

Hornsea Project Three
Offshore Wind Farm

Appendix 32 to the Applicant's Response to Deadline I - Transport Assessment Clarifications

Date: 7th November 2018





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Front cover picture: Kite surfer near a UK offshore wind farm © Ørsted Hornsea Project Three (UK) Ltd., 2018.





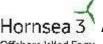


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1. Introduction

- 1.1 This Technical Note has been prepared following the receipt of comments from the Norfolk Vanguard project team, Highways England and Norfolk County Council to Volume 6, Annex 7.1: Transport Assessment of the Environmental Statement (APP-159) (the Transport Assessment). The comments set out that there were clerical omissions from Appendices B and C of the Transport Assessment and some typographical oversights within the main body of the report.
- 1.2 An updated Transport Assessment is submitted to PINS to provide and correct that information.
- 1.3 This Technical Note provides further clarity to key stakeholders to assist with the consideration of the Transport Assessment.

2. Clarification

- Appendix TN-A of this Technical Note contains a table setting out a list of clarifications to Appendices B and C of the Transport Assessment submitted as part of the DCO application (APP-159). To ensure transparency, Appendix TN-A of this Technical Note sets out details of the clarification, the page numbers of this Technical Note to which the clarification relates and a justification.
- 2.2 Appendix TN-B of this Technical Note contains clarification on the daily HGV construction traffic across the network, the daily HGV construction traffic across the network for the sensitivity scenario, assumptions for HGV movements and assumptions for staff movements.
- 2.3 Appendix TN-C of this Technical Note contains clarification on weekday baseline traffic flows, weekday baseline traffic flows plus construction staff traffic flows and junction assessment requirements.





Appendix TN-A Summary of Clarifications to the Transport Assessment





Appendix of Technical Note	Page(s) of Technical Note PDF	Change	Justification		
TN-B - Daily HGV Construction Traffic	X-4()	Confirmation of disaggregated "Daily Construction HGV Flows", replacing "12hr Total Construction Traffic" within the Transport Assessment.	Some of the traffic flows set out at Appendix B of the Transport Assessment were aggregated to provide a maximum traffic flow per location across all assessment scenarios (groups). Clarification provided to disaggregate the HGV flows to their individual grouping.		
TN-B - Daily HGV Construction Traffic Sensitivity Scenario	1 /1-73 1 95 5 7		Some of the traffic flows set out at Appendix B of the Transport Assessment were aggregated to provide a maximum traffic flow per location across all assessment scenarios (groups). Clarification provided to disaggregate the HGV flows to their individual grouping.		
TN-B - Assumptions for HGVs	sumptions for HGVs 9 Confirmation of the assumptions made when undertaking the assessment.		To ensure the assumptions made for the assessment are clear.		
TN-B - Assumptions for Staff	43	Confirmation of the assumptions made when undertaking the assessment.	To ensure the assumptions made for the assessment are clear.		
	/6	Confirmation of 2017 Weekday Observed Traffic Flows 07:00-08:00	Appendix C of the Transport Assessment serves to show that the traffic flows during construction staff commuter hours do not exceed the network peak traffic flows; therefore		
L		Confirmation of 2022 Weekday Base Traffic Flows 07:00-08:00	Appendix of the Indisport Assessment serves a show that the train in lows during constitution start commuter flours and not exceed the network peak trains flows, therefore confirmation of these base flows are necessary to demonstrate this.		
		Confirmation of 2017 Weekday Observed Traffic Flows 18:00-19:00	Commission of these state notice are necessary to demonstrate and		
	79	Confirmation of 2022 Weekday Base Traffic Flows 18:00-19:00			
		Confirmation of 2022 Weekday Base Traffic Flows (07:00-0800) + Arrival Construction Staff			
		Northern Group + Landfall + Booster Station + Substation + 2022 Base			
		Confirmation of 2022 Weekday Base Traffic Flows (07:00-0800) + Arrival Construction Staff			
		Middle (northern) Group + Landfall + Booster Station + Substation + 2022 Base			
		Confirmation of 2022 Weekday Base Traffic Flows (07:00-0800) + Arrival Construction Staff	The "Maximum Construction Traffic" sheet at Appendix C of the Transport Assessment includes the maximum turning movements across each link and turning count. This enabled the maximum number of vehicle movements at each turning manoeuvre to be shown aggregated on a single page, but is not representative of what would happen in reality as		
TN-C		Middle (southern) Group + Landfall + Booster Station + Substation + 2022 Base			
		Confirmation of 2022 Weekday Base Traffic Flows (07:00-0800) + Arrival Construction Staff			
		Southern Group + Landfall + Booster Station + Substation + 2022 Base Confirmation of 2022 Weekday Base Traffic Flows (18:00-1900) + Departure Construction Staff	the maximum construction traffic took into account traffic from all four groups occurring simultaneously. If someone attempted to calculate the link flows either side of the junction using the junction turning counts, the information would be incorrect. Clarification is therefore provided by disaggregating these flows and showing that the 30		
		Northern Group + Landfall + Booster Station + Substation + 2022 Base			
		Confirmation of 2022 Weekday Base Traffic Flows (18:00-1900) + Departure Construction Staff	movements per hour threshold is not exceeded.		
		Middle (northern) Group + Landfall + Booster Station + Substation + 2022 Base			
		Confirmation of 2022 Weekday Base Traffic Flows (18:00-19:00) + Departure Construction Staff			
		Middle (southern) Group + Landfall + Booster Station + Substation + 2022 Base			
		Confirmation of 2022 Weekday Base Traffic Flows (18:00-19:00) + Departure Construction Staff			
		Southern Group + Landfall + Booster Station + Substation + 2022 Base			
		Clarification of Justification of Junction Assessments	To provide a summary of the assessment for the above.		

Appendix TN-B Clarifications to Appendix B of the Transport Assessment





Appendix B

Traffic Flow Diagrams

Daily Construction HGV Flows

Assumptions for HGVS

Assessment year of **2022** as this is the first full year of construction of the cable route

 $Assume that the \ majority \ of \ HGVs \ will \ route \ from \ Lings \ Kynn, \ Great \ Yarmouth \ and \ Lowest of t$

Assume 10% from Kings Lynn
5% from Great Yarmouth
5% from Lowestoft
35% from A47
0% from A1065
35% from A11

10% from A140 south 0% from A140 north

100%

Assume 4 groups of 5 workfronts

5 adjacent workfronts to assume worst case scenario

Assume 50% of total staff movements occur between 07:00 and 08:00 50% of total staff movements occur between 18:00 and 19:00

In reality, staff will arrive 06:00-07:00 depart 18:00-19:00

The local road network, for assessment purposes only, assumes staff will

arrive 07:00-08:00 depart 18:00-19:00

The trunk road network staff assignment has staff, as predicted,

arriving 06:00 - 07:00 departing 18:00-19:00

Assumptions for Staff

Assume

Assessment year of **2022** as this is the first full year of construction of the cable route

Assume that all staff will route via the wider highway network (A and Trunk Roads) $\,$

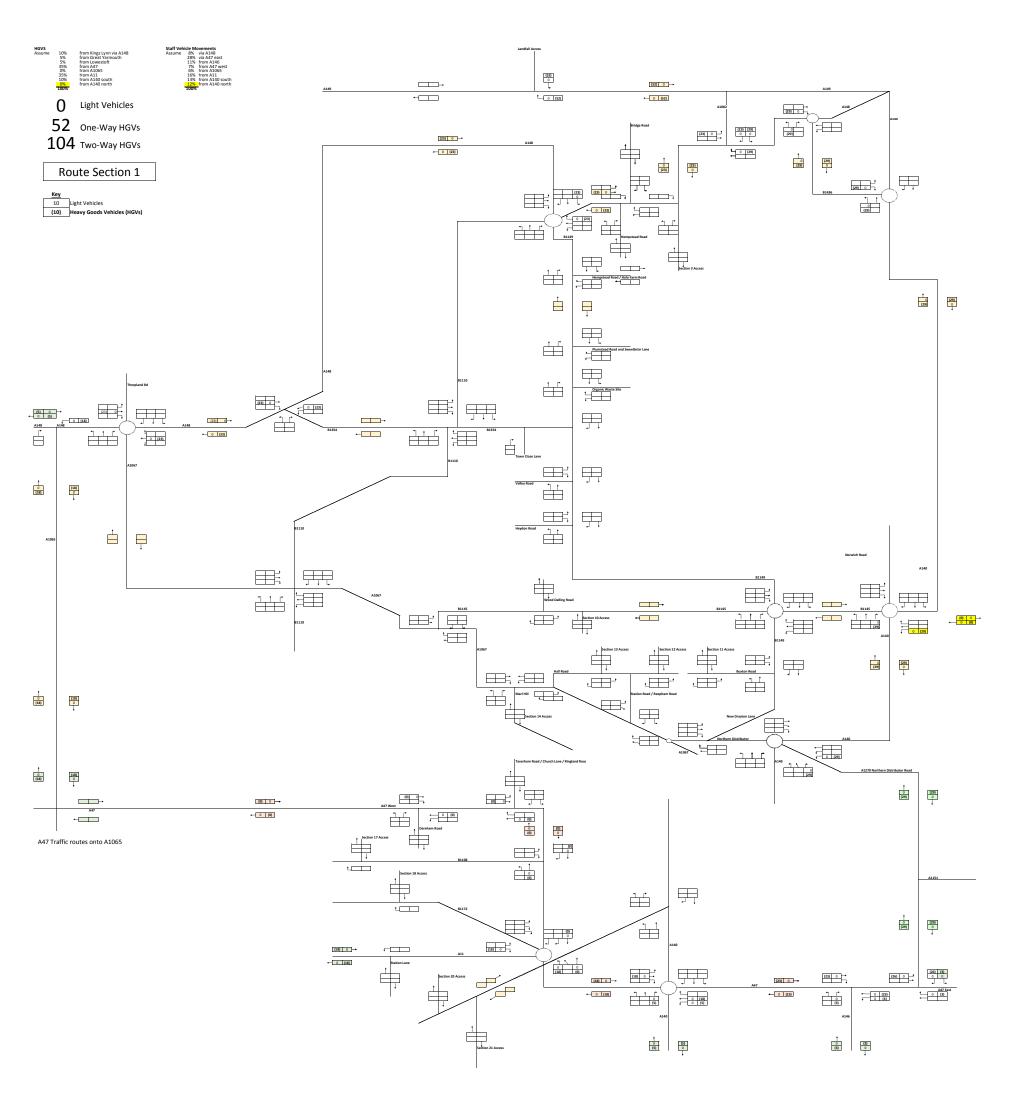
via A148 8% 28% via A47 east 11% from A146 7% from A47 west 6% from A1065 16% from A11 13% from A140 south 12% from A140 north

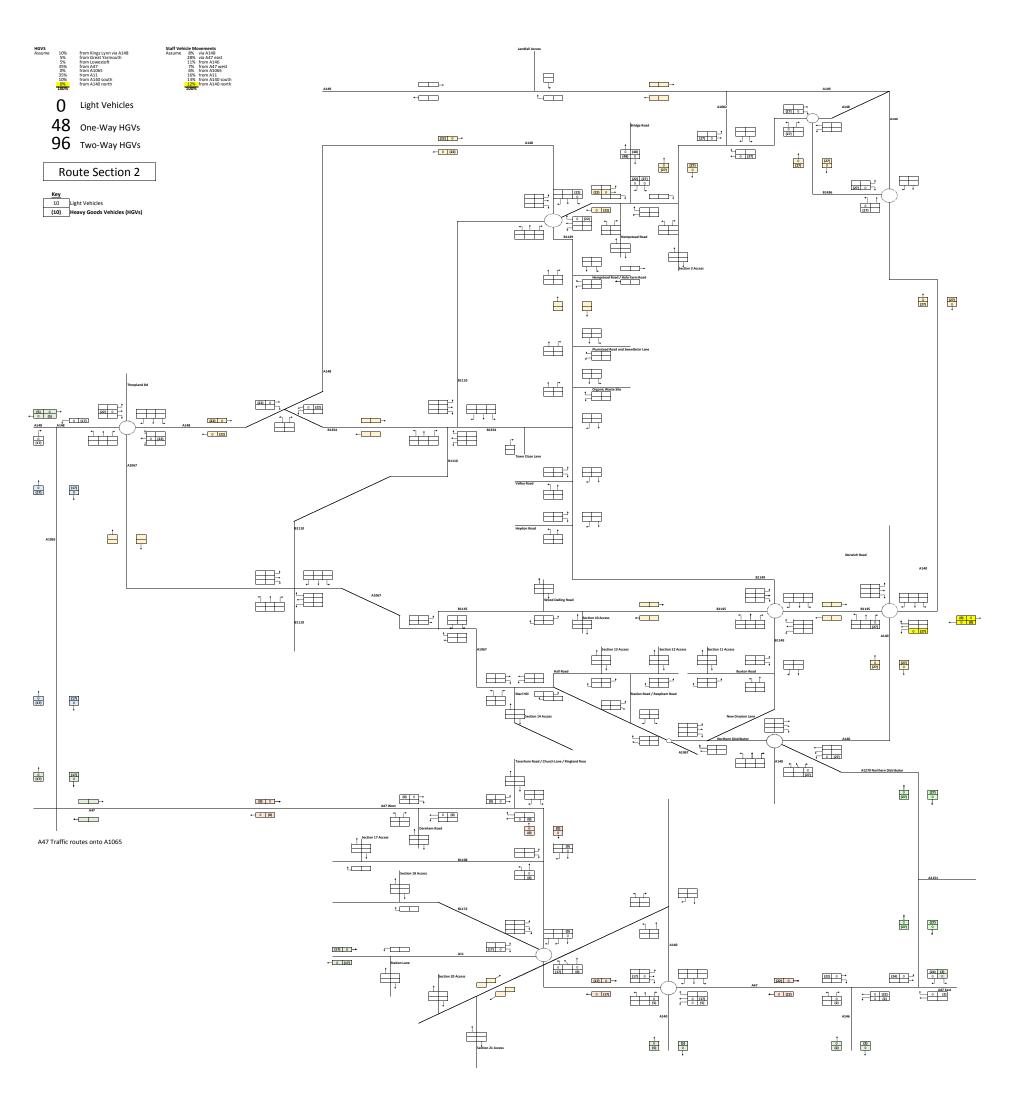
100%

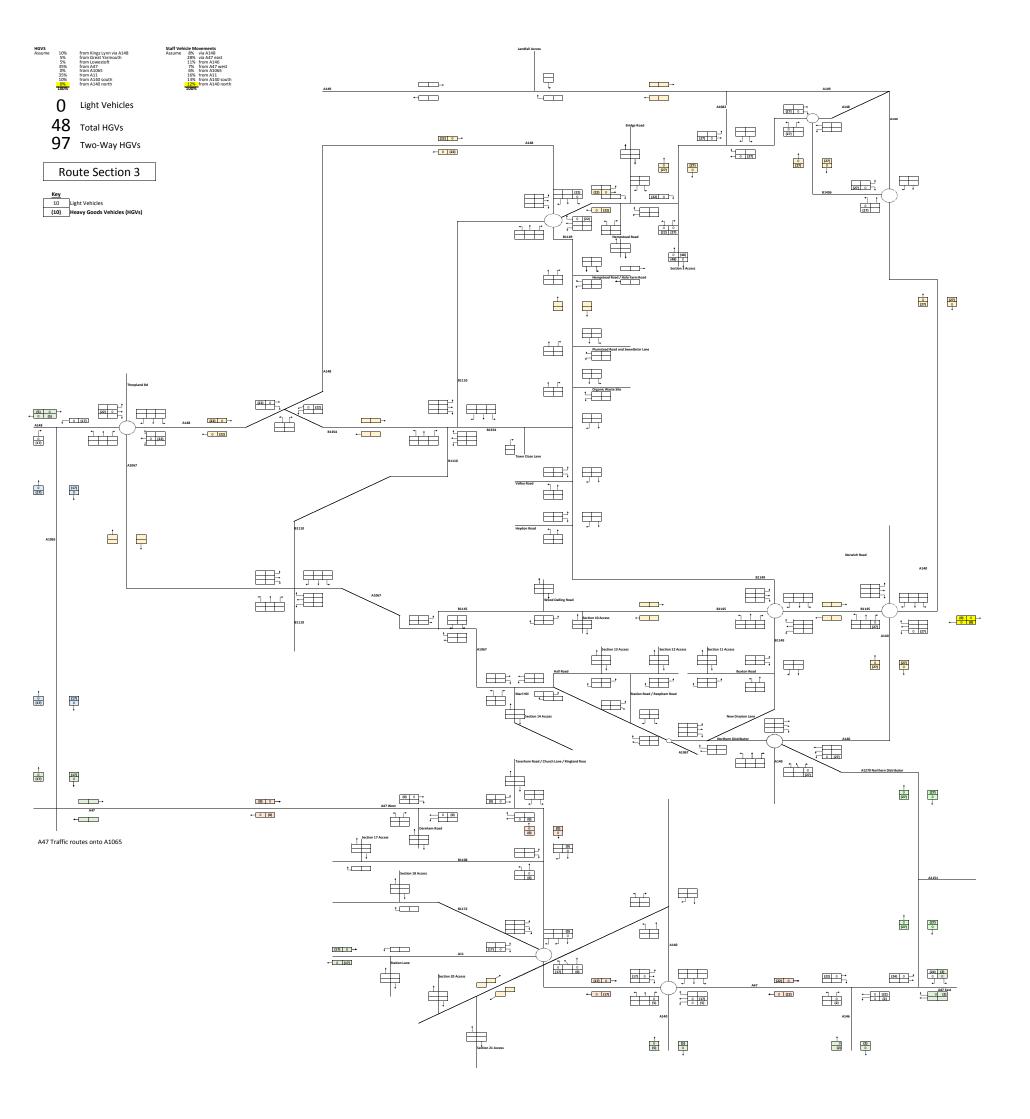
Assume 4 groups of 5 workfronts
5 adjacent workfronts to assume worst case scenario

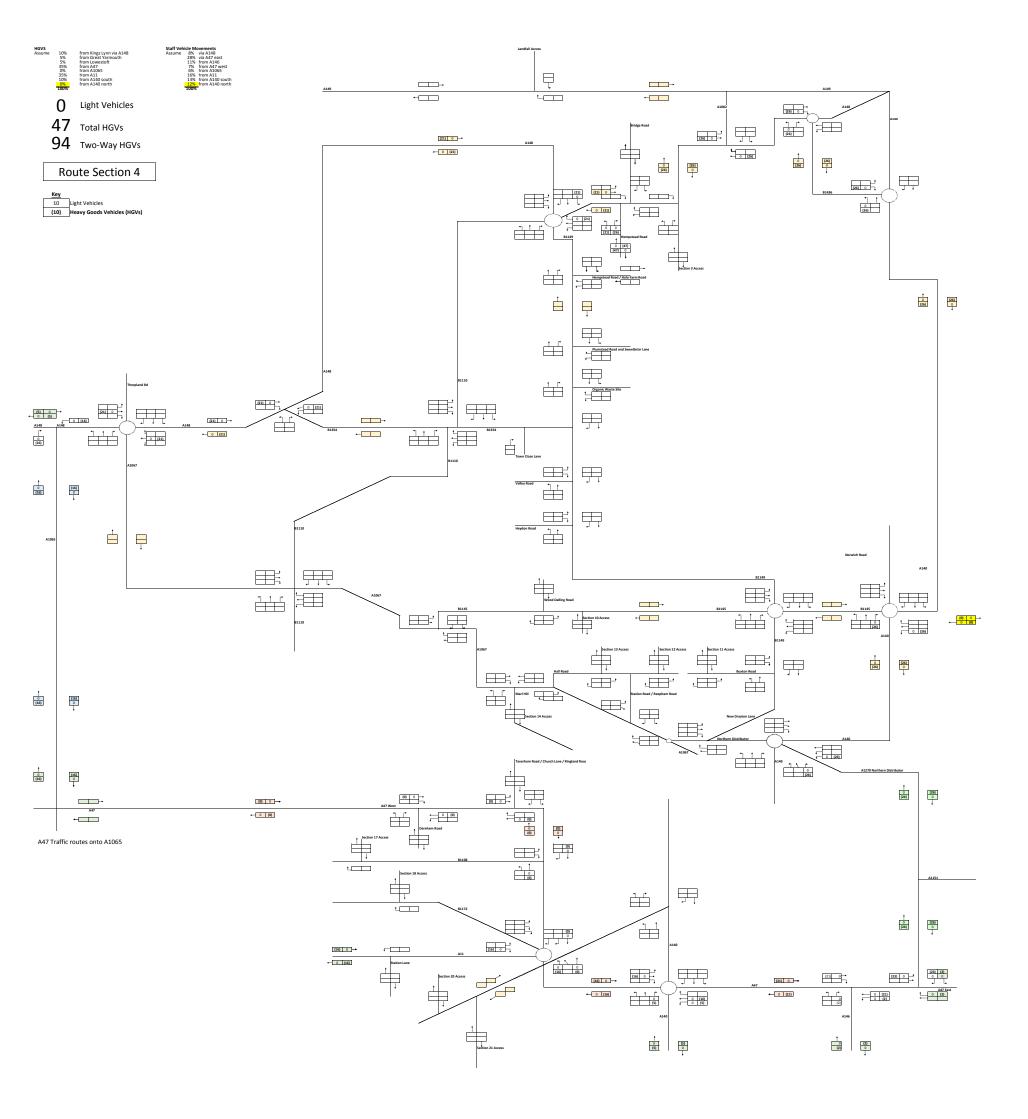
Assume **50%** of total staff movements occur between 07:00 and 08:00

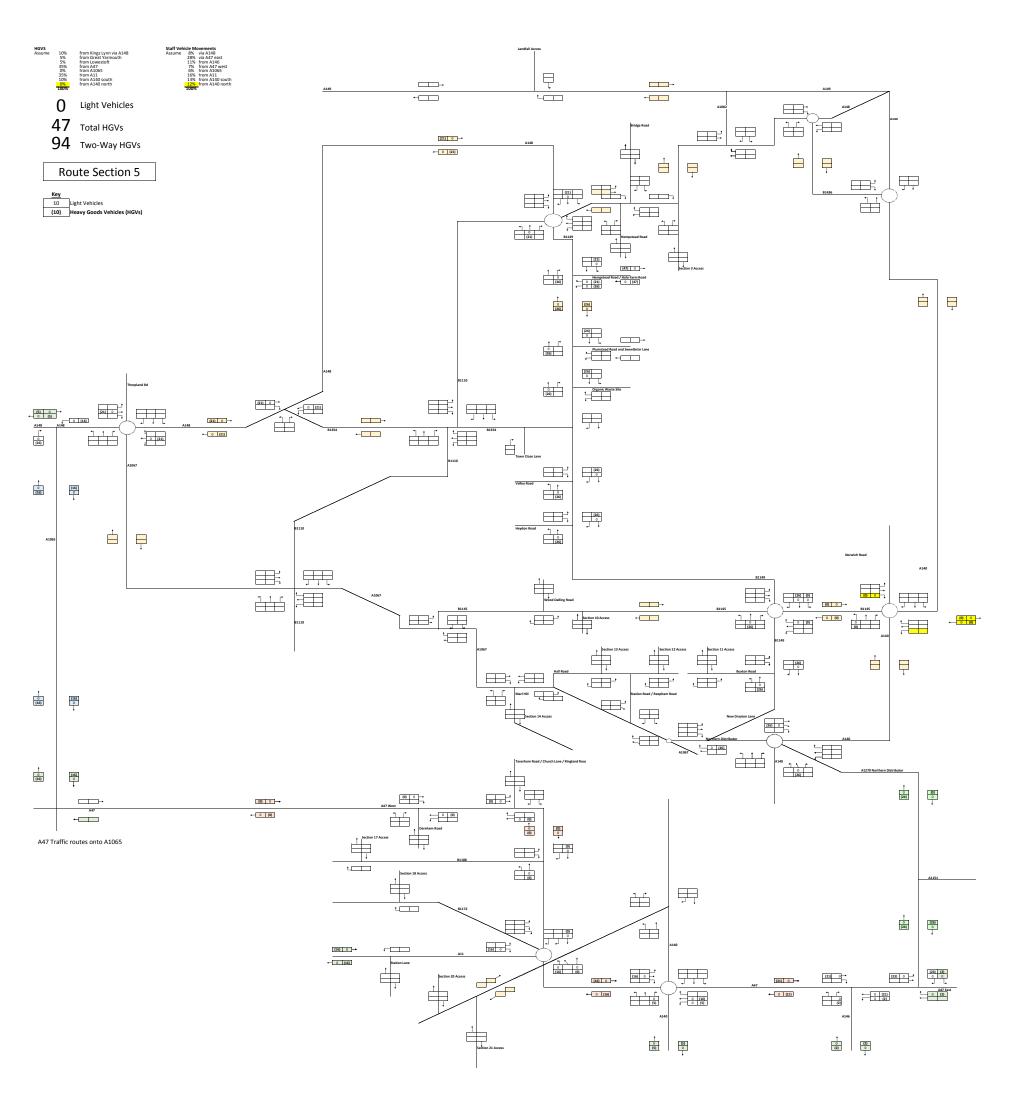
50% of total staff movements occur between 18:00 and 19:00

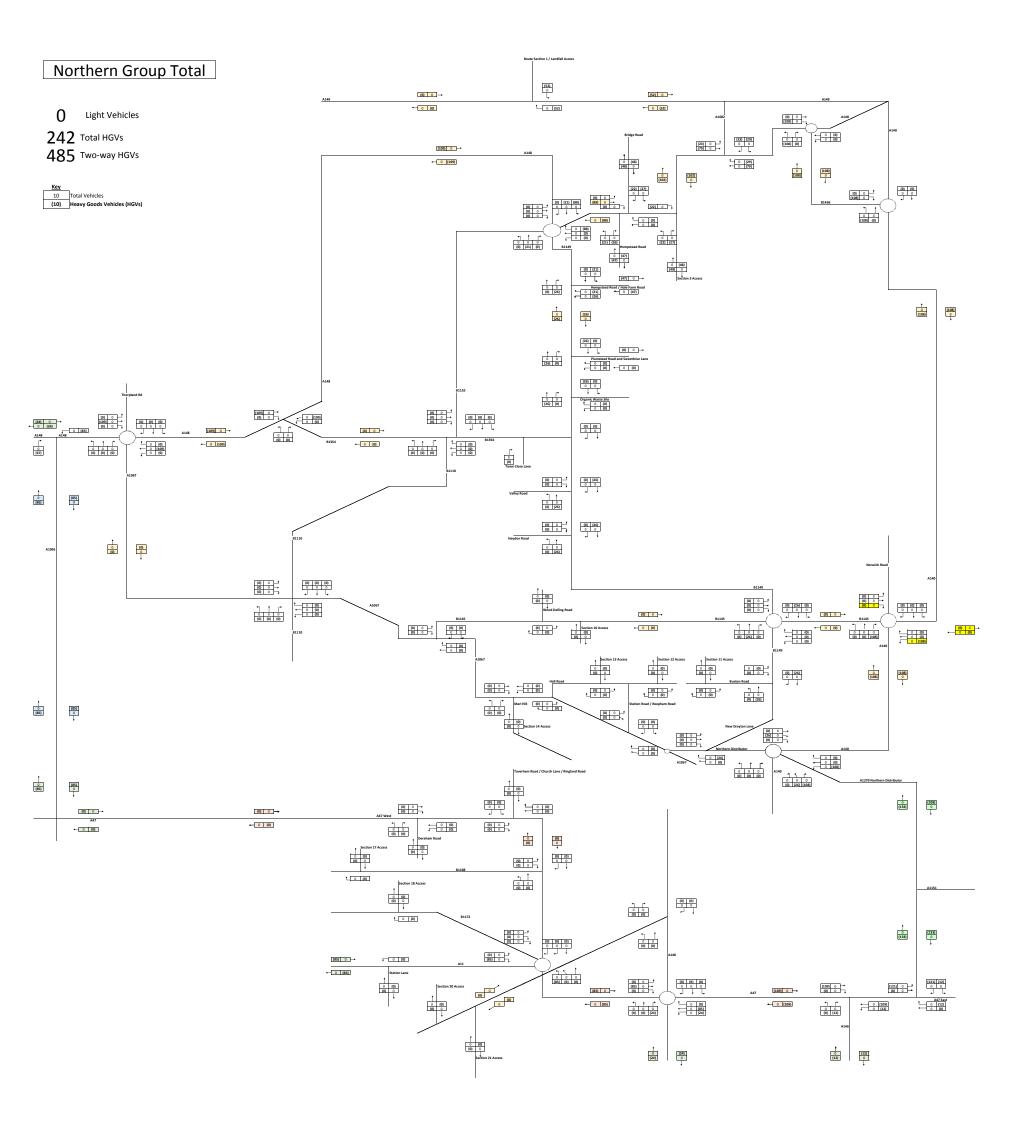


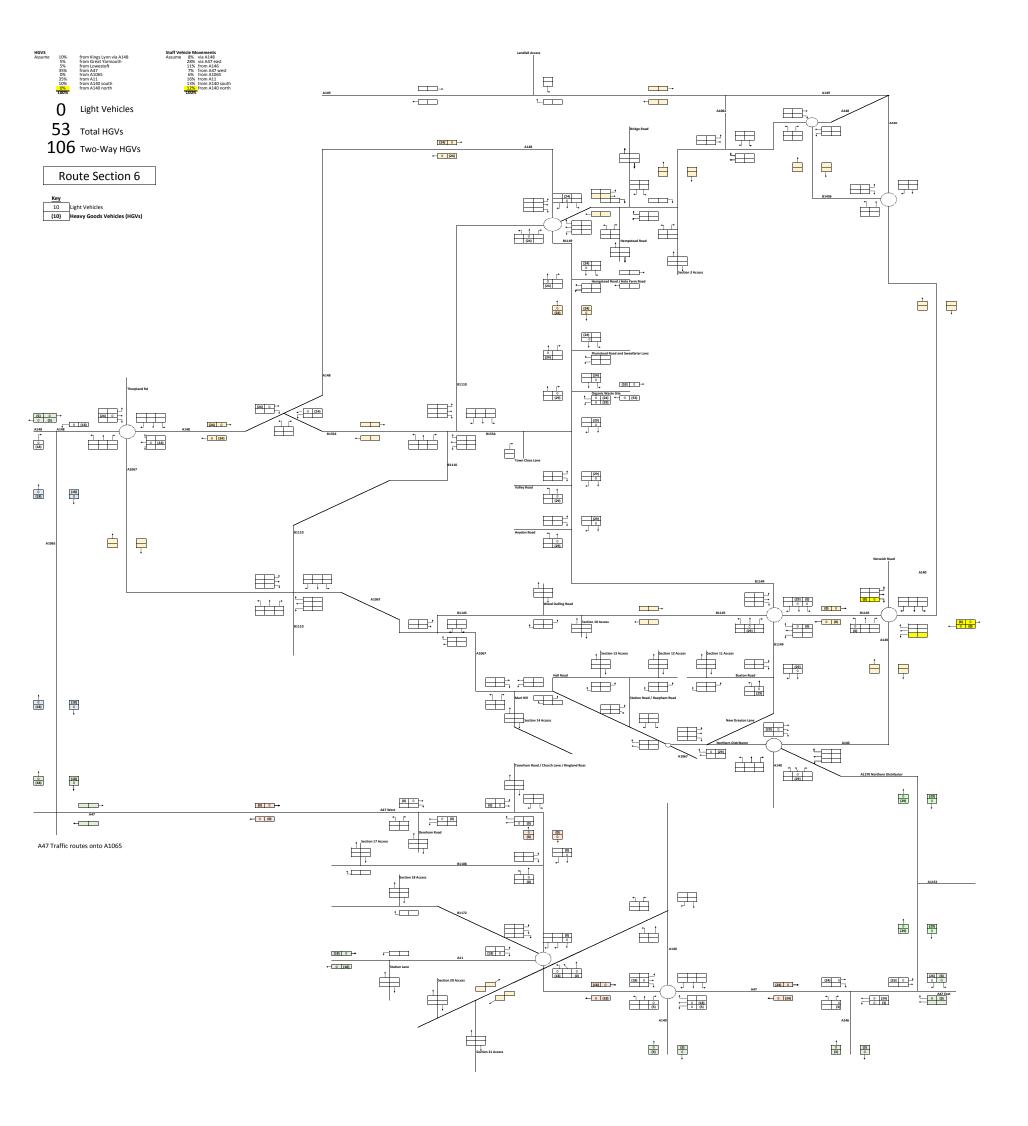


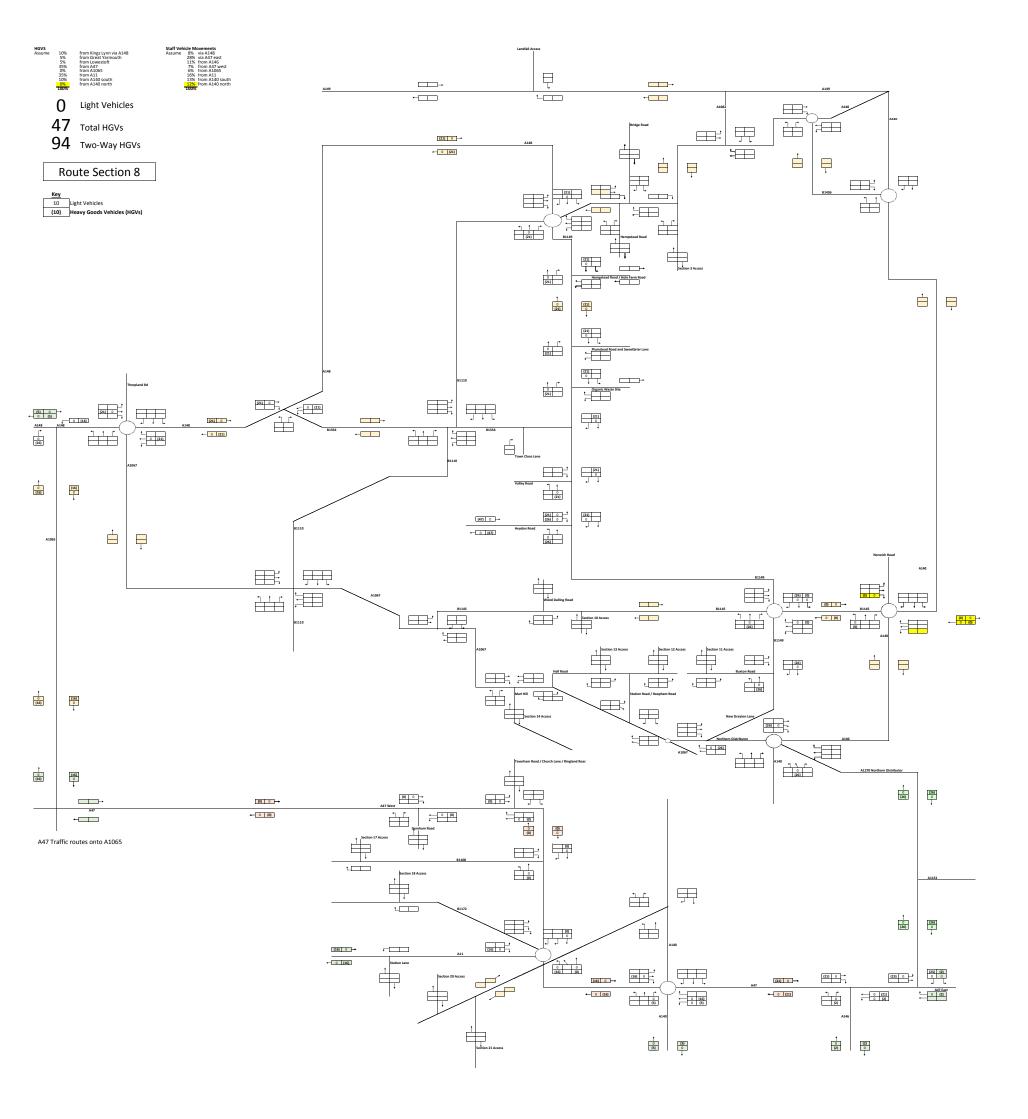


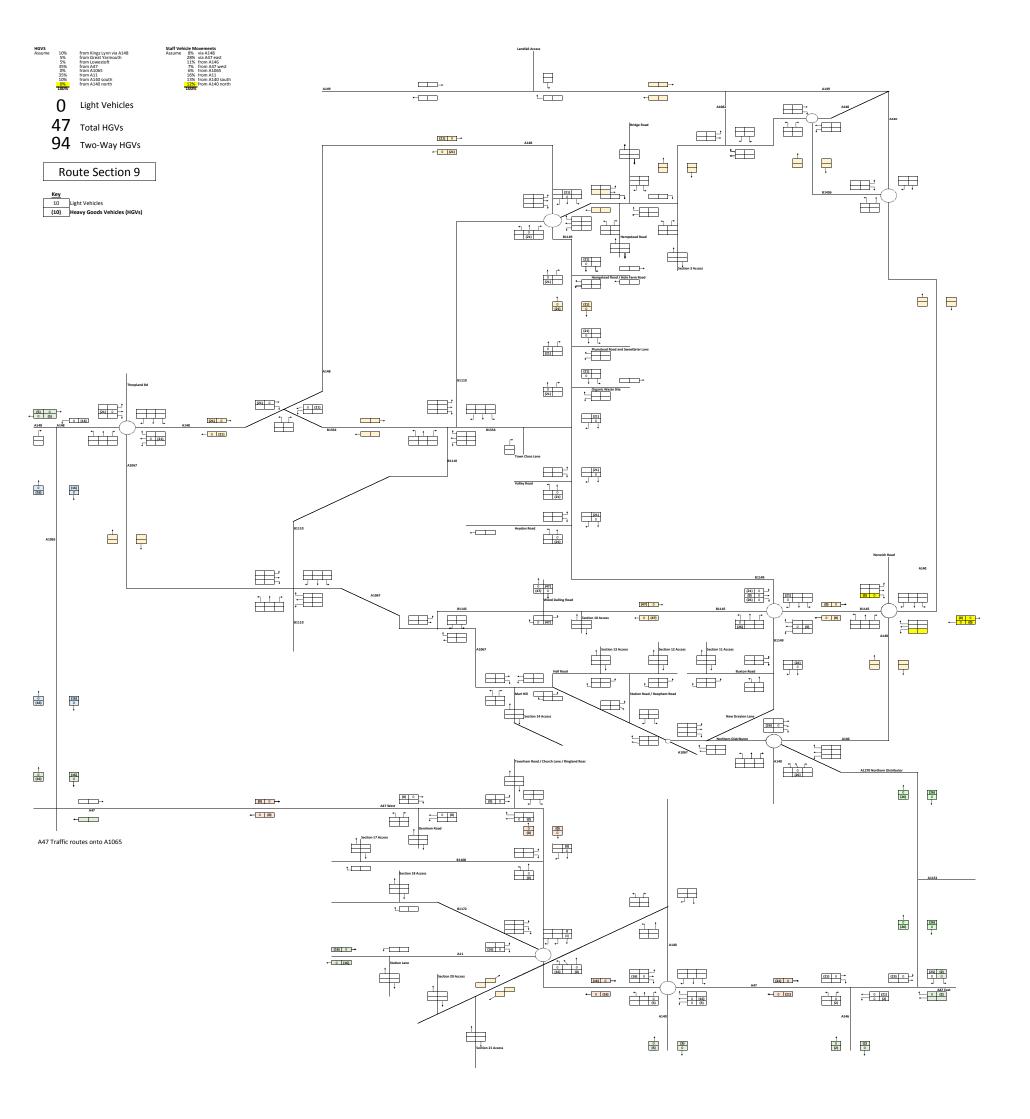


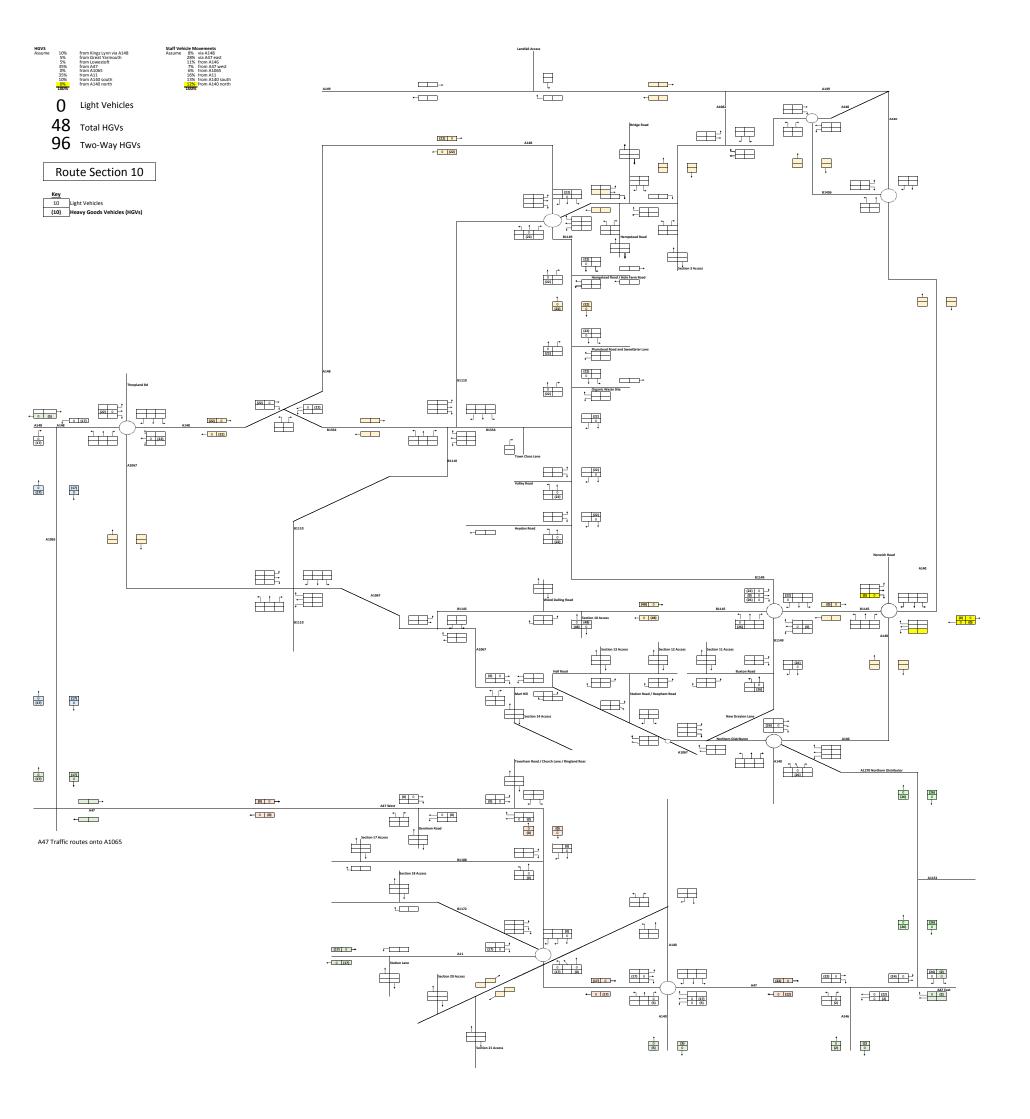


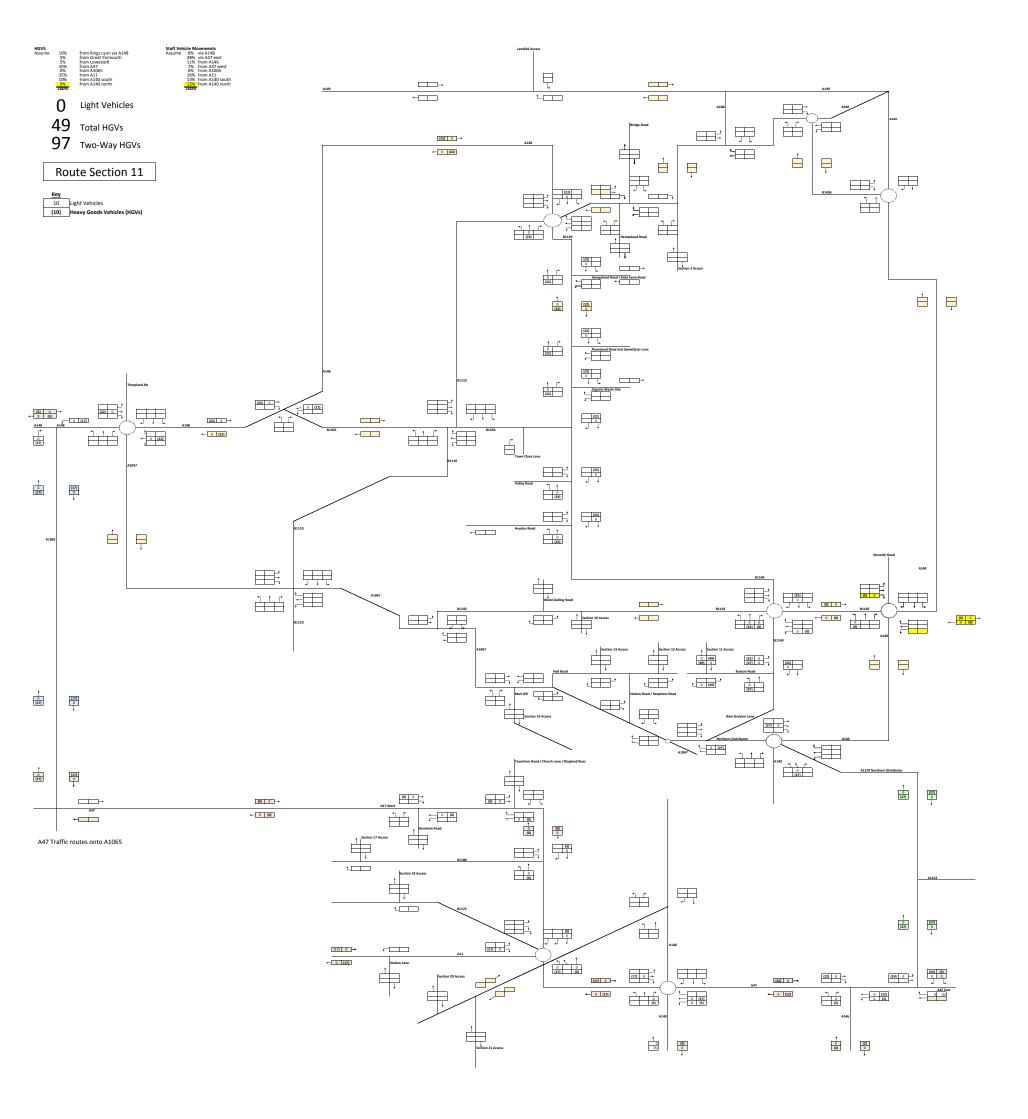


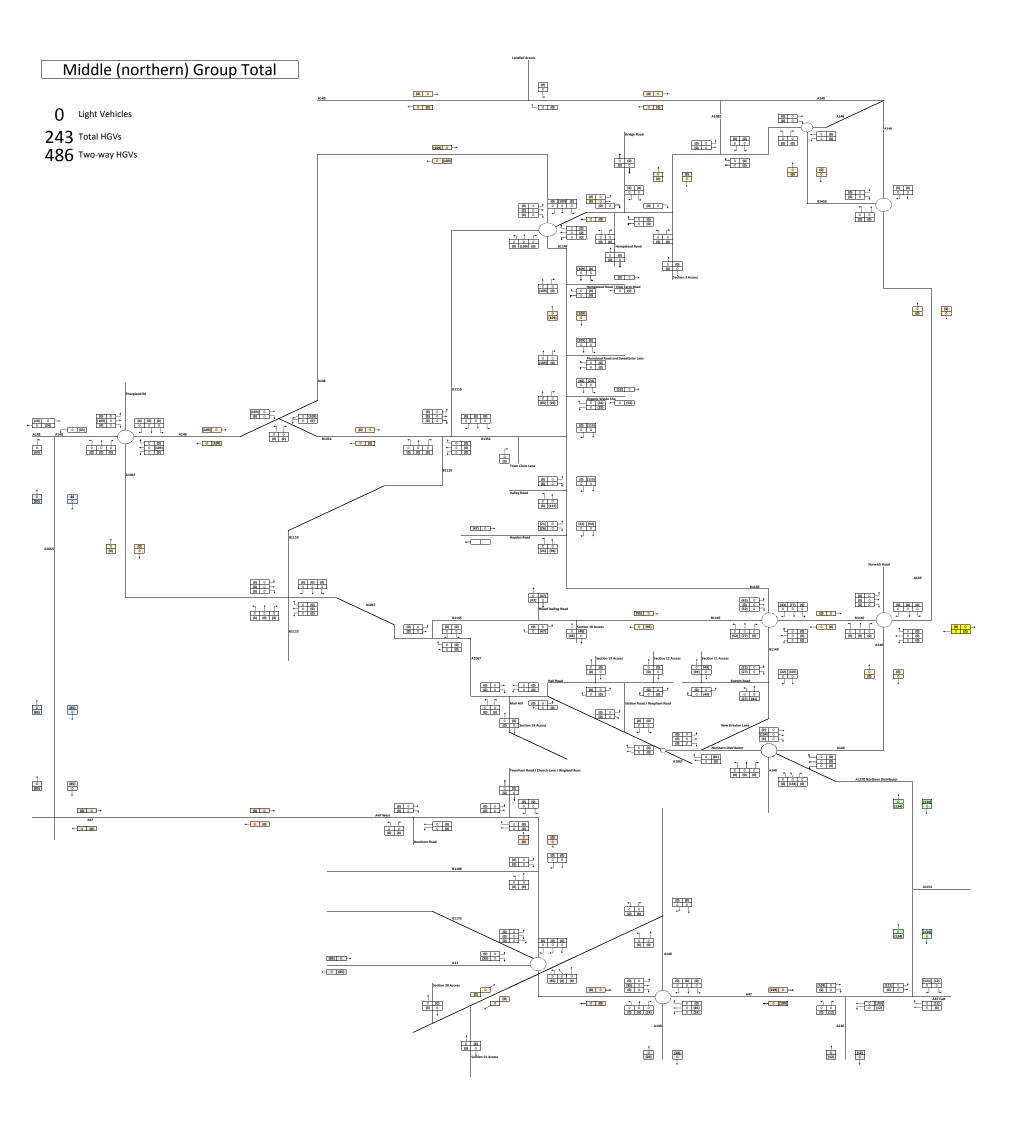


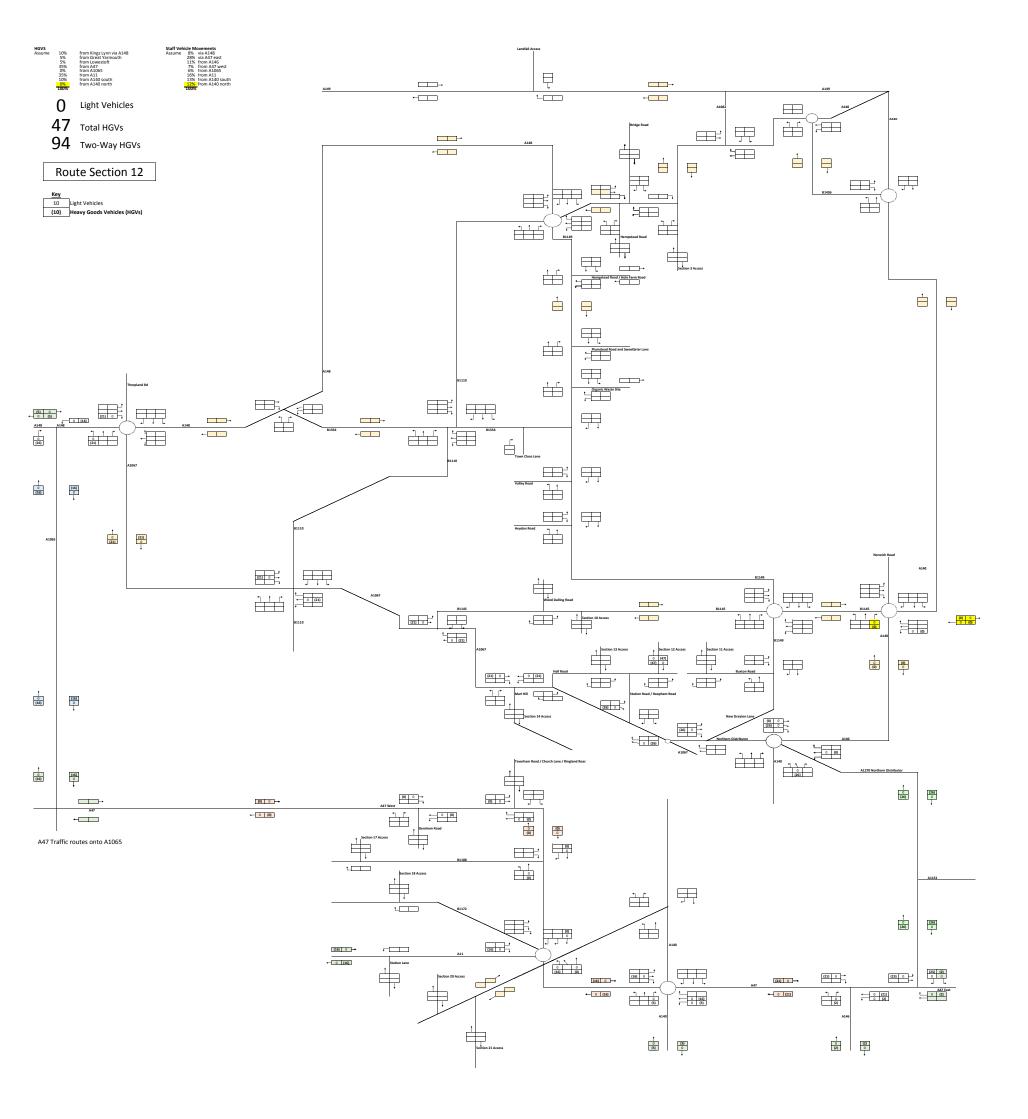


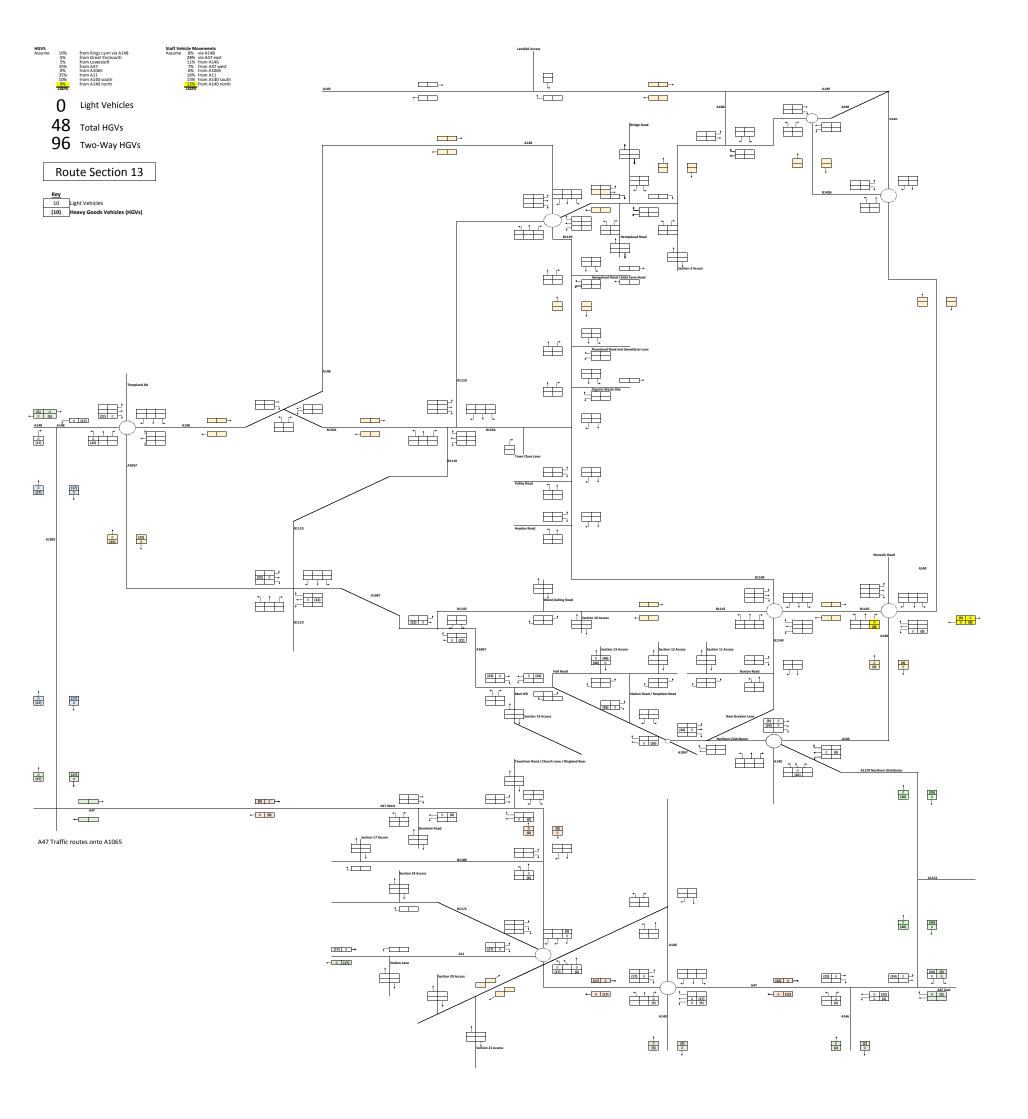


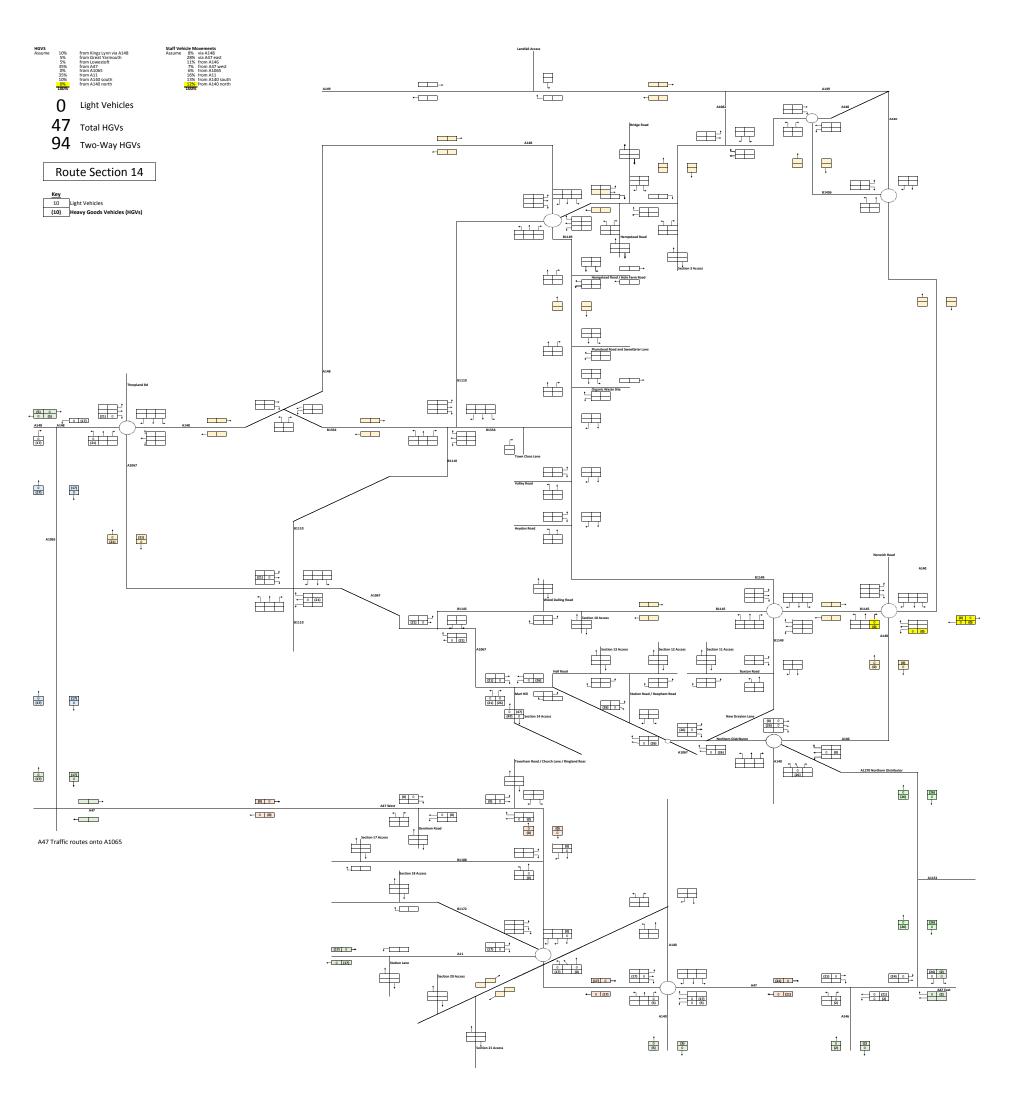


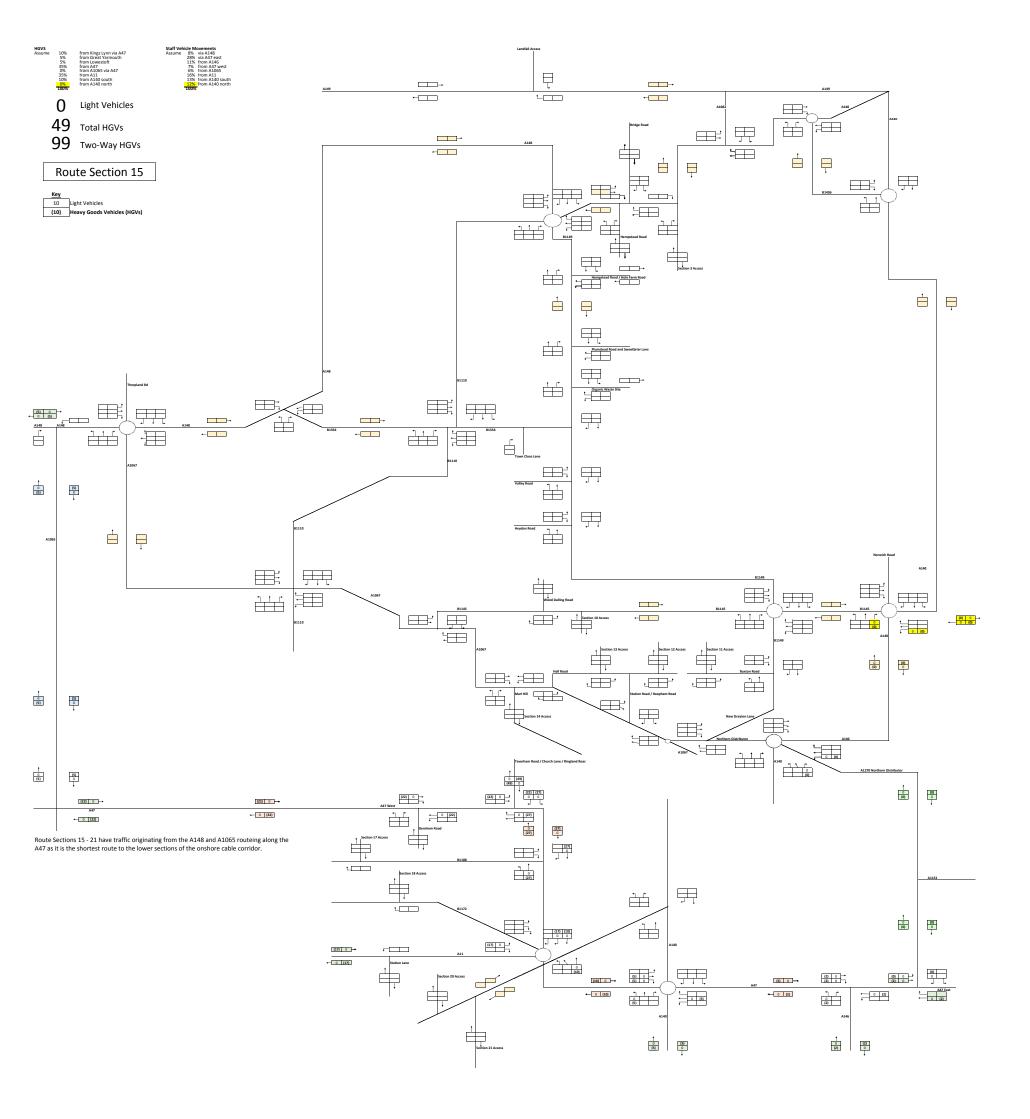


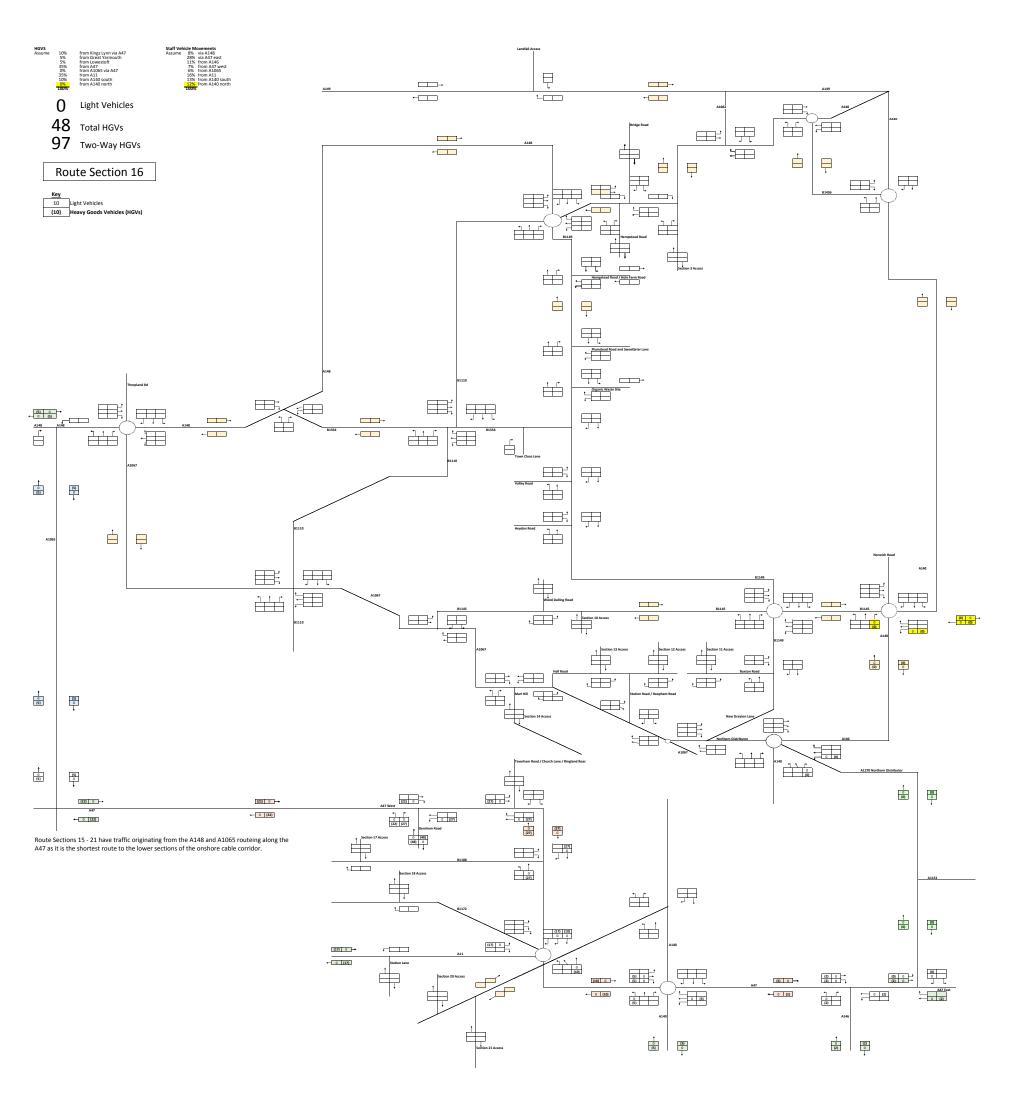


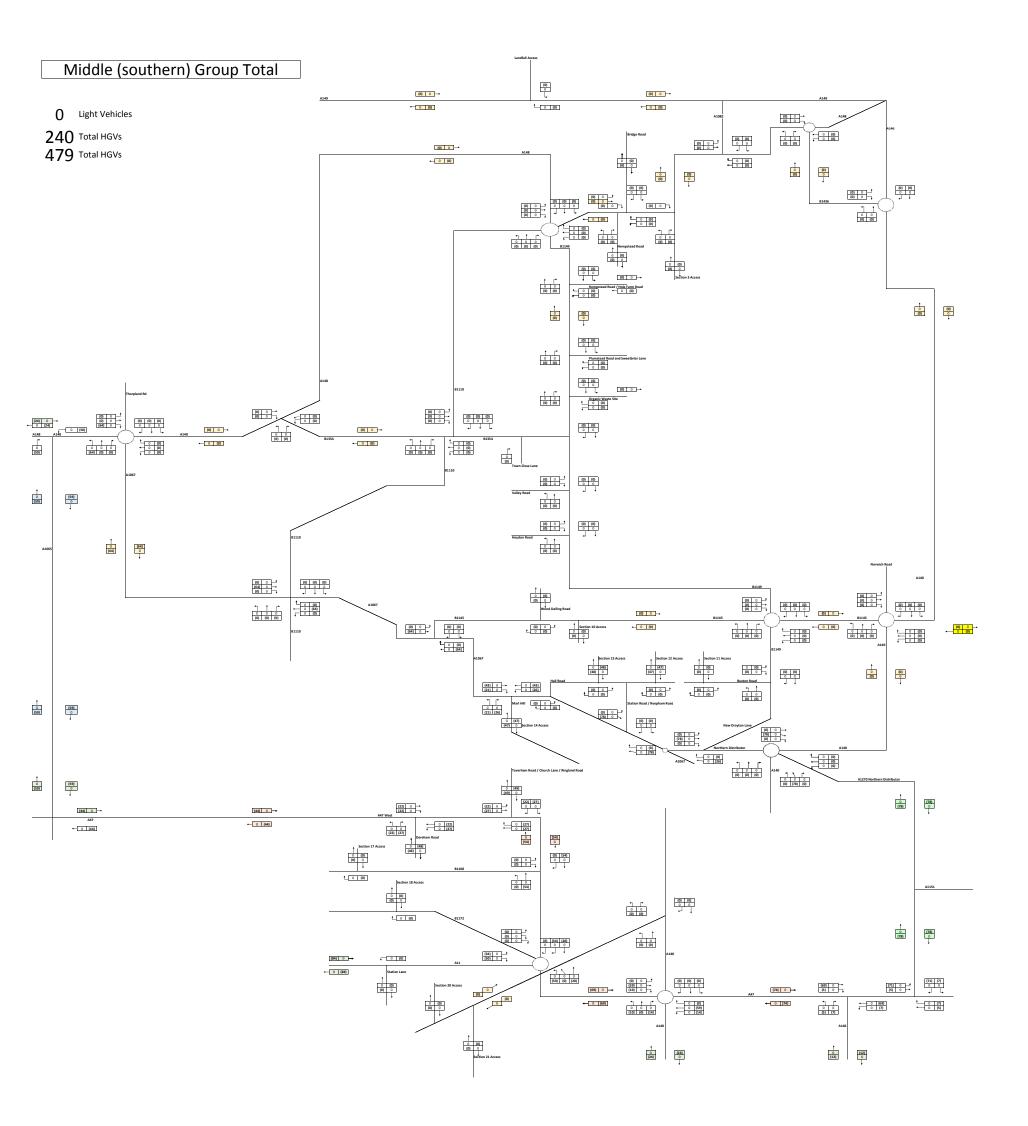


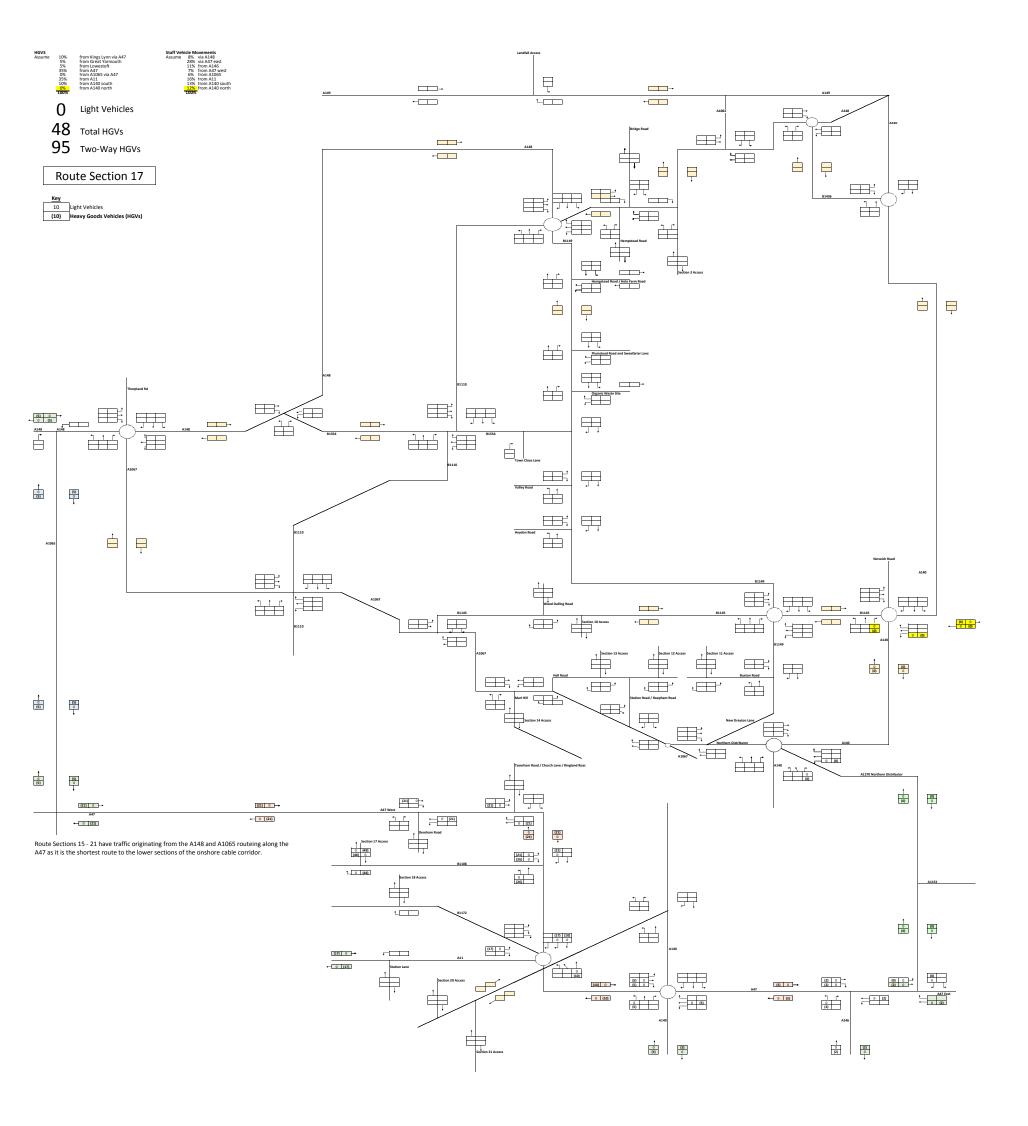


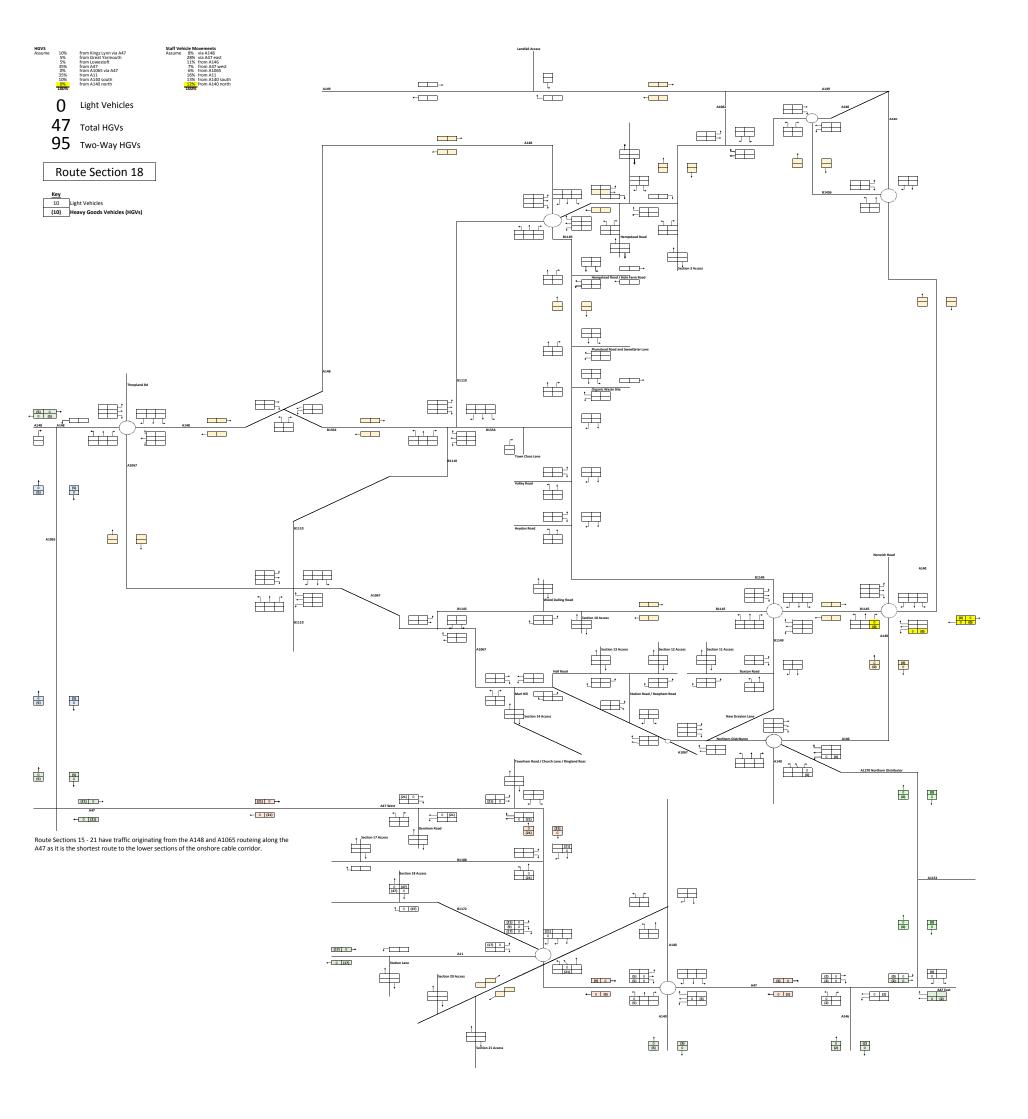


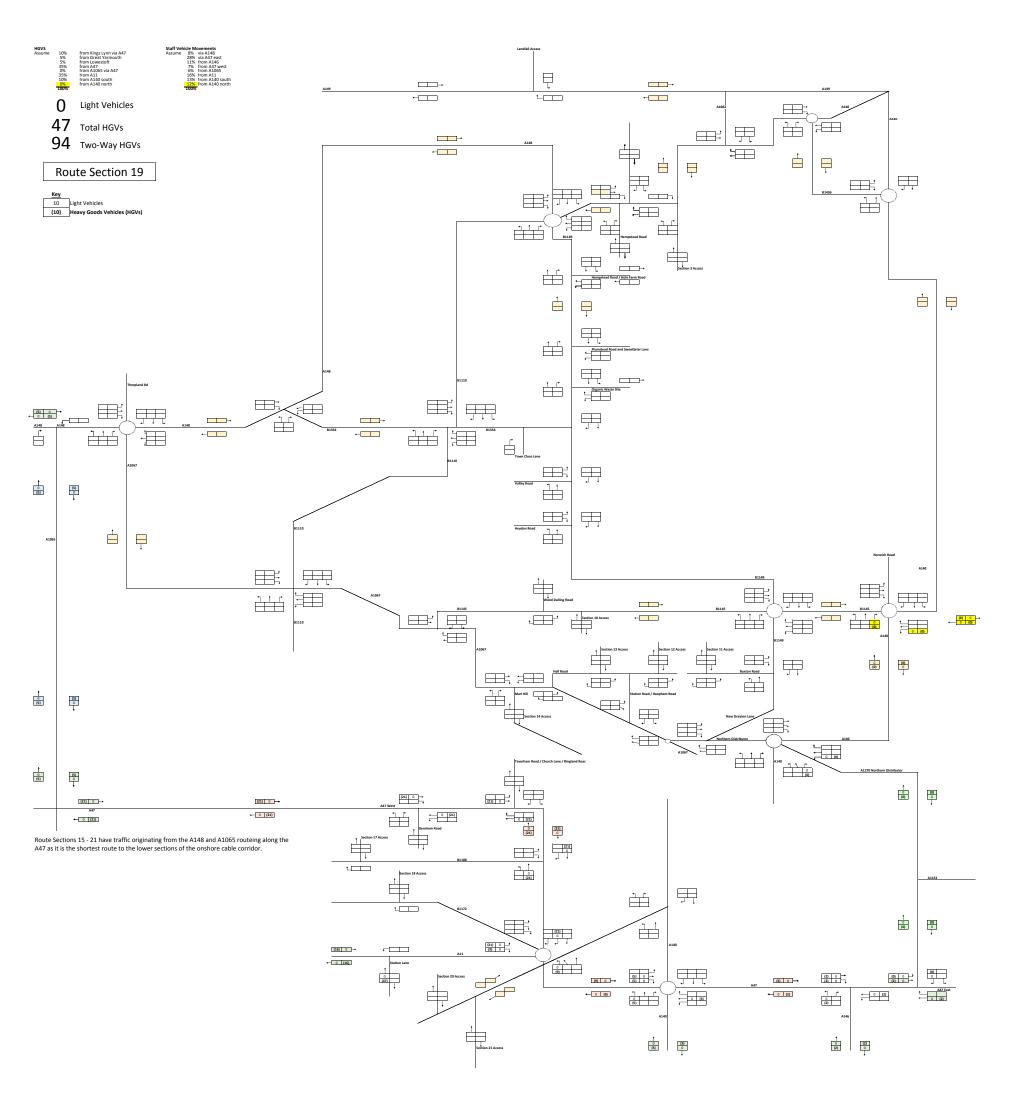


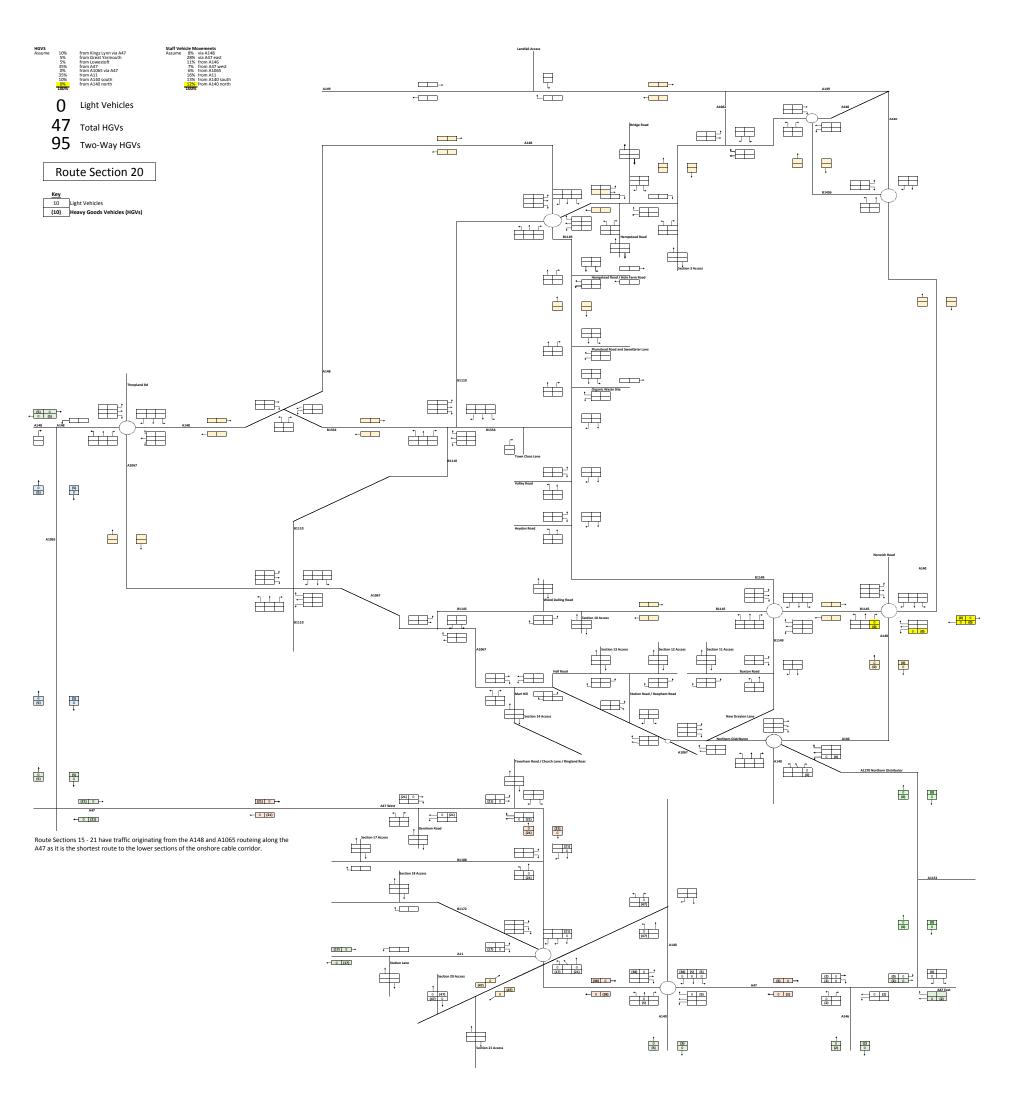


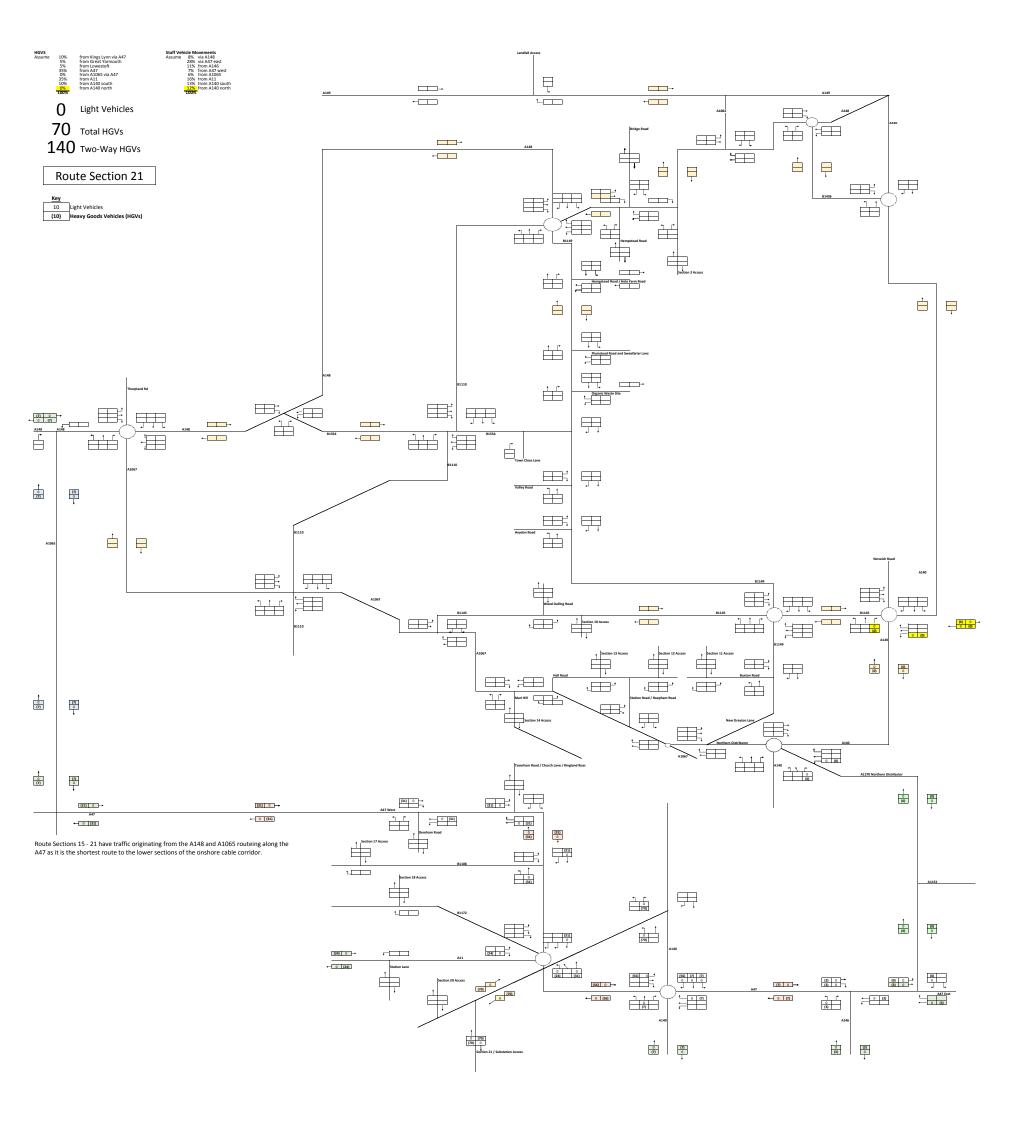


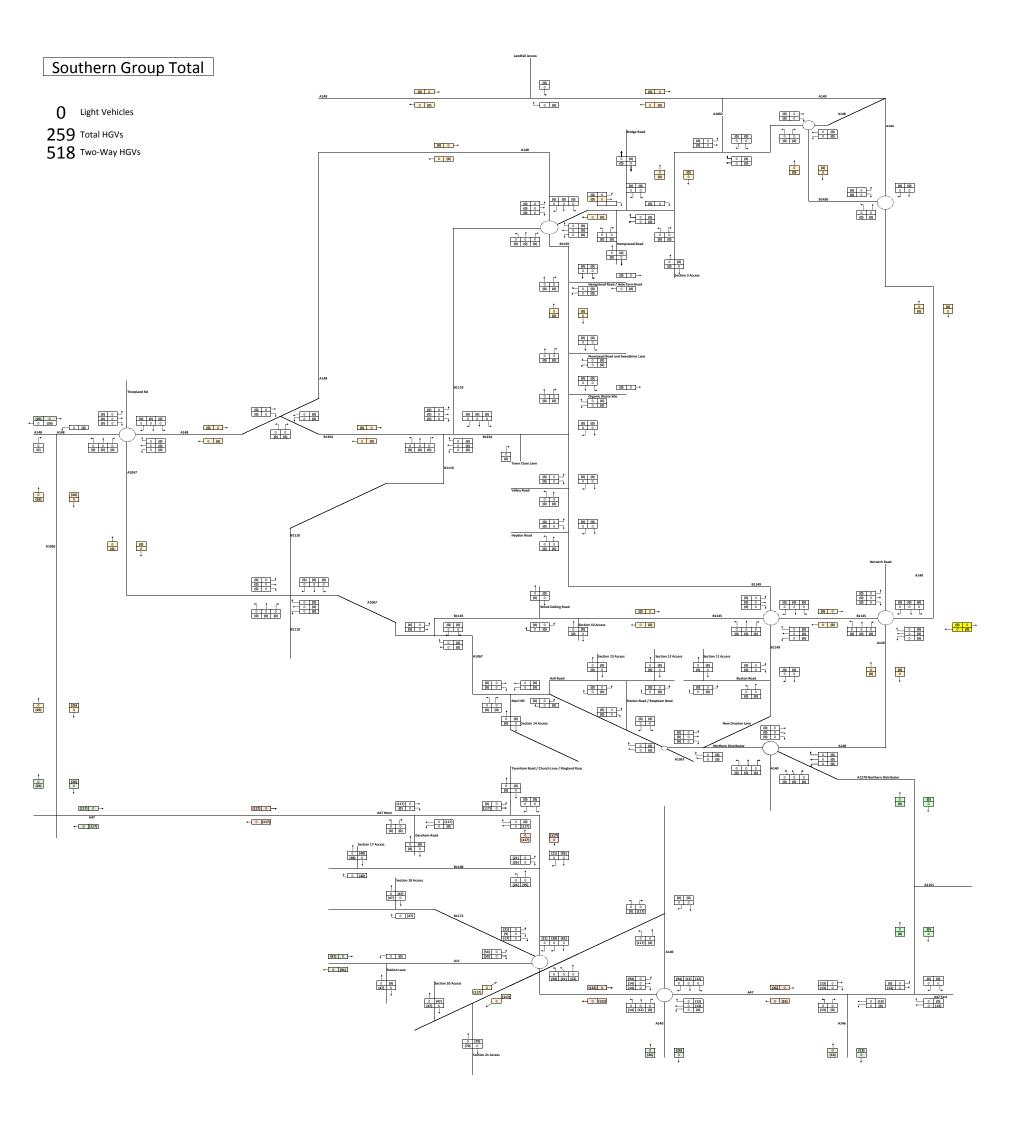


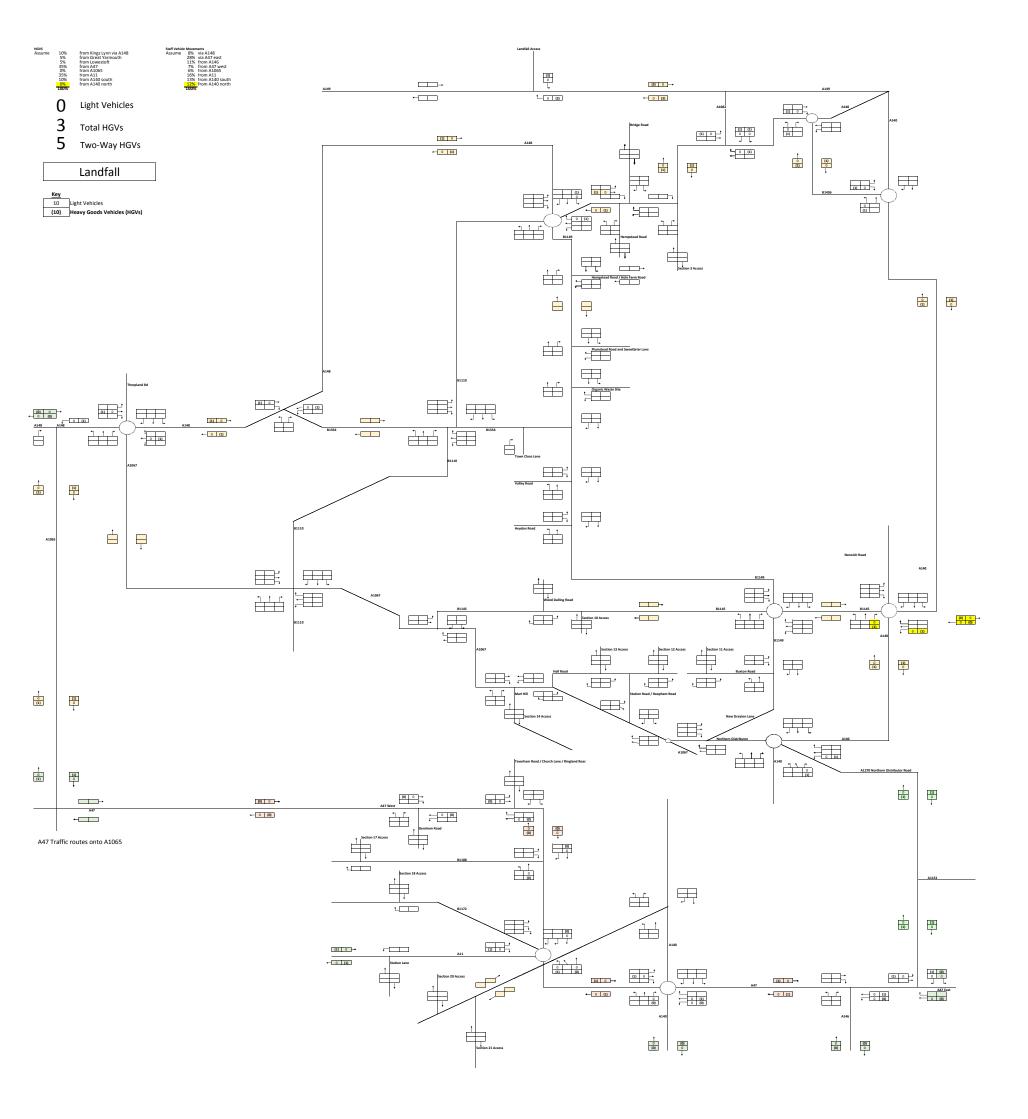


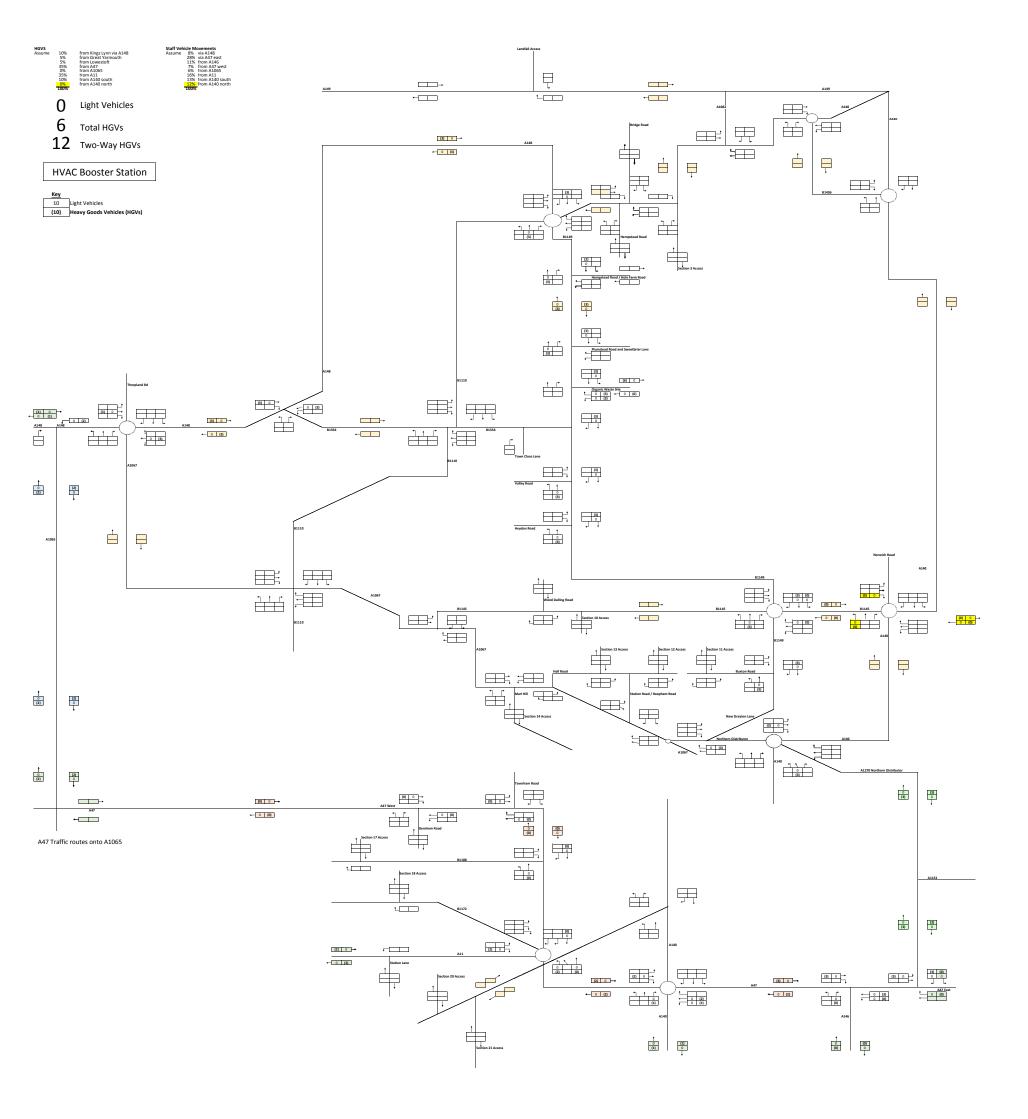


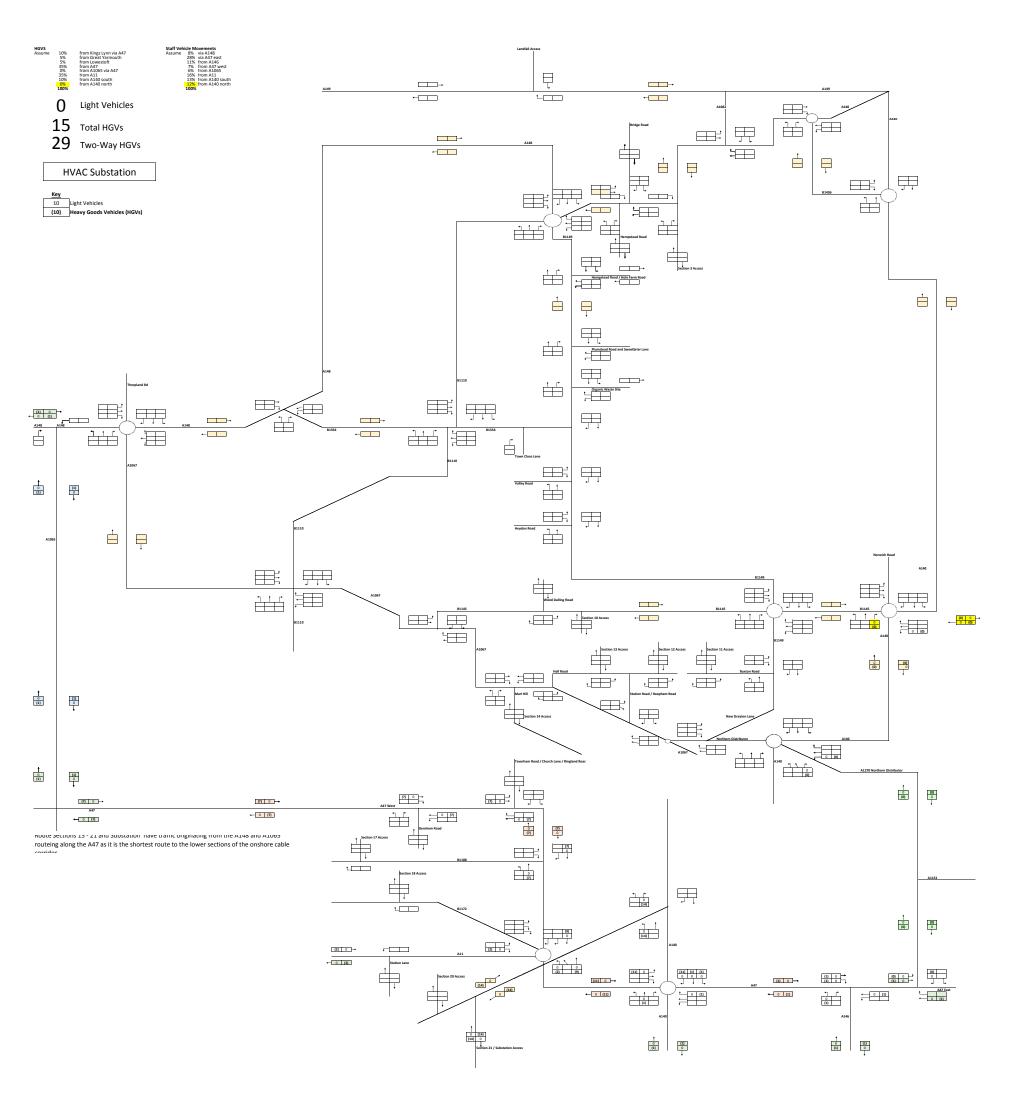


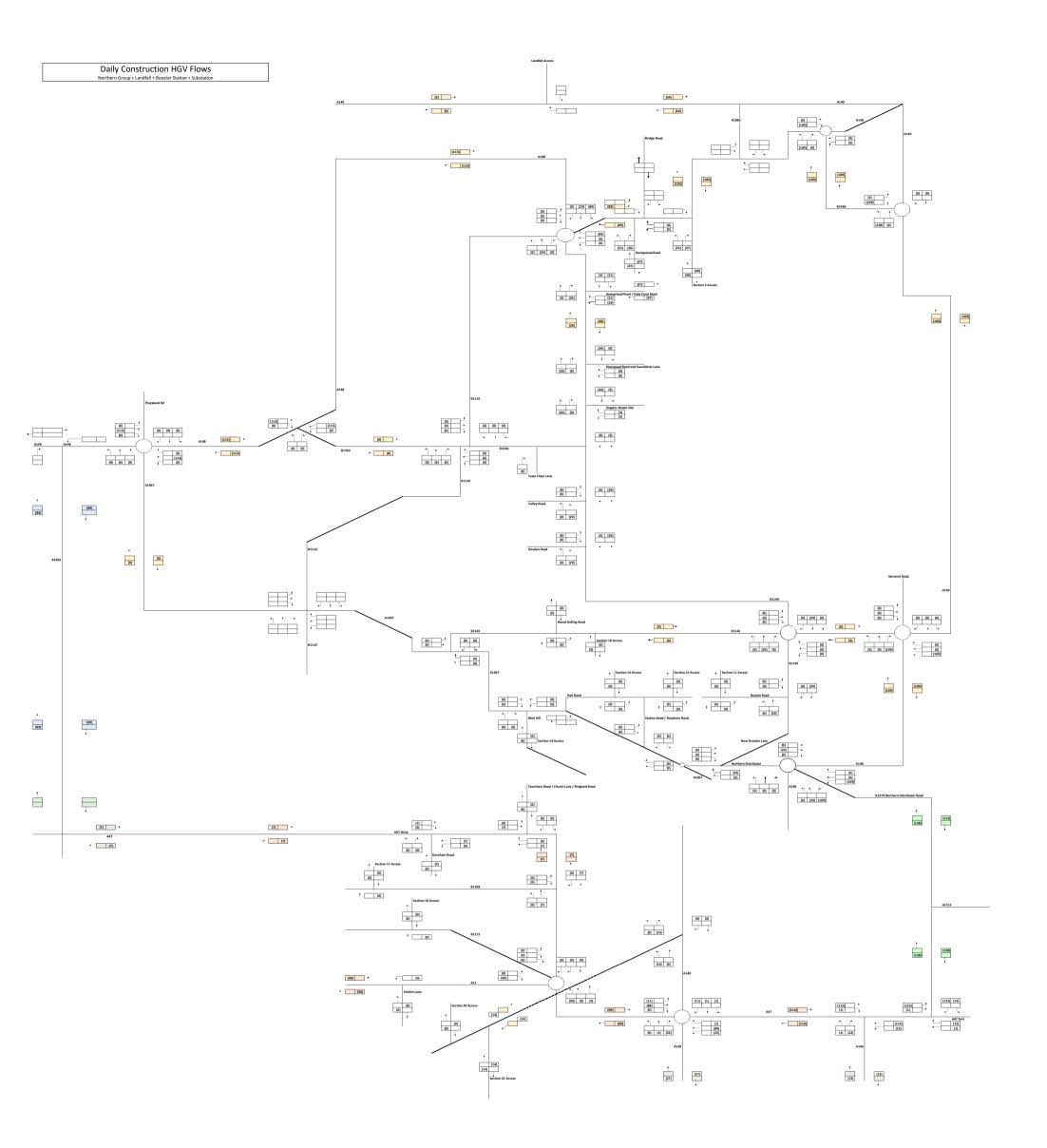


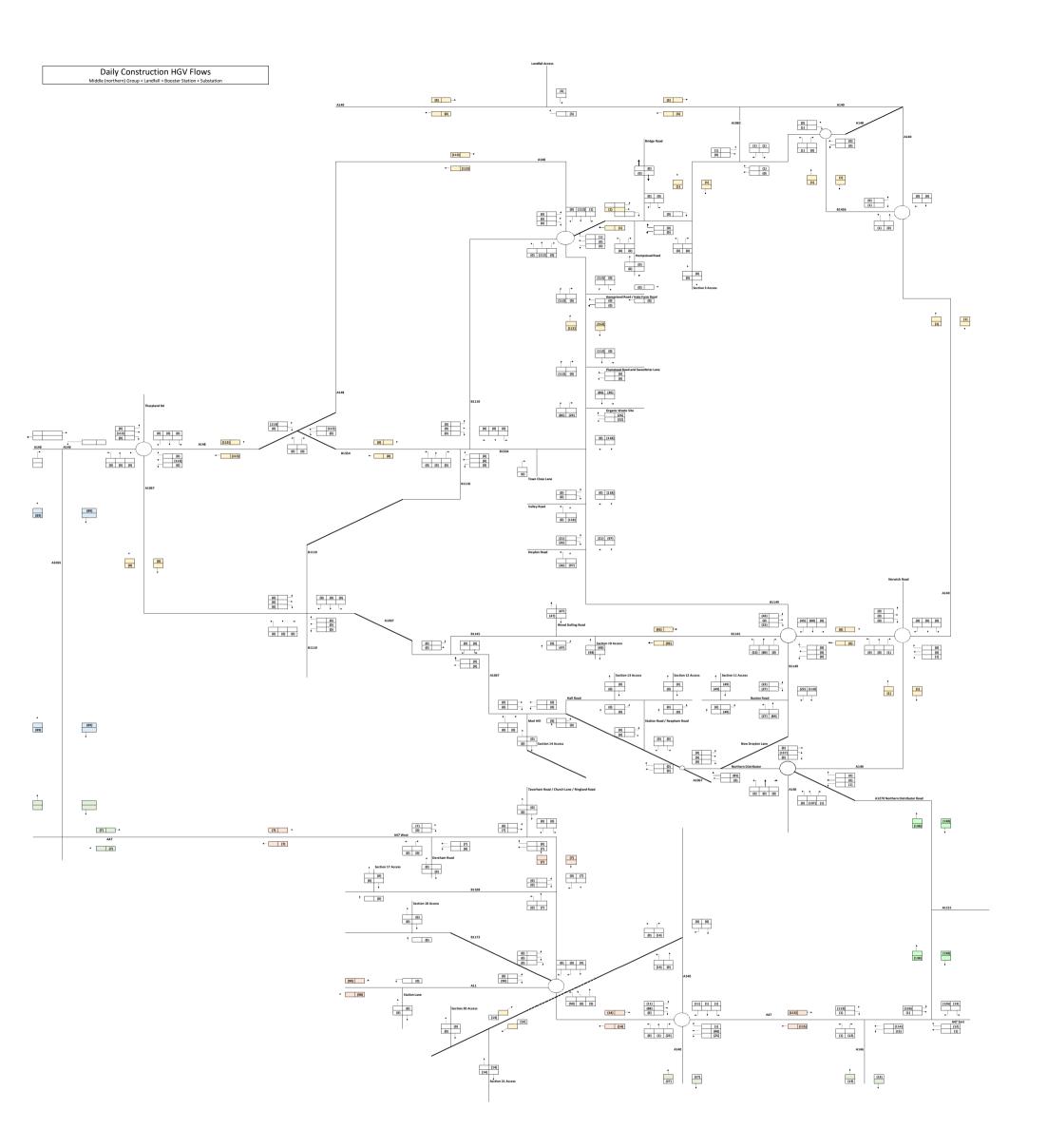


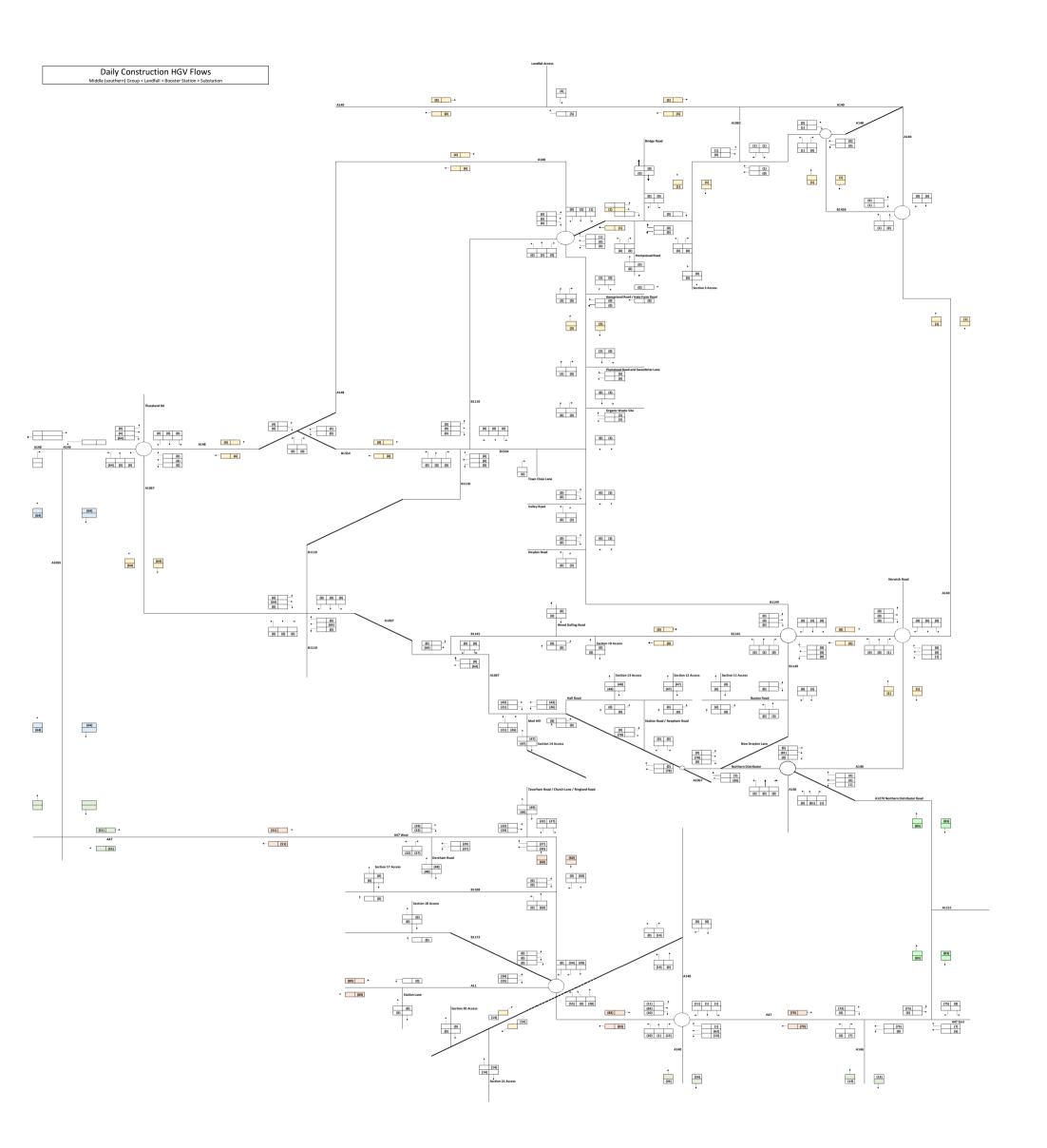


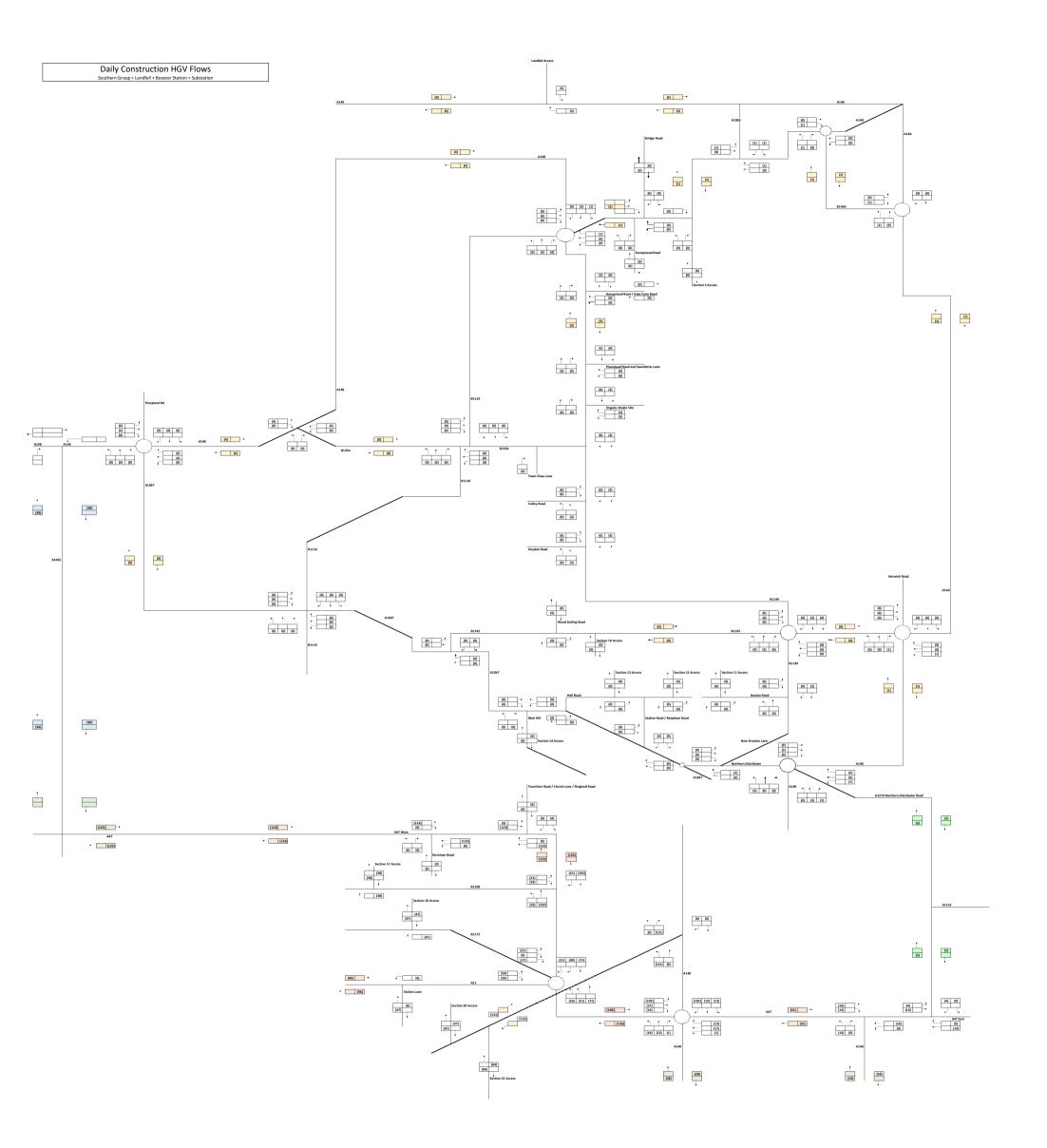












Appendix B

Traffic Flow Diagrams

Daily Construction HGV Flows
Sensitivity Scenario

Assumptions for HGVS

Assessment year of 2022 as this is the first full year of construction of the cable route $Assume that the \ majority \ of \ HGVs \ will \ route \ from \ Lings \ Kynn, \ Great \ Yarmouth \ and \ Lowest of t$ 25% from Kings Lynn25% from Great Yarmouth Assume 25% from Lowestoft from A47 50% 0% from A1065 50% from A11 25% from A140 south 0% from A140 north 200% groups of 5 workfronts 4 Assume adjacent workfronts to assume worst case scenario 50% of total staff movements occur between 07:00 and 08:00 Assume of total staff movements occur between 18:00 and 19:00

In reality, staff will arrive 06:00-07:00 depart 18:00-19:00

The local road network, for assessment purposes only, assumes staff will

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The trunk road network staff assignment has staff, as predicted,

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Assumptions for Staff

Assessment year of 2022 as this is the first full year of construction of the cable route

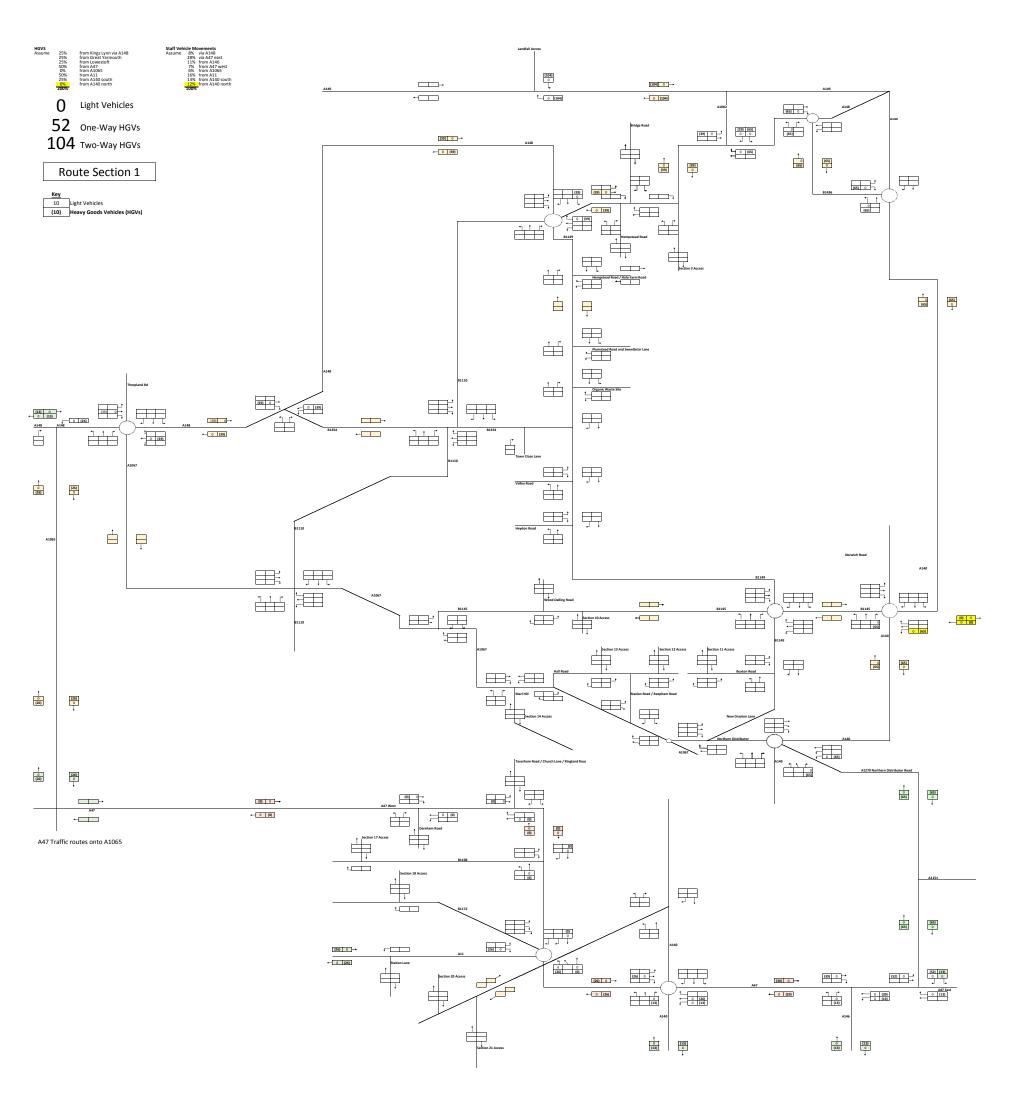
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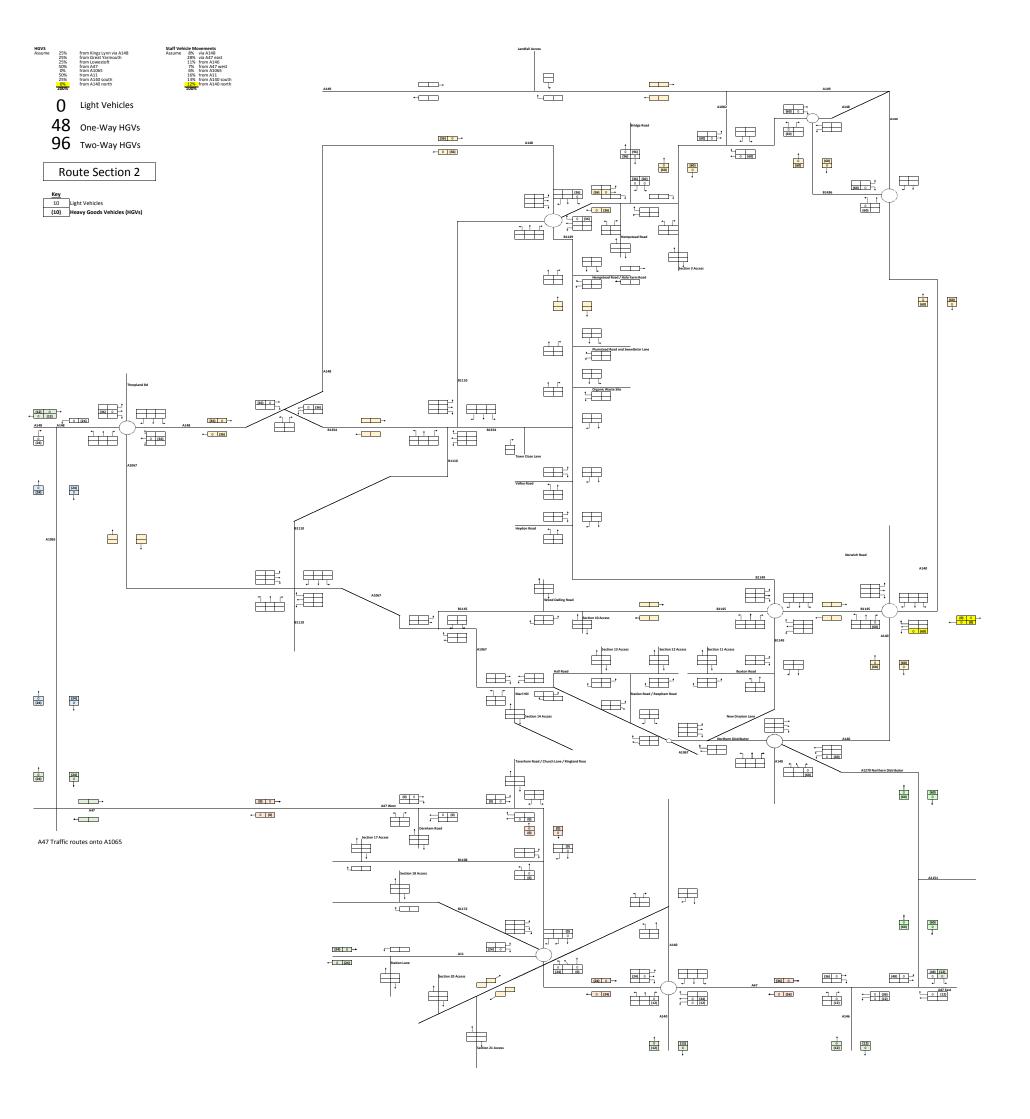
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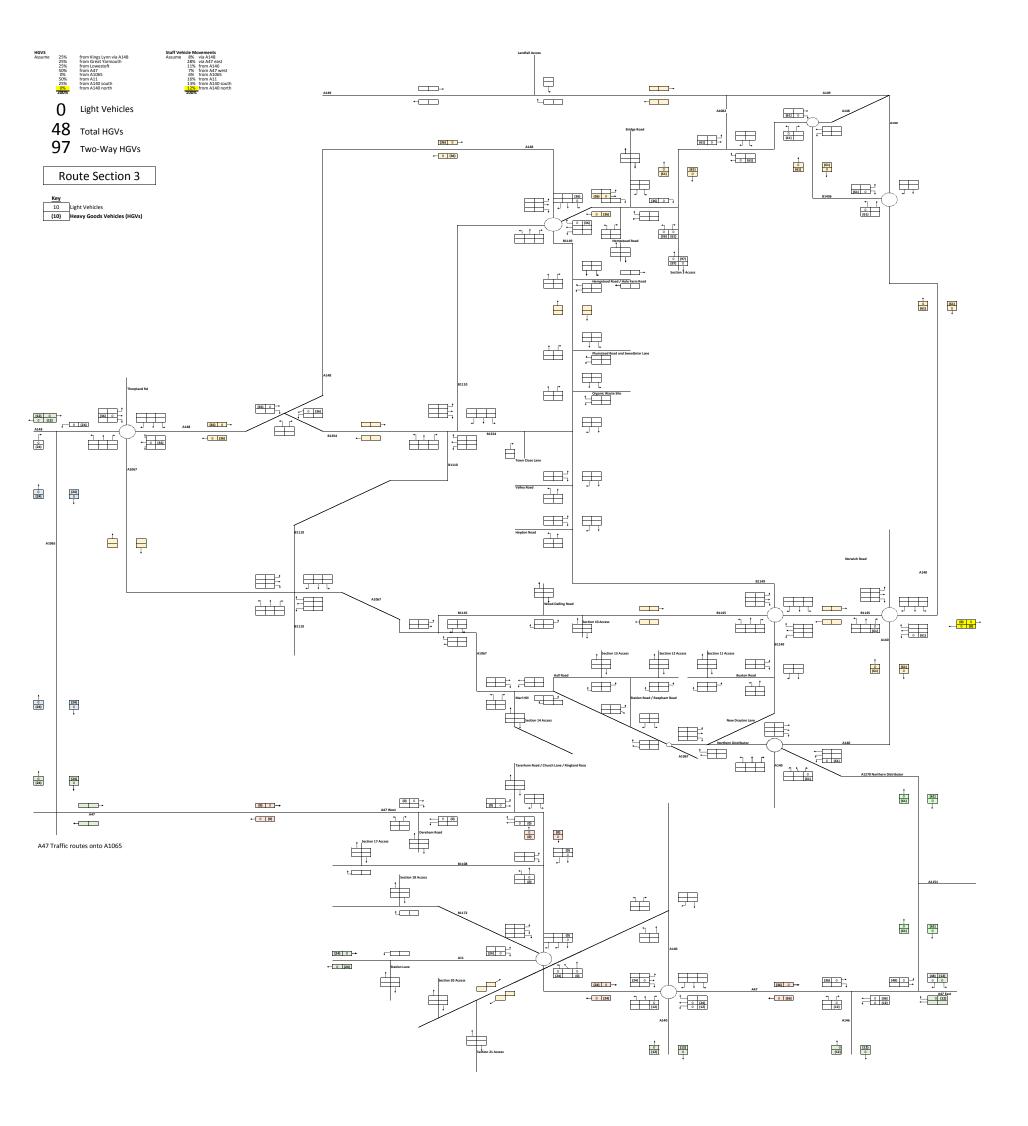
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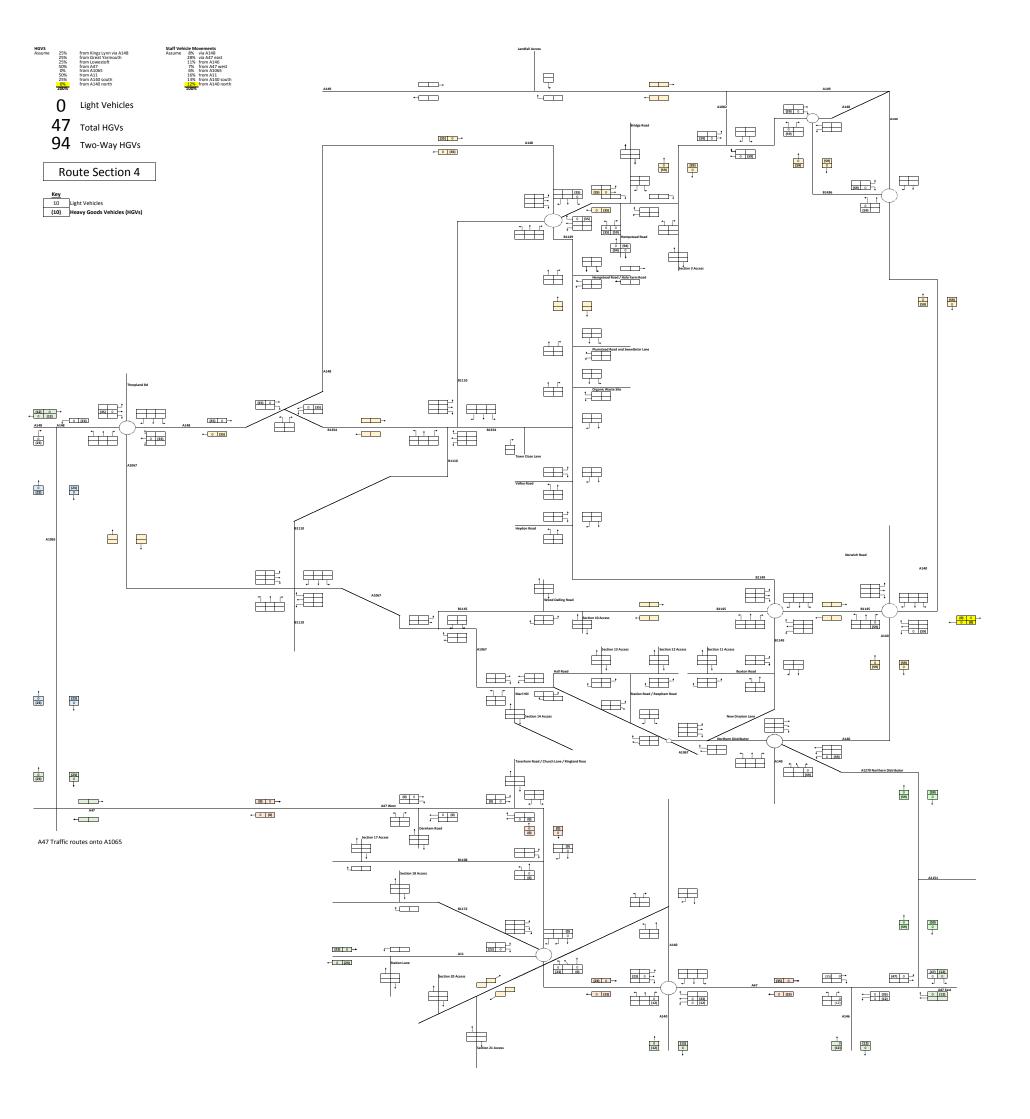
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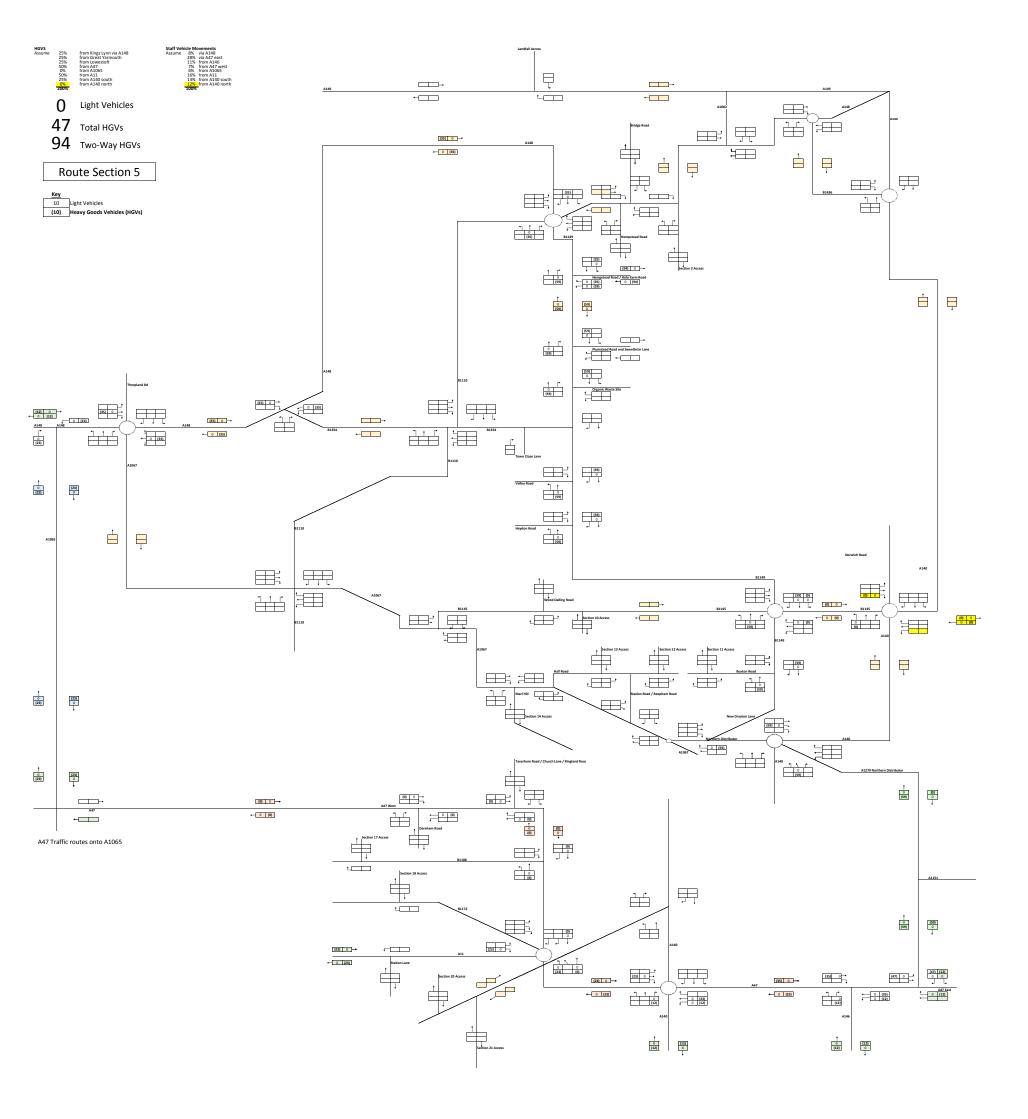
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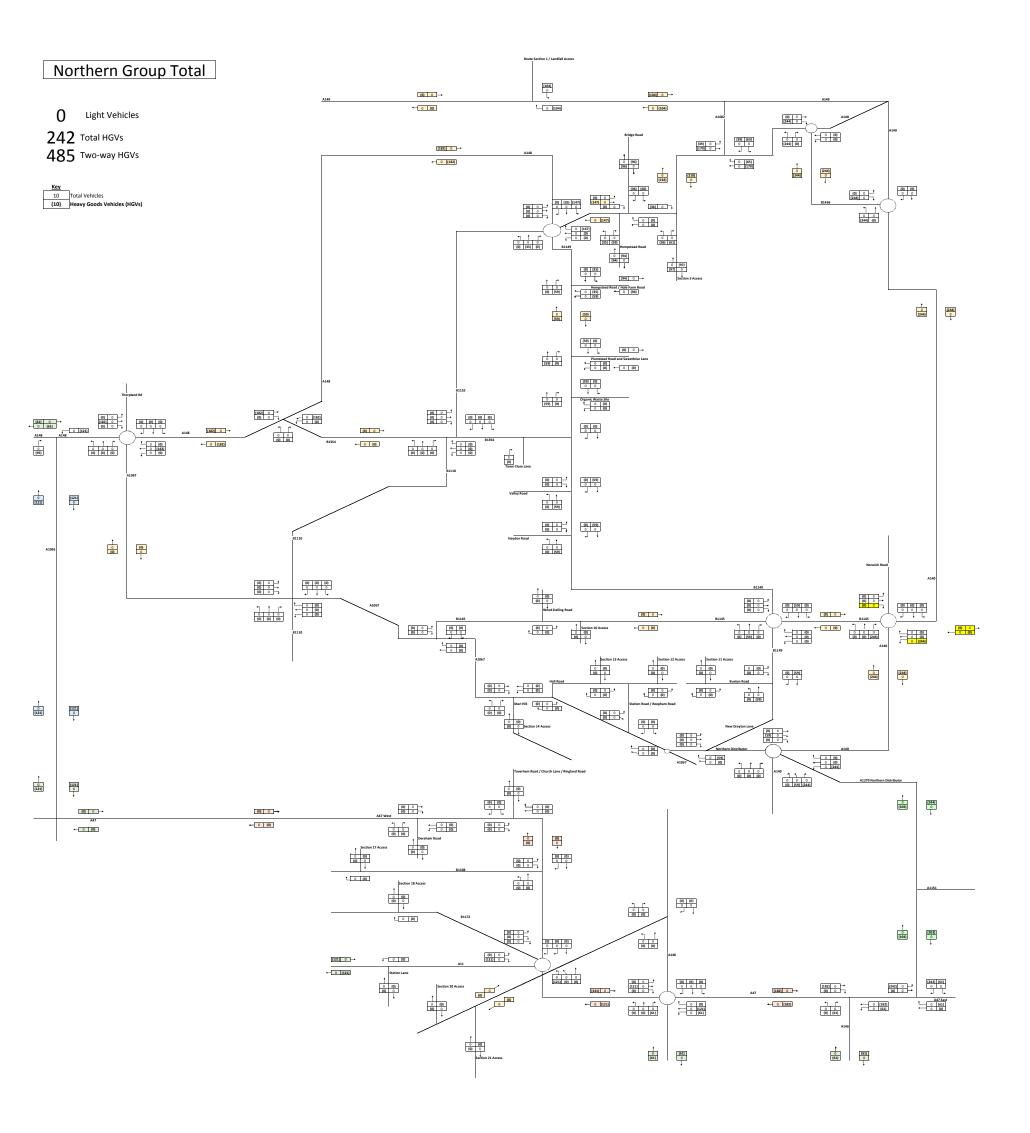


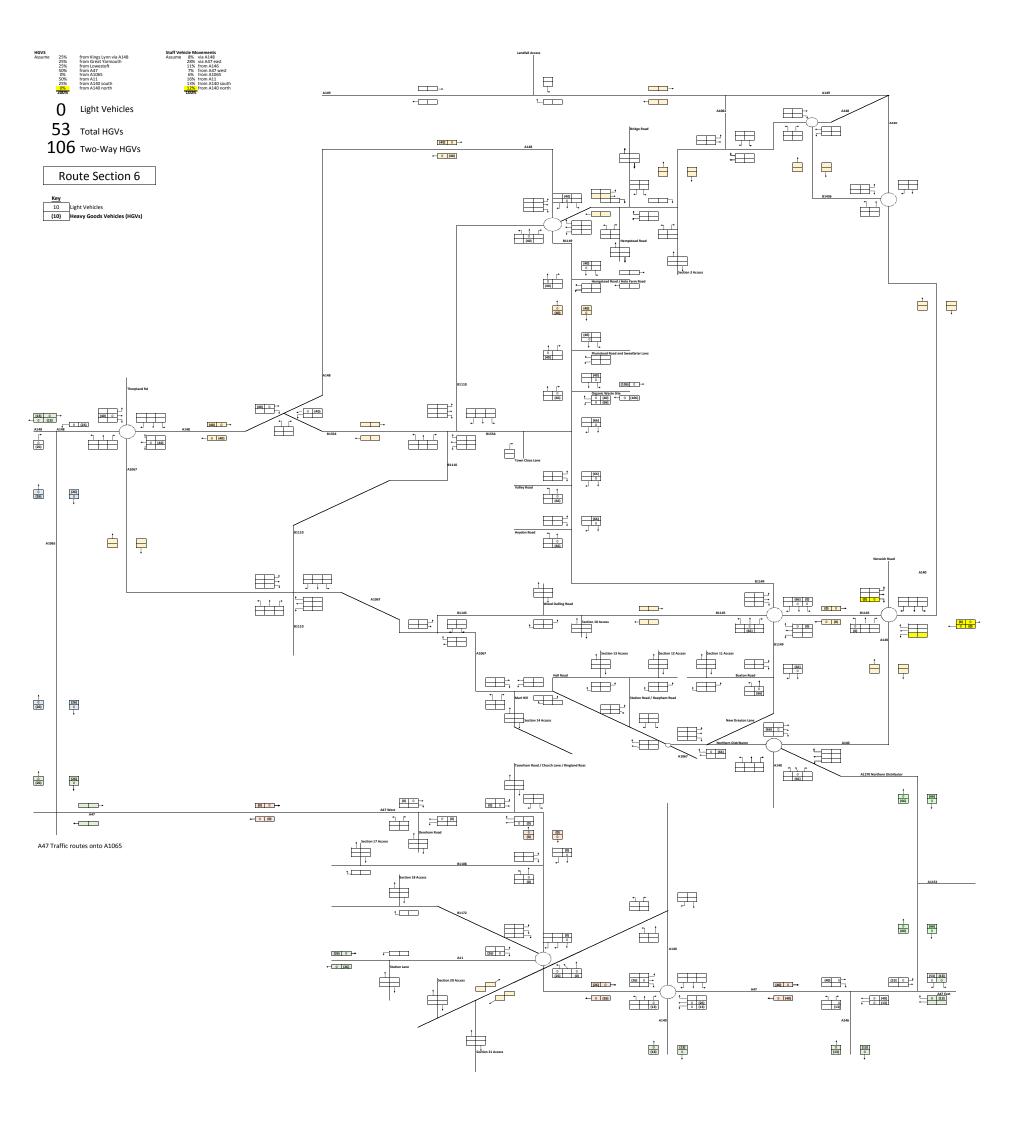


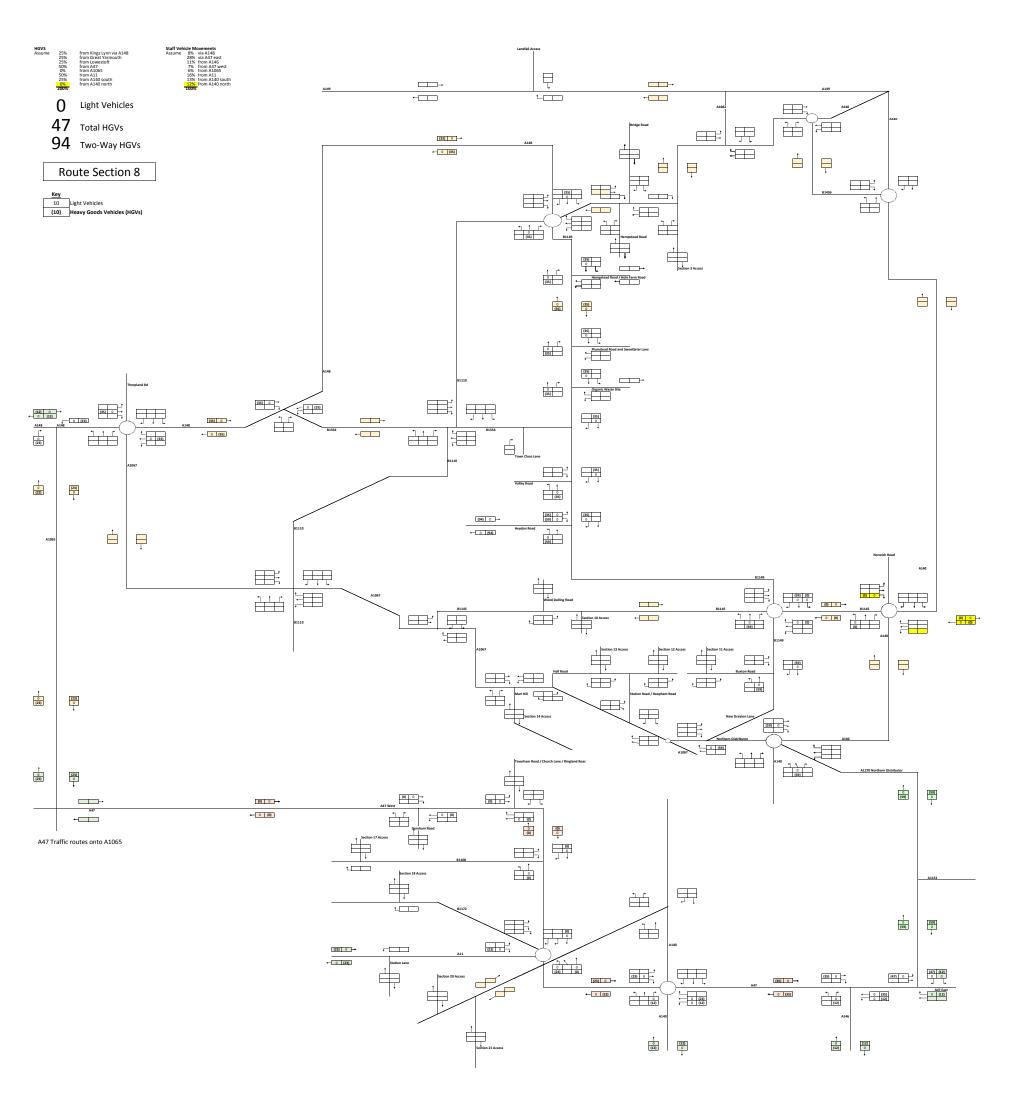


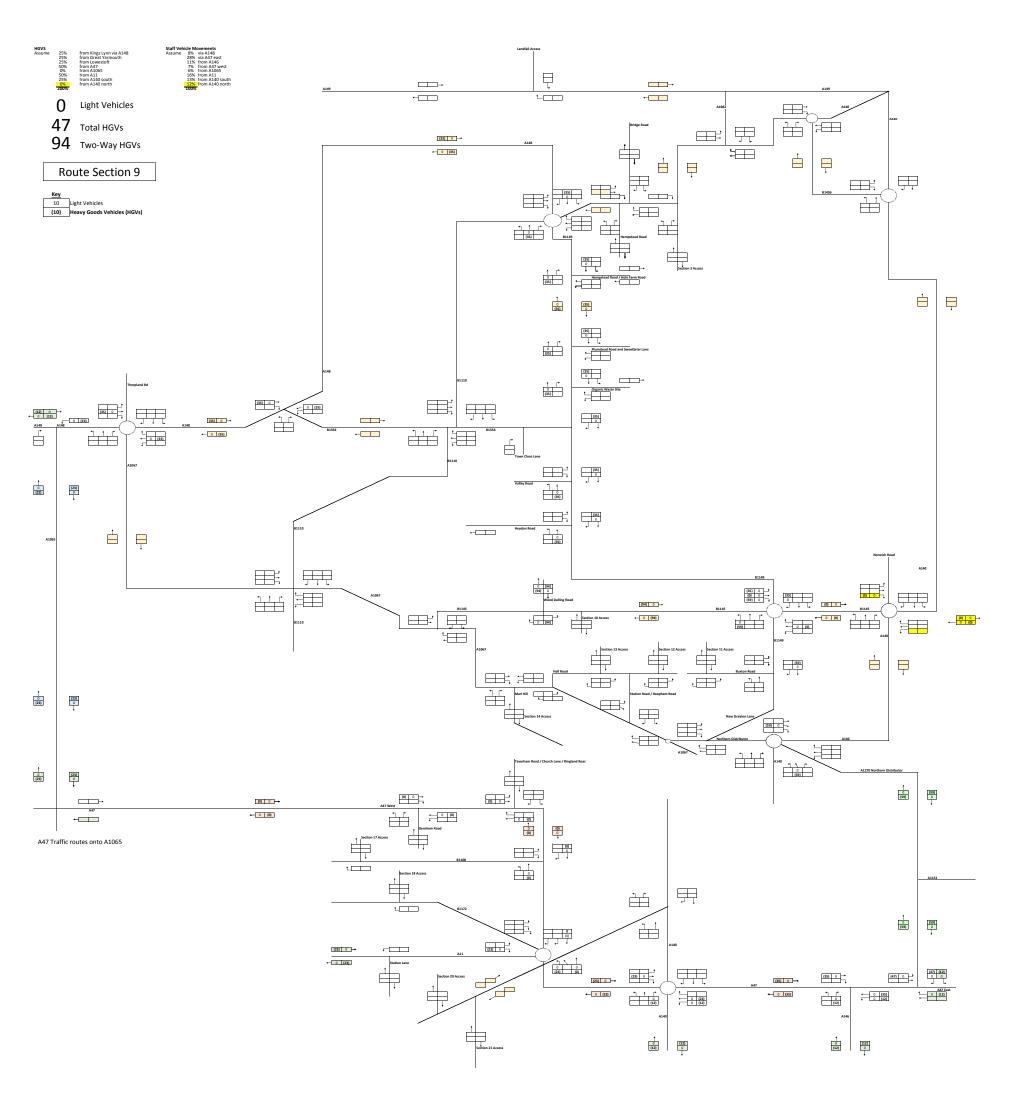


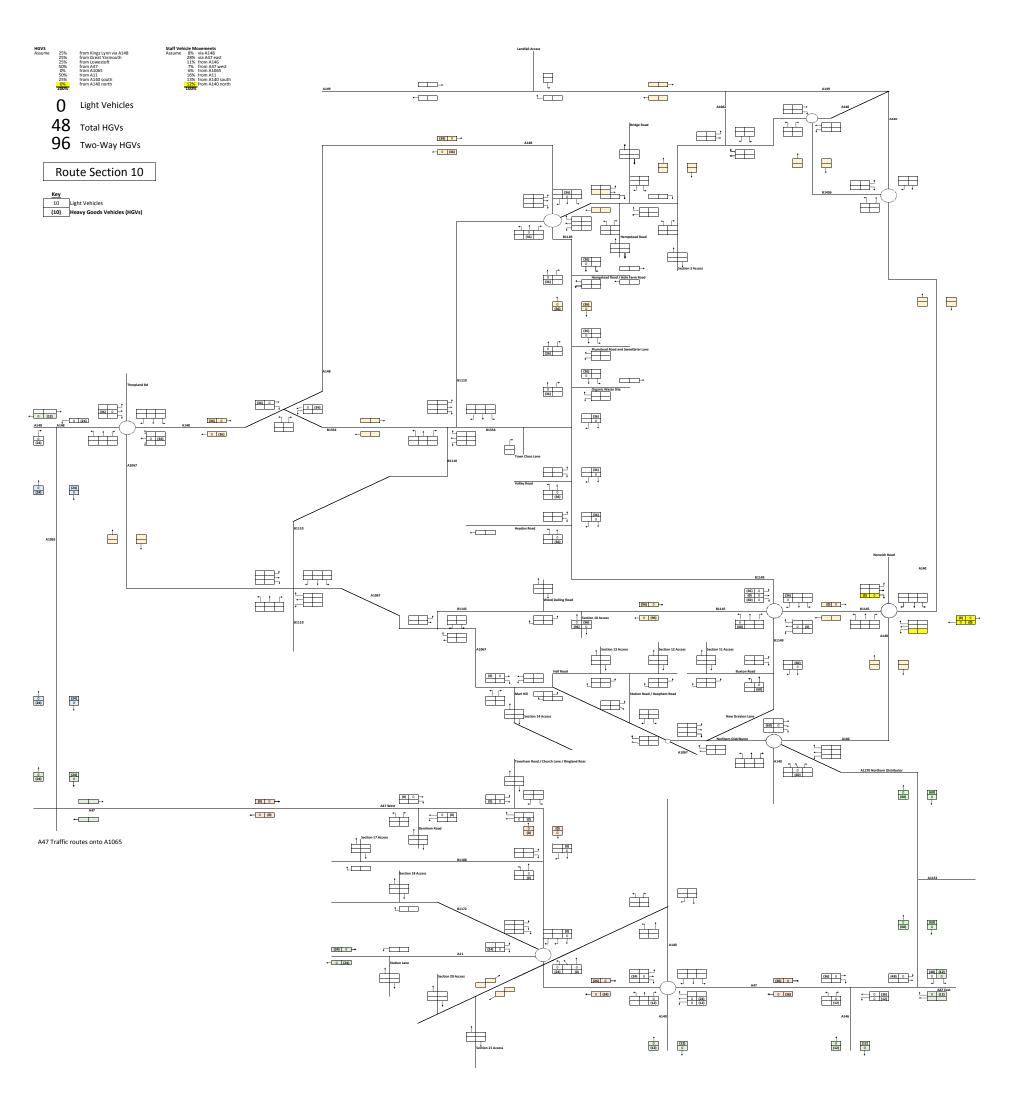


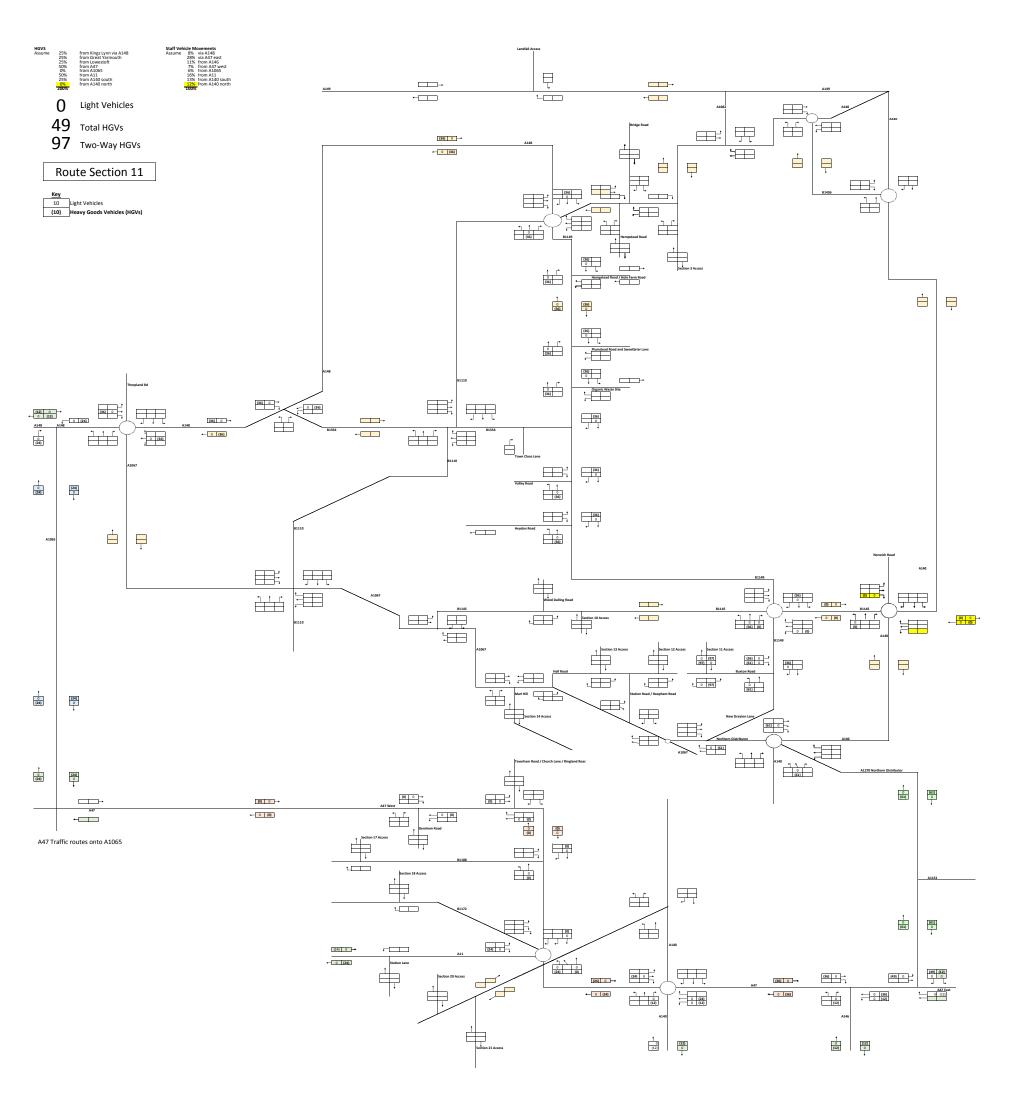


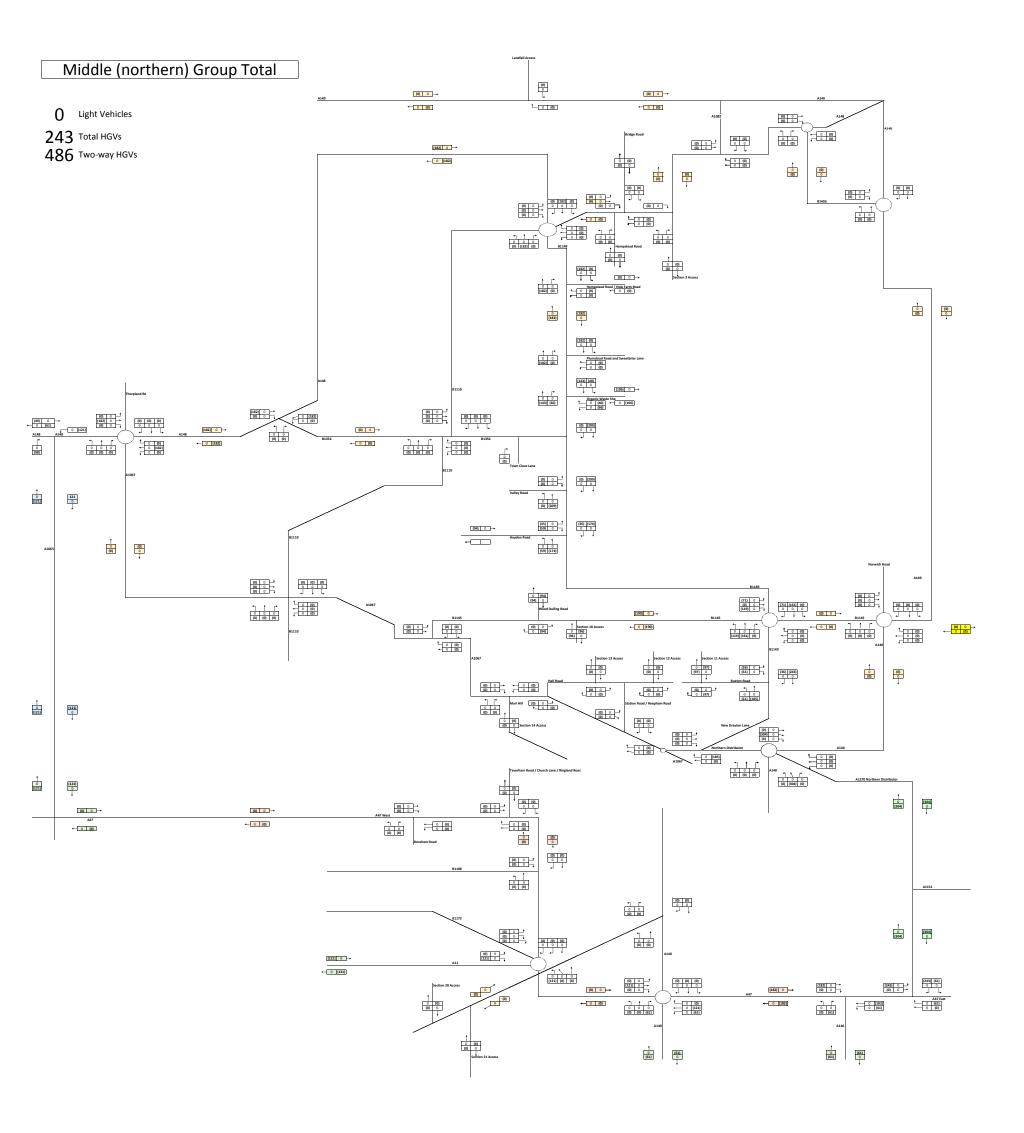


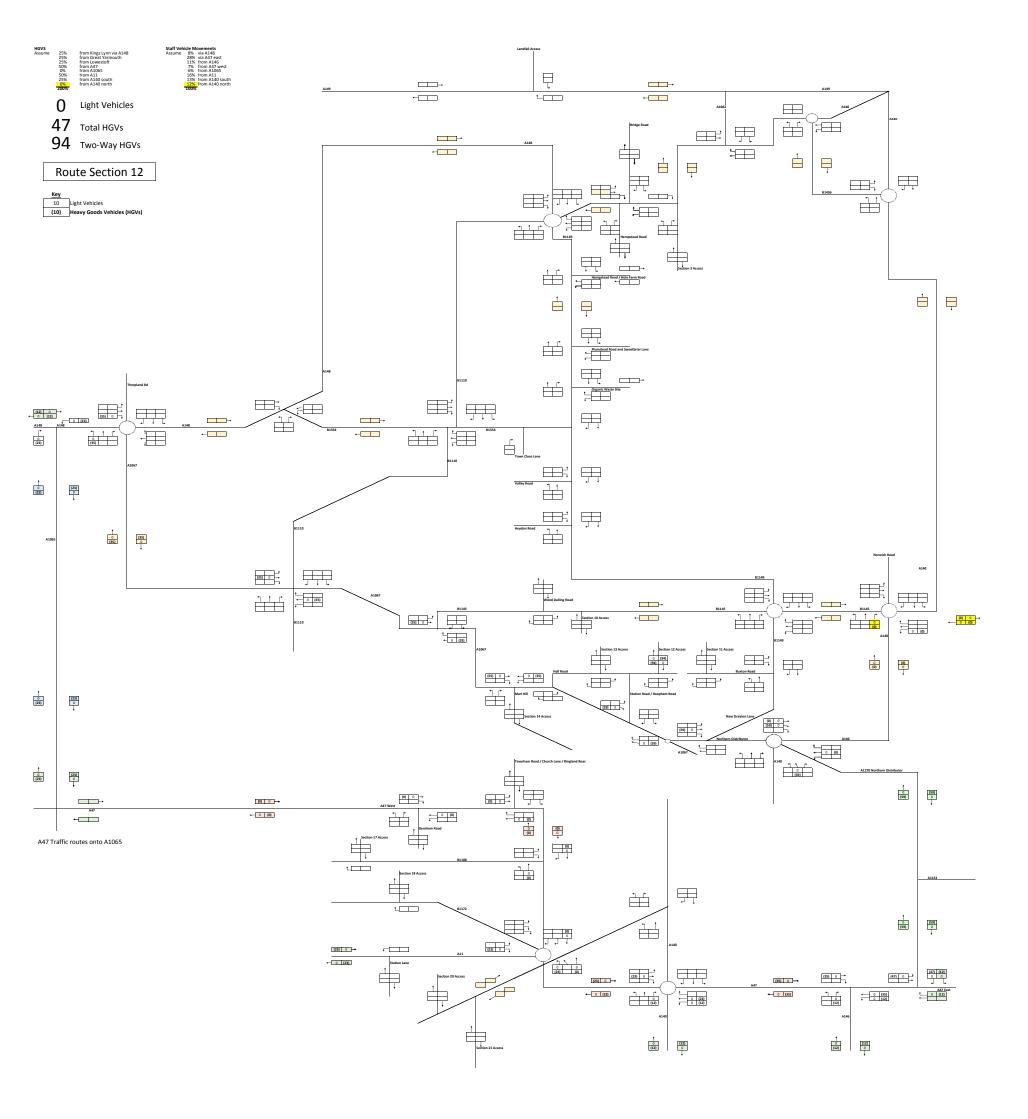


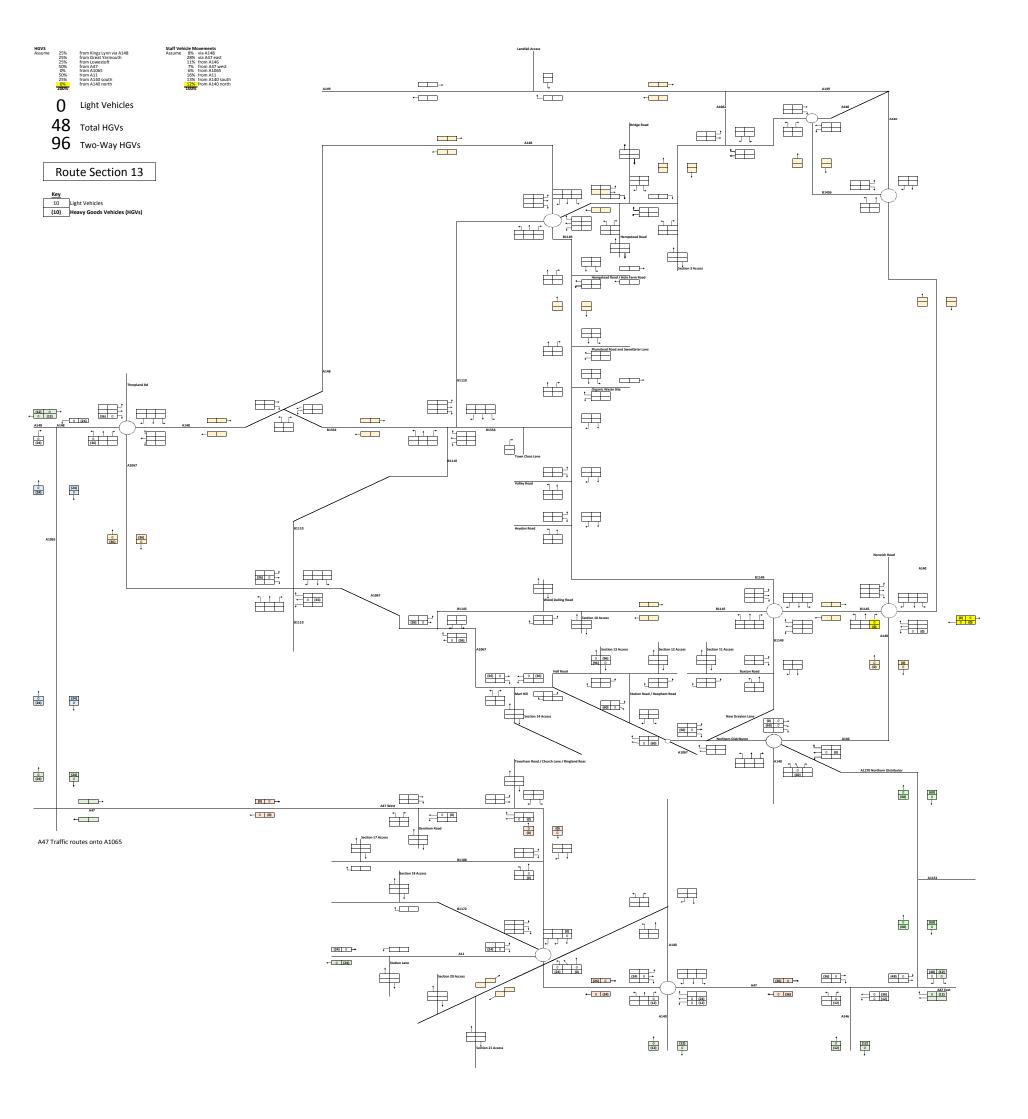


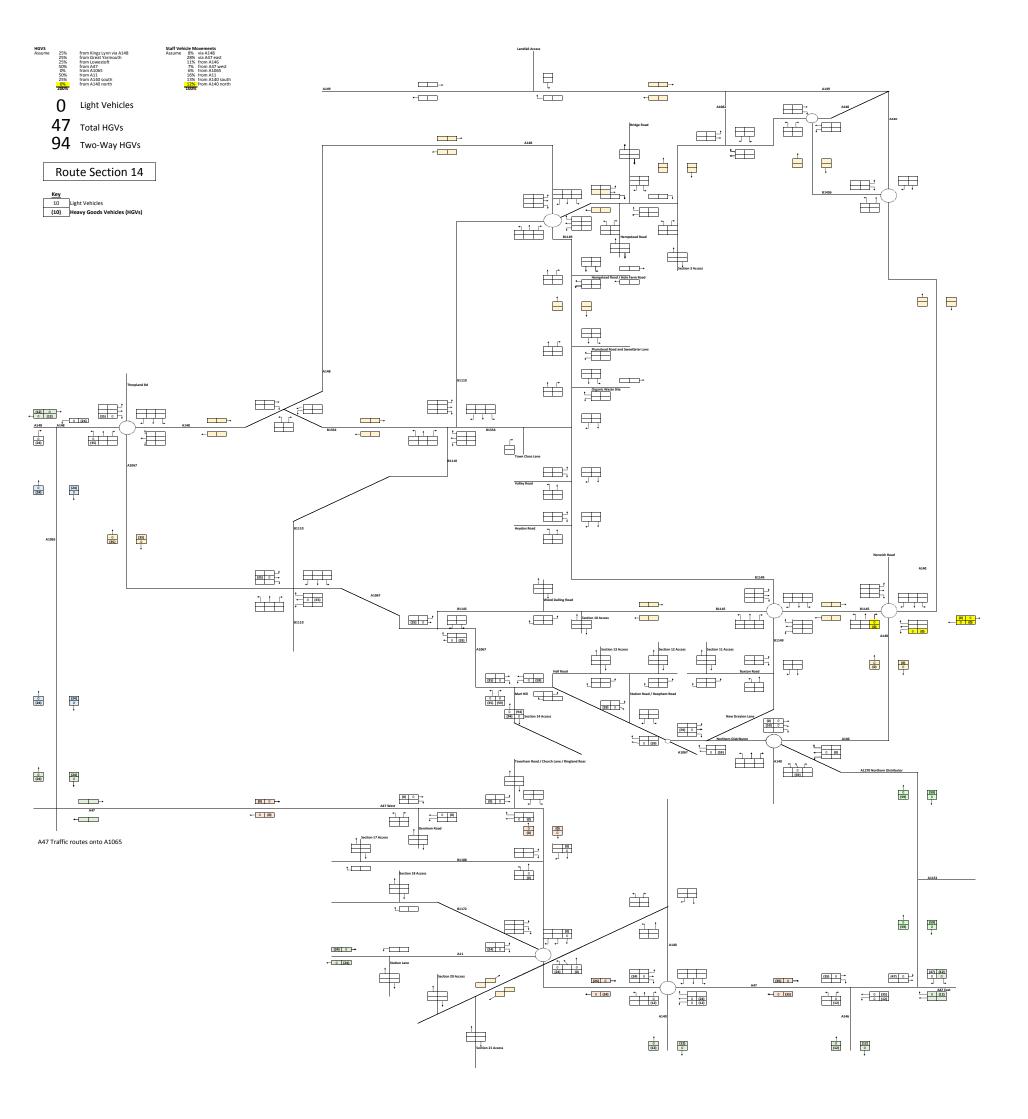


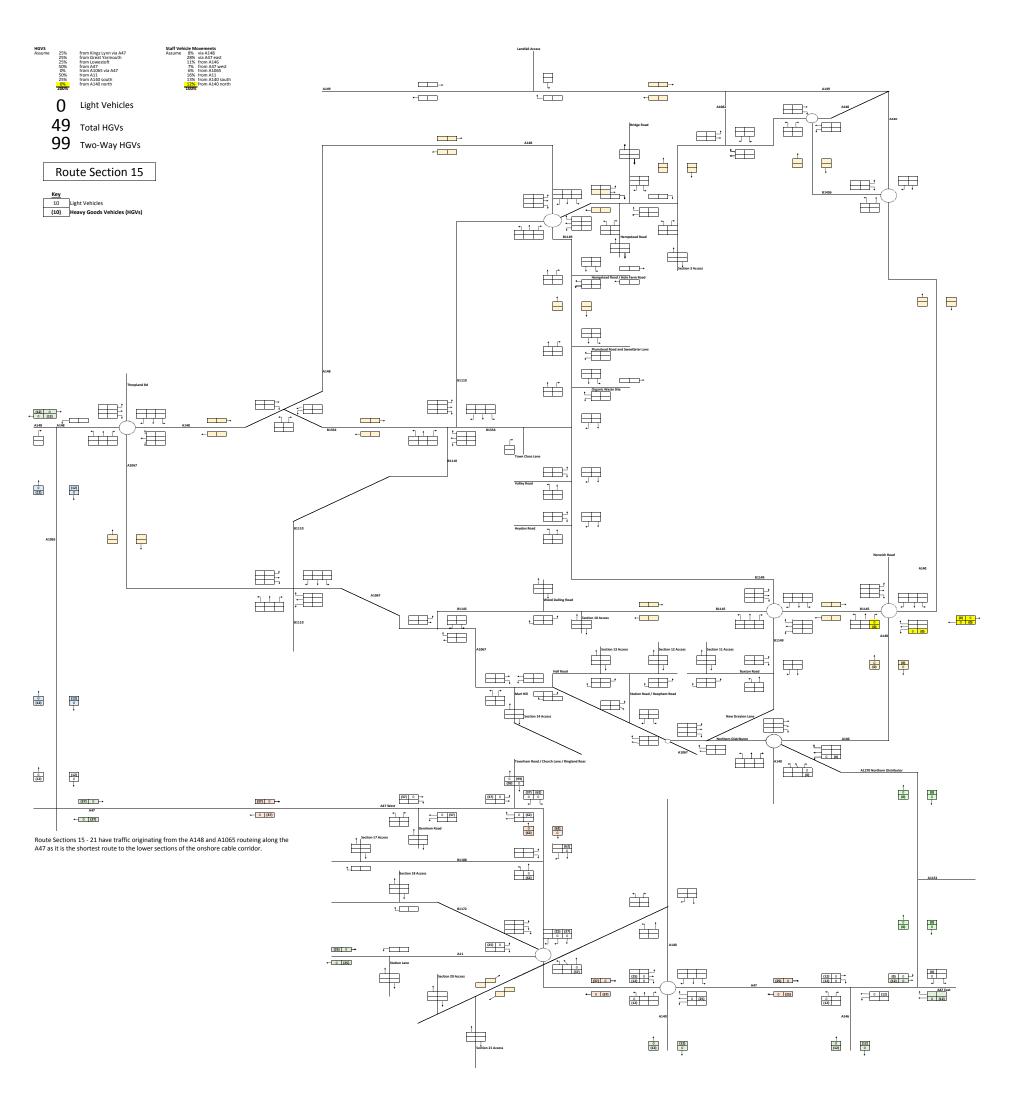


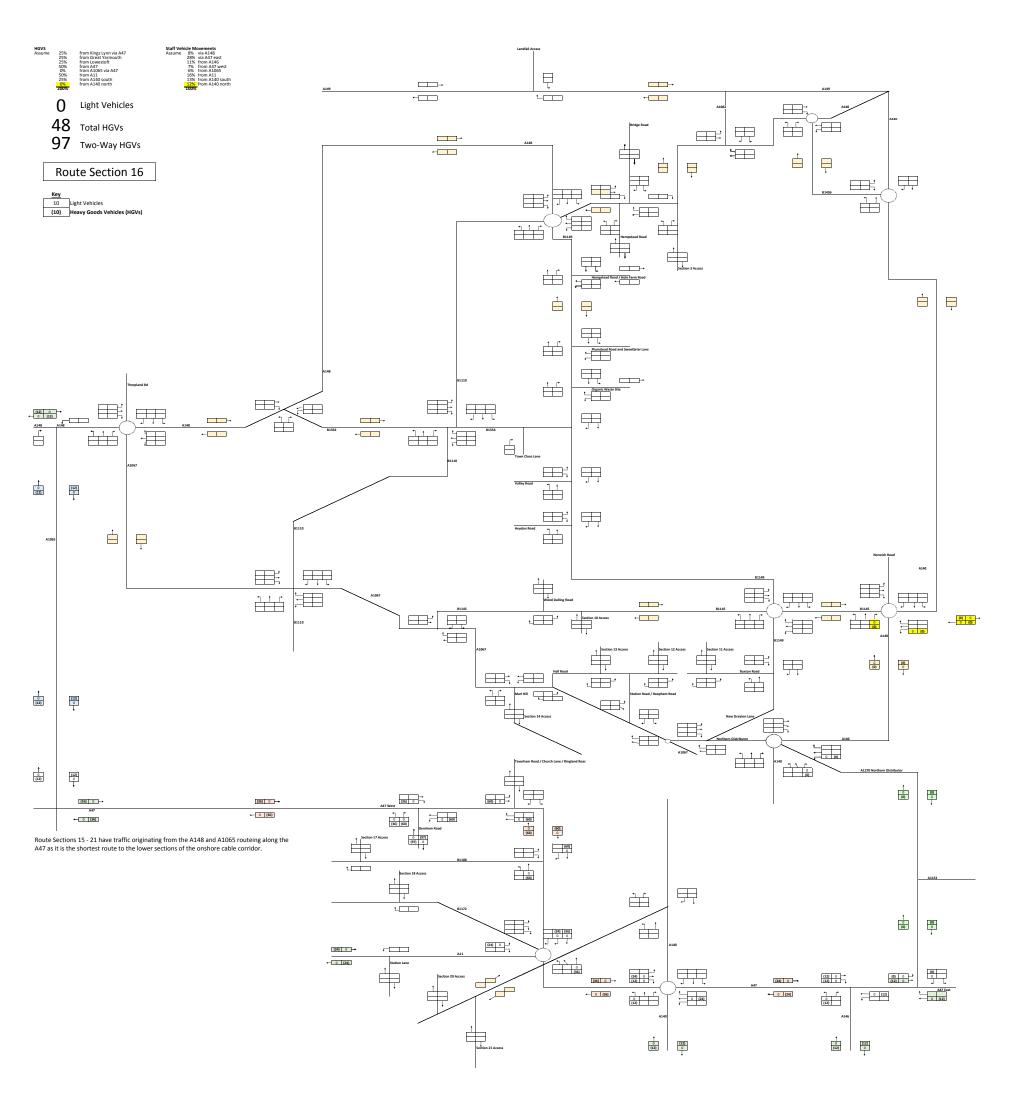


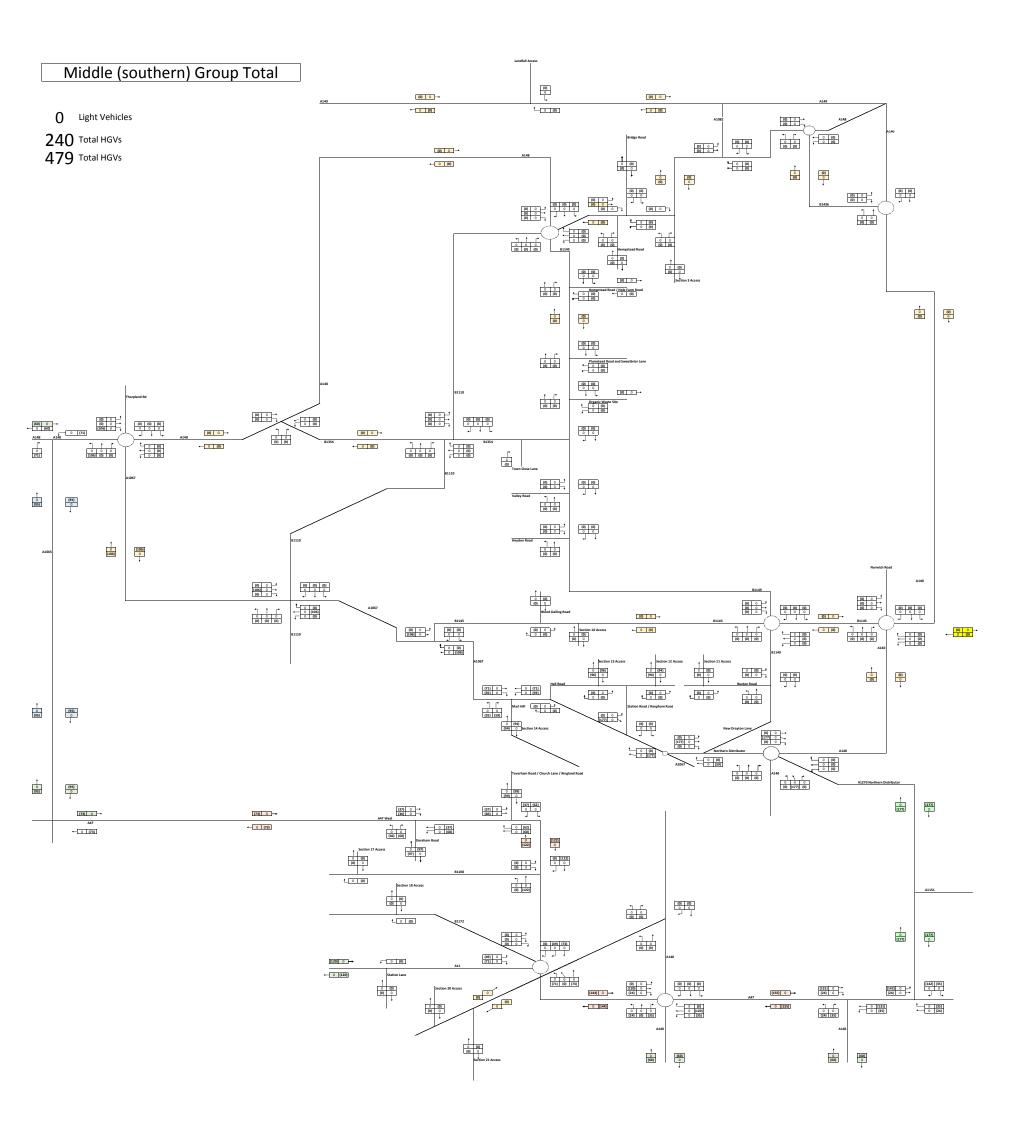


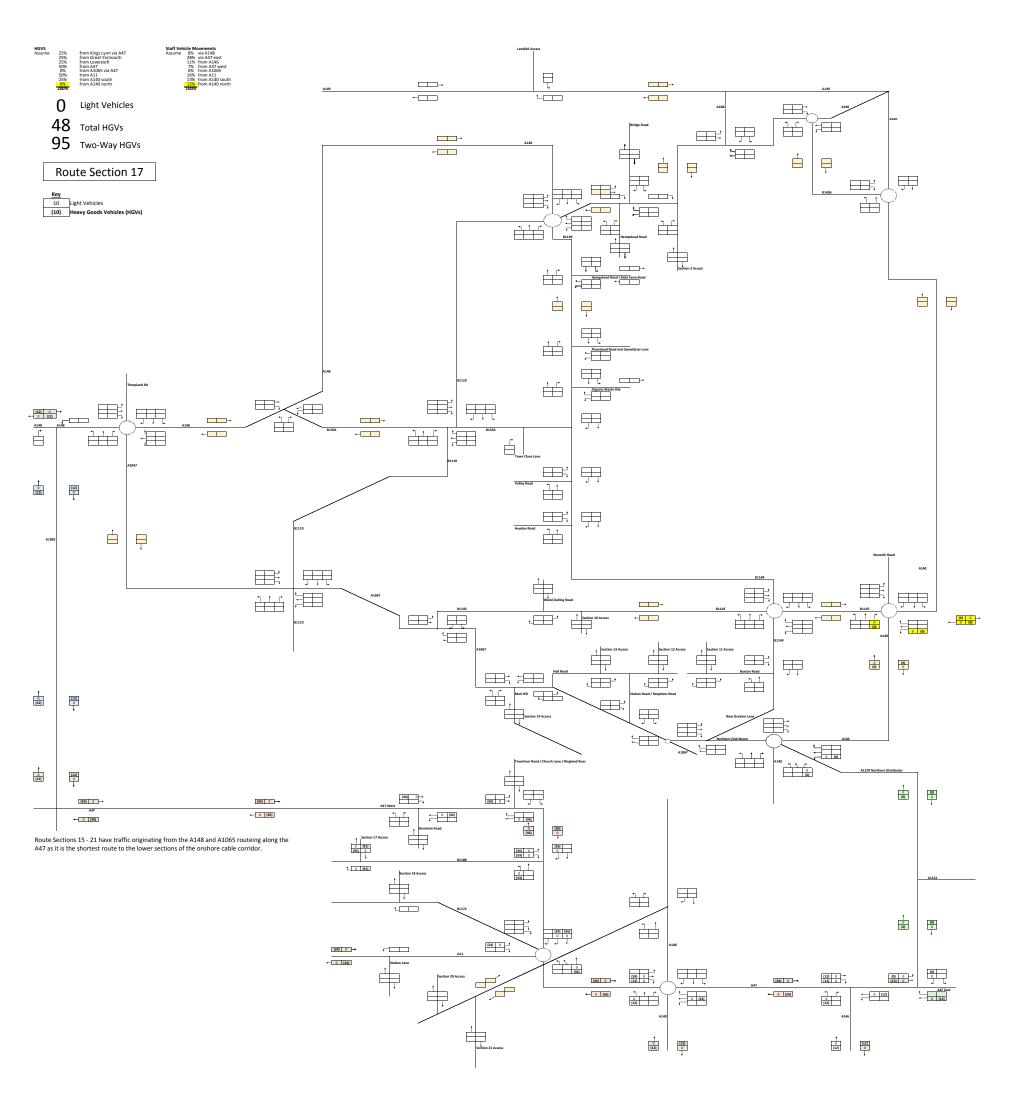


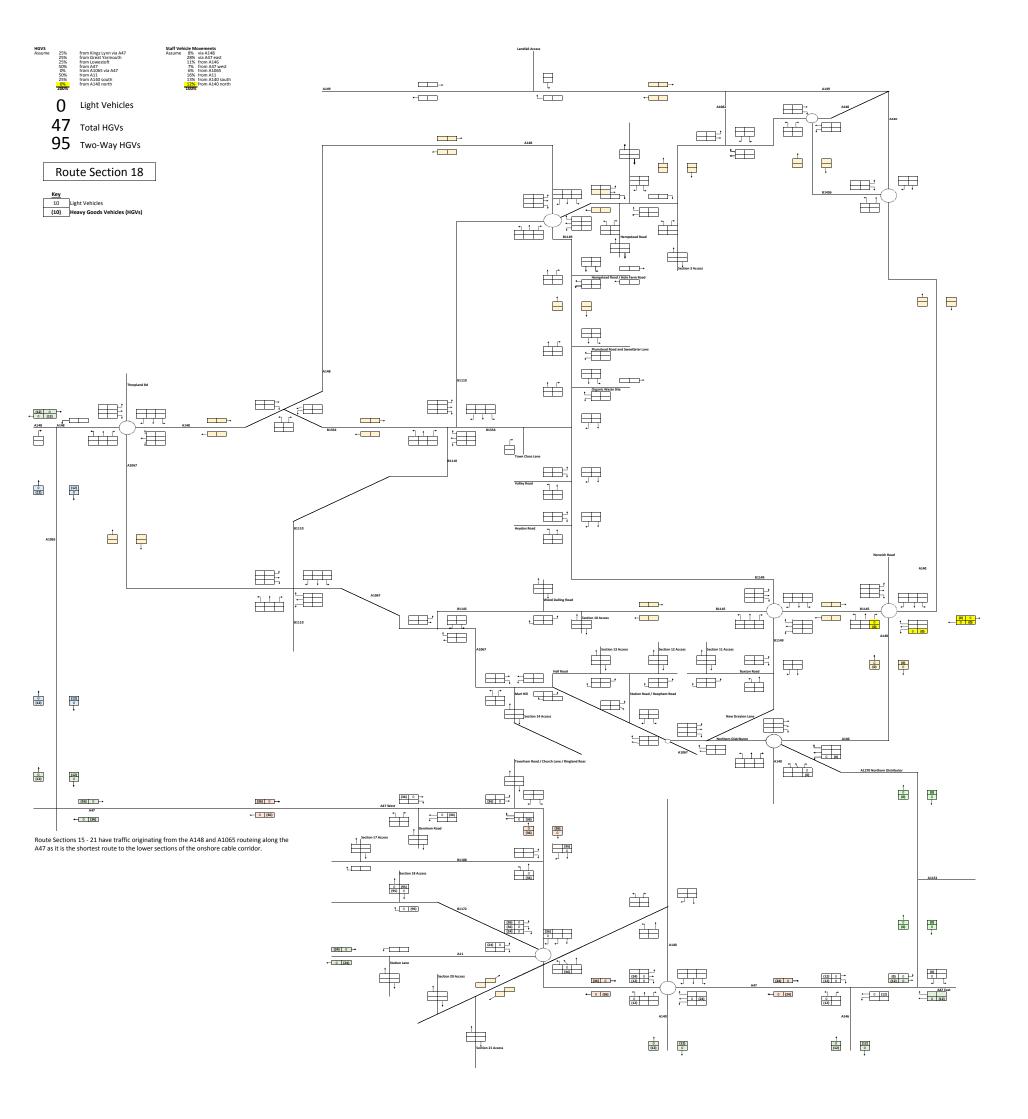


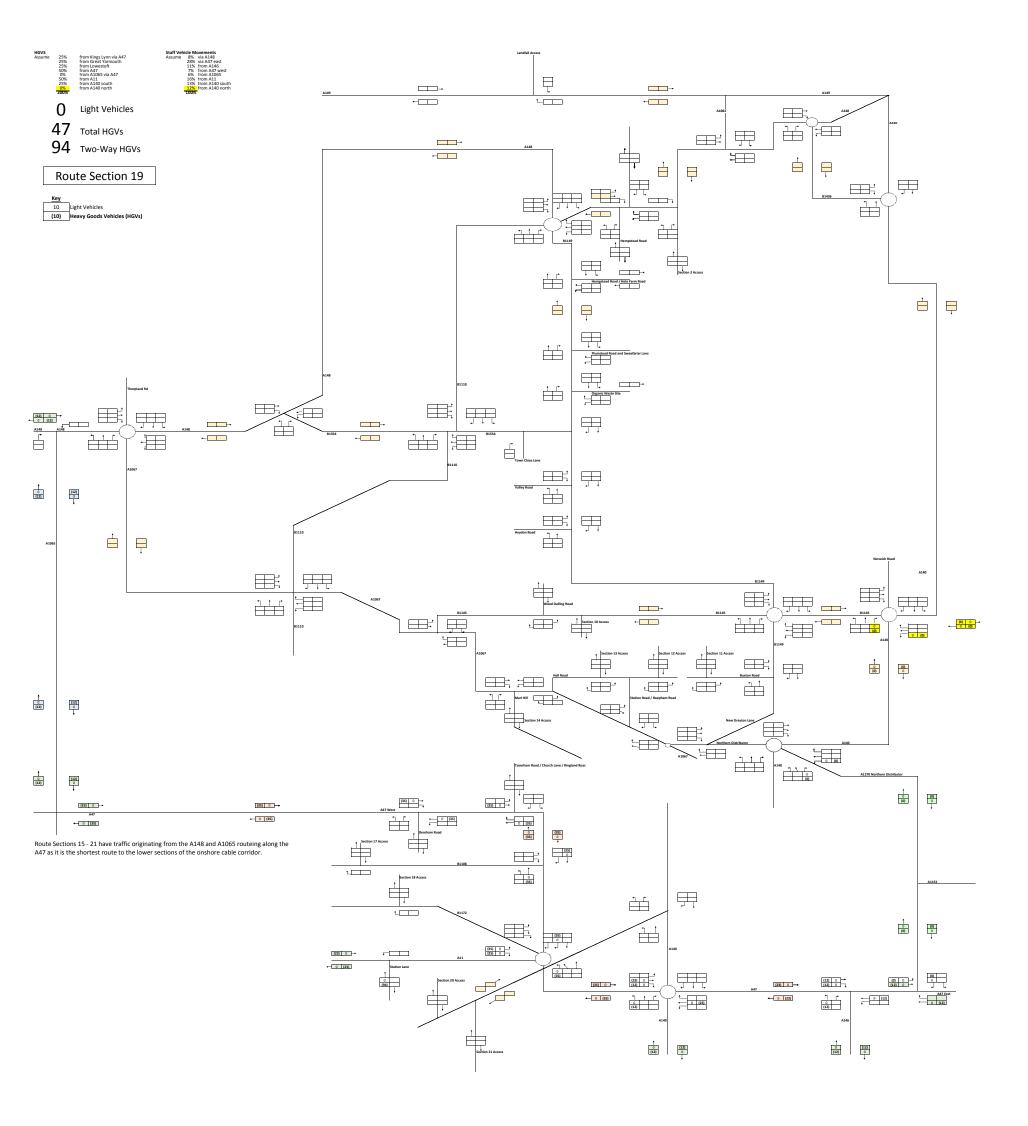


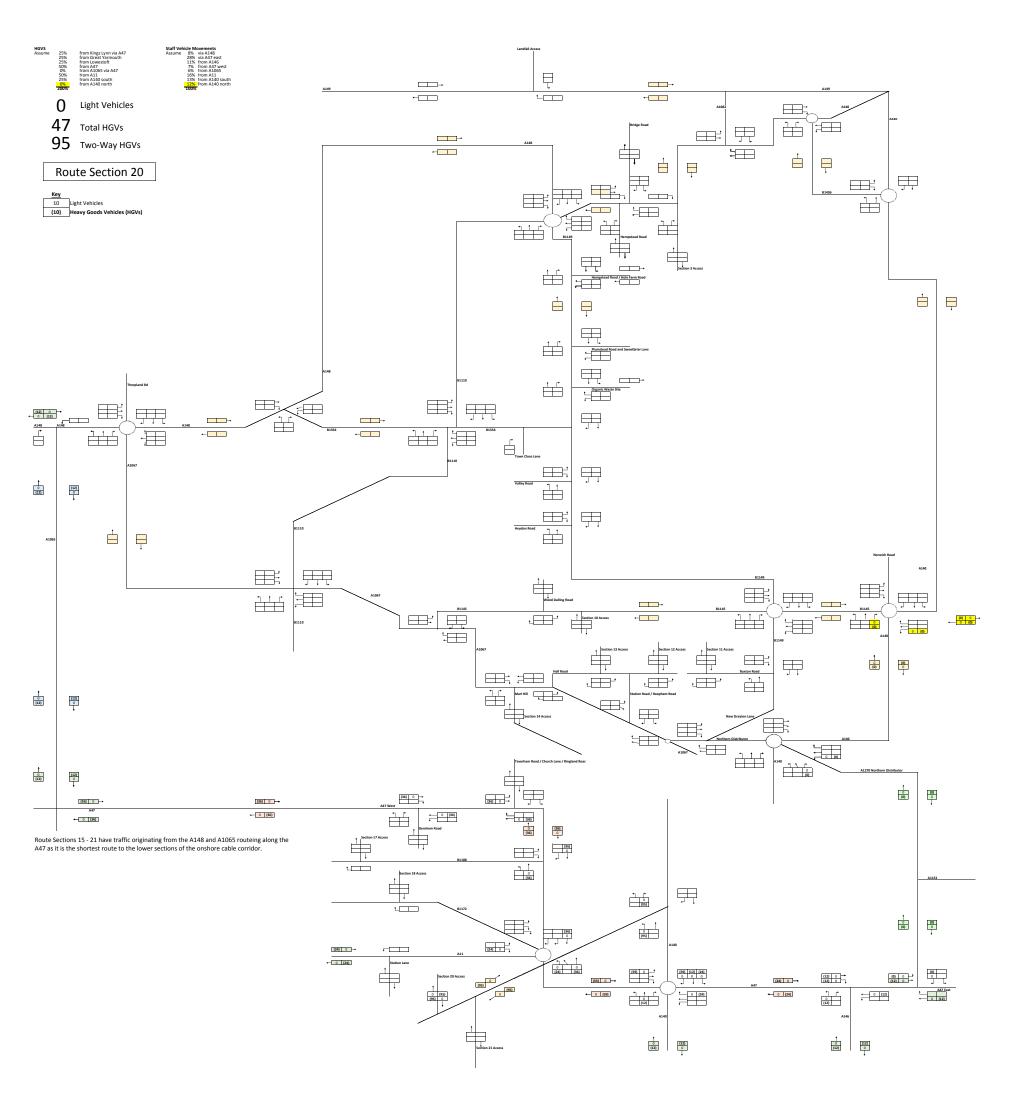


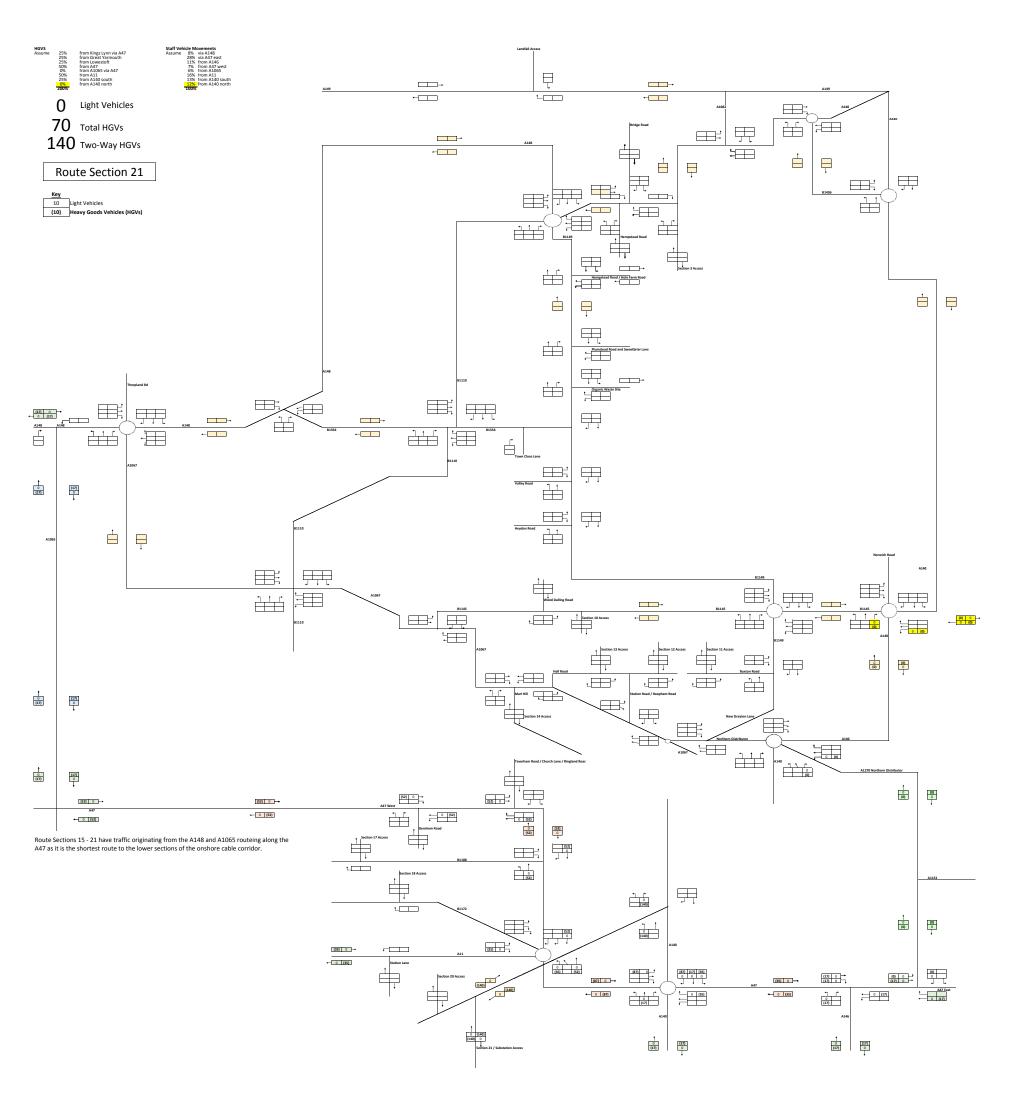


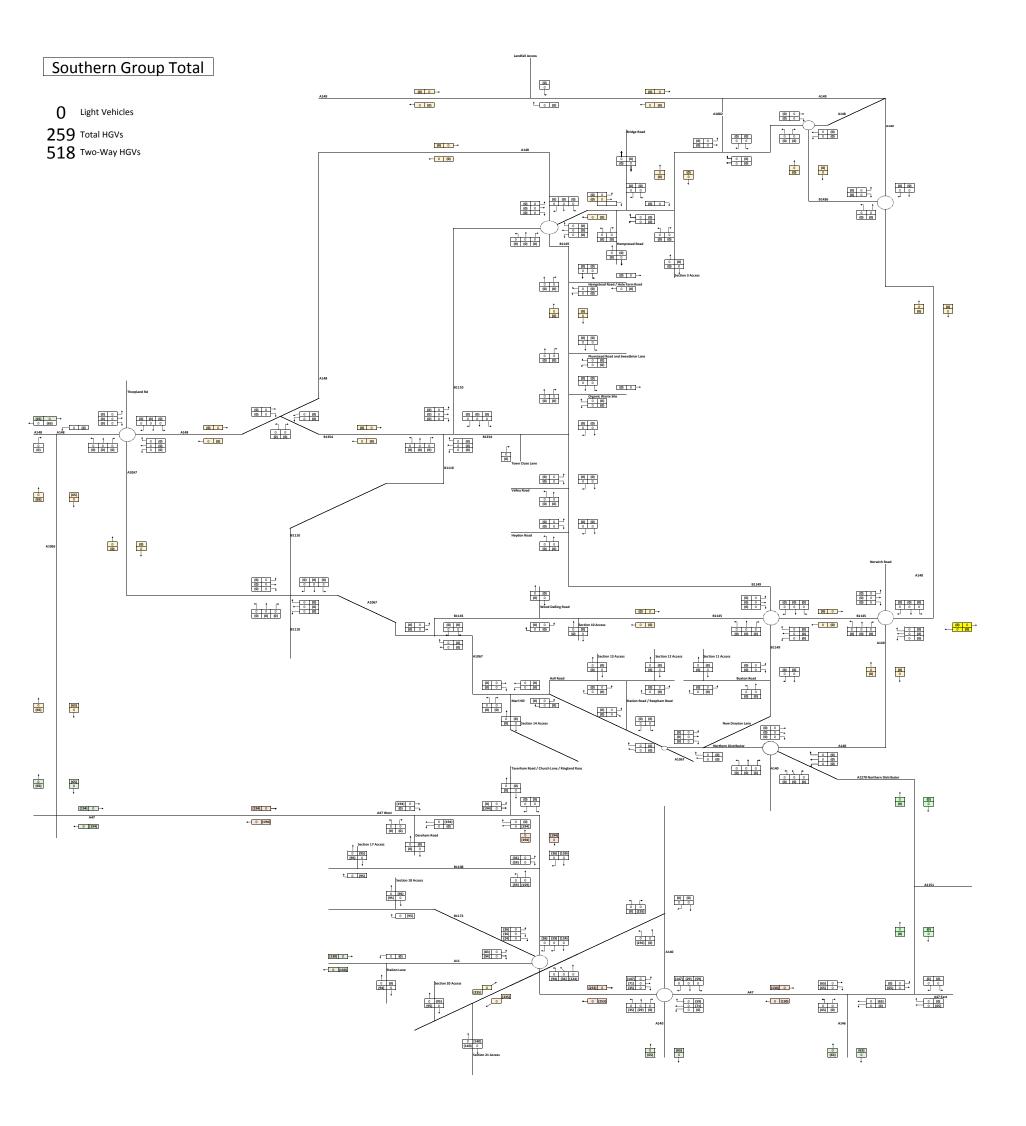


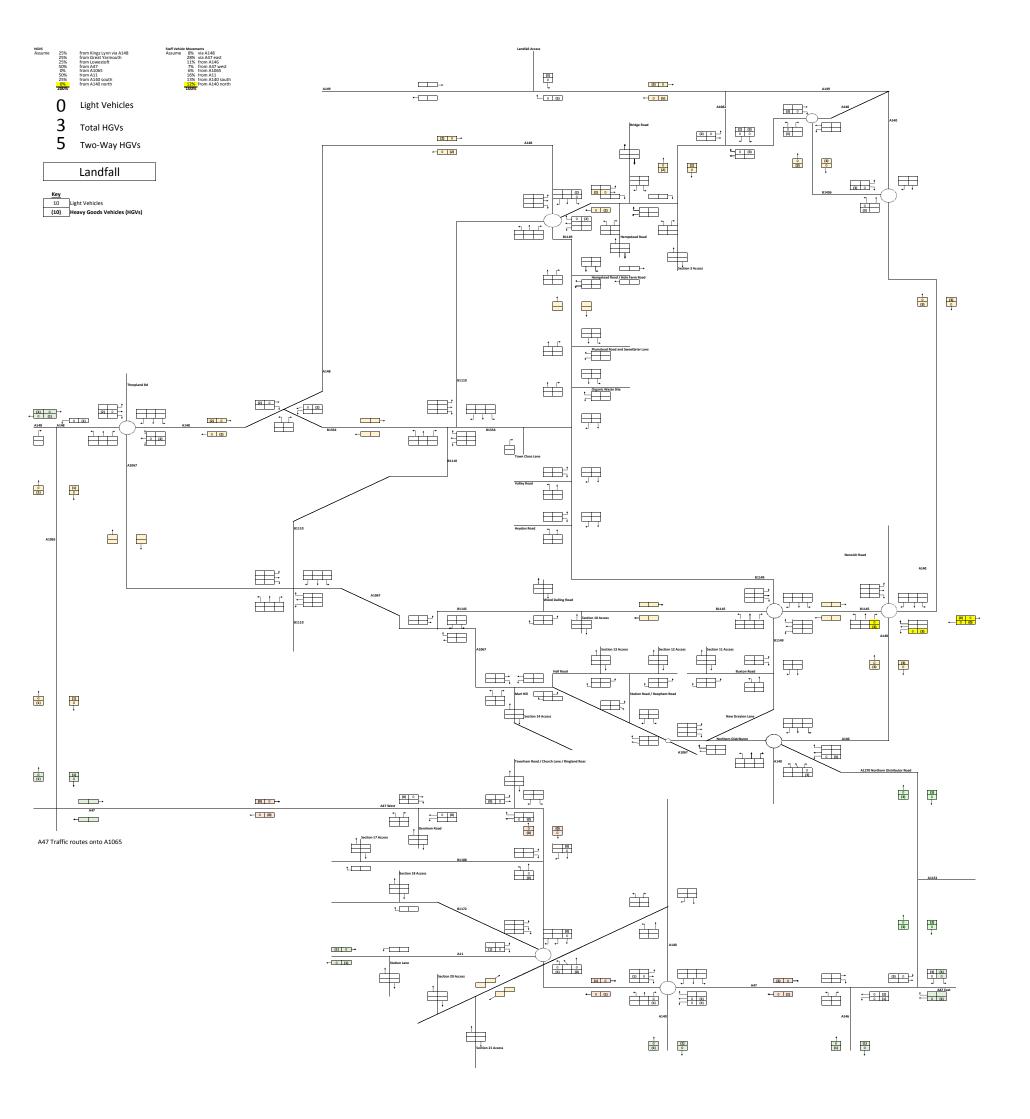


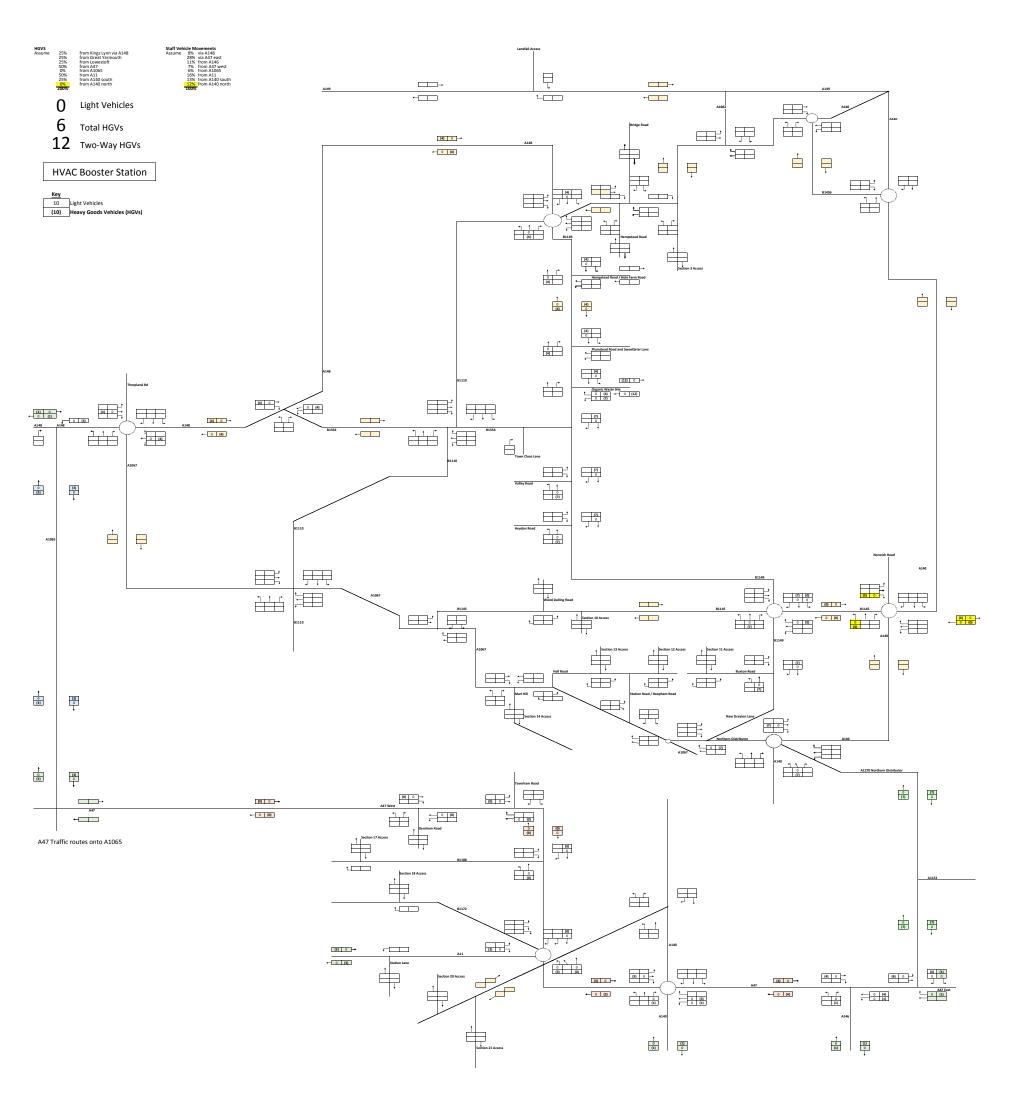


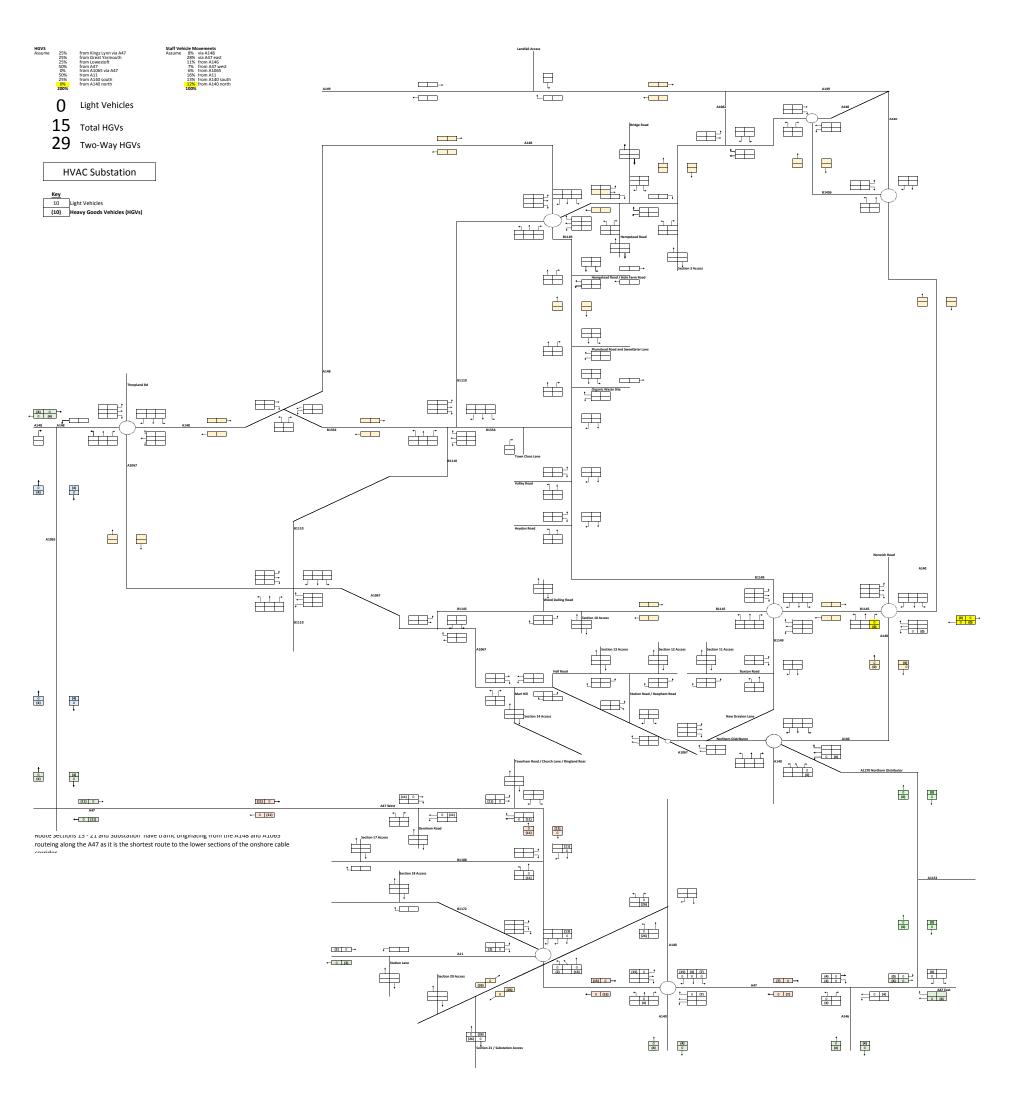


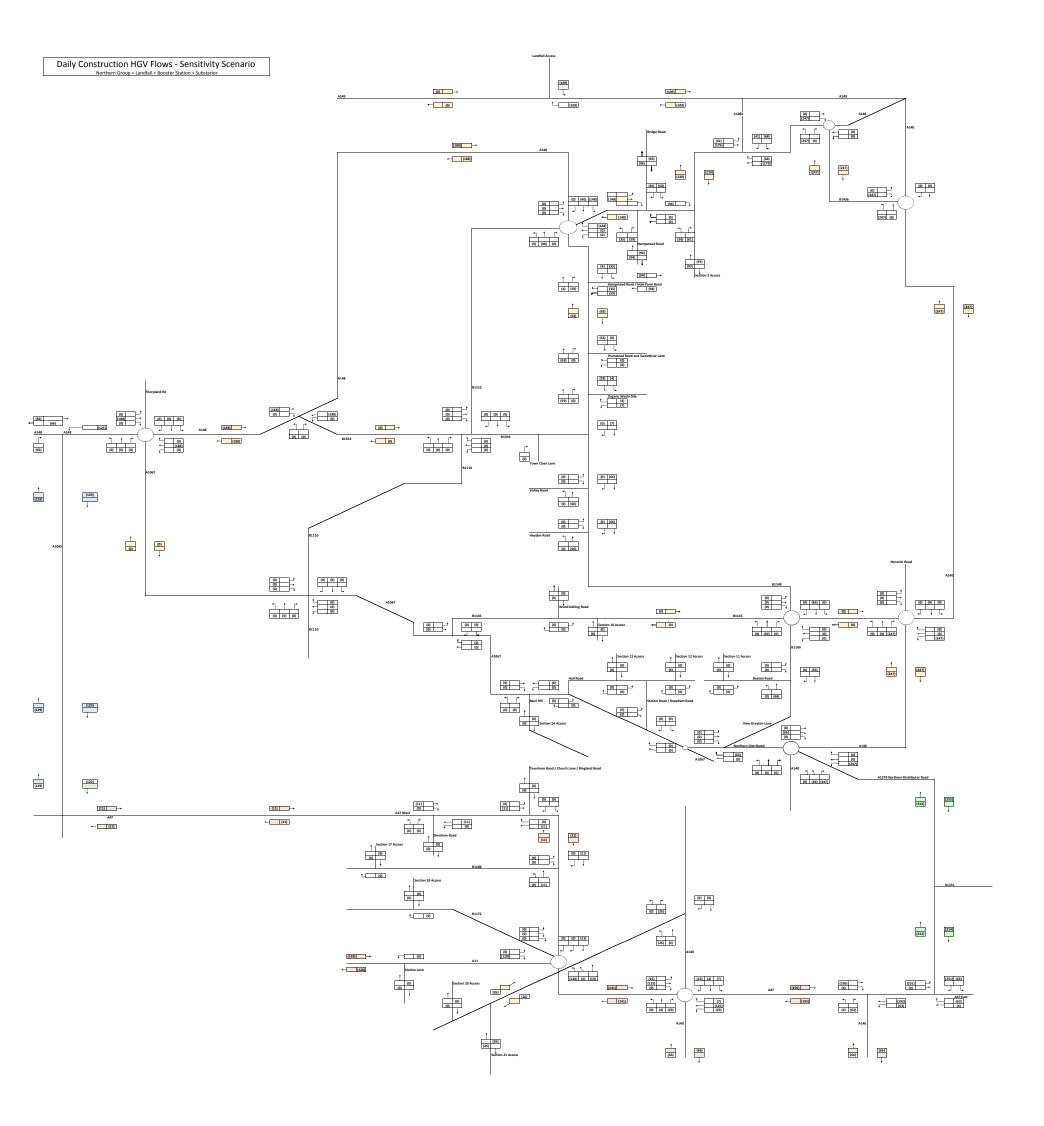


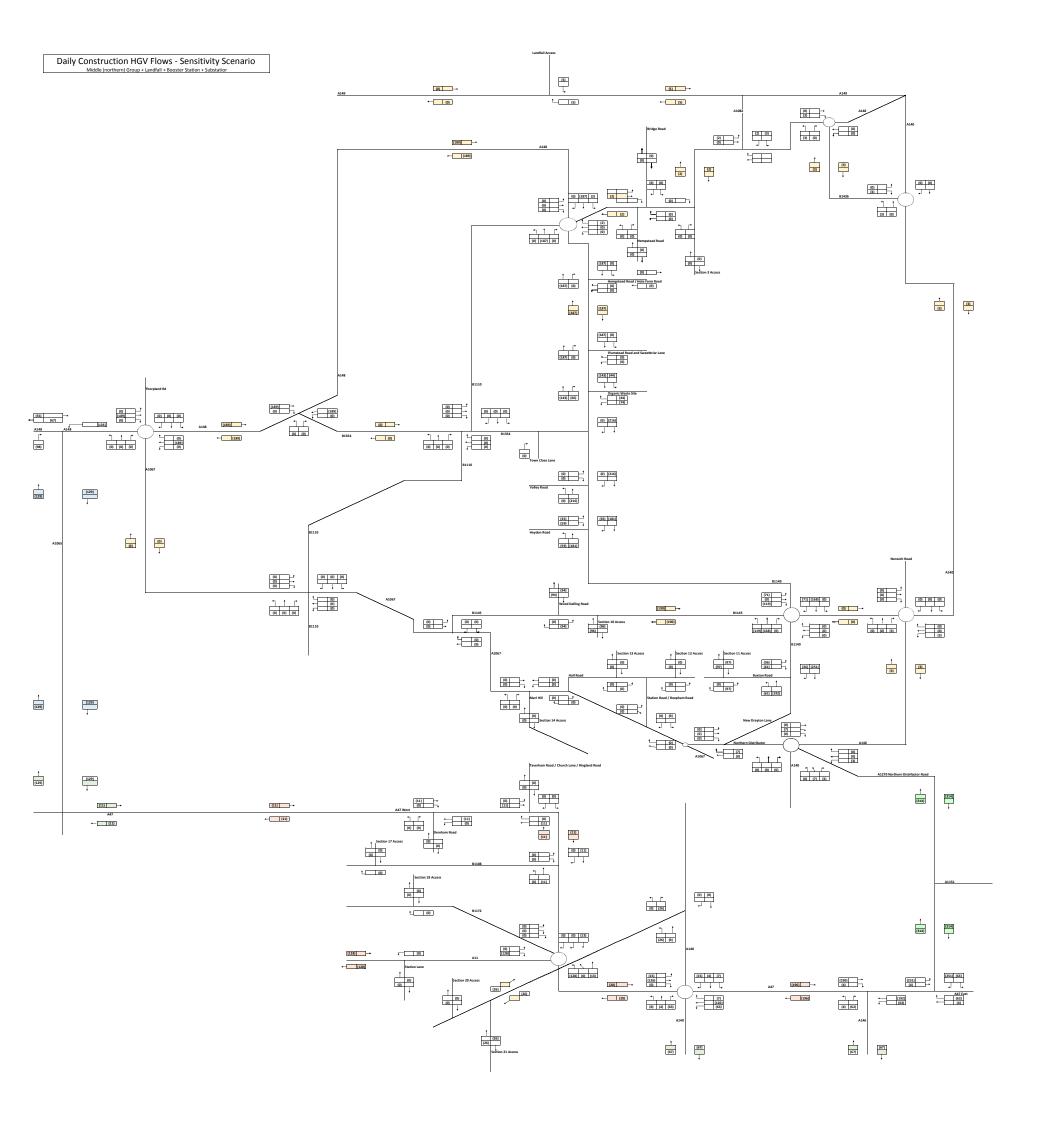


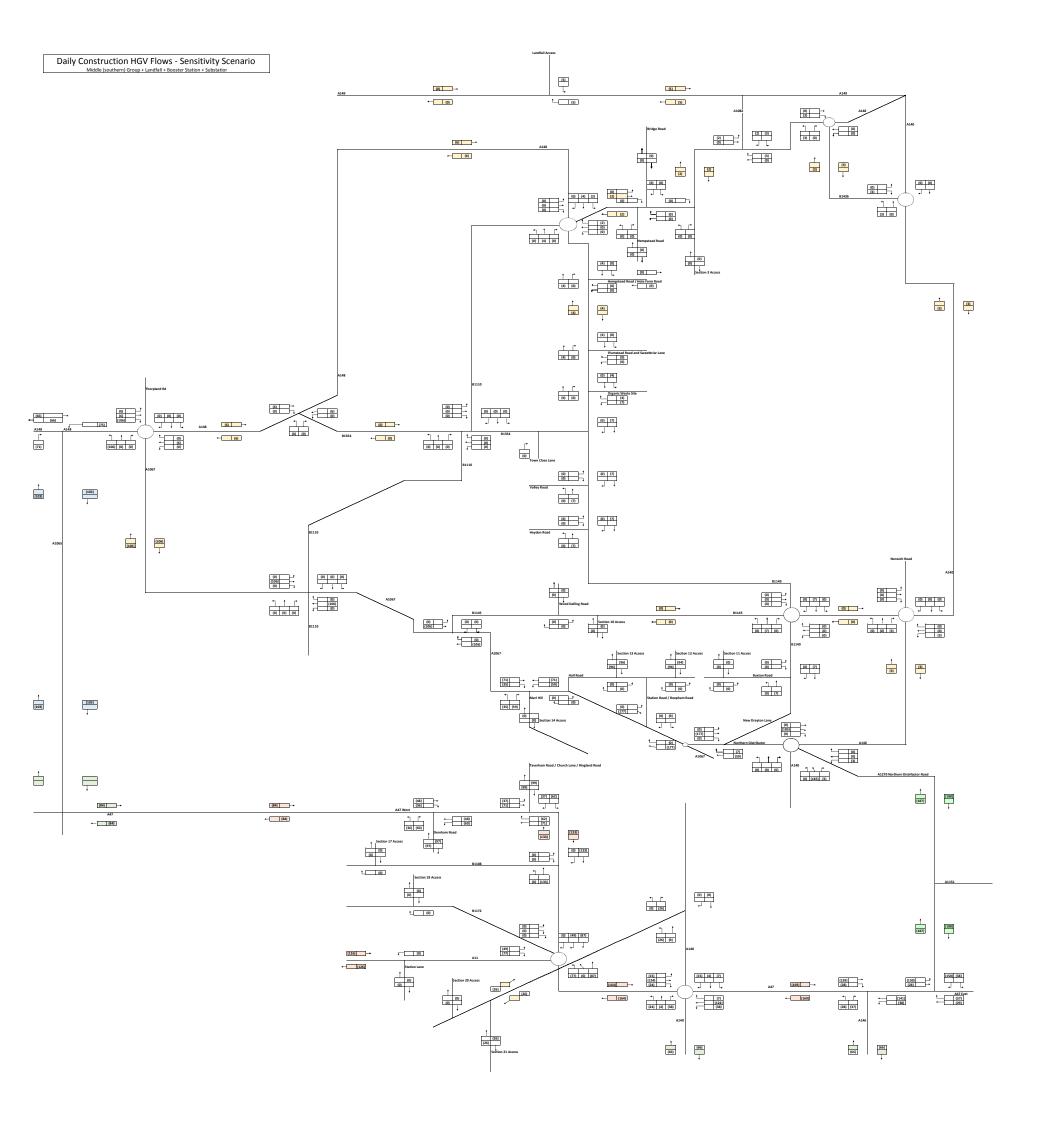


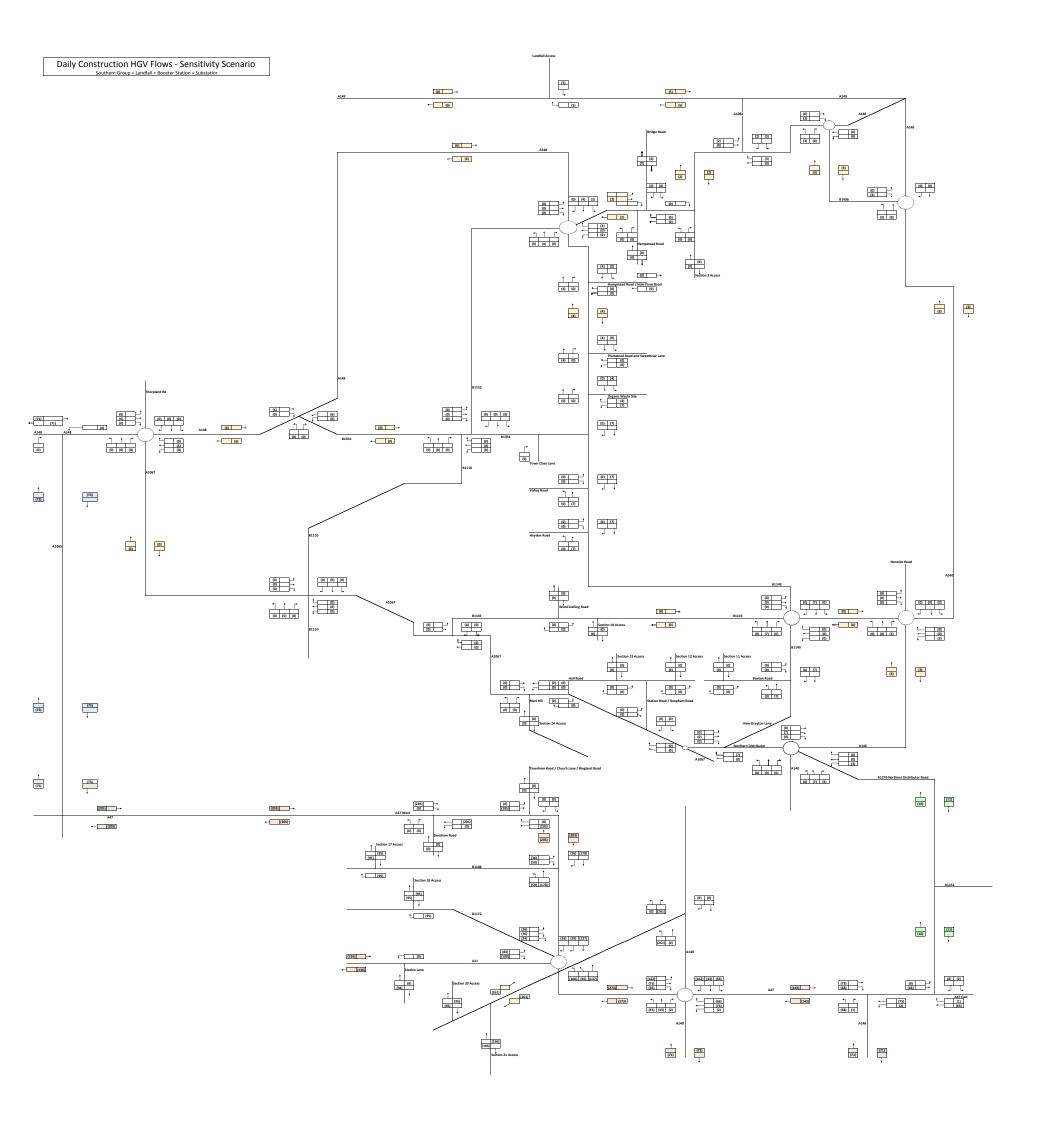












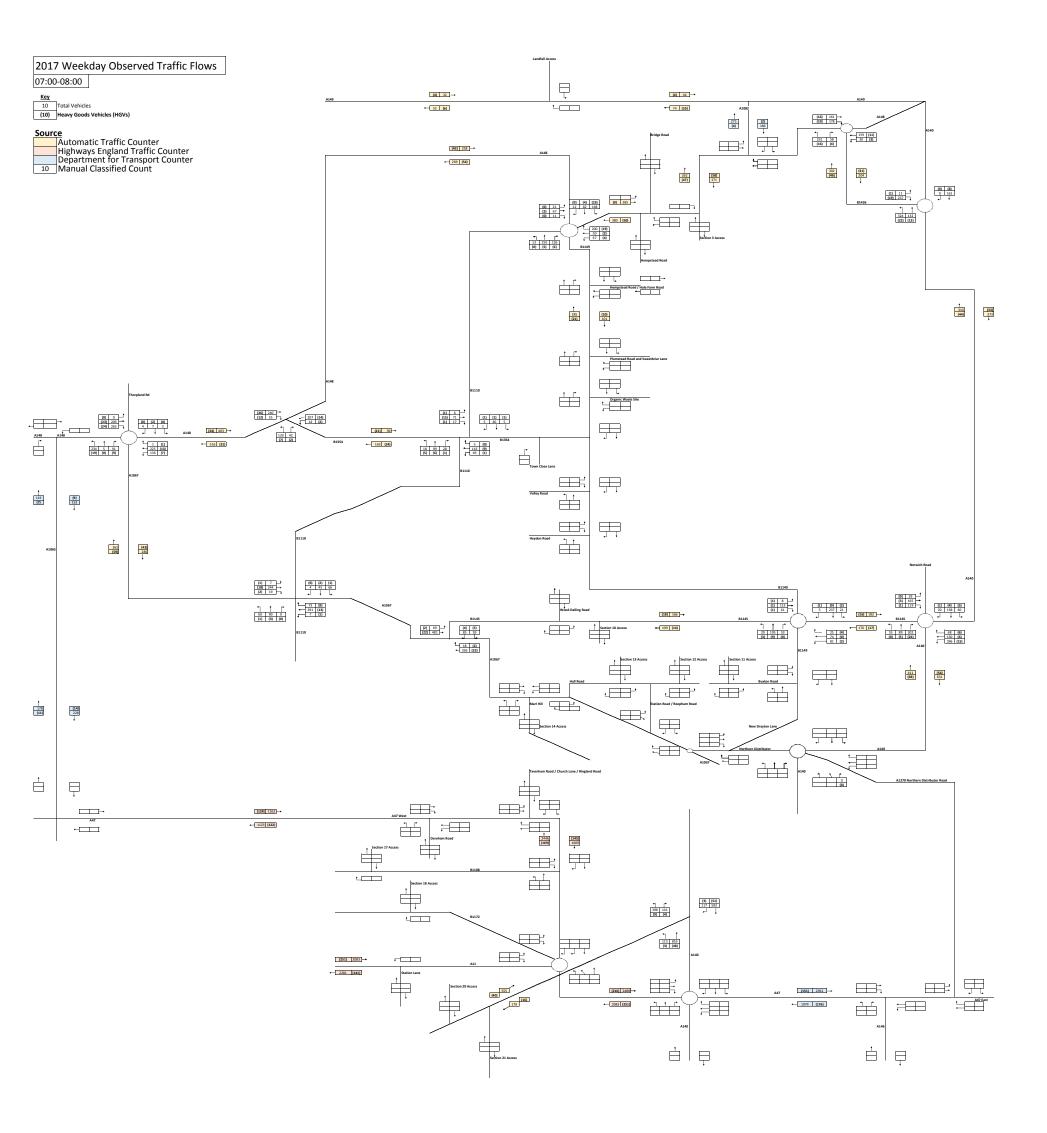
Appendix TN-C Clarifications to Appendix C of the Transport Assessment

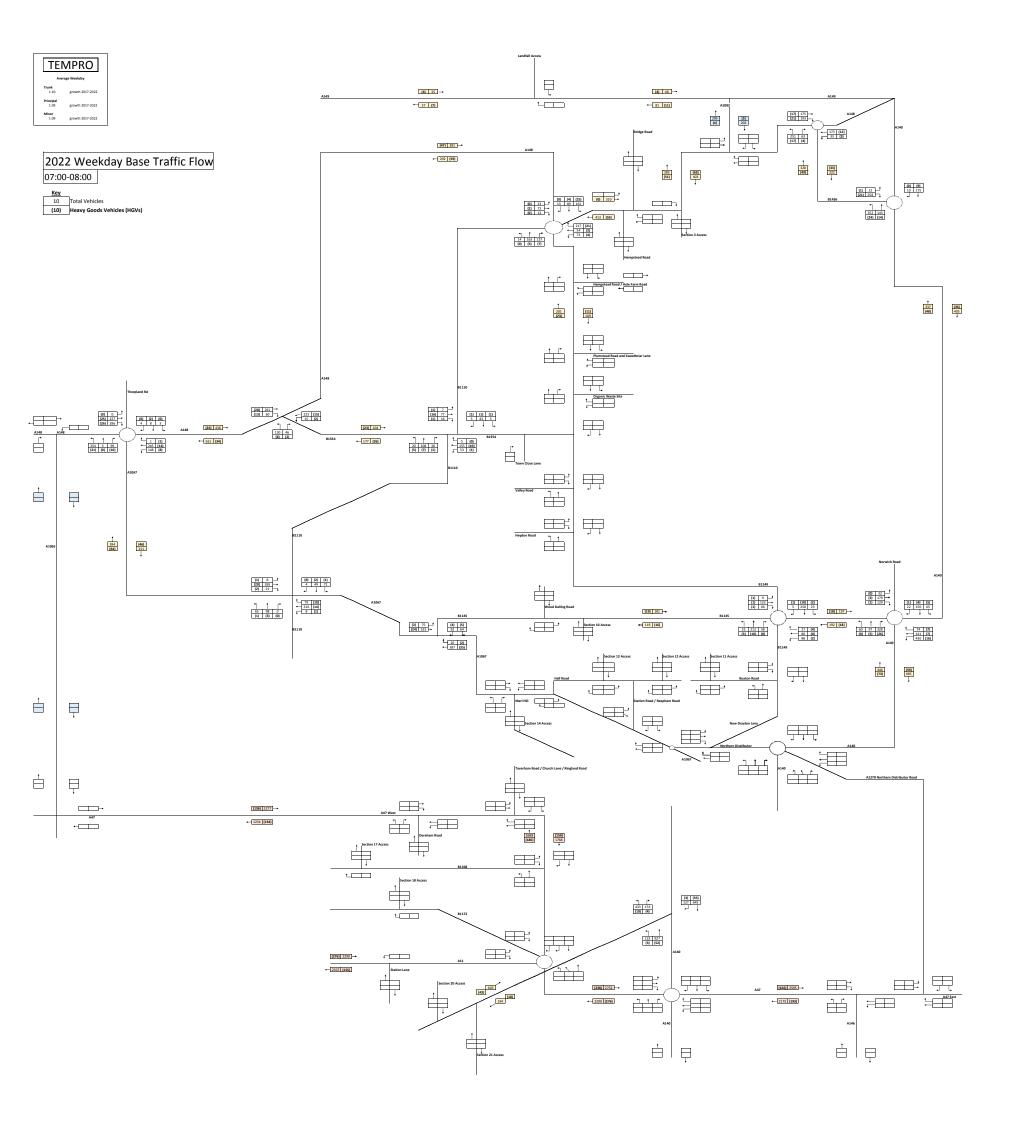


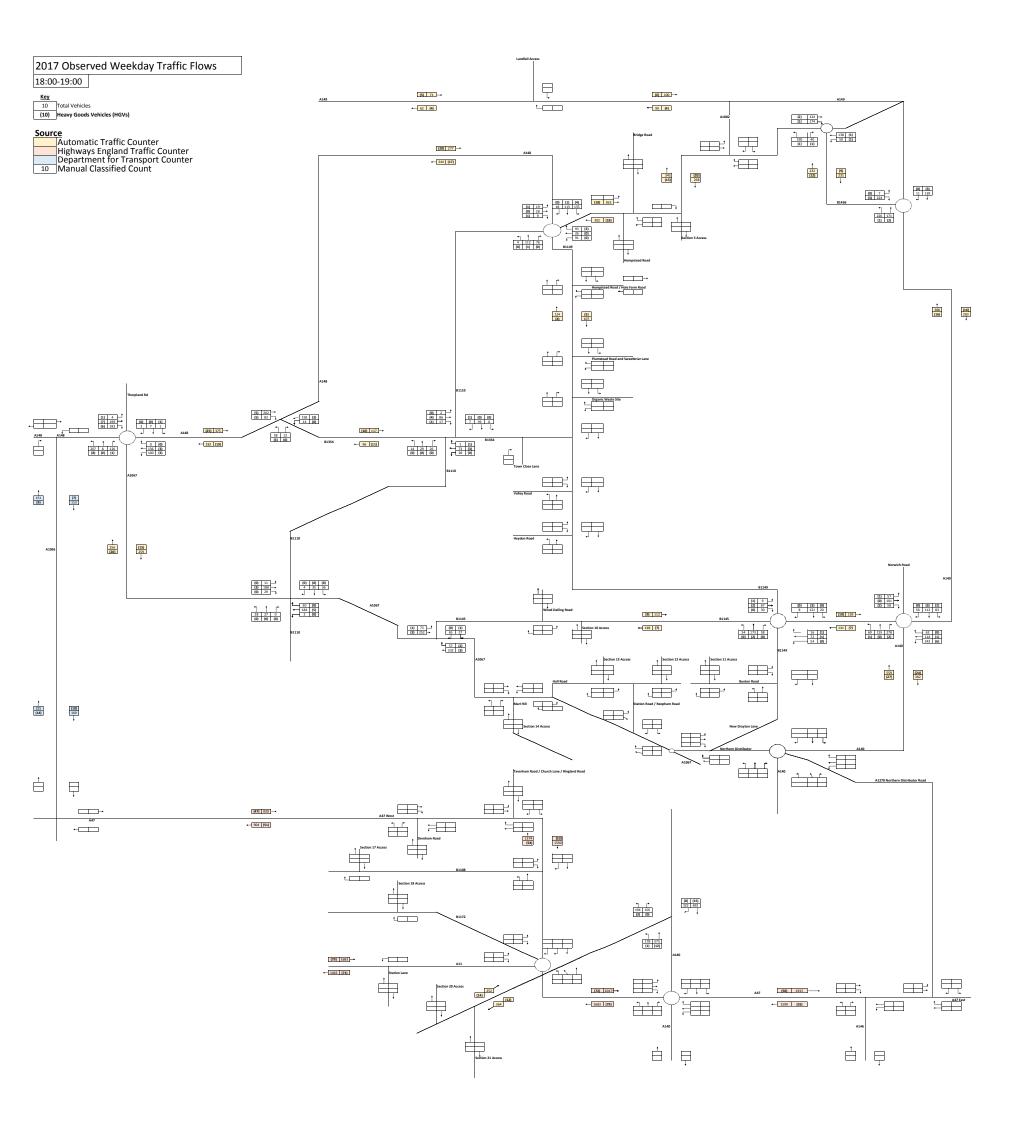


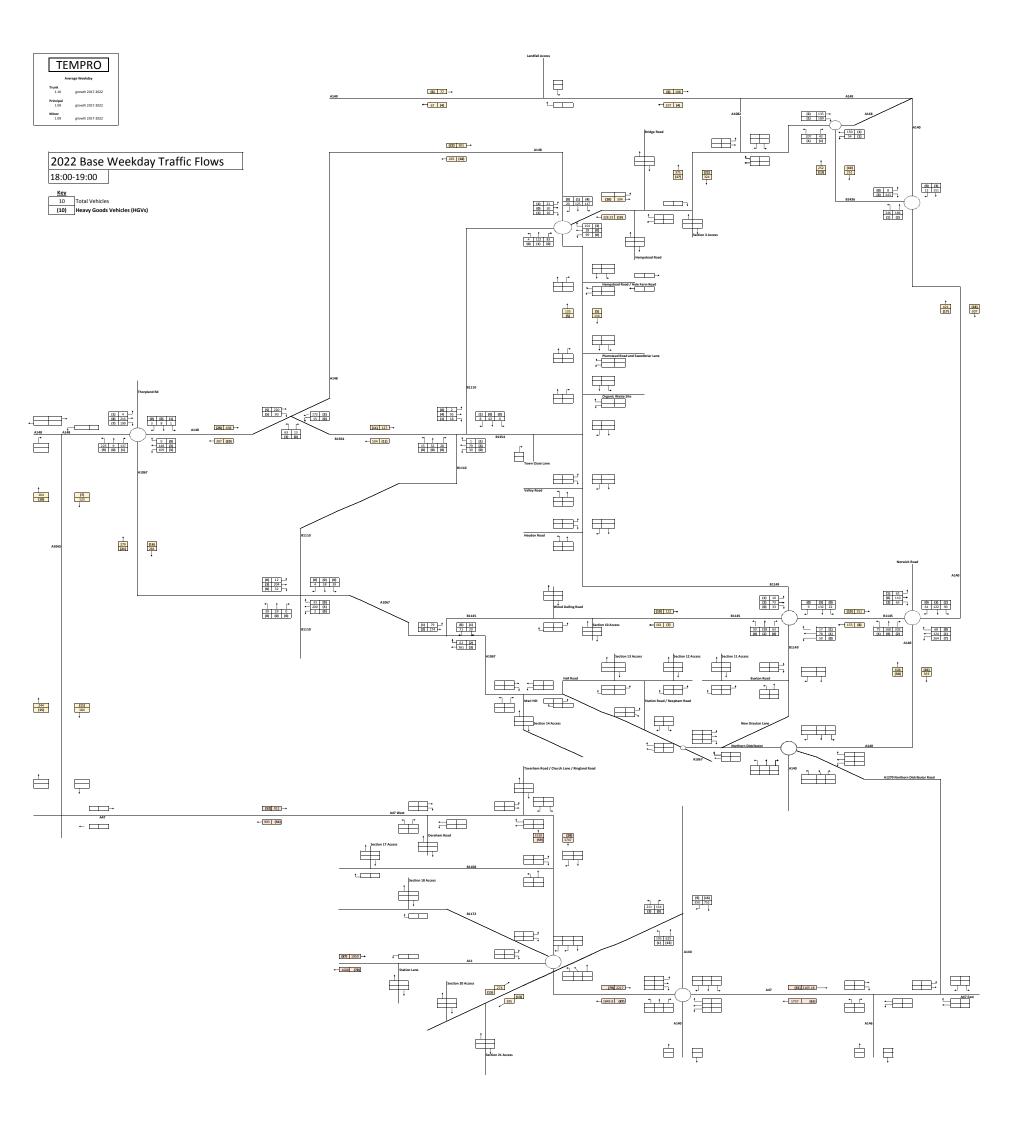
Appendix CTraffic Flow Diagrams

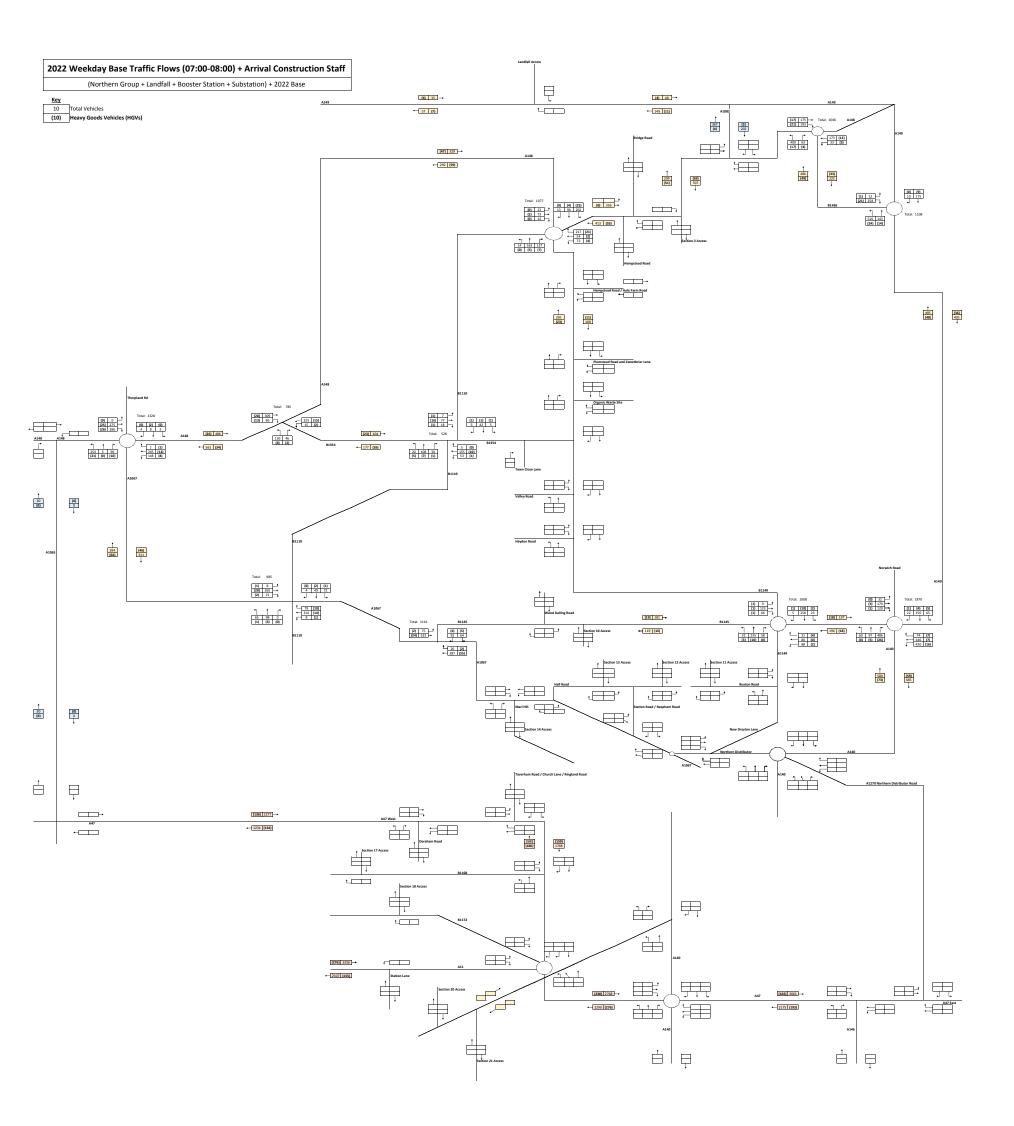
Comparison of Construction Staff and HGV Traffic Flows against the Network Peaks

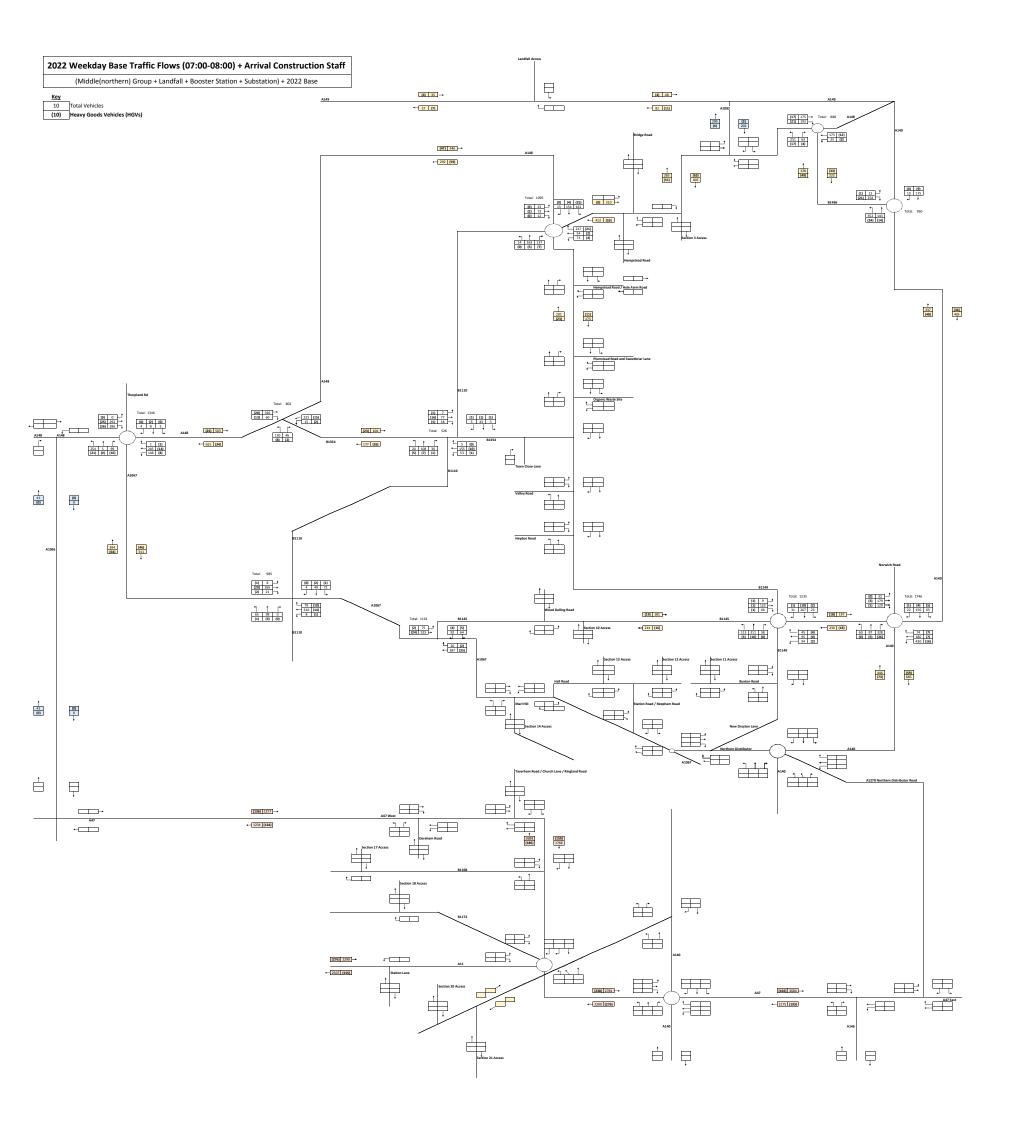


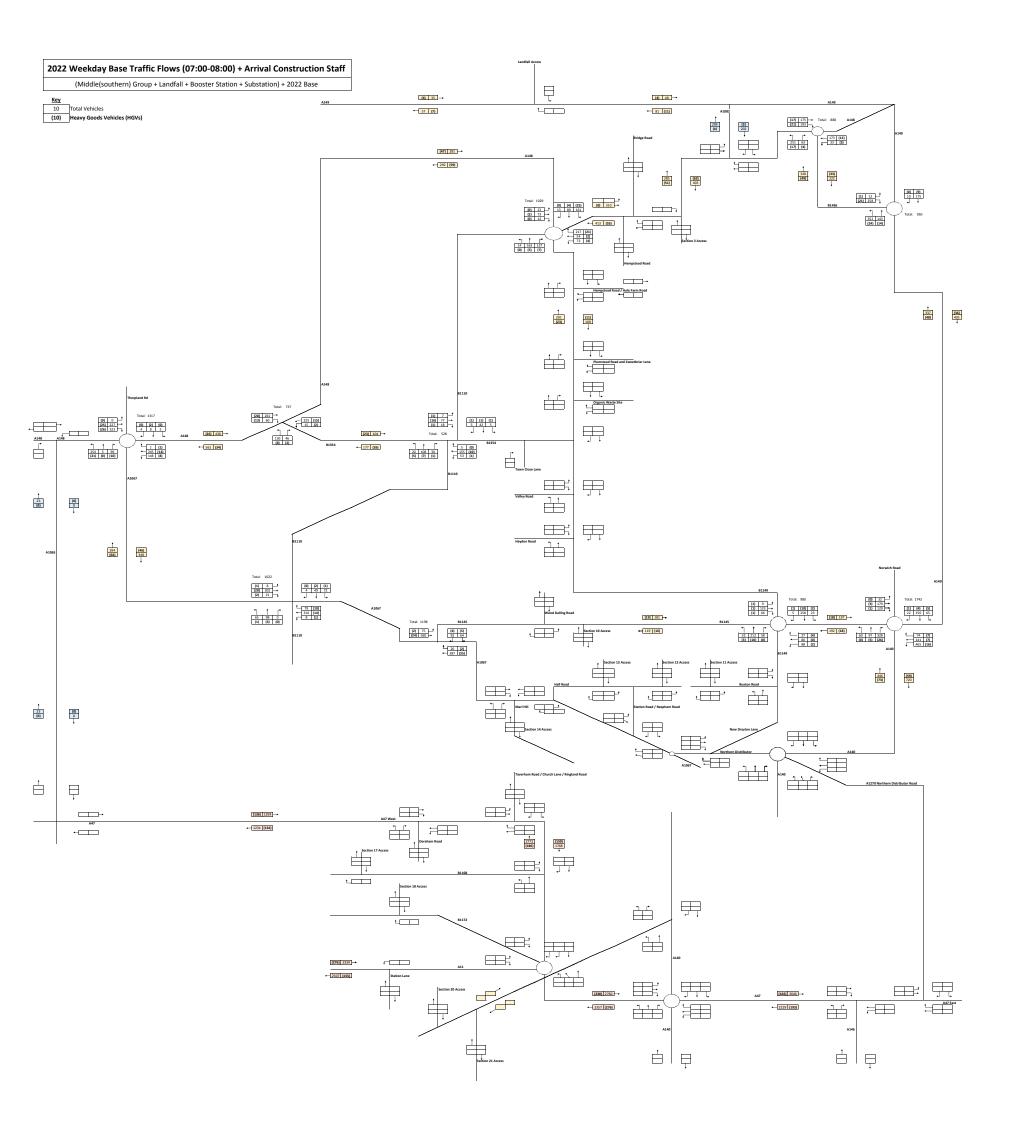


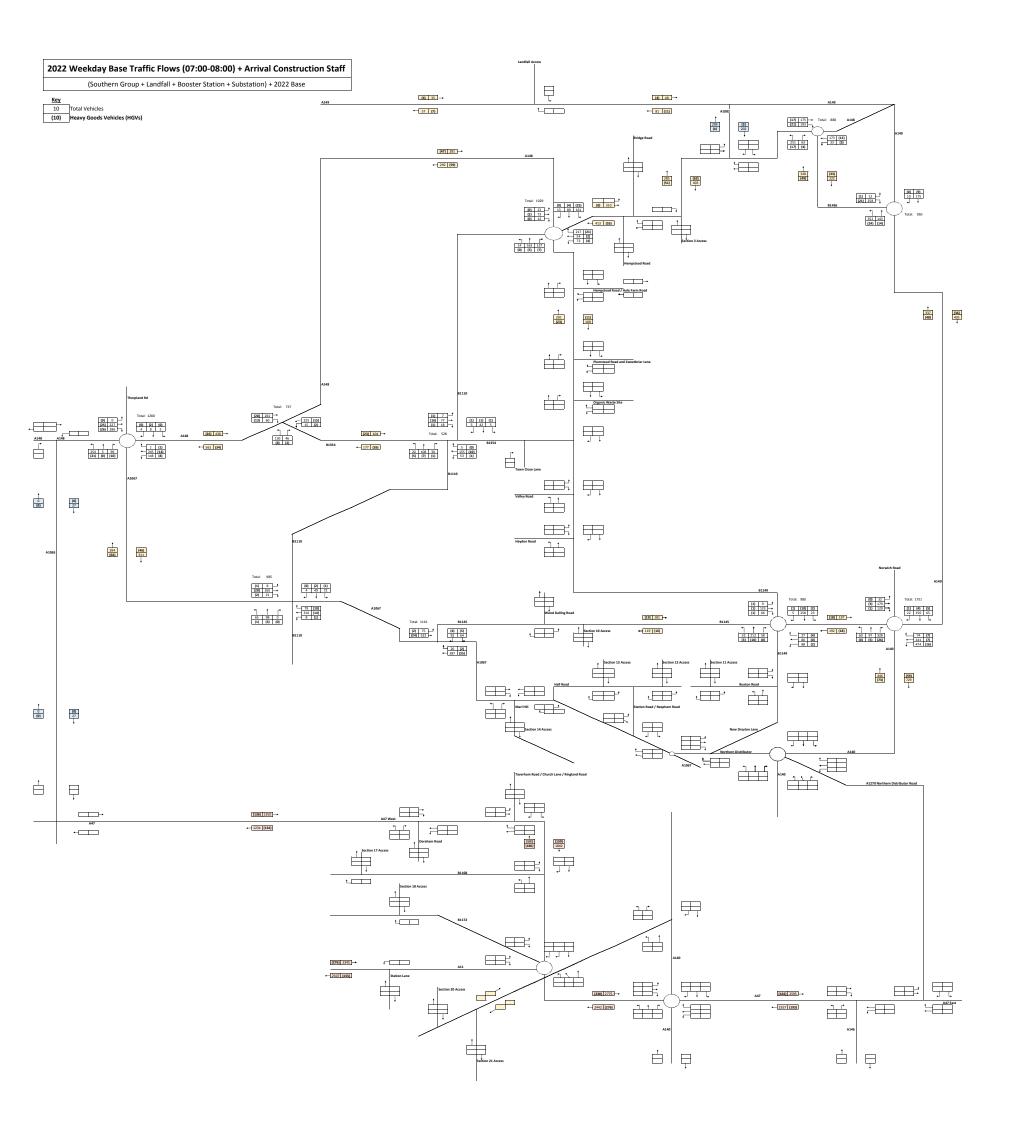


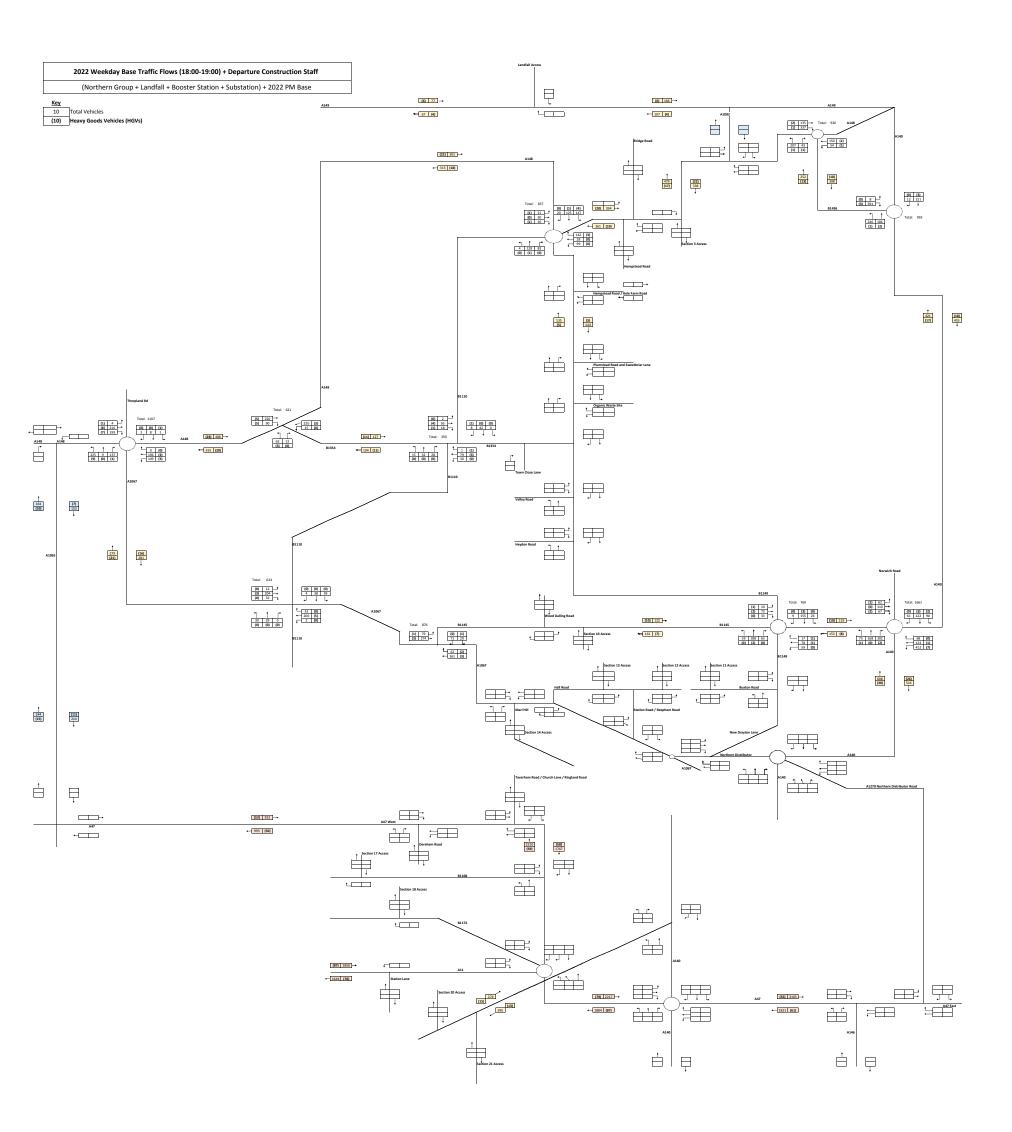


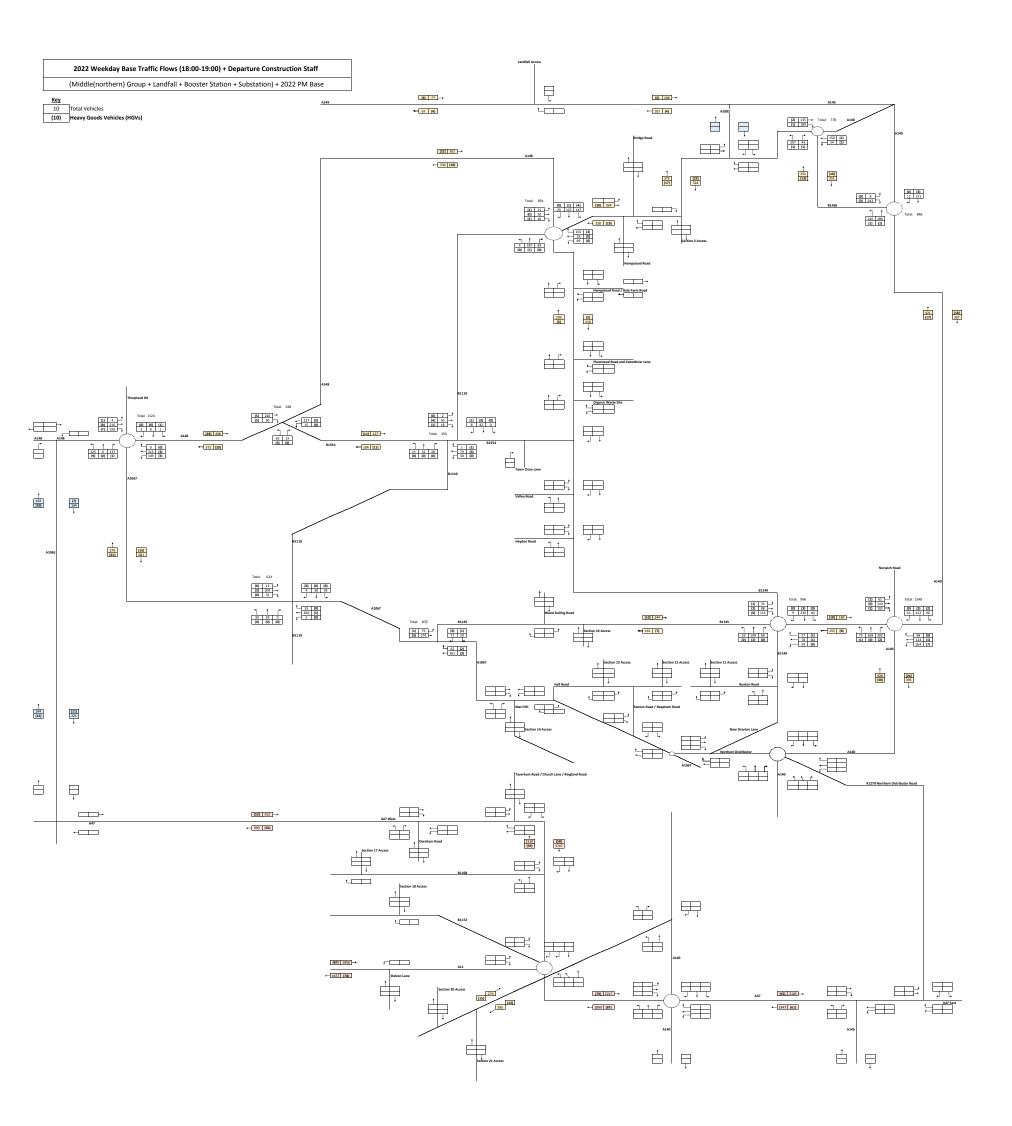


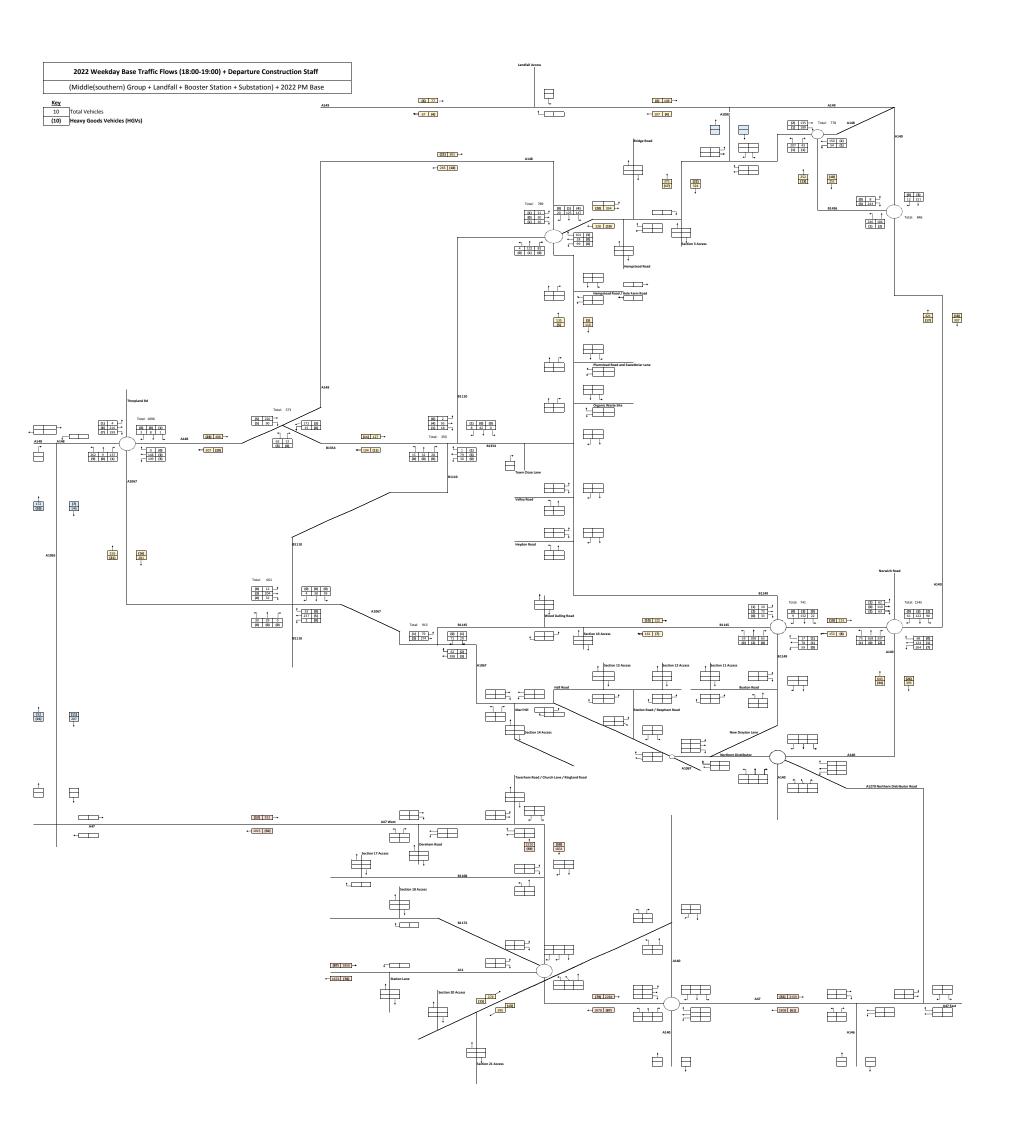


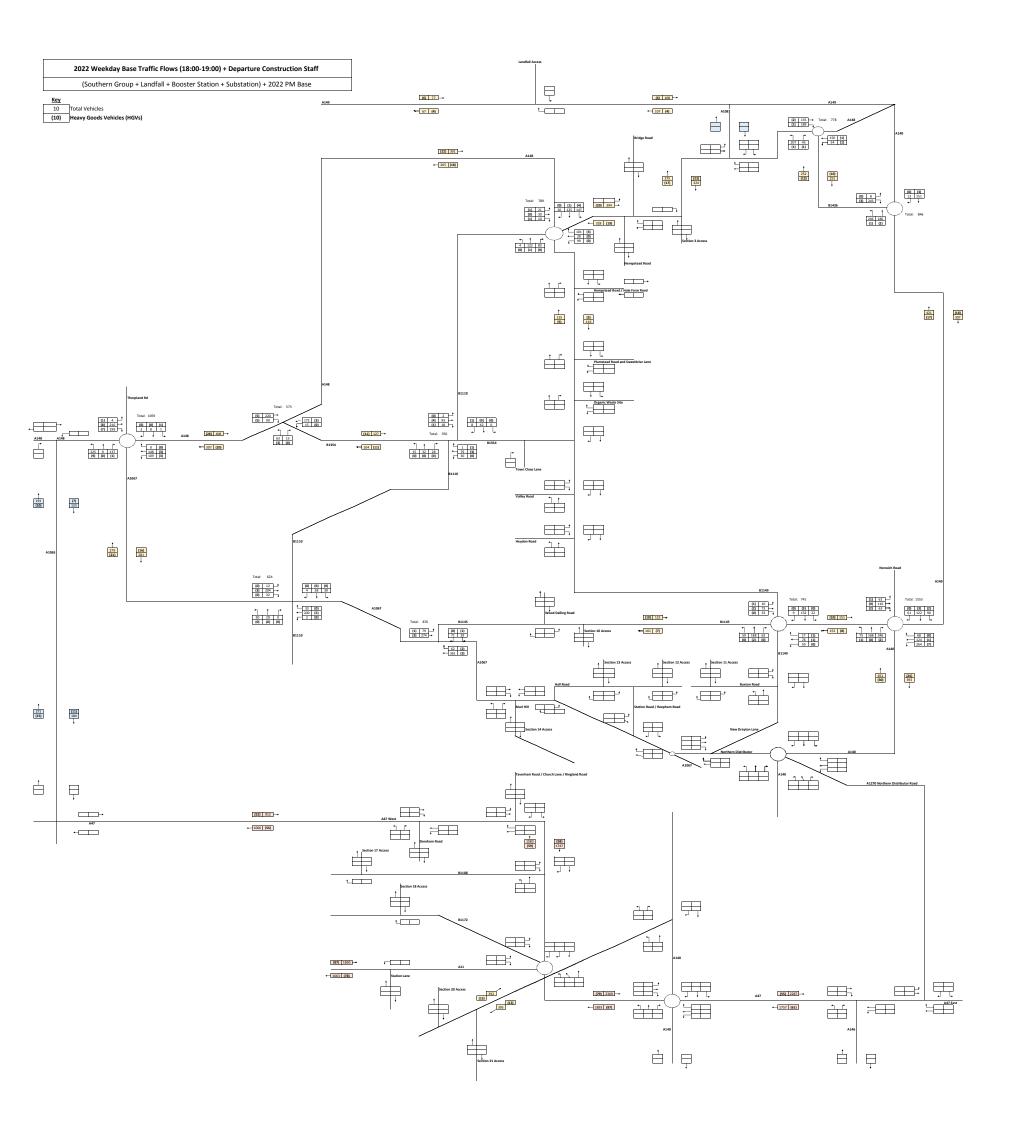












Junction	Explanation	Comment
A140 / B1113 Signalised Junction	Requested by Norfolk County Council to assess the junction during the peak hours.	This junction has been assessed during the network peak hours.
A148 / B1149 / B1110 Roundabout	2022 Base plus construction staff flows exceeded the network peak flows.	This junction has been assessed during the network peak hours.
B1149 / B1145 Roundabout	12022 Base plus construction statt flows exceeded the network peak flows.	This junction has been assessed during the network peak hours.
No other junctions on the local road network have been assessed.		
A47 / Dereham Road / Church Lane Roundabout	Agreed with Highways England to assess if construction traffic flows through the junction exceeded 30 vehicle movements during the network peak hour, or if construction flows plus base flows exceed the network peak hour flows. Staff arrivals and departures added to the base traffic flows between 06:00 and 07:00 and between 18:00 and 19:00 respectively do not exceed the network peak hours of 07:00-08:00 and 17:00-18:00 respectively.	This junction has not been assessed.
A47 / A140 Roundabout	Hourly construction HGV movements during the network peak hour do not exceed 30 vehicle movements through the junction. The sensitivity methodology assumes that approximately double the proportion of HGVs would originate from each of the entry points to the study area. This allows for day-to-day variances in traffic flows along highway corridors as the supply chain evolves through the construction process. In the context of some specific locations that are next to the cable corridor, this	This junction has not been assessed.
A47 / A11 Roundabout	results in an overestimate. This is because, in practice, an increase from one origin would be offset by a decrease from another origin, however, the sensitivity methodology takes no account for this. Given that the majority of construction traffic through this junction is associated with the adjacent sections of cable corridor and the substation, this is one such location where the sensitivity methodology results in an overestimate. The hourly construction traffic flows without the sensitivity methodology are therefore representative of the predicted vehicle movements through this junction. These do not exceed 30 vehicle movements per hour. d network meet the assessment criteria and therefore not been assessed.	This junction has not been assessed.