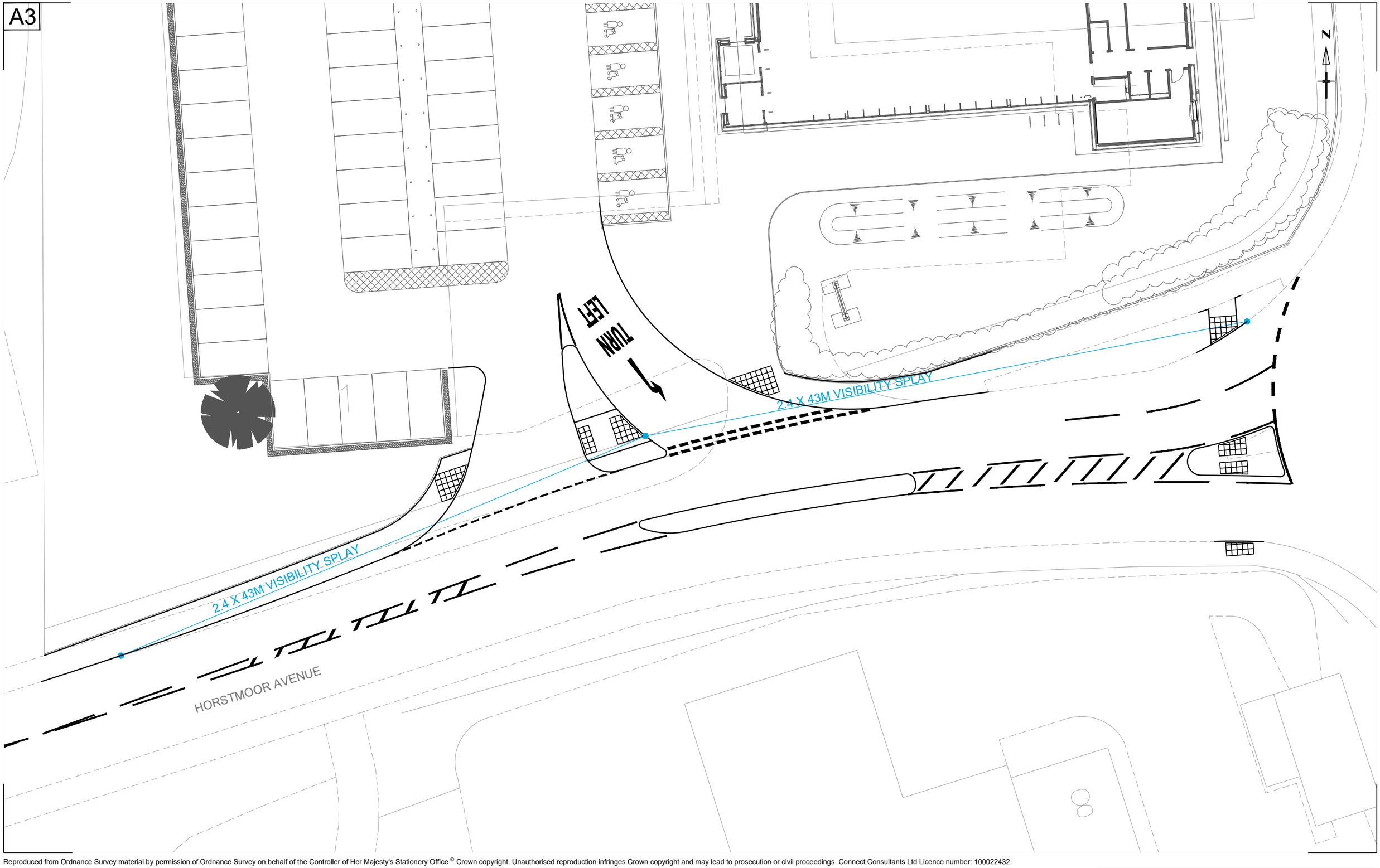
APPENDIX 2 – SITE ACCESS LAYOUT

A3



connect CONSULTANTS
78 BROAD STREET, CHIPPING SODBURY, BRISTOL. BS37 6AG
Tel: 01454 320 220 Web: www.connect-consultants.com
Fax: 01454 320 099 Email: bristol@connect-consultants.com

safecontractor APPROVED

bsi. UKAS MANAGEMENT SYSTEM 001
QUALITY MANAGEMENT SYSTEM
ISO 9001 : 2015 FS 594947

client
ALDI STORES

project
PROPOSED DEVELOPMENT
HOSTMOOR AVENUE
MARCH

title
PROPOSED SITE ACCESS RELOCATION

date	drawn by	checked by
APRIL 2021	T.A.S	C.B.W

scale	status
1:250	PLANNING

drawing number	rev.
19126 - 010	A

APPENDIX 3 – CONNECT PRE-APPLICATION TECHNICAL NOTES

PROPOSED ALDI FOODSTORE

HOSTMOOR AVENUE, MARCH

TN01 – RESPONSE TO PRE-APPLICATION COMMENTS

17TH AUGUST 2020

1.0 Introduction

1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants who have been instructed in relation to the proposed new discount foodstore on Hostmoor Avenue in March, Cambridgeshire.

1.2 In request of highways pre-application advice, Connect Consultants provided a scoping report in the form of a preliminary Transport Assessment to Cambridgeshire County Council (CCC), acting as the Local Highway Authority (LHA), to which CCC has provided comments on in a pre-app consultation document dated 1st July 2020.

1.3 This technical note provides additional information in respect of matters raised by CCC in their pre-app consultation response. Where appropriate, these responses will be incorporated into the next iteration of the Transport Assessment.

2.0 Footway Widths

2.1 LHA paragraph 3:-

> *"The applicant should detail the widths of the key footway links within the site vicinity. It is noted footways are present along both sides of Hostmoor Avenue. In addition, a continuous footway is present on the east side of the A141 Wisbech Road within the site vicinity."*

2.2 The widths of the footways identified by CCC above have been approximately measured from OS mapping.

2.3 The north flanking footway on Hostmoor Avenue has an average width of 1.88m and the south flanking footway has an average width of 1.99m.

2.4 The east flanking footway on the A141 Wisbech Road north of the A141 / Hostmoor Avenue Priority Junction measures approximately 2.5m in width and south of the junction the footway measures approximately 1.64m in width.

3.0 Bus Routes

3.1 LHA paragraph 4:-

> *"The applicant should outline the condition of the walking routes to the nearest bus stops."*

3.2 The locations of the two nearest bus stops are shown at Figure 2.4 of the Connect TA. There is good accessibility from the proposal site to the bus stop in the Tesco forecourt, with footways on the north and south flanks of Hostmoor Avenue, which can be crossed via a refuge island with dropped kerbs adjacent to the north boundary of the Tesco car park c.70 east of the Tesco Access Roundabout. Pedestrians are able to manoeuvre through Tesco car park to the bus stop via a series of on-site zebra crossings.

3.3 The bus stop northwest of the proposal site on the A141 Wisbech Road is accessible from the proposal site via a continuous footway on the north side of Hostmoor Avenue, which connects to a footway flanking the east site of the A141 Wisbech Road. Pedestrians are able to cross the Gipsy Lane access junction via a refuge island with dropped kerbs and tactile paving.

3.4 Overall, there is good accessibility between the proposal site and the two nearest bus stops.

4.0 Proposed Site Access and Servicing

4.1 LHA paragraph 6:-

> *"The Highway Authority does not support the proposed access arrangements, CCC Highways have requested that the access is taken from the lower category road, and redesigned accordingly. Therefore, access should be taken off Martin Avenue. Hostmoor Avenue junction with the A141 is currently over capacity and the creation of a new access in this location without a right turn lane would cause a safety and capacity concern. Site access and servicing details should be agreed with Highways Development Management."*

4.2 The proposed development requires access from Hostmoor Avenue to accommodate the proposed site layout and for commercial reasons.

4.3 Based on discussions with Highways Development Management, we understand that the access will be considered to be acceptable by CCC if it can be demonstrated that there are no capacity or safety issues which would indicate otherwise. The TA already demonstrates that capacity is not an issue, and a stage 1 road safety audit will be provided.

5.0 Proposed Parking Provision

5.1 The proposed parking provision will be supported by additional car parking data in future iterations of the TA.

5.2 Please can CCC indicate the level of cycle parking which they consider to be suitable for this development.

6.0 Existing Traffic Flows

6.1 New traffic survey data can not be obtained at the present time due to the Covid-19 pandemic. This matter will need to be reviewed when the planning application is submitted. If additional representative data can be collected, then surveys will be organised, if not, CCC will be asked to consider the planning application based on the data which is available, otherwise the process will grind to a halt.

6.2 CCC have been provided with junction capacity analysis based on traffic data which is currently available. Not withstanding CCC's views as to the validity of this data, CCC are requested to advise what conclusions they would draw from the capacity analysis were they to consider the data to be valid, even if CCC regard this as being a hypothetical question.

6.3 CCC state that they can not agree the Tempro analysis until the survey years have been established, but please can CCC advise if the selection criteria and growth methodology set out at section 4.3 of the TA is acceptable.

7.0 Committed Development

7.1 LHA paragraph 15:-

> *"It is not agreed that the McDonalds scheme has not been included within this assessment as committed development. Whilst it is noted the applicant considers the majority of McDonalds traffic will be secondary trips, to provide a worst-case scenario, the applicant should include the McDonalds application as committed development within this assessment."*

7.2 Currently, the planning application for the proposed McDonalds development (planning reference F/YR19/1093/F) has yet to be determined by Fenland District Council (FDC). Despite this, at the request of CCC, McDonalds trips will be considered in this traffic assessment as committed development trips.

7.3 A Transport Statement was produced by MTC Engineering, dated October 2019, for the McDonalds development, which proposed a trip generation to the site based on TRICS and a set of trip type assumptions. In responding to the MTC October 2019 TA, CCC did not accept the methodology of the TRICS assessment and a revised traffic assessment has yet to be produced.

7.4 Therefore, Connect have undertaken a separate traffic assessment for the consideration of the McDonalds trips, the details of which are as follows.

7.5 The McDonalds trips has been determined with reference to the TRICS database (version 7.7.1), using the selection criteria set out at Table 1, so as to obtain trip data from developments with similar characteristics to the proposed McDonalds. The TRICS outputs are provided at Appendix 1.

Table 1 – TRICS Database Key Selection Criteria – McDonalds Restaurant

Land use and trip rate selection	
Select Land Use By:	Full list Of Active Main/Sub Land Uses
Main Land Use:	06 – HOTEL, FOOD & DRINK
Sub Land Use:	D – FAST FOOD – DRIVE THROUGH
Calculation Options:	Vehicle Trip Rates
Regions:	England (excluding Greater London), Wales and Scotland
Primary filtering	
Trip Rate Parameters:	Gross Floor Area*
Selected Range:	210 to 480 sq.m.*
Selected Dates:	01/01/10 – 28/06/19
Week days to include:	Weekdays and Saturdays
Location Types to include:	Edge of Town, Suburban Area, Neighbourhood Centre
Secondary filtering	
Population < 1 Mile:	All available*
Population < 5 Miles:	All available*

** Default setting*

7.6 Sites in Wales and Scotland, as well as England, have been selected due to the limited availability of 'Fast Food – Drive Through' surveys in England (excluding Greater London) for the location types listed above. Similarly, sites from 2010, as opposed to the default setting of 2012 onwards, have been selected in order to expand the availability of sites and produce a greater sample size.

7.7 The resultant trip attractions, during the surveyed peak hours identified in the Connect June 2020 TA and based on the proposed McDonalds GFA of 493 sq.m., are set out at Table 2 below.

Table 2 – TRICS Data – Fast Food Drive Through

Peak	Average Trip Rates			Traffic Attraction (based on 493 sq.m. GFA)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM 08:00-09:00	11.79	11.73	23.52	58	58	116
PM 16:45-17:45	10.62	10.77	21.40	52	53	105
Sat 11:30-12:30	23.61	20.96	44.57	116	103	220

7.8 The traffic that will be attracted to the proposed McDonalds will comprise the following trip types:-

- Pass by trips resulting from people who currently use the road adjacent to the site for a trip involving another purpose who will visit the site while passing.
- Diverted trips derived from people who are using the road network close to the site for another purpose who will divert their trips to visit the McDonalds while passing in the broad vicinity.
- Transferred trips by people who would change their destination from a competing attraction, to the proposed McDonalds.
- Linked trips undertaken by existing visitors to a specific local retail centre who visit the proposed McDonalds as part of their existing trip.
- Primary trips made by people who travel for the specific purpose of visiting the proposed McDonalds, but not included in the trip types above.

7.9 For simplicity, this assessment is based on a pass-by rate of 30%, with trips drawn from eastbound / westbound movements on Hostmoor Avenue.

7.10 Similarly, as the McDonalds proposal site is bordered by the A141 Wisbech Road to the west, this assessment is based on a diverted rate of also 30%, where trips are drawn from northbound / southbound movements on the A141 Wisbech Road.

7.11 This assessment assumes that linked trips will be made with Westry Retail Park, the adjacent Tesco and the proposed Aldi foodstore. For simplicity, a linked trip rate of 10% for each of the three retail sites has been applied, which equates to a total linked trip rate of 30%.

7.12 Primary trips to the proposed development will be a combination of transferred trips from journeys (already using the study area network) to competing attractions and new trips to the study area network. This assessment assumes no transferred trips for the McDonalds.

7.13 The simplified assumption has been made that 10% of McDonalds trips will be 'new' to the study area network.

7.14 The distribution of primary McDonalds trips on the local highway network is based on the same assumptions used for the proposed Aldi foodstore as identified in the Connect June 2020 TA and agreed by CCC in their July 2020 consultation response. The primary trip distributions are set out at Table 3 below.

Table 3 – Primary Trip Distribution

Origin / Destination	Percentage
Hostmoor Avenue (east)	16.7%
A141 North	16.7%
B1099 Wisbech Road	50.0%
A141 Isle of Ely Way	16.7%
	100%

7.15 By way of summary, this assessment of McDonalds trip attraction is based on the trip type assumptions shown at Table 4 below.

Table 4 – Summary of Proposed McDonalds Trip Types

Trip Type	Percentage of Total McDonalds Trips
New to Study Area Network	10%
Pass-by Trips	30%
Diverted Trips	30%
Linked with Tesco	10%
Linked with Westry Retail Park	10%
Linked with proposed Aldi	10%

7.16 Diagrams showing the distribution of each of the proposed McDonalds trip types with the inclusion of the Westry Retail Park are provided at Appendix 2.

7.17 The McDonalds trips will be included in the 2026 baseline + committed development scenario as an additional committed development for the revised TA.

7.18 LHA paragraph 17:-

> *"It is noted construction of the existing consent for retail units and drive thru restaurants/coffee shop on the land opposite Hostmoor Avenue (F/YR15/0640/F) has recently commenced. It is unclear why this development has not been considered within the committed development."*

7.19 The assessment of the Westry Retail Park flows in the Connect June 2020 TA includes flows taken from the MTC Engineering October 2018 TA associated with the F/YR18/0566/F planning application, which proposes the expansion in floor area of the consented Westry Retail Park (planning permission F/YR15/0640/F).

7.20 In regards to the traffic generation as a result of the increase in floor area calculated for planning application F/YR18/0566/F, Paragraph 7.6.2 of the MTC Engineering October 2018 TA explains the following:

> *"The proposed development is essentially the same as the consented development with no significant difference other than an increase in floor space (neither the consented or proposed retail park has a petrol filling station). As such it is considered appropriate to simply apply trip generation rates previously approved in relation to the consented development to the proposed development based upon the updated maximum gross floor area of 165,000ft2/15,328.5m2."*

7.21 This means that the Westry Retail Park flows include the trip generation already consented under planning permission F/YR15/0640/F and the additional trips assessed with the proposed expansion in floor area of the retail park. Therefore, the committed Westry Retail Park trips used in the Connect June 2020 TA do include the trips consented under planning permission F/YR15/0640/F.

7.22 The junction capacity assessments set included in the Connect June 2020 will be revised following agreement with the LHA of the proposed committed development trips. In addition, in the case of the A141 / Hostmoor Avenue junction, a revised junction capacity test for this junction is provided later in this technical note.

8.0 Proposed Aldi Trip Attraction

8.1 LHA paragraph 19:-

> *"Vehicle trip generation for the Aldi store has been based on arrival and departure data from the comparable Aldi store on Sandyland in Wisbech for the Weekday AM, PM peak and Saturday PM peak. Survey outputs should be appended to the TA for CCC to review."*

8.2 The Aldi Wisbech survey outputs are provided at Appendix 3 of this document and will be appended to the next iteration of the TA.

9.0 Multi-modal Trip Generation

9.1 CCC have requested that multi-modal trip generation should be provided. The following methodology will be included in the next iteration of the TA following agreement with the LHA.

9.2 The modal split for the proposed Aldi foodstore is based on the multi-multi trip generation assessment set out in Section 6.5 of the MTC Engineering October 2015 TA for the consented Westry Retail Park.

9.3 The MTC multi-modal trip generation assessment used vehicular, pedestrian and cyclist arrival and departure data from surveys undertaken at the nearby Tesco on Saturday 9th May 2015. The MTC TA states that CCC agreed that the modal split for the retail park would likely be similar to the modal split surveyed for the Tesco site.

9.4 To calculate the proportion of public transport users, a telephone survey was undertaken as part of the Retail Assessment for the Westry Retail Park, which entailed questioning residents within the retail park customer catchment area how they regularly travel to undertake food and non-food retail shopping trips.

9.5 Then based upon the vehicular, pedestrian and cyclist data gathered for the nearby Tesco and the public transport data collected via the telephone interviews, the MTC assessment calculated the approximate modal split of the retail park to be the following.

Table 5 – Modal Split of Trips to Consented Retail Park

	Vehicle	Pedestrian	Cyclist	Public Transport	Total
Proportion of Total	93.1%	2.7%	0.2%	4.0%	100.0%

9.6 It is likely that the modal split of trips to the proposed Aldi foodstore will be similar to the modal split of trips to the consented retail park and to the nearby Tesco based on the similarities each site shares with being retail shopping units and their proximity to one another in the same area of March.

10.0 Road Safety/Collision Analysis

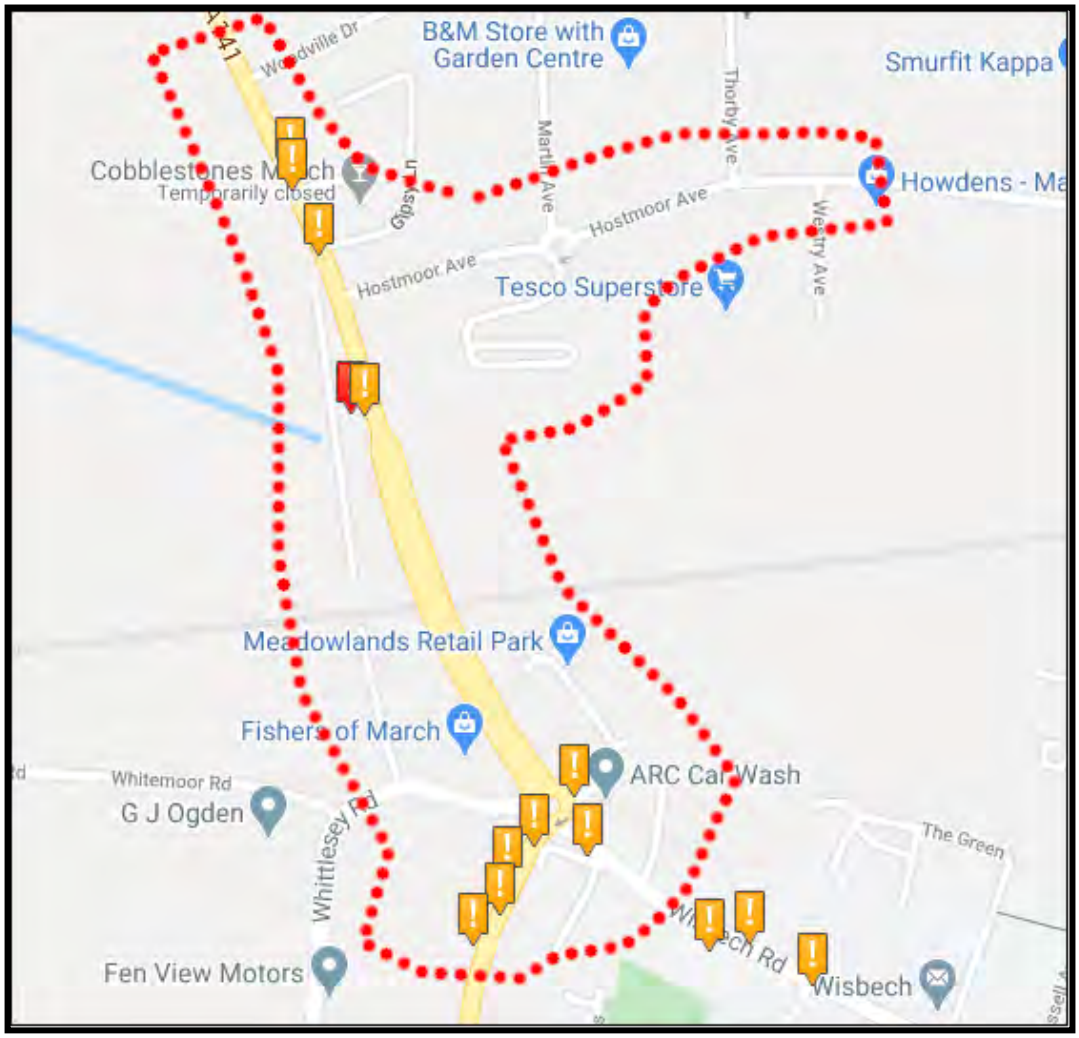
10.1 LHA paragraph 25:-

> *"The County Council do not accept accident data obtained from CrashMap as it does not provide the latest available data. The latest available 60 months accident data should be obtained from the County Council via: business.intelligence@cambridgeshire.gov.uk. Full outputs should be provided."*

10.2 CCC were contacted by Connect on 16th July 2020 via the email provided above and have provided collision data for the most recent 60 months of traffic data available within the study area.

10.3 Figure 1 below shows the study area, and the CrashMap data in the Connect TA.

Figure 1 – Accident Study Area



10.4 Future iterations of the TA will include the full collision data and an analysis of the data.

10.5 However, the CCC data shows a similar pattern of collisions to the CrashMap data, and, in particular, no collisions at the A141 / Hostmoor Avenue junction or at the Tesco roundabout.

10.6 A plan displaying the locations of the collisions identified by CCC is provided at Appendix 4.

11.0 Junction Capacity Analysis

11.1 LHA paragraph 28:-

> *"The junction assessments cannot be agreed until such a time as the traffic surveys, committed development and trip generation have been accepted. The ARCADY/PICADY assessment should be undertaken using a DIRECT profile type as this will give the most accurate results and does not rely on assumptions to be made. The junction capacity assessment should therefore be remodelled to consider all the above."*

11.2 The limitations of the traffic surveys are considered earlier in this technical note. As previously stated, notwithstanding CCC's views as to the validity of this data, CCC are requested to advise what conclusions they would draw from the capacity analysis were they to consider the data to be valid, even if CCC regard this as being a hypothetical question.

11.3 Regarding committed developments, the McDonalds development will have only a small impact on the study area. While revised junction tests will be provided in future iterations of the TA, the only junction where the McDonalds traffic will potentially affect the conclusions which can be drawn from the TA is the A141 / Hostmoor Avenue junction, so this junction has been capacity tested to include the McDonald's traffic (see below).

11.4 The traffic data for the Wisbech store has been provided with this technical note to enable CCC to agree the for Aldi trip generation.

11.5 Regarding the use of the ONE HOUR or DIRECT profile type, it is agreed that the use of the DIRECT profile provides the most accurate result, but this is also the most labour-intensive method of modelling a junction. Before deciding that DIRECT tests are required, the extent to which this might affect the TA conclusions should be considered.

11.6 In ONE HOUR mode, the hourly traffic demand is divided into six segments based on a central one-hour peak period. This comprises four 15-minute segments for the peak hour which collectively include the total peak hour flows, with an extra 15-minute segment either side of the hour period. The traffic profile includes a peak within a peak, and the traffic demand for each quarter which form the peak hour are as set out at Table 6 below.

Table 6 – Proportion of Observed Traffic Demand per 15-Minute Segment

	Peak Hour 15-minute Segment			
	1	2	3	4
Proportion of Traffic Demand	22%	28%	28%	22%

11.7 The traffic data on the TA comprises weekday surveys obtained from CCC which include the flows for each 15-minute period and Saturday flows were extracted from the flow diagrams and Appendix 3 of the MTC Engineering October 2018 TA.

11.8 To test the suitability of the ONE HOUR profile, the four 15-minute segments within the peak hours for each surveyed study junction have been analysed to establish the percentage of traffic in the busiest 15-minute period. Table 7 shows the busiest and least busy 15-minute proportions for each study junction.

Table 7 – Minimum and Maximum Proportions of Observed Traffic

A141/Hostmoor Avenue Junction			
	AM Peak	PM Peak	SAT Peak
Max	26%	26%	26%
Min	24%	23%	24%
Tesco Access Roundabout			
	AM Peak	PM Peak	SAT Peak
Max	30%	26%	26%
Min	23%	22%	25%
Peas Hill Roundabout			
	AM Peak	PM Peak	SAT Peak
Max	26%	26%	26%
Min	24%	24%	24%

11.9 Table 7 shows that all of the peak hour 15-minute segments for each study junction are under the ONE HOUR peak percentage of 28% with the exception of the Tesco Access Roundabout which has its busiest period as 30% of the AM peak hour traffic demand.

11.10 Despite this, as the junction capacity test results at Table 5.7 in the Connect June 2020 TA show, the Tesco Access Roundabout is predicted to operate well within capacity with a maximum RFC of only 0.30 in the '2026 Base (With Westry RP) + Aldi' scenario. Therefore, if a minor increase in demand results from using a DIRECT traffic profile, it is predicted that the Tesco Roundabout will still remain within capacity.

11.11 On this basis, the capacity tests within the TA, which use the ONE HOUR profile, are reasonably suitable for assessment purposes. This applies to the proposed site access, the Tesco roundabout and the Peas Hill roundabout, all of which were assessed in ONE HOUR mode.

11.12 Future iterations of the TA will therefore assess the junctions using ONE HOUR mode apart from the A141 / Hostmoor Avenue priority junction which will be assessed using DIRECT.

11.13 As mentioned previously, the only junction where the McDonald's traffic is likely to affect the conclusions drawn from the TA is the A141 / Hostmoor Avenue junction for the scenario without Westry Retail Park. Therefore, the A141 / Hostmoor Avenue junction capacity tests have been re-run with the addition of the McDonalds traffic.

11.14 In the Connect June 2020 TA, the A141 / Hostmoor Avenue junction was tested with its existing layout as a left / right in, left out priority junction using a '2021 Base + Proposed Development' scenario without the consented Westry Retail Park flows.

11.15 Although the McDonalds has yet to be granted planning permission and therefore it is unknown whether the restaurant, if at all, will be built and operational by 2021, the McDonalds' trips calculated at Section 7.0 have nonetheless been added onto the 2021 base traffic as a hypothetical scenario to test how the existing junction will operate with the additional trips.

11.16 In the 2021 base scenario, Westry Retail Park and the proposed Aldi store are not built and so the entirety of linked trips is centred on the Tesco, which equates to 30% linked with Tesco. In the '2021 Base + McDonalds + Aldi' scenario, linked trips with the hypothetically now-built Aldi foodstore have been assessed, where overall linked trips are divided equally amongst the Tesco and Aldi foodstore at 15% each. Flows illustrating the McDonalds trips for each trips types without the Westry Retail Park flows, and the flows for each scenario shown at Table 8 are provided at Appendix 5.

11.17 The PICADY9 computer program has been used to assess the operation of the existing A141 / Hostmoor Avenue priority junction, based on its existing geometry and, for consistency with the capacity assessment in the Connect TA, using a FLAT traffic profile. The results of the assessment are shown at Table 8 below.

Table 8 – PICADY Summary – Existing A141 / Hostmoor Avenue Priority Junction

	AM			PM			SAT		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2020 Base								
Hostmoor Ave to A141 (S)	1.1	16.56	0.53	22.1	159.24	1.00	59.1	321.02	1.08
From A141 (S)	0.9	12.52	0.47	1.0	13.20	0.51	2.0	16.25	0.67
	2021 Base + McDonalds								
Hostmoor Ave to A141 (S)	1.4	18.75	0.59	43.2	286.43	1.06	103.9	545.78	1.16
From A141 (S)	1.0	13.62	0.51	1.2	14.37	0.55	2.6	19.59	0.73
	2021 Base + McDonalds + Aldi								
Hostmoor Ave to A141 (S)	1.7	20.20	0.63	76.7	484.36	1.14	165.7	853.41	1.26
From A141 (S)	1.2	14.51	0.55	1.4	15.98	0.59	3.9	25.85	0.80

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

11.18 When compared with the results of the initial assessment of the junction in the Connect TA (Table 5.5), the introduction of the McDonalds traffic is predicted to increase RFC values in the range of 0.04 to 0.06 for traffic exiting Hostmoor Avenue onto the A141 and between 0.02 to 0.05 for traffic movements from the south of the A141.

11.19 The proposed McDonalds is predicted to add to the Hostmoor Avenue approach only 22 vehicles during AM peak hour, 20 during PM peak hour and 38 during the Saturday peak hour, equating to less than one vehicle per minute.

11.20 Although the proposed McDonalds is predicted to increase delay times and queue lengths, by dividing the maximum total delay by the maximum length of queue to give the delay per vehicle, in the '2021 base + McDonalds + Aldi' Saturday scenario this value equates to c.5.2 seconds per vehicle, which is the same as what was measured in the Connect TA before the introduction of the McDonalds.

11.21 Reiterating the TA, this means that there are frequent and regular opportunities for departing vehicles to merge with the A141 and that the reported delays are a result of the queue lengths rather than a result of the lack of opportunity to join the A141.

11.22 The junction capacity tests will be revised, as necessary, following agreement with the LHA on the traffic surveys, committed development and trip generation methodology set out in this document.

11.23 The PICADY test output files are at provided at Appendix 6.

12.0 Travel Plan

12.1 A Travel Plan will be produced by Connect, which will accompany the revised TA when issued.

Appendix 1 – TRICS Outputs

Calculation Reference: AUDIT-142301-200721-0737

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : D - FAST FOOD - DRIVE THROUGH
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	SO	SLOUGH	1 days
03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
10	WALES		
	CO	CONWY	1 days
11	SCOTLAND		
	FI	FIFE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 210 to 480 (units: sqm)
Range Selected by User: 182 to 800 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 28/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	2 days
Wednesday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	3
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Development Zone	1
Residential Zone	2
Out of Town	1
High Street	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

A3	4 days
A5	1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

5,001 to 10,000	2 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	1 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BR-06-D-01 MCDONALD'S BRISTOL CITY
SHEENE ROAD
BRISTOL
BEDMINSTER
Neighbourhood Centre (PPS6 Local Centre)
High Street
Total Gross floor area: 210 sqm
Survey date: MONDAY *21/09/15* *Survey Type: MANUAL*

2 CA-06-D-02 MCDONALD'S CAMBRIDGESHIRE
NEWMARKET ROAD
CAMBRIDGE

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 435 sqm
Survey date: TUESDAY *19/09/17* *Survey Type: MANUAL*

3 CO-06-D-01 MCDONALD'S CONWY
RHUDDLAN ROAD
ABERGELE

Edge of Town
Out of Town
Total Gross floor area: 410 sqm
Survey date: FRIDAY *21/10/11* *Survey Type: MANUAL*

4 FI-06-D-02 KFC FIFE
WHIMBREL PLACE
DUNFERMLINE
HALBEATH
Edge of Town
Development Zone
Total Gross floor area: 275 sqm
Survey date: TUESDAY *22/03/16* *Survey Type: MANUAL*

5 SO-06-D-01 MCDONALD'S SLOUGH
WINDSOR ROAD
SLOUGH

Edge of Town
Residential Zone
Total Gross floor area: 480 sqm
Survey date: WEDNESDAY *21/11/12* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/D - FAST FOOD - DRIVE THROUGH
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	480	0.417	1	480	0.000	1	480	0.417
06:00 - 07:00	2	445	3.708	2	445	2.921	2	445	6.629
07:00 - 08:00	4	384	8.664	4	384	7.231	4	384	15.895
08:00 - 09:00	4	384	11.792	4	384	11.726	4	384	23.518
09:00 - 10:00	4	384	10.749	4	384	11.270	4	384	22.019
10:00 - 11:00	5	362	8.674	5	362	9.227	5	362	17.901
11:00 - 12:00	5	362	10.939	5	362	10.442	5	362	21.381
12:00 - 13:00	5	362	15.856	5	362	14.475	5	362	30.331
13:00 - 14:00	5	362	13.702	5	362	15.359	5	362	29.061
14:00 - 15:00	5	362	10.166	5	362	11.271	5	362	21.437
15:00 - 16:00	5	362	10.331	5	362	9.503	5	362	19.834
16:00 - 17:00	5	362	11.326	5	362	9.945	5	362	21.271
17:00 - 18:00	5	362	10.387	5	362	11.050	5	362	21.437
18:00 - 19:00	5	362	10.718	5	362	10.608	5	362	21.326
19:00 - 20:00	5	362	9.890	5	362	10.276	5	362	20.166
20:00 - 21:00	5	362	6.464	5	362	7.182	5	362	13.646
21:00 - 22:00	5	362	5.691	5	362	5.635	5	362	11.326
22:00 - 23:00	3	388	2.661	3	388	3.348	3	388	6.009
23:00 - 24:00	1	480	0.000	1	480	0.417	1	480	0.417
Total Rates:			162.135			161.886			324.021

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	210 - 480 (units: sqm)
Survey date date range:	01/01/10 - 28/06/19
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-142301-200721-0746

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : D - FAST FOOD - DRIVE THROUGH
VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	DV	DEVON	1 days
09	NORTH		
	TW	TYNE & WEAR	1 days
10	WALES		
	CE	CEREDIGION	1 days
	NW	NEWPORT	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 317 to 447 (units: sqm)
Range Selected by User: 182 to 800 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 28/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Saturday	4 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Retail Zone	3
Built-Up Zone	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

A3	4 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

10,001 to 15,000	2 days
20,001 to 25,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
125,001 to 250,000	2 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	4 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 CE-06-D-01 MCDONALD'S CEREDIGION
FFORDD PARC Y LLYN
ABERYSTWYTH

Edge of Town
Retail Zone
Total Gross floor area: 350 sqm
Survey date: SATURDAY *09/05/15* *Survey Type: MANUAL*

2 DV-06-D-01 MCDONALD'S DEVON
HELE ROAD
TORQUAY

Suburban Area (PPS6 Out of Centre)
Retail Zone
Total Gross floor area: 447 sqm
Survey date: SATURDAY *30/03/19* *Survey Type: MANUAL*

3 NW-06-D-01 KFC NEWPORT
SPYTTY ROAD
NEWPORT

Edge of Town
Retail Zone
Total Gross floor area: 341 sqm
Survey date: SATURDAY *16/10/10* *Survey Type: MANUAL*

4 TW-06-D-01 KFC TYNE & WEAR
CLIFFORD STREET
NEWCASTLE
BYKER
Neighbourhood Centre (PPS6 Local Centre)
Built-Up Zone
Total Gross floor area: 317 sqm
Survey date: SATURDAY *14/11/15* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/D - FAST FOOD - DRIVE THROUGH
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	1	350	1.429	1	350	0.857	1	350	2.286
06:00 - 07:00	1	350	7.714	1	350	5.143	1	350	12.857
07:00 - 08:00	3	371	10.592	3	371	9.425	3	371	20.017
08:00 - 09:00	4	364	10.653	4	364	10.378	4	364	21.031
09:00 - 10:00	4	364	15.601	4	364	13.677	4	364	29.278
10:00 - 11:00	4	364	13.883	4	364	14.845	4	364	28.728
11:00 - 12:00	4	364	19.450	4	364	16.632	4	364	36.082
12:00 - 13:00	4	364	27.766	4	364	25.292	4	364	53.058
13:00 - 14:00	4	364	27.010	4	364	28.797	4	364	55.807
14:00 - 15:00	4	364	25.223	4	364	25.017	4	364	50.240
15:00 - 16:00	4	364	20.275	4	364	22.268	4	364	42.543
16:00 - 17:00	4	364	21.649	4	364	21.306	4	364	42.955
17:00 - 18:00	4	364	20.481	4	364	21.168	4	364	41.649
18:00 - 19:00	4	364	22.337	4	364	21.856	4	364	44.193
19:00 - 20:00	4	364	20.481	4	364	21.856	4	364	42.337
20:00 - 21:00	4	364	13.608	4	364	14.570	4	364	28.178
21:00 - 22:00	4	364	12.509	4	364	12.027	4	364	24.536
22:00 - 23:00	4	364	8.247	4	364	9.622	4	364	17.869
23:00 - 24:00	3	371	8.707	3	371	9.156	3	371	17.863
Total Rates:			307.615			303.892			611.507

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

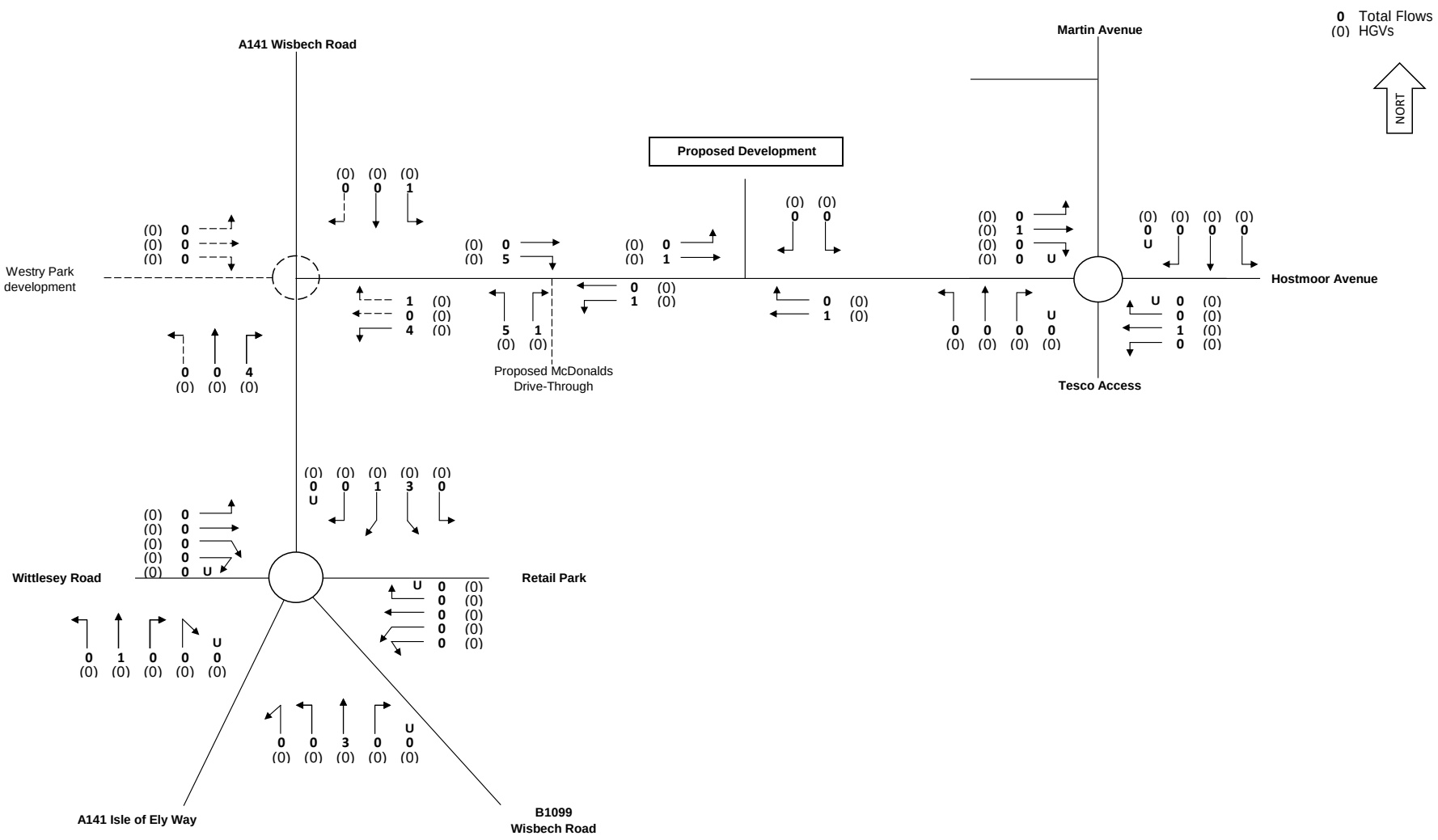
*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	317 - 447 (units: sqm)
Survey date date range:	01/01/10 - 28/06/19
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	4
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

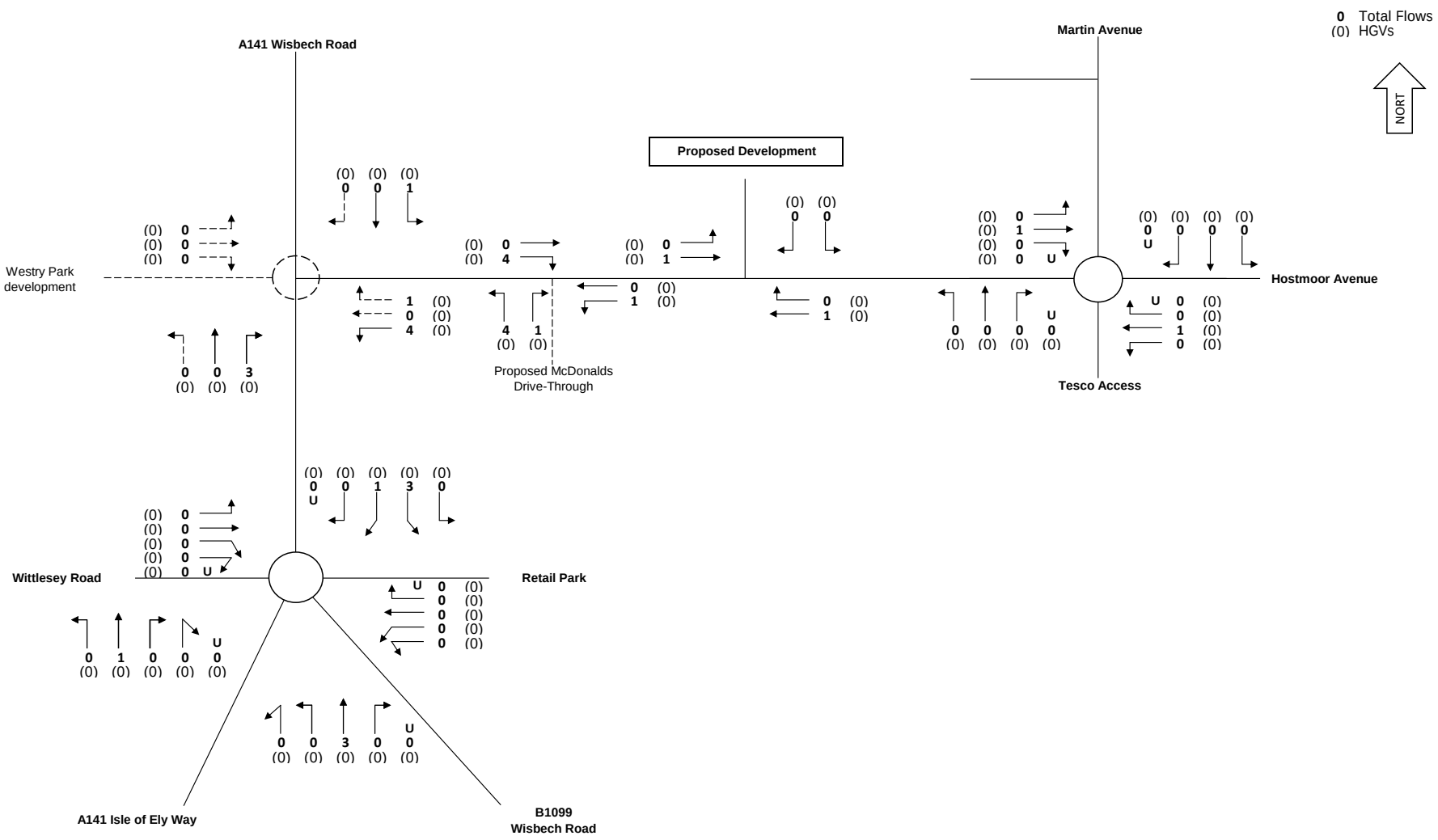
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix 2 – McDonalds Trips (With Westry Retail Park)



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITH Westry RP - Primary Trips

connect CONSULTANTS

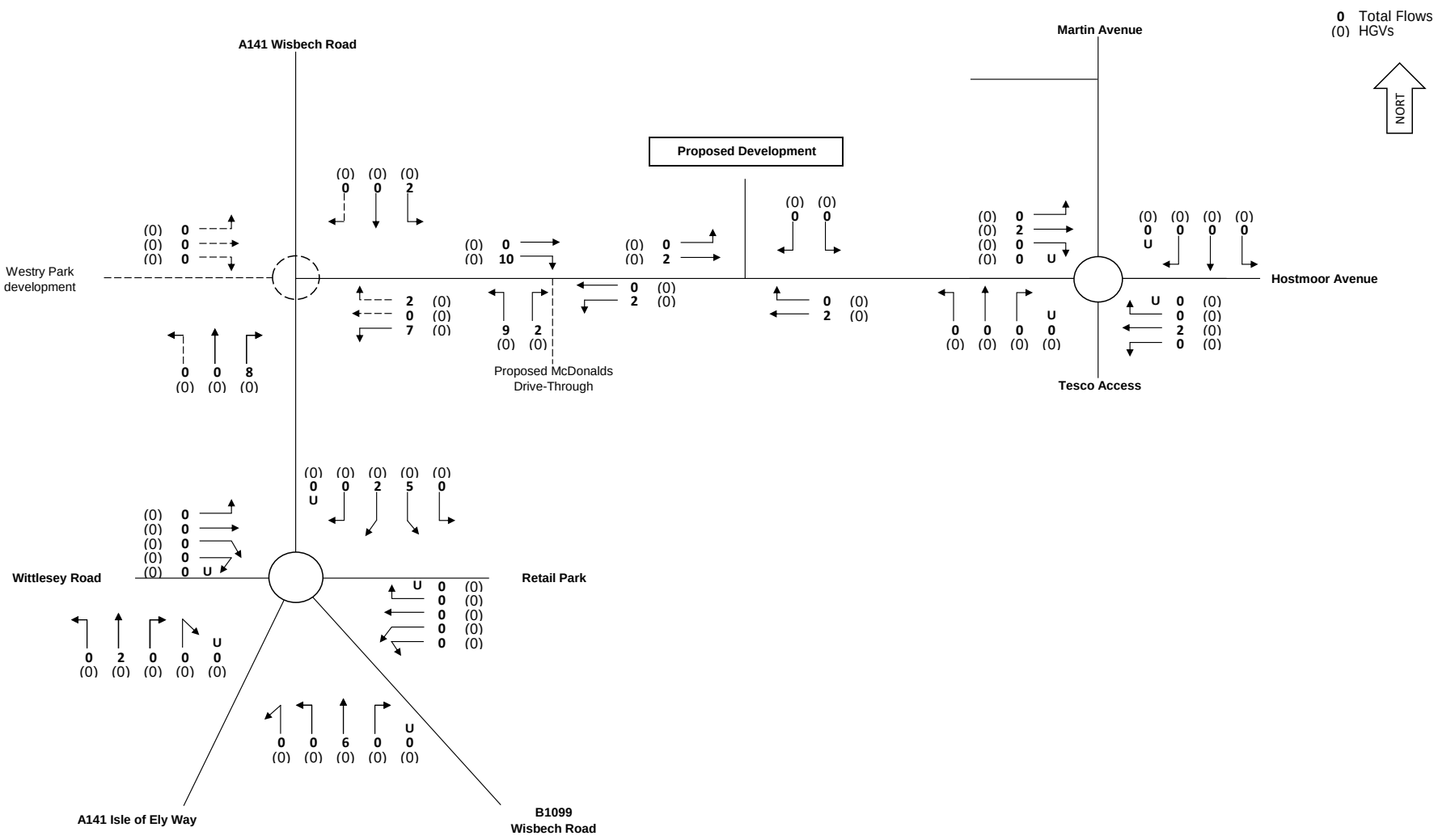


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45

McDonalds (F/YR19/1093/F) WITH Westry RP - Primary Trips

connect CONSULTANTS

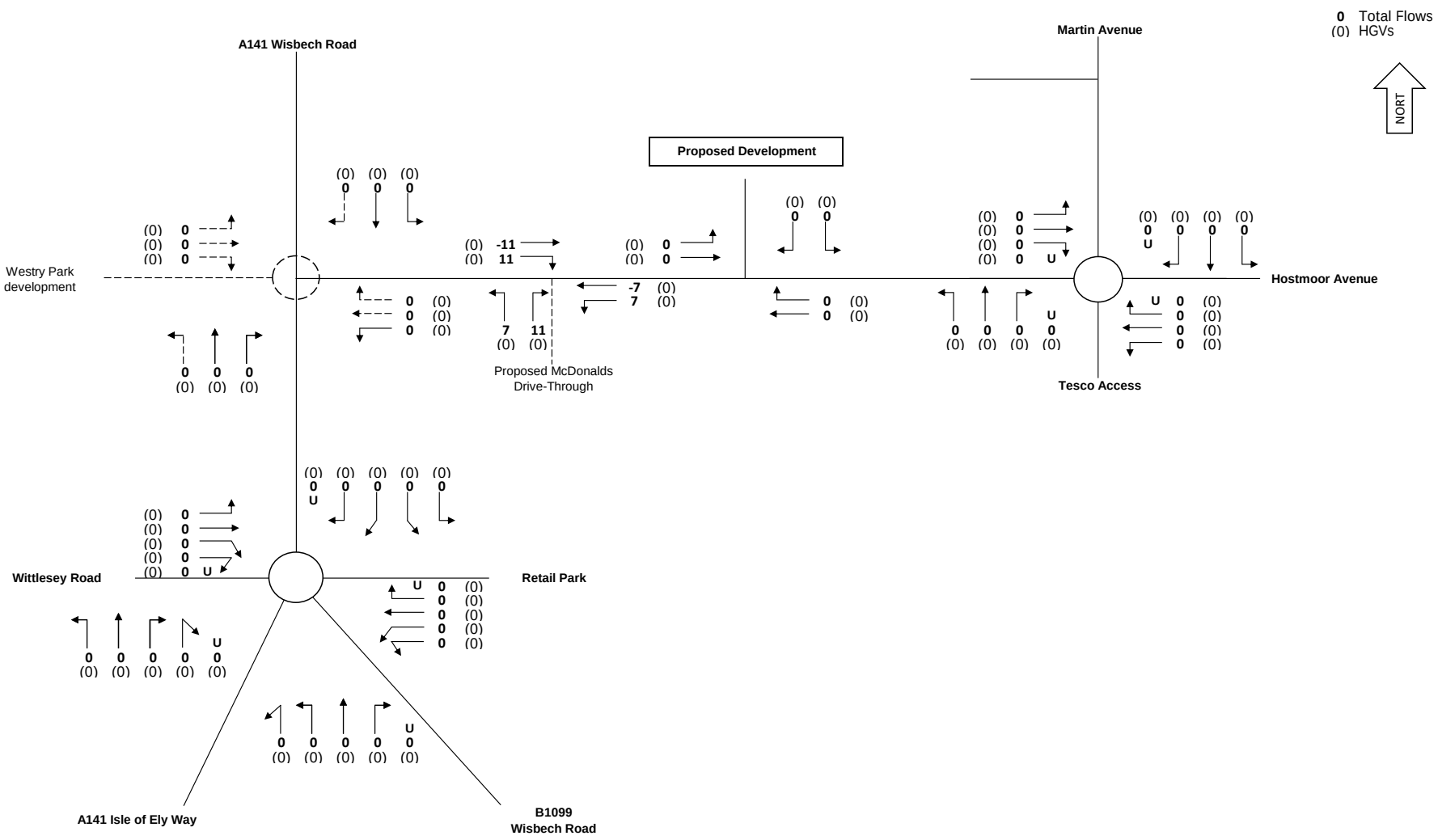


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30

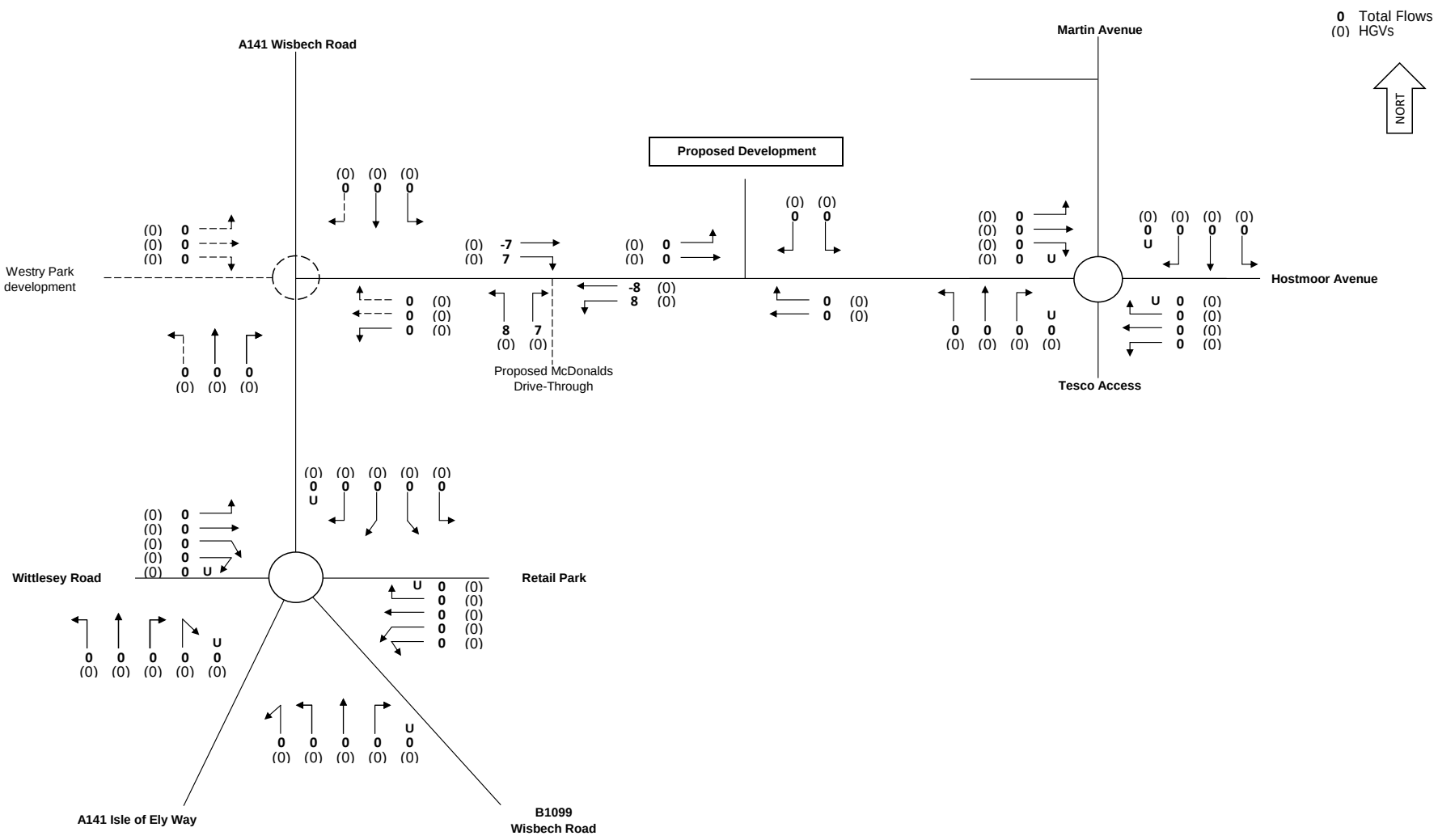
McDonalds (F/YR19/1093/F) WITH Westry RP - Primary Trips

connect CONSULTANTS



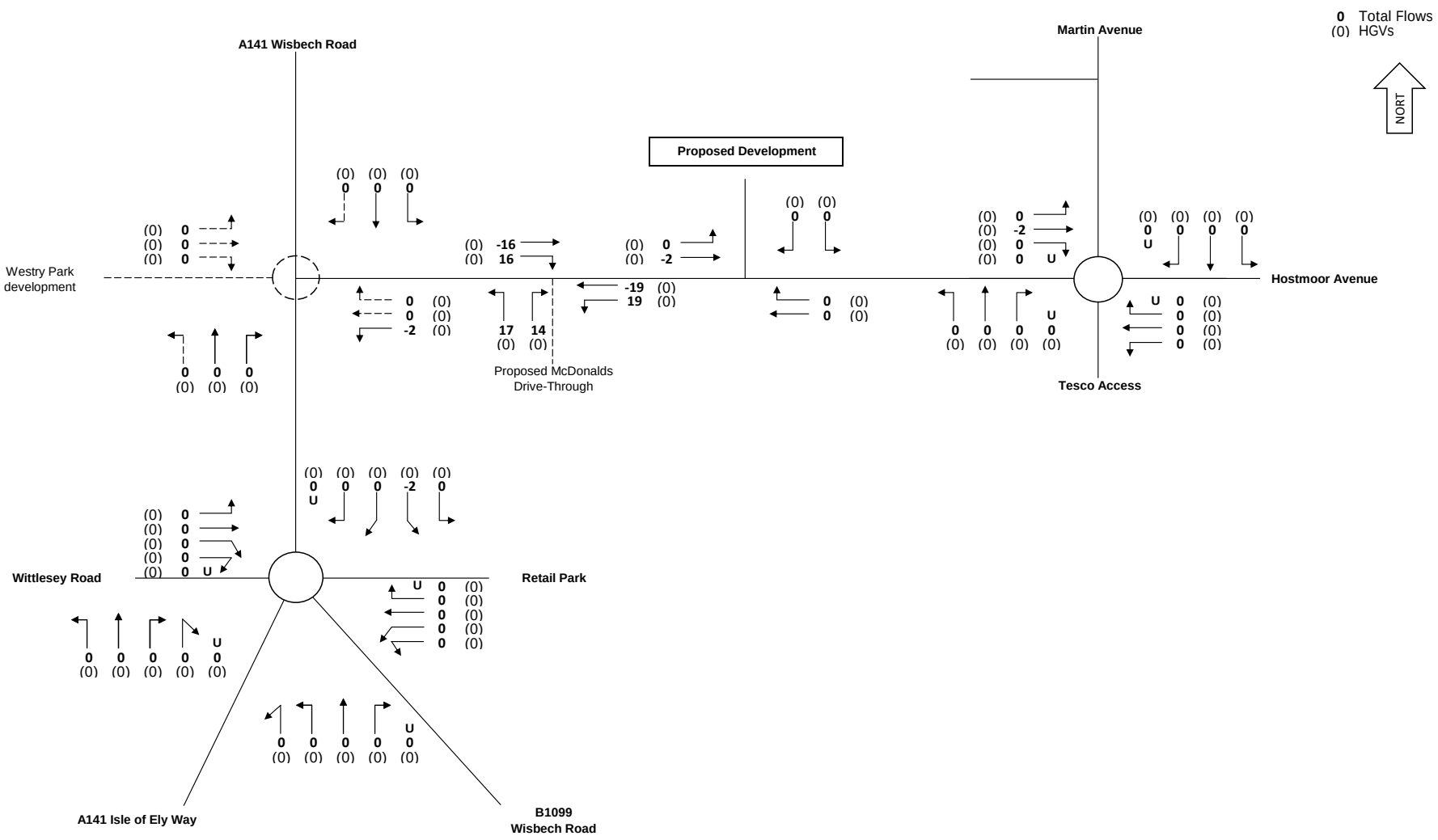
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITH Westry RP - Pass-by Trips

connect CONSULTANTS



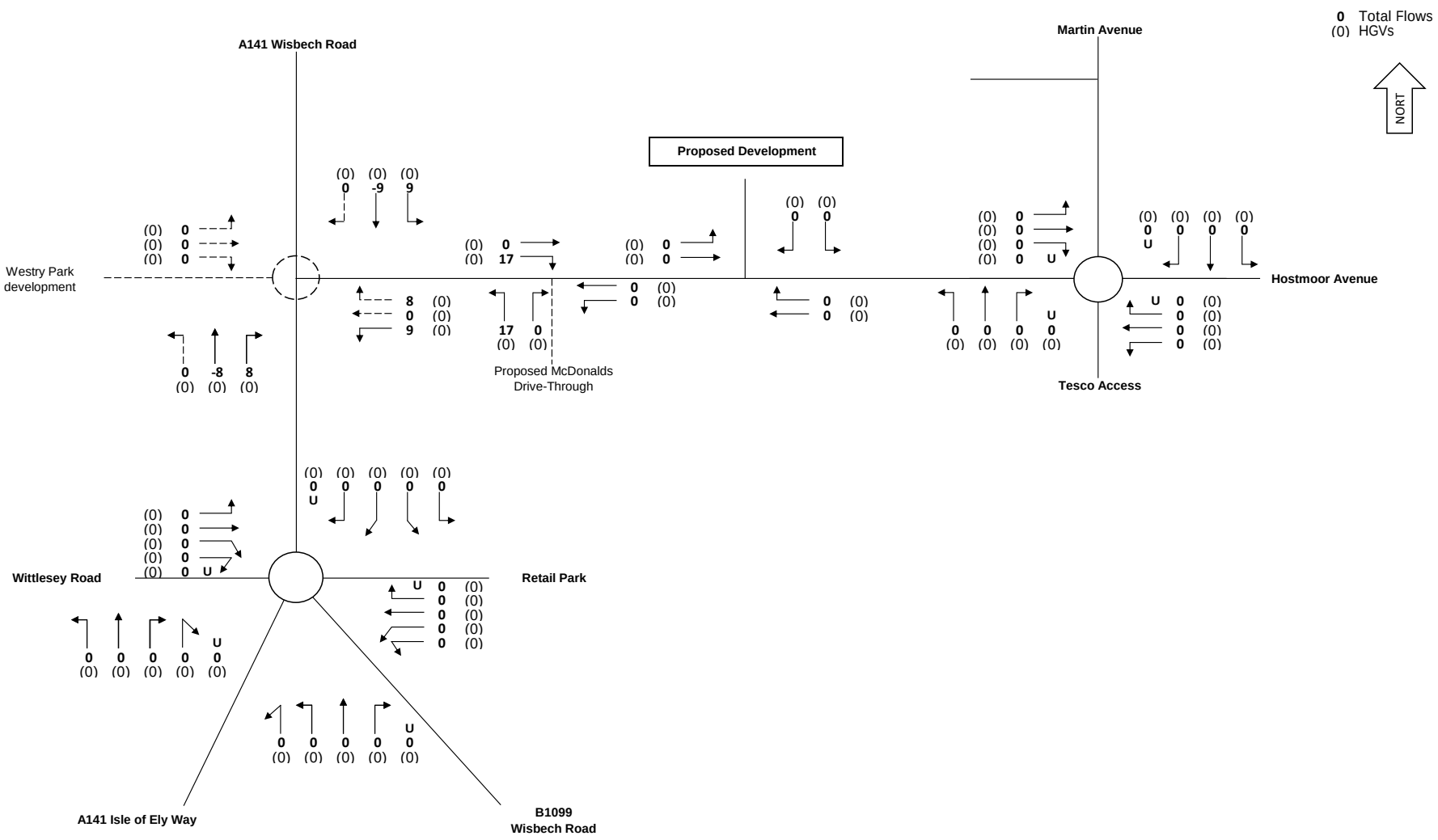
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITH Westry RP - Pass-by Trips

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
Sat Peak 11:30-12:30	McDonalds (F/YR19/1093/F) WITH Westry RP - Pass-by Trips

connect CONSULTANTS

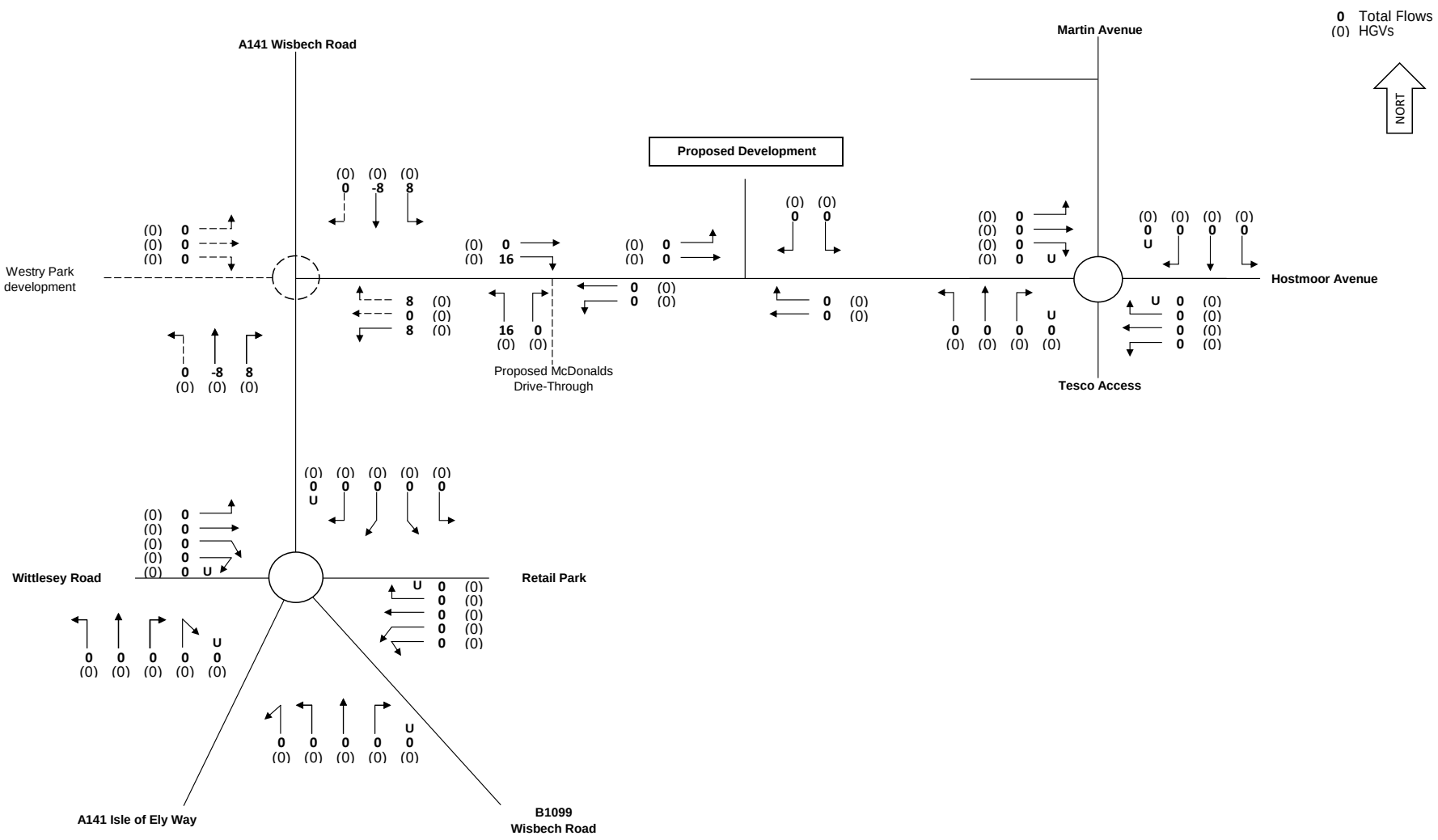


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

AM Peak 08:00-09:00

McDonalds (F/YR19/1093/F) WITH Westry RP - Diverted Trips

connect CONSULTANTS

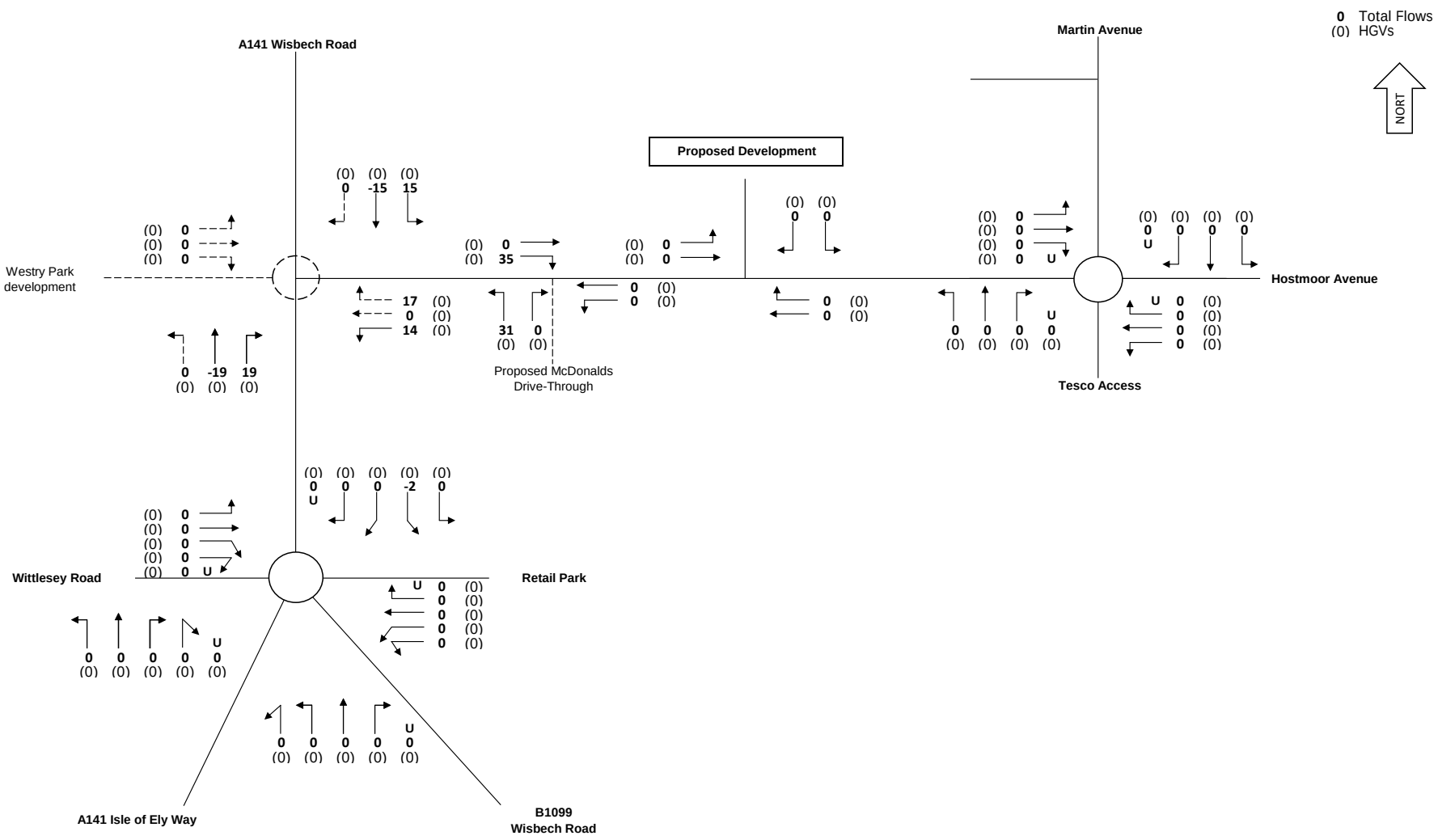


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45

McDonalds (F/YR19/1093/F) WITH Westry RP - Diverted Trips

connect CONSULTANTS

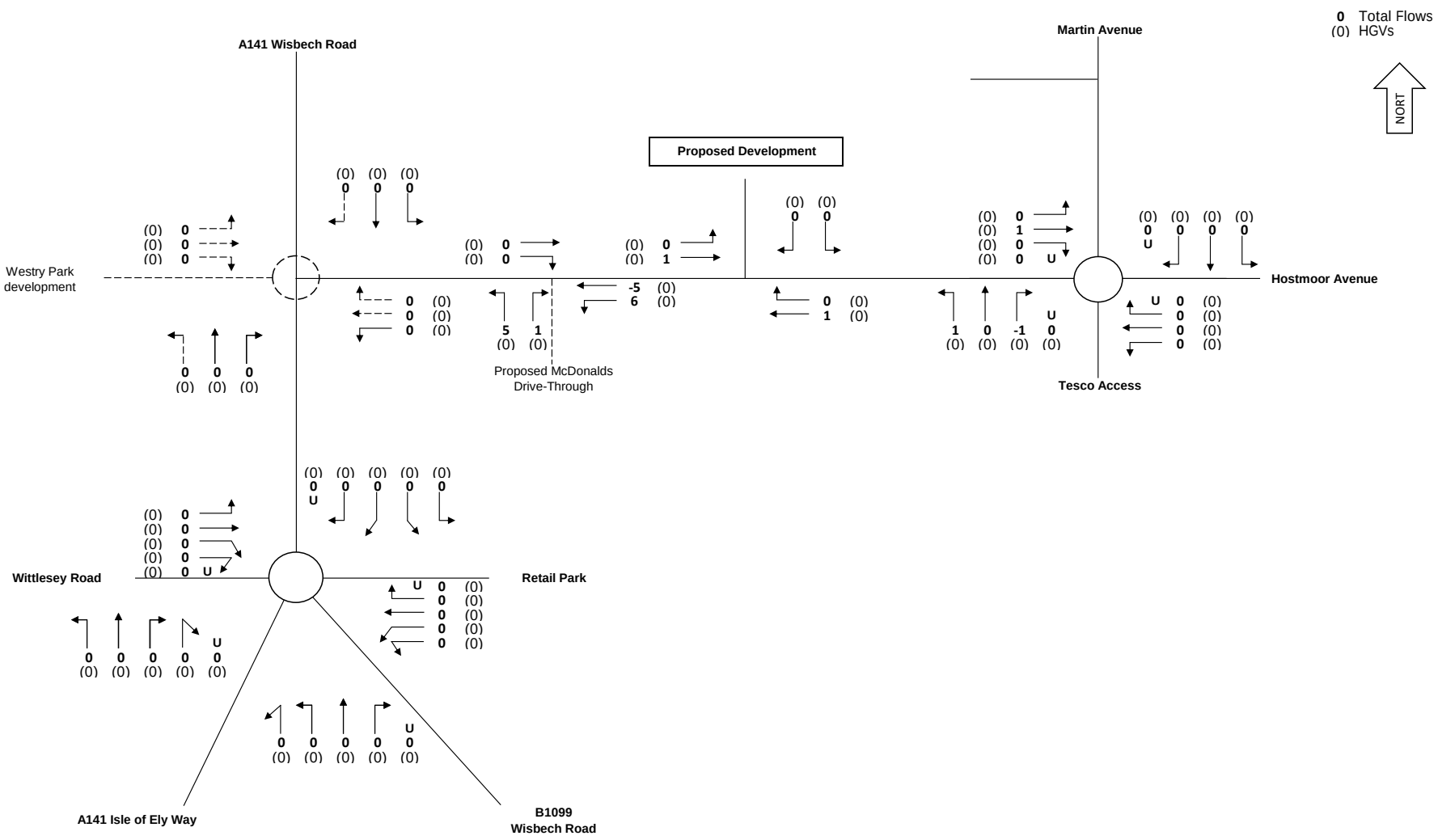


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30

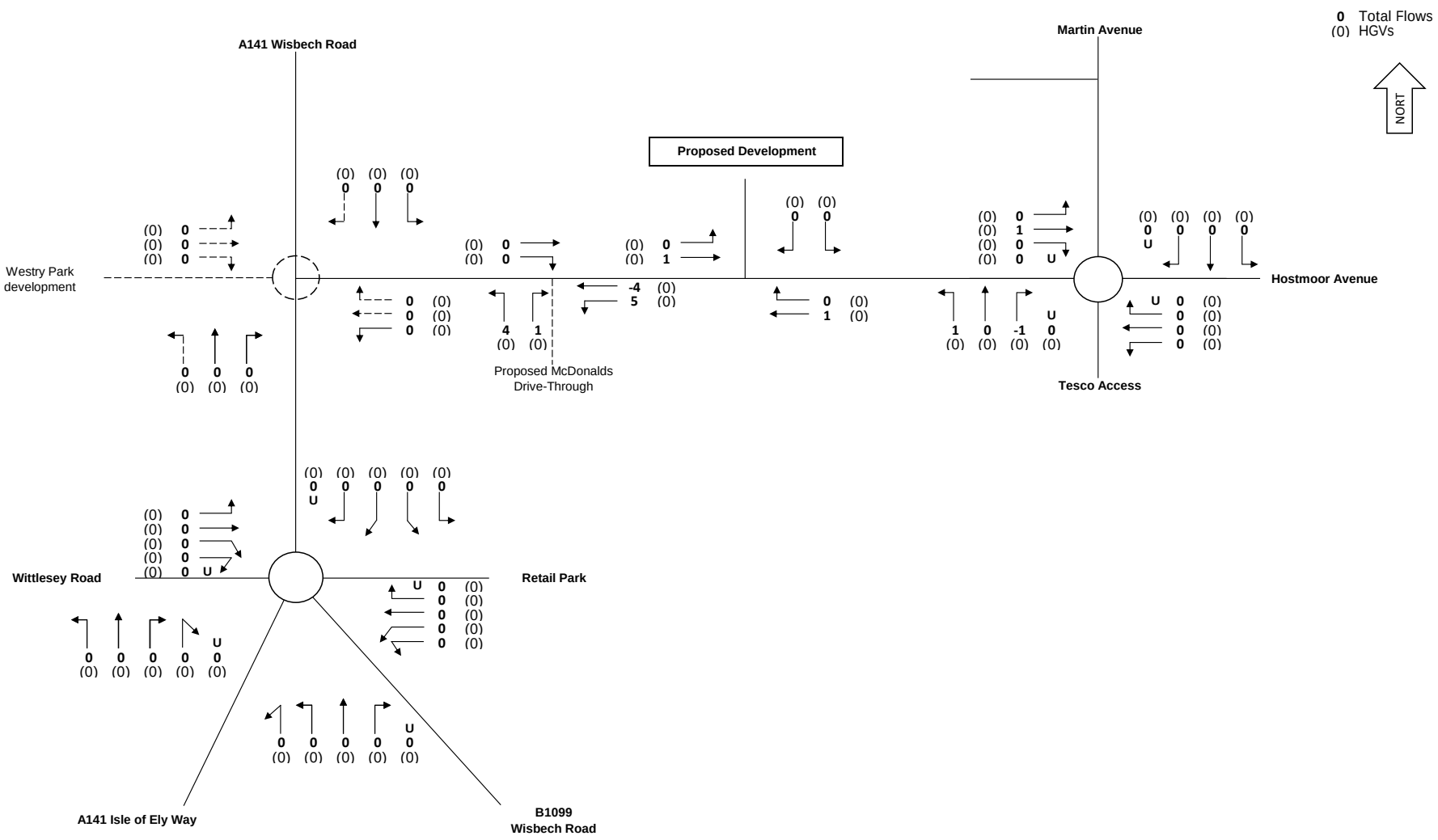
McDonalds (F/YR19/1093/F) WITH Westry RP - Diverted Trips

connect CONSULTANTS



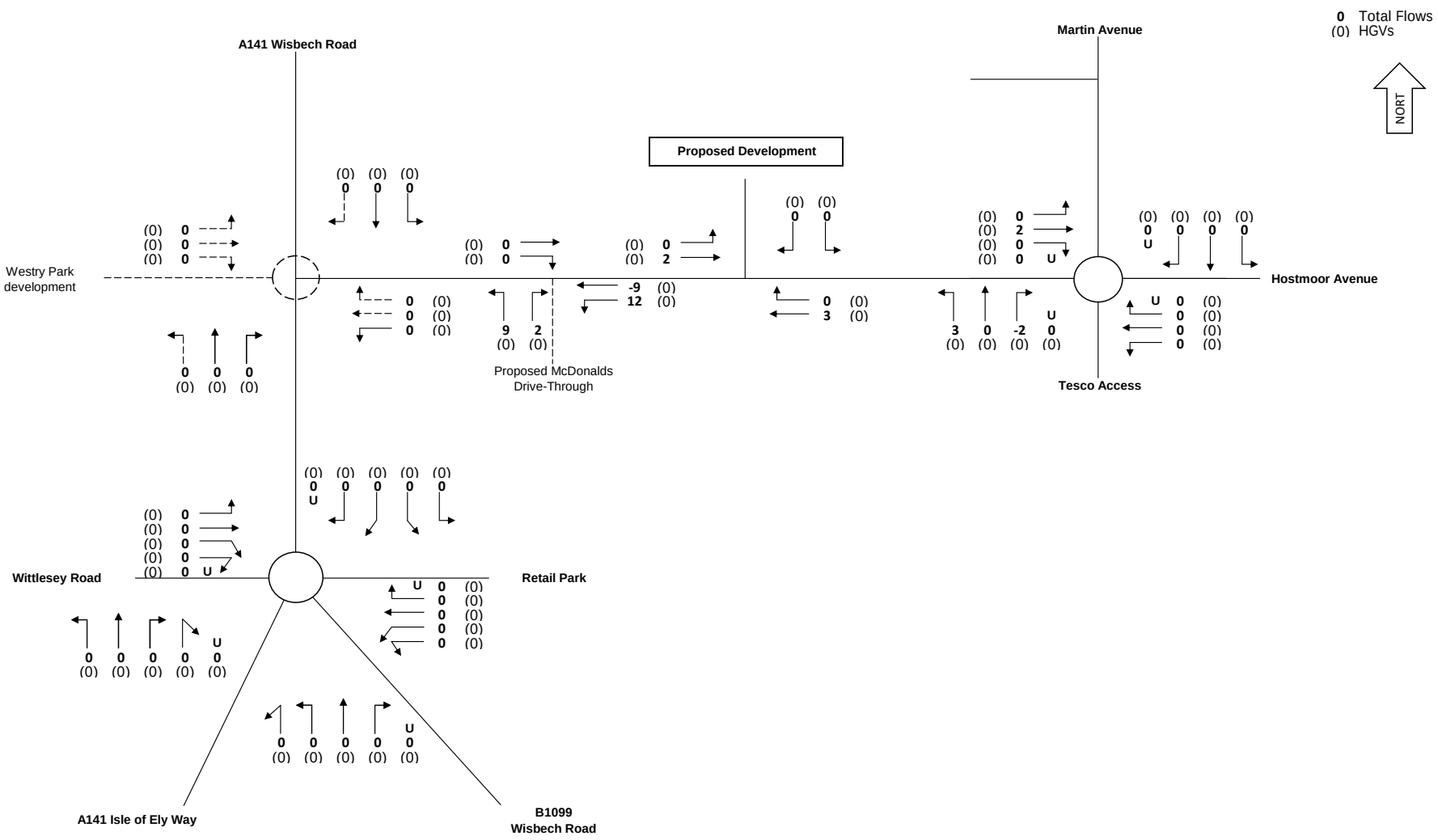
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Tesco) Trips

connect CONSULTANTS



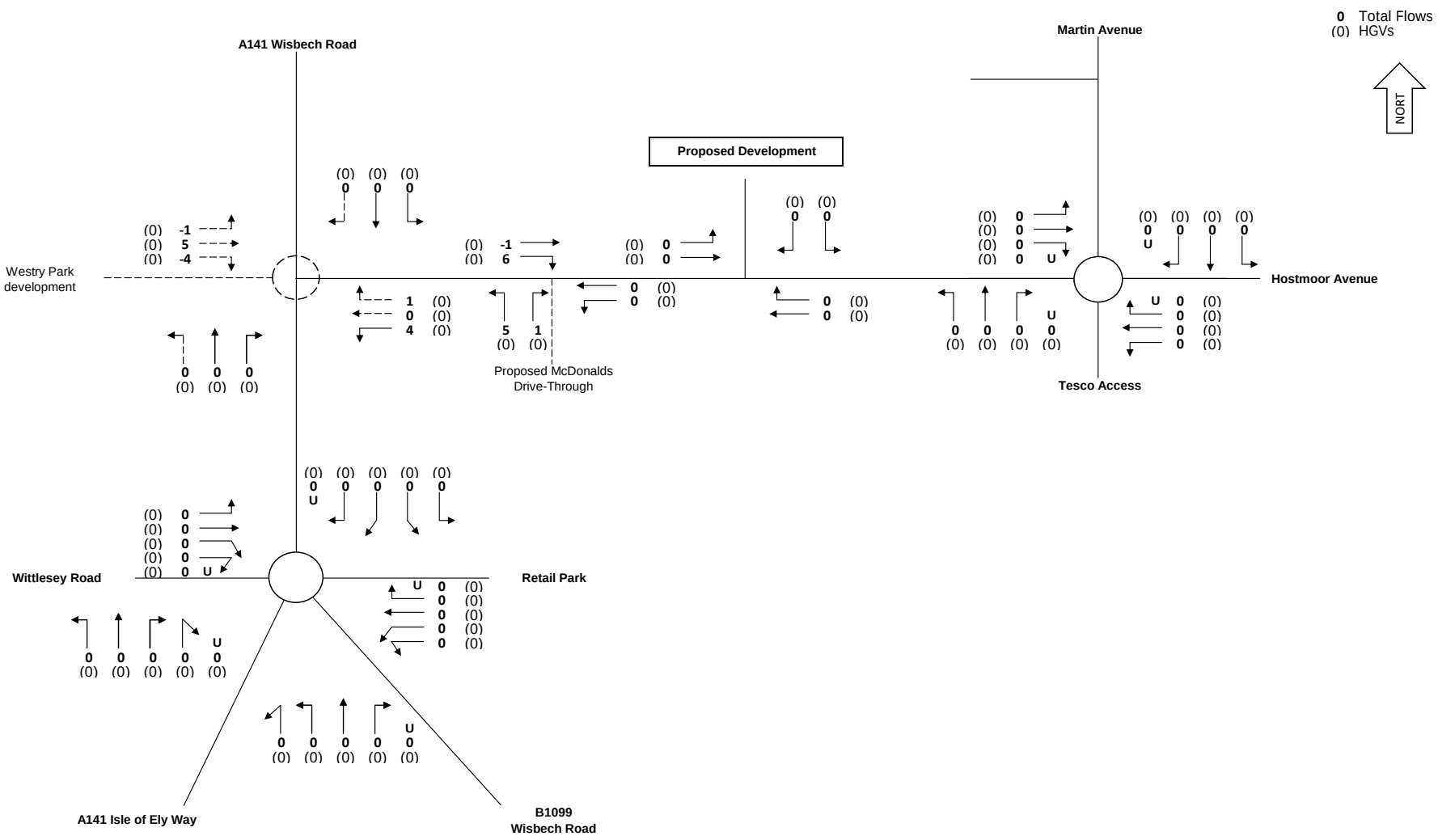
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Tesco) Trips

connect CONSULTANTS



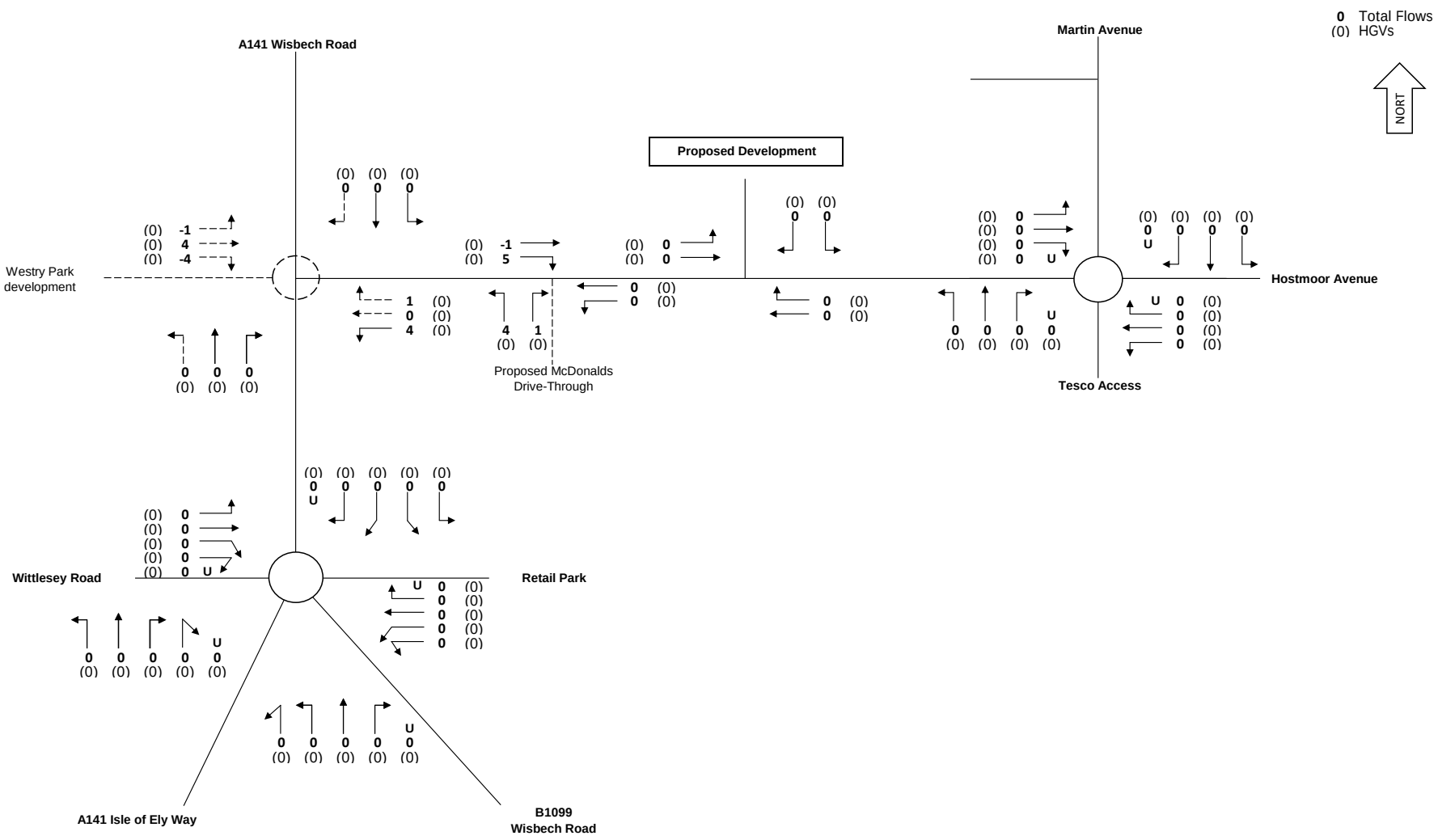
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
Sat Peak 11:30-12:30	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Tesco) Trips

connect CONSULTANTS



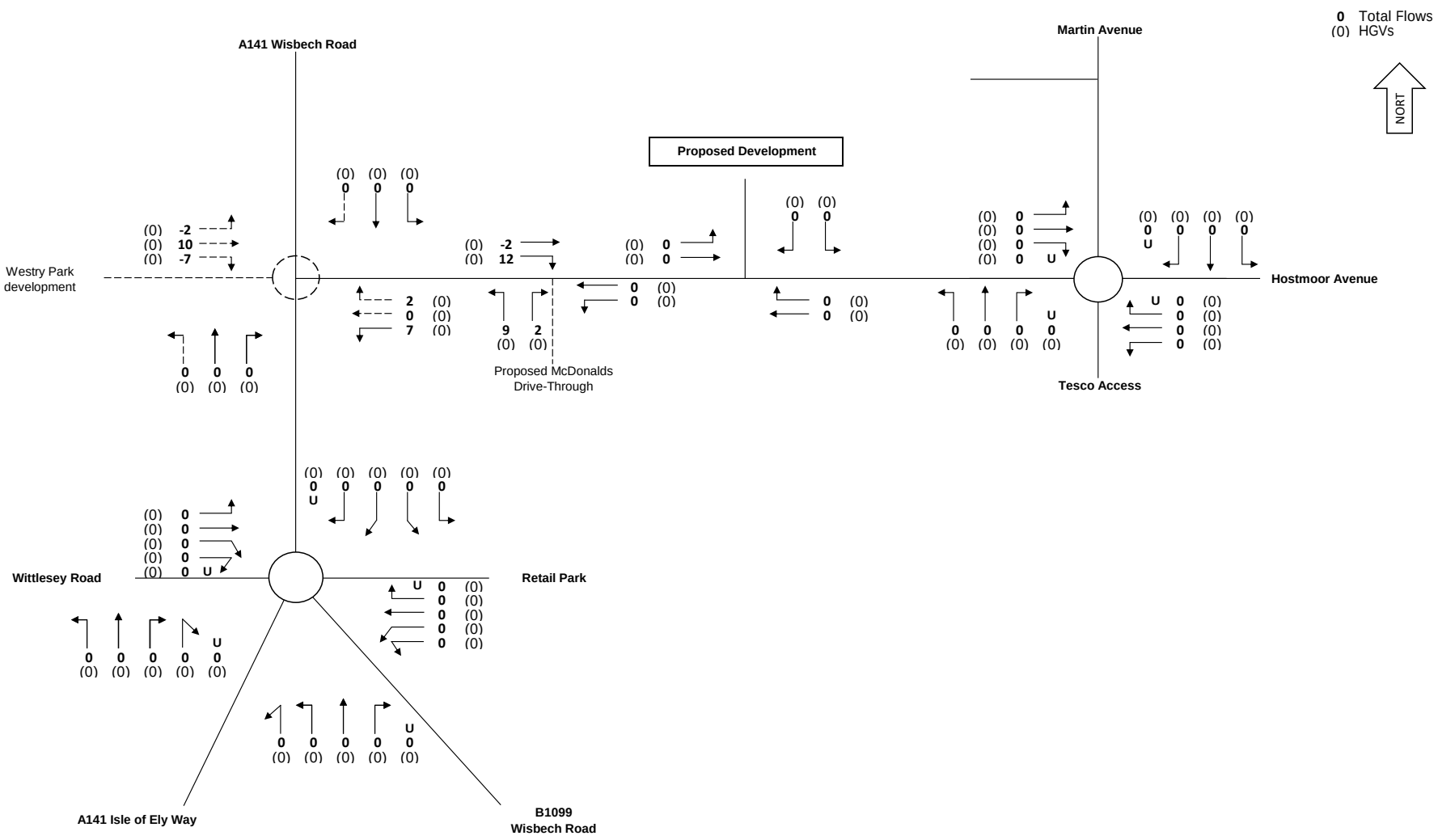
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Westry RP) Trips

connect CONSULTANTS



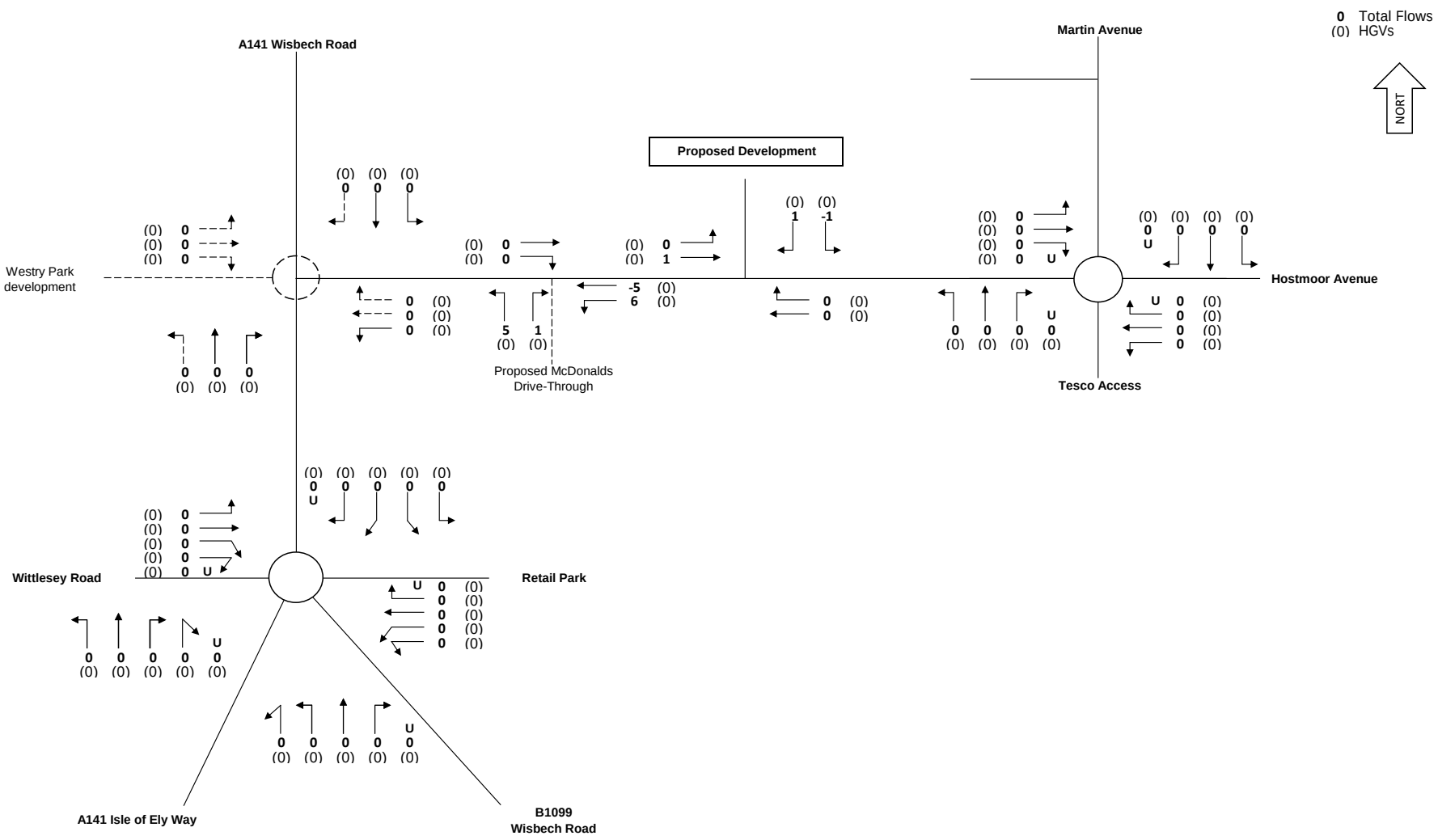
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Westry RP) Trips

connect CONSULTANTS



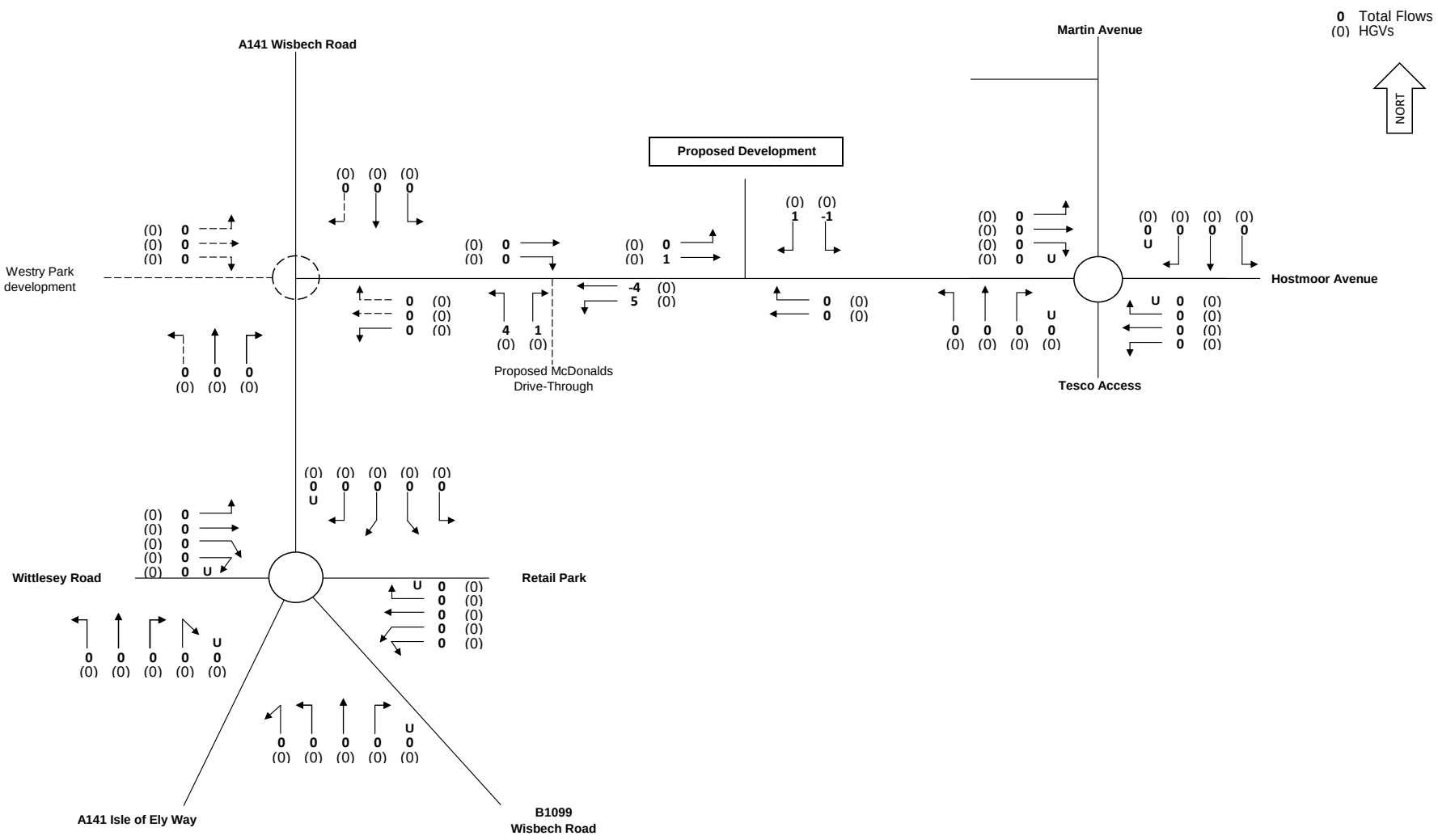
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
Sat Peak 11:30-12:30	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Westry RP) Trips

connect CONSULTANTS



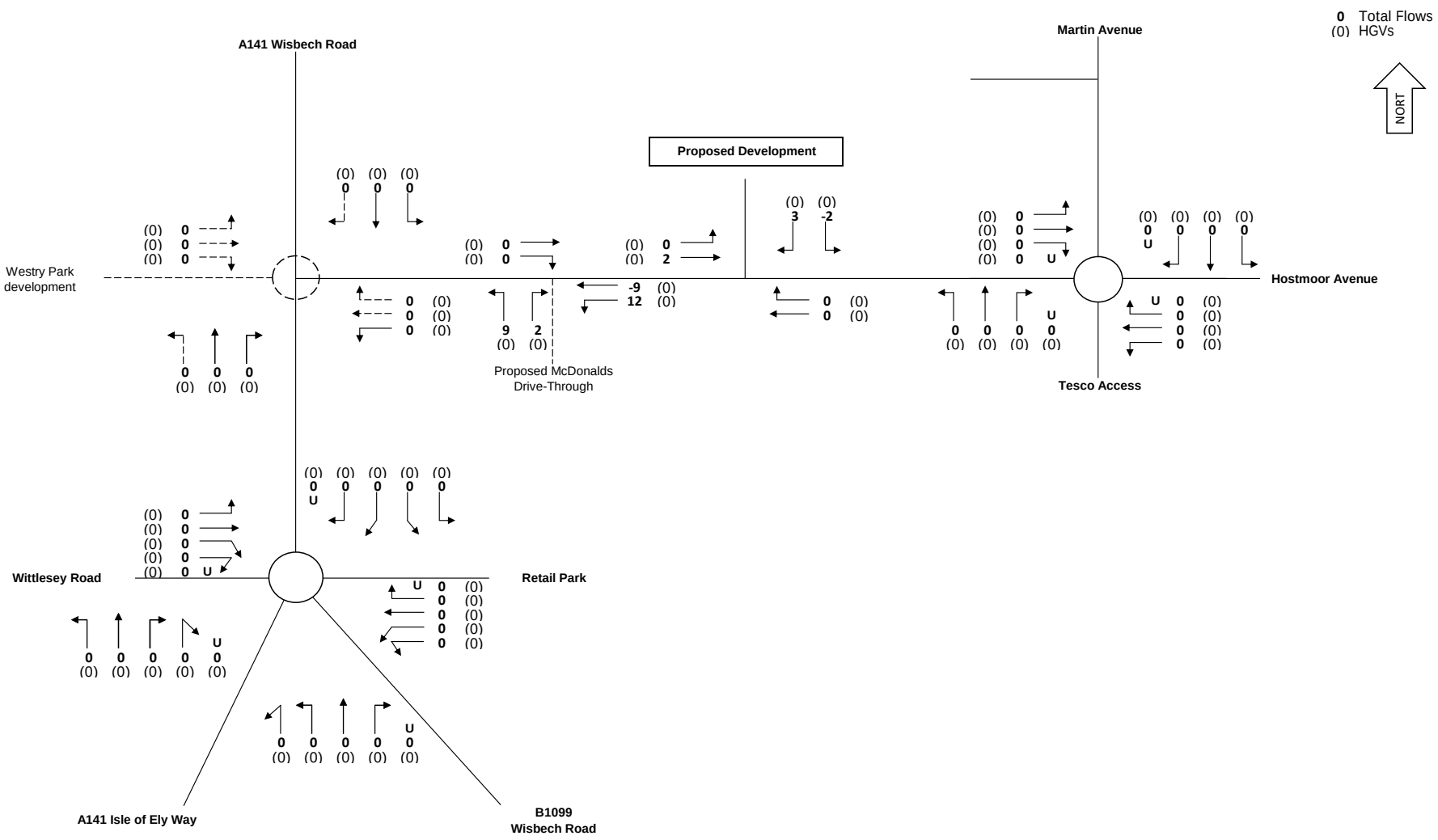
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Proposed Aldi) Trips

connect CONSULTANTS



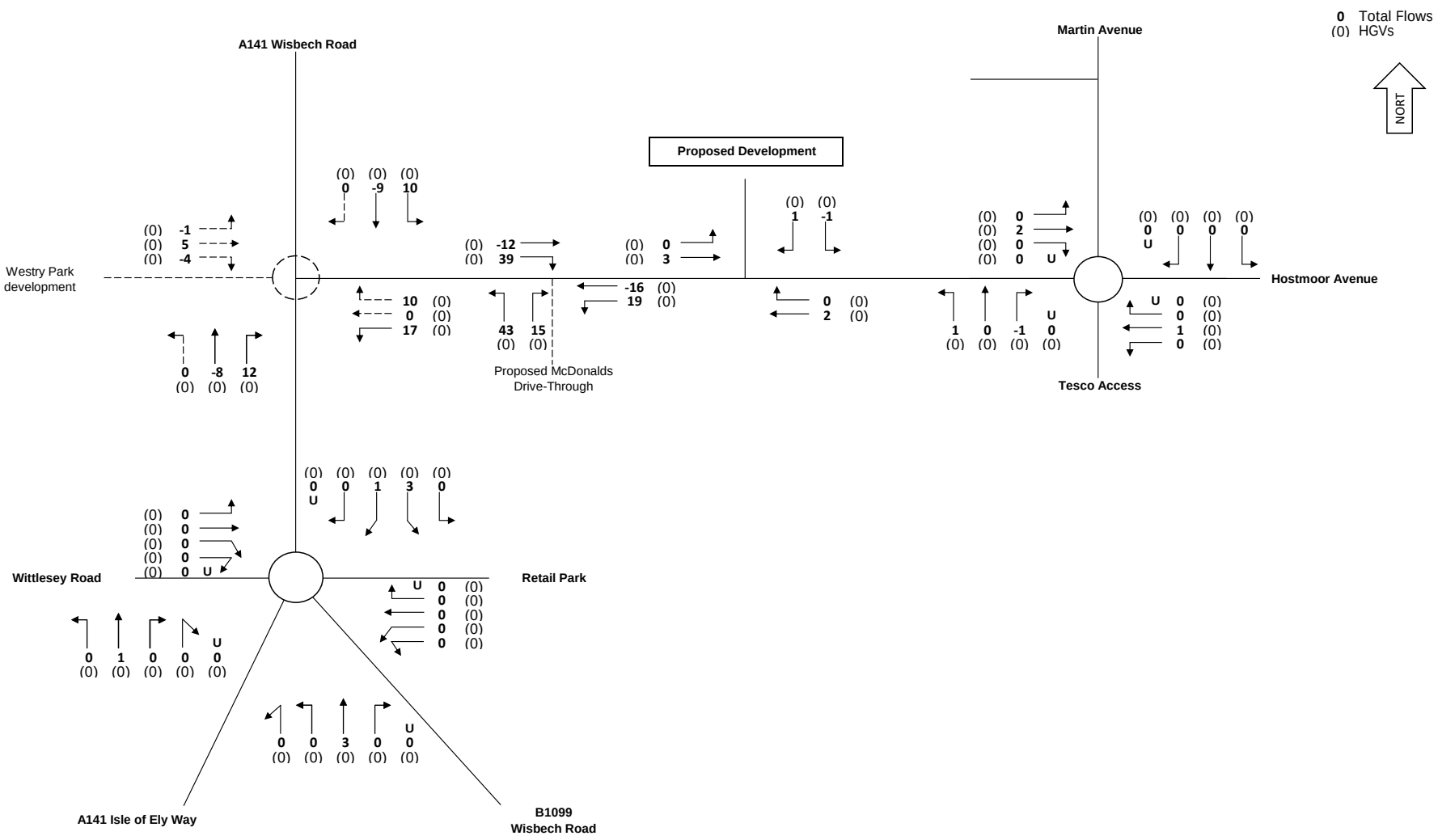
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Proposed Aldi) Trips

connect CONSULTANTS



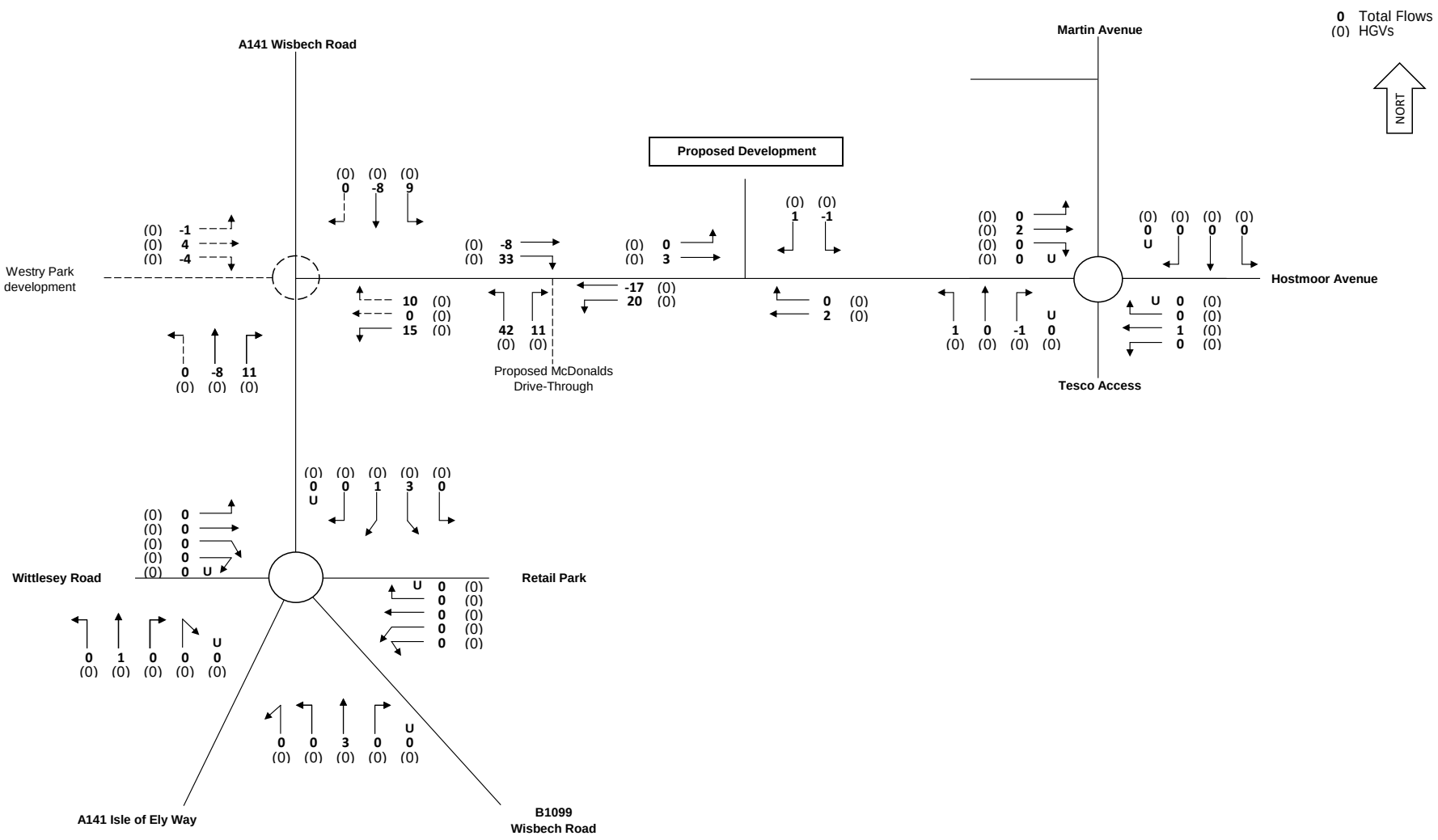
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
Sat Peak 11:30-12:30	McDonalds (F/YR19/1093/F) WITH Westry RP - Linked (Proposed Aldi) Trips

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITH Westry RP - Net McDonalds Trips

connect CONSULTANTS

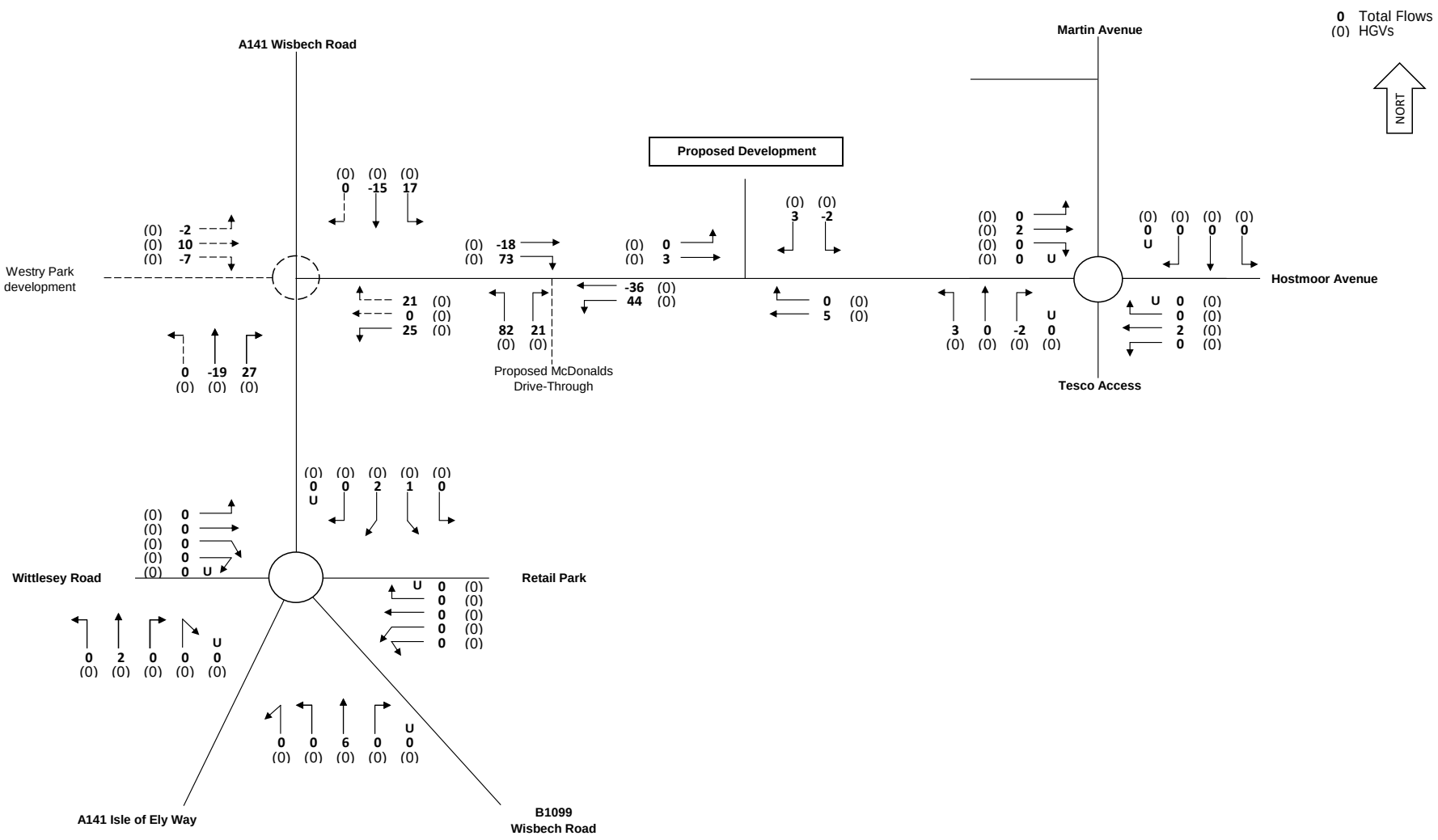


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45

McDonalds (F/YR19/1093/F) WITH Westry RP - Net McDonalds Trips

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
Sat Peak 11:30-12:30	McDonalds (F/YR19/1093/F) WITH Westry RP - Net McDonalds Trips

connect CONSULTANTS

Appendix 3 – Aldi Wisbech Survey Outputs

Vehicles In and Out by Hour by Day

ALDI Wisbech

Week Commencing 10/02/2020

Vehicles In

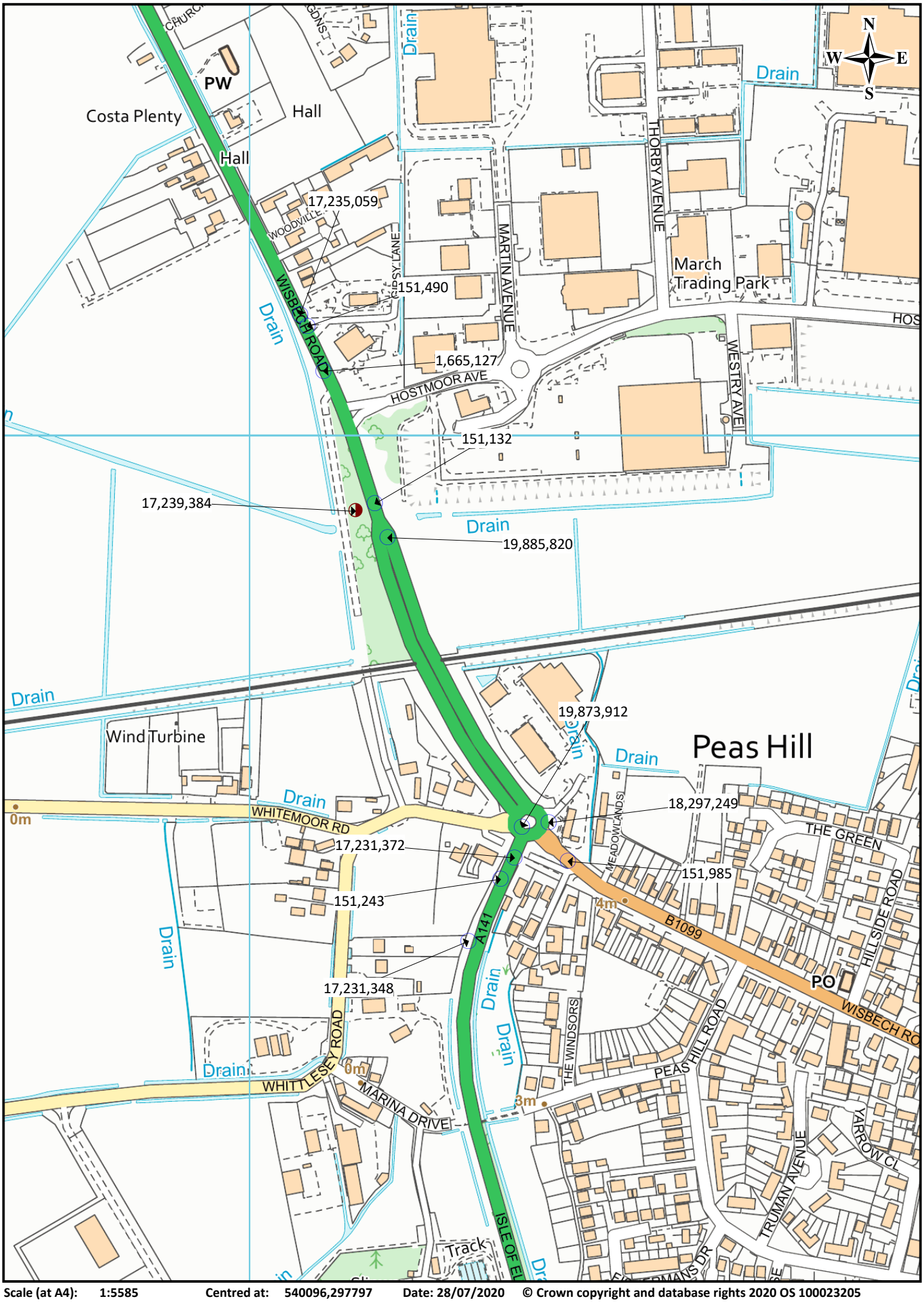
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	1	0	2	0
01:00	0	0	0	0	0	0	0
02:00	0	0	0	0	1	0	0
03:00	0	0	0	0	1	0	0
04:00	2	2	2	5	2	3	0
05:00	2	1	7	3	3	1	2
06:00	4	2	0	0	0	0	0
07:00	11	6	10	18	17	13	1
08:00	64	51	54	74	89	82	3
09:00	101	84	85	99	129	103	24
10:00	100	108	108	135	134	141	145
11:00	138	109	100	145	160	142	152
12:00	127	103	114	121	137	128	136
13:00	103	116	93	98	135	143	116
14:00	96	96	86	137	131	119	126
15:00	49	93	98	96	134	105	72
16:00	52	72	99	98	119	83	3
17:00	57	72	54	88	89	65	1
18:00	61	60	51	52	70	50	2
19:00	31	38	48	47	45	23	2
20:00	23	17	26	33	21	20	0
21:00	7	10	13	16	11	5	1
22:00	0	0	0	2	0	1	0
23:00	0	0	1	1	0	1	0
	1028	1040	1049	1269	1428	1230	786

Vehicles Out

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
00:00	0	0	0	1	0	3	0
01:00	0	0	0	1	0	0	0
02:00	0	0	0	0	1	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	2	0	0	0
05:00	0	0	3	1	1	0	1
06:00	2	1	2	1	0	0	1
07:00	4	0	0	3	1	1	0
08:00	50	31	45	52	71	62	2
09:00	74	74	66	90	110	89	6
10:00	97	103	109	111	132	122	102
11:00	136	103	96	149	151	145	169
12:00	126	115	110	134	143	130	123
13:00	116	110	99	107	134	133	112
14:00	98	99	99	123	129	141	146
15:00	81	101	94	119	149	119	95
16:00	41	74	96	102	117	97	13
17:00	58	81	65	95	105	66	2
18:00	61	65	63	69	78	62	5
19:00	42	47	44	42	59	25	6
20:00	29	21	34	39	23	22	0
21:00	10	13	19	23	20	8	1
22:00	3	2	3	4	3	3	0
23:00	0	0	1	2	0	1	4
	1028	1040	1048	1270	1427	1229	788

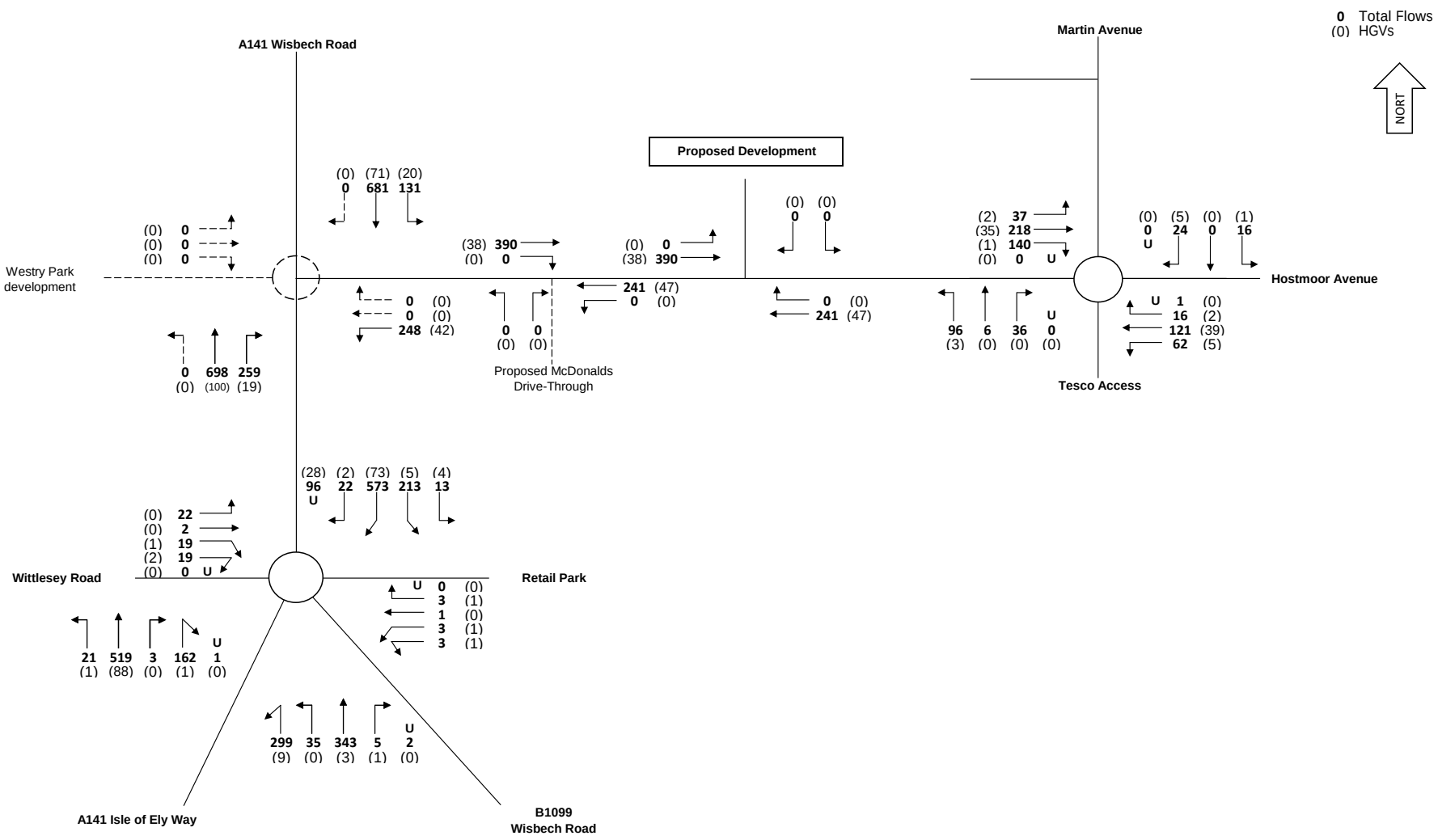
Appendix 4 – CCC Collision Map

Cambridgeshire County Council



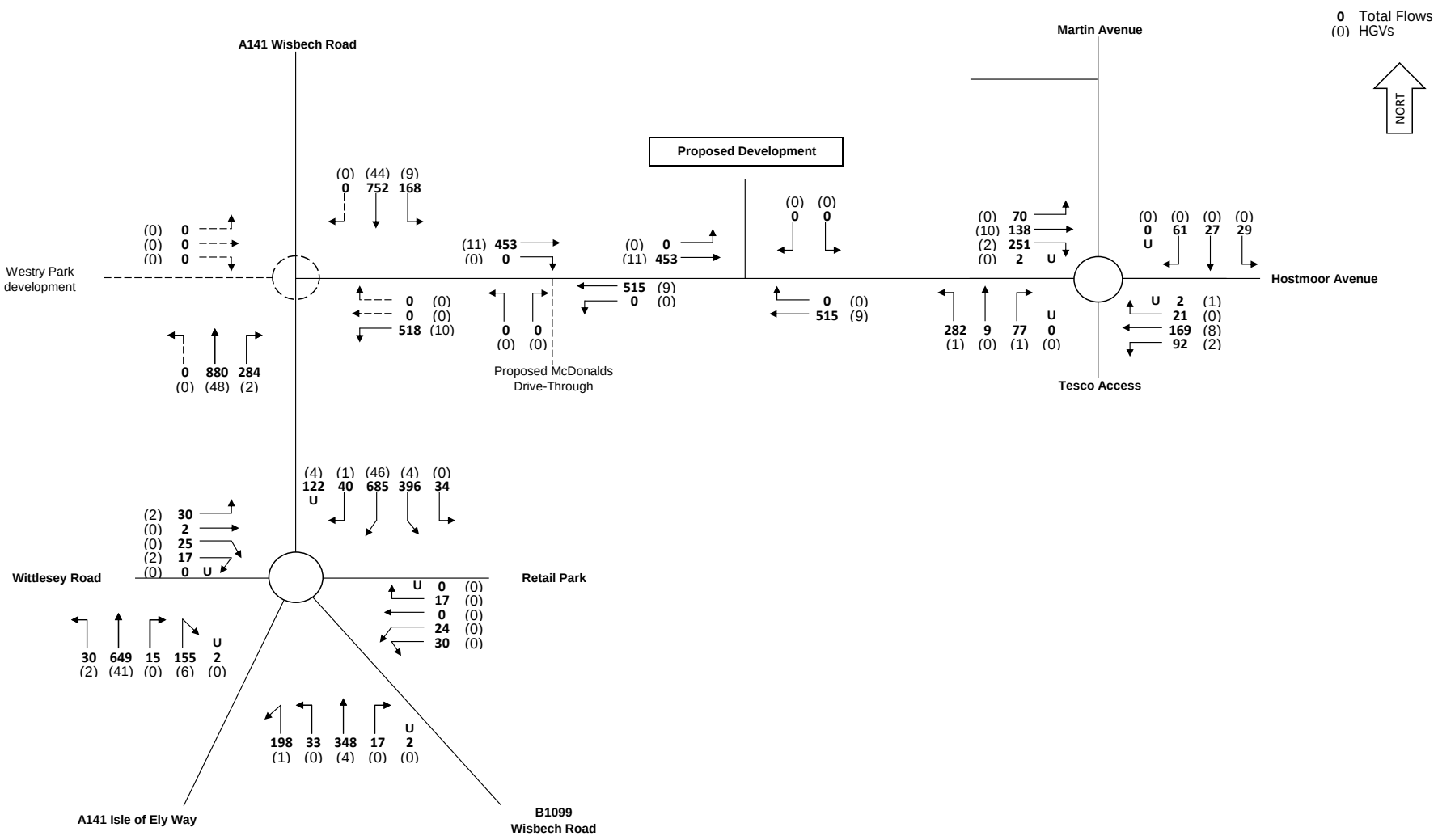
Scale (at A4): 1:5585 Centred at: 540096,297797 Date: 28/07/2020

Appendix 5 – McDonalds Junction Capacity Flows



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	2020 Baseline Flows

connect CONSULTANTS

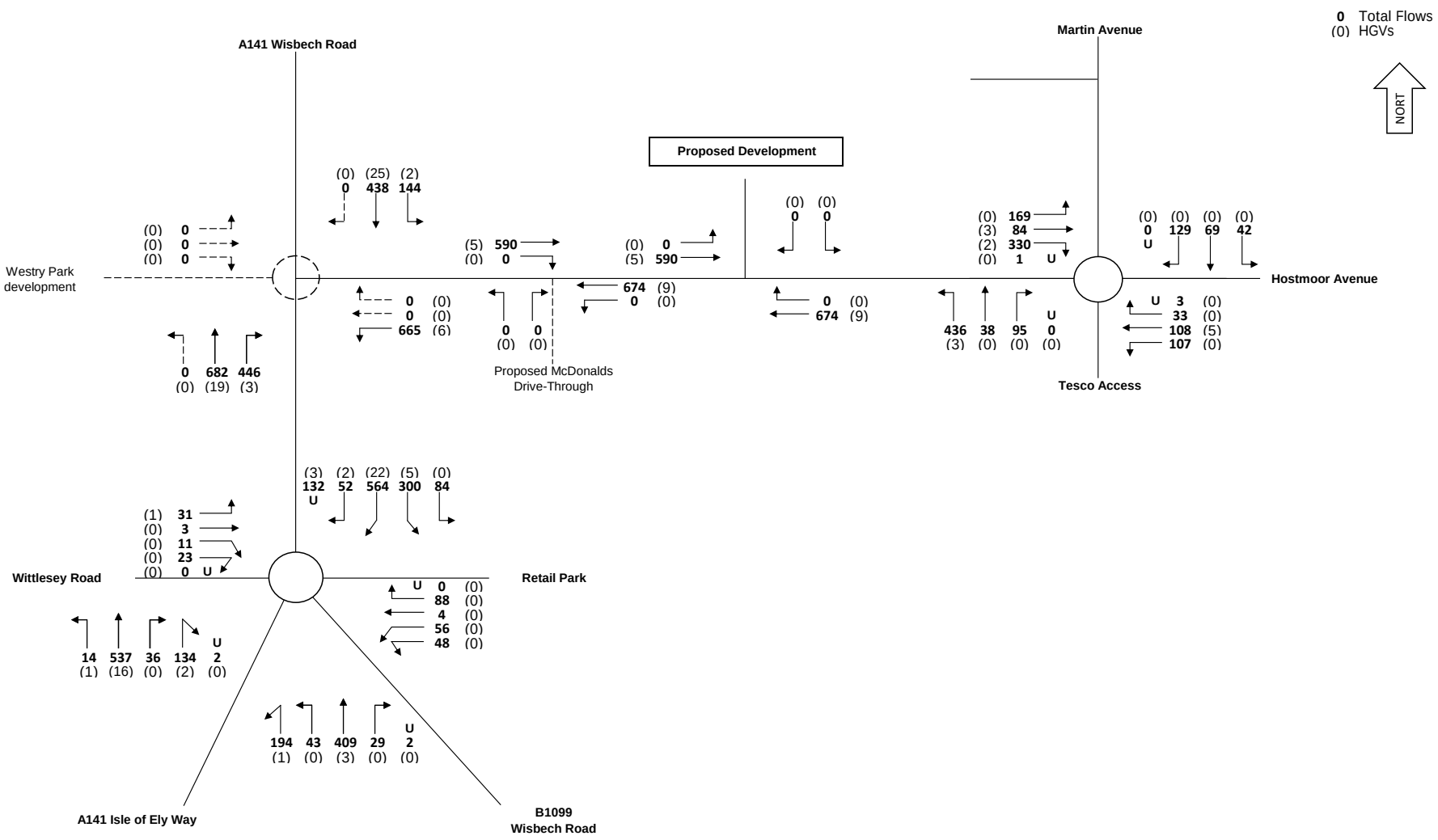


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45

2020 Baseline Flows

connect CONSULTANTS

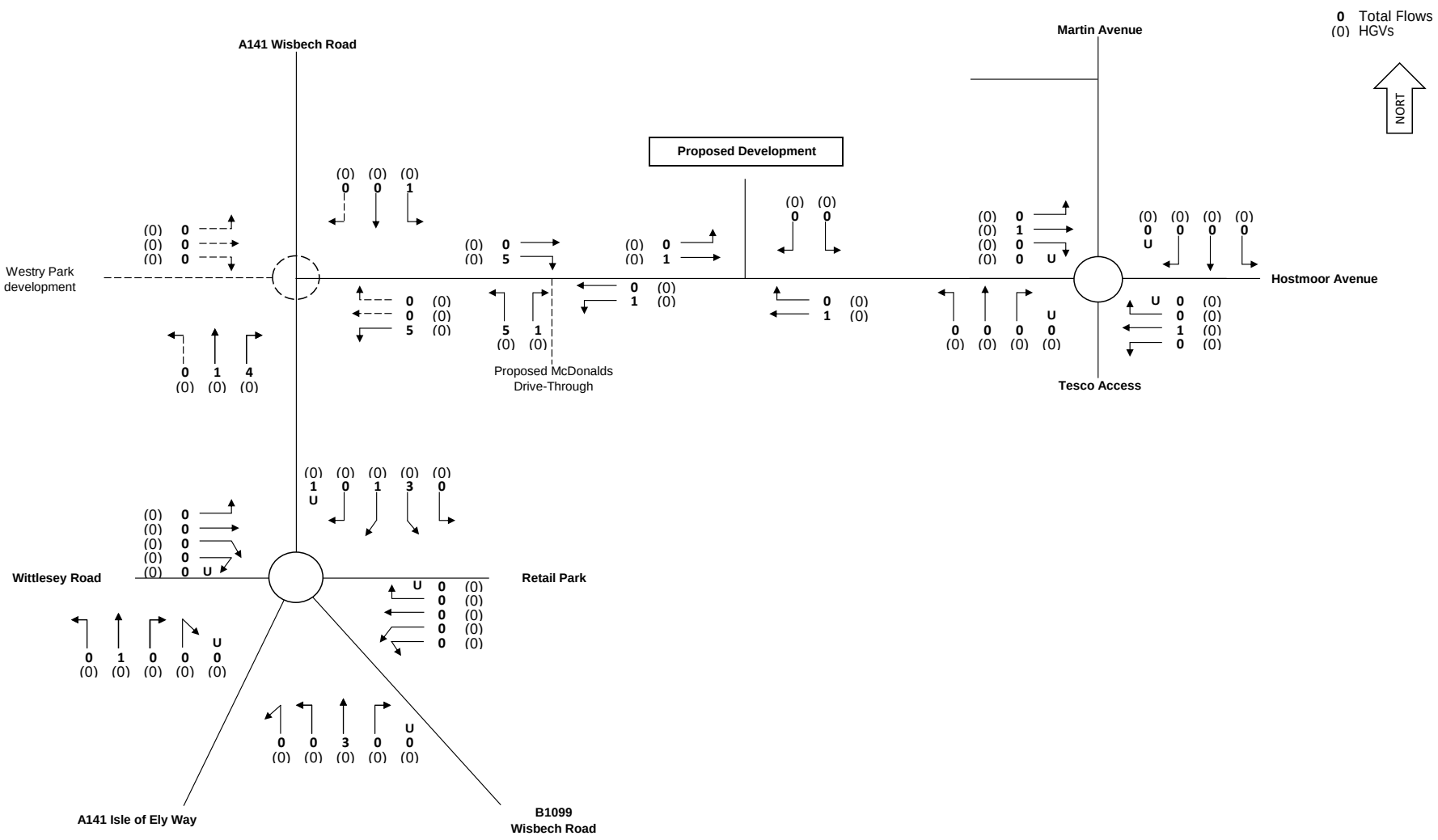


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30

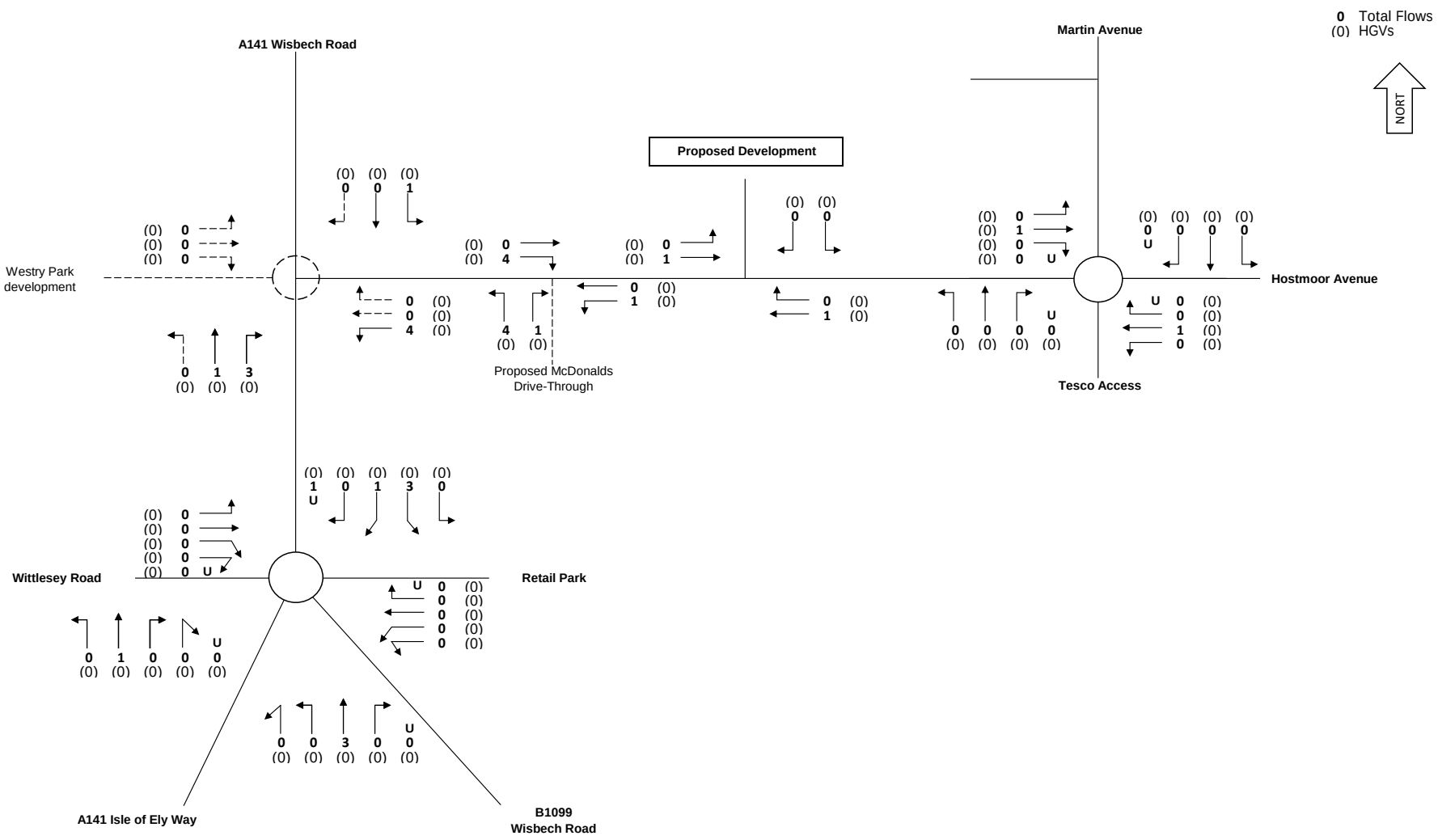
2020 Baseline Flows

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Primary Trips

connect CONSULTANTS

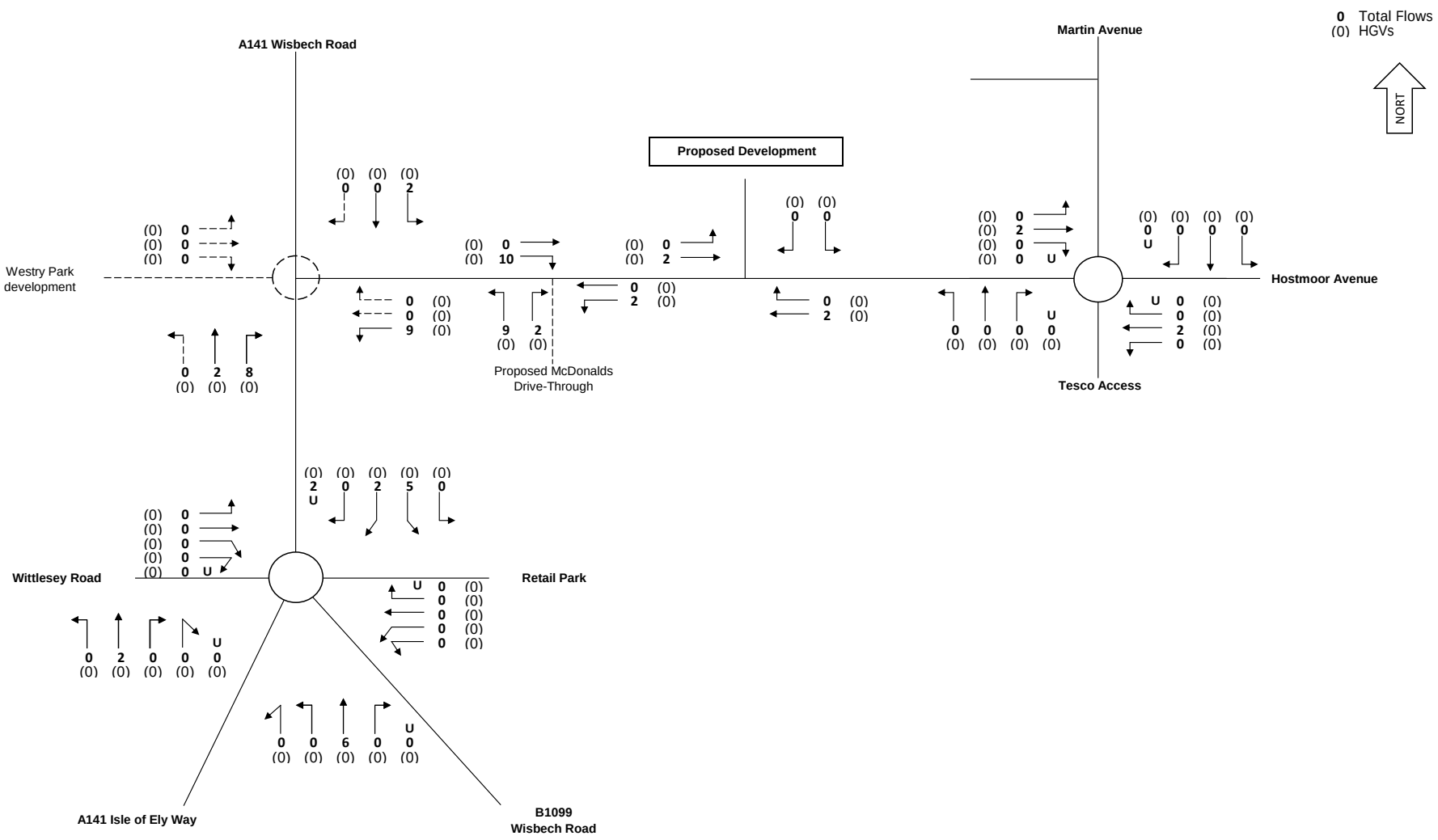


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45

McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Primary Trips

connect CONSULTANTS

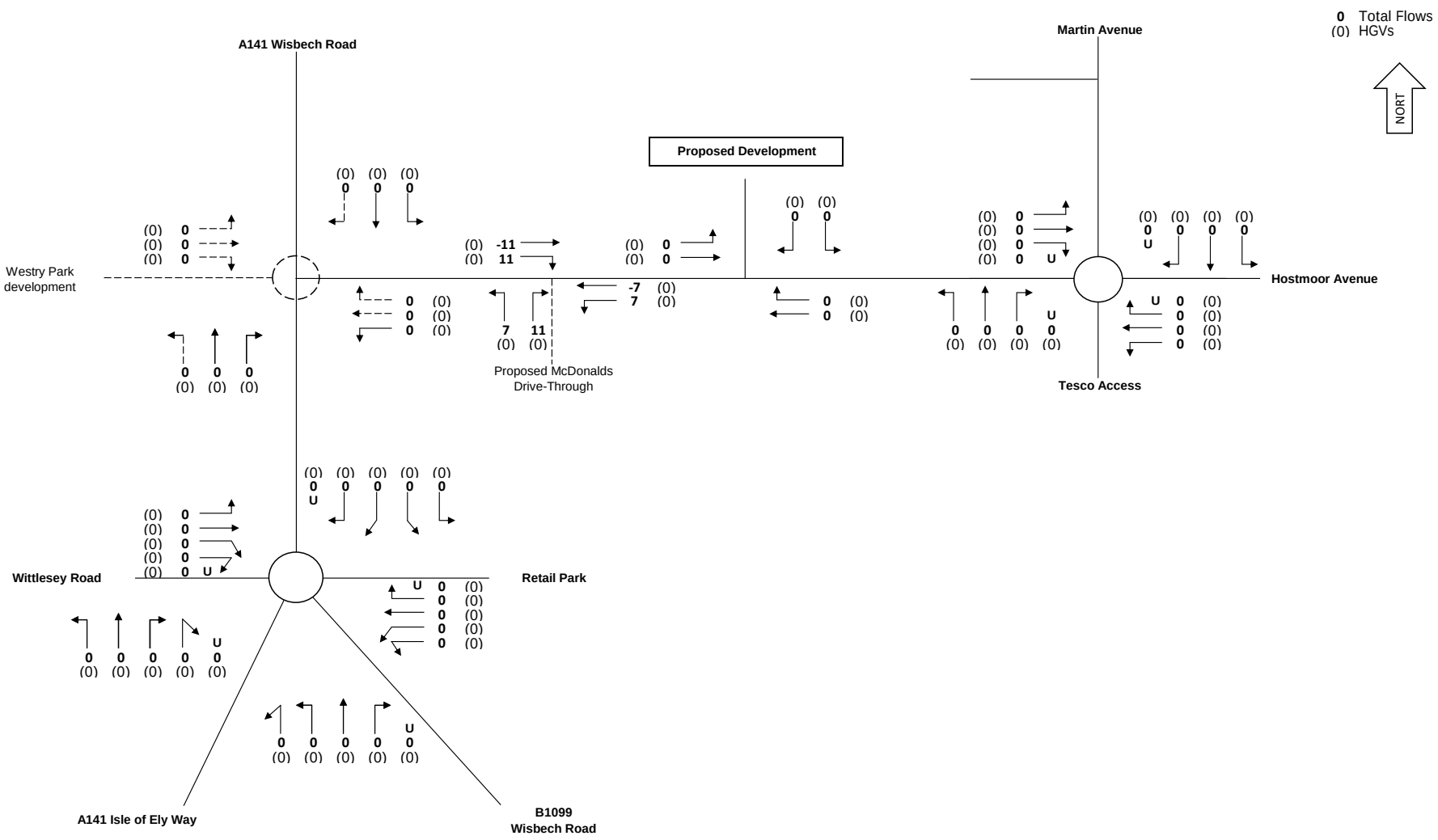


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30

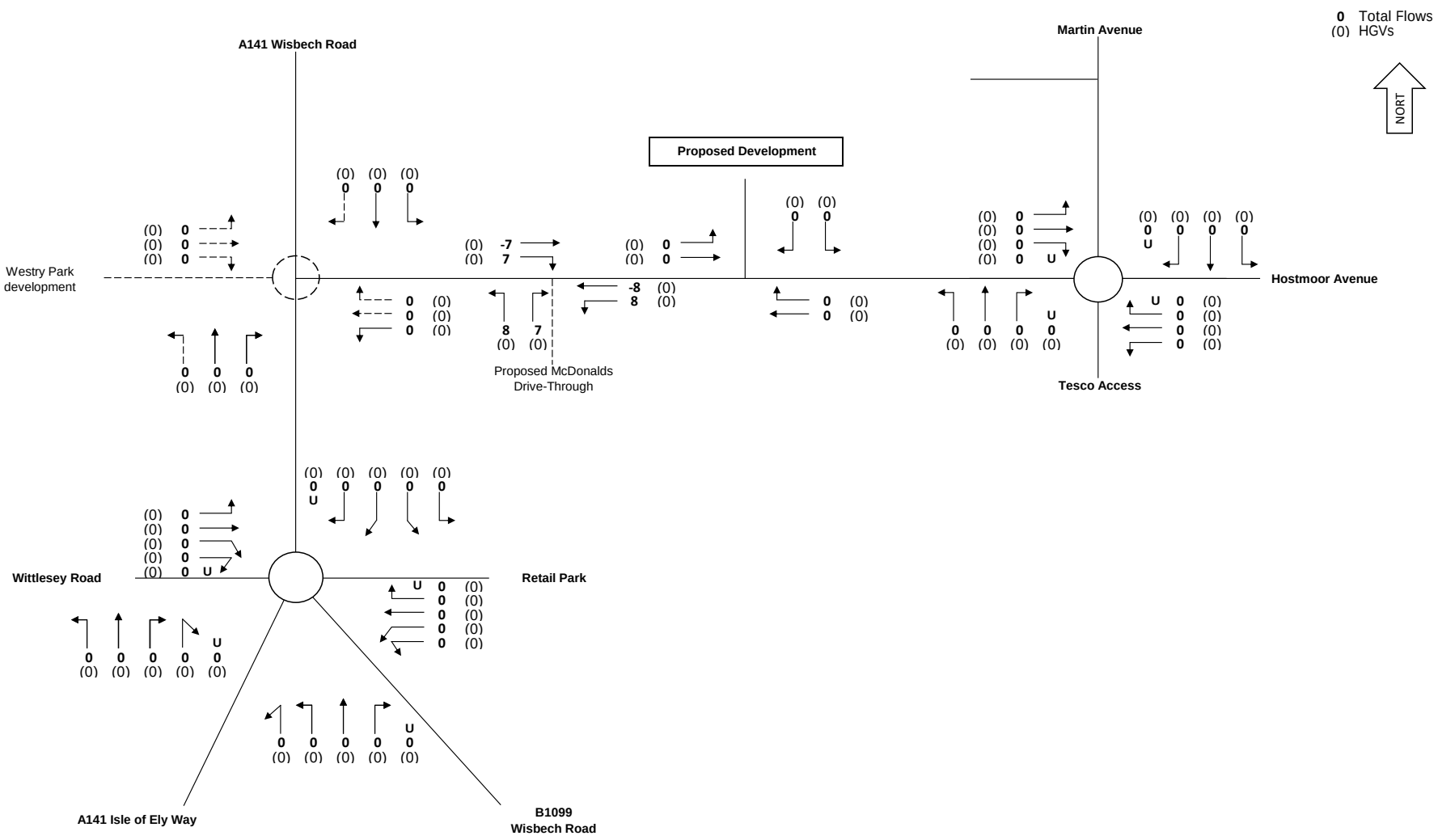
McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Primary Trips

connect CONSULTANTS



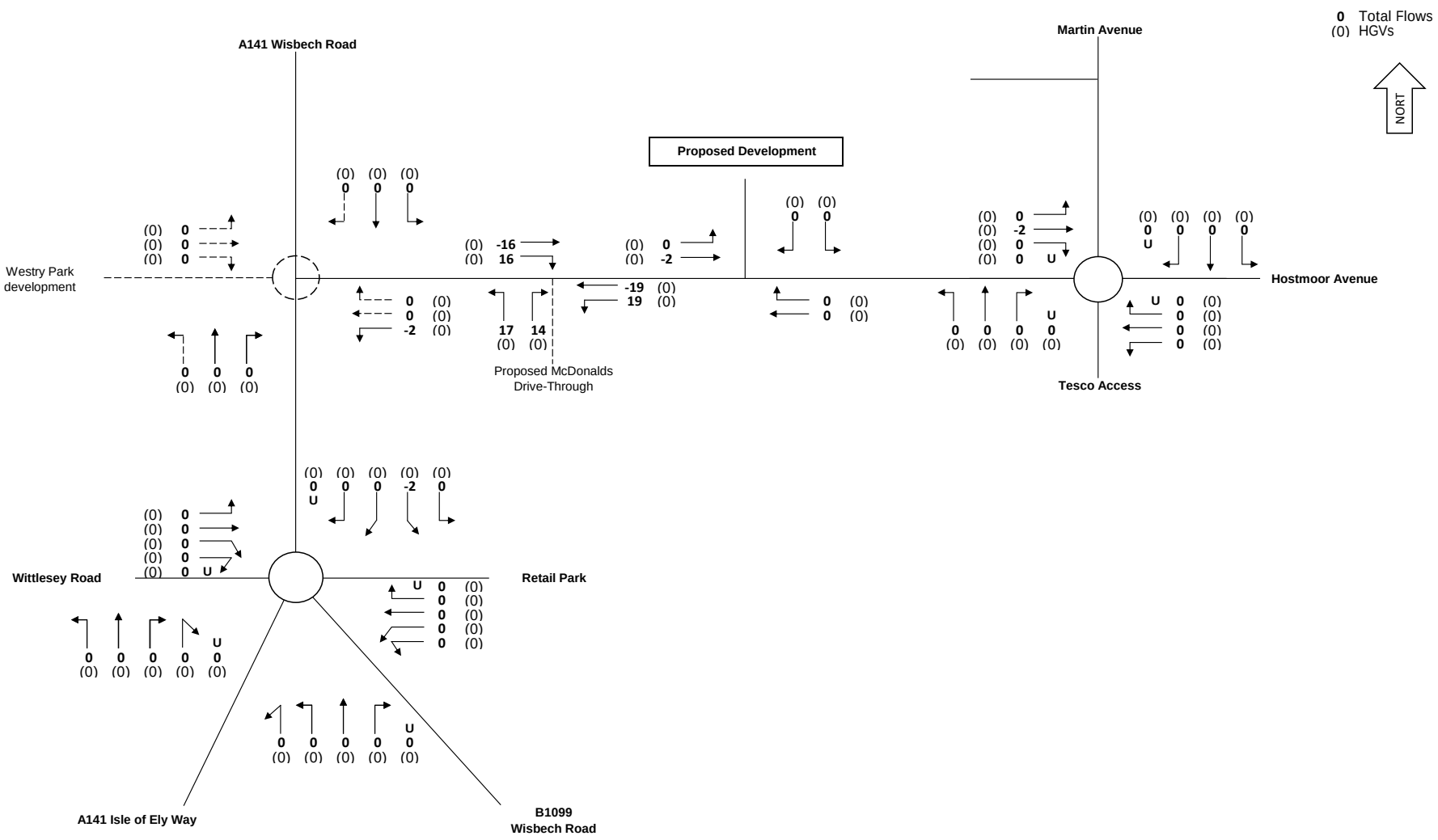
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Pass-by Trips

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Pass-by Trips

connect CONSULTANTS

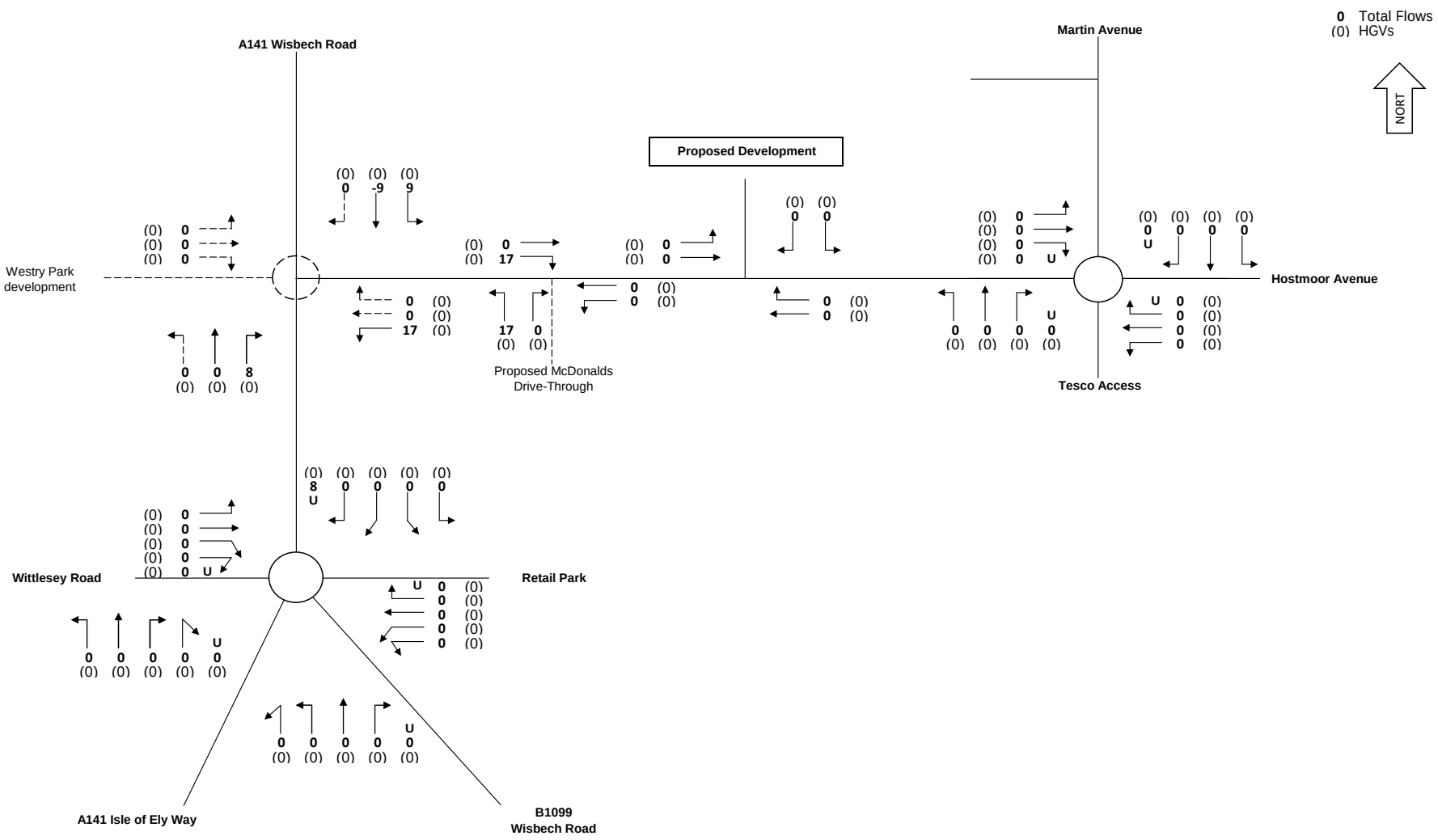


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30

McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Pass-by Trips

connect CONSULTANTS

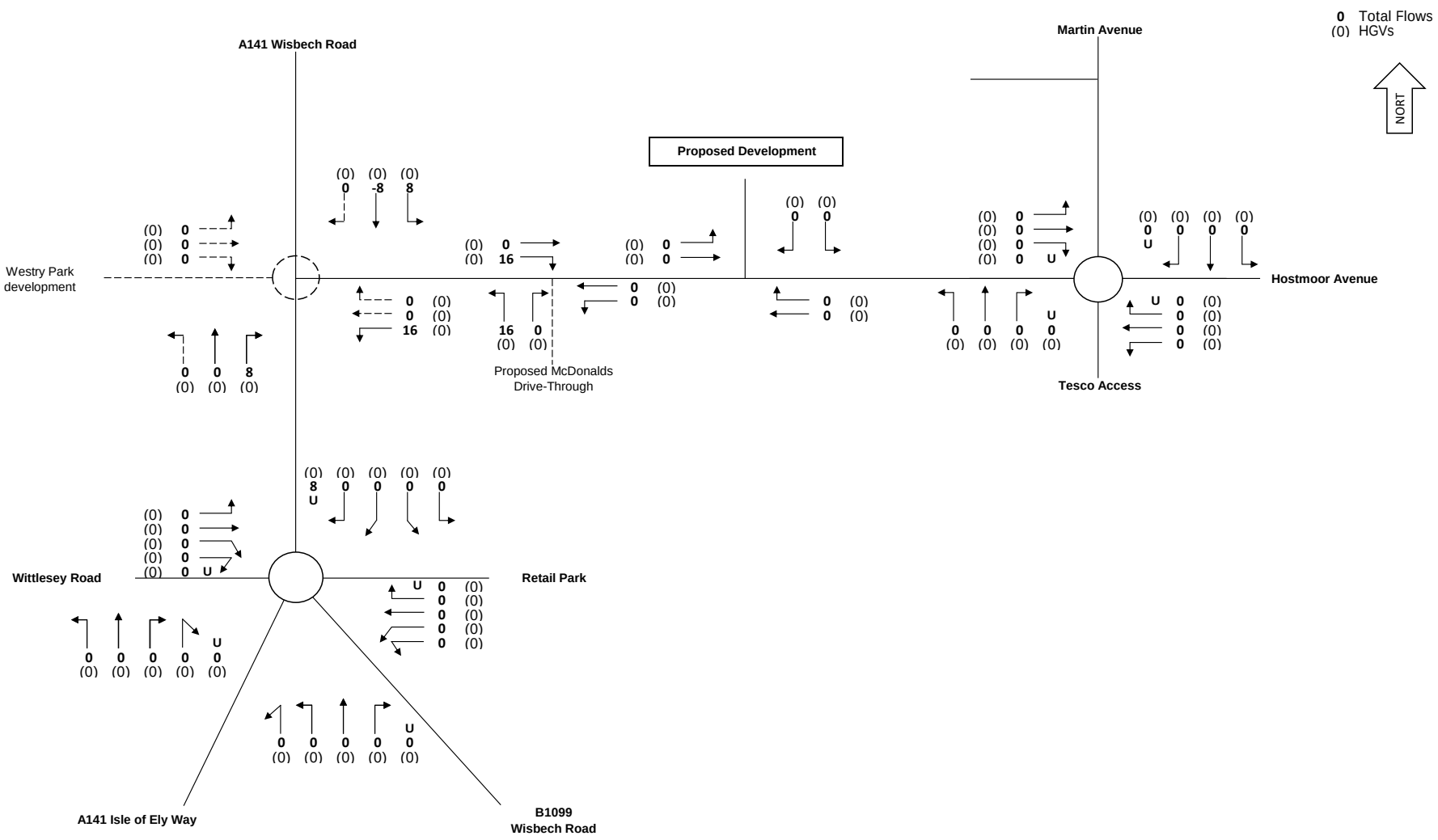


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

AM Peak 08:00-09:00

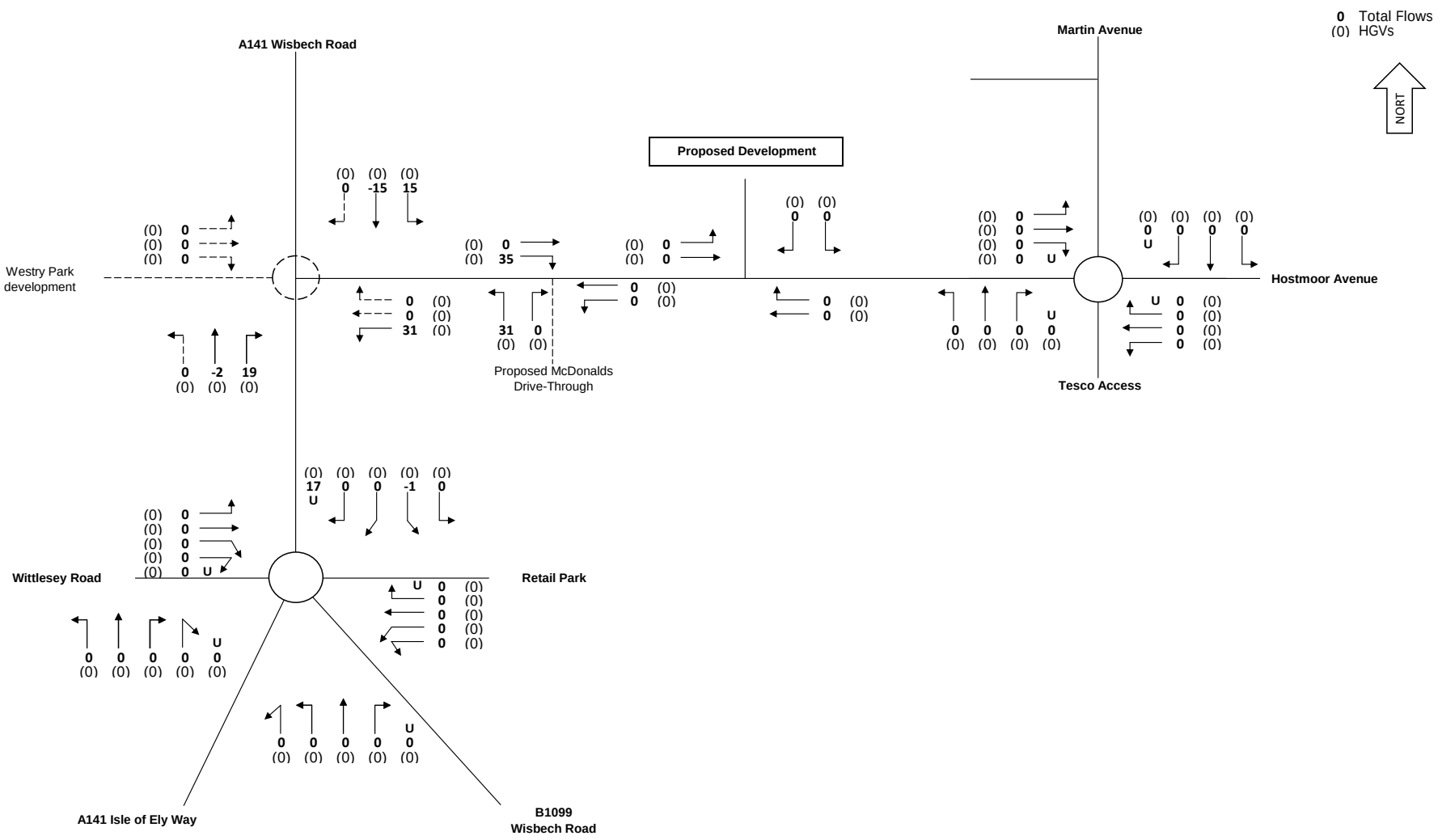
McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Diverted Trips

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Diverted Trips

connect CONSULTANTS

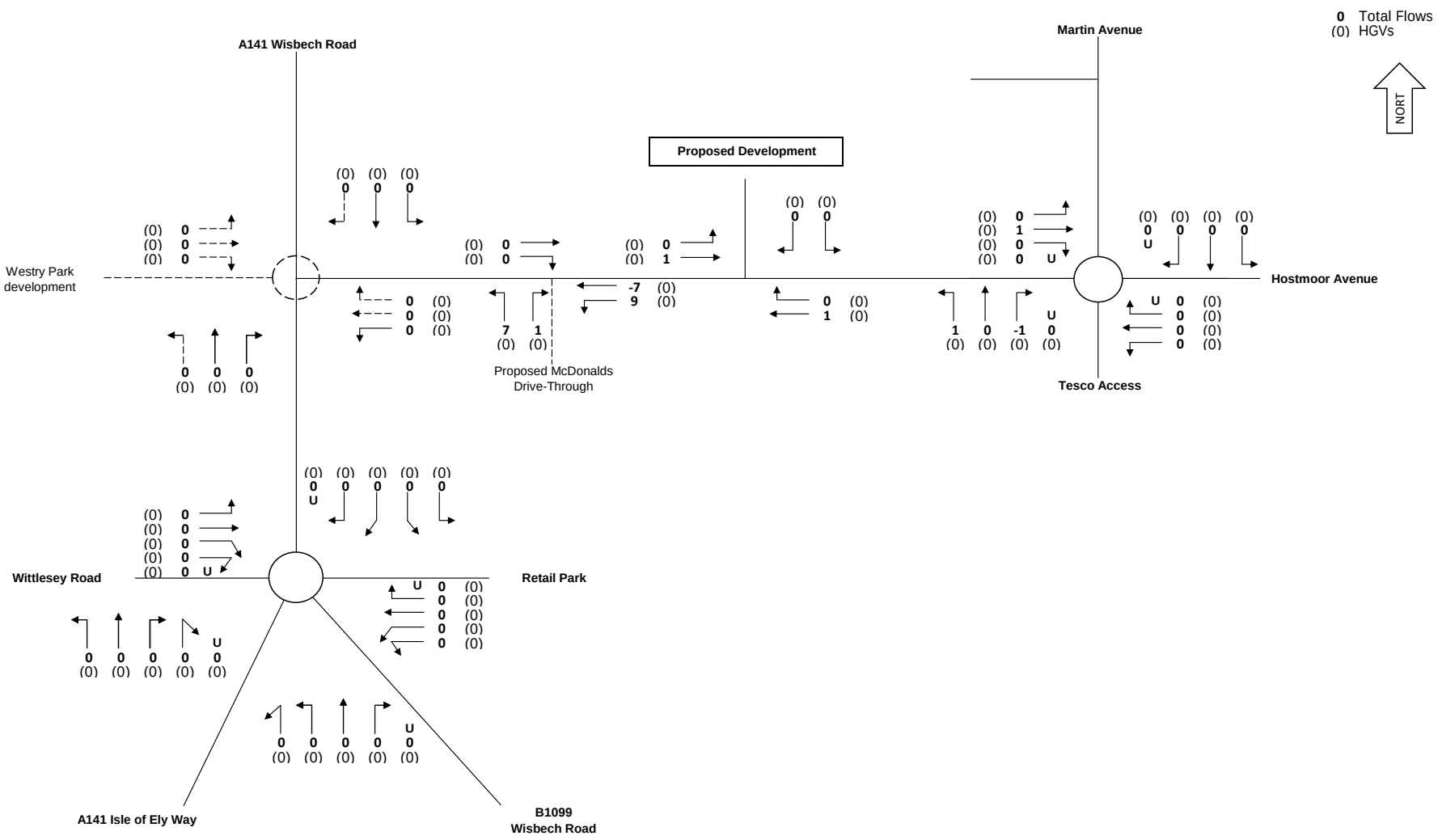


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30

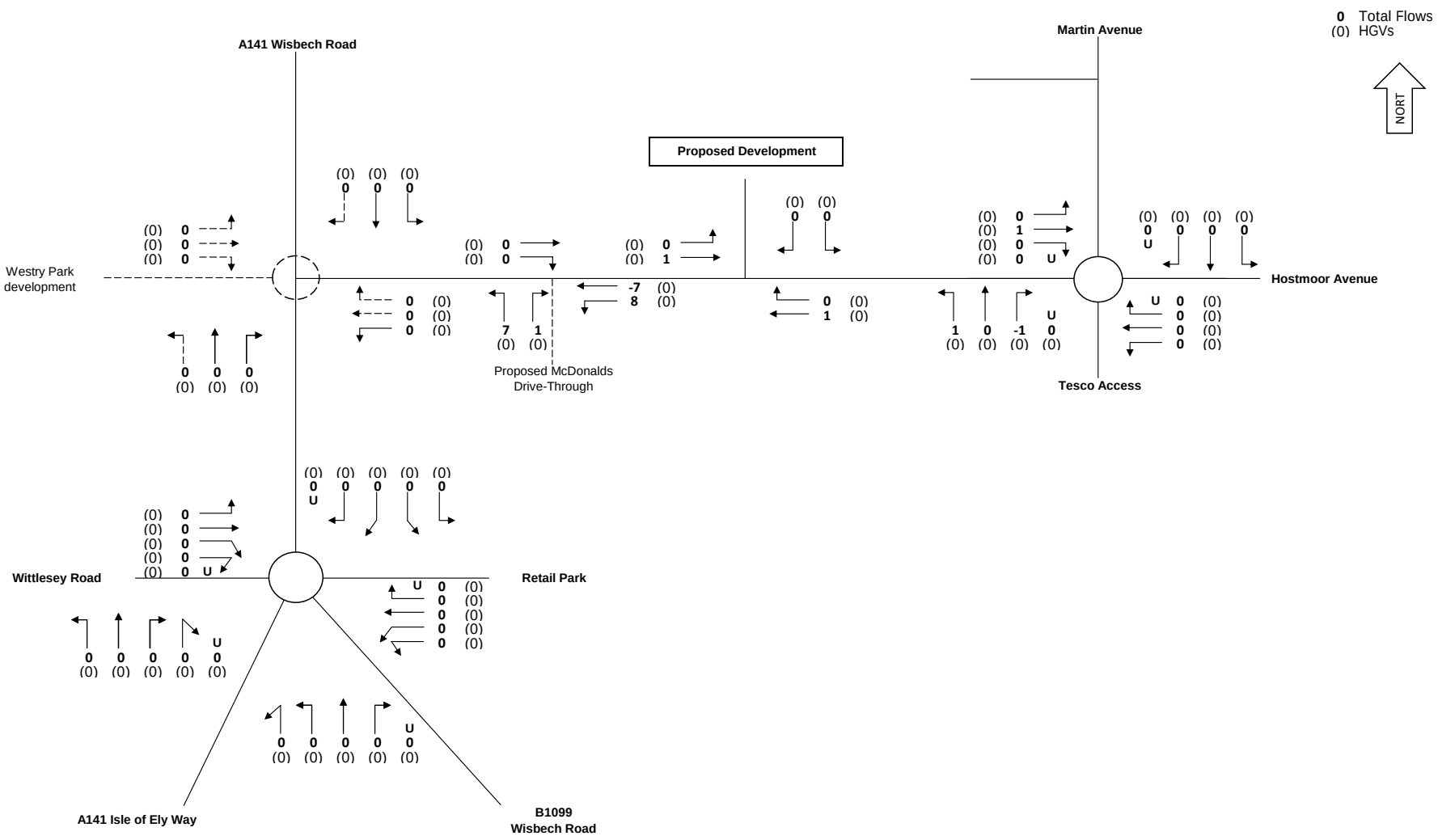
McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Diverted Trips

connect CONSULTANTS



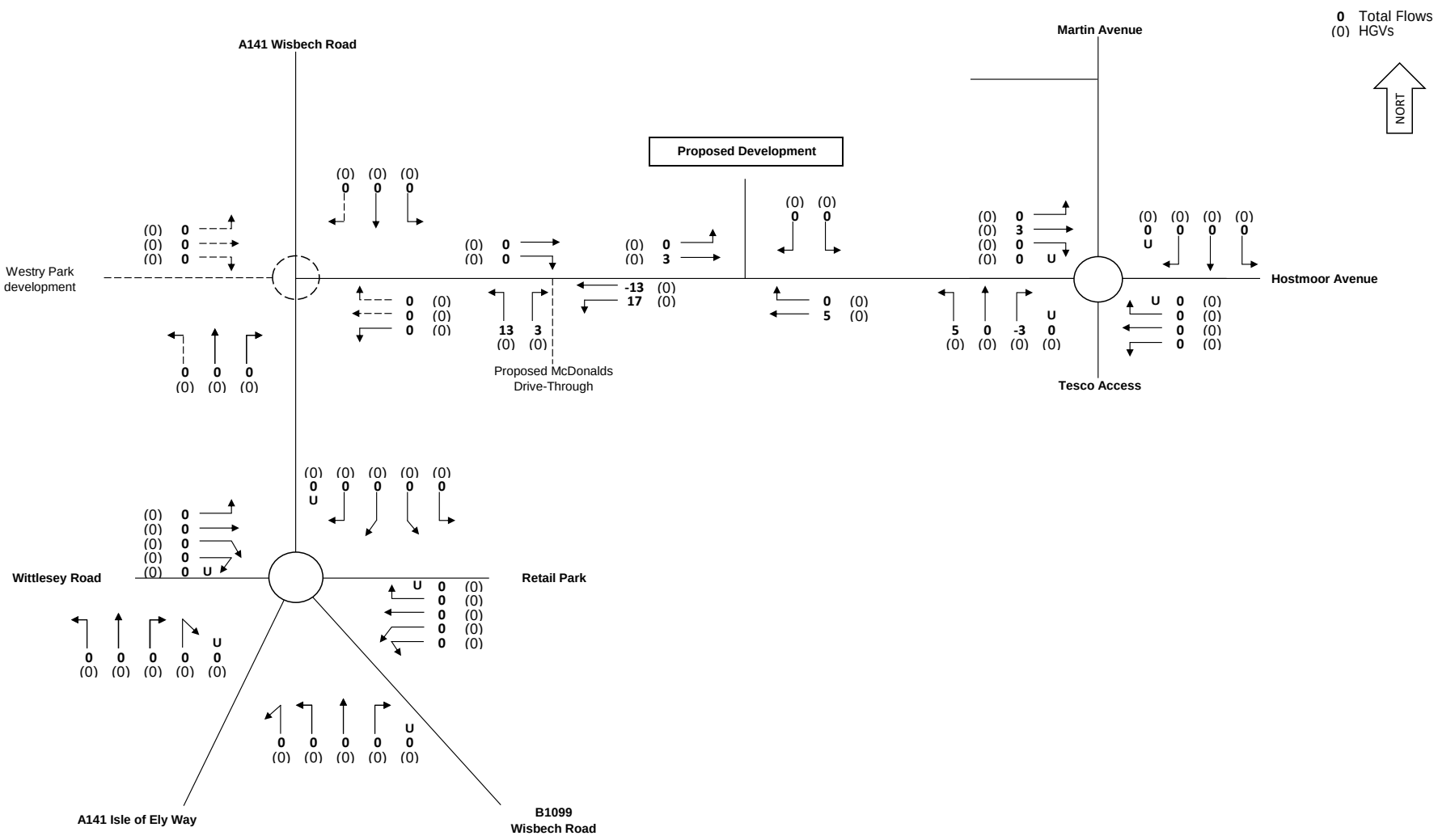
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Linked (Tesco) Trips

connect CONSULTANTS



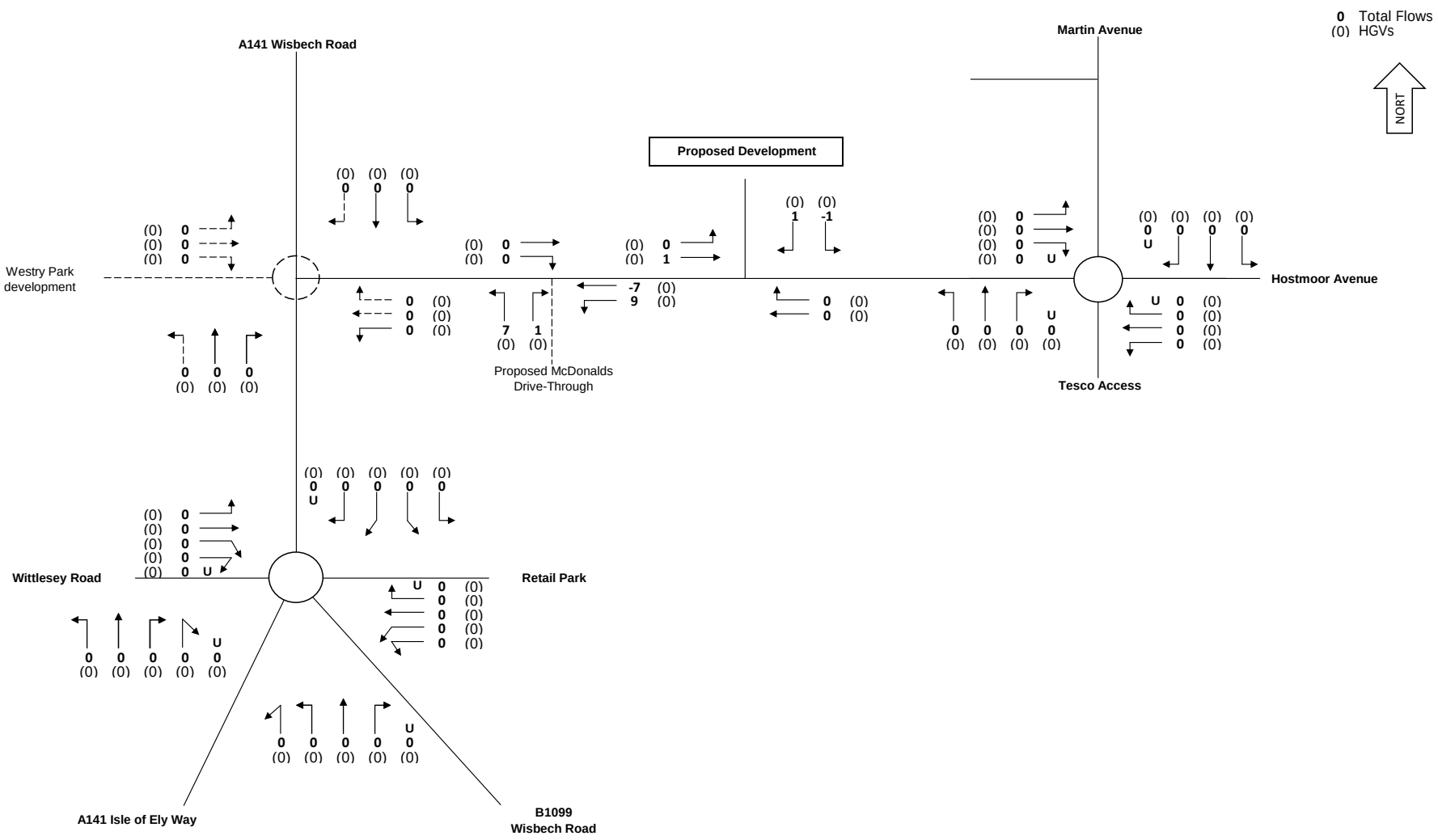
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Linked (Tesco) Trips

connect CONSULTANTS



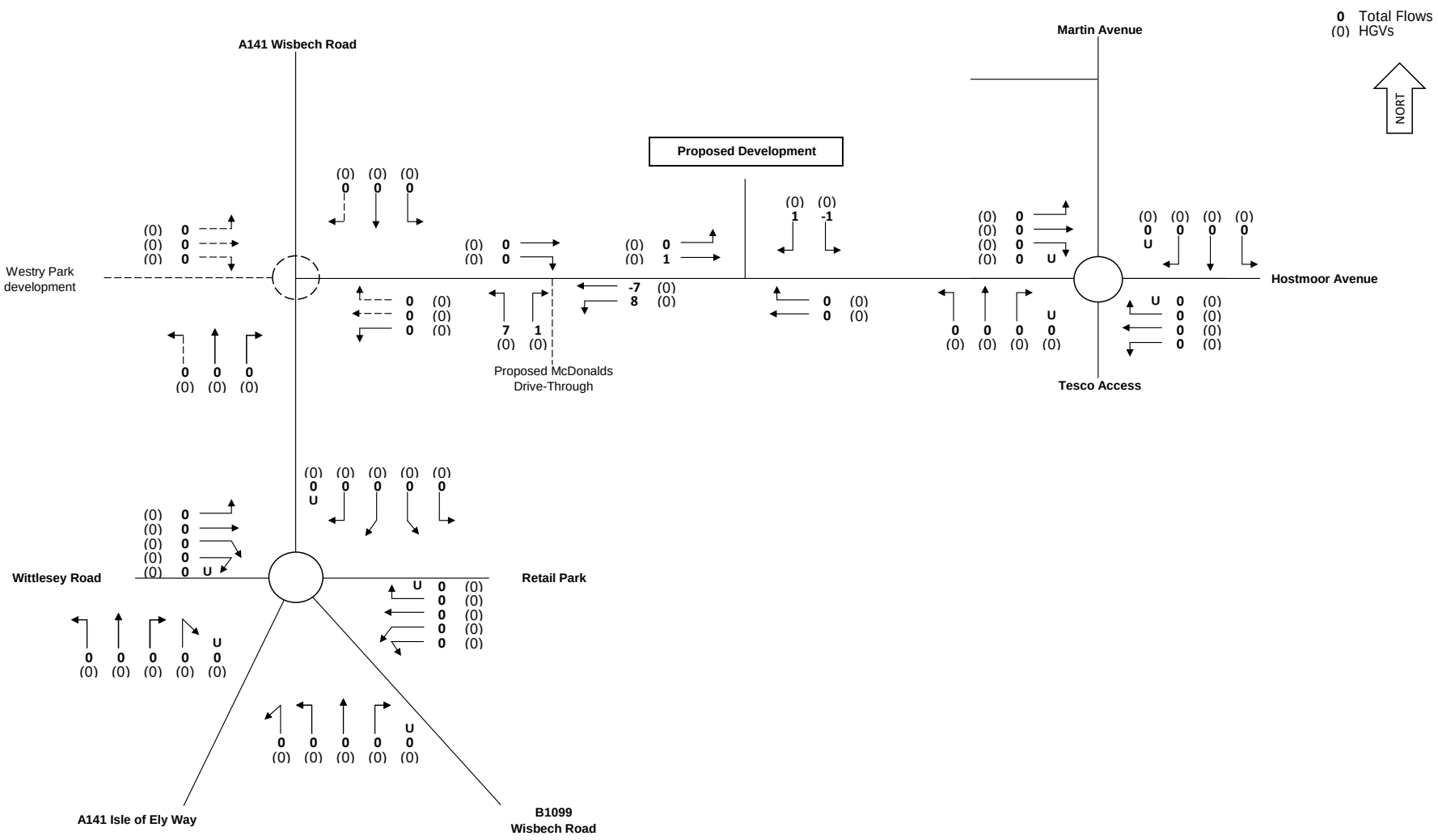
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
Sat Peak 11:30-12:30	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Linked (Tesco) Trips

connect CONSULTANTS



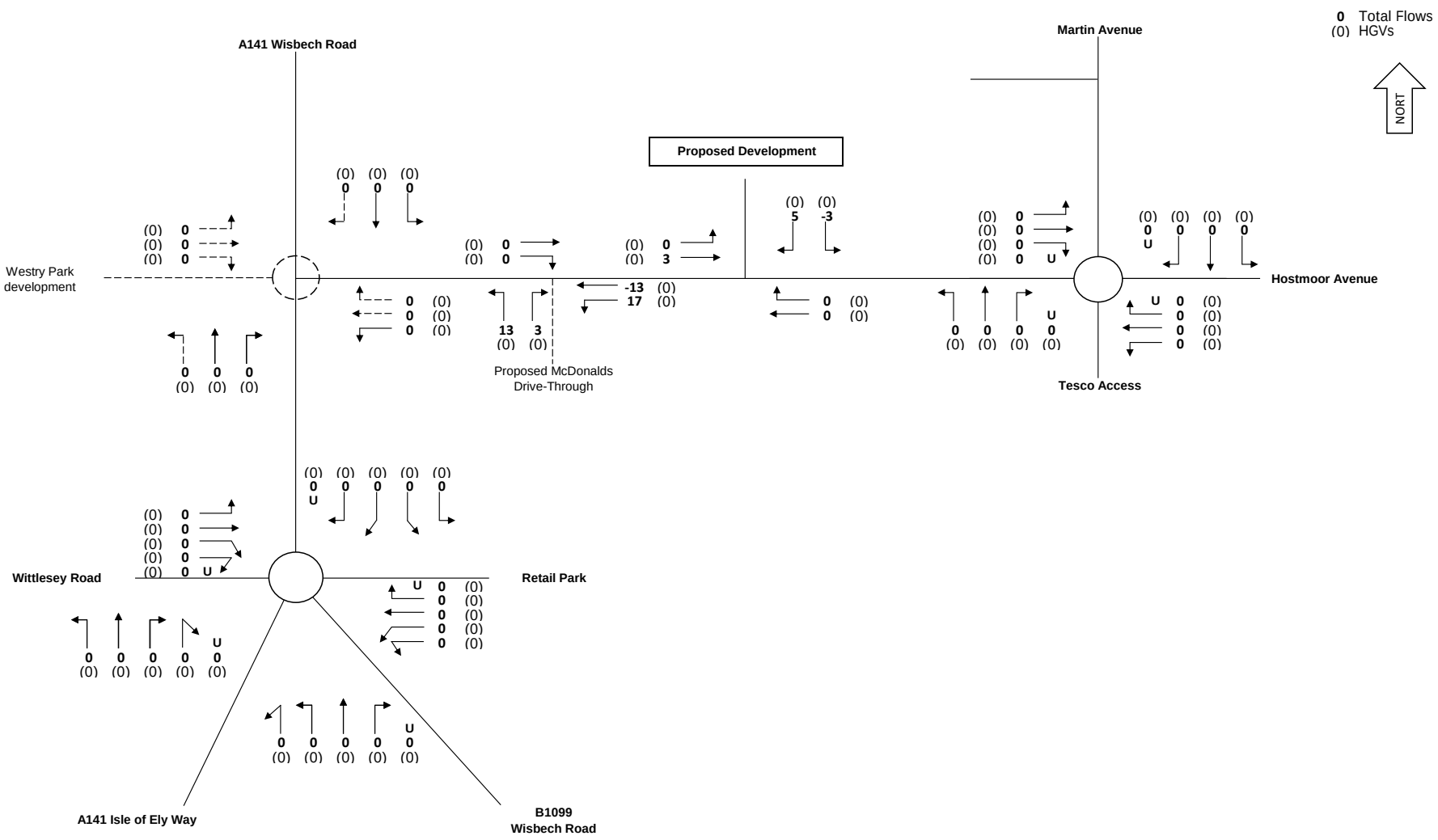
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Linked (Proposed Aldi) Trips

connect CONSULTANTS



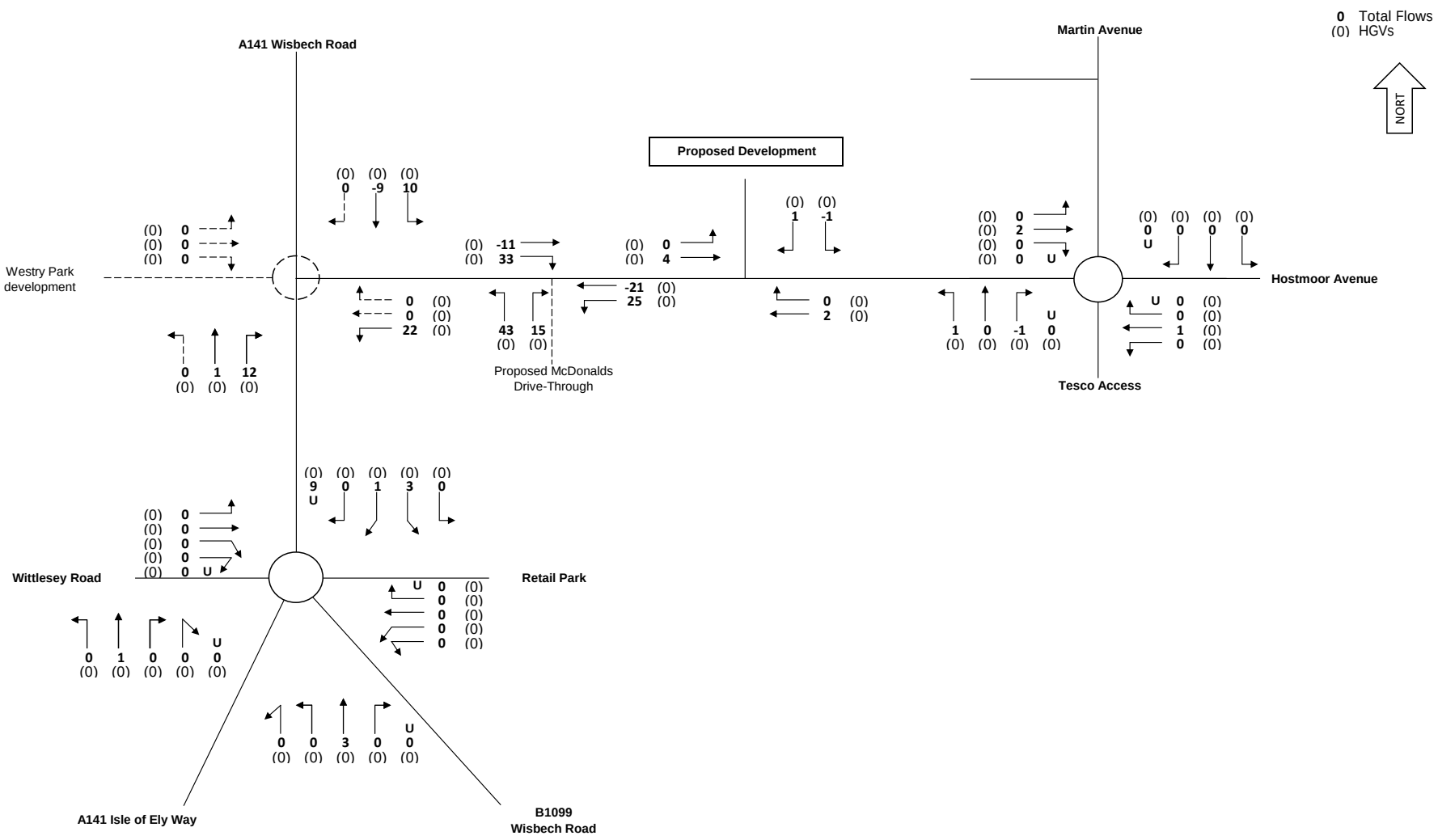
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Linked (Proposed Aldi) Trips

connect CONSULTANTS



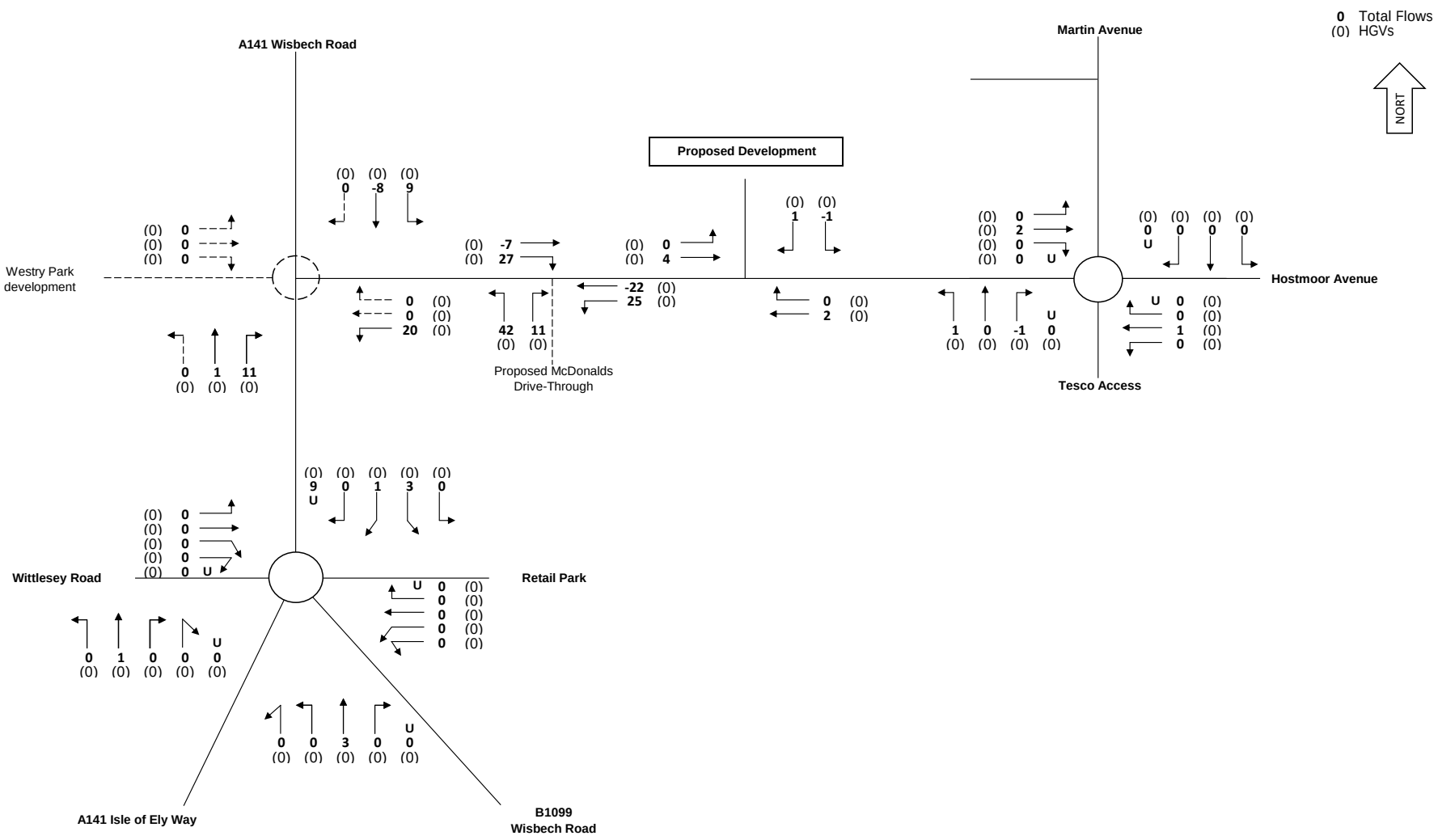
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
Sat Peak 11:30-12:30	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Linked (Proposed Aldi) Trips

connect CONSULTANTS



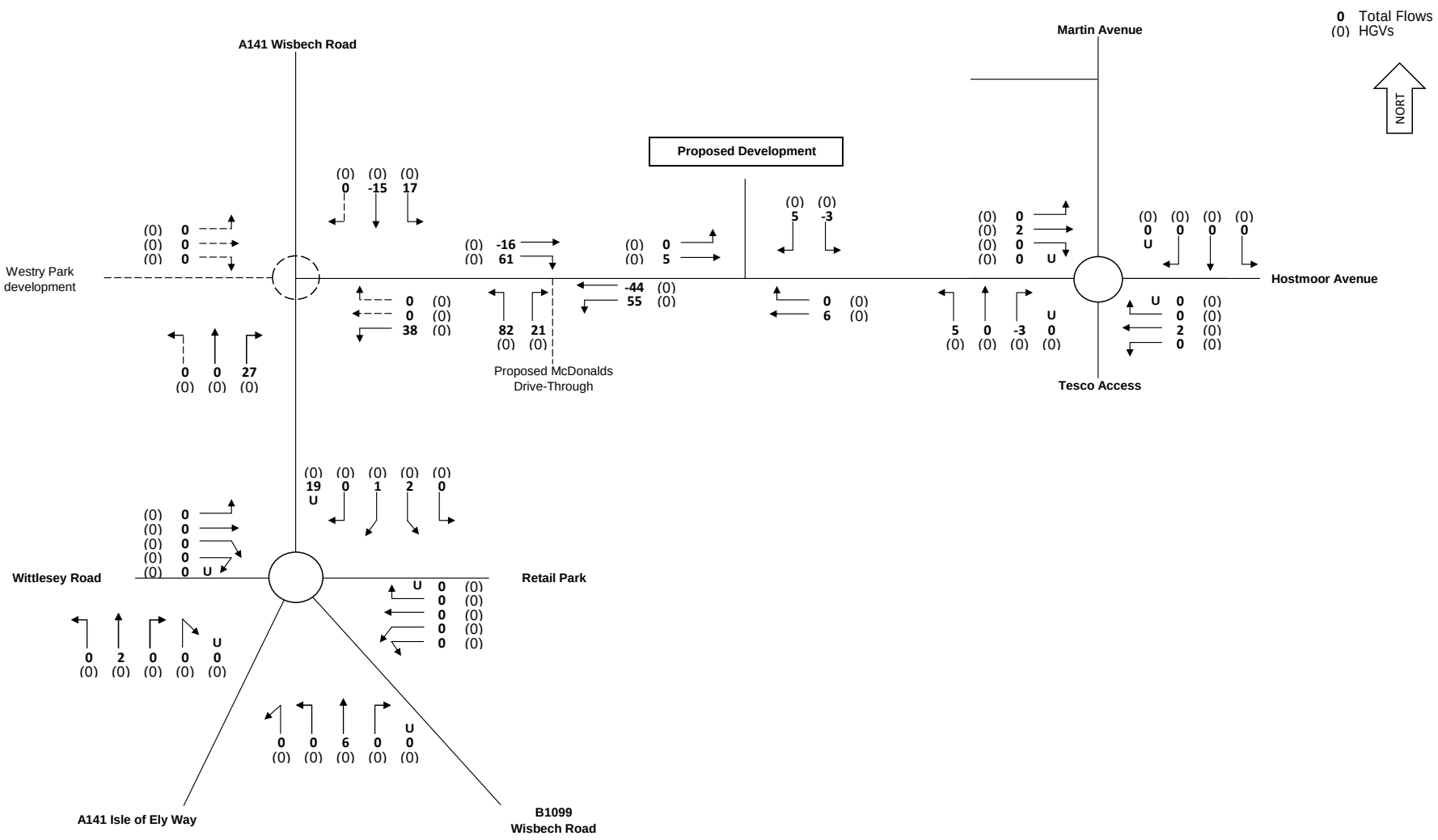
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Net McDonalds Trips

connect CONSULTANTS



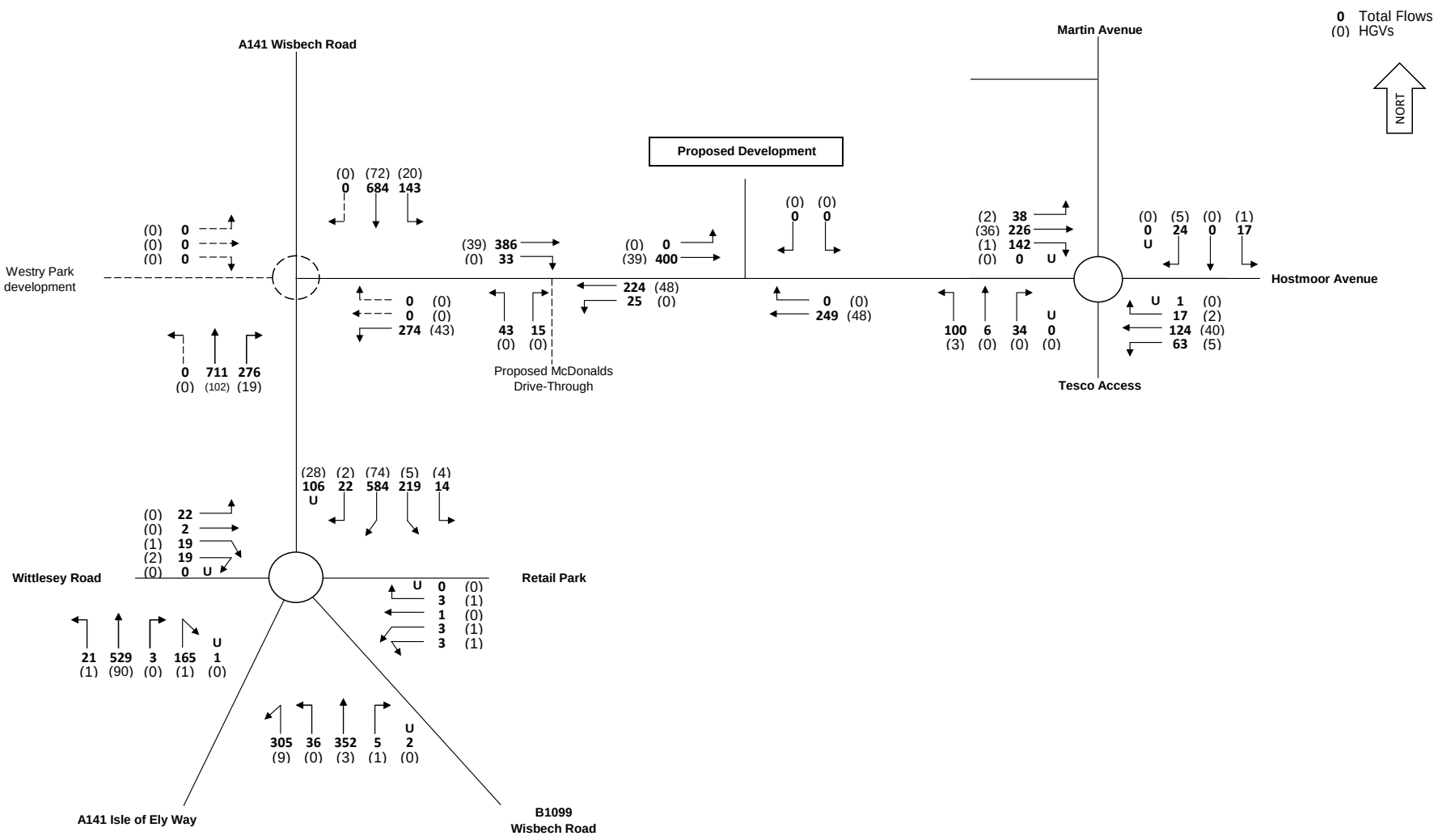
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
PM Peak 16:45-17:45	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Net McDonalds Trips

connect CONSULTANTS



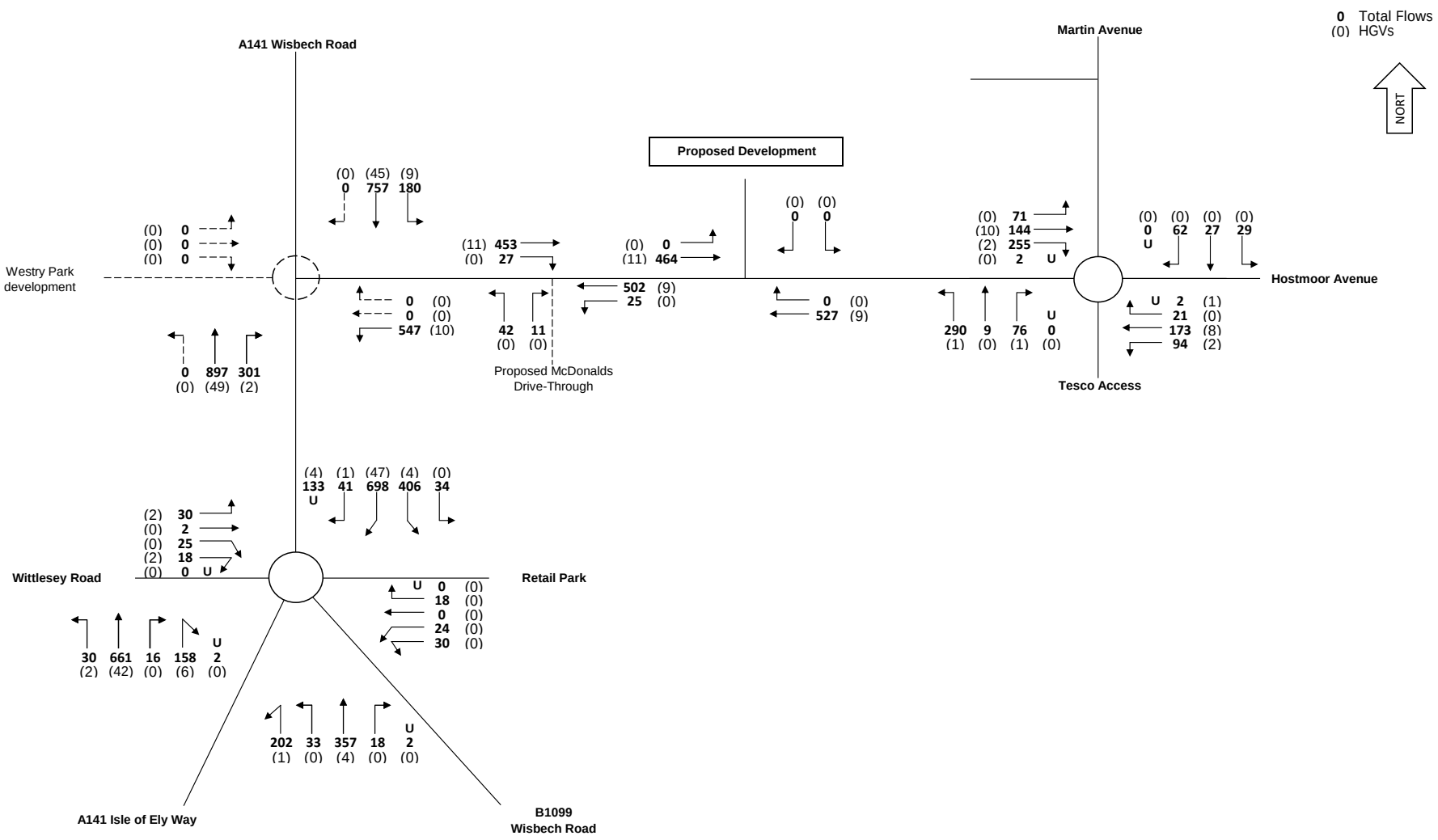
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
Sat Peak 11:30-12:30	McDonalds (F/YR19/1093/F) WITHOUT Westry RP - Net McDonalds Trips

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH	
AM Peak 08:00-09:00	2021 Baseline + McDonalds

connect CONSULTANTS

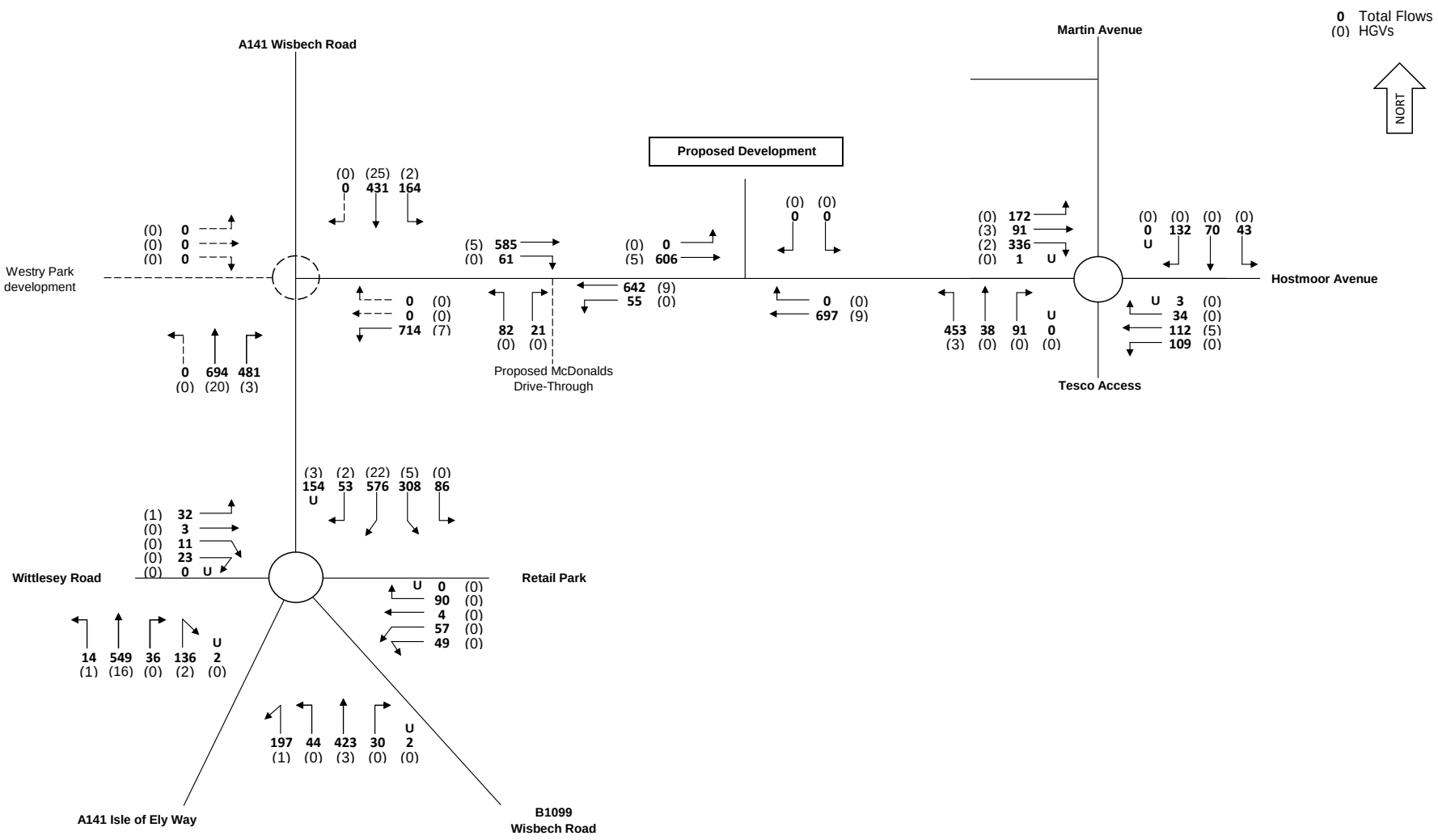


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45

2021 Baseline + McDonalds

connect CONSULTANTS

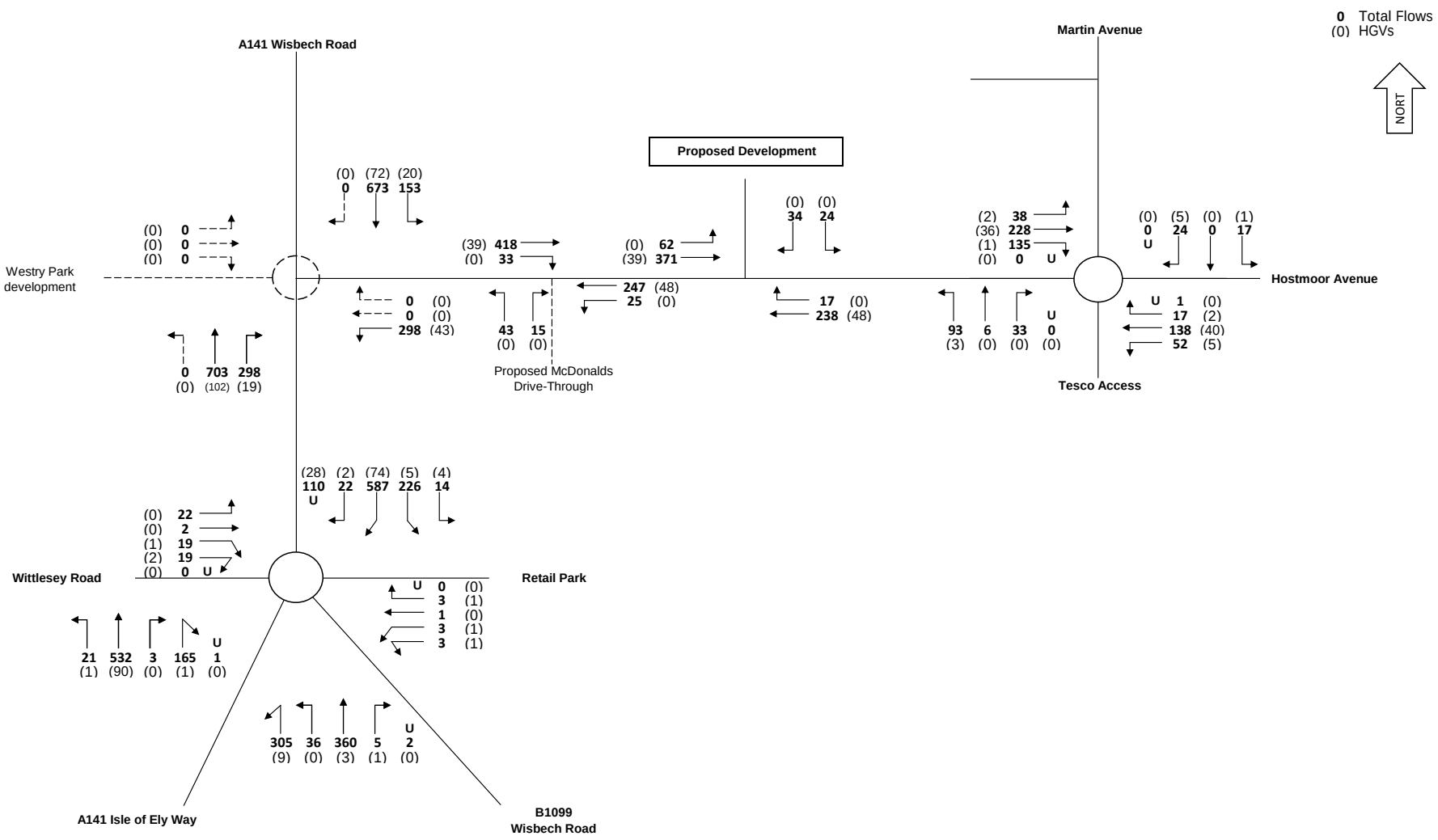


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30

2021 Baseline + McDonalds

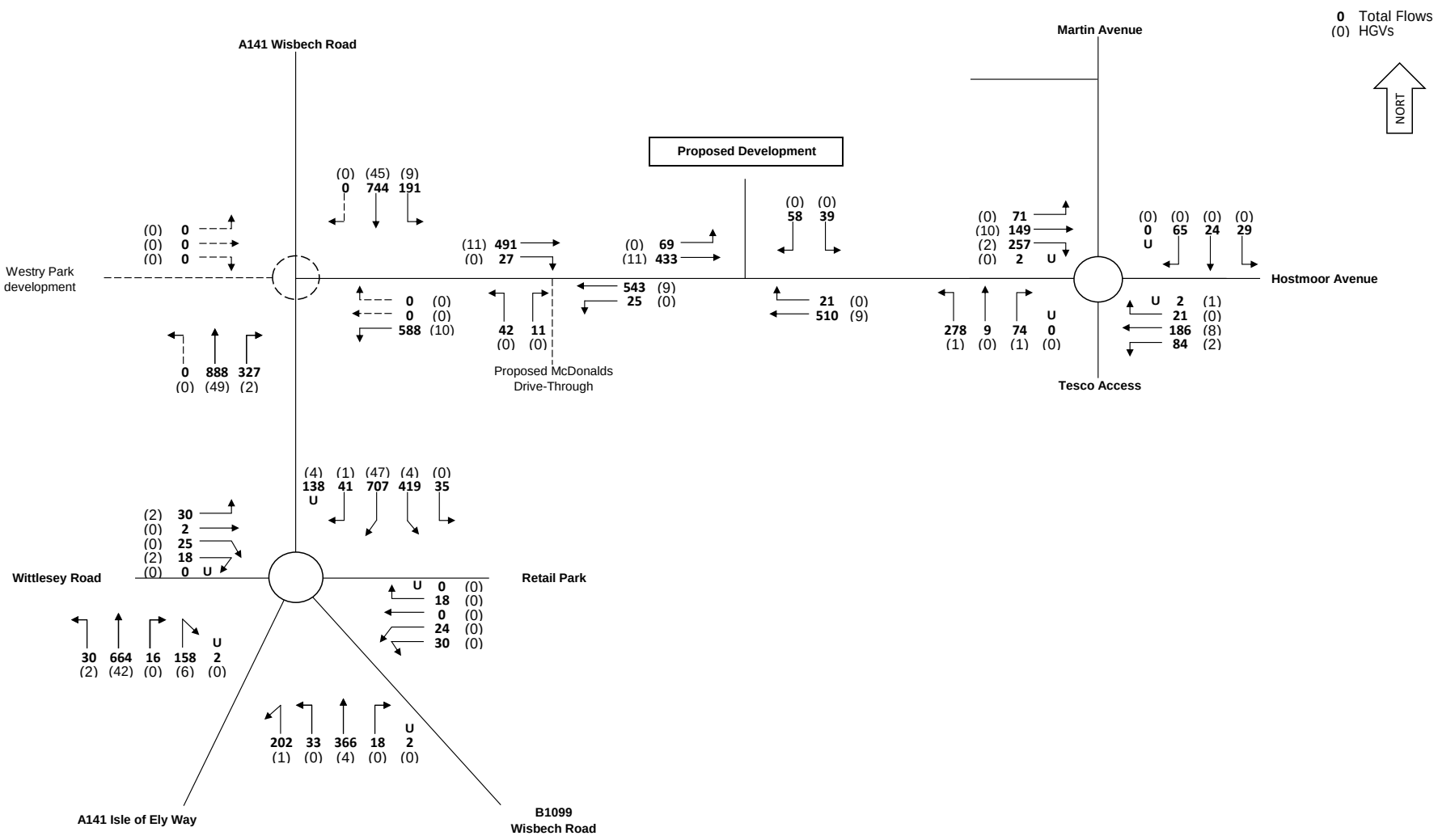
connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

AM Peak 08:00-09:00 | 2021 Baseline (scenario without Westry Retail Park) + McDonalds + Proposed Aldi Net Traffic Effec

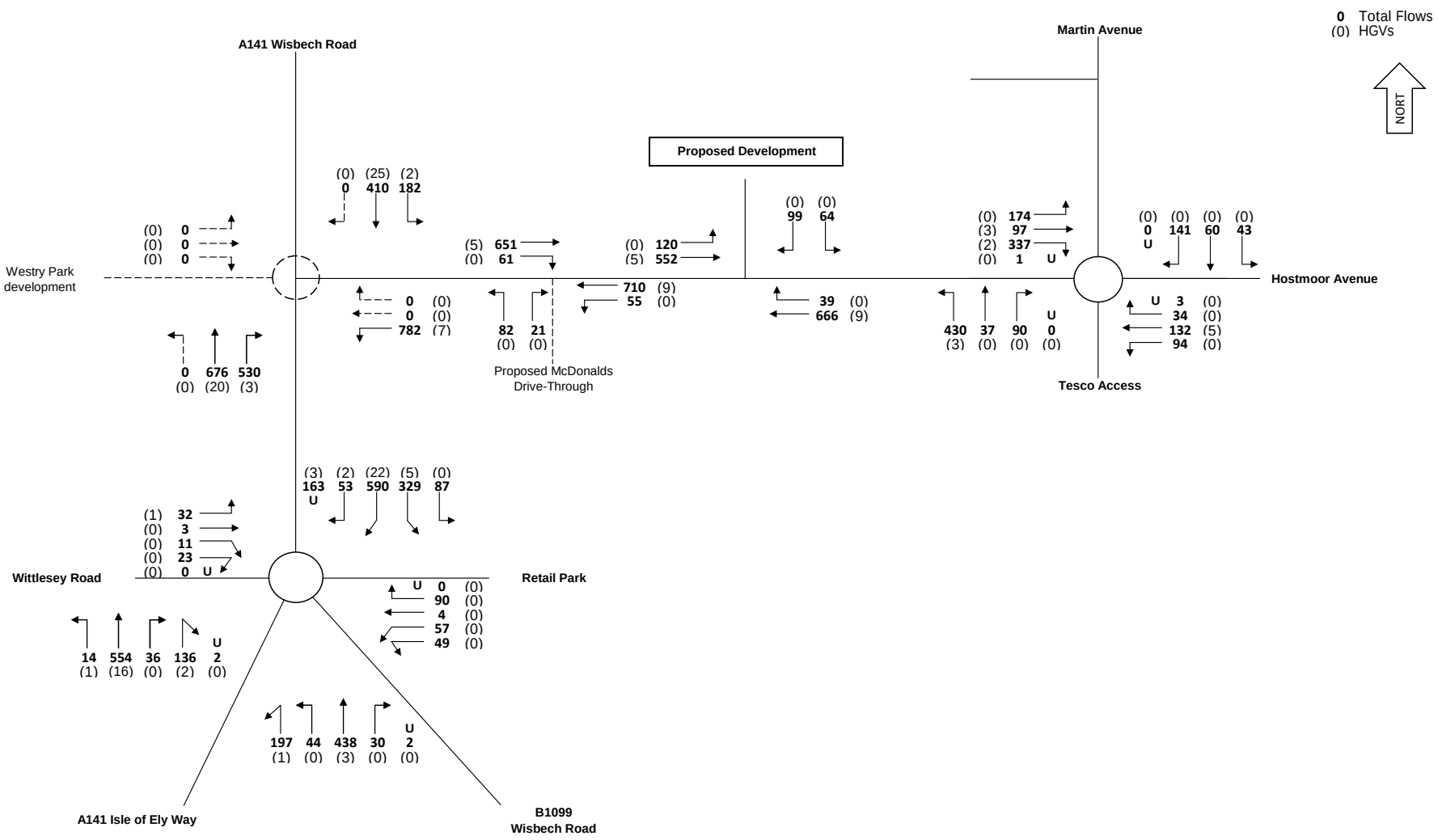
connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45 | 2021 Baseline (scenario without Westry Retail Park) + McDonalds + Proposed Aldi Net Traffic Effec

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30 | 2021 Baseline (scenario without Westry Retail Park) + McDonalds + Proposed Aldi Net Traffic Effec

connect CONSULTANTS

Appendix 6 – PICADY Outputs

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: 20200812 A141 - Hostmoor Ave priority jct - FLAT.j9
Path: K:\Aldi Chelmsford\March, Hostmoor Avenue\Calcs\Tests\For TN02 - Pre-app response
Report generation date: 17/08/2020 16:39:16

Summary of junction performance

	AM			PM			SAT		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2020 base								
Stream B-AC	1.1	16.56	0.53	22.1	159.24	1.00	59.1	321.02	1.08
Stream C-AB	0.9	12.52	0.47	1.0	13.20	0.51	2.0	16.25	0.67
	2021 base + McDonalds								
Stream B-AC	1.4	18.75	0.59	43.2	286.43	1.06	103.9	545.78	1.16
Stream C-AB	1.0	13.62	0.51	1.2	14.37	0.55	2.6	19.59	0.73
	2021 base + McDonalds + Aldi								
Stream B-AC	1.7	20.20	0.63	76.7	484.36	1.14	165.7	853.41	1.26
Stream C-AB	1.2	14.51	0.55	1.4	15.98	0.59	3.9	25.85	0.80

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	A141 - Hostmoor Ave priority junction
Location	
Site number	
Date	04/05/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CCL\TBritton
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	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		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)
D1	2020 base	AM	FLAT	08:00	09:00	60	15
D2	2020 base	PM	FLAT	16:45	17:45	60	15
D3	2020 base	SAT	FLAT	11:30	12:30	60	15
D4	2021 base + McDonalds	AM	FLAT	08:00	09:00	60	15
D5	2021 base + McDonalds	PM	FLAT	16:45	17:45	60	15
D6	2021 base + McDonalds	SAT	FLAT	11:30	12:30	60	15
D7	2021 base + McDonalds + Aldi	AM	FLAT	08:00	09:00	60	15
D8	2021 base + McDonalds + Aldi	PM	FLAT	16:45	17:45	60	15
D9	2021 base + McDonalds + Aldi	SAT	FLAT	11:30	12:30	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2020 base, AM

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		3.66	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A141 N		Major
B	Hostmoor Avene		Minor
C	A141 S		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.91		✓	4.00	250.0	✓	15.00

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	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	4.52	43	62

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	602	0.100	0.254	0.160	0.363
B-C	764	0.107	0.271	-	-
C-B	860	0.305	0.305	-	-

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)
D1	2020 base	AM	FLAT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	812	100.000
B		✓	248	100.000
C		✓	957	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	131	681
	B	0	0	248
	C	698	259	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	15	10
	B	0	0	17
	C	14	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.53	16.56	1.1	C
C-AB	0.47	12.52	0.9	B
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	248	465	0.533	244	1.1	15.945	C
C-AB	259	547	0.474	255	0.9	12.227	B
C-A	698			698			
A-B	131			131			
A-C	681			681			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	248	465	0.533	248	1.1	16.543	C
C-AB	259	547	0.474	259	0.9	12.511	B
C-A	698			698			
A-B	131			131			
A-C	681			681			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	248	465	0.533	248	1.1	16.555	C
C-AB	259	547	0.474	259	0.9	12.516	B
C-A	698			698			
A-B	131			131			
A-C	681			681			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	248	465	0.533	248	1.1	16.558	C
C-AB	259	547	0.474	259	0.9	12.516	B
C-A	698			698			
A-B	131			131			
A-C	681			681			

2020 base, PM

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		32.41	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)
D2	2020 base	PM	FLAT	16:45	17:45	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	920	100.000
B		✓	518	100.000
C		✓	1164	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	168	752
	B	0	0	518
	C	880	284	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	6
	B	0	0	2
	C	5	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	1.00	159.24	22.1	F
C-AB	0.51	13.20	1.0	B
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	518	518	1.000	475	10.9	59.379	F
C-AB	284	557	0.510	280	1.0	12.830	B
C-A	880			880			
A-B	168			168			
A-C	752			752			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	518	518	1.000	499	15.5	110.479	F
C-AB	284	557	0.510	284	1.0	13.189	B
C-A	880			880			
A-B	168			168			
A-C	752			752			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	518	518	1.000	504	19.1	137.442	F
C-AB	284	557	0.510	284	1.0	13.194	B
C-A	880			880			
A-B	168			168			
A-C	752			752			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	518	518	1.000	506	22.1	159.235	F
C-AB	284	557	0.510	284	1.0	13.196	B
C-A	880			880			
A-B	168			168			
A-C	752			752			

2020 base, SAT

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		91.59	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)
D3	2020 base	SAT	FLAT	11:30	12:30	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	582	100.000
B		✓	665	100.000
C		✓	1128	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	144	438
	B	0	0	665
	C	682	446	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	6
	B	0	0	1
	C	3	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	1.08	321.02	59.1	F
C-AB	0.67	16.25	2.0	C
C-A				
A-B				
A-C				

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	665	616	1.079	586	19.7	76.112	F
C-AB	447	668	0.669	439	1.9	15.258	C
C-A	681			681			
A-B	144			144			
A-C	438			438			

11:45 - 12:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	665	616	1.079	610	33.4	171.839	F
C-AB	447	668	0.669	447	2.0	16.218	C
C-A	681			681			
A-B	144			144			
A-C	438			438			

12:00 - 12:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	665	616	1.079	613	46.4	247.397	F
C-AB	447	668	0.669	447	2.0	16.244	C
C-A	681			681			
A-B	144			144			
A-C	438			438			

12:15 - 12:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	665	616	1.079	614	59.1	321.021	F
C-AB	447	668	0.669	447	2.0	16.253	C
C-A	681			681			
A-B	144			144			
A-C	438			438			

2021 base + McDonalds, AM

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		4.26	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)
D4	2021 base + McDonalds	AM	FLAT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	827	100.000
B		✓	274	100.000
C		✓	987	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	143	684
	B	0	0	274
	C	711	276	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	14	11
	B	0	0	16
	C	14	7	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.59	18.75	1.4	C
C-AB	0.51	13.62	1.0	B
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	274	466	0.588	269	1.4	17.817	C
C-AB	276	540	0.511	272	1.0	13.234	B
C-A	711			711			
A-B	143			143			
A-C	684			684			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	274	466	0.588	274	1.4	18.724	C
C-AB	276	540	0.511	276	1.0	13.617	B
C-A	711			711			
A-B	143			143			
A-C	684			684			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	274	466	0.588	274	1.4	18.745	C
C-AB	276	540	0.511	276	1.0	13.622	B
C-A	711			711			
A-B	143			143			
A-C	684			684			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	274	466	0.588	274	1.4	18.752	C
C-AB	276	540	0.511	276	1.0	13.625	B
C-A	711			711			
A-B	143			143			
A-C	684			684			

2021 base + McDonalds, PM

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		58.74	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)
D5	2021 base + McDonalds	PM	FLAT	16:45	17:45	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	937	100.000
B		✓	547	100.000
C		✓	1198	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	180	757
	B	0	0	547
	C	897	301	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	6
	B	0	0	2
	C	5	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	1.06	286.43	43.2	F
C-AB	0.55	14.37	1.2	B
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	547	516	1.061	484	15.6	75.886	F
C-AB	301	551	0.546	296	1.2	13.882	B
C-A	897			897			
A-B	180			180			
A-C	757			757			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	547	516	1.061	508	25.5	162.883	F
C-AB	301	551	0.546	301	1.2	14.362	B
C-A	897			897			
A-B	180			180			
A-C	757			757			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	547	516	1.061	511	34.5	226.298	F
C-AB	301	551	0.546	301	1.2	14.370	B
C-A	897			897			
A-B	180			180			
A-C	757			757			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	547	516	1.061	512	43.2	286.426	F
C-AB	301	551	0.546	301	1.2	14.373	B
C-A	897			897			
A-B	180			180			
A-C	757			757			

2021 base + McDonalds, SAT

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		158.47	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)
D6	2021 base + McDonalds	SAT	FLAT	11:30	12:30	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	595	100.000
B		✓	714	100.000
C		✓	1175	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	164	431
	B	0	0	714
	C	694	481	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	6
	B	0	0	1
	C	3	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	1.16	545.78	103.9	F
C-AB	0.73	19.59	2.6	C
C-A				
A-B				
A-C				

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	714	616	1.159	596	29.6	103.019	F
C-AB	485	669	0.726	475	2.5	17.827	C
C-A	690			690			
A-B	164			164			
A-C	431			431			

11:45 - 12:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	714	616	1.159	614	54.6	260.330	F
C-AB	485	669	0.726	485	2.6	19.495	C
C-A	690			690			
A-B	164			164			
A-C	431			431			

12:00 - 12:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	714	616	1.159	615	79.3	402.971	F
C-AB	485	669	0.726	485	2.6	19.563	C
C-A	690			690			
A-B	164			164			
A-C	431			431			

12:15 - 12:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	714	616	1.159	615	103.9	545.783	F
C-AB	485	669	0.726	485	2.6	19.588	C
C-A	690			690			
A-B	164			164			
A-C	431			431			

2021 base + McDonalds + Aldi, AM

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		4.82	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)
D7	2021 base + McDonalds + Aldi	AM	FLAT	08:00	09:00	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	826	100.000
B		✓	298	100.000
C		✓	1001	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	153	673
	B	0	0	298
	C	703	298	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	13	11
	B	0	0	14
	C	14	6	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	0.63	20.20	1.7	C
C-AB	0.55	14.51	1.2	B
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	298	476	0.626	292	1.6	18.950	C
C-AB	298	546	0.546	293	1.2	14.010	B
C-A	703			703			
A-B	153			153			
A-C	673			673			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	298	476	0.626	298	1.6	20.157	C
C-AB	298	546	0.546	298	1.2	14.501	B
C-A	703			703			
A-B	153			153			
A-C	673			673			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	298	476	0.626	298	1.6	20.192	C
C-AB	298	546	0.546	298	1.2	14.509	B
C-A	703			703			
A-B	153			153			
A-C	673			673			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	298	476	0.626	298	1.7	20.204	C
C-AB	298	546	0.546	298	1.2	14.512	B
C-A	703			703			
A-B	153			153			
A-C	673			673			

2021 base + McDonalds + Aldi, PM

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		103.40	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)
D8	2021 base + McDonalds + Aldi	PM	FLAT	16:45	17:45	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	935	100.000
B		✓	588	100.000
C		✓	1215	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	191	744
	B	0	0	588
	C	888	327	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	6
	B	0	0	2
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	1.14	484.36	76.7	F
C-AB	0.59	15.98	1.4	C
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	588	518	1.135	496	22.9	99.301	F
C-AB	327	552	0.592	322	1.4	15.262	C
C-A	888			888			
A-B	191			191			
A-C	744			744			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	588	518	1.135	515	41.2	240.151	F
C-AB	327	552	0.592	327	1.4	15.961	C
C-A	888			888			
A-B	191			191			
A-C	744			744			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	588	518	1.135	517	59.0	362.526	F
C-AB	327	552	0.592	327	1.4	15.978	C
C-A	888			888			
A-B	191			191			
A-C	744			744			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	588	518	1.135	517	76.7	484.364	F
C-AB	327	552	0.592	327	1.4	15.981	C
C-A	888			888			
A-B	191			191			
A-C	744			744			

2021 base + McDonalds + Aldi, SAT

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		260.77	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)
D9	2021 base + McDonalds + Aldi	SAT	FLAT	11:30	12:30	60	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	592	100.000
B		✓	782	100.000
C		✓	1206	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	182	410
	B	0	0	782
	C	676	530	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	1	6
	B	0	0	1
	C	3	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-AC	1.26	853.41	165.7	F
C-AB	0.80	25.85	3.9	D
C-A				
A-B				
A-C				

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	782	620	1.261	606	44.0	141.823	F
C-AB	549	688	0.798	535	3.6	21.907	C
C-A	657			657			
A-B	182			182			
A-C	410			410			

11:45 - 12:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	782	620	1.261	619	84.6	385.384	F
C-AB	549	688	0.798	548	3.8	25.474	D
C-A	657			657			
A-B	182			182			
A-C	410			410			

12:00 - 12:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	782	620	1.261	620	125.2	619.008	F
C-AB	549	688	0.798	549	3.9	25.740	D
C-A	657			657			
A-B	182			182			
A-C	410			410			

12:15 - 12:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	782	620	1.261	620	165.7	853.406	F
C-AB	549	688	0.798	549	3.9	25.846	D
C-A	657			657			
A-B	182			182			
A-C	410			410			

ALDI STORES LIMITED

PROPOSED DISCOUNT FOODSTORE, HOSTMOOR AVENUE, MARCH

TN04 – TRAFFIC SIGNAL JUNCTION CAPACITY ASSESSMENT

12TH NOVEMBER 2020

1.0 Introduction

1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants who have been instructed by Aldi Stores Limited to undertake additional junction capacity tests to inform pre-app discussions in advance of a planning application for the proposed Aldi store on Hostmoor Avenue in March.

1.2 A Transport Assessment was produced by Connect Consultants, dated June 2020, which assessed the capacity of the existing A141 / Hostmoor Avenue priority junction. The junction was also assessed as a 60m-diameter four-arm roundabout, which is proposed as part of the planning application for Westry Retail Park (planning reference F/YR18/0566/F).

1.3 This Technical Note (TN) will assess the capacity of the A141 / Hostmoor Avenue junction as a signal junction using the scenario '2021 Base + McDonald's + Aldi' as an alternative to the existing priority junction, the capacity test results for which are presented at Table 8 of the Connect Technical Note dated 17th August 2020.

1.4 The proposed signal junction was previously assessed in the Connect report 'TN01 – Junction Capacity Assessment' (11th June 2020), but without the inclusion of McDonald's traffic.

1.5 The planning application for the proposed McDonald's development (planning reference F/YR19/1093/F) has yet to be determined by Fenland District Council. In the Connect report 'TN02 – Response to Pre-application Comments' (17th August 2020), the potential McDonald's trips were assessed by Connect using traffic data from the TRICS database (version 7.7.1). The methodology and results were accepted by Cambridgeshire County Council in a consultation document, dated 3rd September 2020.

1.6 The McDonald's trips assessed in TN02 (August 2020) have been included in this assessment of the proposed signal junction in addition to the proposed Aldi traffic.

2.0 Junction Capacity Assessment

2.1 The proposed A141 / Hostmoor Avenue signal junction has been assessed using the latest version of the LINSIG (v3) computer program.

2.2 LINSIG3 is an industry standard tool for assessing signalised junction layouts. The most useful outputs from the software are the Degree of Saturation (DoS) and the Mean Maximum Queue (MMQ) values. A DoS of 100.0% represents a situation where a link is operating at its theoretical capacity. The results are reported in terms of passenger car units (PCUs).

2.3 The '2021 Base + McDonald's + Aldi' traffic flows used in this assessment are taken from Appendix 5 of TN02 (August 2020). The flow diagrams in question are provided at Appendix 1 of this TN.

2.4 The proposed signal junction layout is shown in the Connect Consultants sketch '19126 - SK200611.1', provided at Appendix 2 of this TN.

2.5 The LINSIG outputs are provided at Appendix 3 of this TN.

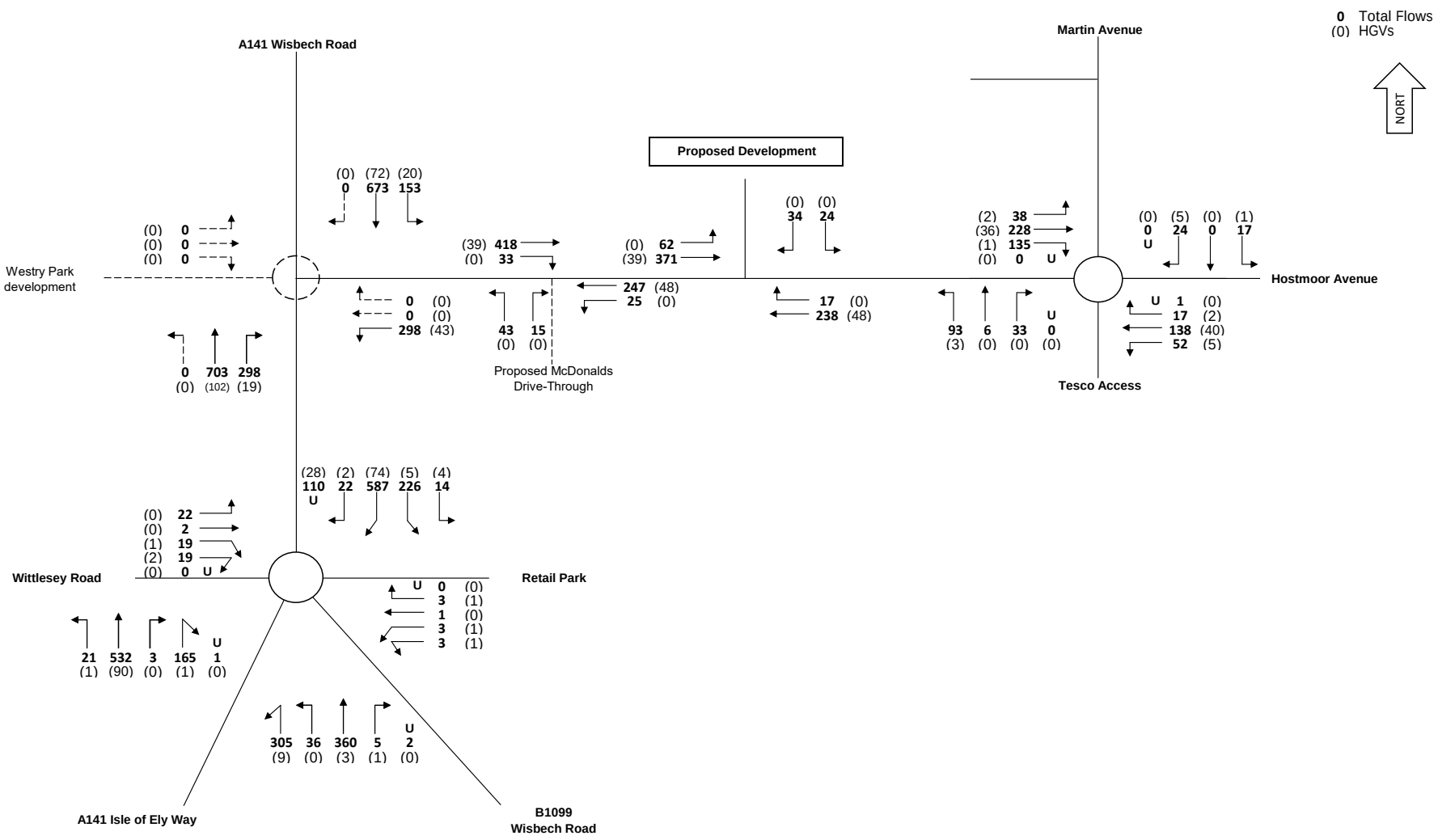
2.6 The results of the LINSIG test, based on the peak hours established in the TA, are shown at Table 1 below.

Table 1 – LINSIG Summary – Proposed A141 / Hostmoor Avenue Signal Junction

Junction Approach	AM 08:00-09:00		PM 16:45-17:45		SAT 11:30-12:30	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
Hostmoor Avenue Left	67.1%	8.6	85.6%	16.6	79.2%	17.8
A141 Northbound Ahead	40.4%	0.3	47.1%	0.4	34.9%	0.3
A141 Northbound Right	61.4%	7.7	46.3%	6.6	52.7%	9.3
A141 Southbound Ahead Left	68.4%	15.6	87.4%	24.8	77.2%	15.1

2.7 The results of the Linsig junction capacity assessment indicate that proposed A141 / Hostmoor Avenue signal junction, based on the '2021 Base + McDonald's + Aldi' scenario, will operate within capacity in the AM, PM and Saturday peak hours.

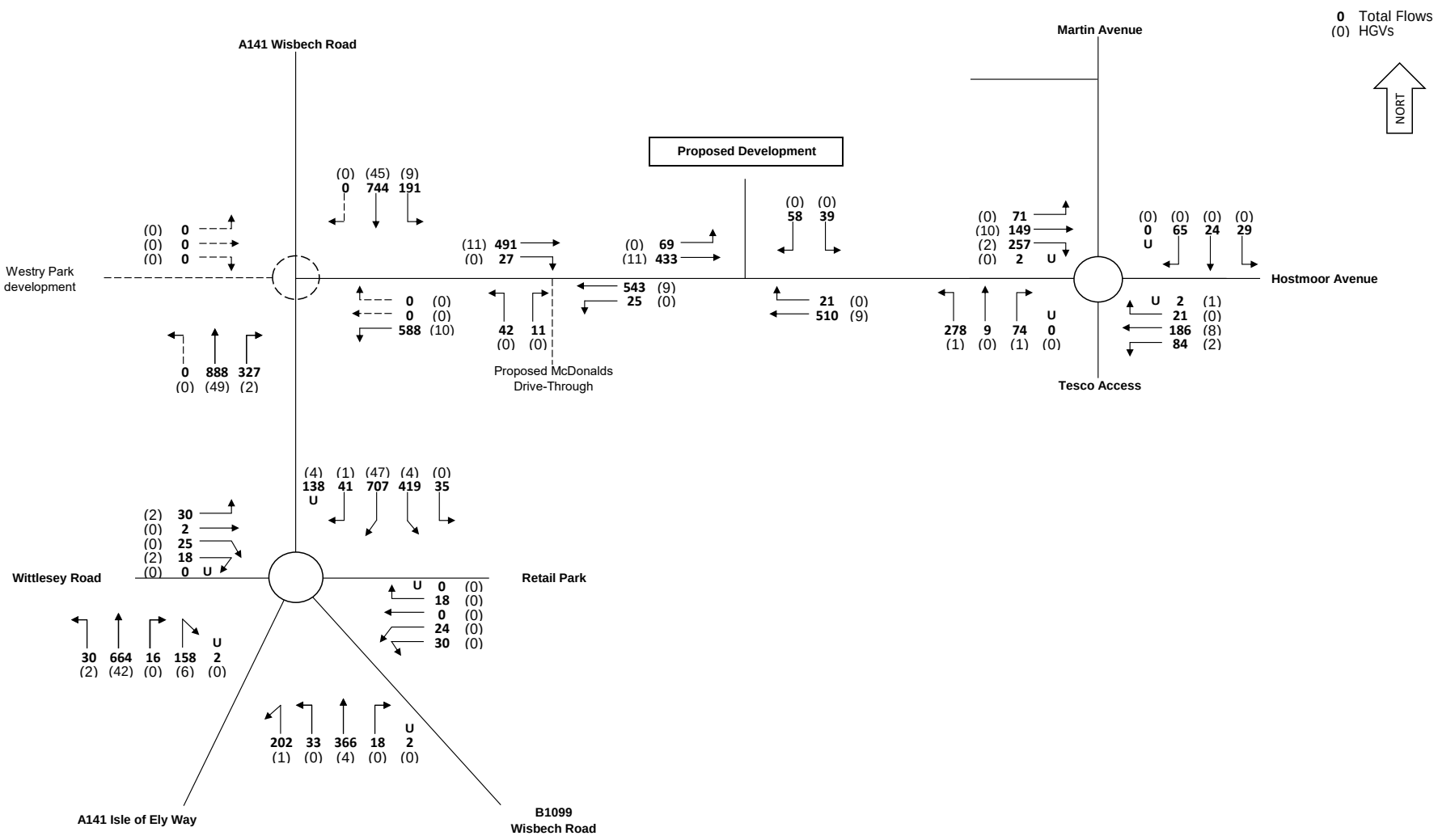
Appendix 1 – Flow Diagrams



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

AM Peak 08:00-09:00 | 2021 Baseline (scenario without Westry Retail Park) + McDonalds + Proposed Aldi Net Traffic Effec

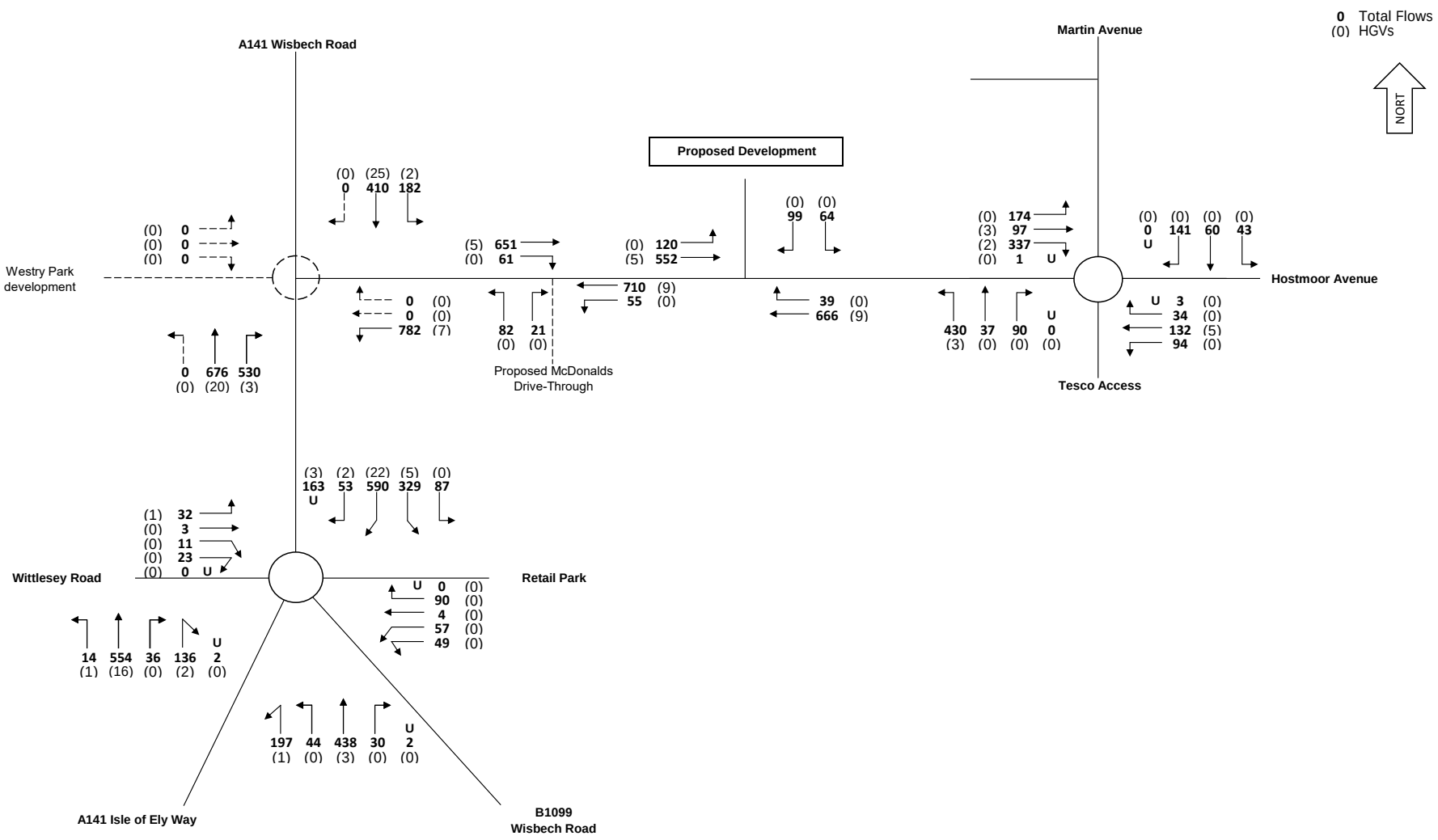
connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45 | 2021 Baseline (scenario without Westry Retail Park) + McDonalds + Proposed Aldi Net Traffic Effec

connect CONSULTANTS



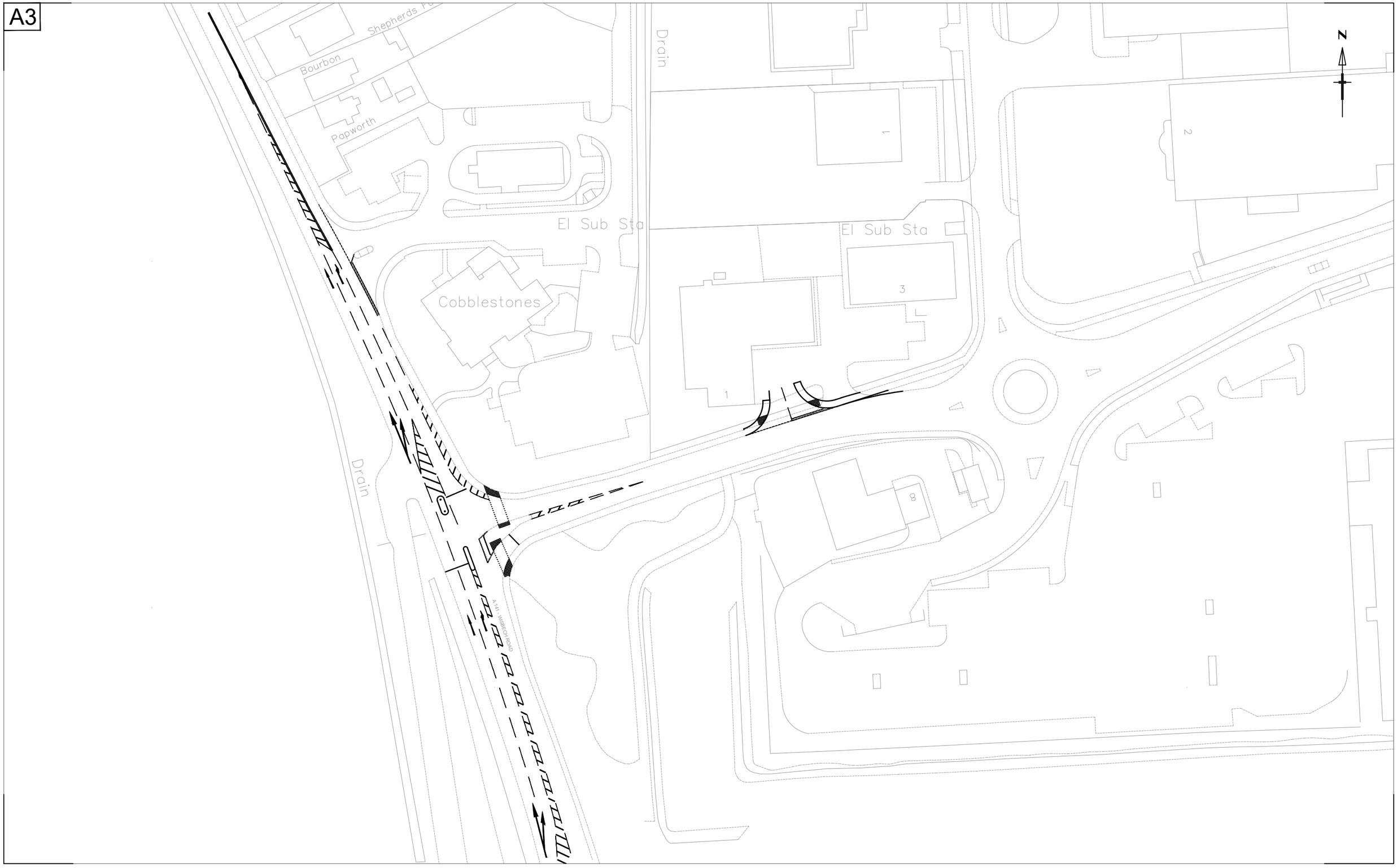
PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30 | 2021 Baseline (scenario without Westry Retail Park) + McDonalds + Proposed Aldi Net Traffic Effec

connect CONSULTANTS

Appendix 2 – Proposed Signal Junction Layout Sketch

A3



connect CONSULTANTS
78 BROAD STREET, CHIPPING SODBURY, BRISTOL. BS37 6AG
Tel: 01454 320 220 Web: www.connect-consultants.com
Fax: 01454 320 099 Email:bristol@connect-consultants.com

safecontractor APPROVED

bsi. UKAS MANAGEMENT SYSTEMS
QUALITY MANAGEMENT SYSTEM
ISO 9001 : 2015 FS 594947

client
ALDI STORES LTD

project
PROPOSED DEVELOPMENT
MARCH, HOSTMOOR AVENUE

title
PROPOSED SITE ACCESS AND
HIGHWAY IMPORVEMENTS

date	drawn by	checked by
JUNE 2020	T.A.S	C.B.W

scale	status
1:1000	PLANNING

drawing number
19126-SK200611.1

rev.

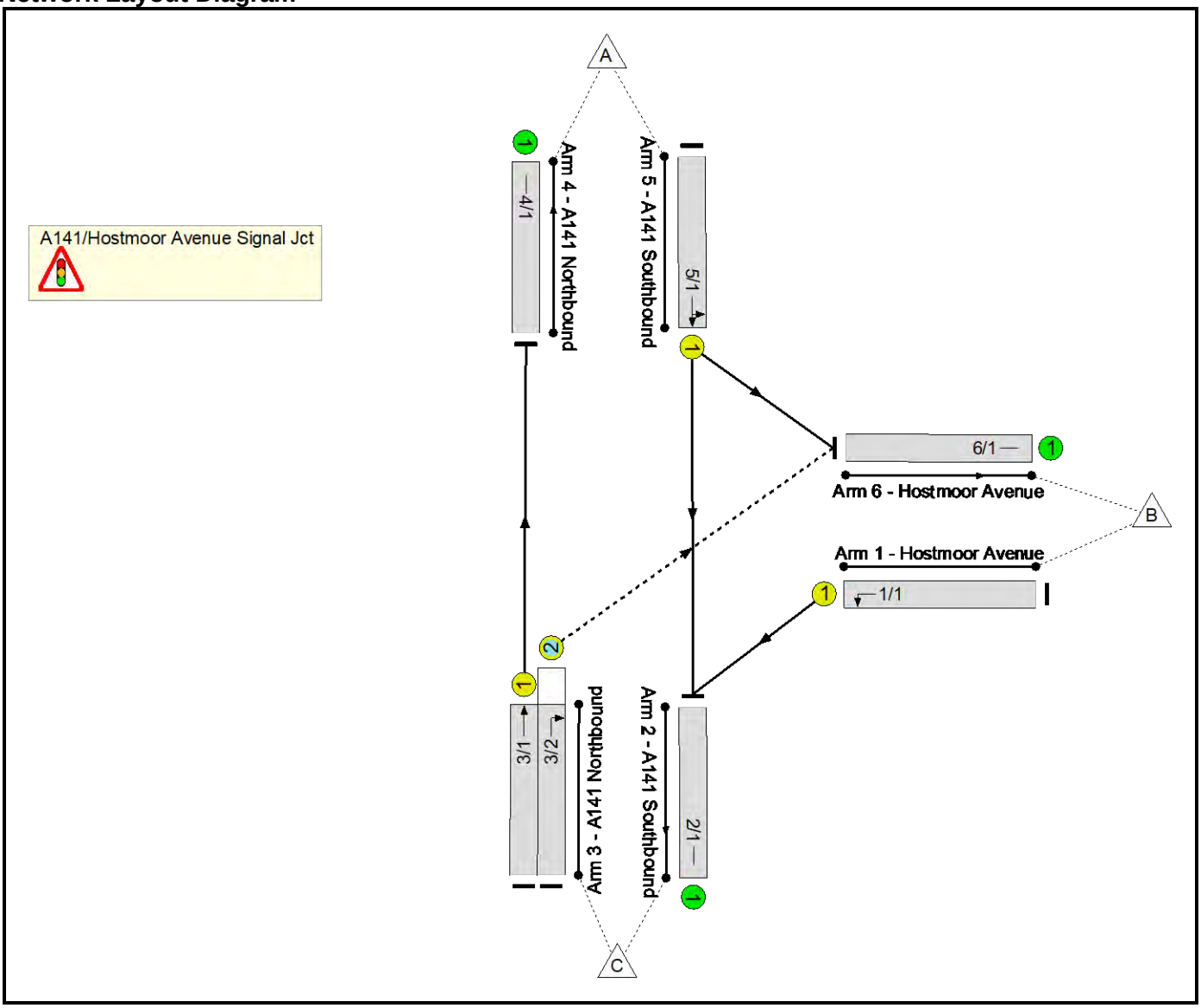
Appendix 3 – LINSIG Outputs

Full Input Data And Results

User and Project Details

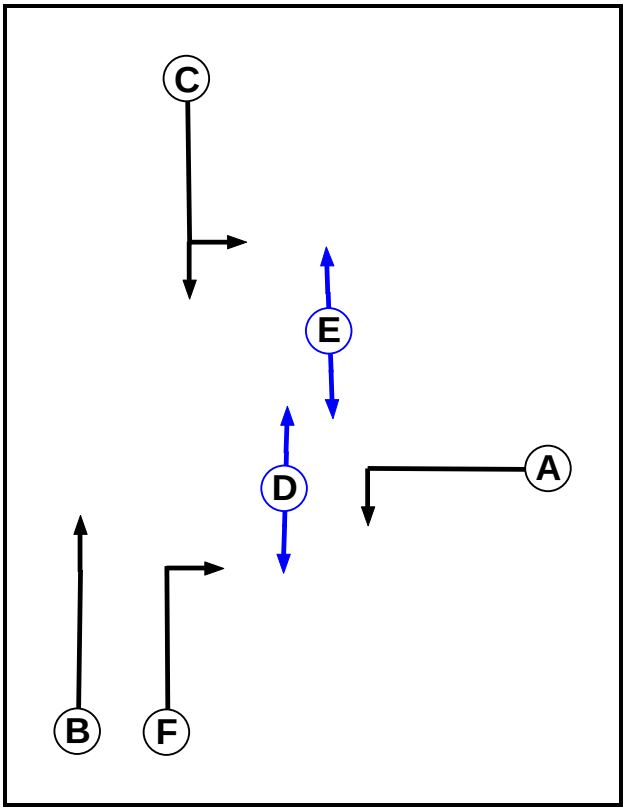
Project:	**Aldi, Hostmoor Avenue**
Title:	**A141/Hostmoor Avenue proposed signal junction**
Location:	March
Additional detail:	
File name:	20201112 A141.Hostmoor Avenue signal jct.lsg3x
Author:	
Company:	Connect Consultants Limited
Address:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7
F	Traffic		7	7

Phase Intergreens Matrix

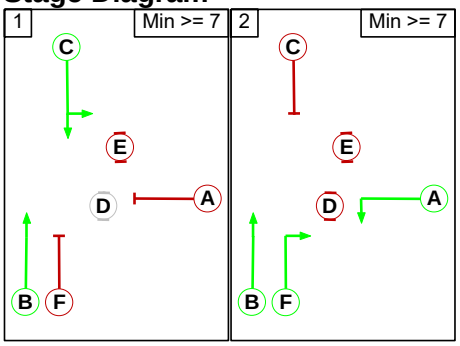
Terminating Phase	Starting Phase						
		A	B	C	D	E	F
	A		-	5	5	-	-
	B	-		-	-	-	-
	C	5	-		-	5	5
	D	9	-	-		-	9
	E	-	-	9	-		9
	F	-	-	5	5	5	

Phases in Stage

Stage No.	Phases in Stage
1	B C
2	A B F

Full Input Data And Results

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

	To Stage		
		1	2
From Stage	1		5
	2	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: A141/Hostmoor Avenue Signal Jct											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
3/2 (A141 Northbound)	6/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: A141/Hostmoor Avenue Signal Jct												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Hostmoor Avenue)	U	A	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 2 Left	18.00
2/1 (A141 Southbound)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (A141 Northbound)	U	B	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 4 Ahead	Inf
3/2 (A141 Northbound)	O	F	2	3	15.8	Geom	-	3.75	0.00	N	Arm 6 Right	15.00
4/1 (A141 Northbound)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A141 Southbound)	U	C	2	3	60.0	Geom	-	5.00	0.00	Y	Arm 2 Ahead	Inf
											Arm 6 Left	18.00
6/1 (Hostmoor Avenue)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2021 Base + Aldi, AM'	08:00	09:00	01:00	
2: '2021 Base + Aldi, PM'	16:45	17:45	01:00	
3: '2021 Base + Aldi, SAT'	11:30	12:30	01:00	

Scenario 1: '2021 Base + Aldi, AM' (FG1: '2021 Base + Aldi, AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	173	745	918
	B	0	0	341	341
	C	804	317	0	1121
	Tot.	804	490	1086	2380

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2021 Base + Aldi, AM
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	341
2/1	1086
3/1	804
3/2	317
4/1	804
5/1	918
6/1	490

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.50	0.00	Y	Arm 2 Left	18.00	100.0 %	1906	1906
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
3/2 (A141 Northbound)	3.75	0.00	N	Arm 6 Right	15.00	100.0 %	1936	1936
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	5.00	0.00	Y	Arm 2 Ahead	Inf	81.2 %	2082	2082
				Arm 6 Left	18.00	18.8 %		
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2021 Base + Aldi, PM' (FG2: '2021 Base + Aldi, PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	201	789	990
	B	0	0	598	598
	C	937	329	0	1266
	Tot.	937	530	1387	2854

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2021 Base + Aldi, PM
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	598
2/1	1387
3/1	937
3/2	329
4/1	937
5/1	990
6/1	530

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.50	0.00	Y	Arm 2 Left	18.00	100.0 %	1906	1906
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
3/2 (A141 Northbound)	3.75	0.00	N	Arm 6 Right	15.00	100.0 %	1936	1936
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	5.00	0.00	Y	Arm 2 Ahead	Inf	79.7 %	2080	2080
				Arm 6 Left	18.00	20.3 %		
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2021 Base + Aldi, SAT' (FG3: '2021 Base + Aldi, SAT', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	184	436	620
	B	0	0	788	788
	C	695	533	0	1228
	Tot.	695	717	1224	2636

Full Input Data And Results

Traffic Lane Flows

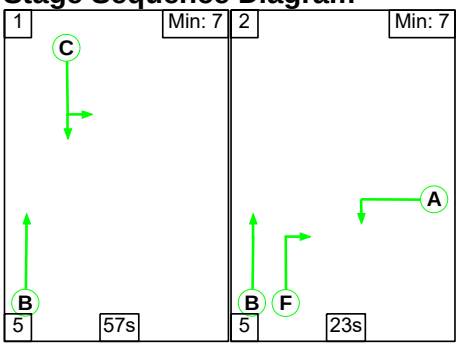
Lane	Scenario 3: 2021 Base + Aldi, SAT
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	788
2/1	1224
3/1	695
3/2	533
4/1	695
5/1	620
6/1	717

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.50	0.00	Y	Arm 2 Left	18.00	100.0 %	1906	1906
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
3/2 (A141 Northbound)	3.75	0.00	N	Arm 6 Right	15.00	100.0 %	1936	1936
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	5.00	0.00	Y	Arm 2 Ahead	Inf	70.3 %	2064	2064
				Arm 6 Left	18.00	29.7 %		
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2021 Base + Aldi, AM' (FG1: '2021 Base + Aldi, AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

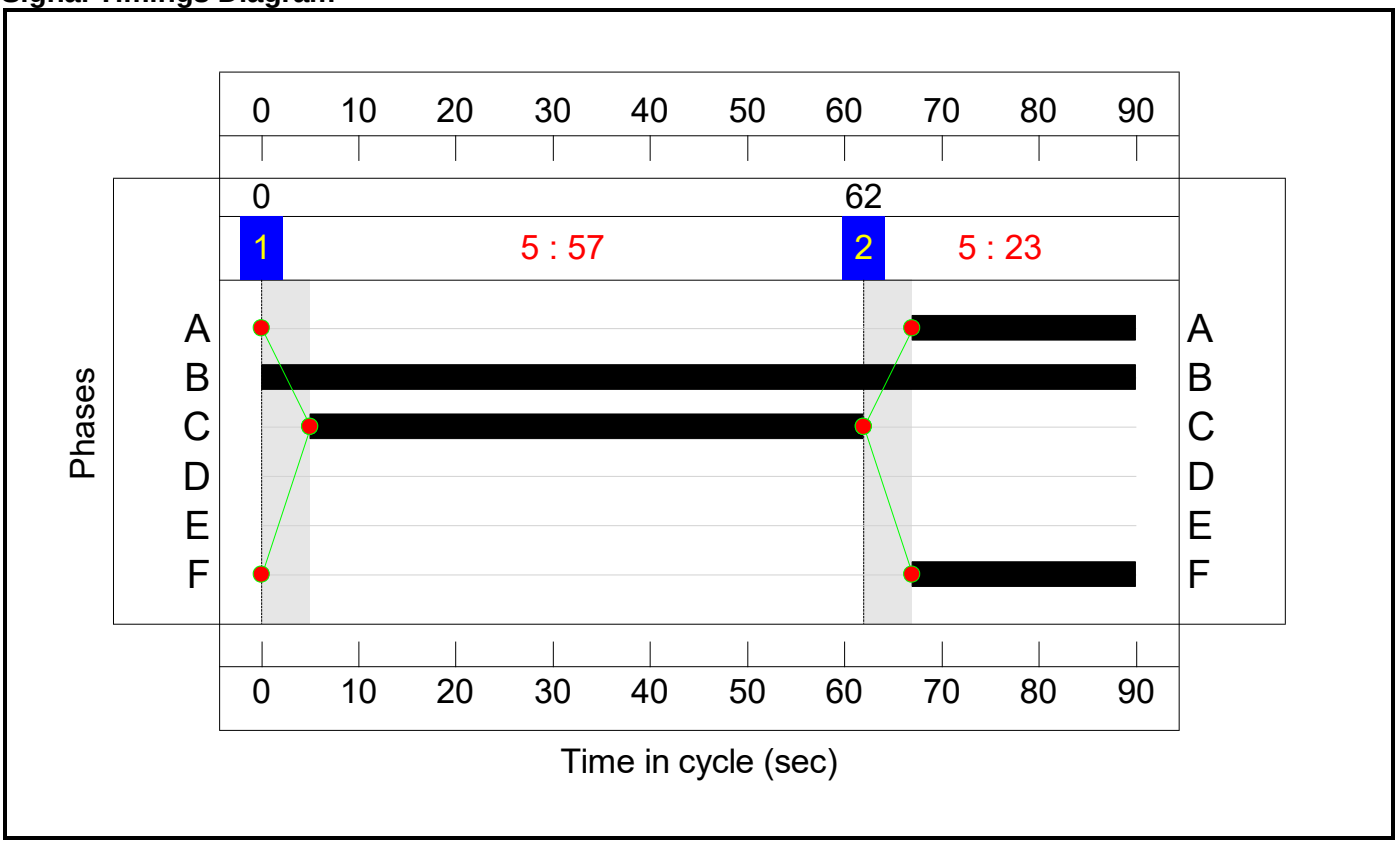


Stage Timings

Stage	1	2
Duration	57	23
Change Point	0	62

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**68.4%**
A141/Hostmoor Avenue Signal Jct	-	-	**N/A**	-	-		-	-	-	-	-	-	**68.4%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	23	-	341	1906	508	67.1%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1086	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	804	1990	1990	40.4%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	23	-	317	1936	516	61.4%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	804	Inf	Inf	0.0%
5/1	A141 Southbound Ahead Left	U	N/A	N/A	C		1	57	-	918	2082	1342	68.4%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	490	Inf	Inf	0.0%

Full Input Data And Results

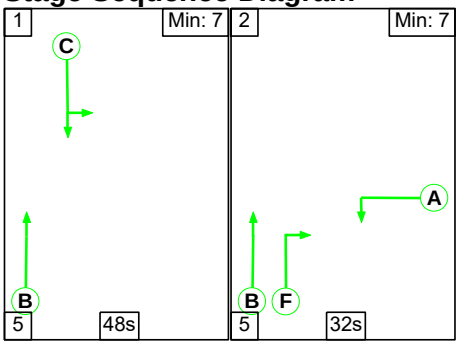
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**310**	**7**	**7.9**	**3.2**	**0.0**	**11.1**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**310**	**7**	**7.9**	**3.2**	**0.0**	**11.1**	**-**	**-**	**-**	**-**
1/1	341	341	-	-	-	2.8	1.0	-	3.8	40.1	7.6	1.0	8.6
2/1	1086	1086	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	804	804	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
3/2	317	317	0	310	7	2.5	0.8	0.0	3.3	37.9	6.9	0.8	7.7
4/1	804	804	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	918	918	-	-	-	2.6	1.1	-	3.7	14.4	14.5	1.1	15.6
6/1	490	490	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 31.5 Total Delay for Signalled Lanes (pcuHr): 11.15 Cycle Time (s): 90
PRC Over All Lanes (%): 31.5 Total Delay Over All Lanes(pcuHr): 11.15

Full Input Data And Results

Scenario 2: '2021 Base + Aldi, PM' (FG2: '2021 Base + Aldi, PM', Plan 1: 'Network Control Plan 1')

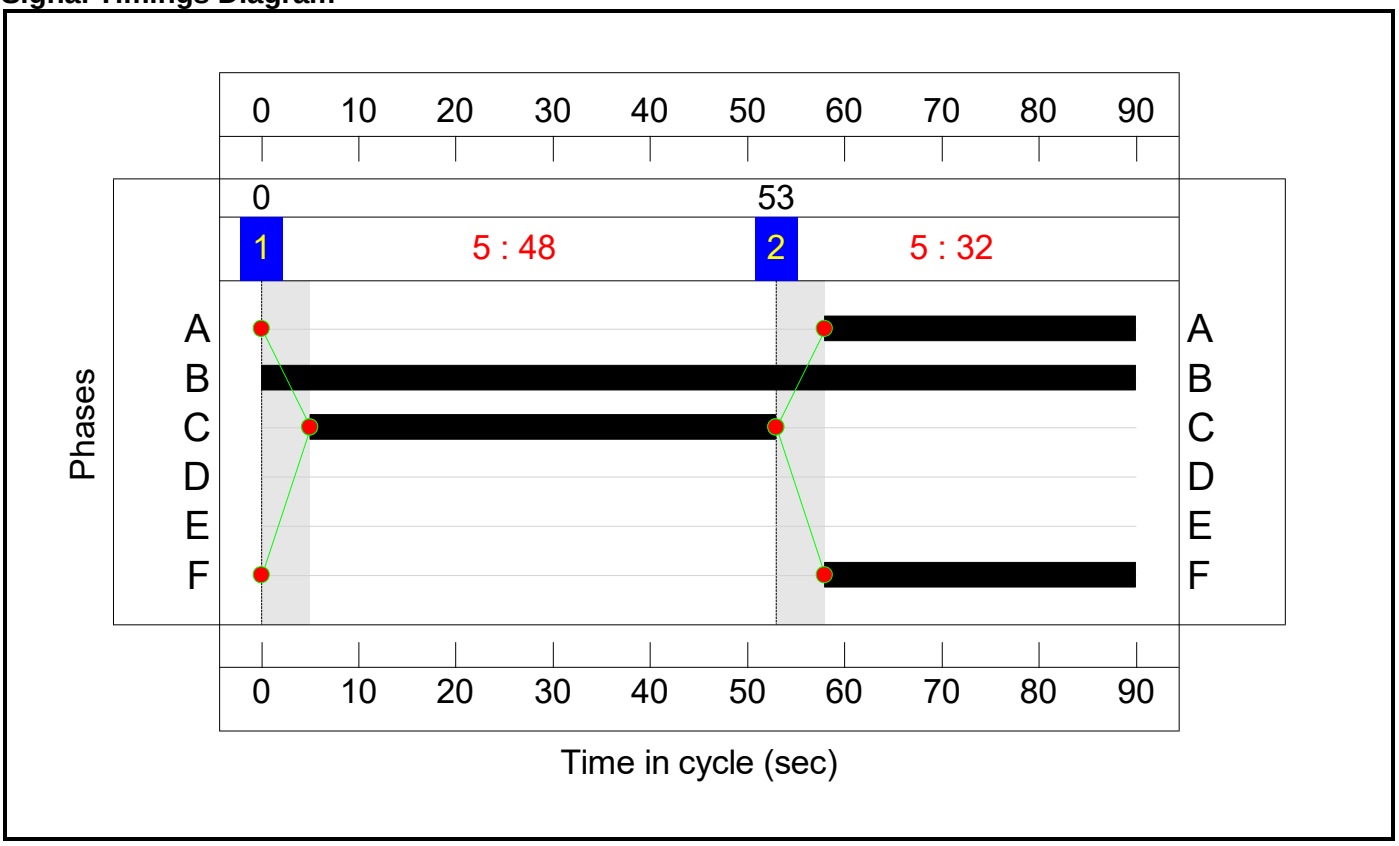
Stage Sequence Diagram



Stage Timings

Stage	1	2
Duration	48	32
Change Point	0	53

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.4%**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.4%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	32	-	598	1906	699	85.6%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1387	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	937	1990	1990	47.1%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	32	-	329	1936	710	46.3%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	937	Inf	Inf	0.0%
5/1	A141 Southbound Ahead Left	U	N/A	N/A	C		1	48	-	990	2080	1132	87.4%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	530	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**322**	**7**	**11.3**	**7.0**	**0.0**	**18.3**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**322**	**7**	**11.3**	**7.0**	**0.0**	**18.3**	**-**	**-**	**-**	**-**
1/1	598	598	-	-	-	4.4	2.8	-	7.2	43.2	13.8	2.8	16.6
2/1	1387	1387	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	937	937	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
3/2	329	329	0	322	7	2.0	0.4	0.0	2.4	26.5	6.2	0.4	6.6
4/1	937	937	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	990	990	-	-	-	4.9	3.3	-	8.2	29.9	21.4	3.3	24.8
6/1	530	530	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1

PRC for Signalled Lanes (%): 2.9
PRC Over All Lanes (%): 2.9

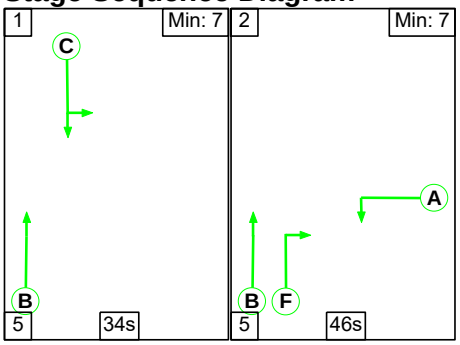
Total Delay for Signalled Lanes (pcuHr): 18.26
Total Delay Over All Lanes(pcuHr): 18.26

Cycle Time (s): 90

Full Input Data And Results

Scenario 3: '2021 Base + Aldi, SAT' (FG3: '2021 Base + Aldi, SAT', Plan 1: 'Network Control Plan 1')

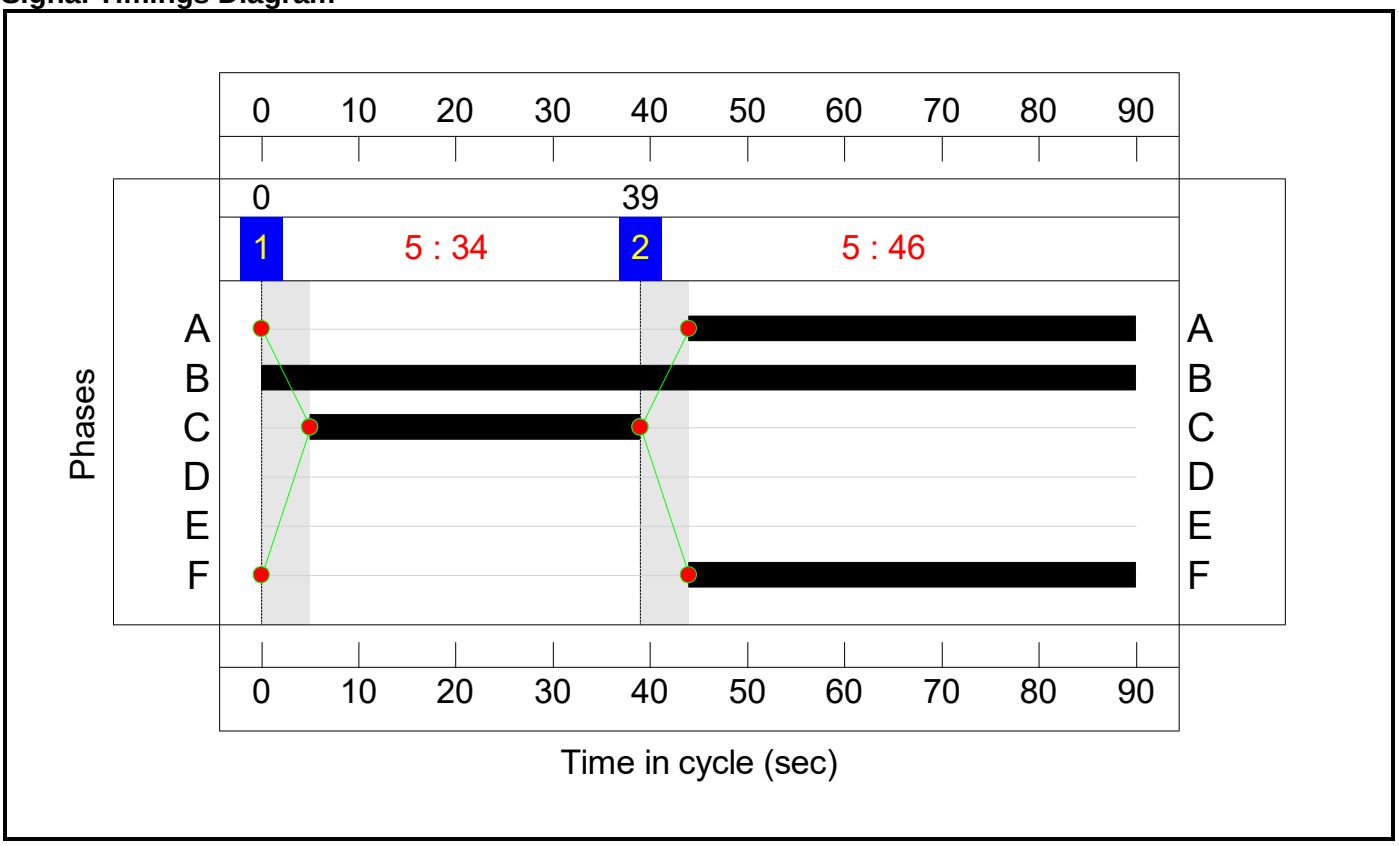
Stage Sequence Diagram



Stage Timings

Stage	1	2
Duration	34	46
Change Point	0	39

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.2%**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.2%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	46	-	788	1906	995	79.2%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1224	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	695	1990	1990	34.9%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	46	-	533	1936	1011	52.7%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	695	Inf	Inf	0.0%
5/1	A141 Southbound Ahead Left	U	N/A	N/A	C		1	34	-	620	2064	803	77.2%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	717	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**521**	**12**	**10.1**	**4.4**	**0.0**	**14.4**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**521**	**12**	**10.1**	**4.4**	**0.0**	**14.4**	**-**	**-**	**-**	**-**
1/1	788	788	-	-	-	3.8	1.9	-	5.7	26.0	16.0	1.9	17.8
2/1	1224	1224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	695	695	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
3/2	533	533	0	521	12	2.1	0.6	0.0	2.7	17.9	8.7	0.6	9.3
4/1	695	695	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	620	620	-	-	-	4.1	1.7	-	5.8	33.7	13.4	1.7	15.1
6/1	717	717	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 13.7 Total Delay for Signalled Lanes (pcuHr): 14.43 Cycle Time (s): 90
PRC Over All Lanes (%): 13.7 Total Delay Over All Lanes(pcuHr): 14.43

ALDI STORES LIMITED

PROPOSED DISCOUNT FOODSTORE, HOSTMOOR AVENUE, MARCH

TN05 – EXISTING TRAFFIC DATA ASSESSMENT

20TH NOVEMBER 2020

1.0 Introduction

1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants who have been instructed by Aldi Stores Limited in relation to a planning application for a proposed discount foodstore on Hostmoor Avenue in March, Cambridgeshire.

1.2 As part of the pre-application process, Connect Consultants submitted an initial Transport Assessment (June 2020) to Cambridgeshire County Council (CCC), acting as the Local Highway Authority, for review.

1.3 At the time of preparation of the June 2020 TA, the acquisition of new traffic data that was representative of "normal" traffic conditions was not possible due to conditions surrounding Covid-19. Therefore, the Connect TA used available historic traffic data, which included manual turning count surveys at junctions in the local highway network recorded on Tuesday 27th March 2018 and Saturday 9th May 2015.

1.4 CCC approved use of the March 2018 survey data, but disagreed with using the May 2015 data because it is too old.

1.5 This Technical Note (TN) has been produced to demonstrate the trend in traffic growth across the March area using available traffic data derived from automatic traffic counter (ATC) surveys of key traffic corridors around March, undertaken to inform CCC's annual traffic monitoring process of the local area.

1.6 The 2015 assessment year will then be evaluated within the trend in order to assess its validity for use in the traffic assessment of the proposed discount foodstore.

2.0 Annual Traffic Monitoring Surveys

2.1 CCC collect annual traffic data via ATC surveys at various key traffic corridors around March as part of their annual traffic monitoring process of the area. A plan showing the locations of the ATC surveys is provided at Appendix 1. The surveyed roads and their positions relative to the centre of March are as follows:

- Burrowmoor Road (West)
- Creek Road (Northeast)
- B1101 Elm Road (North)
- Gaul Road (West)
- Knight's End Road (South)
- Norwood Road (Northwest)
- B1099 Upwell Road (East)

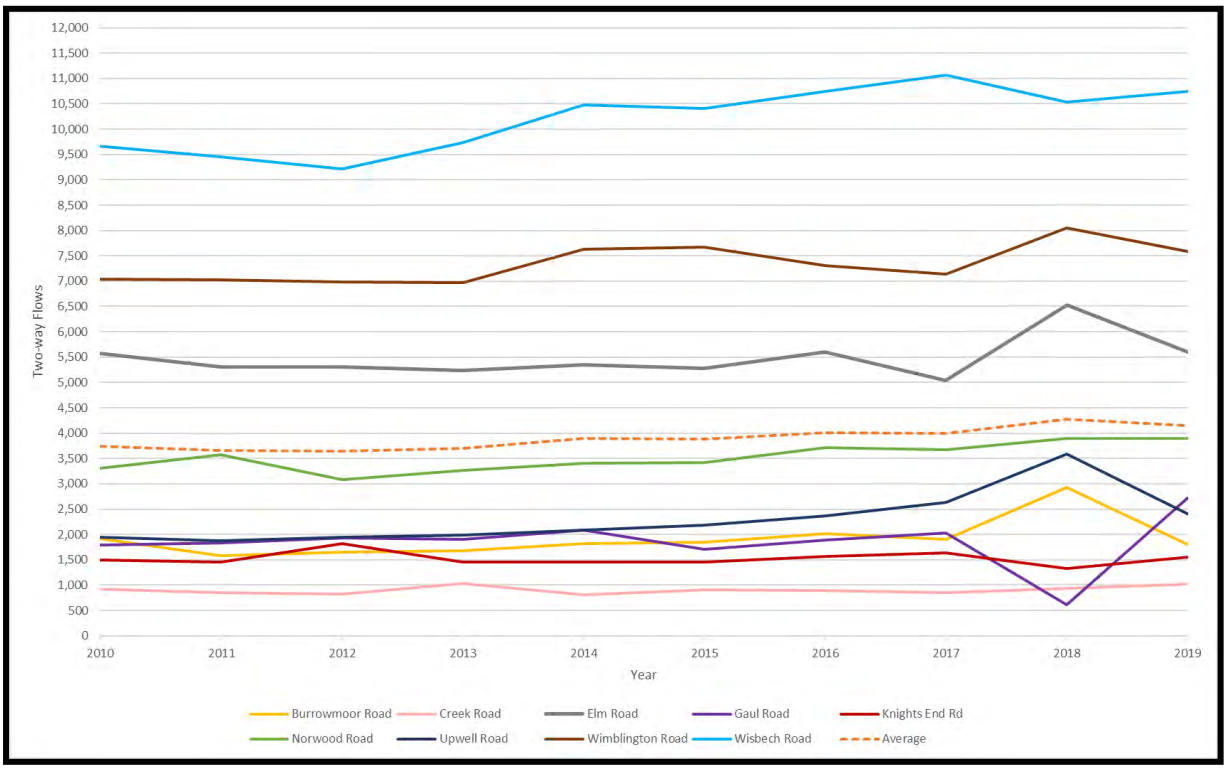
- B1011 Wimblington Road (South)
- Wisbech Road (Northwest)

2.2 The ATC traffic data comprises two-way traffic flows recorded on a weekday (Monday, Tuesday or Thursday) in October from 07:00 to 19:00 over 30-minute increments.

2.3 The data provided for 2011 includes only the total two-way flows recorded across the entire day for all sites.

2.4 The total 12-hour two-way flows recorded at each site for each survey year has been summarised and plotted on the graph at Figure 1 below. The average two-way flows across every site per year is also illustrated on the graph.

Figure 1 – Total Daily Flows Per Site per Year



2.5 The ATC traffic counts indicate that Wisbech Road, the road closest to the proposal site, exhibits the highest number of daily flows across all of the sites every survey year.

2.6 The graph shows a clear discrepancy in the traffic flows in 2018, with notable increases exhibited at Wimblington Road, Elm Road, Upwell Road and Burrowmoor Road; and a sharp decrease in traffic flows at Gaul Road from the preceding year.

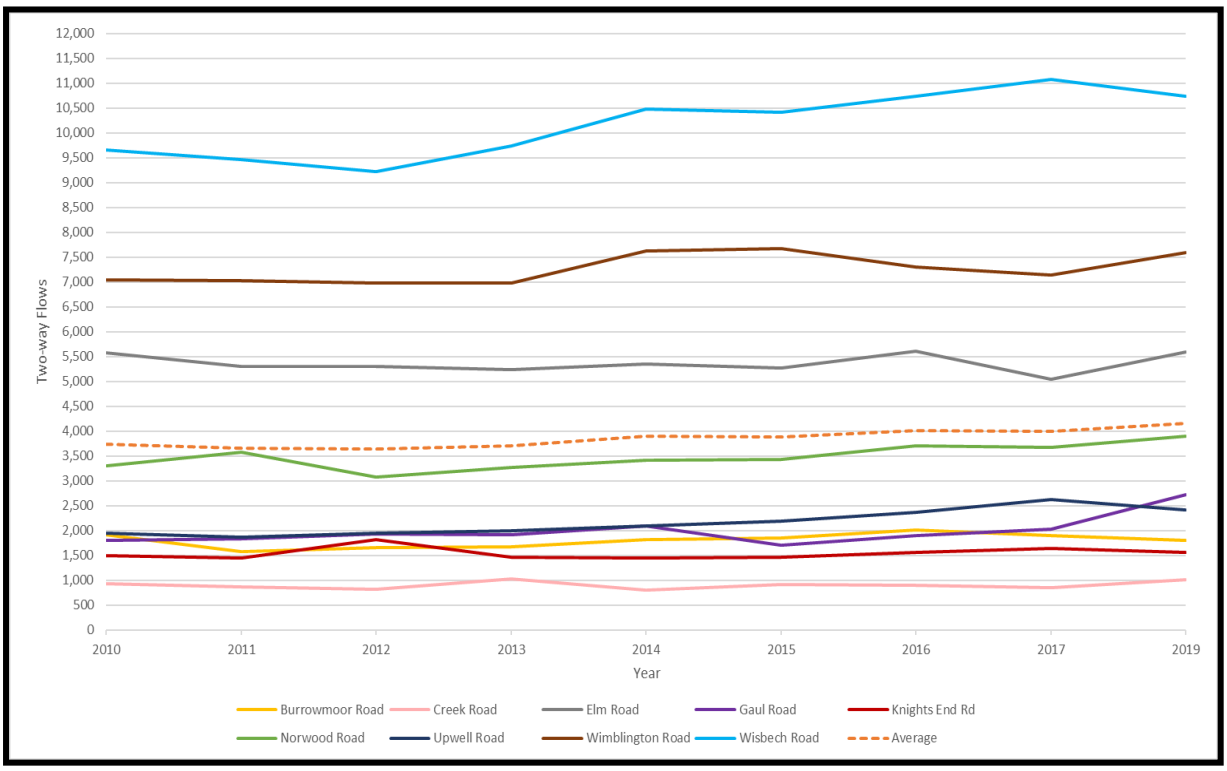
2.7 The reason behind this may have been as a result of a road traffic incident involving a lorry on the A141 south of March near Doddington at approximately 19:00 on Monday 15th October 2018, a day before the 2018 ATC surveys were undertaken. A news article on the Cambs Times website suggests that the A141 was closed for some time and although it is not specified for how long, as the incident involved an upturned lorry it is reasonable to suggest that the road would have likely been closed most of, if not all, of Tuesday 16th October 2018.

2.8 The closure of the A141 south of March could have likely resulted in notable traffic diversions around March, the kind of which represented in the change in traffic flows shown at Figure 1.

2.9 On this basis, it is reasonable to assume that 2018 is an anomalous year and therefore the data recorded at that time will not be included in this assessment.

2.10 Figure 2 shows the total daily two-way flows recorded at each site for each survey year, excluding 2018. Figure 2 shows reasonably consistent traffic flows with a growth trend.

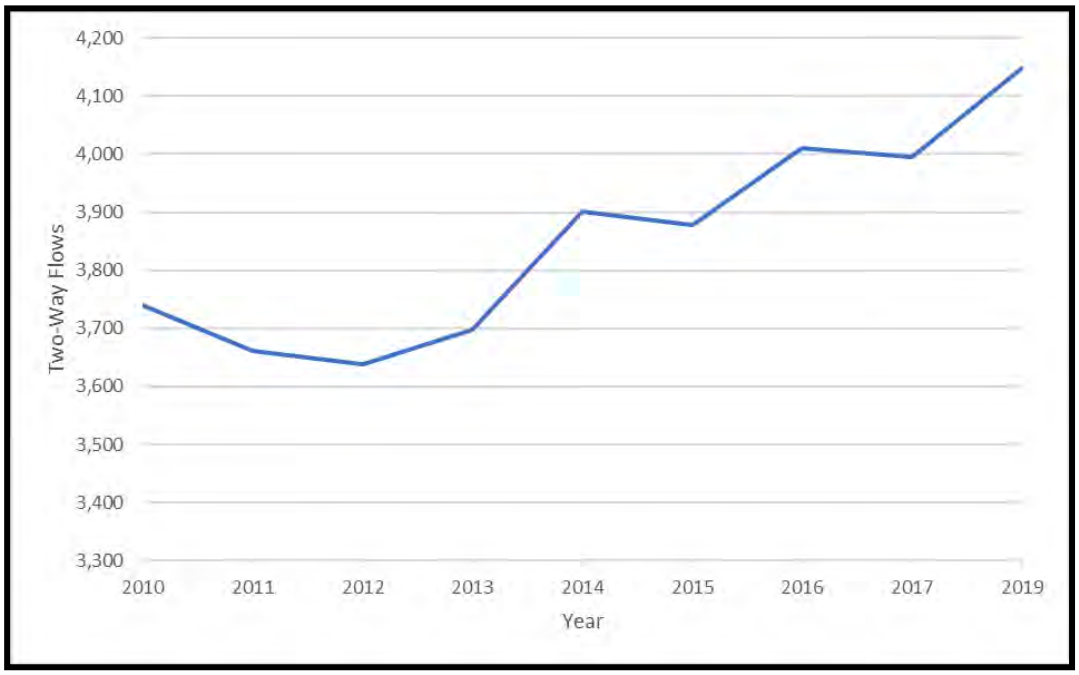
Figure 2 – Total Daily Flows per Site per Year – Excluding 2018



3.0 Trend in Traffic Growth

3.1 In order to assess the trend in traffic growth across the March area, the average total flows per year amongst all of the survey sites has first been calculated, the results of which are plotted on the graph at Figure 3 below.

Figure 3- Average Total Daily Flows per Year



3.2 The trend in traffic growth above will be compared with the traffic growth trend derived from the TEMPro database (version 7.2), which uses population, employment, housing, car ownership and trip rate data to estimate traffic growth in a defined area.

3.3 The projected growth of traffic in the March region has been estimated from the TEMPro database based on the TEMPro outputs for car drivers in the geographical areas of "Fenland 005", "Fenland 007", and "Fenland 009" (average across the areas), with area type "All", road type "All", and within the period of "Average weekday".

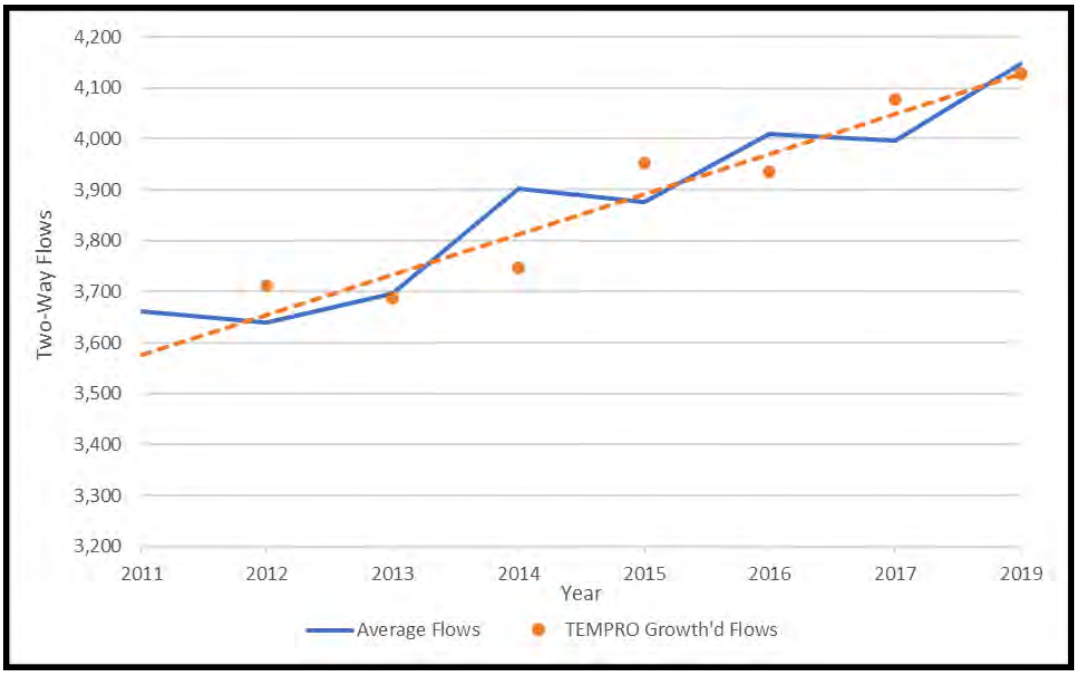
3.4 Growth factors are then derived from TEMPro between a base year and a future year. For the purposes of this assessment, every survey year's observed flows will be subject to one year of TEMPro growth in order to plot a trend of annual growth. The TEMPro growth rates between each survey year is shown at Table 1 below. The TEMPro database commences in 2011, hence no 2010-2011 data.

Table 1 – Average TEMPro Growth Rates

TEMPro Growth Period	Average Weekday Growth Rates
2011-2012	1.0138
2012-2013	1.0136
2013-2014	1.0134
2014-2015	1.0132
2015-2016	1.0147
2016-2017	1.0168
2017-2019	1.0330

3.5 Each growth rate factor above has been applied to their corresponding observed annual flows shown at Figure 3, e.g the 2011-2012 growth rate has been applied to the 2011 observed flows to represent the projected 2012 flows. The resultant TEMPro flows that have been subject to growth from the preceding year's observed flows are plotted on the graph at Figure 4 below, as well as the average daily flows from Figure 3 from 2011.

Figure 4 – Average Daily Flows and TEMPro Flows



3.6 Figure 4 above shows that the linear trend representing TEMPro traffic growth is generally comparable to the observed average daily flows across the survey sites.

3.7 Figure 4 demonstrates that the 2015 observed average traffic flows are comparable to the corresponding TEMPro growth trend, sitting particularly close to the linear trendline. This means 2015 represents a year typical of the trajectory of traffic growth in the area.

4.0 Conclusions

4.1 This assessment has demonstrated that the observed traffic flows across March indicate reasonably consistent year on year flows with a distinct trend in traffic growth that has been suitably validated by TEMPro growth rates representing the local region.

4.2 The 2015 survey year sits fittingly on this trend and as such using the May 2015 traffic surveys for the Connect Transport Assessment to represent future traffic conditions is suitable.

Appendix 1 – Traffic Surveys Plan

March

Cambridgeshire County Council