

Southam Road, Banbury OCC Highways Response

194663-95/N02

Introduction

1. In February 2021, Lysander submitted a planning application to Cherwell District Council (CDC) with respect to the:

“Use of the site for the storage of operational vehicles, elevational alterations, associated parking, vehicle barriers, guard hut and associated infrastructure”
2. This application (Ref: 21/00503/F) is supported by a Transport Statement (TS) that considers the likely effects of this development upon the local highway network.
3. On the basis of the analyses presented in the Transport Statement, it was concluded that:
 - The location of the site accords with the relevant national and local transport planning policies;
 - The site benefits from access to a sustainable transport network that provides alternatives to the private car;
 - The site is located in an existing employment location with access to existing pedestrian and cycle infrastructure;
 - An analysis of the collision history at the site has identified no significant issues associated with the local highway network that are detrimental to road safety levels;
 - The development vehicles will already be present on the wider network and thus do not constitute new trips in their own right; and
 - The impact of the proposed development will not exceed the ‘severe’ threshold referred to in the NPPF as the only legitimate reason to resist a development on transportation grounds.
4. Following a review of the TS, Oxfordshire County Council (OCC), the highway authority, issued a consultation response on the 26th March 2021, provided at **Appendix A**, that was primarily focused upon seeking clarification on how the proposed development will operate as well as requesting further detail be provided related to the highway impact of the scheme. Alongside this, a series of requests for mitigation measures were identified, including financial contributions towards improving the existing sustainable transport networks and the intended end user operating a Travel Plan.

5. This Technical Note has therefore been produced to address the comments raised by OCC. Following this introduction, the remainder of this note is set out as follows:
- Clarification of Operational Trips;
 - Trip Generation and Parking Demand;
 - Access and Network Capacity;
 - Access Design Standards;
 - Walking and Cycling and Public Transport; and,
 - Travel Plan
6. The information presented in this Technical Note confirms:
- how the proposed development will operate alongside the existing last mile distribution centre that it will serve.
 - the site access benefits from sufficient residual capacity that does not warrant any changes being made to its design.
 - the site access has previously been found to be suitable to serve larger vehicles than will be associated with the proposed development.
 - the proposed development will not lead to a severe residual cumulative impact upon the local highway network.
 - the existing Active Mode networks are of a standard that encourage pedestrian and cycle use, and are not subject to any safety issues based on the road safety records for the local area,
 - the Applicant is willing to provide a contribution towards enhancing the bus stops that serve the site, subject to the usual planning tests being met.
 - the Applicant will operate a Travel Plan Statement to encourage more journeys to the site by workers to be completed by modes other than the private car.
7. In this regard, the proposed development accords with the transport policies that are included in the NPPF and those that are applicable at the Local Level, including:
- Local Plan 1996 Policy TR1
 - Local Plan 1996 Policy TR7
 - Local Plan 2011-2031 Policy PSD1.

- Local Plan 2011-2031 Policy SLE4.
- Local Plan 2011-2031 Policy ESD1.
- Local Plan 2011-2031 Policy INF1.

Clarification of Operational Trips

Overall Strategy

8. Whilst details of the operation are provided in the TS and supporting Planning Statement, OCC has requested further information about how the proposed van storage site will function with the warehouse on Southam Road.
9. Before outlining how the van storage site will operate, it should be noted that it is not in the interest of the intended operator for drivers to be waiting or queuing at the distribution centre as this reduces the efficiency of the use of the vans. By including van storage to allow freight consolidation and more tightly managed deliveries within the operation reduces the potential for any disruption on the highway network around the distribution centre.
10. The way that this is managed is outlined below as follows:

Overarching Principle

- The van storage parking is associated with the existing last mile distribution centre on Southam Road. It is to store vans that are already on the network and travelling to the last mile distribution centre, but are parked in off-site locations.
- Van storage has been accepted by other highway authorities as being a positive contribution to freight consolidation i.e. ensuring the vans are all used efficiently and ensuring the optimum loading for each van.
- The advantages of the van storage area is that the operation of the vans can be controlled more effectively. It also facilitates the operator introducing their own van fleet and moving towards having an electric van fleet.
- Van storage allows the whole operation to be managed in a tighter way by linking all van movements to loading slots to avoid any risk of queuing.
- As the van storage sites are close to the related distribution centre there is more certainty about when they will arrive and where they will arrive from.

Drivers Arriving

- Drivers are aware of the time they need to pick up their van. They also know which van they will be driving.

- The van drivers either have their van keys or collect them from the security hut when they arrive.
- Those that arrive by car will either park in any empty space (swap spaces) or stop their car in the aisle and then park it in the vacated van storage space. This takes a very short time.
- Those that cycle or travel by motorcycle can go straight to their van after they have parked their cycle or motorcycle.
- Those who walk can go straight to their van after they have entered the site.
- If a driver does arrive early to pick up a van they can wait within the van storage site.
- The departures from the van storage site are directly related to when the vans are needed at the distribution centre.
- Vans do not keep returning to the site to be reloaded through the day but make a single delivery run. Each delivery route being planned depends on where parcels need to be delivered to and when they need to be delivered to ensure the most efficient delivery pattern. This is to optimise the loading of vans and minimise overall delivery mileage.
- Each driver will know the time their van is scheduled to be loaded at the distribution centre and the time it takes to travel there. They can therefore time their departure from the van storage area to arrive for their designated loading time.
- The drivers arriving at the van storage will be staggered in line with the staggered loading times at the distribution centre.

Drivers Leaving

- This is the reverse of the above. When drivers have finished their daily delivery run they return their van to the storage area and if they have driven, they then pick up their car. This is staggered as drivers will finish their delivery runs at different times which relate to the time their delivery run started.
11. As such staff working at the Distribution Centre (in the warehouse) are unrelated to the Van Storage site. Staff at the Distribution Centre working in the Warehouse will continue to travel to and from the Distribution Centre by various modes and park at the Distribution Centre. Staff working within the Warehouse would not increase as a result of the Van Storage site.
 12. It is also important to note that the vehicles associated with the proposed development are already present on the highway network. The one key difference being these vehicles being private and/or owned by a contractor. In this regard, there will not be a net increase in activity on the wider network, rather there is a redistribution of traffic at the local level. This is shown in detail within this note.

Operational Movements – Morning Peak

- 13. Activity at the existing last mile distribution centre, that the proposed development will serve, typically commences at 06:00. Vehicles are scheduled to depart in twenty-minute windows, with an area provided on-site for vehicles to wait prior to loading of vehicles. The Southam Road distribution centre has capacity for 144 vans at any one time, with 72 loading bays and 72 holding bays.
- 14. Currently, vans that are intended to be stored at the proposed development already arrive at and depart from the Distribution Centre based on the trip generation shown below in **Table 1**.

Table 1: AM Existing Distribution Centre Trip Generation

Time	Distribution Centre		
	Arriving (at a Waiting Area)	Internal movement (to Loading Area)	Departing
05:00-05:20			
05:20-05:40	50		
05:40-06:00	50	50	
06:00-06:20	50	50	50
06:20-06:40	50	50	50
06:40-07:00	50	50	50
07:00-07:20	50	50	50
07:20-07:40	50	50	50
07:40-08:00	49	50	50
08:00-08:20	49	49	50
08:20-08:40		49	49
08:40-09:00			49
AM Total	448	448	448

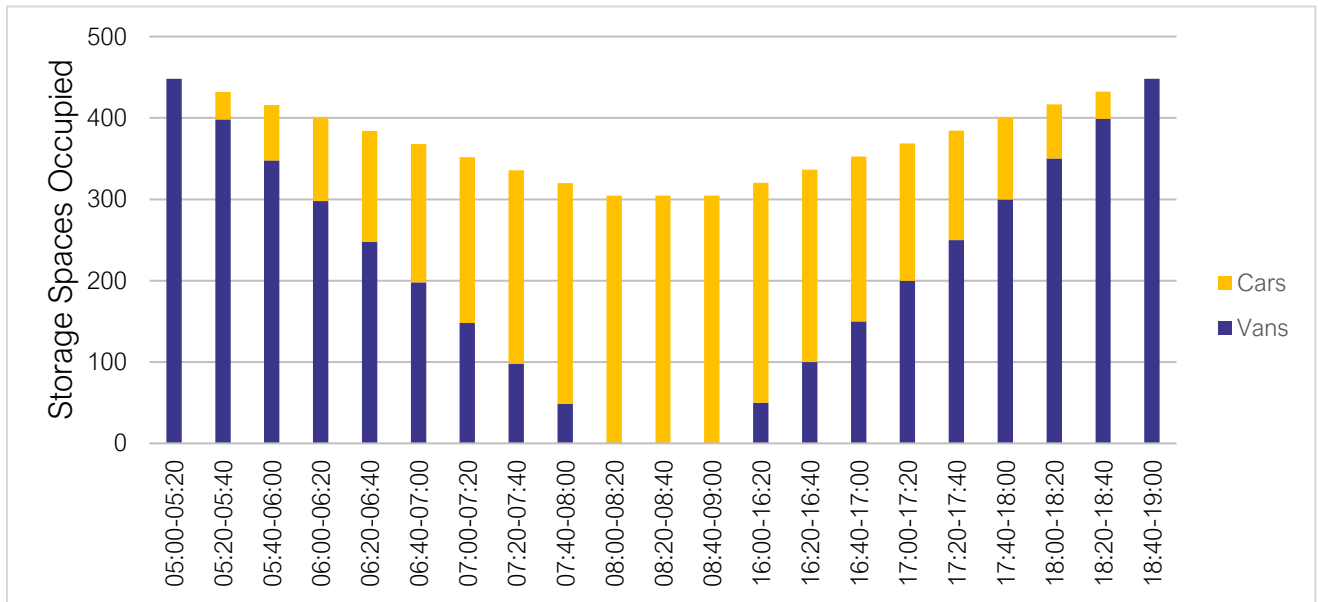
- 15. In **Table 1**, vans are shown to arrive at the site between 05:30-08:30. These vans have originated from the wider network to arrive at the site. The vans then depart between 06:00-09:00 to deliver their parcels.
- 16. With the Van Storage site in place the number of arrivals and departures at the Distribution Centre will remain the same in the AM peak. The only difference is that a proportion of the vans will route from the Van Storage site rather than the wider network. The relationship between the Van Storage site trips and Distribution Centre trips are outlined below in **Table 2**.

Table 2: AM Proposed Distribution Centre Trip Generation with Van Storage

Time	Van Storage Site			Distribution Centre		
	Arriving (By Non-car modes)	Arriving (By car)	Departing (as Vans)	Arriving (to Waiting Area)	Internal movement (to Loading Area)	Departing
05:00-05:20						
05:20-05:40	16	34	50	50		
05:40-06:00	16	34	50	50	50	
06:00-06:20	16	34	50	50	50	50
06:20-06:40	16	34	50	50	50	50
06:40-07:00	16	34	50	50	50	50
07:00-07:20	16	34	50	50	50	50
07:20-07:40	16	34	50	50	50	50
07:40-08:00	16	33	49	49	50	50
08:00-08:20	16	33	49	49	49	50
08:20-08:40					49	49
08:40-09:00						49
AM Total	144	304	448	448	448	448

17. **Table 2** shows that with the Van Storage site in place, a proportion of van drivers will now commute to the area via either car or via sustainable modes of travel as opposed to vans.
18. As outlined in the TS, this is based on the most recently published Census data which has a higher proportion of single occupancy vehicle trips than is typically associated with the intended end user. In this regard, the above is conservative and representative of a worst-case scenario.
19. This is particularly evident given the above is a theoretical exercise that shows how the van storage site and associated last mile delivery warehouse on Southam Road (A423) would operate at full capacity. In reality, there will be daily variations that occur that mean the flows presented will not always reach this level. Our assessment should thus be viewed as a worst-case assessment.
20. Notwithstanding this, the accumulation graph provided **Figure 1** clearly shows there will be no overspill of car parking onto surrounding roads. As each van storage space becomes available, car parking spaces increase. Indeed, it is worthy to note that that at 06:00 there will be 68 vehicles parked in the storage spaces vacated by the vans. This results in there being circa 32 storage bays vacant at 06:00, which is equivalent to the number of vehicles that are expected to arrive between 06:00 and 06:20. In this regard, there will be sufficient residual space left over to meet subsequent waves of arrivals at the site.

Figure 1: Van Storage Parking Accumulation



Operational Movements – Evening Peak

21. As noted above, vehicular activity associated with the proposed development will see the reverse of the morning arrival and departure profiles. However, it should be noted that 20% of vans currently return to the Distribution Centre in the evening to return undelivered goods. The trip generation for this is set out below in **Table 3**.

Table 3: PM Existing Distribution Centre Trip Generation

Time	Distribution Centre	
	Arriving	Departing
16:00-16:20	10	10
16:20-16:40	10	10
16:40-17:00	10	10
17:00-17:20	10	10
17:20-17:40	10	10
17:40-18:00	10	10
18:00-18:20	10	10
18:20-18:40	10	10
18:40-19:00	10	10
PM Total	90	90

22. With the Van Storage site in place all vans will now return, albeit with 20% still returning to the Distribution Centre and the remaining 80% routing directly to the Van Storage. The relationship between the Van Storage site trips and Distribution Centre trips is outlined below in **Table 4** below.

Table 4: PM Proposed Distribution Centre Trip Generation with Van Storage

Time	Distribution Centre		Van Storage		
	Arriving (Vans)	Departing (Vans)	Arriving (vans)	Departing (By Non-car modes)	Departing (By car)
16:00-16:20	10	10	50	16	34
16:20-16:40	10	10	50	16	34
16:40-17:00	10	10	50	16	34
17:00-17:20	10	10	50	16	34
17:20-17:40	10	10	50	16	34
17:40-18:00	10	10	50	16	34
18:00-18:20	10	10	50	16	34
18:20-18:40	10	10	49	16	33
18:40-19:00	10	10	49	16	33
PM Total	90	90	448	144	304

- 23. In the same way as the morning movements, the traffic flows at the Distribution Centre remain unchanged. The results would lead to an increase in trips in the evening peak only, within the immediate vicinity of the site.
- 24. It should be noted that van trips will already be present on the wider network and thus do not constitute new trips in their own right.

Trip Generation and Parking

- 25. In its response, OCC states:

“Referring to this arrangement the Applicant has not submitted any evidenced based information and plan covering the baseline parking demand on carriageway space, or any additional parking demand generated by the warehouse staff and delivery drivers for the proposal. The critical issue where will the 307 commuter drivers and warehouse staff park their vehicles in the area (...) For this scale of planning proposal, the TDC Officer will expect the Applicant to provide its own on-site parking facility for its drivers.”
- 26. As outlined in the above sections the Warehouse staff at the existing Distribution Centre are unrelated to the proposed Van Storage. Staff at the Distribution Centre working in the Warehouse will continue to travel to and from the Distribution Centre by various modes and park at the Distribution Centre. Staff working within the Warehouse would not increase as a result of the Van Storage site.
- 27. **Figure 1** also demonstrates that Van Drivers commuting to the site via car would park in a Van Storage space once vans are removed for use. As such, all car parking requirements are already accommodated on-site.

Access and Network Capacity

28. In its response, OCC states:

“would expect the Applicant to provide evidenced based data junction capacity analysis for the existing network intersections within close proximity of the Warehouse and the Van storage park.”

“Southam Road is about 6.5m wide including an on-carriage cycle lane which further reduces the effective carriageway width. No provision on carriageway to the van park access has been made by Applicant to address the issue of the heavy turning flows into and out of the van storage site or mitigate the adverse impacts on ‘through’ traffic and cyclist in that area. The Applicant should consider widening that section of the carriageway for a right turning pocket facility in order ease the movement of passing traffic”

29. An initial modelling exercise has been undertaken for the site access and surrounding highway network using traffic data that informed a recent planning application in Banbury. As this data is extracted from the most recent update of the Banbury Highway Model (BHM) this is considered a reasonable approach, particularly as we await feedback from OCC as to how the effects of the scheme should be modelled. The email correspondence provided at **Appendix B** refers.

30. The full Highway Impact Assessment and Methodology can be found at **Appendix C**. A summary of the HIA is provided below, together with an overview of the results.

Methodology

Base Flows

31. 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.

32. 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.

33. 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.

34. Further information for how these flows were used to form the basis for the modelling is provided within the Highway Impact Methodology at **Appendix C**.

Traffic Growth

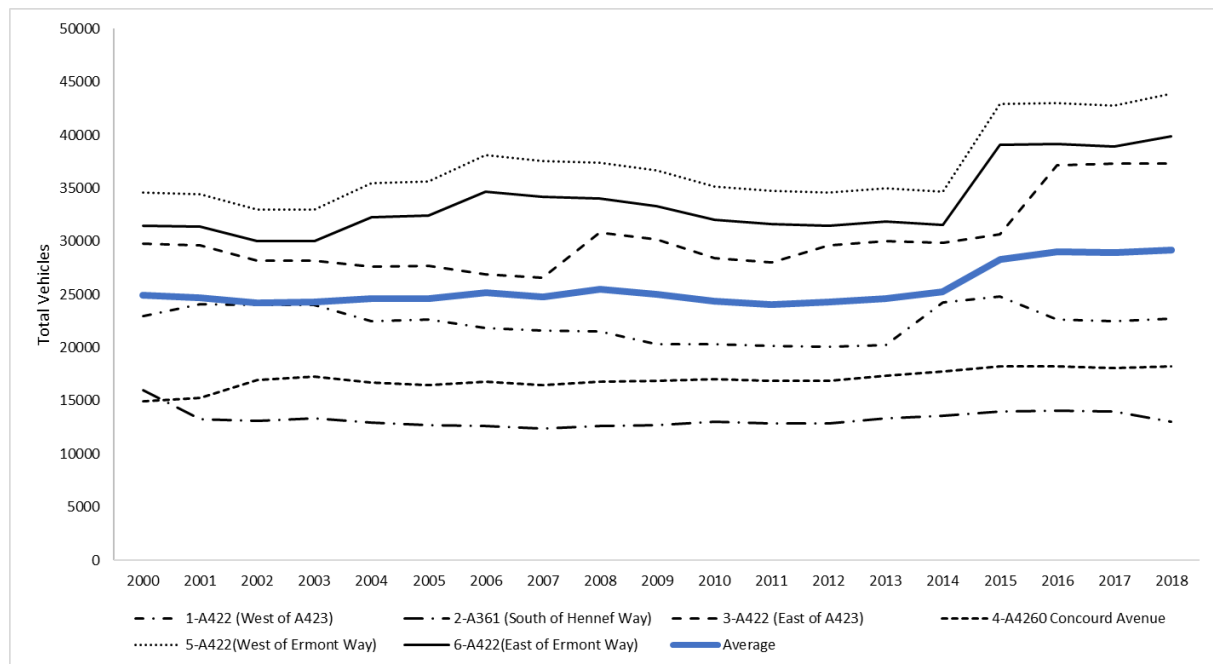
35. It should be noted that the HIA compares the 2021 base flows extracted from the BHM with 2011 traffic counts obtained from the application for Southam Road Retail Park (App ref: 12/00329/OUT). The purpose of this exercise was to identify the growth rates that have been used within the BHM. A summary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

Table 5: 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/ Concourn Avenue	4258	4333	6146	5576	44%	29%
D	Hennef Way/ Wildmere Road	5030	4855	7231	6638	44%	37%

36. The HIA also includes a comparison of how traffic flows held by the DfT have changed over the course of the same period. A summary of this is provided below at **Figure 2**.

Figure 2: DfT Traffic AADT Counts



37. **Figure 2** shows that over the last 20 years traffic flows have remained relatively static with a slight increase between 2014 and 2015.

38. As such it is considered that the increase in traffic flows in the 2021 SATURN model, as identified at Table 5, are likely to overestimate the increases that have occurred in practice. Therefore, the assessment undertaken in the HIA 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.

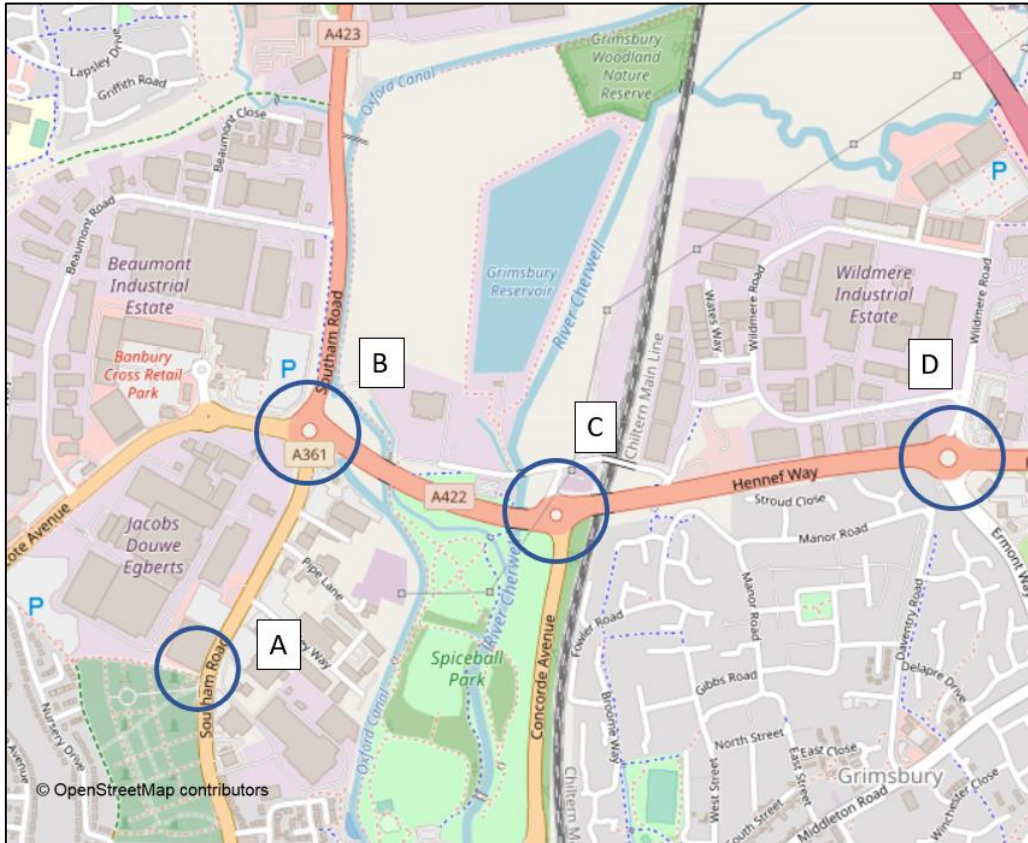
Assessment Scenarios

- 39. To assess the impact of the proposed development on the local road network, the following scenarios have been tested during the AM and PM peak periods:
 - ‘2021 Without Development’
 - ‘2021 With Development’
 - ‘2021 With Development (Sensitivity)’

Impact on the Highway Network

- 40. 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 3** below.

Figure 3: Highway Network Study Area



Modelling Results

- 41. 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** of the HIA.
- 42. The results of this assessment scenario have been summarised in **Tables 6 to 9** below and set out in full at **Annex E** of the HIA. The highest RFC, Queue and Delay of the junctions are presented from each junction across any time period.

Junction A - Site Access

Table 6: Junction A Modelling Results

Arm	Maximum RFC	Maximum Queue	Maximum Delay (Seconds)
2021 without development			
Site Access to Southam Rd (N)	0.07	0.1	9.42
Site Access to Southam Rd (S)	0.08	0.1	17.78
From Southam Rd (N)	0.07	0.1	5.66
2021 with development			
Site Access to Southam Rd (N)	0.25	0.3	8.44
Site Access to Southam Rd (S)	0.11	0.1	22.58
From Southam Rd (N)	0.45	1.7	7.15

- 43. The site access modelling results in **Table 6** demonstrate:
 - The maximum RFC value is comfortably within the 0.85 and 0.90 threshold that has historically been referred to by the Institute of Highways and Transportation as a junction that is operating within theoretical capacity.
 - There will be a maximum queue of approximately two vehicles, which is expected to be experienced on the Southam Road (North) approach.
 - Increases in delays will be modest, with the maximum increase being in the order of approximately five seconds.
- 44. As a result, it is clear that there is sufficient residual capacity at the existing access junction to accommodate traffic associated with the proposed development. It is thus concluded that there is no need to provide a right-turn pocket at this location in order to make the proposed development acceptable in transport terms.

Junction B - Hennef Way/ Southam Road

Table 7: Junction B Modelling Results

Arm	Maximum RFC	Maximum Queue	Maximum Delay (Seconds)
2021 without development			
Southam Road (A423)	0.47	0.9	3.59
Hennef Way (A422)	0.86	6.5	11.00
Southam Road (A361)	0.94	13.3	62.21
Ruscote Avenue (A422)	0.73	2.9	10.80
2021 with development			
Southam Road (A423)	0.58	1.4	4.53
Hennef Way (A422)	0.98	34.3	52.21
Southam Road (A361)	1.24	237.5	1154.14
Ruscote Avenue (A422)	0.83	5.0	18.86
2021 with development (Sensitivity)			
Southam Road (A423)	0.50	1.0	3.83
Hennef Way (A422)	0.86	6.3	10.58
Southam Road (A361)	0.97	20.6	91.55
Ruscote Avenue (A422)	0.74	3.0	11.15

45. It can be seen from **Table 7** that:

- the Southam Road (A361) approach is expected to be approaching capacity in the 2021 without development scenario with an RFC of 0.94.
- Southam Road is expected to operate over capacity once development traffic is added to the network, with a RFC value of 1.24 recorded by the ARCADY model.
- once the temporary effects of HS2 are discounted, Southam Road is shown to be operating only slightly worse than the without development situation, with a RFC value of 0.97 predicted.

46. On this basis it is considered that the proposed development will not have a residual cumulative impact at this location. This is particularly evident given the assessment has considered a worst-case methodology that

- is informed by traffic flows extracted from the BHM, which has shown through reference to historical counts and DfT data to have overestimate increases in background traffic.
- is predicated on the assumption that all van storage bays will be used on any given day, when in reality there will be planned and unscheduled maintenance that means not all vans will be operational.

- is based on data that assumes 68% of workers will drive to the van storage site, whereas it has been shown in the Travel Plan, that is already operational at the existing Distribution Centre, that the intended end user typically sees much lower single car occupancy vehicle rates.

Junction C - Hennef Way/ Concord Avenue

Table 8: Junction C Modelling Results

Arm	Maximum RFC	Maximum Queue (PCU)	Maximum Delay (Seconds)
2021 without development			
Grimsbury Green	0.0	0.0	0.0
Hennef Way East (A422)	0.87	6.6	9.42
Concord Avenue (A4260)	0.77	3.4	9.81
Hennef Way West (A422)	0.88	7.2	17.06
2021 with development			
Grimsbury Green	0.0	0.0	0.0
Hennef Way East (A422)	0.91	10.1	13.88
Concord Avenue (A4260)	0.83	4.8	13.68
Hennef Way West (A422)	0.98	34.4	73.37
2021 with development (Sensitivity)			
Grimsbury Green	0.0	0.0	0.0
Hennef Way East (A422)	0.89	8.4	11.71
Concord Avenue (A4260)	0.80	4.1	11.84
Hennef Way West (A422)	0.90	8.9	20.53

47. As with Junction B, **Table 8** demonstrates:
- there are approaches to Junction C (i.e. B422) that are expected to be approaching capacity in the 2021 without development scenario.
 - the introduction of development related traffic exacerbates this situation at Junction C.
 - once the temporary effects of HS2 are discounted, there is only a very negligible change in RFC values at Junction C.
48. Accordingly, the conclusions reached with respect to Junction B equally apply here, particularly as the RFC values in this location do not exceed 1, which is the point at which theoretical capacity is reached. This is particularly evident given the worst-case assessment that has been followed.

Junction D - Hennef Way/ Wildmere Road

Table 9: Junction D Modelling Results

Arm	Maximum RFC	Maximum Queue (PCU)	Maximum Delay (Seconds)
2021 without development			
Wildmere Road	0.93	11.2	63.90
Hennef Way East (A422)	0.90	9.8	17.13
Ermont Way	0.73	2.8	18.11
Hennef Way West (A422)	0.77	3.5	5.22
2021 with development			
Wildmere Road	0.96	16.6	94.49
Hennef Way East (A422)	0.94	15.0	25.62
Ermont Way	0.78	3.6	23.76
Hennef Way West (A422)	0.79	3.8	5.52
2021 with development (Sensitivity)			
Wildmere Road	0.84	5.4	29.92
Hennef Way East (A422)	0.92	11.3	19.56
Ermont Way	0.75	3.1	19.87
Hennef Way West (A422)	0.74	2.9	4.50

49. It can be seen from **Table 9** that the junction of Hennef Way/ Wildmere Road would operate within theoretical capacity within all scenarios. As with Junction B and C, once the temporary HS2 movements are discounted, it is shown to operate more efficiently. The proposed development is therefore not considered to have a severe residual cumulative impact at this junction that would warrant any mitigation being provided.

Access Design Standards

50. In its response, OCC states:

“Regarding the access, the Applicant should ensure that the gradient and sightlines complies with current highway design Standards and has sufficient drainage and ensure the dimensions are appropriate for servicing the site.”

“The need for the access arrangements to be accompanied by swept path analyses of the vehicles likely to access the Van storage site together with drawing showing compliance to highway Visibility Splay Standards”

51. The site access is considered suitable for the anticipated vehicles at the proposed site for the following reasons:

- The largest vehicles to access the Van Storage site will be vans, no HGVs will be accessing the site. The site access is already utilised by vans and/or larger vehicles associated with the Waitrose.
- This access will remain unchanged from the most recently approved application (App ref: 18/01246/F) where the access was found to provide safe and suitable access to the proposed vehicles at the site. Indeed, the submitted evidence includes the swept path analyses of a HGV safely entering and exiting the site access, which is much larger than the vehicles associated with the proposed development.

52. As such given both points above it is considered that the access can safely accommodate the vehicles of the proposed van storage. Also, as an existing access there is no need to check the design against current guidance, particularly as it has been shown above it is not subject to any capacity constraints and the TS confirms that it does not have a poor safety record.

Walking and Cycling and Public Transport

Walking and Cycling

53. In its response OCC states:

“Currently there is limited pedestrian access into the site from Southam Road, this call for contributions towards footway improvements should planning consent be granted. This should include tactile paving and dropped kerbs at road junctions close to the the development. PERS Audits of the route from the Warehouse to Van Storage Park will be required to from the Applicant to ascertain the footway and highway required for pedestrians in the area.”

“Though CDC and OCC have no set specific standards for cycle parking, 42 cycle spaces, however the Travel Plan in support of the Applicant should inform the level of cycle provision. Also details cycle parking facilities and CERS Audit will assist in enhancing cycle movements and cycle route improvements close to the Warehouse and Van Storage area. These should be provided in support in support of the Proposal.”

54. As mentioned above, the trips that would occur between the Van Storage site and Distribution Centre would be undertaken in Vans only. No trips to the Van Storage site from the Distribution Centre would be undertaken by either walking or cycling as such a PERS and/or CERS audit is not considered necessary. This is particularly evident when considering the site is located in an established commercial area that is well served by both pedestrian and cycle infrastructure.

55. For example, within the vicinity of the site there are three crossing facilities all with dropped kerbs and tactile paving:

- The first crossing is shown within **Image 1** and forms an uncontrolled pedestrian crossing over the site access with a refuge island.

Image 1: Uncontrolled Pedestrian Crossing Over the Site Access



- A signalised toucan crossing is present approximately 120m north of the site access on Southam Road with tactile paving and dropped kerbs, shown on **Image 2**. This provides safe crossing to the eastern side of the carriageway for both pedestrians and cyclists.

Image 2: Signalised Toucan Crossing 120m North of the Site Access



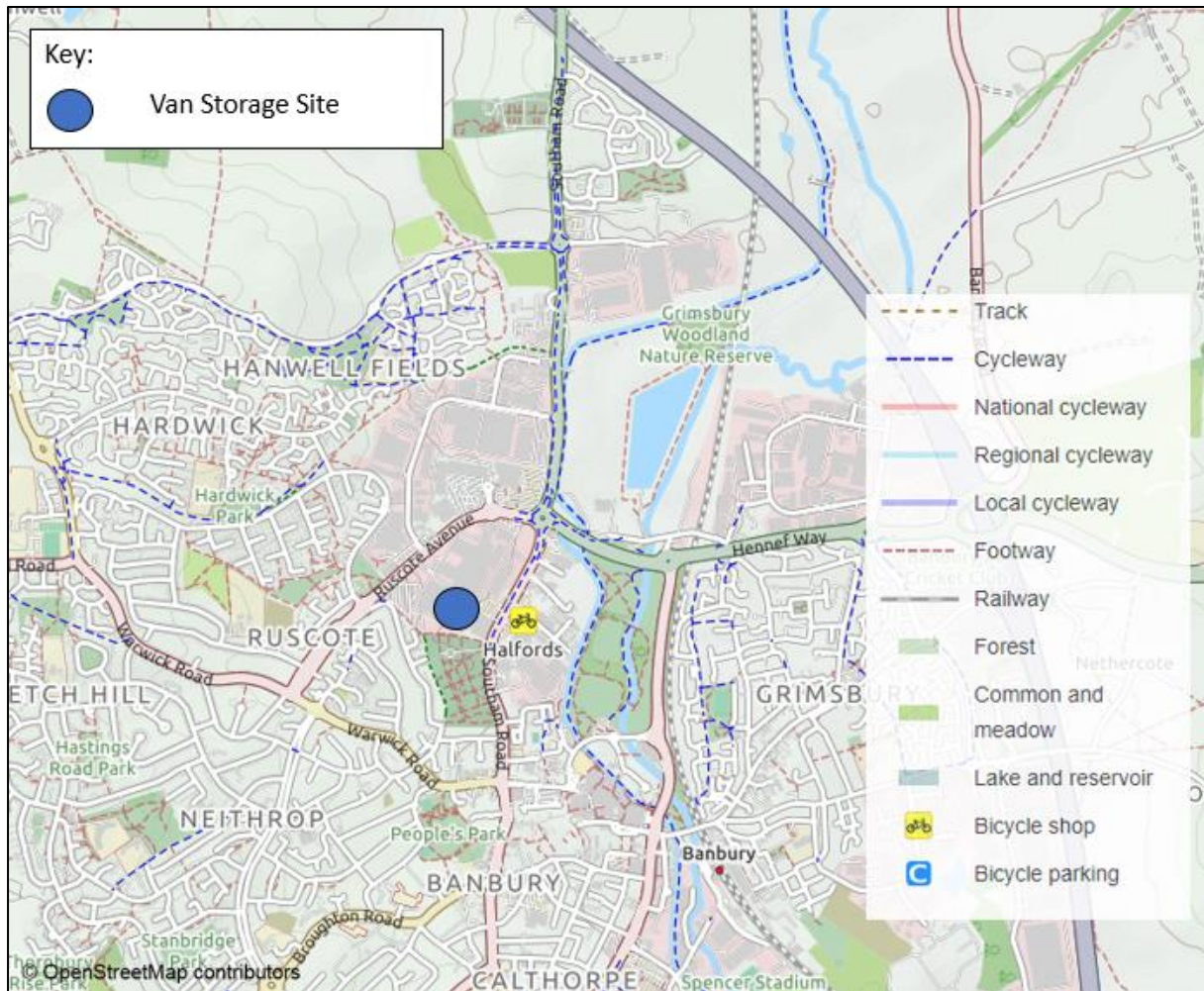
- Similarly, a pelican crossing is provided approximately 300m south of the site access as shown in **Image 3**.

Image 3: Pelican Crossing 300m South of the Site Access



56. Moreover, the site benefits from access to a comprehensive provision of cycle infrastructure within the vicinity of the site. This is shown within **Figure 4** below.

Figure 4: Banbury Cycle Infrastructure



57. On the basis that the site is well located to Active Modes of Travel it is considered that the site is ideally placed to encourage trips to be completed by walking and cycling. Indeed, it is evident that the most recently published census data indicates that a greater proportion of work-based trips are completed by cycling when traveling this this area of Banbury as oppose to the other commercial areas, whilst pedestrian trips are comparable (see **Appendix D**). Accordingly, it is not considered necessary to provide any improvements to the Active Mode networks, particularly as the increases in pedestrian and cycle activity shown within the TS are representative of a modest increase in demand over the existing situation¹.
58. A review of the *Crahsmap* website has also indicated that no pedestrians and only three cyclists were involved in collisions on Southam Road in the vicinity of the site between the years of 2006-2019 as shown in **Appendix E**. Very few accidents have also occurred within the vicinity of the site access

¹ The TS shows a total of 94 active mode trips to and from the site across the course of a typical day, which equates to significantly less than one extra movement per minute across the three hour arrival period in the morning and corresponding period in the evening.

over the last 13 years, which indicates that there are no inherent safety issues with the current pedestrian and cycle infrastructure.

Public Transport

59. In its response, OCC states:

“The quality of the stops closer to the access is extremely poor with just a flag pole and shall need significant improvements. It is considered reasonable for this development to fund for two Premium Route bus stop pole/flag/information cases and two shelters at an indicative cost of £16,000 which shall be secured via a s106.”

60. The principle of such a contribution is accepted given the observations made by OCC about the current infrastructure. The sum of money involved also appears reasonable. On this basis, the Applicant is willing to explore this with OCC and CDC in more detail, to ensure that any request meets the usual planning tests outlined in the NPPF.

Travel Plan

61. It is noted that OCC has identified a need to operate a Travel Plan at this site. In recognition of this, and further to pre-application advice received with respect to a separate van storage facility located on Ruscote Avenue, a Framework Travel Plan Statement has been prepared. The intention of this document, which is provided at **Appendix F**, is to guide the measures and targets that will be included in the final version of the document, which we assume will need to be agreed with OCC and CDC prior to the proposed development being operational.

Summary and Conclusions

62. This Technical Note has been prepared in response to a consultation response issued by OCC with respect to the proposed development of a van storage site off Southam Road in Banbury

63. The information contained herein:

- Clarifies how the proposed development will operate alongside the existing last mile distribution centre that it will serve.
- Confirms the site access benefit from sufficient residual capacity to accommodate development related traffic and vehicles that are larger than the vans that will be stored at the site.
- Provides further evidence that the existing Active Mode networks are of a standard that encourage pedestrian and cycle use, and thus there is no justification for the proposed development making any off-site improvements. This is particularly evident given there is not a poor pedestrian or cyclist safety record and the fact that there will be a modest increase in pedestrian and cycle activity.

- Demonstrates the proposed development will not have an unacceptable impact on the junctions that comprise the study area.

64. On the basis of the evidence contained within this Technical Note, and that contained within the submitted TS, it is concluded that the proposed development satisfies the three central transport tests outlined in the NPPF; namely:

- Appropriate opportunities to promote sustainable transport modes have been made that reflect its location.
- Safe and suitable access has been provided for all users, thereby demonstrating that the scheme will not result in an unacceptable impact from a road safety perspective.
- The residual cumulative impact on the local highway network is less than severe, and thus no mitigation is required.

65. It is therefore our view that the proposed development is entirely acceptable from a highways and transportation perspective. Indeed, it is considered that the in-principal agreement to the payment of a financial contribution towards improving bus stops and agreement to operate a Travel Plan more than offsets the potential impact of the scheme. Accordingly, it is concluded that the proposed development accords with the NPPF and the following CDC Development Plan policies:

- Local Plan 1996 Policy TR1;
- Local Plan 1996 Policy TR7;
- Local Plan 2011-2031 Policy PSD1;
- Local Plan 2011-2031 Policy SLE4;
- Local Plan 2011-2031 Policy ESD1; and
- Local Plan 2011-2031 Policy INF1.

Appendix A

COUNTY COUNCIL'S RESPONSE TO CONSULTATION ON THE FOLLOWING DEVELOPMENT PROPOSAL

District: Cherwell

Application No: 21/00503/F

Proposal: Use of the site for the storage of operational vehicles, elevational alterations, associated parking, vehicle barriers, guard hut and associated infrastructure

Location: Banbury 200 Southam Road Banbury

Response date: 26th March 2021

This report sets out the officer views of Oxfordshire County Council (OCC) on the above proposal. These are set out by individual service area/technical discipline and include details of any planning conditions or informatives that should be attached in the event that permission is granted and any obligations to be secured by way of a S106 agreement. Where considered appropriate, an overarching strategic commentary is also included. If the local County Council member has provided comments on the application these are provided as a separate attachment.

Application no: 21/00503/F

Location: Banbury 200 Southam Road Banbury

Transport Schedule

Recommendation:

Objection for the following reasons:

- No details on the impact on development traffic on carriageway access approach for passing traffic, neither the network intersections within close proximity of the site.
- No Details of the warehouse operational details and capacity of holding area and operational connectivity with the proposed Van Storage site submitted for approval.
- No details of parking arrangements and impacts on traffic and road network capacity in development area has been submitted

S106 Contributions

Contribution	Amount £	Price base	Index	Towards (details)
Public Transport Infrastructure contribution	16,000	August 2018	Baxter	A pair of Premium Route bus stop pole /flag /information cases and two shelters
Total	£16,000			

Key points:

- The impact the proposed increase in van storage, driver vehicle trips and parking on network within the immediate of the Van storage area and the Last-Mile Warehouse.
- Absence of information on the existing warehouse's capacity to accommodate the number of vans off the network for loading and delivery or the booking mechanism for scheduling van movements from the Storage site to Warehouse without adverse impact on traffic and capacity of road network and intersections.
- Absence of details on the Van Storage Operation Management Plan for the delivery service.

Existing Site

The Vacant site comprises an existing warehouse (Banbury 200) located approximately 800m north of Banbury town centre situated to the west of Southam Road and to the east of Ruscote Avenue (A422) to the west. The site is bounded by industrial units to the north, Southam Road and a Waitrose to the east, a cemetery to the south and a car park and Ruscote Avenue to the west. The most recent application (App ref : 18/01246/F) at this site was granted consent with conditions in December

2018 for the change of use of premises from Class B8 to B1c/B2/B8, including internal and external alterations, demolition of ancillary structures and a new access to Southam Road. The site is also close to existing bus services, walking and cycling routes.

Proposal

The proposed van storage scheme is associated with a nearby last-mile distribution centre approximately 1.5km north of the site, located to the east of Southam Road (A422). The Warehouse will operate a parcel delivery and distribution service for customers in the local area using vans. The proposed overnight van storage park would accommodate 450 operational vans, 1 car parking space, 42 Cycle Parking Space and 5 motorcycle spaces. The existing car parking spaces will be reduced from 211 car spaces, the cycle parking spaces will remain at 42 and the 10 disabled parked will be the van storage proposal.

The Applicant confirms the proposed arrangement will improve the existing operations, reduce overall journeys, enhance the sustainability of the operation and travel and be consistent with the principles of freight consolidation. In addition, the TS states the proposed van storage site will remove vans from the road network during out-of-operation hours; and allow the incorporation of passive/active Electric Vehicle (EV) charging for future increase in EV fleet.

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 and an emergency exit-only egress is proposed to the north-east of the site through an existing left turn only junction onto the A422

Comments:

The existing car parking space was 211 carparking spaces, 42, cycle storage spaces, and 10 disable parking spaces prior to the consented application. Regarding the consented application, the car parking provision was for 186 car spaces, and 34 for LGV and PSV totalling 440 outbound and inbound vehicle movements during the day.

The Transport Statement (TS) for this proposals states that local drivers would arrive at the proposed site by various means of transport, collect a van and drive on to the last-mile distribution centre to collection parcels for deliveries. Once all deliveries have been made, drivers would return the vans to the site, collect their cars, others will use sustainable modes of transport.

Referring to this arrangement the Applicant has not submitted any evidenced based information and plan covering the baseline parking demand on carriageway space, or any additional parking demand generated by the warehouse staff and delivery drivers for the proposal. The critical issue where will the 307 commuter drivers and warehouse staff park their vehicles in the area. No parking Surveys have been submitted for the existing parking demand and any additional on-street parking demand because of the proposed development (which in my view would exacerbate parking stress and reduce the capacity of the network in the area). For this scale of planning proposal, the TDC Officer will expect the Applicant to provide its own on-site parking facility for its drivers.

The route that drivers will follow between the van storage site off Southam Road and the existing last-mile distribution centre will be from the site north along Southam Road (A361 and A423) via the Southam Road/A422 roundabout.

Regarding the access, the Applicant should ensure that the gradient and sightlines complies with current highway design Standards and has sufficient drainage and ensure the dimensions are appropriate for servicing the site.

Model split for the Van Storage and Warehouse proposal

The modal split for NOMIS database for Cherwell 003 area for travel to work when applied to the above operation shows that 5% of all van drivers would commute to the site via bicycle which equates to 25 employees. There are 7 existing cycle shelters on-site which will be retained with the development will provide 42 cycle spaces. A total of 451 drivers that will go to work, 68% (307) by will do so by van or car and 16% (71) by foot.

The TS confirms that trips between the van storage and the last-mile distribution centre could start from 05:30 to 08:30 and completed between 16:00-19:00. Details on number of vehicles, the scheduling arrangement so the TDC Officer needed to assess the impact of volume of vehicle trips for various delivery time slots from the Storage area to the Warehouse has not been. This will be required within the context of Delivery Service / Van park management in support of the Application.

Table 4.1 – Modal Split and Number of Workers

Method of Travel to Work	Percentage	Worker Numbers
Underground, metro, light rail or tram	0%	0
Train	1%	5
Bus, minibus or coach	2%	7
Taxi	1%	4
Motorcycle, scooter or moped	1%	5
Driving a car or van	68%	307
Passenger in a car or van	6%	27
Bicycle	5%	25
On foot	16%	71
Other	0%	2
Total	100%	451

I note the potential trip generation figures presented in table 5.1 for the consented application (18/01246/FUL) based on 18,587sq.m of the extant development has a total of 550 two-way vehicular trips. Given that the modal split above indicates 68% of workers travel to work by car, the total two-way car driver movements of 614 plus the 451van's two -way 902 vehicle movements, a total of 1516 trips(minimum) will be associated with the proposal daily.

Table 5.1 – Consented Trip Generation

Time Period	Arrivals	Departures	Total
0500 - 0600	0	0	0
0600 – 0700	85	0	85
0700 – 0800	49	7	56
0800 – 0900	38	10	48
0900 – 1000	23	14	37
1000 – 1100	15	10	25
1100 – 1200	9	12	21
1200 – 1300	14	17	31
1300 – 1400	29	16	45
1400 – 1500	13	26	39
1500 – 1600	11	31	42
1600 – 1700	8	57	65
1700 – 1800	7	33	40
1800 – 1900	1	15	16
Daily (24hr)	303	247	550

It is also noted when the comparative generated vehicle trips for previous consented development (18/0126/FUL) Van storage site proposal only the vehicle trips as shown below exceeds that of the consented development for the same time slots.

Extant App.(18/0126/FUL)

0600-0900 189 two-way veh. trips
 1700-1800 40 two-way veh. trips

Van storage site App(21/00503/FUL)

588 two-way veh. trips
 252 two-way veh. trips

In line above comment Oxfordshire County Council (OCC) as Local Highway Authority (LHA) would expect the Applicant to provide evidenced based data junction capacity analysis for the existing network intersections within close proximity of the Warehouse and the Van storage park. The baseline network flows from the analysis together with the generated flows then can be utilised in demonstrating that access junction and nearby intersections (e.g. Southam Road / Ruscote Avenue etc.), in the area can accommodate both existing network and the generated development traffic.

. Other issues of concern that relate the proposed access approach are;

- The need for the access arrangements to be accompanied by swept path analyses of the vehicles likely to access the Van storage site together with drawing showing compliance to highway Visibility Splay Standards.
- Southam Road is about 6.5m wide including an on-carriage cycle lane which further reduces the effective carriageway width. No provision on carriageway to the van park access has been made by Applicant to address the issue of the heavy turning flows into and out of the van storage site or mitigate the adverse impacts on ‘through’ traffic and cyclist in that area. The Applicant should

consider widening that section of the carriageway for a right turning pocket facility in order ease the movement of passing traffic.

Walking

Currently there is limited pedestrian access into the site from Southam Road, this call for contributions towards footway improvements should planning consent be granted. This should include tactile paving and dropped kerbs at road junctions close to the the development. PERS Audits of the route from the Warehouse to Van Storage Park will be required to from the Applicant to ascertain the footway and highway required for pedestrians in the area

Cycling and Cycling routes

Though CDC and OCC have no set specific standards for cycle parking, 42 cycle spaces, however the Travel Plan in support of the Applicant should inform the level of cycle provision. Also details cycle parking facilities and CERS Audit will assist in enhancing cycle movements and cycle route improvements close to the Warehouse and Van Storage area. These should be provided in support in support of the Proposal.

Public Transport

The Council's Local Transport Plan provides the policy background for much improved bus services in Banbury (the 'Banbury Bus Strategy'), as a means of increasing the proportion of people travelling by bus, and therefore reducing the traffic congestion. There are two pairs of bus stop located on Southam Road in the vicinity of the site access with the closest pair located about 100metres south of the access. The quality of the stops closer to the access is extremely poor with just a flag pole and shall need significant improvements. It is considered reasonable for this development to fund for two Premium Route bus stop pole/flag./information cases and two shelters at an indicative cost of £16,000 which shall be secured via a s106.

The developer will be required to liaise with Banbury Town Council regarding the style of bus shelter to be procured, along with confirmation that the Town Council will take on the ongoing liability for maintenance. The cost of additional load factors as result of the development on bus service operation in the area.

Planning Conditions:

In the event of permission being granted for the above application, the following planning

Standard conditions for approval:

- Access arrangements
- Van Storage Parking arrangement and cycle parking details
- Work- Place Green Travel plan
- Van storage and Warehouse distribution Management Plan
- Delivery Service Plan
- Construction Management Plan

Should be attached to above application

Officer's Name: Francis Hagan
Officer's Title: Transport Planner
Date: 25 March 2021

Appendix B

River Burton

From: James Bancroft
Sent: 28 April 2021 10:15
To: River Burton
Subject: FW: 20/03544/PREAPP - Car Park SW Of Gatehouse, Jacobs Douwe Edberts, Ruscote Avenue, Banbury
Attachments: Oxfordshire County Council's response to 21-00503-F Banbury 200 Southam Road Banbury.pdf

From: James Bancroft
Sent: 31 March 2021 13:34
To: Nichols, Chris - E&E
Cc:
Subject: RE: 20/03544/PREAPP - Car Park SW Of Gatehouse, Jacobs Douwe Edberts, Ruscote Avenue, Banbury

Hi Chris,

Thanks for your time earlier. I have copied in Francis given the attached response to application 21/00503/F, which is something we are also supporting for the same client.

As discussed, I wonder if it would be sensible to consider the cumulative impact of both schemes using the Banbury Highway Model that has been used to inform the Land North-East of the M40 Junction 11, Banbury application (19.00128.HYBRID). Within the TA that supports this application it is noted that:

"...the traffic flow data was provided by OCC from the Banbury Highway Model (SATURN model) which was developed by OCC in order to assess impact of allocations proposals as part of CDC's Local Plan".

On the basis that you were not aware of this model, I appreciate you will need to confer with colleagues. Whilst I appreciate that you are busy, it would be appreciated if you could get back to us early next week as I am conscious that there will be a need to agree study areas before accessing the current version of the model.

I look forward to hearing from you shortly.

Kind regards

From: Nichols, Chris - E&E
Sent: 24 March 2021 13:10
To: James Bancroft
Subject: RE: 20/03544/PREAPP - Car Park SW Of Gatehouse, Jacobs Douwe Edberts, Ruscote Avenue, Banbury

James,

I'll look into that and get back to you. Probably not much point in having a call until I've done some delving.

Chris

*Chris Nichols
Transport Development Control
Oxfordshire County Council*

From: James Bancroft
Sent: 24 March 2021 12:28
To: Nichols, Chris - E&E
Subject: RE: 20/03544/PREAPP - Car Park SW Of Gatehouse, Jacobs Douwe Edberts, Ruscote Avenue, Banbury

Hi Chris,


The main point is how we model the two junctions on Ruscote Avenue as we can't find any publicly available data. Are OCC allowing surveys at the moment? Let me know when would be good to have a call.

Kind regards

James Bancroft
Associate Director

6 Victory House, Dean Clarke Gardens
Exeter, EX2 4AA

vectos.

 Consider the environment. Do you really need to print this email?

From: Nichols, Chris - E&E
Sent: 24 March 2021 09:44
To: James Bancroft
Subject: RE: 20/03544/PREAPP - Car Park SW Of Gatehouse, Jacobs Douwe Edberts, Ruscote Avenue, Banbury

Hi James,

I am happy to discuss. Would you like to send me a list of queries so that we can consider in advance?

Chris

From: James Bancroft
Sent: 22 March 2021 14:46
To: Nichols, Chris - E&E
Subject: RE: 20/03544/PREAPP - Car Park SW Of Gatehouse, Jacobs Douwe Edberts, Ruscote Avenue, Banbury

Hi Chris,

I trust that you are well.

Further to my earlier voice mail, it would be appreciated if you could give me a call to talk through the attached. I am keen to discuss some of the modelling points that you refer to, and in particular, the availability of traffic data.

I look forward to hearing from you.

Kind regards

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Appendix C

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

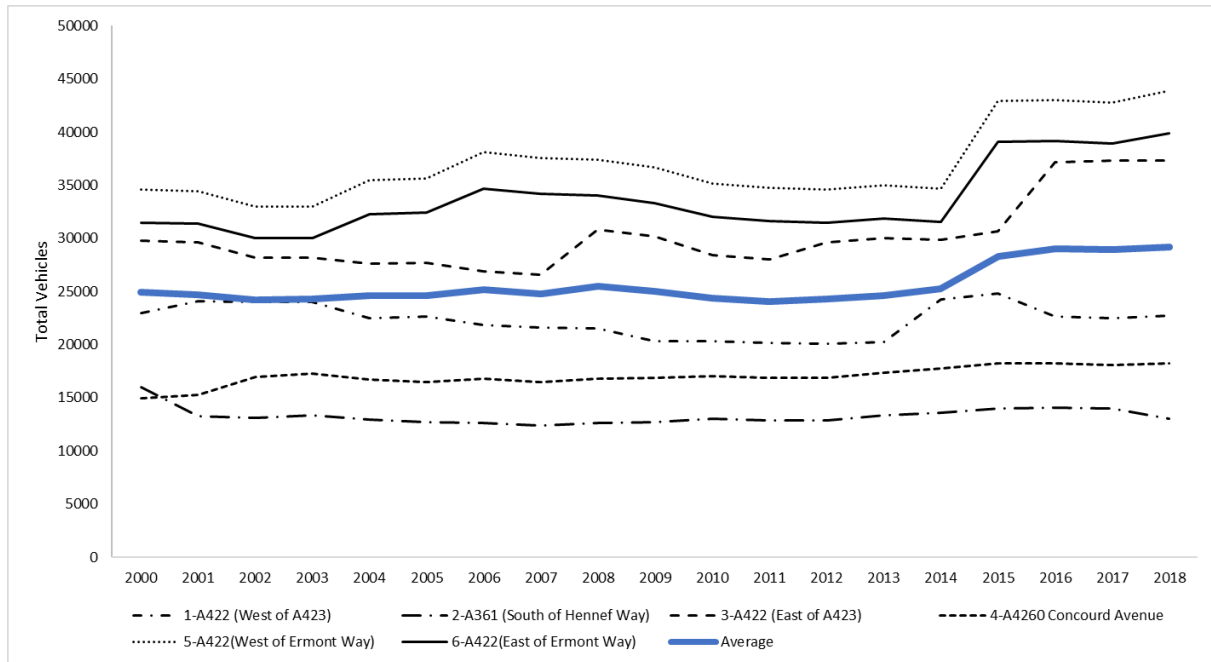
13. It should be noted that the 2021 base flows extracted from the BHM have been compared with 2011 traffic counts obtained from the application for Southam Road Retail Park (App ref: 12/00329/OUT). The purpose of this exercise was to identify the growth rates that have been used within the BHM. A summary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

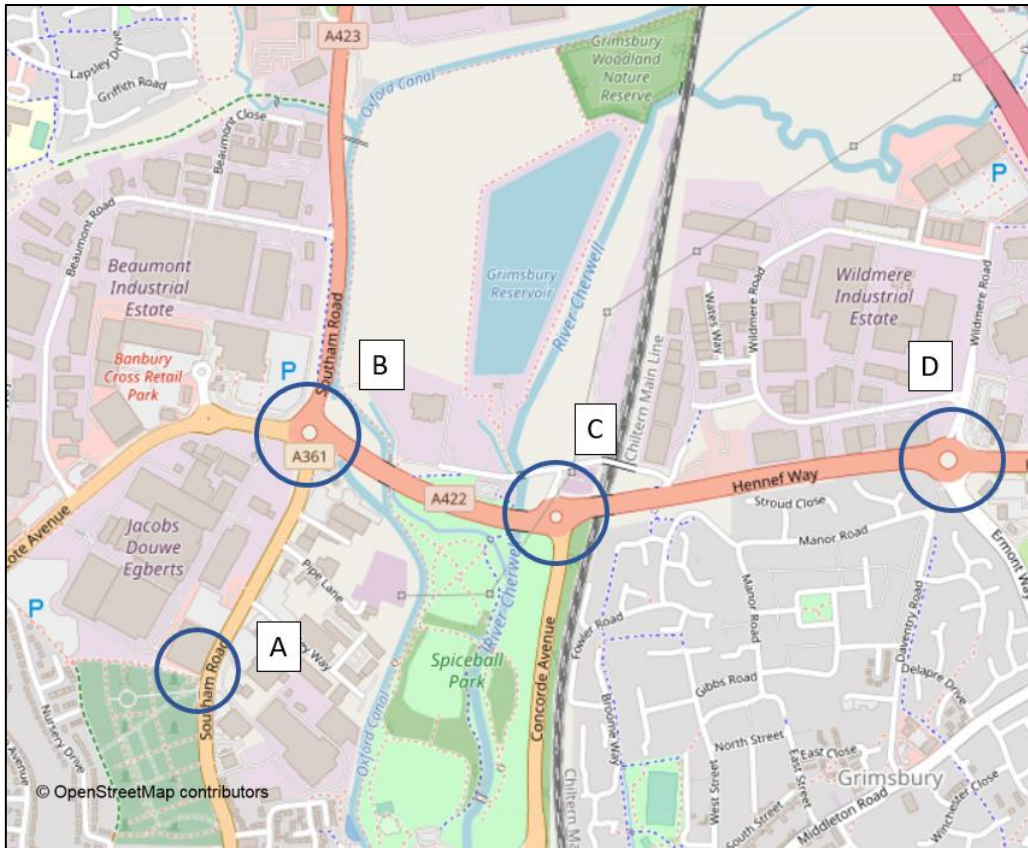
Highway Impact Assessment Scenarios

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.

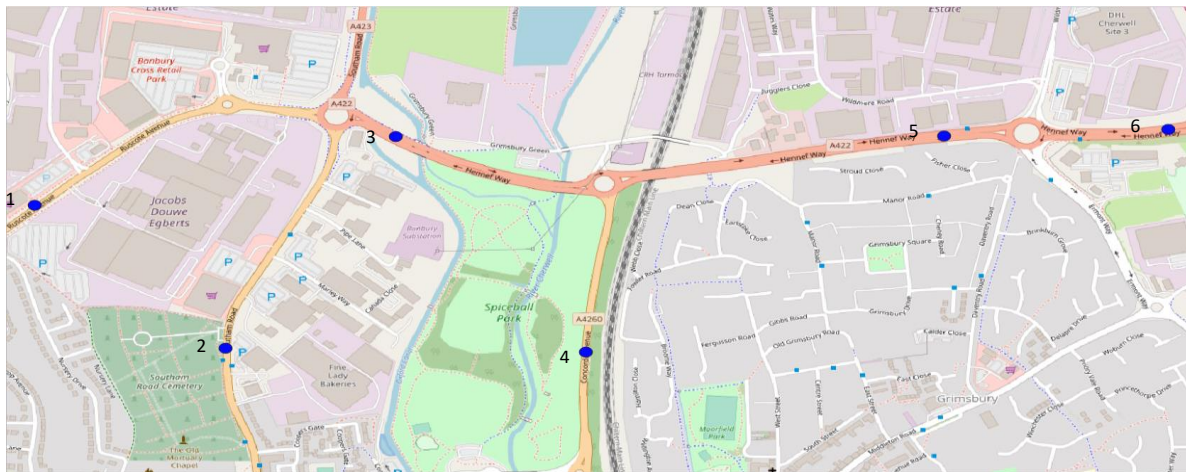
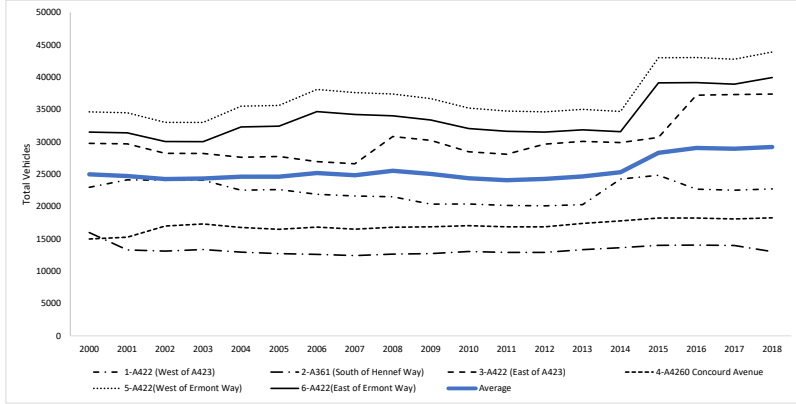
Modelling Results

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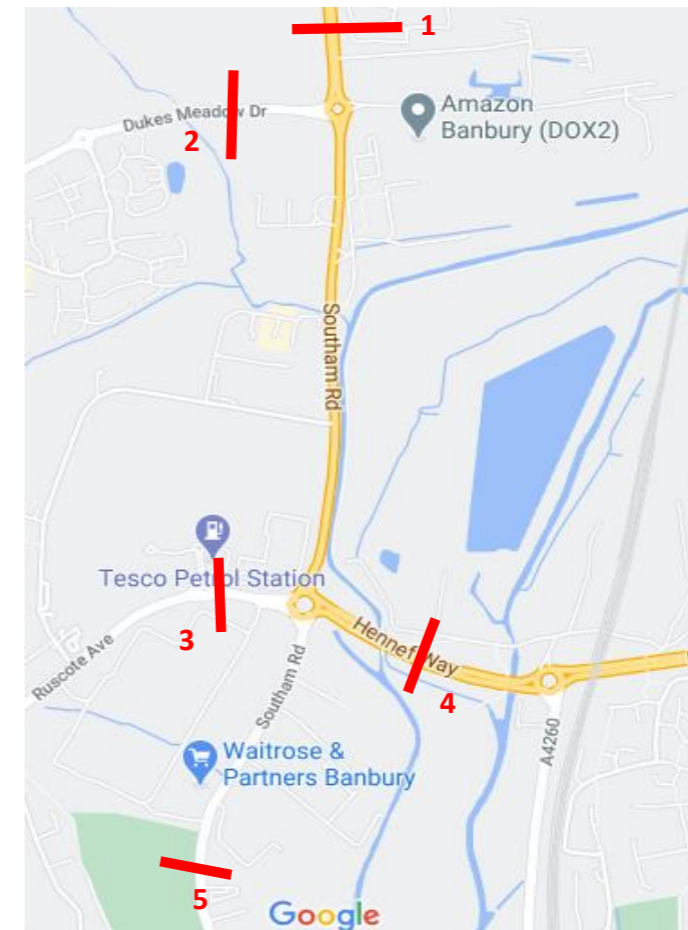
population All usual residents aged 16 and over in employment the week before the census
 units Persons
 date 2011
 place of work E02005923 : Cherwell 003 (2011 super output area - middle layer)

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

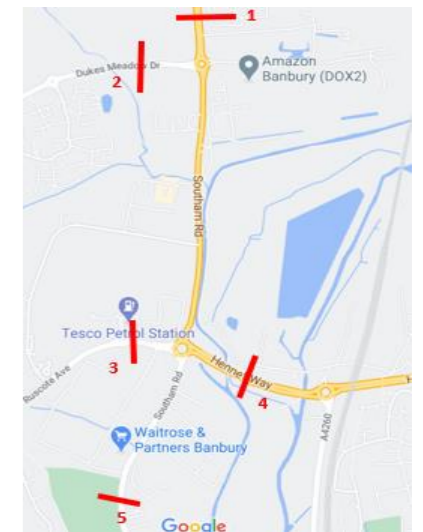
KS101EW - Usual resident population

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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%	

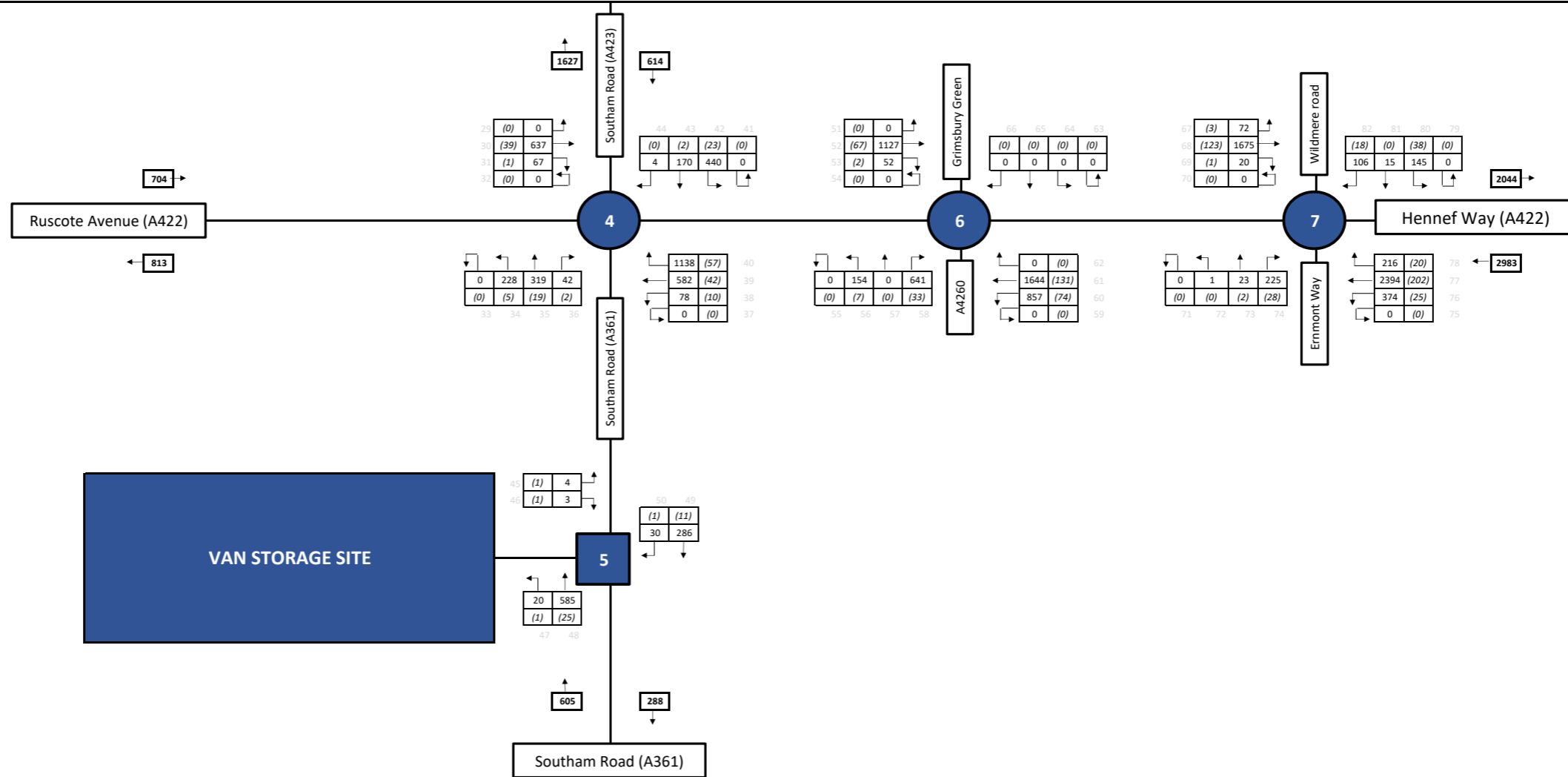
Network Exit	%
1 - Southam Road (A423)	14%
2 - Dukes Meadow Drive	3%
3 - A422 Ruscott Avenue	4%
4 - A422 Hennef Way	67%
5 - Southam Road (A361)	12%
Total	100%



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.

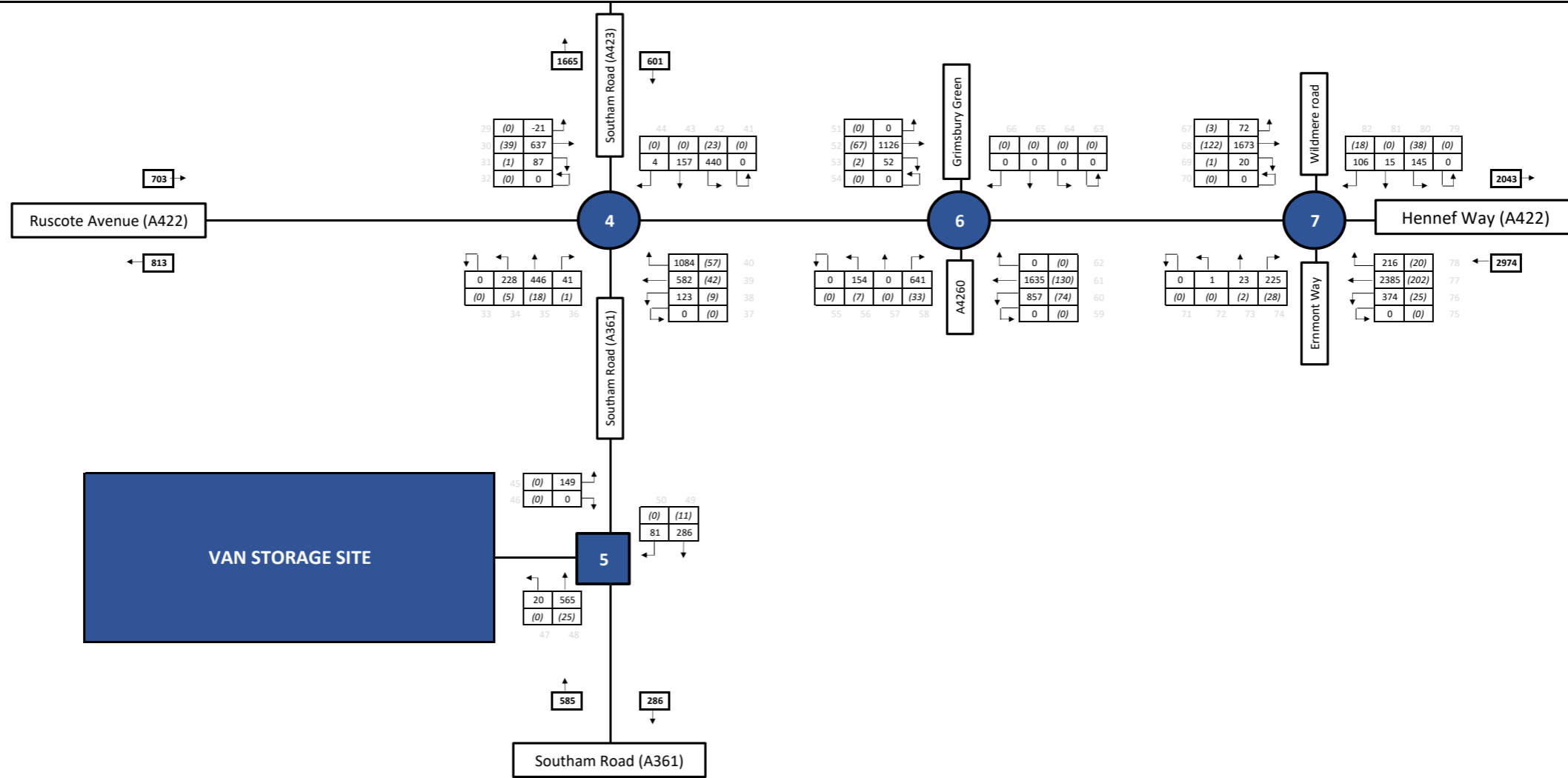
Annex D

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



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.:					

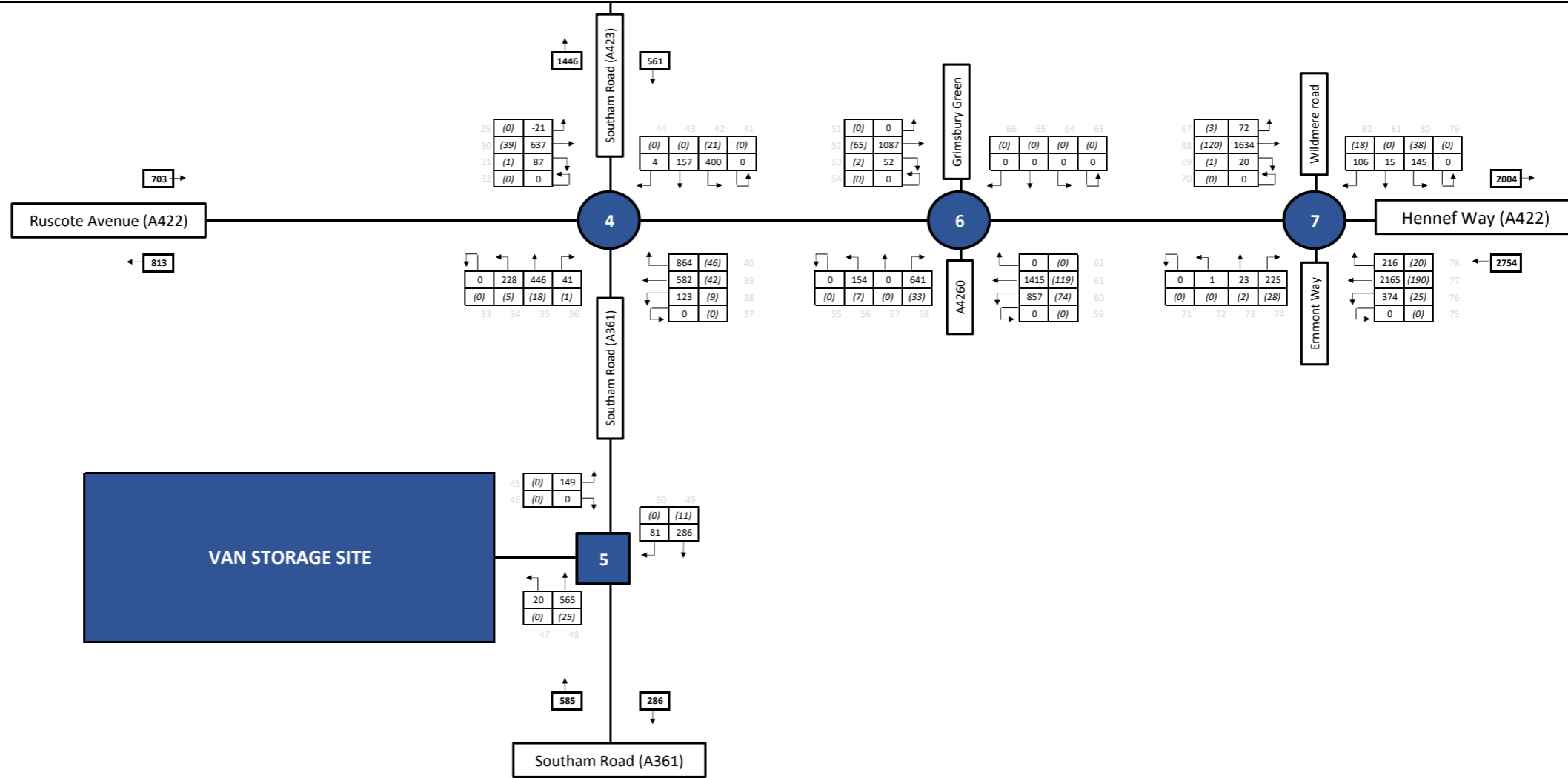
Key:
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 (20) HGVs
 Break in Network
 20 Network Exit



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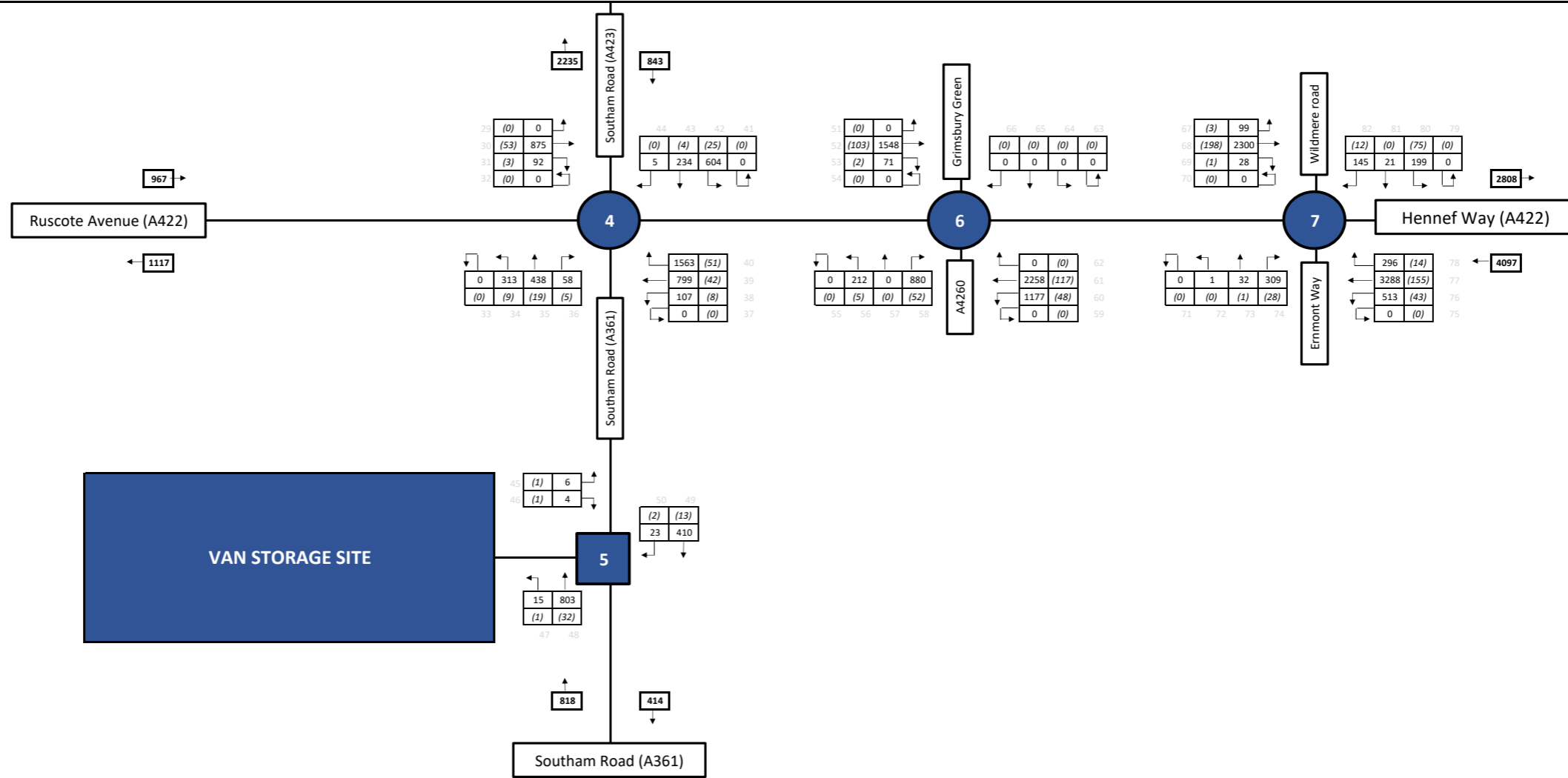
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	Client:	Lysander				Figure Title:	2021 Baseline with Development (with HS2) 07:00 - 08:00						Figure No:

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



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.:	

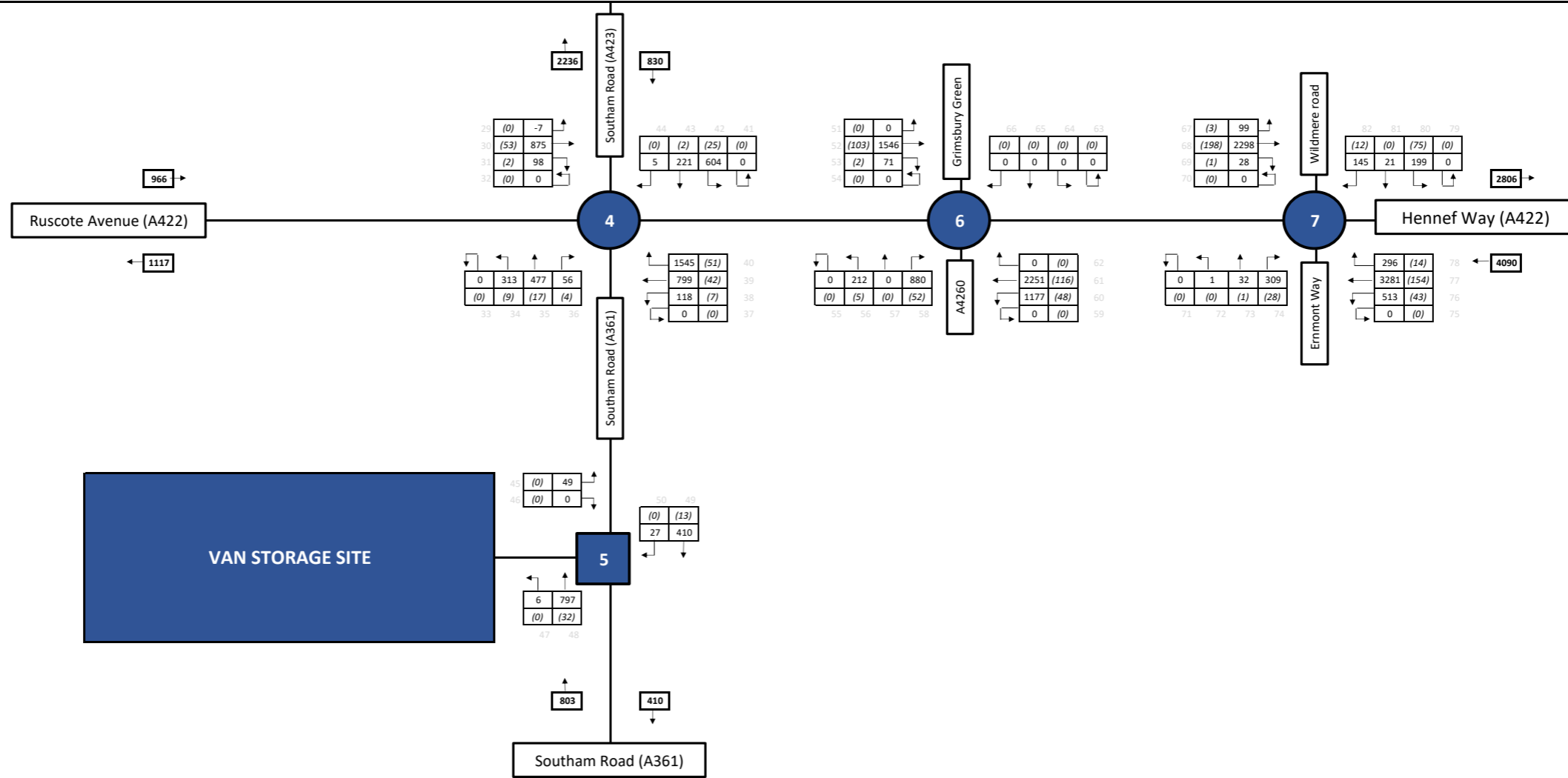
Key:
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 (20) HGVs
 Break in Network
 20 Network Exit



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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:			

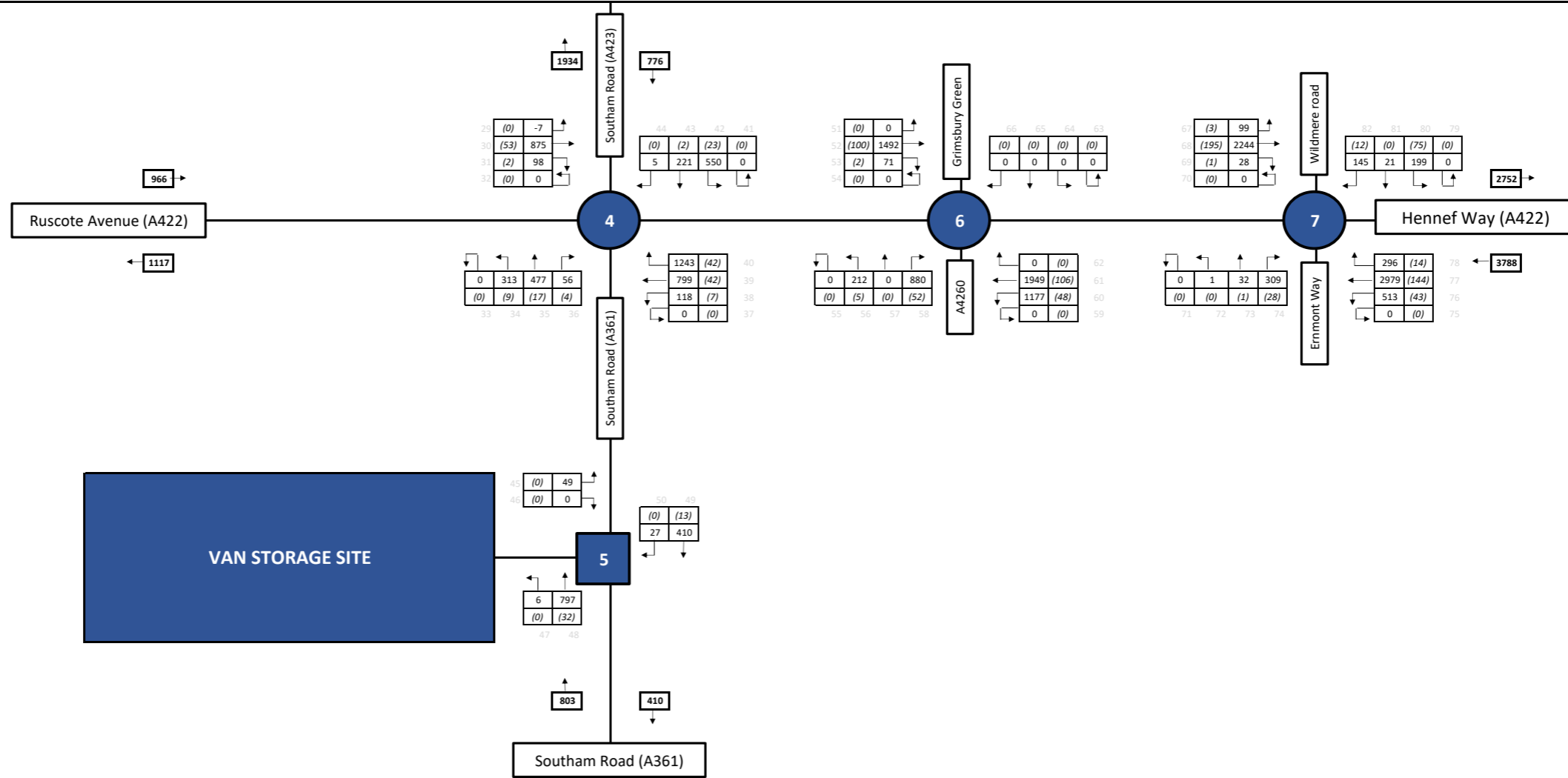
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

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) 08:00 - 09:00						Figure No:

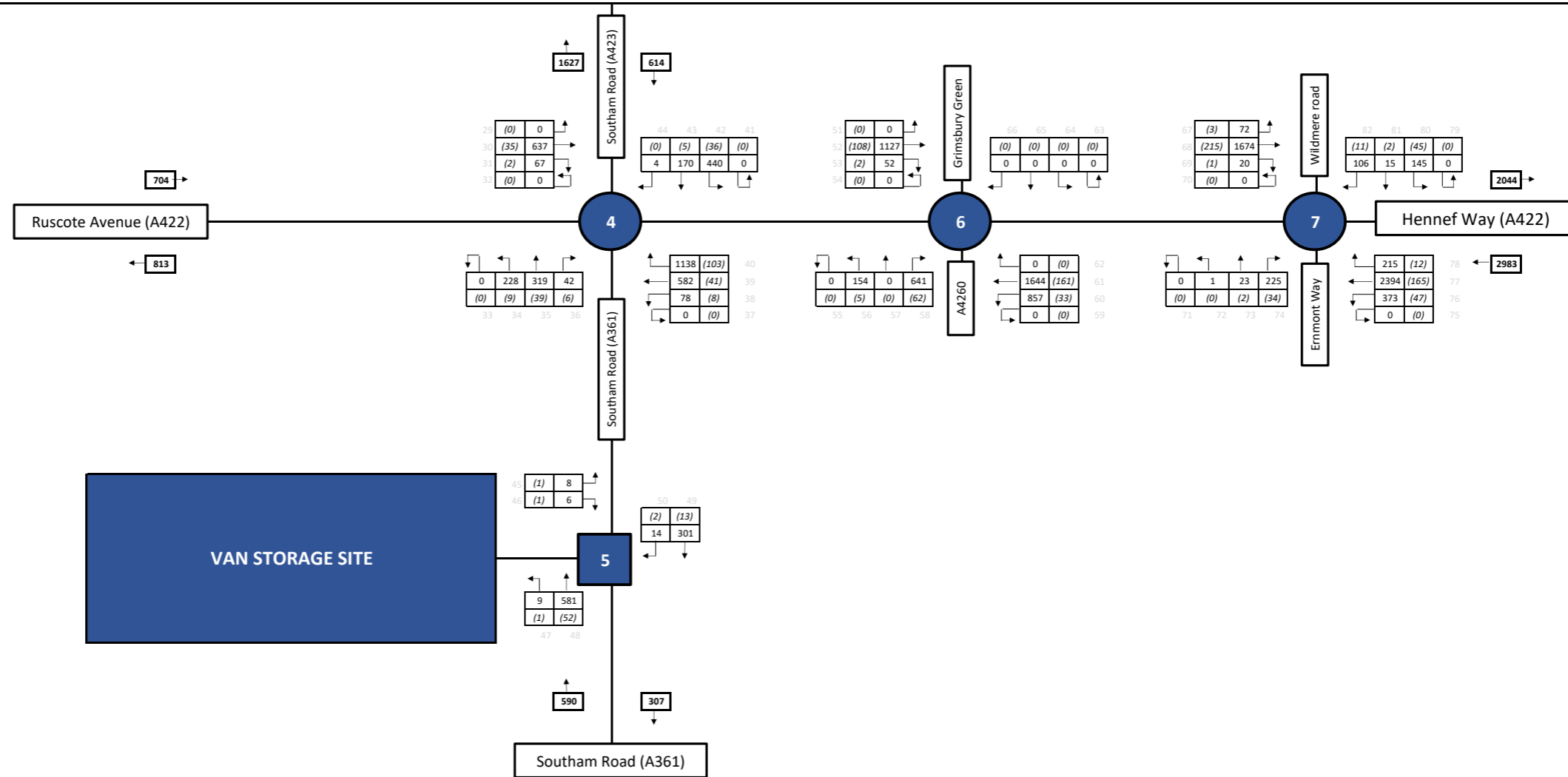
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

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.:		

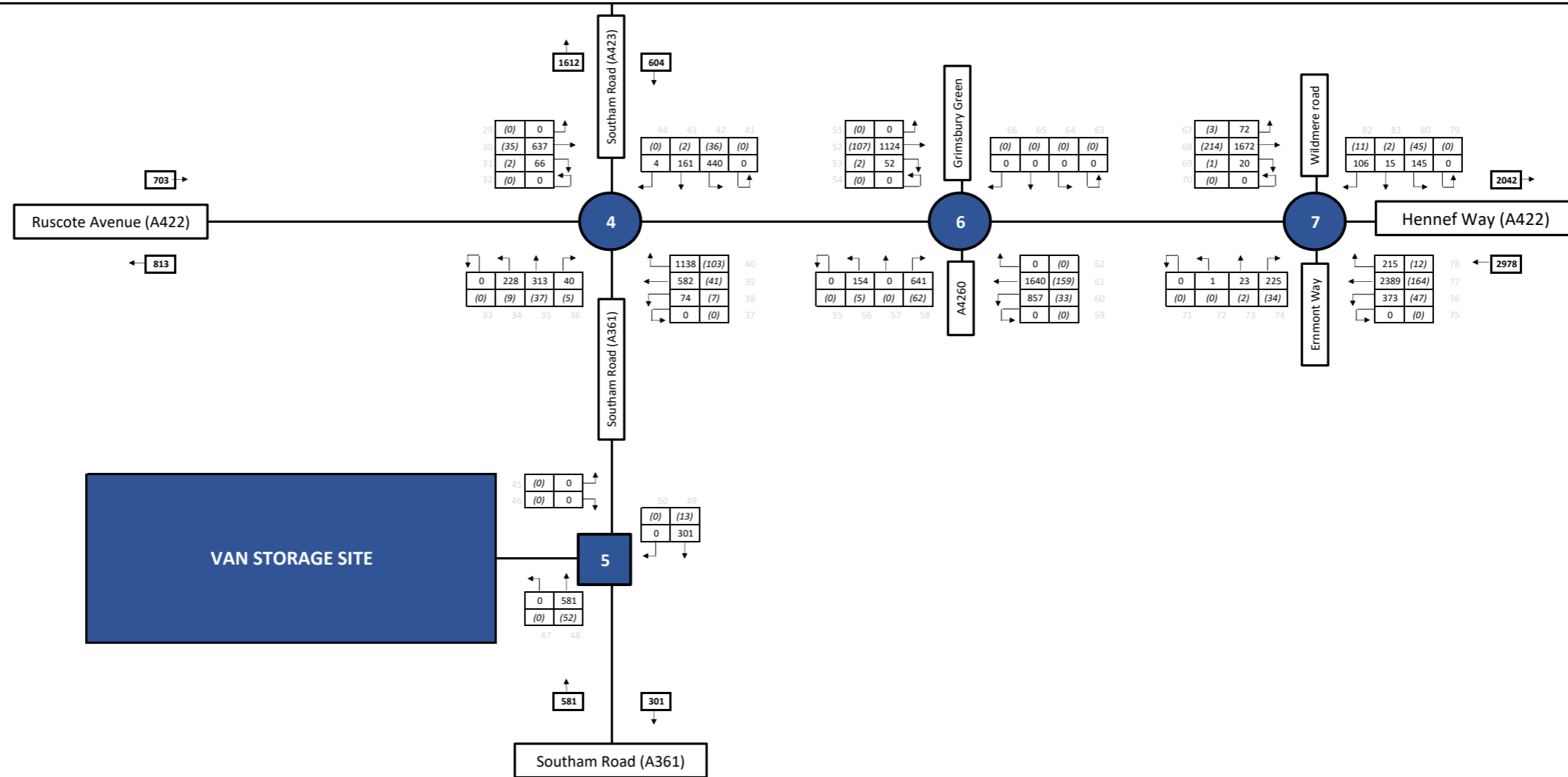
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

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.:		

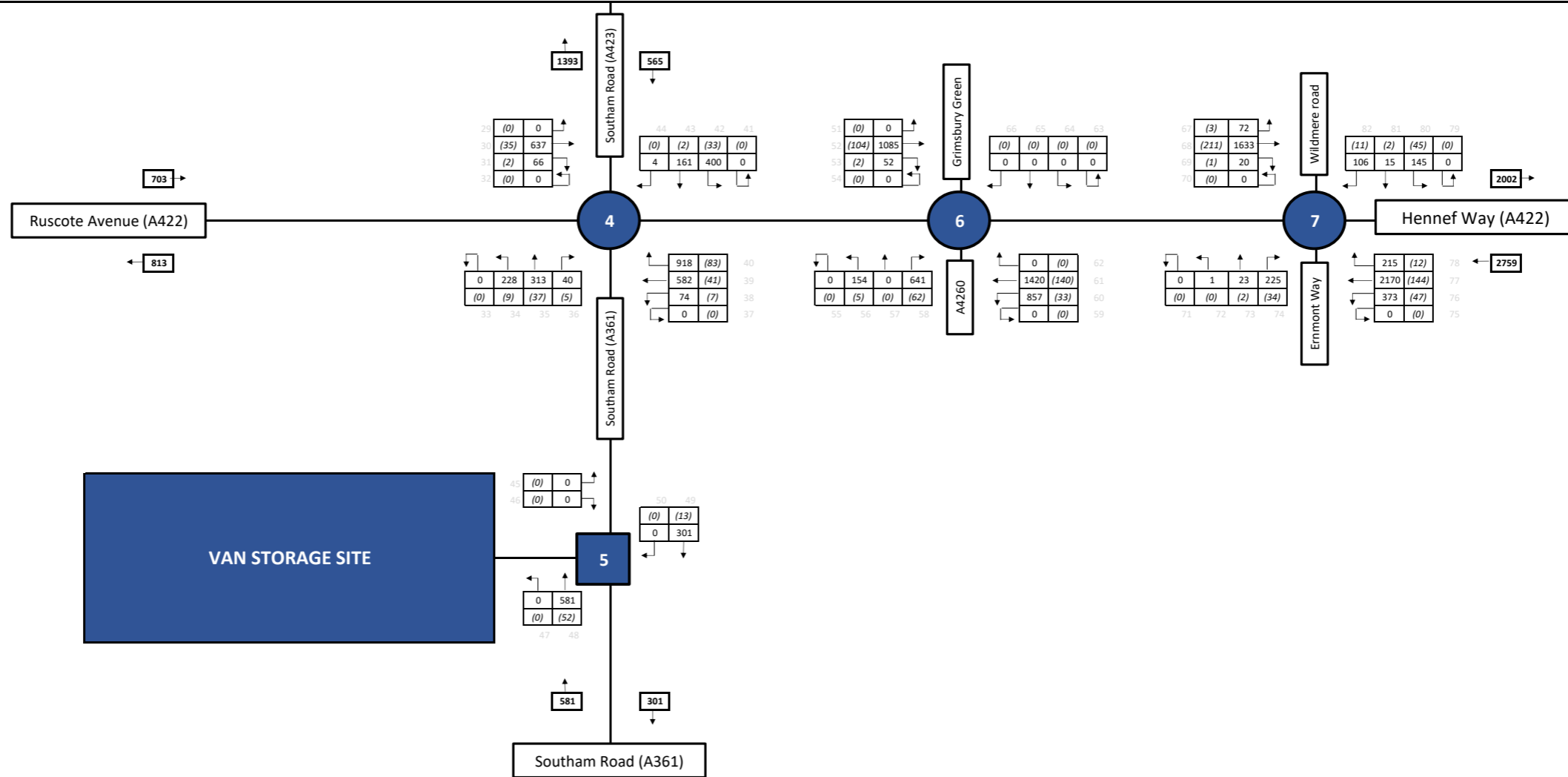
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



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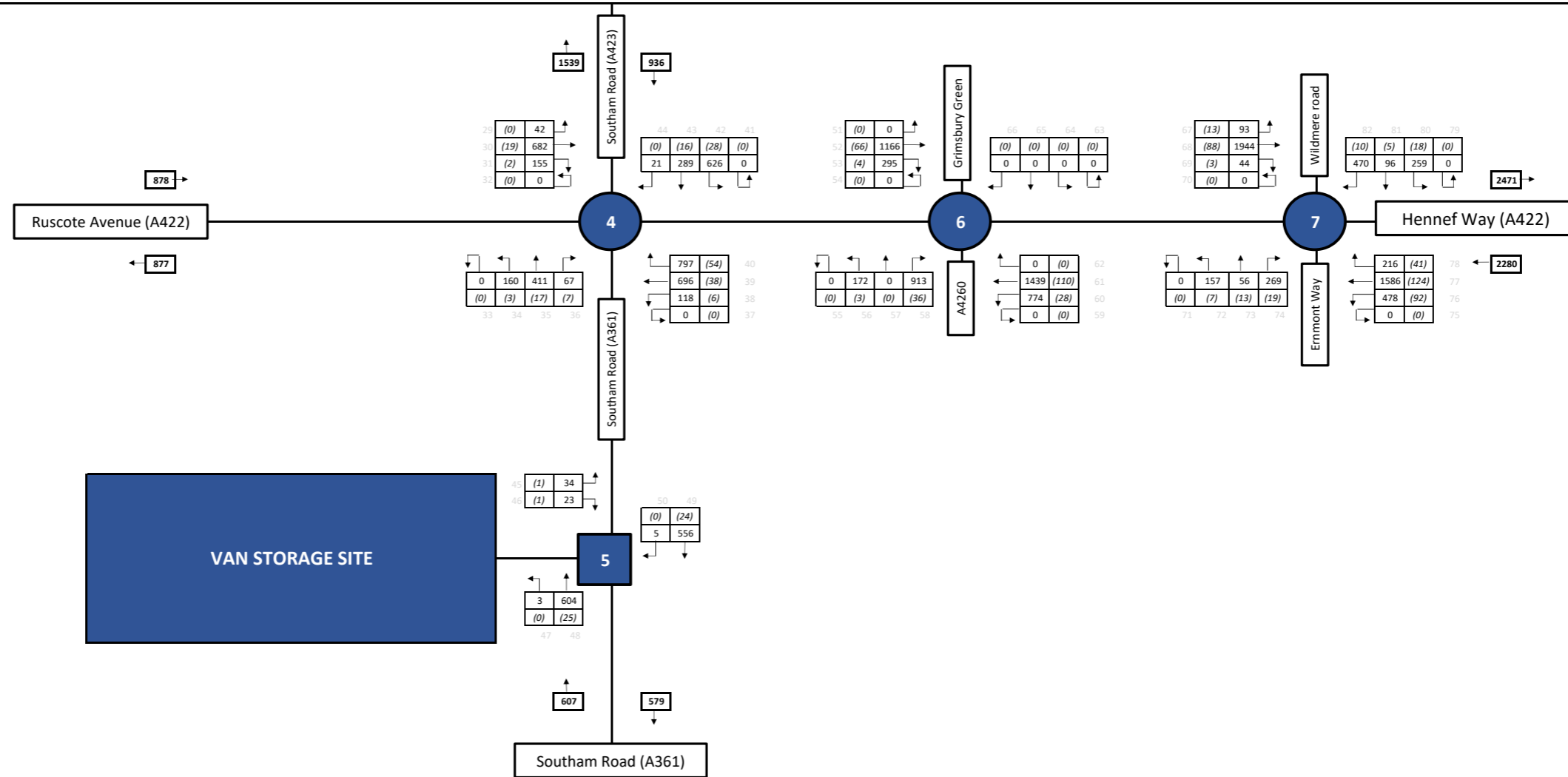
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Client:	Lysander	Figure Title:	2021 Baseline with Development (with HS2) 09:00 - 10:00						Figure No.:		

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



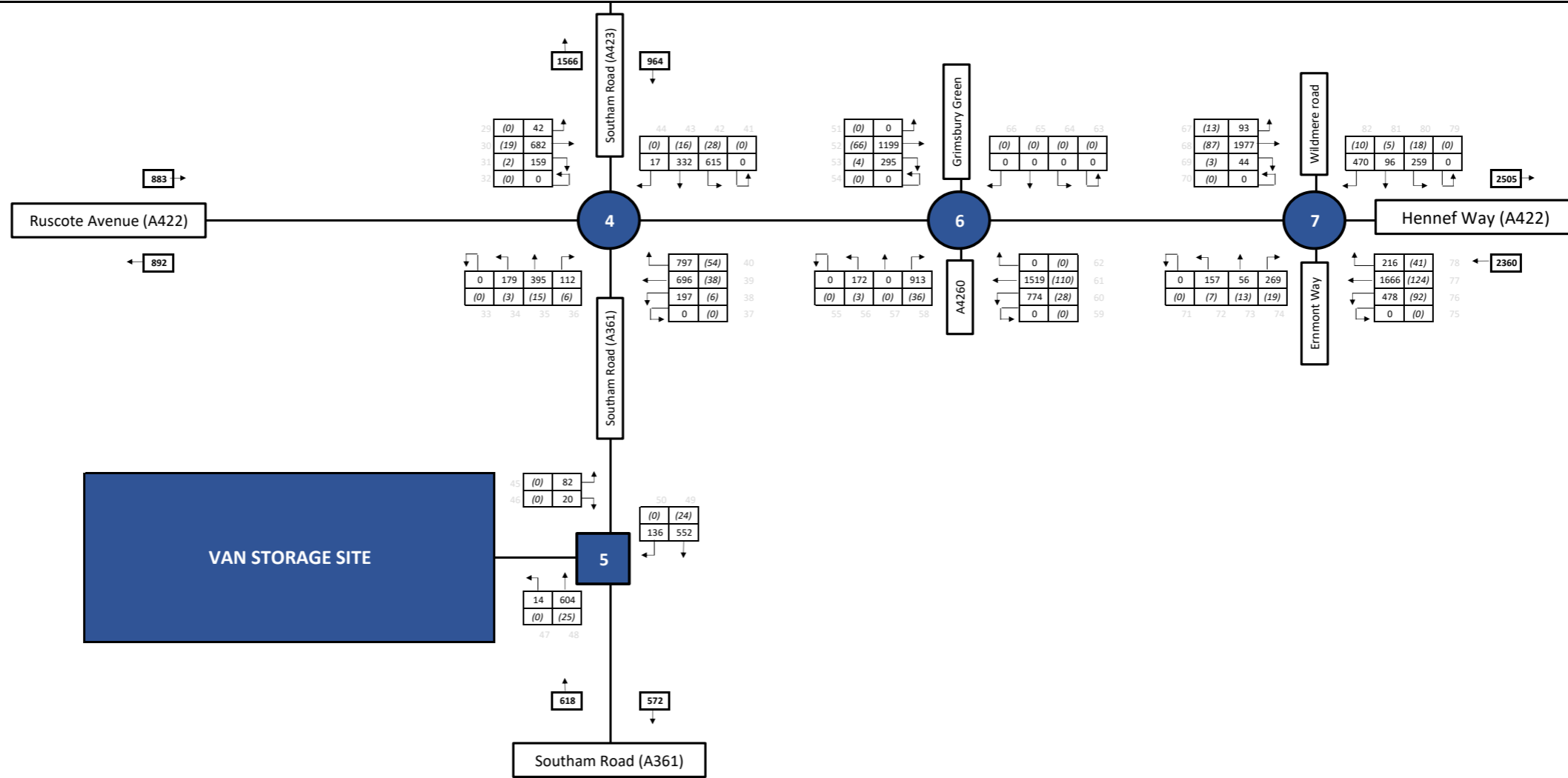
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	Client:	Lysander				Figure Title:	2021 Baseline with Development (without HS2) 09:00 - 10:00						Figure No.:

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



Project Title:	Oxford, Southam Road - Van Storage	Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
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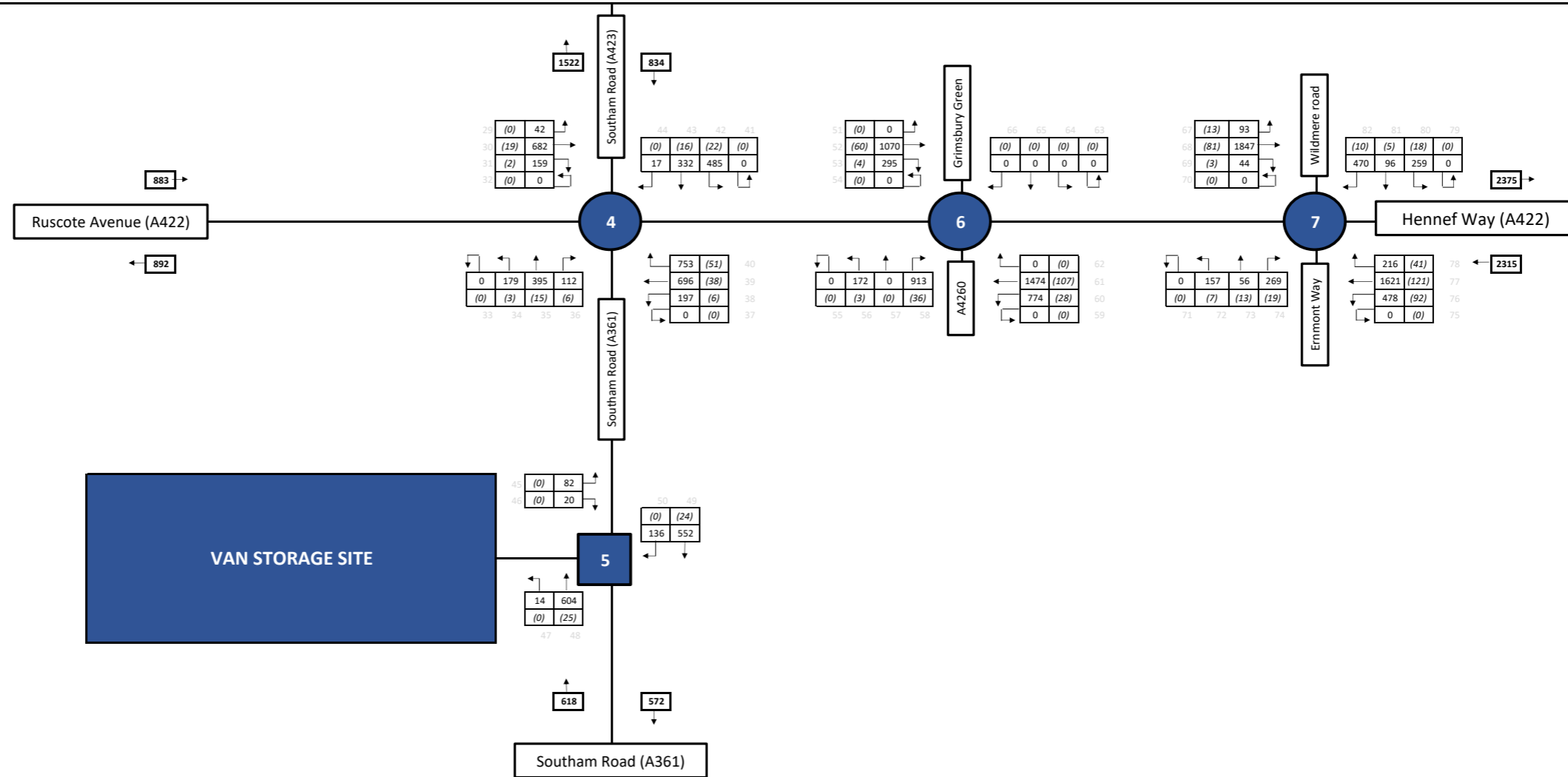
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 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

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

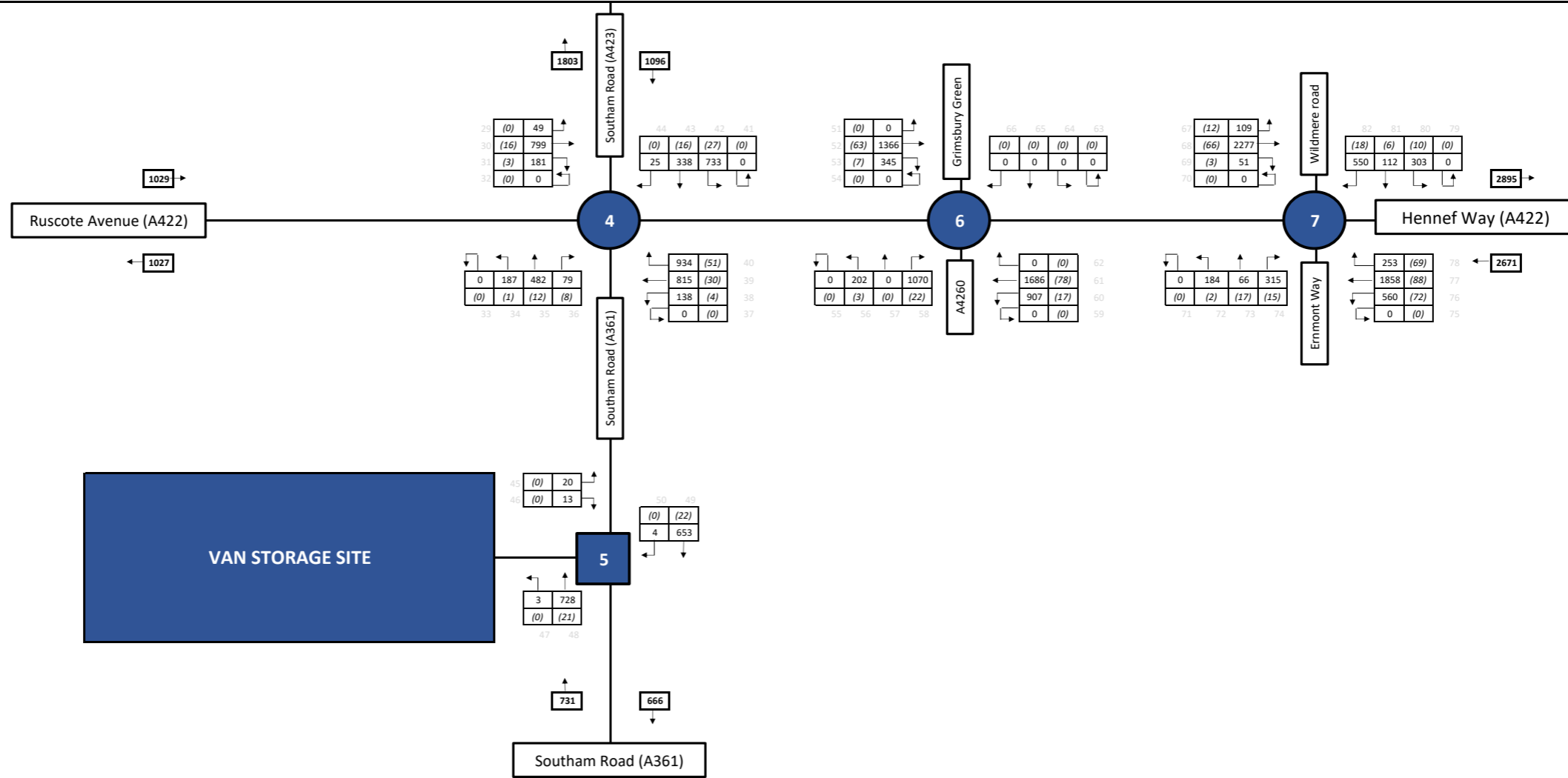
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

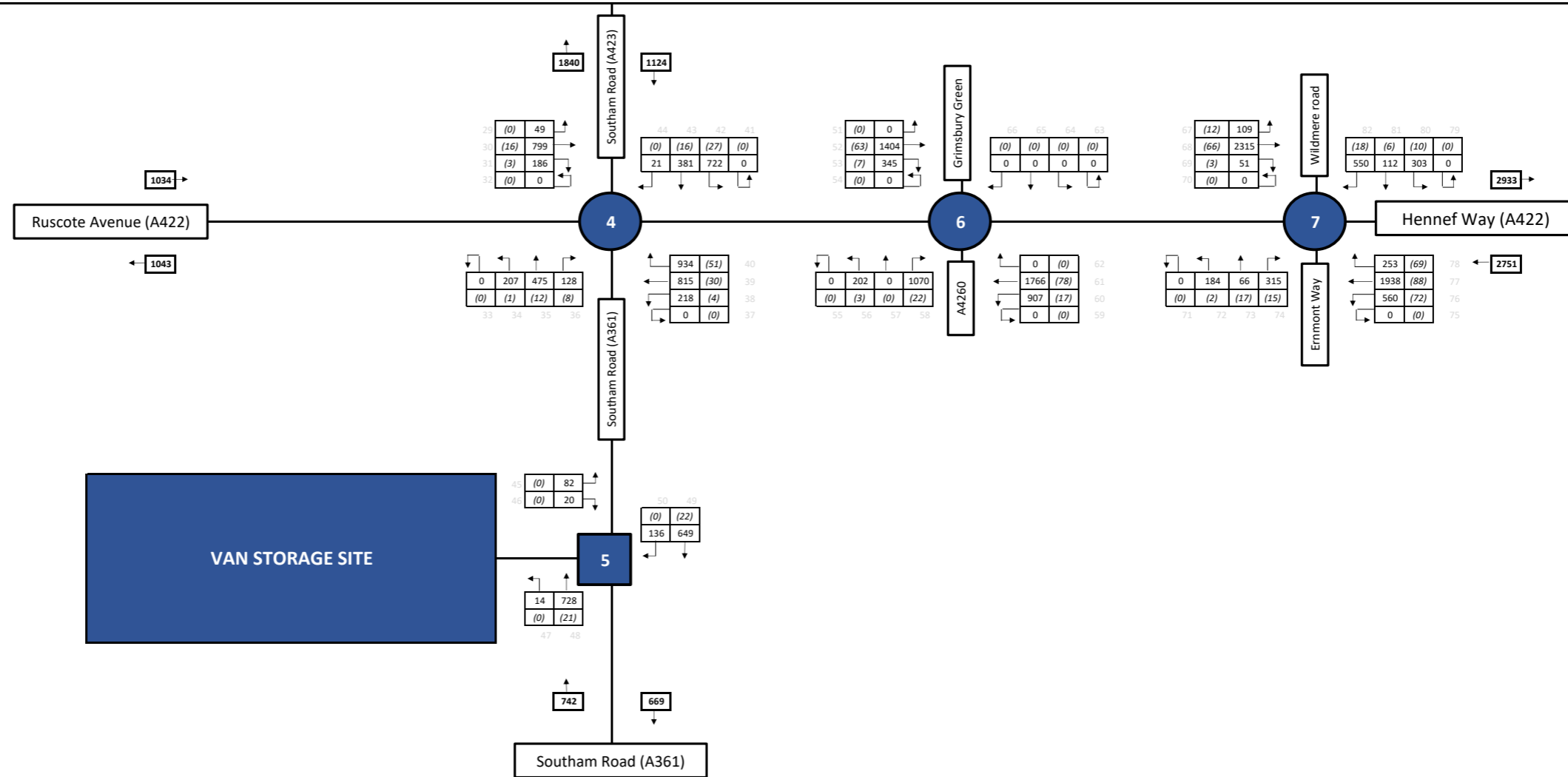
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Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



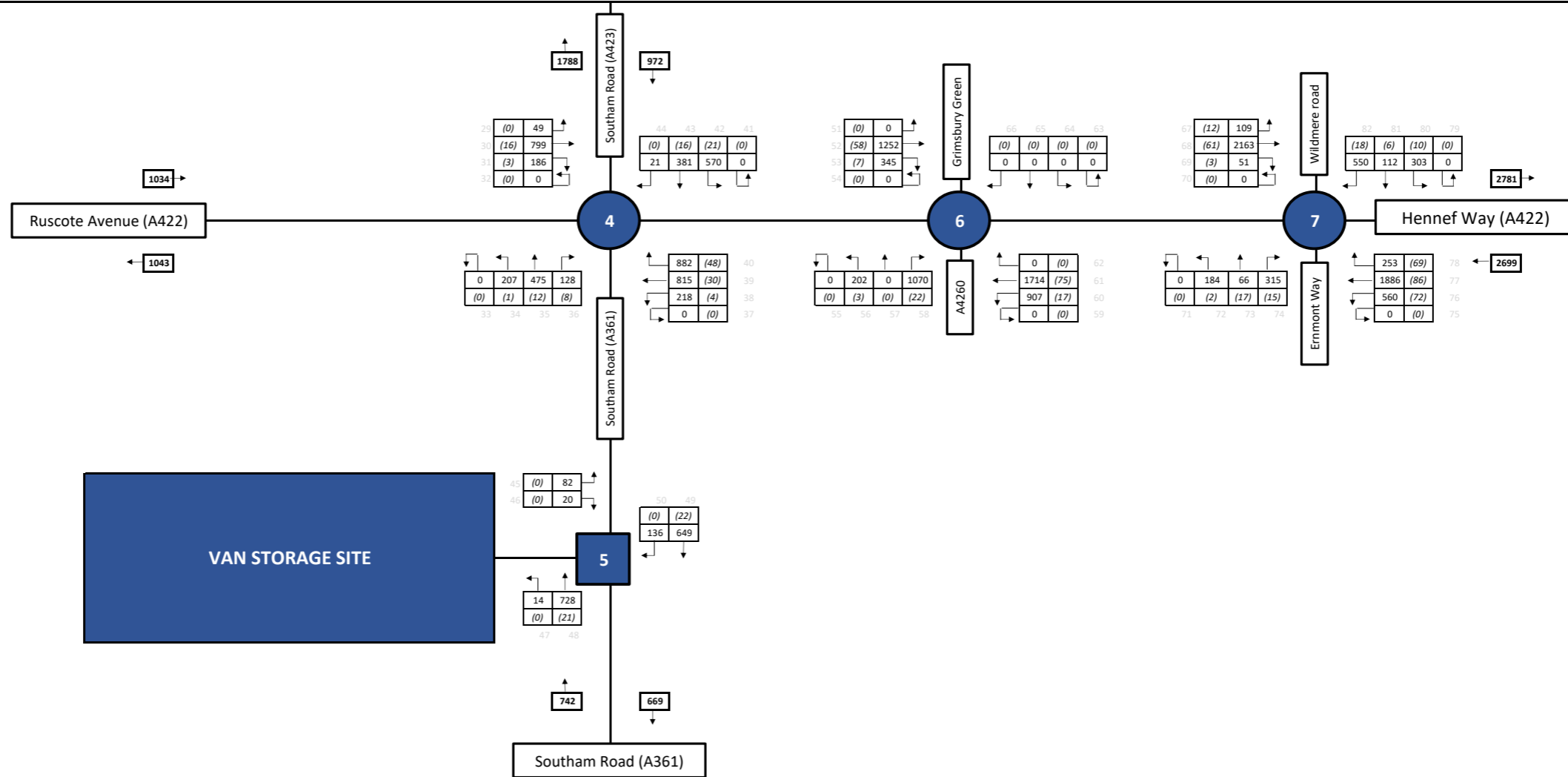
Project Title:	Oxford, Southam Road - Van Storage				Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander				Figure Title:	2021 Baseline 17:00 - 18:00 (with HS2)				Figure No.:		

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



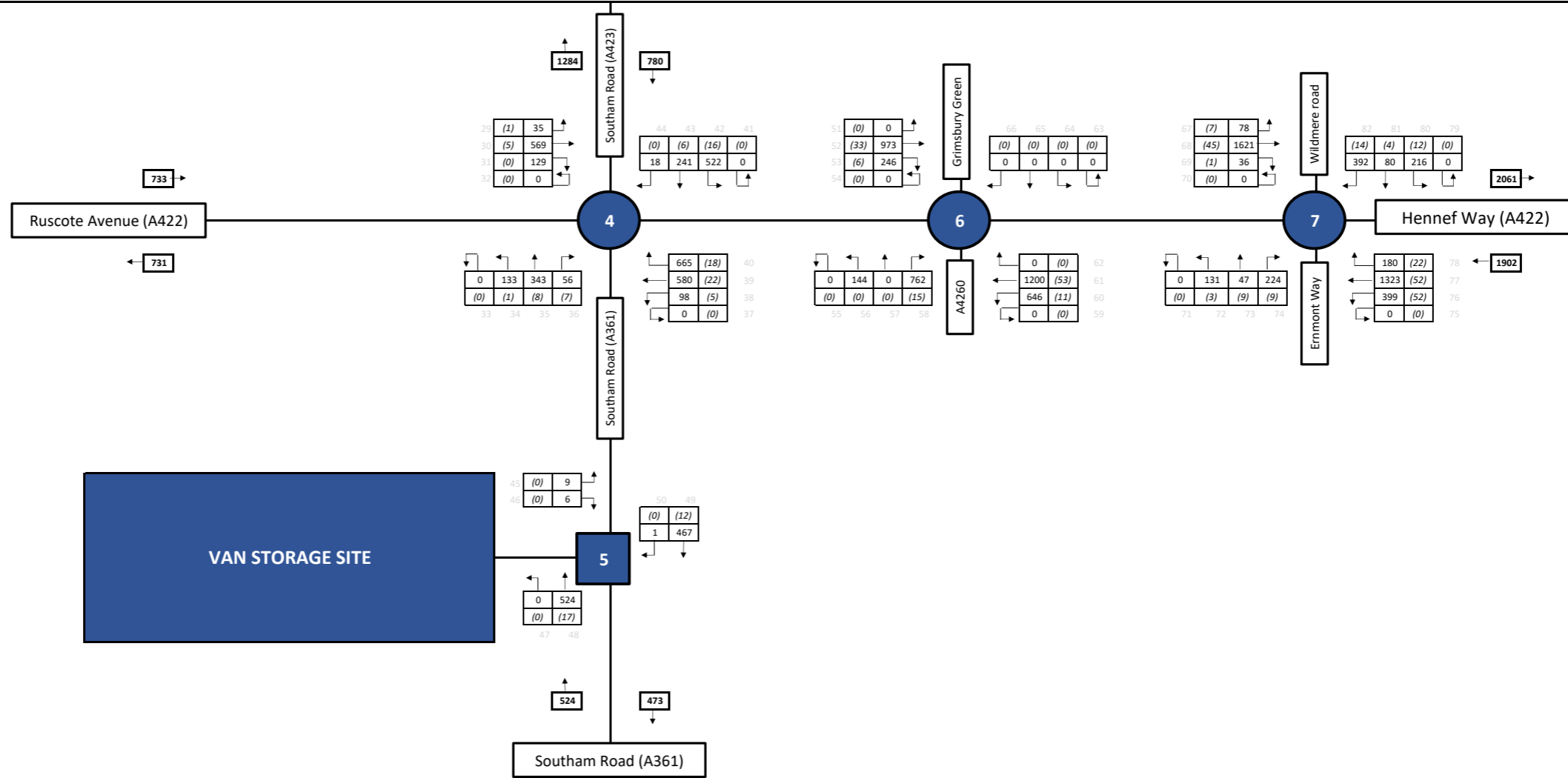
Project Title:	Oxford, Southam Road - Van Storage	Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander	Figure Title:	2021 Baseline with Development (with HS2) 17:00 - 18:00				Figure No.:		

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



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) 17:00 - 18:00				Figure No.:

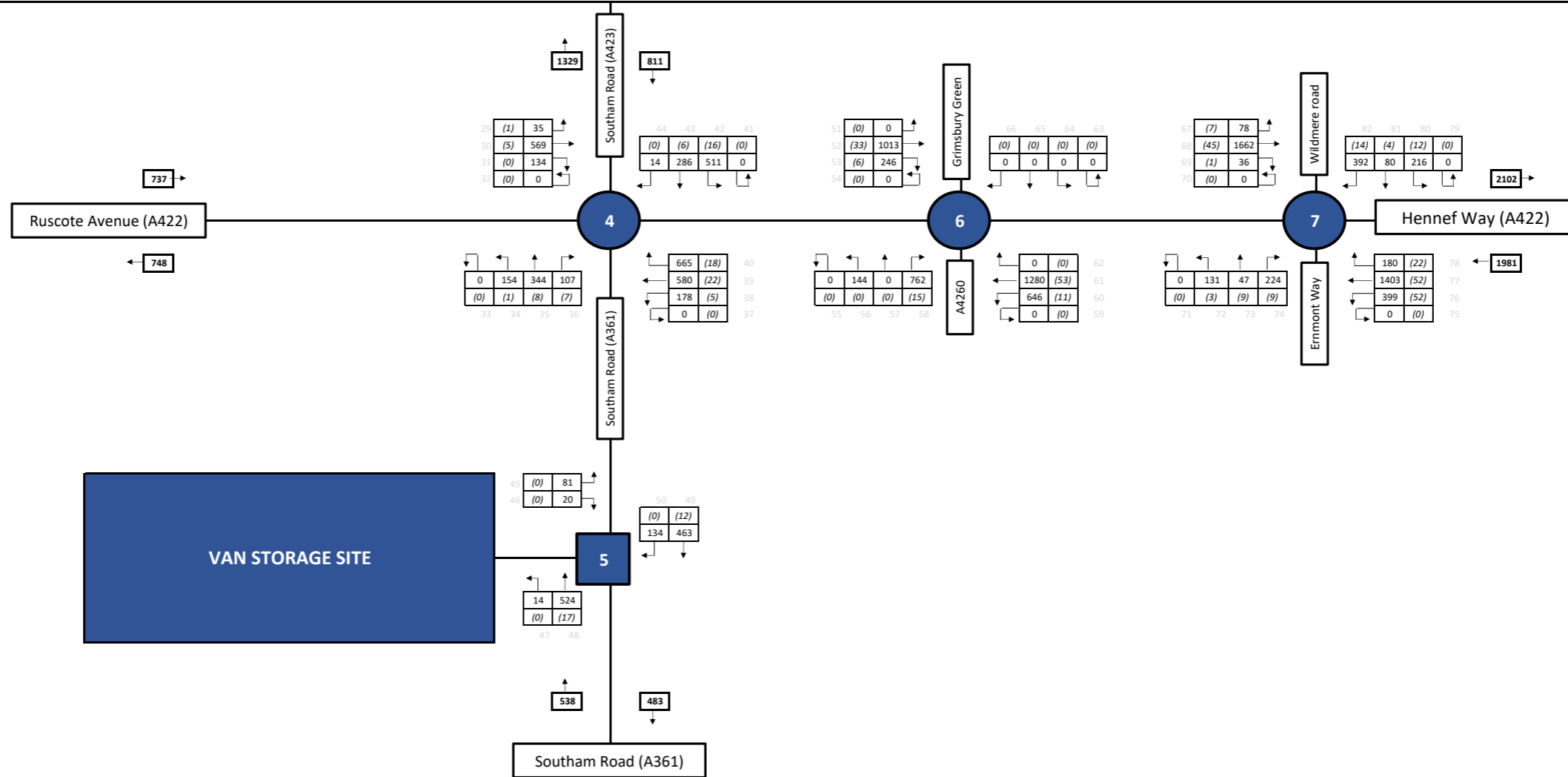
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

Project Title:	Oxford, Southam Road - Van Storage			Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander			Figure Title:	2021 Baseline 18:00 - 19:00 (with HS2)						Figure No.:

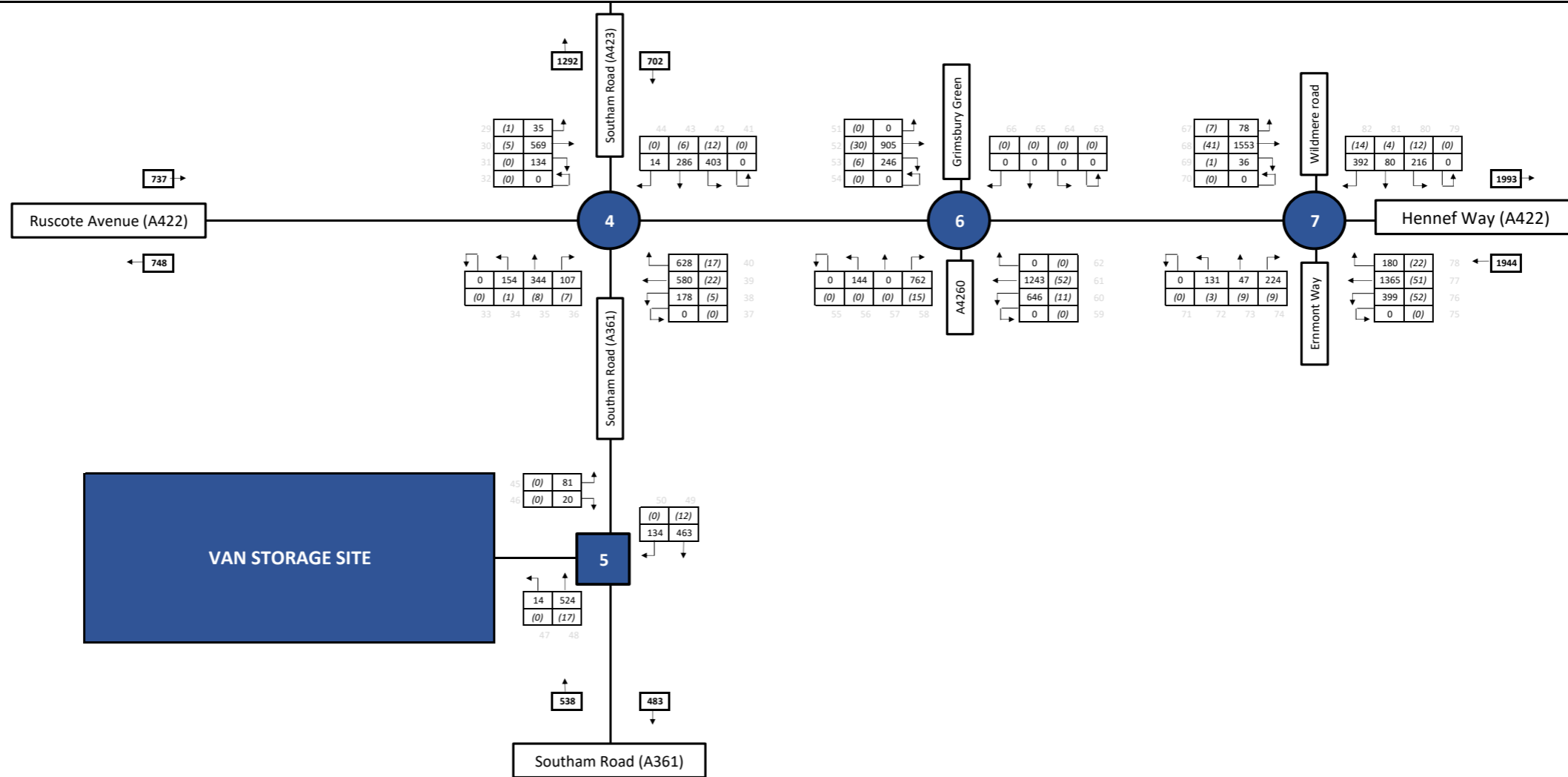
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

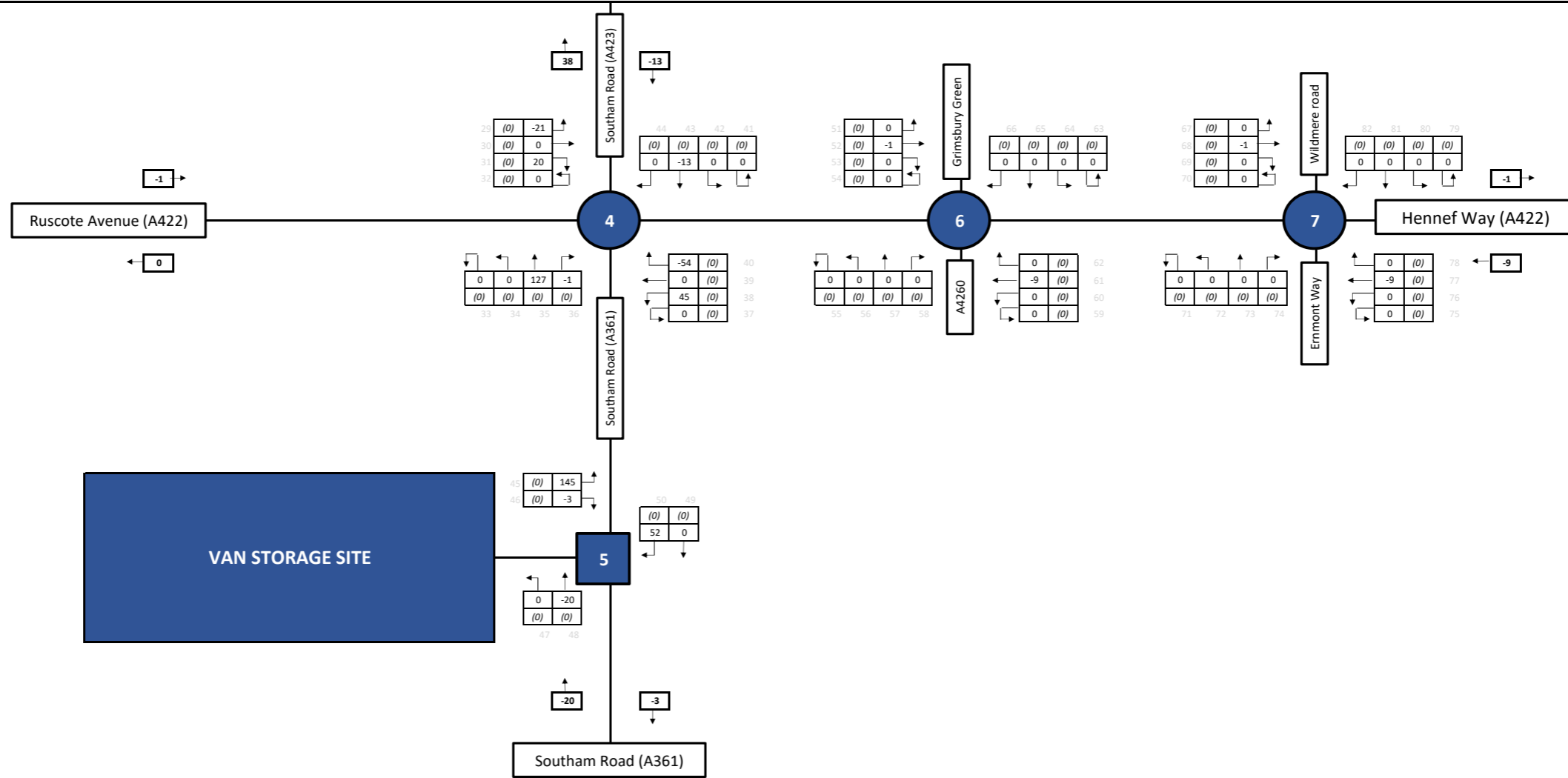
Project Title:	Oxford, Southam Road - Van Storage				Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander				Figure Title:	2021 Baseline with Development (with HS2) 18:00 - 19:00				Figure No.:		

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



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) 18:00 - 19:00					Figure No.:			

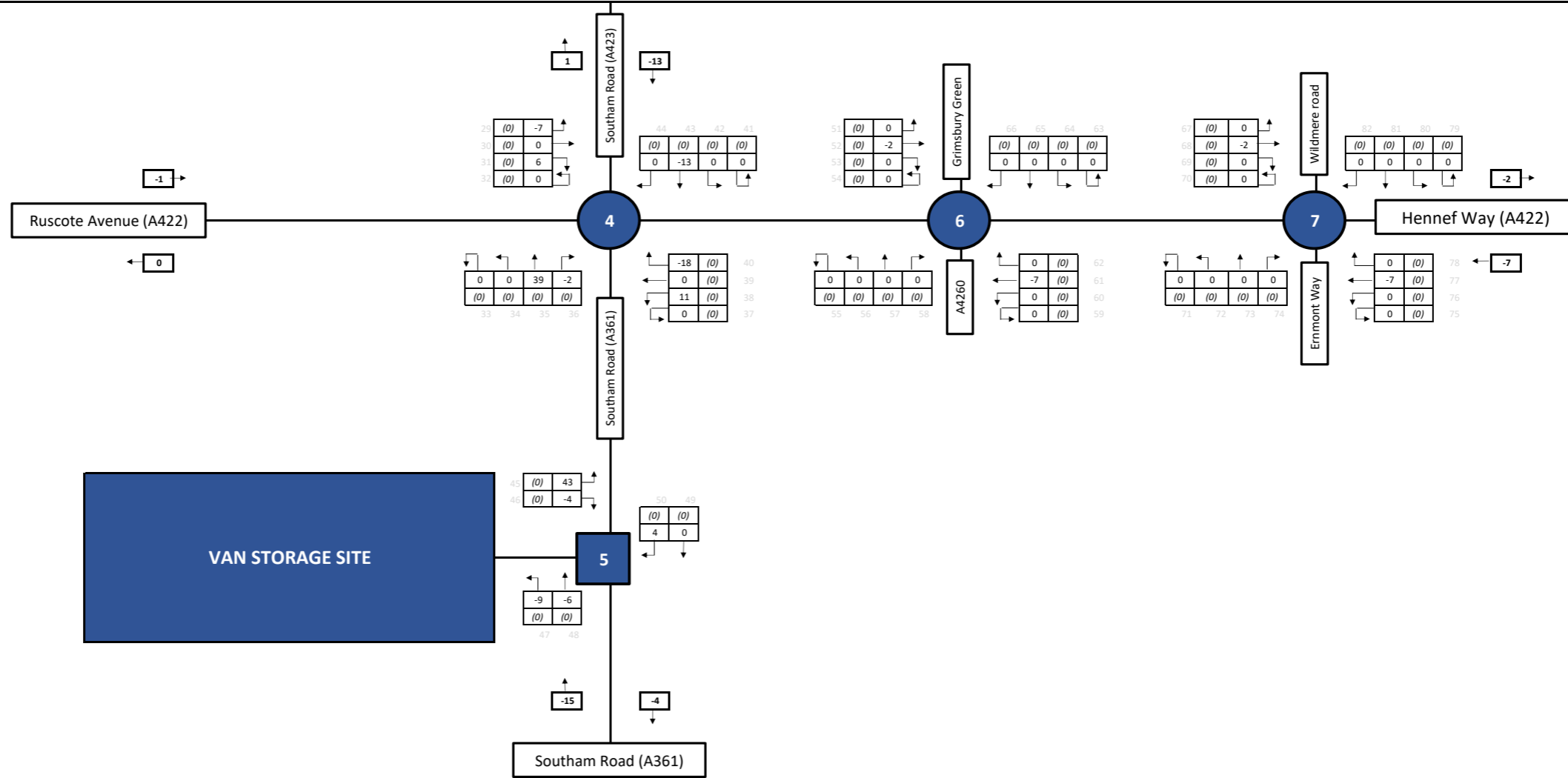
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

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.:		

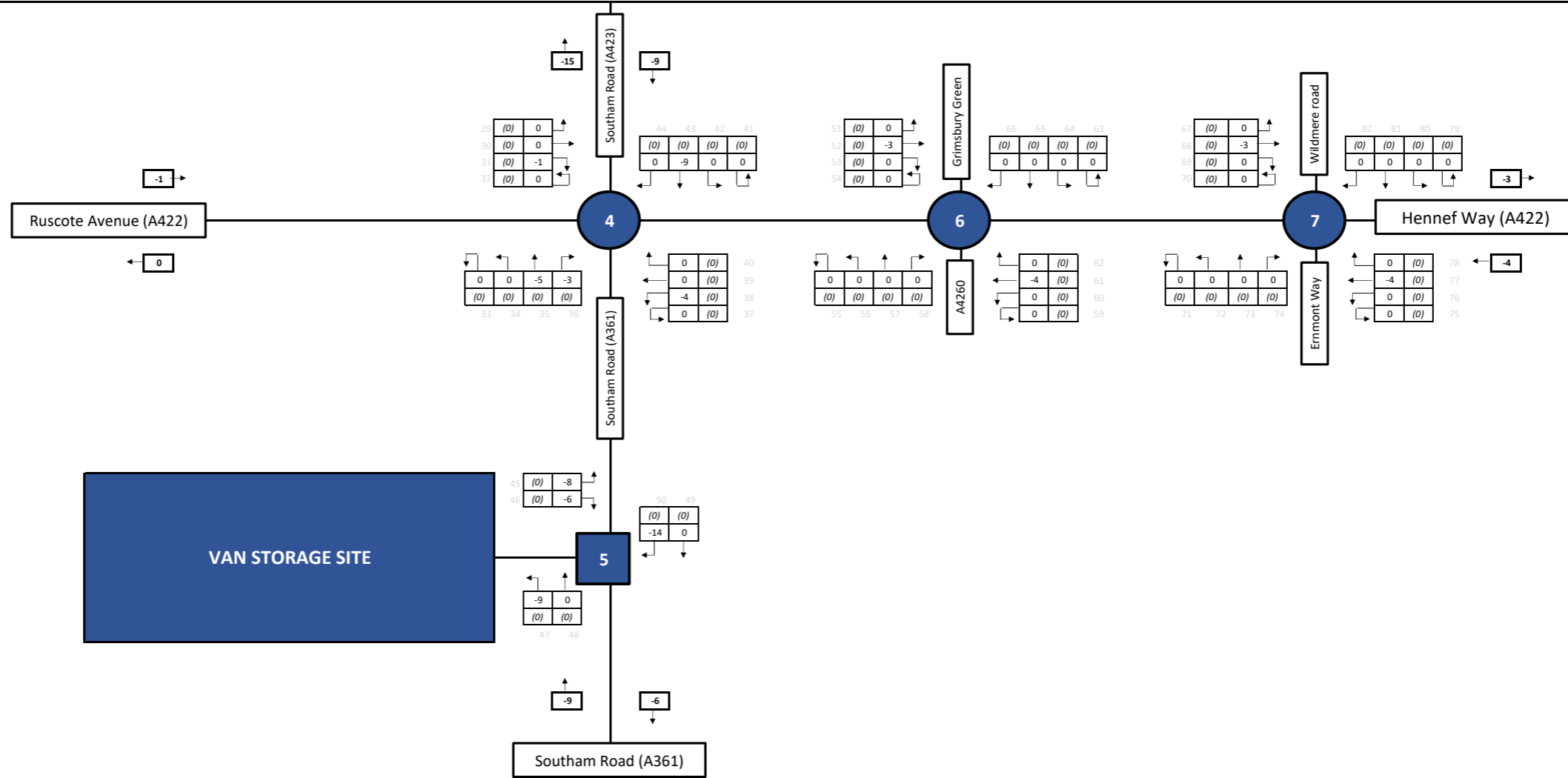
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

Project Title:	Oxford, Southam Road - Van Storage			Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander			Figure Title:	Traffic Impact 08:00 - 09:00				Figure No.:		

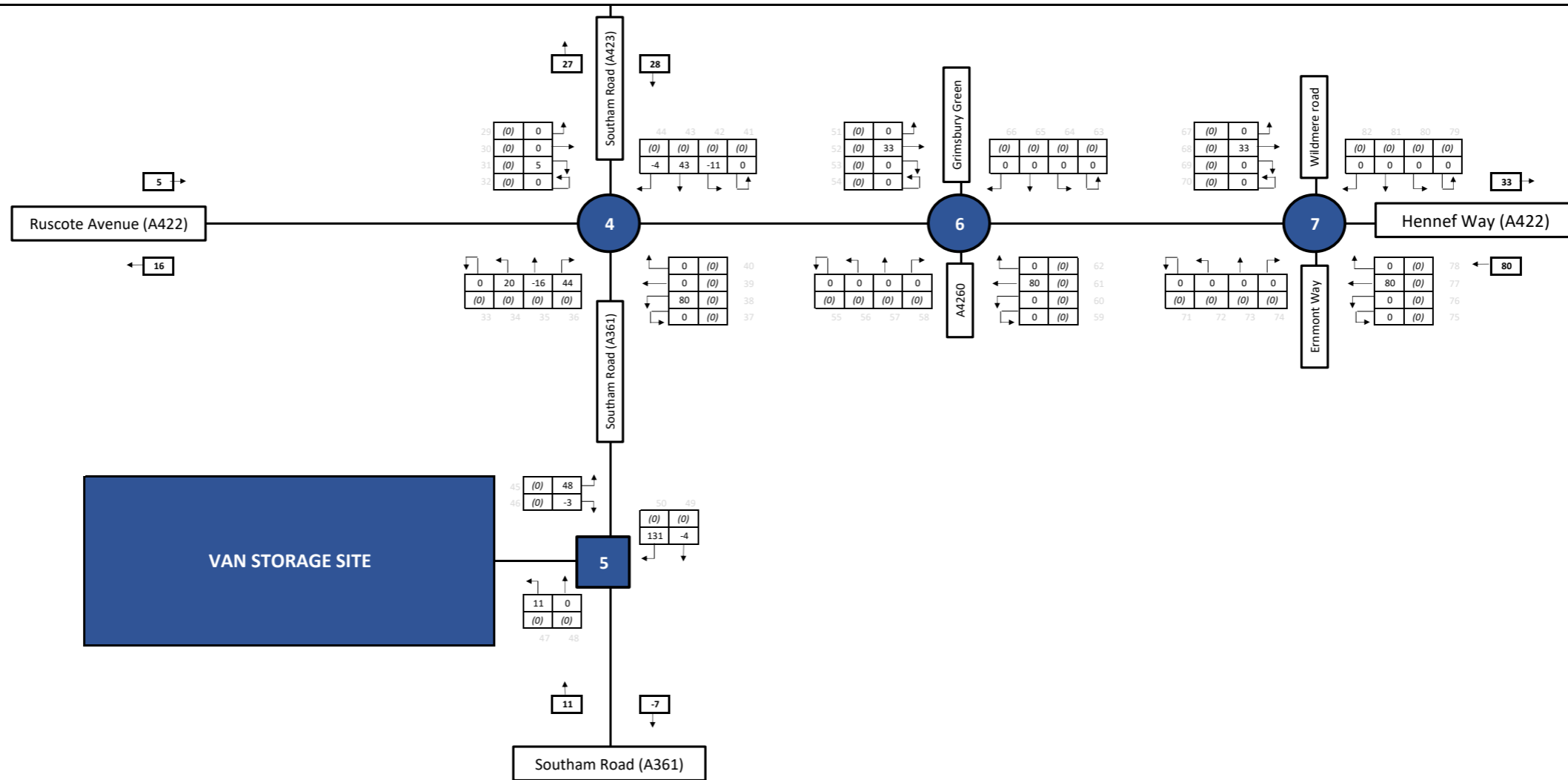
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

Project Title:	Oxford, Southam Road - Van Storage			Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander			Figure Title:	Traffic Impact 09:00 - 10:00				Figure No.:		

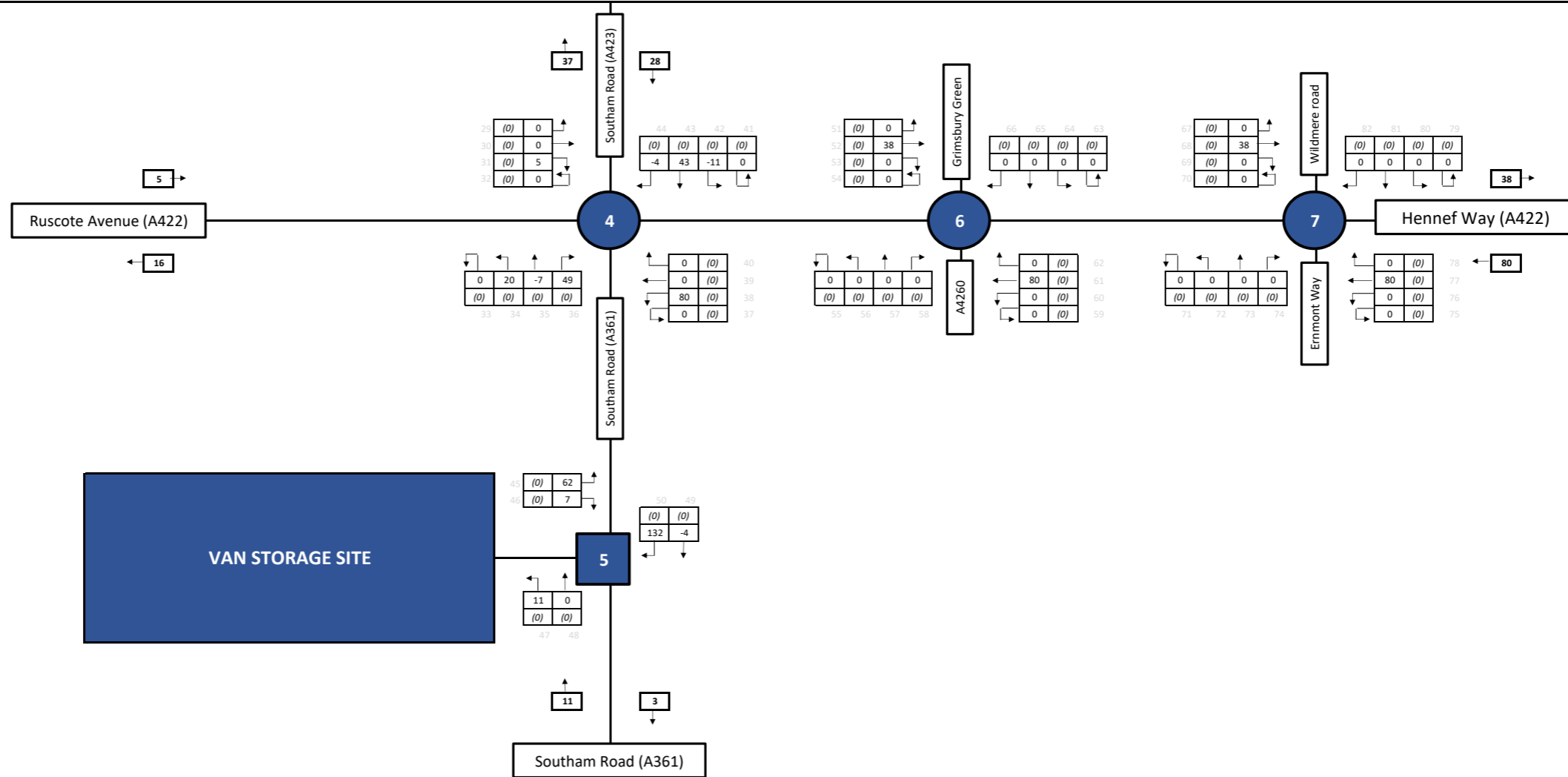
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

Project Title:	Oxford, Southam Road - Van Storage			Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander			Figure Title:	Traffic Impact 16:00 - 17:00			Figure No.:			

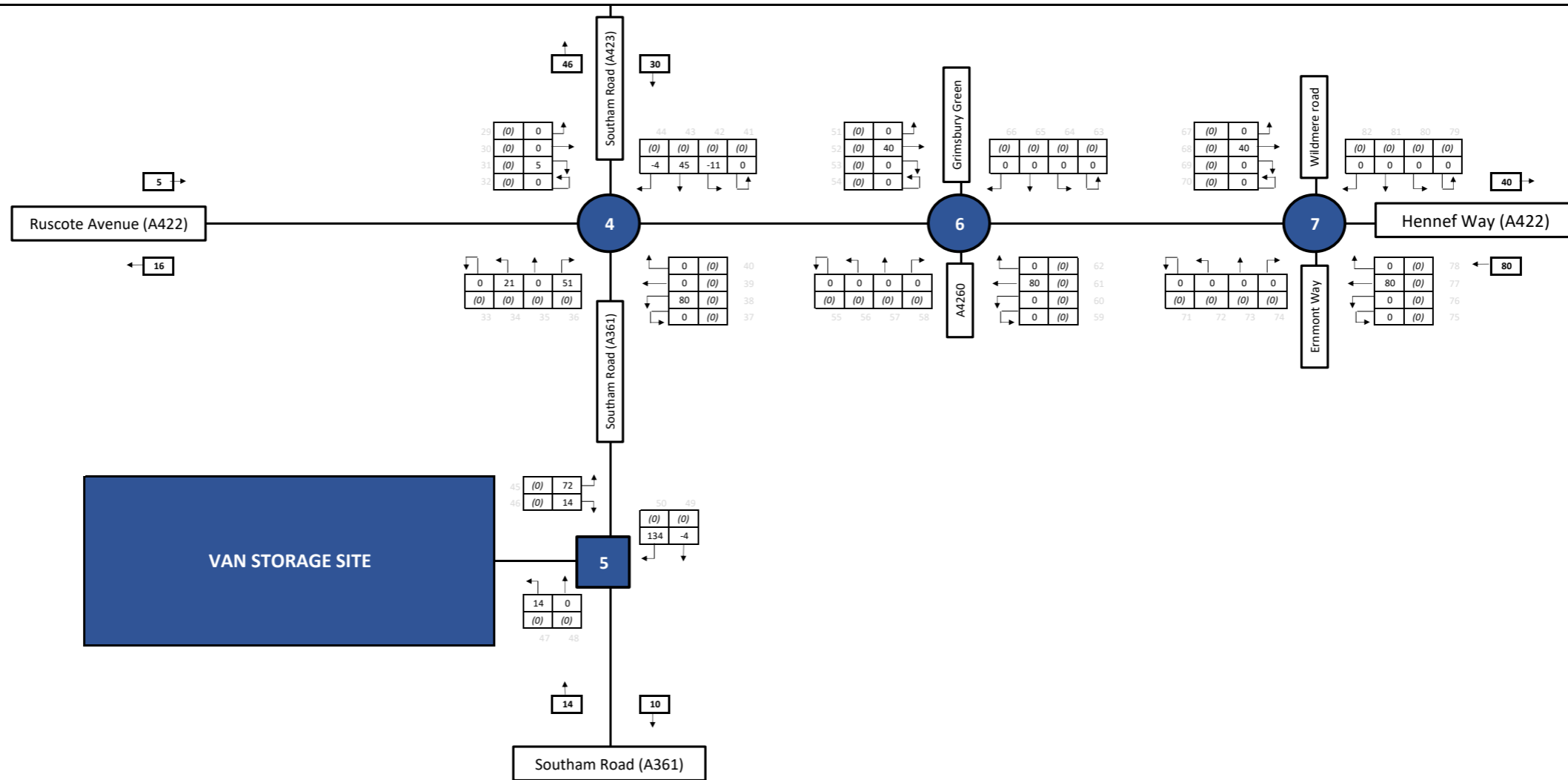
Key:
 20 Vehicles
 (20) HGVs
 Break in Network
 20 Network Exit



vectos.

Project Title:	Oxford, Southam Road - Van Storage			Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander			Figure Title:	Traffic Impact 17:00 - 18:00				Figure No.:		

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



vectos.

Project Title:	Oxford, Southam Road - Van Storage			Scale:	NTS	Drawn:	AT	Date:	28/04/2021	Checked:	RB	Rev:
	Client:	Lysander			Figure Title:	Traffic Impact 18:00 - 19:00			Figure No.:			

Annex E

Junctions 9
PICADY 9 - Priority Intersection Module
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: 194663-96 - Site Access - V2.j9
 Path: C:\Users\alice.todd.VECTOS\Desktop
 Report generation date: 27/04/2021 15:58:36

- »2021 without development, AM (7-8)
- »2021 without development, AM (8-9)
- »2021 without development, AM (9-10)
- »2021 without development, PM (16-17)
- »2021 without development, PM (17-18)
- »2021 without development, PM (18-19)
- »2021 with development, AM (7-8)
- »2021 with development, AM (8-9)
- »2021 with development, AM (9-10)
- »2021 with development, PM (16-17)
- »2021 with development, PM (17-18)
- »2021 with development, PM (18-19)

Summary of junction performance

	AM (7-8)				AM (8-9)				AM (9-10)				PM (16-17)				PM (17-18)				PM (18-19)			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2021 without development																								
Stream B-C	0.0	8.52	0.01	A	0.0	9.42	0.01	A	0.0	8.29	0.02	A	0.1	7.85	0.07	A	0.0	7.74	0.04	A	0.0	6.76	0.02	A
Stream B-A	0.0	14.04	0.01	B	0.0	17.78	0.02	C	0.0	13.50	0.02	B	0.1	14.57	0.08	B	0.1	15.98	0.05	C	0.0	11.79	0.02	B
Stream C-AB	0.1	5.66	0.07	A	0.1	5.32	0.07	A	0.0	5.62	0.03	A	0.0	4.21	0.01	A	0.0	3.90	0.01	A	0.0	4.28	0.00	A
2021 with development																								
Stream B-C	0.3	8.21	0.25	A	0.1	7.60	0.09	A	0.0	0.00	0.00	A	0.2	7.77	0.15	A	0.2	8.44	0.16	A	0.2	7.39	0.14	A
Stream B-A	0.0	0.00	0.00	A	0.0	0.00	0.00	A	0.0	0.00	0.00	A	0.1	18.20	0.09	C	0.1	22.58	0.11	C	0.1	15.88	0.08	C
Stream C-AB	0.4	6.30	0.19	A	0.1	5.20	0.08	A	0.0	0.00	0.00	A	1.2	6.78	0.39	A	1.7	7.15	0.45	A	0.9	6.60	0.35	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	19/01/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\ellen.hill
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2021 without development	AM (7-8)	FLAT	06:45	08:15	90	15	✓
D2	2021 without development	AM (8-9)	FLAT	07:45	09:15	90	15	✓
D3	2021 without development	AM (9-10)	FLAT	08:45	10:15	90	15	✓
D4	2021 without development	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D5	2021 without development	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D6	2021 without development	PM (18-19)	FLAT	17:45	19:15	90	15	✓
D7	2021 with development	AM (7-8)	FLAT	06:45	08:15	90	15	✓
D8	2021 with development	AM (8-9)	FLAT	07:45	09:15	90	15	✓
D9	2021 with development	AM (9-10)	FLAT	08:45	10:15	90	15	✓
D10	2021 with development	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D11	2021 with development	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D12	2021 with development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2021 without development, AM (7-8)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.39	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Southam Road (S)		Major
B	Site Access		Minor
C	Southam Road (N)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Southam Road (N)	6.48			144.2	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane plus flare	10.00	6.55	4.92	4.53	4.37		1.00	39	22

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	499	0.089	0.225	0.142	0.321
B-C	672	0.101	0.255	-	-
C-B	657	0.249	0.249	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2021 without development	AM (7-8)	FLAT	06:45	08:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	605	100.000
B - Site Access		FLAT	✓	7	100.000
C - Southam Road (N)		FLAT	✓	316	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	A - Southam Road (S)	B - Site Access	C - Southam Road (N)
A - Southam Road (S)	0	20	585
B - Site Access	3	0	4
C - Southam Road (N)	286	30	0

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	A - Southam Road (S)	B - Site Access	C - Southam Road (N)
A - Southam Road (S)	0	4	4
B - Site Access	22	0	22
C - Southam Road (N)	4	4	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	8.52	0.0	A	4	6
B-A	0.01	14.04	0.0	B	3	5
C-AB	0.07	5.66	0.1	A	50	75
C-A					266	399
A-B					20	30
A-C					585	878

Main Results for each time segment

06:45 - 07:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	520	0.008	4	0.0	0.0	8.517	A
B-A	3	0.75	316	0.010	3	0.0	0.0	14.043	B
C-AB	50	13	712	0.070	50	0.0	0.1	5.651	A
C-A	266	66			266				
A-B	20	5			20				
A-C	585	146			585				

07:00 - 07:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	519	0.008	4	0.0	0.0	8.522	A
B-A	3	0.75	316	0.010	3	0.0	0.0	14.043	B
C-AB	50	13	712	0.071	50	0.1	0.1	5.661	A
C-A	266	66			266				
A-B	20	5			20				
A-C	585	146			585				

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	519	0.008	4	0.0	0.0	8.522	A
B-A	3	0.75	316	0.010	3	0.0	0.0	14.043	B
C-AB	50	13	712	0.071	50	0.1	0.1	5.661	A
C-A	266	66			266				
A-B	20	5			20				
A-C	585	146			585				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	519	0.008	4	0.0	0.0	8.522	A
B-A	3	0.75	316	0.010	3	0.0	0.0	14.043	B
C-AB	50	13	712	0.071	50	0.1	0.1	5.659	A
C-A	266	66			266				
A-B	20	5			20				
A-C	585	146			585				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	519	0.008	4	0.0	0.0	8.522	A
B-A	3	0.75	316	0.010	3	0.0	0.0	14.043	B
C-AB	50	13	712	0.071	50	0.1	0.1	5.661	A
C-A	266	66			266				
A-B	20	5			20				
A-C	585	146			585				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	1	519	0.008	4	0.0	0.0	8.522	A
B-A	3	0.75	316	0.010	3	0.0	0.0	14.043	B
C-AB	50	13	712	0.071	50	0.1	0.1	5.659	A
C-A	266	66			266				
A-B	20	5			20				
A-C	585	146			585				

2021 without development, AM (8-9)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2021 without development	AM (8-9)	FLAT	07:45	09:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	818	100.000
B - Site Access		FLAT	✓	10	100.000
C - Southam Road (N)		FLAT	✓	433	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	15	803
	B - Site Access	4	0	6
	C - Southam Road (N)	410	23	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	7	4
	B - Site Access	21	0	21
	C - Southam Road (N)	3	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.01	9.42	0.0	A	6	9
B-A	0.02	17.78	0.0	C	4	6
C-AB	0.07	5.32	0.1	A	50	75
C-A					383	574
A-B					15	23
A-C					803	1205

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	2	469	0.013	6	0.0	0.0	9.407	A
B-A	4	1	249	0.016	4	0.0	0.0	17.778	C
C-AB	50	12	760	0.066	49	0.0	0.1	5.307	A
C-A	383	96			383				
A-B	15	4			15				
A-C	803	201			803				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	2	469	0.013	6	0.0	0.0	9.417	A
B-A	4	1	249	0.016	4	0.0	0.0	17.780	C
C-AB	50	13	760	0.066	50	0.1	0.1	5.314	A
C-A	383	96			383				
A-B	15	4			15				
A-C	803	201			803				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	2	469	0.013	6	0.0	0.0	9.417	A
B-A	4	1	249	0.016	4	0.0	0.0	17.780	C
C-AB	50	13	760	0.066	50	0.1	0.1	5.314	A
C-A	383	96			383				
A-B	15	4			15				
A-C	803	201			803				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	2	469	0.013	6	0.0	0.0	9.417	A
B-A	4	1	249	0.016	4	0.0	0.0	17.780	C
C-AB	50	13	760	0.066	50	0.1	0.1	5.314	A
C-A	383	96			383				
A-B	15	4			15				
A-C	803	201			803				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	2	469	0.013	6	0.0	0.0	9.417	A
B-A	4	1	249	0.016	4	0.0	0.0	17.780	C
C-AB	50	13	760	0.066	50	0.1	0.1	5.314	A
C-A	383	96			383				
A-B	15	4			15				
A-C	803	201			803				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	2	469	0.013	6	0.0	0.0	9.417	A
B-A	4	1	249	0.016	4	0.0	0.0	17.780	C
C-AB	50	13	760	0.066	50	0.1	0.1	5.316	A
C-A	383	96			383				
A-B	15	4			15				
A-C	803	201			803				

2021 without development, AM (9-10)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2021 without development	AM (9-10)	FLAT	08:45	10:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	590	100.000
B - Site Access		FLAT	✓	14	100.000
C - Southam Road (N)		FLAT	✓	315	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	9	581
	B - Site Access	6	0	8
	C - Southam Road (N)	301	14	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	14	9
	B - Site Access	18	0	18
	C - Southam Road (N)	4	14	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.02	8.29	0.0	A	8	12
B-A	0.02	13.50	0.0	B	6	9
C-AB	0.03	5.62	0.0	A	24	36
C-A					291	437
A-B					9	14
A-C					581	872

Main Results for each time segment

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	521	0.015	8	0.0	0.0	8.286	A
B-A	6	2	321	0.019	6	0.0	0.0	13.498	B
C-AB	24	6	726	0.033	24	0.0	0.0	5.618	A
C-A	291	73			291				
A-B	9	2			9				
A-C	581	145			581				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	520	0.015	8	0.0	0.0	8.293	A
B-A	6	2	321	0.019	6	0.0	0.0	13.497	B
C-AB	24	6	726	0.033	24	0.0	0.0	5.621	A
C-A	291	73			291				
A-B	9	2			9				
A-C	581	145			581				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	520	0.015	8	0.0	0.0	8.293	A
B-A	6	2	321	0.019	6	0.0	0.0	13.497	B
C-AB	24	6	726	0.033	24	0.0	0.0	5.622	A
C-A	291	73			291				
A-B	9	2			9				
A-C	581	145			581				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	520	0.015	8	0.0	0.0	8.293	A
B-A	6	2	321	0.019	6	0.0	0.0	13.497	B
C-AB	24	6	726	0.033	24	0.0	0.0	5.620	A
C-A	291	73			291				
A-B	9	2			9				
A-C	581	145			581				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	520	0.015	8	0.0	0.0	8.293	A
B-A	6	2	321	0.019	6	0.0	0.0	13.497	B
C-AB	24	6	726	0.033	24	0.0	0.0	5.622	A
C-A	291	73			291				
A-B	9	2			9				
A-C	581	145			581				

10:00 - 10:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	8	2	520	0.015	8	0.0	0.0	8.293	A
B-A	6	2	321	0.019	6	0.0	0.0	13.497	B
C-AB	24	6	726	0.033	24	0.0	0.0	5.620	A
C-A	291	73			291				
A-B	9	2			9				
A-C	581	145			581				

2021 without development, PM (16-17)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.54	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 without development	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	607	100.000
B - Site Access		FLAT	✓	57	100.000
C - Southam Road (N)		FLAT	✓	561	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	3	604
	B - Site Access	23	0	34
	C - Southam Road (N)	556	5	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	5	4
	B - Site Access	4	0	4
	C - Southam Road (N)	4	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.07	7.85	0.1	A	34	51
B-A	0.08	14.57	0.1	B	23	35
C-AB	0.01	4.21	0.0	A	13	19
C-A					548	822
A-B					3	5
A-C					604	906

Main Results for each time segment

15:45 - 16:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	9	512	0.066	34	0.0	0.1	7.830	A
B-A	23	6	280	0.082	23	0.0	0.1	14.541	B
C-AB	13	3	906	0.014	13	0.0	0.0	4.208	A
C-A	548	137			548				
A-B	3	0.75			3				
A-C	604	151			604				

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	9	511	0.067	34	0.1	0.1	7.847	A
B-A	23	6	280	0.082	23	0.1	0.1	14.570	B
C-AB	13	3	906	0.014	13	0.0	0.0	4.208	A
C-A	548	137			548				
A-B	3	0.75			3				
A-C	604	151			604				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	9	511	0.067	34	0.1	0.1	7.847	A
B-A	23	6	280	0.082	23	0.1	0.1	14.570	B
C-AB	13	3	906	0.014	13	0.0	0.0	4.210	A
C-A	548	137			548				
A-B	3	0.75			3				
A-C	604	151			604				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	9	511	0.067	34	0.1	0.1	7.847	A
B-A	23	6	280	0.082	23	0.1	0.1	14.570	B
C-AB	13	3	906	0.014	13	0.0	0.0	4.208	A
C-A	548	137			548				
A-B	3	0.75			3				
A-C	604	151			604				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	9	511	0.067	34	0.1	0.1	7.847	A
B-A	23	6	280	0.082	23	0.1	0.1	14.570	B
C-AB	13	3	906	0.014	13	0.0	0.0	4.208	A
C-A	548	137			548				
A-B	3	0.75			3				
A-C	604	151			604				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	34	9	511	0.067	34	0.1	0.1	7.847	A
B-A	23	6	280	0.082	23	0.1	0.1	14.570	B
C-AB	13	3	906	0.014	13	0.0	0.0	4.208	A
C-A	548	137			548				
A-B	3	0.75			3				
A-C	604	151			604				

2021 without development, PM (17-18)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.29	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2021 without development	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	731	100.000
B - Site Access		FLAT	✓	33	100.000
C - Southam Road (N)		FLAT	✓	657	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	3	728
	B - Site Access	13	0	20
	C - Southam Road (N)	653	4	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	3
	B - Site Access	0	0	0
	C - Southam Road (N)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.04	7.74	0.0	A	20	30
B-A	0.05	15.98	0.1	C	13	20
C-AB	0.01	3.90	0.0	A	13	19
C-A					644	967
A-B					3	5
A-C					728	1092

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	20	5	486	0.041	20	0.0	0.0	7.725	A
B-A	13	3	238	0.055	13	0.0	0.1	15.966	C
C-AB	13	3	956	0.013	13	0.0	0.0	3.894	A
C-A	644	161			644				
A-B	3	0.75			3				
A-C	728	182			728				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	20	5	485	0.041	20	0.0	0.0	7.738	A
B-A	13	3	238	0.055	13	0.1	0.1	15.984	C
C-AB	13	3	956	0.013	13	0.0	0.0	3.895	A
C-A	644	161			644				
A-B	3	0.75			3				
A-C	728	182			728				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	20	5	485	0.041	20	0.0	0.0	7.738	A
B-A	13	3	238	0.055	13	0.1	0.1	15.984	C
C-AB	13	3	956	0.013	13	0.0	0.0	3.895	A
C-A	644	161			644				
A-B	3	0.75			3				
A-C	728	182			728				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	20	5	485	0.041	20	0.0	0.0	7.738	A
B-A	13	3	238	0.055	13	0.1	0.1	15.984	C
C-AB	13	3	956	0.013	13	0.0	0.0	3.895	A
C-A	644	161			644				
A-B	3	0.75			3				
A-C	728	182			728				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	20	5	485	0.041	20	0.0	0.0	7.738	A
B-A	13	3	238	0.055	13	0.1	0.1	15.984	C
C-AB	13	3	956	0.013	13	0.0	0.0	3.895	A
C-A	644	161			644				
A-B	3	0.75			3				
A-C	728	182			728				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	20	5	485	0.041	20	0.0	0.0	7.738	A
B-A	13	3	238	0.055	13	0.1	0.1	15.984	C
C-AB	13	3	956	0.013	13	0.0	0.0	3.895	A
C-A	644	161			644				
A-B	3	0.75			3				
A-C	728	182			728				

2021 without development, PM (18-19)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2021 without development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	524	100.000
B - Site Access		FLAT	✓	15	100.000
C - Southam Road (N)		FLAT	✓	468	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	524
	B - Site Access	6	0	9
	C - Southam Road (N)	467	1	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	3
	B - Site Access	0	0	0
	C - Southam Road (N)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.02	6.76	0.0	A	9	14
B-A	0.02	11.79	0.0	B	6	9
C-AB	0.00	4.28	0.0	A	2	3
C-A					466	699
A-B					0	0
A-C					524	786

Main Results for each time segment

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	2	542	0.017	9	0.0	0.0	6.758	A
B-A	6	2	311	0.019	6	0.0	0.0	11.787	B
C-AB	2	0.55	857	0.003	2	0.0	0.0	4.278	A
C-A	466	116			466				
A-B	0	0			0				
A-C	524	131			524				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	2	541	0.017	9	0.0	0.0	6.761	A
B-A	6	2	311	0.019	6	0.0	0.0	11.786	B
C-AB	2	0.55	857	0.003	2	0.0	0.0	4.278	A
C-A	466	116			466				
A-B	0	0			0				
A-C	524	131			524				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	2	541	0.017	9	0.0	0.0	6.761	A
B-A	6	2	311	0.019	6	0.0	0.0	11.786	B
C-AB	2	0.55	857	0.003	2	0.0	0.0	4.278	A
C-A	466	116			466				
A-B	0	0			0				
A-C	524	131			524				

18:30 - 18:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	2	541	0.017	9	0.0	0.0	6.764	A
B-A	6	2	311	0.019	6	0.0	0.0	11.786	B
C-AB	2	0.55	857	0.003	2	0.0	0.0	4.280	A
C-A	466	116			466				
A-B	0	0			0				
A-C	524	131			524				

18:45 - 19:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	2	541	0.017	9	0.0	0.0	6.761	A
B-A	6	2	311	0.019	6	0.0	0.0	11.786	B
C-AB	2	0.55	857	0.003	2	0.0	0.0	4.278	A
C-A	466	116			466				
A-B	0	0			0				
A-C	524	131			524				

19:00 - 19:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	9	2	541	0.017	9	0.0	0.0	6.764	A
B-A	6	2	311	0.019	6	0.0	0.0	11.786	B
C-AB	2	0.55	857	0.003	2	0.0	0.0	4.278	A
C-A	466	116			466				
A-B	0	0			0				
A-C	524	131			524				

2021 with development, AM (7-8)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.89	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D7	2021 with development	AM (7-8)	FLAT	06:45	08:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	585	100.000
B - Site Access		FLAT	✓	149	100.000
C - Southam Road (N)		FLAT	✓	367	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	20	565
	B - Site Access	0	0	149
	C - Southam Road (N)	286	81	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	4
	B - Site Access	0	0	0
	C - Southam Road (N)	4	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.25	8.21	0.3	A	149	224
B-A	0.00	0.00	0.0	A	0	0
C-AB	0.19	6.30	0.4	A	135	203
C-A					232	347
A-B					20	30
A-C					565	848

Main Results for each time segment

06:45 - 07:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	149	37	587	0.254	148	0.0	0.3	8.164	A
B-A	0	0	263	0.000	0	0.0	0.0	0.000	A
C-AB	135	34	716	0.188	133	0.0	0.4	6.267	A
C-A	232	58			232				
A-B	20	5			20				
A-C	565	141			565				

07:00 - 07:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	149	37	587	0.254	149	0.3	0.3	8.212	A
B-A	0	0	263	0.000	0	0.0	0.0	0.000	A
C-AB	135	34	717	0.189	135	0.4	0.4	6.302	A
C-A	232	58			232				
A-B	20	5			20				
A-C	565	141			565				

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	149	37	587	0.254	149	0.3	0.3	8.212	A
B-A	0	0	263	0.000	0	0.0	0.0	0.000	A
C-AB	135	34	717	0.189	135	0.4	0.4	6.303	A
C-A	232	58			232				
A-B	20	5			20				
A-C	565	141			565				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	149	37	587	0.254	149	0.3	0.3	8.212	A
B-A	0	0	263	0.000	0	0.0	0.0	0.000	A
C-AB	135	34	717	0.189	135	0.4	0.4	6.301	A
C-A	232	58			232				
A-B	20	5			20				
A-C	565	141			565				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	149	37	587	0.254	149	0.3	0.3	8.212	A
B-A	0	0	263	0.000	0	0.0	0.0	0.000	A
C-AB	135	34	717	0.189	135	0.4	0.4	6.303	A
C-A	232	58			232				
A-B	20	5			20				
A-C	565	141			565				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	149	37	587	0.254	149	0.3	0.3	8.212	A
B-A	0	0	263	0.000	0	0.0	0.0	0.000	A
C-AB	135	34	717	0.189	135	0.4	0.4	6.301	A
C-A	232	58			232				
A-B	20	5			20				
A-C	565	141			565				

2021 with development, AM (8-9)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.52	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D8	2021 with development	AM (8-9)	FLAT	07:45	09:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	803	100.000
B - Site Access		FLAT	✓	49	100.000
C - Southam Road (N)		FLAT	✓	437	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	6	797
	B - Site Access	0	0	49
	C - Southam Road (N)	410	27	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	4
	B - Site Access	0	0	0
	C - Southam Road (N)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.09	7.60	0.1	A	49	74
B-A	0.00	0.00	0.0	A	0	0
C-AB	0.08	5.20	0.1	A	59	88
C-A					378	568
A-B					6	9
A-C					797	1196

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	49	12	523	0.094	49	0.0	0.1	7.584	A
B-A	0	0	219	0.000	0	0.0	0.0	0.000	A
C-AB	58	15	763	0.076	58	0.0	0.1	5.185	A
C-A	379	95			379				
A-B	6	2			6				
A-C	797	199			797				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	49	12	523	0.094	49	0.1	0.1	7.596	A
B-A	0	0	219	0.000	0	0.0	0.0	0.000	A
C-AB	59	15	763	0.077	59	0.1	0.1	5.193	A
C-A	378	95			378				
A-B	6	2			6				
A-C	797	199			797				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	49	12	523	0.094	49	0.1	0.1	7.596	A
B-A	0	0	219	0.000	0	0.0	0.0	0.000	A
C-AB	59	15	763	0.077	59	0.1	0.1	5.193	A
C-A	378	95			378				
A-B	6	2			6				
A-C	797	199			797				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	49	12	523	0.094	49	0.1	0.1	7.596	A
B-A	0	0	219	0.000	0	0.0	0.0	0.000	A
C-AB	59	15	763	0.077	59	0.1	0.1	5.195	A
C-A	378	95			378				
A-B	6	2			6				
A-C	797	199			797				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	49	12	523	0.094	49	0.1	0.1	7.596	A
B-A	0	0	219	0.000	0	0.0	0.0	0.000	A
C-AB	59	15	763	0.077	59	0.1	0.1	5.195	A
C-A	378	95			378				
A-B	6	2			6				
A-C	797	199			797				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	49	12	523	0.094	49	0.1	0.1	7.596	A
B-A	0	0	219	0.000	0	0.0	0.0	0.000	A
C-AB	59	15	763	0.077	59	0.1	0.1	5.193	A
C-A	378	95			378				
A-B	6	2			6				
A-C	797	199			797				

2021 with development, AM (9-10)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	2021 with development	AM (9-10)	FLAT	08:45	10:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	581	100.000
B - Site Access		FLAT	✓	0	100.000
C - Southam Road (N)		FLAT	✓	301	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	581
	B - Site Access	0	0	0
	C - Southam Road (N)	301	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	9
	B - Site Access	0	0	0
	C - Southam Road (N)	4	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.00	0.00	0.0	A	0	0
B-A	0.00	0.00	0.0	A	0	0
C-AB	0.00	0.00	0.0	A	0	0
C-A					301	452
A-B					0	0
A-C					581	872

Main Results for each time segment

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	0	510	0.000	0	0.0	0.0	0.000	A
B-A	0	0	335	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	513	0.000	0	0.0	0.0	0.000	A
C-A	301	75			301				
A-B	0	0			0				
A-C	581	145			581				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	0	510	0.000	0	0.0	0.0	0.000	A
B-A	0	0	335	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	513	0.000	0	0.0	0.0	0.000	A
C-A	301	75			301				
A-B	0	0			0				
A-C	581	145			581				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	0	510	0.000	0	0.0	0.0	0.000	A
B-A	0	0	335	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	513	0.000	0	0.0	0.0	0.000	A
C-A	301	75			301				
A-B	0	0			0				
A-C	581	145			581				

09:30 - 09:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	0	510	0.000	0	0.0	0.0	0.000	A
B-A	0	0	335	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	513	0.000	0	0.0	0.0	0.000	A
C-A	301	75			301				
A-B	0	0			0				
A-C	581	145			581				

09:45 - 10:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	0	510	0.000	0	0.0	0.0	0.000	A
B-A	0	0	335	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	513	0.000	0	0.0	0.0	0.000	A
C-A	301	75			301				
A-B	0	0			0				
A-C	581	145			581				

10:00 - 10:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	0	510	0.000	0	0.0	0.0	0.000	A
B-A	0	0	335	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	513	0.000	0	0.0	0.0	0.000	A
C-A	301	75			301				
A-B	0	0			0				
A-C	581	145			581				

2021 with development, PM (16-17)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2021 with development	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	618	100.000
B - Site Access		FLAT	✓	102	100.000
C - Southam Road (N)		FLAT	✓	688	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	14	604
	B - Site Access	20	0	82
	C - Southam Road (N)	552	136	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	4
	B - Site Access	0	0	0
	C - Southam Road (N)	4	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.15	7.77	0.2	A	82	123
B-A	0.09	18.20	0.1	C	20	30
C-AB	0.39	6.78	1.2	A	354	531
C-A					334	501
A-B					14	21
A-C					604	906

Main Results for each time segment

15:45 - 16:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	546	0.150	81	0.0	0.2	7.742	A
B-A	20	5	219	0.091	20	0.0	0.1	18.052	C
C-AB	351	88	901	0.390	346	0.0	1.2	6.644	A
C-A	337	84			337				
A-B	14	4			14				
A-C	604	151			604				

16:00 - 16:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	545	0.150	82	0.2	0.2	7.773	A
B-A	20	5	218	0.092	20	0.1	0.1	18.196	C
C-AB	355	89	903	0.393	354	1.2	1.2	6.771	A
C-A	333	83			333				
A-B	14	4			14				
A-C	604	151			604				

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	545	0.150	82	0.2	0.2	7.773	A
B-A	20	5	218	0.092	20	0.1	0.1	18.199	C
C-AB	355	89	903	0.393	355	1.2	1.2	6.777	A
C-A	333	83			333				
A-B	14	4			14				
A-C	604	151			604				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	545	0.150	82	0.2	0.2	7.774	A
B-A	20	5	218	0.092	20	0.1	0.1	18.199	C
C-AB	355	89	903	0.393	355	1.2	1.2	6.778	A
C-A	333	83			333				
A-B	14	4			14				
A-C	604	151			604				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	545	0.150	82	0.2	0.2	7.774	A
B-A	20	5	218	0.092	20	0.1	0.1	18.200	C
C-AB	355	89	903	0.393	355	1.2	1.2	6.778	A
C-A	333	83			333				
A-B	14	4			14				
A-C	604	151			604				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	545	0.150	82	0.2	0.2	7.774	A
B-A	20	5	218	0.092	20	0.1	0.1	18.200	C
C-AB	355	89	903	0.393	355	1.2	1.2	6.775	A
C-A	333	83			333				
A-B	14	4			14				
A-C	604	151			604				

2021 with development, PM (17-18)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D11	2021 with development	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	742	100.000
B - Site Access		FLAT	✓	102	100.000
C - Southam Road (N)		FLAT	✓	785	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	14	728
	B - Site Access	20	0	82
	C - Southam Road (N)	649	136	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	3
	B - Site Access	0	0	0
	C - Southam Road (N)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.16	8.44	0.2	A	82	123
B-A	0.11	22.58	0.1	C	20	30
C-AB	0.45	7.15	1.7	A	433	650
C-A					352	528
A-B					14	21
A-C					728	1092

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	509	0.161	81	0.0	0.2	8.396	A
B-A	20	5	181	0.111	20	0.0	0.1	22.289	C
C-AB	428	107	951	0.450	422	0.0	1.7	6.938	A
C-A	357	89			357				
A-B	14	4			14				
A-C	728	182			728				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	509	0.161	82	0.2	0.2	8.438	A
B-A	20	5	179	0.111	20	0.1	0.1	22.566	C
C-AB	434	108	954	0.455	434	1.7	1.7	7.140	A
C-A	351	88			351				
A-B	14	4			14				
A-C	728	182			728				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	509	0.161	82	0.2	0.2	8.439	A
B-A	20	5	179	0.111	20	0.1	0.1	22.575	C
C-AB	434	108	955	0.455	434	1.7	1.7	7.149	A
C-A	351	88			351				
A-B	14	4			14				
A-C	728	182			728				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	509	0.161	82	0.2	0.2	8.439	A
B-A	20	5	179	0.111	20	0.1	0.1	22.576	C
C-AB	434	109	955	0.455	434	1.7	1.7	7.150	A
C-A	351	88			351				
A-B	14	4			14				
A-C	728	182			728				

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	509	0.161	82	0.2	0.2	8.439	A
B-A	20	5	179	0.111	20	0.1	0.1	22.577	C
C-AB	434	109	955	0.455	434	1.7	1.7	7.148	A
C-A	351	88			351				
A-B	14	4			14				
A-C	728	182			728				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	82	21	509	0.161	82	0.2	0.2	8.439	A
B-A	20	5	179	0.111	20	0.1	0.1	22.577	C
C-AB	434	109	955	0.455	434	1.7	1.7	7.152	A
C-A	351	88			351				
A-B	14	4			14				
A-C	728	182			728				

2021 with development, PM (18-19)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D12	2021 with development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Southam Road (S)		FLAT	✓	538	100.000
B - Site Access		FLAT	✓	101	100.000
C - Southam Road (N)		FLAT	✓	597	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	14	524
	B - Site Access	20	0	81
	C - Southam Road (N)	463	134	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Southam Road (S)	B - Site Access	C - Southam Road (N)
From	A - Southam Road (S)	0	0	3
	B - Site Access	0	0	0
	C - Southam Road (N)	3	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-C	0.14	7.39	0.2	A	81	122
B-A	0.08	15.88	0.1	C	20	30
C-AB	0.35	6.60	0.9	A	295	443
C-A					302	452
A-B					14	21
A-C					524	786

Main Results for each time segment

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	81	20	569	0.142	80	0.0	0.2	7.364	A
B-A	20	5	247	0.081	20	0.0	0.1	15.787	C
C-AB	294	73	852	0.345	290	0.0	0.9	6.505	A
C-A	303	76			303				
A-B	14	4			14				
A-C	524	131			524				

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	81	20	568	0.143	81	0.2	0.2	7.388	A
B-A	20	5	247	0.081	20	0.1	0.1	15.880	C
C-AB	296	74	853	0.347	296	0.9	0.9	6.599	A
C-A	301	75			301				
A-B	14	4			14				
A-C	524	131			524				

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	81	20	568	0.143	81	0.2	0.2	7.388	A
B-A	20	5	247	0.081	20	0.1	0.1	15.881	C
C-AB	296	74	853	0.347	296	0.9	0.9	6.601	A
C-A	301	75			301				
A-B	14	4			14				
A-C	524	131			524				

18:30 - 18:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	81	20	568	0.143	81	0.2	0.2	7.388	A
B-A	20	5	247	0.081	20	0.1	0.1	15.881	C
C-AB	296	74	853	0.347	296	0.9	0.9	6.601	A
C-A	301	75			301				
A-B	14	4			14				
A-C	524	131			524				

18:45 - 19:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	81	20	568	0.143	81	0.2	0.2	7.388	A
B-A	20	5	247	0.081	20	0.1	0.1	15.881	C
C-AB	296	74	853	0.347	296	0.9	0.9	6.602	A
C-A	301	75			301				
A-B	14	4			14				
A-C	524	131			524				

19:00 - 19:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	81	20	568	0.143	81	0.2	0.2	7.388	A
B-A	20	5	247	0.081	20	0.1	0.1	15.881	C
C-AB	296	74	853	0.347	296	0.9	0.9	6.599	A
C-A	301	75			301				
A-B	14	4			14				
A-C	524	131			524				

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
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Filename: 194663-96 - Southam Road_Hennef Way - V2.j9
 Path: C:\Users\alice.todd.VECTOS\Desktop
 Report generation date: 27/04/2021 15:56:40

- »2021 without Development, AM (7-8)
- »2021 without Development, AM (8-9)
- »2021 without Development, AM (9-10)
- »2021 without Development, PM (16-17)
- »2021 without Development, PM (17-18)
- »2021 without Development, PM (18-19)
- »2021 with Development, AM (7-8)
- »2021 with Development, AM (8-9)
- »2021 with Development, AM (9-10)
- »2021 with Development, PM (16-17)
- »2021 with Development, PM (17-18)
- »2021 with Development, PM (18-19)
- »2021 with Development (sensitivity), AM (7-8)
- »2021 with Development (sensitivity), AM (8-9)
- »2021 with Development (sensitivity), AM (9-10)
- »2021 with Development (sensitivity), PM (16-17)
- »2021 with Development (sensitivity), PM (17-18)
- »2021 with Development (sensitivity), PM (18-19)

Summary of junction performance

	AM (7-8)				AM (8-9)				AM (9-10)				PM (16-17)				PM (17-18)				PM (18-19)			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2021 without Development																								
1 - Southam Road (N)	0.4	2.27	0.26	A	0.7	3.04	0.39	A	0.4	2.33	0.26	A	0.6	2.90	0.38	A	0.9	3.59	0.47	A	0.4	2.40	0.30	A
2 - Hennef Way	1.7	3.84	0.61	A	6.5	11.00	0.86	B	1.7	3.92	0.61	A	2.0	4.55	0.65	A	3.7	7.29	0.78	A	1.2	3.22	0.53	A
3 - Southam Road (S)	1.0	5.89	0.48	A	13.3	62.21	0.94	F	1.0	6.15	0.48	A	1.1	6.14	0.51	A	2.3	11.00	0.69	B	0.6	4.23	0.38	A
4 - Ruscote Avenue	0.8	3.98	0.42	A	2.9	10.80	0.73	B	0.8	3.99	0.42	A	1.1	4.54	0.52	A	2.0	7.14	0.67	A	0.7	3.28	0.40	A
2021 with Development																								
1 - Southam Road (N)	0.4	2.28	0.27	A	0.7	3.09	0.41	A	0.4	2.38	0.27	A	0.9	3.40	0.47	A	1.4	4.53	0.58	A	0.6	2.71	0.37	A
2 - Hennef Way	2.4	4.87	0.70	A	34.3	52.21	0.98	F	2.5	4.96	0.70	A	2.6	5.56	0.71	A	5.8	10.67	0.85	B	1.5	3.69	0.59	A
3 - Southam Road (S)	1.8	9.21	0.64	A	237.5	1154.14	1.24	F	1.3	7.79	0.54	A	1.3	6.94	0.56	A	3.4	15.15	0.77	C	0.8	4.73	0.44	A
4 - Ruscote Avenue	1.0	5.06	0.48	A	5.0	18.86	0.83	C	0.9	4.73	0.47	A	1.2	4.87	0.54	A	2.4	8.30	0.70	A	0.7	3.50	0.42	A
2021 with Development (sensitivity)																								
1 - Southam Road (N)	0.3	2.22	0.25	A	0.6	2.98	0.38	A	0.4	2.30	0.25	A	0.7	3.04	0.40	A	1.0	3.83	0.50	A	0.5	2.51	0.32	A
2 - Hennef Way	1.7	3.80	0.61	A	6.3	10.58	0.86	B	1.7	3.87	0.61	A	2.4	5.22	0.69	A	4.9	9.30	0.83	A	1.4	3.56	0.57	A
3 - Southam Road (S)	1.3	6.80	0.57	A	20.6	91.55	0.97	F	1.0	6.06	0.47	A	1.3	6.59	0.55	A	3.0	13.31	0.74	B	0.8	4.59	0.43	A
4 - Ruscote Avenue	0.8	4.19	0.44	A	3.0	11.15	0.74	B	0.8	3.96	0.42	A	1.1	4.67	0.53	A	2.2	7.66	0.68	A	0.7	3.41	0.41	A

*There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.
 Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.*

File summary

File Description

Title	
Location	
Site number	
Date	19/01/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\ellen.hill
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2021 without Development	AM (7-8)	FLAT	06:45	08:15	90	15	✓
D2	2021 without Development	AM (8-9)	FLAT	07:45	09:15	90	15	✓
D3	2021 without Development	AM (9-10)	FLAT	08:45	10:15	90	15	✓
D4	2021 without Development	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D5	2021 without Development	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D6	2021 without Development	PM (18-19)	FLAT	17:45	19:15	90	15	✓
D7	2021 with Development	AM (7-8)	FLAT	06:45	08:15	90	15	✓
D8	2021 with Development	AM (8-9)	FLAT	07:45	09:15	90	15	✓
D9	2021 with Development	AM (9-10)	FLAT	08:45	10:15	90	15	✓
D10	2021 with Development	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D11	2021 with Development	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D12	2021 with Development	PM (18-19)	FLAT	17:45	19:15	90	15	✓
D13	2021 with Development (sensitivity)	AM (7-8)	FLAT	06:45	08:15	90	15	✓
D14	2021 with Development (sensitivity)	AM (8-9)	FLAT	07:45	09:15	90	15	✓
D15	2021 with Development (sensitivity)	AM (9-10)	FLAT	08:45	10:15	90	15	✓
D16	2021 with Development (sensitivity)	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D17	2021 with Development (sensitivity)	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D18	2021 with Development (sensitivity)	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2021 without Development, AM (7-8)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Southam Road (N)	
2	Hennef Way	
3	Southam Road (S)	
4	Ruscote Avenue	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Southam Road (N)	3.50	10.95	48.5	33.0	62.9	13.1	
2 - Hennef Way	7.38	10.12	6.6	55.2	62.9	21.6	
3 - Southam Road (S)	3.00	10.33	23.2	65.4	62.9	12.5	
4 - Ruscote Avenue	3.50	9.94	39.6	77.0	62.9	12.8	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Southam Road (N)	0.742	2775
2 - Hennef Way	0.733	2749
3 - Southam Road (S)	0.650	2204
4 - Ruscote Avenue	0.712	2569

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2021 without Development	AM (7-8)	FLAT	06:45	08:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	574	100.000
2 - Hennef Way		FLAT	✓	1578	100.000
3 - Southam Road (S)		FLAT	✓	589	100.000
4 - Ruscote Avenue		FLAT	✓	704	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	400	170	4
	2 - Hennef Way	918	0	78	582
	3 - Southam Road (S)	319	42	0	228
	4 - Ruscote Avenue	0	637	67	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	5	1	1
	2 - Hennef Way	5	0	13	7
	3 - Southam Road (S)	6	5	0	2
	4 - Ruscote Avenue	0	6	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.26	2.27	0.4	A	574	861
2 - Hennef Way	0.61	3.84	1.7	A	1578	2367
3 - Southam Road (S)	0.48	5.89	1.0	A	589	884
4 - Ruscote Avenue	0.42	3.98	0.8	A	704	1056

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	743	2224	0.258	573	1231	0.0	0.4	2.259	A
2 - Hennef Way	1578	395	240	2573	0.613	1571	1075	0.0	1.7	3.789	A
3 - Southam Road (S)	589	147	1498	1231	0.479	585	314	0.0	0.9	5.788	A
4 - Ruscote Avenue	704	176	1273	1663	0.423	701	810	0.0	0.8	3.935	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.266	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.840	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	0.9	1.0	5.891	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.978	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.266	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.840	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	5.892	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.978	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.266	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.840	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	5.892	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.978	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.266	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.840	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	5.892	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.978	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.266	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.840	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	5.892	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.978	A

2021 without Development, AM (8-9)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	18.39	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2021 without Development	AM (8-9)	FLAT	07:45	09:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	789	100.000
2 - Hennef Way		FLAT	✓	2167	100.000
3 - Southam Road (S)		FLAT	✓	809	100.000
4 - Ruscote Avenue		FLAT	✓	967	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	550	234	5
	2 - Hennef Way	1261	0	107	799
	3 - Southam Road (S)	438	58	0	313
	4 - Ruscote Avenue	0	875	92	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	2	5
	2 - Hennef Way	3	0	8	5
	3 - Southam Road (S)	4	8	0	3
	4 - Ruscote Avenue	0	6	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.39	3.04	0.7	A	789	1184
2 - Hennef Way	0.86	11.00	6.5	B	2167	3251
3 - Southam Road (S)	0.94	62.21	13.3	F	809	1214
4 - Ruscote Avenue	0.73	10.80	2.9	B	967	1451

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	789	197	1012	2024	0.390	786	1667	0.0	0.7	3.001	A
2 - Hennef Way	2167	542	329	2508	0.864	2143	1469	0.0	6.1	9.685	A
3 - Southam Road (S)	809	202	2042	877	0.923	777	430	0.0	8.1	31.108	D
4 - Ruscote Avenue	967	242	1723	1343	0.720	957	1096	0.0	2.6	9.615	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	789	197	1024	2015	0.391	789	1693	0.7	0.7	3.034	A
2 - Hennef Way	2167	542	331	2507	0.865	2166	1482	6.1	6.4	10.905	B
3 - Southam Road (S)	809	202	2064	862	0.938	799	433	8.1	10.5	49.500	E
4 - Ruscote Avenue	967	242	1750	1323	0.731	966	1113	2.6	2.8	10.633	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	789	197	1024	2015	0.392	789	1696	0.7	0.7	3.035	A
2 - Hennef Way	2167	542	331	2507	0.865	2167	1482	6.4	6.4	10.962	B
3 - Southam Road (S)	809	202	2065	862	0.938	804	433	10.5	11.7	55.521	F
4 - Ruscote Avenue	967	242	1754	1321	0.732	967	1115	2.8	2.8	10.738	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	789	197	1025	2015	0.392	789	1697	0.7	0.7	3.036	A
2 - Hennef Way	2167	542	331	2507	0.865	2167	1483	6.4	6.5	10.981	B
3 - Southam Road (S)	809	202	2065	862	0.939	806	433	11.7	12.4	58.723	F
4 - Ruscote Avenue	967	242	1755	1320	0.733	967	1116	2.8	2.9	10.773	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	789	197	1025	2015	0.392	789	1698	0.7	0.7	3.036	A
2 - Hennef Way	2167	542	331	2507	0.865	2167	1483	6.5	6.5	10.992	B
3 - Southam Road (S)	809	202	2065	862	0.939	807	433	12.4	12.9	60.772	F
4 - Ruscote Avenue	967	242	1756	1319	0.733	967	1116	2.9	2.9	10.790	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	789	197	1025	2015	0.392	789	1698	0.7	0.7	3.036	A
2 - Hennef Way	2167	542	331	2507	0.865	2167	1483	6.5	6.5	10.999	B
3 - Southam Road (S)	809	202	2065	862	0.939	807	433	12.9	13.3	62.209	F
4 - Ruscote Avenue	967	242	1756	1319	0.733	967	1116	2.9	2.9	10.800	B

2021 without Development, AM (9-10)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.05	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2021 without Development	AM (9-10)	FLAT	08:45	10:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	574	100.000
2 - Hennef Way		FLAT	✓	1578	100.000
3 - Southam Road (S)		FLAT	✓	589	100.000
4 - Ruscote Avenue		FLAT	✓	704	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	400	170	4
	2 - Hennef Way	918	0	78	582
	3 - Southam Road (S)	319	42	0	228
	4 - Ruscote Avenue	0	637	67	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	8	3	5
	2 - Hennef Way	9	0	10	7
	3 - Southam Road (S)	12	14	0	4
	4 - Ruscote Avenue	0	6	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.26	2.33	0.4	A	574	861
2 - Hennef Way	0.61	3.92	1.7	A	1578	2367
3 - Southam Road (S)	0.48	6.15	1.0	A	589	884
4 - Ruscote Avenue	0.42	3.99	0.8	A	704	1056

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	743	2224	0.258	573	1231	0.0	0.4	2.318	A
2 - Hennef Way	1578	395	240	2573	0.613	1571	1075	0.0	1.7	3.866	A
3 - Southam Road (S)	589	147	1498	1231	0.479	585	314	0.0	1.0	6.037	A
4 - Ruscote Avenue	704	176	1273	1663	0.423	701	810	0.0	0.8	3.946	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.325	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.920	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	6.148	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.989	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.325	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.920	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	6.148	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.989	A

09:30 - 09:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.325	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.920	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	6.148	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.989	A

09:45 - 10:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.325	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.920	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	6.148	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.989	A

10:00 - 10:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	574	144	746	2221	0.258	574	1237	0.4	0.4	2.325	A
2 - Hennef Way	1578	395	241	2572	0.613	1578	1079	1.7	1.7	3.920	A
3 - Southam Road (S)	589	147	1504	1226	0.480	589	315	1.0	1.0	6.148	A
4 - Ruscote Avenue	704	176	1279	1659	0.424	704	814	0.8	0.8	3.989	A

2021 without Development, PM (16-17)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 without Development	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	806	100.000
2 - Hennef Way		FLAT	✓	1567	100.000
3 - Southam Road (S)		FLAT	✓	638	100.000
4 - Ruscote Avenue		FLAT	✓	879	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	496	289	21
	2 - Hennef Way	753	0	118	696
	3 - Southam Road (S)	411	67	0	160
	4 - Ruscote Avenue	42	682	155	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	6	1
	2 - Hennef Way	7	0	5	6
	3 - Southam Road (S)	4	10	0	2
	4 - Ruscote Avenue	0	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.38	2.90	0.6	A	806	1209
2 - Hennef Way	0.65	4.55	2.0	A	1567	2351
3 - Southam Road (S)	0.51	6.14	1.1	A	638	957
4 - Ruscote Avenue	0.52	4.54	1.1	A	879	1319

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	806	202	899	2108	0.382	803	1199	0.0	0.6	2.881	A
2 - Hennef Way	1567	392	463	2410	0.650	1559	1240	0.0	2.0	4.465	A
3 - Southam Road (S)	638	160	1463	1253	0.509	634	560	0.0	1.1	6.008	A
4 - Ruscote Avenue	879	220	1224	1698	0.518	875	872	0.0	1.1	4.468	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	806	202	904	2104	0.383	806	1206	0.6	0.6	2.900	A
2 - Hennef Way	1567	392	465	2408	0.651	1567	1245	2.0	2.0	4.552	A
3 - Southam Road (S)	638	160	1470	1249	0.511	638	562	1.1	1.1	6.135	A
4 - Ruscote Avenue	879	220	1231	1693	0.519	879	877	1.1	1.1	4.541	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	806	202	904	2104	0.383	806	1206	0.6	0.6	2.900	A
2 - Hennef Way	1567	392	465	2408	0.651	1567	1245	2.0	2.0	4.552	A
3 - Southam Road (S)	638	160	1470	1249	0.511	638	562	1.1	1.1	6.136	A
4 - Ruscote Avenue	879	220	1231	1693	0.519	879	877	1.1	1.1	4.541	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	806	202	904	2104	0.383	806	1206	0.6	0.6	2.900	A
2 - Hennef Way	1567	392	465	2408	0.651	1567	1245	2.0	2.0	4.552	A
3 - Southam Road (S)	638	160	1470	1249	0.511	638	562	1.1	1.1	6.136	A
4 - Ruscote Avenue	879	220	1231	1693	0.519	879	877	1.1	1.1	4.541	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	806	202	904	2104	0.383	806	1206	0.6	0.6	2.900	A
2 - Hennef Way	1567	392	465	2408	0.651	1567	1245	2.0	2.0	4.552	A
3 - Southam Road (S)	638	160	1470	1249	0.511	638	562	1.1	1.1	6.136	A
4 - Ruscote Avenue	879	220	1231	1693	0.519	879	877	1.1	1.1	4.541	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	806	202	904	2104	0.383	806	1206	0.6	0.6	2.900	A
2 - Hennef Way	1567	392	465	2408	0.651	1567	1245	2.0	2.0	4.552	A
3 - Southam Road (S)	638	160	1470	1249	0.511	638	562	1.1	1.1	6.136	A
4 - Ruscote Avenue	879	220	1231	1693	0.519	879	877	1.1	1.1	4.541	A

2021 without Development, PM (17-18)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.10	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2021 without Development	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	944	100.000
2 - Hennef Way		FLAT	✓	1835	100.000
3 - Southam Road (S)		FLAT	✓	748	100.000
4 - Ruscote Avenue		FLAT	✓	1029	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	581	338	25
	2 - Hennef Way	882	0	138	815
	3 - Southam Road (S)	482	79	0	187
	4 - Ruscote Avenue	49	799	181	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	5	2
	2 - Hennef Way	5	0	3	4
	3 - Southam Road (S)	3	10	0	0
	4 - Ruscote Avenue	0	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.47	3.59	0.9	A	944	1416
2 - Hennef Way	0.78	7.29	3.7	A	1835	2753
3 - Southam Road (S)	0.69	11.00	2.3	B	748	1122
4 - Ruscote Avenue	0.67	7.14	2.0	A	1029	1544

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	944	236	1051	1995	0.473	940	1400	0.0	0.9	3.547	A
2 - Hennef Way	1835	459	541	2352	0.780	1821	1450	0.0	3.6	6.893	A
3 - Southam Road (S)	748	187	1709	1093	0.684	739	653	0.0	2.1	10.233	B
4 - Ruscote Avenue	1029	257	1430	1551	0.663	1021	1018	0.0	2.0	6.810	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	944	236	1059	1989	0.475	944	1413	0.9	0.9	3.590	A
2 - Hennef Way	1835	459	544	2350	0.781	1835	1459	3.6	3.6	7.276	A
3 - Southam Road (S)	748	187	1722	1085	0.689	748	657	2.1	2.2	10.963	B
4 - Ruscote Avenue	1029	257	1443	1542	0.667	1029	1027	2.0	2.0	7.127	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	944	236	1059	1989	0.475	944	1413	0.9	0.9	3.591	A
2 - Hennef Way	1835	459	544	2350	0.781	1835	1459	3.6	3.7	7.285	A
3 - Southam Road (S)	748	187	1722	1085	0.690	748	657	2.2	2.3	10.986	B
4 - Ruscote Avenue	1029	257	1443	1542	0.667	1029	1027	2.0	2.0	7.135	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	944	236	1059	1989	0.475	944	1413	0.9	0.9	3.591	A
2 - Hennef Way	1835	459	544	2350	0.781	1835	1459	3.7	3.7	7.288	A
3 - Southam Road (S)	748	187	1722	1085	0.690	748	657	2.3	2.3	10.994	B
4 - Ruscote Avenue	1029	257	1443	1542	0.667	1029	1027	2.0	2.0	7.139	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	944	236	1059	1989	0.475	944	1413	0.9	0.9	3.591	A
2 - Hennef Way	1835	459	544	2350	0.781	1835	1459	3.7	3.7	7.288	A
3 - Southam Road (S)	748	187	1722	1085	0.690	748	657	2.3	2.3	10.996	B
4 - Ruscote Avenue	1029	257	1443	1542	0.667	1029	1027	2.0	2.0	7.139	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	944	236	1059	1989	0.475	944	1413	0.9	0.9	3.591	A
2 - Hennef Way	1835	459	544	2350	0.781	1835	1459	3.7	3.7	7.288	A
3 - Southam Road (S)	748	187	1722	1085	0.690	748	657	2.3	2.3	10.996	B
4 - Ruscote Avenue	1029	257	1443	1542	0.667	1029	1027	2.0	2.0	7.139	A

2021 without Development, PM (18-19)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.23	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2021 without Development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	673	100.000
2 - Hennef Way		FLAT	✓	1306	100.000
3 - Southam Road (S)		FLAT	✓	532	100.000
4 - Ruscote Avenue		FLAT	✓	733	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	414	241	18
	2 - Hennef Way	628	0	98	580
	3 - Southam Road (S)	343	56	0	133
	4 - Ruscote Avenue	35	569	129	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	3	3	1
	2 - Hennef Way	3	0	6	4
	3 - Southam Road (S)	2	13	0	1
	4 - Ruscote Avenue	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.30	2.40	0.4	A	673	1010
2 - Hennef Way	0.53	3.22	1.2	A	1306	1959
3 - Southam Road (S)	0.38	4.23	0.6	A	532	798
4 - Ruscote Avenue	0.40	3.28	0.7	A	733	1100

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	673	168	751	2218	0.303	671	1002	0.0	0.4	2.395	A
2 - Hennef Way	1306	327	387	2466	0.530	1301	1036	0.0	1.2	3.192	A
3 - Southam Road (S)	532	133	1222	1410	0.377	530	467	0.0	0.6	4.191	A
4 - Ruscote Avenue	733	183	1023	1841	0.398	730	728	0.0	0.7	3.258	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	673	168	754	2216	0.304	673	1006	0.4	0.4	2.402	A
2 - Hennef Way	1306	327	388	2465	0.530	1306	1039	1.2	1.2	3.219	A
3 - Southam Road (S)	532	133	1226	1407	0.378	532	468	0.6	0.6	4.228	A
4 - Ruscote Avenue	733	183	1027	1838	0.399	733	731	0.7	0.7	3.282	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	673	168	754	2216	0.304	673	1006	0.4	0.4	2.402	A
2 - Hennef Way	1306	327	388	2465	0.530	1306	1039	1.2	1.2	3.219	A
3 - Southam Road (S)	532	133	1226	1407	0.378	532	468	0.6	0.6	4.228	A
4 - Ruscote Avenue	733	183	1027	1838	0.399	733	731	0.7	0.7	3.282	A

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	673	168	754	2215	0.304	673	1006	0.4	0.4	2.402	A
2 - Hennef Way	1306	327	388	2465	0.530	1306	1039	1.2	1.2	3.219	A
3 - Southam Road (S)	532	133	1226	1407	0.378	532	468	0.6	0.6	4.228	A
4 - Ruscote Avenue	733	183	1027	1838	0.399	733	731	0.7	0.7	3.282	A

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	673	168	754	2215	0.304	673	1006	0.4	0.4	2.402	A
2 - Hennef Way	1306	327	388	2465	0.530	1306	1039	1.2	1.2	3.219	A
3 - Southam Road (S)	532	133	1226	1407	0.378	532	468	0.6	0.6	4.228	A
4 - Ruscote Avenue	733	183	1027	1838	0.399	733	731	0.7	0.7	3.282	A

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	673	168	754	2215	0.304	673	1006	0.4	0.4	2.402	A
2 - Hennef Way	1306	327	388	2465	0.530	1306	1039	1.2	1.2	3.219	A
3 - Southam Road (S)	532	133	1226	1407	0.378	532	468	0.6	0.6	4.228	A
4 - Ruscote Avenue	733	183	1027	1838	0.399	733	731	0.7	0.7	3.282	A

2021 with Development, AM (7-8)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	O-D data		O-D matrix contains negative demand. Matrix should only be used as a development matrix for Demand Set relationships and should not be run on its own.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D7	2021 with Development	AM (7-8)	FLAT	06:45	08:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	601	100.000
2 - Hennef Way		FLAT	✓	1789	100.000
3 - Southam Road (S)		FLAT	✓	715	100.000
4 - Ruscote Avenue		FLAT	✓	703	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	440	157	4
	2 - Hennef Way	1084	0	123	582
	3 - Southam Road (S)	446	41	0	228
	4 - Ruscote Avenue	-21	637	87	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	5	0	1
	2 - Hennef Way	5	0	7	7
	3 - Southam Road (S)	4	3	0	2
	4 - Ruscote Avenue	0	6	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.27	2.28	0.4	A	601	902
2 - Hennef Way	0.70	4.87	2.4	A	1789	2684
3 - Southam Road (S)	0.64	9.21	1.8	A	715	1073
4 - Ruscote Avenue	0.48	5.06	1.0	A	703	1055

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	601	150	720	2241	0.268	599	1540	0.0	0.4	2.271	A
2 - Hennef Way	1789	447	242	2572	0.696	1779	1077	0.0	2.4	4.753	A
3 - Southam Road (S)	715	179	1661	1124	0.636	708	361	0.0	1.8	8.791	A
4 - Ruscote Avenue	703	176	1560	1458	0.482	699	809	0.0	1.0	4.965	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	601	150	724	2238	0.269	601	1550	0.4	0.4	2.278	A
2 - Hennef Way	1789	447	243	2571	0.696	1789	1082	2.4	2.4	4.867	A
3 - Southam Road (S)	715	179	1670	1119	0.639	715	362	1.8	1.8	9.200	A
4 - Ruscote Avenue	703	176	1571	1451	0.485	703	814	1.0	1.0	5.063	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	601	150	724	2238	0.269	601	1550	0.4	0.4	2.278	A
2 - Hennef Way	1789	447	243	2571	0.696	1789	1082	2.4	2.4	4.869	A
3 - Southam Road (S)	715	179	1670	1119	0.639	715	362	1.8	1.8	9.210	A
4 - Ruscote Avenue	703	176	1571	1451	0.485	703	814	1.0	1.0	5.064	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	601	150	724	2238	0.269	601	1550	0.4	0.4	2.278	A
2 - Hennef Way	1789	447	243	2571	0.696	1789	1082	2.4	2.4	4.869	A
3 - Southam Road (S)	715	179	1670	1119	0.639	715	362	1.8	1.8	9.212	A
4 - Ruscote Avenue	703	176	1571	1451	0.485	703	814	1.0	1.0	5.064	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	601	150	724	2238	0.269	601	1550	0.4	0.4	2.278	A
2 - Hennef Way	1789	447	243	2571	0.696	1789	1082	2.4	2.4	4.869	A
3 - Southam Road (S)	715	179	1670	1119	0.639	715	362	1.8	1.8	9.212	A
4 - Ruscote Avenue	703	176	1571	1451	0.485	703	814	1.0	1.0	5.064	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	601	150	724	2238	0.269	601	1550	0.4	0.4	2.278	A
2 - Hennef Way	1789	447	243	2571	0.696	1789	1082	2.4	2.4	4.869	A
3 - Southam Road (S)	715	179	1670	1119	0.639	715	362	1.8	1.8	9.212	A
4 - Ruscote Avenue	703	176	1571	1451	0.485	703	814	1.0	1.0	5.064	A

2021 with Development, AM (8-9)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	O-D data		O-D matrix contains negative demand. Matrix should only be used as a development matrix for Demand Set relationships and should not be run on its own.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	220.56	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D8	2021 with Development	AM (8-9)	FLAT	07:45	09:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	830	100.000
2 - Hennef Way		FLAT	✓	2462	100.000
3 - Southam Road (S)		FLAT	✓	846	100.000
4 - Ruscote Avenue		FLAT	✓	966	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	604	221	5
	2 - Hennef Way	1545	0	118	799
	3 - Southam Road (S)	477	56	0	313
	4 - Ruscote Avenue	-7	875	98	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	1	5
	2 - Hennef Way	3	0	6	5
	3 - Southam Road (S)	4	7	0	3
	4 - Ruscote Avenue	0	6	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.41	3.09	0.7	A	830	1245
2 - Hennef Way	0.98	52.21	34.3	F	2462	3693
3 - Southam Road (S)	1.24	1154.14	237.5	F	846	1269
4 - Ruscote Avenue	0.83	18.86	5.0	C	966	1449

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	830	208	989	2041	0.407	827	1901	0.0	0.7	3.054	A
2 - Hennef Way	2462	616	320	2514	0.979	2385	1496	0.0	19.2	22.205	C
3 - Southam Road (S)	846	212	2276	725	1.167	704	429	0.0	35.5	103.740	F
4 - Ruscote Avenue	966	242	1940	1188	0.813	949	1040	0.0	4.2	15.029	C

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	830	208	1003	2031	0.409	830	1927	0.7	0.7	3.092	A
2 - Hennef Way	2462	616	322	2513	0.980	2439	1511	19.2	24.8	37.628	E
3 - Southam Road (S)	846	212	2328	691	1.224	690	434	35.5	74.5	299.665	F
4 - Ruscote Avenue	966	242	1966	1170	0.826	964	1052	4.2	4.7	18.180	C

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	830	208	1004	2030	0.409	830	1930	0.7	0.7	3.094	A
2 - Hennef Way	2462	616	323	2513	0.980	2448	1511	24.8	28.3	43.364	E
3 - Southam Road (S)	846	212	2336	686	1.233	686	435	74.5	114.6	506.809	F
4 - Ruscote Avenue	966	242	1968	1168	0.827	965	1053	4.7	4.8	18.581	C

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	830	208	1004	2030	0.409	830	1931	0.7	0.7	3.094	A
2 - Hennef Way	2462	616	323	2513	0.980	2452	1511	28.3	30.9	47.175	E
3 - Southam Road (S)	846	212	2339	684	1.238	683	435	114.6	155.3	720.125	F
4 - Ruscote Avenue	966	242	1969	1167	0.827	966	1054	4.8	4.9	18.729	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	830	208	1004	2030	0.409	830	1932	0.7	0.7	3.094	A
2 - Hennef Way	2462	616	323	2513	0.980	2454	1511	30.9	32.8	49.999	E
3 - Southam Road (S)	846	212	2342	682	1.240	682	435	155.3	196.3	936.559	F
4 - Ruscote Avenue	966	242	1970	1167	0.828	966	1054	4.9	4.9	18.807	C

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	830	208	1004	2030	0.409	830	1932	0.7	0.7	3.094	A
2 - Hennef Way	2462	616	323	2513	0.980	2456	1511	32.8	34.3	52.211	F
3 - Southam Road (S)	846	212	2343	681	1.242	681	435	196.3	237.5	1154.143	F
4 - Ruscote Avenue	966	242	1970	1167	0.828	966	1054	4.9	5.0	18.858	C

2021 with Development, AM (9-10)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.94	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D9	2021 with Development	AM (9-10)	FLAT	08:45	10:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	605	100.000
2 - Hennef Way		FLAT	✓	1794	100.000
3 - Southam Road (S)		FLAT	✓	581	100.000
4 - Ruscote Avenue		FLAT	✓	703	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	440	161	4
	2 - Hennef Way	1138	0	74	582
	3 - Southam Road (S)	313	40	0	228
	4 - Ruscote Avenue	0	637	66	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	8	4	5
	2 - Hennef Way	9	0	9	7
	3 - Southam Road (S)	12	12	0	4
	4 - Ruscote Avenue	0	6	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.27	2.38	0.4	A	605	908
2 - Hennef Way	0.70	4.96	2.5	A	1794	2691
3 - Southam Road (S)	0.54	7.79	1.3	A	581	872
4 - Ruscote Avenue	0.47	4.73	0.9	A	703	1055

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	605	151	739	2227	0.272	603	1442	0.0	0.4	2.368	A
2 - Hennef Way	1794	449	230	2580	0.695	1784	1112	0.0	2.4	4.843	A
3 - Southam Road (S)	581	145	1715	1090	0.533	576	300	0.0	1.2	7.554	A
4 - Ruscote Avenue	703	176	1482	1514	0.464	699	809	0.0	0.9	4.650	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	605	151	743	2224	0.272	605	1451	0.4	0.4	2.376	A
2 - Hennef Way	1794	449	231	2580	0.695	1794	1117	2.4	2.5	4.960	A
3 - Southam Road (S)	581	145	1724	1084	0.536	581	301	1.2	1.2	7.785	A
4 - Ruscote Avenue	703	176	1491	1508	0.466	703	814	0.9	0.9	4.728	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	605	151	743	2224	0.272	605	1451	0.4	0.4	2.376	A
2 - Hennef Way	1794	449	231	2580	0.695	1794	1117	2.5	2.5	4.962	A
3 - Southam Road (S)	581	145	1724	1083	0.536	581	301	1.2	1.2	7.787	A
4 - Ruscote Avenue	703	176	1491	1508	0.466	703	814	0.9	0.9	4.728	A

09:30 - 09:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	605	151	743	2224	0.272	605	1451	0.4	0.4	2.376	A
2 - Hennef Way	1794	449	231	2580	0.695	1794	1117	2.5	2.5	4.962	A
3 - Southam Road (S)	581	145	1724	1083	0.536	581	301	1.2	1.3	7.788	A
4 - Ruscote Avenue	703	176	1491	1508	0.466	703	814	0.9	0.9	4.728	A

09:45 - 10:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	605	151	743	2224	0.272	605	1451	0.4	0.4	2.376	A
2 - Hennef Way	1794	449	231	2580	0.695	1794	1117	2.5	2.5	4.962	A
3 - Southam Road (S)	581	145	1724	1083	0.536	581	301	1.3	1.3	7.788	A
4 - Ruscote Avenue	703	176	1491	1508	0.466	703	814	0.9	0.9	4.728	A

10:00 - 10:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	605	151	743	2224	0.272	605	1451	0.4	0.4	2.376	A
2 - Hennef Way	1794	449	231	2580	0.695	1794	1117	2.5	2.5	4.962	A
3 - Southam Road (S)	581	145	1724	1083	0.536	581	301	1.3	1.3	7.788	A
4 - Ruscote Avenue	703	176	1491	1508	0.466	703	814	0.9	0.9	4.728	A

2021 with Development, PM (16-17)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.15	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2021 with Development	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	964	100.000
2 - Hennef Way		FLAT	✓	1690	100.000
3 - Southam Road (S)		FLAT	✓	686	100.000
4 - Ruscote Avenue		FLAT	✓	883	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	615	332	17
	2 - Hennef Way	797	0	197	696
	3 - Southam Road (S)	395	112	0	179
	4 - Ruscote Avenue	42	682	159	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	5	1
	2 - Hennef Way	7	0	3	6
	3 - Southam Road (S)	4	6	0	1
	4 - Ruscote Avenue	0	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.47	3.40	0.9	A	964	1446
2 - Hennef Way	0.71	5.56	2.6	A	1690	2535
3 - Southam Road (S)	0.56	6.94	1.3	A	686	1029
4 - Ruscote Avenue	0.54	4.87	1.2	A	883	1325

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	964	241	948	2072	0.465	960	1226	0.0	0.9	3.366	A
2 - Hennef Way	1690	423	506	2378	0.711	1680	1402	0.0	2.6	5.392	A
3 - Southam Road (S)	686	172	1501	1228	0.558	681	685	0.0	1.3	6.745	A
4 - Ruscote Avenue	883	221	1295	1647	0.536	878	886	0.0	1.2	4.772	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	964	241	953	2068	0.466	964	1234	0.9	0.9	3.400	A
2 - Hennef Way	1690	423	508	2377	0.711	1690	1409	2.6	2.6	5.558	A
3 - Southam Road (S)	686	172	1510	1223	0.561	686	688	1.3	1.3	6.940	A
4 - Ruscote Avenue	883	221	1304	1641	0.538	883	892	1.2	1.2	4.867	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	964	241	953	2068	0.466	964	1234	0.9	0.9	3.400	A
2 - Hennef Way	1690	423	508	2377	0.711	1690	1409	2.6	2.6	5.561	A
3 - Southam Road (S)	686	172	1510	1223	0.561	686	688	1.3	1.3	6.944	A
4 - Ruscote Avenue	883	221	1304	1641	0.538	883	892	1.2	1.2	4.868	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	964	241	953	2068	0.466	964	1234	0.9	0.9	3.400	A
2 - Hennef Way	1690	423	508	2377	0.711	1690	1409	2.6	2.6	5.561	A
3 - Southam Road (S)	686	172	1510	1223	0.561	686	688	1.3	1.3	6.944	A
4 - Ruscote Avenue	883	221	1304	1641	0.538	883	892	1.2	1.2	4.868	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	964	241	953	2068	0.466	964	1234	0.9	0.9	3.400	A
2 - Hennef Way	1690	423	508	2377	0.711	1690	1409	2.6	2.6	5.561	A
3 - Southam Road (S)	686	172	1510	1223	0.561	686	688	1.3	1.3	6.944	A
4 - Ruscote Avenue	883	221	1304	1641	0.538	883	892	1.2	1.2	4.868	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	964	241	953	2068	0.466	964	1234	0.9	0.9	3.400	A
2 - Hennef Way	1690	423	508	2377	0.711	1690	1409	2.6	2.6	5.561	A
3 - Southam Road (S)	686	172	1510	1223	0.561	686	688	1.3	1.3	6.944	A
4 - Ruscote Avenue	883	221	1304	1641	0.538	883	892	1.2	1.2	4.868	A

2021 with Development, PM (17-18)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D11	2021 with Development	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	1124	100.000
2 - Hennef Way		FLAT	✓	1967	100.000
3 - Southam Road (S)		FLAT	✓	810	100.000
4 - Ruscote Avenue		FLAT	✓	1034	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	722	381	21
	2 - Hennef Way	934	0	218	815
	3 - Southam Road (S)	475	128	0	207
	4 - Ruscote Avenue	49	799	186	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	4	2
	2 - Hennef Way	5	0	2	4
	3 - Southam Road (S)	3	6	0	0
	4 - Ruscote Avenue	0	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.58	4.53	1.4	A	1124	1686
2 - Hennef Way	0.85	10.67	5.8	B	1967	2951
3 - Southam Road (S)	0.77	15.15	3.4	C	810	1215
4 - Ruscote Avenue	0.70	8.30	2.4	A	1034	1551

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	1124	281	1103	1957	0.574	1118	1440	0.0	1.4	4.434	A
2 - Hennef Way	1967	492	584	2321	0.848	1945	1637	0.0	5.4	9.512	A
3 - Southam Road (S)	810	203	1751	1066	0.760	798	779	0.0	3.1	13.235	B
4 - Ruscote Avenue	1034	259	1518	1489	0.695	1025	1031	0.0	2.2	7.755	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	1124	281	1113	1950	0.577	1124	1457	1.4	1.4	4.533	A
2 - Hennef Way	1967	492	588	2318	0.848	1966	1649	5.4	5.6	10.594	B
3 - Southam Road (S)	810	203	1769	1054	0.768	809	785	3.1	3.3	14.992	B
4 - Ruscote Avenue	1034	259	1536	1476	0.701	1034	1042	2.2	2.3	8.272	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	1124	281	1113	1949	0.577	1124	1458	1.4	1.4	4.534	A
2 - Hennef Way	1967	492	588	2318	0.849	1967	1649	5.6	5.7	10.639	B
3 - Southam Road (S)	810	203	1770	1054	0.769	810	785	3.3	3.3	15.101	C
4 - Ruscote Avenue	1034	259	1537	1475	0.701	1034	1043	2.3	2.4	8.293	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	1124	281	1113	1949	0.577	1124	1458	1.4	1.4	4.534	A
2 - Hennef Way	1967	492	588	2318	0.849	1967	1649	5.7	5.7	10.654	B
3 - Southam Road (S)	810	203	1770	1054	0.769	810	785	3.3	3.3	15.130	C
4 - Ruscote Avenue	1034	259	1537	1475	0.701	1034	1043	2.4	2.4	8.298	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	1124	281	1113	1949	0.577	1124	1458	1.4	1.4	4.534	A
2 - Hennef Way	1967	492	588	2318	0.849	1967	1649	5.7	5.7	10.663	B
3 - Southam Road (S)	810	203	1770	1054	0.769	810	785	3.3	3.4	15.141	C
4 - Ruscote Avenue	1034	259	1537	1475	0.701	1034	1043	2.4	2.4	8.301	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	1124	281	1113	1949	0.577	1124	1458	1.4	1.4	4.534	A
2 - Hennef Way	1967	492	588	2318	0.849	1967	1649	5.7	5.8	10.667	B
3 - Southam Road (S)	810	203	1770	1054	0.769	810	785	3.4	3.4	15.151	C
4 - Ruscote Avenue	1034	259	1537	1475	0.701	1034	1043	2.4	2.4	8.301	A

2021 with Development, PM (18-19)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D12	2021 with Development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	811	100.000
2 - Hennef Way		FLAT	✓	1423	100.000
3 - Southam Road (S)		FLAT	✓	605	100.000
4 - Ruscote Avenue		FLAT	✓	738	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	511	286	14
	2 - Hennef Way	665	0	178	580
	3 - Southam Road (S)	344	107	0	154
	4 - Ruscote Avenue	35	569	134	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	3	2	2
	2 - Hennef Way	3	0	3	4
	3 - Southam Road (S)	2	7	0	1
	4 - Ruscote Avenue	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.37	2.71	0.6	A	811	1217
2 - Hennef Way	0.59	3.69	1.5	A	1423	2135
3 - Southam Road (S)	0.44	4.73	0.8	A	605	908
4 - Ruscote Avenue	0.42	3.50	0.7	A	738	1107

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	811	203	807	2176	0.373	809	1039	0.0	0.6	2.696	A
2 - Hennef Way	1423	356	433	2432	0.585	1417	1183	0.0	1.4	3.647	A
3 - Southam Road (S)	605	151	1254	1389	0.436	602	596	0.0	0.8	4.673	A
4 - Ruscote Avenue	738	185	1111	1778	0.415	735	745	0.0	0.7	3.470	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	811	203	810	2174	0.373	811	1044	0.6	0.6	2.710	A
2 - Hennef Way	1423	356	434	2431	0.585	1423	1187	1.4	1.5	3.691	A
3 - Southam Road (S)	605	151	1259	1386	0.437	605	598	0.8	0.8	4.730	A
4 - Ruscote Avenue	738	185	1116	1775	0.416	738	748	0.7	0.7	3.498	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	811	203	810	2174	0.373	811	1044	0.6	0.6	2.710	A
2 - Hennef Way	1423	356	434	2431	0.585	1423	1187	1.5	1.5	3.691	A
3 - Southam Road (S)	605	151	1259	1386	0.437	605	598	0.8	0.8	4.730	A
4 - Ruscote Avenue	738	185	1116	1775	0.416	738	748	0.7	0.7	3.498	A

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	811	203	810	2174	0.373	811	1044	0.6	0.6	2.710	A
2 - Hennef Way	1423	356	434	2431	0.585	1423	1187	1.5	1.5	3.691	A
3 - Southam Road (S)	605	151	1259	1386	0.437	605	598	0.8	0.8	4.730	A
4 - Ruscote Avenue	738	185	1116	1775	0.416	738	748	0.7	0.7	3.498	A

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	811	203	810	2174	0.373	811	1044	0.6	0.6	2.710	A
2 - Hennef Way	1423	356	434	2431	0.585	1423	1187	1.5	1.5	3.691	A
3 - Southam Road (S)	605	151	1259	1386	0.437	605	598	0.8	0.8	4.730	A
4 - Ruscote Avenue	738	185	1116	1775	0.416	738	748	0.7	0.7	3.498	A

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	811	203	810	2174	0.373	811	1044	0.6	0.6	2.710	A
2 - Hennef Way	1423	356	434	2431	0.585	1423	1187	1.5	1.5	3.691	A
3 - Southam Road (S)	605	151	1259	1386	0.437	605	598	0.8	0.8	4.730	A
4 - Ruscote Avenue	738	185	1116	1775	0.416	738	748	0.7	0.7	3.498	A

2021 with Development (sensitivity), AM (7-8)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	O-D data		O-D matrix contains negative demand. Matrix should only be used as a development matrix for Demand Set relationships and should not be run on its own.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.23	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D13	2021 with Development (sensitivity)	AM (7-8)	FLAT	06:45	08:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	561	100.000
2 - Hennef Way		FLAT	✓	1569	100.000
3 - Southam Road (S)		FLAT	✓	715	100.000
4 - Ruscote Avenue		FLAT	✓	703	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	400	157	4
	2 - Hennef Way	864	0	123	582
	3 - Southam Road (S)	446	41	0	228
	4 - Ruscote Avenue	-21	637	87	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	5	0	1
	2 - Hennef Way	5	0	7	7
	3 - Southam Road (S)	4	3	0	2
	4 - Ruscote Avenue	0	6	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.25	2.22	0.3	A	561	842
2 - Hennef Way	0.61	3.80	1.7	A	1569	2354
3 - Southam Road (S)	0.57	6.80	1.3	A	715	1073
4 - Ruscote Avenue	0.44	4.19	0.8	A	703	1055

Main Results for each time segment

06:45 - 07:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	561	140	721	2240	0.250	560	1323	0.0	0.3	2.215	A
2 - Hennef Way	1569	392	242	2572	0.610	1562	1038	0.0	1.6	3.753	A
3 - Southam Road (S)	715	179	1444	1265	0.565	710	361	0.0	1.3	6.630	A
4 - Ruscote Avenue	703	176	1344	1612	0.436	700	810	0.0	0.8	4.136	A

07:00 - 07:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	561	140	724	2238	0.251	561	1330	0.3	0.3	2.222	A
2 - Hennef Way	1569	392	243	2571	0.610	1569	1042	1.6	1.6	3.803	A
3 - Southam Road (S)	715	179	1450	1262	0.567	715	362	1.3	1.3	6.800	A
4 - Ruscote Avenue	703	176	1351	1607	0.437	703	814	0.8	0.8	4.187	A

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	561	140	724	2238	0.251	561	1330	0.3	0.3	2.222	A
2 - Hennef Way	1569	392	243	2571	0.610	1569	1042	1.6	1.7	3.803	A
3 - Southam Road (S)	715	179	1450	1262	0.567	715	362	1.3	1.3	6.802	A
4 - Ruscote Avenue	703	176	1351	1607	0.437	703	814	0.8	0.8	4.187	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	561	140	724	2238	0.251	561	1330	0.3	0.3	2.222	A
2 - Hennef Way	1569	392	243	2571	0.610	1569	1042	1.7	1.7	3.803	A
3 - Southam Road (S)	715	179	1450	1262	0.567	715	362	1.3	1.3	6.802	A
4 - Ruscote Avenue	703	176	1351	1607	0.437	703	814	0.8	0.8	4.187	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	561	140	724	2238	0.251	561	1330	0.3	0.3	2.222	A
2 - Hennef Way	1569	392	243	2571	0.610	1569	1042	1.7	1.7	3.803	A
3 - Southam Road (S)	715	179	1450	1262	0.567	715	362	1.3	1.3	6.802	A
4 - Ruscote Avenue	703	176	1351	1607	0.437	703	814	0.8	0.8	4.188	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	561	140	724	2238	0.251	561	1330	0.3	0.3	2.222	A
2 - Hennef Way	1569	392	243	2571	0.610	1569	1042	1.7	1.7	3.803	A
3 - Southam Road (S)	715	179	1450	1262	0.567	715	362	1.3	1.3	6.802	A
4 - Ruscote Avenue	703	176	1351	1607	0.437	703	814	0.8	0.8	4.188	A

2021 with Development (sensitivity), AM (8-9)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	O-D data		O-D matrix contains negative demand. Matrix should only be used as a development matrix for Demand Set relationships and should not be run on its own.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	23.88	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D14	2021 with Development (sensitivity)	AM (8-9)	FLAT	07:45	09:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	776	100.000
2 - Hennef Way		FLAT	✓	2160	100.000
3 - Southam Road (S)		FLAT	✓	846	100.000
4 - Ruscote Avenue		FLAT	✓	966	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	550	221	5
	2 - Hennef Way	1243	0	118	799
	3 - Southam Road (S)	477	56	0	313
	4 - Ruscote Avenue	-7	875	98	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	1	5
	2 - Hennef Way	3	0	6	5
	3 - Southam Road (S)	4	7	0	3
	4 - Ruscote Avenue	0	6	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.38	2.98	0.6	A	776	1164
2 - Hennef Way	0.86	10.58	6.3	B	2160	3240
3 - Southam Road (S)	0.97	91.55	20.6	F	846	1269
4 - Ruscote Avenue	0.74	11.15	3.0	B	966	1449

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	776	194	1002	2032	0.382	773	1690	0.0	0.6	2.944	A
2 - Hennef Way	2160	540	321	2514	0.859	2136	1454	0.0	5.9	9.394	A
3 - Southam Road (S)	846	212	2025	888	0.953	805	433	0.0	10.1	35.815	E
4 - Ruscote Avenue	966	242	1737	1333	0.725	955	1093	0.0	2.7	9.820	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	776	194	1013	2023	0.384	776	1717	0.6	0.6	2.976	A
2 - Hennef Way	2160	540	323	2513	0.860	2159	1467	5.9	6.1	10.505	B
3 - Southam Road (S)	846	212	2046	874	0.968	830	435	10.1	14.1	62.389	F
4 - Ruscote Avenue	966	242	1766	1312	0.736	965	1111	2.7	2.9	10.918	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	776	194	1014	2022	0.384	776	1721	0.6	0.6	2.978	A
2 - Hennef Way	2160	540	323	2513	0.860	2160	1468	6.1	6.2	10.551	B
3 - Southam Road (S)	846	212	2047	874	0.968	836	436	14.1	16.5	74.007	F
4 - Ruscote Avenue	966	242	1770	1309	0.738	966	1113	2.9	2.9	11.050	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	776	194	1015	2022	0.384	776	1723	0.6	0.6	2.978	A
2 - Hennef Way	2160	540	323	2513	0.860	2160	1468	6.2	6.2	10.568	B
3 - Southam Road (S)	846	212	2047	874	0.968	839	436	16.5	18.2	81.579	F
4 - Ruscote Avenue	966	242	1772	1308	0.739	966	1114	2.9	2.9	11.101	B

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	776	194	1015	2022	0.384	776	1724	0.6	0.6	2.978	A
2 - Hennef Way	2160	540	323	2513	0.860	2160	1468	6.2	6.3	10.579	B
3 - Southam Road (S)	846	212	2047	874	0.968	841	436	18.2	19.5	87.168	F
4 - Ruscote Avenue	966	242	1773	1307	0.739	966	1115	2.9	3.0	11.130	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	776	194	1015	2022	0.384	776	1724	0.6	0.6	2.978	A
2 - Hennef Way	2160	540	323	2513	0.860	2160	1468	6.3	6.3	10.583	B
3 - Southam Road (S)	846	212	2047	874	0.968	842	436	19.5	20.6	91.553	F
4 - Ruscote Avenue	966	242	1773	1307	0.739	966	1115	3.0	3.0	11.150	B

2021 with Development (sensitivity), AM (9-10)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D15	2021 with Development (sensitivity)	AM (9-10)	FLAT	08:45	10:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	565	100.000
2 - Hennef Way		FLAT	✓	1574	100.000
3 - Southam Road (S)		FLAT	✓	581	100.000
4 - Ruscote Avenue		FLAT	✓	703	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	400	161	4
	2 - Hennef Way	918	0	74	582
	3 - Southam Road (S)	313	40	0	228
	4 - Ruscote Avenue	0	637	66	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	8	1	5
	2 - Hennef Way	9	0	9	7
	3 - Southam Road (S)	12	12	0	4
	4 - Ruscote Avenue	0	6	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.25	2.30	0.4	A	565	848
2 - Hennef Way	0.61	3.87	1.7	A	1574	2361
3 - Southam Road (S)	0.47	6.06	1.0	A	581	872
4 - Ruscote Avenue	0.42	3.96	0.8	A	703	1055

Main Results for each time segment

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	565	141	740	2226	0.254	564	1225	0.0	0.4	2.290	A
2 - Hennef Way	1574	394	230	2580	0.610	1567	1073	0.0	1.7	3.822	A
3 - Southam Road (S)	581	145	1498	1231	0.472	577	300	0.0	1.0	5.955	A
4 - Ruscote Avenue	703	176	1265	1669	0.421	700	810	0.0	0.8	3.928	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	565	141	743	2224	0.254	565	1231	0.4	0.4	2.297	A
2 - Hennef Way	1574	394	231	2580	0.610	1574	1077	1.7	1.7	3.874	A
3 - Southam Road (S)	581	145	1504	1226	0.474	581	301	1.0	1.0	6.062	A
4 - Ruscote Avenue	703	176	1271	1664	0.422	703	814	0.8	0.8	3.958	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	565	141	743	2224	0.254	565	1231	0.4	0.4	2.297	A
2 - Hennef Way	1574	394	231	2580	0.610	1574	1077	1.7	1.7	3.874	A
3 - Southam Road (S)	581	145	1504	1226	0.474	581	301	1.0	1.0	6.062	A
4 - Ruscote Avenue	703	176	1271	1664	0.422	703	814	0.8	0.8	3.958	A

09:30 - 09:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	565	141	743	2224	0.254	565	1231	0.4	0.4	2.297	A
2 - Hennef Way	1574	394	231	2580	0.610	1574	1077	1.7	1.7	3.874	A
3 - Southam Road (S)	581	145	1504	1226	0.474	581	301	1.0	1.0	6.062	A
4 - Ruscote Avenue	703	176	1271	1664	0.422	703	814	0.8	0.8	3.958	A

09:45 - 10:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	565	141	743	2224	0.254	565	1231	0.4	0.4	2.297	A
2 - Hennef Way	1574	394	231	2580	0.610	1574	1077	1.7	1.7	3.874	A
3 - Southam Road (S)	581	145	1504	1226	0.474	581	301	1.0	1.0	6.062	A
4 - Ruscote Avenue	703	176	1271	1664	0.422	703	814	0.8	0.8	3.958	A

10:00 - 10:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	565	141	743	2224	0.254	565	1231	0.4	0.4	2.297	A
2 - Hennef Way	1574	394	231	2580	0.610	1574	1077	1.7	1.7	3.874	A
3 - Southam Road (S)	581	145	1504	1226	0.474	581	301	1.0	1.0	6.062	A
4 - Ruscote Avenue	703	176	1271	1664	0.422	703	814	0.8	0.8	3.958	A

2021 with Development (sensitivity), PM (16-17)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	4.89	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D16	2021 with Development (sensitivity)	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	834	100.000
2 - Hennef Way		FLAT	✓	1646	100.000
3 - Southam Road (S)		FLAT	✓	686	100.000
4 - Ruscote Avenue		FLAT	✓	883	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	485	332	17
	2 - Hennef Way	753	0	197	696
	3 - Southam Road (S)	395	112	0	179
	4 - Ruscote Avenue	42	682	159	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	5	1
	2 - Hennef Way	7	0	3	6
	3 - Southam Road (S)	4	6	0	1
	4 - Ruscote Avenue	0	3	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.40	3.04	0.7	A	834	1251
2 - Hennef Way	0.69	5.22	2.4	A	1646	2469
3 - Southam Road (S)	0.55	6.59	1.3	A	686	1029
4 - Ruscote Avenue	0.53	4.67	1.1	A	883	1325

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	834	209	948	2072	0.403	831	1183	0.0	0.7	3.022	A
2 - Hennef Way	1646	412	506	2378	0.692	1637	1273	0.0	2.3	5.088	A
3 - Southam Road (S)	686	172	1458	1257	0.546	681	685	0.0	1.2	6.423	A
4 - Ruscote Avenue	883	221	1252	1678	0.526	878	887	0.0	1.1	4.591	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	834	209	953	2068	0.403	834	1190	0.7	0.7	3.043	A
2 - Hennef Way	1646	412	508	2377	0.693	1646	1279	2.3	2.4	5.223	A
3 - Southam Road (S)	686	172	1466	1251	0.548	686	688	1.2	1.2	6.589	A
4 - Ruscote Avenue	883	221	1260	1672	0.528	883	892	1.1	1.1	4.674	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	834	209	953	2068	0.403	834	1190	0.7	0.7	3.043	A
2 - Hennef Way	1646	412	508	2377	0.693	1646	1279	2.4	2.4	5.225	A
3 - Southam Road (S)	686	172	1466	1251	0.548	686	688	1.2	1.2	6.592	A
4 - Ruscote Avenue	883	221	1260	1672	0.528	883	892	1.1	1.1	4.675	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	834	209	953	2068	0.403	834	1190	0.7	0.7	3.043	A
2 - Hennef Way	1646	412	508	2377	0.693	1646	1279	2.4	2.4	5.225	A
3 - Southam Road (S)	686	172	1466	1251	0.548	686	688	1.2	1.3	6.593	A
4 - Ruscote Avenue	883	221	1260	1672	0.528	883	892	1.1	1.1	4.675	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	834	209	953	2068	0.403	834	1190	0.7	0.7	3.043	A
2 - Hennef Way	1646	412	508	2377	0.693	1646	1279	2.4	2.4	5.225	A
3 - Southam Road (S)	686	172	1466	1251	0.548	686	688	1.3	1.3	6.593	A
4 - Ruscote Avenue	883	221	1260	1672	0.528	883	892	1.1	1.1	4.675	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	834	209	953	2068	0.403	834	1190	0.7	0.7	3.043	A
2 - Hennef Way	1646	412	508	2377	0.693	1646	1279	2.4	2.4	5.225	A
3 - Southam Road (S)	686	172	1466	1251	0.548	686	688	1.3	1.3	6.593	A
4 - Ruscote Avenue	883	221	1260	1672	0.528	883	892	1.1	1.1	4.675	A

2021 with Development (sensitivity), PM (17-18)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D17	2021 with Development (sensitivity)	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	972	100.000
2 - Hennef Way		FLAT	✓	1915	100.000
3 - Southam Road (S)		FLAT	✓	810	100.000
4 - Ruscote Avenue		FLAT	✓	1034	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	570	381	21
	2 - Hennef Way	882	0	218	815
	3 - Southam Road (S)	475	128	0	207
	4 - Ruscote Avenue	49	799	186	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	4	4	2
	2 - Hennef Way	5	0	2	4
	3 - Southam Road (S)	3	6	0	0
	4 - Ruscote Avenue	0	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.50	3.83	1.0	A	972	1458
2 - Hennef Way	0.83	9.30	4.9	A	1915	2873
3 - Southam Road (S)	0.74	13.31	3.0	B	810	1215
4 - Ruscote Avenue	0.68	7.66	2.2	A	1034	1551

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	972	243	1103	1956	0.497	968	1391	0.0	1.0	3.770	A
2 - Hennef Way	1915	479	585	2321	0.825	1896	1486	0.0	4.7	8.507	A
3 - Southam Road (S)	810	203	1701	1098	0.738	799	780	0.0	2.7	11.956	B
4 - Ruscote Avenue	1034	259	1468	1524	0.679	1026	1032	0.0	2.1	7.234	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	972	243	1113	1949	0.499	972	1405	1.0	1.0	3.827	A
2 - Hennef Way	1915	479	588	2318	0.826	1914	1497	4.7	4.8	9.257	A
3 - Southam Road (S)	810	203	1717	1088	0.745	809	785	2.7	2.9	13.223	B
4 - Ruscote Avenue	1034	259	1484	1512	0.684	1034	1043	2.1	2.2	7.640	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	972	243	1113	1949	0.499	972	1406	1.0	1.0	3.828	A
2 - Hennef Way	1915	479	588	2318	0.826	1915	1497	4.8	4.9	9.282	A
3 - Southam Road (S)	810	203	1718	1087	0.745	810	785	2.9	2.9	13.285	B
4 - Ruscote Avenue	1034	259	1485	1512	0.684	1034	1043	2.2	2.2	7.655	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	972	243	1113	1949	0.499	972	1406	1.0	1.0	3.828	A
2 - Hennef Way	1915	479	588	2318	0.826	1915	1497	4.9	4.9	9.291	A
3 - Southam Road (S)	810	203	1718	1087	0.745	810	785	2.9	2.9	13.301	B
4 - Ruscote Avenue	1034	259	1485	1512	0.684	1034	1043	2.2	2.2	7.659	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	972	243	1113	1949	0.499	972	1406	1.0	1.0	3.828	A
2 - Hennef Way	1915	479	588	2318	0.826	1915	1497	4.9	4.9	9.295	A
3 - Southam Road (S)	810	203	1718	1087	0.745	810	785	2.9	3.0	13.307	B
4 - Ruscote Avenue	1034	259	1485	1512	0.684	1034	1043	2.2	2.2	7.659	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	972	243	1113	1949	0.499	972	1406	1.0	1.0	3.828	A
2 - Hennef Way	1915	479	588	2318	0.826	1915	1497	4.9	4.9	9.297	A
3 - Southam Road (S)	810	203	1718	1087	0.745	810	785	3.0	3.0	13.313	B
4 - Ruscote Avenue	1034	259	1485	1512	0.684	1034	1043	2.2	2.2	7.659	A

2021 with Development (sensitivity), PM (18-19)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - Southam Road (N) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Ruscote Avenue - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.49	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D18	2021 with Development (sensitivity)	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Southam Road (N)		FLAT	✓	703	100.000
2 - Hennef Way		FLAT	✓	1386	100.000
3 - Southam Road (S)		FLAT	✓	605	100.000
4 - Ruscote Avenue		FLAT	✓	738	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	403	286	14
	2 - Hennef Way	628	0	178	580
	3 - Southam Road (S)	344	107	0	154
	4 - Ruscote Avenue	35	569	134	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Southam Road (N)	2 - Hennef Way	3 - Southam Road (S)	4 - Ruscote Avenue
From	1 - Southam Road (N)	0	3	2	2
	2 - Hennef Way	3	0	3	4
	3 - Southam Road (S)	2	7	0	1
	4 - Ruscote Avenue	0	1	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Southam Road (N)	0.32	2.51	0.5	A	703	1055
2 - Hennef Way	0.57	3.56	1.4	A	1386	2079
3 - Southam Road (S)	0.43	4.59	0.8	A	605	908
4 - Ruscote Avenue	0.41	3.41	0.7	A	738	1107

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	703	176	807	2176	0.323	701	1003	0.0	0.5	2.499	A
2 - Hennef Way	1386	347	433	2432	0.570	1381	1075	0.0	1.4	3.522	A
3 - Southam Road (S)	605	151	1217	1413	0.428	602	596	0.0	0.8	4.539	A
4 - Ruscote Avenue	738	185	1074	1804	0.409	735	745	0.0	0.7	3.385	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	703	176	810	2174	0.323	703	1007	0.5	0.5	2.509	A
2 - Hennef Way	1386	347	434	2431	0.570	1386	1079	1.4	1.4	3.561	A
3 - Southam Road (S)	605	151	1222	1410	0.429	605	598	0.8	0.8	4.588	A
4 - Ruscote Avenue	738	185	1079	1801	0.410	738	748	0.7	0.7	3.412	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	703	176	810	2174	0.323	703	1007	0.5	0.5	2.509	A
2 - Hennef Way	1386	347	434	2431	0.570	1386	1079	1.4	1.4	3.561	A
3 - Southam Road (S)	605	151	1222	1410	0.429	605	598	0.8	0.8	4.588	A
4 - Ruscote Avenue	738	185	1079	1801	0.410	738	748	0.7	0.7	3.412	A

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	703	176	810	2174	0.323	703	1007	0.5	0.5	2.509	A
2 - Hennef Way	1386	347	434	2431	0.570	1386	1079	1.4	1.4	3.561	A
3 - Southam Road (S)	605	151	1222	1410	0.429	605	598	0.8	0.8	4.588	A
4 - Ruscote Avenue	738	185	1079	1801	0.410	738	748	0.7	0.7	3.412	A

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	703	176	810	2174	0.323	703	1007	0.5	0.5	2.509	A
2 - Hennef Way	1386	347	434	2431	0.570	1386	1079	1.4	1.4	3.561	A
3 - Southam Road (S)	605	151	1222	1410	0.429	605	598	0.8	0.8	4.588	A
4 - Ruscote Avenue	738	185	1079	1801	0.410	738	748	0.7	0.7	3.412	A

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Southam Road (N)	703	176	810	2174	0.323	703	1007	0.5	0.5	2.509	A
2 - Hennef Way	1386	347	434	2431	0.570	1386	1079	1.4	1.4	3.561	A
3 - Southam Road (S)	605	151	1222	1410	0.429	605	598	0.8	0.8	4.588	A
4 - Ruscote Avenue	738	185	1079	1801	0.410	738	748	0.7	0.7	3.412	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
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Filename: 194663-96 - Hennef Way_A4260 - V2.j9
 Path: C:\Users\alice.todd.VECTOS\Desktop
 Report generation date: 27/04/2021 16:54:57

- »2021 without development, PM (16-17)
- »2021 without development, PM (17-18)
- »2021 without development, PM (18-19)
- »2021 with development, PM (16-17)
- »2021 with development, PM (17-18)
- »2021 with development, PM (18-19)
- »2021 with development (sensitivity), PM (16-17)
- »2021 with development (sensitivity), PM (17-18)
- »2021 with development (sensitivity), PM (18-19)

Summary of junction performance

	PM (16-17)				PM (17-18)				PM (18-19)			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2021 without development												
1 - Grimsbury Green	0.0	0.00	0.00	A	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2 - Hennef Way (E)	2.8	4.73	0.73	A	6.6	9.42	0.87	A	1.5	3.06	0.60	A
3 - Concorde Avenue	1.5	4.96	0.59	A	3.4	9.81	0.77	A	0.8	3.27	0.45	A
4 - Hennef Way (W)	2.5	6.70	0.70	A	7.2	17.06	0.88	C	1.3	4.13	0.55	A
2021 with development												
1 - Grimsbury Green	0.0	0.00	0.00	A	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2 - Hennef Way (E)	3.5	5.55	0.77	A	10.1	13.88	0.91	B	1.8	3.39	0.64	A
3 - Concorde Avenue	1.7	5.71	0.62	A	4.8	13.68	0.83	B	0.9	3.57	0.47	A
4 - Hennef Way (W)	3.9	9.36	0.79	A	34.4	73.37	0.98	F	1.7	4.95	0.63	A
2021 with development (sensitivity)												
1 - Grimsbury Green	0.0	0.00	0.00	A	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2 - Hennef Way (E)	3.2	5.21	0.75	A	8.4	11.71	0.89	B	1.7	3.28	0.63	A
3 - Concorde Avenue	1.6	5.41	0.61	A	4.1	11.84	0.80	B	0.9	3.47	0.46	A
4 - Hennef Way (W)	2.7	7.13	0.72	A	8.9	20.53	0.90	C	1.4	4.32	0.57	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	19/01/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\ellen.hill
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 without development	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D5	2021 without development	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D6	2021 without development	PM (18-19)	FLAT	17:45	19:15	90	15	✓
D10	2021 with development	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D11	2021 with development	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D12	2021 with development	PM (18-19)	FLAT	17:45	19:15	90	15	✓
D16	2021 with development (sensitivity)	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D17	2021 with development (sensitivity)	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D18	2021 with development (sensitivity)	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2021 without development, PM (16-17)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.35	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Grimsbury Green	
2	Hennef Way (E)	
3	Concorde Avenue	
4	Hennef Way (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Grimsbury Green	3.75	7.24	6.9	26.6	58.2	28.4	
2 - Hennef Way (E)	7.30	11.79	20.7	58.7	58.2	18.4	
3 - Concorde Avenue	6.71	10.58	22.8	41.2	58.2	19.8	
4 - Hennef Way (W)	7.16	8.50	4.5	48.4	58.2	14.6	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Grimsbury Green	0.548	1566
2 - Hennef Way (E)	0.857	3233
3 - Concorde Avenue	0.806	2962
4 - Hennef Way (W)	0.743	2572

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 without development	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	2169	100.000
3 - Concorde Avenue		FLAT	✓	1085	100.000
4 - Hennef Way (W)		FLAT	✓	1331	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	774	1395
	3 - Concorde Avenue	0	913	0	172
	4 - Hennef Way (W)	0	1036	295	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	4	8
	3 - Concorde Avenue	0	4	0	2
	4 - Hennef Way (W)	0	6	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.73	4.73	2.8	A	2169	3254
3 - Concorde Avenue	0.59	4.96	1.5	A	1085	1628
4 - Hennef Way (W)	0.70	6.70	2.5	A	1331	1997

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2229	344	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2169	542	293	2982	0.727	2158	1937	0.0	2.8	4.594	A
3 - Concorde Avenue	1085	271	1388	1844	0.588	1079	1063	0.0	1.5	4.845	A
4 - Hennef Way (W)	1331	333	908	1898	0.701	1321	1559	0.0	2.4	6.443	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2244	336	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2169	542	295	2980	0.728	2169	1949	2.8	2.8	4.726	A
3 - Concorde Avenue	1085	271	1395	1838	0.590	1085	1069	1.5	1.5	4.955	A
4 - Hennef Way (W)	1331	333	913	1894	0.703	1331	1567	2.4	2.4	6.694	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2244	336	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2169	542	295	2980	0.728	2169	1949	2.8	2.8	4.728	A
3 - Concorde Avenue	1085	271	1395	1838	0.590	1085	1069	1.5	1.5	4.956	A
4 - Hennef Way (W)	1331	333	913	1894	0.703	1331	1567	2.4	2.5	6.697	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2244	336	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2169	542	295	2980	0.728	2169	1949	2.8	2.8	4.728	A
3 - Concorde Avenue	1085	271	1395	1838	0.590	1085	1069	1.5	1.5	4.956	A
4 - Hennef Way (W)	1331	333	913	1894	0.703	1331	1567	2.5	2.5	6.699	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2244	336	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2169	542	295	2980	0.728	2169	1949	2.8	2.8	4.728	A
3 - Concorde Avenue	1085	271	1395	1838	0.590	1085	1069	1.5	1.5	4.956	A
4 - Hennef Way (W)	1331	333	913	1894	0.703	1331	1567	2.5	2.5	6.699	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2244	336	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2169	542	295	2980	0.728	2169	1949	2.8	2.8	4.728	A
3 - Concorde Avenue	1085	271	1395	1838	0.590	1085	1069	1.5	1.5	4.956	A
4 - Hennef Way (W)	1331	333	913	1894	0.703	1331	1567	2.5	2.5	6.699	A

2021 without development, PM (17-18)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	11.73	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2021 without development	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	2541	100.000
3 - Concorde Avenue		FLAT	✓	1272	100.000
4 - Hennef Way (W)		FLAT	✓	1559	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	907	1634
	3 - Concorde Avenue	0	1070	0	202
	4 - Hennef Way (W)	0	1214	345	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	2	5
	3 - Concorde Avenue	0	2	0	1
	4 - Hennef Way (W)	0	5	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.87	9.42	6.6	A	2541	3812
3 - Concorde Avenue	0.77	9.81	3.4	A	1272	1908
4 - Hennef Way (W)	0.88	17.06	7.2	C	1559	2339

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2593	145	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2541	635	339	2942	0.864	2516	2253	0.0	6.1	8.360	A
3 - Concorde Avenue	1272	318	1618	1658	0.767	1259	1238	0.0	3.2	8.921	A
4 - Hennef Way (W)	1559	390	1059	1786	0.873	1534	1818	0.0	6.3	13.758	B

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2626	127	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2541	635	345	2938	0.865	2540	2282	6.1	6.4	9.346	A
3 - Concorde Avenue	1272	318	1633	1646	0.773	1271	1251	3.2	3.4	9.756	A
4 - Hennef Way (W)	1559	390	1069	1778	0.877	1557	1835	6.3	6.9	16.639	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2628	126	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2541	635	345	2937	0.865	2541	2283	6.4	6.5	9.393	A
3 - Concorde Avenue	1272	318	1634	1646	0.773	1272	1252	3.4	3.4	9.792	A
4 - Hennef Way (W)	1559	390	1070	1778	0.877	1558	1836	6.9	7.1	16.898	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2629	125	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2541	635	345	2937	0.865	2541	2284	6.5	6.5	9.409	A
3 - Concorde Avenue	1272	318	1634	1646	0.773	1272	1252	3.4	3.4	9.802	A
4 - Hennef Way (W)	1559	390	1070	1778	0.877	1559	1836	7.1	7.1	16.988	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2629	125	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2541	635	345	2937	0.865	2541	2284	6.5	6.6	9.417	A
3 - Concorde Avenue	1272	318	1634	1646	0.773	1272	1252	3.4	3.4	9.807	A
4 - Hennef Way (W)	1559	390	1070	1778	0.877	1559	1836	7.1	7.2	17.033	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2629	125	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2541	635	345	2937	0.865	2541	2284	6.6	6.6	9.421	A
3 - Concorde Avenue	1272	318	1634	1645	0.773	1272	1252	3.4	3.4	9.809	A
4 - Hennef Way (W)	1559	390	1070	1778	0.877	1559	1836	7.2	7.2	17.060	C

2021 without development, PM (18-19)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2021 without development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	1809	100.000
3 - Concorde Avenue		FLAT	✓	906	100.000
4 - Hennef Way (W)		FLAT	✓	1110	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	646	1163
	3 - Concorde Avenue	0	762	0	144
	4 - Hennef Way (W)	0	864	246	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	2	4
	3 - Concorde Avenue	0	2	0	0
	4 - Hennef Way (W)	0	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.60	3.06	1.5	A	1809	2714
3 - Concorde Avenue	0.45	3.27	0.8	A	906	1359
4 - Hennef Way (W)	0.55	4.13	1.3	A	1110	1665

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1864	544	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1809	452	245	3023	0.598	1803	1619	0.0	1.5	3.033	A
3 - Concorde Avenue	906	227	1159	2028	0.447	903	889	0.0	0.8	3.243	A
4 - Hennef Way (W)	1110	278	759	2009	0.553	1105	1303	0.0	1.3	4.072	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1872	540	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1809	452	246	3022	0.599	1809	1626	1.5	1.5	3.064	A
3 - Concorde Avenue	906	227	1163	2025	0.447	906	892	0.8	0.8	3.270	A
4 - Hennef Way (W)	1110	278	762	2006	0.553	1110	1307	1.3	1.3	4.126	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1872	540	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1809	452	246	3022	0.599	1809	1626	1.5	1.5	3.064	A
3 - Concorde Avenue	906	227	1163	2025	0.447	906	892	0.8	0.8	3.270	A
4 - Hennef Way (W)	1110	278	762	2006	0.553	1110	1307	1.3	1.3	4.126	A

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1872	540	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1809	452	246	3022	0.599	1809	1626	1.5	1.5	3.064	A
3 - Concorde Avenue	906	227	1163	2025	0.447	906	892	0.8	0.8	3.270	A
4 - Hennef Way (W)	1110	278	762	2006	0.553	1110	1307	1.3	1.3	4.126	A

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1872	540	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1809	452	246	3022	0.599	1809	1626	1.5	1.5	3.064	A
3 - Concorde Avenue	906	227	1163	2025	0.447	906	892	0.8	0.8	3.270	A
4 - Hennef Way (W)	1110	278	762	2006	0.553	1110	1307	1.3	1.3	4.126	A

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1872	540	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1809	452	246	3022	0.599	1809	1626	1.5	1.5	3.064	A
3 - Concorde Avenue	906	227	1163	2025	0.447	906	892	0.8	0.8	3.270	A
4 - Hennef Way (W)	1110	278	762	2006	0.553	1110	1307	1.3	1.3	4.126	A

2021 with development, PM (16-17)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.76	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2021 with development	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	2293	100.000
3 - Concorde Avenue		FLAT	✓	1085	100.000
4 - Hennef Way (W)		FLAT	✓	1494	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	774	1519
	3 - Concorde Avenue	0	913	0	172
	4 - Hennef Way (W)	0	1199	295	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	4	7
	3 - Concorde Avenue	0	4	0	2
	4 - Hennef Way (W)	0	5	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.77	5.55	3.5	A	2293	3440
3 - Concorde Avenue	0.62	5.71	1.7	A	1085	1628
4 - Hennef Way (W)	0.79	9.36	3.9	A	1494	2241

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2387	258	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2293	573	292	2983	0.769	2279	2095	0.0	3.4	5.326	A
3 - Concorde Avenue	1085	271	1510	1745	0.622	1078	1061	0.0	1.7	5.540	A
4 - Hennef Way (W)	1494	374	907	1899	0.787	1479	1681	0.0	3.7	8.666	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2406	247	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2293	573	295	2980	0.769	2293	2112	3.4	3.5	5.546	A
3 - Concorde Avenue	1085	271	1519	1738	0.624	1085	1069	1.7	1.7	5.710	A
4 - Hennef Way (W)	1494	374	913	1894	0.789	1494	1691	3.7	3.8	9.332	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2407	247	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2293	573	295	2980	0.769	2293	2112	3.5	3.5	5.549	A
3 - Concorde Avenue	1085	271	1519	1738	0.624	1085	1069	1.7	1.7	5.713	A
4 - Hennef Way (W)	1494	374	913	1894	0.789	1494	1691	3.8	3.8	9.351	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2407	247	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2293	573	295	2980	0.769	2293	2112	3.5	3.5	5.551	A
3 - Concorde Avenue	1085	271	1519	1738	0.624	1085	1069	1.7	1.7	5.714	A
4 - Hennef Way (W)	1494	374	913	1894	0.789	1494	1691	3.8	3.8	9.357	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2407	247	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2293	573	295	2980	0.769	2293	2112	3.5	3.5	5.551	A
3 - Concorde Avenue	1085	271	1519	1738	0.624	1085	1069	1.7	1.7	5.714	A
4 - Hennef Way (W)	1494	374	913	1894	0.789	1494	1691	3.8	3.8	9.361	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2407	247	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2293	573	295	2980	0.769	2293	2112	3.5	3.5	5.551	A
3 - Concorde Avenue	1085	271	1519	1738	0.624	1085	1069	1.7	1.7	5.714	A
4 - Hennef Way (W)	1494	374	913	1894	0.789	1494	1691	3.8	3.9	9.363	A

2021 with development, PM (17-18)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	32.11	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D11	2021 with development	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	2673	100.000
3 - Concorde Avenue		FLAT	✓	1272	100.000
4 - Hennef Way (W)		FLAT	✓	1749	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	907	1766
	3 - Concorde Avenue	0	1070	0	202
	4 - Hennef Way (W)	0	1404	345	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	2	4
	3 - Concorde Avenue	0	2	0	1
	4 - Hennef Way (W)	0	5	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.91	13.88	10.1	B	2673	4010
3 - Concorde Avenue	0.83	13.68	4.8	B	1272	1908
4 - Hennef Way (W)	0.98	73.37	34.4	F	1749	2624

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2738	65	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2673	668	332	2949	0.907	2638	2406	0.0	8.8	10.967	B
3 - Concorde Avenue	1272	318	1743	1558	0.817	1255	1227	0.0	4.2	11.544	B
4 - Hennef Way (W)	1749	437	1056	1788	0.978	1683	1942	0.0	16.6	27.109	D

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2793	35	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2673	668	340	2941	0.909	2670	2453	8.8	9.5	13.400	B
3 - Concorde Avenue	1272	318	1764	1541	0.826	1271	1246	4.2	4.6	13.444	B
4 - Hennef Way (W)	1749	437	1069	1779	0.983	1724	1966	16.6	22.8	48.046	E

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2802	30	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2673	668	342	2940	0.909	2672	2461	9.5	9.8	13.665	B
3 - Concorde Avenue	1272	318	1765	1540	0.826	1272	1248	4.6	4.7	13.605	B
4 - Hennef Way (W)	1749	437	1070	1778	0.984	1733	1967	22.8	26.8	57.422	F

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2807	28	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2673	668	343	2939	0.909	2672	2464	9.8	9.9	13.777	B
3 - Concorde Avenue	1272	318	1766	1539	0.826	1272	1249	4.7	4.7	13.651	B
4 - Hennef Way (W)	1749	437	1070	1778	0.984	1737	1968	26.8	29.9	64.034	F

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2809	26	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2673	668	343	2939	0.910	2673	2466	9.9	10.0	13.839	B
3 - Concorde Avenue	1272	318	1766	1539	0.826	1272	1250	4.7	4.8	13.673	B
4 - Hennef Way (W)	1749	437	1070	1778	0.984	1739	1968	29.9	32.4	69.171	F

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2811	26	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2673	668	343	2939	0.910	2673	2467	10.0	10.1	13.881	B
3 - Concorde Avenue	1272	318	1766	1539	0.826	1272	1250	4.8	4.8	13.685	B
4 - Hennef Way (W)	1749	437	1070	1778	0.984	1741	1968	32.4	34.4	73.368	F

2021 with development, PM (18-19)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.91	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D12	2021 with development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	1926	100.000
3 - Concorde Avenue		FLAT	✓	906	100.000
4 - Hennef Way (W)		FLAT	✓	1259	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	646	1280
	3 - Concorde Avenue	0	762	0	144
	4 - Hennef Way (W)	0	1013	246	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	2	4
	3 - Concorde Avenue	0	2	0	0
	4 - Hennef Way (W)	0	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.64	3.39	1.8	A	1926	2889
3 - Concorde Avenue	0.47	3.57	0.9	A	906	1359
4 - Hennef Way (W)	0.63	4.95	1.7	A	1259	1889

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2011	464	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1926	482	245	3023	0.637	1919	1767	0.0	1.8	3.346	A
3 - Concorde Avenue	906	227	1275	1935	0.468	902	888	0.0	0.9	3.535	A
4 - Hennef Way (W)	1259	315	759	2009	0.627	1252	1419	0.0	1.7	4.849	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2021	458	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1926	482	246	3022	0.637	1926	1775	1.8	1.8	3.392	A
3 - Concorde Avenue	906	227	1280	1931	0.469	906	892	0.9	0.9	3.571	A
4 - Hennef Way (W)	1259	315	762	2006	0.627	1259	1424	1.7	1.7	4.950	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2021	458	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1926	482	246	3022	0.637	1926	1775	1.8	1.8	3.392	A
3 - Concorde Avenue	906	227	1280	1931	0.469	906	892	0.9	0.9	3.571	A
4 - Hennef Way (W)	1259	315	762	2006	0.627	1259	1424	1.7	1.7	4.950	A

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2021	458	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1926	482	246	3022	0.637	1926	1775	1.8	1.8	3.392	A
3 - Concorde Avenue	906	227	1280	1931	0.469	906	892	0.9	0.9	3.571	A
4 - Hennef Way (W)	1259	315	762	2006	0.627	1259	1424	1.7	1.7	4.950	A

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2021	458	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1926	482	246	3022	0.637	1926	1775	1.8	1.8	3.392	A
3 - Concorde Avenue	906	227	1280	1931	0.469	906	892	0.9	0.9	3.571	A
4 - Hennef Way (W)	1259	315	762	2006	0.627	1259	1424	1.7	1.7	4.950	A

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2021	458	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1926	482	246	3022	0.637	1926	1775	1.8	1.8	3.392	A
3 - Concorde Avenue	906	227	1280	1931	0.469	906	892	0.9	0.9	3.571	A
4 - Hennef Way (W)	1259	315	762	2006	0.627	1259	1424	1.7	1.7	4.950	A

2021 with development (sensitivity), PM (16-17)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.81	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D16	2021 with development (sensitivity)	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	2248	100.000
3 - Concorde Avenue		FLAT	✓	1085	100.000
4 - Hennef Way (W)		FLAT	✓	1365	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	774	1474
	3 - Concorde Avenue	0	913	0	172
	4 - Hennef Way (W)	0	1070	295	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	4	7
	3 - Concorde Avenue	0	4	0	2
	4 - Hennef Way (W)	0	6	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.75	5.21	3.2	A	2248	3372
3 - Concorde Avenue	0.61	5.41	1.6	A	1085	1628
4 - Hennef Way (W)	0.72	7.13	2.7	A	1365	2048

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2262	326	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2248	562	293	2982	0.754	2235	1969	0.0	3.2	5.027	A
3 - Concorde Avenue	1085	271	1466	1781	0.609	1079	1062	0.0	1.6	5.267	A
4 - Hennef Way (W)	1365	341	908	1898	0.719	1355	1637	0.0	2.6	6.818	A

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2278	318	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2248	562	295	2980	0.754	2248	1983	3.2	3.2	5.204	A
3 - Concorde Avenue	1085	271	1474	1774	0.611	1085	1069	1.6	1.6	5.410	A
4 - Hennef Way (W)	1365	341	913	1894	0.721	1365	1646	2.6	2.7	7.122	A

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2278	318	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2248	562	295	2980	0.754	2248	1983	3.2	3.2	5.207	A
3 - Concorde Avenue	1085	271	1474	1774	0.611	1085	1069	1.6	1.6	5.413	A
4 - Hennef Way (W)	1365	341	913	1894	0.721	1365	1646	2.7	2.7	7.129	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2278	317	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2248	562	295	2980	0.754	2248	1983	3.2	3.2	5.209	A
3 - Concorde Avenue	1085	271	1474	1774	0.611	1085	1069	1.6	1.6	5.413	A
4 - Hennef Way (W)	1365	341	913	1894	0.721	1365	1646	2.7	2.7	7.131	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2278	317	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2248	562	295	2980	0.754	2248	1983	3.2	3.2	5.209	A
3 - Concorde Avenue	1085	271	1474	1774	0.611	1085	1069	1.6	1.6	5.413	A
4 - Hennef Way (W)	1365	341	913	1894	0.721	1365	1646	2.7	2.7	7.132	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2278	317	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2248	562	295	2980	0.754	2248	1983	3.2	3.2	5.209	A
3 - Concorde Avenue	1085	271	1474	1774	0.611	1085	1069	1.6	1.6	5.413	A
4 - Hennef Way (W)	1365	341	913	1894	0.721	1365	1646	2.7	2.7	7.132	A

2021 with development (sensitivity), PM (17-18)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	14.30	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D17	2021 with development (sensitivity)	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	2621	100.000
3 - Concorde Avenue		FLAT	✓	1272	100.000
4 - Hennef Way (W)		FLAT	✓	1597	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	907	1714
	3 - Concorde Avenue	0	1070	0	202
	4 - Hennef Way (W)	0	1252	345	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	2	4
	3 - Concorde Avenue	0	2	0	1
	4 - Hennef Way (W)	0	5	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.89	11.71	8.4	B	2621	3932
3 - Concorde Avenue	0.80	11.84	4.1	B	1272	1908
4 - Hennef Way (W)	0.90	20.53	8.9	C	1597	2396

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2625	128	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2621	655	339	2943	0.891	2591	2286	0.0	7.6	9.840	A
3 - Concorde Avenue	1272	318	1694	1597	0.796	1257	1235	0.0	3.8	10.367	B
4 - Hennef Way (W)	1597	399	1057	1787	0.894	1567	1894	0.0	7.4	15.450	C

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2663	107	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2621	655	344	2938	0.892	2619	2319	7.6	8.1	11.514	B
3 - Concorde Avenue	1272	318	1713	1582	0.804	1271	1251	3.8	4.0	11.718	B
4 - Hennef Way (W)	1597	399	1069	1778	0.898	1594	1915	7.4	8.2	19.651	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2666	105	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2621	655	345	2938	0.892	2620	2321	8.1	8.2	11.631	B
3 - Concorde Avenue	1272	318	1714	1581	0.804	1272	1252	4.0	4.1	11.804	B
4 - Hennef Way (W)	1597	399	1070	1778	0.898	1596	1916	8.2	8.6	20.169	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2666	105	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2621	655	345	2937	0.892	2621	2321	8.2	8.3	11.672	B
3 - Concorde Avenue	1272	318	1714	1581	0.804	1272	1252	4.1	4.1	11.829	B
4 - Hennef Way (W)	1597	399	1070	1778	0.898	1596	1916	8.6	8.7	20.364	C

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2667	105	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2621	655	345	2937	0.892	2621	2322	8.3	8.4	11.694	B
3 - Concorde Avenue	1272	318	1714	1581	0.805	1272	1252	4.1	4.1	11.838	B
4 - Hennef Way (W)	1597	399	1070	1778	0.898	1597	1916	8.7	8.8	20.465	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	2667	104	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	2621	655	345	2937	0.892	2621	2322	8.4	8.4	11.707	B
3 - Concorde Avenue	1272	318	1714	1581	0.805	1272	1252	4.1	4.1	11.844	B
4 - Hennef Way (W)	1597	399	1070	1778	0.898	1597	1916	8.8	8.9	20.528	C

2021 with development (sensitivity), PM (18-19)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.63	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D18	2021 with development (sensitivity)	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Grimsbury Green		FLAT	✓	0	100.000
2 - Hennef Way (E)		FLAT	✓	1889	100.000
3 - Concorde Avenue		FLAT	✓	906	100.000
4 - Hennef Way (W)		FLAT	✓	1151	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	646	1243
	3 - Concorde Avenue	0	762	0	144
	4 - Hennef Way (W)	0	905	246	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Grimsbury Green	2 - Hennef Way (E)	3 - Concorde Avenue	4 - Hennef Way (W)
From	1 - Grimsbury Green	0	0	0	0
	2 - Hennef Way (E)	0	0	2	4
	3 - Concorde Avenue	0	2	0	0
	4 - Hennef Way (W)	0	3	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Grimsbury Green	0.00	0.00	0.0	A	0	0
2 - Hennef Way (E)	0.63	3.28	1.7	A	1889	2834
3 - Concorde Avenue	0.46	3.47	0.9	A	906	1359
4 - Hennef Way (W)	0.57	4.32	1.4	A	1151	1727

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1905	522	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1889	472	245	3023	0.625	1882	1660	0.0	1.7	3.240	A
3 - Concorde Avenue	906	227	1239	1964	0.461	903	889	0.0	0.9	3.436	A
4 - Hennef Way (W)	1151	288	759	2009	0.573	1146	1382	0.0	1.4	4.261	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1913	518	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1889	472	246	3022	0.625	1889	1667	1.7	1.7	3.281	A
3 - Concorde Avenue	906	227	1243	1960	0.462	906	892	0.9	0.9	3.470	A
4 - Hennef Way (W)	1151	288	762	2006	0.574	1151	1387	1.4	1.4	4.324	A

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1913	517	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1889	472	246	3022	0.625	1889	1667	1.7	1.7	3.281	A
3 - Concorde Avenue	906	227	1243	1960	0.462	906	892	0.9	0.9	3.470	A
4 - Hennef Way (W)	1151	288	762	2006	0.574	1151	1387	1.4	1.4	4.325	A

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1913	517	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1889	472	246	3022	0.625	1889	1667	1.7	1.7	3.281	A
3 - Concorde Avenue	906	227	1243	1960	0.462	906	892	0.9	0.9	3.470	A
4 - Hennef Way (W)	1151	288	762	2006	0.574	1151	1387	1.4	1.4	4.325	A

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1913	517	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1889	472	246	3022	0.625	1889	1667	1.7	1.7	3.281	A
3 - Concorde Avenue	906	227	1243	1960	0.462	906	892	0.9	0.9	3.470	A
4 - Hennef Way (W)	1151	288	762	2006	0.574	1151	1387	1.4	1.4	4.325	A

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Grimsbury Green	0	0	1913	517	0.000	0	0	0.0	0.0	0.000	A
2 - Hennef Way (E)	1889	472	246	3022	0.625	1889	1667	1.7	1.7	3.281	A
3 - Concorde Avenue	906	227	1243	1960	0.462	906	892	0.9	0.9	3.470	A
4 - Hennef Way (W)	1151	288	762	2006	0.574	1151	1387	1.4	1.4	4.325	A

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.5.1.7462 © Copyright TRL Limited, 2019
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Filename: 194663-96 - Hennef Way_Ermont Way - V2.j9
 Path: C:\Users\alice.todd.VECTOS\Desktop
 Report generation date: 27/04/2021 16:54:00

- »2021 without development, PM (16-17)
- »2021 without development, PM (17-18)
- »2021 without development, PM (18-19)
- »2021 with development, PM (16-17)
- »2021 with development, PM (17-18)
- »2021 with development, PM (18-19)
- »2021 with development (sensitivity), PM (16-17)
- »2021 with development (sensitivity), PM (17-18)
- »2021 with development (sensitivity), PM (18-19)

Summary of junction performance

	PM (16-17)				PM (17-18)				PM (18-19)			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
2021 without development												
1 - Wildmere Road	1.5	9.53	0.59	A	11.2	63.90	0.93	F	0.7	5.25	0.40	A
2 - Hennef Way (E)	3.3	6.55	0.75	A	9.8	17.13	0.90	C	1.6	3.90	0.61	A
3 - Ermont Way	1.0	7.12	0.47	A	2.8	18.11	0.73	C	0.5	4.34	0.32	A
4 - Hennef Way (W)	1.9	3.30	0.65	A	3.5	5.22	0.77	A	1.1	2.37	0.53	A
2021 with development												
1 - Wildmere Road	1.6	10.06	0.61	B	16.6	94.49	0.96	F	0.7	5.45	0.41	A
2 - Hennef Way (E)	3.9	7.49	0.78	A	15.0	25.62	0.94	D	1.9	4.25	0.64	A
3 - Ermont Way	1.1	7.88	0.49	A	3.6	23.76	0.78	C	0.5	4.62	0.33	A
4 - Hennef Way (W)	2.0	3.37	0.66	A	3.8	5.52	0.79	A	1.2	2.43	0.54	A
2021 with development (sensitivity)												
1 - Wildmere Road	1.3	8.25	0.56	A	5.4	29.92	0.84	D	0.6	4.96	0.38	A
2 - Hennef Way (E)	3.5	6.90	0.76	A	11.3	19.56	0.92	C	1.7	4.08	0.63	A
3 - Ermont Way	1.0	7.43	0.48	A	3.1	19.87	0.75	C	0.5	4.48	0.32	A
4 - Hennef Way (W)	1.7	3.04	0.62	A	2.9	4.50	0.74	A	1.0	2.27	0.51	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	19/01/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	VECTOS\ellen.hill
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 without development	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D5	2021 without development	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D6	2021 without development	PM (18-19)	FLAT	17:45	19:15	90	15	✓
D10	2021 with development	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D11	2021 with development	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D12	2021 with development	PM (18-19)	FLAT	17:45	19:15	90	15	✓
D16	2021 with development (sensitivity)	PM (16-17)	FLAT	15:45	17:15	90	15	✓
D17	2021 with development (sensitivity)	PM (17-18)	FLAT	16:45	18:15	90	15	✓
D18	2021 with development (sensitivity)	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2021 without development, PM (16-17)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.84	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Wildmere Road	
2	Hennef Way (E)	
3	Ermont Way	
4	Hennef Way (W)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Wildmere Road	6.00	8.00	13.7	40.4	70.3	21.7	
2 - Hennef Way (E)	7.69	12.00	11.2	24.7	70.3	43.0	
3 - Ermont Way	4.03	9.25	37.2	143.1	70.3	18.6	
4 - Hennef Way (W)	7.30	12.51	48.8	70.4	70.3	15.7	

Bypass

Arm	Arm has bypass	Bypass utilisation (%)
1 - Wildmere Road	✓	100
2 - Hennef Way (E)	✓	100
3 - Ermont Way		
4 - Hennef Way (W)		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Wildmere Road	0.619	2350
2 - Hennef Way (E)	0.670	2811
3 - Ermont Way	0.649	2501
4 - Hennef Way (W)	0.834	3675

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 without development	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	825	100.000
2 - Hennef Way (E)		FLAT	✓	2280	100.000
3 - Ermont Way		FLAT	✓	482	100.000
4 - Hennef Way (W)		FLAT	✓	2081	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	259	96	470
	2 - Hennef Way (E)	216	0	478	1586
	3 - Ermont Way	56	269	0	157
	4 - Hennef Way (W)	93	1944	44	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	7	5	2
	2 - Hennef Way (E)	19	0	19	8
	3 - Ermont Way	24	7	0	4
	4 - Hennef Way (W)	0	5	8	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.59	9.53	1.5	A	825	849
2 - Hennef Way (E)	0.75	6.55	3.3	A	2280	2703
3 - Ermont Way	0.47	7.12	1.0	A	482	723
4 - Hennef Way (W)	0.65	3.30	1.9	A	2081	3122

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2248	959	0.590	560	363	0.0	1.4	9.128	
2 - Hennef Way (E)	2280	1802	451	478	259	604	2406	0.749	1789	2204	0.0	3.2	6.254	
3 - Ermont Way	482	482	121	0	478	2255	1038	0.465	478	139	0.0	0.9	6.888	
4 - Hennef Way (W)	2081	2081	520	0	0	537	3227	0.645	2073	2196	0.0	1.9	3.250	

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2257	953	0.594	566	365	1.4	1.5	9.517	
2 - Hennef Way (E)	2280	1802	451	478	259	610	2402	0.750	1802	2213	3.2	3.2	6.543	
3 - Ermont Way	482	482	121	0	478	2272	1026	0.470	482	140	0.9	0.9	7.117	
4 - Hennef Way (W)	2081	2081	520	0	0	541	3224	0.645	2081	2213	1.9	1.9	3.300	

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2257	953	0.594	566	365	1.5	1.5	9.523	
2 - Hennef Way (E)	2280	1802	451	478	259	610	2402	0.750	1802	2213	3.2	3.2	6.548	
3 - Ermont Way	482	482	121	0	478	2272	1026	0.470	482	140	0.9	0.9	7.122	
4 - Hennef Way (W)	2081	2081	520	0	0	541	3224	0.645	2081	2213	1.9	1.9	3.301	

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2257	953	0.594	566	365	1.5	1.5	9.525	
2 - Hennef Way (E)	2280	1802	451	478	259	610	2402	0.750	1802	2213	3.2	3.3	6.549	
3 - Ermont Way	482	482	121	0	478	2272	1026	0.470	482	140	0.9	0.9	7.123	
4 - Hennef Way (W)	2081	2081	520	0	0	541	3224	0.645	2081	2213	1.9	1.9	3.301	

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2257	953	0.594	566	365	1.5	1.5	9.525	
2 - Hennef Way (E)	2280	1802	451	478	259	610	2402	0.750	1802	2213	3.3	3.3	6.551	
3 - Ermont Way	482	482	121	0	478	2272	1026	0.470	482	140	0.9	1.0	7.123	
4 - Hennef Way (W)	2081	2081	520	0	0	541	3224	0.645	2081	2213	1.9	1.9	3.301	

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2257	953	0.594	566	365	1.5	1.5	9.527	
2 - Hennef Way (E)	2280	1802	451	478	259	610	2402	0.750	1802	2213	3.3	3.3	6.551	
3 - Ermont Way	482	482	121	0	478	2272	1026	0.470	482	140	1.0	1.0	7.123	
4 - Hennef Way (W)	2081	2081	520	0	0	541	3224	0.645	2081	2213	1.9	1.9	3.301	

2021 without development, PM (17-18)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	19.64	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2021 without development	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	965	100.000
2 - Hennef Way (E)		FLAT	✓	2671	100.000
3 - Ermont Way		FLAT	✓	565	100.000
4 - Hennef Way (W)		FLAT	✓	2437	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	303	112	550
	2 - Hennef Way (E)	253	0	560	1858
	3 - Ermont Way	66	315	0	184
	4 - Hennef Way (W)	109	2277	51	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
1 - Wildmere Road	0	3	5	3
2 - Hennef Way (E)	27	0	13	5
3 - Ermont Way	25	5	0	1
4 - Hennef Way (W)	0	3	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.93	63.90	11.2	F	965	993
2 - Hennef Way (E)	0.90	17.13	9.8	C	2671	3167
3 - Ermont Way	0.73	18.11	2.8	C	565	848
4 - Hennef Way (W)	0.77	5.22	3.5	A	2437	3656

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2625	726	0.912	634	422	0.0	7.1	33.837	
2 - Hennef Way (E)	2671	2111	528	560	303	684	2352	0.897	2078	2574	0.0	8.1	12.870	
3 - Ermont Way	565	565	141	0	560	2605	810	0.697	556	158	0.0	2.3	14.471	
4 - Hennef Way (W)	2437	2437	609	0	0	624	3155	0.772	2423	2537	0.0	3.4	4.978	

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2642	715	0.926	654	427	7.1	9.0	52.355	
2 - Hennef Way (E)	2671	2111	528	560	303	705	2338	0.903	2107	2591	8.1	9.0	16.234	
3 - Ermont Way	565	565	141	0	560	2651	780	0.724	564	162	2.3	2.6	17.410	
4 - Hennef Way (W)	2437	2437	609	0	0	633	3147	0.774	2437	2582	3.4	3.5	5.208	

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2643	715	0.926	658	428	9.0	10.0	57.935	
2 - Hennef Way (E)	2671	2111	528	560	303	709	2336	0.904	2110	2592	9.0	9.4	16.740	
3 - Ermont Way	565	565	141	0	560	2656	777	0.727	565	162	2.6	2.7	17.856	
4 - Hennef Way (W)	2437	2437	609	0	0	634	3147	0.774	2437	2587	3.5	3.5	5.218	

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2643	714	0.927	660	428	10.0	10.5	60.830	
2 - Hennef Way (E)	2671	2111	528	560	303	711	2335	0.904	2110	2592	9.4	9.6	16.949	
3 - Ermont Way	565	565	141	0	560	2658	775	0.729	565	163	2.7	2.8	18.000	
4 - Hennef Way (W)	2437	2437	609	0	0	634	3147	0.775	2437	2589	3.5	3.5	5.221	

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	965	662	166	303	0	2643	714	0.927	660	428	10.5	10.9	62.645	
2 - Hennef Way (E)	2671	2111	528	560	303	711	2334	0.904	2111	2592	9.6	9.7	17.061	
3 - Ermont Way	565	565	141	0	560	2659	775	0.729	565	163	2.8	2.8	18.070	
4 - Hennef Way (W)	2437	2437	609	0	0	634	3146	0.775	2437	2590	3.5	3.5	5.222	

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	965	662	166	303	0	2643	714	0.927	661	428	10.9	11.2	63.898	
2 - Hennef Way (E)	2671	2111	528	560	303	712	2334	0.905	2111	2592	9.7	9.8	17.128	
3 - Ermont Way	565	565	141	0	560	2660	775	0.730	565	163	2.8	2.8	18.109	
4 - Hennef Way (W)	2437	2437	609	0	0	634	3146	0.775	2437	2591	3.5	3.5	5.222	

2021 without development, PM (18-19)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2021 without development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	688	100.000
2 - Hennef Way (E)		FLAT	✓	1902	100.000
3 - Ermont Way		FLAT	✓	402	100.000
4 - Hennef Way (W)		FLAT	✓	1735	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	216	80	392
	2 - Hennef Way (E)	180	0	399	1323
	3 - Ermont Way	47	224	0	131
	4 - Hennef Way (W)	78	1621	36	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	6	5	4
	2 - Hennef Way (E)	12	0	13	4
	3 - Ermont Way	19	4	0	2
	4 - Hennef Way (W)	0	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.40	5.25	0.7	A	688	708
2 - Hennef Way (E)	0.61	3.90	1.6	A	1902	2255
3 - Ermont Way	0.32	4.34	0.5	A	402	603
4 - Hennef Way (W)	0.53	2.37	1.1	A	1735	2603

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1876	1189	0.397	469	304	0.0	0.7	5.188	
2 - Hennef Way (E)	1902	1503	376	399	216	505	2472	0.608	1497	1840	0.0	1.6	3.845	
3 - Ermont Way	402	402	101	0	399	1886	1277	0.315	400	115	0.0	0.5	4.297	
4 - Hennef Way (W)	1735	1735	434	0	0	449	3301	0.526	1730	1837	0.0	1.1	2.351	

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1881	1186	0.398	472	305	0.7	0.7	5.252	
2 - Hennef Way (E)	1902	1503	376	399	216	508	2470	0.608	1503	1845	1.6	1.6	3.903	
3 - Ermont Way	402	402	101	0	399	1895	1271	0.316	402	116	0.5	0.5	4.344	
4 - Hennef Way (W)	1735	1735	434	0	0	451	3299	0.526	1735	1846	1.1	1.1	2.367	

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1881	1186	0.398	472	305	0.7	0.7	5.252	
2 - Hennef Way (E)	1902	1503	376	399	216	508	2470	0.608	1503	1845	1.6	1.6	3.903	
3 - Ermont Way	402	402	101	0	399	1895	1271	0.316	402	116	0.5	0.5	4.344	
4 - Hennef Way (W)	1735	1735	434	0	0	451	3299	0.526	1735	1846	1.1	1.1	2.367	

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1881	1186	0.398	472	305	0.7	0.7	5.252	
2 - Hennef Way (E)	1902	1503	376	399	216	508	2470	0.608	1503	1845	1.6	1.6	3.903	
3 - Ermont Way	402	402	101	0	399	1895	1271	0.316	402	116	0.5	0.5	4.344	
4 - Hennef Way (W)	1735	1735	434	0	0	451	3299	0.526	1735	1846	1.1	1.1	2.367	

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1881	1186	0.398	472	305	0.7	0.7	5.252	
2 - Hennef Way (E)	1902	1503	376	399	216	508	2470	0.608	1503	1845	1.6	1.6	3.903	
3 - Ermont Way	402	402	101	0	399	1895	1271	0.316	402	116	0.5	0.5	4.344	
4 - Hennef Way (W)	1735	1735	434	0	0	451	3299	0.526	1735	1846	1.1	1.1	2.367	

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1881	1186	0.398	472	305	0.7	0.7	5.252	
2 - Hennef Way (E)	1902	1503	376	399	216	508	2470	0.608	1503	1845	1.6	1.6	3.903	
3 - Ermont Way	402	402	101	0	399	1895	1271	0.316	402	116	0.5	0.5	4.344	
4 - Hennef Way (W)	1735	1735	434	0	0	451	3299	0.526	1735	1846	1.1	1.1	2.367	

2021 with development, PM (16-17)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.38	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D10	2021 with development	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	825	100.000
2 - Hennef Way (E)		FLAT	✓	2360	100.000
3 - Ermont Way		FLAT	✓	482	100.000
4 - Hennef Way (W)		FLAT	✓	2114	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	259	96	470
	2 - Hennef Way (E)	216	0	478	1666
	3 - Ermont Way	56	269	0	157
	4 - Hennef Way (W)	93	1977	44	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
1 - Wildmere Road	0	7	5	2
2 - Hennef Way (E)	19	0	19	7
3 - Ermont Way	24	7	0	4
4 - Hennef Way (W)	0	4	8	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.61	10.06	1.6	B	825	849
2 - Hennef Way (E)	0.78	7.49	3.9	A	2360	2823
3 - Ermont Way	0.49	7.88	1.1	A	482	723
4 - Hennef Way (W)	0.66	3.37	2.0	A	2114	3171

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2280	939	0.603	560	362	0.0	1.5	9.592	
2 - Hennef Way (E)	2360	1882	471	478	259	604	2406	0.782	1867	2236	0.0	3.7	7.044	
3 - Ermont Way	482	482	121	0	478	2332	987	0.488	478	139	0.0	1.0	7.555	
4 - Hennef Way (W)	2114	2114	529	0	0	537	3228	0.655	2106	2273	0.0	2.0	3.313	

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	825	566	142	259	0	2290	933	0.607	566	365	1.5	1.6	10.042	
2 - Hennef Way (E)	2360	1882	471	478	259	610	2402	0.783	1882	2246	3.7	3.8	7.474	
3 - Ermont Way	482	482	121	0	478	2352	975	0.495	482	140	1.0	1.0	7.866	
4 - Hennef Way (W)	2114	2114	529	0	0	541	3224	0.656	2114	2293	2.0	2.0	3.368	

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	825	566	142	259	0	2290	933	0.607	566	365	1.6	1.6	10.053	
2 - Hennef Way (E)	2360	1882	471	478	259	610	2402	0.784	1882	2246	3.8	3.9	7.487	
3 - Ermont Way	482	482	121	0	478	2352	974	0.495	482	140	1.0	1.0	7.872	
4 - Hennef Way (W)	2114	2114	529	0	0	541	3224	0.656	2114	2293	2.0	2.0	3.369	

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	825	566	142	259	0	2290	933	0.607	566	365	1.6	1.6	10.056	
2 - Hennef Way (E)	2360	1882	471	478	259	610	2402	0.784	1882	2246	3.9	3.9	7.490	
3 - Ermont Way	482	482	121	0	478	2352	974	0.495	482	140	1.0	1.0	7.875	
4 - Hennef Way (W)	2114	2114	529	0	0	541	3224	0.656	2114	2293	2.0	2.0	3.369	

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	825	566	142	259	0	2290	933	0.607	566	365	1.6	1.6	10.056	
2 - Hennef Way (E)	2360	1882	471	478	259	610	2402	0.784	1882	2246	3.9	3.9	7.490	
3 - Ermont Way	482	482	121	0	478	2352	974	0.495	482	140	1.0	1.1	7.875	
4 - Hennef Way (W)	2114	2114	529	0	0	541	3224	0.656	2114	2293	2.0	2.0	3.369	

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	825	566	142	259	0	2290	933	0.607	566	365	1.6	1.6	10.056	
2 - Hennef Way (E)	2360	1882	471	478	259	610	2402	0.784	1882	2246	3.9	3.9	7.490	
3 - Ermont Way	482	482	121	0	478	2352	974	0.495	482	140	1.1	1.1	7.875	
4 - Hennef Way (W)	2114	2114	529	0	0	541	3224	0.656	2114	2293	2.0	2.0	3.369	

2021 with development, PM (17-18)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	27.93	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D11	2021 with development	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	965	100.000
2 - Hennef Way (E)		FLAT	✓	2751	100.000
3 - Ermont Way		FLAT	✓	565	100.000
4 - Hennef Way (W)		FLAT	✓	2475	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	303	112	550
	2 - Hennef Way (E)	253	0	560	1938
	3 - Ermont Way	66	315	0	184
	4 - Hennef Way (W)	109	2315	51	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From				
1 - Wildmere Road	0	3	5	3
2 - Hennef Way (E)	27	0	13	5
3 - Ermont Way	25	5	0	1
4 - Hennef Way (W)	0	3	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.96	94.49	16.6	F	965	993
2 - Hennef Way (E)	0.94	25.62	15.0	D	2751	3287
3 - Ermont Way	0.78	23.76	3.6	C	565	848
4 - Hennef Way (W)	0.79	5.52	3.8	A	2475	3713

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2661	703	0.941	628	421	0.0	8.6	39.365	
2 - Hennef Way (E)	2751	2191	548	560	303	678	2356	0.930	2147	2610	0.0	11.0	16.032	
3 - Ermont Way	565	565	141	0	560	2668	769	0.735	554	157	0.0	2.7	16.948	
4 - Hennef Way (W)	2475	2475	619	0	0	622	3157	0.784	2460	2601	0.0	3.6	5.218	

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2679	692	0.957	650	427	8.6	11.7	66.827	
2 - Hennef Way (E)	2751	2191	548	560	303	701	2341	0.936	2183	2628	11.0	12.9	22.545	
3 - Ermont Way	565	565	141	0	560	2723	733	0.770	563	161	2.7	3.3	21.879	
4 - Hennef Way (W)	2475	2475	619	0	0	632	3148	0.786	2475	2654	3.6	3.7	5.493	

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2681	691	0.958	655	427	11.7	13.5	78.194	
2 - Hennef Way (E)	2751	2191	548	560	303	706	2338	0.937	2187	2630	12.9	13.8	24.066	
3 - Ermont Way	565	565	141	0	560	2731	728	0.776	564	162	3.3	3.5	22.965	
4 - Hennef Way (W)	2475	2475	619	0	0	633	3147	0.786	2475	2662	3.7	3.7	5.511	

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2681	691	0.958	657	428	13.5	14.8	85.380	
2 - Hennef Way (E)	2751	2191	548	560	303	708	2336	0.938	2189	2630	13.8	14.4	24.832	
3 - Ermont Way	565	565	141	0	560	2735	726	0.778	565	162	3.5	3.5	23.388	
4 - Hennef Way (W)	2475	2475	619	0	0	634	3147	0.787	2475	2666	3.7	3.8	5.513	

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	965	662	166	303	0	2681	691	0.958	658	428	14.8	15.8	90.539	
2 - Hennef Way (E)	2751	2191	548	560	303	709	2336	0.938	2190	2630	14.4	14.7	25.301	
3 - Ermont Way	565	565	141	0	560	2736	725	0.780	565	162	3.5	3.6	23.618	
4 - Hennef Way (W)	2475	2475	619	0	0	634	3147	0.787	2475	2667	3.8	3.8	5.516	

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	965	662	166	303	0	2681	691	0.958	659	428	15.8	16.6	94.487	
2 - Hennef Way (E)	2751	2191	548	560	303	710	2335	0.938	2190	2630	14.7	15.0	25.616	
3 - Ermont Way	565	565	141	0	560	2737	724	0.780	565	162	3.6	3.6	23.759	
4 - Hennef Way (W)	2475	2475	619	0	0	634	3147	0.787	2475	2668	3.8	3.8	5.517	

2021 with development, PM (18-19)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D12	2021 with development	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	688	100.000
2 - Hennef Way (E)		FLAT	✓	1982	100.000
3 - Ermont Way		FLAT	✓	402	100.000
4 - Hennef Way (W)		FLAT	✓	1776	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	216	80	392
	2 - Hennef Way (E)	180	0	399	1403
	3 - Ermont Way	47	224	0	131
	4 - Hennef Way (W)	78	1662	36	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From 1 - Wildmere Road	0	6	5	4
2 - Hennef Way (E)	12	0	13	4
3 - Ermont Way	19	4	0	2
4 - Hennef Way (W)	0	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.41	5.45	0.7	A	688	708
2 - Hennef Way (E)	0.64	4.25	1.9	A	1982	2375
3 - Ermont Way	0.33	4.62	0.5	A	402	603
4 - Hennef Way (W)	0.54	2.43	1.2	A	1776	2664

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1916	1164	0.405	469	304	0.0	0.7	5.375	
2 - Hennef Way (E)	1982	1583	396	399	216	505	2472	0.640	1576	1880	0.0	1.8	4.176	
3 - Ermont Way	402	402	101	0	399	1965	1225	0.328	400	115	0.0	0.5	4.563	
4 - Hennef Way (W)	1776	1776	444	0	0	449	3301	0.538	1771	1916	0.0	1.2	2.414	

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1922	1161	0.407	472	305	0.7	0.7	5.445	
2 - Hennef Way (E)	1982	1583	396	399	216	508	2470	0.641	1583	1886	1.8	1.9	4.253	
3 - Ermont Way	402	402	101	0	399	1975	1219	0.330	402	116	0.5	0.5	4.620	
4 - Hennef Way (W)	1776	1776	444	0	0	451	3299	0.538	1776	1926	1.2	1.2	2.431	

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1922	1161	0.407	472	305	0.7	0.7	5.445	
2 - Hennef Way (E)	1982	1583	396	399	216	508	2470	0.641	1583	1886	1.9	1.9	4.253	
3 - Ermont Way	402	402	101	0	399	1975	1219	0.330	402	116	0.5	0.5	4.620	
4 - Hennef Way (W)	1776	1776	444	0	0	451	3299	0.538	1776	1926	1.2	1.2	2.431	

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1922	1161	0.407	472	305	0.7	0.7	5.445	
2 - Hennef Way (E)	1982	1583	396	399	216	508	2470	0.641	1583	1886	1.9	1.9	4.253	
3 - Ermont Way	402	402	101	0	399	1975	1219	0.330	402	116	0.5	0.5	4.620	
4 - Hennef Way (W)	1776	1776	444	0	0	451	3299	0.538	1776	1926	1.2	1.2	2.431	

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1922	1161	0.407	472	305	0.7	0.7	5.445	
2 - Hennef Way (E)	1982	1583	396	399	216	508	2470	0.641	1583	1886	1.9	1.9	4.253	
3 - Ermont Way	402	402	101	0	399	1975	1219	0.330	402	116	0.5	0.5	4.620	
4 - Hennef Way (W)	1776	1776	444	0	0	451	3299	0.538	1776	1926	1.2	1.2	2.431	

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1922	1161	0.407	472	305	0.7	0.7	5.445	
2 - Hennef Way (E)	1982	1583	396	399	216	508	2470	0.641	1583	1886	1.9	1.9	4.253	
3 - Ermont Way	402	402	101	0	399	1975	1219	0.330	402	116	0.5	0.5	4.620	
4 - Hennef Way (W)	1776	1776	444	0	0	451	3299	0.538	1776	1926	1.2	1.2	2.431	

2021 with development (sensitivity), PM (16-17)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.78	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D16	2021 with development (sensitivity)	PM (16-17)	FLAT	15:45	17:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	825	100.000
2 - Hennef Way (E)		FLAT	✓	2315	100.000
3 - Ermont Way		FLAT	✓	482	100.000
4 - Hennef Way (W)		FLAT	✓	1984	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	259	96	470
	2 - Hennef Way (E)	216	0	478	1621
	3 - Ermont Way	56	269	0	157
	4 - Hennef Way (W)	93	1847	44	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From				
1 - Wildmere Road	0	7	5	2
2 - Hennef Way (E)	19	0	19	7
3 - Ermont Way	24	7	0	4
4 - Hennef Way (W)	0	5	8	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.56	8.25	1.3	A	825	849
2 - Hennef Way (E)	0.76	6.90	3.5	A	2315	2756
3 - Ermont Way	0.48	7.43	1.0	A	482	723
4 - Hennef Way (W)	0.62	3.04	1.7	A	1984	2976

Main Results for each time segment

15:45 - 16:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2152	1019	0.556	561	363	0.0	1.3	7.980	
2 - Hennef Way (E)	2315	1837	459	478	259	605	2405	0.764	1823	2108	0.0	3.4	6.553	
3 - Ermont Way	482	482	121	0	478	2289	1015	0.475	478	139	0.0	1.0	7.173	
4 - Hennef Way (W)	1984	1984	496	0	0	537	3227	0.615	1977	2231	0.0	1.7	3.003	

16:00 - 16:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2160	1013	0.559	566	365	1.3	1.3	8.243	
2 - Hennef Way (E)	2315	1837	459	478	259	610	2402	0.765	1837	2116	3.4	3.5	6.886	
3 - Ermont Way	482	482	121	0	478	2307	1004	0.480	482	140	1.0	1.0	7.427	
4 - Hennef Way (W)	1984	1984	496	0	0	541	3224	0.615	1984	2248	1.7	1.7	3.042	

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2160	1013	0.559	566	365	1.3	1.3	8.247	
2 - Hennef Way (E)	2315	1837	459	478	259	610	2402	0.765	1837	2116	3.5	3.5	6.892	
3 - Ermont Way	482	482	121	0	478	2307	1004	0.480	482	140	1.0	1.0	7.432	
4 - Hennef Way (W)	1984	1984	496	0	0	541	3224	0.615	1984	2248	1.7	1.7	3.042	

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2160	1013	0.559	566	365	1.3	1.3	8.249	
2 - Hennef Way (E)	2315	1837	459	478	259	610	2402	0.765	1837	2116	3.5	3.5	6.895	
3 - Ermont Way	482	482	121	0	478	2307	1004	0.480	482	140	1.0	1.0	7.433	
4 - Hennef Way (W)	1984	1984	496	0	0	541	3224	0.615	1984	2248	1.7	1.7	3.042	

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2160	1013	0.559	566	365	1.3	1.3	8.249	
2 - Hennef Way (E)	2315	1837	459	478	259	610	2402	0.765	1837	2116	3.5	3.5	6.895	
3 - Ermont Way	482	482	121	0	478	2307	1004	0.480	482	140	1.0	1.0	7.433	
4 - Hennef Way (W)	1984	1984	496	0	0	541	3224	0.615	1984	2248	1.7	1.7	3.042	

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	825	566	142	259	0	2160	1013	0.559	566	365	1.3	1.3	8.249	
2 - Hennef Way (E)	2315	1837	459	478	259	610	2402	0.765	1837	2116	3.5	3.5	6.898	
3 - Ermont Way	482	482	121	0	478	2307	1004	0.480	482	140	1.0	1.0	7.433	
4 - Hennef Way (W)	1984	1984	496	0	0	541	3224	0.615	1984	2248	1.7	1.7	3.042	

2021 with development (sensitivity), PM (17-18)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	15.77	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D17	2021 with development (sensitivity)	PM (17-18)	FLAT	16:45	18:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	965	100.000
2 - Hennef Way (E)		FLAT	✓	2699	100.000
3 - Ermont Way		FLAT	✓	565	100.000
4 - Hennef Way (W)		FLAT	✓	2323	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	303	112	550
	2 - Hennef Way (E)	253	0	560	1886
	3 - Ermont Way	66	315	0	184
	4 - Hennef Way (W)	109	2163	51	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
1 - Wildmere Road	0	3	5	3
2 - Hennef Way (E)	27	0	13	5
3 - Ermont Way	25	5	0	1
4 - Hennef Way (W)	0	3	6	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.84	29.92	5.4	D	965	993
2 - Hennef Way (E)	0.92	19.56	11.3	C	2699	3209
3 - Ermont Way	0.75	19.87	3.1	C	565	848
4 - Hennef Way (W)	0.74	4.50	2.9	A	2323	3485

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2513	795	0.833	644	422	0.0	4.4	22.588	
2 - Hennef Way (E)	2699	2139	535	560	303	695	2345	0.912	2102	2462	0.0	9.3	14.212	
3 - Ermont Way	565	565	141	0	560	2637	789	0.716	555	160	0.0	2.5	15.641	
4 - Hennef Way (W)	2323	2323	581	0	0	623	3156	0.736	2312	2569	0.0	2.8	4.334	

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2528	786	0.843	660	427	4.4	5.0	28.627	
2 - Hennef Way (E)	2699	2139	535	560	303	711	2334	0.916	2135	2477	9.3	10.4	18.492	
3 - Ermont Way	565	565	141	0	560	2683	760	0.744	563	163	2.5	2.9	19.161	
4 - Hennef Way (W)	2323	2323	581	0	0	632	3148	0.738	2323	2614	2.8	2.9	4.490	

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2529	785	0.843	661	428	5.0	5.2	29.423	
2 - Hennef Way (E)	2699	2139	535	560	303	712	2334	0.917	2137	2478	10.4	10.8	19.103	
3 - Ermont Way	565	565	141	0	560	2687	757	0.746	565	163	2.9	3.0	19.643	
4 - Hennef Way (W)	2323	2323	581	0	0	634	3147	0.738	2323	2618	2.9	2.9	4.497	

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig level
1 - Wildmere Road	965	662	166	303	0	2529	785	0.843	662	428	5.2	5.3	29.699	
2 - Hennef Way (E)	2699	2139	535	560	303	713	2333	0.917	2138	2478	10.8	11.1	19.346	
3 - Ermont Way	565	565	141	0	560	2688	756	0.747	565	163	3.0	3.0	19.779	
4 - Hennef Way (W)	2323	2323	581	0	0	634	3147	0.738	2323	2619	2.9	2.9	4.498	

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	965	662	166	303	0	2529	785	0.843	662	428	5.3	5.3	29.840	
2 - Hennef Way (E)	2699	2139	535	560	303	713	2333	0.917	2138	2478	11.1	11.2	19.475	
3 - Ermont Way	565	565	141	0	560	2688	756	0.747	565	163	3.0	3.1	19.838	
4 - Hennef Way (W)	2323	2323	581	0	0	634	3146	0.738	2323	2619	2.9	2.9	4.499	

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev se
1 - Wildmere Road	965	662	166	303	0	2529	785	0.843	662	428	5.3	5.4	29.923	
2 - Hennef Way (E)	2699	2139	535	560	303	713	2333	0.917	2139	2478	11.2	11.3	19.556	
3 - Ermont Way	565	565	141	0	560	2688	756	0.748	565	163	3.1	3.1	19.870	
4 - Hennef Way (W)	2323	2323	581	0	0	634	3146	0.738	2323	2619	2.9	2.9	4.499	

2021 with development (sensitivity), PM (18-19)

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	3 - Ermont Way - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	4 - Hennef Way (W) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	3.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D18	2021 with development (sensitivity)	PM (18-19)	FLAT	17:45	19:15	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Wildmere Road		FLAT	✓	688	100.000
2 - Hennef Way (E)		FLAT	✓	1944	100.000
3 - Ermont Way		FLAT	✓	402	100.000
4 - Hennef Way (W)		FLAT	✓	1667	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From	1 - Wildmere Road	0	216	80	392
	2 - Hennef Way (E)	180	0	399	1365
	3 - Ermont Way	47	224	0	131
	4 - Hennef Way (W)	78	1553	36	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1 - Wildmere Road	2 - Hennef Way (E)	3 - Ermont Way	4 - Hennef Way (W)
From				
1 - Wildmere Road	0	6	5	4
2 - Hennef Way (E)	12	0	13	4
3 - Ermont Way	19	4	0	2
4 - Hennef Way (W)	0	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Wildmere Road	0.38	4.96	0.6	A	688	708
2 - Hennef Way (E)	0.63	4.08	1.7	A	1944	2318
3 - Ermont Way	0.32	4.48	0.5	A	402	603
4 - Hennef Way (W)	0.51	2.27	1.0	A	1667	2501

Main Results for each time segment

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1808	1231	0.383	469	304	0.0	0.6	4.906	
2 - Hennef Way (E)	1944	1545	386	399	216	505	2472	0.625	1538	1772	0.0	1.7	4.013	
3 - Ermont Way	402	402	101	0	399	1928	1250	0.322	400	115	0.0	0.5	4.434	
4 - Hennef Way (W)	1667	1667	417	0	0	449	3301	0.505	1663	1879	0.0	1.0	2.255	

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1813	1228	0.384	472	305	0.6	0.6	4.959	
2 - Hennef Way (E)	1944	1545	386	399	216	508	2470	0.625	1545	1777	1.7	1.7	4.079	
3 - Ermont Way	402	402	101	0	399	1937	1244	0.323	402	116	0.5	0.5	4.484	
4 - Hennef Way (W)	1667	1667	417	0	0	451	3299	0.505	1667	1888	1.0	1.0	2.268	

18:15 - 18:30

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1813	1228	0.384	472	305	0.6	0.6	4.959	
2 - Hennef Way (E)	1944	1545	386	399	216	508	2470	0.625	1545	1777	1.7	1.7	4.079	
3 - Ermont Way	402	402	101	0	399	1937	1244	0.323	402	116	0.5	0.5	4.485	
4 - Hennef Way (W)	1667	1667	417	0	0	451	3299	0.505	1667	1888	1.0	1.0	2.268	

18:30 - 18:45

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1813	1228	0.384	472	305	0.6	0.6	4.959	
2 - Hennef Way (E)	1944	1545	386	399	216	508	2470	0.625	1545	1777	1.7	1.7	4.079	
3 - Ermont Way	402	402	101	0	399	1937	1244	0.323	402	116	0.5	0.5	4.485	
4 - Hennef Way (W)	1667	1667	417	0	0	451	3299	0.505	1667	1888	1.0	1.0	2.268	

18:45 - 19:00

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1813	1228	0.384	472	305	0.6	0.6	4.959	
2 - Hennef Way (E)	1944	1545	386	399	216	508	2470	0.625	1545	1777	1.7	1.7	4.079	
3 - Ermont Way	402	402	101	0	399	1937	1244	0.323	402	116	0.5	0.5	4.485	
4 - Hennef Way (W)	1667	1667	417	0	0	451	3299	0.505	1667	1888	1.0	1.0	2.268	

19:00 - 19:15

Arm	Total Demand (PCU/hr)	Junction demand (PCU/hr)	Junction Arrivals (PCU)	Bypass demand (PCU/hr)	Bypass exit flow (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsig lev ser
1 - Wildmere Road	688	472	118	216	0	1813	1228	0.384	472	305	0.6	0.6	4.959	
2 - Hennef Way (E)	1944	1545	386	399	216	508	2470	0.625	1545	1777	1.7	1.7	4.079	
3 - Ermont Way	402	402	101	0	399	1937	1244	0.323	402	116	0.5	0.5	4.485	
4 - Hennef Way (W)	1667	1667	417	0	0	451	3299	0.505	1667	1888	1.0	1.0	2.268	



Annex F

Southam Road, Banbury Summary of Key Results

194663-95/N03

Junction A - Site Access

Table 1: Junction A Modelling Result Differences – RFC

without development/ with development			
Arm	07:00-08:00	08:00-09:00	09:00-10:00
Site Access to Southam Rd (N)	0.24	0.08	-0.02
Site Access to Southam Rd (S)	-0.01	-0.02	-0.02
From Southam Rd (N)	0.12	0.01	-0.03
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Site Access to Southam Rd (N)	0.08	0.12	0.12
Site Access to Southam Rd (S)	0.01	0.06	0.06
From Southam Rd (N)	0.38	0.44	0.35

Table 2: Junction A Modelling Result Differences – Delay

without development/ with development			
Arm	07:00-08:00	08:00-09:00	09:00-10:00
Site Access to Southam Rd (N)	-0.31	-1.82	-8.29
Site Access to Southam Rd (S)	-14.04	-17.78	-13.50
From Southam Rd (N)	0.64	-0.12	-5.62
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Site Access to Southam Rd (N)	-0.08	0.70	0.63
Site Access to Southam Rd (S)	3.63	6.60	4.09
From Southam Rd (N)	2.57	3.25	2.32

Junction B - Hennef Way/ Southam Road

Table 3: Junction B Modelling Result Differences – RFC

without development/ with development			
Arm	07:00-08:00	08:00-09:00	09:00-10:00
Southam Road (A423)	0.01	0.02	0.01
Hennef Way (A422)	0.09	0.12	0.09
Southam Road (A361)	0.16	0.30	0.06
Ruscote Avenue (A422)	0.06	0.10	0.05
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Southam Road (A423)	0.09	0.11	0.07
Hennef Way (A422)	0.07	0.07	0.06
Southam Road (A361)	0.08	0.08	0.06
Ruscote Avenue (A422)	0.03	0.03	0.02
without development/ with development (Sensitivity)			
Arm	07:00-08:00	08:00-09:00	09:00-10:00
Southam Road (A423)	-0.01	-0.01	-0.01
Hennef Way (A422)	0.00	0.00	0.00
Southam Road (A361)	0.09	0.03	-0.01
Ruscote Avenue (A422)	0.02	0.01	0.00
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Southam Road (A423)	0.02	0.03	0.02
Hennef Way (A422)	0.04	0.05	0.04
Southam Road (A361)	0.04	0.05	0.05
Ruscote Avenue (A422)	0.01	0.01	0.01

Table 4: Junction B Modelling Result Differences – Delay

without development/ with development			
Arm	07:00-08:00	08:00-09:00	09:00-10:00
Southam Road (A423)	0.01	0.05	0.05
Hennef Way (A422)	1.03	41.21	1.04
Southam Road (A361)	3.32	1091.93	1.64
Ruscote Avenue (A422)	1.08	8.06	0.74
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Southam Road (A423)	0.50	0.94	0.31
Hennef Way (A422)	1.01	3.38	0.47
Southam Road (A361)	0.80	4.15	0.50
Ruscote Avenue (A422)	0.33	1.16	0.22
without development/ with development (Sensitivity)			
Arm	07:00-08:00	08:00-09:00	09:00-10:00
Southam Road (A423)	-0.05	-0.04	-0.03
Hennef Way (A422)	-0.04	-0.42	-0.05
Southam Road (A361)	0.91	29.34	-0.09
Ruscote Avenue (A422)	0.21	0.35	-0.03
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Southam Road (A423)	0.14	0.24	0.11
Hennef Way (A422)	0.67	2.01	0.34
Southam Road (A361)	0.45	2.31	0.36
Ruscote Avenue (A422)	0.13	0.52	0.13

Junction C - Hennef Way/ Concord Avenue

Table 5: Junction C Modelling Result Differences – RFC

without development/ with development			
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Grimsbury Green	0.00	0.00	0.00
Hennef Way East (A422)	0.04	0.04	0.04
Concord Avenue (A4260)	0.03	0.06	0.02
Hennef Way West (A422)	0.09	0.10	0.08
without development/ with development (Sensitivity)			
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Grimsbury Green	0.00	0.00	0.00
Hennef Way East (A422)	0.02	0.02	0.03
Concord Avenue (A4260)	0.02	0.03	0.01
Hennef Way West (A422)	0.02	0.02	0.02

Table 6: Junction C Modelling Result Differences – Delay

without development/ with development			
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Grimsbury Green	0.00	0.00	0.00
Hennef Way East (A422)	0.82	4.46	0.33
Concord Avenue (A4260)	0.75	3.87	0.30
Hennef Way West (A422)	2.66	56.31	0.82
without development/ with development (Sensitivity)			
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Grimsbury Green	0.00	0.00	0.00
Hennef Way East (A422)	0.48	2.29	0.22
Concord Avenue (A4260)	0.75	2.03	0.20
Hennef Way West (A422)	0.43	3.47	0.19

Junction D - Hennef Way/ Wildmere Road

Table 7: Junction D Modelling Result Differences – RFC

without development/ with development			
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Wildmere Road	0.02	0.03	0.01
Hennef Way East (A422)	0.03	0.04	0.03
Ermont Way	0.02	0.05	0.01
Hennef Way West (A422)	0.01	0.02	0.01
without development/ with development (Sensitivity)			
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Wildmere Road	-0.03	-0.09	-0.02
Hennef Way East (A422)	0.01	0.02	0.02
Ermont Way	0.01	0.02	0.00
Hennef Way West (A422)	-0.03	-0.03	-0.02

Table 8: Junction D Modelling Result Differences – Delay

without development/ with development			
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Wildmere Road	0.53	30.59	0.20
Hennef Way East (A422)	0.94	8.49	0.35
Ermont Way	0.76	5.65	0.28
Hennef Way West (A422)	0.07	0.30	0.06
without development/ with development (Sensitivity)			
Arm	16:00-17:00	17:00-18:00	18:00-19:00
Wildmere Road	-1.28	-33.98	-0.29
Hennef Way East (A422)	0.35	2.43	0.18
Ermont Way	0.31	1.76	0.14
Hennef Way West (A422)	-0.26	-0.70	-0.10

Appendix D

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

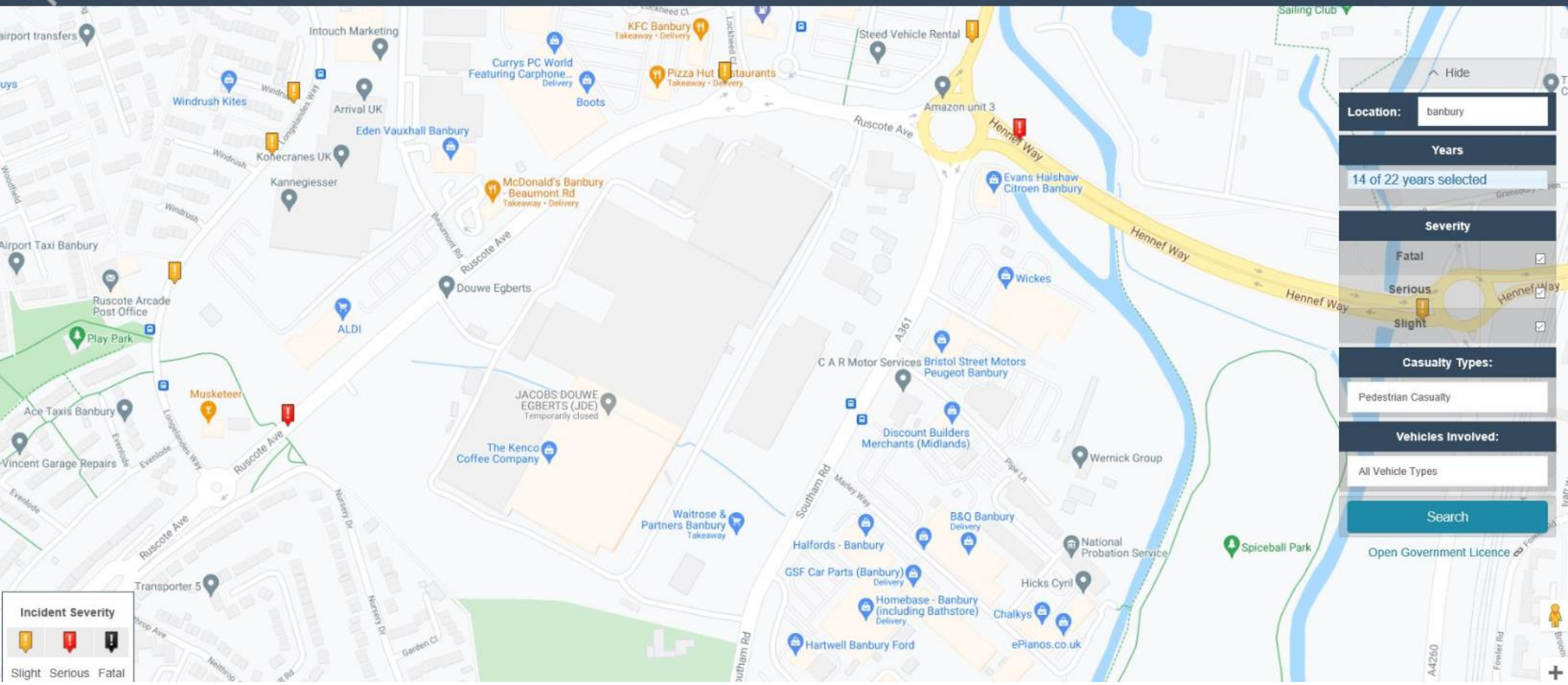
ONS Crown Copyright Reserved [from Nomis on 27 April 2021]

population All usual residents aged 16 and over in employment the week before the census
 units Persons
 date 2011
 usual residence England and Wales (country)

Method of travel to work	place of work			Modal Split		
	Data					
	E02005923 : Cherwell 003	E02005924 : Cherwell 004	E02005927 : Cherwell 007	E02005923 : Cherwell 003	E02005924 : Cherwell 004	E02005927 : Cherwell 007
All categories: Method of travel	4,588	13,646	2,207	100%	100%	100%
Work mainly at or from home	0	0	0	0%	0%	0%
Underground, metro, light rail o	3	12	0	0%	0%	0%
Train	54	216	15	1%	2%	1%
Bus, minibus or coach	69	575	74	2%	4%	3%
Taxi	36	67	20	1%	0%	1%
Motorcycle, scooter or moped	47	112	8	1%	1%	0%
Driving a car or van	3,121	8,813	1,468	68%	65%	67%
Passenger in a car or van	273	905	148	6%	7%	7%
Bicycle	250	472	59	5%	3%	3%
On foot	719	2,439	413	16%	18%	19%
Other method of travel to work	16	35	2	0%	0%	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.

Appendix E



Incident Severity

- Slight
- Serious
- Fatal

Hide

Location: banbury

Years

14 of 22 years selected

Severity

- Fatal
- Serious
- Slight

Casualty Types:

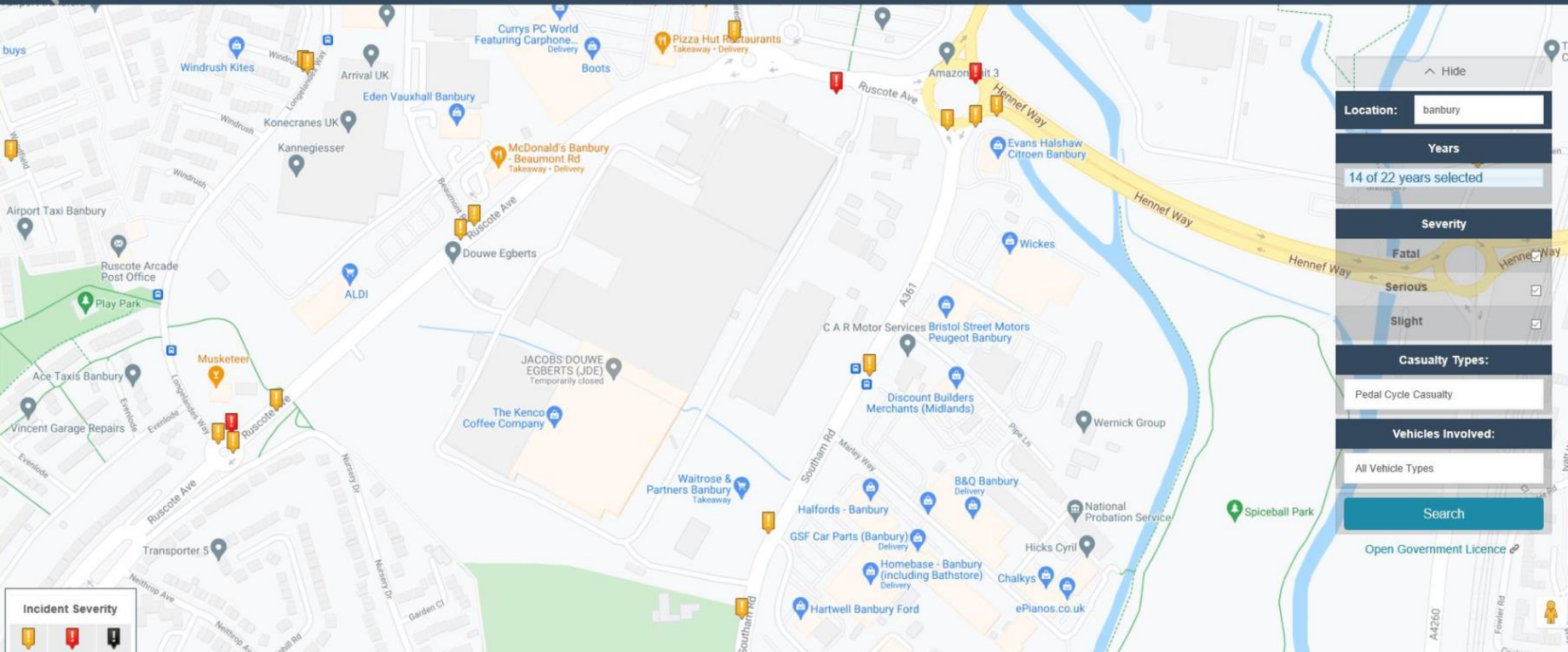
- Pedestrian Casualty

Vehicles Involved:

- All Vehicle Types

Search

Open Government Licence



Hide

Location: banbury

Years
14 of 22 years selected

Severity

Fatal

Serious

Slight

Casualty Types:

Pedal Cycle Casualty

Vehicles Involved:

All Vehicle Types

Search

Open Government Licence

Incident Severity

Appendix F

FRAMEWORK TRAVEL PLAN STATEMENT

Lysander

Southam Road, Banbury – Van Storage

April 2021

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- Figure 2.2 – Oxfordshire County Council Interactive PROW Map Insert
- Figure 2.3 – 2km Walking Isochrone
- Figure 2.4 – Banbury Cycle Infrastructure
- Figure 2.5 – 5km and 8km Cycling Isochrones

1 Introduction

- 1.1 Vectos has been commissioned by Lysander ('the Applicant') to provide highways and transport advice to support a planning application for the proposed development of land to the west of Southam Road. The site lies within the administrative boundaries of Cherwell District Council (CDC) and Oxfordshire County Council (OCC).
- 1.2 The site is located approximately 1.5km south west of an existing last mile distribution centre which is located to the east of Southam Road (A423). The proposals have been brought forward to accommodate operational van storage associated with this existing last mile distribution centre.
- 1.3 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.
- 1.4 The proposed van storage area will accommodate 448 van storage bays. Provision will also be made for 1 security guard parking bay, 42 cycle parking spaces and 5 motorcycle parking spaces. Access to the site will be achieved from an existing priority junction onto Southam Road.

Travel Plan Scope

- 1.5 In broad terms, a Travel Plan (TP) is a strategy setting out the sustainable travel options and measures for the proposed development at the site. Depending on the scale of the development that a TP is intended to serve, the scope varies in size. Due to the scale of the proposed van storage facility and the nature of the activities associated with the use, it is considered that a Travel Plan Statement (TPS) is suitable in this instance. Indeed, it is consistent with advice provided by OCC through the course of pre-application discussions.
- 1.6 This Framework TPS, which should be read in conjunction with the Transport Statement (TS), also produced in support of this planning application, outlines the scope of the TPS that will be developed at the site following the results of an initial travel survey.

Aim of the Travel Plan

- 1.7 This TPS has been prepared in order to support workers in making informed decisions about their travel and provide workers with the necessary management tools to enable them to choose sustainable modes of travel to the site. In doing so, the adverse impacts of travel on the environment and the local highway network will be minimised. This will be achieved by setting out a strategy for eliminating the barriers which prevent people from using sustainable travel modes, which in effect can self-manage single-occupancy vehicular use.
- 1.8 Following this introduction, the TPS is structured as follows.
- **Section 2** – Summarises the accessibility of the site via non-car modes of transport;
 - **Section 3** – Details the objectives and interim targets of the TPS;

- **Section 4** – Details how the TPS will be administered;
- **Section 5** – Presents a package of measures to help achieve the objectives; and
- **Section 6** – Provides a summary of the action plan for the TPS.

2 Existing Site Context

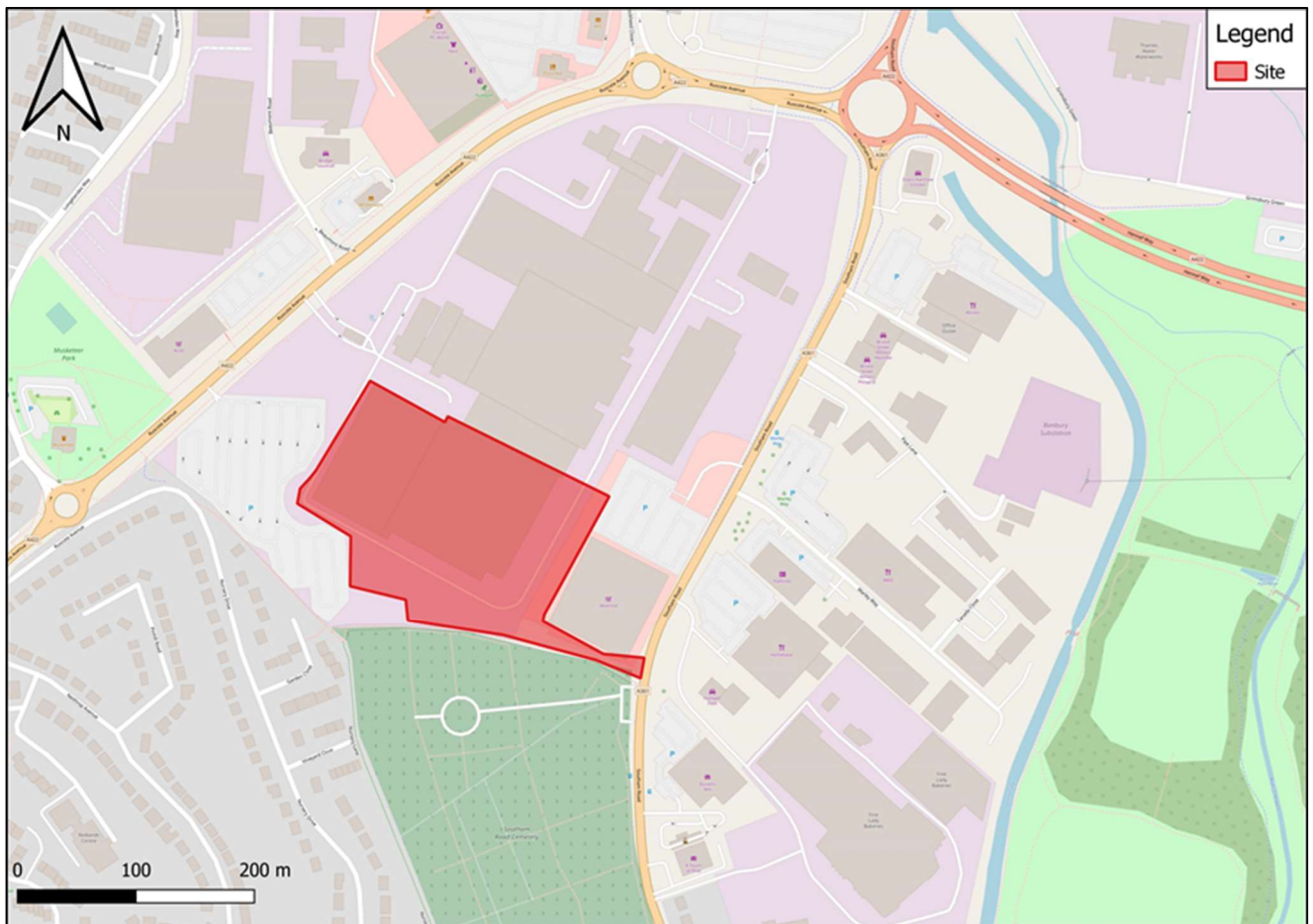
2.1 This section of the TPS provides an overview of the current accessibility of the site in terms of sustainable travel, and a high-level review of the local highway network.

Site Location

2.2 The site is located to the north of Banbury town centre between Southam Road (A361) to the east of the site and Ruscot Avenue (A422) to the west of the site. The site is located within the administrative boundaries of Cherwell District Council (CDC) and Oxford County Council (OCC).

2.3 **Figure 2.1** shows the site location within a local context.

Figure 2.1 – Local Site Location



Accessibility by Non-Car Modes

2.4 The site is located within an existing industrial area, with bus provision and walking and cycling options available to encourage sustainable travel. The following text summarises the existing sustainable transport infrastructure that serves the site.

Walking

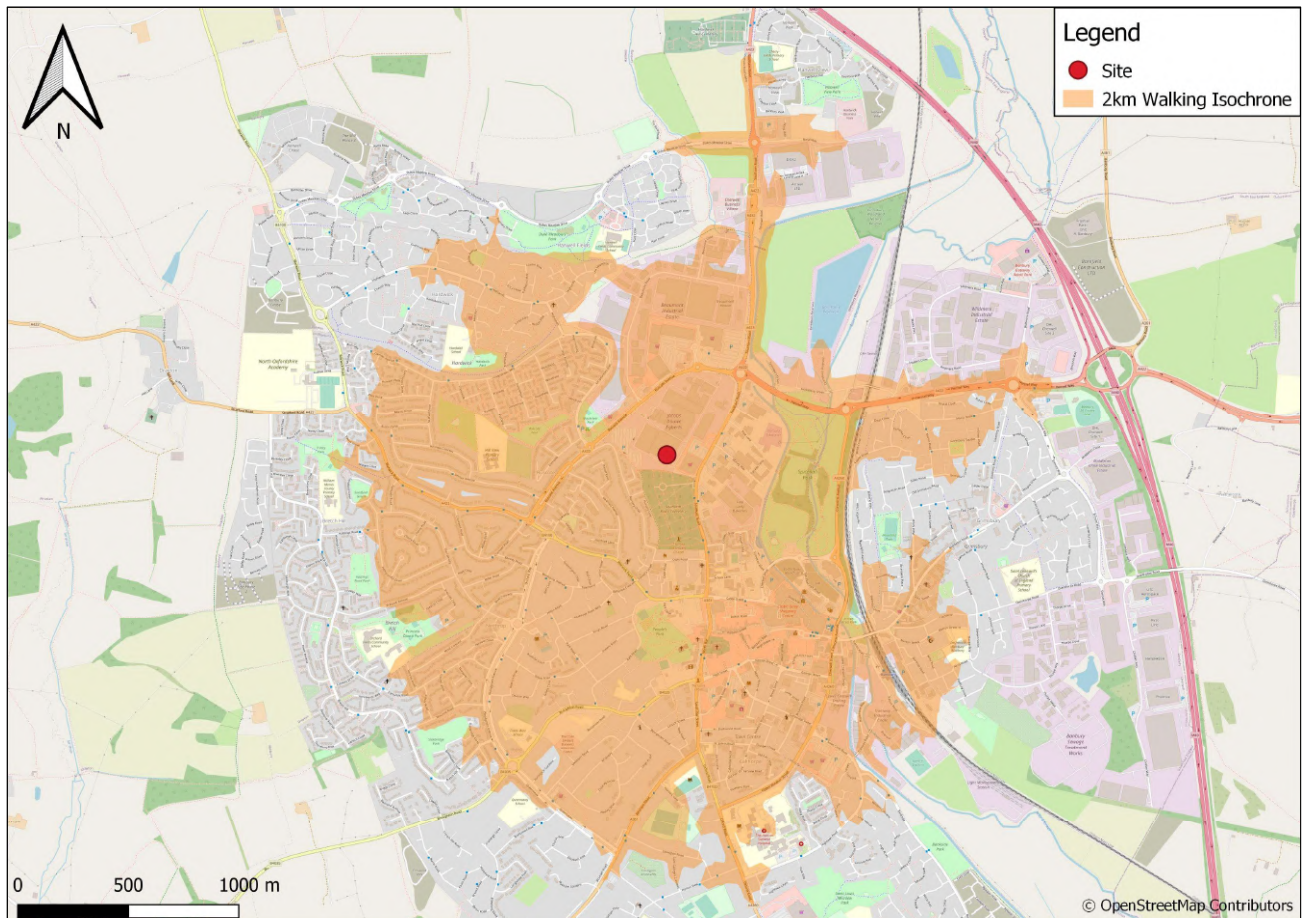
- 2.5 An existing footway connects the site with Southam Road where footways are present on both sides of the carriageway. This connects the site with the wider pedestrian network. Street lighting is provided along Southam Road at regular intervals.
- 2.6 A signalised toucan crossing is present approximately 120m north of the site access onto Southam Road with tactile paving and dropped kerbs. This provides safe crossing to the eastern side of the carriageway for both pedestrians and cyclists.
- 2.7 Similarly, a pelican crossing is provided approximately 300m south of the site access and an island crossing with a pedestrian refuge is present of the site access enabling safe crossing to the northern side of the carriageway.
- 2.8 South of the site is a Public Right of Way (PROW) 120/100 providing a more direct route to Ruscote Avenue as shown on **Figure 2.2** below. This PROW can be accessed from southern Road adjacent to the site access.

Figure 2.2 – Oxfordshire County Council Interactive Map Inset



- 2.9 It is commonly accepted that a distance of 2km is the reasonable distance over which walking might replace car trips. A plan illustrating the 2km walking isochrone from the site is provided at **Figure 2.3**.

Figure 2.3 – Walking Isochrone Plan (2km)



2.10 **Figure 2.3** demonstrates that a number of local residential areas are located within a 2km walking distance.

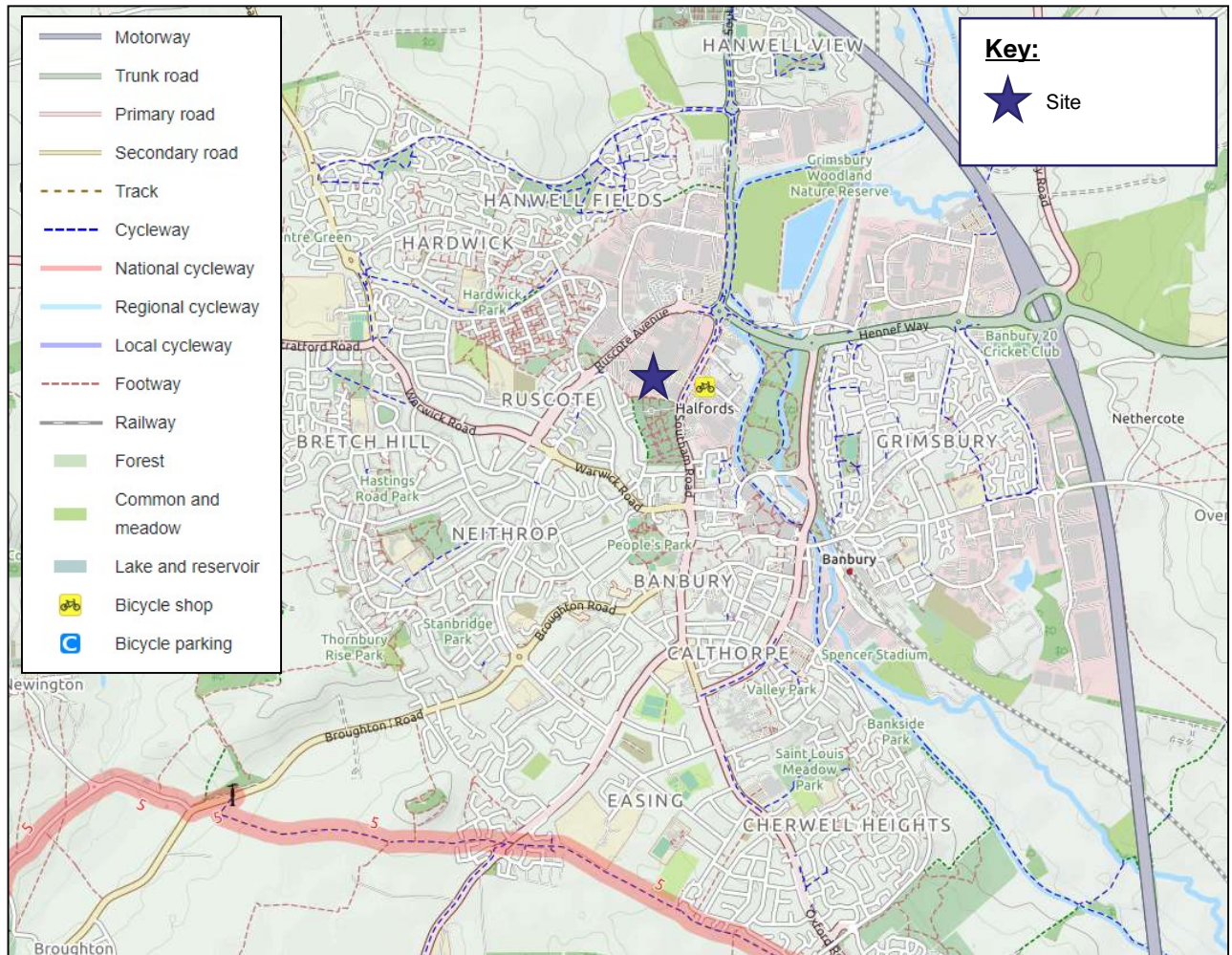
Cycling

2.11 The cycling infrastructure on Southam Road consists of a shared footway/cycleway on the western side of the carriageway with an on-road cycle lane on the eastern side of the carriageway. These cycle lanes extend south to the town centre.

2.12 National Cycle Route (NCR) 5 is located approximately 2.7km cycle distance south of the site at the A361 to the south of Easington. NCR 5 provides local cycle access to nearby villages such as Bloxham and North Newington.

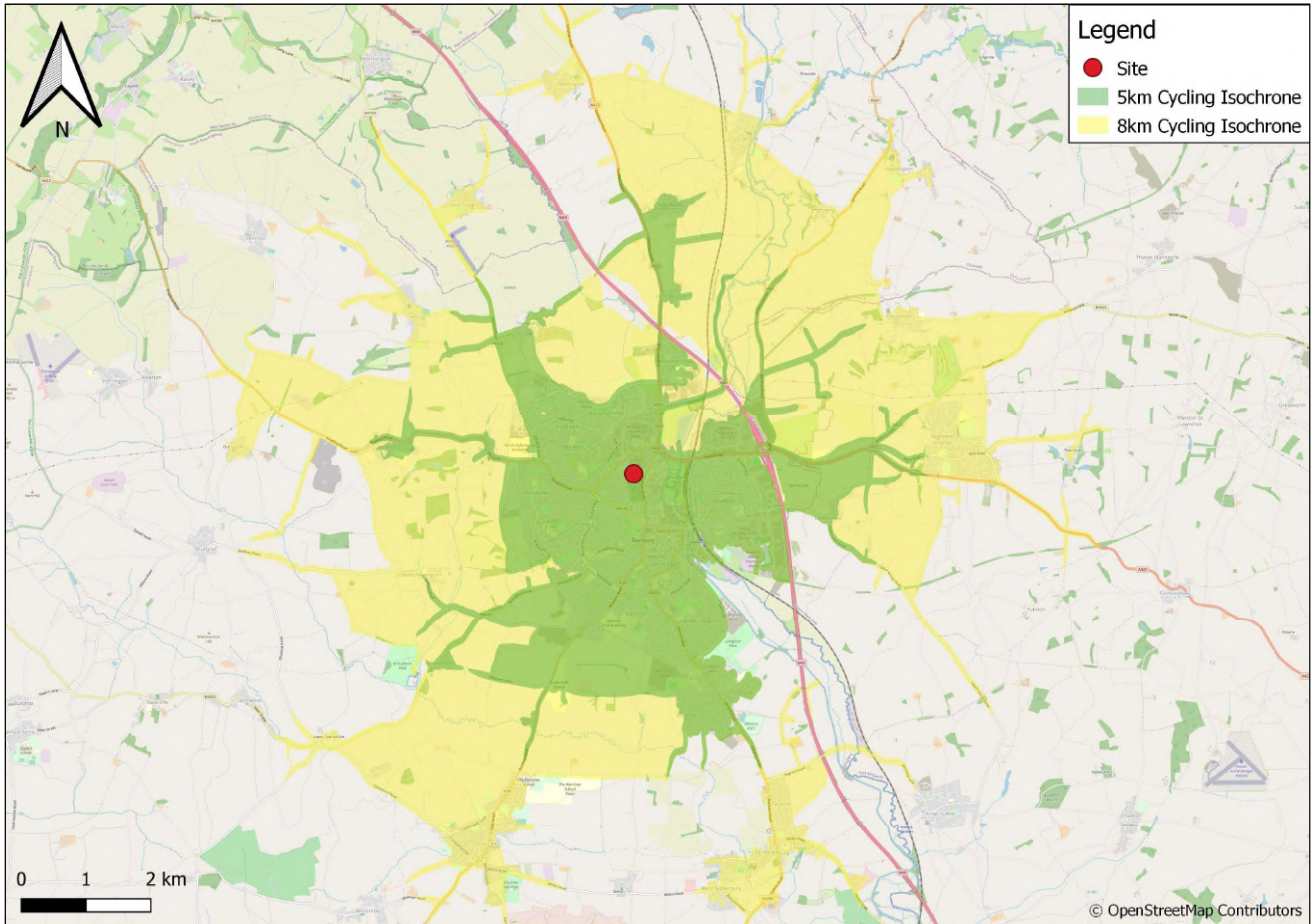
2.13 An extract of the cycle infrastructure in Banbury is provided in **Figure 2.4**.

Figure 2.4 – Banbury Cycle Infrastructure



2.14 It is commonly accepted that cycling has the potential to replace short car trips, particularly those under 8 km, and to form part of a longer journey by public transport. A plan illustrating the 5km and 8km cycling isochrones from the site is provided at **Figure 2.5**.

Figure 2.5 – Cycling Isochrone Plan (5km and 8km)



2.15 **Figure 2.5** demonstrates that local residential areas including settlements outside of Banbury can be accessed within 5km. It can also be seen that the wider Banbury area is accessible within an 8km cycle from the site location.

Public Transport

Bus Services

2.16 The closest bus stops (Cemetery) to the site are located along Southam Road, approximately 100m south of the site access onto Southam Road. Both stops provide a pole and flag arrangement with timetable information.

2.17 A summary of the bus services available at these stops are shown in **Table 2.1** overleaf.

Table 2.1 – Bus Services Summary

Provider	Service	Route	First Bus	Last Bus	Frequency (per hour)		
					Weekday	Saturday	Sunday
Stagecoach	501/502	Banbury – Leamington	12:18	13:48	No Service	1 Service per day	No Service
		Leamington – Banbury	10:03	11:14			
	B3	Banbury – Bodicote & Longford Park	07:07	19:32	2	2	No Service

**Note: Services may be reduced due to COVID-19*

- 2.18 The services set out above indicate approximately 2 services per hour passing the site.
- 2.19 The services outlined in **Table 2.1** call at or adjacent to Banbury bus station located 400m (5-minute walk) northwest of Banbury railway station. In this regard, there is the potential for people to access the site by a rail-bus trip.

Rail Services

- 2.20 Banbury rail station is located approximately 1.5km walking distance south east of the site, approximately 20-minutes on foot and a 6-minute cycle. The station sits on the Chiltern Mainline and is managed by Chiltern Railways.
- 2.21 A summary of the rail services to these destinations have been provided in **Table 2.2**.

Table 2.2 – Rail Services Summary

Destination	Route	First Train	Last Train	Frequency (per hour)		
				Weekday	Saturday	Sunday
London Marylebone	Banbury – Bicester North – High Wycombe – London Marylebone	05:17	22:36	3	1-2	1-2
Birmingham Moor Street	Banbury – Leamington Spa – Warwick – Solihull – Birmingham Moor Street	06:06	00:03	2	2	2
Reading	Banbury – Oxford – Reading	06:52	22:54	1-2	1-2	1
Manchester Piccadilly	Banbury – Leamington Spa – Coventry - Birmingham New Street – Wolverhampton – Manchester Piccadilly	06:57	20:57	1	1	1

2.22 The services set out above indicate regular services departing to London Marylebone, Birmingham Moor Street, Reading and Manchester Piccadilly. Locally they serve the nearby settlements of Kings Sutton, Leamington Spa and Bicester North.

Summary

2.23 This section has demonstrated that the site is accessible via alternative sustainable modes of transport other than the private car. The site benefits from being in proximity of a network of footways, which connect the site to the surrounding land uses and bus services. It is also well connected to the local cycle network and in close proximity to Banbury Railway Station that provides the opportunity for longer distance commutes by train.

3 Objectives and Interim Targets

- 3.1 This chapter sets out the overarching objectives of this TPS. Objectives are the high-level aims, helping to give the document direction and provide a clear focus. It also provides some initial targets that are informed by the trip generating potential of the site as set out in the TS submitted in support of the application.

Objectives

- 3.2 The main objective of the TPS is to increase the awareness of sustainable travel modes available to workers, particularly by encouraging walking and cycling. More specifically, the sub-objectives of this TPS are to:
- Increase awareness of the advantages and availability of sustainable modes of transport; and
 - Introduce a package of physical and management measures that will facilitate travel by sustainable, in particular walking and cycling.

Targets

- 3.3 Workers associated with the van storage area typically comprise contractors. In this regard, the travel patterns of people that will travel to this location are expected to be subject to greater variation to that of the distribution centre that the van storage site will serve. This is because the travel choices available from the origins of the journey to work trips will be more varied than a permanent workforce.
- 3.4 On this basis, the TPS seeks to reduce the number of Single Occupancy Vehicle (SOV) trips to the van storage area rather than seek any specific increases in non-car modes. This will be monitored against an initial survey that will record the proportion of vehicles that enter the site in the morning that are attributed to SOV. The initial survey will be undertaken three months after the site becomes operational.
- 3.5 In advance of the initial survey being undertaken it is considered reasonable to base the targets on the trip generation assessed within the supporting TS. This is replicated below in **Table 3.1** together with indicative targets for Years 1, 3 and 5 of the TPS.

Table 3.1 – Indicative SOV Targets

Base SOV Trips	Year 1 Target	Year 3 Target	Year 5 Target
305	295	285	275

4 Travel Plan Administration

Travel Plan Co-ordinator

- 4.1 A Travel Plan Co-ordinator (TPC) will be appointed prior to operation of the development and will be responsible for the implementation of the measures and initiatives outlined within the TPS.
- 4.2 The TPC will also be responsible for co-ordinating surveys and will encourage uptake where possible. As set out in **Section 3**, it is envisaged that initial surveys of vehicles arriving at the site will be undertaken within the first three months of occupation.
- 4.3 Once the initial surveys have been undertaken, the TPC will be responsible for implementing a Full TPS, which will be implemented within 3 months of the completion of the baseline survey.
- 4.4 The TPC will also be responsible for arranging the monitoring and review of the Full TPS for its lifetime (5 years). It is considered that this will comprise the co-ordination of repeat surveys of vehicles arriving at the site in years 1, 3 and 5.

Funding

- 4.5 Appropriate funding will be allocated at the start of the travel plan process to cover the costs involved in administering the TPS over an agreed time period.

5 Measures and Initiatives

- 5.1 This section of the TPS outlines the specific measures to be implemented to enable and encourage sustainable travel choices among residents. The implementation of the listed measures, which include awareness initiatives and infrastructure provision, is the core of the document. Measures are grouped together broadly under alternative modes of transport headings.
- 5.2 The measures outlined below have been agreed with the applicant as being suitable for the situation at the site. However, this list is not exhaustive other potential initiatives could be investigated.

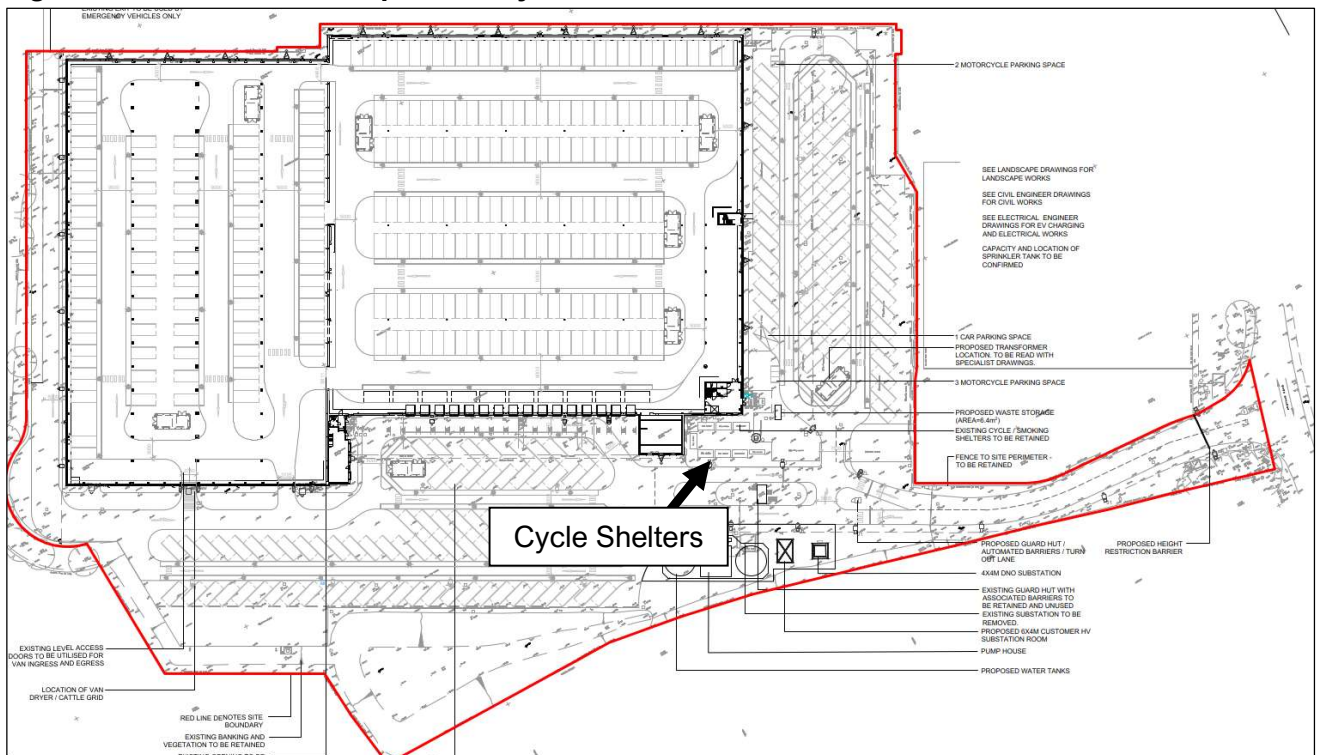
Information Provision

- 5.3 A Sustainable Travel Notice Board will outline the sustainable options for travelling to and from the site. This will be provided in a prominent place within the welfare cabin on site.

Encouraging Cycling

- 5.4 42 cycle parking spaces will be provided on site. Cycle storage facilities are located at a sheltered and secure location. As shown in an extract of the proposed site layout in **Figure 5.1** below, this is situated close to the site access, enabling cyclists to have safe and efficient access to their bicycles.

Figure 5.1 – Location of Proposed Bicycle Shelter



- 5.5 Local cycling routes and information on safe cycling will be provided within the welfare cabin on site.

Encouraging Walking

- 5.6 Workers will be provided with information and advice concerning safe pedestrian routes to and from the site, particularly from areas within walking distance.
- 5.7 The financial, health and fitness benefits of walking will be promoted.

Encouraging Public Transport

- 5.8 Up-to-date details of bus and rail services, including route information and service frequencies, will be permanently on display for the information of workers.
- 5.9 National Rail and Bus Route websites and enquiry phone numbers will be advertised through all relevant means. Contact details for local taxi operators will be available on the Sustainable Travel Notice Board.

Encouraging Car Sharing

- 5.10 Car sharing will be encouraged for workers to travel to and from the site where appropriate.

6 Action Plan

6.1 The Action Plan outlined below in **Table 6.1** sets out the measures included within this TPS which are aimed at influencing worker travel patterns and the likely timescales of completion and monitoring.

Table 6.1 Action Plan for Travel Plan Measures

Measures	Notes	Status/Target Date	Monitoring Method	Responsibility
Public Transport Accessibility				
Information Boards	Travel information including public transport timetables and maps will be displayed in an area visible to workers	On occupation	Timetables will be reviewed monthly	Travel Plan Co-ordinator (TPC)
Walking and Cycling				
Details of local walking and cycling routes will be made available to workers	To be displayed in an area visible to workers	On occupation	Routes will be reviewed annually	TPC
Cycle parking will be provided at convenient and visible locations	Cycle spaces will be provided on site	Prior to occupation of the units	N/A	Developer
Raise awareness of the health and benefits of walking and cycling	Information to be displayed in an area visible to workers	Within the first month of occupation of the units	N/A	TPC
Provide information on cycle to work scheme	Information to be displayed in an area visible to workers	On occupation	N/A	TPC
Other Potential Measures and Initiatives				
Walk to work day	Workers will be encouraged to walk to the site where possible	On going	N/A	TPC
National Bike Week events	Workers will be encouraged to cycle to the site where possible	On going	N/A	TPC

Contact

London

Network Building,
97 Tottenham Court Road,
London W1T 4TP.
Tel: 020 7580 7373

Bristol

5th Floor, 4 Colston Avenue,
Bristol BS1 4ST
Tel: 0117 203 5240

Cardiff

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Cardiff CF10 2HE
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