Bonneagar Iompair Éireann
Transport Infrastructure Ireland

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NATIONAL TRANSPORT MODEL UPDATE
MODEL DEVELOPMENT REPORT

NTpM Volume 1
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1 Introduction

1.1 Overview

The National Transport Model (NTpM) is an all-Ireland strategic multi-modal transport model that can be used to assess and evaluate the impact of transport infrastructure, policy, demand management initiatives and strategic development plans at a local, regional and national level.

The NTpM is maintained by the Strategic and Transport Planning (STP) section of Transport Infrastructure Ireland (TII) and incorporates separate models for car traffic, freight, national rail and inter-urban bus, along with an innovative transport behaviour model which allows future transport and environmental impacts to be quantified.

A full update of the NTpM is undertaken every five years following the publication of the results of the Central Statistics Office (CSO) Census of Ireland. The latest Census of Ireland was undertaken in April 2016.

1.2 Structure of NTpM Documentation

In order to provide all the relevant detail of the National Transport Model (NTpM) in a clear and concise manner the documentation for the NTpM update is split into four volumes as follows:

- NTpM Volume 1 – Model Development Report – Provides the background to the NTpM and outlines the development, calibration and validation of the modules of the NTpM;
- NTpM Volume 2 – Data Collection Report – Presents details of the data and data sources used to update and enhance the NTpM;
- NTpM Volume 3 – Forecasting Report – A detailed discussion on the background data and methodologies used to inform the estimates of future travel demand in the NTpM is presented in this report; and
- NTpM Volume 4 – Variable Demand Model Report – The final report provides the details on the background, development and function of the variable demand model.

This report, which is referred to as the Model Development Report, forms Volume 1 of the NTpM Update suite of supporting documentation.

1.3 NTpM Background

In 2007, the NRA (now TII[1]) commissioned the development of a National Traffic Model (NTM) to support strategic planning on the National Road network. The development of the NTM was intended to provide the starting point in the development of a more structured approach to project appraisal for all projects under TII remit, ensuring that all projects were examined in a consistent manner and in accordance with TII Project Appraisal Guidelines (PAG).

The National Traffic Model was completed in 2008 and was enhanced in 2010 and 2011 to include the National Rail Model (NRM), National Bus Model (NBM) and a Variable Demand Model (VDM). The full model containing all these modules was referred to as the National Transport Model.

[1] *Transport Infrastructure Ireland (TII) was formed in 2015 and merged the former National Roads Authority (NRA) and the Railway Procurement Agency (RPA)*

As part of the model enhancements in 2010/2011, a more detailed representation of Northern Ireland was also included to ensure that cross border trips were accurately represented and to allow cross border road schemes to be appraised in a manner consistent with other schemes.

In 2013, TII undertook a full update of the NTpM utilising data from 2011 CSO Census, their nationwide Traffic Monitoring Units (TMU) network and data from other sources.

Since the update in 2013, the NTpM has been the basis for strategic planning, scheme appraisal and policy evaluation, and also remains available for use by government bodies, local authorities and researchers.

1.4 Model Hierarchy

Outside key urban areas, transport activity in Ireland, as can be observed in Figure 1.1, is strongly focused on road with some 84% of motorised travel outside urban areas undertaken by private vehicles[2]. Furthermore, it accounts for 97% of all person kilometres using the road network (including Bus and Heavy Goods Vehicles).

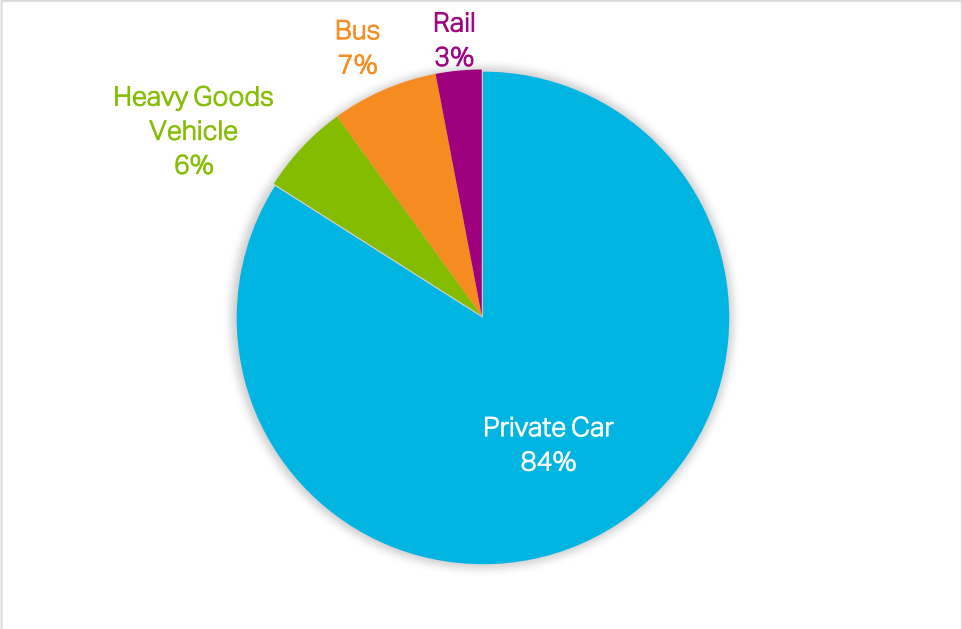

Figure 1.1 2016 TII National Transport Model Modal Split (Inter Urban Travel Only)

This highlights the need for TII to maintain a strong understanding of rural and inter-urban transport demand at a strategic level, and the issues that will impact on such demand in the future. TII has progressed significant research[3] into impacts of fuel price, electric vehicle usage and road pricing on travel demand – the National Transport Model now incorporates the findings of that research into a single analysis tool to support its strategic planning function.

In this way, TII can consider management and policy proposals as part of strategies to provide for future transport needs and to manage existing demands. The consideration of management options in this regard is central to the Department of Transport, Tourism and

[2] *Source – 2016 National Transport Model Base Year Model outputs person km totals of 84% private car, 6% Heavy Goods Vehicles, 7% bus and 3% rail.*

[3] *TII Transport Research and Information Notes.*

Sport (DTTaS) Common Appraisal Framework (CAF)[4], which dictates a requirement to consider management solutions as an alternative to provision of major infrastructure.

Allied with this is the requirement for all government departments in receipt of public money to comply with the requirements of the Department of Public Expenditure and Reform (DPER) Public Spending Code[5] (PSC) document, which outlines the need for the proportionate and transparent appraisal of capital investments.

The National Transport Model is intended to support and complement the existing Regional Modelling System (RMS) centred on the five urban areas of Dublin, Cork, Limerick, Galway and Waterford developed by the National Transport Authority (NTA). The modelling of demand in these areas is best undertaken using these urban models which can reflect the complexity of the network and transport provision. However, the NTpM is the most appropriate tool for assessing impacts on strategic inter-urban demand, particularly along national road corridors.

The NTpM zone structure is compatible with the NTA RMS zone structure. This allows for transfer of information at a zonal level between the NTpM and the five NTA Regional Models.

1.5 Application of the NTpM

The NTpM has a number of current applications, a brief overview of which is provided in the following sections. Table 1.1 provides a list of the current applications.

Project Appraisal

The NTpM provides consistency in the appraisal of all National Road projects and programmes:

- Local Area Models - The model acts as a donor model for the development of scheme specific Local Area Models (LAM), providing the basic road network, zone structure and prior demand matrices for the development of LAMs;
- Traffic Growth Projections - The model provides projections of traffic growth on the National Road network up to 2050. These growth projections are used to develop future demand matrices for LAMs; and
- Variable Demand - The model provides the ability to assess the potential demand response of National Roads project.

Strategic Studies

The NTpM has been used as the basis for several strategic studies in recent years as it provides the basic network and demand data required to assess potential infrastructure, tolling or policy change impacts at a strategic level.

Planning Applications

The NTpM has been used to assess the strategic impacts of large planning applications, allowing the potential wider network impacts on the National Road network to be assessed.

[4] Guidelines on a Common Appraisal Framework for Transport Projects and Programmes, Department of Transport, April 2016

[5] Department of Public Expenditure and Reform, The Public Spending Code – Expenditure Planning, Appraisal & Evaluation in the Irish Public Service.

Data Dissemination

Outputs from the NTpM such as Annual Average Daily Traffic, Level of Service and Operating Capacity are currently used to inform the annual TII Road Traffic Indicators Report and quarterly TII Road Traffic Indices.

Policy

Transport policy changes or proposals have been tested at a national level using the NTpM. Examples included assessing the impact of speed limit changes or fuel costs changes.

Research

The NTpM has been used by to inform the development of a number of TII Transport Research Information Notes (TRIN) and has also been used by several researches and students in a number of third level institutes.

Table 1.1 Range of Policy/Infrastructure Measures that can be Tested in the NTpM

Area	**Policy/Infrastructure** Measures
Network Management	Traffic Management
	Road Pricing/Tolling
	Public Transport Priority
	Demand Management
	Changes in Network Capacity
	New Infrastructure
	Parking Controls
Policy	Fuel Price
	Cordon Charging
	Freight Management Policies
Development	Development Impacts
	Spatial Planning Strategies
Other Modes	Public Transport Fares
	Public Transport Service Changes

The outputs of the NTpM are structured to provide the basis for a range of indicators which form a consistent input to subsequent calculations. Examples of key outputs from the NTpM are provided in Table 1.2.

Table 1.2 NTpM Outputs

Criteria	Output
Travel Demand	Traffic volumes on roads
	HGV content
	Passenger flow on rail links & stations
	Bus demand by link/route
	Mode share impacts
	Travel time impacts
	Journey length impacts
	Changes in demand
	Volume/Capacity Ratio
	Level of Service
	Speed on links
	Network Performance Indicators (km, hrs, trips, etc.)
Financial	Traffic flow through toll points
	Toll revenue
	Public transport fare revenue
	Impact on exchequer
Environmental	Vehicle km travelled (by all modes)
	Emission (at inter-zonal level)
	Input to accessibility model (for consideration of Wider Economic Benefits)
	Input to air quality models

1.6 2016 Model Scoping

A scoping exercise which included an audit of the 2013 NTpM was undertaking to inform the 2016 NTpM update. Part of the scoping exercise was to identify how the NTpM could potentially be updated and enhanced to meet the changing needs of TII in the coming years.

As a national model, the NTpM has the potential to assess and inform a wide range of potential transport and land-use policy proposals at a national and regional level. As transport policy and policy makers seek to find and implement alternatives to the existing predict and provide model, the need for a tool which can be easily used to assess a wider range of policy changes at a strategic level is ever greater. At the model scoping stage, it was recognised that the end product should:

- Be based on a flexible, modular structure, allowing modules to be added/enhanced at a later date;
- Make maximum use of the National Traffic Model, which has been developed to a high level of accuracy and has been employed successfully since its completion in 2008; and
- Avoid unnecessary over complication in modelling, to reduce the level of development risk.

1.7 2016 Model Enhancements

A number of enhancements have been incorporated into the updated 2016 NTpM. These include:

- Updated zone structure, including the individual representation of Ports and Airports as 'Special Zones';
- Improvements in the representation of non-commuting demand trip purposes (Employers Business and Other) across all modes through the use of existing NTA demand matrices calibrated using data from the 2012 National Household Travel Survey;
- Refinement of the classification of link (road) types and speed-flows curves through the analysis of observed TII Traffic Monitoring Units.
- Increased traffic data and wider coverage of data from the TII Traffic Monitoring Units;
- Improvements in journey time validation through the use of Google API journey time data;
- New process to distribute national HGV demand projections at a NTpM zonal level;
- Refined future travel demand forecasting in partnership with Dr. Edgar Morgenroth to reflect the objectives of the National Planning Framework (NPF);
- Introduction of the use of the VISUM 'Scenario Manager' tool for the assessment of multiple future demand and infrastructure scenarios; and
- The Trip Attraction Generation Model has been updated to allow for the projection of growth for each individual Special Zone and has also be enhanced using a number of additional Python scripts to improve its efficiency and to management of input/output data.

1.8 Structure of report

This Model Development Report is divided into a number of key chapters which discuss a core section of the model as follows:

- Chapter 2 - Model Structure;
- Chapter 3 - Data Sources
- Chapter 4 - National Traffic Model;
- Chapter 5 - National Rail Model;
- Chapter 6 - National Bus Model; and
- Chapter 7 – Conclusion.

2 Model Structure

2.1 Overview

This chapter of the report outlines the structure of the NTpM and the approach taken in developing the key elements of the model. The NTpM is made up of several sub-models, each having its own unique inputs and structure.

2.2 Model Structure

The NTpM is made up of several sub-models, each having its own unique inputs and structure:

- Demographic models are developed to estimate future year population, employment and jobs projections for each zone in the NTpM;
- Car Ownership models forecasts future year car ownership for each zone in the NTpM based on future demographic and economic projections;
- A Freight model is used to estimate the increase in freight demand at a national level and then to allocate this growth to zones in the NTpM with specific freight related activity;
- The Trip Attraction Generation Model (TAGM) takes the outputs of the Demographic, Car Ownership and Freight models and convert them into origin and destination zone trip ends for each mode of transport;
- A Trip Distribution Model (TDM) is used to distributes the origin and destination trip ends totals between the various zones in the model. The TDM outputs demand matrices which present the origin and destination demand (by mode) between each zone.
- Assignment models (Traffic, Rail & Bus) are used to assign the demand for travel represented by the demand matrices to the network, generating travel costs (e.g. time, distance, tolls, fares) for each mode.
- The role of the Variable Demand Model (VDM) is to assess, if required, the impact of a change in the transport network or change in the cost of travel (e.g. fuel costs, fares) upon the demand for travel. This is calculated by comparing the zonal travel costs from the assignment models between a Do-Minimum (without change) scenario and a Do-Something scenario (with change).

This structure of the model is shown in the diagram in Figure 2.1.

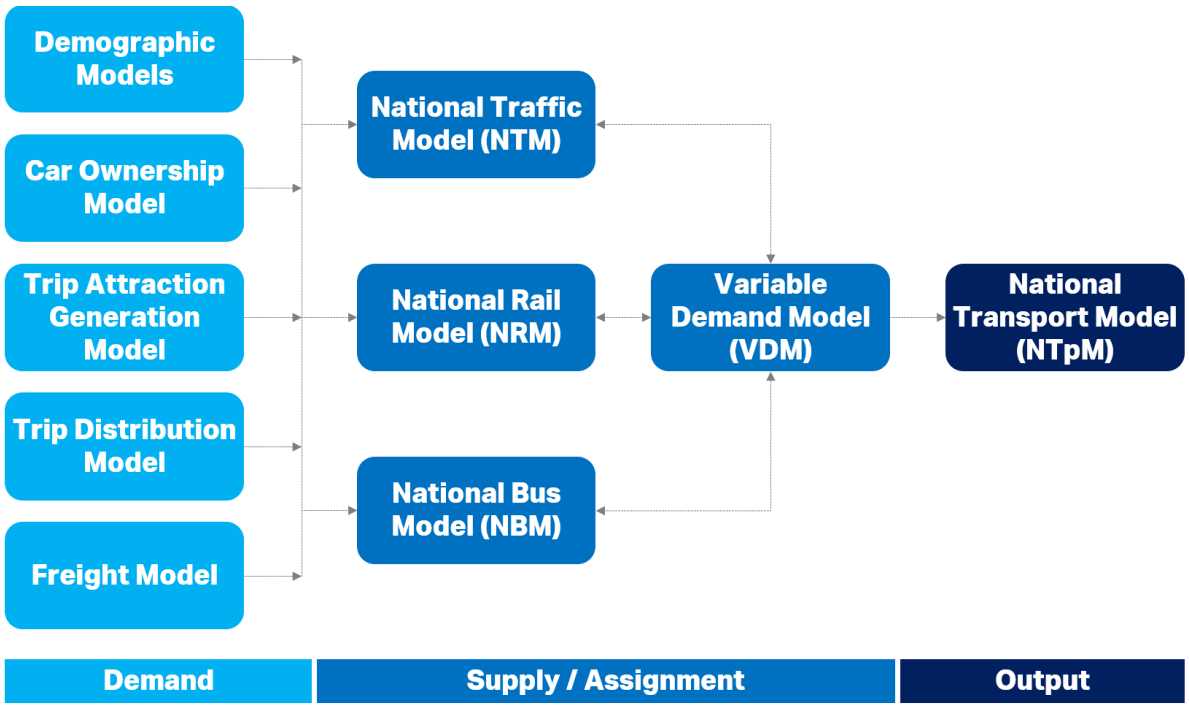

Figure 2.1 NTpM Basic Structure

2.3 Demand Segmentation

As with any transport model, the demand for travel is segregated into a number of individual matrices to represent travel mode, trip purpose, car availability and travel period. Details on segmentation are provided in the following sections.

2.3.1 Travel Modes

The NTpM was developed in order to assess the impact of network and policy changes upon the following modes:

- Road (Cars and Light Goods Vehicles);
- Rail (Heavy Rail);
- Bus (Inter Urban); and
- Heavy Goods Vehicle (HGV)[6].

The model does not assign walking and cycling demand as they represent a very small portion of inter-urban travel demand. Also, to do so would require significant disaggregation of zones which would make model runtime unsustainably high. It is considered that walking and cycling assignment should continue to be addressed in urban area models.

It was also considered that domestic air travel was not a significant part of national travel and, for reasons of minimising technical risk, did not need to be included in the NTpM.

International travel and its interaction with travel on the national roads network was considered at a high level by modelling access to major international ports (air and sea). The development of an international demand matrix could be undertaken as part of a subsequent enhancement

[6] *In the NTpM a Heavy Goods Vehicles (HGV) is defined as a commercial vehicles weighing in excess of > 3,500kg*

of the freight demand matrix and would likely incorporate some of the information from Eurostat and the TRANS-TOOLS[7] model.

2.3.2 Trip Purposes

The NTpM requires demand data for all 3 modes (road, rail and bus) to be segmented into 3 trip purposes, as follows:

- Commuting;
- Employers Business (Working); and
- Other (Non-Commuting).

These trip purposes reflect the range of parameter values currently available from the Department of Transport, Tourism and Sport (DTTaS) and which are used in project appraisal. Figure 2.2 show the percentage spilt between the 3 trip purposes for each mode over a 15 hour period (07:00-22:00).

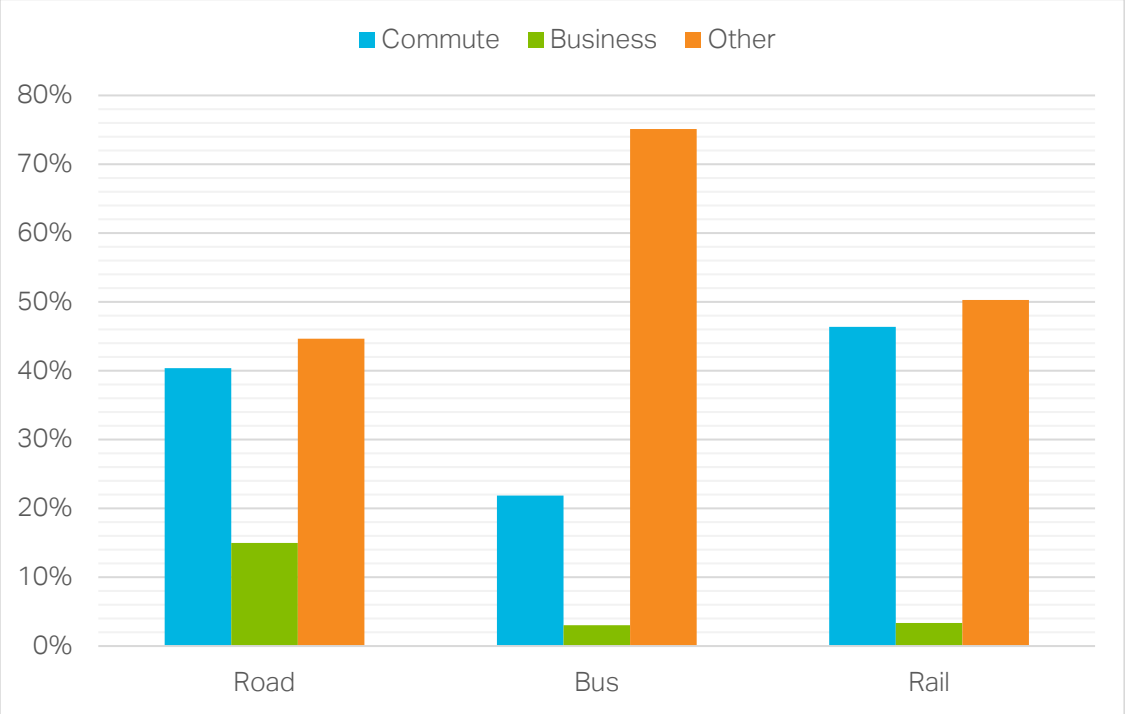

Figure 2.2 NTpM Demand Segmentation (07:00 – 22:00)

2.3.3 Car Availability

The Commuting and Other trip purposes public transport passenger demand matrices are split into Car Available (CA) and Car Non-Available (CN) matrices. This removes the possibility of Car Non-Available public transport demand switching mode to car as a demand response in the variable demand model. It's assumed that all Business trip purpose public transport passengers have a car available to make their required trip.

Table 2.1 summarises the demand segmentation within the NTpM.

[7] *TRANSTOOLS is a European transport network model covering both passengers and freight demand, as well as intermodal transport. It combines advanced modelling techniques in transport generation and assignment, economic activity, trade, logistics, regional development and environmental impacts.*

Table 2.1 NTpM Demand Segmentation Summary

Mode	Trip Purpose	Car Availability
Road	Commuting	Available
	Business	Available
	Other	Available
Rail	Commuting	Available / Not Available
	Business	Available
	Other	Available / Not Available
Bus	Commuting	Available / Not Available
	Business	Available
	Other	Available / Not Available
HGV	Business	Available

2.4 Modelled Time Periods

The modelled time periods for the National Traffic Model and National Rail/Bus Models are different due to the operation and functionality of the different models. For the purposes of the Variable Demand Model, a consistent time period is required between modes. In order to provide consistency between modes the NTM matrices are adjusted for use in the VDM, as discussed in the following sections.

2.4.1 National Traffic Model

The National Traffic Model has been developed to represent the average AM Peak hour (07:00 – 09:00) and average Inter Peak hour (12:00 – 14:00). The approach of modelling an 'average' hour is considered the most suitable for a strategic model such as the National Traffic Model. Modelling a discreet hour in such cases can lead to problems relating to the actual timing of a trip. Also, the factoring of average hour assignments to an Annual Average Daily Traffic (AADT) figure is more robust using this technique.

2.4.2 Public Transport Models

The rail and bus models were constructed as models for a single 15-hour period using the available data. In fact, the development of rail and bus matrices for shorter periods would be significantly more complex due to the long duration of many such trips (up to 4 hours). This would require some interpretation of what travel would be considered to occur during that short period and would likely lead to subsequent complications with the annualisation of this data.

In the Variable Demand Model, demand data is needed for a consistent time frame between modes. The NTpM therefore represents the 15 hour weekday period between 7am and 10pm. This period was chosen as the majority of public transport services occur between these hours.

For the purposes of the Variable Demand Model, an estimate of traffic demand over the 15-hour periods between 07:00 and 22:00 is required. In order to do this, the total 15 hour demand

is calculated as a multiple of the assignment for each period based on regression of national traffic count information. This generates a consistent time period across all three travel modes.

2.5 Model Software

VISUM is the transport modelling software used in the development of the National Traffic Model. VISUM was shown to be technically appropriate for the type of work being proposed, with a strong GIS interface, allowing high quality presentation of results. VISUM has also been shown to have a substantial user base.

In order to maintain compatibility with the NTM, and to avoid the need for additional expenditure on modelling software licenses, the NTpM was developed using the VISUM platform. This conclusion was also reached on the basis of available experience in developing Python[8] scripting for interaction with VISUM outputs, and the lower risk in product development that such experience brings.

[8] Python is an open source, interpreted, interactive, object-oriented programming language (www.python.org)

3 Data Sources

3.1 Overview

The NTpM draws from a number of data sources which have facilitated the development of the demand matrices, the transport network, transport services and the validation of the Variable Demand Modelling processes. An overview of the key data sources utilised is outlined in this chapter. Furthermore, more detailed information on the data sources used in the update of the model is set out in the Data Collection Report (NTpM Volume 2).

3.2 Transport Network and Services

3.2.1 Road Network

The road network is drawn from the updated NTM, which is originally based on NAVTEQ data for the island of Ireland, suitably refined to accurately represent the road network in the base year. NAVTEQ mapping provides the road network in a Geographical Information System (GIS) format which facilitated coding directly into the NTpM VISUM network file.

The existing road network in the NTpM was checked against Open Street Map (OSM) data which was obtained for the following road classifications:

- Motorway;
- National Primary;
- National Secondary; and
- Regional.

The OSM links are shown in Figure 3.1.

The road network is at a level of detail suitable to represent the movement of traffic at the strategic level. The Project Appraisal Guidelines dictate an increase in the level of detail in the road network, and associated model zone structure, would be required as part of the development of detailed Local Area Models.

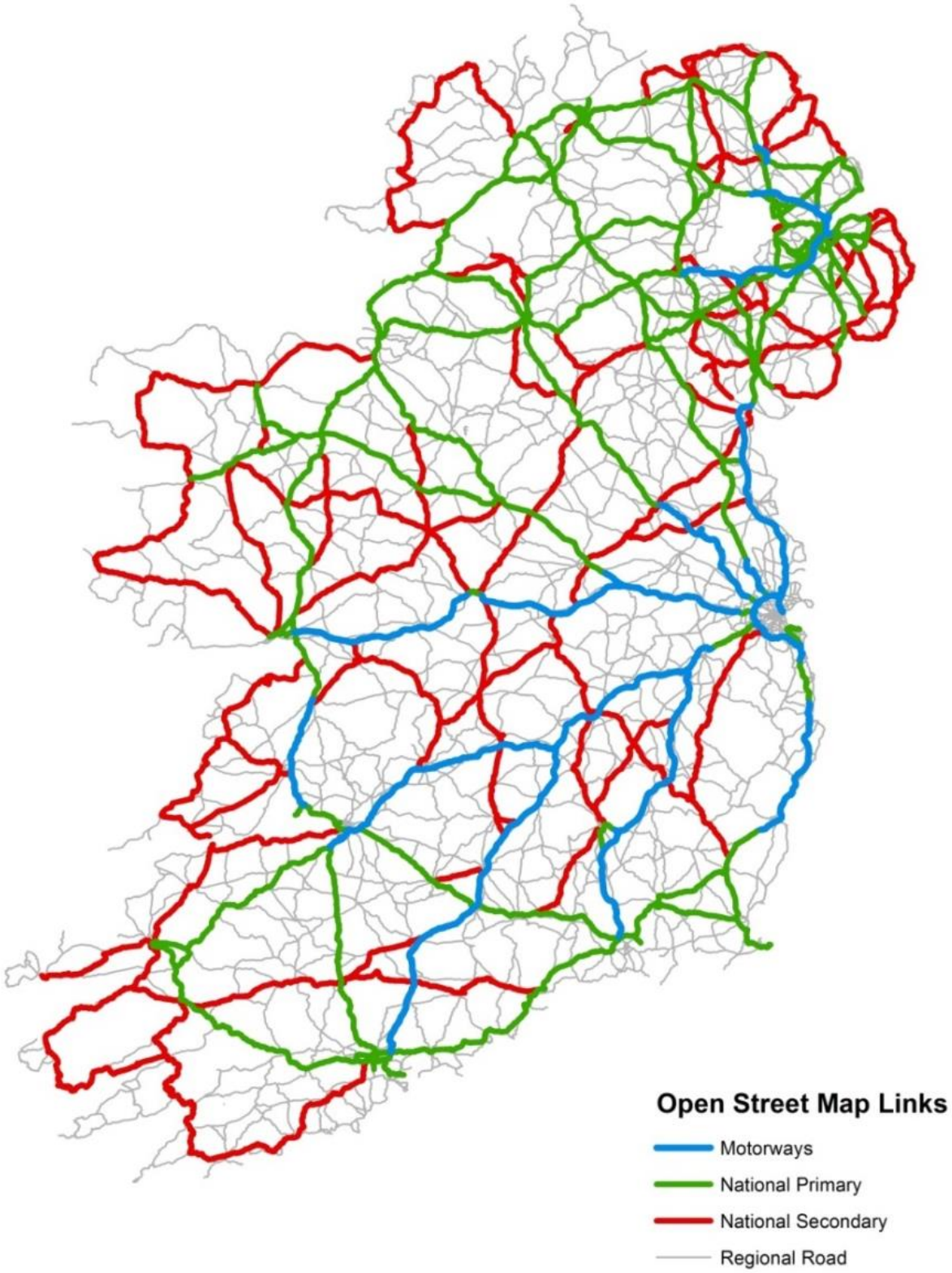

Figure 3.1 Open Street Map Links by Road Classification

3.2.2 Rail Network and Services

The original source of network information for rail lines in the model was also from NAVTEQ data. All heavy rail stations including Dublin Area Rapid Transport (DART) stations are included in the rail model network; however, the LUAS light rail lines and stations in Dublin are not included in the NTpM as they are best represented within the NTA Eastern Regional Model (ERM). The rail network is illustrated in Figure 3.2.

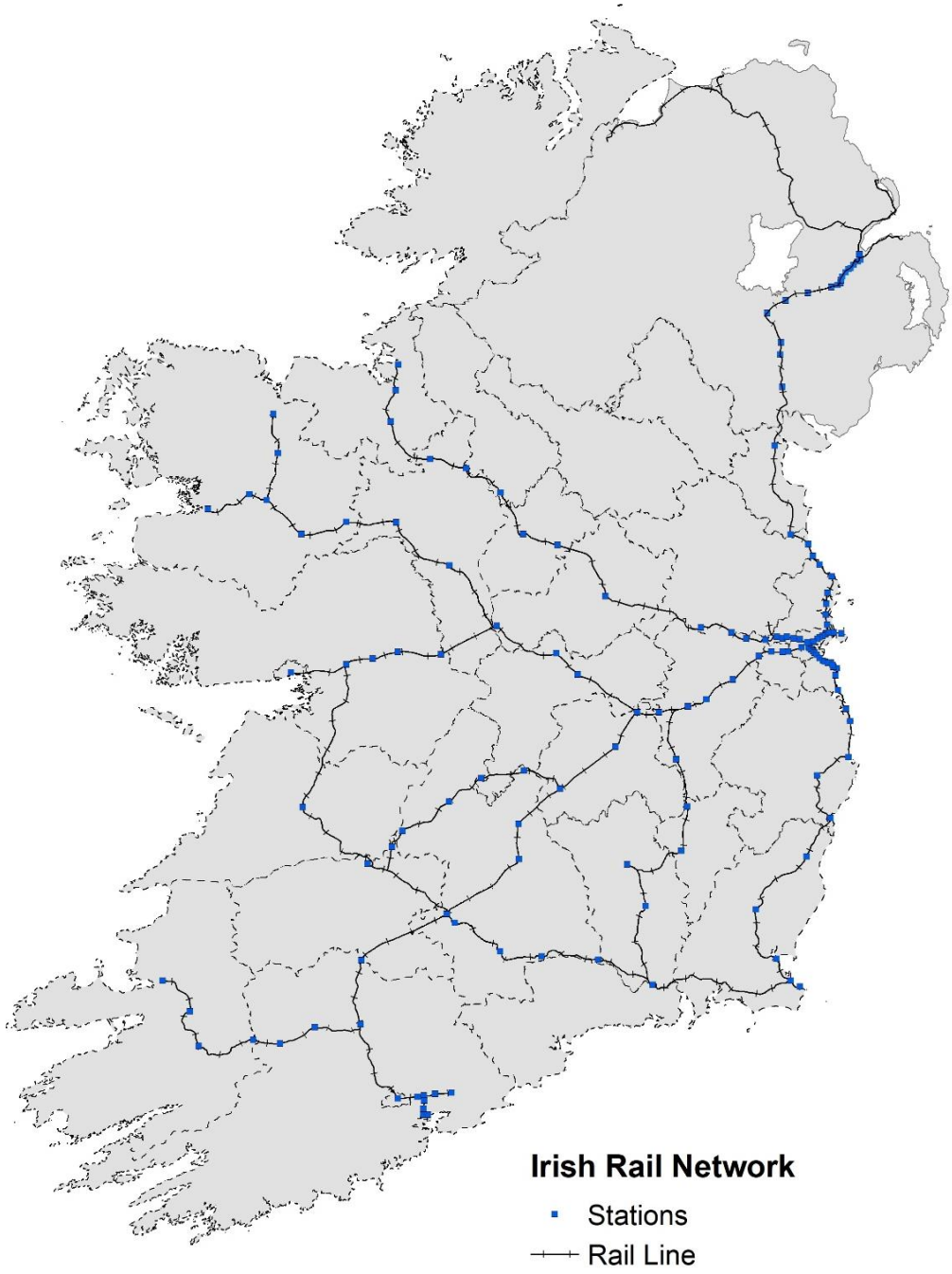

Figure 3.2 NTpM Rail Network

For urban areas (Dublin and Cork), where multiple stations exist within an individual zone, all stations have been included, but with stations connected to the same zones using multiple connectors. This approach ensures that the model is consistent with a full station to station matrix developed for rail travel. At mainline stations, separate connectors are provided for mainline, commuter and DART services – this ensures that aggregate station demand can be more easily allocated to different service types, hence simplifying the validation exercise.

Rail services and their frequencies have been referenced from 2016 Irish Rail timetables and have been coded into the NTpM based on consistent routes at defined headways, which reflects the current Irish Rail timetables for intercity travel.

3.2.3 Bus Network and Services

Inter-urban bus services were coded directly onto the road network in the NTpM. This was achievable without the inclusion of any additional road links (reflecting the high level of detail that exists within the road network). Bus timetables[9] from both public and private bus operators from 2016 were used to define inter-urban service routes, main service stops[10] and the frequency of services.

Dublin Bus and Bus Eireann city and town services are not included in the NTpM as they are reflected within the relevant urban models. The extent of the Inter Urban Bus network in the NTpM is illustrated in Figure 3.3.

[9] *General Transit Feed Specification (GTFS) data was used to inform the route data for inter urban bus and rail services*
[10] *National Public Transport Access Nodes (NaPTAN) data was used to inform the location of inter urban bus and rail stops*

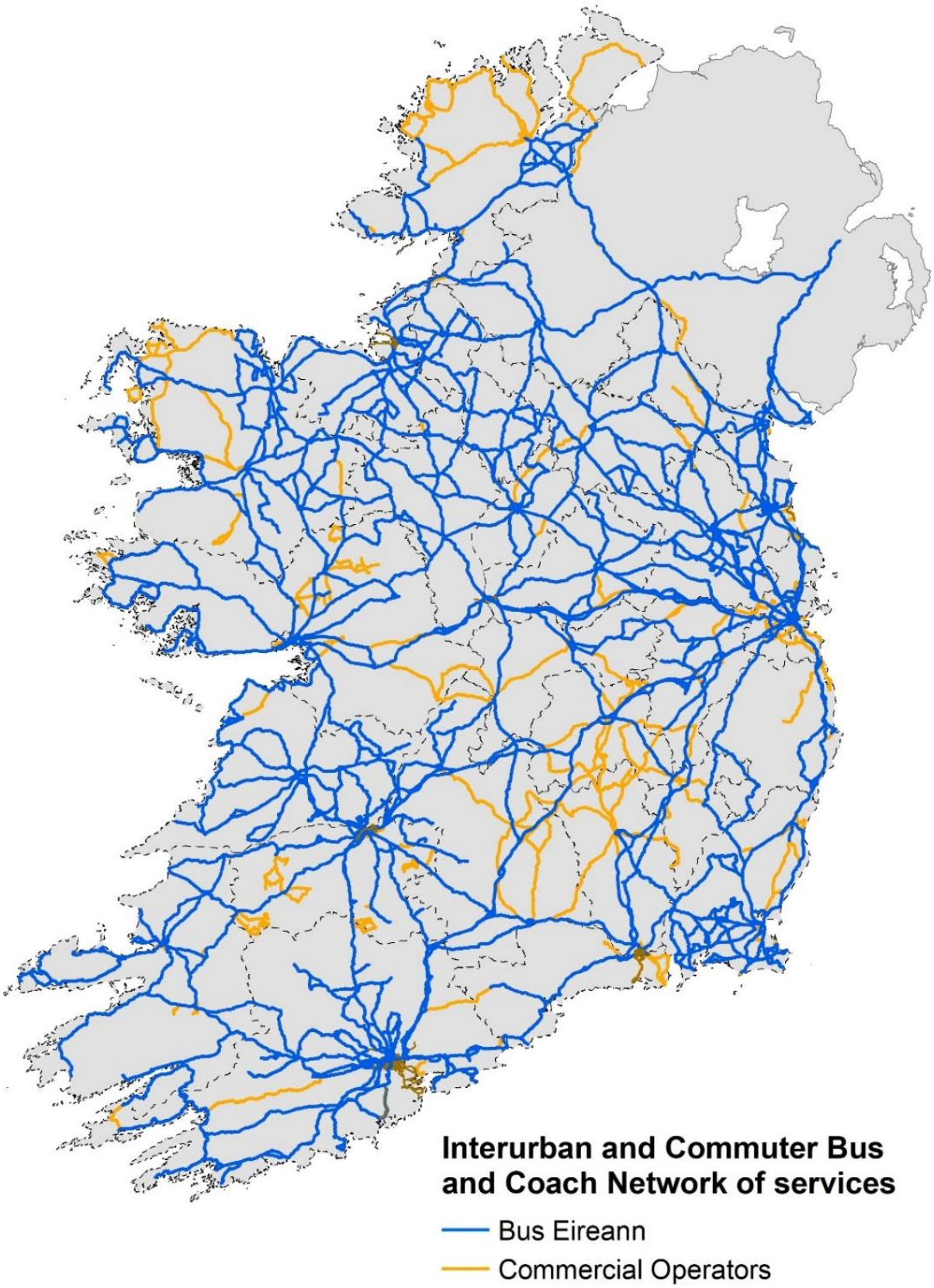

Figure 3.3. NTpM Inter-Urban Bus Network

3.3 Base Year Transport Demand

Demand data for the NTpM has been drawn from a number of sources collected over several years, including the 2016 Census. Development of the base year trip matrices is discussed in detail in Sections 4 to Section 6 of this report. A summary of the data sources used to inform the development of the 2016 base year trip matrices for the NTpM is outlined in the following sections.

3.3.1 Central Statistics Office (2016 Census)

Data on journeys to work and education was recorded as part of the 2016 CSO Census. A database known as the Place of Work, School or College, Census of Anonymised Records (POWSCAR), provides this data at Electoral Division (ED) level. The POWSCAR database provides the origin (Home) and destination (Work, School or College) of each individual included in the census by mode and time of departure.

This data is used to develop the commuting and education trip matrices for all three modes included in the NTpM. Further details of the application and processing of the POWSCAR database are provided in the Data Collection Report (NTpM Volume 2).

3.3.1 Heavy Goods Vehicles

Information provided by the CSO was used to develop demand matrices for Heavy Goods Vehicles for the AM and Inter Peak periods. The data made available by the CSO was collected during the 'National Survey of Transport of Goods by Road' which was undertaken during 2016. The data included information on origin-destination movements at a county level and total vehicle kilometres travelled.

3.3.2 Rail Data

Data to develop the base year matrices for the rail model was provided by Irish Rail and supplemented by data from the NTA report "2016 Heavy Rail Census". The POWSCAR database was used to develop the commuting matrices for the rail model. Details on the data and data sources used to develop the rail demand matrices is provided in the Data Collection Report (NTpM Volume 2).

3.3.3 Inter Urban Bus Data

Although data on journeys to work (commuting) and education by bus is available from the POWSCAR dataset, data on other trip purposes and on the demand for individual services is particularly difficult to collect given the current competitive scenario within which the bus market operates.

It was not considered feasible to collate bus demand data for representation in a transport model that would be available for use by third parties, without potentially commercially sensitive data becoming visible.

As such, it was necessary to develop a 'representative' picture of bus demand which would enable the model to function but would not divulge sensitive information. Demand on bus services within cities is not included within the scope of the NTpM as this is reflected within the relevant urban models.

Aggregate annual patronage information was available for Bus Éireann and represents a high proportion of total bus travel outside urban areas. Service frequency and run time data for other main inter-urban private bus operators was available however assumptions have been

made of aggregate patronage based on the number of services operated (number of services factored by an assumed occupancy level and catchment population).

3.3.4 TII Traffic Monitoring Units

Traffic volume data was made available from the network of TII Traffic Monitoring Units (TMUs). The TMUs are dispersed nationwide across the National Road network and include data for Motorway, National Primary, National Secondary and regional routes. In total there are 370 TMUs; details of their location can be found in the Data Collection Report (NTpM Volume 2).

3.3.5 Northern Ireland Traffic Count Data

Traffic count data from 351 sites in Northern Ireland was publicly available from the Northern Ireland Department of Infrastructure. The majority of sites however did not collect data in 2016 or only collected data for a partial calendar period, a total of 14 sites collected a full year's data in 2016. In addition only a limited number of sites provided vehicle classification data, with the majority of sites presented in total vehicles flows.

Due to the limitations of the traffic count data for Northern Ireland, no traffic data within Northern Ireland was used in the calibration or validation of the model. Given the availability of TII TMU data along the border the focus of the calibration process between Ireland and Northern Ireland was to reflect the cross border demand.

3.3.6 Northern Ireland Public Transport Data

Public transport aggregate annual rail and bus patronage (bus and rail) for Northern Ireland was available from Translink[11]. In 2016, rail and bus demand totalled 13.5m and 38.8m passengers respectively.

3.4 Additional Data Sources

3.4.1 Journey Time Data

In order to ensure the model accurately reflects the base year network conditions in terms of speed, distance and delay, a comparison between modelled and observed journey times is used and is essential to the model validation process.

There are a number of standard approaches to collecting journey time data, such as moving observer, Automatic Number Plate Recognition (ANPR) or Bluetooth surveys and GPS data (via Sat Nav devices). These survey methods are useful for obtaining journey time information but are short term in nature and can therefore only provide a brief snapshot of an area considered for analysis. Given the scale of journey time data required across the full National Road network for the NTpM, the use of these standard methods would be time consuming and expensive, as it would require a vast amount of ANPR cameras/Bluetooth devices to be available and staff to install and monitor them.

Due to the nature and scale of the journey time data required for the NTpM update, an alternative approach was adopted which obtained journey time data using the Google Maps Distance Matrix Application Programming Interface (API)[12].

Full details of the journey time data collection process and the Google Maps Distance Matrix API is provided in Section 6.0 of the Data Collection Report (NTpM Volume 2). Figure 3.4 shows the routes and data points where journey time data was collected. Journey time data for roads

[11] *Translink oversee the operation of public transport services in Northern Ireland*
[12] *https://developers.google.com/maps/documentation/distance-matrix/*

in Ireland and Northern Ireland was collected at intersections of major roads, major ports and airports.

Figure 3.4 Journey Time Data Routes for the NTpM

4 National Traffic Model

4.1 Overview

The National Traffic Model is a strategic traffic assignment model which was originally completed in 2008 and updated and enhanced in 2010, 2011 and 2013. Since its development in 2008, it has been used as the basis for the appraisal of road schemes, policy assessment and data dissemination and has been made available to transport related public bodies for local area modelling.

This section of the report provides an overview of the development of the updated 2016 National Traffic Model (NTM) which forms part of the 2016 National Transport Model.

4.2 Data Collection

Information on the data collected and used to update the NTM is discussed in detail in the NTpM Data Collection Report (Volume 2).

4.3 Network Development

The following sections provide an overview of the updating and enhancement of the NTM network.

4.3.1 Network Coding

Detailed coding of the network consists of several key elements as follows:

- Links (Roads);
- Nodes (Junctions);
- Zones; and
- Zone Connectors.

4.3.2 Links

Each link in the NTM road network is classified based on the TII classification of link types. The modelled road network can be grouped into six key link types:

- Motorways;
- Dual Carriageways;
- National Primary Roads;
- National Secondary Roads;
- Regional Roads; and
- Local Roads.

A User Defined Attribute (UDA) in VISUM, 'NetworkCheck_2016', was included to identify the Links and Connectors changed as part of the 2016 network update. This allowed for links and zone connectors to be filtered to review the changes made since the last update of the NTM network in 2013 and to ensure that links are in the correct classification.

4.3.3 Link Capacity

All links in the modelled network have been coded to include their link capacity which is based on a 1 hour capacity derived from the analysis of TII TMU data. As part of the process average speed and volume data from the network of TII TMUs was aggregated by link type and

assessed to calculate the observed operating capacity for a particular road type. A list of the link types and their capacities (measured in Passenger Car Units)[13] in the 2016 NTpM is presented in Table 4.1.

Table 4.1 VISUM Link Type Capacities (Passenger Car Units)

NTpM Road Type No.	Road Type	Link Capacity per lane (PCU)	Total PCU Capacity
10	Two-Lane Motorway (120kph) – Rural	2100	4200
11	Two-Lane Motorway (120kph) - Urban	2100	4200
12	Three-Lane Motorway (100kph)	2100	6300
13	Three-Lane Motorway (80kph)	2100	6300
14	Four-Lane Motorway (100kph)	1950	6825[14]
20	Type 1 Dual Carriageways - Rural	1950	3900
21	Type 2 Dual Carriageways	1750	3500
22	Type 3 Dual Carriageways (two-lane sections)	1750	3500
23	Type 3 Dual Carriageways (one-lane sections)	1750	1750
24	Urban Three-Lane Dual Carriageways	2100	6300
25	Urban Dual Carriageways	2100	4200
26	Urban Three-Lane Dual Carriageways	1950	5850
27	Type 1 Dual Carriageways - Urban	1950	3900
30	High Standard Single Carriageways – Rural	1600	1600
31	High Standard Single Carriageways – Urban	1600	1600
32	Regular Standard Single Carriageways	1500	1500
33	Low Standard Single Carriageways	1300	1300
34	Regional Single Carriageways	1200	1200
50	Urban Single Carriageways (NP)	1200	1200
51	Urban Dual Carriageways (NP)	1600	1600
53	Urban Single Carriageways (NS)	1200	1200
54	Urban Dual Carriageways (NS)	1600	1600
56	Urban Regionals	1000	1000
94	Route Quality Index 1-3	1200	1200
95	Route Quality Index 4-6	1000	1000
96	Route Quality Index 7-10	800	800
97	Route Quality Index 11-13	700	700
98	Route Quality Index 14-16	600	600

[13] Outputs in the NTpM are presented in vehicular flows on the road network however the background calculation are based on Passenger Car Units

[14] Four lane Motorway was coded along the M50 in the NTpM, however only half lane capacity was applied to the fourth lane, which is an auxiliary lane between M50 junctions, therefore total PCU capacity for 4 lane motorway is 6,825.

4.3.4 Nodes

Due to the strategic nature and size of the model, coding of individual junctions is not practical, therefore junction delay is not explicitly taken into consideration. The speed flow curves used to generate link delay were adjusted to account for the potential delay associated with junctions; this is discussed in Section 4.3.7.

4.3.5 Zones

The 2013 NTM was split into 1,077 transport zones (927 zones to represent the Republic of Ireland and 150 zones to represent Northern Ireland). As part of the 2016 update, the zone structure was reviewed and updated to include additional zones for airports and ports (i.e. Special Zones) in order to apply individual growth assumptions and also along the M50 to improve the overall representation of demand in the NTM.

The 2016 NTM contains a total of 1,129 transport zones (979 zones to represent the Republic of Ireland and 150 zones to represent Northern Ireland). Of the 979 zones in the Republic of Ireland, 21 are classified as Special Zones which represent the Tier 1 and Tier 2 Airports and Ports in the country.

The zone system is consistent between the highway, public transport and variable demand models contained within the NTpM to maintain the ease of transfer of data between the model components. Figure 4.1shows the final zone structure for 2016 NTM.

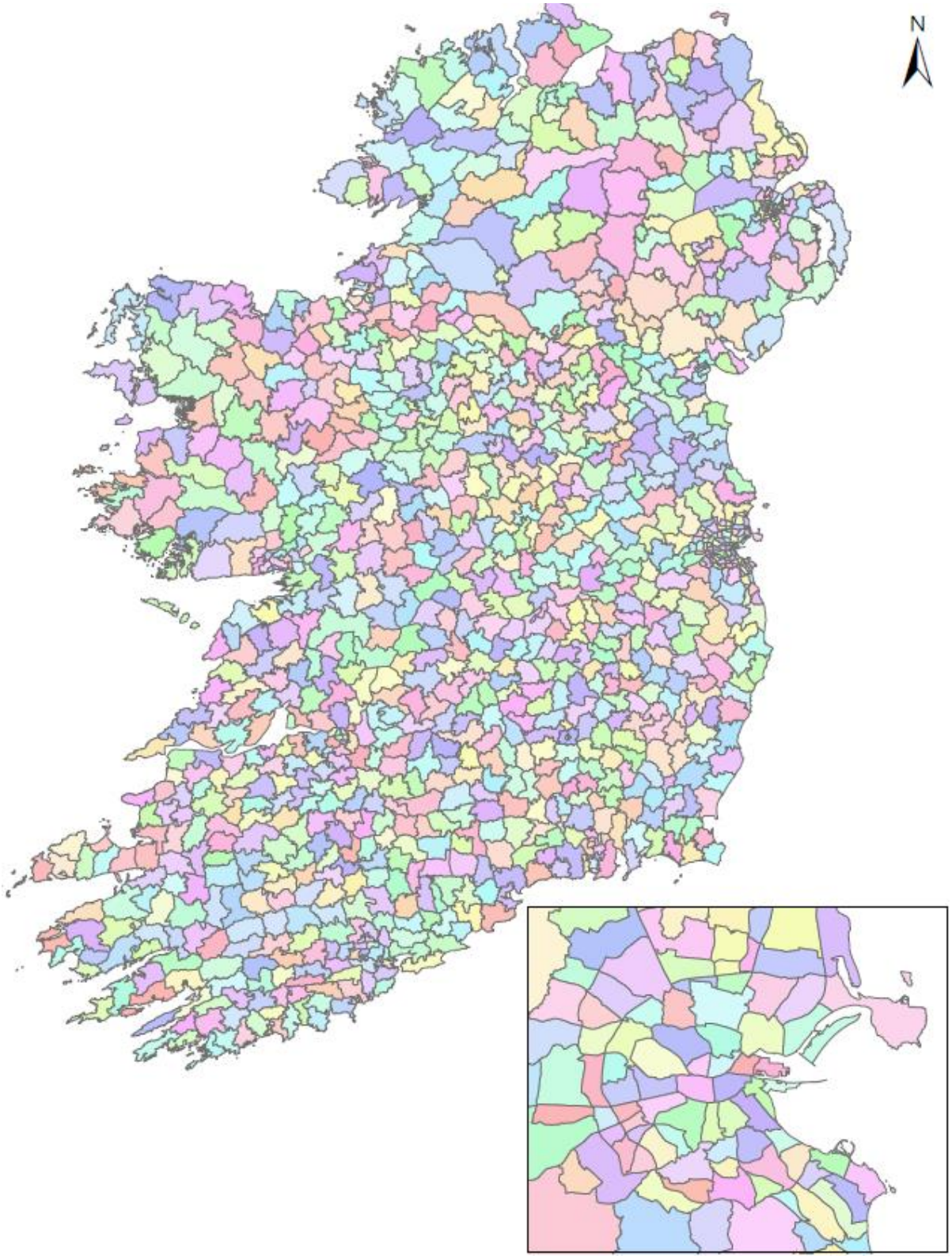

Figure 4.1 2016 NTpM Zone Structure

4.3.6 Zones Connectors

Once the road network in the NTM was updated, it needed to be connected with the updated zoning system, so the trips could be assigned onto the network. This involved a process of connecting the zones to the network at one or more locations via zone connectors. The connectors act as both the origin and destination point for each NTM zone.

4.3.7 Speed Flow Curves

The Speed Flows Curves used in the NTpM are based on the Bureau of Public Roads 3 (BPR3) function. The function is defined as follows:

$$t_{cur} = t_0 * (1 + (a * sat^b))$$

$$sat = \frac{q}{q_{max} * c}$$

$$where\ t_{cur} = travel\ time, t_0 = free\ flow\ travel\ time,$$

$$q = flow, q_{max} = capacity\ and\ a, b\ and\ c\ are\ user - defined\ paramteres$$

Where:

t_{cur} = current speed (kph) on the link in loaded network.

t_0 = free flow speed (kph) on the link (i.e. speed limit).

q = flow and a, b, c and d are user defined parameters.

The BPR3 function was used to develop volume-delay functions for the following road types:

- Motorway and Dual Carriageways (15 SFC's);
- National Primary Roads (4 SFC's);
- National Secondary Roads (6 SFC's); and
- Urban Roads (6 SFC's)

The availability of observed Speed-Flow data from the network of TII TMUs allowed for the refinement of the existing Speed Flow Curves of the NTpM. Details of the data used to develop the Speed Flow Curves for the NTpM are provided in the Data Collection Report (NTpM Volume 2).

4.3.8 Network Checking

A process of reviewing the network was undertaken to check for any errors which may have occurred during the initial network coding. The following key checks were undertaken as part of the review:

- Zone connectors and closed Links;
- Link capacity; and
- Routing of traffic.

4.3.9 Modelled Time Periods

The following time periods are modelled within the NTM:

- Average hour in the AM Peak period between 07:00 and 09:00; and
- Average hour in the Inter Peak period between 12:00 and 14:00.

The approach of modelling an 'average' hour is considered the most suitable for a strategic model such as the NTM. Modelling a discreet hour in such cases can lead to problems relating to the actual timing of a trip. Also, the factoring of average hour assignments to an Annual Average Daily Traffic (AADT) figure is more robust using this technique.

4.4 Prior Base Matrix Development

4.4.1 Construction of Trip Matrices

Trip matrices were developed for both light (<3500kg) and heavy (>3500kg) vehicles. The range of vehicle trip matrices for light vehicles and heavy goods vehicles is presented in Table 4.2.

Table 4.2 Private Transport Trip Demand Matrices (Vehicles)

Travel Type	Vehicle Type	Trip Purpose	Time Period
Private	Light Vehicles (LV)	Commuting	AM
			IP
		Business (Working)	AM
			IP
		Other	AM
			IP
	Heavy Goods Vehicles (HGV)	Business (Working)	AM
			IP

The 2016 demand matrices were developed using the most recent and reliable data sources available. Key amongst these was the 2016 POWSCAR database and the CSO's 2016 freight transport dataset.

Trip matrices for Republic of Ireland (ROI) and Northern Ireland (NI) were developed in separate processes due to the different raw data inputs that were available. The majority of the processes described in this section pertain to the development of trip matrices for ROI, although these matrices also contain cross-border trips.

Trip matrices for internal NI trips were derived using the NI trip end model (TEMPRO) and a gravity based distribution model, and this process is also described in the following sections.

4.5 Republic of Ireland Prior Matrix Development

4.5.1 Prior Base Matrix Development - Commute

The AM and IP period light vehicle commuting trip matrices for the ROI were derived entirely from the 2016 POWSCAR dataset which includes details of travel to work in terms of mode of travel, time of day, origin (home) and destination (workplace) locations.

The POWSCAR data for the 06:30-09:30 AM period was converted into a usable Origin-Destination trip matrix format using the NTpM zone system and adjusted to account for factors such as working from home, leave from work, absenteeism, etc.

4.5.2 Light Vehicles – Commute (AM Peak Period)

During the AM Peak period the majority of commuting travel is from the home to work direction, although some trips in the reverse direction do occur. The POWSCAR matrix represents trips from the home to work direction, so some allowance for reverse direction trips was made. Based on analysis undertaken for the previous NTpM, AM Peak LV commute trips were adjusted so that 96% were in the home to work direction and 4% in the work to home direction.

Additional factors were applied to convert the POWSCAR matrix from the original three hour AM period to an average hour between 07:00-09:00 as used in the NTpM. The POWSCAR data was analysed to derive the 3-hour to 2-hour factor, which was 0.826.

The factor to convert the two hour AM Peak period to an average peak hour was initially set to 0.5 and was adjusted during the initial global calibration of matrices. The process for developing the AM Peak LV ROI commute prior matrix is shown in *Figure 4.2*.

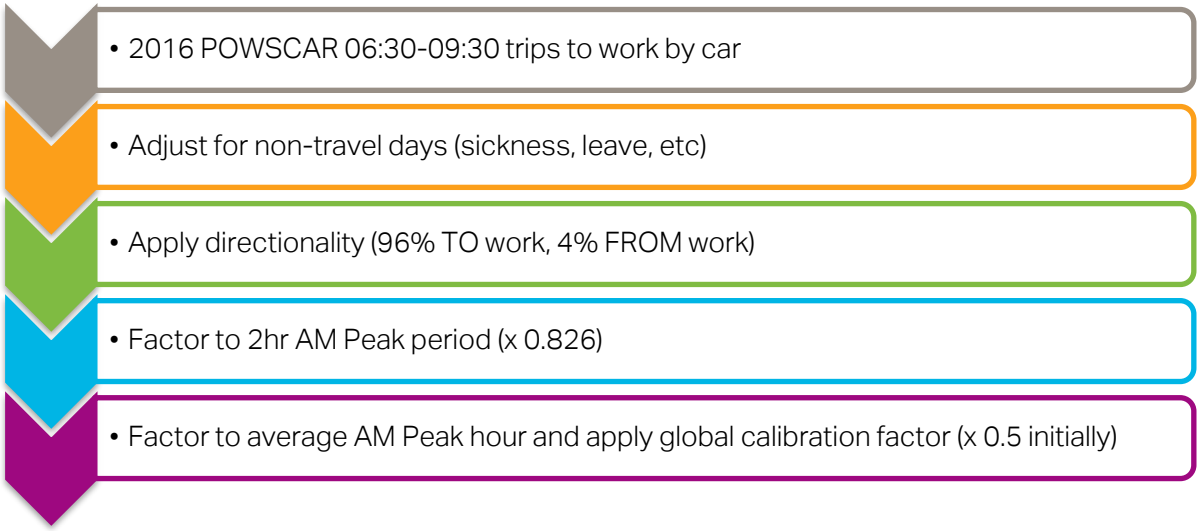

Figure 4.2 AM LV ROI Commute Matrix Development Process

4.5.3 Light Vehicles – Commute (Inter Peak Period)

The Inter Peak commuting matrix was developed from the same POWSCAR dataset, but records for the "After 09:30" time period were selected instead of the 06:30-09:30 period. The "After 09:30" period represents the rest of an average day and without additional detail it is difficult to determine precisely how many of these trips would take place in the average hour between 12:00 and 14:00.

Therefore, the overall scale of the IP LV commute matrix was based on the relative size of the equivalent matrix in the previous NTpM version[15]. In the previous NTpM the IP LV commute matrix was 0.286 times as large as the AM LV commute matrix. The new IP LV commute matrix was therefore initially scaled globally to have 0.286 times the trips of the new AM LV commute matrix.

Directionality was applied to the IP LV commute matrix, with 50% of trips travelling TO work and 50% travelling FROM work. No calibration factor was required since the scale of the IP commute matrix was adjusted in proportion with the AM matrix. The process for developing the Inter Peak LV ROI commute prior matrix is shown in *Figure 4.3*.

[15] *The initial NTM developed in 2008 used Roadside Interview (RSI) data to inform the development of the prior demand matrices including the Inter Peak commuting demand. The relative scale between the AM and Inter Peak commuting demand matrices has been maintained in subsequent updates of the NTpM.*

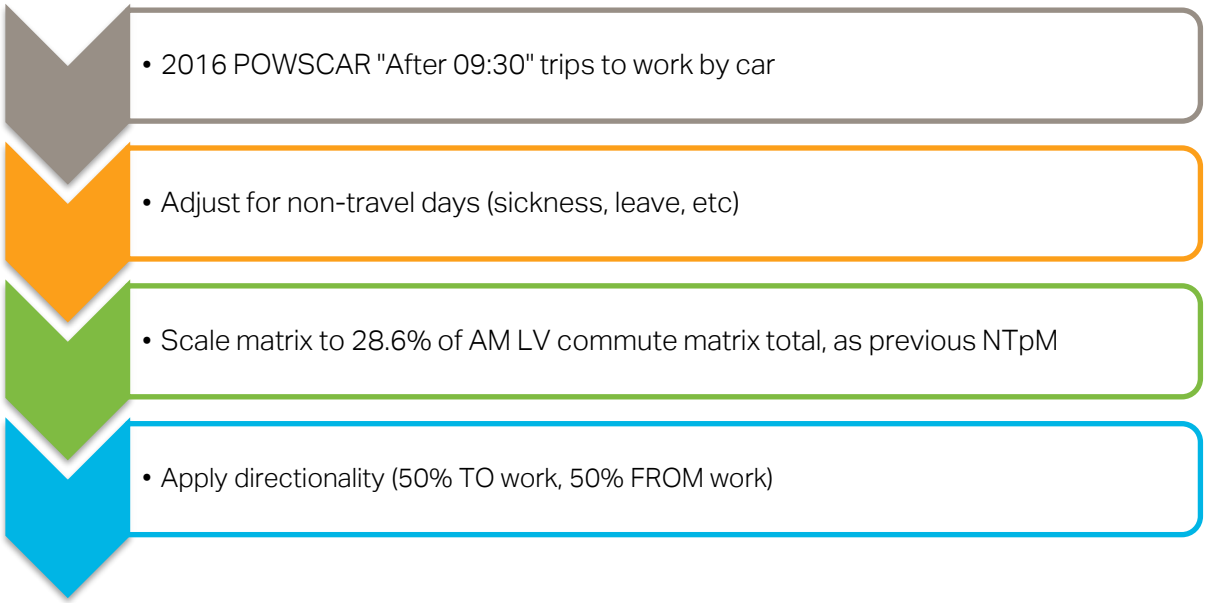

Figure 4.3 Inter Peal LV ROI Commute Matrix Development Process

4.6 Light Vehicle Non-Commute (Employers Business and Other)

The non-commuting (Employers Business and Other trip purposes) demand matrices for the NTpM were first developed in 2008 based on Roadside Interview (RSI) survey data collected from over 40 RSI sites located throughout the country.

As part of an audit of the NTpM in 2017, it was noted that travel patterns are likely to have changed somewhat since 2008 and therefore the representation of non-commuting demand should be considered as part of the next update of the NTpM.

As part of the scoping for the update of the NTpM it was agreed that the most efficient approach to enhancing the representation of non-commuting demand in the NTpM would be to utilise recent work done by the National Transport Authority (NTA) in the development of their Regional Model System (RMS).

4.6.1 NTA Regional Modelling System

The NTA Regional Modelling System (RMS) consists of the following:

- National Demand Forecasting Model (NDFM);
- Regional Model System Integration Tool (RMSIT); and
- 5 regional models of Dublin, Cork, Galway, Limerick and Waterford.

The NTA RMS used the 2012 National Household Travel Survey (NHTS) data as part of the calibration process to represent long distance trips nationally for non-commuting/education journey purposes. The following data was therefore extracted from the NTA RMS and NTA RMSIT and converted to the NTpM zone structure:

- Aggregated trips within each of the 5 Regional Models, which are referred to as "Short Distance Trips"; and
- Inter-urban trips between the regional models, which will be referred to as "Long Distance Trips".

The 'Short Distance Trips' NTA matrices represent three time periods:

- AM (08:00 – 09:00);
- Lunchtime (12:00 – 13:00); and
- School Run (14:00 – 15:00).

The 'Long Distance Trips' NTA matrices represent annual trips, however factors were provided by the NTA to convert annual demand into the three one hour time periods, AM, Lunchtime (LT) and School Run (SR).

The prior 'Non-Commuting' trip matrices for each mode in the NTpM are a combination of the NTA Short Distance Trips and Long Distance Trips demand.

4.6.2 NTA Non-Commute Demand – Short Distance Trips

Short Distance Trip demand matrices were extracted from the 5 NTA's Regional Models for two modes:

- Road; and
- Public Transport.

Table 4.3 provide a breakdown of each mode in terms of trip purpose. Public transport data is in passenger units while the road matrices are in Passenger Car Units (PCU). Table 4.4 provides the details of the PCU factors used in the NTA models.

Table 4.3 NTA Short Distance Matrices Trip Purposes

Trip Purpose	Road	Public Transport
Commute	✓	✓
Employers Business	✓	✓
Other	✓	✓
Education	✓	✓
Concessionary		✓
Taxi	✓	
LGV	✓	
OGV1	✓	
OGV2_Permit Holder[16]	✓	
OGV2_Non Permit Holder	✓	

[16] Dublin City Council HGV Management Strategy Permit Holders (allowed to travel within restricted City Cordon area)

Table 4.4 NTA PCU Factors

Vehicle Type	PCU Factor
Car	1
LGV	1
OGV1	2
OGV2	2.5

Source: NTA

The following aggregation presented in Table 4.5 was applied to the Short Distance Trips demand matrices in order to inform the development of the NTpM prior matrices.

Table 4.5 NTA PCU Factors

NTpM Trip Purpose	NTA Trip Purpose
Commute	Commute
Employers Business	Employers Business
	LGV
Other	Education
	Other
	Taxi

Table 4.6 provides a summary of matrix totals for each user class and time period based on the NTA matrices aggregated to the NTpM trip purposes.

Table 4.6 Aggregation of NTA Trip Purposes for NTpM (PCUs)

Trip Purpose	AM		Lunchtime		School Run	
	Trips	%	Trips	%	Trips	%
Commute	259,111	34%	33,599	7%	76,804	13%
Employers Business	81,508	11%	64,464	14%	57,718	10%
Other	431,535	56%	367,144	79%	448,248	77%
Total	**772,154**	**100%**	**465,207**	**100%**	**585,770**	**100%**

4.6.3 NTA Non-Commuting Demand – Long Distance Trips

Long distance trips occur between the 5 regional models and are classed as trips between the 40 settlements with a population in excess of 20,000 or the largest county town. Long distance trip matrices were provided for the following modes; however, no breakdown of trip purpose was provided:

- Cars (vehicles);
- Bus (passengers); and
- Rail (passengers).

The conversion factors outlined in Table 4.7 were supplied to convert annual matrices to weekday and peak periods. Table 4.8 provides a summary of the matrix totals by time period for Cars.

Table 4.7 Conversion Factors for Annual NTA Matrices

Conversion Period	Factor
Annual to Average Weekday	0.00319
Average Weekday to Time Period	
- AM	0.180
- Lunchtime	0.266
- School Run	0.168

Table 4.8 Long Distance Matrix Totals by Time Period

Mode	Unit	Annual	Average Weekday	AM	Lunchtime	School Run
Car	Vehicle	134,189,772	428,065	76,875	113,766	71,928

4.6.4 Conversion of NTA Time Periods to NTpM Inter Peak

The NTM Inter Peak period model represents an average hour between 12:00 – 14:00. The NTA matrices represent both the 12:00 - 13:00 (Lunchtime) and 14:00 - 15:00 (School Run) periods. In order to account for all possible trip distributions, both matrices were used to develop the NTpM Inter Peak prior non-commute matrices.

Factors to convert NTA LT and SR hour demand into the NTpM average Inter Peak hour between 12:00 – 14:00 were applied to NTA matrices. The LT hour matrix represents the first hour of 12-13, therefore a factor of 1.0 was applied, while the SR hour factor was calculated as per the following formula:

$$SR\_Factor = TMU[17](14\text{-}15)/TMU(13\text{-}14)$$

$$LT\_Factor = 1.0\ ;\ SR\_Factor = 0.96695$$

These factors were applied to the NTA 12:00 – 13:00 (LT) and NTA 14:00 – 15:00 (SR) trip matrices. The average of the two matrices formed the Inter Peak prior matrix for the average hour between 12:00 – 14:00, as per the following formula.

$$IP = [(NTA\_LT * LT\_Factor) + (NTA\_SR * SR\_Factor)]/2$$

Matrix totals for both the Short and Long Distance IP Car trips are shown in Table 4.9.

[17] TMU – Traffic Monitoring Unit. TII have a network of over 350 permanent traffic counters located throughout the National Road Network.

Table 4.9 Short and Long Distance IP Matrix Totals

Trip Purpose	NTA Lunchtime	NTA School Run	NTpM Inter Peak
Short Distance Trips			
Commute	33,599	76,804	53,932
Employers Business	64,464	57,718	60,137
Other	367,144	448,248	400,289
Long Distance Trips			
Car	113,766	71,928	91,658

4.6.5 NTA Long Distance Trips – Trip Purpose Split

Analysis was undertaken of NTpM prior commute matrices to estimate the number of long distance commuting trips and it was concluded that the proportions of commute trips in NTA Long Distance matrices were too small to have material impact on the resulting matrices. It was assumed that the NTA Long Distance all-purpose matrices represent non-commute demand only.

In order to split the non-commute Long Distance matrices by trip purpose, an analysis of the Short Distance Trips over 20km was undertaken. Table 4.10 shows the proportional split between the 'Other' and 'Employers Business' purposes for each time period in the Short Distance Trips demand. This data was then used to develop a proportional split for the NTpM Inter Peak hour, which is also presented in Table 4.10.

Table 4.10 Proportional Split of Other and Business Purpose Trip Matrix (<20km in length) by Time Period

Trip Purpose	NTA Short Distance Trips			NTpM Inter Peak
	AM	Lunchtime	School Run	
Other	0.76	0.82	0.85	0.84
Employers Business	0.24	0.18	0.15	0.16

Table 4.11 shows the matrix totals for the Long Distance Trips demand matrices for 'Other' and 'Employers Business' purposes.

Table 4.11 Long Distance Trip Purpose Matrix Totals for NTpM AM and IP

Trip Purpose	AM	Inter Peak
Other	58,425	76,993
Employers Business	18,450	14,665
Total	**76,875**	**91,658**

4.6.6 *Final Prior Non-Commute Trip Matrices*

The final prior non-commute NTpM trip matrices were developed by combining the Short and Long Distance trip matrices for 'Other' and 'Employers Business' purposes. The final prior matrix totals are presented in Table 4.12.

Table 4.12 Final Prior Matrix Totals for NTpM AM and IP

Trip Purpose	AM	Inter Peak
Other	489,960	477,282
Employers Business	99,958	74,802
Total	**589,918**	**552,084**

4.7 Heavy Vehicles – Prior Matrices (Employers Business)

Trip matrices for Heavy Goods Vehicles (HGV) include all larger rigid and articulated goods vehicles. The matrices were derived from data provided by the CSO showing the annual number of journeys to/from each county in the ROI for each of the following three vehicle types:

- Rigid Trucks;
- Rigid Trucks with Trailers; and
- Articulated Trucks.

Since the data provided was at county-to-county level, this needed to be disaggregated to zonal level. This was achieved by determining the relationship between the total number of goods vehicle trip ends for each county and key county-level economic measures that are likely to influence the number of heavy vehicle movements (i.e. employment in certain sectors such as retail and construction). This relationship was then applied back to the equivalent economic data at zonal level to determine the proportion of HGV traffic that should be attributed to each zone within a county.

Multiple linear regression analysis was performed to determine the relationship between various economic variables and total HGV trip ends. The economic variables tested were employment numbers for the various industry groups in the 2016 POWSCAR dataset. The combination of variables that provided the most statistically significant relationship with HGV trip ends were as follows:

- POWSCAR Industry Group 3: Construction (POWSCAR_3)
- POWSCAR Industry Group 4: Wholesale, Retail Trade, Transportation and Storage, Accommodation and Food Service Activities (POWSCAR_4); and
- POWSCAR Industry Group 8: Other Service Activities (POWSCAR_8).

The equation that resulted from the regression analysis was as follows:

$$HV\ Trip\ Ends\ (000s) = 128.75 + (0.3296 * POWSCAR\_3) + (0.0602 * POWSCAR\_4) + (-0.3077 * POWSCAR\_8)$$

Application of this equation to zonal level POWSCAR employment data provided a measure of relative HGV trip ends for each zone, which was then used to disaggregate the actual county level HGV trip ends to zone level via the Matrix Disaggregation function within VISUM

This process ensured that total trip ends for each county were controlled to the original CSO data, but they were distributed throughout the county in a consistent and robust way. The same process and regression equation was applied to each of the three goods vehicle categories for which information was provided by the CSO.

4.7.1 Heavy Vehicles Matrix Scaling

Weightings were applied to the three HV categories to represent the amount of road-space each type of vehicle occupies, i.e., the number of Passenger Car Units (PCUs). UK WebTAG documentation (TAG Unit 3.9.5) provides guideline PCU factors for different categories of heavy goods vehicle as follows:

- Rigid Goods Vehicle - 1.9;
- Rigid Vehicles with Trailers – 2.4; and
- Articulated Goods Vehicle - 2.9.

The total weighted annual HVs matrix was next scaled down from total annual trips to represent the AM and IP periods of the NTpM. The annual to daily factor applied was 1/250. The final daily-to-hour scaling factors were the result of the matrix calibration process. The process for developing the ROI HV prior matrices is shown in Figure 4.4.

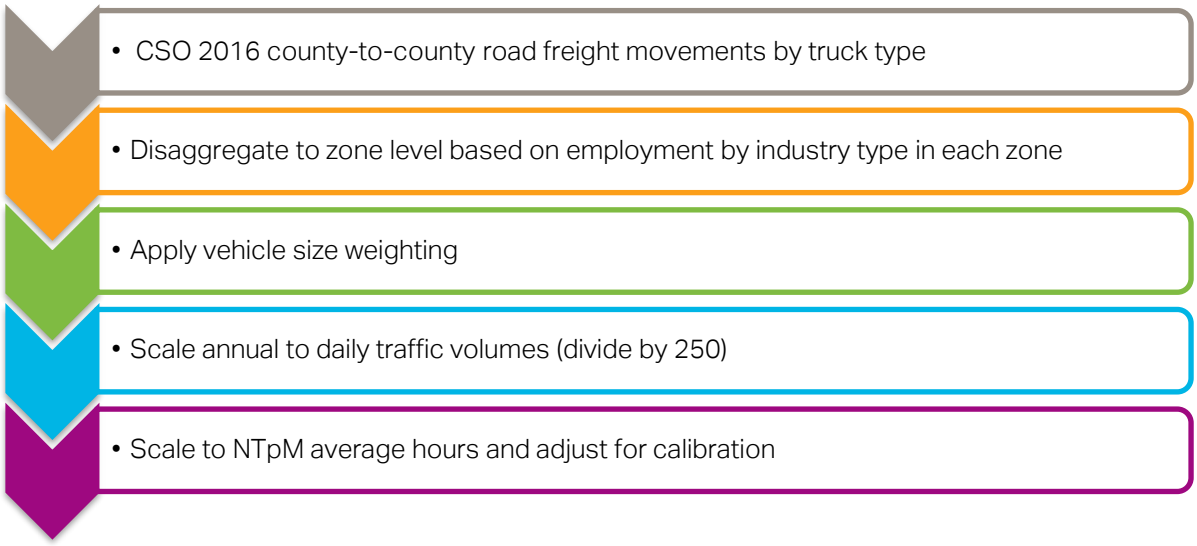

Figure 4.4 HV Matrix Development Process

4.8 Prior Base Matrix Development - Northern Ireland

Prior matrices for Northern Ireland (NI) were synthesised using the NI trip end model (TEMPRO NI) and a gravity model to distribute the trips. The following sections described steps undertaken in developing NI trip matrices.

4.8.1 Trip Generation – Light Vehicles

The first step in developing a trip matrix for NI was to determine the number of trips originating from and destined for each model zone, commonly referred to as "trip ends". The UK has an established trip end model which uses demographic and socio-economic data to determine the number of trips originating from and destined for every area of Great Britain. This information is broken down by time of day, trip purpose and mode of travel. Users may access this information via an application called "TEMPRO", with data available at various levels of detail from TEMPRO zones consisting of very few electoral wards, to county or national level.

A version of TEMPRO for Northern Ireland was developed using the same underlying methodology as the Great Britain model. The TEMPRO Northern Ireland model was developed on behalf of Roads Service for the A5 Western Transport Corridor study. AECOM obtained trip end data for the year 2011 from the Northern Ireland Department of Regional Development (NIDRD) Roads Service data section. Data was provided for an average 2011 weekday, and for the following categories:

Time of Day:

- AM Peak period (07:00 – 10:00); and
- Inter Peak period (10:00 – 16:00)

Trip Purpose:

- Home-Based Work;
- Non Home-Based Work;
- Home-Based Employers' Business;
- Non Home-Based Employers' Business;
- Home-Based Education;
- Non Home-Based Education;
- Home-Based Shopping;
- Non Home-Based Shopping;
- Home-Based Personal Business;
- Non Home-Based Personal Business;
- Home-Based Recreation/Social;
- Non Home-Based Recreation/Social;
- Home-Based Visiting Friends & Relatives;
- Home-Based Holiday/Day Trip;
- Non Home-Based Holiday/Day Trip.

The NTpM trip matrices represent the following time periods:

- AM Peak hour (highway assignment) – average of 07:00 – 09:00;
- Inter Peak hour (highway assignment) – average of 12:00 – 14:00;
- 15 Hour/all-day (PT assignment).

In order to convert the TEMPRO highway trip ends into model AM and IP period trip ends, conversion factors based on Automatic Traffic Count (ATC) data from 45 sites within NI were applied. The factors are shown in Table 4.13.

Table 4.13 Time Period Conversion Factors

Time Period	Factor
AM TEMPRO Period (07:00 – 10:00) – AM Model Period (07:00 – 09:00)	0.682
IP TEMPRO Period (10:00 – 16:00) – IP Model Period (12:00 – 14:00)	0.333

The highway trip ends were then halved to represent the average AM Peak hour and the average IP hour. The original NTpM matrices were developed for fewer trip purposes than provided in the TEMPRO data, so in some cases TEMPRO trip purposes were aggregated to match the existing model. Trip purposes were aggregated as shown in Table 4.14.

Table 4.14 NTpM and TEMPRO Trip Purpose

Model Trip Purpose	TEMPRO Trip Purposes Included
Home-Based Work (HBW)	Home-Based Work
Home-Based Employers' Business (HBEB)	Home-Based Employers' Business
Home-Based Education (HBED)	Home-Based Education
Home-Based Other (HBO)	Home-Based Shopping Home-Based Personal Business Home-Based Recreation/Social Home-Based Visiting Friends & Relatives Home-Based Holiday/Day Trip
Non Home-Based Employers' Business (NHBEB)	Non Home-Based Employers' Business
Non Home-Based Other (NHBO)	Non Home-Based Work Non Home-Based Education Non Home-Based Shopping Non Home-Based Personal Business Non Home-Based Recreation/Social Non Home-Based Holiday/Day Trip

These trip purposes were further aggregated into the three purposes included in the NTpM (i.e. Commute, Employers' Business and "Other".

4.8.2 Trip Distribution – Heavy Vehicles

Heavy Vehicle (HV) trip ends were calculated in an entirely separate process because TEMPRO only includes car trips (although it is likely that some of the "car" trips would in fact be made using a light goods vehicle/van).

The HV trip matrices for the original NTM were calculated using mathematical equations estimated from observed trip data in the ROI. Regression analysis using observed HGV trip movements and demographic data for the model zones was performed to produce HV trip ends for the combined AM and IP periods. The regression equations are shown in Table 4.15.

Table 4.15 HGV Trip End Regression Equations

Trip End	Equation for Zonal Trip Ends
Origins	(0.013359 × Households) + (0.079082 × Construction Employment) + (0.016920 × Commerce Employment)
Destinations	(0.005395 × Population) + (0.006463 × Employment)

The above formulae were applied in the development of HV trip ends for NI. Data sources used were:

- Ward level employment data from the Northern Ireland Census of Employment, September 2009;
- Ward level total households from the 2001 UK national census; and
- Ward level total population for 2008 from Northern Ireland Neighbourhood Information Service (NINIS).

The above equations provide combined AM and IP period HV trip end totals. The proportion of the trip ends assigned to each time period is based on the same factors applied in the original model development: 48% in the AM and 52% in the IP. The resultant trip ends were also divided by two which gives an average hour for each of the two hour time periods.

4.8.3 Port HV Traffic – Northern Ireland

The above regression equations used employment and population data as a basis for calculating HV trip ends. This methodology does not, however, account for HV traffic to and from major ports.

In order to better reflect the volume of HV traffic at port locations, additional trip ends were added to the zones in which ports lie. The Department for Enterprise, Trade and Investment Northern Ireland (DETINI) publishes data on average daily HGV movements at the three main ports of Belfast, Larne and Warrenpoint; the latest of which is for 2010.

Since the NTM represents just two time periods in an average weekday and the concentration of port traffic movements may vary by time of year and location, it is impractical to determine precisely how many of the daily port HGV movements should be assigned to each time model period. Therefore, it was assumed that average daily port traffic is spread evenly over a 12 hour period, so 1/12th of the daily traffic was included in each model period.

4.8.4 Trip Distribution Methodology – Northern Ireland

Trip distribution is the process by which trip origins are matched with trip destinations to form a trip matrix. An established methodology for trip distribution is the "gravity model", whereby trip making between two zones decreases as distance/travel time between the zones increases. Meanwhile, trips are more likely to occur between zones with high levels of activity (those with many trip ends) than those with little activity.

In practical terms, trip distribution is carried out by first estimating the "gravity" between each origin-destination (O-D) zone pair, then applying this matrix to the trip ends calculated in the trip generation stage. A common measure of "gravity" between zones, often called a "friction factor", is calculated using the "gamma function" which takes the form:

$$F = a \times T^{b} \times e^{(c \times T)}$$

Where:

F = friction factor;
T = travel impedance (usually time in minutes);
a, b, c = model parameters; and
e = base of natural logarithms.

The friction factors are used as a prior matrix in a "Furness" factoring process which assigns origin trip ends to destination zones and vice versa. Friction factors are greatest for O-D pairs with the highest "gravity" (i.e. O-D pairs between which trips are most likely to occur), so the Furness factoring process distributes trips according to both volume of trip ends and relative

4.8.5 Travel Impedance

Travel impedance (T) is measured by "skimming" a travel time matrix from the highway network. However, to obtain a realistic travel time skim, a trip matrix is required. To overcome this issue an "initial" trip matrix was assigned to produce travel volumes and times on the network. The initial trip matrix was calculated by running a first iteration of the trip distribution process but using a travel impedance matrix based on zone-to-zone crow-fly distances and average network speeds. The initial trip matrix was then assigned to the highway network to obtain a final congested travel time skim.

In the off-peak period where congestion is less of an issue, a simple unitary matrix (where all cells have one trip) was assigned and uncongested travel times skimmed.

4.8.6 Model Parameters

Model parameters a, b and c are usually calculated from observed travel data. In this case, validated trip matrices for ROI from the previous NTpM were treated as "observed" so the trip distribution for the new NI trip matrices are related directly to ROI trips in the existing model.

Within VISUM is a function called "KALIBRI" which estimates model parameters a, b and c from an input impedance (travel time) matrix, trip length frequency distribution (time), and trip ends. Travel time matrices, trip length frequency distributions and trip ends for each of the NTpM modes, trip purposes and time periods were entered into KALIBRI in separate runs, to provide different model parameters for each mode, purpose and period. This approach ensures that differences in trip length frequency distribution between each mode and purpose are represented in the updated NTpM for NI.

4.9 Model Calibration

4.9.1 Overview

The purpose of model calibration is to ensure that the model assignments reflect the existing travel situation. Calibration is an iterative process, whereby the model is continually revised to ensure that the most accurate replications of the base year conditions are represented. The main emphasis of the calibration process is to ensure that in the AM and Inter Peak periods:

- Network coding reflects the observed base year road network conditions therefore generating accurate traffic patterns and consequently influencing route choice;
- Traffic patterns throughout the model are accurately reflected, including the route choices selected; and
- Traffic volumes on both main roads and alternative routes are modelled accurately.

4.9.2 Matrix Estimation

The model calibration process involved several stages of targeted Matrix Estimation (ME). This process is designed to automatically manipulate the origin and destination matrices to match a counted volume along a particular link or multiple links. The matrix estimation process was undertaken on the AM and Inter Peak matrices separately for both light and heavy vehicles. The total number of ME loops required to calibrate the AM and IP matrices was 7.

Before each ME loop was carried out the tolerance setting was altered in Visum to adjust the maximum difference in flow for links with surveyed information. Where differences between the modelled and surveyed flows were greater than 500 the absolute difference between modelled and surveyed values was taken as tolerance, for differences between 50 and 500, 70% of absolute difference was taken as tolerance, for differences below 50, 50 was taken as tolerance. The automated ME did result in a calibrated model however to further improve calibration flow bundle matrix estimation was undertaken. This involved manual flow bundle analysis, where flow bundle matrices were extracted, examined and subsequently adjusted to match observed flows up and downstream of the point at which the flow bundle was taken. This was required along corridor where counts were calibrated but all low or high compared to the observed counts, to improve journey time calibration along corridors and at select locations to improve modelled AADT values.

To check the output of the matrix estimation process had significantly altered the trip length distribution (TLD) the distributions from before (pre) and after (post) matrix estimation were compared. The trip length distributions for each peak hour for Light Vehicles are represented as histograms in Figure 4.5 and Figure 4.6. The figures show that the TLD has not been significantly altered as a result of the ME process with a slight decrease and increase in the number of shorter trips in the AM and Inter Peak respectively.

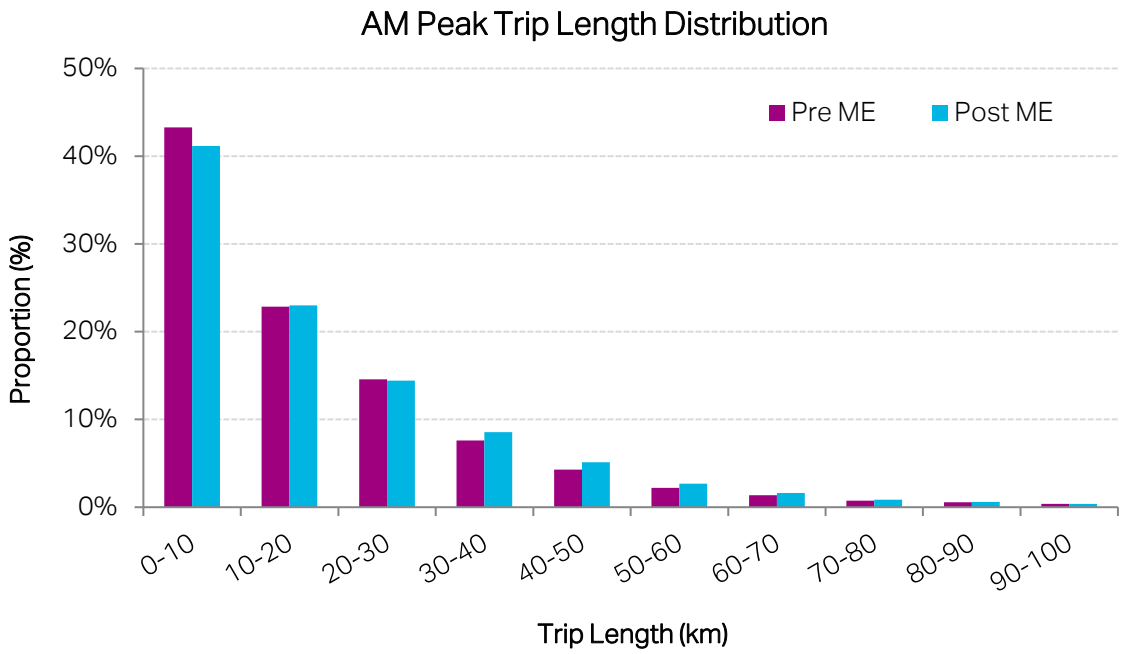

Figure 4.5 AM Peak Pre & Post Matrix Estimation LV Trip Length Distribution

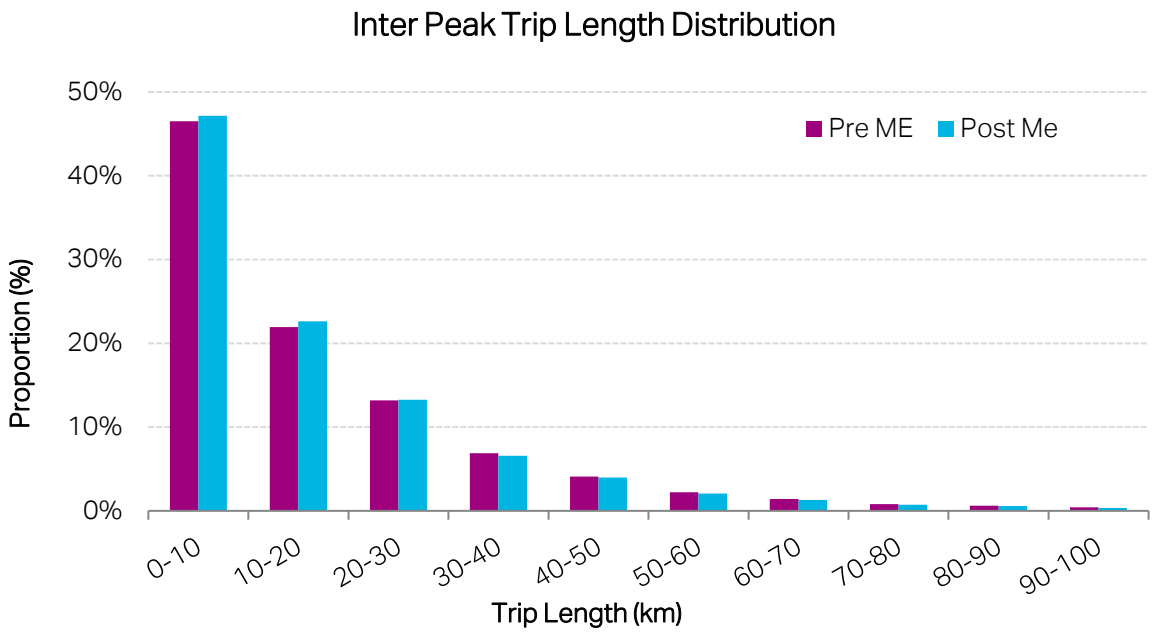

Figure 4.6 Inter Peak Pre & Post Matrix Estimation LV Trip Length Distribution

4.9.3 Calibration Results

Calibration has been undertaken against individual link traffic flows for both the AM and Inter Peak in accordance with the TII Project Appraisal Guidelines (PAG) *Unit 5.1: Construction of Transport Models*. A summary of the calibration results is shown below in Table 4.16 and Table 4.17.

Table 4.16 Summary of Traffic Flow Calibration (Individual Link Flows)

Time Period	% of Calibration Sites Meeting the criteria that: Individual Flows within 15% for flows 700 – 2700 vph Individual flows within 100 vph for flows < 700 vph Individual flows within 400 vph for flows > 2700 vph		
	Total Traffic	Lights	Heavies
AM Peak	94.2%	94.2%	99.8%
Inter Peak	96.1%	97.1%	99.2%

Table 4.17 Summary of GEH Calibration (Individual Link Flows)

Time Period	% of Calibration Sites with GEH < 5		
	Total Traffic	Lights	Heavies
AM Peak	93.2%	92.7%	99.0%
Inter Peak	96.3%	96.8%	97.1%

The calibration results demonstrate that the AM Peak and Inter Peak traffic models have been calibrated to a standard compliant with the criteria set out in the TII PAG. Details of the link calibration results are provided in Appendix A. The location of the calibration sites are illustrated in Figure 4.7.

In addition to the link calibration the highway model was calibrated against 6 screenlines in accordance with the criteria set out in TII PAG *Unit 5.1: Construction of Transport Models*. The screenlines are used in the calibration process are illustrated in Figure 4.8. Details of the screenline calibration results are also provided in Appendix A.

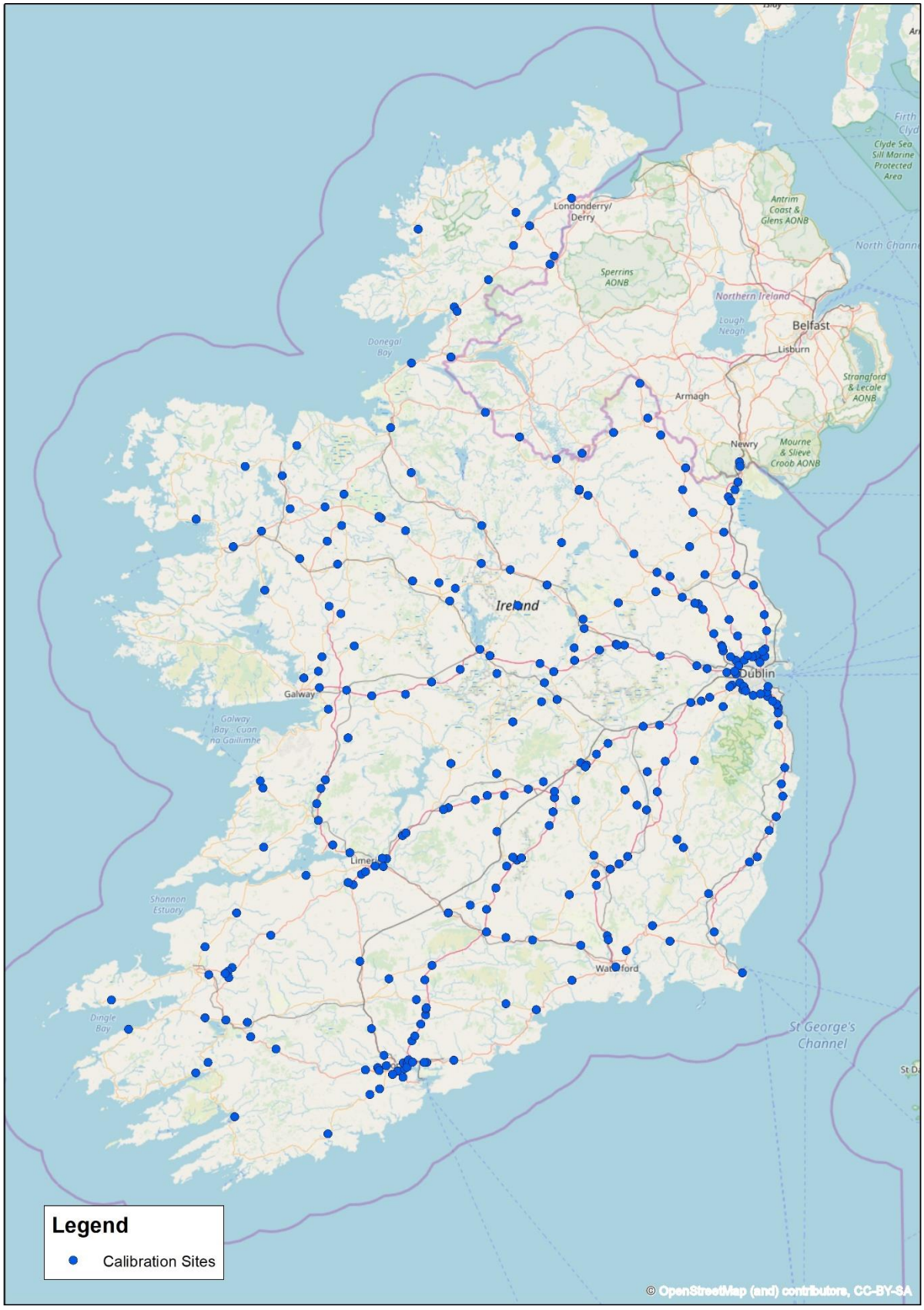

Figure 4.7 Calibration Sites

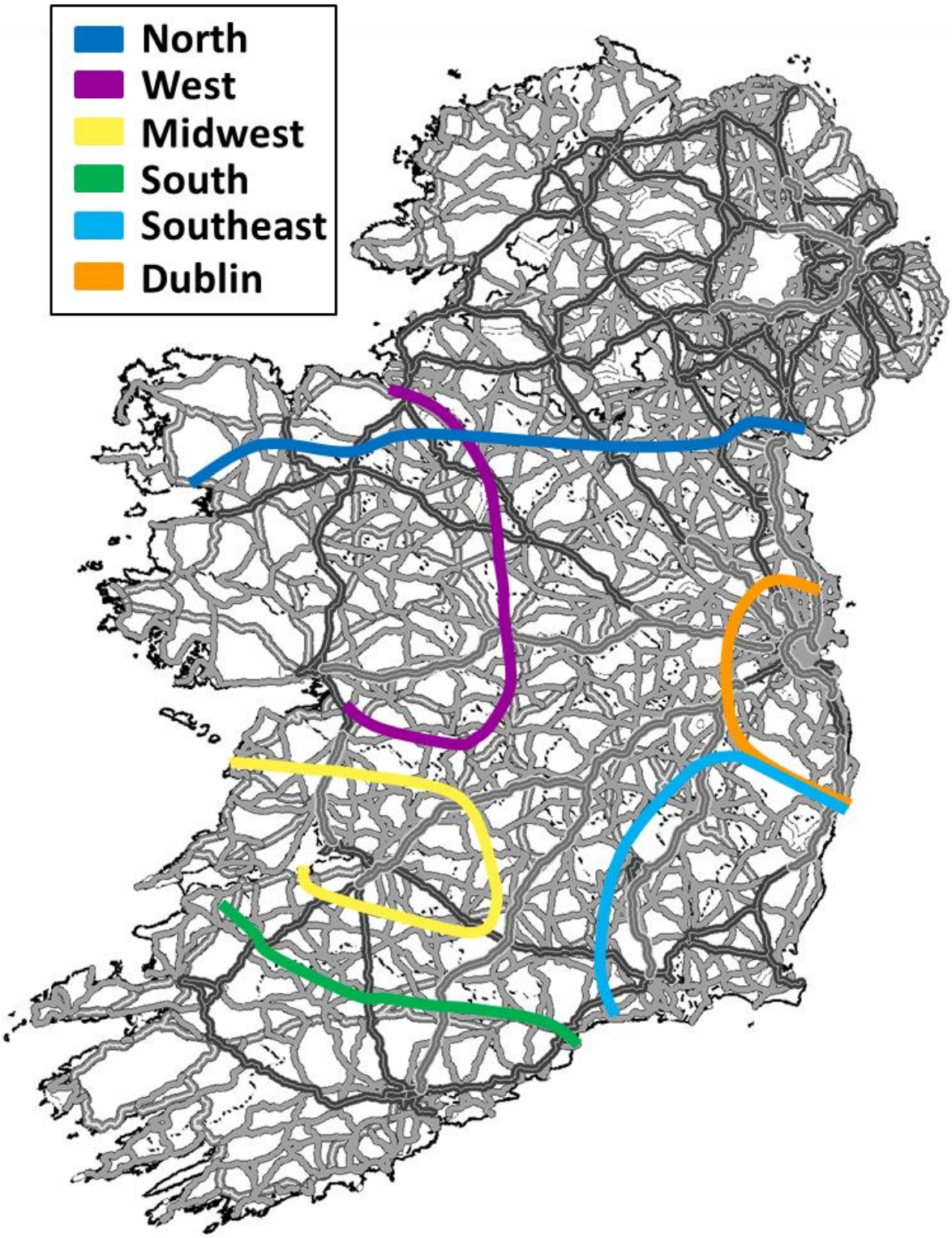

Figure 4.8 Calibration Screenlines

The results of the screenline calibration are presented in Table 4.18 and Table 4.19 for total traffic for AM & IP. As shown 100% of screenlines have a GEH under 5 in both the AM and Inter Peaks.

Table 4.18 Summary of AM Traffic Flow Calibration (Screenlines)

Screenline		Total Traffic		Diff	GEH Test		Flow Test	
		Observed	Modelled					
1. Dublin	INBOUND	13432	13493	61	0.5	1	400	1
	OUTBOUND	5725	6071	346	4.5	1	400	1
2. South East	INBOUND	3032	2864	-168	3.1	1	400	1
	OUTBOUND	3900	3818	-82	1.3	1	400	1
3. South	INBOUND	2275	2275	0	0.0	1	341	1
	OUTBOUND	2286	2307	21	0.4	1	343	1
4. North	INBOUND	2308	2409	101	2.1	1	346	1
	OUTBOUND	2887	2920	33	0.6	1	400	1
5. West	INBOUND	3015	3270	255	4.5	1	400	1
	OUTBOUND	4270	4523	253	3.8	1	400	1
6. Midwest	INBOUND	3745	3714	-31	0.5	1	400	1
	OUTBOUND	2469	2527	58	1.2	1	370	1

Table 4.19 Summary of Inter Peak Traffic Flow Calibration (Screenlines)

Screenline		Total Traffic		Diff	GEH Test		Flow Test	
		Observed	Modelled					
1. Dublin	INBOUND	6311	6579	268	3.3	1	400	1
	OUTBOUND	6253	6430	177	2.2	1	400	1
2. South East	INBOUND	2304	2363	59	1.2	1	346	1
	OUTBOUND	2404	2481	77	1.6	1	361	1
3. South	INBOUND	1733	1767	34	0.8	1	260	1
	OUTBOUND	1829	1837	8	0.2	1	274	1
4. North	INBOUND	2301	2404	103	2.1	1	345	1
	OUTBOUND	2207	2382	175	3.7	1	331	1
5. West	INBOUND	2810	2919	109	2.0	1	400	1
	OUTBOUND	2873	3023	150	2.8	1	400	1
6. Midwest	INBOUND	2095	2130	35	0.8	1	314	1
	OUTBOUND	2145	2070	-75	1.6	1	322	1

4.10 Model Validation

To demonstrate that the base models provide a robust platform, it is necessary to show that the base models accurately and realistically represent observed conditions in the base year using data which are independent from that used in the calibration process. Following the network and matrix calibration process the calibrated models were compared against actual 2016 observed traffic data from the TII TMU network.

These counts are representative of the observed model base year and have remained independent of the calibration process. The outputs from the assignments were independently compared with observed data in order to ensure that base year conditions were replicated in the modelling process. Validation checks included:

- Link flow validation and statistical criteria; and
- Overall model validation (e.g. journey time surveys).

The base year networks were independently checked to ensure that the correct characteristics had been coded for the junctions and links in the model. Particular attention was paid to the location of zone connectors to ensure that assigned trips entered and left the network at realistic locations.

The model was also checked to ensure that locations that were experiencing delays in the base year, due to link capacity constraints, were realistic. If these issues are not resolved in the base year, the error would be factored up in future years which could influence the model forecasting and future year performance.

The validation traffic count data was subdivided into the three categories similar to the data calibration. This enabled the validation of the traffic flow vehicle composition, namely the split between the light and heavy vehicles.

4.10.1 Validation of Traffic Flows

The observed and modelled flows were compared at each of the validation sites in accordance with the PAG criteria. The permissible difference was calculated for each value (based on the observed figure) and compared with that which had been modelled. A summary of the individual link validation is outlined in Table 4.20.

Table 4.20 Summary of Traffic Flow Validation (Individual Link Flows)

Time Period	% of Calibration Sites Meeting the criteria that: Individual Flows within 15% for flows 700 – 2700 vph Individual flows within 100 vph for flows < 700 vph Individual flows within 400 vph for flows > 2700 vph		
	Total Traffic	Lights	Heavies
AM Peak	87.0%	88.4%	100%
Inter Peak	92.5%	93.8%	100%

The TII PAG recommends that the total traffic match between observed and modelled flow is above 85%, the additional matching category provides an extra level of detail to the model. The comparison against the validation counts shows that both the AM Peak and Inter Peak models satisfy the TII PAG link validation criteria.

The calculated GEH statistics for the observed and modelled flows were considered at each of the validation sites in accordance with the above criteria. A summary of results is presented in Table 4.21.

Table 4.21 Summary of GEH Validation

Time Period	% of Calibration Sites with GEH < 5		
	Total Traffic	Lights	Heavies
AM Peak	87.7%	87.7%	96.6%
Inter Peak	86.3%	86.3%	97.9%

Similar to the flow criteria the AM Peak and Inter Peak models exceed the validation count GEH criteria. The validation count locations used for the traffic flow and GEH comparisons are consistent throughout the AM Peak and Inter Peak periods. Details of the link calibration results are provided in Appendix A.

4.10.2 Validation of Journey Times

In addition to link flow validation, the model was validated against observed journey times. The journey time comparison is required to show that the model is reflecting the actual base year network conditions, in terms of network speed, distance and delay.

As previously discussed, the model does not explicitly model junction delay, therefore the speed flow curves have been adjusted to reflect a level of delay given the constraints of the network. The journey time comparison is an important part of the validation process, as this indicates if the speed flow curves are performing as required and producing realistic travel times. This will in turn dictate whether the traffic routing patterns are modelled correctly.

The TIII PAG states that the modelled journey times are required to be within 1 minute or 15% of the observed time. Journey times between 15 key settlements were used as part of the validation process which gave a total of 210 journey time routes. Table 4.23 outlines the journey time validation results.

Table 4.22 Summary of Settlement to Settlement Journey Time Validation

Time Period	No. of Journey Time Routes	Percentage of Journey Time Routes Validated (Diff <15% Surveyed)
AM Peak	210	90.5%
Inter Peak		92.9%

4.11 Network Checking

The model network was reviewed throughout the calibration and validation process in order to ensure that the base case depicted the current situation as accurately as possible. The modelling methodology, including calibration, has focused on simulating current traffic patterns and traffic volumes on an accurate base year network structure. Traffic behaviour can be classed as validated as the model has matched the criteria given in current guidance for both traffic count and journey time validation/calibration.

4.11.1 Independent Check using An Post Geocoding Data

As part of the validation process, the An Post Geo Directory dataset was used as a sense check on the base year model outputs. This dataset is a complete address database of all buildings in Ireland, with each building classified as either commercial, residential or both types within the dataset. Using this data, it was possible to undertake a comparison of the total trip end numbers (origin and destination) from the model with the number of residential or commercial units within each zone. The results from this comparison were used as a high level validation of the trip rates within the model.

4.12 Assignment Model Convergence

The model assignment procedure involves the model reaching a point of equilibrium through an iterative process. The model must therefore achieve a satisfactory point of convergence in order to produce results that are both reflective of the network over a number of iterations of assigning demand to the network.

The convergence indicators vary by different transport modelling packages; therefore, multiple criteria are outlined in TII *PAG Unit 5.1: Construction of Transport Models*[18]. The criterion that is used to show that the NTpM reaches a level of convergence is as follows:

- The percentage of links (given by 'P') with a flow change <1% across four consecutive iterations greater than 98%; and
- The difference between the cost along the chosen routes and those along the minimum cost routes, summed across the whole network, and expressed as a percentage of the minimum costs, known as the '%GAP'. The guideline target for the %GAP is 0.1% or less.

The model software produces the convergence information by user class, defining the percentage difference in link volume per vehicle class. Table 4.23 illustrates that the 2016 AM Peak and Inter Peak models both reached a satisfactory level of assignment model convergence.

Table 4.23 2016 Base NTM Assignment Model Convergence

Time Period	Number of Iterations	Percentage of Links with Flow Change (P) <1%			%GAP
		Final Convergence LV	Final Convergence HV	Number of Iterations >98%	
AM Peak	12	99.4%	99.6%	4	0.009
Inter Peak	11	99.5%	99.6%	4	0.006

[18] Table 5.1.2 Summary of Convergence Measures and Base Model Acceptability Guideline Values

4.13 Generalised Cost Functions

The model applies the demand for travel, represented by the trip matrices, to the supply, represented by the modelled road network. The route choice is based on the 'generalised cost' of each route option, represented by a combination of time, distance and tolls as follows;

- Generalised Cost = Value of Time * Time + Vehicle Operating Cost * Distance + Road User Charge (Tolls)

The economic parameters used in the National Transport Model to inform the Generalised Cost Functions are summarised in Table 4.24 and are fully compliant with the parameters set out in the TII *PAG Unit 6.11: National Parameter Values Sheet.*

Table 4.24 Generalised Cost Parameters

Time Period	User Class	Value of Time		Vehicle Operating Costs	
		Cents/sec	€/hr	Cents/m	€/km
AM Peak	LV	0.7402	26.65	0.0169	0.169
	HV	1.1071	39.86	0.0422	0.422
Inter Peak	LV	0.7644	27.52	0.0167	0.167
	HV	1.1297	40.67	0.0406	0.406

4.14 Estimation of Annual Average Daily Traffic

To estimate Annual Average Daily Traffic (AADT) flows in the NTpM, expansion factors were developed which allowed extrapolation of average AM and Inter Peak hour traffic flows to AADT. The expansion factors were developed based on a series of regression analyses of over 300 TII Traffic Monitoring Units (TMU).

These analyses were undertaken initially based on the NUTS 3 regions, which correspond to the Regional Authority areas. To improve the accuracy of the factors, the Border and South West regions were split into regions that share similar traffic characteristics. The regions used for the development of AADT factors are presented in Figure 4.9.

The estimated AADT was then compared against the observed AADT and the factors were readjusted to obtain the best possible fit between estimated flows and observed data. Two separate sets of factors were developed for light and heavy vehicles for each region to reflect the differing traffic profile of each mode throughout the day.

It should be noted that these expansion factors are unique to the NTpM. Scheme specific expansion factors should be developed based on local area traffic survey data and TII TMU data. TII PAG Units 16.1 and 16.2 provide guidance on the estimation of AADT.

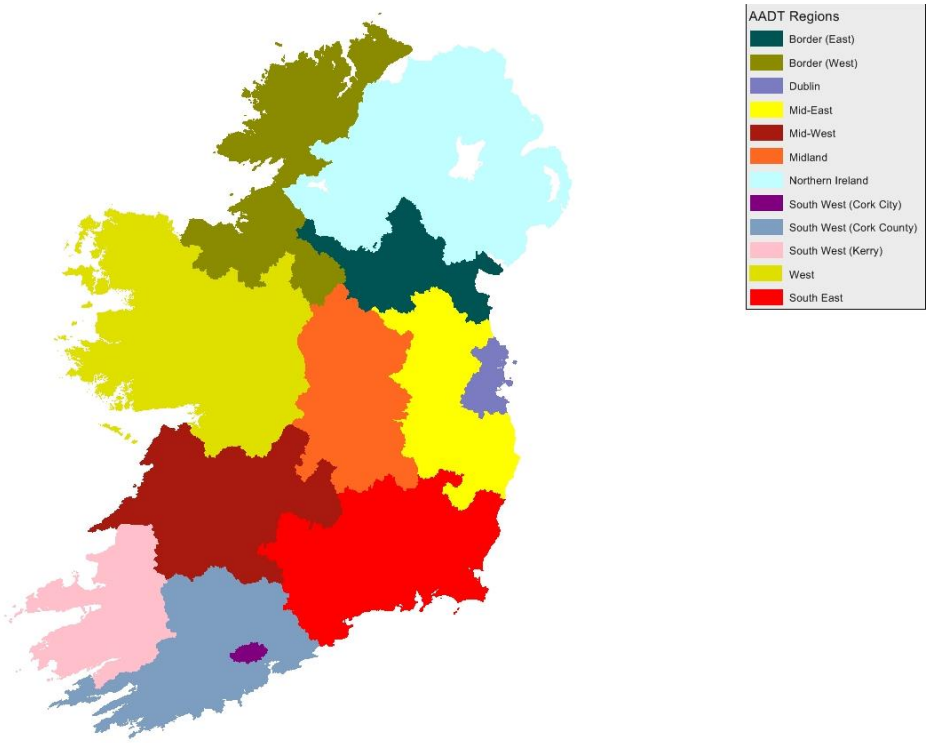

Figure 4.9 Regions used for Development of AADT Factors

The resultant factors to convert the average AM and Inter peak flows to AADT flows for each of the regions is summarised in Table 4.25. The AADT equation is represented as follows:

$$AADT = \beta_1 \text{ (AM Peak Flow)} + \beta_2 \text{ (Inter Peak Flow)}$$

where: β_1 = factor applied to the AM Peak flow
β_2 = factor applied to the Inter Peak flow

Table 4.25 Summary of AADT Expansion Factors

Region	Light Vehicles		Heavy Vehicles	
	AM Factor (β_1)	IP Factor (β_2)	AM Factor (β_1)	IP Factor (β_2)
Dublin	1.3785	15.2646	4.7051	6.5045
Mid-East	-0.0321	18.9356	5.4354	6.6238
Mid-West	1.6439	16.0576	4.2686	7.2576
Midland	1.4248	16.6300	3.8781	8.8620
South-East	1.8129	14.5818	4.6749	6.7357
West	1.2895	16.3794	4.2312	7.7538
Border (West)	0.5670	15.3648	4.3328	7.3517
Border (East)	1.6356	15.5863	4.4746	7.7174
South-West (Kerry)	1.5847	14.6478	3.6415	7.8735
South-West (Cork County)	0.6548	17.4223	3.7703	7.8650
South-West (Cork City)	1.8454	13.6283	2.6680	7.5925

4.15 Conclusions

The 2016 AM and Inter Peak National Traffic Models has been calibrated and validated in accordance with the requirements of the TII PAG. The results of the calibration and validation process demonstrate that the base year models provide an accurate representation of inter urban travel on the National Road network in 2016 and provide a sound platform from which to develop future year projections for the NTM.

However, it should be noted that the model has been calibrated and validated at a strategic level only and therefore the model may not reflect accurately the situation at a particular local level. Therefore, the model would require re-calibrating and re-validating in order to simulate traffic responses at a local scale if a cordon of the model was extracted. Guidance on the cordoning of the NTM for use in the development of Local Area Model is provided in TII *PAG Unit 5.1: Construction of Transport Models.*

5 National Rail Model

5.1 Overview

The development of the rail module of the NTpM was prepared as a stand-alone assignment model which would reflect all (Commuter and Inter City) base year rail transport demand on the network. The development of the National Rail Model (NRM) is outlined in the following sections

Details of the data collected and used to inform the development of the NRM is provided in the Data Collection Report (NTpM Volume 2).

5.2 Zone System

The definition of the zone system reflects that used in the NTM. In the rail model, each zone is associated with a specific rail station (or cluster of stations in the case of urban areas). Figure 5.1 provides an example of how rail stations are connected to the NTpM zones.

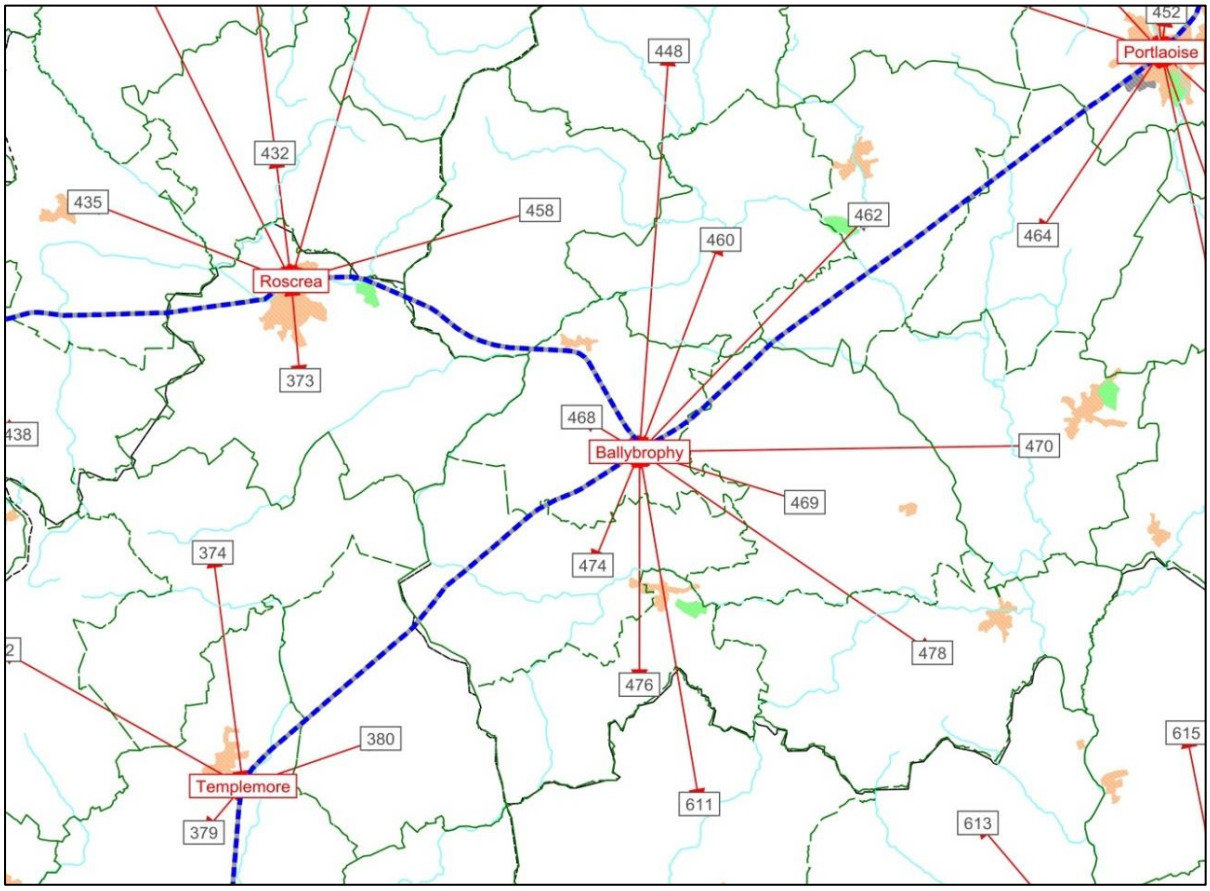

Figure 5.1 NTpM Rail Station Zone Connectors (Example)

5.3 Rail Passenger Demand

5.3.1 Rail Demand Segmentation

The range of passenger trip matrices in the National Rail Model is presented in Table 5.1. For the purposes of the VDM, demand across all three modes is required across a consistent time period of 15 hours. The 15 hour period for rail represents the demand between the hours of 07:00 and 22:00.

Table 5.1 Rail Trip Matrices (Passengers)

Travel Type	Mode	Trip Purpose	Car Availability	Time Period
Public	Rail	Commuting	Car Available	15hr
			Car Non Available	15hr
		Business (Working)	Car Available	15hr
				15hr
		Other	Car Available	15hr
			Car Non Available	15hr

For the purposes of the NTpM it is assumed that all persons making a trip for work ('Employers Business') by rail also have access to a private car. Therefore, all Employers Business trips made by rail are "car available" trips.

5.3.2 Construction of Prior Rail Matrices

The 2016 rail passenger demand matrices were developed using the most recent and reliable data sources available. Key amongst these was the 2016 POWSCAR database and the 2016 Irish Rail census data.

Trip matrices for Republic of Ireland (ROI) and Northern Ireland (NI) were developed in separate processes due to the different raw data inputs that were available. The majority of the process described in the following sections pertains to the development of trip matrices for ROI, although these matrices also contain cross-border trips.

Trip matrices for internal NI trips were derived using the NI trip end model (TEMPRO NI) and a gravity based distribution model.

5.3.3 Commuting

The POWSCAR dataset includes details of trips across all modes, so it was possible to derive a rail commute trip matrix from the data in the same way that the LV commute matrix was developed. However, a key difference is that separate AM and IP peak period matrices were not required, so records from the entire day were used to form the 15 hour rail demand matrices.

Since the required 15 hour matrices should effectively represent all trips made throughout the day, both directions of travel had to be included (to and from work) by combining the original input POWSCAR matrix (to work) with a transposed version of the matrix which represents trips from work.

5.3.4 Non-Commute (Employers Business & Other)

The rail non-commute prior demand matrices have been developed using the NTA 'Short Distance Trips' and 'Long Distance Trips' demand matrices as discussed in Section 4.6.

5.4 Rail Assignment Parameters

5.4.1 Headway

The assignment used to apply the rail demand to the rail network is undertaken using the 'Headway Based Assignment' approach. The headway of each rail service was calculated based on the Irish Rail timetables and entered into the NTpM as a User Defined Attribute. Based on the assignment time interval between 07:00 – 22:00 (900mins), an hourly service between Dublin and Cork would have headway of 60mins, while a twice daily service between Dublin and Wexford would have a headway of 450mins (i.e. half the 15 hour operations represented).

5.4.2 Rail Generalised Cost

The generalised cost (impedance) of undertaking a rail trip is made up of two elements as follows:

- Perceived Journey Time; and
- Fares.

5.4.3 Perceived Journey Time

The Perceived Journey Time (PJT) of a rail trip considers the weighted journey time elements that make up the total travel time between a trip origin and destination. The following journey time elements are included in the PJT:

- In-Vehicle Time;
- Access Time;
- Egress Time;
- Walk Time;
- Origin Wait Time;
- Transfer Wait Time; and
- Number of Transfers

Passengers prefer time spent on some parts of a journey over time spent on others, therefore a weighting to time spent on each different part of the journey which quantifies the level of dislike a traveller has for time spent on that bit of the journey relative to time spent in-vehicle is required. The weighting applied to each element of the journey in the NTpM is outlined in Table 5.2.

Table 5.2 Perceived Journey Time Weighted Factors

Journey Section	Weighted Factor
In-Vehicle Time	1
Access Time	2
Egress Time	2
Walk Time	2
Origin Wait Time	2.0
Transfer Wait Time	2.5
Number of Transfers	12 mins per transfer

Skim matrices are calculated and weighted following the assignment of the rail demand matrices for each origin/destination zone pair in the NRM. These skims matrices were then combined to calculate the Perceived Journey Time. A skim matrix of the In-Vehicle Distance is also required and is calculated following the assignment of the rail demand matrices.

Given the limited routing options available, these parameters are largely based on default assumptions that may be more appropriate for urban rather than inter-urban travel. There is some evidence for example that interchange penalties are perceived to be higher on longer journeys and perception of wait times tends to reduce with longer headways. This should be borne in mind when testing strategies that influence rail costs.

5.4.4 Fares

The NRM includes fare information as an important component of generalised cost. Based on annual revenue and annual passenger data from the 2016 Irish Rail Annual Report an average cost per kilometre of rail travel was calculated and is presented in Table 5.3.

The cost of 12.3c/km is applied to the In-Vehicle Distance skim matrix to produce a distance based rail fare matrix.

Table 5.3 Calculation of Average Rail Fare per Kilometre of Travel

2016 Data	Value
Total Revenue (2016)	€244.5m
Total Passenger Kilometres (2016)	1.99bn
Average Cost per Kilometre (2016)	€0.123

5.4.5 In-Vehicle Distance

In-vehicle distance was calculated directly from the NRM network. The data suggests that in 2016, 7.5 million passenger km were travelled by heavy rail on a typical weekday.

5.5 Car Availability

For commute and other trip purposes, the rail matrices were split into "car available" (CA) and "non-car available" (NCA), i.e., whether the person travelling by public transport could have actually made their journey by car if they had so chosen.

Proportions of CA and NCA trips were calculated from the POWSCAR dataset. The 2016 CSO Census collected information on household size & composition, number of workers and number of cars in the household.

From this data the likelihood of each public transport trip having a car available to make that trip was estimated. The number of adults and non-workers per household was estimated based on the household composition. It was assumed that if there was car availability within a household any non-working adult would account for the first available car. Any additional cars available in the household were divided by the number of economically active adults within the household.

The rail trips in POWSCAR were divided into five categories of car availability:

- 0 Cars Available (CA_0): Where respondents indicated that there were no cars in the household;

- 0.25 – 0.33 Cars Available (CA_0.3): Where respondents indicated that there was one car for every 3 or 4 economically active adults in the household;
- 0.5 Cars Available (CA_0.5): Where respondents indicated that there was one car for every two economically active adults;
- 0.66 – 0.75 Cars Available (CA_0.7): Where respondents indicated that there were two cars for three economically active adults, or three cars for four economically active adults;
- 1 or more Cars Available (CA_1): Where respondents indicated that there were one or more cars for each economically active adult in the household.

Total CA trips were calculated by summing the above matrices and applying a weighting based on the number of cars available in each household as follows:

CA Trips = (0.3 x "CA_0.3") + (0.5 x "CA_0.5") + (0.7x "CA_0.7") + (1 x "CA_1")

The proportion of CA trips for each O-D pair was then calculated by dividing the CA trip matrix by the total rail trips (CA + NCA) matrix. Finally, the average CA proportion for each zone was calculated by taking the average for each row of the CA proportion matrix. This provided a single CA proportion for each model zone that could be applied to all rail commute and "other" trips originating from that zone.

5.6 Northern Ireland Rail Demand

Matrices for Northern Ireland internal trips were calculated using a different methodology to the ROI matrices. Trip matrices for rail were synthesised using the NI trip end model (TEMPRO NI) and a gravity model to distribute the trips.

This is the same methodology employed in calculating the 2013 NI highway trip matrices for the previous version of the National Traffic Model but extended to include public transport matrices.

The rail matrices for all trip purposes were subsequently divided into car available and non-car available based on average proportions for ROI calculated using the 2010 NTM. The proportions are shown in Table 5.4.

Table 5.4 Assumed Car Available Proportions for NI Rail Trips

Mode	Trip Purpose	Car Available	Non-Car Available
Rail	Commute	87%	13%
	Employers' Business	100%	0%
	Other	69%	31%

5.7 Calibration

The rail model was calibrated against boarding and alighting totals from 88 different stations and 128 link flows both of which were available from the heavy rail census undertaken by the NTA and Irish Rail. This excludes boarding's, alighting's and link flows where passenger numbers are less than 150 persons, in accordance with WebTAG Unit M3.2 'Public Transport Assignment Modelling'.

The calibration results are summarised in Table 5.5 and Table 5.6 and indicate that all modelled passenger flows and boarding and alighting loads are within 25% of observed passenger flows. Full details of the calibration results are provided in Appendix A of this report.

Table 5.5 Summary of Rail Link Calibration

Percentage of Rail Counts Calibrated (Diff <25% Observed)	
Link Flow	94%

Table 5.6 Summary of Rail Boarding/Alighting Calibration

Percentage of Rail Counts Calibrated (Diff <25% Observed)	
Boarding	90%
Alighting	92%

5.8 Validation

The rail model was validated against an additional 127 link flow counts that were not used in the model calibration process. As with the calibration link flows where passenger numbers are less than 150 persons were excluded, in accordance with WebTAG Unit M3.2 'Public Transport Assignment Modelling'. The validation results are presented in Table 5.7 and indicate that all modelled passenger flows are within 25% of observed passenger flows. Thus, the rail model is validated and fit for purpose.

Table 5.7 Summary of Rail Link Validation

Percentage of Rail Counts Validated (Diff <25% Observed)	
Link Flow	94%

5.9 Post Calibration Rail Demand Totals

The final post calibration rail demand split by trip purpose and car availability used in the 2016 NRM is presented in Table 5.8.

Table 5.8 2016 NTpM Rail Daily Passenger Demand

Trip Purpose	Car Available	Car Non-Available	Total
Commuting	42,473	45,675	88,148
Business	6,349	-	6,349
Other	60,740	34,872	95,612
Total	**109,562**	**80,547**	**190,109**

5.10 Conclusion

The National Rail Model validates well to observed data, with little change in the matrix totals following the calibration exercise. This result reflects the significant quantum of data incorporated into the rail modelling exercise, and the level of refinement retained within the rail demand model (all intercity and suburban rail stations are included).

6 National Bus Model

6.1 Overview

The challenges associated with the development of a model which reflects base year bus demand data on the inter-urban bus network have already been noted. Given the sensitivities in collating existing data into a single matrix, it was considered that the development of a National Bus Model (NBM) should instead focus on the construction of a 'specimen' bus demand matrix. This matrix would reflect a typical level of demand on currently available services and would support the functioning of the VDM module.

More accurate bus demand information could be substituted at a later date following the development of a protocol for access to, and use of, commercially sensitive information on bus demand. Details of the data collected and used to inform the development of the NBM is provided in the Data Collection Report (NTpM Volume 2).

6.2 Zone System

The same zoning system is used for all transport modes. In the bus model, each zone is associated with a specific bus stop (or cluster of stops in the case of urban areas). An example of how bus stops are connected to the NTpM zones is illustrated in Figure 6.1.

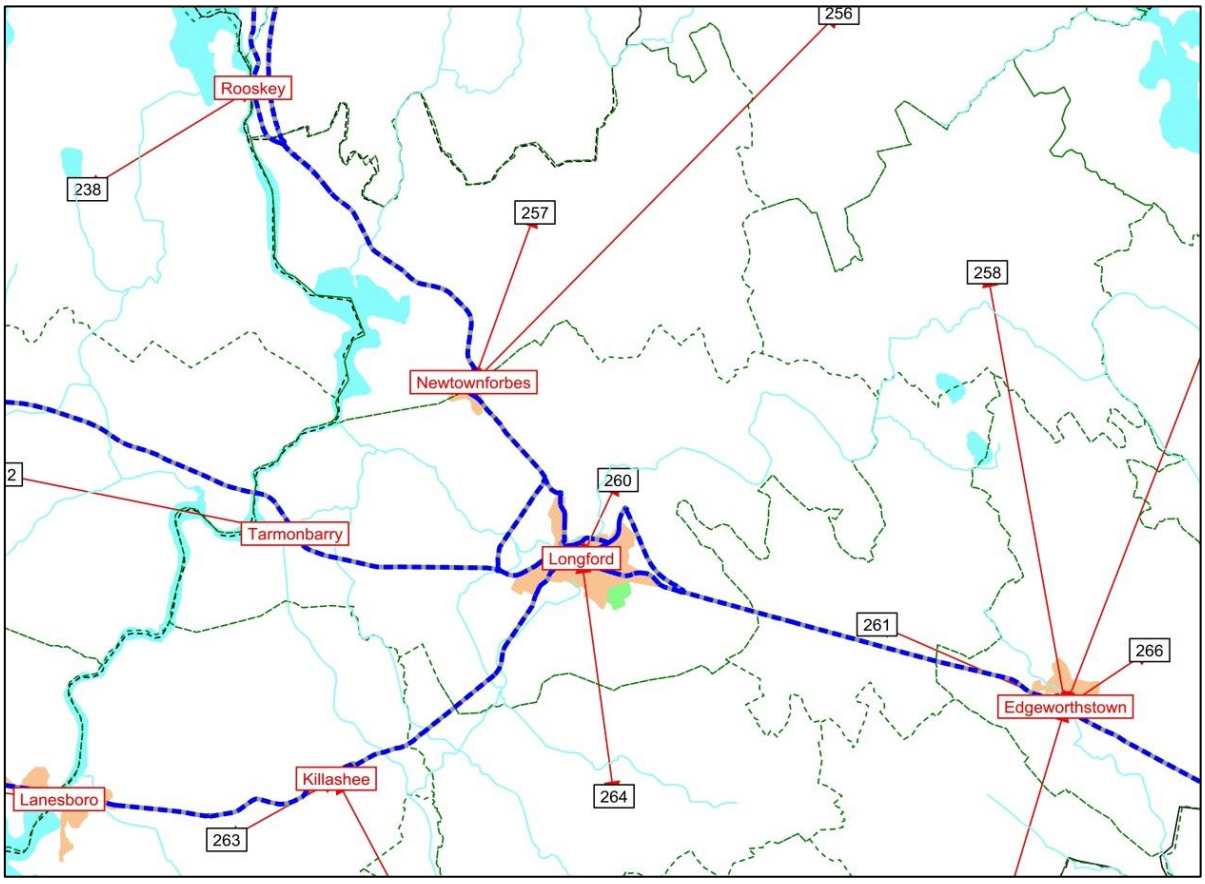

Figure 6.1 NTpM Bus Stops Zone Connectors (Example)

6.3 Bus Passenger Demand

6.3.1 Bus Demand Segmentation

The range of passenger trip matrices in the National Bus Model is presented in Table 6.1. For the purposes of the NTpM, demand across all three modes is required across a consistent time period of 15 hours. The 15 hour period for bus represents the demand between the hours of 07:00 and 22:00.

Table 6.1 Bus Trip Matrices (Passengers)

Travel Type	Mode	Trip Purpose	Car Availability	Time Period
Public	Bus	Commuting	Car Available	15hr
			Car Non Available	15hr
		Business (Working)	Car Available	15hr
				15hr
		Other	Car Available	15hr
			Car Non Available	15hr

For the purposes of the NTpM it is assumed that all persons making a trip for work ('Employers Business') by bus also has access to a private car. Therefore, all Employers Business trips made by bus are "car available" trips.

6.3.2 Construction of Bus Trip Matrices

The 2016 bus passenger demand matrices were developed using the most recent and reliable data sources available. Key amongst these was the 2016 POWSCAR database

Once again, trip matrices for Republic of Ireland (ROI) and Northern Ireland (NI) were developed in separate processes due to the different raw data inputs that were available. Trip matrices for internal NI trips were derived using the NI trip end model (TEMPRO NI) and a gravity based distribution model.

For the development of bus passenger demand, the commuting matrix could be developed directly from POWSCAR information for a typical weekday. Nevertheless, for non-commuting (business or 'other') trip purposes, there were no immediate datasets available at the time of model development.

6.3.3 Commute

The POWSCAR dataset includes details of trips across all modes, so it was possible to derive a bus commute trip matrix from the data in the same way that the LV commute matrix was developed. However, a key difference is that separate AM and IP peak period matrices were not required, so records from the entire day were used to form the 15 hour rail demand matrices.

Since the required 15 hour matrices should effectively represent all trips made throughout the day, both directions of travel were included (to and from work) by combining the original input POWSCAR matrix (to work) with a transposed version of the matrix which represents trips from work.

The POWSCAR database does not distinguish between inter urban bus and local bus services (i.e. Dublin Bus or Bus Éireann City/Town services). Therefore, the proportion of the total commuting trips included in the NBM was estimated.

6.3.4 Non-Commute (Employers Business & Other)

The bus non-commute prior demand matrices have been developed using the NTA 'Short Distance Trips' and 'Long Distance Trips' demand matrices as discussed in Section 4.6.

6.4 Assignment Parameters

6.4.1 Headway

The assignment used to apply the bus demand to the bus network is undertaken using the 'Headway Based Assignment' approach, which requires the frequency of services to be calculated based on weekday timetable information.

6.4.2 Bus Generalised Cost

The generalised cost function used for the assignment of the bus demand is the same as for rail, except for the weighting factors that are applied to the individual journey time sections. The relevant weighting factors for bus are outlined in Table 6.2. It should be noted that these factors are based on established practice[19] and have not been calibrated.

Table 6.2 Perceived Journey Time Weighted Factors (Inter-Urban Bus)

Journey Section	Weighted Factor
In-Vehicle Time	1
Access Time	2
Egress Time	2
Walk Time	2
Origin Wait Time	1.5
Transfer Wait Time	2
Number of Transfers	5 mins per transfer

Given the limited routing options available and the synthesised demand data, these parameters are based on default assumptions that may be more appropriate for urban rather than inter-urban travel. There is some evidence for example that interchange penalties are perceived to be higher on longer journeys. This should be borne in mind when testing strategies that influence bus costs.

6.4.3 Fares

The NBM includes fare information as an important component of generalised cost. Based on annual revenue and annual passenger data from the 2016 Bus Eireann Annual Report an average cost per kilometre for inter-urban travel was calculated and is presented in Table 6.3.

The cost of 10.4c/km is applied to the In-Vehicle Distance skim matrix to produce a distance based bus fare matrix.

[19] *Guidance on appropriate weighting values is provided in UK WebTAG Unit M3.2 Public Transport Assignment*

Table 6.3 Calculation of Average Bus Fare per Kilometre of Travel

2016 Data	Value
Total Revenue (2016)	€313.8m
Total Journeys (2016)	80.2m
Average Cost per Journey (2016)	€3.90
Average Trip Length (Inter Urban)	37km
Average Cost per km	€0.104

6.4.4 In-Vehicle Distance

In-vehicle distance was calculated directly from the NBM network. The data suggests that in 2016, 14.9 million passenger km were travelled by on inter-urban bus on a typical weekday.

6.5 Car Availability

The split between Car Available and Non-Car Available bus trips was calculated using the same methodology for rail trips as outlined in Section 5.5.

6.6 Northern Ireland Bus Demand

Matrices for Northern Ireland internal trips were calculated using a different methodology to the ROI matrices. Trip matrices for bus were synthesised using the NI trip end model (TEMPRO NI) and a gravity model to distribute the trips.

The bus matrices for commute and non-commuting trips in NI were subsequently divided into car available and non-car available based on average proportions for ROI calculated using the 2010 NTM. The proportions are shown in Table 6.4.

Table 6.4 Assumed Car Available Proportions for NI Bus Trips

Mode	Trip Purpose	Car Available	Non-Car Available
Bus	Commute	67%	33%
	Employers' Business	100%	0%
	Other	59%	41%

6.7 Calibration

Given the data available at model development, a high level validation exercise has been undertaken to estimate the approximate number of daily inter-urban bus journeys based on available and estimated annual passenger numbers.

Observed annual passenger numbers were available for Bus Eireann and Ulster Bus inter-urban services. The annual demand for other services within the model operated by private companies were estimated based on the assumption that each timetabled service modelled operates at an average 50% of capacity with an assumed capacity of 55 seats per bus. Table 6.5 outlines the total estimated annual demand by modelled operator.

Table 6.5 2016 Estimated Annual Bus Demand

Operator	Estimated Annual
Bus Eireann	19,108,000*
Aircoach	423,986
Ashbourne Connect	219,564
Bernard Kavanagh	30,285
Burkesbus	287,705
City Link	310,418
Dublin Coach	1,877,652
GoBus	105,996
JJ Kavanagh & Sons	363,417
John McGinley	121,139
Kenneally's	75,712
M&A Coaches	60,569
Mangan	45,427
Matthews	658,692
Shamrock Bus	90,854
Sillan	75,712
Suirway	60,569
Translink	90,854
Wexford Bus	280,134
Ulsterbus	38,800,000
Total Estimated Annual Demand	**63,086,686**

**From Annual Operator Reports*

Firstly, internal demand within Dublin and the regional cities was removed from the prior matrices as this demand would use urban bus services not modelled in the NTpM. The prior matrices were then scaled to approximately match the annual demand outlined above. The matrices were than assigned and each bus line within the model reviewed individually.

Flow bundle matrix estimation was undertaken on links which were over or under capacity in terms of bus passengers based on the capacity of lines traversing the link. However, some bus lines modelled within the model have little or no demand based on the demand assigned. Without observed passenger data it is difficult to improve the assigned demand beyond what has been outlined.

The final matrices were scaled to annual demand based on assumed daily to annual factors of 250 for commuting and employer's business trips and 300 for non-work related trips. The resultant assigned demand is presented in Table 6.6 and disaggregated between the Republic of Ireland and Northern Ireland.

Table 6.6 Comparison of Assigned Annual Demand & Estimated Observed Demand

Area	Modelled Demand	Estimated Observed Demand
ROI	23,765,119	24,286,685
NI	38,853,586	38,800,000
Total	**62,618,705**	**63,086,686**

6.8 Post Calibration Bus Demand Totals

The final post calibration inter-urban bus demand split by trip purpose and car availability used in the 2016 NBM is presented in Table 6.7.

Table 6.7 2016 NTpM Inter-Urban Daily Passenger Demand

Trip Purpose	Car Available	Car Non-Available	Total
Commuting	28,484	26,684	55,168
Business	7,622	-	7,622
Other	112,105	77,238	189,343
Total	**112,105**	**103,922**	**252,133**

7 Conclusion

7.1 Overview

The National Transport Model has been developed by Transport Infrastructure Ireland to assist in the appraisal of transport schemes, transport policies and traffic management measures. The model allows a more holistic approach to project appraisal and provides a significant step forward in the quantification of demand, mode shift and reassignment responses to transport measures.

The current version of NTpM has been enhanced using up to date and reliable data sources, while the process for projecting future demand across all modes has also been refined. The NTpM provides a high level of functionality, allowing the following responses to be assessed:

- Changes in traffic assignment due to network changes, tolling, traffic management or public transport priority;
- Changes in mode share due to increases/decreases in travel time by car, public transport fares, fuel prices, tolling/road pricing or changes in public transport service levels;
- Demand responses to changes in the cost of travel, including fuel price, public transport fares, congestion, tolling/road pricing and other demand management policies; and
- Calculation of costs and benefits based on outputs of travel time, congestion, vehicle kilometres and accident predictions on individual links and across the network as a whole (using project appraisal software).

The NTpM is available for use by government, local authorities; transport related state agencies, and research organisations. It is the intention of Transport Infrastructure Ireland to maintain the NTpM in a manner which will ensure transparency and open access to transport related public bodies.

8 Appendices

8.1 Appendix A – Model Calibration

Table 8.1 Link Calibration - All Vehicles (AM Peak)

Link Calibration - All Vehicles					Average AM Peak Period (07-09)								
					Counts:	589		RESULT =	93.2%	RESULT =	94.2%		
					Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	TMU No	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	27	121901753	2000714598	20088South	379	392	13	0.7	1	100	1	13	1.03
2	27	2000714598	121901753	20088North	459	453	-6	0.3	1	100	1	6	0.99
3	102	121766075	121768599	20203North	1721	1634	-87	2.1	1	258	1	87	0.95
4	102	121768599	121766075	20203South	860	915	55	1.8	1	129	1	55	1.06
5	134	121901197	121901200	1521South	279	280	1	0.1	1	100	1	1	1.00
6	134	121901200	121901197	1521North	249	202	-47	3.1	1	100	1	47	0.81
7	135	121900918	2000001963	3701North	376	435	59	2.9	1	100	1	59	1.16
8	135	2000001963	121900918	3701South	311	343	32	1.8	1	100	1	32	1.10
9	149	121769433	121773120	20205South	1456	1206	-250	6.9	0	218	0	250	0.83
10	149	121773120	121769433	20205North	1484	1454	-30	0.8	1	223	1	30	0.98
11	182	74	500000954	20242East	443	386	-57	2.8	1	100	1	57	0.87
12	182	500000954	74	20242West	158	144	-14	1.1	1	100	1	14	0.91
13	211	121900894	121900908	20086North	646	679	33	1.3	1	100	1	33	1.05
14	211	121900908	121900894	20086South	778	814	36	1.3	1	117	1	36	1.05
15	252	121900934	2000002224	200721West	1146	1107	-39	1.2	1	172	1	39	0.97
16	252	2000002224	121900934	200721East	601	609	8	0.3	1	100	1	8	1.01
17	267	1009	121900935	200720West	858	869	11	0.4	1	129	1	11	1.01
18	267	121900935	1009	200720East	613	598	-15	0.6	1	100	1	15	0.98
19	295	121900873	500000886	20089North	413	435	22	1.1	1	100	1	22	1.05
20	295	500000886	121900873	20089South	340	343	3	0.2	1	100	1	3	1.01
21	312	121900953	121900972	20018North	617	654	37	1.5	1	100	1	37	1.06
22	312	121900972	121900953	20018South	970	960	-10	0.3	1	146	1	10	0.99
23	318	121650954	2000002227	20258West	2749	3309	560	10.2	0	400	0	560	1.20
24	318	2000002227	121650954	20258East	2059	2300	241	5.2	0	309	1	241	1.12
25	331	121651256	121666057	20257West	3228	3311	83	1.5	1	400	1	83	1.03
26	331	121666057	121651256	20257East	1369	1453	84	2.2	1	205	1	84	1.06
27	335	121900968	121900969	200171South	1010	985	-25	0.8	1	152	1	25	0.98
28	335	121900969	121900968	200171North	640	672	32	1.2	1	100	1	32	1.05
29	376	121658901	121673245	20256East	926	1330	404	12.0	0	139	0	404	1.44
30	376	121673245	121658901	20256West	2662	3159	497	9.2	0	399	0	497	1.19
31	384	121762978	121900998	20046East	267	290	23	1.4	1	100	1	23	1.09
32	384	121900998	121762978	20046West	197	217	20	1.4	1	100	1	20	1.10
33	415	121901009	121901016	1053East	163	203	40	3.0	1	100	1	40	1.25
34	415	121901016	121901009	1053West	149	109	-40	3.5	1	100	1	40	0.73
35	425	121646106	2000714590	20085North	684	721	37	1.4	1	100	1	37	1.05
36	425	2000714590	121646106	20085South	823	905	82	2.8	1	123	1	82	1.10

37	428	121900726	121901024	20061West	475	501	26	1.2	1	100	1	26	1.05
38	428	121901024	121900726	20061East	647	713	66	2.5	1	100	1	66	1.10
39	430	121679655	2000714591	200812South	1275	1312	37	1.0	1	191	1	37	1.03
40	430	2000714591	121679655	200812North	742	790	48	1.7	1	111	1	48	1.06
41	442	121668460	121679655	3802South_main	799	966	167	5.6	0	120	0	167	1.21
42	442	121679655	121668460	3801North_main	521	564	43	1.8	1	100	1	43	1.08
43	475	36	2000714592	3803North	564	618	54	2.2	1	100	1	54	1.10
44	475	2000714592	36	3803South	878	1072	194	6.2	0	132	0	194	1.22
45	478	121901057	121901247	20063West	599	605	6	0.2	1	100	1	6	1.01
46	478	121901247	121901057	20063East	631	684	53	2.1	1	100	1	53	1.08
47	495	121901065	121901086	20117North	350	331	-19	1.0	1	100	1	19	0.95
48	495	121901086	121901065	20117South	214	196	-18	1.3	1	100	1	18	0.92
49	550	121900906	121900910	1086North	439	477	38	1.8	1	100	1	38	1.09
50	550	121900910	121900906	1086South	444	448	4	0.2	1	100	1	4	1.01
51	551	121901088	121901107	20116North	601	652	51	2.0	1	100	1	51	1.08
52	551	121901107	121901088	20116South	243	265	22	1.4	1	100	1	22	1.09
53	559	245	121894010	20115North	904	886	-18	0.6	1	136	1	18	0.98
54	559	121894010	245	20115South	320	348	28	1.5	1	100	1	28	1.09
55	602	29	121901117	20182North	673	701	28	1.1	1	100	1	28	1.04
56	602	121901117	29	20182South	1741	1819	78	1.8	1	261	1	78	1.04
57	645	121900846	2000714596	20087South	570	572	2	0.1	1	100	1	2	1.00
58	645	2000714596	121900846	20087North	620	737	117	4.5	1	100	0	117	1.19
59	680	121901040	2000001664	20522North	261	258	-3	0.2	1	100	1	3	0.99
60	680	2000001664	121901040	20522South	282	280	-2	0.1	1	100	1	2	0.99
61	689	100	121901210	20561South	524	535	11	0.5	1	100	1	11	1.02
62	689	121901210	100	20561North	192	191	-1	0.1	1	100	1	1	0.99
63	771	121776709	2000714599	200722East	958	993	35	1.1	1	144	1	35	1.04
64	771	2000714599	121776709	200722West	1578	1670	92	2.3	1	237	1	92	1.06
65	782	121901279	121901292	20064West	817	772	-45	1.6	1	123	1	45	0.94
66	782	121901292	121901279	20064East	680	723	43	1.6	1	100	1	43	1.06
67	840	121589623	2000714601	20183North	1596	1655	59	1.5	1	239	1	59	1.04
68	840	2000714601	121589623	20183South	1311	1345	34	0.9	1	197	1	34	1.03
69	916	1023	4014	20253East	371	387	16	0.8	1	100	1	16	1.04
70	916	4014	1023	20253West	759	762	3	0.1	1	114	1	3	1.00
71	978	1017	121901418	20524North	403	408	5	0.2	1	100	1	5	1.01
72	978	121901418	1017	20524South	175	165	-10	0.8	1	100	1	10	0.94
73	1003	1026	121901704	3314South	789	798	9	0.3	1	118	1	9	1.01
74	1003	121901704	1026	3314North	250	260	10	0.6	1	100	1	10	1.04
75	1051	121901170	500000875	20181South	616	652	36	1.4	1	100	1	36	1.06
76	1051	500000875	121901170	20181North	450	461	11	0.5	1	100	1	11	1.02
77	1054	121735111	121901606	20091South	610	620	10	0.4	1	100	1	10	1.02
78	1054	121901606	121735111	20091North	1217	1262	45	1.3	1	183	1	45	1.04

79	1096	121900048	121901489	1211East	266	302	36	2.1	1	100	1	36	1.14
80	1096	121901489	121900048	1211West	400	410	10	0.5	1	100	1	10	1.03
81	1106	121900049	121901497	202104South	296	318	22	1.3	1	100	1	22	1.07
82	1106	121901497	121900049	202104North	230	250	20	1.3	1	100	1	20	1.09
83	1107	121901490	121901493	202103North	197	215	18	1.3	1	100	1	18	1.09
84	1107	121901493	121901490	202103South	249	262	13	0.8	1	100	1	13	1.05
85	1112	121901492	121901498	202301South	120	131	11	1.0	1	100	1	11	1.09
86	1112	121901498	121901492	202301North	156	170	14	1.1	1	100	1	14	1.09
87	1114	1005	121901502	20185North	376	389	13	0.7	1	100	1	13	1.03
88	1114	121901502	1005	20185South	442	481	39	1.8	1	100	1	39	1.09
89	1115	121901501	2000002259	20186North	392	410	18	0.9	1	100	1	18	1.05
90	1115	2000002259	121901501	20186South	580	623	43	1.8	1	100	1	43	1.07
91	1211	121901556	121901570	3602East	523	614	91	3.8	1	100	1	91	1.17
92	1211	121901570	121901556	3602West	875	887	12	0.4	1	131	1	12	1.01
93	1212	121901567	121901570	3605West	313	496	183	9.1	0	100	0	183	1.58
94	1213	121901569	121901571	3603East	393	425	32	1.6	1	100	1	32	1.08
95	1213	121901571	121901569	3603West	349	389	40	2.1	1	100	1	40	1.11
96	1238	1011	121901592	3601West	437	397	-40	2.0	1	100	1	40	0.91
97	1238	121901592	1011	3601East	553	541	-12	0.5	1	100	1	12	0.98
98	1249	121901594	121901595	1782East	222	216	-6	0.4	1	100	1	6	0.97
99	1249	121901595	121901594	1782West	132	122	-10	0.9	1	100	1	10	0.92
100	1301	191	121901635	1024South	358	377	19	1.0	1	100	1	19	1.05
101	1301	121901635	191	1024North	394	385	-9	0.5	1	100	1	9	0.98
102	1313	4206	500001003	20071West	2390	2298	-92	1.9	1	359	1	92	0.96
103	1313	500001003	4206	20071East	4352	3905	-447	7.0	0	400	0	447	0.90
104	1390	121900168	121901692	20032North	195	173	-22	1.6	1	100	1	22	0.89
105	1390	121901692	121900168	20032South	424	421	-3	0.1	1	100	1	3	0.99
106	1422	121901716	121901715	3306South	106	86	-20	2.0	1	100	1	20	0.81
107	1424	121901709	121901717	3306North	70	96	26	2.9	1	100	1	26	1.37
108	1450	121900172	121901736	20031South	465	451	-14	0.7	1	100	1	14	0.97
109	1450	121901736	121900172	20031North	192	194	2	0.1	1	100	1	2	1.01
110	1467	121901745	500000938	3303South	1382	1696	314	8.0	0	207	0	314	1.23
111	1467	500000938	121901745	3303North	353	389	36	1.9	1	100	1	36	1.10
112	1469	121806155	121901746	20033South	502	248	-254	13.1	0	100	0	254	0.49
113	1469	121901746	121806155	20033North	185	234	49	3.4	1	100	1	49	1.26
114	1477	121901748	121901749	1037South	1318	1401	83	2.3	1	198	1	83	1.06
115	1477	121901749	121901748	1037North	456	526	70	3.2	1	100	1	70	1.15
116	1513	1022	121901815	20093North	417	426	9	0.4	1	100	1	9	1.02
117	1513	121901815	1022	20093South	592	584	-8	0.3	1	100	1	8	0.99
118	1546	121901832	121901839	20908North	726	722	-4	0.1	1	109	1	4	0.99
119	1546	121901839	121901832	20908South	407	422	15	0.7	1	100	1	15	1.04
120	1552	121901823	121901834	20094North	493	494	1	0.0	1	100	1	1	1.00

121	1552	121901834	121901823	20094South	551	536	-15	0.6	1	100	1	15	0.97
122	1553	121899898	121901835	1101South	283	284	1	0.1	1	100	1	1	1.00
123	1553	121901835	121899898	1101North	459	463	4	0.2	1	100	1	4	1.01
124	1567	121901482	121901845	20907South	336	286	-50	2.8	1	100	1	50	0.85
125	1567	121901845	121901482	20907North	378	357	-21	1.1	1	100	1	21	0.94
126	1570	121747244	121901848	1102East	92	80	-12	1.3	1	100	1	12	0.87
127	1570	121901848	121747244	1102West	238	215	-23	1.5	1	100	1	23	0.90
128	1571	121901483	121901858	20906North	617	673	56	2.2	1	100	1	56	1.09
129	1571	121901858	121901483	20906South	573	570	-3	0.1	1	100	1	3	0.99
130	1601	2000002208	2000714604	200723East	4907	4980	73	1.0	1	400	1	73	1.01
131	1601	2000714604	2000002208	200723West	2349	2224	-125	2.6	1	352	1	125	0.95
132	1602	121637653	2000002017	1044West	2078	2418	340	7.2	0	312	0	340	1.16
133	1602	2000002017	121637653	1044East	4276	4569	293	4.4	1	400	1	293	1.07
134	1676	121624338	500000926	1012North	2412	2567	155	3.1	1	362	1	155	1.06
135	1676	500000926	121624338	1012South	3570	3804	234	3.9	1	400	1	234	1.07
136	1687	121607502	121635641	20047West	3065	3004	-61	1.1	1	400	1	61	0.98
137	1687	121635641	121607502	20047East	4782	4812	30	0.4	1	400	1	30	1.01
138	1715	121901422	500000937	3301North	765	813	48	1.7	1	115	1	48	1.06
139	1715	500000937	121901422	3301South	2425	2476	51	1.0	1	364	1	51	1.02
140	1719	121901433	500000947	3309South	958	1001	43	1.4	1	144	1	43	1.04
141	1719	500000947	121901433	3309North	365	345	-20	1.1	1	100	1	20	0.95
142	1720	121901716	500000949	3307North	388	352	-36	1.9	1	100	1	36	0.91
143	1720	500000949	121901716	3307South	1115	1069	-46	1.4	1	167	1	46	0.96
144	1744	4159	500000959	20204North	494	488	-6	0.3	1	100	1	6	0.99
145	1744	500000959	4159	20204South	1100	1053	-47	1.4	1	165	1	47	0.96
146	1753	121626994	121633442	1072West	3491	3222	-269	4.6	1	400	1	269	0.92
147	1753	121633442	121626994	1072East	4613	4572	-41	0.6	1	400	1	41	0.99
148	1761	121595212	2000002245	20184South	1881	1919	38	0.9	1	282	1	38	1.02
149	1761	2000002245	121595212	20184North	1695	1768	73	1.8	1	254	1	73	1.04
150	1812	121901603	500000991	20092South	564	563	-1	0.0	1	100	1	1	1.00
151	1812	500000991	121901603	20092North	1001	1042	41	1.3	1	150	1	41	1.04
152	1839	500001009	2000002627	201081South	1856	2051	195	4.4	1	278	1	195	1.11
153	1901	121598427	121899735	20034West	452	426	-26	1.2	1	100	1	26	0.94
154	1901	121899735	121598427	20034East	361	335	-26	1.4	1	100	1	26	0.93
155	1908	121839582	121899593	1042South	186	170	-16	1.2	1	100	1	16	0.91
156	1908	121899593	121839582	1042North	301	288	-13	0.8	1	100	1	13	0.96
157	1939	121899925	2000001296	20221North	368	391	23	1.2	1	100	1	23	1.06
158	1939	2000001296	121899925	20221South	295	301	6	0.3	1	100	1	6	1.02
159	1969	121616074	121636712	1503North	5723	5749	26	0.3	1	400	1	26	1.00
160	1969	121636712	121616074	1503South	5794	5945	151	2.0	1	400	1	151	1.03
161	2158	121607497	121615809	1509North	5753	5822	69	0.9	1	400	1	69	1.01
162	2158	121615809	121607497	1509South	5886	5926	40	0.5	1	400	1	40	1.01

163	2170	121694399	2000001650	20562North	79	83	4	0.4	1	100	1	4	1.05
164	2170	2000001650	121694399	20562South	108	112	4	0.4	1	100	1	4	1.04
165	2200	121835885	2000001659	1593East	139	141	2	0.2	1	100	1	2	1.01
166	2200	2000001659	121835885	1593West	142	134	-8	0.7	1	100	1	8	0.94
167	2222	121793320	2000001670	1842North	207	227	20	1.4	1	100	1	20	1.10
168	2222	2000001670	121793320	1842South	224	236	12	0.8	1	100	1	12	1.05
169	2231	121899704	2000001679	20611South	285	278	-7	0.4	1	100	1	7	0.98
170	2231	2000001679	121899704	20611North	217	292	75	4.7	1	100	1	75	1.35
171	2242	4028	121169472	1871North	42	27	-15	2.6	1	100	1	15	0.64
172	2242	121169472	4028	1871South	28	23	-5	1.0	1	100	1	5	0.82
173	2249	2000001667	2000001834	20811North	290	286	-4	0.2	1	100	1	4	0.99
174	2249	2000001834	2000001667	20811South	64	70	6	0.7	1	100	1	6	1.09
175	2250	121899721	2000001675	1551North	109	103	-6	0.6	1	100	1	6	0.94
176	2250	2000001675	121899721	1551South	175	163	-12	0.9	1	100	1	12	0.93
177	2262	121876322	2000001637	20521South	226	215	-11	0.7	1	100	1	11	0.95
178	2262	2000001637	121876322	20521North	166	148	-18	1.4	1	100	1	18	0.89
179	2269	2000001664	2000001665	1524North	312	258	-54	3.2	1	100	1	54	0.83
180	2269	2000001665	2000001664	1524South	294	280	-14	0.8	1	100	1	14	0.95
181	2270	4056	121822209	1624South	89	79	-10	1.1	1	100	1	10	0.89
182	2270	121822209	4056	1624North	233	290	57	3.5	1	100	1	57	1.24
183	2283	121826147	2000001463	1523South	120	113	-7	0.6	1	100	1	7	0.94
184	2283	2000001463	121826147	1523North	185	185	0	0.0	1	100	1	0	1.00
185	2286	121824886	2000001442	1803North	201	205	4	0.3	1	100	1	4	1.02
186	2286	2000001442	121824886	1803South	337	329	-8	0.4	1	100	1	8	0.98
187	2292	121901758	2000001443	20523South	534	517	-17	0.7	1	100	1	17	0.97
188	2292	2000001443	121901758	20523North	509	387	-122	5.8	0	100	0	122	0.76
189	2325	121582230	2000001436	20812North	92	98	6	0.6	1	100	1	6	1.07
190	2325	2000001436	121582230	20812South	74	77	3	0.3	1	100	1	3	1.04
191	2333	121757032	2000001704	1801North	170	146	-24	1.9	1	100	1	24	0.86
192	2333	2000001704	121757032	1801South	213	164	-49	3.6	1	100	1	49	0.77
193	2339	4063	2000001484	1781South	69	72	3	0.4	1	100	1	3	1.04
194	2339	2000001484	4063	1781North	111	115	4	0.4	1	100	1	4	1.04
195	2373	121899976	2000001691	1623NorthEast	187	192	5	0.4	1	100	1	5	1.03
196	2373	2000001691	121899976	1623SouthWest	163	161	-2	0.2	1	100	1	2	0.99
197	2377	121855538	2000001465	1622South	161	166	5	0.4	1	100	1	5	1.03
198	2377	2000001465	121855538	1622North	130	139	9	0.8	1	100	1	9	1.07
199	2398	121716165	2000001470	1661North	97	98	1	0.1	1	100	1	1	1.01
200	2398	2000001470	121716165	1661South	120	125	5	0.5	1	100	1	5	1.04
201	2417	121591267	2000001508	20671North	41	37	-4	0.6	1	100	1	4	0.90
202	2417	2000001508	121591267	20671South	70	71	1	0.1	1	100	1	1	1.01
203	2441	121586954	2000001526	1851South	165	175	10	0.8	1	100	1	10	1.06
204	2441	2000001526	121586954	1851North	133	134	1	0.1	1	100	1	1	1.01

205	2451	2000001468	2000001469	1741East	151	154	3	0.2	1	100	1	3	1.02
206	2451	2000001469	2000001468	1741West	157	193	36	2.7	1	100	1	36	1.23
207	2465	121766606	2000001531	1692West	258	256	-2	0.1	1	100	1	2	0.99
208	2465	2000001531	121766606	1692East	325	329	4	0.2	1	100	1	4	1.01
209	2475	121900046	2000001712	1693South	136	129	-7	0.6	1	100	1	7	0.95
210	2475	2000001712	121900046	1693North	101	92	-9	0.9	1	100	1	9	0.91
211	2497	4087	2000001541	20861West	97	91	-6	0.6	1	100	1	6	0.94
212	2497	2000001541	4087	20861East	89	79	-10	1.1	1	100	1	10	0.89
213	2506	4088	2000001557	20701West	68	75	7	0.8	1	100	1	7	1.10
214	2506	2000001557	4088	20701East	82	91	9	1.0	1	100	1	9	1.11
215	2531	121723257	2000001571	1701West	35	35	0	0.0	1	100	1	0	1.00
216	2531	2000001571	121723257	1701East	48	49	1	0.1	1	100	1	1	1.02
217	2532	121723257	2000001578	1714North	18	33	15	3.0	1	100	1	15	1.83
218	2532	2000001578	121723257	1714South	18	31	13	2.6	1	100	1	13	1.72
219	2546	2000001579	2000001580	1722East	150	161	11	0.9	1	100	1	11	1.07
220	2546	2000001580	2000001579	1722West	214	239	25	1.7	1	100	1	25	1.12
221	2585	2000001603	2000001722	20721West	83	84	1	0.1	1	100	1	1	1.01
222	2585	2000001722	2000001603	20721East	116	113	-3	0.3	1	100	1	3	0.97
223	2610	121680624	2000001620	1715North	119	120	1	0.1	1	100	1	1	1.01
224	2610	2000001620	121680624	1715South	223	225	2	0.1	1	100	1	2	1.01
225	2624	121668320	2000001614	1713North	363	331	-32	1.7	1	100	1	32	0.91
226	2624	2000001614	121668320	1713South	264	261	-3	0.2	1	100	1	3	0.99
227	2654	2000001306	2000001747	1592East	64	67	3	0.4	1	100	1	3	1.05
228	2654	2000001747	2000001306	1592West	59	61	2	0.3	1	100	1	2	1.03
229	2669	2000001758	2000001759	20591East	99	104	5	0.5	1	100	1	5	1.05
230	2669	2000001759	2000001758	20591West	65	67	2	0.2	1	100	1	2	1.03
231	2716	2000001789	2000001790	20601East	168	172	4	0.3	1	100	1	4	1.02
232	2716	2000001790	2000001789	20601West	221	209	-12	0.8	1	100	1	12	0.95
233	2721	2000001793	2000001794	1601East	80	82	2	0.2	1	100	1	2	1.03
234	2721	2000001794	2000001793	1601West	60	59	-1	0.1	1	100	1	1	0.98
235	2726	121791950	2000001797	1832South	25	38	13	2.3	1	100	1	13	1.52
236	2726	2000001797	121791950	1832North	37	67	30	4.2	1	100	1	30	1.81
237	2731	121831384	2000001804	1611North	145	187	42	3.3	1	100	1	42	1.29
238	2731	2000001804	121831384	1611South	246	274	28	1.7	1	100	1	28	1.11
239	2734	121899671	2000001802	1602East	202	205	3	0.2	1	100	1	3	1.01
240	2734	2000001802	121899671	1602West	104	111	7	0.7	1	100	1	7	1.07
241	2746	121831331	2000001809	1632East	149	139	-10	0.8	1	100	1	10	0.93
242	2746	2000001809	121831331	1632West	186	178	-8	0.6	1	100	1	8	0.96
243	2760	4221	2000001818	1631East	182	174	-8	0.6	1	100	1	8	0.96
244	2760	2000001818	4221	1631West	92	83	-9	1.0	1	100	1	9	0.90
245	2795	2000001840	2000001841	1522South	130	122	-8	0.7	1	100	1	8	0.94
246	2795	2000001841	2000001840	1522North	136	134	-2	0.2	1	100	1	2	0.99

247	2804	2000001412	2000001846	1541East	180	121	-59	4.8	1	100	1	59	0.67
248	2804	2000001846	2000001412	1541West	170	137	-33	2.7	1	100	1	33	0.81
249	2816	2000001730	2000001854	1581North	178	167	-11	0.8	1	100	1	11	0.94
250	2816	2000001854	2000001730	1581South	247	207	-40	2.7	1	100	1	40	0.84
251	2822	121709981	2000001858	1831South	226	236	10	0.7	1	100	1	10	1.04
252	2822	2000001858	121709981	1831North	91	118	27	2.6	1	100	1	27	1.30
253	2825	121810996	2000001860	1511East	265	256	-9	0.6	1	100	1	9	0.97
254	2825	2000001860	121810996	1511West	101	93	-8	0.8	1	100	1	8	0.92
255	2830	121805642	2000001862	20511West	251	231	-20	1.3	1	100	1	20	0.92
256	2830	2000001862	121805642	20511East	255	227	-28	1.8	1	100	1	28	0.89
257	2995	4007	121877445	20251West	187	192	5	0.4	1	100	1	5	1.03
258	2995	121877445	4007	20251East	180	189	9	0.7	1	100	1	9	1.05
259	2998	4254	121861314	1251South	343	339	-4	0.2	1	100	1	4	0.99
260	2998	121861314	4254	1251North	599	627	28	1.1	1	100	1	28	1.05
261	3040	4018	2000001916	20066East	112	96	-16	1.6	1	100	1	16	0.86
262	3040	2000001916	4018	20066West	77	89	12	1.3	1	100	1	12	1.16
263	3167	4010	121757837	200711West	104	103	-1	0.1	1	100	1	1	0.99
264	3167	121757837	4010	200711East	176	173	-3	0.2	1	100	1	3	0.98
265	3179	4036	121899512	1182North	973	982	9	0.3	1	146	1	9	1.01
266	3179	121899512	4036	1182South	518	551	33	1.4	1	100	1	33	1.06
267	3192	4019	121701049	20067West	117	113	-4	0.4	1	100	1	4	0.97
268	3192	121701049	4019	20067East	202	199	-3	0.2	1	100	1	3	0.99
269	3203	4016	121871280	1045West	239	177	-62	4.3	1	100	1	62	0.74
270	3203	121871280	4016	1045East	466	415	-51	2.4	1	100	1	51	0.89
271	3211	4024	2000001326	1054East	179	200	21	1.5	1	100	1	21	1.12
272	3211	2000001326	4024	1054West	110	128	18	1.7	1	100	1	18	1.16
273	3217	4047	121899410	1173North	214	195	-19	1.3	1	100	1	19	0.91
274	3217	121899410	4047	1173South	209	221	12	0.8	1	100	1	12	1.06
275	3246	4051	121688343	1133North	441	425	-16	0.8	1	100	1	16	0.96
276	3246	121688343	4051	1133South	297	365	68	3.7	1	100	1	68	1.23
277	3284	4035	121729493	20224West	147	166	19	1.5	1	100	1	19	1.13
278	3284	121729493	4035	20224East	275	316	41	2.4	1	100	1	41	1.15
279	3295	4023	121781751	1043West	326	344	18	1.0	1	100	1	18	1.06
280	3295	121781751	4023	1043East	497	502	5	0.2	1	100	1	5	1.01
281	3305	121621692	2000001920	201082South	392	755	363	15.2	0	100	0	363	1.93
282	3305	2000001920	121621692	201082North	684	892	208	7.4	0	100	0	208	1.30
283	3308	121607393	121622217	15010South	2834	2797	-37	0.7	1	400	1	37	0.99
284	3308	121622217	121607393	15010North	3634	3711	77	1.3	1	400	1	77	1.02
285	3312	121901421	2000001923	1032North	293	271	-22	1.3	1	100	1	22	0.92
286	3312	2000001923	121901421	1032South	576	543	-33	1.4	1	100	1	33	0.94
287	3315	121800187	2000001925	1261North	246	247	1	0.1	1	100	1	1	1.00
288	3315	2000001925	121800187	1261South	267	271	4	0.2	1	100	1	4	1.01

289	3316	121792399	2000001926	1051East	325	324	-1	0.1	1	100	1	1	1.00
290	3316	2000001926	121792399	1051West	340	335	-5	0.3	1	100	1	5	0.99
291	3318	121899396	2000001927	1052West	553	516	-37	1.6	1	100	1	37	0.93
292	3318	2000001927	121899396	1052East	318	325	7	0.4	1	100	1	7	1.02
293	3338	121771047	2000001939	200713West	2065	2177	112	2.4	1	310	1	112	1.05
294	3338	2000001939	121771047	200713East	1765	1789	24	0.6	1	265	1	24	1.01
295	3366	121900937	2000001962	3702South	296	294	-2	0.1	1	100	1	2	0.99
296	3366	2000001962	121900937	3702North	383	435	52	2.6	1	100	1	52	1.14
297	3377	121900937	2000001970	3703West	315	328	13	0.7	1	100	1	13	1.04
298	3377	2000001970	121900937	3703East	345	377	32	1.7	1	100	1	32	1.09
299	3389	2000001969	2000002032	200717West	389	412	23	1.1	1	100	1	23	1.06
300	3389	2000002032	2000001969	200717East	407	430	23	1.1	1	100	1	23	1.06
301	3396	2000001988	2000002006	200718East	430	441	11	0.5	1	100	1	11	1.03
302	3396	2000002006	2000001988	200718West	464	481	17	0.8	1	100	1	17	1.04
303	3409	2000001985	2000002001	200719West	561	575	14	0.6	1	100	1	14	1.02
304	3409	2000002001	2000001985	200719East	479	487	8	0.4	1	100	1	8	1.02
305	3419	2000002007	2000002046	200715East	455	464	9	0.4	1	100	1	9	1.02
306	3419	2000002046	2000002007	200715West	479	504	25	1.1	1	100	1	25	1.05
307	3437	86	2000002022	20084North	537	563	26	1.1	1	100	1	26	1.05
308	3437	2000002022	86	20084South	430	407	-23	1.1	1	100	1	23	0.95
309	3444	121894461	2000034705	20112South	1127	1246	119	3.5	1	169	1	119	1.11
310	3444	2000034705	121894461	20112North	2962	2921	-41	0.8	1	400	1	41	0.99
311	3473	2000002031	2000002044	200716West	394	432	38	1.9	1	100	1	38	1.10
312	3473	2000002044	2000002031	200716East	417	468	51	2.4	1	100	1	51	1.12
313	3488	121788687	2000002055	1022North	240	263	23	1.5	1	100	1	23	1.10
314	3488	2000002055	121788687	1022South	502	519	17	0.8	1	100	1	17	1.03
315	3511	228	2000002074	20016South	893	881	-12	0.4	1	134	1	12	0.99
316	3511	2000002074	228	20016North	581	611	30	1.2	1	100	1	30	1.05
317	3574	121725157	2000002101	1223East	622	418	-204	8.9	0	100	0	204	0.67
318	3574	2000002101	121725157	1223West	551	381	-170	7.9	0	100	0	170	0.69
319	3586	121852372	2000002109	1242West	620	495	-125	5.3	0	100	0	125	0.80
320	3586	2000002109	121852372	1242East	603	445	-158	6.9	0	100	0	158	0.74
321	3594	121787506	2000002113	20525East	877	1034	157	5.1	0	132	0	157	1.18
322	3594	2000002113	121787506	20525West	545	619	74	3.1	1	100	1	74	1.14
323	3609	121899832	2000002124	20801North	416	385	-31	1.5	1	100	1	31	0.93
324	3609	2000002124	121899832	20801South	306	300	-6	0.3	1	100	1	6	0.98
325	3787	121890765	121897671	20118South	673	791	118	4.4	1	100	0	118	1.18
326	3787	121897671	121890765	20118North	1930	1947	17	0.4	1	290	1	17	1.01
327	3829	2000002479	2000002482	1055East	148	154	6	0.5	1	100	1	6	1.04
328	3829	2000002482	2000002479	1055West	124	178	54	4.4	1	100	1	54	1.44
329	3831	2000002479	2000002484	1056West	116	158	42	3.6	1	100	1	42	1.36
330	3831	2000002484	2000002479	1056East	139	142	3	0.3	1	100	1	3	1.02

331	3870	2000002491	2000002520	20119South	411	447	36	1.7	1	100	1	36	1.09
332	3870	2000002520	2000002491	20119North	1166	1161	-5	0.1	1	175	1	5	1.00
333	3875	121899797	2000002525	20113North	32	21	-11	2.1	1	100	1	11	0.66
334	3875	2000002525	121899797	20113South	30	24	-6	1.2	1	100	1	6	0.80
335	3998	121795184	2000002585	1172West	178	154	-24	1.9	1	100	1	24	0.87
336	3998	2000002585	121795184	1172East	153	134	-19	1.6	1	100	1	19	0.88
337	4109	121812923	2000002625	1023North	353	349	-4	0.2	1	100	1	4	0.99
338	4109	2000002625	121812923	1023South	1047	1071	24	0.7	1	157	1	24	1.02
339	4113	2000002626	500001006	201081North	833	1007	174	5.7	0	125	0	174	1.21
340	4238	121620122	121628805	1502South	4783	4993	210	3.0	1	400	1	210	1.04
341	4238	121628805	121620122	1502North	5952	6080	128	1.7	1	400	1	128	1.02
342	4305	121616848	121632410	1014South	5571	5830	259	3.4	1	400	1	259	1.05
343	4305	121632410	121616848	1014North	4064	4322	258	4.0	1	400	1	258	1.06
344	4321	121631867	2000714612	1011West	2085	2299	214	4.6	1	313	1	214	1.10
345	4321	2000714612	121631867	1011East	1208	1297	89	2.5	1	181	1	89	1.07
346	4322	121611221	121617657	20011South	5170	5457	287	3.9	1	400	1	287	1.06
347	4322	121617657	121611221	20011North	2894	2947	53	1.0	1	400	1	53	1.02
348	4359	121626007	2000001958	20021North	1475	1436	-39	1.0	1	221	1	39	0.97
349	4359	2000001958	121626007	20021South	2314	2255	-59	1.2	1	347	1	59	0.97
350	4384	121784052	2000004570	1331West	319	337	18	1.0	1	100	1	18	1.06
351	4384	2000004570	121784052	1331East	611	632	21	0.8	1	100	1	21	1.03
352	4553	121636676	2000034608	1015North	1414	1464	50	1.3	1	212	1	50	1.04
353	4553	2000034608	121636676	1015South	3372	3294	-78	1.4	1	400	1	78	0.98
354	4580	121770004	2000034623	20243West	1040	1039	-1	0.0	1	156	1	1	1.00
355	4580	2000034623	121770004	20243East	368	384	16	0.8	1	100	1	16	1.04
356	4598	121819228	2000034633	1121West	136	213	77	5.8	0	100	1	77	1.57
357	4598	2000034633	121819228	1121East	129	193	64	5.0	0	100	1	64	1.50
358	4726	121758664	2000002025	3704West	527	624	97	4.0	1	100	1	97	1.18
359	4726	2000002025	121758664	3704East	809	904	95	3.2	1	121	1	95	1.12
360	4969	121901533	2000714488	3604East	505	540	35	1.5	1	100	1	35	1.07
361	4969	2000714488	121901533	3604West	1188	1210	22	0.6	1	178	1	22	1.02
362	5028	121870243	121874720	20044East	751	723	-28	1.0	1	113	1	28	0.96
363	5028	121874720	121870243	20044West	593	569	-24	1.0	1	100	1	24	0.96
364	5036	121608284	121806796	20022North	586	625	39	1.6	1	100	1	39	1.07
365	5036	121806796	121608284	20022South	2147	2267	120	2.6	1	322	1	120	1.06
366	5049	121637498	121642477	1113South	1882	1826	-56	1.3	1	282	1	56	0.97
367	5049	121642477	121637498	1113North	4724	4592	-132	1.9	1	400	1	132	0.97
368	5056	121616903	121620245	1034North	2350	2318	-32	0.7	1	353	1	32	0.99
369	5056	121620245	121616903	1034South	3685	3630	-55	0.9	1	400	1	55	0.99
370	5107	121669371	121672338	20201South	1414	1355	-59	1.6	1	212	1	59	0.96
371	5107	121672338	121669371	20201North	534	511	-23	1.0	1	100	1	23	0.96
372	5114	121645478	121651743	1081East	1488	1385	-103	2.7	1	223	1	103	0.93

373	5114	121651743	121645478	1081West	1477	1422	-55	1.4	1	222	1	55	0.96
374	5139	2000001845	2000714623	1542West	129	137	8	0.7	1	100	1	8	1.06
375	5139	2000714623	2000001845	1542East	104	136	32	2.9	1	100	1	32	1.31
376	5164	121756689	121759476	20079East	1001	990	-11	0.3	1	150	1	11	0.99
377	5164	121759476	121756689	20079West	847	871	24	0.8	1	127	1	24	1.03
378	5170	121744268	121756596	20077West	851	902	51	1.7	1	128	1	51	1.06
379	5170	121756596	121744268	20077East	1200	1289	89	2.5	1	180	1	89	1.07
380	5256	164	2000714704	1771North	347	328	-19	1.0	1	100	1	19	0.95
381	5256	2000714704	164	1771South	576	523	-53	2.3	1	100	1	53	0.91
382	5260	2000001705	2000714709	20802North	369	350	-19	1.0	1	100	1	19	0.95
383	5260	2000714709	2000001705	20802South	207	183	-24	1.7	1	100	1	24	0.88
384	7016	121737096	121739187	20076West	1021	1082	61	1.9	1	153	1	61	1.06
385	7016	121739187	121737096	20076East	1790	1876	86	2.0	1	269	1	86	1.05
386	7021	121625454	121638341	15011South	2457	2160	-297	6.2	0	369	1	297	0.88
387	7021	121638341	121625454	15011North	3741	3590	-151	2.5	1	400	1	151	0.96
388	7023	121606598	121639135	20111South	1690	1680	-10	0.2	1	254	1	10	0.99
389	7023	121639135	121606598	20111North	4270	4175	-95	1.5	1	400	1	95	0.98
390	46402	121862879	121864698	20255East	385	390	5	0.3	1	100	1	5	1.01
391	46402	121864698	121862879	20255West	425	418	-7	0.3	1	100	1	7	0.98
392	47366	121830350	121873849	20065East	1527	1699	172	4.3	1	229	1	172	1.11
393	47366	121873849	121830350	20065West	894	1097	203	6.4	0	134	0	203	1.23
394	48089	121810483	121872749	3401West	232	295	63	3.9	1	100	1	63	1.27
395	48089	121872749	121810483	3401East	436	493	57	2.6	1	100	1	57	1.13
396	50644	121880125	121883720	20252East	362	368	6	0.3	1	100	1	6	1.02
397	50644	121883720	121880125	20252West	367	373	6	0.3	1	100	1	6	1.02
398	50645	121878897	121886029	1111North	576	577	1	0.0	1	100	1	1	1.00
399	50645	121886029	121878897	1111South	543	530	-13	0.6	1	100	1	13	0.98
400	50659	121878765	121887869	1112North	471	444	-27	1.3	1	100	1	27	0.94
401	50659	121887869	121878765	1112South	592	567	-25	1.0	1	100	1	25	0.96
402	52322	121606343	121895202	1811South	199	214	15	1.0	1	100	1	15	1.08
403	52322	121895202	121606343	1811North	1019	1002	-17	0.5	1	153	1	17	0.98
404	52902	121896900	2000002522	20114North	1129	1182	53	1.6	1	169	1	53	1.05
405	52902	2000002522	121896900	20114South	413	472	59	2.8	1	100	1	59	1.14
406	549454109	121625904	121625905	20012North_slip	172	243	71	4.9	1	100	1	71	1.41
407	549458121	121617120	121631566	20012North_main	1204	1221	17	0.5	1	181	1	17	1.01
408	549458121	121631566	121617120	20012South_main	2892	2859	-33	0.6	1	400	1	33	0.99
409	553058336	121608946	121612882	1311West	328	299	-29	1.6	1	100	1	29	0.91
410	553058336	121612882	121608946	1311East	421	390	-31	1.5	1	100	1	31	0.93
411	554375343	121609142	121635289	1312North	645	594	-51	2.0	1	100	1	51	0.92
412	554375343	121635289	121609142	1312South	599	571	-28	1.2	1	100	1	28	0.95
413	554449560	121674035	121674036	200811West	1629	1643	14	0.3	1	244	1	14	1.01
414	554449560	121674036	121674035	200811East	1447	1516	69	1.8	1	217	1	69	1.05

415	554454057	121614467	121620668	1033North	1583	1730	147	3.6	1	237	1	147	1.09
416	554454057	121620668	121614467	1033South	3367	3487	120	2.0	1	400	1	120	1.04
417	588987149	121598492	121602822	20035North	322	321	-1	0.1	1	100	1	1	1.00
418	588987149	121602822	121598492	20035South	495	485	-10	0.5	1	100	1	10	0.98
419	590511931	121610359	121641108	15012South	1260	1216	-44	1.3	1	189	1	44	0.97
420	590511931	121641108	121610359	15012North	3067	2888	-179	3.3	1	400	1	179	0.94
421	707711508	121583564	121584273	208001West	395	361	-34	1.7	1	100	1	34	0.91
422	707711508	121584273	121583564	208001East	549	515	-34	1.5	1	100	1	34	0.94
423	714088067	121589251	121592727	1681East	156	165	9	0.7	1	100	1	9	1.06
424	714088067	121592727	121589251	1681West	114	122	8	0.7	1	100	1	8	1.07
425	719956103	121167836	121599058	20036South	124	140	16	1.4	1	100	1	16	1.13
426	719956103	121599058	121167836	20036North	113	116	3	0.3	1	100	1	3	1.03
427	720544847	121600251	121600405	1161West	80	52	-28	3.4	1	100	1	28	0.65
428	720544847	121600405	121600251	1161East	70	56	-14	1.8	1	100	1	14	0.80
429	721225505	121600970	121604340	1035North	404	480	76	3.6	1	100	1	76	1.19
430	721225505	121604340	121600970	1035South	481	485	4	0.2	1	100	1	4	1.01
431	725567258	121612648	121614236	1071West	3318	3254	-64	1.1	1	400	1	64	0.98
432	725567258	121614236	121612648	1071East	5329	5155	-174	2.4	1	400	1	174	0.97
433	730379628	121636334	121617120	20012South_slip	420	436	16	0.8	1	100	1	16	1.04
434	731701292	121614986	121625005	1504North	5795	5725	-70	0.9	1	400	1	70	0.99
435	731701292	121625005	121614986	1504South	4944	5137	193	2.7	1	400	1	193	1.04
436	734302647	121620123	121626709	1501North	5805	5880	75	1.0	1	400	1	75	1.01
437	734302647	121626709	121620123	1501South	4549	4625	76	1.1	1	400	1	76	1.02
438	736380918	121615920	121629569	1505North	5495	5697	202	2.7	1	400	1	202	1.04
439	736380918	121629569	121615920	1505South	4988	5246	258	3.6	1	400	1	258	1.05
440	742637630	121605847	121624337	1013North	1221	1118	-103	3.0	1	183	1	103	0.92
441	742637630	121624337	121605847	1013South	1432	1333	-99	2.7	1	215	1	99	0.93
442	747563463	121625876	121633954	1812West	1189	1340	151	4.2	1	178	1	151	1.13
443	747563463	121633954	121625876	1812East	1367	1568	201	5.2	0	205	1	201	1.15
444	749408337	121624629	121635351	1321West	1608	1546	-62	1.6	1	241	1	62	0.96
445	749408337	121635351	121624629	1321East	1570	1462	-108	2.8	1	236	1	108	0.93
446	751108037	121613700	121623860	1506South	5416	5511	95	1.3	1	400	1	95	1.02
447	751108037	121623860	121613700	1506North	4732	4818	86	1.2	1	400	1	86	1.02
448	751257437	121623860	121635051	1507South	4003	3486	-517	8.4	0	400	0	517	0.87
449	751257437	121635051	121623860	1507North	3309	3179	-130	2.3	1	400	1	130	0.96
450	751782353	121605953	121614074	1508South	5306	5652	346	4.7	1	400	1	346	1.07
451	751782353	121614074	121605953	1508North	5918	6076	158	2.0	1	400	1	158	1.03
452	759735830	121643856	121678554	1221East	675	501	-174	7.2	0	100	0	174	0.74
453	759735830	121678554	121643856	1221West	276	225	-51	3.2	1	100	1	51	0.82
454	762970802	121643386	121668405	1256South	3361	3643	282	4.8	1	400	1	282	1.08
455	762970802	121668405	121643386	1256North	2407	2844	437	8.5	0	361	0	437	1.18
456	765084978	121647012	121670921	1253West	3857	4130	273	4.3	1	400	1	273	1.07

457	765084978	121670921	121647012	1253East	3333	3514	181	3.1	1	400	1	181	1.05
458	796986758	121660066	121674564	1281North	999	963	-36	1.1	1	150	1	36	0.96
459	796986758	121674564	121660066	1281South	1210	1229	19	0.5	1	182	1	19	1.02
460	803755898	121679655	121666426	3801North_slip	215	226	11	0.7	1	100	1	11	1.05
461	830511612	4133	121665568	20222East	1337	1300	-37	1.0	1	201	1	37	0.97
462	830511612	121665568	4133	20222West	490	506	16	0.7	1	100	1	16	1.03
463	840539223	121652862	121674687	1258West	2946	2953	7	0.1	1	400	1	7	1.00
464	840539223	121674687	121652862	1258East	2985	3237	252	4.5	1	400	1	252	1.08
465	840881880	121652971	121664532	1255East	2696	2923	227	4.3	1	404	1	227	1.08
466	840881880	121664532	121652971	1255West	1357	1530	173	4.6	1	204	1	173	1.13
467	843045822	4160	121677183	202639North	238	251	13	0.8	1	100	1	13	1.05
468	843045822	121677183	4160	202639South	288	292	4	0.2	1	100	1	4	1.01
469	843969122	4161	121667163	1271North	630	659	29	1.1	1	100	1	29	1.05
470	843969122	121667163	4161	1271South	959	1049	90	2.8	1	144	1	90	1.09
471	846591053	121663055	121673832	20223South	720	757	37	1.4	1	108	1	37	1.05
472	846591053	121673832	121663055	20223North	910	966	56	1.8	1	137	1	56	1.06
473	847275507	121661509	121679655	3802South_slip	482	345	-137	6.7	0	100	0	137	0.72
474	880428780	121687758	121690055	1141South	375	506	131	6.2	0	100	0	131	1.35
475	880428780	121690055	121687758	1141North	340	332	-8	0.4	1	100	1	8	0.98
476	894267755	121686471	121692845	20563West	133	99	-34	3.2	1	100	1	34	0.74
477	894267755	121692845	121686471	20563East	221	206	-15	1.0	1	100	1	15	0.93
478	898015622	121689345	121696821	1031East	87	95	8	0.8	1	100	1	8	1.09
479	898015622	121696821	121689345	1031West	115	107	-8	0.8	1	100	1	8	0.93
480	899952557	121686584	121689834	1131West	277	247	-30	1.9	1	100	1	30	0.89
481	899952557	121689834	121686584	1131East	269	267	-2	0.1	1	100	1	2	0.99
482	902057033	121692920	121694426	1151South	102	71	-31	3.3	1	100	1	31	0.70
483	902057033	121694426	121692920	1151North	171	116	-55	4.6	1	100	1	55	0.68
484	904153130	121691331	121695474	1132West	799	803	4	0.1	1	120	1	4	1.01
485	904153130	121695474	121691331	1132East	602	723	121	4.7	1	100	0	121	1.20
486	905106002	121693767	121693779	20152North	228	203	-25	1.7	1	100	1	25	0.89
487	905106002	121693779	121693767	20152South	294	306	12	0.7	1	100	1	12	1.04
488	1004232155	121716967	121719397	20172North	697	645	-52	2.0	1	100	1	52	0.93
489	1004232155	121719397	121716967	20172South	561	642	81	3.3	1	100	1	81	1.14
490	1077821118	121723498	121729493	1222South	302	372	70	3.8	1	100	1	70	1.23
491	1077821118	121729493	121723498	1222North	218	254	36	2.3	1	100	1	36	1.17
492	1102491608	121735450	121742133	20072West	1943	1977	34	0.8	1	291	1	34	1.02
493	1102491608	121742133	121735450	20072East	3307	3273	-34	0.6	1	400	1	34	0.99
494	1130484155	121736305	121742427	20041East	2931	2987	56	1.0	1	400	1	56	1.02
495	1130484155	121742427	121736305	20041West	1445	1268	-177	4.8	1	217	1	177	0.88
496	1131531773	121734666	121734981	20042West	1000	1116	116	3.6	1	150	1	116	1.12
497	1131531773	121734981	121734666	20042East	2403	2443	40	0.8	1	360	1	40	1.02
498	1131793880	121738917	121740681	20075East	1927	2012	85	1.9	1	289	1	85	1.04

499	1131793880	121740681	121738917	20075West	1129	1154	25	0.7	1	169	1	25	1.02
500	1184390892	121746354	121752733	1761North	267	261	-6	0.4	1	100	1	6	0.98
501	1184390892	121752733	121746354	1761South	195	212	17	1.2	1	100	1	17	1.09
502	1227893663	121756715	121758920	20078West	872	919	47	1.6	1	131	1	47	1.05
503	1227893663	121758920	121756715	20078East	1192	1256	64	1.8	1	179	1	64	1.05
504	1305390005	121770042	121776927	200714West	727	579	-148	5.8	0	109	0	148	0.80
505	1305390005	121776927	121770042	200714East	426	398	-28	1.4	1	100	1	28	0.93
506	1370778242	121766408	121779479	20211West	309	323	14	0.8	1	100	1	14	1.05
507	1370778242	121779479	121766408	20211East	374	384	10	0.5	1	100	1	10	1.03
508	1401276380	121781117	121783536	20045West	313	346	33	1.8	1	100	1	33	1.11
509	1401276380	121783536	121781117	20045East	405	434	29	1.4	1	100	1	29	1.07
510	1417347578	121784287	121784455	3101North	1193	1228	35	1.0	1	179	1	35	1.03
511	1417347578	121784455	121784287	3101South	603	668	65	2.6	1	100	1	65	1.11
512	1430975918	121785756	121788170	20526North	241	361	120	6.9	0	100	0	120	1.50
513	1430975918	121788170	121785756	20526South	534	775	241	9.4	0	100	0	241	1.45
514	1557111842	121712778	121803153	1171North	221	191	-30	2.1	1	100	1	30	0.86
515	1557111842	121803153	121712778	1171South	344	329	-15	0.8	1	100	1	15	0.96
516	1588811423	121806846	121811204	3404East	525	509	-16	0.7	1	100	1	16	0.97
517	1607677058	121810977	121814291	3102South	238	324	86	5.1	0	100	1	86	1.36
518	1642458672	121805442	121813032	201321South	1120	946	-174	5.4	0	168	0	174	0.84
519	1642458672	121813032	121805442	201321North	494	399	-95	4.5	1	100	1	95	0.81
520	1645921112	121809222	121809566	31031South	1749	1928	179	4.2	1	262	1	179	1.10
521	1650648987	121804943	121806846	3404West	345	331	-14	0.8	1	100	1	14	0.96
522	1706074580	121146850	121817334	1531North	164	166	2	0.2	1	100	1	2	1.01
523	1706074580	121817334	121146850	1531South	238	259	21	1.3	1	100	1	21	1.09
524	1885921037	121836576	121840654	1041North	1363	1337	-26	0.7	1	204	1	26	0.98
525	1885921037	121840654	121836576	1041South	461	438	-23	1.1	1	100	1	23	0.95
526	2084217408	121845871	121848701	1651North	97	132	35	3.3	1	100	1	35	1.36
527	2084217408	121848701	121845871	1651South	147	182	35	2.7	1	100	1	35	1.24
528	2109307130	121847938	121856699	1241South	213	178	-35	2.5	1	100	1	35	0.84
529	2109307130	121856699	121847938	1241North	234	155	-79	5.7	0	100	1	79	0.66
530	2141041448	121861304	121863235	20254North	1665	1581	-84	2.1	1	250	1	84	0.95
531	2141041448	121863235	121861304	20254South	904	871	-33	1.1	1	136	1	33	0.96
532	2147474939	121840932	121899414	20153North	178	173	-5	0.4	1	100	1	5	0.97
533	2147474939	121899414	121840932	20153South	308	304	-4	0.2	1	100	1	4	0.99
534	2147475008	121881810	121899442	20301East	171	169	-2	0.2	1	100	1	2	0.99
535	2147475008	121899442	121881810	20301West	245	259	14	0.9	1	100	1	14	1.06
536	2147475132	121719397	121899504	20171North	411	388	-23	1.2	1	100	1	23	0.94
537	2147475132	121899504	121719397	20171South	655	591	-64	2.6	1	100	1	64	0.90
538	2147475191	121816358	121899533	1021North	297	312	15	0.9	1	100	1	15	1.05
539	2147475191	121899533	121816358	1021South	437	450	13	0.6	1	100	1	13	1.03
540	2147475279	121695290	121899577	20151North	232	223	-9	0.6	1	100	1	9	0.96

541	2147475279	121899577	121695290	20151South	272	290	18	1.1	1	100	1	18	1.07
542	2147475424	121832513	121899677	20051East	203	211	8	0.6	1	100	1	8	1.04
543	2147475424	121899677	121832513	20051West	144	181	37	2.9	1	100	1	37	1.26
544	2147475530	121899726	121899730	1552South	148	136	-12	1.0	1	100	1	12	0.92
545	2147475530	121899730	121899726	1552North	126	117	-9	0.8	1	100	1	9	0.93
546	2147475694	121766952	121899812	20212East	920	913	-7	0.2	1	138	1	7	0.99
547	2147475694	121899812	121766952	20212West	487	539	52	2.3	1	100	1	52	1.11
548	2147475710	121899819	121899820	20621South	205	172	-33	2.4	1	100	1	33	0.84
549	2147475710	121899820	121899819	20621North	161	144	-17	1.4	1	100	1	17	0.89
550	2147475747	4147	121899838	1711North	1096	1047	-49	1.5	1	164	1	49	0.96
551	2147475747	121899838	4147	1711South	757	757	0	0.0	1	114	1	0	1.00
552	2147475748	121658844	121899839	1712North	860	764	-96	3.4	1	129	1	96	0.89
553	2147475748	121899839	121658844	1712South	444	417	-27	1.3	1	100	1	27	0.94
554	2147475791	121863550	121899860	1723West	140	145	5	0.4	1	100	1	5	1.04
555	2147475791	121899860	121863550	1723East	218	224	6	0.4	1	100	1	6	1.03
556	2147475847	121899883	121899888	1691South	369	356	-13	0.7	1	100	1	13	0.96
557	2147475847	121899888	121899883	1691North	179	175	-4	0.3	1	100	1	4	0.98
558	2147475881	121853851	121899905	1751East	142	148	6	0.5	1	100	1	6	1.04
559	2147475881	121899905	121853851	1751West	165	177	12	0.9	1	100	1	12	1.07
560	2147475883	121852937	121899906	1621South	296	276	-20	1.2	1	100	1	20	0.93
561	2147475883	121899906	121852937	1621North	336	282	-54	3.1	1	100	1	54	0.84
562	2147475919	121722835	121899924	1721West	192	225	33	2.3	1	100	1	33	1.17
563	2147475919	121899924	121722835	1721East	269	292	23	1.4	1	100	1	23	1.09
564	2147475929	121759846	121899929	20081South	229	276	47	3.0	1	100	1	47	1.21
565	2147475929	121899929	121759846	20081North	441	436	-5	0.2	1	100	1	5	0.99
566	2147475976	121770292	121899953	20202South	448	466	18	0.8	1	100	1	18	1.04
567	2147475976	121899953	121770292	20202North	898	855	-43	1.5	1	135	1	43	0.95
568	2147475985	4042	121646401	1201South	366	316	-50	2.7	1	100	1	50	0.86
569	2147475985	121646401	4042	1201North	455	423	-32	1.5	1	100	1	32	0.93
570	2147475995	121667321	121899962	1252East	345	371	26	1.4	1	100	1	26	1.08
571	2147475995	121899962	121667321	1252West	1012	1033	21	0.7	1	152	1	21	1.02
572	2147476026	121754107	121899978	20082South	182	186	4	0.3	1	100	1	4	1.02
573	2147476026	121899978	121754107	20082North	259	261	2	0.1	1	100	1	2	1.01
574	2147476132	121659960	121900031	1731South	121	130	9	0.8	1	100	1	9	1.07
575	2147476132	121900031	121659960	1731North	107	115	8	0.8	1	100	1	8	1.07
576	2147476260	121750578	121900095	1243South	333	205	-128	7.8	0	100	0	128	0.62
577	2147476260	121900095	121750578	1243North	252	203	-49	3.2	1	100	1	49	0.81
578	2147476721	121818875	121900489	20024North	182	259	77	5.2	0	100	1	77	1.42
579	2147476721	121900489	121818875	20024South	188	197	9	0.6	1	100	1	9	1.05
580	2147476809	121900531	121900532	1841North	186	206	20	1.4	1	100	1	20	1.11
581	2147476809	121900532	121900531	1841South	1028	1065	37	1.1	1	154	1	37	1.04
582	2147483403	121900734	121900740	3804North	558	618	60	2.5	1	100	1	60	1.11

583	2147483403	121900740	121900734	3804South	841	899	58	2.0	1	126	1	58	1.07
584	2147483410	121900740	121900736	3805North	103	120	17	1.6	1	100	1	17	1.17
585	2147483411	121900735	121900740	3805South	40	116	76	8.6	0	100	1	76	2.90
586	2147483575	121847977	121900808	20241West	333	301	-32	1.8	1	100	1	32	0.90
587	2147483575	121900808	121847977	20241East	509	467	-42	1.9	1	100	1	42	0.92
588	2147483597	77	121900817	20083North	528	550	22	0.9	1	100	1	22	1.04
589	2147483597	121900817	77	20083South	484	472	-12	0.5	1	100	1	12	0.98
	TOTAL				514602	524532		13.8	549		555	30594	1.08

Table 8.2 Link Calibration - Light Vehicles (AM Peak)

Link Calibration – Light Vehicles					Average AM Peak Period (07-09)								
					Counts:	589		RESULT =	92.7%	RESULT =	94.2%		
					Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	TMU No	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	27	121901753	2000714598	20088South	303	302	-1	0.1	1	100	1	1	1.00
2	27	2000714598	121901753	20088North	402	387	-15	0.8	1	100	1	15	0.96
3	102	121766075	121768599	20203North	1637	1575	-62	1.5	1	246	1	62	0.96
4	102	121768599	121766075	20203South	760	846	86	3.0	1	114	1	86	1.11
5	134	121901197	121901200	1521South	254	257	3	0.2	1	100	1	3	1.01
6	134	121901200	121901197	1521North	225	181	-44	3.1	1	100	1	44	0.80
7	135	121900918	2000001963	3701North	329	376	47	2.5	1	100	1	47	1.14
8	135	2000001963	121900918	3701South	232	259	27	1.7	1	100	1	27	1.12
9	149	121769433	121773120	20205South	1352	1136	-216	6.1	0	203	0	216	0.84
10	149	121773120	121769433	20205North	1397	1395	-2	0.1	1	210	1	2	1.00
11	182	74	500000954	20242East	394	342	-52	2.7	1	100	1	52	0.87
12	182	500000954	74	20242West	123	108	-15	1.4	1	100	1	15	0.88
13	211	121900894	121900908	20086North	570	583	13	0.5	1	100	1	13	1.02
14	211	121900908	121900894	20086South	699	712	13	0.5	1	100	1	13	1.02
15	252	121900934	2000002224	200721West	1050	1034	-16	0.5	1	158	1	16	0.98
16	252	2000002224	121900934	200721East	534	552	18	0.8	1	100	1	18	1.03
17	267	1009	121900935	200720West	767	783	16	0.6	1	115	1	16	1.02
18	267	121900935	1009	200720East	547	528	-19	0.8	1	100	1	19	0.97
19	295	121900873	500000886	20089North	372	376	4	0.2	1	100	1	4	1.01
20	295	500000886	121900873	20089South	275	259	-16	1.0	1	100	1	16	0.94
21	312	121900953	121900972	20018North	511	549	38	1.7	1	100	1	38	1.07
22	312	121900972	121900953	20018South	832	816	-16	0.6	1	125	1	16	0.98
23	318	121650954	2000002227	20258West	2643	3198	555	10.3	0	396	0	555	1.21
24	318	2000002227	121650954	20258East	1968	2193	225	4.9	1	295	1	225	1.11
25	331	121651256	121666057	20257West	3141	3213	72	1.3	1	400	1	72	1.02
26	331	121666057	121651256	20257East	1289	1366	77	2.1	1	193	1	77	1.06
27	335	121900968	121900969	200171South	869	839	-30	1.0	1	130	1	30	0.97
28	335	121900969	121900968	200171North	536	566	30	1.3	1	100	1	30	1.06
29	376	121658901	121673245	20256East	857	1248	391	12.1	0	129	0	391	1.46
30	376	121673245	121658901	20256West	2594	3071	477	9.0	0	389	0	477	1.18
31	384	121762978	121900998	20046East	249	267	18	1.1	1	100	1	18	1.07
32	384	121900998	121762978	20046West	177	194	17	1.2	1	100	1	17	1.10
33	415	121901009	121901016	1053East	152	190	38	2.9	1	100	1	38	1.25
34	415	121901016	121901009	1053West	130	91	-39	3.7	1	100	1	39	0.70
35	425	121646106	2000714590	20085North	612	642	30	1.2	1	100	1	30	1.05
36	425	2000714590	121646106	20085South	754	813	59	2.1	1	113	1	59	1.08

37	428	121900726	121901024	20061West	413	424	11	0.5	1	100	1	11	1.03
38	428	121901024	121900726	20061East	601	651	50	2.0	1	100	1	50	1.08
39	430	121679655	2000714591	200812South	1195	1206	11	0.3	1	179	1	11	1.01
40	430	2000714591	121679655	200812North	671	699	28	1.1	1	100	1	28	1.04
41	442	121668460	121679655	3802South_main	738	878	140	4.9	1	111	0	140	1.19
42	442	121679655	121668460	3801North_main	464	488	24	1.1	1	100	1	24	1.05
43	475	36	2000714592	3803North	503	536	33	1.4	1	100	1	33	1.07
44	475	2000714592	36	3803South	809	979	170	5.7	0	121	0	170	1.21
45	478	121901057	121901247	20063West	528	536	8	0.3	1	100	1	8	1.02
46	478	121901247	121901057	20063East	585	628	43	1.7	1	100	1	43	1.07
47	495	121901065	121901086	20117North	304	287	-17	1.0	1	100	1	17	0.94
48	495	121901086	121901065	20117South	178	156	-22	1.7	1	100	1	22	0.88
49	550	121900906	121900910	1086North	381	404	23	1.2	1	100	1	23	1.06
50	550	121900910	121900906	1086South	381	368	-13	0.7	1	100	1	13	0.97
51	551	121901088	121901107	20116North	562	595	33	1.4	1	100	1	33	1.06
52	551	121901107	121901088	20116South	211	212	1	0.1	1	100	1	1	1.00
53	559	245	121894010	20115North	860	828	-32	1.1	1	129	1	32	0.96
54	559	121894010	245	20115South	282	290	8	0.5	1	100	1	8	1.03
55	602	29	121901117	20182North	606	638	32	1.3	1	100	1	32	1.05
56	602	121901117	29	20182South	1680	1759	79	1.9	1	252	1	79	1.05
57	645	121900846	2000714596	20087South	475	465	-10	0.5	1	100	1	10	0.98
58	645	2000714596	121900846	20087North	550	650	100	4.1	1	100	0	100	1.18
59	680	121901040	2000001664	20522North	241	240	-1	0.1	1	100	1	1	1.00
60	680	2000001664	121901040	20522South	253	258	5	0.3	1	100	1	5	1.02
61	689	100	121901210	20561South	507	516	9	0.4	1	100	1	9	1.02
62	689	121901210	100	20561North	178	179	1	0.1	1	100	1	1	1.01
63	771	121776709	2000714599	200722East	877	922	45	1.5	1	132	1	45	1.05
64	771	2000714599	121776709	200722West	1465	1580	115	2.9	1	220	1	115	1.08
65	782	121901279	121901292	20064West	749	701	-48	1.8	1	112	1	48	0.94
66	782	121901292	121901279	20064East	631	666	35	1.4	1	100	1	35	1.06
67	840	121589623	2000714601	20183North	1522	1598	76	1.9	1	228	1	76	1.05
68	840	2000714601	121589623	20183South	1250	1292	42	1.2	1	188	1	42	1.03
69	916	1023	4014	20253East	332	337	5	0.3	1	100	1	5	1.02
70	916	4014	1023	20253West	695	697	2	0.1	1	100	1	2	1.00
71	978	1017	121901418	20524North	381	387	6	0.3	1	100	1	6	1.02
72	978	121901418	1017	20524South	154	144	-10	0.8	1	100	1	10	0.94
73	1003	1026	121901704	3314South	733	730	-3	0.1	1	110	1	3	1.00
74	1003	121901704	1026	3314North	203	193	-10	0.7	1	100	1	10	0.95
75	1051	121901170	500000875	20181South	581	622	41	1.7	1	100	1	41	1.07
76	1051	500000875	121901170	20181North	414	431	17	0.8	1	100	1	17	1.04
77	1054	121735111	121901606	20091South	531	520	-11	0.5	1	100	1	11	0.98
78	1054	121901606	121735111	20091North	1166	1181	15	0.4	1	175	1	15	1.01

79	1096	121900048	121901489	1211East	251	287	36	2.2	1	100	1	36	1.14
80	1096	121901489	121900048	1211West	383	393	10	0.5	1	100	1	10	1.03
81	1106	121900049	121901497	202104South	270	299	29	1.7	1	100	1	29	1.11
82	1106	121901497	121900049	202104North	206	233	27	1.8	1	100	1	27	1.13
83	1107	121901490	121901493	202103North	177	201	24	1.7	1	100	1	24	1.14
84	1107	121901493	121901490	202103South	227	246	19	1.2	1	100	1	19	1.08
85	1112	121901492	121901498	202301South	107	121	14	1.3	1	100	1	14	1.13
86	1112	121901498	121901492	202301North	146	161	15	1.2	1	100	1	15	1.10
87	1114	1005	121901502	20185North	344	364	20	1.1	1	100	1	20	1.06
88	1114	121901502	1005	20185South	407	452	45	2.2	1	100	1	45	1.11
89	1115	121901501	2000002259	20186North	356	378	22	1.1	1	100	1	22	1.06
90	1115	2000002259	121901501	20186South	543	588	45	1.9	1	100	1	45	1.08
91	1211	121901556	121901570	3602East	480	563	83	3.6	1	100	1	83	1.17
92	1211	121901570	121901556	3602West	822	826	4	0.1	1	123	1	4	1.00
93	1212	121901567	121901570	3605West	290	473	183	9.4	0	100	0	183	1.63
94	1213	121901569	121901571	3603East	365	393	28	1.4	1	100	1	28	1.08
95	1213	121901571	121901569	3603West	307	352	45	2.5	1	100	1	45	1.15
96	1238	1011	121901592	3601West	383	347	-36	1.9	1	100	1	36	0.91
97	1238	121901592	1011	3601East	515	502	-13	0.6	1	100	1	13	0.97
98	1249	121901594	121901595	1782East	213	203	-10	0.7	1	100	1	10	0.95
99	1249	121901595	121901594	1782West	117	108	-9	0.8	1	100	1	9	0.92
100	1301	191	121901635	1024South	316	325	9	0.5	1	100	1	9	1.03
101	1301	121901635	191	1024North	349	336	-13	0.7	1	100	1	13	0.96
102	1313	4206	500001003	20071West	2110	2005	-105	2.3	1	317	1	105	0.95
103	1313	500001003	4206	20071East	4141	3666	-475	7.6	0	400	0	475	0.89
104	1390	121900168	121901692	20032North	179	160	-19	1.5	1	100	1	19	0.89
105	1390	121901692	121900168	20032South	402	405	3	0.1	1	100	1	3	1.01
106	1422	121901716	121901715	3306South	100	81	-19	2.0	1	100	1	19	0.81
107	1424	121901709	121901717	3306North	63	89	26	3.0	1	100	1	26	1.41
108	1450	121900172	121901736	20031South	443	434	-9	0.4	1	100	1	9	0.98
109	1450	121901736	121900172	20031North	176	179	3	0.2	1	100	1	3	1.02
110	1467	121901745	500000938	3303South	1298	1605	307	8.1	0	195	0	307	1.24
111	1467	500000938	121901745	3303North	302	312	10	0.6	1	100	1	10	1.03
112	1469	121806155	121901746	20033South	483	243	-240	12.6	0	100	0	240	0.50
113	1469	121901746	121806155	20033North	174	228	54	3.8	1	100	1	54	1.31
114	1477	121901748	121901749	1037South	1237	1350	113	3.1	1	186	1	113	1.09
115	1477	121901749	121901748	1037North	398	484	86	4.1	1	100	1	86	1.22
116	1513	1022	121901815	20093North	381	391	10	0.5	1	100	1	10	1.03
117	1513	121901815	1022	20093South	537	536	-1	0.0	1	100	1	1	1.00
118	1546	121901832	121901839	20908North	687	675	-12	0.5	1	100	1	12	0.98
119	1546	121901839	121901832	20908South	354	358	4	0.2	1	100	1	4	1.01
120	1552	121901823	121901834	20094North	455	455	0	0.0	1	100	1	0	1.00

121	1552	121901834	121901823	20094South	496	484	-12	0.5	1	100	1	12	0.98
122	1553	121899898	121901835	1101South	268	265	-3	0.2	1	100	1	3	0.99
123	1553	121901835	121899898	1101North	444	447	3	0.1	1	100	1	3	1.01
124	1567	121901482	121901845	20907South	294	240	-54	3.3	1	100	1	54	0.82
125	1567	121901845	121901482	20907North	353	325	-28	1.5	1	100	1	28	0.92
126	1570	121747244	121901848	1102East	82	73	-9	1.0	1	100	1	9	0.89
127	1570	121901848	121747244	1102West	225	204	-21	1.4	1	100	1	21	0.91
128	1571	121901483	121901858	20906North	582	619	37	1.5	1	100	1	37	1.06
129	1571	121901858	121901483	20906South	515	501	-14	0.6	1	100	1	14	0.97
130	1601	2000002208	2000714604	200723East	4527	4632	105	1.6	1	400	1	105	1.02
131	1601	2000714604	2000002208	200723West	1955	1914	-41	0.9	1	293	1	41	0.98
132	1602	121637653	2000002017	1044West	1900	2244	344	7.6	0	285	0	344	1.18
133	1602	2000002017	121637653	1044East	4135	4423	288	4.4	1	400	1	288	1.07
134	1676	121624338	500000926	1012North	1949	2242	293	6.4	0	292	0	293	1.15
135	1676	500000926	121624338	1012South	3185	3435	250	4.3	1	400	1	250	1.08
136	1687	121607502	121635641	20047West	2820	2767	-53	1.0	1	400	1	53	0.98
137	1687	121635641	121607502	20047East	4601	4629	28	0.4	1	400	1	28	1.01
138	1715	121901422	500000937	3301North	691	703	12	0.5	1	100	1	12	1.02
139	1715	500000937	121901422	3301South	2312	2361	49	1.0	1	347	1	49	1.02
140	1719	121901433	500000947	3309South	896	922	26	0.9	1	134	1	26	1.03
141	1719	500000947	121901433	3309North	315	269	-46	2.7	1	100	1	46	0.85
142	1720	121901716	500000949	3307North	334	276	-58	3.3	1	100	1	58	0.83
143	1720	500000949	121901716	3307South	1049	990	-59	1.8	1	157	1	59	0.94
144	1744	4159	500000959	20204North	449	445	-4	0.2	1	100	1	4	0.99
145	1744	500000959	4159	20204South	1044	1006	-38	1.2	1	157	1	38	0.96
146	1753	121626994	121633442	1072West	3170	2872	-298	5.4	0	400	1	298	0.91
147	1753	121633442	121626994	1072East	4313	4236	-77	1.2	1	400	1	77	0.98
148	1761	121595212	2000002245	20184South	1805	1859	54	1.3	1	271	1	54	1.03
149	1761	2000002245	121595212	20184North	1613	1705	92	2.3	1	242	1	92	1.06
150	1812	121901603	500000991	20092South	492	478	-14	0.6	1	100	1	14	0.97
151	1812	500000991	121901603	20092North	954	976	22	0.7	1	143	1	22	1.02
152	1839	500001009	2000002627	201081South	1786	1996	210	4.8	1	268	1	210	1.12
153	1901	121598427	121899735	20034West	418	384	-34	1.7	1	100	1	34	0.92
154	1901	121899735	121598427	20034East	327	293	-34	1.9	1	100	1	34	0.90
155	1908	121839582	121899593	1042South	174	161	-13	1.0	1	100	1	13	0.93
156	1908	121899593	121839582	1042North	283	275	-8	0.5	1	100	1	8	0.97
157	1939	121899925	2000001296	20221North	346	372	26	1.4	1	100	1	26	1.08
158	1939	2000001296	121899925	20221South	278	285	7	0.4	1	100	1	7	1.03
159	1969	121616074	121636712	1503North	5327	5391	64	0.9	1	400	1	64	1.01
160	1969	121636712	121616074	1503South	5373	5516	143	1.9	1	400	1	143	1.03
161	2158	121607497	121615809	1509North	5587	5652	65	0.9	1	400	1	65	1.01
162	2158	121615809	121607497	1509South	5658	5672	14	0.2	1	400	1	14	1.00

163	2170	121694399	2000001650	20562North	75	76	1	0.1	1	100	1	1	1.01
164	2170	2000001650	121694399	20562South	102	104	2	0.2	1	100	1	2	1.02
165	2200	121835885	2000001659	1593East	130	134	4	0.3	1	100	1	4	1.03
166	2200	2000001659	121835885	1593West	133	127	-6	0.5	1	100	1	6	0.95
167	2222	121793320	2000001670	1842North	196	212	16	1.1	1	100	1	16	1.08
168	2222	2000001670	121793320	1842South	215	223	8	0.5	1	100	1	8	1.04
169	2231	121899704	2000001679	20611South	263	261	-2	0.1	1	100	1	2	0.99
170	2231	2000001679	121899704	20611North	195	276	81	5.3	0	100	1	81	1.42
171	2242	4028	121169472	1871North	38	25	-13	2.3	1	100	1	13	0.66
172	2242	121169472	4028	1871South	26	21	-5	1.0	1	100	1	5	0.81
173	2249	2000001667	2000001834	20811North	279	273	-6	0.4	1	100	1	6	0.98
174	2249	2000001834	2000001667	20811South	57	59	2	0.3	1	100	1	2	1.04
175	2250	121899721	2000001675	1551North	98	90	-8	0.8	1	100	1	8	0.92
176	2250	2000001675	121899721	1551South	155	142	-13	1.1	1	100	1	13	0.92
177	2262	121876322	2000001637	20521South	201	190	-11	0.8	1	100	1	11	0.95
178	2262	2000001637	121876322	20521North	149	131	-18	1.5	1	100	1	18	0.88
179	2269	2000001664	2000001665	1524North	287	240	-47	2.9	1	100	1	47	0.84
180	2269	2000001665	2000001664	1524South	263	258	-5	0.3	1	100	1	5	0.98
181	2270	4056	121822209	1624South	74	68	-6	0.7	1	100	1	6	0.92
182	2270	121822209	4056	1624North	221	280	59	3.7	1	100	1	59	1.27
183	2283	121826147	2000001463	1523South	105	103	-2	0.2	1	100	1	2	0.98
184	2283	2000001463	121826147	1523North	170	175	5	0.4	1	100	1	5	1.03
185	2286	121824886	2000001442	1803North	191	191	0	0.0	1	100	1	0	1.00
186	2286	2000001442	121824886	1803South	326	319	-7	0.4	1	100	1	7	0.98
187	2292	121901758	2000001443	20523South	488	475	-13	0.6	1	100	1	13	0.97
188	2292	2000001443	121901758	20523North	460	387	-73	3.5	1	100	1	73	0.84
189	2325	121582230	2000001436	20812North	84	91	7	0.7	1	100	1	7	1.08
190	2325	2000001436	121582230	20812South	67	69	2	0.2	1	100	1	2	1.03
191	2333	121757032	2000001704	1801North	156	134	-22	1.8	1	100	1	22	0.86
192	2333	2000001704	121757032	1801South	198	153	-45	3.4	1	100	1	45	0.77
193	2339	4063	2000001484	1781South	63	63	0	0.0	1	100	1	0	1.00
194	2339	2000001484	4063	1781North	106	108	2	0.2	1	100	1	2	1.02
195	2373	121899976	2000001691	1623NorthEast	173	175	2	0.2	1	100	1	2	1.01
196	2373	2000001691	121899976	1623SouthWest	146	141	-5	0.4	1	100	1	5	0.97
197	2377	121855538	2000001465	1622South	148	149	1	0.1	1	100	1	1	1.01
198	2377	2000001465	121855538	1622North	121	124	3	0.3	1	100	1	3	1.02
199	2398	121716165	2000001470	1661North	88	88	0	0.0	1	100	1	0	1.00
200	2398	2000001470	121716165	1661South	110	114	4	0.4	1	100	1	4	1.04
201	2417	121591267	2000001508	20671North	38	35	-3	0.5	1	100	1	3	0.92
202	2417	2000001508	121591267	20671South	67	67	0	0.0	1	100	1	0	1.00
203	2441	121586954	2000001526	1851South	158	166	8	0.6	1	100	1	8	1.05
204	2441	2000001526	121586954	1851North	125	125	0	0.0	1	100	1	0	1.00

205	2451	2000001468	2000001469	1741East	138	141	3	0.3	1	100	1	3	1.02
206	2451	2000001469	2000001468	1741West	144	178	34	2.7	1	100	1	34	1.24
207	2465	121766606	2000001531	1692West	231	226	-5	0.3	1	100	1	5	0.98
208	2465	2000001531	121766606	1692East	299	299	0	0.0	1	100	1	0	1.00
209	2475	121900046	2000001712	1693South	130	124	-6	0.5	1	100	1	6	0.95
210	2475	2000001712	121900046	1693North	94	87	-7	0.7	1	100	1	7	0.93
211	2497	4087	2000001541	20861West	88	85	-3	0.3	1	100	1	3	0.97
212	2497	2000001541	4087	20861East	84	74	-10	1.1	1	100	1	10	0.88
213	2506	4088	2000001557	20701West	61	66	5	0.6	1	100	1	5	1.08
214	2506	2000001557	4088	20701East	76	82	6	0.7	1	100	1	6	1.08
215	2531	121723257	2000001571	1701West	31	30	-1	0.2	1	100	1	1	0.97
216	2531	2000001571	121723257	1701East	45	44	-1	0.1	1	100	1	1	0.98
217	2532	121723257	2000001578	1714North	17	28	11	2.3	1	100	1	11	1.65
218	2532	2000001578	121723257	1714South	17	27	10	2.1	1	100	1	10	1.59
219	2546	2000001579	2000001580	1722East	136	153	17	1.4	1	100	1	17	1.13
220	2546	2000001580	2000001579	1722West	200	230	30	2.0	1	100	1	30	1.15
221	2585	2000001603	2000001722	20721West	77	77	0	0.0	1	100	1	0	1.00
222	2585	2000001722	2000001603	20721East	106	102	-4	0.4	1	100	1	4	0.96
223	2610	121680624	2000001620	1715North	110	109	-1	0.1	1	100	1	1	0.99
224	2610	2000001620	121680624	1715South	214	213	-1	0.1	1	100	1	1	1.00
225	2624	121668320	2000001614	1713North	349	321	-28	1.5	1	100	1	28	0.92
226	2624	2000001614	121668320	1713South	243	246	3	0.2	1	100	1	3	1.01
227	2654	2000001306	2000001747	1592East	58	60	2	0.3	1	100	1	2	1.03
228	2654	2000001747	2000001306	1592West	54	55	1	0.1	1	100	1	1	1.02
229	2669	2000001758	2000001759	20591East	95	97	2	0.2	1	100	1	2	1.02
230	2669	2000001759	2000001758	20591West	60	59	-1	0.1	1	100	1	1	0.98
231	2716	2000001789	2000001790	20601East	158	161	3	0.2	1	100	1	3	1.02
232	2716	2000001790	2000001789	20601West	210	199	-11	0.8	1	100	1	11	0.95
233	2721	2000001793	2000001794	1601East	73	76	3	0.3	1	100	1	3	1.04
234	2721	2000001794	2000001793	1601West	54	55	1	0.1	1	100	1	1	1.02
235	2726	121791950	2000001797	1832South	23	34	11	2.1	1	100	1	11	1.48
236	2726	2000001797	121791950	1832North	35	63	28	4.0	1	100	1	28	1.80
237	2731	121831384	2000001804	1611North	128	173	45	3.7	1	100	1	45	1.35
238	2731	2000001804	121831384	1611South	229	256	27	1.7	1	100	1	27	1.12
239	2734	121899671	2000001802	1602East	190	195	5	0.4	1	100	1	5	1.03
240	2734	2000001802	121899671	1602West	95	101	6	0.6	1	100	1	6	1.06
241	2746	121831331	2000001809	1632East	139	130	-9	0.8	1	100	1	9	0.94
242	2746	2000001809	121831331	1632West	172	166	-6	0.5	1	100	1	6	0.97
243	2760	4221	2000001818	1631East	174	164	-10	0.8	1	100	1	10	0.94
244	2760	2000001818	4221	1631West	83	72	-11	1.2	1	100	1	11	0.87
245	2795	2000001840	2000001841	1522South	107	100	-7	0.7	1	100	1	7	0.93
246	2795	2000001841	2000001840	1522North	122	120	-2	0.2	1	100	1	2	0.98

247	2804	2000001412	2000001846	1541East	162	108	-54	4.6	1	100	1	54	0.67
248	2804	2000001846	2000001412	1541West	152	123	-29	2.5	1	100	1	29	0.81
249	2816	2000001730	2000001854	1581North	167	155	-12	0.9	1	100	1	12	0.93
250	2816	2000001854	2000001730	1581South	237	196	-41	2.8	1	100	1	41	0.83
251	2822	121709981	2000001858	1831South	215	223	8	0.5	1	100	1	8	1.04
252	2822	2000001858	121709981	1831North	84	108	24	2.4	1	100	1	24	1.29
253	2825	121810996	2000001860	1511East	255	242	-13	0.8	1	100	1	13	0.95
254	2825	2000001860	121810996	1511West	94	80	-14	1.5	1	100	1	14	0.85
255	2830	121805642	2000001862	20511West	229	214	-15	1.0	1	100	1	15	0.93
256	2830	2000001862	121805642	20511East	234	211	-23	1.5	1	100	1	23	0.90
257	2995	4007	121877445	20251West	144	147	3	0.2	1	100	1	3	1.02
258	2995	121877445	4007	20251East	155	155	0	0.0	1	100	1	0	1.00
259	2998	4254	121861314	1251South	301	296	-5	0.3	1	100	1	5	0.98
260	2998	121861314	4254	1251North	560	585	25	1.0	1	100	1	25	1.04
261	3040	4018	2000001916	20066East	108	95	-13	1.3	1	100	1	13	0.88
262	3040	2000001916	4018	20066West	73	87	14	1.6	1	100	1	14	1.19
263	3167	4010	121757837	200711West	88	86	-2	0.2	1	100	1	2	0.98
264	3167	121757837	4010	200711East	158	154	-4	0.3	1	100	1	4	0.97
265	3179	4036	121899512	1182North	936	950	14	0.5	1	140	1	14	1.01
266	3179	121899512	4036	1182South	474	514	40	1.8	1	100	1	40	1.08
267	3192	4019	121701049	20067West	105	97	-8	0.8	1	100	1	8	0.92
268	3192	121701049	4019	20067East	188	185	-3	0.2	1	100	1	3	0.98
269	3203	4016	121871280	1045West	207	151	-56	4.2	1	100	1	56	0.73
270	3203	121871280	4016	1045East	426	391	-35	1.7	1	100	1	35	0.92
271	3211	4024	2000001326	1054East	163	183	20	1.5	1	100	1	20	1.12
272	3211	2000001326	4024	1054West	85	106	21	2.1	1	100	1	21	1.25
273	3217	4047	121899410	1173North	199	182	-17	1.2	1	100	1	17	0.91
274	3217	121899410	4047	1173South	195	208	13	0.9	1	100	1	13	1.07
275	3246	4051	121688343	1133North	422	407	-15	0.7	1	100	1	15	0.96
276	3246	121688343	4051	1133South	278	340	62	3.5	1	100	1	62	1.22
277	3284	4035	121729493	20224West	122	143	21	1.8	1	100	1	21	1.17
278	3284	121729493	4035	20224East	259	299	40	2.4	1	100	1	40	1.15
279	3295	4023	121781751	1043West	271	285	14	0.8	1	100	1	14	1.05
280	3295	121781751	4023	1043East	448	450	2	0.1	1	100	1	2	1.00
281	3305	121621692	2000001920	201082South	328	668	340	15.2	0	100	0	340	2.04
282	3305	2000001920	121621692	201082North	647	843	196	7.2	0	100	0	196	1.30
283	3308	121607393	121622217	15010South	2705	2677	-28	0.5	1	400	1	28	0.99
284	3308	121622217	121607393	15010North	3542	3615	73	1.2	1	400	1	73	1.02
285	3312	121901421	2000001923	1032North	253	223	-30	1.9	1	100	1	30	0.88
286	3312	2000001923	121901421	1032South	534	497	-37	1.6	1	100	1	37	0.93
287	3315	121800187	2000001925	1261North	229	230	1	0.1	1	100	1	1	1.00
288	3315	2000001925	121800187	1261South	250	255	5	0.3	1	100	1	5	1.02

289	3316	121792399	2000001926	1051East	312	311	-1	0.1	1	100	1	1	1.00
290	3316	2000001926	121792399	1051West	325	320	-5	0.3	1	100	1	5	0.98
291	3318	121899396	2000001927	1052West	529	495	-34	1.5	1	100	1	34	0.94
292	3318	2000001927	121899396	1052East	300	308	8	0.5	1	100	1	8	1.03
293	3338	121771047	2000001939	200713West	1942	2085	143	3.2	1	291	1	143	1.07
294	3338	2000001939	121771047	200713East	1660	1707	47	1.1	1	249	1	47	1.03
295	3366	121900937	2000001962	3702South	224	236	12	0.8	1	100	1	12	1.05
296	3366	2000001962	121900937	3702North	340	388	48	2.5	1	100	1	48	1.14
297	3377	121900937	2000001970	3703West	245	267	22	1.4	1	100	1	22	1.09
298	3377	2000001970	121900937	3703East	312	341	29	1.6	1	100	1	29	1.09
299	3389	2000001969	2000002032	200717West	319	342	23	1.3	1	100	1	23	1.07
300	3389	2000002032	2000001969	200717East	371	386	15	0.8	1	100	1	15	1.04
301	3396	2000001988	2000002006	200718East	381	392	11	0.6	1	100	1	11	1.03
302	3396	2000002006	2000001988	200718West	384	404	20	1.0	1	100	1	20	1.05
303	3409	2000001985	2000002001	200719West	474	495	21	1.0	1	100	1	21	1.04
304	3409	2000002001	2000001985	200719East	427	432	5	0.2	1	100	1	5	1.01
305	3419	2000002007	2000002046	200715East	410	415	5	0.2	1	100	1	5	1.01
306	3419	2000002046	2000002007	200715West	397	427	30	1.5	1	100	1	30	1.08
307	3437	86	2000002022	20084North	478	488	10	0.5	1	100	1	10	1.02
308	3437	2000002022	86	20084South	349	309	-40	2.2	1	100	1	40	0.89
309	3444	121894461	2000034705	20112South	1038	1138	100	3.0	1	156	1	100	1.10
310	3444	2000034705	121894461	20112North	2877	2825	-52	1.0	1	400	1	52	0.98
311	3473	2000002031	2000002044	200716West	327	356	29	1.6	1	100	1	29	1.09
312	3473	2000002044	2000002031	200716East	381	418	37	1.9	1	100	1	37	1.10
313	3488	121788687	2000002055	1022North	195	208	13	0.9	1	100	1	13	1.07
314	3488	2000002055	121788687	1022South	450	454	4	0.2	1	100	1	4	1.01
315	3511	228	2000002074	20016South	771	749	-22	0.8	1	116	1	22	0.97
316	3511	2000002074	228	20016North	485	517	32	1.4	1	100	1	32	1.07
317	3574	121725157	2000002101	1223East	592	396	-196	8.8	0	100	0	196	0.67
318	3574	2000002101	121725157	1223West	506	356	-150	7.2	0	100	0	150	0.70
319	3586	121852372	2000002109	1242West	572	458	-114	5.0	0	100	0	114	0.80
320	3586	2000002109	121852372	1242East	555	404	-151	6.9	0	100	0	151	0.73
321	3594	121787506	2000002113	20525East	848	1025	177	5.8	0	127	0	177	1.21
322	3594	2000002113	121787506	20525West	514	604	90	3.8	1	100	1	90	1.18
323	3609	121899832	2000002124	20801North	379	362	-17	0.9	1	100	1	17	0.96
324	3609	2000002124	121899832	20801South	279	272	-7	0.4	1	100	1	7	0.97
325	3787	121890765	121897671	20118South	599	697	98	3.8	1	100	1	98	1.16
326	3787	121897671	121890765	20118North	1860	1864	4	0.1	1	279	1	4	1.00
327	3829	2000002479	2000002482	1055East	134	140	6	0.5	1	100	1	6	1.04
328	3829	2000002482	2000002479	1055West	102	159	57	5.0	1	100	1	57	1.56
329	3831	2000002479	2000002484	1056West	98	140	42	3.9	1	100	1	42	1.43
330	3831	2000002484	2000002479	1056East	125	128	3	0.3	1	100	1	3	1.02

331	3870	2000002491	2000002520	20119South	348	371	23	1.2	1	100	1	23	1.07
332	3870	2000002520	2000002491	20119North	1070	1082	12	0.4	1	161	1	12	1.01
333	3875	121899797	2000002525	20113North	28	21	-7	1.4	1	100	1	7	0.75
334	3875	2000002525	121899797	20113South	27	23	-4	0.8	1	100	1	4	0.85
335	3998	121795184	2000002585	1172West	164	145	-19	1.5	1	100	1	19	0.88
336	3998	2000002585	121795184	1172East	137	123	-14	1.2	1	100	1	14	0.90
337	4109	121812923	2000002625	1023North	284	296	12	0.7	1	100	1	12	1.04
338	4109	2000002625	121812923	1023South	973	1008	35	1.1	1	146	1	35	1.04
339	4113	2000002626	500001006	201081North	784	974	190	6.4	0	118	0	190	1.24
340	4238	121620122	121628805	1502South	4321	4516	195	2.9	1	400	1	195	1.05
341	4238	121628805	121620122	1502North	5569	5665	96	1.3	1	400	1	96	1.02
342	4305	121616848	121632410	1014South	5239	5464	225	3.1	1	400	1	225	1.04
343	4305	121632410	121616848	1014North	3765	4025	260	4.2	1	400	1	260	1.07
344	4321	121631867	2000714612	1011West	1986	2240	254	5.5	0	298	1	254	1.13
345	4321	2000714612	121631867	1011East	1117	1200	83	2.4	1	168	1	83	1.07
346	4322	121611221	121617657	20011South	4891	5158	267	3.8	1	400	1	267	1.05
347	4322	121617657	121611221	20011North	2649	2679	30	0.6	1	397	1	30	1.01
348	4359	121626007	2000001958	20021North	1314	1313	-1	0.0	1	197	1	1	1.00
349	4359	2000001958	121626007	20021South	2104	2103	-1	0.0	1	316	1	1	1.00
350	4384	121784052	2000004570	1331West	273	283	10	0.6	1	100	1	10	1.04
351	4384	2000004570	121784052	1331East	571	581	10	0.4	1	100	1	10	1.02
352	4553	121636676	2000034608	1015North	1200	1248	48	1.4	1	180	1	48	1.04
353	4553	2000034608	121636676	1015South	3120	3055	-65	1.2	1	400	1	65	0.98
354	4580	121770004	2000034623	20243West	995	1004	9	0.3	1	149	1	9	1.01
355	4580	2000034623	121770004	20243East	329	348	19	1.0	1	100	1	19	1.06
356	4598	121819228	2000034633	1121West	122	194	72	5.7	0	100	1	72	1.59
357	4598	2000034633	121819228	1121East	119	182	63	5.1	0	100	1	63	1.53
358	4726	121758664	2000002025	3704West	413	507	94	4.4	1	100	1	94	1.23
359	4726	2000002025	121758664	3704East	726	815	89	3.2	1	109	1	89	1.12
360	4969	121901533	2000714488	3604East	465	494	29	1.3	1	100	1	29	1.06
361	4969	2000714488	121901533	3604West	1135	1154	19	0.6	1	170	1	19	1.02
362	5028	121870243	121874720	20044East	684	652	-32	1.2	1	100	1	32	0.95
363	5028	121874720	121870243	20044West	516	490	-26	1.2	1	100	1	26	0.95
364	5036	121608284	121806796	20022North	497	554	57	2.5	1	100	1	57	1.11
365	5036	121806796	121608284	20022South	2041	2182	141	3.1	1	306	1	141	1.07
366	5049	121637498	121642477	1113South	1769	1683	-86	2.1	1	265	1	86	0.95
367	5049	121642477	121637498	1113North	4607	4466	-141	2.1	1	400	1	141	0.97
368	5056	121616903	121620245	1034North	2209	2181	-28	0.6	1	331	1	28	0.99
369	5056	121620245	121616903	1034South	3517	3461	-56	0.9	1	400	1	56	0.98
370	5107	121669371	121672338	20201South	1358	1302	-56	1.5	1	204	1	56	0.96
371	5107	121672338	121669371	20201North	487	461	-26	1.2	1	100	1	26	0.95
372	5114	121645478	121651743	1081East	1400	1297	-103	2.8	1	210	1	103	0.93

373	5114	121651743	121645478	1081West	1394	1337	-57	1.5	1	209	1	57	0.96
374	5139	2000001845	2000714623	1542West	112	121	9	0.8	1	100	1	9	1.08
375	5139	2000714623	2000001845	1542East	90	121	31	3.0	1	100	1	31	1.34
376	5164	121756689	121759476	20079East	909	885	-24	0.8	1	136	1	24	0.97
377	5164	121759476	121756689	20079West	712	719	7	0.3	1	107	1	7	1.01
378	5170	121744268	121756596	20077West	720	751	31	1.1	1	108	1	31	1.04
379	5170	121756596	121744268	20077East	1116	1173	57	1.7	1	167	1	57	1.05
380	5256	164	2000714704	1771North	324	303	-21	1.2	1	100	1	21	0.94
381	5256	2000714704	164	1771South	541	492	-49	2.2	1	100	1	49	0.91
382	5260	2000001705	2000714709	20802North	338	327	-11	0.6	1	100	1	11	0.97
383	5260	2000714709	2000001705	20802South	180	163	-17	1.3	1	100	1	17	0.91
384	7016	121737096	121739187	20076West	887	918	31	1.0	1	133	1	31	1.03
385	7016	121739187	121737096	20076East	1695	1746	51	1.2	1	254	1	51	1.03
386	7021	121625454	121638341	15011South	2339	2064	-275	5.9	0	351	1	275	0.88
387	7021	121638341	121625454	15011North	3648	3507	-141	2.4	1	400	1	141	0.96
388	7023	121606598	121639135	20111South	1581	1556	-25	0.6	1	237	1	25	0.98
389	7023	121639135	121606598	20111North	4152	4063	-89	1.4	1	400	1	89	0.98
390	46402	121862879	121864698	20255East	351	357	6	0.3	1	100	1	6	1.02
391	46402	121864698	121862879	20255West	391	384	-7	0.4	1	100	1	7	0.98
392	47366	121830350	121873849	20065East	1467	1637	170	4.3	1	220	1	170	1.12
393	47366	121873849	121830350	20065West	807	1016	209	6.9	0	121	0	209	1.26
394	48089	121810483	121872749	3401West	183	249	66	4.5	1	100	1	66	1.36
395	48089	121872749	121810483	3401East	397	445	48	2.3	1	100	1	48	1.12
396	50644	121880125	121883720	20252East	333	334	1	0.1	1	100	1	1	1.00
397	50644	121883720	121880125	20252West	330	330	0	0.0	1	100	1	0	1.00
398	50645	121878897	121886029	1111North	516	515	-1	0.0	1	100	1	1	1.00
399	50645	121886029	121878897	1111South	504	480	-24	1.1	1	100	1	24	0.95
400	50659	121878765	121887869	1112North	425	407	-18	0.9	1	100	1	18	0.96
401	50659	121887869	121878765	1112South	551	532	-19	0.8	1	100	1	19	0.97
402	52322	121606343	121895202	1811South	173	188	15	1.1	1	100	1	15	1.09
403	52322	121895202	121606343	1811North	971	960	-11	0.4	1	146	1	11	0.99
404	52902	121896900	2000002522	20114North	1072	1103	31	0.9	1	161	1	31	1.03
405	52902	2000002522	121896900	20114South	362	395	33	1.7	1	100	1	33	1.09
406	549454109	121625904	121625905	20012North_slip	156	222	66	4.8	1	100	1	66	1.42
407	549458121	121617120	121631566	20012North_main	1050	1026	-24	0.7	1	158	1	24	0.98
408	549458121	121631566	121617120	20012South_main	2746	2652	-94	1.8	1	400	1	94	0.97
409	553058336	121608946	121612882	1311West	318	296	-22	1.3	1	100	1	22	0.93
410	553058336	121612882	121608946	1311East	407	387	-20	1.0	1	100	1	20	0.95
411	554375343	121609142	121635289	1312North	621	576	-45	1.8	1	100	1	45	0.93
412	554375343	121635289	121609142	1312South	586	559	-27	1.1	1	100	1	27	0.95
413	554449560	121674035	121674036	200811West	1546	1548	2	0.1	1	232	1	2	1.00
414	554449560	121674036	121674035	200811East	1369	1422	53	1.4	1	205	1	53	1.04

415	554454057	121614467	121620668	1033North	1465	1614	149	3.8	1	220	1	149	1.10
416	554454057	121620668	121614467	1033South	3244	3375	131	2.3	1	400	1	131	1.04
417	588987149	121598492	121602822	20035North	286	279	-7	0.4	1	100	1	7	0.98
418	588987149	121602822	121598492	20035South	443	436	-7	0.3	1	100	1	7	0.98
419	590511931	121610359	121641108	15012South	1170	1126	-44	1.3	1	176	1	44	0.96
420	590511931	121641108	121610359	15012North	2987	2812	-175	3.2	1	400	1	175	0.94
421	707711508	121583564	121584273	208001West	371	349	-22	1.2	1	100	1	22	0.94
422	707711508	121584273	121583564	208001East	525	500	-25	1.1	1	100	1	25	0.95
423	714088067	121589251	121592727	1681East	149	154	5	0.4	1	100	1	5	1.03
424	714088067	121592727	121589251	1681West	103	109	6	0.6	1	100	1	6	1.06
425	719956103	121167836	121599058	20036South	107	121	14	1.3	1	100	1	14	1.13
426	719956103	121599058	121167836	20036North	103	103	0	0.0	1	100	1	0	1.00
427	720544847	121600251	121600405	1161West	68	43	-25	3.4	1	100	1	25	0.63
428	720544847	121600405	121600251	1161East	61	51	-10	1.3	1	100	1	10	0.84
429	721225505	121600970	121604340	1035North	366	436	70	3.5	1	100	1	70	1.19
430	721225505	121604340	121600970	1035South	436	436	0	0.0	1	100	1	0	1.00
431	725567258	121612648	121614236	1071West	2985	2891	-94	1.7	1	400	1	94	0.97
432	725567258	121614236	121612648	1071East	4997	4805	-192	2.7	1	400	1	192	0.96
433	730379628	121636334	121617120	20012South_slip	397	404	7	0.3	1	100	1	7	1.02
434	731701292	121614986	121625005	1504North	5667	5587	-80	1.1	1	400	1	80	0.99
435	731701292	121625005	121614986	1504South	4744	4922	178	2.6	1	400	1	178	1.04
436	734302647	121620123	121626709	1501North	5391	5498	107	1.5	1	400	1	107	1.02
437	734302647	121626709	121620123	1501South	4048	4202	154	2.4	1	400	1	154	1.04
438	736380918	121615920	121629569	1505North	5376	5572	196	2.6	1	400	1	196	1.04
439	736380918	121629569	121615920	1505South	4805	5055	250	3.6	1	400	1	250	1.05
440	742637630	121605847	121624337	1013North	1189	1102	-87	2.6	1	178	1	87	0.93
441	742637630	121624337	121605847	1013South	1395	1310	-85	2.3	1	209	1	85	0.94
442	747563463	121625876	121633954	1812West	1159	1323	164	4.7	1	174	1	164	1.14
443	747563463	121633954	121625876	1812East	1327	1547	220	5.8	0	199	0	220	1.17
444	749408337	121624629	121635351	1321West	1549	1506	-43	1.1	1	232	1	43	0.97
445	749408337	121635351	121624629	1321East	1496	1388	-108	2.8	1	224	1	108	0.93
446	751108037	121613700	121623860	1506South	5219	5315	96	1.3	1	400	1	96	1.02
447	751108037	121623860	121613700	1506North	4614	4705	91	1.3	1	400	1	91	1.02
448	751257437	121623860	121635051	1507South	3849	3329	-520	8.7	0	400	0	520	0.86
449	751257437	121635051	121623860	1507North	3217	3089	-128	2.3	1	400	1	128	0.96
450	751782353	121605953	121614074	1508South	4739	5117	378	5.4	0	400	1	378	1.08
451	751782353	121614074	121605953	1508North	5554	5686	132	1.8	1	400	1	132	1.02
452	759735830	121643856	121678554	1221East	663	497	-166	6.9	0	100	0	166	0.75
453	759735830	121678554	121643856	1221West	267	221	-46	2.9	1	100	1	46	0.83
454	762970802	121643386	121668405	1256South	3224	3493	269	4.6	1	400	1	269	1.08
455	762970802	121668405	121643386	1256North	2306	2722	416	8.3	0	346	0	416	1.18
456	765084978	121647012	121670921	1253West	3747	4023	276	4.4	1	400	1	276	1.07

457	765084978	121670921	121647012	1253East	3226	3418	192	3.3	1	400	1	192	1.06
458	796986758	121660066	121674564	1281North	961	910	-51	1.7	1	144	1	51	0.95
459	796986758	121674564	121660066	1281South	1168	1183	15	0.4	1	175	1	15	1.01
460	803755898	121679655	121666426	3801North_slip	196	211	15	1.1	1	100	1	15	1.08
461	830511612	4133	121665568	20222East	1293	1241	-52	1.5	1	194	1	52	0.96
462	830511612	121665568	4133	20222West	444	449	5	0.2	1	100	1	5	1.01
463	840539223	121652862	121674687	1258West	2815	2834	19	0.4	1	400	1	19	1.01
464	840539223	121674687	121652862	1258East	2876	3104	228	4.2	1	400	1	228	1.08
465	840881880	121652971	121664532	1255East	2622	2844	222	4.2	1	393	1	222	1.08
466	840881880	121664532	121652971	1255West	1291	1455	164	4.4	1	194	1	164	1.13
467	843045822	4160	121677183	202639North	217	229	12	0.8	1	100	1	12	1.06
468	843045822	121677183	4160	202639South	269	273	4	0.2	1	100	1	4	1.01
469	843969122	4161	121667163	1271North	610	640	30	1.2	1	100	1	30	1.05
470	843969122	121667163	4161	1271South	937	1032	95	3.0	1	141	1	95	1.10
471	846591053	121663055	121673832	20223South	701	745	44	1.6	1	105	1	44	1.06
472	846591053	121673832	121663055	20223North	891	952	61	2.0	1	134	1	61	1.07
473	847275507	121661509	121679655	3802South_slip	458	327	-131	6.6	0	100	0	131	0.71
474	880428780	121687758	121690055	1141South	351	477	126	6.2	0	100	0	126	1.36
475	880428780	121690055	121687758	1141North	316	303	-13	0.7	1	100	1	13	0.96
476	894267755	121686471	121692845	20563West	115	92	-23	2.3	1	100	1	23	0.80
477	894267755	121692845	121686471	20563East	208	201	-7	0.5	1	100	1	7	0.97
478	898015622	121689345	121696821	1031East	82	89	7	0.8	1	100	1	7	1.09
479	898015622	121696821	121689345	1031West	107	99	-8	0.8	1	100	1	8	0.93
480	899952557	121686584	121689834	1131West	258	247	-11	0.7	1	100	1	11	0.96
481	899952557	121689834	121686584	1131East	254	266	12	0.7	1	100	1	12	1.05
482	902057033	121692920	121694426	1151South	90	70	-20	2.2	1	100	1	20	0.78
483	902057033	121694426	121692920	1151North	160	113	-47	4.0	1	100	1	47	0.71
484	904153130	121691331	121695474	1132West	763	769	6	0.2	1	114	1	6	1.01
485	904153130	121695474	121691331	1132East	566	676	110	4.4	1	100	0	110	1.19
486	905106002	121693767	121693779	20152North	202	183	-19	1.4	1	100	1	19	0.91
487	905106002	121693779	121693767	20152South	268	285	17	1.0	1	100	1	17	1.06
488	1004232155	121716967	121719397	20172North	649	608	-41	1.6	1	100	1	41	0.94
489	1004232155	121719397	121716967	20172South	511	599	88	3.7	1	100	1	88	1.17
490	1077821118	121723498	121729493	1222South	280	344	64	3.6	1	100	1	64	1.23
491	1077821118	121729493	121723498	1222North	193	223	30	2.1	1	100	1	30	1.16
492	1102491608	121735450	121742133	20072West	1686	1695	9	0.2	1	253	1	9	1.01
493	1102491608	121742133	121735450	20072East	3122	3051	-71	1.3	1	400	1	71	0.98
494	1130484155	121736305	121742427	20041East	2815	2851	36	0.7	1	400	1	36	1.01
495	1130484155	121742427	121736305	20041West	1296	1105	-191	5.5	0	194	1	191	0.85
496	1131531773	121734666	121734981	20042West	833	965	132	4.4	1	125	0	132	1.16
497	1131531773	121734981	121734666	20042East	2223	2276	53	1.1	1	333	1	53	1.02
498	1131793880	121738917	121740681	20075East	1828	1879	51	1.2	1	274	1	51	1.03

499	1131793880	121740681	121738917	20075West	988	986	-2	0.1	1	148	1	2	1.00
500	1184390892	121746354	121752733	1761North	247	235	-12	0.8	1	100	1	12	0.95
501	1184390892	121752733	121746354	1761South	173	186	13	1.0	1	100	1	13	1.08
502	1227893663	121756715	121758920	20078West	740	771	31	1.1	1	111	1	31	1.04
503	1227893663	121758920	121756715	20078East	1104	1148	44	1.3	1	166	1	44	1.04
504	1305390005	121770042	121776927	200714West	708	574	-134	5.3	0	106	0	134	0.81
505	1305390005	121776927	121770042	200714East	410	393	-17	0.8	1	100	1	17	0.96
506	1370778242	121766408	121779479	20211West	271	301	30	1.8	1	100	1	30	1.11
507	1370778242	121779479	121766408	20211East	346	367	21	1.1	1	100	1	21	1.06
508	1401276380	121781117	121783536	20045West	270	299	29	1.7	1	100	1	29	1.11
509	1401276380	121783536	121781117	20045East	366	394	28	1.4	1	100	1	28	1.08
510	1417347578	121784287	121784455	3101North	1045	1075	30	0.9	1	157	1	30	1.03
511	1417347578	121784455	121784287	3101South	490	527	37	1.6	1	100	1	37	1.08
512	1430975918	121785756	121788170	20526North	231	358	127	7.4	0	100	0	127	1.55
513	1430975918	121788170	121785756	20526South	514	758	244	9.7	0	100	0	244	1.47
514	1557111842	121712778	121803153	1171North	200	176	-24	1.8	1	100	1	24	0.88
515	1557111842	121803153	121712778	1171South	324	313	-11	0.6	1	100	1	11	0.97
516	1588811423	121806846	121811204	3404East	482	495	13	0.6	1	100	1	13	1.03
517	1607677058	121810977	121814291	3102South	221	314	93	5.7	0	100	1	93	1.42
518	1642458672	121805442	121813032	201321South	1078	919	-159	5.0	0	162	1	159	0.85
519	1642458672	121813032	121805442	201321North	457	370	-87	4.3	1	100	1	87	0.81
520	1645921112	121809222	121809566	31031South	1604	1750	146	3.6	1	241	1	146	1.09
521	1650648987	121804943	121806846	3404West	293	319	26	1.5	1	100	1	26	1.09
522	1706074580	121146850	121817334	1531North	149	150	1	0.1	1	100	1	1	1.01
523	1706074580	121817334	121146850	1531South	225	246	21	1.4	1	100	1	21	1.09
524	1885921037	121836576	121840654	1041North	1326	1307	-19	0.5	1	199	1	19	0.99
525	1885921037	121840654	121836576	1041South	431	413	-18	0.9	1	100	1	18	0.96
526	2084217408	121845871	121848701	1651North	87	116	29	2.9	1	100	1	29	1.33
527	2084217408	121848701	121845871	1651South	135	165	30	2.4	1	100	1	30	1.22
528	2109307130	121847938	121856699	1241South	192	161	-31	2.3	1	100	1	31	0.84
529	2109307130	121856699	121847938	1241North	212	139	-73	5.5	0	100	1	73	0.66
530	2141041448	121861304	121863235	20254North	1626	1539	-87	2.2	1	244	1	87	0.95
531	2141041448	121863235	121861304	20254South	875	817	-58	2.0	1	131	1	58	0.93
532	2147474939	121840932	121899414	20153North	161	158	-3	0.2	1	100	1	3	0.98
533	2147474939	121899414	121840932	20153South	288	286	-2	0.1	1	100	1	2	0.99
534	2147475008	121881810	121899442	20301East	156	150	-6	0.5	1	100	1	6	0.96
535	2147475008	121899442	121881810	20301West	228	237	9	0.6	1	100	1	9	1.04
536	2147475132	121719397	121899504	20171North	379	361	-18	0.9	1	100	1	18	0.95
537	2147475132	121899504	121719397	20171South	618	558	-60	2.5	1	100	1	60	0.90
538	2147475191	121816358	121899533	1021North	258	268	10	0.6	1	100	1	10	1.04
539	2147475191	121899533	121816358	1021South	390	398	8	0.4	1	100	1	8	1.02
540	2147475279	121695290	121899577	20151North	214	202	-12	0.8	1	100	1	12	0.94

541	2147475279	121899577	121695290	20151South	248	261	13	0.8	1	100	1	13	1.05
542	2147475424	121832513	121899677	20051East	181	191	10	0.7	1	100	1	10	1.06
543	2147475424	121899677	121832513	20051West	117	157	40	3.4	1	100	1	40	1.34
544	2147475530	121899726	121899730	1552South	122	120	-2	0.2	1	100	1	2	0.98
545	2147475530	121899730	121899726	1552North	106	103	-3	0.3	1	100	1	3	0.97
546	2147475694	121766952	121899812	20212East	882	884	2	0.1	1	132	1	2	1.00
547	2147475694	121899812	121766952	20212West	433	506	73	3.4	1	100	1	73	1.17
548	2147475710	121899819	121899820	20621South	183	158	-25	1.9	1	100	1	25	0.86
549	2147475710	121899820	121899819	20621North	140	129	-11	0.9	1	100	1	11	0.92
550	2147475747	4147	121899838	1711North	1067	1018	-49	1.5	1	160	1	49	0.95
551	2147475747	121899838	4147	1711South	718	726	8	0.3	1	108	1	8	1.01
552	2147475748	121658844	121899839	1712North	822	743	-79	2.8	1	123	1	79	0.90
553	2147475748	121899839	121658844	1712South	407	392	-15	0.8	1	100	1	15	0.96
554	2147475791	121863550	121899860	1723West	127	130	3	0.3	1	100	1	3	1.02
555	2147475791	121899860	121863550	1723East	206	209	3	0.2	1	100	1	3	1.01
556	2147475847	121899883	121899888	1691South	356	343	-13	0.7	1	100	1	13	0.96
557	2147475847	121899888	121899883	1691North	164	161	-3	0.2	1	100	1	3	0.98
558	2147475881	121853851	121899905	1751East	133	135	2	0.2	1	100	1	2	1.02
559	2147475881	121899905	121853851	1751West	154	160	6	0.5	1	100	1	6	1.04
560	2147475883	121852937	121899906	1621South	270	249	-21	1.3	1	100	1	21	0.92
561	2147475883	121899906	121852937	1621North	313	262	-51	3.0	1	100	1	51	0.84
562	2147475919	121722835	121899924	1721West	181	216	35	2.5	1	100	1	35	1.19
563	2147475919	121899924	121722835	1721East	260	284	24	1.5	1	100	1	24	1.09
564	2147475929	121759846	121899929	20081South	199	224	25	1.7	1	100	1	25	1.13
565	2147475929	121899929	121759846	20081North	410	403	-7	0.3	1	100	1	7	0.98
566	2147475976	121770292	121899953	20202South	398	420	22	1.1	1	100	1	22	1.06
567	2147475976	121899953	121770292	20202North	844	810	-34	1.2	1	127	1	34	0.96
568	2147475985	4042	121646401	1201South	330	289	-41	2.3	1	100	1	41	0.88
569	2147475985	121646401	4042	1201North	414	394	-20	1.0	1	100	1	20	0.95
570	2147475995	121667321	121899962	1252East	313	332	19	1.1	1	100	1	19	1.06
571	2147475995	121899962	121667321	1252West	979	994	15	0.5	1	147	1	15	1.02
572	2147476026	121754107	121899978	20082South	154	156	2	0.2	1	100	1	2	1.01
573	2147476026	121899978	121754107	20082North	233	234	1	0.1	1	100	1	1	1.00
574	2147476132	121659960	121900031	1731South	106	112	6	0.6	1	100	1	6	1.06
575	2147476132	121900031	121659960	1731North	93	98	5	0.5	1	100	1	5	1.05
576	2147476260	121750578	121900095	1243South	306	182	-124	7.9	0	100	0	124	0.59
577	2147476260	121900095	121750578	1243North	224	200	-24	1.6	1	100	1	24	0.89
578	2147476721	121818875	121900489	20024North	151	234	83	6.0	0	100	1	83	1.55
579	2147476721	121900489	121818875	20024South	156	165	9	0.7	1	100	1	9	1.06
580	2147476809	121900531	121900532	1841North	174	191	17	1.3	1	100	1	17	1.10
581	2147476809	121900532	121900531	1841South	1009	1051	42	1.3	1	151	1	42	1.04
582	2147483403	121900734	121900740	3804North	498	536	38	1.7	1	100	1	38	1.08

583	2147483403	121900740	121900734	3804South	778	806	28	1.0	1	117	1	28	1.04
584	2147483410	121900740	121900736	3805North	100	107	7	0.7	1	100	1	7	1.07
585	2147483411	121900735	121900740	3805South	37	111	74	8.6	0	100	1	74	3.00
586	2147483575	121847977	121900808	20241West	287	260	-27	1.6	1	100	1	27	0.91
587	2147483575	121900808	121847977	20241East	457	419	-38	1.8	1	100	1	38	0.92
588	2147483597	77	121900817	20083North	462	474	12	0.6	1	100	1	12	1.03
589	2147483597	121900817	77	20083South	398	375	-23	1.2	1	100	1	23	0.94
	TOTAL				479901	489411		13.7	546		555	29418	1.03

Table 8.3 Link Calibration - Heavy Vehicles (AM Peak)

Link Calibration – Heavy Vehicles					Average AM Peak Period (07-09)								
					Counts:	589		RESULT =	99.0%	RESULT =	99.8%		
					Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	TMU No	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	27	121901753	2000714598	20088South	76	90	14	1.5	1	100	1	14	1.18
2	27	2000714598	121901753	20088North	57	66	9	1.1	1	100	1	9	1.16
3	102	121766075	121768599	20203North	84	59	-25	3	1	100	1	25	0.7
4	102	121768599	121766075	20203South	100	69	-31	3.4	1	100	1	31	0.69
5	134	121901197	121901200	1521South	25	23	-2	0.4	1	100	1	2	0.92
6	134	121901200	121901197	1521North	24	21	-3	0.6	1	100	1	3	0.88
7	135	121900918	2000001963	3701North	47	59	12	1.6	1	100	1	12	1.26
8	135	2000001963	121900918	3701South	79	84	5	0.6	1	100	1	5	1.06
9	149	121769433	121773120	20205South	104	70	-34	3.6	1	100	1	34	0.67
10	149	121773120	121769433	20205North	87	59	-28	3.3	1	100	1	28	0.68
11	182	74	500000954	20242East	49	44	-5	0.7	1	100	1	5	0.9
12	182	500000954	74	20242West	35	36	1	0.2	1	100	1	1	1.03
13	211	121900894	121900908	20086North	76	96	20	2.2	1	100	1	20	1.26
14	211	121900908	121900894	20086South	79	102	23	2.4	1	100	1	23	1.29
15	252	121900934	2000002224	200721West	96	73	-23	2.5	1	100	1	23	0.76
16	252	2000002224	121900934	200721East	67	57	-10	1.3	1	100	1	10	0.85
17	267	1009	121900935	200720West	91	86	-5	0.5	1	100	1	5	0.95
18	267	121900935	1009	200720East	66	70	4	0.5	1	100	1	4	1.06
19	295	121900873	500000886	20089North	41	59	18	2.5	1	100	1	18	1.44
20	295	500000886	121900873	20089South	65	84	19	2.2	1	100	1	19	1.29
21	312	121900953	121900972	20018North	106	105	-1	0.1	1	100	1	1	0.99
22	312	121900972	121900953	20018South	138	144	6	0.5	1	100	1	6	1.04
23	318	121650954	2000002227	20258West	106	111	5	0.5	1	100	1	5	1.05
24	318	2000002227	121650954	20258East	91	107	16	1.6	1	100	1	16	1.18
25	331	121651256	121666057	20257West	87	98	11	1.1	1	100	1	11	1.13
26	331	121666057	121651256	20257East	80	87	7	0.8	1	100	1	7	1.09
27	335	121900968	121900969	200171South	141	146	5	0.4	1	100	1	5	1.04
28	335	121900969	121900968	200171North	104	106	2	0.2	1	100	1	2	1.02
29	376	121658901	121673245	20256East	69	82	13	1.5	1	100	1	13	1.19
30	376	121673245	121658901	20256West	68	88	20	2.3	1	100	1	20	1.29
31	384	121762978	121900998	20046East	18	23	5	1.1	1	100	1	5	1.28
32	384	121900998	121762978	20046West	20	23	3	0.6	1	100	1	3	1.15
33	415	121901009	121901016	1053East	11	13	2	0.6	1	100	1	2	1.18
34	415	121901016	121901009	1053West	19	18	-1	0.2	1	100	1	1	0.95
35	425	121646106	2000714590	20085North	72	79	7	0.8	1	100	1	7	1.1
36	425	2000714590	121646106	20085South	69	92	23	2.6	1	100	1	23	1.33

37	428	121900726	121901024	20061West	62	77	15	1.8	1	100	1	15	1.24
38	428	121901024	121900726	20061East	46	62	16	2.2	1	100	1	16	1.35
39	430	121679655	2000714591	200812South	80	106	26	2.7	1	100	1	26	1.33
40	430	2000714591	121679655	200812North	71	91	20	2.2	1	100	1	20	1.28
41	442	121668460	121679655	3802South_main	61	88	27	3.1	1	100	1	27	1.44
42	442	121679655	121668460	3801North_main	57	76	19	2.3	1	100	1	19	1.33
43	475	36	2000714592	3803North	61	82	21	2.5	1	100	1	21	1.34
44	475	2000714592	36	3803South	69	93	24	2.7	1	100	1	24	1.35
45	478	121901057	121901247	20063West	71	69	-2	0.2	1	100	1	2	0.97
46	478	121901247	121901057	20063East	46	56	10	1.4	1	100	1	10	1.22
47	495	121901065	121901086	20117North	46	44	-2	0.3	1	100	1	2	0.96
48	495	121901086	121901065	20117South	36	40	4	0.6	1	100	1	4	1.11
49	550	121900906	121900910	1086North	58	73	15	1.9	1	100	1	15	1.26
50	550	121900910	121900906	1086South	63	80	17	2	1	100	1	17	1.27
51	551	121901088	121901107	20116North	39	57	18	2.6	1	100	1	18	1.46
52	551	121901107	121901088	20116South	32	53	21	3.2	1	100	1	21	1.66
53	559	245	121894010	20115North	44	58	14	2	1	100	1	14	1.32
54	559	121894010	245	20115South	38	58	20	2.9	1	100	1	20	1.53
55	602	29	121901117	20182North	67	63	-4	0.5	1	100	1	4	0.94
56	602	121901117	29	20182South	61	60	-1	0.1	1	100	1	1	0.98
57	645	121900846	2000714596	20087South	95	107	12	1.2	1	100	1	12	1.13
58	645	2000714596	121900846	20087North	70	87	17	1.9	1	100	1	17	1.24
59	680	121901040	2000001664	20522North	20	18	-2	0.5	1	100	1	2	0.9
60	680	2000001664	121901040	20522South	29	22	-7	1.4	1	100	1	7	0.76
61	689	100	121901210	20561South	17	19	2	0.5	1	100	1	2	1.12
62	689	121901210	100	20561North	14	12	-2	0.6	1	100	1	2	0.86
63	771	121776709	2000714599	200722East	81	71	-10	1.1	1	100	1	10	0.88
64	771	2000714599	121776709	200722West	113	90	-23	2.3	1	100	1	23	0.8
65	782	121901279	121901292	20064West	68	71	3	0.4	1	100	1	3	1.04
66	782	121901292	121901279	20064East	49	57	8	1.1	1	100	1	8	1.16
67	840	121589623	2000714601	20183North	74	57	-17	2.1	1	100	1	17	0.77
68	840	2000714601	121589623	20183South	61	53	-8	1.1	1	100	1	8	0.87
69	916	1023	4014	20253East	39	50	11	1.6	1	100	1	11	1.28
70	916	4014	1023	20253West	64	65	1	0.1	1	100	1	1	1.02
71	978	1017	121901418	20524North	22	21	-1	0.2	1	100	1	1	0.95
72	978	121901418	1017	20524South	21	21	0	0	1	100	1	0	1
73	1003	1026	121901704	3314South	56	68	12	1.5	1	100	1	12	1.21
74	1003	121901704	1026	3314North	47	67	20	2.6	1	100	1	20	1.43
75	1051	121901170	500000875	20181South	35	30	-5	0.9	1	100	1	5	0.86
76	1051	500000875	121901170	20181North	36	30	-6	1	1	100	1	6	0.83
77	1054	121735111	121901606	20091South	79	100	21	2.2	1	100	1	21	1.27
78	1054	121901606	121735111	20091North	51	81	30	3.7	1	100	1	30	1.59

79	1096	121900048	121901489	1211East	15	15	0	0	1	100	1	0	1
80	1096	121901489	121900048	1211West	17	17	0	0	1	100	1	0	1
81	1106	121900049	121901497	202104South	26	19	-7	1.5	1	100	1	7	0.73
82	1106	121901497	121900049	202104North	24	17	-7	1.5	1	100	1	7	0.71
83	1107	121901490	121901493	202103North	20	14	-6	1.5	1	100	1	6	0.7
84	1107	121901493	121901490	202103South	22	16	-6	1.4	1	100	1	6	0.73
85	1112	121901492	121901498	202301South	13	10	-3	0.9	1	100	1	3	0.77
86	1112	121901498	121901492	202301North	10	9	-1	0.3	1	100	1	1	0.9
87	1114	1005	121901502	20185North	32	25	-7	1.3	1	100	1	7	0.78
88	1114	121901502	1005	20185South	35	29	-6	1.1	1	100	1	6	0.83
89	1115	121901501	2000002259	20186North	36	32	-4	0.7	1	100	1	4	0.89
90	1115	2000002259	121901501	20186South	37	35	-2	0.3	1	100	1	2	0.95
91	1211	121901556	121901570	3602East	43	51	8	1.2	1	100	1	8	1.19
92	1211	121901570	121901556	3602West	53	61	8	1.1	1	100	1	8	1.15
93	1212	121901567	121901570	3605West	23	23	0	0	1	100	1	0	1
94	1213	121901569	121901571	3603East	28	32	4	0.7	1	100	1	4	1.14
95	1213	121901571	121901569	3603West	42	37	-5	0.8	1	100	1	5	0.88
96	1238	1011	121901592	3601West	54	50	-4	0.6	1	100	1	4	0.93
97	1238	121901592	1011	3601East	38	39	1	0.2	1	100	1	1	1.03
98	1249	121901594	121901595	1782East	9	13	4	1.2	1	100	1	4	1.44
99	1249	121901595	121901594	1782West	15	14	-1	0.3	1	100	1	1	0.93
100	1301	191	121901635	1024South	42	52	10	1.5	1	100	1	10	1.24
101	1301	121901635	191	1024North	45	49	4	0.6	1	100	1	4	1.09
102	1313	4206	500001003	20071West	280	293	13	0.8	1	100	1	13	1.05
103	1313	500001003	4206	20071East	211	239	28	1.9	1	100	1	28	1.13
104	1390	121900168	121901692	20032North	16	13	-3	0.8	1	100	1	3	0.81
105	1390	121901692	121900168	20032South	22	16	-6	1.4	1	100	1	6	0.73
106	1422	121901716	121901715	3306South	6	5	-1	0.4	1	100	1	1	0.83
107	1424	121901709	121901717	3306North	7	7	0	0	1	100	1	0	1
108	1450	121900172	121901736	20031South	22	17	-5	1.1	1	100	1	5	0.77
109	1450	121901736	121900172	20031North	16	15	-1	0.3	1	100	1	1	0.94
110	1467	121901745	500000938	3303South	84	91	7	0.7	1	100	1	7	1.08
111	1467	500000938	121901745	3303North	51	77	26	3.3	1	100	1	26	1.51
112	1469	121806155	121901746	20033South	19	5	-14	4	1	100	1	14	0.26
113	1469	121901746	121806155	20033North	11	6	-5	1.7	1	100	1	5	0.55
114	1477	121901748	121901749	1037South	81	51	-30	3.7	1	100	1	30	0.63
115	1477	121901749	121901748	1037North	58	42	-16	2.3	1	100	1	16	0.72
116	1513	1022	121901815	20093North	36	35	-1	0.2	1	100	1	1	0.97
117	1513	121901815	1022	20093South	55	48	-7	1	1	100	1	7	0.87
118	1546	121901832	121901839	20908North	39	47	8	1.2	1	100	1	8	1.21
119	1546	121901839	121901832	20908South	53	64	11	1.4	1	100	1	11	1.21
120	1552	121901823	121901834	20094North	38	39	1	0.2	1	100	1	1	1.03

121	1552	121901834	121901823	20094South	55	52	-3	0.4	1	100	1	3	0.95
122	1553	121899898	121901835	1101South	15	19	4	1	1	100	1	4	1.27
123	1553	121901835	121899898	1101North	15	16	1	0.3	1	100	1	1	1.07
124	1567	121901482	121901845	20907South	42	46	4	0.6	1	100	1	4	1.1
125	1567	121901845	121901482	20907North	25	32	7	1.3	1	100	1	7	1.28
126	1570	121747244	121901848	1102East	10	7	-3	1	1	100	1	3	0.7
127	1570	121901848	121747244	1102West	13	11	-2	0.6	1	100	1	2	0.85
128	1571	121901483	121901858	20906North	35	54	19	2.8	1	100	1	19	1.54
129	1571	121901858	121901483	20906South	58	69	11	1.4	1	100	1	11	1.19
130	1601	2000002208	2000714604	200723East	380	348	-32	1.7	1	100	1	32	0.92
131	1601	2000714604	2000002208	200723West	394	310	-84	4.5	1	100	1	84	0.79
132	1602	121637653	2000002017	1044West	178	174	-4	0.3	1	100	1	4	0.98
133	1602	2000002017	121637653	1044East	141	146	5	0.4	1	100	1	5	1.04
134	1676	121624338	500000926	1012North	463	325	-138	7	0	100	0	138	0.7
135	1676	500000926	121624338	1012South	385	369	-16	0.8	1	100	1	16	0.96
136	1687	121607502	121635641	20047West	245	237	-8	0.5	1	100	1	8	0.97
137	1687	121635641	121607502	20047East	181	183	2	0.1	1	100	1	2	1.01
138	1715	121901422	500000937	3301North	74	110	36	3.8	1	100	1	36	1.49
139	1715	500000937	121901422	3301South	113	115	2	0.2	1	100	1	2	1.02
140	1719	121901433	500000947	3309South	62	79	17	2	1	100	1	17	1.27
141	1719	500000947	121901433	3309North	50	76	26	3.3	1	100	1	26	1.52
142	1720	121901716	500000949	3307North	54	76	22	2.7	1	100	1	22	1.41
143	1720	500000949	121901716	3307South	66	79	13	1.5	1	100	1	13	1.2
144	1744	4159	500000959	20204North	45	43	-2	0.3	1	100	1	2	0.96
145	1744	500000959	4159	20204South	56	47	-9	1.3	1	100	1	9	0.84
146	1753	121626994	121633442	1072West	321	350	29	1.6	1	100	1	29	1.09
147	1753	121633442	121626994	1072East	300	336	36	2	1	100	1	36	1.12
148	1761	121595212	2000002245	20184South	76	60	-16	1.9	1	100	1	16	0.79
149	1761	2000002245	121595212	20184North	82	63	-19	2.2	1	100	1	19	0.77
150	1812	121901603	500000991	20092South	72	85	13	1.5	1	100	1	13	1.18
151	1812	500000991	121901603	20092North	47	66	19	2.5	1	100	1	19	1.4
152	1839	500001009	2000002627	201081South	70	55	-15	1.9	1	100	1	15	0.79
153	1901	121598427	121899735	20034West	34	42	8	1.3	1	100	1	8	1.24
154	1901	121899735	121598427	20034East	34	42	8	1.3	1	100	1	8	1.24
155	1908	121839582	121899593	1042South	12	9	-3	0.9	1	100	1	3	0.75
156	1908	121899593	121839582	1042North	18	13	-5	1.3	1	100	1	5	0.72
157	1939	121899925	2000001296	20221North	22	19	-3	0.7	1	100	1	3	0.86
158	1939	2000001296	121899925	20221South	17	16	-1	0.2	1	100	1	1	0.94
159	1969	121616074	121636712	1503North	396	358	-38	2	1	100	1	38	0.9
160	1969	121636712	121616074	1503South	421	429	8	0.4	1	100	1	8	1.02
161	2158	121607497	121615809	1509North	166	170	4	0.3	1	100	1	4	1.02
162	2158	121615809	121607497	1509South	228	254	26	1.7	1	100	1	26	1.11

163	2170	121694399	2000001650	20562North	4	7	3	1.3	1	100	1	3	1.75
164	2170	2000001650	121694399	20562South	6	8	2	0.8	1	100	1	2	1.33
165	2200	121835885	2000001659	1593East	9	7	-2	0.7	1	100	1	2	0.78
166	2200	2000001659	121835885	1593West	9	7	-2	0.7	1	100	1	2	0.78
167	2222	121793320	2000001670	1842North	11	15	4	1.1	1	100	1	4	1.36
168	2222	2000001670	121793320	1842South	9	13	4	1.2	1	100	1	4	1.44
169	2231	121899704	2000001679	20611South	22	17	-5	1.1	1	100	1	5	0.77
170	2231	2000001679	121899704	20611North	22	16	-6	1.4	1	100	1	6	0.73
171	2242	4028	121169472	1871North	4	2	-2	1.2	1	100	1	2	0.5
172	2242	121169472	4028	1871South	2	2	0	0	1	100	1	0	1
173	2249	2000001667	2000001834	20811North	11	13	2	0.6	1	100	1	2	1.18
174	2249	2000001834	2000001667	20811South	7	11	4	1.3	1	100	1	4	1.57
175	2250	121899721	2000001675	1551North	11	13	2	0.6	1	100	1	2	1.18
176	2250	2000001675	121899721	1551South	20	21	1	0.2	1	100	1	1	1.05
177	2262	121876322	2000001637	20521South	25	25	0	0	1	100	1	0	1
178	2262	2000001637	121876322	20521North	17	17	0	0	1	100	1	0	1
179	2269	2000001664	2000001665	1524North	25	18	-7	1.5	1	100	1	7	0.72
180	2269	2000001665	2000001664	1524South	31	22	-9	1.7	1	100	1	9	0.71
181	2270	4056	121822209	1624South	15	11	-4	1.1	1	100	1	4	0.73
182	2270	121822209	4056	1624North	12	10	-2	0.6	1	100	1	2	0.83
183	2283	121826147	2000001463	1523South	15	10	-5	1.4	1	100	1	5	0.67
184	2283	2000001463	121826147	1523North	15	10	-5	1.4	1	100	1	5	0.67
185	2286	121824886	2000001442	1803North	10	14	4	1.2	1	100	1	4	1.4
186	2286	2000001442	121824886	1803South	11	10	-1	0.3	1	100	1	1	0.91
187	2292	121901758	2000001443	20523South	46	42	-4	0.6	1	100	1	4	0.91
188	2292	2000001443	121901758	20523North	49	0	-49	9.9	0	100	1	49	0
189	2325	121582230	2000001436	20812North	8	7	-1	0.4	1	100	1	1	0.88
190	2325	2000001436	121582230	20812South	7	8	1	0.4	1	100	1	1	1.14
191	2333	121757032	2000001704	1801North	14	12	-2	0.6	1	100	1	2	0.86
192	2333	2000001704	121757032	1801South	15	11	-4	1.1	1	100	1	4	0.73
193	2339	4063	2000001484	1781South	6	9	3	1.1	1	100	1	3	1.5
194	2339	2000001484	4063	1781North	5	7	2	0.8	1	100	1	2	1.4
195	2373	121899976	2000001691	1623NorthEast	14	17	3	0.8	1	100	1	3	1.21
196	2373	2000001691	121899976	1623SouthWest	17	20	3	0.7	1	100	1	3	1.18
197	2377	121855538	2000001465	1622South	13	17	4	1	1	100	1	4	1.31
198	2377	2000001465	121855538	1622North	9	15	6	1.7	1	100	1	6	1.67
199	2398	121716165	2000001470	1661North	9	10	1	0.3	1	100	1	1	1.11
200	2398	2000001470	121716165	1661South	10	11	1	0.3	1	100	1	1	1.1
201	2417	121591267	2000001508	20671North	3	2	-1	0.6	1	100	1	1	0.67
202	2417	2000001508	121591267	20671South	3	4	1	0.5	1	100	1	1	1.33
203	2441	121586954	2000001526	1851South	7	9	2	0.7	1	100	1	2	1.29
204	2441	2000001526	121586954	1851North	8	9	1	0.3	1	100	1	1	1.13

205	2451	2000001468	2000001469	1741East	13	13	0	0	1	100	1	0	1
206	2451	2000001469	2000001468	1741West	13	15	2	0.5	1	100	1	2	1.15
207	2465	121766606	2000001531	1692West	27	30	3	0.6	1	100	1	3	1.11
208	2465	2000001531	121766606	1692East	26	30	4	0.8	1	100	1	4	1.15
209	2475	121900046	2000001712	1693South	6	5	-1	0.4	1	100	1	1	0.83
210	2475	2000001712	121900046	1693North	7	5	-2	0.8	1	100	1	2	0.71
211	2497	4087	2000001541	20861West	9	6	-3	1.1	1	100	1	3	0.67
212	2497	2000001541	4087	20861East	5	5	0	0	1	100	1	0	1
213	2506	4088	2000001557	20701West	7	9	2	0.7	1	100	1	2	1.29
214	2506	2000001557	4088	20701East	6	9	3	1.1	1	100	1	3	1.5
215	2531	121723257	2000001571	1701West	4	5	1	0.5	1	100	1	1	1.25
216	2531	2000001571	121723257	1701East	3	5	2	1	1	100	1	2	1.67
217	2532	121723257	2000001578	1714North	1	5	4	2.3	1	100	1	4	5
218	2532	2000001578	121723257	1714South	1	4	3	1.9	1	100	1	3	4
219	2546	2000001579	2000001580	1722East	14	8	-6	1.8	1	100	1	6	0.57
220	2546	2000001580	2000001579	1722West	14	9	-5	1.5	1	100	1	5	0.64
221	2585	2000001603	2000001722	20721West	6	7	1	0.4	1	100	1	1	1.17
222	2585	2000001722	2000001603	20721East	10	11	1	0.3	1	100	1	1	1.1
223	2610	121680624	2000001620	1715North	9	11	2	0.6	1	100	1	2	1.22
224	2610	2000001620	121680624	1715South	9	12	3	0.9	1	100	1	3	1.33
225	2624	121668320	2000001614	1713North	14	10	-4	1.2	1	100	1	4	0.71
226	2624	2000001614	121668320	1713South	21	15	-6	1.4	1	100	1	6	0.71
227	2654	2000001306	2000001747	1592East	6	7	1	0.4	1	100	1	1	1.17
228	2654	2000001747	2000001306	1592West	5	6	1	0.4	1	100	1	1	1.2
229	2669	2000001758	2000001759	20591East	4	7	3	1.3	1	100	1	3	1.75
230	2669	2000001759	2000001758	20591West	5	8	3	1.2	1	100	1	3	1.6
231	2716	2000001789	2000001790	20601East	10	11	1	0.3	1	100	1	1	1.1
232	2716	2000001790	2000001789	20601West	11	10	-1	0.3	1	100	1	1	0.91
233	2721	2000001793	2000001794	1601East	7	6	-1	0.4	1	100	1	1	0.86
234	2721	2000001794	2000001793	1601West	6	4	-2	0.9	1	100	1	2	0.67
235	2726	121791950	2000001797	1832South	2	4	2	1.2	1	100	1	2	2
236	2726	2000001797	121791950	1832North	2	4	2	1.2	1	100	1	2	2
237	2731	121831384	2000001804	1611North	17	14	-3	0.8	1	100	1	3	0.82
238	2731	2000001804	121831384	1611South	17	18	1	0.2	1	100	1	1	1.06
239	2734	121899671	2000001802	1602East	12	10	-2	0.6	1	100	1	2	0.83
240	2734	2000001802	121899671	1602West	9	10	1	0.3	1	100	1	1	1.11
241	2746	121831331	2000001809	1632East	10	9	-1	0.3	1	100	1	1	0.9
242	2746	2000001809	121831331	1632West	14	12	-2	0.6	1	100	1	2	0.86
243	2760	4221	2000001818	1631East	8	10	2	0.7	1	100	1	2	1.25
244	2760	2000001818	4221	1631West	9	11	2	0.6	1	100	1	2	1.22
245	2795	2000001840	2000001841	1522South	23	22	-1	0.2	1	100	1	1	0.96
246	2795	2000001841	2000001840	1522North	14	14	0	0	1	100	1	0	1

247	2804	2000001412	2000001846	1541East	18	13	-5	1.3	1	100	1	5	0.72
248	2804	2000001846	2000001412	1541West	18	14	-4	1	1	100	1	4	0.78
249	2816	2000001730	2000001854	1581North	11	12	1	0.3	1	100	1	1	1.09
250	2816	2000001854	2000001730	1581South	10	11	1	0.3	1	100	1	1	1.1
251	2822	121709981	2000001858	1831South	11	13	2	0.6	1	100	1	2	1.18
252	2822	2000001858	121709981	1831North	7	10	3	1	1	100	1	3	1.43
253	2825	121810996	2000001860	1511East	10	14	4	1.2	1	100	1	4	1.4
254	2825	2000001860	121810996	1511West	7	13	6	1.9	1	100	1	6	1.86
255	2830	121805642	2000001862	20511West	22	17	-5	1.1	1	100	1	5	0.77
256	2830	2000001862	121805642	20511East	21	16	-5	1.2	1	100	1	5	0.76
257	2995	4007	121877445	20251West	43	45	2	0.3	1	100	1	2	1.05
258	2995	121877445	4007	20251East	25	34	9	1.7	1	100	1	9	1.36
259	2998	4254	121861314	1251South	42	43	1	0.2	1	100	1	1	1.02
260	2998	121861314	4254	1251North	39	42	3	0.5	1	100	1	3	1.08
261	3040	4018	2000001916	20066East	4	1	-3	1.9	1	100	1	3	0.25
262	3040	2000001916	4018	20066West	4	2	-2	1.2	1	100	1	2	0.5
263	3167	4010	121757837	200711West	16	17	1	0.2	1	100	1	1	1.06
264	3167	121757837	4010	200711East	18	19	1	0.2	1	100	1	1	1.06
265	3179	4036	121899512	1182North	37	32	-5	0.9	1	100	1	5	0.86
266	3179	121899512	4036	1182South	44	37	-7	1.1	1	100	1	7	0.84
267	3192	4019	121701049	20067West	12	16	4	1.1	1	100	1	4	1.33
268	3192	121701049	4019	20067East	14	14	0	0	1	100	1	0	1
269	3203	4016	121871280	1045West	32	26	-6	1.1	1	100	1	6	0.81
270	3203	121871280	4016	1045East	40	24	-16	2.8	1	100	1	16	0.6
271	3211	4024	2000001326	1054East	16	17	1	0.2	1	100	1	1	1.06
272	3211	2000001326	4024	1054West	25	22	-3	0.6	1	100	1	3	0.88
273	3217	4047	121899410	1173North	15	13	-2	0.5	1	100	1	2	0.87
274	3217	121899410	4047	1173South	14	13	-1	0.3	1	100	1	1	0.93
275	3246	4051	121688343	1133North	19	18	-1	0.2	1	100	1	1	0.95
276	3246	121688343	4051	1133South	19	25	6	1.3	1	100	1	6	1.32
277	3284	4035	121729493	20224West	25	23	-2	0.4	1	100	1	2	0.92
278	3284	121729493	4035	20224East	16	17	1	0.2	1	100	1	1	1.06
279	3295	4023	121781751	1043West	55	59	4	0.5	1	100	1	4	1.07
280	3295	121781751	4023	1043East	49	52	3	0.4	1	100	1	3	1.06
281	3305	121621692	2000001920	201082South	64	87	23	2.6	1	100	1	23	1.36
282	3305	2000001920	121621692	201082North	37	49	12	1.8	1	100	1	12	1.32
283	3308	121607393	121622217	15010South	129	120	-9	0.8	1	100	1	9	0.93
284	3308	121622217	121607393	15010North	92	96	4	0.4	1	100	1	4	1.04
285	3312	121901421	2000001923	1032North	40	48	8	1.2	1	100	1	8	1.2
286	3312	2000001923	121901421	1032South	42	46	4	0.6	1	100	1	4	1.1
287	3315	121800187	2000001925	1261North	17	17	0	0	1	100	1	0	1
288	3315	2000001925	121800187	1261South	17	16	-1	0.2	1	100	1	1	0.94

289	3316	121792399	2000001926	1051East	13	13	0	0	1	100	1	0	1
290	3316	2000001926	121792399	1051West	15	15	0	0	1	100	1	0	1
291	3318	121899396	2000001927	1052West	24	21	-3	0.6	1	100	1	3	0.88
292	3318	2000001927	121899396	1052East	18	17	-1	0.2	1	100	1	1	0.94
293	3338	121771047	2000001939	200713West	123	92	-31	3	1	100	1	31	0.75
294	3338	2000001939	121771047	200713East	105	82	-23	2.4	1	100	1	23	0.78
295	3366	121900937	2000001962	3702South	72	58	-14	1.7	1	100	1	14	0.81
296	3366	2000001962	121900937	3702North	43	47	4	0.6	1	100	1	4	1.09
297	3377	121900937	2000001970	3703West	70	61	-9	1.1	1	100	1	9	0.87
298	3377	2000001970	121900937	3703East	33	36	3	0.5	1	100	1	3	1.09
299	3389	2000001969	2000002032	200717West	70	70	0	0	1	100	1	0	1
300	3389	2000002032	2000001969	200717East	36	44	8	1.3	1	100	1	8	1.22
301	3396	2000001988	2000002006	200718East	49	49	0	0	1	100	1	0	1
302	3396	2000002006	2000001988	200718West	80	77	-3	0.3	1	100	1	3	0.96
303	3409	2000001985	2000002001	200719West	87	80	-7	0.8	1	100	1	7	0.92
304	3409	2000002001	2000001985	200719East	52	55	3	0.4	1	100	1	3	1.06
305	3419	2000002007	2000002046	200715East	45	49	4	0.6	1	100	1	4	1.09
306	3419	2000002046	2000002007	200715West	82	77	-5	0.6	1	100	1	5	0.94
307	3437	86	2000002022	20084North	59	75	16	2	1	100	1	16	1.27
308	3437	2000002022	86	20084South	81	98	17	1.8	1	100	1	17	1.21
309	3444	121894461	2000034705	20112South	89	108	19	1.9	1	100	1	19	1.21
310	3444	2000034705	121894461	20112North	85	96	11	1.2	1	100	1	11	1.13
311	3473	2000002031	2000002044	200716West	67	76	9	1.1	1	100	1	9	1.13
312	3473	2000002044	2000002031	200716East	36	50	14	2.1	1	100	1	14	1.39
313	3488	121788687	2000002055	1022North	45	55	10	1.4	1	100	1	10	1.22
314	3488	2000002055	121788687	1022South	52	65	13	1.7	1	100	1	13	1.25
315	3511	228	2000002074	20016South	122	132	10	0.9	1	100	1	10	1.08
316	3511	2000002074	228	20016North	96	94	-2	0.2	1	100	1	2	0.98
317	3574	121725157	2000002101	1223East	30	22	-8	1.6	1	100	1	8	0.73
318	3574	2000002101	121725157	1223West	45	25	-20	3.4	1	100	1	20	0.56
319	3586	121852372	2000002109	1242West	48	37	-11	1.7	1	100	1	11	0.77
320	3586	2000002109	121852372	1242East	48	41	-7	1	1	100	1	7	0.85
321	3594	121787506	2000002113	20525East	29	9	-20	4.6	1	100	1	20	0.31
322	3594	2000002113	121787506	20525West	31	15	-16	3.3	1	100	1	16	0.48
323	3609	121899832	2000002124	20801North	37	23	-14	2.6	1	100	1	14	0.62
324	3609	2000002124	121899832	20801South	27	28	1	0.2	1	100	1	1	1.04
325	3787	121890765	121897671	20118South	74	94	20	2.2	1	100	1	20	1.27
326	3787	121897671	121890765	20118North	70	83	13	1.5	1	100	1	13	1.19
327	3829	2000002479	2000002482	1055East	14	14	0	0	1	100	1	0	1
328	3829	2000002482	2000002479	1055West	22	19	-3	0.7	1	100	1	3	0.86
329	3831	2000002479	2000002484	1056West	18	18	0	0	1	100	1	0	1
330	3831	2000002484	2000002479	1056East	14	14	0	0	1	100	1	0	1

331	3870	2000002491	2000002520	20119South	63	76	13	1.6	1	100	1	13	1.21
332	3870	2000002520	2000002491	20119North	96	79	-17	1.8	1	100	1	17	0.82
333	3875	121899797	2000002525	20113North	4	0	-4	2.8	1	100	1	4	0
334	3875	2000002525	121899797	20113South	3	1	-2	1.4	1	100	1	2	0.33
335	3998	121795184	2000002585	1172West	14	9	-5	1.5	1	100	1	5	0.64
336	3998	2000002585	121795184	1172East	16	11	-5	1.4	1	100	1	5	0.69
337	4109	121812923	2000002625	1023North	69	53	-16	2	1	100	1	16	0.77
338	4109	2000002625	121812923	1023South	74	63	-11	1.3	1	100	1	11	0.85
339	4113	2000002626	500001006	201081North	49	33	-16	2.5	1	100	1	16	0.67
340	4238	121620122	121628805	1502South	462	477	15	0.7	1	100	1	15	1.03
341	4238	121628805	121620122	1502North	383	415	32	1.6	1	100	1	32	1.08
342	4305	121616848	121632410	1014South	332	366	34	1.8	1	100	1	34	1.1
343	4305	121632410	121616848	1014North	299	297	-2	0.1	1	100	1	2	0.99
344	4321	121631867	2000714612	1011West	99	59	-40	4.5	1	100	1	40	0.6
345	4321	2000714612	121631867	1011East	91	97	6	0.6	1	100	1	6	1.07
346	4322	121611221	121617657	20011South	279	299	20	1.2	1	100	1	20	1.07
347	4322	121617657	121611221	20011North	245	268	23	1.4	1	100	1	23	1.09
348	4359	121626007	2000001958	20021North	161	123	-38	3.2	1	100	1	38	0.76
349	4359	2000001958	121626007	20021South	210	152	-58	4.3	1	100	1	58	0.72
350	4384	121784052	2000004570	1331West	46	54	8	1.1	1	100	1	8	1.17
351	4384	2000004570	121784052	1331East	40	51	11	1.6	1	100	1	11	1.28
352	4553	121636676	2000034608	1015North	214	216	2	0.1	1	100	1	2	1.01
353	4553	2000034608	121636676	1015South	252	239	-13	0.8	1	100	1	13	0.95
354	4580	121770004	2000034623	20243West	45	35	-10	1.6	1	100	1	10	0.78
355	4580	2000034623	121770004	20243East	39	36	-3	0.5	1	100	1	3	0.92
356	4598	121819228	2000034633	1121West	14	19	5	1.2	1	100	1	5	1.36
357	4598	2000034633	121819228	1121East	10	11	1	0.3	1	100	1	1	1.1
358	4726	121758664	2000002025	3704West	114	117	3	0.3	1	100	1	3	1.03
359	4726	2000002025	121758664	3704East	83	89	6	0.6	1	100	1	6	1.07
360	4969	121901533	2000714488	3604East	40	46	6	0.9	1	100	1	6	1.15
361	4969	2000714488	121901533	3604West	53	56	3	0.4	1	100	1	3	1.06
362	5028	121870243	121874720	20044East	67	71	4	0.5	1	100	1	4	1.06
363	5028	121874720	121870243	20044West	77	79	2	0.2	1	100	1	2	1.03
364	5036	121608284	121806796	20022North	89	71	-18	2	1	100	1	18	0.8
365	5036	121806796	121608284	20022South	106	85	-21	2.1	1	100	1	21	0.8
366	5049	121637498	121642477	1113South	113	143	30	2.7	1	100	1	30	1.27
367	5049	121642477	121637498	1113North	117	126	9	0.8	1	100	1	9	1.08
368	5056	121616903	121620245	1034North	141	137	-4	0.3	1	100	1	4	0.97
369	5056	121620245	121616903	1034South	168	169	1	0.1	1	100	1	1	1.01
370	5107	121669371	121672338	20201South	56	53	-3	0.4	1	100	1	3	0.95
371	5107	121672338	121669371	20201North	47	50	3	0.4	1	100	1	3	1.06
372	5114	121645478	121651743	1081East	88	88	0	0	1	100	1	0	1

373	5114	121651743	121645478	1081West	83	85	2	0.2	1	100	1	2	1.02
374	5139	2000001845	2000714623	1542West	17	16	-1	0.2	1	100	1	1	0.94
375	5139	2000714623	2000001845	1542East	14	15	1	0.3	1	100	1	1	1.07
376	5164	121756689	121759476	20079East	92	105	13	1.3	1	100	1	13	1.14
377	5164	121759476	121756689	20079West	135	152	17	1.4	1	100	1	17	1.13
378	5170	121744268	121756596	20077West	131	151	20	1.7	1	100	1	20	1.15
379	5170	121756596	121744268	20077East	84	116	32	3.2	1	100	1	32	1.38
380	5256	164	2000714704	1771North	23	25	2	0.4	1	100	1	2	1.09
381	5256	2000714704	164	1771South	35	31	-4	0.7	1	100	1	4	0.89
382	5260	2000001705	2000714709	20802North	31	23	-8	1.5	1	100	1	8	0.74
383	5260	2000714709	2000001705	20802South	27	20	-7	1.4	1	100	1	7	0.74
384	7016	121737096	121739187	20076West	134	164	30	2.5	1	100	1	30	1.22
385	7016	121739187	121737096	20076East	95	130	35	3.3	1	100	1	35	1.37
386	7021	121625454	121638341	15011South	118	96	-22	2.1	1	100	1	22	0.81
387	7021	121638341	121625454	15011North	93	83	-10	1.1	1	100	1	10	0.89
388	7023	121606598	121639135	20111South	109	124	15	1.4	1	100	1	15	1.14
389	7023	121639135	121606598	20111North	118	112	-6	0.6	1	100	1	6	0.95
390	46402	121862879	121864698	20255East	34	33	-1	0.2	1	100	1	1	0.97
391	46402	121864698	121862879	20255West	34	34	0	0	1	100	1	0	1
392	47366	121830350	121873849	20065East	60	62	2	0.3	1	100	1	2	1.03
393	47366	121873849	121830350	20065West	87	81	-6	0.7	1	100	1	6	0.93
394	48089	121810483	121872749	3401West	49	46	-3	0.4	1	100	1	3	0.94
395	48089	121872749	121810483	3401East	39	48	9	1.4	1	100	1	9	1.23
396	50644	121880125	121883720	20252East	29	34	5	0.9	1	100	1	5	1.17
397	50644	121883720	121880125	20252West	37	43	6	0.9	1	100	1	6	1.16
398	50645	121878897	121886029	1111North	60	62	2	0.3	1	100	1	2	1.03
399	50645	121886029	121878897	1111South	39	50	11	1.6	1	100	1	11	1.28
400	50659	121878765	121887869	1112North	46	37	-9	1.4	1	100	1	9	0.8
401	50659	121887869	121878765	1112South	41	35	-6	1	1	100	1	6	0.85
402	52322	121606343	121895202	1811South	26	26	0	0	1	100	1	0	1
403	52322	121895202	121606343	1811North	48	42	-6	0.9	1	100	1	6	0.88
404	52902	121896900	2000002522	20114North	57	79	22	2.7	1	100	1	22	1.39
405	52902	2000002522	121896900	20114South	51	77	26	3.3	1	100	1	26	1.51
406	549454109	121625904	121625905	20012North_slip	16	21	5	1.2	1	100	1	5	1.31
407	549458121	121617120	121631566	20012North_main	154	195	41	3.1	1	100	1	41	1.27
408	549458121	121631566	121617120	20012South_main	146	207	61	4.6	1	100	1	61	1.42
409	553058336	121608946	121612882	1311West	10	3	-7	2.7	1	100	1	7	0.3
410	553058336	121612882	121608946	1311East	14	3	-11	3.8	1	100	1	11	0.21
411	554375343	121609142	121635289	1312North	24	18	-6	1.3	1	100	1	6	0.75
412	554375343	121635289	121609142	1312South	13	12	-1	0.3	1	100	1	1	0.92
413	554449560	121674035	121674036	200811West	83	95	12	1.3	1	100	1	12	1.14
414	554449560	121674036	121674035	200811East	78	94	16	1.7	1	100	1	16	1.21

415	554454057	121614467	121620668	1033North	118	116	-2	0.2	1	100	1	2	0.98
416	554454057	121620668	121614467	1033South	123	112	-11	1	1	100	1	11	0.91
417	588987149	121598492	121602822	20035North	36	42	6	1	1	100	1	6	1.17
418	588987149	121602822	121598492	20035South	52	49	-3	0.4	1	100	1	3	0.94
419	590511931	121610359	121641108	15012South	90	90	0	0	1	100	1	0	1
420	590511931	121641108	121610359	15012North	80	76	-4	0.5	1	100	1	4	0.95
421	707711508	121583564	121584273	208001West	24	12	-12	2.8	1	100	1	12	0.5
422	707711508	121584273	121583564	208001East	24	15	-9	2	1	100	1	9	0.63
423	714088067	121589251	121592727	1681East	7	11	4	1.3	1	100	1	4	1.57
424	714088067	121592727	121589251	1681West	11	13	2	0.6	1	100	1	2	1.18
425	719956103	121167836	121599058	20036South	17	19	2	0.5	1	100	1	2	1.12
426	719956103	121599058	121167836	20036North	10	13	3	0.9	1	100	1	3	1.3
427	720544847	121600251	121600405	1161West	12	9	-3	0.9	1	100	1	3	0.75
428	720544847	121600405	121600251	1161East	9	5	-4	1.5	1	100	1	4	0.56
429	721225505	121600970	121604340	1035North	38	44	6	0.9	1	100	1	6	1.16
430	721225505	121604340	121600970	1035South	45	49	4	0.6	1	100	1	4	1.09
431	725567258	121612648	121614236	1071West	333	363	30	1.6	1	100	1	30	1.09
432	725567258	121614236	121612648	1071East	332	350	18	1	1	100	1	18	1.05
433	730379628	121636334	121617120	20012South_slip	23	32	9	1.7	1	100	1	9	1.39
434	731701292	121614986	121625005	1504North	128	138	10	0.9	1	100	1	10	1.08
435	731701292	121625005	121614986	1504South	200	215	15	1	1	100	1	15	1.08
436	734302647	121620123	121626709	1501North	414	382	-32	1.6	1	100	1	32	0.92
437	734302647	121626709	121620123	1501South	501	423	-78	3.6	1	100	1	78	0.84
438	736380918	121615920	121629569	1505North	119	125	6	0.5	1	100	1	6	1.05
439	736380918	121629569	121615920	1505South	183	191	8	0.6	1	100	1	8	1.04
440	742637630	121605847	121624337	1013North	32	16	-16	3.3	1	100	1	16	0.5
441	742637630	121624337	121605847	1013South	37	23	-14	2.6	1	100	1	14	0.62
442	747563463	121625876	121633954	1812West	30	17	-13	2.7	1	100	1	13	0.57
443	747563463	121633954	121625876	1812East	40	21	-19	3.4	1	100	1	19	0.53
444	749408337	121624629	121635351	1321West	59	40	-19	2.7	1	100	1	19	0.68
445	749408337	121635351	121624629	1321East	74	74	0	0	1	100	1	0	1
446	751108037	121613700	121623860	1506South	197	196	-1	0.1	1	100	1	1	0.99
447	751108037	121623860	121613700	1506North	118	113	-5	0.5	1	100	1	5	0.96
448	751257437	121623860	121635051	1507South	154	157	3	0.2	1	100	1	3	1.02
449	751257437	121635051	121623860	1507North	92	90	-2	0.2	1	100	1	2	0.98
450	751782353	121605953	121614074	1508South	567	535	-32	1.4	1	100	1	32	0.94
451	751782353	121614074	121605953	1508North	364	390	26	1.3	1	100	1	26	1.07
452	759735830	121643856	121678554	1221East	12	4	-8	2.8	1	100	1	8	0.33
453	759735830	121678554	121643856	1221West	9	4	-5	2	1	100	1	5	0.44
454	762970802	121643386	121668405	1256South	137	150	13	1.1	1	100	1	13	1.09
455	762970802	121668405	121643386	1256North	101	122	21	2	1	100	1	21	1.21
456	765084978	121647012	121670921	1253West	110	107	-3	0.3	1	100	1	3	0.97

457	765084978	121670921	121647012	1253East	107	96	-11	1.1	1	100	1	11	0.9
458	796986758	121660066	121674564	1281North	38	53	15	2.2	1	100	1	15	1.39
459	796986758	121674564	121660066	1281South	42	46	4	0.6	1	100	1	4	1.1
460	803755898	121679655	121666426	3801North_slip	19	15	-4	1	1	100	1	4	0.79
461	830511612	4133	121665568	20222East	44	59	15	2.1	1	100	1	15	1.34
462	830511612	121665568	4133	20222West	46	57	11	1.5	1	100	1	11	1.24
463	840539223	121652862	121674687	1258West	131	119	-12	1.1	1	100	1	12	0.91
464	840539223	121674687	121652862	1258East	109	133	24	2.2	1	100	1	24	1.22
465	840881880	121652971	121664532	1255East	74	79	5	0.6	1	100	1	5	1.07
466	840881880	121664532	121652971	1255West	66	75	9	1.1	1	100	1	9	1.14
467	843045822	4160	121677183	202639North	21	22	1	0.2	1	100	1	1	1.05
468	843045822	121677183	4160	202639South	19	19	0	0	1	100	1	0	1
469	843969122	4161	121667163	1271North	20	19	-1	0.2	1	100	1	1	0.95
470	843969122	121667163	4161	1271South	22	17	-5	1.1	1	100	1	5	0.77
471	846591053	121663055	121673832	20223South	19	12	-7	1.8	1	100	1	7	0.63
472	846591053	121673832	121663055	20223North	19	14	-5	1.2	1	100	1	5	0.74
473	847275507	121661509	121679655	3802South_slip	24	18	-6	1.3	1	100	1	6	0.75
474	880428780	121687758	121690055	1141South	24	29	5	1	1	100	1	5	1.21
475	880428780	121690055	121687758	1141North	24	29	5	1	1	100	1	5	1.21
476	894267755	121686471	121692845	20563West	18	7	-11	3.1	1	100	1	11	0.39
477	894267755	121692845	121686471	20563East	13	5	-8	2.7	1	100	1	8	0.38
478	898015622	121689345	121696821	1031East	5	6	1	0.4	1	100	1	1	1.2
479	898015622	121696821	121689345	1031West	8	8	0	0	1	100	1	0	1
480	899952557	121686584	121689834	1131West	19	0	-19	6.2	0	100	1	19	0
481	899952557	121689834	121686584	1131East	15	1	-14	4.9	1	100	1	14	0.07
482	902057033	121692920	121694426	1151South	12	1	-11	4.3	1	100	1	11	0.08
483	902057033	121694426	121692920	1151North	11	3	-8	3	1	100	1	8	0.27
484	904153130	121691331	121695474	1132West	36	34	-2	0.3	1	100	1	2	0.94
485	904153130	121695474	121691331	1132East	36	47	11	1.7	1	100	1	11	1.31
486	905106002	121693767	121693779	20152North	26	20	-6	1.3	1	100	1	6	0.77
487	905106002	121693779	121693767	20152South	26	21	-5	1	1	100	1	5	0.81
488	1004232155	121716967	121719397	20172North	48	37	-11	1.7	1	100	1	11	0.77
489	1004232155	121719397	121716967	20172South	50	43	-7	1	1	100	1	7	0.86
490	1077821118	121723498	121729493	1222South	22	28	6	1.2	1	100	1	6	1.27
491	1077821118	121729493	121723498	1222North	25	31	6	1.1	1	100	1	6	1.24
492	1102491608	121735450	121742133	20072West	257	282	25	1.5	1	100	1	25	1.1
493	1102491608	121742133	121735450	20072East	185	222	37	2.6	1	100	1	37	1.2
494	1130484155	121736305	121742427	20041East	116	136	20	1.8	1	100	1	20	1.17
495	1130484155	121742427	121736305	20041West	149	163	14	1.1	1	100	1	14	1.09
496	1131531773	121734666	121734981	20042West	167	151	-16	1.3	1	100	1	16	0.9
497	1131531773	121734981	121734666	20042East	180	167	-13	1	1	100	1	13	0.93
498	1131793880	121738917	121740681	20075East	99	133	34	3.2	1	100	1	34	1.34

499	1131793880	121740681	121738917	20075West	141	168	27	2.2	1	100	1	27	1.19
500	1184390892	121746354	121752733	1761North	20	26	6	1.3	1	100	1	6	1.3
501	1184390892	121752733	121746354	1761South	22	26	4	0.8	1	100	1	4	1.18
502	1227893663	121756715	121758920	20078West	132	148	16	1.4	1	100	1	16	1.12
503	1227893663	121758920	121756715	20078East	88	108	20	2	1	100	1	20	1.23
504	1305390005	121770042	121776927	200714West	19	5	-14	4	1	100	1	14	0.26
505	1305390005	121776927	121770042	200714East	16	5	-11	3.4	1	100	1	11	0.31
506	1370778242	121766408	121779479	20211West	38	22	-16	2.9	1	100	1	16	0.58
507	1370778242	121779479	121766408	20211East	28	17	-11	2.3	1	100	1	11	0.61
508	1401276380	121781117	121783536	20045West	43	47	4	0.6	1	100	1	4	1.09
509	1401276380	121783536	121781117	20045East	39	40	1	0.2	1	100	1	1	1.03
510	1417347578	121784287	121784455	3101North	148	153	5	0.4	1	100	1	5	1.03
511	1417347578	121784455	121784287	3101South	113	141	28	2.5	1	100	1	28	1.25
512	1430975918	121785756	121788170	20526North	10	3	-7	2.7	1	100	1	7	0.3
513	1430975918	121788170	121785756	20526South	20	17	-3	0.7	1	100	1	3	0.85
514	1557111842	121712778	121803153	1171North	21	15	-6	1.4	1	100	1	6	0.71
515	1557111842	121803153	121712778	1171South	20	16	-4	0.9	1	100	1	4	0.8
516	1588811423	121806846	121811204	3404East	43	14	-29	5.4	0	100	1	29	0.33
517	1607677058	121810977	121814291	3102South	17	10	-7	1.9	1	100	1	7	0.59
518	1642458672	121805442	121813032	201321South	42	27	-15	2.6	1	100	1	15	0.64
519	1642458672	121813032	121805442	201321North	37	29	-8	1.4	1	100	1	8	0.78
520	1645921112	121809222	121809566	31031South	145	178	33	2.6	1	100	1	33	1.23
521	1650648987	121804943	121806846	3404West	52	12	-40	7.1	0	100	1	40	0.23
522	1706074580	121146850	121817334	1531North	15	16	1	0.3	1	100	1	1	1.07
523	1706074580	121817334	121146850	1531South	13	13	0	0	1	100	1	0	1
524	1885921037	121836576	121840654	1041North	37	30	-7	1.2	1	100	1	7	0.81
525	1885921037	121840654	121836576	1041South	30	25	-5	1	1	100	1	5	0.83
526	2084217408	121845871	121848701	1651North	10	16	6	1.7	1	100	1	6	1.6
527	2084217408	121848701	121845871	1651South	12	17	5	1.3	1	100	1	5	1.42
528	2109307130	121847938	121856699	1241South	21	17	-4	0.9	1	100	1	4	0.81
529	2109307130	121856699	121847938	1241North	22	16	-6	1.4	1	100	1	6	0.73
530	2141041448	121861304	121863235	20254North	39	42	3	0.5	1	100	1	3	1.08
531	2141041448	121863235	121861304	20254South	29	54	25	3.9	1	100	1	25	1.86
532	2147474939	121840932	121899414	20153North	17	15	-2	0.5	1	100	1	2	0.88
533	2147474939	121899414	121840932	20153South	20	18	-2	0.5	1	100	1	2	0.9
534	2147475008	121881810	121899442	20301East	15	19	4	1	1	100	1	4	1.27
535	2147475008	121899442	121881810	20301West	17	22	5	1.1	1	100	1	5	1.29
536	2147475132	121719397	121899504	20171North	32	27	-5	0.9	1	100	1	5	0.84
537	2147475132	121899504	121719397	20171South	37	33	-4	0.7	1	100	1	4	0.89
538	2147475191	121816358	121899533	1021North	39	44	5	0.8	1	100	1	5	1.13
539	2147475191	121899533	121816358	1021South	47	52	5	0.7	1	100	1	5	1.11
540	2147475279	121695290	121899577	20151North	18	21	3	0.7	1	100	1	3	1.17

541	2147475279	121899577	121695290	20151South	24	29	5	1	1	100	1	5	1.21
542	2147475424	121832513	121899677	20051East	22	20	-2	0.4	1	100	1	2	0.91
543	2147475424	121899677	121832513	20051West	27	24	-3	0.6	1	100	1	3	0.89
544	2147475530	121899726	121899730	1552South	26	16	-10	2.2	1	100	1	10	0.62
545	2147475530	121899730	121899726	1552North	20	14	-6	1.5	1	100	1	6	0.7
546	2147475694	121766952	121899812	20212East	38	29	-9	1.6	1	100	1	9	0.76
547	2147475694	121899812	121766952	20212West	54	33	-21	3.2	1	100	1	21	0.61
548	2147475710	121899819	121899820	20621South	22	14	-8	1.9	1	100	1	8	0.64
549	2147475710	121899820	121899819	20621North	21	15	-6	1.4	1	100	1	6	0.71
550	2147475747	4147	121899838	1711North	29	29	0	0	1	100	1	0	1
551	2147475747	121899838	4147	1711South	39	31	-8	1.4	1	100	1	8	0.79
552	2147475748	121658844	121899839	1712North	38	21	-17	3.1	1	100	1	17	0.55
553	2147475748	121899839	121658844	1712South	37	25	-12	2.2	1	100	1	12	0.68
554	2147475791	121863550	121899860	1723West	13	15	2	0.5	1	100	1	2	1.15
555	2147475791	121899860	121863550	1723East	12	15	3	0.8	1	100	1	3	1.25
556	2147475847	121899883	121899888	1691South	13	13	0	0	1	100	1	0	1
557	2147475847	121899888	121899883	1691North	15	14	-1	0.3	1	100	1	1	0.93
558	2147475881	121853851	121899905	1751East	9	13	4	1.2	1	100	1	4	1.44
559	2147475881	121899905	121853851	1751West	11	17	6	1.6	1	100	1	6	1.55
560	2147475883	121852937	121899906	1621South	26	27	1	0.2	1	100	1	1	1.04
561	2147475883	121899906	121852937	1621North	23	20	-3	0.6	1	100	1	3	0.87
562	2147475919	121722835	121899924	1721West	11	9	-2	0.6	1	100	1	2	0.82
563	2147475919	121899924	121722835	1721East	9	8	-1	0.3	1	100	1	1	0.89
564	2147475929	121759846	121899929	20081South	30	52	22	3.4	1	100	1	22	1.73
565	2147475929	121899929	121759846	20081North	31	33	2	0.4	1	100	1	2	1.06
566	2147475976	121770292	121899953	20202South	50	46	-4	0.6	1	100	1	4	0.92
567	2147475976	121899953	121770292	20202North	54	45	-9	1.3	1	100	1	9	0.83
568	2147475985	4042	121646401	1201South	36	27	-9	1.6	1	100	1	9	0.75
569	2147475985	121646401	4042	1201North	41	29	-12	2	1	100	1	12	0.71
570	2147475995	121667321	121899962	1252East	32	39	7	1.2	1	100	1	7	1.22
571	2147475995	121899962	121667321	1252West	33	39	6	1	1	100	1	6	1.18
572	2147476026	121754107	121899978	20082South	28	30	2	0.4	1	100	1	2	1.07
573	2147476026	121899978	121754107	20082North	26	27	1	0.2	1	100	1	1	1.04
574	2147476132	121659960	121900031	1731South	15	18	3	0.7	1	100	1	3	1.2
575	2147476132	121900031	121659960	1731North	14	17	3	0.8	1	100	1	3	1.21
576	2147476260	121750578	121900095	1243South	27	23	-4	0.8	1	100	1	4	0.85
577	2147476260	121900095	121750578	1243North	28	3	-25	6.4	0	100	1	25	0.11
578	2147476721	121818875	121900489	20024North	31	25	-6	1.1	1	100	1	6	0.81
579	2147476721	121900489	121818875	20024South	32	32	0	0	1	100	1	0	1
580	2147476809	121900531	121900532	1841North	12	15	3	0.8	1	100	1	3	1.25
581	2147476809	121900532	121900531	1841South	19	14	-5	1.2	1	100	1	5	0.74
582	2147483403	121900734	121900740	3804North	60	82	22	2.6	1	100	1	22	1.37

583	2147483403	121900740	121900734	3804South	63	93	30	3.4	1	100	1	30	1.48
584	2147483410	121900740	121900736	3805North	3	13	10	3.5	1	100	1	10	4.33
585	2147483411	121900735	121900740	3805South	3	5	2	1	1	100	1	2	1.67
586	2147483575	121847977	121900808	20241West	46	41	-5	0.8	1	100	1	5	0.89
587	2147483575	121900808	121847977	20241East	52	48	-4	0.6	1	100	1	4	0.92
588	2147483597	77	121900817	20083North	66	76	10	1.2	1	100	1	10	1.15
589	2147483597	121900817	77	20083South	86	97	11	1.1	1	100	1	11	1.13
	TOTAL				34701	35121		2.2	583		588	5434	0.96

Table 8.4 Screenline Calibration - All Vehicles (AM Peak)

Screenline Calibration - All Vehicles			Counts:	92	RESULT =	93.5%	RESULT =	94.6%	Abs Diff
			Total Traffic		REQD =	85.0%	REQD =	85.0%	
Screenline		TMU Site	Observed	Modelled	GEH	GEH Test	Target Diff	Flow Test	
1. Dublin	Inbound	1015South	3372	3294	1.4	1	400	1	78
		1023South	1047	1071	0.7	1	157	1	24
		20033South	502	248	13.1	0	100	0	254
		3303South	1382	1696	8.0	0	207	0	314
		20042East	2403	2443	0.8	1	360	1	40
		20072East	3307	3273	0.6	1	400	1	34
		20811North	290	286	0.2	1	100	1	4
		20114North	1129	1182	1.6	1	169	1	53
	Outbound	1015North	1414	1464	1.3	1	212	1	50
		1023North	353	349	0.2	1	100	1	4
		20033North	185	234	3.4	1	100	1	49
		3303North	353	389	1.9	1	100	1	36
		20042West	1000	1116	3.6	1	150	1	116
		20072West	1943	1977	0.8	1	291	1	34
		20811South	64	70	0.7	1	100	1	6
		20114South	413	472	2.8	1	100	1	59
2. South East	Inbound	1251North	599	627	1.1	1	100	1	28
		1242East	603	445	6.9	0	100	0	158
		1771South	576	523	2.3	1	100	1	53
		1801South	213	164	3.6	1	100	1	49
		20092South	564	563	0.0	1	100	1	1
		20811South	64	70	0.7	1	100	1	6
		20114South	413	472	2.8	1	100	1	59
	Outbound	1251South	343	339	0.2	1	100	1	4
		1242West	620	495	5.3	0	100	0	125
		1771North	347	328	1.0	1	100	1	19
		1801North	170	146	1.9	1	100	1	24
		20092North	1001	1042	1.3	1	150	1	41
		20811North	290	286	0.2	1	100	1	4
		20114North	1129	1182	1.6	1	169	1	53
3. South	Inbound	20255West	425	418	0.3	1	100	1	7
		1723West	140	145	0.4	1	100	1	5
		20086South	778	814	1.3	1	117	1	36
		1731South	121	130	0.8	1	100	1	9
		1201South	366	316	2.7	1	100	1	50
		20211West	309	323	0.8	1	100	1	14
		1693South	136	129	0.6	1	100	1	7
	Outbound	1693North	101	92	0.9	1	100	1	9

		20211East	374	384	0.5	1	100	1	10
		1201North	455	423	1.5	1	100	1	32
		1731North	107	115	0.8	1	100	1	8
		20086North	646	679	1.3	1	100	1	33
		1723East	218	224	0.4	1	100	1	6
		20255East	385	390	0.3	1	100	1	5
4. North	Inbound	20018North	617	654	1.5	1	100	1	37
		1531North	164	166	0.2	1	100	1	2
		1021North	297	312	0.9	1	100	1	15
		1035North	404	480	3.6	1	100	1	76
		1042North	301	288	0.8	1	100	1	13
		1173North	214	195	1.3	1	100	1	19
		1261North	246	247	0.1	1	100	1	1
		20591West	65	67	0.2	1	100	1	2
	Outbound	20591East	99	104	0.5	1	100	1	5
		1261South	267	271	0.2	1	100	1	4
		1173South	209	221	0.8	1	100	1	12
		1042South	186	170	1.2	1	100	1	16
		1035South	481	485	0.2	1	100	1	4
		1021South	437	450	0.6	1	100	1	13
		1531South	238	259	1.3	1	100	1	21
		20018South	970	960	0.3	1	146	1	10
5. West	Inbound	1182North	973	982	0.3	1	146	1	9
		1661North	97	98	0.1	1	100	1	1
		1651North	97	132	3.3	1	100	1	35
		20065West	894	1097	6.4	0	134	0	203
		1632West	186	178	0.6	1	100	1	8
		1054West	110	128	1.7	1	100	1	18
		20046West	197	217	1.4	1	100	1	20
		1041South	461	438	1.1	1	100	1	23
	Outbound	1182South	518	551	1.4	1	100	1	33
		1661South	120	125	0.5	1	100	1	5
		1651South	147	182	2.7	1	100	1	35
		20065East	1527	1699	4.3	1	229	1	172
		1632East	149	139	0.8	1	100	1	10
		1054East	179	200	1.5	1	100	1	21
		20046East	267	290	1.4	1	100	1	23
		1041North	1363	1337	0.7	1	204	1	26
6. Midwest	Inbound	1692East	325	329	0.2	1	100	1	4
		20212East	920	913	0.2	1	138	1	7
		20202North	898	855	1.5	1	135	1	43
		1241North	234	155	5.7	0	100	1	79

		1741West	157	193	2.7	1	100	1	36
		200719West	561	575	0.6	1	100	1	14
		20186South	580	623	1.8	1	100	1	43
		20671South	70	71	0.1	1	100	1	1
	Outbound	1692West	258	256	0.1	1	100	1	2
		20212West	487	539	2.3	1	100	1	52
		20202South	448	466	0.8	1	100	1	18
		1241South	213	178	2.5	1	100	1	35
		1741East	151	154	0.2	1	100	1	3
		200719East	479	487	0.4	1	100	1	8
		20186North	392	410	0.9	1	100	1	18
		20671North	41	37	0.6	1	100	1	4
			49344	**50191**	**3.8**	**86**		**87**	**3269**

Table 8.5 Screenline Calibration - Light Vehicles (AM Peak)

Screenline Calibration - Light Vehicles			Counts:	92	RESULT =	93.5%	RESULT =	93.5%	Abs Diff
			Total Traffic		REQD =	85.0%	REQD =	85.0%	
Screenline		TMU Site	Observed	Modelled	GEH	GEH Test	Target Diff	Flow Test	
1. Dublin	Inbound	1015South	3120	3055	1.2	1	400	1	65
		1023South	973	1008	1.1	1	146	1	35
		20033South	483	243	12.6	0	100	0	240
		3303South	1298	1605	8.1	0	195	0	307
		20042East	2223	2276	1.1	1	333	1	53
		20072East	3122	3051	1.3	1	400	1	71
		20811North	279	273	0.4	1	100	1	6
		20114North	1072	1103	0.9	1	161	1	31
	Outbound	1015North	1200	1248	1.4	1	180	1	48
		1023North	284	296	0.7	1	100	1	12
		20033North	174	228	3.8	1	100	1	54
		3303North	302	312	0.6	1	100	1	10
		20042West	833	965	4.4	1	125	0	132
		20072West	1686	1695	0.2	1	253	1	9
		20811South	57	59	0.3	1	100	1	2
		20114South	362	395	1.7	1	100	1	33
2. South East	Inbound	1251North	560	585	1.0	1	100	1	25
		1242East	555	404	6.9	0	100	0	151
		1771South	541	492	2.2	1	100	1	49
		1801South	198	153	3.4	1	100	1	45
		20092South	492	478	0.6	1	100	1	14
		20811South	57	59	0.3	1	100	1	2
		20114South	362	395	1.7	1	100	1	33
	Outbound	1251South	301	296	0.3	1	100	1	5
		1242West	572	458	5.0	0	100	0	114
		1771North	324	303	1.2	1	100	1	21
		1801North	156	134	1.8	1	100	1	22
		20092North	954	976	0.7	1	143	1	22
		20811North	279	273	0.4	1	100	1	6
		20114North	1072	1103	0.9	1	161	1	31
3. South	Inbound	20255West	391	384	0.4	1	100	1	7
		1723West	127	130	0.3	1	100	1	3
		20086South	699	712	0.5	1	100	1	13
		1731South	106	112	0.6	1	100	1	6
		1201South	330	289	2.3	1	100	1	41
		20211West	271	301	1.8	1	100	1	30
		1693South	130	124	0.5	1	100	1	6
	Outbound	1693North	94	87	0.7	1	100	1	7

		20211East	346	367	1.1	1	100	1	21
		1201North	414	394	1.0	1	100	1	20
		1731North	93	98	0.5	1	100	1	5
		20086North	570	583	0.5	1	100	1	13
		1723East	206	209	0.2	1	100	1	3
		20255East	351	357	0.3	1	100	1	6
4. North	Inbound	20018North	511	549	1.7	1	100	1	38
		1531North	149	150	0.1	1	100	1	1
		1021North	258	268	0.6	1	100	1	10
		1035North	366	436	3.5	1	100	1	70
		1042North	283	275	0.5	1	100	1	8
		1173North	199	182	1.2	1	100	1	17
		1261North	229	230	0.1	1	100	1	1
		20591West	60	59	0.1	1	100	1	1
	Outbound	20591East	95	97	0.2	1	100	1	2
		1261South	250	255	0.3	1	100	1	5
		1173South	195	208	0.9	1	100	1	13
		1042South	174	161	1.0	1	100	1	13
		1035South	436	436	0.0	1	100	1	0
		1021South	390	398	0.4	1	100	1	8
		1531South	225	246	1.4	1	100	1	21
		20018South	832	816	0.6	1	125	1	16
5. West	Inbound	1182North	936	950	0.5	1	140	1	14
		1661North	88	88	0.0	1	100	1	0
		1651North	87	116	2.9	1	100	1	29
		20065West	807	1016	6.9	0	121	0	209
		1632West	172	166	0.5	1	100	1	6
		1054West	85	106	2.1	1	100	1	21
		20046West	177	194	1.2	1	100	1	17
		1041South	431	413	0.9	1	100	1	18
	Outbound	1182South	474	514	1.8	1	100	1	40
		1661South	110	114	0.4	1	100	1	4
		1651South	135	165	2.4	1	100	1	30
		20065East	1467	1637	4.3	1	220	1	170
		1632East	139	130	0.8	1	100	1	9
		1054East	163	183	1.5	1	100	1	20
		20046East	249	267	1.1	1	100	1	18
		1041North	1326	1307	0.5	1	199	1	19
6. Midwest	Inbound	1692East	299	299	0.0	1	100	1	0
		20212East	882	884	0.1	1	132	1	2
		20202North	844	810	1.2	1	127	1	34
		1241North	212	139	5.5	0	100	1	73

		1741West	144	178	2.7	1	100	1	34
		200719West	474	495	1.0	1	100	1	21
		20186South	543	588	1.9	1	100	1	45
		20671South	67	67	0.0	1	100	1	0
	Outbound	1692West	231	226	0.3	1	100	1	5
		20212West	433	506	3.4	1	100	1	73
		20202South	398	420	1.1	1	100	1	22
		1241South	192	161	2.3	1	100	1	31
		1741East	138	141	0.3	1	100	1	3
		200719East	427	432	0.2	1	100	1	5
		20186North	356	378	1.1	1	100	1	22
		20671North	38	35	0.5	1	100	1	3
			45195	**45959**	**3.6**	**86**		**86**	**3050**

Table 8.6 Screenline Calibration – Heavy Vehicles (AM Peak)

Screenline Calibration - Heavy Vehicles			Counts:	92	RESULT =	100%	RESULT =	100%	Abs Diff
			Total Traffic		REQD =	85.0%	REQD =	85.0%	
Screenline		TMU Site	Observed	Modelled	GEH	GEH Test	Target Diff	Flow Test	
1. Dublin	Inbound	1015South	252	239	0.8	1	100	1	13
		1023South	74	63	1.3	1	100	1	11
		20033South	19	5	4.0	1	100	1	14
		3303South	84	91	0.7	1	100	1	7
		20042East	180	167	1.0	1	100	1	13
		20072East	185	222	2.6	1	100	1	37
		20811North	11	13	0.6	1	100	1	2
		20114North	57	79	2.7	1	100	1	22
	Outbound	1015North	214	216	0.1	1	100	1	2
		1023North	69	53	2.0	1	100	1	16
		20033North	11	6	1.7	1	100	1	5
		3303North	51	77	3.3	1	100	1	26
		20042West	167	151	1.3	1	100	1	16
		20072West	257	282	1.5	1	100	1	25
		20811South	7	11	1.3	1	100	1	4
		20114South	51	77	3.3	1	100	1	26
2. South East	Inbound	1251North	39	42	0.5	1	100	1	3
		1242East	48	41	1.0	1	100	1	7
		1771South	35	31	0.7	1	100	1	4
		1801South	15	11	1.1	1	100	1	4
		20092South	72	85	1.5	1	100	1	13
		20811South	7	11	1.3	1	100	1	4
		20114South	51	77	3.3	1	100	1	26
	Outbound	1251South	42	43	0.2	1	100	1	1
		1242West	48	37	1.7	1	100	1	11
		1771North	23	25	0.4	1	100	1	2
		1801North	14	12	0.6	1	100	1	2
		20092North	47	66	2.5	1	100	1	19
		20811North	11	13	0.6	1	100	1	2
		20114North	57	79	2.7	1	100	1	22
3. South	Inbound	20255West	34	34	0.0	1	100	1	0
		1723West	13	15	0.5	1	100	1	2
		20086South	79	102	2.4	1	100	1	23
		1731South	15	18	0.7	1	100	1	3
		1201South	36	27	1.6	1	100	1	9
		20211West	38	22	2.9	1	100	1	16
		1693South	6	5	0.4	1	100	1	1
	Outbound	1693North	7	5	0.8	1	100	1	2

		20211East	28	17	2.3	1	100	1	11
		1201North	41	29	2.0	1	100	1	12
		1731North	14	17	0.8	1	100	1	3
		20086North	76	96	2.2	1	100	1	20
		1723East	12	15	0.8	1	100	1	3
		20255East	34	33	0.2	1	100	1	1
4. North	Inbound	20018North	106	105	0.1	1	100	1	1
		1531North	15	16	0.3	1	100	1	1
		1021North	39	44	0.8	1	100	1	5
		1035North	38	44	0.9	1	100	1	6
		1042North	18	13	1.3	1	100	1	5
		1173North	15	13	0.5	1	100	1	2
		1261North	17	17	0.0	1	100	1	0
		20591West	5	8	1.2	1	100	1	3
	Outbound	20591East	4	7	1.3	1	100	1	3
		1261South	17	16	0.2	1	100	1	1
		1173South	14	13	0.3	1	100	1	1
		1042South	12	9	0.9	1	100	1	3
		1035South	45	49	0.6	1	100	1	4
		1021South	47	52	0.7	1	100	1	5
		1531South	13	13	0.0	1	100	1	0
		20018South	138	144	0.5	1	100	1	6
5. West	Inbound	1182North	37	32	0.9	1	100	1	5
		1661North	9	10	0.3	1	100	1	1
		1651North	10	16	1.7	1	100	1	6
		20065West	87	81	0.7	1	100	1	6
		1632West	14	12	0.6	1	100	1	2
		1054West	25	22	0.6	1	100	1	3
		20046West	20	23	0.6	1	100	1	3
		1041South	30	25	1.0	1	100	1	5
	Outbound	1182South	44	37	1.1	1	100	1	7
		1661South	10	11	0.3	1	100	1	1
		1651South	12	17	1.3	1	100	1	5
		20065East	60	62	0.3	1	100	1	2
		1632East	10	9	0.3	1	100	1	1
		1054East	16	17	0.2	1	100	1	1
		20046East	18	23	1.1	1	100	1	5
		1041North	37	30	1.2	1	100	1	7
6. Midwest	Inbound	1692East	26	30	0.8	1	100	1	4
		20212East	38	29	1.6	1	100	1	9
		20202North	54	45	1.3	1	100	1	9
		1241North	22	16	1.4	1	100	1	6

		1741West	13	15	0.5	1	100	1	2
		200719West	87	80	0.8	1	100	1	7
		20186South	37	35	0.3	1	100	1	2
		20671South	3	4	0.5	1	100	1	1
	Outbound	1692West	27	30	0.6	1	100	1	3
		20212West	54	33	3.2	1	100	1	21
		20202South	50	46	0.6	1	100	1	4
		1241South	21	17	0.9	1	100	1	4
		1741East	13	13	0.0	1	100	1	0
		200719East	52	55	0.4	1	100	1	3
		20186North	36	32	0.7	1	100	1	4
		20671North	3	2	0.6	1	100	1	1
			4149	**4232**	**1.3**	**92**		**92**	**651**

Table 8.7 Link Calibration - All Vehicles (Inter Peak)

Link Calibration - All Vehicles					Average Inter Peak Period (12-14)								
					Counts:	589		RESULT =	96.3%	RESULT =	96.1%		
					Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	TMU No	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	27	121901753	2000714598	20088South	321	346	25	1.4	1	100	1	25	1.08
2	27	2000714598	121901753	20088North	364	345	-19	1	1	100	1	19	0.95
3	102	121766075	121768599	20203North	779	766	-13	0.5	1	117	1	13	0.98
4	102	121768599	121766075	20203South	816	814	-2	0.1	1	122	1	2	1
5	134	121901197	121901200	1521South	185	168	-17	1.3	1	100	1	17	0.91
6	134	121901200	121901197	1521North	182	154	-28	2.2	1	100	1	28	0.85
7	135	121900918	2000001963	3701North	319	335	16	0.9	1	100	1	16	1.05
8	135	2000001963	121900918	3701South	280	298	18	1.1	1	100	1	18	1.06
9	149	121769433	121773120	20205South	857	839	-18	0.6	1	129	1	18	0.98
10	149	121773120	121769433	20205North	857	831	-26	0.9	1	129	1	26	0.97
11	182	74	500000954	20242East	260	255	-5	0.3	1	100	1	5	0.98
12	182	500000954	74	20242West	141	171	30	2.4	1	100	1	30	1.21
13	211	121900894	121900908	20086North	537	560	23	1	1	100	1	23	1.04
14	211	121900908	121900894	20086South	474	507	33	1.5	1	100	1	33	1.07
15	252	121900934	2000002224	200721West	509	527	18	0.8	1	100	1	18	1.04
16	252	2000002224	121900934	200721East	563	598	35	1.5	1	100	1	35	1.06
17	267	1009	121900935	200720West	467	496	29	1.3	1	100	1	29	1.06
18	267	121900935	1009	200720East	511	550	39	1.7	1	100	1	39	1.08
19	295	121900873	500000886	20089North	333	335	2	0.1	1	100	1	2	1.01
20	295	500000886	121900873	20089South	286	298	12	0.7	1	100	1	12	1.04
21	312	121900953	121900972	20018North	737	775	38	1.4	1	111	1	38	1.05
22	312	121900972	121900953	20018South	700	780	80	2.9	1	105	1	80	1.11
23	318	121650954	2000002227	20258West	1557	1591	34	0.9	1	234	1	34	1.02
24	318	2000002227	121650954	20258East	1687	1740	53	1.3	1	253	1	53	1.03
25	331	121651256	121666057	20257West	1320	1367	47	1.3	1	198	1	47	1.04
26	331	121666057	121651256	20257East	1375	1377	2	0.1	1	206	1	2	1
27	335	121900968	121900969	200171South	747	806	59	2.1	1	112	1	59	1.08
28	335	121900969	121900968	200171North	770	779	9	0.3	1	116	1	9	1.01
29	376	121658901	121673245	20256East	1081	1180	99	2.9	1	162	1	99	1.09
30	376	121673245	121658901	20256West	1046	1166	120	3.6	1	157	1	120	1.11
31	384	121762978	121900998	20046East	203	227	24	1.6	1	100	1	24	1.12
32	384	121900998	121762978	20046West	180	203	23	1.7	1	100	1	23	1.13
33	415	121901009	121901016	1053East	169	239	70	4.9	1	100	1	70	1.41
34	415	121901016	121901009	1053West	148	214	66	4.9	1	100	1	66	1.45
35	425	121646106	2000714590	20085North	678	689	11	0.4	1	100	1	11	1.02
36	425	2000714590	121646106	20085South	611	636	25	1	1	100	1	25	1.04

37	428	121900726	121901024	20061West	390	454	64	3.1	1	100	1	64	1.16
38	428	121901024	121900726	20061East	445	509	64	2.9	1	100	1	64	1.14
39	430	121679655	2000714591	200812South	632	696	64	2.5	1	100	1	64	1.1
40	430	2000714591	121679655	200812North	695	751	56	2.1	1	100	1	56	1.08
41	442	121668460	121679655	3802South_main	445	494	49	2.3	1	100	1	49	1.11
42	442	121679655	121668460	3801North_main	466	517	51	2.3	1	100	1	51	1.11
43	475	36	2000714592	3803North	479	542	63	2.8	1	100	1	63	1.13
44	475	2000714592	36	3803South	457	521	64	2.9	1	100	1	64	1.14
45	478	121901057	121901247	20063West	431	477	46	2.2	1	100	1	46	1.11
46	478	121901247	121901057	20063East	484	541	57	2.5	1	100	1	57	1.12
47	495	121901065	121901086	20117North	230	268	38	2.4	1	100	1	38	1.17
48	495	121901086	121901065	20117South	223	250	27	1.8	1	100	1	27	1.12
49	550	121900906	121900910	1086North	377	382	5	0.3	1	100	1	5	1.01
50	550	121900910	121900906	1086South	336	346	10	0.5	1	100	1	10	1.03
51	551	121901088	121901107	20116North	345	359	14	0.7	1	100	1	14	1.04
52	551	121901107	121901088	20116South	297	313	16	0.9	1	100	1	16	1.05
53	559	245	121894010	20115North	482	490	8	0.4	1	100	1	8	1.02
54	559	121894010	245	20115South	463	475	12	0.6	1	100	1	12	1.03
55	602	29	121901117	20182North	687	741	54	2	1	100	1	54	1.08
56	602	121901117	29	20182South	669	765	96	3.6	1	100	1	96	1.14
57	645	121900846	2000714596	20087South	438	466	28	1.3	1	100	1	28	1.06
58	645	2000714596	121900846	20087North	477	545	68	3	1	100	1	68	1.14
59	680	121901040	2000001664	20522North	173	185	12	0.9	1	100	1	12	1.07
60	680	2000001664	121901040	20522South	183	200	17	1.2	1	100	1	17	1.09
61	689	100	121901210	20561South	317	323	6	0.3	1	100	1	6	1.02
62	689	121901210	100	20561North	344	351	7	0.4	1	100	1	7	1.02
63	771	121776709	2000714599	200722East	797	841	44	1.5	1	120	1	44	1.06
64	771	2000714599	121776709	200722West	668	716	48	1.8	1	100	1	48	1.07
65	782	121901279	121901292	20064West	495	584	89	3.8	1	100	1	89	1.18
66	782	121901292	121901279	20064East	556	627	71	2.9	1	100	1	71	1.13
67	840	121589623	2000714601	20183North	777	862	85	3	1	117	1	85	1.11
68	840	2000714601	121589623	20183South	722	732	10	0.4	1	108	1	10	1.01
69	916	1023	4014	20253East	374	397	23	1.2	1	100	1	23	1.06
70	916	4014	1023	20253West	356	387	31	1.6	1	100	1	31	1.09
71	978	1017	121901418	20524North	211	227	16	1.1	1	100	1	16	1.08
72	978	121901418	1017	20524South	223	223	0	0	1	100	1	0	1
73	1003	1026	121901704	3314South	290	343	53	3	1	100	1	53	1.18
74	1003	121901704	1026	3314North	254	305	51	3.1	1	100	1	51	1.2
75	1051	121901170	500000875	20181South	311	344	33	1.8	1	100	1	33	1.11
76	1051	500000875	121901170	20181North	344	347	3	0.2	1	100	1	3	1.01
77	1054	121735111	121901606	20091South	542	610	68	2.8	1	100	1	68	1.13
78	1054	121901606	121735111	20091North	584	669	85	3.4	1	100	1	85	1.15

79	1096	121900048	121901489	1211East	310	317	7	0.4	1	100	1	7	1.02
80	1096	121901489	121900048	1211West	303	316	13	0.7	1	100	1	13	1.04
81	1106	121900049	121901497	202104South	251	257	6	0.4	1	100	1	6	1.02
82	1106	121901497	121900049	202104North	277	274	-3	0.2	1	100	1	3	0.99
83	1107	121901490	121901493	202103North	227	230	3	0.2	1	100	1	3	1.01
84	1107	121901493	121901490	202103South	211	215	4	0.3	1	100	1	4	1.02
85	1112	121901492	121901498	202301South	132	120	-12	1.1	1	100	1	12	0.91
86	1112	121901498	121901492	202301North	144	129	-15	1.3	1	100	1	15	0.9
87	1114	1005	121901502	20185North	294	309	15	0.9	1	100	1	15	1.05
88	1114	121901502	1005	20185South	261	300	39	2.3	1	100	1	39	1.15
89	1115	121901501	2000002259	20186North	334	369	35	1.9	1	100	1	35	1.1
90	1115	2000002259	121901501	20186South	304	365	61	3.3	1	100	1	61	1.2
91	1211	121901556	121901570	3602East	430	491	61	2.8	1	100	1	61	1.14
92	1211	121901570	121901556	3602West	418	472	54	2.6	1	100	1	54	1.13
93	1212	121901567	121901570	3605West	83	122	39	3.9	1	100	1	39	1.47
94	1213	121901569	121901571	3603East	305	338	33	1.8	1	100	1	33	1.11
95	1213	121901571	121901569	3603West	299	350	51	2.8	1	100	1	51	1.17
96	1238	1011	121901592	3601West	345	414	69	3.5	1	100	1	69	1.2
97	1238	121901592	1011	3601East	350	409	59	3	1	100	1	59	1.17
98	1249	121901594	121901595	1782East	130	141	11	0.9	1	100	1	11	1.08
99	1249	121901595	121901594	1782West	118	127	9	0.8	1	100	1	9	1.08
100	1301	191	121901635	1024South	296	316	20	1.1	1	100	1	20	1.07
101	1301	121901635	191	1024North	279	293	14	0.8	1	100	1	14	1.05
102	1313	4206	500001003	20071West	2248	2163	-85	1.8	1	337	1	85	0.96
103	1313	500001003	4206	20071East	2293	2300	7	0.1	1	344	1	7	1
104	1390	121900168	121901692	20032North	247	236	-11	0.7	1	100	1	11	0.96
105	1390	121901692	121900168	20032South	228	219	-9	0.6	1	100	1	9	0.96
106	1422	121901716	121901715	3306South	34	50	16	2.5	1	100	1	16	1.47
107	1424	121901709	121901717	3306North	41	58	17	2.4	1	100	1	17	1.41
108	1450	121900172	121901736	20031South	183	159	-24	1.8	1	100	1	24	0.87
109	1450	121901736	121900172	20031North	204	189	-15	1.1	1	100	1	15	0.93
110	1467	121901745	500000938	3303South	445	541	96	4.3	1	100	1	96	1.22
111	1467	500000938	121901745	3303North	412	506	94	4.4	1	100	1	94	1.23
112	1469	121806155	121901746	20033South	251	214	-37	2.4	1	100	1	37	0.85
113	1469	121901746	121806155	20033North	244	236	-8	0.5	1	100	1	8	0.97
114	1477	121901748	121901749	1037South	524	472	-52	2.3	1	100	1	52	0.9
115	1477	121901749	121901748	1037North	559	504	-55	2.4	1	100	1	55	0.9
116	1513	1022	121901815	20093North	337	345	8	0.4	1	100	1	8	1.02
117	1513	121901815	1022	20093South	305	320	15	0.8	1	100	1	15	1.05
118	1546	121901832	121901839	20908North	412	437	25	1.2	1	100	1	25	1.06
119	1546	121901839	121901832	20908South	290	344	54	3	1	100	1	54	1.19
120	1552	121901823	121901834	20094North	342	369	27	1.4	1	100	1	27	1.08

121	1552	121901834	121901823	20094South	316	331	15	0.8	1	100	1	15	1.05
122	1553	121899898	121901835	1101South	255	261	6	0.4	1	100	1	6	1.02
123	1553	121901835	121899898	1101North	233	249	16	1	1	100	1	16	1.07
124	1567	121901482	121901845	20907South	228	218	-10	0.7	1	100	1	10	0.96
125	1567	121901845	121901482	20907North	249	252	3	0.2	1	100	1	3	1.01
126	1570	121747244	121901848	1102East	135	111	-24	2.2	1	100	1	24	0.82
127	1570	121901848	121747244	1102West	117	102	-15	1.4	1	100	1	15	0.87
128	1571	121901483	121901858	20906North	433	508	75	3.5	1	100	1	75	1.17
129	1571	121901858	121901483	20906South	397	465	68	3.3	1	100	1	68	1.17
130	1601	2000002208	2000714604	200723East	2376	2447	71	1.4	1	356	1	71	1.03
131	1601	2000714604	2000002208	200723West	2355	2274	-81	1.7	1	353	1	81	0.97
132	1602	121637653	2000002017	1044West	2326	2415	89	1.8	1	349	1	89	1.04
133	1602	2000002017	121637653	1044East	2205	2320	115	2.4	1	331	1	115	1.05
134	1676	121624338	500000926	1012North	2624	2361	-263	5.3	0	394	1	263	0.9
135	1676	500000926	121624338	1012South	2487	2050	-437	9.2	0	373	0	437	0.82
136	1687	121607502	121635641	20047West	3033	3064	31	0.6	1	400	1	31	1.01
137	1687	121635641	121607502	20047East	2811	2833	22	0.4	1	400	1	22	1.01
138	1715	121901422	500000937	3301North	926	940	14	0.5	1	139	1	14	1.02
139	1715	500000937	121901422	3301South	892	915	23	0.8	1	134	1	23	1.03
140	1719	121901433	500000947	3309South	349	409	60	3.1	1	100	1	60	1.17
141	1719	500000947	121901433	3309North	319	383	64	3.4	1	100	1	64	1.2
142	1720	121901716	500000949	3307North	377	399	22	1.1	1	100	1	22	1.06
143	1720	500000949	121901716	3307South	404	427	23	1.1	1	100	1	23	1.06
144	1744	4159	500000959	20204North	437	468	31	1.5	1	100	1	31	1.07
145	1744	500000959	4159	20204South	441	469	28	1.3	1	100	1	28	1.06
146	1753	121626994	121633442	1072West	2968	2841	-127	2.4	1	400	1	127	0.96
147	1753	121633442	121626994	1072East	2880	2894	14	0.3	1	400	1	14	1
148	1761	121595212	2000002245	20184South	943	984	41	1.3	1	141	1	41	1.04
149	1761	2000002245	121595212	20184North	966	1030	64	2	1	145	1	64	1.07
150	1812	121901603	500000991	20092South	476	505	29	1.3	1	100	1	29	1.06
151	1812	500000991	121901603	20092North	524	554	30	1.3	1	100	1	30	1.06
152	1839	500001009	2000002627	201081South	1122	1094	-28	0.8	1	168	1	28	0.98
153	1901	121598427	121899735	20034West	352	369	17	0.9	1	100	1	17	1.05
154	1901	121899735	121598427	20034East	387	403	16	0.8	1	100	1	16	1.04
155	1908	121839582	121899593	1042South	187	186	-1	0.1	1	100	1	1	0.99
156	1908	121899593	121839582	1042North	182	180	-2	0.1	1	100	1	2	0.99
157	1939	121899925	2000001296	20221North	268	242	-26	1.6	1	100	1	26	0.9
158	1939	2000001296	121899925	20221South	291	282	-9	0.5	1	100	1	9	0.97
159	1969	121616074	121636712	1503North	4306	4130	-176	2.7	1	400	1	176	0.96
160	1969	121636712	121616074	1503South	4280	4177	-103	1.6	1	400	1	103	0.98
161	2158	121607497	121615809	1509North	3678	3520	-158	2.6	1	400	1	158	0.96
162	2158	121615809	121607497	1509South	4021	4025	4	0.1	1	400	1	4	1

163	2170	121694399	2000001650	20562North	91	121	30	2.9	1	100	1	30	1.33
164	2170	2000001650	121694399	20562South	105	103	-2	0.2	1	100	1	2	0.98
165	2200	121835885	2000001659	1593East	126	112	-14	1.3	1	100	1	14	0.89
166	2200	2000001659	121835885	1593West	108	101	-7	0.7	1	100	1	7	0.94
167	2222	121793320	2000001670	1842North	177	199	22	1.6	1	100	1	22	1.12
168	2222	2000001670	121793320	1842South	190	210	20	1.4	1	100	1	20	1.11
169	2231	121899704	2000001679	20611South	237	268	31	2	1	100	1	31	1.13
170	2231	2000001679	121899704	20611North	217	238	21	1.4	1	100	1	21	1.1
171	2242	4028	121169472	1871North	45	24	-21	3.6	1	100	1	21	0.53
172	2242	121169472	4028	1871South	43	43	0	0	1	100	1	0	1
173	2249	2000001667	2000001834	20811North	91	99	8	0.8	1	100	1	8	1.09
174	2249	2000001834	2000001667	20811South	91	98	7	0.7	1	100	1	7	1.08
175	2250	121899721	2000001675	1551North	102	135	33	3	1	100	1	33	1.32
176	2250	2000001675	121899721	1551South	107	145	38	3.4	1	100	1	38	1.36
177	2262	121876322	2000001637	20521South	146	155	9	0.7	1	100	1	9	1.06
178	2262	2000001637	121876322	20521North	153	164	11	0.9	1	100	1	11	1.07
179	2269	2000001664	2000001665	1524North	211	185	-26	1.8	1	100	1	26	0.88
180	2269	2000001665	2000001664	1524South	216	200	-16	1.1	1	100	1	16	0.93
181	2270	4056	121822209	1624South	132	181	49	3.9	1	100	1	49	1.37
182	2270	121822209	4056	1624North	128	141	13	1.1	1	100	1	13	1.1
183	2283	121826147	2000001463	1523South	119	107	-12	1.1	1	100	1	12	0.9
184	2283	2000001463	121826147	1523North	119	117	-2	0.2	1	100	1	2	0.98
185	2286	121824886	2000001442	1803North	229	273	44	2.8	1	100	1	44	1.19
186	2286	2000001442	121824886	1803South	205	209	4	0.3	1	100	1	4	1.02
187	2292	121901758	2000001443	20523South	372	367	-5	0.3	1	100	1	5	0.99
188	2292	2000001443	121901758	20523North	401	263	-138	7.6	0	100	0	138	0.66
189	2325	121582230	2000001436	20812North	68	73	5	0.6	1	100	1	5	1.07
190	2325	2000001436	121582230	20812South	72	77	5	0.6	1	100	1	5	1.07
191	2333	121757032	2000001704	1801North	155	164	9	0.7	1	100	1	9	1.06
192	2333	2000001704	121757032	1801South	146	142	-4	0.3	1	100	1	4	0.97
193	2339	4063	2000001484	1781South	65	61	-4	0.5	1	100	1	4	0.94
194	2339	2000001484	4063	1781North	63	62	-1	0.1	1	100	1	1	0.98
195	2373	121899976	2000001691	1623NorthEast	140	154	14	1.2	1	100	1	14	1.1
196	2373	2000001691	121899976	1623SouthWest	134	159	25	2.1	1	100	1	25	1.19
197	2377	121855538	2000001465	1622South	125	150	25	2.1	1	100	1	25	1.2
198	2377	2000001465	121855538	1622North	122	137	15	1.3	1	100	1	15	1.12
199	2398	121716165	2000001470	1661North	93	91	-2	0.2	1	100	1	2	0.98
200	2398	2000001470	121716165	1661South	83	80	-3	0.3	1	100	1	3	0.96
201	2417	121591267	2000001508	20671North	85	72	-13	1.5	1	100	1	13	0.85
202	2417	2000001508	121591267	20671South	81	68	-13	1.5	1	100	1	13	0.84
203	2441	121586954	2000001526	1851South	159	162	3	0.2	1	100	1	3	1.02
204	2441	2000001526	121586954	1851North	186	186	0	0	1	100	1	0	1

205	2451	2000001468	2000001469	1741East	119	128	9	0.8	1	100	1	9	1.08
206	2451	2000001469	2000001468	1741West	118	128	10	0.9	1	100	1	10	1.08
207	2465	121766606	2000001531	1692West	163	196	33	2.5	1	100	1	33	1.2
208	2465	2000001531	121766606	1692East	166	179	13	1	1	100	1	13	1.08
209	2475	121900046	2000001712	1693South	121	112	-9	0.8	1	100	1	9	0.93
210	2475	2000001712	121900046	1693North	134	123	-11	1	1	100	1	11	0.92
211	2497	4087	2000001541	20861West	155	143	-12	1	1	100	1	12	0.92
212	2497	2000001541	4087	20861East	136	121	-15	1.3	1	100	1	15	0.89
213	2506	4088	2000001557	20701West	93	99	6	0.6	1	100	1	6	1.06
214	2506	2000001557	4088	20701East	89	93	4	0.4	1	100	1	4	1.04
215	2531	121723257	2000001571	1701West	78	70	-8	0.9	1	100	1	8	0.9
216	2531	2000001571	121723257	1701East	71	60	-11	1.4	1	100	1	11	0.85
217	2532	121723257	2000001578	1714North	49	56	7	1	1	100	1	7	1.14
218	2532	2000001578	121723257	1714South	47	62	15	2	1	100	1	15	1.32
219	2546	2000001579	2000001580	1722East	153	155	2	0.2	1	100	1	2	1.01
220	2546	2000001580	2000001579	1722West	150	149	-1	0.1	1	100	1	1	0.99
221	2585	2000001603	2000001722	20721West	94	89	-5	0.5	1	100	1	5	0.95
222	2585	2000001722	2000001603	20721East	81	79	-2	0.2	1	100	1	2	0.98
223	2610	121680624	2000001620	1715North	207	204	-3	0.2	1	100	1	3	0.99
224	2610	2000001620	121680624	1715South	180	179	-1	0.1	1	100	1	1	0.99
225	2624	121668320	2000001614	1713North	307	299	-8	0.5	1	100	1	8	0.97
226	2624	2000001614	121668320	1713South	310	302	-8	0.5	1	100	1	8	0.97
227	2654	2000001306	2000001747	1592East	56	53	-3	0.4	1	100	1	3	0.95
228	2654	2000001747	2000001306	1592West	58	55	-3	0.4	1	100	1	3	0.95
229	2669	2000001758	2000001759	20591East	91	90	-1	0.1	1	100	1	1	0.99
230	2669	2000001759	2000001758	20591West	100	100	0	0	1	100	1	0	1
231	2716	2000001789	2000001790	20601East	177	183	6	0.4	1	100	1	6	1.03
232	2716	2000001790	2000001789	20601West	174	179	5	0.4	1	100	1	5	1.03
233	2721	2000001793	2000001794	1601East	83	85	2	0.2	1	100	1	2	1.02
234	2721	2000001794	2000001793	1601West	85	85	0	0	1	100	1	0	1
235	2726	121791950	2000001797	1832South	26	75	49	6.9	0	100	1	49	2.88
236	2726	2000001797	121791950	1832North	24	63	39	5.9	0	100	1	39	2.63
237	2731	121831384	2000001804	1611North	189	203	14	1	1	100	1	14	1.07
238	2731	2000001804	121831384	1611South	179	211	32	2.3	1	100	1	32	1.18
239	2734	121899671	2000001802	1602East	138	139	1	0.1	1	100	1	1	1.01
240	2734	2000001802	121899671	1602West	139	138	-1	0.1	1	100	1	1	0.99
241	2746	121831331	2000001809	1632East	137	132	-5	0.4	1	100	1	5	0.96
242	2746	2000001809	121831331	1632West	135	135	0	0	1	100	1	0	1
243	2760	4221	2000001818	1631East	93	122	29	2.8	1	100	1	29	1.31
244	2760	2000001818	4221	1631West	81	110	29	3	1	100	1	29	1.36
245	2795	2000001840	2000001841	1522South	84	89	5	0.5	1	100	1	5	1.06
246	2795	2000001841	2000001840	1522North	87	95	8	0.8	1	100	1	8	1.09

247	2804	2000001412	2000001846	1541East	147	126	-21	1.8	1	100	1	21	0.86
248	2804	2000001846	2000001412	1541West	155	134	-21	1.7	1	100	1	21	0.86
249	2816	2000001730	2000001854	1581North	169	171	2	0.2	1	100	1	2	1.01
250	2816	2000001854	2000001730	1581South	180	178	-2	0.1	1	100	1	2	0.99
251	2822	121709981	2000001858	1831South	114	152	38	3.3	1	100	1	38	1.33
252	2822	2000001858	121709981	1831North	122	158	36	3	1	100	1	36	1.3
253	2825	121810996	2000001860	1511East	112	128	16	1.5	1	100	1	16	1.14
254	2825	2000001860	121810996	1511West	114	128	14	1.3	1	100	1	14	1.12
255	2830	121805642	2000001862	20511West	177	180	3	0.2	1	100	1	3	1.02
256	2830	2000001862	121805642	20511East	191	197	6	0.4	1	100	1	6	1.03
257	2995	4007	121877445	20251West	197	214	17	1.2	1	100	1	17	1.09
258	2995	121877445	4007	20251East	192	211	19	1.3	1	100	1	19	1.1
259	2998	4254	121861314	1251South	312	322	10	0.6	1	100	1	10	1.03
260	2998	121861314	4254	1251North	306	319	13	0.7	1	100	1	13	1.04
261	3040	4018	2000001916	20066East	85	72	-13	1.5	1	100	1	13	0.85
262	3040	2000001916	4018	20066West	89	78	-11	1.2	1	100	1	11	0.88
263	3167	4010	121757837	200711West	98	91	-7	0.7	1	100	1	7	0.93
264	3167	121757837	4010	200711East	104	97	-7	0.7	1	100	1	7	0.93
265	3179	4036	121899512	1182North	546	573	27	1.1	1	100	1	27	1.05
266	3179	121899512	4036	1182South	567	615	48	2	1	100	1	48	1.08
267	3192	4019	121701049	20067West	105	107	2	0.2	1	100	1	2	1.02
268	3192	121701049	4019	20067East	113	116	3	0.3	1	100	1	3	1.03
269	3203	4016	121871280	1045West	222	169	-53	3.8	1	100	1	53	0.76
270	3203	121871280	4016	1045East	229	167	-62	4.4	1	100	1	62	0.73
271	3211	4024	2000001326	1054East	149	169	20	1.6	1	100	1	20	1.13
272	3211	2000001326	4024	1054West	137	149	12	1	1	100	1	12	1.09
273	3217	4047	121899410	1173North	197	208	11	0.8	1	100	1	11	1.06
274	3217	121899410	4047	1173South	186	193	7	0.5	1	100	1	7	1.04
275	3246	4051	121688343	1133North	315	348	33	1.8	1	100	1	33	1.1
276	3246	121688343	4051	1133South	308	347	39	2.2	1	100	1	39	1.13
277	3284	4035	121729493	20224West	186	164	-22	1.7	1	100	1	22	0.88
278	3284	121729493	4035	20224East	195	171	-24	1.8	1	100	1	24	0.88
279	3295	4023	121781751	1043West	340	377	37	2	1	100	1	37	1.11
280	3295	121781751	4023	1043East	371	419	48	2.4	1	100	1	48	1.13
281	3305	121621692	2000001920	201082South	592	627	35	1.4	1	100	1	35	1.06
282	3305	2000001920	121621692	201082North	559	525	-34	1.5	1	100	1	34	0.94
283	3308	121607393	121622217	15010South	2142	2164	22	0.5	1	321	1	22	1.01
284	3308	121622217	121607393	15010North	1997	1940	-57	1.3	1	300	1	57	0.97
285	3312	121901421	2000001923	1032North	296	298	2	0.1	1	100	1	2	1.01
286	3312	2000001923	121901421	1032South	304	314	10	0.6	1	100	1	10	1.03
287	3315	121800187	2000001925	1261North	229	249	20	1.3	1	100	1	20	1.09
288	3315	2000001925	121800187	1261South	250	268	18	1.1	1	100	1	18	1.07

289	3316	121792399	2000001926	1051East	293	304	11	0.6	1	100	1	11	1.04
290	3316	2000001926	121792399	1051West	285	297	12	0.7	1	100	1	12	1.04
291	3318	121899396	2000001927	1052West	412	447	35	1.7	1	100	1	35	1.08
292	3318	2000001927	121899396	1052East	441	465	24	1.1	1	100	1	24	1.05
293	3338	121771047	2000001939	200713West	1024	1007	-17	0.5	1	154	1	17	0.98
294	3338	2000001939	121771047	200713East	1223	1212	-11	0.3	1	183	1	11	0.99
295	3366	121900937	2000001962	3702South	277	283	6	0.4	1	100	1	6	1.02
296	3366	2000001962	121900937	3702North	308	319	11	0.6	1	100	1	11	1.04
297	3377	121900937	2000001970	3703West	272	293	21	1.2	1	100	1	21	1.08
298	3377	2000001970	121900937	3703East	291	320	29	1.7	1	100	1	29	1.1
299	3389	2000001969	2000002032	200717West	299	321	22	1.2	1	100	1	22	1.07
300	3389	2000002032	2000001969	200717East	327	349	22	1.2	1	100	1	22	1.07
301	3396	2000001988	2000002006	200718East	361	366	5	0.3	1	100	1	5	1.01
302	3396	2000002006	2000001988	200718West	321	324	3	0.2	1	100	1	3	1.01
303	3409	2000001985	2000002001	200719West	353	346	-7	0.4	1	100	1	7	0.98
304	3409	2000002001	2000001985	200719East	387	385	-2	0.1	1	100	1	2	0.99
305	3419	2000002007	2000002046	200715East	385	386	1	0.1	1	100	1	1	1
306	3419	2000002046	2000002007	200715West	335	344	9	0.5	1	100	1	9	1.03
307	3437	86	2000002022	20084North	411	428	17	0.8	1	100	1	17	1.04
308	3437	2000002022	86	20084South	366	395	29	1.5	1	100	1	29	1.08
309	3444	121894461	2000034705	20112South	1454	1501	47	1.2	1	218	1	47	1.03
310	3444	2000034705	121894461	20112North	1405	1450	45	1.2	1	211	1	45	1.03
311	3473	2000002031	2000002044	200716West	308	365	57	3.1	1	100	1	57	1.19
312	3473	2000002044	2000002031	200716East	344	401	57	3	1	100	1	57	1.17
313	3488	121788687	2000002055	1022North	253	287	34	2.1	1	100	1	34	1.13
314	3488	2000002055	121788687	1022South	274	310	36	2.1	1	100	1	36	1.13
315	3511	228	2000002074	20016South	686	767	81	3	1	100	1	81	1.12
316	3511	2000002074	228	20016North	652	682	30	1.2	1	100	1	30	1.05
317	3574	121725157	2000002101	1223East	584	392	-192	8.7	0	100	0	192	0.67
318	3574	2000002101	121725157	1223West	598	392	-206	9.3	0	100	0	206	0.66
319	3586	121852372	2000002109	1242West	435	422	-13	0.6	1	100	1	13	0.97
320	3586	2000002109	121852372	1242East	443	415	-28	1.4	1	100	1	28	0.94
321	3594	121787506	2000002113	20525East	419	400	-19	0.9	1	100	1	19	0.95
322	3594	2000002113	121787506	20525West	486	474	-12	0.5	1	100	1	12	0.98
323	3609	121899832	2000002124	20801North	291	284	-7	0.4	1	100	1	7	0.98
324	3609	2000002124	121899832	20801South	304	283	-21	1.2	1	100	1	21	0.93
325	3787	121890765	121897671	20118South	835	882	47	1.6	1	125	1	47	1.06
326	3787	121897671	121890765	20118North	874	906	32	1.1	1	131	1	32	1.04
327	3829	2000002479	2000002482	1055East	127	181	54	4.4	1	100	1	54	1.43
328	3829	2000002482	2000002479	1055West	114	160	46	3.9	1	100	1	46	1.4
329	3831	2000002479	2000002484	1056West	103	139	36	3.3	1	100	1	36	1.35
330	3831	2000002484	2000002479	1056East	128	170	42	3.4	1	100	1	42	1.33

331	3870	2000002491	2000002520	20119South	542	552	10	0.4	1	100	1	10	1.02
332	3870	2000002520	2000002491	20119North	563	569	6	0.3	1	100	1	6	1.01
333	3875	121899797	2000002525	20113North	30	30	0	0	1	100	1	0	1
334	3875	2000002525	121899797	20113South	38	30	-8	1.4	1	100	1	8	0.79
335	3998	121795184	2000002585	1172West	189	150	-39	3	1	100	1	39	0.79
336	3998	2000002585	121795184	1172East	169	137	-32	2.6	1	100	1	32	0.81
337	4109	121812923	2000002625	1023North	449	484	35	1.6	1	100	1	35	1.08
338	4109	2000002625	121812923	1023South	411	419	8	0.4	1	100	1	8	1.02
339	4113	2000002626	500001006	201081North	1214	1247	33	0.9	1	182	1	33	1.03
340	4238	121620122	121628805	1502South	4217	4189	-28	0.4	1	400	1	28	0.99
341	4238	121628805	121620122	1502North	4254	4138	-116	1.8	1	400	1	116	0.97
342	4305	121616848	121632410	1014South	3551	3642	91	1.5	1	400	1	91	1.03
343	4305	121632410	121616848	1014North	3781	4007	226	3.6	1	400	1	226	1.06
344	4321	121631867	2000714612	1011West	1603	1952	349	8.3	0	240	0	349	1.22
345	4321	2000714612	121631867	1011East	1644	1669	25	0.6	1	247	1	25	1.02
346	4322	121611221	121617657	20011South	2574	2616	42	0.8	1	386	1	42	1.02
347	4322	121617657	121611221	20011North	2825	2698	-127	2.4	1	400	1	127	0.96
348	4359	121626007	2000001958	20021North	1148	1167	19	0.6	1	172	1	19	1.02
349	4359	2000001958	121626007	20021South	1056	1044	-12	0.4	1	158	1	12	0.99
350	4384	121784052	2000004570	1331West	330	331	1	0.1	1	100	1	1	1
351	4384	2000004570	121784052	1331East	354	351	-3	0.2	1	100	1	3	0.99
352	4553	121636676	2000034608	1015North	1561	1481	-80	2.1	1	234	1	80	0.95
353	4553	2000034608	121636676	1015South	1498	1509	11	0.3	1	225	1	11	1.01
354	4580	121770004	2000034623	20243West	450	456	6	0.3	1	100	1	6	1.01
355	4580	2000034623	121770004	20243East	479	506	27	1.2	1	100	1	27	1.06
356	4598	121819228	2000034633	1121West	131	158	27	2.2	1	100	1	27	1.21
357	4598	2000034633	121819228	1121East	138	158	20	1.6	1	100	1	20	1.14
358	4726	121758664	2000002025	3704West	508	595	87	3.7	1	100	1	87	1.17
359	4726	2000002025	121758664	3704East	644	694	50	1.9	1	100	1	50	1.08
360	4969	121901533	2000714488	3604East	503	595	92	3.9	1	100	1	92	1.18
361	4969	2000714488	121901533	3604West	486	580	94	4.1	1	100	1	94	1.19
362	5028	121870243	121874720	20044East	539	601	62	2.6	1	100	1	62	1.12
363	5028	121874720	121870243	20044West	482	547	65	2.9	1	100	1	65	1.13
364	5036	121608284	121806796	20022North	721	729	8	0.3	1	108	1	8	1.01
365	5036	121806796	121608284	20022South	655	637	-18	0.7	1	100	1	18	0.97
366	5049	121637498	121642477	1113South	2321	2378	57	1.2	1	348	1	57	1.02
367	5049	121642477	121637498	1113North	2252	2263	11	0.2	1	338	1	11	1
368	5056	121616903	121620245	1034North	2093	1898	-195	4.4	1	314	1	195	0.91
369	5056	121620245	121616903	1034South	2292	2086	-206	4.4	1	344	1	206	0.91
370	5107	121669371	121672338	20201South	615	688	73	2.9	1	100	1	73	1.12
371	5107	121672338	121669371	20201North	633	669	36	1.4	1	100	1	36	1.06
372	5114	121645478	121651743	1081East	1142	1109	-33	1	1	171	1	33	0.97

373	5114	121651743	121645478	1081West	1105	1054	-51	1.6	1	166	1	51	0.95
374	5139	2000001845	2000714623	1542West	97	111	14	1.4	1	100	1	14	1.14
375	5139	2000714623	2000001845	1542East	103	111	8	0.8	1	100	1	8	1.08
376	5164	121756689	121759476	20079East	783	774	-9	0.3	1	117	1	9	0.99
377	5164	121759476	121756689	20079West	708	696	-12	0.5	1	106	1	12	0.98
378	5170	121744268	121756596	20077West	790	797	7	0.2	1	119	1	7	1.01
379	5170	121756596	121744268	20077East	817	860	43	1.5	1	123	1	43	1.05
380	5256	164	2000714704	1771North	318	320	2	0.1	1	100	1	2	1.01
381	5256	2000714704	164	1771South	301	302	1	0.1	1	100	1	1	1
382	5260	2000001705	2000714709	20802North	190	195	5	0.4	1	100	1	5	1.03
383	5260	2000714709	2000001705	20802South	188	189	1	0.1	1	100	1	1	1.01
384	7016	121737096	121739187	20076West	988	1048	60	1.9	1	148	1	60	1.06
385	7016	121739187	121737096	20076East	1031	1116	85	2.6	1	155	1	85	1.08
386	7021	121625454	121638341	15011South	2023	1893	-130	2.9	1	303	1	130	0.94
387	7021	121638341	121625454	15011North	1975	1824	-151	3.5	1	296	1	151	0.92
388	7023	121606598	121639135	20111South	2082	2117	35	0.8	1	312	1	35	1.02
389	7023	121639135	121606598	20111North	1972	1976	4	0.1	1	296	1	4	1
390	46402	121862879	121864698	20255East	342	339	-3	0.2	1	100	1	3	0.99
391	46402	121864698	121862879	20255West	327	327	0	0	1	100	1	0	1
392	47366	121830350	121873849	20065East	1014	1046	32	1	1	152	1	32	1.03
393	47366	121873849	121830350	20065West	979	1011	32	1	1	147	1	32	1.03
394	48089	121810483	121872749	3401West	252	317	65	3.9	1	100	1	65	1.26
395	48089	121872749	121810483	3401East	282	350	68	3.8	1	100	1	68	1.24
396	50644	121880125	121883720	20252East	229	235	6	0.4	1	100	1	6	1.03
397	50644	121883720	121880125	20252West	234	242	8	0.5	1	100	1	8	1.03
398	50645	121878897	121886029	1111North	482	540	58	2.6	1	100	1	58	1.12
399	50645	121886029	121878897	1111South	444	523	79	3.6	1	100	1	79	1.18
400	50659	121878765	121887869	1112North	423	458	35	1.7	1	100	1	35	1.08
401	50659	121887869	121878765	1112South	420	473	53	2.5	1	100	1	53	1.13
402	52322	121606343	121895202	1811South	298	306	8	0.5	1	100	1	8	1.03
403	52322	121895202	121606343	1811North	276	281	5	0.3	1	100	1	5	1.02
404	52902	121896900	2000002522	20114North	569	600	31	1.3	1	100	1	31	1.05
405	52902	2000002522	121896900	20114South	541	582	41	1.7	1	100	1	41	1.08
406	549454109	121625904	121625905	20012North_slip	178	164	-14	1.1	1	100	1	14	0.92
407	549458121	121617120	121631566	20012North_main	1214	1318	104	2.9	1	182	1	104	1.09
408	549458121	121631566	121617120	20012South_main	1348	1360	12	0.3	1	202	1	12	1.01
409	553058336	121608946	121612882	1311West	472	328	-144	7.2	0	100	0	144	0.69
410	553058336	121612882	121608946	1311East	404	256	-148	8.1	0	100	0	148	0.63
411	554375343	121609142	121635289	1312North	525	439	-86	3.9	1	100	1	86	0.84
412	554375343	121635289	121609142	1312South	553	430	-123	5.5	0	100	0	123	0.78
413	554449560	121674035	121674036	200811West	1286	1308	22	0.6	1	193	1	22	1.02
414	554449560	121674036	121674035	200811East	1254	1223	-31	0.9	1	188	1	31	0.98

415	554454057	121614467	121620668	1033North	1630	1620	-10	0.2	1	245	1	10	0.99
416	554454057	121620668	121614467	1033South	1583	1567	-16	0.4	1	237	1	16	0.99
417	588987149	121598492	121602822	20035North	361	396	35	1.8	1	100	1	35	1.1
418	588987149	121602822	121598492	20035South	355	401	46	2.4	1	100	1	46	1.13
419	590511931	121610359	121641108	15012South	1421	1462	41	1.1	1	213	1	41	1.03
420	590511931	121641108	121610359	15012North	1436	1426	-10	0.3	1	215	1	10	0.99
421	707711508	121583564	121584273	208001West	501	435	-66	3.1	1	100	1	66	0.87
422	707711508	121584273	121583564	208001East	495	392	-103	4.9	1	100	0	103	0.79
423	714088067	121589251	121592727	1681East	113	135	22	2	1	100	1	22	1.19
424	714088067	121592727	121589251	1681West	106	127	21	1.9	1	100	1	21	1.2
425	719956103	121167836	121599058	20036South	108	117	9	0.8	1	100	1	9	1.08
426	719956103	121599058	121167836	20036North	109	103	-6	0.6	1	100	1	6	0.94
427	720544847	121600251	121600405	1161West	86	90	4	0.4	1	100	1	4	1.05
428	720544847	121600405	121600251	1161East	89	77	-12	1.3	1	100	1	12	0.87
429	721225505	121600970	121604340	1035North	422	450	28	1.3	1	100	1	28	1.07
430	721225505	121604340	121600970	1035South	344	401	57	3	1	100	1	57	1.17
431	725567258	121612648	121614236	1071West	3024	2906	-118	2.2	1	400	1	118	0.96
432	725567258	121614236	121612648	1071East	3129	3101	-28	0.5	1	400	1	28	0.99
433	730379628	121636334	121617120	20012South_slip	199	150	-49	3.7	1	100	1	49	0.75
434	731701292	121614986	121625005	1504North	3441	3232	-209	3.6	1	400	1	209	0.94
435	731701292	121625005	121614986	1504South	3605	3586	-19	0.3	1	400	1	19	0.99
436	734302647	121620123	121626709	1501North	3999	3706	-293	4.7	1	400	1	293	0.93
437	734302647	121626709	121620123	1501South	3913	3813	-100	1.6	1	400	1	100	0.97
438	736380918	121615920	121629569	1505North	3167	3048	-119	2.1	1	400	1	119	0.96
439	736380918	121629569	121615920	1505South	3301	3308	7	0.1	1	400	1	7	1
440	742637630	121605847	121624337	1013North	1269	1023	-246	7.3	0	190	0	246	0.81
441	742637630	121624337	121605847	1013South	1244	1022	-222	6.6	0	187	0	222	0.82
442	747563463	121625876	121633954	1812West	979	989	10	0.3	1	147	1	10	1.01
443	747563463	121633954	121625876	1812East	1061	1030	-31	1	1	159	1	31	0.97
444	749408337	121624629	121635351	1321West	1215	828	-387	12.1	0	182	0	387	0.68
445	749408337	121635351	121624629	1321East	1184	975	-209	6.4	0	178	0	209	0.82
446	751108037	121613700	121623860	1506South	3037	3051	14	0.3	1	400	1	14	1
447	751108037	121623860	121613700	1506North	3035	2916	-119	2.2	1	400	1	119	0.96
448	751257437	121623860	121635051	1507South	2070	2016	-54	1.2	1	311	1	54	0.97
449	751257437	121635051	121623860	1507North	1993	1974	-19	0.4	1	299	1	19	0.99
450	751782353	121605953	121614074	1508South	4151	4104	-47	0.7	1	400	1	47	0.99
451	751782353	121614074	121605953	1508North	4126	4057	-69	1.1	1	400	1	69	0.98
452	759735830	121643856	121678554	1221East	341	301	-40	2.2	1	100	1	40	0.88
453	759735830	121678554	121643856	1221West	389	346	-43	2.2	1	100	1	43	0.89
454	762970802	121643386	121668405	1256South	1941	2060	119	2.7	1	291	1	119	1.06
455	762970802	121668405	121643386	1256North	2133	2214	81	1.7	1	320	1	81	1.04
456	765084978	121647012	121670921	1253West	2589	2671	82	1.6	1	388	1	82	1.03

457	765084978	121670921	121647012	1253East	2916	2891	-25	0.5	1	400	1	25	0.99
458	796986758	121660066	121674564	1281North	738	726	-12	0.4	1	111	1	12	0.98
459	796986758	121674564	121660066	1281South	743	748	5	0.2	1	111	1	5	1.01
460	803755898	121679655	121666426	3801North_slip	226	234	8	0.5	1	100	1	8	1.04
461	830511612	4133	121665568	20222East	569	564	-5	0.2	1	100	1	5	0.99
462	830511612	121665568	4133	20222West	614	608	-6	0.2	1	100	1	6	0.99
463	840539223	121652862	121674687	1258West	2215	2243	28	0.6	1	332	1	28	1.01
464	840539223	121674687	121652862	1258East	2296	2328	32	0.7	1	344	1	32	1.01
465	840881880	121652971	121664532	1255East	1180	1204	24	0.7	1	177	1	24	1.02
466	840881880	121664532	121652971	1255West	1122	1159	37	1.1	1	168	1	37	1.03
467	843045822	4160	121677183	202639North	214	192	-22	1.5	1	100	1	22	0.9
468	843045822	121677183	4160	202639South	213	194	-19	1.3	1	100	1	19	0.91
469	843969122	4161	121667163	1271North	674	747	73	2.7	1	100	1	73	1.11
470	843969122	121667163	4161	1271South	730	842	112	4	1	110	0	112	1.15
471	846591053	121663055	121673832	20223South	497	395	-102	4.8	1	100	0	102	0.79
472	846591053	121673832	121663055	20223North	443	381	-62	3.1	1	100	1	62	0.86
473	847275507	121661509	121679655	3802South_slip	193	203	10	0.7	1	100	1	10	1.05
474	880428780	121687758	121690055	1141South	365	392	27	1.4	1	100	1	27	1.07
475	880428780	121690055	121687758	1141North	373	445	72	3.6	1	100	1	72	1.19
476	894267755	121686471	121692845	20563West	196	182	-14	1	1	100	1	14	0.93
477	894267755	121692845	121686471	20563East	192	158	-34	2.6	1	100	1	34	0.82
478	898015622	121689345	121696821	1031East	156	129	-27	2.3	1	100	1	27	0.83
479	898015622	121696821	121689345	1031West	160	177	17	1.3	1	100	1	17	1.11
480	899952557	121686584	121689834	1131West	251	253	2	0.1	1	100	1	2	1.01
481	899952557	121689834	121686584	1131East	262	225	-37	2.4	1	100	1	37	0.86
482	902057033	121692920	121694426	1151South	164	145	-19	1.5	1	100	1	19	0.88
483	902057033	121694426	121692920	1151North	155	111	-44	3.8	1	100	1	44	0.72
484	904153130	121691331	121695474	1132West	611	732	121	4.7	1	100	0	121	1.2
485	904153130	121695474	121691331	1132East	641	751	110	4.2	1	100	0	110	1.17
486	905106002	121693767	121693779	20152North	213	256	43	2.8	1	100	1	43	1.2
487	905106002	121693779	121693767	20152South	240	260	20	1.3	1	100	1	20	1.08
488	1004232155	121716967	121719397	20172North	615	691	76	3	1	100	1	76	1.12
489	1004232155	121719397	121716967	20172South	627	675	48	1.9	1	100	1	48	1.08
490	1077821118	121723498	121729493	1222South	236	219	-17	1.1	1	100	1	17	0.93
491	1077821118	121729493	121723498	1222North	236	208	-28	1.9	1	100	1	28	0.88
492	1102491608	121735450	121742133	20072West	1867	1859	-8	0.2	1	280	1	8	1
493	1102491608	121742133	121735450	20072East	1919	2001	82	1.9	1	288	1	82	1.04
494	1130484155	121736305	121742427	20041East	1505	1484	-21	0.5	1	226	1	21	0.99
495	1130484155	121742427	121736305	20041West	1469	1459	-10	0.3	1	220	1	10	0.99
496	1131531773	121734666	121734981	20042West	1088	1184	96	2.8	1	163	1	96	1.09
497	1131531773	121734981	121734666	20042East	1127	1196	69	2	1	169	1	69	1.06
498	1131793880	121738917	121740681	20075East	1185	1329	144	4.1	1	178	1	144	1.12

499	1131793880	121740681	121738917	20075West	1203	1277	74	2.1	1	180	1	74	1.06
500	1184390892	121746354	121752733	1761North	172	208	36	2.6	1	100	1	36	1.21
501	1184390892	121752733	121746354	1761South	176	206	30	2.2	1	100	1	30	1.17
502	1227893663	121756715	121758920	20078West	764	787	23	0.8	1	115	1	23	1.03
503	1227893663	121758920	121756715	20078East	847	876	29	1	1	127	1	29	1.03
504	1305390005	121770042	121776927	200714West	610	478	-132	5.7	0	100	0	132	0.78
505	1305390005	121776927	121770042	200714East	594	448	-146	6.4	0	100	0	146	0.75
506	1370778242	121766408	121779479	20211West	281	288	7	0.4	1	100	1	7	1.02
507	1370778242	121779479	121766408	20211East	307	308	1	0.1	1	100	1	1	1
508	1401276380	121781117	121783536	20045West	320	368	48	2.6	1	100	1	48	1.15
509	1401276380	121783536	121781117	20045East	353	403	50	2.6	1	100	1	50	1.14
510	1417347578	121784287	121784455	3101North	620	727	107	4.1	1	100	0	107	1.17
511	1417347578	121784455	121784287	3101South	652	735	83	3.2	1	100	1	83	1.13
512	1430975918	121785756	121788170	20526North	457	441	-16	0.8	1	100	1	16	0.96
513	1430975918	121788170	121785756	20526South	407	432	25	1.2	1	100	1	25	1.06
514	1557111842	121712778	121803153	1171North	234	231	-3	0.2	1	100	1	3	0.99
515	1557111842	121803153	121712778	1171South	241	234	-7	0.5	1	100	1	7	0.97
516	1588811423	121806846	121811204	3404East	358	236	-122	7.1	0	100	0	122	0.66
517	1607677058	121810977	121814291	3102South	110	110	0	0	1	100	1	0	1
518	1642458672	121805442	121813032	201321South	537	512	-25	1.1	1	100	1	25	0.95
519	1642458672	121813032	121805442	201321North	535	439	-96	4.4	1	100	1	96	0.82
520	1645921112	121809222	121809566	31031South	896	935	39	1.3	1	134	1	39	1.04
521	1650648987	121804943	121806846	3404West	311	200	-111	6.9	0	100	0	111	0.64
522	1706074580	121146850	121817334	1531North	147	142	-5	0.4	1	100	1	5	0.97
523	1706074580	121817334	121146850	1531South	151	150	-1	0.1	1	100	1	1	0.99
524	1885921037	121836576	121840654	1041North	632	646	14	0.6	1	100	1	14	1.02
525	1885921037	121840654	121836576	1041South	648	654	6	0.2	1	100	1	6	1.01
526	2084217408	121845871	121848701	1651North	92	103	11	1.1	1	100	1	11	1.12
527	2084217408	121848701	121845871	1651South	88	108	20	2	1	100	1	20	1.23
528	2109307130	121847938	121856699	1241South	203	191	-12	0.9	1	100	1	12	0.94
529	2109307130	121856699	121847938	1241North	196	175	-21	1.5	1	100	1	21	0.89
530	2141041448	121861304	121863235	20254North	1101	1098	-3	0.1	1	165	1	3	1
531	2141041448	121863235	121861304	20254South	1165	1158	-7	0.2	1	175	1	7	0.99
532	2147474939	121840932	121899414	20153North	214	220	6	0.4	1	100	1	6	1.03
533	2147474939	121899414	121840932	20153South	238	232	-6	0.4	1	100	1	6	0.97
534	2147475008	121881810	121899442	20301East	160	159	-1	0.1	1	100	1	1	0.99
535	2147475008	121899442	121881810	20301West	148	149	1	0.1	1	100	1	1	1.01
536	2147475132	121719397	121899504	20171North	395	446	51	2.5	1	100	1	51	1.13
537	2147475132	121899504	121719397	20171South	419	447	28	1.3	1	100	1	28	1.07
538	2147475191	121816358	121899533	1021North	287	300	13	0.8	1	100	1	13	1.05
539	2147475191	121899533	121816358	1021South	298	314	16	0.9	1	100	1	16	1.05
540	2147475279	121695290	121899577	20151North	212	225	13	0.9	1	100	1	13	1.06

541	2147475279	121899577	121695290	20151South	210	233	23	1.5	1	100	1	23	1.11
542	2147475424	121832513	121899677	20051East	177	200	23	1.7	1	100	1	23	1.13
543	2147475424	121899677	121832513	20051West	154	167	13	1	1	100	1	13	1.08
544	2147475530	121899726	121899730	1552South	111	146	35	3.1	1	100	1	35	1.32
545	2147475530	121899730	121899726	1552North	118	138	20	1.8	1	100	1	20	1.17
546	2147475694	121766952	121899812	20212East	495	493	-2	0.1	1	100	1	2	1
547	2147475694	121899812	121766952	20212West	473	473	0	0	1	100	1	0	1
548	2147475710	121899819	121899820	20621South	154	164	10	0.8	1	100	1	10	1.06
549	2147475710	121899820	121899819	20621North	157	156	-1	0.1	1	100	1	1	0.99
550	2147475747	4147	121899838	1711North	530	667	137	5.6	0	100	0	137	1.26
551	2147475747	121899838	4147	1711South	537	598	61	2.6	1	100	1	61	1.11
552	2147475748	121658844	121899839	1712North	428	413	-15	0.7	1	100	1	15	0.96
553	2147475748	121899839	121658844	1712South	402	383	-19	1	1	100	1	19	0.95
554	2147475791	121863550	121899860	1723West	145	153	8	0.7	1	100	1	8	1.06
555	2147475791	121899860	121863550	1723East	142	149	7	0.6	1	100	1	7	1.05
556	2147475847	121899883	121899888	1691South	205	209	4	0.3	1	100	1	4	1.02
557	2147475847	121899888	121899883	1691North	211	208	-3	0.2	1	100	1	3	0.99
558	2147475881	121853851	121899905	1751East	153	152	-1	0.1	1	100	1	1	0.99
559	2147475881	121899905	121853851	1751West	129	146	17	1.4	1	100	1	17	1.13
560	2147475883	121852937	121899906	1621South	272	284	12	0.7	1	100	1	12	1.04
561	2147475883	121899906	121852937	1621North	241	196	-45	3	1	100	1	45	0.81
562	2147475919	121722835	121899924	1721West	205	219	14	1	1	100	1	14	1.07
563	2147475919	121899924	121722835	1721East	189	183	-6	0.4	1	100	1	6	0.97
564	2147475929	121759846	121899929	20081South	286	302	16	0.9	1	100	1	16	1.06
565	2147475929	121899929	121759846	20081North	253	263	10	0.6	1	100	1	10	1.04
566	2147475976	121770292	121899953	20202South	381	382	1	0.1	1	100	1	1	1
567	2147475976	121899953	121770292	20202North	382	376	-6	0.3	1	100	1	6	0.98
568	2147475985	4042	121646401	1201South	295	286	-9	0.5	1	100	1	9	0.97
569	2147475985	121646401	4042	1201North	276	266	-10	0.6	1	100	1	10	0.96
570	2147475995	121667321	121899962	1252East	469	475	6	0.3	1	100	1	6	1.01
571	2147475995	121899962	121667321	1252West	461	470	9	0.4	1	100	1	9	1.02
572	2147476026	121754107	121899978	20082South	183	174	-9	0.7	1	100	1	9	0.95
573	2147476026	121899978	121754107	20082North	166	170	4	0.3	1	100	1	4	1.02
574	2147476132	121659960	121900031	1731South	90	94	4	0.4	1	100	1	4	1.04
575	2147476132	121900031	121659960	1731North	91	92	1	0.1	1	100	1	1	1.01
576	2147476260	121750578	121900095	1243South	219	228	9	0.6	1	100	1	9	1.04
577	2147476260	121900095	121750578	1243North	217	204	-13	0.9	1	100	1	13	0.94
578	2147476721	121818875	121900489	20024North	168	193	25	1.9	1	100	1	25	1.15
579	2147476721	121900489	121818875	20024South	173	228	55	3.9	1	100	1	55	1.32
580	2147476809	121900531	121900532	1841North	336	403	67	3.5	1	100	1	67	1.2
581	2147476809	121900532	121900531	1841South	330	389	59	3.1	1	100	1	59	1.18
582	2147483403	121900734	121900740	3804North	478	542	64	2.8	1	100	1	64	1.13

583	2147483403	121900740	121900734	3804South	442	521	79	3.6	1	100	1	79	1.18
584	2147483410	121900740	121900736	3805North	45	110	65	7.4	0	100	1	65	2.44
585	2147483411	121900735	121900740	3805South	47	97	50	5.9	0	100	1	50	2.06
586	2147483575	121847977	121900808	20241West	356	353	-3	0.2	1	100	1	3	0.99
587	2147483575	121900808	121847977	20241East	346	353	7	0.4	1	100	1	7	1.02
588	2147483597	77	121900817	20083North	434	449	15	0.7	1	100	1	15	1.03
589	2147483597	121900817	77	20083South	387	423	36	1.8	1	100	1	36	1.09
	TOTAL				367717	371684		6.5	567		566	21935	1.13

Table 8.8 Link Calibration - Light Vehicles (Inter Peak)

Link Calibration – Light Vehicles					Average Inter Peak Period (12-14)								
					Counts:	589		RESULT =	96.8%	RESULT =	97.1%		
					Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	TMU No	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	27	121901753	2000714598	20088South	263	269	6	0.4	1	100	1	6	1.02
2	27	2000714598	121901753	20088North	287	249	-38	2.3	1	100	1	38	0.87
3	102	121766075	121768599	20203North	689	708	19	0.7	1	100	1	19	1.03
4	102	121768599	121766075	20203South	731	746	15	0.6	1	110	1	15	1.02
5	134	121901197	121901200	1521South	161	141	-20	1.6	1	100	1	20	0.88
6	134	121901200	121901197	1521North	153	139	-14	1.2	1	100	1	14	0.91
7	135	121900918	2000001963	3701North	250	246	-4	0.3	1	100	1	4	0.98
8	135	2000001963	121900918	3701South	228	227	-1	0.1	1	100	1	1	1
9	149	121769433	121773120	20205South	767	771	4	0.1	1	115	1	4	1.01
10	149	121773120	121769433	20205North	761	772	11	0.4	1	114	1	11	1.01
11	182	74	500000954	20242East	212	215	3	0.2	1	100	1	3	1.01
12	182	500000954	74	20242West	100	133	33	3.1	1	100	1	33	1.33
13	211	121900894	121900908	20086North	440	441	1	0	1	100	1	1	1
14	211	121900908	121900894	20086South	389	405	16	0.8	1	100	1	16	1.04
15	252	121900934	2000002224	200721West	439	464	25	1.2	1	100	1	25	1.06
16	252	2000002224	121900934	200721East	479	526	47	2.1	1	100	1	47	1.1
17	267	1009	121900935	200720West	400	417	17	0.8	1	100	1	17	1.04
18	267	121900935	1009	200720East	425	446	21	1	1	100	1	21	1.05
19	295	121900873	500000886	20089North	270	246	-24	1.5	1	100	1	24	0.91
20	295	500000886	121900873	20089South	239	227	-12	0.8	1	100	1	12	0.95
21	312	121900953	121900972	20018North	600	661	61	2.4	1	100	1	61	1.1
22	312	121900972	121900953	20018South	579	672	93	3.7	1	100	1	93	1.16
23	318	121650954	2000002227	20258West	1435	1457	22	0.6	1	215	1	22	1.02
24	318	2000002227	121650954	20258East	1548	1599	51	1.3	1	232	1	51	1.03
25	331	121651256	121666057	20257West	1213	1261	48	1.4	1	182	1	48	1.04
26	331	121666057	121651256	20257East	1259	1267	8	0.2	1	189	1	8	1.01
27	335	121900968	121900969	200171South	623	697	74	2.9	1	100	1	74	1.12
28	335	121900969	121900968	200171North	636	663	27	1.1	1	100	1	27	1.04
29	376	121658901	121673245	20256East	989	1078	89	2.8	1	148	1	89	1.09
30	376	121673245	121658901	20256West	958	1068	110	3.5	1	144	1	110	1.11
31	384	121762978	121900998	20046East	177	193	16	1.2	1	100	1	16	1.09
32	384	121900998	121762978	20046West	163	179	16	1.2	1	100	1	16	1.1
33	415	121901009	121901016	1053East	153	220	67	4.9	1	100	1	67	1.44
34	415	121901016	121901009	1053West	131	195	64	5	0	100	1	64	1.49
35	425	121646106	2000714590	20085North	579	582	3	0.1	1	100	1	3	1.01
36	425	2000714590	121646106	20085South	513	531	18	0.8	1	100	1	18	1.04

37	428	121900726	121901024	20061West	337	373	36	1.9	1	100	1	36	1.11
38	428	121901024	121900726	20061East	378	420	42	2.1	1	100	1	42	1.11
39	430	121679655	2000714591	200812South	540	582	42	1.8	1	100	1	42	1.08
40	430	2000714591	121679655	200812North	601	635	34	1.4	1	100	1	34	1.06
41	442	121668460	121679655	3802South_main	378	400	22	1.1	1	100	1	22	1.06
42	442	121679655	121668460	3801North_main	391	420	29	1.4	1	100	1	29	1.07
43	475	36	2000714592	3803North	399	437	38	1.9	1	100	1	38	1.1
44	475	2000714592	36	3803South	381	423	42	2.1	1	100	1	42	1.11
45	478	121901057	121901247	20063West	376	413	37	1.9	1	100	1	37	1.1
46	478	121901247	121901057	20063East	417	460	43	2.1	1	100	1	43	1.1
47	495	121901065	121901086	20117North	189	226	37	2.6	1	100	1	37	1.2
48	495	121901086	121901065	20117South	185	211	26	1.8	1	100	1	26	1.14
49	550	121900906	121900910	1086North	301	293	-8	0.5	1	100	1	8	0.97
50	550	121900910	121900906	1086South	269	269	0	0	1	100	1	0	1
51	551	121901088	121901107	20116North	303	297	-6	0.3	1	100	1	6	0.98
52	551	121901107	121901088	20116South	261	254	-7	0.4	1	100	1	7	0.97
53	559	245	121894010	20115North	438	428	-10	0.5	1	100	1	10	0.98
54	559	121894010	245	20115South	418	413	-5	0.2	1	100	1	5	0.99
55	602	29	121901117	20182North	621	673	52	2	1	100	1	52	1.08
56	602	121901117	29	20182South	604	697	93	3.6	1	100	1	93	1.15
57	645	121900846	2000714596	20087South	363	374	11	0.6	1	100	1	11	1.03
58	645	2000714596	121900846	20087North	386	427	41	2	1	100	1	41	1.11
59	680	121901040	2000001664	20522North	151	172	21	1.7	1	100	1	21	1.14
60	680	2000001664	121901040	20522South	158	178	20	1.5	1	100	1	20	1.13
61	689	100	121901210	20561South	301	308	7	0.4	1	100	1	7	1.02
62	689	121901210	100	20561North	327	336	9	0.5	1	100	1	9	1.03
63	771	121776709	2000714599	200722East	693	757	64	2.4	1	100	1	64	1.09
64	771	2000714599	121776709	200722West	580	640	60	2.4	1	100	1	60	1.1
65	782	121901279	121901292	20064West	441	516	75	3.4	1	100	1	75	1.17
66	782	121901292	121901279	20064East	489	544	55	2.4	1	100	1	55	1.11
67	840	121589623	2000714601	20183North	706	800	94	3.4	1	106	1	94	1.13
68	840	2000714601	121589623	20183South	652	668	16	0.6	1	100	1	16	1.02
69	916	1023	4014	20253East	322	336	14	0.8	1	100	1	14	1.04
70	916	4014	1023	20253West	306	326	20	1.1	1	100	1	20	1.07
71	978	1017	121901418	20524North	186	204	18	1.3	1	100	1	18	1.1
72	978	121901418	1017	20524South	198	197	-1	0.1	1	100	1	1	0.99
73	1003	1026	121901704	3314South	236	260	24	1.5	1	100	1	24	1.1
74	1003	121901704	1026	3314North	197	223	26	1.8	1	100	1	26	1.13
75	1051	121901170	500000875	20181South	271	314	43	2.5	1	100	1	43	1.16
76	1051	500000875	121901170	20181North	300	314	14	0.8	1	100	1	14	1.05
77	1054	121735111	121901606	20091South	470	502	32	1.5	1	100	1	32	1.07
78	1054	121901606	121735111	20091North	504	540	36	1.6	1	100	1	36	1.07

79	1096	121900048	121901489	1211East	289	297	8	0.5	1	100	1	8	1.03
80	1096	121901489	121900048	1211West	287	300	13	0.8	1	100	1	13	1.05
81	1106	121900049	121901497	202104South	229	236	7	0.5	1	100	1	7	1.03
82	1106	121901497	121900049	202104North	246	250	4	0.3	1	100	1	4	1.02
83	1107	121901490	121901493	202103North	202	209	7	0.5	1	100	1	7	1.03
84	1107	121901493	121901490	202103South	192	197	5	0.4	1	100	1	5	1.03
85	1112	121901492	121901498	202301South	119	108	-11	1	1	100	1	11	0.91
86	1112	121901498	121901492	202301North	131	117	-14	1.3	1	100	1	14	0.89
87	1114	1005	121901502	20185North	255	282	27	1.6	1	100	1	27	1.11
88	1114	121901502	1005	20185South	225	274	49	3.1	1	100	1	49	1.22
89	1115	121901501	2000002259	20186North	289	334	45	2.5	1	100	1	45	1.16
90	1115	2000002259	121901501	20186South	264	332	68	3.9	1	100	1	68	1.26
91	1211	121901556	121901570	3602East	380	437	57	2.8	1	100	1	57	1.15
92	1211	121901570	121901556	3602West	374	425	51	2.6	1	100	1	51	1.14
93	1212	121901567	121901570	3605West	71	106	35	3.7	1	100	1	35	1.49
94	1213	121901569	121901571	3603East	268	301	33	2	1	100	1	33	1.12
95	1213	121901571	121901569	3603West	265	319	54	3.2	1	100	1	54	1.2
96	1238	1011	121901592	3601West	303	373	70	3.8	1	100	1	70	1.23
97	1238	121901592	1011	3601East	302	357	55	3	1	100	1	55	1.18
98	1249	121901594	121901595	1782East	115	121	6	0.6	1	100	1	6	1.05
99	1249	121901595	121901594	1782West	104	111	7	0.7	1	100	1	7	1.07
100	1301	191	121901635	1024South	247	265	18	1.1	1	100	1	18	1.07
101	1301	121901635	191	1024North	227	242	15	1	1	100	1	15	1.07
102	1313	4206	500001003	20071West	1970	1924	-46	1	1	296	1	46	0.98
103	1313	500001003	4206	20071East	1983	1917	-66	1.5	1	297	1	66	0.97
104	1390	121900168	121901692	20032North	225	222	-3	0.2	1	100	1	3	0.99
105	1390	121901692	121900168	20032South	207	205	-2	0.1	1	100	1	2	0.99
106	1422	121901716	121901715	3306South	29	43	14	2.3	1	100	1	14	1.48
107	1424	121901709	121901717	3306North	34	49	15	2.3	1	100	1	15	1.44
108	1450	121900172	121901736	20031South	165	140	-25	2	1	100	1	25	0.85
109	1450	121901736	121900172	20031North	183	169	-14	1.1	1	100	1	14	0.92
110	1467	121901745	500000938	3303South	378	443	65	3.2	1	100	1	65	1.17
111	1467	500000938	121901745	3303North	348	407	59	3	1	100	1	59	1.17
112	1469	121806155	121901746	20033South	233	209	-24	1.6	1	100	1	24	0.9
113	1469	121901746	121806155	20033North	226	232	6	0.4	1	100	1	6	1.03
114	1477	121901748	121901749	1037South	459	440	-19	0.9	1	100	1	19	0.96
115	1477	121901749	121901748	1037North	489	479	-10	0.5	1	100	1	10	0.98
116	1513	1022	121901815	20093North	281	297	16	0.9	1	100	1	16	1.06
117	1513	121901815	1022	20093South	254	273	19	1.2	1	100	1	19	1.07
118	1546	121901832	121901839	20908North	356	365	9	0.5	1	100	1	9	1.03
119	1546	121901839	121901832	20908South	239	276	37	2.3	1	100	1	37	1.15
120	1552	121901823	121901834	20094North	283	313	30	1.7	1	100	1	30	1.11

121	1552	121901834	121901823	20094South	265	279	14	0.8	1	100	1	14	1.05
122	1553	121899898	121901835	1101South	238	241	3	0.2	1	100	1	3	1.01
123	1553	121901835	121899898	1101North	217	230	13	0.9	1	100	1	13	1.06
124	1567	121901482	121901845	20907South	188	169	-19	1.4	1	100	1	19	0.9
125	1567	121901845	121901482	20907North	206	198	-8	0.6	1	100	1	8	0.96
126	1570	121747244	121901848	1102East	122	102	-20	1.9	1	100	1	20	0.84
127	1570	121901848	121747244	1102West	104	90	-14	1.4	1	100	1	14	0.87
128	1571	121901483	121901858	20906North	373	421	48	2.4	1	100	1	48	1.13
129	1571	121901858	121901483	20906South	341	392	51	2.7	1	100	1	51	1.15
130	1601	2000002208	2000714604	200723East	1951	2028	77	1.7	1	293	1	77	1.04
131	1601	2000714604	2000002208	200723West	1952	2046	94	2.1	1	293	1	94	1.05
132	1602	121637653	2000002017	1044West	2162	2216	54	1.2	1	324	1	54	1.02
133	1602	2000002017	121637653	1044East	2019	2103	84	1.9	1	303	1	84	1.04
134	1676	121624338	500000926	1012North	2194	2026	-168	3.7	1	329	1	168	0.92
135	1676	500000926	121624338	1012South	2056	1708	-348	8	0	308	0	348	0.83
136	1687	121607502	121635641	20047West	2803	2812	9	0.2	1	400	1	9	1
137	1687	121635641	121607502	20047East	2586	2580	-6	0.1	1	388	1	6	1
138	1715	121901422	500000937	3301North	834	817	-17	0.6	1	125	1	17	0.98
139	1715	500000937	121901422	3301South	787	786	-1	0	1	118	1	1	1
140	1719	121901433	500000947	3309South	294	313	19	1.1	1	100	1	19	1.06
141	1719	500000947	121901433	3309North	259	289	30	1.8	1	100	1	30	1.12
142	1720	121901716	500000949	3307North	311	305	-6	0.3	1	100	1	6	0.98
143	1720	500000949	121901716	3307South	344	331	-13	0.7	1	100	1	13	0.96
144	1744	4159	500000959	20204North	387	406	19	1	1	100	1	19	1.05
145	1744	500000959	4159	20204South	383	400	17	0.9	1	100	1	17	1.04
146	1753	121626994	121633442	1072West	2579	2536	-43	0.9	1	387	1	43	0.98
147	1753	121633442	121626994	1072East	2481	2456	-25	0.5	1	372	1	25	0.99
148	1761	121595212	2000002245	20184South	862	913	51	1.7	1	129	1	51	1.06
149	1761	2000002245	121595212	20184North	887	960	73	2.4	1	133	1	73	1.08
150	1812	121901603	500000991	20092South	408	412	4	0.2	1	100	1	4	1.01
151	1812	500000991	121901603	20092North	449	446	-3	0.1	1	100	1	3	0.99
152	1839	500001009	2000002627	201081South	1058	1046	-12	0.4	1	159	1	12	0.99
153	1901	121598427	121899735	20034West	305	319	14	0.8	1	100	1	14	1.05
154	1901	121899735	121598427	20034East	345	355	10	0.5	1	100	1	10	1.03
155	1908	121839582	121899593	1042South	169	172	3	0.2	1	100	1	3	1.02
156	1908	121899593	121839582	1042North	166	165	-1	0.1	1	100	1	1	0.99
157	1939	121899925	2000001296	20221North	251	224	-27	1.8	1	100	1	27	0.89
158	1939	2000001296	121899925	20221South	274	264	-10	0.6	1	100	1	10	0.96
159	1969	121616074	121636712	1503North	3741	3653	-88	1.4	1	400	1	88	0.98
160	1969	121636712	121616074	1503South	3763	3713	-50	0.8	1	400	1	50	0.99
161	2158	121607497	121615809	1509North	3392	3266	-126	2.2	1	400	1	126	0.96
162	2158	121615809	121607497	1509South	3739	3700	-39	0.6	1	400	1	39	0.99

163	2170	121694399	2000001650	20562North	85	108	23	2.3	1	100	1	23	1.27
164	2170	2000001650	121694399	20562South	97	91	-6	0.6	1	100	1	6	0.94
165	2200	121835885	2000001659	1593East	115	106	-9	0.9	1	100	1	9	0.92
166	2200	2000001659	121835885	1593West	99	94	-5	0.5	1	100	1	5	0.95
167	2222	121793320	2000001670	1842North	165	176	11	0.8	1	100	1	11	1.07
168	2222	2000001670	121793320	1842South	176	187	11	0.8	1	100	1	11	1.06
169	2231	121899704	2000001679	20611South	214	247	33	2.2	1	100	1	33	1.15
170	2231	2000001679	121899704	20611North	197	218	21	1.5	1	100	1	21	1.11
171	2242	4028	121169472	1871North	41	21	-20	3.6	1	100	1	20	0.51
172	2242	121169472	4028	1871South	40	41	1	0.2	1	100	1	1	1.03
173	2249	2000001667	2000001834	20811North	81	87	6	0.7	1	100	1	6	1.07
174	2249	2000001834	2000001667	20811South	80	85	5	0.6	1	100	1	5	1.06
175	2250	121899721	2000001675	1551North	85	116	31	3.1	1	100	1	31	1.36
176	2250	2000001675	121899721	1551South	92	126	34	3.3	1	100	1	34	1.37
177	2262	121876322	2000001637	20521South	127	133	6	0.5	1	100	1	6	1.05
178	2262	2000001637	121876322	20521North	131	142	11	0.9	1	100	1	11	1.08
179	2269	2000001664	2000001665	1524North	184	172	-12	0.9	1	100	1	12	0.93
180	2269	2000001665	2000001664	1524South	188	178	-10	0.7	1	100	1	10	0.95
181	2270	4056	121822209	1624South	120	170	50	4.2	1	100	1	50	1.42
182	2270	121822209	4056	1624North	114	128	14	1.3	1	100	1	14	1.12
183	2283	121826147	2000001463	1523South	101	94	-7	0.7	1	100	1	7	0.93
184	2283	2000001463	121826147	1523North	101	107	6	0.6	1	100	1	6	1.06
185	2286	121824886	2000001442	1803North	217	259	42	2.7	1	100	1	42	1.19
186	2286	2000001442	121824886	1803South	194	198	4	0.3	1	100	1	4	1.02
187	2292	121901758	2000001443	20523South	326	326	0	0	1	100	1	0	1
188	2292	2000001443	121901758	20523North	349	262	-87	5	1	100	1	87	0.75
189	2325	121582230	2000001436	20812North	60	66	6	0.8	1	100	1	6	1.1
190	2325	2000001436	121582230	20812South	63	69	6	0.7	1	100	1	6	1.1
191	2333	121757032	2000001704	1801North	139	151	12	1	1	100	1	12	1.09
192	2333	2000001704	121757032	1801South	130	131	1	0.1	1	100	1	1	1.01
193	2339	4063	2000001484	1781South	58	49	-9	1.2	1	100	1	9	0.84
194	2339	2000001484	4063	1781North	56	48	-8	1.1	1	100	1	8	0.86
195	2373	121899976	2000001691	1623NorthEast	123	133	10	0.9	1	100	1	10	1.08
196	2373	2000001691	121899976	1623SouthWest	118	139	21	1.9	1	100	1	21	1.18
197	2377	121855538	2000001465	1622South	113	135	22	2	1	100	1	22	1.19
198	2377	2000001465	121855538	1622North	110	122	12	1.1	1	100	1	12	1.11
199	2398	121716165	2000001470	1661North	81	78	-3	0.3	1	100	1	3	0.96
200	2398	2000001470	121716165	1661South	73	70	-3	0.4	1	100	1	3	0.96
201	2417	121591267	2000001508	20671North	81	69	-12	1.4	1	100	1	12	0.85
202	2417	2000001508	121591267	20671South	77	65	-12	1.4	1	100	1	12	0.84
203	2441	121586954	2000001526	1851South	151	153	2	0.2	1	100	1	2	1.01
204	2441	2000001526	121586954	1851North	176	176	0	0	1	100	1	0	1

205	2451	2000001468	2000001469	1741East	105	112	7	0.7	1	100	1	7	1.07
206	2451	2000001469	2000001468	1741West	104	112	8	0.8	1	100	1	8	1.08
207	2465	121766606	2000001531	1692West	135	164	29	2.4	1	100	1	29	1.21
208	2465	2000001531	121766606	1692East	139	151	12	1	1	100	1	12	1.09
209	2475	121900046	2000001712	1693South	113	105	-8	0.8	1	100	1	8	0.93
210	2475	2000001712	121900046	1693North	124	116	-8	0.7	1	100	1	8	0.94
211	2497	4087	2000001541	20861West	145	137	-8	0.7	1	100	1	8	0.94
212	2497	2000001541	4087	20861East	126	115	-11	1	1	100	1	11	0.91
213	2506	4088	2000001557	20701West	82	81	-1	0.1	1	100	1	1	0.99
214	2506	2000001557	4088	20701East	81	75	-6	0.7	1	100	1	6	0.93
215	2531	121723257	2000001571	1701West	75	66	-9	1.1	1	100	1	9	0.88
216	2531	2000001571	121723257	1701East	67	56	-11	1.4	1	100	1	11	0.84
217	2532	121723257	2000001578	1714North	47	53	6	0.8	1	100	1	6	1.13
218	2532	2000001578	121723257	1714South	46	61	15	2.1	1	100	1	15	1.33
219	2546	2000001579	2000001580	1722East	140	147	7	0.6	1	100	1	7	1.05
220	2546	2000001580	2000001579	1722West	138	141	3	0.3	1	100	1	3	1.02
221	2585	2000001603	2000001722	20721West	83	79	-4	0.4	1	100	1	4	0.95
222	2585	2000001722	2000001603	20721East	72	68	-4	0.5	1	100	1	4	0.94
223	2610	121680624	2000001620	1715North	198	193	-5	0.4	1	100	1	5	0.97
224	2610	2000001620	121680624	1715South	171	168	-3	0.2	1	100	1	3	0.98
225	2624	121668320	2000001614	1713North	289	287	-2	0.1	1	100	1	2	0.99
226	2624	2000001614	121668320	1713South	293	287	-6	0.4	1	100	1	6	0.98
227	2654	2000001306	2000001747	1592East	51	47	-4	0.6	1	100	1	4	0.92
228	2654	2000001747	2000001306	1592West	51	48	-3	0.4	1	100	1	3	0.94
229	2669	2000001758	2000001759	20591East	86	84	-2	0.2	1	100	1	2	0.98
230	2669	2000001759	2000001758	20591West	94	93	-1	0.1	1	100	1	1	0.99
231	2716	2000001789	2000001790	20601East	165	171	6	0.5	1	100	1	6	1.04
232	2716	2000001790	2000001789	20601West	160	167	7	0.5	1	100	1	7	1.04
233	2721	2000001793	2000001794	1601East	76	79	3	0.3	1	100	1	3	1.04
234	2721	2000001794	2000001793	1601West	77	79	2	0.2	1	100	1	2	1.03
235	2726	121791950	2000001797	1832South	24	66	42	6.3	0	100	1	42	2.75
236	2726	2000001797	121791950	1832North	22	54	32	5.2	0	100	1	32	2.45
237	2731	121831384	2000001804	1611North	169	182	13	1	1	100	1	13	1.08
238	2731	2000001804	121831384	1611South	161	191	30	2.3	1	100	1	30	1.19
239	2734	121899671	2000001802	1602East	126	127	1	0.1	1	100	1	1	1.01
240	2734	2000001802	121899671	1602West	129	127	-2	0.2	1	100	1	2	0.98
241	2746	121831331	2000001809	1632East	123	121	-2	0.2	1	100	1	2	0.98
242	2746	2000001809	121831331	1632West	122	123	1	0.1	1	100	1	1	1.01
243	2760	4221	2000001818	1631East	85	113	28	2.8	1	100	1	28	1.33
244	2760	2000001818	4221	1631West	73	100	27	2.9	1	100	1	27	1.37
245	2795	2000001840	2000001841	1522South	67	71	4	0.5	1	100	1	4	1.06
246	2795	2000001841	2000001840	1522North	67	75	8	0.9	1	100	1	8	1.12

247	2804	2000001412	2000001846	1541East	124	113	-11	1	1	100	1	11	0.91
248	2804	2000001846	2000001412	1541West	131	121	-10	0.9	1	100	1	10	0.92
249	2816	2000001730	2000001854	1581North	158	154	-4	0.3	1	100	1	4	0.97
250	2816	2000001854	2000001730	1581South	168	162	-6	0.5	1	100	1	6	0.96
251	2822	121709981	2000001858	1831South	105	132	27	2.5	1	100	1	27	1.26
252	2822	2000001858	121709981	1831North	113	138	25	2.2	1	100	1	25	1.22
253	2825	121810996	2000001860	1511East	104	115	11	1.1	1	100	1	11	1.11
254	2825	2000001860	121810996	1511West	105	115	10	1	1	100	1	10	1.1
255	2830	121805642	2000001862	20511West	155	166	11	0.9	1	100	1	11	1.07
256	2830	2000001862	121805642	20511East	168	180	12	0.9	1	100	1	12	1.07
257	2995	4007	121877445	20251West	183	184	1	0.1	1	100	1	1	1.01
258	2995	121877445	4007	20251East	174	176	2	0.2	1	100	1	2	1.01
259	2998	4254	121861314	1251South	272	278	6	0.4	1	100	1	6	1.02
260	2998	121861314	4254	1251North	264	273	9	0.5	1	100	1	9	1.03
261	3040	4018	2000001916	20066East	79	69	-10	1.2	1	100	1	10	0.87
262	3040	2000001916	4018	20066West	83	75	-8	0.9	1	100	1	8	0.9
263	3167	4010	121757837	200711West	80	73	-7	0.8	1	100	1	7	0.91
264	3167	121757837	4010	200711East	84	77	-7	0.8	1	100	1	7	0.92
265	3179	4036	121899512	1182North	498	537	39	1.7	1	100	1	39	1.08
266	3179	121899512	4036	1182South	522	581	59	2.5	1	100	1	59	1.11
267	3192	4019	121701049	20067West	92	92	0	0	1	100	1	0	1
268	3192	121701049	4019	20067East	96	98	2	0.2	1	100	1	2	1.02
269	3203	4016	121871280	1045West	184	157	-27	2.1	1	100	1	27	0.85
270	3203	121871280	4016	1045East	188	155	-33	2.5	1	100	1	33	0.82
271	3211	4024	2000001326	1054East	127	143	16	1.4	1	100	1	16	1.13
272	3211	2000001326	4024	1054West	114	124	10	0.9	1	100	1	10	1.09
273	3217	4047	121899410	1173North	178	191	13	1	1	100	1	13	1.07
274	3217	121899410	4047	1173South	171	177	6	0.5	1	100	1	6	1.04
275	3246	4051	121688343	1133North	294	328	34	1.9	1	100	1	34	1.12
276	3246	121688343	4051	1133South	286	326	40	2.3	1	100	1	40	1.14
277	3284	4035	121729493	20224West	167	144	-23	1.8	1	100	1	23	0.86
278	3284	121729493	4035	20224East	171	148	-23	1.8	1	100	1	23	0.87
279	3295	4023	121781751	1043West	286	313	27	1.6	1	100	1	27	1.09
280	3295	121781751	4023	1043East	312	344	32	1.8	1	100	1	32	1.1
281	3305	121621692	2000001920	201082South	525	497	-28	1.2	1	100	1	28	0.95
282	3305	2000001920	121621692	201082North	490	410	-80	3.8	1	100	1	80	0.84
283	3308	121607393	121622217	15010South	2008	2035	27	0.6	1	301	1	27	1.01
284	3308	121622217	121607393	15010North	1852	1820	-32	0.7	1	278	1	32	0.98
285	3312	121901421	2000001923	1032North	243	248	5	0.3	1	100	1	5	1.02
286	3312	2000001923	121901421	1032South	260	266	6	0.4	1	100	1	6	1.02
287	3315	121800187	2000001925	1261North	209	228	19	1.3	1	100	1	19	1.09
288	3315	2000001925	121800187	1261South	229	248	19	1.2	1	100	1	19	1.08

289	3316	121792399	2000001926	1051East	276	287	11	0.7	1	100	1	11	1.04
290	3316	2000001926	121792399	1051West	266	279	13	0.8	1	100	1	13	1.05
291	3318	121899396	2000001927	1052West	385	423	38	1.9	1	100	1	38	1.1
292	3318	2000001927	121899396	1052East	413	440	27	1.3	1	100	1	27	1.07
293	3338	121771047	2000001939	200713West	916	926	10	0.3	1	137	1	10	1.01
294	3338	2000001939	121771047	200713East	1097	1120	23	0.7	1	165	1	23	1.02
295	3366	121900937	2000001962	3702South	228	235	7	0.5	1	100	1	7	1.03
296	3366	2000001962	121900937	3702North	245	249	4	0.3	1	100	1	4	1.02
297	3377	121900937	2000001970	3703West	231	246	15	1	1	100	1	15	1.06
298	3377	2000001970	121900937	3703East	239	260	21	1.3	1	100	1	21	1.09
299	3389	2000001969	2000002032	200717West	256	265	9	0.6	1	100	1	9	1.04
300	3389	2000002032	2000001969	200717East	269	280	11	0.7	1	100	1	11	1.04
301	3396	2000001988	2000002006	200718East	293	294	1	0.1	1	100	1	1	1
302	3396	2000002006	2000001988	200718West	266	263	-3	0.2	1	100	1	3	0.99
303	3409	2000001985	2000002001	200719West	293	283	-10	0.6	1	100	1	10	0.97
304	3409	2000002001	2000001985	200719East	313	305	-8	0.5	1	100	1	8	0.97
305	3419	2000002007	2000002046	200715East	321	313	-8	0.4	1	100	1	8	0.98
306	3419	2000002046	2000002007	200715West	283	283	0	0	1	100	1	0	1
307	3437	86	2000002022	20084North	332	326	-6	0.3	1	100	1	6	0.98
308	3437	2000002022	86	20084South	301	310	9	0.5	1	100	1	9	1.03
309	3444	121894461	2000034705	20112South	1357	1378	21	0.6	1	204	1	21	1.02
310	3444	2000034705	121894461	20112North	1302	1330	28	0.8	1	195	1	28	1.02
311	3473	2000002031	2000002044	200716West	267	302	35	2.1	1	100	1	35	1.13
312	3473	2000002044	2000002031	200716East	289	325	36	2.1	1	100	1	36	1.12
313	3488	121788687	2000002055	1022North	198	224	26	1.8	1	100	1	26	1.13
314	3488	2000002055	121788687	1022South	221	248	27	1.8	1	100	1	27	1.12
315	3511	228	2000002074	20016South	578	669	91	3.6	1	100	1	91	1.16
316	3511	2000002074	228	20016North	540	584	44	1.9	1	100	1	44	1.08
317	3574	121725157	2000002101	1223East	545	365	-180	8.4	0	100	0	180	0.67
318	3574	2000002101	121725157	1223West	563	368	-195	9	0	100	0	195	0.65
319	3586	121852372	2000002109	1242West	385	389	4	0.2	1	100	1	4	1.01
320	3586	2000002109	121852372	1242East	389	372	-17	0.9	1	100	1	17	0.96
321	3594	121787506	2000002113	20525East	392	386	-6	0.3	1	100	1	6	0.98
322	3594	2000002113	121787506	20525West	457	456	-1	0	1	100	1	1	1
323	3609	121899832	2000002124	20801North	255	264	9	0.6	1	100	1	9	1.04
324	3609	2000002124	121899832	20801South	271	251	-20	1.2	1	100	1	20	0.93
325	3787	121890765	121897671	20118South	754	777	23	0.8	1	113	1	23	1.03
326	3787	121897671	121890765	20118North	794	807	13	0.5	1	119	1	13	1.02
327	3829	2000002479	2000002482	1055East	107	160	53	4.6	1	100	1	53	1.5
328	3829	2000002482	2000002479	1055West	95	140	45	4.2	1	100	1	45	1.47
329	3831	2000002479	2000002484	1056West	87	119	32	3.2	1	100	1	32	1.37
330	3831	2000002484	2000002479	1056East	108	150	42	3.7	1	100	1	42	1.39

331	3870	2000002491	2000002520	20119South	471	477	6	0.3	1	100	1	6	1.01
332	3870	2000002520	2000002491	20119North	490	495	5	0.2	1	100	1	5	1.01
333	3875	121899797	2000002525	20113North	28	29	1	0.2	1	100	1	1	1.04
334	3875	2000002525	121899797	20113South	34	29	-5	0.9	1	100	1	5	0.85
335	3998	121795184	2000002585	1172West	170	140	-30	2.4	1	100	1	30	0.82
336	3998	2000002585	121795184	1172East	150	126	-24	2	1	100	1	24	0.84
337	4109	121812923	2000002625	1023North	371	413	42	2.1	1	100	1	42	1.11
338	4109	2000002625	121812923	1023South	337	358	21	1.1	1	100	1	21	1.06
339	4113	2000002626	500001006	201081North	1153	1211	58	1.7	1	173	1	58	1.05
340	4238	121620122	121628805	1502South	3693	3721	28	0.5	1	400	1	28	1.01
341	4238	121628805	121620122	1502North	3691	3679	-12	0.2	1	400	1	12	1
342	4305	121616848	121632410	1014South	3220	3268	48	0.8	1	400	1	48	1.01
343	4305	121632410	121616848	1014North	3439	3655	216	3.6	1	400	1	216	1.06
344	4321	121631867	2000714612	1011West	1491	1853	362	8.9	0	224	0	362	1.24
345	4321	2000714612	121631867	1011East	1529	1573	44	1.1	1	229	1	44	1.03
346	4322	121611221	121617657	20011South	2313	2312	-1	0	1	347	1	1	1
347	4322	121617657	121611221	20011North	2548	2420	-128	2.6	1	382	1	128	0.95
348	4359	121626007	2000001958	20021North	941	1023	82	2.6	1	141	1	82	1.09
349	4359	2000001958	121626007	20021South	869	909	40	1.3	1	130	1	40	1.05
350	4384	121784052	2000004570	1331West	285	280	-5	0.3	1	100	1	5	0.98
351	4384	2000004570	121784052	1331East	306	300	-6	0.3	1	100	1	6	0.98
352	4553	121636676	2000034608	1015North	1311	1257	-54	1.5	1	197	1	54	0.96
353	4553	2000034608	121636676	1015South	1278	1285	7	0.2	1	192	1	7	1.01
354	4580	121770004	2000034623	20243West	408	418	10	0.5	1	100	1	10	1.02
355	4580	2000034623	121770004	20243East	435	469	34	1.6	1	100	1	34	1.08
356	4598	121819228	2000034633	1121West	116	139	23	2	1	100	1	23	1.2
357	4598	2000034633	121819228	1121East	121	142	21	1.8	1	100	1	21	1.17
358	4726	121758664	2000002025	3704West	426	495	69	3.2	1	100	1	69	1.16
359	4726	2000002025	121758664	3704East	522	555	33	1.4	1	100	1	33	1.06
360	4969	121901533	2000714488	3604East	453	548	95	4.2	1	100	1	95	1.21
361	4969	2000714488	121901533	3604West	441	538	97	4.4	1	100	1	97	1.22
362	5028	121870243	121874720	20044East	455	506	51	2.3	1	100	1	51	1.11
363	5028	121874720	121870243	20044West	415	466	51	2.4	1	100	1	51	1.12
364	5036	121608284	121806796	20022North	614	643	29	1.2	1	100	1	29	1.05
365	5036	121806796	121608284	20022South	552	562	10	0.4	1	100	1	10	1.02
366	5049	121637498	121642477	1113South	2189	2205	16	0.3	1	328	1	16	1.01
367	5049	121642477	121637498	1113North	2109	2099	-10	0.2	1	316	1	10	1
368	5056	121616903	121620245	1034North	1917	1731	-186	4.4	1	288	1	186	0.9
369	5056	121620245	121616903	1034South	2111	1921	-190	4.2	1	317	1	190	0.91
370	5107	121669371	121672338	20201South	553	607	54	2.2	1	100	1	54	1.1
371	5107	121672338	121669371	20201North	576	596	20	0.8	1	100	1	20	1.03
372	5114	121645478	121651743	1081East	1038	1001	-37	1.2	1	156	1	37	0.96

373	5114	121651743	121645478	1081West	999	950	-49	1.6	1	150	1	49	0.95
374	5139	2000001845	2000714623	1542West	78	93	15	1.6	1	100	1	15	1.19
375	5139	2000714623	2000001845	1542East	81	91	10	1.1	1	100	1	10	1.12
376	5164	121756689	121759476	20079East	649	616	-33	1.3	1	100	1	33	0.95
377	5164	121759476	121756689	20079West	588	558	-30	1.3	1	100	1	30	0.95
378	5170	121744268	121756596	20077West	671	649	-22	0.9	1	100	1	22	0.97
379	5170	121756596	121744268	20077East	688	667	-21	0.8	1	100	1	21	0.97
380	5256	164	2000714704	1771North	286	288	2	0.1	1	100	1	2	1.01
381	5256	2000714704	164	1771South	270	271	1	0.1	1	100	1	1	1
382	5260	2000001705	2000714709	20802North	161	174	13	1	1	100	1	13	1.08
383	5260	2000714709	2000001705	20802South	158	168	10	0.8	1	100	1	10	1.06
384	7016	121737096	121739187	20076West	857	880	23	0.8	1	129	1	23	1.03
385	7016	121739187	121737096	20076East	883	902	19	0.6	1	132	1	19	1.02
386	7021	121625454	121638341	15011South	1902	1792	-110	2.6	1	285	1	110	0.94
387	7021	121638341	121625454	15011North	1837	1729	-108	2.6	1	276	1	108	0.94
388	7023	121606598	121639135	20111South	1946	1979	33	0.7	1	292	1	33	1.02
389	7023	121639135	121606598	20111North	1830	1848	18	0.4	1	275	1	18	1.01
390	46402	121862879	121864698	20255East	304	303	-1	0.1	1	100	1	1	1
391	46402	121864698	121862879	20255West	293	293	0	0	1	100	1	0	1
392	47366	121830350	121873849	20065East	926	957	31	1	1	139	1	31	1.03
393	47366	121873849	121830350	20065West	903	936	33	1.1	1	135	1	33	1.04
394	48089	121810483	121872749	3401West	212	259	47	3.1	1	100	1	47	1.22
395	48089	121872749	121810483	3401East	234	282	48	3	1	100	1	48	1.21
396	50644	121880125	121883720	20252East	198	198	0	0	1	100	1	0	1
397	50644	121883720	121880125	20252West	207	208	1	0.1	1	100	1	1	1
398	50645	121878897	121886029	1111North	430	479	49	2.3	1	100	1	49	1.11
399	50645	121886029	121878897	1111South	404	470	66	3.2	1	100	1	66	1.16
400	50659	121878765	121887869	1112North	383	430	47	2.3	1	100	1	47	1.12
401	50659	121887869	121878765	1112South	383	448	65	3.2	1	100	1	65	1.17
402	52322	121606343	121895202	1811South	265	271	6	0.4	1	100	1	6	1.02
403	52322	121895202	121606343	1811North	238	247	9	0.6	1	100	1	9	1.04
404	52902	121896900	2000002522	20114North	512	524	12	0.5	1	100	1	12	1.02
405	52902	2000002522	121896900	20114South	487	506	19	0.9	1	100	1	19	1.04
406	549454109	121625904	121625905	20012North_slip	156	144	-12	1	1	100	1	12	0.92
407	549458121	121617120	121631566	20012North_main	1050	1114	64	1.9	1	158	1	64	1.06
408	549458121	121631566	121617120	20012South_main	1198	1152	-46	1.3	1	180	1	46	0.96
409	553058336	121608946	121612882	1311West	458	325	-133	6.7	0	100	0	133	0.71
410	553058336	121612882	121608946	1311East	392	252	-140	7.8	0	100	0	140	0.64
411	554375343	121609142	121635289	1312North	506	428	-78	3.6	1	100	1	78	0.85
412	554375343	121635289	121609142	1312South	536	414	-122	5.6	0	100	0	122	0.77
413	554449560	121674035	121674036	200811West	1174	1187	13	0.4	1	176	1	13	1.01
414	554449560	121674036	121674035	200811East	1150	1119	-31	0.9	1	173	1	31	0.97

415	554454057	121614467	121620668	1033North	1482	1498	16	0.4	1	222	1	16	1.01
416	554454057	121620668	121614467	1033South	1440	1429	-11	0.3	1	216	1	11	0.99
417	588987149	121598492	121602822	20035North	302	336	34	1.9	1	100	1	34	1.11
418	588987149	121602822	121598492	20035South	304	346	42	2.3	1	100	1	42	1.14
419	590511931	121610359	121641108	15012South	1317	1369	52	1.4	1	198	1	52	1.04
420	590511931	121641108	121610359	15012North	1321	1339	18	0.5	1	198	1	18	1.01
421	707711508	121583564	121584273	208001West	473	424	-49	2.3	1	100	1	49	0.9
422	707711508	121584273	121583564	208001East	463	377	-86	4.2	1	100	1	86	0.81
423	714088067	121589251	121592727	1681East	102	121	19	1.8	1	100	1	19	1.19
424	714088067	121592727	121589251	1681West	95	114	19	1.9	1	100	1	19	1.2
425	719956103	121167836	121599058	20036South	91	100	9	0.9	1	100	1	9	1.1
426	719956103	121599058	121167836	20036North	88	84	-4	0.4	1	100	1	4	0.95
427	720544847	121600251	121600405	1161West	73	80	7	0.8	1	100	1	7	1.1
428	720544847	121600405	121600251	1161East	78	71	-7	0.8	1	100	1	7	0.91
429	721225505	121600970	121604340	1035North	361	390	29	1.5	1	100	1	29	1.08
430	721225505	121604340	121600970	1035South	300	346	46	2.6	1	100	1	46	1.15
431	725567258	121612648	121614236	1071West	2647	2591	-56	1.1	1	397	1	56	0.98
432	725567258	121614236	121612648	1071East	2710	2651	-59	1.1	1	400	1	59	0.98
433	730379628	121636334	121617120	20012South_slip	177	133	-44	3.5	1	100	1	44	0.75
434	731701292	121614986	121625005	1504North	3208	3012	-196	3.5	1	400	1	196	0.94
435	731701292	121625005	121614986	1504South	3393	3322	-71	1.2	1	400	1	71	0.98
436	734302647	121620123	121626709	1501North	3463	3333	-130	2.2	1	400	1	130	0.96
437	734302647	121626709	121620123	1501South	3352	3423	71	1.2	1	400	1	71	1.02
438	736380918	121615920	121629569	1505North	2955	2841	-114	2.1	1	400	1	114	0.96
439	736380918	121629569	121615920	1505South	3109	3076	-33	0.6	1	400	1	33	0.99
440	742637630	121605847	121624337	1013North	1234	1000	-234	7	0	185	0	234	0.81
441	742637630	121624337	121605847	1013South	1207	1010	-197	5.9	0	181	0	197	0.84
442	747563463	121625876	121633954	1812West	938	974	36	1.2	1	141	1	36	1.04
443	747563463	121633954	121625876	1812East	1021	1015	-6	0.2	1	153	1	6	0.99
444	749408337	121624629	121635351	1321West	1123	758	-365	11.9	0	168	0	365	0.67
445	749408337	121635351	121624629	1321East	1104	894	-210	6.6	0	166	0	210	0.81
446	751108037	121613700	121623860	1506South	2837	2838	1	0	1	400	1	1	1
447	751108037	121623860	121613700	1506North	2824	2728	-96	1.8	1	400	1	96	0.97
448	751257437	121623860	121635051	1507South	1916	1857	-59	1.4	1	287	1	59	0.97
449	751257437	121635051	121623860	1507North	1834	1823	-11	0.3	1	275	1	11	0.99
450	751782353	121605953	121614074	1508South	3540	3619	79	1.3	1	400	1	79	1.02
451	751782353	121614074	121605953	1508North	3582	3580	-2	0	1	400	1	2	1
452	759735830	121643856	121678554	1221East	333	298	-35	2	1	100	1	35	0.89
453	759735830	121678554	121643856	1221West	380	344	-36	1.9	1	100	1	36	0.91
454	762970802	121643386	121668405	1256South	1783	1895	112	2.6	1	267	1	112	1.06
455	762970802	121668405	121643386	1256North	1963	2041	78	1.7	1	294	1	78	1.04
456	765084978	121647012	121670921	1253West	2458	2542	84	1.7	1	369	1	84	1.03

457	765084978	121670921	121647012	1253East	2768	2760	-8	0.2	1	400	1	8	1
458	796986758	121660066	121674564	1281North	686	671	-15	0.6	1	100	1	15	0.98
459	796986758	121674564	121660066	1281South	693	689	-4	0.2	1	100	1	4	0.99
460	803755898	121679655	121666426	3801North_slip	199	215	16	1.1	1	100	1	16	1.08
461	830511612	4133	121665568	20222East	515	499	-16	0.7	1	100	1	16	0.97
462	830511612	121665568	4133	20222West	569	552	-17	0.7	1	100	1	17	0.97
463	840539223	121652862	121674687	1258West	2062	2085	23	0.5	1	309	1	23	1.01
464	840539223	121674687	121652862	1258East	2127	2168	41	0.9	1	319	1	41	1.02
465	840881880	121652971	121664532	1255East	1097	1107	10	0.3	1	165	1	10	1.01
466	840881880	121664532	121652971	1255West	1044	1082	38	1.2	1	157	1	38	1.04
467	843045822	4160	121677183	202639North	191	170	-21	1.6	1	100	1	21	0.89
468	843045822	121677183	4160	202639South	190	174	-16	1.2	1	100	1	16	0.92
469	843969122	4161	121667163	1271North	648	725	77	2.9	1	100	1	77	1.12
470	843969122	121667163	4161	1271South	706	822	116	4.2	1	106	0	116	1.16
471	846591053	121663055	121673832	20223South	475	383	-92	4.4	1	100	1	92	0.81
472	846591053	121673832	121663055	20223North	422	369	-53	2.7	1	100	1	53	0.87
473	847275507	121661509	121679655	3802South_slip	165	182	17	1.3	1	100	1	17	1.1
474	880428780	121687758	121690055	1141South	338	368	30	1.6	1	100	1	30	1.09
475	880428780	121690055	121687758	1141North	346	416	70	3.6	1	100	1	70	1.2
476	894267755	121686471	121692845	20563West	178	179	1	0.1	1	100	1	1	1.01
477	894267755	121692845	121686471	20563East	175	155	-20	1.6	1	100	1	20	0.89
478	898015622	121689345	121696821	1031East	145	120	-25	2.2	1	100	1	25	0.83
479	898015622	121696821	121689345	1031West	150	167	17	1.4	1	100	1	17	1.11
480	899952557	121686584	121689834	1131West	233	253	20	1.3	1	100	1	20	1.09
481	899952557	121689834	121686584	1131East	241	224	-17	1.1	1	100	1	17	0.93
482	902057033	121692920	121694426	1151South	149	144	-5	0.4	1	100	1	5	0.97
483	902057033	121694426	121692920	1151North	141	110	-31	2.8	1	100	1	31	0.78
484	904153130	121691331	121695474	1132West	572	693	121	4.8	1	100	0	121	1.21
485	904153130	121695474	121691331	1132East	600	712	112	4.4	1	100	0	112	1.19
486	905106002	121693767	121693779	20152North	188	235	47	3.2	1	100	1	47	1.25
487	905106002	121693779	121693767	20152South	211	238	27	1.8	1	100	1	27	1.13
488	1004232155	121716967	121719397	20172North	562	652	90	3.7	1	100	1	90	1.16
489	1004232155	121719397	121716967	20172South	570	633	63	2.6	1	100	1	63	1.11
490	1077821118	121723498	121729493	1222South	209	187	-22	1.6	1	100	1	22	0.89
491	1077821118	121729493	121723498	1222North	213	179	-34	2.4	1	100	1	34	0.84
492	1102491608	121735450	121742133	20072West	1621	1622	1	0	1	243	1	1	1
493	1102491608	121742133	121735450	20072East	1641	1633	-8	0.2	1	246	1	8	1
494	1130484155	121736305	121742427	20041East	1331	1277	-54	1.5	1	200	1	54	0.96
495	1130484155	121742427	121736305	20041West	1324	1272	-52	1.4	1	199	1	52	0.96
496	1131531773	121734666	121734981	20042West	925	1004	79	2.5	1	139	1	79	1.09
497	1131531773	121734981	121734666	20042East	940	994	54	1.7	1	141	1	54	1.06
498	1131793880	121738917	121740681	20075East	1031	1112	81	2.5	1	155	1	81	1.08

499	1131793880	121740681	121738917	20075West	1063	1109	46	1.4	1	159	1	46	1.04
500	1184390892	121746354	121752733	1761North	148	177	29	2.3	1	100	1	29	1.2
501	1184390892	121752733	121746354	1761South	151	174	23	1.8	1	100	1	23	1.15
502	1227893663	121756715	121758920	20078West	648	649	1	0	1	100	1	1	1
503	1227893663	121758920	121756715	20078East	715	699	-16	0.6	1	107	1	16	0.98
504	1305390005	121770042	121776927	200714West	593	474	-119	5.2	0	100	0	119	0.8
505	1305390005	121776927	121770042	200714East	574	443	-131	5.8	0	100	0	131	0.77
506	1370778242	121766408	121779479	20211West	250	267	17	1.1	1	100	1	17	1.07
507	1370778242	121779479	121766408	20211East	269	285	16	1	1	100	1	16	1.06
508	1401276380	121781117	121783536	20045West	283	316	33	1.9	1	100	1	33	1.12
509	1401276380	121783536	121781117	20045East	299	340	41	2.3	1	100	1	41	1.14
510	1417347578	121784287	121784455	3101North	494	582	88	3.8	1	100	1	88	1.18
511	1417347578	121784455	121784287	3101South	512	593	81	3.4	1	100	1	81	1.16
512	1430975918	121785756	121788170	20526North	438	437	-1	0	1	100	1	1	1
513	1430975918	121788170	121785756	20526South	390	424	34	1.7	1	100	1	34	1.09
514	1557111842	121712778	121803153	1171North	212	216	4	0.3	1	100	1	4	1.02
515	1557111842	121803153	121712778	1171South	219	218	-1	0.1	1	100	1	1	1
516	1588811423	121806846	121811204	3404East	308	234	-74	4.5	1	100	1	74	0.76
517	1607677058	121810977	121814291	3102South	93	106	13	1.3	1	100	1	13	1.14
518	1642458672	121805442	121813032	201321South	496	480	-16	0.7	1	100	1	16	0.97
519	1642458672	121813032	121805442	201321North	498	409	-89	4.2	1	100	1	89	0.82
520	1645921112	121809222	121809566	31031South	758	762	4	0.1	1	114	1	4	1.01
521	1650648987	121804943	121806846	3404West	267	199	-68	4.5	1	100	1	68	0.75
522	1706074580	121146850	121817334	1531North	130	126	-4	0.4	1	100	1	4	0.97
523	1706074580	121817334	121146850	1531South	135	134	-1	0.1	1	100	1	1	0.99
524	1885921037	121836576	121840654	1041North	597	616	19	0.8	1	100	1	19	1.03
525	1885921037	121840654	121836576	1041South	607	623	16	0.6	1	100	1	16	1.03
526	2084217408	121845871	121848701	1651North	80	88	8	0.9	1	100	1	8	1.1
527	2084217408	121848701	121845871	1651South	78	94	16	1.7	1	100	1	16	1.21
528	2109307130	121847938	121856699	1241South	181	173	-8	0.6	1	100	1	8	0.96
529	2109307130	121856699	121847938	1241North	175	158	-17	1.3	1	100	1	17	0.9
530	2141041448	121861304	121863235	20254North	1072	1048	-24	0.7	1	161	1	24	0.98
531	2141041448	121863235	121861304	20254South	1136	1110	-26	0.8	1	170	1	26	0.98
532	2147474939	121840932	121899414	20153North	194	202	8	0.6	1	100	1	8	1.04
533	2147474939	121899414	121840932	20153South	216	214	-2	0.1	1	100	1	2	0.99
534	2147475008	121881810	121899442	20301East	141	128	-13	1.1	1	100	1	13	0.91
535	2147475008	121899442	121881810	20301West	131	118	-13	1.2	1	100	1	13	0.9
536	2147475132	121719397	121899504	20171North	358	416	58	2.9	1	100	1	58	1.16
537	2147475132	121899504	121719397	20171South	380	415	35	1.8	1	100	1	35	1.09
538	2147475191	121816358	121899533	1021North	237	250	13	0.8	1	100	1	13	1.05
539	2147475191	121899533	121816358	1021South	250	266	16	1	1	100	1	16	1.06
540	2147475279	121695290	121899577	20151North	190	202	12	0.9	1	100	1	12	1.06

541	2147475279	121899577	121695290	20151South	187	208	21	1.5	1	100	1	21	1.11
542	2147475424	121832513	121899677	20051East	150	174	24	1.9	1	100	1	24	1.16
543	2147475424	121899677	121832513	20051West	126	141	15	1.3	1	100	1	15	1.12
544	2147475530	121899726	121899730	1552South	91	133	42	4	1	100	1	42	1.46
545	2147475530	121899730	121899726	1552North	92	121	29	2.8	1	100	1	29	1.32
546	2147475694	121766952	121899812	20212East	449	455	6	0.3	1	100	1	6	1.01
547	2147475694	121899812	121766952	20212West	429	435	6	0.3	1	100	1	6	1.01
548	2147475710	121899819	121899820	20621South	132	142	10	0.9	1	100	1	10	1.08
549	2147475710	121899820	121899819	20621North	133	132	-1	0.1	1	100	1	1	0.99
550	2147475747	4147	121899838	1711North	493	623	130	5.5	0	100	0	130	1.26
551	2147475747	121899838	4147	1711South	493	553	60	2.6	1	100	1	60	1.12
552	2147475748	121658844	121899839	1712North	383	378	-5	0.3	1	100	1	5	0.99
553	2147475748	121899839	121658844	1712South	362	350	-12	0.6	1	100	1	12	0.97
554	2147475791	121863550	121899860	1723West	130	136	6	0.5	1	100	1	6	1.05
555	2147475791	121899860	121863550	1723East	129	134	5	0.4	1	100	1	5	1.04
556	2147475847	121899883	121899888	1691South	190	190	0	0	1	100	1	0	1
557	2147475847	121899888	121899883	1691North	197	190	-7	0.5	1	100	1	7	0.96
558	2147475881	121853851	121899905	1751East	144	138	-6	0.5	1	100	1	6	0.96
559	2147475881	121899905	121853851	1751West	119	131	12	1.1	1	100	1	12	1.1
560	2147475883	121852937	121899906	1621South	250	260	10	0.6	1	100	1	10	1.04
561	2147475883	121899906	121852937	1621North	218	176	-42	3	1	100	1	42	0.81
562	2147475919	121722835	121899924	1721West	195	210	15	1.1	1	100	1	15	1.08
563	2147475919	121899924	121722835	1721East	178	173	-5	0.4	1	100	1	5	0.97
564	2147475929	121759846	121899929	20081South	251	246	-5	0.3	1	100	1	5	0.98
565	2147475929	121899929	121759846	20081North	222	226	4	0.3	1	100	1	4	1.02
566	2147475976	121770292	121899953	20202South	336	328	-8	0.4	1	100	1	8	0.98
567	2147475976	121899953	121770292	20202North	333	320	-13	0.7	1	100	1	13	0.96
568	2147475985	4042	121646401	1201South	251	240	-11	0.7	1	100	1	11	0.96
569	2147475985	121646401	4042	1201North	238	224	-14	0.9	1	100	1	14	0.94
570	2147475995	121667321	121899962	1252East	430	430	0	0	1	100	1	0	1
571	2147475995	121899962	121667321	1252West	419	423	4	0.2	1	100	1	4	1.01
572	2147476026	121754107	121899978	20082South	149	143	-6	0.5	1	100	1	6	0.96
573	2147476026	121899978	121754107	20082North	137	136	-1	0.1	1	100	1	1	0.99
574	2147476132	121659960	121900031	1731South	75	79	4	0.5	1	100	1	4	1.05
575	2147476132	121900031	121659960	1731North	78	78	0	0	1	100	1	0	1
576	2147476260	121750578	121900095	1243South	190	201	11	0.8	1	100	1	11	1.06
577	2147476260	121900095	121750578	1243North	189	201	12	0.9	1	100	1	12	1.06
578	2147476721	121818875	121900489	20024North	134	166	32	2.6	1	100	1	32	1.24
579	2147476721	121900489	121818875	20024South	139	199	60	4.6	1	100	1	60	1.43
580	2147476809	121900531	121900532	1841North	320	385	65	3.5	1	100	1	65	1.2
581	2147476809	121900532	121900531	1841South	314	372	58	3.1	1	100	1	58	1.18
582	2147483403	121900734	121900740	3804North	398	437	39	1.9	1	100	1	39	1.1

583	2147483403	121900740	121900734	3804South	374	423	49	2.5	1	100	1	49	1.13
584	2147483410	121900740	121900736	3805North	42	100	58	6.9	0	100	1	58	2.38
585	2147483411	121900735	121900740	3805South	43	91	48	5.9	0	100	1	48	2.12
586	2147483575	121847977	121900808	20241West	307	311	4	0.2	1	100	1	4	1.01
587	2147483575	121900808	121847977	20241East	295	309	14	0.8	1	100	1	14	1.05
588	2147483597	77	121900817	20083North	344	347	3	0.2	1	100	1	3	1.01
589	2147483597	121900817	77	20083South	317	339	22	1.2	1	100	1	22	1.07
	TOTAL				328477	332355		6.7	570		572	18874	1.03

Table 8.9 Link Calibration - Heavy Vehicles (Inter Peak)

Link Calibration – Heavy Vehicles					Average Inter Peak Period (12-14)								
					Counts:	589		RESULT =	97.1%	RESULT =	99.2%		
					Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	TMU No	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	27	121901753	2000714598	20088South	58	77	2.3	1	100	1	19	1.33	27
2	27	2000714598	121901753	20088North	77	96	2	1	100	1	19	1.25	27
3	102	121766075	121768599	20203North	90	58	3.7	1	100	1	32	0.64	102
4	102	121768599	121766075	20203South	85	68	1.9	1	100	1	17	0.8	102
5	134	121901197	121901200	1521South	24	27	0.6	1	100	1	3	1.13	134
6	134	121901200	121901197	1521North	29	15	3	1	100	1	14	0.52	134
7	135	121900918	2000001963	3701North	69	89	2.3	1	100	1	20	1.29	135
8	135	2000001963	121900918	3701South	52	71	2.4	1	100	1	19	1.37	135
9	149	121769433	121773120	20205South	90	68	2.5	1	100	1	22	0.76	149
10	149	121773120	121769433	20205North	96	59	4.2	1	100	1	37	0.61	149
11	182	74	500000954	20242East	48	40	1.2	1	100	1	8	0.83	182
12	182	500000954	74	20242West	41	38	0.5	1	100	1	3	0.93	182
13	211	121900894	121900908	20086North	97	119	2.1	1	100	1	22	1.23	211
14	211	121900908	121900894	20086South	85	102	1.8	1	100	1	17	1.2	211
15	252	121900934	2000002224	200721West	70	63	0.9	1	100	1	7	0.9	252
16	252	2000002224	121900934	200721East	84	72	1.4	1	100	1	12	0.86	252
17	267	1009	121900935	200720West	67	79	1.4	1	100	1	12	1.18	267
18	267	121900935	1009	200720East	86	104	1.8	1	100	1	18	1.21	267
19	295	121900873	500000886	20089North	63	89	3	1	100	1	26	1.41	295
20	295	500000886	121900873	20089South	47	71	3.1	1	100	1	24	1.51	295
21	312	121900953	121900972	20018North	137	114	2.1	1	100	1	23	0.83	312
22	312	121900972	121900953	20018South	121	108	1.2	1	100	1	13	0.89	312
23	318	121650954	2000002227	20258West	122	134	1.1	1	100	1	12	1.1	318
24	318	2000002227	121650954	20258East	139	141	0.2	1	100	1	2	1.01	318
25	331	121651256	121666057	20257West	107	106	0.1	1	100	1	1	0.99	331
26	331	121666057	121651256	20257East	116	110	0.6	1	100	1	6	0.95	331
27	335	121900968	121900969	200171South	124	109	1.4	1	100	1	15	0.88	335
28	335	121900969	121900968	200171North	134	116	1.6	1	100	1	18	0.87	335
29	376	121658901	121673245	20256East	92	102	1	1	100	1	10	1.11	376
30	376	121673245	121658901	20256West	88	98	1	1	100	1	10	1.11	376
31	384	121762978	121900998	20046East	26	34	1.5	1	100	1	8	1.31	384
32	384	121900998	121762978	20046West	17	24	1.5	1	100	1	7	1.41	384
33	415	121901009	121901016	1053East	16	19	0.7	1	100	1	3	1.19	415
34	415	121901016	121901009	1053West	17	19	0.5	1	100	1	2	1.12	415
35	425	121646106	2000714590	20085North	99	107	0.8	1	100	1	8	1.08	425
36	425	2000714590	121646106	20085South	98	105	0.7	1	100	1	7	1.07	425

37	428	121900726	121901024	20061West	53	81	3.4	1	100	1	28	1.53	428
38	428	121901024	121900726	20061East	67	89	2.5	1	100	1	22	1.33	428
39	430	121679655	2000714591	200812South	92	114	2.2	1	100	1	22	1.24	430
40	430	2000714591	121679655	200812North	94	116	2.1	1	100	1	22	1.23	430
41	442	121668460	121679655	3802South_main	67	94	3	1	100	1	27	1.4	442
42	442	121679655	121668460	3801North_main	75	97	2.4	1	100	1	22	1.29	442
43	475	36	2000714592	3803North	80	105	2.6	1	100	1	25	1.31	475
44	475	2000714592	36	3803South	76	98	2.4	1	100	1	22	1.29	475
45	478	121901057	121901247	20063West	55	64	1.2	1	100	1	9	1.16	478
46	478	121901247	121901057	20063East	67	81	1.6	1	100	1	14	1.21	478
47	495	121901065	121901086	20117North	41	42	0.2	1	100	1	1	1.02	495
48	495	121901086	121901065	20117South	38	39	0.2	1	100	1	1	1.03	495
49	550	121900906	121900910	1086North	76	89	1.4	1	100	1	13	1.17	550
50	550	121900910	121900906	1086South	67	77	1.2	1	100	1	10	1.15	550
51	551	121901088	121901107	20116North	42	62	2.8	1	100	1	20	1.48	551
52	551	121901107	121901088	20116South	36	59	3.3	1	100	1	23	1.64	551
53	559	245	121894010	20115North	44	62	2.5	1	100	1	18	1.41	559
54	559	121894010	245	20115South	45	62	2.3	1	100	1	17	1.38	559
55	602	29	121901117	20182North	66	68	0.2	1	100	1	2	1.03	602
56	602	121901117	29	20182South	65	68	0.4	1	100	1	3	1.05	602
57	645	121900846	2000714596	20087South	75	92	1.9	1	100	1	17	1.23	645
58	645	2000714596	121900846	20087North	91	118	2.6	1	100	1	27	1.3	645
59	680	121901040	2000001664	20522North	22	13	2.2	1	100	1	9	0.59	680
60	680	2000001664	121901040	20522South	25	22	0.6	1	100	1	3	0.88	680
61	689	100	121901210	20561South	16	15	0.3	1	100	1	1	0.94	689
62	689	121901210	100	20561North	17	15	0.5	1	100	1	2	0.88	689
63	771	121776709	2000714599	200722East	104	84	2.1	1	100	1	20	0.81	771
64	771	2000714599	121776709	200722West	88	76	1.3	1	100	1	12	0.86	771
65	782	121901279	121901292	20064West	54	68	1.8	1	100	1	14	1.26	782
66	782	121901292	121901279	20064East	67	83	1.8	1	100	1	16	1.24	782
67	840	121589623	2000714601	20183North	71	62	1.1	1	100	1	9	0.87	840
68	840	2000714601	121589623	20183South	70	64	0.7	1	100	1	6	0.91	840
69	916	1023	4014	20253East	52	61	1.2	1	100	1	9	1.17	916
70	916	4014	1023	20253West	50	61	1.5	1	100	1	11	1.22	916
71	978	1017	121901418	20524North	25	23	0.4	1	100	1	2	0.92	978
72	978	121901418	1017	20524South	25	26	0.2	1	100	1	1	1.04	978
73	1003	1026	121901704	3314South	54	83	3.5	1	100	1	29	1.54	1003
74	1003	121901704	1026	3314North	57	82	3	1	100	1	25	1.44	1003
75	1051	121901170	500000875	20181South	40	30	1.7	1	100	1	10	0.75	1051
76	1051	500000875	121901170	20181North	44	33	1.8	1	100	1	11	0.75	1051
77	1054	121735111	121901606	20091South	72	108	3.8	1	100	1	36	1.5	1054
78	1054	121901606	121735111	20091North	80	129	4.8	1	100	1	49	1.61	1054

79	1096	121900048	121901489	1211East	21	20	0.2	1	100	1	1	0.95	1096
80	1096	121901489	121900048	1211West	16	16	0	1	100	1	0	1	1096
81	1106	121900049	121901497	202104South	22	21	0.2	1	100	1	1	0.95	1106
82	1106	121901497	121900049	202104North	31	24	1.3	1	100	1	7	0.77	1106
83	1107	121901490	121901493	202103North	25	21	0.8	1	100	1	4	0.84	1107
84	1107	121901493	121901490	202103South	19	18	0.2	1	100	1	1	0.95	1107
85	1112	121901492	121901498	202301South	13	12	0.3	1	100	1	1	0.92	1112
86	1112	121901498	121901492	202301North	13	12	0.3	1	100	1	1	0.92	1112
87	1114	1005	121901502	20185North	39	27	2.1	1	100	1	12	0.69	1114
88	1114	121901502	1005	20185South	36	26	1.8	1	100	1	10	0.72	1114
89	1115	121901501	2000002259	20186North	45	35	1.6	1	100	1	10	0.78	1115
90	1115	2000002259	121901501	20186South	40	33	1.2	1	100	1	7	0.83	1115
91	1211	121901556	121901570	3602East	50	54	0.6	1	100	1	4	1.08	1211
92	1211	121901570	121901556	3602West	44	47	0.4	1	100	1	3	1.07	1211
93	1212	121901567	121901570	3605West	12	16	1.1	1	100	1	4	1.33	1212
94	1213	121901569	121901571	3603East	37	37	0	1	100	1	0	1	1213
95	1213	121901571	121901569	3603West	34	31	0.5	1	100	1	3	0.91	1213
96	1238	1011	121901592	3601West	42	41	0.2	1	100	1	1	0.98	1238
97	1238	121901592	1011	3601East	48	52	0.6	1	100	1	4	1.08	1238
98	1249	121901594	121901595	1782East	15	20	1.2	1	100	1	5	1.33	1249
99	1249	121901595	121901594	1782West	14	16	0.5	1	100	1	2	1.14	1249
100	1301	191	121901635	1024South	49	51	0.3	1	100	1	2	1.04	1301
101	1301	121901635	191	1024North	52	51	0.1	1	100	1	1	0.98	1301
102	1313	4206	500001003	20071West	278	239	2.4	1	100	1	39	0.86	1313
103	1313	500001003	4206	20071East	310	383	3.9	1	100	1	73	1.24	1313
104	1390	121900168	121901692	20032North	22	14	1.9	1	100	1	8	0.64	1390
105	1390	121901692	121900168	20032South	21	14	1.7	1	100	1	7	0.67	1390
106	1422	121901716	121901715	3306South	5	7	0.8	1	100	1	2	1.4	1422
107	1424	121901709	121901717	3306North	7	9	0.7	1	100	1	2	1.29	1424
108	1450	121900172	121901736	20031South	18	19	0.2	1	100	1	1	1.06	1450
109	1450	121901736	121900172	20031North	21	20	0.2	1	100	1	1	0.95	1450
110	1467	121901745	500000938	3303South	67	98	3.4	1	100	1	31	1.46	1467
111	1467	500000938	121901745	3303North	64	99	3.9	1	100	1	35	1.55	1467
112	1469	121806155	121901746	20033South	18	5	3.8	1	100	1	13	0.28	1469
113	1469	121901746	121806155	20033North	18	4	4.2	1	100	1	14	0.22	1469
114	1477	121901748	121901749	1037South	65	32	4.7	1	100	1	33	0.49	1477
115	1477	121901749	121901748	1037North	70	25	6.5	0	100	1	45	0.36	1477
116	1513	1022	121901815	20093North	56	48	1.1	1	100	1	8	0.86	1513
117	1513	121901815	1022	20093South	51	47	0.6	1	100	1	4	0.92	1513
118	1546	121901832	121901839	20908North	56	72	2	1	100	1	16	1.29	1546
119	1546	121901839	121901832	20908South	51	68	2.2	1	100	1	17	1.33	1546
120	1552	121901823	121901834	20094North	59	56	0.4	1	100	1	3	0.95	1552

121	1552	121901834	121901823	20094South	51	52	0.1	1	100	1	1	1.02	1552
122	1553	121899898	121901835	1101South	17	20	0.7	1	100	1	3	1.18	1553
123	1553	121901835	121899898	1101North	16	19	0.7	1	100	1	3	1.19	1553
124	1567	121901482	121901845	20907South	40	49	1.3	1	100	1	9	1.23	1567
125	1567	121901845	121901482	20907North	43	54	1.6	1	100	1	11	1.26	1567
126	1570	121747244	121901848	1102East	13	9	1.2	1	100	1	4	0.69	1570
127	1570	121901848	121747244	1102West	13	12	0.3	1	100	1	1	0.92	1570
128	1571	121901483	121901858	20906North	60	87	3.1	1	100	1	27	1.45	1571
129	1571	121901858	121901483	20906South	56	73	2.1	1	100	1	17	1.3	1571
130	1601	2000002208	2000714604	200723East	425	419	0.3	1	100	1	6	0.99	1601
131	1601	2000714604	2000002208	200723West	403	228	9.9	0	100	0	175	0.57	1601
132	1602	121637653	2000002017	1044West	164	199	2.6	1	100	1	35	1.21	1602
133	1602	2000002017	121637653	1044East	186	217	2.2	1	100	1	31	1.17	1602
134	1676	121624338	500000926	1012North	430	335	4.9	1	100	1	95	0.78	1676
135	1676	500000926	121624338	1012South	431	342	4.5	1	100	1	89	0.79	1676
136	1687	121607502	121635641	20047West	230	252	1.4	1	100	1	22	1.1	1687
137	1687	121635641	121607502	20047East	225	253	1.8	1	100	1	28	1.12	1687
138	1715	121901422	500000937	3301North	92	123	3	1	100	1	31	1.34	1715
139	1715	500000937	121901422	3301South	105	129	2.2	1	100	1	24	1.23	1715
140	1719	121901433	500000947	3309South	55	96	4.7	1	100	1	41	1.75	1719
141	1719	500000947	121901433	3309North	60	94	3.9	1	100	1	34	1.57	1719
142	1720	121901716	500000949	3307North	66	94	3.1	1	100	1	28	1.42	1720
143	1720	500000949	121901716	3307South	60	96	4.1	1	100	1	36	1.6	1720
144	1744	4159	500000959	20204North	50	62	1.6	1	100	1	12	1.24	1744
145	1744	500000959	4159	20204South	58	69	1.4	1	100	1	11	1.19	1744
146	1753	121626994	121633442	1072West	389	305	4.5	1	100	1	84	0.78	1753
147	1753	121633442	121626994	1072East	399	438	1.9	1	100	1	39	1.1	1753
148	1761	121595212	2000002245	20184South	81	71	1.1	1	100	1	10	0.88	1761
149	1761	2000002245	121595212	20184North	79	70	1	1	100	1	9	0.89	1761
150	1812	121901603	500000991	20092South	68	93	2.8	1	100	1	25	1.37	1812
151	1812	500000991	121901603	20092North	75	108	3.4	1	100	1	33	1.44	1812
152	1839	500001009	2000002627	201081South	64	48	2.1	1	100	1	16	0.75	1839
153	1901	121598427	121899735	20034West	47	50	0.4	1	100	1	3	1.06	1901
154	1901	121899735	121598427	20034East	42	48	0.9	1	100	1	6	1.14	1901
155	1908	121839582	121899593	1042South	18	14	1	1	100	1	4	0.78	1908
156	1908	121899593	121839582	1042North	16	15	0.3	1	100	1	1	0.94	1908
157	1939	121899925	2000001296	20221North	17	18	0.2	1	100	1	1	1.06	1939
158	1939	2000001296	121899925	20221South	17	18	0.2	1	100	1	1	1.06	1939
159	1969	121616074	121636712	1503North	565	477	3.9	1	100	1	88	0.84	1969
160	1969	121636712	121616074	1503South	517	464	2.4	1	100	1	53	0.9	1969
161	2158	121607497	121615809	1509North	286	254	1.9	1	100	1	32	0.89	2158
162	2158	121615809	121607497	1509South	282	325	2.5	1	100	1	43	1.15	2158

163	2170	121694399	2000001650	20562North	6	13	2.3	1	100	1	7	2.17	2170
164	2170	2000001650	121694399	20562South	8	12	1.3	1	100	1	4	1.5	2170
165	2200	121835885	2000001659	1593East	11	6	1.7	1	100	1	5	0.55	2200
166	2200	2000001659	121835885	1593West	9	7	0.7	1	100	1	2	0.78	2200
167	2222	121793320	2000001670	1842North	12	23	2.6	1	100	1	11	1.92	2222
168	2222	2000001670	121793320	1842South	14	23	2.1	1	100	1	9	1.64	2222
169	2231	121899704	2000001679	20611South	23	21	0.4	1	100	1	2	0.91	2231
170	2231	2000001679	121899704	20611North	20	20	0	1	100	1	0	1	2231
171	2242	4028	121169472	1871North	4	3	0.5	1	100	1	1	0.75	2242
172	2242	121169472	4028	1871South	3	2	0.6	1	100	1	1	0.67	2242
173	2249	2000001667	2000001834	20811North	10	12	0.6	1	100	1	2	1.2	2249
174	2249	2000001834	2000001667	20811South	11	13	0.6	1	100	1	2	1.18	2249
175	2250	121899721	2000001675	1551North	17	19	0.5	1	100	1	2	1.12	2250
176	2250	2000001675	121899721	1551South	15	19	1	1	100	1	4	1.27	2250
177	2262	121876322	2000001637	20521South	19	22	0.7	1	100	1	3	1.16	2262
178	2262	2000001637	121876322	20521North	22	22	0	1	100	1	0	1	2262
179	2269	2000001664	2000001665	1524North	27	13	3.1	1	100	1	14	0.48	2269
180	2269	2000001665	2000001664	1524South	28	22	1.2	1	100	1	6	0.79	2269
181	2270	4056	121822209	1624South	12	11	0.3	1	100	1	1	0.92	2270
182	2270	121822209	4056	1624North	14	13	0.3	1	100	1	1	0.93	2270
183	2283	121826147	2000001463	1523South	18	13	1.3	1	100	1	5	0.72	2283
184	2283	2000001463	121826147	1523North	18	10	2.1	1	100	1	8	0.56	2283
185	2286	121824886	2000001442	1803North	12	14	0.6	1	100	1	2	1.17	2286
186	2286	2000001442	121824886	1803South	11	11	0	1	100	1	0	1	2286
187	2292	121901758	2000001443	20523South	46	41	0.8	1	100	1	5	0.89	2292
188	2292	2000001443	121901758	20523North	52	1	9.9	0	100	1	51	0.02	2292
189	2325	121582230	2000001436	20812North	8	7	0.4	1	100	1	1	0.88	2325
190	2325	2000001436	121582230	20812South	9	8	0.3	1	100	1	1	0.89	2325
191	2333	121757032	2000001704	1801North	16	13	0.8	1	100	1	3	0.81	2333
192	2333	2000001704	121757032	1801South	16	11	1.4	1	100	1	5	0.69	2333
193	2339	4063	2000001484	1781South	7	12	1.6	1	100	1	5	1.71	2339
194	2339	2000001484	4063	1781North	7	14	2.2	1	100	1	7	2	2339
195	2373	121899976	2000001691	1623NorthEast	17	21	0.9	1	100	1	4	1.24	2373
196	2373	2000001691	121899976	1623SouthWest	16	20	0.9	1	100	1	4	1.25	2373
197	2377	121855538	2000001465	1622South	12	15	0.8	1	100	1	3	1.25	2377
198	2377	2000001465	121855538	1622North	12	15	0.8	1	100	1	3	1.25	2377
199	2398	121716165	2000001470	1661North	12	13	0.3	1	100	1	1	1.08	2398
200	2398	2000001470	121716165	1661South	10	10	0	1	100	1	0	1	2398
201	2417	121591267	2000001508	20671North	4	3	0.5	1	100	1	1	0.75	2417
202	2417	2000001508	121591267	20671South	4	3	0.5	1	100	1	1	0.75	2417
203	2441	121586954	2000001526	1851South	8	9	0.3	1	100	1	1	1.13	2441
204	2441	2000001526	121586954	1851North	10	10	0	1	100	1	0	1	2441

205	2451	2000001468	2000001469	1741East	14	16	0.5	1	100	1	2	1.14	2451
206	2451	2000001469	2000001468	1741West	14	16	0.5	1	100	1	2	1.14	2451
207	2465	121766606	2000001531	1692West	28	32	0.7	1	100	1	4	1.14	2465
208	2465	2000001531	121766606	1692East	27	28	0.2	1	100	1	1	1.04	2465
209	2475	121900046	2000001712	1693South	8	7	0.4	1	100	1	1	0.88	2475
210	2475	2000001712	121900046	1693North	10	7	1	1	100	1	3	0.7	2475
211	2497	4087	2000001541	20861West	10	6	1.4	1	100	1	4	0.6	2497
212	2497	2000001541	4087	20861East	10	6	1.4	1	100	1	4	0.6	2497
213	2506	4088	2000001557	20701West	11	18	1.8	1	100	1	7	1.64	2506
214	2506	2000001557	4088	20701East	8	18	2.8	1	100	1	10	2.25	2506
215	2531	121723257	2000001571	1701West	3	4	0.5	1	100	1	1	1.33	2531
216	2531	2000001571	121723257	1701East	4	4	0	1	100	1	0	1	2531
217	2532	121723257	2000001578	1714North	2	3	0.6	1	100	1	1	1.5	2532
218	2532	2000001578	121723257	1714South	1	1	0	1	100	1	0	1	2532
219	2546	2000001579	2000001580	1722East	13	8	1.5	1	100	1	5	0.62	2546
220	2546	2000001580	2000001579	1722West	12	8	1.3	1	100	1	4	0.67	2546
221	2585	2000001603	2000001722	20721West	11	10	0.3	1	100	1	1	0.91	2585
222	2585	2000001722	2000001603	20721East	9	11	0.6	1	100	1	2	1.22	2585
223	2610	121680624	2000001620	1715North	9	11	0.6	1	100	1	2	1.22	2610
224	2610	2000001620	121680624	1715South	9	11	0.6	1	100	1	2	1.22	2610
225	2624	121668320	2000001614	1713North	18	12	1.5	1	100	1	6	0.67	2624
226	2624	2000001614	121668320	1713South	17	15	0.5	1	100	1	2	0.88	2624
227	2654	2000001306	2000001747	1592East	5	6	0.4	1	100	1	1	1.2	2654
228	2654	2000001747	2000001306	1592West	7	7	0	1	100	1	0	1	2654
229	2669	2000001758	2000001759	20591East	5	6	0.4	1	100	1	1	1.2	2669
230	2669	2000001759	2000001758	20591West	6	7	0.4	1	100	1	1	1.17	2669
231	2716	2000001789	2000001790	20601East	12	12	0	1	100	1	0	1	2716
232	2716	2000001790	2000001789	20601West	14	12	0.6	1	100	1	2	0.86	2716
233	2721	2000001793	2000001794	1601East	7	6	0.4	1	100	1	1	0.86	2721
234	2721	2000001794	2000001793	1601West	8	6	0.8	1	100	1	2	0.75	2721
235	2726	121791950	2000001797	1832South	2	9	3	1	100	1	7	4.5	2726
236	2726	2000001797	121791950	1832North	2	9	3	1	100	1	7	4.5	2726
237	2731	121831384	2000001804	1611North	20	21	0.2	1	100	1	1	1.05	2731
238	2731	2000001804	121831384	1611South	18	20	0.5	1	100	1	2	1.11	2731
239	2734	121899671	2000001802	1602East	12	12	0	1	100	1	0	1	2734
240	2734	2000001802	121899671	1602West	10	11	0.3	1	100	1	1	1.1	2734
241	2746	121831331	2000001809	1632East	14	11	0.8	1	100	1	3	0.79	2746
242	2746	2000001809	121831331	1632West	13	12	0.3	1	100	1	1	0.92	2746
243	2760	4221	2000001818	1631East	8	9	0.3	1	100	1	1	1.13	2760
244	2760	2000001818	4221	1631West	8	10	0.7	1	100	1	2	1.25	2760
245	2795	2000001840	2000001841	1522South	17	18	0.2	1	100	1	1	1.06	2795
246	2795	2000001841	2000001840	1522North	20	20	0	1	100	1	0	1	2795

247	2804	2000001412	2000001846	1541East	23	13	2.4	1	100	1	10	0.57	2804
248	2804	2000001846	2000001412	1541West	24	13	2.6	1	100	1	11	0.54	2804
249	2816	2000001730	2000001854	1581North	11	17	1.6	1	100	1	6	1.55	2816
250	2816	2000001854	2000001730	1581South	12	16	1.1	1	100	1	4	1.33	2816
251	2822	121709981	2000001858	1831South	9	20	2.9	1	100	1	11	2.22	2822
252	2822	2000001858	121709981	1831North	9	20	2.9	1	100	1	11	2.22	2822
253	2825	121810996	2000001860	1511East	8	13	1.5	1	100	1	5	1.63	2825
254	2825	2000001860	121810996	1511West	9	13	1.2	1	100	1	4	1.44	2825
255	2830	121805642	2000001862	20511West	22	14	1.9	1	100	1	8	0.64	2830
256	2830	2000001862	121805642	20511East	23	17	1.3	1	100	1	6	0.74	2830
257	2995	4007	121877445	20251West	14	30	3.4	1	100	1	16	2.14	2995
258	2995	121877445	4007	20251East	18	35	3.3	1	100	1	17	1.94	2995
259	2998	4254	121861314	1251South	40	44	0.6	1	100	1	4	1.1	2998
260	2998	121861314	4254	1251North	42	46	0.6	1	100	1	4	1.1	2998
261	3040	4018	2000001916	20066East	6	3	1.4	1	100	1	3	0.5	3040
262	3040	2000001916	4018	20066West	6	3	1.4	1	100	1	3	0.5	3040
263	3167	4010	121757837	200711West	18	18	0	1	100	1	0	1	3167
264	3167	121757837	4010	200711East	20	20	0	1	100	1	0	1	3167
265	3179	4036	121899512	1182North	48	36	1.9	1	100	1	12	0.75	3179
266	3179	121899512	4036	1182South	45	34	1.8	1	100	1	11	0.76	3179
267	3192	4019	121701049	20067West	13	15	0.5	1	100	1	2	1.15	3192
268	3192	121701049	4019	20067East	17	18	0.2	1	100	1	1	1.06	3192
269	3203	4016	121871280	1045West	38	12	5.2	0	100	1	26	0.32	3203
270	3203	121871280	4016	1045East	41	12	5.6	0	100	1	29	0.29	3203
271	3211	4024	2000001326	1054East	22	26	0.8	1	100	1	4	1.18	3211
272	3211	2000001326	4024	1054West	23	25	0.4	1	100	1	2	1.09	3211
273	3217	4047	121899410	1173North	19	17	0.5	1	100	1	2	0.89	3217
274	3217	121899410	4047	1173South	15	16	0.3	1	100	1	1	1.07	3217
275	3246	4051	121688343	1133North	21	20	0.2	1	100	1	1	0.95	3246
276	3246	121688343	4051	1133South	22	21	0.2	1	100	1	1	0.95	3246
277	3284	4035	121729493	20224West	19	20	0.2	1	100	1	1	1.05	3284
278	3284	121729493	4035	20224East	24	23	0.2	1	100	1	1	0.96	3284
279	3295	4023	121781751	1043West	54	64	1.3	1	100	1	10	1.19	3295
280	3295	121781751	4023	1043East	59	75	2	1	100	1	16	1.27	3295
281	3305	121621692	2000001920	201082South	67	130	6.3	0	100	1	63	1.94	3305
282	3305	2000001920	121621692	201082North	69	115	4.8	1	100	1	46	1.67	3305
283	3308	121607393	121622217	15010South	134	129	0.4	1	100	1	5	0.96	3308
284	3308	121622217	121607393	15010North	145	120	2.2	1	100	1	25	0.83	3308
285	3312	121901421	2000001923	1032North	53	50	0.4	1	100	1	3	0.94	3312
286	3312	2000001923	121901421	1032South	44	48	0.6	1	100	1	4	1.09	3312
287	3315	121800187	2000001925	1261North	20	21	0.2	1	100	1	1	1.05	3315
288	3315	2000001925	121800187	1261South	21	20	0.2	1	100	1	1	0.95	3315

289	3316	121792399	2000001926	1051East	17	17	0	1	100	1	0	1	3316
290	3316	2000001926	121792399	1051West	19	18	0.2	1	100	1	1	0.95	3316
291	3318	121899396	2000001927	1052West	27	24	0.6	1	100	1	3	0.89	3318
292	3318	2000001927	121899396	1052East	28	25	0.6	1	100	1	3	0.89	3318
293	3338	121771047	2000001939	200713West	108	81	2.8	1	100	1	27	0.75	3338
294	3338	2000001939	121771047	200713East	126	92	3.3	1	100	1	34	0.73	3338
295	3366	121900937	2000001962	3702South	49	48	0.1	1	100	1	1	0.98	3366
296	3366	2000001962	121900937	3702North	63	70	0.9	1	100	1	7	1.11	3366
297	3377	121900937	2000001970	3703West	41	47	0.9	1	100	1	6	1.15	3377
298	3377	2000001970	121900937	3703East	52	60	1.1	1	100	1	8	1.15	3377
299	3389	2000001969	2000002032	200717West	43	56	1.8	1	100	1	13	1.3	3389
300	3389	2000002032	2000001969	200717East	58	69	1.4	1	100	1	11	1.19	3389
301	3396	2000001988	2000002006	200718East	68	72	0.5	1	100	1	4	1.06	3396
302	3396	2000002006	2000001988	200718West	55	61	0.8	1	100	1	6	1.11	3396
303	3409	2000001985	2000002001	200719West	60	63	0.4	1	100	1	3	1.05	3409
304	3409	2000002001	2000001985	200719East	74	80	0.7	1	100	1	6	1.08	3409
305	3419	2000002007	2000002046	200715East	64	73	1.1	1	100	1	9	1.14	3419
306	3419	2000002046	2000002007	200715West	52	61	1.2	1	100	1	9	1.17	3419
307	3437	86	2000002022	20084North	79	102	2.4	1	100	1	23	1.29	3437
308	3437	2000002022	86	20084South	65	85	2.3	1	100	1	20	1.31	3437
309	3444	121894461	2000034705	20112South	97	123	2.5	1	100	1	26	1.27	3444
310	3444	2000034705	121894461	20112North	103	120	1.6	1	100	1	17	1.17	3444
311	3473	2000002031	2000002044	200716West	41	63	3.1	1	100	1	22	1.54	3473
312	3473	2000002044	2000002031	200716East	55	76	2.6	1	100	1	21	1.38	3473
313	3488	121788687	2000002055	1022North	55	63	1	1	100	1	8	1.15	3488
314	3488	2000002055	121788687	1022South	53	62	1.2	1	100	1	9	1.17	3488
315	3511	228	2000002074	20016South	108	98	1	1	100	1	10	0.91	3511
316	3511	2000002074	228	20016North	112	98	1.4	1	100	1	14	0.88	3511
317	3574	121725157	2000002101	1223East	39	27	2.1	1	100	1	12	0.69	3574
318	3574	2000002101	121725157	1223West	35	24	2	1	100	1	11	0.69	3574
319	3586	121852372	2000002109	1242West	50	33	2.6	1	100	1	17	0.66	3586
320	3586	2000002109	121852372	1242East	54	43	1.6	1	100	1	11	0.8	3586
321	3594	121787506	2000002113	20525East	27	14	2.9	1	100	1	13	0.52	3594
322	3594	2000002113	121787506	20525West	29	18	2.3	1	100	1	11	0.62	3594
323	3609	121899832	2000002124	20801North	36	20	3	1	100	1	16	0.56	3609
324	3609	2000002124	121899832	20801South	33	32	0.2	1	100	1	1	0.97	3609
325	3787	121890765	121897671	20118South	81	105	2.5	1	100	1	24	1.3	3787
326	3787	121897671	121890765	20118North	80	99	2	1	100	1	19	1.24	3787
327	3829	2000002479	2000002482	1055East	20	21	0.2	1	100	1	1	1.05	3829
328	3829	2000002482	2000002479	1055West	19	20	0.2	1	100	1	1	1.05	3829
329	3831	2000002479	2000002484	1056West	16	20	0.9	1	100	1	4	1.25	3831
330	3831	2000002484	2000002479	1056East	20	20	0	1	100	1	0	1	3831

331	3870	2000002491	2000002520	20119South	71	75	0.5	1	100	1	4	1.06	3870
332	3870	2000002520	2000002491	20119North	73	74	0.1	1	100	1	1	1.01	3870
333	3875	121899797	2000002525	20113North	2	1	0.8	1	100	1	1	0.5	3875
334	3875	2000002525	121899797	20113South	4	1	1.9	1	100	1	3	0.25	3875
335	3998	121795184	2000002585	1172West	19	10	2.4	1	100	1	9	0.53	3998
336	3998	2000002585	121795184	1172East	19	11	2.1	1	100	1	8	0.58	3998
337	4109	121812923	2000002625	1023North	78	71	0.8	1	100	1	7	0.91	4109
338	4109	2000002625	121812923	1023South	74	61	1.6	1	100	1	13	0.82	4109
339	4113	2000002626	500001006	201081North	61	36	3.6	1	100	1	25	0.59	4113
340	4238	121620122	121628805	1502South	524	468	2.5	1	100	1	56	0.89	4238
341	4238	121628805	121620122	1502North	563	459	4.6	1	100	0	104	0.82	4238
342	4305	121616848	121632410	1014South	331	374	2.3	1	100	1	43	1.13	4305
343	4305	121632410	121616848	1014North	342	352	0.5	1	100	1	10	1.03	4305
344	4321	121631867	2000714612	1011West	112	99	1.3	1	100	1	13	0.88	4321
345	4321	2000714612	121631867	1011East	115	96	1.8	1	100	1	19	0.83	4321
346	4322	121611221	121617657	20011South	261	304	2.6	1	100	1	43	1.16	4322
347	4322	121617657	121611221	20011North	277	278	0.1	1	100	1	1	1	4322
348	4359	121626007	2000001958	20021North	207	144	4.8	1	100	1	63	0.7	4359
349	4359	2000001958	121626007	20021South	187	135	4.1	1	100	1	52	0.72	4359
350	4384	121784052	2000004570	1331West	45	51	0.9	1	100	1	6	1.13	4384
351	4384	2000004570	121784052	1331East	48	51	0.4	1	100	1	3	1.06	4384
352	4553	121636676	2000034608	1015North	250	224	1.7	1	100	1	26	0.9	4553
353	4553	2000034608	121636676	1015South	220	224	0.3	1	100	1	4	1.02	4553
354	4580	121770004	2000034623	20243West	42	38	0.6	1	100	1	4	0.9	4580
355	4580	2000034623	121770004	20243East	44	37	1.1	1	100	1	7	0.84	4580
356	4598	121819228	2000034633	1121West	15	19	1	1	100	1	4	1.27	4598
357	4598	2000034633	121819228	1121East	17	16	0.2	1	100	1	1	0.94	4598
358	4726	121758664	2000002025	3704West	82	100	1.9	1	100	1	18	1.22	4726
359	4726	2000002025	121758664	3704East	122	139	1.5	1	100	1	17	1.14	4726
360	4969	121901533	2000714488	3604East	50	47	0.4	1	100	1	3	0.94	4969
361	4969	2000714488	121901533	3604West	45	42	0.5	1	100	1	3	0.93	4969
362	5028	121870243	121874720	20044East	84	95	1.2	1	100	1	11	1.13	5028
363	5028	121874720	121870243	20044West	67	81	1.6	1	100	1	14	1.21	5028
364	5036	121608284	121806796	20022North	107	86	2.1	1	100	1	21	0.8	5036
365	5036	121806796	121608284	20022South	103	75	3	1	100	1	28	0.73	5036
366	5049	121637498	121642477	1113South	132	173	3.3	1	100	1	41	1.31	5049
367	5049	121642477	121637498	1113North	143	164	1.7	1	100	1	21	1.15	5049
368	5056	121616903	121620245	1034North	176	167	0.7	1	100	1	9	0.95	5056
369	5056	121620245	121616903	1034South	181	165	1.2	1	100	1	16	0.91	5056
370	5107	121669371	121672338	20201South	62	81	2.2	1	100	1	19	1.31	5107
371	5107	121672338	121669371	20201North	57	73	2	1	100	1	16	1.28	5107
372	5114	121645478	121651743	1081East	104	108	0.4	1	100	1	4	1.04	5114

373	5114	121651743	121645478	1081West	106	104	0.2	1	100	1	2	0.98	5114
374	5139	2000001845	2000714623	1542West	19	18	0.2	1	100	1	1	0.95	5139
375	5139	2000714623	2000001845	1542East	22	20	0.4	1	100	1	2	0.91	5139
376	5164	121756689	121759476	20079East	134	158	2	1	100	1	24	1.18	5164
377	5164	121759476	121756689	20079West	120	138	1.6	1	100	1	18	1.15	5164
378	5170	121744268	121756596	20077West	119	148	2.5	1	100	1	29	1.24	5170
379	5170	121756596	121744268	20077East	129	193	5	0	100	1	64	1.5	5170
380	5256	164	2000714704	1771North	32	32	0	1	100	1	0	1	5256
381	5256	2000714704	164	1771South	31	31	0	1	100	1	0	1	5256
382	5260	2000001705	2000714709	20802North	29	21	1.6	1	100	1	8	0.72	5260
383	5260	2000714709	2000001705	20802South	30	21	1.8	1	100	1	9	0.7	5260
384	7016	121737096	121739187	20076West	131	168	3	1	100	1	37	1.28	7016
385	7016	121739187	121737096	20076East	148	214	4.9	1	100	1	66	1.45	7016
386	7021	121625454	121638341	15011South	121	101	1.9	1	100	1	20	0.83	7021
387	7021	121638341	121625454	15011North	138	95	4	1	100	1	43	0.69	7021
388	7023	121606598	121639135	20111South	136	138	0.2	1	100	1	2	1.01	7023
389	7023	121639135	121606598	20111North	142	128	1.2	1	100	1	14	0.9	7023
390	46402	121862879	121864698	20255East	38	36	0.3	1	100	1	2	0.95	46402
391	46402	121864698	121862879	20255West	34	34	0	1	100	1	0	1	46402
392	47366	121830350	121873849	20065East	88	89	0.1	1	100	1	1	1.01	47366
393	47366	121873849	121830350	20065West	76	75	0.1	1	100	1	1	0.99	47366
394	48089	121810483	121872749	3401West	40	58	2.6	1	100	1	18	1.45	48089
395	48089	121872749	121810483	3401East	48	68	2.6	1	100	1	20	1.42	48089
396	50644	121880125	121883720	20252East	31	37	1	1	100	1	6	1.19	50644
397	50644	121883720	121880125	20252West	27	34	1.3	1	100	1	7	1.26	50644
398	50645	121878897	121886029	1111North	52	61	1.2	1	100	1	9	1.17	50645
399	50645	121886029	121878897	1111South	40	53	1.9	1	100	1	13	1.33	50645
400	50659	121878765	121887869	1112North	40	28	2.1	1	100	1	12	0.7	50659
401	50659	121887869	121878765	1112South	37	25	2.2	1	100	1	12	0.68	50659
402	52322	121606343	121895202	1811South	33	35	0.3	1	100	1	2	1.06	52322
403	52322	121895202	121606343	1811North	38	34	0.7	1	100	1	4	0.89	52322
404	52902	121896900	2000002522	20114North	57	76	2.3	1	100	1	19	1.33	52902
405	52902	2000002522	121896900	20114South	54	76	2.7	1	100	1	22	1.41	52902
406	549454109	121625904	121625905	20012North_slip	22	20	0.4	1	100	1	2	0.91	549454109
407	549458121	121617120	121631566	20012North_main	164	204	2.9	1	100	1	40	1.24	549458121
408	549458121	121631566	121617120	20012South_main	150	208	4.3	1	100	1	58	1.39	549458121
409	553058336	121608946	121612882	1311West	14	3	3.8	1	100	1	11	0.21	553058336
410	553058336	121612882	121608946	1311East	12	4	2.8	1	100	1	8	0.33	553058336
411	554375343	121609142	121635289	1312North	19	11	2.1	1	100	1	8	0.58	554375343
412	554375343	121635289	121609142	1312South	17	16	0.2	1	100	1	1	0.94	554375343
413	554449560	121674035	121674036	200811West	112	121	0.8	1	100	1	9	1.08	554449560
414	554449560	121674036	121674035	200811East	104	104	0	1	100	1	0	1	554449560

415	554454057	121614467	121620668	1033North	148	122	2.2	1	100	1	26	0.82	554454057
416	554454057	121620668	121614467	1033South	143	138	0.4	1	100	1	5	0.97	554454057
417	588987149	121598492	121602822	20035North	59	60	0.1	1	100	1	1	1.02	588987149
418	588987149	121602822	121598492	20035South	51	55	0.5	1	100	1	4	1.08	588987149
419	590511931	121610359	121641108	15012South	104	93	1.1	1	100	1	11	0.89	590511931
420	590511931	121641108	121610359	15012North	115	87	2.8	1	100	1	28	0.76	590511931
421	707711508	121583564	121584273	208001West	28	11	3.8	1	100	1	17	0.39	707711508
422	707711508	121584273	121583564	208001East	32	15	3.5	1	100	1	17	0.47	707711508
423	714088067	121589251	121592727	1681East	11	14	0.8	1	100	1	3	1.27	714088067
424	714088067	121592727	121589251	1681West	11	13	0.6	1	100	1	2	1.18	714088067
425	719956103	121167836	121599058	20036South	17	17	0	1	100	1	0	1	719956103
426	719956103	121599058	121167836	20036North	21	19	0.4	1	100	1	2	0.9	719956103
427	720544847	121600251	121600405	1161West	13	10	0.9	1	100	1	3	0.77	720544847
428	720544847	121600405	121600251	1161East	11	6	1.7	1	100	1	5	0.55	720544847
429	721225505	121600970	121604340	1035North	61	60	0.1	1	100	1	1	0.98	721225505
430	721225505	121604340	121600970	1035South	44	55	1.6	1	100	1	11	1.25	721225505
431	725567258	121612648	121614236	1071West	377	315	3.3	1	100	1	62	0.84	725567258
432	725567258	121614236	121612648	1071East	419	450	1.5	1	100	1	31	1.07	725567258
433	730379628	121636334	121617120	20012South_slip	22	17	1.1	1	100	1	5	0.77	730379628
434	731701292	121614986	121625005	1504North	233	220	0.9	1	100	1	13	0.94	731701292
435	731701292	121625005	121614986	1504South	212	264	3.4	1	100	1	52	1.25	731701292
436	734302647	121620123	121626709	1501North	536	373	7.6	0	100	0	163	0.7	734302647
437	734302647	121626709	121620123	1501South	561	390	7.8	0	100	0	171	0.7	734302647
438	736380918	121615920	121629569	1505North	212	207	0.3	1	100	1	5	0.98	736380918
439	736380918	121629569	121615920	1505South	192	232	2.7	1	100	1	40	1.21	736380918
440	742637630	121605847	121624337	1013North	35	23	2.2	1	100	1	12	0.66	742637630
441	742637630	121624337	121605847	1013South	37	12	5.1	0	100	1	25	0.32	742637630
442	747563463	121625876	121633954	1812West	41	15	4.9	1	100	1	26	0.37	747563463
443	747563463	121633954	121625876	1812East	40	15	4.8	1	100	1	25	0.38	747563463
444	749408337	121624629	121635351	1321West	92	70	2.4	1	100	1	22	0.76	749408337
445	749408337	121635351	121624629	1321East	80	81	0.1	1	100	1	1	1.01	749408337
446	751108037	121613700	121623860	1506South	200	213	0.9	1	100	1	13	1.07	751108037
447	751108037	121623860	121613700	1506North	211	188	1.6	1	100	1	23	0.89	751108037
448	751257437	121623860	121635051	1507South	154	159	0.4	1	100	1	5	1.03	751257437
449	751257437	121635051	121623860	1507North	159	151	0.6	1	100	1	8	0.95	751257437
450	751782353	121605953	121614074	1508South	611	485	5.4	0	100	0	126	0.79	751782353
451	751782353	121614074	121605953	1508North	544	477	3	1	100	1	67	0.88	751782353
452	759735830	121643856	121678554	1221East	8	3	2.1	1	100	1	5	0.38	759735830
453	759735830	121678554	121643856	1221West	9	2	3	1	100	1	7	0.22	759735830
454	762970802	121643386	121668405	1256South	158	165	0.6	1	100	1	7	1.04	762970802
455	762970802	121668405	121643386	1256North	170	173	0.2	1	100	1	3	1.02	762970802
456	765084978	121647012	121670921	1253West	131	129	0.2	1	100	1	2	0.98	765084978

457	765084978	121670921	121647012	1253East	148	131	1.4	1	100	1	17	0.89	765084978
458	796986758	121660066	121674564	1281North	52	55	0.4	1	100	1	3	1.06	796986758
459	796986758	121674564	121660066	1281South	50	59	1.2	1	100	1	9	1.18	796986758
460	803755898	121679655	121666426	3801North_slip	27	19	1.7	1	100	1	8	0.7	803755898
461	830511612	4133	121665568	20222East	54	65	1.4	1	100	1	11	1.2	830511612
462	830511612	121665568	4133	20222West	45	56	1.5	1	100	1	11	1.24	830511612
463	840539223	121652862	121674687	1258West	153	158	0.4	1	100	1	5	1.03	840539223
464	840539223	121674687	121652862	1258East	169	160	0.7	1	100	1	9	0.95	840539223
465	840881880	121652971	121664532	1255East	83	97	1.5	1	100	1	14	1.17	840881880
466	840881880	121664532	121652971	1255West	78	77	0.1	1	100	1	1	0.99	840881880
467	843045822	4160	121677183	202639North	23	22	0.2	1	100	1	1	0.96	843045822
468	843045822	121677183	4160	202639South	23	20	0.6	1	100	1	3	0.87	843045822
469	843969122	4161	121667163	1271North	26	22	0.8	1	100	1	4	0.85	843969122
470	843969122	121667163	4161	1271South	24	20	0.9	1	100	1	4	0.83	843969122
471	846591053	121663055	121673832	20223South	22	12	2.4	1	100	1	10	0.55	846591053
472	846591053	121673832	121663055	20223North	21	12	2.2	1	100	1	9	0.57	846591053
473	847275507	121661509	121679655	3802South_slip	28	21	1.4	1	100	1	7	0.75	847275507
474	880428780	121687758	121690055	1141South	27	24	0.6	1	100	1	3	0.89	880428780
475	880428780	121690055	121687758	1141North	27	29	0.4	1	100	1	2	1.07	880428780
476	894267755	121686471	121692845	20563West	18	3	4.6	1	100	1	15	0.17	894267755
477	894267755	121692845	121686471	20563East	17	3	4.4	1	100	1	14	0.18	894267755
478	898015622	121689345	121696821	1031East	11	9	0.6	1	100	1	2	0.82	898015622
479	898015622	121696821	121689345	1031West	10	10	0	1	100	1	0	1	898015622
480	899952557	121686584	121689834	1131West	18	0	6	0	100	1	18	0	899952557
481	899952557	121689834	121686584	1131East	21	1	6	0	100	1	20	0.05	899952557
482	902057033	121692920	121694426	1151South	15	1	4.9	1	100	1	14	0.07	902057033
483	902057033	121694426	121692920	1151North	14	1	4.7	1	100	1	13	0.07	902057033
484	904153130	121691331	121695474	1132West	39	39	0	1	100	1	0	1	904153130
485	904153130	121695474	121691331	1132East	41	39	0.3	1	100	1	2	0.95	904153130
486	905106002	121693767	121693779	20152North	25	21	0.8	1	100	1	4	0.84	905106002
487	905106002	121693779	121693767	20152South	29	22	1.4	1	100	1	7	0.76	905106002
488	1004232155	121716967	121719397	20172North	53	39	2.1	1	100	1	14	0.74	1004232155
489	1004232155	121719397	121716967	20172South	57	42	2.1	1	100	1	15	0.74	1004232155
490	1077821118	121723498	121729493	1222South	27	32	0.9	1	100	1	5	1.19	1077821118
491	1077821118	121729493	121723498	1222North	23	29	1.2	1	100	1	6	1.26	1077821118
492	1102491608	121735450	121742133	20072West	246	237	0.6	1	100	1	9	0.96	1102491608
493	1102491608	121742133	121735450	20072East	278	368	5	0	100	1	90	1.32	1102491608
494	1130484155	121736305	121742427	20041East	174	207	2.4	1	100	1	33	1.19	1130484155
495	1130484155	121742427	121736305	20041West	145	187	3.3	1	100	1	42	1.29	1130484155
496	1131531773	121734666	121734981	20042West	163	180	1.3	1	100	1	17	1.1	1131531773
497	1131531773	121734981	121734666	20042East	187	202	1.1	1	100	1	15	1.08	1131531773
498	1131793880	121738917	121740681	20075East	154	217	4.6	1	100	1	63	1.41	1131793880

499	1131793880	121740681	121738917	20075West	140	168	2.3	1	100	1	28	1.2	1131793880
500	1184390892	121746354	121752733	1761North	24	31	1.3	1	100	1	7	1.29	1184390892
501	1184390892	121752733	121746354	1761South	25	32	1.3	1	100	1	7	1.28	1184390892
502	1227893663	121756715	121758920	20078West	116	138	2	1	100	1	22	1.19	1227893663
503	1227893663	121758920	121756715	20078East	132	177	3.6	1	100	1	45	1.34	1227893663
504	1305390005	121770042	121776927	200714West	17	4	4	1	100	1	13	0.24	1305390005
505	1305390005	121776927	121770042	200714East	20	5	4.2	1	100	1	15	0.25	1305390005
506	1370778242	121766408	121779479	20211West	31	21	2	1	100	1	10	0.68	1370778242
507	1370778242	121779479	121766408	20211East	38	23	2.7	1	100	1	15	0.61	1370778242
508	1401276380	121781117	121783536	20045West	37	52	2.2	1	100	1	15	1.41	1401276380
509	1401276380	121783536	121781117	20045East	54	63	1.2	1	100	1	9	1.17	1401276380
510	1417347578	121784287	121784455	3101North	126	145	1.6	1	100	1	19	1.15	1417347578
511	1417347578	121784455	121784287	3101South	140	142	0.2	1	100	1	2	1.01	1417347578
512	1430975918	121785756	121788170	20526North	19	4	4.4	1	100	1	15	0.21	1430975918
513	1430975918	121788170	121785756	20526South	17	8	2.5	1	100	1	9	0.47	1430975918
514	1557111842	121712778	121803153	1171North	22	15	1.6	1	100	1	7	0.68	1557111842
515	1557111842	121803153	121712778	1171South	22	16	1.4	1	100	1	6	0.73	1557111842
516	1588811423	121806846	121811204	3404East	50	2	9.4	0	100	1	48	0.04	1588811423
517	1607677058	121810977	121814291	3102South	17	4	4	1	100	1	13	0.24	1607677058
518	1642458672	121805442	121813032	201321South	41	32	1.5	1	100	1	9	0.78	1642458672
519	1642458672	121813032	121805442	201321North	37	30	1.2	1	100	1	7	0.81	1642458672
520	1645921112	121809222	121809566	31031South	138	173	2.8	1	100	1	35	1.25	1645921112
521	1650648987	121804943	121806846	3404West	44	1	9.1	0	100	1	43	0.02	1650648987
522	1706074580	121146850	121817334	1531North	17	16	0.2	1	100	1	1	0.94	1706074580
523	1706074580	121817334	121146850	1531South	16	16	0	1	100	1	0	1	1706074580
524	1885921037	121836576	121840654	1041North	35	30	0.9	1	100	1	5	0.86	1885921037
525	1885921037	121840654	121836576	1041South	41	31	1.7	1	100	1	10	0.76	1885921037
526	2084217408	121845871	121848701	1651North	12	15	0.8	1	100	1	3	1.25	2084217408
527	2084217408	121848701	121845871	1651South	10	14	1.2	1	100	1	4	1.4	2084217408
528	2109307130	121847938	121856699	1241South	22	18	0.9	1	100	1	4	0.82	2109307130
529	2109307130	121856699	121847938	1241North	21	17	0.9	1	100	1	4	0.81	2109307130
530	2141041448	121861304	121863235	20254North	29	50	3.3	1	100	1	21	1.72	2141041448
531	2141041448	121863235	121861304	20254South	29	48	3.1	1	100	1	19	1.66	2141041448
532	2147474939	121840932	121899414	20153North	20	18	0.5	1	100	1	2	0.9	2147474939
533	2147474939	121899414	121840932	20153South	22	18	0.9	1	100	1	4	0.82	2147474939
534	2147475008	121881810	121899442	20301East	19	31	2.4	1	100	1	12	1.63	2147475008
535	2147475008	121899442	121881810	20301West	17	31	2.9	1	100	1	14	1.82	2147475008
536	2147475132	121719397	121899504	20171North	37	30	1.2	1	100	1	7	0.81	2147475132
537	2147475132	121899504	121719397	20171South	39	32	1.2	1	100	1	7	0.82	2147475132
538	2147475191	121816358	121899533	1021North	50	50	0	1	100	1	0	1	2147475191
539	2147475191	121899533	121816358	1021South	48	48	0	1	100	1	0	1	2147475191
540	2147475279	121695290	121899577	20151North	22	23	0.2	1	100	1	1	1.05	2147475279

541	2147475279	121899577	121695290	20151South	23	25	0.4	1	100	1	2	1.09	2147475279
542	2147475424	121832513	121899677	20051East	27	26	0.2	1	100	1	1	0.96	2147475424
543	2147475424	121899677	121832513	20051West	28	26	0.4	1	100	1	2	0.93	2147475424
544	2147475530	121899726	121899730	1552South	20	13	1.7	1	100	1	7	0.65	2147475530
545	2147475530	121899730	121899726	1552North	26	17	1.9	1	100	1	9	0.65	2147475530
546	2147475694	121766952	121899812	20212East	46	38	1.2	1	100	1	8	0.83	2147475694
547	2147475694	121899812	121766952	20212West	44	38	0.9	1	100	1	6	0.86	2147475694
548	2147475710	121899819	121899820	20621South	22	22	0	1	100	1	0	1	2147475710
549	2147475710	121899820	121899819	20621North	24	24	0	1	100	1	0	1	2147475710
550	2147475747	4147	121899838	1711North	37	44	1.1	1	100	1	7	1.19	2147475747
551	2147475747	121899838	4147	1711South	44	45	0.1	1	100	1	1	1.02	2147475747
552	2147475748	121658844	121899839	1712North	45	35	1.6	1	100	1	10	0.78	2147475748
553	2147475748	121899839	121658844	1712South	40	33	1.2	1	100	1	7	0.83	2147475748
554	2147475791	121863550	121899860	1723West	15	17	0.5	1	100	1	2	1.13	2147475791
555	2147475791	121899860	121863550	1723East	13	15	0.5	1	100	1	2	1.15	2147475791
556	2147475847	121899883	121899888	1691South	15	19	1	1	100	1	4	1.27	2147475847
557	2147475847	121899888	121899883	1691North	14	18	1	1	100	1	4	1.29	2147475847
558	2147475881	121853851	121899905	1751East	9	14	1.5	1	100	1	5	1.56	2147475881
559	2147475881	121899905	121853851	1751West	10	15	1.4	1	100	1	5	1.5	2147475881
560	2147475883	121852937	121899906	1621South	22	24	0.4	1	100	1	2	1.09	2147475883
561	2147475883	121899906	121852937	1621North	23	20	0.6	1	100	1	3	0.87	2147475883
562	2147475919	121722835	121899924	1721West	10	9	0.3	1	100	1	1	0.9	2147475919
563	2147475919	121899924	121722835	1721East	11	10	0.3	1	100	1	1	0.91	2147475919
564	2147475929	121759846	121899929	20081South	35	56	3.1	1	100	1	21	1.6	2147475929
565	2147475929	121899929	121759846	20081North	31	37	1	1	100	1	6	1.19	2147475929
566	2147475976	121770292	121899953	20202South	45	54	1.3	1	100	1	9	1.2	2147475976
567	2147475976	121899953	121770292	20202North	49	56	1	1	100	1	7	1.14	2147475976
568	2147475985	4042	121646401	1201South	44	46	0.3	1	100	1	2	1.05	2147475985
569	2147475985	121646401	4042	1201North	38	42	0.6	1	100	1	4	1.11	2147475985
570	2147475995	121667321	121899962	1252East	39	45	0.9	1	100	1	6	1.15	2147475995
571	2147475995	121899962	121667321	1252West	42	47	0.7	1	100	1	5	1.12	2147475995
572	2147476026	121754107	121899978	20082South	34	31	0.5	1	100	1	3	0.91	2147476026
573	2147476026	121899978	121754107	20082North	29	34	0.9	1	100	1	5	1.17	2147476026
574	2147476132	121659960	121900031	1731South	15	15	0	1	100	1	0	1	2147476132
575	2147476132	121900031	121659960	1731North	13	14	0.3	1	100	1	1	1.08	2147476132
576	2147476260	121750578	121900095	1243South	29	27	0.4	1	100	1	2	0.93	2147476260
577	2147476260	121900095	121750578	1243North	28	3	6.4	0	100	1	25	0.11	2147476260
578	2147476721	121818875	121900489	20024North	34	27	1.3	1	100	1	7	0.79	2147476721
579	2147476721	121900489	121818875	20024South	34	29	0.9	1	100	1	5	0.85	2147476721
580	2147476809	121900531	121900532	1841North	16	18	0.5	1	100	1	2	1.13	2147476809
581	2147476809	121900532	121900531	1841South	16	17	0.2	1	100	1	1	1.06	2147476809
582	2147483403	121900734	121900740	3804North	80	105	2.6	1	100	1	25	1.31	2147483403

583	2147483403	121900740	121900734	3804South	68	98	3.3	1	100	1	30	1.44	2147483403
584	2147483410	121900740	121900736	3805North	3	10	2.7	1	100	1	7	3.33	2147483410
585	2147483411	121900735	121900740	3805South	4	6	0.9	1	100	1	2	1.5	2147483411
586	2147483575	121847977	121900808	20241West	49	42	1	1	100	1	7	0.86	2147483575
587	2147483575	121900808	121847977	20241East	51	44	1	1	100	1	7	0.86	2147483575
588	2147483597	77	121900817	20083North	90	102	1.2	1	100	1	12	1.13	2147483597
589	2147483597	121900817	77	20083South	70	84	1.6	1	100	1	14	1.2	2147483597
	TOTAL				39240	39329	0.4	572		584	7753	0.95	39240

Table 8.10 Screenline Calibration - All Vehicles (Inter Peak)

Screenline Calibration - All Vehicles			Counts:	92	RESULT =	100.0%	RESULT =	100.0%	Abs Diff
			Total Traffic		REQD =	85.0%	REQD =	85.0%	
Screenline		TMU Site	Observed	Modelled	GEH	GEH Test	Target Diff	Flow Test	
1. Dublin	Inbound	1015South	1498	1509	0.3	1	225	1	11
		1023South	411	419	0.4	1	100	1	8
		20033South	251	214	2.4	1	100	1	37
		3303South	445	541	4.3	1	100	1	96
		20042East	1127	1196	2.0	1	169	1	69
		20072East	1919	2001	1.9	1	288	1	82
		20811North	91	99	0.8	1	100	1	8
		20114North	569	600	1.3	1	100	1	31
	Outbound	1015North	1561	1481	2.1	1	234	1	80
		1023North	449	484	1.6	1	100	1	35
		20033North	244	236	0.5	1	100	1	8
		3303North	412	506	4.4	1	100	1	94
		20042West	1088	1184	2.8	1	163	1	96
		20072West	1867	1859	0.2	1	280	1	8
		20811South	91	98	0.7	1	100	1	7
		20114South	541	582	1.7	1	100	1	41
2. South East	Inbound	1251North	306	319	0.7	1	100	1	13
		1242East	443	415	1.4	1	100	1	28
		1771South	301	302	0.1	1	100	1	1
		1801South	146	142	0.3	1	100	1	4
		20092South	476	505	1.3	1	100	1	29
		20811South	91	98	0.7	1	100	1	7
		20114South	541	582	1.7	1	100	1	41
	Outbound	1251South	312	322	0.6	1	100	1	10
		1242West	435	422	0.6	1	100	1	13
		1771North	318	320	0.1	1	100	1	2
		1801North	155	164	0.7	1	100	1	9
		20092North	524	554	1.3	1	100	1	30
		20811North	91	99	0.8	1	100	1	8
		20114North	569	600	1.3	1	100	1	31
3. South	Inbound	20255West	327	327	0.0	1	100	1	0
		1723West	145	153	0.7	1	100	1	8
		20086South	474	507	1.5	1	100	1	33
		1731South	90	94	0.4	1	100	1	4
		1201South	295	286	0.5	1	100	1	9
		20211West	281	288	0.4	1	100	1	7
		1693South	121	112	0.8	1	100	1	9
	Outbound	1693North	134	123	1.0	1	100	1	11

		20211East	307	308	0.1	1	100	1	1
		1201North	276	266	0.6	1	100	1	10
		1731North	91	92	0.1	1	100	1	1
		20086North	537	560	1.0	1	100	1	23
		1723East	142	149	0.6	1	100	1	7
		20255East	342	339	0.2	1	100	1	3
4. North	Inbound	20018North	737	775	1.4	1	111	1	38
		1531North	147	142	0.4	1	100	1	5
		1021North	287	300	0.8	1	100	1	13
		1035North	422	450	1.3	1	100	1	28
		1042North	182	180	0.1	1	100	1	2
		1173North	197	208	0.8	1	100	1	11
		1261North	229	249	1.3	1	100	1	20
		20591West	100	100	0.0	1	100	1	0
	Outbound	20591East	91	90	0.1	1	100	1	1
		1261South	250	268	1.1	1	100	1	18
		1173South	186	193	0.5	1	100	1	7
		1042South	187	186	0.1	1	100	1	1
		1035South	344	401	3.0	1	100	1	57
		1021South	298	314	0.9	1	100	1	16
		1531South	151	150	0.1	1	100	1	1
		20018South	700	780	2.9	1	105	1	80
5. West	Inbound	1182North	546	573	1.1	1	100	1	27
		1661North	93	91	0.2	1	100	1	2
		1651North	92	103	1.1	1	100	1	11
		20065West	979	1011	1.0	1	147	1	32
		1632West	135	135	0.0	1	100	1	0
		1054West	137	149	1.0	1	100	1	12
		20046West	180	203	1.7	1	100	1	23
		1041South	648	654	0.2	1	100	1	6
	Outbound	1182South	567	615	2.0	1	100	1	48
		1661South	83	80	0.3	1	100	1	3
		1651South	88	108	2.0	1	100	1	20
		20065East	1014	1046	1.0	1	152	1	32
		1632East	137	132	0.4	1	100	1	5
		1054East	149	169	1.6	1	100	1	20
		20046East	203	227	1.6	1	100	1	24
		1041North	632	646	0.6	1	100	1	14
6. Midwest	Inbound	1692East	166	179	1.0	1	100	1	13
		20212East	495	493	0.1	1	100	1	2
		20202North	382	376	0.3	1	100	1	6
		1241North	196	175	1.5	1	100	1	21

		1741West	118	128	0.9	1	100	1	10
		200719West	353	346	0.4	1	100	1	7
		20186South	304	365	3.3	1	100	1	61
		20671South	81	68	1.5	1	100	1	13
	Outbound	1692West	163	196	2.5	1	100	1	33
		20212West	473	473	0.0	1	100	1	0
		20202South	381	382	0.1	1	100	1	1
		1241South	203	191	0.9	1	100	1	12
		1741East	119	128	0.8	1	100	1	9
		200719East	387	385	0.1	1	100	1	2
		20186North	334	369	1.9	1	100	1	35
		20671North	85	72	1.5	1	100	1	13
			35265	**36511**	**6.6**	**92**		**92**	**1878**

Table 8.11 Screenline Calibration - Light Vehicles (Inter Peak)

Screenline Calibration – Light Vehicles			Counts:	92	RESULT =	100.0%	RESULT =	100.0%	Abs Diff
			Total Traffic		REQD =	85.0%	REQD =	85.0%	
Screenline		TMU Site	Observed	Modelled	GEH	GEH Test	Target Diff	Flow Test	
1. Dublin	Inbound	1015South	1278	1285	0.2	1	192	1	7
		1023South	337	358	1.1	1	100	1	21
		20033South	233	209	1.6	1	100	1	24
		3303South	378	443	3.2	1	100	1	65
		20042East	940	994	1.7	1	141	1	54
		20072East	1641	1633	0.2	1	246	1	8
		20811North	81	87	0.7	1	100	1	6
		20114North	512	524	0.5	1	100	1	12
	Outbound	1015North	1311	1257	1.5	1	197	1	54
		1023North	371	413	2.1	1	100	1	42
		20033North	226	232	0.4	1	100	1	6
		3303North	348	407	3.0	1	100	1	59
		20042West	925	1004	2.5	1	139	1	79
		20072West	1621	1622	0.0	1	243	1	1
		20811South	80	85	0.6	1	100	1	5
		20114South	487	506	0.9	1	100	1	19
2. South East	Inbound	1251North	264	273	0.5	1	100	1	9
		1242East	389	372	0.9	1	100	1	17
		1771South	270	271	0.1	1	100	1	1
		1801South	130	131	0.1	1	100	1	1
		20092South	408	412	0.2	1	100	1	4
		20811South	80	85	0.6	1	100	1	5
		20114South	487	506	0.9	1	100	1	19
	Outbound	1251South	272	278	0.4	1	100	1	6
		1242West	385	389	0.2	1	100	1	4
		1771North	286	288	0.1	1	100	1	2
		1801North	139	151	1.0	1	100	1	12
		20092North	449	446	0.1	1	100	1	3
		20811North	81	87	0.7	1	100	1	6
		20114North	512	524	0.5	1	100	1	12
3. South	Inbound	20255West	293	293	0.0	1	100	1	0
		1723West	130	136	0.5	1	100	1	6
		20086South	389	405	0.8	1	100	1	16
		1731South	75	79	0.5	1	100	1	4
		1201South	251	240	0.7	1	100	1	11
		20211West	250	267	1.1	1	100	1	17
		1693South	113	105	0.8	1	100	1	8
	Outbound	1693North	124	116	0.7	1	100	1	8

		20211East	269	285	1.0	1	100	1	16
		1201North	238	224	0.9	1	100	1	14
		1731North	78	78	0.0	1	100	1	0
		20086North	440	441	0.0	1	100	1	1
		1723East	129	134	0.4	1	100	1	5
		20255East	304	303	0.1	1	100	1	1
4. North	Inbound	20018North	600	661	2.4	1	100	1	61
		1531North	130	126	0.4	1	100	1	4
		1021North	237	250	0.8	1	100	1	13
		1035North	361	390	1.5	1	100	1	29
		1042North	166	165	0.1	1	100	1	1
		1173North	178	191	1.0	1	100	1	13
		1261North	209	228	1.3	1	100	1	19
		20591West	94	93	0.1	1	100	1	1
	Outbound	20591East	86	84	0.2	1	100	1	2
		1261South	229	248	1.2	1	100	1	19
		1173South	171	177	0.5	1	100	1	6
		1042South	169	172	0.2	1	100	1	3
		1035South	300	346	2.6	1	100	1	46
		1021South	250	266	1.0	1	100	1	16
		1531South	135	134	0.1	1	100	1	1
		20018South	579	672	3.7	1	100	1	93
5. West	Inbound	1182North	498	537	1.7	1	100	1	39
		1661North	81	78	0.3	1	100	1	3
		1651North	80	88	0.9	1	100	1	8
		20065West	903	936	1.1	1	135	1	33
		1632West	122	123	0.1	1	100	1	1
		1054West	114	124	0.9	1	100	1	10
		20046West	163	179	1.2	1	100	1	16
		1041South	607	623	0.6	1	100	1	16
	Outbound	1182South	522	581	2.5	1	100	1	59
		1661South	73	70	0.4	1	100	1	3
		1651South	78	94	1.7	1	100	1	16
		20065East	926	957	1.0	1	139	1	31
		1632East	123	121	0.2	1	100	1	2
		1054East	127	143	1.4	1	100	1	16
		20046East	177	193	1.2	1	100	1	16
		1041North	597	616	0.8	1	100	1	19
6. Midwest	Inbound	1692East	139	151	1.0	1	100	1	12
		20212East	449	455	0.3	1	100	1	6
		20202North	333	320	0.7	1	100	1	13
		1241North	175	158	1.3	1	100	1	17

		1741West	104	112	0.8	1	100	1	8
		200719West	293	283	0.6	1	100	1	10
		20186South	264	332	3.9	1	100	1	68
		20671South	77	65	1.4	1	100	1	12
	Outbound	1692West	135	164	2.4	1	100	1	29
		20212West	429	435	0.3	1	100	1	6
		20202South	336	328	0.4	1	100	1	8
		1241South	181	173	0.6	1	100	1	8
		1741East	105	112	0.7	1	100	1	7
		200719East	313	305	0.5	1	100	1	8
		20186North	289	334	2.5	1	100	1	45
		20671North	81	69	1.4	1	100	1	12
			30792	**31840**	**5.9**	**92**		**92**	**1554**

Table 8.12 Screenline Calibration - Heavy Vehicles (Inter Peak)

Screenline Calibration – Heavy Vehicles			Counts:	92	RESULT =	98.9%	RESULT =	100.0%	Abs Diff
			Total Traffic		REQD =	85.0%	REQD =	85.0%	
Screenline		TMU Site	Observed	Modelled	GEH	GEH Test	Target Diff	Flow Test	
1. Dublin	Inbound	1015South	220	224	0.3	1	100	1	4
		1023South	74	61	1.6	1	100	1	13
		20033South	18	5	3.8	1	100	1	13
		3303South	67	98	3.4	1	100	1	31
		20042East	187	202	1.1	1	100	1	15
		20072East	278	368	5.0	0	100	1	90
		20811North	10	12	0.6	1	100	1	2
		20114North	57	76	2.3	1	100	1	19
	Outbound	1015North	250	224	1.7	1	100	1	26
		1023North	78	71	0.8	1	100	1	7
		20033North	18	4	4.2	1	100	1	14
		3303North	64	99	3.9	1	100	1	35
		20042West	163	180	1.3	1	100	1	17
		20072West	246	237	0.6	1	100	1	9
		20811South	11	13	0.6	1	100	1	2
		20114South	54	76	2.7	1	100	1	22
2. South East	Inbound	1251North	42	46	0.6	1	100	1	4
		1242East	54	43	1.6	1	100	1	11
		1771South	31	31	0.0	1	100	1	0
		1801South	16	11	1.4	1	100	1	5
		20092South	68	93	2.8	1	100	1	25
		20811South	11	13	0.6	1	100	1	2
		20114South	54	76	2.7	1	100	1	22
	Outbound	1251South	40	44	0.6	1	100	1	4
		1242West	50	33	2.6	1	100	1	17
		1771North	32	32	0.0	1	100	1	0
		1801North	16	13	0.8	1	100	1	3
		20092North	75	108	3.4	1	100	1	33
		20811North	10	12	0.6	1	100	1	2
		20114North	57	76	2.3	1	100	1	19
3. South	Inbound	20255West	34	34	0.0	1	100	1	0
		1723West	15	17	0.5	1	100	1	2
		20086South	85	102	1.8	1	100	1	17
		1731South	15	15	0.0	1	100	1	0
		1201South	44	46	0.3	1	100	1	2
		20211West	31	21	2.0	1	100	1	10
		1693South	8	7	0.4	1	100	1	1
	Outbound	1693North	10	7	1.0	1	100	1	3

		20211East	38	23	2.7	1	100	1	15
		1201North	38	42	0.6	1	100	1	4
		1731North	13	14	0.3	1	100	1	1
		20086North	97	119	2.1	1	100	1	22
		1723East	13	15	0.5	1	100	1	2
		20255East	38	36	0.3	1	100	1	2
4. North	Inbound	20018North	137	114	2.1	1	100	1	23
		1531North	17	16	0.2	1	100	1	1
		1021North	50	50	0.0	1	100	1	0
		1035North	61	60	0.1	1	100	1	1
		1042North	16	15	0.3	1	100	1	1
		1173North	19	17	0.5	1	100	1	2
		1261North	20	21	0.2	1	100	1	1
		20591West	6	7	0.4	1	100	1	1
	Outbound	20591East	5	6	0.4	1	100	1	1
		1261South	21	20	0.2	1	100	1	1
		1173South	15	16	0.3	1	100	1	1
		1042South	18	14	1.0	1	100	1	4
		1035South	44	55	1.6	1	100	1	11
		1021South	48	48	0.0	1	100	1	0
		1531South	16	16	0.0	1	100	1	0
		20018South	121	108	1.2	1	100	1	13
5. West	Inbound	1182North	48	36	1.9	1	100	1	12
		1661North	12	13	0.3	1	100	1	1
		1651North	12	15	0.8	1	100	1	3
		20065West	76	75	0.1	1	100	1	1
		1632West	13	12	0.3	1	100	1	1
		1054West	23	25	0.4	1	100	1	2
		20046West	17	24	1.5	1	100	1	7
		1041South	41	31	1.7	1	100	1	10
	Outbound	1182South	45	34	1.8	1	100	1	11
		1661South	10	10	0.0	1	100	1	0
		1651South	10	14	1.2	1	100	1	4
		20065East	88	89	0.1	1	100	1	1
		1632East	14	11	0.8	1	100	1	3
		1054East	22	26	0.8	1	100	1	4
		20046East	26	34	1.5	1	100	1	8
		1041North	35	30	0.9	1	100	1	5
6. Midwest	Inbound	1692East	27	28	0.2	1	100	1	1
		20212East	46	38	1.2	1	100	1	8
		20202North	49	56	1.0	1	100	1	7
		1241North	21	17	0.9	1	100	1	4

		1741West	14	16	0.5	1	100	1	2
		200719West	60	63	0.4	1	100	1	3
		20186South	40	33	1.2	1	100	1	7
		20671South	4	3	0.5	1	100	1	1
	Outbound	1692West	28	32	0.7	1	100	1	4
		20212West	44	38	0.9	1	100	1	6
		20202South	45	54	1.3	1	100	1	9
		1241South	22	18	0.9	1	100	1	4
		1741East	14	16	0.5	1	100	1	2
		200719East	74	80	0.7	1	100	1	6
		20186North	45	35	1.6	1	100	1	10
		20671North	4	3	0.5	1	100	1	1
			4473	**4671**	**2.9**	**91**		**92**	**756**

Table 8.13 Rail Calibration – Boarding

BOARDING Calibration		Counts : 88 Total Pax			RESULT = 92% REQD = 85%	
Station	Stop Number	Obs	Mod	> 150 PAX	Within 25%	Web TAG TEST
Navan Road Parkway	2054	323	359	1	11.1%	1
Dun Laoghaire	121900739	3574	3193	1	10.7%	1
Howth	121900740	1240	1291	1	4.1%	1
Howth Junction & Donaghmede	121900741	1818	1927	1	6.0%	1
Dundalk	121900742	579	633	1	9.3%	1
Drogheda	121900743	1086	1343	1	23.7%	1
Laytown	121900744	397	355	1	10.6%	1
Gormanston	121900745	101	101	0	0.0%	
Balbriggan	121900746	1782	1787	1	0.3%	1
Skerries	121900747	1424	1445	1	1.5%	1
Rush & Lusk	121900748	972	1020	1	4.9%	1
Donabate	121900749	1392	1381	1	0.8%	1
Malahide	121900750	2626	2635	1	0.3%	1
Portmarnock	121900751	1450	1427	1	1.6%	1
Kilbarrack	121900752	1373	1632	1	18.9%	1
Raheny	121900753	2024	2188	1	8.1%	1
Harmonstown	121900754	1396	1382	1	1.0%	1
Killester	121900755	2225	2613	1	17.4%	1
Clontarf Road	121900756	1946	2135	1	9.7%	1
Connolly	121900757	14857	23270	1	56.6%	0
Tara Street	121900758	7952	7028	1	11.6%	1
Pearse	121900759	14827	12852	1	13.3%	1
Lansdowne	121900761	3500	3513	1	0.4%	1
Sandymount	121900762	1044	1008	1	3.4%	1
Sydney Parade	121900763	1883	2207	1	17.2%	1
Booterstown	121900764	1644	1650	1	0.4%	1
Blackrock	121900765	2974	2568	1	13.7%	1
Seapoint	121900766	836	671	1	19.7%	1
Salthill & Monkstown	121900767	1387	1218	1	12.2%	1
Bayside	121900768	1400	1331	1	4.9%	1
Sutton	121900769	963	878	1	8.8%	1
Heuston	121900770	9537	7419	1	22.2%	1
Cherry Orchard/Parkwest	121900771	255	307	1	20.4%	1
Clondalkin/Fonthill	121900772	54	87	0	61.1%	
Sallins & Naas	121900773	1026	1085	1	5.8%	1
Newbridge	121900774	1224	1528	1	24.8%	1
Kildare	121900775	775	896	1	15.6%	1
Athy	121900776	464	376	1	19.0%	1
Carlow	121900777	745	737	1	1.1%	1
Muine Bheag	121900778	145	160	0	10.3%	
Kilkenny	121900779	400	425	1	6.3%	1
Thomastown	121900780	52	97	0	86.5%	
Waterford	121900782	494	418	1	15.4%	1
Rosslare Strand	121900787	16	27	0	68.8%	
Rosslare Europort	121900788	11	14	0	27.3%	
Wexford	121900789	76	72	0	5.3%	
Enniscorthy	121900791	54	46	0	14.8%	
Gorey	121900792	73	81	0	11.0%	
Arklow	121900793	85	124	0	45.9%	
Rathdrum	121900794	68	59	0	13.2%	
Wicklow	121900795	168	176	1	4.8%	1
Kilcoole	121900796	39	9	0	76.9%	
Greystones	121900797	1927	1831	1	5.0%	1
Bray	121900798	3144	3080	1	2.0%	1
Dalkey	121900799	1621	1719	1	6.0%	1
Glenageary	121900800	1666	1427	1	14.3%	1
Carrick-on-Suir	121900802	3	1	0	66.7%	
Clonmel	121900803	27	50	0	85.2%	
Cahir	121900804	10	23	0	130.0%	
Tipperary	121900805	13	47	0	261.5%	

Limerick Junction	121900806	1501	1373	1	8.5%	1
Limerick	121900808	1112	1435	1	29.0%	0
Ennis	121900810	153	161	1	5.2%	1
Charleville	121900811	73	41	0	43.8%	
Mallow	121900812	1454	1167	1	19.7%	1
Cork	121900813	3752	4630	1	23.4%	1
Glounthaune	121900814	229	238	1	3.9%	1
Carrigaline	121900815	40	101	0	152.5%	
Rushbrooke	121900816	194	191	1	1.5%	1
Cobh	121900817	555	659	1	18.7%	1
Banteer	121900819	32	123	0	284.4%	
Millstreet	121900820	55	51	0	7.3%	
Rathmore	121900821	30	82	0	173.3%	
Killarney	121900822	213	301	1	41.3%	0
Farranfore	121900823	21	24	0	14.3%	
Tralee	121900824	240	316	1	31.7%	0
Portarlington	121900825	565	645	1	14.2%	1
Portlaoise	121900827	825	958	1	16.1%	1
Ballybrophy	121900828	161	284	1	76.4%	0
Templemore	121900829	77	80	0	3.9%	
Thurles	121900830	563	530	1	5.9%	1
Roscrea	121900833	6	18	0	200.0%	
Cloughjordan	121900834	9	32	0	255.6%	
Nenagh	121900835	13	44	0	238.5%	
Birdhill	121900836	6	22	0	266.7%	
Castleconnell	121900837	12	10	0	16.7%	
Tullamore	121900840	470	482	1	2.6%	1
Clara	121900841	137	169	0	23.4%	
Athlone	121900842	713	1035	1	45.2%	0
Ballinasloe	121900843	195	159	1	18.5%	1
Woodlawn	121900844	35	35	0	0.0%	
Attymon	121900845	8	8	0	0.0%	
Athenry	121900846	376	303	1	19.4%	1
Galway	121900847	1260	1024	1	18.7%	1
Roscommon	121900848	88	78	0	11.4%	
Castlerea	121900850	70	64	0	8.6%	
Ballyhaunis	121900851	80	69	0	13.8%	
Claremorris	121900852	113	111	0	1.8%	
Manulla Junction	121900853	146	149	0	2.1%	
Castlebar	121900854	145	210	0	44.8%	
Westport	121900855	153	169	1	10.5%	1
Foxford	121900856	19	39	0	105.3%	
Ballina	121900857	62	102	0	64.5%	
Sligo	121900858	426	439	1	3.1%	1
Collooney	121900859	56	44	0	21.4%	
Ballymote	121900860	91	70	0	23.1%	
Boyle	121900861	67	42	0	37.3%	
Carrick-on-Shannon	121900862	105	89	0	15.2%	
Dromod	121900863	112	71	0	36.6%	
Longford	121900864	254	260	1	2.4%	1
Edgeworthstown	121900865	116	114	0	1.7%	
Mullingar	121900866	473	486	1	2.7%	1
Enfield	121900867	137	38	0	72.3%	
Kilcock	121900868	237	247	1	4.2%	1
Maynooth	121900869	2695	2615	1	3.0%	1
Clonsilla	121900871	1767	1886	1	6.7%	1
Coolmine	121900872	1502	1534	1	2.1%	1
Castleknock	121900873	792	681	1	14.0%	1
Ashtown	121900874	995	710	1	28.6%	0
Broombridge	121900875	418	377	1	9.8%	1
Drumcondra	121900876	1183	4477	1	278.4%	0
Adamstown	121900980	134	132	0	1.5%	
Hazelhatch & Celbridge	121900981	299	306	1	2.3%	1
Monasterevin	121900982	101	114	0	12.9%	
Leixlip Confey	121900983	529	527	1	0.4%	1
Killiney	121900984	853	895	1	4.9%	1
Sandycove & Glasthule	121900985	1208	1096	1	9.3%	1

Belfast	121901104	1011	10771	1	965.4%	0
Midleton	121901301	638	607	1	4.9%	1
Little Island	121901304	432	401	1	7.2%	1
Carrigtwohill	121901305	148	153	0	3.4%	
Fota	121901306	14	53	0	278.6%	
Shankill	121901310	1367	1318	1	3.6%	1
Leixlip Louisa Bridge	121901313	1112	1136	1	2.2%	1
Gort	121901331	31	42	0	35.5%	
Ardrahan	121901332	5	4	0	20.0%	
Craughwell	121901333	18	13	0	27.8%	
Sixmilebridge	500001796	57	120	0	110.5%	
Docklands	500001803	1326	1340	1	1.1%	1
Dunboyne	500001804	279	222	1	20.4%	1
M3 Parkway	500001805	400	394	1	1.5%	1
Hansfield	2000001931	210	215	1	2.4%	1
Oranmore	2000001933	70	97	0	38.6%	
Total		**135,771**	**161,123**	**88**		**79**

Table 8.14 Rail Calibration - Alighting

ALIGHTING Calibration		Counts : 88 Total Pax			RESULT = 92% REQD = 85%	
Station	Stop Number	Obs	Mod	> 150 PAX	Within 25%	Web TAG TEST
Navan Road Parkway	2054	303	235	1	22.4%	1
Dun Laoghaire	121900739	3492	3511	1	0.5%	1
Howth	121900740	1138	1169	1	2.7%	1
Howth Junction & Donaghmede	121900741	2044	1954	1	4.4%	1
Dundalk	121900742	516	595	1	15.3%	1
Drogheda	121900743	917	1132	1	23.4%	1
Laytown	121900744	354	308	1	13.0%	1
Gormanston	121900745	55	91	0	65.5%	
Balbriggan	121900746	1868	1982	1	6.1%	1
Skerries	121900747	1320	1298	1	1.7%	1
Rush & Lusk	121900748	894	909	1	1.7%	1
Donabate	121900749	1598	1601	1	0.2%	1
Malahide	121900750	2158	2054	1	4.8%	1
Portmarnock	121900751	974	1194	1	22.6%	1
Kilbarrack	121900752	1331	1525	1	14.6%	1
Raheny	121900753	2161	2292	1	6.1%	1
Harmonstown	121900754	1312	1246	1	5.0%	1
Killester	121900755	2170	2441	1	12.5%	1
Clontarf Road	121900756	2206	1994	1	9.6%	1
Connolly	121900757	16109	22341	1	38.7%	0
Tara Street	121900758	8461	9266	1	9.5%	1
Pearse	121900759	14221	13239	1	6.9%	1
Lansdowne	121900761	3888	4161	1	7.0%	1
Sandymount	121900762	981	1202	1	22.5%	1
Sydney Parade	121900763	2175	2572	1	18.3%	1
Booterstown	121900764	1445	1659	1	14.8%	1
Blackrock	121900765	2985	3025	1	1.3%	1
Seapoint	121900766	554	607	1	9.6%	1
Salthill & Monkstown	121900767	1182	1334	1	12.9%	1
Bayside	121900768	1250	1205	1	3.6%	1
Sutton	121900769	662	614	1	7.3%	1
Heuston	121900770	10007	8439	1	15.7%	1
Cherry Orchard/Parkwest	121900771	247	300	1	21.5%	1
Clondalkin/Fonthill	121900772	64	74	0	15.6%	
Sallins & Naas	121900773	1128	1071	1	5.1%	1
Newbridge	121900774	1169	1487	1	27.2%	0
Kildare	121900775	739	991	1	34.1%	0
Athy	121900776	466	392	1	15.9%	1
Carlow	121900777	735	703	1	4.4%	1
Muine Bheag	121900778	166	146	1	12.0%	1
Kilkenny	121900779	348	364	1	4.6%	1
Thomastown	121900780	65	93	0	43.1%	
Waterford	121900782	373	376	1	0.8%	1
Rosslare Strand	121900787	35	21	0	40.0%	
Rosslare Europort	121900788	25	7	0	72.0%	
Wexford	121900789	82	81	0	1.2%	
Enniscorthy	121900791	51	84	0	64.7%	
Gorey	121900792	116	150	0	29.3%	
Arklow	121900793	126	94	0	25.4%	
Rathdrum	121900794	52	47	0	9.6%	
Wicklow	121900795	181	143	1	21.0%	1
Kilcoole	121900796	9	16	0	77.8%	
Greystones	121900797	1743	1611	1	7.6%	1
Bray	121900798	3220	2860	1	11.2%	1
Dalkey	121900799	1742	1786	1	2.5%	1
Glenageary	121900800	1454	1399	1	3.8%	1
Carrick-on-Suir	121900802	6	2	0	66.7%	
Clonmel	121900803	18	21	0	16.7%	
Cahir	121900804	11	13	0	18.2%	
Tipperary	121900805	11	44	0	300.0%	

Limerick Junction	121900806	1488	1249	1	16.1%	1
Limerick	121900808	1203	1229	1	2.2%	1
Ennis	121900810	211	215	1	1.9%	1
Charleville	121900811	67	40	0	40.3%	
Mallow	121900812	1270	1270	1	0.0%	1
Cork	121900813	3811	4688	1	23.0%	1
Glounthaune	121900814	239	224	1	6.3%	1
Carrigaline	121900815	37	94	0	154.1%	
Rushbrooke	121900816	194	172	1	11.3%	1
Cobh	121900817	623	597	1	4.2%	1
Banteer	121900819	30	85	0	183.3%	
Millstreet	121900820	38	31	0	18.4%	
Rathmore	121900821	40	58	0	45.0%	
Killarney	121900822	308	250	1	18.8%	1
Farranfore	121900823	29	23	0	20.7%	
Tralee	121900824	223	224	1	0.4%	1
Portarlington	121900825	615	668	1	8.6%	1
Portlaoise	121900827	793	851	1	7.3%	1
Ballybrophy	121900828	131	252	0	92.4%	
Templemore	121900829	84	67	0	20.2%	
Thurles	121900830	574	470	1	18.1%	1
Roscrea	121900833	5	5	0	0.0%	
Cloughjordan	121900834	9	19	0	111.1%	
Nenagh	121900835	15	17	0	13.3%	
Birdhill	121900836	4	10	0	150.0%	
Castleconnell	121900837	5	7	0	40.0%	
Tullamore	121900840	446	410	1	8.1%	1
Clara	121900841	119	122	0	2.5%	
Athlone	121900842	589	973	1	65.2%	0
Ballinasloe	121900843	151	143	1	5.3%	1
Woodlawn	121900844	38	32	0	15.8%	
Attymon	121900845	9	6	0	33.3%	
Athenry	121900846	368	316	1	14.1%	1
Galway	121900847	1199	1082	1	9.8%	1
Roscommon	121900848	75	90	0	20.0%	
Castlerea	121900850	67	62	0	7.5%	
Ballyhaunis	121900851	59	57	0	3.4%	
Claremorris	121900852	95	103	0	8.4%	
Manulla Junction	121900853	151	140	1	7.3%	1
Castlebar	121900854	150	200	0	33.3%	
Westport	121900855	101	109	0	7.9%	
Foxford	121900856	23	108	0	369.6%	
Ballina	121900857	62	120	0	93.5%	
Sligo	121900858	311	377	1	21.2%	1
Collooney	121900859	75	68	0	9.3%	
Ballymote	121900860	110	108	0	1.8%	
Boyle	121900861	68	54	0	20.6%	
Carrick-on-Shannon	121900862	118	91	0	22.9%	
Dromod	121900863	96	82	0	14.6%	
Longford	121900864	292	325	1	11.3%	1
Edgeworthstown	121900865	101	107	0	5.9%	
Mullingar	121900866	516	494	1	4.3%	1
Enfield	121900867	141	37	0	73.8%	
Kilcock	121900868	213	201	1	5.6%	1
Maynooth	121900869	2567	2718	1	5.9%	1
Clonsilla	121900871	1477	1887	1	27.8%	0
Coolmine	121900872	1527	1396	1	8.6%	1
Castleknock	121900873	727	705	1	3.0%	1
Ashtown	121900874	750	680	1	9.3%	1
Broombridge	121900875	440	428	1	2.7%	1
Drumcondra	121900876	1413	4594	1	225.1%	0
Adamstown	121900980	122	123	0	0.8%	
Hazelhatch & Celbridge	121900981	290	301	1	3.8%	1
Monasterevin	121900982	70	115	0	64.3%	
Leixlip Confey	121900983	556	553	1	0.5%	1
Killiney	121900984	772	833	1	7.9%	1
Sandycove & Glasthule	121900985	1084	1076	1	0.7%	1

Belfast	121901104	1313	10772	1	720.4%	0
Midleton	121901301	583	562	1	3.6%	1
Little Island	121901304	423	371	1	12.3%	1
Carrigtwohill	121901305	137	140	0	2.2%	
Fota	121901306	18	48	0	166.7%	
Shankill	121901310	1278	1223	1	4.3%	1
Leixlip Louisa Bridge	121901313	1097	1179	1	7.5%	1
Gort	121901331	25	51	0	104.0%	
Ardrahan	121901332	2	6	0	200.0%	
Craughwell	121901333	17	23	0	35.3%	
Sixmilebridge	500001796	55	58	0	5.5%	
Docklands	500001803	1515	1248	1	17.6%	1
Dunboyne	500001804	228	257	1	12.7%	1
M3 Parkway	500001805	344	429	1	24.7%	1
Hansfield	2000001931	184	214	1	16.3%	1
Oranmore	2000001933	89	87	0	2.2%	
Total		**135,771**	**161,123**	**88**		**79**

Table 8.15 Rail Calibration – Link Flow

Rail Link Flow Calibration		Counts : 128 Total Pax			RESULT = 94% REQD = 85%	
Description	Link Number	Obs	Mod	> 150 PAX	Within 25%	Web TAG TEST
Limerick to Sixmilebridge	1960	278	274	1	-1.4%	1
Sixmilebridge to Limerick	1960	283	319	1	12.7%	1
Connolly to Drumcondra	2416	7427	9450	1	27.2%	0
Drumcondra to Connolly	2416	6991	9487	1	35.7%	0
M3 Parkway to Dunboyne	2420	344	394	1	14.5%	1
Dunboyne to M3 Parkway	2420	400	429	1	7.3%	1
Leixlip C to Clonsilla	2899	5019	4501	1	-10.3%	1
Clonsilla to Leixlip C	2899	5168	4717	1	-8.7%	1
Ashtown to Navan Road Parkway	2902	8785	7275	1	-17.2%	1
Navan Road Parkway to Ashtown	2902	8153	7227	1	-11.4%	1
Monasterevin to Kildare	3002	5711	6153	1	7.7%	1
Kildare to Monasterevin	3002	5960	5146	1	-13.7%	1
Adamstown to Hazelhatch and Celbridge	3004	9397	8362	1	-11.0%	1
Hazelhatch and Celbridge to Adamstown	3004	9775	9484	1	-3.0%	1
Dalkey to Killiney	3007	6717	6384	1	-5.0%	1
Killiney to Dalkey	3007	6920	6946	1	0.4%	1
Sandycove to Glenageary	3009	8754	8638	1	-1.3%	1
Glenageary to Sandycove	3009	9048	9161	1	1.2%	1
Cork to Little Island	3015	1907	1873	1	-1.8%	1
Little Island to Cork	3015	1779	2068	1	16.2%	1
Carrigtwohill to Middleton	3017	583	562	1	-3.6%	1
Middleton to Carrigtwohill	3017	638	607	1	-4.9%	1
Glounthaune to Fota	3019	824	901	1	9.3%	1
Fota to Glounthaune	3019	755	994	1	31.7%	0
Shankill to Bray	3021	5022	4588	1	-8.6%	1
Bray to Shankill	3021	5055	4993	1	-1.2%	1
Leixlip LB to Maynooth	3023	3894	3254	1	-16.4%	1
Maynooth to Leixlip LB	3023	3733	3107	1	-16.8%	1
Craughwell to Ardrahan	3028	175	150	1	-14.3%	1
Ardrahan to Craughwell	3028	123	102	0	-17.1%	
Craughwell to Athenry	3030	124	102	0	-17.7%	
Athenry to Craughwell	3030	175	160	1	-8.6%	1
Dundalk to Drogheda	3032	1370	1419	1	3.6%	1
Drogheda to Dundalk	3032	1605	1386	1	-13.6%	1
Laytown to Gormanstown	3034	2587	2424	1	-6.3%	1
Gormanstown to Laytown	3034	2610	2133	1	-18.3%	1
Balbriggan to Skerries	3036	4228	3994	1	-5.5%	1
Skerries to Balbriggan	3036	4291	3888	1	-9.4%	1
Rush to Donabate	3038	6137	6012	1	-2.0%	1
Donabate to Rush	3038	6018	5648	1	-6.1%	1
Malahide to Portmarnock	3041	9284	9311	1	0.3%	1
Portmarnock to Malahide	3041	8903	8586	1	-3.6%	1
Kilbarrack to Raheny	3043	16721	16537	1	-1.1%	1
Raheny to Kilbarrack	3043	15228	14882	1	-2.3%	1
Harmonstown to Killester	3045	19409	19093	1	-1.6%	1
Killester to Harmonstown	3045	17969	17406	1	-3.1%	1
Connolly to Tara Street	3047	20896	26805	1	28.3%	0
Tara Street to Connolly	3047	20477	23839	1	16.4%	1
Pearse to Grand Canal Dock	3049	16865	18983	1	12.6%	1
Grand Canal Dock to Pearse	3049	16090	18642	1	15.9%	1
Lansdowne Road to Sandymount	3051	14820	16554	1	11.7%	1
Sandymount to Lansdowne Road	3051	15706	15702	1	0.0%	1
Sydney Parade to Booterstown	3053	13662	14947	1	9.4%	1
Booterstown to Sydney Parade	3053	14767	14654	1	-0.8%	1
Blackrock to Seapoint	3055	11952	12408	1	3.8%	1
Seapoint to Blackrock	3055	12864	12581	1	-2.2%	1
Salthill to Dun Laoghaire	3057	10960	11137	1	1.6%	1
Dun Laoghaire to Salthill	3057	11385	11362	1	-0.2%	1
Sutton to Bayside	3059	2112	2169	1	2.7%	1
Bayside to Sutton	3059	1709	1783	1	4.3%	1

Drumcondra to Boombridge	3061	9637	9015	1	-6.5%	1
Boombridge to Drumcondra	3061	8782	9077	1	3.4%	1
Sallins and Naas to Newbridge	3063	8238	7420	1	-9.9%	1
Newbridge to Sallins and Naas	3063	8709	8523	1	-2.1%	1
Athy to Carlow	3065	1132	1080	1	-4.6%	1
Carlow to Athy	3065	1265	1246	1	-1.5%	1
Muine Bheag to Kilkenny	3068	605	566	1	-6.4%	1
Kilkenny to Muine Bheag	3068	749	684	1	-8.7%	1
Rosslare Strand to Rosslare Europort	3074	25	7	0	-72.0%	
Rosslare Europort to Rosslare strand	3074	11	14	0	27.3%	
Enniscorthy to Wexford	3078	109	90	0	-17.4%	
Wexford to Enniscorthy	3078	70	94	0	34.3%	
Arklow to Gorey	3080	242	243	1	0.4%	1
Gorey to Arklow	3080	163	140	1	-14.1%	1
Wicklow to Rathdrum	3082	401	367	1	-8.5%	1
Rathdrum to Wicklow	3082	297	306	1	3.0%	1
Greystones to Kilcoole	3084	560	516	1	-7.9%	1
Kilcoole to Greystones	3084	473	481	1	1.7%	1
Glenageary to Dalkey	3086	7550	7779	1	3.0%	1
Dalkey to Glenageary	3086	7632	8274	1	8.4%	1
Carrick-on-Suir to Waterford	3089	17	37	0	117.6%	
Waterford to Carrick-on-Suir	3089	33	26	0	-21.2%	
Clonmel to Cahir	3091	52	71	0	36.5%	
Cahir to Clonmel	3091	30	54	0	80.0%	
Tipperary to Limerick Junction	3094	46	141	0	206.5%	
Limerick Junction to Tipperary	3094	23	111	0	382.6%	
Charleville to Mallow	3098	1812	2040	1	12.6%	1
Mallow to Charleville	3098	1856	2300	1	23.9%	1
Rushbrooke to Cobh	3100	623	597	1	-4.2%	1
Cobh to Rushbrooke	3100	555	659	1	18.7%	1
Banteer to Mallow	3103	815	681	1	-16.4%	1
Mallow to Banteer	3103	515	455	1	-11.7%	1
MillStreet to Rathmore	3105	475	389	1	-18.1%	1
Rathmore to Millstreet	3105	445	557	1	25.2%	0
Killarney to Farranfore	3107	276	245	1	-11.2%	1
Farranfore to Killarney	3107	223	338	1	51.6%	0
Athy to Kildare	3110	1549	1513	1	-2.3%	1
Kildare to Athy	3110	1418	1363	1	-3.9%	1
Ballybrophy to Templemore	3112	2906	2318	1	-20.2%	1
Templemore to Ballybrophy	3112	2913	3074	1	5.5%	1
Thurles to Limerick Junction	3114	2619	2446	1	-6.6%	1
Limerick Junction to Thurles	3114	2678	3129	1	16.8%	1
Roscrea to Cloughjordan	3119	14	33	0	135.7%	
Cloughjordan to Roscrea	3119	12	71	0	491.7%	
Nenagh to Birdhill	3121	12	17	0	41.7%	
Birdhill to Nenagh	3121	8	15	0	87.5%	
Limerick to Limerick Junction (1)	3123	841	1161	1	38.0%	0
Limerick Junction (1) to Limerick	3123	927	910	1	-1.8%	1
Limerick Junction to Castleconnell	3125	21	15	0	-28.6%	
Castleconnell to Limerick Junction	3125	16	32	0	100.0%	
Tullamore to Portarlington	3128	1793	1715	1	-4.4%	1
Portarlington to Tullamore	3128	2009	1630	1	-18.9%	1
Clara to Athlone	3130	1647	1311	1	-20.4%	1
Athlone to Clara	3130	1473	1277	1	-13.3%	1
Woodlawn to Attymon	3132	934	902	1	-3.4%	1
Attymon to Woodlawn	3132	936	785	1	-16.1%	1
Ballinasloe to Athlone	3134	867	717	1	-17.3%	1
Athlone to Ballinasloe	3134	906	815	1	-10.0%	1
Roscommon to Castlerea	3136	468	362	1	-22.6%	1
Castlerea to Roscommon	3136	470	376	1	-20.0%	1
Ballyhaunis to Claremorris	3138	352	346	1	-1.7%	1
Claremorris to Ballyhaunis	3138	378	346	1	-8.5%	1
Manulla Junction to Castlebar	3140	288	257	1	-10.8%	1
Castlebar to Manulla Junction	3140	241	327	1	35.7%	0
Manulla Junction to Foxford	3142	72	205	0	184.7%	
Foxford to Manulla Junction	3142	76	118	0	55.3%	
Collooney to Sligo	3144	311	377	1	21.2%	1

Sligo to Collooney	3144	426	439	1	3.1%	1
Boyle to Ballymote	3146	403	423	1	5.0%	1
Ballymote to Boyle	3146	480	423	1	-11.9%	1
Dromod to Carrick on Shannon	3148	484	479	1	-1.0%	1
Carrick on Shannon to Dromod	3148	547	465	1	-15.0%	1
Edgeworthstown to Longford	3150	755	800	1	6.0%	1
Longford to Edgeworthstown	3150	796	710	1	-10.8%	1
Enfield to Mullingar	3152	1193	1156	1	-3.1%	1
Mullingar to Enfield	3152	1206	1065	1	-11.7%	1
Maynooth to Kilcock	3154	1495	1370	1	-8.4%	1
Kilcock to Maynooth	3154	1528	1326	1	-13.2%	1
Castleknock to Coolmine	3156	8079	6824	1	-15.5%	1
Coolmine to Castleknock	3156	7532	6676	1	-11.4%	1
Clontarf Road to Connolly	3161	22070	22325	1	1.2%	1
Connolly to Clontarf Road	3161	20835	20325	1	-2.4%	1
Dunboyne to Hansfield	3299	571	612	1	7.2%	1
Hansfield to Dunboyne	3299	678	682	1	0.6%	1
Clonsilla to Hansfield	3326	885	889	1	0.5%	1
Hansfield to Clonsilla	3326	752	820	1	9.0%	1
Parkwest and City Orchard to Heuston	3328	9925	9941	1	0.2%	1
Heuston to Parkwest and City Orchard	3328	9537	8790	1	-7.8%	1
Total		614,320	621,219			120

8.2 Appendix B – Model Validation

Table 8.16 Link Validation - All Vehicles (AM Peak)

Link Validation– All Vehicles				Average AM Peak Period (07-09)								
				Counts:	146		RESULT =	87.7%	RESULT =	87.0%		
				Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	923	121752845	121901372	71	42	-29	3.9	1	100	1	29	0.59
2	923	121901372	121752845	162	154	-8	0.6	1	100	1	8	0.95
3	1083	121901480	121901481	470	317	-153	7.7	0	100	0	153	0.67
4	1083	121901481	121901480	484	284	-200	10.2	0	100	0	200	0.59
5	1934	121899882	2000001295	369	450	81	4.0	1	100	1	81	1.22
6	1934	2000001295	121899882	861	679	-182	6.6	0	129	0	182	0.79
7	2022	121725389	2000001550	205	199	-6	0.4	1	100	1	6	0.97
8	2022	2000001550	121725389	213	221	8	0.5	1	100	1	8	1.04
9	2299	121755206	2000001458	281	268	-13	0.8	1	100	1	13	0.95
10	2299	2000001458	121755206	467	456	-11	0.5	1	100	1	11	0.98
11	2353	121749417	2000001488	552	403	-149	6.8	0	100	0	149	0.73
12	2353	2000001488	121749417	318	340	22	1.2	1	100	1	22	1.07
13	2435	4300	2000001517	135	69	-66	6.5	0	100	1	66	0.51
14	2435	2000001517	4300	61	74	13	1.6	1	100	1	13	1.21
15	2459	4196	2000001528	553	572	19	0.8	1	100	1	19	1.03
16	2459	2000001528	4196	350	346	-4	0.2	1	100	1	4	0.99
17	2462	2000001529	2000001710	279	290	11	0.7	1	100	1	11	1.04
18	2462	2000001710	2000001529	429	417	-12	0.6	1	100	1	12	0.97
19	2468	121773591	2000001532	267	168	-99	6.7	0	100	1	99	0.63
20	2468	2000001532	121773591	262	234	-28	1.8	1	100	1	28	0.89
21	2472	4201	2000001534	146	202	56	4.2	1	100	1	56	1.38
22	2472	2000001534	4201	83	87	4	0.4	1	100	1	4	1.05
23	2559	121659641	2000001587	231	243	12	0.8	1	100	1	12	1.05
24	2559	2000001587	121659641	482	506	24	1.1	1	100	1	24	1.05
25	2573	2000001595	2000001596	224	175	-49	3.5	1	100	1	49	0.78
26	2573	2000001596	2000001595	251	253	2	0.1	1	100	1	2	1.01
27	2582	121900745	2000001604	119	107	-12	1.1	1	100	1	12	0.90
28	2582	2000001604	121900745	65	98	33	3.7	1	100	1	33	1.51
29	2616	121899869	2000001617	178	178	0	0.0	1	100	1	0	1.00
30	2616	2000001617	121899869	97	83	-14	1.5	1	100	1	14	0.86
31	2682	4072	2000001767	36	28	-8	1.4	1	100	1	8	0.78
32	2682	2000001767	4072	43	26	-17	2.9	1	100	1	17	0.60
33	2737	4250	2000001804	241	274	33	2.1	1	100	1	33	1.14
34	2737	2000001804	4250	151	187	36	2.8	1	100	1	36	1.24
35	2738	121828738	2000001805	236	230	-6	0.4	1	100	1	6	0.97
36	2738	2000001805	121828738	132	154	22	1.8	1	100	1	22	1.17

37	2741	121832056	2000001806	138	146	8	0.7	1	100	1	8	1.06
38	2741	2000001806	121832056	93	109	16	1.6	1	100	1	16	1.17
39	2743	121829939	2000001807	61	79	18	2.2	1	100	1	18	1.30
40	2743	2000001807	121829939	95	100	5	0.5	1	100	1	5	1.05
41	2765	4249	2000001824	312	329	17	0.9	1	100	1	17	1.05
42	2765	2000001824	4249	434	397	-37	1.8	1	100	1	37	0.91
43	2798	121784192	2000001843	290	335	45	2.5	1	100	1	45	1.16
44	2798	2000001843	121784192	136	143	7	0.6	1	100	1	7	1.05
45	2832	2000001863	2000001864	252	295	43	2.6	1	100	1	43	1.17
46	2832	2000001864	2000001863	190	171	-19	1.4	1	100	1	19	0.90
47	2977	4046	121899806	248	424	176	9.6	0	100	0	176	1.71
48	2977	121899806	4046	620	364	-256	11.5	0	100	0	256	0.59
49	2979	4046	4219	529	381	-148	6.9	0	100	0	148	0.72
50	2979	4219	4046	217	327	110	6.7	0	100	0	110	1.51
51	2980	4045	121852434	255	266	11	0.7	1	100	1	11	1.04
52	2980	121852434	4045	380	364	-16	0.8	1	100	1	16	0.96
53	3259	4232	4233	240	238	-2	0.1	1	100	1	2	0.99
54	3259	4233	4232	492	447	-45	2.1	1	100	1	45	0.91
55	3630	121871765	2000002142	769	690	-79	2.9	1	115	1	79	0.90
56	3630	2000002142	121871765	370	374	4	0.2	1	100	1	4	1.01
57	3648	4195	2000002160	601	572	-29	1.2	1	100	1	29	0.95
58	3648	2000002160	4195	374	346	-28	1.5	1	100	1	28	0.93
59	3660	121757588	2000002162	517	507	-10	0.4	1	100	1	10	0.98
60	3660	2000002162	121757588	344	343	-1	0.1	1	100	1	1	1.00
61	4586	121785659	2000034626	521	434	-87	4.0	1	100	1	87	0.83
62	4586	2000034626	121785659	1104	831	-273	8.8	0	166	0	273	0.75
63	46427	121861343	121863572	239	259	20	1.3	1	100	1	20	1.08
64	46427	121863572	121861343	243	252	9	0.6	1	100	1	9	1.04
65	50662	121881193	121885216	583	518	-65	2.8	1	100	1	65	0.89
66	50662	121885216	121881193	620	531	-89	3.7	1	100	1	89	0.86
67	559760552	121830903	121831499	333	388	55	2.9	1	100	1	55	1.17
68	559760552	121831499	121830903	243	294	51	3.1	1	100	1	51	1.21
69	578050679	121724872	121729271	253	238	-15	1.0	1	100	1	15	0.94
70	578050679	121729271	121724872	358	370	12	0.6	1	100	1	12	1.03
71	590517813	121786711	121787932	428	444	16	0.8	1	100	1	16	1.04
72	590517813	121787932	121786711	1079	1096	17	0.5	1	162	1	17	1.02
73	711042758	121586334	121586593	236	239	3	0.2	1	100	1	3	1.01
74	711042758	121586593	121586334	162	141	-21	1.7	1	100	1	21	0.87
75	711130043	121587308	121587398	237	286	49	3.0	1	100	1	49	1.21
76	711130043	121587398	121587308	1595	1465	-130	3.3	1	239	1	130	0.92
77	720514322	121598360	121601392	690	581	-109	4.3	1	100	0	109	0.84
78	720514322	121601392	121598360	377	291	-86	4.7	1	100	1	86	0.77

79	767282453	121644312	121673876	146	137	-9	0.8	1	100	1	9	0.94
80	767282453	121673876	121644312	1066	883	-183	5.9	0	160	0	183	0.83
81	844382322	121652550	121661497	353	427	74	3.7	1	100	1	74	1.21
82	844382322	121661497	121652550	470	462	-8	0.4	1	100	1	8	0.98
83	895293252	121687282	121693272	1484	1036	-448	12.6	0	223	0	448	0.70
84	895293252	121693272	121687282	1152	1177	25	0.7	1	173	1	25	1.02
85	904034183	121687913	121691906	357	315	-42	2.3	1	100	1	42	0.88
86	904034183	121691906	121687913	298	306	8	0.5	1	100	1	8	1.03
87	981988703	121714422	121714957	1042	950	-92	2.9	1	156	1	92	0.91
88	981988703	121714957	121714422	808	819	11	0.4	1	121	1	11	1.01
89	1077222707	121723857	121729423	448	517	69	3.1	1	100	1	69	1.15
90	1077222707	121729423	121723857	509	543	34	1.5	1	100	1	34	1.07
91	1368085937	121772502	121776622	731	763	32	1.2	1	110	1	32	1.04
92	1368085937	121776622	121772502	407	482	75	3.6	1	100	1	75	1.18
93	1368922148	121774967	121775658	658	718	60	2.3	1	100	1	60	1.09
94	1368922148	121775658	121774967	473	514	41	1.8	1	100	1	41	1.09
95	1373220593	121765951	121775658	437	539	102	4.6	1	100	0	102	1.23
96	1373220593	121775658	121765951	814	913	99	3.4	1	122	1	99	1.12
97	1401350877	121780497	121783108	276	288	12	0.7	1	100	1	12	1.04
98	1401350877	121783108	121780497	180	172	-8	0.6	1	100	1	8	0.96
99	1563388758	121791545	121799086	150	149	-1	0.1	1	100	1	1	0.99
100	1563388758	121799086	121791545	150	120	-30	2.6	1	100	1	30	0.80
101	1634131880	121785703	121807470	334	327	-7	0.4	1	100	1	7	0.98
102	1634131880	121807470	121785703	202	199	-3	0.2	1	100	1	3	0.99
103	1717547348	121822564	121822612	68	168	100	9.2	0	100	0	100	2.47
104	1717547348	121822612	121822564	109	156	47	4.1	1	100	1	47	1.43
105	1762898963	121823999	121825422	364	298	-66	3.6	1	100	1	66	0.82
106	1762898963	121825422	121823999	271	256	-15	0.9	1	100	1	15	0.94
107	1815168897	121829416	121831384	180	187	7	0.5	1	100	1	7	1.04
108	1815168897	121831384	121829416	357	274	-83	4.7	1	100	1	83	0.77
109	1826256902	121828074	121832262	360	319	-41	2.2	1	100	1	41	0.89
110	1826256902	121832262	121828074	893	661	-232	8.3	0	134	0	232	0.74
111	1852997705	121828738	121830100	186	192	6	0.4	1	100	1	6	1.03
112	1852997705	121830100	121828738	154	154	0	0.0	1	100	1	0	1.00
113	1856590205	121827651	121834581	165	192	27	2.0	1	100	1	27	1.16
114	1856590205	121834581	121827651	134	163	29	2.4	1	100	1	29	1.22
115	1927644755	121835629	121838293	766	747	-19	0.7	1	115	1	19	0.98
116	1927644755	121838293	121835629	298	321	23	1.3	1	100	1	23	1.08
117	2103858842	121847359	121853834	242	215	-27	1.8	1	100	1	27	0.89
118	2103858842	121853834	121847359	165	159	-6	0.5	1	100	1	6	0.96
119	2147475011	121880890	121899443	216	331	115	7.0	0	100	0	115	1.53
120	2147475011	121899443	121880890	354	286	-68	3.8	1	100	1	68	0.81

121	2147475478	121831912	121899704	308	278	-30	1.8	1	100	1	30	0.90
122	2147475478	121899704	121831912	345	292	-53	3.0	1	100	1	53	0.85
123	2147475491	121873768	121899710	677	652	-25	1.0	1	100	1	25	0.96
124	2147475491	121899710	121873768	219	244	25	1.6	1	100	1	25	1.11
125	2147475725	121848385	121899827	94	62	-32	3.6	1	100	1	32	0.66
126	2147475725	121899827	121848385	119	111	-8	0.7	1	100	1	8	0.93
127	2147475914	121731419	121899922	428	434	6	0.3	1	100	1	6	1.01
128	2147475914	121899922	121731419	312	405	93	4.9	1	100	1	93	1.30
129	2147475943	121886438	121899936	222	253	31	2.0	1	100	1	31	1.14
130	2147475943	121899936	121886438	528	500	-28	1.2	1	100	1	28	0.95
131	2147475979	121775059	121899954	383	403	20	1.0	1	100	1	20	1.05
132	2147475979	121899954	121775059	636	659	23	0.9	1	100	1	23	1.04
133	2147475980	121777228	121899955	490	469	-21	1.0	1	100	1	21	0.96
134	2147475980	121899955	121777228	532	532	0	0.0	1	100	1	0	1.00
135	2147476181	121773546	121900055	98	213	115	9.2	0	100	0	115	2.17
136	2147476181	121900055	121773546	92	127	35	3.3	1	100	1	35	1.38
137	2147476185	121768248	121900057	558	584	26	1.1	1	100	1	26	1.05
138	2147476185	121900057	121768248	456	509	53	2.4	1	100	1	53	1.12
139	2147476805	121700632	121900530	955	849	-106	3.5	1	143	1	106	0.89
140	2147476805	121900530	121700632	242	270	28	1.8	1	100	1	28	1.12
141	2147476813	121721159	121900534	1102	734	-368	12.1	0	165	0	368	0.67
142	2147476813	121900534	121721159	407	411	4	0.2	1	100	1	4	1.01
143	2147476816	121769457	121900536	349	433	84	4.2	1	100	1	84	1.24
144	2147476816	121900536	121769457	571	594	23	1.0	1	100	1	23	1.04
145	2147476822	121680740	121900539	761	765	4	0.1	1	114	1	4	1.01
146	2147476822	121900539	121680740	1022	1185	163	4.9	1	153	0	163	1.16
	TOTAL			**56895**	**55022**		**7.9**	**128**		**127**	**7467**	**1.02**

Table 8.17 Link Validation - Light Vehicles (AM Peak)

Link Validation– Light Vehicles				Average AM Peak Period (07-09)								
				Counts:	146		RESULT =	87.7%	RESULT =	88.4%		
				Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	923	121752845	121901372	46	30	-16	2.6	1	100	1	16	0.65
2	923	121901372	121752845	138	143	5	0.4	1	100	1	5	1.04
3	1083	121901480	121901481	448	294	-154	8.0	0	100	0	154	0.66
4	1083	121901481	121901480	462	261	-201	10.6	0	100	0	201	0.56
5	1934	121899882	2000001295	352	419	67	3.4	1	100	1	67	1.19
6	1934	2000001295	121899882	832	656	-176	6.5	0	125	0	176	0.79
7	2022	121725389	2000001550	201	192	-9	0.6	1	100	1	9	0.96
8	2022	2000001550	121725389	211	215	4	0.3	1	100	1	4	1.02
9	2299	121755206	2000001458	263	250	-13	0.8	1	100	1	13	0.95
10	2299	2000001458	121755206	447	432	-15	0.7	1	100	1	15	0.97
11	2353	121749417	2000001488	534	378	-156	7.3	0	100	0	156	0.71
12	2353	2000001488	121749417	294	316	22	1.3	1	100	1	22	1.07
13	2435	4300	2000001517	133	63	-70	7.1	0	100	1	70	0.47
14	2435	2000001517	4300	60	69	9	1.1	1	100	1	9	1.15
15	2459	4196	2000001528	525	542	17	0.7	1	100	1	17	1.03
16	2459	2000001528	4196	320	314	-6	0.3	1	100	1	6	0.98
17	2462	2000001529	2000001710	251	260	9	0.6	1	100	1	9	1.04
18	2462	2000001710	2000001529	405	388	-17	0.9	1	100	1	17	0.96
19	2468	121773591	2000001532	247	144	-103	7.4	0	100	0	103	0.58
20	2468	2000001532	121773591	222	207	-15	1.0	1	100	1	15	0.93
21	2472	4201	2000001534	142	190	48	3.7	1	100	1	48	1.34
22	2472	2000001534	4201	76	75	-1	0.1	1	100	1	1	0.99
23	2559	121659641	2000001587	215	209	-6	0.4	1	100	1	6	0.97
24	2559	2000001587	121659641	464	470	6	0.3	1	100	1	6	1.01
25	2573	2000001595	2000001596	202	150	-52	3.9	1	100	1	52	0.74
26	2573	2000001596	2000001595	232	229	-3	0.2	1	100	1	3	0.99
27	2582	121900745	2000001604	116	101	-15	1.4	1	100	1	15	0.87
28	2582	2000001604	121900745	60	90	30	3.5	1	100	1	30	1.50
29	2616	121899869	2000001617	174	167	-7	0.5	1	100	1	7	0.96
30	2616	2000001617	121899869	90	71	-19	2.1	1	100	1	19	0.79
31	2682	4072	2000001767	36	26	-10	1.8	1	100	1	10	0.72
32	2682	2000001767	4072	42	24	-18	3.1	1	100	1	18	0.57
33	2737	4250	2000001804	213	256	43	2.8	1	100	1	43	1.20
34	2737	2000001804	4250	145	173	28	2.2	1	100	1	28	1.19
35	2738	121828738	2000001805	229	216	-13	0.9	1	100	1	13	0.94
36	2738	2000001805	121828738	126	143	17	1.5	1	100	1	17	1.13

37	2741	121832056	2000001806	136	137	1	0.1	1	100	1	1	1.01
38	2741	2000001806	121832056	90	101	11	1.1	1	100	1	11	1.12
39	2743	121829939	2000001807	59	72	13	1.6	1	100	1	13	1.22
40	2743	2000001807	121829939	93	94	1	0.1	1	100	1	1	1.01
41	2765	4249	2000001824	300	314	14	0.8	1	100	1	14	1.05
42	2765	2000001824	4249	422	382	-40	2.0	1	100	1	40	0.91
43	2798	121784192	2000001843	282	322	40	2.3	1	100	1	40	1.14
44	2798	2000001843	121784192	128	130	2	0.2	1	100	1	2	1.02
45	2832	2000001863	2000001864	244	282	38	2.3	1	100	1	38	1.16
46	2832	2000001864	2000001863	182	159	-23	1.8	1	100	1	23	0.87
47	2977	4046	121899806	237	403	166	9.3	0	100	0	166	1.70
48	2977	121899806	4046	599	342	-257	11.8	0	100	0	257	0.57
49	2979	4046	4219	508	362	-146	7.0	0	100	0	146	0.71
50	2979	4219	4046	203	309	106	6.6	0	100	0	106	1.52
51	2980	4045	121852434	245	250	5	0.3	1	100	1	5	1.02
52	2980	121852434	4045	362	347	-15	0.8	1	100	1	15	0.96
53	3259	4232	4233	218	198	-20	1.4	1	100	1	20	0.91
54	3259	4233	4232	456	400	-56	2.7	1	100	1	56	0.88
55	3630	121871765	2000002142	753	662	-91	3.4	1	113	1	91	0.88
56	3630	2000002142	121871765	361	351	-10	0.5	1	100	1	10	0.97
57	3648	4195	2000002160	586	542	-44	1.9	1	100	1	44	0.92
58	3648	2000002160	4195	358	314	-44	2.4	1	100	1	44	0.88
59	3660	121757588	2000002162	497	481	-16	0.7	1	100	1	16	0.97
60	3660	2000002162	121757588	332	318	-14	0.8	1	100	1	14	0.96
61	4586	121785659	2000034626	487	425	-62	2.9	1	100	1	62	0.87
62	4586	2000034626	121785659	1036	825	-211	6.9	0	155	0	211	0.80
63	46427	121861343	121863572	226	235	9	0.6	1	100	1	9	1.04
64	46427	121863572	121861343	223	226	3	0.2	1	100	1	3	1.01
65	50662	121881193	121885216	555	489	-66	2.9	1	100	1	66	0.88
66	50662	121885216	121881193	582	496	-86	3.7	1	100	1	86	0.85
67	559760552	121830903	121831499	328	387	59	3.1	1	100	1	59	1.18
68	559760552	121831499	121830903	241	282	41	2.5	1	100	1	41	1.17
69	578050679	121724872	121729271	250	222	-28	1.8	1	100	1	28	0.89
70	578050679	121729271	121724872	356	353	-3	0.2	1	100	1	3	0.99
71	590517813	121786711	121787932	411	436	25	1.2	1	100	1	25	1.06
72	590517813	121787932	121786711	982	1072	90	2.8	1	147	1	90	1.09
73	711042758	121586334	121586593	234	230	-4	0.3	1	100	1	4	0.98
74	711042758	121586593	121586334	158	131	-27	2.2	1	100	1	27	0.83
75	711130043	121587308	121587398	230	274	44	2.8	1	100	1	44	1.19
76	711130043	121587398	121587308	1565	1450	-115	3.0	1	235	1	115	0.93
77	720514322	121598360	121601392	654	559	-95	3.9	1	100	1	95	0.85
78	720514322	121601392	121598360	345	262	-83	4.8	1	100	1	83	0.76

79	767282453	121644312	121673876	135	113	-22	2.0	1	100	1	22	0.84
80	767282453	121673876	121644312	1044	856	-188	6.1	0	157	0	188	0.82
81	844382322	121652550	121661497	323	392	69	3.6	1	100	1	69	1.21
82	844382322	121661497	121652550	436	426	-10	0.5	1	100	1	10	0.98
83	895293252	121687282	121693272	1456	981	-475	13.6	0	218	0	475	0.67
84	895293252	121693272	121687282	1134	1141	7	0.2	1	170	1	7	1.01
85	904034183	121687913	121691906	351	299	-52	2.9	1	100	1	52	0.85
86	904034183	121691906	121687913	286	284	-2	0.1	1	100	1	2	0.99
87	981988703	121714422	121714957	1011	931	-80	2.6	1	152	1	80	0.92
88	981988703	121714957	121714422	770	799	29	1.0	1	116	1	29	1.04
89	1077222707	121723857	121729423	432	491	59	2.7	1	100	1	59	1.14
90	1077222707	121729423	121723857	494	519	25	1.1	1	100	1	25	1.05
91	1368085937	121772502	121776622	712	738	26	1.0	1	107	1	26	1.04
92	1368085937	121776622	121772502	387	453	66	3.2	1	100	1	66	1.17
93	1368922148	121774967	121775658	642	693	51	2.0	1	100	1	51	1.08
94	1368922148	121775658	121774967	448	485	37	1.7	1	100	1	37	1.08
95	1373220593	121765951	121775658	417	506	89	4.1	1	100	1	89	1.21
96	1373220593	121775658	121765951	791	884	93	3.2	1	119	1	93	1.12
97	1401350877	121780497	121783108	270	274	4	0.2	1	100	1	4	1.01
98	1401350877	121783108	121780497	170	156	-14	1.1	1	100	1	14	0.92
99	1563388758	121791545	121799086	141	139	-2	0.2	1	100	1	2	0.99
100	1563388758	121799086	121791545	141	109	-32	2.9	1	100	1	32	0.77
101	1634131880	121785703	121807470	303	288	-15	0.9	1	100	1	15	0.95
102	1634131880	121807470	121785703	175	165	-10	0.8	1	100	1	10	0.94
103	1717547348	121822564	121822612	64	153	89	8.5	0	100	1	89	2.39
104	1717547348	121822612	121822564	103	138	35	3.2	1	100	1	35	1.34
105	1762898963	121823999	121825422	350	280	-70	3.9	1	100	1	70	0.80
106	1762898963	121825422	121823999	255	237	-18	1.1	1	100	1	18	0.93
107	1815168897	121829416	121831384	169	173	4	0.3	1	100	1	4	1.02
108	1815168897	121831384	121829416	335	256	-79	4.6	1	100	1	79	0.76
109	1826256902	121828074	121832262	350	305	-45	2.5	1	100	1	45	0.87
110	1826256902	121832262	121828074	879	647	-232	8.4	0	132	0	232	0.74
111	1852997705	121828738	121830100	175	174	-1	0.1	1	100	1	1	0.99
112	1852997705	121830100	121828738	138	131	-7	0.6	1	100	1	7	0.95
113	1856590205	121827651	121834581	157	173	16	1.2	1	100	1	16	1.10
114	1856590205	121834581	121827651	116	140	24	2.1	1	100	1	24	1.21
115	1927644755	121835629	121838293	753	727	-26	1.0	1	113	1	26	0.97
116	1927644755	121838293	121835629	288	301	13	0.8	1	100	1	13	1.05
117	2103858842	121847359	121853834	226	197	-29	2.0	1	100	1	29	0.87
118	2103858842	121853834	121847359	147	141	-6	0.5	1	100	1	6	0.96
119	2147475011	121880890	121899443	201	303	102	6.4	0	100	0	102	1.51
120	2147475011	121899443	121880890	336	259	-77	4.5	1	100	1	77	0.77

121	2147475478	121831912	121899704	299	261	-38	2.3	1	100	1	38	0.87
122	2147475478	121899704	121831912	331	276	-55	3.2	1	100	1	55	0.83
123	2147475491	121873768	121899710	666	641	-25	1.0	1	100	1	25	0.96
124	2147475491	121899710	121873768	211	232	21	1.4	1	100	1	21	1.10
125	2147475725	121848385	121899827	91	52	-39	4.6	1	100	1	39	0.57
126	2147475725	121899827	121848385	116	102	-14	1.3	1	100	1	14	0.88
127	2147475914	121731419	121899922	413	414	1	0.0	1	100	1	1	1.00
128	2147475914	121899922	121731419	300	381	81	4.4	1	100	1	81	1.27
129	2147475943	121886438	121899936	212	226	14	0.9	1	100	1	14	1.07
130	2147475943	121899936	121886438	501	470	-31	1.4	1	100	1	31	0.94
131	2147475979	121775059	121899954	353	360	7	0.4	1	100	1	7	1.02
132	2147475979	121899954	121775059	614	616	2	0.1	1	100	1	2	1.00
133	2147475980	121777228	121899955	453	430	-23	1.1	1	100	1	23	0.95
134	2147475980	121899955	121777228	503	495	-8	0.4	1	100	1	8	0.98
135	2147476181	121773546	121900055	96	207	111	9.0	0	100	0	111	2.16
136	2147476181	121900055	121773546	90	121	31	3.0	1	100	1	31	1.34
137	2147476185	121768248	121900057	541	566	25	1.1	1	100	1	25	1.05
138	2147476185	121900057	121768248	438	488	50	2.3	1	100	1	50	1.11
139	2147476805	121700632	121900530	945	813	-132	4.5	1	142	1	132	0.86
140	2147476805	121900530	121700632	236	231	-5	0.3	1	100	1	5	0.98
141	2147476813	121721159	121900534	1093	714	-379	12.6	0	164	0	379	0.65
142	2147476813	121900534	121721159	402	392	-10	0.5	1	100	1	10	0.98
143	2147476816	121769457	121900536	324	403	79	4.1	1	100	1	79	1.24
144	2147476816	121900536	121769457	545	565	20	0.8	1	100	1	20	1.04
145	2147476822	121680740	121900539	734	737	3	0.1	1	110	1	3	1.00
146	2147476822	121900539	121680740	997	1156	159	4.8	1	150	0	159	1.16
	TOTAL			54482	51995		10.8	128		129	7317	1.00

Table 8.18 Link Validation - Heavy Vehicles (AM Peak)

Link Validation– Heavy Vehicles				Average AM Peak Period (07-09)								
				Counts:	146		RESULT =	96.6%	RESULT =	100%		
				Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	923	121752845	121901372	25	12	13	3.0	1	100	1	13	0.48
2	923	121901372	121752845	24	11	13	3.1	1	100	1	13	0.46
3	1083	121901480	121901481	22	23	-1	0.2	1	100	1	1	1.05
4	1083	121901481	121901480	22	23	-1	0.2	1	100	1	1	1.05
5	1934	121899882	2000001295	17	31	-14	2.9	1	100	1	14	1.82
6	1934	2000001295	121899882	29	23	6	1.2	1	100	1	6	0.79
7	2022	121725389	2000001550	4	7	-3	1.3	1	100	1	3	1.75
8	2022	2000001550	121725389	2	6	-4	2.0	1	100	1	4	3.00
9	2299	121755206	2000001458	18	18	0	0.0	1	100	1	0	1.00
10	2299	2000001458	121755206	20	24	-4	0.9	1	100	1	4	1.20
11	2353	121749417	2000001488	18	25	-7	1.5	1	100	1	7	1.39
12	2353	2000001488	121749417	24	24	0	0.0	1	100	1	0	1.00
13	2435	4300	2000001517	2	6	-4	2.0	1	100	1	4	3.00
14	2435	2000001517	4300	1	5	-4	2.3	1	100	1	4	5.00
15	2459	4196	2000001528	28	30	-2	0.4	1	100	1	2	1.07
16	2459	2000001528	4196	30	32	-2	0.4	1	100	1	2	1.07
17	2462	2000001529	2000001710	28	30	-2	0.4	1	100	1	2	1.07
18	2462	2000001710	2000001529	24	29	-5	1.0	1	100	1	5	1.21
19	2468	121773591	2000001532	20	24	-4	0.9	1	100	1	4	1.20
20	2468	2000001532	121773591	40	27	13	2.2	1	100	1	13	0.68
21	2472	4201	2000001534	4	12	-8	2.8	1	100	1	8	3.00
22	2472	2000001534	4201	7	12	-5	1.6	1	100	1	5	1.71
23	2559	121659641	2000001587	16	34	-18	3.6	1	100	1	18	2.13
24	2559	2000001587	121659641	18	36	-18	3.5	1	100	1	18	2.00
25	2573	2000001595	2000001596	22	25	-3	0.6	1	100	1	3	1.14
26	2573	2000001596	2000001595	19	24	-5	1.1	1	100	1	5	1.26
27	2582	121900745	2000001604	3	6	-3	1.4	1	100	1	3	2.00
28	2582	2000001604	121900745	5	8	-3	1.2	1	100	1	3	1.60
29	2616	121899869	2000001617	4	11	-7	2.6	1	100	1	7	2.75
30	2616	2000001617	121899869	7	12	-5	1.6	1	100	1	5	1.71
31	2682	4072	2000001767	0	2	-2	2.0	1	100	1	2	-
32	2682	2000001767	4072	1	2	-1	0.8	1	100	1	1	2.00
33	2737	4250	2000001804	28	18	10	2.1	1	100	1	10	0.64
34	2737	2000001804	4250	6	14	-8	2.5	1	100	1	8	2.33
35	2738	121828738	2000001805	7	14	-7	2.2	1	100	1	7	2.00
36	2738	2000001805	121828738	6	11	-5	1.7	1	100	1	5	1.83

37	2741	121832056	2000001806	2	9	-7	3.0	1	100	1	7	4.50
38	2741	2000001806	121832056	3	8	-5	2.1	1	100	1	5	2.67
39	2743	121829939	2000001807	2	7	-5	2.4	1	100	1	5	3.50
40	2743	2000001807	121829939	2	6	-4	2.0	1	100	1	4	3.00
41	2765	4249	2000001824	12	15	-3	0.8	1	100	1	3	1.25
42	2765	2000001824	4249	12	15	-3	0.8	1	100	1	3	1.25
43	2798	121784192	2000001843	8	13	-5	1.5	1	100	1	5	1.63
44	2798	2000001843	121784192	8	13	-5	1.5	1	100	1	5	1.63
45	2832	2000001863	2000001864	8	13	-5	1.5	1	100	1	5	1.63
46	2832	2000001864	2000001863	8	12	-4	1.3	1	100	1	4	1.50
47	2977	4046	121899806	11	21	-10	2.5	1	100	1	10	1.91
48	2977	121899806	4046	21	22	-1	0.2	1	100	1	1	1.05
49	2979	4046	4219	21	19	2	0.4	1	100	1	2	0.90
50	2979	4219	4046	14	18	-4	1.0	1	100	1	4	1.29
51	2980	4045	121852434	10	16	-6	1.7	1	100	1	6	1.60
52	2980	121852434	4045	18	17	1	0.2	1	100	1	1	0.94
53	3259	4232	4233	22	40	-18	3.2	1	100	1	18	1.82
54	3259	4233	4232	36	47	-11	1.7	1	100	1	11	1.31
55	3630	121871765	2000002142	16	28	-12	2.6	1	100	1	12	1.75
56	3630	2000002142	121871765	9	23	-14	3.5	1	100	1	14	2.56
57	3648	4195	2000002160	15	30	-15	3.2	1	100	1	15	2.00
58	3648	2000002160	4195	16	32	-16	3.3	1	100	1	16	2.00
59	3660	121757588	2000002162	20	26	-6	1.3	1	100	1	6	1.30
60	3660	2000002162	121757588	12	25	-13	3.0	1	100	1	13	2.08
61	4586	121785659	2000034626	34	9	25	5.4	0	100	1	25	0.26
62	4586	2000034626	121785659	68	6	62	10.2	0	100	1	62	0.09
63	46427	121861343	121863572	13	24	-11	2.6	1	100	1	11	1.85
64	46427	121863572	121861343	20	26	-6	1.3	1	100	1	6	1.30
65	50662	121881193	121885216	28	29	-1	0.2	1	100	1	1	1.04
66	50662	121885216	121881193	38	35	3	0.5	1	100	1	3	0.92
67	559760552	121830903	121831499	5	1	4	2.3	1	100	1	4	0.20
68	559760552	121831499	121830903	2	12	-10	3.8	1	100	1	10	6.00
69	578050679	121724872	121729271	3	16	-13	4.2	1	100	1	13	5.33
70	578050679	121729271	121724872	2	17	-15	4.9	1	100	1	15	8.50
71	590517813	121786711	121787932	17	8	9	2.5	1	100	1	9	0.47
72	590517813	121787932	121786711	97	24	73	9.4	0	100	1	73	0.25
73	711042758	121586334	121586593	2	9	-7	3.0	1	100	1	7	4.50
74	711042758	121586593	121586334	4	10	-6	2.3	1	100	1	6	2.50
75	711130043	121587308	121587398	7	12	-5	1.6	1	100	1	5	1.71
76	711130043	121587398	121587308	30	15	15	3.2	1	100	1	15	0.50
77	720514322	121598360	121601392	36	22	14	2.6	1	100	1	14	0.61
78	720514322	121601392	121598360	32	29	3	0.5	1	100	1	3	0.91

79	767282453	121644312	121673876	11	24	-13	3.1	1	100	1	13	2.18
80	767282453	121673876	121644312	22	27	-5	1.0	1	100	1	5	1.23
81	844382322	121652550	121661497	30	35	-5	0.9	1	100	1	5	1.17
82	844382322	121661497	121652550	34	36	-2	0.3	1	100	1	2	1.06
83	895293252	121687282	121693272	28	55	-27	4.2	1	100	1	27	1.96
84	895293252	121693272	121687282	18	36	-18	3.5	1	100	1	18	2.00
85	904034183	121687913	121691906	6	16	-10	3.0	1	100	1	10	2.67
86	904034183	121691906	121687913	12	22	-10	2.4	1	100	1	10	1.83
87	981988703	121714422	121714957	31	19	12	2.4	1	100	1	12	0.61
88	981988703	121714957	121714422	38	20	18	3.3	1	100	1	18	0.53
89	1077222707	121723857	121729423	16	26	-10	2.2	1	100	1	10	1.63
90	1077222707	121729423	121723857	15	24	-9	2.0	1	100	1	9	1.60
91	1368085937	121772502	121776622	19	25	-6	1.3	1	100	1	6	1.32
92	1368085937	121776622	121772502	20	29	-9	1.8	1	100	1	9	1.45
93	1368922148	121774967	121775658	16	25	-9	2.0	1	100	1	9	1.56
94	1368922148	121775658	121774967	25	29	-4	0.8	1	100	1	4	1.16
95	1373220593	121765951	121775658	20	33	-13	2.5	1	100	1	13	1.65
96	1373220593	121775658	121765951	23	29	-6	1.2	1	100	1	6	1.26
97	1401350877	121780497	121783108	6	14	-8	2.5	1	100	1	8	2.33
98	1401350877	121783108	121780497	10	16	-6	1.7	1	100	1	6	1.60
99	1563388758	121791545	121799086	9	10	-1	0.3	1	100	1	1	1.11
100	1563388758	121799086	121791545	9	11	-2	0.6	1	100	1	2	1.22
101	1634131880	121785703	121807470	31	39	-8	1.4	1	100	1	8	1.26
102	1634131880	121807470	121785703	27	34	-7	1.3	1	100	1	7	1.26
103	1717547348	121822564	121822612	4	15	-11	3.6	1	100	1	11	3.75
104	1717547348	121822612	121822564	6	18	-12	3.5	1	100	1	12	3.00
105	1762898963	121823999	121825422	14	18	-4	1.0	1	100	1	4	1.29
106	1762898963	121825422	121823999	16	19	-3	0.7	1	100	1	3	1.19
107	1815168897	121829416	121831384	11	14	-3	0.8	1	100	1	3	1.27
108	1815168897	121831384	121829416	22	18	4	0.9	1	100	1	4	0.82
109	1826256902	121828074	121832262	10	14	-4	1.2	1	100	1	4	1.40
110	1826256902	121832262	121828074	14	14	0	0.0	1	100	1	0	1.00
111	1852997705	121828738	121830100	11	18	-7	1.8	1	100	1	7	1.64
112	1852997705	121830100	121828738	16	23	-7	1.6	1	100	1	7	1.44
113	1856590205	121827651	121834581	8	19	-11	3.0	1	100	1	11	2.38
114	1856590205	121834581	121827651	18	23	-5	1.1	1	100	1	5	1.28
115	1927644755	121835629	121838293	13	20	-7	1.7	1	100	1	7	1.54
116	1927644755	121838293	121835629	10	20	-10	2.6	1	100	1	10	2.00
117	2103858842	121847359	121853834	16	18	-2	0.5	1	100	1	2	1.13
118	2103858842	121853834	121847359	18	18	0	0.0	1	100	1	0	1.00
119	2147475011	121880890	121899443	15	28	-13	2.8	1	100	1	13	1.87
120	2147475011	121899443	121880890	18	27	-9	1.9	1	100	1	9	1.50

121	2147475478	121831912	121899704	9	17	-8	2.2	1	100	1	8	1.89
122	2147475478	121899704	121831912	14	16	-2	0.5	1	100	1	2	1.14
123	2147475491	121873768	121899710	11	11	0	0.0	1	100	1	0	1.00
124	2147475491	121899710	121873768	8	12	-4	1.3	1	100	1	4	1.50
125	2147475725	121848385	121899827	3	10	-7	2.7	1	100	1	7	3.33
126	2147475725	121899827	121848385	3	9	-6	2.4	1	100	1	6	3.00
127	2147475914	121731419	121899922	15	20	-5	1.2	1	100	1	5	1.33
128	2147475914	121899922	121731419	12	24	-12	2.8	1	100	1	12	2.00
129	2147475943	121886438	121899936	10	27	-17	4.0	1	100	1	17	2.70
130	2147475943	121899936	121886438	27	30	-3	0.6	1	100	1	3	1.11
131	2147475979	121775059	121899954	30	43	-13	2.2	1	100	1	13	1.43
132	2147475979	121899954	121775059	22	43	-21	3.7	1	100	1	21	1.95
133	2147475980	121777228	121899955	37	39	-2	0.3	1	100	1	2	1.05
134	2147475980	121899955	121777228	29	37	-8	1.4	1	100	1	8	1.28
135	2147476181	121773546	121900055	2	6	-4	2.0	1	100	1	4	3.00
136	2147476181	121900055	121773546	2	6	-4	2.0	1	100	1	4	3.00
137	2147476185	121768248	121900057	17	18	-1	0.2	1	100	1	1	1.06
138	2147476185	121900057	121768248	18	21	-3	0.7	1	100	1	3	1.17
139	2147476805	121700632	121900530	10	36	-26	5.4	0	100	1	26	3.60
140	2147476805	121900530	121700632	6	39	-33	7.0	0	100	1	33	6.50
141	2147476813	121721159	121900534	9	20	-11	2.9	1	100	1	11	2.22
142	2147476813	121900534	121721159	5	19	-14	4.0	1	100	1	14	3.80
143	2147476816	121769457	121900536	25	30	-5	1.0	1	100	1	5	1.20
144	2147476816	121900536	121769457	26	29	-3	0.6	1	100	1	3	1.12
145	2147476822	121680740	121900539	27	28	-1	0.2	1	100	1	1	1.04
146	2147476822	121900539	121680740	25	29	-4	0.8	1	100	1	4	1.16
	TOTAL			2413	3027		11.8	141		146	1214	1.78

Table 8.19 Link Validation - All Vehicles (Inter Peak)

Link Validation - All Vehicles				Average Inter Peak Period (12-14)								
				Counts:	146		RESULT =	86.3%	RESULT =	92.5%		
				Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	923	121752845	121901372	98	73	-25	2.7	1	100	1	25	0.74
2	923	121901372	121752845	94	65	-29	3.3	1	100	1	29	0.69
3	1083	121901480	121901481	247	255	8	0.5	1	100	1	8	1.03
4	1083	121901481	121901480	249	247	-2	0.1	1	100	1	2	0.99
5	1934	121899882	2000001295	498	450	-48	2.2	1	100	1	48	0.90
6	1934	2000001295	121899882	414	439	25	1.2	1	100	1	25	1.06
7	2022	121725389	2000001550	140	155	15	1.2	1	100	1	15	1.11
8	2022	2000001550	121725389	123	153	30	2.6	1	100	1	30	1.24
9	2299	121755206	2000001458	272	316	44	2.6	1	100	1	44	1.16
10	2299	2000001458	121755206	263	335	72	4.2	1	100	1	72	1.27
11	2353	121749417	2000001488	234	251	17	1.1	1	100	1	17	1.07
12	2353	2000001488	121749417	233	266	33	2.1	1	100	1	33	1.14
13	2435	4300	2000001517	110	124	14	1.3	1	100	1	14	1.13
14	2435	2000001517	4300	121	114	-7	0.6	1	100	1	7	0.94
15	2459	4196	2000001528	259	258	-1	0.1	1	100	1	1	1.00
16	2459	2000001528	4196	258	257	-1	0.1	1	100	1	1	1.00
17	2462	2000001529	2000001710	219	218	-1	0.1	1	100	1	1	1.00
18	2462	2000001710	2000001529	228	218	-10	0.7	1	100	1	10	0.96
19	2468	121773591	2000001532	205	153	-52	3.9	1	100	1	52	0.75
20	2468	2000001532	121773591	222	134	-88	6.6	0	100	1	88	0.60
21	2472	4201	2000001534	97	106	9	0.9	1	100	1	9	1.09
22	2472	2000001534	4201	90	96	6	0.6	1	100	1	6	1.07
23	2559	121659641	2000001587	241	351	110	6.4	0	100	0	110	1.46
24	2559	2000001587	121659641	237	273	36	2.3	1	100	1	36	1.15
25	2573	2000001595	2000001596	158	132	-26	2.2	1	100	1	26	0.84
26	2573	2000001596	2000001595	165	127	-38	3.1	1	100	1	38	0.77
27	2582	121900745	2000001604	75	89	14	1.5	1	100	1	14	1.19
28	2582	2000001604	121900745	83	85	2	0.2	1	100	1	2	1.02
29	2616	121899869	2000001617	114	132	18	1.6	1	100	1	18	1.16
30	2616	2000001617	121899869	143	160	17	1.4	1	100	1	17	1.12
31	2682	4072	2000001767	60	31	-29	4.3	1	100	1	29	0.52
32	2682	2000001767	4072	57	19	-38	6.2	0	100	1	38	0.33
33	2737	4250	2000001804	120	211	91	7.1	0	100	1	91	1.76
34	2737	2000001804	4250	129	203	74	5.7	0	100	1	74	1.57
35	2738	121828738	2000001805	116	165	49	4.1	1	100	1	49	1.42
36	2738	2000001805	121828738	117	161	44	3.7	1	100	1	44	1.38

37	2741	121832056	2000001806	97	118	21	2.0	1	100	1	21	1.22
38	2741	2000001806	121832056	98	122	24	2.3	1	100	1	24	1.24
39	2743	121829939	2000001807	60	99	39	4.4	1	100	1	39	1.65
40	2743	2000001807	121829939	60	93	33	3.8	1	100	1	33	1.55
41	2765	4249	2000001824	214	227	13	0.9	1	100	1	13	1.06
42	2765	2000001824	4249	228	260	32	2.0	1	100	1	32	1.14
43	2798	121784192	2000001843	119	188	69	5.6	0	100	1	69	1.58
44	2798	2000001843	121784192	103	200	97	7.9	0	100	1	97	1.94
45	2832	2000001863	2000001864	156	200	44	3.3	1	100	1	44	1.28
46	2832	2000001864	2000001863	156	155	-1	0.1	1	100	1	1	0.99
47	2977	4046	121899806	250	255	5	0.3	1	100	1	5	1.02
48	2977	121899806	4046	227	279	52	3.3	1	100	1	52	1.23
49	2979	4046	4219	228	226	-2	0.1	1	100	1	2	0.99
50	2979	4219	4046	246	204	-42	2.8	1	100	1	42	0.83
51	2980	4045	121852434	241	162	-79	5.6	0	100	1	79	0.67
52	2980	121852434	4045	238	146	-92	6.6	0	100	1	92	0.61
53	3259	4232	4233	269	288	19	1.1	1	100	1	19	1.07
54	3259	4233	4232	252	214	-38	2.5	1	100	1	38	0.85
55	3630	121871765	2000002142	356	382	26	1.4	1	100	1	26	1.07
56	3630	2000002142	121871765	399	422	23	1.1	1	100	1	23	1.06
57	3648	4195	2000002160	193	258	65	4.3	1	100	1	65	1.34
58	3648	2000002160	4195	262	257	-5	0.3	1	100	1	5	0.98
59	3660	121757588	2000002162	315	388	73	3.9	1	100	1	73	1.23
60	3660	2000002162	121757588	341	421	80	4.1	1	100	1	80	1.23
61	4586	121785659	2000034626	446	350	-96	4.8	1	100	1	96	0.78
62	4586	2000034626	121785659	418	325	-93	4.8	1	100	1	93	0.78
63	46427	121861343	121863572	203	170	-33	2.4	1	100	1	33	0.84
64	46427	121863572	121861343	207	165	-42	3.1	1	100	1	42	0.80
65	50662	121881193	121885216	393	428	35	1.7	1	100	1	35	1.09
66	50662	121885216	121881193	393	408	15	0.7	1	100	1	15	1.04
67	559760552	121830903	121831499	239	287	48	3.0	1	100	1	48	1.20
68	559760552	121831499	121830903	314	342	28	1.5	1	100	1	28	1.09
69	578050679	121724872	121729271	328	288	-40	2.3	1	100	1	40	0.88
70	578050679	121729271	121724872	301	246	-55	3.3	1	100	1	55	0.82
71	590517813	121786711	121787932	582	628	46	1.9	1	100	1	46	1.08
72	590517813	121787932	121786711	558	623	65	2.7	1	100	1	65	1.12
73	711042758	121586334	121586593	180	193	13	1.0	1	100	1	13	1.07
74	711042758	121586593	121586334	226	198	-28	1.9	1	100	1	28	0.88
75	711130043	121587308	121587398	448	415	-33	1.6	1	100	1	33	0.93
76	711130043	121587398	121587308	370	445	75	3.7	1	100	1	75	1.20
77	720514322	121598360	121601392	385	330	-55	2.9	1	100	1	55	0.86
78	720514322	121601392	121598360	423	374	-49	2.5	1	100	1	49	0.88

79	767282453	121644312	121673876	288	150	-138	9.3	0	100	0	138	0.52
80	767282453	121673876	121644312	243	259	16	1.0	1	100	1	16	1.07
81	844382322	121652550	121661497	310	397	87	4.6	1	100	1	87	1.28
82	844382322	121661497	121652550	288	382	94	5.1	0	100	1	94	1.33
83	895293252	121687282	121693272	986	957	-29	0.9	1	148	1	29	0.97
84	895293252	121693272	121687282	1078	941	-137	4.3	1	162	1	137	0.87
85	904034183	121687913	121691906	225	209	-16	1.1	1	100	1	16	0.93
86	904034183	121691906	121687913	230	227	-3	0.2	1	100	1	3	0.99
87	981988703	121714422	121714957	815	661	-154	5.7	0	122	0	154	0.81
88	981988703	121714957	121714422	692	600	-92	3.6	1	100	1	92	0.87
89	1077222707	121723857	121729423	366	457	91	4.5	1	100	1	91	1.25
90	1077222707	121729423	121723857	394	499	105	5.0	1	100	0	105	1.27
91	1368085937	121772502	121776622	432	428	-4	0.2	1	100	1	4	0.99
92	1368085937	121776622	121772502	420	425	5	0.2	1	100	1	5	1.01
93	1368922148	121774967	121775658	403	407	4	0.2	1	100	1	4	1.01
94	1368922148	121775658	121774967	362	392	30	1.5	1	100	1	30	1.08
95	1373220593	121765951	121775658	423	473	50	2.4	1	100	1	50	1.12
96	1373220593	121775658	121765951	463	493	30	1.4	1	100	1	30	1.06
97	1401350877	121780497	121783108	229	177	-52	3.6	1	100	1	52	0.77
98	1401350877	121783108	121780497	261	209	-52	3.4	1	100	1	52	0.80
99	1563388758	121791545	121799086	122	126	4	0.4	1	100	1	4	1.03
100	1563388758	121799086	121791545	116	139	23	2.0	1	100	1	23	1.20
101	1634131880	121785703	121807470	172	253	81	5.6	0	100	1	81	1.47
102	1634131880	121807470	121785703	190	216	26	1.8	1	100	1	26	1.14
103	1717547348	121822564	121822612	53	180	127	11.8	0	100	0	127	3.40
104	1717547348	121822612	121822564	73	173	100	9.0	0	100	0	100	2.37
105	1762898963	121823999	121825422	257	239	-18	1.1	1	100	1	18	0.93
106	1762898963	121825422	121823999	246	242	-4	0.3	1	100	1	4	0.98
107	1815168897	121829416	121831384	222	203	-19	1.3	1	100	1	19	0.91
108	1815168897	121831384	121829416	222	211	-11	0.7	1	100	1	11	0.95
109	1826256902	121828074	121832262	366	234	-132	7.6	0	100	0	132	0.64
110	1826256902	121832262	121828074	357	271	-86	4.9	1	100	1	86	0.76
111	1852997705	121828738	121830100	139	149	10	0.8	1	100	1	10	1.07
112	1852997705	121830100	121828738	131	134	3	0.3	1	100	1	3	1.02
113	1856590205	121827651	121834581	165	169	4	0.3	1	100	1	4	1.02
114	1856590205	121834581	121827651	132	142	10	0.9	1	100	1	10	1.08
115	1927644755	121835629	121838293	296	372	76	4.2	1	100	1	76	1.26
116	1927644755	121838293	121835629	294	376	82	4.5	1	100	1	82	1.28
117	2103858842	121847359	121853834	160	211	51	3.7	1	100	1	51	1.32
118	2103858842	121853834	121847359	157	193	36	2.7	1	100	1	36	1.23
119	2147475011	121880890	121899443	200	249	49	3.3	1	100	1	49	1.25
120	2147475011	121899443	121880890	191	241	50	3.4	1	100	1	50	1.26

121	2147475478	121831912	121899704	212	268	56	3.6	1	100	1	56	1.26
122	2147475478	121899704	121831912	235	238	3	0.2	1	100	1	3	1.01
123	2147475491	121873768	121899710	314	253	-61	3.6	1	100	1	61	0.81
124	2147475491	121899710	121873768	355	301	-54	3.0	1	100	1	54	0.85
125	2147475725	121848385	121899827	81	62	-19	2.2	1	100	1	19	0.77
126	2147475725	121899827	121848385	88	85	-3	0.3	1	100	1	3	0.97
127	2147475914	121731419	121899922	310	340	30	1.7	1	100	1	30	1.10
128	2147475914	121899922	121731419	308	363	55	3.0	1	100	1	55	1.18
129	2147475943	121886438	121899936	261	263	2	0.1	1	100	1	2	1.01
130	2147475943	121899936	121886438	257	272	15	0.9	1	100	1	15	1.06
131	2147475979	121775059	121899954	311	319	8	0.5	1	100	1	8	1.03
132	2147475979	121899954	121775059	309	297	-12	0.7	1	100	1	12	0.96
133	2147475980	121777228	121899955	316	277	-39	2.3	1	100	1	39	0.88
134	2147475980	121899955	121777228	303	262	-41	2.4	1	100	1	41	0.86
135	2147476181	121773546	121900055	66	181	115	10.3	0	100	0	115	2.74
136	2147476181	121900055	121773546	57	196	139	12.4	0	100	0	139	3.44
137	2147476185	121768248	121900057	390	409	19	1.0	1	100	1	19	1.05
138	2147476185	121900057	121768248	359	400	41	2.1	1	100	1	41	1.11
139	2147476805	121700632	121900530	368	429	61	3.1	1	100	1	61	1.17
140	2147476805	121900530	121700632	381	392	11	0.6	1	100	1	11	1.03
141	2147476813	121721159	121900534	462	453	-9	0.4	1	100	1	9	0.98
142	2147476813	121900534	121721159	489	459	-30	1.4	1	100	1	30	0.94
143	2147476816	121769457	121900536	361	432	71	3.6	1	100	1	71	1.20
144	2147476816	121900536	121769457	336	504	168	8.2	0	100	0	168	1.50
145	2147476822	121680740	121900539	531	615	84	3.5	1	100	1	84	1.16
146	2147476822	121900539	121680740	555	756	201	7.9	0	100	0	201	1.36
	TOTAL			39195	40893		8.5	126		135	6484	1.11

Table 8.20 Link Validation - Light Vehicles (Inter Peak)

Link Validation – Light Vehicles				Average Inter Peak Period (12-14)								
				Counts:	146		RESULT =	86.3%	RESULT =	93.6%		
				Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	923	121752845	121901372	67	62	-5	0.6	1	100	1	5	0.93
2	923	121901372	121752845	61	52	-9	1.2	1	100	1	9	0.85
3	1083	121901480	121901481	222	223	1	0.1	1	100	1	1	1.00
4	1083	121901481	121901480	223	223	0	0.0	1	100	1	0	1.00
5	1934	121899882	2000001295	480	422	-58	2.7	1	100	1	58	0.88
6	1934	2000001295	121899882	399	409	10	0.5	1	100	1	10	1.03
7	2022	121725389	2000001550	138	145	7	0.6	1	100	1	7	1.05
8	2022	2000001550	121725389	121	143	22	1.9	1	100	1	22	1.18
9	2299	121755206	2000001458	252	296	44	2.7	1	100	1	44	1.17
10	2299	2000001458	121755206	243	313	70	4.2	1	100	1	70	1.29
11	2353	121749417	2000001488	211	222	11	0.7	1	100	1	11	1.05
12	2353	2000001488	121749417	211	235	24	1.6	1	100	1	24	1.11
13	2435	4300	2000001517	108	118	10	0.9	1	100	1	10	1.09
14	2435	2000001517	4300	118	107	-11	1.0	1	100	1	11	0.91
15	2459	4196	2000001528	228	228	0	0.0	1	100	1	0	1.00
16	2459	2000001528	4196	228	224	-4	0.3	1	100	1	4	0.98
17	2462	2000001529	2000001710	190	186	-4	0.3	1	100	1	4	0.98
18	2462	2000001710	2000001529	198	190	-8	0.6	1	100	1	8	0.96
19	2468	121773591	2000001532	189	124	-65	5.2	0	100	1	65	0.66
20	2468	2000001532	121773591	189	108	-81	6.6	0	100	1	81	0.57
21	2472	4201	2000001534	90	94	4	0.4	1	100	1	4	1.04
22	2472	2000001534	4201	83	83	0	0.0	1	100	1	0	1.00
23	2559	121659641	2000001587	222	323	101	6.1	0	100	0	101	1.45
24	2559	2000001587	121659641	220	243	23	1.5	1	100	1	23	1.10
25	2573	2000001595	2000001596	135	110	-25	2.3	1	100	1	25	0.81
26	2573	2000001596	2000001595	138	104	-34	3.1	1	100	1	34	0.75
27	2582	121900745	2000001604	71	82	11	1.3	1	100	1	11	1.15
28	2582	2000001604	121900745	80	76	-4	0.5	1	100	1	4	0.95
29	2616	121899869	2000001617	113	118	5	0.5	1	100	1	5	1.04
30	2616	2000001617	121899869	141	146	5	0.4	1	100	1	5	1.04
31	2682	4072	2000001767	59	29	-30	4.5	1	100	1	30	0.49
32	2682	2000001767	4072	56	17	-39	6.5	0	100	1	39	0.30
33	2737	4250	2000001804	105	191	86	7.1	0	100	1	86	1.82
34	2737	2000001804	4250	123	182	59	4.8	1	100	1	59	1.48
35	2738	121828738	2000001805	110	148	38	3.3	1	100	1	38	1.35
36	2738	2000001805	121828738	112	143	31	2.7	1	100	1	31	1.28

37	2741	121832056	2000001806	93	105	12	1.2	1	100	1	12	1.13
38	2741	2000001806	121832056	96	108	12	1.2	1	100	1	12	1.13
39	2743	121829939	2000001807	58	88	30	3.5	1	100	1	30	1.52
40	2743	2000001807	121829939	57	83	26	3.1	1	100	1	26	1.46
41	2765	4249	2000001824	199	209	10	0.7	1	100	1	10	1.05
42	2765	2000001824	4249	212	240	28	1.9	1	100	1	28	1.13
43	2798	121784192	2000001843	112	172	60	5.0	0	100	1	60	1.54
44	2798	2000001843	121784192	96	182	86	7.3	0	100	1	86	1.90
45	2832	2000001863	2000001864	148	188	40	3.1	1	100	1	40	1.27
46	2832	2000001864	2000001863	149	144	-5	0.4	1	100	1	5	0.97
47	2977	4046	121899806	233	232	-1	0.1	1	100	1	1	1.00
48	2977	121899806	4046	214	256	42	2.7	1	100	1	42	1.20
49	2979	4046	4219	213	206	-7	0.5	1	100	1	7	0.97
50	2979	4219	4046	228	183	-45	3.1	1	100	1	45	0.80
51	2980	4045	121852434	229	144	-85	6.2	0	100	1	85	0.63
52	2980	121852434	4045	223	127	-96	7.3	0	100	1	96	0.57
53	3259	4232	4233	242	237	-5	0.3	1	100	1	5	0.98
54	3259	4233	4232	218	165	-53	3.8	1	100	1	53	0.76
55	3630	121871765	2000002142	344	357	13	0.7	1	100	1	13	1.04
56	3630	2000002142	121871765	386	391	5	0.3	1	100	1	5	1.01
57	3648	4195	2000002160	181	228	47	3.3	1	100	1	47	1.26
58	3648	2000002160	4195	245	224	-21	1.4	1	100	1	21	0.91
59	3660	121757588	2000002162	296	360	64	3.5	1	100	1	64	1.22
60	3660	2000002162	121757588	326	397	71	3.7	1	100	1	71	1.22
61	4586	121785659	2000034626	418	340	-78	4.0	1	100	1	78	0.81
62	4586	2000034626	121785659	392	315	-77	4.1	1	100	1	77	0.80
63	46427	121861343	121863572	186	142	-44	3.4	1	100	1	44	0.76
64	46427	121863572	121861343	190	138	-52	4.1	1	100	1	52	0.73
65	50662	121881193	121885216	369	405	36	1.8	1	100	1	36	1.10
66	50662	121885216	121881193	364	382	18	0.9	1	100	1	18	1.05
67	559760552	121830903	121831499	236	285	49	3.0	1	100	1	49	1.21
68	559760552	121831499	121830903	312	322	10	0.6	1	100	1	10	1.03
69	578050679	121724872	121729271	325	273	-52	3.0	1	100	1	52	0.84
70	578050679	121729271	121724872	299	229	-70	4.3	1	100	1	70	0.77
71	590517813	121786711	121787932	560	616	56	2.3	1	100	1	56	1.10
72	590517813	121787932	121786711	512	609	97	4.1	1	100	1	97	1.19
73	711042758	121586334	121586593	178	184	6	0.4	1	100	1	6	1.03
74	711042758	121586593	121586334	224	188	-36	2.5	1	100	1	36	0.84
75	711130043	121587308	121587398	435	400	-35	1.7	1	100	1	35	0.92
76	711130043	121587398	121587308	358	431	73	3.7	1	100	1	73	1.20
77	720514322	121598360	121601392	348	301	-47	2.6	1	100	1	47	0.86
78	720514322	121601392	121598360	393	349	-44	2.3	1	100	1	44	0.89

79	767282453	121644312	121673876	260	127	-133	9.6	0	100	0	133	0.49
80	767282453	121673876	121644312	222	228	6	0.4	1	100	1	6	1.03
81	844382322	121652550	121661497	274	333	59	3.4	1	100	1	59	1.22
82	844382322	121661497	121652550	257	322	65	3.8	1	100	1	65	1.25
83	895293252	121687282	121693272	953	916	-37	1.2	1	143	1	37	0.96
84	895293252	121693272	121687282	1049	900	-149	4.8	1	157	1	149	0.86
85	904034183	121687913	121691906	218	190	-28	2.0	1	100	1	28	0.87
86	904034183	121691906	121687913	220	210	-10	0.7	1	100	1	10	0.95
87	981988703	121714422	121714957	785	644	-141	5.3	0	118	0	141	0.82
88	981988703	121714957	121714422	664	589	-75	3.0	1	100	1	75	0.89
89	1077222707	121723857	121729423	352	430	78	3.9	1	100	1	78	1.22
90	1077222707	121729423	121723857	382	472	90	4.4	1	100	1	90	1.24
91	1368085937	121772502	121776622	408	396	-12	0.6	1	100	1	12	0.97
92	1368085937	121776622	121772502	403	392	-11	0.6	1	100	1	11	0.97
93	1368922148	121774967	121775658	375	373	-2	0.1	1	100	1	2	0.99
94	1368922148	121775658	121774967	343	357	14	0.7	1	100	1	14	1.04
95	1373220593	121765951	121775658	405	435	30	1.5	1	100	1	30	1.07
96	1373220593	121775658	121765951	440	455	15	0.7	1	100	1	15	1.03
97	1401350877	121780497	121783108	222	159	-63	4.6	1	100	1	63	0.72
98	1401350877	121783108	121780497	253	193	-60	4.0	1	100	1	60	0.76
99	1563388758	121791545	121799086	114	114	0	0.0	1	100	1	0	1.00
100	1563388758	121799086	121791545	107	127	20	1.8	1	100	1	20	1.19
101	1634131880	121785703	121807470	144	219	75	5.6	0	100	1	75	1.52
102	1634131880	121807470	121785703	157	177	20	1.5	1	100	1	20	1.13
103	1717547348	121822564	121822612	50	154	104	10.3	0	100	0	104	3.08
104	1717547348	121822612	121822564	65	145	80	7.8	0	100	1	80	2.23
105	1762898963	121823999	121825422	237	214	-23	1.5	1	100	1	23	0.90
106	1762898963	121825422	121823999	233	217	-16	1.1	1	100	1	16	0.93
107	1815168897	121829416	121831384	210	182	-28	2.0	1	100	1	28	0.87
108	1815168897	121831384	121829416	211	191	-20	1.4	1	100	1	20	0.91
109	1826256902	121828074	121832262	351	217	-134	8.0	0	100	0	134	0.62
110	1826256902	121832262	121828074	341	252	-89	5.2	0	100	1	89	0.74
111	1852997705	121828738	121830100	123	123	0	0.0	1	100	1	0	1.00
112	1852997705	121830100	121828738	115	109	-6	0.6	1	100	1	6	0.95
113	1856590205	121827651	121834581	147	144	-3	0.2	1	100	1	3	0.98
114	1856590205	121834581	121827651	117	117	0	0.0	1	100	1	0	1.00
115	1927644755	121835629	121838293	282	349	67	3.8	1	100	1	67	1.24
116	1927644755	121838293	121835629	283	352	69	3.9	1	100	1	69	1.24
117	2103858842	121847359	121853834	145	192	47	3.6	1	100	1	47	1.32
118	2103858842	121853834	121847359	143	174	31	2.5	1	100	1	31	1.22
119	2147475011	121880890	121899443	181	210	29	2.1	1	100	1	29	1.16
120	2147475011	121899443	121880890	174	204	30	2.2	1	100	1	30	1.17

121	2147475478	121831912	121899704	200	247	47	3.1	1	100	1	47	1.24
122	2147475478	121899704	121831912	220	218	-2	0.1	1	100	1	2	0.99
123	2147475491	121873768	121899710	304	238	-66	4.0	1	100	1	66	0.78
124	2147475491	121899710	121873768	345	289	-56	3.1	1	100	1	56	0.84
125	2147475725	121848385	121899827	77	48	-29	3.7	1	100	1	29	0.62
126	2147475725	121899827	121848385	85	73	-12	1.4	1	100	1	12	0.86
127	2147475914	121731419	121899922	298	314	16	0.9	1	100	1	16	1.05
128	2147475914	121899922	121731419	294	340	46	2.6	1	100	1	46	1.16
129	2147475943	121886438	121899936	248	226	-22	1.4	1	100	1	22	0.91
130	2147475943	121899936	121886438	241	232	-9	0.6	1	100	1	9	0.96
131	2147475979	121775059	121899954	285	267	-18	1.1	1	100	1	18	0.94
132	2147475979	121899954	121775059	280	243	-37	2.3	1	100	1	37	0.87
133	2147475980	121777228	121899955	282	227	-55	3.4	1	100	1	55	0.80
134	2147475980	121899955	121777228	268	212	-56	3.6	1	100	1	56	0.79
135	2147476181	121773546	121900055	63	174	111	10.2	0	100	0	111	2.76
136	2147476181	121900055	121773546	55	189	134	12.1	0	100	0	134	3.44
137	2147476185	121768248	121900057	366	385	19	1.0	1	100	1	19	1.05
138	2147476185	121900057	121768248	343	376	33	1.7	1	100	1	33	1.10
139	2147476805	121700632	121900530	360	418	58	2.9	1	100	1	58	1.16
140	2147476805	121900530	121700632	375	380	5	0.3	1	100	1	5	1.01
141	2147476813	121721159	121900534	456	433	-23	1.1	1	100	1	23	0.95
142	2147476813	121900534	121721159	479	441	-38	1.8	1	100	1	38	0.92
143	2147476816	121769457	121900536	328	400	72	3.8	1	100	1	72	1.22
144	2147476816	121900536	121769457	309	474	165	8.3	0	100	0	165	1.53
145	2147476822	121680740	121900539	501	572	71	3.1	1	100	1	71	1.14
146	2147476822	121900539	121680740	528	713	185	7.4	0	100	0	185	1.35
	TOTAL			36836	37487		3.4	126		137	6037	1.07

Table 8.21 Link Validation - Heavy Vehicles (Inter Peak)

Link Validation – Heavy Vehicles				Average Inter Peak Period (12-14)								
				Counts:	146		RESULT =	97.9%	RESULT =	100%		
				Total Traffic			REQD =	85%	REQD =	85%		
No.	Link No.	From Node	To Node	Observed	Modelled	Diff	GEH Test		Flow Test		Abs Diff	Factor
1	923	121752845	121901372	31	11	-20	4.4	1	100	1	20	0.35
2	923	121901372	121752845	33	13	-20	4.2	1	100	1	20	0.39
3	1083	121901480	121901481	25	32	7	1.3	1	100	1	7	1.28
4	1083	121901481	121901480	26	24	-2	0.4	1	100	1	2	0.92
5	1934	121899882	2000001295	18	28	10	2.1	1	100	1	10	1.56
6	1934	2000001295	121899882	15	30	15	3.2	1	100	1	15	2.00
7	2022	121725389	2000001550	2	10	8	3.3	1	100	1	8	5.00
8	2022	2000001550	121725389	2	10	8	3.3	1	100	1	8	5.00
9	2299	121755206	2000001458	20	20	0	0.0	1	100	1	0	1.00
10	2299	2000001458	121755206	20	22	2	0.4	1	100	1	2	1.10
11	2353	121749417	2000001488	23	29	6	1.2	1	100	1	6	1.26
12	2353	2000001488	121749417	22	31	9	1.7	1	100	1	9	1.41
13	2435	4300	2000001517	2	6	4	2.0	1	100	1	4	3.00
14	2435	2000001517	4300	3	7	4	1.8	1	100	1	4	2.33
15	2459	4196	2000001528	31	30	-1	0.2	1	100	1	1	0.97
16	2459	2000001528	4196	30	33	3	0.5	1	100	1	3	1.10
17	2462	2000001529	2000001710	29	32	3	0.5	1	100	1	3	1.10
18	2462	2000001710	2000001529	30	28	-2	0.4	1	100	1	2	0.93
19	2468	121773591	2000001532	16	29	13	2.7	1	100	1	13	1.81
20	2468	2000001532	121773591	33	26	-7	1.3	1	100	1	7	0.79
21	2472	4201	2000001534	7	12	5	1.6	1	100	1	5	1.71
22	2472	2000001534	4201	7	13	6	1.9	1	100	1	6	1.86
23	2559	121659641	2000001587	19	28	9	1.9	1	100	1	9	1.47
24	2559	2000001587	121659641	17	30	13	2.7	1	100	1	13	1.76
25	2573	2000001595	2000001596	23	22	-1	0.2	1	100	1	1	0.96
26	2573	2000001596	2000001595	27	23	-4	0.8	1	100	1	4	0.85
27	2582	121900745	2000001604	4	7	3	1.3	1	100	1	3	1.75
28	2582	2000001604	121900745	3	9	6	2.4	1	100	1	6	3.00
29	2616	121899869	2000001617	1	14	13	4.7	1	100	1	13	14.00
30	2616	2000001617	121899869	2	14	12	4.2	1	100	1	12	7.00
31	2682	4072	2000001767	1	2	1	0.8	1	100	1	1	2.00
32	2682	2000001767	4072	1	2	1	0.8	1	100	1	1	2.00
33	2737	4250	2000001804	15	20	5	1.2	1	100	1	5	1.33
34	2737	2000001804	4250	6	21	15	4.1	1	100	1	15	3.50
35	2738	121828738	2000001805	6	17	11	3.2	1	100	1	11	2.83
36	2738	2000001805	121828738	5	18	13	3.8	1	100	1	13	3.60

37	2741	121832056	2000001806	4	13	9	3.1	1	100	1	9	3.25
38	2741	2000001806	121832056	2	14	12	4.2	1	100	1	12	7.00
39	2743	121829939	2000001807	2	11	9	3.5	1	100	1	9	5.50
40	2743	2000001807	121829939	3	10	7	2.7	1	100	1	7	3.33
41	2765	4249	2000001824	15	18	3	0.7	1	100	1	3	1.20
42	2765	2000001824	4249	16	20	4	0.9	1	100	1	4	1.25
43	2798	121784192	2000001843	7	16	9	2.7	1	100	1	9	2.29
44	2798	2000001843	121784192	7	18	11	3.1	1	100	1	11	2.57
45	2832	2000001863	2000001864	8	12	4	1.3	1	100	1	4	1.50
46	2832	2000001864	2000001863	7	11	4	1.3	1	100	1	4	1.57
47	2977	4046	121899806	17	23	6	1.3	1	100	1	6	1.35
48	2977	121899806	4046	13	23	10	2.4	1	100	1	10	1.77
49	2979	4046	4219	15	20	5	1.2	1	100	1	5	1.33
50	2979	4219	4046	18	21	3	0.7	1	100	1	3	1.17
51	2980	4045	121852434	12	18	6	1.5	1	100	1	6	1.50
52	2980	121852434	4045	15	19	4	1.0	1	100	1	4	1.27
53	3259	4232	4233	27	51	24	3.8	1	100	1	24	1.89
54	3259	4233	4232	34	49	15	2.3	1	100	1	15	1.44
55	3630	121871765	2000002142	12	25	13	3.0	1	100	1	13	2.08
56	3630	2000002142	121871765	13	31	18	3.8	1	100	1	18	2.38
57	3648	4195	2000002160	12	30	18	3.9	1	100	1	18	2.50
58	3648	2000002160	4195	17	33	16	3.2	1	100	1	16	1.94
59	3660	121757588	2000002162	19	28	9	1.9	1	100	1	9	1.47
60	3660	2000002162	121757588	15	24	9	2.0	1	100	1	9	1.60
61	4586	121785659	2000034626	28	10	-18	4.1	1	100	1	18	0.36
62	4586	2000034626	121785659	26	10	-16	3.8	1	100	1	16	0.38
63	46427	121861343	121863572	17	28	11	2.3	1	100	1	11	1.65
64	46427	121863572	121861343	17	27	10	2.1	1	100	1	10	1.59
65	50662	121881193	121885216	24	23	-1	0.2	1	100	1	1	0.96
66	50662	121885216	121881193	29	26	-3	0.6	1	100	1	3	0.90
67	559760552	121830903	121831499	3	2	-1	0.6	1	100	1	1	0.67
68	559760552	121831499	121830903	2	20	18	5.4	0	100	1	18	10.00
69	578050679	121724872	121729271	3	15	12	4.0	1	100	1	12	5.00
70	578050679	121729271	121724872	2	17	15	4.9	1	100	1	15	8.50
71	590517813	121786711	121787932	22	12	-10	2.4	1	100	1	10	0.55
72	590517813	121787932	121786711	46	14	-32	5.8	0	100	1	32	0.30
73	711042758	121586334	121586593	2	9	7	3.0	1	100	1	7	4.50
74	711042758	121586593	121586334	2	10	8	3.3	1	100	1	8	5.00
75	711130043	121587308	121587398	13	15	2	0.5	1	100	1	2	1.15
76	711130043	121587398	121587308	12	14	2	0.6	1	100	1	2	1.17
77	720514322	121598360	121601392	37	29	-8	1.4	1	100	1	8	0.78
78	720514322	121601392	121598360	30	25	-5	1.0	1	100	1	5	0.83

79	767282453	121644312	121673876	28	23	-5	1.0	1	100	1	5	0.82
80	767282453	121673876	121644312	21	31	10	2.0	1	100	1	10	1.48
81	844382322	121652550	121661497	36	64	28	4.0	1	100	1	28	1.78
82	844382322	121661497	121652550	31	60	29	4.3	1	100	1	29	1.94
83	895293252	121687282	121693272	33	41	8	1.3	1	100	1	8	1.24
84	895293252	121693272	121687282	29	41	12	2.0	1	100	1	12	1.41
85	904034183	121687913	121691906	7	19	12	3.3	1	100	1	12	2.71
86	904034183	121691906	121687913	10	17	7	1.9	1	100	1	7	1.70
87	981988703	121714422	121714957	30	17	-13	2.7	1	100	1	13	0.57
88	981988703	121714957	121714422	28	11	-17	3.8	1	100	1	17	0.39
89	1077222707	121723857	121729423	14	27	13	2.9	1	100	1	13	1.93
90	1077222707	121729423	121723857	12	27	15	3.4	1	100	1	15	2.25
91	1368085937	121772502	121776622	24	32	8	1.5	1	100	1	8	1.33
92	1368085937	121776622	121772502	17	33	16	3.2	1	100	1	16	1.94
93	1368922148	121774967	121775658	28	34	6	1.1	1	100	1	6	1.21
94	1368922148	121775658	121774967	19	35	16	3.1	1	100	1	16	1.84
95	1373220593	121765951	121775658	18	38	20	3.8	1	100	1	20	2.11
96	1373220593	121775658	121765951	23	38	15	2.7	1	100	1	15	1.65
97	1401350877	121780497	121783108	7	18	11	3.1	1	100	1	11	2.57
98	1401350877	121783108	121780497	8	16	8	2.3	1	100	1	8	2.00
99	1563388758	121791545	121799086	8	12	4	1.3	1	100	1	4	1.50
100	1563388758	121799086	121791545	9	12	3	0.9	1	100	1	3	1.33
101	1634131880	121785703	121807470	28	34	6	1.1	1	100	1	6	1.21
102	1634131880	121807470	121785703	33	39	6	1.0	1	100	1	6	1.18
103	1717547348	121822564	121822612	3	26	23	6.0	0	100	1	23	8.67
104	1717547348	121822612	121822564	8	28	20	4.7	1	100	1	20	3.50
105	1762898963	121823999	121825422	20	25	5	1.1	1	100	1	5	1.25
106	1762898963	121825422	121823999	13	25	12	2.8	1	100	1	12	1.92
107	1815168897	121829416	121831384	12	21	9	2.2	1	100	1	9	1.75
108	1815168897	121831384	121829416	11	20	9	2.3	1	100	1	9	1.82
109	1826256902	121828074	121832262	15	17	2	0.5	1	100	1	2	1.13
110	1826256902	121832262	121828074	16	19	3	0.7	1	100	1	3	1.19
111	1852997705	121828738	121830100	16	26	10	2.2	1	100	1	10	1.63
112	1852997705	121830100	121828738	16	25	9	2.0	1	100	1	9	1.56
113	1856590205	121827651	121834581	18	25	7	1.5	1	100	1	7	1.39
114	1856590205	121834581	121827651	15	25	10	2.2	1	100	1	10	1.67
115	1927644755	121835629	121838293	14	23	9	2.1	1	100	1	9	1.64
116	1927644755	121838293	121835629	11	24	13	3.1	1	100	1	13	2.18
117	2103858842	121847359	121853834	15	19	4	1.0	1	100	1	4	1.27
118	2103858842	121853834	121847359	14	19	5	1.2	1	100	1	5	1.36
119	2147475011	121880890	121899443	19	39	20	3.7	1	100	1	20	2.05
120	2147475011	121899443	121880890	17	37	20	3.8	1	100	1	20	2.18

121	2147475478	121831912	121899704	12	21	9	2.2	1	100	1	9	1.75
122	2147475478	121899704	121831912	15	20	5	1.2	1	100	1	5	1.33
123	2147475491	121873768	121899710	10	15	5	1.4	1	100	1	5	1.50
124	2147475491	121899710	121873768	10	12	2	0.6	1	100	1	2	1.20
125	2147475725	121848385	121899827	4	14	10	3.3	1	100	1	10	3.50
126	2147475725	121899827	121848385	3	12	9	3.3	1	100	1	9	4.00
127	2147475914	121731419	121899922	12	26	14	3.2	1	100	1	14	2.17
128	2147475914	121899922	121731419	14	23	9	2.1	1	100	1	9	1.64
129	2147475943	121886438	121899936	13	37	24	4.8	1	100	1	24	2.85
130	2147475943	121899936	121886438	16	40	24	4.5	1	100	1	24	2.50
131	2147475979	121775059	121899954	26	52	26	4.2	1	100	1	26	2.00
132	2147475979	121899954	121775059	29	54	25	3.9	1	100	1	25	1.86
133	2147475980	121777228	121899955	34	50	16	2.5	1	100	1	16	1.47
134	2147475980	121899955	121777228	35	50	15	2.3	1	100	1	15	1.43
135	2147476181	121773546	121900055	3	7	4	1.8	1	100	1	4	2.33
136	2147476181	121900055	121773546	2	7	5	2.4	1	100	1	5	3.50
137	2147476185	121768248	121900057	24	24	0	0.0	1	100	1	0	1.00
138	2147476185	121900057	121768248	16	24	8	1.8	1	100	1	8	1.50
139	2147476805	121700632	121900530	8	11	3	1.0	1	100	1	3	1.38
140	2147476805	121900530	121700632	6	12	6	2.0	1	100	1	6	2.00
141	2147476813	121721159	121900534	6	20	14	3.9	1	100	1	14	3.33
142	2147476813	121900534	121721159	10	18	8	2.1	1	100	1	8	1.80
143	2147476816	121769457	121900536	33	32	-1	0.2	1	100	1	1	0.97
144	2147476816	121900536	121769457	27	30	3	0.6	1	100	1	3	1.11
145	2147476822	121680740	121900539	30	43	13	2.2	1	100	1	13	1.43
146	2147476822	121900539	121680740	27	43	16	2.7	1	100	1	16	1.59
	TOTAL			2359	3406		19.5	143		146	1421	2.11

Table 8.22 Rail Validation – Link Flow

Rail Link Flow Validation		Counts : 127 Total Pax			RESULT = 94% REQD = 85%	
Description	Link Number	Obs	Mod	> 150 PAX	Within 25%	Web TAG TEST
Ennis to Sixmilebridge	2053	255	234	1	-8.2%	1
Sixmilebridge to Ennis	2053	252	251	1	-0.4%	1
Galway to Oranmore	2419	1260	1024	1	-18.7%	1
Oranmore to Galway	2419	1199	1082	1	-9.8%	1
Docklands to Drumcondra	2423	1515	1340	1	-11.6%	1
Drumcondra to Docklands	2423	1326	1248	1	-5.9%	1
Castleknock to Navan Road Parkway	2901	7955	6997	1	-12.0%	1
Navan Road Parkway to Castleknock	2901	8567	7169	1	-16.3%	1
Clondalkin to Adamstown	3001	9487	8469	1	-10.7%	1
Adamstown to Clondalkin	3001	9877	9600	1	-2.8%	1
Hazelhatch and Celbridge to Sallins and Naas	3003	9202	8201	1	-10.9%	1
Sallins and Naas to Hazelhatch and Celbridge	3003	9571	9318	1	-2.6%	1
Monasterevin to Portarlington	3005	5869	5038	1	-14.2%	1
Portarlington to Monasterevin	3005	5651	6046	1	7.0%	1
Dun Laoghaire to Sandycove	3008	9364	9298	1	-0.7%	1
Sandycove to Dun Laoghaire	3008	9782	9841	1	0.6%	1
Dundalk to NI	3012	1309	1015	1	-22.5%	1
NI to Dundalk	3012	1011	1010	1	-0.1%	1
Little Island to Glounthaune	3016	1632	1627	1	-0.3%	1
Glounthaune to Little Island	3016	1495	1792	1	19.9%	1
Glounthaune to Carrigtwohill	3018	674	698	1	3.6%	1
Carrigtwohill to Glounthaune	3018	740	756	1	2.2%	1
Fota to Carrigaline	3020	812	853	1	5.0%	1
Carrigaline to Fota	3020	747	941	1	26.0%	0
Killiney to Shankill	3022	6129	5755	1	-6.1%	1
Shankill to Killiney	3022	6251	6255	1	0.1%	1
Gort to Ennis	3025	185	131	1	-29.2%	0
Ennis to Gort	3025	124	94	0	-24.2%	
Ardrahan to Gort	3029	179	148	1	-17.3%	1
Gort to Ardrahan	3029	124	102	0	-17.7%	
Leixlip C to Leixlip LB	3031	4859	4242	1	-12.7%	1
Leixlip LB to Leixlip C	3031	4683	4052	1	-13.5%	1
Drogheda to Laytown	3033	2206	2135	1	-3.2%	1
Laytown to Drogheda	3033	2272	1891	1	-16.8%	1
Gormanstown to Balbriggan	3035	2671	2511	1	-6.0%	1
Balbriggan to Gormanstown	3035	2648	2210	1	-16.5%	1
Skerries to Rush	3037	5383	5256	1	-2.4%	1
Rush to Skerries	3037	5342	5003	1	-6.3%	1
Donabate to Malahide	3039	7263	7070	1	-2.7%	1
Malahide to Donabate	3039	7350	6926	1	-5.8%	1
Howth junction to Kilbarrack	3042	15807	15241	1	-3.6%	1
Kilbarrack to Howth Junction	3042	14356	13693	1	-4.6%	1
Raheny to Harmonstown	3044	18265	18182	1	-0.5%	1
Harmonstown to Raheny	3044	16909	16631	1	-1.6%	1
Killester to Clontarf Road	3046	21201	20870	1	-1.6%	1
Clontarf Road to Killester	3046	19706	19011	1	-3.5%	1
Tara Street to Pearse	3048	20222	23156	1	14.5%	1
Pearse to Tara Street	3048	20132	22428	1	11.4%	1
Grand Canal Dock to Lansdowne Road	3050	16345	18470	1	13.0%	1
Lansdowne Road to Grand Canal Dock	3050	16796	16970	1	1.0%	1
Sandymount to Sydney Parade	3052	14574	16315	1	11.9%	1
Sydney Parade to Sandymount	3052	15397	15657	1	1.7%	1
Booterstown to Blackrock	3054	13497	14446	1	7.0%	1
Blackrock to Booterstown	3054	14403	14162	1	-1.7%	1
Seapoint to Salthill	3056	11744	11962	1	1.9%	1
Salthill to Seapoint	3056	12374	12071	1	-2.4%	1
Bayside to Howth Junction	3058	3287	3500	1	6.5%	1
Howth Junction to Bayside	3058	2734	2988	1	9.3%	1
Howth to Sutton	3060	1240	1291	1	4.1%	1
Sutton to Howth	3060	1138	1169	1	2.7%	1
Parkwest and City Orchard to Clondalkin	3062	9493	8543	1	-10.0%	1

Clondalkin to Parkwest and City Orchard	3062	9873	9687	1	-1.9%	1
Newbridge to Kildare	3064	7806	6616	1	-15.2%	1
Kildare to Newbridge	3064	7390	7678	1	3.9%	1
Carlow to Muine Bheag	3066	724	630	1	-13.0%	1
Muine Bheag to Carlow	3066	847	762	1	-10.0%	1
Thomastown to Kilkenny	3069	504	442	1	-12.3%	1
Kilkenny to Thomastown	3069	412	385	1	-6.6%	1
Wexford to Rosslare Strand	3077	60	25	0	-58.3%	
Rosslare Strand to Wexford	3077	27	38	0	40.7%	
Gorey to Enniscorthy	3079	142	135	0	-4.9%	
Enniscorthy to Gorey	3079	106	101	0	-4.7%	
Rathdrum to Arklow	3081	358	327	1	-8.7%	1
Arklow to Rathdrum	3081	238	254	1	6.7%	1
Kilcoole to Wicklow	3083	554	500	1	-9.7%	1
Wicklow to Kilcoole	3083	437	472	1	8.0%	1
Bray to Greystones	3085	2248	2030	1	-9.7%	1
Greystones to Bray	3085	2345	2215	1	-5.5%	1
Thomastown to Waterford	3087	356	339	1	-4.8%	1
Waterford to Thomastown	3087	461	392	1	-15.0%	1
Carrick-on-Suir to Clonmel	3090	32	24	0	-25.0%	
Clonmel to Carrick-on-Suir	3090	19	36	0	89.5%	
Cahir to Tipperary	3092	53	94	0	77.4%	
Tipperary to Cahir	3092	32	67	0	109.4%	
Limerick Junction to Charleville	3097	1855	2050	1	10.5%	1
Charleville to Limerick Junction	3097	1905	2311	1	21.3%	1
Carrigaline to Rushbrooke	3099	791	769	1	-2.8%	1
Rushbrooke to Carrigaline	3099	723	850	1	17.6%	1
Cork to Mallow	3102	1908	2757	1	44.5%	0
Mallow to Cork	3102	1845	2620	1	42.0%	0
Banteer to MillStreet	3104	525	410	1	-21.9%	1
MillStreet to Banteer	3104	484	598	1	23.6%	1
Rathmore to Killarney	3106	474	397	1	-16.2%	1
Killarney to Rathmore	3106	430	541	1	25.8%	0
Farranfore to Tralee	3108	258	224	1	-13.2%	1
Tralee to Farranfore	3108	205	316	1	54.1%	0
Portlaoise to Ballybrophy	3111	3019	2460	1	-18.5%	1
Ballybrophy to Portlaoise	3111	3039	3299	1	8.6%	1
Templemore to Thurles	3113	2856	2289	1	-19.9%	1
Thurles to Templemore	3113	2870	3032	1	5.6%	1
Ballybrophy to Roscrea	3118	12	37	0	208.3%	
Roscrea to Ballybrophy	3118	9	88	0	877.8%	
Cloughjordan to Nenagh	3120	11	21	0	90.9%	
Nenagh to Cloughjordan	3120	9	46	0	411.1%	
Birdhill to Castleconnell	3122	13	25	0	92.3%	
Castleconnell to Birdhill	3122	11	11	0	0.0%	
Limerick Junction (2) to Limerick	3124	906	878	1	-3.1%	1
Limerick to Limerick Junction (2)	3124	825	1146	1	38.9%	0
Portlaoise to Portarlington	3127	3524	4104	1	16.5%	1
Portarlington to Portlaoise	3127	3472	3158	1	-9.0%	1
Tullamore to Clara	3129	1751	1381	1	-21.1%	1
Clara to Tullamore	3129	1559	1394	1	-10.6%	1
Ballinasloe to Woodlawn	3131	914	881	1	-3.6%	1
Woodlawn to Ballinasloe	3131	919	767	1	-16.5%	1
Attymon to Athenry	3133	943	908	1	-3.7%	1
Athenry to Attymon	3133	944	789	1	-16.4%	1
Roscommon to Athlone	3135	514	416	1	-19.1%	1
Athlone to Roscommon	3135	525	414	1	-21.1%	1
Castlerea to Ballyhaunis	3137	412	355	1	-13.8%	1
Ballyhaunis to Castlerea	3137	417	367	1	-12.0%	1
Claremorris to Manulla Junction	3139	352	313	1	-11.1%	1
Manulla Junction to Claremorris	3139	309	305	1	-1.3%	1
Castlebar to Westport	3141	153	109	1	-28.8%	0
Westport to Castlebar	3141	101	169	0	67.3%	
Foxford to Ballina	3143	62	120	0	93.5%	
Ballina to Foxford	3143	62	102	0	64.5%	
Ballymote to Collooney	3145	374	387	1	3.5%	1
Collooney to Ballymote	3145	470	425	1	-9.6%	1

Carrick on Shannon to Boyle	3147	419	431	1	2.9%	1
Boyle to Carrick on Shannon	3147	495	419	1	-15.4%	1
Longford to Dromod	3149	545	536	1	-1.7%	1
Dromod to Longford	3149	624	511	1	-18.1%	1
Mullingar to Edgeworthstown	3151	826	848	1	2.7%	1
Edgeworthstown to Mullingar	3151	882	765	1	-13.3%	1
Kilcock to Enfield	3153	1316	1177	1	-10.6%	1
Enfield to Kilcock	3153	1325	1087	1	-18.0%	1
Coolmine to Clonsilla	3155	7004	6059	1	-13.5%	1
Clonsilla to Coolmine	3155	6432	5773	1	-10.2%	1
Boombridge to Ashtown	3158	9524	7626	1	-19.9%	1
Ashtown to Boombridge	3158	8647	7608	1	-12.0%	1
Howth Junction to Clongriffin	3298	10614	10169	1	-4.2%	1
Clongriffin to Howth Junction	3298	11738	11232	1	-4.3%	1
Portmarnock to Clongriffin	3325	10598	10520	1	-0.7%	1
Clongriffin to Portmarnock	3325	9741	9562	1	-1.8%	1
Athenry to Oranmore	3327	1181	1064	1	-9.9%	1
Oranmore to Athenry	3327	1223	1016	1	-16.9%	1
Total	**597,759**	**588,076**		**12.6**	**119**	**127**

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