RESPONSE TO WSP LMVR REVIEW (Rev. A)

PROJECT: Peel Hall, Warrington

REVIEW DATE: 22 November 2017

REF.: APP/M0655/W/17/3178530

Land at Peel Hall, Warrington

Outline application for a new residential neighbourhood including C2 and C3 uses; local employment (B1 uses); local centre including food store up to 2,000m^2, A1-A5 (inclusive) and D1 use class units of up to 600m^2 total (with no single unit of more than 200m^2) and family restaurant/pub of up to 800m^2 (A3/A4 use); site for primary school; open space including sports pitches with ancilary facilities; means of access and supporting infrastructure at Peel Hall, Warrington.

Model Overview

1. How has the area of influence of the development site been determined?

   The area of influence of the development site was determined through our scoping meetings with WBC (19th January 2016 and updated following meeting 12th September 2016). See meeting minutes and modelling scope attached for reference.

Model Data

2. Has the 2008 OD data been uplifted to 2015 before matrix estimation was applied?

   It can be confirmed that the 2008 OD data has been uplifted to 2015.

3. The OD data that informed the 2008 model is from Roadside Interview surveys that are at least 10 years old. How did the 2008 model validate in this area and are the OD patterns logical? Can they be relied upon to represent OD movements in May 2015?

   The OD data was based on the 2008 VISUM model of Warrington, as this was agreed to be the most reliable data set available within the time-frame available. The planning application that is the subject of the appeal was validated in mid-2016 and 2015 was considered acceptable earlier this year; it would not be reasonable to update this now. Future years were agreed with WBC in March 2017 and HE confirmed in January 2017 that a year of opening assessment with all development traffic was unnecessary in this case. The current future years of 2025 and 2030 broadly align with what was previously discussed during 2016 in any event.

4. How was this information used? There is no further mention of site specific adjustments to the SATURN model. Base year queueing in the model is not reported on or discussed.

   The 2016 flow data and 2016 and 2017 observations were taken into account during validation and calibration of the model. It is agreed that this can be made clear in any further LMVR.

Model Development

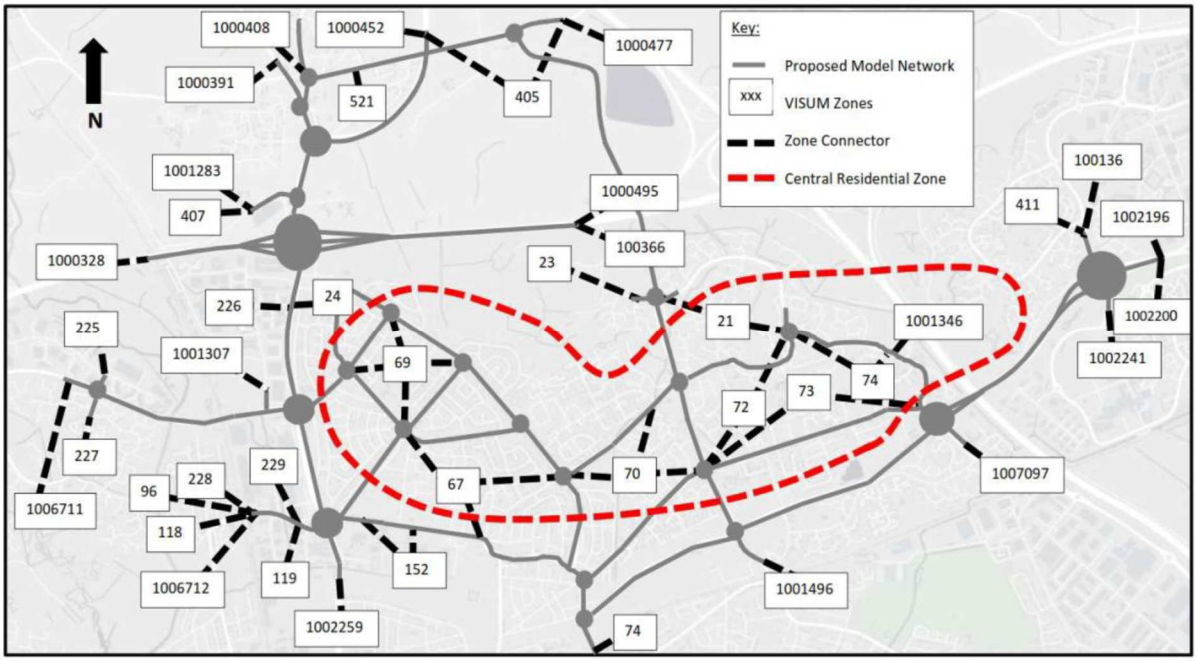
5. Confirmation that these are peak hour models and not one hour averages of the three hour data collection period?

   A two and half hour model period was developed for both the AM and PM model periods in VISSIM to ensure that VISSIM replicated the rise of fall of queueing across the network. Within that period, it was agreed that 0800–0900 and 1700–1800 would be reported upon. Within SATURN typically you model a single hour period and then report upon this. The SATURN model is intended to provide an assessment of the same data collected and used to inform the VISSIM assessment, which is a process that started in January 2016.

6. Provide updated zone plan showing the extent of disaggregation and loading points for trips? What is the final number of zones?

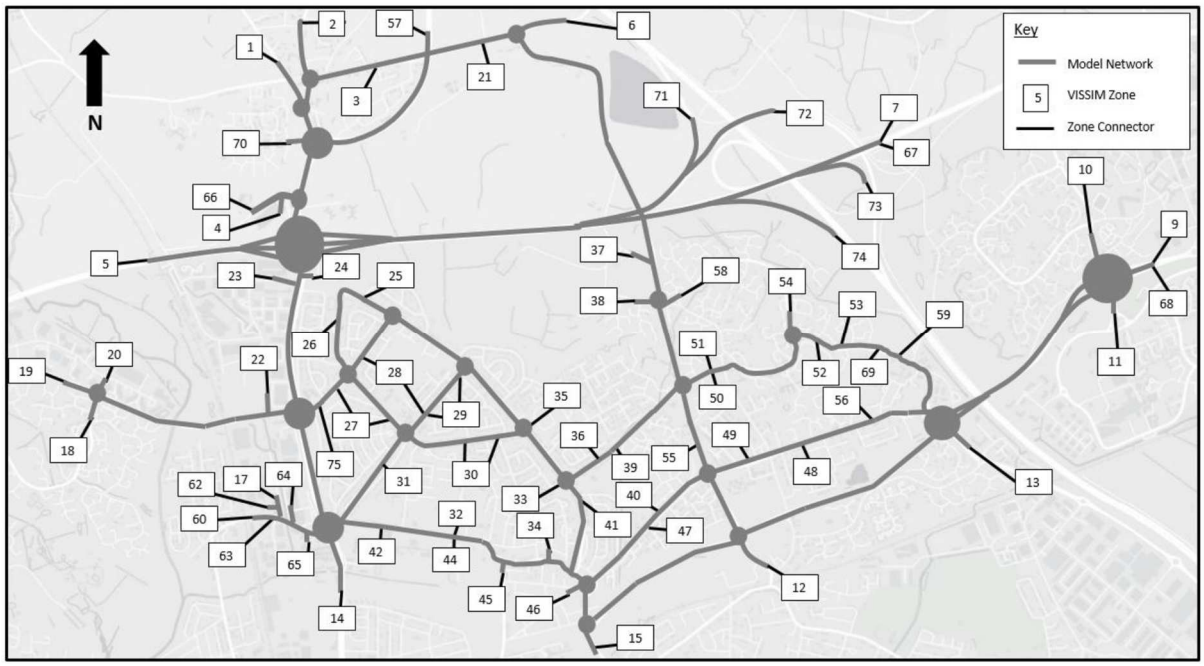
   The zone structure for the Warring Multi Modal Model (WMMM) is shown in Figure 1 below, as provided in the original supporting LMVR.

   Figure 1 – WMMM zone structure



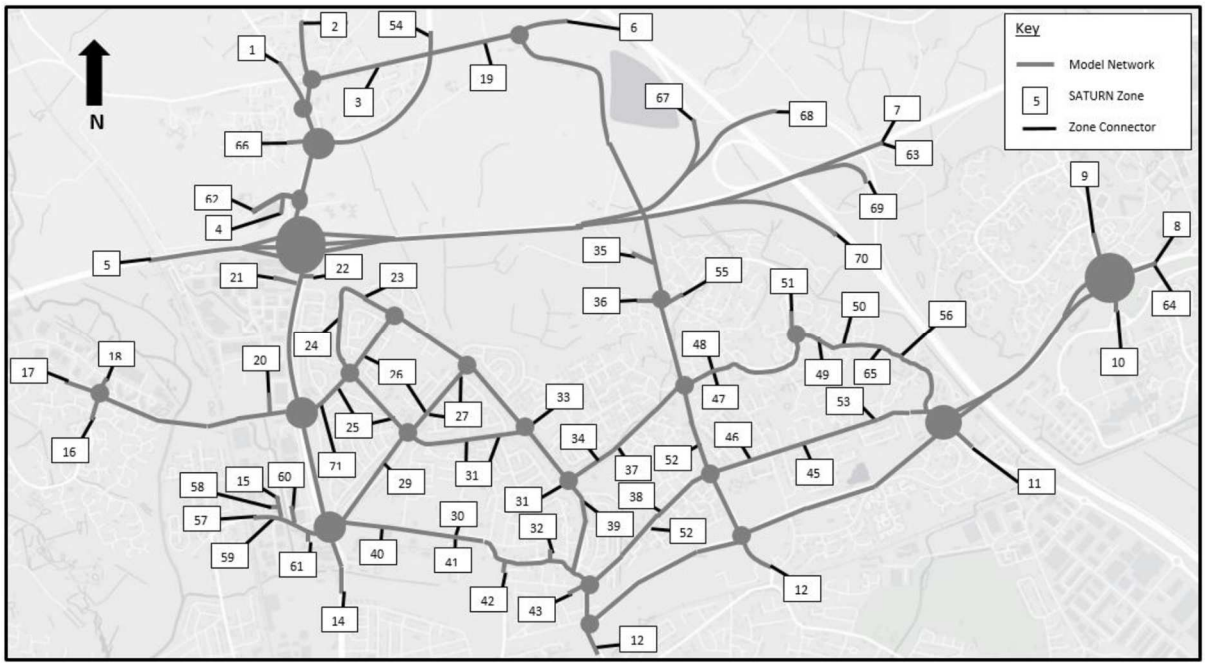
The zone structure, totalling 42 zones, of the WMMM presented in Figure 1, was disaggregated within the central residential zone, to provide a more suitable structure for loading points into the VISSIM model, originally developed for this assessment. The updated VISSIM zone structure including loading points is presented below in Figure 2 (see also Appendix 1).

Figure 2 – VISSIM model zone structure



The zone structure and number of zones remained the same at 71 when moving to SATURN, only the zone numbers changed. A plan of the SATURN zone structure is presented in Figure 3 below (see also at Appendix 2).

Figure 3 – SATURN model zone structure



7. Provide Prior and Post ME matrix integrity results – Prior and Post ME totals, R2, slope and intercept values – to ensure OD patterns remain consistent.

   Whilst these can be provided, it is considered unnecessary; the original VISUM model was built by WSP.

   It is acknowledged that a considerable volume of work was required to convert the matrices to VISSIM originally, and then into SATURN.

8. Why is DMRB quoted as guidance, should be looking to DfT TAG guidance?

   The guidance reference can be updated going forward; these are essentially the same standards.

Calibration and Validation

9. Technical Note TN/20 only details growth factors for 2015-2025 and 2015-2030? The dataset to be used should be NTEM v7.2 (available since March 2017) for car trips. LGV and HGV growth factors are typically derived from National Transport Model (NTM). State factors used and sources to adjust counts to a common year for all vehicle types.

   The growth calculations are as per previously agreed approach with WBC and were updated in May 2017 to reflect NTEM v7.2, which provided lower growth rates than v6.2. HTp/TN/07/Addendum (October 2016) provided an update on reducing background growth, further to the previously provided HTp/TN/07 dated May 2016 that set out the agreed strategy. It is understood that AECOM originally used v6.2 to growth the 2014 survey data to 2015.

10. Has any adjustment been made for seasonality?

    No additional adjustments were made for seasonality, as per previously agreed approach.

11. Provide comparison between modelled and observed turning movements at College Place roundabout.

    This will be provided going forward.

12. Were there any network issues that caused observed journey time EB in the AM peak on Birchwood Way to be higher than normal? How do other neutral periods compare?

    No network issues were reported for the journey times dated 12th, 13th, 14th, May 2015 as obtained from Basemap.co.uk.

    Since 2015 the Oakwood Gate roundabout has benefitted from signalisation of the eastbound approach and corresponding internal circulatory link. The implementation of traffic signals has significantly reduced queues on the A574 Birchwood Way in an eastbound direction and so comparison of the existing journey times with those in 2015 is not recommended. To provide a comparison of journey times for the eastbound route following the A574 Birchwood Road a number of week's data from 2015 and 2014 has been obtained from Basemap.co.uk. and summarised in Table 1 below.

    Table 1, Comparison of Eastbound Journey times for the A574 Birchwood Way

Year	Month	Date Range	Journey Time (Seconds)
2015	April	21st - 23rd	616
		28th - 30th	638
	May	5th - 7th	490
		12th - 14th	502
		18th - 21st	637
	September	8th - 10th	599
		15th - 17th	567
		22th - 24th	764
		29th - 1st	768
2014	May	13th - 15th	556

*Journey time used to Validate Model

Table 1 identifies that journey times along the A574 differ noticeably, depending upon the time of the year. Comparison of the same week in 2014 identifies the average journey time in the AM peak was approximately 10% higher than the journey time observed during 2015. The journey time data identifies a significant proportion of the delays to vehicles in an eastbound direction traveling along the A574 Birchwood Way are experienced at roundabouts along the route. The route is characterised by a number of roundabouts, so a small change in flows can have a significant impact upon the levels of delay at junctions.

The introduction of the new signals at Oakwood Gate regulate the flow of traffic in an eastbound direction, which has a significant impact on and can be attributed to a significant proportion of the journey times.

13. If the model needs to extend to Oakwood Gate then count data should be used to ensure that the flows at that junction are accurately represented.

    We are happy to consider removing the far eastern extents from a future version of the SATURN model; please confirm.

Other

14. Provide plots of base year flows, delays and queuing.

    Base year flows have been provided within the spreadsheets supplied as part of the validation exercise, and also as part of the comparison exercise with the future year flows. Plots of delays for the base year are provided below in Figures 4 to 7 (see also Appendix 3 and 4).

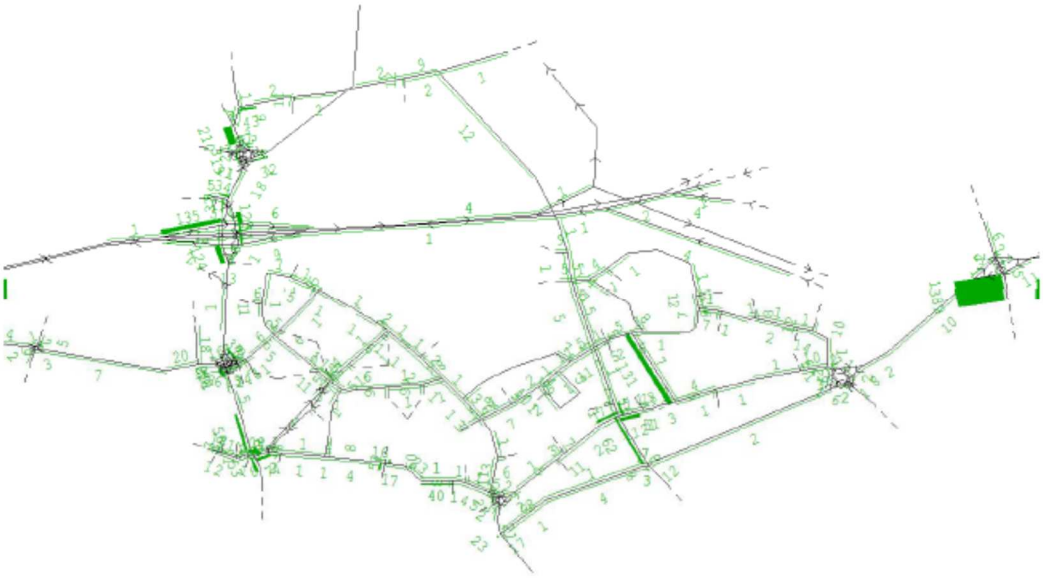
Base year Delay Plots

AM

Figure 4, AM Peak Period Delay Plots

PM

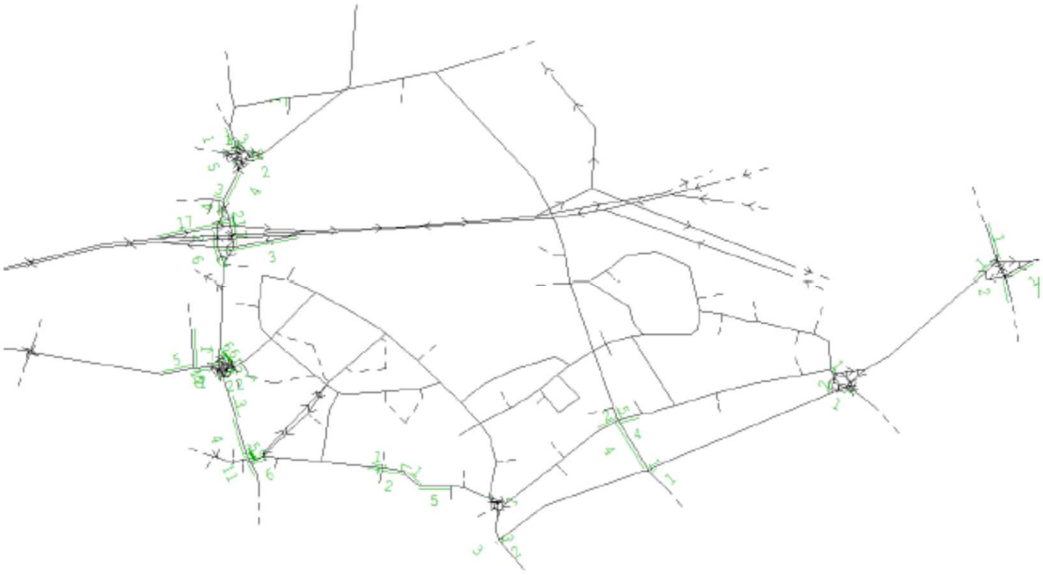
Figure 5, PM Peak Period Delay Plots



Base Year Queue Plots

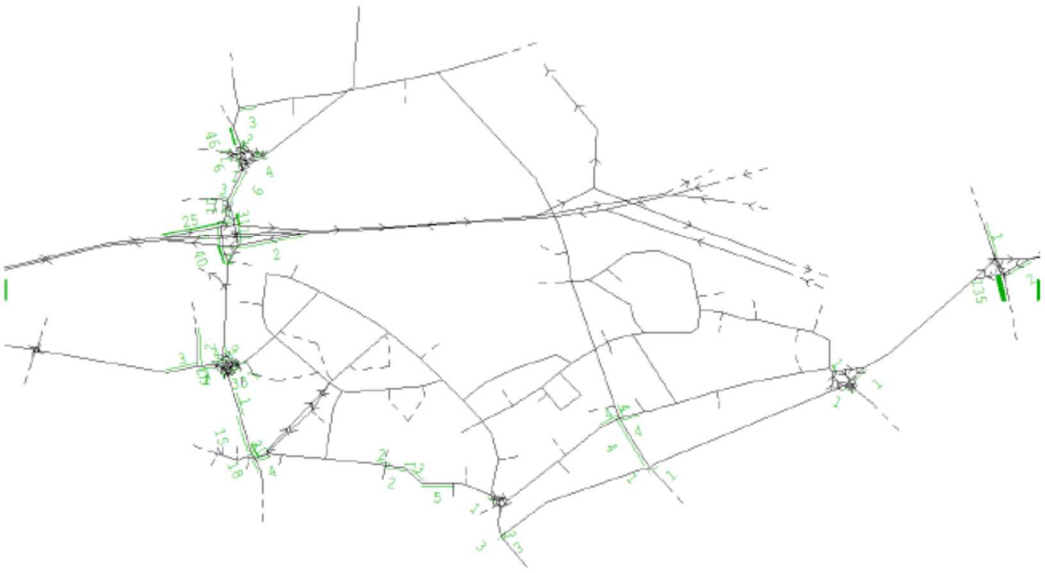
AM

Figure 6, AM Peak Base Year Period Average Queue Plots

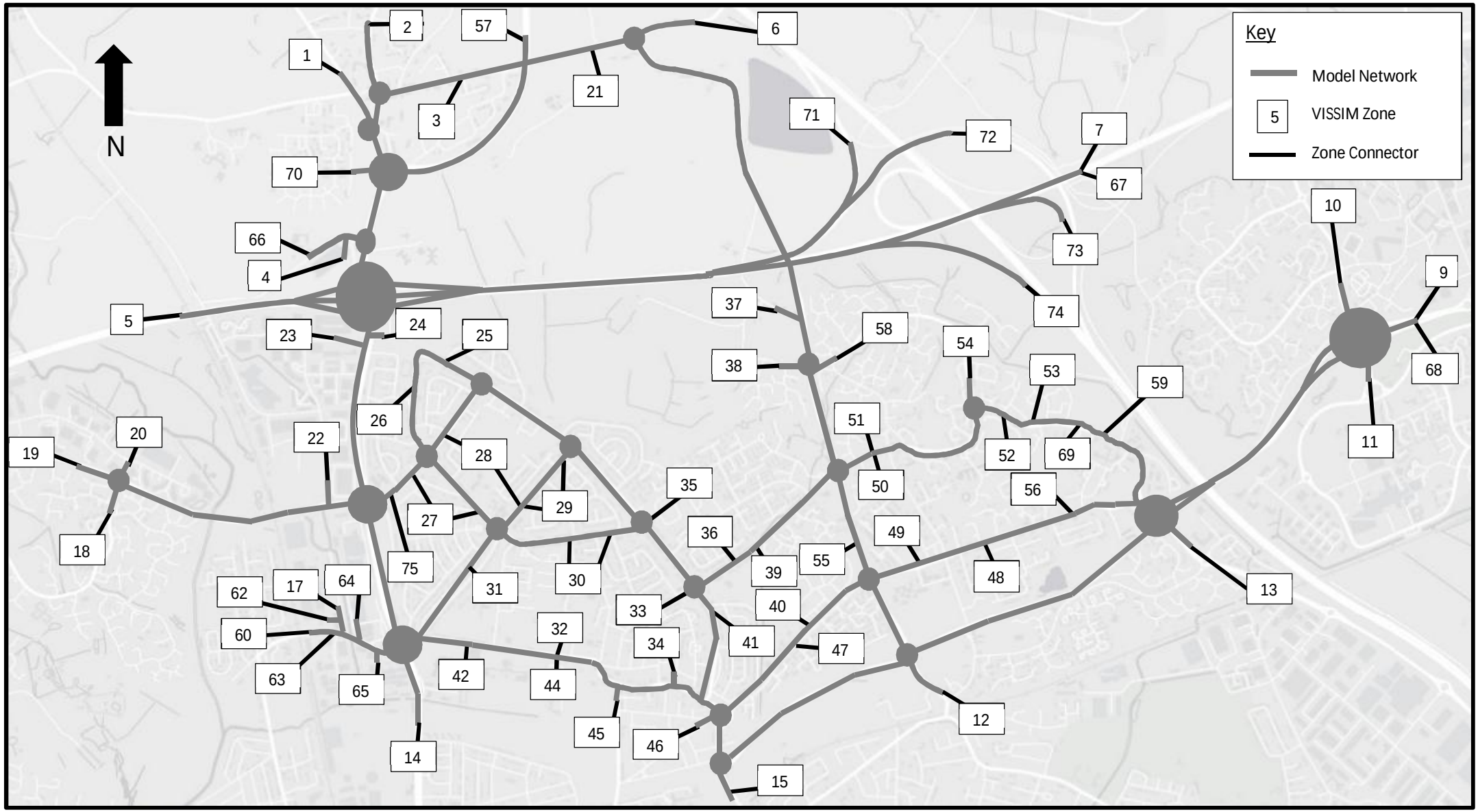


PM

Figure 7, PM Peak Base Year Period Average Queue Plots



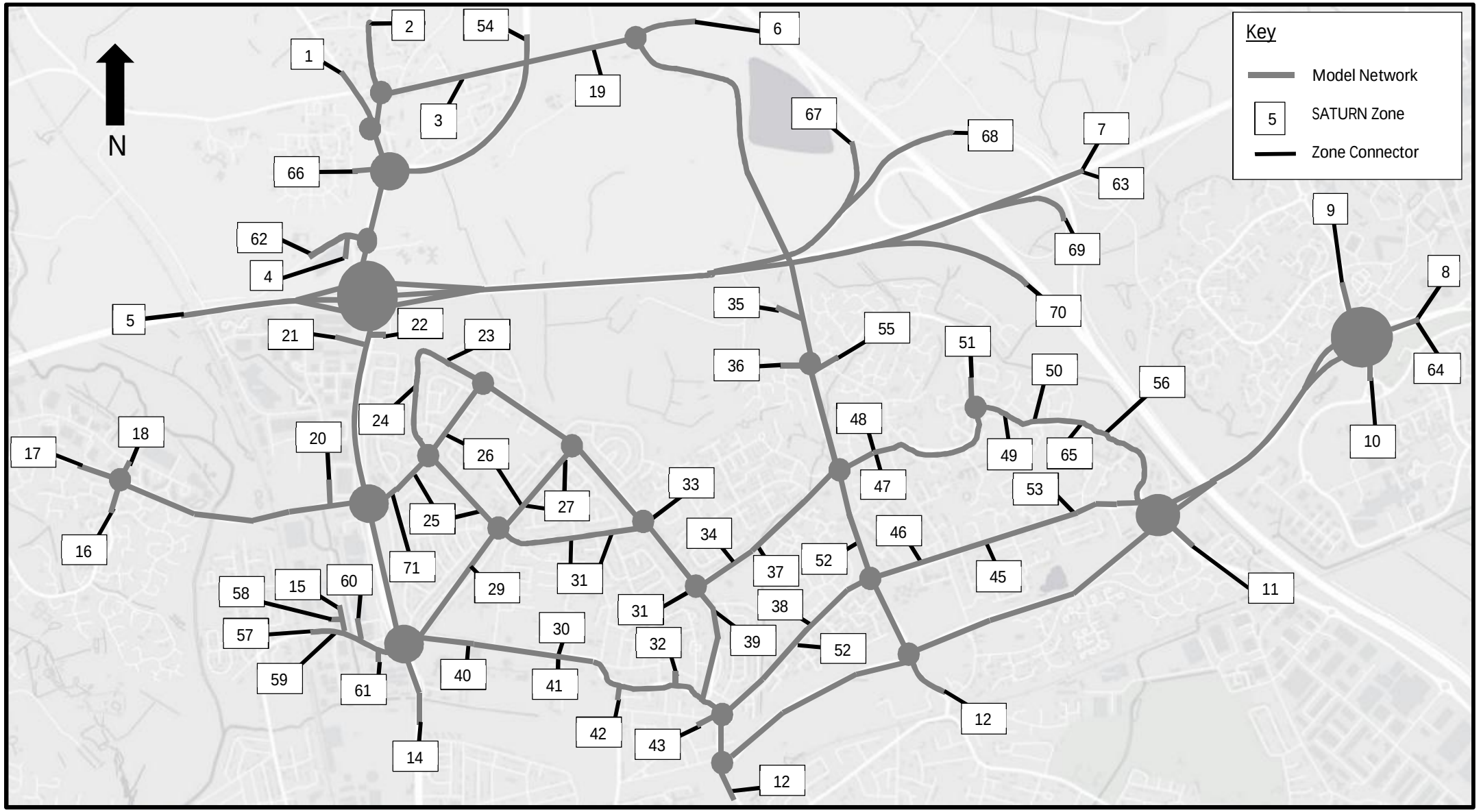
Appendix 1



Appendix A – VISSIM Zone Structure

AECOM

Appendix 2



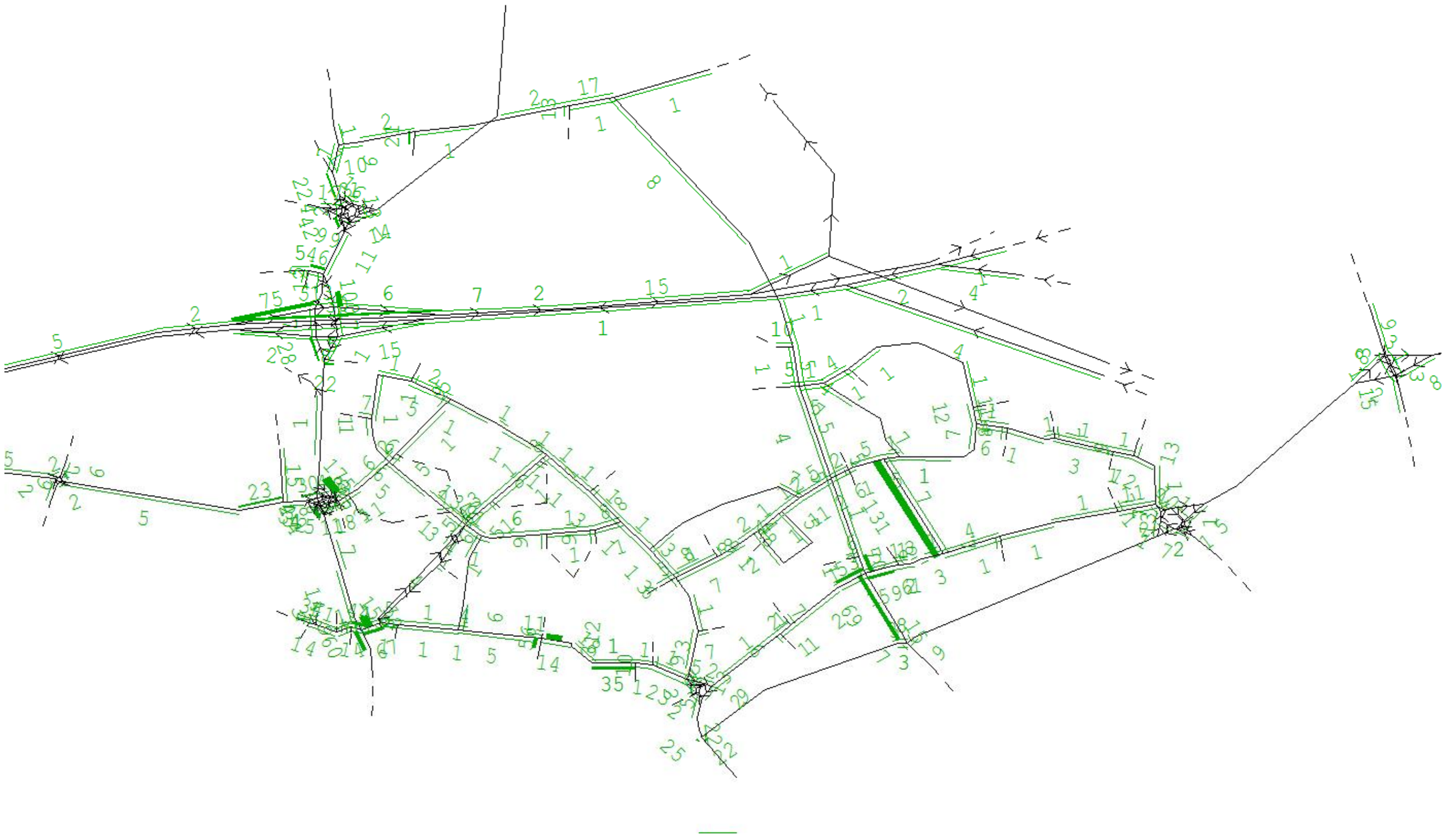
Appendix B – SATURN Zone Structure

AECOM

Appendix 3

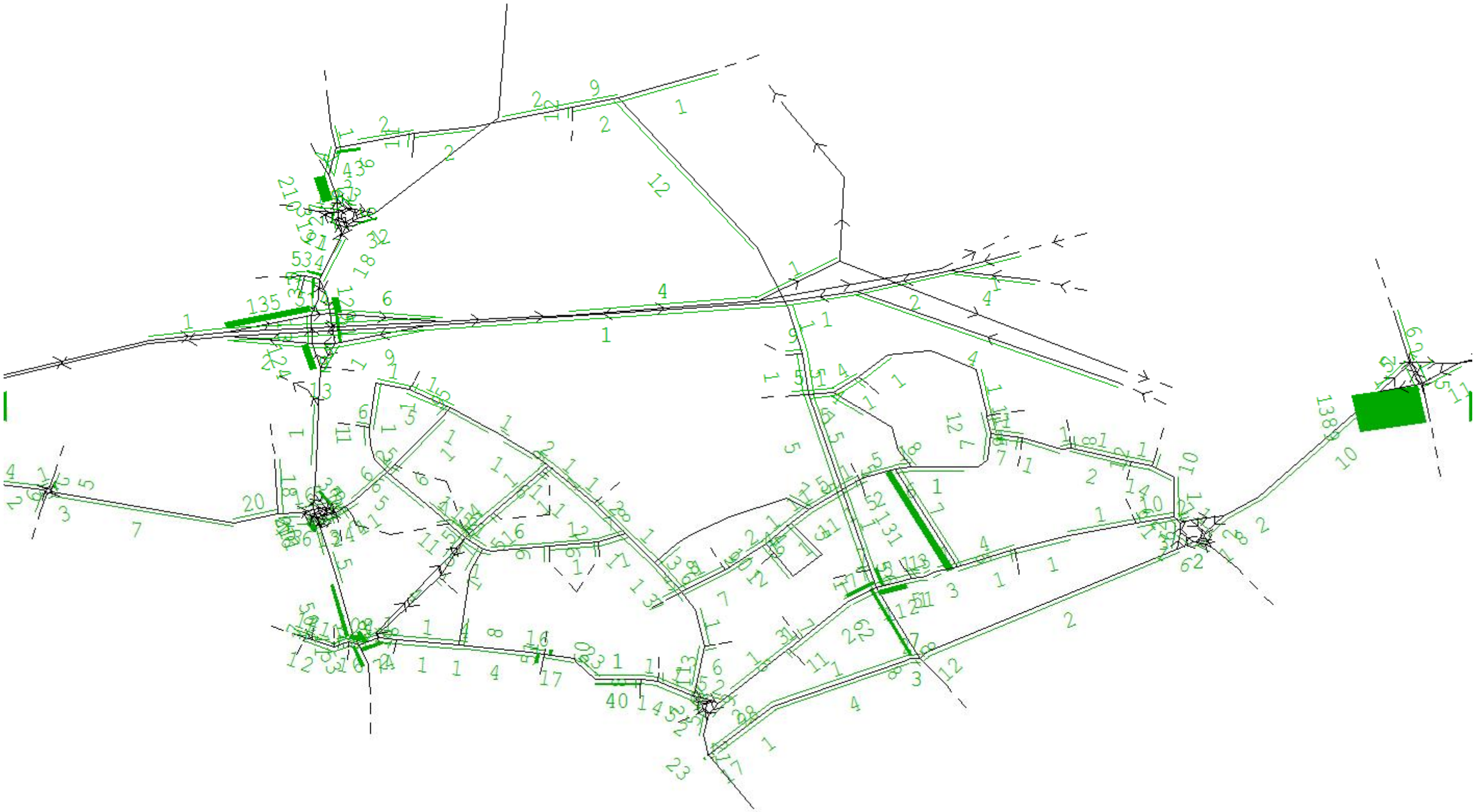
Project number: 60487959

AM Peak Period Total Delay Plot



Project number: 60487959

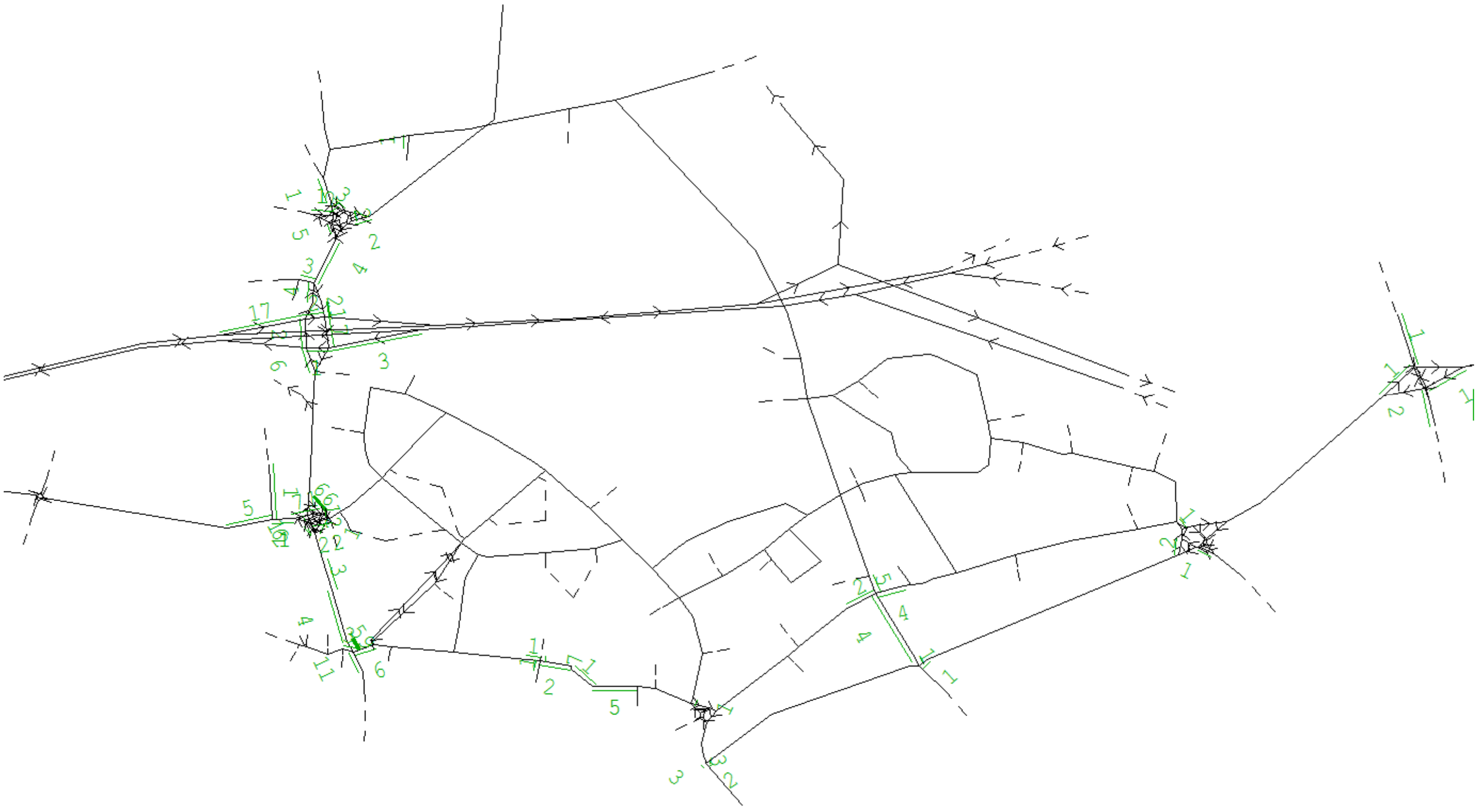
PM Peak Period Total Delay Plot



Appendix 4

Project number: 60487959

AM Peak Period Average Queue Plot



Project number: 60487959

PM Peak Period Average Queue Plot