

Appendix D

Southam Road, Banbury

Highway Impact Assessment Methodology

194663-95/N01

Introduction

1. Vectos has been commissioned by Lysander ('the Applicant') to provide highways and transport advice with respect to the proposed construction of a van storage facility on Southam Road, Banbury in the administrative boundary of Cherwell District Council (CDC).
2. The site is located approximately 1.5km south of the existing distribution centre to the west of Southam Road (A361).
3. The proposals have been brought forward to accommodate operational van storage associated with an existing last mile distribution centre to the east of Southam Road (A422). This arrangement will improve the existing operations to facilitate a reduction in overall journeys and improve the sustainability of the operation by encouraging more sustainable modes of transport. For example, the proposals will assist with drivers being able to commute by non-car modes of transport and will promote the use of car sharing. Therefore, the proposals are consistent with the principles of freight consolidation.
4. Access to the site will be achieved from the existing priority junction onto Southam Road which is shared with a neighbouring Waitrose Service vehicle entrance.
5. This Technical Note, which should be read in conjunction with the Transport Statement (TS) that has been prepared to support the application, outlines the methodology that has been followed to evaluate the impact of the scheme upon the Surrounding Highway Network.

Baseline Conditions

6. The local highway network is focused around Southam Road (A361 and A423) which provides access to both the van storage site and the existing distribution centre and Hennef Way (A422) which provides access to the strategic road network.
7. Access to the site will be achieved from the existing priority junction onto Southam Road which is shared with a neighbouring Waitrose service vehicle entrance.

Baseline Traffic Data

8. When assessing the impacts of uses that fall within, or are ancillary to, commercial use classes as is the case here, it is generally accepted that the critical periods in terms of traffic impact are the

weekday morning and evening peak hours. It is during these periods that traffic flows associated with the development, and those on the adjacent highway network are likely to be at their greatest.

9. Due to Covid-19 it has not been possible to undertake traffic surveys that accurately represent typical conditions on the local road network. Therefore, traffic flows have been obtained from the planning application 19/00128/HYBRID which contained BHM (SATURN model) flows which were developed by OCC in order to assess impact of allocations proposals as part of Cherwell District Council's (CDC) Local Plan for the year 2021.
10. To be robust this base data has been used which includes all committed developments up to 2021. As the existing last-mile distribution centre is in use it is assumed that these flows are already on the network in this base year. It should be noted that the base SATURN model includes HS2 related construction traffic which was the approach used in the year 2021 within application 19/00128/HYBRID and approved by OCC.
11. An additional sensitivity test has been undertaken which excludes additional flows in relation to HS2 construction related vehicles in the base flows. As HS2 will not form a permanent impact upon the highway network.
12. It should also be noted that for the purposes of this assessment, the impact of the proposed development has considered the following three-hour periods in the morning and evening peaks:
 - Morning – 07:00 to 10:00
 - Evening – 16:00 to 19:00

Traffic Growth

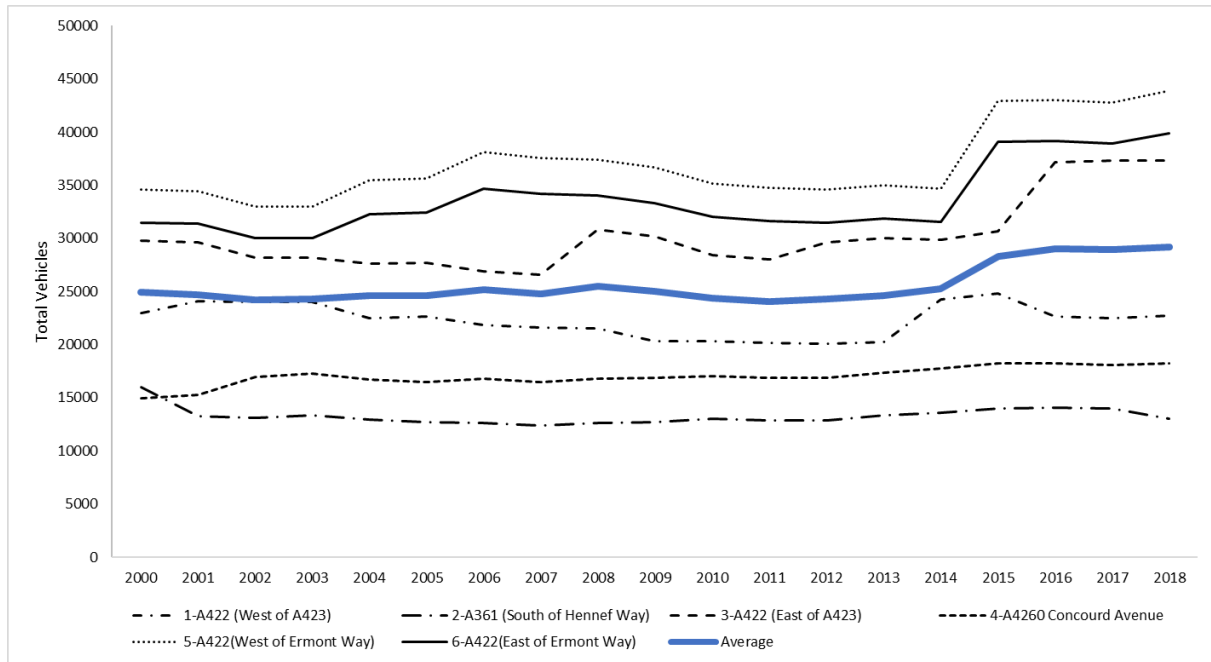
13. It should be noted that the 2021 base flows extracted from the BHM have been compared with 2011 traffic counts obtained from the application for Southam Road Retail Park (App ref: 12/00329/OUT). The purpose of this exercise was to identify the growth rates that have been used within the BHM. A summary of the results is provided below.

Table 1: Base Flow Growth Comparison

| Junction | | 2011 | | 2021(SATURN) | | % Increase | |
|----------|-----------------------------------|------|------|--------------|------|------------|-----|
| | | AM | PM | AM | PM | AM | PM |
| B | Hennef Way/ Southam Road | 3909 | 4211 | 5088 | 4760 | 30% | 13% |
| C | Hennef Way/ Concorn Avenue | 4258 | 4333 | 6146 | 5576 | 44% | 29% |
| D | Hennef Way/ Wildmere Road | 5030 | 4855 | 7231 | 6638 | 44% | 37% |

14. A comparison of how traffic flows held by the DfT have changed over the course of the same period has also been undertaken. The calculations are provided at **Annex A**, with a summary of the results provided below at **Figure 1**.

Figure 1: DfT Traffic AADT Counts



15. **Figure 1** shows that over the last 20 years traffic flows have remained relatively static with a slight increase between 2014 and 2015. As such it is considered that the increase in traffic flows in the 2021 SATURN model, as identified at **Table 1**, are likely to overestimate the increases that have occurred in practice.
16. Therefore, the assessment undertaken in this Technical Note is considered to be robust and based upon a potentially worst-case scenario. This is particularly evident given it is expected that there will be changes in vehicle trips as a result of the COVID-19 pandemic, and the recently published TRICS report indicating historic use of trip rates has overestimated increases in traffic attributed to proposed developments, such as those taken to be committed developments in the BHM.

Traffic Generation and Traffic Distribution

Traffic Generation

17. For the purposes of this assessment, a first principles approach has been taken to trip generation. As set out in TS submitted as part of the planning application, this has regard to journey to work statistics for the local area and the number of storage bays that will be provided on the site.
18. A summary of the trip generation during the morning and evening peak hour periods has been provided in **Table 2**.

Table 2: Van Storage Trip Generation

| Time | Arrive | Depart | Two-way |
|---------------|--------|--------|---------|
| 07:00 – 08:00 | 101 | 149 | 250 |
| 08:00 – 09:00 | 33 | 49 | 82 |
| 09:00 – 10:00 | 0 | 0 | 0 |
| 16:00 – 17:00 | 150 | 102 | 252 |
| 17:00 – 18:00 | 150 | 102 | 252 |
| 18:00 – 19:00 | 148 | 101 | 249 |

19. **Table 2** demonstrates that the proposed development has the potential to generate a maximum of up to 250 (07:00 – 08:00) two-way trips morning peak hour and 252 (17:00 – 18:00) two-way trips during the evening peak hour.
20. As stated in the TS, it is important to recognise that the proposed development does not include any amendments to the floor area of the distribution centre that the van storage spaces will serve. Equally, they do not increase the throughput of parcels therefrom.
21. Given that these points are the main parameters that dictate trip generation, the proposals will not increase vehicle trips associated with the operations of the intended user.
22. As outlined in the TS, the proposals will, in effect, result in a redistribution of existing vehicle movements rather than generate new trips in their own right.

Trip Characteristics

23. The existing trips associated with the distribution centre typically comprise:
 - Morning Peak
 - Workers travelling in, in vans, and picking up produce; and
 - Vans going out on deliveries.
 - Evening Peak
 - 20% of vans coming back from deliveries to return undelivered items; and
 - 20% of employees travelling home from the distribution centre.
24. It should be noted here that 80% of the existing delivery drivers will travel directly home from their deliveries and not return to the distribution centre.
25. For the purpose of this assessment, it has been assumed that trips to and from the site will comprise:
 - Morning Peak

- Workers travelling in and picking up vans; and
- Vans going out on deliveries.
- Evening Peak
 - 80% of vans returning to drop off their vans;
 - 20% of vans coming back from deliveries to return undelivered items and then returning to drop off their vans; and
 - 100% of workers travelling home from the van storage area.

Distribution

26. There are three distributions that have been used to inform the overall distribution. These comprise:
 - Inter-site Travel (Figure 4.1 in the TS);
 - Journey to Work (**Table 3**); and
 - Van Delivery (**Table 3**).
27. Figure 4.1 of the TS has been used to inform the inter-site travel distribution between the existing distribution centre and the proposed van storage.
28. The journey to work distribution has been calculated by using the 2011 'Location of Usual Residence and Place of Work' Census data from www.nomisweb.co.uk (supplied by the Office of National Statistics). The place of work was selected as Cherwell 003 Middle Super Output Area (MSOA). Places of residences which contributed to less than 7 trips of people travelling to work were excluded.
29. When establishing the distribution of delivery vans from the distribution centre, reference has been made to its catchment area. This in turn has been input into a gravity model, which has regard to population sizes of the residential areas contained within the catchment area.
30. Having regard to the results of the 2011 Census interrogation for journey to work trips (see **Annex B**) and the outcome of the gravity model for delivery trips (see **Annex C**), a route assignment assessment was undertaken to calculate the main routes that would be used to and from the site. This exercise was completed by identifying the most likely, quickest and/ or the most direct route using google maps.
31. The resultant Journey to work and Van Delivery distributions are presented on the flow diagrams provided at **Annex D**, and summarised in **Table 3** below.

Table 3 – Distributions

| Network Exit / Entry | Journey to Work | Van Delivery |
|-------------------------|-----------------|--------------|
| 1 - Southam Road (A423) | 2% | 14% |
| 2 - Dukes Meadow Drive | 4% | 3% |
| 3 - A422 Ruscote Avenue | 21% | 4% |
| 4 - A422 Hennef Way | 54% | 67% |
| 5 - Southam Road (A361) | 19% | 12% |

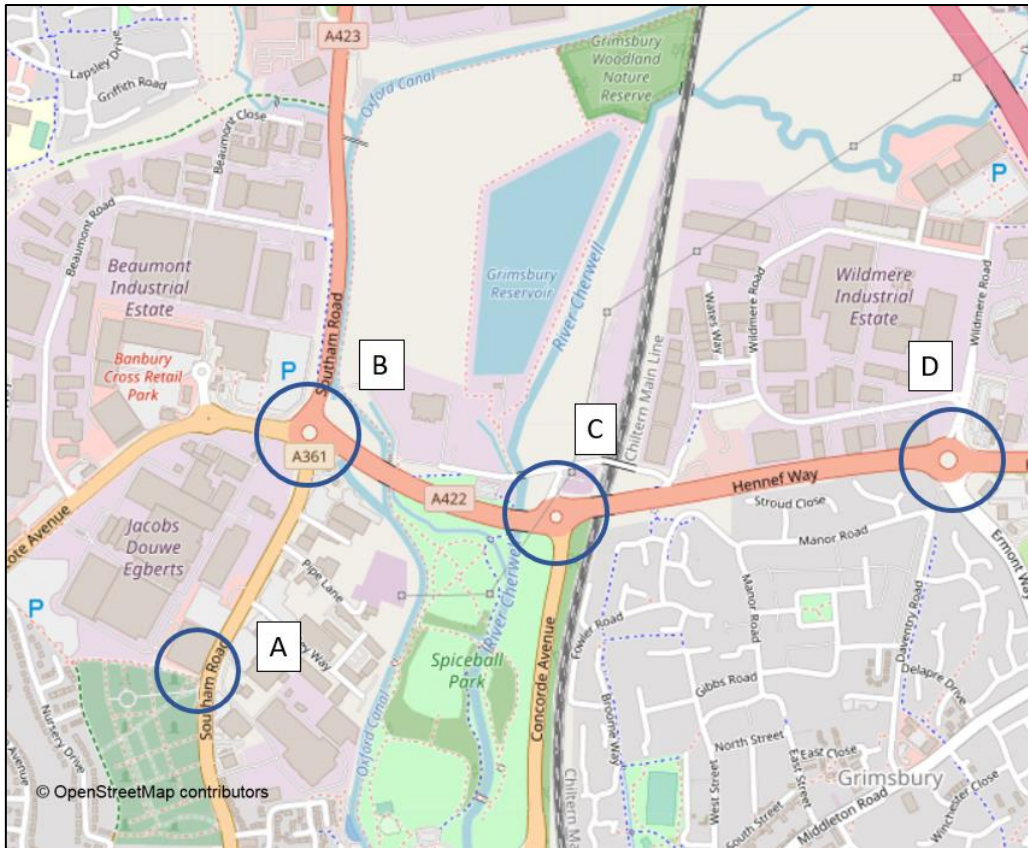
Highway Impact Assessment Scenarios

32. For the purposes of this assessment, the junctions have been assessed using the following scenarios:
 - ‘2021 Without Development’
 - ‘2021 With Development’
 - ‘2021 With Development (Sensitivity)’
33. When establishing the ‘without development’ flows no changes have been made to the 2021 data obtained from the planning application 19/00128/HYBRID.
34. When establishing the ‘with development’ flows it has been necessary to:
 - Minus the existing vans on the network;
 - Add the re-distributed vans on the network; and
 - Minus the extant consented trips at the site.
35. When establishing the ‘with development (sensitivity)’ flows it has been necessary to:
 - Undertake the same as above; and
 - Remove the HS2 flows.
36. Traffic flow diagrams for the respective scenarios are provided at **Annex D**.

Modelling Methodology

37. An assessment was undertaken on the local road network to determine the level of impact the redistribution of trips caused by the proposed development would have on each junction within the study area in **Figure 2** below.

Figure 2: Highway Network Study Area



38. The junctions identified above have been modelled using the industry standard modelling software Junctions 9, which includes the current version of ARCADY and PICADY. ARCADY and PICADY, which are produced by the Transport Research Laboratory (TRL), express the relationship between traffic flow and capacity of priority junctions as a ratio, referred to as the Ratio of Flow to Capacity (RFC). Based upon these results it also predicts the anticipated queue lengths (Q) and delays that are likely to occur at the junction. The results of the modelling assessment are contained in **Annex E**.
39. Having regard to the traffic flow diagrams presented at **Annex D**, the traffic impact at each junction during the peak periods, including the shoulder peak hours, is presented below in **Tables 4 and 5**, respectively.

Table 4: Morning Peak Traffic Net Impact

| Junction | | 07:00 - 08:00 | 08:00 - 09:00 | 09:00 - 10:00 |
|----------|------------------------------------|---------------|---------------|---------------|
| A | Site Access | 174 | 28 | -37 |
| B | Hennef Way/ Southam Road | 102 | 16 | -22 |
| C | Hennef Way/ Concourn Avenue | -10 | -9 | -7 |
| D | Hennef Way/ Wildmere Road | -10 | -9 | -7 |

Table 5: Evening Peak Traffic Net Impact

| Junction | | 16:00 - 17:00 | 17:00 - 18:00 | 18:00 - 19:00 |
|----------|------------------------------------|---------------|---------------|---------------|
| A | Site Access | 183 | 208 | 229 |
| B | Hennef Way/ Southam Road | 160 | 175 | 187 |
| C | Hennef Way/ Concourn Avenue | 113 | 117 | 120 |
| D | Hennef Way/ Wildmere Road | 113 | 117 | 120 |

- 40. It is evident from **Table 4** that the proposed development would only lead to an increase in movements in the morning peak period on junctions A and B with a reduction in total movements on junctions C and D.
- 41. **Table 5** indicates that in the evening peak all junctions will see an increase of movements.
- 42. As such, the development impact in the morning peak has only been assessed for junctions A and B only, but the evening peak period has been assessed at all junctions.

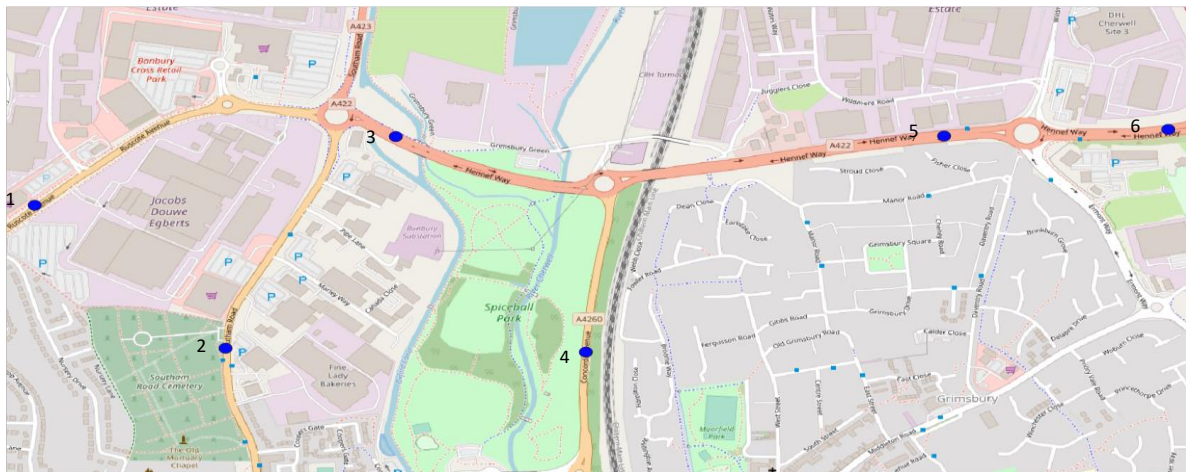
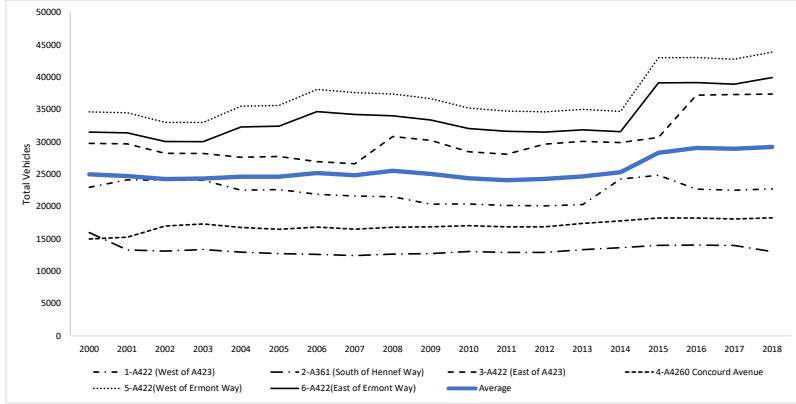
Modelling Results

- 43. The full Junctions 9 reports for the assessment junctions are provided at **Annex E** with summaries of the key results provided at **Annex F**. It should be noted that the results demonstrate:
 - there is sufficient residual capacity at the existing access junction to accommodate traffic associated with the proposed development.
 - the proposed development will not have a residual cumulative impact at the junctions that comprise the study, particularly when discounting the temporary effects of HS2 and recognising the worst-case methodology that has been adopted.
- 44. It is therefore concluded that the proposed development is acceptable in highways and transportation terms. This is as to be expected given that the proposed development will be ancillary to an existing use and will thus, largely, result in a redistribution of traffic at the local level.

Annex A

DfT Traffic Counts in Banbury

| Count Point | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------|-----------------------|------------------------------|-----------------------|------------------------|----------------------------|----------------------------|---------|
| Year | 1-A422 (West of A423) | 2-A361 (South of Hennef Way) | 3-A422 (East of A423) | 4-A4260 Concord Avenue | 5-A422(West of Ermont Way) | 6-A422(East of Ermont Way) | Average |
| 2000 | 22553 | 16421 | 29318 | 15374 | 35480 | 32288 | 25239 |
| 2001 | 22942 | 15958 | 29746 | 14965 | 34604 | 31491 | 24951 |
| 2002 | 24104 | 13282 | 29657 | 15243 | 34460 | 31358 | 24684 |
| 2003 | 24049 | 13090 | 28201 | 16961 | 32986 | 30018 | 24218 |
| 2004 | 24045 | 13345 | 28178 | 17296 | 32977 | 30008 | 24308 |
| 2005 | 22510 | 12938 | 27593 | 16751 | 35477 | 32285 | 24592 |
| 2006 | 22615 | 12708 | 27722 | 16462 | 35611 | 32407 | 24588 |
| 2007 | 21879 | 12593 | 26918 | 16797 | 38084 | 34659 | 25155 |
| 2008 | 21608 | 12402 | 26588 | 16488 | 37586 | 34204 | 24813 |
| 2009 | 21496 | 12622 | 30797 | 16780 | 37367 | 34005 | 25511 |
| 2010 | 20361 | 12715 | 30206 | 16856 | 36648 | 33348 | 25022 |
| 2011 | 20365 | 13039 | 28449 | 17031 | 35196 | 32027 | 24351 |
| 2012 | 20160 | 12895 | 28060 | 16850 | 34726 | 31601 | 24049 |
| 2013 | 20088 | 12893 | 29626 | 16839 | 34601 | 31487 | 24256 |
| 2014 | 20280 | 13314 | 30053 | 17367 | 34990 | 31841 | 24641 |
| 2015 | 24234 | 13615 | 29858 | 17754 | 34662 | 31543 | 25278 |
| 2016 | 24814 | 13990 | 30651 | 18203 | 42955 | 39089 | 28284 |
| 2017 | 22673 | 14035 | 37176 | 18201 | 42998 | 39128 | 29035 |
| 2018 | 22506 | 13957 | 37291 | 18064 | 42736 | 38890 | 28907 |
| 2019 | 22715 | 13005 | 37358 | 18237 | 43861 | 39913 | 29182 |



Annex B

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

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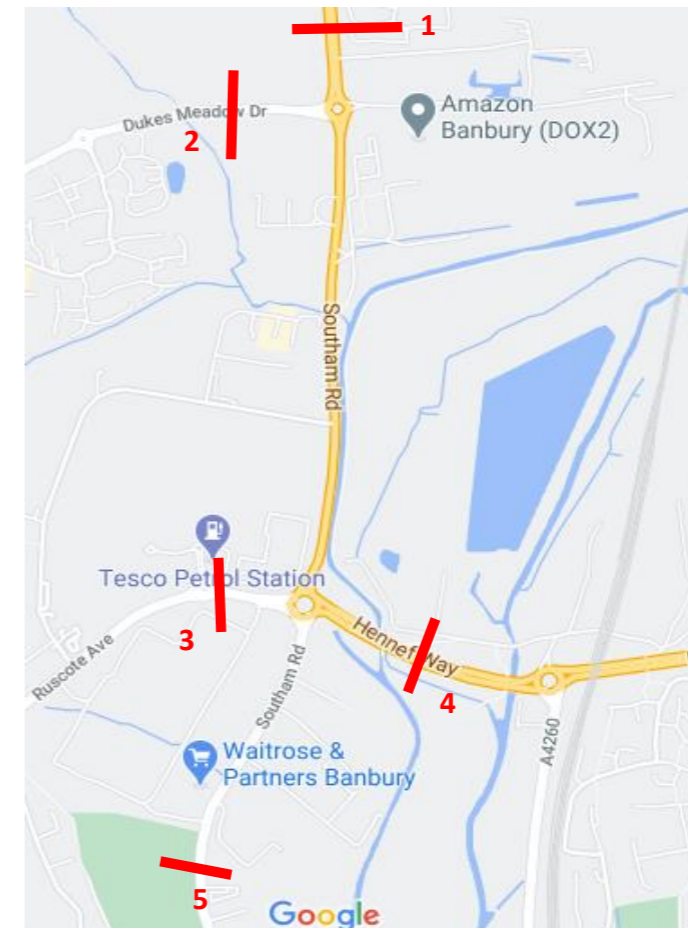
population All usual residents aged 16 and over in employment the week before the census
 units Persons
 date 2011
 place of work E02005923 : Cherwell 003 (2011 super output area - middle layer)

| usual residence | All categories: Method of travel to work (2001 specification) | Work mainly at or from home | Underground, metro, light rail or tram | Train | Bus, minibus or coach | Taxi | Motorcycle, scooter or moped | Driving a car or van | Passenger in a car or van | Bicycle | On foot | Other method of travel to work |
|--------------------------|--|--------------------------------|--|-------|--------------------------|------|------------------------------------|-------------------------|------------------------------|---------|---------|--------------------------------------|
| E02005921 : Cherwell 001 | 130 | 0 | 0 | 0 | 0 | 1 | 1 | 109 | 11 | 5 | 3 | 0 |
| E02005922 : Cherwell 002 | 604 | 0 | 0 | 2 | 6 | 3 | 3 | 341 | 30 | 43 | 175 | 1 |
| E02005923 : Cherwell 003 | 374 | 0 | 0 | 0 | 2 | 4 | 5 | 143 | 24 | 22 | 170 | 4 |
| E02005924 : Cherwell 004 | 515 | 0 | 0 | 1 | 9 | 7 | 5 | 279 | 30 | 52 | 130 | 2 |
| E02005925 : Cherwell 005 | 507 | 0 | 0 | 0 | 4 | 8 | 9 | 282 | 45 | 37 | 121 | 1 |
| E02005926 : Cherwell 006 | 292 | 0 | 0 | 0 | 1 | 3 | 3 | 185 | 34 | 15 | 47 | 4 |
| E02005927 : Cherwell 007 | 198 | 0 | 0 | 0 | 4 | 3 | 2 | 136 | 11 | 23 | 18 | 1 |
| E02005928 : Cherwell 008 | 147 | 0 | 0 | 0 | 4 | 1 | 2 | 123 | 7 | 7 | 3 | 0 |
| E02005929 : Cherwell 009 | 101 | 0 | 0 | 1 | 2 | 1 | 2 | 85 | 4 | 6 | 0 | 0 |
| E02005930 : Cherwell 010 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 4 | 0 | 0 | 0 |
| E02005931 : Cherwell 011 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 5 | 0 | 3 | 0 |
| E02005932 : Cherwell 012 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 1 | 0 |
| E02005933 : Cherwell 013 | 37 | 0 | 0 | 2 | 1 | 1 | 0 | 22 | 4 | 1 | 6 | 0 |
| E02005934 : Cherwell 014 | 24 | 0 | 0 | 1 | 1 | 0 | 0 | 20 | 1 | 1 | 0 | 0 |
| E02005935 : Cherwell 015 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 1 | 1 | 1 | 0 |
| E02005936 : Cherwell 016 | 25 | 0 | 0 | 0 | 2 | 0 | 0 | 21 | 0 | 1 | 1 | 0 |
| E02005937 : Cherwell 017 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 2 | 0 |
| E02005939 : Cherwell 019 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 |
| Aylesbury Vale | 22 | 0 | 0 | 0 | 0 | 0 | 1 | 21 | 0 | 0 | 0 | 0 |
| Milton Keynes | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 |
| Oxford | 69 | 0 | 0 | 6 | 2 | 0 | 1 | 23 | 0 | 18 | 19 | 0 |
| South Oxfordshire | 15 | 0 | 0 | 0 | 0 | 0 | 1 | 14 | 0 | 0 | 0 | 0 |
| Vale of White Horse | 26 | 0 | 0 | 0 | 7 | 0 | 0 | 14 | 0 | 3 | 2 | 0 |
| West Oxfordshire | 78 | 0 | 0 | 0 | 3 | 0 | 0 | 74 | 0 | 1 | 0 | 0 |
| Wycombe | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 |
| East | 35 | 0 | 0 | 0 | 1 | 0 | 0 | 34 | 0 | 0 | 0 | 0 |
| East Midlands | 672 | 0 | 0 | 1 | 8 | 1 | 4 | 598 | 41 | 10 | 7 | 2 |
| London | 38 | 0 | 3 | 15 | 1 | 0 | 0 | 19 | 0 | 0 | 0 | 0 |
| North East | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| North West | 21 | 0 | 0 | 0 | 2 | 0 | 0 | 16 | 0 | 0 | 3 | 0 |
| South West | 24 | 0 | 0 | 0 | 0 | 0 | 1 | 20 | 3 | 0 | 0 | 0 |
| Wales | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| West Midlands | 420 | 0 | 0 | 21 | 7 | 3 | 5 | 359 | 17 | 2 | 5 | 1 |
| Yorkshire and The Humber | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 1 | 0 |

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

| Destination | Total | | Proportion per Route | By Route | | Network Exit |
|--------------------------|-------------------|--------------------|----------------------|-------------------|-------------------------|--------------|
| | Proportion by Car | Driving Car or Van | | Proportion by Car | | |
| E02005921 : Cherwell 001 | 4% | 109 | 50% | 2% | 1 - Southam Road (A423) | |
| | | | 25% | 1% | 5 - Southam Road (A361) | |
| | | | 25% | 1% | 4 - A422 Hennef Way | |
| E02005922 : Cherwell 002 | 11% | 341 | 60% | 7% | 3 - A422 Ruscote Avenue | |
| | | | 40% | 4% | 2 - Dukes Meadow Drive | |
| E02005923 : Cherwell 003 | 5% | 143 | 60% | 3% | 3 - A422 Ruscote Avenue | |
| | | | 20% | 1% | 4 - A422 Hennef Way | |
| | | | 20% | 1% | 5 - Southam Road (A361) | |
| E02005924 : Cherwell 004 | 9% | 279 | 70% | 6% | 4 - A422 Hennef Way | |
| | | | 30% | 3% | 5 - Southam Road (A361) | |
| E02005925 : Cherwell 005 | 9% | 282 | 70% | 6% | 3 - A422 Ruscote Avenue | |
| | | | 20% | 2% | 5 - Southam Road (A361) | |
| | | | 10% | 1% | 4 - A422 Hennef Way | |
| E02005926 : Cherwell 006 | 6% | 185 | 70% | 4% | 5 - Southam Road (A361) | |
| | | | 20% | 1% | 4 - A422 Hennef Way | |
| | | | 10% | 1% | 3 - A422 Ruscote Avenue | |
| E02005927 : Cherwell 007 | 4% | 136 | 50% | 2% | 4 - A422 Hennef Way | |
| | | | 50% | 2% | 5 - Southam Road (A361) | |
| E02005928 : Cherwell 008 | 4% | 123 | 60% | 2% | 3 - A422 Ruscote Avenue | |
| | | | 30% | 1% | 5 - Southam Road (A361) | |
| | | | 10% | 0% | 4 - A422 Hennef Way | |
| E02005929 : Cherwell 009 | 3% | 85 | 70% | 2% | 3 - A422 Ruscote Avenue | |
| | | | 30% | 1% | 5 - Southam Road (A361) | |
| E02005930 : Cherwell 010 | 2% | 53 | 100% | 2% | 5 - Southam Road (A361) | |
| E02005931 : Cherwell 011 | 0% | 12 | 100% | 0% | 4 - A422 Hennef Way | |
| E02005932 : Cherwell 012 | 0% | 9 | 90% | 0% | 4 - A422 Hennef Way | |
| | | | 10% | 0% | 5 - Southam Road (A361) | |
| E02005933 : Cherwell 013 | 1% | 22 | 100% | 1% | 4 - A422 Hennef Way | |
| E02005934 : Cherwell 014 | 1% | 20 | 100% | 1% | 4 - A422 Hennef Way | |
| E02005935 : Cherwell 015 | 0% | 7 | 100% | 0% | 4 - A422 Hennef Way | |
| E02005936 : Cherwell 016 | 1% | 21 | 50% | 0% | 4 - A422 Hennef Way | |
| | | | 50% | 0% | 5 - Southam Road (A361) | |
| E02005937 : Cherwell 017 | 0% | 4 | 80% | 0% | 4 - A422 Hennef Way | |
| | | | 20% | 0% | 5 - Southam Road (A361) | |
| E02005939 : Cherwell 019 | 0% | 6 | 80% | 0% | 4 - A422 Hennef Way | |
| | | | 20% | 0% | 5 - Southam Road (A361) | |
| Aylesbury Vale | 1% | 21 | 100% | 1% | 4 - A422 Hennef Way | |
| Milton Keynes | 1% | 16 | 100% | 1% | 4 - A422 Hennef Way | |
| Oxford | 1% | 23 | 100% | 1% | 4 - A422 Hennef Way | |
| South Oxfordshire | 0% | 14 | 100% | 0% | 4 - A422 Hennef Way | |
| Vale of White Horse | 0% | 14 | 80% | 0% | 4 - A422 Hennef Way | |
| | | | 20% | 0% | 5 - Southam Road (A361) | |
| West Oxfordshire | 2% | 74 | 80% | 2% | 5 - Southam Road (A361) | |
| | | | 20% | 0% | 4 - A422 Hennef Way | |
| Wycombe | 0% | 6 | 80% | 0% | 4 - A422 Hennef Way | |
| | | | 20% | 0% | 5 - Southam Road (A361) | |
| East | 1% | 34 | 100% | 1% | 4 - A422 Hennef Way | |
| East Midlands | 19% | 598 | 100% | 19% | 4 - A422 Hennef Way | |
| London | 1% | 19 | 100% | 1% | 4 - A422 Hennef Way | |
| North East | 0% | 7 | 100% | 0% | 4 - A422 Hennef Way | |
| North West | 1% | 16 | 100% | 1% | 4 - A422 Hennef Way | |
| South West | 1% | 20 | 60% | 0% | 5 - Southam Road (A361) | |
| | | | 40% | 0% | 4 - A422 Hennef Way | |
| Wales | 0% | 13 | 70% | 0% | 4 - A422 Hennef Way | |
| | | | 30% | 0% | 5 - Southam Road (A361) | |
| West Midlands | 12% | 359 | 100% | 12% | 4 - A422 Hennef Way | |
| Yorkshire and The Humber | 0% | 15 | 100% | 0% | 4 - A422 Hennef Way | |

| Network Exit | % |
|-------------------------|-------------|
| 1 - Southam Road (A423) | 2% |
| 2 - Dukes Meadow Drive | 4% |
| 3 - A422 Ruscote Avenue | 21% |
| 4 - A422 Hennef Way | 54% |
| 5 - Southam Road (A361) | 19% |
| Total | 100% |



Annex C

KS101EW - Usual resident population

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population All usual residents
 units Persons
 rural urban Total
 variable All usual residents

| Area | 2011 | % | Route Split | Network Exit Point | | | | | |
|-----------------------------------|-----------|------|-------------|-------------------------|------------------------|-------------------------|---------------------|-------------------------|-----|
| | | | | 1 - Southam Road (A423) | 2 - Dukes Meadow Drive | 3 - A422 Ruscott Avenue | 4 - A422 Hennef Way | 5 - Southam Road (A361) | |
| msoa2011:E02005921 : Cherwell 001 | 5,334 | 0% | 50% | 0% | | | | 0% | |
| | | | 25% | | | | | | |
| | | | 25% | | | | | | 0% |
| msoa2011:E02005922 : Cherwell 002 | 8,450 | 1% | 60% | | | 0% | | | |
| | | | 40% | | 0% | | | | |
| msoa2011:E02005923 : Cherwell 003 | 5,868 | 0% | 60% | | | 0% | | | |
| | | | 20% | | | | | 0% | |
| | | | 20% | | | | | | 0% |
| msoa2011:E02005924 : Cherwell 004 | 10,880 | 1% | 70% | | | | | 1% | |
| | | | 30% | | | | | | 0% |
| msoa2011:E02005925 : Cherwell 005 | 8,470 | 1% | 70% | | | 0% | | | |
| | | | 20% | | | | | | 0% |
| | | | 10% | | | | | | 0% |
| msoa2011:E02005926 : Cherwell 006 | 7,776 | 1% | 70% | | | | | | 0% |
| | | | 20% | | | | | | 0% |
| | | | 10% | | | 0% | | | |
| msoa2011:E02005927 : Cherwell 007 | 5,409 | 0% | 50% | | | | | 0% | |
| | | | 50% | | | | | | 0% |
| msoa2011:E02005928 : Cherwell 008 | 7,542 | 0% | 60% | | | 0% | | | |
| | | | 30% | | | | | | 0% |
| | | | 10% | | | | | | 0% |
| msoa2011:E02005929 : Cherwell 009 | 6,852 | 0% | 70% | | | 0% | | | |
| | | | 30% | | | | | | 0% |
| msoa2011:E02005930 : Cherwell 010 | 7,634 | 1% | 100% | | | | | | 1% |
| msoa2011:E02005931 : Cherwell 011 | 9,149 | 1% | 100% | | | | | | 1% |
| msoa2011:E02005932 : Cherwell 012 | 7,014 | 0% | 90% | | | | | 0% | |
| | | | 10% | | | | | | 0% |
| msoa2011:E02005933 : Cherwell 013 | 7,427 | 0% | 100% | | | | | | 0% |
| msoa2011:E02005934 : Cherwell 014 | 9,155 | 1% | 100% | | | | | | 1% |
| msoa2011:E02005935 : Cherwell 015 | 7,258 | 0% | 100% | | | | | | 0% |
| msoa2011:E02005936 : Cherwell 016 | 9,276 | 1% | 50% | | | | | | 0% |
| | | | 50% | | | | | | 0% |
| msoa2011:E02005937 : Cherwell 017 | 6,544 | 0% | 80% | | | | | | 0% |
| | | | 20% | | | | | | 0% |
| msoa2011:E02005938 : Cherwell 018 | 5,598 | 0% | 80% | | | | | | 0% |
| | | | 20% | | | | | | 0% |
| msoa2011:E02005939 : Cherwell 019 | 6,232 | 0% | 80% | | | | | | 0% |
| | | | 20% | | | | | | 0% |
| ualad09:Aylesbury Vale | 174,137 | 11% | 100% | | | | | | 11% |
| ualad09:Oxford | 151,906 | 10% | 100% | | | | | | 10% |
| ualad09:South Oxfordshire | 134,257 | 9% | 100% | | | | | | 9% |
| ualad09:Vale of White Horse | 120,988 | 8% | 80% | | | | | | 6% |
| | | | 20% | | | | | | 2% |
| ualad09:West Oxfordshire | 104,779 | 7% | 80% | | | | | | 6% |
| | | | 20% | | | | | | 1% |
| ualad09:Wycombe | 171,644 | 11% | 80% | | | | | | 9% |
| | | | 20% | | | | | | 2% |
| ualad09:Rugby | 100,075 | 7% | 100% | 7% | | | | | |
| ualad09:Stratford-on-Avon | 120,485 | 8% | 60% | | | | | | 5% |
| | | | 30% | | | | | | 2% |
| | | | 10% | | | 1% | | | |
| ualad09:Warwick | 137,648 | 9% | 40% | | | | | | 4% |
| | | | 40% | | | 4% | | | |
| | | | 20% | | | 2% | | | |
| ualad09:Daventry | 77,843 | 5% | 70% | 4% | | | | | |
| | | | 30% | | | | | | 2% |
| ualad09:South Northamptonshire | 85,189 | 6% | 100% | | | | | | 6% |
| | 1,520,819 | 100% | | 14% | | 3% | 4% | | 67% |
| | | | | | | | | | 12% |

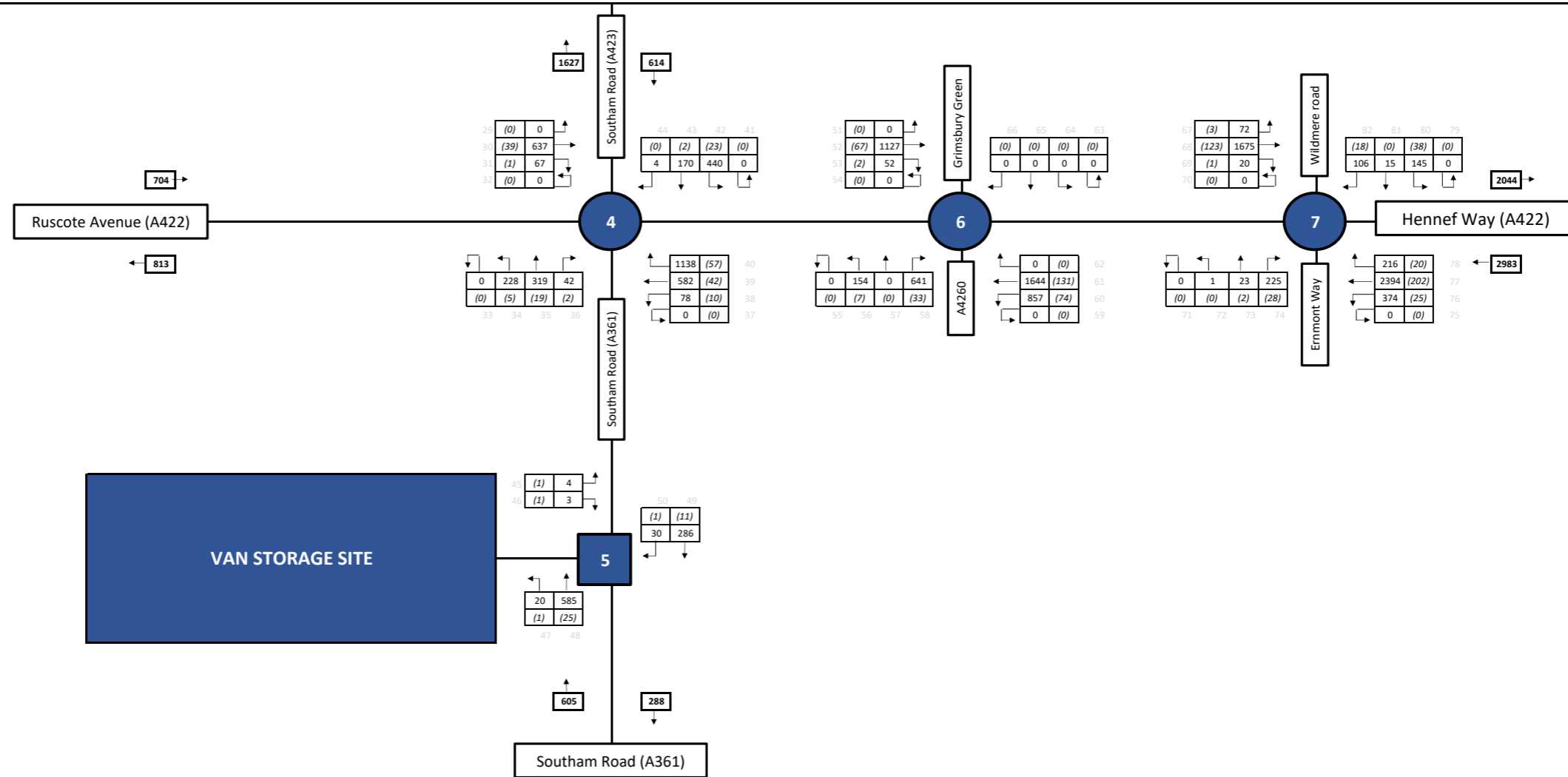
| Network Exit | % |
|-------------------------|-------------|
| 1 - Southam Road (A423) | 14% |
| 2 - Dukes Meadow Drive | 3% |
| 3 - A422 Ruscott Avenue | 4% |
| 4 - A422 Hennef Way | 67% |
| 5 - Southam Road (A361) | 12% |
| Total | 100% |



In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

Annex D

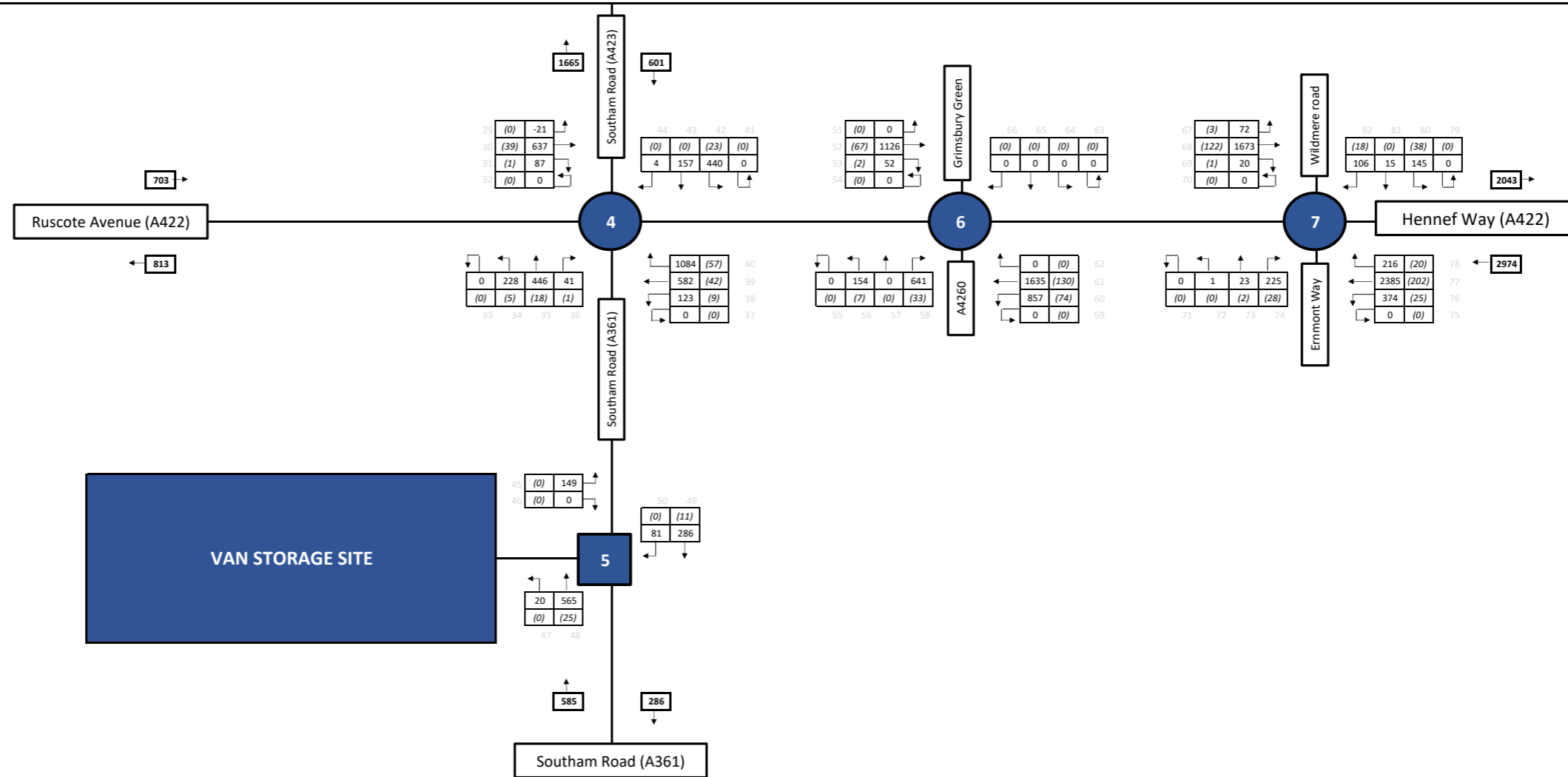
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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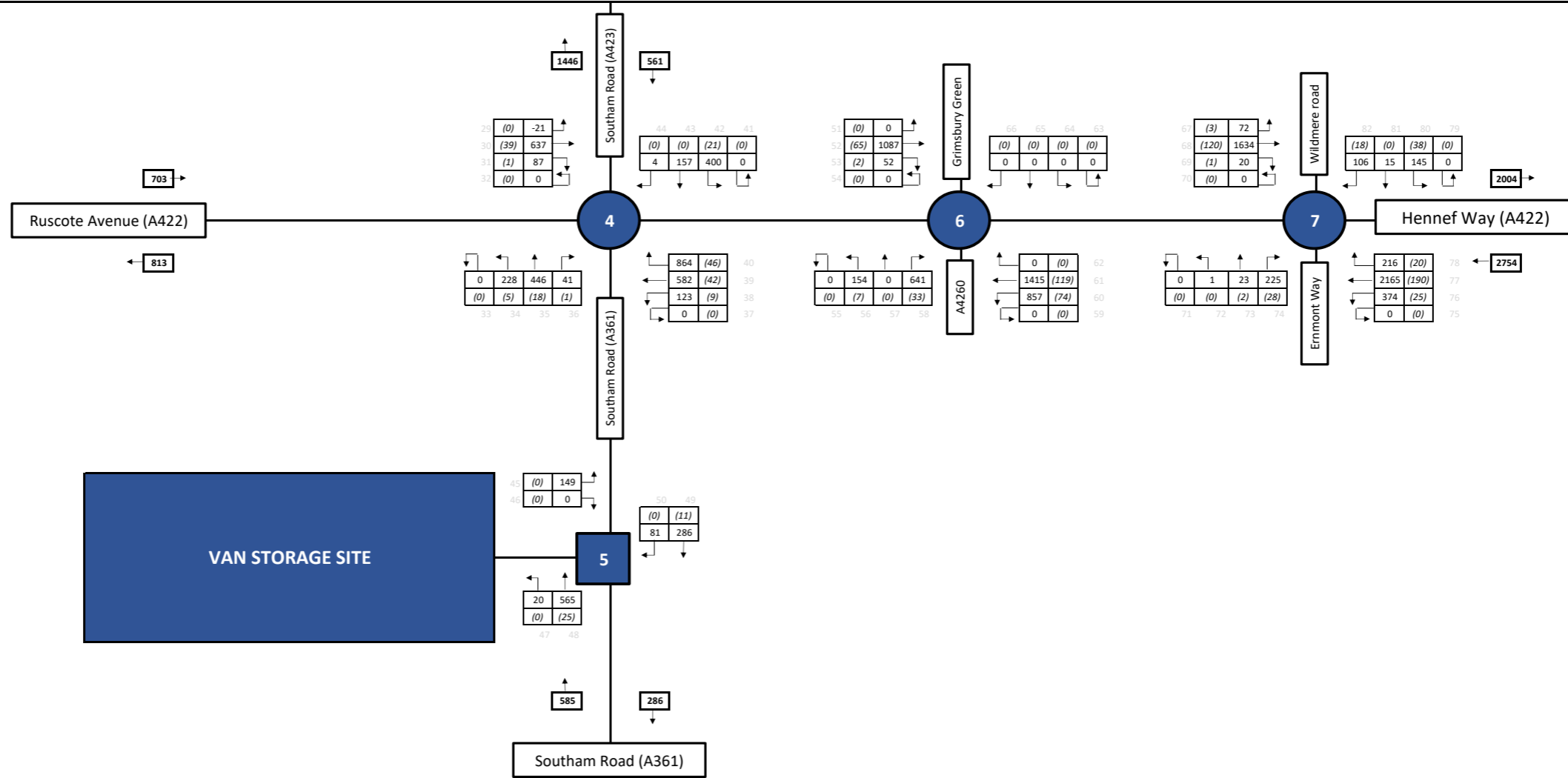
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| Project Title: | Oxford, Southam Road - Van Storage | | | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: |
| | Client: | Lysander | | | Figure Title: | 2021 Baseline 07:00 - 08:00 (with HS2) | | | | Figure No.: | | |

Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



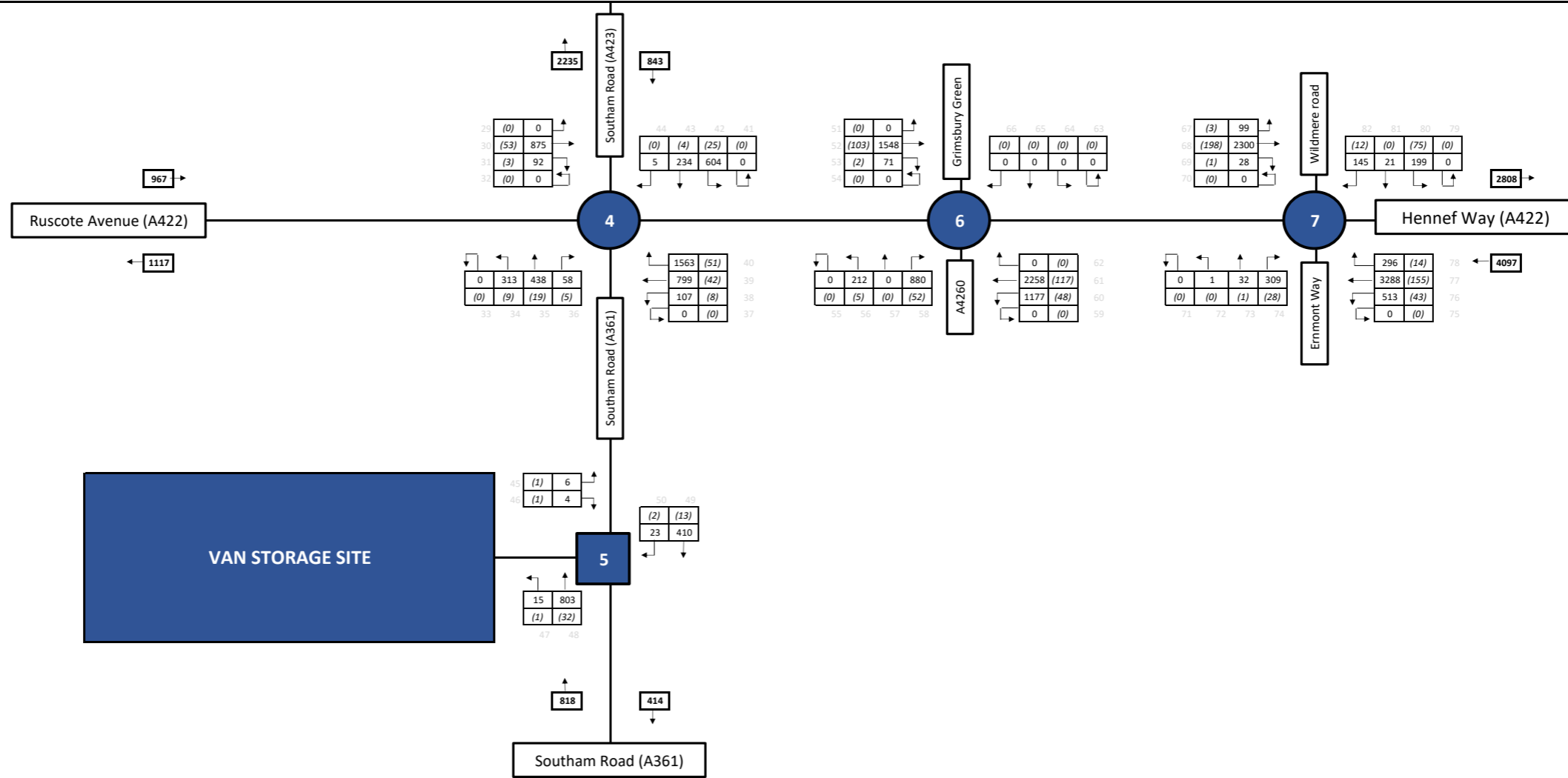
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| Project Title: | Oxford, Southam Road - Van Storage | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: | |
| Client: | Lysander | Figure Title: | 2021 Baseline with Development (with HS2) 07:00 - 08:00 | | | | | | Figure No.: | | |

Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| Project Title: | Oxford, Southam Road - Van Storage | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: |
| | Client: | Lysander | Figure Title: | 2021 Baseline with Development (without HS2) 07:00 - 08:00 | | | | | | Figure No.: |

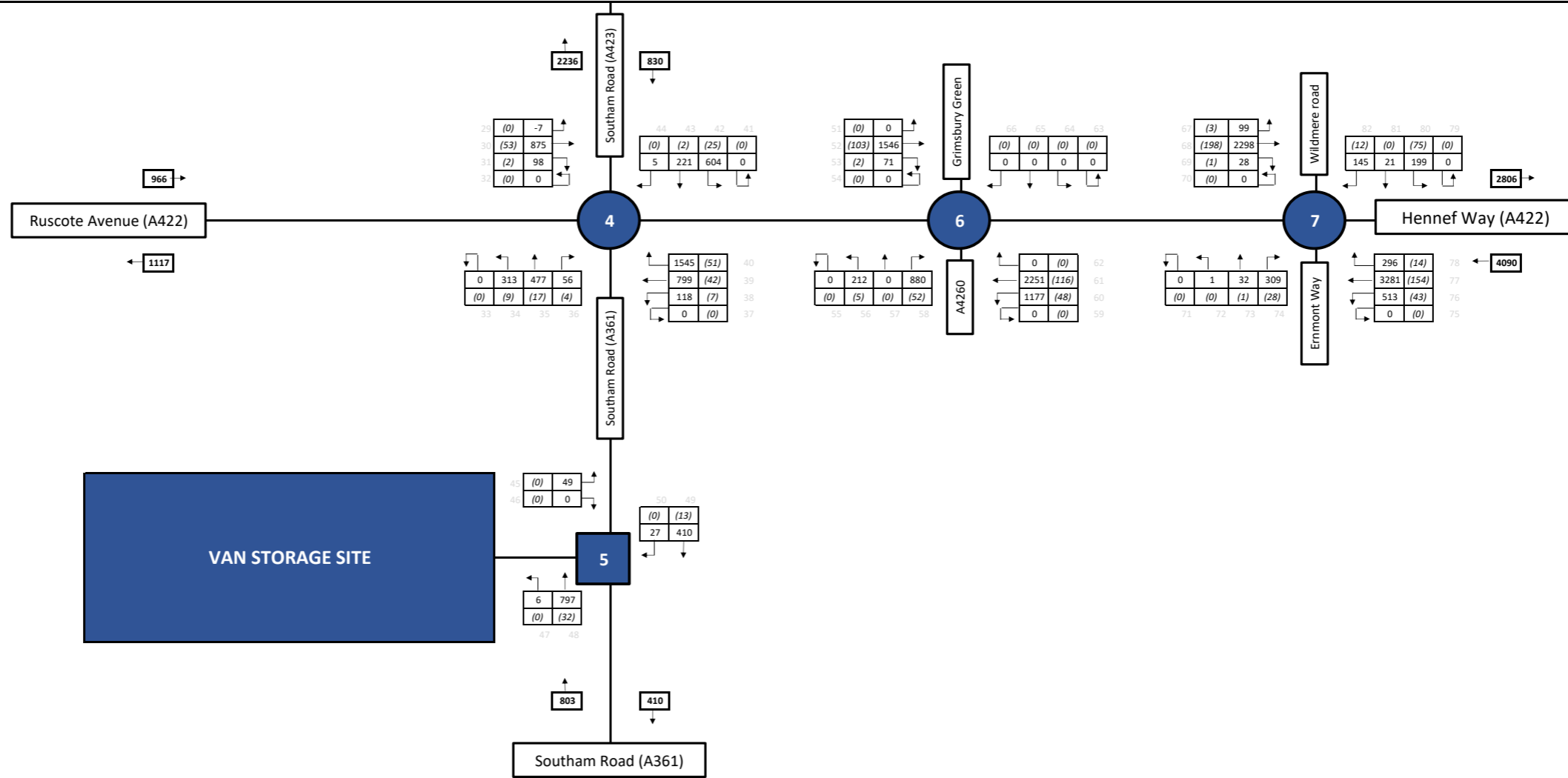
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| Project Title: | Oxford, Southam Road - Van Storage | | | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: |
| | Client: | Lysander | | | Figure Title: | 2021 Baseline 08:00 - 09:00 (with HS2) | | | Figure No.: | | | |

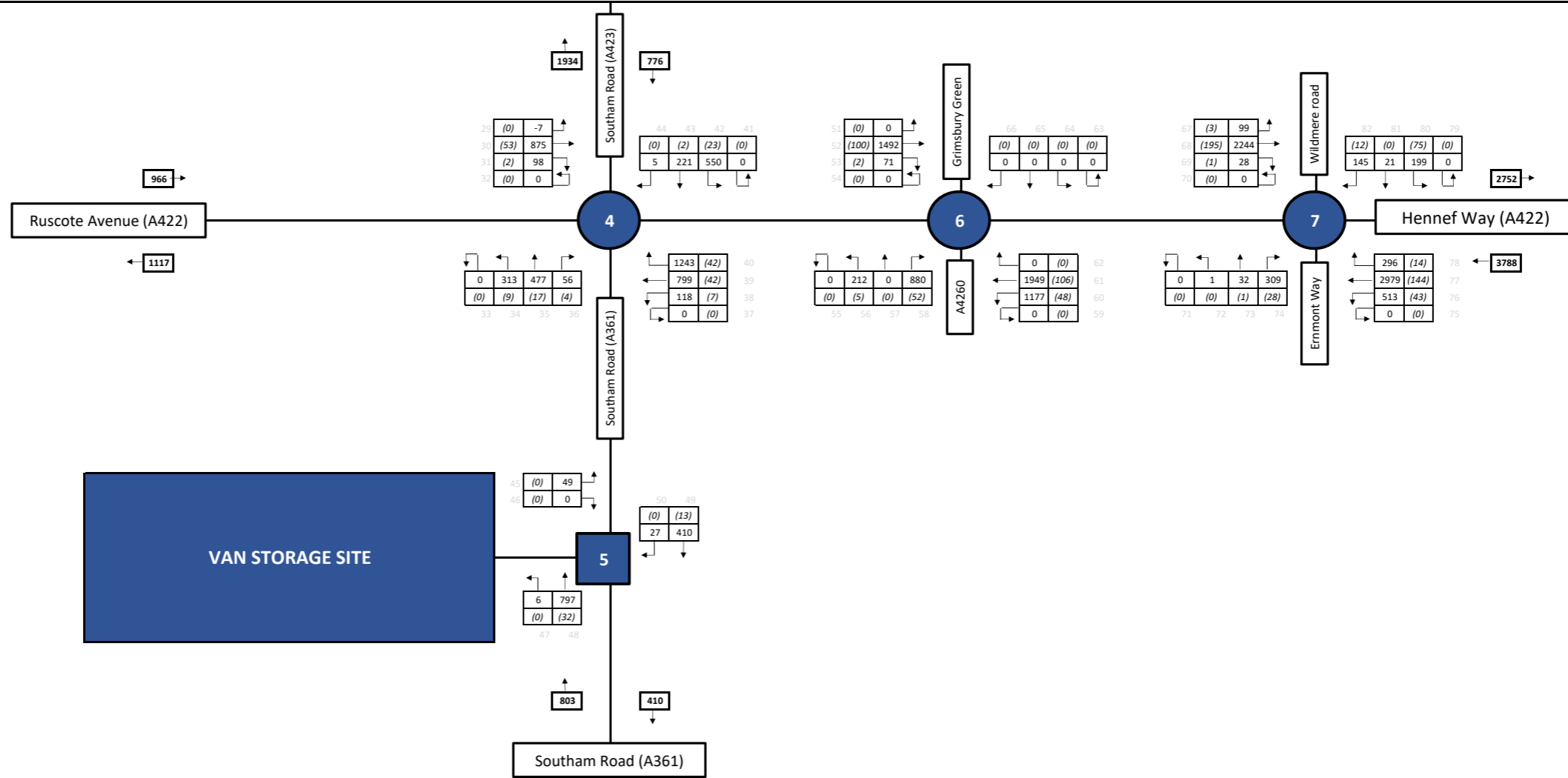
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| | Client: | Lysander | | | | Figure Title: | 2021 Baseline with Development (with HS2) 08:00 - 09:00 | | | | | | Figure No: |

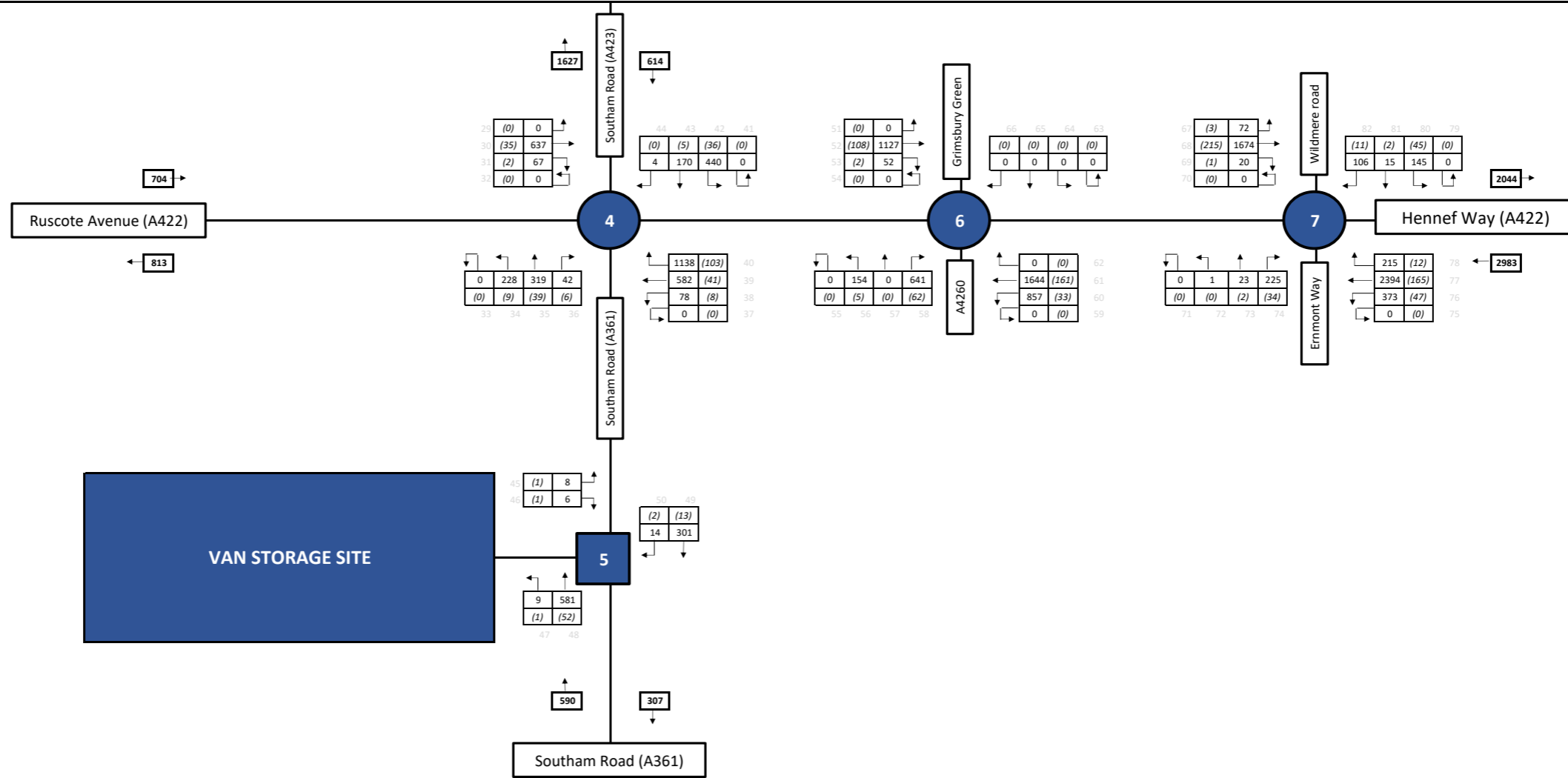
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| Project Title: | Oxford, Southam Road - Van Storage | | | | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: |
| | Client: | Lysander | | | | Figure Title: | 2021 Baseline with Development (without HS2) 08:00 - 09:00 | | | | | | Figure No: |

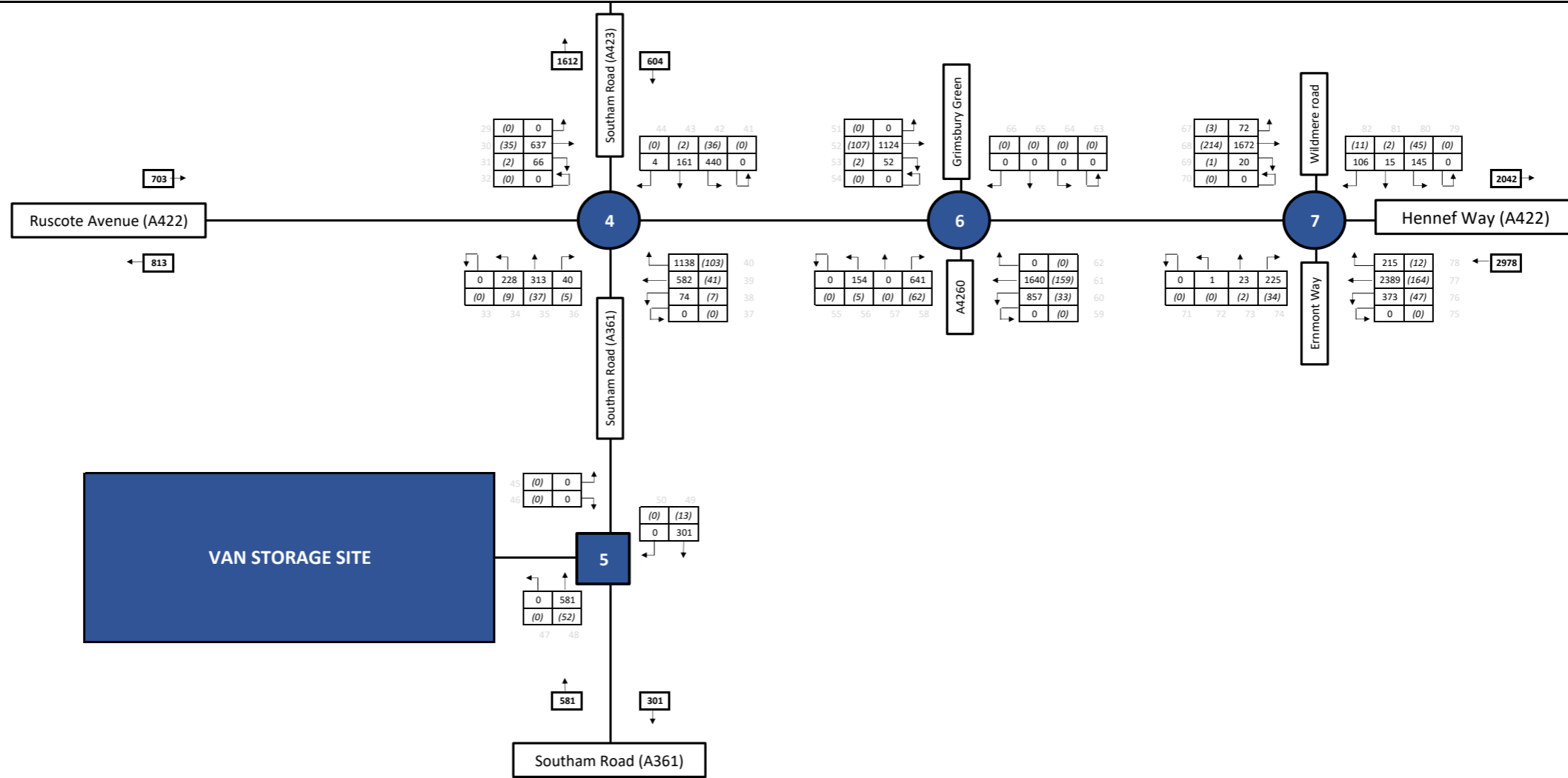
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| Project Title: | Oxford, Southam Road - Van Storage | | | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: |
| | Client: | Lysander | | | Figure Title: | 2021 Baseline 09:00 - 10:00 (with HS2) | | | | Figure No.: | | |

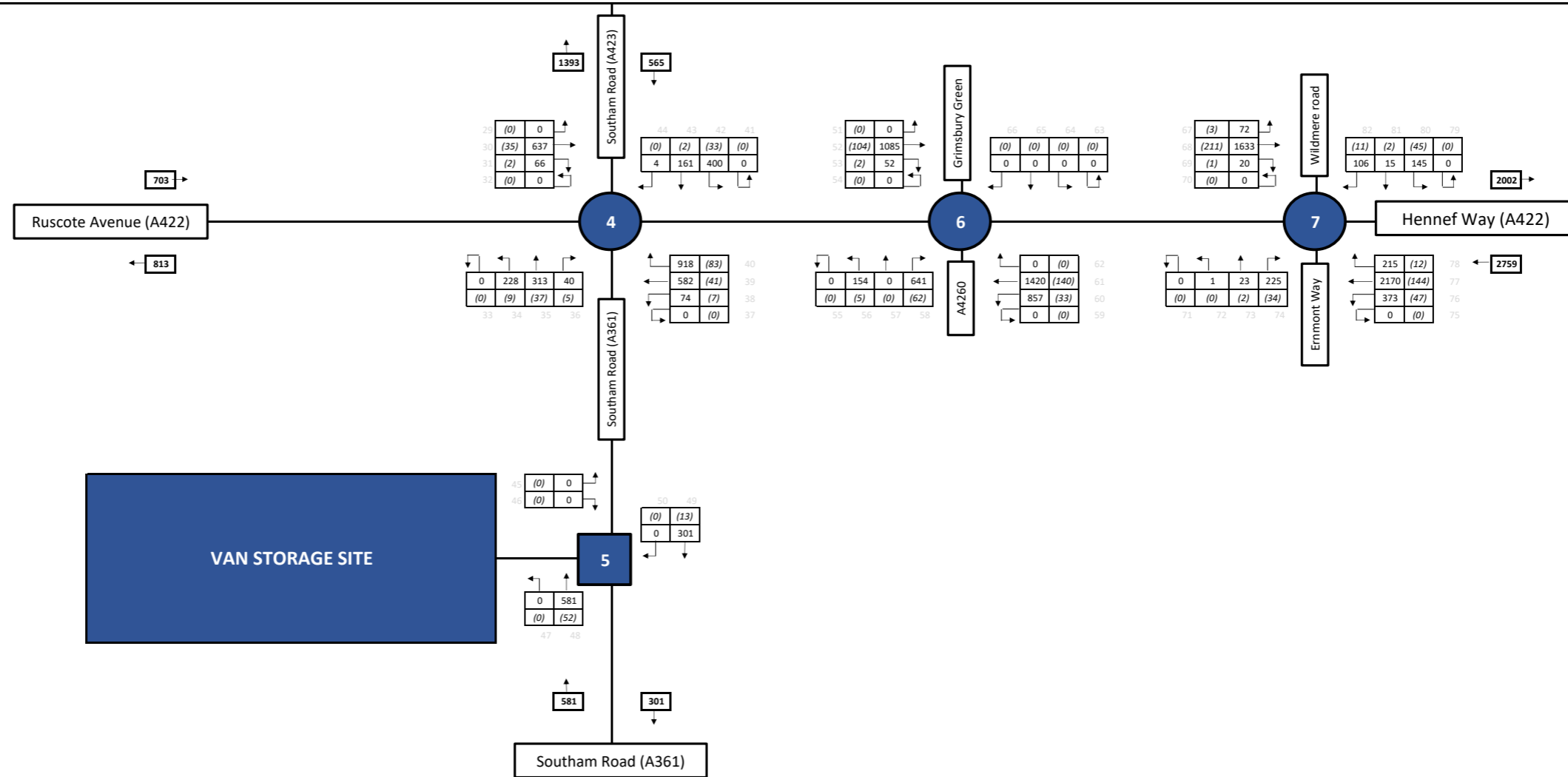
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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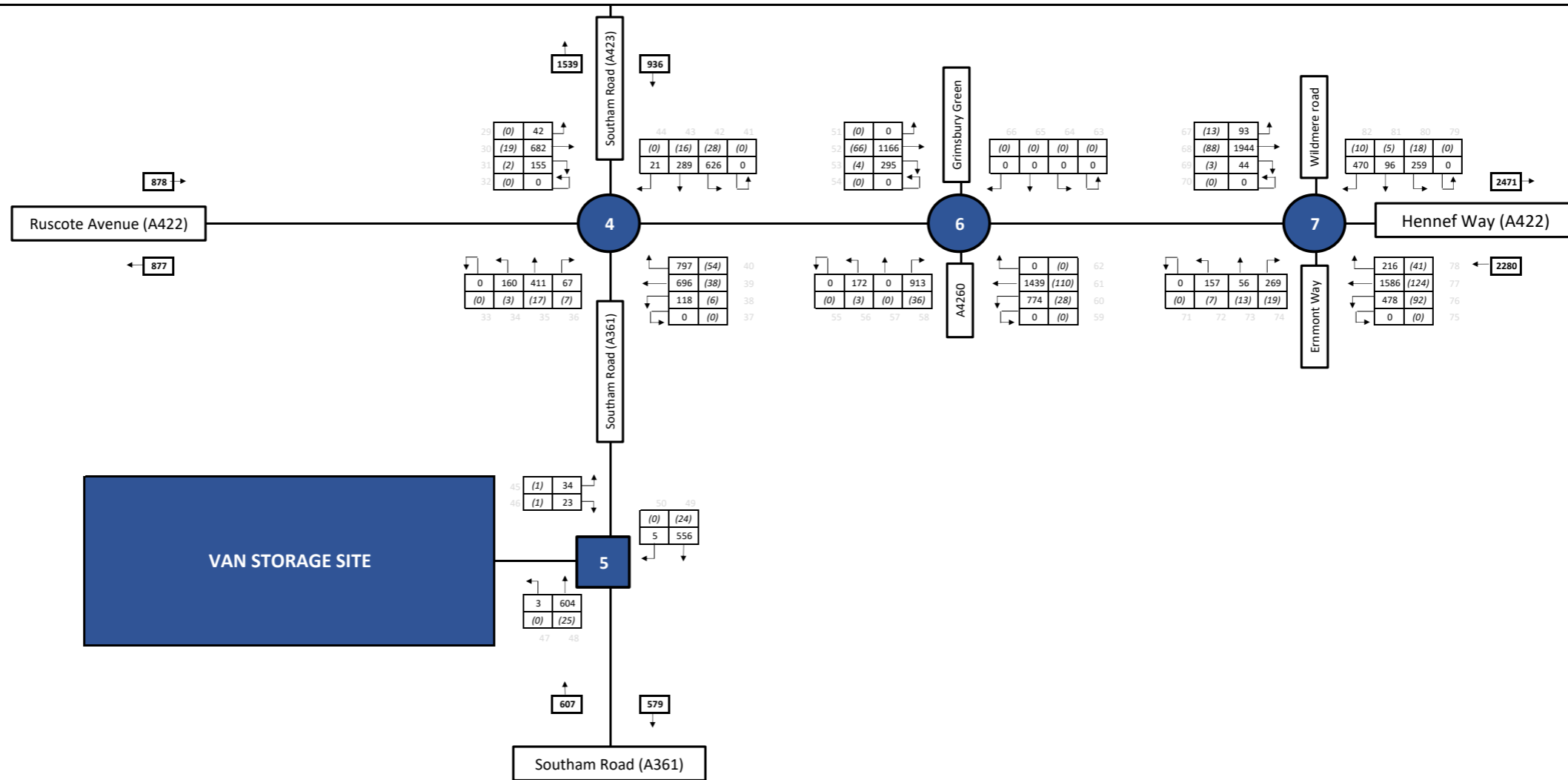
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| | Client: | Lysander | | | | Figure Title: | 2021 Baseline with Development (with HS2) 09:00 - 10:00 | | | | | | Figure No.: |

Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



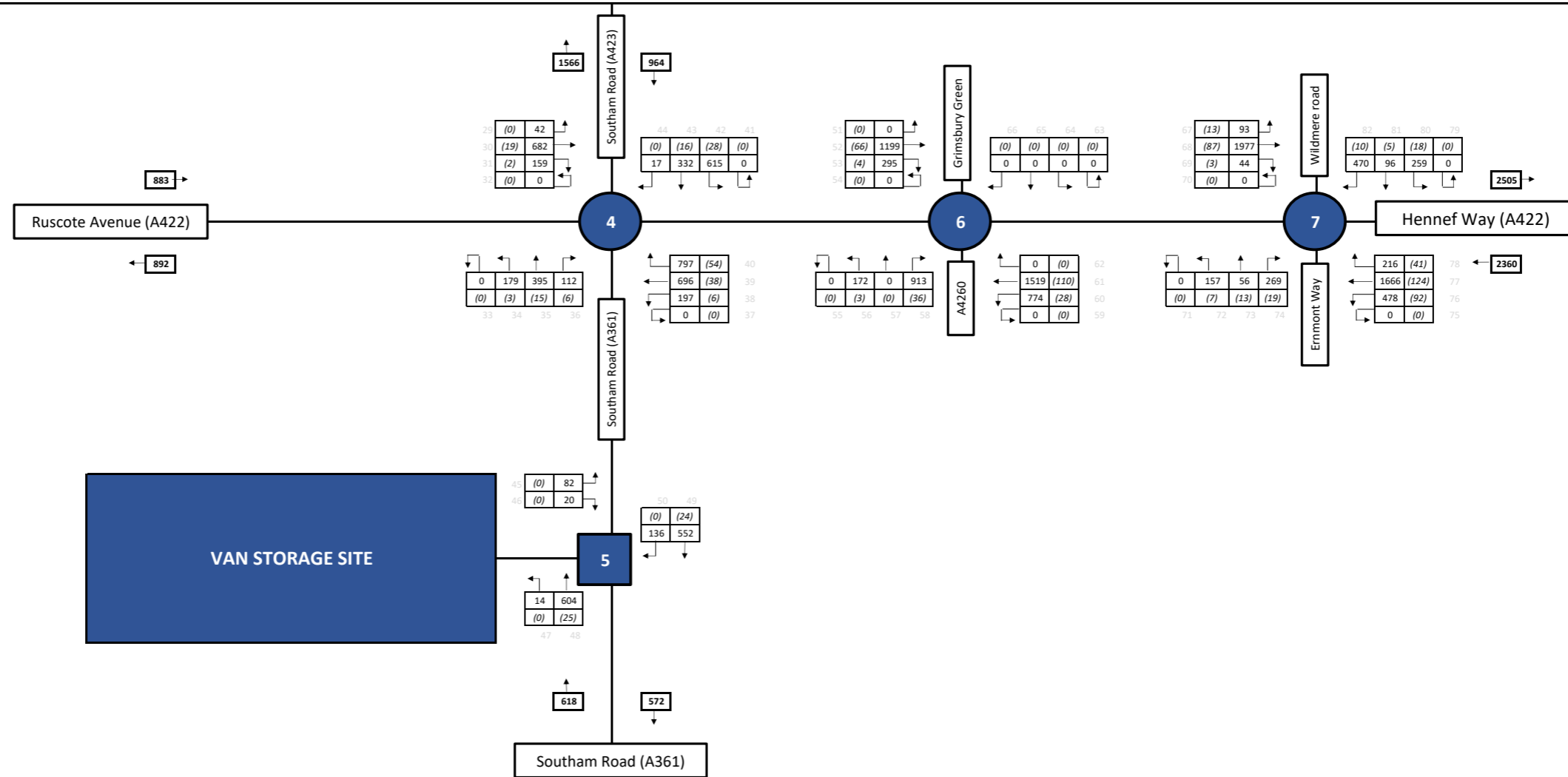
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| Client: | Lysander | Figure Title: | 2021 Baseline with Development (without HS2) 09:00 - 10:00 | | | | | | Figure No.: | | |

Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| | Client: | Lysander | | | Figure Title: | 2021 Baseline 16:00 - 17:00 (with HS2) | | | Figure No.: | | | |

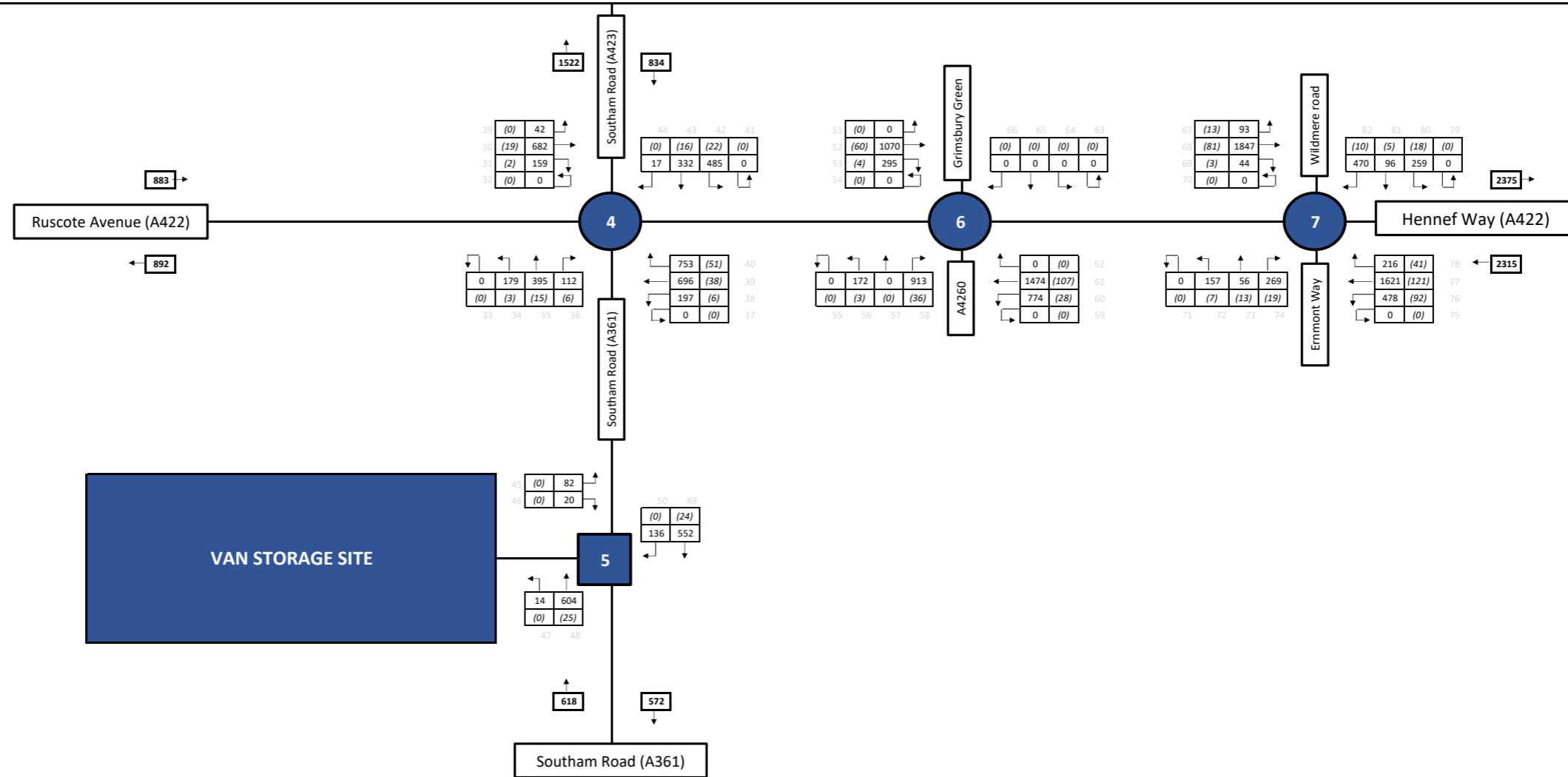
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| Project Title: | Oxford, Southam Road - Van Storage | | | | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: |
| | Client: | Lysander | | | | Figure Title: | 2021 Baseline with Development (with HS2) 16:00 - 17:00 | | | | Figure No.: | | |

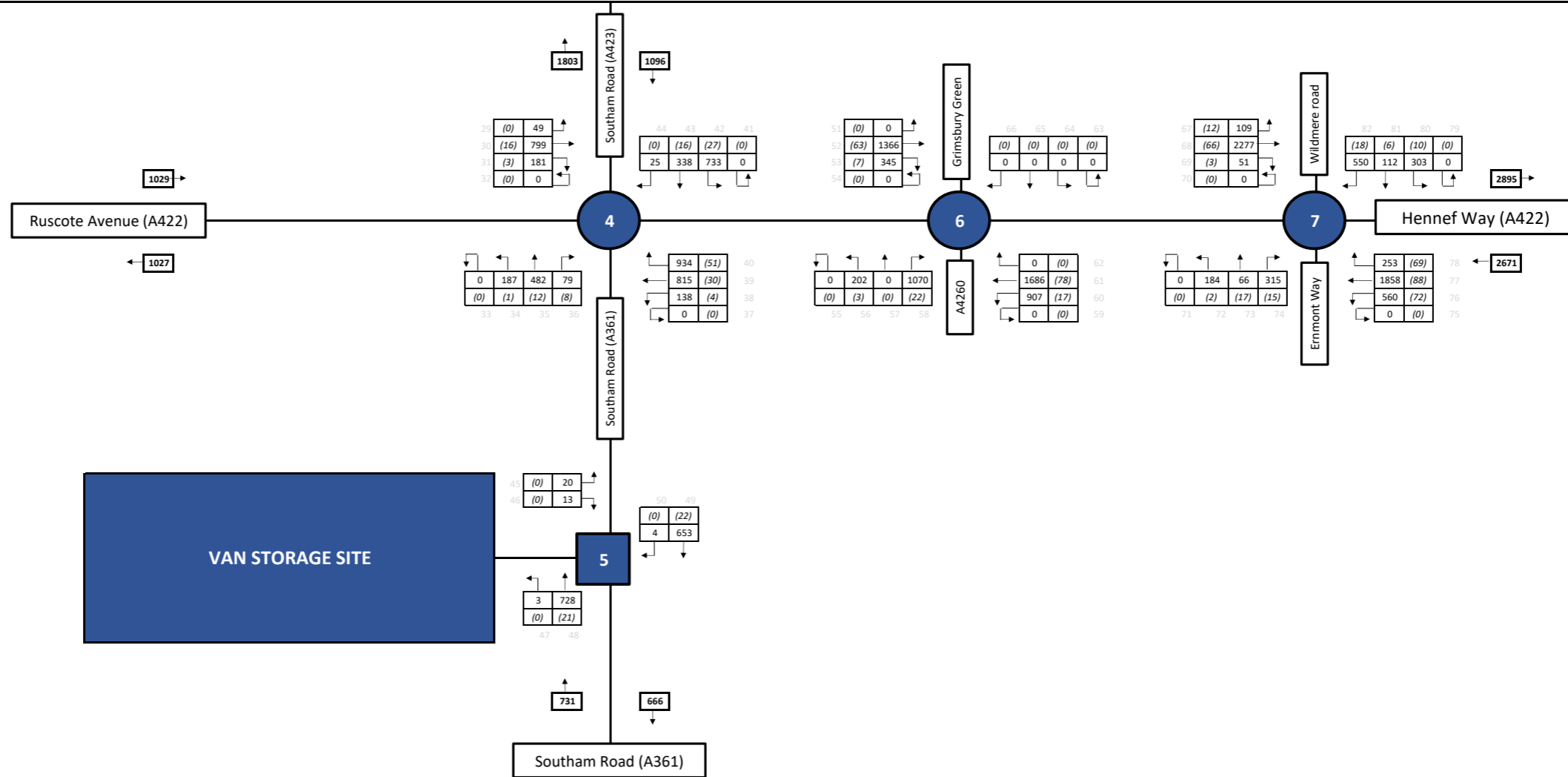
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| Project Title: | Oxford, Southam Road - Van Storage | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: | |
| Client: | Lysander | Figure Title: | 2021 Baseline with Development (without HS2) 16:00 - 17:00 | | | | | Figure No.: | | | |

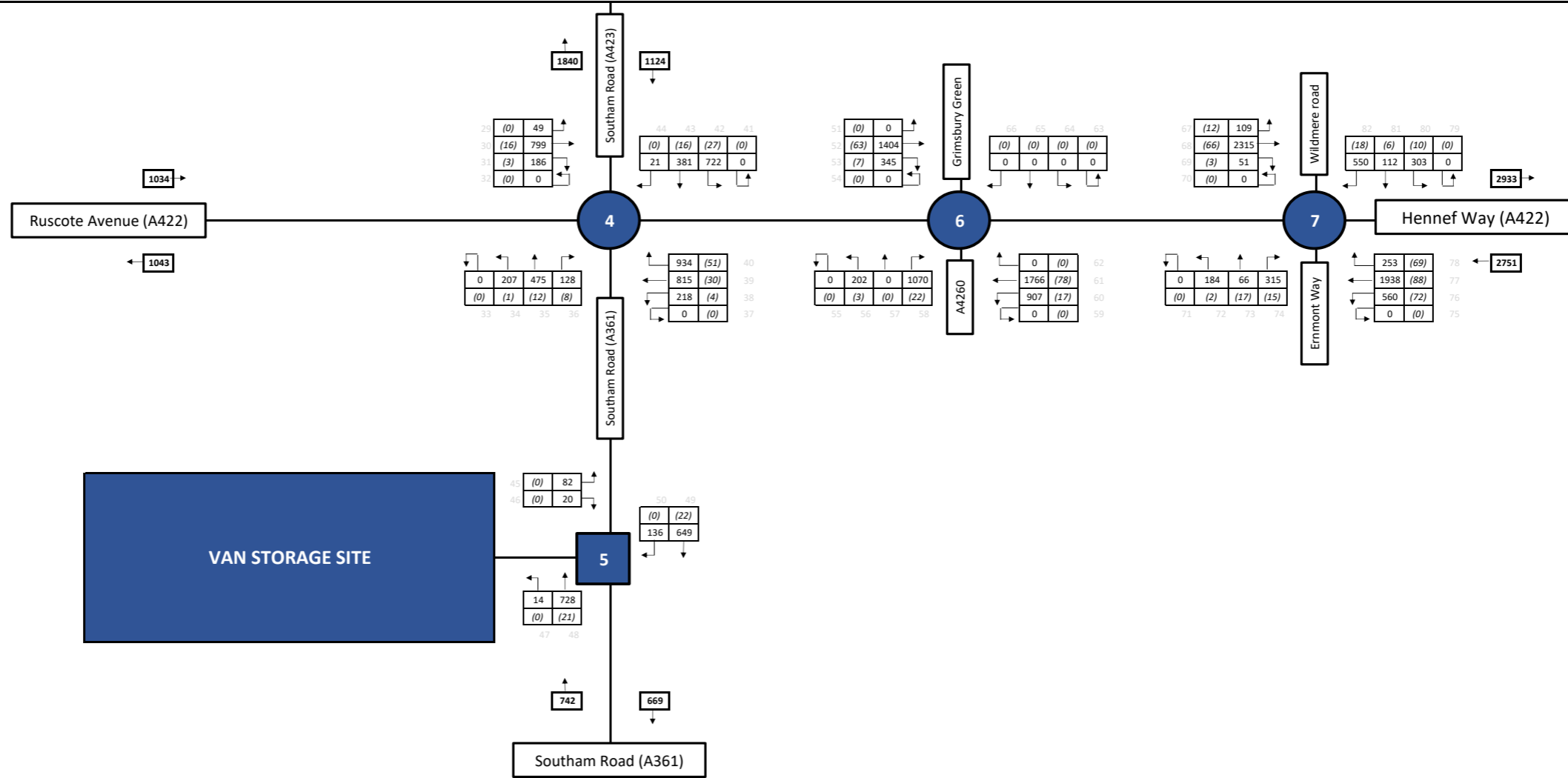
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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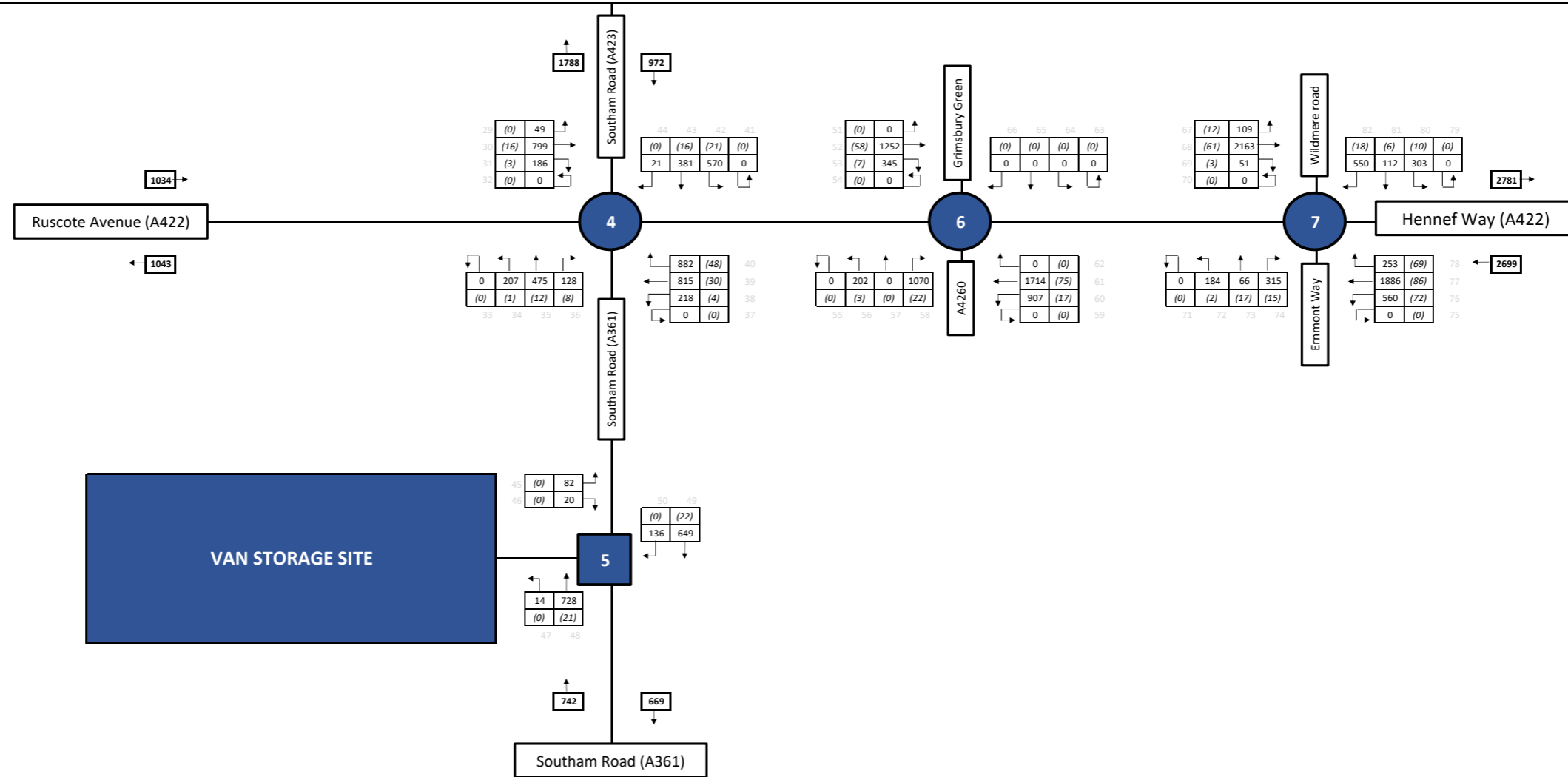
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| Project Title: | Oxford, Southam Road - Van Storage | | | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: |
| | Client: | Lysander | | | Figure Title: | 2021 Baseline 17:00 - 18:00 (with HS2) | | | | Figure No.: | | |

Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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| Project Title: | Oxford, Southam Road - Van Storage | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: | |
| | Client: | Lysander | Figure Title: | 2021 Baseline with Development (with HS2) 17:00 - 18:00 | | | | Figure No.: | | | |

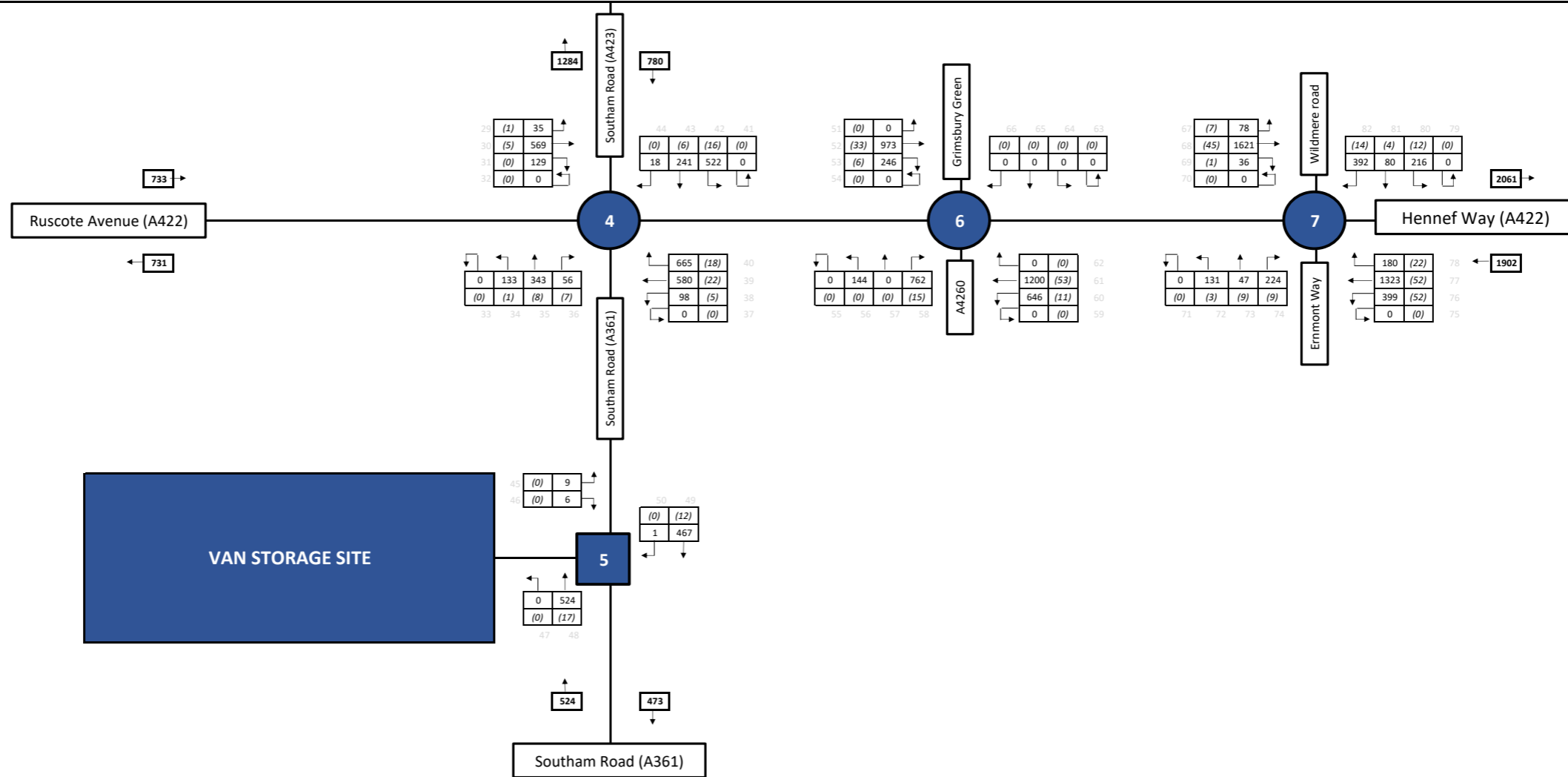
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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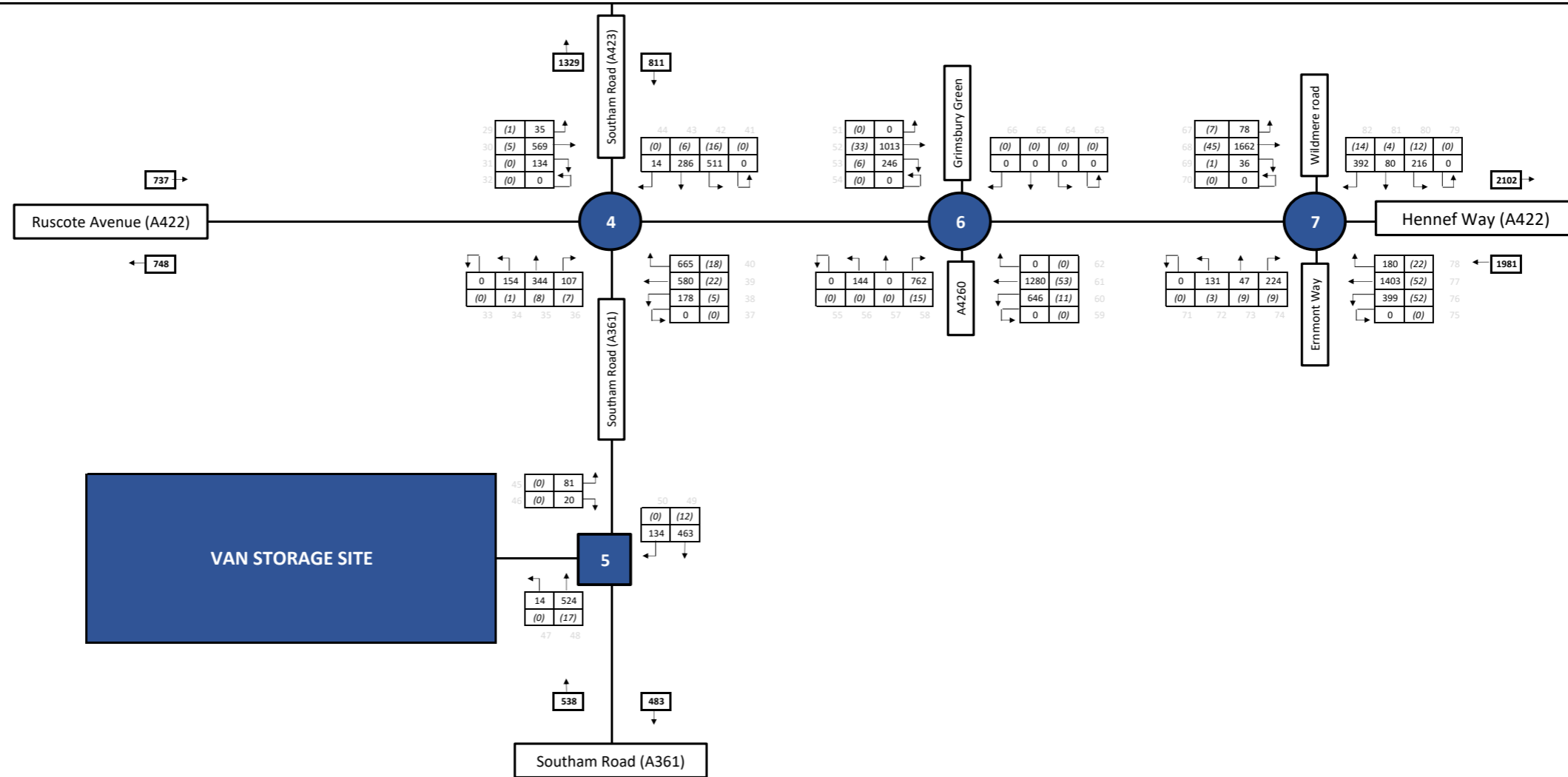
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| Client: | Lysander | Figure Title: | 2021 Baseline with Development (without HS2) 17:00 - 18:00 | | | | | Figure No.: | | | |

Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



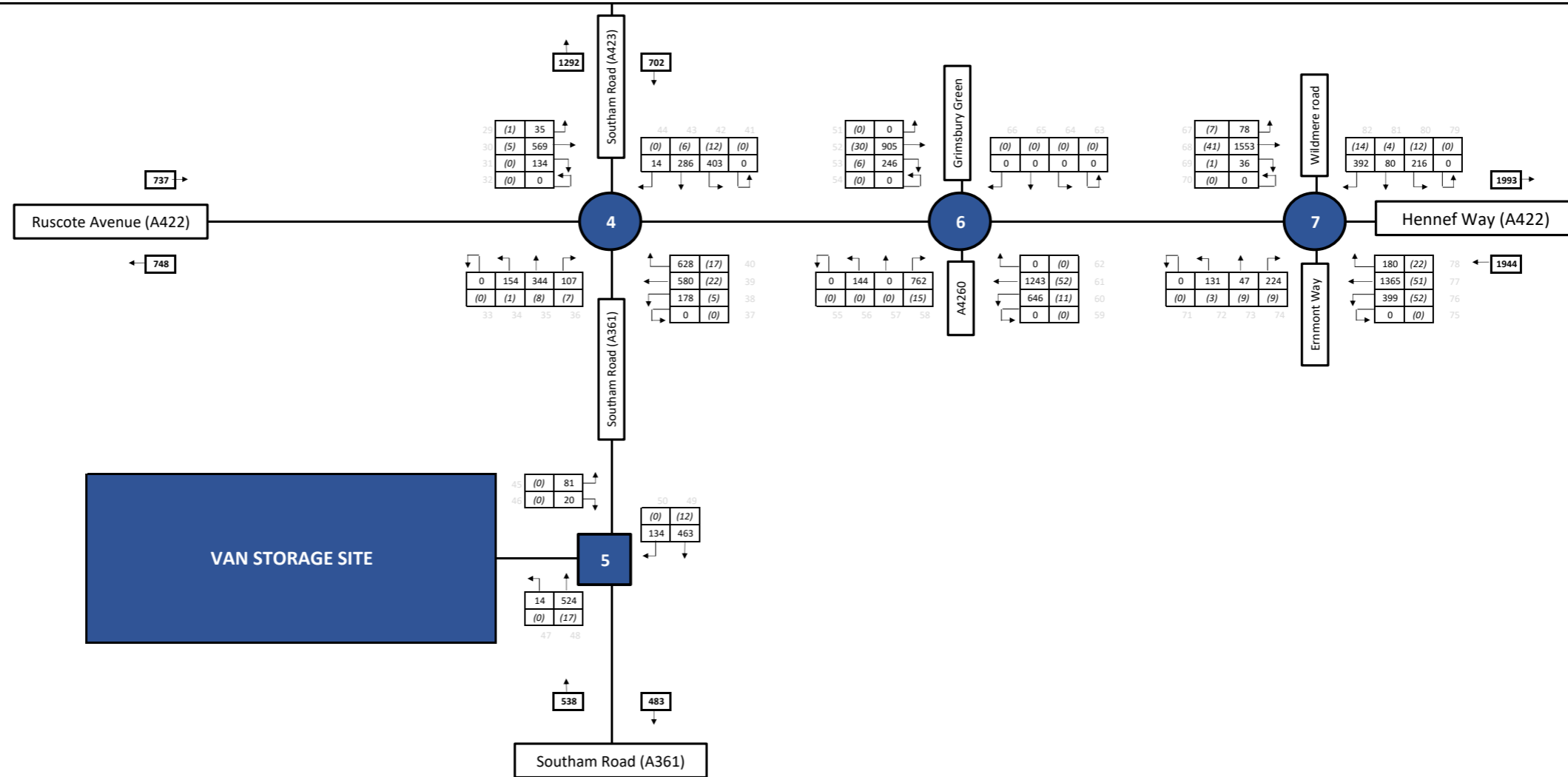
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Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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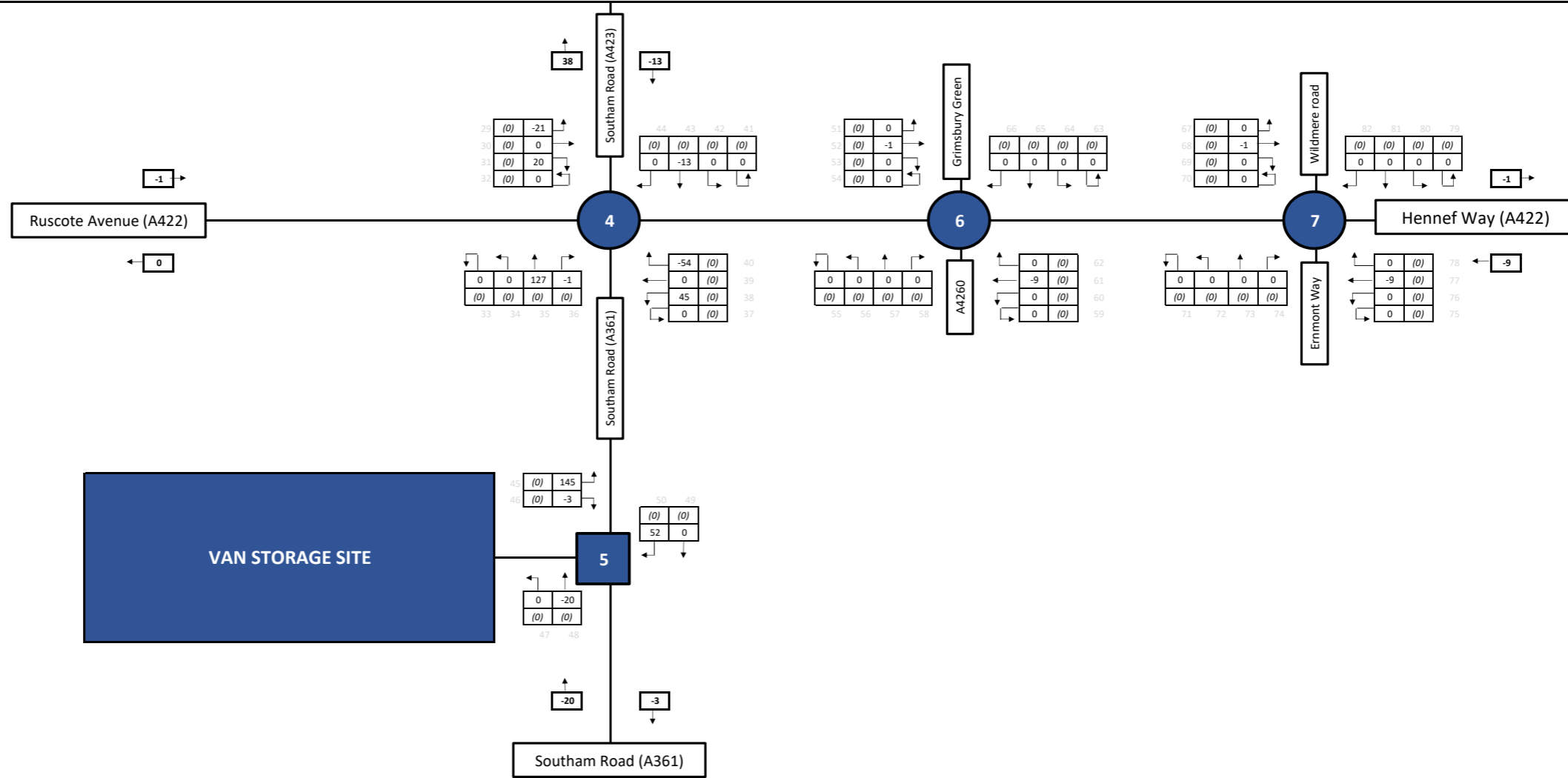
Key:
 20 Vehicles
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 Break in Network
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| | Client: | Lysander | | | | Figure Title: | 2021 Baseline with Development (without HS2) 18:00 - 19:00 | | | | Figure No.: | | |

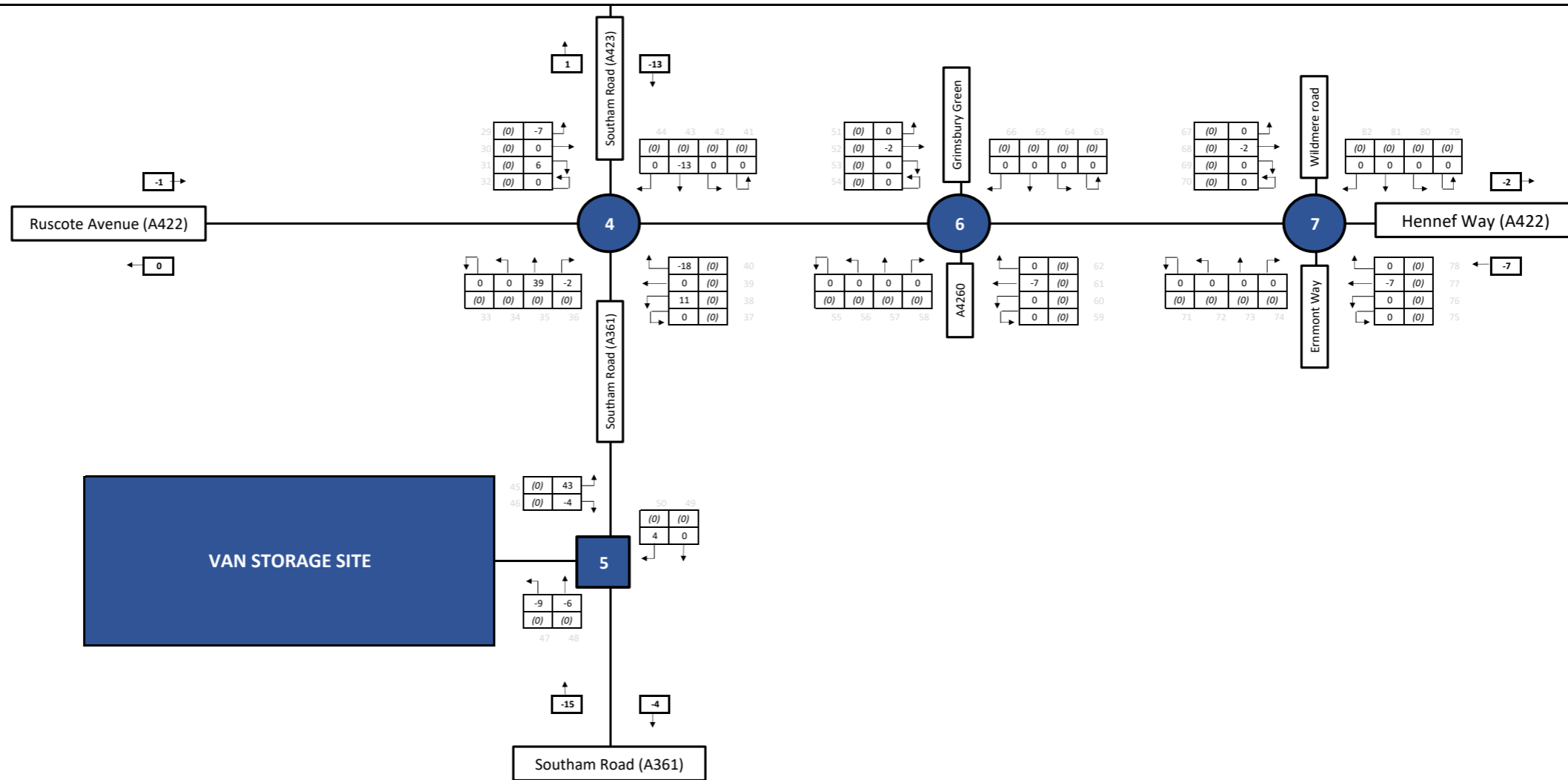
Key:
 20 Vehicles
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 Break in Network
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| Project Title: | Oxford, Southam Road - Van Storage | Scale: | NTS | Drawn: | AT | Date: | 28/04/2021 | Checked: | RB | Rev: | |
| | Client: | | Lysander | | Figure Title: | | | | Traffic Impact 07:00 - 08:00 | | Figure No.: |

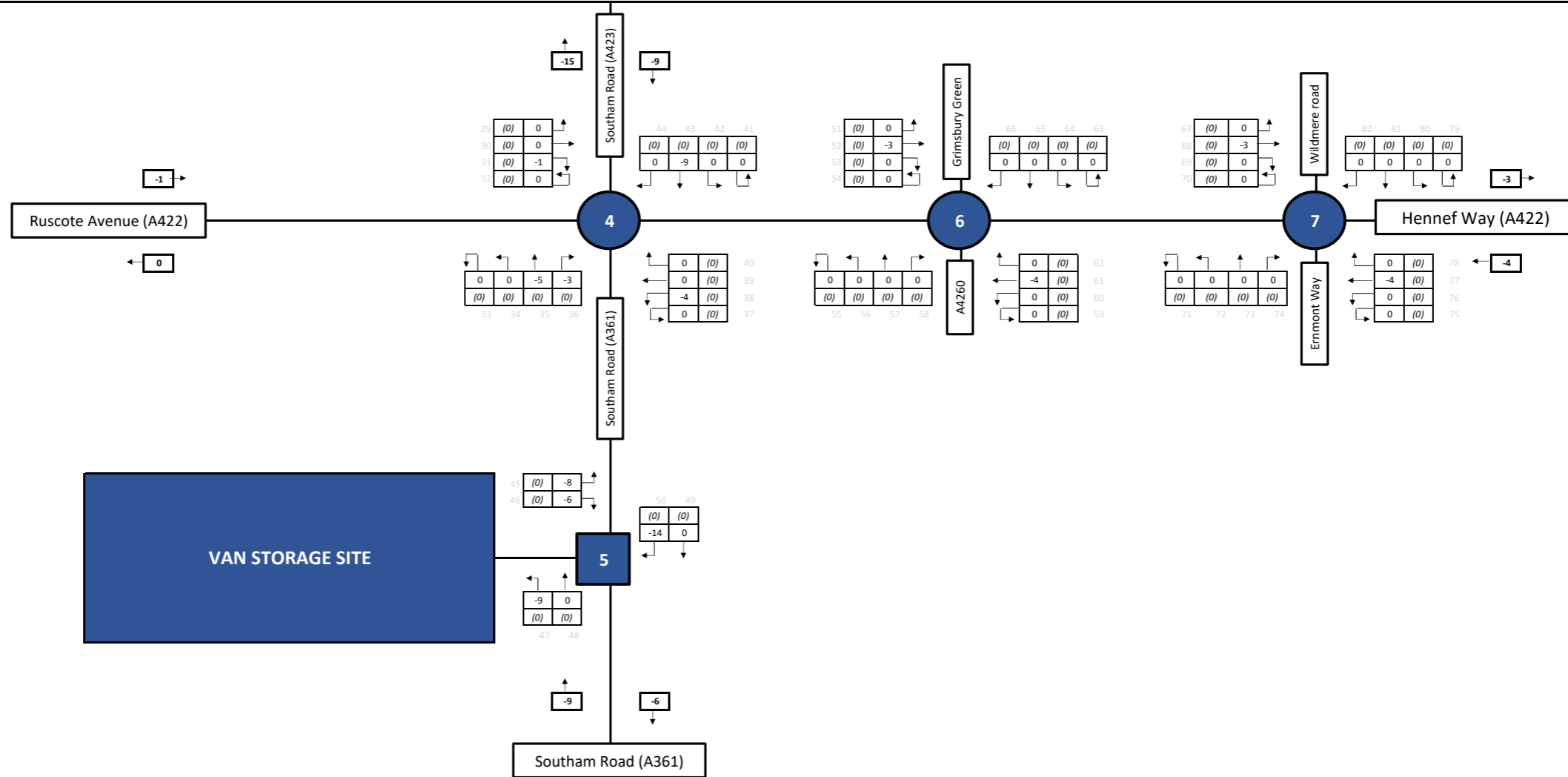
Key:
 20 Vehicles
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 Break in Network
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| | Client: | Lysander | | | Figure Title: | Traffic Impact 08:00 - 09:00 | | | Figure No.: | | | |

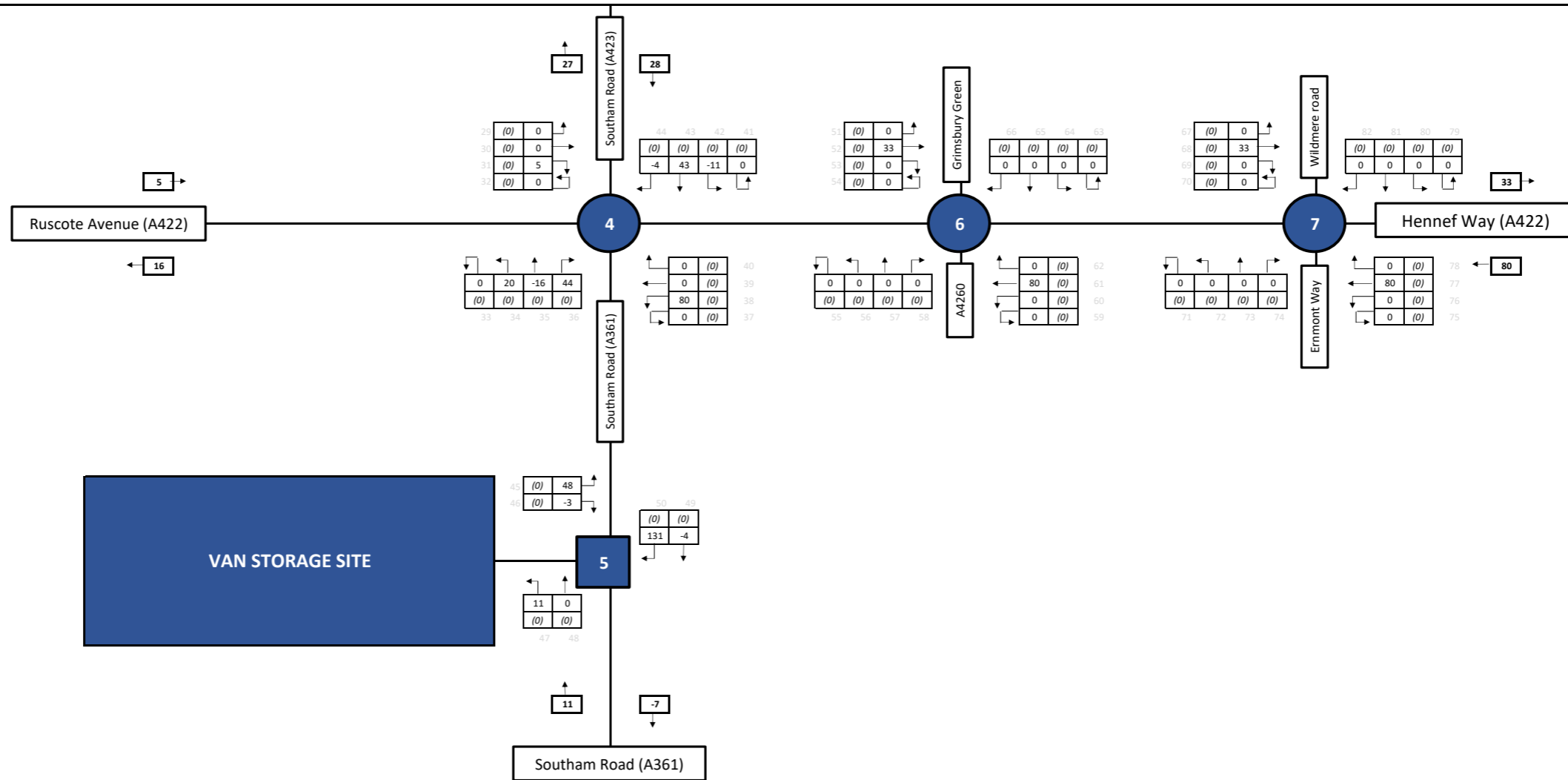
Key:
 20 Vehicles
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 Break in Network
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| | Client: | Lysander | | | Figure Title: | Traffic Impact 09:00 - 10:00 | | | | Figure No.: | | |

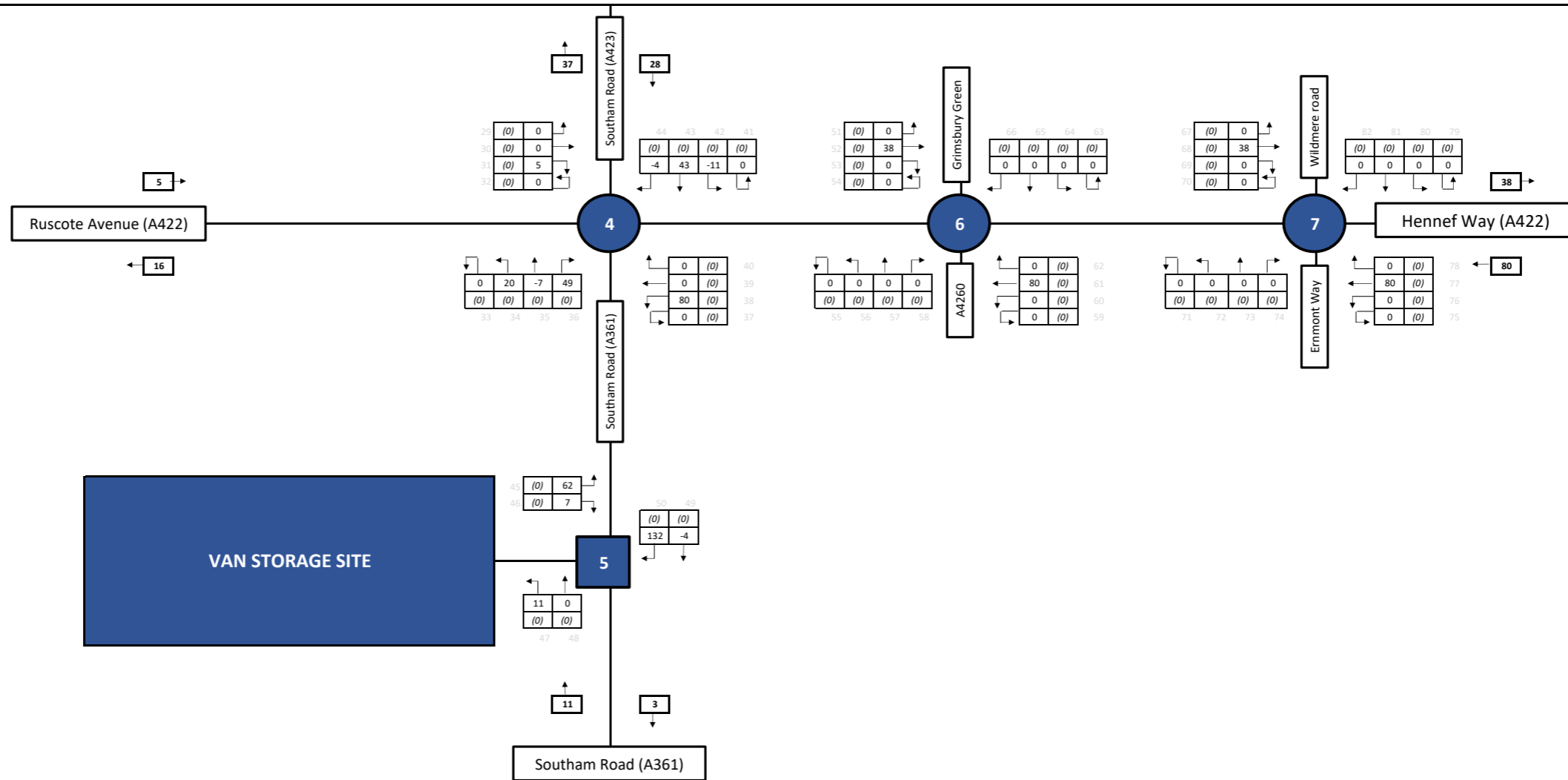
Key:
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 Break in Network
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| | Client: | Lysander | | | Figure Title: | Traffic Impact 16:00 - 17:00 | | | | Figure No.: | | |

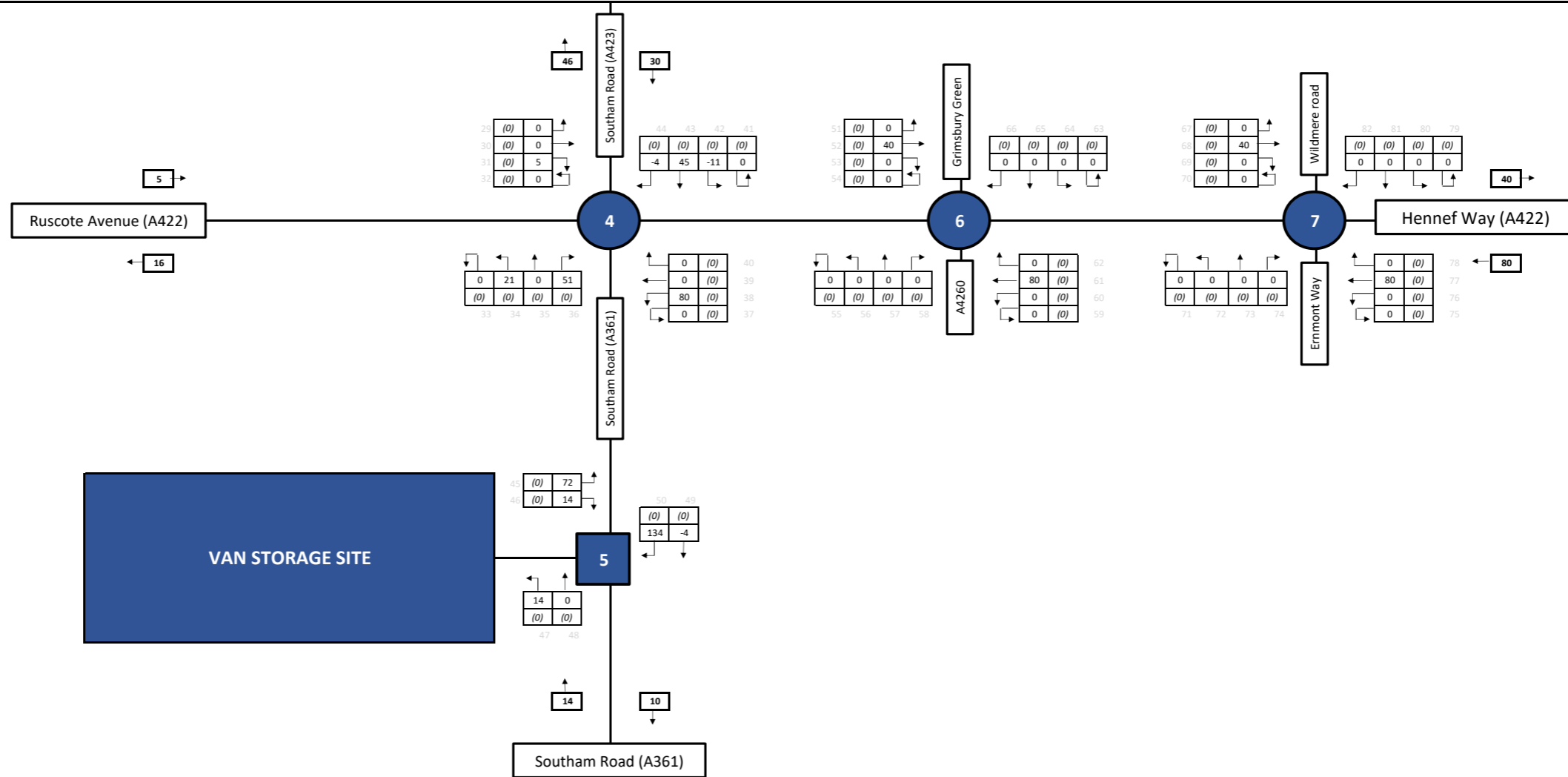
Key:
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 20 Vehicles
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 Break in Network
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