

Trip End	Measure	AM	IP	PM
Origin	Slope	0.9859	1.0025	1.0444
Origin	Intercept	7.0885	3.3260	4.5499
Origin	R <sup>2</sup>	0.9114	0.9056	0.9240
Destination	Slope	0.9741	1.0525	1.0475
Destination	Intercept	7.8494	0.4132	4.3414
Destination	R <sup>2</sup>	0.9031	0.9175	0.9362

Comparison of the regression output against TAG indicates that criteria for changes in matrix zonal trip end values are not satisfied. This is an indication that the O-D data used in the prior matrices are not sufficiently comprehensive. This is considered to be acceptable for an interim model, but subsequent model updates will require more comprehensive O-D data.

### 9.3.4 Sector-to-Sector Matrices

Table 10-7 shows the TAG significance criteria for the comparison of prior and post matrix estimation sector-to-sector matrices. Comparisons of pre- and post- ME matrices at sector level are given in Appendix F.

Table 9-9: Matrix Estimation Effects, TAG Criteria - Sector-to-Sector Matrices.

Measure	Significance Criteria
sector to sector level matrices	difference within 5%

The sector system contained in Table 9-10 and based on district boundaries has been used in this analysis.

Table 9-10 Sector System

Sector Number	Area Covered
1	Gt Yarmouth Centre
2	Gt Yarmouth Peninsula
3	Yarmouth West of River Yare
4	Norwich
5	Caister on Sea
6	Rest of the UK

The following show the percentage change in sector to sector movements for the three time periods

Table 9-11: % Change Sector to Sector Movements (AM Peak)

Sectors							
	1	2	3	4	5	6	Total
1	27.1%	31.0%	92.9%	-5.7%	-12.6%	5.5%	<b>27.4%</b>
2	61.8%	28.8%	15.5%	-40.1%	29.0%	-25.4%	<b>12.3%</b>
3	56.5%	37.6%	14.7%	-7.1%	-16.0%	0.4%	<b>14.7%</b>
4	-48.1%	-23.4%	7.4%	0%	16.2%	30.0%	<b>-5.8%</b>
5	26.4%	22.1%	-3.5%	-12.7%	0.0%	-0.4%	<b>6.6%</b>
6	22.4%	0.3%	-6.4%	-10.3%	12.0%	-3.7%	<b>-1.1%</b>
Total	<b>30.8%</b>	<b>18.9%</b>	<b>10.8%</b>	<b>-13.2%</b>	<b>2.8%</b>	<b>-2.4%</b>	<b>9.6%</b>

Table 9-12: % Change Sector to Sector Movements (Inter-Peak)

Sectors							
	1	2	3	4	5	6	Total
1	2.9%	67.4%	43.6%	-43.2%	3.9%	-6.3%	<b>17.0%</b>
2	43.1%	30.3%	5.8%	-3.1%	17.6%	-17.8%	<b>11.4%</b>
3	32.5%	41.9%	3.2%	17.7%	11.6%	9.0%	<b>9.0%</b>
4	-59.6%	-24.7%	10.8%	0%	-6.3%	-4.0%	<b>-8.3%</b>
5	-15.4%	23.2%	28.6%	-8.3%	-3.2%	-10.5%	<b>-2.0%</b>
6	-26.3%	-11.2%	8.0%	-5.6%	-7.7%	-15.6%	<b>-4.8%</b>
Total	<b>4.3%</b>	<b>25.9%</b>	<b>7.1%</b>	<b>-3.8%</b>	<b>1.1%</b>	<b>-4.0%</b>	<b>6.0%</b>

Table 9-13: % Change Sector to Sector Movements (PM Peak)

Sectors							
	1	2	3	4	5	6	Total
1	26.5%	55.3%	37.3%	-20.2%	2.5%	-11.4%	<b>18.5%</b>
2	113.7%	69.7%	-1.2%	18.9%	-8.9%	-13.0%	<b>20.2%</b>
3	59.9%	15.9%	11.5%	8.1%	65.4%	4.9%	<b>13.1%</b>
4	-17.6%	7.7%	38.0%	0%	10.1%	3.0%	<b>16.4%</b>
5	-4.6%	4.6%	-22.4%	6.8%	-4.5%	-2.0%	<b>-4.1%</b>
6	-23.1%	-38.4%	20.4%	6.1%	-3.3%	3.5%	<b>2.5%</b>
Total	<b>31.6%</b>	<b>17.7%</b>	<b>14.2%</b>	<b>4.5%</b>	<b>4.8%</b>	<b>-0.1%</b>	<b>11.2%</b>

As can be seen in tables 9-11, 9-12 and 9-13, the changes in sector to sector movements are greater than the TAG criteria. The total trips have changed by between 6% and 11%, but some individual sectors change significantly more than this.

Other than RSI data, additional movement sources in the model include Census JTW and synthetic interpretation of other trip purposes in proportion to the commute data. In addition a limited amount of GV data has been employed from the original 2008 MM model. As these sources are not recently observed (although they have been updated) and are also effectively synthetic the matrix requires some level of change to match targets. As the blend of data across RSI (observed) scenelines is not 100% survey data then there are also some changes to these movements.

Whilst a number of cells exceed the recommended change threshold of 5% they are for the greater part related to change in the “Other” trip purpose. GV changes are limited and do not present an issue. This is highlighted in Appendix F.

Detail of matrix sector changes are presented by trip purpose. To overcome percentage changes on low flow volumes a sector GEH table of differences pre and post estimation has been prepared. The vast majority of sector changes in Business and Commute purposes are less than GEH 5. The Other trip purpose is more

variable. The main bridge users will be between sectors 1,2 and 3,6. An abstract tabulation of GEH values is presented below.

Table 9-14: Cross River Movements by Time Period and Purpose

	Origin	Cent	Cent	Pen	Pen	West	UK	West	UK
	Destin	West	UK	West	UK	Cent	Cent	Pen	Pen
AM	Business	1.7	0.0	0.7	0.7	1.8	0.6	0.2	0.2
	Commute	6.2	0.5	0.9	4.6	5.2	2.5	4.4	1.4
	Other	8.6	0.4	1.4	1.6	5.1	2.1	5.4	1.5
IP	Business	0.7	1.4	1.2	1.0	0.9	2.8	1.7	0.9
	Commute	2.6	0.7	0.3	1.7	0.0	2.1	0.8	2.8
	Other	6.3	2.2	1.2	3.6	4.3	5.2	7.3	0.0
PM	Business	0.7	1.3	0.7	1.4	2.0	1.5	1.2	3.8
	Commute	2.9	3.1	1.6	2.9	3.8	3.0	1.5	8.6
	Other	4.4	1.9	1.4	1.6	7.9	3.1	2.9	3.7

As indicated above

- The majority of sector movements are acceptable; and
- In the cases where GEH exceeds 5 most issues arise in the “Other” category

# 10 Assignment Calibration & Validation

## 10.1 Assignment Calibration

### 10.1.1 Link Flow Validation

The following section presents details of screenline and link flow validation for the prior and post matrix estimation assignments for all vehicle types. Table 10-1 and Table 10-2 show the percentage of counts meeting link flow acceptability criteria as set out in TAG Unit M3-1 Table 2.

Table 10-1 Prior Matrix Estimation Validation Statistics

Period	Count Type	Number of Counts	Criteria 1: Flow	Criteria 2: GEH
<b>AM</b>	Calibration	177	75%	63%
	Validation	57	82%	60%
	All counts	234	76%	62%
<b>IP</b>	Calibration	177	78%	65%
	Validation	57	75%	56%
	All counts	234	77%	63%
<b>PM</b>	Calibration	177	73%	62%
	Validation	57	75%	63%
	All counts	234	74%	62%

Table 10-2 Post Matrix Estimation Validation Statistics

Period	Count Type	Number of Counts	Criteria 1: Flow	Criteria 2: GEH
<b>AM</b>	Calibration	177	99%	93%
	Validation	57	93%	79%
	All counts	234	97%	90%
<b>IP</b>	Calibration	177	99%	95%
	Validation	57	95%	82%
	All counts	234	98%	92%
<b>PM</b>	Calibration	177	98%	97%
	Validation	57	82%	81%
	All counts	234	94%	93%

Following matrix estimation the majority of counts validate to an acceptable level.

Appendix G provides a more detailed set of statistics for individual links and by vehicle class.

### 10.1.2 Screenline Validation

The following table presents a summary of post-matrix estimation model validation at a screenline level for AM peak, inter-peak and PM peak periods.

Table 10-3 AM Peak Screenlines

Screenline / Direction	Observed flow	Modelled flow	Difference	% Difference	GEH
01 RSI Peninsula NB	587	593	6	1%	0.2
01 RSI Peninsula SB	924	933	8	1%	0.3
02 River Yare EB	2,379	2,438	59	2%	1.2
02 River Yare WB	2,121	2,113	-8	0%	0.2
03 Fuller's Hill/ St Nicholas Road NB	1,296	1,314	17	1%	0.5
03 Fuller's Hill/ St Nicholas Road SB	2,290	2,241	-49	-2%	1.0
04 Newtown NB	1,067	1,028	-38	-4%	1.2
04 Newtown SB	2,164	2,062	-102	-5%	2.2
05 North Of Town Inbound	2,384	2,378	-6	0%	0.1
05 North Of Town Outbound	1,375	1,384	9	1%	0.2
06 Outer Cordon Inbound	4,524	4,486	-38	-1%	0.6
06 Outer Cordon Outbound	3,071	3,081	9	0%	0.2
07 East Of A12 EB	2,579	2,706	127	5%	2.5
07 East Of A12 WB	2,066	1,976	-90	-4%	2.0

Screenline / Direction	Observed flow	Modelled flow	Difference	% Difference	GEH
08 North Of Beccles Road (east Of A12) EB	1,220	1,242	22	2%	0.6
08 North Of Beccles Road (east Of A12) WB	1,281	1,292	11	1%	0.3

Table 10-4 Inter-Peak Screenlines

Screenline / Direction	Observed flow	Modelled flow	Difference	% Difference	GEH
01 RSI Peninsula NB	700	709	9	1%	0.3
01 RSI Peninsula SB	640	651	11	2%	0.4
02 River Yare EB	1,969	2,027	58	3%	1.3
02 River Yare WB	1,979	1,970	-9	0%	0.2
03 Fuller's Hill/ St Nicholas Road NB	1,423	1,334	-89	-6%	2.4
03 Fuller's Hill/ St Nicholas Road SB	1,386	1,381	-6	0%	0.2
04 Newtown NB	1,433	1,441	8	1%	0.2
04 Newtown SB	1,399	1,397	-2	0%	0.0
05 North Of Town Inbound	1,508	1,507	0	0%	0.0
05 North Of Town Outbound	1,549	1,590	41	3%	1.0
06 Outer Cordon Inbound	2,970	2,983	12	0%	0.2
06 Outer Cordon Outbound	3,043	3,068	24	1%	0.4
07 East Of A12 EB	2,142	2,123	-19	-1%	0.4
07 East Of A12 WB	2,003	2,006	4	0%	0.1



Screenline / Direction	Observed flow	Modelled flow	Difference	% Difference	GEH
08 North Of Beccles Road (east Of A12) EB	1,108	1,134	25	2%	0.8
08 North Of Beccles Road (east Of A12) WB	1,011	1,020	8	1%	0.3

Table 10-5 PM Peak Screenlines

Screenline / Direction	Observed flow	Modelled flow	Difference	% Difference	GEH
01 RSI Peninsula NB	1,016	1,003	-13	-1%	0.4
01 RSI Peninsula SB	565	576	10	2%	0.4
02 River Yare EB	2,299	2,357	58	3%	1.2
02 River Yare WB	2,213	2,256	43	2%	0.9
03 Fuller's Hill/ St Nicholas Road NB	2,427	2,374	-52	-2%	1.1
03 Fuller's Hill/ St Nicholas Road SB	1,459	1,512	54	4%	1.4
04 Newtown NB	2,120	2,092	-27	-1%	0.6
04 Newtown SB	1,177	1,145	-32	-3%	0.9
05 North Of Town Inbound	1,595	1,610	15	1%	0.4
05 North Of Town Outbound	2,147	2,157	10	0%	0.2
06 Outer Cordon Inbound	3,477	3,484	7	0%	0.1
06 Outer Cordon Outbound	4,459	4,464	6	0%	0.1
07 East Of A12 EB	2,376	2,283	-92	-4%	1.9
07 East Of A12 WB	2,451	2,537	86	4%	1.7
08 North Of Beccles Road (east Of A12) EB	1,468	1,466	-2	0%	0.0
08 North Of Beccles Road (east Of A12) WB	1,203	1,160	-42	-4%	1.2

Only 1 of 42 screenline flow comparisons falls outside of the WebTAG guidance (within 5%). The errant screenline is 1% over the target to the north of the town centre in the Inter-Peak. It has little implication for cross River Yare traffic.

### 10.1.3 Modelled flow plots

The following plots show the modelled traffic flows in some key locations.

Figure 10-1 AM Peak Modelled Flow (Vehicles)



Figure 10-2 Inter-Peak Modelled Flows (Vehicles)

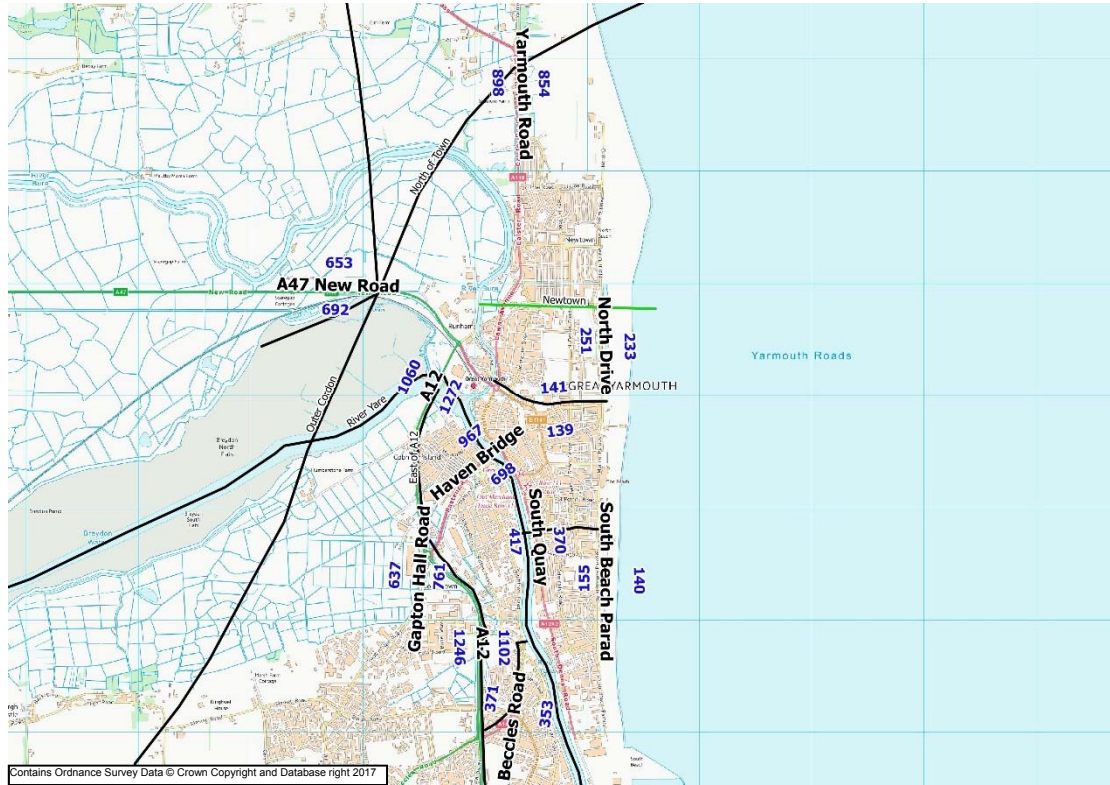


Figure 10-3 PM Peak Modelled Flows (Vehicles)



### 10.1.4 Flow comparison plots

The following plots compare modelled flows with observed flows for each modelled period and are useful to illustrating the absolute difference in modelled and observed flow. The thickness of the line is used to indicate the difference.

Figure 10-4 Link Flow Validation - AMPeak

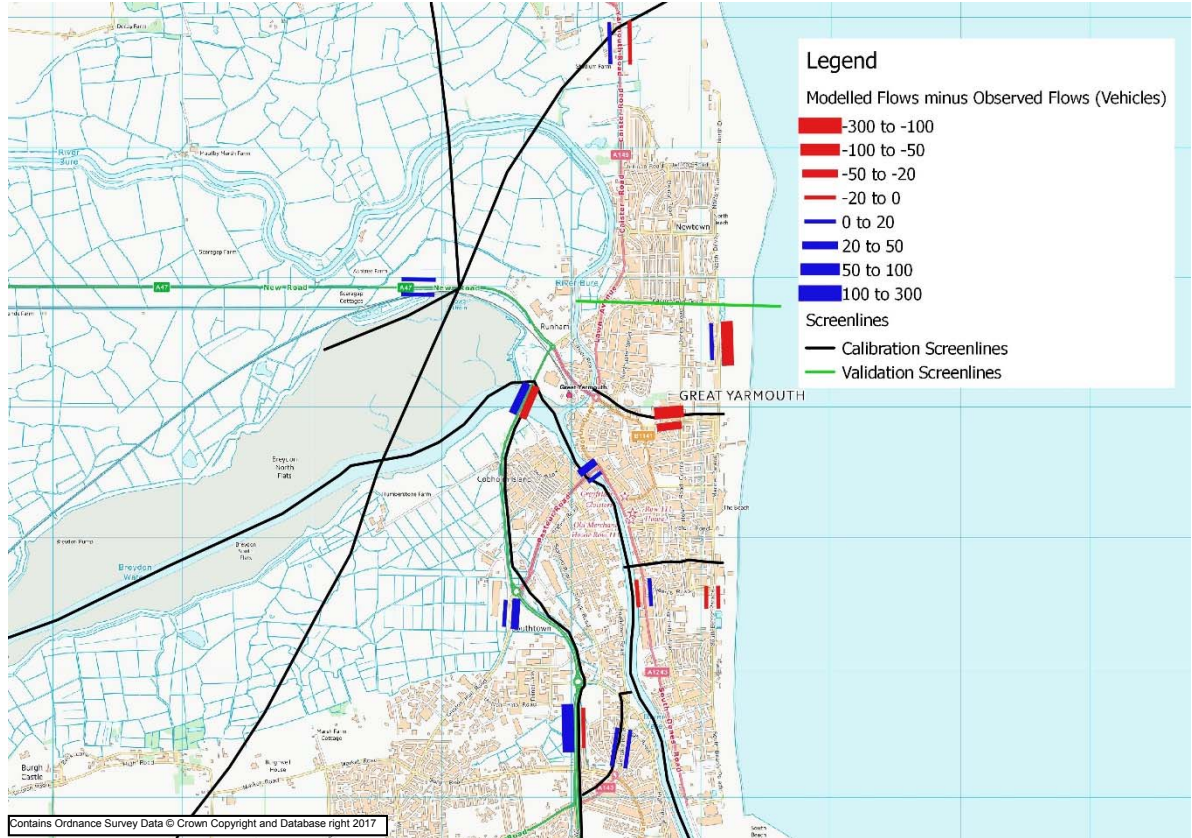


Figure 10-4 Link Flow Validation - Inter-Peak

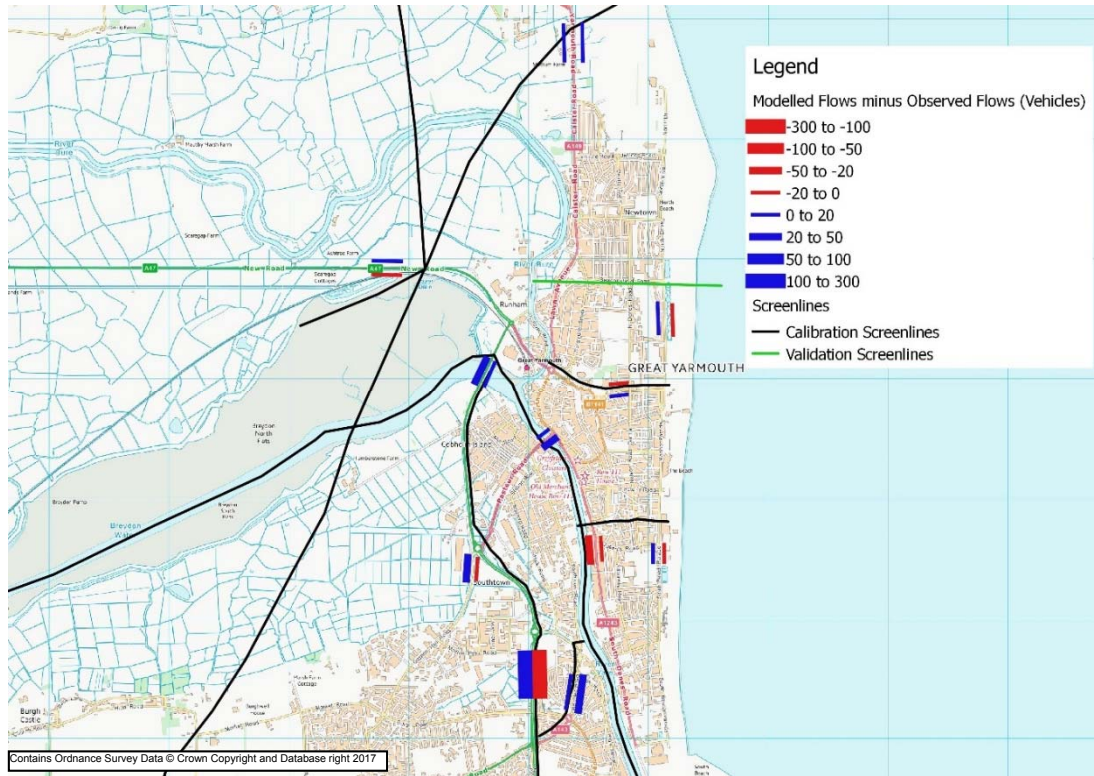
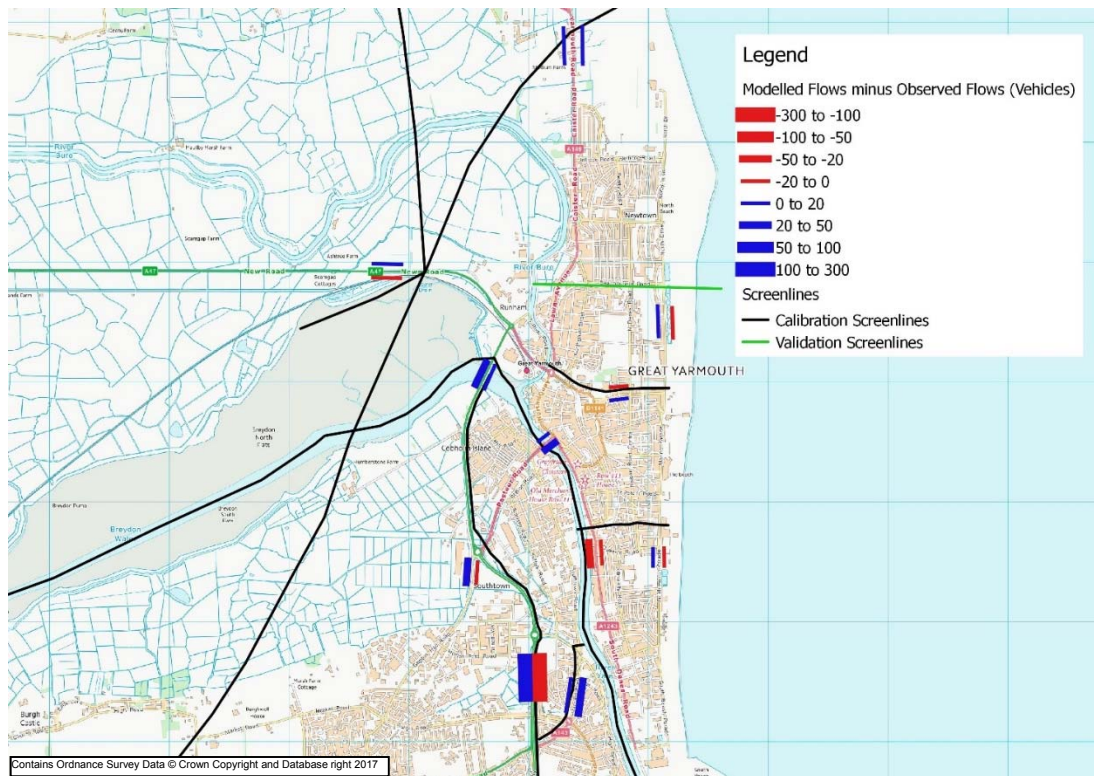


Figure 10-5 Link Flow Validation - PM Peak



## 10.2 Assignment Journey Time Validation

Table 10-6, Table 10-7 and Table 10-8 present results for the journey time validation for the routes set out in section 5.7.

Table 10-6 Journey time results - AM Peak

Route	Description	Observed Time (minutes)	Modelled Time (minutes)	Percentage Difference	TAG Acceptability
1 NB	A149 from Fuller's Hill Roundabout to Main Road Roundabout	00:06:58	00:07:18	4.9%	√
1 SB	A149 from Main Road Roundabout to Fuller's Hill Roundabout	00:08:03	00:08:20	3.6%	√
2 EB	A47 from Branch Road junction to Fuller's Hill Roundabout	00:13:37	00:08:39	-36.5%	X
2 WB	A47 from Fuller's Hill Roundabout to Branch Road junction	00:10:39	00:07:45	-27.1%	X
3 NB	A12 from Beaufort Way Roundabout to A47 Roundabout	00:09:06	00:09:37	5.6%	√
3 SB	A12 from A47 Roundabout to Beaufort Way Roundabout	00:07:58	00:08:32	7.2%	√
4 NB	Blackbird close/Gapton Hall Road/Pasteur Road from Mill Lane to A12 Roundabout	00:09:23	00:09:37	2.5%	√
4 SB	Blackbird close/Gapton Hall Road/Pasteur Road from A12 Roundabout to Mill Lane	00:08:55	00:07:42	-13.7%	√
5 CW	Peninsular Clockwise from A47 roundabout via South Beach Parade/A1243/B1141	00:14:38	00:12:43	-13.1%	√
5 ACW	Peninsular Anticlockwise from A47 roundabout via South Beach Parade/A1243/B1141	00:14:49	00:12:54	-13.0%	√
6 NB	A143 Beccles Road from Long Lane to Southtown A12 Roundabout	00:05:53	00:05:38	-4.0%	√

Route	Description	Observed Time (minutes)	Modelled Time (minutes)	Percentage Difference	TAG Acceptability
6 SB	A143 Beccles Road from Southtown A12 Roundabout to Long Lane	00:06:06	00:06:21	4.0%	√
7 NB	Middleton Road/Southdown Road from A12 Roundabout to Pasteur Road	00:07:54	00:09:25	19.0%	X
7 SB	Middleton Road/Southdown Road from Pasteur Road to A12 Roundabout	00:08:56	00:08:31	-4.7%	√
8 NB	Gorleston Lowestoft Road/ High Street from A12 Roundabout to Pasteur Road	00:04:12	00:05:10	23.0%	√
8 SB	Gorleston Lowestoft Road/ High Street from Pasteur Road to A12 Roundabout	00:05:24	00:04:50	-10.5%	√

Table 10-7 Journey time results - Inter Peak

Route	Description	Observed Time (minutes)	Modelled Time (minutes)	Percentage Difference	Meets TAG?
1 NB	A149 from Fuller's Hill Roundabout to Main Road Roundabout	00:06:27	00:07:33	17.1%	X
1 SB	A149 from Main Road Roundabout to Fuller's Hill Roundabout	00:06:35	00:07:37	15.8%	X
2 EB	A47 from Branch Road junction to Fuller's Hill Roundabout	00:07:47	00:07:50	0.6%	√
2 WB	A47 from Fuller's Hill Roundabout to Branch Road junction	00:07:42	00:07:45	0.6%	√
3 NB	A12 from Beaufort Way Roundabout to A47 Roundabout	00:07:56	00:08:02	1.3%	√
3 SB	A12 from A47 Roundabout to Beaufort Way Roundabout	00:07:34	00:08:06	7.1%	√
4 NB	Blackbird close/Gapton Hall Road/Pasteur Road from Mill Lane to A12 Roundabout	00:08:20	00:08:45	5.0%	√

Route	Description	Observed Time (minutes)	Modelled Time (minutes)	Percentage Difference	Meets TAG?
4 SB	Blackbird close/Gapton Hall Road/Pasteur Road from A12 Roundabout to Mill Lane	00:08:01	00:07:31	-6.1%	√
5 CW	Peninsular Clockwise from A47 roundabout via South Beach Parade/A1243/B1141	00:14:17	00:13:03	-8.6%	√
5 ACW	Peninsular Anticlockwise from A47 roundabout via South Beach Parade/A1243/B1141	00:13:05	00:13:26	2.7%	√
6 NB	A143 Beccles Road from Long Lane to Southtown A12 Roundabout	00:05:24	00:05:08	-5.0%	√
6 SB	A143 Beccles Road from Southtown A12 Roundabout to Long Lane	00:05:04	00:05:46	14.1%	√
7 NB	Middleton Road/Southdown Road from A12 Roundabout to Pasteur Road	00:07:37	00:08:29	11.4%	√
7 SB	Middleton Road/Southdown Road from Pasteur Road to A12 Roundabout	00:08:01	00:07:50	-2.3%	√
8 NB	Gorleston Lowestoft Road/ High Street from A12 Roundabout to Pasteur Road	00:04:46	00:05:28	14.8%	√
8 SB	Gorleston Lowestoft Road/ High Street from Pasteur Road to A12 Roundabout	00:05:47	00:04:56	-14.8%	√

Table 10-8 Journey time results - PM Peak

Route	Description	Observed Time (minutes)	Modelled Time (minutes)	Percentage Difference	Meets TAG?
1 NB	A149 from Fuller's Hill Roundabout to Main Road Roundabout	00:06:46	00:08:49	30.5%	X
1 SB	A149 from Main Road Roundabout to Fuller's Hill Roundabout	00:06:39	00:07:28	12.1%	√



Route	Description	Observed Time (minutes)	Modelled Time (minutes)	Percentage Difference	Meets TAG?
2 EB	A47 from Branch Road junction to Fuller's Hill Roundabout	00:08:53	00:08:39	-2.6%	√
2 WB	A47 from Fuller's Hill Roundabout to Branch Road junction	00:09:25	00:08:09	-13.4%	√
3 NB	A12 from Beaufort Way Roundabout to A47 Roundabout	00:12:20	00:10:34	-14.3%	√
3 SB	A12 from A47 Roundabout to Beaufort Way Roundabout	00:08:43	00:08:51	1.7%	√
4 NB	Blackbird close/Gapton Hall Road/Pasteur Road from Mill Lane to A12 Roundabout	00:09:55	00:09:10	-7.6%	√
4 SB	Blackbird close/Gapton Hall Road/Pasteur Road from A12 Roundabout to Mill Lane	00:12:55	00:07:37	-41.0%	X
5 CW	Peninsular Clockwise from A47 roundabout via South Beach Parade/A1243/B1141	00:15:23	00:13:55	-9.5%	√
5 ACW	Peninsular Anticlockwise from A47 roundabout via South Beach Parade/A1243/B1141	00:13:16	00:13:19	0.4%	√
6 NB	A143 Beccles Road from Long Lane to Southtown A12 Roundabout	00:06:18	00:06:10	-2.2%	√
6 SB	A143 Beccles Road from Southtown A12 Roundabout to Long Lane	00:05:05	00:05:49	14.6%	√
7 NB	Middleton Road/Southdown Road from A12 Roundabout to Pasteur Road	00:08:05	00:09:17	14.9%	√
7 SB	Middleton Road/Southdown Road from Pasteur Road to A12 Roundabout	00:11:07	00:08:02	-27.8%	X
8 NB	Gorleston Lowestoft Road/ High Street from A12	00:04:34	00:05:26	19.2%	√

Route	Description	Observed Time (minutes)	Modelled Time (minutes)	Percentage Difference	Meets TAG?
	Roundabout to Pasteur Road				
8 SB	Gorleston Lowestoft Road/ High Street from Pasteur Road to A12 Roundabout	00:05:42	00:05:09	-9.8%	√

It can be seen that for the AM Peak and Inter-Peak, more than 85% of all journey time routes pass the TAG recommended level of journey time validation, while the PM Peak is only 1 route below achieving the 85%. The journey time validation is shown in detail in Appendix H. Although the journey time validation does not meet the standards set out in TAG guidance on some of the routes, it should be noted that a larger than normal number of routes were selected for validation extending beyond the count cordon used for flow validation.

### 10.3 Model convergence

Table 10-9 presents convergence statistics from the three base year time periods including the iteration loop at which these criteria were all met over four consecutive iterations.

Table 10-9 Great Yarmouth Traffic Model Convergence Statistics

AM Peak			Inter-Peak			PM Peak		
Loop	%Flow	%GAP	Loop	%Flow	%GAP	Loop	%Flow	%GAP
14	99.5	0.0047	15	99.6	0.00071	37	99.6	0.00072
15	99.5	0.0046	16	99.6	0.00065	38	99.6	0.00075
16	99.6	0.0042	17	99.6	0.00058	39	99.6	0.00074
17	99.8	0.0030	18	99.8	0.00054	40	99.6	0.00079

All three time periods converge to a high level within a relatively small number of iterations. This indicates model stability resultant from clear route choice alternatives and will prove beneficial in travel demand forecasting.

# 11 Route Choice Calibration & Validation

## 11.1 Introduction

After the initial route choice checks were undertaken, an analysis of the journey times on the journey time routes was undertaken with the initial matrix. This was to ensure that the model is able to replicate the journey times from Traffic master data.

## 11.2 Route Choice Calibration

During this process, the network model is checked for accuracy and logic in representing route choices between origin and destination pairs, including the ability to respond to congestion effects. Therefore the analyses set out below was undertaken at various stages of the calibration process

- Select link analyses - to assess the validity of trip patterns assigned to the network; and
- Route choice - to assess the logic of assignment path through the analysis of single path trees and multi-routing (forest plots);

These checks were undertaken on important routes or movements in the context of the appraisal.

Where these issues arose, steps were taken to check congestion, delays and network speeds to identify nodes where coding 'errors' were affecting routing.

## 11.3 Route Choice Validation

Following the completion of model calibration a set of strategically important routes and zone pairs were selected based on the criteria set out in paragraph 7.3.1 of TAG Unit M3-1. The zone pairs and routes have therefore been selected with graphical presentation of the route choice.

Table 11-1 Route Choice Cross Checks

Route	Name	Origin	Destination
1	Lowestoft to Peninsula	22004	3702
2	Peninsula to Lowestoft	3702	22004
3	Lowestoft to Yarmouth Centre	22004	1
4	Yarmouth Centre to Lowestoft	1	22004
5	Yarmouth Centre to Caister	1	68
6	Caister to Yarmouth Centre	68	1
7	Norwich to Peninsula	500	3702

Route	Name	Origin	Destination
8	Peninsula to Norwich	3702	500
9	Southtown to Caister	3302	68
10	Caister to Southtown	68	3302
11	Southtown to Northgate	34	7
12	Northgate to Southtown	7	34
13	Southtown to Peninsula	34	603
14	Peninsula to southtown	603	34
15	Peninsula to Northgate	1701	78
16	Northgate to Peninsula	78	1701
17	Peninsula to Chaucer Road	16	24
18	Chaucer Road to Peninsula	24	16
19	Gorleston to Cobholm	51	27
20	Cobholm to Gorleston	27	51

Outputs from this analysis for three time periods are presented as Appendix I to this report.

## 12 Summary and Conclusion

### 12.1 Summary of Development

A SATURN model has been developed to address the traffic forecasting requirements of the GYTRC. The network has been enhanced from an original model of Great Yarmouth and has been fully updated to reflect the latest conditions.,

An observed prior matrix was derived from RSI data which formed a cordon around the main study area and major internal locations. In addition, updated travel demand information for less important areas of the town has been included. The combination of these two datasets created the 2016 base year 'prior' matrices. Matrix estimation was then carried out to produce a final assignment.

### 12.2 Summary of Standards

The base year model validation has been developed closely following TAG M3.1 'Highway Assignment Modelling' guidance (January 2014). The model is shown to satisfactorily converge across all three peaks.

A limited number of matrix changes exceed those commonly anticipated due to the construction method employed for background trip purposes. This has been necessary to achieve good adherence to flow validation.

Screenlines within the model which capture the key strategic movements within the model have been shown to match the observed flows to the modelled flows. Across all three peaks calibration screenlines are shown to achieve an acceptable flow proximity, with the validation screenlines also achieving a high standard.

Link validation is shown to be consistently high in terms of both flow and GEH across all three peaks. Combining the observed counts within calibration and validation, 90% of counts in the AM Peak, 92% of counts in the inter-peak and 93% of counts in the PM peak achieve a GEH of 5 or lower above the minimum threshold of 85%.

Journey time performance exceeds the required standard of 85% of modelled journey time routes being within 15% or 1 minute of the observed data, with >85% of the routes passing the WebTAG guidance in the AM Peak and Inter-Peak and one journey time route less than the 85% threshold passing in the PM Peak.

### 12.3 Summary of Intended Application

The latest 2016 GYTM is deemed appropriate for use in terms of its ability to replicate existing strategic traffic movements within the Area of Detailed Modelling (ADM). The base year model forms a suitable platform from which forecast year models can be developed, creating reference case, do minimum and do something scheme testing.

The model provides the required level of rigour and assurance, including model validation, to underpin robust investment decisions.

## Appendix A: Speed Flow Curves

Great Yarmouth Third River Crossing Traffic Model  
 Local Model Validation Report - Appendices

<b>Index</b>	<b>Description</b>	<b>S0</b>	<b>S2</b>	<b>Capacity</b>	<b>N</b>
10	Single 2-lane (7.3m) TD9	87	45	1640	2.2
11	Single 2-lane (7.3m)	78	45	1380	2.1
12	Typical Single 2-lane (7.3m)	67	45	1010	1.8
13	Poor Single	61	25	1270	2.3
14	Typically Developed Small Town	47	30	880	2.5
15	Country Road	50	40	800	2
17	Country B Road	67	45	1300	1.8
20	Motorway D2	110	45	4360	5
21	Dual Carriageway	78	35	3460	3.3
22	Dual Carriageway	71	35	2540	2
36	Poor Dual Carriageway	64	35	2900	2
79	Urban	40	25	1050	1.4

## Appendix B: Example RSI Form



**Great Yarmouth Third River Crossing Traffic Model  
Local Model Validation Report - Appendices**

GREAT YARMOUTH ROADSIDE INTERVIEW SURVEYS

CHECKED BY   
HR MIN

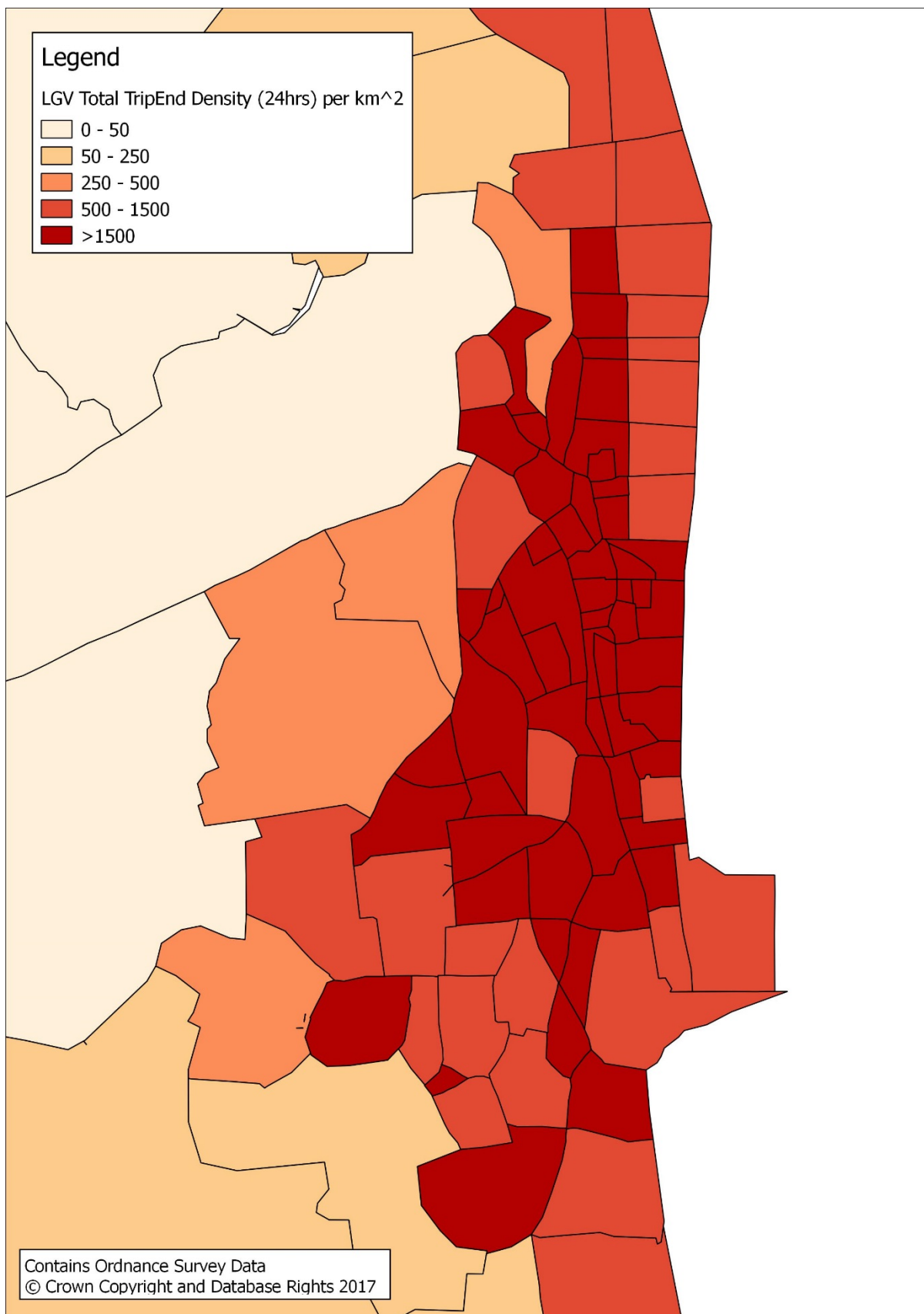
INTERVIEWER \_\_\_\_\_ SITE NUMBER \_\_\_\_\_

TIME - QTR HR BEGINNING

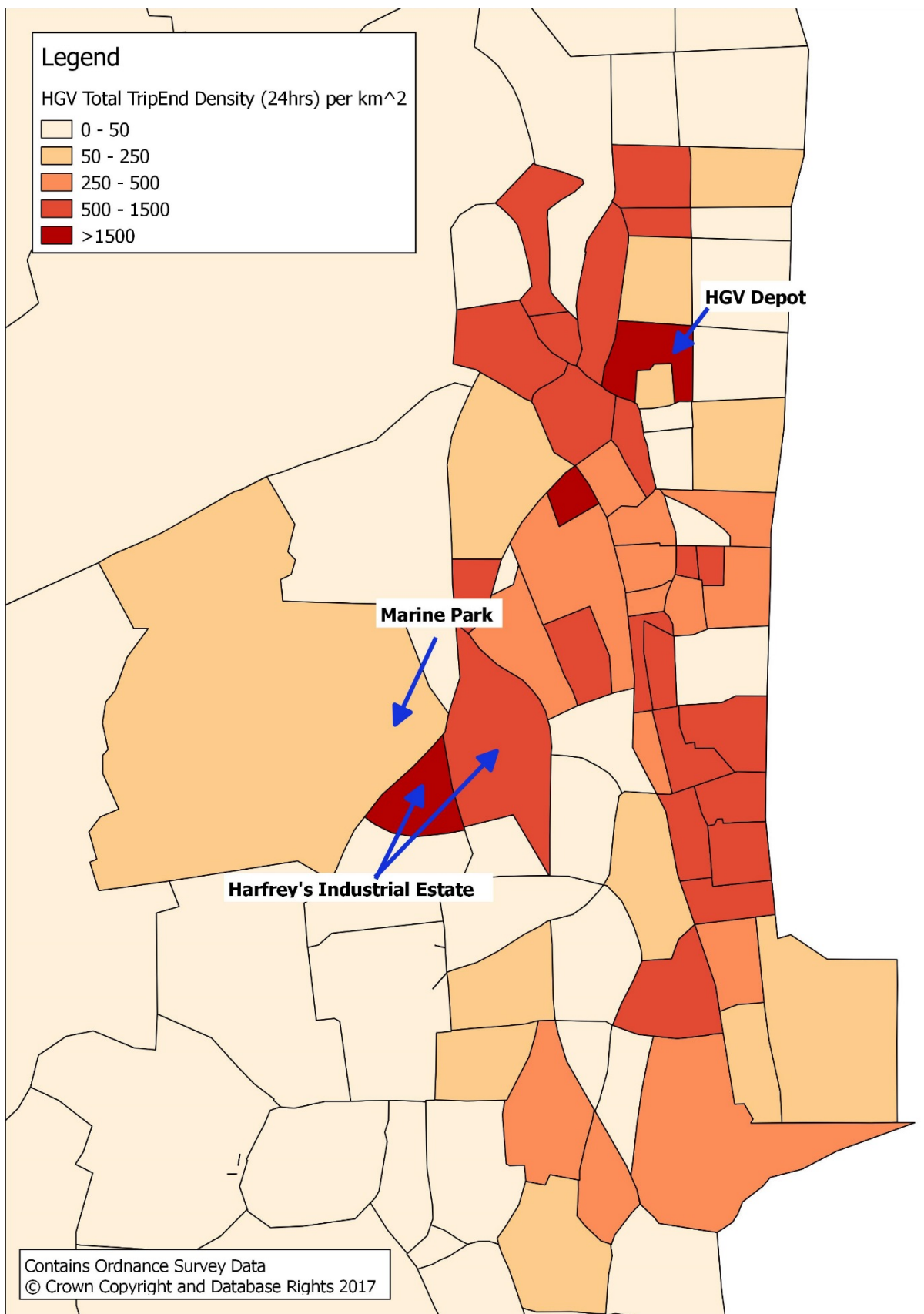
Q1. VEHICLE TYPE	Q2. NO. OCC	Q3. WHERE DID YOU BEGIN THIS TRIP ?	Q4. REASON FOR BEING THERE ?	Q5. WHERE WILL YOU END THE TRIP ?	Q6. REASON FOR GOING THERE ?	Q7. WHERE WILL YOU PARK ?
1 Car 2 LGV/van 3 OGV 1 4 OGV 2 5 Minibus	1 2 3 4 5 6 7 8 9+	(Include Postcode or specify street, shop name etc) Postcode House No./ Business Name Street Town	1 Home 2 Temporary Residence 3 Work 4 Employer's Business 5 Education 6 Shopping 7 Personal Business 8 Visit Friends 9 Rec/Leisure 10 Other (please specify)	(Include Postcode or specify street, shop name etc) Postcode House No./ Business Name Street Town	1 Home 2 Temporary Residence 3 Work 4 Employer's Business 5 Education 6 Shopping 7 Personal Business 8 Visit Friends 9 Rec/Leisure 10 Other (please specify)	1 On Street (Paid) 2 On Street (Unpaid) 3 Private Car Park 4 Public Car Park 5 Not Parking (Drop off / Pick up) 6 Other (please state)
1						
1 Car 2 LGV/van 3 OGV 1 4 OGV 2 5 Minibus	1 2 3 4 5 6 7 8 9+	(Include Postcode or specify street, shop name etc) Postcode House No./ Business Name Street Town	1 Home 2 Temporary Residence 3 Work 4 Employer's Business 5 Education 6 Shopping 7 Personal Business 8 Visit Friends 9 Rec/Leisure 10 Other (please specify)	(Include Postcode or specify street, shop name etc) Postcode House No./ Business Name Street Town	1 Home 2 Temporary Residence 3 Work 4 Employer's Business 5 Education 6 Shopping 7 Personal Business 8 Visit Friends 9 Rec/Leisure 10 Other (please specify)	1 On Street (Paid) 2 On Street (Unpaid) 3 Private Car Park 4 Public Car Park 5 Not Parking (Drop off / Pick up) 6 Other (please state)
2						
1 Car 2 LGV/van 3 OGV 1 4 OGV 2 5 Minibus	1 2 3 4 5 6 7 8 9+	(Include Postcode or specify street, shop name etc) Postcode House No./ Business Name Street Town	1 Home 2 Temporary Residence 3 Work 4 Employer's Business 5 Education 6 Shopping 7 Personal Business 8 Visit Friends 9 Rec/Leisure 10 Other (please specify)	(Include Postcode or specify street, shop name etc) Postcode House No./ Business Name Street Town	1 Home 2 Temporary Residence 3 Work 4 Employer's Business 5 Education 6 Shopping 7 Personal Business 8 Visit Friends 9 Rec/Leisure 10 Other (please specify)	1 On Street (Paid) 2 On Street (Unpaid) 3 Private Car Park 4 Public Car Park 5 Not Parking (Drop off / Pick up) 6 Other (please state)
3						

## Appendix C: Goods Vehicle Trip Patterns

### LGV Daily Trip Density



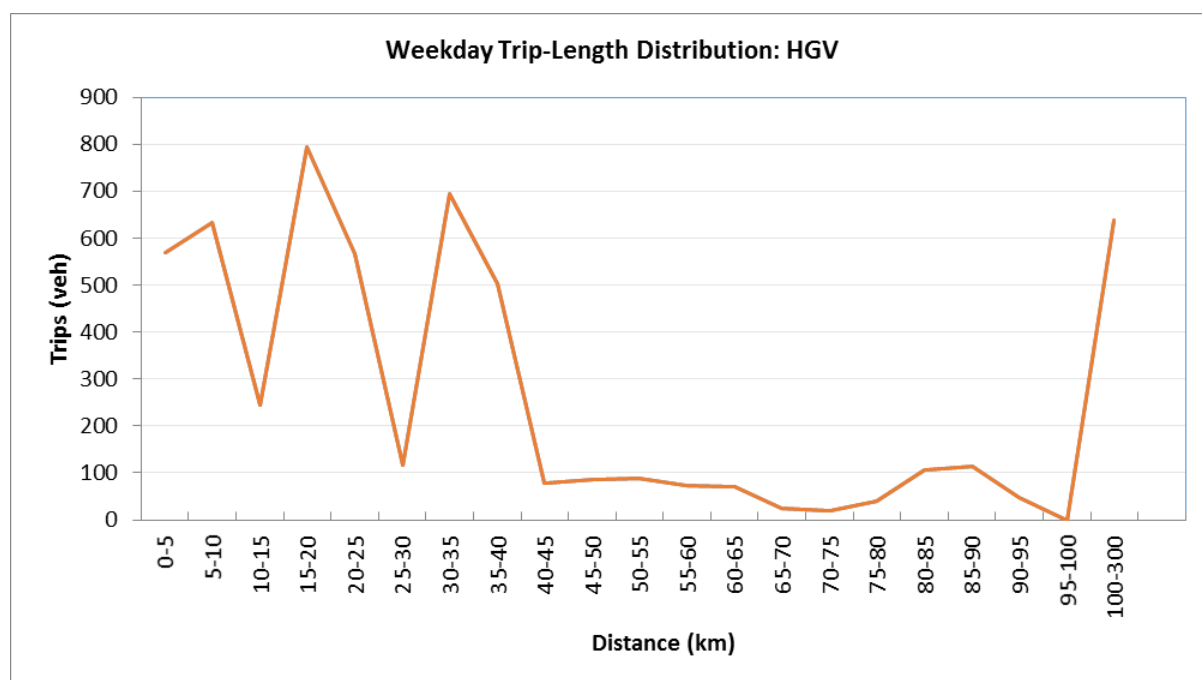
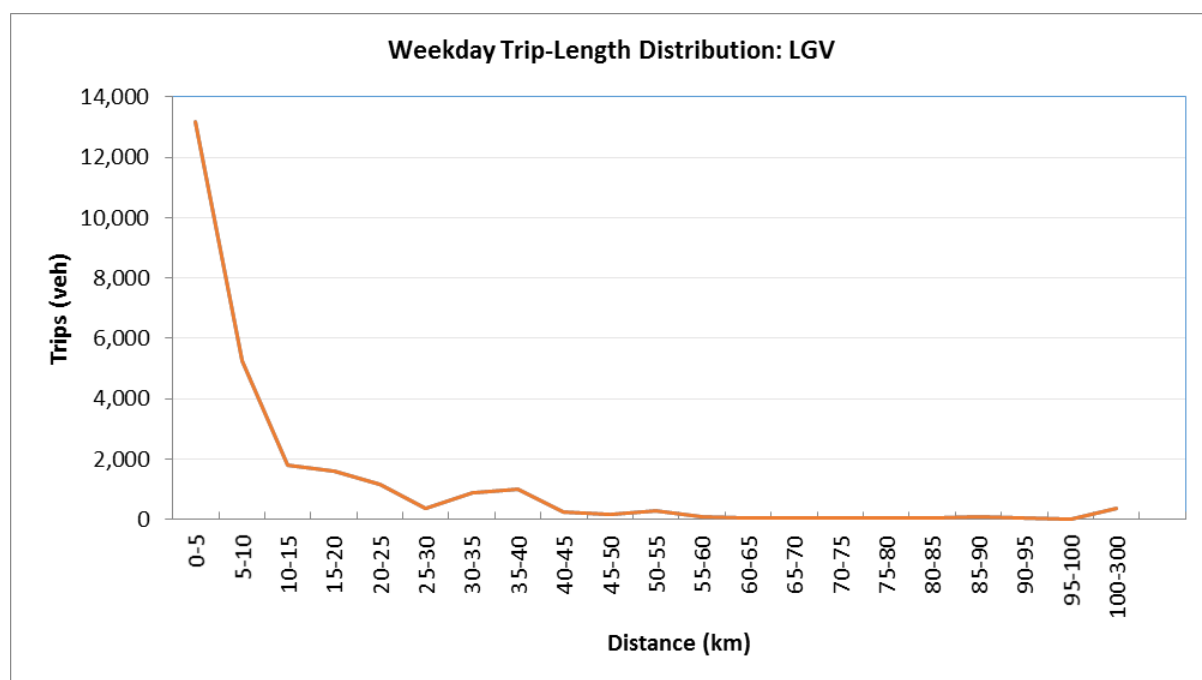
### HGV Daily Trip Density



The LGV matrix has an average trip length of 12.5km, which suggests that a significant amount of the LGV demand is fairly localised, including travel to Caister-on-Sea north of the town and Lowestoft south of the town.

The HGV matrix has an average trip length of 37km. This is roughly the travel distance from the town to Norwich. The profile is dominated by shorter distance movements and a tail of longer distance traffic in excess of 100km.

Both patterns demonstrate a plausible 2016 update of original RSI observations.



## Appendix D: 2008 Model

The 2016 model has employed 2008 model data to reflect GV traffic patterns (excluding cross river GV's and GV traffic to and from the Great Yarmouth Peninsula. This document provides an understanding of the 2008 model development (as a Present Year Validation of a 2003 model forecast.

Extracts from the reporting are included below. These concentrate on the model parameters, update and forecast performance for 2008. Detail of developments included reflect assumptions of the year.

Specific detail on the construction of the 2003 model is unavailable however the model employed a full programme of RSI's around the periphery of Great Yarmouth and the movements are therefore founded from observation. This is borne out in analysis of GV travel patterns employed in the 2016 Model.

Norfolk County Council  
County Hall  
Martineau Lane  
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NR1 2DH

# **Great Yarmouth Area Transport Strategy Modelling**

**December 2008**

# Great Yarmouth Area Transport Strategy Modelling

## Issue and Revision Record

Rev	Date	Originator	Checker	Approver	Description
01	26/03/09	J Zhu	G Wemyss	M Frith	First Draft

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# 1 Introduction

Norfolk County Council (NCC) has requested that Mott MacDonald (MM) undertake further traffic modelling work to better understand the impacts of proposed developments in Great Yarmouth area. This technical note provides a summary of detailed modelling work undertaken in assessing the development impacts arising from the emerging Great Yarmouth Borough Council Masterplan, encompassing the 1stEast Urban Regeneration Company action areas..

## 2 Background

The Great Yarmouth Area Transportation Strategy SATURN road traffic model represents a neutral October weekday in 2003 and comprises the following three time periods on an average one hour basis:

- AM peak 0730-0930
- Interpeak 0930-1600
- PM peak 1600-1800

This model was used to assess key major schemes as part of the development of the strategy for Great Yarmouth as shown in the current LTP.

It has also been used to undertake option testing for the form and location of a Third River Crossing for Great Yarmouth. This work<sup>1</sup> was undertaken by MM in 2006 and included the development of two future year (2015 and 2030) models. These future year models were based on data supplied by Great Yarmouth Borough Council (GYBC) on predicted housing and commercial development including an assessment of industrial development that might come about as part of the Urban Regeneration Company (URC) process.

In order to better understand the impacts of proposed developments in the Great Yarmouth area and to inform more detailed work on specific URC sites a more up to date future model is required for the autumn neutral period.

Since the base model represents 2003 it will be necessary to produce a 2008 do minimum model from which we can devise future scenarios. This will include the developments that have occurred since 2003 that generate significant levels of traffic. For example, new retail premises such as the B&Q and Tesco superstores, and any changes to existing developments such as Gapton Hall retail park.

It has been agreed with NCC that future scenario years would be 2015 and 2021.

---

<sup>1</sup> Great Yarmouth 3<sup>rd</sup> River Crossing Traffic and Economic Assessment Report, Mott MacDonald, March 2007

### 3 2008 Do Minimum Model

The existing 2003 autumn model consists of 5 user classes including:

- Car – Commuting purpose
- Car – Employed Business purpose
- Car – Other purpose
- LGV
- HGV

The 2008 do minimum CAR and LGV matrices are forecasted from the existing 2003 matrices. “Add in” trip generation from major developments that have occurred since 2003 include:

- B&Q superstore at Thamesfield Way
- Tesco superstore at Jones Way
- Gapton Hall Retail Park
- New housing at Marsh Road.

Growth factors together with above development trip generation have been applied to the 2003 matrices and the total growth from 2003 to 2008 has been constrained to TEMPRO.

HGV growth factors have been derived from Department for Transport (DfT)’s latest National Transport Model (NTM) Forecast Report<sup>2</sup> as DfT has advised that this be used in place of NRTF (1997).

It is not proposed to undertake any counts to formally validate the 2008 model. It is simply required as a base from which to evaluate possible future do-minimum models.

The methodology, growth factors and development trip generation to derive the 2008 matrices are listed in Appendix A.

A review of the 2008 model has been carried out after the first group meeting on 31/03/2009. This is included in Appendix D.

---

<sup>2</sup> Table 1, Regional Traffic Growth 2008, DfT, 2008  
<http://www.dft.gov.uk/pgr/economics/ntm/roadtransportforecasts08/trafficforecasttables.xls>

A.1 Add in Trip Generation

Similar sites from TRICS (2008b) have been selected to derive the trip rates for TESCO, B&Q superstores and the new housing at Marsh Road. Traffic going into and out of Gapton Hall Retail Park has been counted on Tuesday, 11<sup>th</sup> September, 2008. Table A.1 and A.2 below list the trip rates and trip generation figures.

Name	Site Reference in TRICS	Calculation Factor	AM Peak (average one hour)		InterPeak (average one hour)		PM Peak (average one hour)	
			Arrival	Departure	Arrival	Departure	Arrival	Departure
TESCO	ST-01-A-01	100 SQM	1.909	0.931	3.852	3.653	4.445	4.521
B&Q	GM-01-D-02	100 SQM	0.795	0.486	1.776	1.729	1.462	1.600
Marsh Road	LN-03-D-01	1 HH Unit	0.063	0.038	0.135	0.135	0.125	0.125

**Table A.1: Trip Rates for TESCO, B&Q and Marsh Rd Dwellings**

Name	Zone	Size (SQM)	Parking Space	AM Peak (average one hour)		InterPeak (average one hour)		PM Peak (average one hour)	
				Arrival	Departure	Arrival	Departure	Arrival	Departure
TESCO	64	8834	circa 500	169	82	340	323	393	399
B&Q	31	11842	circa 330	94	58	210	205	173	189
Marsh Road	28	149	-	9	6	20	20	19	19
Gapton Hall	62	-	-	106	62	261	250	214	243

**Table A.2: Trip Generation for TESCO, B&Q, Marsh Rd Dwellings and Gapton Hall**

A.2 TEMPRO Growth 2003-2008

For 2008 matrices, explicit traffic growth at model zones from 2003 to 2008 has been applied to the developments listed in Appendix A.1 above. Traffic growth on the remainder of the network has been constrained to TEMPRO forecasts (version 5.4) for cars and LGV. Growth factors have been derived to maintain the overall traffic growth to be consistent with the National Trip End Model (NTEM) forecast for 2008. The TEMPRO growth factors for different areas are shown in Table A.3 below.

TEMPRO Growth	AM		IP		PM	
	Origin	Destination	Origin	Destination	Origin	Destination
<b>2003-2008</b>						
Great Yarmouth	1.03	1.043	1.077	1.076	1.047	1.038
Breckland	1.044	1.044	1.091	1.09	1.052	1.053
Broadland	1.015	1.039	1.079	1.075	1.041	1.027
Norwich	1.092	1.061	1.095	1.1	1.067	1.087
KL and West Norfolk	1.039	1.072	1.091	1.087	1.068	1.048
North Norfolk	1.028	1.044	1.08	1.078	1.048	1.038
South Norfolk	1.023	1.04	1.08	1.078	1.044	1.034
Essex	1.051	1.063	1.08	1.081	1.066	1.059
Cambridgeshire	1.13	1.061	1.1	1.11	1.073	1.118
East Cambridgeshire	1.042	1.054	1.09	1.089	1.06	1.051
Ipswich, Suffolk	1.061	1.03	1.065	1.065	1.033	1.052
Mid Suffolk	1.011	1.002	1.051	1.048	1.008	1.016
Bury St. Edmunds	1.017	1.025	1.057	1.052	1.023	1.019
Suffolk Coast	1.018	1.006	1.048	1.046	1.011	1.019
Waveney, Suffolk	1.024	1.005	1.045	1.043	1.01	1.022
Leicestershire	1.085	1.092	1.089	1.088	1.09	1.087
London	1.073	1.065	1.062	1.062	1.064	1.069
East Sussex	1.054	1.058	1.076	1.076	1.059	1.055
Kent	1.082	1.11	1.099	1.097	1.104	1.087
West Sussex	1.03	1.026	1.055	1.055	1.031	1.034
Kent & Sussex	1.055	1.065	1.077	1.076	1.065	1.059
Eastern	1.049	1.047	1.069	1.070	1.051	1.052

**Table A.3: TEMPRO Growth Factors 2003-2008**

A.3 LGV & HGV Growth 2003-2008

Previously the NRTF97 growth was adjusted using a ratio of the model zone TEMPRO growth factor divided by the national TEMPRO growth. This method may now be refined, given that the NTM07 growth figures are presented by region. The method proposed therefore is to apply a ratio of the zonal TEMPRO growth factor divided by the regional TEMPRO growth factor.

It is proposed that forecasts for 2008 are produced by extrapolating the forecast growth between 2003 and 2008 for the East Region. HA Inter Urban growth has been selected as this seems most appropriate for the trunk road and for the main alternative routes for LGV and HGV movements. Proportions of rigid and artic have been derived from October 2003 roadside interview survey data.

2003-2008	AM	IP	PM
LGV	1.066	1.084	1.068

**Table A.4: LGV Growth Factors 2003-2008**

Time Period	OGV1	OGV2
AM	65.30%	34.70%
IP	68.30%	31.70%
PM	68.10%	31.90%

**Table A.5: HGV proportions**

2003-2008	AM	IP	PM
NTM Rigid	1.014	1.014	1.014
NTM Artic	1.042	1.042	1.042
NTM HGV	1.024	1.023	1.023
Adjusted HGV	1.013	1.030	1.014

**Table A.6: HGV Growth Factors 2003-2008**

Appendix B Future Year Scenarios

B.1 Development Summary and Trip Generation

Parish Urban Area name	Site name and address or location	dwellings	Land Use	Estimated completions, by financial year																				Comments
				2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25			
Bradwell	Beccles Road/Clay Lane	92	Residential	12	12	12	12	12	12	12	12	8											Under construction	
Bradwell	Blue Sky, Market Road	171	Residential	25	25	25	25	25	25	25	21												Under construction	
Bradwell	Blue Sky, Market Road	25	Residential	20	5																		Under construction	
Caister-on-Sea	Covent Garden Road	35	Residential	4	5	5	5	5	5	6													Under construction	
Caister-on-Sea	Martin de Rye Way, Off West Road	19	Residential	8	8	3																	Under construction	
Caister-on-Sea	West Road	150	Residential		30	30	30	30	30														Approved 27/07/07	
Great Yarmouth	Marsh Road, Cobholm	78	Residential	48	30																			
Great Yarmouth	Sauls Wharf, Steam Mill Lane,	0	Residential																					
Great Yarmouth	<b>Bure Harbour Quay (Cobholm water front) and Sauls Wharf URC</b>	<b>249</b>	Residential				30	40	32	50	50	47												
Great Yarmouth	South Gorleston, Phase 2	204	Residential				25	50	50	40	39													
Great Yarmouth	25 St Nicholas Road	24	Residential	12	12																		Under construction	
Great Yarmouth	School Road, Runham Vauxhall	21	Residential			10	11																Approved 30/06/05	
Great Yarmouth	Runham Road, Runham Vauxhall	96	Residential			24	24	24	24														Awaiting S106	
Great Yarmouth	<b>Runham Vauxhall (URC Area)</b>	<b>85</b>	<b>Res +B1</b>															45	40					
Great Yarmouth	Boundary Road	38	Residential	20	18																		Under construction	
Great Yarmouth	<b>Ice House Quay (east of Southtown Road, along the waterfront) URC</b>	<b>1200</b>	<b>Res, B1, A1 and A3</b>										100	100	100	100	150	150	150	150	150	50		
	<b>Ice House Quay (alternative)</b>												0	0	0	0	0	0	0	0	0	0		
Great Yarmouth	<b>North Quay (east of - along the waterfront) URC</b>	<b>400</b>	<b>Res, B1, A1 and A3</b>										50	100	100	100	50							
Great Yarmouth	Riverside Road, Gorleston	24	Residential					24															Approved 20/05/05	
Great Yarmouth	R/O 44-52 Burgh Road, Gorleston	24	Residential					12	12															
Great Yarmouth	Former Claydon School Site	110	Residential						22	22	22	22	22										No consent yet	
Great Yarmouth	Off East Anglian Way, Gorleston	95	Residential					30	30	35													Access constraint	
Hemsby	Waters Lane	106	Residential	25	25	25	25	6															Under construction	
Hemsby	Martham Road/Common Road	50	Residential						20	30													Approved 21/09/06 Outline	
Martham	Elmside, White Street	40	Residential	15	25																		Under construction	
Martham	Hall Road	0	Residential																				Ownership constraint	
Great Yarmouth	<b>Southgate</b>	<b>65</b>	<b>Residential</b>																	35	30			

Table B.1: Development Summary - Housing



Development	Mixed use ( in 100 SQM)	Office ( in 100 SQM)	Residential (Unit)	Retail ( in 100 SQM)	Light Industry ( in 100 SQM)	Hotel (Bed)
North Quay (half in by 2015, all in by 2021)	100		0	150		
Bure Harbour Quay (all in by 2015)	<b>Only housing is assumed at present but there are likely to be other development uses but these are not yet known</b>		0			
Ice House Quay (20% in by 2015, 80% in by 2021)		300		50	50	
Runham Broad Development (Not in until beyond 2021)	200					200
Haven Approach (Intensification in by 2015)		<b>Copy existing zone 28 to create Haven Approach intensification zone 704 and give it 20% of the trips in the existing (2008) zone 28 totals</b>				
Southgate (20% in by 2015 and 100% in by 2021)		200			<b>It is proposed that no allowance is made for movement of existing employment uses to lighter and innovative industries</b>	
		400			250	
South Denes Industrial Area (all in by 2015)		<b>As per note use 40,000 for employment uses</b>			<b>As per note use light industry and 25,000 to represent Easptort associated development. This is not port traffic and so is in addition to it.</b>	
Casino (all by 2015) from TA report						

**Table B.2: Development Summary – Commercial and Other**

Trip Rates	Mixed use (per 100 sqm)	Office (per 100 sqm)	Residential (Unit)	Retail (per 100 sqm)	Light Industry (per 100 sqm)	Hotel (Bed)
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AM Arrival	1.807	1.807	0.114	3.461	0.964	0.185
AM Departure	0.304	0.304	0.336	2.488	0.416	0.262
IP Arrival	2.435	2.435	0.41	19.112	1.91	0.508
IP Departure	2.375	2.375	0.479	18.771	2.044	0.512
PM Arrival	0.471	0.471	0.271	4.423	0.362	0.197
PM Departure	1.6	1.6	0.156	5.465	0.925	0.173

**Table B.3: Car Trip Rates**

Parish Urban Area name	Site name and address or location	2008-2015 Increment						2015-2021 Increment					
		AM		IP		PM		AM		IP		PM	
		Arrival	Departure	Arrival	Departure	Arrival	Departure	Arrival	Departure	Arrival	Departure	Arrival	Departure
Bradwell	Beccles Road/Clay Lane	9	27	33	38	22	12	0	0	0	0	0	0
Bradwell	Blue Sky, Market Road	17	49	60	70	40	23	0	0	0	0	0	0
Bradwell	Blue Sky, Market Road	1	2	2	2	1	1	0	0	0	0	0	0
Caister-on-Sea	Covent Garden Road	4	10	13	15	8	5	0	0	0	0	0	0
Caister-on-Sea	Martin de Rye Way, Off West Road	1	4	5	5	3	2	0	0	0	0	0	0
Caister-on-Sea	West Road	17	50	62	72	41	23	0	0	0	0	0	0
Great Yarmouth	Marsh Road, Cobholm	3	10	12	14	8	5	0	0	0	0	0	0
Great Yarmouth	Sauls Wharf, Steam Mill Lane,	0	0	0	0	0	0	0	0	0	0	0	0
<b>Great Yarmouth</b>	<b>Bure Harbour Quay (Cobholm water front) and Sauls Wharf URC</b>	23	68	83	97	55	32	5	16	19	23	13	7
Great Yarmouth	South Gorleston, Phase 2	23	69	84	98	55	32	0	0	0	0	0	0
Great Yarmouth	25 St Nicholas Road	1	4	5	6	3	2	0	0	0	0	0	0
Great Yarmouth	School Road, Runham Vauxhall	2	7	9	10	6	3	0	0	0	0	0	0
Great Yarmouth	Runham Road, Runham Vauxhall	11	32	39	46	26	15	0	0	0	0	0	0
<b>Great Yarmouth</b>	<b>Runham Vauxhall (URC Area)</b>	0	0	0	0	0	0	10	29	35	41	23	13
Great Yarmouth	Boundary Road	2	6	7	9	5	3	0	0	0	0	0	0
<b>Great Yarmouth</b>	<b>Ice House Quay (east of Southtown Road, along the waterfront) URC</b>	0	0	0	0	0	0	80	235	287	335	190	109
	<b>Ice House Quay (alternative)</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Great Yarmouth</b>	<b>North Quay (east of - along the waterfront) URC</b>	17	50	62	72	41	23	29	84	103	120	68	39
Great Yarmouth	Riverside Road, Gorleston	3	8	10	11	7	4	0	0	0	0	0	0
Great Yarmouth	R/O 44-52 Burgh Road, Gorleston	3	8	10	11	7	4	0	0	0	0	0	0
Great Yarmouth	Former Claydon School Site	10	30	36	42	24	14	3	7	9	11	6	3
Great Yarmouth	Off East Anglian Way, Gorleston	11	32	39	46	26	15	0	0	0	0	0	0
Hemsby	Waters Lane	9	27	33	39	22	13	0	0	0	0	0	0
Hemsby	Martham Road/Common Road	6	17	21	24	14	8	0	0	0	0	0	0
Martham	Elmside, White Street	3	8	10	12	7	4	0	0	0	0	0	0
Martham	Hall Road	0	0	0	0	0	0	0	0	0	0	0	0
<b>Great Yarmouth</b>	<b>Southgate</b>	0	0	0	0	0	0	4	12	14	17	9	5
	<b>TOTAL</b>	176	518	633	739	418	241	130	383	467	546	309	178

**Table B.4: Trip Generation - Housing**

Development	AM		IP		PM	
	Arrival	Departure	Arrival	Departure	Arrival	Departure
North Quay (half in by 2015, all in by 2021)	350	202	479	470	355	490
Ice House Quay (20% in by 2015, 80% in by 2021)	382	118	274	270	190	400
Runham Broad Development (Not in until beyond 2021)	199	57	91	89	67	177
Haven Approach (Intensification in by 2015)	137	130	172	198	180	151
Southgate (20% in by 2015 and 100% in by 2021)	181	30	75	73	47	160
South Denes Industrial Area (all in by 2015)	482	113	223	225	139	436
Casino (all by 2015) from TA report	18	34	116	118	137	130
<b>Total</b>	<b>1749</b>	<b>683</b>	<b>1429</b>	<b>1442</b>	<b>1116</b>	<b>1944</b>

**Table B.5: Trip Generation – Commercial and Other**

	Total Annual HGVs	Total Daily HGVs	AM and PM peak hour HGVs	Inter peak hour HGVs
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Year	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
2015	50000	140000	440000	137	384	1205	14	38	121	8	24	74
2021	50000	169453	462481	137	464	1267	14	46	127	8	29	78

**Table B.6: East Port Outer Harbour HGV Units<sup>3</sup>**

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<sup>3</sup> Source: Great Yarmouth Traffic Forecasts Draft Report by MDS Transmodal Limited, July 2008

B.2 *Tempro Growth Factors*

TEMPRO Growth	AM		IP		PM	
	Origin	Destination	Origin	Destination	Origin	Destination
<b>2008-2015</b>						
Great Yarmouth	1.071	1.077	1.092	1.09	1.078	1.074
Breckland	1.09	1.073	1.103	1.103	1.081	1.093
Broadland	1.084	1.075	1.098	1.098	1.081	1.087
Norwich	1.121	1.087	1.104	1.107	1.092	1.113
KL and West Norfolk	1.077	1.067	1.083	1.082	1.07	1.078
North Norfolk	1.065	1.071	1.091	1.089	1.074	1.071
South Norfolk	1.074	1.069	1.092	1.092	1.075	1.079
Essex	1.071	1.083	1.092	1.093	1.085	1.077
Cambridgeshire	1.175	1.129	1.147	1.153	1.14	1.169
East Cambridgeshire	1.082	1.099	1.1	1.098	1.096	1.086
Ipswich, Suffolk	1.145	1.109	1.128	1.13	1.114	1.136
Mid Suffolk	1.062	1.057	1.079	1.078	1.062	1.066
Bury St. Edmunds	1.077	1.079	1.091	1.09	1.08	1.079
Suffolk Coast	1.05	1.062	1.073	1.071	1.062	1.055
Waveney, Suffolk	1.059	1.064	1.076	1.074	1.064	1.061
Leicestershire	1.077	1.083	1.088	1.088	1.083	1.079
London	1.1	1.088	1.089	1.09	1.086	1.093
East Sussex	1.093	1.091	1.089	1.09	1.091	1.092
Kent	1.073	1.092	1.094	1.09	1.086	1.075
West Sussex	1.08	1.081	1.079	1.078	1.079	1.079
Kent & Sussex	1.082	1.088	1.087	1.086	1.085	1.082
Eastern	1.081	1.081	1.092	1.092	1.083	1.083

**Table B.7: Tempro Growth Factors 2008-2015**

Appendix C *Review of Do Minimum Results*

C.1 *Checking Actions for 2008 Do Minimum Model*

- Modelled flows for 2008 are to be checked against recent traffic counts and a note produced to demonstrate confidence with these “foreacast” flows.

**Review Comments:** The 2008 modelled flows have been validated against manual classified traffic counts on a cordon around, and a screen line across, the town for each time period. A summary of the validation results is presented Table D.1 below.

In transport modelling, A GEH Statistics is performed to obtain the goodness-of-fit measures between the modelled and observed link flows. It is defined as:

$$GEH = \sqrt{\frac{(M - O)^2}{0.5(M + O)}}$$

It can be thought of as the square root of the product of the absolute difference and the relative difference, hence overcome the inability of either the absolute difference or the relative difference to cope over a wide range of flows. It has the acceptable threshold of 5.

According to our analysis results, the average GEH for all 6 sites, for the 4 sites that make a cordon around the town and for the two sites that comprise the river screenline are all below 5 for each time periods of AM,IP and PM. However, total modelled flows across the 4 cordon points are lower than observed, in particular on the A47 Acle New Road. This might due to an increase of long distance trips from 2003 to 2008 in reality than those forecasted by TEMPRO. It is difficult to get a better fit on this without a full calibration and validation with Road Side Interview (RSI) data available. Taken into account of the 2008 model as a “forecast” model, we recommend its performance is acceptable.

- Some basic sense checks to be carried out on modelled output
  - AADT increases on A143 and A12 are only 1,000 compared with 3,500 and 3,000 on the A47 and A149 – is this correct

**Review Comments:** AADT is estimated as (AM + IP \* Factor of 13.1 +PM). In terms of percentage change, A143 and A149 are very similar at 5% and 7% respectively. A12 has very little increase on traffic whereas A47 has significant increase in each time period. Taken into account of the factor of 13.1 which broadens the difference, this explains why A47 has more AADT increase than A12's.

- Increases on Haven Bridge and Acle New Road (by Asda) are 10,000 whereas increase on Breydon Bridge is only 3,000.

**Review Comments:** Traffic Distribution Analysis shows that 56% and 52% of the AADT on Acle New Rd will go VIA Breydon Bridge. This suggests almost 63% of the AADT increase on Breydon Bridge is related to increase on Acle New Rd. AADT increase on Haven Bridge is due to various committed development nearby.

- Check routeings of HGV's to Midlands – is the model routeing some through Filby

**Review Comments:** Selected Link Analysis shows no HGV from East Port is routing through Filby in 2015. In 2021 PM, there are 4 HGV's routing through Filby.

- Check trip length distributions to see which shorter trips could be removed from the network by smarter choices etc.

**Review Comments:** Trip Length Distribution has been carried out for each time period of the 2008 model. Overall, the results in Table D.2 below suggest circa 60% of the car trips are within 6 KM. This shows the improvement possibility of mode shifts between private car and public transport.

- LE commented that a check be made of total flow forecast across both bridges with ATC data currently held by NCC.

**Review Comments:** As explained above, flows on both bridges are well validated as indicated by GEH's.

- Eric Cooper suggested that GW discuss modelling approach and output with Mark Allen at Maunsell, the HA's transport consultant.

**Review Comments:** NA



**Table C.1: 2008 "Forecast" Model Validation**

Unit: PCU			AM Peak Average One Hour				InterPeak Average One Hour				PM Peak Average One Hour			
Area	Link	Direction	Observed	Modelled	(M-O)/O %	GEH	Observed	Modelled	(M-O)/O %	GEH	Observed	Modelled	(M-O)/O %	GEH
<b>Cordon</b>	<b>Lowestoft Road</b>	NB	1413	1301	-8%	3.1	906	907	0%	0.0	1035	878	-15%	5.1
	<b>Lowestoft Road</b>	SB	870	783	-10%	3.0	962	813	-16%	5.0	1561	1399	-10%	4.2
	<b>Beccles Road</b>	NB	408	532	30%	5.7	324	339	5%	0.8	358	455	27%	4.8
	<b>Beccles Road</b>	SB	293	356	22%	3.5	300	296	-1%	0.2	472	458	-3%	0.6
	<b>Acle New Rd</b>	EB	1124	856	-24%	8.5	747	584	-22%	6.3	1023	673	-34%	12.0
	<b>Acle New Rd</b>	WB	867	626	-28%	8.8	723	575	-21%	5.8	1107	798	-28%	10.0
	<b>Caister Rd</b>	NB	766	657	-14%	4.1	1172	1051	-10%	3.6	1769	1637	-7%	3.2
	<b>Caister Rd</b>	SB	1833	1542	-16%	7.1	1187	1097	-8%	2.7	914	819	-10%	3.2
	<b>Average</b>	-	<b>947</b>	<b>831</b>	<b>-12%</b>	<b>3.9</b>	<b>790</b>	<b>708</b>	<b>-10%</b>	<b>3.0</b>	<b>1030</b>	<b>890</b>	<b>-14%</b>	<b>4.5</b>

<b>Screenline</b>	<b>Breydon Bridge</b>	NB	1232	1130	-8%	3.0	1074	1103	3%	0.9	1382	1298	-6%	2.3
	<b>Breydon Bridge</b>	SB	1495	1485	-1%	0.3	1247	1283	3%	1.0	1399	1413	1%	0.4
	<b>Haven Bridge</b>	EB	1332	1414	6%	2.2	1166	1133	-3%	1.0	1082	1256	16%	5.1
	<b>Haven Bridge</b>	WB	850	878	3%	1.0	952	976	3%	0.8	1376	1378	0%	0.1
	<b>Average</b>	-	<b>1165</b>	<b>1070</b>	<b>-8%</b>	<b>2.8</b>	<b>1039</b>	<b>991</b>	<b>-5%</b>	<b>1.5</b>	<b>1257</b>	<b>1186</b>	<b>-6%</b>	<b>2.0</b>
<b>Overall Average</b>		-	<b>1040</b>	<b>963</b>	<b>-7%</b>	<b>2.4</b>	<b>897</b>	<b>846</b>	<b>-6%</b>	<b>1.7</b>	<b>1123</b>	<b>1039</b>	<b>-8%</b>	<b>2.6</b>

**Table C.2: 2008 Model's Trip Length Distribution**

<b>%</b>	<b>AM</b>	<b>IP</b>	<b>PM</b>
<b>0-2KM</b>	11.1	12.0	9.7
<b>2-4KM</b>	28.6	33.0	29.1
<b>4-6KM</b>	17.1	17.5	17.8
<b>6-10KM</b>	14.5	14.4	14.5
<b>10-20KM</b>	15.1	13.1	15.4
<b>20-30KM</b>	5.8	4.4	5.9
<b>30-40KM</b>	7.5	5.2	7.2
<b>&gt;40KM</b>	0.4	0.4	0.4
<b>Total</b>	100	100	100

Great Yarmouth Third River Crossing Traffic Model  
 Local Model Validation Report - Appendices

<b>Index</b>	<b>Description</b>	<b>S0</b>	<b>S2</b>	<b>Capacity</b>	<b>N</b>
10	Single 2-lane (7.3m) TD9	87	45	1640	2.2
11	Single 2-lane (7.3m)	78	45	1380	2.1
12	Typical Single 2-lane (7.3m)	67	45	1010	1.8
13	Poor Single	61	25	1270	2.3
14	Typically Developed Small Town	47	30	880	2.5
15	Country Road	50	40	800	2
17	Country B Road	67	45	1300	1.8
20	Motorway D2	110	45	4360	5
21	Dual Carriageway	78	35	3460	3.3
22	Dual Carriageway	71	35	2540	2
36	Poor Dual Carriageway	64	35	2900	2
79	Urban	40	25	1050	1.4

## Appendix E: Network Acceptance Checks

# Introduction

## Introduction

This note describes the tests that will be undertaken on the network for the GYTM Base Year traffic models prior to the commencement of the calibration/validation process.

## Purpose of the Tests

This note sets out the requirements for a series of tests in order to provide evidence that:

- The network building is complete to the agreed standard;
- The network and inputs have been appropriately checked, the SATURN warnings have been reviewed and formal testing has been carried out against a list of potential errors; and
- The network coding is satisfactory, as far as can be determined, before commencement of the calibration/validation stage.

The overall objective of the process is to ensure, as far as practically possible, that coding errors arising from human error in the network building are eliminated before calibration/validation process starts. The initial network should be coded in accordance with the network coding guidance and standard. However, it is recognised that there may be subsequent amendments to the network following feedback from the network calibration/validation process.

The tests described in this note were carried out by the network development team under guidance and supervision of the Technical lead. For each test, background information of the purpose was provided along with a list of information that was reviewed. Furthermore, the acceptance criteria was also used as the basis for assessing whether the network meets the requirements of the study for this stage of the model development.

## Proposed Tests Carried Out

As mentioned above, the following tests were carried out to ensure the network coding is in a satisfactory state before commencement of the calibration/validation stage. There are six types of tests to be carried out, as below:

- Test 1 – Completeness Check: this is to ensure that the network produced is complete according to the agreed scope;
- Test 2 – SATURN Compilation Check: this is to ensure that all the errors/warnings produced by SATNET have been reviewed and checked.
- Test 3 – Inspection of Key Junctions: this is to ensure that all the key junctions within the influence area of the SRN network has been coded correctly
- Test 4 – Link Consistency Tests: this is to ensure that link type, distance, speed limit, etc. are consistent between directions and along a road;
- Test 5 – Network Routeing: this is to ensure that routeing check on the unloaded network is plausible and realistic; and
- Test 6 – Flat Matrix Assignment Test: this is to ensure that model assignment with a flat matrix produces plausible results of routeing and also to investigate whether or not locations with excessively high delays are as a result of significant flows or due to coding error.

The following chapters describe in detail the steps and findings of each tests for the GYTM.

## Test 1 – Completeness Check

### Background

The purpose of this test is to prove that the network produced is complete, including the simulation and buffer networks. This test can confirm that the initial network development process has been concluded in accordance with the model specification.

### Information required

The information with regard to this test were provided, as below:

- Map of the simulation and buffer network;
- Source of signal timing for signalised junctions; and
- The full network in both GIS and SATURN network.DAT

### Acceptance Criteria

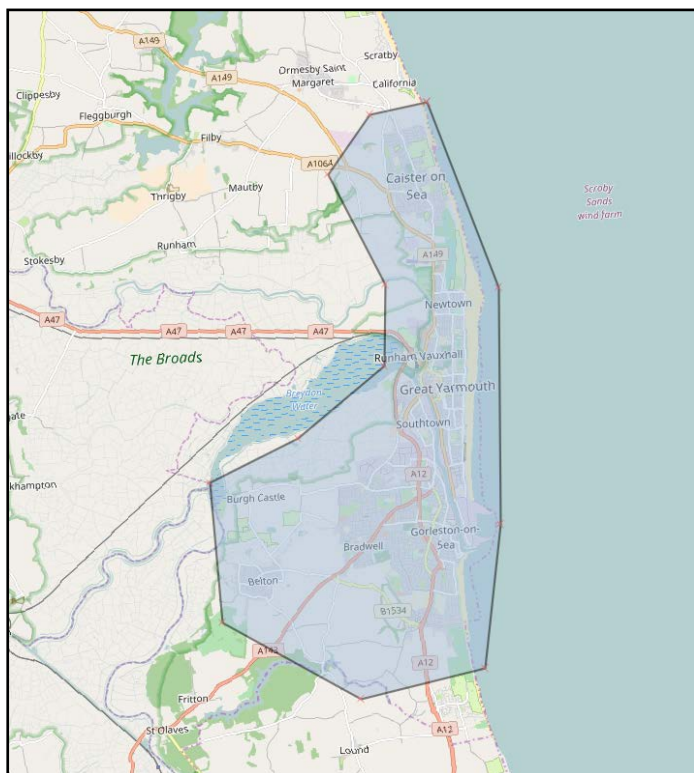
The acceptance checks for this test would ensure:

- Coding of the network is complete, as per agreed scope with NCC;
- Network coverage is as specified and agreed with NCC for both simulation and buffer networks;
- Reporting total number of nodes coded and checked; and
- The density of the network is as specified and agreed with NCC.

### Summary

The boundary of the study area, as agreed with NCC, is provided in Figure 2-1 below.

**Figure 2-1 Study Area**

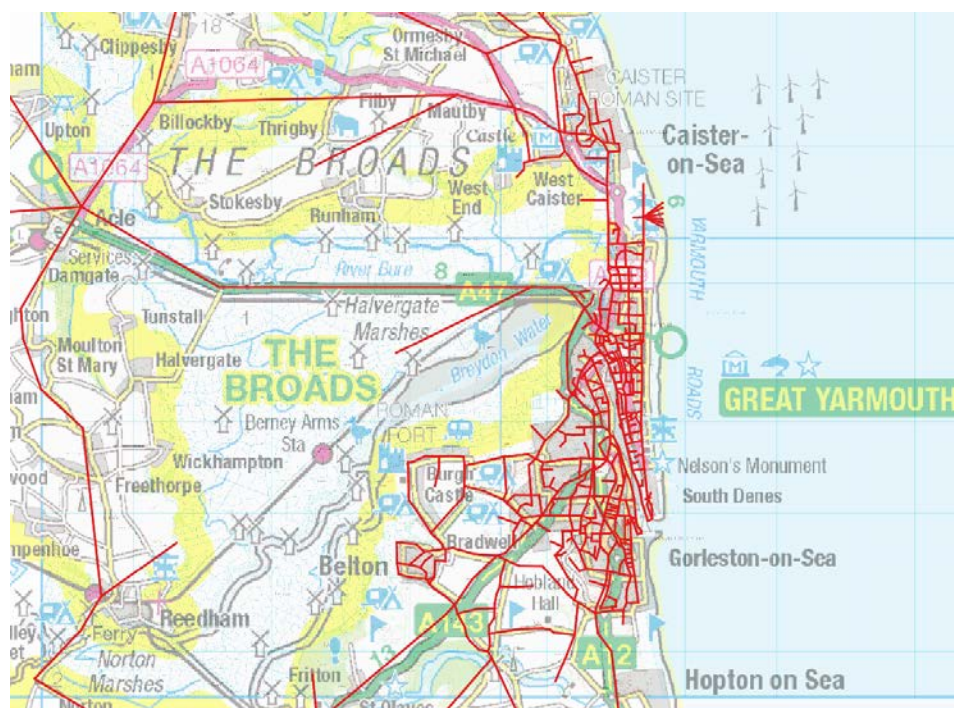


Within the study area, the roads were modelled in more detail (in a form of accurate junction coding in conjunction with a form of speed-flow curve) and form the 'Simulation area'. Within the 'Buffer Area for Modelling' only major road networks such as motorways and A roads

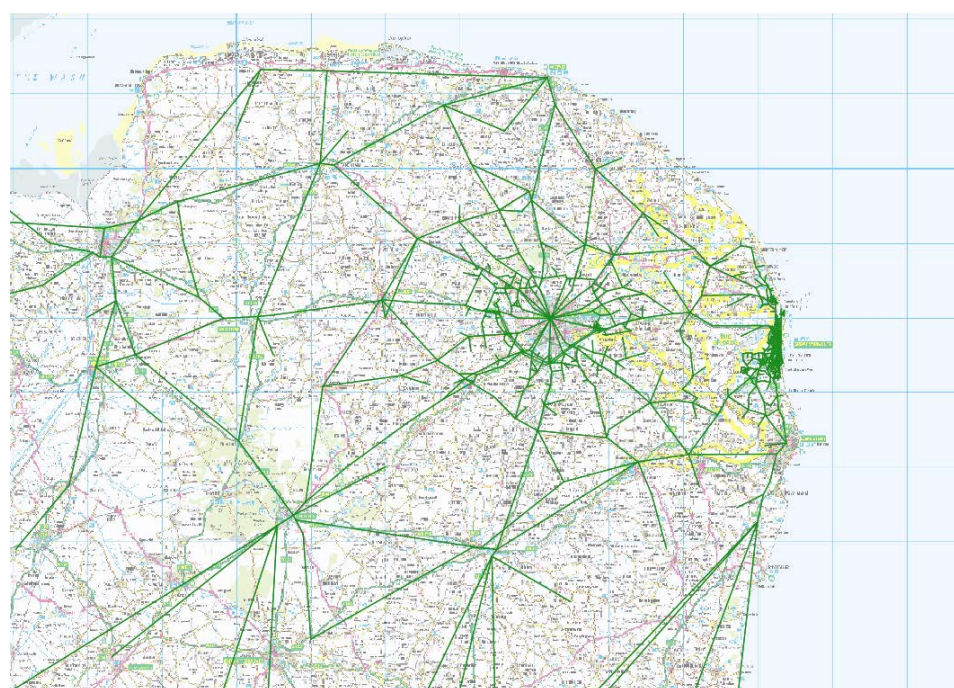
were included to allow trips from/to external zones to travel to/from or pass through the study area to be modelled in an approximation.

Network coverage for the study area and external area is provided in Figure 2-2 and Figure 2-3 below.

**Figure 2-2 Model Coverage – Study Area**



**Figure 2-3 Model Coverage – External**



A total of 1,470 nodes were coded within the GYTM, with 729 nodes for the simulation areas, 501 nodes coded for the buffer areas and 240 nodes coded for the zones. A summary of number of nodes coded within the models by type is distributed as per Table 2-1 below.



**Table 2-1 Number of Nodes coded by Type**

<b>Node Type</b>	<b>Quantity</b>
Signalised junction	Signalised junction 51 (includes railway level crossings and pedestrian crossings)
Roundabout	32
Priority junction	499 (includes 3 exploded roundabouts on the A12)
External node	147 (at the boundary between simulation and buffer area)
Zone	240 (88 zones within Gt Yarmouth, Caister or Gorleston and 152 external zones)
Buffer node	501
Total	1,470

## Test 2 – SATURN Compilation Test

### Introduction

The purpose of this test is to prove that the network, including the buffer network, may be compiled in SATURN with the option “Set WRIGHT = TRUE” without raising unacceptable errors. The test should confirm that the initial network development has been successfully built using SATNET.

### Information Required

The following information will be reviewed:

- A list of SATURN warnings, with annotation or accompanying document explaining the serious warnings and why they can be safely ignored.

### Acceptance Criteria

The acceptance checks should ensure that:

- There should be no Fatal or Semi-Fatal errors as specified by SATURN; and
- For other SATURN serious warnings or warnings: a satisfactory explanation for each warning should be provided for the coding with the core modelled area

### Summary

Table 3-1 below provides a list of all the warnings/errors produced from SATURN.

**Table 3-1 Summary of Warnings/Errors from SATURN**

SEGMENT	WARNING	SERIOUS	NON-FATAL	NAFF	FATAL	Total
&OPTION	0	0	0	0	0	0
NETWORK TITLE	0	0	0	0	0	0
&PARAM	0	0	0	0	0	0
11111 SIMULATION	1371	1315	1	0	0	2687
22222 SIM CCs	0	0	0	0	0	0
33333 BUFFER	387	600	232	0	0	1219
44444 RESTRICTs	0	0	1	0	0	1
55555 CO-ORDS	14	0	0	0	0	14
66666 ROUTES	155	1	0	0	0	156
77777 COUNTS	0	0	0	0	0	0
88888 GEN COSTS	0	0	0	0	0	0
<b>Total</b>	1927	1916	234	0	0	4077

Table 3-2 below provides a detailed list of errors and warnings.

**Table 3-2 Detailed List of Warnings/Errors**

Code	Description	Quantity	Comments
3	Some but not all turns coded as G from a single link	2	Checked
5	An X marker has 2 or more opposing major flows	8	Rectified
6	A priority junction has no minor but multiple major arms	85	Rectified
8	Priority marker X has appeared for 2 or more turns on 1 link	2	Checked
12	More than one give-way turn sharing a single lane; Priority	108	Ignored

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Code	Description	Quantity	Comments
16	Rather long intergreen time for a stage (> 20 seconds)	17	Checked
19	Total stage plus intergreen times not equal input cycle time	15	Checked
20	Turn coded F - Filter at signals - included in stage defs	4	Checked
21	Very short red phase	1	Checked
22	Very short red phase - less than 1 time unit in duration	2	Checked
23	Total upstream sat flow inconsistent with lanes downstream	12	Ignored
25	An input distance of zero replaced by the crow-fly value	2	Rectified
32	Simulation link distances and/or times differ in reverse	13	Checked
33	Suspicious link distance - Input values differ markedly	741	Ignored
43	A turn is coded as an X turn but is not the last	4	Checked
47	Some assignment nodes cannot be reached from 1st zone 18.10	1	Rectified
52	External simulation node with 2 arms - unusual	1	Checked
53	Two priority turns share the same exit; should one give way?	708	Rectified
65	Low (chain) stacking capacity per lane (1.0 < 3.0 PCU)	13	Ignored
73	Bus route with U-turns at non-simulation nodes	2	Ignored
76	Possible underestimated stack capacity > 5 at "XY" nodes	1	Ignored
82	Cycle time is very high - > 999 Seconds	1	Checked
84	Redundant intergreen stage time - all turns continuous green	1	Checked
91	Two+ turns with same lanes at signals but different stages	2	Rectified
92	A zone coded under 33333 would be better coded under 22222	152	Ignored
93	More than one give-way turn sharing a single lane; Signals	1	Rectified
96	Give-ways have both shared and unshared lanes	2	Checked
98	Possible opportunity for a Clear Exit Priority Modifier?	26	Ignored
105	A turn is coded as a filter - F - but shares lanes	2	Rectified
109	Links not defined in a strict clockwise order	36	Ignored
111	No opposing turns found for a turn with a Priority Marker	1	Rectified
117	Two priority movements cross at a priority junction; no X	756	Rectified
124	A nearside turn is all-green but not coded as a filter F	1	Checked
135	2+ give-way turns in a single lane: Major arm priority jcn.	127	Ignored
136	Suspicious link distance compared to crow-fly distance	763	Ignored
137	Turn saturation flows per lane differ widely.	172	Ignored
138	Saturation flows differ widely between roundabout arms	4	Ignored
152	A single lane arm at signals which includes an X-marked turn	26	Ignored
154	X-Turn shares lanes with a turn which could use inside lanes	1	Checked
167	Buffer zones to stub links: different directionalities	1	Checked
168	A roundabout turn is banned but other turns use that exit	2	Ignored
175	Flare length exceeds link distance and/or 100 metres	1	Checked
178	Strange stage sequencing for an X-turn at signals	3	Checked
183	LCY for a node differs from its neighbours	20	Ignored
207	A positive power-law flow-delay curve but equal ff/cap times	232	Ignored
253	Too many U-Turns at external sim nodes for SATALL checks	1	Ignored
273	Simulation link has downstream exits but no upstream entries	1	Rectified

## Test 3 – Inspection of Key Junctions

### Overview

The purpose of this test is to demonstrate that the key junctions and intersections, that by definition have the greatest influence in the model calibration and validation, are coded appropriately. The test will focus on the subjective aspects of the junction coding process. Table 4-1 lists the junctions that have been amended following the check.

**Table 4-1 Junctions Amended Due to Check**

Node(s)	Location / Junction	Type	Update
<b>Town Centre Updates</b>			
615	Greyfriars Rd / Howard St South	Priority	Howard St South 2-way; allow LHT from Greyfriars Rd
617	Alexandra Rd / Dene Side	Priority	Reverse one-way on Dene Side; reduce Alexandra Rd to single lane
618	King St / Regent Rd	Priority	Reverse one-way on Regent Rd
619	Dene Side / Regent Rd	Priority	Reverse one-way on Dene Side and Regent Rd
78	King St / Yarmouth Way	Priority	Priority junction; reverse one-way on King Street
468	Howard St South	-	Howard St South 2-way
147	King St / Nottingham Way / St Peter's St	Priority	King St one-way NB
605	Trafalgar Rd / St George's Rd	Priority	Remove junction with St George's Rd
632	Howard St South	Priority	Reduce link speed from node 616
<b>Seafront Updates</b>			
135	North Dr / Euston Rd	Rbt	Change from priority to rbt junction; Euston Rd one-way eb from Marine Parade
338	Euston Rd / Marine Parade	Priority	Marine Parade one-way nb
339	Marine Parade / Prince's Rd	Priority	Marine Parade one-way nb; reverse one-way link btw Marine Parade and North Dr
340	North Dr	-	Reverse one-way on link to Marine Parade
7748	Marine Parade	-	Remove ped signals
141	North Dr	-	Remove ped signals
7743	Marine Parade	-	
342	Marine Parade / North Drive / Regent Rd	Priority	Remove signals
478	Regent Rd	-	One-way eb
7740	Marine Parade / North Drive	-	Add ped signals

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Node(s)	Location / Junction	Type	Update
345	Marine Parade	-	
145	Marine Parade / St Peter's St	Rbt	Change from priority to rbt junction
148	Marine Parade / Kings Rd	Rbt	Change from priority to rbt junction
7734			
7745			
7746	A12 / A1243 Pasteur Rd rbt	Rbt	Add filter on left-turn from Pasteur Rd to A12
810			Add link to represent Wellesley Road between Euston Rd and Sandown Rd
811	Wellesley Rd	-	
<b>Priority Junction / Roundabouts</b>			
37			
435			
7732			
7728			
95			
99			
5			
8			
117			
121			
124			
126			
125			
10			
11			
128			
272			
361			
127			
360			
131			
80			
621			
624			
81			
622			
625			
626			
29			
143			
363			
362			
367			
365			
33			
150			
149			
375			
369			
370			
35			
376			
635			
154			
636		Priority	Amend junctions saturation flows / check lane allocations / use FLAREF & FLAREX coding where appropriate

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Node(s)	Location / Junction	Type	Update
637			
7753			
7752			
7722			
155			
36			
601			
163			
177			
7754			
537			
156			
385			
257			
255			
169			
383			
388			
294			
295			
297			
644			
250			
393			
562			
391			
447			
449			
249			
248			
446			
448			
450			
451			
234			
533			
50			
429			
185			
195			
7723			
191			
187			
193			
203			
54			
52			
324			
199			
206			
313			
330			
316			
352			
319			
213			
211			
215			
217			
210			
293			
7719			

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Node(s)	Location / Junction	Type	Update
409			
221			
408			
240			
404			
403			
401			
242			
246			
396			
395			
392			
245			
394			
351			
243			
397			
399			
400			
34			
132			
13			
516			
231			
174			
202		Rbt	Amend rbt saturation flows / circle time / max capacity
598		Ped signals	
42	A12 / Williams Adams Way (Harfrey's rbt)	Rbt	Re-code junction as exploded roundabout
8000	Fullers Hill rbt	Rbt	Add node on North Quay arm for forecast network update
<b>Traffic signal updates</b>			
77	Alexandra Rd / Trafalgar Rd	Signals	Remove filter; single rht from node 594; update timings
73	Fuller's Hill / Northgate St	Signals	Reduce to two lanes from node 612; update timings
74	Priory Plain / Fuller's Hill	Signals	Single lane from node 75; update timings

Node(s)	Location / Junction	Type	Update
170			
9			
12			
31			
30			
134			
144			
75			
32			
166			
164			
161			
26			
157			
162			
76			
16	Various junctions	Signals	Update timings (average SCOOT timings) for all time periods
142	Nelson Rd Central / Regent Rd	Ped signals	Regent Rd one-way eb; update timings
633			
7760	Yarmouth Way	Ped signals	New ped signals between Tower Hill and King St
599			
594			
600			
595	Various locations	Ped signals	Update timings for all time periods

## Summary

All the major junctions/intersections along the key routes within the simulation network have been checked and where necessary re-coded using the information obtained from the background map and further refined using Google Maps. The junction coding was based on Google Maps with the following information:

- Junction type: priority, signalised junction, normal roundabout, large roundabout, and signalised roundabout;
- Junction layout: number of approaches, number of lanes on approach, flare lane, roundabout diameters for roundabouts that are within the study area; and
- Signal timings obtained from NCC were used to update the signal timings on the signalised junctions.



## Test 4 – Link Consistency Test

The purpose of this test is to check that the network link types are consistent along a road and in both directions, to confirm that network lengths are appropriately coded.

### Directional Link Consistency

Links where the travel time differed in each direction were examined. It was found that there are a small number of links with different speeds in each direction. These were mostly minor links of very short length. A couple of links had differences in speed which were preserved due to consistency with observed journey times.

### Distance Comparison with Crow Fly Links

The link distances are compared with the Crow-Fly distances in Table 5-1 below.

**Table 5-1: Link Distances Compared with Crow –Fly Distances**

Coded Length	% difference between coded distance and crow-fly distance									
	<-20	-20-15	-15-10	-10-5	-5 & 0	0 & 5	5 & 10	10 & 15	15 & 20	>20
0- 500m	356	15	49	54	569	352	90	63	45	183
500- 1000m	22	0	3	8	35	31	21	5	9	27
1000- 2000m	15	2	4	10	20	22	14	10	12	58
2000- 5000m	20	0	4	5	12	26	31	17	13	58
5000-10000m	2	2	0	2	12	18	18	2	8	12
10000-20000m	0	2	0	0	2	10	16	6	6	12
Over 20000m	2	0	0	0	0	2	6	0	0	4

The above table shows that the majority of coded link distances are within 20% of the crow fly distance. The remaining links differ due to representing curved roads and also because some intermediate nodes have notional locations with XY coordinates being approximate.

## Test 6 – Flat Matrix Assignment Test

### Background

The purpose of this test is to ensure that the model assignment with a flat matrix produces plausible results in terms of routing and also to investigate whether or not locations with excessively high delays are a result of significant flows or due to coding error.

### Information Required

Plots identifying key strategic places in the core modelled area used to check routing with additional bandwidth plots showing the magnitude of traffic flow on links in the core modelled area and links where high delays occur.

### Acceptance Criteria

Paths should show plausible routings, in particular for areas that are unexpectedly avoided or unexpectedly attractive on the unloaded network.

Differences in routings between the principle vehicle groups (arising from banned links and turns) should be justified through reference to the source data.

Traffic flow bandwidth plots should show key routes in the network carrying more traffic than other routes.

Delay plots should show congestion occurring on key routes with significant traffic flows particularly in urban areas.

### Summary

Figures 7-1, 7-3 and 7-5 are the bandwidth plots that show the magnitude of traffic flow on links across the study area. The plots suggest the differences in magnitude between the key strategic links such as A12 and more minor links such as Marine Parade are correctly presented.

Figures 7-2, 7-4 and 7-6 highlight nodes where significant delay occurs (the radius of the circles being proportional to the level of delay). It can be seen that the A12/A47 junction shows delays with the flat matrix.

Figure 7-1 Flow Bandwidth Plot – AM Peak

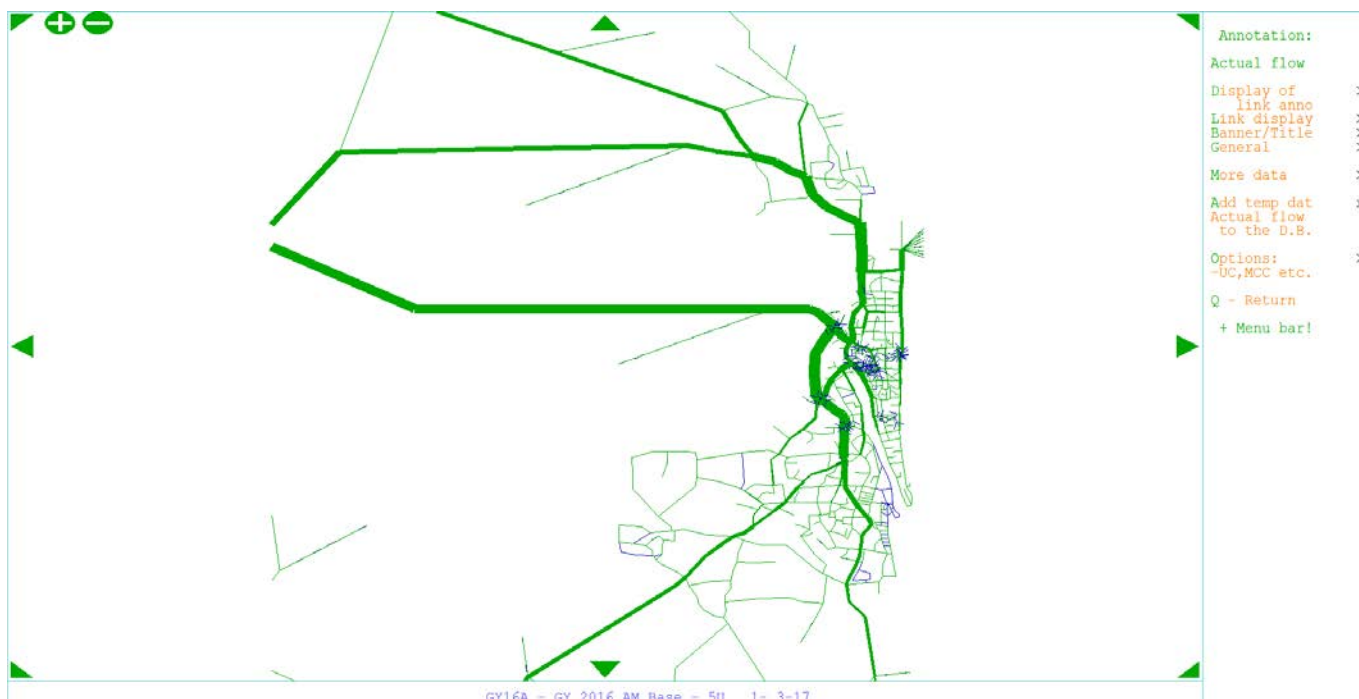


Figure 7-2 Junction Delay Plot – AM Peak

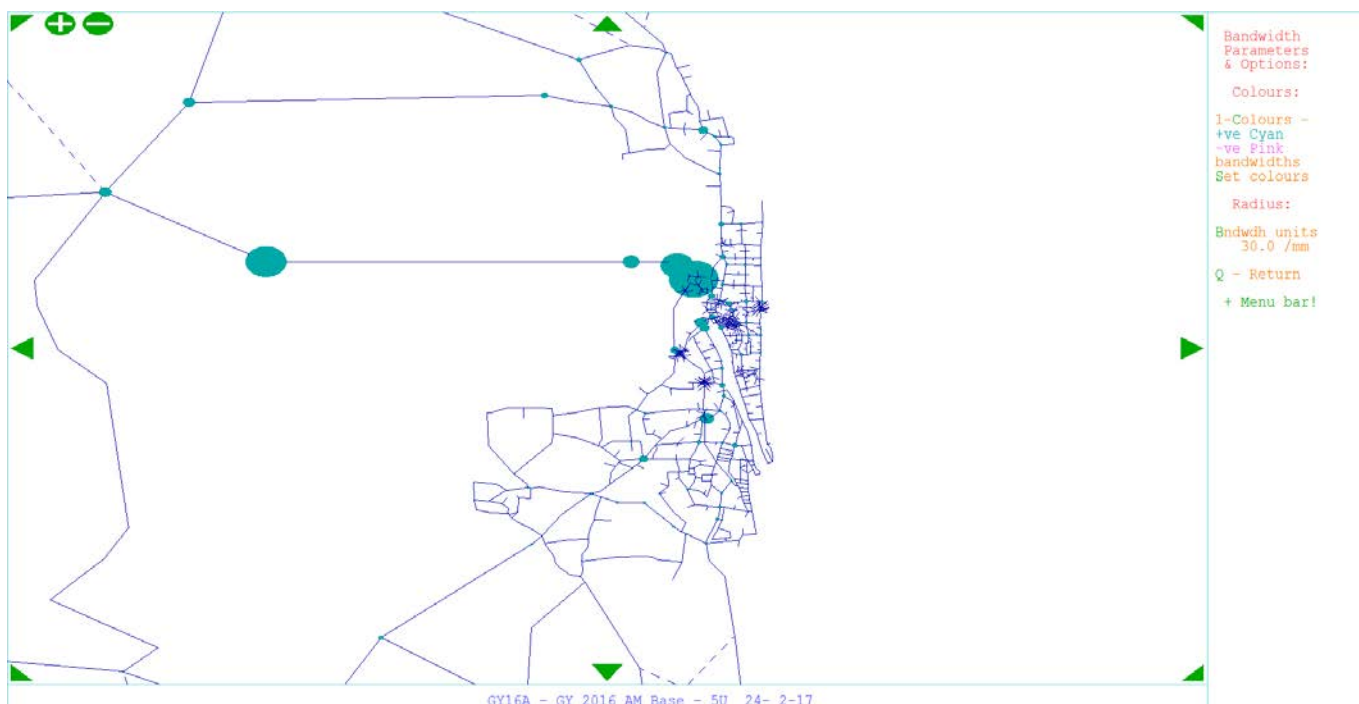


Figure 7-3 Flow Bandwidth Plot – Inter Peak

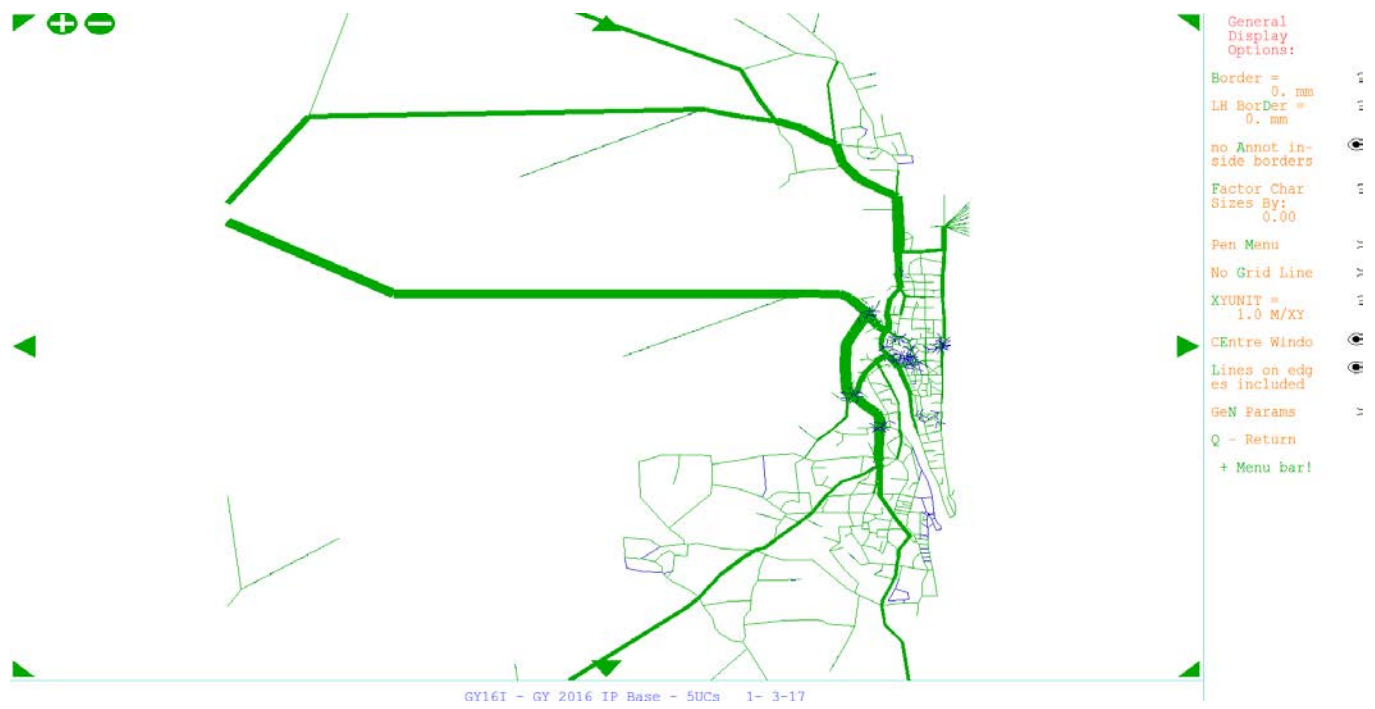


Figure 7-4 Junction Delay Plot – Inter Peak

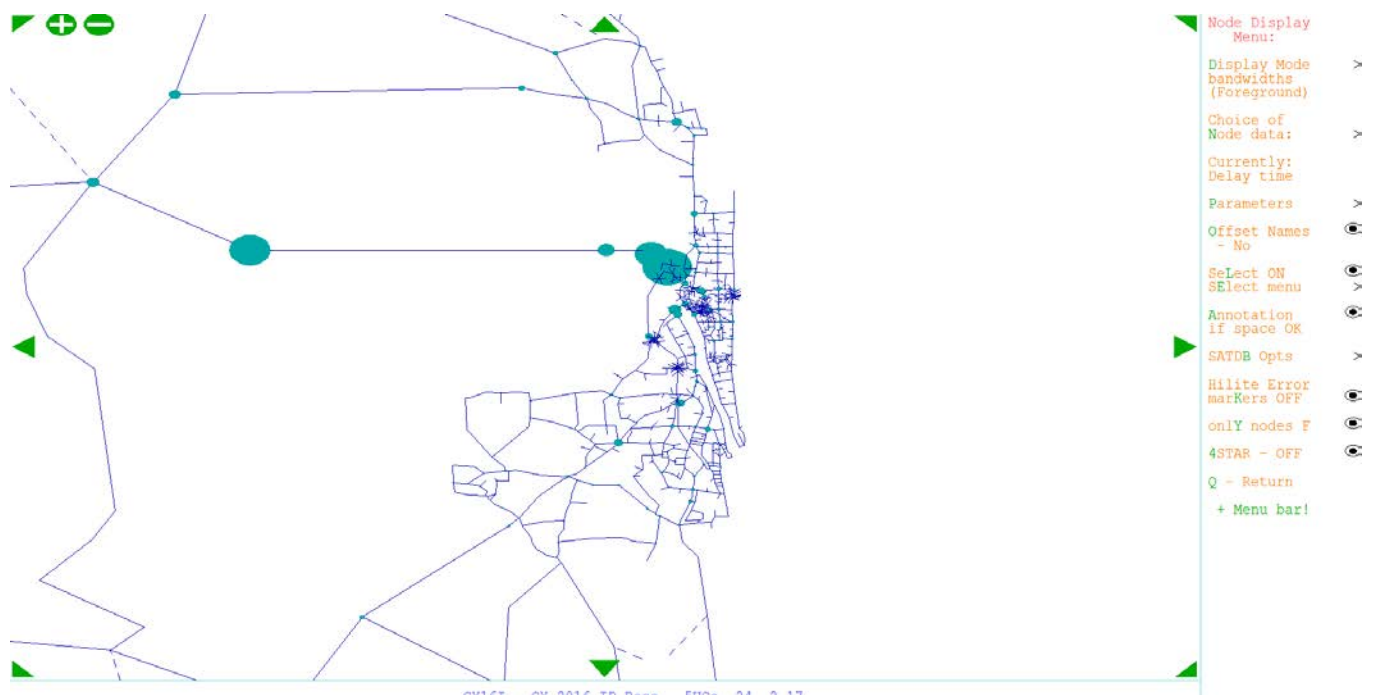
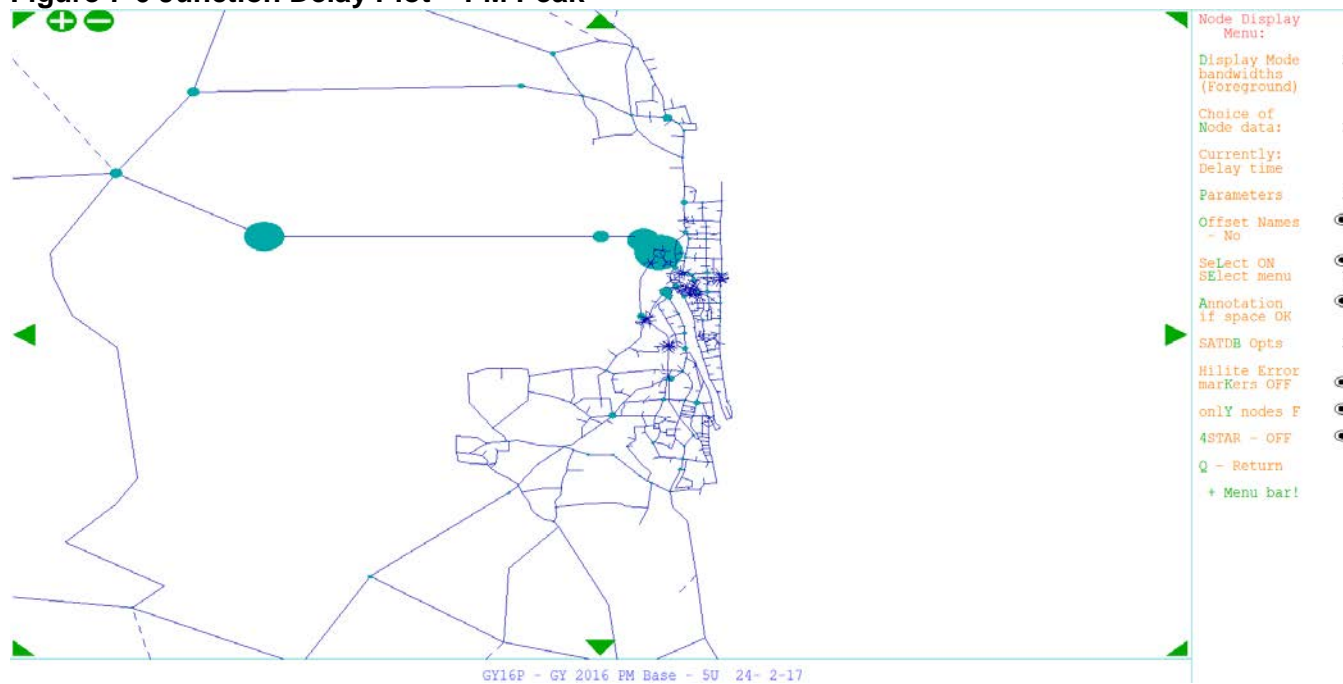


Figure 7-5 Flow Bandwidth Plot – PM Peak



Figure 7-6 Junction Delay Plot – PM Peak



## Test 5: Route Choice Checks

### Background

The purpose of this test is to prove that the network routing between strategic locations, building on the standard SATNET, are sensible and use the most realistic route choice.

The test should then confirm that the route choice through the coded network, based on unloaded conditions, are realistic and appropriately differentiates between the principle vehicle groups.

### Information Required

Several strategic places in the core modelled area will be identified and used as the basis of the test. Plots of paths for each identified pairs of places will then be presented showing how vehicles route through the network.

### Acceptance Criteria

Paths should show plausible routings, in particular for areas that are unexpectedly avoided or unexpectedly attractive on the unloaded network. Differences in routings between the principle vehicle groups (arising from banned links and turns) should be justified through reference to the source data.

Guidance presented in section 7.3 of TAG Unit M3.1, with the number of OD pairs determined as follows:

- Number of OD pairs = (number of zones)<sup>0.25</sup> x number of user classes

Based on the initial proposed zoning system, this equates to 20 routes. The O-D pairs for the traffic routing checks are provided in Table 6-1.

Table 6-1 Route Choice Checks

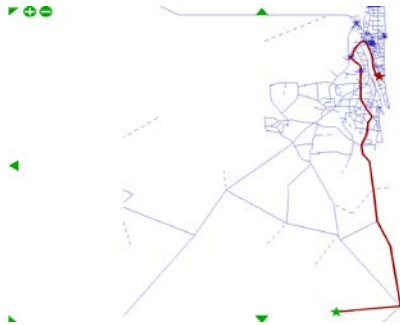
Route	Name	Origin	Destination
1	Lowestoft to Peninsula	22004	3702
2	Peninsula to Lowestoft	3702	22004
3	Lowestoft to Yarmouth Centre	22004	1
4	Yarmouth Centre to Lowestoft	1	22004
5	Yarmouth Centre to Caister	1	68
6	Caister to Yarmouth Centre	68	1
7	Norwich to Peninsula	500	3702
8	Peninsula to Norwich	3702	500
9	Southtown to Caister	3302	68
10	Caister to Southtown	68	3302
11	Southtown to Northgate	34	7
12	Northgate to Southtown	7	34
13	Southtown to Peninsula	34	603
14	Peninsula to southtown	603	34
15	Peninsula to Northgate	1701	78
16	Northgate to Peninsula	78	1701
17	Peninsula to Chaucer Road	16	24
18	Chaucer Road to Peninsula	24	16
19	Gorleston to Yarmouth Station	51	27
20	Yarmouth Station to Gorleston	27	51

Routes between these same O-D pairs have also been examined with the post matrix estimated assignments. These are shown in Appendix H. In some cases, the routes have changed due to the network and matrix changes accompanying calibration.

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Lowestoft to Peninsula

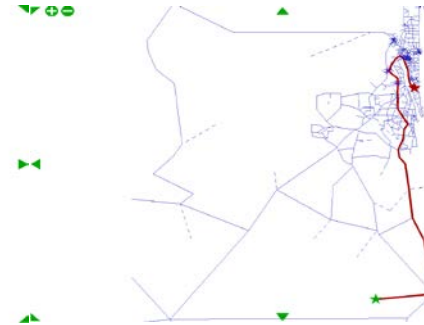
AM PEAK



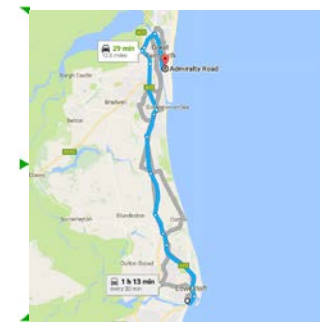
INTER PEAK



PM PEAK

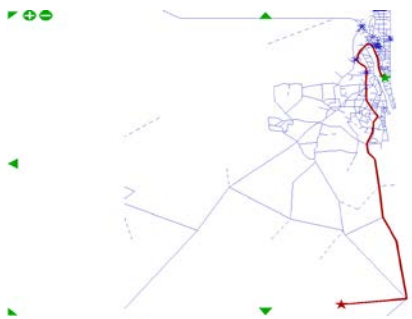


GOOGLE MAPS



Peninsula to Lowestoft

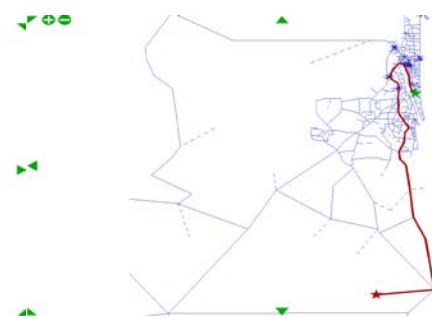
AM PEAK



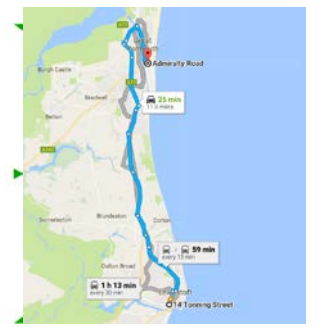
INTER PEAK



PM PEAK



GOOGLE MAPS

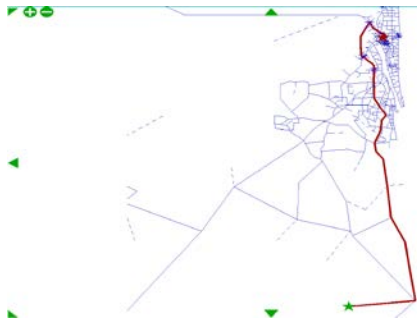




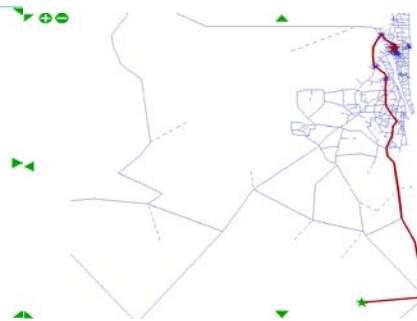
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Lowestoft to Yarmouth Centre

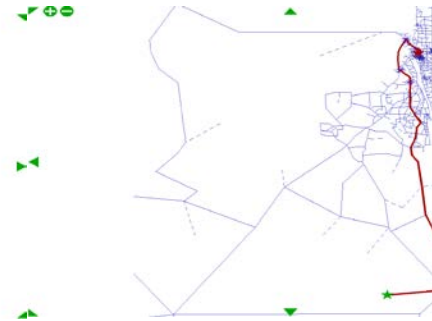
AM PEAK



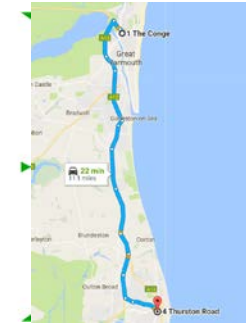
INTER PEAK



PM PEAK

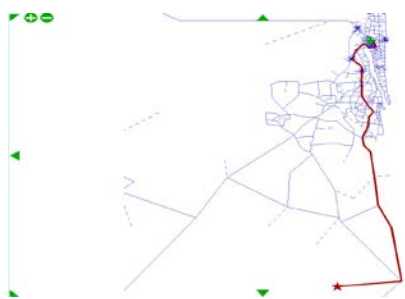


GOOGLE MAPS



Yarmouth Centre to Lowestoft

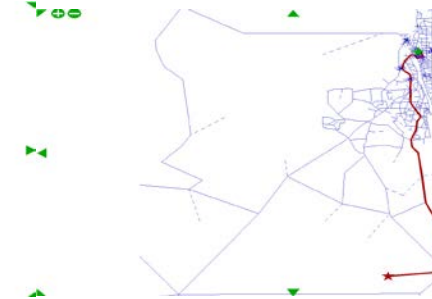
AM PEAK



INTER PEAK



PM PEAK



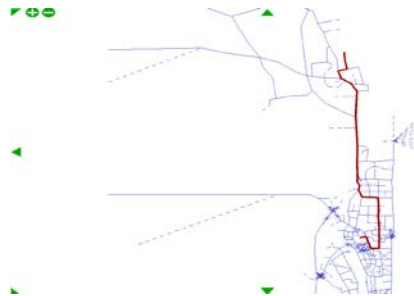
GOOGLE MAPS



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Yarmouth Centre to Caister

AM PEAK



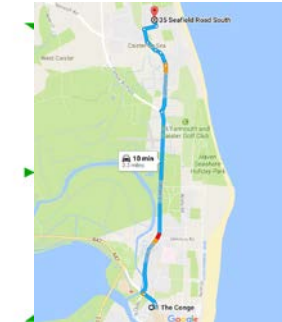
INTER PEAK



PM PEAK



GOOGLE MAPS



Caister to Yarmouth Centre

AM PEAK



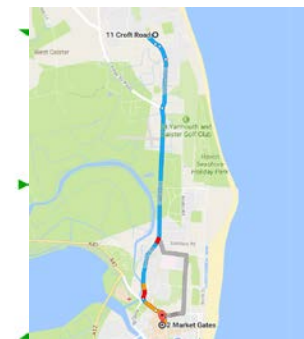
INTER PEAK



PM PEAK



GOOGLE MAPS



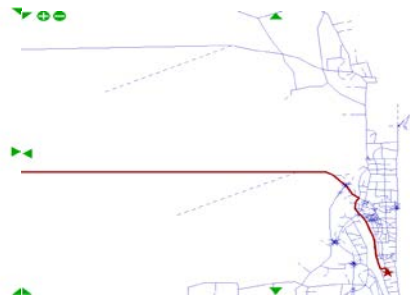
Great Yarmouth Third River Crossing Traffic Model  
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Norwich to Peninsula

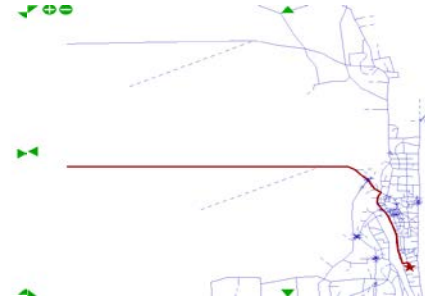
AM PEAK



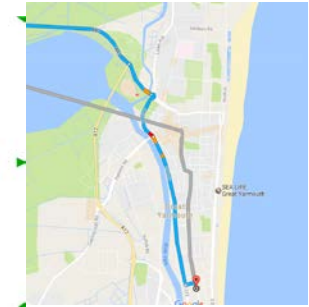
INTER PEAK



PM PEAK



GOOGLE MAPS

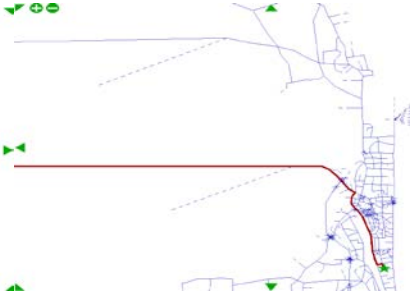


Peninsula to Norwich

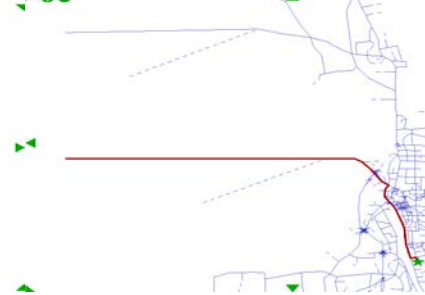
AM PEAK



INTER PEAK



PM PEAK



GOOGLE MAPS



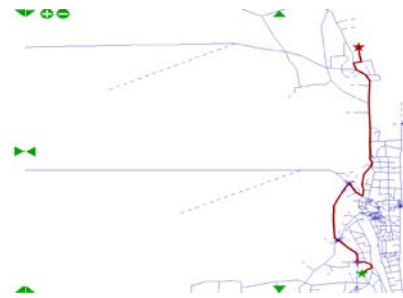
Great Yarmouth Third River Crossing Traffic Model  
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Southtown to Caister

AM PEAK



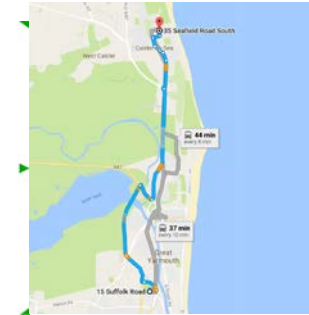
INTER PEAK



PM PEAK

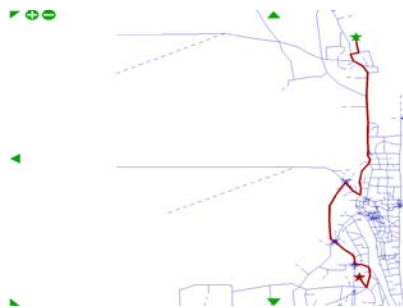


GOOGLE MAPS

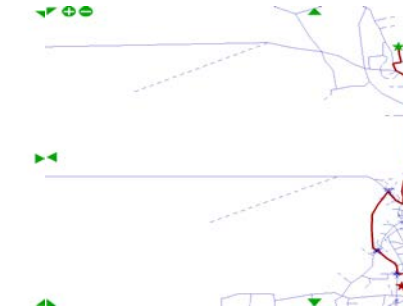


Caister to Southtown

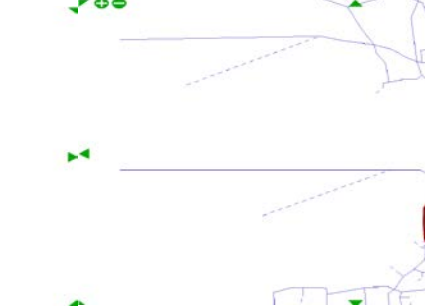
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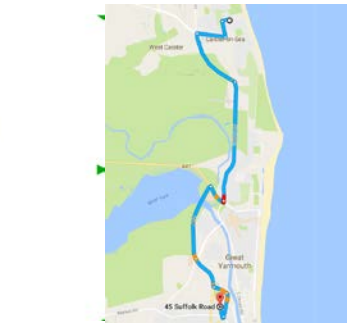
INTER PEAK



PM PEAK



GOOGLE MAPS



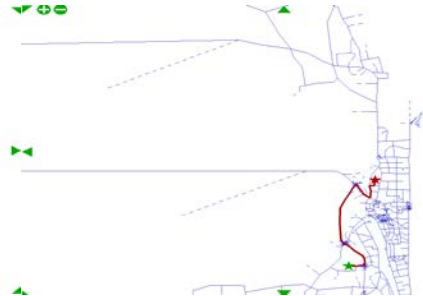
Great Yarmouth Third River Crossing Traffic Model  
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Southtown to Northgate

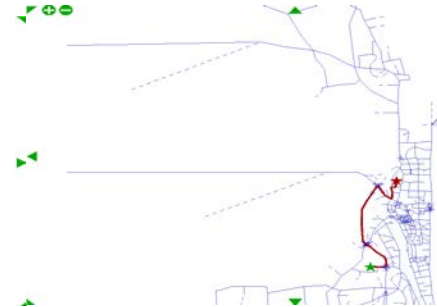
AM PEAK



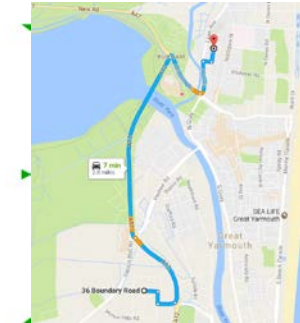
INTER PEAK



PM PEAK



GOOGLE MAPS



Northgate to Southtown

AM PEAK



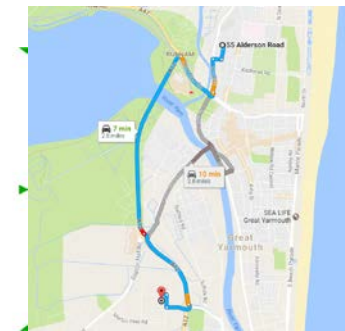
INTER PEAK



PM PEAK



GOOGLE MAPS



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Southtown to Peninsula

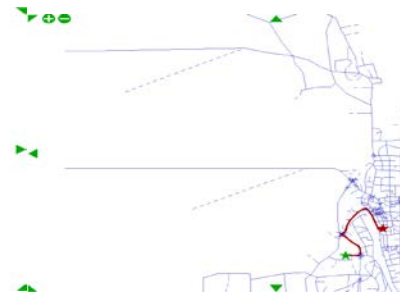
AM PEAK



INTER PEAK



PM PEAK



GOOGLE MAPS

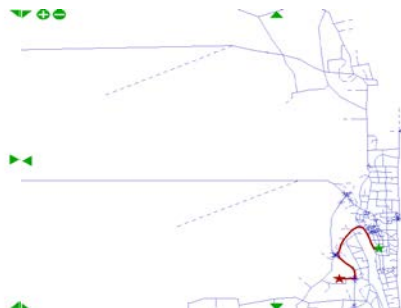


Peninsula to Southtown

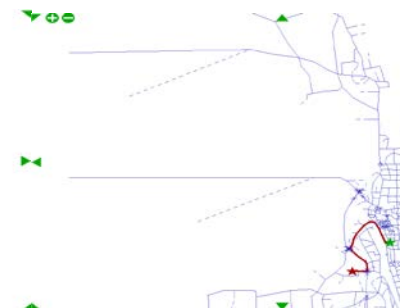
AM PEAK



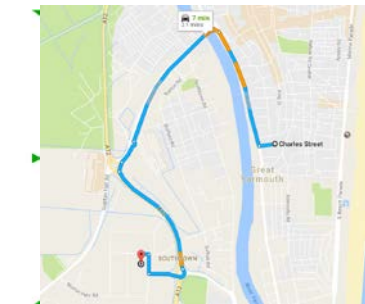
INTER PEAK



PM PEAK



GOOGLE MAPS



### Peninsula to Northgate

AM PEAK



INTER PEAK



PM PEAK



GOOGLE MAPS

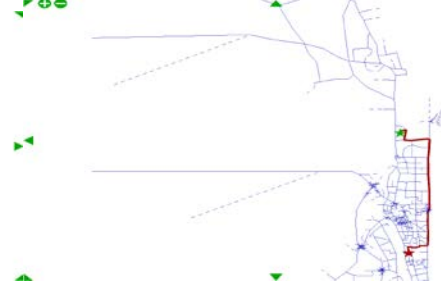


### Northgate to Peninsula

AM PEAK



INTER PEAK



PM PEAK

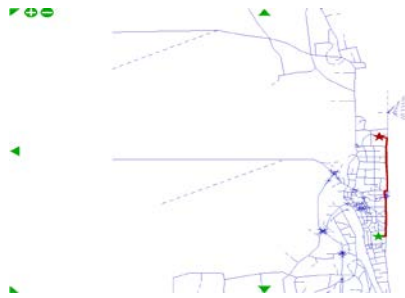


GOOGLE MAPS

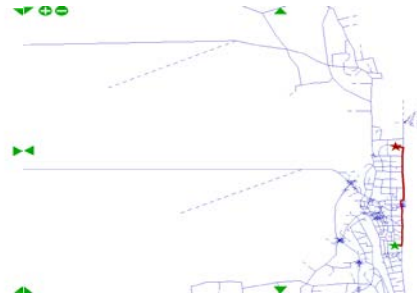


### Peninsula to Chaucer Road

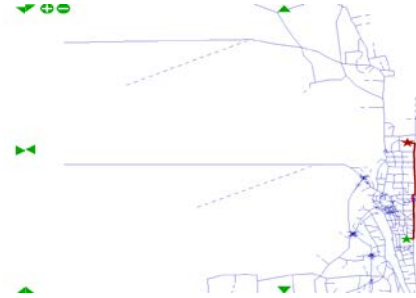
AM PEAK



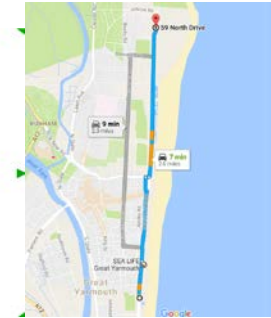
INTER PEAK



PM PEAK

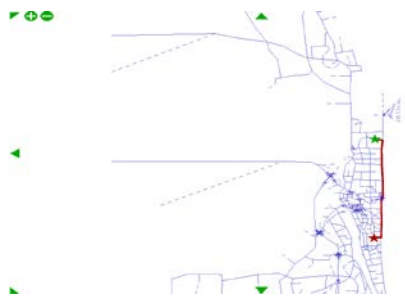


GOOGLE MAPS



### Chaucer Road to Peninsula

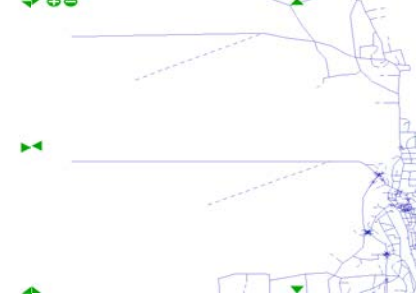
AM PEAK



INTER PEAK



PM PEAK



GOOGLE MAPS





### Gorleston to Yarmouth Station

AM PEAK



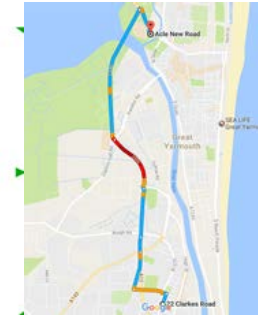
INTER PEAK



PM PEAK



GOOGLE MAPS

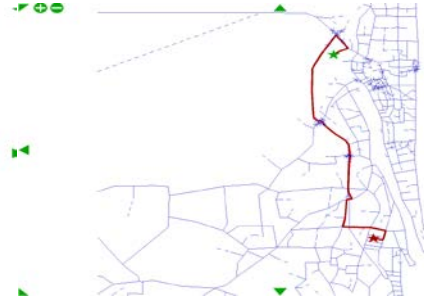


### Yarmouth Station to Gorleston

AM PEAK



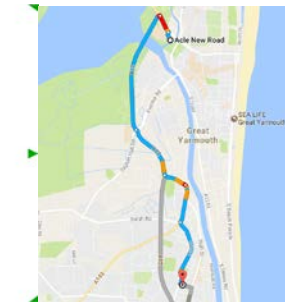
INTER PEAK



PM PEAK



GOOGLE MAPS



## Appendix F: Matrix Calibration

AM: IMPACT OF ME2 ON SECTORAL MATRIX

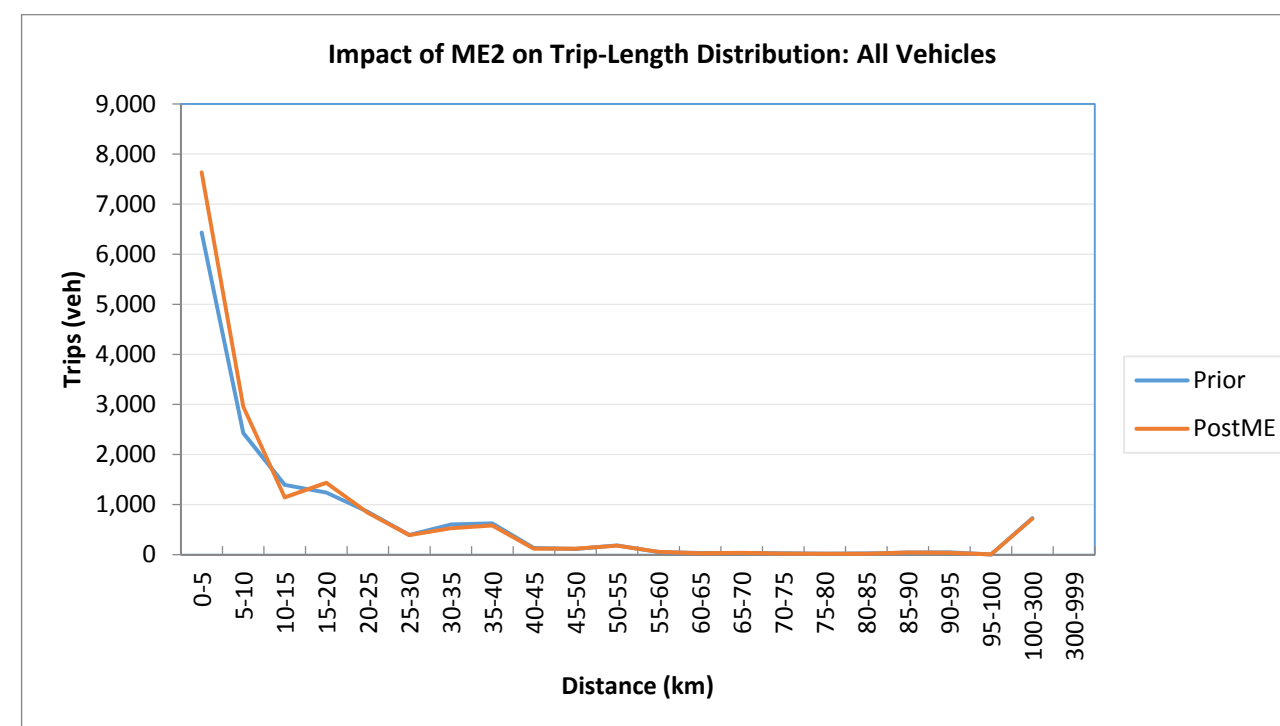
Prior Matrix								PostME Matrix								Difference								%Difference								GEH							
All Vehicles								All Vehicles								All Vehicles								All Vehicles								All Vehicles							
OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total
1	303	234	241	63	250	205	1,362	1	385	384	465	65	213	216	1,735	1	82	31	224	-4	-31	11	373	1	27.1%	31.0%	32.3%	-5.7%	-12.6%	5.5%	27.4%	1	4.4	4.3	11.3	0.5	2.1	0.8	9.5
2	207	235	273	36	115	315	1,240	2	334	303	315	57	148	235	1,393	2	128	68	42	-38	33	-80	153	2	61.8%	28.8%	15.5%	-40.1%	29.0%	-25.4%	12.3%	2	7.8	4.1	2.5	4.4	2.3	4.8	4.2
3	316	538	4,012	232	65	1,284	6,447	3	434	741	4,601	216	55	1,288	7,395	3	178	202	530	-16	-10	5	948	3	56.5%	37.6%	14.7%	-7.1%	-16.0%	0.4%	14.7%	3	8.3	8.0	9.0	1.1	1.3	0.1	11.4
4	116	112	247	0	33	80	588	4	60	86	266	0	38	105	554	4	-56	-26	18	0	5	24	-34	4	-48.1%	-23.4%	7.4%		16.2%	30.0%	-5.8%	4	5.3	2.6	1.1		0.3	2.5	1.4
5	214	250	157	78	406	323	1,434	5	271	306	152	68	405	327	1,529	5	57	55	-6	-10	0	-1	95	5	26.4%	22.1%	-3.5%	-12.7%	0.0%	-0.4%	6.6%	5	3.6	3.3	0.4	1.2	0.0	0.1	2.5
6	336	641	1,376	138	302	822	4,335	6	485	643	1,850	178	338	731	4,285	6	89	2	-126	-20	36	-30	-50	6	22.4%	0.3%	-6.4%	-10.3%	12.0%	-3.7%	-1.1%	6	4.2	0.1	2.3	1.5	2.0	1.1	0.8
<b>Total</b>	<b>1,551</b>	<b>2,070</b>	<b>6,306</b>	<b>673</b>	<b>1,170</b>	<b>3,035</b>	<b>15,405</b>	<b>Total</b>	<b>2,029</b>	<b>2,462</b>	<b>7,643</b>	<b>584</b>	<b>1,203</b>	<b>2,963</b>	<b>16,830</b>	<b>Total</b>	<b>478</b>	<b>332</b>	<b>743</b>	<b>-89</b>	<b>33</b>	<b>-72</b>	<b>1,485</b>	<b>Total</b>	<b>30.8%</b>	<b>18.3%</b>	<b>10.8%</b>	<b>#####</b>	<b>2.8%</b>	<b>-2.4%</b>	<b>9.6%</b>	<b>Total</b>	<b>11.3</b>	<b>8.2</b>	<b>8.7</b>	<b>3.6</b>	<b>0.9</b>	<b>1.3</b>	<b>11.7</b>
Business								Business								Business								Business															
1	13	11	13	3	11	17	67	1	17	11	20	2	8	17	74	1	3	1	7	-1	-2	0	7	1	26.6%	4.7%	51.8%	-33.2%	-22.7%	0.3%	11.1%	1	0.3	0.2	1.7	0.6	0.8	0.0	0.9
2	3	3	18	2	7	24	63	2	14	11	22	2	7	21	77	2	5	3	3	0	1	-4	7	2	48.8%	30.9%	17.3%	-8.5%	10.3%	-14.6%	10.8%	2	1.3	0.8	0.7	0.1	0.3	0.7	0.9
3	19	28	162	9	6	86	309	3	28	29	189	4	2	86	339	3	9	1	27	-5	-3	1	29	3	46.7%	3.0%	16.7%	-54.7%	-57.3%	0.7%	9.5%	3	1.8	0.2	2.0	1.3	1.6	0.1	1.6
4	5	4	17	0	1	4	31	4	2	4	21	0	1	5	33	4	-3	0	4	0	0	1	2	4	-64.3%	-1.1%	23.0%		-2.2%	20.1%	5.4%	4	1.7	0.0	0.3		0.0	0.4	0.3
5	8	11	8	3	16	26	72	5	10	14	7	3	16	25	75	5	2	4	0	0	0	-2	3	5	23.5%	33.5%	-2.7%	-3.4%	-1.6%	-6.2%	4.3%	5	0.6	1.0	0.1	0.2	0.1	0.3	0.4
6	26	44	118	15	18	60	282	6	23	45	124	12	16	45	271	6	3	1	6	-3	-2	-16	-11	6	12.0%	2.8%	5.0%	-21.2%	-12.6%	-25.7%	-3.8%	6	0.6	0.2	0.5	0.3	0.6	2.1	0.6
<b>Total</b>	<b>80</b>	<b>106</b>	<b>336</b>	<b>32</b>	<b>59</b>	<b>217</b>	<b>830</b>	<b>Total</b>	<b>99</b>	<b>114</b>	<b>383</b>	<b>22</b>	<b>51</b>	<b>198</b>	<b>868</b>	<b>Total</b>	<b>19</b>	<b>9</b>	<b>47</b>	<b>-9</b>	<b>-8</b>	<b>-19</b>	<b>38</b>	<b>Total</b>	<b>23.5%</b>	<b>8.2%</b>	<b>13.9%</b>	<b>#####</b>	<b>#####</b>	<b>-8.8%</b>	<b>4.6%</b>	<b>Total</b>	<b>2.0</b>	<b>0.8</b>	<b>2.5</b>	<b>1.8</b>	<b>1.0</b>	<b>1.3</b>	<b>1.3</b>
Commute								Commute								Commute								Commute															
1	27	59	72	26	24	68	276	1	33	110	135	22	13	64	382	1	6	51	63	-5	-5	-4	106	1	22.6%	86.2%	86.7%	-17.7%	-20.0%	-6.4%	38.4%	1	1.1	5.5	6.2	0.3	1.0	0.5	5.8
2	23	23	65	24	26	121	295	2	33	40	73	14	35	75	270	2	4	10	8	-3	8	-46	-25	2	13.5%	35.0%	11.6%	-39.2%	32.2%	-37.7%	-8.4%	2	0.7	1.8	0.3	2.1	1.5	4.6	1.5
3	107	218	316	132	32	441	1,847	3	163	288	1,033	137	16	339	2,102	3	61	70	177	5	-16	-42	255	3	57.2%	32.1%	19.3%	3.7%	-43.8%	-3.5%	13.8%	3	5.2	4.4	5.6	0.4	3.3	2.0	5.7
4	52	54	125	0	18	48	296	4	13	45	138	0	18	60	281	4	-32	-3	14	0	1	12	-15	4	-62.3%	-16.8%	10.8%		3.3%	25.3%	-5.1%	4	5.4	1.3	1.2		0.1	1.7	0.9
5	48	63	54	43	44	33	351	5	62	32	48	36	43	86	367	5	15	23	-7	-7	-1	-7	16	5	30.4%	34.1%	-12.8%	-16.4%	-2.0%	-7.6%	4.5%	5	2.0	2.6	1.0	1.1	0.1	0.8	0.8
6	162	275	748	134	83	330	1,793	6	136	253	687	125	32	347	1,639	6	33	-22	-61	-10	3	-43	-94	6	20.4%	-8.1%	-8.2%	-7.2%	11.1%	-11.1%	-5.2%	6	2.5	1.4	2.3	0.3	1.0	2.2	2.2
<b>Total</b>	<b>425</b>	<b>704</b>	<b>1,980</b>	<b>360</b>	<b>227</b>	<b>1,162</b>	<b>4,858</b>	<b>Total</b>	<b>512</b>	<b>828</b>	<b>2,173</b>	<b>334</b>	<b>223</b>	<b>1,032</b>	<b>5,101</b>	<b>Total</b>	<b>87</b>	<b>124</b>	<b>192</b>	<b>-26</b>	<b>-4</b>	<b>-130</b>	<b>243</b>	<b>Total</b>	<b>20.5%</b>	<b>17.5%</b>	<b>9.7%</b>	<b>-7.2%</b>	<b>-1.6%</b>	<b>-11.2%</b>	<b>5.0%</b>	<b>Total</b>	<b>4.0</b>	<b>4.5</b>	<b>4.2</b>	<b>1.4</b>	<b>0.2</b>	<b>3.9</b>	<b>3.5</b>
Other								Other								Other								Other															
1	228	183	126	17	143	76	785	1	288	212	243	12	119	80	953	1	60	22	117	-5	-31	4	168	1	26.5%	11.7%	33.2%	-23.5%	-20.6%	4.8%	21.4%	1	3.8	1.6	8.6	1.3	2.7	0.4	5.7
2	136	162	144	41	63	81	626	2	242	210	161	27	75	67	781	2	106	48	17	-14	12	-14	155	2	77.6%	23.7%	11.3%	-34.3%	18.7%	-16.3%	24.7%	2	7.7	3.5	1.4	2.4	1.4	1.6	5.8
3	155	221	2,374	55	20	468	3,293	3	225	303	2,764	32	14	464	3,808	3	70	88	330	-23	-6	-4	515	3	45.0%	33.9%	16.4%	-42.7%	-23.3%	-0.3%	15.6%	3	5.1	5.4	7.7	3.6	1.4	0.2	8.6
4	22	23	76	0	7	16	151	4	8	22	76	0	7	24	138	4	-14	-7	-1	0	0	8	-13	4	-62.2%	-23.5%	-0.8%		-0.8%	52.2%	-8.7%	4	3.5	1.4	0.1		0.0	1.9	1.1
5	132	144	86	17	276	151	805	5	165	172	30	15	271	152	866	5	33	28	5	-2	-4	1	61	5	25.4%	13.6%	5.7%	-12.1%	-1.6%	0.6%	7.6%	5	2.7	2.2	0.5	0.5	0.3	0.1	2.1
6	152	183	763	37	136	122	1,394	6	180	204	682	23	140	113	1,343	6	27	21	-81	-8	4	-3	-44	6	18.0%	11.5%	-10.6%	-20.7%	2.3%	-7.1%	-3.2%	6	2.1	1.5	3.0	1.3	0.3	0.8	1.2
<b>Total</b>	<b>826</b>	<b>928</b>	<b>3,569</b>	<b>166</b>	<b>652</b>	<b>913</b>	<b>7,054</b>	<b>Total</b>	<b>1,109</b>	<b>1,129</b>	<b>4,017</b>	<b>114</b>	<b>627</b>	<b>900</b>	<b>7,835</b>	<b>Total</b>	<b>283</b>	<b>201</b>	<b>448</b>	<b>-52</b>	<b>-25</b>	<b>-13</b>	<b>841</b>	<b>Total</b>	<b>34.2%</b>	<b>21.6%</b>	<b>12.5%</b>	<b>#####</b>	<b>-3.9%</b>	<b>-1.5%</b>	<b>11.9%</b>	<b>Total</b>	<b>9.1</b>	<b>6.3</b>	<b>7.3</b>	<b>4.4</b>	<b>1.0</b>	<b>0.4</b>	<b>9.7</b>
Lgv								Lgv								Lgv								Lgv															
1	35	31	28	3	38	30	171	1	47	43	65	7	41	44	254	1	12	18	37	-2	3	15	83	1	34.4%	53.9%	132.7%	-23.3%	8.2%	43.0%	48.9%	1	1.3	2.3	5.5	0.7	0.5	2.4	5.7
2	23	23	40	21	17	63	205	2	41	39	43	11	23	52	209	2	12	10	3	-10	6	-17	4	2	40.8%	34.0%	7.3%	-46.3%	33.9%	-24.4%	2.0%	2	2.0	1.7	0.5	2.4	1.3	2.2	0.3
3	34	63	556	33	7	130	883	3	71	83	547	35	21	233	930	3	38	20	-3	2	13	44	107	3	112.1%	31.8%	-1.6%	5.1%	183.6%	23.0%	12.2%	3	5.2	2.3	0.4	0.3	3.6	3.0	3.5
4	3	18	23	0	7	3	65	4	3	11	24	0	11	11	60	4	-5	-7	0	0	5	2	-6	4	-60.7%	-40.8%	1.2%		72.3%	23.2%	-8.5%	4	2.1	1.3	0.1		1.6	0.6	0.7
5	19	25	3	13	70	52	188	5	13	23	6	13	75	58	195	5	1	-3	-3	0	5	6	6	5	4.2%	-3.8%	-34.3%	-1.6%	7.6%	11.1%	3.2%	5	0.2	0.5	1.1	0.1	0.6	0.8	0.4
6	48	105	233	11	53	201	663	6	78	123	241	11	84	208	745	6	30	18	2	0	25	7	82	6	63.1%	17.2%	0.8%	1.2%	42.3%	3.4%	12.4%	6	3.8	1.7	0.1	0.0	3.0	0.5	3.1
<b>Total</b>	<b>173</b>	<b>271</b>	<b>896</b>	<b>87</b>	<b>138</b>	<b>550</b>	<b>2,175</b>	<b>Total</b>	<b>260</b>	<b>328</b>	<b>926</b>	<b>77</b>	<b>256</b>	<b>606</b>	<b>2,453</b>	<b>Total</b>	<b>87</b>	<b>56</b>	<b>30</b>	<b>-10</b>	<b>57</b>	<b>56</b>	<b>278</b>	<b>Total</b>	<b>50.5%</b>	<b>20.8%</b>	<b>3.4%</b>	<b>-11.6%</b>	<b>29.0%</b>	<b>10.2%</b>	<b>12.8%</b>	<b>Total</b>	<b>5.9</b>	<b>3.3</b>	<b>1.0</b>	<b>1.1</b>	<b>3.8</b>	<b>2.3</b>	<b>5.8</b>
Hgv																																							

IMPACT OF ME2 ON TRIP-LENGTH  
DISTRIBUTION AM PEAK

All Vehicles 187.0

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	6,432	2,431	1,394	1,239	858	394	600	625	132	113	187	51	33	34	20	24	23	40	45	3	727	
PostME Trips (veh)	0	7,633	2,956	1,143	1,434	838	390	528	583	120	117	178	58	26	35	18	17	17	42	35	3	718	
Prior veh.km	0	18,664	16,874	17,807	21,463	18,704	10,889	19,781	23,116	5,631	5,374	9,595	2,934	2,045	2,314	1,483	1,889	1,880	3,546	4,133	279	87,842	
PostME veh.km	0	22,127	20,522	14,428	24,675	18,290	10,752	17,316	21,699	5,077	5,609	9,209	3,353	1,592	2,322	1,295	1,367	1,392	3,672	3,240	246	86,499	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	6,432	7,633	18,664	22,127	2.9	2.9	-0.1%
3	5	10	2,431	2,956	16,874	20,522	6.9	6.9	0.0%
4	10	15	1,394	1,143	17,807	14,428	12.8	12.6	-1.2%
5	15	20	1,239	1,434	21,463	24,675	17.3	17.2	-0.7%
6	20	25	858	838	18,704	18,290	21.8	21.8	0.0%
7	25	30	394	390	10,889	10,752	27.6	27.5	-0.3%
8	30	35	600	528	19,781	17,316	33.0	32.8	-0.6%
9	35	40	625	583	23,116	21,699	37.0	37.2	0.6%
10	40	45	132	120	5,631	5,077	42.6	42.4	-0.4%
11	45	50	113	117	5,374	5,609	47.5	47.9	0.8%
12	50	55	187	178	9,595	9,209	51.4	51.7	0.5%
13	55	60	51	58	2,934	3,353	57.5	57.6	0.2%
14	60	65	33	26	2,045	1,592	61.7	61.7	0.0%
15	65	70	34	35	2,314	2,322	67.1	67.2	0.2%
16	70	75	20	18	1,483	1,295	72.9	72.7	-0.3%
17	75	80	24	17	1,889	1,367	79.0	78.9	-0.1%
18	80	85	23	17	1,880	1,392	82.7	82.9	0.2%
19	85	90	40	42	3,546	3,672	88.1	88.1	0.0%
20	90	95	45	35	4,133	3,240	91.8	92.0	0.2%
21	95	100	3	3	279	246	96.5	96.4	-0.1%
22	100	300	727	718	87,842	86,499	120.8	120.4	-0.3%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>15,405</b>	<b>16,890</b>	<b>276,243</b>	<b>274,681</b>	<b>17.93</b>	<b>16.26</b>	<b>-9.3%</b>

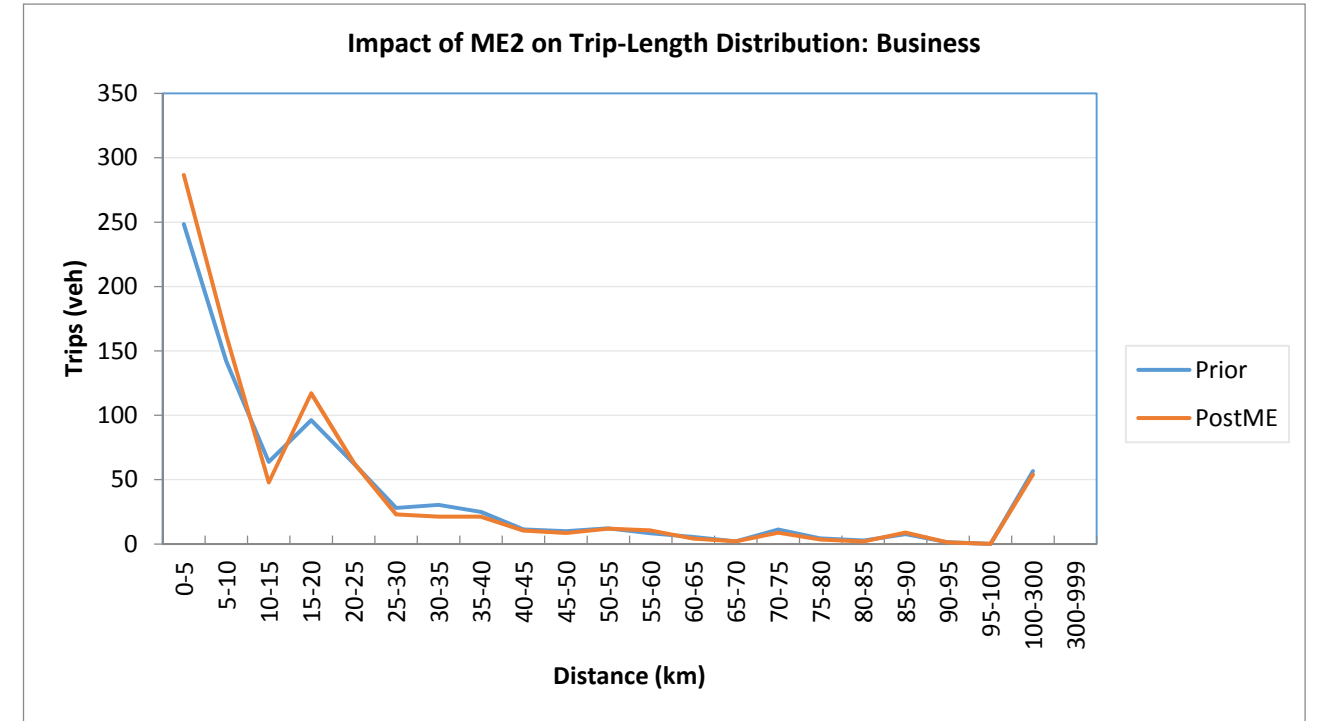


	Prior	PostME
Mean	17.93	16.26
SD	26.04	24.75

**Business**

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	248	142	64	96	63	28	30	25	11	10	12	8	6	2	11	4	3	8	1	0	57	
PostME Trips (veh)	0	287	162	48	117	63	23	21	21	10	9	12	10	4	2	9	3	2	9	1	0	54	
Prior veh.km	0	725	983	813	1,649	1,341	776	999	927	464	469	630	473	344	142	832	341	222	667	121	12	6,679	
PostME veh.km	0	828	1,127	603	1,995	1,354	622	697	792	430	408	618	599	259	136	649	268	165	779	114	9	6,309	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	248	287	725	828	2.9	2.9	-1.0%
3	5	10	142	162	983	1,127	6.9	6.9	0.4%
4	10	15	64	48	813	603	12.7	12.6	-0.9%
5	15	20	96	117	1,649	1,995	17.1	17.1	-0.6%
6	20	25	63	63	1,341	1,354	21.4	21.4	0.2%
7	25	30	28	23	776	622	27.7	27.2	-1.8%
8	30	35	30	21	999	697	32.9	32.8	-0.2%
9	35	40	25	21	927	792	37.2	37.4	0.5%
10	40	45	11	10	464	430	41.2	41.3	0.2%
11	45	50	10	9	469	408	47.2	47.6	0.7%
12	50	55	12	12	630	618	51.6	52.0	0.8%
13	55	60	8	10	473	599	56.9	57.1	0.3%
14	60	65	6	4	344	259	61.4	61.4	0.0%
15	65	70	2	2	142	136	66.5	66.5	0.0%
16	70	75	11	9	832	649	73.8	73.8	0.0%
17	75	80	4	3	341	268	78.9	78.9	-0.1%
18	80	85	3	2	222	165	83.6	83.6	0.0%
19	85	90	8	9	667	779	87.0	86.8	-0.2%
20	90	95	1	1	121	114	91.9	92.0	0.1%
21	95	100	0	0	12	9	95.7	95.7	0.0%
22	100	300	57	54	6,679	6,309	117.8	116.8	-0.8%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>830</b>	<b>868</b>	<b>19,607</b>	<b>18,763</b>	<b>23.62</b>	<b>21.60</b>	<b>-8.5%</b>

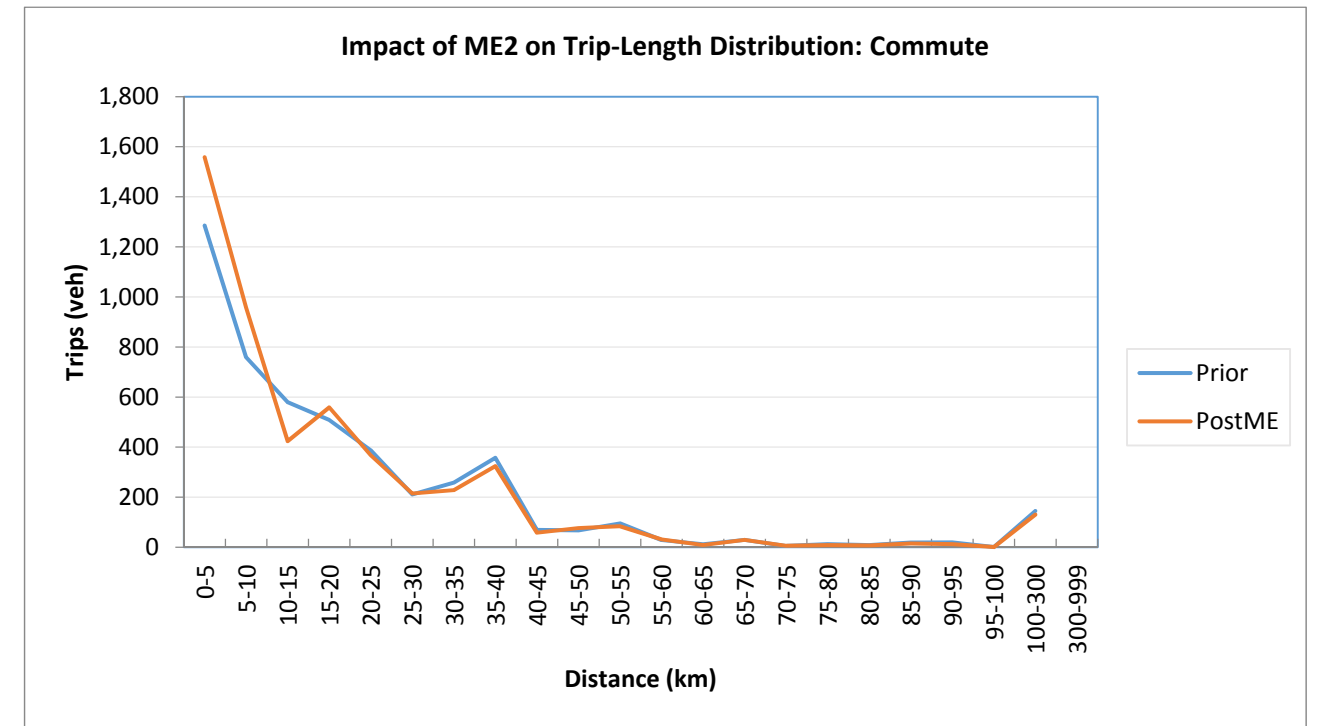


	Prior	PostME
Mean	23.62	21.60
SD	31.10	29.94

Commute

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	1,285	759	579	509	387	211	258	357	69	67	96	29	12	29	5	12	8	18	19	1	145	
PostME Trips (veh)	0	1,558	958	424	559	367	215	228	324	58	77	84	32	9	29	6	8	7	14	12	1	131	
Prior veh.km	0	3,929	5,438	7,441	8,872	8,474	5,903	8,514	13,167	2,953	3,211	4,898	1,669	741	1,961	370	965	693	1,621	1,747	116	17,317	
PostME veh.km	0	4,696	6,795	5,425	9,636	8,028	6,003	7,489	12,028	2,490	3,699	4,329	1,830	539	1,982	425	663	573	1,277	1,132	94	15,543	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	1,285	1,558	3,929	4,696	3.1	3.0	-1.4%
3	5	10	759	958	5,438	6,795	7.2	7.1	-0.9%
4	10	15	579	424	7,441	5,425	12.8	12.8	-0.4%
5	15	20	509	559	8,872	9,636	17.4	17.3	-1.1%
6	20	25	387	367	8,474	8,028	21.9	21.8	-0.2%
7	25	30	211	215	5,903	6,003	28.0	28.0	0.0%
8	30	35	258	228	8,514	7,489	32.9	32.9	-0.3%
9	35	40	357	324	13,167	12,028	36.8	37.1	0.8%
10	40	45	69	58	2,953	2,490	42.9	42.8	-0.3%
11	45	50	67	77	3,211	3,699	47.7	48.1	0.8%
12	50	55	96	84	4,898	4,329	51.3	51.5	0.5%
13	55	60	29	32	1,669	1,830	57.8	57.9	0.2%
14	60	65	12	9	741	539	61.9	61.7	-0.2%
15	65	70	29	29	1,961	1,982	67.2	67.3	0.2%
16	70	75	5	6	370	425	71.2	71.1	-0.1%
17	75	80	12	8	965	663	78.9	78.8	-0.1%
18	80	85	8	7	693	573	83.4	83.4	0.0%
19	85	90	18	14	1,621	1,277	88.2	88.1	-0.1%
20	90	95	19	12	1,747	1,132	92.1	92.4	0.3%
21	95	100	1	1	116	94	97.6	97.5	-0.1%
22	100	300	145	131	17,317	15,543	119.4	119.1	-0.3%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>4,858</b>	<b>5,101</b>	<b>99,999</b>	<b>94,677</b>	<b>20.59</b>	<b>18.56</b>	<b>-9.8%</b>

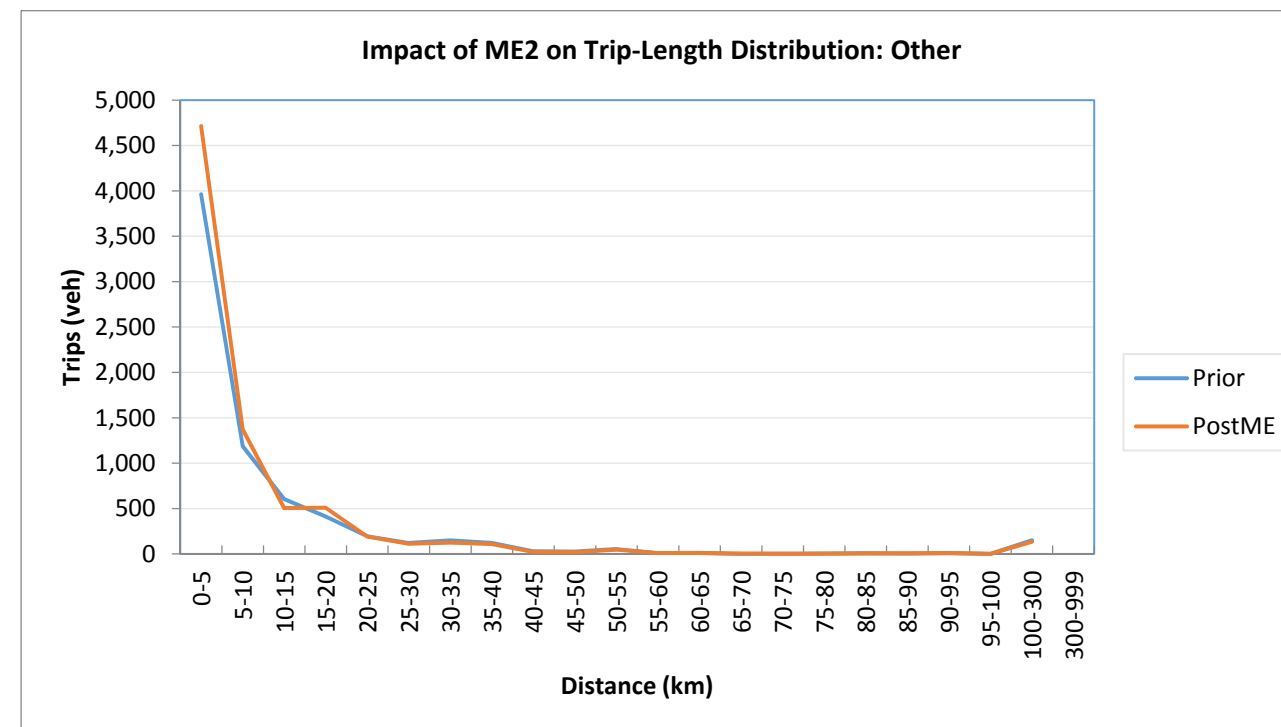


	Prior	PostME
Mean	20.59	18.56
SD	23.75	22.55

Other

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	3,962	1,188	603	411	194	120	148	120	29	25	53	9	12	1	3	5	7	4	9	1	151	
PostME Trips (veh)	0	4,714	1,372	505	508	190	111	123	108	22	20	46	9	9	1	2	3	5	4	8	0	134	
Prior veh.km	0	11,238	8,072	7,647	7,106	4,210	3,264	4,904	4,421	1,242	1,173	2,742	521	737	40	212	379	571	366	808	58	18,074	
PostME veh.km	0	13,439	9,339	6,285	8,715	4,107	2,982	4,062	4,012	957	955	2,400	502	583	39	155	216	385	324	724	45	15,994	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	3,962	4,714	11,238	13,439	2.8	2.9	0.5%
3	5	10	1,188	1,372	8,072	9,339	6.8	6.8	0.2%
4	10	15	603	505	7,647	6,285	12.7	12.5	-1.7%
5	15	20	411	508	7,106	8,715	17.3	17.2	-0.8%
6	20	25	194	190	4,210	4,107	21.7	21.6	-0.4%
7	25	30	120	111	3,264	2,982	27.1	26.9	-0.9%
8	30	35	148	123	4,904	4,062	33.2	32.9	-0.8%
9	35	40	120	108	4,421	4,012	36.9	37.0	0.3%
10	40	45	29	22	1,242	957	42.7	42.6	-0.4%
11	45	50	25	20	1,173	955	47.3	47.6	0.7%
12	50	55	53	46	2,742	2,400	51.7	51.8	0.3%
13	55	60	9	9	521	502	56.8	57.3	1.0%
14	60	65	12	9	737	583	61.9	62.0	0.1%
15	65	70	1	1	40	39	66.5	66.5	0.0%
16	70	75	3	2	212	155	72.7	72.6	-0.2%
17	75	80	5	3	379	216	79.3	79.2	-0.2%
18	80	85	7	5	571	385	82.1	82.5	0.5%
19	85	90	4	4	366	324	88.4	88.5	0.2%
20	90	95	9	8	808	724	92.1	92.1	0.0%
21	95	100	1	0	58	45	95.7	95.7	0.0%
22	100	300	151	134	18,074	15,994	119.8	119.3	-0.4%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>7,054</b>	<b>7,895</b>	<b>77,785</b>	<b>76,220</b>	<b>11.03</b>	<b>9.65</b>	<b>-12.4%</b>

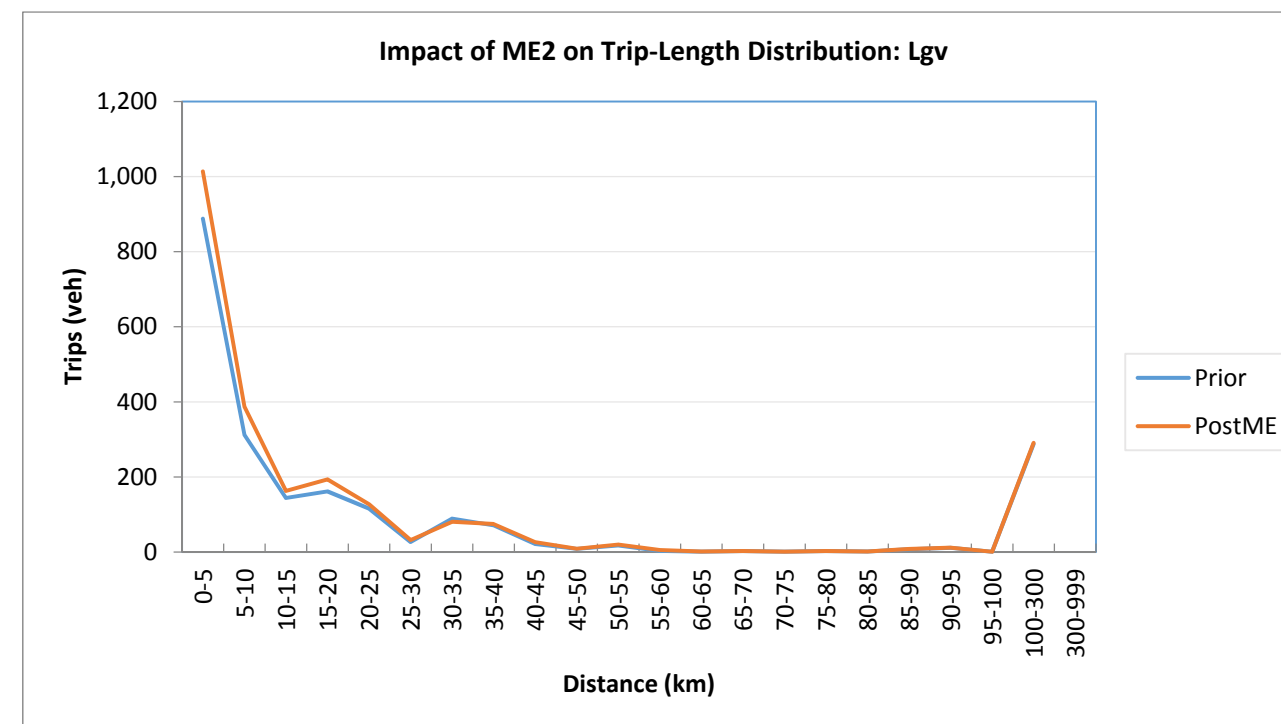


	Prior	PostME
Mean	11.03	9.65
SD	19.47	17.48

Lgv

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	888	312	144	162	116	27	89	71	21	9	17	3	1	3	1	3	1	7	11	1	288	
PostME Trips (veh)	0	1,013	387	163	193	127	32	81	75	26	9	20	6	1	2	1	3	1	8	11	1	291	
Prior veh.km	0	2,577	2,177	1,858	2,819	2,499	740	2,955	2,630	898	410	894	180	69	170	57	205	104	634	1,025	93	35,344	
PostME veh.km	0	2,917	2,691	2,064	3,382	2,744	870	2,654	2,755	1,112	434	1,040	319	77	165	65	220	102	713	1,053	97	35,768	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	888	1,013	2,577	2,917	2.9	2.9	-0.8%
3	5	10	312	387	2,177	2,691	7.0	7.0	-0.3%
4	10	15	144	163	1,858	2,064	12.9	12.7	-1.7%
5	15	20	162	193	2,819	3,382	17.4	17.5	0.2%
6	20	25	116	127	2,499	2,744	21.5	21.5	0.1%
7	25	30	27	32	740	870	27.5	27.1	-1.2%
8	30	35	89	81	2,955	2,654	33.1	32.9	-0.7%
9	35	40	71	75	2,630	2,755	36.8	36.9	0.2%
10	40	45	21	26	898	1,112	42.1	42.0	-0.2%
11	45	50	9	9	410	434	47.5	47.5	0.0%
12	50	55	17	20	894	1,040	51.5	51.7	0.4%
13	55	60	3	6	180	319	57.8	57.7	-0.3%
14	60	65	1	1	69	77	62.4	62.4	0.0%
15	65	70	3	2	170	165	66.6	67.0	0.6%
16	70	75	1	1	57	65	72.9	72.9	0.0%
17	75	80	3	3	205	220	79.3	79.3	0.0%
18	80	85	1	1	104	102	81.6	82.0	0.5%
19	85	90	7	8	634	713	88.5	88.4	-0.1%
20	90	95	11	11	1,025	1,053	91.7	91.8	0.2%
21	95	100	1	1	93	97	95.8	95.8	0.0%
22	100	300	288	291	35,344	35,768	122.9	123.0	0.0%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>2,175</b>	<b>2,453</b>	<b>58,337</b>	<b>61,241</b>	<b>26.83</b>	<b>24.97</b>	<b>-6.9%</b>



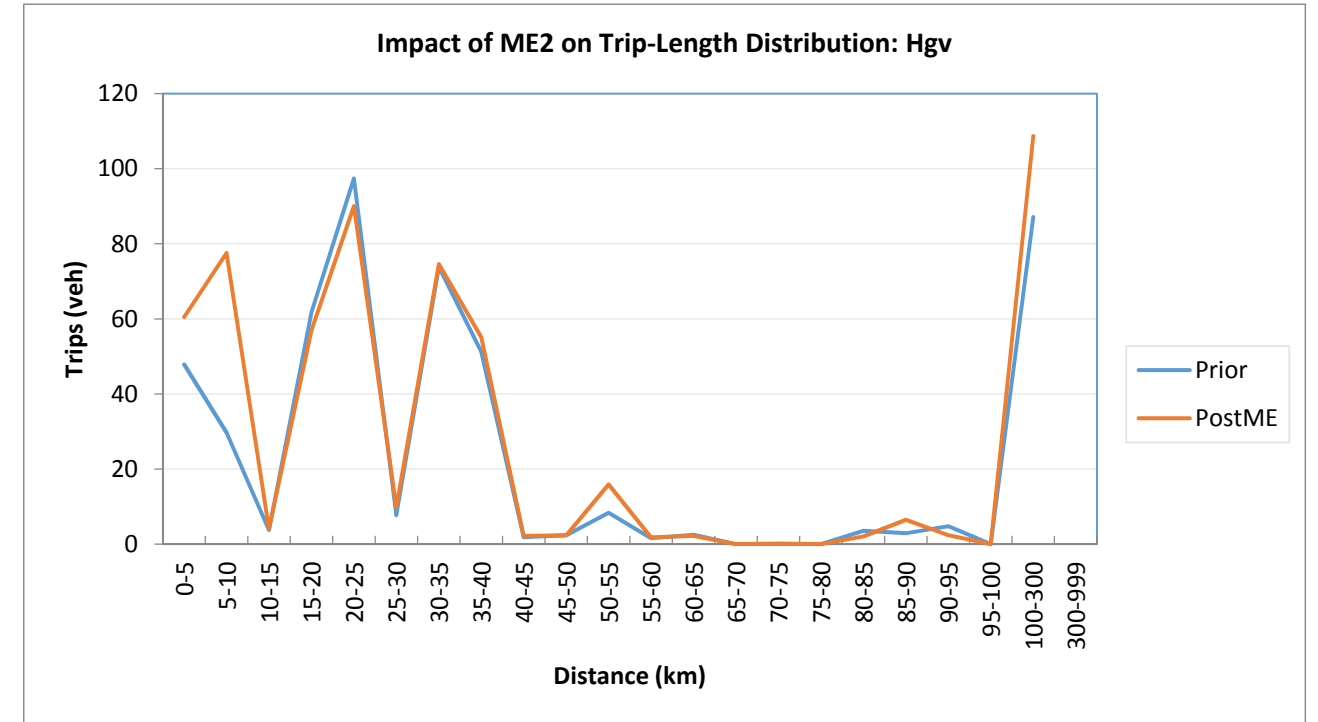
	Prior	PostME
Mean	26.83	24.97
SD	39.99	38.47



Hgv

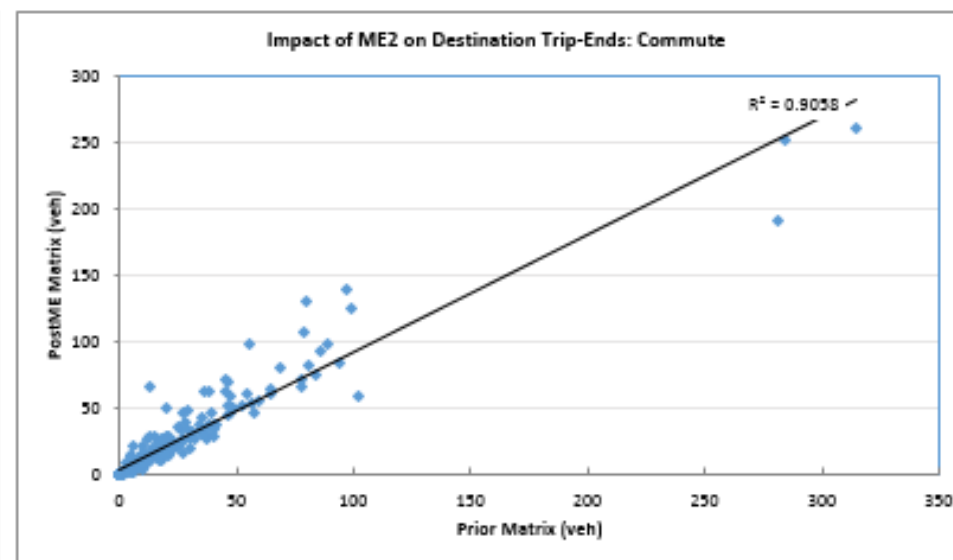
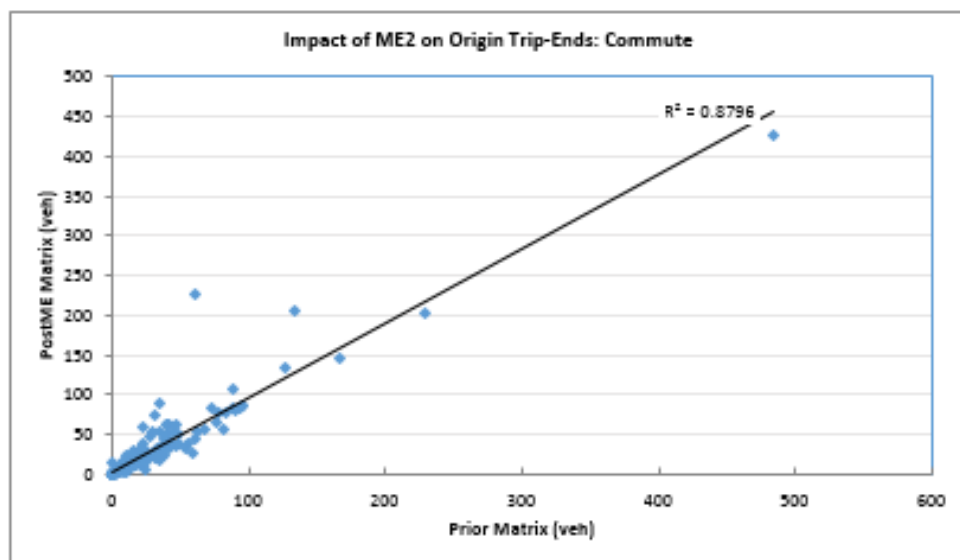
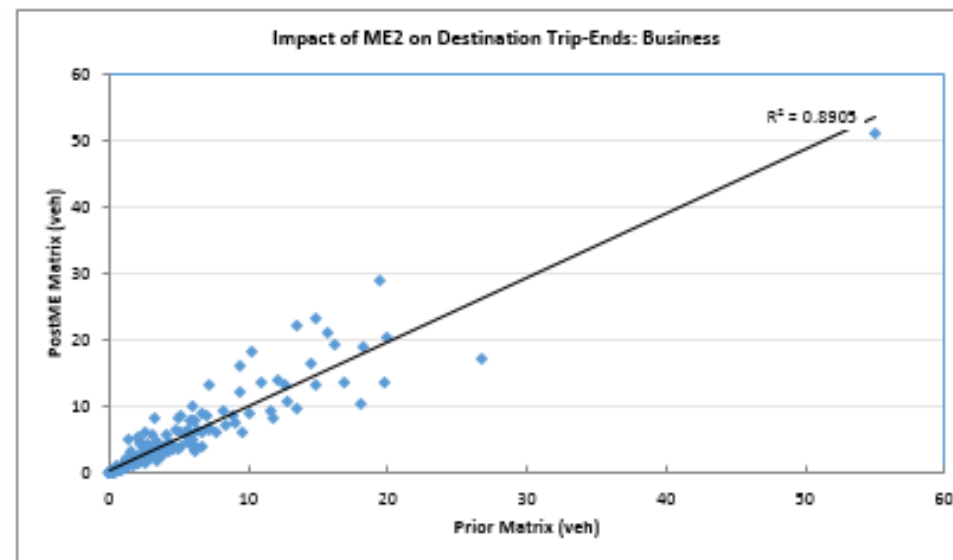
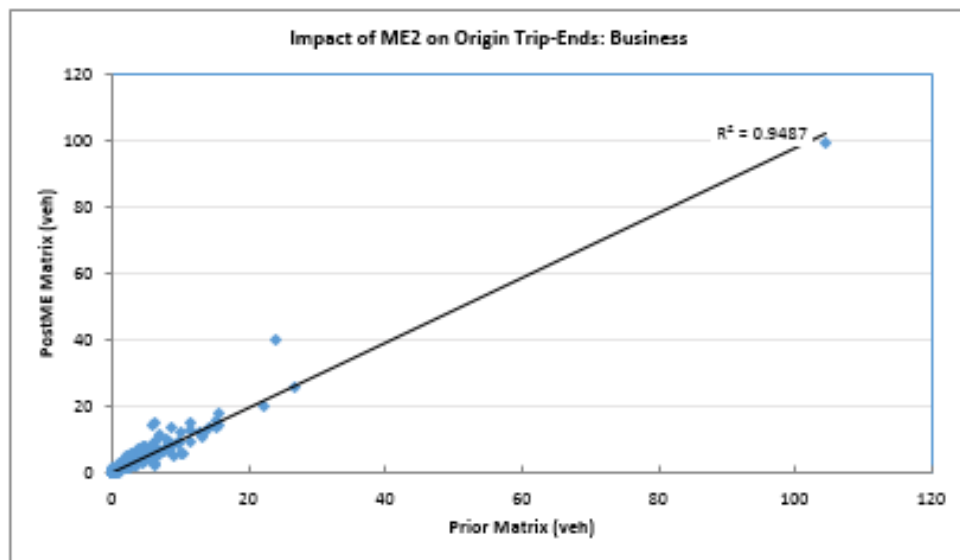
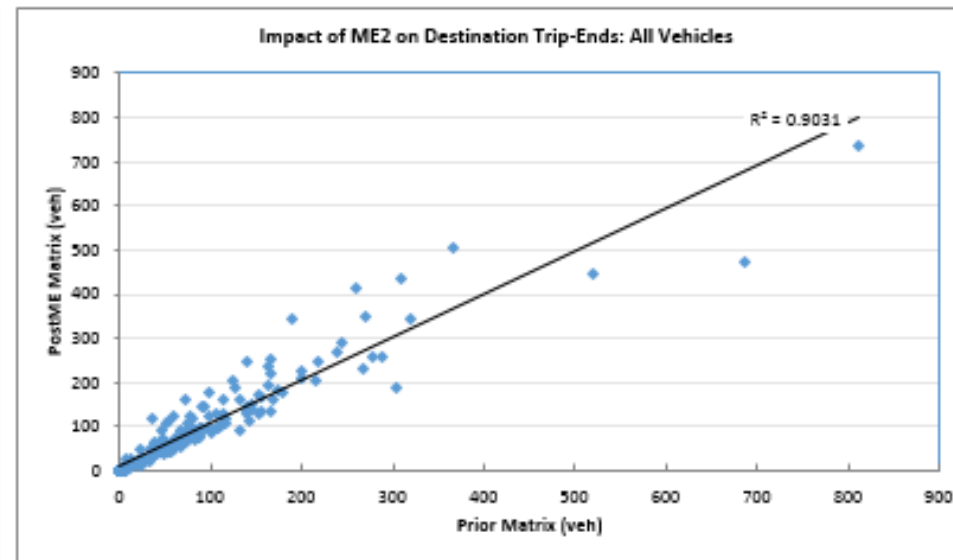
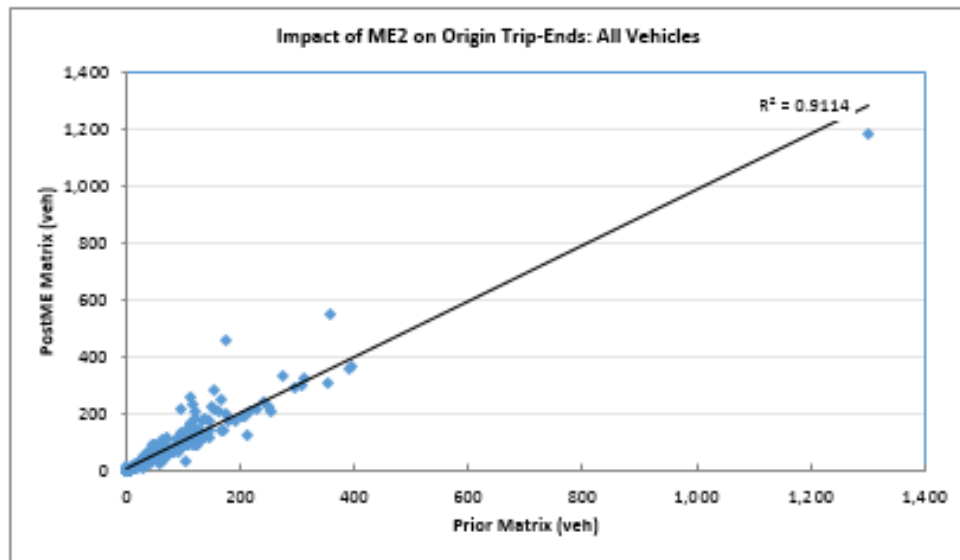
Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	48	30	4	62	97	8	74	51	2	2	8	2	3	0	0	0	4	3	5	0	87	
PostME Trips (veh)	0	61	78	4	57	90	10	75	55	2	2	16	2	2	0	0	0	2	7	2	0	109	
Prior veh.km	0	194	205	49	1,016	2,180	207	2,410	1,971	74	110	431	91	154	0	12	0	291	259	433	0	10,428	
PostME veh.km	0	247	569	52	946	2,056	275	2,413	2,112	88	113	823	103	133	0	3	0	168	580	216	0	12,886	

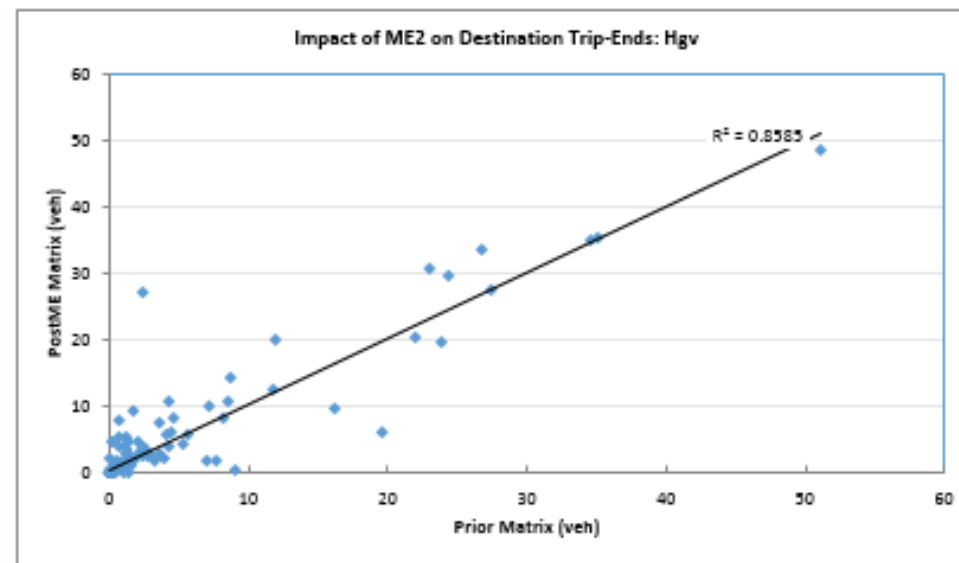
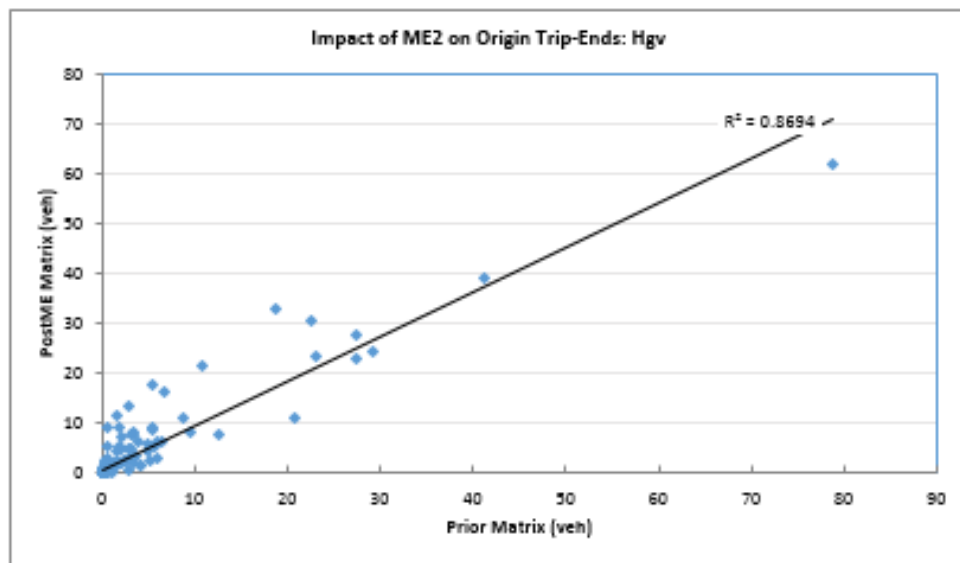
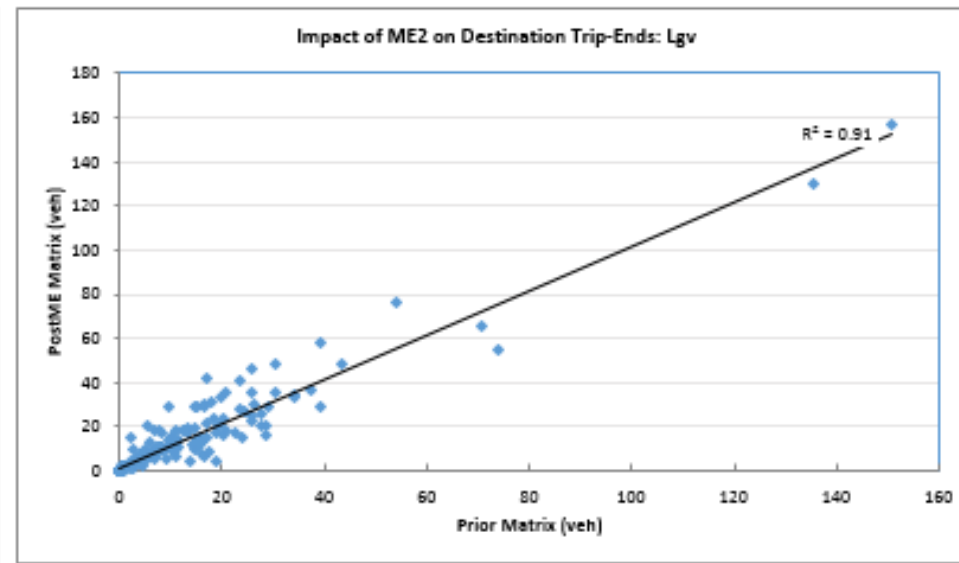
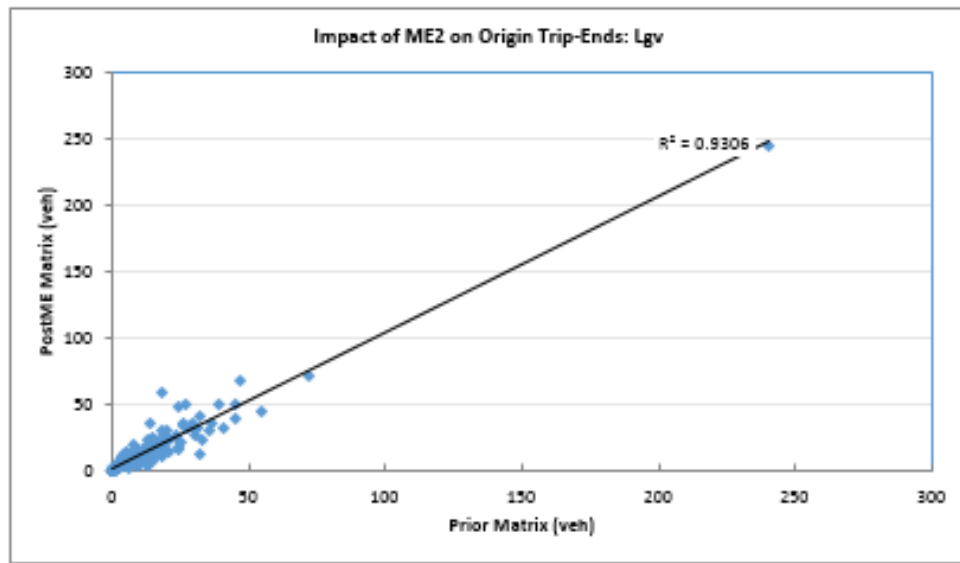
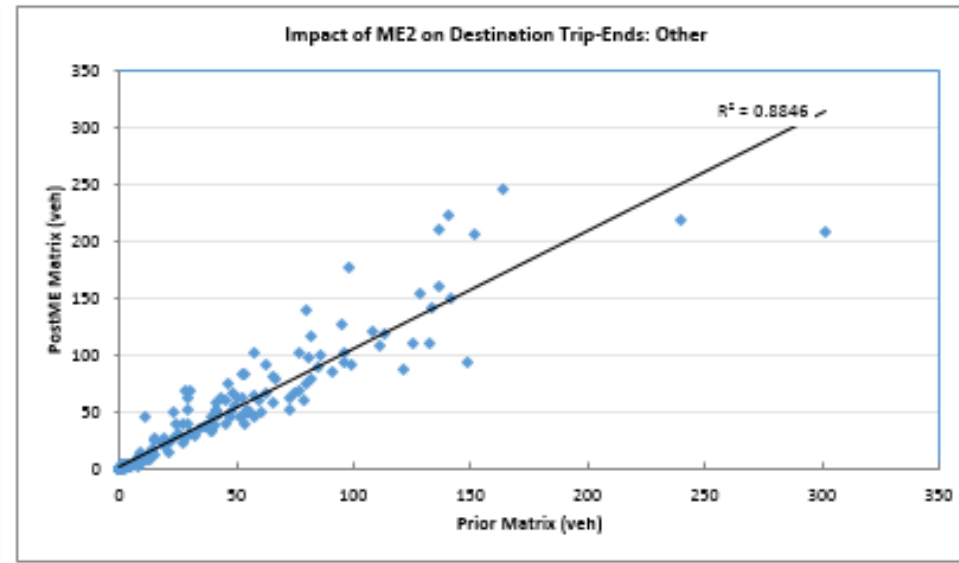
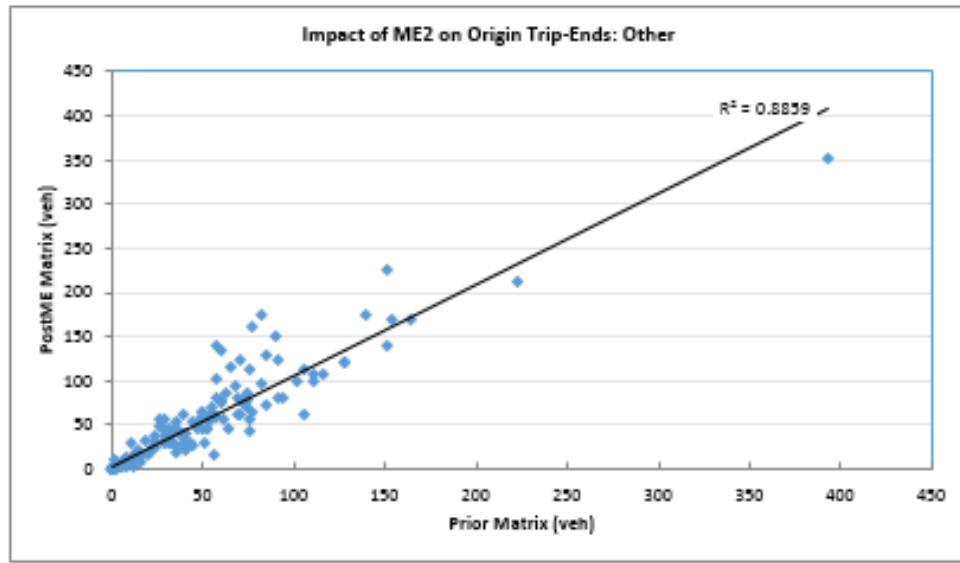
Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	48	61	194	247	4.1	4.1	0.7%
3	5	10	30	78	205	569	6.9	7.3	6.5%
4	10	15	4	4	49	52	12.9	12.8	-0.9%
5	15	20	62	57	1,016	946	16.4	16.6	0.9%
6	20	25	97	90	2,180	2,056	22.4	22.8	2.0%
7	25	30	8	10	207	275	26.6	27.7	4.1%
8	30	35	74	75	2,410	2,413	32.6	32.3	-0.9%
9	35	40	51	55	1,971	2,112	38.5	38.3	-0.4%
10	40	45	2	2	74	88	40.2	40.2	-0.1%
11	45	50	2	2	110	113	46.7	47.3	1.2%
12	50	55	8	16	431	823	51.5	51.7	0.4%
13	55	60	2	2	91	103	57.5	56.1	-2.4%
14	60	65	3	2	154	133	60.5	60.8	0.5%
15	65	70	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
16	70	75	0	0	12	3	72.9	72.9	0.0%
17	75	80	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
18	80	85	4	2	291	168	82.2	82.1	0.0%
19	85	90	3	7	259	580	89.2	89.2	0.0%
20	90	95	5	2	433	216	90.2	90.3	0.2%
21	95	100	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
22	100	300	87	109	10,428	12,886	119.6	118.5	-0.9%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>489</b>	<b>573</b>	<b>20,514</b>	<b>23,781</b>	<b>41.98</b>	<b>41.50</b>	<b>-1.1%</b>



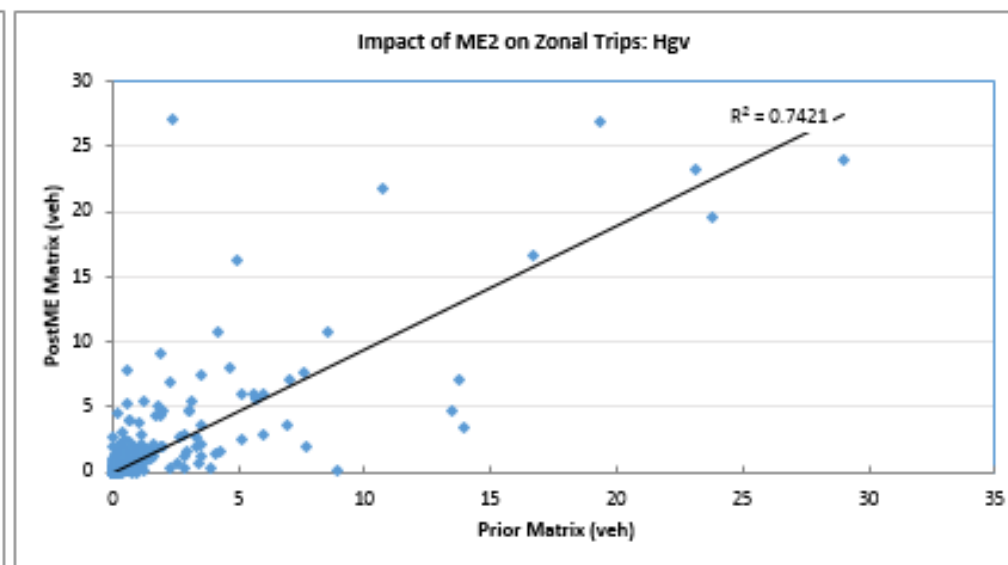
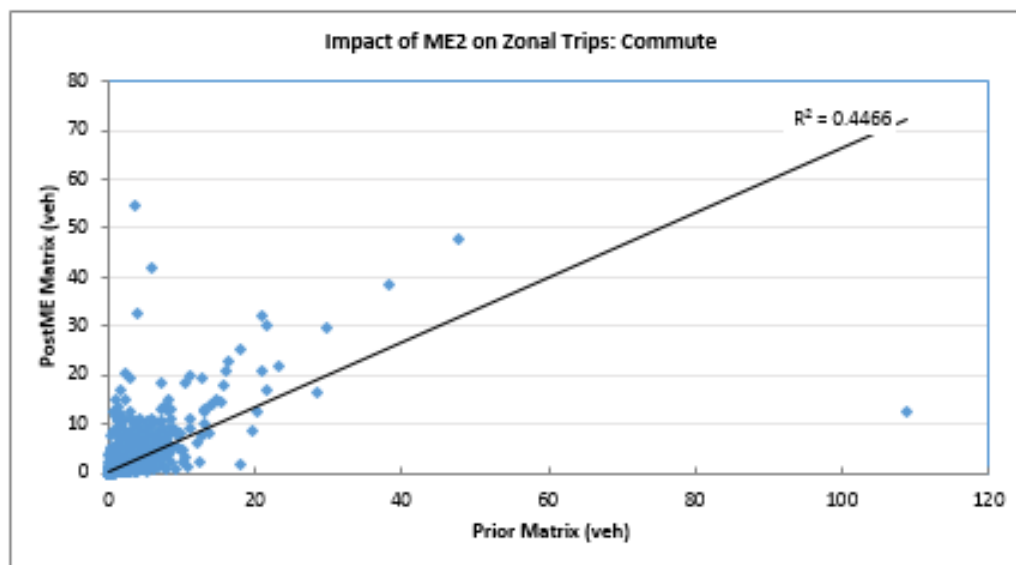
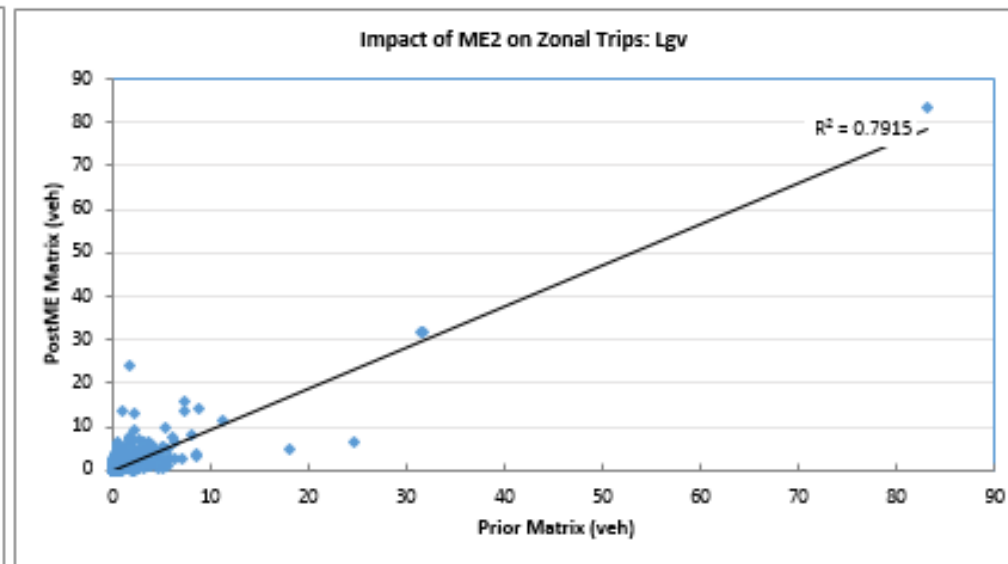
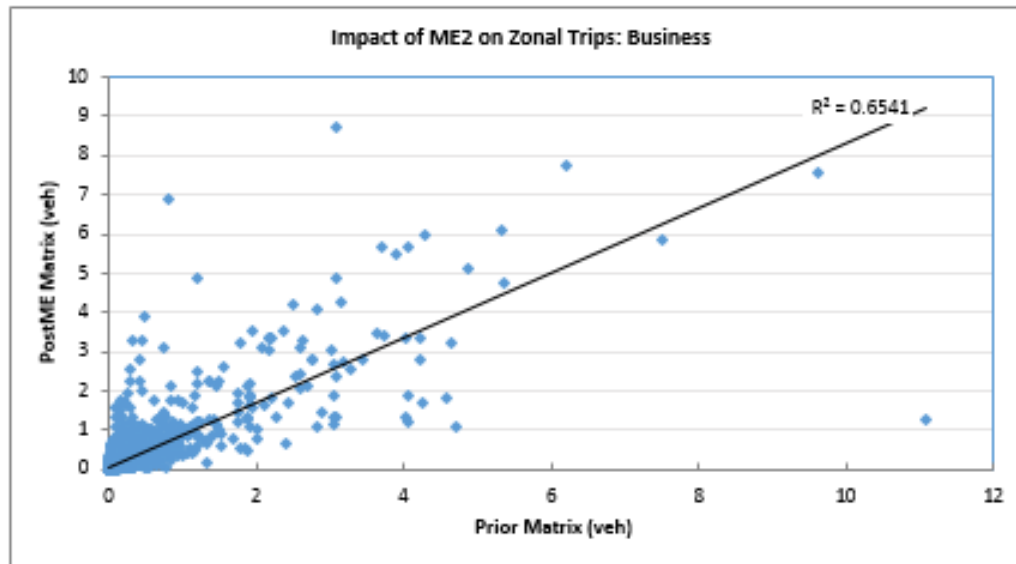
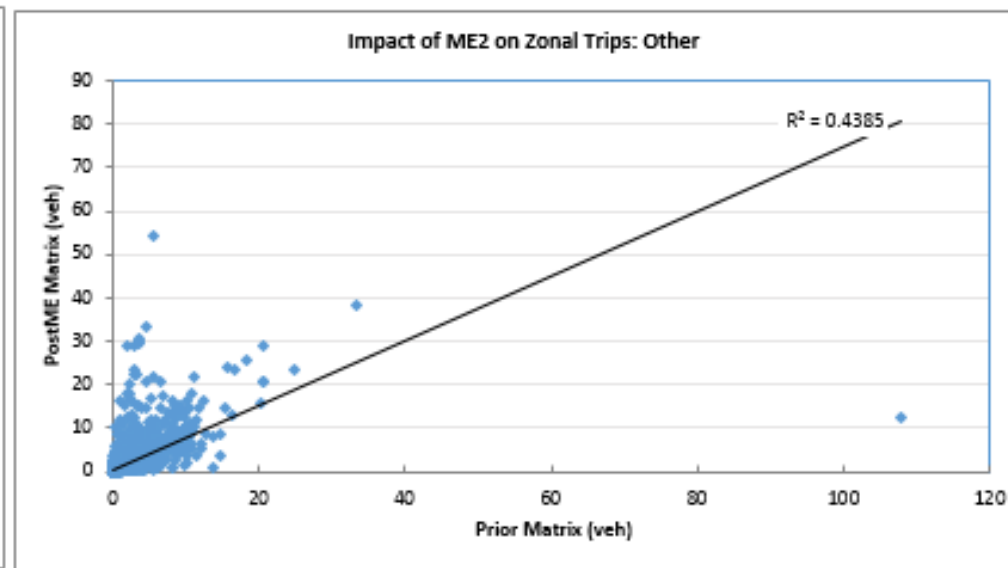
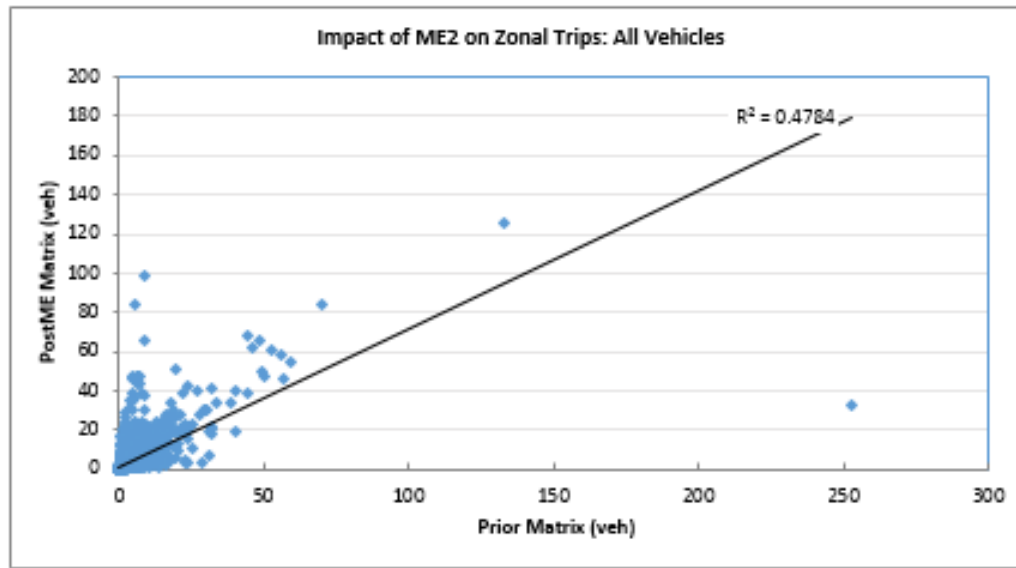
	Prior	PostME
Mean	41.98	41.50
SD	39.23	40.34

IMPACT OF ME2 ON ORIG/DEST TRIP-ENDS – AM PEAK





IMPACT OF ME2 ON ZONAL CELLS - AM PEAK



INTER PEAK: IMPACT OF ME2 ON SECTORAL MATRIX

Prime Matrix								PartME Matrix								Difference								xDifference								GEN							
All Vehicles								All Vehicles								All Vehicles								All Vehicles								All Vehicles							
OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total
1	345	234	347	59	327	355	1,666	1	355	292	498	33	340	333	1,950	1	10	158	151	-25	13	-22	284	1	2.9%	67.4%	43.6%	-43.2%	3.9%	-6.3%	17.0%	1	0.5	8.9	7.4	3.8	0.7	1.2	6.7
2	246	326	373	84	161	396	1,587	2	352	425	395	82	190	326	1,769	2	106	99	22	-3	28	-71	182	2	43.1%	30.3%	5.8%	-3.1%	17.6%	-17.8%	11.4%	2	6.1	5.1	1.1	0.3	2.1	3.7	4.4
3	310	460	4,139	117	104	1,122	6,253	3	411	653	4,271	138	116	1,223	6,813	3	101	193	132	21	12	101	560	3	32.5%	41.9%	3.2%	17.7%	11.6%	9.0%	9.0%	3	5.3	8.2	2.0	1.8	1.2	3.0	6.9
4	43	66	155	0	31	65	360	4	17	50	171	0	29	62	330	4	-26	-16	17	0	-2	-3	-30	4	-59.6%	-24.7%	10.8%		-6.3%	-4.0%	-8.3%	4	4.7	2.1	1.3		0.4	0.3	1.6
5	298	152	106	33	413	283	1,286	5	253	187	137	31	400	253	1,260	5	-46	35	30	-3	-13	-30	-26	5	-15.4%	23.2%	28.6%	-8.3%	-3.2%	-10.5%	-2.0%	5	2.8	2.7	2.8	0.5	0.7	1.8	0.7
6	301	298	1,245	52	308	549	2,853	6	222	354	1,345	50	284	464	2,718	6	-79	-45	100	-3	-24	-85	-136	6	-26.3%	-11.2%	8.0%	-5.6%	-7.7%	-15.6%	-4.8%	6	4.9	2.3	2.8	0.4	1.4	3.8	2.6
<b>Total</b>	<b>1,544</b>	<b>1,637</b>	<b>888</b>	<b>346</b>	<b>1,343</b>	<b>2,771</b>	<b>14,096</b>	<b>Total</b>	<b>1,610</b>	<b>2,061</b>	<b>6,817</b>	<b>333</b>	<b>1,357</b>	<b>2,661</b>	<b>888</b>	<b>Total</b>	<b>66</b>	<b>424</b>	<b>452</b>	<b>-13</b>	<b>14</b>	<b>-110</b>	<b>834</b>	<b>Total</b>	<b>4.3%</b>	<b>8.8%</b>	<b>7.1%</b>	<b>8.8%</b>	<b>1.1%</b>	<b>8.8%</b>	<b>6.0%</b>	<b>Total</b>	<b>1.7</b>	<b>9.9</b>	<b>5.6</b>	<b>0.7</b>	<b>0.4</b>	<b>2.1</b>	<b>6.9</b>

Business								Business								Business								Business								Business							
OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total
1	13	15	23	5	14	34	103	1	13	28	27	3	13	27	111	1	1	14	4	-2	-1	-8	8	1	6.1%	92.4%	16.0%	-44.5%	-5.5%	-22.4%	7.4%	1	0.2	2.9	0.7	1.1	0.2	1.4	0.7
2	17	25	42	14	9	54	161	2	24	32	34	10	9	47	156	2	7	6	-7	-4	0	-7	-5	2	43.8%	25.6%	-17.5%	-26.7%	-5.1%	-12.8%	-2.9%	2	1.6	1.2	1.2	1.1	0.2	1.0	0.4
3	21	36	164	17	6	88	331	3	25	47	171	18	10	93	363	3	4	11	7	1	4	4	32	3	20.7%	30.3%	4.3%	8.4%	61.9%	4.9%	9.6%	3	0.9	1.7	0.5	0.3	1.3	0.5	1.7
4	3	8	22	0	2	4	39	4	1	7	22	0	2	4	36	4	-2	-1	0	0	0	0	-3	4	-59.9%	-9.3%	0.8%		0.9%	-11.1%	-7.5%	4	1.3	0.3	0.0		0.0	0.2	0.5
5	13	9	6	2	15	28	72	5	10	11	7	2	14	26	70	5	-3	2	1	0	-1	-2	-2	5	-20.7%	18.7%	21.2%	-1.4%	-4.5%	-6.6%	-3.2%	5	0.8	0.5	0.5	0.0	0.2	0.4	0.3
6	28	36	103	1	25	43	237	6	15	31	108	1	23	35	214	6	-13	-5	5	0	-2	-8	-23	6	-46.1%	-14.4%	5.0%	-9.1%	-8.7%	-18.2%	-9.7%	6	2.8	0.9	0.5	0.1	0.4	1.3	1.5
<b>Total</b>	<b>94</b>	<b>129</b>	<b>359</b>	<b>39</b>	<b>71</b>	<b>252</b>	<b>944</b>	<b>Total</b>	<b>89</b>	<b>156</b>	<b>369</b>	<b>34</b>	<b>71</b>	<b>231</b>	<b>950</b>	<b>Total</b>	<b>-5</b>	<b>27</b>	<b>10</b>	<b>-5</b>	<b>0</b>	<b>-20</b>	<b>6</b>	<b>Total</b>	<b>8.8%</b>	<b>8.8%</b>	<b>2.8%</b>	<b>8.8%</b>	<b>8.8%</b>	<b>-8.1%</b>	<b>0.7%</b>	<b>Total</b>	<b>0.8</b>	<b>2.2</b>	<b>0.5</b>	<b>0.3</b>	<b>0.0</b>	<b>1.3</b>	<b>0.2</b>

Commute								Commute								Commute								Commute								Commute							
OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total
1	8	19	43	11	16	42	139	1	8	21	62	6	17	37	160	1	0	12	19	-5	0	-5	21	1	1.4%	65.4%	43.7%	-46.9%	0.9%	-10.9%	15.5%	1	0.0	2.4	2.6	1.8	0.0	0.7	1.8
2	21	20	60	16	12	53	182	2	30	24	58	12	12	41	177	2	8	4	-2	-4	0	-12	-6	2	38.9%	19.8%	-3.5%	-26.3%	1.6%	-22.1%	-3.1%	2	1.6	0.8	0.3	1.1	0.1	1.7	0.4
3	35	55	225	22	13	160	509	3	35	61	251	26	9	183	566	3	0	6	26	5	-4	24	57	3	-0.1%	10.8%	11.7%	21.3%	-28.2%	15.0%	11.2%	3	0.0	0.8	1.7	0.9	1.1	1.8	2.5
4	7	14	42	0	10	33	107	4	3	12	45	0	10	32	101	4	-5	-2	3	0	0	-1	-5	4	-64.9%	-14.4%	6.0%		-2.9%	-2.3%	-4.9%	4	2.1	0.6	0.4		0.1	0.1	0.5
5	11	13	18	9	13	22	85	5	8	13	36	8	12	20	97	5	-3	0	19	-1	-1	-2	12	5	-24.0%	0.1%	105.0%	-6.1%	-8.8%	-10.6%	13.8%	5	0.9	0.0	3.6	0.2	0.3	0.5	1.2
6	21	67	172	21	22	129	433	6	13	46	184	21	20	120	403	6	-9	-21	12	0	-2	-8	-29	6	-40.3%	-21.8%	6.9%	-1.5%	-10.7%	-6.6%	-6.8%	6	2.1	2.8	0.9	0.1	0.5	0.8	1.4
<b>Total</b>	<b>103</b>	<b>188</b>	<b>560</b>	<b>79</b>	<b>86</b>	<b>438</b>	<b>1,454</b>	<b>Total</b>	<b>95</b>	<b>186</b>	<b>635</b>	<b>73</b>	<b>79</b>	<b>435</b>	<b>1,504</b>	<b>Total</b>	<b>-8</b>	<b>-1</b>	<b>76</b>	<b>-6</b>	<b>-7</b>	<b>-4</b>	<b>50</b>	<b>Total</b>	<b>8.8%</b>	<b>8.8%</b>	<b>8.8%</b>	<b>8.8%</b>	<b>8.8%</b>	<b>8.8%</b>	<b>3.4%</b>	<b>Total</b>	<b>0.8</b>	<b>0.1</b>	<b>3.1</b>	<b>0.7</b>	<b>0.3</b>	<b>0.2</b>	<b>1.3</b>

Other								Other								Other								Other								Other							
OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total
1	278	162	245	33	233	219	1,170	1	294	286	354	20	235	187	1,376	1	17	124	109	-14	2	-32	206	1	5.9%	76.7%	44.6%	-40.9%	0.7%	-14.5%	17.6%	1	1.0	8.3	6.3	2.6	0.1	2.2	5.8
2	169	219	224	42	125	218	997	2	240	295	241	51	144	169	1,139	2	70	76	18	9	19	-50	142	2	41.5%	34.9%	7.9%	21.6%	15.2%	-22.8%	14.3%	2	4.9	4.8	1.2	1.3	1.6	3.6	4.4
3	219	298	3,163	61	79	641	4,461	3	288	439	3,300	74	91	704	888	3	69	141	137	13	12	63	434	3	31.4%	47.2%	4.3%	21.4%	15.0%	9.8%	9.7%	3	4.3	7.3	2.4	1.6	1.3	2.4	6.3
4	22	30	73	0	15	21	160	4	9	22	84	0	15	19	149	4	-13	-8	11	0	0	-2	-11	4	-58.1%	-25.5%	15.3%		0.0%	-10.5%	-7.0%	4	3.2	1.5	1.3		0.0	0.5	0.9
5	213	111	76	18	317	197	931	5	173	138	78	17	305	179	892	5	-40	27	3	0	-11	-18	-39	5	-18.7%	24.5%	3.8%	-2.8%	-3.6%	-9.0%	-4.2%	5	2.9	2.4	0.3	0.1	0.6	1.3	1.3
6	189	199	720	25	226	204	1,562	6	124	198	785	21	206	181	1,516	6	-65	0	65	-4	-19	-23	-47	6	-34.6%	-0.2%	9.0%	-15.2%	-8.5%	-11.2%	-3.0%	6	5.2	0.0	2.4	0.8	1.3	1.6	1.2
<b>Total</b>	<b>1,090</b>	<b>1,019</b>	<b>888</b>	<b>179</b>	<b>994</b>	<b>1,500</b>	<b>9,281</b>	<b>Total</b>	<b>1,128</b>	<b>1,379</b>	<b>888</b>	<b>183</b>	<b>996</b>	<b>1,438</b>	<b>888</b>	<b>Total</b>	<b>38</b>	<b>361</b>	<b>343</b>	<b>4</b>	<b>2</b>	<b>-61</b>	<b>686</b>	<b>Total</b>	<b>3.5%</b>	<b>8.8%</b>	<b>7.6%</b>	<b>2.3%</b>	<b>0.2%</b>	<b>-4.1%</b>	<b>7.4%</b>	<b>Total</b>	<b>1.1</b>	<b>10.4</b>	<b>5.0</b>	<b>0.3</b>	<b>0.1</b>	<b>1.6</b>	<b>7.0</b>

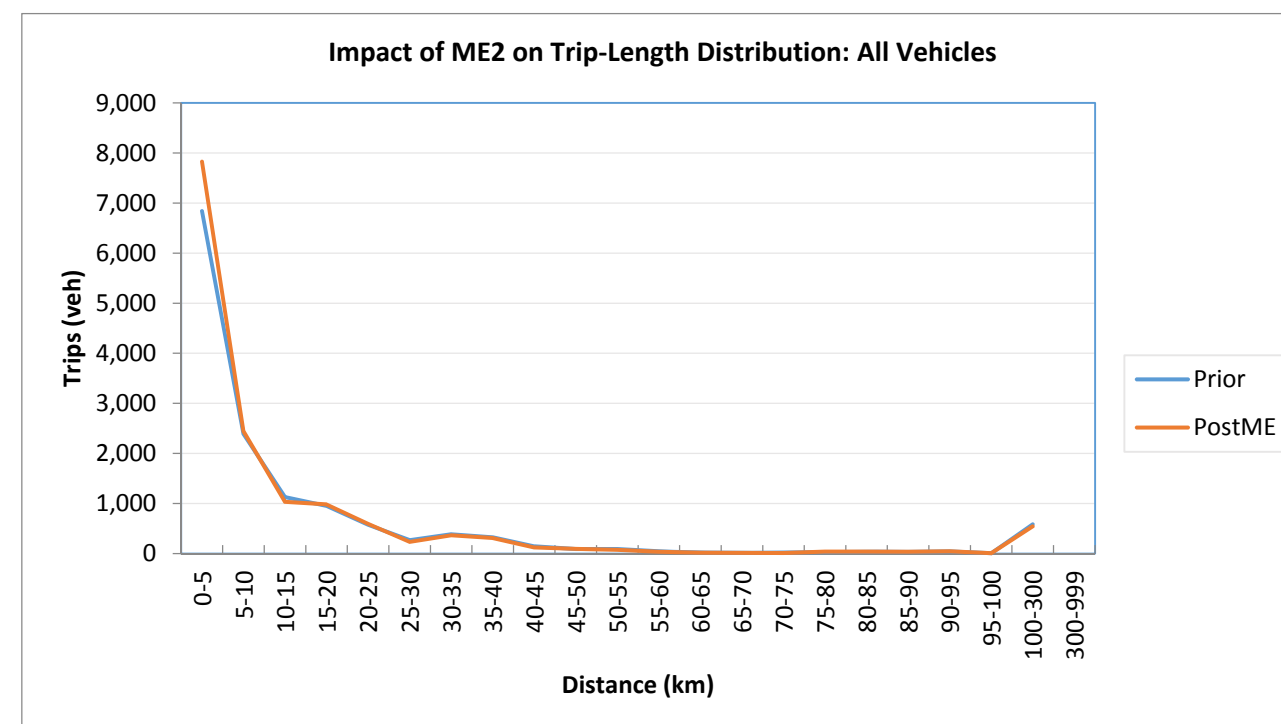
Lqv								Lqv								Lqv								Lqv								Lqv							
OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total
1	47	35	34	6	31	31	185	1	40	40	54	3	40	38	215	1	-7	5	20	-3	9	6	30	1	-15.7%	15.0%	58.0%	-52.7%	29.5%	19.4%	16.0%	1	1.1	0.9	3.0	1.5	1.5	1.0	2.1
2	38	54	41	10	15	56	215	2	58	64	43	6	21	46	237	2	20	10	2	-4	6	-10	23	2	52.6%	18.0%	4.1%	-41.2%	37.5%	-18.5%	10.5%	2	2.9	1.3	0.3	1.5	1.3	1.5	1.5
3	35	62	580	11	5	148	841	3	63	89	544	6	6	146	854	3	28	27	-36	-5	0	-2	14	3	81.1%	44.4%	-6.2%	-42.3%	2.0%	-1.2%	1.6%	3	4.0	3.2	1.5	1.6	0.0	0.1	0.5
4	7	11	14	0	3	5	41	4	2	3	13	0	2	4	24	4	-5	-8	-1	0	-1	-1	-17	4	-69.3%	-76.7%	-8.7%		-45.5%	-13.1%	-41.0%	4	2.3	3.2	0.3		0.9	0.3	2.9
5	47	18	7	4	69	3																																	

IMPACT OF ME2 ON TRIP-LENGTH  
DISTRIBUTION INTER PEAK

All Vehicles 187.0

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	6,840	2,390	1,128	953	575	269	388	324	144	88	89	45	17	18	14	25	37	32	40	6	585	
PostME Trips (veh)	0	7,827	2,445	1,033	979	594	233	363	310	121	92	72	35	14	12	10	38	37	35	43	5	543	
Prior veh.km	0	19,754	16,519	14,281	16,675	12,533	7,410	12,690	11,973	6,042	4,190	4,601	2,599	1,026	1,202	1,006	1,995	3,051	2,825	3,663	568	71,408	
PostME veh.km	0	22,280	16,885	13,050	17,121	12,906	6,383	11,883	11,496	5,116	4,363	3,731	2,014	836	807	700	2,957	3,038	3,107	3,923	482	65,634	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	6,840	7,827	19,754	22,280	2.9	2.8	-1.4%
3	5	10	2,390	2,445	16,519	16,885	6.9	6.9	-0.1%
4	10	15	1,128	1,033	14,281	13,050	12.7	12.6	-0.2%
5	15	20	953	979	16,675	17,121	17.5	17.5	-0.1%
6	20	25	575	594	12,533	12,906	21.8	21.7	-0.3%
7	25	30	269	233	7,410	6,383	27.6	27.3	-0.9%
8	30	35	388	363	12,690	11,883	32.7	32.8	0.1%
9	35	40	324	310	11,973	11,496	36.9	37.1	0.4%
10	40	45	144	121	6,042	5,116	42.1	42.1	0.1%
11	45	50	88	92	4,190	4,363	47.4	47.6	0.5%
12	50	55	89	72	4,601	3,731	51.8	51.8	0.1%
13	55	60	45	35	2,599	2,014	58.2	58.0	-0.4%
14	60	65	17	14	1,026	836	61.1	61.3	0.3%
15	65	70	18	12	1,202	807	66.6	67.0	0.6%
16	70	75	14	10	1,006	700	72.9	72.9	0.1%
17	75	80	25	38	1,995	2,957	78.5	78.4	-0.1%
18	80	85	37	37	3,051	3,038	81.9	81.8	-0.1%
19	85	90	32	35	2,825	3,107	88.2	88.4	0.2%
20	90	95	40	43	3,663	3,923	92.2	92.1	-0.1%
21	95	100	6	5	568	482	96.6	96.8	0.2%
22	100	300	585	543	71,408	65,634	122.1	120.8	-1.1%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>14,006</b>	<b>14,840</b>	<b>216,010</b>	<b>208,713</b>	<b>15.42</b>	<b>14.06</b>	<b>-8.8%</b>

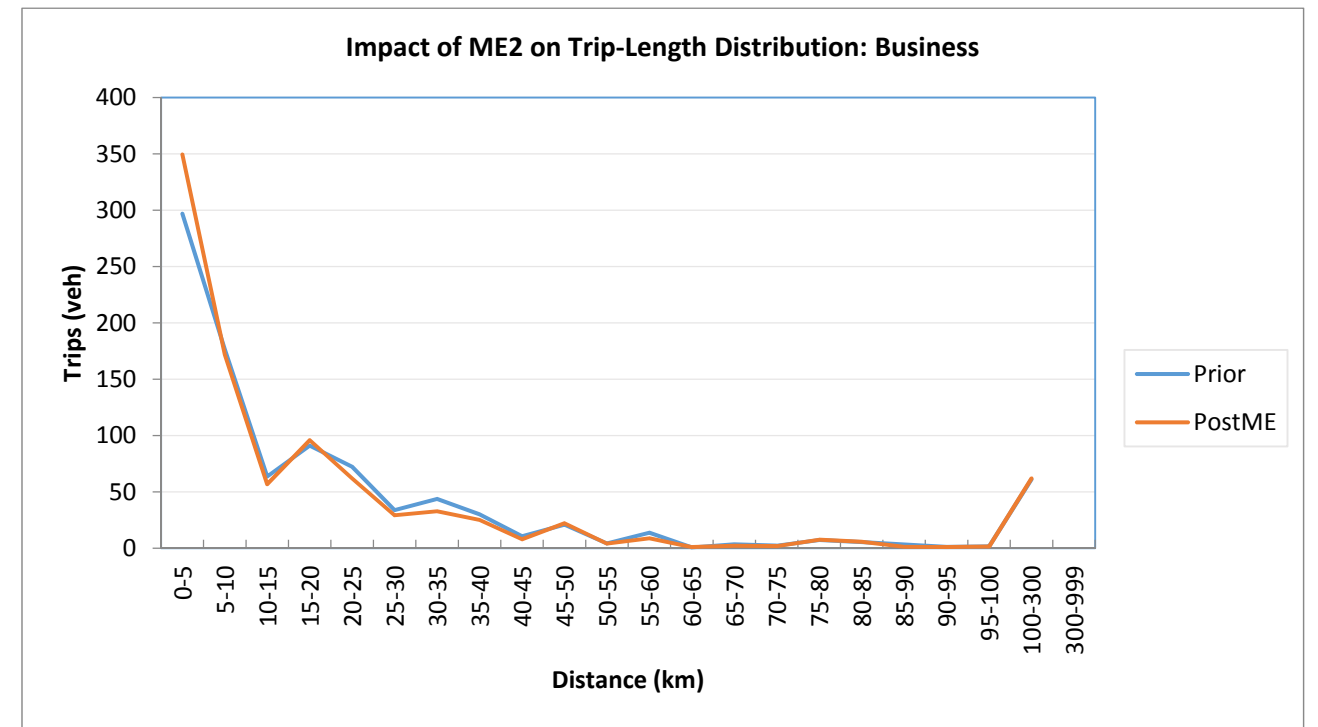


	Prior	PostME
Mean	15.42	14.06
SD	25.19	23.52

**Business**

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	297	177	64	91	72	34	44	30	11	21	4	14	1	4	2	7	5	3	1	1	61	
PostME Trips (veh)	0	350	172	57	96	62	29	33	25	8	22	4	9	1	2	2	8	6	1	1	1	62	
Prior veh.km	0	901	1,214	819	1,581	1,544	934	1,418	1,107	450	992	222	800	42	239	168	571	446	288	102	146	7,303	
PostME veh.km	0	1,062	1,175	725	1,667	1,331	802	1,074	924	335	1,061	215	512	61	144	135	592	463	116	95	134	7,381	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	297	350	901	1,062	3.0	3.0	0.2%
3	5	10	177	172	1,214	1,175	6.9	6.8	-0.6%
4	10	15	64	57	819	725	12.9	12.8	-0.8%
5	15	20	91	96	1,581	1,667	17.4	17.4	0.0%
6	20	25	72	62	1,544	1,331	21.3	21.5	0.6%
7	25	30	34	29	934	802	27.7	27.4	-0.9%
8	30	35	44	33	1,418	1,074	32.5	32.7	0.6%
9	35	40	30	25	1,107	924	36.8	36.7	-0.2%
10	40	45	11	8	450	335	42.0	42.1	0.2%
11	45	50	21	22	992	1,061	47.7	47.7	0.2%
12	50	55	4	4	222	215	51.9	52.1	0.4%
13	55	60	14	9	800	512	58.4	58.3	-0.2%
14	60	65	1	1	42	61	61.4	61.3	-0.3%
15	65	70	4	2	239	144	66.2	66.3	0.2%
16	70	75	2	2	168	135	73.6	73.7	0.2%
17	75	80	7	8	571	592	78.4	78.6	0.3%
18	80	85	5	6	446	463	82.5	82.5	0.0%
19	85	90	3	1	288	116	87.6	87.7	0.2%
20	90	95	1	1	102	95	92.1	92.1	0.0%
21	95	100	1	1	146	134	97.2	97.4	0.2%
22	100	300	61	62	7,303	7,381	119.3	119.2	-0.1%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>944</b>	<b>950</b>	<b>21,288</b>	<b>20,003</b>	<b>22.55</b>	<b>21.05</b>	<b>-6.7%</b>

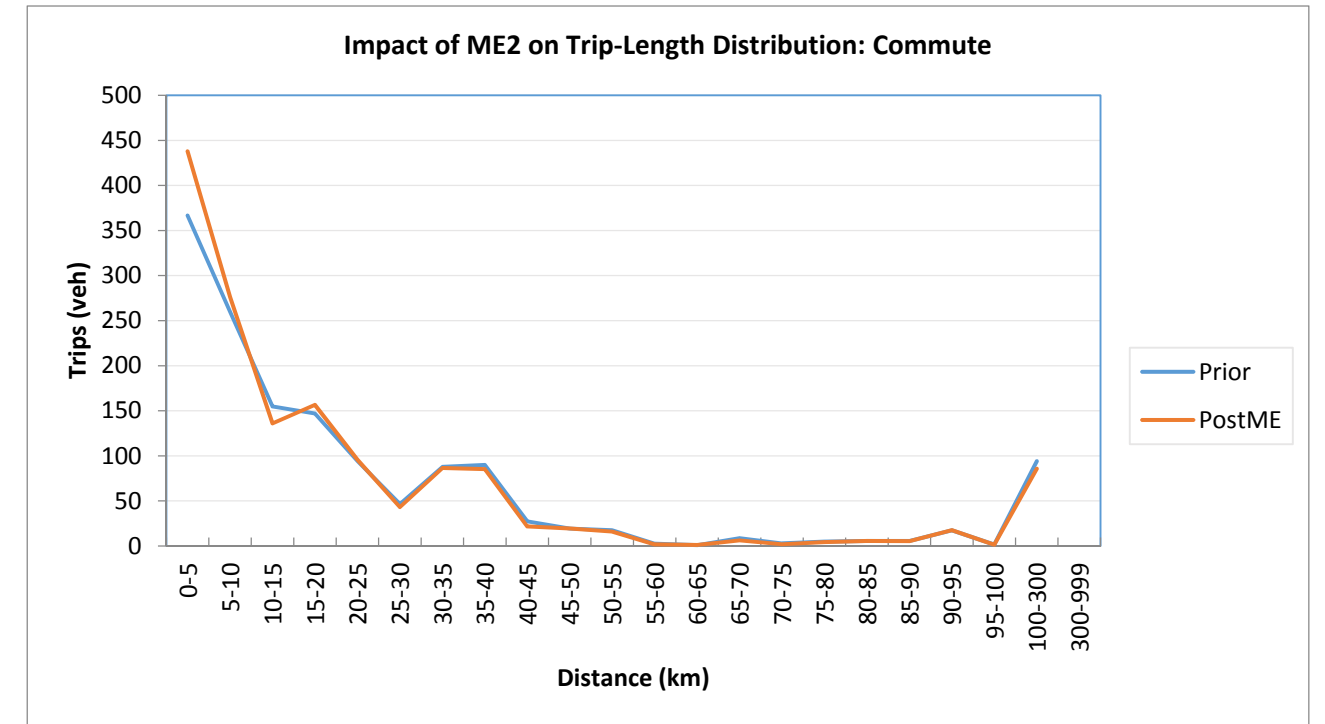


	Prior	PostME
Mean	22.55	21.05
SD	30.53	30.49

Commute

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	367	260	155	147	94	46	88	90	27	19	17	2	1	9	3	5	5	5	17	2	94	
PostME Trips (veh)	0	438	276	136	157	96	43	86	85	22	19	16	2	1	6	2	4	5	5	18	1	86	
Prior veh.km	0	1,106	1,869	1,955	2,611	2,057	1,281	2,884	3,298	1,153	921	899	144	54	579	206	375	447	482	1,610	155	11,448	
PostME veh.km	0	1,306	1,998	1,718	2,789	2,094	1,183	2,846	3,160	912	919	828	100	66	413	144	337	441	469	1,626	133	10,403	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	367	438	1,106	1,306	3.0	3.0	-1.1%
3	5	10	260	276	1,869	1,998	7.2	7.2	0.6%
4	10	15	155	136	1,955	1,718	12.6	12.6	0.1%
5	15	20	147	157	2,611	2,789	17.8	17.8	0.3%
6	20	25	94	96	2,057	2,094	21.8	21.9	0.2%
7	25	30	46	43	1,281	1,183	27.6	27.5	-0.5%
8	30	35	88	86	2,884	2,846	32.9	32.9	0.1%
9	35	40	90	85	3,298	3,160	36.7	37.1	0.9%
10	40	45	27	22	1,153	912	42.1	42.2	0.2%
11	45	50	19	19	921	919	47.5	47.7	0.4%
12	50	55	17	16	899	828	51.9	51.9	0.1%
13	55	60	2	2	144	100	58.3	58.2	-0.2%
14	60	65	1	1	54	66	61.6	61.4	-0.3%
15	65	70	9	6	579	413	67.0	67.2	0.3%
16	70	75	3	2	206	144	72.5	72.4	-0.2%
17	75	80	5	4	375	337	78.6	78.7	0.1%
18	80	85	5	5	447	441	81.4	81.4	-0.1%
19	85	90	5	5	482	469	88.3	88.3	0.0%
20	90	95	17	18	1,610	1,626	92.7	92.7	0.0%
21	95	100	2	1	155	133	96.7	96.7	0.1%
22	100	300	94	86	11,448	10,403	121.6	121.4	-0.2%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>1,454</b>	<b>1,504</b>	<b>35,535</b>	<b>33,885</b>	<b>24.43</b>	<b>22.52</b>	<b>-7.8%</b>



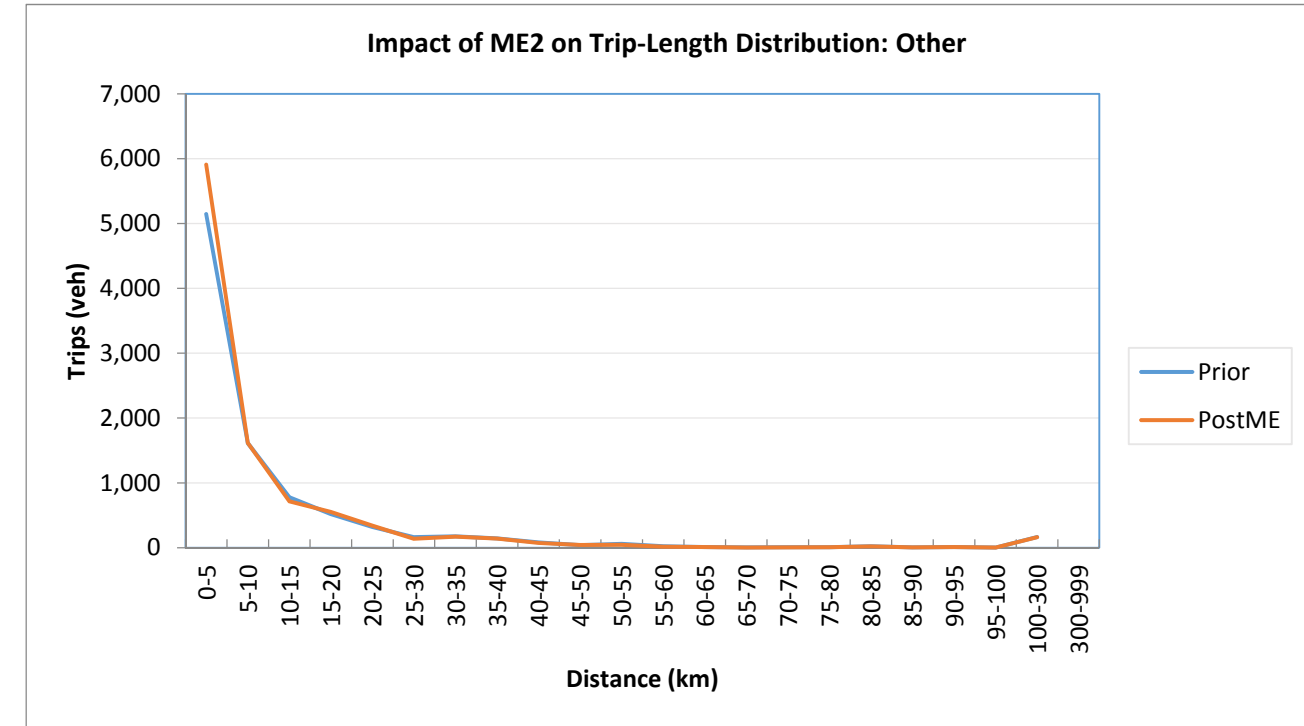
	Prior	PostME
Mean	24.43	22.52
SD	30.96	29.71



Other

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	5,146	1,614	776	521	319	161	174	141	84	40	58	21	9	4	7	5	21	5	9	1	164	
PostME Trips (veh)	0	5,908	1,615	714	552	340	138	170	140	74	41	44	14	10	2	5	6	19	4	9	1	161	
Prior veh.km	0	14,727	11,098	9,778	9,111	7,029	4,451	5,691	5,199	3,525	1,862	3,022	1,215	575	240	546	425	1,683	443	854	121	19,725	
PostME veh.km	0	16,599	11,071	8,978	9,645	7,439	3,768	5,560	5,174	3,117	1,917	2,283	800	603	107	361	447	1,587	341	856	103	19,327	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	5,146	5,908	14,727	16,599	2.9	2.8	-1.8%
3	5	10	1,614	1,615	11,098	11,071	6.9	6.9	-0.3%
4	10	15	776	714	9,778	8,978	12.6	12.6	-0.2%
5	15	20	521	552	9,111	9,645	17.5	17.5	-0.1%
6	20	25	319	340	7,029	7,439	22.0	21.9	-0.7%
7	25	30	161	138	4,451	3,768	27.7	27.4	-1.1%
8	30	35	174	170	5,691	5,560	32.7	32.7	0.1%
9	35	40	141	140	5,199	5,174	36.9	37.0	0.3%
10	40	45	84	74	3,525	3,117	42.1	42.1	0.1%
11	45	50	40	41	1,862	1,917	47.0	47.3	0.5%
12	50	55	58	44	3,022	2,283	51.8	51.8	0.0%
13	55	60	21	14	1,215	800	58.4	58.3	-0.2%
14	60	65	9	10	575	603	61.2	61.1	-0.2%
15	65	70	4	2	240	107	66.2	66.7	0.8%
16	70	75	7	5	546	361	72.9	73.0	0.2%
17	75	80	5	6	425	447	78.8	78.9	0.2%
18	80	85	21	19	1,683	1,587	81.9	81.9	0.0%
19	85	90	5	4	443	341	88.8	88.8	0.1%
20	90	95	9	9	854	856	91.9	91.9	0.0%
21	95	100	1	1	121	103	96.2	96.2	0.0%
22	100	300	164	161	19,725	19,327	120.5	119.8	-0.5%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>9,281</b>	<b>9,967</b>	<b>101,319</b>	<b>100,083</b>	<b>10.92</b>	<b>10.04</b>	<b>-8.0%</b>

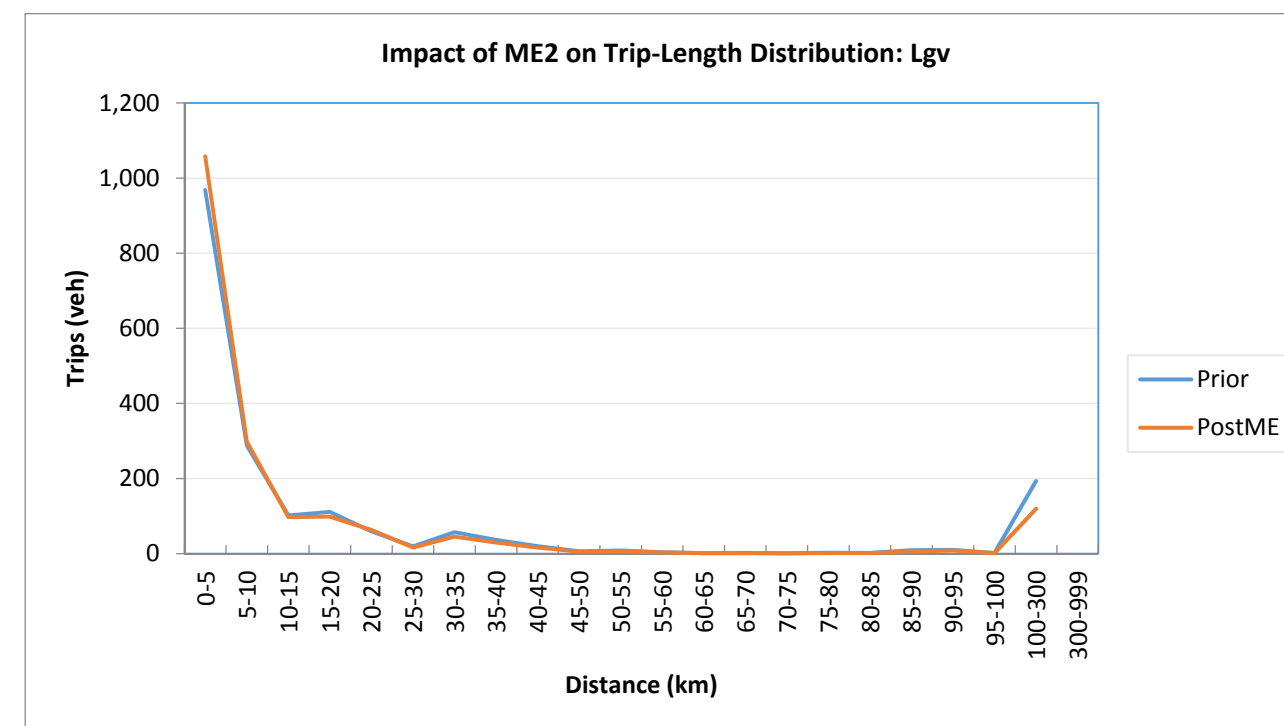


	Prior	PostME
Mean	10.92	10.04
SD	18.60	17.71

Lgv

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	968	288	102	111	59	19	57	37	20	6	8	4	1	2	1	2	2	9	10	2	194	
PostME Trips (veh)	0	1,058	298	97	99	63	16	45	30	16	5	7	3	1	1	1	1	1	6	8	1	119	
Prior veh.km	0	2,781	1,970	1,301	1,949	1,268	519	1,888	1,351	839	299	411	206	80	116	49	180	137	793	884	146	24,293	
PostME veh.km	0	3,033	2,059	1,230	1,736	1,348	433	1,483	1,090	681	237	342	162	56	46	38	92	94	492	755	112	14,915	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	968	1,058	2,781	3,033	2.9	2.9	-0.2%
3	5	10	288	298	1,970	2,059	6.8	6.9	1.0%
4	10	15	102	97	1,301	1,230	12.8	12.7	-0.7%
5	15	20	111	99	1,949	1,736	17.6	17.6	0.3%
6	20	25	59	63	1,268	1,348	21.5	21.4	-0.1%
7	25	30	19	16	519	433	26.9	27.1	0.4%
8	30	35	57	45	1,888	1,483	33.0	32.7	-0.7%
9	35	40	37	30	1,351	1,090	36.7	36.9	0.5%
10	40	45	20	16	839	681	41.9	41.8	-0.2%
11	45	50	6	5	299	237	47.7	47.4	-0.6%
12	50	55	8	7	411	342	52.1	52.1	0.2%
13	55	60	4	3	206	162	57.7	58.0	0.5%
14	60	65	1	1	80	56	61.2	61.5	0.4%
15	65	70	2	1	116	46	66.1	66.4	0.4%
16	70	75	1	1	49	38	72.8	72.9	0.1%
17	75	80	2	1	180	92	78.4	78.0	-0.5%
18	80	85	2	1	137	94	82.4	82.4	-0.1%
19	85	90	9	6	793	492	88.1	88.2	0.1%
20	90	95	10	8	884	755	91.9	92.0	0.2%
21	95	100	2	1	146	112	96.3	96.7	0.4%
22	100	300	194	119	24,293	14,915	125.5	125.0	-0.4%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>1,901</b>	<b>1,875</b>	<b>41,458</b>	<b>30,435</b>	<b>21.81</b>	<b>16.23</b>	<b>-25.6%</b>

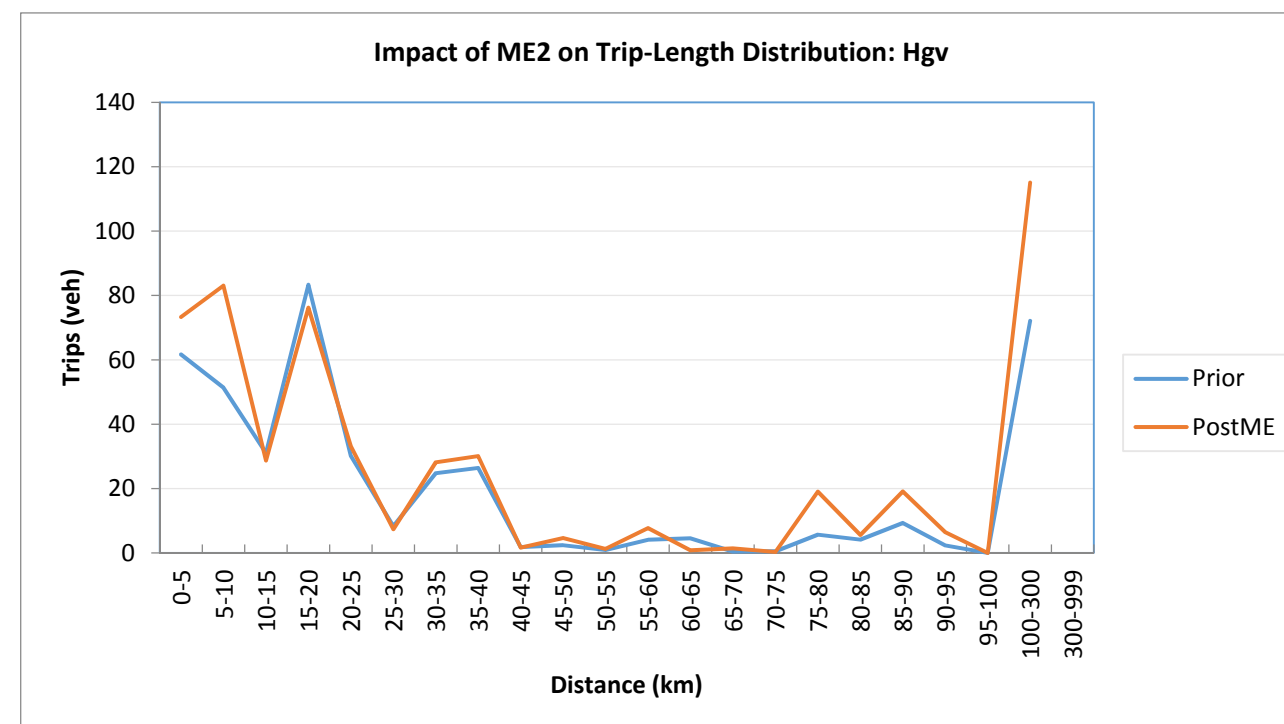


	Prior	PostME
Mean	21.81	16.23
SD	37.51	30.95

Hgv

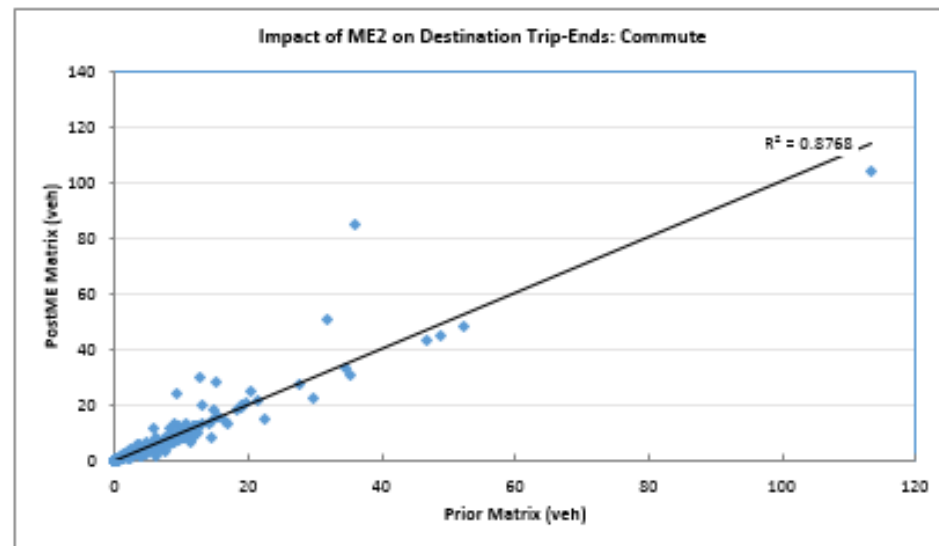
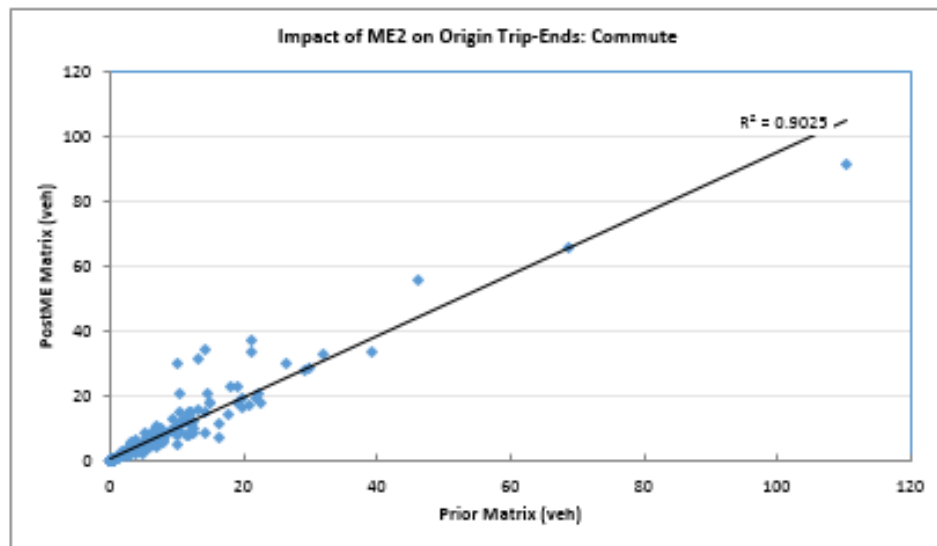
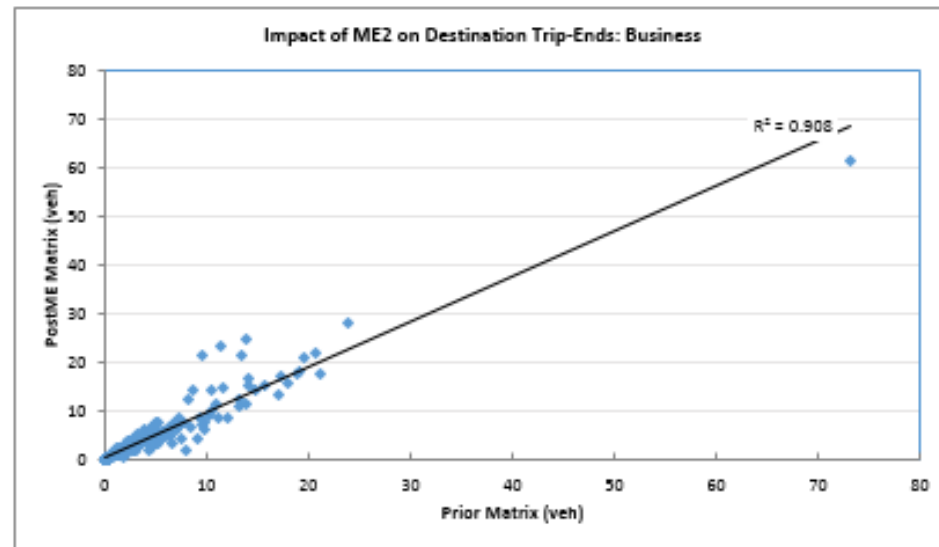
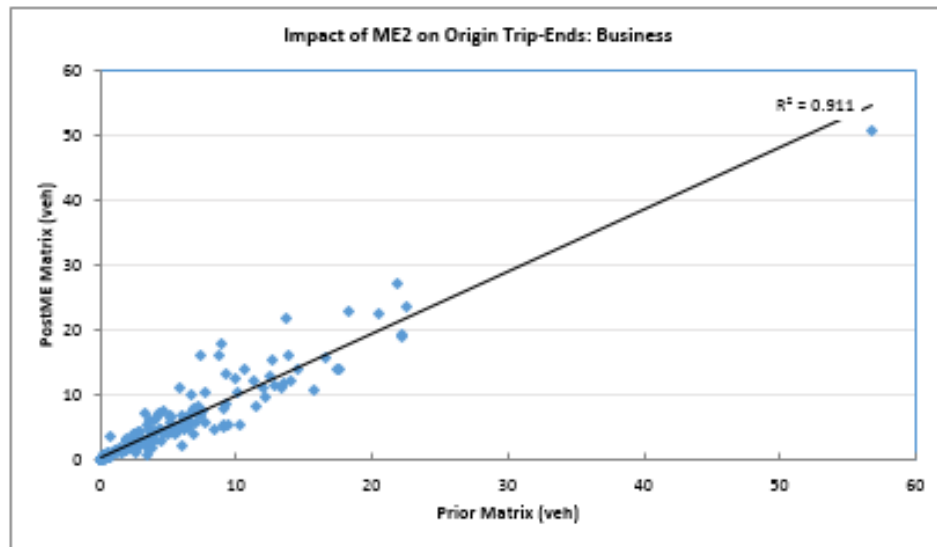
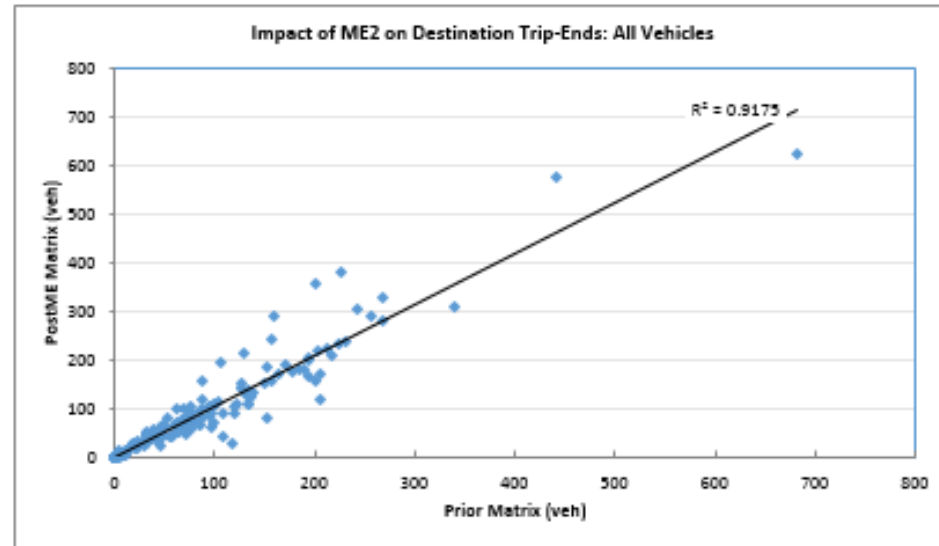
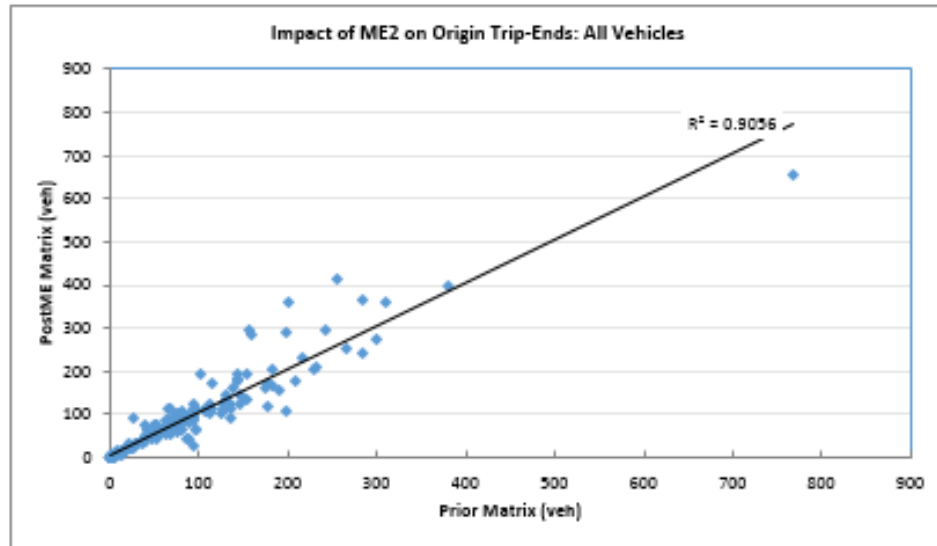
Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	62	51	31	83	30	8	25	26	2	2	1	4	5	0	1	6	4	9	2	0	72	
PostME Trips (veh)	0	73	83	29	76	33	7	28	30	2	5	1	8	1	1	0	19	6	19	6	0	115	
Prior veh.km	0	239	368	427	1,422	635	226	810	1,018	76	116	47	233	275	28	38	444	337	819	213	0	8,639	
PostME veh.km	0	279	583	399	1,283	695	197	920	1,148	72	229	63	441	51	96	21	1,489	453	1,689	591	0	13,608	

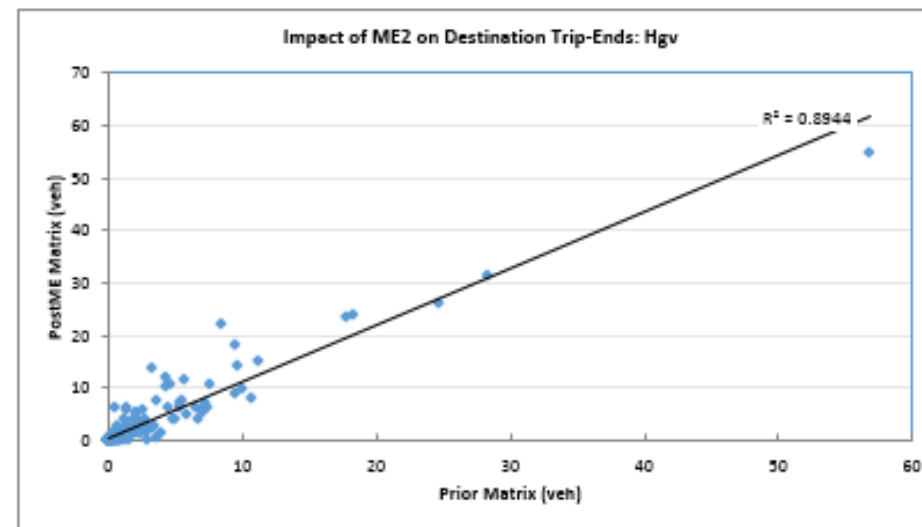
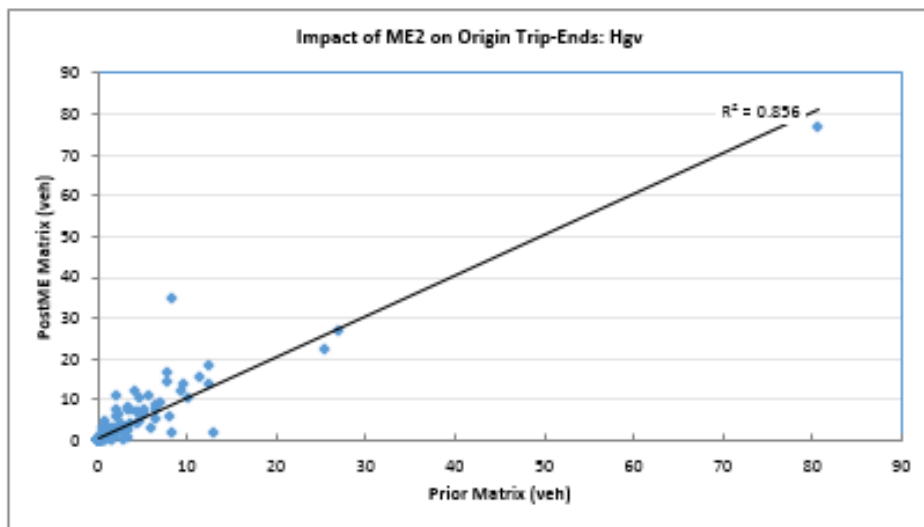
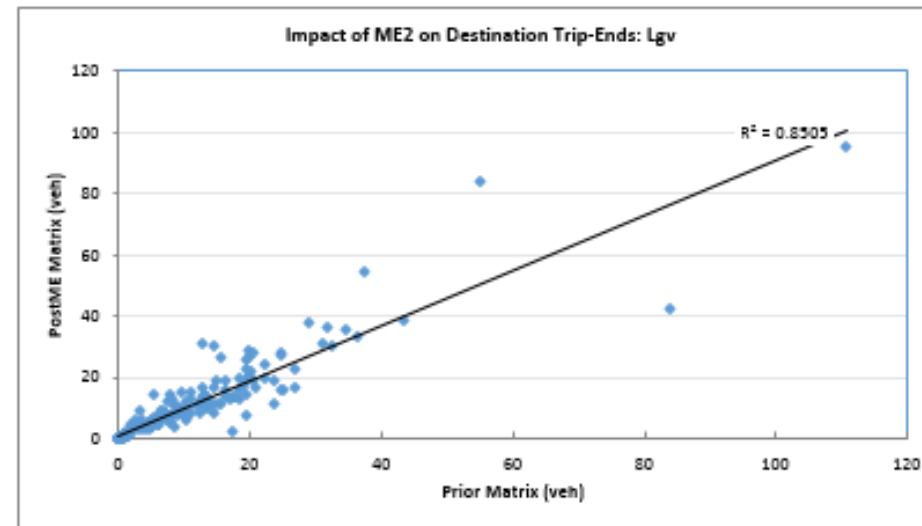
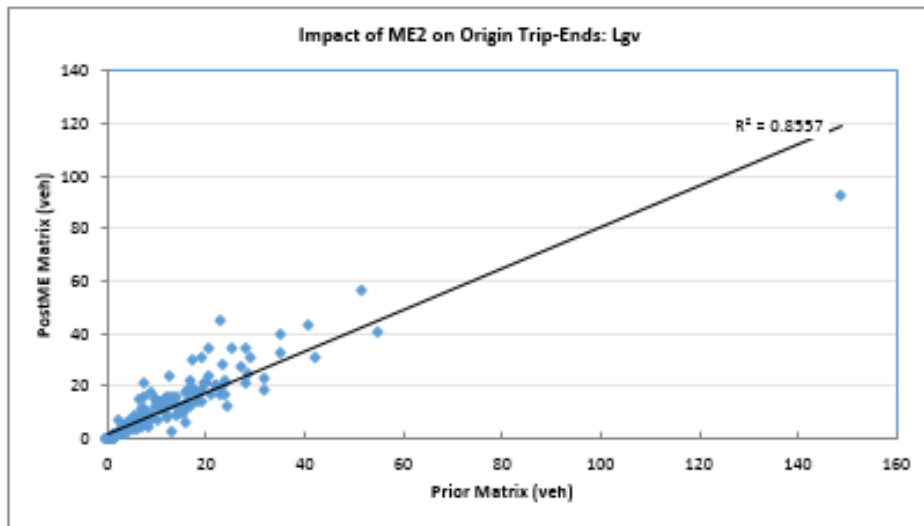
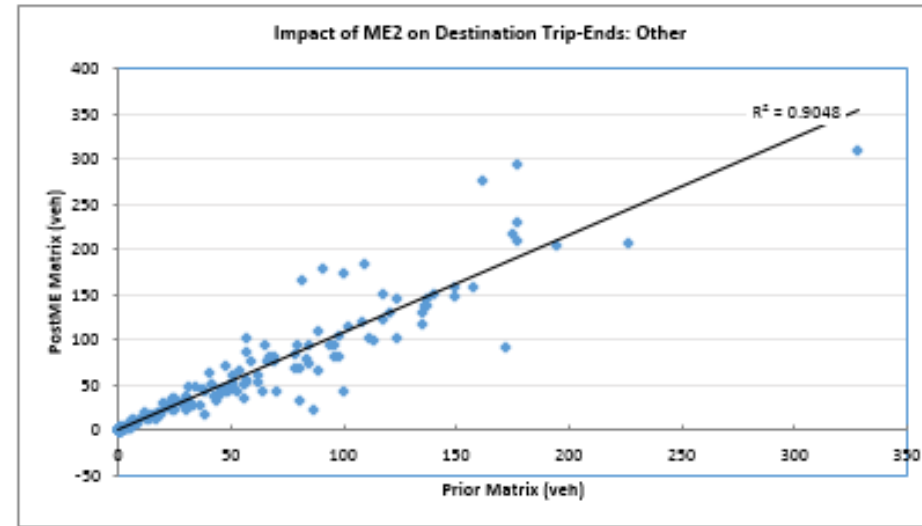
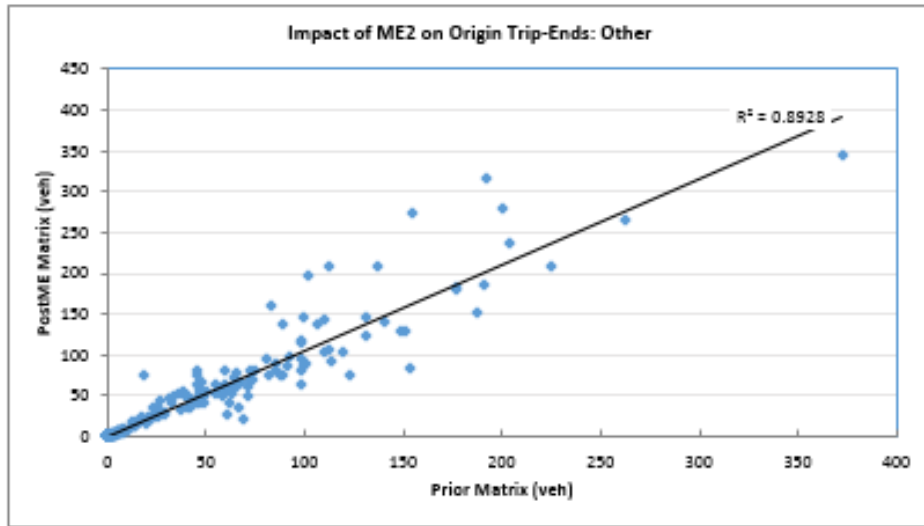
Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	62	73	239	279	3.9	3.8	-1.7%
3	5	10	51	83	368	583	7.2	7.0	-1.9%
4	10	15	31	29	427	399	13.7	13.9	1.2%
5	15	20	83	76	1,422	1,283	17.1	16.8	-1.3%
6	20	25	30	33	635	695	21.0	20.9	-0.3%
7	25	30	8	7	226	197	27.2	26.8	-1.2%
8	30	35	25	28	810	920	32.7	32.7	0.0%
9	35	40	26	30	1,018	1,148	38.6	38.2	-1.0%
10	40	45	2	2	76	72	42.7	42.9	0.6%
11	45	50	2	5	116	229	48.5	49.1	1.3%
12	50	55	1	1	47	63	51.4	51.2	-0.2%
13	55	60	4	8	233	441	57.0	57.1	0.3%
14	60	65	5	1	275	51	60.6	63.0	3.9%
15	65	70	0	1	28	96	66.7	67.5	1.2%
16	70	75	1	0	38	21	71.8	71.0	-1.1%
17	75	80	6	19	444	1,489	78.1	78.1	0.0%
18	80	85	4	6	337	453	81.8	81.2	-0.7%
19	85	90	9	19	819	1,689	88.1	88.4	0.3%
20	90	95	2	6	213	591	91.3	91.1	-0.2%
21	95	100	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
22	100	300	72	115	8,639	13,608	119.8	118.3	-1.3%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>425</b>	<b>543</b>	<b>16,410</b>	<b>24,307</b>	<b>38.58</b>	<b>44.76</b>	<b>16.0%</b>



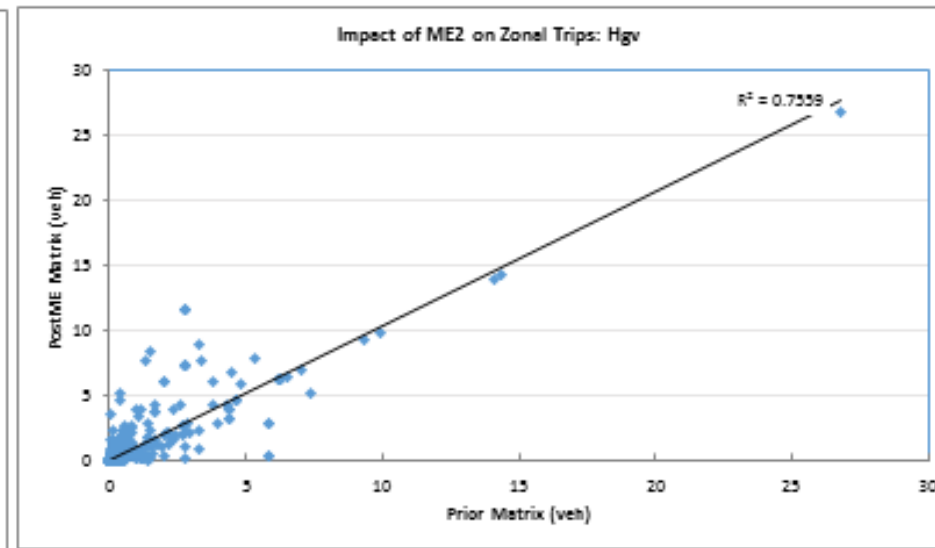
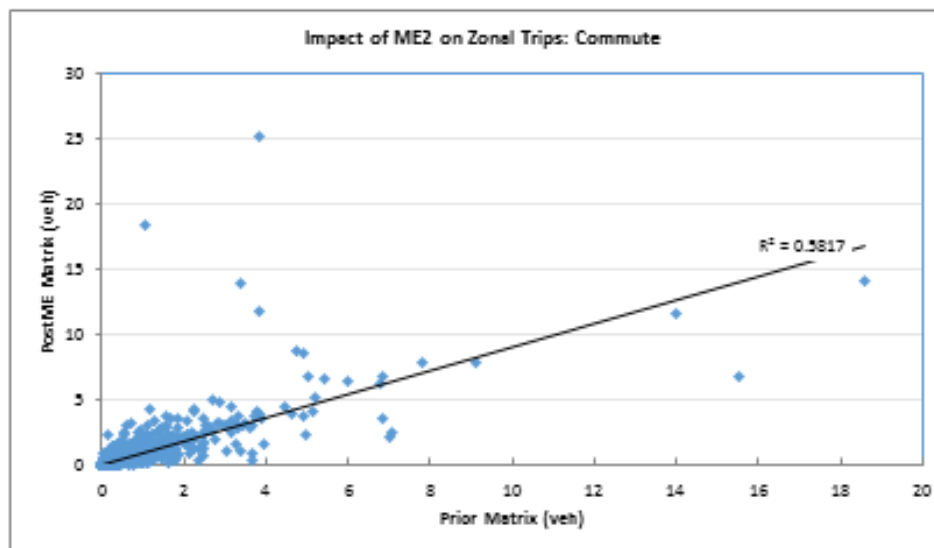
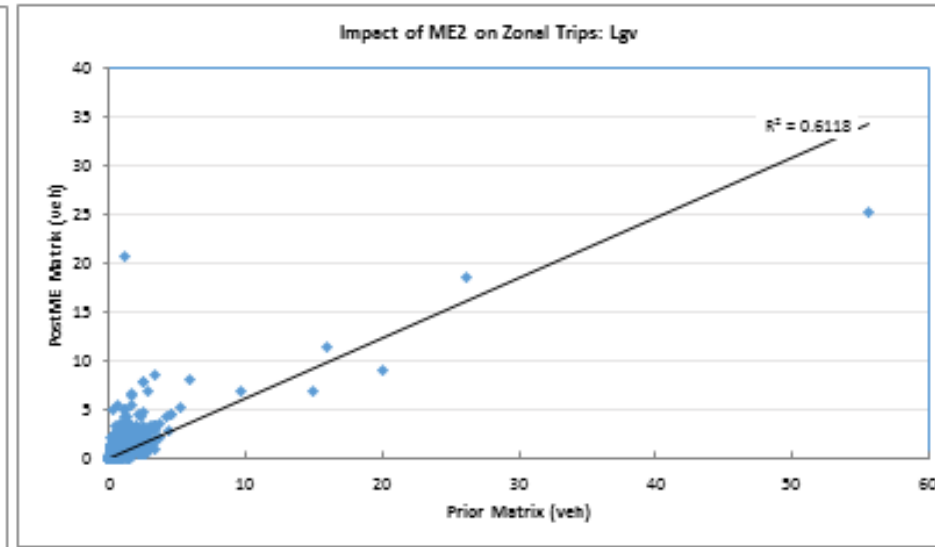
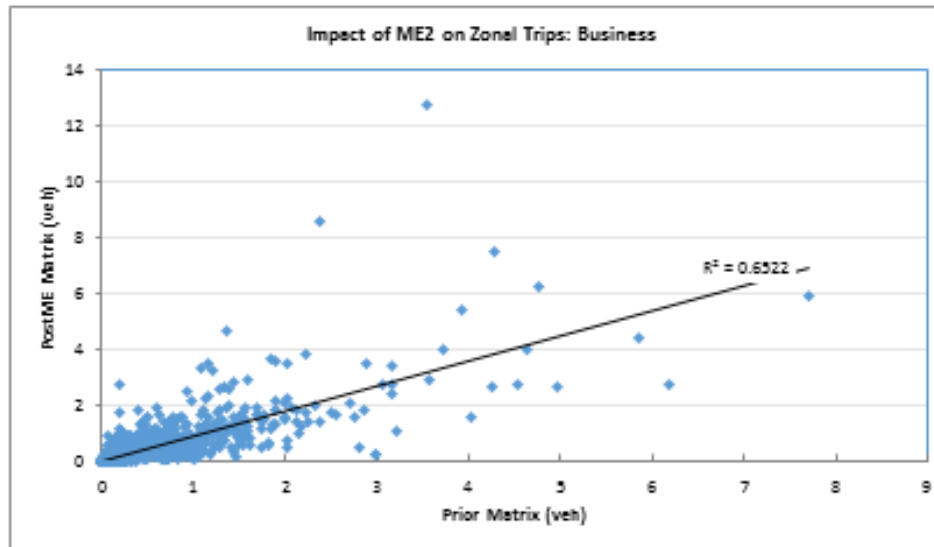
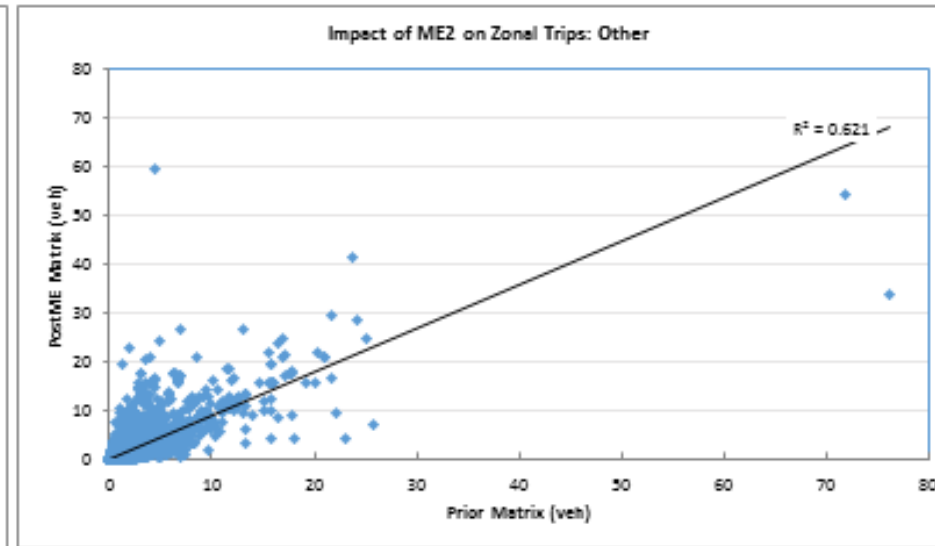
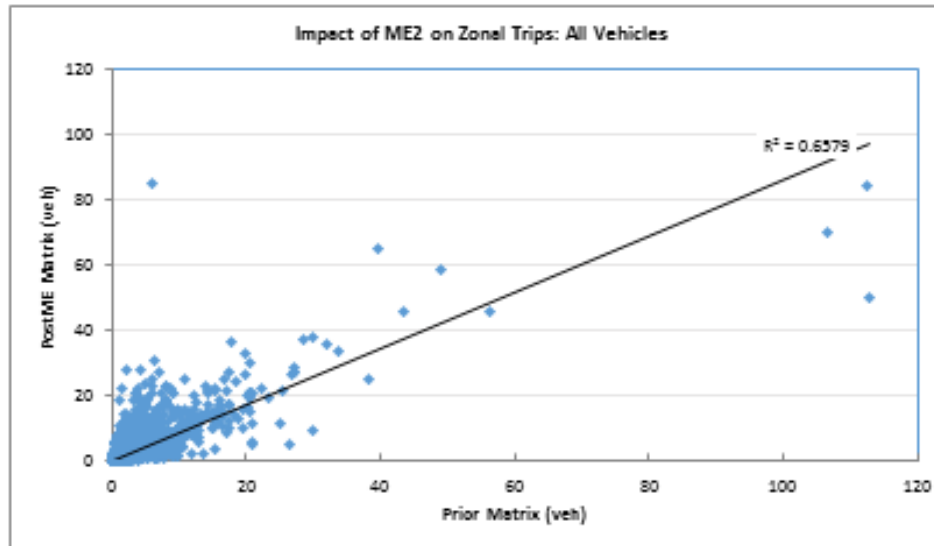
	Prior	PostME
Mean	38.58	44.76
SD	41.38	44.42

IMPACT OF ME2 ON ORIG/DEST TRIP-ENDS - INTER PEAK





### IMPACT OF ME2 ON ZONAL CELLS – INTER PEAK



Great Yarmouth Third River Crossing Traffic Model  
Local Model Validation Report - Appendices

PM PEAK: IMPACT OF ME2 ON SECTORAL MATRIX

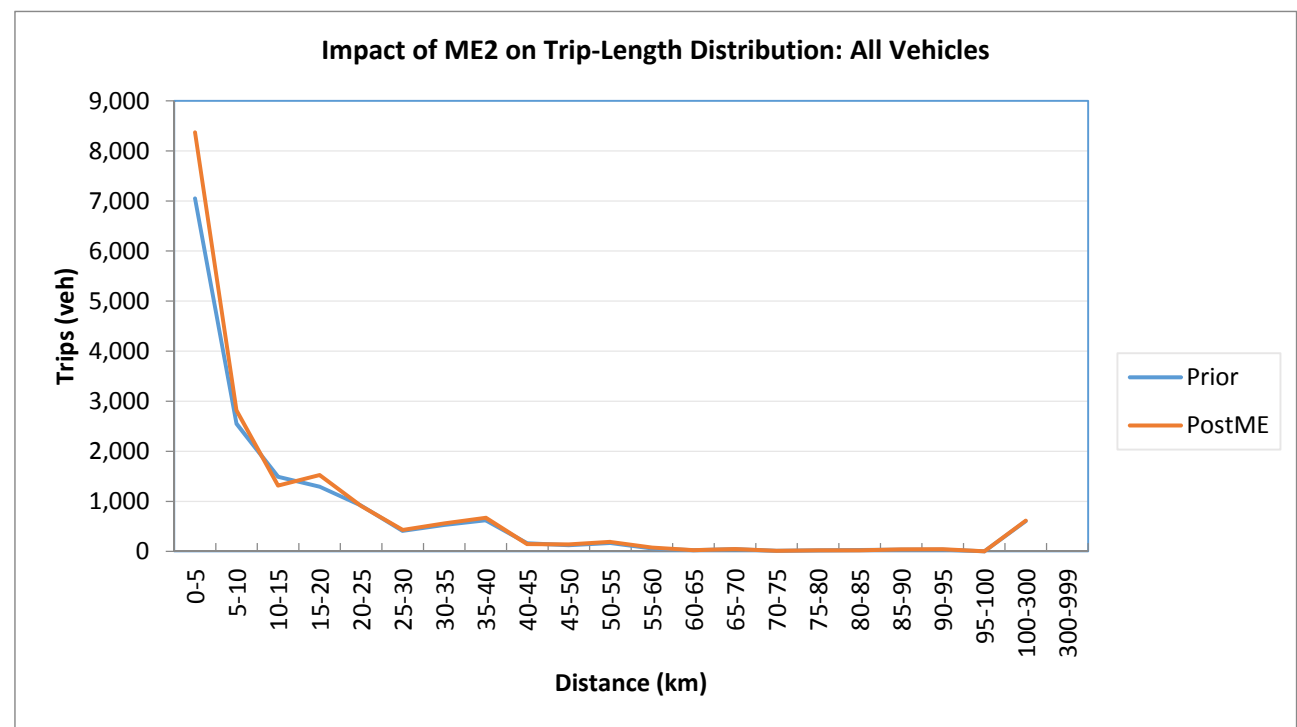
Prior Matrix All Vehicles								PostME Matrix All Vehicles								Difference All Vehicles								%Difference All Vehicles								GEH All Vehicles								
OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	OD	1	2	3	4	5	6	Total	
1	342	270	341	93	243	388	1,677	1	433	419	468	74	249	344	1,986	1	90	149	127	-19	6	-44	310	1	26.5%	55.3%	37.3%	-20.2%	2.5%	-11.4%	18.5%	1	4.6	8.0	6.3	2.1	0.4	2.3	7.2	
2	234	234	432	85	241	603	1,889	2	500	499	432	101	220	525	2,270	2	266	205	-5	16	-22	-78	382	2	113.7%	69.7%	-1.2%	18.3%	-8.3%	-13.0%	20.2%	2	13.9	10.3	0.3	1.7	1.4	3.3	8.4	
3	305	368	4,443	255	173	1,397	7,553	3	487	427	4,362	276	296	2,095	8,542	3	183	59	512	21	117	98	983	3	59.3%	15.3%	11.5%	8.1%	65.4%	4.3%	13.1%	3	3.2	2.3	7.5	1.3	7.6	2.2	11.0	
4	66	84	247	0	76	135	603	4	56	30	340	0	84	139	709	4	-12	6	34	0	8	4	100	4	-17.6%	7.7%	38.0%		10.1%	3.0%	16.4%	4	1.5	0.7	5.5		0.3	0.3	3.3	
5	219	132	101	34	461	314	1,260	5	209	138	78	36	440	307	1,209	5	-10	6	-23	2	-21	-6	-51	5	-4.6%	4.6%	-22.4%	6.8%	-4.5%	-2.0%	-4.1%	5	0.7	0.5	2.4	0.4	1.0	0.4	1.5	
6	271	395	1,373	58	388	704	3,189	6	208	243	1,653	61	375	729	3,270	6	-63	-152	280	4	-13	25	81	6	-23.1%	-38.4%	20.4%	6.1%	-3.3%	3.5%	2.5%	6	4.0	8.5	7.2	0.5	0.7	0.9	1.4	
Total	1,438	1,542	6,942	525	1,588	4,141	16,177	Total	1,892	1,816	7,927	549	1,664	4,139	17,987	Total	454	273	985	24	76	-2	1,810	Total	31.6%	17.7%	14.2%	4.5%	4.8%	-0.1%	11.2%	Total	11.1	6.7	11.4	1.0	1.9	0.0	13.8	
Business								Business								Business								Business								Business								
1	10	16	27	3	6	22	85	1	14	25	31	2	6	17	95	1	4	3	4	-1	0	-6	10	1	35.2%	56.2%	14.4%	-32.5%	-2.0%	-25.2%	11.4%	1	1.0	2.0	0.7	0.6	0.0	1.3	1.0	
2	12	3	22	3	11	39	95	2	30	13	19	4	12	30	108	2	17	3	-3	2	1	-8	13	2	140.5%	38.0%	-14.2%	73.0%	3.8%	-21.2%	13.2%	2	3.8	1.1	0.7	1.0	0.3	1.4	1.2	
3	24	22	144	27	6	119	341	3	34	17	160	30	11	119	371	3	11	-5	16	3	5	0	30	3	45.1%	-24.4%	11.2%	10.8%	82.3%	0.3%	8.6%	3	2.0	1.2	1.3	0.5	1.7	0.0	1.6	
4	2	10	25	0	3	7	48	4	2	13	40	0	4	8	67	4	0	3	15	0	1	1	20	4	-12.8%	29.8%	61.3%		18.8%	12.8%	41.5%	4	0.2	0.3	2.7		0.3	0.3	2.6	
5	7	3	6	1	13	16	53	5	7	3	4	2	13	15	49	5	7	0	-2	0	-1	-1	-4	5	-8.0%	4.2%	-37.4%	17.2%	-5.4%	-6.5%	-7.3%	5	0.2	0.1	1.0	0.2	0.2	0.3	0.5	
6	20	33	90	1	25	40	209	6	13	15	112	2	24	39	205	6	13	15	112	2	24	39	205	6	-32.1%	-55.4%	24.3%	11.8%	-1.1%	-3.0%	-2.0%	6	1.5	3.8	2.2	0.1	0.1	0.2	0.3	
Total	75	100	313	36	64	243	831	Total	99	92	365	40	70	229	895	Total	25	-8	52	4	5	-15	63	Total	32.9%	-8.0%	16.6%	11.5%	8.5%	-6.0%	7.6%	Total	2.6	0.8	2.8	0.7	0.7	1.0	2.2	
Commute								Commute								Commute								Commute								Commute								
1	25	25	86	42	37	124	339	1	32	41	114	22	25	92	328	1	7	16	29	-20	-10	-32	-11	1	27.7%	63.3%	33.4%	-46.3%	-28.1%	-25.6%	-3.1%	1	1.3	2.8	2.9	3.5	1.8	3.1	0.6	
2	55	28	180	43	66	274	647	2	110	48	159	44	55	228	645	2	55	20	-21	1	-12	-46	-2	2	101.1%	72.2%	-11.5%	1.8%	-17.3%	-16.8%	-0.3%	2	6.1	3.3	1.6	0.1	1.5	2.3	0.1	
3	53	84	761	132	48	633	1,772	3	85	70	871	151	71	751	1,999	3	31	-13	110	18	23	58	227	3	58.8%	-15.8%	14.4%	13.7%	48.1%	8.3%	12.8%	3	3.8	1.5	3.8	1.5	3.0	2.1	5.2	
4	29	23	115	0	40	100	306	4	14	28	156	0	45	102	345	4	-15	5	42	0	5	2	40	4	-51.0%	22.9%	36.5%		13.8%	1.3%	13.0%	4	3.2	1.0	3.6		0.8	0.2	2.2	
5	20	16	25	19	38	73	197	5	17	13	15	19	35	79	179	5	-3	-3	-10	1	-3	0	-17	5	-12.7%	-16.6%	-39.5%	3.4%	-8.0%	0.2%	-8.8%	5	0.6	0.7	2.2	0.1	0.5	0.0	1.3	
6	73	146	405	41	37	324	1,086	6	43	58	521	43	36	328	1,096	6	-24	-87	116	2	0	4	10	6	-32.5%	-53.3%	28.6%	4.3%	-0.4%	1.2%	0.9%	6	3.0	8.6	5.4	0.3	0.0	0.2	0.3	
Total	256	321	1,572	277	325	1,595	4,345	Total	309	259	1,837	279	328	1,581	4,593	Total	53	-62	266	2	3	-14	247	Total	26.8%	-13.3%	16.9%	0.6%	1.0%	-0.9%	5.7%	Total	3.2	3.6	6.4	0.1	0.2	0.4	3.7	
Other								Other								Other								Other								Other								
1	256	193	180	25	135	184	972	1	346	309	244	21	147	159	1,225	1	90	116	64	-4	12	-25	253	1	35.1%	60.2%	35.8%	-17.8%	3.0%	-13.5%	26.0%	1	5.2	7.3	4.4	0.3	1.0	1.9	7.6	
2	140	215	184	31	123	217	916	2	325	391	204	41	123	195	1,279	2	184	176	20	11	-6	-22	362	2	131.2%	82.1%	10.8%	35.3%	-4.8%	-10.3%	39.5%	2	12.1	10.1	1.4	1.8	0.5	1.6	10.9	
3	198	221	3,012	71	107	330	4,537	3	326	265	3,372	74	173	384	5,200	3	128	44	360	3	72	55	662	3	64.7%	20.2%	11.3%	4.6%	67.3%	5.9%	14.6%	3	7.9	2.9	6.4	0.4	6.0	1.8	9.5	
4	19	36	78	0	27	20	179	4	14	37	112	0	32	21	216	4	-5	1	34	0	5	2	37	4	-24.7%	16%	44.4%		18.1%	8.0%	20.6%	4	1.1	0.1	3.5		1.9	0.3	2.6	
5	147	90	60	12	338	181	828	5	141	94	44	13	320	178	791	5	-6	4	-16	2	-18	-3	-37	5	-4.0%	4.6%	-26.1%	14.8%	-5.4%	-1.7%	-4.5%	5	0.5	0.4	2.2	0.5	1.0	0.2	1.3	
6	142	155	620	10	218	181	1,325	6	107	112	751	10	202	189	1,372	6	-34	-42	131	0	-16	8	47	6	-24.3%	-27.4%	21.1%	4.3%	-7.2%	4.4%	3.5%	6	3.1	3.7	5.0	0.1	1.1	0.6	1.3	
Total	902	910	4,134	148	954	1,712	8,759	Total	1,259	1,208	4,727	159	1,003	1,726	10,082	Total	357	299	593	12	49	14	1,324	Total	39.6%	32.8%	14.4%	7.9%	5.1%	0.8%	15.1%	Total	10.9	9.2	8.9	0.9	1.6	0.3	13.6	
Lgv								Lgv								Lgv								Lgv								Lgv								
1	50	34	48	7	35	48	222	1	40	40	78	2	39	73	273	1	-10	5	30	-5	5	25	50	1	-19.6%	14.7%	62.7%	-71.3%	13.0%	52.5%	22.6%	1	1.5	0.8	3.8	2.3	0.7	3.2	3.2	
2	26	38	40	7	34	71	217	2	35	43	34	7	29	68	216	2	3	5	-7	0	-5	-3	-1	2	33.4%	14.3%	-16.4%	-2.5%	-14.6%	-4.8%	-0.5%	2	1.6	0.9	1.1	0.1	0.9	0.4	0.1	
3	30	32	528	21	18	200	828	3	42	58	553	15	35	182	886	3	13	26	25	-6	17	-18	58	3	43.3%	80.4%	4.8%	-26.7%	38.0%	-8.3%	7.0%	3	2.1	3.8	1.1	1.3	3.4	1.3	2.0	
4	6	10	28	0	5	7	56	4	2	7	27	0	3	7	46	4	-4	-3	-1	0	-3	0	-10	4	-61.6%	-26.2%	-3.7%		-46.2%	-4.6%	-18.1%	4	1.8	0.9	0.2		1.2	0.1	1.4	
5	38	17	10	2	72	33	171	5	35	20	15	2	73	31	175	5	-3	3	5	0	1	-2	4	5	-7.6%	17.3%	50.0%	-14.3%	1.8%	-6.5%	2.3%	5	0.5	0.7	1.4	0.2	0.2	0.4	0.3	
6	27	45	206	5	43	143	468	6	31	48	214	6	47	152	497	6	4	4	8	1	4	3	29	6	13.4%	8.0%	3.8%	13.3%	3.8%	6.3%	6.2%	6	0.7	0.5	0.5	0.4	0.6	0.7	1.3	
Total	177	176	860	42	207	502	1,963	Total	185	216	920	32	227	512	2,093	Total	9	40	61	-10	20	10	130	Total	4.8%	22.9%	7.1%	-23.7%	3.6%	2.1%	6.6%	Total	0.6	2.9	2.0	1.6	1.3	0.5	2.9	
Hgv								Hgv								Hgv								Hgv								Hgv								
1	0	1	0	16	31	3	58	1	0	5	0	27	31	2	65	1	0	3	0	11	0	-7	7	1		233.7%	8.8%	72.1%	-0.7%	-75.8%	12.4%	1		1.9	0.0	2.4	0.0	3.0	0.9	
2	0	4	5	1	0	2	13	2	0	4	11	4	0	4	23	2	0	0	5	3	0	2	9	2		-3.5%	39.5%	218.1%	29.3%	65.8%	70.0%	2		0.2	1.9	1.7	0.2	0.9	2.2	
3	0	3	5	5	0	55	75	3	0	16	6	7	0	58	87	3	0	7	1	2	0	3	13	3		-60.0%	75.5%	29.1%	42.0%	-35.8%	5.4%	17.1%	3	0.5	2.0	0.6	0.8	0.3	0.4	1.4
4	12	5	2	0	1	1	21	4	23	5	5	0	0	1	34	4	11	0	3	0	-1	0	14																	

IMPACT OF ME2 ON TRIP-LENGTH  
DISTRIBUTION PM PEAK

All Vehicles 187.0

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	7,051	2,553	1,493	1,293	915	411	531	622	163	122	167	58	25	45	10	20	26	32	34	2	605	
PostME Trips (veh)	0	8,369	2,818	1,314	1,528	910	430	560	674	147	138	189	80	24	48	13	21	22	40	44	2	616	
Prior veh.km	0	20,706	17,739	19,004	22,648	19,862	11,269	17,464	23,007	6,984	5,797	8,657	3,361	1,515	2,975	727	1,605	2,169	2,853	3,117	235	72,919	
PostME veh.km	0	23,866	19,580	16,748	26,533	19,819	11,736	18,437	25,079	6,328	6,586	9,847	4,607	1,497	3,182	906	1,676	1,788	3,524	4,064	187	73,687	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	7,051	8,369	20,706	23,866	2.9	2.9	-2.9%
3	5	10	2,553	2,818	17,739	19,580	6.9	6.9	0.0%
4	10	15	1,493	1,314	19,004	16,748	12.7	12.7	0.1%
5	15	20	1,293	1,528	22,648	26,533	17.5	17.4	-0.8%
6	20	25	915	910	19,862	19,819	21.7	21.8	0.3%
7	25	30	411	430	11,269	11,736	27.4	27.3	-0.5%
8	30	35	531	560	17,464	18,437	32.9	32.9	0.0%
9	35	40	622	674	23,007	25,079	37.0	37.2	0.5%
10	40	45	163	147	6,984	6,328	42.9	43.1	0.3%
11	45	50	122	138	5,797	6,586	47.6	47.7	0.2%
12	50	55	167	189	8,657	9,847	51.8	52.1	0.6%
13	55	60	58	80	3,361	4,607	57.9	57.8	-0.2%
14	60	65	25	24	1,515	1,497	61.6	61.6	0.0%
15	65	70	45	48	2,975	3,182	66.8	66.7	-0.1%
16	70	75	10	13	727	906	72.1	71.7	-0.6%
17	75	80	20	21	1,605	1,676	79.0	79.2	0.3%
18	80	85	26	22	2,169	1,788	82.8	82.6	-0.2%
19	85	90	32	40	2,853	3,524	88.3	88.3	0.0%
20	90	95	34	44	3,117	4,064	91.9	91.7	-0.2%
21	95	100	2	2	235	187	96.7	96.6	0.0%
22	100	300	605	616	72,919	73,687	120.4	119.7	-0.6%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>16,177</b>	<b>17,987</b>	<b>264,614</b>	<b>279,679</b>	<b>16.36</b>	<b>15.55</b>	<b>-4.9%</b>



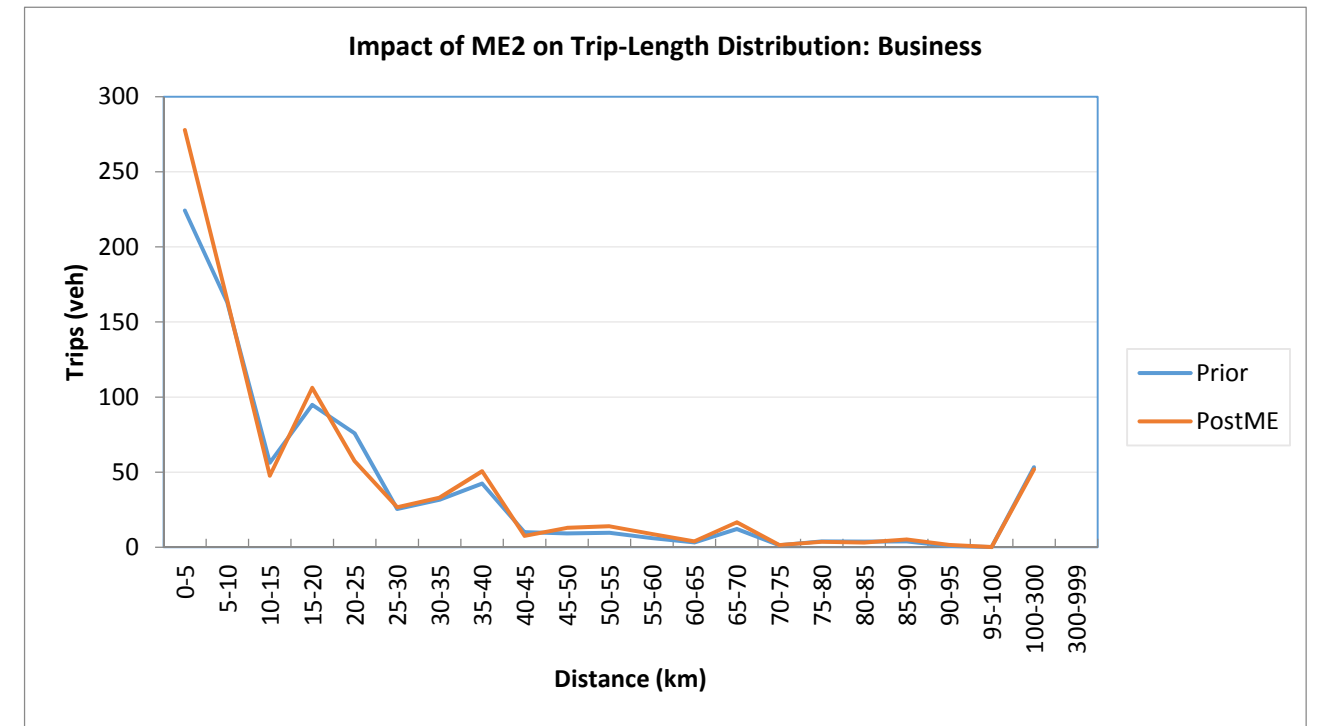
	Prior	PostME
Mean	16.36	15.55
SD	24.08	23.33



**Business**

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	224	163	56	95	76	25	32	42	10	9	10	6	3	12	1	4	4	4	1	0	53	
PostME Trips (veh)	0	278	164	48	106	57	27	33	51	8	13	14	9	4	17	1	4	3	5	2	0	52	
Prior veh.km	0	691	1,158	725	1,661	1,609	699	1,041	1,599	424	440	500	349	194	812	103	314	313	340	83	11	6,261	
PostME veh.km	0	853	1,155	610	1,847	1,228	726	1,082	1,929	320	625	736	508	240	1,111	107	289	259	457	149	11	6,057	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	224	278	691	853	3.1	3.1	-0.3%
3	5	10	163	164	1,158	1,155	7.1	7.0	-1.2%
4	10	15	56	48	725	610	12.9	12.8	-0.6%
5	15	20	95	106	1,661	1,847	17.5	17.4	-0.7%
6	20	25	76	57	1,609	1,228	21.2	21.4	1.1%
7	25	30	25	27	699	726	27.4	27.3	-0.6%
8	30	35	32	33	1,041	1,082	32.9	32.8	-0.3%
9	35	40	42	51	1,599	1,929	37.7	38.1	1.0%
10	40	45	10	8	424	320	42.4	42.2	-0.3%
11	45	50	9	13	440	625	47.9	48.3	0.8%
12	50	55	10	14	500	736	52.3	52.7	0.7%
13	55	60	6	9	349	508	57.4	57.4	0.0%
14	60	65	3	4	194	240	61.3	61.3	0.0%
15	65	70	12	17	812	1,111	66.6	66.6	0.1%
16	70	75	1	1	103	107	73.2	73.1	-0.1%
17	75	80	4	4	314	289	78.9	79.1	0.2%
18	80	85	4	3	313	259	83.6	83.1	-0.7%
19	85	90	4	5	340	457	87.2	87.2	0.0%
20	90	95	1	2	83	149	92.2	91.4	-0.9%
21	95	100	0	0	11	11	95.8	95.8	0.0%
22	100	300	53	52	6,261	6,057	117.5	116.7	-0.7%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>831</b>	<b>895</b>	<b>19,328</b>	<b>20,300</b>	<b>23.25</b>	<b>22.69</b>	<b>-2.4%</b>

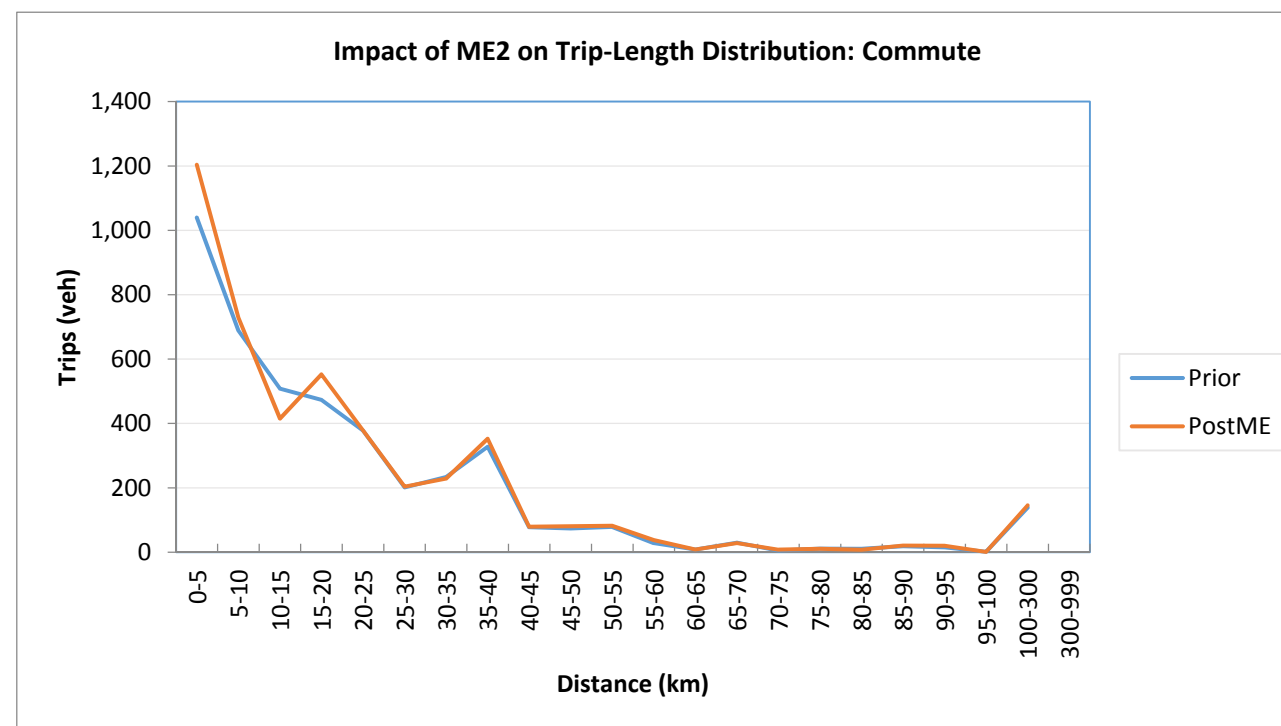


	Prior	PostME
Mean	23.25	22.69
SD	29.80	29.23

**Commute**

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	1,040	689	508	473	378	201	234	327	78	73	78	28	9	30	5	11	11	18	15	1	139	
PostME Trips (veh)	0	1,204	729	415	552	378	204	229	352	79	80	82	38	9	28	8	11	7	21	20	1	146	
Prior veh.km	0	3,186	4,902	6,475	8,295	8,311	5,594	7,754	12,045	3,334	3,510	4,031	1,644	528	1,978	368	859	873	1,626	1,357	122	16,662	
PostME veh.km	0	3,578	5,154	5,342	9,609	8,333	5,633	7,607	13,021	3,414	3,846	4,210	2,181	532	1,890	569	837	610	1,838	1,801	101	17,262	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	1,040	1,204	3,186	3,578	3.1	3.0	-3.0%
3	5	10	689	729	4,902	5,154	7.1	7.1	-0.6%
4	10	15	508	415	6,475	5,342	12.7	12.9	0.9%
5	15	20	473	552	8,295	9,609	17.5	17.4	-0.8%
6	20	25	378	378	8,311	8,333	22.0	22.0	0.2%
7	25	30	201	204	5,594	5,633	27.8	27.6	-0.5%
8	30	35	234	229	7,754	7,607	33.2	33.2	0.2%
9	35	40	327	352	12,045	13,021	36.8	37.0	0.5%
10	40	45	78	79	3,334	3,414	43.0	43.1	0.4%
11	45	50	73	80	3,510	3,846	47.8	47.9	0.2%
12	50	55	78	82	4,031	4,210	51.4	51.3	-0.1%
13	55	60	28	38	1,644	2,181	57.9	57.8	-0.2%
14	60	65	9	9	528	532	61.9	61.8	-0.2%
15	65	70	30	28	1,978	1,890	66.9	66.7	-0.2%
16	70	75	5	8	368	569	71.3	71.1	-0.4%
17	75	80	11	11	859	837	79.0	79.1	0.2%
18	80	85	11	7	873	610	83.0	83.0	0.0%
19	85	90	18	21	1,626	1,838	88.4	88.4	0.0%
20	90	95	15	20	1,357	1,801	92.0	91.8	-0.2%
21	95	100	1	1	122	101	97.6	97.3	-0.3%
22	100	300	139	146	16,662	17,262	120.1	118.4	-1.4%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>4,345</b>	<b>4,593</b>	<b>93,452</b>	<b>97,368</b>	<b>21.51</b>	<b>21.20</b>	<b>-1.4%</b>

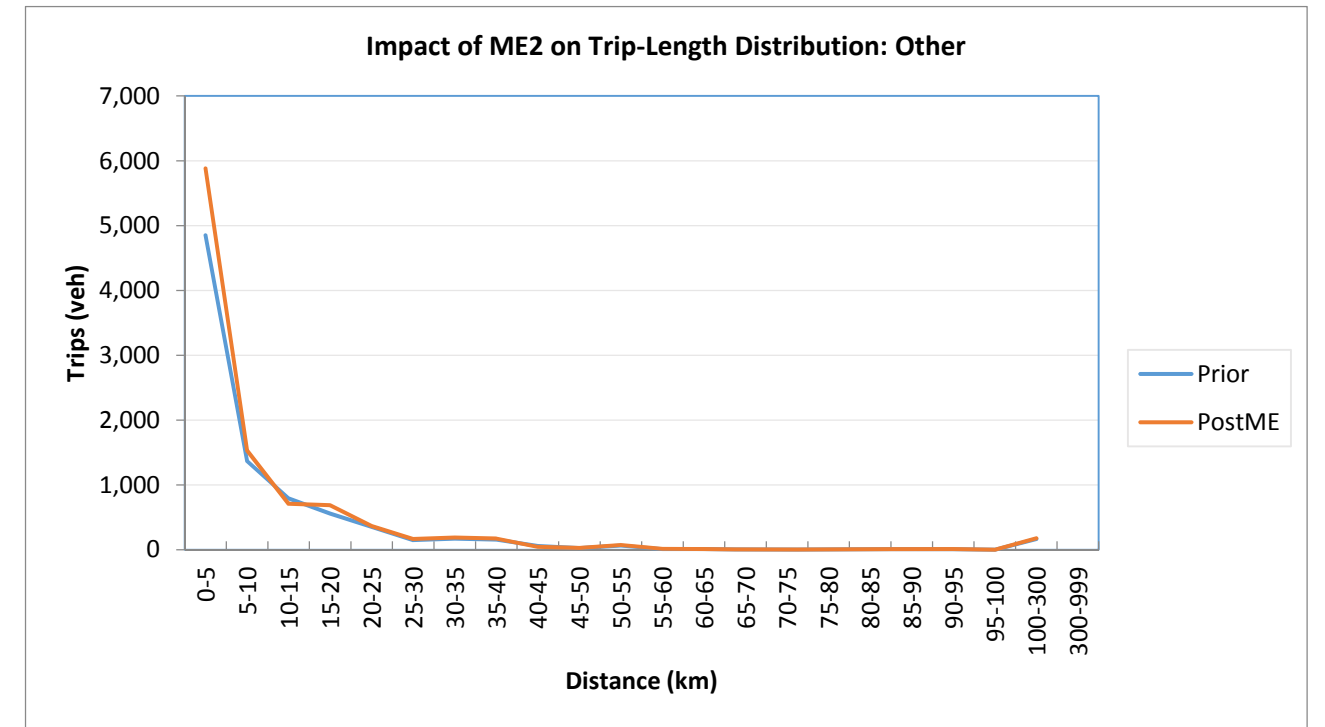


	Prior	PostME
Mean	21.51	21.20
SD	24.27	24.19

Other

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	4,852	1,368	793	557	353	148	170	156	59	26	64	11	9	2	3	3	9	4	7	1	166	
PostME Trips (veh)	0	5,882	1,530	709	687	365	166	187	173	44	27	74	16	9	2	2	5	9	4	11	1	179	
Prior veh.km	0	14,075	9,379	10,072	9,786	7,616	4,010	5,546	5,746	2,536	1,219	3,325	650	553	108	207	262	748	357	638	54	19,804	
PostME veh.km	0	16,479	10,490	8,978	11,942	7,881	4,461	6,139	6,391	1,900	1,269	3,943	915	578	129	176	423	771	382	998	55	21,061	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	4,852	5,882	14,075	16,479	2.9	2.8	-3.4%
3	5	10	1,368	1,530	9,379	10,490	6.9	6.9	0.0%
4	10	15	793	709	10,072	8,978	12.7	12.7	-0.2%
5	15	20	557	687	9,786	11,942	17.6	17.4	-1.1%
6	20	25	353	365	7,616	7,881	21.6	21.6	0.2%
7	25	30	148	166	4,010	4,461	27.1	27.0	-0.5%
8	30	35	170	187	5,546	6,139	32.7	32.8	0.4%
9	35	40	156	173	5,746	6,391	36.9	37.0	0.3%
10	40	45	59	44	2,536	1,900	43.1	43.3	0.5%
11	45	50	26	27	1,219	1,269	47.4	47.5	0.2%
12	50	55	64	74	3,325	3,943	52.3	53.0	1.2%
13	55	60	11	16	650	915	57.9	57.4	-0.8%
14	60	65	9	9	553	578	61.7	61.6	-0.1%
15	65	70	2	2	108	129	67.5	67.6	0.1%
16	70	75	3	2	207	176	72.8	72.6	-0.3%
17	75	80	3	5	262	423	79.1	79.5	0.5%
18	80	85	9	9	748	771	82.5	82.2	-0.4%
19	85	90	4	4	357	382	88.4	88.3	0.0%
20	90	95	7	11	638	998	92.2	91.6	-0.6%
21	95	100	1	1	54	55	95.8	95.8	0.0%
22	100	300	166	179	19,804	21,061	119.4	117.6	-1.5%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>8,759</b>	<b>10,082</b>	<b>96,690</b>	<b>105,361</b>	<b>11.04</b>	<b>10.45</b>	<b>-5.3%</b>

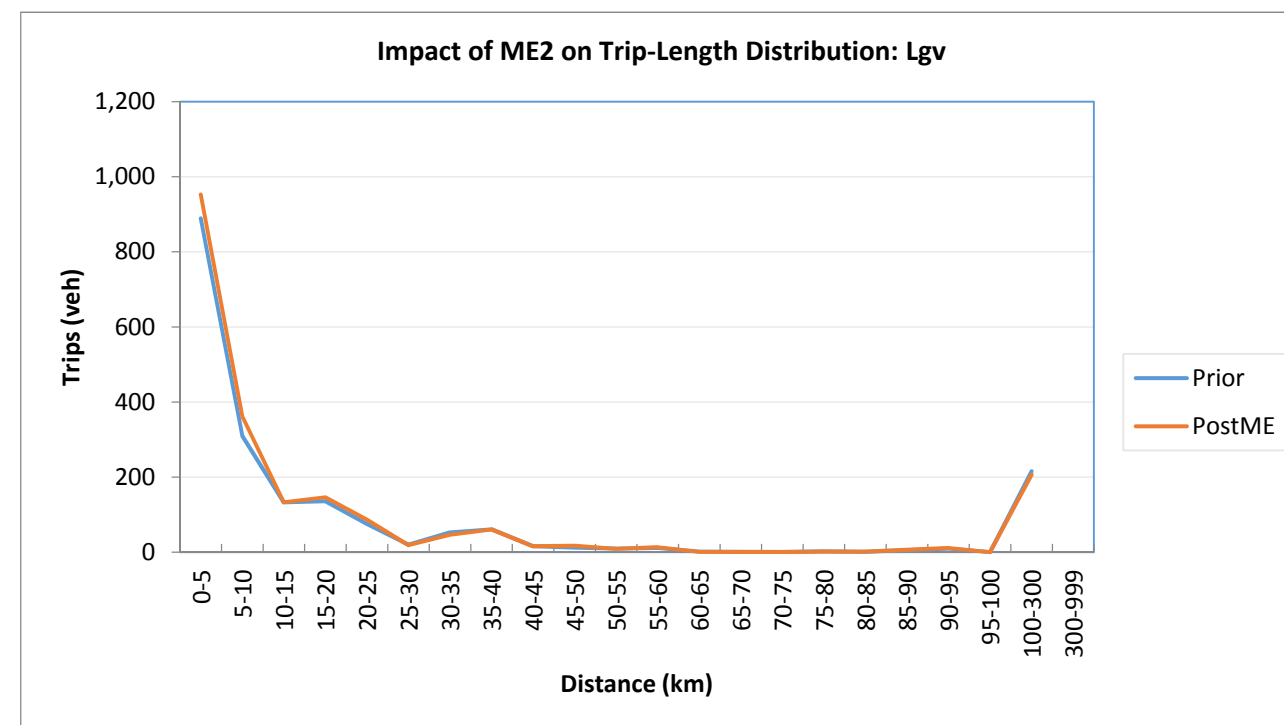


	Prior	PostME
Mean	11.04	10.45
SD	18.54	17.97

Lgv

Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	889	310	133	136	75	20	53	61	16	12	10	11	2	1	1	2	1	5	10	1	216	
PostME Trips (veh)	0	953	361	133	147	87	19	47	61	16	17	9	13	1	1	1	2	1	7	11	0	207	
Prior veh.km	0	2,561	2,133	1,699	2,371	1,605	565	1,743	2,264	681	568	498	647	106	76	45	169	82	451	883	49	26,452	
PostME veh.km	0	2,740	2,545	1,700	2,547	1,859	520	1,529	2,280	684	804	476	768	74	52	52	125	107	574	1,036	20	25,375	

Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	889	953	2,561	2,740	2.9	2.9	-0.2%
3	5	10	310	361	2,133	2,545	6.9	7.0	2.2%
4	10	15	133	133	1,699	1,700	12.8	12.7	-0.5%
5	15	20	136	147	2,371	2,547	17.5	17.4	-0.4%
6	20	25	75	87	1,605	1,859	21.4	21.5	0.4%
7	25	30	20	19	565	520	27.7	27.4	-0.9%
8	30	35	53	47	1,743	1,529	32.8	32.7	-0.4%
9	35	40	61	61	2,264	2,280	37.1	37.6	1.2%
10	40	45	16	16	681	684	42.4	42.4	-0.1%
11	45	50	12	17	568	804	46.7	46.6	-0.2%
12	50	55	10	9	498	476	51.7	51.5	-0.3%
13	55	60	11	13	647	768	58.1	58.0	-0.2%
14	60	65	2	1	106	74	61.1	61.3	0.2%
15	65	70	1	1	76	52	67.0	67.0	0.0%
16	70	75	1	1	45	52	72.7	72.6	-0.2%
17	75	80	2	2	169	125	79.3	79.4	0.1%
18	80	85	1	1	82	107	81.6	82.1	0.7%
19	85	90	5	7	451	574	88.3	88.2	-0.2%
20	90	95	10	11	883	1,036	91.8	91.7	-0.1%
21	95	100	1	0	49	20	95.6	95.9	0.3%
22	100	300	216	207	26,452	25,375	122.7	122.8	0.1%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>1,963</b>	<b>2,093</b>	<b>45,650</b>	<b>45,867</b>	<b>23.25</b>	<b>21.91</b>	<b>-5.8%</b>

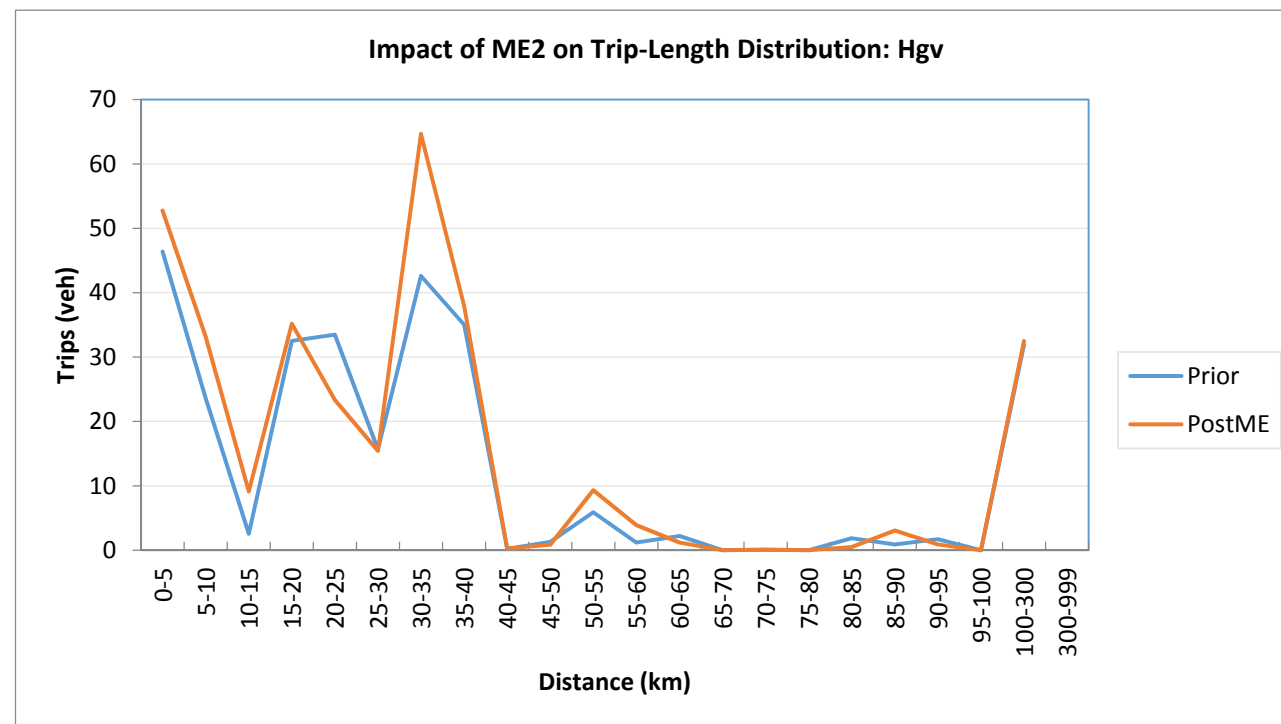


	Prior	PostME
Mean	23.25	21.91
SD	37.44	36.05

Hgv

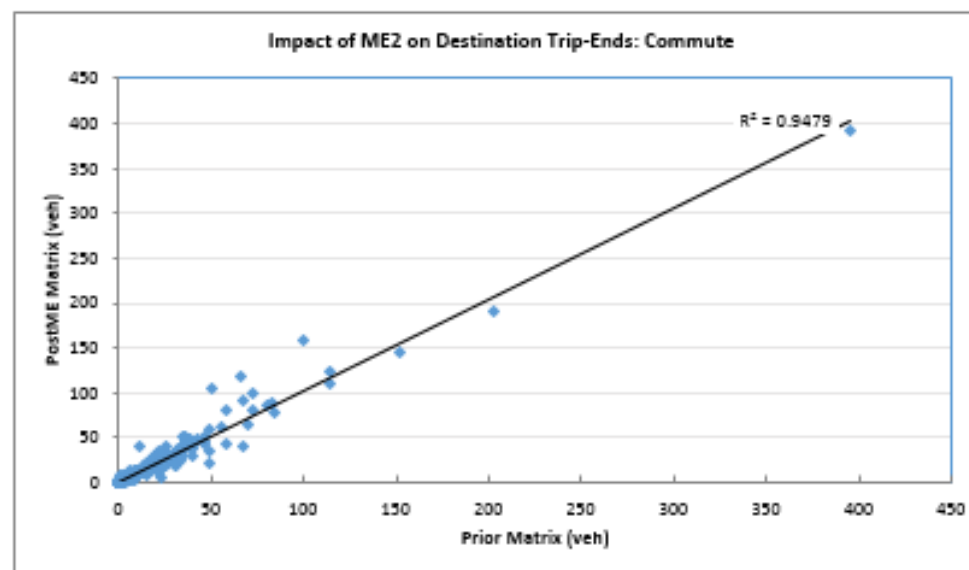
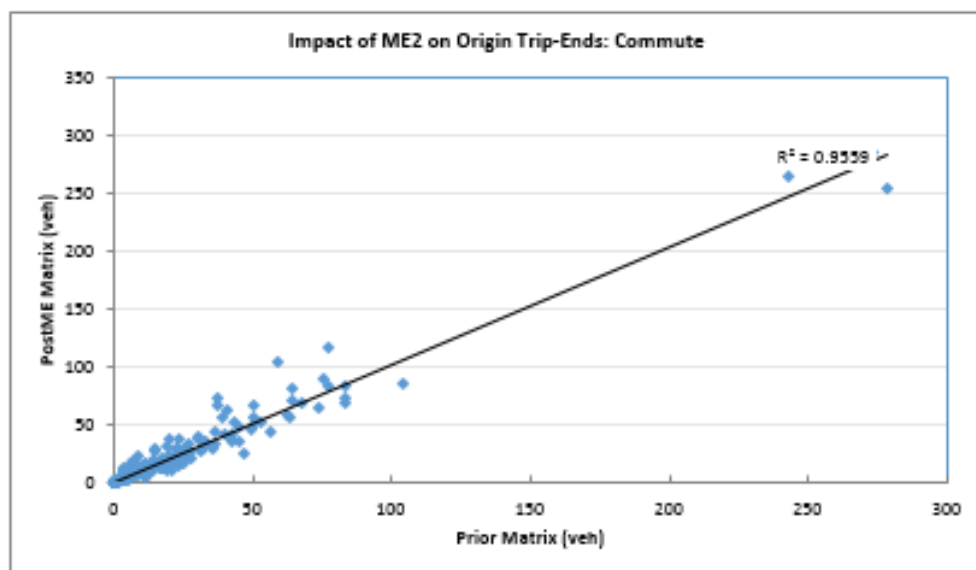
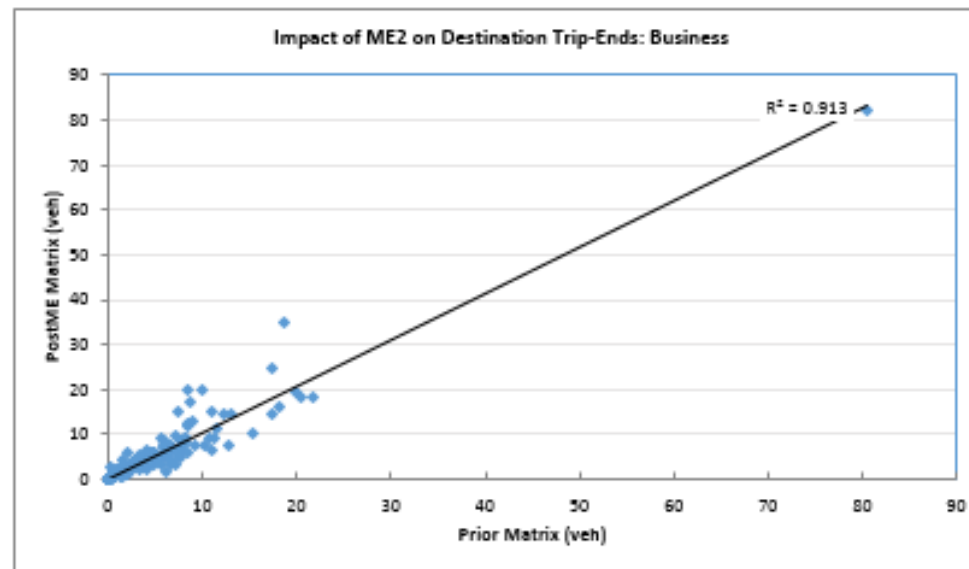
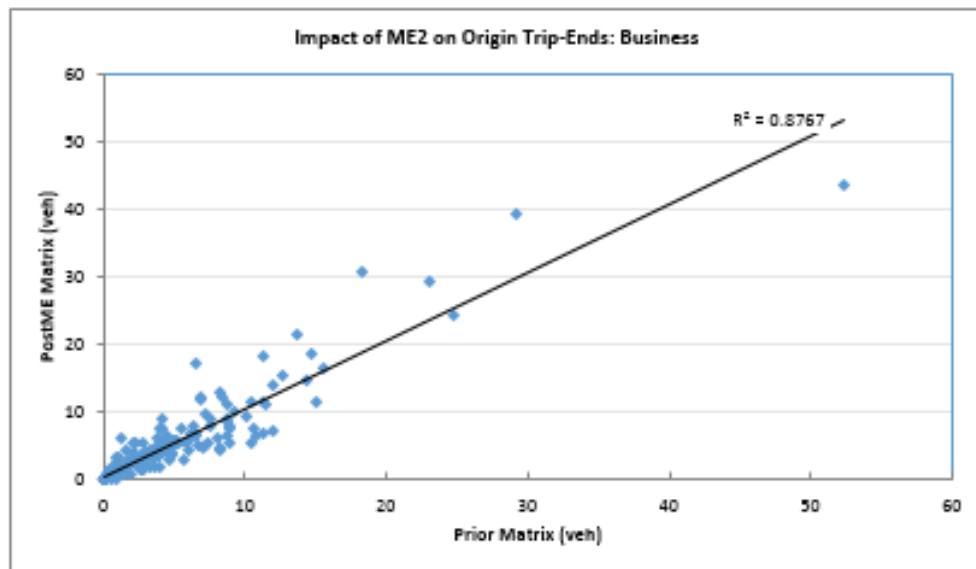
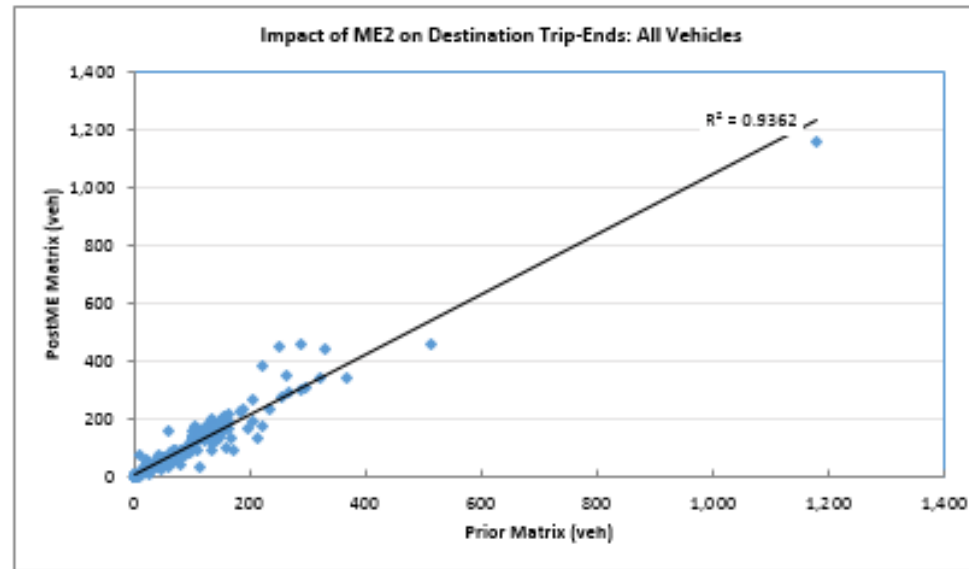
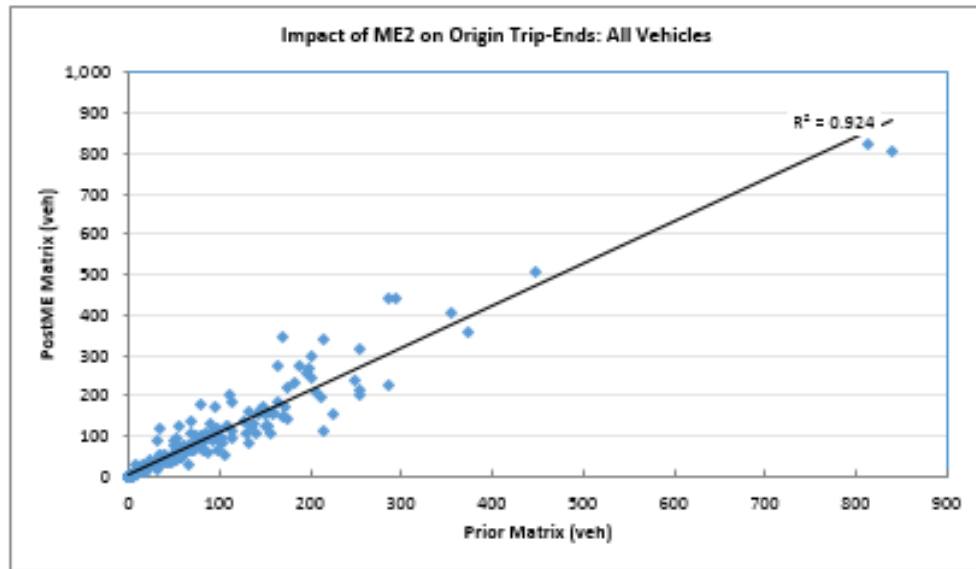
Distance	0-0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	100-300	300-999
Prior Trips (veh)	0	46	24	3	33	33	16	43	35	0	1	6	1	2	0	0	0	2	1	2	0	32	
PostME Trips (veh)	0	53	33	9	35	23	15	65	38	0	1	9	4	1	0	0	0	0	3	1	0	32	
Prior veh.km	0	192	167	33	535	722	401	1,380	1,353	9	60	303	71	133	0	5	0	153	80	155	0	3,740	
PostME veh.km	0	216	238	119	587	519	396	2,080	1,459	11	42	482	234	72	0	3	0	40	273	80	0	3,931	

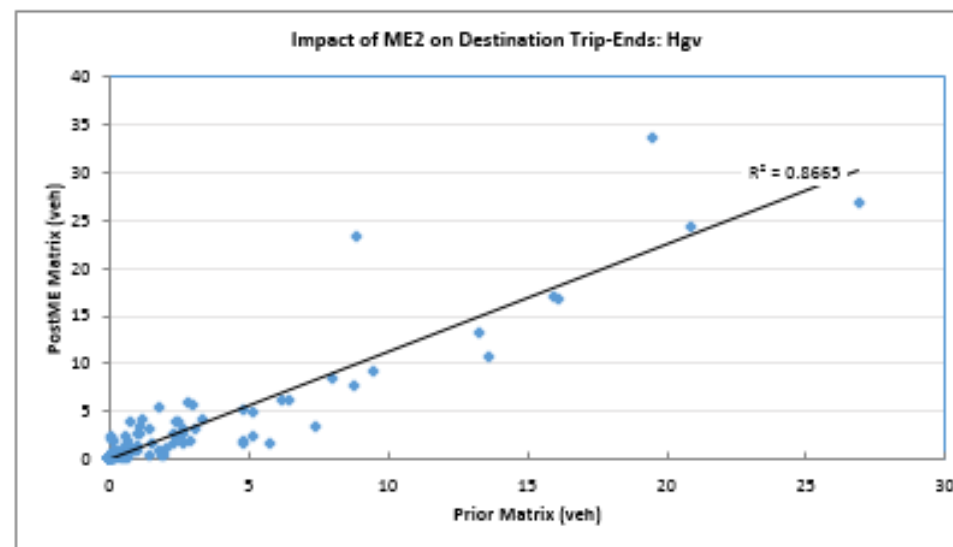
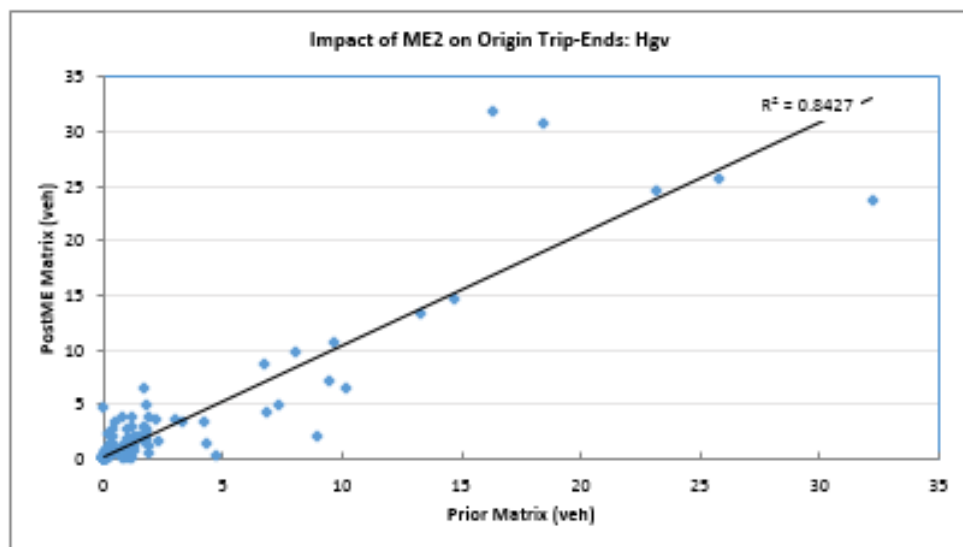
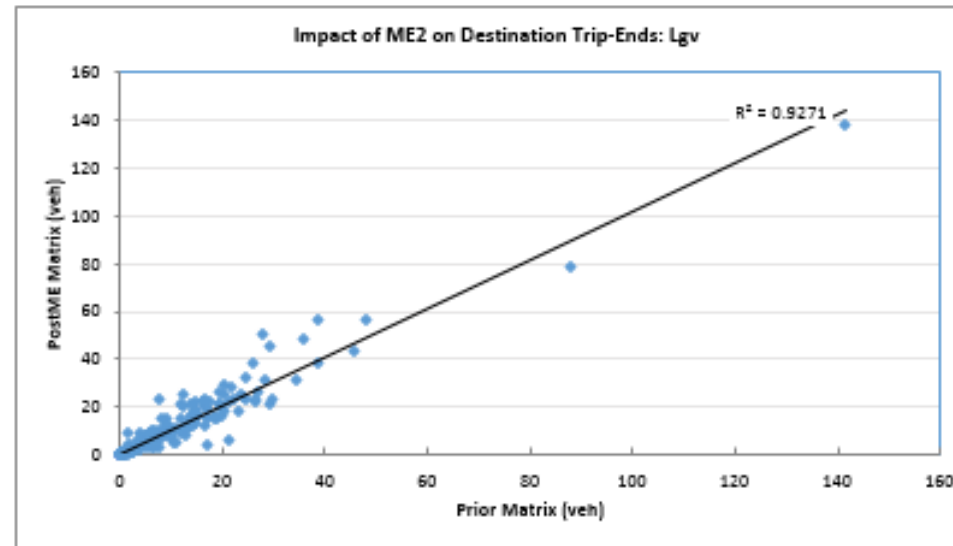
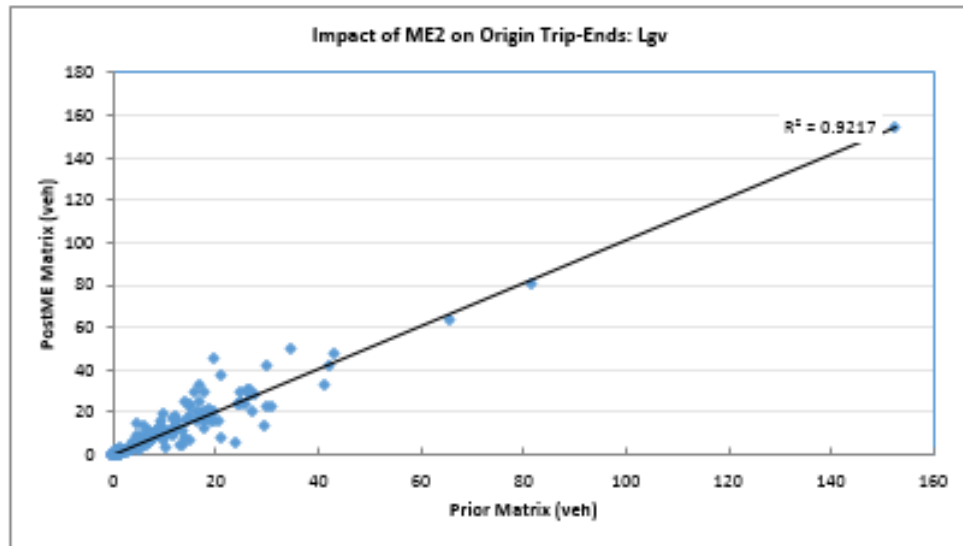
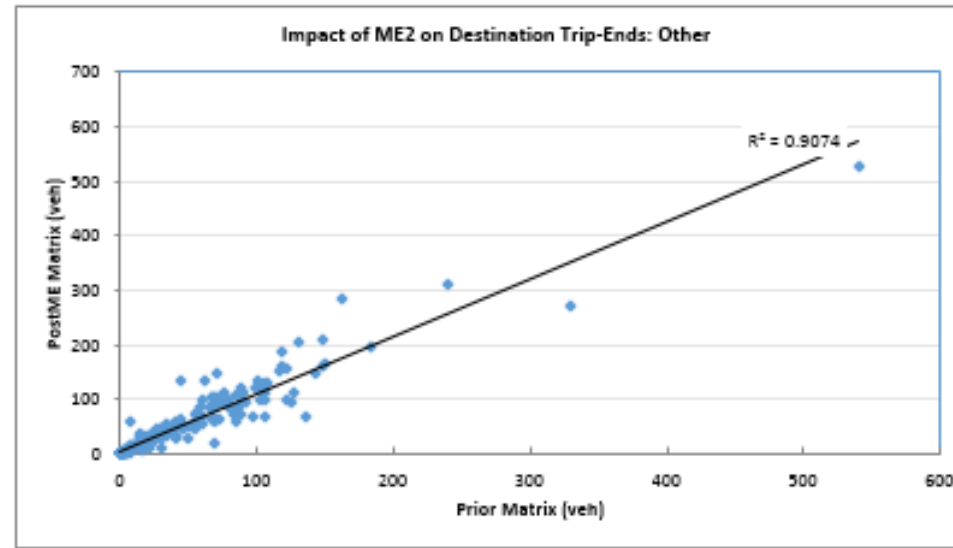
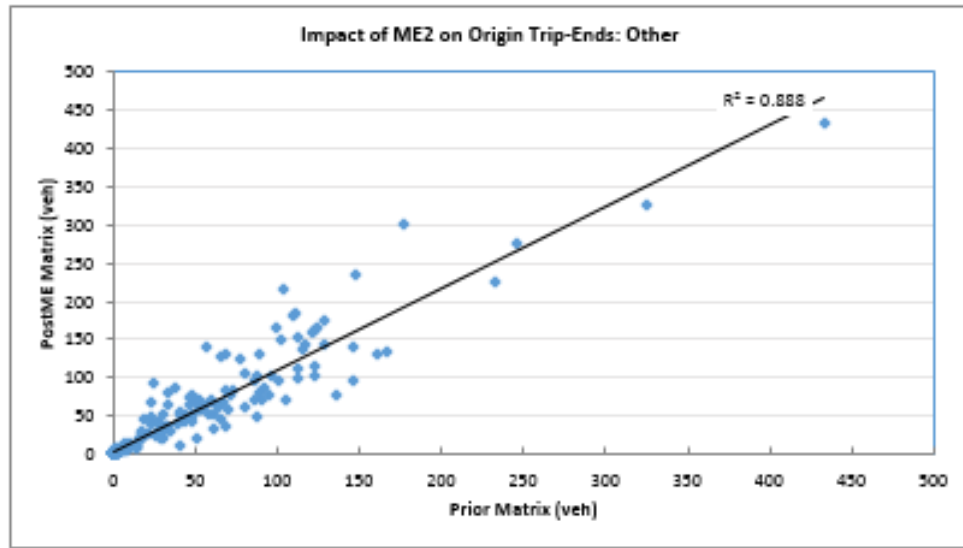
Band	Distance (km)		Trips (veh)		Trip.kms		Length (km)		%Diff
	from	to	Prior	PostME	Prior	PostME	Prior	PostME	
1	0	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
2	0	5	46	53	192	216	4.1	4.1	-1.2%
3	5	10	24	33	167	238	7.1	7.2	1.1%
4	10	15	3	9	33	119	12.9	13.0	0.9%
5	15	20	33	35	535	587	16.5	16.7	1.4%
6	20	25	33	23	722	519	21.6	22.2	3.2%
7	25	30	16	15	401	396	25.6	25.6	0.0%
8	30	35	43	65	1,380	2,080	32.4	32.2	-0.6%
9	35	40	35	38	1,353	1,459	38.6	38.5	-0.4%
10	40	45	0	0	9	11	40.7	41.0	0.7%
11	45	50	1	1	60	42	46.8	49.4	5.4%
12	50	55	6	9	303	482	51.5	51.7	0.4%
13	55	60	1	4	71	234	59.9	59.9	0.0%
14	60	65	2	1	133	72	60.4	60.7	0.4%
15	65	70	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
16	70	75	0	0	5	3	72.7	72.7	0.0%
17	75	80	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
18	80	85	2	0	153	40	82.0	82.0	0.0%
19	85	90	1	3	80	273	89.0	89.5	0.6%
20	90	95	2	1	155	80	90.4	90.7	0.3%
21	95	100	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!
22	100	300	32	32	3,740	3,931	117.2	121.0	3.3%
23	300	999					#DIV/0!	#DIV/0!	#DIV/0!
<b>Total</b>			<b>279</b>	<b>324</b>	<b>9,493</b>	<b>10,781</b>	<b>34.01</b>	<b>33.26</b>	<b>-2.2%</b>



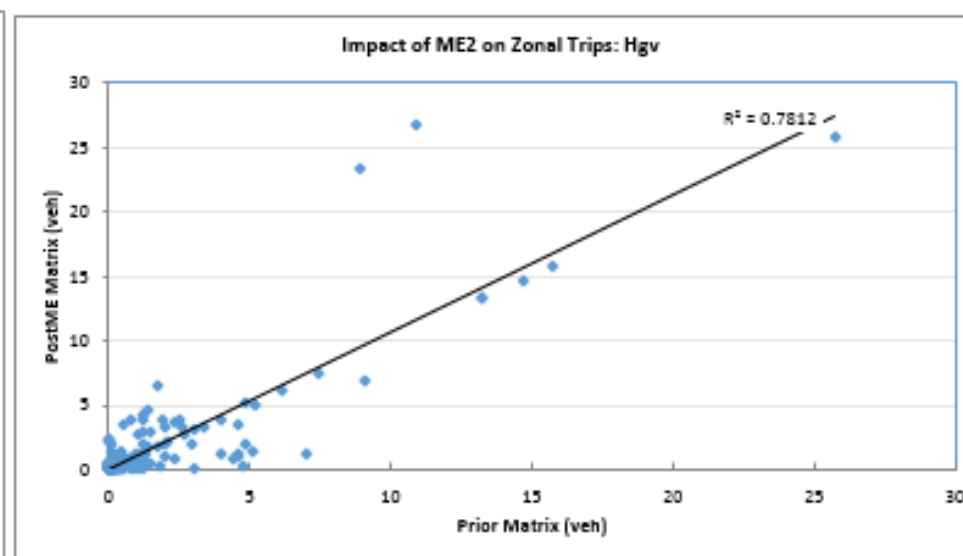
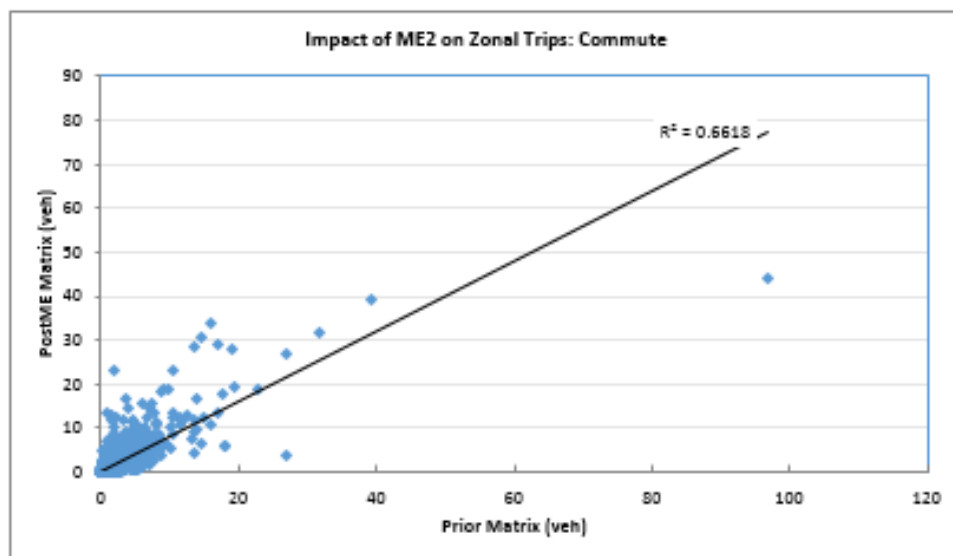
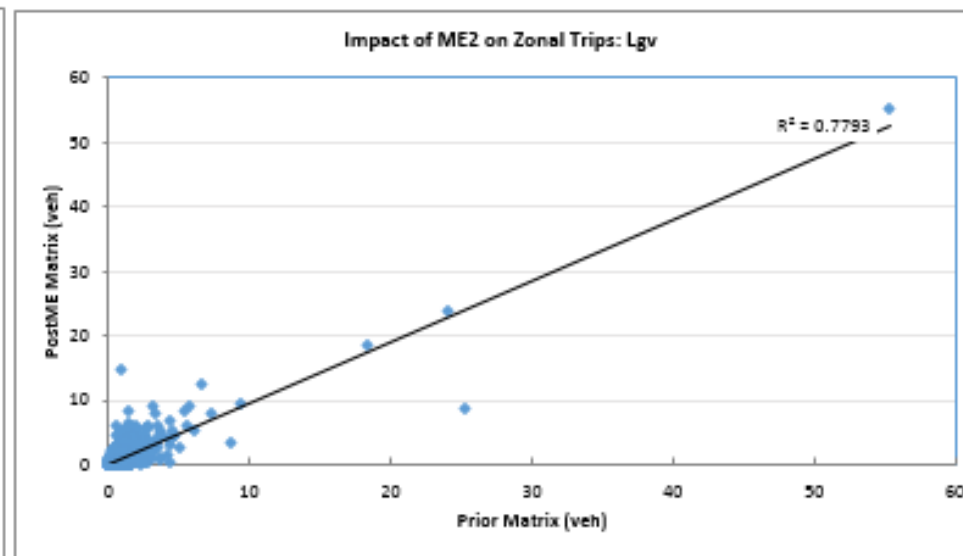
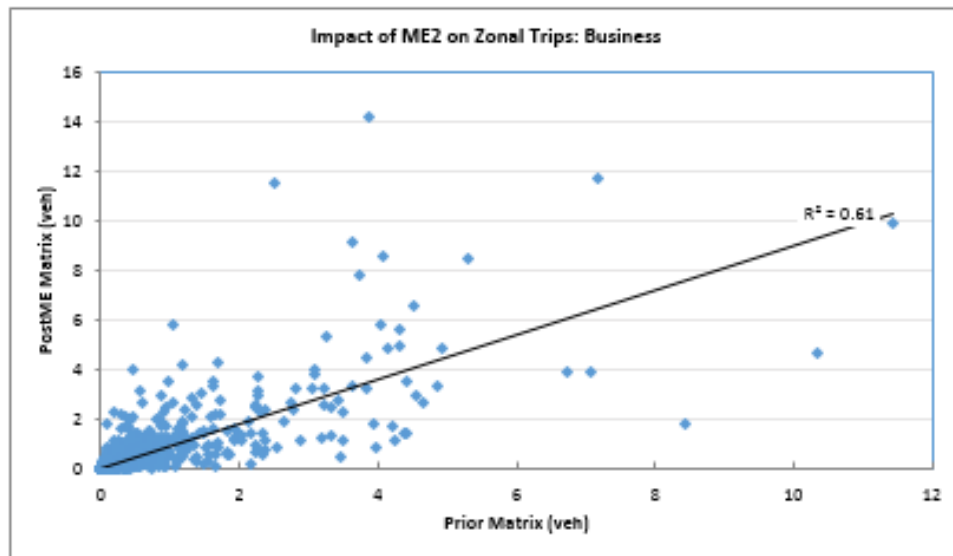
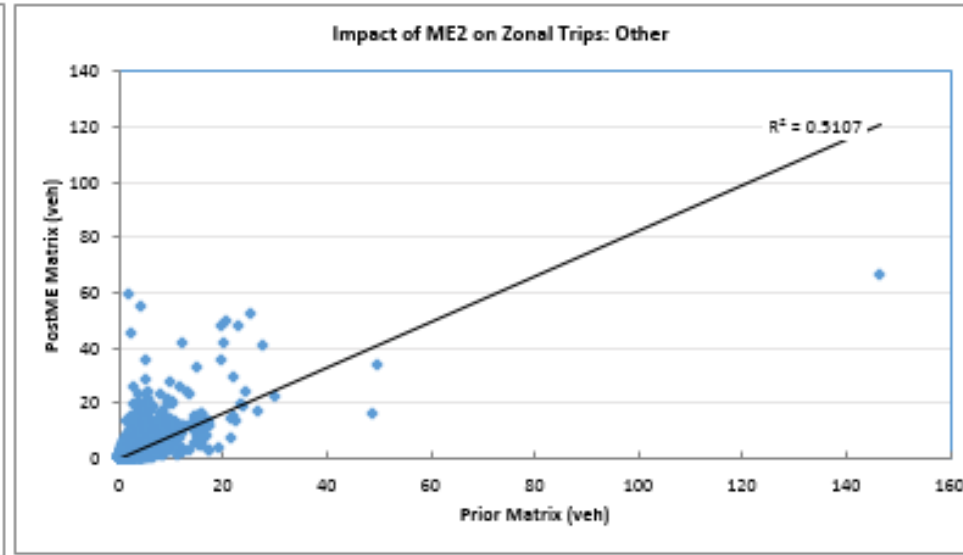
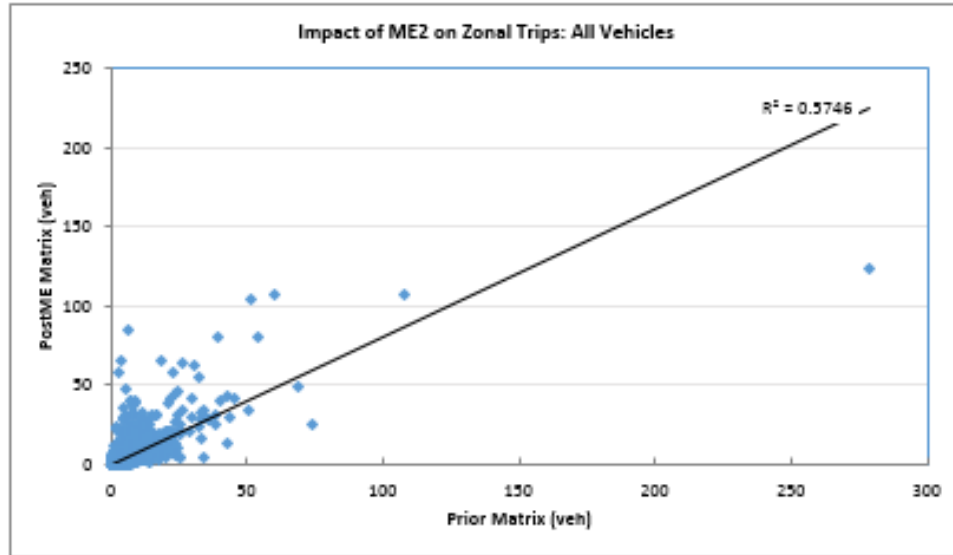
	Prior	PostME
Mean	34.01	33.26
SD	33.70	33.40

### IMPACT OF ME2 ON ORIG/DEST TRIP-ENDS – PM PEAK





IMPACT OF ME2 ON ZONAL CELLS – PM PEAK





## Appendix G: Link Flow Validation

AM PEAK VALIDATION

Link	Count ID	Road Name	Quality ID	Dir	Flow Validation - All vehicles					WebT AG		Flow Validation - CAR					WebT AG		Flow Validation - LGV					WebT AG		Flow Validation - HGV					WebT AG				
					Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff
<b>01 Rsi Peninsula Northbound:</b>																																			
33-365	Mouchel RSI Site 1	South Quay		N	348	348	0	0%	0.0	✓	✓	251	251	0	0%	0.0	✓	✓	62	62	0	0%	0.0	✓	✓	35	35	0	0%	0.0	✓	✓			
369-368	Mouchel Nov16 ATC Site 9	Blackfriers Road		N	54	65	11	20%	1.4	✓	✓	47	47	0	1%	0.0	✓	✓	7	7	0	2%	0.0	✓	✓	0	1	0	382%	0.8	✓	✓			
7800-374	Mouchel Nov16 ATC Site 10	Havelock Road		N	25	24	-1	-3%	0.2	✓	✓	22	22	0	0%	0.0	✓	✓	3	1	-2	-64%	1.4	✓	✓	0	0	0	-100%	0.3	✓	✓			
7804-372	Mouchel Nov16 ATC Site 11	Nelson Road		N	33	32	-1	-2%	0.1	✓	✓	28	28	0	-1%	0.1	✓	✓	4	4	0	-4%	0.1	✓	✓	0	0	0	-100%	0.4	✓	✓			
488-145	Mouchel RSI Site 2	South Beach Parade		N	127	123	-4	-3%	0.3	✓	✓	102	102	0	0%	0.0	✓	✓	18	18	0	2%	0.1	✓	✓	8	2	-5	-72%	2.5	✓	✓			
<b>01 Rsi Peninsula Northbound: - Total</b>					<b>587</b>	<b>593</b>	<b>6</b>	<b>1%</b>	<b>0.2</b>	✓	✓	<b>450</b>	<b>450</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>94</b>	<b>92</b>	<b>-2</b>	<b>-2%</b>	<b>0.2</b>	✓	✓	<b>43</b>	<b>38</b>	<b>-5</b>	<b>-12%</b>	<b>0.8</b>	x	✓			
										5/5	5/5											5/5	5/5											5/5	5/5
										100%	100%											100%	100%											100%	100%
<b>01 Rsi Peninsula Southbound:</b>																																			
374-7800	Mouchel Nov16 ATC Site 10	Havelock Road		S	20	20	0	0%	0.0	✓	✓	17	17	0	-2%	0.1	✓	✓	3	3	0	17%	0.3	✓	✓	0	0	0	-100%	0.3	✓	✓			
368-369	Mouchel Nov16 ATC Site 9	Blackfriers Road		S	80	89	9	11%	0.9	✓	✓	70	70	0	0%	0.0	✓	✓	10	5	-6	-54%	2.0	✓	✓	0	3	3	1582%	2.2	✓	✓			
372-7804	Mouchel Nov16 ATC Site 11	Nelson Road		S	48	48	0	0%	0.0	✓	✓	42	42	0	1%	0.0	✓	✓	6	6	0	-2%	0.1	✓	✓	0	0	0	-100%	0.4	✓	✓			
365-33	Mouchel RSI Site 1	South Quay		S	549	550	1	0%	0.1	✓	✓	400	400	1	0%	0.0	✓	✓	109	109	0	0%	0.0	✓	✓	41	41	0	0%	0.0	✓	✓			
145-488	Mouchel RSI Site 2	South Beach Parade		S	227	225	-2	-1%	0.1	✓	✓	187	187	0	0%	0.0	✓	✓	27	32	5	18%	0.9	✓	✓	12	5	-7	-61%	2.5	✓	✓			
<b>01 Rsi Peninsula Southbound: - Total</b>					<b>924</b>	<b>933</b>	<b>8</b>	<b>1%</b>	<b>0.3</b>	✓	✓	<b>716</b>	<b>717</b>	<b>1</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>155</b>	<b>155</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>53</b>	<b>49</b>	<b>-5</b>	<b>-9%</b>	<b>0.7</b>	x	✓			
										5/5	5/5											5/5	5/5											5/5	5/5
										100%	100%											100%	100%											100%	100%
<b>02 River Yare Eastbound:</b>																																			
28-607	Mouchel RSI Site 4	Haven Bridge		E	1,101	1,126	24	2%	0.7	✓	✓	893	892	-1	0%	0.0	✓	✓	168	168	0	0%	0.0	✓	✓	40	38	-2	-5%	0.3	✓	✓			
22-276	Mouchel RSI Site 3	A12		N	1,278	1,312	34	3%	0.9	✓	✓	996	1,039	42	4%	1.3	✓	✓	240	230	-11	-4%	0.7	✓	✓	41	44	3	7%	0.4	✓	✓			
<b>02 River Yare Eastbound: - Total</b>					<b>2,379</b>	<b>2,438</b>	<b>59</b>	<b>2%</b>	<b>1.2</b>	✓	✓	<b>1,890</b>	<b>1,931</b>	<b>41</b>	<b>2%</b>	<b>0.9</b>	✓	✓	<b>408</b>	<b>398</b>	<b>-11</b>	<b>-3%</b>	<b>0.5</b>	✓	✓	<b>81</b>	<b>82</b>	<b>1</b>	<b>1%</b>	<b>0.1</b>	✓	✓			
										2/2	2/2											2/2	2/2											2/2	2/2
										100%	100%											100%	100%											100%	100%

**Great Yarmouth Third River Crossing Traffic Model**  
**Local Model Validation Report - Appendices**

**02 River Yare**  
**Westbound:**

607-28	Mouchel RSI Site 4	Haven Bridge	W B	677	693	16	2%	0.6	✓	✓	536	539	3	0%	0.1	✓	✓	96	96	0	0%	0.0	✓	✓	45	31	14	-31%	2.3	✓	✓	
276-22	Mouchel RSI Site 3	A12	S B	1,444	1,420	-24	-2%	0.6	✓	✓	1,148	1,139	-9	-1%	0.3	✓	✓	250	229	21	-8%	1.3	✓	✓	46	52	6	12%	0.8	✓	✓	
<b>02 River Yare Westbound: - Total</b>				<b>2,121</b>	<b>2,113</b>	<b>-8</b>	<b>0%</b>	<b>0.2</b>	✓	✓	<b>1,684</b>	<b>1,678</b>	<b>-6</b>	<b>0%</b>	<b>0.2</b>	✓	✓	<b>346</b>	<b>325</b>	<b>21</b>	<b>-6%</b>	<b>1.1</b>	✗	✓	<b>91</b>	<b>83</b>	<b>-9</b>	<b>-9%</b>	<b>0.9</b>	✗	✓	
									2/2	2/2						2/2	2/2						2/2	2/2						2/2	2/2	
									100%	100%						100%	100%							100%	100%						100%	100%

**03 Fuller's Hill/ St Nicholas Road Northbound:**

135-131	AECOM 2016 ATC Site A10	North Drive	N B	164	162	-2	-1%	0.2	✓	✓	138	138	0	0%	0.0	✓	✓	21	21	0	-1%	0.0	✓	✓	6	2	-4	-64%	1.9	✓	✓	
73-8014	AECOM 2016 MCTC Site M1	Northgate Street	N B	278	291	13	5%	0.8	✓	✓	242	242	1	0%	0.0	✓	✓	34	34	1	2%	0.1	✓	✓	3	0	-3	-100%	2.5	✓	✓	
15-8000	AECOM 2015 MCC Site 3	North Quay north of roundabout	N B	712	716	4	1%	0.1	✓	✓	551	552	1	0%	0.0	✓	✓	135	132	-3	-2%	0.2	✓	✓	27	33	6	22%	1.1	✓	✓	
134-456	Junction 4	Nelson Road N North	N B	122	137	15	12%	1.3	✓	✓	108	112	3	3%	0.3	✓	✓	12	24	12	105%	2.9	✓	✓	2	0	-2	-80%	1.6	✓	✓	
477-344	Junction 3	Wellesley Road North	N B	20	7	-13	-66%	3.5	✓	✓	15	5	-10	-65%	3.1	✓	✓	3	1	-1	-48%	0.9	✓	✓	2	0	-2	-100%	1.8	✓	✓	
<b>03 Fuller's Hill/ St Nicholas Road Northbound: - Total</b>				<b>1,296</b>	<b>1,314</b>	<b>17</b>	<b>1%</b>	<b>0.5</b>	✓	✓	<b>1,054</b>	<b>1,049</b>	<b>-4</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>203</b>	<b>212</b>	<b>9</b>	<b>4%</b>	<b>0.6</b>	✓	✓	<b>39</b>	<b>35</b>	<b>-4</b>	<b>-11%</b>	<b>0.7</b>	✗	✓	
									5/5	5/5						5/5	5/5						5/5	5/5						5/5	5/5	
									100%	100%						100%	100%							100%	100%						100%	100%

**03 Fuller's Hill/ St Nicholas Road Southbound:**

131-135	AECOM 2016 ATC Site A10	North Drive	S B	418	411	-8	-2%	0.4	✓	✓	354	354	0	0%	0.0	✓	✓	51	51	0	1%	0.1	✓	✓	13	4	-9	-67%	3.0	✓	✓	
456-134	Junction 4	Nelson Road N North	S B	344	341	-3	-1%	0.2	✓	✓	308	311	3	1%	0.1	✓	✓	30	29	-1	-3%	0.2	✓	✓	6	0	-6	-100%	3.4	✓	✓	
8014-73	AECOM 2016 MCTC Site M1	Northgate Street	S B	340	377	37	11%	1.9	✓	✓	298	324	27	9%	1.5	✓	✓	37	37	1	2%	0.1	✓	✓	6	0	-6	-100%	3.5	✓	✓	
344-477	Junction 3	Wellesley Road North	S B	100	35	-65	-65%	7.9	✓	✗	95	32	-63	-66%	7.9	✓	✗	5	3	-2	-38%	0.9	✓	✓	0	0	0	#DIV/0!	#DIV/0!	✓	✗	
8000-15	AECOM 2015 MCC Site 3	North Quay north of roundabout	S B	1,087	1,078	-9	-1%	0.3	✓	✓	913	904	-9	-1%	0.3	✓	✓	149	149	0	0%	0.0	✓	✓	25	25	0	0%	0.0	✓	✓	
<b>03 Fuller's Hill/ St Nicholas Road Southbound: - Total</b>				<b>2,290</b>	<b>2,241</b>	<b>-49</b>	<b>-2%</b>	<b>1.0</b>	✓	✓	<b>1,968</b>	<b>1,925</b>	<b>-44</b>	<b>-2%</b>	<b>1.0</b>	✓	✓	<b>271</b>	<b>269</b>	<b>-2</b>	<b>-1%</b>	<b>0.1</b>	✓	✓	<b>50</b>	<b>29</b>	<b>21</b>	<b>-42%</b>	<b>3.3</b>	✗	✓	
									5/5	4/5						5/5	4/5						5/5	5/5						5/5	4/4	
									100%	80%						100%	80%							100%	100%						100%	100%

**04 Newtown Northbound:**

273-129	AECOM 2016 ATC Site A4	North Denes Road	N B	177	112	-65	-37%	5.4	✓	✗	156	92	-65	-41%	5.8	✓	✗	17	19	3	15%	0.6	✓	✓	4	0	-4	-100%	2.8	✓	✓
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Great Yarmouth Third River Crossing Traffic Model  
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131-361	AECOM 2016 ATC Site A5	North Drive	N B	172	177	5	3%	0.4	✓	✓	144	151	7	5%	0.6	✓	✓	22	23	1	3%	0.1	✓	✓	6	2	-4	-67%	2.0	✓	✓						
13-516	AECOM 2016 ATC Site A2	Lawn Avenue	N B	506	512	5	1%	0.2	✓	✓	389	389	1	0%	0.0	✓	✓	79	90	11	14%	1.2	✓	✓	38	32	-6	-16%	1.0	✓	✓						
473-130	AECOM 2016 ATC Site A3	Northgate Street	N B	211	227	16	8%	1.1	✓	✓	154	154	0	0%	0.0	✓	✓	35	35	0	0%	0.0	✓	✓	22	23	1	7%	0.3	✓	✓						
<b>04 Newtown Northbound: - Total</b>				<b>1,067</b>	<b>1,028</b>	<b>-38</b>	<b>-4%</b>	<b>1.2</b>	✓	✓	<b>843</b>	<b>786</b>	<b>-58</b>	<b>-7%</b>	<b>2.0</b>	×	✓	<b>153</b>	<b>167</b>	<b>14</b>	<b>9%</b>	<b>1.1</b>	×	✓	<b>70</b>	<b>57</b>	<b>-13</b>	<b>-23%</b>	<b>1.6</b>	×	✓						
									4/4	3/4						4/4	3/4						4/4	4/4					4/4	4/4							
									100%	75%						100%	75%							100%	100%					100%	100%						
<b>04 Newtown Southbound:</b>																																					
130-473	AECOM 2016 ATC Site A3	Northgate Street	S B	690	700	10	1%	0.4	✓	✓	603	598	-5	-1%	0.2	✓	✓	75	75	0	0%	0.0	✓	✓	12	12	0	0%	0.0	✓	✓						
361-131	AECOM 2016 ATC Site A5	North Drive	S B	540	464	-76	-14%	3.4	✓	✓	458	407	-51	-11%	2.4	✓	✓	65	52	-14	-21%	1.8	✓	✓	17	4	-13	-74%	3.9	✓	✓						
516-13	AECOM 2016 ATC Site A2	Lawn Avenue	S B	589	600	11	2%	0.4	✓	✓	512	512	0	0%	0.0	✓	✓	58	65	7	12%	0.9	✓	✓	18	23	4	23%	0.9	✓	✓						
129-273	AECOM 2016 ATC Site A4	North Denes Road	S B	345	298	-47	-14%	2.6	✓	✓	308	280	-28	-9%	1.7	✓	✓	30	17	-13	-44%	2.7	✓	✓	6	0	-6	-100%	3.5	✓	✓						
<b>04 Newtown Southbound: - Total</b>				<b>2,164</b>	<b>2,062</b>	<b>-102</b>	<b>-5%</b>	<b>2.2</b>	✓	✓	<b>1,881</b>	<b>1,796</b>	<b>-85</b>	<b>-5%</b>	<b>2.0</b>	✓	✓	<b>229</b>	<b>209</b>	<b>-20</b>	<b>-9%</b>	<b>1.3</b>	×	✓	<b>54</b>	<b>39</b>	<b>-15</b>	<b>-27%</b>	<b>2.2</b>	×	✓						
									4/4	4/4						4/4	4/4						4/4	4/4					4/4	4/4							
									100%	100%						100%	100%						100%	100%					100%	100%							
<b>05 North Of Town Inbound:</b>																																					
21-20	Mouchel RSI Site 8	A47 New Road	E B	879	886	7	1%	0.2	✓	✓	670	669	-1	0%	0.0	✓	✓	137	137	0	0%	0.0	✓	✓	72	72	0	0%	0.0	✓	✓						
7-579	Mouchel RSI Site 9	Yarmouth Road	S B	1,505	1,493	-13	-1%	0.3	✓	✓	1,252	1,252	0	0%	0.0	✓	✓	187	187	0	0%	0.0	✓	✓	66	37	-29	-43%	4.0	✓	✓						
<b>05 North Of Town Inbound: - Total</b>				<b>2,384</b>	<b>2,378</b>	<b>-6</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>1,922</b>	<b>1,921</b>	<b>-1</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>324</b>	<b>324</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>138</b>	<b>109</b>	<b>-29</b>	<b>-21%</b>	<b>2.6</b>	×	✓						
									2/2	2/2						2/2	2/2						2/2	2/2					2/2	2/2							
									100%	100%						100%	100%						100%	100%					100%	100%							
<b>05 North Of Town Outbound:</b>																																					
20-21	Mouchel RSI Site 8	A47 New Road	W B	681	684	2	0%	0.1	✓	✓	497	497	0	0%	0.0	✓	✓	124	124	0	0%	0.0	✓	✓	60	60	0	0%	0.0	✓	✓						
579-7	Mouchel RSI Site 9	Yarmouth Road	N B	694	700	6	1%	0.2	✓	✓	469	469	0	0%	0.0	✓	✓	148	148	0	0%	0.0	✓	✓	76	66	-10	-13%	1.2	✓	✓						
<b>05 North Of Town Outbound: - Total</b>				<b>1,375</b>	<b>1,384</b>	<b>9</b>	<b>1%</b>	<b>0.2</b>	✓	✓	<b>966</b>	<b>967</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>272</b>	<b>272</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>136</b>	<b>126</b>	<b>-10</b>	<b>-7%</b>	<b>0.9</b>	×	✓						
									2/2	2/2						2/2	2/2						2/2	2/2					2/2	2/2							
									100%	100%						100%	100%						100%	100%					100%	100%							
<b>06 Outer Cordon Inbound:</b>																																					
70-71	Mouchel Nov16	Caister By Pass	S B	514	515	1	0%	0.0	✓	✓	404	404	0	0%	0.0	✓	✓	102	102	0	0%	0.0	✓	✓	9	9	0	1%	0.0	✓	✓						

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2-3	ATC Site 2 Mouchel Nov16	Norwich Road	S B	667	669	2	0%	0.1	✓	✓	541	541	0	0%	0.0	✓	✓	115	115	0	0%	0.0	✓	✓	11	12	1	12%	0.4	✓	✓	
21-20	Mouchel RSI Site 8	A47 New Road	E B	879	886	7	1%	0.2	✓	✓	670	669	-1	0%	0.0	✓	✓	137	137	0	0%	0.0	✓	✓	72	72	0	0%	0.0	✓	✓	
193-194	Mouchel RSI Site 7	Mill Road	N B	288	274	-14	-5%	0.8	✓	✓	233	233	0	0%	0.0	✓	✓	41	41	0	0%	0.0	✓	✓	13	0	1 3	- 100%	5.2	✓	×	
57-55	Mouchel RSI Site 6 / Junction 22	A143 Beccles Road	N B	548	541	-7	-1%	0.3	✓	✓	440	441	1	0%	0.1	✓	✓	66	66	0	0%	0.0	✓	✓	43	33	1 0	- -23%	1.6	✓	✓	
590-68	Mouchel RSI Site 5 / Junction 24	A12 Lowestoft Road	N B	1,440	1,413	-26	-2%	0.7	✓	✓	1,163	1,164	1	0%	0.0	✓	✓	174	174	0	0%	0.0	✓	✓	103	73	3 0	- -29%	3.2	✓	✓	
70-267	Mouchel Nov16 ATC Site 1	Ormsby Road	S B	188	187	0	0%	0.0	✓	✓	147	147	0	0%	0.0	✓	✓	37	37	0	0%	0.0	✓	✓	3	3	0	5%	0.1	✓	✓	
<b>06 Outer Cordon Inbound: - Total</b>				<b>4,524</b>	<b>4,486</b>	<b>-38</b>	<b>-1%</b>	<b>0.6</b>	✓	✓	<b>3,598</b>	<b>3,599</b>	<b>2</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>672</b>	<b>672</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>254</b>	<b>202</b>	<b>5 2</b>	<b>-20%</b>	<b>3.4</b>	×	✓	
									7/7	7/7						7/7	7/7						7/7	7/7						7/7	6/7	
									100%	100%							100%	100%						100%	100%						100%	86%
<b>06 Outer Cordon Outbound:</b>																																
3-2	Mouchel Nov16 ATC Site 3	Norwich Road	N B	392	410	19	5%	0.9	✓	✓	318	318	1	0%	0.0	✓	✓	68	68	0	0%	0.0	✓	✓	6	23	1 7	266 %	4.4	✓	✓	
194-193	Mouchel RSI Site 7	Mill Road	S B	109	100	-9	-8%	0.8	✓	✓	83	83	0	0%	0.0	✓	✓	16	16	0	1%	0.0	✓	✓	10	0	1 0	- 100%	4.4	✓	✓	
71-70	Mouchel Nov16 ATC Site 2	Caister By Pass	N B	225	224	-1	0%	0.1	✓	✓	176	176	0	0%	0.0	✓	✓	44	44	0	-1%	0.1	✓	✓	4	4	0	-1%	0.0	✓	✓	
55-57	Mouchel RSI Site 6 / Junction 22	A143 Beccles Road	S B	498	492	-5	-1%	0.2	✓	✓	378	379	1	0%	0.1	✓	✓	77	77	0	0%	0.0	✓	✓	42	34	-9	-21%	1.5	✓	✓	
267-70	Mouchel Nov16 ATC Site 1	Ormsby Road	N B	197	197	0	0%	0.0	✓	✓	155	155	0	0%	0.0	✓	✓	39	39	0	0%	0.0	✓	✓	3	3	0	1%	0.0	✓	✓	
68-590	Mouchel RSI Site 5 / Junction 24	A12 Lowestoft Road	S B	970	973	3	0%	0.1	✓	✓	723	723	0	0%	0.0	✓	✓	159	159	0	0%	0.0	✓	✓	88	88	0	0%	0.0	✓	✓	
20-21	Mouchel RSI Site 8	A47 New Road	W B	681	684	2	0%	0.1	✓	✓	497	497	0	0%	0.0	✓	✓	124	124	0	0%	0.0	✓	✓	60	60	0	0%	0.0	✓	✓	
<b>06 Outer Cordon Outbound: - Total</b>				<b>3,071</b>	<b>3,081</b>	<b>9</b>	<b>0%</b>	<b>0.2</b>	✓	✓	<b>2,330</b>	<b>2,332</b>	<b>2</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>527</b>	<b>527</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>214</b>	<b>212</b>	<b>-2</b>	<b>-1%</b>	<b>0.2</b>	✓	✓	
									7/7	7/7						7/7	7/7						7/7	7/7						7/7	7/7	
									100%	100%							100%	100%						100%	100%						100%	100%
<b>07 East Of A12 Eastbound:</b>																																
61-244	Junction 26	Victoria Road Access	E B	263	267	3	1%	0.2	✓	✓	234	224	-9	-4%	0.6	✓	✓	22	18	-5	-21%	1.1	✓	✓	7	19	1 1	153 %	3.1	✓	✓	
68-293	Junction 24	Links Road	E B	171	174	3	2%	0.3	✓	✓	142	142	0	0%	0.0	✓	✓	29	29	0	1%	0.0	✓	✓	0	0	0	#DIV /0!	0.9	✓	✓	

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64-408	Junction 25	Bridge Road	E B	221	247	26	12%	1.7	✓	✓	204	225	21	10%	1.4	✓	✓	16	19	3	20%	0.8	✓	✓	1	0	-1	-100%	1.3	✓	✓	
8002-168	AECOM 2015 MCC Site 8 / Junction 17	William Adams Way east of roundabout A143	E B	771	792	22	3%	0.8	✓	✓	666	678	13	2%	0.5	✓	✓	91	101	11	12%	1.1	✓	✓	14	13	-1	-9%	0.4	✓	✓	
425-426	Junction 14	Beccles Road East	E B	239	248	9	4%	0.6	✓	✓	210	220	10	5%	0.7	✓	✓	26	29	2	9%	0.4	✓	✓	2	0	-2	-100%	2.2	✓	✓	
7745-24	Junction 13 / AECOM 2015 MCC Site 6	A1243 Pasteur Road South	E B	915	978	62	7%	2.0	✓	✓	763	837	74	10%	2.6	✓	✓	130	117	-14	-10%	1.2	✓	✓	22	24	2	9%	0.4	✓	✓	
<b>07 East Of A12 Eastbound: - Total</b>				<b>2,579</b>	<b>2,706</b>	<b>127</b>	<b>5%</b>	<b>2.5</b>	✓	✓	<b>2,218</b>	<b>2,326</b>	<b>108</b>	<b>5%</b>	<b>2.3</b>	✓	✓	<b>315</b>	<b>313</b>	<b>-2</b>	<b>-1%</b>	<b>0.1</b>	✓	✓	<b>46</b>	<b>55</b>	<b>9</b>	<b>20%</b>	<b>1.3</b>	✗	✓	
									6/6	6/6										6/6	6/6										6/6	6/6
									100%	100%										100%	100%										100%	100%

**07 East Of A12 Westbound:**

168-8002	AECOM 2015 MCC Site 8 / Junction 17	William Adams Way east of roundabout A143	W B	406	393	-13	-3%	0.7	✓	✓	305	297	-8	-3%	0.4	✓	✓	92	87	-5	-6%	0.5	✓	✓	9	9	0	-3%	0.1	✓	✓	
293-68	Junction 24	Links Road A143	W B	166	168	2	1%	0.2	✓	✓	139	139	0	0%	0.0	✓	✓	16	16	0	1%	0.0	✓	✓	11	11	0	1%	0.0	✓	✓	
426-425	Junction 14	Beccles Road East	W B	243	229	-14	-6%	0.9	✓	✓	199	190	-9	-4%	0.6	✓	✓	35	31	-4	-11%	0.7	✓	✓	9	8	-1	-11%	0.4	✓	✓	
408-64	Junction 25	Bridge Road	W B	218	55	-162	-75%	13.9	✗	✗	204	43	-161	-79%	14.5	✗	✗	11	7	-4	-34%	1.3	✓	✓	3	0	-3	-100%	2.3	✓	✓	
244-61	Junction 26	Victoria Road Access	W B	328	411	82	25%	4.3	✓	✓	293	330	37	13%	2.1	✓	✓	28	66	38	134%	5.5	✓	✗	7	8	1	13%	0.3	✓	✓	
24-7745	Junction 13 / AECOM 2015 MCC Site 6	A1243 Pasteur Road South	W B	705	720	14	2%	0.5	✓	✓	547	564	18	3%	0.8	✓	✓	127	123	-3	-3%	0.3	✓	✓	32	32	0	0%	0.0	✓	✓	
<b>07 East Of A12 Westbound: - Total</b>				<b>2,066</b>	<b>1,976</b>	<b>-90</b>	<b>-4%</b>	<b>2.0</b>	✓	✓	<b>1,686</b>	<b>1,564</b>	<b>-123</b>	<b>-7%</b>	<b>3.0</b>	✗	✓	<b>309</b>	<b>331</b>	<b>22</b>	<b>7%</b>	<b>1.2</b>	✗	✓	<b>71</b>	<b>68</b>	<b>-3</b>	<b>-4%</b>	<b>0.4</b>	✓	✓	
									5/6	5/6										6/6	5/6										6/6	6/6
									83%	83%										100%	83%										100%	100%

**08 North Of Beccles Road (east Of A12) Eastbound:**

167-166	AECOM 2015 MCC Site 7	William Adams Way	E B	311	308	-2	-1%	0.1	✓	✓	239	238	-1	0%	0.0	✓	✓	65	65	0	0%	0.0	✓	✓	7	6	-2	-26%	0.8	✓	✓
171-46	AECOM 2016 MCTC Site M2	Burgh Road	E B	337	349	12	3%	0.6	✓	✓	305	303	-2	-1%	0.1	✓	✓	31	31	0	0%	0.0	✓	✓	1	11	10	832%	4.0	✓	✓
591-46	AECOM 2016 MCTC Site M2	Suffolk Road	S B	86	90	4	4%	0.4	✓	✓	78	78	0	0%	0.0	✓	✓	7	12	5	71%	1.6	✓	✓	1	0	-1	-100%	1.7	✓	✓
528-381	Junction 16	Alpha Road	E B	40	39	-1	-2%	0.1	✓	✓	32	15	-17	-53%	3.5	✓	✓	6	24	18	302%	4.6	✓	✓	2	0	-2	-100%	2.0	✓	✓

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165-166	AECOM 2015 MCC Site 7	Southto wn Road	S B	446	456	10	2%	0.5	✓	✓	363	355	-9	-2%	0.5	✓	✓	65	65	0	0%	0.0	✓	✓	18	8	-10	-54%	2.6	✓	✓					
<b>08 North Of Beccles Road (east Of A12) Eastbound: - Total</b>				<b>1,220</b>	<b>1,242</b>	<b>22</b>	<b>2%</b>	<b>0.6</b>	✓	✓	<b>1,017</b>	<b>988</b>	<b>-28</b>	<b>-3%</b>	<b>0.9</b>	✓	✓	<b>174</b>	<b>197</b>	<b>24</b>	<b>14%</b>	<b>1.7</b>	×	✓	<b>30</b>	<b>25</b>	<b>-5</b>	<b>-16%</b>	<b>0.9</b>	×	✓					
									5/5	5/5						5/5	5/5						5/5	5/5						5/5	5/5					
									100%	100%						100%	100%						100%	100%						100%	100%					
<b>08 North Of Beccles Road (east Of A12) Westbound:</b>																																				
46-171	AECOM 2016 MCTC Site M2	Burgh Road	W B	210	216	6	3%	0.4	✓	✓	186	187	2	1%	0.1	✓	✓	23	23	0	2%	0.1	✓	✓	2	2	0	-5%	0.1	✓	✓					
381-528	Junction 16	Alpha Road	W B	7	0	-7	-99%	3.7	✓	✓	6	0	-6	-100%	3.5	✓	✓	0	0	0	#DIV /0!	0.3	✓	✓	1	0	-1	-100%	1.4	✓	✓					
46-591	AECOM 2016 MCTC Site M2	Suffolk Road	N B	120	118	-2	-2%	0.2	✓	✓	103	103	0	0%	0.0	✓	✓	15	15	0	-2%	0.1	✓	✓	1	0	-1	-100%	1.7	✓	✓					
166-167	AECOM 2015 MCC Site 7	William Adams Way	W B	409	393	-16	-4%	0.8	✓	✓	312	297	-15	-5%	0.9	✓	✓	87	87	0	-1%	0.1	✓	✓	9	9	0	-2%	0.1	✓	✓					
166-165	AECOM 2015 MCC Site 7	Southto wn Road	N B	535	565	30	6%	1.3	✓	✓	451	452	1	0%	0.0	✓	✓	72	74	2	2%	0.2	✓	✓	11	11	0	-1%	0.0	✓	✓					
<b>08 North Of Beccles Road (east Of A12) Westbound: - Total</b>				<b>1,281</b>	<b>1,292</b>	<b>11</b>	<b>1%</b>	<b>0.3</b>	✓	✓	<b>1,059</b>	<b>1,040</b>	<b>-19</b>	<b>-2%</b>	<b>0.6</b>	✓	✓	<b>198</b>	<b>199</b>	<b>1</b>	<b>1%</b>	<b>0.1</b>	✓	✓	<b>25</b>	<b>22</b>	<b>-3</b>	<b>-11%</b>	<b>0.6</b>	×	✓					
									5/5	5/5						5/5	5/5						5/5	5/5						5/5	5/5					
									100%	100%						100%	100%						100%	100%						100%	100%					
<b>Adhoc:</b>																																				
199-350	Junction 23	Church Lane - off Beccles Road	E B	148	57	-91	-61%	8.9	✓	×	137	50	-86	-63%	8.9	✓	×	7	7	0	2%	0.1	✓	✓	4	0	-4	-100%	3.0	✓	✓					
350-199	Junction 23	Church Lane - off Beccles Road	W B	112	114	2	2%	0.2	✓	✓	104	104	0	0%	0.0	✓	✓	7	7	0	3%	0.1	✓	✓	1	0	-1	-87%	1.2	✓	✓					
350-429	Junction 23	Long Lane - off Beccles Road	E B	217	223	6	3%	0.4	✓	✓	196	196	0	0%	0.0	✓	✓	18	18	0	2%	0.1	✓	✓	3	8	5	141%	1.9	✓	✓					
429-350	Junction 23	Long Lane - off Beccles Road	W B	175	175	0	0%	0.0	✓	✓	159	161	2	1%	0.1	✓	✓	13	13	0	4%	0.1	✓	✓	3	0	-3	-100%	2.5	✓	✓					
81-80	AECOM 2016 ATC Site A11	North Quay	N B	555	505	-50	-9%	2.2	✓	✓	452	368	-84	-19%	4.1	✓	✓	63	79	16	25%	1.9	✓	✓	39	23	-17	-42%	3.0	✓	✓					
80-81	AECOM 2016 ATC Site A11	North Quay	S B	405	239	-166	-41%	9.2	×	×	341	176	-165	-48%	10.3	×	×	47	47	0	0%	0.0	✓	✓	16	16	0	0%	0.0	✓	✓					
173-172	AECOM 2016 ATC Site AN10	Burgh Road	E B	226	104	-122	-54%	9.5	×	×	147	86	-61	-42%	5.7	✓	×	48	9	-39	-82%	7.4	✓	×	31	6	-25	-81%	5.9	✓	×					
172-173	AECOM 2016 ATC Site AN10	Burgh Road	W B	277	148	-129	-46%	8.8	×	×	250	130	-120	-48%	8.8	×	×	25	14	-11	-43%	2.4	✓	✓	2	1	-1	-49%	0.8	✓	✓					

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618-78	Junction 7	King Sreet North Dene	S B	34	11	-23	67 %	4.8	✓	✓	27	0	-27	100 %	7.3	✓	x	6	0	-6	100 %	3.5	✓	✓	1	0	-1	100 %	1.4	✓	✓
617-619	Junction 7	Dene Side North	N B	96	9	-87	91 %	12.0	✓	x	79	0	-79	100 %	12.6	✓	x	9	0	-9	100 %	4.2	✓	✓	8	0	-8	100 %	4.0	✓	✓
594-77	Junction 7	Alexandra Road North	S B	423	427	4	1%	0.2	✓	✓	376	376	0	0%	0.0	✓	✓	37	37	0	0%	0.0	✓	✓	10	9	-1	-7%	0.2	✓	✓
605-77	Junction 7	Trafalgar Road	W B	256	263	8	3%	0.5	✓	✓	227	231	4	2%	0.3	✓	✓	26	23	-3	-12%	0.6	✓	✓	3	0	-3	100 %	2.5	✓	✓
77-605	Junction 7	Trafalgar Road	E B	52	66	14	28 %	1.9	✓	✓	44	59	15	35 %	2.1	✓	✓	6	6	0	0%	0.0	✓	✓	2	0	-2	100 %	2.0	✓	✓
7761-617	Junction 7	Dene Side South	N B	66	13	-52	80 %	8.3	✓	x	54	13	-41	75 %	7.0	✓	x	6	0	-6	-96%	3.2	✓	✓	6	0	-6	100 %	3.5	✓	✓
78-147	Junction 7	King Sreet South	S B	93	92	-1	-1%	0.1	✓	✓	74	74	0	0%	0.0	✓	✓	15	7	-8	-52%	2.3	✓	✓	5	0	-5	100 %	3.0	✓	✓
78-7760	Junction 7	Yarmouth Way	E B	535	549	15	3%	0.6	✓	✓	483	487	4	1%	0.2	✓	✓	43	47	4	9%	0.6	✓	✓	9	9	1	7%	0.2	✓	✓
77-617	Junction 7	Alexandra Road South	W B	594	624	30	5%	1.2	✓	✓	530	548	17	3%	0.7	✓	✓	52	54	2	4%	0.3	✓	✓	12	9	-3	-24%	0.9	✓	✓
617-78	Junction 7	Alexandra Road South	E B	597	629	32	5%	1.3	✓	✓	534	561	27	5%	1.1	✓	✓	54	54	0	0%	0.0	✓	✓	9	9	0	1%	0.0	✓	✓
165-164	Junction 18	Southto wn Road South	N B	535	565	30	6%	1.3	✓	✓	451	452	1	0%	0.0	✓	✓	72	74	2	2%	0.2	✓	✓	11	11	0	-1%	0.0	✓	✓
164-165	Junction 18	Southto wn Road South	S B	446	456	10	2%	0.5	✓	✓	363	355	-9	-2%	0.5	✓	✓	65	65	0	0%	0.0	✓	✓	18	8	10	-54%	2.6	✓	✓
163-164	Junction 18	Boundary Road	E B	201	199	-2	-1%	0.2	✓	✓	160	170	10	6%	0.7	✓	✓	26	29	3	12%	0.6	✓	✓	15	0	15	100 %	5.5	✓	x
164-163	Junction 18	Boundary Road	W B	103	99	-4	-4%	0.4	✓	✓	96	96	0	0%	0.0	✓	✓	3	3	0	-12%	0.2	✓	✓	4	0	-4	100 %	2.7	✓	✓
603-162	Junction 19	Tollgate Road	E B	31	0	-30	99 %	7.7	✓	x	17	0	-17	100 %	5.9	✓	x	8	0	-8	-95%	3.7	✓	✓	6	0	-6	100 %	3.4	✓	✓
162-603	Junction 19	Tollgate Road	W B	25	36	11	43 %	1.9	✓	✓	11	12	1	9%	0.3	✓	✓	8	23	15	192 %	3.9	✓	✓	6	0	-6	100 %	3.4	✓	✓
602-161	Junction 20	Southto wn Road North	S B	358	364	6	2%	0.3	✓	✓	263	262	-1	-1%	0.1	✓	✓	66	66	0	1%	0.1	✓	✓	29	8	21	-72%	4.8	✓	✓
161-602	Junction 20	Southto wn Road North	N B	561	538	-24	-4%	1.0	✓	✓	443	420	-22	-5%	1.1	✓	✓	82	78	-4	-5%	0.4	✓	✓	36	11	25	-69%	5.1	✓	x
601-161	Junction 20	Gordon Road	E B	124	0	-124	100 %	15.7	x	x	106	0	-106	100 %	14.6	x	x	16	0	-16	100 %	5.7	✓	x	1	0	-1	100 %	1.5	✓	✓
161-601	Junction 20	Gordon Road	W B	89	0	-89	100 %	13.4	✓	x	78	0	-78	100 %	12.5	✓	x	10	0	-10	100 %	4.5	✓	✓	1	0	-1	100 %	1.5	✓	✓
25-336	Junction 21	A1243 Pasteur Road at Pasta Foods junction	S B	504	501	-2	0%	0.1	✓	✓	401	396	-5	-1%	0.3	✓	✓	76	74	-2	-3%	0.3	✓	✓	27	32	5	18%	0.9	✓	✓
336-25	Junction 21	A1243 Pasteur Road at Pasta Foods junction	N B	725	695	-30	-4%	1.1	✓	✓	610	597	-13	-2%	0.5	✓	✓	91	76	-15	-17%	1.7	✓	✓	25	23	-2	-8%	0.4	✓	✓
68-67	Junction 24	Main Carriage way	N B	1,367	1,374	7	0%	0.2	✓	✓	1,086	1,116	30	3%	0.9	✓	✓	171	171	0	0%	0.0	✓	✓	110	75	35	-32%	3.6	✓	✓



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67-68	Junction 24	A12 Main Carriage way	S B	855	851	-4	0%	0.1	✓	✓	627	626	-1	0%	0.1	✓	✓	151	151	0	0%	0.0	✓	✓	77	61	-16	-21%	2.0	✓	✓
7740-342	J3	Marine Parade North	N B	172	245	73	42%	5.0	✓	×	150	208	58	39%	4.4	✓	✓	21	34	13	60%	2.4	✓	✓	1	2	1	49%	0.5	✓	✓
141-7740	J3	North Drive	S B	391	415	25	6%	1.2	✓	✓	337	356	20	6%	1.1	✓	✓	51	53	2	4%	0.3	✓	✓	3	4	1	42%	0.7	✓	✓
345-7740	J3	Marine Parade South	N B	151	245	94	62%	6.7	✓	×	131	208	77	59%	5.9	✓	×	19	34	15	77%	2.9	✓	✓	1	2	1	49%	0.5	✓	✓
7740-345	J3	Marine Parade South	S B	370	415	46	12%	2.3	✓	✓	318	356	39	12%	2.1	✓	✓	49	53	4	8%	0.6	✓	✓	3	4	1	42%	0.7	✓	✓
490-154	J5	S Beach Parade North	S B	153	124	-29	19%	2.5	✓	✓	128	98	-30	23%	2.8	✓	✓	22	21	-1	-5%	0.3	✓	✓	3	5	2	51%	0.8	✓	✓
154-490	J5	S Beach Parade North	N B	81	45	-35	44%	4.5	✓	✓	68	36	-32	47%	4.4	✓	✓	11	7	-4	-36%	1.3	✓	✓	2	2	0	9%	0.1	✓	✓
635-154	J5	Harbord Crescent	E B	42	37	-5	13%	0.8	✓	✓	37	34	-3	-7%	0.4	✓	✓	5	2	-3	-55%	1.4	✓	✓	0	0	0	#DIV /0!	0.3	✓	✓
155-636	J6	S Beach Parade South	N B	41	44	3	6%	0.4	✓	✓	31	35	4	12%	0.7	✓	✓	7	7	0	0%	0.0	✓	✓	3	2	-1	-35%	0.7	✓	✓
636-155	J6	S Beach Parade South	S B	133	141	9	7%	0.7	✓	✓	111	115	5	4%	0.4	✓	✓	19	21	2	12%	0.5	✓	✓	3	5	2	61%	0.9	✓	✓
636-637	J6	Harbord Crescent	W B	21	17	-3	16%	0.7	✓	✓	15	16	1	3%	0.1	✓	✓	4	2	-2	-56%	1.3	✓	✓	2	0	-2	100%	1.7	✓	✓
495-7754	J7	South Denes Road south of junction	N B	41	70	29	70%	3.8	✓	✓	21	49	28	133%	4.7	✓	✓	4	5	1	37%	0.7	✓	✓	16	15	-1	-5%	0.2	✓	✓
7754-495	J7	South Denes Road south of junction	S B	107	119	12	12%	1.2	✓	✓	74	85	11	15%	1.2	✓	✓	12	23	11	92%	2.6	✓	✓	21	11	-10	-46%	2.4	✓	✓
7754-537	J7	Salmon Road	E B	53	0	-53	100%	10.3	✓	×	40	0	-40	100%	8.9	✓	×	9	0	-9	100%	4.2	✓	✓	4	0	-4	100%	2.8	✓	✓
537-7754	J7	Salmon Road	W B	37	1	-36	96%	8.1	✓	×	16	0	-16	100%	5.7	✓	×	9	0	-9	100%	4.2	✓	✓	12	1	-11	-89%	4.1	✓	✓
36-377	J9	Main Cross Road	E B	116	122	6	5%	0.5	✓	✓	100	100	0	0%	0.0	✓	✓	13	16	3	22%	0.7	✓	✓	3	6	3	88%	1.3	✓	✓
377-36	J9	Main Cross Road	W B	32	33	1	2%	0.1	✓	✓	20	20	0	0%	0.0	✓	✓	11	11	0	0%	0.0	✓	✓	1	2	1	68%	0.6	✓	✓
7774-7773	J10	Swanston Road west of junction	E B	4	6	2	62%	1.1	✓	✓	2	6	4	210%	2.1	✓	✓	2	0	-2	-93%	1.8	✓	✓	0	0	0	#DIV /0!	0.5	✓	✓
7773-7774	J10	Swanston Road west of junction	W B	29	14	-15	50%	3.1	✓	✓	21	10	-11	53%	2.9	✓	✓	5	2	-3	-50%	1.3	✓	✓	3	2	-1	-29%	0.6	✓	✓
7773-7752	J10	South Denes Road north of junction	N B	80	71	-9	11%	1.0	✓	✓	42	43	2	4%	0.2	✓	✓	20	10	-10	-48%	2.5	✓	✓	18	17	-1	-5%	0.2	✓	✓
7752-7773	J10	South Denes Road north of junction	S B	278	216	-62	22%	3.9	✓	✓	226	163	-62	28%	4.5	✓	✓	34	35	1	3%	0.2	✓	✓	18	18	0	-2%	0.1	✓	✓
34-279	Mouchel Nov16	Queens Road	E B	145	156	11	8%	0.9	✓	✓	126	126	0	0%	0.0	✓	✓	19	19	1	4%	0.2	✓	✓	0	10	10	3270%	4.4	✓	✓

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279-34	ATC Site 14 Mouchel Nov16 ATC Site 14	Queens Road	W B	111	125	14	13%	1.3	✓	✓	96	96	0	0%	0.0	✓	✓	14	17	3	21%	0.8	✓	✓	0	12	1	4826%	4.7	✓	✓	
7755-15	AECOM 2015 MCC Site 3	Acle New Road	E B	1,026	1,029	4	0%	0.1	✓	✓	827	822	-5	-1%	0.2	✓	✓	166	166	0	0%	0.0	✓	✓	33	33	0	0%	0.0	✓	✓	
15-7755	AECOM 2015 MCC Site 3	Acle New Road	W B	1,106	1,104	-2	0%	0.0	✓	✓	916	908	-8	-1%	0.3	✓	✓	161	161	1	0%	0.0	✓	✓	29	29	0	0%	0.0	✓	✓	
612-15	AECOM 2015 MCC Site 3 / AECOM 2016 MCTC Site M1	Fuller's Hill	W B	257	264	7	3%	0.4	✓	✓	216	217	1	1%	0.1	✓	✓	37	37	0	1%	0.1	✓	✓	4	6	2	44%	0.8	✓	✓	
15-612	AECOM 2015 MCC Site 3 / AECOM 2016 MCTC Site M1	Fuller's Hill	E B	497	537	40	8%	1.7	✓	✓	410	411	1	0%	0.1	✓	✓	77	77	1	1%	0.1	✓	✓	10	10	0	0%	0.0	✓	✓	
65-64	Junction 25	A12 Main Carriage way	N B	1,455	1,442	-14	-1%	0.4	✓	✓	1,241	1,185	-56	-5%	1.6	✓	✓	182	167	-15	-8%	1.1	✓	✓	32	73	4	129%	5.7	✓	x	
64-65	Junction 25	A12 Main Carriage way	S B	1,051	897	-155	-15%	5.0	✓	✓	851	671	-180	-21%	6.5	x	x	160	143	-17	-10%	1.3	✓	✓	40	61	2	50%	2.9	✓	✓	
597-15	AECOM 2015 MCC Site 3	North Quay south of roundabout	N B	469	501	32	7%	1.5	✓	✓	369	368	-1	0%	0.1	✓	✓	79	79	0	1%	0.1	✓	✓	21	23	2	9%	0.4	✓	✓	
15-597	AECOM 2015 MCC Site 3	North Quay south of roundabout	S B	519	515	-4	-1%	0.2	✓	✓	445	440	-5	-1%	0.2	✓	✓	61	61	1	1%	0.1	✓	✓	14	14	0	1%	0.0	✓	✓	
41-8001	AECOM 2015 MCC Site 8	A12 north of roundabout	S B	1,401	1,413	12	1%	0.3	✓	✓	1,114	1,127	13	1%	0.4	✓	✓	220	222	2	1%	0.1	✓	✓	67	64	-3	-4%	0.4	✓	✓	
8001-41	AECOM 2015 MCC Site 8	A12 north of roundabout	N B	1,647	1,625	-22	-1%	0.6	✓	✓	1,350	1,337	-13	-1%	0.4	✓	✓	255	240	-15	-6%	0.9	✓	✓	42	48	5	13%	0.8	✓	✓	
64-63	Junction 25	A12 Main Carriage way	N B	1,534	1,571	37	2%	0.9	✓	✓	1,323	1,311	-12	-1%	0.3	✓	✓	176	177	1	0%	0.1	✓	✓	36	73	3	105%	5.1	✓	x	
63-64	Junction 25	A12 Main Carriage way	S B	1,208	1,243	34	3%	1.0	✓	✓	998	997	-1	0%	0.0	✓	✓	175	172	-2	-1%	0.2	✓	✓	36	61	2	5	70%	3.6	✓	✓
643-8003	AECOM 2015 MCC Site 8	A12 south of roundabout	N B	1,992	2,076	85	4%	1.9	✓	✓	1,722	1,717	-5	0%	0.1	✓	✓	223	255	31	14%	2.0	✓	✓	47	105	5	8	125%	6.7	✓	x
8003-643	AECOM 2015 MCC Site 8	A12 south of roundabout	S B	1,219	1,200	-18	-2%	0.5	✓	✓	926	939	14	1%	0.4	✓	✓	224	174	-50	-22%	3.6	✓	✓	69	87	1	8	27%	2.1	✓	✓
353-8004	AECOM 2015	William Adams Way	E B	354	310	-45	-13%	2.4	✓	✓	165	233	68	41%	4.8	✓	✓	155	43	-11	-72%	11.2	x	x	35	34	-1	-3%	0.2	✓	✓	

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8004-353	MCC Site 8	west of roundabout William Adams Way west of roundabout	W B	521	575	54	10%	2.3	✓	✓	368	420	52	14%	2.6	✓	✓	121	91	-30	-25%	2.9	✓	✓	33	64	31	94%	4.5	✓	✓
169-170	Junction 15	High Road	W B	219	229	10	5%	0.7	✓	✓	178	165	-13	-7%	1.0	✓	✓	30	30	0	1%	0.1	✓	✓	11	9	-2	-20%	0.7	✓	✓
170-169	Junction 15	High Road	E B	106	25	-81	-76%	10.0	✓	×	80	0	-80	100%	12.7	✓	×	22	0	-22	100%	6.6	✓	×	3	0	-3	100%	2.6	✓	✓
593-170	Junction 15	Beccles Road South	N B	501	506	5	1%	0.2	✓	✓	434	429	-6	-1%	0.3	✓	✓	62	63	1	2%	0.2	✓	✓	5	12	6	125%	2.2	✓	✓
170-593	Junction 15	Beccles Road South	S B	328	336	8	3%	0.5	✓	✓	266	269	3	1%	0.2	✓	✓	51	51	0	1%	0.1	✓	✓	11	14	3	24%	0.8	✓	✓
380-381	Junction 16	Beccles Road North	S B	545	580	35	6%	1.5	✓	✓	423	452	29	7%	1.4	✓	✓	106	86	-20	-19%	2.0	✓	✓	15	14	-2	-11%	0.4	✓	✓
381-380	Junction 16	Beccles Road North	N B	732	773	42	6%	1.5	✓	✓	618	608	-10	-2%	0.4	✓	✓	95	117	22	23%	2.1	✓	✓	18	20	2	13%	0.5	✓	✓
382-381	Junction 16	Malthouse Lane	W B	2	0	-2	100%	2.0	✓	✓	1	0	-1	100%	1.4	✓	✓	1	0	-1	100%	1.4	✓	✓	0	0	0	#DIV/0!	#DIV/0!	✓	✍
381-382	Junction 16	Malthouse Lane	E B	129	218	89	69%	6.8	✓	×	88	183	94	107%	8.1	✓	×	39	35	-3	-9%	0.6	✓	✓	2	0	-2	100%	2.0	✓	✓
63-62	AECOM 2016 MCTC Site M6	A12 Main Carriage way	N B	1,534	1,573	39	3%	1.0	✓	✓	1,323	1,311	-12	-1%	0.3	✓	✓	176	177	1	0%	0.1	✓	✓	36	73	37	105%	5.1	✓	×
62-63	AECOM 2016 MCTC Site M6	A12 Main Carriage way	S B	1,208	1,243	34	3%	1.0	✓	✓	998	997	-1	0%	0.0	✓	✓	175	172	-2	-1%	0.2	✓	✓	36	61	25	70%	3.6	✓	✓
62-61	AECOM 2016 MCTC Site M6	A12 Main Carriage way	N B	1,301	1,350	49	4%	1.3	✓	✓	1,116	1,118	2	0%	0.1	✓	✓	152	152	0	0%	0.0	✓	✓	33	73	41	125%	5.6	✓	×
61-62	AECOM 2016 MCTC Site M6	A12 Main Carriage way	S B	909	923	15	2%	0.5	✓	✓	738	737	0	0%	0.0	✓	✓	140	140	0	0%	0.0	✓	✓	31	40	9	29%	1.5	✓	✓
380-166	AECOM 2015 MCC Site 7	Beccles Road	N B	732	773	42	6%	1.5	✓	✓	607	608	1	0%	0.0	✓	✓	113	117	4	4%	0.4	✓	✓	12	20	9	76%	2.2	✓	✓
166-380	AECOM 2015 MCC Site 7	Beccles Road	S B	545	580	35	6%	1.5	✓	✓	447	452	5	1%	0.2	✓	✓	83	86	4	5%	0.4	✓	✓	16	14	-2	-11%	0.5	✓	✓
61-60	Junction 26	A12 Main Carriage way	N B	1,326	1,440	114	9%	3.1	✓	✓	1,153	1,182	29	3%	0.8	✓	✓	134	177	43	32%	3.4	✓	✓	39	81	42	106%	5.4	✓	×
60-61	Junction 26	A12 Main Carriage way	S B	818	870	52	6%	1.8	✓	✓	654	695	40	6%	1.6	✓	✓	120	117	-3	-3%	0.3	✓	✓	43	58	15	35%	2.1	✓	✓
88-62	AECOM 2016 MCTC Site M6	B1370 - off A12	E B	409	435	26	6%	1.3	✓	✓	363	364	1	0%	0.0	✓	✓	41	41	0	-1%	0.0	✓	✓	5	24	19	398%	5.0	✓	×
62-88	AECOM 2016	B1370 - off A12	W B	334	339	5	2%	0.3	✓	✓	297	297	0	0%	0.0	✓	✓	33	33	0	0%	0.0	✓	✓	4	3	-1	-30%	0.6	✓	✓

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341-134	Junction 4	Nelson Road N South	N B	188	131	-56	30 %	4.5	✓	✓	166	109	-57	34 %	4.8	✓	✓	16	19	3	18%	0.7	✓	✓	5	0	-5	100 %	3.3	✓	✓
134-341	Junction 4	Nelson Road N South	S B	245	291	45	18 %	2.8	✓	✓	216	264	48	22 %	3.1	✓	✓	25	27	1	6%	0.3	✓	✓	4	0	-4	100 %	2.8	✓	✓
640-639	Junction 5	Sainsburys Access	S B	91	33	-57	63 %	7.3	✓	✗	83	28	-55	66 %	7.4	✓	✗	8	5	-3	-33%	1.0	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	
639-640	Junction 5	Sainsburys Access St	N B	132	85	-47	36 %	4.5	✓	✓	126	74	-52	41 %	5.2	✓	✗	6	11	5	86%	1.8	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	
459-639	Junction 5	Nicholas Road West St	E B	184	104	-80	44 %	6.7	✓	✗	152	82	-69	46 %	6.4	✓	✗	29	20	-10	-33%	2.0	✓	✓	3	0	-2	-85%	1.9	✓	✓
639-459	Junction 5	Nicholas Road West	W B	294	209	-85	29 %	5.3	✓	✗	259	179	-80	31 %	5.4	✓	✗	30	26	-4	-13%	0.7	✓	✓	5	0	-5	100 %	3.0	✓	✓
7762-64	Junction 25	Braseno se Avenue - off A12	E B	246	219	-27	11 %	1.8	✓	✓	225	185	-40	18 %	2.8	✓	✓	17	22	5	28%	1.1	✓	✓	3	0	-3	-99%	2.6	✓	✓
64-7762	Junction 25	Braseno se Avenue - off A12	W B	290	244	-46	16 %	2.8	✓	✓	263	203	-60	23 %	3.9	✓	✓	24	30	6	27%	1.3	✓	✓	4	0	-4	-94%	2.6	✓	✓
338-135	Junction 2	Euston Road East	E B	249	183	-67	27 %	4.5	✓	✓	204	155	-49	24 %	3.7	✓	✓	39	24	-14	-37%	2.5	✓	✓	7	2	-5	-71%	2.3	✓	✓
339-338	Junction 2	Marine Parade	N B	245	267	22	9%	1.4	✓	✓	203	226	24	12 %	1.6	✓	✓	36	38	1	3%	0.2	✓	✓	6	2	-4	-65%	1.9	✓	✓
804-57	Junction 22	Untitled Road	W B	244	241	-3	-1%	0.2	✓	✓	194	192	-2	-1%	0.1	✓	✓	38	38	0	-1%	0.1	✓	✓	11	11	0	-1%	0.0	✓	✓
57-804	Junction 22	Untitled Road A143	E B	463	447	-15	-3%	0.7	✓	✓	392	377	-16	-4%	0.8	✓	✓	41	41	0	0%	0.0	✓	✓	29	30	0	0%	0.0	✓	✓
58-57	Junction 22	Beccles Road South A143	N B	456	433	-23	-5%	1.1	✓	✓	359	341	-18	-5%	1.0	✓	✓	48	42	-6	-13%	0.9	✓	✓	49	49	0	0%	0.0	✓	✓
57-58	Junction 22	Beccles Road South	S B	298	305	7	2%	0.4	✓	✓	207	207	0	0%	0.0	✓	✓	60	53	-8	-12%	1.0	✓	✓	31	43	11	37%	1.9	✓	✓
205-57	Junction 22	New Road	E B	278	277	-1	0%	0.0	✓	✓	237	237	0	0%	0.0	✓	✓	27	27	0	1%	0.0	✓	✓	14	13	-1	-8%	0.3	✓	✓
57-205	Junction 22	New Road	W B	164	151	-13	-8%	1.1	✓	✓	125	125	0	0%	0.0	✓	✓	24	24	0	-2%	0.1	✓	✓	14	2	13	-88%	4.5	✓	✓
168-163	Junction 17	Suffolk Road	N B	463	484	21	5%	1.0	✓	✓	435	441	6	1%	0.3	✓	✓	22	36	15	69%	2.8	✓	✓	6	7	1	12%	0.3	✓	✓
167-168	Junction 17	Adams Way East	W B	409	393	-16	-4%	0.8	✓	✓	312	297	-15	-5%	0.9	✓	✓	87	87	0	-1%	0.1	✓	✓	9	9	0	-2%	0.1	✓	✓
168-167	Junction 17	William Adams Way East	E B	311	308	-2	-1%	0.1	✓	✓	239	238	-1	0%	0.0	✓	✓	65	65	0	0%	0.0	✓	✓	7	6	-2	-26%	0.8	✓	✓
7806-148	J4	S Beach Parade North	S B	241	227	-14	-6%	0.9	✓	✓	199	186	-13	-7%	0.9	✓	✓	37	35	-2	-6%	0.4	✓	✓	5	5	0	-1%	0.0	✓	✓
148-7806	J4	S Beach Parade North	N B	136	123	-13	-9%	1.1	✓	✓	119	107	-12	10 %	1.1	✓	✓	15	13	-2	-15%	0.6	✓	✓	2	2	0	-7%	0.1	✓	✓
490-148	J4	S Beach Parade South	N B	122	122	0	0%	0.0	✓	✓	107	107	0	0%	0.0	✓	✓	13	13	0	2%	0.1	✓	✓	2	2	0	-7%	0.1	✓	✓
148-490	J4	S Beach Parade South	S B	178	179	1	0%	0.1	✓	✓	148	148	0	0%	0.0	✓	✓	26	26	0	2%	0.1	✓	✓	5	5	0	-1%	0.0	✓	✓

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149-148	J4	Kings Road	E B	43	43	1	1%	0.1	✓	✓	40	40	0	0%	0.0	✓	✓	2	2	0	-15%	0.2	✓	✓	0	0	0	-	100%	0.6	✓	✓
148-149	J4	Kings Road	W B	90	90	1	1%	0.1	✓	✓	78	78	0	0%	0.0	✓	✓	11	11	0	-4%	0.1	✓	✓	0	0	0	-	100%	0.6	✓	✓
43-425	Junction 14	A12 Off Slip	S B	326	330	5	1%	0.3	✓	✓	244	244	0	0%	0.0	✓	✓	60	57	-2	-4%	0.3	✓	✓	22	29	7	31%	1.3	✓	✓	
424-43	Junction 14	A12 Off Slip	N B	699	636	-63	-9%	2.4	✓	✓	596	536	-61	-10%	2.6	✓	✓	79	77	-2	-2%	0.2	✓	✓	23	23	0	1%	0.0	✓	✓	
223-68	Junction 24	Beaufort Way - off A12	E B	434	429	-4	-1%	0.2	✓	✓	334	334	-1	0%	0.0	✓	✓	66	66	0	0%	0.0	✓	✓	33	30	-3	-10%	0.6	✓	✓	
68-223	Junction 24	Beaufort Way - off A12	W B	391	340	-51	-13%	2.7	✓	✓	320	281	-39	-12%	2.2	✓	✓	48	48	0	1%	0.1	✓	✓	24	11	13	-54%	3.1	✓	✓	
283-424	Junction 14	Shrublands Way	N B	356	350	-6	-2%	0.3	✓	✓	300	296	-3	-1%	0.2	✓	✓	50	49	-1	-2%	0.2	✓	✓	6	4	-1	-21%	0.5	✓	✓	
424-283	Junction 14	Shrublands Way A143	S B	215	215	0	0%	0.0	✓	✓	182	182	0	0%	0.0	✓	✓	31	31	0	0%	0.0	✓	✓	2	2	0	6%	0.1	✓	✓	
45-424	Junction 14	Beccles Road West A143	E B	533	536	3	1%	0.1	✓	✓	467	460	-7	-2%	0.3	✓	✓	46	57	10	22%	1.4	✓	✓	19	19	0	0%	0.0	✓	✓	
424-45	Junction 14	Beccles Road West	W B	322	346	24	8%	1.3	✓	✓	241	254	14	6%	0.9	✓	✓	54	57	4	7%	0.5	✓	✓	27	35	7	26%	1.3	✓	✓	
593-46	AECOM 2016 MCTC Site M2	Beccles Road east of roundabout	S B	328	336	8	3%	0.5	✓	✓	266	269	3	1%	0.2	✓	✓	51	51	0	1%	0.1	✓	✓	11	14	3	24%	0.8	✓	✓	
46-593	AECOM 2016 MCTC Site M2	Beccles Road east of roundabout	N B	501	506	5	1%	0.2	✓	✓	434	429	-6	-1%	0.3	✓	✓	62	63	1	2%	0.2	✓	✓	5	12	6	125%	2.2	✓	✓	
82-46	AECOM 2016 MCTC Site M2	B1370	N B	467	467	0	0%	0.0	✓	✓	406	408	2	0%	0.1	✓	✓	56	57	1	2%	0.1	✓	✓	4	0	-4	-92%	2.6	✓	✓	
46-82	AECOM 2016 MCTC Site M2	B1370	S B	424	421	-2	-1%	0.1	✓	✓	368	368	0	0%	0.0	✓	✓	48	48	0	-1%	0.1	✓	✓	7	4	-3	-44%	1.3	✓	✓	
44-46	AECOM 2016 MCTC Site M2	A143 Beccles Road west of roundabout	E B	260	248	-12	-5%	0.8	✓	✓	228	220	-8	-4%	0.5	✓	✓	31	29	-2	-7%	0.4	✓	✓	2	0	-2	-100%	1.8	✓	✓	
46-44	AECOM 2016 MCTC Site M2	A143 Beccles Road west of roundabout	W B	225	229	5	2%	0.3	✓	✓	193	190	-3	-1%	0.2	✓	✓	27	31	4	14%	0.7	✓	✓	5	8	4	82%	1.5	✓	✓	
349-350	Junction 23	Beccles Road - west of A12	E B	643	653	11	2%	0.4	✓	✓	556	554	-2	0%	0.1	✓	✓	64	64	1	1%	0.1	✓	✓	23	32	9	39%	1.7	✓	✓	
350-349	Junction 23	Beccles Road - west of A12	W B	499	499	1	0%	0.0	✓	✓	388	389	1	0%	0.0	✓	✓	74	74	0	0%	0.0	✓	✓	36	34	-2	-6%	0.4	✓	✓	
350-51	Junction 23	Beccles Road - west of A12	E B	679	626	-53	-8%	2.1	✓	✓	591	537	-54	-9%	2.3	✓	✓	64	64	0	1%	0.1	✓	✓	24	24	0	0%	0.0	✓	✓	
51-350	Junction 23	Beccles Road - west of A12	W B	541	543	2	0%	0.1	✓	✓	427	426	-1	0%	0.1	✓	✓	79	79	0	0%	0.0	✓	✓	35	34	0	-1%	0.0	✓	✓	

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162-164	Junction 18 / 19	Southto wn Road	S B	371	334	-38	-10 %	2.0	✓	✓	267	255	-12	-5%	0.8	✓	✓	74	43	-31	-41%	4.0	✓	✓	31	8	-22	-73%	5.1	✓	x
164-162	Junction 18 / 19	Southto wn Road	N B	549	543	-6	-1%	0.3	✓	✓	429	426	-4	-1%	0.2	✓	✓	76	79	2	3%	0.3	✓	✓	44	11	-32	-74%	6.1	✓	x
161-162	Junction 19 / 20	Southto wn Road	S B	360	364	4	1%	0.2	✓	✓	262	262	0	0%	0.0	✓	✓	69	66	-3	-4%	0.3	✓	✓	30	8	-22	-72%	4.9	✓	✓
162-161	Junction 19 / 20	Southto wn Road	N B	540	538	-2	0%	0.1	✓	✓	425	420	-4	-1%	0.2	✓	✓	74	78	4	5%	0.4	✓	✓	41	11	-30	-72%	5.8	✓	x
636-154	J5 / J6	S Beach Parade South	N B	39	39	0	-1%	0.1	✓	✓	31	31	-1	-2%	0.1	✓	✓	6	6	0	0%	0.0	✓	✓	2	2	0	9%	0.1	✓	✓
154-636	J5 / J6	S Beach Parade North A1243	S B	152	154	1	1%	0.1	✓	✓	127	127	0	0%	0.0	✓	✓	22	22	0	0%	0.0	✓	✓	3	5	2	52%	0.8	✓	✓
336-24	Junction 13	Pasteur Road North A1243	S B	481	501	21	4%	0.9	✓	✓	380	396	15	4%	0.8	✓	✓	74	74	0	0%	0.0	✓	✓	27	32	5	20%	1.0	✓	✓
24-336	Junction 13	Pasteur Road North	N B	715	695	-20	-3%	0.7	✓	✓	600	597	-3	-1%	0.1	✓	✓	89	76	-14	-15%	1.5	✓	✓	25	23	-3	-10%	0.5	✓	✓
526-24	Junction 13	Thamesf ield Way	W B	115	111	-4	-4%	0.4	✓	✓	75	75	0	0%	0.0	✓	✓	36	36	0	-1%	0.1	✓	✓	4	0	-4	-100 %	2.8	✓	✓
24-526	Junction 13	Thamesf ield Way	E B	205	188	-17	-8%	1.2	✓	✓	159	159	-1	0%	0.0	✓	✓	40	29	-12	-29%	2.0	✓	✓	5	0	-5	-95%	2.9	✓	✓
49-48	AECOM 2016 ATC Site AN12	Beccles Road - west of A12	E B	603	386	-217	-36 %	9.7	x	x	525	335	-190	-36 %	9.2	x	x	56	34	-23	-40%	3.4	✓	✓	22	18	-4	-19%	0.9	✓	✓
48-49	AECOM 2016 ATC Site AN12	Beccles Road - west of A12	W B	335	284	-50	-15 %	2.9	✓	✓	264	207	-57	-22 %	3.7	✓	✓	49	43	-6	-13%	1.0	✓	✓	21	34	13	61%	2.5	✓	✓
7717-24	Junction 13	Jones Way	E B	262	257	-5	-2%	0.3	✓	✓	227	227	0	0%	0.0	✓	✓	30	30	0	1%	0.0	✓	✓	6	0	-6	-100 %	3.4	✓	✓
24-7717	Junction 13	Jones Way A12	W B	263	245	-18	-7%	1.1	✓	✓	215	215	0	0%	0.0	✓	✓	43	29	-14	-33%	2.4	✓	✓	4	1	-3	-74%	1.9	✓	✓
278-7744	AECOM 2015 MCC Site 6	north of roundab out A12	S B	1,402	1,420	18	1%	0.5	✓	✓	1,136	1,139	3	0%	0.1	✓	✓	208	229	21	10%	1.4	✓	✓	57	52	-6	-10%	0.8	✓	✓
7744-278	AECOM 2015 MCC Site 6	north of roundab out A12	N B	1,339	1,312	-27	-2%	0.7	✓	✓	1,074	1,039	-35	-3%	1.1	✓	✓	219	230	11	5%	0.7	✓	✓	47	44	-3	-6%	0.4	✓	✓
38-7746	AECOM 2015 MCC Site 6	south of roundab out A12	N B	1,647	1,625	-22	-1%	0.6	✓	✓	1,352	1,337	-16	-1%	0.4	✓	✓	253	240	-13	-5%	0.8	✓	✓	42	48	6	14%	0.9	✓	✓
7746-38	AECOM 2015 MCC Site 6	south of roundab out A12	S B	1,401	1,413	12	1%	0.3	✓	✓	1,118	1,127	9	1%	0.3	✓	✓	215	222	7	3%	0.4	✓	✓	68	64	-4	-5%	0.4	✓	✓
281-7747	AECOM 2015 MCC Site 6	Gapton Hall Road	E B	598	603	5	1%	0.2	✓	✓	500	505	5	1%	0.2	✓	✓	84	84	0	0%	0.0	✓	✓	14	14	0	0%	0.0	✓	✓
7747-281	AECOM 2015 MCC Site 6	Gapton Hall Road	W B	626	661	36	6%	1.4	✓	✓	505	539	35	7%	1.5	✓	✓	107	108	0	0%	0.0	✓	✓	14	14	1	4%	0.2	✓	✓
381-170	Junction 15 / 16	Beccles Road	S B	417	361	-56	-13 %	2.8	✓	✓	333	269	-64	-19 %	3.7	✓	✓	70	51	-19	-27%	2.4	✓	✓	14	14	0	-2%	0.1	✓	✓
170-381	Junction 15 / 16	Beccles Road	N B	697	735	37	5%	1.4	✓	✓	592	594	2	0%	0.1	✓	✓	89	93	4	4%	0.4	✓	✓	17	20	4	23%	0.9	✓	✓

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639-134	Junction 16 Junction 4 / Junction 5	St Nicholas Road	E B	154	111	-43	-28 %	3.8	✓	✓	128	90	-38	-30 %	3.7	✓	✓	24	19	-5	-20%	1.0	✓	✓	2	0	-2	-78%	1.4	✓	✓	
134-639	Junction 4 / Junction 5	St Nicholas Road	W B	342	268	-74	-22 %	4.3	✓	✓	310	232	-78	-25 %	4.7	✓	✓	28	32	4	15%	0.8	✓	✓	4	0	-4	-100 %	2.9	✓	✓	
477-134	Junction 3 / Junction 4	Euston Road	W B	163	141	-22	-14 %	1.8	✓	✓	149	123	-26	-18 %	2.2	✓	✓	14	18	4	31%	1.1	✓	✓	1	0	-1	-100 %	1.0	✓	✓	
134-477	Junction 3 / Junction 4	Euston Road	E B	108	28	-80	-74 %	9.7	✓	×	88	25	-63	-72 %	8.4	✓	×	18	3	-15	-82%	4.6	✓	✓	2	0	-2	-100 %	1.8	✓	✓	
338-477	Junction 2 / Junction 3	Euston Road	W B	86	120	34	39 %	3.3	✓	✓	75	101	27	36 %	2.9	✓	✓	10	18	9	90%	2.3	✓	✓	2	0	-2	-100 %	1.8	✓	✓	
477-338	Junction 2 / Junction 3	Euston Road	E B	97	35	-62	-64 %	7.6	✓	×	79	30	-49	-62 %	6.7	✓	×	15	5	-10	-67%	3.2	✓	✓	2	0	-2	-100 %	2.1	✓	✓	
75-74	AECOM 2016 MCTC Site M1	Piory Plain	E B	243	181	-62	-26 %	4.3	✓	✓	208	151	-57	-28 %	4.3	✓	✓	30	30	0	-2%	0.1	✓	✓	4	0	-4	-100 %	2.8	✓	✓	
74-75	AECOM 2016 MCTC Site M1	Piory Plain	W B	690	733	43	6%	1.6	✓	✓	575	575	0	0%	0.0	✓	✓	95	95	0	1%	0.0	✓	✓	20	10	-9	-47%	2.4	✓	✓	
623-74	AECOM 2016 MCTC Site M1	Market Place	N B	181	194	13	7%	0.9	✓	✓	148	148	0	0%	0.0	✓	✓	21	21	0	-1%	0.1	✓	✓	12	6	-6	-49%	2.0	✓	✓	
157-26	AECOM 2016 ATC Site AN6	Southtown Road	N B	567	598	31	6%	1.3	✓	✓	469	431	-37	-8%	1.8	✓	✓	78	111	33	43%	3.4	✓	✓	21	28	8	37%	1.6	✓	✓	
26-157	AECOM 2016 ATC Site AN6	Southtown Road	S B	312	276	-36	-12 %	2.1	✓	✓	259	189	-70	-27 %	4.7	✓	✓	40	45	5	12%	0.7	✓	✓	13	14	1	11%	0.4	✓	✓	
<b>Adhoc: - Total</b>				<b>71,261</b>	<b>69,839</b>	<b>-1,422</b>	<b>-2%</b>	<b>5.4</b>	✓	×	<b>58,774</b>	<b>56,629</b>	<b>-2,144</b>	<b>-4%</b>	<b>8.9</b>	✓	×	<b>9,822</b>	<b>9,504</b>	<b>-318</b>	<b>-3%</b>	<b>3.2</b>	✓	✓	<b>2,665</b>	<b>2,728</b>	<b>63</b>	<b>2%</b>	<b>1.2</b>	✓	✓	
									159/164	143/164					159/164	141/164							163/164	160/164					164/164	148/161		
									97%	87%					97%	86%							99%	98%					100%	92%		

INTER PEAK VALIDATION

Link	Count ID	Road Name	Quality ID	Dir	Flow Validation - All vehicles					WebT AG		Flow Validation - CAR					WebT AG		Flow Validation - LGV					WebT AG		Flow Validation - HGV					WebT AG				
					Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH			
<b>01 Rsi Peninsula Northbound:</b>																																			
33-365	Mouchel RSI Site 1	South Quay		N B	417	417	0	0%	0.0	✓	✓	299	299	0	0%	0.0	✓	✓	85	85	0	0%	0.0	✓	✓	33	33	0	0%	0.0	✓	✓			
369-368	Mouchel Nov16 ATC Site 9	Blackfriers Road		N B	71	81	10	14%	1.2	✓	✓	60	60	0	0%	0.0	✓	✓	11	11	0	0%	0.0	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	✎			
7800-374	Mouchel Nov16 ATC Site 10	Havelock Road		N B	19	18	-1	-5%	0.2	✓	✓	16	16	0	-1%	0.0	✓	✓	3	1	-2	-67%	1.4	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	✎			
7804-372	Mouchel Nov16 ATC Site 11	Nelson Road		N B	38	38	0	1%	0.0	✓	✓	32	32	0	0%	0.0	✓	✓	6	6	0	2%	0.0	✓	✓	0	0	0	#DIV /0!	0.6	✓	✓			
488-145	Mouchel RSI Site 2	South Beach Parade		N B	156	155	-1	-1%	0.1	✓	✓	129	129	0	0%	0.0	✓	✓	22	22	0	-1%	0.1	✓	✓	4	2	-2	-41%	0.9	✓	✓			
<b>01 Rsi Peninsula Northbound: - Total</b>					<b>700</b>	<b>709</b>	<b>9</b>	<b>1%</b>	<b>0.3</b>	✓	✓	<b>537</b>	<b>536</b>	<b>-1</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>127</b>	<b>125</b>	<b>-2</b>	<b>-1%</b>	<b>0.2</b>	✓	✓	<b>37</b>	<b>36</b>	<b>-1</b>	<b>-4%</b>	<b>0.2</b>	✓	✓			
										5/5	5/5											5/5	5/5											5/5	3/3
										100%	100%											100%	100%											100%	100%
<b>01 Rsi Peninsula Southbound:</b>																																			
374-7800	Mouchel Nov16 ATC Site 10	Havelock Road		S B	19	18	-1	-4%	0.2	✓	✓	16	16	0	1%	0.0	✓	✓	3	2	-1	-34%	0.6	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	✎			
368-369	Mouchel Nov16 ATC Site 9	Blackfriers Road		S B	69	80	12	17%	1.3	✓	✓	58	58	0	0%	0.0	✓	✓	11	11	0	3%	0.1	✓	✓	0	0	0	#DIV /0!	0.6	✓	✓			
372-7804	Mouchel Nov16 ATC Site 11	Nelson Road		S B	41	42	1	2%	0.1	✓	✓	35	35	0	1%	0.0	✓	✓	6	6	0	-6%	0.1	✓	✓	0	1	1	#DIV /0!	1.2	✓	✓			
365-33	Mouchel RSI Site 1	South Quay		S B	371	370	-1	0%	0.0	✓	✓	244	243	0	0%	0.0	✓	✓	93	93	0	0%	0.0	✓	✓	34	34	0	0%	0.0	✓	✓			
145-488	Mouchel RSI Site 2	South Beach Parade		S B	140	140	0	0%	0.0	✓	✓	113	113	0	0%	0.0	✓	✓	22	20	-1	-6%	0.3	✓	✓	5	6	0	4%	0.1	✓	✓			
<b>01 Rsi Peninsula Southbound: - Total</b>					<b>640</b>	<b>651</b>	<b>11</b>	<b>2%</b>	<b>0.4</b>	✓	✓	<b>465</b>	<b>465</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>135</b>	<b>132</b>	<b>-3</b>	<b>-2%</b>	<b>0.2</b>	✓	✓	<b>40</b>	<b>41</b>	<b>1</b>	<b>3%</b>	<b>0.2</b>	✓	✓			
										5/5	5/5											5/5	5/5											5/5	4/4
										100%	100%											100%	100%											100%	100%
<b>02 River Yare Eastbound:</b>																																			
28-607	Mouchel RSI Site 4	Haven Bridge		E B	942	967	25	3%	0.8	✓	✓	790	790	0	0%	0.0	✓	✓	119	119	0	0%	0.0	✓	✓	33	33	0	1%	0.0	✓	✓			
22-276	Mouchel RSI Site 3	A12		N B	1,027	1,060	33	3%	1.0	✓	✓	830	865	35	4%	1.2	✓	✓	160	156	-3	-2%	0.3	✓	✓	36	38	2	4%	0.3	✓	✓			
<b>02 River Yare Eastbound: - Total</b>					<b>1,969</b>	<b>2,027</b>	<b>58</b>	<b>3%</b>	<b>1.3</b>	✓	✓	<b>1,620</b>	<b>1,656</b>	<b>35</b>	<b>2%</b>	<b>0.9</b>	✓	✓	<b>279</b>	<b>276</b>	<b>-4</b>	<b>-1%</b>	<b>0.2</b>	✓	✓	<b>69</b>	<b>71</b>	<b>2</b>	<b>3%</b>	<b>0.2</b>	✓	✓			
										2/2	2/2											2/2	2/2											2/2	2/2
										100%	100%											100%	100%											100%	100%
<b>02 River Yare Westbound:</b>																																			



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607-28	Mouchel RSI Site 4	Haven Bridge	W B	672	698	26	4%	1.0	✓	✓	565	566	1	0%	0.0	✓	✓	72	72	0	0%	0.0	✓	✓	35	35	0	0%	0.0	✓	✓
276-22	Mouchel RSI Site 3	A12	S B	1,307	1,272	-35	-3%	1.0	✓	✓	1,078	1,056	-22	-2%	0.7	✓	✓	190	178	-12	-6%	0.9	✓	✓	39	38	-1	-2%	0.1	✓	✓
<b>02 River Yare Westbound: - Total</b>				<b>1,979</b>	<b>1,970</b>	<b>-9</b>	<b>0%</b>	<b>0.2</b>	✓	✓	<b>1,643</b>	<b>1,622</b>	<b>-21</b>	<b>-1%</b>	<b>0.5</b>	✓	✓	<b>262</b>	<b>250</b>	<b>-12</b>	<b>-4%</b>	<b>0.7</b>	✓	✓	<b>74</b>	<b>73</b>	<b>-1</b>	<b>-1%</b>	<b>0.1</b>	✓	✓
									2/2	2/2						2/2	2/2						2/2	2/2					2/2	2/2	
									100%	100%						100%	100%						100%	100%					100%	100%	
<b>03 Fuller's Hill/ St Nicholas Road Northbound:</b>																															
135-131	AECOM 2016 ATC Site A10	North Drive	N B	252	249	-3	-1%	0.2	✓	✓	222	222	0	0%	0.0	✓	✓	25	25	0	-1%	0.0	✓	✓	5	1	-4	-84%	2.4	✓	✓
73-8014	AECOM 2016 MCTC Site M1	Northgate Street	N B	281	169	112	40%	7.4	×	×	245	144	100	41%	7.2	×	×	31	13	18	59%	3.9	✓	✓	6	0	-6	100%	3.3	✓	✓
15-8000	AECOM 2015 MCC Site 3	North Quay north of roundabout	N B	671	710	39	6%	1.5	✓	✓	572	602	31	5%	1.3	✓	✓	85	85	0	0%	0.0	✓	✓	14	23	8	60%	2.0	✓	✓
134-456	Junction 4	Nelson Road North	N B	185	187	2	1%	0.1	✓	✓	160	160	0	0%	0.0	✓	✓	22	22	0	2%	0.1	✓	✓	4	3	0	-5%	0.1	✓	✓
477-344	Junction 3	Wellesley Road North	N B	34	19	-15	-45%	3.0	✓	✓	28	15	-13	-46%	2.8	✓	✓	5	4	-2	-31%	0.8	✓	✓	1	0	-1	100%	1.2	✓	✓
<b>03 Fuller's Hill/ St Nicholas Road Northbound: - Total</b>				<b>1,423</b>	<b>1,334</b>	<b>-89</b>	<b>-6%</b>	<b>2.4</b>	×	✓	<b>1,226</b>	<b>1,144</b>	<b>-82</b>	<b>-7%</b>	<b>2.4</b>	×	✓	<b>168</b>	<b>148</b>	<b>-20</b>	<b>-12%</b>	<b>1.6</b>	×	✓	<b>29</b>	<b>27</b>	<b>-2</b>	<b>-7%</b>	<b>0.4</b>	×	✓
									4/5	4/5						4/5	4/5						5/5	5/5					5/5	5/5	
									80%	80%						80%	80%						100%	100%					100%	100%	
<b>03 Fuller's Hill/ St Nicholas Road Southbound:</b>																															
131-135	AECOM 2016 ATC Site A10	North Drive	S B	212	212	0	0%	0.0	✓	✓	185	185	0	0%	0.0	✓	✓	21	21	0	0%	0.0	✓	✓	6	5	-1	-18%	0.4	✓	✓
456-134	Junction 4	Nelson Road North	S B	195	195	0	0%	0.0	✓	✓	170	170	0	0%	0.0	✓	✓	21	21	0	0%	0.0	✓	✓	5	3	-2	-44%	1.1	✓	✓
8014-73	AECOM 2016 MCTC Site M1	Northgate Street	S B	158	176	18	11%	1.4	✓	✓	138	139	2	1%	0.1	✓	✓	17	20	4	21%	0.8	✓	✓	4	4	0	5%	0.1	✓	✓
344-477	Junction 3	Wellesley Road North	S B	64	39	-25	-40%	3.5	✓	✓	58	35	-23	-39%	3.4	✓	✓	5	3	-2	-34%	0.8	✓	✓	1	0	-1	100%	1.2	✓	✓
8000-15	AECOM 2015 MCC Site 3	North Quay north of roundabout	S B	758	760	2	0%	0.1	✓	✓	655	651	-3	0%	0.1	✓	✓	90	90	0	0%	0.0	✓	✓	13	18	5	39%	1.3	✓	✓
<b>03 Fuller's Hill/ St Nicholas Road Southbound: - Total</b>				<b>1,386</b>	<b>1,381</b>	<b>-6</b>	<b>0%</b>	<b>0.2</b>	✓	✓	<b>1,205</b>	<b>1,181</b>	<b>-24</b>	<b>-2%</b>	<b>0.7</b>	✓	✓	<b>153</b>	<b>155</b>	<b>2</b>	<b>1%</b>	<b>0.1</b>	✓	✓	<b>28</b>	<b>30</b>	<b>2</b>	<b>6%</b>	<b>0.3</b>	×	✓
									5/5	5/5						5/5	5/5						5/5	5/5					5/5	5/5	
									100%	100%						100%	100%						100%	100%					100%	100%	
<b>04 Newtown Northbound:</b>																															
273-129	AECOM 2016 ATC Site A4	North Denes Road	N B	176	206	30	17%	2.2	✓	✓	150	178	28	19%	2.2	✓	✓	19	23	4	19%	0.8	✓	✓	6	3	-3	-53%	1.6	✓	✓
131-361	AECOM 2016	North Drive	N B	250	251	1	1%	0.1	✓	✓	211	224	13	6%	0.9	✓	✓	30	25	-5	-16%	0.9	✓	✓	9	1	-8	-91%	3.7	✓	✓

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13-516	ATC Site A5 AECOM 2016	Lawn Avenue	N B	747	709	-39	-5%	1.4	✓	✓	676	646	-30	-4%	1.2	✓	✓	39	40	2	5%	0.3	✓	✓	33	22	10	-31%	1.9	✓	✓					
473-130	ATC Site A2 AECOM 2016	Northgate Street	N B	259	275	16	6%	1.0	✓	✓	204	202	-2	-1%	0.1	✓	✓	34	33	-1	-3%	0.2	✓	✓	22	28	6	29%	1.3	✓	✓					
<b>04 Newtown Northbound: - Total</b>				<b>1,433</b>	<b>1,441</b>	<b>8</b>	<b>1%</b>	<b>0.2</b>	✓	✓	<b>1,242</b>	<b>1,251</b>	<b>9</b>	<b>1%</b>	<b>0.3</b>	✓	✓	<b>121</b>	<b>121</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>69</b>	<b>54</b>	<b>15</b>	<b>-22%</b>	<b>2.0</b>	×	✓					
									4/4	4/4						4/4	4/4						4/4	4/4					4/4	4/4						
									100%	100%						100%	100%						100%	100%					100%	100%						
<b>04 Newtown Southbound:</b>																																				
130-473	ATC Site A3 AECOM 2016	Northgate Street	S B	325	349	23	7%	1.3	✓	✓	276	277	1	0%	0.1	✓	✓	45	45	0	1%	0.0	✓	✓	4	14	10	218%	3.2	✓	✓					
361-131	ATC Site A5 AECOM 2016	North Drive	S B	268	233	-35	-13%	2.2	✓	✓	229	203	-26	-11%	1.8	✓	✓	33	24	-9	-28%	1.7	✓	✓	6	5	-1	-24%	0.6	✓	✓					
516-13	ATC Site A2 AECOM 2016	Lawn Avenue	S B	642	638	-4	-1%	0.2	✓	✓	548	545	-3	-1%	0.1	✓	✓	76	76	0	0%	0.0	✓	✓	18	17	-1	-8%	0.3	✓	✓					
129-273	ATC Site A4 AECOM 2016	North Denes Road	S B	163	177	14	9%	1.1	✓	✓	141	149	8	6%	0.7	✓	✓	18	24	6	34%	1.3	✓	✓	4	3	-1	-31%	0.7	✓	✓					
<b>04 Newtown Southbound: - Total</b>				<b>1,399</b>	<b>1,397</b>	<b>-2</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>1,194</b>	<b>1,174</b>	<b>-20</b>	<b>-2%</b>	<b>0.6</b>	✓	✓	<b>172</b>	<b>169</b>	<b>-3</b>	<b>-1%</b>	<b>0.2</b>	✓	✓	<b>33</b>	<b>39</b>	<b>6</b>	<b>17%</b>	<b>1.0</b>	×	✓					
									4/4	4/4						4/4	4/4						4/4	4/4					4/4	4/4						
									100%	100%						100%	100%						100%	100%					100%	100%						
<b>05 North Of Town Inbound:</b>																																				
21-20	RSI Site 8 Mouchel	A47 New Road	E B	647	653	6	1%	0.2	✓	✓	473	471	-2	0%	0.1	✓	✓	97	97	0	0%	0.0	✓	✓	77	77	0	0%	0.0	✓	✓					
7-579	RSI Site 9 Mouchel	Yarmouth Road	S B	861	854	-6	-1%	0.2	✓	✓	692	690	-2	0%	0.1	✓	✓	113	113	0	0%	0.0	✓	✓	56	37	19	-33%	2.7	✓	✓					
<b>05 North Of Town Inbound: - Total</b>				<b>1,508</b>	<b>1,507</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>1,165</b>	<b>1,161</b>	<b>-4</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>210</b>	<b>210</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>133</b>	<b>115</b>	<b>18</b>	<b>-14%</b>	<b>1.7</b>	×	✓					
									2/2	2/2						2/2	2/2						2/2	2/2					2/2	2/2						
									100%	100%						100%	100%						100%	100%					100%	100%						
<b>05 North Of Town Outbound:</b>																																				
20-21	RSI Site 8 Mouchel	A47 New Road	W B	663	692	30	4%	1.1	✓	✓	521	523	2	0%	0.1	✓	✓	58	83	25	43%	2.9	✓	✓	84	84	0	0%	0.0	✓	✓					
579-7	RSI Site 9 Mouchel	Yarmouth Road	N B	886	898	11	1%	0.4	✓	✓	723	724	1	0%	0.0	✓	✓	108	108	0	0%	0.0	✓	✓	56	52	-4	-6%	0.5	✓	✓					
<b>05 North Of Town Outbound: - Total</b>				<b>1,549</b>	<b>1,590</b>	<b>41</b>	<b>3%</b>	<b>1.0</b>	✓	✓	<b>1,244</b>	<b>1,247</b>	<b>4</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>166</b>	<b>191</b>	<b>25</b>	<b>15%</b>	<b>1.9</b>	×	✓	<b>140</b>	<b>136</b>	<b>-3</b>	<b>-2%</b>	<b>0.3</b>	✓	✓					
									2/2	2/2						2/2	2/2						2/2	2/2					2/2	2/2						
									100%	100%						100%	100%						100%	100%					100%	100%						
<b>06 Outer Cordon Inbound:</b>																																				
70-71	ATC Site 2 Mouchel Nov16	Caister By Pass	S B	343	342	-1	0%	0.0	✓	✓	313	312	-1	0%	0.1	✓	✓	28	28	0	1%	0.1	✓	✓	2	2	0	-9%	0.1	✓	✓					

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2-3	Mouchel Nov16 ATC Site 3	Norwich Road	S B	390	400	10	2%	0.5	✓	✓	342	341	-1	0%	0.0	✓	✓	43	43	0	-1%	0.1	✓	✓	5	14	9	183%	3.0	✓	✓
21-20	Mouchel RSI Site 8	A47 New Road	E B	647	653	6	1%	0.2	✓	✓	473	471	-2	0%	0.1	✓	✓	97	97	0	0%	0.0	✓	✓	77	77	0	0%	0.0	✓	✓
193-194	Mouchel RSI Site 7	Mill Road	N B	124	116	-8	-6%	0.7	✓	✓	101	101	0	0%	0.0	✓	✓	15	15	0	-1%	0.0	✓	✓	8	0	-8	100%	3.9	✓	✓
57-55	Mouchel RSI Site 6 / Junction 22	A143 Beccles Road	N B	423	424	1	0%	0.0	✓	✓	349	349	-1	0%	0.0	✓	✓	35	35	0	1%	0.1	✓	✓	39	39	0	0%	0.0	✓	✓
590-68	Mouchel RSI Site 5 / Junction 24	A12 Lowestoft Road	N B	899	903	4	0%	0.1	✓	✓	696	697	1	0%	0.0	✓	✓	123	123	0	0%	0.0	✓	✓	80	80	0	0%	0.0	✓	✓
70-267	Mouchel Nov16 ATC Site 1	Ormsby Road	S B	144	145	1	1%	0.1	✓	✓	132	132	0	0%	0.0	✓	✓	12	12	0	3%	0.1	✓	✓	1	1	0	9%	0.1	✓	✓
<b>06 Outer Cordon Inbound: - Total</b>				<b>2,970</b>	<b>2,983</b>	<b>12</b>	<b>0%</b>	<b>0.2</b>	✓	✓	<b>2,407</b>	<b>2,404</b>	<b>-3</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>352</b>	<b>353</b>	<b>1</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>211</b>	<b>213</b>	<b>2</b>	<b>1%</b>	<b>0.1</b>	✓	✓
									7/7	7/7						7/7	7/7						7/7	7/7						7/7	7/7
									100%	100%						100%	100%						100%	100%						100%	100%
<b>06 Outer Cordon Outbound:</b>																															
3-2	Mouchel Nov16 ATC Site 3	Norwich Road	N B	396	401	6	1%	0.3	✓	✓	347	347	1	0%	0.0	✓	✓	44	44	0	0%	0.0	✓	✓	5	9	4	73%	1.4	✓	✓
194-193	Mouchel RSI Site 7	Mill Road	S B	132	125	-7	-6%	0.7	✓	✓	115	115	0	0%	0.0	✓	✓	9	9	0	4%	0.1	✓	✓	9	0	-9	100%	4.3	✓	✓
71-70	Mouchel Nov16 ATC Site 2	Caister By Pass	N B	329	332	3	1%	0.1	✓	✓	301	301	1	0%	0.0	✓	✓	27	27	0	2%	0.1	✓	✓	2	4	2	93%	1.0	✓	✓
55-57	Mouchel RSI Site 6 / Junction 22	A143 Beccles Road	S B	443	445	2	0%	0.1	✓	✓	341	341	0	0%	0.0	✓	✓	60	60	0	0%	0.0	✓	✓	41	41	0	0%	0.0	✓	✓
267-70	Mouchel Nov16 ATC Site 1	Ormsby Road	N B	179	179	-1	0%	0.0	✓	✓	164	164	0	0%	0.0	✓	✓	14	14	0	-3%	0.1	✓	✓	1	1	0	-13%	0.1	✓	✓
68-590	Mouchel RSI Site 5 / Junction 24	A12 Lowestoft Road	S B	901	893	-8	-1%	0.3	✓	✓	691	690	-1	0%	0.0	✓	✓	132	132	0	0%	0.0	✓	✓	78	68	10	-12%	1.1	✓	✓
20-21	Mouchel RSI Site 8	A47 New Road	W B	663	692	30	4%	1.1	✓	✓	521	523	2	0%	0.1	✓	✓	58	83	25	43%	2.9	✓	✓	84	84	0	0%	0.0	✓	✓
<b>06 Outer Cordon Outbound: - Total</b>				<b>3,043</b>	<b>3,068</b>	<b>24</b>	<b>1%</b>	<b>0.4</b>	✓	✓	<b>2,479</b>	<b>2,482</b>	<b>2</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>343</b>	<b>369</b>	<b>25</b>	<b>7%</b>	<b>1.3</b>	×	✓	<b>221</b>	<b>207</b>	<b>13</b>	<b>-6%</b>	<b>0.9</b>	×	✓
									7/7	7/7						7/7	7/7						7/7	7/7						7/7	7/7
									100%	100%						100%	100%						100%	100%						100%	100%
<b>07 East Of A12 Eastbound:</b>																															
61-244	Junction 26	Victoria Road Access	E B	244	208	-36	-15%	2.4	✓	✓	210	171	-40	-19%	2.9	✓	✓	28	22	-6	-20%	1.1	✓	✓	6	11	6	100%	1.9	✓	✓
68-293	Junction 24	Links Road	E B	128	125	-3	-2%	0.2	✓	✓	107	107	0	0%	0.0	✓	✓	15	15	0	-1%	0.0	✓	✓	6	1	-5	-87%	2.8	✓	✓
64-408	Junction 25	Bridge Road	E B	107	111	4	4%	0.4	✓	✓	95	97	2	2%	0.2	✓	✓	10	11	1	14%	0.4	✓	✓	2	0	-2	100%	1.9	✓	✓

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8002-168	AECOM 2015 MCC Site 8 / Junction 17	William Adams Way east of roundabout A143	E B	566	570	4	1%	0.2	✓	✓	451	454	2	1%	0.1	✓	✓	101	102	1	1%	0.1	✓	✓	14	14	0	-1%	0.0	✓	✓
425-426	Junction 14	Beccles Road East	E B	184	187	3	2%	0.2	✓	✓	161	170	9	6%	0.7	✓	✓	18	17	-1	-6%	0.2	✓	✓	5	0	-5	100%	3.2	✓	✓
7745-24	Junction 13 / AECOM 2015 MCC Site 6	A1243 Pasteur Road South	E B	914	922	8	1%	0.3	✓	✓	777	782	4	1%	0.2	✓	✓	108	108	0	0%	0.0	✓	✓	28	32	4	15%	0.7	✓	✓
<b>07 East Of A12 Eastbound: - Total</b>				<b>2,142</b>	<b>2,123</b>	<b>-19</b>	<b>-1%</b>	<b>0.4</b>	✓	✓	<b>1,801</b>	<b>1,780</b>	<b>-21</b>	<b>-1%</b>	<b>0.5</b>	✓	✓	<b>280</b>	<b>276</b>	<b>-4</b>	<b>-2%</b>	<b>0.3</b>	✓	✓	<b>61</b>	<b>58</b>	<b>-3</b>	<b>-4%</b>	<b>0.3</b>	✓	✓
									6/6	6/6						6/6	6/6						6/6	6/6						6/6	6/6
									100%	100%						100%	100%						100%	100%						100%	100%
<b>07 East Of A12 Westbound:</b>																															
168-8002	AECOM 2015 MCC Site 8 / Junction 17	William Adams Way east of roundabout	W B	352	352	0	0%	0.0	✓	✓	280	278	-2	-1%	0.1	✓	✓	64	65	1	2%	0.1	✓	✓	8	8	0	1%	0.0	✓	✓
293-68	Junction 24	Links Road A143	W B	158	158	0	0%	0.0	✓	✓	133	133	0	0%	0.0	✓	✓	21	21	0	0%	0.0	✓	✓	4	1	-3	-68%	1.7	✓	✓
426-425	Junction 14	Beccles Road East	W B	203	195	-9	-4%	0.6	✓	✓	180	172	-8	-4%	0.6	✓	✓	18	17	-1	-5%	0.2	✓	✓	6	6	0	0%	0.0	✓	✓
408-64	Junction 25	Bridge Road	W B	107	54	-53	-49%	5.9	✓	×	94	43	-51	-54%	6.2	✓	×	11	6	-5	-47%	1.8	✓	✓	1	0	-1	100%	1.7	✓	✓
244-61	Junction 26	Victoria Road Access	W B	227	291	64	28%	3.9	✓	✓	193	228	35	18%	2.4	✓	✓	28	40	13	46%	2.2	✓	✓	7	19	12	170%	3.3	✓	✓
24-7745	Junction 13 / AECOM 2015 MCC Site 6	A1243 Pasteur Road South	W B	956	957	2	0%	0.1	✓	✓	806	805	-1	0%	0.0	✓	✓	120	120	1	0%	0.0	✓	✓	30	33	2	8%	0.4	✓	✓
<b>07 East Of A12 Westbound: - Total</b>				<b>2,003</b>	<b>2,006</b>	<b>4</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>1,685</b>	<b>1,659</b>	<b>-26</b>	<b>-2%</b>	<b>0.6</b>	✓	✓	<b>261</b>	<b>269</b>	<b>8</b>	<b>3%</b>	<b>0.5</b>	✓	✓	<b>57</b>	<b>67</b>	<b>10</b>	<b>18%</b>	<b>1.3</b>	×	✓
									6/6	5/6						6/6	5/6						6/6	6/6						6/6	6/6
									100%	83%						100%	83%						100%	100%						100%	100%
<b>08 North Of Beccles Road (east Of A12) Eastbound:</b>																															
167-166	AECOM 2015 MCC Site 7	William Adams Way	E B	349	341	-9	-3%	0.5	✓	✓	278	276	-2	-1%	0.1	✓	✓	62	61	0	-1%	0.0	✓	✓	10	4	-6	-65%	2.5	✓	✓
171-46	AECOM 2016 MCTC Site M2	Burgh Road	E B	213	222	9	4%	0.6	✓	✓	189	189	0	0%	0.0	✓	✓	19	19	0	2%	0.1	✓	✓	5	10	5	98%	1.8	✓	✓
591-46	AECOM 2016 MCTC Site M2	Suffolk Road	S B	67	64	-3	-5%	0.4	✓	✓	56	56	0	0%	0.0	✓	✓	8	8	0	-1%	0.0	✓	✓	3	0	-3	100%	2.6	✓	✓
528-381	Junction 16	Alpha Road	E B	30	36	6	20%	1.0	✓	✓	26	20	-6	-24%	1.3	✓	✓	4	16	12	287%	3.7	✓	✓	0	0	0	136%	0.5	✓	✓
165-166	AECOM 2015 MCC Site 7	Southtown Road	S B	449	471	23	5%	1.0	✓	✓	369	366	-3	-1%	0.1	✓	✓	66	66	0	0%	0.0	✓	✓	14	14	0	0%	0.0	✓	✓

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**08 North Of Beccles Road**  
**(east Of A12) Eastbound: -**  
**Total**

1,108	1,134	25	2%	0.8	✓	✓	917	906	-11	-1%	0.4	✓	✓	158	170	12	8%	0.9	×	✓	33	29	-4	-13%	0.8	×	✓
					5/5	5/5						5/5	5/5						5/5	5/5					5/5	5/5	
					100%	100%						100%	100%						100%	100%					100%	100%	

**08 North Of Beccles Road**  
**(east Of A12) Westbound:**

46-171	AECOM 2016 MCTC Site M2	Burgh Road	W B	163	167	4	3%	0.3	✓	✓	144	143	-1	0%	0.0	✓	✓	16	16	0	-2%	0.1	✓	✓	3	4	2	51%	0.8	✓	✓
381-528	Junction 16	Alpha Road	W B	6	0	-6	100%	3.5	✓	✓	5	0	-5	100%	3.0	✓	✓	1	0	-1	100%	1.7	✓	✓	0	0	0	100%	0.6	✓	✓
46-591	AECOM 2016 MCTC Site M2	Suffolk Road	N B	77	76	-1	-2%	0.2	✓	✓	65	65	0	-1%	0.0	✓	✓	10	10	0	3%	0.1	✓	✓	2	1	-1	-57%	1.1	✓	✓
166-167	AECOM 2015 MCC Site 7	William Adams Way	W B	360	352	-8	-2%	0.4	✓	✓	285	278	-7	-3%	0.4	✓	✓	66	65	-1	-1%	0.1	✓	✓	9	8	0	-1%	0.0	✓	✓
166-165	AECOM 2015 MCC Site 7	Southto wn Road	N B	405	425	20	5%	1.0	✓	✓	337	337	0	0%	0.0	✓	✓	53	53	0	0%	0.0	✓	✓	15	10	-5	-33%	1.4	✓	✓

**08 North Of Beccles Road**  
**(east Of A12) Westbound: -**  
**Total**

1,011	1,020	8	1%	0.3	✓	✓	836	823	-13	-2%	0.4	✓	✓	146	144	-2	-2%	0.2	✓	✓	29	24	-5	-18%	1.0	×	✓
					5/5	5/5						5/5	5/5						5/5	5/5					5/5	5/5	
					100%	100%						100%	100%						100%	100%					100%	100%	

**Adhoc:**

199-350	Junction 23	Church Lane - off Beccles Road	E B	74	27	-47	64%	6.7	✓	×	64	25	-39	61%	5.9	✓	×	8	2	-6	75%	2.8	✓	✓	2	0	-2	100%	2.0	✓	✓
350-199	Junction 23	Church Lane - off Beccles Road	W B	74	74	0	1%	0.1	✓	✓	64	63	0	-1%	0.1	✓	✓	8	8	0	2%	0.1	✓	✓	2	0	-2	-86%	1.6	✓	✓
350-429	Junction 23	Long Lane - off Beccles Road	E B	127	128	1	1%	0.1	✓	✓	116	116	0	0%	0.0	✓	✓	9	9	0	-4%	0.1	✓	✓	2	2	0	-7%	0.1	✓	✓
429-350	Junction 23	Long Lane - off Beccles Road	W B	127	127	0	0%	0.0	✓	✓	111	111	0	0%	0.0	✓	✓	13	13	0	-4%	0.1	✓	✓	2	2	0	-3%	0.1	✓	✓
81-80	AECOM 2016 ATC Site A11	North Quay	N B	684	589	-94	14%	3.7	✓	✓	583	477	-107	18%	4.6	×	✓	61	63	2	3%	0.3	✓	✓	39	17	23	-57%	4.3	✓	✓
80-81	AECOM 2016 ATC Site A11	North Quay	S B	342	294	-49	14%	2.7	✓	✓	294	245	-49	17%	3.0	✓	✓	35	35	0	1%	0.1	✓	✓	14	13	0	-1%	0.0	✓	✓
173-172	AECOM 2016 ATC Site AN10	Burgh Road	E B	178	97	-81	45%	6.9	✓	×	114	73	-41	36%	4.2	✓	✓	34	10	-24	70%	5.0	✓	×	30	10	20	-66%	4.4	✓	✓
172-173	AECOM 2016 ATC Site AN10	Burgh Road	W B	186	90	-96	52%	8.2	✓	×	157	73	-84	54%	7.8	✓	×	27	10	-16	61%	3.8	✓	✓	2	2	0	25%	0.3	✓	✓
618-78	Junction 7	King Sreet North	S B	99	11	-88	89%	11.9	✓	×	81	0	-81	100%	12.7	✓	×	15	0	-15	100%	5.5	✓	×	4	0	-4	100%	2.7	✓	✓

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617-619	Junction 7	Dene Side North	N B	134	9	12	93%	14.8	x	x	107	0	-107	100%	14.6	x	x	21	0	-21	100%	6.4	✓	x	6	0	-6	100%	3.6	✓	✓
594-77	Junction 7	Alexandra Road North	S B	384	391	7	2%	0.4	✓	✓	332	334	1	0%	0.1	✓	✓	40	40	1	2%	0.1	✓	✓	12	12	0	-1%	0.0	✓	✓
605-77	Junction 7	Trafalgar Road	W B	131	135	4	3%	0.3	✓	✓	110	108	-3	-3%	0.3	✓	✓	18	15	-2	13%	0.6	✓	✓	3	2	-1	-30%	0.6	✓	✓
77-605	Junction 7	Trafalgar Road	E B	84	94	10	12%	1.1	✓	✓	73	80	7	10%	0.8	✓	✓	9	11	2	20%	0.6	✓	✓	2	2	0	0%	0.0	✓	✓
7761-617	Junction 7	Dene Side South	N B	107	23	-84	79%	10.5	✓	x	89	20	-69	78%	9.4	✓	x	15	2	-13	89%	4.6	✓	✓	3	1	-2	-62%	1.3	✓	✓
78-147	Junction 7	King Street South	S B	121	67	-54	45%	5.6	✓	x	96	45	-51	53%	6.1	✓	x	20	9	-11	53%	2.8	✓	✓	6	2	-4	-71%	2.1	✓	✓
78-7760	Junction 7	Yarmouth Way	E B	380	391	12	3%	0.6	✓	✓	334	336	3	1%	0.1	✓	✓	37	37	0	-1%	0.0	✓	✓	9	11	3	32%	0.9	✓	✓
77-617	Junction 7	Alexandra Road South	W B	402	432	30	7%	1.5	✓	✓	349	361	12	4%	0.7	✓	✓	42	45	3	6%	0.4	✓	✓	11	12	1	12%	0.4	✓	✓
617-78	Junction 7	Alexandra Road South	E B	404	446	42	10%	2.0	✓	✓	352	381	29	8%	1.5	✓	✓	43	46	4	9%	0.6	✓	✓	10	13	4	38%	1.1	✓	✓
165-164	Junction 18	Southtown Road South	N B	405	425	20	5%	1.0	✓	✓	337	337	0	0%	0.0	✓	✓	53	53	0	0%	0.0	✓	✓	15	10	-5	-33%	1.4	✓	✓
164-165	Junction 18	Southtown Road South	S B	449	471	23	5%	1.0	✓	✓	369	366	-3	-1%	0.1	✓	✓	66	66	0	0%	0.0	✓	✓	14	14	0	0%	0.0	✓	✓
163-164	Junction 18	Boundary Road	E B	161	148	-14	-8%	1.1	✓	✓	129	125	-3	-3%	0.3	✓	✓	22	22	0	0%	0.0	✓	✓	11	1	10	-95%	4.2	✓	✓
164-163	Junction 18	Boundary Road	W B	52	16	-37	70%	6.3	✓	x	44	15	-29	66%	5.4	✓	x	7	1	-6	83%	2.9	✓	✓	2	0	-2	100%	1.9	✓	✓
603-162	Junction 19	Tollgate Road	E B	17	0	-17	100%	5.8	✓	x	10	0	-10	100%	4.4	✓	✓	4	0	-4	100%	2.7	✓	✓	3	0	-3	100%	2.6	✓	✓
162-603	Junction 19	Tollgate Road	W B	15	25	9	61%	2.1	✓	✓	9	18	9	107%	2.5	✓	✓	4	7	3	77%	1.3	✓	✓	3	0	-3	100%	2.4	✓	✓
602-161	Junction 20	Southtown Road North	S B	331	352	22	7%	1.2	✓	✓	254	260	6	2%	0.4	✓	✓	54	54	0	0%	0.0	✓	✓	23	14	-9	-40%	2.2	✓	✓
161-602	Junction 20	Southtown Road North	N B	418	406	-12	-3%	0.6	✓	✓	338	319	-19	-5%	1.0	✓	✓	55	51	-4	-8%	0.6	✓	✓	25	10	14	-58%	3.4	✓	✓
601-161	Junction 20	Gordon Road	E B	74	0	-74	100%	12.2	✓	x	61	0	-61	100%	11.1	✓	x	10	0	-10	100%	4.6	✓	✓	2	0	-2	100%	2.1	✓	✓
161-601	Junction 20	Gordon Road	W B	43	8	-34	81%	6.8	✓	x	32	4	-28	87%	6.5	✓	x	9	4	-5	58%	2.1	✓	✓	1	0	-1	100%	1.6	✓	✓
25-336	Junction 21	A1243 Pasteur Road at Pasta Foods junction	S B	666	605	-62	-9%	2.4	✓	✓	559	507	-52	-9%	2.3	✓	✓	81	74	-6	-8%	0.7	✓	✓	26	23	-3	-11%	0.6	✓	✓
336-25	Junction 21	A1243 Pasteur Road at Pasta Foods junction	N B	667	599	-69	10%	2.7	✓	✓	569	511	-58	10%	2.5	✓	✓	71	65	-6	-9%	0.8	✓	✓	27	23	-4	-15%	0.8	✓	✓
68-67	Junction 24	Main Carriage way	N B	902	894	-8	-1%	0.3	✓	✓	688	689	1	0%	0.1	✓	✓	132	132	0	0%	0.0	✓	✓	83	65	19	-22%	2.2	✓	✓
67-68	Junction 24	Main Carriage way	S B	859	832	-27	-3%	0.9	✓	✓	647	646	-1	0%	0.0	✓	✓	126	126	0	0%	0.0	✓	✓	87	49	38	-44%	4.6	✓	✓

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7740-342	J3	Marine Parade North	N B	286	271	-15	-5%	0.9	✓	✓	255	239	-16	-6%	1.0	✓	✓	31	30	-1	-2%	0.1	✓	✓	1	1	0	12%	0.1	✓	✓
141-7740	J3	North Drive	S B	284	272	-11	-4%	0.7	✓	✓	259	243	-16	-6%	1.0	✓	✓	24	24	0	-2%	0.1	✓	✓	1	5	4	762%	2.6	✓	✓
345-7740	J3	Marine Parade South	N B	253	271	18	7%	1.1	✓	✓	223	239	16	7%	1.1	✓	✓	29	30	1	2%	0.1	✓	✓	1	1	0	22%	0.2	✓	✓
7740-345	J3	Marine Parade South	S B	250	272	22	9%	1.4	✓	✓	227	243	16	7%	1.0	✓	✓	23	24	1	3%	0.2	✓	✓	0	5	4	891%	2.6	✓	✓
490-154	J5	S Beach Parade North	S B	122	85	-37	-31%	3.7	✓	✓	109	74	-35	-32%	3.6	✓	✓	12	10	-3	-21%	0.8	✓	✓	1	1	0	26%	0.2	✓	✓
154-490	J5	S Beach Parade North	N B	127	117	-10	-8%	0.9	✓	✓	110	101	-9	-8%	0.9	✓	✓	17	16	-1	-9%	0.4	✓	✓	0	0	0	61%	0.3	✓	✓
635-154	J5	Harbord Crescent	E B	19	44	26	138%	4.6	✓	✓	15	39	24	156%	4.6	✓	✓	3	5	2	48%	0.8	✓	✓	0	0	0	#DIV/0!	0.4	✓	✓
155-636	J6	S Beach Parade South	N B	113	112	-1	-1%	0.1	✓	✓	97	97	0	0%	0.0	✓	✓	15	15	0	0%	0.0	✓	✓	2	0	-1	-75%	1.2	✓	✓
636-155	J6	S Beach Parade South	S B	107	107	0	0%	0.0	✓	✓	94	94	1	1%	0.1	✓	✓	12	12	0	-3%	0.1	✓	✓	1	1	0	-16%	0.2	✓	✓
636-637	J6	Harbord Crescent	W B	18	17	-1	-6%	0.2	✓	✓	15	15	0	-1%	0.0	✓	✓	2	2	0	25%	0.3	✓	✓	1	0	-1	100%	1.6	✓	✓
495-7754	J7	South Denes Road south of junction	N B	99	99	0	0%	0.0	✓	✓	60	68	8	14%	1.0	✓	✓	20	22	2	10%	0.4	✓	✓	19	9	1	-51%	2.6	✓	✓
7754-495	J7	South Denes Road south of junction	S B	101	98	-3	-3%	0.3	✓	✓	63	69	5	9%	0.7	✓	✓	19	22	3	14%	0.6	✓	✓	18	7	1	-59%	3.0	✓	✓
7754-537	J7	Salmon Road	E B	55	0	-55	100%	10.5	✓	×	34	0	-34	100%	8.3	✓	×	17	0	-17	100%	5.8	✓	×	4	0	-4	100%	2.9	✓	✓
537-7754	J7	Salmon Road	W B	54	0	-54	100%	10.4	✓	×	38	0	-38	100%	8.7	✓	×	13	0	-13	100%	5.1	✓	×	3	0	-3	-97%	2.4	✓	✓
36-377	J9	Main Cross Road	E B	63	64	1	1%	0.1	✓	✓	44	44	0	1%	0.0	✓	✓	18	18	0	3%	0.1	✓	✓	2	2	0	9%	0.1	✓	✓
377-36	J9	Main Cross Road	W B	52	54	1	3%	0.2	✓	✓	37	37	0	1%	0.0	✓	✓	13	13	0	-1%	0.0	✓	✓	2	4	1	62%	0.8	✓	✓
7774-7773	J10	Swanston Road west of junction	E B	5	12	7	131%	2.4	✓	✓	3	9	6	189%	2.4	✓	✓	2	2	0	15%	0.2	✓	✓	0	2	2	854%	1.7	✓	✓
7773-7774	J10	Swanston Road west of junction	W B	15	26	11	75%	2.5	✓	✓	8	15	7	88%	2.1	✓	✓	3	5	2	52%	0.8	✓	✓	4	6	2	64%	1.1	✓	✓
7773-7752	J10	South Denes Road north of junction	N B	181	136	-45	-25%	3.5	✓	✓	126	86	-40	-32%	3.9	✓	✓	35	35	0	0%	0.0	✓	✓	19	15	-4	-23%	1.0	✓	✓
7752-7773	J10	South Denes Road north of junction	S B	201	159	-42	-21%	3.1	✓	✓	135	101	-34	-25%	3.2	✓	✓	44	43	-1	-3%	0.2	✓	✓	22	16	-6	-28%	1.4	✓	✓
34-279	Mouchel Nov16 ATC Site 14	Queens Road	E B	123	135	13	10%	1.1	✓	✓	104	104	0	0%	0.0	✓	✓	19	20	1	5%	0.2	✓	✓	0	11	1	#DIV/0!	4.7	✓	✓
279-34	Mouchel Nov16	Queens Road	W B	96	106	9	10%	0.9	✓	✓	81	81	0	0%	0.0	✓	✓	15	15	0	0%	0.0	✓	✓	0	10	1	#DIV/0!	4.4	✓	✓

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7755-15	ATC Site 14 AECOM 2015 MCC Site 3	Acle New Road	E B	824	836	12	1%	0.4	✓	✓	701	704	3	0%	0.1	✓	✓	100	100	0	0%	0.0	✓	✓	23	23	0	0%	0.0	✓	✓
15-7755	AECOM 2015 MCC Site 3	Acle New Road	W B	981	983	2	0%	0.1	✓	✓	846	842	-3	0%	0.1	✓	✓	112	112	0	0%	0.0	✓	✓	23	23	0	0%	0.0	✓	✓
612-15	AECOM 2015 MCC Site 3 / AECOM 2016 MCTC Site M1	Fuller's Hill	W B	334	337	3	1%	0.2	✓	✓	295	294	-1	0%	0.0	✓	✓	35	35	0	0%	0.0	✓	✓	4	5	0	10%	0.2	✓	✓
15-612	AECOM 2016 MCTC Site M1	Fuller's Hill	E B	441	473	32	7%	1.5	✓	✓	391	385	-6	-2%	0.3	✓	✓	43	46	3	6%	0.4	✓	✓	7	7	0	1%	0.0	✓	✓
65-64	Junction 25	A12 Main Carriage way	N B	871	858	-13	-1%	0.4	✓	✓	713	660	-53	-7%	2.0	✓	✓	130	121	-9	-7%	0.8	✓	✓	28	64	3	124%	5.2	✓	x
64-65	Junction 25	A12 Main Carriage way	S B	853	682	17	20%	6.2	x	x	702	512	-190	-27%	7.7	x	x	122	103	-19	-16%	1.8	✓	✓	29	49	2	70%	3.2	✓	✓
597-15	AECOM 2015 MCC Site 3	North Quay south of roundabout	N B	559	586	27	5%	1.1	✓	✓	477	477	0	0%	0.0	✓	✓	68	63	-5	-7%	0.6	✓	✓	14	17	2	17%	0.6	✓	✓
15-597	AECOM 2015 MCC Site 3	North Quay south of roundabout	S B	353	352	0	0%	0.0	✓	✓	298	297	-1	0%	0.0	✓	✓	45	45	0	0%	0.0	✓	✓	10	10	0	-1%	0.0	✓	✓
41-8001	AECOM 2015 MCC Site 8	A12 north of roundabout	S B	1,340	1,346	7	0%	0.2	✓	✓	1,108	1,107	-1	0%	0.0	✓	✓	186	193	7	4%	0.5	✓	✓	45	46	0	1%	0.1	✓	✓
8001-41	AECOM 2015 MCC Site 8	A12 north of roundabout	N B	1,222	1,222	0	0%	0.0	✓	✓	989	988	-1	0%	0.0	✓	✓	184	185	1	0%	0.1	✓	✓	48	48	0	1%	0.0	✓	✓
64-63	Junction 25	A12 Main Carriage way	N B	919	955	36	4%	1.2	✓	✓	758	750	-8	-1%	0.3	✓	✓	134	134	0	0%	0.0	✓	✓	27	64	3	133%	5.4	✓	x
63-64	Junction 25	A12 Main Carriage way	S B	863	894	31	4%	1.0	✓	✓	709	708	0	0%	0.0	✓	✓	127	127	0	0%	0.0	✓	✓	28	49	2	74%	3.3	✓	✓
643-8003	AECOM 2015 MCC Site 8	A12 south of roundabout	N B	1,173	1,246	73	6%	2.1	✓	✓	938	994	56	6%	1.8	✓	✓	185	186	1	1%	0.1	✓	✓	50	65	1	30%	2.0	✓	✓
8003-643	AECOM 2015 MCC Site 8	A12 south of roundabout	S B	1,119	1,102	-17	-1%	0.5	✓	✓	910	898	-12	-1%	0.4	✓	✓	161	151	-10	-6%	0.8	✓	✓	47	52	5	11%	0.7	✓	✓
353-8004	AECOM 2015 MCC Site 8	William Adams Way west of roundabout	E B	305	335	30	10%	1.7	✓	✓	167	251	84	51%	5.8	✓	x	102	62	-40	-40%	4.5	✓	✓	37	23	-1	-37%	2.5	✓	✓



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8004-353	AECOM 2015 MCC Site 8	William Adams Way west of roundabout	W B	260	386	126	48%	7.0	x	x	139	290	152	109%	10.3	x	x	91	68	23	-25%	2.5	✓	✓	31	28	-3	-10%	0.6	✓	✓
169-170	Junction 15	High Road	W B	238	220	-18	-8%	1.2	✓	✓	200	164	-36	-18%	2.7	✓	✓	30	30	0	0%	0.0	✓	✓	9	4	-5	-58%	2.0	✓	✓
170-169	Junction 15	High Road	E B	167	195	29	17%	2.1	✓	✓	141	172	31	22%	2.5	✓	✓	17	1	16	-94%	5.4	✓	x	8	0	-8	100%	4.1	✓	✓
593-170	Junction 15	Beccles Road South	N B	369	371	2	1%	0.1	✓	✓	320	318	-2	-1%	0.1	✓	✓	36	36	0	0%	0.0	✓	✓	12	15	2	20%	0.7	✓	✓
170-593	Junction 15	Beccles Road South	S B	341	353	12	3%	0.6	✓	✓	295	296	1	0%	0.1	✓	✓	37	37	0	0%	0.0	✓	✓	9	17	8	95%	2.3	✓	✓
380-381	Junction 16	Beccles Road North	S B	631	662	31	5%	1.2	✓	✓	538	528	-10	-2%	0.4	✓	✓	71	91	20	28%	2.2	✓	✓	21	18	-3	-15%	0.7	✓	✓
381-380	Junction 16	Beccles Road North	N B	598	627	29	5%	1.2	✓	✓	514	502	-12	-2%	0.6	✓	✓	66	82	16	24%	1.8	✓	✓	18	19	1	5%	0.2	✓	✓
382-381	Junction 16	Malthouse Lane	W B	10	0	-10	100%	4.5	✓	✓	8	0	-8	100%	4.1	✓	✓	1	0	-1	100%	1.7	✓	✓	0	0	0	100%	0.9	✓	✓
381-382	Junction 16	Malthouse Lane	E B	165	114	-51	31%	4.3	✓	✓	137	60	-78	57%	7.8	✓	x	23	53	31	136%	5.0	✓	✓	5	1	-4	-82%	2.4	✓	✓
63-62	AECOM 2016 MCTC Site M6	A12 Main Carriage way	N B	919	958	38	4%	1.3	✓	✓	758	750	-8	-1%	0.3	✓	✓	134	134	0	0%	0.0	✓	✓	27	64	36	133%	5.4	✓	x
62-63	AECOM 2016 MCTC Site M6 Junction 26 /	A12 Main Carriage way	S B	863	894	31	4%	1.0	✓	✓	709	708	0	0%	0.0	✓	✓	127	127	0	0%	0.0	✓	✓	28	49	21	74%	3.3	✓	✓
62-61	AECOM 2016 MCTC Site M6 Junction 26 /	A12 Main Carriage way	N B	763	787	25	3%	0.9	✓	✓	617	619	2	0%	0.1	✓	✓	121	121	0	0%	0.0	✓	✓	25	43	19	76%	3.2	✓	✓
61-62	AECOM 2016 MCTC Site M6	A12 Main Carriage way	S B	722	742	20	3%	0.7	✓	✓	582	580	-2	0%	0.1	✓	✓	115	115	0	0%	0.0	✓	✓	25	43	18	74%	3.2	✓	✓
380-166	AECOM 2015 MCC Site 7	Beccles Road	N B	598	627	29	5%	1.2	✓	✓	504	502	-3	-1%	0.1	✓	✓	82	82	0	0%	0.0	✓	✓	12	19	7	56%	1.7	✓	✓
166-380	AECOM 2015 MCC Site 7	Beccles Road	S B	631	662	31	5%	1.2	✓	✓	527	528	1	0%	0.0	✓	✓	91	91	0	0%	0.0	✓	✓	13	18	5	41%	1.3	✓	✓
61-60	Junction 26	A12 Main Carriage way	N B	747	854	107	14%	3.8	✓	✓	617	676	59	10%	2.3	✓	✓	96	136	40	41%	3.7	✓	✓	34	42	7	22%	1.2	✓	✓
60-61	Junction 26	A12 Main Carriage way	S B	736	726	-10	-1%	0.4	✓	✓	596	580	-17	-3%	0.7	✓	✓	105	112	7	7%	0.7	✓	✓	34	34	0	-1%	0.1	✓	✓
88-62	AECOM 2016 MCTC Site M6	B1370 - off A12	E B	270	279	9	3%	0.5	✓	✓	234	234	0	0%	0.0	✓	✓	33	33	0	1%	0.1	✓	✓	4	5	2	54%	0.9	✓	✓
62-88	AECOM 2016 MCTC Site M6	B1370 - off A12	W B	274	298	24	9%	1.4	✓	✓	237	237	0	0%	0.0	✓	✓	34	34	0	0%	0.0	✓	✓	3	20	17	514%	4.9	✓	✓

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341-134	Junction 4	Nelson Road N South	N B	205	204	0	0%	0.0	✓	✓	174	174	0	0%	0.0	✓	✓	26	26	0	-2%	0.1	✓	✓	4	2	-3	-61%	1.5	✓	✓
134-341	Junction 4	Nelson Road N South	S B	171	168	-3	-2%	0.2	✓	✓	146	146	0	0%	0.0	✓	✓	22	22	0	0%	0.0	✓	✓	3	0	-3	100%	2.6	✓	✓
640-639	Junction 5	Sainsburys Access	S B	194	194	0	0%	0.0	✓	✓	177	177	0	0%	0.0	✓	✓	16	16	0	-1%	0.1	✓	✓	1	1	0	-5%	0.1	✓	✓
639-640	Junction 5	Sainsburys Access St	N B	194	197	2	1%	0.2	✓	✓	178	178	0	0%	0.0	✓	✓	16	16	0	2%	0.1	✓	✓	1	3	2	347%	1.6	✓	✓
459-639	Junction 5	Nicholas Road West St	E B	296	283	-14	-5%	0.8	✓	✓	263	253	-10	-4%	0.6	✓	✓	29	28	-1	-2%	0.1	✓	✓	5	0	-4	-89%	2.6	✓	✓
639-459	Junction 5	Nicholas Road West Brasenose	W B	326	323	-4	-1%	0.2	✓	✓	283	283	0	0%	0.0	✓	✓	36	36	0	0%	0.0	✓	✓	8	0	-8	100%	3.9	✓	✓
7762-64	Junction 25	Brasenose Avenue - off A12	E B	149	158	9	6%	0.7	✓	✓	131	127	-4	-3%	0.3	✓	✓	15	20	5	34%	1.2	✓	✓	4	0	-3	-98%	2.6	✓	✓
64-7762	Junction 25	Brasenose Avenue - off A12	W B	127	216	89	70%	6.8	✓	x	109	180	71	66%	5.9	✓	x	16	25	9	56%	2.0	✓	✓	3	0	-3	-97%	2.3	✓	✓
338-135	Junction 2	Euston Road East	E B	361	317	-44	12%	2.4	✓	✓	320	286	-34	10%	1.9	✓	✓	34	29	-5	16%	1.0	✓	✓	7	1	-7	-90%	3.3	✓	✓
339-338	Junction 2	Marine Parade	N B	339	296	-44	13%	2.4	✓	✓	293	260	-34	11%	2.0	✓	✓	38	34	-4	-9%	0.6	✓	✓	8	1	-8	-91%	3.6	✓	✓
804-57	Junction 22	Untitled Road	W B	219	226	7	3%	0.5	✓	✓	187	187	0	0%	0.0	✓	✓	21	21	0	2%	0.1	✓	✓	11	18	7	58%	1.7	✓	✓
57-804	Junction 22	Untitled Road A143	E B	200	220	20	10%	1.4	✓	✓	173	173	0	0%	0.0	✓	✓	20	25	5	27%	1.1	✓	✓	7	22	14	195%	3.8	✓	✓
58-57	Junction 22	Beccles Road South A143	N B	293	291	-2	-1%	0.1	✓	✓	233	233	0	0%	0.0	✓	✓	27	26	0	-1%	0.1	✓	✓	34	30	-4	-11%	0.6	✓	✓
57-58	Junction 22	Beccles Road South	S B	339	329	-9	-3%	0.5	✓	✓	253	253	-1	0%	0.0	✓	✓	46	46	0	-1%	0.1	✓	✓	39	28	11	-28%	1.8	✓	✓
205-57	Junction 22	New Road	E B	175	174	0	0%	0.0	✓	✓	149	149	0	0%	0.0	✓	✓	15	15	0	-1%	0.0	✓	✓	10	10	0	1%	0.0	✓	✓
57-205	Junction 22	New Road	W B	163	163	0	0%	0.0	✓	✓	136	136	0	0%	0.0	✓	✓	16	16	0	2%	0.1	✓	✓	11	11	0	0%	0.0	✓	✓
168-163	Junction 17	Suffolk Road	N B	224	229	5	2%	0.3	✓	✓	179	178	-1	-1%	0.1	✓	✓	41	41	0	-1%	0.0	✓	✓	4	11	6	148%	2.3	✓	✓
167-168	Junction 17	William Adams Way East	W B	360	352	-8	-2%	0.4	✓	✓	285	278	-7	-3%	0.4	✓	✓	66	65	-1	-1%	0.1	✓	✓	9	8	0	-1%	0.0	✓	✓
168-167	Junction 17	William Adams Way East	E B	349	341	-9	-3%	0.5	✓	✓	278	276	-2	-1%	0.1	✓	✓	62	61	0	-1%	0.0	✓	✓	10	4	-6	-65%	2.5	✓	✓
7806-148	J4	S Beach Parade North	S B	141	138	-3	-2%	0.3	✓	✓	125	121	-4	-3%	0.4	✓	✓	16	16	0	-2%	0.1	✓	✓	1	0	0	-15%	0.1	✓	✓
148-7806	J4	S Beach Parade North	N B	155	148	-7	-4%	0.5	✓	✓	134	127	-7	-5%	0.6	✓	✓	21	20	-1	-4%	0.2	✓	✓	0	0	0	-11%	0.1	✓	✓
490-148	J4	S Beach Parade South	N B	128	128	0	0%	0.0	✓	✓	111	111	0	0%	0.0	✓	✓	17	17	0	1%	0.1	✓	✓	0	0	0	1%	0.0	✓	✓
148-490	J4	S Beach Parade South	S B	114	115	0	0%	0.0	✓	✓	102	102	0	0%	0.0	✓	✓	12	12	0	2%	0.1	✓	✓	1	1	0	-10%	0.1	✓	✓
149-148	J4	Kings Road	E B	53	54	1	2%	0.1	✓	✓	44	44	0	-1%	0.1	✓	✓	8	8	0	2%	0.0	✓	✓	0	0	0	-14%	0.1	✓	✓

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148-149	J4	Kings Road	W B	55	57	2	4%	0.3	✓	✓	47	47	0	1%	0.0	✓	✓	9	9	0	5%	0.1	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	✍
43-425	Junction 14	A12 Off Slip	S B	351	376	25	7%	1.3	✓	✓	293	318	26	9%	1.5	✓	✓	39	39	0	0%	0.0	✓	✓	19	19	0	-1%	0.0	✓	✓
424-43	Junction 14	A12 Off Slip	N B	389	392	4	1%	0.2	✓	✓	318	319	1	0%	0.0	✓	✓	50	50	0	1%	0.1	✓	✓	21	24	3	12%	0.5	✓	✓
223-68	Junction 24	Beaufort Way - off A12	E B	319	319	0	0%	0.0	✓	✓	243	243	0	0%	0.0	✓	✓	54	54	0	0%	0.0	✓	✓	22	22	0	-1%	0.0	✓	✓
68-223	Junction 24	Beaufort Way - off A12	W B	304	296	-8	-3%	0.5	✓	✓	233	233	0	0%	0.0	✓	✓	45	45	0	-1%	0.0	✓	✓	25	18	-8	-30%	1.6	✓	✓
283-424	Junction 14	Shrublands Way	N B	199	199	0	0%	0.0	✓	✓	176	176	0	0%	0.0	✓	✓	21	21	0	2%	0.1	✓	✓	3	2	-1	-21%	0.3	✓	✓
424-283	Junction 14	Shrublands Way	S B	172	169	-3	-2%	0.2	✓	✓	155	151	-4	-2%	0.3	✓	✓	14	15	1	10%	0.4	✓	✓	4	3	0	-4%	0.1	✓	✓
45-424	Junction 14	Beccles Road West A143	E B	339	341	2	1%	0.1	✓	✓	273	274	0	0%	0.0	✓	✓	44	46	2	4%	0.2	✓	✓	22	22	0	1%	0.0	✓	✓
424-45	Junction 14	Beccles Road West	W B	359	363	4	1%	0.2	✓	✓	301	301	0	0%	0.0	✓	✓	40	41	1	2%	0.1	✓	✓	18	21	3	20%	0.8	✓	✓
593-46	AECOM 2016 MCTC Site M2	Beccles Road east of roundabout	S B	341	353	12	3%	0.6	✓	✓	295	296	1	0%	0.1	✓	✓	37	37	0	0%	0.0	✓	✓	9	17	8	95%	2.3	✓	✓
46-593	AECOM 2016 MCTC Site M2	Beccles Road east of roundabout	N B	369	371	2	1%	0.1	✓	✓	320	318	-2	-1%	0.1	✓	✓	36	36	0	0%	0.0	✓	✓	12	15	2	20%	0.7	✓	✓
82-46	AECOM 2016 MCTC Site M2	B1370	N B	379	381	1	0%	0.1	✓	✓	342	342	0	0%	0.0	✓	✓	33	33	0	1%	0.0	✓	✓	4	4	0	4%	0.1	✓	✓
46-82	AECOM 2016 MCTC Site M2	B1370	S B	398	398	1	0%	0.0	✓	✓	357	356	0	0%	0.0	✓	✓	35	35	0	-1%	0.1	✓	✓	5	6	0	4%	0.1	✓	✓
44-46	AECOM 2016 MCTC Site M2	A143 Beccles Road west of roundabout	E B	204	187	-17	-8%	1.2	✓	✓	178	170	-8	-4%	0.6	✓	✓	18	17	-1	-7%	0.3	✓	✓	8	0	-8	100%	4.0	✓	✓
46-44	AECOM 2016 MCTC Site M2	A143 Beccles Road west of roundabout	W B	186	195	9	5%	0.6	✓	✓	164	172	8	5%	0.6	✓	✓	16	17	1	6%	0.2	✓	✓	6	6	0	-6%	0.2	✓	✓
349-350	Junction 23	Beccles Road - west of A12	E B	458	462	3	1%	0.2	✓	✓	373	373	0	0%	0.0	✓	✓	55	55	0	-1%	0.1	✓	✓	29	31	2	5%	0.3	✓	✓
350-349	Junction 23	Beccles Road - west of A12	W B	472	478	6	1%	0.3	✓	✓	392	393	1	0%	0.0	✓	✓	55	55	0	1%	0.0	✓	✓	25	28	2	10%	0.5	✓	✓
350-51	Junction 23	Beccles Road - west of A12	E B	493	481	-12	-2%	0.5	✓	✓	401	389	-12	-3%	0.6	✓	✓	61	61	0	0%	0.0	✓	✓	30	29	-1	-3%	0.1	✓	✓
51-350	Junction 23	Beccles Road - west of A12	W B	506	509	3	1%	0.2	✓	✓	424	424	0	0%	0.0	✓	✓	55	55	0	-1%	0.1	✓	✓	26	26	0	1%	0.0	✓	✓
162-164	Junction 18 / 19	Southtown Road	S B	343	323	-19	-6%	1.1	✓	✓	269	240	-29	-11%	1.8	✓	✓	52	44	-8	-15%	1.1	✓	✓	22	14	-8	-38%	2.0	✓	✓

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164-162	Junction 18 / 19	Southto wn Road	N B	399	409	10	3%	0.5	✓	✓	322	322	0	0%	0.0	✓	✓	55	52	-3	-5%	0.4	✓	✓	22	10	1 2	-54%	3.0	✓	✓
161-162	Junction 19 / 20	Southto wn Road	S B	342	344	2	1%	0.1	✓	✓	269	255	-14	-5%	0.9	✓	✓	50	50	0	-1%	0.1	✓	✓	22	14	-8	-38%	2.0	✓	✓
162-161	Junction 19 / 20	Southto wn Road	N B	399	406	6	2%	0.3	✓	✓	325	319	-6	-2%	0.3	✓	✓	51	51	0	-1%	0.0	✓	✓	23	10	1 3	-55%	3.1	✓	✓
636-154	J5 / J6	S Beach Parade South	N B	110	108	-2	-2%	0.2	✓	✓	95	93	-2	-2%	0.2	✓	✓	14	14	0	-2%	0.1	✓	✓	0	0	0	61%	0.3	✓	✓
154-636	J5 / J6	S Beach Parade North A1243	S B	122	119	-3	-2%	0.3	✓	✓	108	106	-3	-3%	0.3	✓	✓	13	13	0	-1%	0.0	✓	✓	1	1	0	19%	0.2	✓	✓
336-24	Junction 13	Pasteur Road North A1243	S B	600	605	5	1%	0.2	✓	✓	503	507	5	1%	0.2	✓	✓	74	74	0	0%	0.0	✓	✓	23	23	0	0%	0.0	✓	✓
24-336	Junction 13	Pasteur Road North	N B	601	599	-2	0%	0.1	✓	✓	511	511	0	0%	0.0	✓	✓	65	65	0	-1%	0.1	✓	✓	24	23	-2	-6%	0.3	✓	✓
526-24	Junction 13	Thamesfield Way	W B	360	357	-2	-1%	0.1	✓	✓	324	324	0	0%	0.0	✓	✓	30	30	0	-2%	0.1	✓	✓	5	3	-2	-39%	1.0	✓	✓
24-526	Junction 13	Thamesfield Way	E B	357	356	-1	0%	0.1	✓	✓	321	320	0	0%	0.0	✓	✓	31	31	0	-1%	0.1	✓	✓	5	4	-1	-12%	0.3	✓	✓
49-48	AECOM 2016 ATC Site AN12	Beccles Road - west of A12	E B	353	280	-73	21%	4.1	✓	✓	288	221	-66	23%	4.2	✓	✓	44	38	-6	13%	0.9	✓	✓	22	21	-1	-5%	0.2	✓	✓
48-49	AECOM 2016 ATC Site AN12	Beccles Road - west of A12	W B	356	284	-72	20%	4.0	✓	✓	299	233	-66	22%	4.1	✓	✓	39	31	-8	21%	1.4	✓	✓	18	20	2	12%	0.5	✓	✓
7717-24	Junction 13	Jones Way	E B	414	411	-3	-1%	0.1	✓	✓	373	371	-1	0%	0.1	✓	✓	34	34	0	1%	0.1	✓	✓	8	6	-2	-23%	0.7	✓	✓
24-7717	Junction 13	Jones Way	W B	447	383	-63	14%	3.1	✓	✓	410	348	-61	15%	3.1	✓	✓	30	30	0	0%	0.0	✓	✓	7	5	-2	-30%	0.9	✓	✓
278-7744	AECOM 2015 MCC Site 6	A12 north of roundabout	S B	1,252	1,272	20	2%	0.6	✓	✓	1,048	1,056	7	1%	0.2	✓	✓	166	178	12	7%	0.9	✓	✓	38	38	1	1%	0.1	✓	✓
7744-278	AECOM 2015 MCC Site 6	A12 north of roundabout	N B	1,081	1,060	-21	-2%	0.7	✓	✓	889	865	-24	-3%	0.8	✓	✓	153	156	4	2%	0.3	✓	✓	39	38	-1	-3%	0.2	✓	✓
38-7746	AECOM 2015 MCC Site 6	A12 south of roundabout	N B	1,222	1,222	0	0%	0.0	✓	✓	989	988	0	0%	0.0	✓	✓	185	185	0	0%	0.0	✓	✓	48	48	0	0%	0.0	✓	✓
7746-38	AECOM 2015 MCC Site 6	A12 south of roundabout	S B	1,340	1,346	7	0%	0.2	✓	✓	1,107	1,107	0	0%	0.0	✓	✓	187	193	7	4%	0.5	✓	✓	46	46	0	0%	0.0	✓	✓
281-7747	AECOM 2015 MCC Site 6	Gapton Hall Road	E B	645	637	-8	-1%	0.3	✓	✓	554	554	0	0%	0.0	✓	✓	80	72	-8	10%	0.9	✓	✓	11	11	0	-2%	0.1	✓	✓
7747-281	AECOM 2015 MCC Site 6	Gapton Hall Road	W B	757	761	4	0%	0.1	✓	✓	645	649	4	1%	0.1	✓	✓	97	97	0	0%	0.0	✓	✓	15	15	0	-1%	0.1	✓	✓
381-170	Junction 15 / 16	Beccles Road	S B	493	548	55	11%	2.4	✓	✓	424	468	45	11%	2.1	✓	✓	53	38	-15	28%	2.2	✓	✓	17	17	0	1%	0.0	✓	✓
170-381	Junction 15 / 16	Beccles Road	N B	553	591	38	7%	1.6	✓	✓	474	482	8	2%	0.4	✓	✓	61	66	5	8%	0.6	✓	✓	18	18	0	1%	0.0	✓	✓
639-134	Junction 4 / 5	St Nicholas Road	E B	288	287	-1	-1%	0.1	✓	✓	261	261	0	0%	0.0	✓	✓	23	23	0	0%	0.0	✓	✓	5	2	-3	-64%	1.7	✓	✓

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134-639	Junction 4 / Junction 5	St Nicholas Road	W B	331	329	-1	0%	0.1	✓	✓	292	292	0	0%	0.0	✓	✓	31	31	0	-1%	0.1	✓	✓	8	3	-5	-65%	2.2	✓	✓
477-134	Junction 3 / Junction 4	Euston Road	W B	186	139	47	25%	3.7	✓	✓	164	126	-37	23%	3.1	✓	✓	18	13	-5	30%	1.4	✓	✓	4	0	-4	100%	2.8	✓	✓
134-477	Junction 3 / Junction 4	Euston Road	E B	193	141	53	27%	4.1	✓	✓	176	133	-43	25%	3.5	✓	✓	13	8	-6	43%	1.8	✓	✓	4	0	-4	100%	2.7	✓	✓
338-477	Junction 2 / Junction 3	Euston Road	W B	147	136	11	-7%	0.9	✓	✓	126	122	-5	-4%	0.4	✓	✓	17	15	-2	12%	0.5	✓	✓	4	0	-4	100%	2.7	✓	✓
477-338	Junction 2 / Junction 3	Euston Road	E B	170	158	13	-7%	1.0	✓	✓	155	148	-7	-4%	0.5	✓	✓	13	9	-3	26%	1.0	✓	✓	3	0	-3	100%	2.3	✓	✓
75-74	AECOM 2016 MCTC Site M1	Piory Plain	E B	264	217	47	18%	3.0	✓	✓	227	195	-32	14%	2.2	✓	✓	34	22	12	35%	2.2	✓	✓	3	0	-3	100%	2.3	✓	✓
74-75	AECOM 2016 MCTC Site M1	Piory Plain	W B	583	648	65	11%	2.6	✓	✓	500	524	24	5%	1.1	✓	✓	69	66	-3	-4%	0.3	✓	✓	15	11	-4	-27%	1.1	✓	✓
623-74	AECOM 2016 MCTC Site M1	Market Place	N B	277	289	12	5%	0.7	✓	✓	243	243	0	0%	0.0	✓	✓	24	26	1	4%	0.2	✓	✓	9	5	-5	-51%	1.8	✓	✓
157-26	AECOM 2016 ATC Site AN6	Southtown Road	N B	567	495	71	13%	3.1	✓	✓	479	382	-96	20%	4.6	✓	✓	68	73	5	8%	0.6	✓	✓	20	15	-5	-25%	1.2	✓	✓
26-157	AECOM 2016 ATC Site AN6	Southtown Road	S B	356	207	149	42%	8.9	×	×	294	144	-150	51%	10.1	×	×	50	23	-26	53%	4.3	✓	✓	13	15	2	17%	0.6	✓	✓
<b>Adhoc: - Total</b>				<b>60,660</b>	<b>59,691</b>	<b>969</b>	<b>-2%</b>	<b>4.0</b>	✓	✓	<b>50,493</b>	<b>48,898</b>	<b>1,595</b>	<b>-3%</b>	<b>7.2</b>	✓	×	<b>7,854</b>	<b>7,632</b>	<b>222</b>	<b>-3%</b>	<b>2.5</b>	✓	✓	<b>2,313</b>	<b>2,268</b>	<b>46</b>	<b>-2%</b>	<b>1.0</b>	✓	✓
									160/164	147/164										164/164	160/163										
									98%	90%										100%	96%	100% 98%									

**PM PEAK VALIDATION**

Link	Count ID	Road Name	Quality ID	Dir	Flow Validation - All vehicles					WebT AG		Flow Validation - CAR					WebT AG		Flow Validation - LGV					WebT AG		Flow Validation - HGV					WebT AG	
					Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH	Observed	Modelled	Diff	%Diff	GEH	Flow	GEH
<b>01 Rsi Peninsula Northbound:</b>																																
33-365	Mouchel RSI Site 1	South Quay		N B	600	576	24	-4%	1.0	✓	✓	471	467	-4	-1%	0.2	✓	✓	115	95	19	-17%	1.9	✓	✓	14	14	0	1%	0.1	✓	✓

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369-368	Mouchel Nov16 ATC Site 9	Blackfriers Road	N B	85	85	1	1%	0.1	✓	✓	78	70	-8	-11%	1.0	✓	✓	6	6	0	-3%	0.1	✓	✓	0	1	1	368%	1.0	✓	✓		
7800-374	Mouchel Nov16 ATC Site 10	Havelock Road	N B	26	26	1	2%	0.1	✓	✓	24	24	0	1%	0.1	✓	✓	2	1	-1	-51%	0.8	✓	✓	0	0	0	-	100%	0.3	✓	✓	
7804-372	Mouchel Nov16 ATC Site 11	Nelson Road	N B	42	49	7	17%	1.1	✓	✓	39	46	7	19%	1.1	✓	✓	3	3	0	-3%	0.1	✓	✓	0	0	0	-	100%	0.5	✓	✓	
488-145	Mouchel RSI Site 2	South Beach Parade	N B	264	266	2	1%	0.1	✓	✓	236	241	5	2%	0.3	✓	✓	22	22	0	-1%	0.0	✓	✓	6	2	-4	-69%	2.0	✓	✓		
<b>01 Rsi Peninsula Northbound: - Total</b>				<b>1,016</b>	<b>1,003</b>	<b>-13</b>	<b>-1%</b>	<b>0.4</b>	✓	✓	<b>848</b>	<b>848</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>148</b>	<b>127</b>	<b>-21</b>	<b>-14%</b>	<b>1.8</b>	✘	✓	<b>20</b>	<b>17</b>	<b>-3</b>	<b>-16%</b>	<b>0.7</b>	✘	✓		
									5/5	5/5						5/5	5/5						5/5	5/5							5/5	5/5	
									100%	100%							100%	100%						100%	100%							100%	100%
<b>01 Rsi Peninsula Southbound:</b>																																	
374-7800	Mouchel Nov16 ATC Site 10	Havelock Road	S B	30	30	1	2%	0.1	✓	✓	28	28	0	1%	0.1	✓	✓	2	2	0	-9%	0.1	✓	✓	0	0	0	521%	0.7	✓	✓		
368-369	Mouchel Nov16 ATC Site 9	Blackfriers Road	S B	84	94	10	12%	1.1	✓	✓	78	78	0	1%	0.1	✓	✓	6	6	0	-2%	0.1	✓	✓	0	0	0	22%	0.1	✓	✓		
372-7804	Mouchel Nov16 ATC Site 11	Nelson Road	S B	53	53	0	0%	0.0	✓	✓	49	49	0	0%	0.0	✓	✓	4	4	0	2%	0.0	✓	✓	0	0	0	181%	0.5	✓	✓		
365-33	Mouchel RSI Site 1	South Quay	S B	287	287	0	0%	0.0	✓	✓	208	208	0	0%	0.0	✓	✓	59	59	0	0%	0.0	✓	✓	20	20	0	-1%	0.0	✓	✓		
145-488	Mouchel RSI Site 2	South Beach Parade	S B	112	111	-1	-1%	0.1	✓	✓	99	99	0	1%	0.0	✓	✓	11	9	-2	-21%	0.7	✓	✓	2	2	0	-3%	0.1	✓	✓		
<b>01 Rsi Peninsula Southbound: - Total</b>				<b>565</b>	<b>576</b>	<b>10</b>	<b>2%</b>	<b>0.4</b>	✓	✓	<b>461</b>	<b>462</b>	<b>1</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>82</b>	<b>80</b>	<b>-3</b>	<b>-3%</b>	<b>0.3</b>	✓	✓	<b>22</b>	<b>23</b>	<b>0</b>	<b>2%</b>	<b>0.1</b>	✓	✓		
									5/5	5/5						5/5	5/5						5/5	5/5							5/5	5/5	
									100%	100%							100%	100%						100%	100%							100%	100%
<b>02 River Yare Eastbound:</b>																																	
28-607	Mouchel RSI Site 4	Haven Bridge	E B	1,000	1,020	20	2%	0.6	✓	✓	888	888	0	0%	0.0	✓	✓	88	86	-1	-2%	0.1	✓	✓	24	24	0	1%	0.0	✓	✓		
22-276	Mouchel RSI Site 3	A12	N B	1,299	1,337	38	3%	1.0	✓	✓	1,102	1,144	42	4%	1.2	✓	✓	178	174	-3	-2%	0.2	✓	✓	19	19	0	-1%	0.0	✓	✓		
<b>02 River Yare Eastbound: - Total</b>				<b>2,299</b>	<b>2,357</b>	<b>58</b>	<b>3%</b>	<b>1.2</b>	✓	✓	<b>1,990</b>	<b>2,032</b>	<b>42</b>	<b>2%</b>	<b>0.9</b>	✓	✓	<b>265</b>	<b>260</b>	<b>-5</b>	<b>-2%</b>	<b>0.3</b>	✓	✓	<b>44</b>	<b>43</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓		
									2/2	2/2						2/2	2/2						2/2	2/2							2/2	2/2	
									100%	100%							100%	100%						100%	100%							100%	100%
<b>02 River Yare Westbound:</b>																																	
607-28	Mouchel RSI Site 4	Haven Bridge	W B	786	812	26	3%	0.9	✓	✓	708	708	0	0%	0.0	✓	✓	57	67	10	18%	1.3	✓	✓	21	15	-6	-27%	1.3	✓	✓		
276-22	Mouchel RSI Site 3	A12	S B	1,427	1,444	17	1%	0.5	✓	✓	1,148	1,189	41	4%	1.2	✓	✓	256	236	-19	-8%	1.2	✓	✓	23	18	-4	-20%	1.0	✓	✓		
<b>02 River Yare Westbound: - Total</b>				<b>2,213</b>	<b>2,256</b>	<b>43</b>	<b>2%</b>	<b>0.9</b>	✓	✓	<b>1,856</b>	<b>1,897</b>	<b>41</b>	<b>2%</b>	<b>1.0</b>	✓	✓	<b>313</b>	<b>304</b>	<b>-9</b>	<b>-3%</b>	<b>0.5</b>	✓	✓	<b>44</b>	<b>34</b>	<b>-10</b>	<b>-23%</b>	<b>1.6</b>	✘	✓		
									2/2	2/2						2/2	2/2						2/2	2/2							2/2	2/2	
									100%	100%							100%	100%						100%	100%							100%	100%

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**03 Fuller's Hill/ St Nicholas  
Road Northbound:**

135-131	AECOM 2016 ATC Site A10	North Drive	N B	408	415	7	2%	0.3	✓	✓	372	382	10	3%	0.5	✓	✓	31	32	1	3%	0.2	✓	✓	6	0	-5	-92%	2.9	✓	✓
73-8014	AECOM 2016 MCTC Site M1	Northgate Street	N B	660	579	-81	-12%	3.3	✓	✓	588	547	-41	-7%	1.7	✓	✓	69	23	-46	-67%	6.8	✓	✗	3	0	-3	100%	2.3	✓	✓
15-8000	AECOM 2015 MCC Site 3	North Quay north of roundabout	N B	1,039	1,038	0	0%	0.0	✓	✓	903	892	-11	-1%	0.4	✓	✓	133	131	-1	-1%	0.1	✓	✓	3	15	12	352%	3.9	✓	✓
134-456	Junction 4	Nelson Road North	N B	267	269	1	0%	0.1	✓	✓	240	240	0	0%	0.0	✓	✓	24	25	1	4%	0.2	✓	✓	3	2	-1	-31%	0.6	✓	✓
477-344	Junction 3	Wellesley Road North	N B	52	73	21	41%	2.7	✓	✓	49	70	22	44%	2.8	✓	✓	3	3	0	-13%	0.2	✓	✓	0	0	0	#DIV/0!	#DIV/0!	✓	✗
<b>03 Fuller's Hill/ St Nicholas Road Northbound: - Total</b>				<b>2,427</b>	<b>2,374</b>	<b>-52</b>	<b>-2%</b>	<b>1.1</b>	✓	✓	<b>2,151</b>	<b>2,131</b>	<b>-20</b>	<b>-1%</b>	<b>0.4</b>	✓	✓	<b>260</b>	<b>214</b>	<b>-46</b>	<b>-18%</b>	<b>3.0</b>	✗	✓	<b>15</b>	<b>18</b>	<b>3</b>	<b>21%</b>	<b>0.8</b>	✗	✓
									5/5	5/5										5/5	4/5										
									100%	100%										100%	80%							100%	4/4		

**03 Fuller's Hill/ St Nicholas  
Road Southbound:**

131-135	AECOM 2016 ATC Site A10	North Drive	S B	196	196	0	0%	0.0	✓	✓	173	174	1	0%	0.0	✓	✓	18	18	0	-1%	0.0	✓	✓	5	3	-2	-41%	1.0	✓	✓
456-134	Junction 4	Nelson Road North	S B	188	190	1	1%	0.1	✓	✓	172	173	1	1%	0.1	✓	✓	15	15	0	1%	0.0	✓	✓	1	0	-1	100%	1.6	✓	✓
8014-73	AECOM 2016 MCTC Site M1	Northgate Street	S B	161	185	24	15%	1.8	✓	✓	143	160	17	12%	1.4	✓	✓	16	16	0	-2%	0.1	✓	✓	2	0	-2	100%	1.9	✓	✓
344-477	Junction 3	Wellesley Road North	S B	49	74	25	50%	3.2	✓	✓	47	73	26	56%	3.4	✓	✓	3	2	-1	-38%	0.7	✓	✓	0	0	0	#DIV/0!	#DIV/0!	✓	✗
8000-15	AECOM 2015 MCC Site 3	North Quay north of roundabout	S B	864	868	4	0%	0.1	✓	✓	729	729	1	0%	0.0	✓	✓	126	126	0	0%	0.0	✓	✓	10	13	3	36%	1.0	✓	✓
<b>03 Fuller's Hill/ St Nicholas Road Southbound: - Total</b>				<b>1,459</b>	<b>1,512</b>	<b>54</b>	<b>4%</b>	<b>1.4</b>	✓	✓	<b>1,264</b>	<b>1,309</b>	<b>46</b>	<b>4%</b>	<b>1.3</b>	✓	✓	<b>178</b>	<b>176</b>	<b>-2</b>	<b>-1%</b>	<b>0.1</b>	✓	✓	<b>17</b>	<b>16</b>	<b>-1</b>	<b>-8%</b>	<b>0.4</b>	✗	✓
									5/5	5/5										5/5	5/5										
									100%	100%										100%	100%							100%	4/4		

**04 Newtown  
Northbound:**

273-129	AECOM 2016 ATC Site A4	North Denes Road	N B	265	228	-37	-14%	2.4	✓	✓	167	194	27	16%	2.0	✓	✓	87	33	-54	-62%	6.9	✓	✗	11	0	-11	100%	4.8	✓	✓
131-361	AECOM 2016 ATC Site A5	North Drive	N B	413	420	7	2%	0.4	✓	✓	375	385	10	3%	0.5	✓	✓	31	33	2	6%	0.3	✓	✓	6	0	-5	-92%	3.0	✓	✓
13-516	AECOM 2016 ATC Site A2	Lawn Avenue	N B	956	942	-14	-2%	0.5	✓	✓	846	836	-10	-1%	0.3	✓	✓	95	91	-4	-5%	0.5	✓	✓	15	15	0	-1%	0.0	✓	✓
473-130	AECOM 2016 ATC Site A3	Northgate Street	N B	486	502	17	3%	0.7	✓	✓	405	406	1	0%	0.0	✓	✓	59	61	3	5%	0.4	✓	✓	22	27	4	19%	0.9	✓	✓
<b>04 Newtown Northbound: - Total</b>				<b>2,120</b>	<b>2,092</b>	<b>-27</b>	<b>-1%</b>	<b>0.6</b>	✓	✓	<b>1,792</b>	<b>1,820</b>	<b>28</b>	<b>2%</b>	<b>0.6</b>	✓	✓	<b>272</b>	<b>219</b>	<b>-54</b>	<b>-20%</b>	<b>3.4</b>	✗	✓	<b>55</b>	<b>42</b>	<b>-12</b>	<b>-23%</b>	<b>1.8</b>	✗	✓
									4/4	4/4										4/4	3/4										
																												4/4	4/4		

**Great Yarmouth Third River Crossing Traffic Model**  
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											100%	100%												100%	100%												100%	75%												100%	100%
<b>04 Newtown Southbound:</b>																																																			
130-473	AECOM 2016 ATC Site A3	Northgate Street	S B	283	295	12	4%	0.7	✓	✓	252	252	0	0%	0.0	✓	✓	28	28	0	-1%	0.0	✓	✓	4	6	3	81%	1.3	✓	✓																				
361-131	AECOM 2016 ATC Site A5	North Drive	S B	219	213	-6	-3%	0.4	✓	✓	194	189	-5	-3%	0.4	✓	✓	20	20	0	0%	0.0	✓	✓	5	3	-2	-47%	1.2	✓	✓																				
516-13	AECOM 2016 ATC Site A2	Lawn Avenue	S B	513	514	0	0%	0.0	✓	✓	431	431	0	0%	0.0	✓	✓	71	71	0	0%	0.0	✓	✓	12	12	0	1%	0.0	✓	✓																				
129-273	AECOM 2016 ATC Site A4	North Denes Road	S B	161	124	-38	-23%	3.1	✓	✓	108	101	-7	-7%	0.7	✓	✓	49	21	-28	-57%	4.8	✓	✓	3	0	-3	100%	2.6	✓	✓																				
<b>04 Newtown Southbound: - Total</b>				<b>1,177</b>	<b>1,145</b>	<b>-32</b>	<b>-3%</b>	<b>0.9</b>	✓	✓	<b>985</b>	<b>973</b>	<b>-12</b>	<b>-1%</b>	<b>0.4</b>	✓	✓	<b>168</b>	<b>140</b>	<b>-28</b>	<b>-17%</b>	<b>2.3</b>	✗	✓	<b>23</b>	<b>21</b>	<b>-3</b>	<b>-11%</b>	<b>0.6</b>	✗	✓																				
											4/4	4/4												4/4	4/4												4/4	4/4													
											100%	100%												100%	100%												100%	100%													
<b>05 North Of Town Inbound:</b>																																																			
21-20	Mouchel RSI Site 8	A47 New Road	E B	890	896	6	1%	0.2	✓	✓	736	736	0	0%	0.0	✓	✓	110	110	0	0%	0.0	✓	✓	44	44	0	0%	0.0	✓	✓																				
7-579	Mouchel RSI Site 9	Yarmouth Road	S B	705	713	9	1%	0.3	✓	✓	562	562	0	0%	0.0	✓	✓	115	115	0	0%	0.0	✓	✓	28	26	-1	-5%	0.3	✓	✓																				
<b>05 North Of Town Inbound: - Total</b>				<b>1,595</b>	<b>1,610</b>	<b>15</b>	<b>1%</b>	<b>0.4</b>	✓	✓	<b>1,298</b>	<b>1,298</b>	<b>0</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>225</b>	<b>224</b>	<b>-1</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>72</b>	<b>71</b>	<b>-1</b>	<b>-2%</b>	<b>0.1</b>	✓	✓																				
											2/2	2/2												2/2	2/2												2/2	2/2													
											100%	100%												100%	100%												100%	100%													
<b>05 North Of Town Outbound:</b>																																																			
20-21	Mouchel RSI Site 8	A47 New Road	W B	826	827	1	0%	0.0	✓	✓	703	699	-4	-1%	0.2	✓	✓	81	83	3	3%	0.3	✓	✓	43	43	0	0%	0.0	✓	✓																				
579-7	Mouchel RSI Site 9	Yarmouth Road	N B	1,321	1,330	9	1%	0.3	✓	✓	1,099	1,099	0	0%	0.0	✓	✓	179	179	0	0%	0.0	✓	✓	43	42	-1	-2%	0.1	✓	✓																				
<b>05 North Of Town Outbound: - Total</b>				<b>2,147</b>	<b>2,157</b>	<b>10</b>	<b>0%</b>	<b>0.2</b>	✓	✓	<b>1,802</b>	<b>1,798</b>	<b>-4</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>260</b>	<b>263</b>	<b>3</b>	<b>1%</b>	<b>0.2</b>	✓	✓	<b>86</b>	<b>85</b>	<b>-1</b>	<b>-1%</b>	<b>0.1</b>	✓	✓																				
											2/2	2/2												2/2	2/2												2/2	2/2													
											100%	100%												100%	100%												100%	100%													
<b>06 Outer Cordon Inbound:</b>																																																			
70-71	Mouchel Nov16 ATC Site 2	Caister By Pass	S B	271	274	3	1%	0.2	✓	✓	243	243	0	0%	0.0	✓	✓	28	28	0	1%	0.0	✓	✓	0	3	3	2157%	2.4	✓	✓																				
2-3	Mouchel Nov16 ATC Site 3	Norwich Road	S B	514	525	11	2%	0.5	✓	✓	472	472	0	0%	0.0	✓	✓	41	41	0	-1%	0.1	✓	✓	1	11	10	996%	4.1	✓	✓																				
21-20	Mouchel RSI Site 8	A47 New Road	E B	890	896	6	1%	0.2	✓	✓	736	736	0	0%	0.0	✓	✓	110	110	0	0%	0.0	✓	✓	44	44	0	0%	0.0	✓	✓																				
193-194	Mouchel RSI Site 7	Mill Road	N B	101	97	-4	-4%	0.4	✓	✓	90	90	0	0%	0.0	✓	✓	7	7	0	4%	0.1	✓	✓	5	0	-5	100%	3.2	✓	✓																				
57-55	Mouchel RSI Site 6 / Junction 22	A143 Beccles Road	N B	598	589	-9	-1%	0.4	✓	✓	515	515	0	0%	0.0	✓	✓	57	57	0	0%	0.0	✓	✓	26	17	-9	-34%	1.9	✓	✓																				



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590-68	Mouchel RSI Site 5 / Junction 24	A12 Lowestoft Road	N B	923	922	-1	0%	0.0	✓	✓	750	748	-2	0%	0.1	✓	✓	132	132	0	0%	0.0	✓	✓	41	40	-1	-4%	0.2	✓	✓
70-267	Mouchel Nov16 ATC Site 1	Ormsby Road	S B	178	179	1	1%	0.1	✓	✓	160	160	0	0%	0.0	✓	✓	18	18	0	-1%	0.1	✓	✓	0	1	1	1095%	1.4	✓	✓
<b>06 Outer Cordon Inbound: - Total</b>				<b>3,477</b>	<b>3,484</b>	<b>7</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>2,966</b>	<b>2,964</b>	<b>-1</b>	<b>0%</b>	<b>0.0</b>	✓	✓	<b>394</b>	<b>393</b>	<b>-1</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>117</b>	<b>117</b>	<b>-1</b>	<b>-1%</b>	<b>0.1</b>	✓	✓
									7/7	7/7						7/7	7/7						7/7	7/7					7/7	7/7	
									100%	100%						100%	100%						100%	100%					100%	100%	
<b>06 Outer Cordon Outbound:</b>																															
3-2	Mouchel Nov16 ATC Site 3	Norwich Road	N B	582	590	7	1%	0.3	✓	✓	534	535	1	0%	0.0	✓	✓	47	47	0	0%	0.0	✓	✓	1	6	5	458%	2.7	✓	✓
194-193	Mouchel RSI Site 7	Mill Road	S B	234	228	-6	-2%	0.4	✓	✓	195	200	5	3%	0.4	✓	✓	27	27	0	1%	0.1	✓	✓	13	0	-13	-100%	5.1	✓	×
71-70	Mouchel Nov16 ATC Site 2	Caister By Pass	N B	510	514	4	1%	0.2	✓	✓	457	457	0	0%	0.0	✓	✓	52	52	0	0%	0.0	✓	✓	0	5	5	1612%	2.9	✓	✓
55-57	Mouchel RSI Site 6 / Junction 22	A143 Beccles Road	S B	580	594	14	2%	0.6	✓	✓	488	512	24	5%	1.1	✓	✓	67	67	0	1%	0.1	✓	✓	25	13	-12	-47%	2.7	✓	✓
267-70	Mouchel Nov16 ATC Site 1	Ormsby Road	N B	189	190	1	1%	0.1	✓	✓	170	170	0	0%	0.0	✓	✓	19	19	0	-2%	0.1	✓	✓	0	1	1	1077%	1.4	✓	✓
68-590	Mouchel RSI Site 5 / Junction 24	A12 Lowestoft Road	S B	1,537	1,522	-16	-1%	0.4	✓	✓	1,315	1,314	0	0%	0.0	✓	✓	163	163	0	0%	0.0	✓	✓	60	42	-18	-30%	2.5	✓	✓
20-21	Mouchel RSI Site 8	A47 New Road	W B	826	827	1	0%	0.0	✓	✓	703	699	-4	-1%	0.2	✓	✓	81	83	3	3%	0.3	✓	✓	43	43	0	0%	0.0	✓	✓
<b>06 Outer Cordon Outbound: - Total</b>				<b>4,459</b>	<b>4,464</b>	<b>6</b>	<b>0%</b>	<b>0.1</b>	✓	✓	<b>3,861</b>	<b>3,887</b>	<b>25</b>	<b>1%</b>	<b>0.4</b>	✓	✓	<b>455</b>	<b>458</b>	<b>3</b>	<b>1%</b>	<b>0.2</b>	✓	✓	<b>143</b>	<b>111</b>	<b>-32</b>	<b>-22%</b>	<b>2.8</b>	×	✓
									7/7	7/7						7/7	7/7						7/7	7/7					7/7	6/7	
									100%	100%						100%	100%						100%	100%					100%	86%	
<b>07 East Of A12 Eastbound:</b>																															
61-244	Junction 26	Victoria Road Access	E B	317	201	116	37%	7.2	×	×	289	166	-123	-43%	8.2	×	×	26	30	3	13%	0.6	✓	✓	1	1	0	13%	0.1	✓	✓
68-293	Junction 24	Links Road	E B	144	156	13	9%	1.0	✓	✓	126	134	8	7%	0.7	✓	✓	18	19	1	6%	0.3	✓	✓	0	1	1	159%	0.8	✓	✓
64-408	Junction 25	Bridge Road	E B	177	166	-11	-6%	0.9	✓	✓	167	151	-16	-10%	1.3	✓	✓	9	13	3	37%	1.0	✓	✓	1	0	-1	100%	1.2	✓	✓
8002-168	AECOM 2015 MCC Site 8 / Junction 17	William Adams Way east of roundabout	E B	728	763	35	5%	1.3	✓	✓	633	656	23	4%	0.9	✓	✓	84	93	9	11%	1.0	✓	✓	11	14	3	26%	0.8	✓	✓
425-426	Junction 14	A143 Beccles Road East	E B	215	215	0	0%	0.0	✓	✓	191	192	2	1%	0.1	✓	✓	21	22	2	8%	0.3	✓	✓	3	0	-3	100%	2.6	✓	✓
7745-24	Junction 13 / AECOM 2015 MCC Site 6	A1243 Pasteur Road South	E B	795	782	-13	-2%	0.4	✓	✓	705	699	-5	-1%	0.2	✓	✓	76	75	-2	-2%	0.2	✓	✓	14	8	-6	-41%	1.7	✓	✓

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<b>07 East Of A12 Eastbound: - Total</b>	2,376	2,283	-92	-4%	1.9	✓	✓	2,110	1,998	-112	-5%	2.5	×	✓	235	252	17	7%	1.1	×	✓	31	24	-6	-21%	1.2	×	✓
						5/6	5/6						5/6	5/6					6/6	6/6					6/6	6/6		
						83%	83%						83%	83%					100%	100%					100%	100%		

<b>07 East Of A12 Westbound: - Total</b>																												
	2,451	2,537	86	4%	1.7	✓	✓	2,154	2,217	63	3%	1.3	✓	✓	271	286	15	6%	0.9	×	✓	26	25	-1	-3%	0.1	✓	✓
						4/6	4/6						4/6	4/6					6/6	6/6					6/6	6/6		
						67%	67%						67%	67%					100%	100%					100%	100%		



<b>08 North Of Beccles Road (east Of A12) Eastbound: - Total</b>																												
	1,468	1,466	-2	0%	0.0	✓	✓	1,308	1,277	-31	-2%	0.9	✓	✓	144	153	9	6%	0.8	×	✓	16	12	-5	-28%	1.2	×	✓
						5/5	5/5						5/5	5/5					5/5	5/5					5/5	3/3		
						100%	100%						100%	100%					100%	100%					100%	100%		

<b>08 North Of Beccles Road (east Of A12) Westbound:</b>																												
46-171	309	313	5	2%	0.3	✓	✓	271	271	0	0%	0.0	✓	✓	34	35	1	4%	0.2	✓	✓	4	4	0	1%	0.0	✓	✓
381-528	11	8	-3	-25%	0.9	✓	✓	10	8	-2	-17%	0.6	✓	✓	1	0	-1	-89%	1.2	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	

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46-591	AECOM 2016 MCTC Site M2	Suffolk Road	N B	96	95	-1	-1%	0.1	✓	✓	89	89	0	0%	0.0	✓	✓	6	6	0	-5%	0.1	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	✍
166-167	AECOM 2015 MCC Site 7	William Adams Way	W B	359	357	-2	-1%	0.1	✓	✓	316	313	-4	-1%	0.2	✓	✓	39	40	1	4%	0.2	✓	✓	4	4	0	4%	0.1	✓	✓
166-165	AECOM 2015 MCC Site 7	Southtown Road	N B	428	387	-41	-10%	2.1	✓	✓	372	321	-51	-14%	2.7	✓	✓	46	40	-6	-13%	0.9	✓	✓	10	5	-6	-54%	2.0	✓	✓
<b>08 North Of Beccles Road (east Of A12) Westbound: - Total</b>				<b>1,203</b>	<b>1,160</b>	<b>-42</b>	<b>-4%</b>	<b>1.2</b>	✓	✓	<b>1,058</b>	<b>1,001</b>	<b>-57</b>	<b>-5%</b>	<b>1.8</b>	✗	✓	<b>126</b>	<b>121</b>	<b>-5</b>	<b>-4%</b>	<b>0.4</b>	✓	✓	<b>18</b>	<b>13</b>	<b>-5</b>	<b>-30%</b>	<b>1.4</b>	✗	✓
									5/5	5/5					5/5	5/5						5/5	5/5					5/5	3/3		
									100%	100%					100%	100%						100%	100%					100%	100%		
<b>Adhoc:</b>																															
199-350	Junction 23	Church Lane - off Beccles Road	E B	118	80	-38	-32%	3.8	✓	✓	106	73	-33	-31%	3.5	✓	✓	8	7	-1	-10%	0.3	✓	✓	4	0	-4	-100%	2.9	✓	✓
350-199	Junction 23	Church Lane - off Beccles Road	W B	64	66	2	4%	0.3	✓	✓	54	54	0	0%	0.0	✓	✓	9	9	0	3%	0.1	✓	✓	1	0	-1	-68%	0.8	✓	✓
350-429	Junction 23	Long Lane - off Beccles Road	E B	165	163	-2	-1%	0.2	✓	✓	149	148	-1	-1%	0.1	✓	✓	14	14	0	2%	0.1	✓	✓	2	0	-1	-74%	1.3	✓	✓
429-350	Junction 23	Long Lane - off Beccles Road	W B	192	204	12	6%	0.8	✓	✓	165	177	12	7%	0.9	✓	✓	25	26	0	1%	0.1	✓	✓	2	2	0	-11%	0.2	✓	✓
81-80	AECOM 2016 ATC Site A11	North Quay	N B	841	823	-18	-2%	0.6	✓	✓	769	713	-56	-7%	2.1	✓	✓	59	70	11	19%	1.4	✓	✓	13	13	0	0%	0.0	✓	✓
80-81	AECOM 2016 ATC Site A11	North Quay	S B	341	281	-60	-18%	3.4	✓	✓	278	224	-54	-19%	3.4	✓	✓	45	45	0	0%	0.0	✓	✓	18	12	-6	-33%	1.5	✓	✓
173-172	AECOM 2016 ATC Site AN10	Burgh Road	E B	275	148	-127	-46%	8.7	✗	✗	185	131	-54	-29%	4.3	✓	✓	58	13	-45	-77%	7.5	✓	✗	32	0	-32	-100%	8.0	✓	✗
172-173	AECOM 2016 ATC Site AN10	Burgh Road	W B	338	274	-64	-19%	3.7	✓	✓	300	241	-59	-20%	3.6	✓	✓	38	26	-12	-31%	2.1	✓	✓	1	4	3	253%	1.8	✓	✓
618-78	Junction 7	King Sreet North	S B	93	10	-83	-89%	11.6	✓	✗	84	0	-84	-100%	13.0	✓	✗	8	0	-8	-100%	4.0	✓	✓	1	0	-1	-100%	1.4	✓	✓
617-619	Junction 7	Dene Side North	N B	118	7	-111	-94%	13.9	✗	✗	110	0	-110	-100%	14.8	✗	✗	7	0	-7	-100%	3.7	✓	✓	1	0	-1	-100%	1.4	✓	✓
594-77	Junction 7	Alexandra Road North	S B	368	375	7	2%	0.3	✓	✓	331	334	3	1%	0.2	✓	✓	35	35	0	0%	0.0	✓	✓	3	3	0	-3%	0.1	✓	✓
605-77	Junction 7	Trafalgar Road	W B	163	166	4	2%	0.3	✓	✓	154	147	-7	-4%	0.6	✓	✓	7	8	1	20%	0.5	✓	✓	2	2	0	9%	0.1	✓	✓
77-605	Junction 7	Trafalgar Road	E B	104	113	9	8%	0.8	✓	✓	89	96	7	8%	0.8	✓	✓	15	15	0	0%	0.0	✓	✓	0	0	0	28%	0.2	✓	✓
7761-617	Junction 7	Dene Side South	N B	91	46	-45	-50%	5.4	✓	✗	78	38	-39	-51%	5.2	✓	✗	12	7	-5	-38%	1.5	✓	✓	1	0	-1	-100%	1.4	✓	✓
78-147	Junction 7	King Sreet South	S B	120	89	-31	-26%	3.1	✓	✓	105	71	-34	-32%	3.6	✓	✓	13	6	-7	-54%	2.3	✓	✓	2	2	0	-20%	0.3	✓	✓

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78-7760	Junction 7	Yarmouth Way	E B	388	389	1	0%	0.0	✓	✓	353	352	0	0%	0.0	✓	✓	33	30	-3	-9%	0.5	✓	✓	3	2	-1	-18%	0.3	✓	✓
77-617	Junction 7	Alexandra Road South	W B	416	428	13	3%	0.6	✓	✓	373	384	11	3%	0.6	✓	✓	38	28	-10	-25%	1.7	✓	✓	4	4	0	0%	0.0	✓	✓
617-78	Junction 7	Alexandra Road South	E B	400	467	67	17%	3.2	✓	✓	363	423	59	16%	3.0	✓	✓	32	36	4	12%	0.7	✓	✓	4	4	0	0%	0.0	✓	✓
165-164	Junction 18	Southtown Road South	N B	428	387	-41	10%	2.1	✓	✓	372	321	-51	14%	2.7	✓	✓	46	40	-6	-13%	0.9	✓	✓	10	5	-6	-54%	2.0	✓	✓
164-165	Junction 18	Southtown Road South	S B	692	696	4	1%	0.2	✓	✓	607	590	-17	-3%	0.7	✓	✓	77	77	-1	-1%	0.1	✓	✓	8	8	0	3%	0.1	✓	✓
163-164	Junction 18	Boundary Road	E B	255	295	40	16%	2.4	✓	✓	231	260	29	13%	1.9	✓	✓	22	25	3	16%	0.7	✓	✓	2	10	7	319%	3.0	✓	✓
164-163	Junction 18	Boundary Road	W B	38	34	-4	11%	0.7	✓	✓	33	33	0	-1%	0.1	✓	✓	5	1	-4	-80%	2.2	✓	✓	0	0	0	100%	0.6	✓	✓
603-162	Junction 19	Tollgate Road	E B	15	15	0	0%	0.0	✓	✓	10	7	-3	28%	1.0	✓	✓	3	7	4	117%	1.7	✓	✓	1	0	-1	100%	1.5	✓	✓
162-603	Junction 19	Tollgate Road	W B	13	4	-9	72%	3.2	✓	✓	10	0	-10	99%	4.5	✓	✓	2	3	1	50%	0.7	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	
602-161	Junction 20	Southtown Road North	S B	425	513	88	21%	4.0	✓	✓	358	418	60	17%	3.0	✓	✓	57	66	10	17%	1.2	✓	✓	11	8	-3	-30%	1.1	✓	✓
161-602	Junction 20	Southtown Road North	N B	498	582	84	17%	3.6	✓	✓	417	489	71	17%	3.4	✓	✓	64	58	-6	-10%	0.8	✓	✓	17	14	-3	-16%	0.7	✓	✓
601-161	Junction 20	Gordon Road	E B	149	113	-36	24%	3.2	✓	✓	122	113	-9	-7%	0.8	✓	✓	25	0	-25	100%	7.1	✓	x	2	0	-2	100%	2.1	✓	✓
161-601	Junction 20	Gordon Road	W B	32	8	-25	76%	5.5	✓	x	29	7	-21	74%	5.0	✓	x	3	0	-3	-93%	2.4	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓	
25-336	Junction 21	A1243 Pasteur Road at Pasta Foods junction	S B	909	889	-20	-2%	0.7	✓	✓	820	798	-22	-3%	0.8	✓	✓	81	82	1	1%	0.1	✓	✓	8	10	2	18%	0.5	✓	✓
336-25	Junction 21	A1243 Pasteur Road at Pasta Foods junction	N B	554	521	-33	-6%	1.4	✓	✓	490	460	-30	-6%	1.4	✓	✓	56	49	-7	-12%	0.9	✓	✓	8	12	4	49%	1.2	✓	✓
68-67	Junction 24	Main Carriage way A12	N B	903	902	-2	0%	0.1	✓	✓	735	730	-5	-1%	0.2	✓	✓	125	127	3	2%	0.2	✓	✓	44	35	-8	-19%	1.3	✓	✓
67-68	Junction 24	Main Carriage way A12	S B	1,430	1,428	-2	0%	0.1	✓	✓	1,235	1,237	3	0%	0.1	✓	✓	137	138	1	1%	0.1	✓	✓	59	42	-17	-29%	2.4	✓	✓
7740-342	J3	Marine Parade North	N B	425	427	2	1%	0.1	✓	✓	399	400	0	0%	0.0	✓	✓	25	26	1	4%	0.2	✓	✓	1	0	0	-11%	0.1	✓	✓
141-7740	J3	North Drive	S B	237	229	-8	-3%	0.5	✓	✓	225	213	-11	-5%	0.8	✓	✓	12	12	0	0%	0.0	✓	✓	0	3	3	#DIV /0!	2.3	✓	✓
345-7740	J3	Marine Parade South	N B	400	427	27	7%	1.3	✓	✓	374	400	25	7%	1.3	✓	✓	25	26	1	4%	0.2	✓	✓	1	0	0	-11%	0.1	✓	✓
7740-345	J3	Marine Parade South	S B	212	229	17	8%	1.2	✓	✓	200	213	13	7%	0.9	✓	✓	12	12	0	0%	0.0	✓	✓	0	3	3	#DIV /0!	2.3	✓	✓
490-154	J5	S Beach Parade North	S B	99	76	-23	23%	2.5	✓	✓	93	69	-24	26%	2.7	✓	✓	6	5	-1	-13%	0.3	✓	✓	0	2	2	#DIV /0!	1.8	✓	✓
154-490	J5	S Beach Parade North	N B	220	202	-18	-8%	1.2	✓	✓	207	185	-21	10%	1.5	✓	✓	13	15	2	16%	0.5	✓	✓	0	2	2	#DIV /0!	1.9	✓	✓

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635-154	J5	Harbord Crescent	E B	38	36	-2	-6%	0.4	✓	✓	35	30	-5	-13%	0.8	✓	✓	3	5	2	59%	0.9	✓	✓	0	0	0	#DIV /0!	0.9	✓	✓
155-636	J6	S Beach Parade South	N B	187	194	7	4%	0.5	✓	✓	175	180	5	3%	0.4	✓	✓	11	13	2	15%	0.5	✓	✓	2	2	0	13%	0.2	✓	✓
636-155	J6	S Beach Parade South	S B	67	73	6	10%	0.8	✓	✓	64	68	4	6%	0.5	✓	✓	3	4	1	20%	0.3	✓	✓	0	2	2	#DIV /0!	2.0	✓	✓
636-637	J6	Harbord Crescent	W B	31	30	-1	-5%	0.3	✓	✓	26	26	0	0%	0.0	✓	✓	4	4	0	0%	0.0	✓	✓	2	0	-2	-100%	1.7	✓	✓
495-7754	J7	South Denes Road south of junction	N B	146	152	6	4%	0.5	✓	✓	129	125	-4	-3%	0.3	✓	✓	14	23	9	63%	2.0	✓	✓	3	4	1	24%	0.4	✓	✓
7754-495	J7	South Denes Road south of junction	S B	37	72	35	95%	4.8	✓	✓	25	49	24	97%	4.0	✓	✓	6	15	9	148%	2.8	✓	✓	6	8	2	32%	0.7	✓	✓
7754-537	J7	Salmon Road	E B	26	49	23	88%	3.8	✓	✓	19	42	23	120%	4.1	✓	✓	4	7	3	73%	1.2	✓	✓	3	0	-3	-92%	2.2	✓	✓
537-7754	J7	Salmon Road	W B	133	79	-54	-40%	5.2	✓	×	115	70	-45	-39%	4.6	✓	✓	16	5	-11	-67%	3.3	✓	✓	2	4	2	77%	0.9	✓	✓
36-377	J9	Main Cross Road	E B	47	49	2	5%	0.3	✓	✓	43	43	0	0%	0.0	✓	✓	3	5	2	82%	1.2	✓	✓	1	1	0	-13%	0.1	✓	✓
377-36	J9	Main Cross Road	W B	62	62	0	0%	0.0	✓	✓	56	56	0	0%	0.0	✓	✓	5	5	0	0%	0.0	✓	✓	1	1	0	-13%	0.1	✓	✓
7774-7773	J10	Swanston Road west of junction	E B	5	16	11	219%	3.4	✓	✓	5	13	8	157%	2.6	✓	✓	0	3	3	#DIV /0!	2.3	✓	✓	0	0	0	#DIV /0!	0.9	✓	✓
7773-7774	J10	Swanston Road west of junction	W B	7	6	-1	-19%	0.5	✓	✓	6	4	-2	-29%	0.8	✓	✓	0	1	1	#DIV /0!	1.0	✓	✓	1	1	0	-8%	0.1	✓	✓
7773-7752	J10	South Denes Road north of junction	N B	333	228	-105	-31%	6.3	×	×	297	193	-104	-35%	6.6	×	×	32	27	-5	-15%	0.9	✓	✓	4	8	4	108%	1.7	✓	✓
7752-7773	J10	South Denes Road north of junction	S B	84	95	11	13%	1.2	✓	✓	66	67	1	1%	0.1	✓	✓	10	19	9	90%	2.4	✓	✓	8	10	2	18%	0.5	✓	✓
34-279	Mouchel Nov16 ATC Site 14	Queens Road	E B	148	160	13	9%	1.0	✓	✓	137	137	1	0%	0.0	✓	✓	11	16	5	49%	1.4	✓	✓	0	7	7	1876%	3.5	✓	✓
279-34	Mouchel Nov16 ATC Site 14	Queens Road	W B	99	102	3	3%	0.3	✓	✓	92	93	1	1%	0.1	✓	✓	7	8	1	13%	0.3	✓	✓	0	1	0	164%	0.6	✓	✓
7755-15	AECOM 2015 MCC Site 3	Acle New Road	E B	1,065	1,095	30	3%	0.9	✓	✓	914	927	13	1%	0.4	✓	✓	138	140	2	1%	0.1	✓	✓	13	21	8	65%	2.0	✓	✓
15-7755	AECOM 2015 MCC Site 3	Acle New Road	W B	1,241	1,247	5	0%	0.1	✓	✓	1,076	1,075	-1	0%	0.0	✓	✓	153	152	0	0%	0.0	✓	✓	13	13	0	1%	0.0	✓	✓
612-15	AECOM 2016 MCTC Site M1	Fuller's Hill	W B	379	383	3	1%	0.2	✓	✓	337	341	3	1%	0.2	✓	✓	38	38	0	-1%	0.0	✓	✓	4	0	-4	-93%	2.6	✓	✓

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15-612	AECOM 2015 MCC Site 3 / AECOM 2016 MCTC Site M1	Fuller's Hill	E B	473	557	84	18 %	3.7	✓	✓	422	478	56	13 %	2.6	✓	✓	42	42	0	-1%	0.0	✓	✓	9	9	0	0%	0.0	✓	✓
65-64	Junction 25	A12 Main Carriage way	N B	1,116	1,087	-29	-3%	0.9	✓	✓	951	899	-52	-6%	1.7	✓	✓	153	144	-9	-6%	0.8	✓	✓	12	33	22	186 %	4.6	✓	✓
64-65	Junction 25	A12 Main Carriage way	S B	1,499	1,365	134	-9%	3.5	✓	✓	1,294	1,178	-116	-9%	3.3	✓	✓	198	131	-67	-34%	5.2	✓	×	7	42	35	468 %	7.0	✓	×
597-15	AECOM 2015 MCC Site 3	North Quay south of roundabout	N B	769	819	50	7%	1.8	✓	✓	684	713	28	4%	1.1	✓	✓	78	70	-8	-10%	0.9	✓	✓	7	13	6	92%	2.0	✓	✓
15-597	AECOM 2015 MCC Site 3	North Quay south of roundabout	S B	313	314	0	0%	0.0	✓	✓	257	257	0	0%	0.0	✓	✓	47	47	0	0%	0.0	✓	✓	10	10	0	-1%	0.0	✓	✓
41-8001	AECOM 2015 MCC Site 8	A12 north of roundabout	S B	1,785	1,791	5	0%	0.1	✓	✓	1,518	1,529	11	1%	0.3	✓	✓	245	242	-3	-1%	0.2	✓	✓	22	20	-2	-11%	0.5	✓	✓
8001-41	AECOM 2015 MCC Site 8	A12 north of roundabout	N B	1,404	1,381	-23	-2%	0.6	✓	✓	1,206	1,181	-25	-2%	0.7	✓	✓	180	182	1	1%	0.1	✓	✓	18	18	0	-1%	0.0	✓	✓
64-63	Junction 25	A12 Main Carriage way	N B	1,267	1,281	14	1%	0.4	✓	✓	1,085	1,077	-7	-1%	0.2	✓	✓	174	165	-9	-5%	0.7	✓	✓	9	33	25	284 %	5.4	✓	×
63-64	Junction 25	A12 Main Carriage way	S B	1,578	1,631	53	3%	1.3	✓	✓	1,390	1,399	9	1%	0.2	✓	✓	181	181	1	0%	0.0	✓	✓	7	42	34	461 %	6.9	✓	×
643-8003	AECOM 2015 MCC Site 8	A12 south of roundabout	N B	1,295	1,533	238	18 %	6.3	×	×	1,093	1,284	191	17 %	5.5	×	×	178	204	26	15%	1.9	✓	✓	24	45	21	84%	3.5	✓	✓
8003-643	AECOM 2015 MCC Site 8	A12 south of roundabout	S B	1,905	1,793	112	-6%	2.6	✓	✓	1,637	1,516	-122	-7%	3.1	✓	✓	246	225	-21	-8%	1.3	✓	✓	22	52	30	138 %	5.0	✓	✓
353-8004	AECOM 2015 MCC Site 8	William Adams Way west of roundabout	E B	709	612	-97	-14 %	3.8	✓	✓	608	507	-101	-17 %	4.3	×	✓	85	63	-22	-26%	2.5	✓	✓	16	42	26	168 %	4.9	✓	✓
8004-353	AECOM 2015 MCC Site 8	William Adams Way west of roundabout	W B	126	343	217	172 %	14.1	×	×	76	268	192	254 %	14.7	×	×	34	47	13	38%	2.0	✓	✓	16	27	11	71%	2.4	✓	✓
169-170	Junction 15	High Road	W B	271	215	-55	-20 %	3.5	✓	✓	242	175	-68	-28 %	4.7	✓	✓	22	22	1	2%	0.1	✓	✓	7	0	-7	100 %	3.7	✓	✓
170-169	Junction 15	High Road	E B	168	30	139	82 %	14.0	×	×	144	11	-133	-92 %	15.1	×	×	19	0	-19	100 %	6.2	✓	×	5	0	-5	100 %	3.1	✓	✓
593-170	Junction 15	Beccles Road South	N B	333	329	-4	-1%	0.2	✓	✓	300	290	-10	-3%	0.6	✓	✓	27	28	1	4%	0.2	✓	✓	6	9	3	52%	1.1	✓	✓
170-593	Junction 15	Beccles Road South	S B	588	614	27	5%	1.1	✓	✓	523	543	20	4%	0.9	✓	✓	58	61	3	6%	0.4	✓	✓	7	8	1	18%	0.4	✓	✓

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380-381	Junction 16	Beccles Road North	S B	847	893	46	5%	1.5	✓	✓	738	763	25	3%	0.9	✓	✓	96	97	2	2%	0.2	✓	✓	14	12	-2	-13%	0.5	✓	✓
381-380	Junction 16	Beccles Road North	N B	552	563	11	2%	0.5	✓	✓	496	471	-25	-5%	1.1	✓	✓	44	62	18	40%	2.4	✓	✓	12	9	-3	-26%	0.9	✓	✓
382-381	Junction 16	Malthouse Lane	W B	12	0	-12	100%	4.9	✓	✓	11	0	-11	100%	4.6	✓	✓	0	0	0	#DIV /0!	#DIV /0!	✓		1	0	-1	100%	1.5	✓	✓
381-382	Junction 16	Malthouse Lane	E B	159	249	90	57%	6.3	✓	✗	143	209	66	46%	5.0	✓	✓	14	36	22	158%	4.4	✓	✓	2	4	2	83%	1.0	✓	✓
63-62	AECOM 2016 MCTC Site M6	Main Carriage way	N B	1,267	1,284	17	1%	0.5	✓	✓	1,085	1,077	-7	-1%	0.2	✓	✓	174	165	-9	-5%	0.7	✓	✓	9	33	25	284%	5.4	✓	✗
62-63	AECOM 2016 MCTC Site M6	Main Carriage way	S B	1,578	1,631	53	3%	1.3	✓	✓	1,390	1,399	9	1%	0.2	✓	✓	181	181	1	0%	0.0	✓	✓	7	42	34	461%	6.9	✓	✗
62-61	AECOM 2016 MCTC Site M6	Junction 26 / Main Carriage way	N B	986	996	11	1%	0.3	✓	✓	832	830	-3	0%	0.1	✓	✓	145	145	0	0%	0.0	✓	✓	8	18	9	116%	2.6	✓	✓
61-62	AECOM 2016 MCTC Site M6	Junction 26 / Main Carriage way	S B	1,380	1,412	32	2%	0.9	✓	✓	1,198	1,192	-6	-1%	0.2	✓	✓	175	174	-1	0%	0.0	✓	✓	7	42	35	518%	7.1	✓	✗
380-166	AECOM 2015 MCC Site 7	Beccles Road	N B	552	563	11	2%	0.5	✓	✓	482	471	-11	-2%	0.5	✓	✓	61	62	0	1%	0.1	✓	✓	9	9	0	-2%	0.0	✓	✓
166-380	AECOM 2015 MCC Site 7	Beccles Road	S B	847	893	46	5%	1.5	✓	✓	743	763	20	3%	0.7	✓	✓	94	97	3	3%	0.3	✓	✓	10	12	1	14%	0.4	✓	✓
61-60	Junction 26	A12 Main Carriage way	N B	871	1,144	273	31%	8.6	✗	✗	759	960	201	26%	6.9	✗	✗	88	158	71	81%	6.4	✓	✗	24	25	1	5%	0.2	✓	✓
60-61	Junction 26	A12 Main Carriage way	S B	1,334	1,272	-62	-5%	1.7	✓	✓	1,150	1,068	-83	-7%	2.5	✓	✓	167	161	-6	-4%	0.5	✓	✓	17	43	27	159%	4.9	✓	✓
88-62	AECOM 2016 MCTC Site M6	B1370 - off A12	E B	374	387	13	4%	0.7	✓	✓	336	344	8	2%	0.4	✓	✓	37	38	1	4%	0.2	✓	✓	1	0	-1	-96%	1.1	✓	✓
62-88	AECOM 2016 MCTC Site M6	B1370 - off A12	W B	436	456	20	5%	0.9	✓	✓	385	385	0	0%	0.0	✓	✓	50	50	0	0%	0.0	✓	✓	1	16	15	2178%	5.2	✓	✗
341-134	Junction 4	Nelson Road N South	N B	331	330	-1	0%	0.1	✓	✓	295	295	0	0%	0.0	✓	✓	31	32	1	4%	0.2	✓	✓	5	0	-5	100%	3.2	✓	✓
134-341	Junction 4	Nelson Road N South	S B	229	224	-6	-2%	0.4	✓	✓	208	205	-3	-1%	0.2	✓	✓	19	19	0	-2%	0.1	✓	✓	2	0	-2	100%	2.1	✓	✓
640-639	Junction 5	Sainsburys Access	S B	180	178	-3	-1%	0.2	✓	✓	166	165	-1	-1%	0.1	✓	✓	13	13	0	-3%	0.1	✓	✓	1	0	-1	100%	1.4	✓	✓
639-640	Junction 5	Sainsburys Access St	N B	156	157	1	0%	0.1	✓	✓	145	146	1	1%	0.1	✓	✓	11	11	0	4%	0.1	✓	✓	1	0	-1	100%	1.4	✓	✓
459-639	Junction 5	Nicholas Road West St	E B	253	249	-3	-1%	0.2	✓	✓	227	226	-1	-1%	0.1	✓	✓	23	20	-3	-13%	0.7	✓	✓	2	2	0	-3%	0.1	✓	✓
639-459	Junction 5	Nicholas Road West	W B	304	310	6	2%	0.4	✓	✓	278	286	7	3%	0.4	✓	✓	21	21	0	-1%	0.0	✓	✓	5	0	-5	100%	3.1	✓	✓

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7762-64	Junction 25	Braseno se Avenue - off A12	E B	293	281	-11	-4%	0.7	✓	✓	268	244	-25	-9%	1.5	✓	✓	22	30	8	36%	1.6	✓	✓	2	0	-2	-100%	2.2	✓	✓
64-7762	Junction 25	Braseno se Avenue - off A12	W B	190	241	51	27%	3.5	✓	✓	167	176	9	5%	0.7	✓	✓	22	58	36	160%	5.6	✓	x	1	0	-1	-100%	1.4	✓	✓
338-135	Junction 2	Euston Road East	E B	579	472	107	19%	4.7	x	✓	532	437	-95	18%	4.3	✓	✓	39	33	-6	-15%	1.0	✓	✓	8	0	-7	-94%	3.6	✓	✓
339-338	Junction 2	Marine Parade	N B	579	484	-95	16%	4.1	✓	✓	536	452	-84	16%	3.8	✓	✓	36	30	-6	-16%	1.0	✓	✓	7	0	-6	-93%	3.4	✓	✓
804-57	Junction 22	Untitled Road	W B	353	349	-4	-1%	0.2	✓	✓	314	311	-4	-1%	0.2	✓	✓	32	32	0	-1%	0.0	✓	✓	7	7	0	0%	0.0	✓	✓
57-804	Junction 22	Untitled Road A143	E B	266	259	-6	-2%	0.4	✓	✓	232	232	0	0%	0.0	✓	✓	24	24	0	1%	0.1	✓	✓	10	3	-6	-68%	2.6	✓	✓
58-57	Junction 22	Beccles Road South A143	N B	423	408	-15	-4%	0.7	✓	✓	362	354	-8	-2%	0.4	✓	✓	44	35	-9	-20%	1.4	✓	✓	17	18	2	11%	0.4	✓	✓
57-58	Junction 22	Beccles Road South	S B	447	447	0	0%	0.0	✓	✓	386	386	0	0%	0.0	✓	✓	47	45	-2	-4%	0.3	✓	✓	14	14	0	1%	0.0	✓	✓
205-57	Junction 22	New Road	E B	180	169	-12	-7%	0.9	✓	✓	150	150	0	0%	0.0	✓	✓	17	17	0	0%	0.0	✓	✓	13	1	-12	-88%	4.3	✓	✓
57-205	Junction 22	New Road	W B	235	224	-11	-5%	0.7	✓	✓	198	193	-5	-3%	0.4	✓	✓	25	25	0	-2%	0.1	✓	✓	11	6	-6	-50%	1.9	✓	✓
168-163	Junction 17	Suffolk Road	N B	347	385	38	11%	2.0	✓	✓	296	321	26	9%	1.5	✓	✓	48	54	6	13%	0.9	✓	✓	3	10	6	193%	2.5	✓	✓
167-168	Junction 17	William Adams Way East	W B	359	357	-2	-1%	0.1	✓	✓	316	313	-4	-1%	0.2	✓	✓	39	40	1	4%	0.2	✓	✓	4	4	0	4%	0.1	✓	✓
168-167	Junction 17	William Adams Way East	E B	382	378	-3	-1%	0.2	✓	✓	334	335	1	0%	0.0	✓	✓	40	39	-1	-2%	0.1	✓	✓	7	4	-3	-47%	1.5	✓	✓
7806-148	J4	S Beach Parade North	S B	134	132	-2	-2%	0.2	✓	✓	127	122	-5	-4%	0.5	✓	✓	7	7	0	-4%	0.1	✓	✓	0	2	2	957%	1.7	✓	✓
148-7806	J4	S Beach Parade North	N B	297	302	5	2%	0.3	✓	✓	278	278	1	0%	0.0	✓	✓	20	21	1	6%	0.3	✓	✓	0	2	2	#DIV/0!	1.9	✓	✓
490-148	J4	S Beach Parade South	N B	282	289	8	3%	0.5	✓	✓	264	269	5	2%	0.3	✓	✓	18	19	1	8%	0.3	✓	✓	0	2	2	#DIV/0!	1.9	✓	✓
148-490	J4	S Beach Parade South	S B	113	115	1	1%	0.1	✓	✓	106	106	0	0%	0.0	✓	✓	7	7	0	-4%	0.1	✓	✓	0	2	2	#DIV/0!	1.8	✓	✓
149-148	J4	Kings Road	E B	66	67	1	1%	0.1	✓	✓	59	59	0	0%	0.0	✓	✓	7	7	0	-5%	0.1	✓	✓	0	0	0	#DIV/0!	#DIV/0!	✓	✓
148-149	J4	Kings Road	W B	70	72	2	2%	0.2	✓	✓	65	65	0	0%	0.0	✓	✓	5	5	0	-3%	0.1	✓	✓	0	0	0	53%	0.2	✓	✓
43-425	Junction 14	A12 Off Slip	S B	530	521	-8	-2%	0.4	✓	✓	456	448	-8	-2%	0.4	✓	✓	65	65	0	-1%	0.0	✓	✓	8	8	0	0%	0.0	✓	✓
424-43	Junction 14	A12 Off Slip	N B	399	390	-10	-2%	0.5	✓	✓	335	324	-11	-3%	0.6	✓	✓	48	46	-2	-5%	0.3	✓	✓	16	19	3	20%	0.8	✓	✓
223-68	Junction 24	Beaufort Way - off A12	E B	460	445	-15	-3%	0.7	✓	✓	392	392	0	0%	0.0	✓	✓	52	50	-1	-3%	0.2	✓	✓	16	3	-13	-81%	4.2	✓	✓
68-223	Junction 24	Beaufort Way - off A12	W B	377	366	-11	-3%	0.6	✓	✓	323	319	-3	-1%	0.2	✓	✓	40	40	0	1%	0.0	✓	✓	15	7	-8	-55%	2.5	✓	✓
283-424	Junction 14	Shrublands Way	N B	204	172	-32	15%	2.3	✓	✓	176	146	-29	17%	2.3	✓	✓	27	25	-2	-7%	0.4	✓	✓	1	1	0	-38%	0.4	✓	✓
424-283	Junction 14	Shrublands Way A143	S B	250	249	-1	0%	0.1	✓	✓	219	219	0	0%	0.0	✓	✓	28	28	0	-1%	0.0	✓	✓	3	2	-1	-23%	0.4	✓	✓
45-424	Junction 14	Beccles Road West	E B	405	413	8	2%	0.4	✓	✓	346	354	8	2%	0.4	✓	✓	41	40	-1	-2%	0.1	✓	✓	19	19	0	0%	0.0	✓	✓



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424-45	Junction 14	A143 Beccles Road West	W B	538	540	2	0%	0.1	✓	✓	471	466	-5	-1%	0.2	✓	✓	61	64	2	4%	0.3	✓	✓	6	10	4	67%	1.4	✓	✓
593-46	AECOM 2016 MCTC Site M2	Beccles Road east of roundabout	S B	588	614	27	5%	1.1	✓	✓	523	543	20	4%	0.9	✓	✓	58	61	3	6%	0.4	✓	✓	7	8	1	18%	0.4	✓	✓
46-593	AECOM 2016 MCTC Site M2	Beccles Road east of roundabout	N B	333	329	-4	-1%	0.2	✓	✓	300	290	-10	-3%	0.6	✓	✓	27	28	1	4%	0.2	✓	✓	6	9	3	52%	1.1	✓	✓
82-46	AECOM 2016 MCTC Site M2	B1370	N B	454	443	-11	-2%	0.5	✓	✓	398	389	-9	-2%	0.5	✓	✓	40	44	4	11%	0.6	✓	✓	16	9	-8	-47%	2.2	✓	✓
46-82	AECOM 2016 MCTC Site M2	B1370	S B	595	614	19	3%	0.8	✓	✓	543	559	15	3%	0.7	✓	✓	52	54	3	5%	0.4	✓	✓	0	0	0	100%	0.9	✓	✓
44-46	AECOM 2016 MCTC Site M2	A143 Beccles Road west of roundabout	E B	217	215	-3	-1%	0.2	✓	✓	193	192	-1	0%	0.1	✓	✓	24	22	-2	-7%	0.3	✓	✓	0	0	0	#DIV/0!	#DIV/0!	✓	
46-44	AECOM 2016 MCTC Site M2	A143 Beccles Road west of roundabout	W B	298	286	-12	-4%	0.7	✓	✓	254	253	-1	0%	0.1	✓	✓	31	30	-1	-4%	0.2	✓	✓	14	4	-10	-72%	3.3	✓	✓
349-350	Junction 23	Beccles Road - west of A12	E B	584	624	40	7%	1.6	✓	✓	493	532	39	8%	1.7	✓	✓	73	73	0	0%	0.0	✓	✓	18	18	0	0%	0.0	✓	✓
350-349	Junction 23	Beccles Road - west of A12	W B	751	752	0	0%	0.0	✓	✓	659	658	-2	0%	0.1	✓	✓	79	79	0	0%	0.0	✓	✓	13	13	1	5%	0.2	✓	✓
350-51	Junction 23	Beccles Road - west of A12	E B	664	636	-28	-4%	1.1	✓	✓	562	537	-24	-4%	1.0	✓	✓	82	79	-3	-3%	0.3	✓	✓	20	18	-2	-10%	0.5	✓	✓
51-350	Junction 23	Beccles Road - west of A12	W B	750	748	-2	0%	0.1	✓	✓	660	655	-5	-1%	0.2	✓	✓	77	77	0	0%	0.0	✓	✓	12	12	0	1%	0.0	✓	✓
162-164	Junction 18 / 19	Southton Road	S B	502	506	3	1%	0.1	✓	✓	417	410	-6	-1%	0.3	✓	✓	74	66	-8	-10%	0.9	✓	✓	12	8	-4	-35%	1.3	✓	✓
164-162	Junction 18 / 19	Southton Road	N B	431	458	27	6%	1.3	✓	✓	368	368	1	0%	0.0	✓	✓	52	54	2	4%	0.3	✓	✓	12	14	3	25%	0.8	✓	✓
161-162	Junction 19 / 20	Southton Road	S B	494	506	12	2%	0.5	✓	✓	408	410	2	0%	0.1	✓	✓	73	66	-7	-10%	0.8	✓	✓	12	8	-4	-35%	1.3	✓	✓
162-161	Junction 19 / 20	Southton Road	N B	437	469	32	7%	1.5	✓	✓	369	376	7	2%	0.4	✓	✓	55	58	3	5%	0.4	✓	✓	14	14	1	7%	0.3	✓	✓
636-154	J5 / J6	S Beach Parade	N B	180	185	5	3%	0.4	✓	✓	170	173	2	1%	0.2	✓	✓	10	11	1	10%	0.3	✓	✓	0	2	2	#DIV/0!	1.9	✓	✓
154-636	J5 / J6	S Beach Parade North	S B	94	95	0	0%	0.0	✓	✓	88	86	-2	-2%	0.2	✓	✓	6	6	0	0%	0.0	✓	✓	0	2	2	#DIV/0!	2.0	✓	✓
336-24	Junction 13	A1243 Pasteur Road North	S B	891	889	-2	0%	0.1	✓	✓	801	798	-3	0%	0.1	✓	✓	82	82	0	0%	0.0	✓	✓	8	10	2	23%	0.6	✓	✓
24-336	Junction 13	A1243 Pasteur Road North	N B	524	521	-4	-1%	0.2	✓	✓	465	460	-5	-1%	0.2	✓	✓	52	49	-3	-6%	0.4	✓	✓	8	12	4	55%	1.3	✓	✓
526-24	Junction 13	Thamesfield Way	W B	270	269	-1	-1%	0.1	✓	✓	239	239	0	0%	0.0	✓	✓	30	30	0	-1%	0.0	✓	✓	1	0	-1	100%	1.4	✓	✓

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24-526	Junction 13	Thamesfield Way	E B	192	191	-2	-1%	0.1	✓	✓	170	170	0	0%	0.0	✓	✓	22	20	-2	-7%	0.3	✓	✓	0	0	0	#DIV/0!	1.0	✓	✓
49-48	AECOM 2016 ATC Site AN12	Beccles Road - west of A12	E B	398	347	-50	-13%	2.6	✓	✓	336	293	-43	-13%	2.4	✓	✓	49	36	-13	-27%	2.1	✓	✓	12	18	6	53%	1.6	✓	✓
48-49	AECOM 2016 ATC Site AN12	Beccles Road - west of A12	W B	540	494	-46	-8%	2.0	✓	✓	475	426	-49	-10%	2.3	✓	✓	56	56	0	1%	0.1	✓	✓	9	12	3	36%	1.0	✓	✓
7717-24	Junction 13	Jones Way	E B	404	403	-1	0%	0.1	✓	✓	375	375	0	0%	0.0	✓	✓	24	24	-1	-2%	0.1	✓	✓	5	4	-1	-22%	0.5	✓	✓
24-7717	Junction 13	Jones Way	W B	462	432	-29	-6%	1.4	✓	✓	428	411	-17	-4%	0.8	✓	✓	21	21	0	2%	0.1	✓	✓	12	0	-12	100%	5.0	✓	✓
278-7744	AECOM 2015 MCC Site 6	A12 north of roundabout	S B	1,463	1,444	-19	-1%	0.5	✓	✓	1,230	1,189	-41	-3%	1.2	✓	✓	219	236	17	8%	1.1	✓	✓	14	18	4	32%	1.1	✓	✓
7744-278	AECOM 2015 MCC Site 6	A12 north of roundabout	N B	1,379	1,337	-42	-3%	1.1	✓	✓	1,194	1,144	-50	-4%	1.5	✓	✓	166	174	8	5%	0.6	✓	✓	19	19	0	1%	0.0	✓	✓
38-7746	AECOM 2015 MCC Site 6	A12 south of roundabout	N B	1,404	1,381	-23	-2%	0.6	✓	✓	1,199	1,181	-17	-1%	0.5	✓	✓	185	182	-3	-2%	0.2	✓	✓	21	18	-3	-14%	0.7	✓	✓
7746-38	AECOM 2015 MCC Site 6	A12 south of roundabout	S B	1,785	1,791	5	0%	0.1	✓	✓	1,523	1,529	5	0%	0.1	✓	✓	242	242	0	0%	0.0	✓	✓	20	20	0	-1%	0.0	✓	✓
281-7747	AECOM 2015 MCC Site 6	Gapton Hall Road	E B	670	714	44	6%	1.7	✓	✓	609	652	43	7%	1.7	✓	✓	55	56	1	2%	0.1	✓	✓	6	6	0	0%	0.0	✓	✓
7747-281	AECOM 2015 MCC Site 6	Gapton Hall Road	W B	791	790	-1	0%	0.0	✓	✓	687	687	0	0%	0.0	✓	✓	100	99	-1	-1%	0.1	✓	✓	4	4	0	-2%	0.0	✓	✓
381-170	Junction 15 / Junction 16	Beccles Road	S B	719	644	-75	-10%	2.9	✓	✓	629	554	-75	-12%	3.1	✓	✓	78	61	-17	-21%	2.0	✓	✓	12	8	-5	-37%	1.4	✓	✓
170-381	Junction 15 / Junction 16	Beccles Road	N B	526	545	18	4%	0.8	✓	✓	473	465	-8	-2%	0.4	✓	✓	41	50	9	21%	1.3	✓	✓	12	9	-3	-26%	1.0	✓	✓
639-134	Junction 4 / Junction 5	St Nicholas Road	E B	270	270	1	0%	0.1	✓	✓	245	245	0	0%	0.0	✓	✓	22	22	0	0%	0.0	✓	✓	3	2	-1	-23%	0.4	✓	✓
134-639	Junction 4 / Junction 5	St Nicholas Road	W B	306	311	5	2%	0.3	✓	✓	280	286	6	2%	0.4	✓	✓	21	21	0	-2%	0.1	✓	✓	5	0	-5	100%	3.1	✓	✓
477-134	Junction 3 / Junction 4	Euston Road	W B	174	184	11	6%	0.8	✓	✓	157	178	21	13%	1.6	✓	✓	15	7	-8	-55%	2.5	✓	✓	2	0	-2	100%	2.0	✓	✓
134-477	Junction 3 / Junction 4	Euston Road	E B	186	171	-15	-8%	1.1	✓	✓	169	160	-9	-5%	0.7	✓	✓	14	11	-3	-23%	0.9	✓	✓	3	0	-3	100%	2.4	✓	✓
338-477	Junction 2 / Junction 3	Euston Road	W B	179	168	-11	-6%	0.8	✓	✓	164	160	-4	-3%	0.3	✓	✓	14	8	-6	-41%	1.7	✓	✓	1	0	-1	100%	1.5	✓	✓
477-338	Junction 2 / Junction 3	Euston Road	E B	162	156	-6	-4%	0.5	✓	✓	146	145	-1	-1%	0.1	✓	✓	14	11	-3	-21%	0.8	✓	✓	3	0	-3	100%	2.2	✓	✓
75-74	AECOM 2016 MCTC Site M1	Piory Plain	E B	320	262	-58	-18%	3.4	✓	✓	286	242	-43	-15%	2.7	✓	✓	34	20	-14	-40%	2.6	✓	✓	1	0	-1	100%	1.5	✓	✓

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74-75	AECOM 2016 MCTC Site M1	Piory Plain	W B	636	472	-16 4	-26 %	7.0	x	x	561	367	-194	-35 %	9.0	x	x	66	58	-8	-12%	1.0	✓	✓	9	9	0	-3%	0.1	✓	✓	
623-74	AECOM 2016 MCTC Site M1	Market Place	N B	423	429	6	1%	0.3	✓	✓	374	374	0	0%	0.0	✓	✓	41	41	0	1%	0.1	✓	✓	8	0	-8	-97%	3.9	✓	✓	
157-26	AECOM 2016 ATC Site AN6	Southtown Road	N B	775	686	-88	-11 %	3.3	✓	✓	696	578	-117	-17 %	4.7	x	✓	65	70	5	8%	0.6	✓	✓	14	16	2	18%	0.6	✓	✓	
26-157	AECOM 2016 ATC Site AN6	Southtown Road	S B	472	213	-259	-55 %	14.0	x	x	422	164	-258	-61 %	15.0	x	x	42	21	-21	-51%	3.8	✓	✓	8	7	-1	-15%	0.4	✓	✓	
<b>Adhoc: - Total</b>				<b>77,364</b>	<b>76,638</b>	<b>-726</b>	<b>-1%</b>	<b>2.6</b>	✓	✓	<b>67,572</b>	<b>66,022</b>	<b>-1,550</b>	<b>-2%</b>	<b>6.0</b>	✓	x	<b>8,563</b>	<b>8,437</b>	<b>126</b>	<b>-1%</b>	<b>1.4</b>	✓	✓	<b>1,229</b>	<b>1,426</b>	<b>197</b>	<b>16%</b>	<b>5.4</b>	x	x	
									154/1 64	150/1 64						154/1 64	153/1 64					164/1 64	157/1 63					164/1 64	152/1 60			
									94%	91%						94%	93%						100%	96%					100%	95%		

## Appendix H: Journey Time Validation

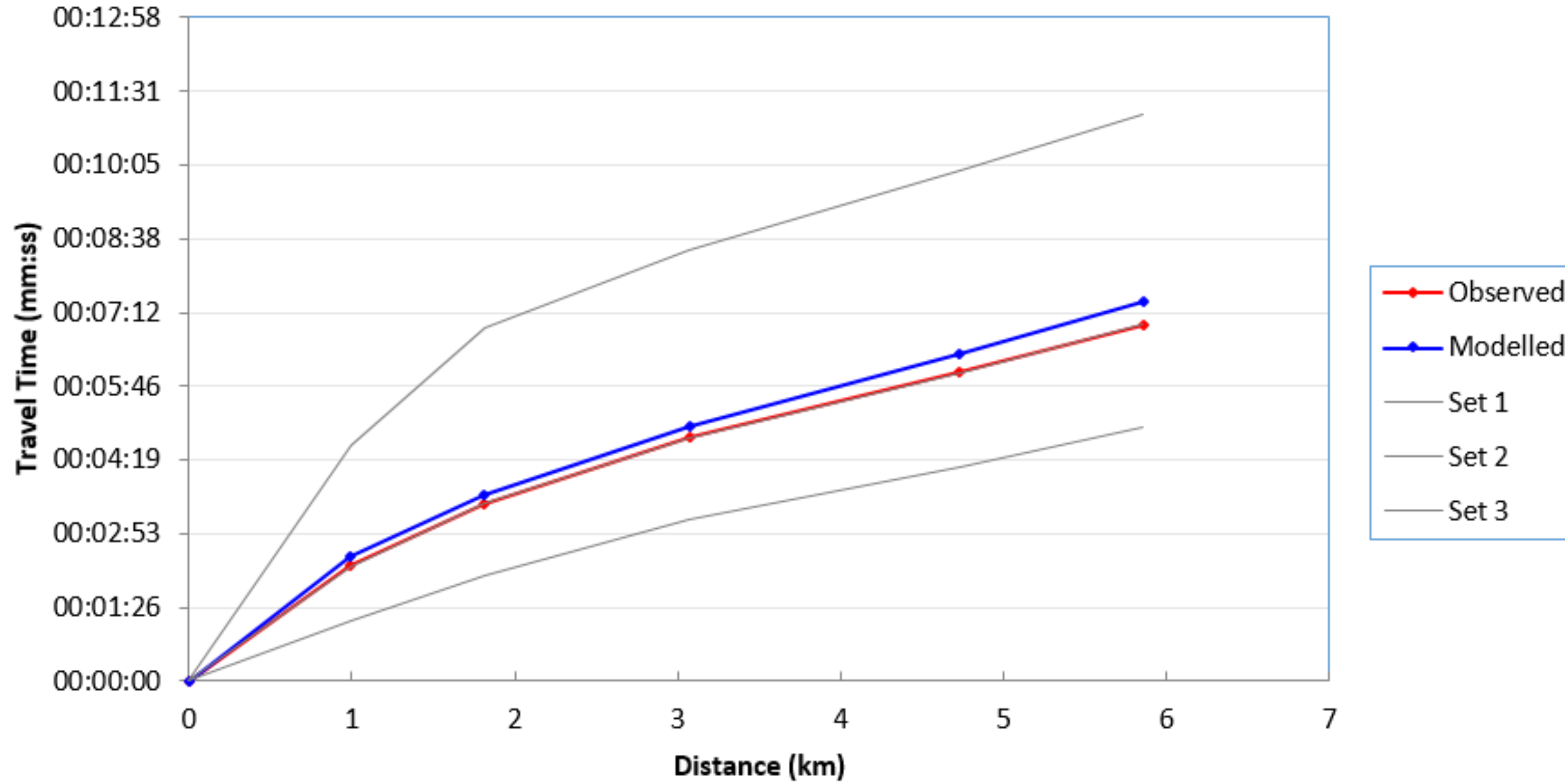
Great Yarmouth Third River Crossing Traffic Model  
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Route 1: A149 - Route 1: A149 NB AM

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)			Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%		
				Observed	Modelled	Set 1			Set 2	Set 3	Observed	Modelled		Observed	Modelled
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00						□	
2	Fuller's Hill to Caister Road	12	0.990	00:02:15	00:02:22	00:02:15	00:04:37	00:01:11	s1-2	0.990	00:02:15	00:02:22	26.5	25.2	✓
3	Caister Road to Jellicoe Road	9	1.811	00:03:28	00:03:32	00:03:28	00:06:55	00:02:03	s2-3	0.821	00:01:13	00:01:10	40.5	42.0	✓
4	Jellicoe Road to Yarmouth Road	7	3.074	00:04:45	00:04:53	00:04:45	00:08:25	00:03:09	s3-4	1.263	00:01:18	00:01:21	58.5	56.0	✓
5	Yarmouth Road to Norwich Road	4	4.728	00:06:02	00:06:18	00:06:02	00:09:57	00:04:11	s4-5	1.654	00:01:16	00:01:25	78.1	69.8	✓
6	Norwich Road to Main Road	1	5.854	00:06:58	00:07:18	00:06:58	00:11:04	00:04:57	s5-6	1.126	00:00:56	00:01:00	72.5	67.7	✓

### Journey Time Summary: A149:NB - AM Peak

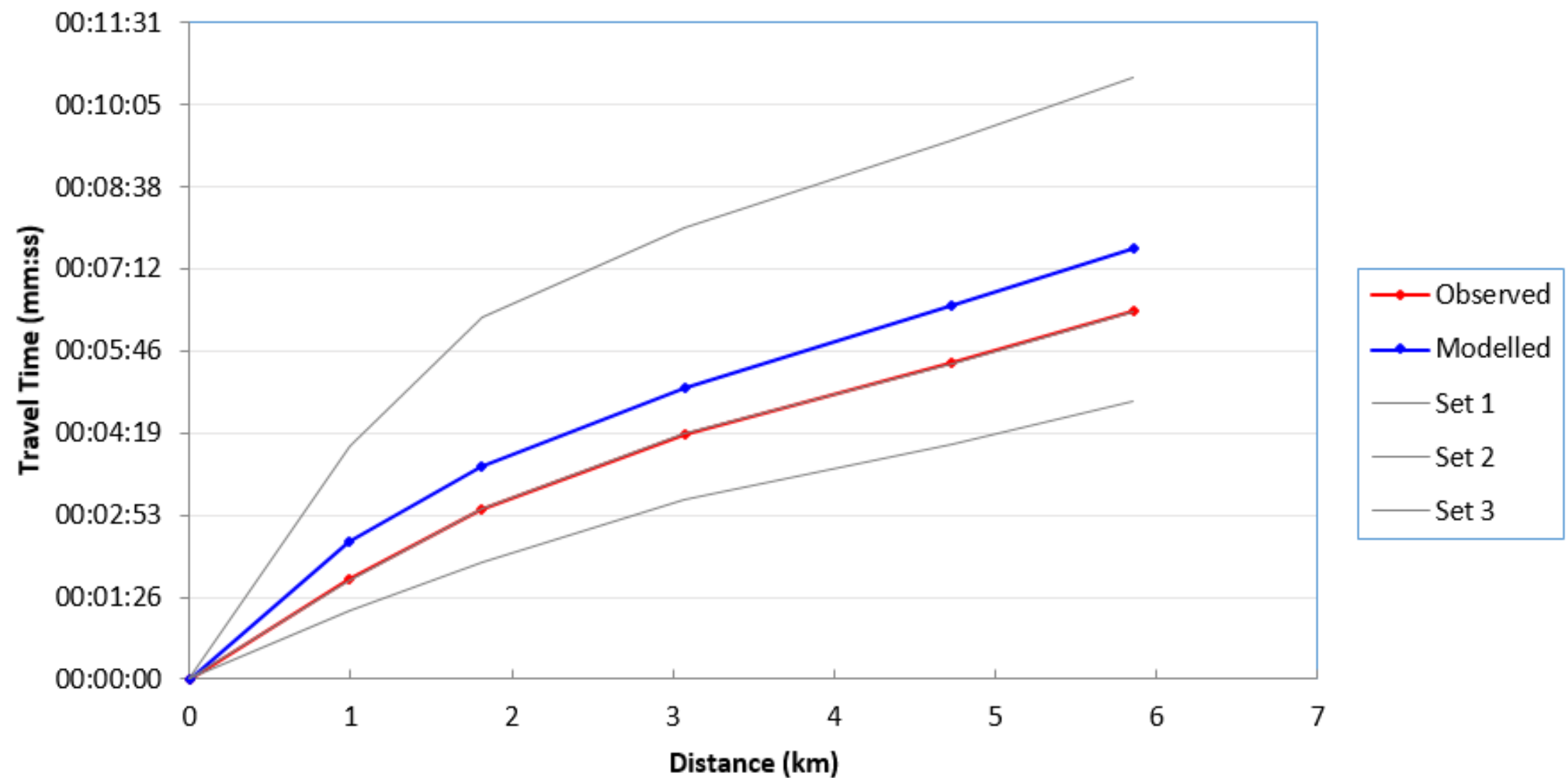


Route 1: A149 - Route 1:  
A149 NB  
Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)			Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)				
				Observed	Modelled	Set 1			Set 2	Set 3	Observed	Modelled	Observed	Modelled	< 15%
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00						□
2	Fuller's Hill to Caister Road	12	0.990	00:01:45	00:02:26	00:01:45	00:04:06	00:01:11	s1-2	0.990	00:01:45	00:02:26	33.9	24.5	×
3	Caister Road to Jellicoe Road	9	1.811	00:02:59	00:03:43	00:02:59	00:06:21	00:02:03	s2-3	0.821	00:01:14	00:01:17	40.0	38.2	✓
4	Jellicoe Road to Yarmouth Road	7	3.074	00:04:18	00:05:08	00:04:18	00:07:55	00:03:09	s3-4	1.263	00:01:19	00:01:25	57.5	53.8	✓

5	Yarmouth Road to Norwich Road	4	4.728	00:05:32	00:06:34	00:05:32	00:09:28	00:04:08	s4-5	1.654	00:01:14	00:01:26	80.3	69.2	×
6	Norwich Road to Main Road	1	5.854	00:06:27	00:07:33	00:06:27	00:10:34	00:04:53	s5-6	1.126	00:00:55	00:01:00	73.7	67.7	✓

### Journey Time Summary: A149:NB - Inter-Peak



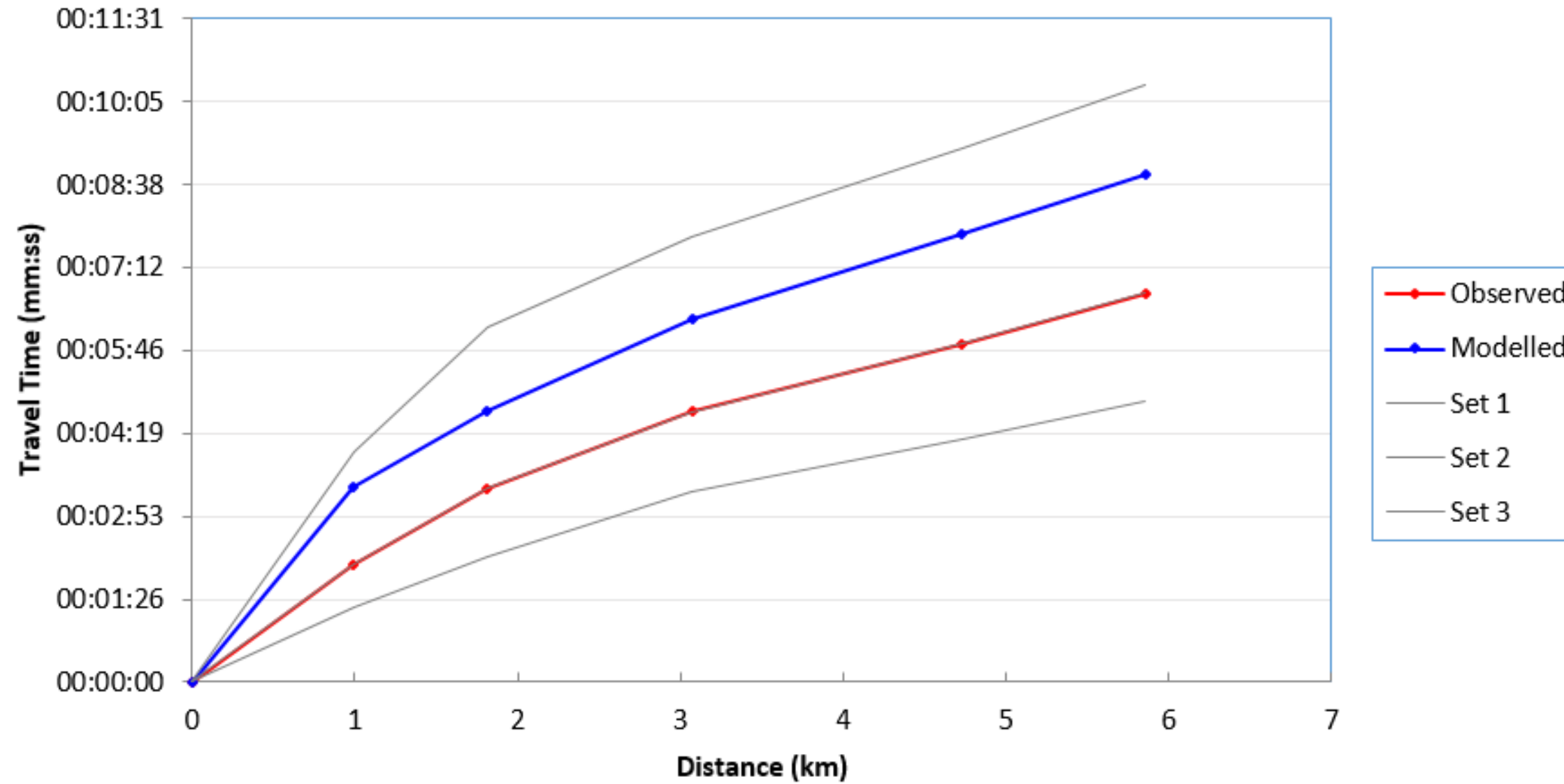
Route 1: A149 - Route 1: A149 NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Fuller's Hill to Caister Road	12	0.990	00:02:03	00:03:24	00:02:03	00:04:00	00:01:17	s1-2	0.990	00:02:03	00:03:24	29.1	17.5	×
3	Caister Road to Jellicoe Road	9	1.811	00:03:22	00:04:43	00:03:22	00:06:10	00:02:10	s2-3	0.821	00:01:19	00:01:19	37.5	37.2	✓
4	Jellicoe Road to Yarmouth Road	7	3.074	00:04:42	00:06:19	00:04:42	00:07:44	00:03:18	s3-4	1.263	00:01:21	00:01:36	56.5	47.6	×
5	Yarmouth Road to Norwich Road	4	4.728	00:05:52	00:07:46	00:05:52	00:09:15	00:04:14	s4-5	1.654	00:01:10	00:01:28	84.7	67.8	×

6	Norwich Road to Main Road	1	5.854	00:06:46	00:08:49	00:06:46	00:10:22	00:04:53	s5-6	1.126	00:00:53	00:01:03	76.1	64.5	×
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### Journey Time Summary: A149:NB - PM Peak



Route 1: A149 - Route 1: A149 SB

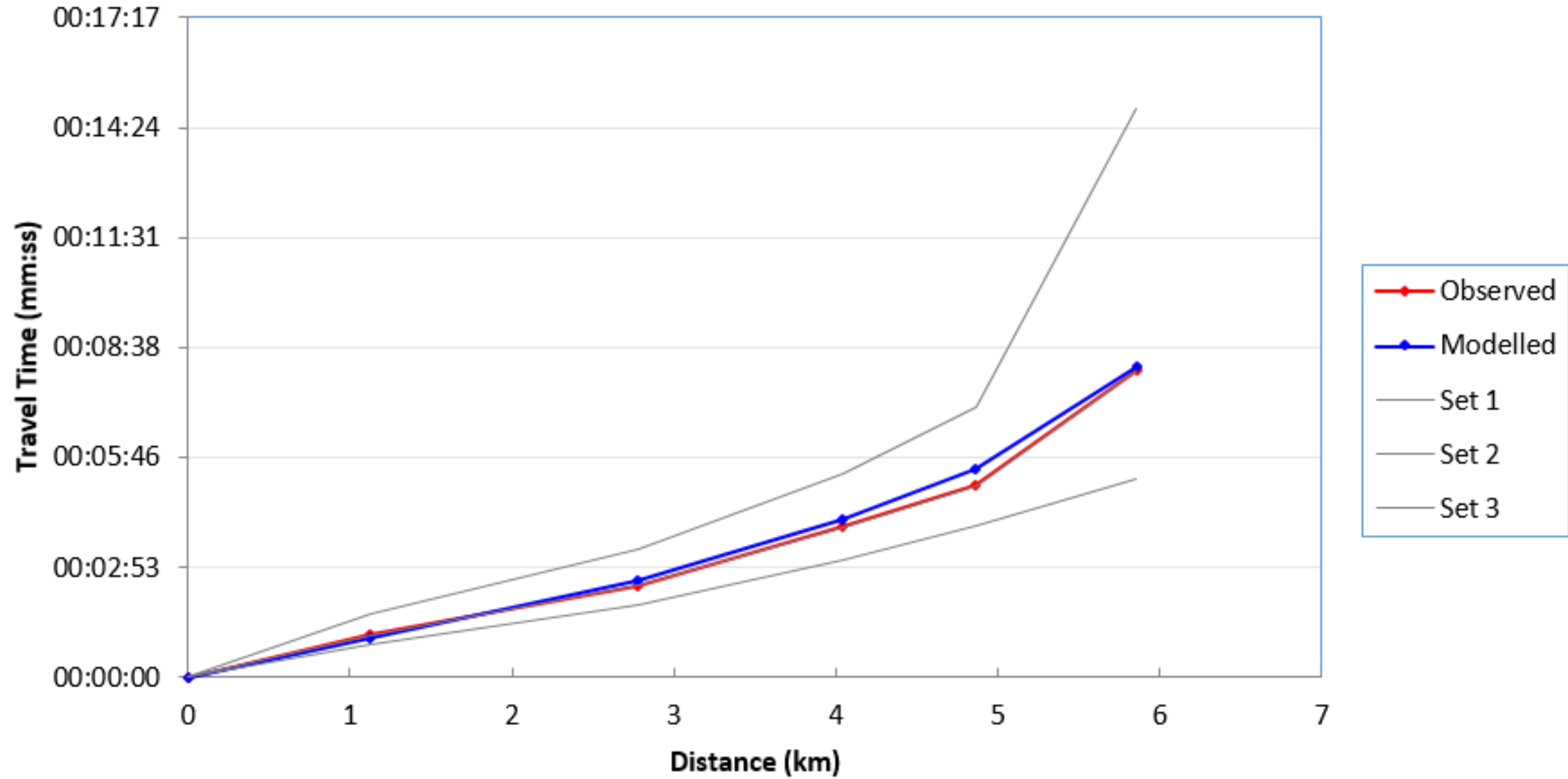
Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		1	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Main Road to Norwich Road	4	1.126	00:01:07	00:01:05	00:01:07	00:01:39	00:00:51	s1-2	1.126	00:01:07	00:01:05	60.9	62.1	✓
3	Norwich Road to Yarmouth Road	7	2.780	00:02:25	00:02:36	00:02:25	00:03:21	00:01:54	s2-3	1.654	00:01:19	00:01:30	75.8	65.9	×
4	Yarmouth Road to Jellicoe Road	9	4.043	00:03:56	00:04:18	00:03:56	00:05:20	00:03:05	s3-4	1.263	00:01:31	00:01:42	50.1	44.5	✓



5	Jellicoe Road to Caister Road	12	4.864	00:05:01	00:05:37	00:05:01	00:07:06	00:03:57	s4-5	0.821	00:01:05	00:01:19	45.2	37.5	×
6	Caister Road to Fuller's Hill	15	5.854	00:08:03	00:08:20	00:08:03	00:14:54	00:05:13	s5-6	0.990	00:03:01	00:02:43	19.7	21.8	✓

**Journey Time Summary: A149:SB - AM Peak**



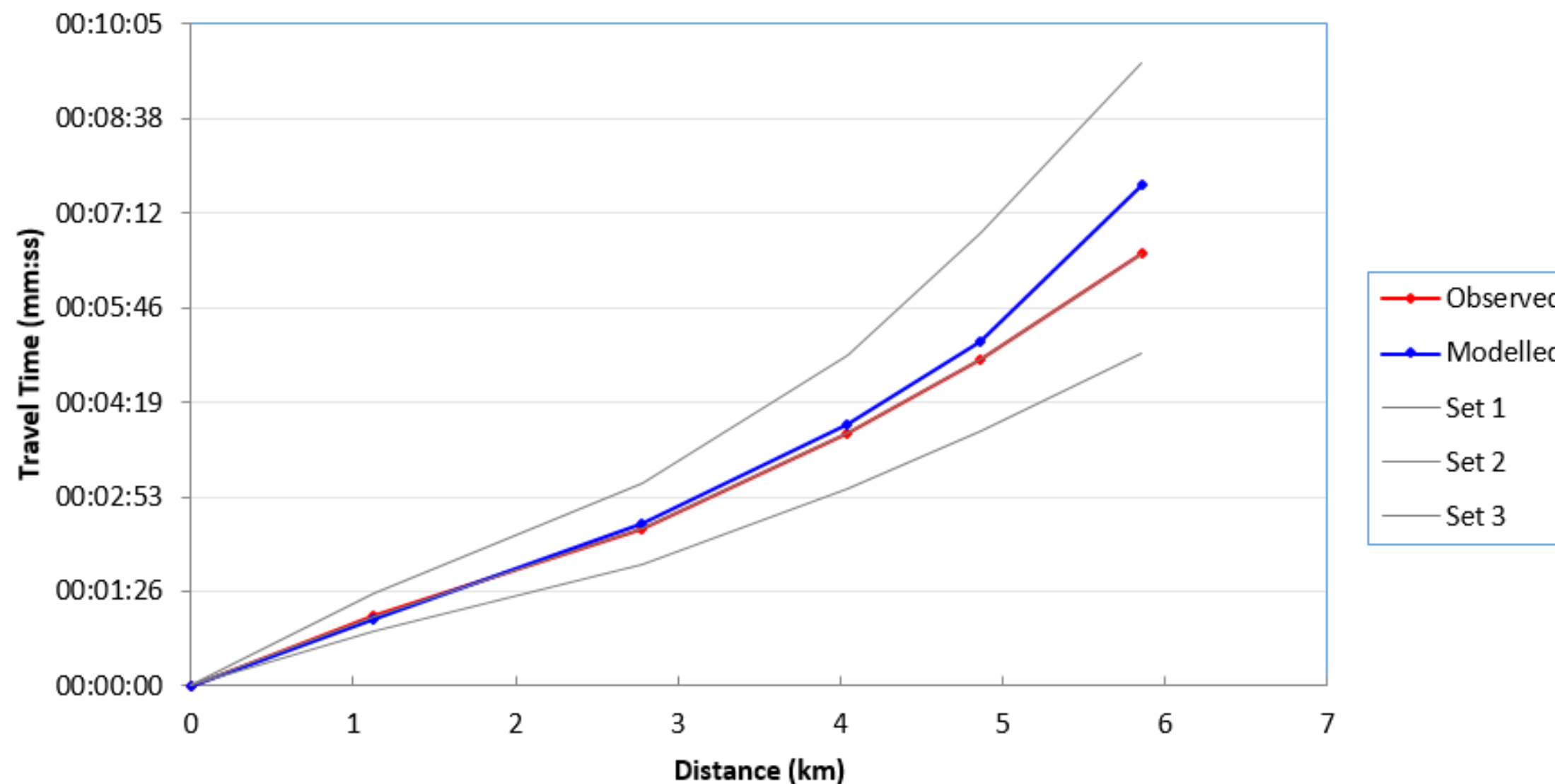
**Route 1: A149 - Route 1: A149 SB**

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		1	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Main Road to Norwich Road	4	1.126	00:01:03	00:01:01	00:01:03	00:01:25	00:00:50	s1-2	1.126	00:01:03	00:01:01	64.0	66.9	✓
3	Norwich Road to Yarmouth Road	7	2.780	00:02:23	00:02:29	00:02:23	00:03:05	00:01:52	s2-3	1.654	00:01:20	00:01:28	74.4	67.6	✓

4	Yarmouth Road to Jellicoe Road	9	4.043	00:03:51	00:03:59	00:03:51	00:05:02	00:03:01	s3-4	1.263	00:01:28	00:01:30	51.7	50.4	✓
5	Jellicoe Road to Caister Road	12	4.864	00:04:59	00:05:14	00:04:59	00:06:54	00:03:52	s4-5	0.821	00:01:08	00:01:15	43.8	39.3	✓
6	Caister Road to Fuller's Hill	15	5.854	00:06:35	00:07:37	00:06:35	00:09:29	00:05:03	s5-6	0.990	00:01:36	00:02:23	37.1	24.9	×

**Journey Time Summary: A149:SB - Inter-Peak**



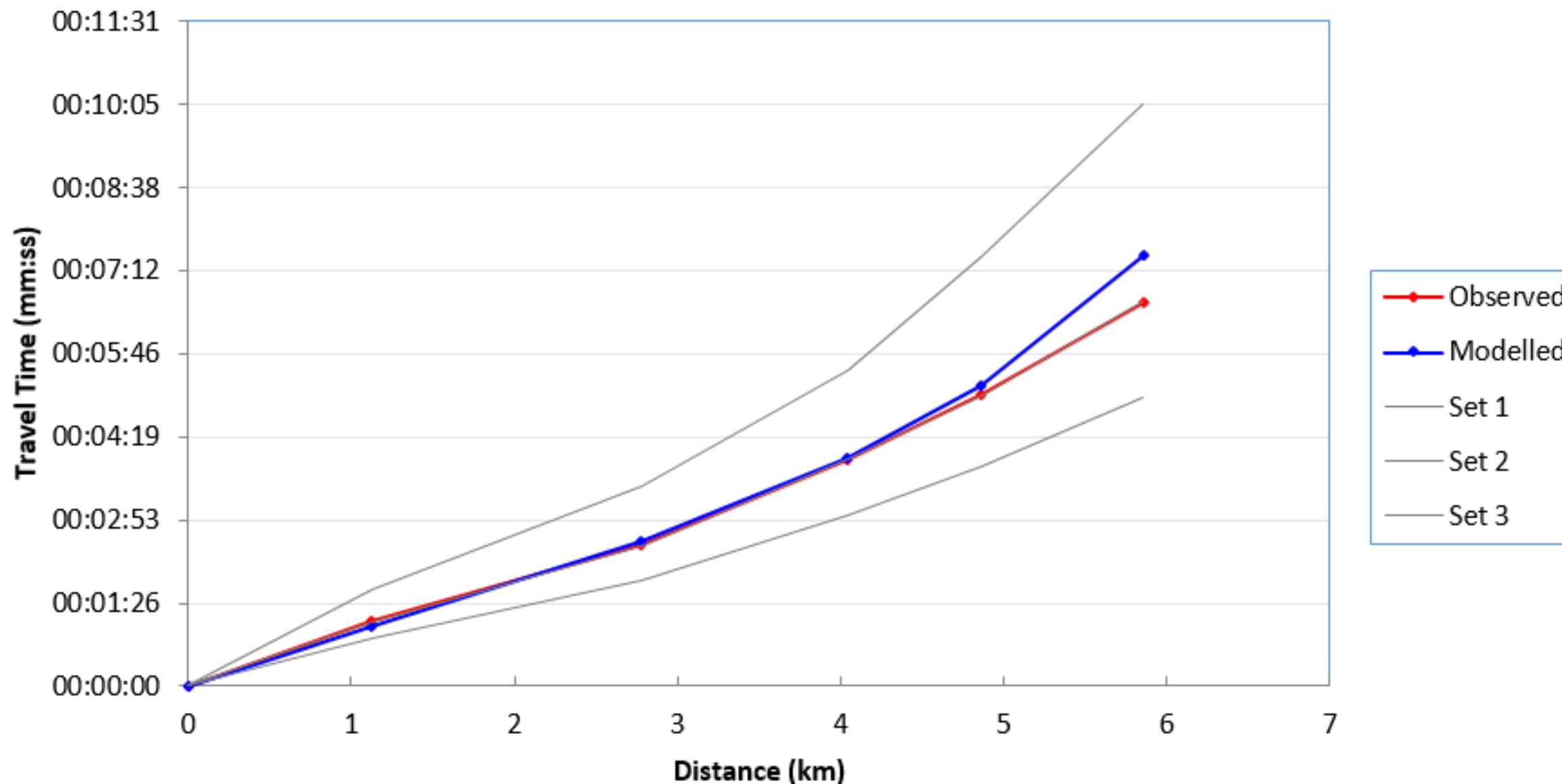
**Route 1: A149 - Route 1: A149 SB**

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		1	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Main Road to Norwich Road	4	1.126	00:01:07	00:01:02	00:01:07	00:01:41	00:00:50	s1-2	1.126	00:01:07	00:01:02	60.5	65.3	✓
3	Norwich Road to Yarmouth Road	7	2.780	00:02:26	00:02:30	00:02:26	00:03:28	00:01:50	s2-3	1.654	00:01:19	00:01:28	75.0	67.5	✓

4	Yarmouth Road to Jellicoe Road	9	4.043	00:03:55	00:03:56	00:03:55	00:05:29	00:02:59	s3-4	1.263	00:01:29	00:01:26	51.2	52.9	✓
5	Jellicoe Road to Caister Road	12	4.864	00:05:02	00:05:13	00:05:02	00:07:27	00:03:48	s4-5	0.821	00:01:07	00:01:17	44.2	38.5	✓
6	Caister Road to Fuller's Hill	15	5.854	00:06:39	00:07:28	00:06:39	00:10:05	00:05:00	s5-6	0.990	00:01:37	00:02:15	36.6	26.5	×

**Journey Time Summary: A149:SB - PM Peak**

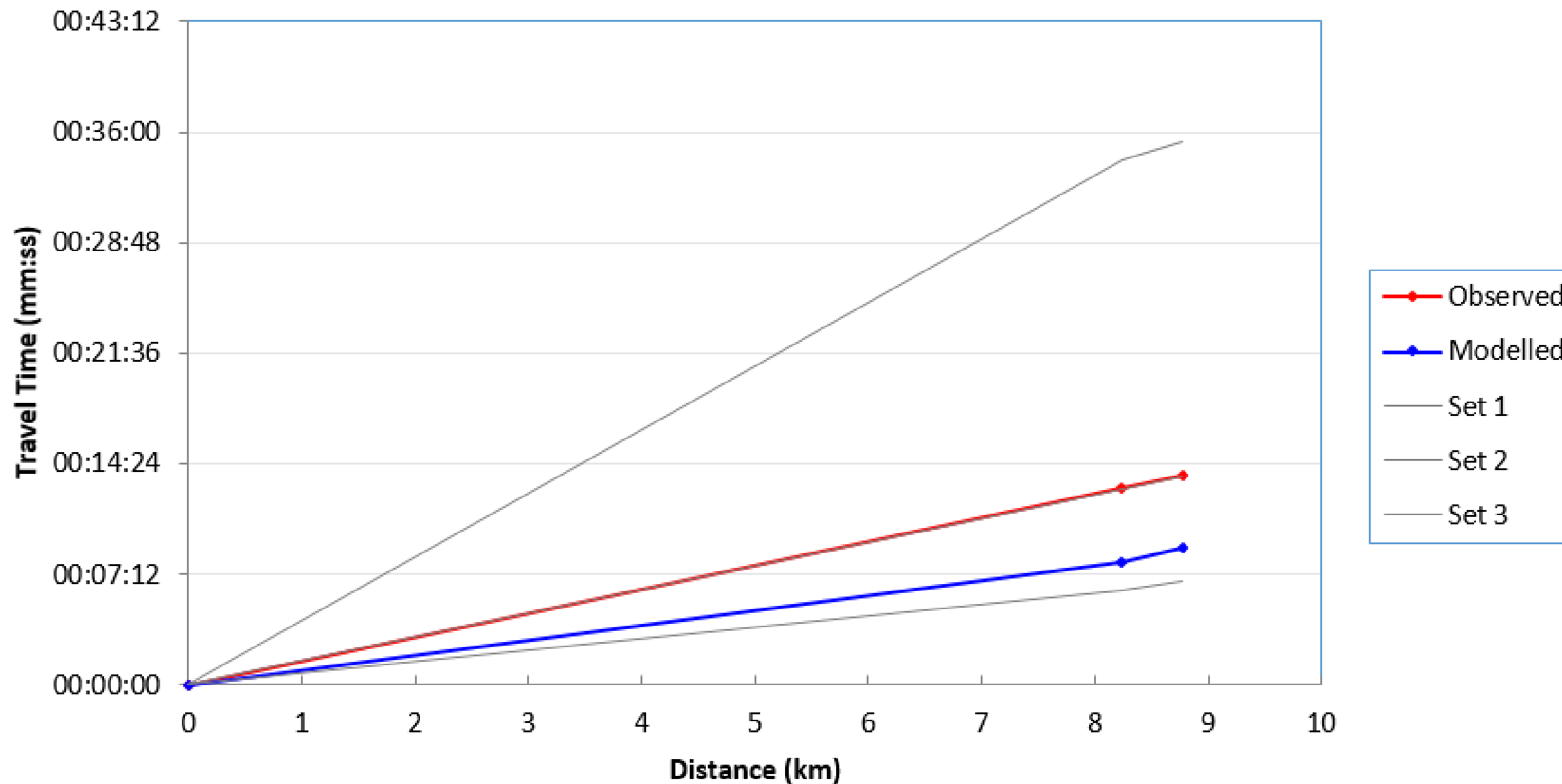


Route 2: A47 - Route 2: A47 EB

Direction: EB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		7749	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Branch Road to A12	8011	8.235	00:12:49	00:07:42	00:12:49	00:34:11	00:06:13	s1-2	8.235	00:12:49	00:07:42	38.6	64.1	×
3	A12 to N Quay	15	8.775	00:13:37	00:08:39	00:13:37	00:35:20	00:06:49	s2-3	0.540	00:00:48	00:00:56	40.2	34.4	×

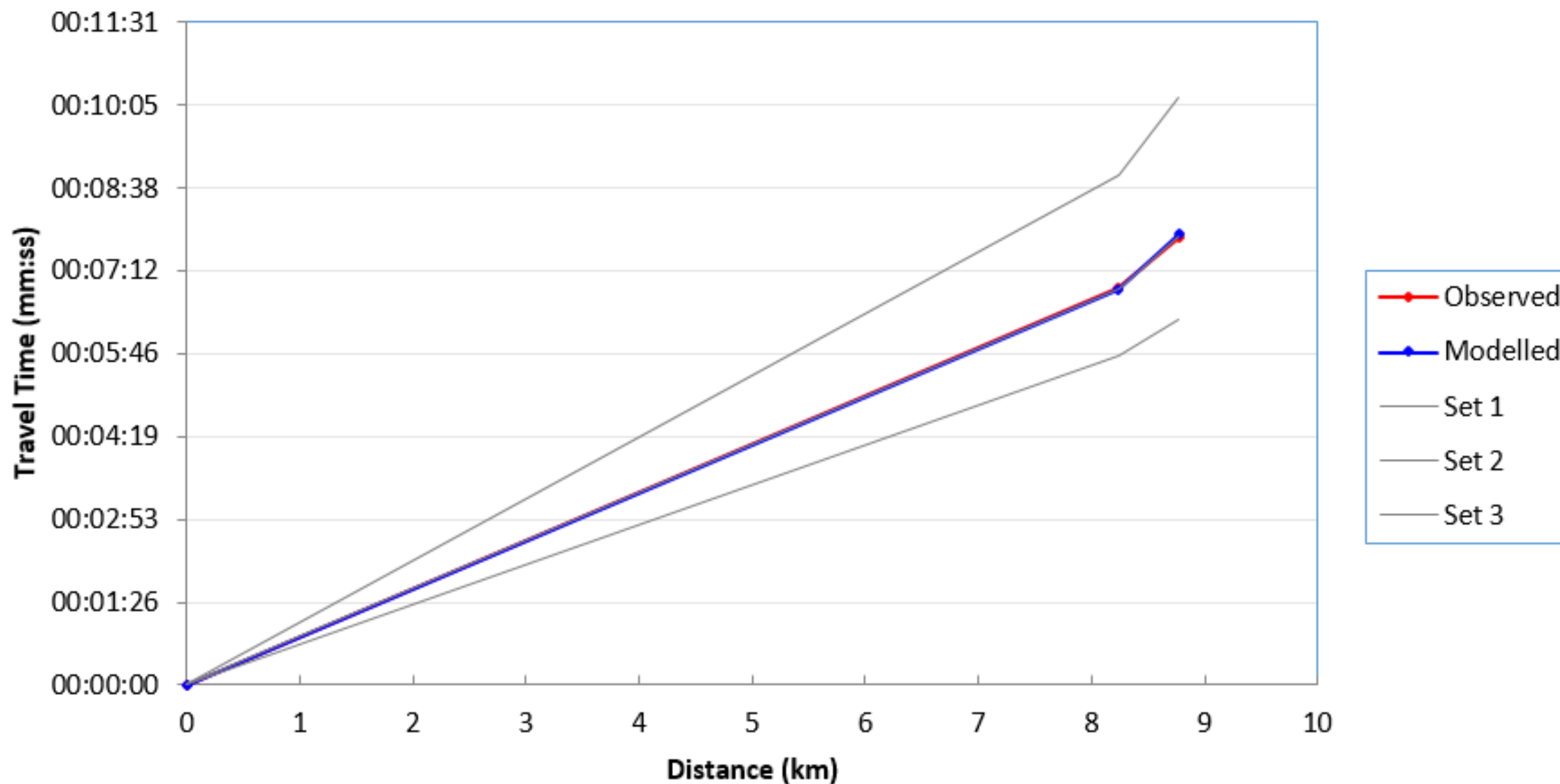
### Journey Time Summary: A47:EB - AM Peak



Route 2: A47 - Route 2: A47  
EB  
Direction: EB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)			
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%	
1		7749	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00								<input type="checkbox"/>
2	Branch Road to A12	8011	8.235	00:06:54	00:06:52	00:06:54	00:08:51	00:05:44	s1-2	8.235	00:06:54	00:06:52	71.6	71.9		✓
3	A12 to N Quay	15	8.775	00:07:47	00:07:50	00:07:47	00:10:13	00:06:21	s2-3	0.540	00:00:53	00:00:58	36.6	33.6		✓

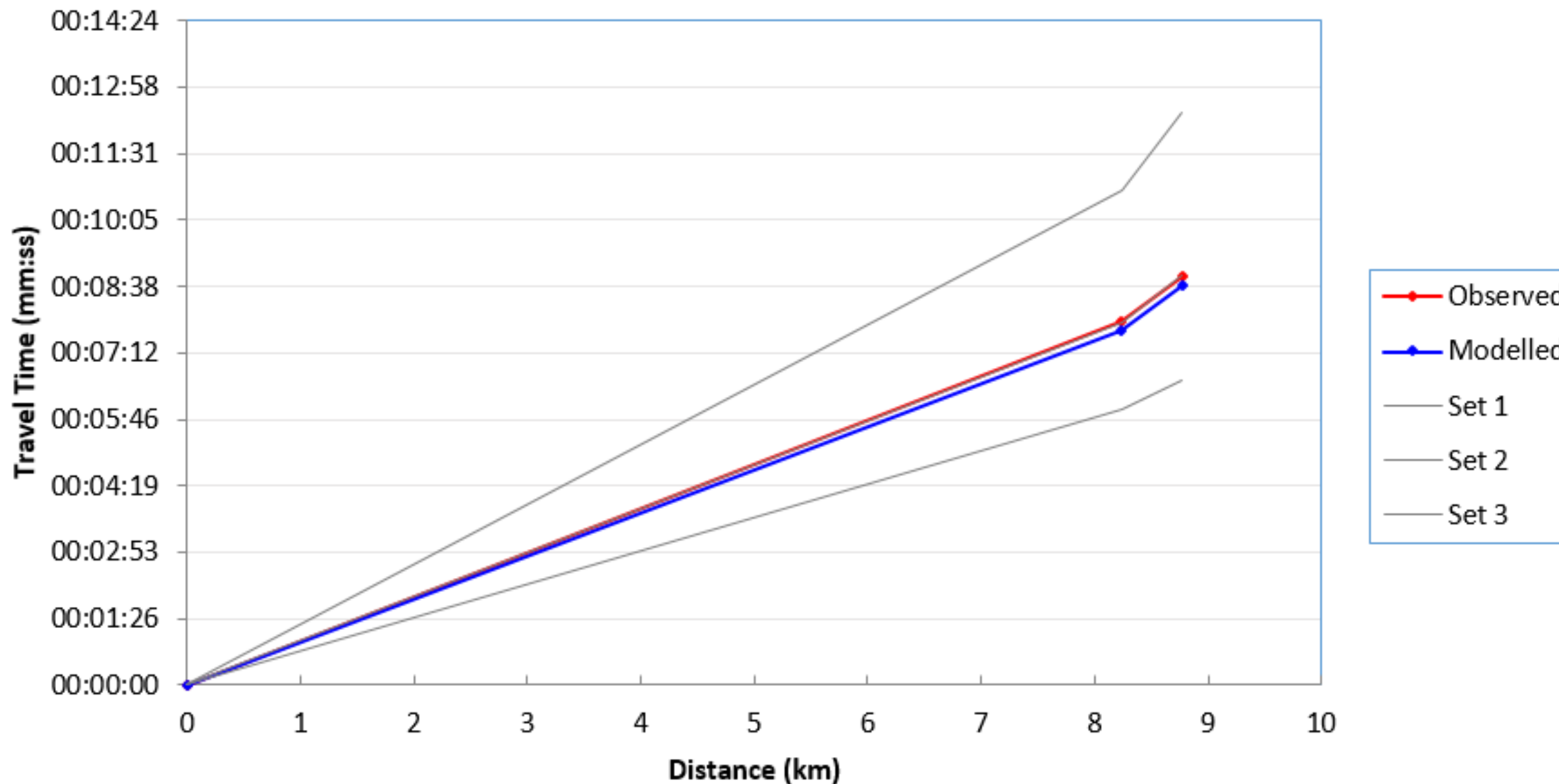
### Journey Time Summary: A47:EB - Inter-Peak



Route 2: A47 - Route 2: A47  
EB  
Direction: EB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		7749	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Branch Road to A12	8011	8.235	00:07:53	00:07:40	00:07:53	00:10:43	00:05:59	s1-2	8.235	00:07:53	00:07:40	62.7	64.4	✓
3	A12 to N Quay	15	8.775	00:08:53	00:08:39	00:08:53	00:12:25	00:06:37	s2-3	0.540	00:01:00	00:00:59	32.3	32.9	✓

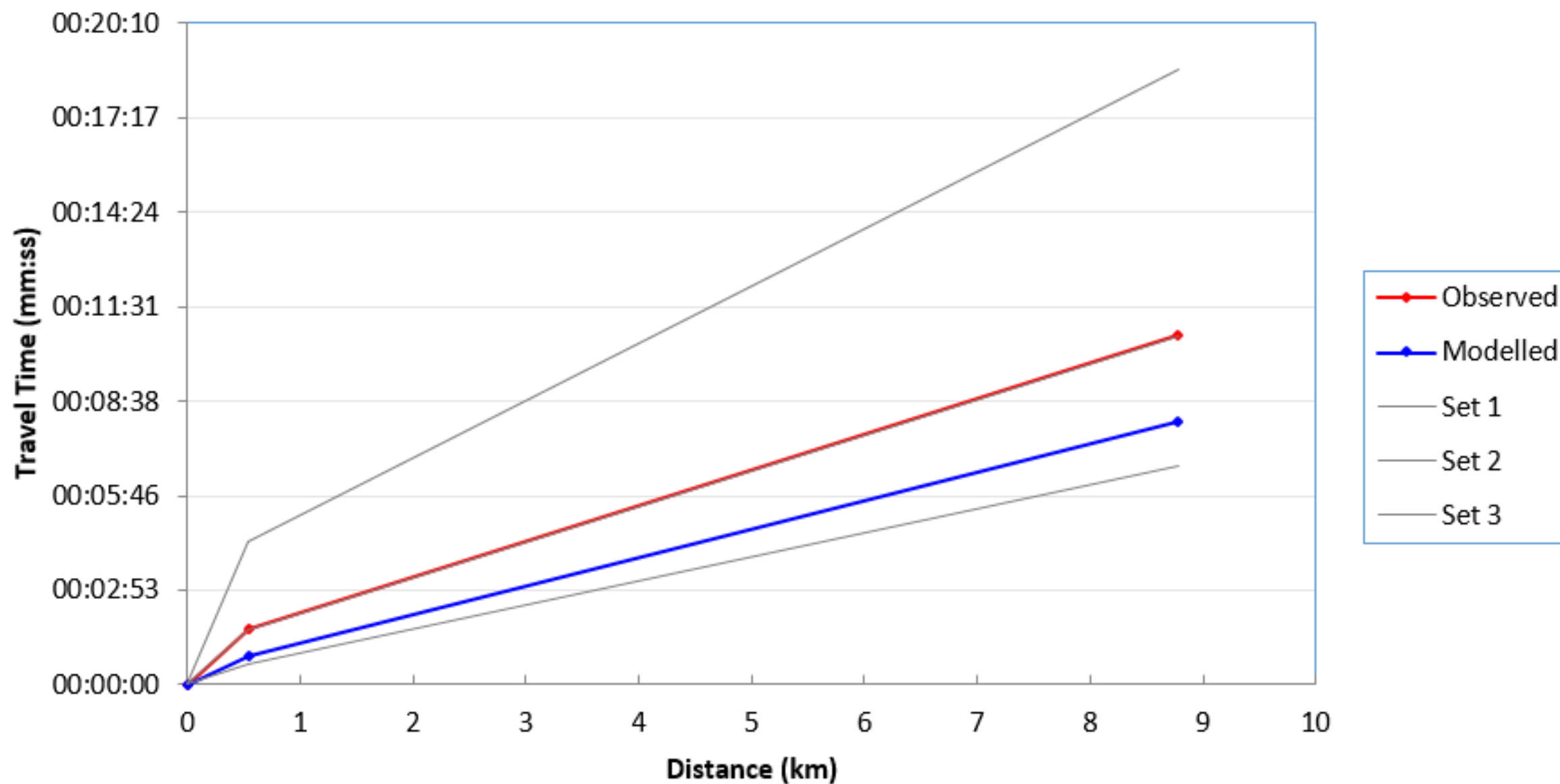
### Journey Time Summary: A47:EB - PM Peak



Route 2: A47 - Route 2: A47 WB  
Direction: WB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	N Quay to A12	8012	0.540	00:01:41	00:00:58	00:01:41	00:04:23	00:00:39	s1-2	0.540	00:01:41	00:00:58	19.2	33.5	×
3	A12 to Branch Road	7749	8.780	00:10:39	00:07:45	00:10:39	00:18:46	00:06:41	s2-3	8.240	00:08:57	00:06:47	55.2	72.8	×

### Journey Time Summary: A47:WB - AM Peak

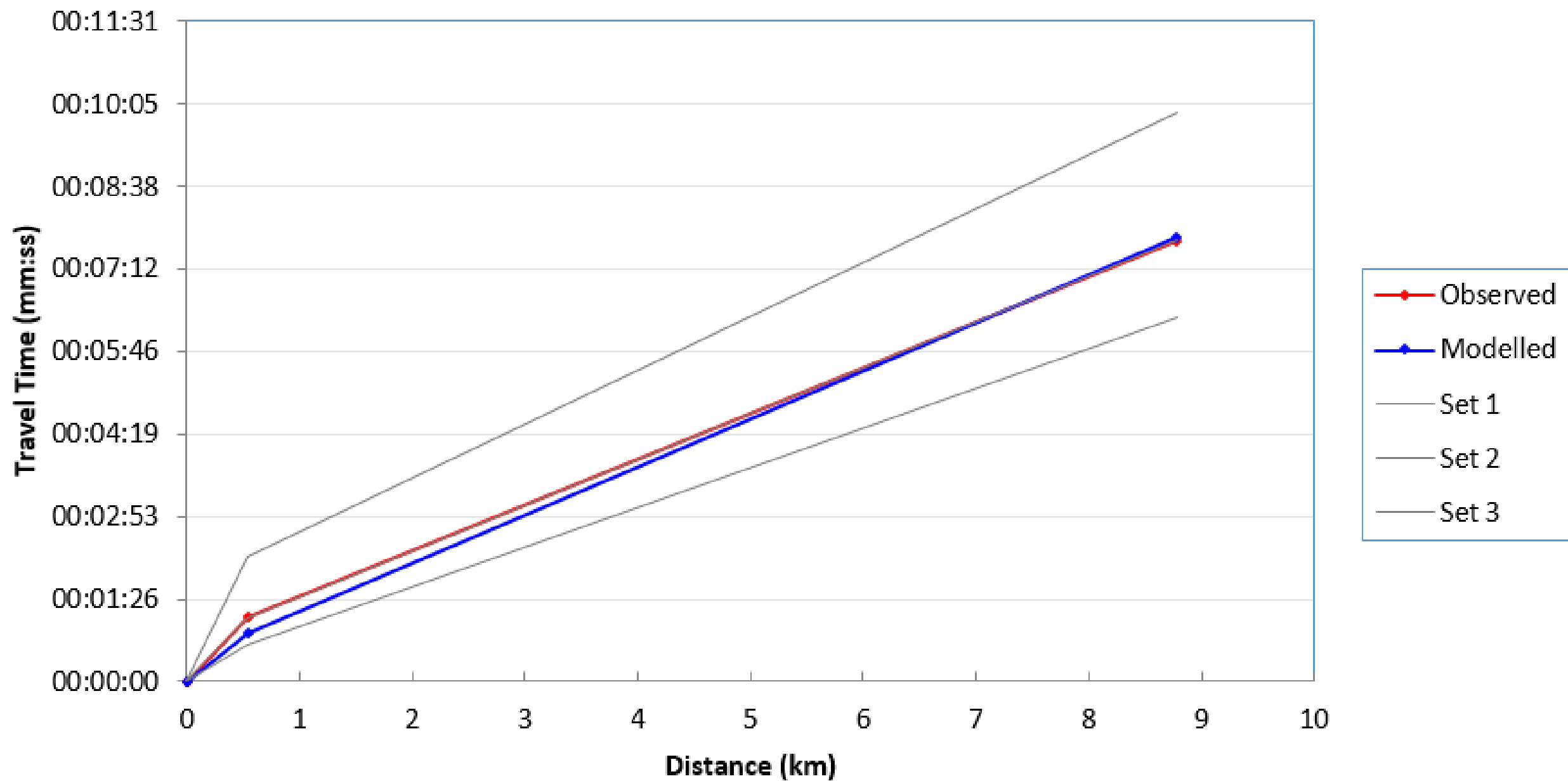


Route 2: A47 - Route 2: A47  
WB

Direction: WB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	N Quay to A12	8012	0.540	00:01:07	00:00:50	00:01:07	00:02:11	00:00:38	s1-2	0.540	00:01:07	00:00:50	29.0	38.8	×
3	A12 to Branch Road	7749	8.780	00:07:42	00:07:45	00:07:42	00:09:55	00:06:20	s2-3	8.240	00:06:35	00:06:54	75.1	71.6	✓

### Journey Time Summary: A47:WB - Inter-Peak



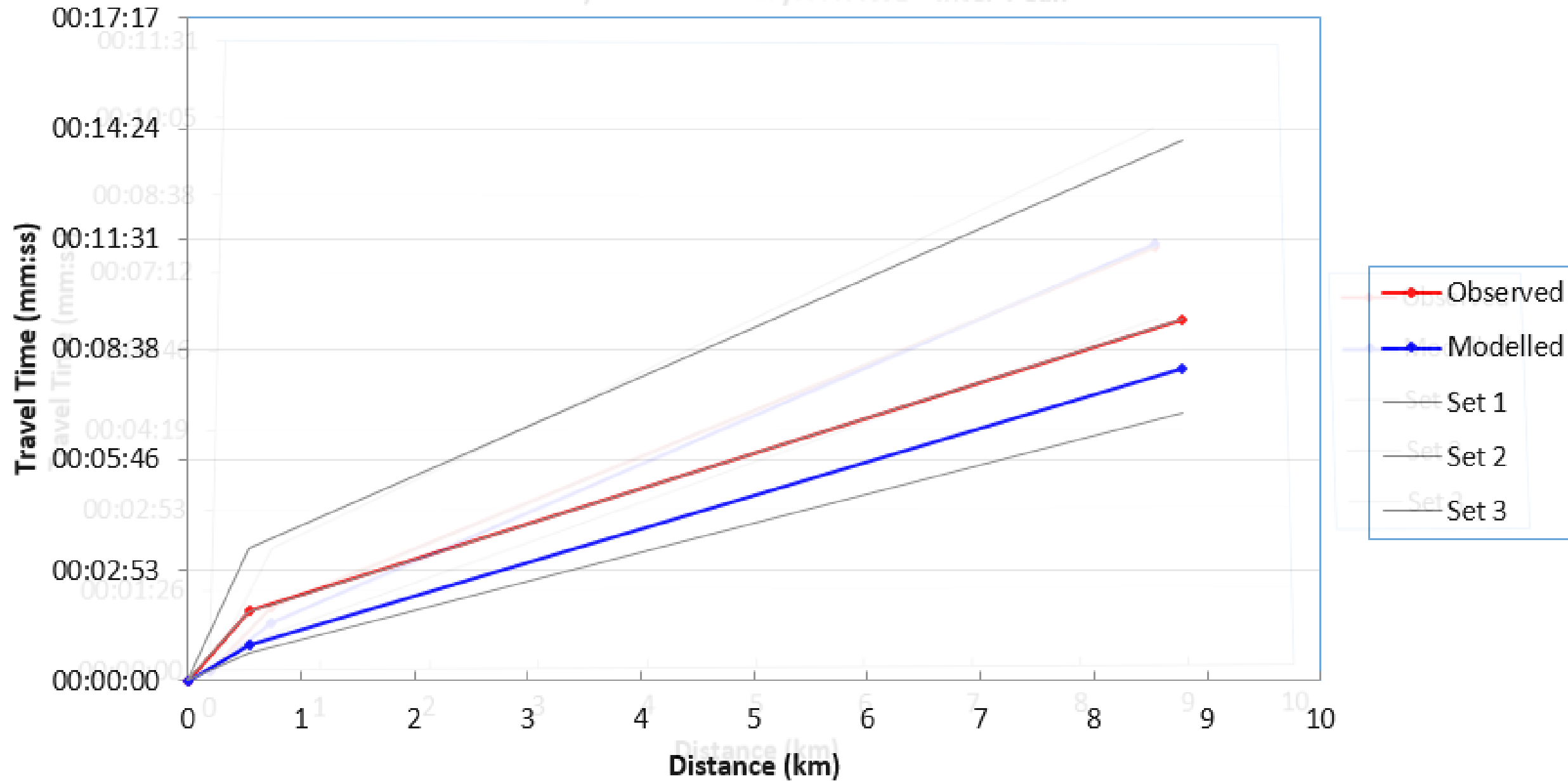
Route 2: A47 - Route 2: A47  
WB  
Direction: WB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							☐
2	N Quay to A12	8012	0.540	00:01:49	00:00:55	00:01:49	00:03:26	00:00:45	s1-2	0.540	00:01:49	00:00:55	17.8	35.2	×
3	A12 to Branch Road	7749	8.780	00:09:25	00:08:09	00:09:25	00:14:06	00:06:59	s2-3	8.240	00:07:36	00:07:14	65.1	68.3	✓



### Journey Time Summary: A47:WB - PM Peak

Journey Time Summary: A47:WB - Inter-Peak

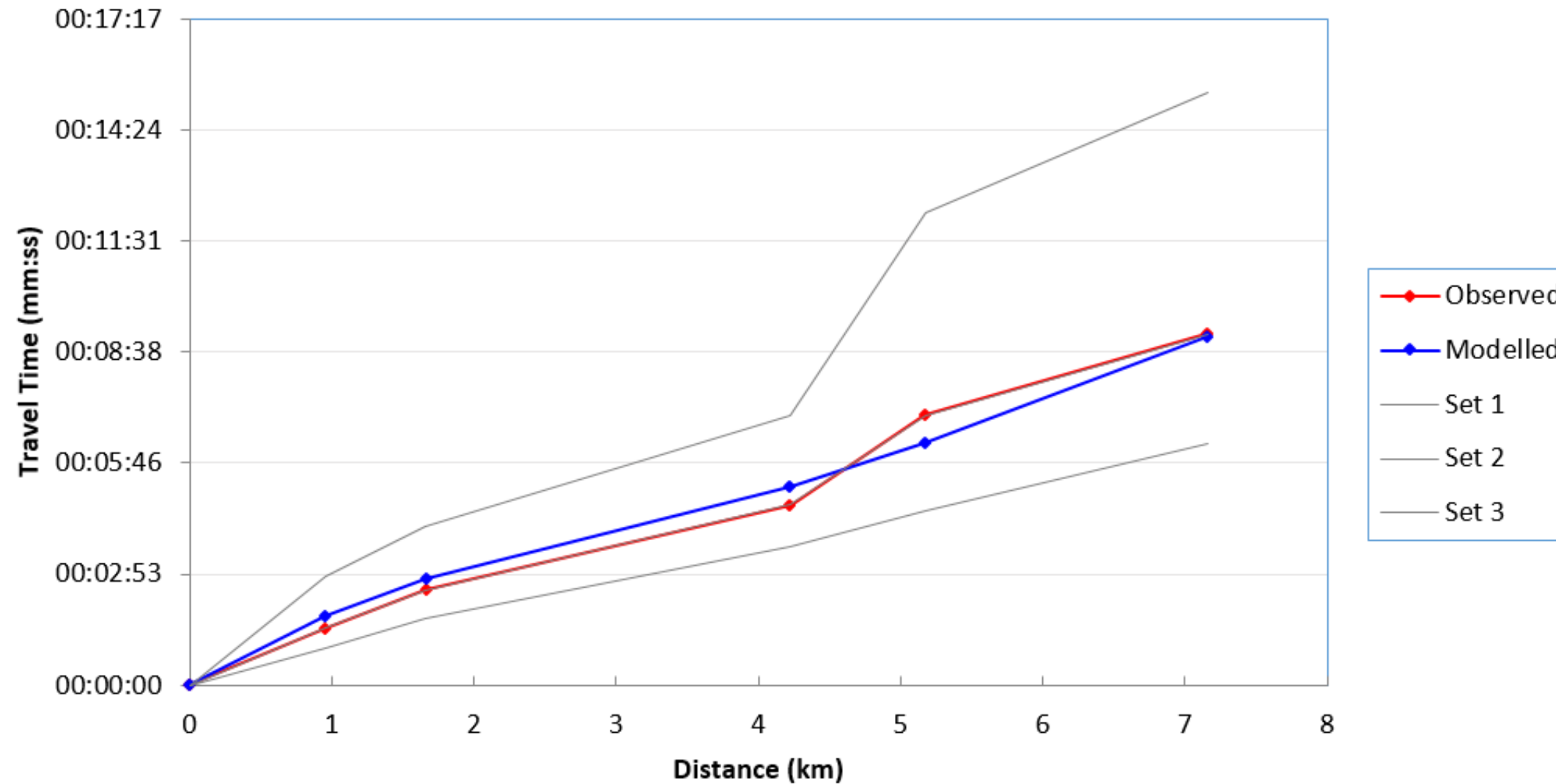


Route 3: A12 Western Bypass - Route 3: A12  
Western Bypass NB  
Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		68	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							<input type="checkbox"/>
2	Beaufort Way to Brasenose Avenue	64	0.955	00:01:29	00:01:41	00:01:29	00:02:49	00:00:58	s1-2	0.955	00:01:29	00:01:41	38.7	33.9	<input checked="" type="checkbox"/>
3	Brasenose Avenue to Victoria Road	61	1.659	00:02:28	00:02:42	00:02:28	00:04:07	00:01:45	s2-3	0.704	00:00:59	00:01:01	42.7	41.8	<input checked="" type="checkbox"/>

4	Victoria Road to William Adam's Way	8010	4.223	00:04:41	00:05:16	00:04:41	00:07:00	00:03:37	s3-4	2.564	00:02:12	00:02:34	69.8	60.0	×
5	William Adam's Way to Gapton Hall Road	7736	5.171	00:07:00	00:06:42	00:07:00	00:12:15	00:04:31	s4-5	0.948	00:02:20	00:01:26	24.5	39.8	×
6	Gapton Hall Road to A47	8013	7.156	00:09:06	00:09:37	00:09:06	00:15:22	00:06:17	s5-6	1.985	00:02:06	00:02:55	56.8	40.8	×

### Journey Time Summary: A12 WESTERN BYPASS:NB - AM Peak



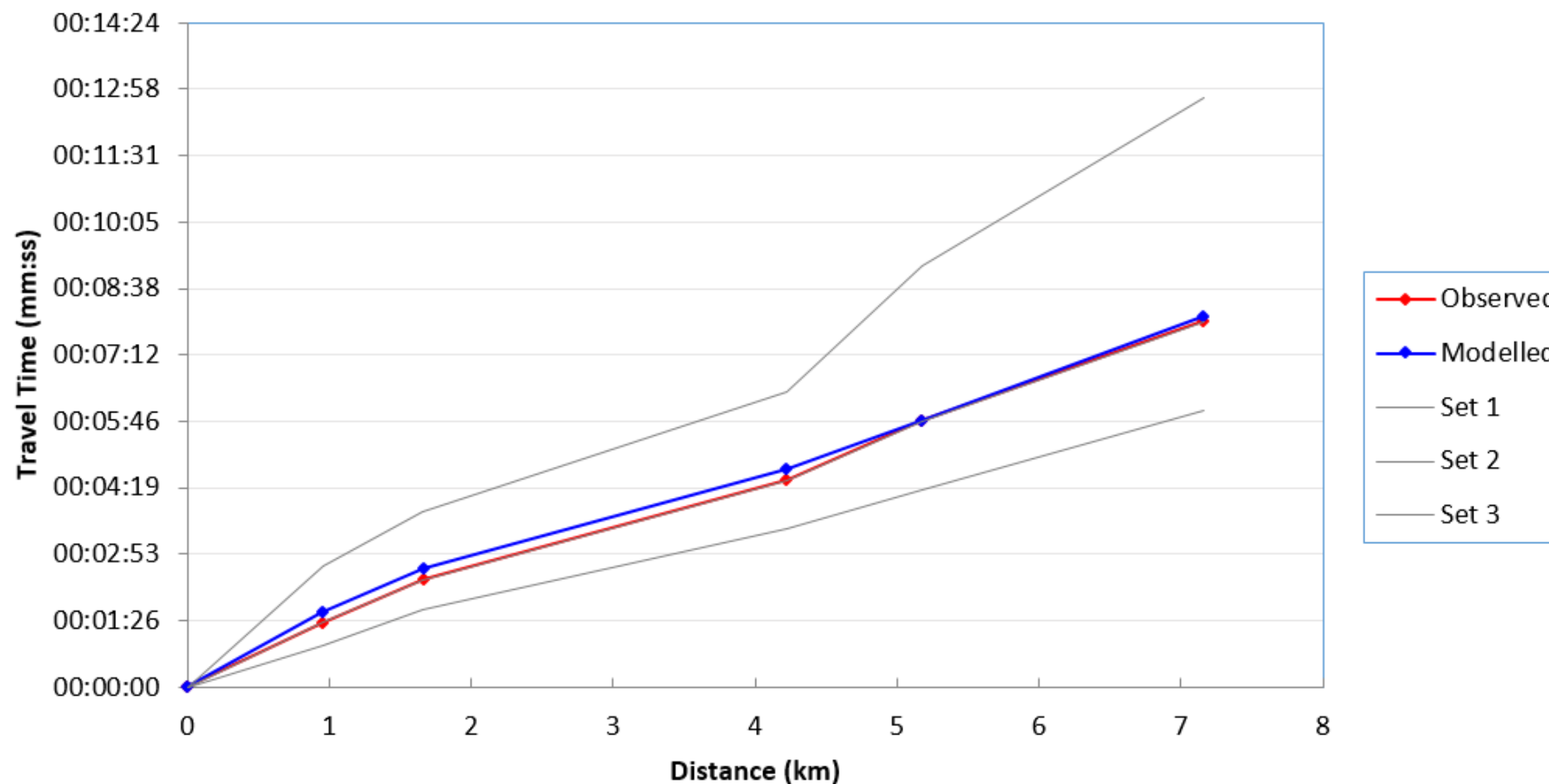
#### Route 3: A12 Western Bypass - Route 3: A12 Western Bypass NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)			Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)				
				Observed	Modelled	Set 1			Set 2	Set 3	Observed	Modelled	Observed	Modelled	< 15%
1		68	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Beaufort Way to Brasenose Avenue	64	0.955	00:01:24	00:01:38	00:01:24	00:02:37	00:00:54	s1-2	0.955	00:01:24	00:01:38	41.0	35.2	×
3	Brasenose Avenue to Victoria Road	61	1.659	00:02:20	00:02:33	00:02:20	00:03:49	00:01:40	s2-3	0.704	00:00:56	00:00:56	44.9	45.3	✓
4	Victoria Road to William Adam's Way	8010	4.223	00:04:29	00:04:45	00:04:29	00:06:23	00:03:27	s3-4	2.564	00:02:09	00:02:11	71.6	70.4	✓

5	William Adam's Way to Gapton Hall Road	7736	5.171	00:05:46	00:05:47	00:05:46	00:09:08	00:04:16	s4-5	0.948	00:01:17	00:01:03	44.6	54.4	×
6	Gapton Hall Road to A47	8013	7.156	00:07:56	00:08:02	00:07:56	00:12:47	00:05:59	s5-6	1.985	00:02:10	00:02:14	55.0	53.2	✓

### Journey Time Summary: A12 WESTERN BYPASS:NB - Inter-Peak



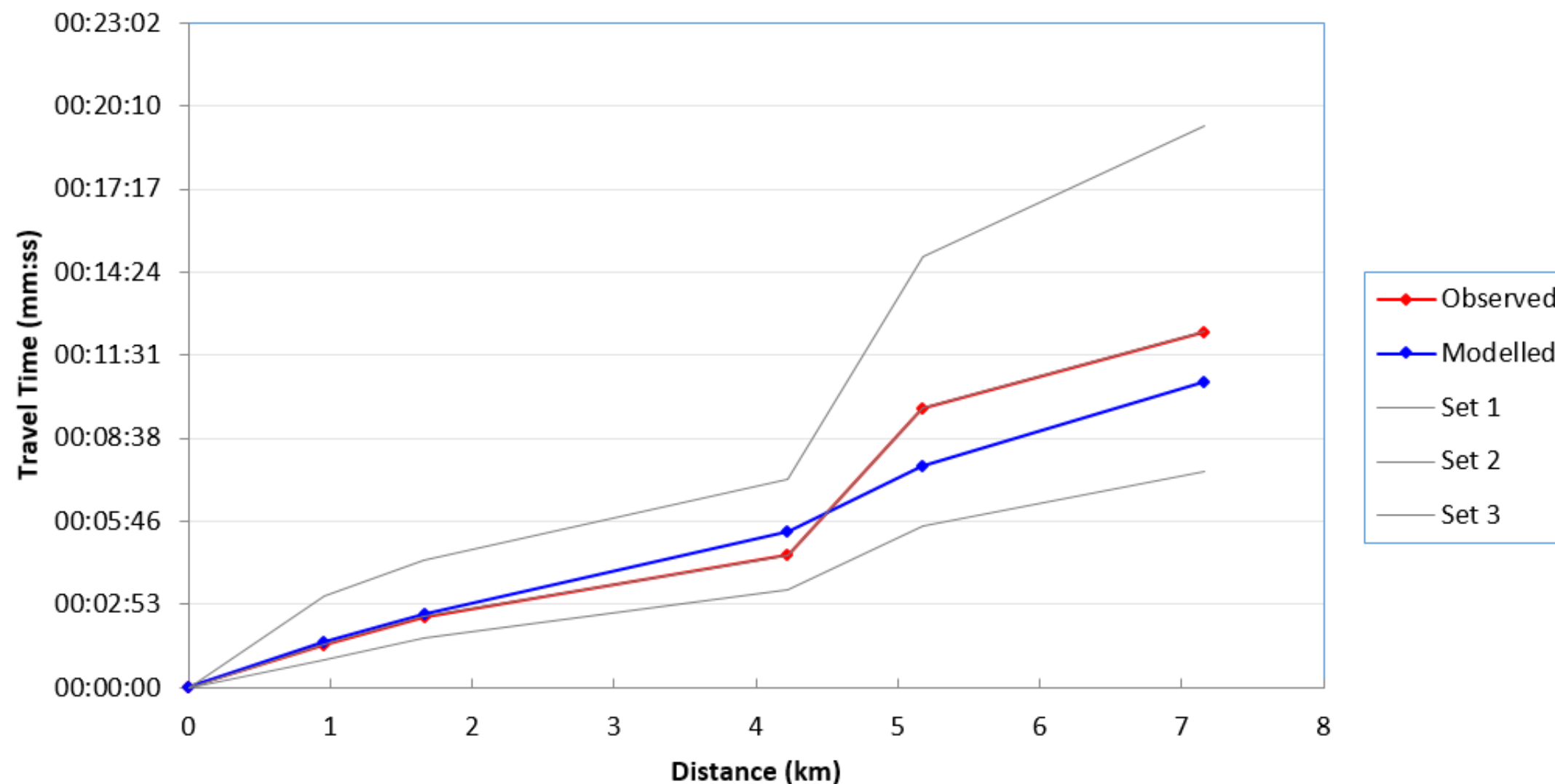
#### Route 3: A12 Western Bypass - Route 3: A12 Western Bypass NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		68	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Beaufort Way to Brasenose Avenue	64	0.955	00:01:30	00:01:35	00:01:30	00:03:10	00:00:57	s1-2	0.955	00:01:30	00:01:35	38.2	36.0	✓
3	Brasenose Avenue to Victoria Road	61	1.659	00:02:28	00:02:32	00:02:28	00:04:25	00:01:42	s2-3	0.704	00:00:58	00:00:57	43.8	44.5	✓

4	Victoria Road to William Adam's Way	8010	4.223	00:04:36	00:05:24	00:04:36	00:07:12	00:03:24	s3-4	2.564	00:02:08	00:02:52	72.3	53.7	×
5	William Adam's Way to Gapton Hall Road	7736	5.171	00:09:41	00:07:41	00:09:41	00:14:56	00:05:36	s4-5	0.948	00:05:05	00:02:16	11.2	25.0	×
6	Gapton Hall Road to A47	8013	7.156	00:12:20	00:10:34	00:12:20	00:19:27	00:07:30	s5-6	1.985	00:02:39	00:02:54	44.9	41.2	✓

**Journey Time Summary: A12 WESTERN BYPASS:NB - PM Peak**



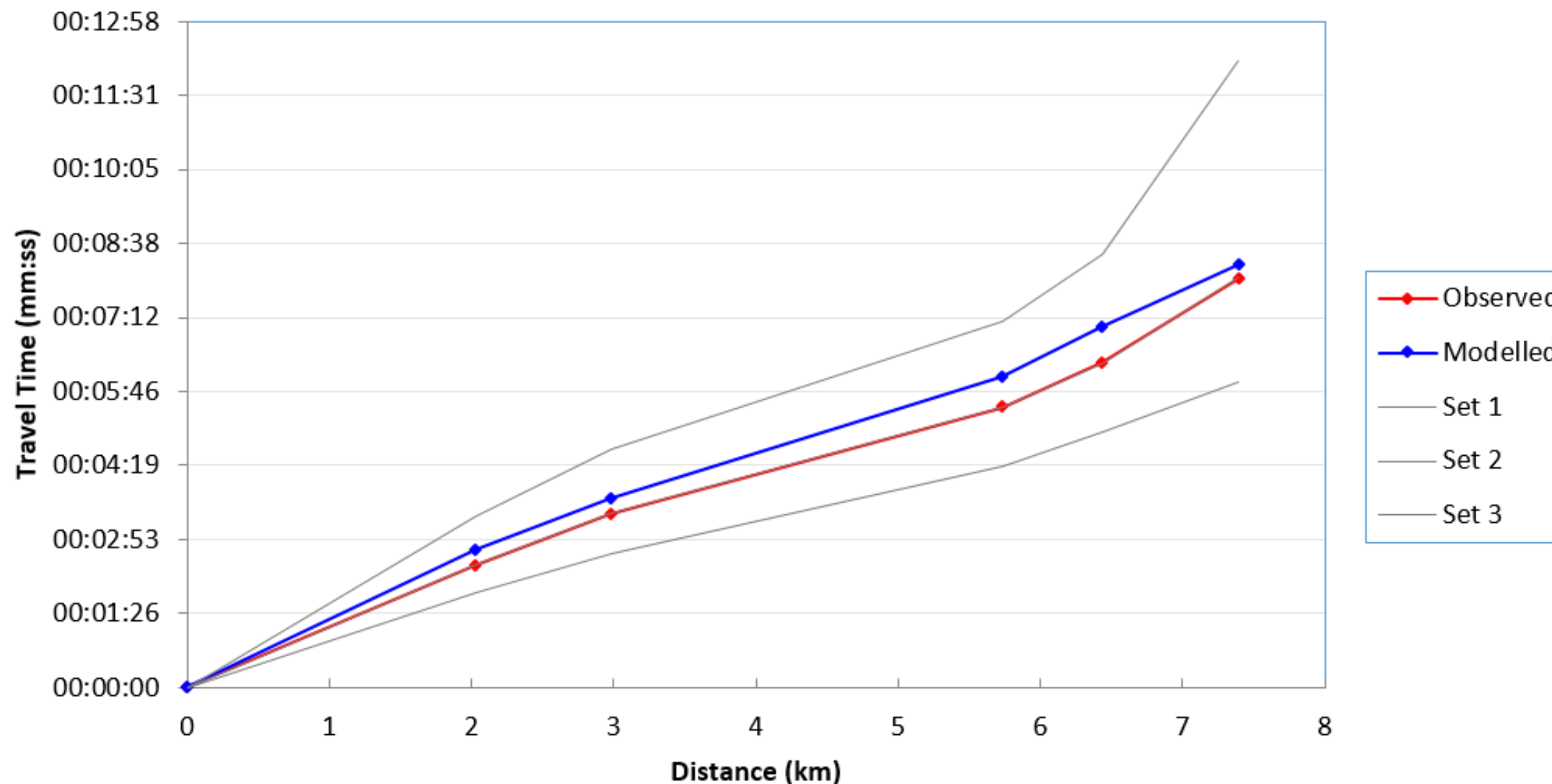
**Route 3: A12 Western Bypass - Route 3: A12 Western Bypass SB**

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		8012	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A47 to Gapton Hall Road	7734	2.030	00:02:23	00:02:56	00:02:23	00:03:20	00:01:50	s1-2	2.030	00:02:23	00:02:56	51.0	41.6	×
3	Gapton Hall Road to William Adam's Way	8006	2.982	00:03:23	00:03:57	00:03:23	00:04:39	00:02:36	s2-3	0.952	00:01:00	00:01:01	57.5	56.5	✓

4	William Adam's Way to Victoria Road	61	5.732	00:05:27	00:06:18	00:05:27	00:07:07	00:04:19	s3-4	2.750	00:02:04	00:02:21	79.5	70.0	✓
5	Victoria Road to Brasenose Avenue	64	6.436	00:06:18	00:07:16	00:06:18	00:08:26	00:04:58	s4-5	0.704	00:00:51	00:00:58	49.7	43.8	✓
6	Brasenose Avenue to Beaufort Way	68	7.391	00:07:58	00:08:32	00:07:58	00:12:12	00:05:56	s5-6	0.955	00:01:39	00:01:16	34.6	45.1	×

### Journey Time Summary: A12 WESTERN BYPASS:SB - AM Peak

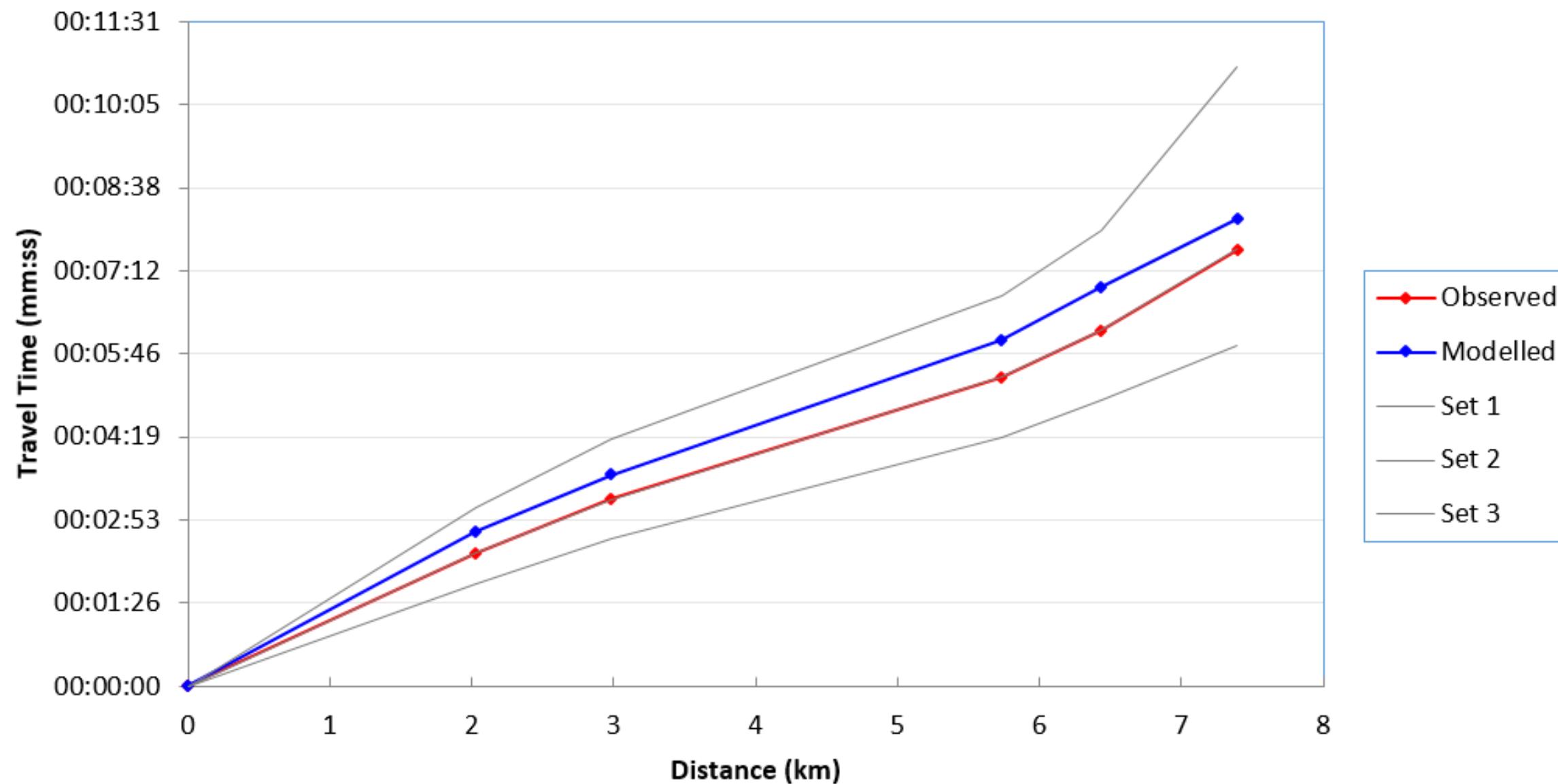


Route 3: A12 Western Bypass - Route 3: A12 Western Bypass SB  
Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		8012	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A47 to Gapton Hall Road	7734	2.030	00:02:18	00:02:41	00:02:18	00:03:06	00:01:47	s1-2	2.030	00:02:18	00:02:41	52.9	45.5	×
3	Gapton Hall Road to William Adam's Way	8006	2.982	00:03:14	00:03:40	00:03:14	00:04:17	00:02:33	s2-3	0.952	00:00:56	00:00:59	61.1	57.9	✓

4	William Adam's Way to Victoria Road	61	5.732	00:05:22	00:06:00	00:05:22	00:06:46	00:04:20	s3-4	2.750	00:02:07	00:02:20	77.7	70.7	✓
5	Victoria Road to Brasenose Avenue	64	6.436	00:06:10	00:06:54	00:06:10	00:07:54	00:04:58	s4-5	0.704	00:00:48	00:00:54	52.4	46.7	✓
6	Brasenose Avenue to Beaufort Way	68	7.391	00:07:34	00:08:06	00:07:34	00:10:44	00:05:54	s5-6	0.955	00:01:24	00:01:12	41.0	47.7	✓

### Journey Time Summary: A12 WESTERN BYPASS:SB - Inter-Peak



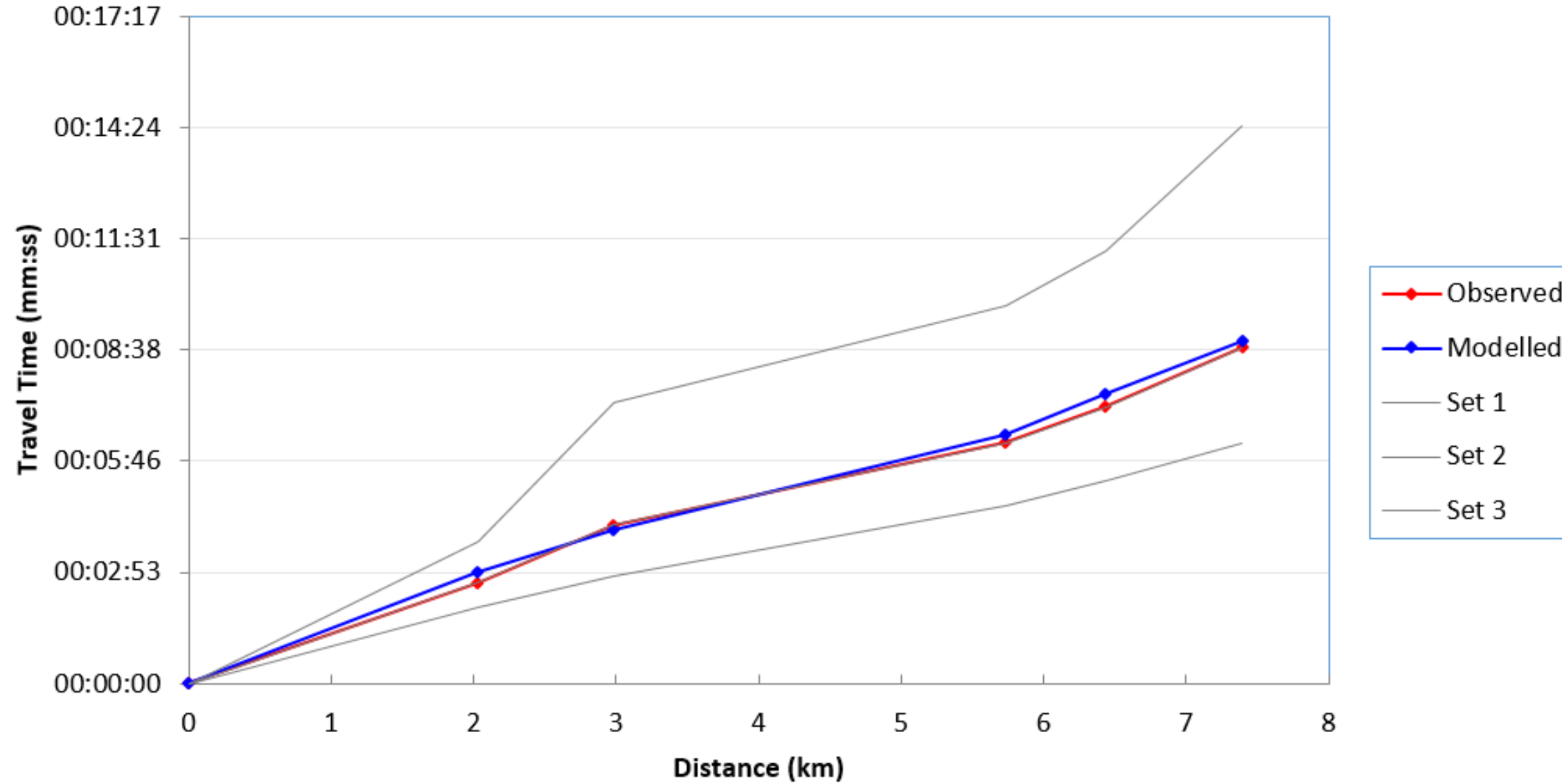
Route 3: A12 Western Bypass - Route 3: A12 Western Bypass SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		8012	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A47 to Gapton Hall Road	7734	2.030	00:02:37	00:02:52	00:02:37	00:03:41	00:01:58	s1-2	2.030	00:02:37	00:02:52	46.5	42.4	✓
3	Gapton Hall Road to William Adam's Way	8006	2.982	00:04:07	00:03:58	00:04:07	00:07:17	00:02:48	s2-3	0.952	00:01:30	00:01:06	38.2	52.1	×
4	William Adam's Way to Victoria Road	61	5.732	00:06:14	00:06:28	00:06:14	00:09:48	00:04:36	s3-4	2.750	00:02:08	00:02:30	77.6	66.2	×

5	Victoria Road to Brasenose Avenue	64	6.436	00:07:09	00:07:31	00:07:09	00:11:12	00:05:16	s4-5	0.704	00:00:55	00:01:04	46.0	39.9	×
6	Brasenose Avenue to Beaufort Way	68	7.391	00:08:43	00:08:51	00:08:43	00:14:25	00:06:15	s5-6	0.955	00:01:33	00:01:20	36.9	42.8	✓

### Journey Time Summary: A12 WESTERN BYPASS:SB - PM Peak

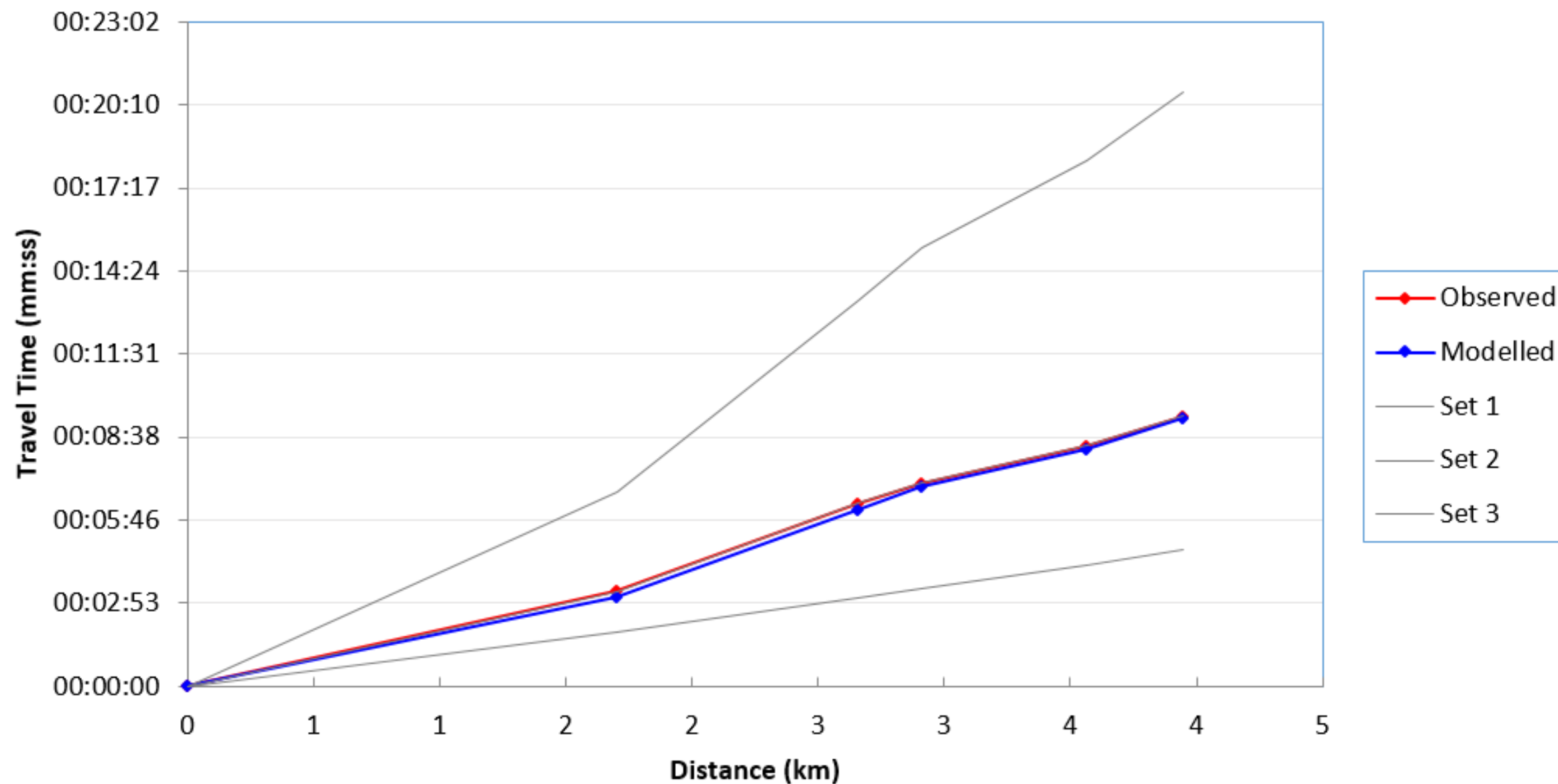


Route 4: Pasteur Road - Route 4: Pasteur Road NB  
Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)			
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%	
1		175	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00								□
2	Burgh Road to A12	23	1.701	00:03:17	00:03:04	00:03:17	00:06:43	00:01:52	s1-2	1.701	00:03:17	00:03:04	31.0	33.3		✓
3	A12 to Southtown Road	26	2.658	00:06:20	00:06:07	00:06:20	00:13:21	00:03:03	s2-3	0.957	00:03:03	00:03:03	18.9	18.8		✓
4	Southtown Road to South Quay	30	2.911	00:07:02	00:07:09	00:07:02	00:15:12	00:03:24	s3-4	0.253	00:00:42	00:01:02	21.5	14.8		×

5	South Quay to Fuller's Hill	15	3.563	00:08:20	00:08:28	00:08:20	00:18:12	00:04:12	s4-5	0.652	00:01:17	00:01:19	30.4	29.7	✓
6	Fuller's Hill to St Nicholas Road	75	3.946	00:09:23	00:09:37	00:09:23	00:20:36	00:04:45	s5-6	0.383	00:01:03	00:01:09	21.9	20.0	✓

### Journey Time Summary: PASTEUR ROAD:NB - AM Peak



#### Route 4: Pasteur Road - Route 4: Pasteur Road NB

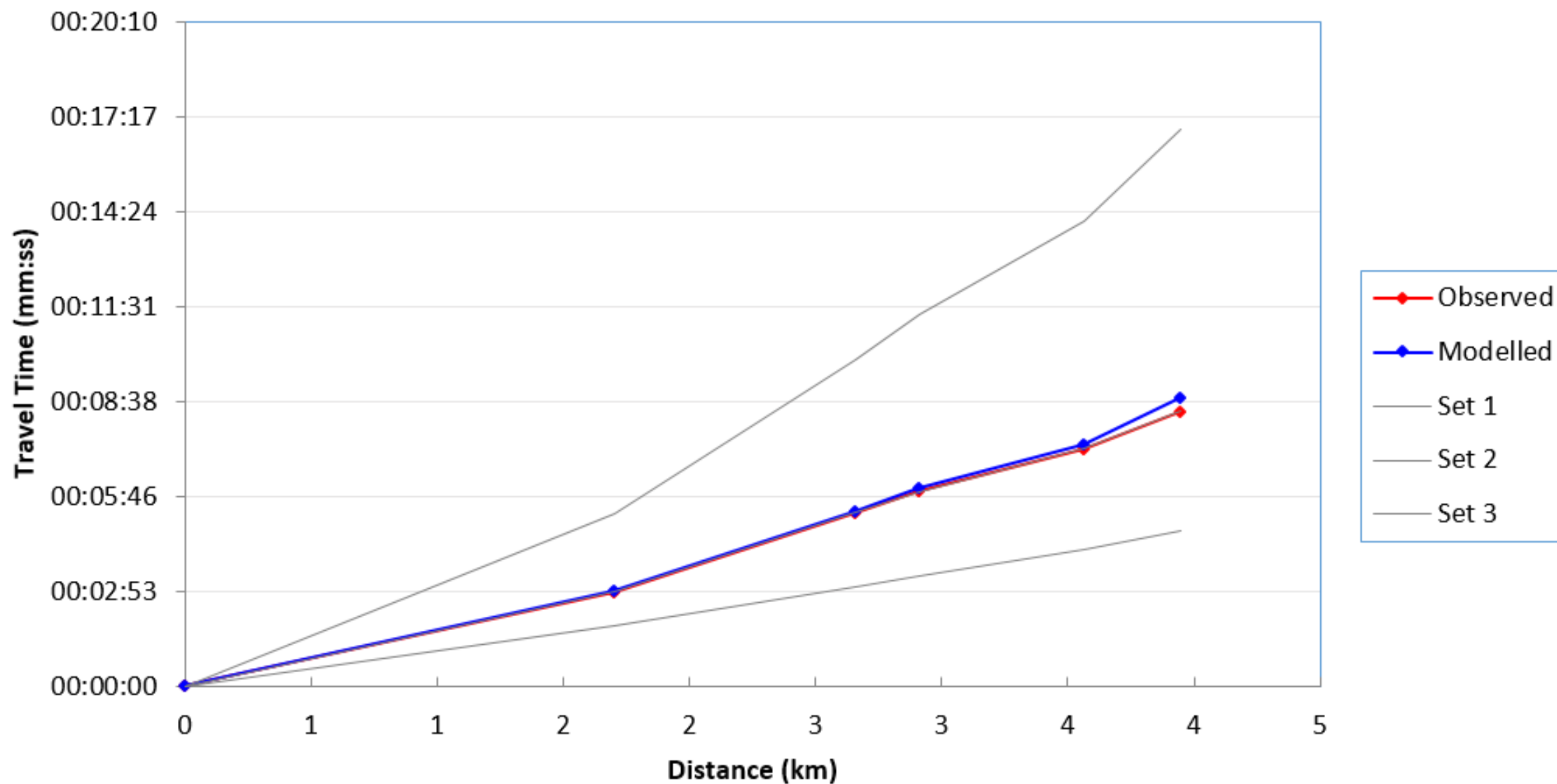
Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)			Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)				
				Observed	Modelled	Set 1			Set 2	Set 3	Observed	Modelled	Observed	Modelled	< 15%
1		175	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							☐
2	Burgh Road to A12	23	1.701	00:02:51	00:02:54	00:02:51	00:05:13	00:01:51	s1-2	1.701	00:02:51	00:02:54	35.8	35.2	✓
3	A12 to Southtown Road	26	2.658	00:05:16	00:05:19	00:05:16	00:09:54	00:03:00	s2-3	0.957	00:02:24	00:02:25	23.8	23.8	✓
4	Southtown Road to South Quay	30	2.911	00:05:54	00:06:02	00:05:54	00:11:17	00:03:20	s3-4	0.253	00:00:39	00:00:43	23.6	21.1	✓



5	South Quay to Fuller's Hill	15	3.563	00:07:13	00:07:19	00:07:13	00:14:05	00:04:09	s4-5	0.652	00:01:18	00:01:17	30.0	30.3	✓
6	Fuller's Hill to St Nicholas Road	75	3.946	00:08:20	00:08:45	00:08:20	00:16:54	00:04:44	s5-6	0.383	00:01:07	00:01:26	20.4	16.0	×

### Journey Time Summary: PASTEUR ROAD:NB - Inter-Peak



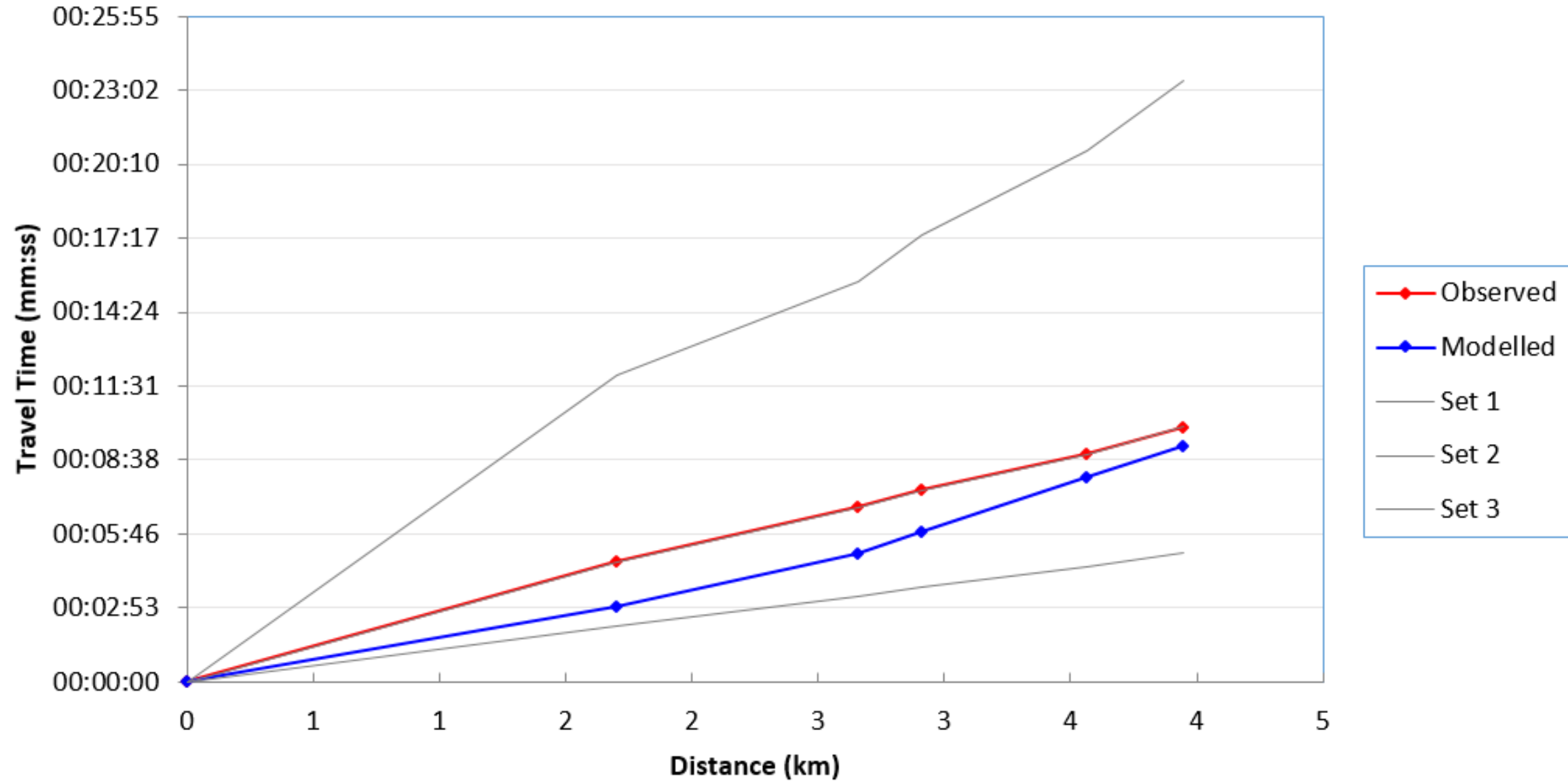
#### Route 4: Pasteur Road - Route 4: Pasteur Road NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		175	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Burgh Road to A12	23	1.701	00:04:41	00:02:56	00:04:41	00:11:55	00:02:10	s1-2	1.701	00:04:41	00:02:56	21.8	34.8	×
3	A12 to Southtown Road	26	2.658	00:06:49	00:05:00	00:06:49	00:15:37	00:03:20	s2-3	0.957	00:02:07	00:02:04	27.0	27.9	✓
4	Southtown Road to South Quay	30	2.911	00:07:28	00:05:50	00:07:28	00:17:26	00:03:40	s3-4	0.253	00:00:39	00:00:50	23.3	18.3	×

5	South Quay to Fuller's Hill	15	3.563	00:08:51	00:07:57	00:08:51	00:20:41	00:04:28	s4-5	0.652	00:01:23	00:02:08	28.2	18.4	×
6	Fuller's Hill to St Nicholas Road	75	3.946	00:09:55	00:09:10	00:09:55	00:23:25	00:05:01	s5-6	0.383	00:01:04	00:01:12	21.6	19.1	✓

### Journey Time Summary: PASTEUR ROAD:NB - PM Peak

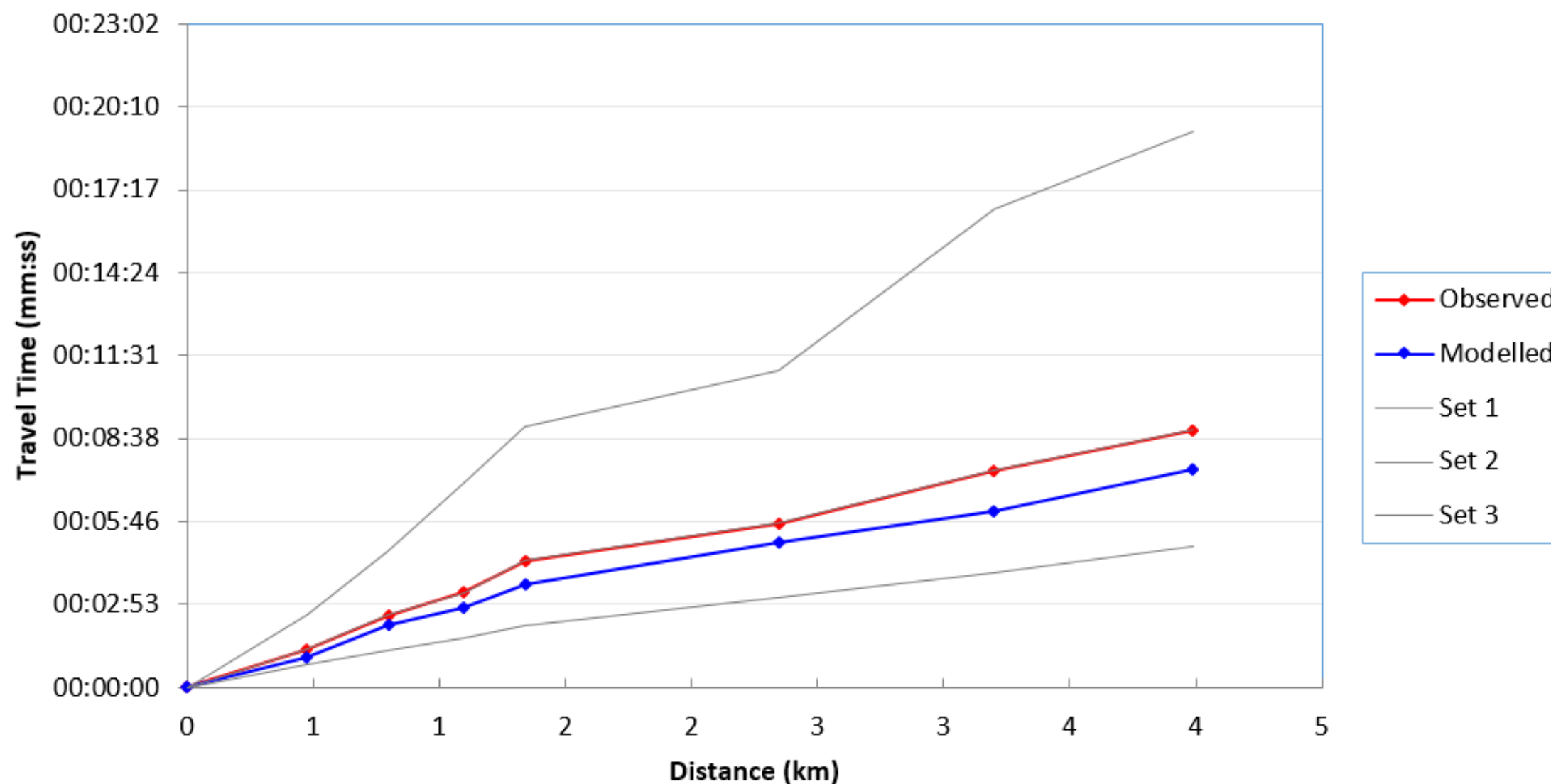


Route 4: Pasteur Road - Route 4: Pasteur Road SB  
Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		75	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	St Nicholas Road to Trafalgar Road	77	0.476	00:01:19	00:01:04	00:01:19	00:02:30	00:00:48	s1-2	0.476	00:01:19	00:01:04	21.6	26.6	×
3	Trafalgar Road to South Quay	32	0.799	00:02:30	00:02:14	00:02:30	00:04:45	00:01:18	s2-3	0.323	00:01:11	00:01:10	16.5	16.6	✓
4	South Quay to Bridge Road	608	1.097	00:03:19	00:02:50	00:03:19	00:07:07	00:01:42	s3-4	0.298	00:00:48	00:00:36	22.1	30.0	×

5	Bridge Road to Southtown Road	26	1.340	00:04:24	00:03:43	00:04:24	00:09:02	00:02:08	s4-5	0.243	00:01:05	00:00:52	13.5	16.7	×
6	Southtown Road to A12	7735	2.347	00:05:42	00:05:09	00:05:42	00:11:01	00:03:07	s5-6	1.007	00:01:18	00:01:27	46.3	41.7	✓
7	A12 to Morton Peto Road	177	3.201	00:07:32	00:06:15	00:07:32	00:16:38	00:04:00	s6-7	0.854	00:01:51	00:01:05	27.8	47.1	×
8	Morton Peto Road to Burgh Road	175	3.988	00:08:55	00:07:42	00:08:55	00:19:17	00:04:55	s7-8	0.787	00:01:23	00:01:27	34.2	32.5	✓

### Journey Time Summary: PASTEUR ROAD:SB - AM Peak



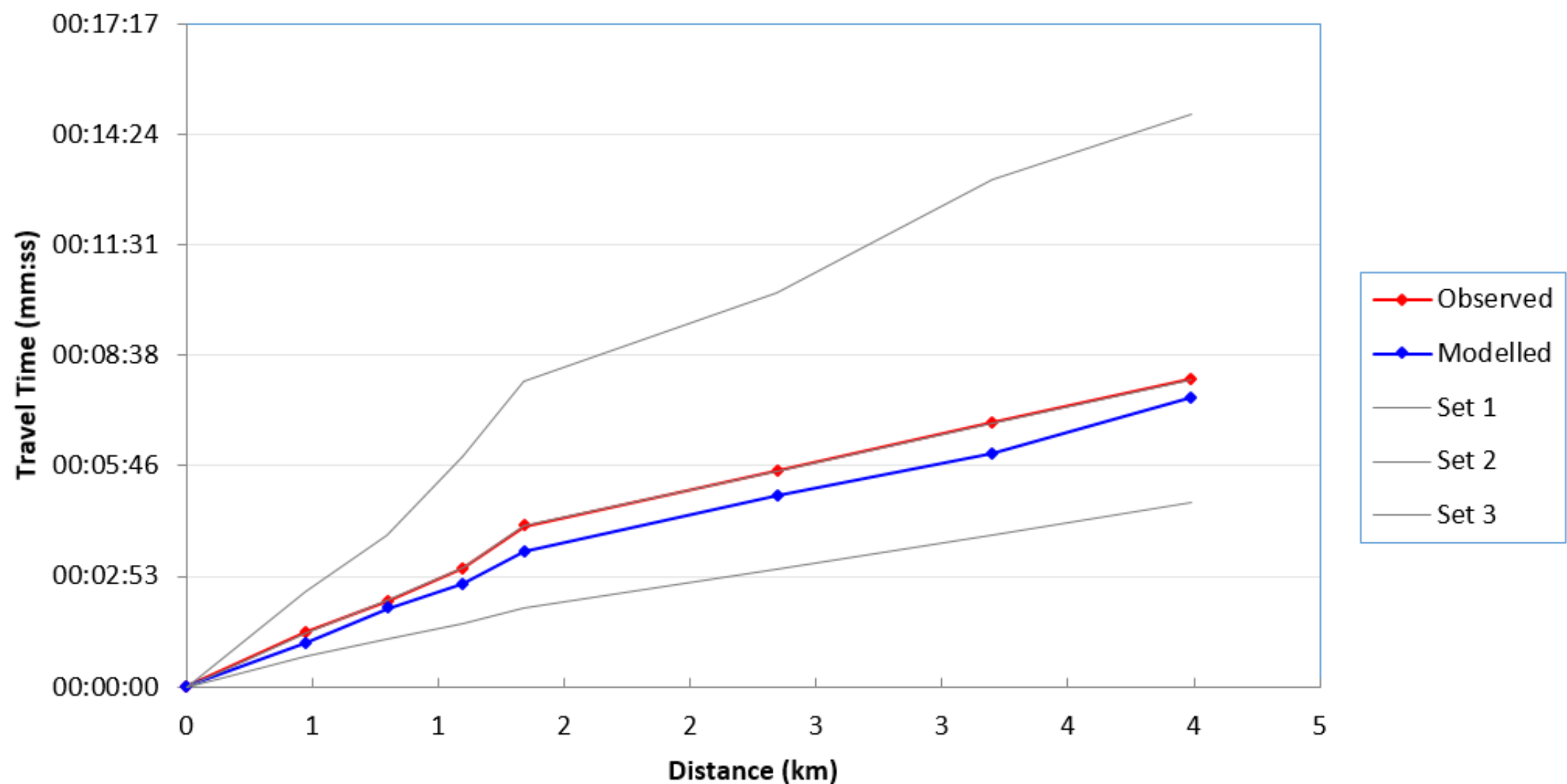
#### Route 4: Pasteur Road - Route 4: Pasteur Road SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		75	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	St Nicholas Road to Trafalgar Road	77	0.476	00:01:25	00:01:09	00:01:25	00:02:30	00:00:48	s1-2	0.476	00:01:25	00:01:09	20.2	25.0	×
3	Trafalgar Road to South Quay	32	0.799	00:02:16	00:02:03	00:02:16	00:03:57	00:01:16	s2-3	0.323	00:00:51	00:00:55	22.9	21.2	✓
4	South Quay to Bridge Road	608	1.097	00:03:06	00:02:42	00:03:06	00:06:01	00:01:38	s3-4	0.298	00:00:50	00:00:38	21.4	28.0	×

5	Bridge Road to Southtown Road	26	1.340	00:04:12	00:03:33	00:04:12	00:07:57	00:02:04	s4-5	0.243	00:01:06	00:00:51	13.2	17.2	×
6	Southtown Road to A12	7735	2.347	00:05:38	00:05:00	00:05:38	00:10:17	00:03:04	s5-6	1.007	00:01:25	00:01:27	42.4	41.7	✓
7	A12 to Morton Peto Road	177	3.201	00:06:53	00:06:05	00:06:53	00:13:14	00:03:57	s6-7	0.854	00:01:15	00:01:06	41.0	46.7	✓
8	Morton Peto Road to Burgh Road	175	3.988	00:08:01	00:07:31	00:08:01	00:14:56	00:04:49	s7-8	0.787	00:01:08	00:01:26	41.5	33.0	×

### Journey Time Summary: PASTEUR ROAD:SB - Inter-Peak



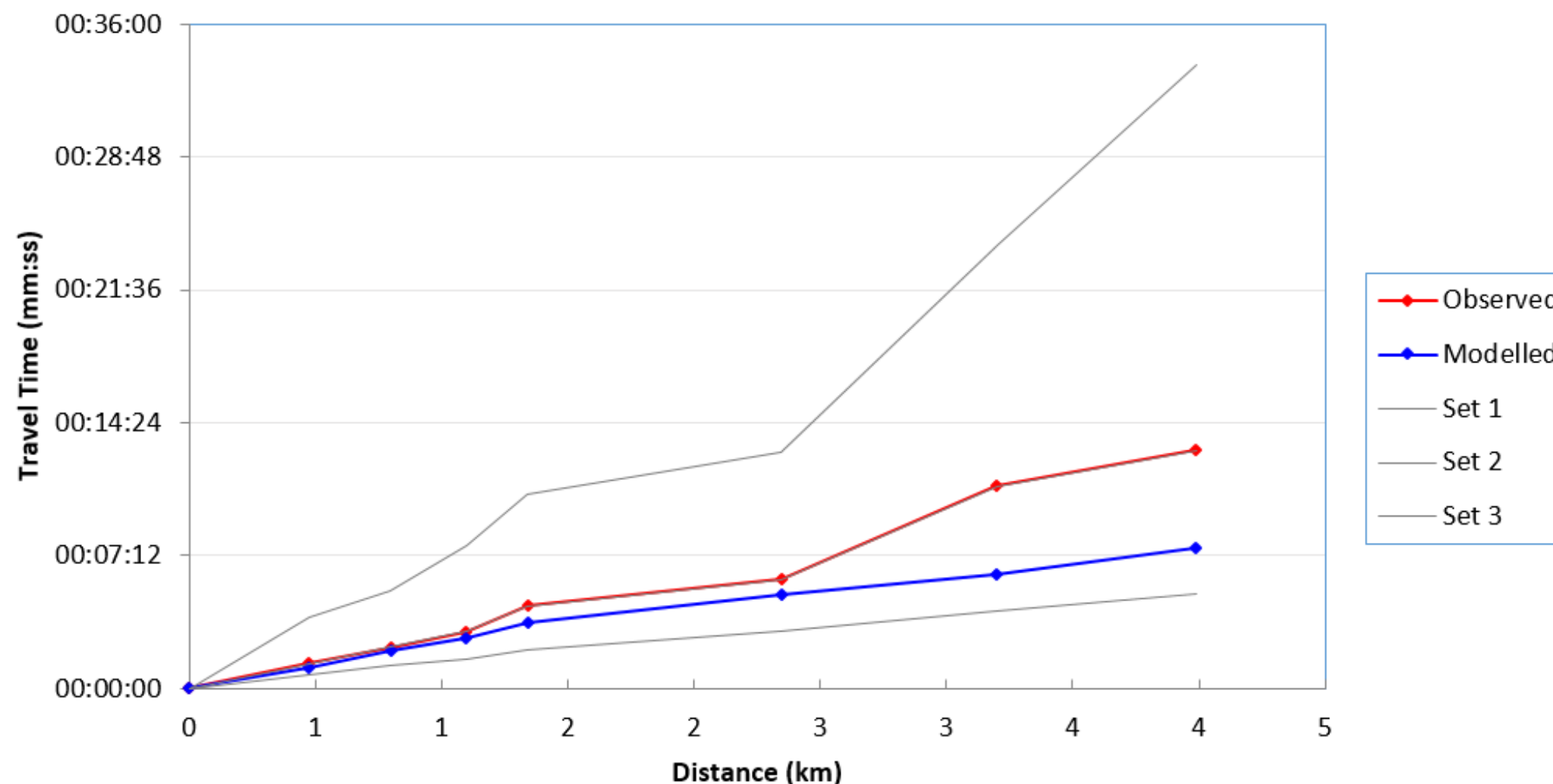
#### Route 4: Pasteur Road - Route 4: Pasteur Road SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		75	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	St Nicholas Road to Trafalgar Road	77	0.476	00:01:21	00:01:08	00:01:21	00:03:50	00:00:46	s1-2	0.476	00:01:21	00:01:08	21.1	25.2	×
3	Trafalgar Road to South Quay	32	0.799	00:02:14	00:02:05	00:02:14	00:05:16	00:01:15	s2-3	0.323	00:00:53	00:00:57	21.8	20.3	✓
4	South Quay to Bridge Road	608	1.097	00:03:05	00:02:43	00:03:05	00:07:46	00:01:38	s3-4	0.298	00:00:51	00:00:38	21.2	28.4	×

5	Bridge Road to Southtown Road	26	1.340	00:04:30	00:03:34	00:04:30	00:10:34	00:02:06	s4-5	0.243	00:01:25	00:00:51	10.3	17.1	×
6	Southtown Road to A12	7735	2.347	00:05:54	00:05:06	00:05:54	00:12:48	00:03:08	s5-6	1.007	00:01:24	00:01:31	43.0	39.8	✓
7	A12 to Morton Peto Road	177	3.201	00:10:57	00:06:11	00:10:57	00:24:00	00:04:11	s6-7	0.854	00:05:03	00:01:06	10.1	46.9	×
8	Morton Peto Road to Burgh Road	175	3.988	00:12:55	00:07:37	00:12:55	00:33:47	00:05:07	s7-8	0.787	00:01:58	00:01:26	24.1	32.9	×

**Journey Time Summary: PASTEUR ROAD:SB - PM Peak**

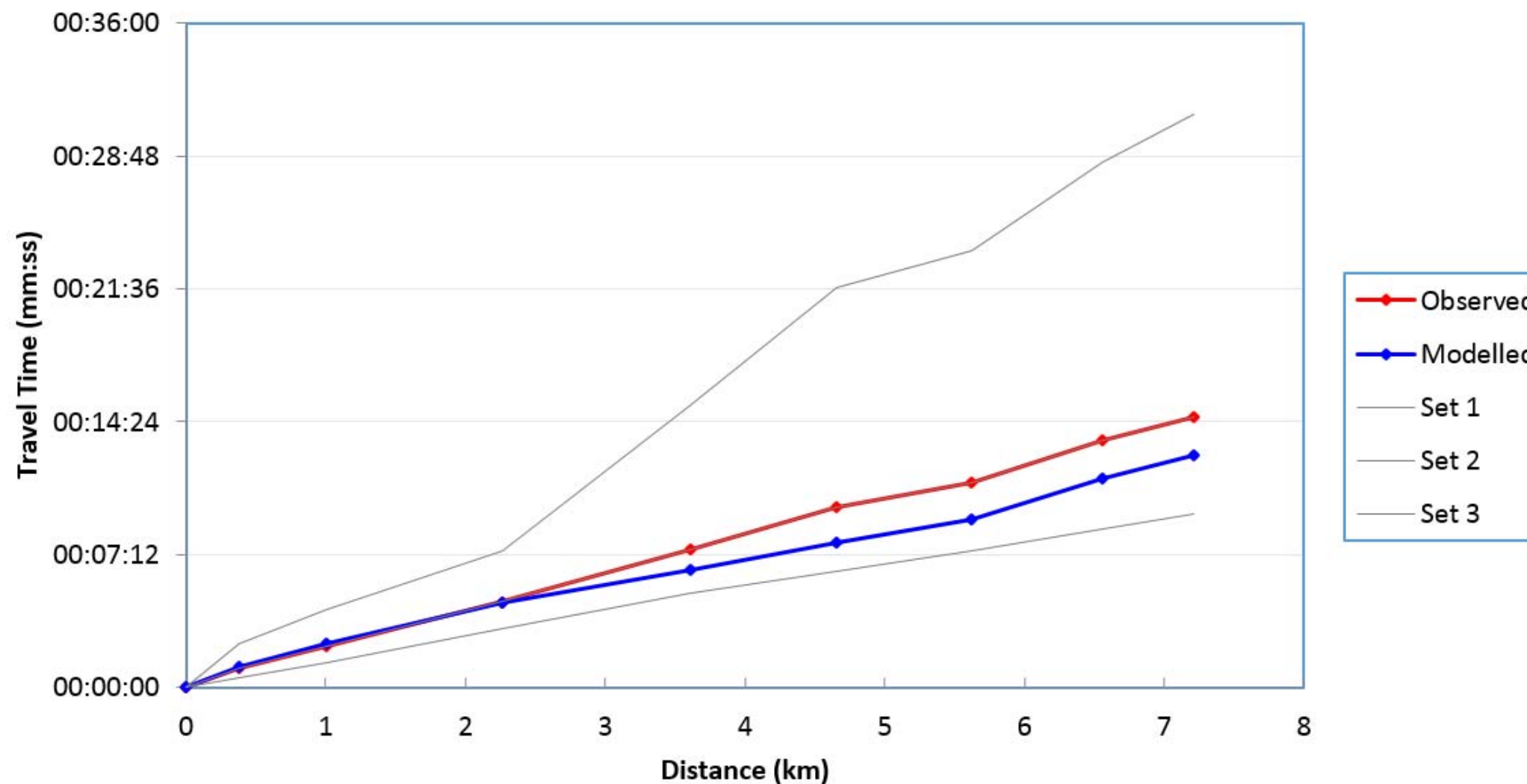


**Route 5: Peninsular - Route 5: Peninsular CW**  
Direction: CW

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	N Quay to Temple Road	75	0.383	00:01:03	00:01:09	00:01:03	00:02:24	00:00:33	s1-2	0.383	00:01:03	00:01:09	21.9	20.0	✓
3	Temple Road to North Drive	135	1.007	00:02:14	00:02:27	00:02:14	00:04:12	00:01:20	s2-3	0.624	00:01:11	00:01:18	31.6	28.9	✓
4	North Drive to Kings Road	148	2.268	00:04:38	00:04:39	00:04:38	00:07:26	00:03:13	s3-4	1.261	00:02:24	00:02:12	31.5	34.4	✓

5	King's Road to Hartmann Road	156	3.609	00:07:31	00:06:27	00:07:31	00:15:21	00:05:08	s4-5	1.341	00:02:52	00:01:49	28.0	44.5	×
6	Hartmann Road to Main Cross Road	36	4.652	00:09:45	00:07:54	00:09:45	00:21:41	00:06:19	s5-6	1.043	00:02:15	00:01:27	27.9	43.2	×
7	Main Cross Road to Queen's Road	34	5.619	00:11:06	00:09:09	00:11:06	00:23:40	00:07:23	s6-7	0.967	00:01:20	00:01:15	43.3	46.6	✓
8	Queen's Road to Bridge Road	30	6.562	00:13:25	00:11:24	00:13:25	00:28:30	00:08:37	s7-8	0.943	00:02:19	00:02:14	24.4	25.2	✓
9	Bridge Road to Acle New Road	15	7.214	00:14:38	00:12:43	00:14:38	00:31:03	00:09:24	s8-9	0.652	00:01:13	00:01:19	32.1	29.7	✓

Journey Time Summary: PENINSULAR: CW - AM Peak



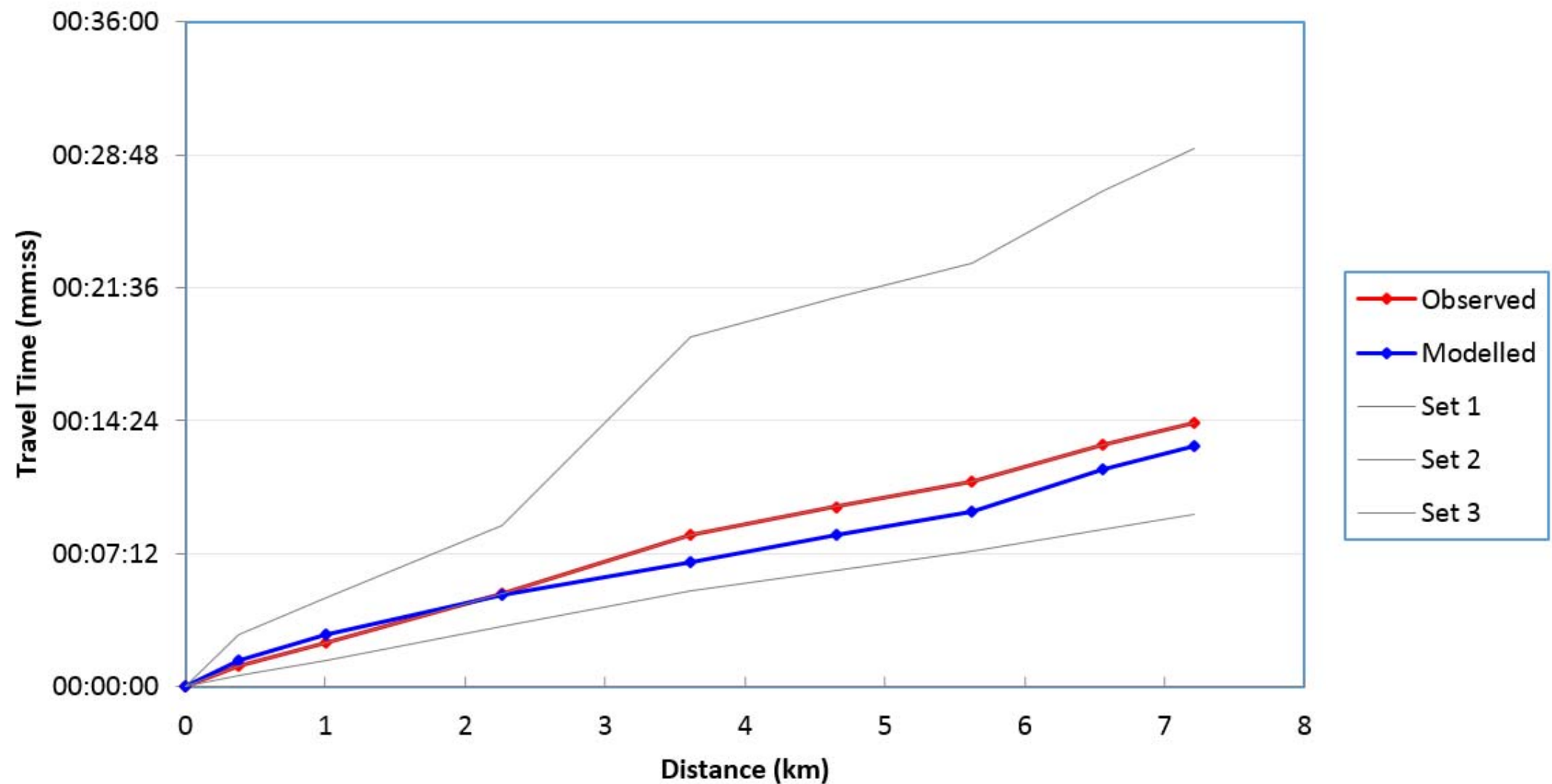
Route 5: Peninsular - Route 5: Peninsular CW

Direction: CW

Point	Description	Node	Dist (km)	Journey Time (mm:ss)			Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%		
				Observed	Modelled	Set 1			Set 2	Set 3	Observed	Modelled		Observed	Modelled
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00						☐	
2	N Quay to Temple Road	75	0.383	00:01:07	00:01:26	00:01:07	00:02:48	00:00:35	s1-2	0.383	00:01:07	00:01:26	20.4	16.0	×
3	Temple Road to North Drive	135	1.007	00:02:25	00:02:48	00:02:25	00:04:50	00:01:24	s2-3	0.624	00:01:18	00:01:22	29.0	27.4	✓
4	North Drive to Kings Road	148	2.268	00:05:04	00:04:58	00:05:04	00:08:45	00:03:18	s3-4	1.261	00:02:38	00:02:10	28.7	34.9	×
5	King's Road to Hartmann Road	156	3.609	00:08:12	00:06:46	00:08:12	00:18:55	00:05:10	s4-5	1.341	00:03:09	00:01:48	25.6	44.9	×

6	Hartmann Road to Main Cross Road	36	4.652	00:09:44	00:08:12	00:09:44	00:21:05	00:06:16	s5-6	1.043	00:01:32	00:01:26	40.9	43.7	✓
7	Main Cross Road to Queen's Road	34	5.619	00:11:05	00:09:27	00:11:05	00:22:58	00:07:20	s6-7	0.967	00:01:20	00:01:15	43.3	46.4	✓
8	Queen's Road to Bridge Road	30	6.562	00:13:06	00:11:46	00:13:06	00:26:52	00:08:32	s7-8	0.943	00:02:01	00:02:19	28.0	24.5	✓
9	Bridge Road to Acle New Road	15	7.214	00:14:17	00:13:03	00:14:17	00:29:10	00:09:20	s8-9	0.652	00:01:11	00:01:17	33.1	30.3	✓

Journey Time Summary: PENINSULAR: CW - Inter-Peak



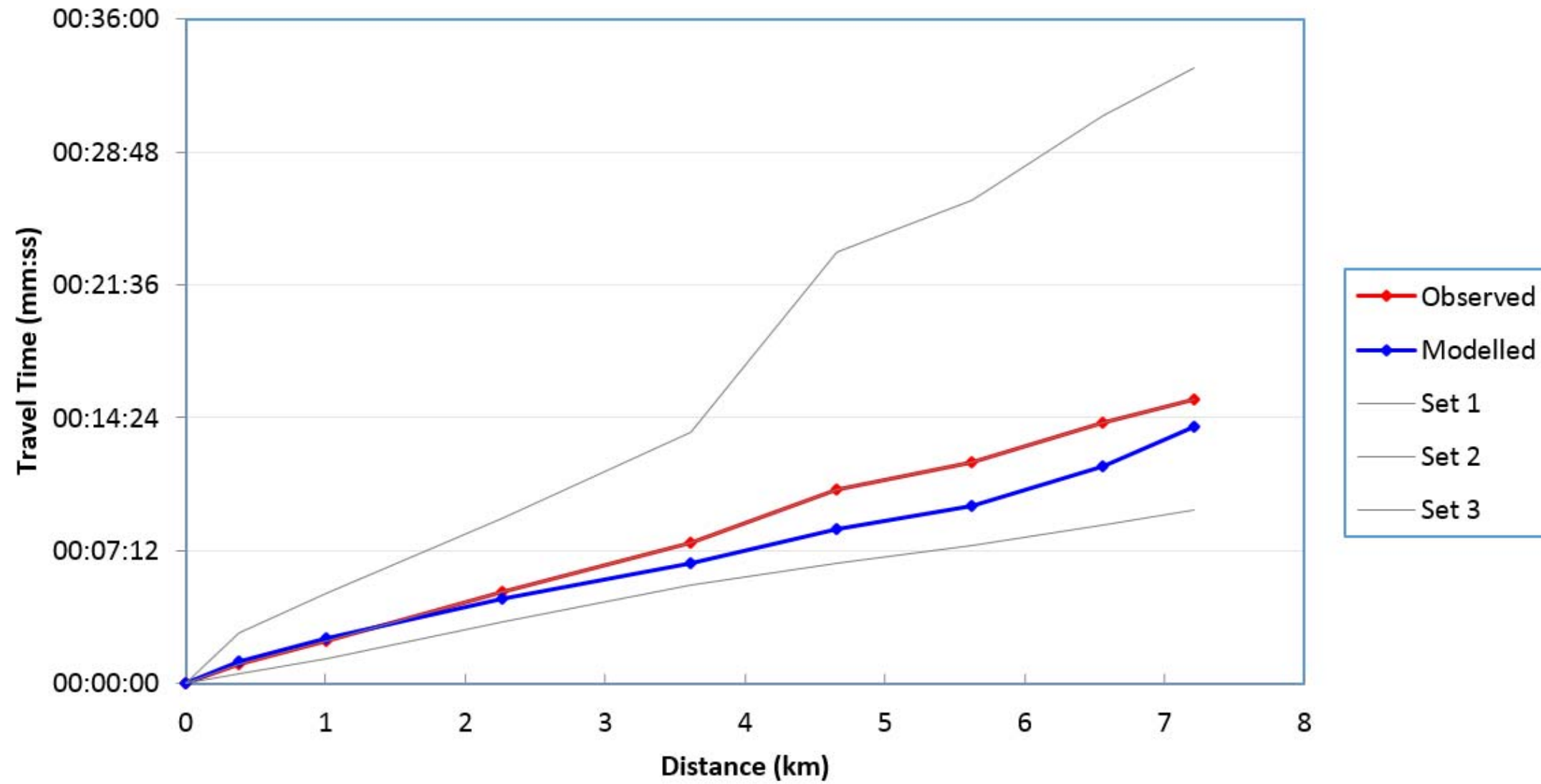
Route 5: Peninsular - Route 5: Peninsular CW

Direction: CW

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	N Quay to Temple Road	75	0.383	00:01:04	00:01:12	00:01:04	00:02:44	00:00:33	s1-2	0.383	00:01:04	00:01:12	21.6	19.1	✓
3	Temple Road to North Drive	135	1.007	00:02:19	00:02:29	00:02:19	00:04:53	00:01:21	s2-3	0.624	00:01:16	00:01:17	29.7	29.3	✓
4	North Drive to Kings Road	148	2.268	00:04:59	00:04:37	00:04:59	00:08:58	00:03:20	s3-4	1.261	00:02:40	00:02:08	28.4	35.5	✗
5	King's Road to Hartmann Road	156	3.609	00:07:40	00:06:29	00:07:40	00:13:39	00:05:22	s4-5	1.341	00:02:40	00:01:53	30.2	42.9	✗

6	Hartmann Road to Main Cross Road	36	4.652	00:10:32	00:08:23	00:10:32	00:23:22	00:06:30	s5-6	1.043	00:02:53	00:01:53	21.8	33.1	×
7	Main Cross Road to Queen's Road	34	5.619	00:11:59	00:09:38	00:11:59	00:26:11	00:07:29	s6-7	0.967	00:01:27	00:01:15	40.1	46.2	✓
8	Queen's Road to Bridge Road	30	6.562	00:14:09	00:11:47	00:14:09	00:30:46	00:08:37	s7-8	0.943	00:02:10	00:02:09	26.2	26.3	✓
9	Bridge Road to Acle New Road	15	7.214	00:15:23	00:13:55	00:15:23	00:33:22	00:09:25	s8-9	0.652	00:01:14	00:02:08	31.6	18.4	×

**Journey Time Summary: PENINSULAR: CW - PM Peak**



Route 5: Peninsular - Route 5: Peninsular ACW

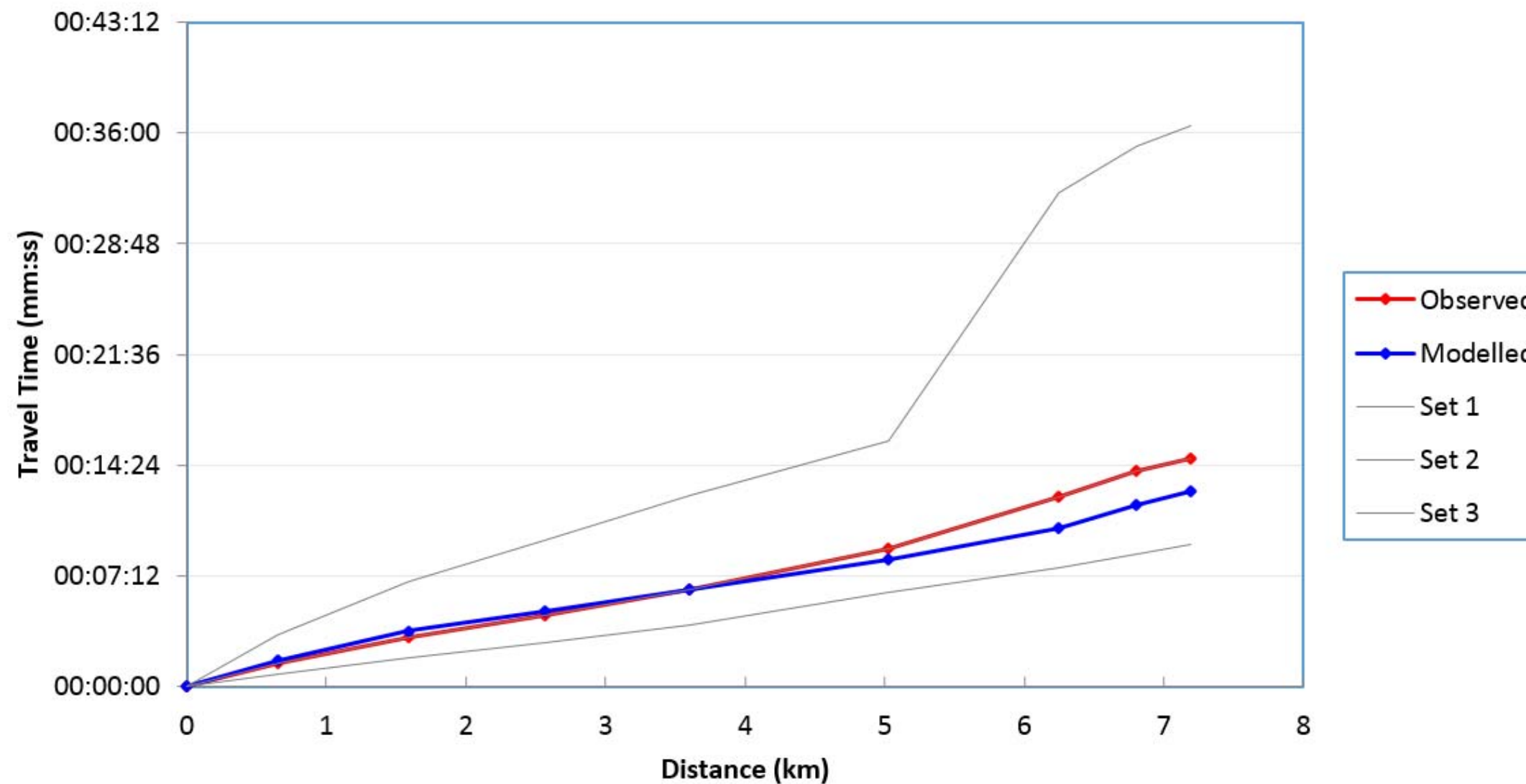
Direction: ACW

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Acle New Road to Bridge Road	30	0.652	00:01:33	00:01:44	00:01:33	00:03:23	00:00:47	s1-2	0.652	00:01:33	00:01:44	25.2	22.5	✓
3	Bridge Road to Queen's Road	34	1.595	00:03:14	00:03:43	00:03:14	00:06:50	00:01:52	s2-3	0.943	00:01:41	00:01:59	33.5	28.6	×
4	Queen's Road to Main Cross Road	36	2.562	00:04:39	00:04:59	00:04:39	00:09:33	00:02:49	s3-4	0.967	00:01:24	00:01:16	41.2	45.8	✓



5	Main Cross Road to Hartmann Road	156	3.605	00:06:20	00:06:24	00:06:20	00:12:25	00:04:01	s4-5	1.043	00:01:41	00:01:25	37.1	44.3	×
6	Hartmann Road to Shadingfield Close	7806	5.029	00:09:01	00:08:25	00:09:01	00:15:59	00:06:09	s5-6	1.424	00:02:41	00:02:01	31.9	42.3	×
7	Shadingfield Close to Euston Road	338	6.243	00:12:19	00:10:26	00:12:19	00:32:10	00:07:45	s6-7	1.214	00:03:18	00:02:02	22.1	35.9	×
8	Euston Road to Temple Road	75	6.802	00:14:01	00:11:58	00:14:01	00:35:08	00:08:39	s7-8	0.559	00:01:42	00:01:32	19.7	21.9	✓
9	Temple Road to N Quay	15	7.189	00:14:49	00:12:54	00:14:49	00:36:29	00:09:12	s8-9	0.387	00:00:49	00:00:55	28.6	25.3	✓

Journey Time Summary: PENINSULAR:ACW - AM Peak



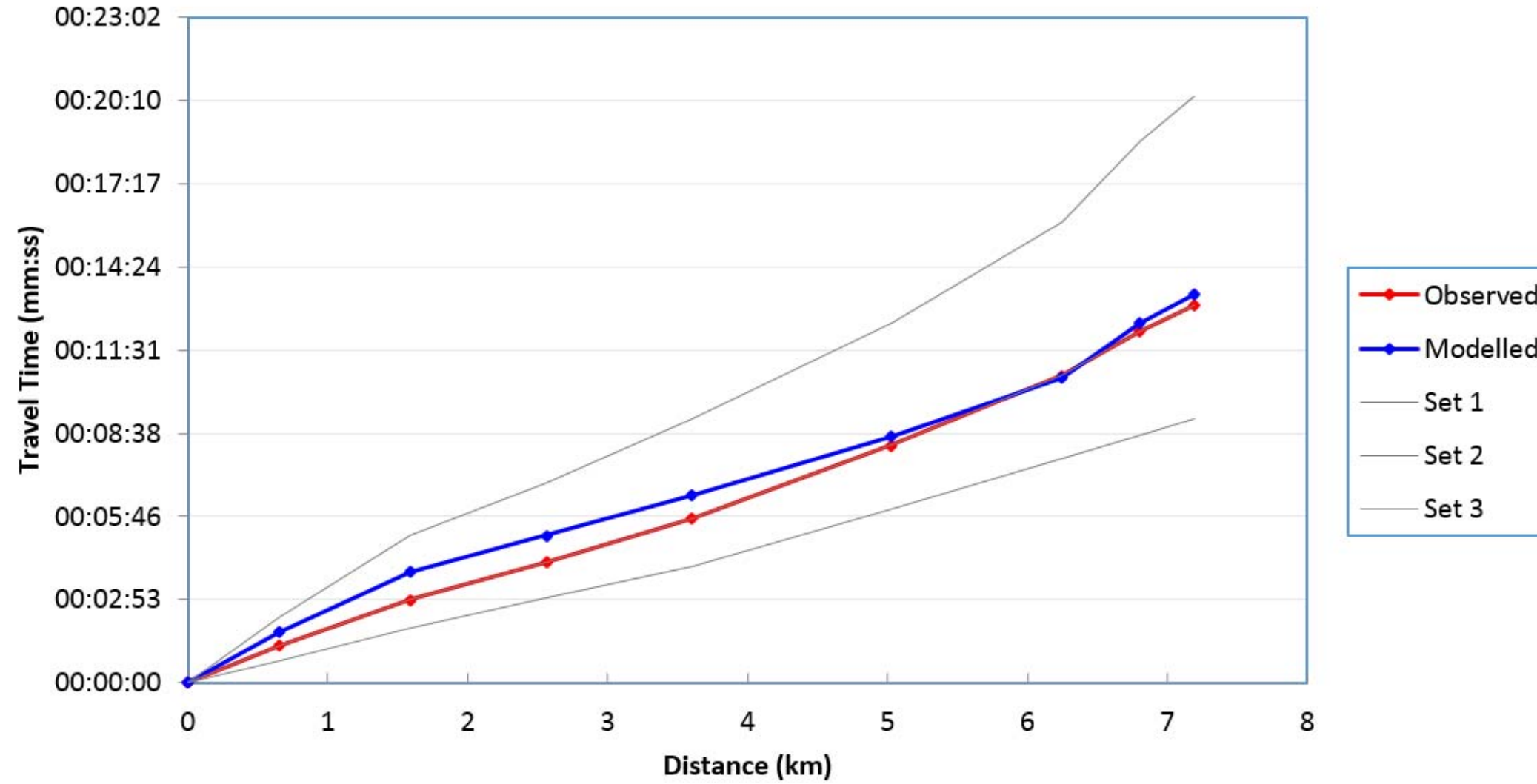
Route 5: Peninsular - Route 5: Peninsular ACW

Direction: ACW

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Distance (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Acle New Road to Bridge Road	30	0.652	00:01:16	00:01:46	00:01:16	00:02:16	00:00:47	s1-2	0.652	00:01:16	00:01:46	30.7	22.1	×
3	Bridge Road to Queen's Road	34	1.595	00:02:52	00:03:50	00:02:52	00:05:06	00:01:53	s2-3	0.943	00:01:36	00:02:03	35.4	27.5	×

4	Queen's Road to Main Cross Road	36	2.562	00:04:10	00:05:06	00:04:10	00:06:55	00:02:55	s3-4	0.967	00:01:17	00:01:16	45.1	45.9	✓
5	Main Cross Road to Hartmann Road	156	3.605	00:05:42	00:06:30	00:05:42	00:09:07	00:04:01	s4-5	1.043	00:01:33	00:01:25	40.5	44.3	✓
6	Hartmann Road to Shadingfield Close	7806	5.029	00:08:13	00:08:32	00:08:13	00:12:26	00:06:01	s5-6	1.424	00:02:31	00:02:01	34.0	42.2	✗
7	Shadingfield Close to Euston Road	338	6.243	00:10:38	00:10:34	00:10:38	00:15:57	00:07:47	s6-7	1.214	00:02:25	00:02:02	30.2	35.8	✗
8	Euston Road to Temple Road	75	6.802	00:12:11	00:12:28	00:12:11	00:18:44	00:08:36	s7-8	0.559	00:01:33	00:01:54	21.6	17.7	✗
9	Temple Road to N Quay	15	7.189	00:13:05	00:13:26	00:13:05	00:20:17	00:09:09	s8-9	0.387	00:00:54	00:00:58	25.8	23.8	✓

**Journey Time Summary: PENINSULAR:ACW - Inter-Peak**



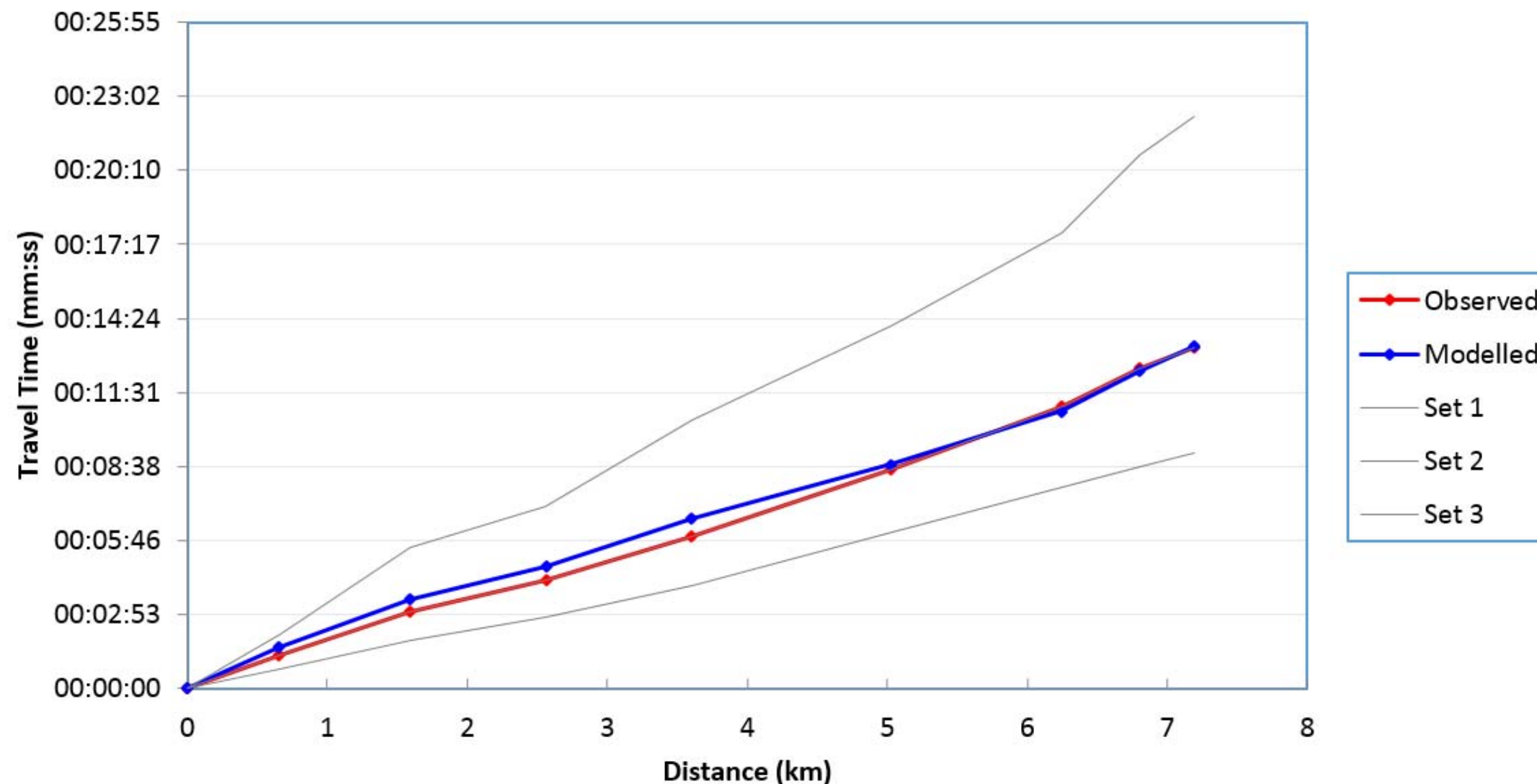
**Route 5: Peninsular - Route 5: Peninsular ACW**

Direction: ACW

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		15	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Acle New Road to Bridge Road	30	0.652	00:01:19	00:01:38	00:01:19	00:02:06	00:00:45	s1-2	0.652	00:01:19	00:01:38	29.9	24.1	✗
3	Bridge Road to Queen's Road	34	1.595	00:02:59	00:03:29	00:02:59	00:05:30	00:01:51	s2-3	0.943	00:01:41	00:01:51	33.8	30.6	✓

4	Queen's Road to Main Cross Road	36	2.562	00:04:13	00:04:44	00:04:13	00:07:05	00:02:48	s3-4	0.967	00:01:14	00:01:16	47.3	46.0	✓
5	Main Cross Road to Hartmann Road	156	3.605	00:05:55	00:06:36	00:05:55	00:10:26	00:04:00	s4-5	1.043	00:01:43	00:01:52	36.6	33.5	✓
6	Hartmann Road to Shadingfield Close	7806	5.029	00:08:32	00:08:43	00:08:32	00:14:06	00:06:04	s5-6	1.424	00:02:36	00:02:06	32.8	40.6	×
7	Shadingfield Close to Euston Road	338	6.243	00:10:58	00:10:47	00:10:58	00:17:43	00:07:50	s6-7	1.214	00:02:26	00:02:04	29.9	35.1	✓
8	Euston Road to Temple Road	75	6.802	00:12:28	00:12:20	00:12:28	00:20:47	00:08:38	s7-8	0.559	00:01:30	00:01:33	22.4	21.7	✓
9	Temple Road to N Quay	15	7.189	00:13:16	00:13:19	00:13:16	00:22:15	00:09:09	s8-9	0.387	00:00:48	00:00:59	28.7	23.6	×

Journey Time Summary: PENINSULAR:ACW - PM Peak



Route 6: A143 Beccles Road - Route 6: A143 Beccles Road NB

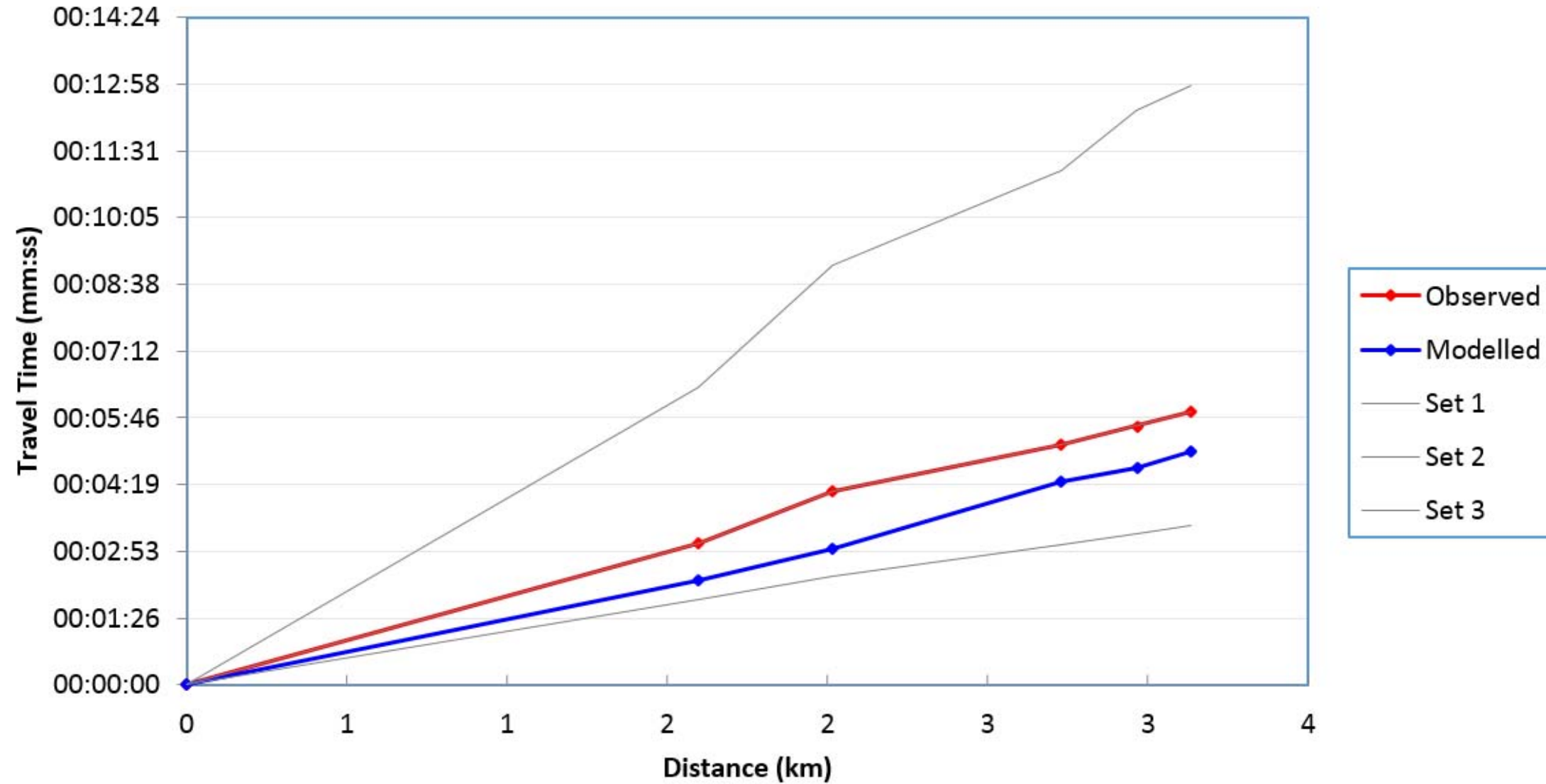
Direction: NB

[Summary](#)

Point	Description	Node	Dist (km)	Journey Time (mm:ss)			Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)				
				Observed	Modelled	Set 1			Set 2	Set 3	Observed	Modelled	Observed	Modelled	< 15%
1		350	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00					<input type="checkbox"/>

2	Mill Lane to A12 offslip	425	1.598	00:03:04	00:02:34	00:03:04	00:06:26	00:01:51	s1-2	1.598	00:03:04	00:02:34	31.3	37.2	×
3	A12 offslip to Burgh Road	46	2.015	00:04:10	00:03:15	00:04:10	00:09:03	00:02:21	s2-3	0.417	00:01:06	00:00:41	22.6	37.0	×
4	Burgh Road to Southtown Road	166	2.729	00:05:11	00:05:00	00:05:11	00:11:06	00:03:01	s3-4	0.714	00:01:01	00:01:44	42.1	24.6	×
5	Southtown Road to Suffolk Road	168	2.966	00:05:35	00:05:17	00:05:35	00:12:23	00:03:16	s4-5	0.237	00:00:23	00:00:17	36.4	50.0	×
6	Suffolk Road to A12	8006	3.135	00:05:53	00:05:38	00:05:53	00:12:55	00:03:26	s5-6	0.169	00:00:18	00:00:22	34.2	27.9	×

### Journey Time Summary: A143 BECCLES ROAD:NB - AM Peak



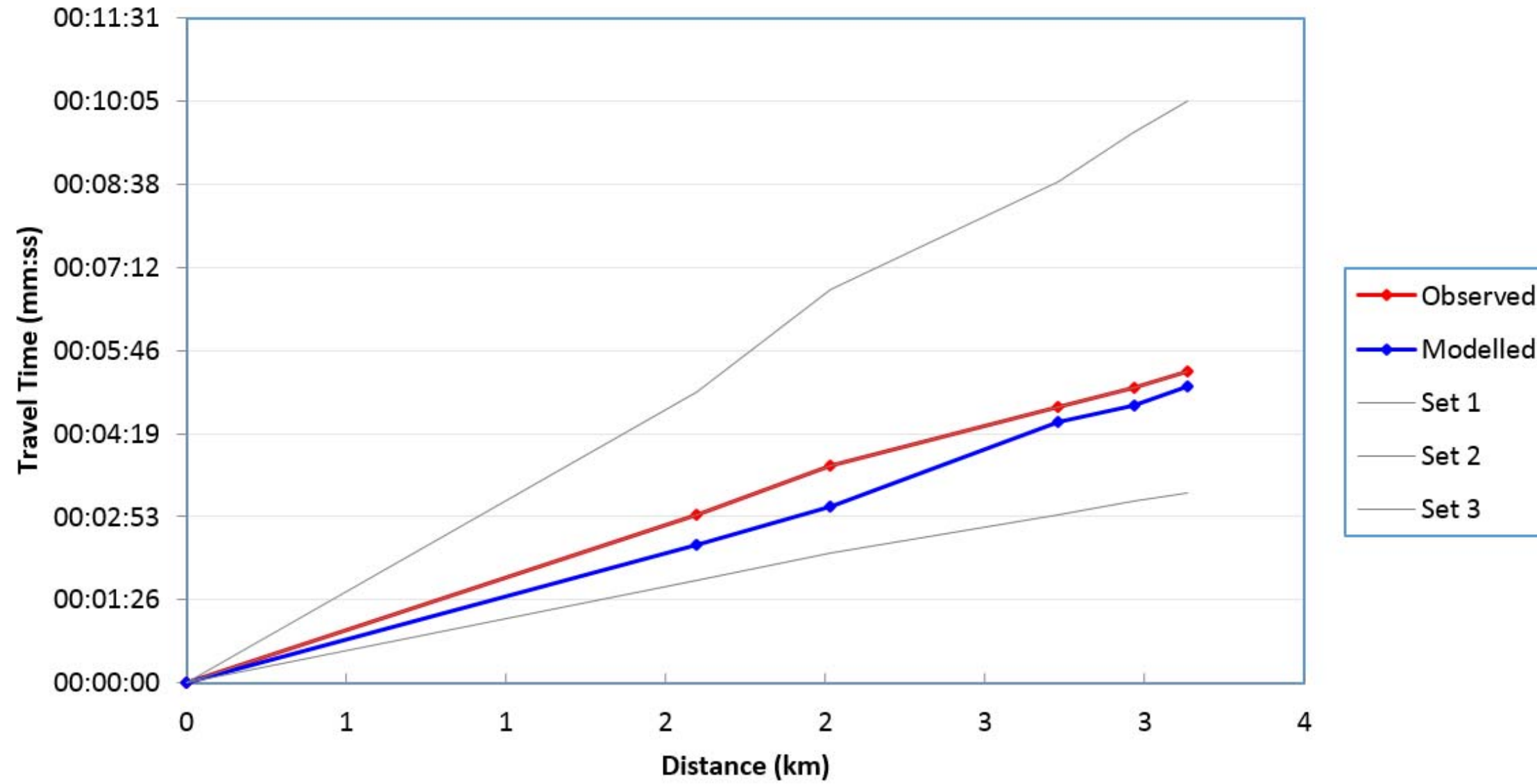
Route 6: A143 Beccles Road - Route 6: A143 Beccles Road NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		350	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Mill Lane to A12 offslip	425	1.598	00:02:54	00:02:23	00:02:54	00:05:03	00:01:47	s1-2	1.598	00:02:54	00:02:23	33.0	40.1	×
3	A12 offslip to Burgh Road	46	2.015	00:03:46	00:03:03	00:03:46	00:06:49	00:02:15	s2-3	0.417	00:00:52	00:00:40	28.9	37.6	×

4	Burgh Road to Southtown Road	166	2.729	00:04:47	00:04:31	00:04:47	00:08:41	00:02:55	s3-4	0.714	00:01:01	00:01:27	42.3	29.4	×
5	Southtown Road to Suffolk Road	168	2.966	00:05:08	00:04:48	00:05:08	00:09:33	00:03:09	s4-5	0.237	00:00:21	00:00:17	41.4	50.0	×
6	Suffolk Road to A12	8006	3.135	00:05:24	00:05:08	00:05:24	00:10:04	00:03:18	s5-6	0.169	00:00:17	00:00:20	36.6	30.1	×

### Journey Time Summary: A143 BECCLES ROAD:NB - Inter-Peak

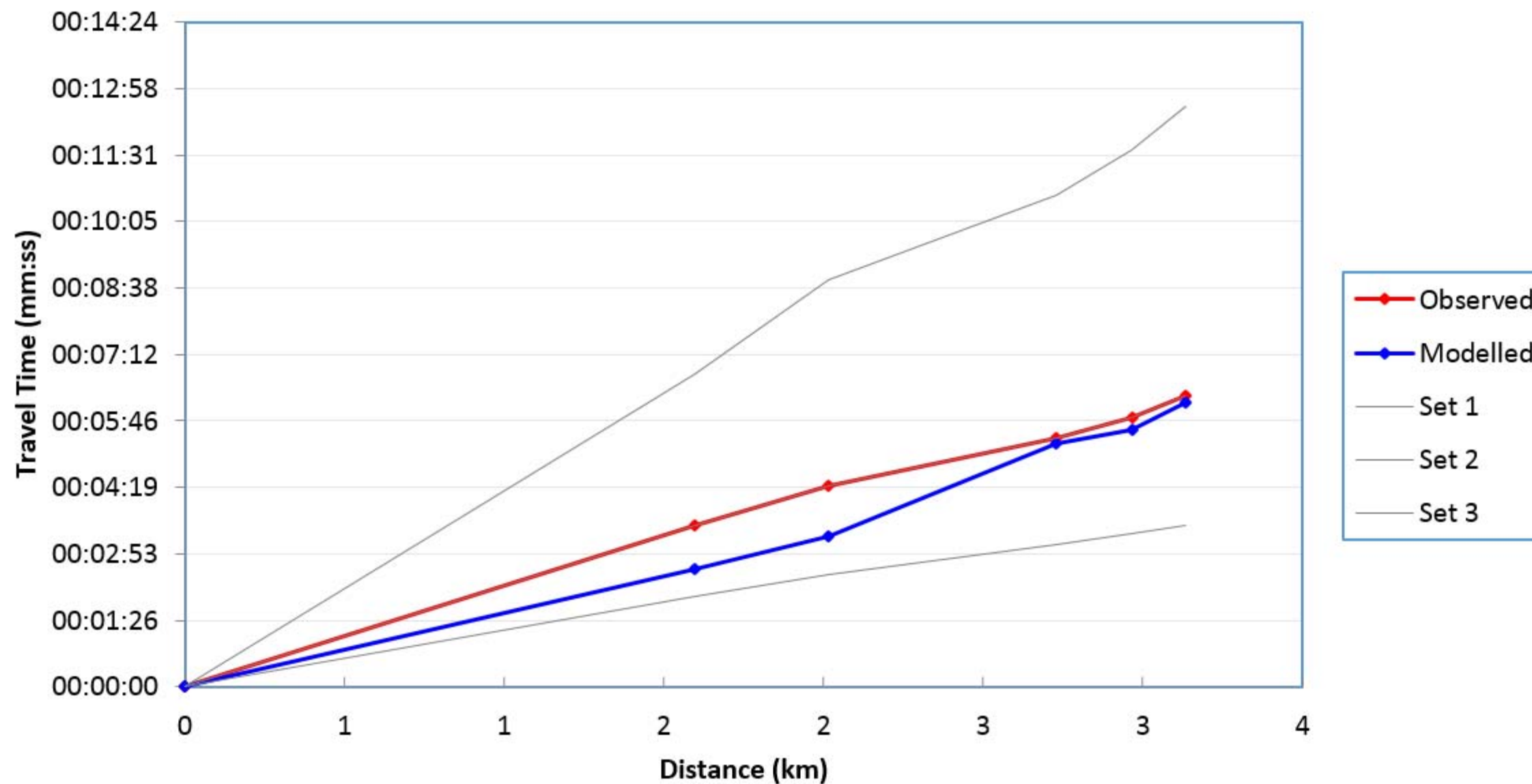


Route 6: A143 Beccles Road - Route 6: A143 Beccles Road NB  
Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		350	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Mill Lane to A12 offslip	425	1.598	00:03:30	00:02:34	00:03:30	00:06:47	00:01:57	s1-2	1.598	00:03:30	00:02:34	27.5	37.5	×
3	A12 offslip to Burgh Road	46	2.015	00:04:22	00:03:15	00:04:22	00:08:50	00:02:25	s2-3	0.417	00:00:52	00:00:41	28.9	36.3	×

4	Burgh Road to Southtown Road	166	2.729	00:05:23	00:05:17	00:05:23	00:10:39	00:03:05	s3-4	0.714	00:01:02	00:02:02	41.6	21.1	×
5	Southtown Road to Suffolk Road	168	2.966	00:05:50	00:05:34	00:05:50	00:11:38	00:03:19	s4-5	0.237	00:00:27	00:00:17	32.1	50.0	×
6	Suffolk Road to A12	8006	3.135	00:06:18	00:06:10	00:06:18	00:12:34	00:03:29	s5-6	0.169	00:00:28	00:00:36	21.5	16.9	×

### Journey Time Summary: A143 BECCLES ROAD:NB - PM Peak

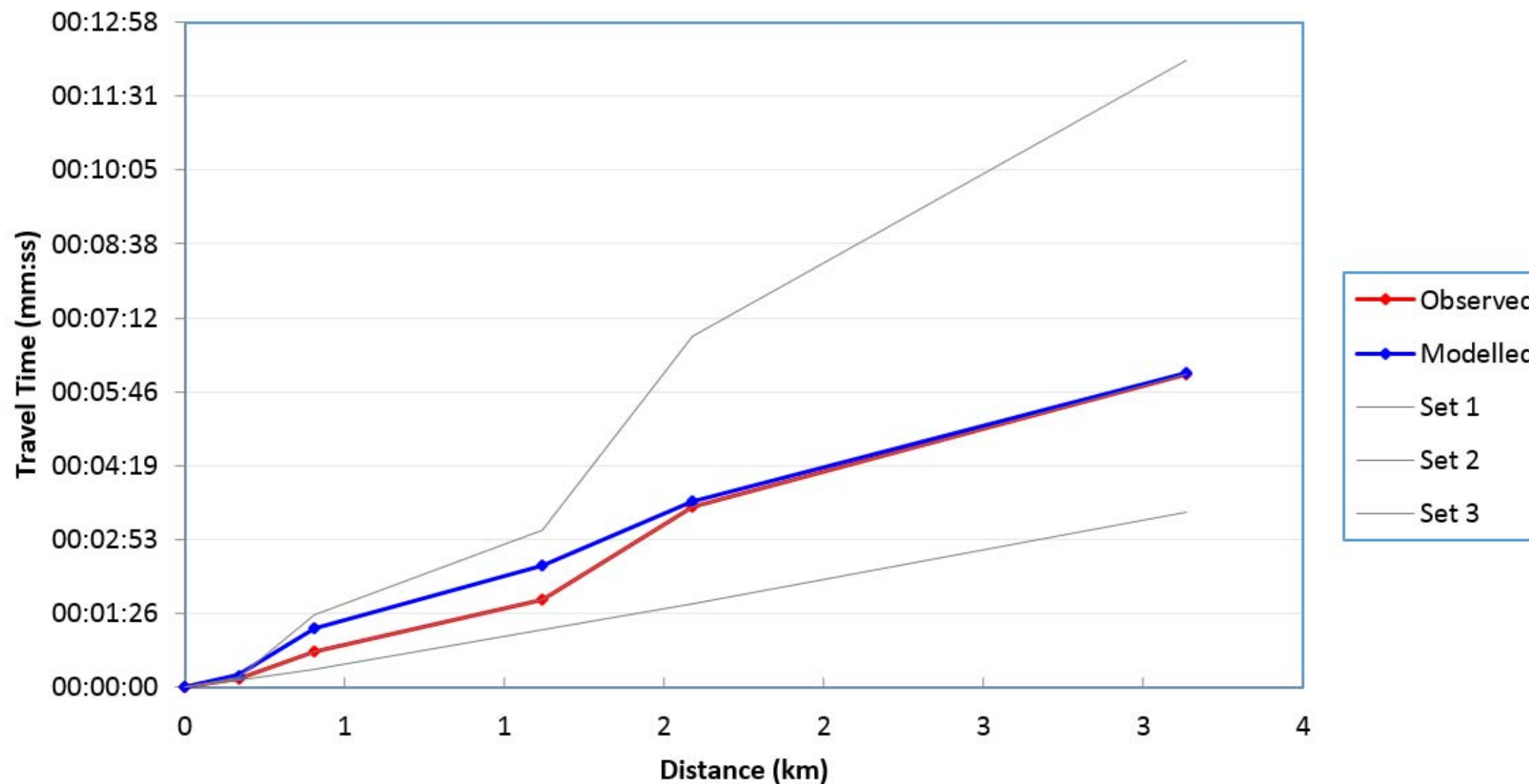


Route 6: A143 Beccles Road - Route 6: A143 Beccles Road SB  
Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		42	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A12 to Suffolk Road	168	0.169	00:00:11	00:00:14	00:00:11	00:00:12	00:00:09	s1-2	0.169	00:00:11	00:00:14	57.9	43.1	×

3	Suffolk Road to Southtown Road	166	0.406	00:00:41	00:01:17	00:00:41	00:01:24	00:00:22	s2-3	0.237	00:00:31	00:01:03	27.8	13.6	×
4	Southtown Road to Burgh Road	46	1.120	00:01:42	00:02:32	00:01:42	00:03:05	00:01:07	s3-4	0.714	00:01:01	00:01:15	42.4	34.4	×
5	Burgh Road to A12 on-slip	424	1.587	00:03:32	00:03:47	00:03:32	00:06:50	00:01:38	s4-5	0.467	00:01:50	00:01:16	15.3	22.2	×
6	A12 on-slip to Mill Lane	350	3.135	00:06:06	00:06:21	00:06:06	00:12:14	00:03:24	s5-6	1.548	00:02:34	00:02:33	36.1	36.4	✓

**Journey Time Summary: A143 BECCLES ROAD:SB - AM Peak**

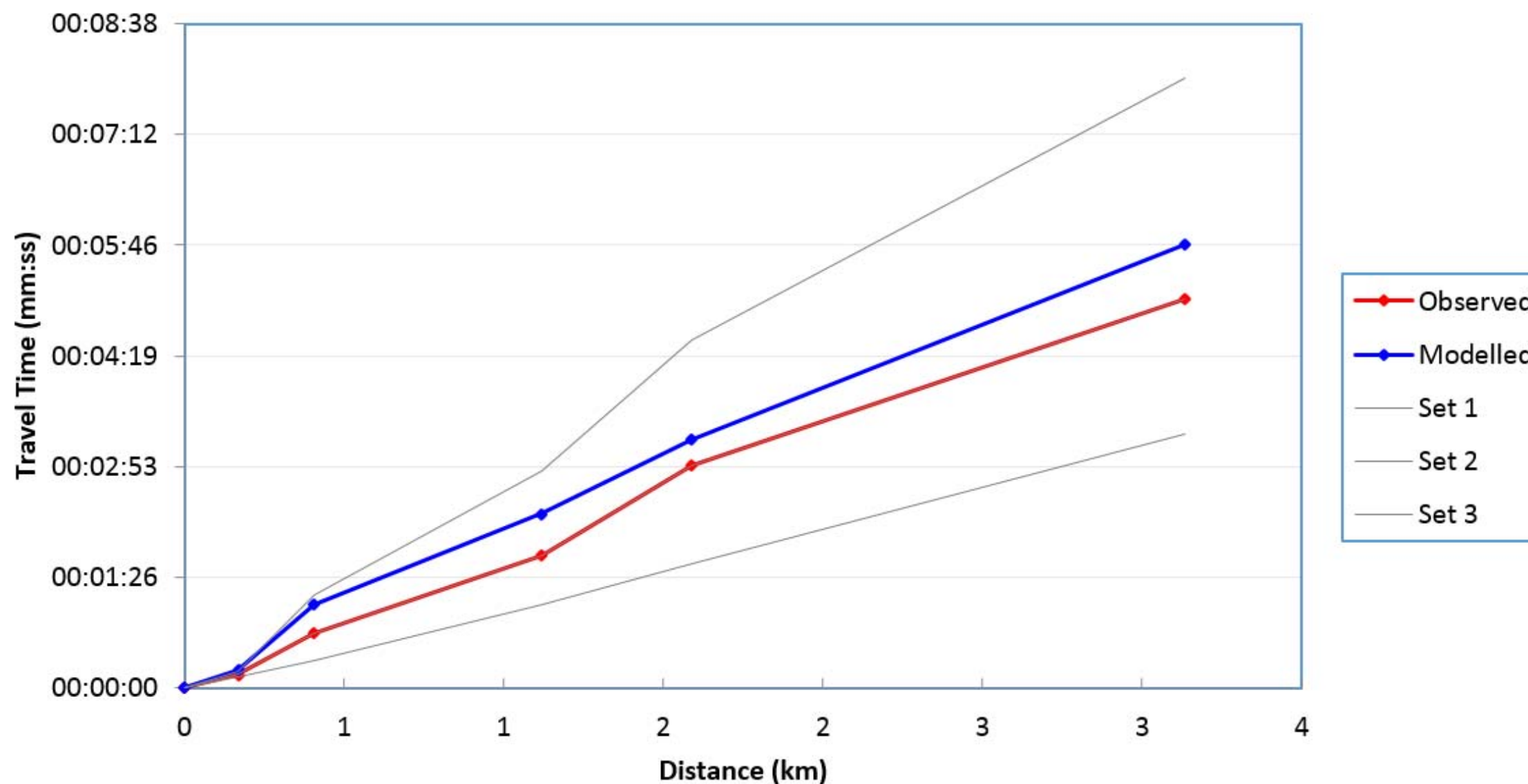


Route 6: A143 Beccles Road - Route 6: A143 Beccles Road SB  
Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		42	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A12 to Suffolk Road	168	0.169	00:00:10	00:00:14	00:00:10	00:00:13	00:00:09	s1-2	0.169	00:00:10	00:00:14	58.6	44.4	×

3	Suffolk Road to Southtown Road	166	0.406	00:00:43	00:01:05	00:00:43	00:01:13	00:00:21	s2-3	0.237	00:00:32	00:00:52	26.5	16.5	×
4	Southtown Road to Burgh Road	46	1.120	00:01:44	00:02:16	00:01:44	00:02:49	00:01:05	s3-4	0.714	00:01:01	00:01:11	42.1	36.4	×
5	Burgh Road to A12 on-slip	424	1.587	00:02:53	00:03:14	00:02:53	00:04:32	00:01:37	s4-5	0.467	00:01:10	00:00:58	24.1	28.8	×
6	A12 on-slip to Mill Lane	350	3.135	00:05:04	00:05:46	00:05:04	00:07:56	00:03:19	s5-6	1.548	00:02:10	00:02:32	42.8	36.7	×

Journey Time Summary: A143 BECCLES ROAD:SB - Inter-Peak



Route 6: A143 Beccles Road - Route 6: A143 Beccles Road SB

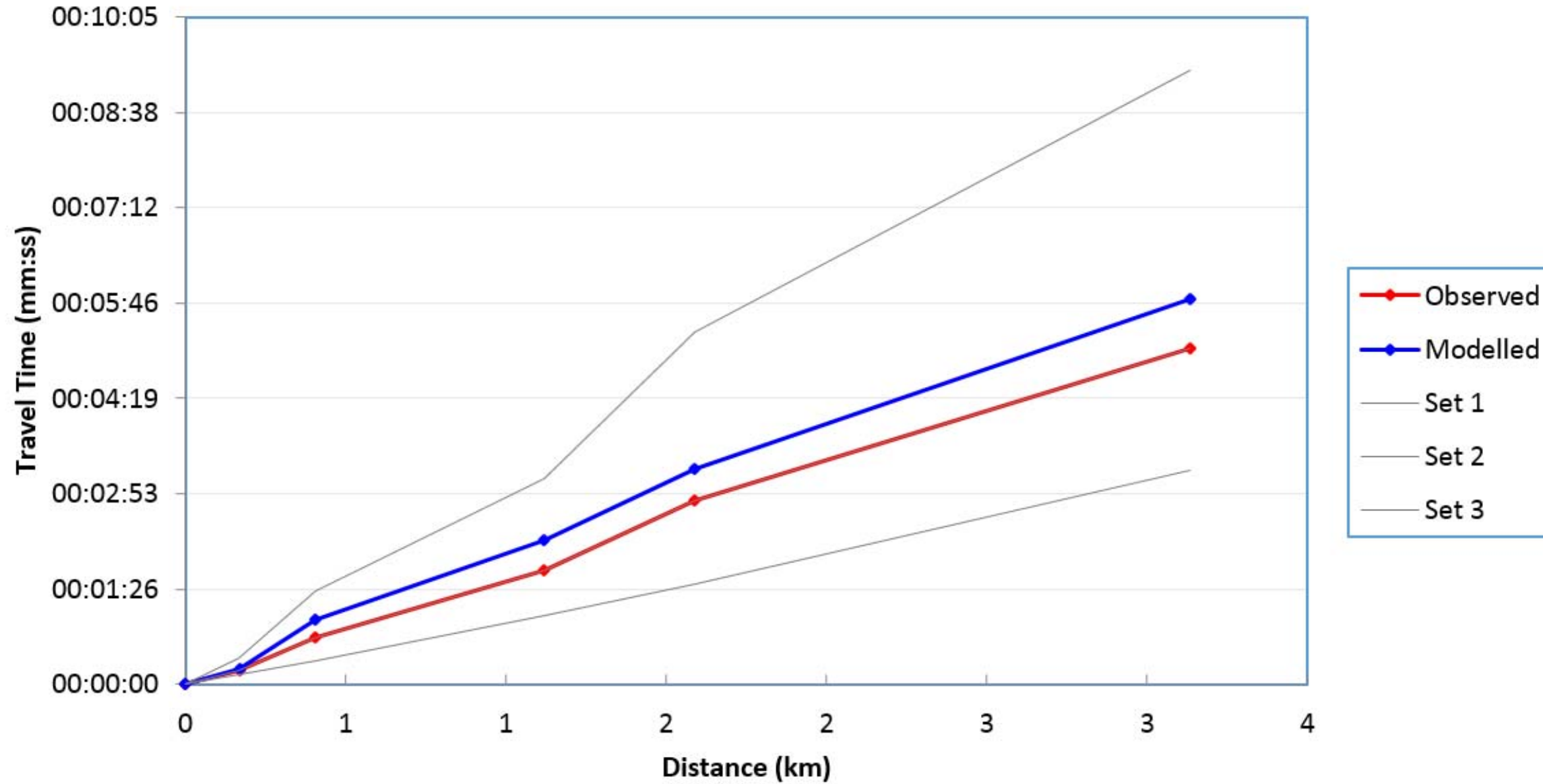
Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		42	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A12 to Suffolk Road	168	0.169	00:00:12	00:00:14	00:00:12	00:00:24	00:00:09	s1-2	0.169	00:00:12	00:00:14	49.5	43.4	✓
3	Suffolk Road to Southtown Road	166	0.406	00:00:42	00:00:59	00:00:42	00:01:25	00:00:21	s2-3	0.237	00:00:30	00:00:45	28.6	19.2	×



4	Southtown Road to Burgh Road	46	1.120	00:01:43	00:02:11	00:01:43	00:03:06	00:01:03	s3-4	0.714	00:01:01	00:01:13	41.9	35.4	x
5	Burgh Road to A12 on-slip	424	1.587	00:02:46	00:03:15	00:02:46	00:05:19	00:01:31	s4-5	0.467	00:01:03	00:01:04	26.7	26.2	✓
6	A12 on-slip to Mill Lane	350	3.135	00:05:05	00:05:49	00:05:05	00:09:17	00:03:14	s5-6	1.548	00:02:19	00:02:34	40.2	36.1	✓

### Journey Time Summary: A143 BECCLES ROAD:SB - PM Peak



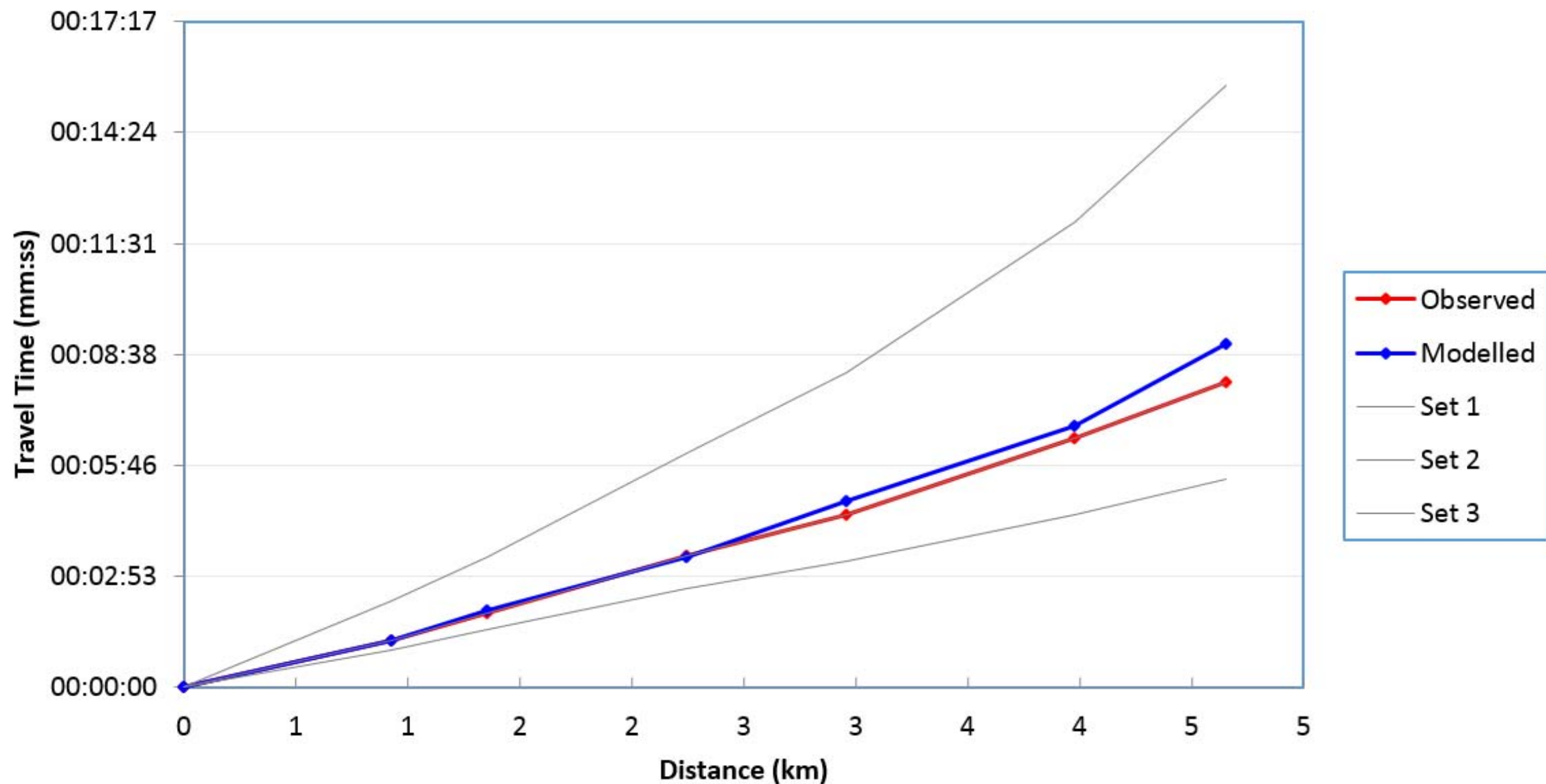
Route 7: Middleton Roadsouthtown Road - Route 7: Middleton RoadSouthtown Road NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		62	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A12 to Albermarle Road	451	0.927	00:01:13	00:01:13	00:01:13	00:02:15	00:00:57	s1-2	0.927	00:01:13	00:01:13	45.8	45.7	✓
3	Albermarle Road to Church Lane	85	1.352	00:01:56	00:01:59	00:01:56	00:03:22	00:01:29	s2-3	0.425	00:00:43	00:00:46	35.6	33.4	✓

4	Church Lane to A143	46	2.244	00:03:25	00:03:22	00:03:25	00:06:04	00:02:34	s3-4	0.892	00:01:29	00:01:23	35.9	38.7	✓
5	A143 to William Adams Way	166	2.958	00:04:29	00:05:06	00:04:29	00:08:10	00:03:16	s4-5	0.714	00:01:04	00:01:44	40.2	24.6	×
6	William Adams Way to Gordon Road	161	3.978	00:06:27	00:07:08	00:06:27	00:12:04	00:04:28	s5-6	1.020	00:01:58	00:02:02	31.1	30.2	✓
7	Gordon Road to Station Road	26	4.656	00:07:54	00:09:25	00:07:54	00:15:37	00:05:24	s6-7	0.678	00:01:27	00:02:17	28.0	17.9	×

### Journey Time Summary: MIDDLETON ROAD SOUTH TOWN ROAD:NB - AM Peak



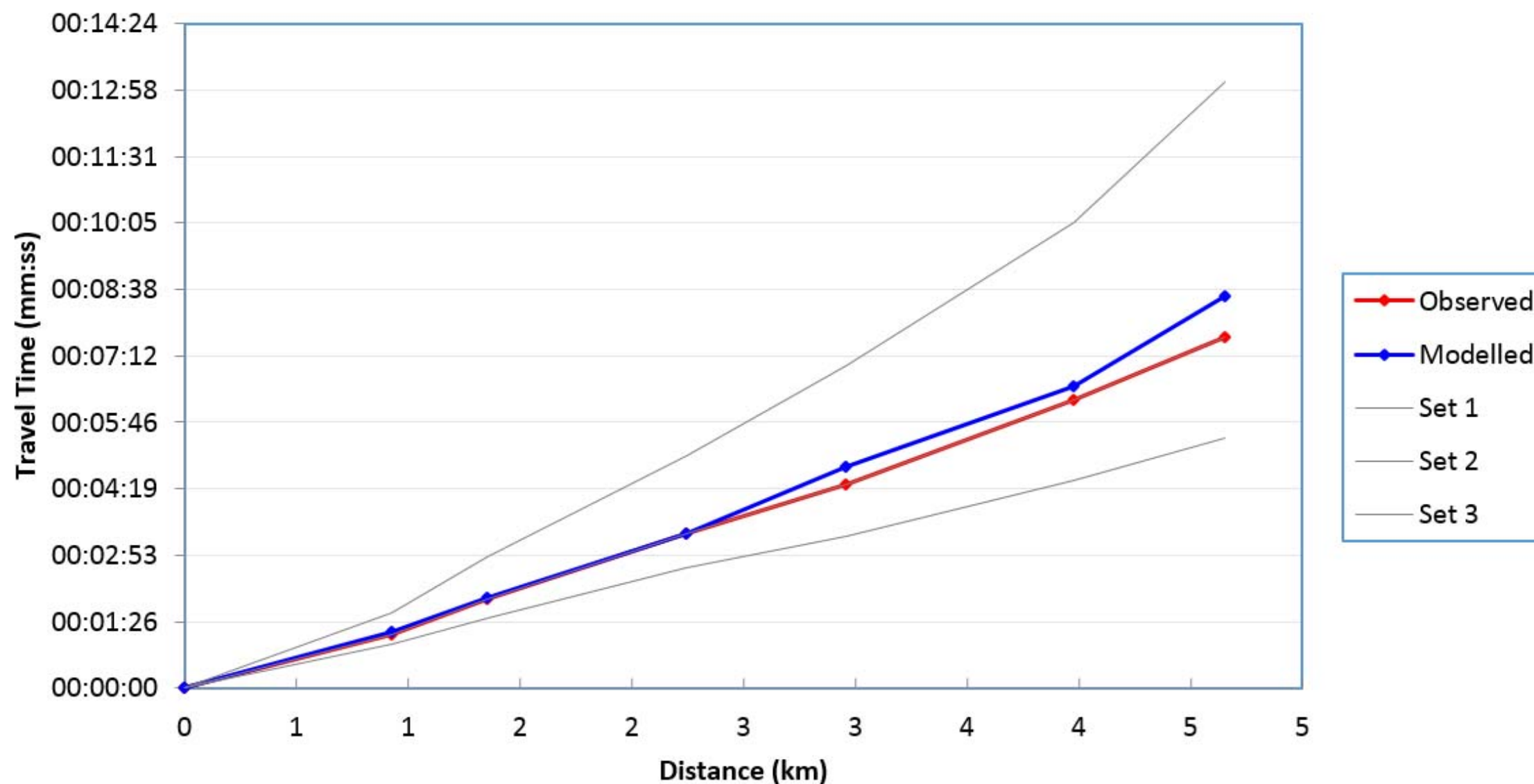
Route 7: Middleton Road Southtown Road - Route 7: Middleton Road Southtown Road NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		62	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A12 to Albermarle Road	451	0.927	00:01:10	00:01:13	00:01:10	00:01:38	00:00:57	s1-2	0.927	00:01:10	00:01:13	47.8	45.7	✓
3	Albermarle Road to Church Lane	85	1.352	00:01:55	00:01:58	00:01:55	00:02:50	00:01:30	s2-3	0.425	00:00:45	00:00:45	33.9	34.2	✓

4	Church Lane to A143	46	2.244	00:03:21	00:03:21	00:03:21	00:05:02	00:02:36	s3-4	0.892	00:01:26	00:01:23	37.3	38.6	✓
5	A143 to William Adams Way	166	2.958	00:04:25	00:04:48	00:04:25	00:06:59	00:03:17	s4-5	0.714	00:01:04	00:01:27	40.4	29.4	×
6	William Adams Way to Gordon Road	161	3.978	00:06:14	00:06:32	00:06:14	00:10:05	00:04:30	s5-6	1.020	00:01:50	00:01:44	33.5	35.5	✓
7	Gordon Road to Station Road	26	4.656	00:07:37	00:08:29	00:07:37	00:13:07	00:05:24	s6-7	0.678	00:01:22	00:01:57	29.7	20.9	×

**Journey Time Summary: MIDDLETON ROAD SOUTH TOWN ROAD:NB - Inter-Peak**



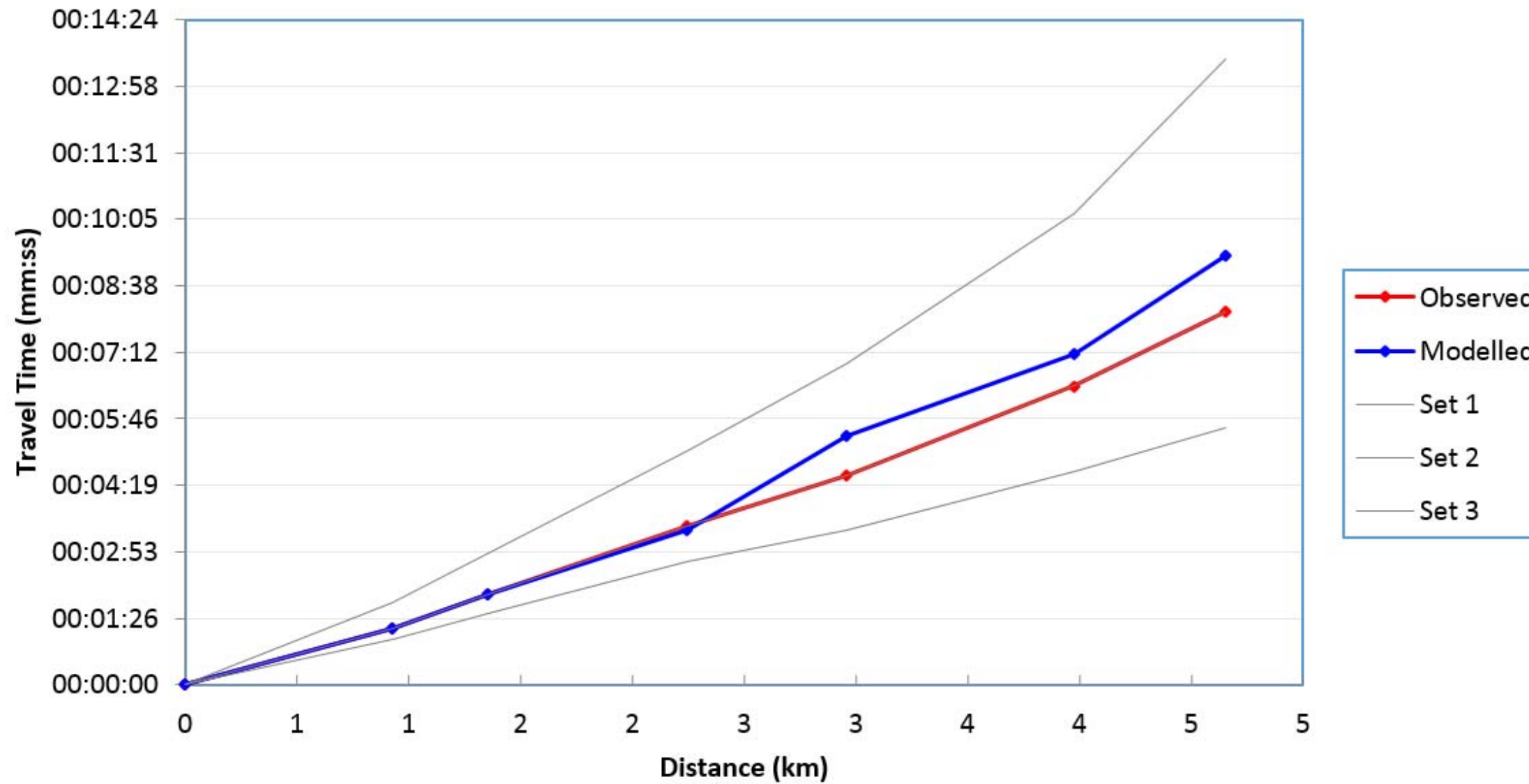
Route 7: Middleton Road Southtown Road - Route 7: Middleton Road Southtown Road NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		62	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							☐
2	A12 to Albermarle Road	451	0.927	00:01:13	00:01:14	00:01:13	00:01:46	00:00:59	s1-2	0.927	00:01:13	00:01:14	45.6	45.3	✓
3	Albermarle Road to Church Lane	85	1.352	00:01:57	00:01:58	00:01:57	00:02:51	00:01:33	s2-3	0.425	00:00:44	00:00:45	34.6	34.3	✓

4	Church Lane to A143	46	2.244	00:03:26	00:03:21	00:03:26	00:05:04	00:02:39	s3-4	0.892	00:01:29	00:01:23	36.0	38.8	✓
5	A143 to William Adams Way	166	2.958	00:04:31	00:05:23	00:04:31	00:06:58	00:03:20	s4-5	0.714	00:01:05	00:02:02	39.8	21.1	×
6	William Adams Way to Gordon Road	161	3.978	00:06:28	00:07:09	00:06:28	00:10:12	00:04:37	s5-6	1.020	00:01:57	00:01:46	31.4	34.6	✓
7	Gordon Road to Station Road	26	4.656	00:08:05	00:09:17	00:08:05	00:13:33	00:05:34	s6-7	0.678	00:01:37	00:02:08	25.2	19.1	×

**Journey Time Summary: MIDDLETON ROAD SOUTH TOWN ROAD:NB - PM Peak**



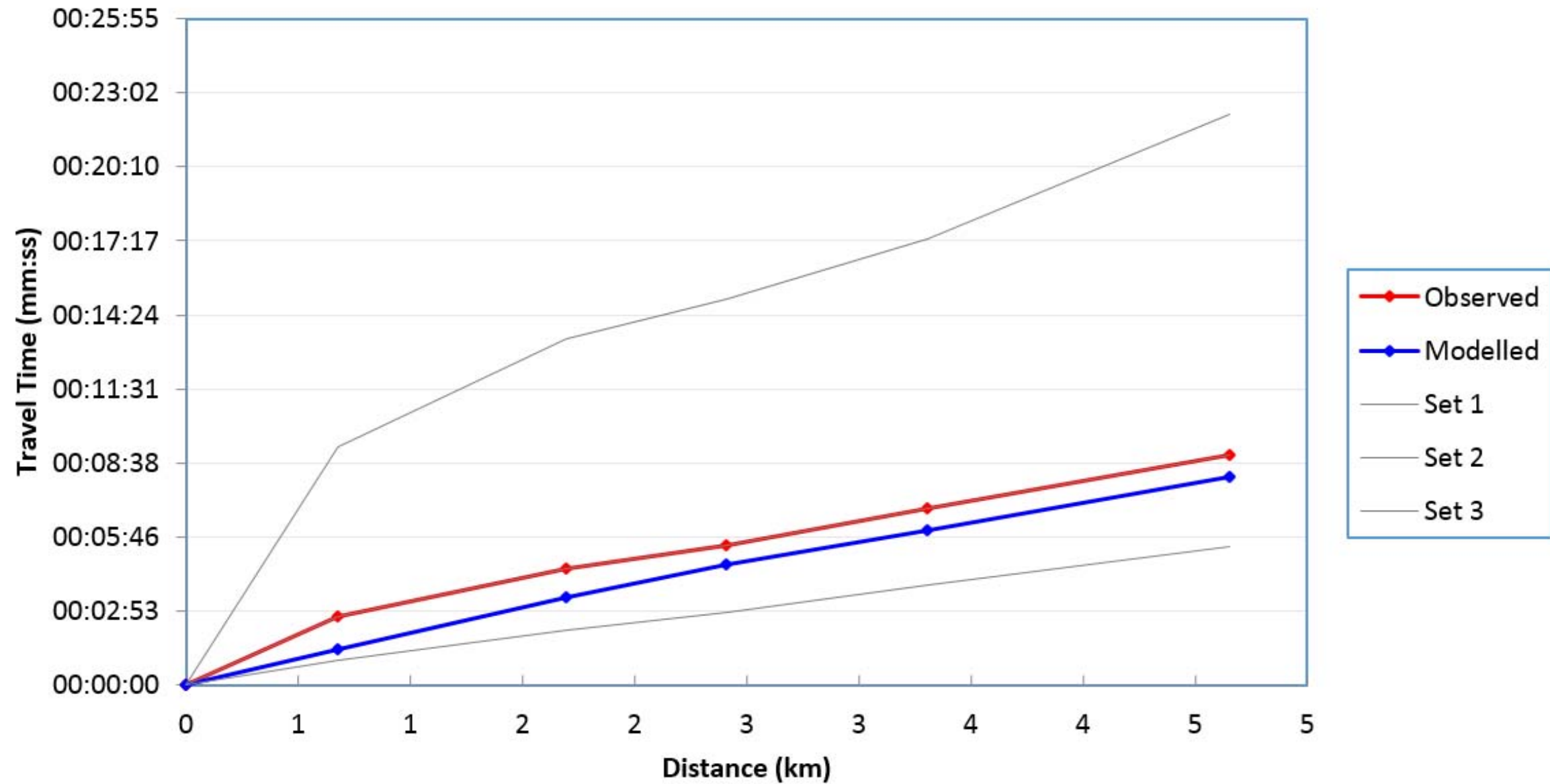
Route 7: Middleton Road Southtown Road - Route 7: Middleton Road Southtown Road SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		26	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Station Road to Gordon Road	161	0.678	00:02:42	00:01:24	00:02:42	00:09:18	00:00:58	s1-2	0.678	00:02:42	00:01:24	15.1	28.9	×

3	Gordon Road to William Adams Way	166	1.698	00:04:32	00:03:50	00:04:32	00:13:29	00:02:10	s2-3	1.020	00:01:50	00:02:26	33.3	25.2	×
4	William Adams Way to A143	46	2.412	00:05:27	00:05:05	00:05:27	00:15:00	00:02:51	s3-4	0.714	00:00:55	00:01:15	47.0	34.4	×
5	A143 to Church Lane	85	3.304	00:06:51	00:06:27	00:06:51	00:17:21	00:03:55	s4-5	0.892	00:01:25	00:01:22	37.9	39.1	✓
6	Church Lane to A12	62	4.656	00:08:56	00:08:31	00:08:56	00:22:13	00:05:25	s5-6	1.352	00:02:05	00:02:04	39.0	39.3	✓

### Journey Time Summary: MIDDLETON ROAD SOUTH TOWN ROAD:SB - AM Peak



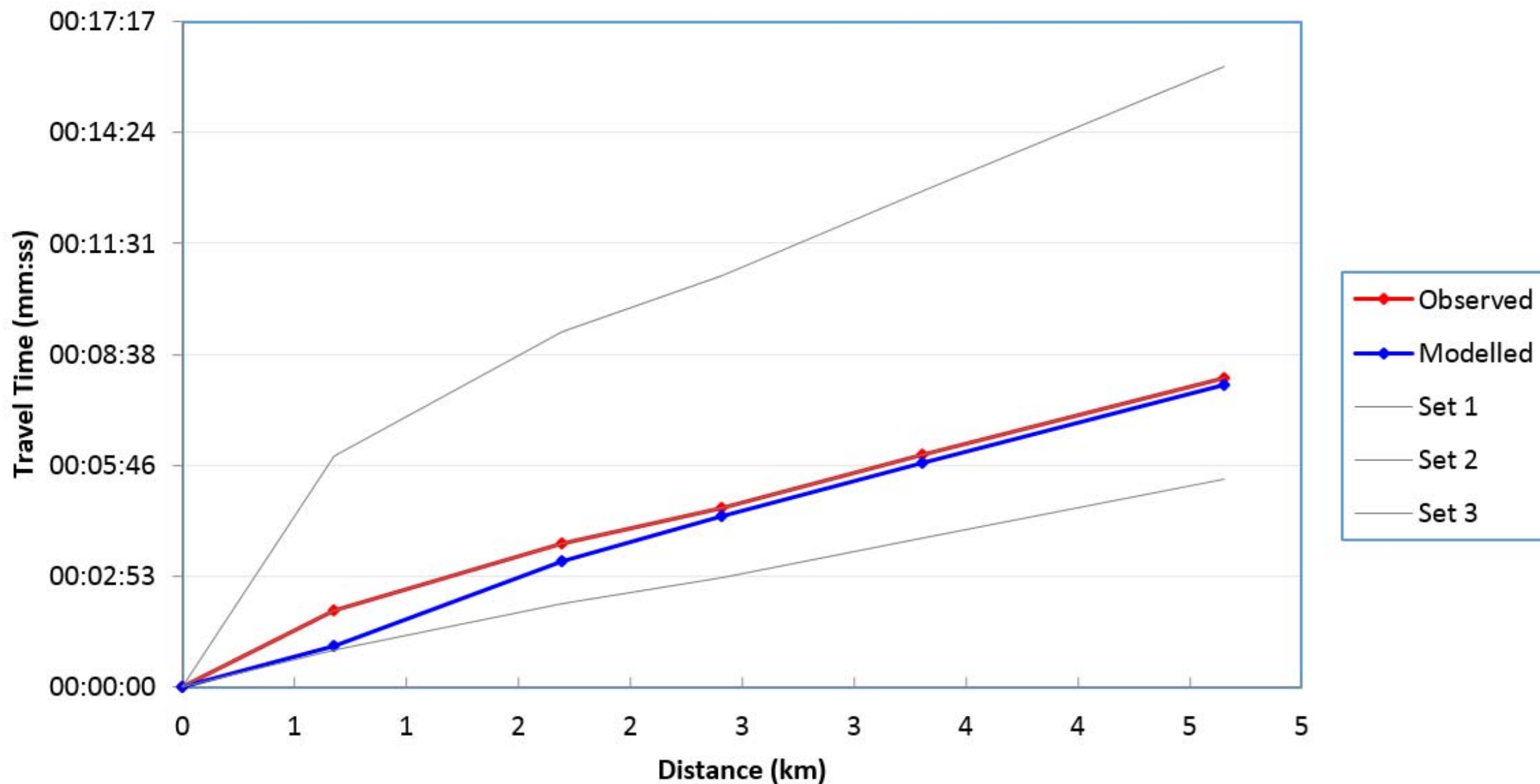
#### Route 7: Middleton Road Southtown Road - Route 7: Middleton Road Southtown Road SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		26	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Station Road to Gordon Road	161	0.678	00:02:00	00:01:05	00:02:00	00:06:00	00:00:58	s1-2	0.678	00:02:00	00:01:05	20.3	37.8	×

3	Gordon Road to William Adams Way	166	1.698	00:03:44	00:03:17	00:03:44	00:09:13	00:02:11	s2-3	1.020	00:01:44	00:02:12	35.4	27.8	×
4	William Adams Way to A143	46	2.412	00:04:39	00:04:27	00:04:39	00:10:42	00:02:50	s3-4	0.714	00:00:55	00:01:11	46.6	36.4	×
5	A143 to Church Lane	85	3.304	00:06:03	00:05:49	00:06:03	00:12:53	00:03:53	s4-5	0.892	00:01:24	00:01:22	38.4	39.1	✓
6	Church Lane to A12	62	4.656	00:08:01	00:07:50	00:08:01	00:16:06	00:05:23	s5-6	1.352	00:01:58	00:02:01	41.1	40.4	✓

Journey Time Summary: MIDDLETON ROAD SOUTH TOWN ROAD:SB - Inter-Peak



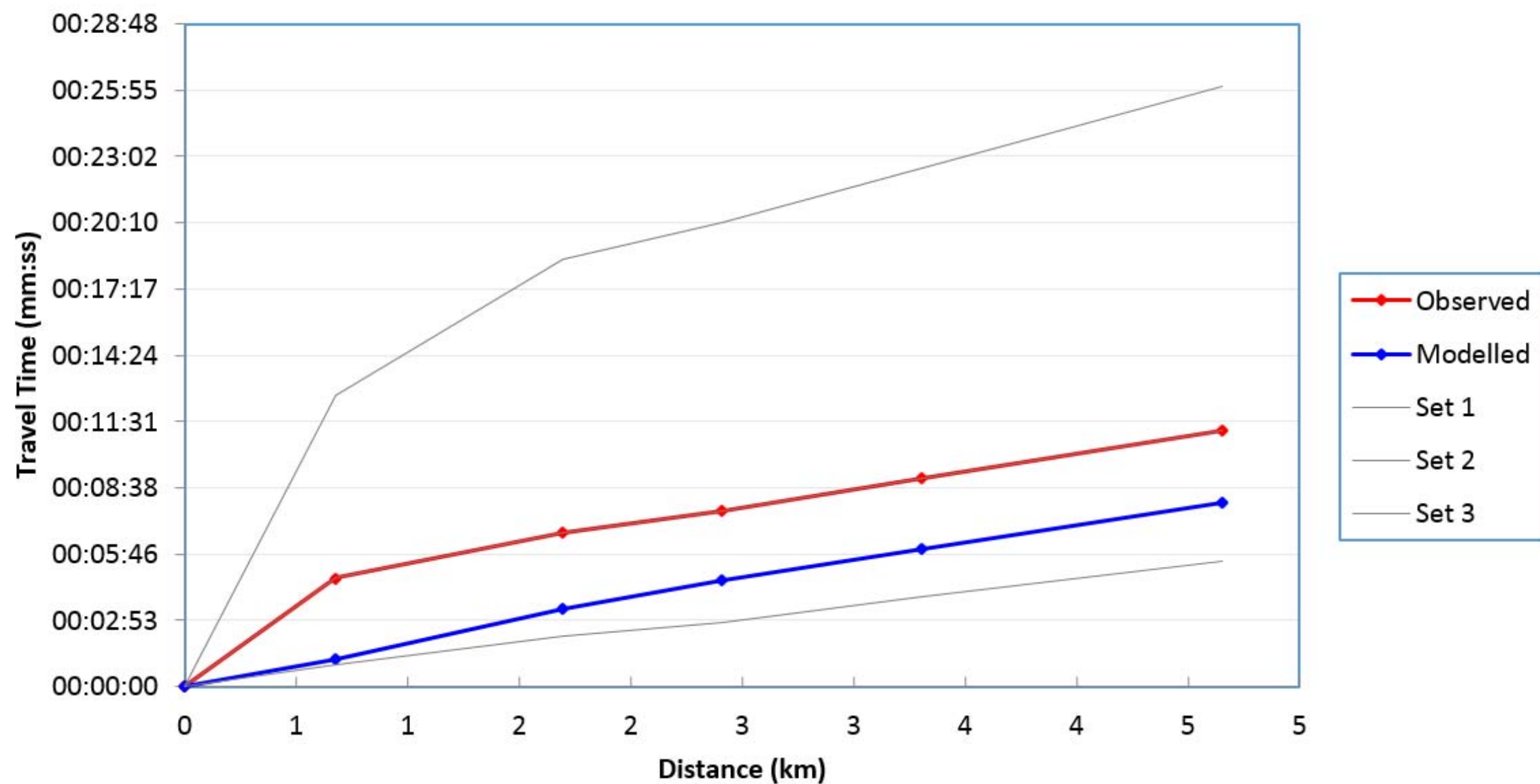
Route 7: Middleton Road Southtown Road - Route 7: Middleton Road Southtown Road SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		26	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Station Road to Gordon Road	161	0.678	00:04:43	00:01:12	00:04:43	00:12:41	00:00:58	s1-2	0.678	00:04:43	00:01:12	8.6	34.0	×

3	Gordon Road to William Adams Way	166	1.698	00:06:42	00:03:24	00:06:42	00:18:36	00:02:11	s2-3	1.020	00:02:00	00:02:13	30.7	27.7	✓
4	William Adams Way to A143	46	2.412	00:07:38	00:04:37	00:07:38	00:20:10	00:02:49	s3-4	0.714	00:00:56	00:01:13	46.2	35.4	×
5	A143 to Church Lane	85	3.304	00:09:05	00:06:00	00:09:05	00:22:32	00:03:55	s4-5	0.892	00:01:27	00:01:23	36.9	38.8	✓
6	Church Lane to A12	62	4.656	00:11:07	00:08:02	00:11:07	00:26:04	00:05:27	s5-6	1.352	00:02:02	00:02:02	39.8	40.0	✓

### Journey Time Summary: MIDDLETON ROAD SOUTH TOWN ROAD:SB - PM Peak

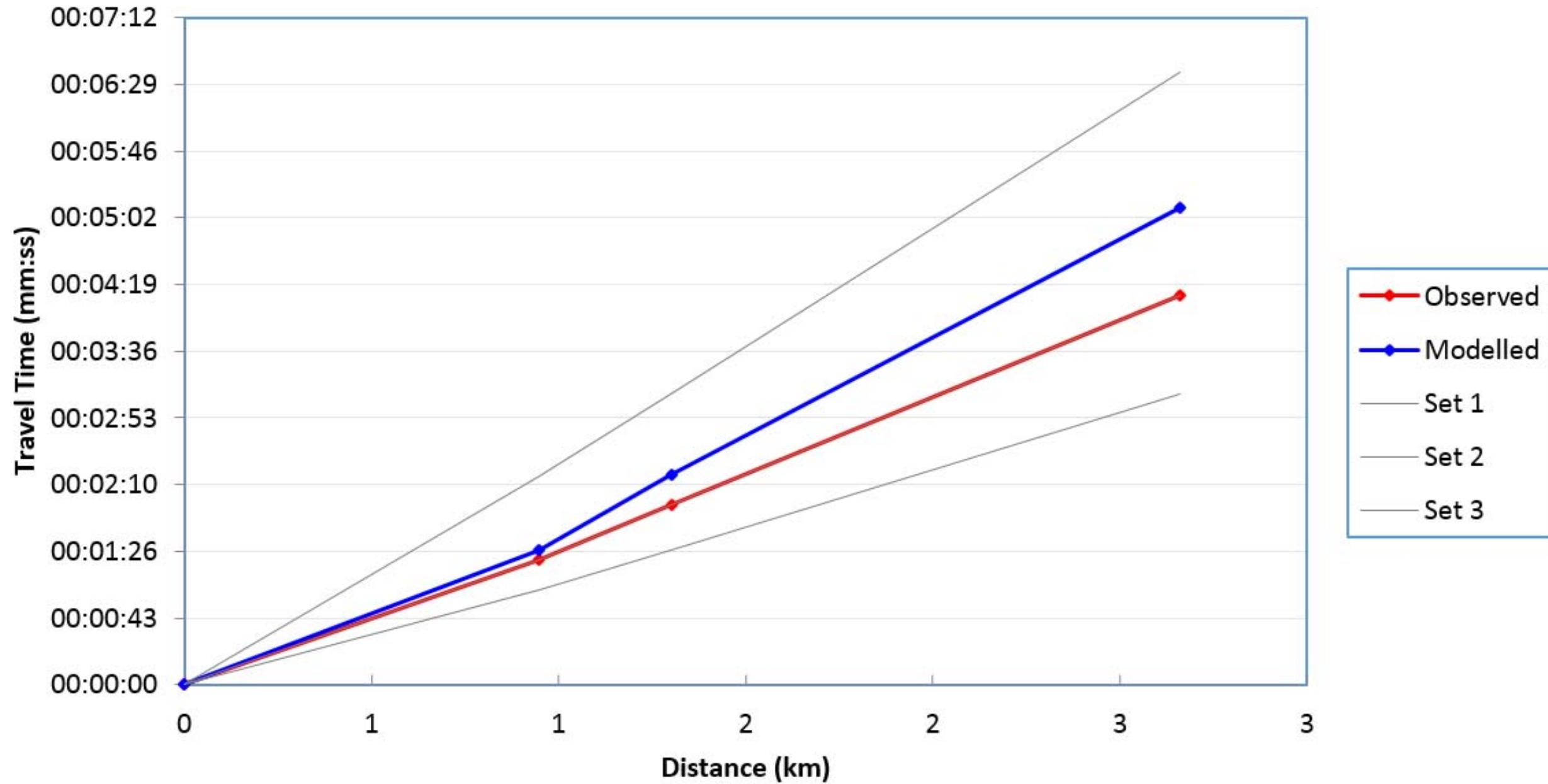


Route 8: Gorleston High Street - Route 8: Gorleston High Street NB  
Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind. Dist (km)	ind. Time (mm:ss)		ind. Speed (kph)		
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%
1		61	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A12 to England's Lane	249	0.948	00:01:21	00:01:28	00:01:21	00:02:15	00:01:01	s1-2	0.948	00:01:21	00:01:28	42.0	38.9	✓
3	England's Lane to Baker Street	256	1.301	00:01:56	00:02:17	00:01:56	00:03:08	00:01:27	s2-3	0.353	00:00:35	00:00:49	36.6	26.0	×

4	Baker Street to Beccle's Road	170	2.660	00:04:12	00:05:10	00:04:12	00:06:37	00:03:08	s3-4	1.359	00:02:16	00:02:54	35.9	28.2	×
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### Journey Time Summary: GORLESTON HIGH STREET:NB - AM Peak



Route 8: Gorleston High Street - Route 8: Gorleston High Street NB

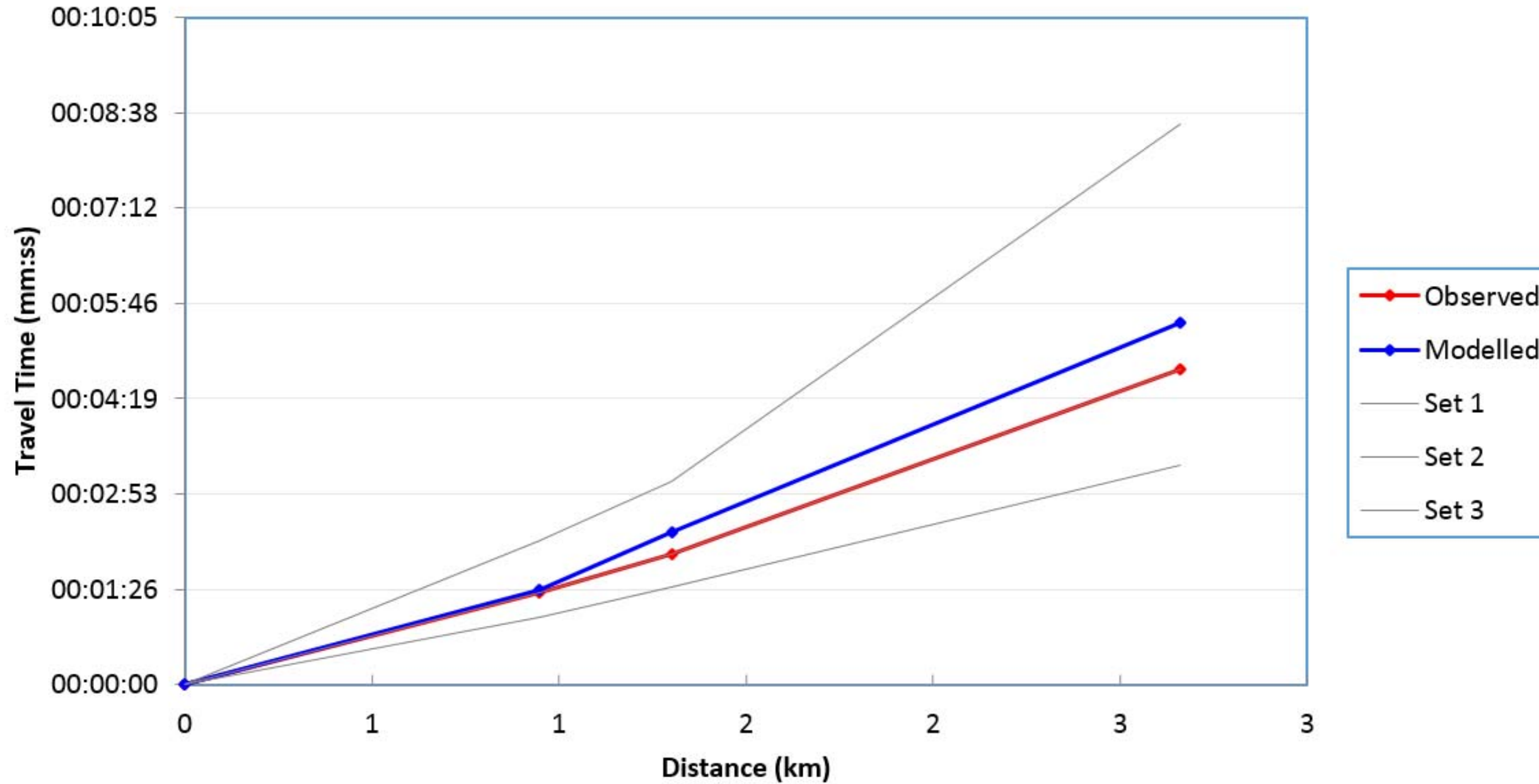
Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)			
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	< 15%	
1		61	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00								☐
2	A12 to England's Lane	249	0.948	00:01:23	00:01:26	00:01:23	00:02:11	00:01:01	s1-2	0.948	00:01:23	00:01:26	41.0	39.5		✓
3	England's Lane to Baker Street	256	1.301	00:01:58	00:02:18	00:01:58	00:03:04	00:01:28	s2-3	0.353	00:00:35	00:00:51	36.5	24.8		×



4	Baker Street to Beccle's Road	170	2.660	00:04:46	00:05:28	00:04:46	00:08:28	00:03:19	s3-4	1.359	00:02:48	00:03:11	29.1	25.7	✓
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### Journey Time Summary: GORLESTON HIGH STREET:NB - Inter-Peak



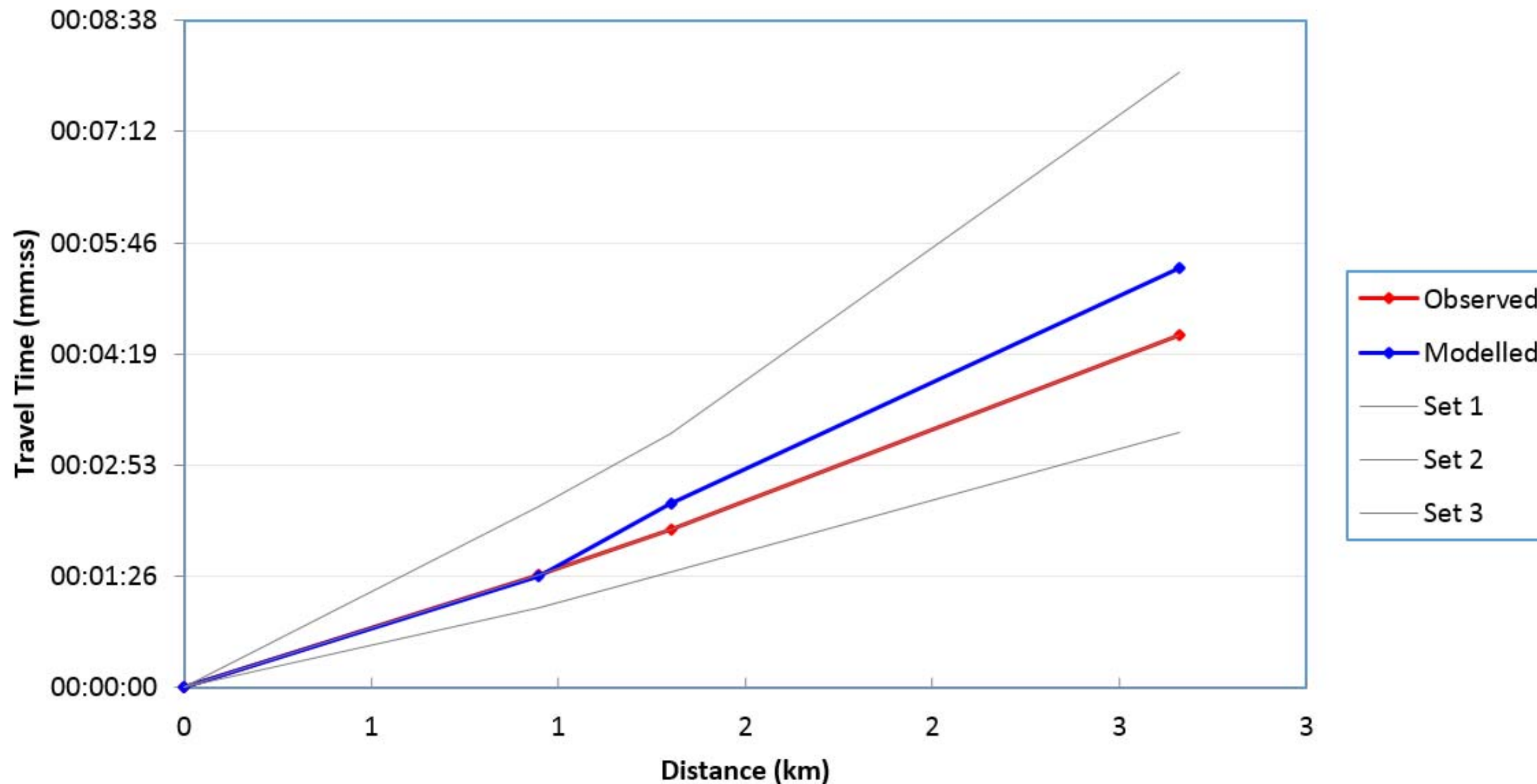
Route 8: Gorleston High Street - Route 8: Gorleston High Street NB

Direction: NB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		61	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	A12 to England's Lane	249	0.948	00:01:27	00:01:26	00:01:27	00:02:20	00:01:02	s1-2	0.948	00:01:27	00:01:26	39.2	39.5	✓
3	England's Lane to Baker Street	256	1.301	00:02:03	00:02:23	00:02:03	00:03:17	00:01:30	s2-3	0.353	00:00:36	00:00:57	35.2	22.4	✗

4	Baker Street to Beccle's Road	170	2.660	00:04:34	00:05:26	00:04:34	00:07:58	00:03:19	s3-4	1.359	00:02:31	00:03:03	32.5	26.7	×
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### Journey Time Summary: GORLESTON HIGH STREET:NB - PM Peak



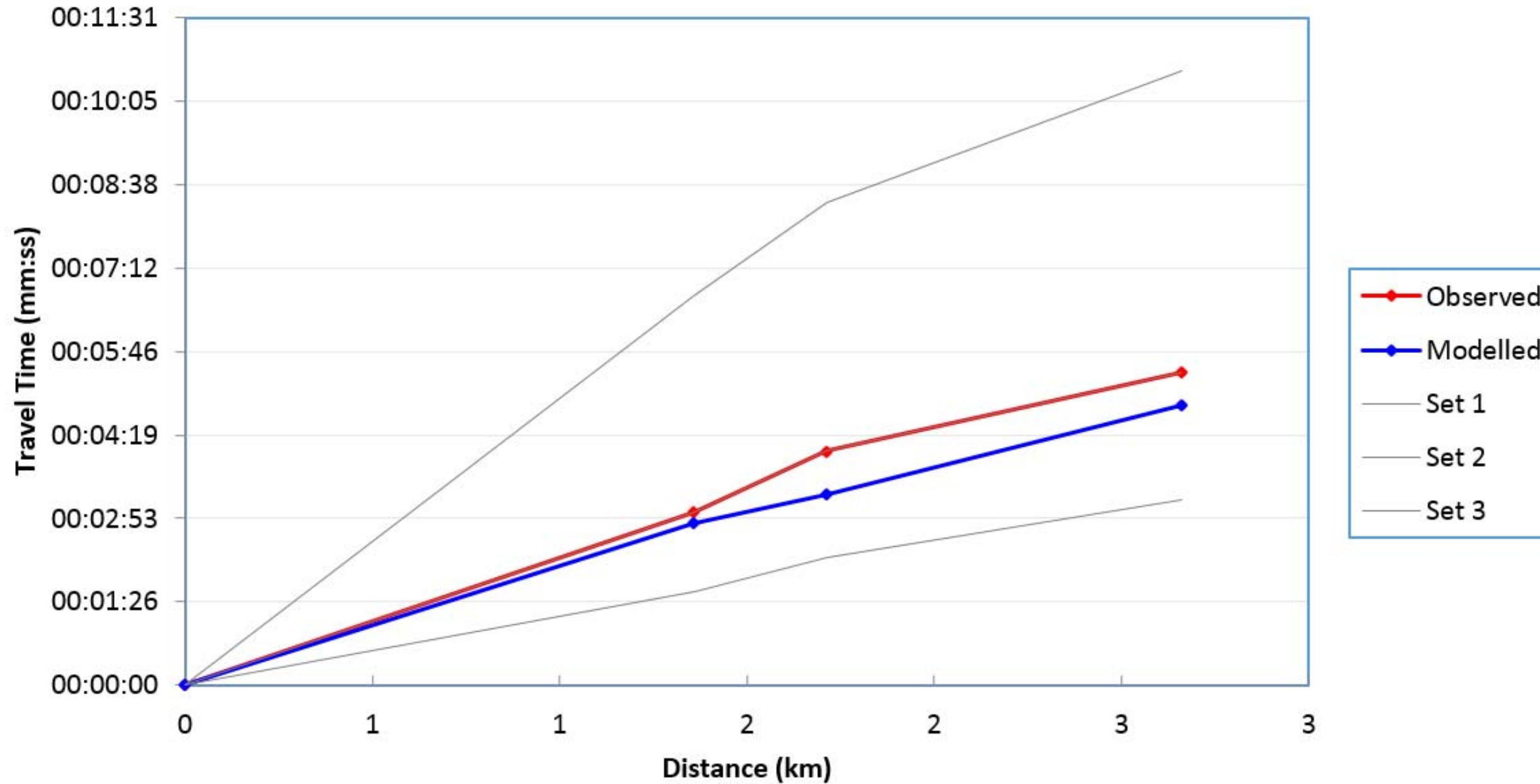
Route 8: Gorleston High Street - Route 8: Gorleston High Street SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)			Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%		
				Observed	Modelled	Set 1			Set 2	Set 3	Observed	Modelled		Observed	Modelled
1		170	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00						□	
2	Beccle's Road to Baker Street	256	1.359	00:02:59	00:02:48	00:02:59	00:06:43	00:01:36	s1-2	1.359	00:02:59	00:02:48	27.4	29.1	✓
3	Baker Street to England's Lane	249	1.712	00:04:02	00:03:19	00:04:02	00:08:20	00:02:12	s2-3	0.353	00:01:03	00:00:30	20.0	41.9	×

4	Beccle's Road to Baker Street	61	2.660	00:05:24	00:04:50	00:05:24	00:10:36	00:03:12	s3-4	0.948	00:01:22	00:01:31	41.8	37.4	✓
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### Journey Time Summary: GORLESTON HIGH STREET:SB - AM Peak



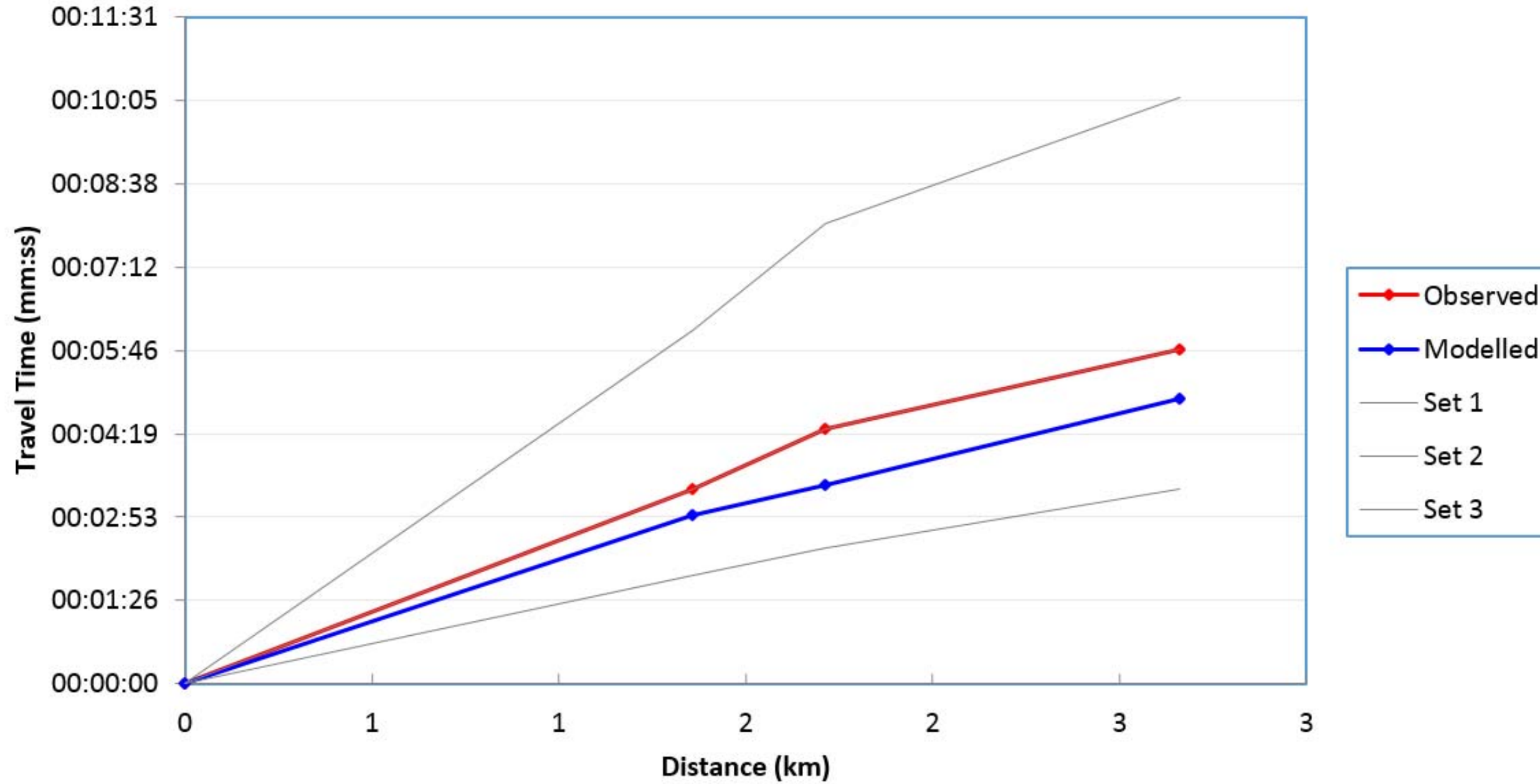
Route 8: Gorleston High Street - Route 8: Gorleston High Street SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		170	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Beccle's Road to Baker Street	256	1.359	00:03:21	00:02:55	00:03:21	00:06:06	00:01:52	s1-2	1.359	00:03:21	00:02:55	24.3	27.9	✓
3	Baker Street to England's Lane	249	1.712	00:04:24	00:03:26	00:04:24	00:07:57	00:02:21	s2-3	0.353	00:01:03	00:00:31	20.2	41.4	×

4	Beccle's Road to Baker Street	61	2.660	00:05:47	00:04:56	00:05:47	00:10:08	00:03:22	s3-4	0.948	00:01:23	00:01:30	41.3	37.9	✓
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### Journey Time Summary: GORLESTON HIGH STREET:SB - Inter-Peak



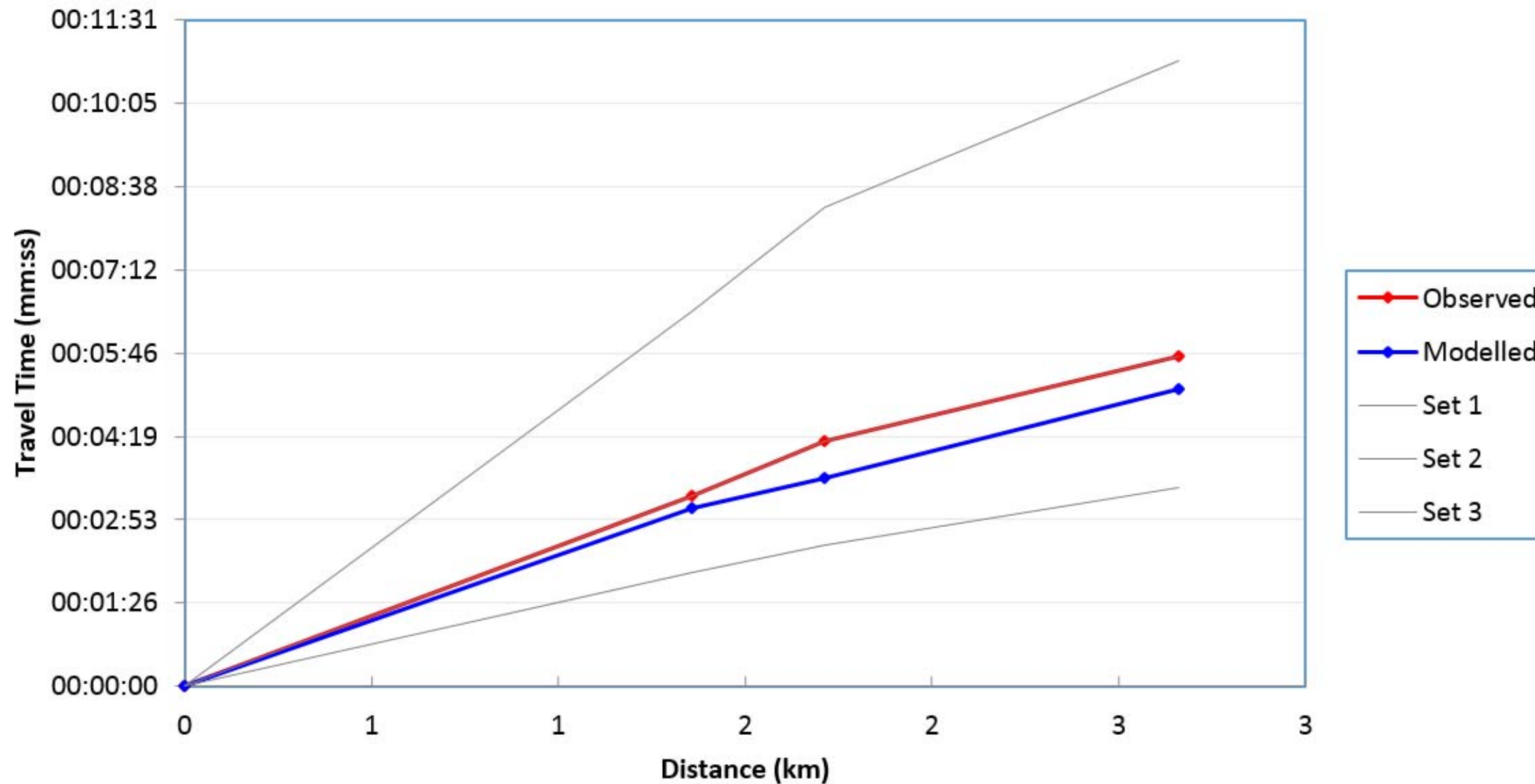
Route 8: Gorleston High Street - Route 8: Gorleston High Street SB

Direction: SB

Point	Description	Node	Dist (km)	Journey Time (mm:ss)					Section	ind.Dist (km)	ind.Time (mm:ss)		ind.Speed (kph)		< 15%
				Observed	Modelled	Set 1	Set 2	Set 3			Observed	Modelled	Observed	Modelled	
1		170	0.000	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00							□
2	Beccle's Road to Baker Street	256	1.359	00:03:18	00:03:05	00:03:18	00:06:29	00:01:58	s1-2	1.359	00:03:18	00:03:05	24.7	26.5	✓

3	Baker Street to England's Lane	249	1.712	00:04:14	00:03:36	00:04:14	00:08:16	00:02:27	s2-3	0.353	00:00:56	00:00:31	22.7	41.1	×
4	Beccle's Road to Baker Street	61	2.660	00:05:42	00:05:09	00:05:42	00:10:48	00:03:27	s3-4	0.948	00:01:28	00:01:33	38.8	36.6	✓

### Journey Time Summary: GORLESTON HIGH STREET:SB - PM Peak



## Appendix I: Route Choice Checks

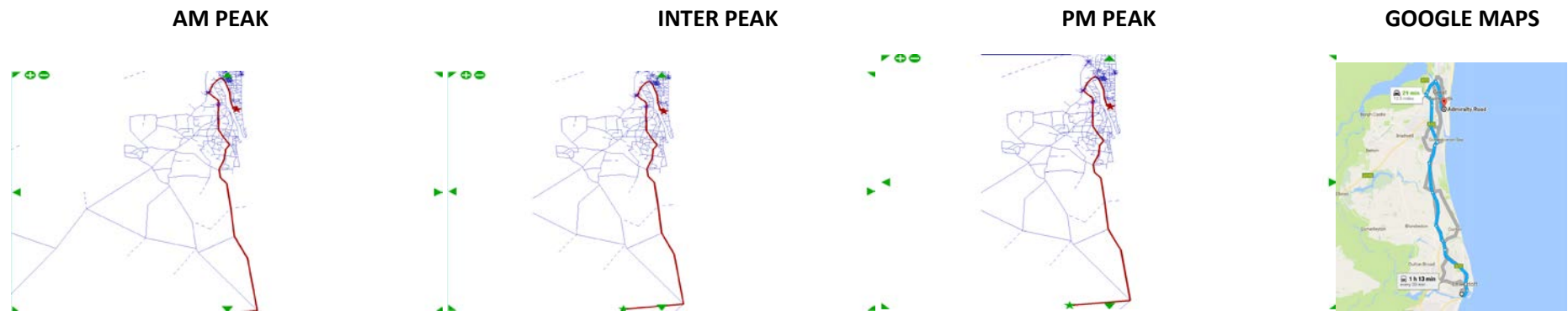
Route Choice Checks have been undertaken to assess whether the modelled paths in the Post ME model are realistic. Several O-D pairs have been selected and the traffic routes between them have been checked. The O-D pairs are given in the table below:

*Route Choice O-D Locations*

Route	Name	Origin	Destination
1	Lowestoft to Peninsula	22004	3702
2	Peninsula to Lowestoft	3702	22004
3	Lowestoft to Yarmouth Centre	22004	1
4	Yarmouth Centre to Lowestoft	1	22004
5	Yarmouth Centre to Caister	1	68
6	Caister to Yarmouth Centre	68	1
7	Norwich to Peninsula	500	3702
8	Peninsula to Norwich	3702	500
9	Southtown to Caister	3302	68
10	Caister to Southtown	68	3302
11	Southtown to Northgate	34	7
12	Northgate to Southtown	7	34
13	Southtown to Peninsula	34	603
14	Peninsula to southtown	603	34
15	Peninsula to Northgate	1701	78
16	Northgate to Peninsula	78	1701
17	Peninsula to Chaucer Road	16	24
18	Chaucer Road to Peninsula	24	16
19	Gorleston to Cobholm	51	27
20	Cobholm to Gorleston	27	51

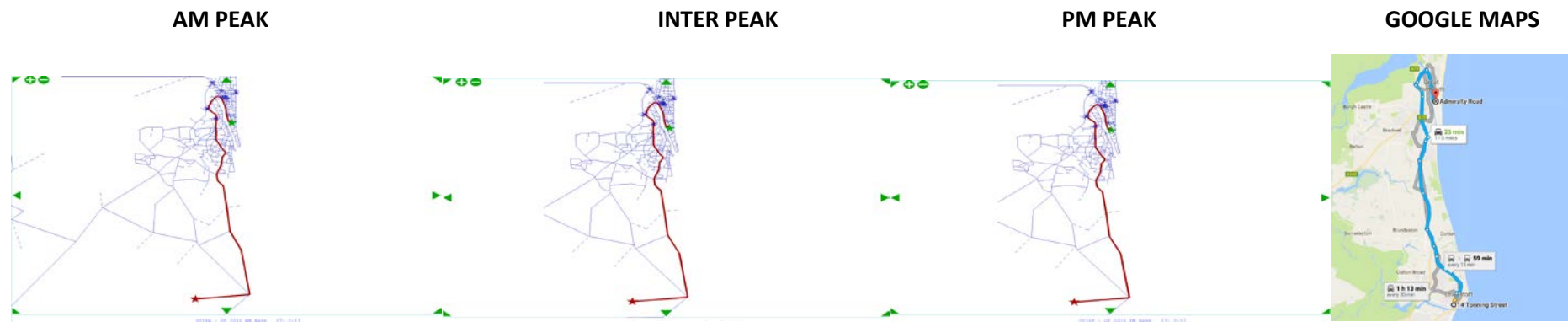
The modelled paths for the above O-D pairs are given in the diagrams below.

### Lowestoft to Peninsula



The model route uses Bridge Road consistently across all time periods. The model route is consistent with Google. This route is expected as it is the shortest route.

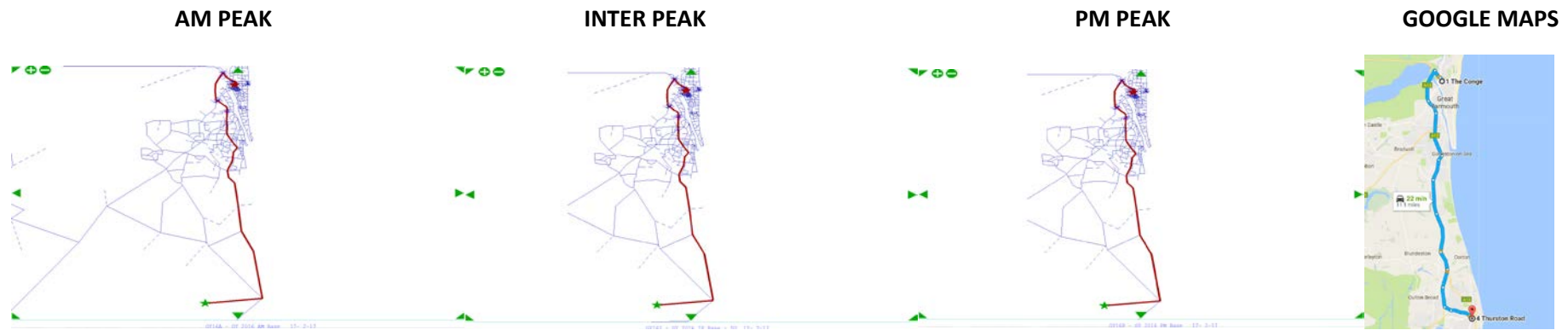
### Peninsula to Lowestoft



The model route uses Bridge Road consistently across all time periods. The model route is consistent with Google. This route is expected as it is the shortest route.

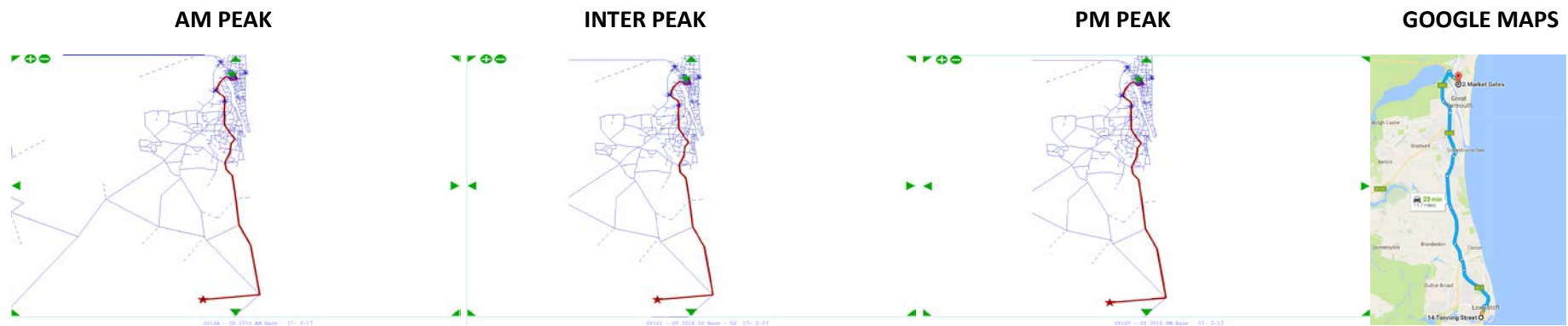


### Lowestoft to Yarmouth Centre



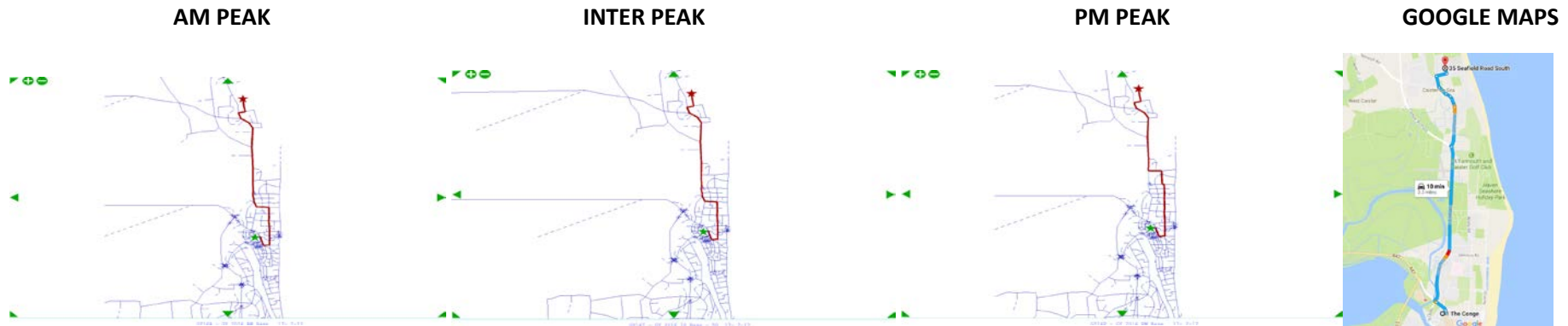
The route modelled is via the A12 which is consistent with Google.

### Yarmouth Centre to Lowestoft



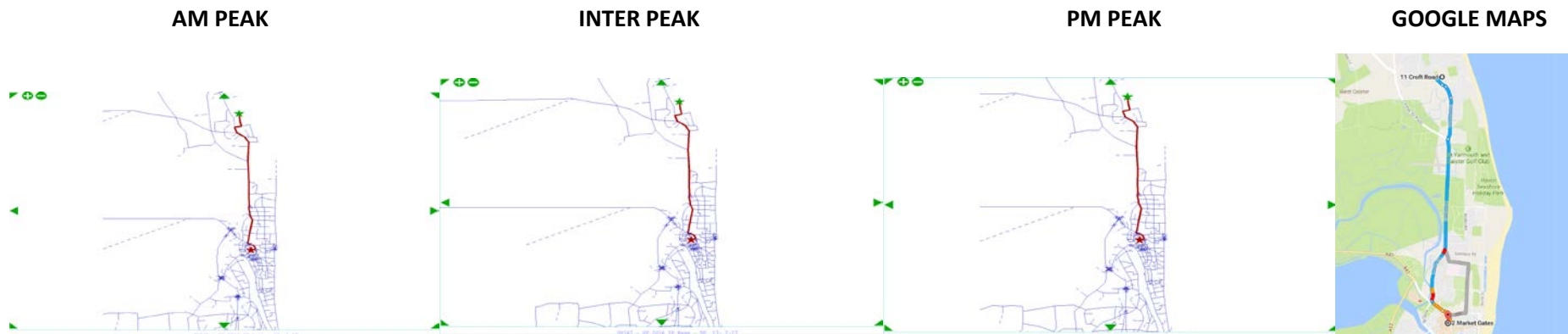
The southbound modelled route is via Bridge Street, unlike the northbound route. This is because Bridge Street is more accessible from the City Centre due to the one way road arrangement in the City Centre.

### Yarmouth Centre to Caister



It can be seen that the route differs between time periods, and from the Google route. The model indicates that there are several realistic routes for this O-D pair. Therefore, it is expected that there will be some variation between time periods.

### Caister to Yarmouth Centre



The modelled route above differs from the Google route, with the model assigning traffic to Northgate Street. In practice, Northgate Street is the quicker route for this journey, and is modelled as expected.

**Norwich to Peninsula**

**AM PEAK**



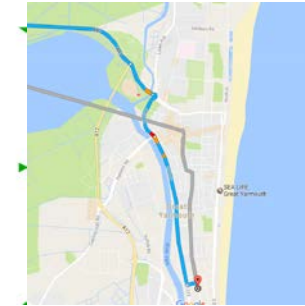
**INTER PEAK**



**PM PEAK**



**GOOGLE MAPS**



The modelled route is as expected, and is consistent across time periods and with Google.

**Peninsula to Norwich**

**AM PEAK**



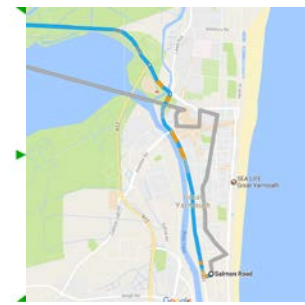
**INTER PEAK**



**PM PEAK**

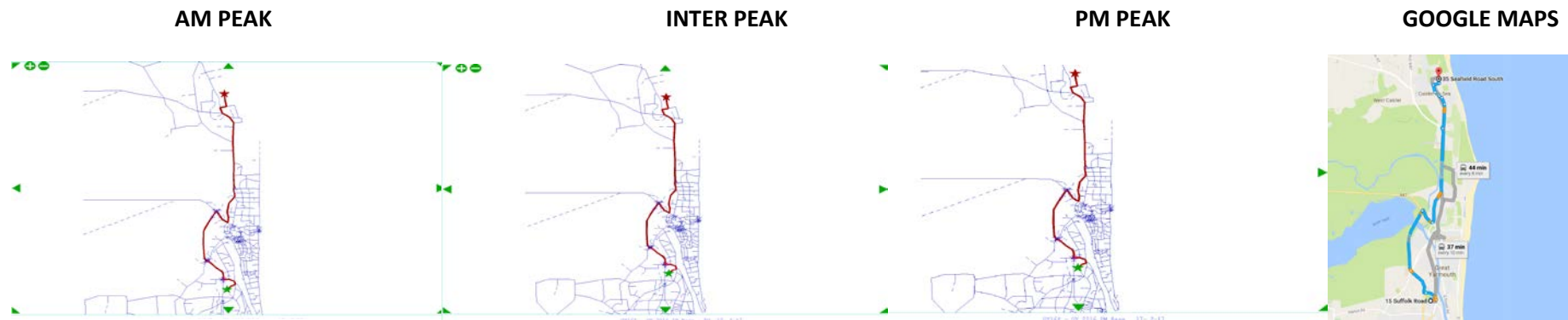


**GOOGLE MAPS**



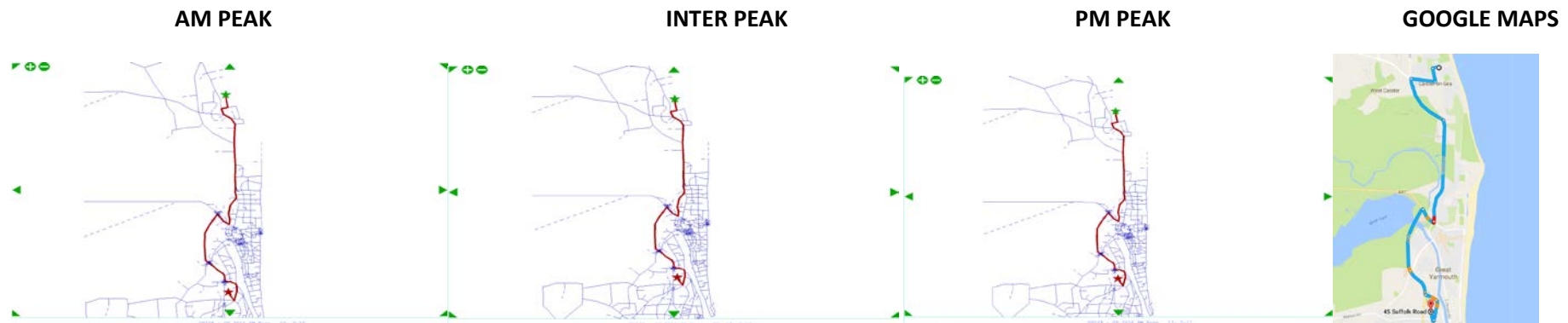
The modelled route is as expected, and is consistent across time periods and with Google.

### Southtown to Caister



The modelled route is as expected, and is consistent across time periods and with Google.

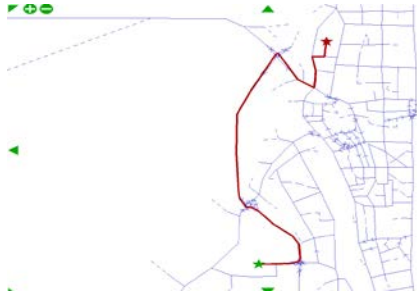
### Caister to Southtown



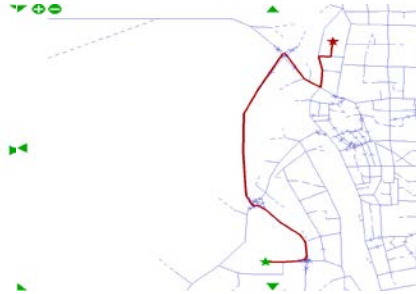
The modelled route differs slightly from the Google route at Caister, with vehicles using Yarmouth Road instead of Caister Bypass. Examination of the route indicates that the model route is of significantly shorter length. Furthermore, the Google route for the reverse direction uses Yarmouth Road, indicating that this is a viable route.

**Southtown to Northgate**

**AM PEAK**



**INTER PEAK**



**PM PEAK**



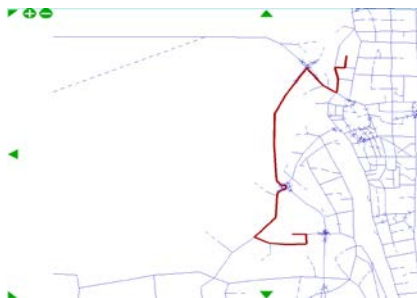
**GOOGLE MAPS**



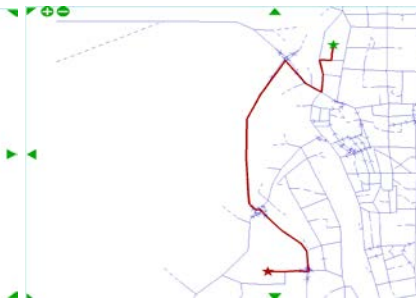
The modelled route is as expected, and is consistent across time periods and with Google.

**Northgate to Southtown**

**AM PEAK**



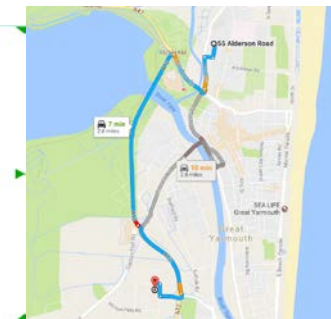
**INTER PEAK**



**PM PEAK**



**GOOGLE MAPS**



The modelled route is as expected, and is consistent across time periods and with Google.

Southtown to Peninsula

AM PEAK



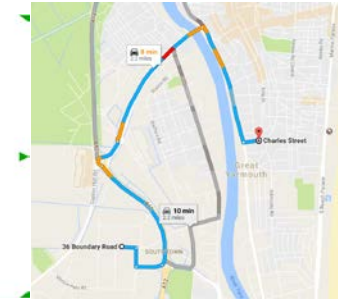
INTER PEAK



PM PEAK



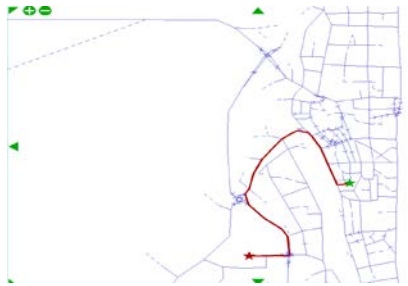
GOOGLE MAPS



The modelled route is as expected, and is consistent across time periods and with Google.

Peninsula to Southtown

AM PEAK



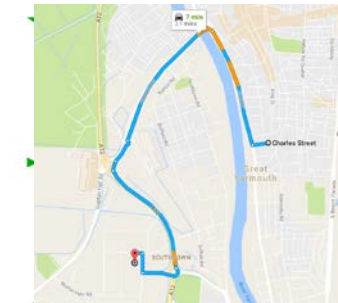
INTER PEAK



PM PEAK



GOOGLE MAPS



The modelled route is as expected, and is consistent across time periods and with Google.

### Peninsula to Northgate

AM PEAK



INTER PEAK



PM PEAK



GOOGLE MAPS



The modelled route above differs from the Google route, with the model assigning traffic to Marine Parade. The model indicates that the Marine Parade route is the quicker route for this journey.

### Northgate to Peninsula

AM PEAK



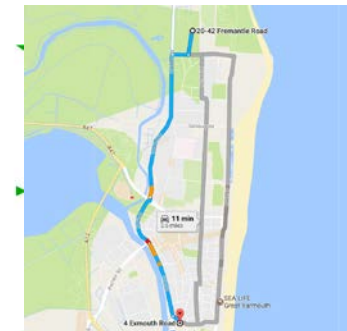
INTER PEAK



PM PEAK



GOOGLE MAPS



The modelled route above differs from the Google route, with the model assigning traffic to Marine Parade. The model indicates that the Marine Parade route is the quicker route for this journey.

### Peninsula to Chaucer Road

AM PEAK



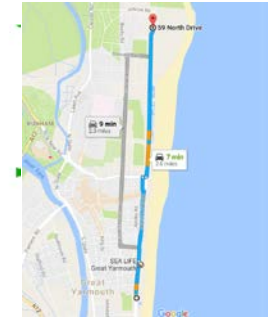
INTER PEAK



PM PEAK



GOOGLE MAPS



The modelled route is as expected, and is consistent across time periods and with Google.

### Chaucer Road to Peninsula

AM PEAK



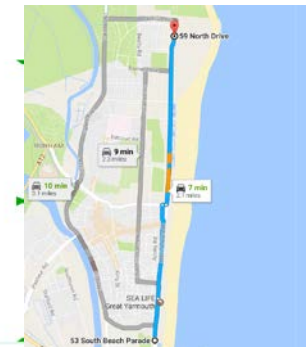
INTER PEAK



PM PEAK



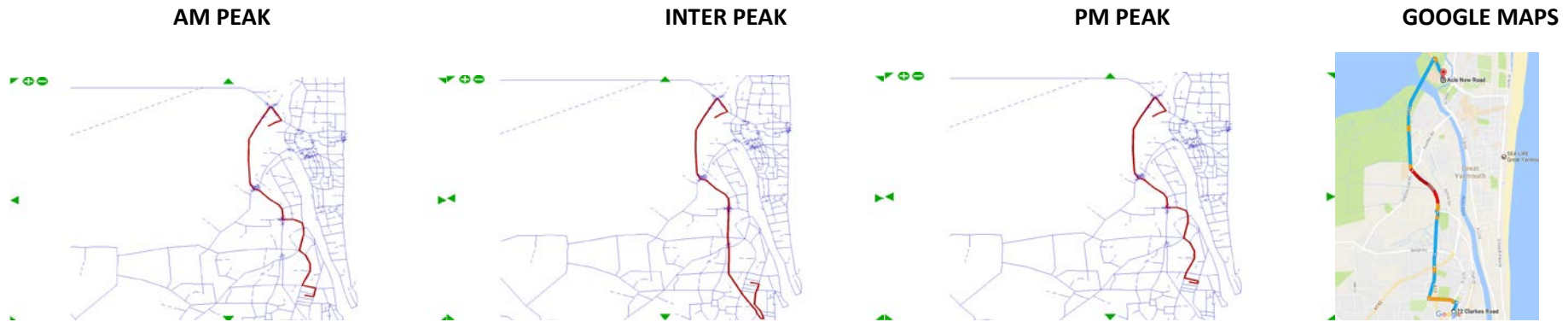
GOOGLE MAPS



The modelled route is as expected, and is consistent across time periods and with Google.

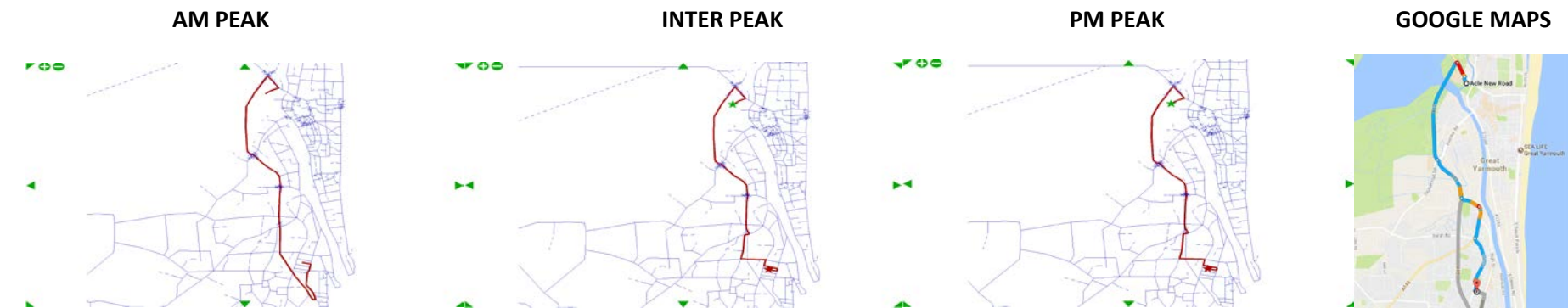


### Gorleston to Cobholm



It can be seen that the route differs between time periods, and from the Google route. The model indicates that there are several realistic routes for this O-D pair. Therefore, it is expected that there will be some variation between time periods.

### Cobham to Gorleston



It can be seen that the route differs between time periods, and from the Google route. The model indicates that there are several realistic routes for this O-D pair. Therefore, it is expected that there will be some variation between time periods.