North Yorkshire County Council

CATTERICK TRAFFIC MODEL

Traffic Forecasting Report – Future Forecast Years

APRIL 2020

CONFIDENTIAL

North Yorkshire **County Council**

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Traffic Forecasting Report – Future Forecast Years

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Traffic Forecasting Report – Future Forecast Years

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1. INTRODUCTION

1.1. BACKGROUND

Richmondshire District Council (RDC) is preparing a Review of the Local Plan which will include a Masterplan for the growth of Catterick Garrison.

RDC wishes to test the transport impacts of the proposed development of the sites in Catterick Garrison. The Strategic Highway Model is required to assist NYCC's transport and development teams to review and determine the transport impacts of proposed Garrison developments

North Yorkshire County Council commissioned its transport consultants, WSP, to develop a new Strategic Highway Model (SHM) for the area covering the areas of covering the areas of Easby, Hipswell, Colburn, Scotton, Tunstall, Vimy Barracks located to the south of Richmond town centre and Catterick.

WSP has completed the 2019 base year model built for Catterick Garrison. The details of the base year model build are included in the of a Local Model Validation Report.

As part of the commission, along the base year model build, WSP was commissioned to build two future year models based on the Key stages agreed in the Inception Report (v04, 2018). The key stages are

- Stage 2 – Development of Reference Forecast Future year model
  A Reference Forecast Future year model has been developed as a basis for testing the forecast
  This model run is referred to as 2035 Do-Minimum (2035 DM) in this report.
- Stage 3- Development of Future year test 1
  This model run is referred to as 2035 Do-Something (2035 DS) in this report.

This report summarises the results for the 2035 DM and 2035 DS future year test and highlights the potential high-level impact the on the performance of the local highway network.

1.2. STRUCTURE OF REPORT

The subsequent content of this report is structured as follows: (to be updated)

- Chapter 2 – Overview of 2019 base year model;
- Chapter 3 – Overview of forecasting process;
- Chapter 4 – Forecasting inputs and assumptions;
- Chapter 5 – Matrix changes.
- Chapter 6 – 2035 Traffic model results, including operational analysis, journey time results and delay.
- Chapter 7 – Summary

1.3. REFERENCE TO PREVIOUS REPORTS

The following reports previously shared with NYCC and RDC are referenced in this report where appropriate.

- 2019 Base model LMVR – issued March 2020
- Inception Report – June 2018

2. OVERVIEW OF BASE YEAR MODEL

2.1. BACKGROUND

This section of the report provides a brief overview of the validated Base Year Traffic Model (2019) and its principal features. A more comprehensive description of the model development and validation process can be found in the Local Model Validation Report, March 2020.

2.2. STUDY AREA

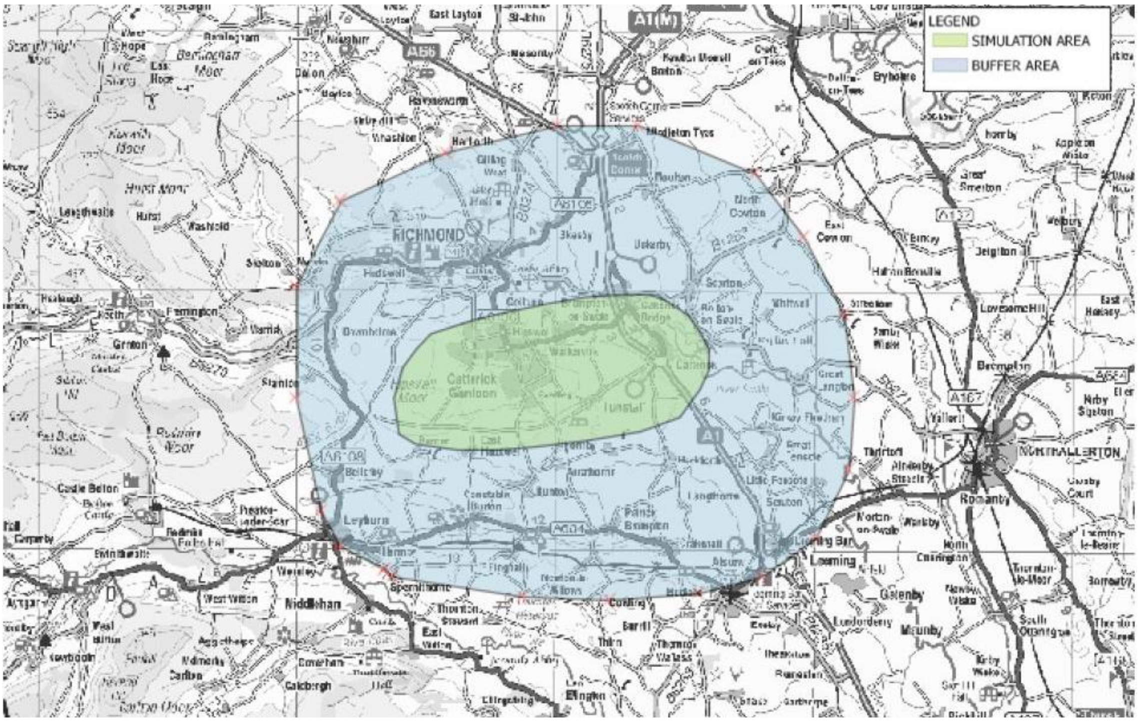
A study area has been defined to cover Catterick Garrison and Catterick Village as shown in Figure 2-1.

The area highlighted in green shows the extents of the core modelling area (simulation area) where the highway network and junctions have been coded in detail. It provided a sufficient area of detailed modelling to allow developments to be rigorously tested within and in proximity to areas of interest.

The area highlighted in blue shows extents of the immediate (local) buffer modelling area where the highway network has been coded in less detail. Including these areas within the local buffer area allows coverage of highway network in the adjacent metropolitan areas to adequately model them as destination choices. The remainder of Richmondshire District forms an area of skeletal network coverage (strategic roads only) to allow connection to the rest of the country and other areas in the country.

It should be noted that although the junctions outside the simulation area have not been modelled in as much detail, the model will accurately assess route choice. The ‘buffer area’ thus provides an accurate assessment of route choice to / from the simulation area but does not provide a detailed assessment of those junctions.

Figure 2-1 - Study Area



The simulation area extends east of Catterick Village up to the River swale and up to Brompton on Swale to the north. To the south the simulation area extends up to south of Moor Lane covering the villages of Scotton and Tunstall. To the west the simulation area extends up to Range Road covering the areas of Vimy Barracks and the Catterick Golf Club.

2.3. MODELLED PERIODS

As agreed with NYCC, the models have been developed for the base year 2019 that represent three peak hours for an average weekday, which covers:

- AM peak hour model (0730-0830);
- Average inter-peak period model (1000-1600); and
- PM peak hour model (1630-1730).

2.4. ASSIGNMENT USER CLASSES

In accordance with Section 2.6 of WebTAG M3.1**Error! Bookmark not defined.**, five vehicle/user classes have been modelled in the Catterick Traffic Model as below:

- Car – Employer Business;
- Car – Commuting;
- Car – Others;
- Light Goods Vehicles (LGV); and
- Heavy Goods Vehicles (HGV) including OGV1, OGV2

2.5. MODEL PLATFORM

The validation of the Catterick Traffic Model has been undertaken using SATURN v11.4.07H software to fulfil the objectives identified in the brief and is consistent with the version of the software used in the 2019 Base year model.

SATURN is the most established highway assignment modelling software in the UK due to its enhanced simulation routines.

Further, it has the ability to interact with other software packages, including software focussed on demand modelling and GIS software for presentation purposes.

3. OVERVIEW OF FORECASTING PROCESS

3.1. OVERVIEW

This chapter provides an overview of the traffic forecasting processes used in creating the 2035 Do-Minimum scenario. The approach to forecasting was outlined in the Proposed Model Scope and Fees Report submitted in July 2016 and Inception note in June 2018 which was agreed with NYCC and SDC.

Forecast year models are used to predicts the impact of the transport schemes and developments. The modelling software and version used I the same as the base year model to align with the consistency of modelling parameters.

3.2. FORECAST YEARS AND TIME PERIODS

The base year for the Catterick Model is 2019, as defined in the LMVR.

The three modelled time periods (summarised in section 2.3 of this report) identified in the base year model remained unchanged in the forecasting.

The forecast year of 2035 has been developed as agreed in the inception report. Two scenarios have been developed as part of the 2035 forecast year assessment; namely

§ Stage 2 – Development of Reference Forecast Future year model
A Reference Forecast Future year model has been developed as a basis for testing the forecast
This model run is referred to as 2035 Do-Minimum (2035 DM) in this report.

§ Stage 3- Development of Future year test 1
Develop a future year model based on the above Reference Forecast Future year model plus the Garrison growth to identify its likely effects on the highway network.
This model run is referred to as 2035 Do-Something (2035 DS) in this report.

3.3. OVERVIEW OF DEMAND FORECASTING PROCEDURES

The demand forecasting procedure involves applying growth to the validated base year demand matrices. Growth in demand is a reflection of local planning information and national forecasts and as such TEMPRO growth for car trips whilst NTM growth was applied to goods vehicle trips.
Forecast Time Periods and Years

The forecasting is intended to estimate the impact on the highway network of major developments mostly likely to be developed by year 2035.

Future year demand estimates have been based on a number of elements, including:

§ The general growth in travel demands due to changes in population, employment, income and car ownership;
§ The specific changes in travel associated with new developments; and
§ Changes in goods vehicle movements relating to future land use patterns and economic activity.

Future year growth assumptions were therefore derived using data from a number of sources, including:

- Planning data on developments and transport schemes from provided by NYCC and RDC to be used in the definition of future year scenarios;
- The latest (version 7.2) National Trip End Model (NTEM) and TEMPRO software;
- Transport Assessments (TA) for large developments;
- The National Transport Model (NTM) for goods vehicle growth.

3.4. SCENARIO BUILDING

The process of defining scenarios was aided by the creation of a structured uncertainty log, as recommended in WebTAG Unit M4 – 'Forecasting and Uncertainty'. This guidance recognises the uncertainty associated with future assumptions on transport demand (i.e. residential and employment developments) and supply (network changes) and provides advice on how this might be accommodated in traffic growth projections. WebTAG Unit M42 recommends categorising each identified development or intervention in terms of the probability of it being delivered; this is achieved using the definitions shown below in Table 3-1.

Table 3-1 - Uncertainty Log: Classification of Inputs

Probability of the Input	Status
(1) Near Certain: The outcome will happen or there is a high probability that it will happen	Intent announced by proponent to regulatory agencies Approved development proposals Projects under construction
(2) More than Likely: The outcome is likely to happen but there is some uncertainty	Submission of planning or consent application imminent Development application within the consent process
(3) Reasonably foreseeable: The outcome may happen, but there is a significant uncertainty	Identified with a development plan, not directly associated with the transport strategy / scheme but may occur if the strategy / scheme is implemented, Development conditional on the transport strategy / scheme proceeding Or, a committed policy goal, subject to tests (e.g.> of deliverability) whose outcomes are subject to significant uncertainty
(4) Hypothetical: There is considerable uncertainty whether the outcome will ever happen	Conjecture based upon currently available information, Discussed on a conceptual basis, One of a number of possible inputs in an initial consultation process, Or, a policy aspiration

In keeping with this guidance, RDC provided WSP a development log which summarised the "most likely" and "near certain" sites within the detailed study area for residential and employment land use to be developed in the Study area by 2035.

Other than the highway improvements that will be provided as part of a development, there were no standalone highway improvements identified for modelling in the 2035 DM test scenario.

3.5. DEVELOPMENT TRIP ENDS

The development log was provided by RDC which provided the information on the details of each site and the planning status of the various sites.

For the sites which had planning applications the relevant transport documents were downloaded from the RDC's planning portal and the trip rate/ trips were identified where available.

The development log summarises the trip rate and the development buildout rates for each of the developments. The log also categorised the developments based on the following parameters.

- Development type – Residential / Employments
- Planning Status – permission / allocation

For developments which did not provide information on trip rates (including the Inter Peak), TRICS, an industry standard program developed to estimate trip ends from various land use types, was used. These trip rates were agreed with NYCC/ RDC.

Appendix A summarises the developments in the 2035 DM and 2035 DS scenarios and the TRICS reports are included in Appendix B.

4. FORECASTING INPUTS AND ASSUMPTIONS

4.1. BACKGROUND

The previous chapter described the processes adopted for determining the developments that were mostly likely to be completed by the forecast year of 2035. This chapter sets out the assumptions and inputs into these forecasts.

4.2. TRAFFIC FORECASTING

The demand matrices for the forecast year have been derived by merging the background traffic matrices with the development traffic matrices. TEMPRO growth factors have been applied to the calibrated base year matrices at the origin-destination level to create background traffic matrices.

Development trip matrices have then been developed by estimating trip generation of developments by land use and applying trip distributions from a set of donor zones with similar land uses. The methodology for development trips is included in Section 3 of this report.

The model development process considers one forecast year scenario (2035) for the AM, IP and PM peak hour assessments. The 2035 forecast traffic levels were estimated by applying growth factors to the 2019 base model matrices. These growth factors were derived from the Department for Transport's TEMPRO program (Trip End Model Presentation Program) Version 7.2.

The overall traffic growth (i.e. including development related traffic) between the 2019 base year and 2035 forecast year the time periods assessments has been *controlled* to TEMPRO in the 2035 DM scenario.

For the 2035 DS scenario the forecasts *are not* controlled to TEMPRO to allow a robust assessment of the impact of development on the highway network.

Where there have been consented developments agreed, TEMPRO factors have been adjusted to account for these added trips, before being controlled to TEMPRO.

The growth factors presented in the following table provide an indication of the growth at different geographical levels. The growth factors as applied to the 2019 base year matrices are presented in Appendix C.

Table 4-1 compares the growth factors for Richmond against counties in North Yorkshire and national forecasts.

Table 4-1 - AM, IP and PM Peak forecast growth factors: 2019- 2035

	AM		IP		PM	
	Orig.	Dest.	Orig.	Dest.	Orig.	Dest.
Hambleton	1.0421	1.0826	1.0788	1.0763	1.072	1.0456
Harrogate	1.0703	1.0861	1.094	1.0922	1.0796	1.0696
Richmondshire	1.0535	1.0829	1.079	1.0776	1.073	1.054
Humberside	1.1155	1.116	1.1229	1.1229	1.1105	1.1103
North Yorkshire	1.0824	1.0885	1.095	1.0946	1.0834	1.0793
West Yorkshire	1.1435	1.1411	1.1624	1.1625	1.141	1.1425
South East	1.1224	1.1265	1.1661	1.1659	1.1279	1.1256
South West	1.1116	1.1116	1.1311	1.1311	1.1105	1.1105
North East	1.1233	1.1233	1.1251	1.1251	1.1174	1.1174
North West	1.1137	1.1137	1.1209	1.1209	1.1091	1.1091

Orig. = Origins; Dest. = Destinations

Figure 4-1, Figure 4-2 and Figure 4-3 summarise the comparison of the growth for the Richmondshire area in comparison to the national average for the AM peak, inter-peak and PM Peak respectively. Overall, it can be observed that the growth projections for Richmondshire district are lower than the projections for the North Yorkshire County for the period 2019-2035.

Figure 4-1 - AM growth comparison

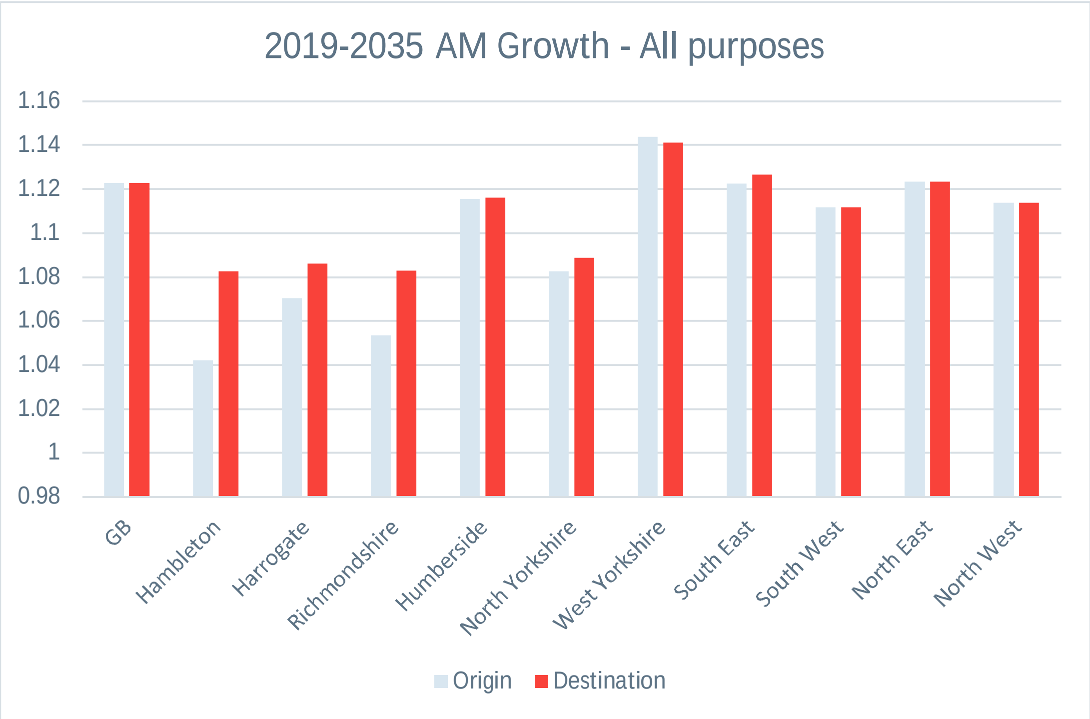


Figure 4-2 - Inter-peak growth comparison

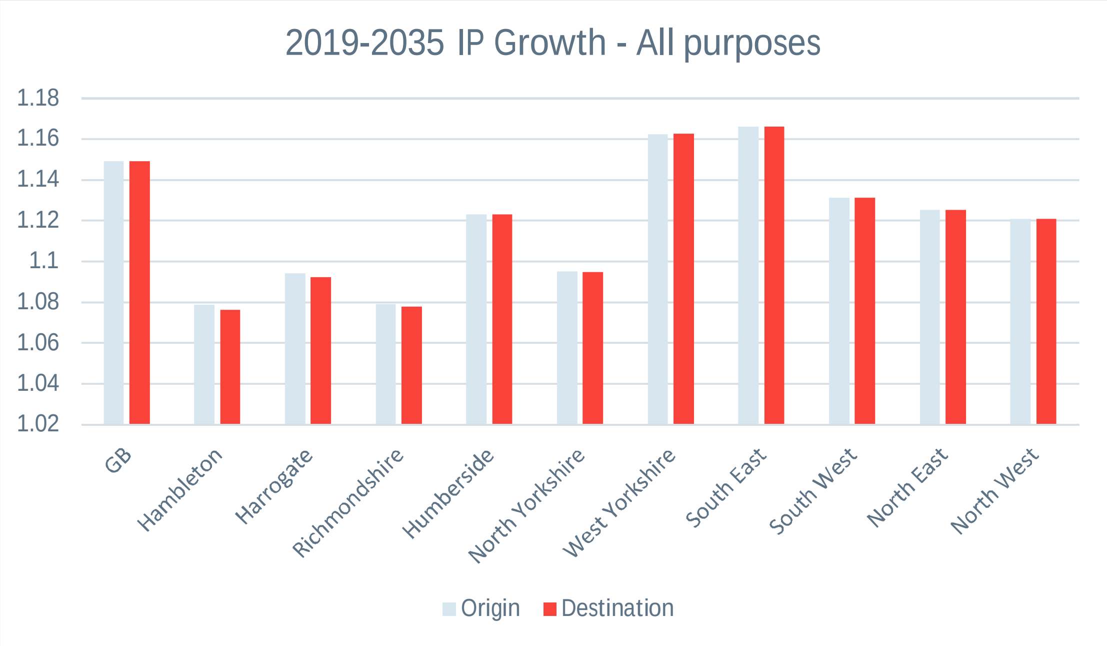
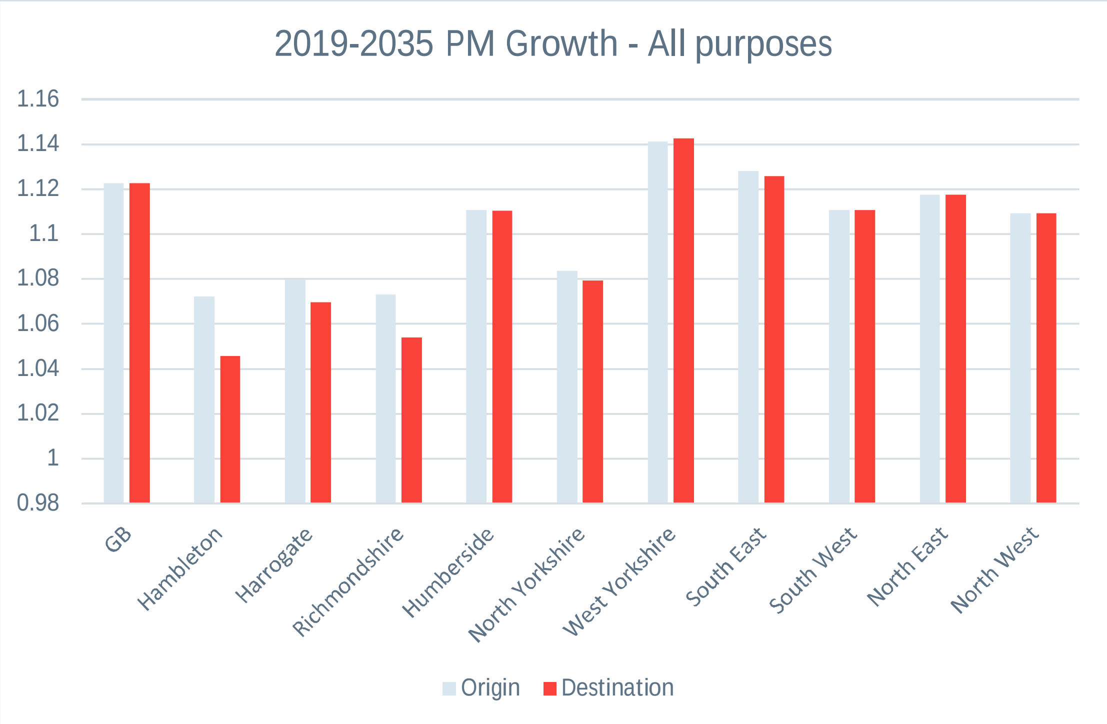


Figure 4-3 - PM peak growth comparison



The traffic forecasts do not make any adjustments for potential mode shift as a result of transport policy interventions. Furthermore, it has been assumed that the full forecast increases in traffic will occur in the peak periods and no account of the potential for peak spreading has been taken (peak spreading occurs when drivers alter their travel patterns to avoid the congested peak hours, resulting in traffic growth occurring outside of the peaks).

4.3. ASSESSMENT METHODOLOGY AND DEVELOPMENT LOG

The assessment considers only one forecast year – 2035 for the AM, IP and PM peak hour assessments.

4.4. LEVEL CROSSING DOWNTIMES

There are no existing level crossings in the Catterick Traffic Base model. Hence there are no change in their representation in this test.

4.5. VALUES OF TIME AND OPERATING COST

SATURN uses a function of generalised cost (in form of Monetary time and distance) to normalise time, distance and monetary charges to determine the route on which a vehicle is assigned.

Monetary time (pence per minute) and distance (pence per kilometre) values used for the 2035 Do-Minimum model were derived from WebTAG 3.5.6[1] and WebTAG Unit M3.1[2]. Table 4-2 below shows the values of time & operating costs for both 2019 base and 2035 future year models.

Table 4-2 - Future Monetary Cost Values, 2035

Vehicle Type	Purpose	Time Related Cost (PPM)			Distance Related Cost (PPK)		
		AM	IP	PM	AM	IP	PM
Base Year (2019) values							
Car	Employer's Business	31.01	31.78	31.46	14.20	14.20	14.20
	Commute	20.80	21.14	20.87	6.71	6.71	6.71
	Other	14.35	15.29	15.03	6.71	6.71	6.71
LGV	Average	21.92	21.92	21.92	15.28	15.28	15.28
HGV*	Average	51.19	51.19	51.19	48.89	48.89	48.89

[1] **WebTAG 3.5.6** refers to the UK Department for Transport's web-based guidance on values of Time and Vehicle Operating Costs http://webarchive.nationalarchives.gov.uk/20140304105410/http:/www.dft.gov.uk/webtag/documents/expert/pdf/U3_5_6-Jan-2014.pdf

[2] **WebTAG** M3.1 refers to the UK Department for Transport's web-based multimodal guidance on appraising transport projects and proposals.

https://www.gov.uk/government/publications/webtag-tag-unit-m3-1-highway-assignment-modelling

Future Year Reference Forecast (2035) values							
Car	Employer’s Business	39.71	40.69	40.28	12.21	12.21	12.21
	Commute	26.63	27.06	26.72	5.32	5.32	5.32
	Other	18.37	19.57	19.24	5.32	5.32	5.32
LGV	Average	28.06	28.06	28.06	14.35	14.35	14.35
HGV*	Average	65.53	65.53	65.53	52.69	52.69	52.69

PPK: Pence per kilometre PPM: Pence per minute

**HGV PPM values are doubled in line with the base year approach and guidance in WebTAG unit M3.1 Section 2.8.8*

The WebTAG databook only relates to the drivers time and does not take into account the influence of freight operators on the routing of their vehicles, which can affect HGV movements.

Hence, guidance in WebTAG M3.1 has been used for estimating the monetary values for HGVs.

5. MATRIX DEVELOPMENT

5.1. DEVELOPMENT TRAFFIC

The development traffic trip generation has been mainly based on development log provided by RDC and the trip rates agreed with NYCC. The number of trips generated by each of the anticipated developments in the 2035 DM scenario is summarised in Table 5-1 below.

Table 5-1 -Trip generation – 2035 DM scenario

Dev Ref. No.	Site Name/Description	AM		IP		PM	
		Arrive	Depart	Arrive	Depart	Arrive	Depart
378	Land North Le Cateau School	21	59	29	28	54	34
386	Land NE Somme Barracks	21	59	29	28	54	34
120	Somerset Close	6	15	7	7	14	6
121	Gough Road	5	11	5	5	10	5
124	Arras Lines	4	10	5	5	10	4
157	Former Colburn Pipework's Site (Phase 2) Colburndale Phase II	24	63	33	31	61	31
217	Land E of Byng Road	2	4	2	2	4	2
26	Land E Cookson Way	16	38	18	18	35	14
12	Hipswell Croft	9	25	11	11	25	10
122	Land North of Heatherdene Road	10	24	11	11	23	10
388	Land North of Colburn Business	39	35	29	38	19	40
7	Land North West of Manor House	1	3	2	2	3	1
21	Land West of Bishops Way	3	9	4	4	8	5
227	Phase 2 Gatherley Rd	30	78	40	38	75	43
319	Robin Hood Farm	5	12	5	5	12	5

The number of trips generated by each of the anticipated developments in the 2035 DS scenario is summarised in Table 5-2 below.

Table 5-2 -Trip generation - Proposed developments 2035 DS scenario

Dev Ref. No.	Site Name/Description	AM		IP		PM	
		Arrive	Depart	Arrive	Depart	Arrive	Depart
359	Land North of Haig Road	13	36	16	15	31	19
356	Land East of Plumer Rd(Old F N C Shop)	1	2	1	1	2	1
357	Land off Downholme Road	3	8	4	4	7	4
367	Land adj to Carnegill Hill	1	2	1	1	2	1
366	Munster Barracks	139	36	60	58	16	144
363	Land South Jutland Road	9	25	11	11	21	13
364	Former Civil Service Club	6	16	7	7	13	8
365	Ypres Lines	101	66	183	180	225	215
377	Perone Lines	360	177	373	386	159	278
372	Former careers Offices	12	33	14	14	28	18
371	Duchess of Kent Hospital	15	38	19	18	36	18
376	Scotton Park	21	55	28	26	53	27
403	TMP (Horne Rd/Catterick Rd)	7	20	9	8	17	11
383	Pinhill Mess	8	22	10	9	19	12
379	Land West of Harley Crescent	2	5	2	2	4	3
382	Land N Loos Road	12	34	15	15	30	19
404	Land S Loos Rd	20	51	26	24	49	25
362	Land East of Richmond Road	13	35	16	15	30	19
361	Land Opp Haig Road	18	46	23	22	43	22
381	Ext Somme Barracks	26	7	11	11	3	27
368	Land West Sports & leisure centre	7	18	8	8	16	10
369	Land North Catterick Road	2	5	2	2	5	3
370	Former Recreation Land, Shute Rd	16	34	74	71	97	98
380	Welfare Unit Offices	3	9	4	4	8	5
385	Land W Cleveland Road	5	14	6	6	12	8
406	Extension to Marne Barracks	90	23	38	37	11	93
13	Glencroft, Hipswell	3	7	3	3	6	4
69	Land S Oaktree Avenue, Scotton	9	25	11	11	22	13
82	Land W St Johns Rd, Hipswell	14	38	17	16	33	21
106	Land N of Albermarle Drive, Colburn	17	43	21	21	41	21

128	Land E of Walkerville, Brough with St Giles	14	37	18	18	35	18
158	Former Recreation Ground, Colburn	12	32	14	14	28	17
185	Land adj Lidl, Colburn	4	10	4	4	8	5
186	Land South of Leisure Centre, Colburn	2	6	3	3	5	3
401	Colburndale Phase 3 Housing	4	10	5	4	9	6
284	Land East of Walkerville, Colburn	14	40	18	17	34	21
339	Land South Colburn Business Park, Colburn	76	33	33	30	37	80
387	Land to centre Colburn Business Park	40	11	13	12	10	35
324	Land West of Garth Meadows	3	7	3	3	6	4
31	Land at Catterick Central Junction	49	49	49	49	0	0
142	Land West of Tunstall Road	11	30	13	13	26	16
175	Land E Gatherley Rd	61	27	26	24	30	64
322	Land at Station Rd/Gatherley Rd	21	6	7	6	5	18

5.2. MATRIX TOTALS

The outturn future year matrix totals for 2035 DM scenario are presented in Table 5-3 below. It must be noted that these figures do not include intra-zonal trips.

The 2035 DM matrices were constrained to TEMPRO growth factor as summarised in section 4.2 of this project.

Table 5-3 - 2035 DM Future Year Matrix Totals

User Class	AM			IP			PM		
	Base	2035 DM	% Diff	Base	2035 DM	% Diff	Base	2035 DM	% Diff
1 – Car Work	3,331	3,679	10.46%	4,558	5,010	9.93%	5,747	6,332	10.19%
2 – Car Commute	4,600	4,946	7.52%	2,118	2,257	6.59%	4,550	4,874	7.10%
3 – Car Other	2,520	2,765	9.73%	4,154	4,565	9.89%	3,906	4,264	9.16%
4 - LGV	1,775	2,148	21.01%	1,953	2,364	21.03%	1,774	2,147	21.02%
5 - HGV	2,101	2,141	1.88%	2,540	2,588	1.88%	2,002	2,041	1.94%
Total	14,327	15,679	9.44%	15,322	16,806	9.69%	17,979	19,645	9.27%

The overall levels of traffic growth for Catterick between the 2019 and 2035 generated by TEMPRO were 8.2% (AM peak), 8.2% (IP) and 8.4% (PM peak). The committed/proposed developments in Catterick marginally exceed the TEMPRO growth figures.

The outturn future year matrix totals for 2035 DS scenario are presented in Table 5-4 below. It must be noted that these figures do not include intra-zonal trips.

Table 5-4 - 2035 DS Future Year Matrix Totals

User Class	AM			IP			PM		
	Base	2035 DS	% Diff	Base	2035 DS	% Diff	Base	2035 DS	% Diff
1 – Car Work	3334	4,184	25.49%	4538	5,497	21.15%	5745	7,011	22.04%
2 – Car Commute	4603	6,235	35.45%	2157	2,873	33.22%	4528	5,717	26.26%
3 – Car Other	2511	3,600	43.40%	4150	6,036	45.43%	3909	5,614	43.61%
4 - LGV	1775	2,165	21.99%	1952	2,379	21.86%	1778	2,165	21.76%
5 - HGV	2107	2,194	4.17%	2546	2,633	3.42%	2002	2,079	3.85%
Total	14329	18378	28.26%	15343	19418	26.56%	17962	22,585	25.74%

The overall levels of traffic growth for Catterick between the 2019 and 2035 generated by TEMPRO were 8.2% (AM peak), 8.2% (IP) and 8.4% (PM peak). The committed/proposed developments in Catterick exceed the TEMPRO growth figures

6. TRAFFIC MODEL RESULTS

6.1. OVERVIEW

The traffic model has been run for the 2035 DM and 2035 DS scenarios and analysed to produce a series of outputs to compare with the 2019 base year model.

This chapter summarises the analysis for both the scenarios is summarised in this chapter and covers the following aspects.

- Overall network performance statistics;
- Traffic flow difference;
- Journey times; and
- Identification of junctions with potential operational issues.

6.1.1. Overall Traffic Model Network Performance Statics

Queues and travel times and speeds are used as indicators of overall network performances, explained as:

- Travel Distance Travelled – Total distance travelled across the network by all vehicles in the model during the modelled time period;
- Total Travel Time – Total journey time of all vehicles within the model during the modelled time period;
- Transient Queueing – Queues that occur at junctions operating within their designed capacity; for example, vehicles stopping momentarily at a give-way line, or during one traffic signal cycle;
- Over-Capacity Queueing – Queues that occur due to there being more traffic than there is network capacity to deal with; for example, traffic held for more than one cycle at a traffic signal junction;
- Total Trips on Network – The total number of vehicles travelling on the network in the modelled time period. The total number of trips do not include intra-zonal trips

6.1.2. Traffic flow difference

Traffic flow difference plots are produced for the following scenarios to show the impact of the forecasted developments

- For 2035 DM scenario – Difference plots showing the difference between 2035DM and the Base year model for the time periods assessed.
- For 2035 DS scenario – Difference plots showing the difference between 2035DS and 2035DM for the time periods assessed.

6.1.3. Journey times

As part of the 2019 Base year model development a total of 5 bi-directional journey time routes were defined which cover all the key routes within the study area.

The journey times along these routes has been estimated from the 2035 DM and 2035 DS model runs which takes into account the changes in network due to proposed developments, traffic flows and associated delays.

The coverage of the journey time routes within Catterick is shown in **Figure 6-1**.

Figure 6-1 - Journey Time Routes

The journey time difference plots are produced for the following scenarios to show the impact of the forecasted developments on individual journey times for each route

- For 2035 DM scenario – Difference plots showing the difference between 2035DM and the Base year model for the time periods assessed.
- For 2035 DS scenario – Difference plots showing the difference between 2035DS and 2035DM for the time periods assessed.

6.2. RESULTS SUMMARY FOR 2035 DM MODE RUN

This section summarises the results for the 2035DM model run as per the parameters outlined in section 6.1 above.

6.2.1. Network Performance Results (2035 DM)

Table 6-1 summarises the overall network performance statistics as generated by the 2035 DM scenario.

Table 6-1 - Network Performance, 2035 DM scenario

Peak Hour	Scenario	Total Distance Travelled (pcu km)	Total Travel Time (pcu hr)	Transient Queueing (pcu hr)	Over-Capacity Queueing (pcu hr)	Total Trips on Network (pcu)
AM Peak	2035 DM	62705.9	988.1	158.6	0	18461.5
IP	2035 DM	64180.5	920.3	129.4	0	20147.1
PM Peak	2035 DM	72302.4	1085.8	167.9	0	22309.9

Note: The data contained in the table are presented as passenger car units (pcus) as per the industry standard methodology. The data contained in the table refer to the simulated time periods only.

The results show that in the 2035 DM scenario, the PM peak hour generates the highest total distance travelled, total trips on the network, total travel time and transient queueing, compared to the AM and IP peak hour.

Table 6-2 below summarises the overall network performance statistics as generated by the 2035 DM compared with the 2019 Base year. The total trips do not include intra-zonal trips.

Table 6-2 - Network Performance Comparison of 2035 DM with Base year model

Peak Hour	Scenario	Total Distance Travelled (pcu km)	Total Travel Time (pcu hr)	Transient Queueing (pcu hr)	Over-Capacity Queueing (pcu hr)	Total Trips on Network (pcu)
AM Peak	2019 Base year	58129.7	905.3	140.7	0	17058.1
	2035 DM	62705.9	988.1	158.6	0	18461.5
	Difference	7.9%	9.1%	12.7%	0.0%	8.2%
IP	2019 Base year	59290.1	854.9	117.8	0	18623.8
	2035 DM	64180.5	920.3	129.4	0	20147.1
	Difference	8.2%	7.7%	9.8%	0.0%	8.2%
PM Peak	2019 Base year	67069.5	991.6	149.4	0	20581.3
	2035 DM	72302.4	1085.8	167.9	0	22309.9
	Difference	7.8%	9.5%	12.4%	0.0%	8.4%

Note: The data contained in the table are presented as passenger car units (pcus) as per the industry standard methodology. The data contained in the table refer to the simulated time periods only.

The above table shows that, compared to the 2019 Base year results

- There is similar level of growth in total trips in each of the three-time periods. The maximum increase is observed during the PM peak and the lowest is observed during the inter-peak.
- The greatest increase in Total Trips on the Network and Total Travel Time is observed in the PM peak hour.
- The greatest increase in Transient Queuing on the Network is observed in the AM peak hour which is marginally more than the PM peak.
- The greatest increase in Total distance travelled on the Network is observed in the average Inter peak hour.

6.2.2. Traffic Flows Difference (2035 DM)

The impact of the developments included within the 2035 DM scenario compared against the 2019 Base year is shown in the plots below for the study area.

Figure 6-2, Figure 6-3 and Figure 6-4 show the flow difference plots for Catterick for the AM, IP and PM peak hour respectively.

Figure 6-2 - Flow difference plot for AM peak hour, 2035 DM

During the AM peak hour, within the simulation area, it can be observed from the above figure that the highest increase in traffic flow is along Catterick Road eastbound and along Richmond Road.

A local re-routing is predicted north of the simulation area just south of Richmond; this does not influence any re-routing within the simulation area.

The model predicts an increase in the A1(M) traffic; this is increase is due to increase is through traffic on the motorway is not a result of the traffic flows from developments included within 2035 DM

During the average Interpeak hour, within the simulation area, it can be observed from the above figure that the highest increase in traffic flow is along Catterick Road eastbound and along Richmond Road.

A local re-routing is predicted north of the simulation area just south of Richmond; this does not influence any re-routing within the simulation area.

The model predicts an increase in the A1(M) traffic; this is increase is due to increase is through traffic on the motorway is not a result of the traffic flows from developments included within 2035 DM

Figure 6-3 - Flow difference plot for Average IP hour, 2035 DM

Figure 6-4 - Flow difference plot for PM peak hour, 2035 DM

During the PM peak hour, within the simulation area, it can be observed from the above figure that the highest increase in traffic flow is along Richmond Road Scotton Road corridors and

A local re-routing is predicted north of the simulation area just south of Richmond; this does not influence any re-routing within the simulation area.

The model predicts an increase in the A1(M) traffic; this is increase is due to increase is through traffic on the motorway is not a result of the traffic flows from developments included within 2035 DM

Traffic flow diagrams from the SATURN traffic model are presented **in** Appendix D, showing the traffic flows plots for Catterick Garrison and Catterick Village for both 2035DM and the 2035 DS for the AM, IP and PM peaks.

6.3. JOURNEY TIMES (2035 DM)

Journey times for selected routes across Catterick have been summarised for the 2035 DM scenario in Table 6-3.

Table 6-3 - Modelled Journey Time Summary, 2035 DM scenario

Route No.	Dir	Description	Len (km)	Modelled Journey Time (hh:mm:ss)		
				AM	IP	PM
1	EB	EB Range Road/A6136	10.5	00:14:14	00:14:17	00:14:54
	WB	WB Range Road/A6136	10.5	00:14:27	00:13:10	00:14:33
2	NB	NB A6136/Scotton Road/Bedale Road	5.1	00:06:53	00:07:00	00:06:58
	SB	NB A6136/Scotton Road/Bedale Road	5.1	00:06:44	00:06:44	00:06:54
3	NB	NB James Lane/Horne Road/Byng Road/Hispwell Rd	6	00:08:31	00:08:06	00:08:10
	SB	SB James Lane/Horne Road/Byng Road/Hispwell Rd	6	00:08:28	00:08:19	00:08:31
4	EB	EB Unnamed Road/Moor Lane/ Tunstall Road	9.6	00:08:41	00:08:40	00:08:43
	WB	WB Unnamed Road/Moor Lane/ Tunstall Road	9.6	00:08:48	00:08:44	00:08:47
5	NB	NB A6136	3.3	00:04:39	00:04:28	00:04:38
	SB	SB A6136	3.3	00:03:37	00:03:36	00:03:38

6.3.1. Comparison of Journey Time Results 2035DM

For 2019 Base year model a total of 5 bi-directional journey time routes were defined which cover all the key routes within the study area.

The journey times along these routes has been estimated from the 2035 DM SATURN model which takes into account the changes in network due to proposed developments, traffic flows and associated delays.

Journey times for selected routes across Catterick in the 2035 DM scenario have been compared with the 2019 Base Year. The differences for the AM, IP and PM peak hours respectively are summarised in the tables below.

Broadly, in the 2035 DM scenario, it can be observed that journey times show an increase against the 2019 base year results.

Table 6-4 - Comparison of Journey Times, AM peak hour

No	Route Description	Dir	Observed Journey Time (hh:mm:ss)			
			2019 Base	2035 DM	Diff (sec)	%Diff
1	Range Road/A6136	EB	00:13:59	00:14:14	00:00:16	1.9%
		WB	00:14:14	00:14:27	00:00:12	1.5%
2	A6136/Scotton Road/Bedale Road	NB	00:06:49	00:06:53	00:00:04	0.9%
		SB	00:06:40	00:06:44	00:00:04	1.1%
3	James Lane/Horne Road/Byng Road/Hispwell Road	NB	00:08:16	00:08:31	00:00:15	3.0%
		SB	00:08:15	00:08:28	00:00:13	2.7%
4	Unnamed Road/Moor Lane/ Tunstall Road	EB	00:08:40	00:08:41	00:00:01	0.2%
		WB	00:08:46	00:08:48	00:00:02	0.3%
5	A6136	NB	00:04:33	00:04:39	00:00:06	2.2%
		SB	00:03:36	00:03:37	00:00:01	0.4%

The above table shows that in the AM peak hour, a maximum increase in journey time of 3.0% can be observed for Route 3 NB and a minimum increase of 0.2% is observed for Route 4 (eastbound).

Additionally, it can be observed that in the AM peak hour, a maximum actual increase in journey time of 16 seconds can be observed for Route 1 (eastbound).

No routes show an increase of more than 30 seconds.

No routes showed an overall decrease in journey time:

The table below shows that in the Inter peak hour, a maximum increase in journey time of 3.1% can be observed for Route 3 (southbound); and a minimum increase of 0.1% is observed for Route 4 (both directions).

Additionally, it can be observed from the above table that in the IP peak hour, a maximum actual increase in journey time of 19 seconds can be observed for Route 1 (eastbound) along the A6136 from Range Road.

No routes show an increase of more than 30 seconds and no routes showed an overall decrease in journey time.

Table 6-5 - Comparison of Journey Times, IP peak hour

No	Route Description	Dir	Observed Journey Time (hh:mm:ss)			
			2019 Base	2035 DM	Diff (sec)	%Diff
1	Range Road/A6136	EB	00:13:58	00:14:17	00:00:19	2.3%
		WB	00:12:55	00:13:10	00:00:16	2.0%
2	A6136/Scotton Road/Bedale Road	NB	00:06:58	00:07:00	00:00:02	0.4%
		SB	00:06:43	00:06:44	00:00:02	0.4%
3	James Lane/Horne Road/Byng Road/Hispwell Road	NB	00:07:55	00:08:06	00:00:11	2.4%
		SB	00:08:04	00:08:19	00:00:15	3.1%
4	Unnamed Road/Moor Lane/ Tunstall Road	EB	00:08:40	00:08:40	00:00:00	0.1%
		WB	00:08:44	00:08:44	00:00:00	0.1%
5	A6136	NB	00:04:20	00:04:28	00:00:08	2.9%
		SB	00:03:35	00:03:36	00:00:01	0.4%

The table below shows that in the PM peak hour, a maximum increase in journey time of 4.2% can be observed for Route 1 (westbound); and a minimum increase of 0.3% is observed for Route 4 (both directions).

Additionally, it can be observed from the above table that in the PM peak hour, a maximum actual increase in journey time of 35 seconds can be observed for Route 1 (westbound) along the A6136 from Gatherly Road.

No routes showed an overall decrease in journey time.

Table 6-6 - Comparison of Journey Times, PM peak hour

No	Route Description	Dir	Observed Journey Time (hh:mm:ss)			
			2019 Base	2035 DM	Diff (sec)	%Diff
1	Range Road/A6136	EB	00:14:50	00:14:54	00:00:04	0.4%
		WB	00:13:58	00:14:33	00:00:35	4.2%
2	A6136/Scotton Road/Bedale Road	NB	00:06:56	00:06:58	00:00:03	0.7%
		SB	00:06:47	00:06:54	00:00:07	1.7%
3	James Lane/Horne Road/Byng Road/Hispwell Road	NB	00:07:58	00:08:10	00:00:12	2.5%
		SB	00:08:11	00:08:31	00:00:20	4.1%
4	Unnamed Road/Moor Lane/ Tunstall Road	EB	00:08:42	00:08:43	00:00:02	0.3%
		WB	00:08:45	00:08:47	00:00:02	0.3%
5	A6136	NB	00:04:32	00:04:38	00:00:06	2.0%
		SB	00:03:36	00:03:38	00:00:02	0.8%

The plots showing comparison of each journey time route between 2019 base and 2035 DM for the AM, IP and PM peak hour are appended in Appendix E.

6.4. RESULTS SUMMARY FOR 2035 DS MODEL RUN

This section summarises the results for the 2035DS model run as per the parameters outlined in section 6.1 above.

6.4.1. Network Performance Results (2035 DS)

Table 6-7 summarises the overall network performance statistics as generated by the 2035 DM scenario.

Table 6-7 - Network Performance, 2035 DS scenario

Peak Hour	Scenario	Total Distance Travelled (pcu km)	Total Travel Time (pcu hr)	Transient Queueing (pcu hr)	Over-Capacity Queueing (pcu hr)	Total Trips on Network (pcu)
AM Peak	2035 DS	71157	1248.8	250.5	0	21221.8
IP	2035 DS	71678.3	1197.3	207.2	51.2	22824
PM Peak	2035 DS	80983.2	1421.8	268.2	59.9	25305.4

The results show that in the 2035 DS scenario, the PM peak hour generates the highest total distance travelled, total trips on the network, total travel time and transient queueing, compared to the AM and IP peak hour.

Table 6-8 below summarises the overall network performance statistics as generated by the 2035 DM compared with the 2019 Base year. The total trips do not include intra-zonal trips.

Table 6-8 - Network Performance Comparison of 2035 DM with Base year model

Peak Hour	Scenario	Total Distance Travelled (pcu km)	Total Travel Time (pcu hr)	Transient Queueing (pcu hr)	Over-Capacity Queueing (pcu hr)	Total Trips on Network (pcu)
AM Peak	2035 DM	62705.9	988.1	158.6	0	18461.5
	2035 DS	71157	1248.8	250.5	0	21221.8
	Difference	13.5%	26.4%	57.9%	0.0%	15.0%
IP	2035 DM	64180.5	920.3	129.4	0	20147.1
	2035 DS	71678.3	1197.3	207.2	51.2	22824
	Difference	11.7%	30.1%	60.1%		13.3%
PM Peak	2035 DM	72302.4	1085.8	167.9	0	22309.9
	2035 DS	80983.2	1421.8	268.2	59.9	25305.4
	Difference	12.0%	30.9%	59.7%		13.4%

Note: The data contained in the table are presented as passenger car units (pcus) as per the industry standard methodology. The data contained in the table refer to the simulated time periods only.

The above table shows that, compared to the 2019 Base year results

- There is similar level of growth in total trips in each of the three-time periods. The maximum increase is observed during the AM peak. PM and Inter-peak show similar levels of growth in trips on the network.
- The greatest increase in Transient Queuing on the Network is observed in the IP peak hour which is marginally more than the PM peak.
- The greatest increase in Total distance travelled on the Network is observed in the AM peak hour.

6.4.2. Traffic Flows Difference (2035 DS)

The impact of the developments included within the 2035 DS scenario compared against the respective 2035DM scenario is shown in the plots below for the study area.

Figure 6-5, Figure 6-6 and Figure 6-7 show the flow difference plots for Catterick for the AM, IP and PM peak hour respectively (an increase in traffic flow is indicated in red and a decrease in blue).

Figure 6-5 - Flow difference plot for AM peak hour-, 2035 DS

During the AM peak hour, within the simulation area, it can be observed from the above figure that the model predicts considerable increase in traffic flows along all the major roads in the simulation area. This increase can be attributed to the developments included within the DS scenario.

Figure 6-6 - Flow difference plot for Average IP hour, 2035 DS

During the average Inter peak hour, within the simulation area, it can be observed from the above figure that the model predicts considerable increase in traffic flows along all the major roads in the simulation area. This increase can be attributed to the developments included within the DS scenario.

The model predicts a small decrease on the A1(M) in the southbound direction.

Figure 6-7 - Flow difference plot for PM peak hour, 2035 DS

During the PM peak hour, within the simulation area, it can be observed from the above figure that the model predicts considerable increase in traffic flows along all the major roads in the simulation area. This increase can be attributed to the developments included within the DS scenario.

The model predicts a slightly higher decrease on the A1(M) in the southbound direction compared to the interpeak. This can be attributed to the increase in delay at the left turn at the junction of A6136 Catterick Road / A6055. The model predicts re-routing of this delayed traffic along A6136 Leeming Lane to travel southbound along A6055.

6.5. COMPARISON OF JOURNEY TIME RESULTS 2035 DS

For 2019 Base year model a total of 5 bi-directional journey time routes were defined which cover all the key routes within the study area.

The journey times along these routes has been estimated from the 2035 DS SATURN model which takes into account the changes in network due to proposed developments, traffic flows and associated delays.

Journey times for selected routes across Catterick in the 2035 DS scenario have been compared with the 2035 DM. The differences for the AM, IP and PM peak hours respectively are summarised in the tables below.

Broadly, in the 2035 DS scenario, it can be observed that journey times show a considerable increase against the 2035 DM scenario results.

Table 6-9 - Comparison of Journey Times, AM peak hour, 2035 DS scenario

No	Route Description	Dir	Observed Journey Time (hh:mm:ss)			
			2035 DM	2035 DS	Diff (sec)	%Diff
1	Range Road/A6136	EB	00:14:14	00:14:55	00:00:41	4.8%
		WB	00:14:27	00:16:08	00:01:41	11.6%
2	A6136/Scotton Road/Bedale Road	NB	00:06:53	00:07:37	00:00:45	10.8%
		SB	00:06:44	00:07:29	00:00:45	11.2%
3	James Lane/Horne Road/Byng Road/Hispwell Road	NB	00:08:31	00:09:11	00:00:40	7.9%
		SB	00:08:28	00:09:08	00:00:39	7.8%
4	Unnamed Road/Moor Lane/ Tunstall Road	EB	00:08:41	00:08:46	00:00:05	0.9%
		WB	00:08:48	00:08:55	00:00:06	1.2%
5	A6136	NB	00:04:39	00:04:44	00:00:05	1.9%
		SB	00:03:37	00:03:40	00:00:03	1.3%

The above table shows that in the AM peak hour, a maximum increase in journey time of 11.6% can be observed for Route 1 WB and a minimum increase of 0.9% is observed for Route 4 (eastbound).

Additionally, it can be observed that in the AM peak hour, a maximum actual increase in journey time of 101 seconds can be observed for Route 1 (westbound).

The following routes show an increase of more than 60 seconds:

§ Route 1 (westbound) – Range Road/A6136.

No routes showed an overall decrease in journey time.

The table below shows that in the Inter peak hour, a maximum increase in journey time of 10.8% can be observed for Route 2 (southbound); and a minimum increase of 0.4% is observed for Route 4 (both directions).

Additionally, it can be observed that in the average IP peak hour, a maximum increase in journey time of 73 seconds can be observed for Route 1 (westbound) from Gatherly Road.

The following routes show an increase of more than 60 seconds:

§ Route 1 (westbound) – Range Road/A6136.

No routes showed an overall decrease in journey time.

Table 6-10 - Comparison of Journey Times, IP peak hour- 2035 DS scenario

No	Route Description	Direction	Observed Journey Time (hh:mm:ss)			
			2035 DM	2035 DS	Diff (sec)	%Diff
1	Range Road/A6136	EB	00:14:17	00:15:01	00:00:43	5.1%
		WB	00:13:10	00:14:24	00:01:13	9.3%
2	A6136/Scotton Road/Bedale Road	NB	00:07:00	00:07:38	00:00:39	9.2%
		SB	00:06:44	00:07:28	00:00:44	10.8%
3	James Lane/Horne Road/Byng Road/Hispwell Road	NB	00:08:06	00:08:26	00:00:20	4.1%
		SB	00:08:19	00:08:49	00:00:30	6.0%
4	Unnamed Road/Moor Lane/ Tunstall Road	EB	00:08:40	00:08:42	00:00:02	0.5%
		WB	00:08:44	00:08:47	00:00:03	0.5%
5	A6136	NB	00:04:28	00:04:33	00:00:06	2.1%
		SB	00:03:36	00:03:39	00:00:03	1.5%

The above table shows that in the PM peak hour, a maximum increase in journey time of 15.0% can be observed for Route 2 (southbound); and a minimum increase of 1.1% is observed for Route 4 (westbound).

Additionally, it can be observed from the above table that in the PM peak hour, a maximum increase in journey time of 99 seconds can be observed for Route 1 (westbound).

The following routes show an increase of more than 60 seconds:

- Route 1 (eastbound) – Range Road/A6136
- Route 1 (westbound) – Range Road/A6136.

Route 2 SB and Route 3 SB show an increase of 57 and 53 sec; just under 1 minute.

No routes showed an overall decrease in journey time.

Table 6-11 - Comparison of Journey Times, PM peak hour – 2035 DS scenario

No	Route Description	Direction	Observed Journey Time (hh:mm:ss)			
			2035 DM	2035 DS	Diff (sec)	%Diff
1	Range Road/A6136	EB	00:14:54	00:16:02	00:01:08	7.7%
		WB	00:14:33	00:16:12	00:01:39	11.4%
2	A6136/Scotton Road/Bedale Road	NB	00:06:58	00:07:40	00:00:42	10.0%
		SB	00:06:54	00:07:56	00:01:02	15.0%
3	James Lane/Horne Road/Byng Road/Hispwell Road	NB	00:08:10	00:08:33	00:00:24	4.8%
		SB	00:08:31	00:09:25	00:00:54	10.5%
4	Unnamed Road/Moor Lane/ Tunstall Road	EB	00:08:43	00:08:50	00:00:06	1.2%
		WB	00:08:47	00:08:53	00:00:06	1.1%

5	A6136	NB	00:04:38	00:04:43	00:00:05	1.9%
		SB	00:03:38	00:03:44	00:00:06	2.9%

The plots showing comparison of each journey time route between 2035DM and 2035 DS for the AM, IP and PM peak hour are appended in Appendix F respectively.

6.6. HIGH LEVEL IDENTIFICATION OF POTENTIAL JUNCTIONS WITH OPERATIONAL ISSUES

This section aims to identify the junctions where there is a potential to experience operation issues due to the growth on the network in 2035 DS scenario.

Volume over Capacity (VOC) is a ratio which can be used to assess the level of performance of a junction. The VOC at selected junctions in Catterick has been extracted for 2035 DM scenario.

SATURN is a strategic modelling software, which assigns traffic on the model network based on land use changes. The junction VOC values calculated by SATURN are indicative of their operational capacity; however, this is suitable for the high-level assessment of impacts of developments and network changes.

For a more accurate operational assessment of these junctions, use of industry standard software (e.g. JUNCTIONS 9 for priority controlled junction and LINSIG for signal controlled junctions) is recommended which enables finer detail on factors such as junction layouts, lane utilisation and signal operation to be modelled and would be used as part of the junction design process.

For priority controlled junction it is normally accepted that a VOC value of 0.85 or lower can confidently be considered to have adequate capacity to accommodate the predicted traffic demand.

For a signalised junction it is normally accepted that any arm which is reported to have a VOC value of 90% or lower can confidently be considered to have adequate capacity to accommodate the predicted traffic demand.

The 2035 DS run has been used to identify junctions where any turning movement is predicted to operate over 80% VOC.

Figure 6-8 shows the location of these junctions on a geographical background and Table 6-12 provides a list of the junctions identified using the above methodology.

Figure 6-8 Location of junctions identified

Table 6-12 –Junctions identified for operational assessments

Sr no	Junction description	Type	No. of arms	VOC predicted from SATURN		
				AM	IP	PM
1	Byng Rd/Catterick Rd/Horne Rd	Signalised	4	90%	95%	97%
2	Gatherly Rd/Station Rd/B6271	Signalised	4	60%	58%	85%
3	Catterick Rd/Colburn Ln/Unnamed Rd	Roundabout	4	90%	70%	82%
4	Range Rd/Ava Rd	Priority	3	96%	49%	83%
5	Catterick Rd/Unnamed Rd	Priority	3	75%	62%	70%
6	Catterick Rd/A6055	Priority	3	87%	91%	103%

The detailed junction analysis for the junctions identified above for further analysis is included in a separate Junction Capacity assessment report.

The report also identifies mitigation measures where required and the potential cost of the identified mitigation measures.

7. SUMMARY

In May 2018, NYCC and RDC commissioned WSP to test a 2035 DM scenario for year 2035; in accordance with RDC's Local Plan.

This includes a masterplan for the growth of Catterick Garrison and to test the transport impacts of the proposed development of sites in Catterick Garrison.

This report summarises the finding for two future year scenarios as follows

- 2035 DM scenario which includes the planned development in the Local Plan period and assess the impact of these planned developments within the simulation area upto year 2035; and
- 2035 DS scenario which includes selected proposed major developments in the Local Plan period and assess the impact of these developments within the simulation area upto year 2035.

This document reports on the traffic modelling and analysis undertaken and the resulting outputs associated with the development of the future year reference forecast scenarios for year 2035. Specifically, this report describes the impact of changes due to selected major developments most likely to be developed by year 2035 on the highway network in the various strategies and developments, in highway performance terms, both on the local network and on key individual junctions within the town centre.

The analysis considers a forecast year of 2035 Do-minimum and 2035 Do-something scenarios for the AM, IP and PM peak hours.

The traffic modelling for 2035 DM scenario shows that the addition of developments considered as part of the 2035 DM scenario will increase traffic on the network when compared to 2019 Base year and result in:

- More queueing;
- Increased congestion;
- Lengthier travel times;
- Lengthier travel distances.

The traffic flows increase on most of the links in the simulation area when compared with the 2019 base year traffic flows.

The traffic modelling for 2035 Ds scenario shows that the addition of developments considered as part of the 2035 DS scenario will considerably increase traffic on the network when compared to 2019 Base year and will result in considerably higher queuing, congestion, lengthier travel times and travel distances compared to the 2035 DM scenario.

For the 2019 Base year model a total of 5 bi-directional journey time routes were defined which cover all the key routes within the study area. The journey times along these routes have been calculated for the 2035 DM model.

The results indicate that broadly the journey times on these routes across the network will increase marginally in all time periods in the 2035 DM scenario.

In the 2035 DS scenario, the journey times along some of these routes are predicted to increase considerably.

A high-level impact assessment of the additional traffic generated by the planned developments onto the local highway network has been undertaken using the volume over capacity predictions from 2035 DS scenario.

This exercise highlighted six junctions within the simulation area which were recommended for further analysis using appropriate junction modelling software. The detailed junction analysis for these junctions is included in a separate Junction Capacity assessment report.

The report also identifies mitigation measures where required and the potential cost of the identified mitigation measures.

Appendix A

DEVELOPMENT LOG

MOD ID	RDC ID	Site Name	Location	Potential Use	SHLAA Category	Likely Deliverability	Type of Owners	Entire site size	Developable Area	Density	RDC Capacity	revised units	Application Ref	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	DM/ DS?, year 2035	Planning status	Proposed Site Access arrangement	Access Type priority/ roundabout/signalised
2	359	Land North of Haig Road	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	MOD	5	70%	25	88	88		0	0	0	0	0	30	30	28	0	0	0	0	0	0	0	0	0	DS		1 access off Haig Road	priority jn
4	356	Land East of Plumer Road (Old F N C Shop)	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	MOD	0.2	100%	30	6	6		0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	DS		1 access off Plumer Road	priority jn
5	357	Land off Downholme Road	Catterick Garrison	Housing (Private)	6-10 Yrs	Likely	MOD	3	33%	20	20	20		0	0	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	DS		1 access off Downholme road	priority jn
6	367	Land adj to Carnegill Hill	Catterick Garrison	Housing (Private)	6-10 Yrs	Likely	MOD	0.6	50%	15	5	5		0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	DS		1 access off Essex Close	priority jn
7	366	Munster Barracks	Catterick Garrison	Barracks Extension - Technical Accommodation	0-5 Yrs	Likely	MOD	22			1,975 additional personnel of which 1,284 living in barracks on site (C3/03/G) & 691 travelling to/from SFA to Barracks	1284											Completed								DS		utilise existing access from Waithwith Road onto adopted highway (Plumer Road)	priority jn
8	363	Land South Jutland Road	Catterick Garrison	Housing (SFA)	0-5 Yrs	Likely	MOD	3	80%	25	60	60		0	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	DS		1 access of Jutland Road	priority jn
9	364	Former Civil Service Club	Catterick Garrison	Housing (Private)	6-10 Yrs	Likely	MOD	1.8	70%	30	38	38		0	0	0	0	0	8	30	0	0	0	0	0	0	0	0	0	0	DS		1 access from Hipswell Road	priority jn
10	365	Ypres Lines- THE site area is 3.2 ha = 32,000 SQM. Hence assuming 15000 sqm of GFA rather than 150,00 sqm. Please can you confirm	Catterick Garrison	Retail / Commercial	0-5 Yrs	Likely	MOD	3.2			15,000 sqm Mixed Use Retail/ Commercial (A1-A5 Town Centre Uses, C1 Hotel, D2/07B Assembly and Leisure	0												Completed							DS		2 accesses (?) Richmond Rd/Hipswell Rd West - potential signalised	priority jn
	365			Employment							assume 50% of sqm Mixed Use Retail/ Commercial (A1-A5 Town Centre Uses	7500																			DS			
	365			Employment							40bed C1 Hotel	40																			DS			
	365			Employment							assume 50% D2/07B Assembly and Leisure	7500																			DS			
11	378	Land North Le Cateau School	Catterick Garrison	Housing (SFA)	0-5 Yrs	Likely	MOD	4		43	170	170	16/00145/OUT	0	0	0	30	30	30	30	30	20	0	0	0	0	0	0	0	0	DM	Planning permission	2 new accesses off Church Road and Wensleydale Road	priority jn
12	374	Camp Centre Garage	Catterick Garrison	Retail / Commercial	0-5 Yrs	Likely	MOD	0.3			1000 sqm	0																			DS		1 access off Richmond Rd	priority jn
13	377	Perone Lines	Catterick Garrison	Healthcare Facility	0-5 Yrs	Likely	MOD	5.5			D1/05G / D105/K - Serving 16,000 military and dependent patients. Plus reprovision of existing Harewood Medical Facility (12,000Sqm)	12000		0	0	0	0	0	0	0	Comple	0	0	0	0	0	0	0	0	0	DS		utilise existing accesses from Scotton Rd (Kitchener Rd/Berwick Rd)	priority jn
14	372	Former careers Offices	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	MOD	3.3	80%	30	80	80		0	0	0	0	0	30	30	20	0	0	0	0	0	0	0	0	0	DS		1 /2 access(es) onto Segrave Rd	priority jn
15	375	West Scotton Road	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	MOD	6	70%	30	126	126		0	0	0	0	0	30	30	30	30	6	0	0	0	0	0	0	0	DS		1/2 accesses onto Scotton Rd	priority jn
16	373	Former Dental Care	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	MOD	0.3	100%	30	9	9		0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	DS		1 access onto Scotton Rd	priority jn
17	371	Duchess of Kent Hospital	Catterick Garrison	Housing (SFA)	0-5 Yrs	Likely	MOD	5.8	70%	30	122	122		0	0	0	30	30	30	30	2	0	0	0	0	0	0	0	0	0	DS		1/2 access onto Horne Rd	priority jn
18	376	Scotton Park	Catterick Garrison	Barracks & new Single Living Accommodation SFA / Military Development	6-10 Yrs	Possible	MOD	8.4	70%	30	176	176		0	0	0	0	0	0	0	30	30	30	30	30	26	0	0	0	0	DS		multiple accesses onto Scotton Rd	priority jn
19	403	TMP (Horne Rd/Catterick Rd)	Catterick Garrison	Housing (SFA)	0-5 Yrs	Possible	MOD	2.3	70%	30	48	48		0	0	0	0	0	18	30	0	0	0	0	0	0	0	0	0	0	DS		1 access onto Horne Rd	priority jn
20	383	Pinhill Mess	Catterick Garrison	Housing (SFA)	0-5 Yrs	Likely	MOD	2.5	70%	30	53	53		0	0	0	0	0	0	23	30	0	0	0	0	0	0	0	0	0	DS		1 access onto Horne Rd	priority jn
21	379	Land West of Harley Crescent	Catterick Garrison	Housing (Private)	6-10 Yrs	Likely	MOD	0.7	100%	18	12	12		0	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	DS		1 access onto Horne Rd	priority jn
22	382	Land N Loos Road	Catterick Garrison	Housing (SFA)	6-10 Yrs	Possible	MOD	4.8	70%	25	84	84		0	0	0	0	0	24	30	30	0	0	0	0	0	0	0	0	0	DS		2 accesses onto Loos Rd	priority jn
23	404	Land S Loos Rd	Catterick Garrison	Housing (SFA)	6-10 Yrs	Possible	MOD	9.3	70%	25	163	163		0	0	0	0	0	30	30	30	30	30	13	0	0	0	0	0	0	DS		2 accesses onto Loos Rd	priority jn
24	405	Dalesman/ Community Centre	Catterick Garrison	Housing (Private)	11-15 Yrs	Unlikely	MOD	0.6	90%	25	13	13		0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0				
25	384	Harley Hills	Catterick Garrison	Housing (Private) / Community Facilities inc. Primary School	6-10 Yrs	Likely	MOD	43.6	70%	30	915	720		0	0	0	0	0	60	60	60	60	60	60	60	60	60	60	60	60	DS		1 access off Horne Rd / new roundabout at bottom of Horne Rd (south part of site).	Roundabout jn
26	362	Land East of Richmond Road	Catterick Garrison	Housing (SFA)	0-5 Yrs	Possible	MOD	4.9	70%	25	86	86		0	0	26	30	30	0	0	0	0	0	0	0	0	0	0	0	0	DS		1 access off Richmond Road	priority jn
27	361	Land Opp Haig Road	Catterick Garrison	Housing (SFA)	0-5 Yrs	Possible	MOD	8.3	70%	25	145	145		0	0	0	30	30	30	30	25	0	0	0	0	0	0	0	0	0	DS		2 accesses off Richmond Rd	priority jn
28	381	Ext Somme Barracks	Catterick Garrison	Barracks & new Single Living Accommodation	6-10 Yrs	Possible	MOD	27			367 additional personnel of which 239 living in barracks on site (C3/03/G) & 128 travelling to/from SFA to barracks	239											Completed								DS		1 access of Loos Rd	priority jn
29	368	Land West Sports & leisure centre	Catterick Garrison	Housing (Private) / Retail or Commercial	6-10 Yrs	Possible	MOD	2.1	70%	30	44	44		0	0	0	0	0	30	14	0	0	0	0	0	0	0	0	0	0	DS		1 access off Gough Rd	priority jn
30	369	Land North Catterick Road	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	MOD	0.6	70%	30	13	13		0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	DS		1 access off Heatherdene Rd/Belton Park	priority jn
31	370	Former Recreation Land, Shute Rd	Catterick Garrison	Housing / Retail or Commercial	6-10 Yrs	Possible	MOD	1.8	90%	40	70 Homes. Retail/ Commercial/community - 3600			0	0	0	0	0	0	0	30	30	10	0	0	0	0	0	0	0	DS		utilise existing	priority jn
	370			Housing							70 Homes.	70																			DS			
	370			Employment							Retail/ Commercial/community - 3600	3600																			DS			
32	380	Welfare Unit Offices	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	MOD	0.8	90%	30	22	22		0	0	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	DS		1 access off Horne Rd	priority jn
33	385	Land W Cleveland Road	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	MOD	1.9	90%	20	34	34		0	0	0	0	0	0	0	15	19	0	0	0	0	0	0	0	0	DS		2 accesses off Horne Rd / Castleton Rd	priority jn
34	406	Extension to Marne Barracks	Catterick Garrison	Barracks	6-10 Yrs	Likely	MOD	25.8			1274 additional personnel of which 828 living in barracks on site (C3/03/G) & 446 travelling to/from SFA in Catterick to barracks	828								Completed											DS		existing accesses/potential for new access onto local access road.	priority jn
35	386	Land NE Somme Barracks	Catterick Garrison	Housing (SFA)	0-5 Yrs	Likely	MOD	9			170	170	17/00387/OUT	0	0	30	30	30	30	30	20	0	0	0	0	0	0	0	0	0	DM	Planning permission	new roundabout at Horne Road/Breckenbrough Lane junction. 2 new accesses off Breckenbrough lane.	Roundabout jn
	120	Somerset Close	Catterick Garrison	Housing (Private)	0-5 Yrs	Likely	Private	0.85			40	40	Previous permission expired. 18/00827/FULL under consideration.	0	0	20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	utilise existing spur off roundabout. Access from Somerset Close/Gough Road	priority jn
	121	Gough Road	Catterick Garrison	Housing (Private)	0-5 Yrs	Likely	Private	1.19		.	29	29	Previous permission expired. 18/00826/FULL under consideration.	0	0	0	9	20	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	1 new access off Gough Road	priority jn
	124	Arras Lines	Catterick Garrison	Housing (Private)	0-5 Yrs	On Site	Private	4.12			126	27	15/00258/AORM	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	access off existing secondary roads which feed into existing roundabout off chartermark way.	priority jn
	157	Former Colburn Pipework's Site (Phase 2) Colburndale Phase II	Catterick Garrison	Housing (Private)	0-5 Yrs	Likely	Private	5.8			204	204	18/00202/AORM under consideration	0	0	30	30	30	30	30	30	24	0	0	0	0	0	0	0	0	DM	Planning permission	access onto newly created signalised junction on Catterick Road completed for phase I	Signalised roundabout jn
	217	Land E of Byng Road	Catterick Garrison	Housing (Private)	0-5 Yrs	Likely	Private	4.68			11	11	15/00935/OUT under consideration	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	1 new access off Byng Road	priority jn
	26	Land E Cookson Way	Catterick Garrison	Housing (Private)	0-5 Yrs	Likely	Private	4.3			107	107	17/00628/OUT	0	0	30	30	30	17	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	1 access off existing roundabout Cookson way	Roundabout jn
	12	Hipswell Croft	Catterick Garrison	Housing (Private)	0-5 Yrs	Likely	Private	3.04			67	65	18/00710/FULL - under consideration	0	0	0	0	0	30	30	5	0	0	0	0	0	0	0	0	0	DM	Planning permission	1 access onto Hipswell Road	priority jn
	13	Glencroft, Hipswell	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	Private	0.65			17	17		0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	DS		1 access onto Hipswell Road	priority jn
	27	Land N Regents Park, Colburn	Catterick Garrison	Housing (Private)	11-15 Yrs	Unlikely	Private	4.5			90	90		0	0	0	0	0	0	0	0	0	0	0	0	30	30	30	0	0				
	69	Land S Oaktree Avenue, Scotton	Catterick Garrison	Housing (Private)	11-15 Yrs	Possible	Private	2.9			61	61		0	0	0	0	0	0	0	0	0	0	30	31	0	0	0	0	0	DS		1 access onto Hunton Rd	priority jn
	82	Land W St Johns Rd, Hipswell	Catterick Garrison	Housing (Private)	11-15 Yrs	Possible	Private	4.42			93	93		0	0	0	0	0	0	0	0	0	0	30	30	33	0	0	0	0	DS		1 access onto St Johns Rd OR Hipswell Rd	priority jn
	106	Land N of Albermarle Drive, Colburn	Catterick Garrison	Housing (Private)	11-15 yrs	Possible	Private	6.35			137	137		0	0	0	0	0	0	0	0	0	0	30	30	30	30	17	0	0	DS		1 access onto Colburn Lane	priority jn
	128	Land E of Walkerville, Brough with St Giles	Catterick Garrison	Housing (Private)	6-10 Yrs	Possible	Private	5.6			117	117		0	0	0	0	0	0	30	30	30	27	0	0	0	0	0	0	0	DS		1 access onto Cookson Way	priority jn
	158	Former Recreation Ground, Colburn	Catterick Garrison	Housing (Private)	11-15 Yrs	Possible	Private	3.4			78	78		0	0	0	0	0	0	0	0	0	0	0	0	30	30	18	0	0	DS		1 access onto Catterick Rd	Roundabout jn
	185	Land adj Lidl, Colburn	Catterick Garrison	Housing	6-10 Yrs	Possible	Private	0.9			24	24		0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	DS		1 access onto Walkerville Rd OR St Giles Park	priority jn
	186	Land South of Leisure Centre, Colburn	Catterick Garrison	Housing	6-10 Yrs	Likely	Private	0.6			15	15		0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	DS		1 access onto Walkerville Rd OR St Giles Park	priority jn
	122	Land North of Heatherdene Road	Catterick Garrison	Housing	6-10 Yrs	Likely	Private	0.72			64	64	18/00433/OUT - under consideration	0	0	30	30	4	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	utilising existing access Heatherdene Road / Belton Park	priority jn
	401	Colburndale Phase 3 Housing	Catterick Garrison	Housing	0-5 Yrs	Likely	Private	0.78			25	25		0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	DS		1 access onto Maple Avenue	priority jn
	204	Land S of Sour Beck, Colburn	Catterick Garrison	Housing	11-15 Yrs	Unlikely	Private	29.3			615	210		0	0	0	0	0	0	0	0	0	0	30	30	30	30	30	30	30				
	298	Land North of Breckenbrough, Colburn	Catterick Garrison	Housing	11-15 Yrs	Unlikely	Private	23.2			487	210		0	0	0	0	0	0	0	0	0	0	30	30	30	30	30	30	30				
	299	Land East of Breckenbrough, Colburn	Catterick Garrison	Housing	11-15 Yrs	Unlikely	Private	22.7			477	210		0	0	0	0	0	0	0	0	0	0	30	30	30	30	30	30	30				
	284	Land East of Walkerville, Colburn	Catterick Garrison	Housing	11-15 Yrs	Possible	Private	4.6			97	97		0	0	0	0	0	0	0	0	0	0	0	30	30	30	7	0	0	DS		1 access onto Catterick Rd Roundabout (next to filling station)	Roundabout jn
	339	Land South Colburn Business Park, Colburn	Catterick Garrison	Employment	6-10 Yrs	Likely	Private	3.5			B1/B8 - 12500			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DS		utilise existing access onto Catterick Rd	priority jn
	339			Employment							B1 25%	3,125																			DS			
	339			Employment							B8 75%	9375																			DS			
	388	Land North of Colburn Business Park, Colburn	Catterick Garrison	Employment	0-5 Yrs	Likely	Private	0.72			B1 - 1,499 B8 - 1,151		17/00407/FULL	0	0	B1 - 1,499 B8 - 1,151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	utilising existing access onto Catterick Road	priority jn
	388			Employment							B1, 1499 SQM	1449																			DM			
	388			Employment							B8, 1151 SQM	1151																			DM			
	387	Land to centre Colburn Business Park	Catterick Garrison	Employment	6-10 Yrs	Likely	Private	1.08			B1/B8 - 4000			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DS		utilise existing access onto Catterick Rd	priority jn
	387			Employment							B1, 2000SQM	2000																			DS			
	387			Employment							B8, 200 SQM	2000																			DS			
	7	Land North West of Manor House	Catterick Village	Housing	0-5 Yrs	Likely	Private	0.54			9	9	16/00315/OUT	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	1 access onto Low Green	priority jn
	324	Land West of Garth Meadows	Catterick Village	Housing	6-10 Yrs	Possible	Private	0.64			17	17		0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	DS		1 access onto Low Green	priority jn
	21	Land West of Bishops Way	Catterick Village	Housing	0-5 Yrs	On Site	Private	0.68			22	22	14/00730/OUT	12	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	1 access onto Bishops Way	priority jn
	399	Land further West of Bishops Way	Catterick Village	Housing	Discounted	Possible	Private	2.2			66	66		0	0	0	0	0	0	30	30	6	0	0	0	0	0	0	0	0				
	248	Pallett Hill Quarry	Catterick Village	Housing	6-10 yrs	Unlikely	Private	7.1			148	148		0	0	0	0	0	0	0	0	0	0	0	0	30	30	30	30	28				
	31	Land at Catterick Central Junction	Catterick Village	Motorway Service Area	0-5 Yrs	Likely	Private	6.5			Amenity Building 10000sqm, Hotel with 100 bedrooms, a Fuel Filling Station, Drive Thru Coffee Shops, parking 350 cars, 66 HGVs, 30 coaches, 16 caravans	600	18/00536/EIASCR	0	0	0	0	Comple	0	0	0	0	0	0	0	0	0	0	0	0	DS		1 access onto Catterick Central Junction	Roundabout jn
	31			Motorway Service Area							amenity bigd	10000																			DS			
	31			Motorway Service Area							hotel	100																			DS			
	31			Motorway Service Area							fuel station	8pumps																			DS			
	31			Motorway Service Area							drive through coffe shop																				DS			
	142	Land West of Tunstall Road	Catterick Village	Housing	11-15yrs	Possible	Private	3.6			74	74		0	0	0	0	0	0	0	0	0	0	0	30	30	14	0	0	0	DS		1 access onto Tunstall Rd	priority jn
	227	Phase 2 Gatherley Rd	Brompton on Swale	Housing	0-5 Yrs	Likely	Private	12.5			250	250	02/01262/FULL	0	0	0	30	30	30	30	30	30	30	30	10	0	0	0	0	0	DM	Planning permission	2 accesses off Caxton Close and Stephenson Road	priority jn
	319	Robin Hood Farm	Brompton on Swale	Housing	0-5 Yrs	Likely	Private	1.1			32	32	16/00686/OUT	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	DM	Planning permission	1 access off Gatherley Road	priority jn
	175	Land E Gatherley Rd	Brompton on Swale	Employment	6-10 Yrs	Possible	Private	3.7			B1/B8			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DS		1 access from Gatherley Rd	priority jn
	175			Employment							B1 25%	2500																			DS			
	175			Employment							B8 75%	7500																			DS			
	322	Land at Station Rd/Gatherley Rd	Brompton on Swale	Employment	6-10 Yrs	Possible	Private	0.42			B1/B8			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	DS		existing access onto Station Rd	priority jn
	322			Employment							B1 50%	1050																			DS			
	322			Employment							B8 50%	1050																			DS			

Appendix B

TRICS REPORT

Calculation Reference: AUDIT-100323-190827-0837

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : A - HOTELS
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	BU	BUCKINGHAMSHIRE	1 days
03	SOUTH WEST		
	GS	GLOUCESTERSHIRE	1 days
	WL	WILTSHIRE	2 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
09	NORTH		
	CB	CUMBRIA	1 days
10	WALES		
	WR	WREXHAM	1 days
11	SCOTLAND		
	AG	ANGUS	1 days
	HI	HIGHLAND	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of bedrooms
Actual Range: 4 to 139 (units:)
Range Selected by User: 4 to 380 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 23/10/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	3 days
Wednesday	2 days
Thursday	3 days
Friday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	11 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	4
Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	1
Edge of Town	3
Free Standing (PPS6 Out of Town)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	3
Built-Up Zone	3
Out of Town	2
High Street	2
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

Not Known	1 days
A3	1 days
C1	9 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,000 or Less	1 days
5,001 to 10,000	4 days
10,001 to 15,000	1 days
20,001 to 25,000	2 days
25,001 to 50,000	3 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	3 days
50,001 to 75,000	1 days
75,001 to 100,000	5 days
100,001 to 125,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	8 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	11 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	11 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AG-06-A-01	BOUTIQUE B&B		ANGUS
	CLIFFBURN ROAD			
	ARBROATH			
	HAYSHEAD			
	Edge of Town			
	Residential Zone			
	Total Number of bedrooms:		4	
	Survey date: TUESDAY		*22/05/12*	*Survey Type: MANUAL*
2	BU-06-A-02	HOLIDAY INN		BUCKINGHAMSHIRE
	NEW ROAD			
	AYLESBURY			
	WESTON TURVILLE			
	Edge of Town			
	Out of Town			
	Total Number of bedrooms:		139	
	Survey date: WEDNESDAY		*01/10/14*	*Survey Type: MANUAL*
3	CB-06-A-01	HOTEL		CUMBRIA
	ENGLISH STREET			
	CARLISLE			
	Town Centre			
	High Street			
	Total Number of bedrooms:		92	
	Survey date: MONDAY		*20/06/16*	*Survey Type: MANUAL*
4	GS-06-A-02	PREMIER INN		GLOUCESTERSHIRE
	GLOUCESTER ROAD			
	CHELTENHAM SPA			
	SAINT MARKS			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total Number of bedrooms:		67	
	Survey date: THURSDAY		*28/11/13*	*Survey Type: MANUAL*
5	HI-06-A-04	HOTEL		HIGHLAND
	ACADEMY STREET			
	INVERNESS			
	Town Centre			
	High Street			
	Total Number of bedrooms:		84	
	Survey date: FRIDAY		*13/05/11*	*Survey Type: MANUAL*
6	HI-06-A-05	BEST WESTERN		HIGHLAND
	NESS WALK			
	INVERNESS			
	Edge of Town Centre			
	Built-Up Zone			
	Total Number of bedrooms:		89	
	Survey date: THURSDAY		*19/04/18*	*Survey Type: MANUAL*
7	NF-06-A-03	HOTEL		NORFOLK
	4 MARINE PARADE			
	GREAT YARMOUTH			
	Town Centre			
	Built-Up Zone			
	Total Number of bedrooms:		57	
	Survey date: FRIDAY		*11/05/18*	*Survey Type: MANUAL*
8	NY-06-A-01	ASCEND HOTEL		NORTH YORKSHIRE
	PARK PARADE			
	HARROGATE			
	Edge of Town Centre			
	Residential Zone			
	Total Number of bedrooms:		100	
	Survey date: TUESDAY		*23/10/18*	*Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 WL-06-A-02 HOLIDAY INN EXPRESS WILTSHIRE
BRIDGE STREET
SWINDON

Town Centre
Built-Up Zone
Total Number of bedrooms: 134
Survey date: WEDNESDAY 27/11/13 Survey Type: MANUAL

10 WL-06-A-03 TRAVELODGE WILTSHIRE
LAWRENCE HILL
WINCANTON

Edge of Town
No Sub Category
Total Number of bedrooms: 57
Survey date: TUESDAY 18/09/18 Survey Type: MANUAL

11 WR-06-A-02 HOTEL WREXHAM
WREXHAM ROAD
NEAR WREXHAM
HOLT
Free Standing (PPS6 Out of Town)
Out of Town
Total Number of bedrooms: 37
Survey date: THURSDAY 06/10/11 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
VEHICLES
Calculation factor: 1 BEDRMS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate	No. Days	Ave. BEDRMS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	11	78	0.058	11	78	0.148	11	78	0.206
08:00 - 09:00	11	78	0.100	**11**	**78**	**0.183**	11	78	0.283
09:00 - 10:00	11	78	0.151	11	78	0.138	**11**	**78**	**0.289**
10:00 - 11:00	11	78	0.098	11	78	0.100	11	78	0.198
11:00 - 12:00	11	78	0.058	11	78	0.107	11	78	0.165
12:00 - 13:00	11	78	0.085	11	78	0.079	11	78	0.164
13:00 - 14:00	11	78	0.106	11	78	0.090	11	78	0.196
14:00 - 15:00	11	78	0.102	11	78	0.088	11	78	0.190
15:00 - 16:00	11	78	0.106	11	78	0.109	11	78	0.215
16:00 - 17:00	11	78	0.143	11	78	0.103	11	78	0.246
17:00 - 18:00	11	78	0.156	11	78	0.092	11	78	0.248
18:00 - 19:00	**11**	**78**	**0.180**	11	78	0.097	11	78	0.277
19:00 - 20:00	11	78	0.121	11	78	0.092	11	78	0.213
20:00 - 21:00	11	78	0.098	11	78	0.055	11	78	0.153
21:00 - 22:00	11	78	0.045	11	78	0.055	11	78	0.100
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.607			1.536			3.143

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

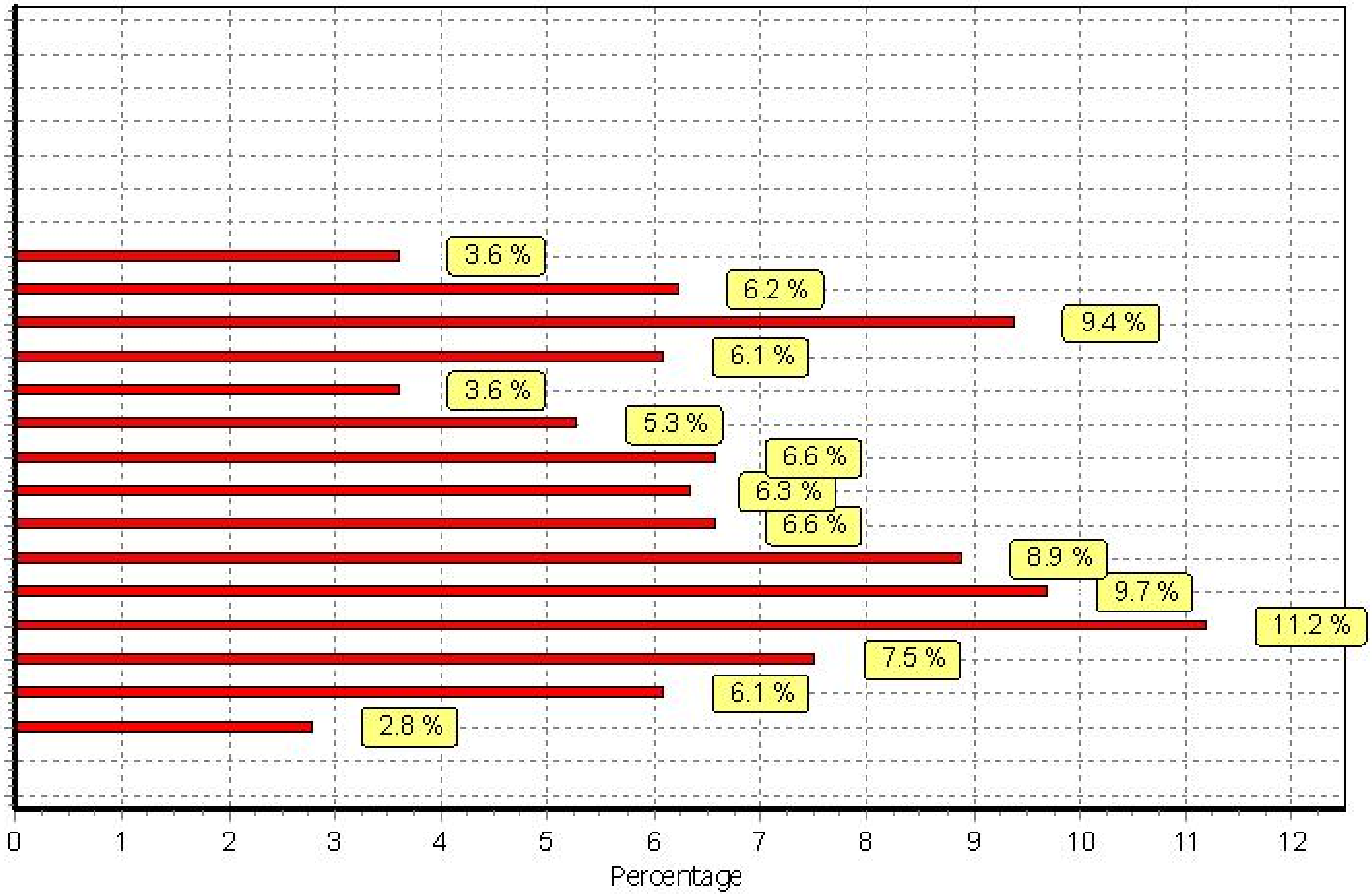
Parameter summary

Trip rate parameter range selected:	4 - 139 (units:)
Survey date date range:	01/01/11 - 23/10/18
Number of weekdays (Monday-Friday):	11
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE GRAPH - ARRIVALS 06 - HOTEL, FOOD & DRINK A - HOTELS VEHICLES

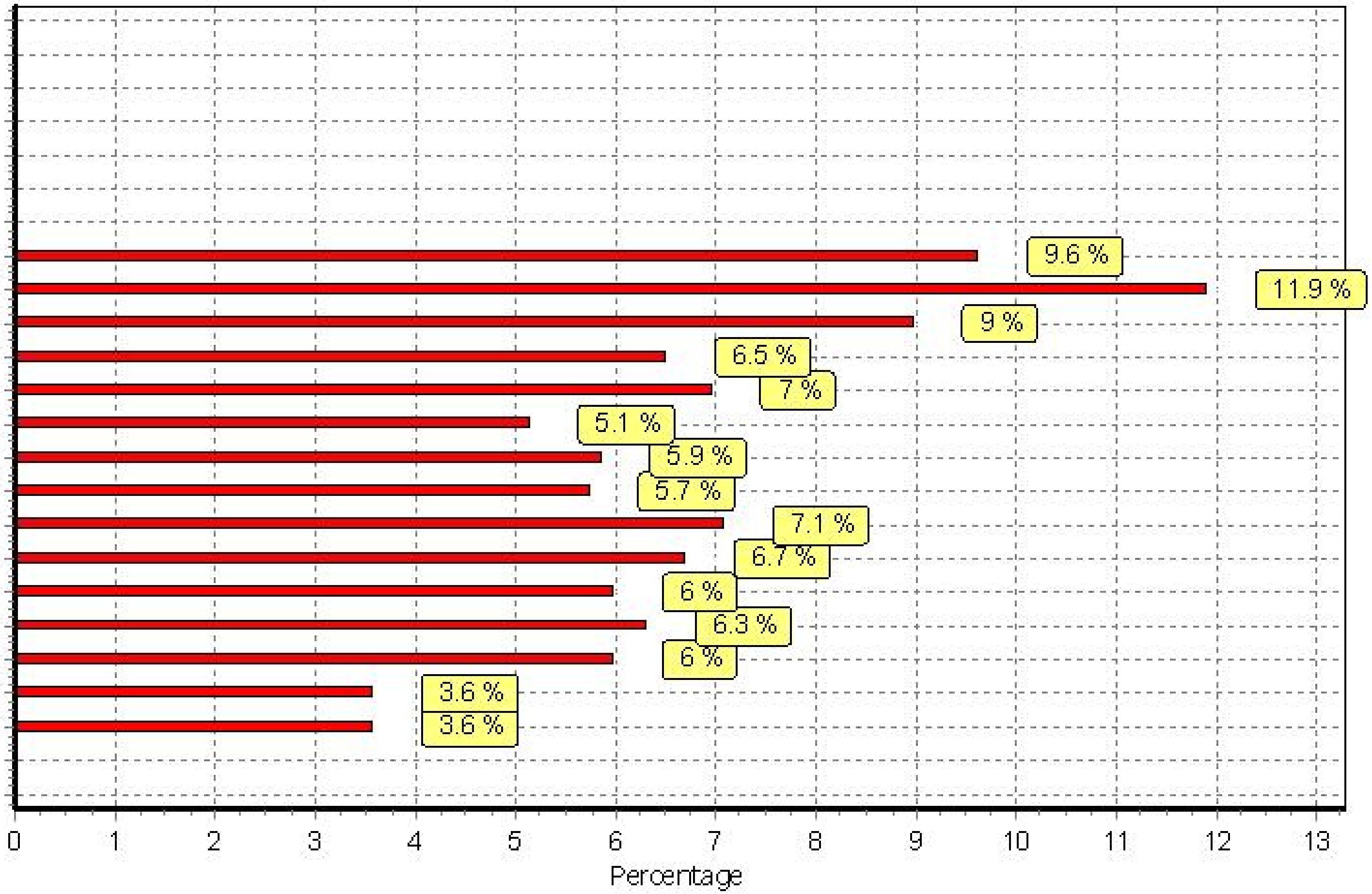
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	0.058	3.6
08:00-09:00	0.100	6.2
09:00-10:00	0.151	9.4
10:00-11:00	0.098	6.1
11:00-12:00	0.058	3.6
12:00-13:00	0.085	5.3
13:00-14:00	0.106	6.6
14:00-15:00	0.102	6.3
15:00-16:00	0.106	6.6
16:00-17:00	0.143	8.9
17:00-18:00	0.156	9.7
18:00-19:00	0.180	11.2
19:00-20:00	0.121	7.5
20:00-21:00	0.098	6.1
21:00-22:00	0.045	2.8
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE GRAPH - DEPARTURES 06 - HOTEL, FOOD & DRINK A - HOTELS VEHICLES

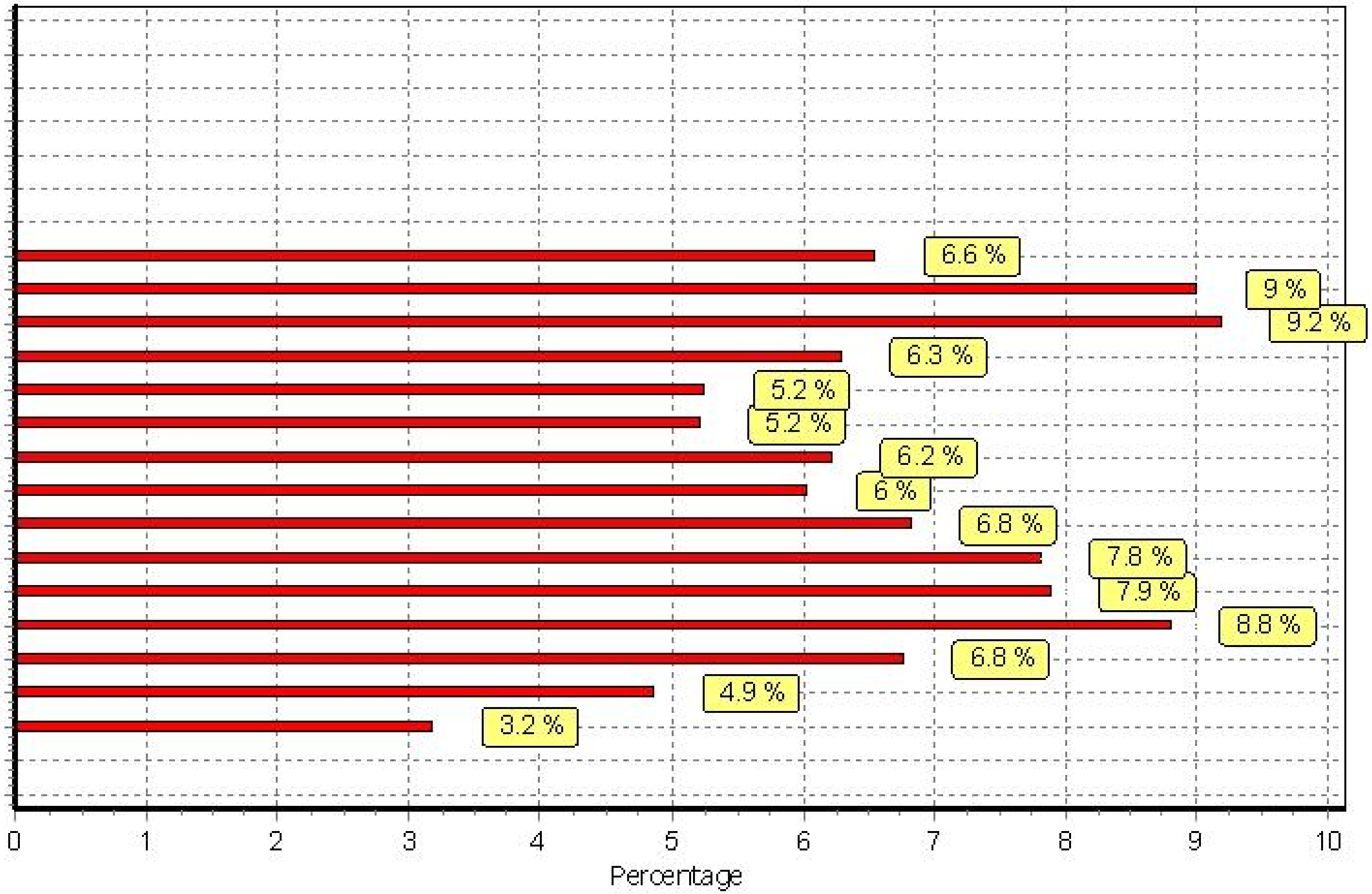
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	0.148	9.6
08:00-09:00	0.183	11.9
09:00-10:00	0.138	9.0
10:00-11:00	0.100	6.5
11:00-12:00	0.107	7.0
12:00-13:00	0.079	5.1
13:00-14:00	0.090	5.9
14:00-15:00	0.088	5.7
15:00-16:00	0.109	7.1
16:00-17:00	0.103	6.7
17:00-18:00	0.092	6.0
18:00-19:00	0.097	6.3
19:00-20:00	0.092	6.0
20:00-21:00	0.055	3.6
21:00-22:00	0.055	3.6
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE GRAPH - TOTALS 06 - HOTEL, FOOD & DRINK A - HOTELS VEHICLES

TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	0.206	6.6
08:00-09:00	0.283	9.0
09:00-10:00	0.289	9.2
10:00-11:00	0.198	6.3
11:00-12:00	0.165	5.2
12:00-13:00	0.164	5.2
13:00-14:00	0.196	6.2
14:00-15:00	0.190	6.0
15:00-16:00	0.215	6.8
16:00-17:00	0.246	7.8
17:00-18:00	0.248	7.9
18:00-19:00	0.277	8.8
19:00-20:00	0.213	6.8
20:00-21:00	0.153	4.9
21:00-22:00	0.100	3.2
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Calculation Reference: AUDIT-100323-190827-0808

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : C - LEISURE CENTRE
VEHICLES

Selected regions and areas:

03	SOUTH WEST	
	DV DEVON	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	1 days
	WY WEST YORKSHIRE	1 days
09	NORTH	
	CB CUMBRIA	1 days
10	WALES	
	WR WREXHAM	1 days
11	SCOTLAND	
	AG ANGUS	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 1100 to 6133 (units: sqm)
Range Selected by User: 360 to 17000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 01/05/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Wednesday	3 days
Thursday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	1
Edge of Town Centre	4
Suburban Area (PPS6 Out of Centre)	1
Edge of Town	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	2
Retail Zone	1
Built-Up Zone	2
No Sub Category	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

D2	7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	3 days
10,001 to 15,000	1 days
25,001 to 50,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	2 days
25,001 to 50,000	3 days
75,001 to 100,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	7 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AG-07-C-01	LEISURE CENTRE		ANGUS
	A92 MONTROSE ROAD ARBROATH WARDDYKES Suburban Area (PPS6 Out of Centre) Residential Zone			
	Total Gross floor area:		4738 sqm	
		Survey date: WEDNESDAY	*23/05/12*	*Survey Type: MANUAL*
2	CA-07-C-02	LEISURE CENTRE		CAMBRIDGESHIRE
	BACK LANE CAMBOURNE Edge of Town Residential Zone			
	Total Gross floor area:		1502 sqm	
		Survey date: THURSDAY	*07/06/18*	*Survey Type: MANUAL*
3	CB-07-C-03	SWIMMING & FITNESS CENTRE		CUMBRIA
	JAMES STREET CARLISLE Edge of Town Centre Built-Up Zone			
	Total Gross floor area:		2500 sqm	
		Survey date: WEDNESDAY	*22/06/16*	*Survey Type: MANUAL*
4	DV-07-C-01	LEISURE CENTRE		DEVON
	COWICK STREET EXETER Edge of Town Centre Retail Zone			
	Total Gross floor area:		6133 sqm	
		Survey date: THURSDAY	*28/11/13*	*Survey Type: MANUAL*
5	NY-07-C-01	SWIMMING POOL		NORTH YORKSHIRE
	MILL LANE PICKERING Edge of Town Centre No Sub Category			
	Total Gross floor area:		1100 sqm	
		Survey date: THURSDAY	*13/10/11*	*Survey Type: MANUAL*
6	WR-07-C-01	SWIMMING POOL		WREXHAM
	BODHYFRYD WREXHAM Town Centre Built-Up Zone			
	Total Gross floor area:		2800 sqm	
		Survey date: WEDNESDAY	*12/10/11*	*Survey Type: MANUAL*
7	WY-07-C-02	LEISURE CENTRE		WEST YORKSHIRE
	LODGE LANE WETHERBY Edge of Town Centre No Sub Category			
	Total Gross floor area:		2182 sqm	
		Survey date: TUESDAY	*20/09/16*	*Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 07 - LEISURE/C - LEISURE CENTRE
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	3	3344	0.269	3	3344	0.030	3	3344	0.299
07:00 - 08:00	7	2994	0.582	7	2994	0.196	7	2994	0.778
08:00 - 09:00	7	2994	0.668	7	2994	0.449	7	2994	1.117
09:00 - 10:00	7	2994	0.978	7	2994	0.577	7	2994	1.555
10:00 - 11:00	7	2994	0.783	7	2994	0.692	7	2994	1.475
11:00 - 12:00	7	2994	0.639	7	2994	0.978	7	2994	1.617
12:00 - 13:00	7	2994	0.692	7	2994	0.735	7	2994	1.427
13:00 - 14:00	7	2994	0.744	7	2994	0.577	7	2994	1.321
14:00 - 15:00	7	2994	0.639	7	2994	0.620	7	2994	1.259
15:00 - 16:00	7	2994	0.892	7	2994	0.721	7	2994	1.613
16:00 - 17:00	7	2994	1.422	7	2994	1.079	7	2994	2.501
17:00 - 18:00	7	**2994**	**1.618**	7	2994	1.455	7	2994	3.073
18:00 - 19:00	7	2994	1.618	7	**2994**	**1.603**	7	**2994**	**3.221**
19:00 - 20:00	7	2994	0.902	7	2994	1.226	7	2994	2.128
20:00 - 21:00	7	2994	0.577	7	2994	1.226	7	2994	1.803
21:00 - 22:00	6	3242	0.113	6	3242	0.704	6	3242	0.817
22:00 - 23:00	2	3769	0.000	2	3769	0.212	2	3769	0.212
23:00 - 24:00	1	4738	0.000	1	4738	0.000	1	4738	0.000
Total Rates:			13.136			13.080			26.216

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

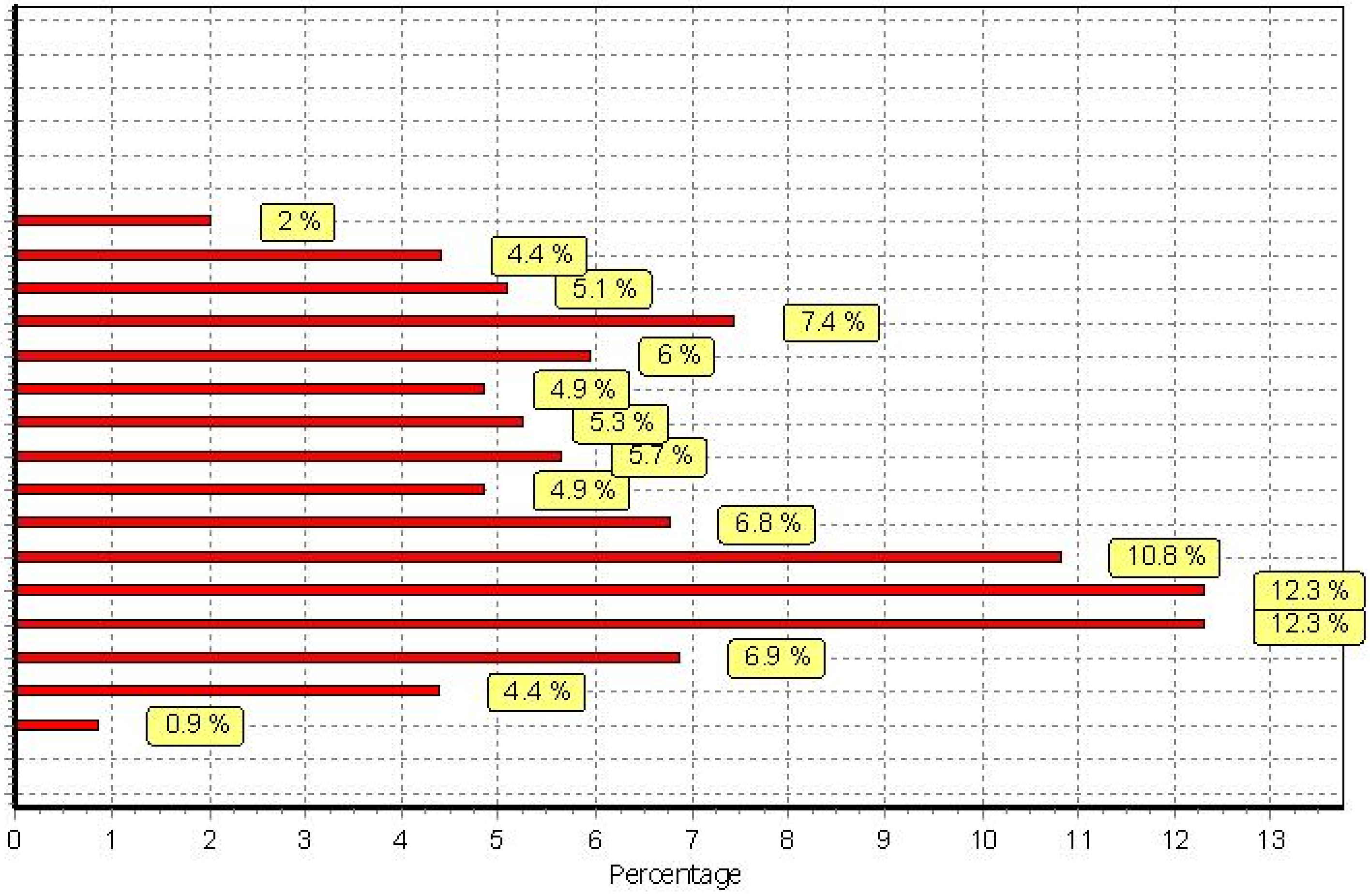
Parameter summary

Trip rate parameter range selected:	1100 - 6133 (units: sqm)
Survey date date range:	01/01/11 - 01/05/19
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE GRAPH - ARRIVALS 07 - LEISURE C - LEISURE CENTRE VEHICLES

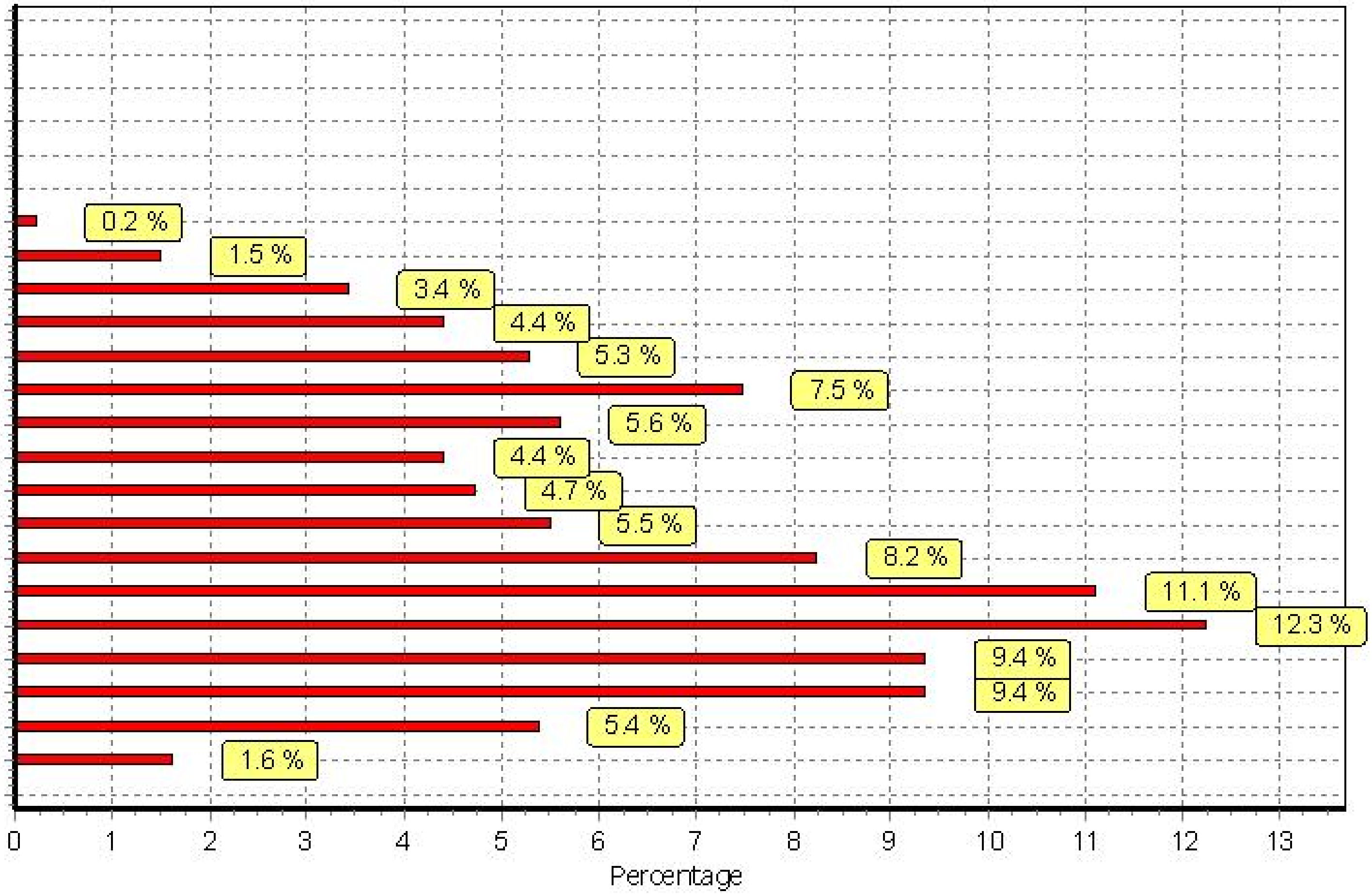
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00	0.269	2.0
07:00-08:00	0.582	4.4
08:00-09:00	0.668	5.1
09:00-10:00	0.978	7.4
10:00-11:00	0.783	6.0
11:00-12:00	0.639	4.9
12:00-13:00	0.692	5.3
13:00-14:00	0.744	5.7
14:00-15:00	0.639	4.9
15:00-16:00	0.892	6.8
16:00-17:00	1.422	10.8
17:00-18:00	1.618	12.3
18:00-19:00	1.618	12.3
19:00-20:00	0.902	6.9
20:00-21:00	0.577	4.4
21:00-22:00	0.113	0.9
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE GRAPH - DEPARTURES 07 - LEISURE C - LEISURE CENTRE VEHICLES

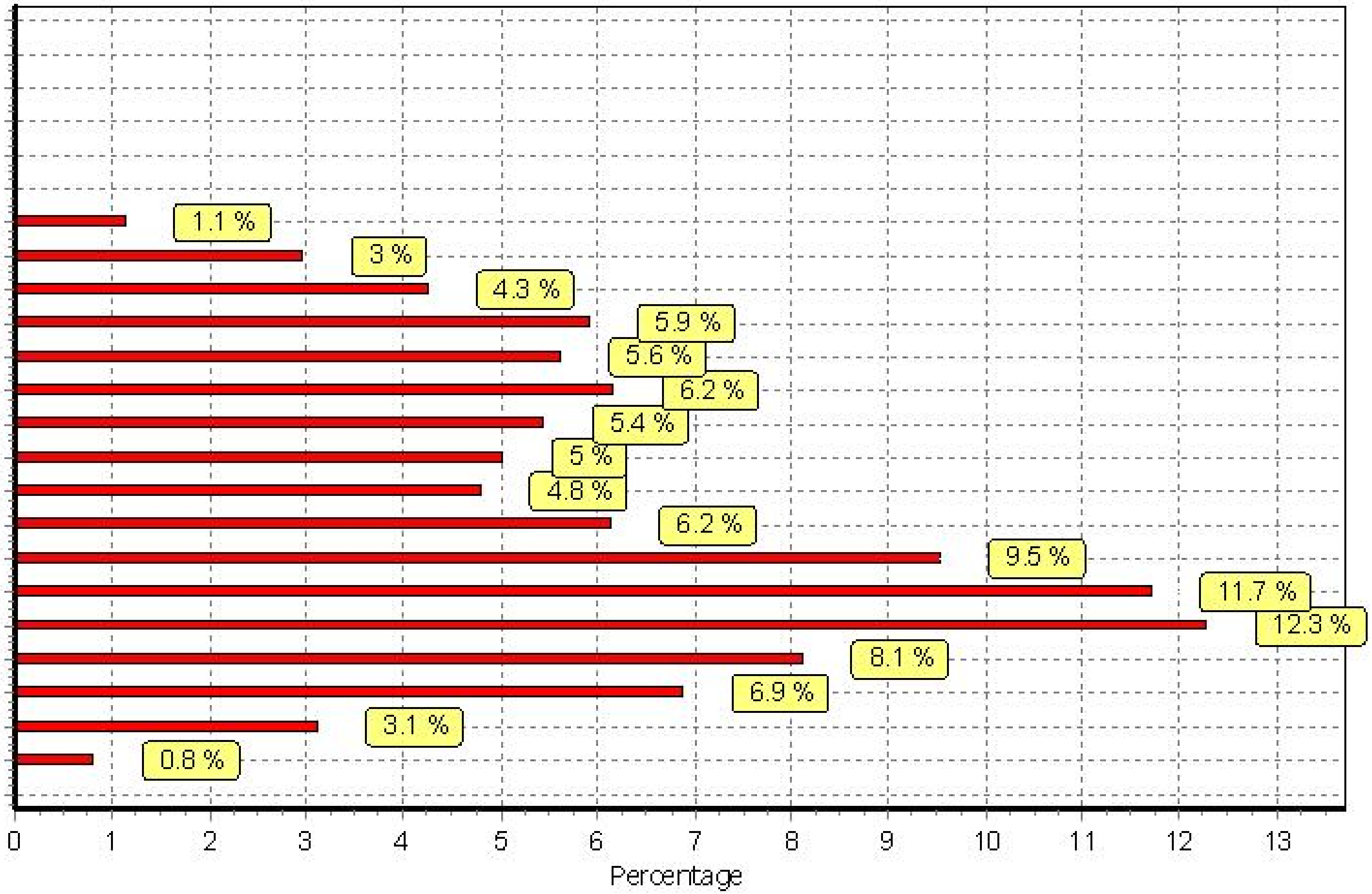
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00	0.030	0.2
07:00-08:00	0.196	1.5
08:00-09:00	0.449	3.4
09:00-10:00	0.577	4.4
10:00-11:00	0.692	5.3
11:00-12:00	0.978	7.5
12:00-13:00	0.735	5.6
13:00-14:00	0.577	4.4
14:00-15:00	0.620	4.7
15:00-16:00	0.721	5.5
16:00-17:00	1.079	8.2
17:00-18:00	1.455	11.1
18:00-19:00	1.603	12.3
19:00-20:00	1.226	9.4
20:00-21:00	1.226	9.4
21:00-22:00	0.704	5.4
22:00-23:00	0.212	1.6
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE GRAPH - TOTALS 07 - LEISURE C - LEISURE CENTRE VEHICLES

TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00	0.299	1.1
07:00-08:00	0.778	3.0
08:00-09:00	1.117	4.3
09:00-10:00	1.555	5.9
10:00-11:00	1.475	5.6
11:00-12:00	1.617	6.2
12:00-13:00	1.427	5.4
13:00-14:00	1.321	5.0
14:00-15:00	1.259	4.8
15:00-16:00	1.613	6.2
16:00-17:00	2.501	9.5
17:00-18:00	3.073	11.7
18:00-19:00	3.221	12.3
19:00-20:00	2.128	8.1
20:00-21:00	1.803	6.9
21:00-22:00	0.817	3.1
22:00-23:00	0.212	0.8
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Calculation Reference: AUDIT-100323-190827-0802

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 05 - HEALTH
Category : G - GP SURGERIES
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
03	SOUTH WEST		
	SM	SOMERSET	1 days
05	EAST MIDLANDS		
	LE	LEICESTERSHIRE	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	2 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
11	SCOTLAND		
	FI	FIFE	2 days
	HI	HIGHLAND	1 days
12	CONNAUGHT		
	RO	ROSCOMMON	1 days
14	LEINSTER		
	CC	CARLOW	1 days
15	GREATER DUBLIN		
	DL	DUBLIN	1 days
17	ULSTER (NORTHERN IRELAND)		
	DE	DERRY	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 200 to 1592 (units: sqm)
Range Selected by User: 40 to 2709 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 29/04/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	2 days
Tuesday	2 days
Wednesday	5 days
Thursday	1 days
Friday	5 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	15 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	5
Suburban Area (PPS6 Out of Centre)	2
Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	5
Free Standing (PPS6 Out of Town)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

D1	15 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,000 or Less	2 days
1,001 to 5,000	4 days
5,001 to 10,000	2 days
10,001 to 15,000	4 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,000 or Less	1 days
5,001 to 25,000	4 days
25,001 to 50,000	4 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
100,001 to 125,000	3 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	8 days
1.6 to 2.0	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	14 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	15 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 CC-05-G-01 GP SURGERY CARLOW
SLEATY ROAD
CARLOW
CARLOW BUSINESS PARK
Edge of Town
Commercial Zone
Total Gross floor area: 1500 sqm
Survey date: FRIDAY 10/06/11 Survey Type: MANUAL

2 CH-05-G-03 GP SURGERY CHESHIRE
HEATH LANE
CHESTER
BOUGHTON HEATH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 800 sqm
Survey date: TUESDAY 29/05/12 Survey Type: MANUAL

3 DE-05-G-02 GP SURGERY DERRY
MOUNTSANDEL ROAD
COLERAINE

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 1220 sqm
Survey date: FRIDAY 25/10/13 Survey Type: MANUAL

4 DL-05-G-03 GP SURGERY DUBLIN
THE DUNES
PORTMARNOCK
BURROW
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Gross floor area: 230 sqm
Survey date: WEDNESDAY 20/06/18 Survey Type: MANUAL

5 ES-05-G-02 MEDICAL CENTRE EAST SUSSEX
JUZIERS DRIVE
EAST HOATHLY

Neighbourhood Centre (PPS6 Local Centre)
Village
Total Gross floor area: 215 sqm
Survey date: WEDNESDAY 13/07/16 Survey Type: MANUAL

6 FI-05-G-02 GP SURGERY FIFE
MAIN ROAD
NEAR DUNFERMLINE
CHARLESTOWN
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Gross floor area: 325 sqm
Survey date: FRIDAY 29/05/15 Survey Type: MANUAL

7 FI-05-G-03 GP SURGERY FIFE
IZATT AVENUE
DUNFERMLINE
HOSPITAL HILL
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Gross floor area: 425 sqm
Survey date: MONDAY 21/03/16 Survey Type: MANUAL

8 HI-05-G-01 GP SURGERY HIGHLAND
BALLIFEARY LANE
INVERNESS

Edge of Town Centre
No Sub Category
Total Gross floor area: 979 sqm
Survey date: MONDAY 16/04/18 Survey Type: MANUAL

9 LE-05-G-02 GP SURGERY LEICESTERSHIRE
THE SANDS
NEAR MELTON MOWBRAY
LONG CLAWSON
Neighbourhood Centre (PPS6 Local Centre)
Village
Total Gross floor area: 363 sqm
Survey date: TUESDAY 29/11/16 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

10 NY-05-G-01 GP SURGERY NORTH YORKSHIRE
CHAPEL STREET
THIRSK

Edge of Town Centre
No Sub Category
Total Gross floor area: 900 sqm
Survey date: WEDNESDAY 12/10/11 Survey Type: MANUAL

11 NY-05-G-02 GP SURGERY NORTH YORKSHIRE
ASH TREE ROAD
KNARESBOROUGH

Edge of Town Centre
Residential Zone
Total Gross floor area: 416 sqm
Survey date: WEDNESDAY 28/09/16 Survey Type: MANUAL

12 RO-05-G-01 GP SURGERY ROSCOMMON
VALLEY COURT
ATHLONE
BUNNAVALLY
Edge of Town
Residential Zone
Total Gross floor area: 200 sqm
Survey date: WEDNESDAY 24/09/14 Survey Type: MANUAL

13 SM-05-G-01 GP SURGERY SOMERSET
MANTLE STREET
NEAR TAUNTON
WELLINGTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 1592 sqm
Survey date: FRIDAY 06/07/12 Survey Type: MANUAL

14 WK-05-G-01 GP SURGERY WARWICKSHIRE
COURT STREET
LEAMINGTON SPA

Edge of Town Centre
No Sub Category
Total Gross floor area: 530 sqm
Survey date: THURSDAY 25/10/12 Survey Type: MANUAL

15 WK-05-G-02 GP SURGERY WARWICKSHIRE
STRATFORD ROAD
NEAR BIDFORD-ON-AVON

Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 1315 sqm
Survey date: FRIDAY 29/06/18 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 05 - HEALTH/G - GP SURGERIES
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	14	757	0.850	14	757	0.170	14	757	1.020
08:00 - 09:00	15	734	2.997	15	734	1.471	15	734	4.468
09:00 - 10:00	**15**	**734**	**3.815**	15	734	3.015	15	734	6.830
10:00 - 11:00	15	734	3.778	**15**	**734**	**3.978**	**15**	**734**	**7.756**
11:00 - 12:00	15	734	3.361	15	734	3.624	15	734	6.985
12:00 - 13:00	15	734	2.380	15	734	3.379	15	734	5.759
13:00 - 14:00	15	734	1.680	15	734	1.599	15	734	3.279
14:00 - 15:00	15	734	3.669	15	734	2.988	15	734	6.657
15:00 - 16:00	15	734	3.797	15	734	3.751	15	734	7.548
16:00 - 17:00	15	734	2.816	15	734	3.324	15	734	6.140
17:00 - 18:00	15	734	1.326	15	734	2.316	15	734	3.642
18:00 - 19:00	14	757	0.179	14	757	0.944	14	757	1.123
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			30.648			30.559			61.207

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

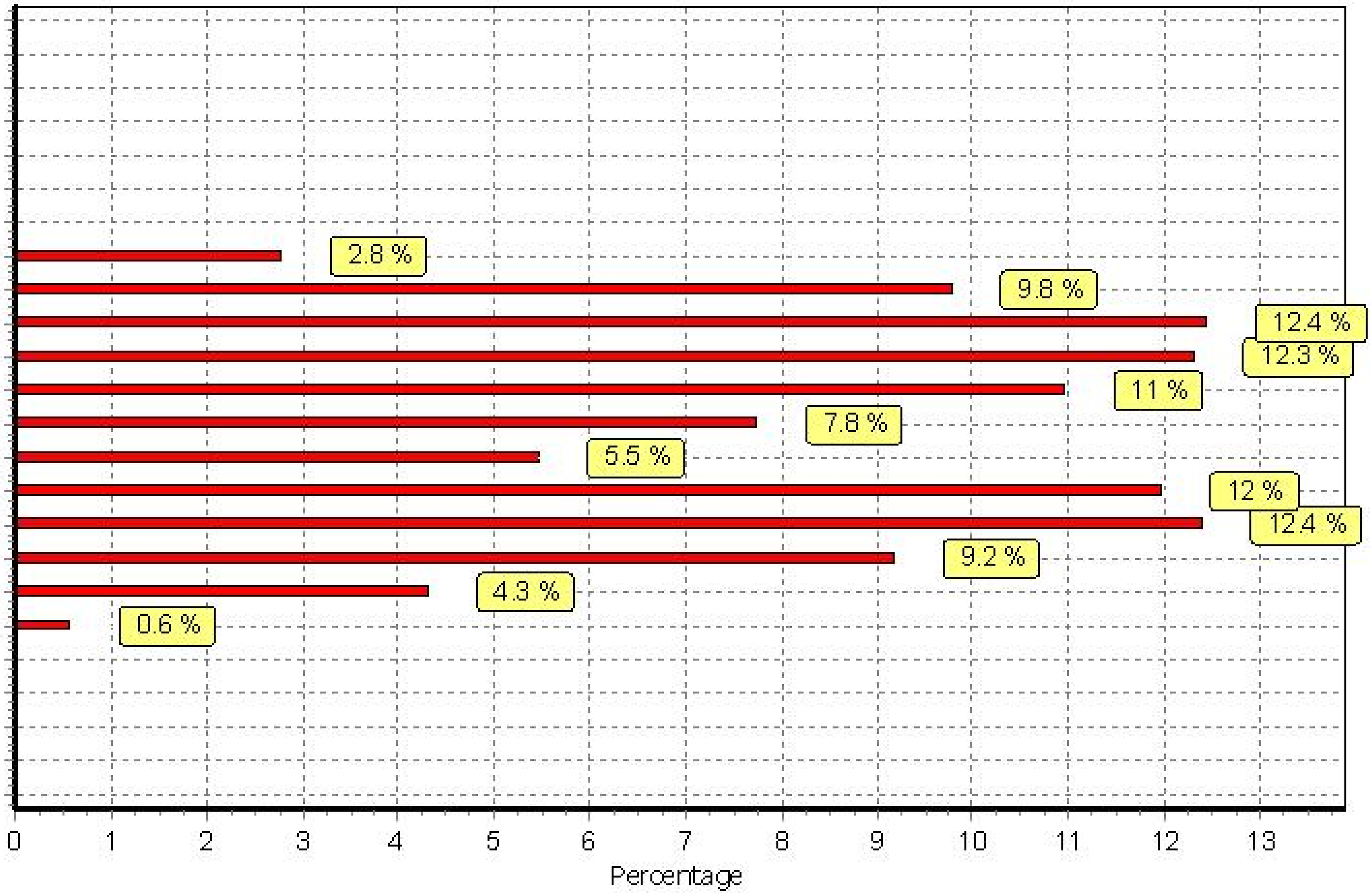
Parameter summary

Trip rate parameter range selected:	200 - 1592 (units: sqm)
Survey date date range:	01/01/11 - 29/04/19
Number of weekdays (Monday-Friday):	15
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

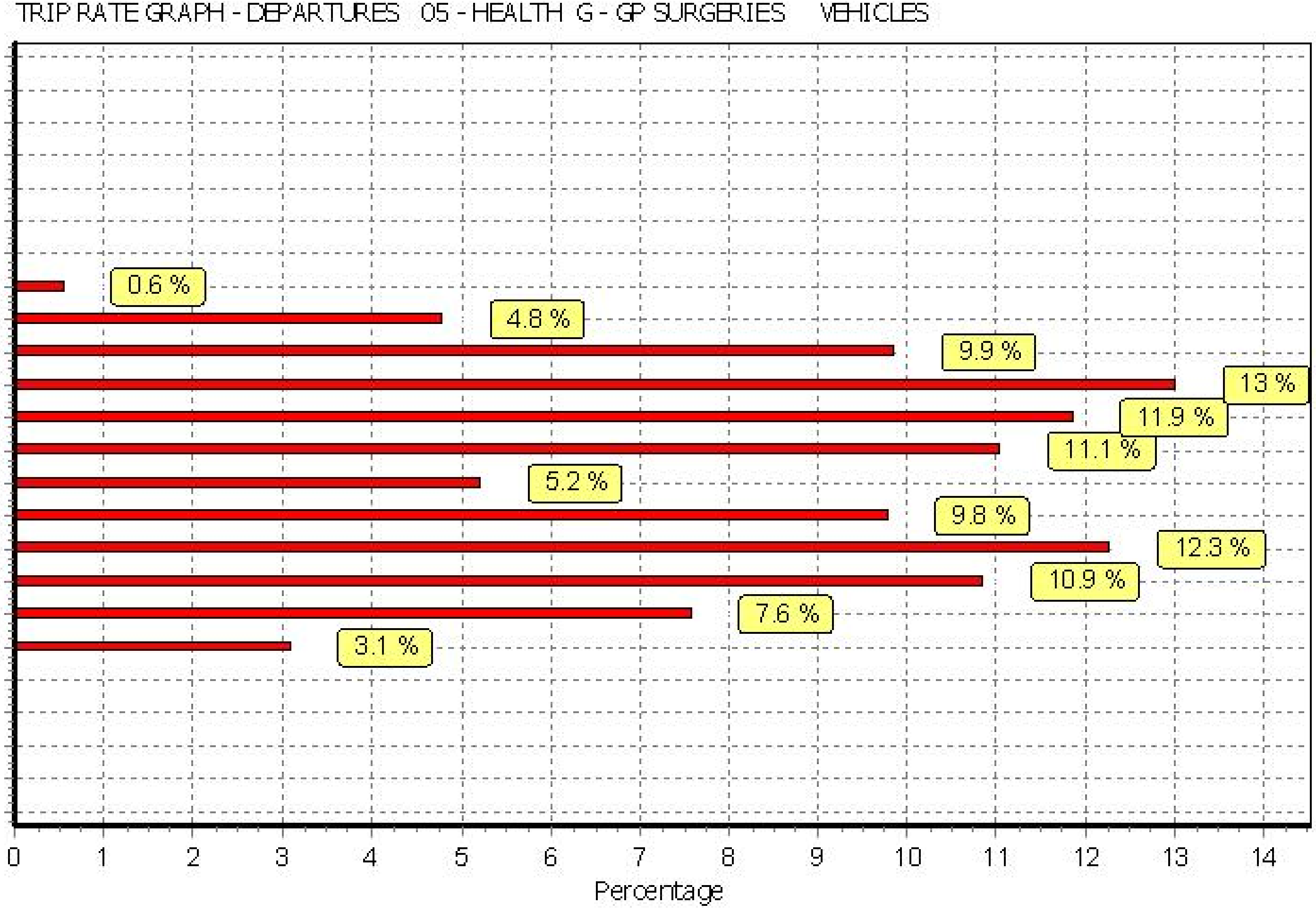
TRIP RATE GRAPH - ARRIVALS 05 - HEALTH G - GP SURGERIES VEHICLES

TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	0.850	2.8
08:00-09:00	2.997	9.8
09:00-10:00	3.815	12.4
10:00-11:00	3.778	12.3
11:00-12:00	3.361	11.0
12:00-13:00	2.380	7.8
13:00-14:00	1.680	5.5
14:00-15:00	3.669	12.0
15:00-16:00	3.797	12.4
16:00-17:00	2.816	9.2
17:00-18:00	1.326	4.3
18:00-19:00	0.179	0.6
19:00-20:00		
20:00-21:00		
21:00-22:00		
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

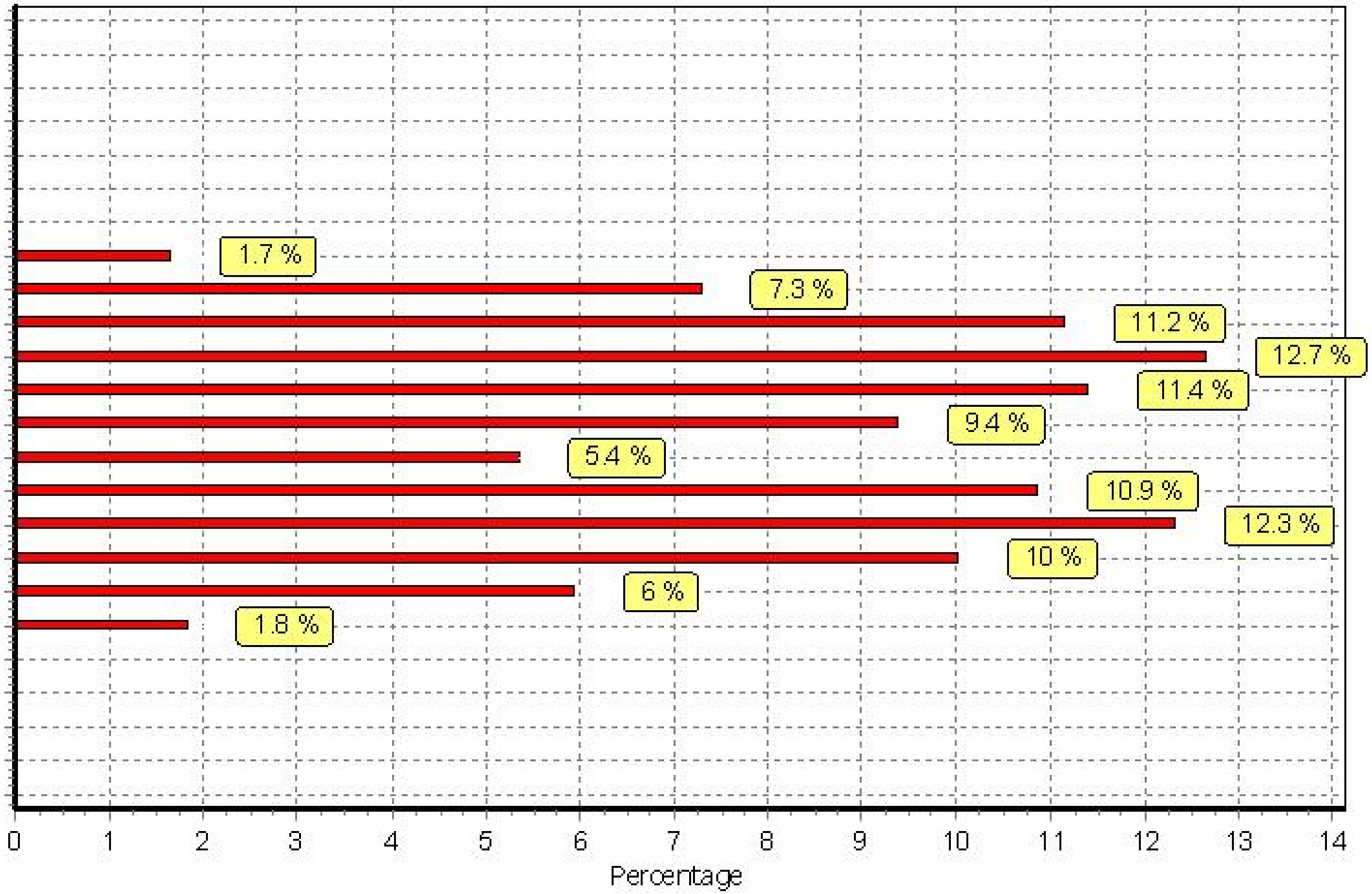
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	0.170	0.6
08:00-09:00	1.471	4.8
09:00-10:00	3.015	9.9
10:00-11:00	3.978	13.0
11:00-12:00	3.624	11.9
12:00-13:00	3.379	11.1
13:00-14:00	1.599	5.2
14:00-15:00	2.988	9.8
15:00-16:00	3.751	12.3
16:00-17:00	3.324	10.9
17:00-18:00	2.316	7.6
18:00-19:00	0.944	3.1
19:00-20:00		
20:00-21:00		
21:00-22:00		
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE GRAPH - TOTALS 05 - HEALTH G - GP SURGERIES VEHICLES

TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	1.020	1.7
08:00-09:00	4.468	7.3
09:00-10:00	6.830	11.2
10:00-11:00	7.756	12.7
11:00-12:00	6.985	11.4
12:00-13:00	5.759	9.4
13:00-14:00	3.279	5.4
14:00-15:00	6.657	10.9
15:00-16:00	7.548	12.3
16:00-17:00	6.140	10.0
17:00-18:00	3.642	6.0
18:00-19:00	1.123	1.8
19:00-20:00		
20:00-21:00		
21:00-22:00		
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Calculation Reference: AUDIT-100323-190827-0825

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : G - STUDENT ACCOMMODATION
VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	BA	BATH & NORTH EAST SOMERSET	1 days
	DV	DEVON	2 days
09	NORTH		
	DH	DURHAM	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of residents
Actual Range: 110 to 291 (units:)
Range Selected by User: 15 to 1612 (units:)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 18/10/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Wednesday 1 days
Thursday 3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 4 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Edge of Town Centre 1
Suburban Area (PPS6 Out of Centre) 2
Edge of Town 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Residential Zone 2
No Sub Category 2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
C3 4 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
15,001 to 20,000	2 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
100,001 to 125,000	3 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	4 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BA-03-G-01 STUDENT FLATS BATH & NORTH EAST SOMERSET
LOWER BRISTOL ROAD
BATH

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of residents: 291
Survey date: THURSDAY 04/10/18 Survey Type: MANUAL

2 DH-03-G-01 STUDENT FLATS DURHAM
ASHWOOD
DURHAM
GILESGATE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of residents: 168
Survey date: THURSDAY 18/10/18 Survey Type: MANUAL

3 DV-03-G-02 STUDENT FLATS DEVON
COWLEY BRIDGE ROAD
EXETER

Edge of Town
No Sub Category
Total Number of residents: 110
Survey date: WEDNESDAY 05/10/11 Survey Type: MANUAL

4 DV-03-G-04 STUDENT ACCOMMODATION DEVON
BONHAY ROAD
EXETER

Edge of Town Centre
Residential Zone
Total Number of residents: 241
Survey date: THURSDAY 28/11/13 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/G - STUDENT ACCOMMODATION
VEHICLES
Calculation factor: 1 RESIDE
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. RESIDE	Trip Rate	No. Days	Ave. RESIDE	Trip Rate	No. Days	Ave. RESIDE	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00	1	241	0.000	1	241	0.000	1	241	0.000
07:00 - 08:00	4	203	0.004	4	203	0.004	4	203	0.008
08:00 - 09:00	4	203	0.006	4	203	0.005	4	203	0.011
09:00 - 10:00	4	203	0.007	4	203	0.004	4	203	0.011
10:00 - 11:00	4	203	0.015	4	203	0.010	4	203	0.025
11:00 - 12:00	**4**	**203**	**0.020**	**4**	**203**	**0.025**	**4**	**203**	**0.045**
12:00 - 13:00	4	203	0.009	4	203	0.009	4	203	0.018
13:00 - 14:00	4	203	0.010	4	203	0.007	4	203	0.017
14:00 - 15:00	4	203	0.010	4	203	0.015	4	203	0.025
15:00 - 16:00	4	203	0.014	4	203	0.017	4	203	0.031
16:00 - 17:00	4	203	0.016	4	203	0.012	4	203	0.028
17:00 - 18:00	4	203	0.002	4	203	0.011	4	203	0.013
18:00 - 19:00	4	203	0.007	4	203	0.010	4	203	0.017
19:00 - 20:00	3	233	0.007	3	233	0.006	3	233	0.013
20:00 - 21:00	3	233	0.014	3	233	0.011	3	233	0.025
21:00 - 22:00	2	205	0.005	2	205	0.007	2	205	0.012
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.146			0.153			0.299

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

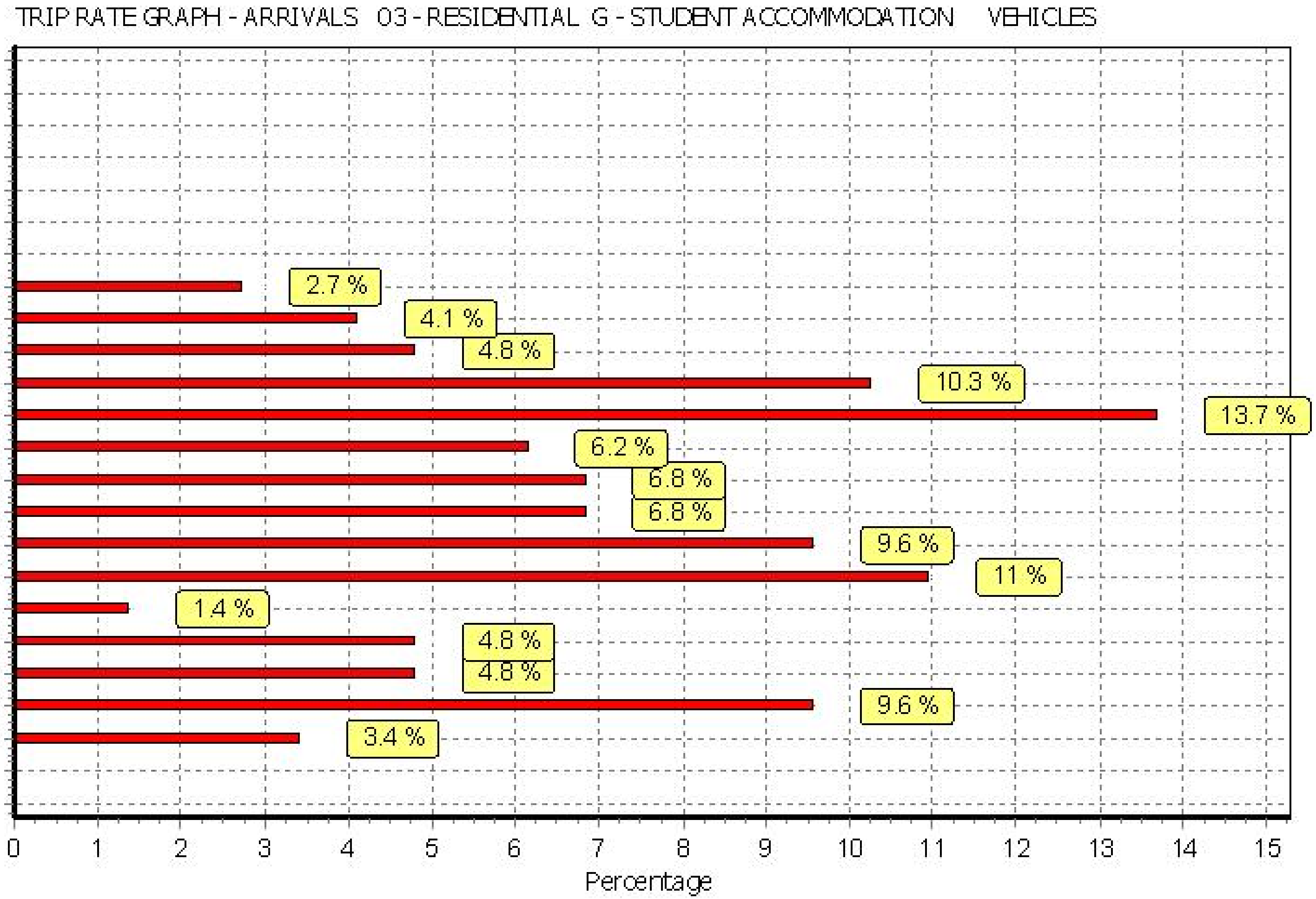
*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	110 - 291 (units:)
Survey date date range:	01/01/11 - 18/10/18
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

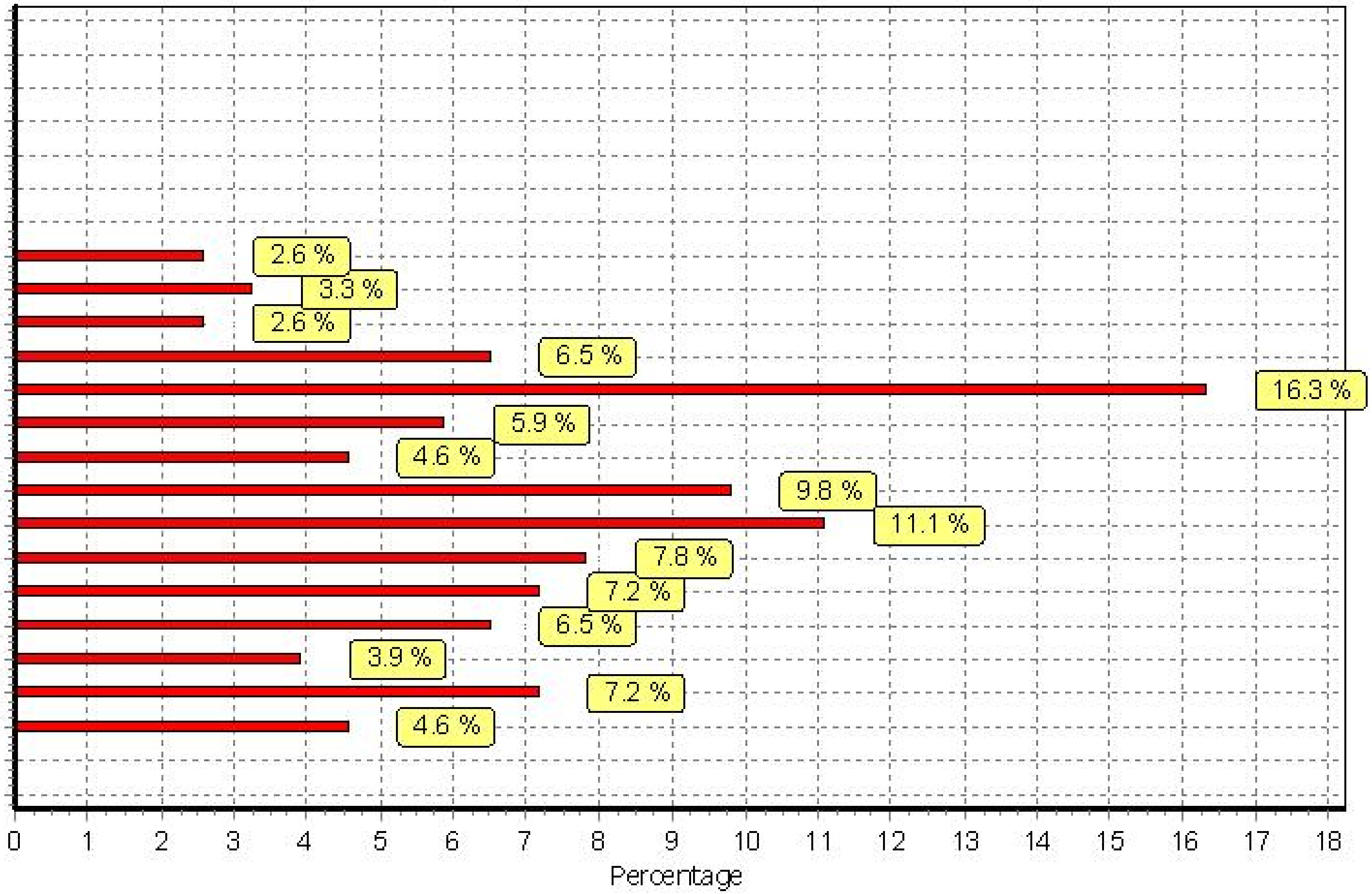
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	0.004	2.7
08:00-09:00	0.006	4.1
09:00-10:00	0.007	4.8
10:00-11:00	0.015	10.3
11:00-12:00	0.020	13.7
12:00-13:00	0.009	6.2
13:00-14:00	0.010	6.8
14:00-15:00	0.010	6.8
15:00-16:00	0.014	9.6
16:00-17:00	0.016	11.0
17:00-18:00	0.002	1.4
18:00-19:00	0.007	4.8
19:00-20:00	0.007	4.8
20:00-21:00	0.014	9.6
21:00-22:00	0.005	3.4
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE GRAPH - DEPARTURES 03 - RESIDENTIAL G - STUDENT ACCOMMODATION VEHICLES

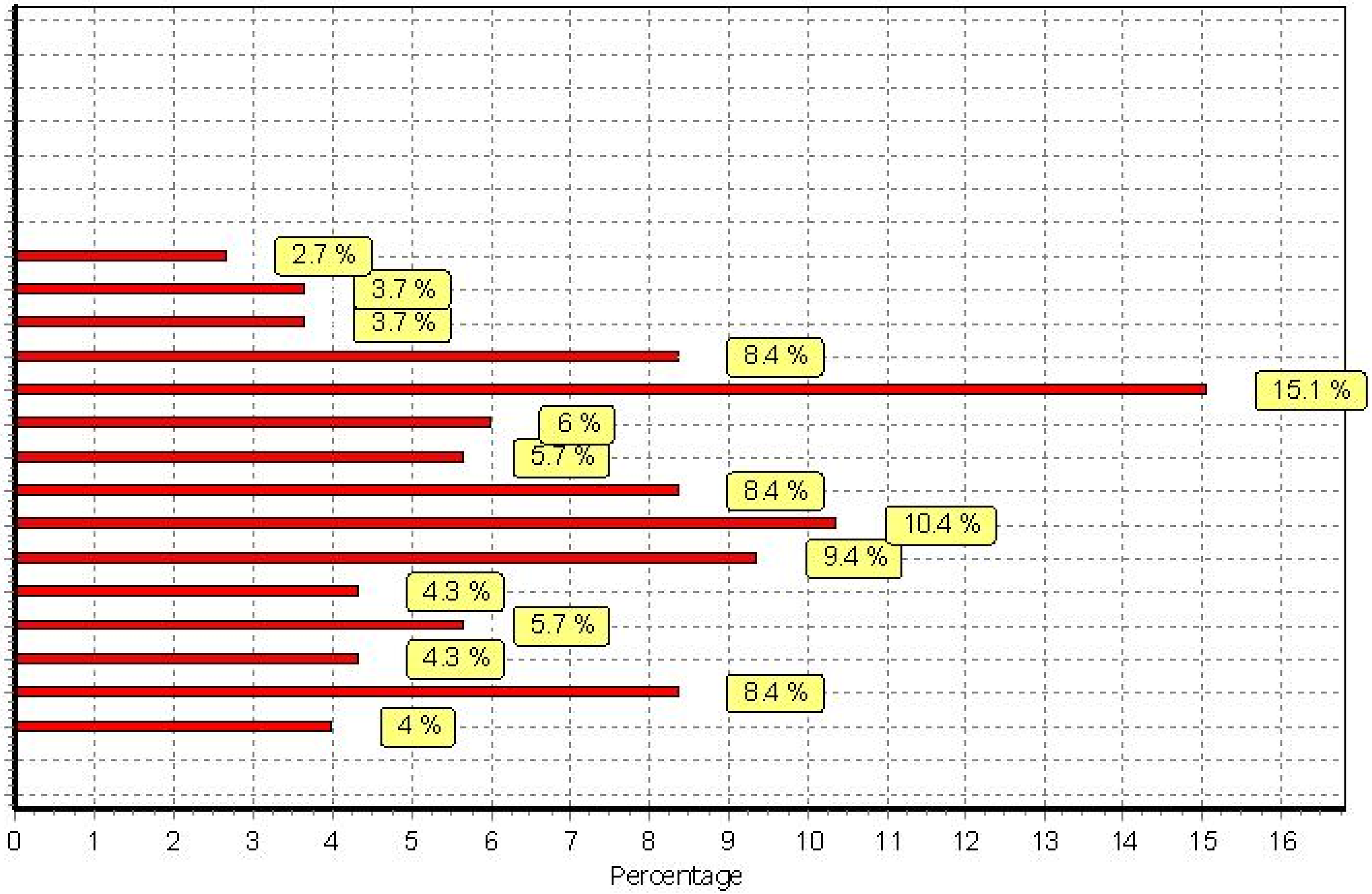
TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	0.004	2.6
08:00-09:00	0.005	3.3
09:00-10:00	0.004	2.6
10:00-11:00	0.010	6.5
11:00-12:00	0.025	16.3
12:00-13:00	0.009	5.9
13:00-14:00	0.007	4.6
14:00-15:00	0.015	9.8
15:00-16:00	0.017	11.1
16:00-17:00	0.012	7.8
17:00-18:00	0.011	7.2
18:00-19:00	0.010	6.5
19:00-20:00	0.006	3.9
20:00-21:00	0.011	7.2
21:00-22:00	0.007	4.6
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

TRIP RATE GRAPH - TOTALS 03 - RESIDENTIAL G - STUDENT ACCOMMODATION VEHICLES

TIME	RATE	%
00:00-01:00		
01:00-02:00		
02:00-03:00		
03:00-04:00		
04:00-05:00		
05:00-06:00		
06:00-07:00		
07:00-08:00	0.008	2.7
08:00-09:00	0.011	3.7
09:00-10:00	0.011	3.7
10:00-11:00	0.025	8.4
11:00-12:00	0.045	15.1
12:00-13:00	0.018	6.0
13:00-14:00	0.017	5.7
14:00-15:00	0.025	8.4
15:00-16:00	0.031	10.4
16:00-17:00	0.028	9.4
17:00-18:00	0.013	4.3
18:00-19:00	0.017	5.7
19:00-20:00	0.013	4.3
20:00-21:00	0.025	8.4
21:00-22:00	0.012	4.0
22:00-23:00		
23:00-24:00		



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Appendix C

TRAFFIC GROWTH

C1 - Districts defined for aggregating the zoning system

District	No
Hambleton	1
Harrogate	2
Richmondshire	3
Humberside	4
North Yorkshire	5
West Yorkshire	6
South East	7
South West	8
North East	9
North West	10

C2 - Growth factors applied to 2019 AM matrix

District	TEMPRO 7.2 OD Car Growth						NTM 2015 Dataset			
	Emp.Bus		Commute		Other		LGV		HGV	
	O	D	O	D	O	D	O	D	O	D
1	1.0400	1.0837	1.0184	1.0750	1.0758	1.0948	1.2097	1.2097	1.0202	1.0202
2	1.0623	1.0846	1.0503	1.0761	1.1011	1.1016	1.2097	1.2097	1.0202	1.0202
3	1.0553	1.0836	1.0354	1.0744	1.0821	1.0948	1.2097	1.2097	1.0202	1.0202
4	1.1130	1.1128	1.1063	1.1066	1.1290	1.1299	1.2097	1.2097	1.0202	1.0202
5	1.0788	1.0863	1.0693	1.0782	1.1015	1.1036	1.2097	1.2097	1.0202	1.0202
6	1.1317	1.1288	1.1300	1.1267	1.1678	1.1667	1.2097	1.2097	1.0202	1.0202
7	1.1060	1.1048	1.1021	1.1000	1.1810	1.1803	1.2160	1.2160	1.0430	1.0430
8	1.0983	1.0983	1.0947	1.0947	1.1388	1.1388	1.2092	1.2092	1.0102	1.0102
9	1.1238	1.1238	1.1186	1.1186	1.1302	1.1302	1.2097	1.2097	1.0202	1.0202
10	1.1086	1.1086	1.1060	1.1060	1.1265	1.1265	1.2011	1.2011	1.2011	1.2011

C3 - Growth factors applied to 2019 IP matrix

District	TEMPRO 7.2 OD Car Growth						NTM 2015 Dataset			
	Emp.Bus		Commute		Other		LGV		HGV	
	O	D	O	D	O	D	O	D	O	D
1	1.0656	1.0656	1.0455	1.0360	1.0865	1.0850	1.2097	1.2097	1.0202	1.0202
2	1.0716	1.0717	1.0548	1.0512	1.1036	1.1018	1.2097	1.2097	1.0202	1.0202
3	1.0682	1.0682	1.0476	1.0391	1.0859	1.0856	1.2097	1.2097	1.0202	1.0202
4	1.1059	1.1059	1.0933	1.0932	1.1296	1.1297	1.2097	1.2097	1.0202	1.0202
5	1.0769	1.0769	1.0639	1.0624	1.1023	1.1020	1.2097	1.2097	1.0202	1.0202
6	1.1225	1.1224	1.1138	1.1143	1.1762	1.1763	1.2097	1.2097	1.0202	1.0202
7	1.1021	1.1019	1.0922	1.0923	1.1882	1.1884	1.2160	1.2160	1.0430	1.0430
8	1.0939	1.0939	1.0842	1.0842	1.1432	1.1432	1.2092	1.2092	1.0102	1.0102
9	1.1141	1.1141	1.1020	1.1020	1.1303	1.1303	1.2097	1.2097	1.0202	1.0202
10	1.1002	1.1002	1.0905	1.0905	1.1288	1.1288	1.2011	1.2011	1.2011	1.2011

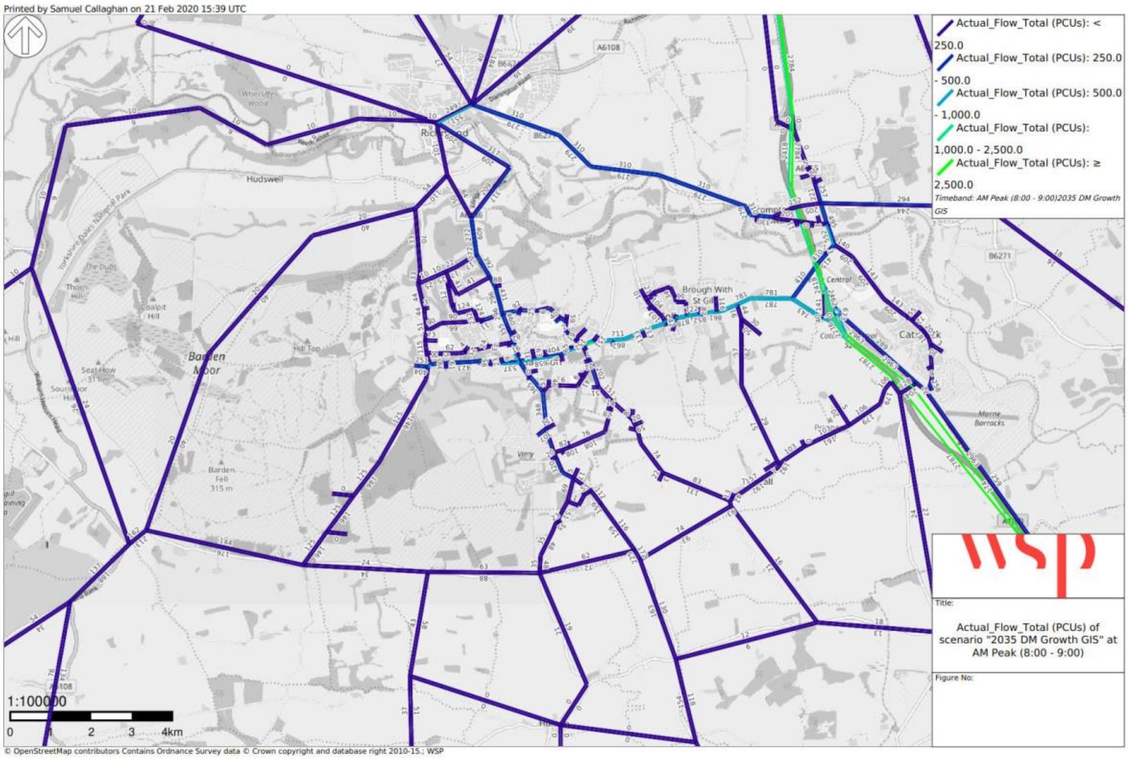
C4 -Growth factors applied to 2019 PM matrix

District	TEMPRO 7.2 OD Car Growth						NTM 2015 Dataset			
	Emp.Bus		Commute		Other		LGV		HGV	
	O	D	O	D	O	D	O	D	O	D
1	1.0766	1.0437	1.0651	1.0096	1.0763	1.0692	1.2097	1.2097	1.0202	1.0202
2	1.0789	1.0625	1.0662	1.0410	1.0890	1.0895	1.2097	1.2097	1.0202	1.0202
3	1.0752	1.0542	1.0636	1.0247	1.0788	1.0736	1.2097	1.2097	1.0202	1.0202
4	1.1090	1.1089	1.0966	1.0964	1.1197	1.1195	1.2097	1.2097	1.0202	1.0202
5	1.0819	1.0763	1.0693	1.0606	1.0928	1.0917	1.2097	1.2097	1.0202	1.0202
6	1.1247	1.1268	1.1168	1.1200	1.1601	1.1605	1.2097	1.2097	1.0202	1.0202
7	1.1029	1.1032	1.0919	1.0939	1.1630	1.1630	1.2160	1.2160	1.0430	1.0430
8	1.0961	1.0961	1.0860	1.0860	1.1284	1.1284	1.2092	1.2092	1.0102	1.0102
9	1.1183	1.1183	1.1075	1.1075	1.1239	1.1239	1.2097	1.2097	1.0202	1.0202
10	1.1031	1.1031	1.0957	1.0957	1.1191	1.1191	1.2011	1.2011	1.2011	1.2011

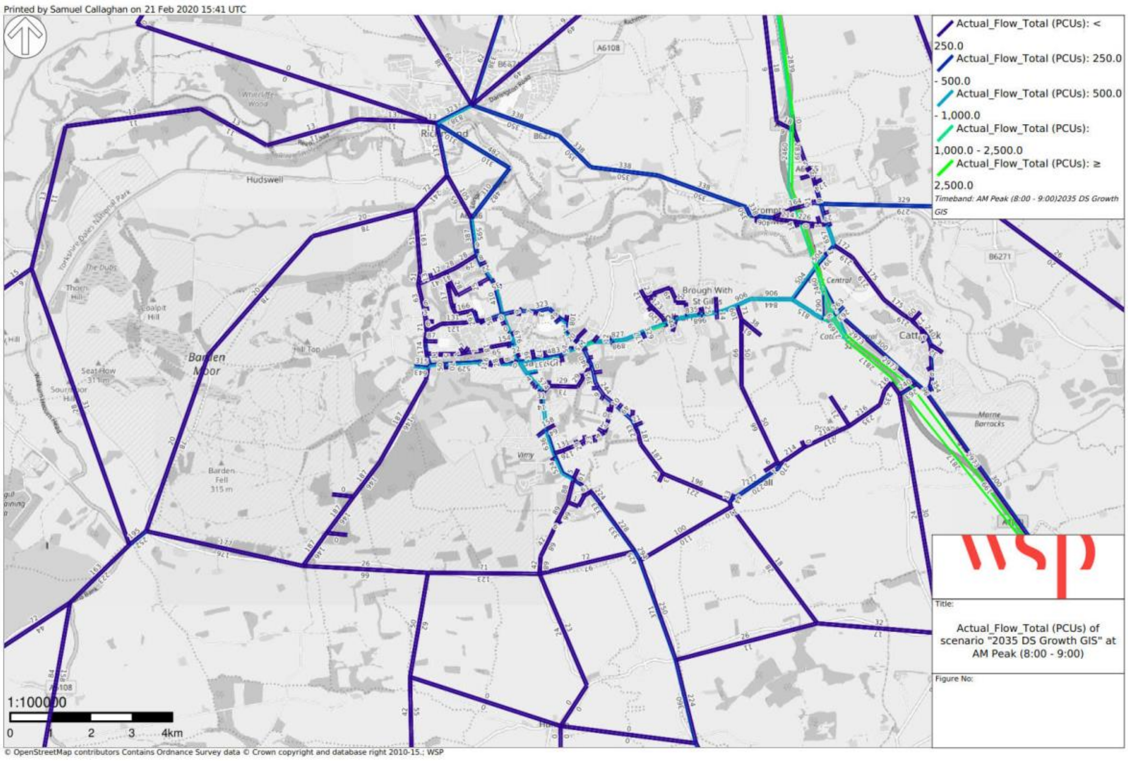
Appendix D

TAFFIC FLOW PLOTS

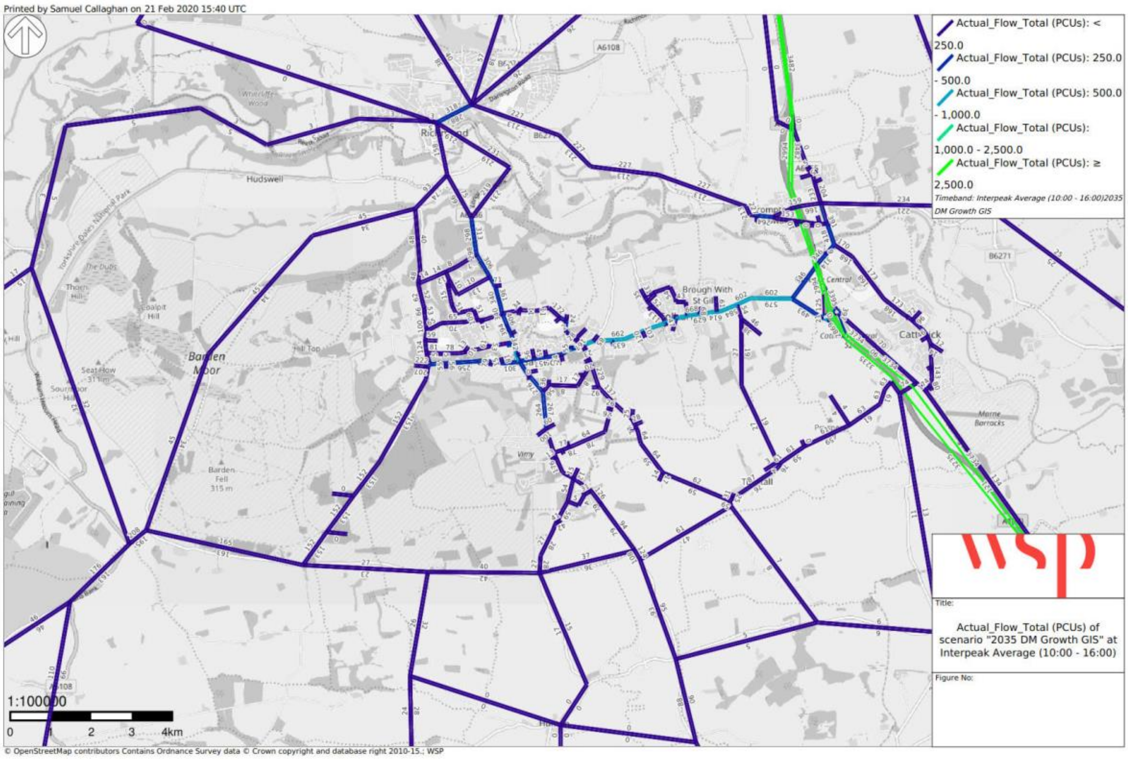
2035 DM AM peak hour – Catterick Garrison and Village



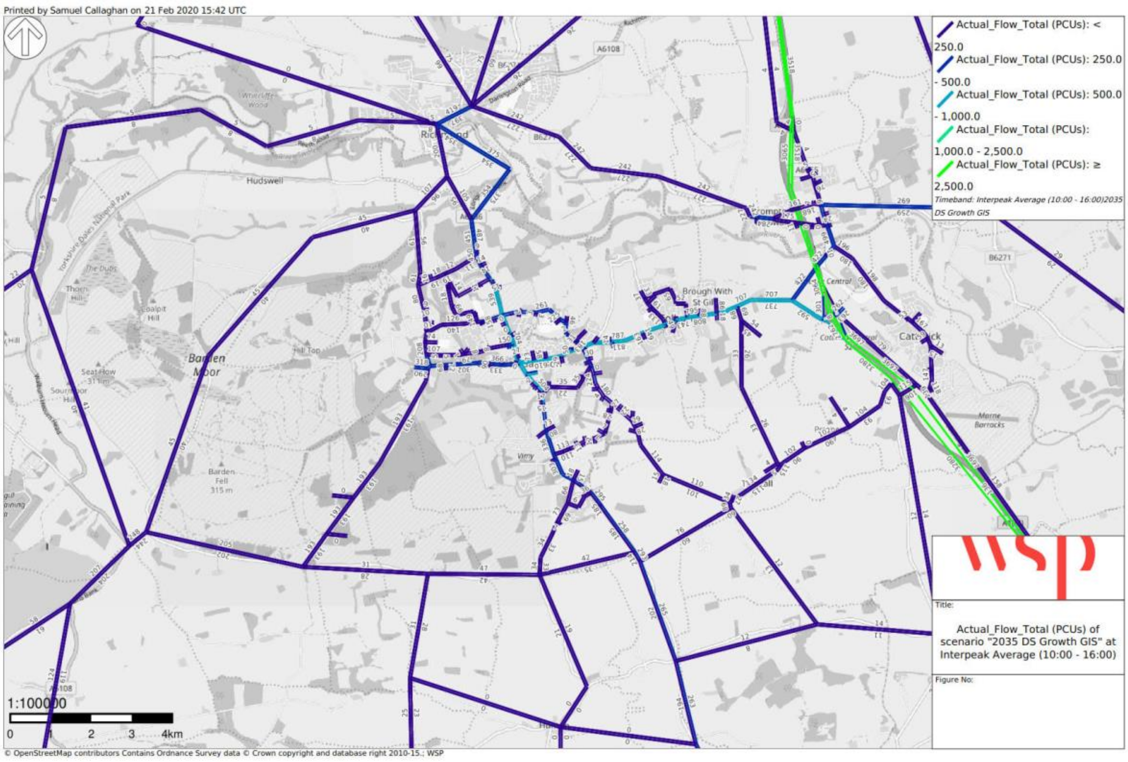
2035 DS AM peak hour – Catterick Garrison and Village



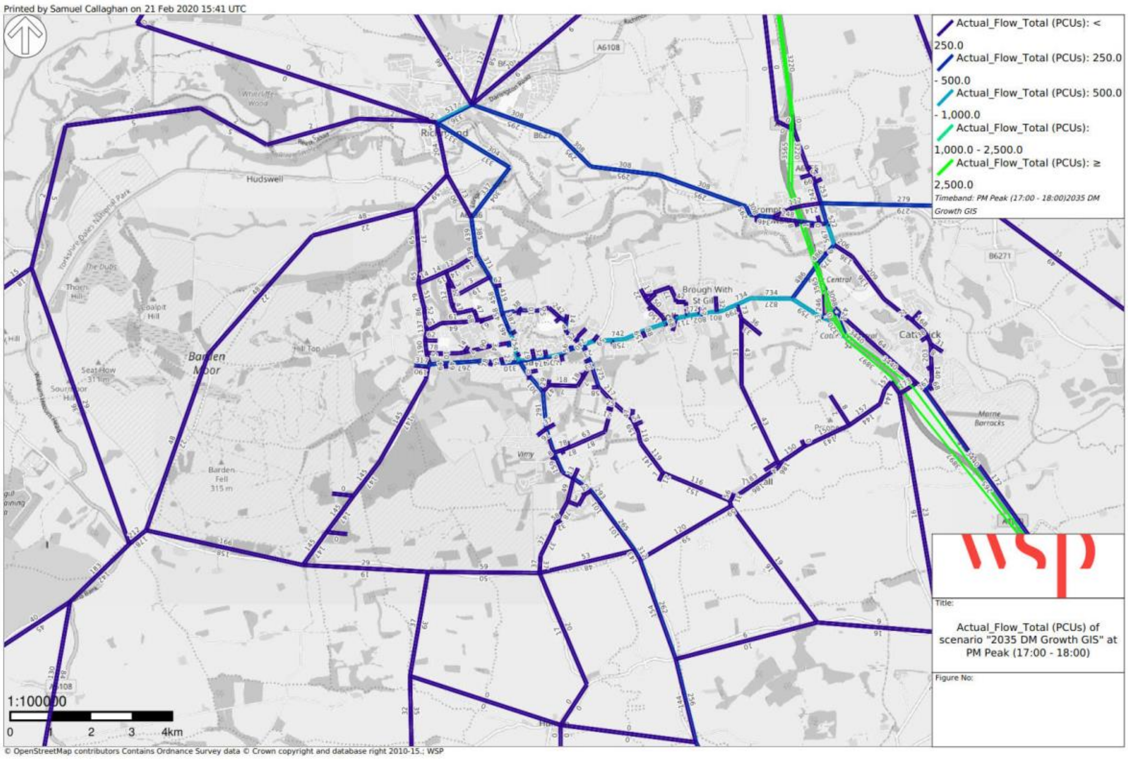
2035 DM Inter peak hour – Catterick Garrison and Village



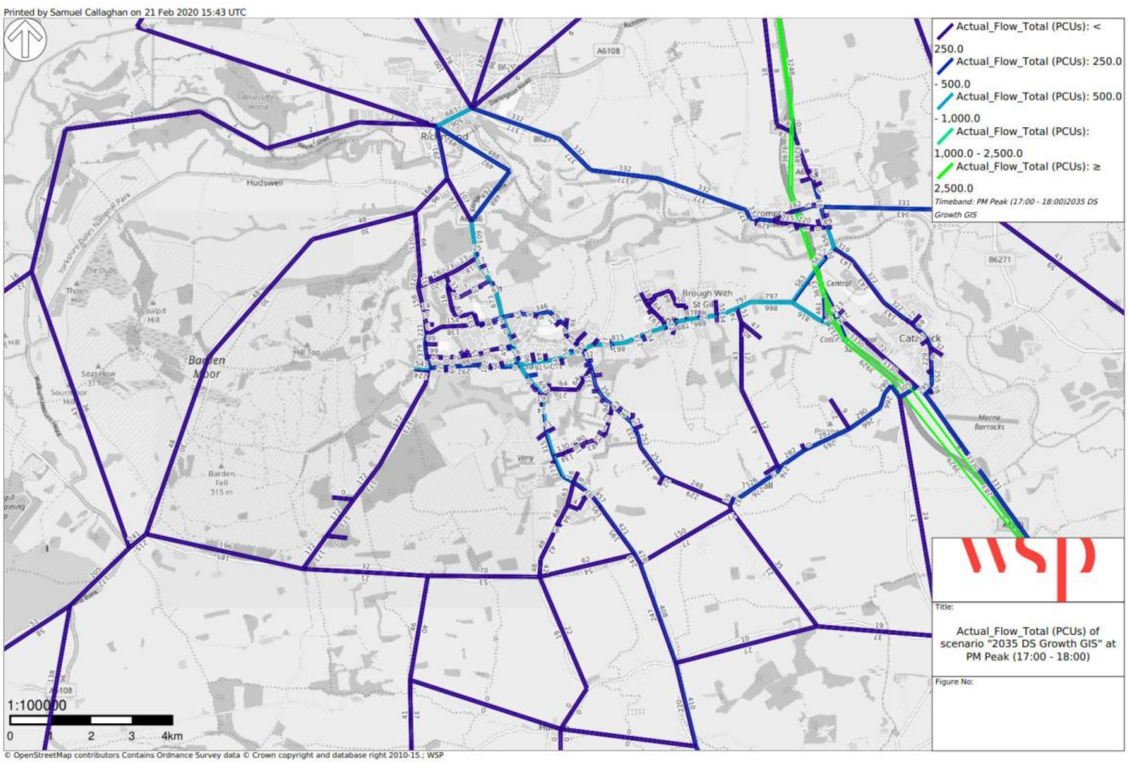
2035 DS Inter peak hour – Catterick Garrison and Village



2035 DM PM peak hour – Catterick Garrison and Village



2035 DS PM peak hour – Catterick Garrison and Village

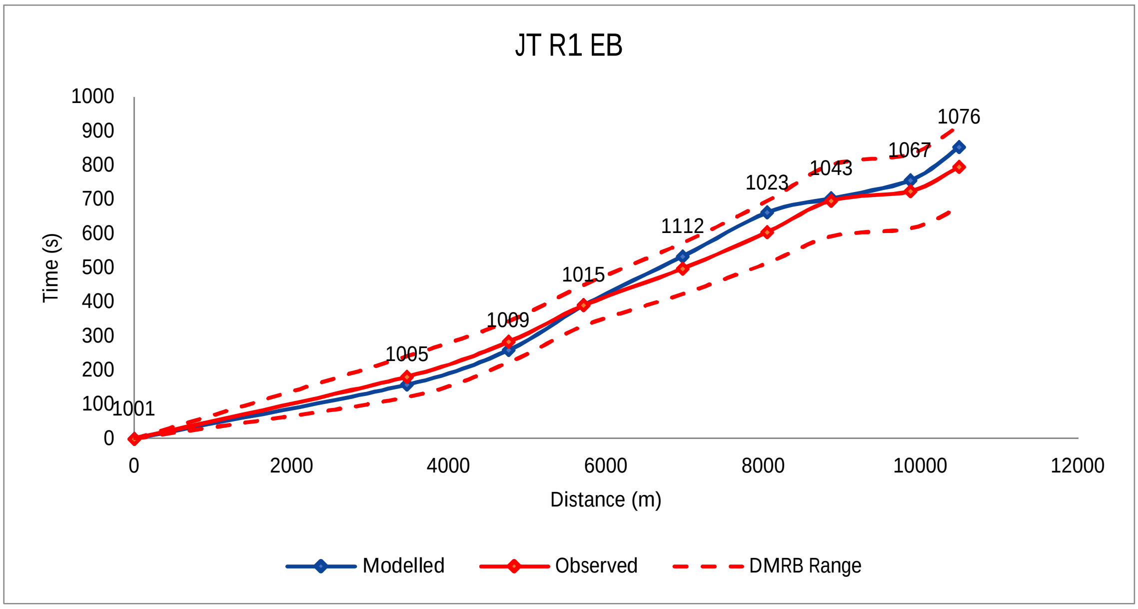


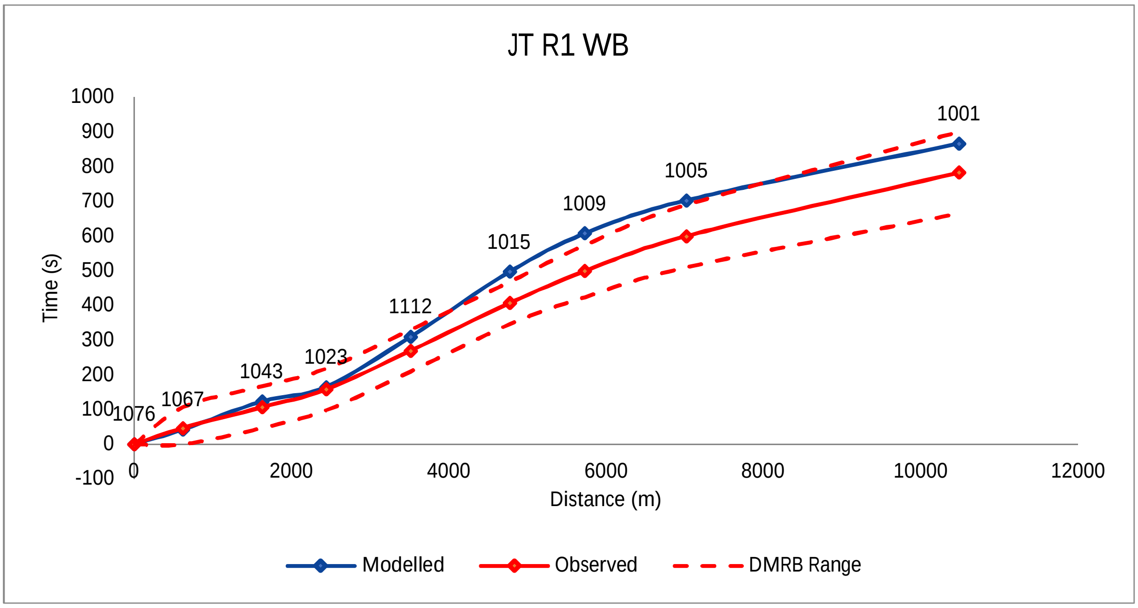
Appendix E

JOURNEY TIME GRAPHS - 2035 DM-BASE

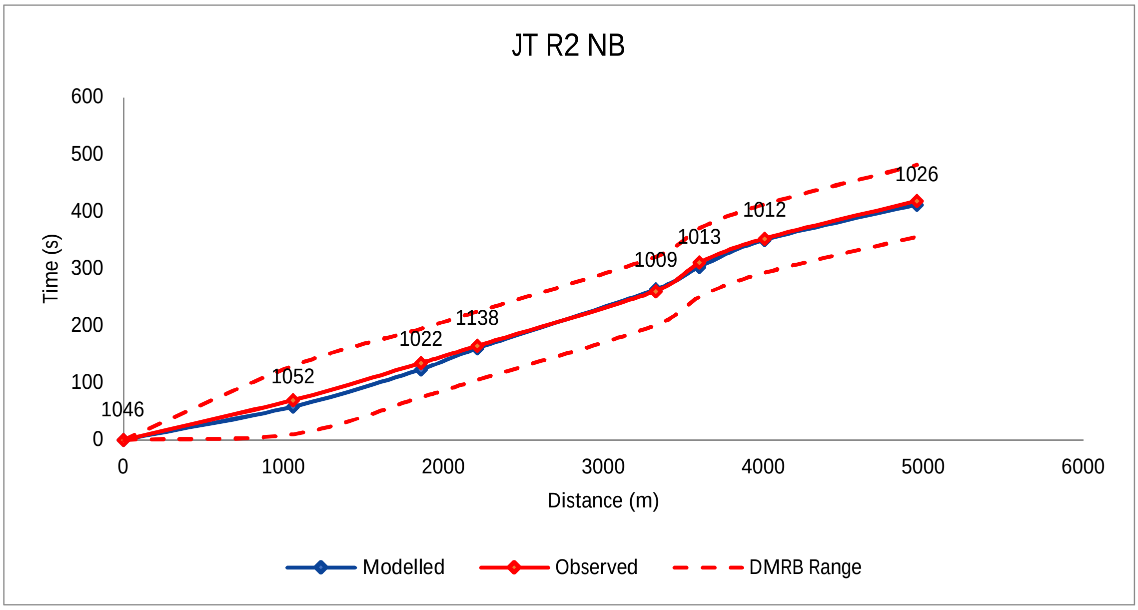
2035 DM AM Journey time summary graphs

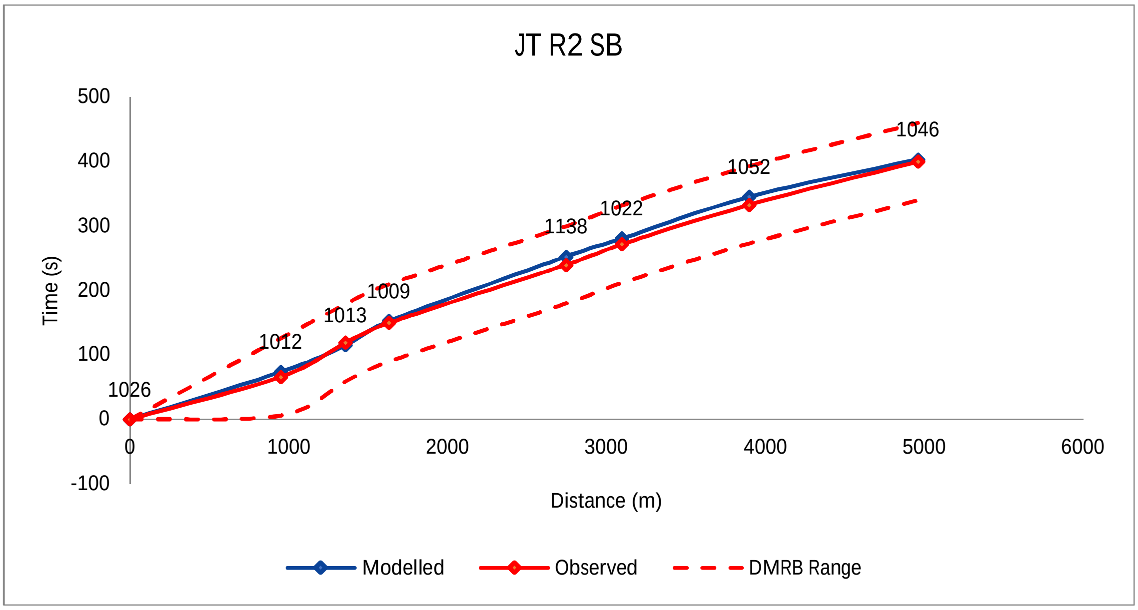
Journey Time Route no 1



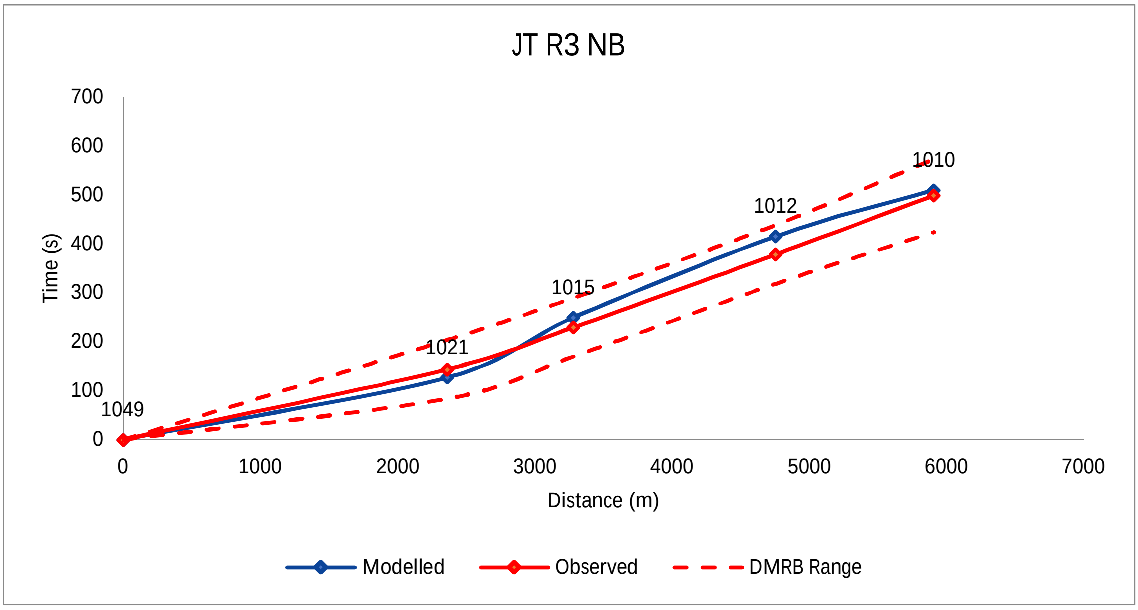


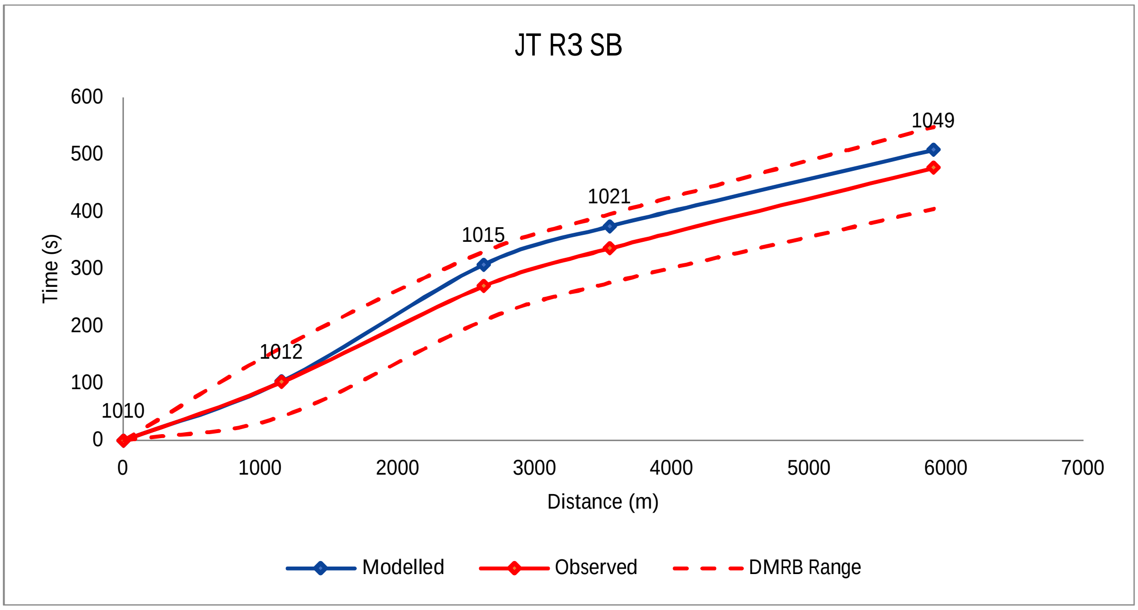
Journey Time Route no 2



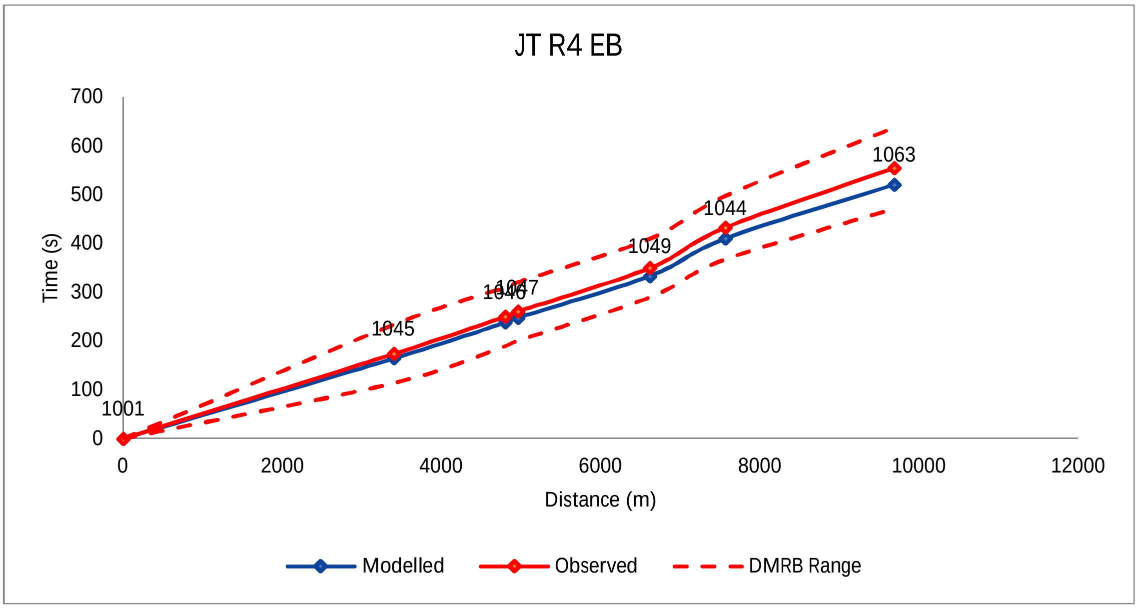


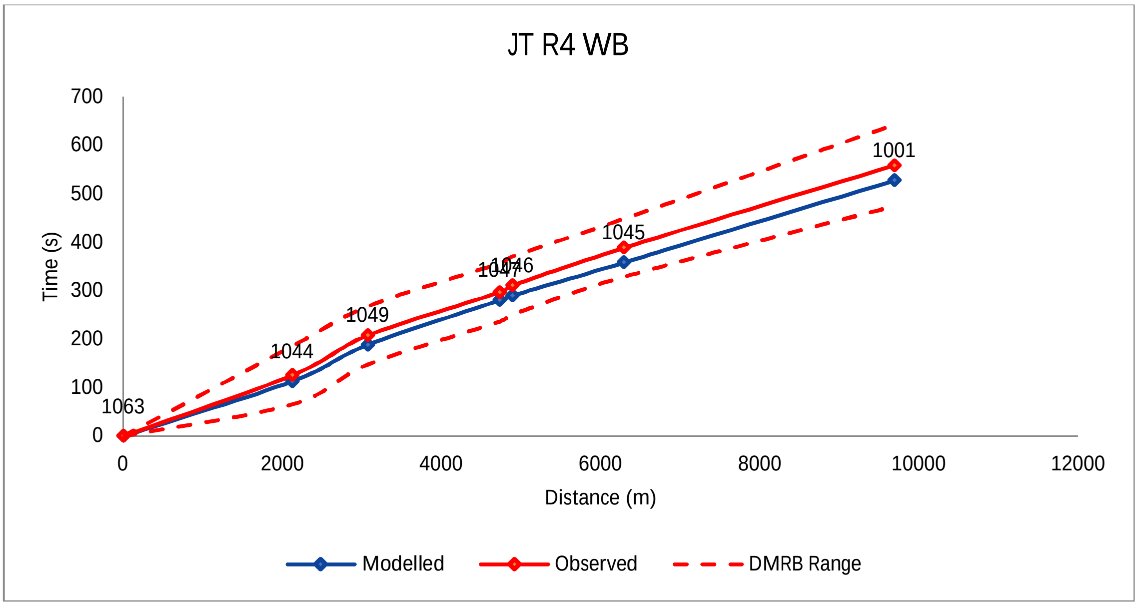
Journey Time Route no 3



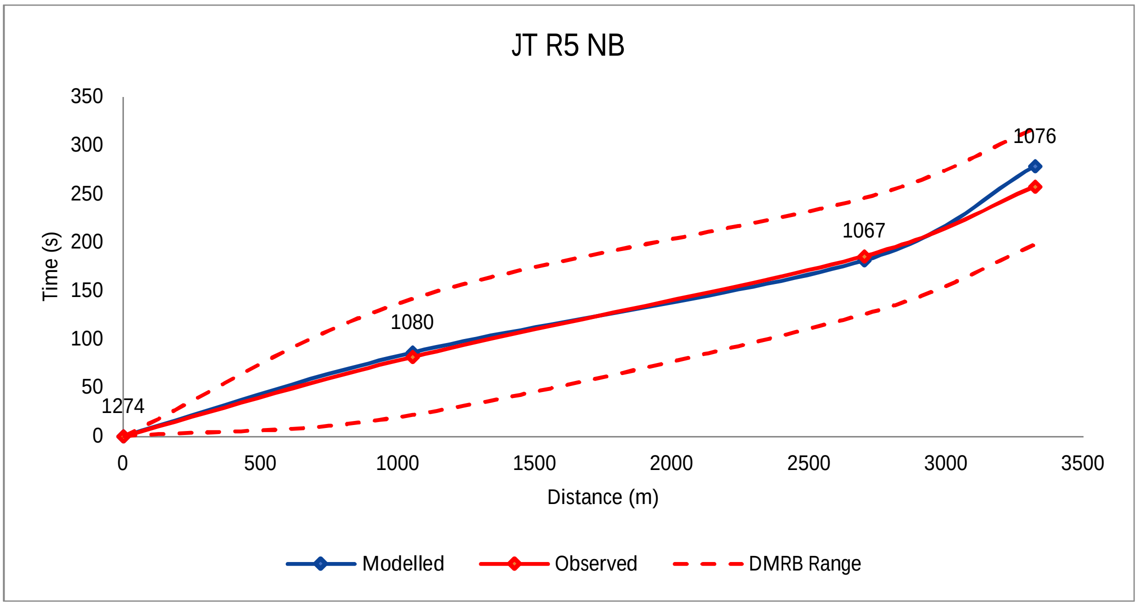


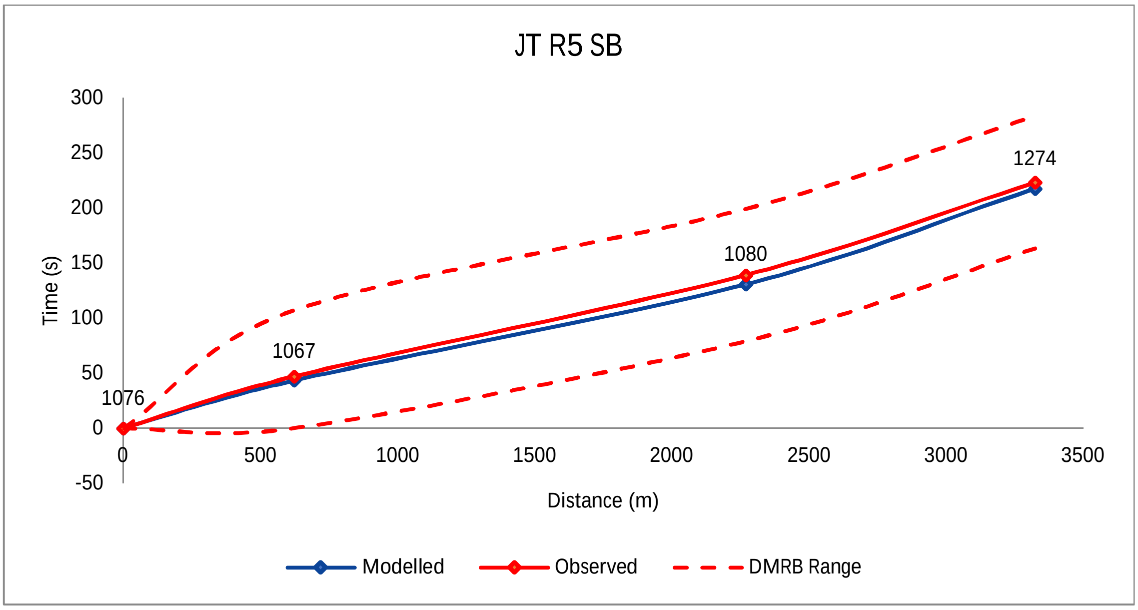
Journey Time Route no 4





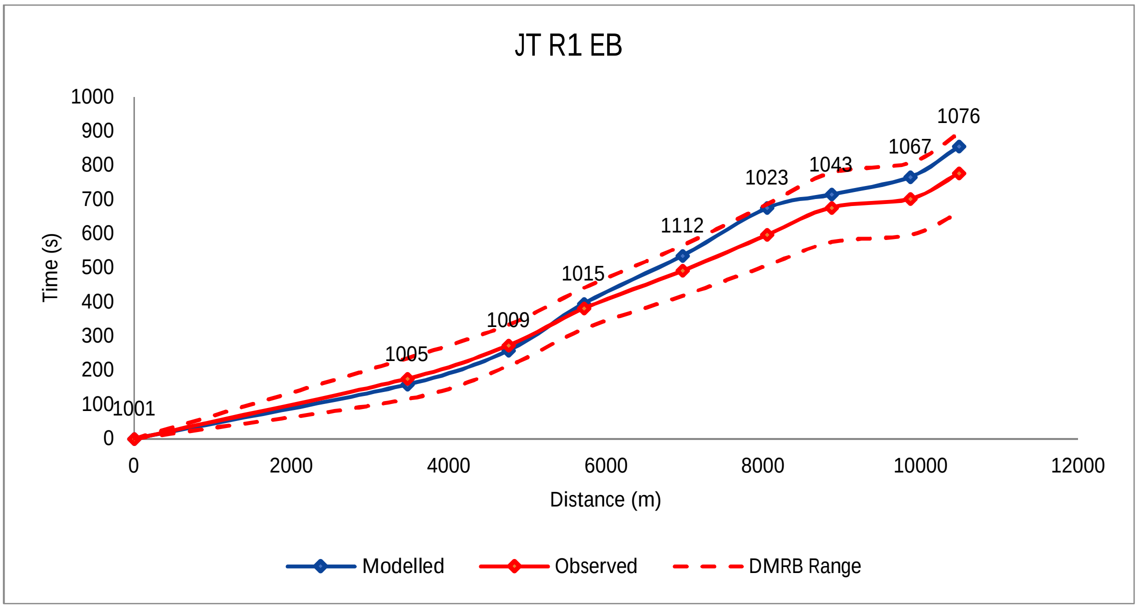
Journey Time Route no 5

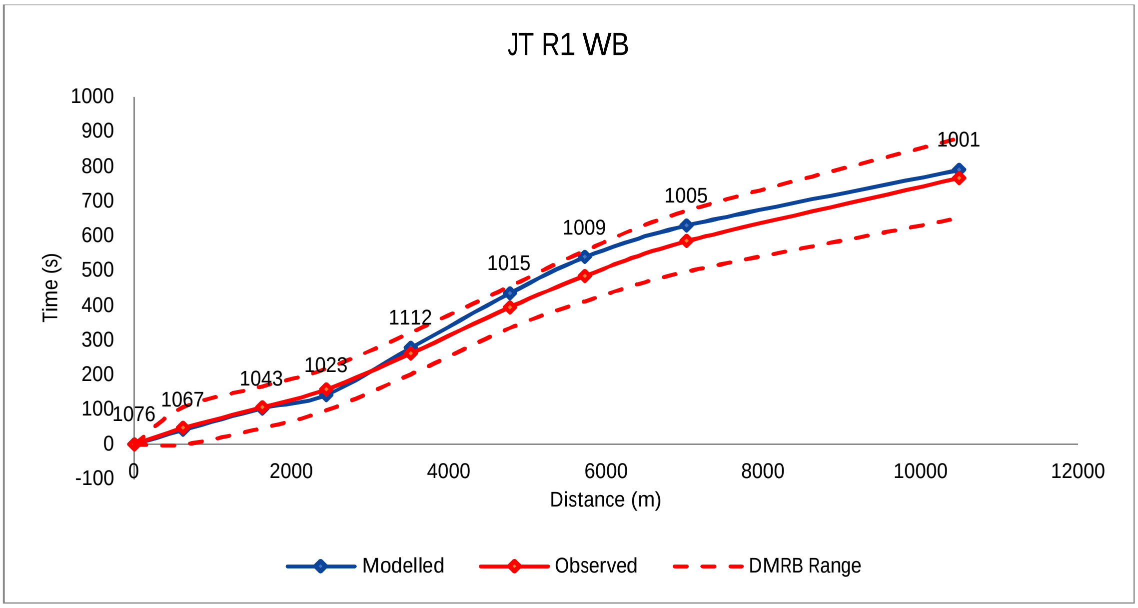




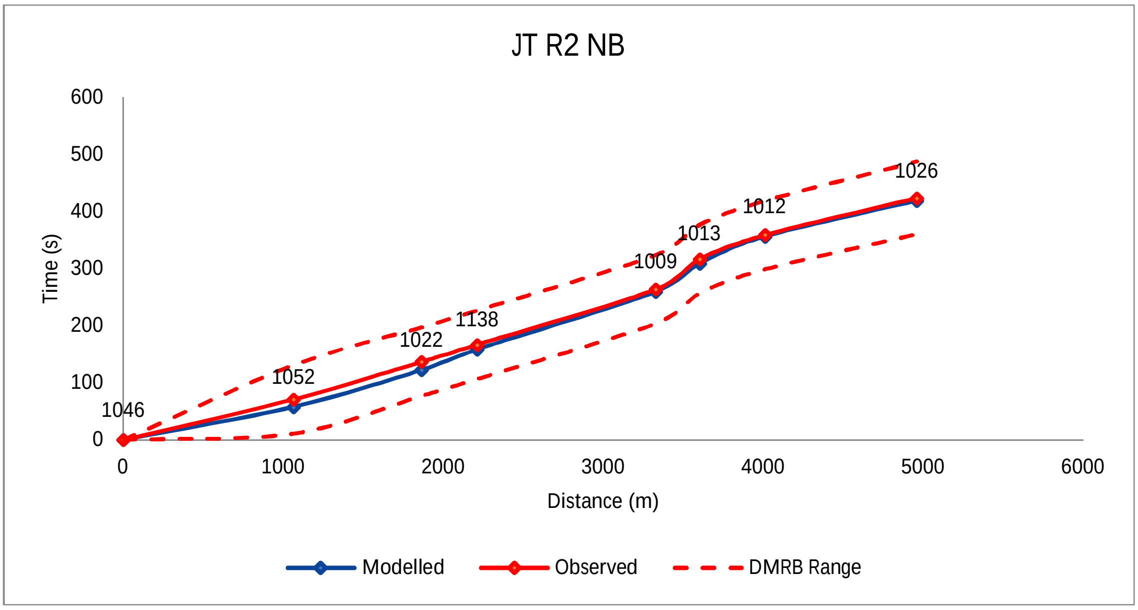
2035 DM IP Journey time summary graphs

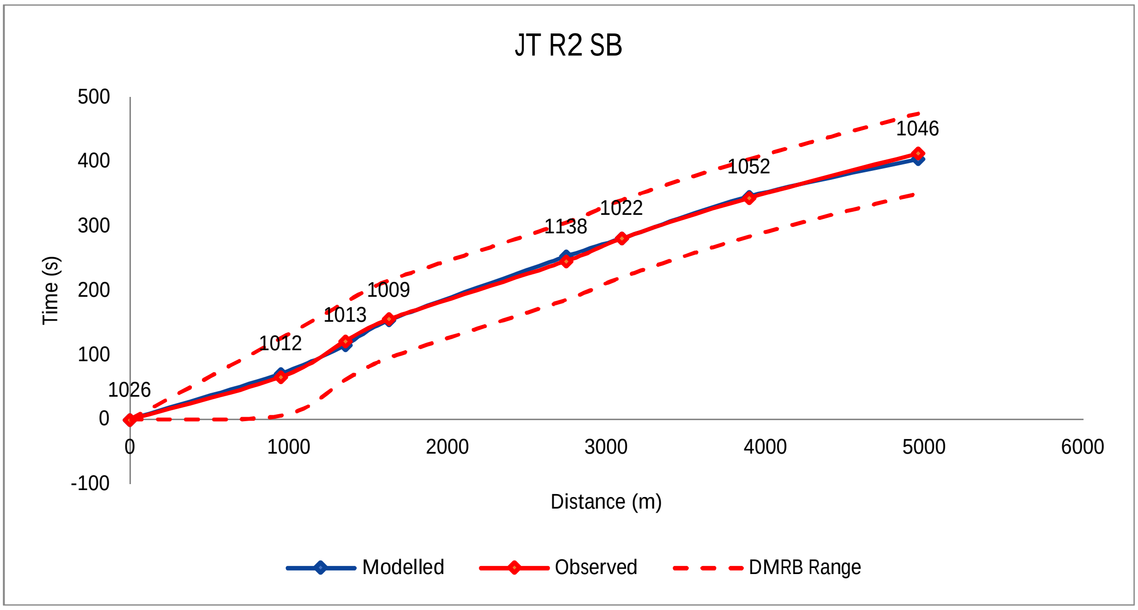
Journey Time Route no 1



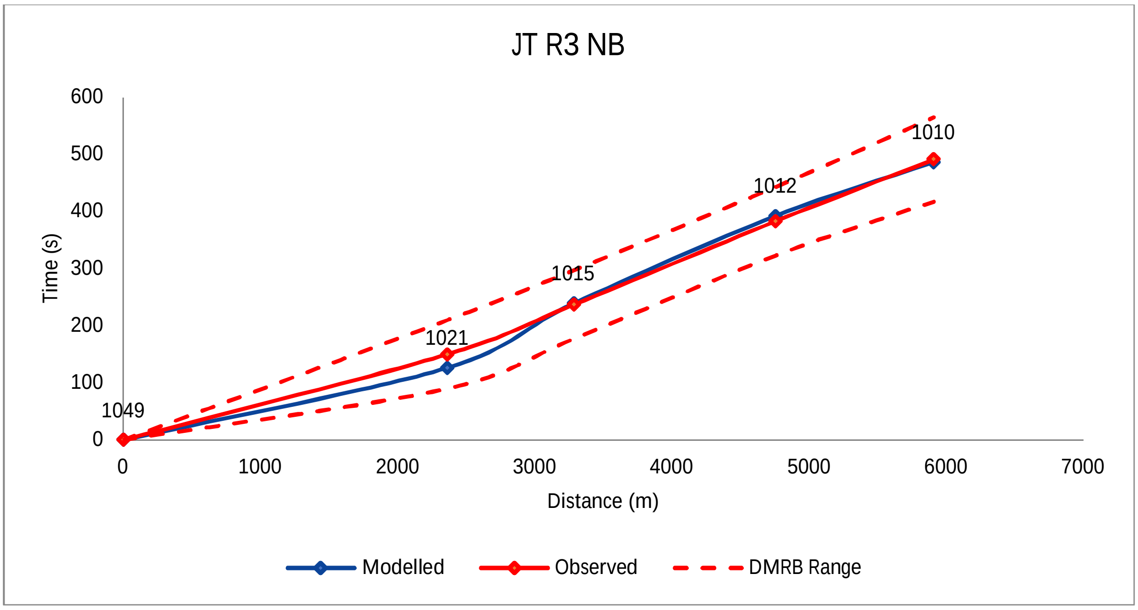


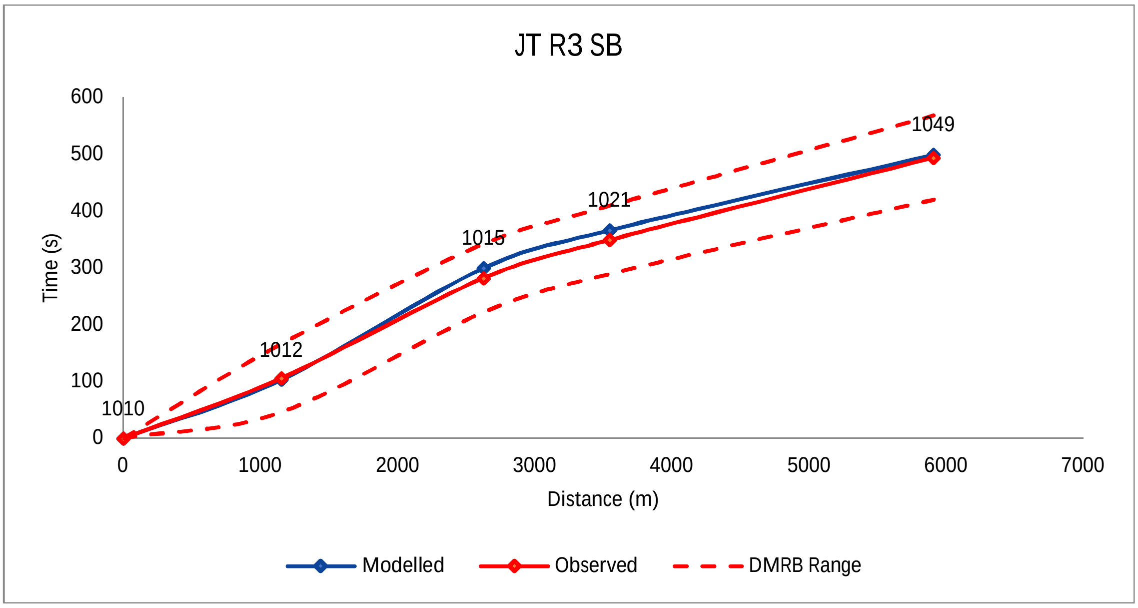
Journey Time Route no 2



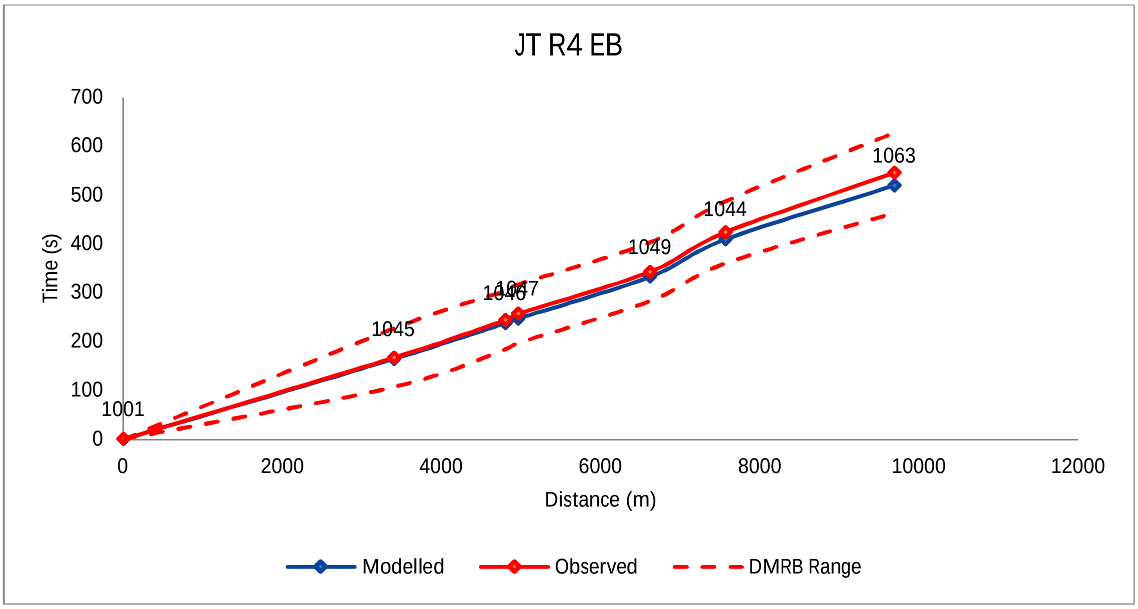


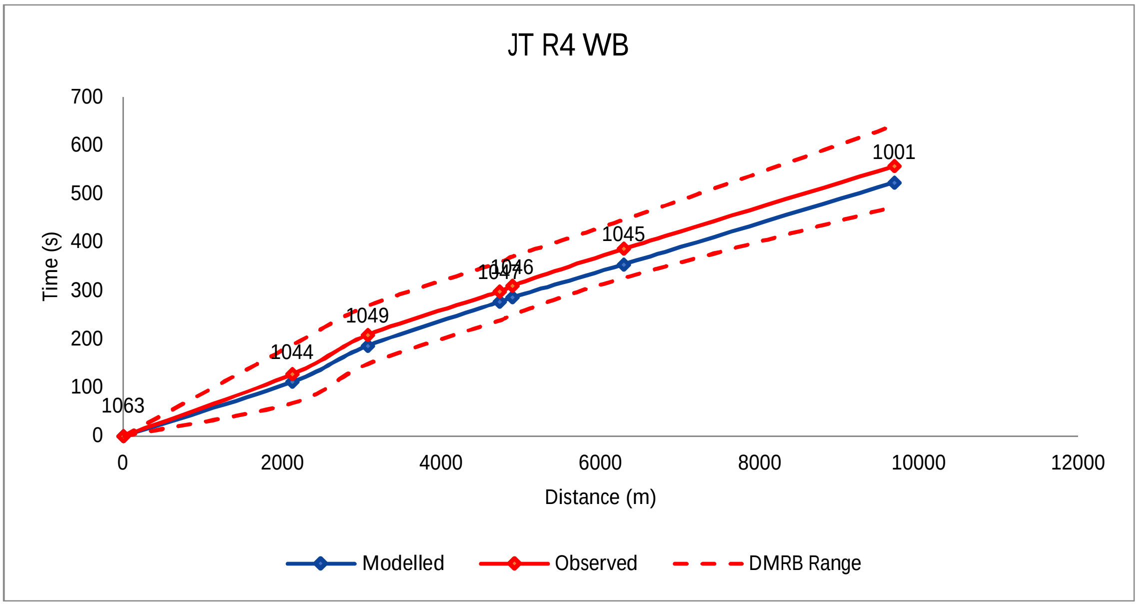
Journey Time Route no 3



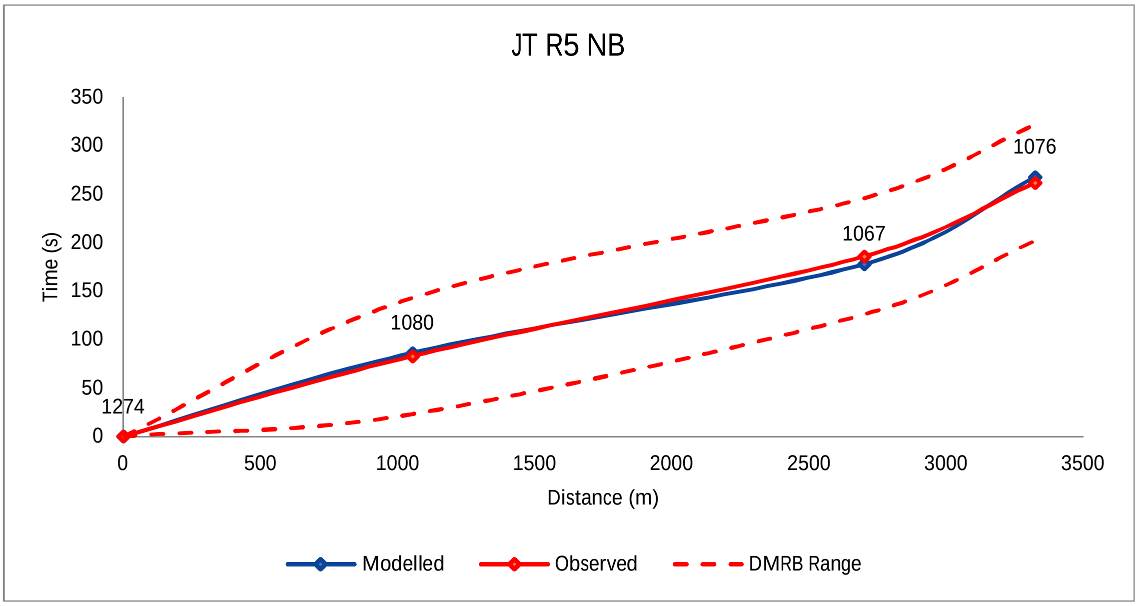


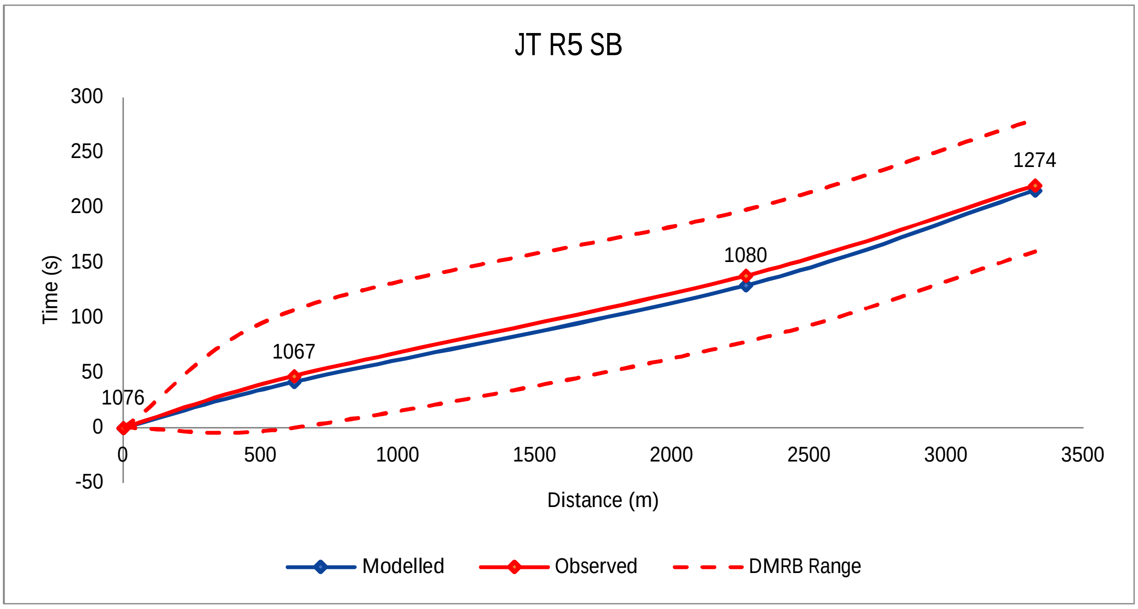
Journey Time Route no 4





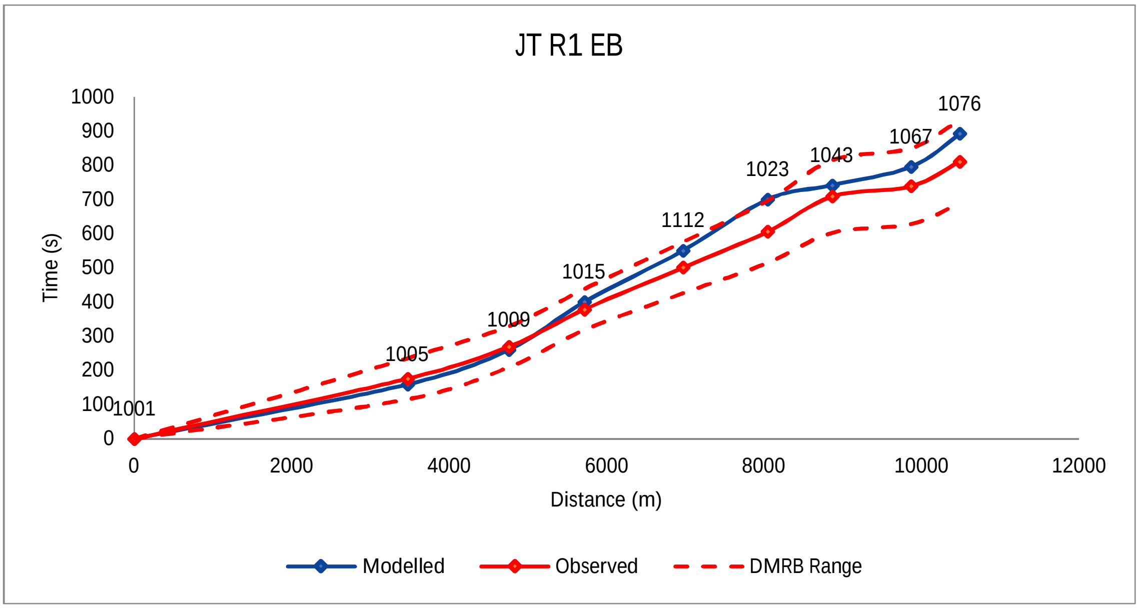
Journey Time Route no 5

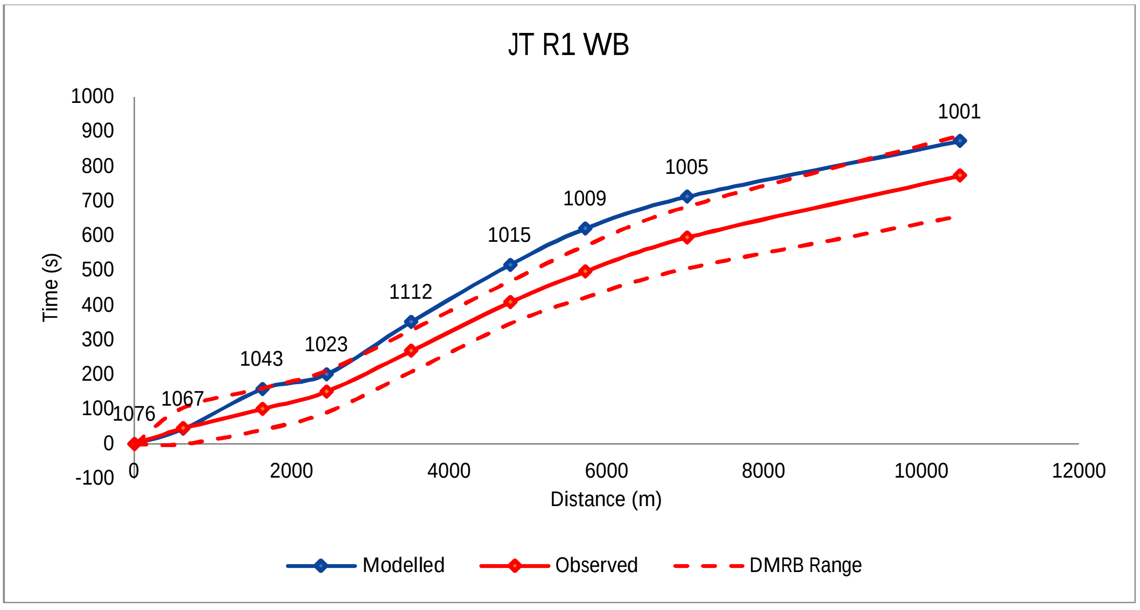




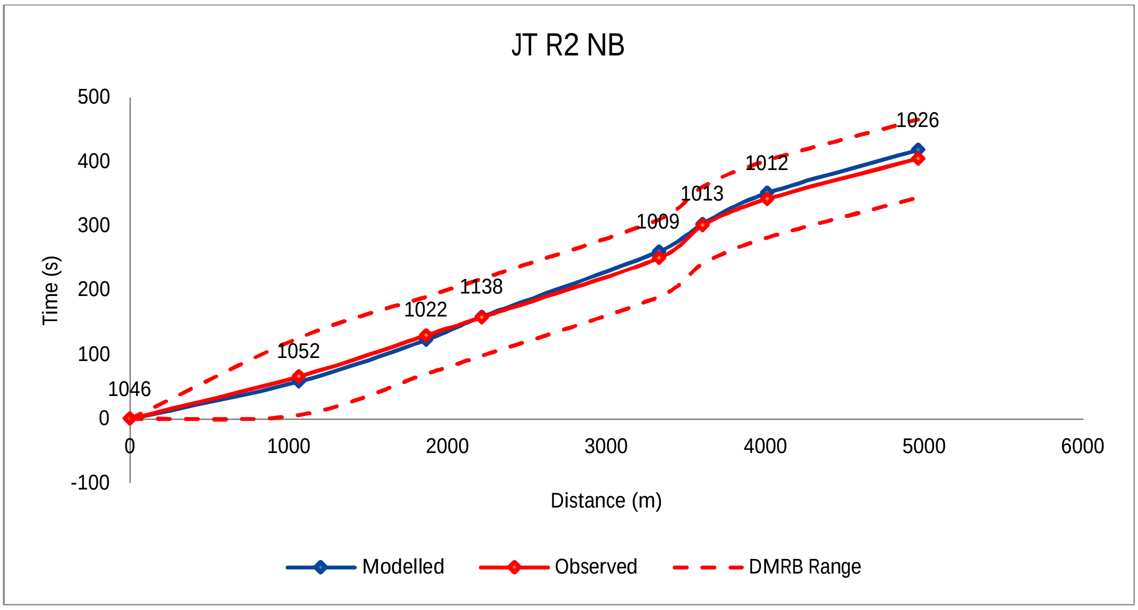
2035 DM PM Journey time summary graphs

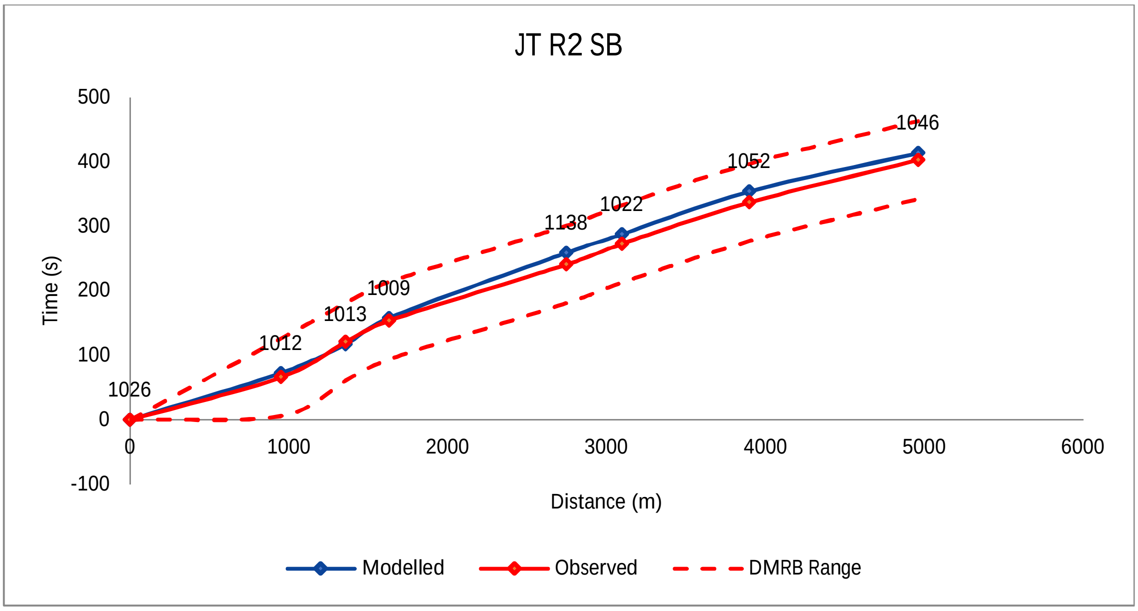
Journey Time Route no 1



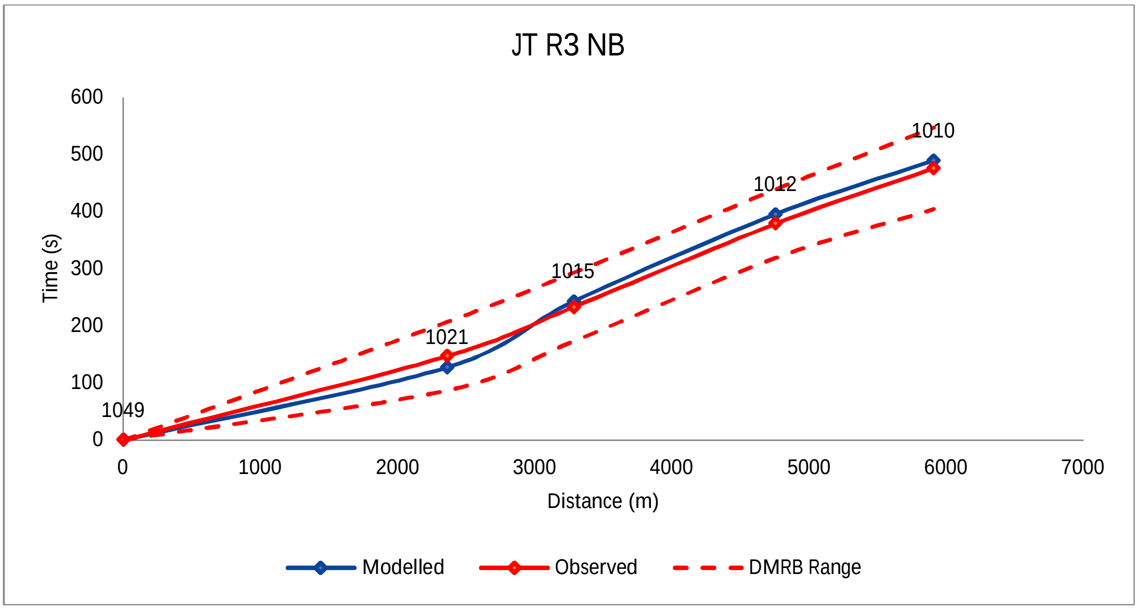


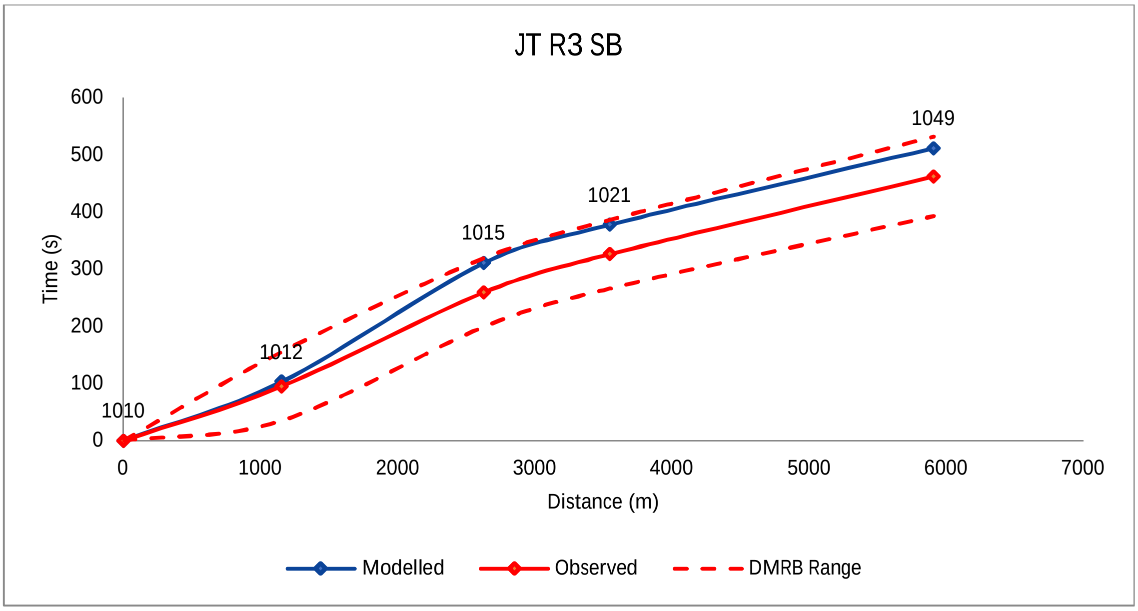
Journey Time Route no 2





Journey Time Route no 3





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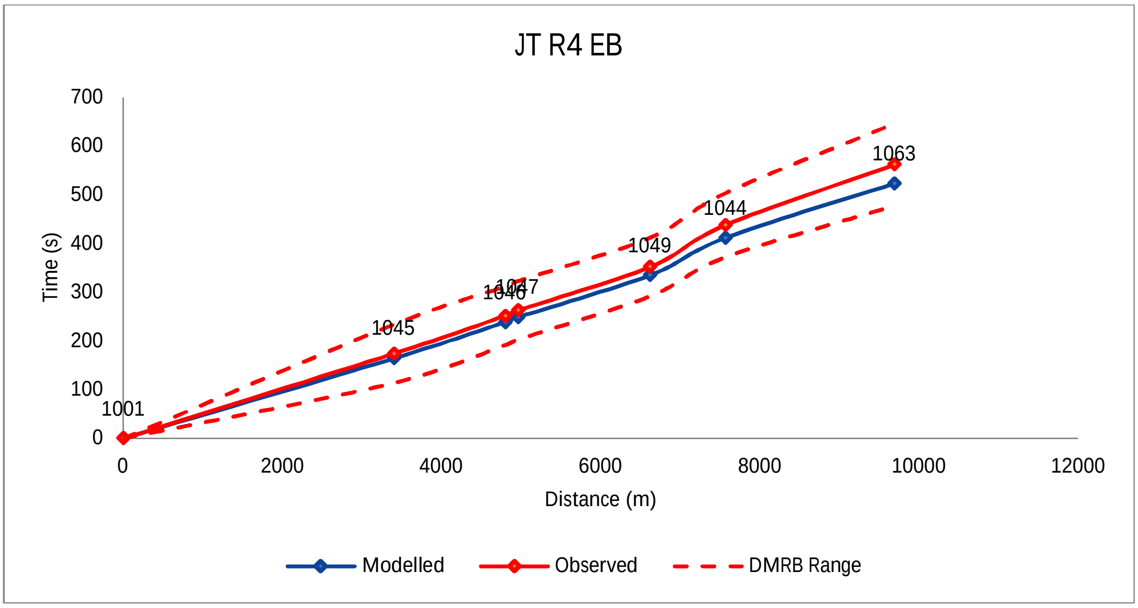

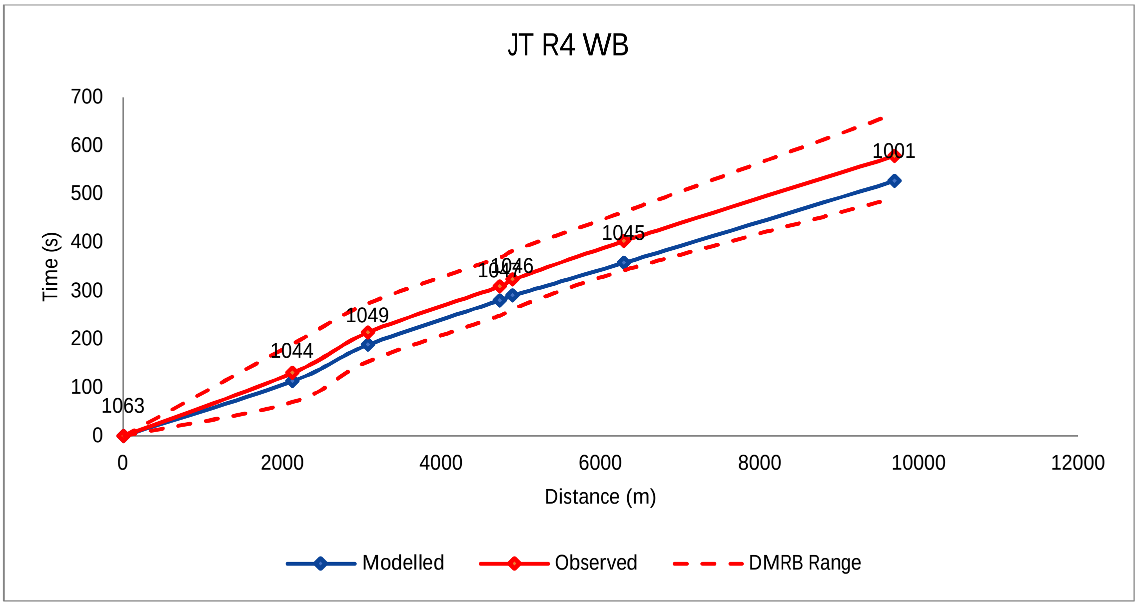

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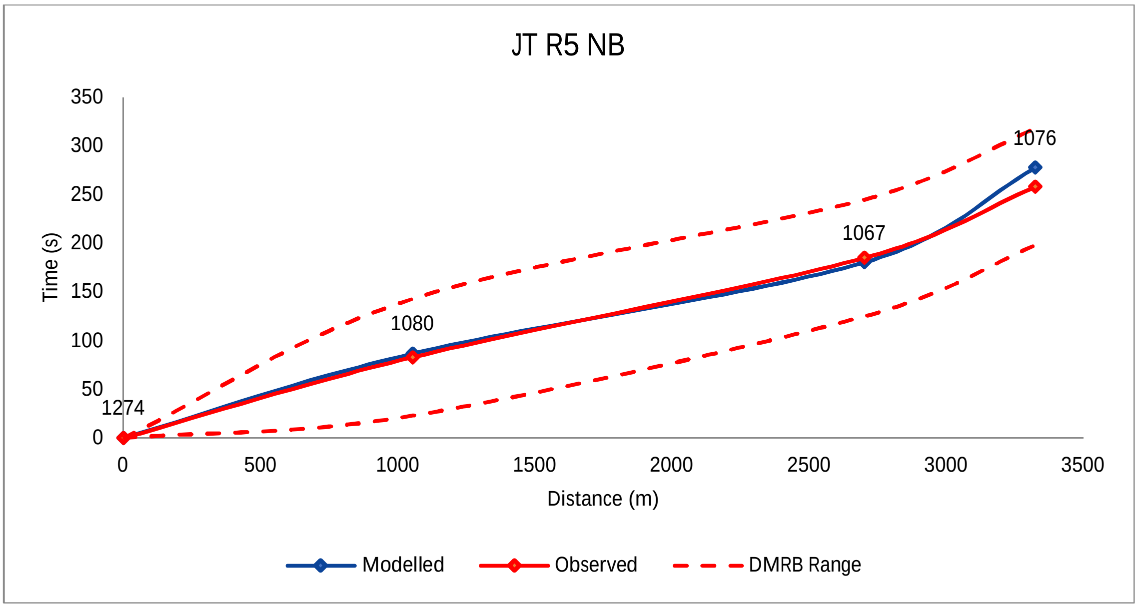

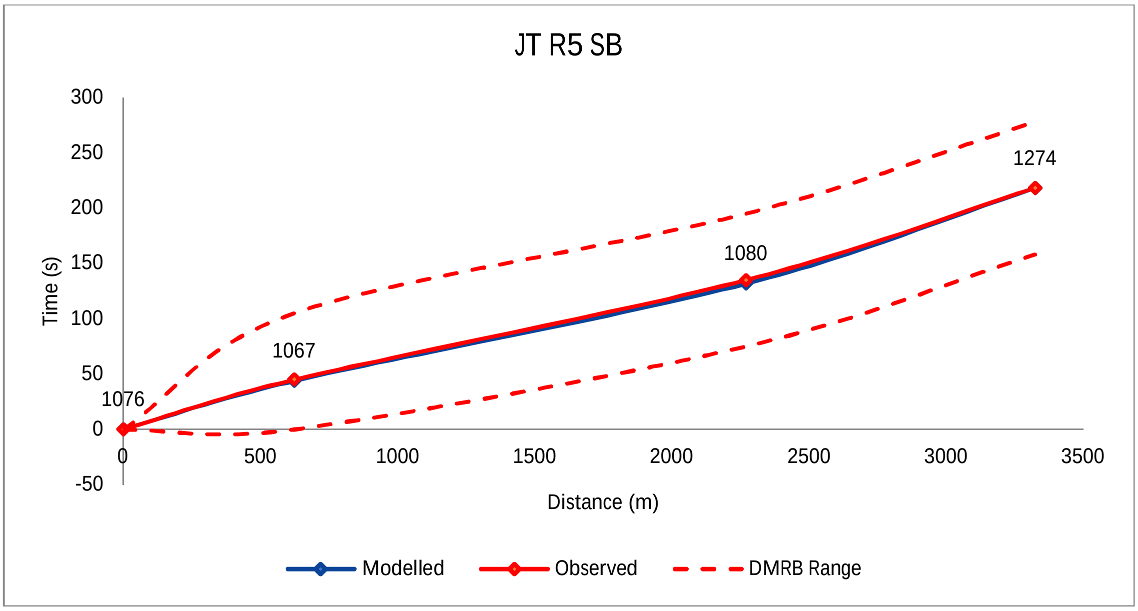

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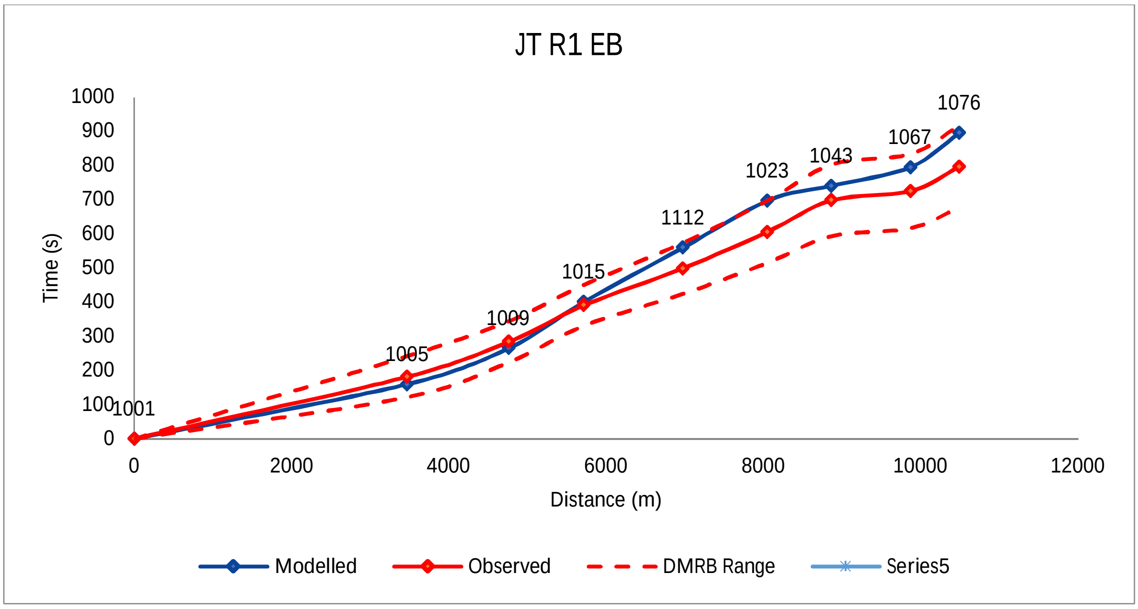
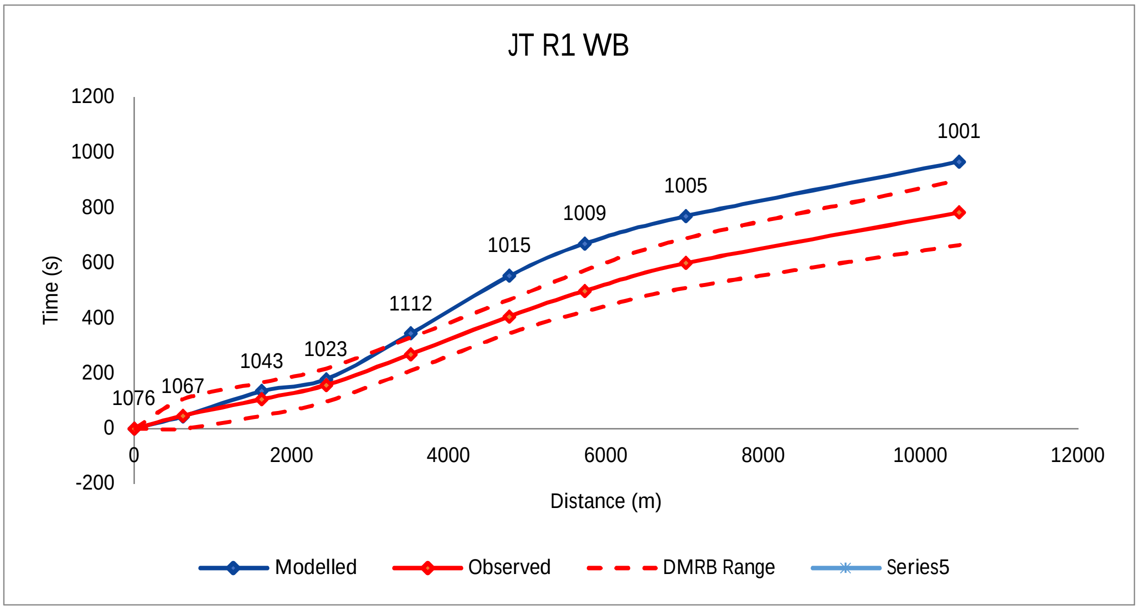
Appendix F

JOURNEY TIME GRAPHS 2035DS-2035DM

2035 DS AM Journey time summary graphs

Journey Time Route no 1





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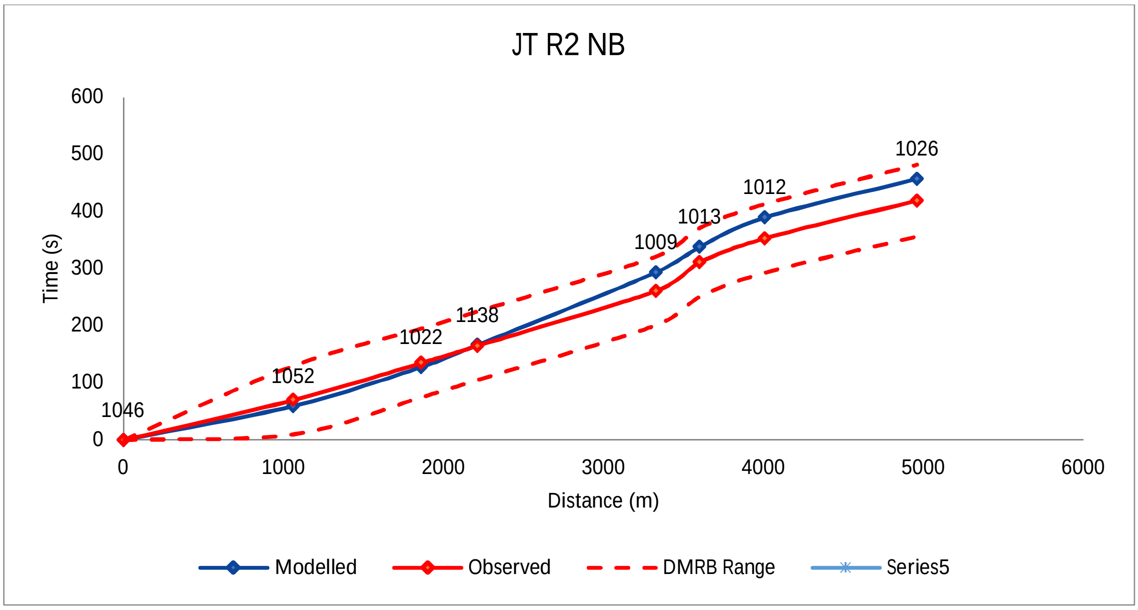

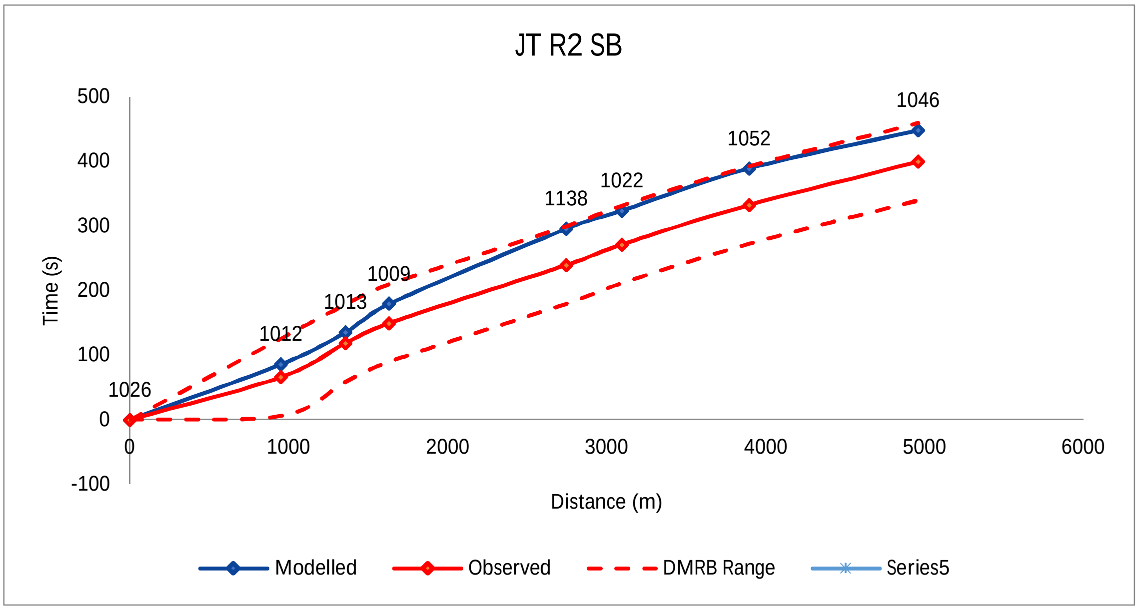

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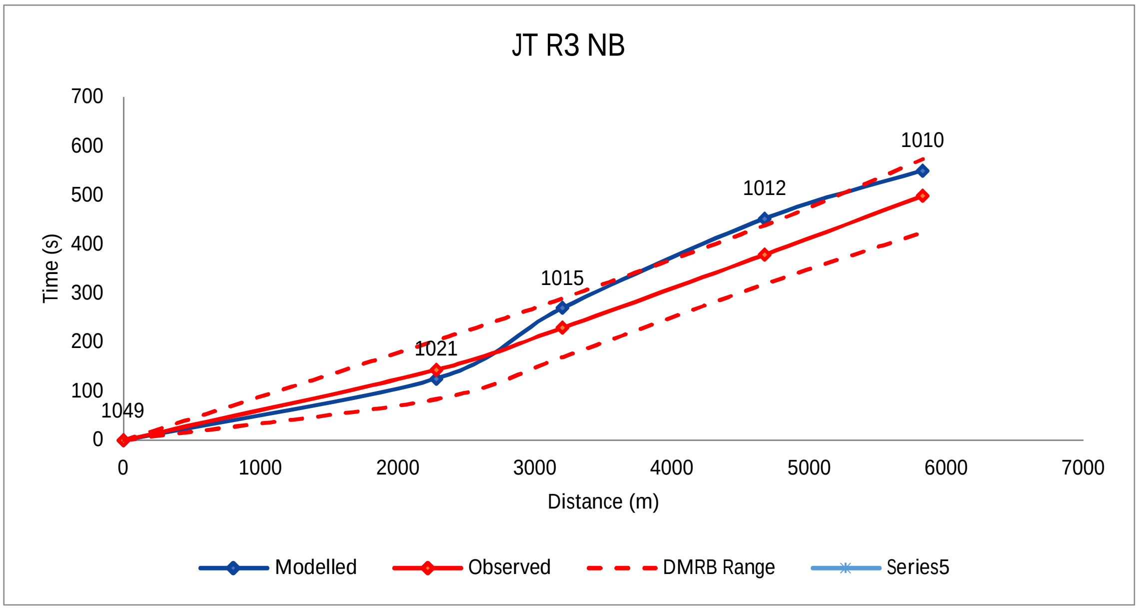

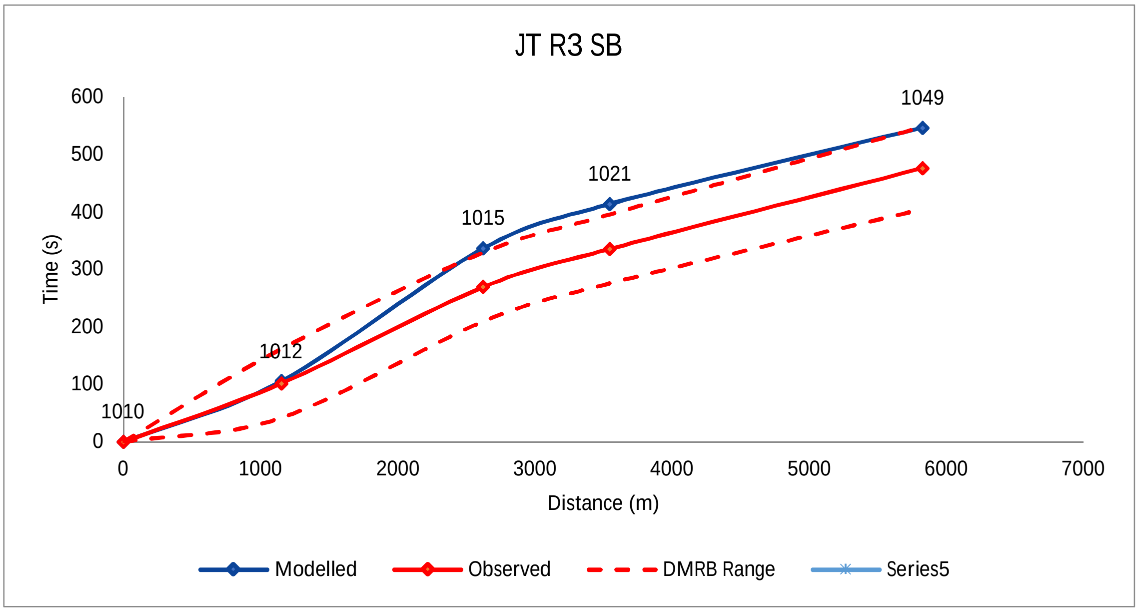

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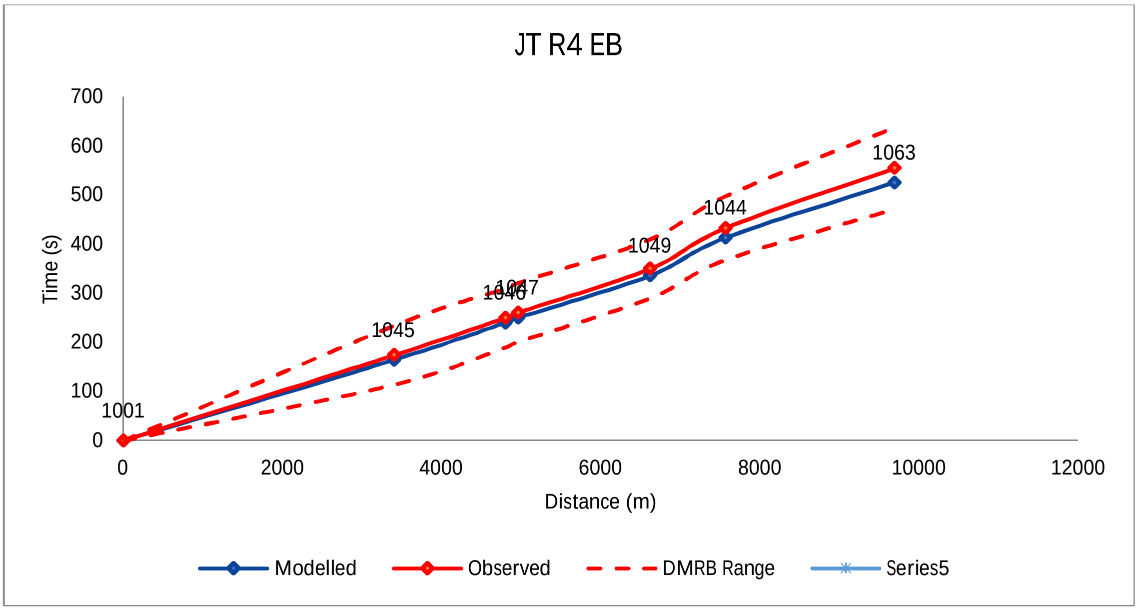

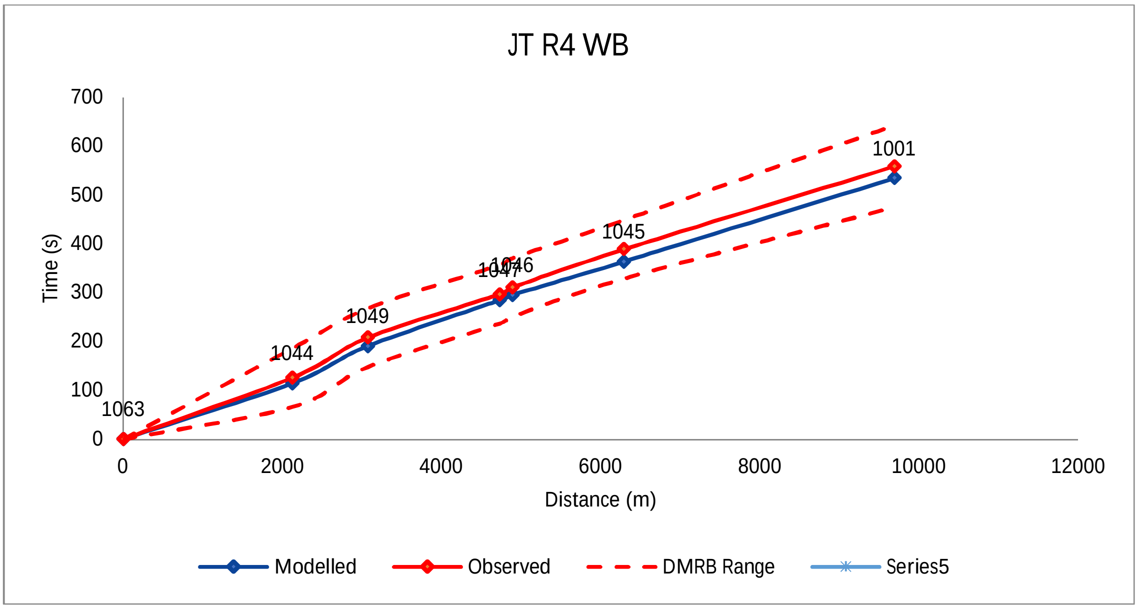

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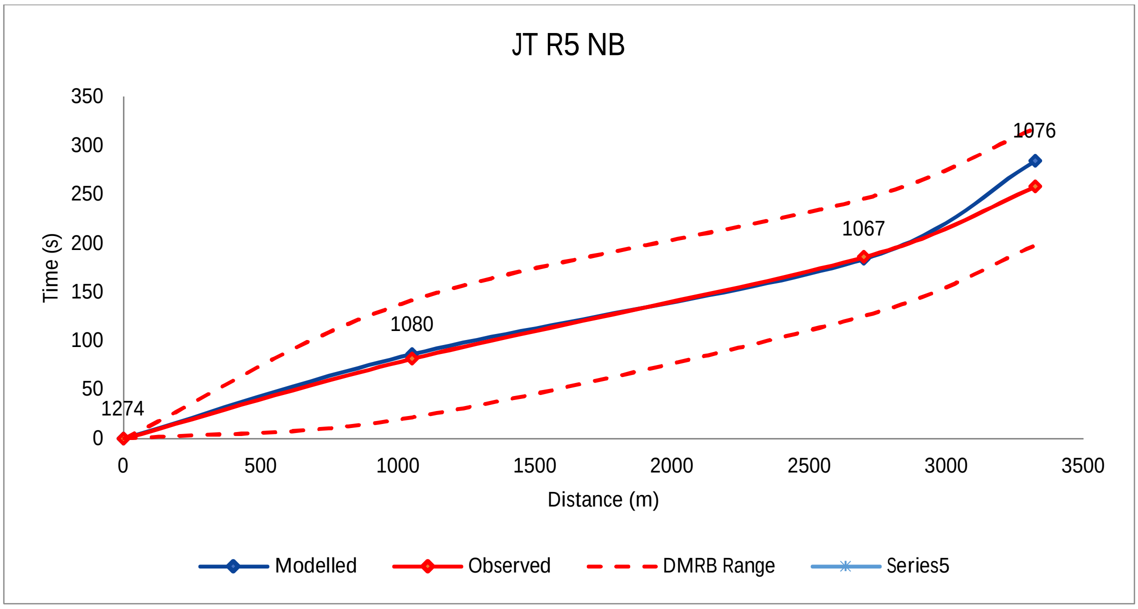

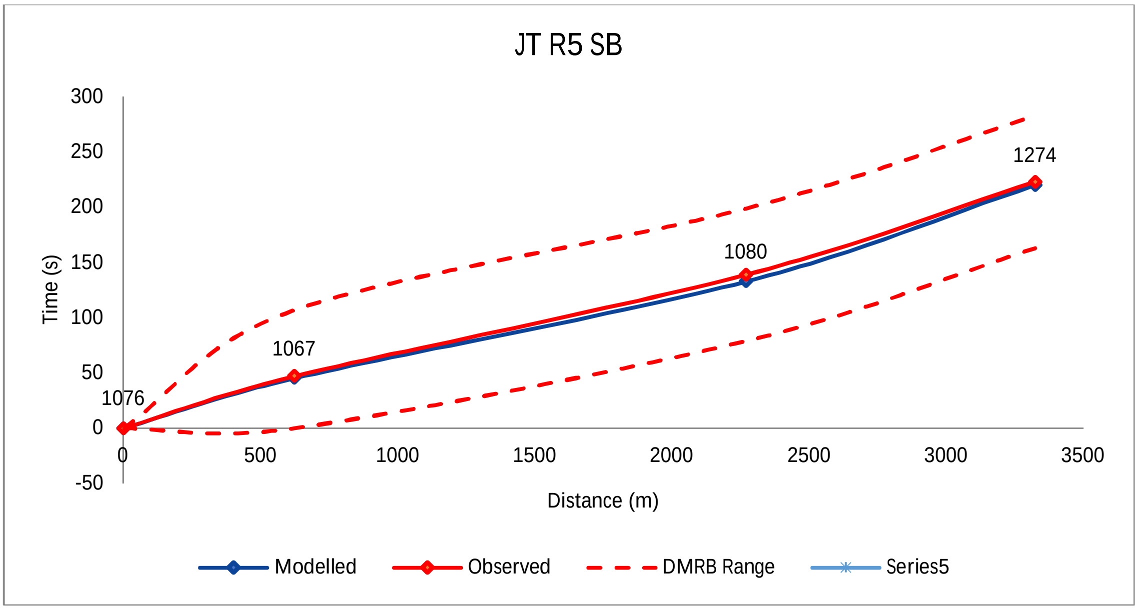

2035 DS IP Journey time summary graphs

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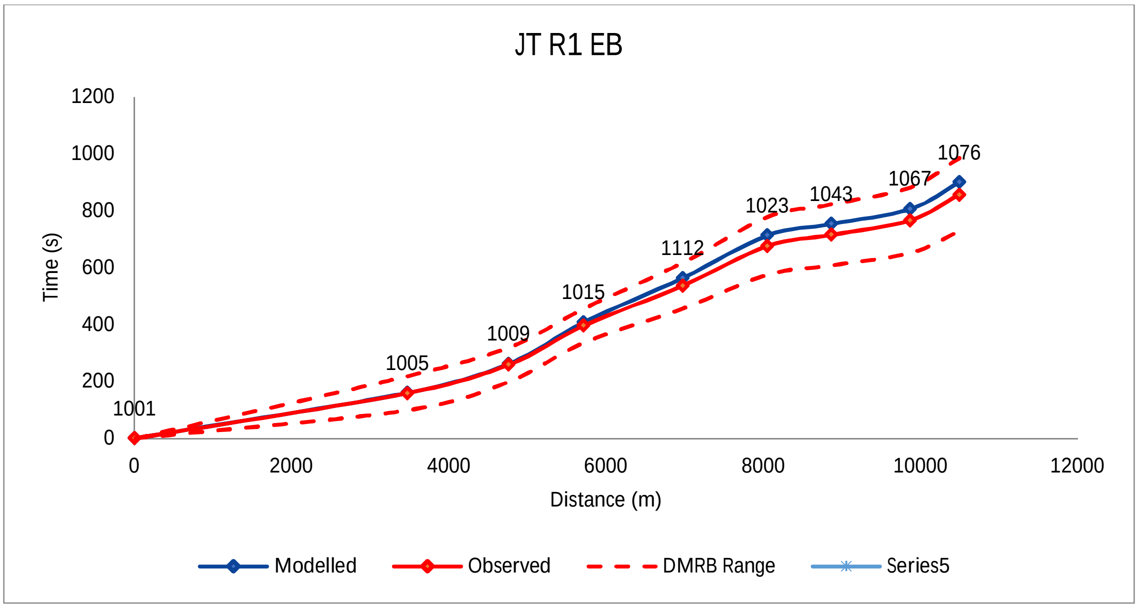

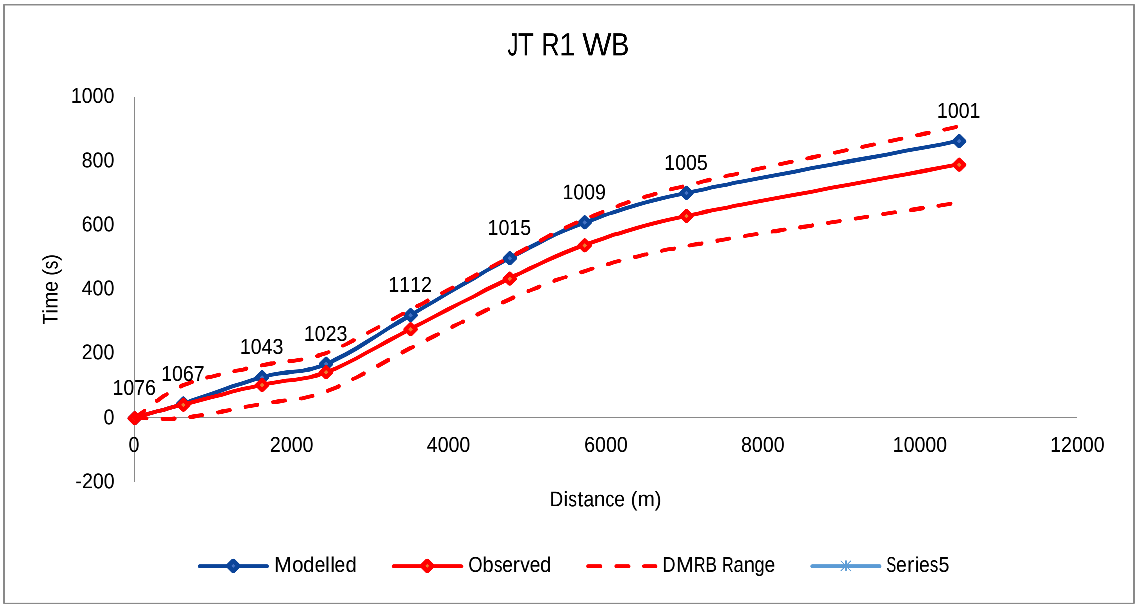

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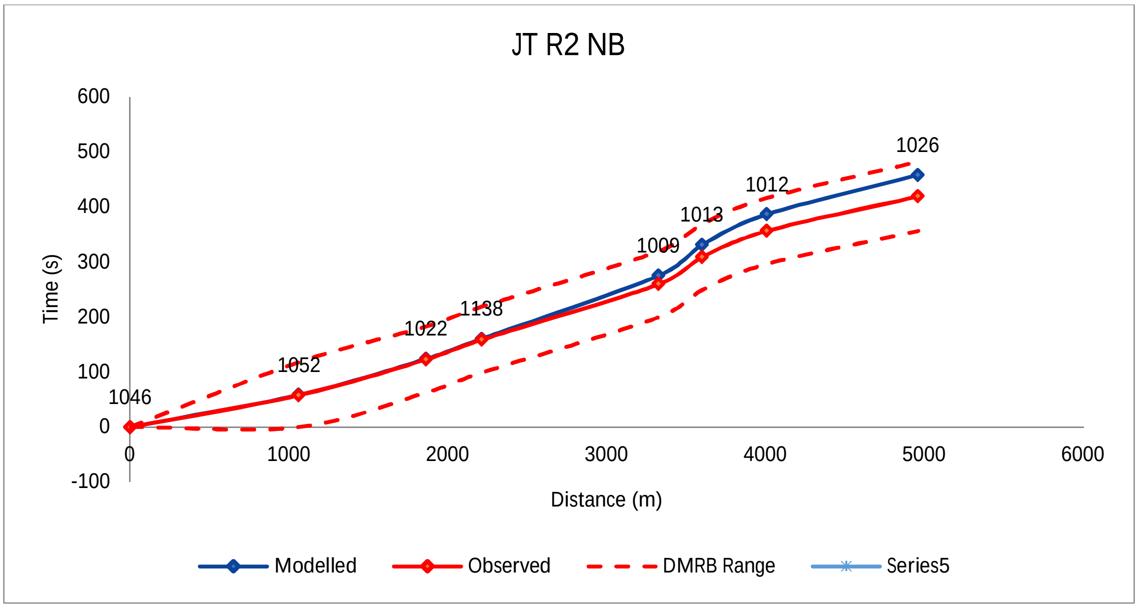

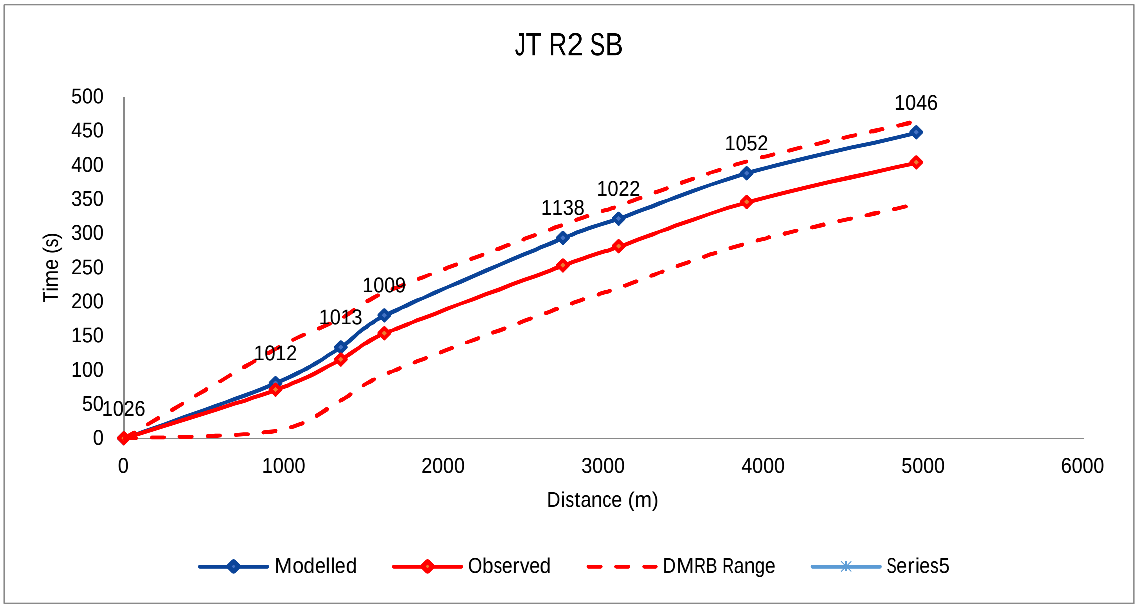

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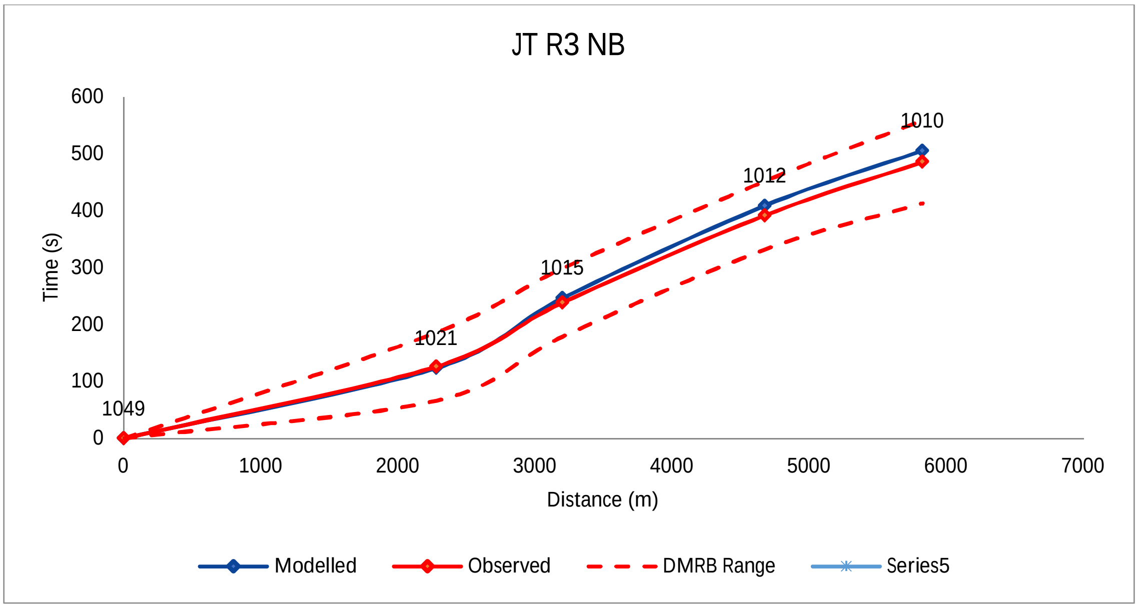

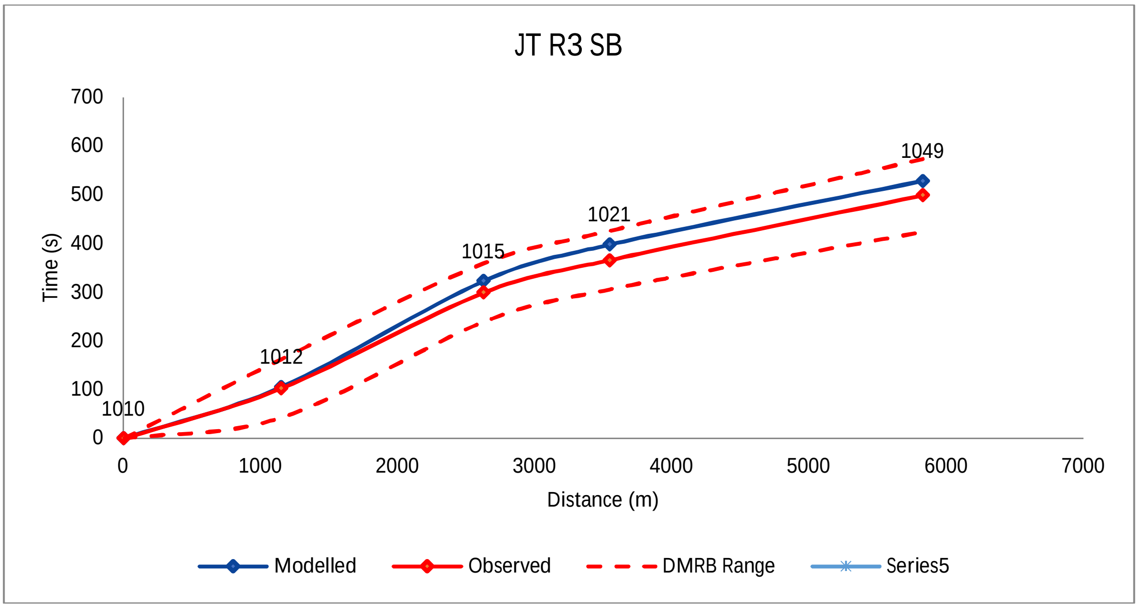

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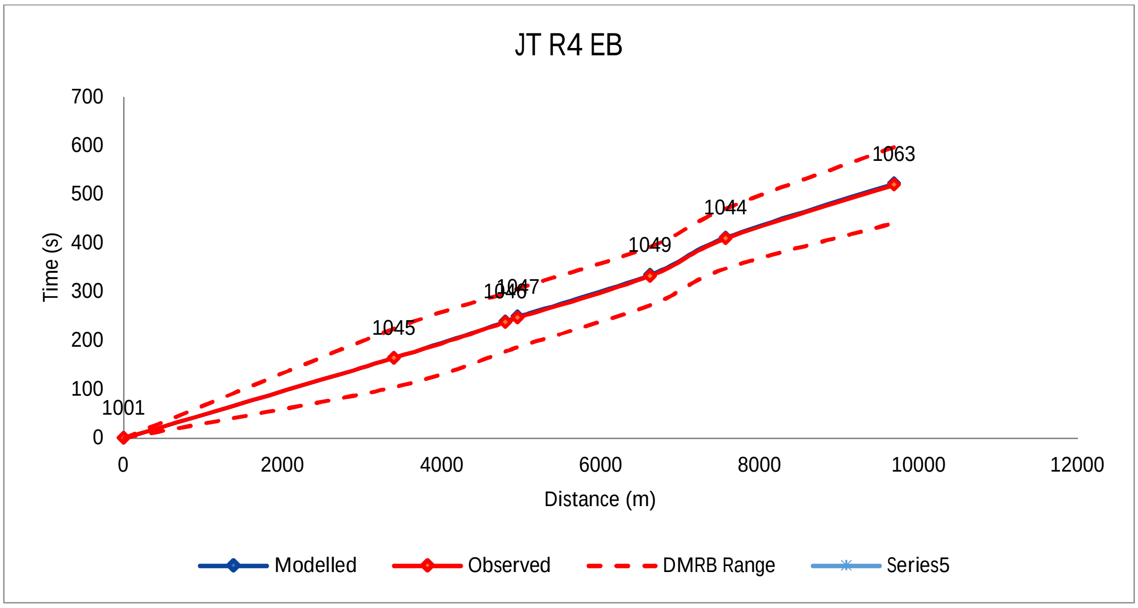

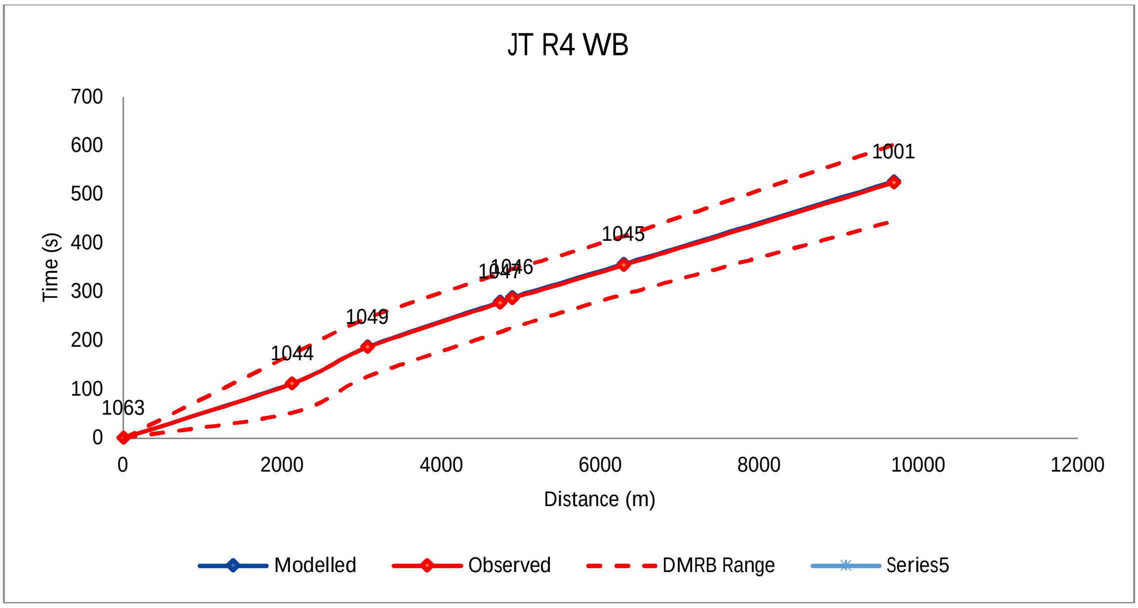

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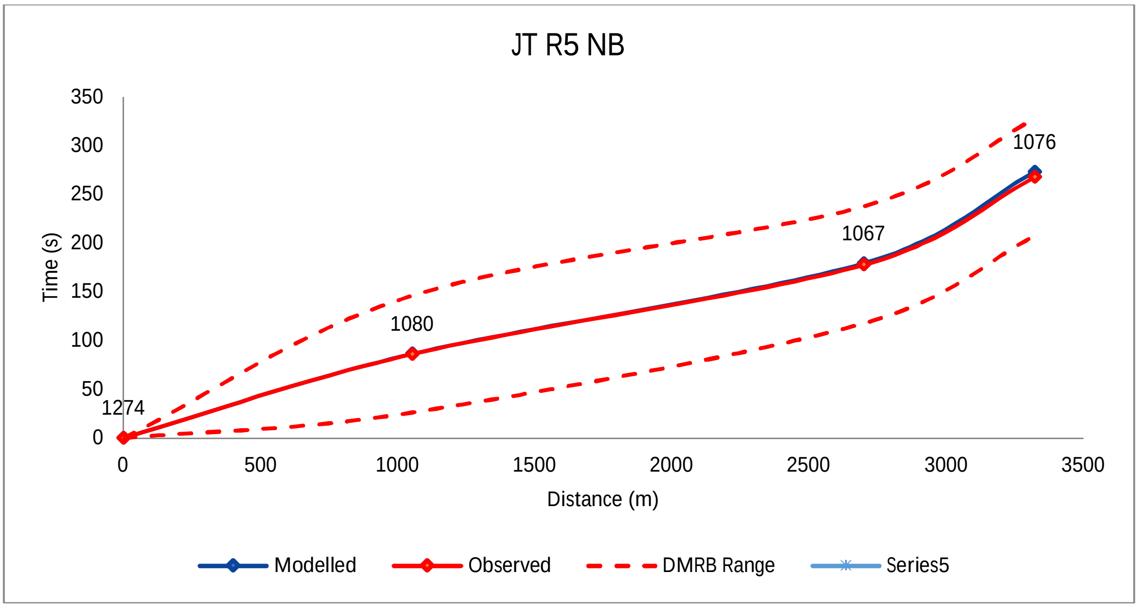
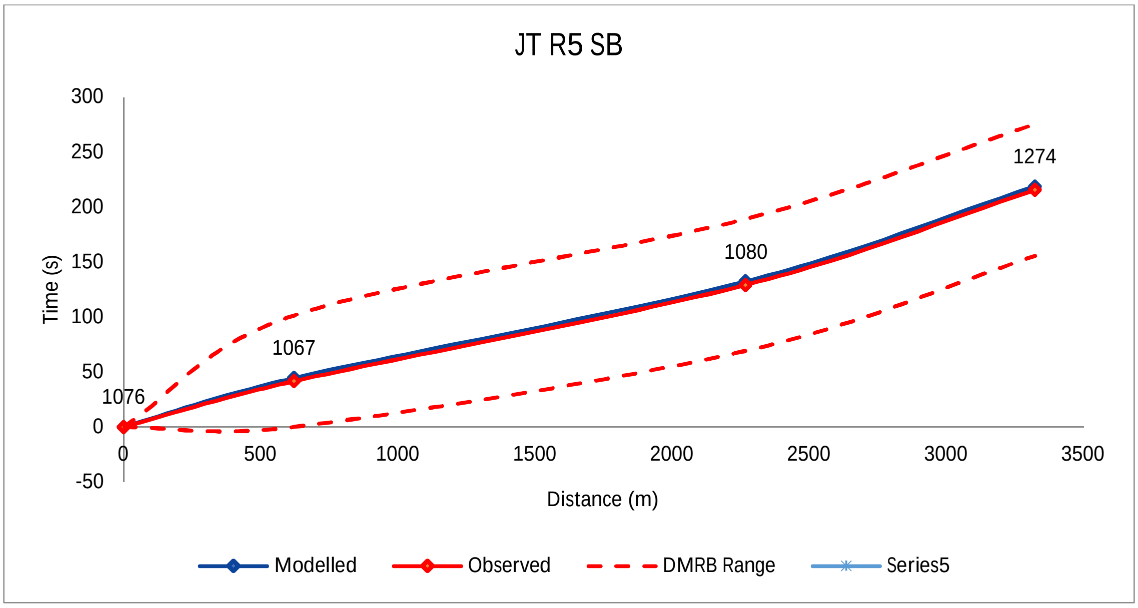
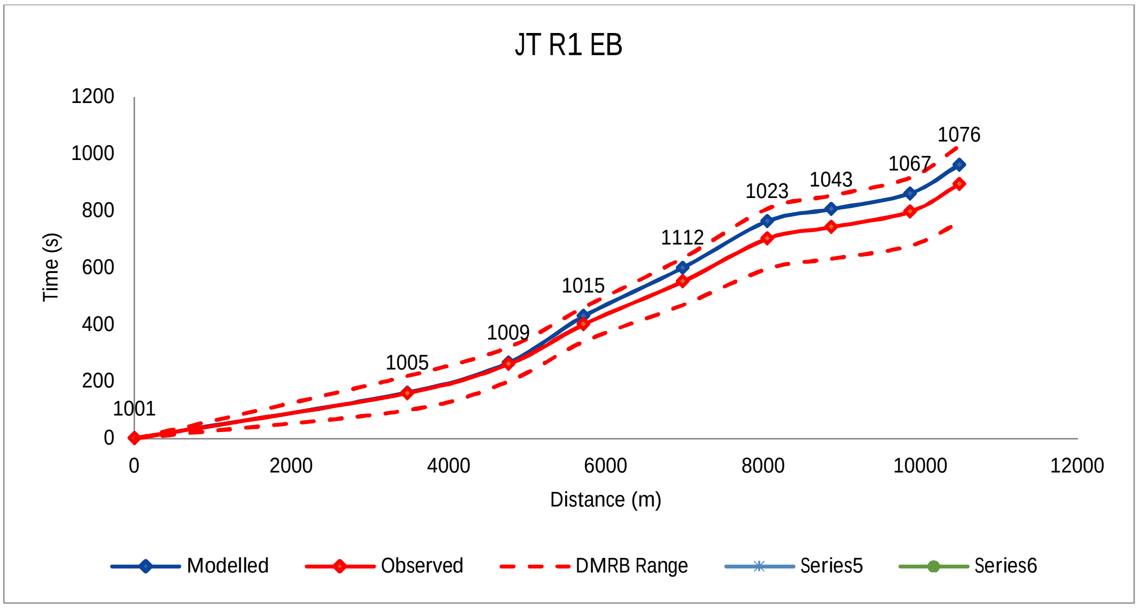
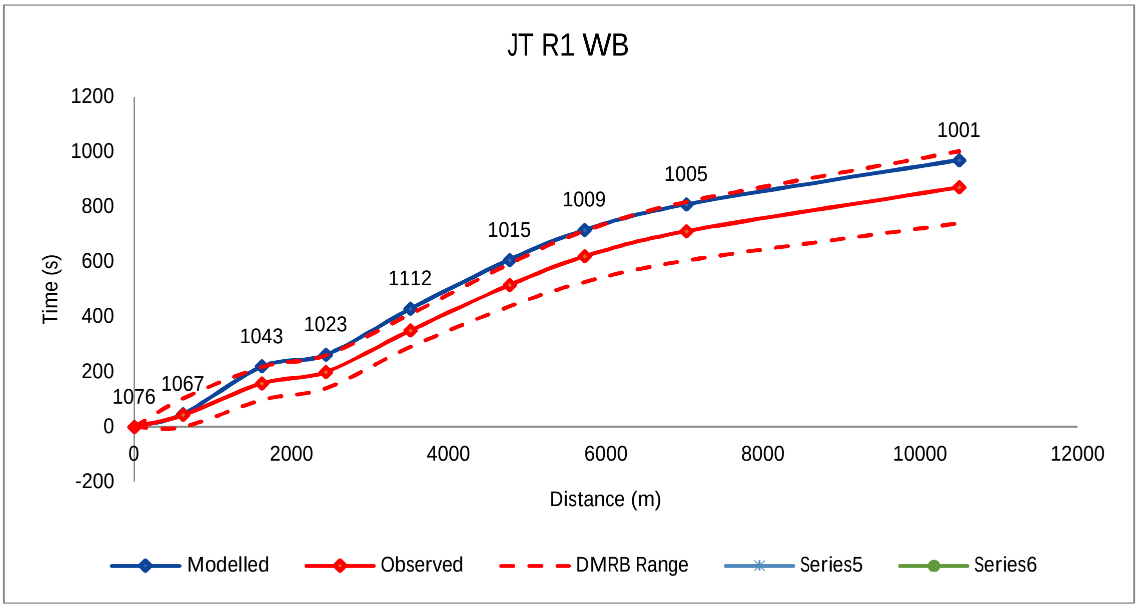




2035 DS PM Journey time summary graphs

Journey Time Route no 1





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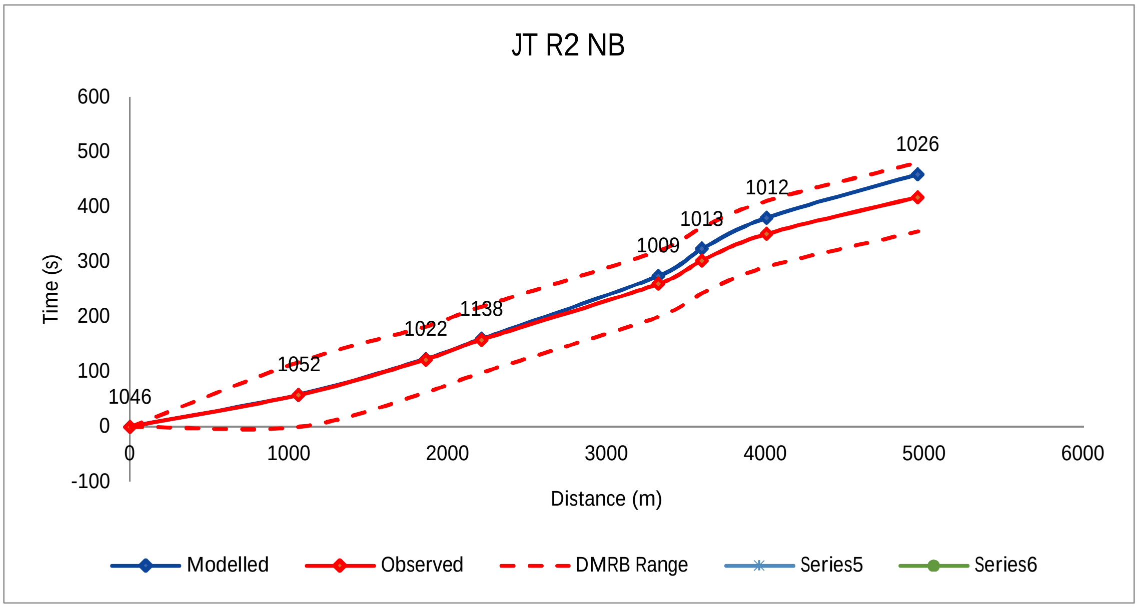

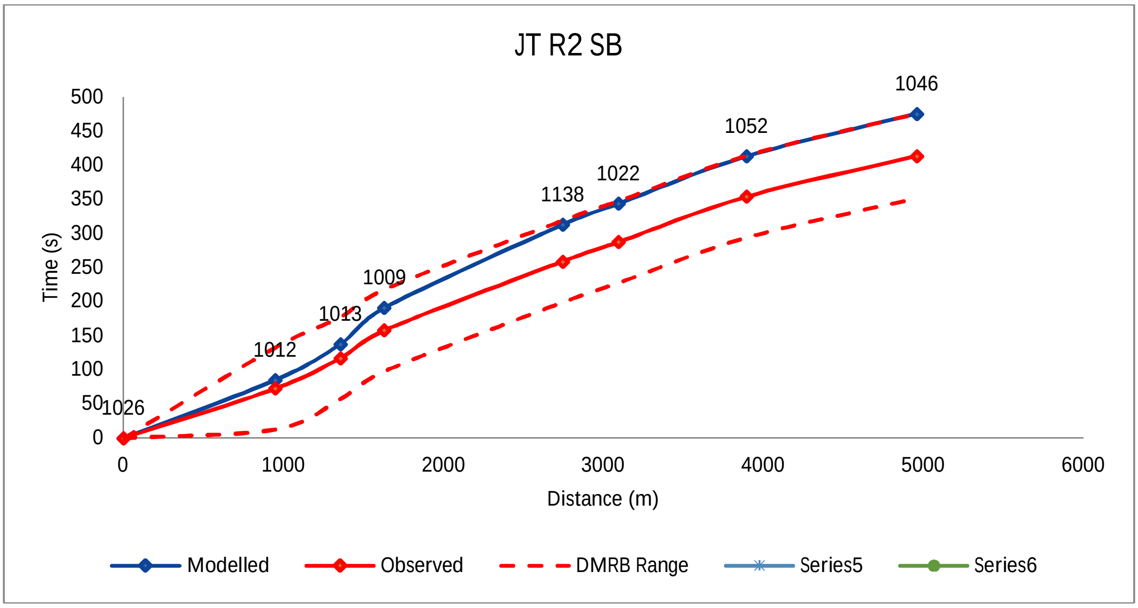

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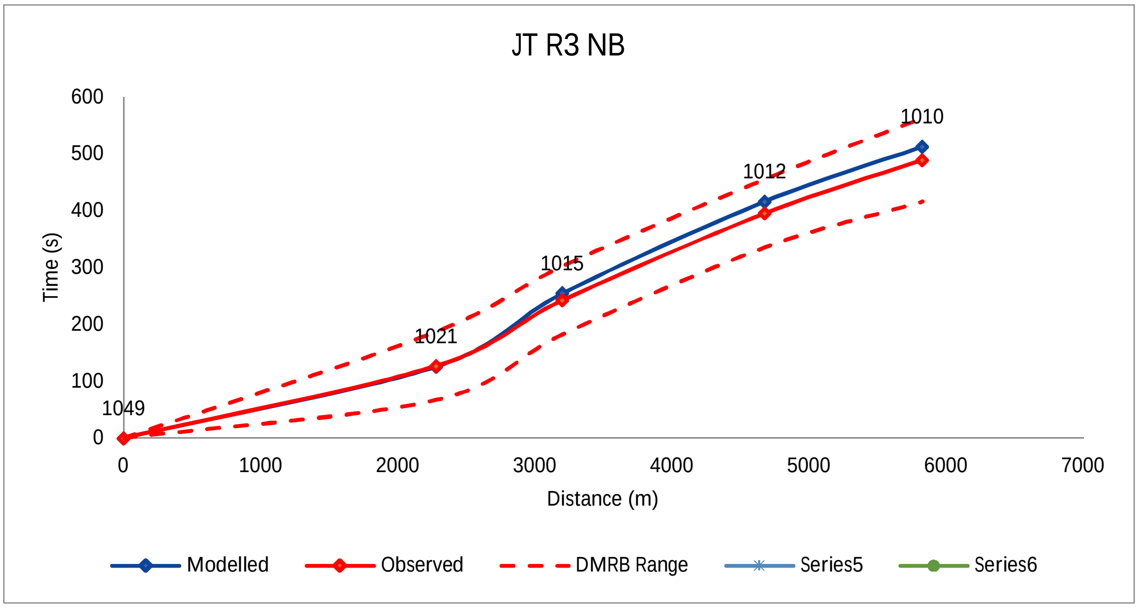

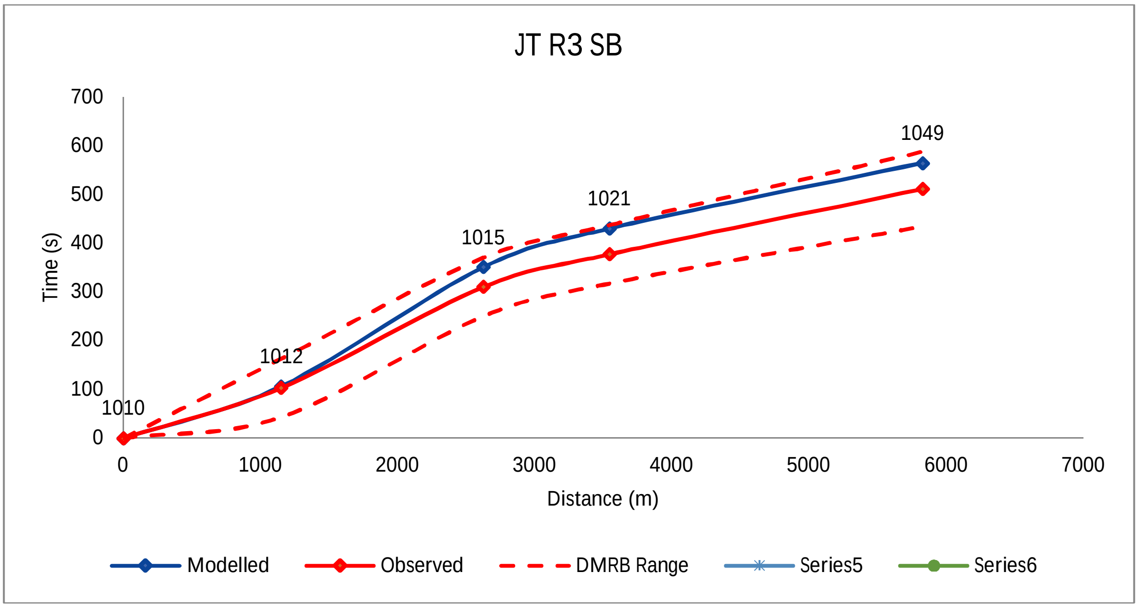

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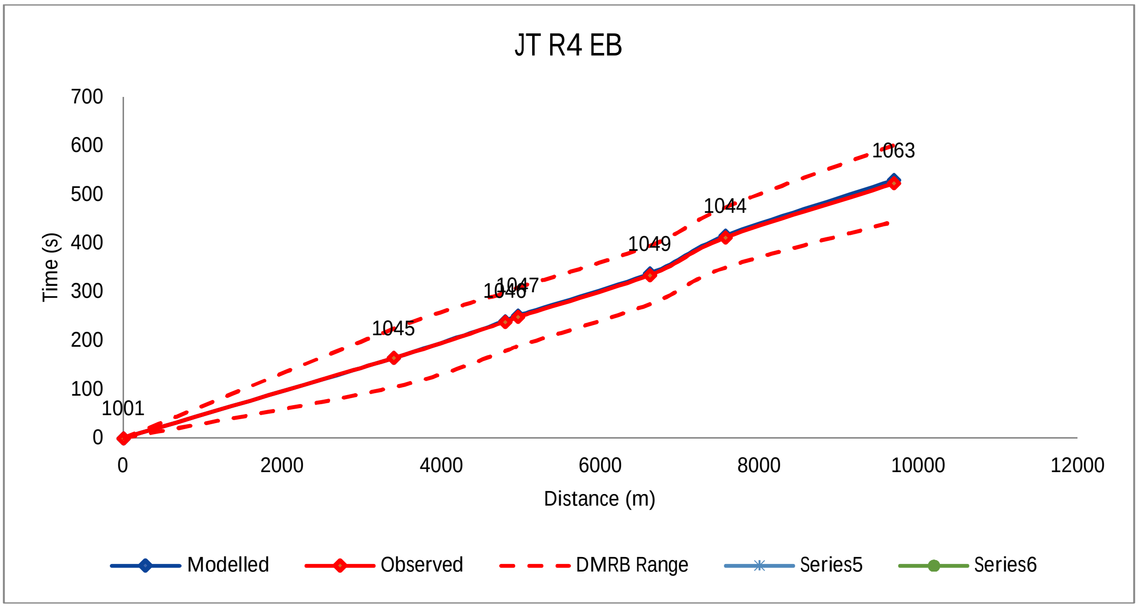

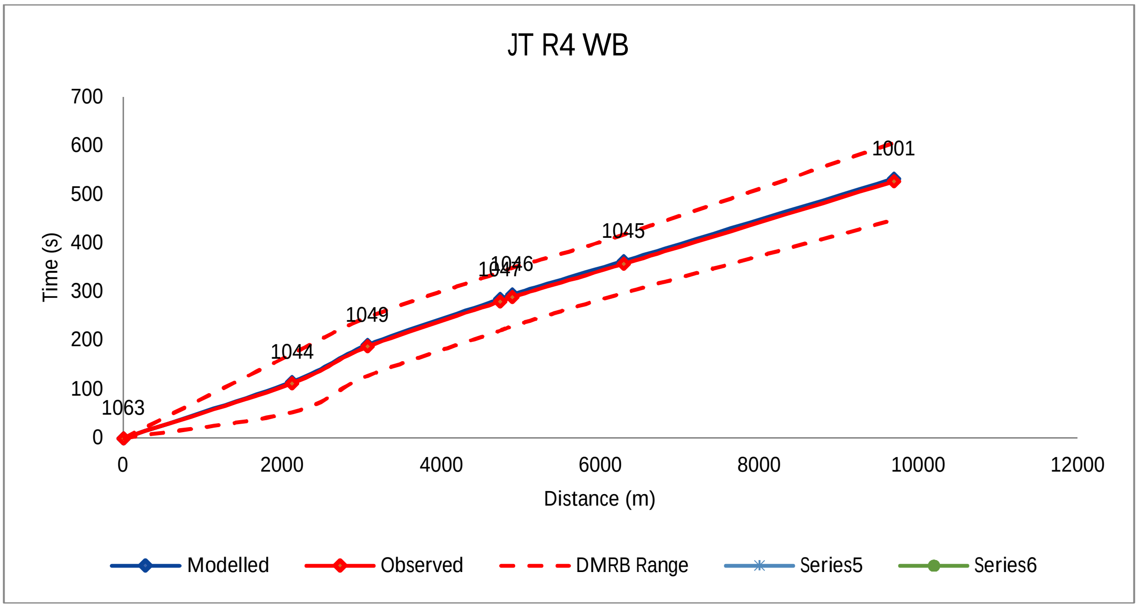

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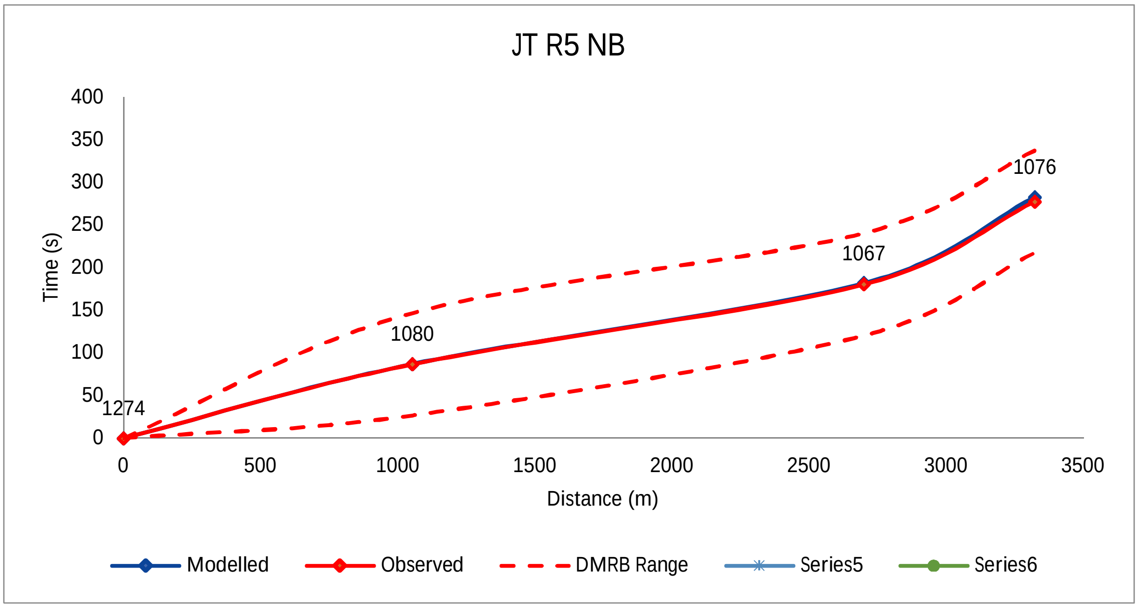

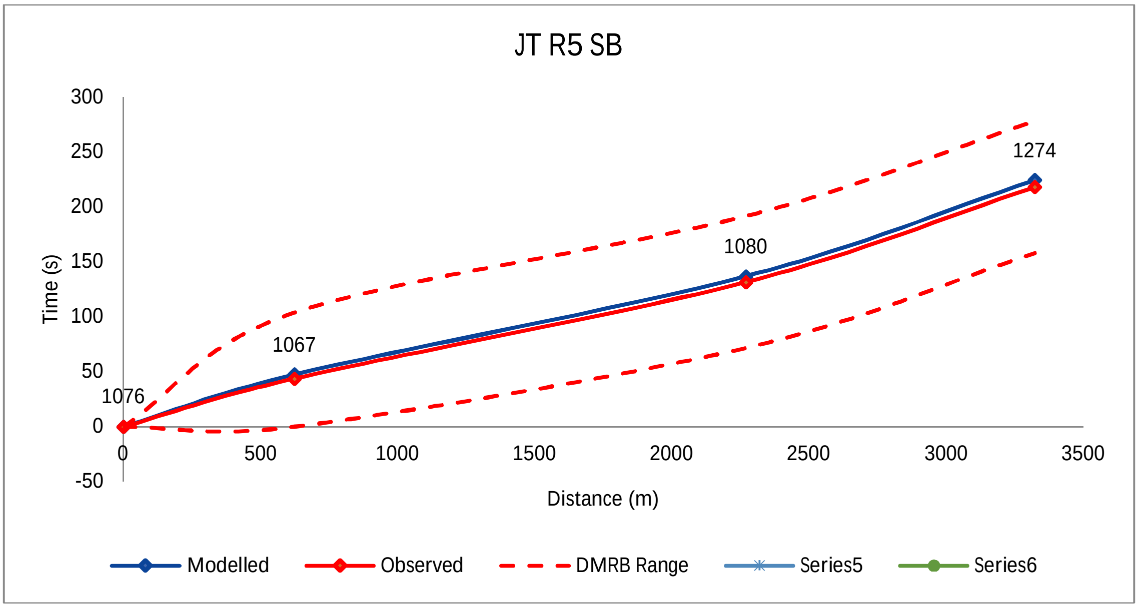

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