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M4 Corridor around Newport

Revised Traffic Forecasting Report Supplement

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CVJV/AAR
3rd Floor
Longcross Court,
47 Newport Road,
Cardiff
CF24 0AD

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1 Introduction

1.1 Scope of this Report Supplement

1.1.1 The Welsh Ministers' draft Supplementary Scheme Order (No. 2) dated March 2017 makes provision for the addition of the eastbound off-slip at Magor. The purpose of this report is to update the traffic forecasting for the Scheme (as presented in the December 2016 Revised Traffic Forecasting Report) to take account of the draft Supplementary Order.

1.2 Report Structure

1.2.1 Following this introduction, the report is structured as follows:

- Chapter 2 provides details of the KS4 changes in Scheme design and how these have been taken into account in the traffic forecasting;
- Chapter 3 presents the revised traffic forecasts as a result of the Scheme changes; and
- Chapter 4 concludes how the Scheme changes have affected the traffic forecasts and the resulting Scheme appraisals.

2 Design Changes in the Traffic Forecasts

2.1 Summary of Changes

2.1.1 Following the publication of the draft Orders in March 2016, and the publication of the draft Supplementary Orders in September 2016, the need for an additional off-slip has been identified and it has been decided to revise the proposals accordingly.

2.1.2 A new eastbound off-slip would be provided, leaving the M4 west of Magor and joining the re-aligned Newport Road roundabout. The Welsh Ministers' draft Supplementary Scheme Order (No. 2) dated March 2017 makes provision for the addition of the eastbound off-slip at Magor.

2.1.3 The proposed Newport Road Roundabout (junction of A4810 Steel Works Access Road with B4245 Magor Road) layout has been amended to incorporate a slip road off the proposed M4 mainline. This design would be more convenient for several of the major users of the road in comparison to the original alignment in the published draft Orders.

2.1.4 The addition of an eastbound off-slip would allow for improved accessibility to Magor Services and Junction 23A for users travelling eastbound on the new section of motorway.

2.1.5 The revised layout is shown in Figure 2.1.

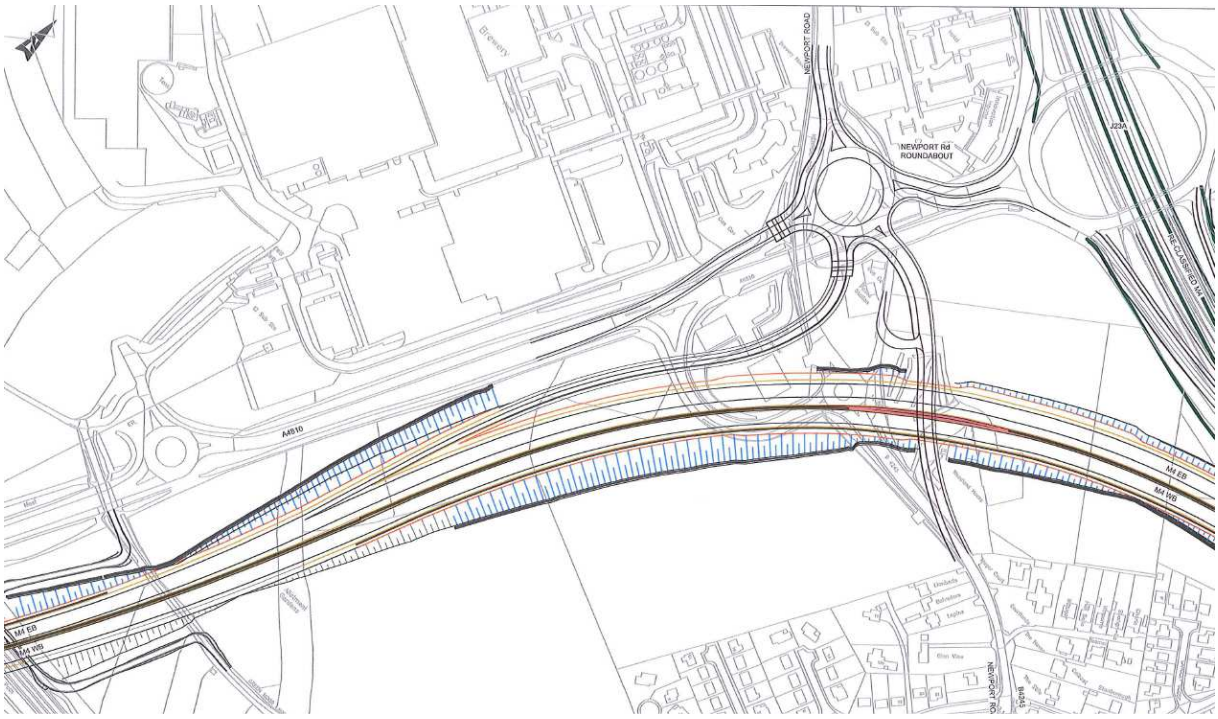


Figure 2.1: Proposed eastbound off-slip, draft Supplementary Order March 2017

3 Revised Traffic Forecasts

3.1.1 This chapter presents the traffic forecasts for the Core Scenario resulting from the design changes implemented in draft Supplementary Scheme Order (No. 2) dated March 2017. Central traffic growth figures have been produced for three future years, 2022, 2037 and 2051. These cover the three modelled periods of the AM peak hour, the average inter-peak hour and the PM peak hour.

3.1.2 The revised layout around Magor improves accessibility into Magor, Magor Services, the Wales 1 Business Park, Magor Brewery and the surrounding areas. This leads to a slight reduction in eastbound traffic volumes on the reclassified existing motorway and a corresponding increase in traffic on the proposed motorway. The increase in eastbound traffic is highest on the eastern section of the proposed motorway, where in addition to the above, some traffic which would have previously used the Glan Llyn junction and travelled eastbound along the A4810 Steelworks Access Road will now be able to continue along the proposed motorway and exit onto the local road network using the eastbound off-slip at Magor instead.

3.1.3 Both the Core Scenario traffic flows from the Revised Traffic Forecasting Report (dated December 2016) and the traffic flows resulting from the introduction of the eastbound off-slip at Magor (draft Supplementary Scheme Order (No. 2) dated March 2017) are presented in Figures 3.1 to 3.24. These contain traffic flows for the AM peak hour, inter-peak, PM peak hour and Annual Average Daily Traffic (AADT) in 2022, 2037 and 2051. Figures 3.1 to 3.12 illustrate the effect of the additional eastbound off-slip at Magor on traffic volumes on sections of motorway and key roads around Newport. Figures 3.13 to 3.24 present the corresponding changes in traffic volumes in the vicinity of Magor and along the B4245 corridor.

3.1.4 The AADT flows shown in Figures 3.4, 3.8 and 3.12 indicate the extent to which forecast traffic flows are affected by the addition of the eastbound off-slip at Magor in the three modelled years. The largest increase in traffic flow occurs on the proposed new motorway east of the Glan Llyn Junction which is 4,400 eastbound vehicles on an average weekday in 2037. This equates to a 12% increase in traffic volumes compared to the Core Scenario quoted in the Revised Traffic Forecasting Report dated December 2016. The reclassified existing M4 between Junction 24 and Junction 23A and the A4810 would both experience a similar magnitude of reduction in traffic volumes as a result of the modified Scheme design.

3.1.5 The AADT flows shown in Figures 3.16, 3.20 and 3.24 indicate that the eastbound off-slip would lead to a slight increase in traffic volumes entering Magor from the west and a corresponding decrease of traffic entering Undy from the east when compared to the Core Scenario quoted in the Revised Traffic Forecasting Report dated December 2016.

4 Conclusions

4.1.1 The Welsh Ministers' draft Supplementary Scheme Order (No. 2) dated March 2017 makes provision for the addition of the eastbound off-slip at Magor. This report includes an update to the traffic forecasting for the Scheme (as presented in the December 2016 Revised Traffic Forecasting Report) to take account of the draft Supplementary Order.

4.1.2 The largest increase in traffic flow occurs on the proposed new motorway east of the Glan Llyn Junction which is 4,400 eastbound vehicles on an average weekday in 2037. This equates to a 12% increase in traffic volumes compared to the Core Scenario quoted in the Revised Traffic Forecasting Report dated December 2016. The reclassified existing M4 between Junction 24 and Junction 23A and the A4810 would both experience a similar magnitude of reduction in traffic volumes as a result of the modified Scheme design.

4.1.3 Trip patterns along the B4245 would change slightly leading to an increase in traffic entering Magor from the west and a decrease in traffic entering Undy from the east when compared to the Core Scenario quoted in the Revised Traffic Forecasting Report dated December 2016.

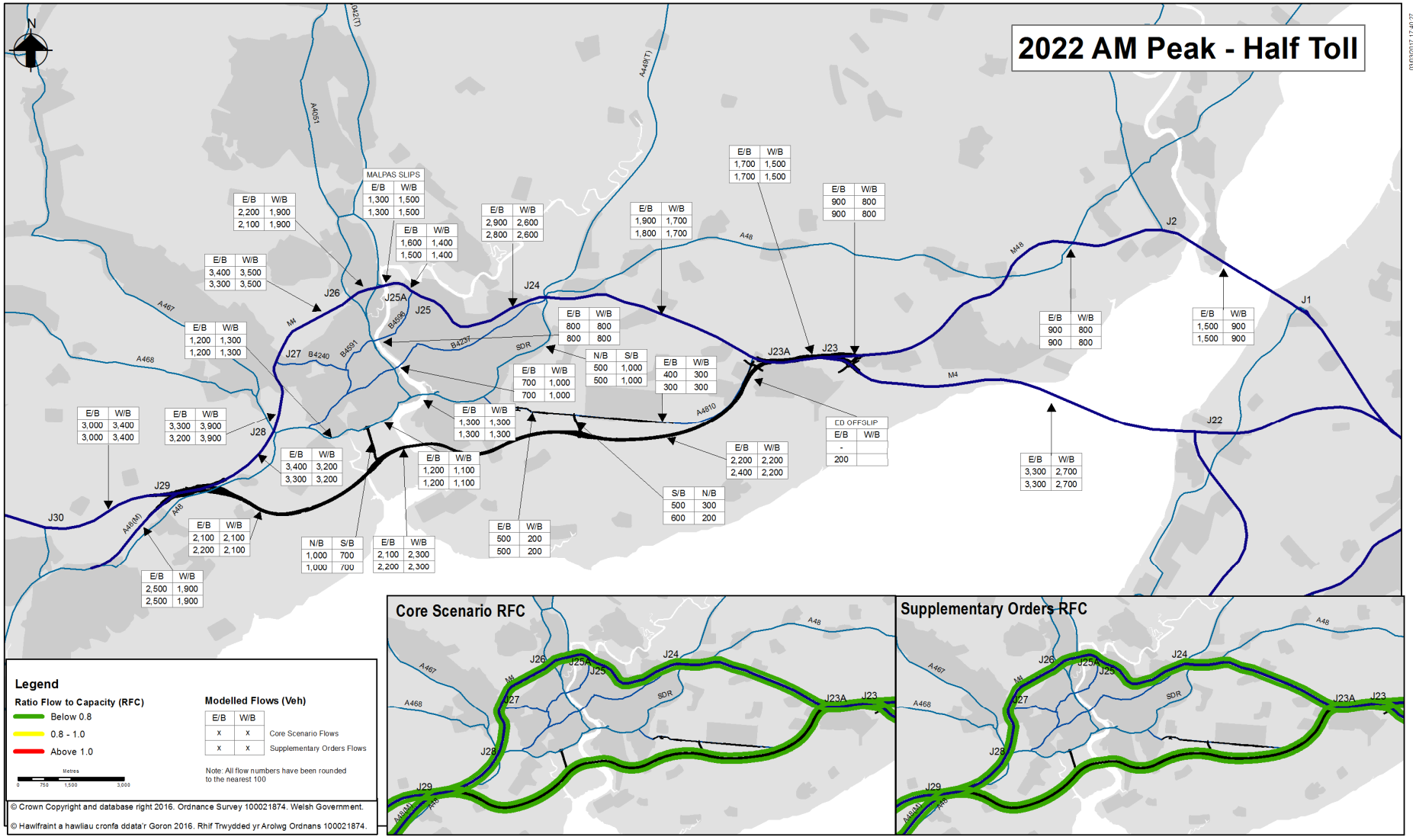


Figure 3.1: 2022 Forecast AM Peak Hour Traffic Flows, Strategic Road Network

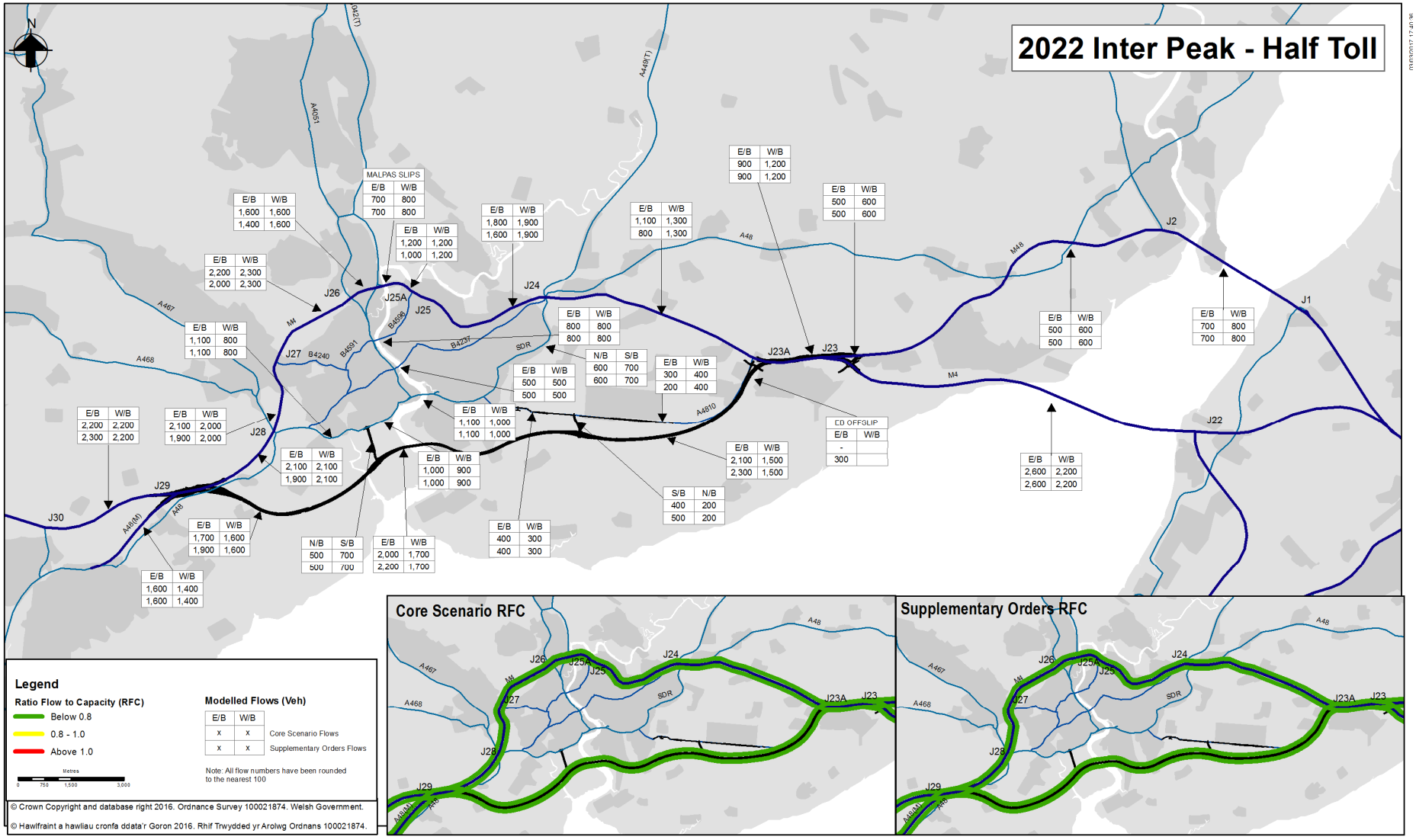


Figure 3.2: 2022 Forecast Inter-peak Hour Traffic Flows, Strategic Road Network

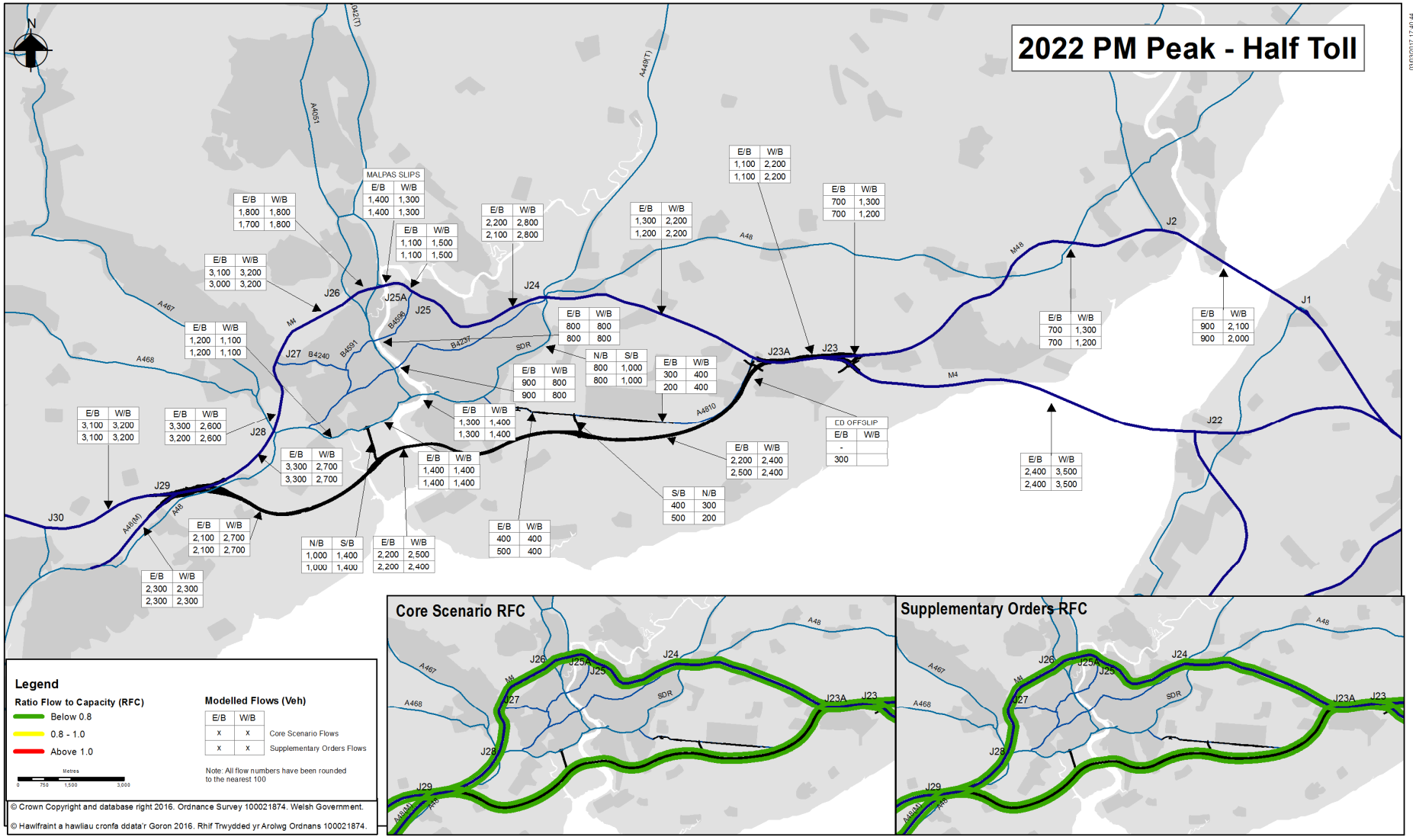


Figure 3.3: 2022 Forecast PM Peak Hour Traffic Flows, Strategic Road Network

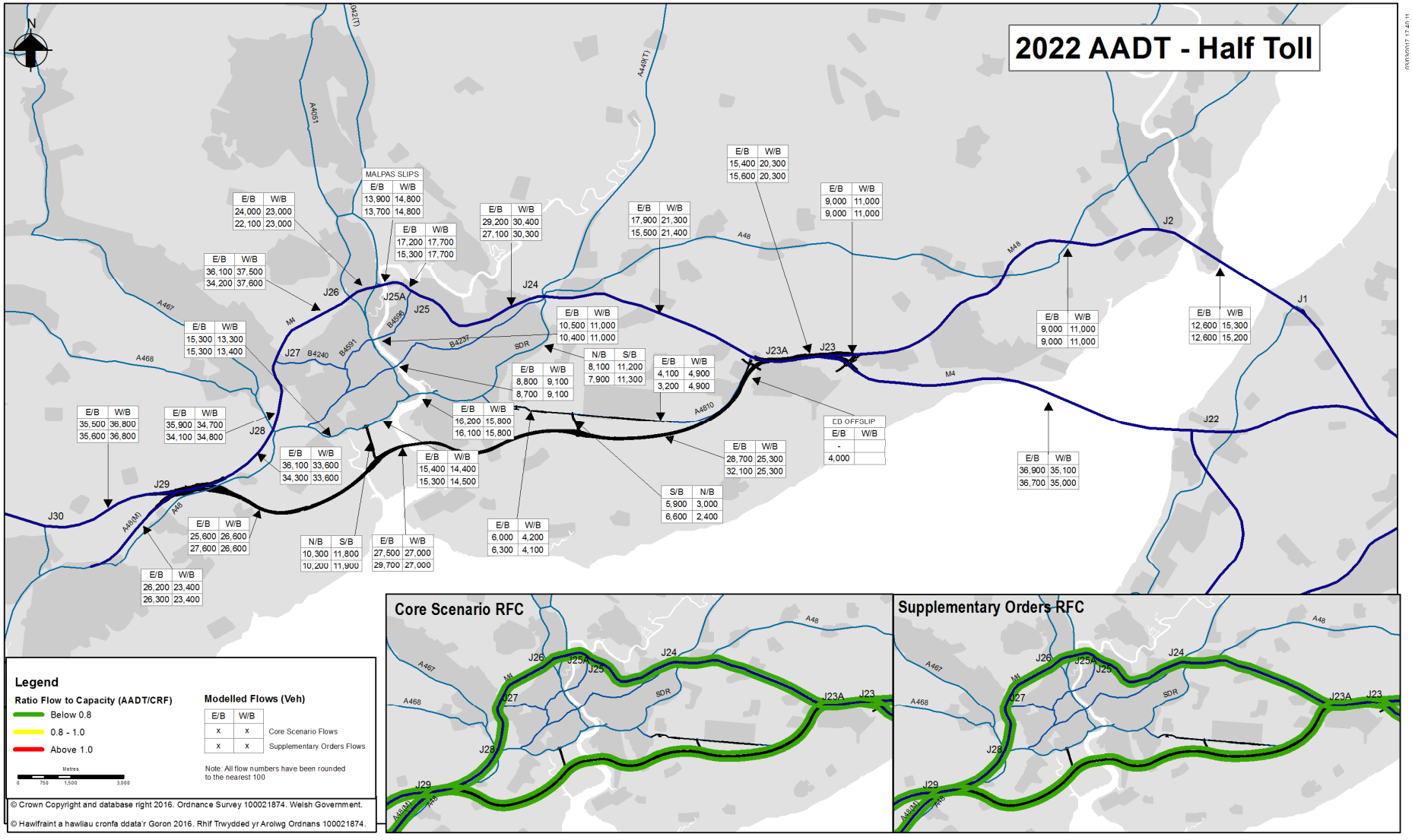


Figure 3.4: 2022 Forecast Annual Average Daily Traffic Flows, Strategic Road Network

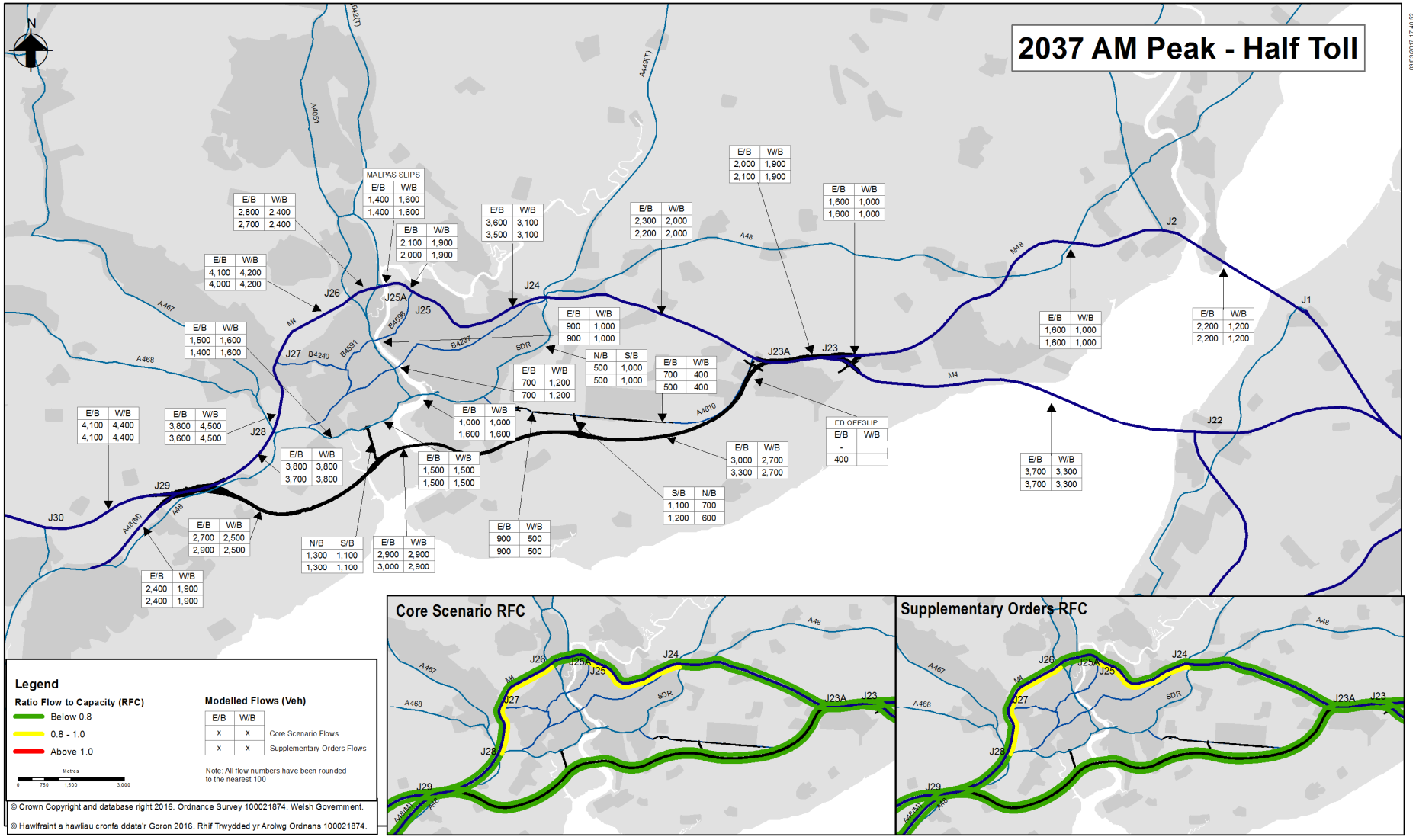


Figure 3.5: 2037 Forecast AM Peak Hour Traffic Flows, Strategic Road Network

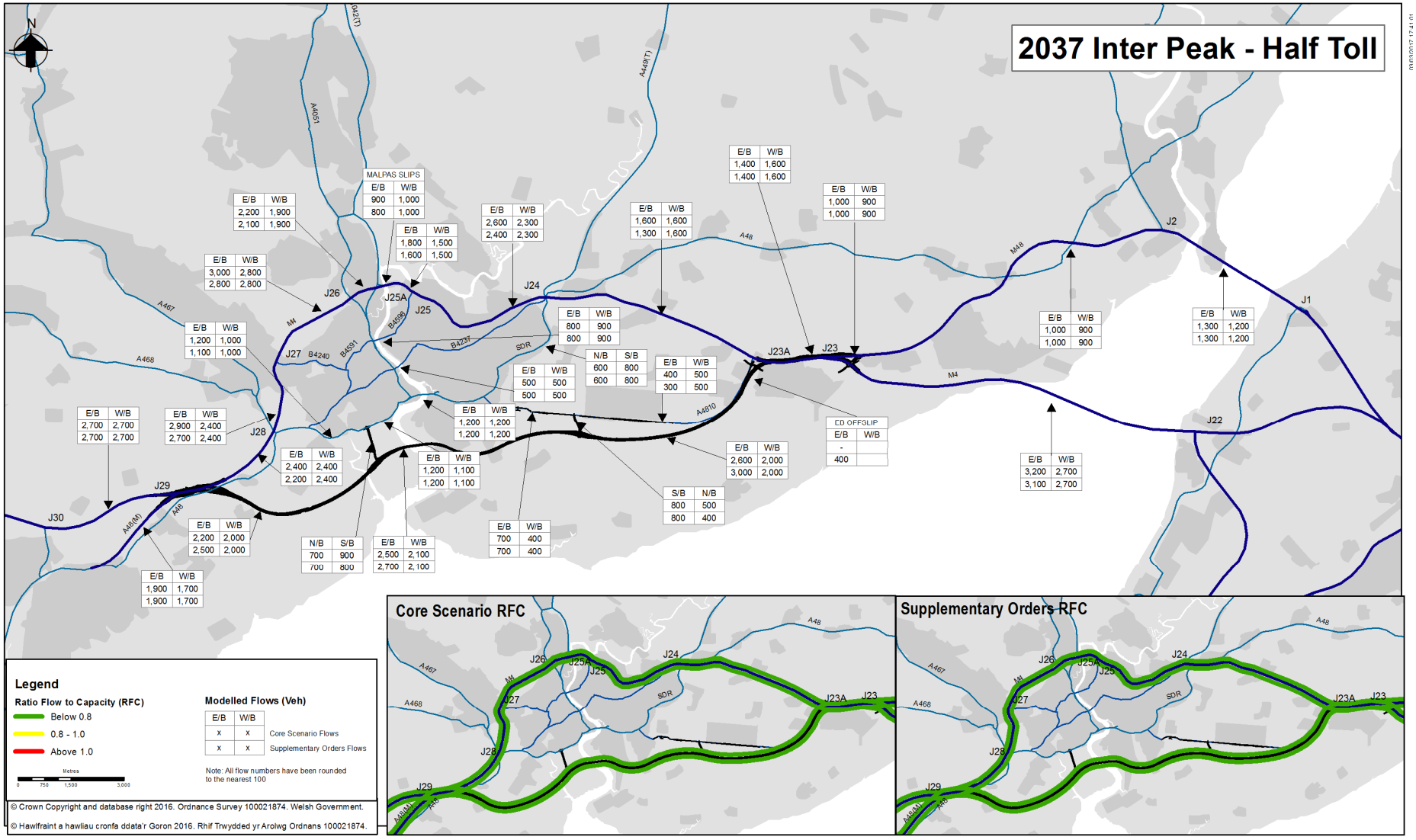


Figure 3.6: 2037 Forecast Inter-Peak Hour Traffic Flows, Strategic Road Network

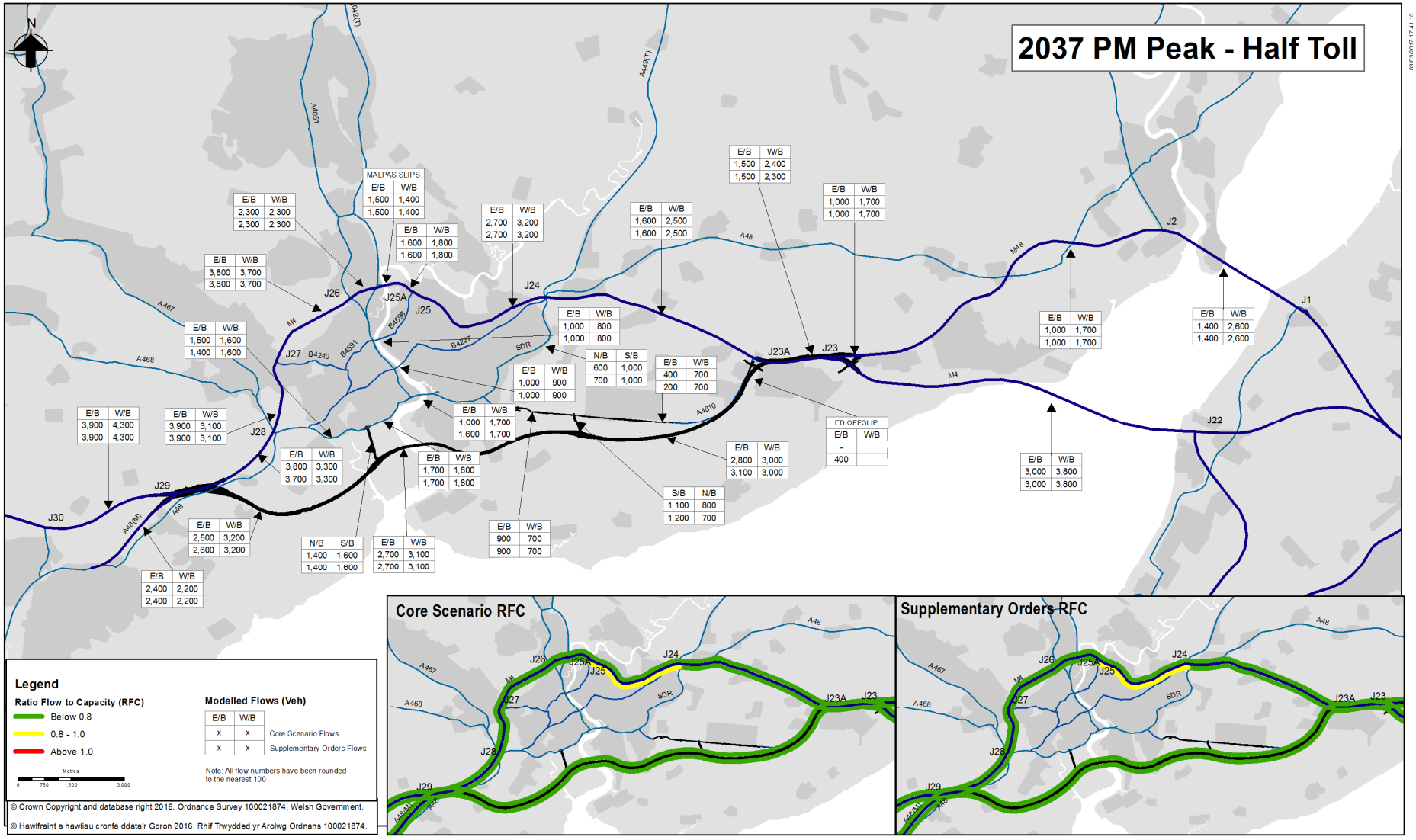


Figure 3.7: 2037 Forecast PM Peak Hour Traffic Flows, Strategic Road Network

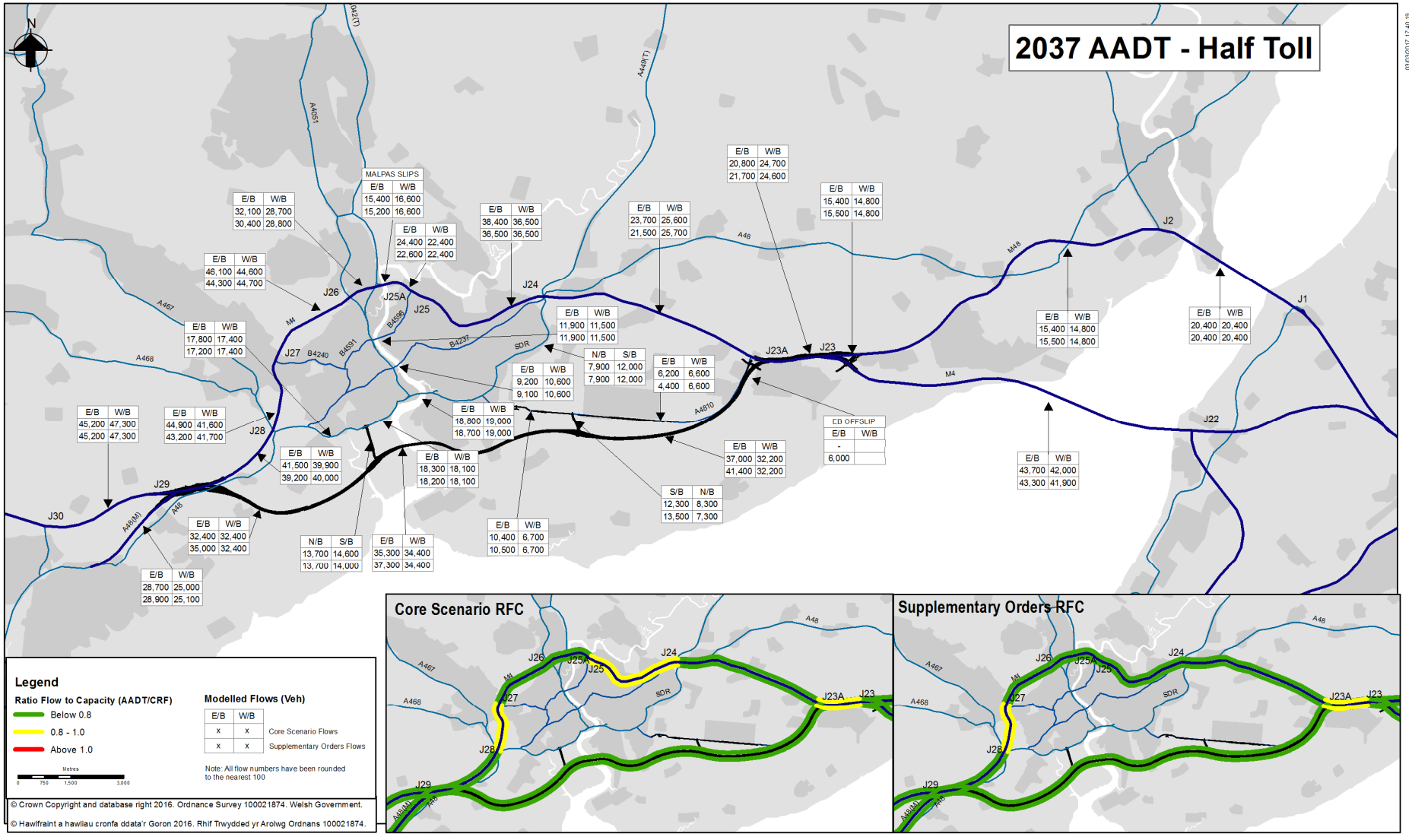


Figure 3.8: 2037 Forecast Annual Average Daily Traffic Flows, Strategic Road Network

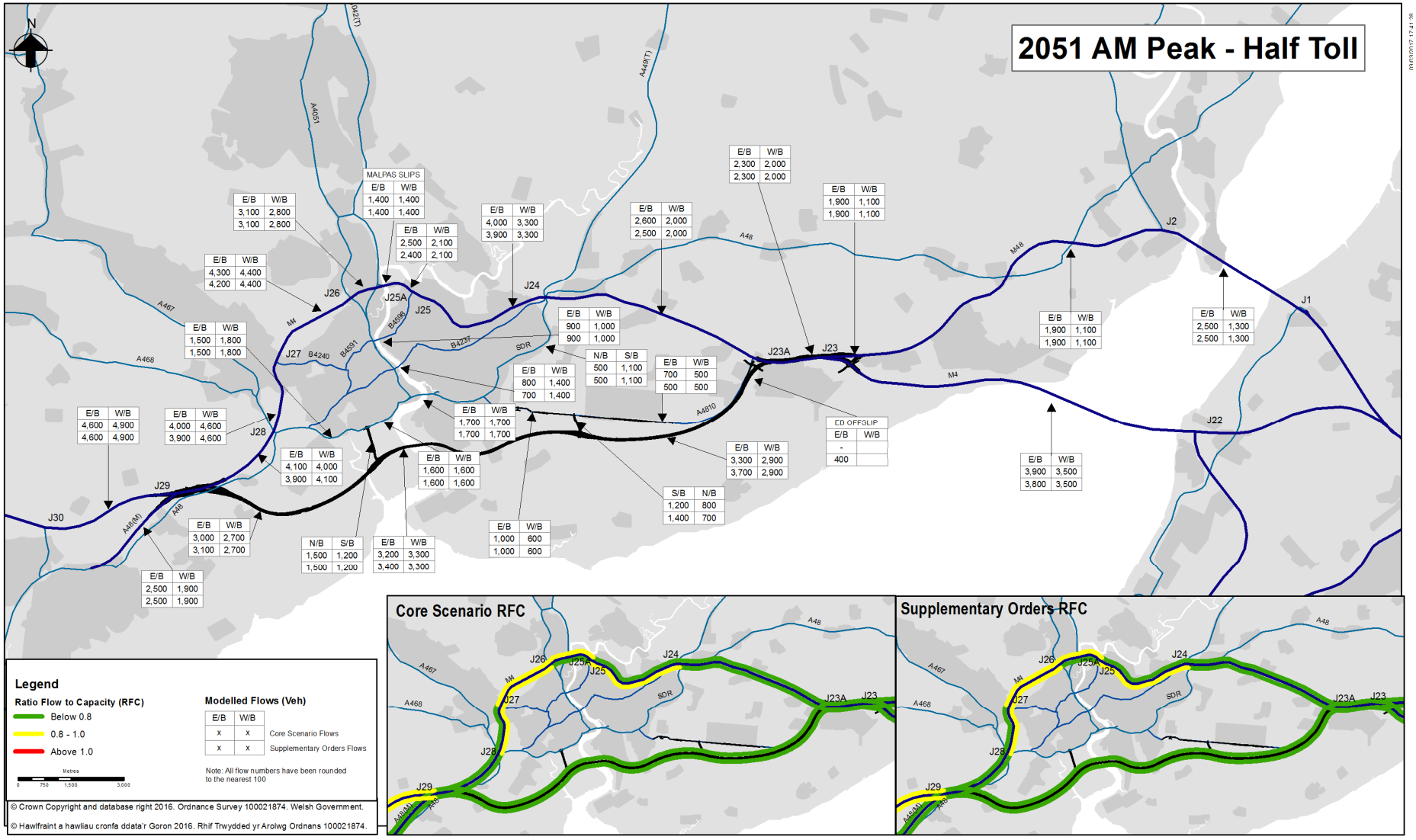


Figure 3.9: 2051 Forecast AM Peak Hour Traffic Flows, Strategic Road Network

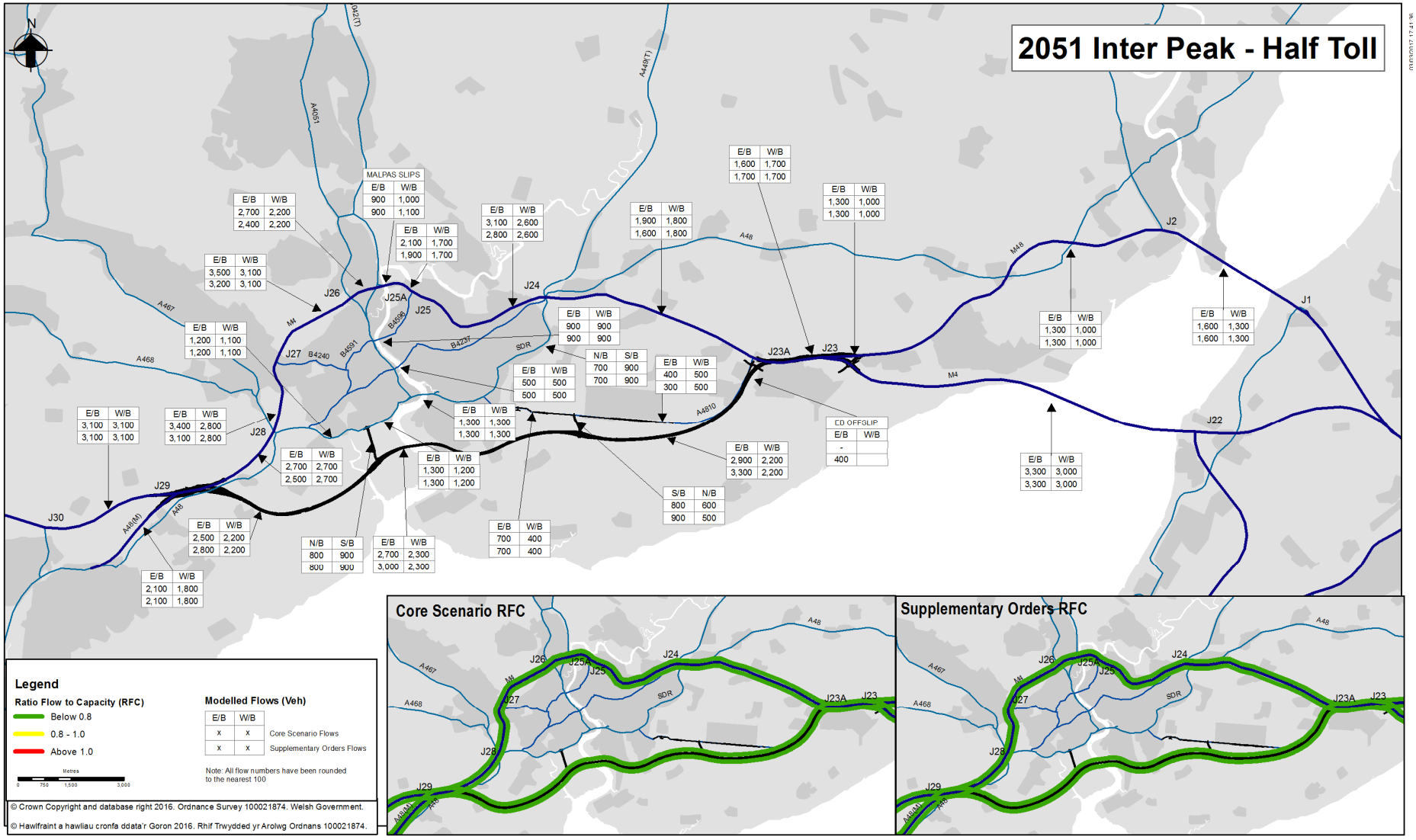


Figure 3.10: 2051 Forecast Inter-Peak Hour Traffic Flows, Strategic Road Network

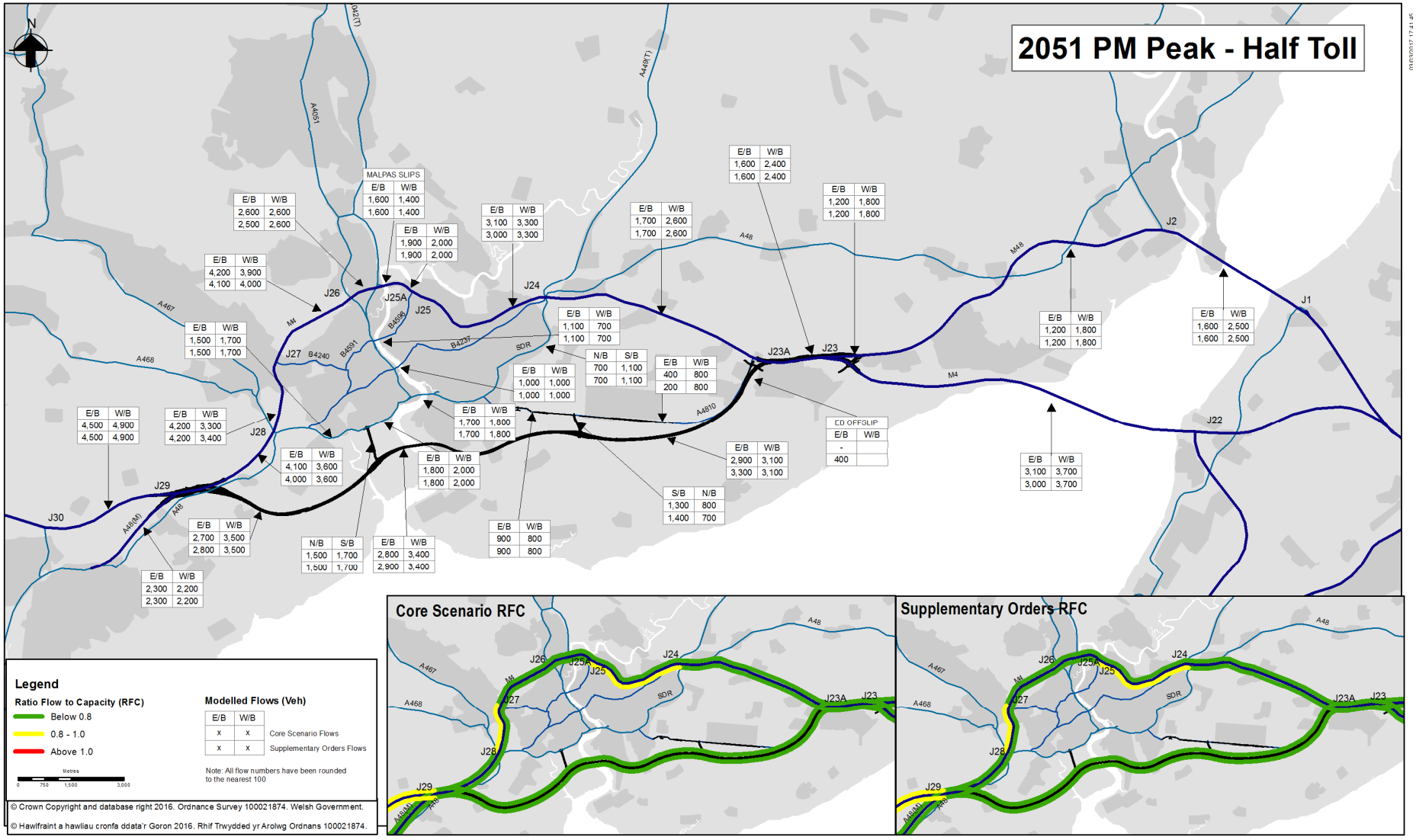


Figure 3.11: 2051 Forecast PM Peak Hour Traffic Flows, Strategic Road Network

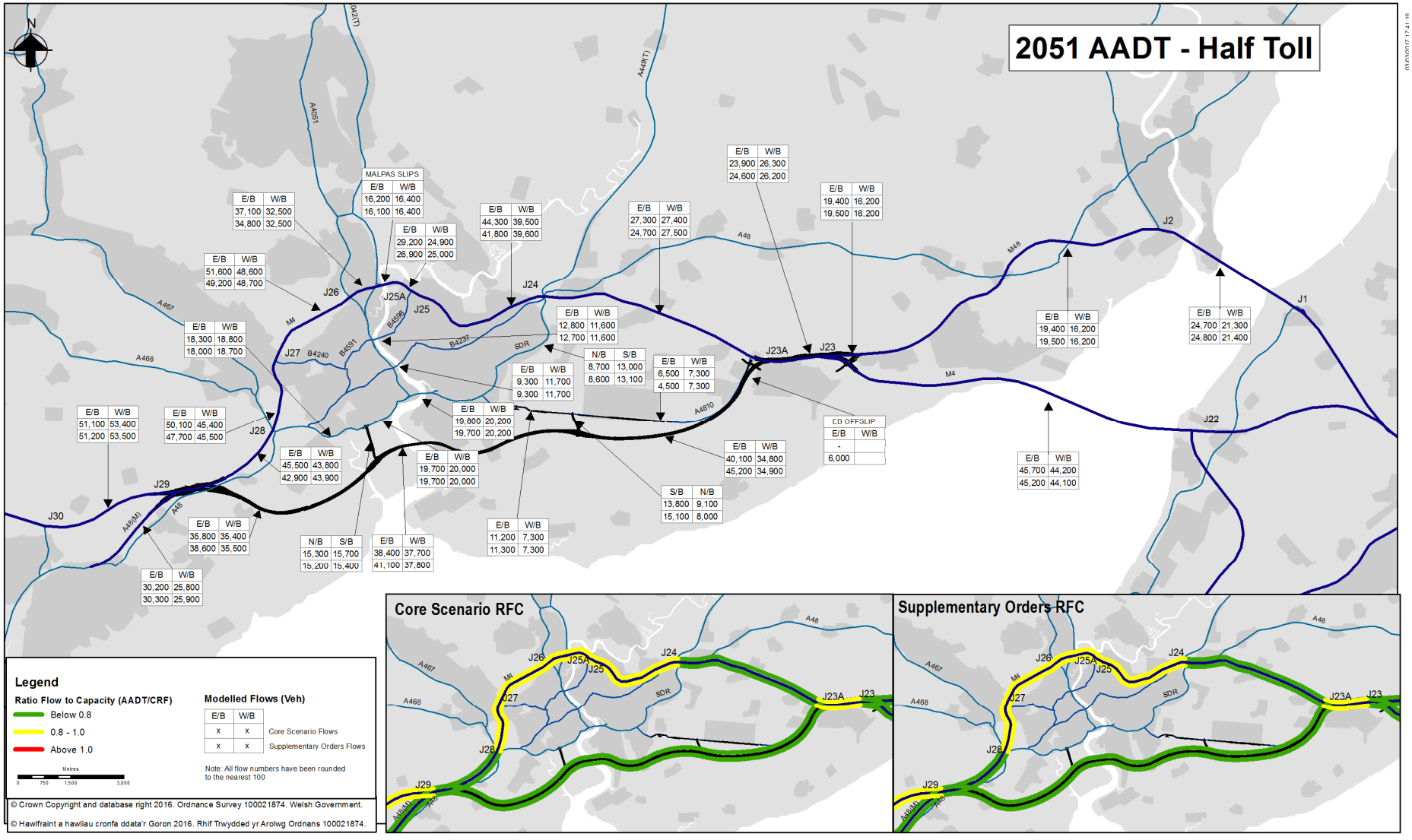


Figure 3.12: 2051 Forecast Annual Average Daily Traffic Flows, Strategic Road Network

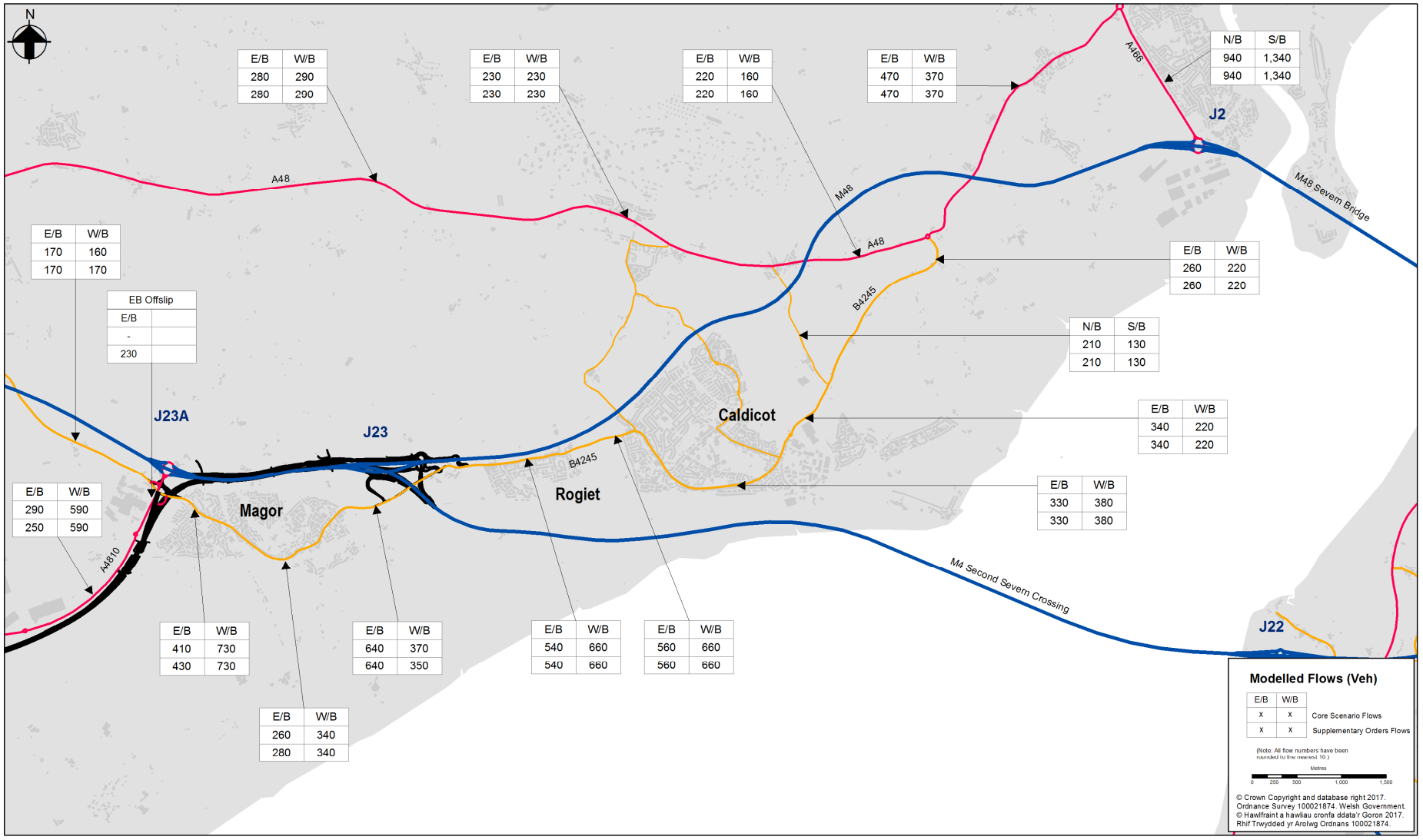


Figure 3.13: 2022 Forecast AM Peak Hour Traffic Flows, B4245 Corridor

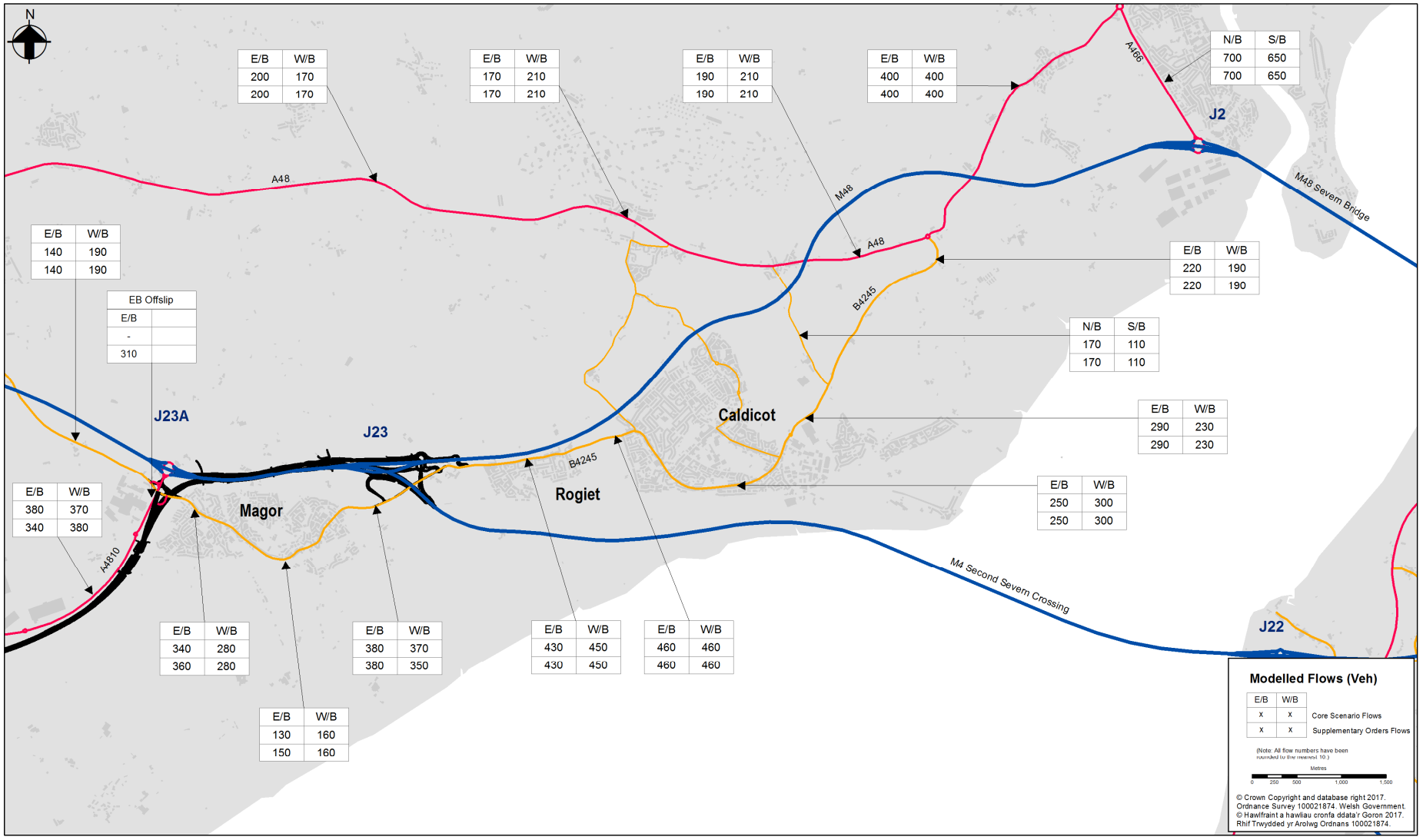


Figure 3.14: 2022 Forecast Inter Peak Hour Traffic Flows, B4245 Corridor

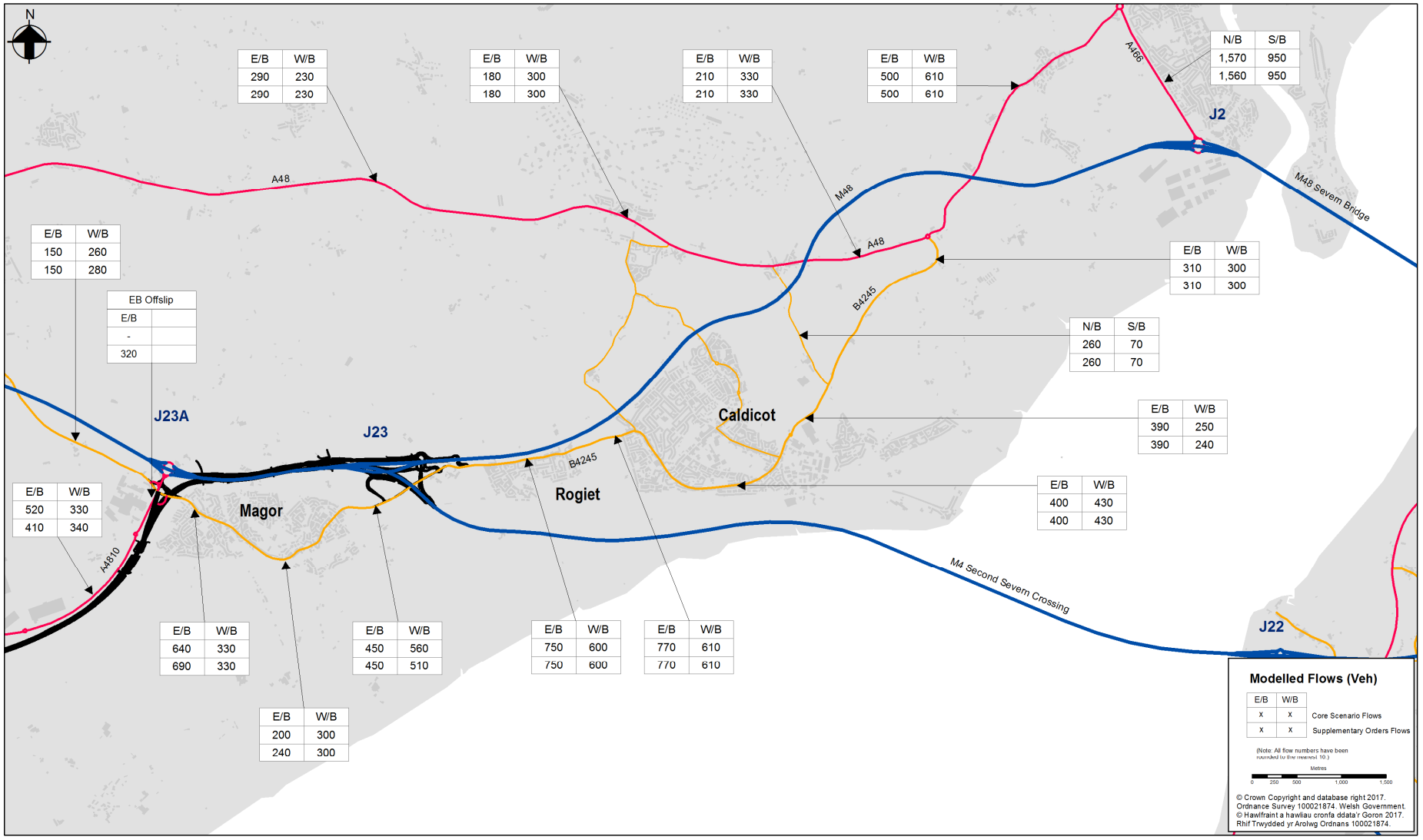


Figure 3.15: 2022 Forecast PM Peak Hour Traffic Flows, B4245 Corridor

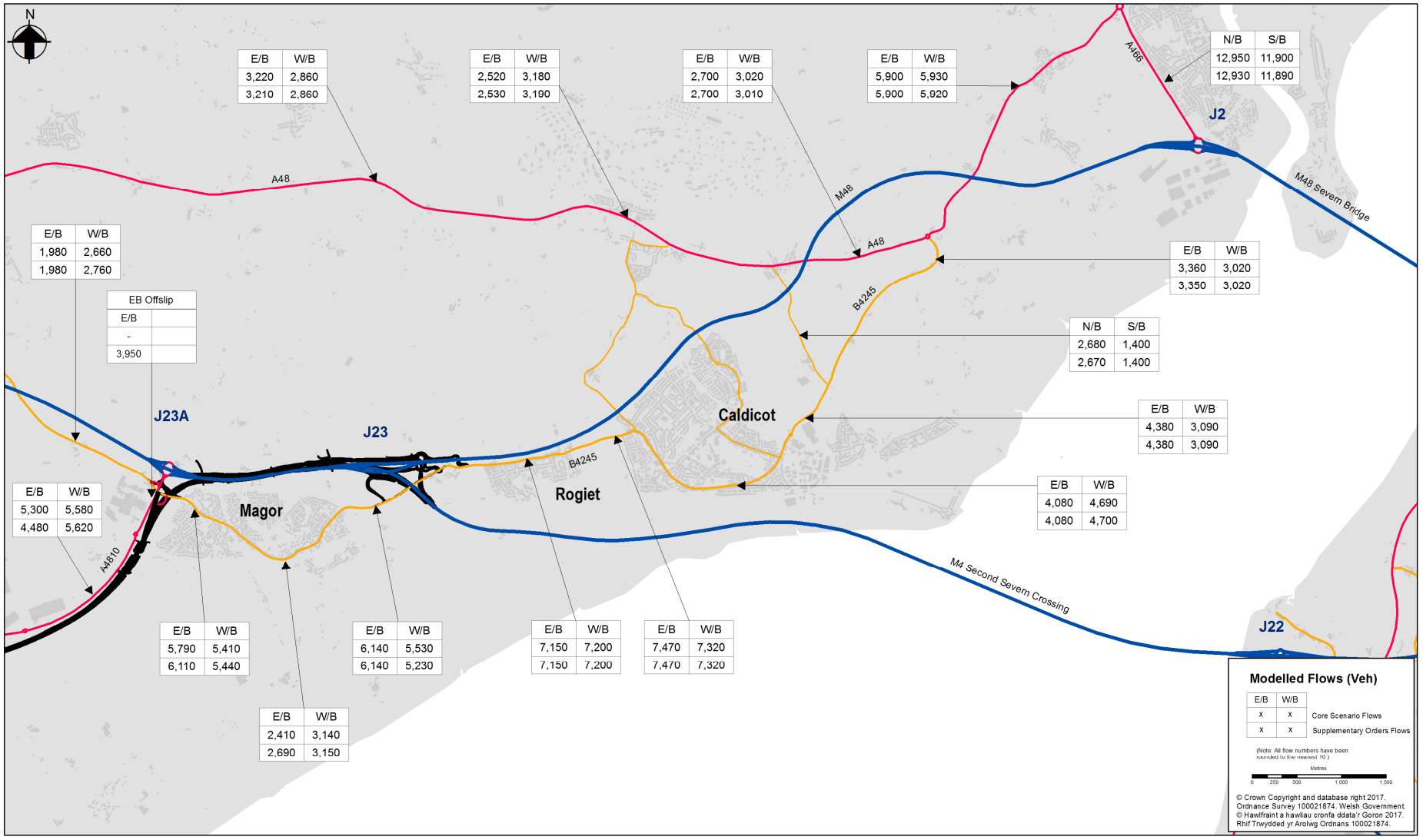
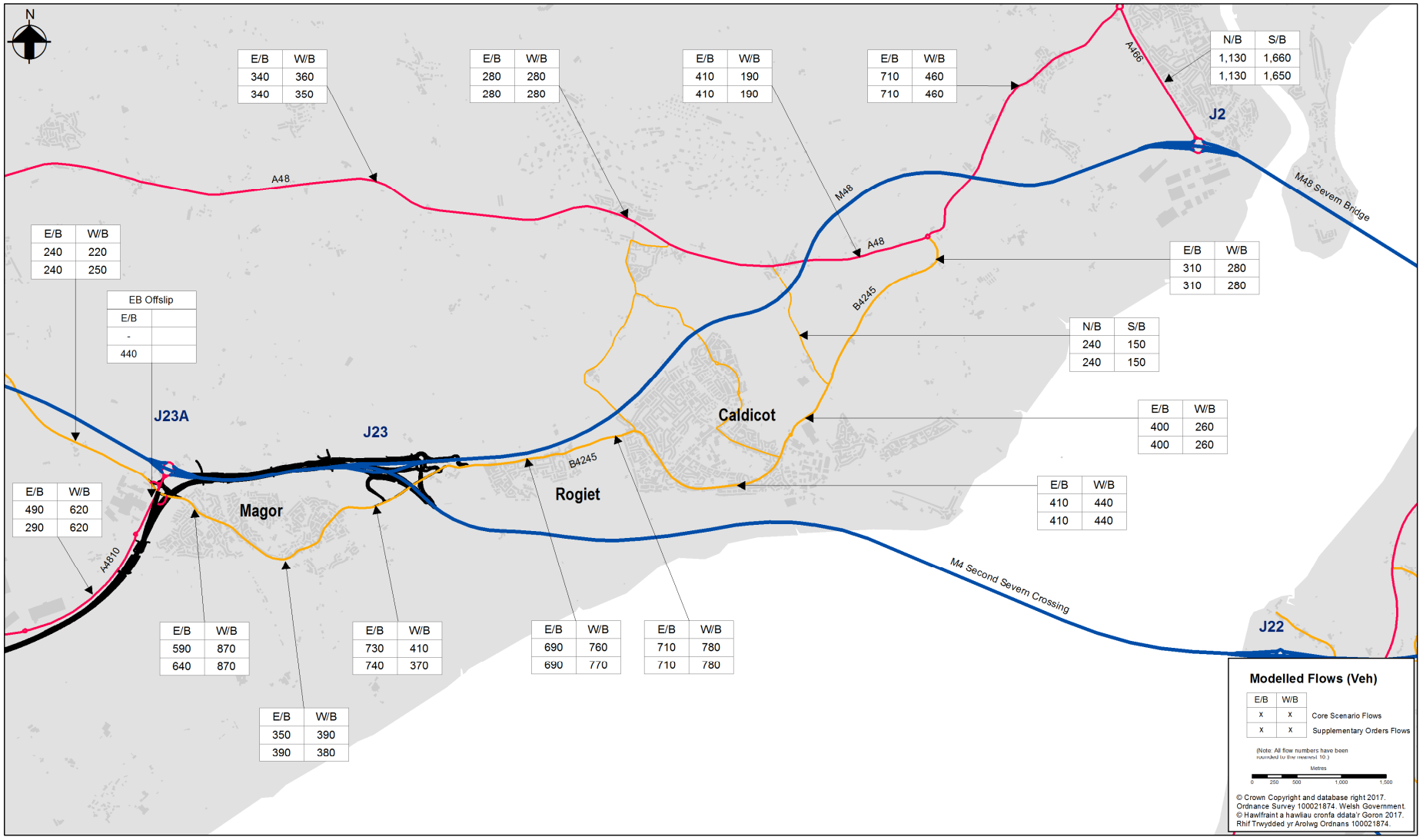


Figure 3.16: 2022 Forecast Annual Average Daily Traffic Flows, B4245 Corridor



\\global\europe\Cardiff\Jobs\242000\242707-0014 Internal Project Data\4-40 Calculations\Transport Modelling\Analysis\2017-01-25 Local Flow diagram\Local flow diagram DS24 vs DS38 (Rounded to 10).mxd

Figure 3.17: 2037 Forecast AM Peak Hour Traffic Flows, B4245 Corridor

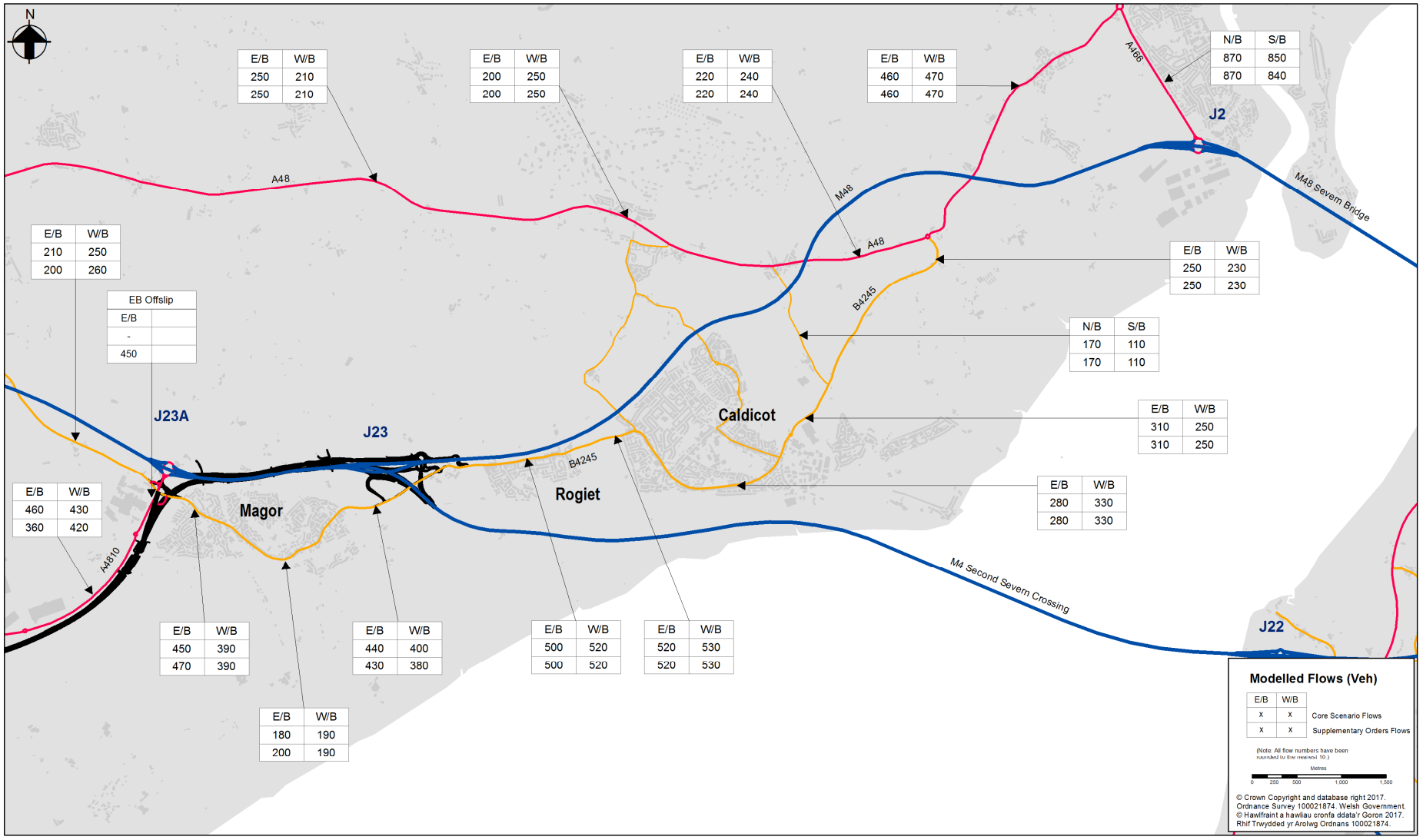


Figure 3.18: 2037 Forecast Inter Peak Hour Traffic Flows, B4245 Corridor

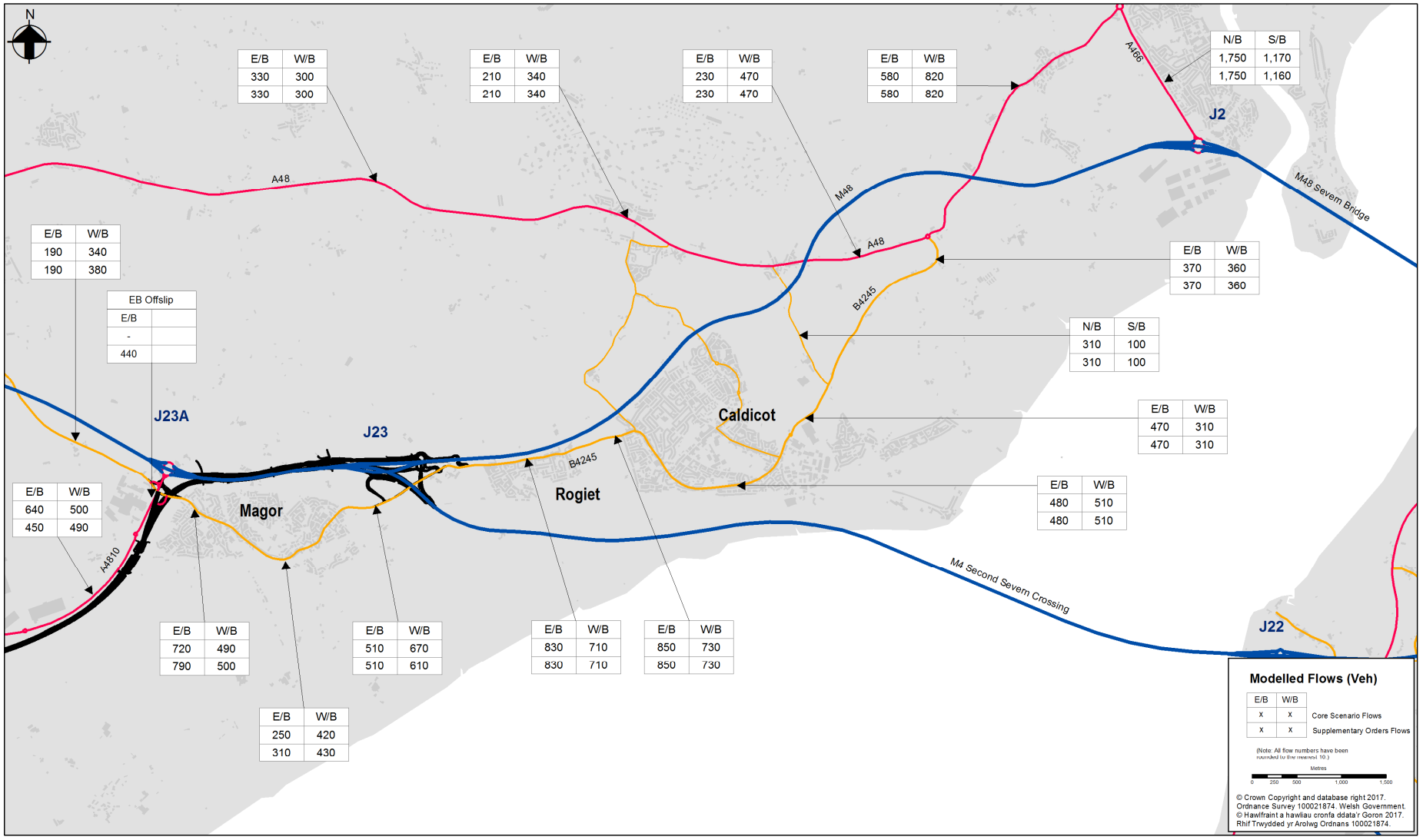


Figure 3.19: 2037 Forecast PM Peak Hour Traffic Flows, B4245 Corridor

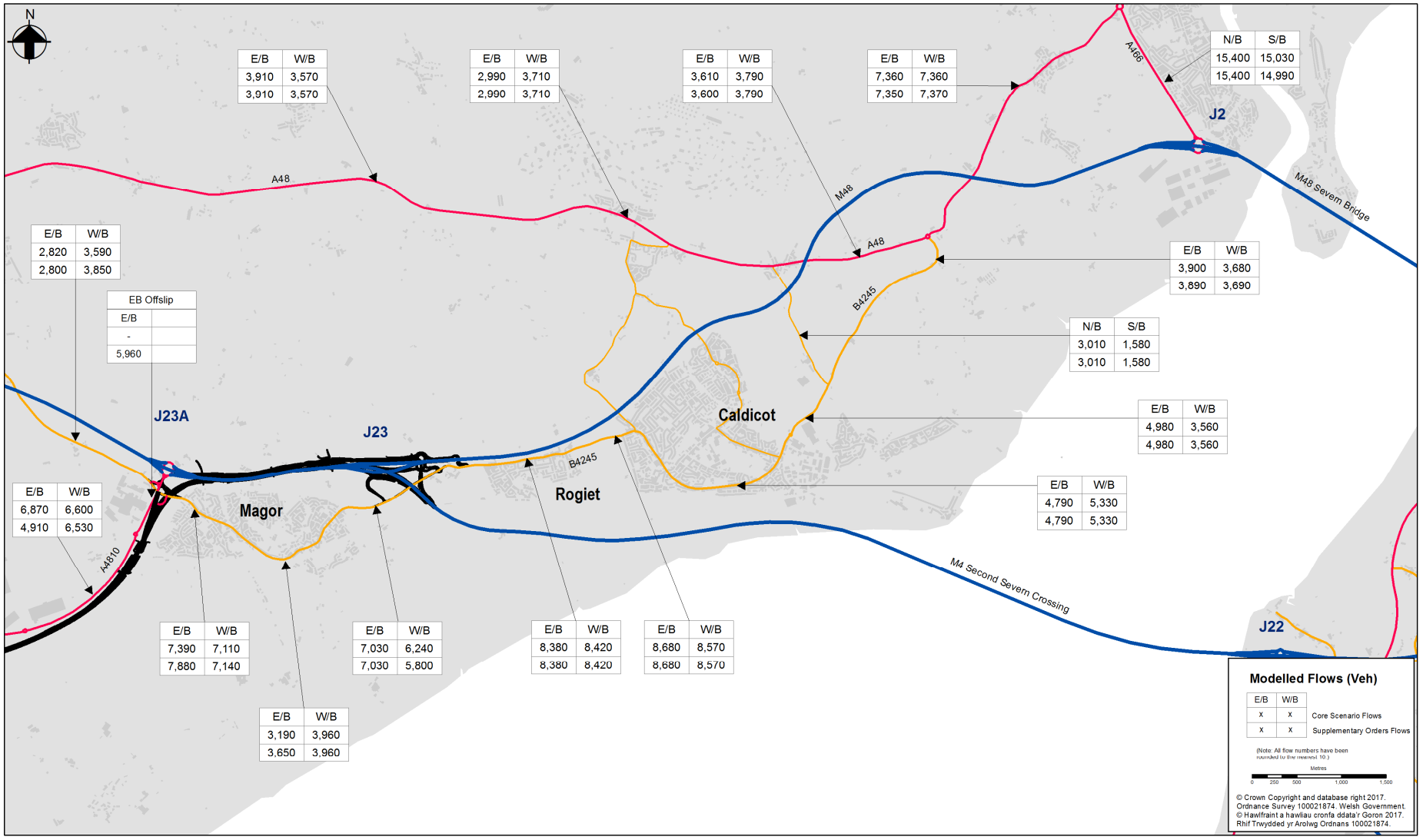


Figure 3.20: 2037 Forecast Annual Average Daily Traffic Flows, B4245 Corridor

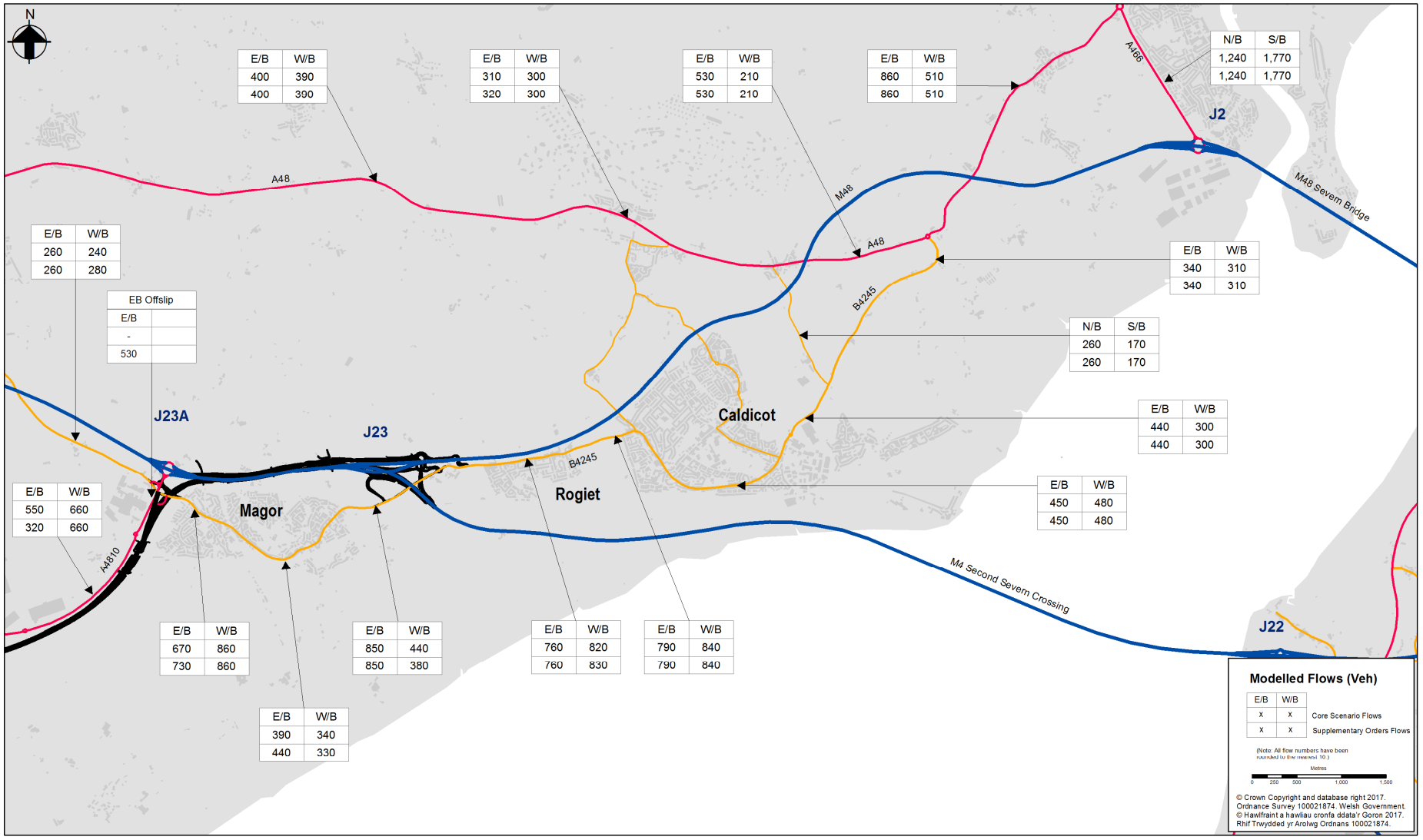


Figure 3.21: 2051 Forecast AM Peak Hour Traffic Flows, B4245 Corridor

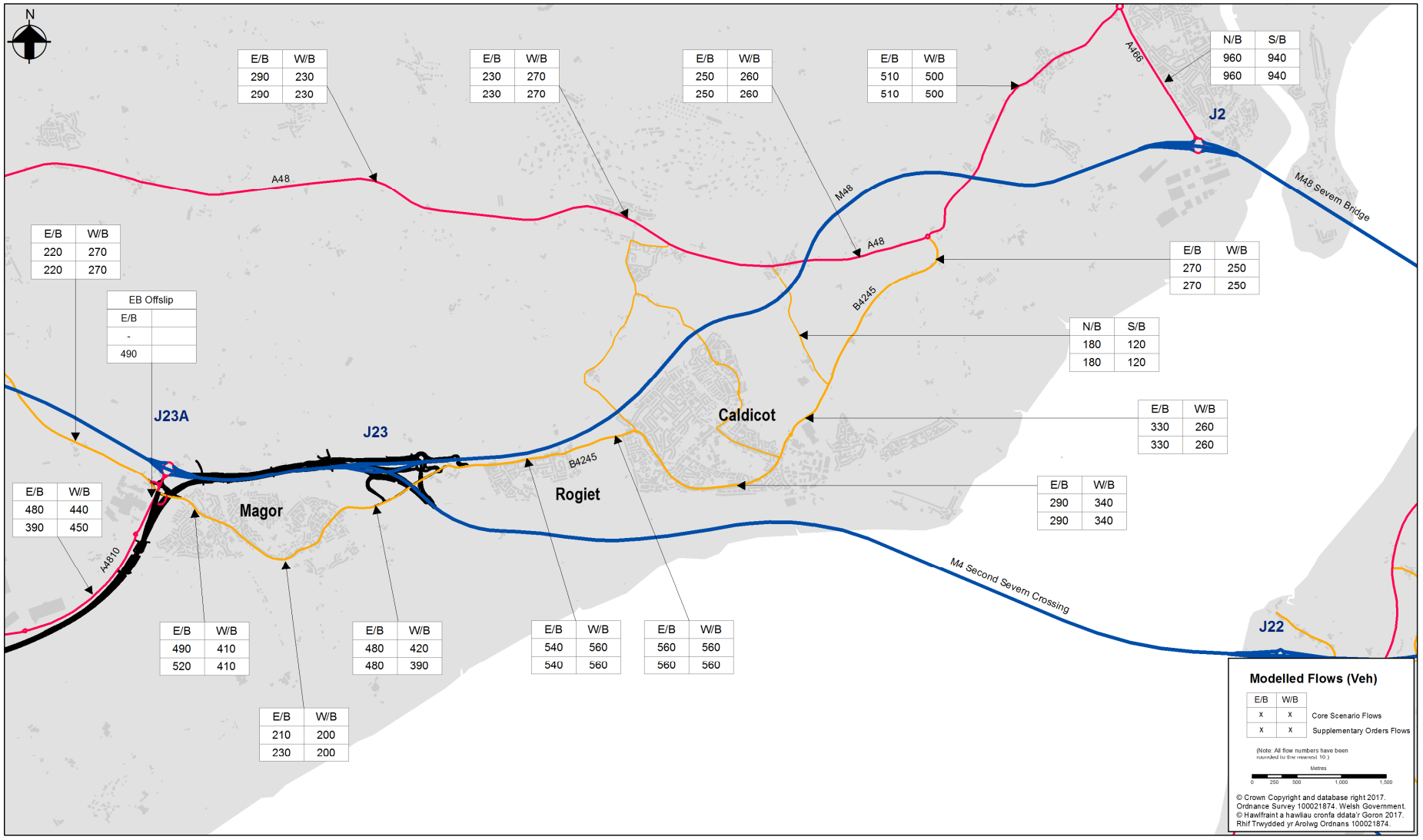


Figure 3.22: 2051 Forecast Inter Peak Hour Traffic Flows, B4245 Corridor

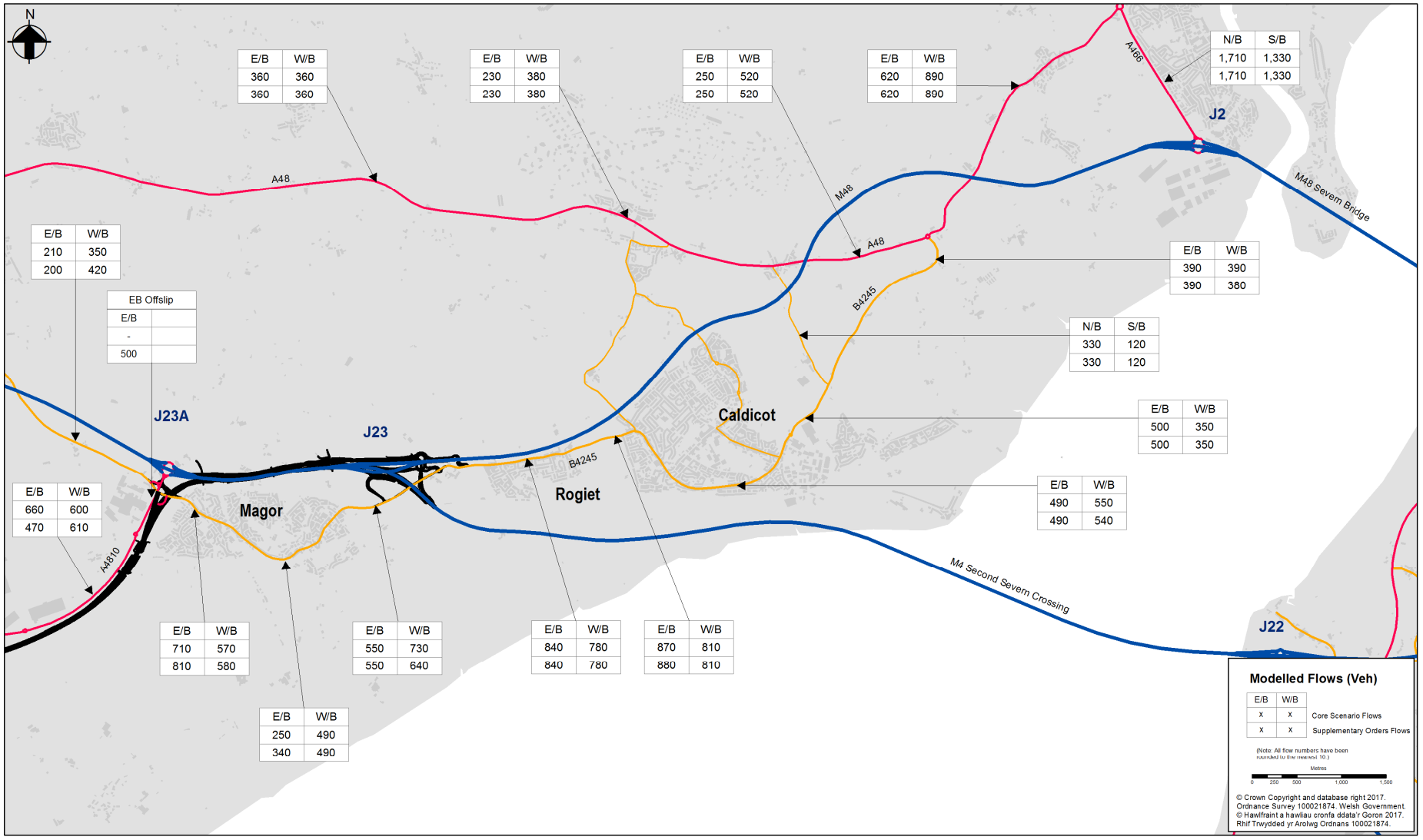


Figure 3.23: 2051 Forecast PM Peak Hour Traffic Flows, B4245 Corridor

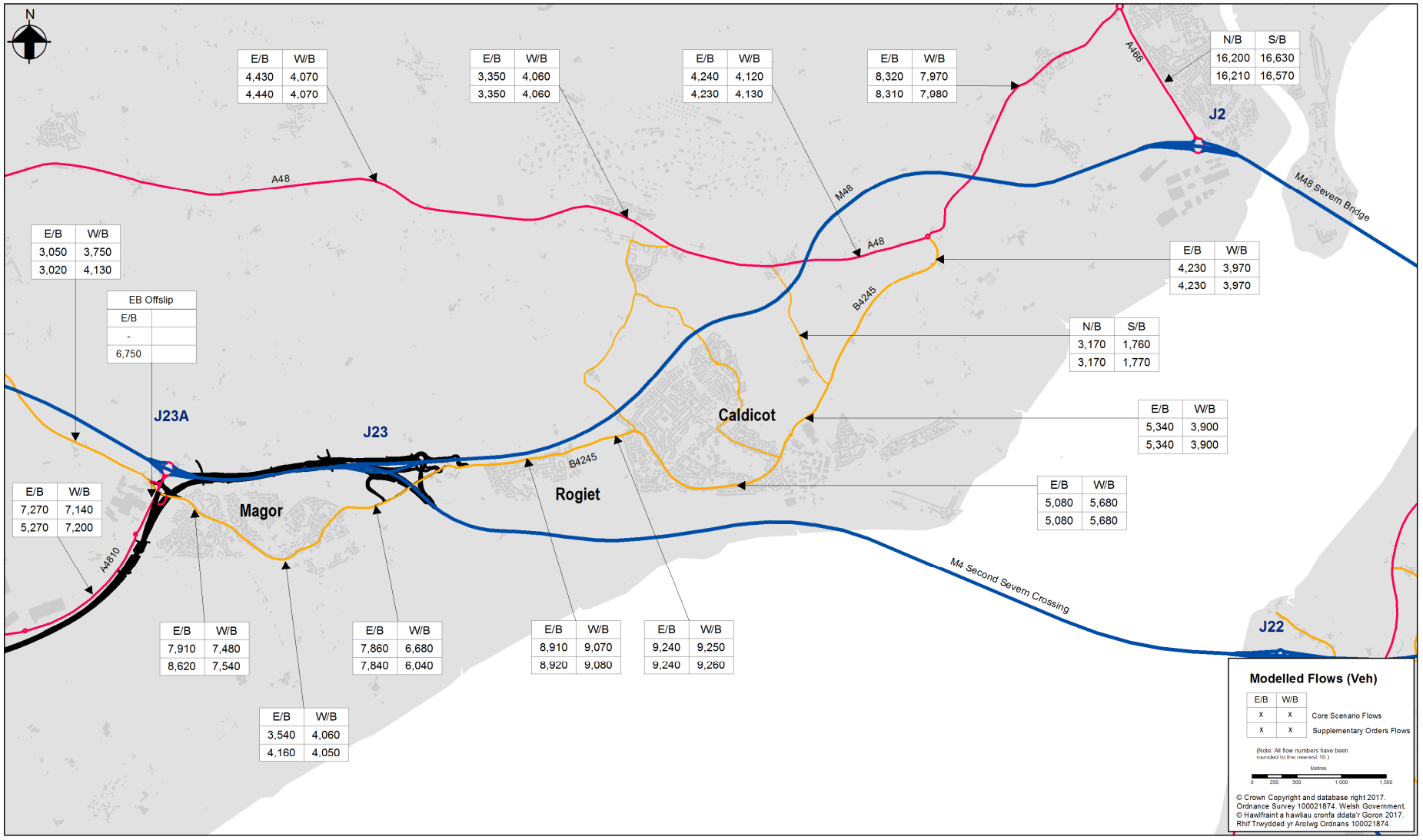


Figure 3.24: 2051 Forecast Annual Average Daily Traffic Flows, B4245 Corridor