Kenilworth Vineries Ltd

Saltpans

Saltpans TIA: Addendum

Issue

Rev A | 24 January 2020

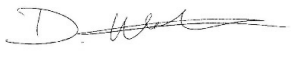
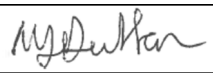
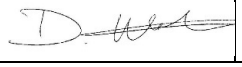
Job number 263993-00

Ove Arup & Partners Ltd
63 St Thomas Street
Bristol BS1 6JZ
United Kingdom
www.arup.com

ARUP

Document verification

ARUP

Job title		Saltpans			**Job number** 263993-00
Document title		Saltpans TIA: Addendum			**File reference** 4.50
Document ref		Issue			
Revision	**Date**	**Filename**	TIA Addendum (d1.2).docx		
Draft 1	10 Sep 2019	**Description**	First draft		
			Prepared by	Checked by	Approved by
		Name	Mike Dutton	David Watkins	David Watkins
		Signature			
Issue	23 Sep 2019	**Filename**	TIA Addendum (Issue).docx		
		Description	Issue following Arup QA		
			Prepared by	Checked by	Approved by
		Name	Mike Dutton	Nieves Serrano-Pastor	David Watkins
		Signature			
Rev A	24 Jan 2020	**Filename**	TIA Addendum (Rev A).docx		
		Description	Revision following States of Guernsey comments		
			Prepared by	Checked by	Approved by
		Name	Mike Dutton	David Watkins	David Watkins
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
				Issue Document verification with document	✓

Contents

Appendices

Subject Saltpans TIA: Addendum

Date 24 January 2020 **Job No/Ref** 263993-00

1 Introduction

Arup prepared a Traffic Impact Assessment (TIA) on behalf of Kenilworth Vineries for a residential development at Saltpans, St Sampson in September 2018. This TIA was prepared based on a scope of works agreed with States of Guernsey Traffic & Highway Services (THS) and in accordance with guidance.

The development is expected to deliver between 84 and 154[1] dwellings within the 3ha site. The development mix has not been quantified but is expected to be a mix of private and affordable houses and flats. Therefore, the TIA (and this addendum) considered two development scenarios, which are outlined in Section 3.2 of the TIA.

Vehicle access to the site is proposed via a new access onto Route du Braye. This has been designed in accordance with States of Guernsey Standards. Pedestrian and cycle access is provided by new connections onto Saltpans and Lowlands Road. The final locations of the pedestrian and cycle accesses are to be determined during the masterplanning process for the site. Alterations to the highway network may be required to ensure that safe pedestrian and cycle access is achieved. The need for any such works will be confirmed when a masterplan is submitted for approval.

The TIA was submitted in support of the planning application lodged by Kenilworth Vineries. During the determination period States of Guernsey Planning Services have instructed that Housing Allocations in the Island Development Plan (2016) (IDP) that are to be developed within the first five years of the plan and any significant windfall sites with approved Development Frameworks – those sites of more than 25 dwellings - should be included as committed developments in all TIA. The assumptions around committed developments have therefore required revisit, which has affected the modelling baseline.

1.1 Committed Developments

The original TIA prepared in 2018 by Arup included two committed development sites in the assessment baseline, as agreed with THS:

- Tertre Lane – 51 sheltered housing units; and
- Leale's Yard – 109 residential units and 1,049m^2 commercial/retail/community space.

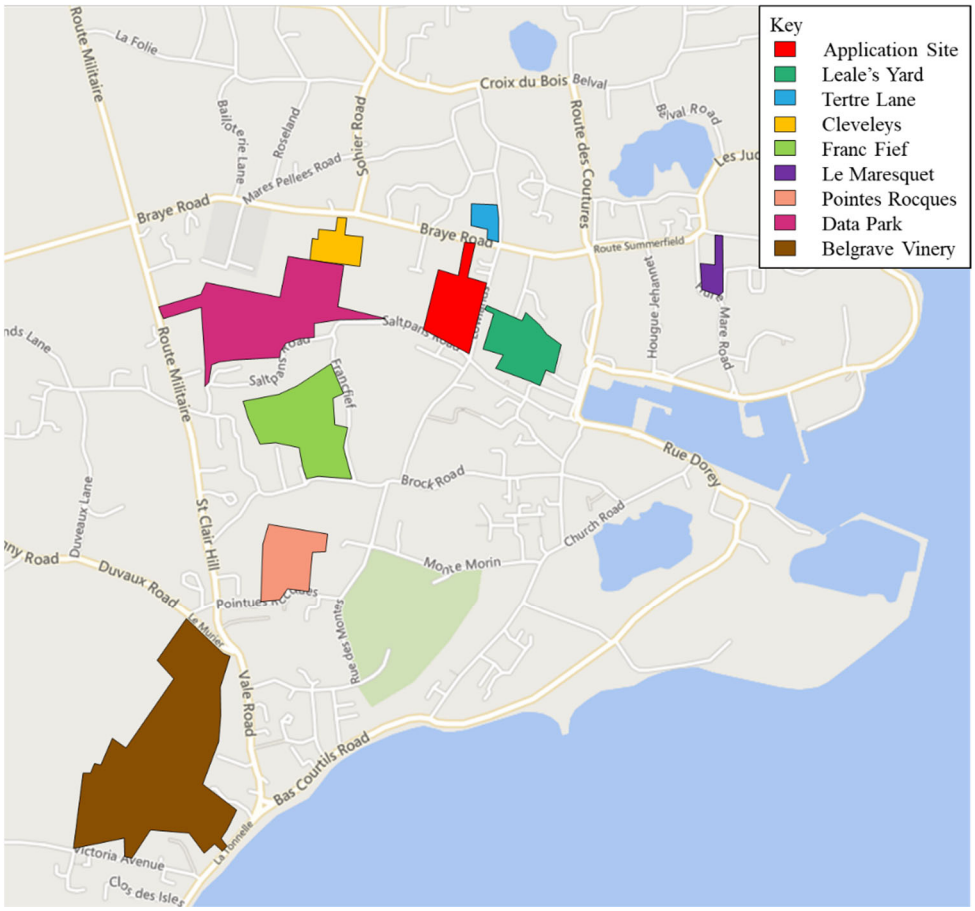
Following a review of those IDP sites which could potentially result in changes to traffic demands in the baseline year of assessment, Planning Services have recommended that the following sites are included in the Saltpans TIA:

[1] There has been a change in the number of dwellings that Saltpans is expected to deliver from 64-156 to 84-154 as advised by States of Guernsey Planning Services on 22 January 2020. The increase in the minimum number of dwellings would increase the average number assessed in the TIA from 110 to 119. As the greatest impact is from the Maximum Development scenario this has not been deemed as a material change so has not been modelled.

- Cleveleys Housing Allocation – Approved Development Framework comprising 19-29 dwellings and accessed directly from Route du Braye;
- Franc Fief Housing Allocation – Strategic Housing Land Availability Study 2014 estimated 133-263 dwellings and accessed from Francfief, Saltpans and Robergerie (via Route Militaire);
- Pointes Rocques Housing Allocation – Approved Development Framework comprising 75-125 dwelling and accessed from Pointues Rocques (via St. Clair Hill / Route Militaire);
- Belgrave Vinery Housing Allocation – Strategic Housing Land Availability Study 2014 estimated 158-285 dwellings accessed from Le Murier (via St. Clair Hill / Route Militaire) and Les Banques;
- Tertre Lane – approved development comprising 51 sheltered housing units accessed from Lowlands Road (via Route du Braye);
- Le Maresquet – windfall development with approved Development Framework comprising 21-38 dwellings accessed from Hure Mare Road (via Route Summerfield / Route du Braye);
- Leale's Yard Regeneration Area accessed from Nocq Road and The Bridge mini-roundabout:
    - High density option – 400 units and 2,000m^2 of commercial/retail/community space;
    - Low density option – 200 units and 1,000m^2 of commercial/retail/community space; and
- Data Park – approved development comprising substantial flexible industrial space catering to several uses including: manufacturing; distribution; archiving; storage; printing and associated works; data centre, disaster recovery centre; and ancillary offices. The Data Park is accessed directly from Route Militaire via a signalised junction.

The location of the committed developments in relation to the application site can be seen in Figure 1.

Figure 1: Committed Development Location Plan



This addendum to the 2018 TIA report will revisit the baseline traffic demand in the AM and PM peak hours, will update junction capacity modelling and will consider the following scenarios:

- Committed Development:
    - Low Density – comprising 657 dwellings across seven committed development sites, 1,000m^2 commercial/retail/community space at Leale's Yard and the low-density option for the Data Park as used in the Pointes Rocques TIA.
    - High Density – comprising 1,191 dwellings across seven committed development sites, 2,000m^2 commercial/retail/community space at Leale's Yard and the high-density option for the Data Park as used in the Pointes Rocques TIA.
- Saltpans Development:
    - Average Development – comprising 110 dwellings; and
    - Maximum Development – comprising 156 dwellings.

1.2 St Sampson High School

As part of the Transforming Education Programme (TEP) The Committee for Education, Sport and Culture appointed Arup in early September 2019 to provide a TIA for St Sampson High School (SSHS). The age 11-18 School project will transition pupils from four schools to two college sites.

For SSHS, one of the selected college sites, this could result in a doubling of the number of pupils and a corresponding increase in staff.

The location of SSHS, in relation to the Saltpans site and the affected junctions, means that the change in pupil numbers is unlikely to change the vehicle trips along Route du Braye. Any existing pupils living in the north east of the island and not attending SSHS would already pass through the network modelled in this TIA to reach the school they attend. Therefore, these pupils would already be included in the baseline traffic counts. It is possible that the time of travel for pupils transitioning to SSHS may change as the school would be closer to their homes, but they are still likely to be within the same hour given the size of the island.

New pupils travelling to SSHS from the west are likely to use either Les Banques, Vale Road and Le Murier to access the school from the south OR Le Grand Fort, Les Gigands and Les Effards Road to access the school from the west or north. Whilst it is possible that some pupils from the north and west could continue on to the Braye crossroads, this detour is considered to be unlikely.

Therefore, regardless of the status of the SSHS TIA, new trips to the school have not been considered in this assessment.

2 Committed Development Trips

The proposed trip generation from the committed developments are provided in Table 1 for the Low Density scenario and Table 2 for the High Density scenario. Trip numbers have been taken from relevant TIA reports. A list of sources for the data used in assessing committed development trips is provided in Appendix A.

Table 1: Committed Development Low Density Trip Generation

Development	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Leale's Yard	25	108	133	76	46	122
Le Tertre	6	6	13	6	6	12
Cleveleys	3	6	9	7	3	10
Franc Fief	21	57	78	52	31	84
Pointes Rocques	11	30	41	28	16	44
Belgrave Vinery	22	58	80	53	33	86
Le Maresquet	4	9	13	9	6	15
Data Park	180	78	258	78	180	258
Total	**271**	**352**	**623**	**309**	**322**	**631**

Table 2: Committed Development High Density Trip Generation

Development	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Leale's Yard	50	217	267	152	92	244
Le Tertre	6	6	13	6	6	12
Cleveleys	4	9	13	10	5	15
Franc Fief	42	112	154	103	62	165
Pointes Rocques	18	50	68	47	26	73
Belgrave Vinery	40	104	144	96	59	155
Le Maresquet	7	17	23	17	10	27
Data Park	207	78	285	78	207	285
Total	**373**	**592**	**966**	**508**	**469**	**977**

Trips from Table 1 and Table 2 have been assigned onto the network. The distribution of these trips, where possible, is according to trip distributions outlined in the individual transport assessments (TAs) or TIAs. Where this is not possible, trips have been assigned based on the distribution of the proposed development trips, detailed in Section 6.1 of the 2018 Saltpans TIA report.

Proposed traffic flows for the committed developments have been added to the Baseline flows which have been uplifted (at 0.5% growth per annum) to a 2024 assessment year. The 2024 Do Minimum + Committed Development flows are contained in Appendix B.

3 Highway Impact

The assessment year for the development remains as 2024. The impact of the proposed development trips in terms of traffic flow increase, both the maximum development and average development, is estimated relative to the Do Minimum traffic flows including any committed developments.

Figures in Appendix B illustrate the highway impact for each scenario. The results are summarised in Table 3 for the Low Density Committed Development scenario and Table 4 for the High Density Committed Development scenario.

Table 3: Junction Impact on any single movement: Low Density Scenario

Junction	**Scenario**			
	Maximum Development		**Average Development**	
	AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
Braye Crossroads	6%	5%	4%	4%
Lowlands Rd / Route du Braye	4%	7%	3%	5%
Vale Avenue / Route du Braye	4%	7%	3%	5%
The Bridge	2%	4%	1%	3%

Note: the impact tabled is the maximum that occurs on any movement, either straight ahead or turning, at the junction.

Table 4: Junction Impact on any single movement: High Density Scenario

Junction	**Scenario**			
	Maximum Development		**Average Development**	
	AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
Braye Crossroads	6%	5%	4%	4%
Lowlands Rd / Route du Braye	4%	7%	3%	5%
Vale Avenue / Route du Braye	4%	7%	3%	5%
The Bridge	2%	4%	1%	3%

Note: the impact tabled is the maximum that occurs on any movement, either straight ahead or turning, at the junction.

As a result of adding in traffic associated with additional committed development sites, the impact of the proposed development at Saltpans has been slight reduced, in percentage terms, in all scenarios and time periods.

As with the original TIA, although none of the movements exhibit an impact of more than 7%, the impacts are potentially significant given local capacities and queues. States THS have therefore requested that these junctions are modelled in detail using appropriate assessment software.

4 Traffic Modelling

Each junction is assessed for both the AM (8:00-9:00am) and PM (4:30-5:30pm) peak hours and for the maximum and average options for development at Saltpans. The following scenarios are therefore assessed for the assessment year of 2024:

- 2024 base traffic only (Do Minimum);
- 2024 background traffic (includes committed development) (Do Minimum + committed);
- 2024 proposed traffic low density option (includes committed development and proposed development); and
- 2024 proposed traffic high density option (includes committed development and proposed development).

4.1 Traffic Modelling Assessment

4.1.1 Braye Crossroads

The results of LinSig modelling at Braye Crossroads are shown in Table 5. As identified in Section 4.4 of the TIA, pedestrian count data and onsite observations show that the pedestrian crossings are used infrequently with one call every 7.5 minutes. Therefore, the junction is modelled without any pedestrian calls.

It is possible that demand for the pedestrian crossings at this junction may increase in the future as the committed development and expansion of SSHS comes forward. However, with the exception of the school expansion, the majority of pedestrians from these developments are not expected to use these crossings as the main pedestrian trip attractions are located at The Bridge. Pedestrian trips related to the school expansion from these developments are not expected to need to use the crossing as only the Cleveleys development is unlikely to have an alternative pedestrian route that would be more attractive.

The junction is modelled with a fixed cycle time of 90 seconds in the baseline and the green times of signal stages are allowed to optimise whereas, in reality, the junction operates with fixed minimum green times with extensions based on traffic demand and a set of maximum timings based on the time of day. To allow a direct comparison, the with development scenarios are modelled with the same signal timings as the committed development scenarios.

Table 5: Braye Crossroads Modelling Results

Scenario	AM Peak			PM Peak		
	PRC	Delay (s)	Queue	PRC	Delay (s)	Queue
2024 Do Minimum	3.0%	19	14	12.6%	16	12
2024 + Com Dev Low	-15.3%	55	30	-12.2%	41	23
2024 + Com Dev High	-23.0%	93	42	-15.1%	54	30
2024 + Com Dev Low + Ave Dev	-21.8%	68	41	-14.4%	51	29
2024 + Com Dev Low + Max Dev	-27.8%	80	51	-15.5%	54	31

Scenario	AM Peak			PM Peak		
	PRC	Delay (s)	Queue	PRC	Delay (s)	Queue
2024 + Com Dev High + Ave Dev	-28.1%	107	53	-22.6%	71	44
2024 + Com Dev High + Max Dev	-30.4%	114	57	-23.8%	74	46
Cycle Time: 90 seconds						

The junction operates over capacity in the committed development scenarios with a PRC of -23% and queues of up to 42 PCUs in the High Density scenario. Adding the development traffic decreases the PRC further in all scenarios and increases the delays and queues. The High Density, Maximum Development AM scenario results in a PRC of -30%, a delay of nearly two minutes and a queue of 57 PCUs. Although not necessarily a completely accurate depiction of the effect of the development traffic as the cycle time, and thus signal timings, would be able to react to the increase in traffic, it does indicate that the junction would need to be mitigated as a result of the development.

Due to the constraints of private properties adjacent to the highway at Braye Crossroads physical mitigation works, such as widening, are not possible. The only options for mitigation is therefore to adjust the signal control settings, such as the signal timings or increase the overall cycle time to increase green time for arms that are over capacity.

Increasing the cycle time at the junction to 120 seconds in all development scenarios provides a slight improvement to the operation of the junction, as shown in Table 6. Capacity, queues and delay are all improved in the with development scenarios when compared with a 90 second cycle time. They are also comparable to the background traffic results (base + committed development) and so in traffic engineering terms the impact of development is largely mitigated by the increase in cycle time.

Table 6: Mitigated Braye Crossroads Modelling Results

Scenario	AM Peak			PM Peak		
	PRC	Delay (s)	Queue	PRC	Delay (s)	Queue
2024 + Com Dev Low + Ave Dev	-9.0%	36	26	-10.0%	37	27
2024 + Com Dev Low + Max Dev	-13.1%	43	31	-14.8%	54	27
2024 + Com Dev High + Ave Dev	-15.8%	64	32	-13.7%	43	29
2024 + Com Dev High + Max Dev	-18.0%	72	39	-14.0%	57	32
Cycle Time: 120 seconds						

The maximum queue, 39 PCUs on La Route de Braye (western arm), would extend to around 225m back from the stopline which is around a third of the distance to the next junction Le Grand Fort / Les Gigands. Similarly, the queues on the other arms do not extend back to any junctions, though the Route Militaire northbound queue does extend to within 10m of the access junction for the Data Park.

Junction Capacity Appraisal

As a test, reductions in the overall traffic in the Maximum Development, High Density scenario have been tested to determine the necessary reduction in traffic required for the junction to operate under capacity. In general, a 10% reduction in overall traffic levels resulting in around 1,640 PCUs

per hour passing through the junction is required for Braye Crossroads to operate under capacity. This is the equivalent of a reduction of around 180 PCUs.

To achieve this reduction, without any measures to reduce existing traffic flows or reducing the trip generation of new developments, would require restricting new housing growth in the area to an equivalent of 260 dwellings or around 400 dwellings without the industrial development at the Data Park. Alternatively, sustainable travel measures could be used to reduce the number of car trips per dwelling. This restriction is only indicative as an additional 260 dwellings at sites to the south of the Braye Crossroads (Belgrave Vinery, Pointes Rocques, Franc Fief) would have a much lower impact at this junction than 260 new dwellings to the east, as the majority of the traffic is heading south towards St Peter Port.

Changes in Traffic Signal Control

As these developments come forward, States should give consideration to the introduction of MOVA at this junction which should optimise signal timings to demand resulting in better performance than can be modelled using optimised signals with static cycle times in LINSIG.

MOVA (Microprocessor Optimised Vehicle Actuation) is a proactive self-optimising control system for Traffic Signals. MOVA maintains the optimum approach green time and control strategy to suit prevailing traffic conditions to minimise queuing at traffic signalled junctions.

It has been proven to reduce delays and increase capacity, especially at congested junctions, as well as reducing accident rates. MOVA can reduce delays by 10% to 30% and increase overall capacity by 5% to 10%.

As a vehicle activated, real time, optimising system, there is no means of modelling the impact of MOVA using static timings such as those used in the LINSIG and TRANSYT software packages. Standard practice is to model junctions using these software packages to provide comparison between designs, with the benefits of MOVA considered as an additional benefit.

Microsimulation can be used to very crudely approximate MOVA, but this is typically only used where there are associated benefits (such as modelling bus priority measures or vehicle actuation on a minor access).

As a means of illustrating the potential benefits of MOVA the AM peak hour results for the Maximum Development, High Density scenario have been modified so that:

- % Saturation is reduced by 7.5% (average of 5% and 10% capacity benefit) and overall PRC is increased by 7.5%.
- Mean Max Queues are reduced by 20% (average of 10% and 30% reduction in delays) as is Total Delay.

The results are shown in Table 7. Note these are illustrations of the potential impact of MOVA based on application of static discounts to all movements and are not forecast queues and delays. The resulting PRC would be around -6% with the % Saturation on all of the arms below 100%. This indicates that there could be some limited spare capacity in this scenario.

Table 7: Braye Crossroads 2024 AM + Development High + Maximum Development, MOVA Illustration

Movement	Static Timings		MOVA Illustration	
	% Saturation	Mean Max Queue	% Saturation	Mean Max Queue
Route Militaire (N)	104.2%	30	96.4%	24
Route du Braye (E)	75.1%	16	69.5%	13
Route Militaire (S)	102.9%	25	95.2%	20
La Route de Braye (W)	106.2%	39	98.2%	31

Consideration of Saltpans in Isolation

With the impact of Saltpans considered in isolation, the Braye Crossroads operates within maximum capacity without any signal improvements – La Route du Braye operates with a Degree of Saturation (DoS) of 95% and Route Militaire south with a DoS of 92% in the AM peak resulting in a PRC of -5.6%, which is considered to be acceptable in this context. Increasing the cycle time to 120 seconds allows the junction to operate within the theoretical capacity. The results of this modelling are shown below.

Table 8: Braye Crossroads Modelling Results for Saltpans in Isolation

Scenario	Cycle Time	AM Peak			PM Peak		
		PRC	Delay (s)	Queue	PRC	Delay (s)	Queue
2024 Base + Dev	90 seconds	-5.6%	26	18	0.2%	21	14
2024 Base + Dev	120 seconds	8.2%	23	18	3.9%	23	17

These results show that the Braye Crossroads can operate within capacity when the Saltpans development is considered in isolation.

4.1.2 Lowlands Road / Route du Braye

The modelling results for the Lowlands Rd / Route du Braye junction are shown in Table 9. The junction is well within capacity in all scenarios with only slight increases in RFC and delay in the development scenarios.

Table 9: Lowlands Rd / Route du Braye Modelling Results

Scenario	AM Peak			PM Peak		
	RFC	Delay (s)	Queue	RFC	Delay (s)	Queue
2024 Do Minimum	0.21	13	1	0.17	10	0
2024 + Com Dev Low	0.23	14	1	0.19	11	0
2024 + Com Dev High	0.23	14	1	0.19	11	0
2024 + Com Dev Low + Ave Dev	0.24	14	1	0.20	11	0
2024 + Com Dev Low + Max Dev	0.24	14	1	0.20	11	0
2024 + Com Dev High + Ave Dev	0.24	14	1	0.20	11	0
2024 + Com Dev High + Max Dev	0.25	14	1	0.21	11	0

4.1.3 Vale Avenue / Route du Braye

The modelling results for the Vale Avenue / Route du Braye junction are shown in Table 10. The junction is within capacity in all scenarios with only slight increases in RFC and delay in the development scenarios. The PM peak scenarios have delays of around 40-50 seconds for the right turn from Rue des Coutures to Route du Braye. The development scenarios only slightly increase this delay. The RFC ranges from 0.75 in the Do Minimum scenario to 0.89 in the Maximum Development, High Density scenario.

Table 10: Vale Avenue / Route du Braye Modelling Results

Scenario	AM Peak			PM Peak		
	RFC	Delay (s)	Queue	RFC	Delay (s)	Queue
2024 Do Minimum	0.53	20	1	0.75	26	3
2024 + Com Dev Low	0.61	21	2	0.81	34	4
2024 + Com Dev High	0.67	22	2	0.85	43	5
2024 + Com Dev Low + Ave Dev	0.62	23	2	0.84	39	5
2024 + Com Dev Low + Max Dev	0.63	26	2	0.85	41	5
2024 + Com Dev High + Ave Dev	0.68	25	2	0.69	23	6
2024 + Com Dev High + Max Dev	0.88	50	2	0.89	53	7

4.1.4 The Bridge Mini-Roundabout

The modelling results for The Bridge Mini-Roundabout are shown in Table 11 below. On the basis of the ARCADY assessment, the junction is forecast to operate over capacity in all scenarios on The Bridge arm. However, all other arms of the junction are forecast to operate within capacity.

Table 11: The Bridge Mini Roundabout Modelling Results (Delays and Queues shown for worst-arm)

Scenario	AM Peak			PM Peak		
	RFC	Delay (s)	Queue	RFC	Delay (s)	Queue
2024 Do Minimum	1.09	192	41	1.06	153	31
2024 + Com Dev Low	1.13	255	53	1.13	254	52
2024 + Com Dev High	1.13	256	54	1.14	277	56
2024 + Com Dev Low + Ave Dev	1.13	269	55	1.14	291	58
2024 + Com Dev Low + Max Dev	1.14	276	56	1.15	305	61
2024 + Com Dev High + Ave Dev	1.14	279	57	1.15	312	62
2024 + Com Dev High + Max Dev	1.14	283	57	1.16	330	65

In both the Maximum and Average Development High Density scenarios the RFC of the Vale Avenue arm increases to around 0.85, the theoretical maximum operational capacity of the arm, and experiences corresponding increases in delays. Queues on all arms except The Bridge remain at a maximum of around five PCUs in the AM peak scenarios and around two PCUs in the PM peak.

As shown in Table 11, the impact of the Saltpans development is minimal. The delay increases by around 10-20 seconds which is not considered to be significant when the committed development

scenarios exhibit delays of around 300 seconds or five minutes. Queues increase by less than four PCUs in the with development scenarios and the RFC increases by a maximum of 0.02. This suggests that the requirement for any mitigation at this junction should not be attributed to the Saltpans development.

For testing purposes, a six-arm signal-controlled junction – including both retail elements to the south west and north east of the junction – has been created and modelled. This test junction accommodates an access to the Leale's Yard committed development. With an all red pedestrian phase every other cycle and a cycle time of 120 seconds, the junction operates with spare capacity in all scenarios.

The junction modelled is only intended to show, as an example, that a potential solution is possible for The Bridge and is not in any way intended to be the design for the junction. Any potential solution would require further surveys of both pedestrian and vehicular movements and would need to consider the needs of all users. While the development of an optimised solution which provides access to Leale's Yard and provides improved capacity of this junction is outside the remit of this TIA, this initial modelling suggests that a solution for this junction is possible as Leale's Yard is developed in the future. At this time, with the previous planning permissions for the Leale's Yard site having lapsed, it is unclear how the development will come forward and the exact location of the access in The Bridge area is unknown. Therefore, any changes to this junction will need to be developed as part of a future Leale's Yard planning application.

4.2 Summary

The traffic modelling exercise demonstrates that the proposed development at Saltpans is not anticipated to have a significant impact on the operation of the local road network.

The cumulative impact of the committed developments results in the Braye Crossroads operating significantly over capacity with PRC of -23% in the High Density scenario. It also slightly worsens the situation at the Bridge mini-roundabout (with the RFC changing from 1.06 to 1.14 in the PM peak High Density scenario).

Traffic associated with the Saltpans development does make the operation of both junctions worse, with the PRC at Braye Crossroads being -30% in the AM peak High Density, Maximum Development scenario and the RFC at The Bridge increasing to 1.16 in the PM peak. The RFC increase at The Bridge resulting from the Saltpans development is not considered to be significant.

Increasing the cycle time and optimising the signals is sufficient to mitigate the impact of the Saltpans development at the Braye Crossroads. Whilst this doesn't enable the junction to operate within capacity it is an improvement over the committed development scenarios. If the impact of the Saltpans development is considered in isolation, the Braye Crossroads operates within maximum capacity without any signal improvements or within theoretical capacity if the cycle time is increased to 120 seconds.

All other junctions in the study area are forecast to operate well within capacity in both the AM and PM peak hours.

Cumulative Impact

Further mitigation for Braye Crossroads and The Bridge junction is required for the cumulative impact of all the developments in the area.

Braye Crossroads is forecast to operate over capacity in all scenarios except the Do Minimum. It is recommended that, as the committed developments come forward, States of Guernsey should consider the installation of MOVA to optimise the operation of the junction. A threshold of around 400 dwellings in the area is recommended for the installation of MOVA.

The Bridge mini roundabout is forecast to operate over capacity in the Do Minimum as well as both development scenarios. Initial testing by Arup shows that a signalised junction in this location could provide significant traffic capacity benefits, however the design of any such junction will need to consider access to future development at Leale's yard and therefore should be provided as part of a TIA for that site.

5 Conclusions and Recommendations

Arup was commissioned by Lovell Ozanne Architects, on behalf of Kenilworth Vineries Ltd, to provide a Traffic Impact Assessment in support of a Development Framework for residential development at Saltpans, Guernsey. This addendum to the 2018 TIA prepared by Arup, presents junction modelling which has been updated to account for additional committed development sites in the St Sampson area.

Traffic modelling has been updated for four junctions within the agreed study area. Two committed development scenarios – Low and High Density – and two Saltpans development scenarios – average development (110 residential units) and maximum development (156 residential units) – have been assessed. The traffic modelling exercise demonstrates that the impact of the Saltpans development on the local road network is not significant in percentage terms, but the cumulative impact of the development and the committed development does result in the Braye Crossroads and The Bridge mini-roundabout operating over capacity.

Physical works such as widening are not possible at Braye Crossroads. Mitigation for the cumulative impact is therefore proposed in the form of cycle time adjustment, namely extending the cycle time from 90 to 120 seconds. This proposal mitigates the additional impact of the Saltpans development; however, the junction remains above capacity as a result of the committed development traffic.

To mitigate the forecast capacity issue at this junction it is either recommended that committed developments are reviewed in terms of capacity and mix of locations or changes to traffic signal control equipment is made.

Mitigation on The Bridge is dependent on development at Leale's Yard, which is accessed from this junction, and should be provided as part of a TIA for that development site. Initial modelling undertaken by Arup shows that a solution is available within known constraints.

In overall summary, this TIA Addendum demonstrates that the local road network is able to safely accommodate the traffic associated with both development scenarios when mitigation strategies are applied. Therefore, it is considered that there are no transportation reasons why the site should not be developed, providing the transport mitigation identified is implemented.

Appendix A

Committed Developments

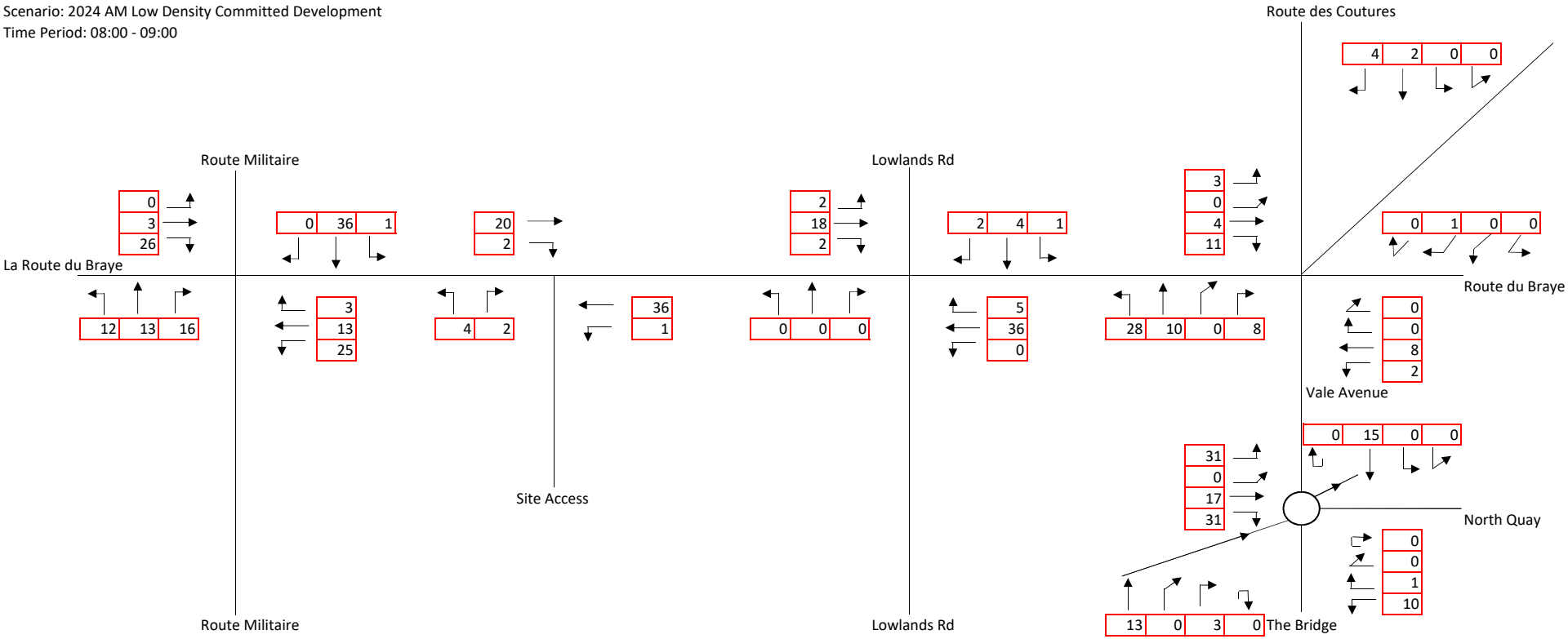
A1 Committed Development Reports

- Cleveleys Housing Allocation – States of Guernsey Development & Planning Authority (2018) *Cleveleys Vinery Development Framework: Supplementary Planning Guidance*.
- Franc Fief Housing Allocation – Arup (2010), *Traffic Study for Guernsey Housing Target Areas*, States of Guernsey Housing Department.
- Pointes Rocques Housing Allocation – Arup (2017) *Pointues Rocques Housing Development: Traffic Impact Assessment*, PF+A Ltd
- Belgrave Vinery Housing Allocation – Arup (2012) *Traffic Study for Guernsey Housing Target Ares: Addendum to Study Report*, States of Guernsey Environment Department.
- Tertre Lane – Development mix informed by States of Guernsey Traffic & Highway Services with trip rates from TRICS.
- Le Maresquet – Arup (2015) *Le Maresquet Field: Transport Appraisal*, Sunnyside Developments.
- Leale's Yard Regeneration Area – data taken from Peter Brett Associates LLP (2016) *270216 – Trip Model (external version).xlsx* for the *Leale's Yard Transport Assessment 2016*.
- Data Park – Peter Brett Associates LLP (2009) *Saltpans Park: Transport Assessment*, Saltpan Investment Ltd.

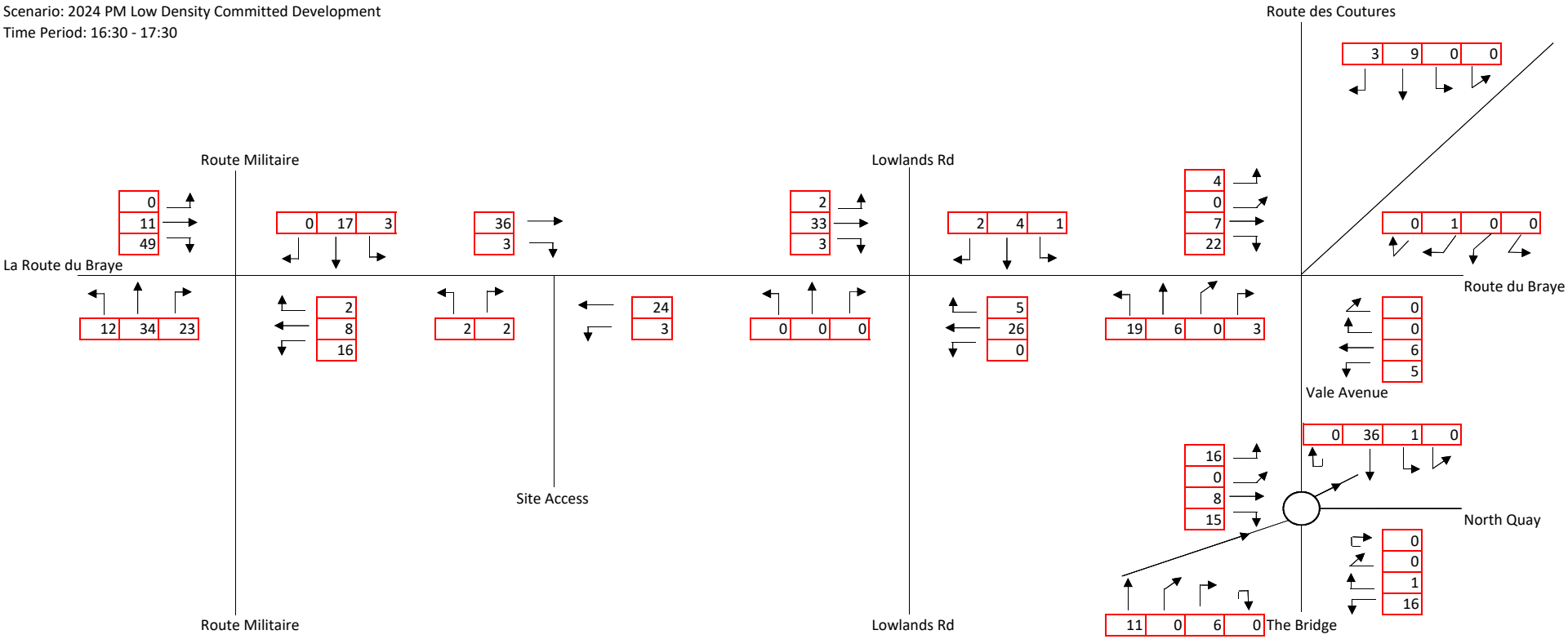
Appendix B

Traffic Flows

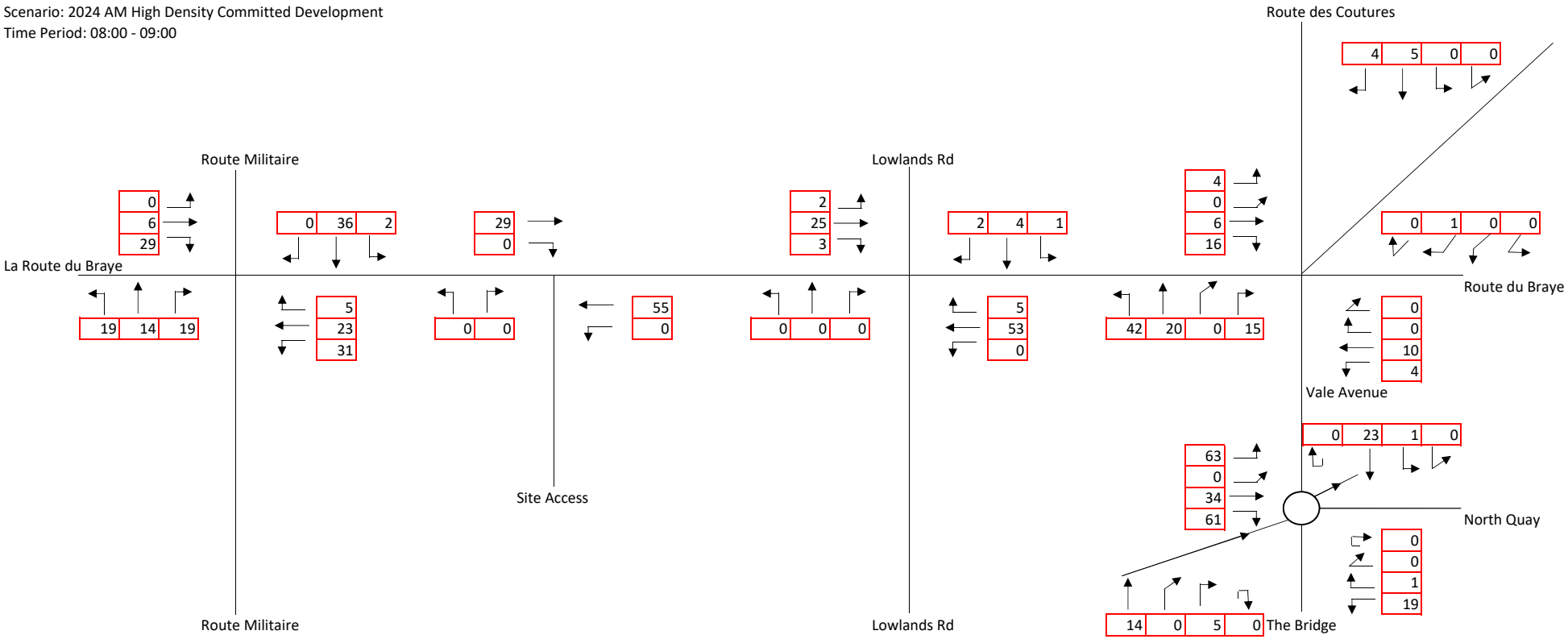
Scenario: 2024 AM Low Density Committed Development
Time Period: 08:00 - 09:00



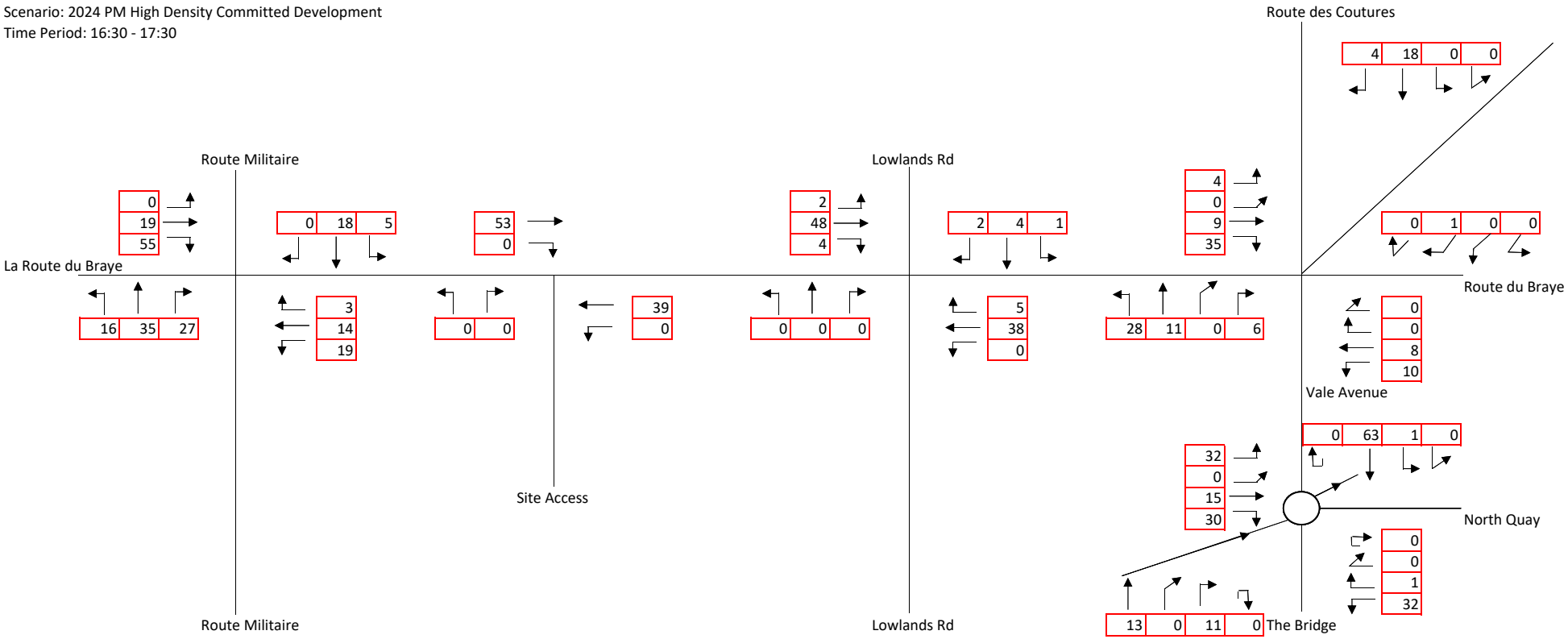
Scenario: 2024 PM Low Density Committed Development
Time Period: 16:30 - 17:30



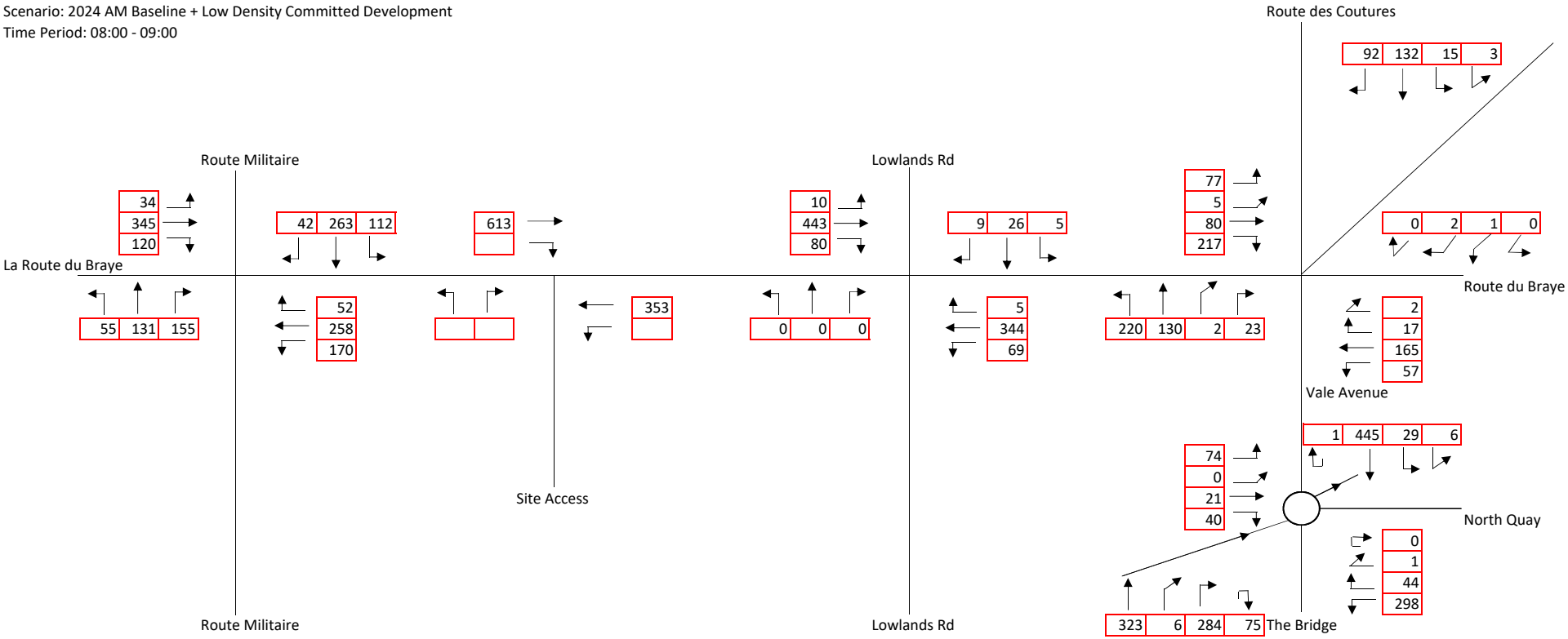
Scenario: 2024 AM High Density Committed Development
Time Period: 08:00 - 09:00



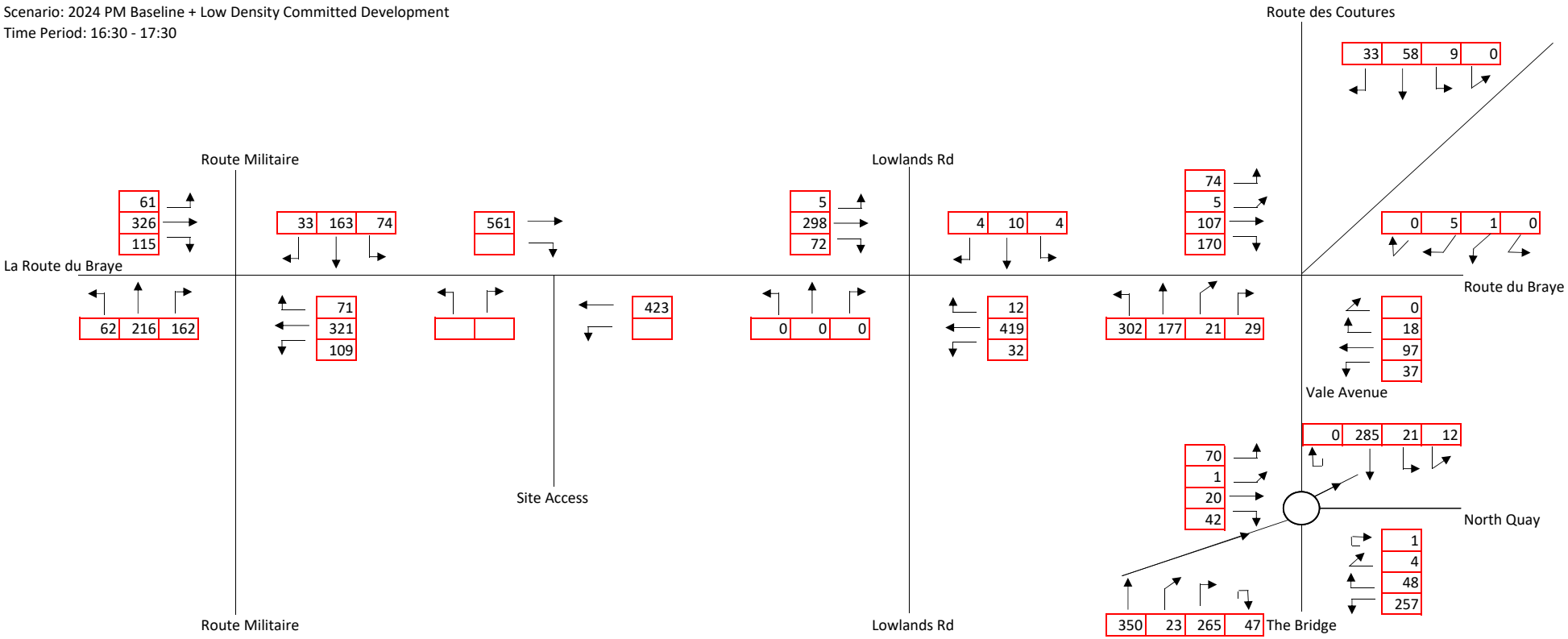
Scenario: 2024 PM High Density Committed Development
Time Period: 16:30 - 17:30



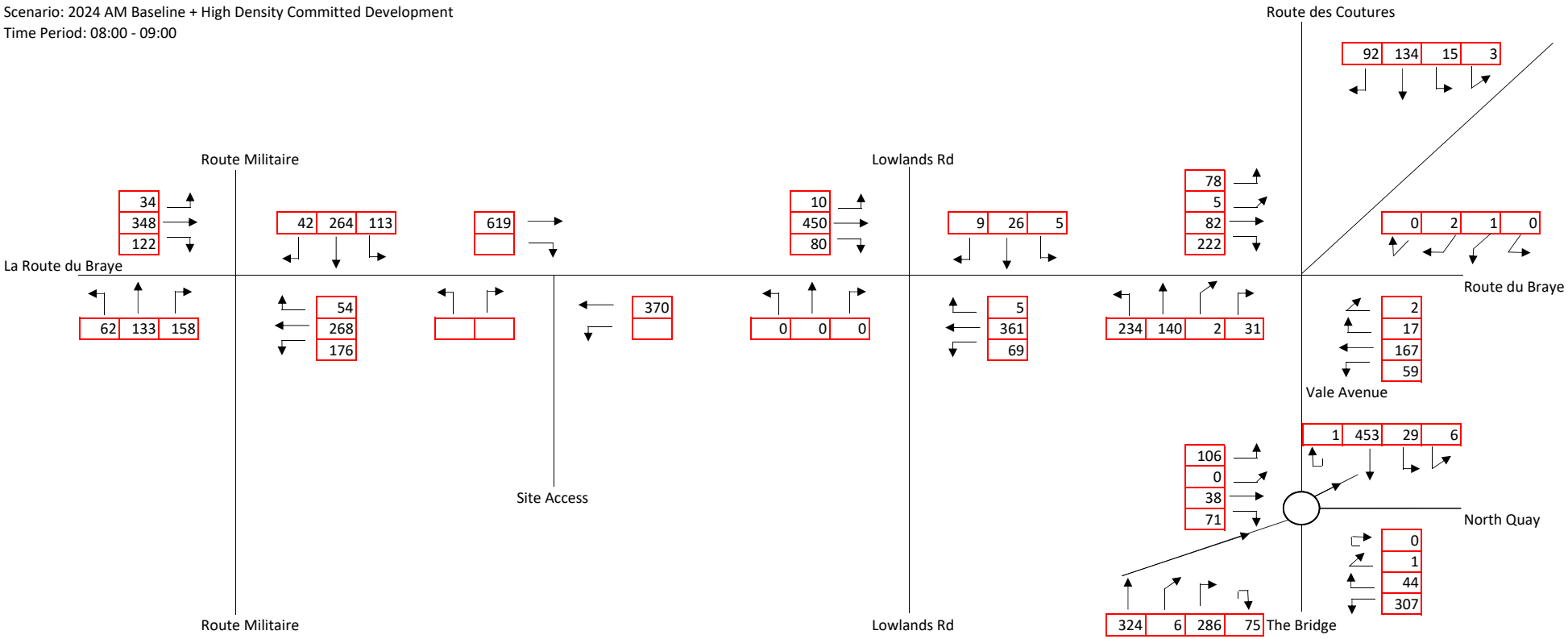
Scenario: 2024 AM Baseline + Low Density Committed Development
Time Period: 08:00 - 09:00



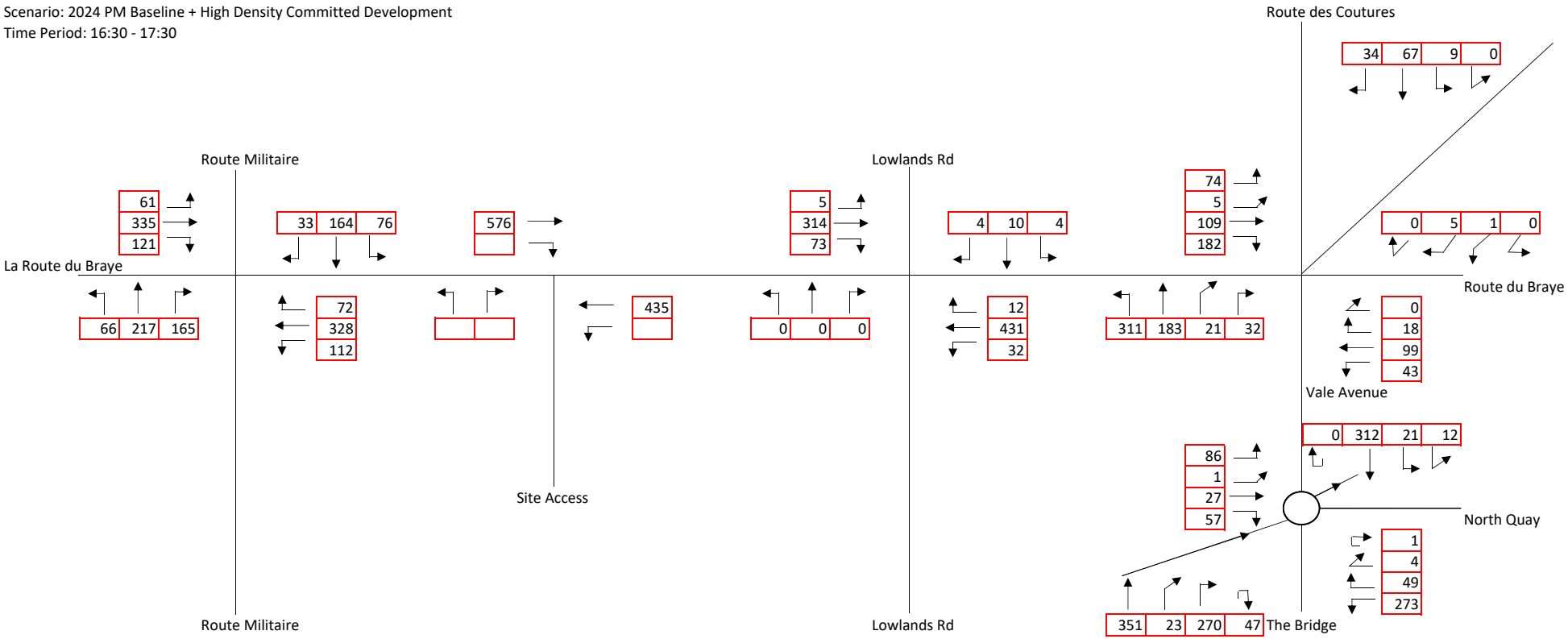
Scenario: 2024 PM Baseline + Low Density Committed Development
Time Period: 16:30 - 17:30



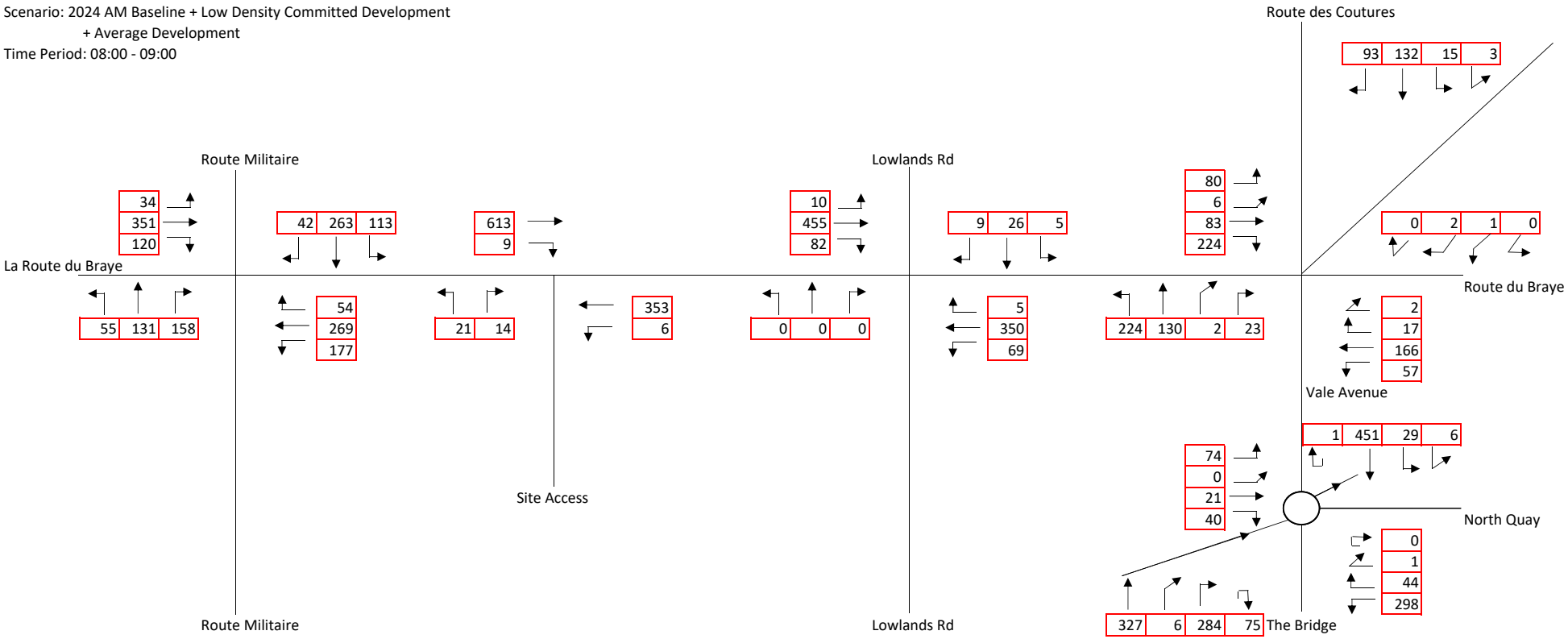
Scenario: 2024 AM Baseline + High Density Committed Development
Time Period: 08:00 - 09:00



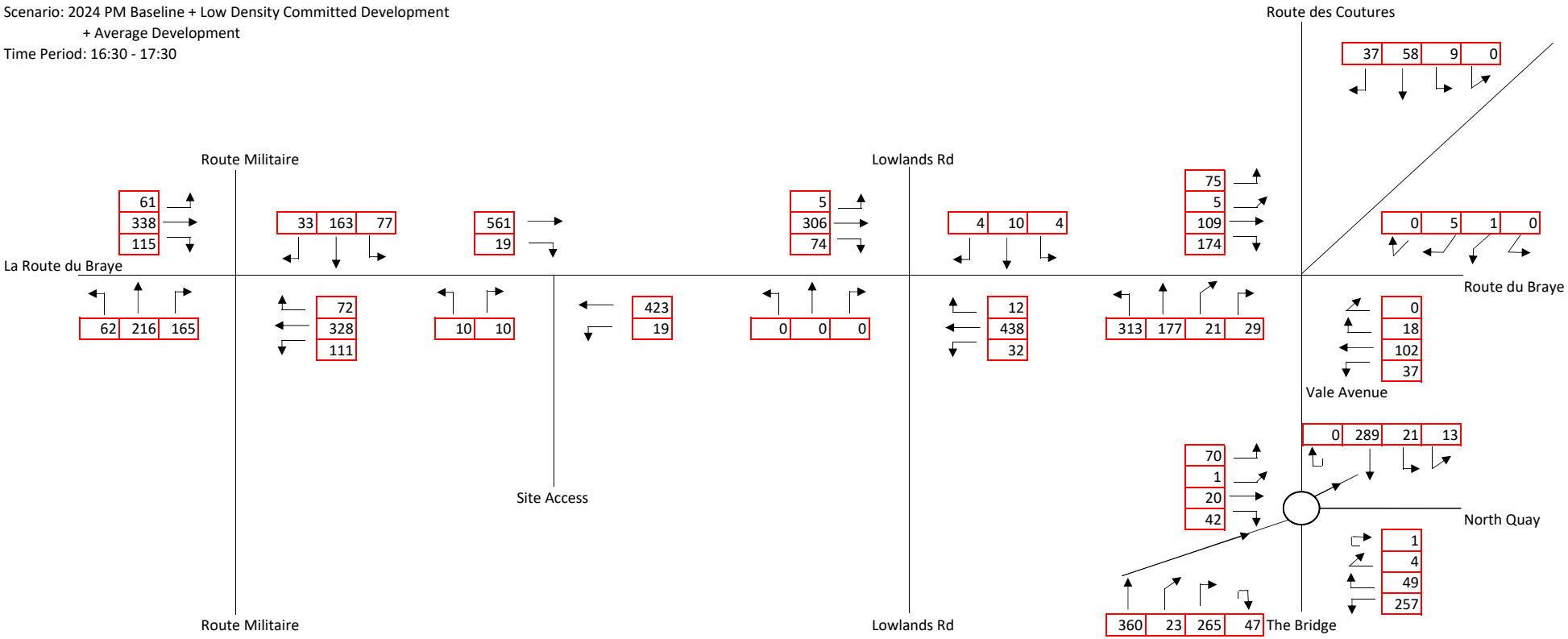
Scenario: 2024 PM Baseline + High Density Committed Development
Time Period: 16:30 - 17:30



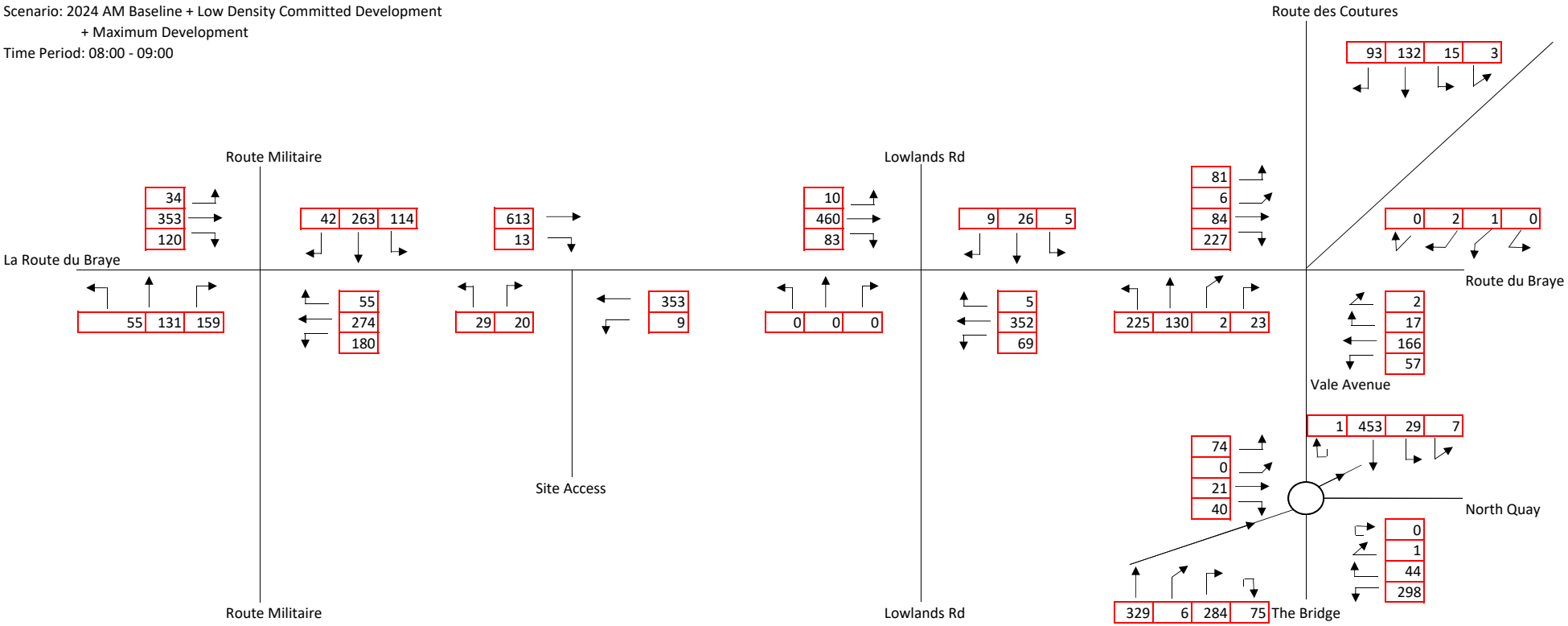
Scenario: 2024 AM Baseline + Low Density Committed Development
+ Average Development
Time Period: 08:00 - 09:00



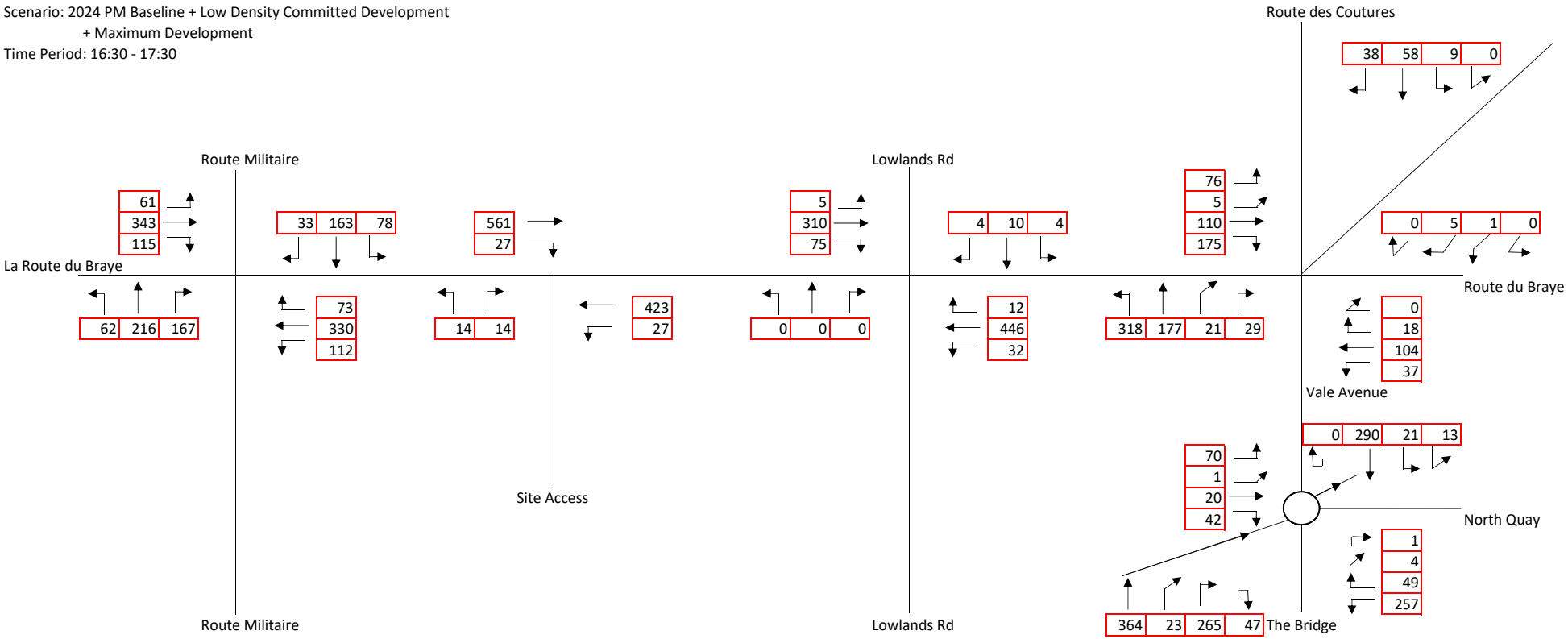
Scenario: 2024 PM Baseline + Low Density Committed Development
+ Average Development
Time Period: 16:30 - 17:30



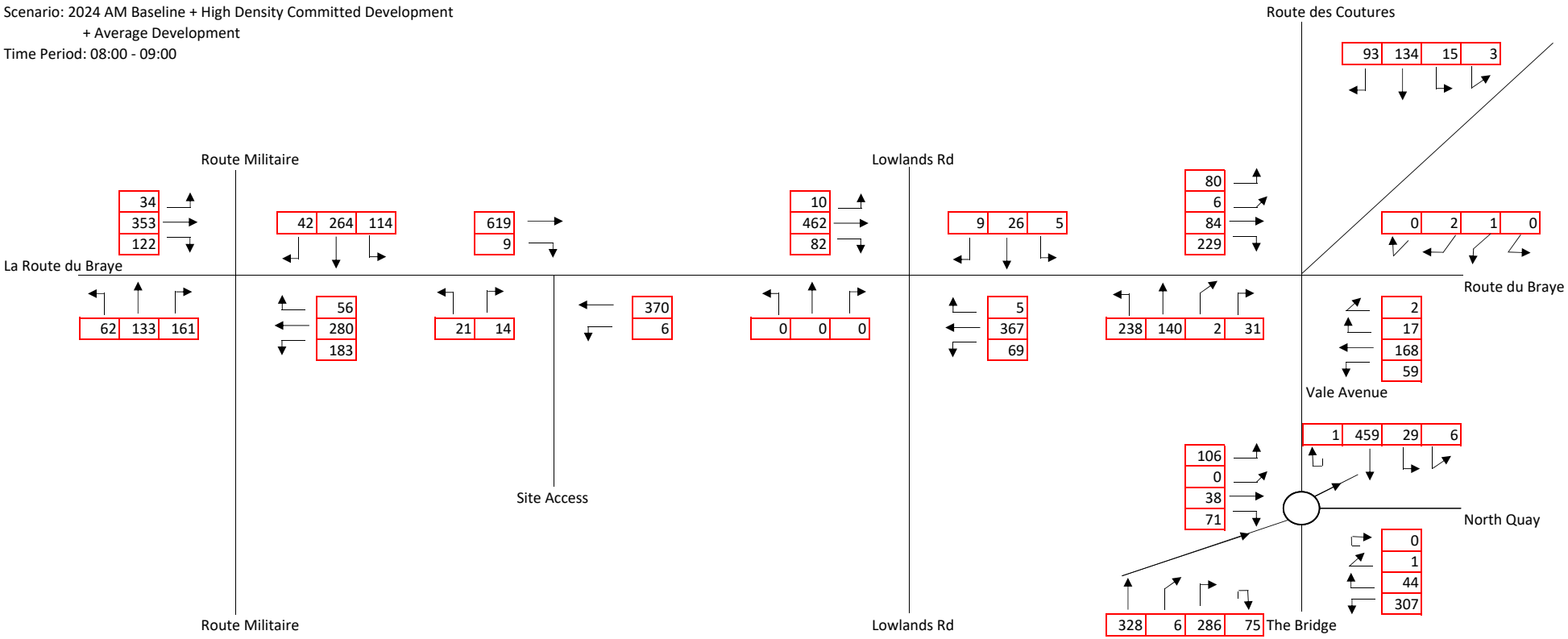
Scenario: 2024 AM Baseline + Low Density Committed Development
+ Maximum Development
Time Period: 08:00 - 09:00



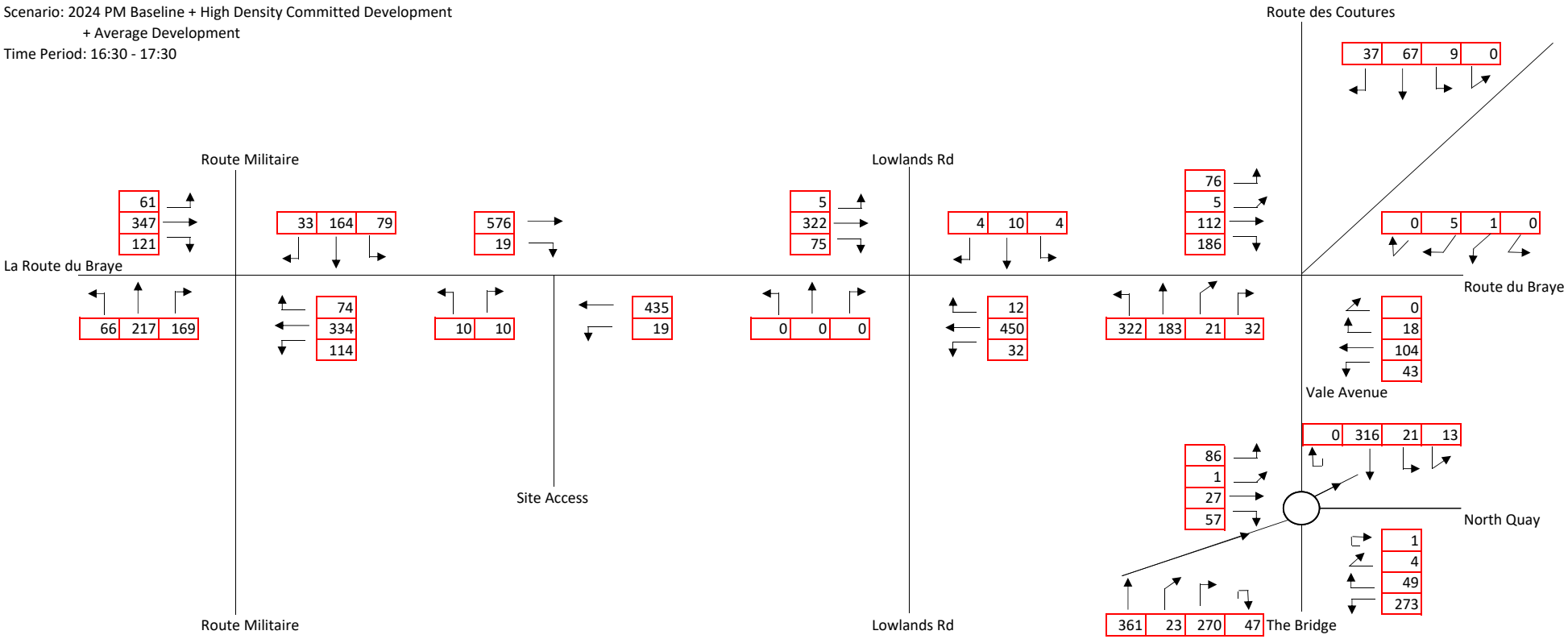
Scenario: 2024 PM Baseline + Low Density Committed Development
+ Maximum Development
Time Period: 16:30 - 17:30



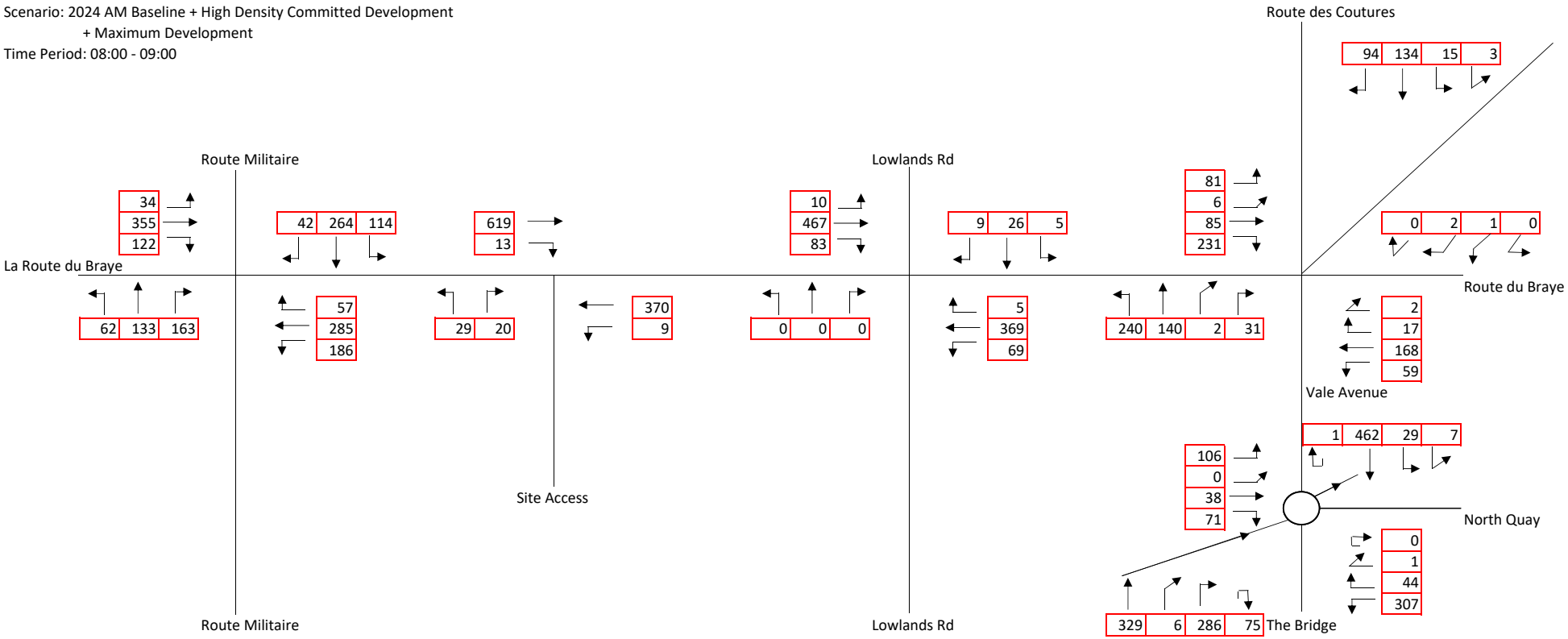
Scenario: 2024 AM Baseline + High Density Committed Development
+ Average Development
Time Period: 08:00 - 09:00



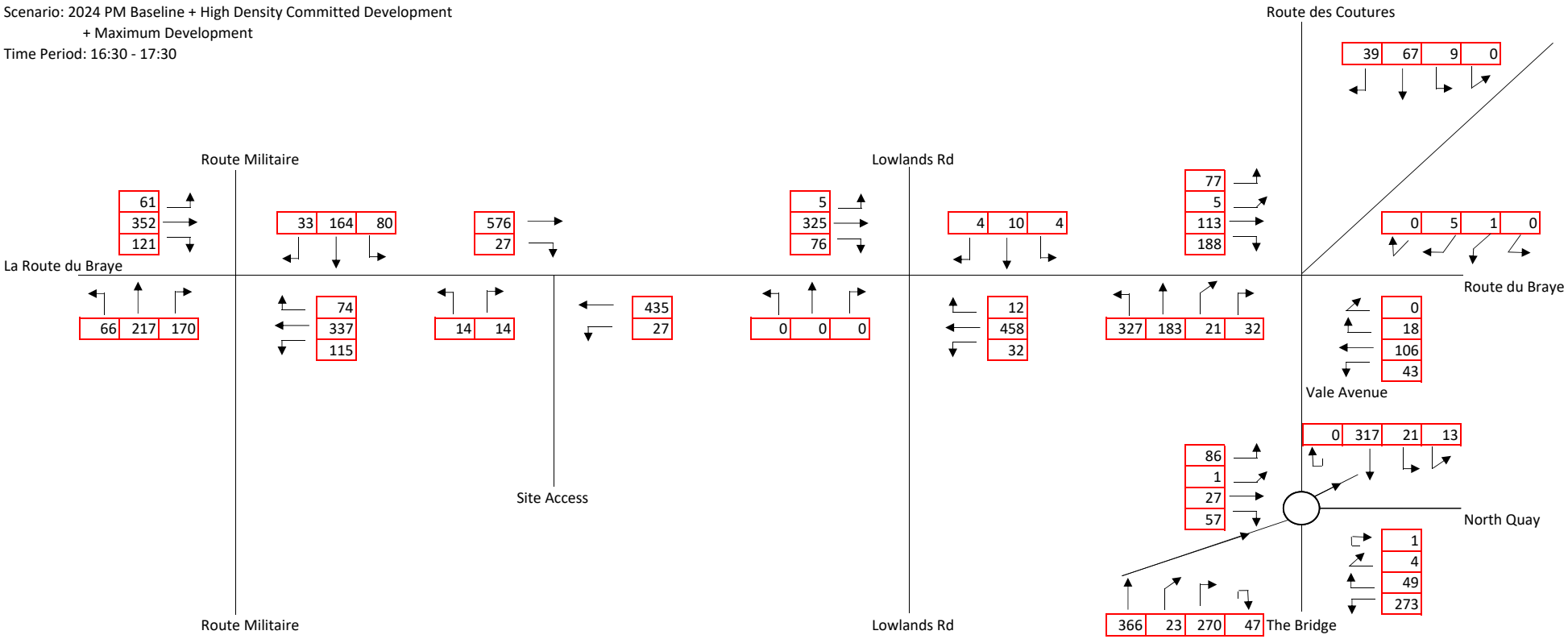
Scenario: 2024 PM Baseline + High Density Committed Development
+ Average Development
Time Period: 16:30 - 17:30



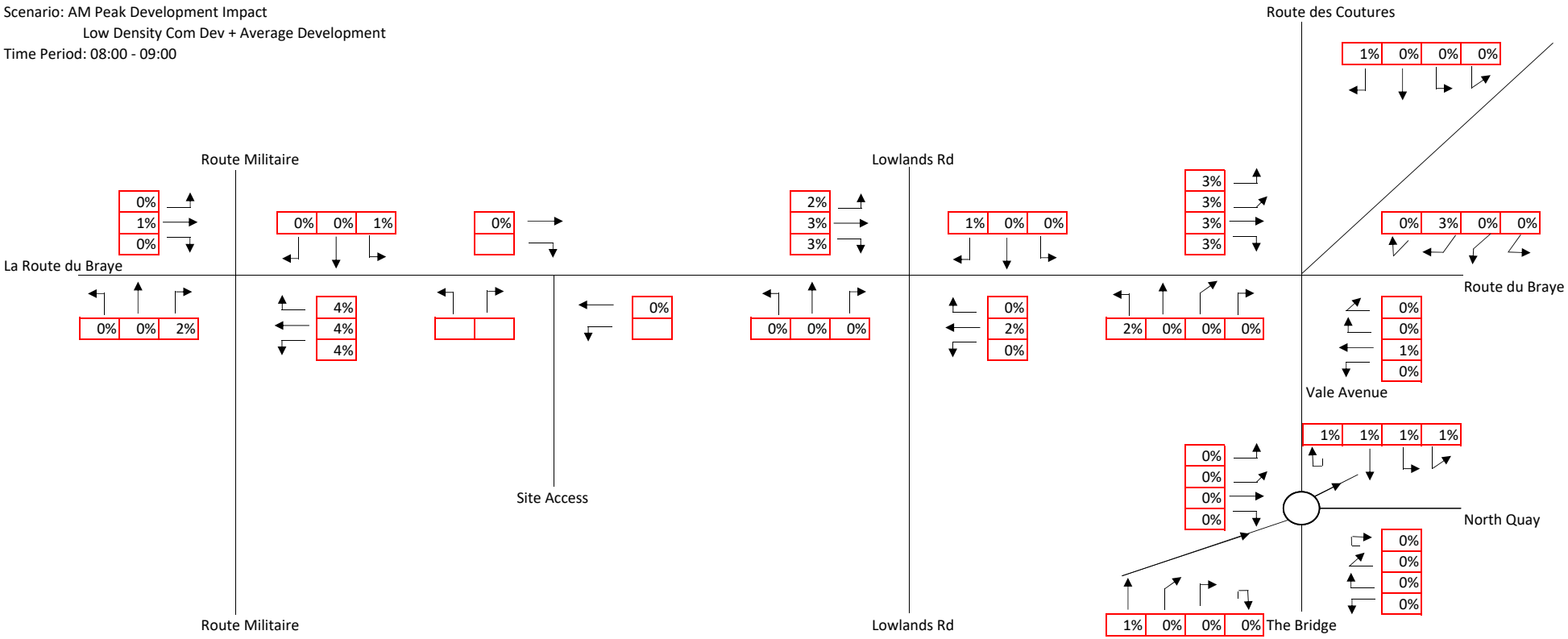
Scenario: 2024 AM Baseline + High Density Committed Development
+ Maximum Development
Time Period: 08:00 - 09:00



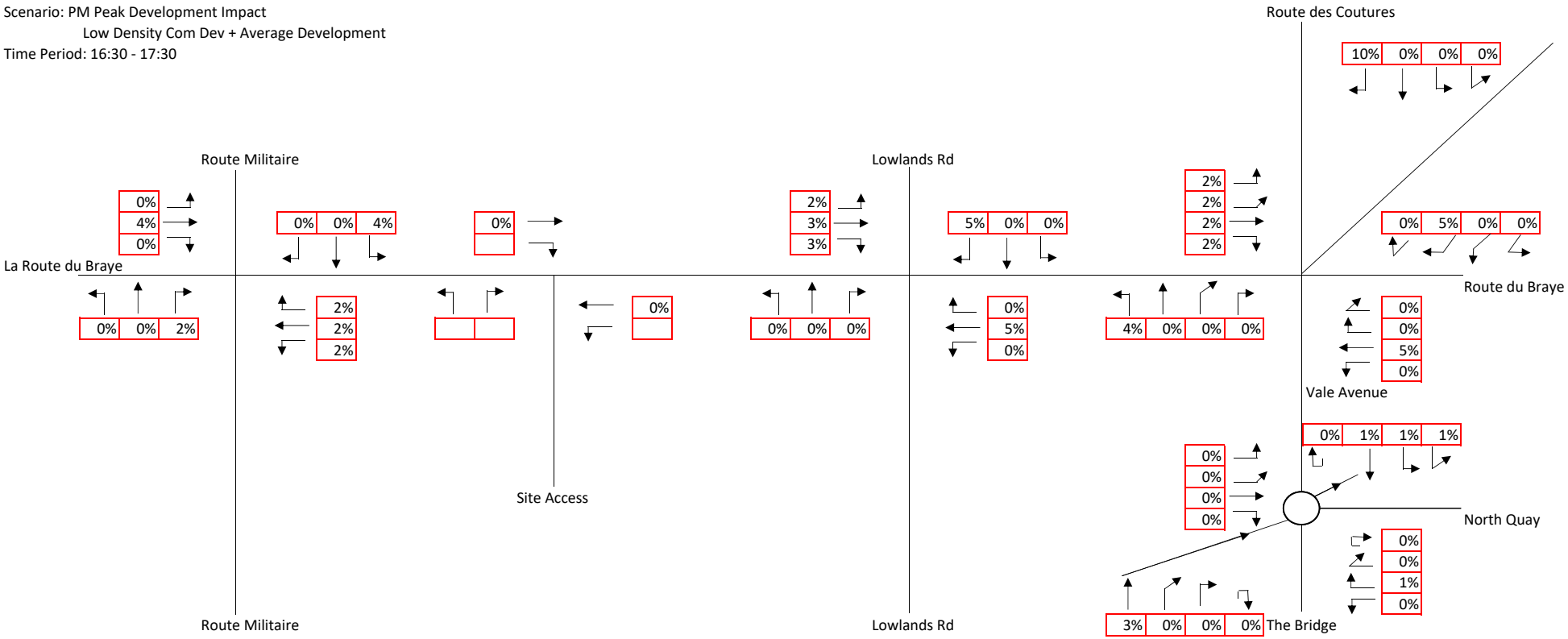
Scenario: 2024 PM Baseline + High Density Committed Development
+ Maximum Development
Time Period: 16:30 - 17:30



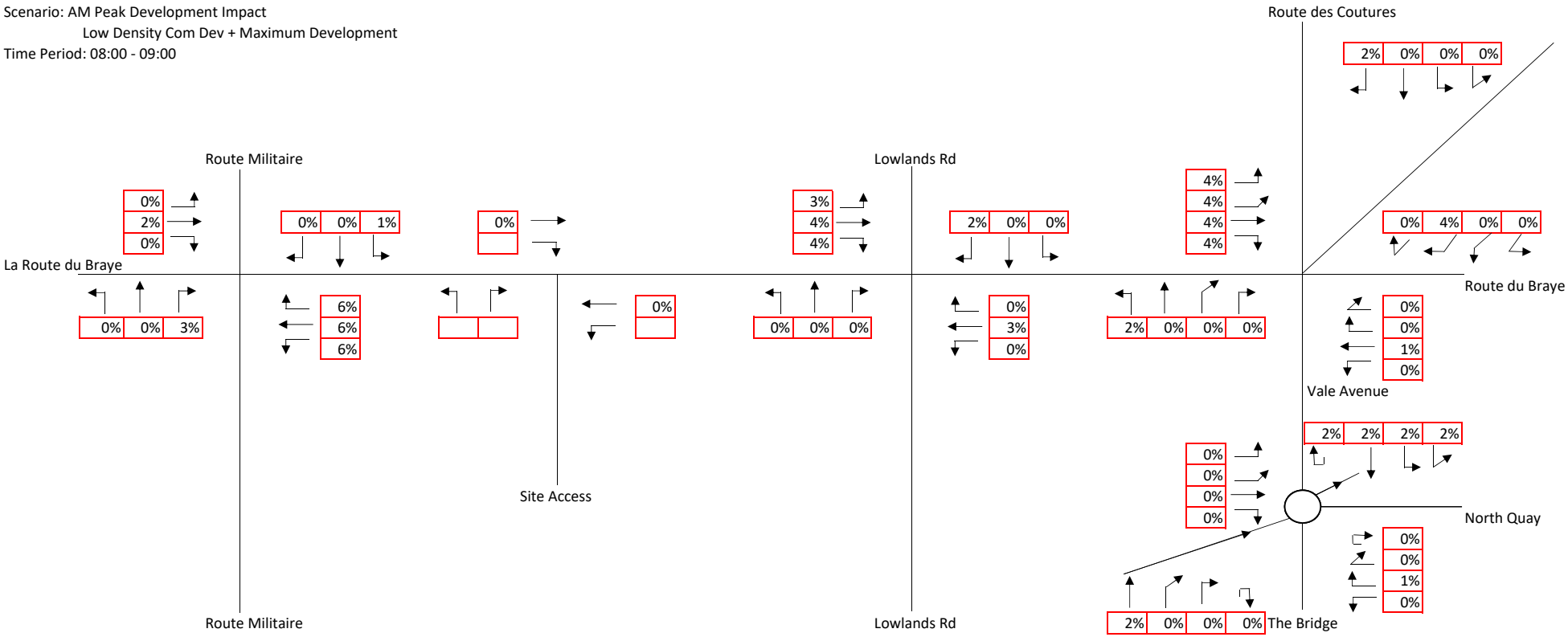
Scenario: AM Peak Development Impact
Low Density Com Dev + Average Development
Time Period: 08:00 - 09:00



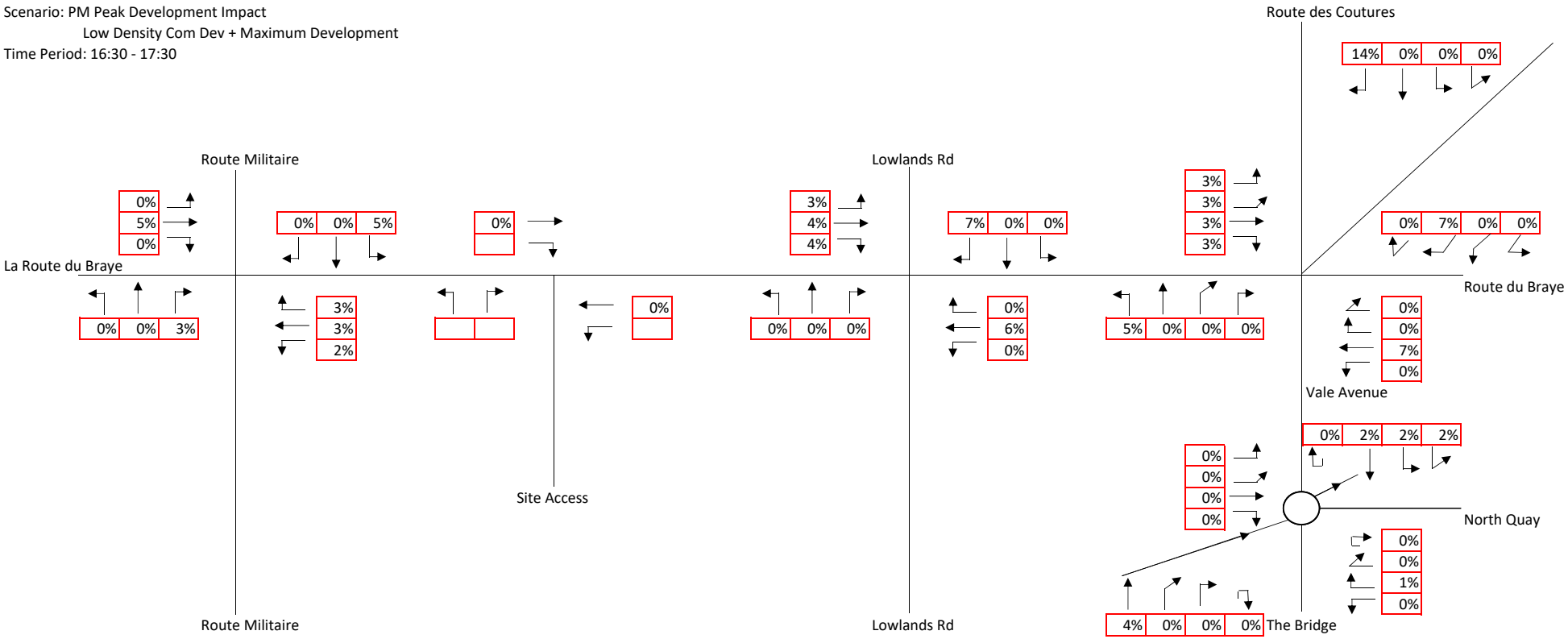
Scenario: PM Peak Development Impact
Low Density Com Dev + Average Development
Time Period: 16:30 - 17:30



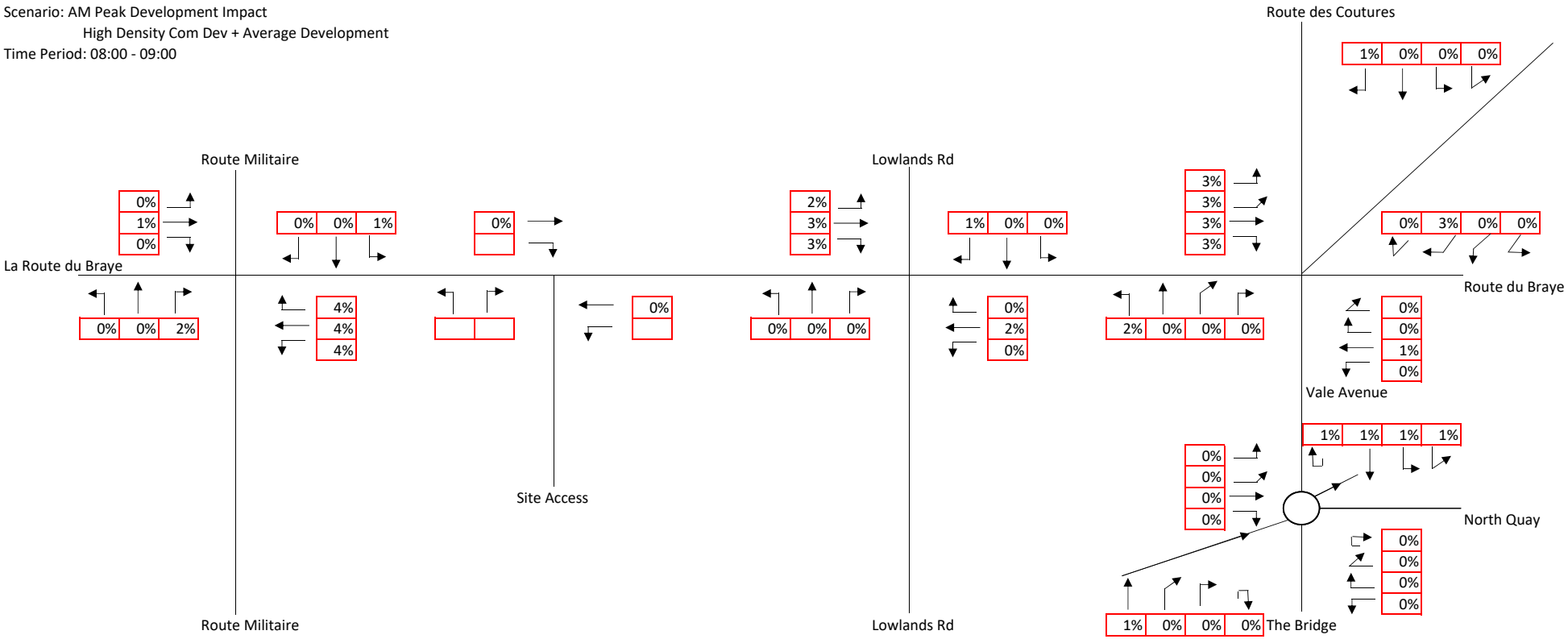
Scenario: AM Peak Development Impact
Low Density Com Dev + Maximum Development
Time Period: 08:00 - 09:00



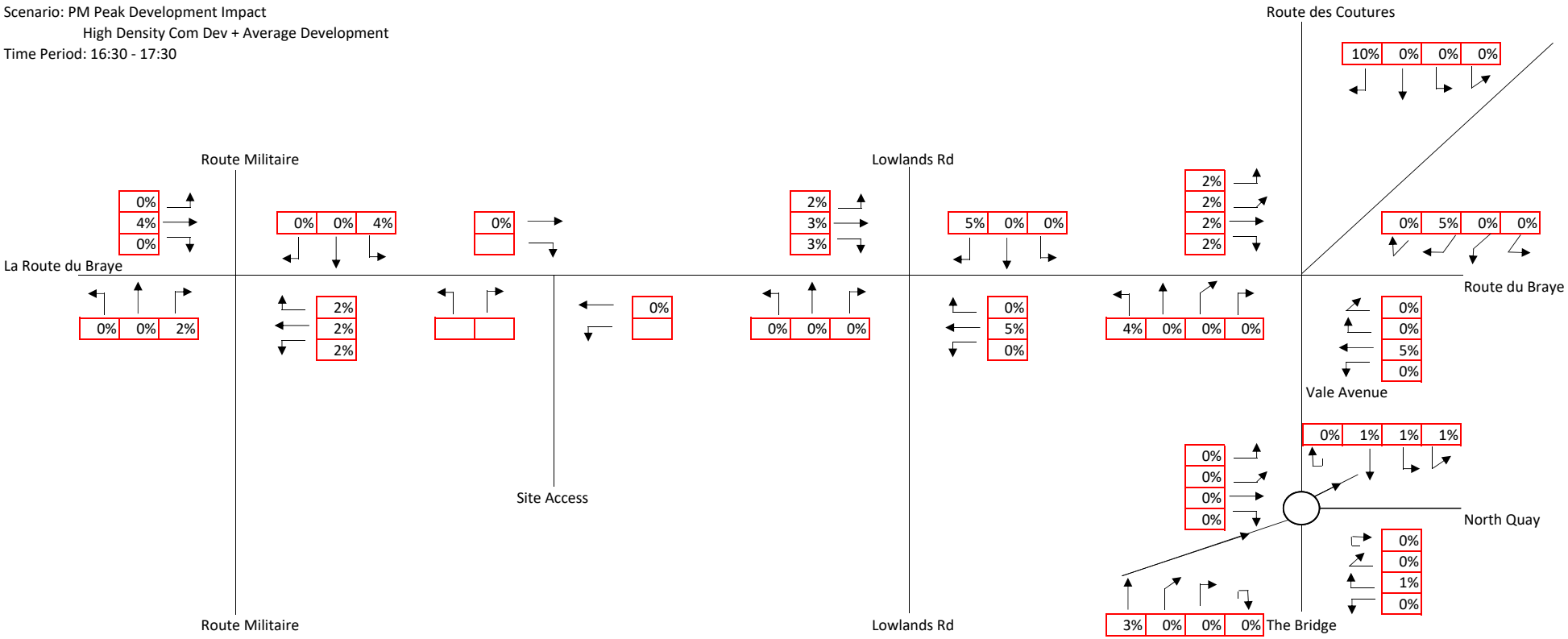
Scenario: PM Peak Development Impact
Low Density Com Dev + Maximum Development
Time Period: 16:30 - 17:30



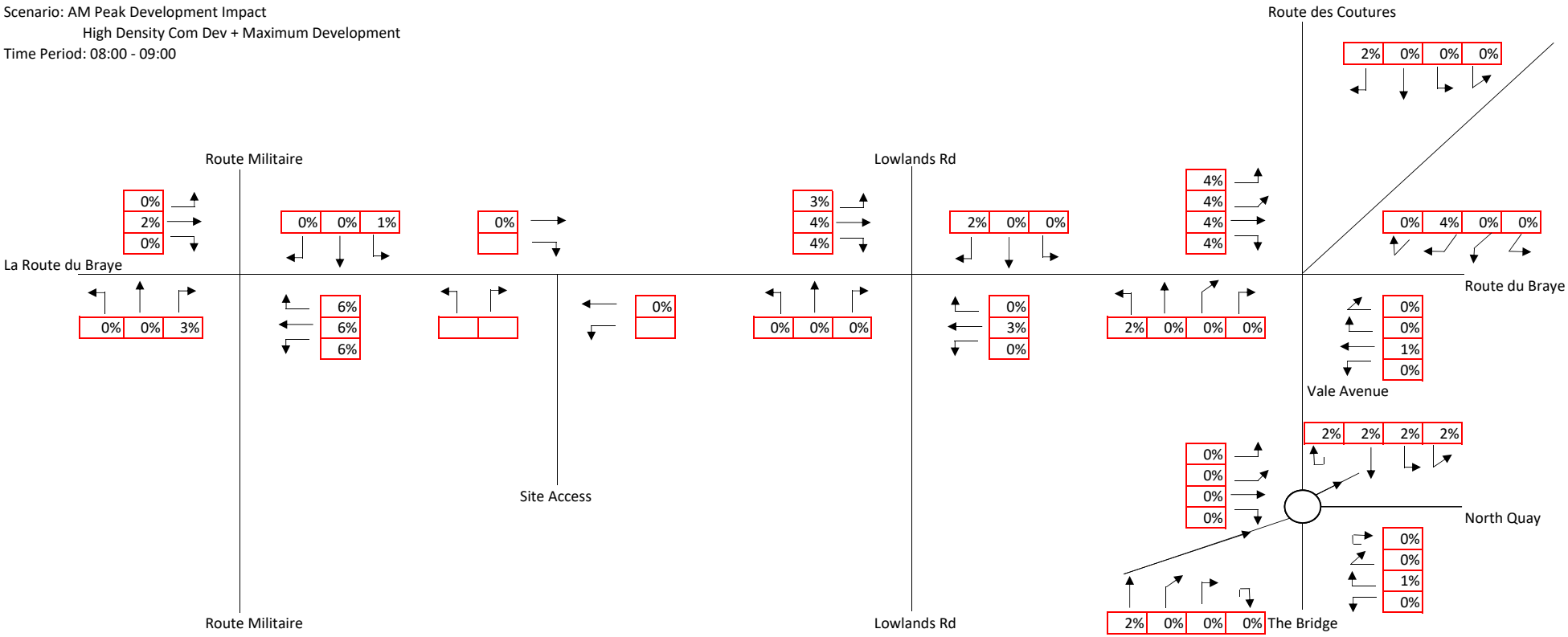
Scenario: AM Peak Development Impact
High Density Com Dev + Average Development
Time Period: 08:00 - 09:00



Scenario: PM Peak Development Impact
High Density Com Dev + Average Development
Time Period: 16:30 - 17:30



Scenario: AM Peak Development Impact
High Density Com Dev + Maximum Development
Time Period: 08:00 - 09:00



Scenario: PM Peak Development Impact
High Density Com Dev + Maximum Development
Time Period: 16:30 - 17:30