



Joondanna Investments Pty Ltd

ASTI MOTEL REDEVELOPMENT 7 PACKARD PLACE, DARWIN

TRAFFIC AND PARKING REPORT

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1.0 EXECUTIVE SUMMARY

MFY Pty Ltd has been engaged by Joondanna Investments Pty Ltd to undertake a traffic and parking assessment for the proposed redevelopment of the Asti Motel on the, located at 7 Packard Place, Darwin.

The proposal comprises of the redevelopment of the existing Asti Motel and provision of residential apartments, serviced apartments with a small retail space in the ground floor level and associated car parking levels. A total of 48 residential dwellings will be constructed in Building 2. In addition, a total of 42 serviced apartments are proposed in Building 1. Management and administration offices, and conference facilities associated with the motel are also proposed.

A total of 155 parking spaces to service the residents, staff and visitors associated with the proposal will be provided on the ground floor and three basement levels. The proposed provision will adequately cater for the anticipated parking demand associated with the site.

The additional traffic that is expected to be generated by the proposed development (69 vehicles per hour (vph) in the morning and evening peak periods) will be distributed via the adjacent road network. The increase in movements on the surrounding road network will generally be low and readily accommodated. An assessment of the impact of the proposal on the intersections of Smith Street/Montoro Court and the Smith Street/Packard Place/Dashwood Crescent has been undertaken. Analysis of future conditions at the intersection, using a ten year design horizon, identify that the intersections will work satisfactorily in the current configurations.

The traffic and parking report has been prepared in accordance with the Austroads "*Guide to Traffic Management – Part 12: Traffic Impacts of Developments*". Specifically, the MFY report has been based on the *traffic impact assessment report structure* outlined in Appendix C of the Austroads' Guide (albeit it is worth noting the structure is a suggested approach only and not a specific requirement of the Guide). In addition to the traffic impact assessment structure, an additional section detailing the parking demand assessment associated with the proposal is also included.

2.0 PROPOSED DEVELOPMENT

The proposal is to redevelop the existing Asti Motel and construct an eight-storey serviced apartment building (Building 1), including a retail component and an ancillary use space, both located on the ground floor; and a 13-storey multiple dwelling building (Building 2). Three car parking levels will be provided to service the development in addition to the at-grade parking provision.

2.1 BACKGROUND DEVELOPMENT

The subject site is developed land consisting of a three-storey, 40 room Asti Motel, with two and three-storey accommodation blocks which are no longer in use.

2.2 DESCRIPTION OF ON-SITE DEVELOPMENT

2.2.1 LAND USE AND INTENSITY

The proposed development comprises the refurbishment of the existing Asti Motel, providing 38 rooms, the development of 42 serviced apartments in a new eight-storey building (with a combination of one and two-bedroom units) and 48 multiple dwellings in a new 13-storey building (with a combination of one, two and three-bedroom units). A 136 m² retail/commercial tenancy, as well as a 129 m² ancillary space, will be provided on the ground floor level within the Asti Motel component.

The plans prepared by Troppo Architects indicate that 155 car parking spaces will be provided on the ground level and on basement Levels 1 to 3.

Access to/from the site will be provided via a two-way crossover on Montoro Court, at the western boundary of the lot. Another two-way access will be provided to Packard Place, towards the southern corner of the lot. The crossovers will provide access to the loading zone and car parking levels.

2.2.2 LOCATION

The subject site is located on the south-western side of Smith Street between Packard Place and Montoro Court.

2.2.3 ZONING

The site is located within the Tourist Commercial (TC) zone of the Northern Territory Planning Scheme (the Planning Scheme).



2.2.4 PHASING AND TIMING

Excavation of the site has commenced, based on the previously approved proposal. Should this subject proposal be approved, the additional development will be able to be accommodated within these “early works” (i.e. the building footprint between the two proposals will be consistent).

3.0 EXISTING AREA CONDITIONS

3.1 STUDY AREA

3.1.1 AREA OF INFLUENCE

The study area is illustrated on Figure 1 and includes the subject site, neighbouring properties, and the adjacent local road network.

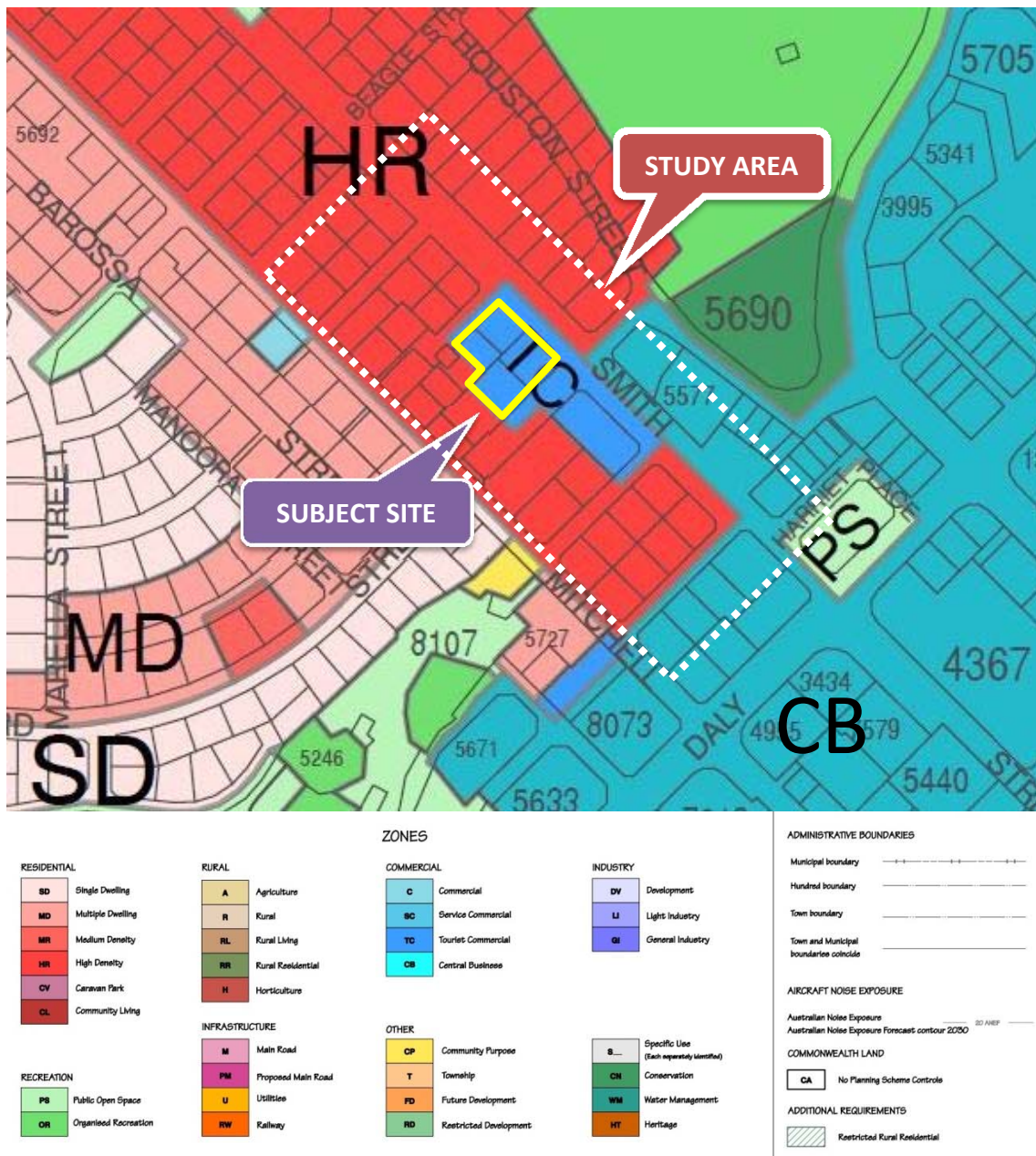


Figure 1: Study area locality and zoning (NT Planning Scheme Zoning Maps)

3.1.2 AREA OF SIGNIFICANT TRANSPORTATION IMPACT

The additional traffic generated by the proposed development is relatively low (as detailed in Section 5.1) compared with the surrounding road network volumes. The surrounding roads and intersections will be able to accommodate the small increases in movements generated by the site. A detailed traffic assessment has been undertaken of the impact on both the Montoro Court/Smith Street and Packard Place/Smith Street/Dashwood Crescent intersections.

3.2 STUDY AREA LAND USE

3.2.1 EXISTING LAND USES

Surrounding the site is a mix of developments, with multi-level residential apartments being the predominant land use. Some minor retail uses on the north-eastern side of Smith Street, particularly toward Daly Street, are also present.

3.2.2 EXISTING ZONING

The study area has three zones: Tourist Commercial (TC) (within which the subject site is located), Central Business (CB) and High Density Residential (HR). Figure 1 illustrates the zoning for the study area.

The Planning Scheme details that the primary purpose of Zone TC is to provide for uses or development servicing tourism, including commercial and residential activities.

3.2.3 ANTICIPATED FUTURE DEVELOPMENT

Two new development sites located on Smith Street within the study area are evident from on-site inspections. These developments are understood to be providing multi-level residential style accommodation.

3.3 SITE ACCESSIBILITY

3.3.1 AREA ROADWAY SYSTEM

The road network surrounding the site comprises a traditional grid network layout. The roads in the locality of the subject site are under the care and control of the City of Darwin.

Smith Street is a two-way collector road, generally comprising two lanes. Smith Street comprises an 11 m wide (approximately) carriageway. A 50 km/h speed limit applies to this section of Smith Street adjacent to the subject site. A 60 km/h limit applies to Smith Street, from Packard Place toward Daly Street.

Montoro Court is a two-way local road, approximately 7.5 m wide, which terminates in a cul-de-sac at its south-western end. The general urban speed limit of 50 km/h applies to this road.

Packard Place is a two-way local road, approximately 7.5 m wide, which terminates in a cul-de-sac at its south-western end. The general urban speed limit of 50 km/h applies to this road. Packard Place forms a four-leg intersection with Smith Street and Dashwood Crescent.

A service road is located parallel to Smith Street adjacent to the subject site and provides access to 19 angled parking spaces for use by the general public. Access to the service road is provided from both Packard Place and Montoro Court.

No parking controls have been implemented on either Smith Street, Montoro Court or Packard Place, notwithstanding the provision of the angled parking spaces adjacent to Smith Street.

3.3.2 TRAFFIC VOLUMES AND CONDITIONS

Traffic data for the intersection of Smith Street with both Montoro Court and Packard Place/Dashwood Crescent were obtained from traffic surveys undertaken by MFY in December 2013.

A seasonal adjustment factor has previously been calculated by MFY for other projects nearby the subject site within the Darwin area and is provided in Table 1.

Table 1: Seasonal adjustment factor

	Daily traffic volumes			Seasonal adjustment factor
	UDVDP003	UDVDP007	Combined	
January	23,784	7,032	30,816	1.17
February	27,185	6,701	33,886	1.06
March	27,144	6,564	33,708	1.07
April	27,285	7,020	34,305	1.05
May	28,586	7,651	36,237	0.99
June	29,835	7,791	37,626	0.96
July	29,836	8,132	37,968	0.95
August	29,415	7,525	36,940	0.97
September	28,904	7,525	36,429	0.99
October	28,544	7,268	35,812	1.01
November	28,547	11,248	39,795	0.90
December	25,257	9,583	34,840	1.03
Annual average day traffic (AADT)	27,727	8,277	36,004	1.00

Figure 2 illustrates the existing traffic movements occurring at the Smith Street/Montoro Court intersection, during the am and pm peak hours. Figure 3 illustrates the existing traffic movements occurring at the Smith Street/Packard Place/Dashwood Crescent intersection, during the am and pm peak hours.

These volumes have been adjusted by the seasonal adjustment factor of 1.03 for each movement.

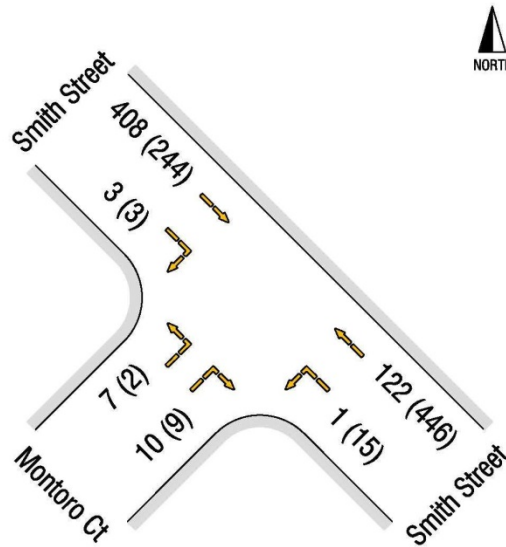


Figure 2: 2013 peak hour traffic movements at the Smith Street/Montoro Court intersection [am/(pm)]

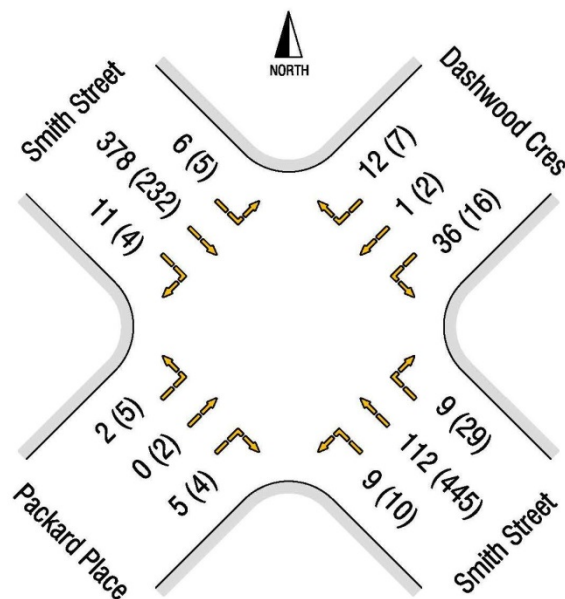


Figure 3: 2013 peak hour traffic movements at the Smith Street/Packard Place/Dashwood Crescent intersection [am/(pm)]

3.3.3 TRANSIT SERVICE

Public bus services within the CBD generally operate along a route which utilises Daly Street, Mitchell Street, the Darwin Bus Interchange and Cavenagh Street. No services operate along Smith Street to the north-west of Daly Street.

The following bus stops are located within a ten minute walk from the subject site, followed by the routes serviced at each location:

- Mitchell Street Stop 240 – routes 4, 8, 14 and 15;
- Mitchell Street Stop 121 – routes 4, 6 and 14;
- Mitchell Street Stop 178 – routes 4, 5, 6, 8, 10, 14, 15, 21, 22, 25, 28, OL1 and OL2;
- Smith Street Stop 319 – routes 5, 6, 8 and 10;
- Daly Street Stop – routes 5, 6, 8, 10, 21, 22 and 25;
- Cavenagh Street Stop 072 – routes 4, 5, 6, 7, 8, 10, 14, 15, 21, 22, 25, 28, OL1 and OL2; and
- Cavenagh Street Stop 071 – routes 4, 5, 6, 7, 8 and 10.

3.3.4 PEDESTRIANS AND BICYCLISTS

Pedestrians can travel on either side of the road, as dual footpaths are provided adjacent to roads in the vicinity of the subject site.

Cyclist movements are generally accommodated within the carriageway on the surrounding roads (i.e. share with vehicles), albeit cyclists can also utilise the footpath network.

A shared pedestrian/cycle path is provided along Smith Street adjacent to the subject site. A footpath is provided on the other side of Smith Street.

The broader cycle network includes off-road cycle paths within reasonable proximity to the site, including the north-south off-road path to the west of Stuart Highway, the off-road path that is situated parallel to Gardens Road and the off-road path adjacent The Esplanade.

4.0 PARKING

4.1 SITE CIRCULATION AND PARKING

The proposed car park and associated circulation areas will conform with the Australian/New Zealand Standard, *Parking Facilities Part 1: Off-street car parking (AS/NZS 2890.1:2004)*, and the Planning Scheme in that:

- spaces will generally be 2.5 m wide and 5.5 m long;
- aisles will be generally be 6.0 m wide;
- two-way roadways will generally be 6.0 m wide; and
- 16 small car spaces will be provided, measuring 2.3 m wide and 5.0 m long.

Columns will be located and sized such that they do not impede the parking space design (clearance) envelope illustrated in Figure 5.2 of AS/NZS 2890.1:2004.

The ramps between access and parking levels have been designed to meet the intent of AS/NZS 2890.1:2004 in that:

- the maximum gradient will be 1:8;
- appropriate clearances to vertical obstructions are achieved on the curved and straight sections of the ramps;
- appropriate transitions will be provided at the top and bottom of the ramps. The appropriateness of such transitions has been confirmed using the ground clearance templates provided in Appendix C of AS/NZS 2890.1:2004; and
- a minimum head height clearance of 2.2 m has been provided along the ramps.

Four parking spaces for use by people with disabilities will be provided (with adjacent shared areas) on the ground floor level in accordance with Australian/New Zealand Standard, *Parking Facilities Part 6: Off-street parking for people with disabilities (AS/NZS 2890.6:2009)*.

A loading zone capable of accommodating a commercial vehicle for deliveries will be provided off the Smith Street service road, toward the Packard Place end of the site.

Refuse collection will be provided on the ground floor adjacent the Packard Place access into the subject site. Negotiations have been undertaken with a private waste collection company to ensure suitable vehicles are available to access the refuse area. A 3.0 m head height clearance will be available along the undercroft aisle (connecting Packard Place to Montoro Court) from which the refuse will be collected.

Such vehicles will be able to enter and exit the site in a forward direction.

4.2 PARKING REQUIREMENTS

In order to assess the car parking provision required for the proposed development, the Planning Scheme’s “Table to Clause 6.5.1”, which identifies car parking provision rates for a variety of land uses, has been applied. Rates for the Zone CB have been used due to the proximity of the subject site to the CBD area:

- multiple dwellings – one space per bed-sitter (studio) and one-bedroom dwelling, 1.5 spaces per two-bedroom dwelling, 1.7 spaces per three-bedroom dwelling and two spaces per dwelling with four or more bedrooms;
- office – three spaces for every 100 m² of net floor area;
- motel – 0.4 spaces for every guest suite or bedroom plus three spaces for every 100 m² of net floor area of all other areas; and
- serviced apartments – one space for every dwelling plus three spaces for every 100 m² of net floor area not within a dwelling.

On this basis, Table 2 summarises the car parking requirements associated with the proposal.

Table 2: Parking requirements based on the NT Planning Scheme

Use	Quantity	Rate	Spaces
Commercial tenancy	136 m ²	3 spaces per 100 m ²	4.1
Motel	38 rooms	0.4 spaces per room	15.2
Motel ancillary space	129 m ²	3 spaces per 100 m ²	3.9
Offices	50 m ²	3 spaces per 100 m ²	1.5
Reception lobby	136 m ²	3 spaces per 100 m ²	4.1
Outdoor dining	110 m ²	3 spaces per 100 m ²	3.3
Serviced apartments	42 dwellings	1 space per dwelling	42
One-bedroom apartment	4 dwellings	1 space per dwelling	4
Two-bedroom apartment	36 dwellings	1.5 spaces per dwelling	54
Three-bedroom apartment	8 dwellings	1.7 spaces per dwelling	13.6
Total spaces required			146

The proposed multi-use development, therefore, requires a provision of 146 car parking spaces. The plans for the proposed development indicate that 155 spaces are proposed over the four car parking levels, which will meet the parking provision requirements of the NT Planning Scheme for the CB Zone.

Since the proposed development is multi-use, it is reasonable to assume that some trips associated with the proposal (albeit a small percentage) will be shared. In



addition, peak periods for each development use will occur at different stages throughout the day. Given this, the above assessment is considered conservative in respect to parking demands associated with the site.

5.0 PROJECT TRAFFIC

5.1 SITE TRAFFIC

5.1.1 TRIP GENERATION

The NSW Roads and Traffic Authority's (RTA) *"Guide to Traffic Generating Developments"* (the RTA Guide) provides trip generation rates for a variety of land uses, including those proposed. The RTA Guide identifies the following peak hour rates relevant to the subject proposal:

- high density residential – 0.24 trips per unit;
- motel – 0.4 trips per suite;
- restaurant – five trips per 100 m² of gross floor area;
- office – two trips per 100 m² of gross floor area (GFA); and
- retail – five trips per 100 m² of gross floor area.

Serviced apartments could be expected to generate trips in the range between the high density residential apartments' rate and the motel rate. For conservatism, the motel peak hour rate has been adopted.

The motel ancillary space, located on the ground floor of the motel building is expected to cater for, in the most part, the motel guests (potentially as a conference facility). Accordingly, there is expected to be minimal additional traffic generated by this area. Assuming the space will be used as a conference facility, it could be expected to generate five trips per 100 m² of gross floor area (as a conservative assessment).

The restaurant rate has been used to calculate a trip generation associated with the outdoor dining area. In reality, this area will predominantly service motel/apartment guests and, therefore, generate only minimal additional vehicle trips. Notwithstanding this, applying the RTA Guide rate provides a conservative assessment for this component of the proposed development.

Table 3 illustrates the forecast peak hour trips on the basis of the above rates.

Table 3: Forecast peak hour trip generation

Development use	Quantity	Peak hour trip generation rate	Peak hour trips
Commercial/retail	136 m ²	12.5 per 100 m ² GFA	17
Motel	38 rooms	0.3 per room	11.4
Motel Ancillary space (conference room)	129 m ²	5 per 100 m ² GFA	6.5
Reception	136 m ²	2 per 100 m ² GFA	2.7
Office (administration/management)	50 m ²	2 per 100 m ² GFA	1
Outdoor dining	110 m ²	5 per 100 m ² GFA	5.5
Serviced apartments	42 apartments	0.3 per unit	12.6
Apartments (high density residential)	48 apartments	0.24 per unit	11.5
Total			69

On the basis of the above, approximately 69 morning and evening peak hour movements could be generated by the subject development. Notwithstanding this, it is considered that the peaks for the various components may not directly coincide. Nevertheless, the assessment provides a “worst case” scenario of these peaks coinciding.

5.1.2 TRIP DISTRIBUTION

The following assumptions have been adopted in relation to am and pm directions of flows for trips generated by each component:

- residential – 20% in/80% out in the am and 70% in/30% out in the pm;
- serviced apartments and motel – 20% in/80% out in the am and 60% in/40% out in the pm;
- office/reception – 80% in/20 % out in the am and vice-versa in the pm; and
- retail – 80% in/20 % out in the am and vice-versa in the pm.

Based on the above distribution:

- 34 trips will be to the site and 35 trips will be from the site in the am peak hour; and
- 32 trips will be to the site and 37 trips will be from the site in the pm peak hour.

The general distribution of traffic associated with the site has been assumed to be 70% to/from the Packard Place and 30% to/from Montoro Court.

5.1.3 MODAL SPLIT

The above traffic generation rates include general consideration of the proportion of motor vehicle use for users associated with the site. In reality, the trip generation rates are expected to be conservative, as Darwin has higher levels of walking and cycling (i.e. for journey to work trips) than other Australian capital cities, and the site has a relatively high level of public transport accessibility.

5.1.4 TRIP ASSIGNMENT

Based on the above forecasts, trip assignment has been undertaken for the intersection of Smith Street and Montoro Court, and Smith Street, Packard Place and Dashwood Crescent. Figures 4 and 5 illustrate the additional movements at the intersections.

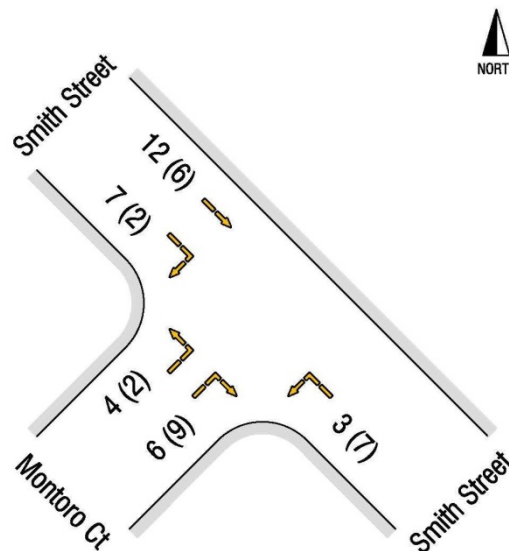


Figure 4: Additional peak hour movements at the Smith Street/Montoro Court intersection [am/(pm)]

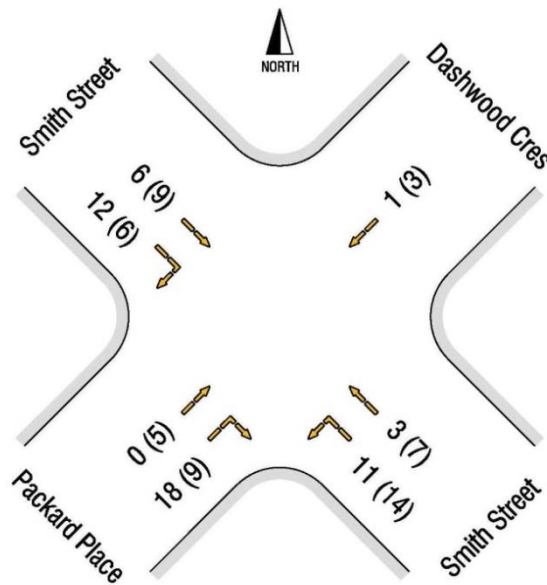


Figure 5: Additional peak hour movements at the Smith Street/Packard Place/Dashwood Crescent intersection [am/(pm)]

5.2 FUTURE TRAFFIC

The existing traffic volumes at the Smith Street/Packard Place and the Smith Street/Packard Place/Dashwood Crescent intersections have been extrapolated to a future “base” horizon year. Typically, annual growth rates on road networks are in the order of 1.5% to 2.0%. A ten year design horizon has been selected for assessment of the proposal (i.e. 2023).

Figures 6 and 7 illustrate the “base” case future traffic volumes (i.e. without the subject development) at the intersections.

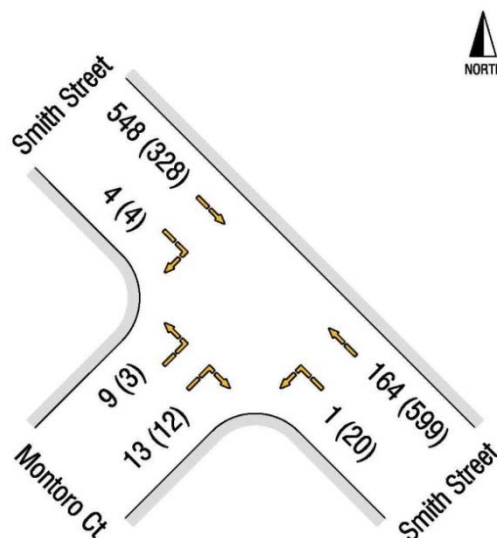


Figure 6: 2023 design year base case peak hour volumes at the Smith Street/Montoro Court intersection [am/(pm)]

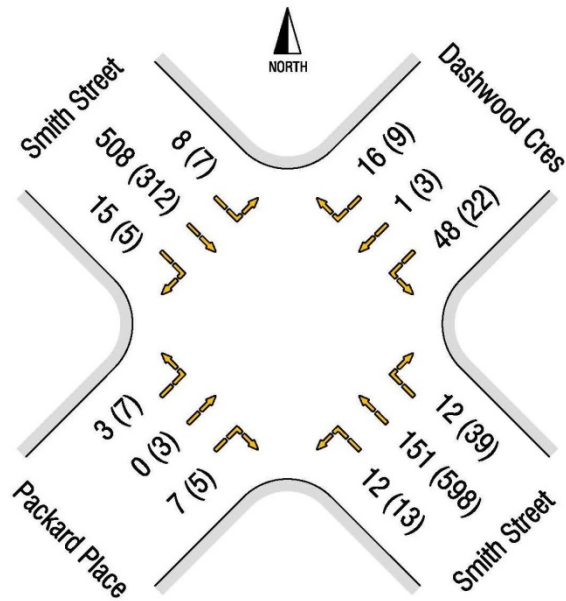


Figure 7: 2023 design year base case peak hour volumes at the Smith Street/Packard Place/Dashwood Crescent intersection [am/(pm)]

5.3 TOTAL TRAFFIC

Figures 8 and 9 illustrate the forecast future traffic volumes for the 2023 design year, including the volumes associated with the development.

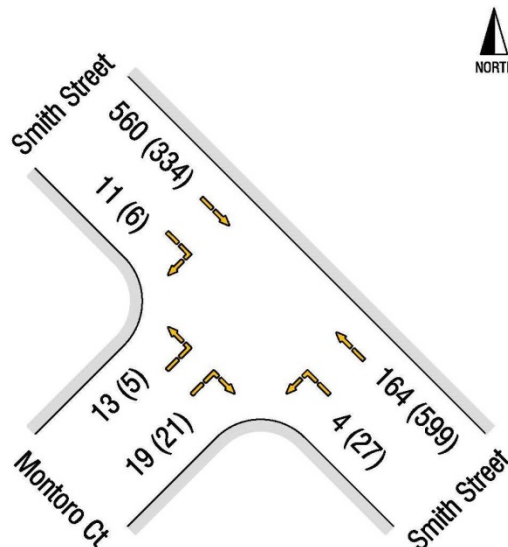


Figure 8: Forecast future (base case plus development) peak hour volumes at the Smith Street/Montoro Court intersection [am/(pm)]

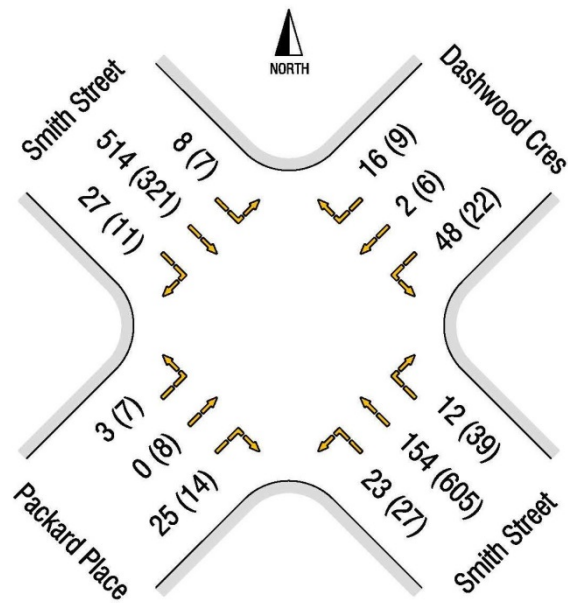


Figure 9: Forecast future (base case plus development) peak hour volumes at the Smith Street/Packard Place/Dashwood Crescent intersection [am/(pm)]

6.0 TRANSPORTATION ANALYSIS

6.1 SITE ACCESS

Access to the site will be provided via a two-way crossover on Packard Place and Montoro Court, as per the existing situation. The crossovers will provide access to the loading zone and car parking levels. The existing access to the Smith Street service road will be removed from the proposed redevelopment of the Asti Motel.

6.2 CAPACITY AND LEVEL OF SERVICE

SIDRA intersection modelling software has been utilised to analyse the capacity and Level of Service of the Smith Street/Montoro Court and Smith Street/Packard Place intersections. The performance of the intersection for the existing (2013), base case (2023 based on 3% pa growth) and future total (base case plus development) traffic scenarios are summarised in Tables 4 and 5 (respectively).

Table 4: Performance indicators for the Smith Street/Montoro Court intersection

	am			pm		
	Degree of Saturation	Level of Service (worst movement)	Average Delay (sec)	Degree of Saturation	Level of Service (worst movement)	Average Delay (sec)
2013 Existing	0.248	A	0.6	0.279	A	0.9
2023 Future – no development	0.333	A	0.8	0.374	A	1.3
2023 Future – development	0.344	A	0.9	0.378	A	1.5

Table 5: Performance indicators for the Smith Street/Packard Place intersection

	am			pm		
	Degree of Saturation	Level of Service (worst movement)	Average Delay (sec)	Degree of Saturation	Level of Service (worst movement)	Average Delay (sec)
2013 Existing	0.238	A	1.7	0.291	A	1.8
2023 Future – no development	0.320	A	2.1	0.393	A	2.7
2023 Future – development	0.330	A	2.4	0.406	A	3.0

Detailed output from the SIDRA analysis is provided in Appendix A and the following sections provide a summary of key findings from the analysis.

6.2.1 EXISTING CONDITIONS

The SIDRA analysis indicates that the Smith Street/Montoro Court intersection currently operates with a worst Level of Service of 'A' and overall Degree of Saturation of 0.248 in the am peak hour, and a worst Level of Service of 'A' and overall Degree of Saturation of 0.279 in the pm peak hour.

During the am peak period, the 98th percentile queue associated with the right-turn from the north-western Smith Street approach is 9 m and reduces to 7 m in the pm peak.

Similarly, the Smith Street/Packard Place/Dashwood Crescent intersection currently operates with a worst Level of Service of 'A' and overall Degree of Saturation of 0.238 in the am peak hour, and a worst Level of Service of 'A' and overall Degree of Saturation of 0.291 in the pm peak hour.

During the am peak period, the 98th percentile queue associated with the right-turn from the north-western Smith Street approach is 9 m and reduces to 6 m in the pm peak. The south-eastern approach has a 98th percentile queue associated with the right turn of 3 m in the am peak and increases to 12 m in the pm peak.

6.2.2 BACKGROUND CONDITIONS

The background conditions relate to the extrapolated design year "base case".

For the Smith Street/Montoro Court intersection, the SIDRA analysis indicates that the intersection will, in 2023, operate with a worst Level of Service of 'A' and overall Degree of Saturation of 0.333 in the am peak hour, and a worst Level of Service of 'A' and overall Degree of Saturation of 0.374 in the pm peak hour.

The 98th percentile queues associated with the right-turn from the north-western Smith Street approach will be 15 m in the am peak and 11 m in the pm peak.

For the Smith Street/Packard Place/Dashwood Crescent intersection, the SIDRA analysis indicates that the intersection will, in 2023, operate with a worst Level of Service of 'A' and overall Degree of Saturation of 0.320 in the am peak hour, and a worst Level of Service of 'A' and overall Degree of Saturation of 0.393 in the pm peak hour.

The 98th percentile queues associated with the right-turn from the north-western Smith Street approach will be 14 m in the am peak and 11 m in the pm peak.

The south-eastern approach will have a 98th percentile queue associated with the right-turn of 5 m in the am peak and increases to 22 m in the pm peak.

6.2.3 TOTAL TRAFFIC

The total conditions relate to the base case volumes plus the development volumes.

For the Smith Street/Montoro Court intersection, the SIDRA analysis indicates that the intersection will, in 2023, operate with a worst Level of Service of 'A' and overall Degree of Saturation of 0.344 in the am peak hour, and a worst Level of Service of 'A' and overall Degree of Saturation of 0.378 in the pm peak hour. These conditions represent a minimal change to those associated with the design year background traffic.

The 98th percentile queues associated with the right-turn from the north-western Smith Street approach will be in the order of 16 m, reducing to 12 m in the pm peak.

For the Smith Street/Packard Place/Dashwood Crescent intersection, the SIDRA analysis indicates that the intersection will operate with a worst Level of Service of 'A' and overall Degree of Saturation of 0.330 in the am peak hour, and a worst Level of Service of 'A' and overall Degree of Saturation of 0.406 in the pm peak hour.

The 98th percentile queues associated with the right-turn from the north-western Smith Street approach will be 15 m in the am peak and 12 m in the pm peak.

The south-eastern approach will have a 98th percentile queue associated with the right-turn of 5 m in the am peak and increases to 24 m in the pm peak.

6.3 TRANSPORTATION SAFETY

The SIDRA analysis of both intersections has indicated that the intersections will continue to operate satisfactorily, both in the "background condition" and "total traffic" scenarios.

The development will not require any specific road upgrades to cater for the additional traffic generated by the proposed development, as these volumes are relatively minor in comparison to the existing and future background volumes.



7.0 FINDINGS AND RECOMMENDATIONS

7.1 SITE ACCESSIBILITY

The proposed development will generate an additional 69 trips in the am and 69 trips in the pm peak hours. Such a volume is low and will be readily accommodated at the surrounding intersections, without the need to improve the intersection arrangements from a capacity perspective.

7.2 TRANSPORTATION IMPACTS

The additional traffic generation associated with the proposal will be low. It is considered that the proposal will generally have minimal impact on the adjacent road network, even in the design horizon year (2023).

7.3 ROADWAY IMPROVEMENTS

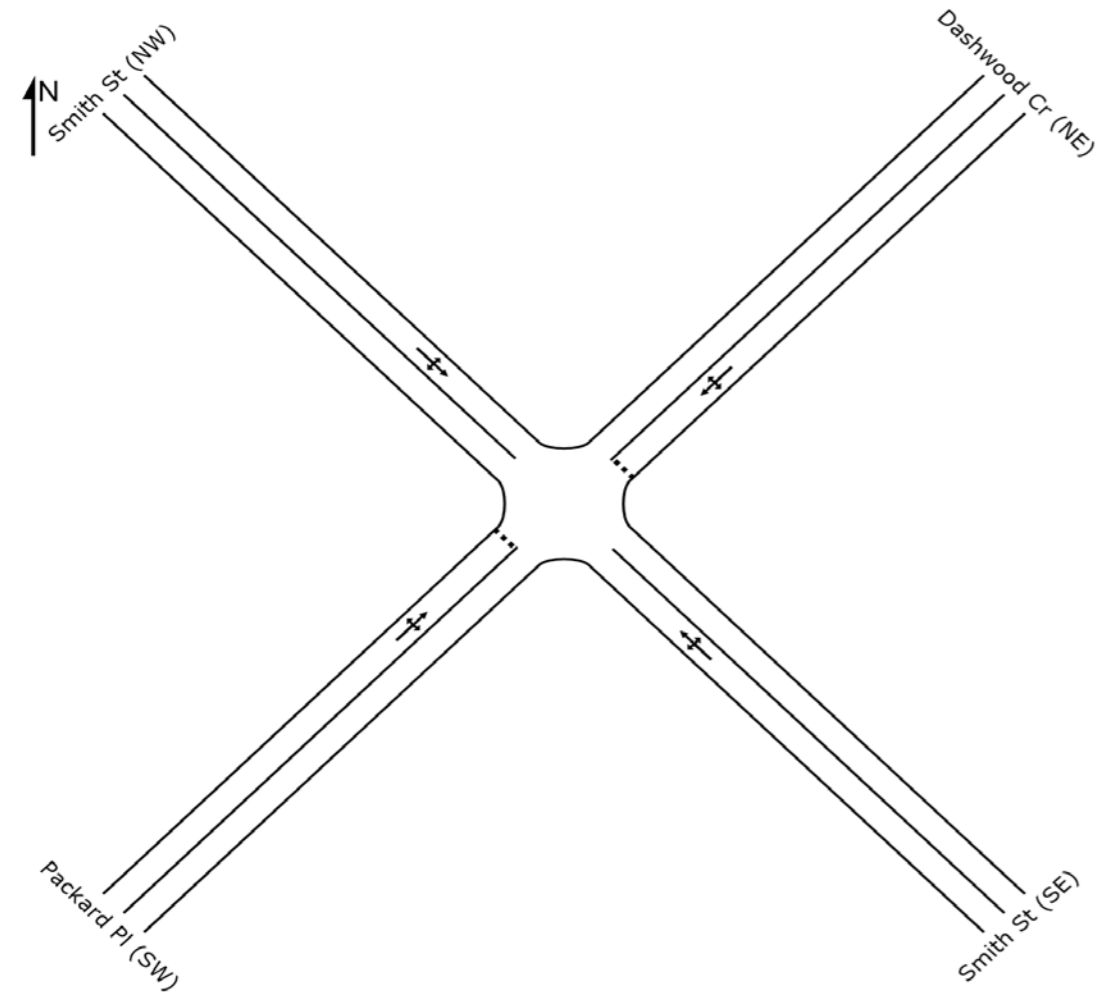
The relatively small increase in traffic volumes associated with the subject development will not require any improvements to the existing road network.



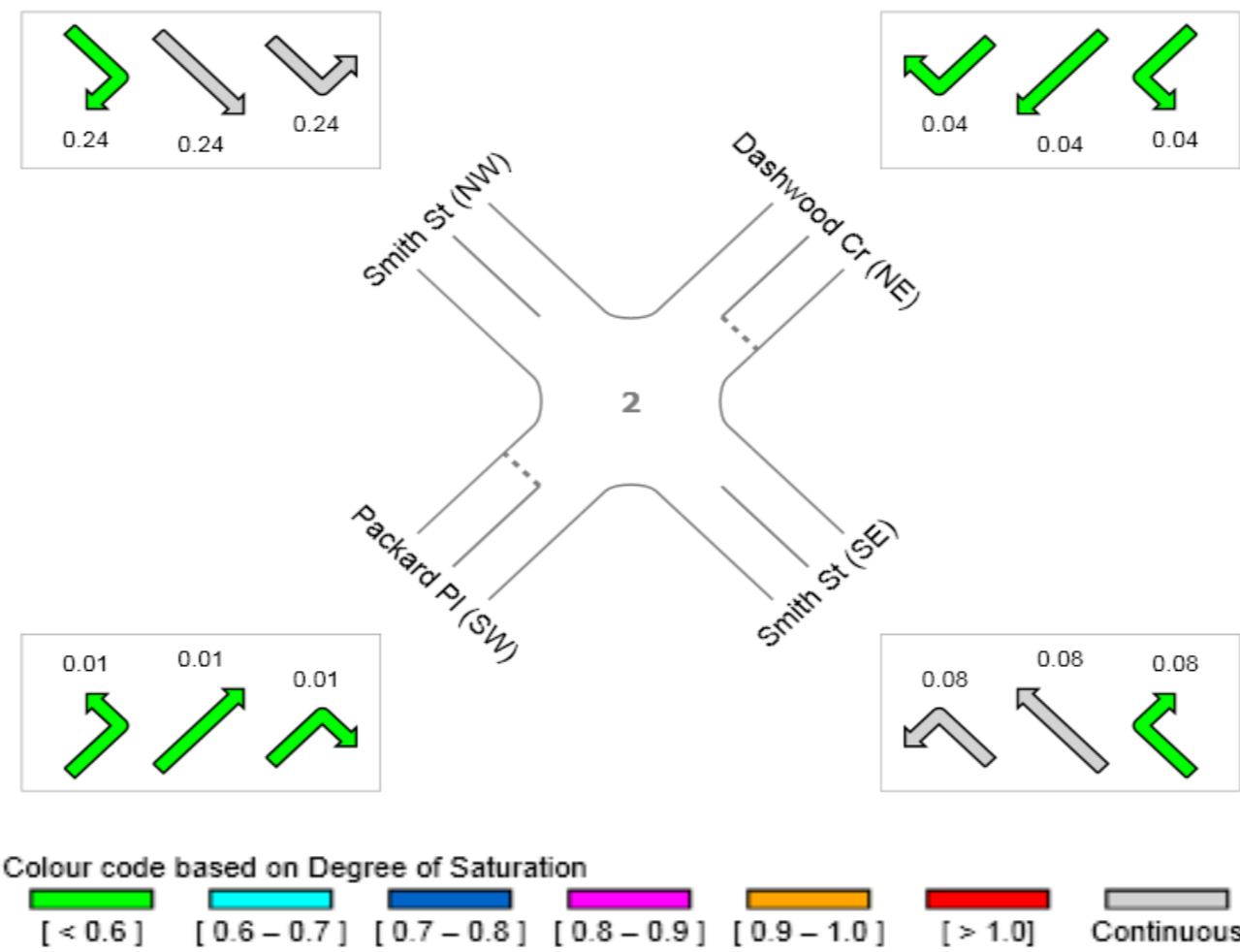
APPENDIX A

SIDRA ANALYSIS

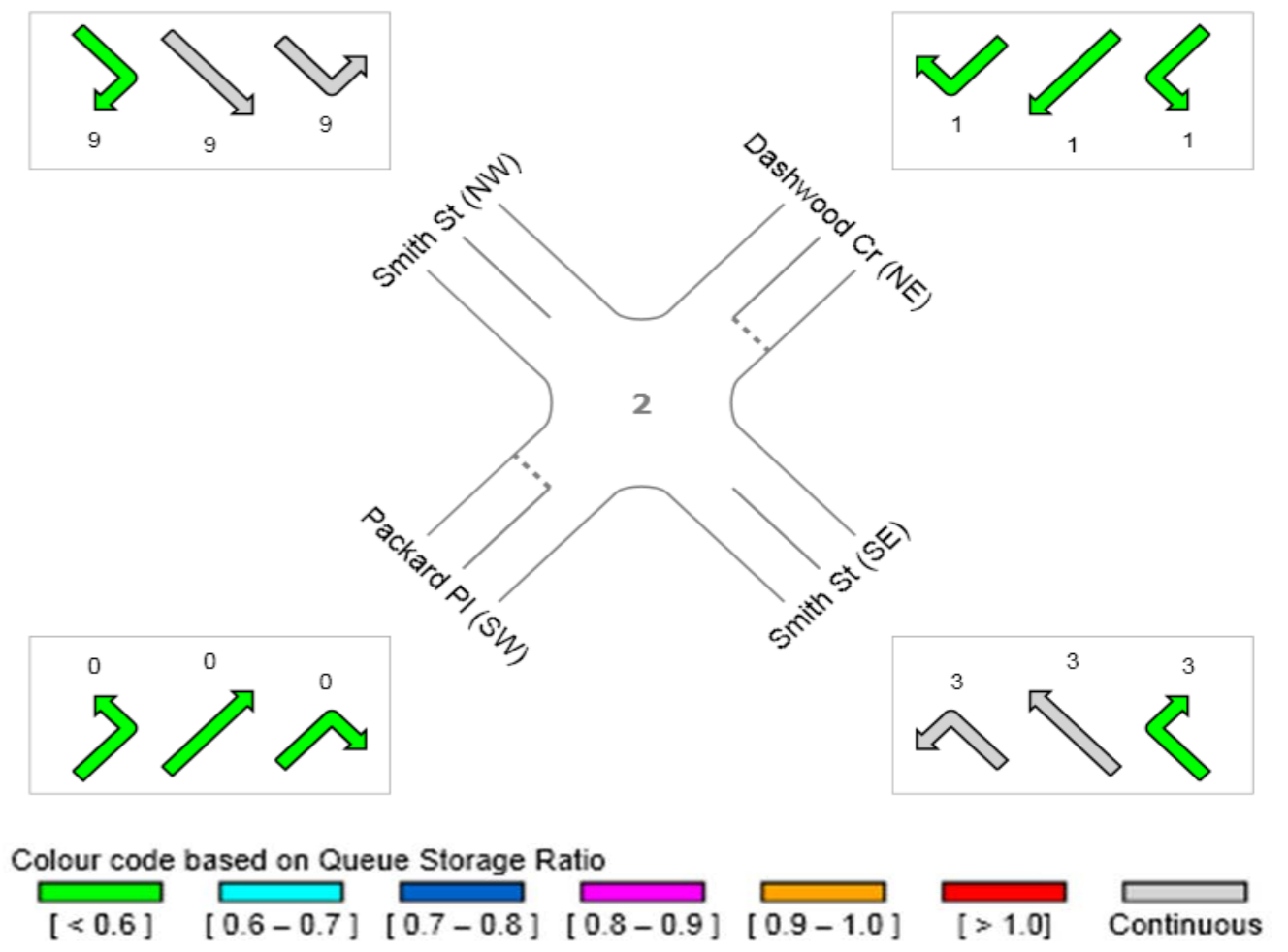
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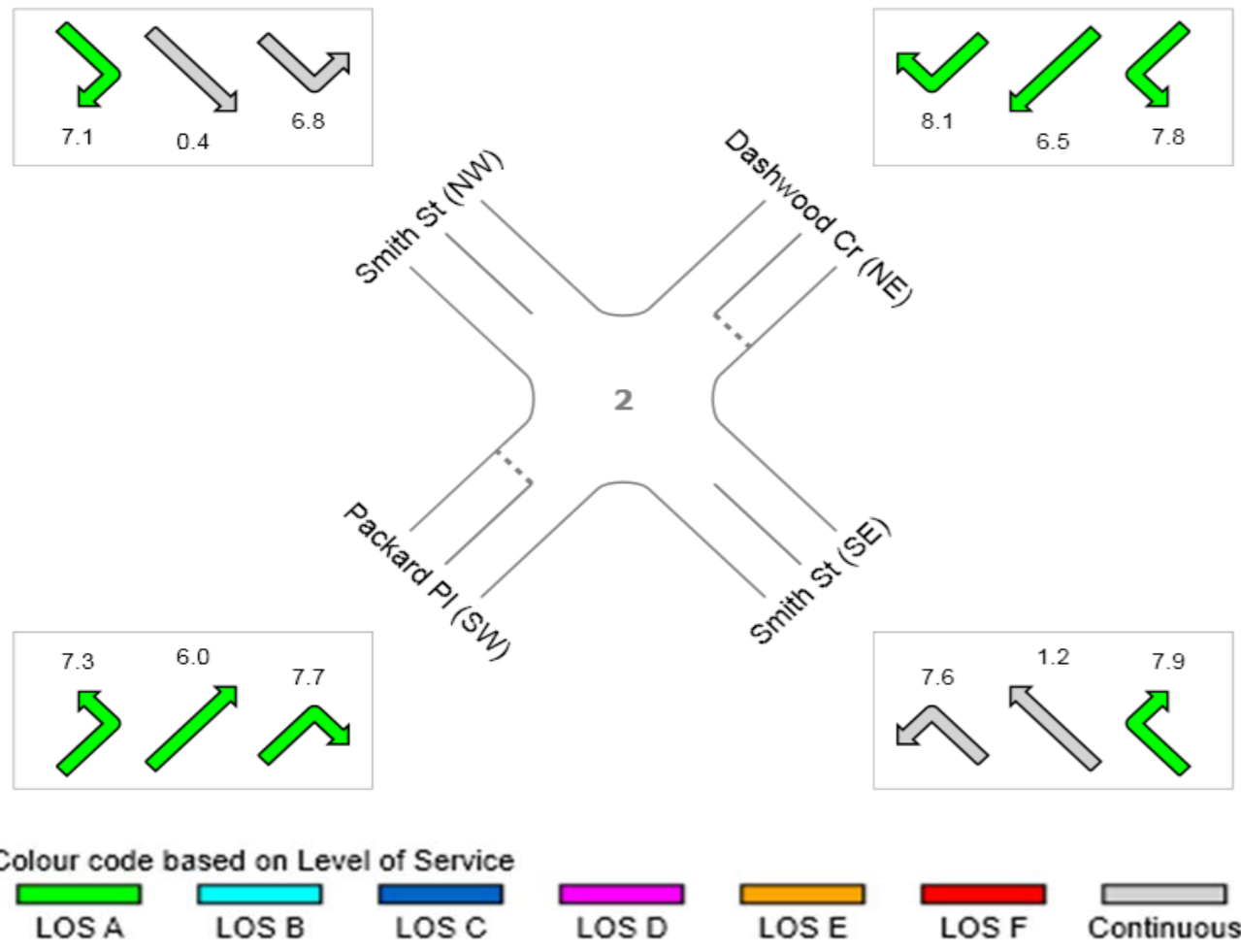
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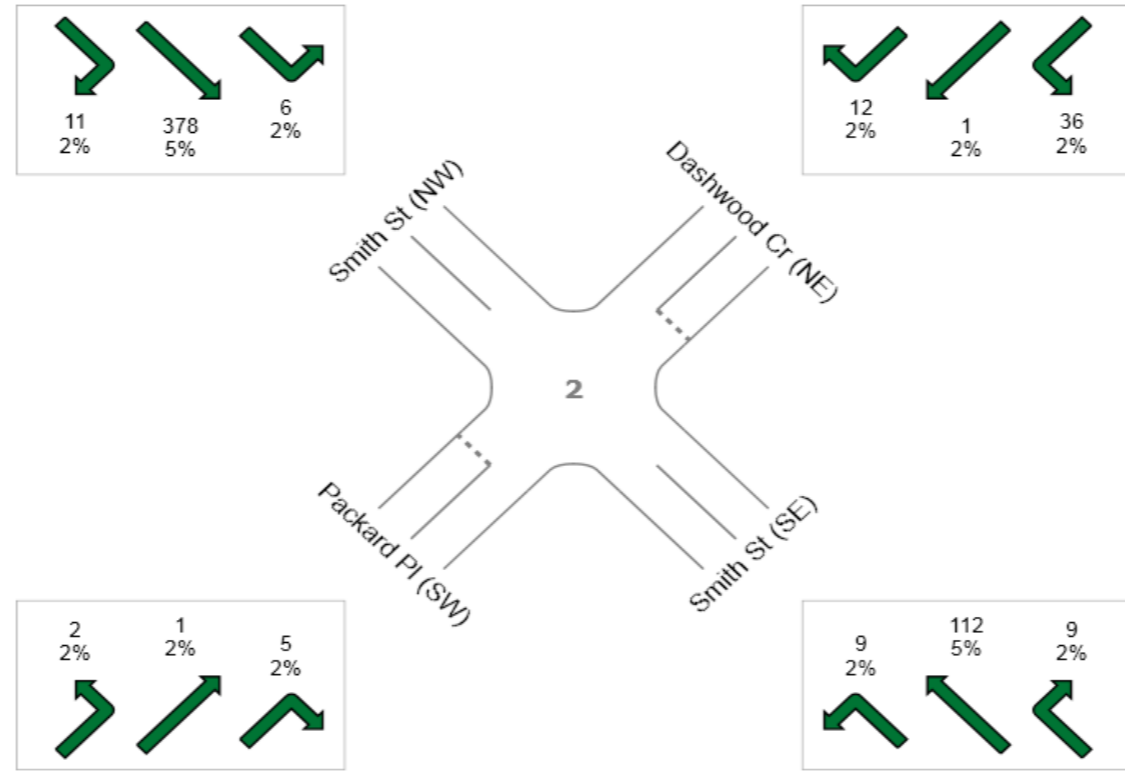
QUEUES (m)



DELAY & LEVEL OF SERVICE



FLOWS

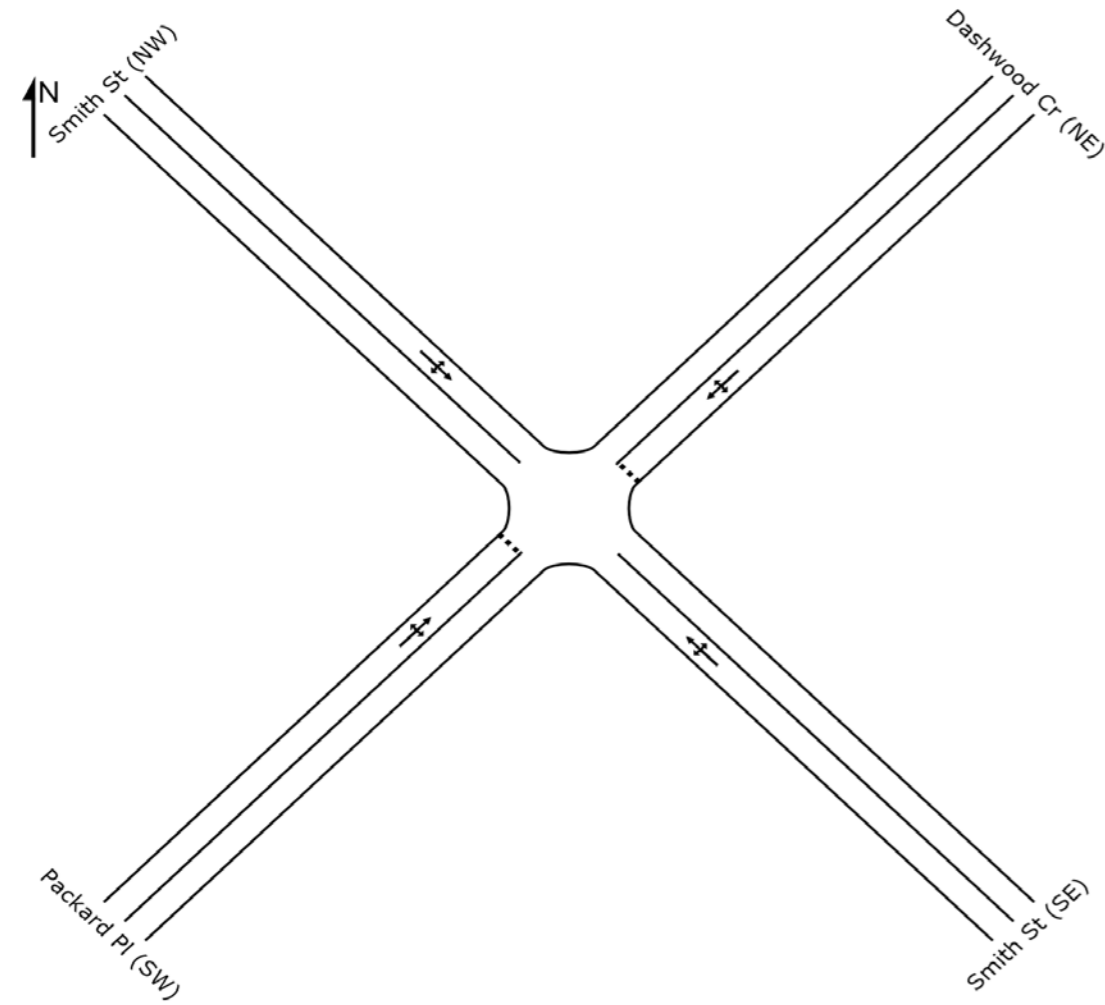


JOB NUMBER:	12-0347
PROJECT NAME:	ASTI MOTEL REDEVELOPMENT 7 PACKARD PLACE, LARRAKEYAH

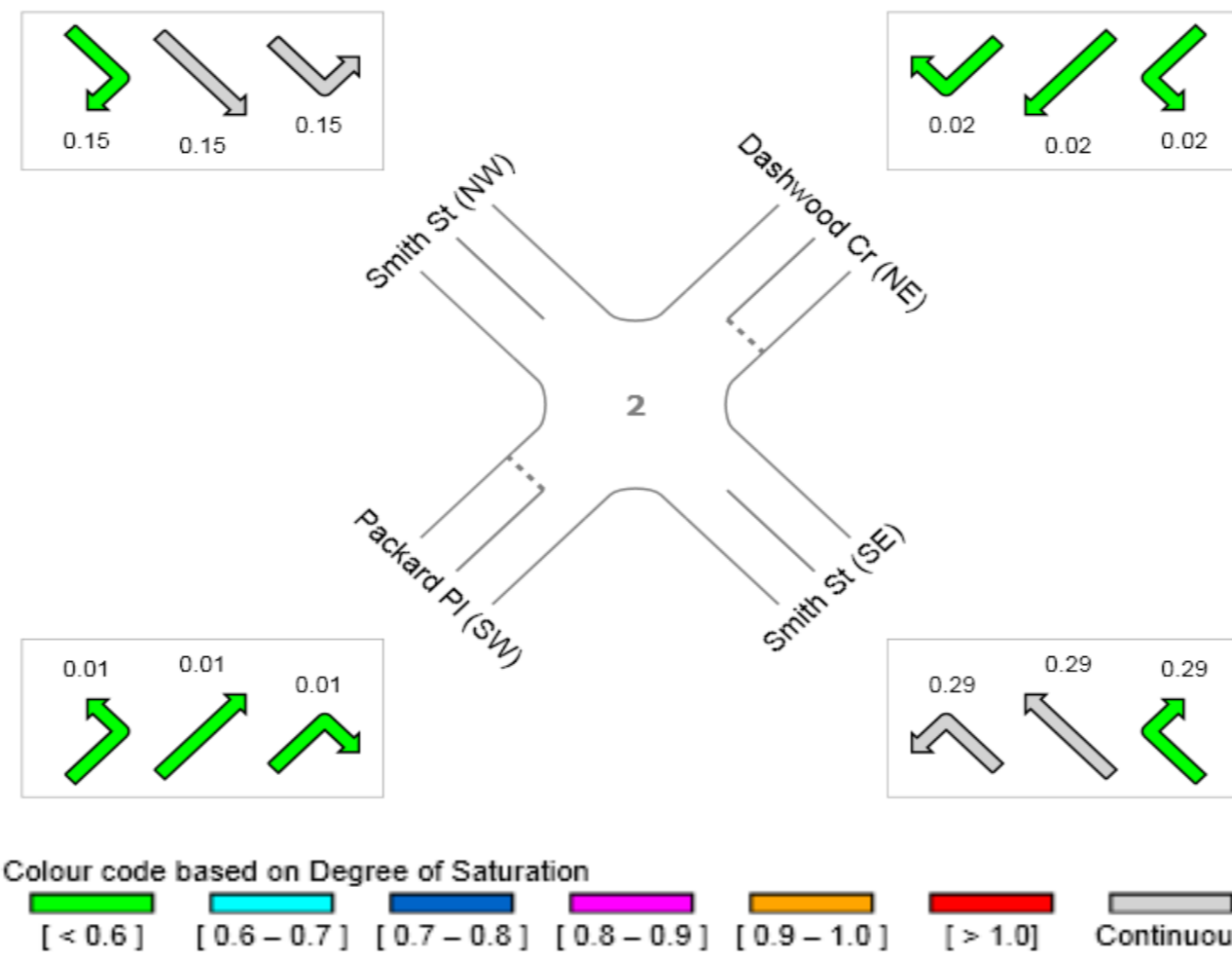
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SCENARIO:	EXISTING (2013) AM PEAK HOUR VOLUMES EXISTING LAYOUT



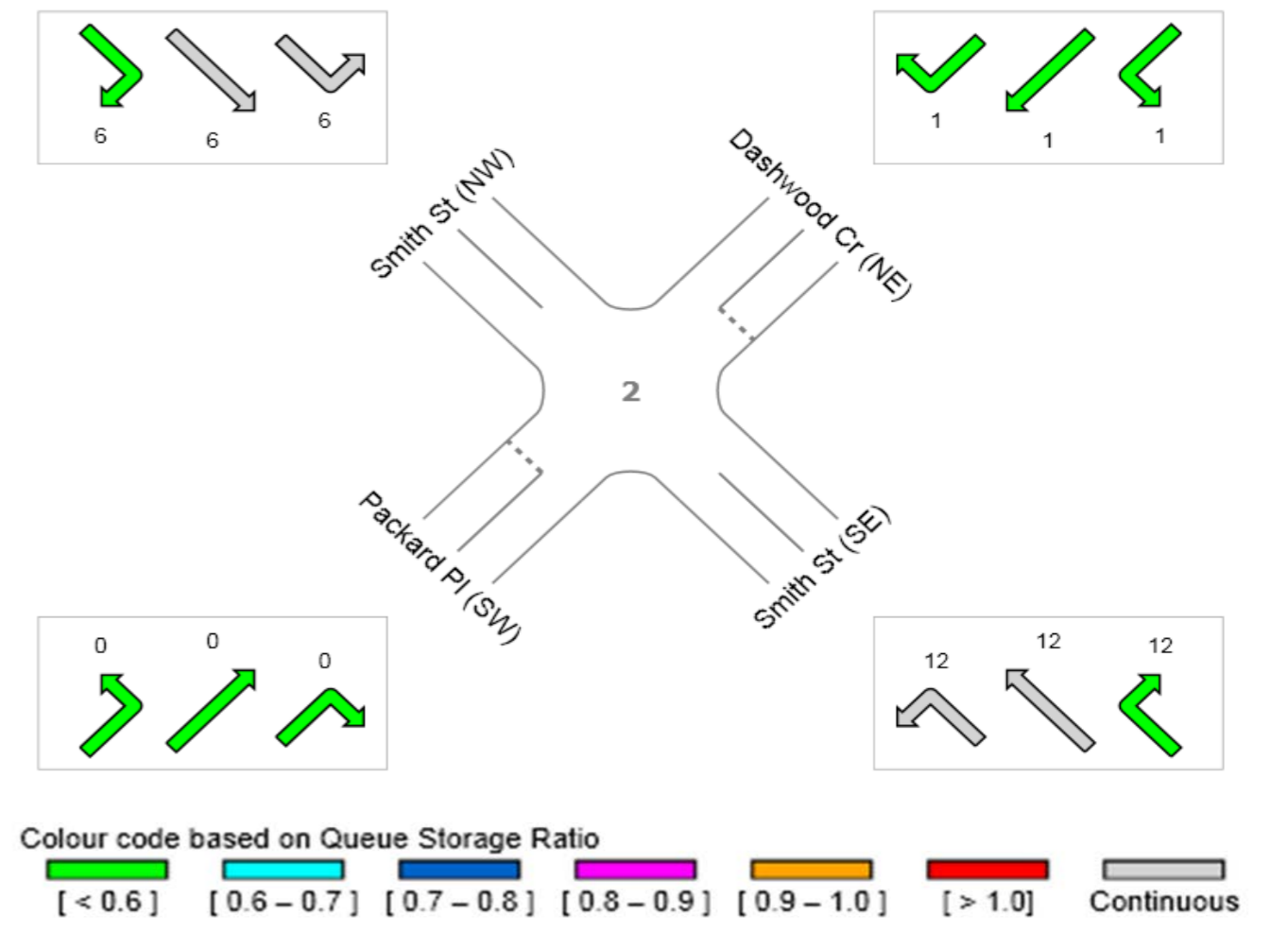
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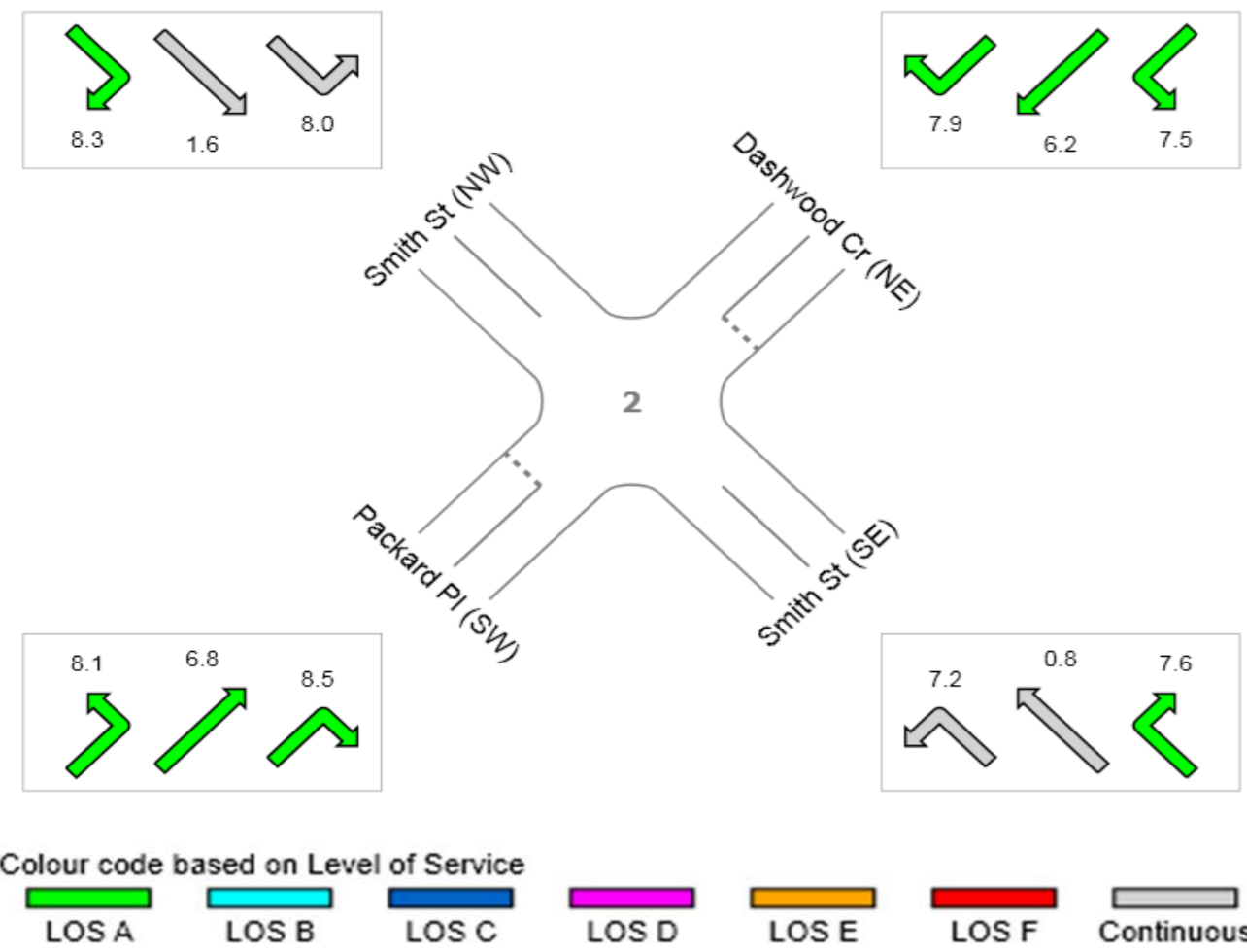
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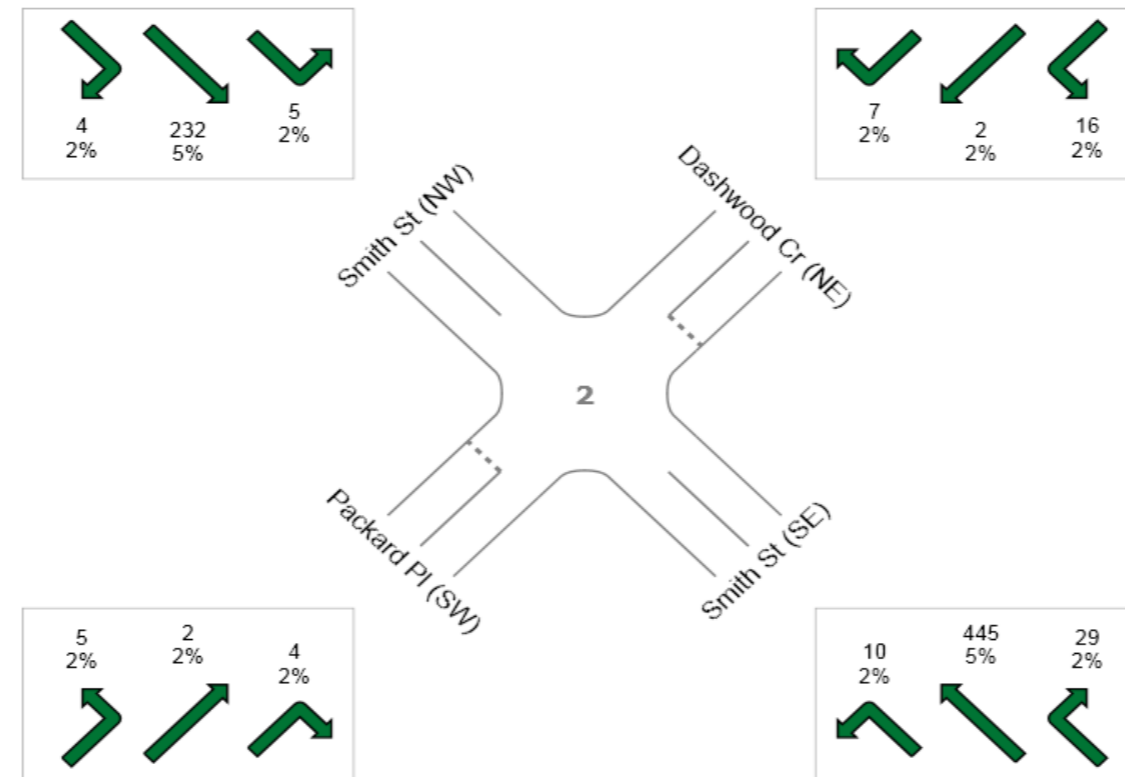
QUEUES (m)



DELAY & LEVEL OF SERVICE



FLOWS

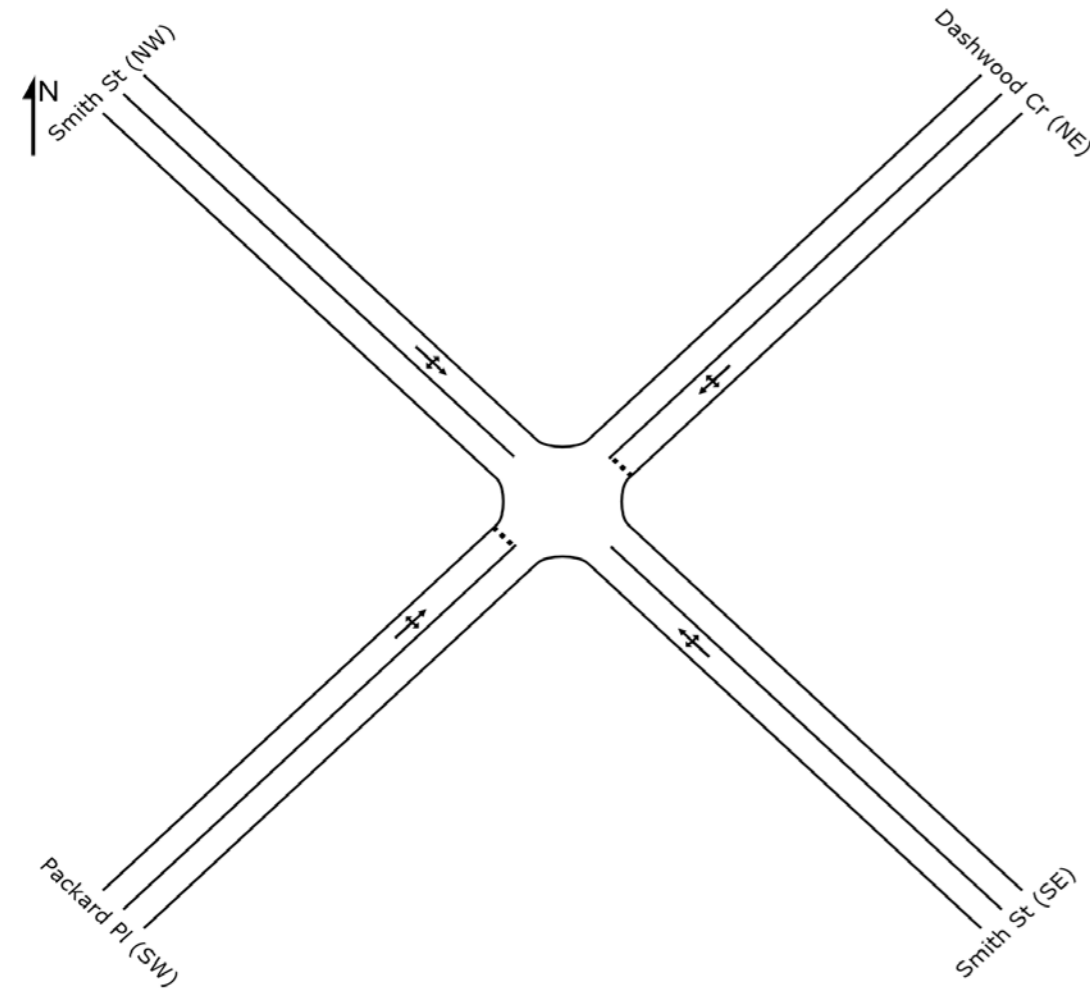


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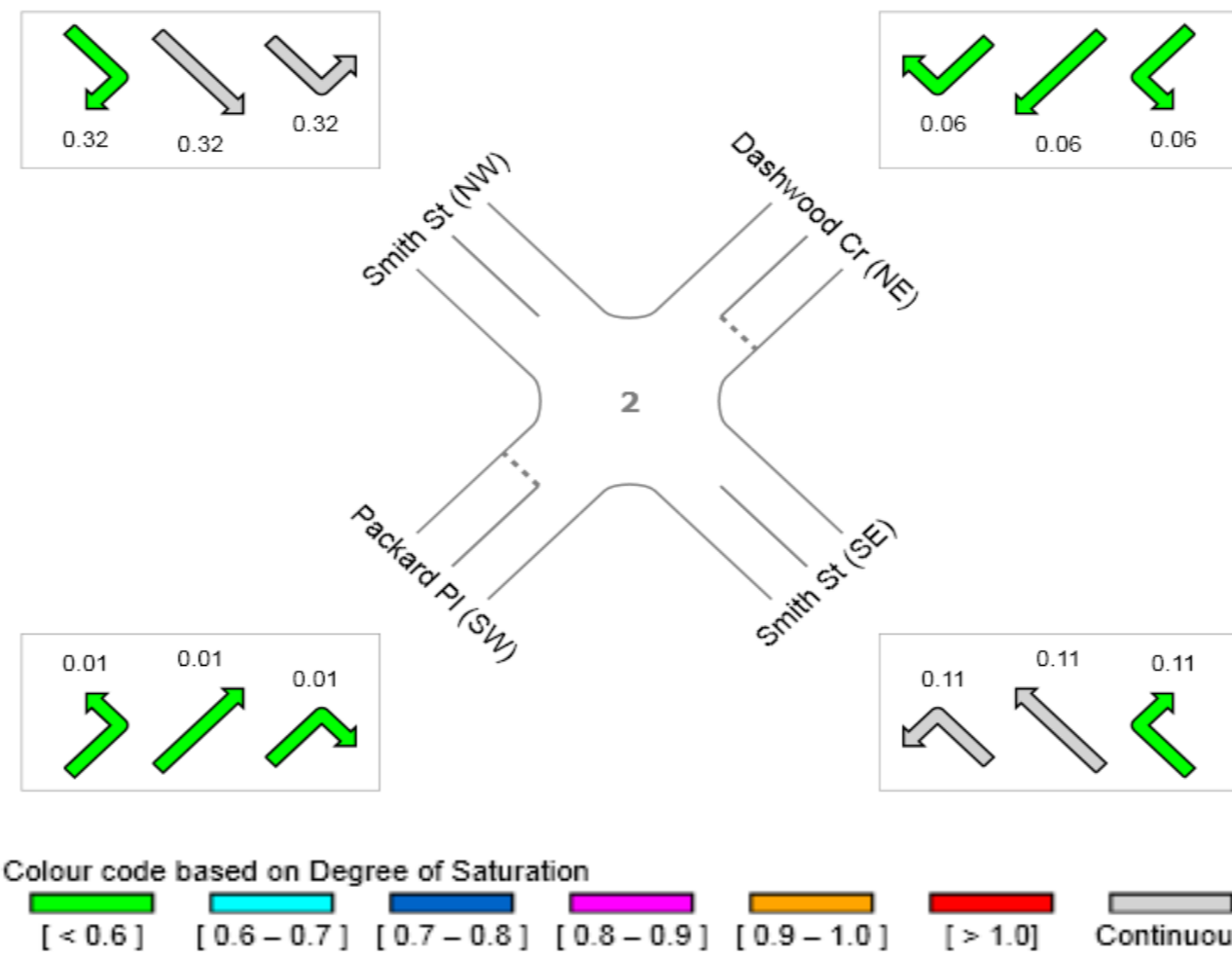
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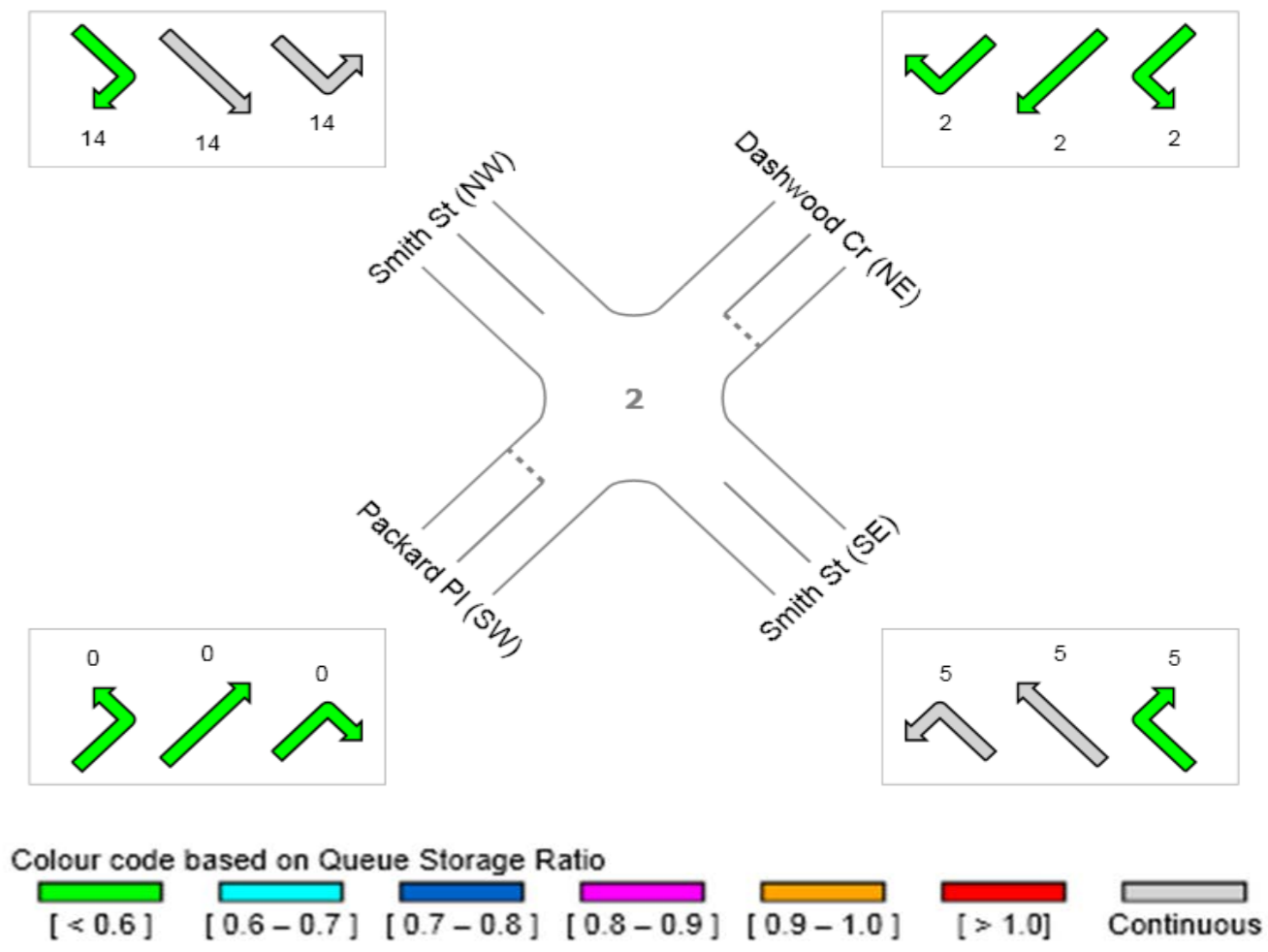
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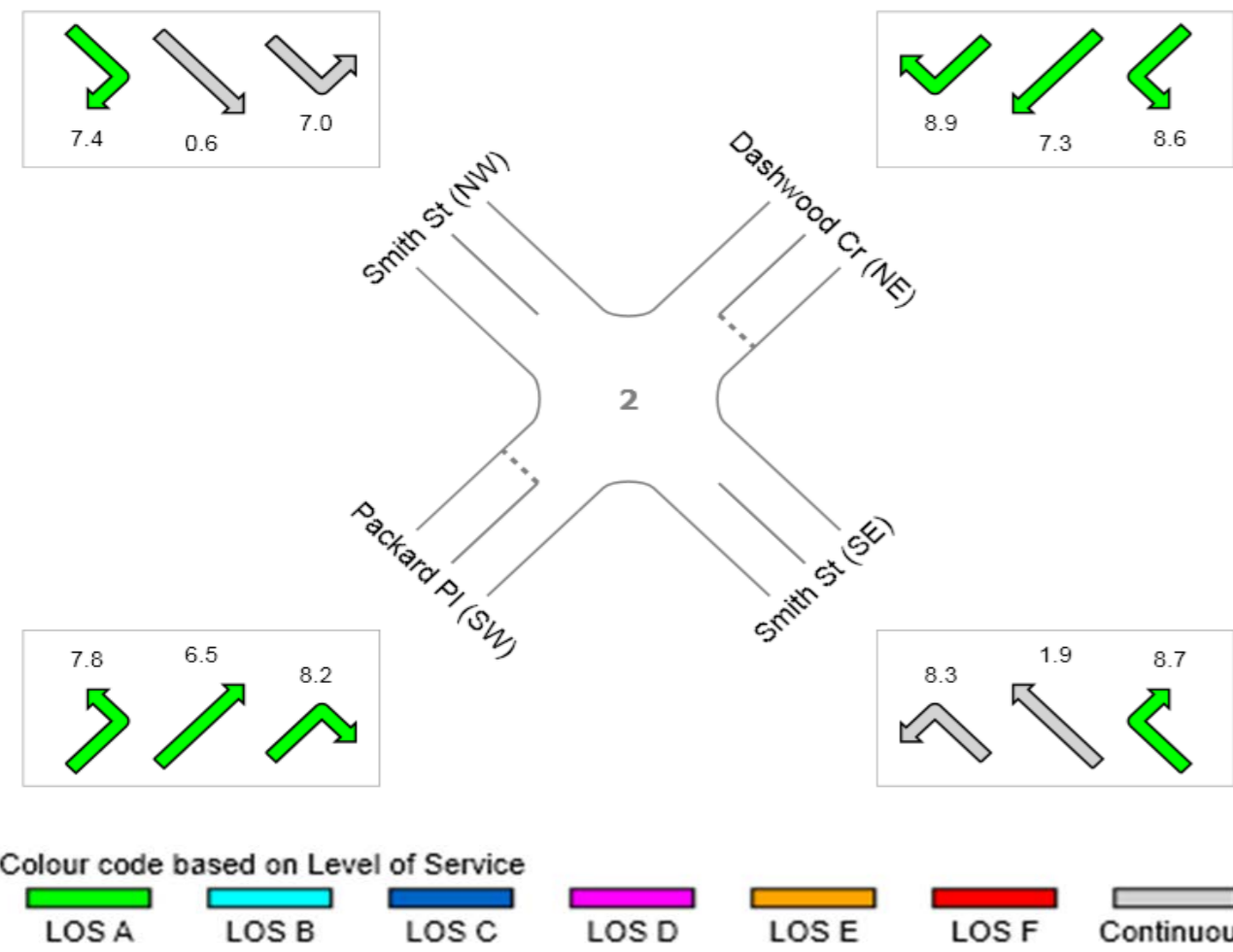
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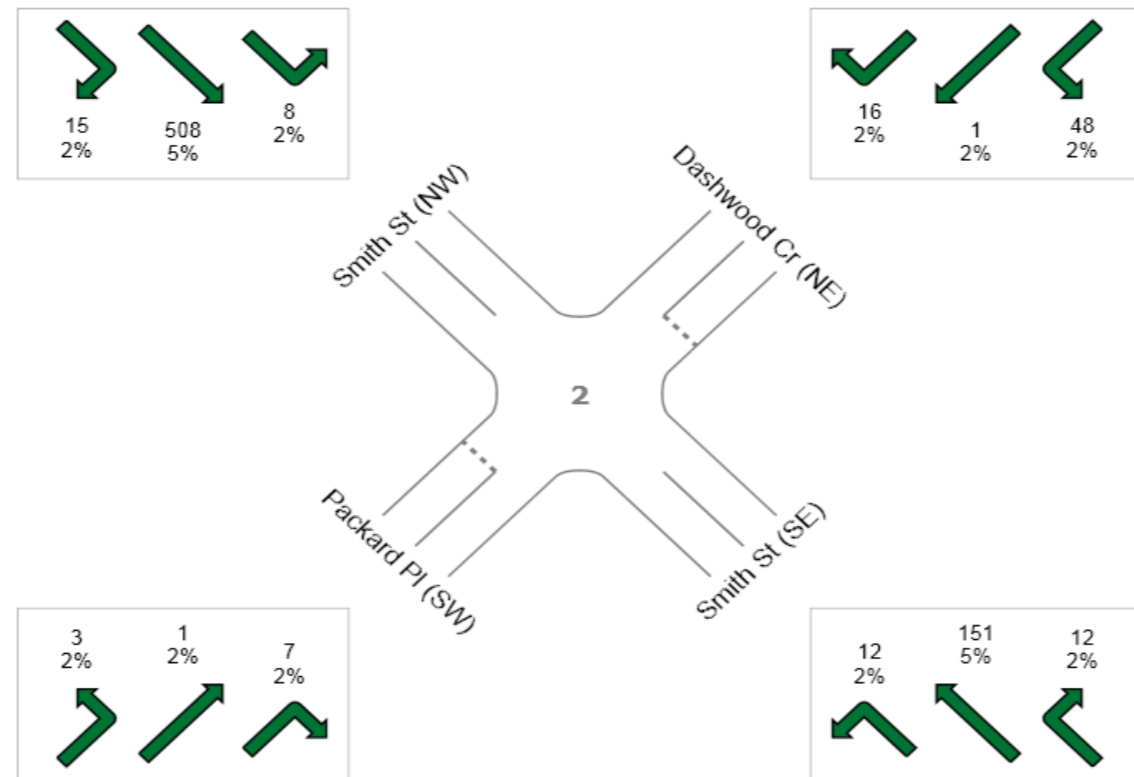
QUEUES (m)



DELAY & LEVEL OF SERVICE



FLOWS

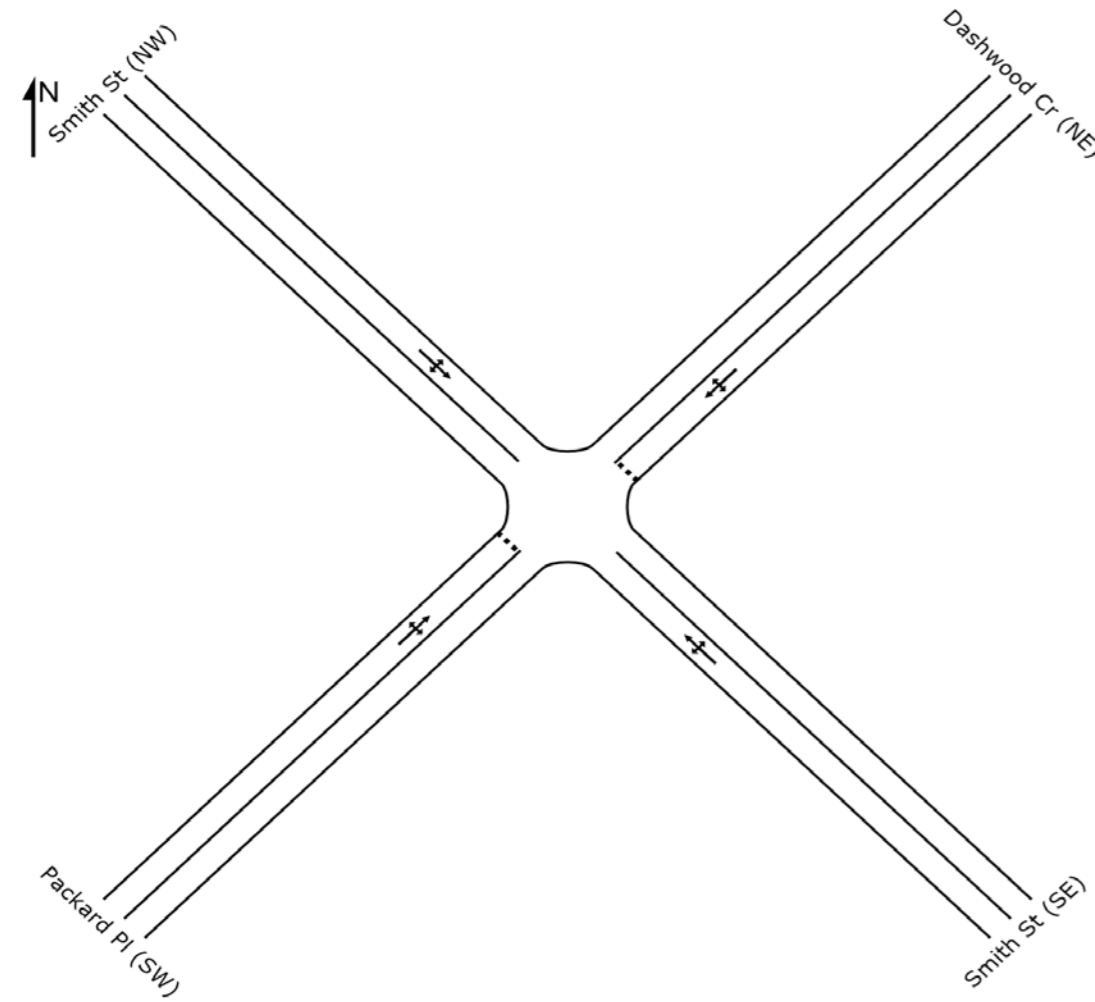


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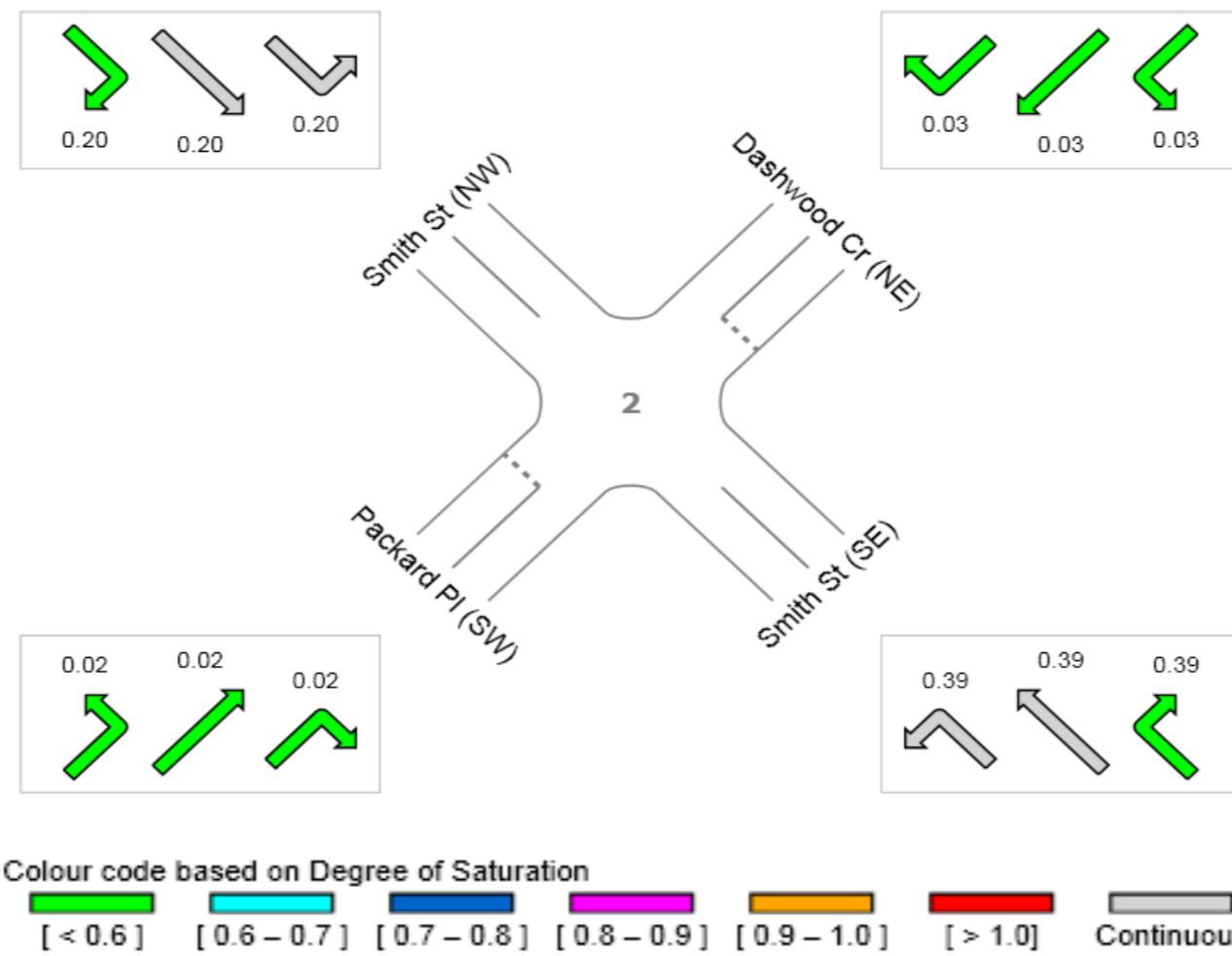
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SCENARIO:	FORECAST (2023) AM PEAK HOUR VOLUMES (3% pa growth) EXISTING LAYOUT



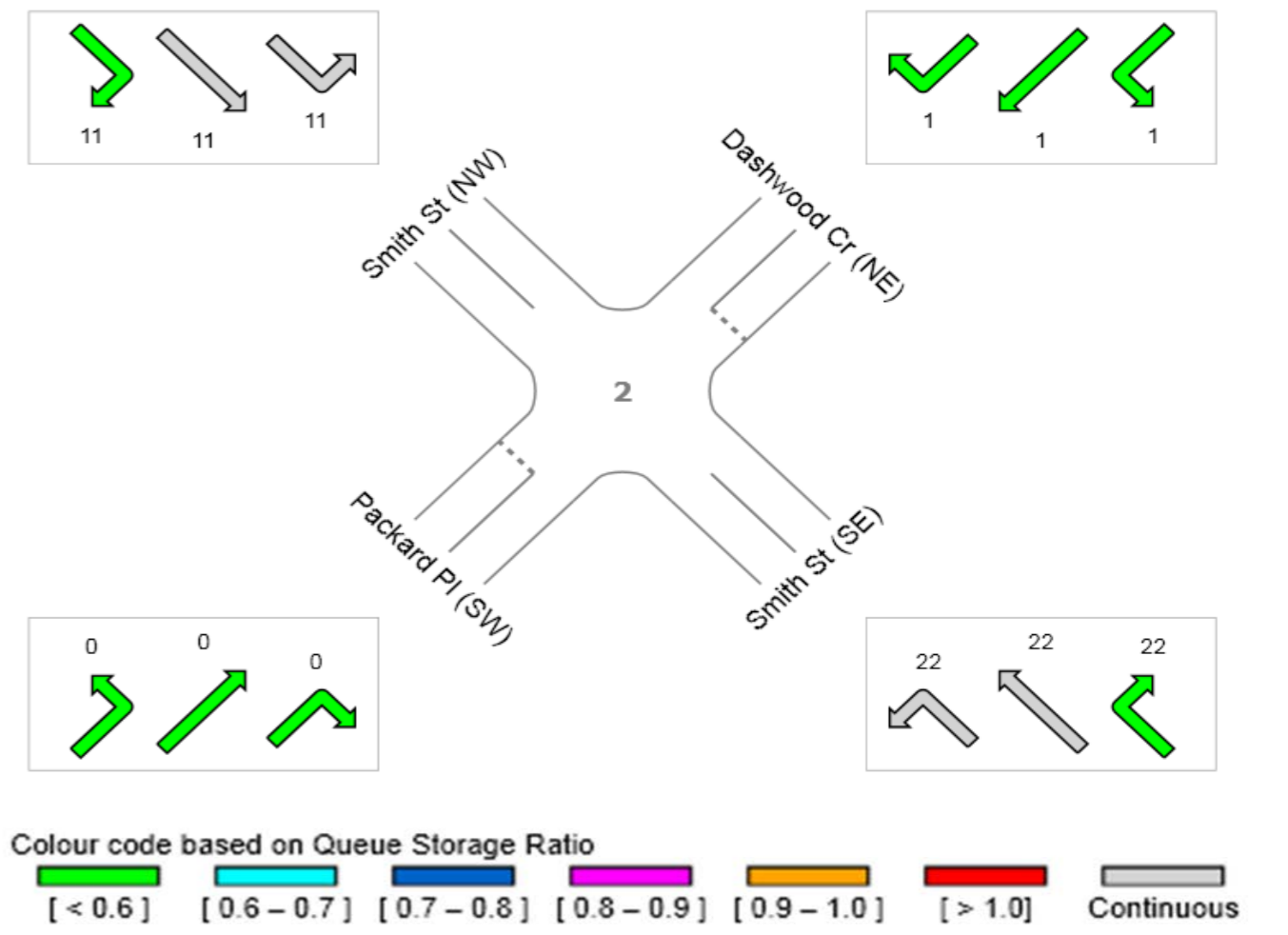
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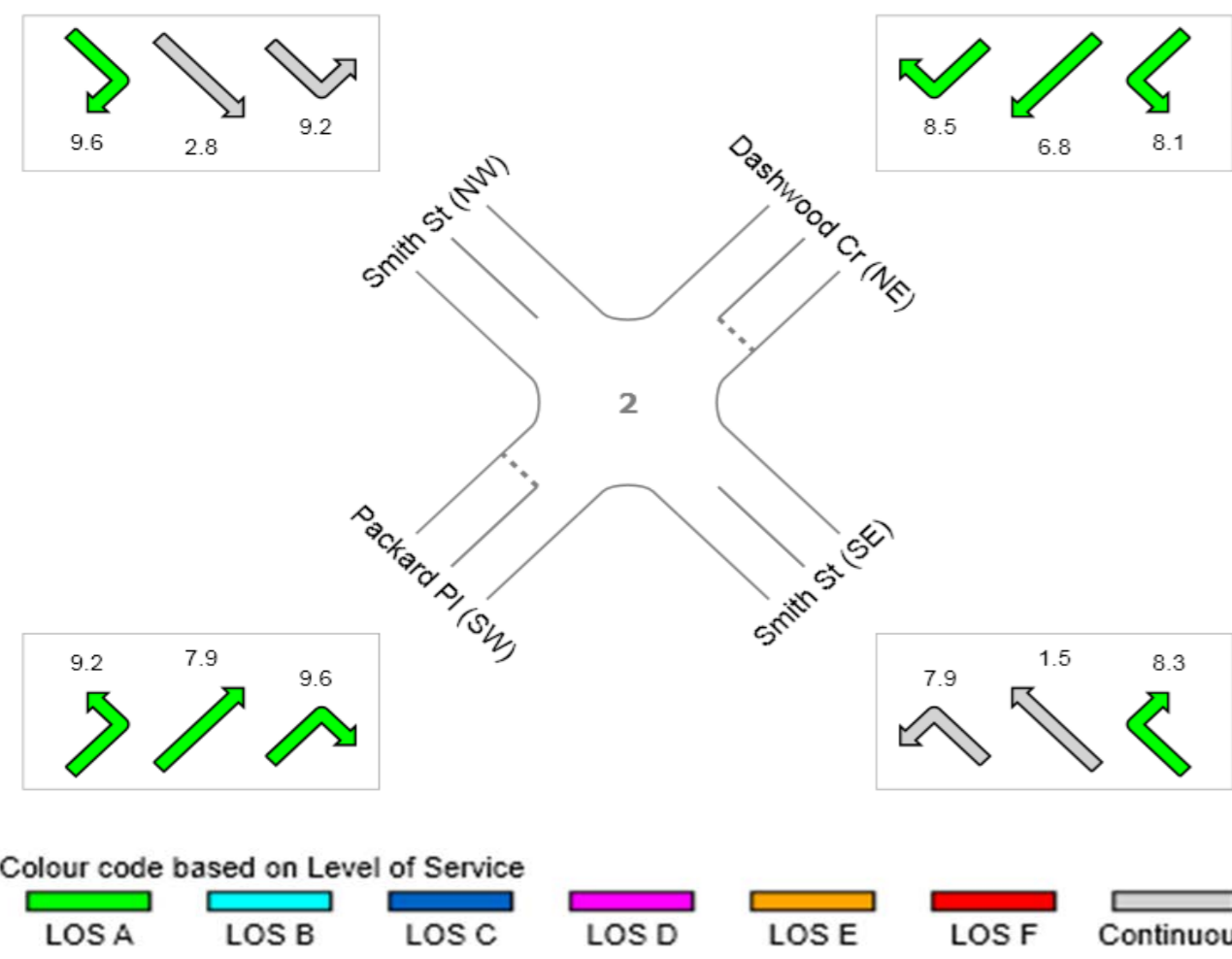
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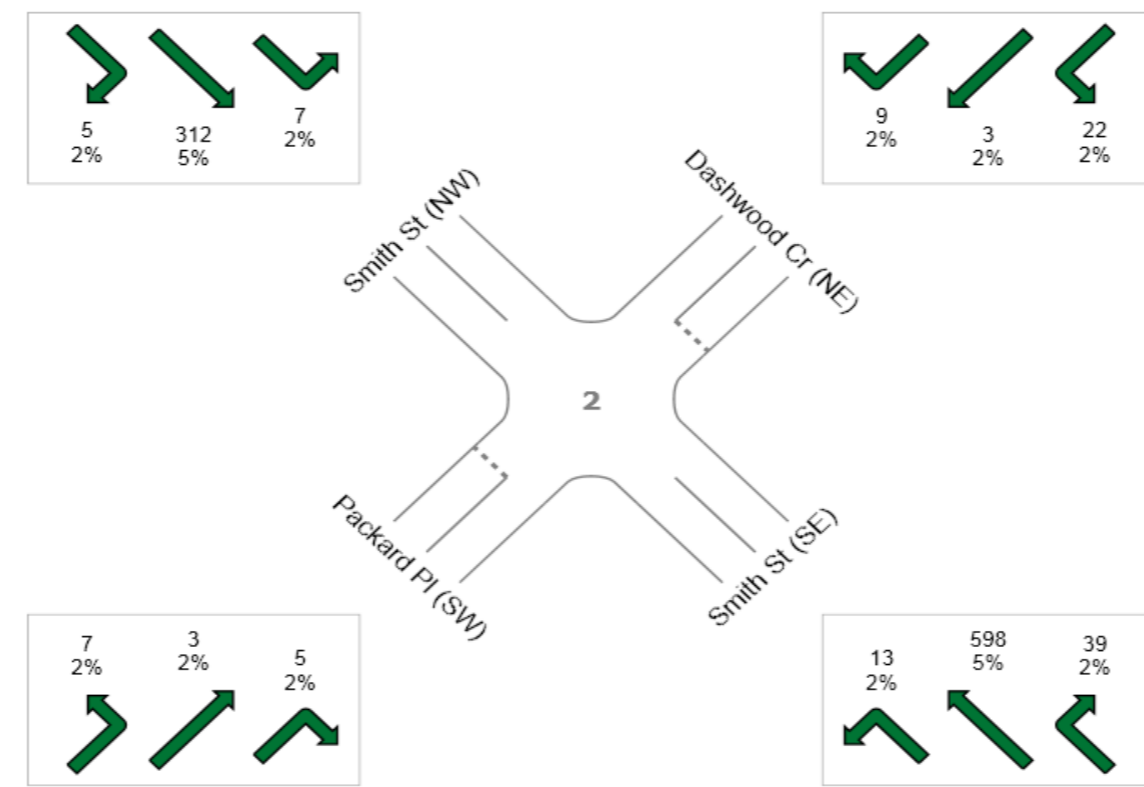
QUEUES (m)



DELAY & LEVEL OF SERVICE



FLOWS

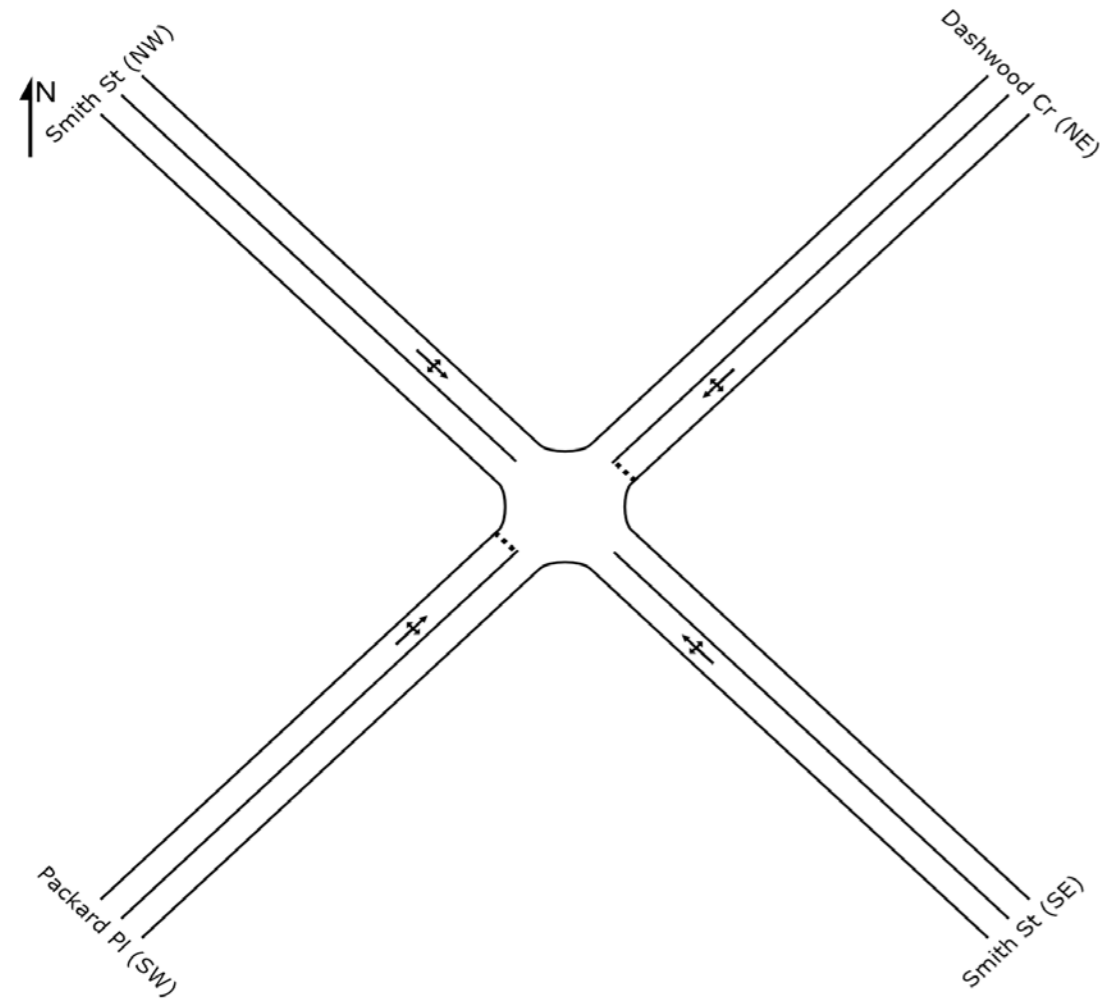


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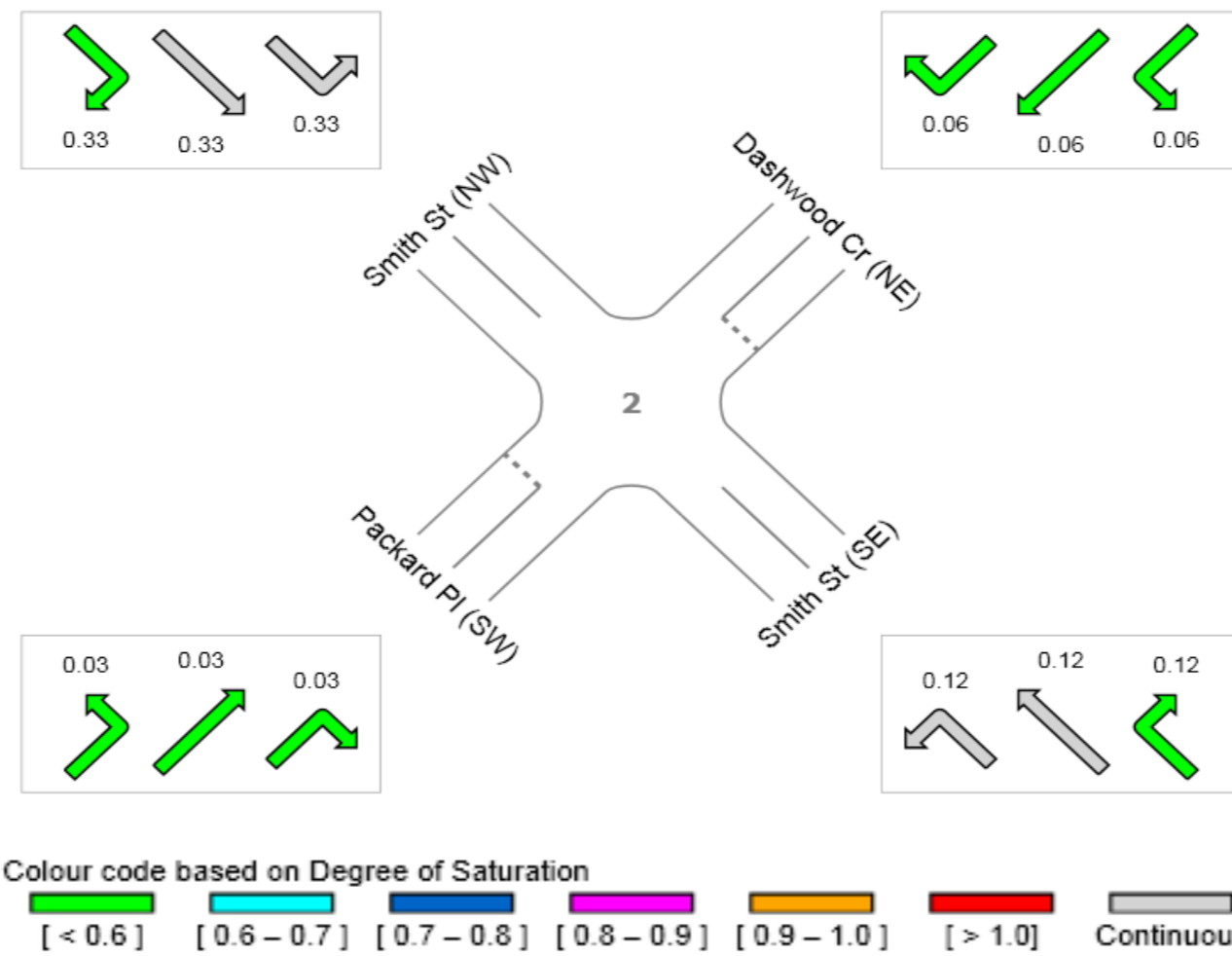
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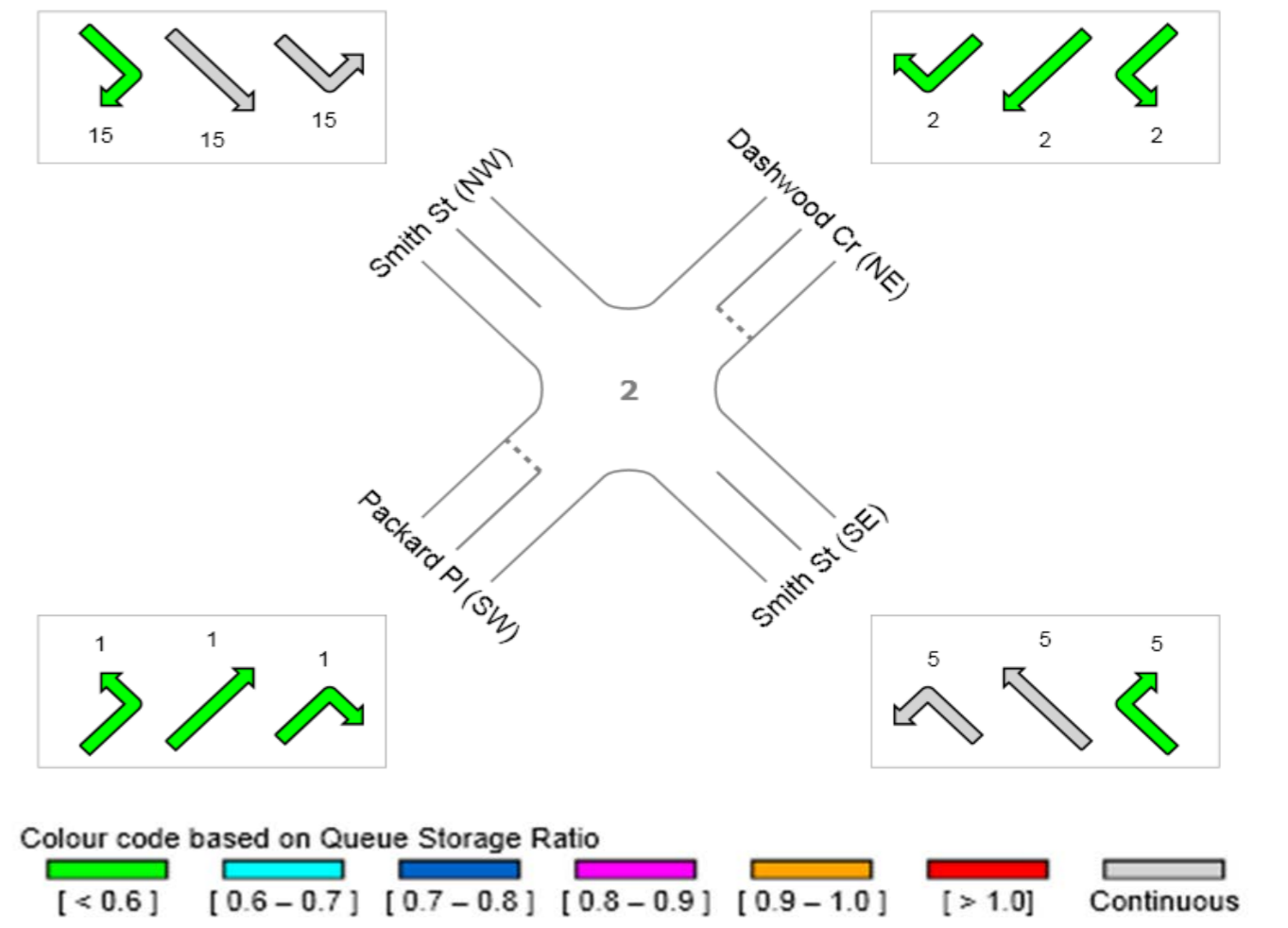
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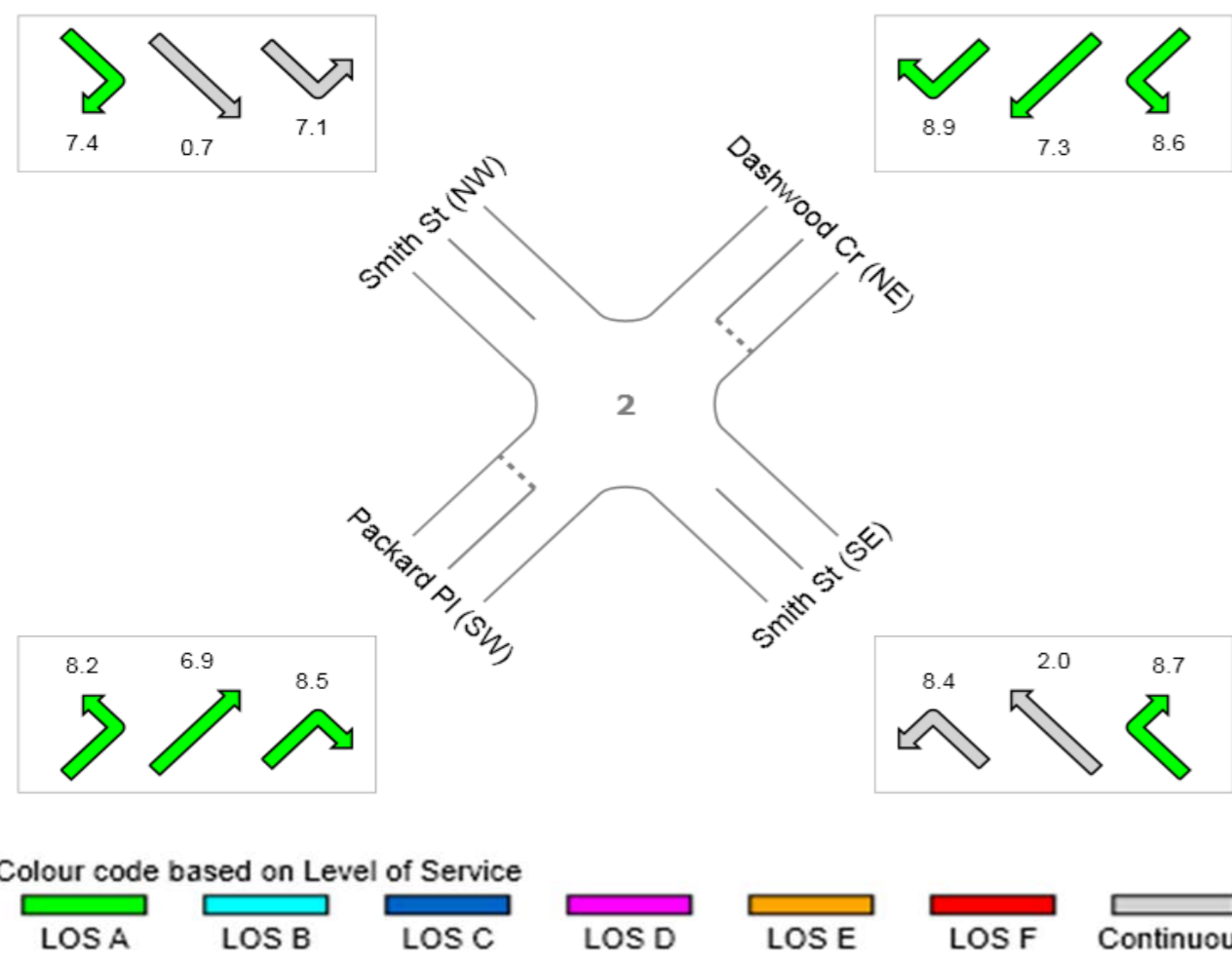
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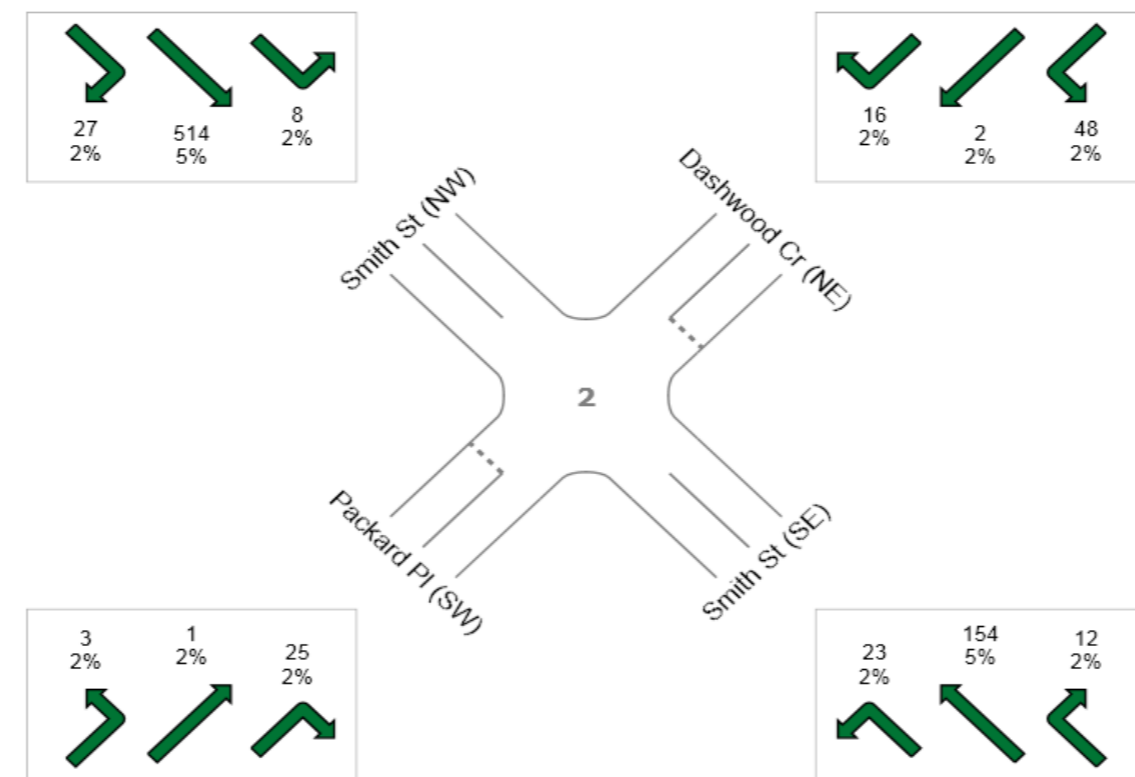
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DELAY & LEVEL OF SERVICE



FLOWS

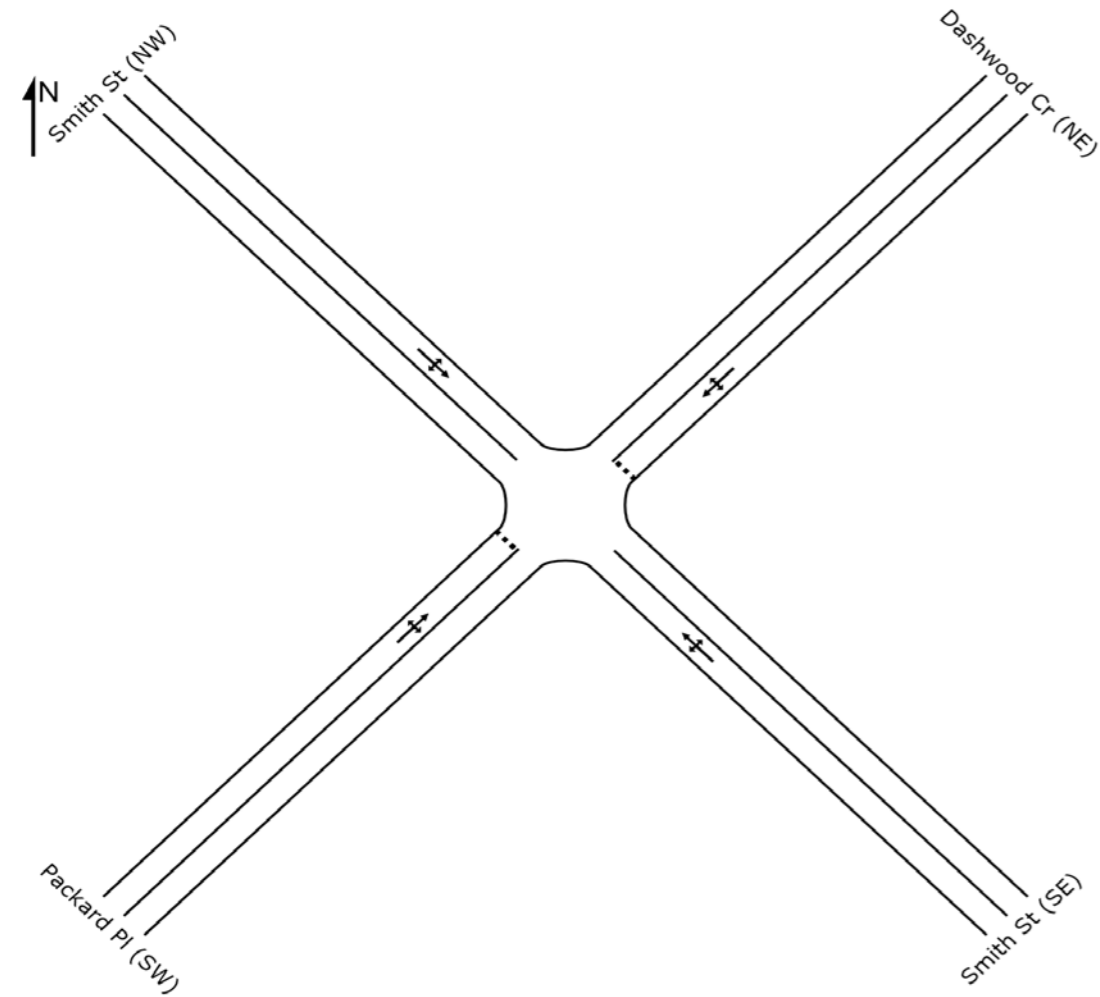


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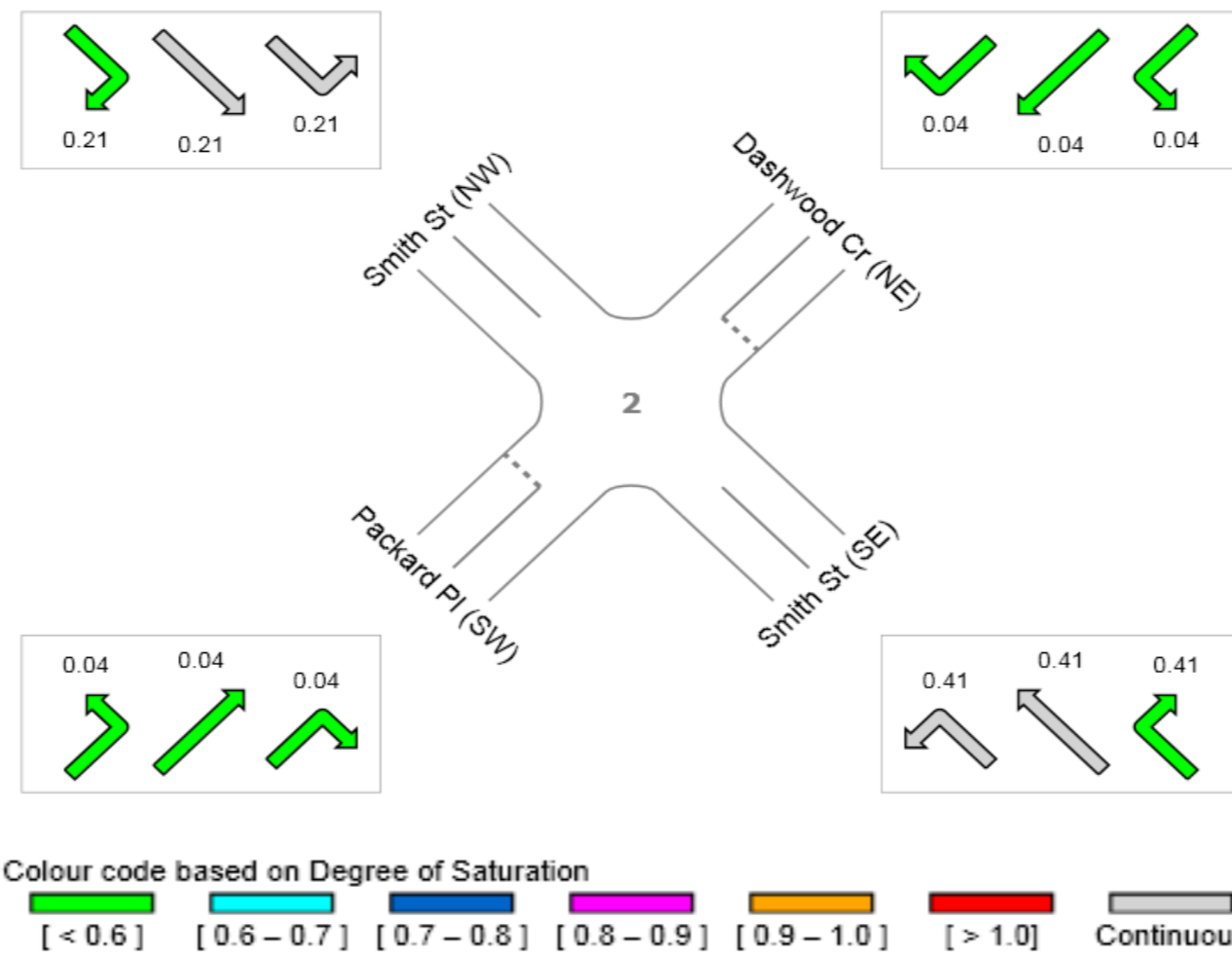
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SCENARIO:	FORECAST (2023) + DEVELOPMENT AM PEAK HOUR VOLUMES EXISTING LAYOUT



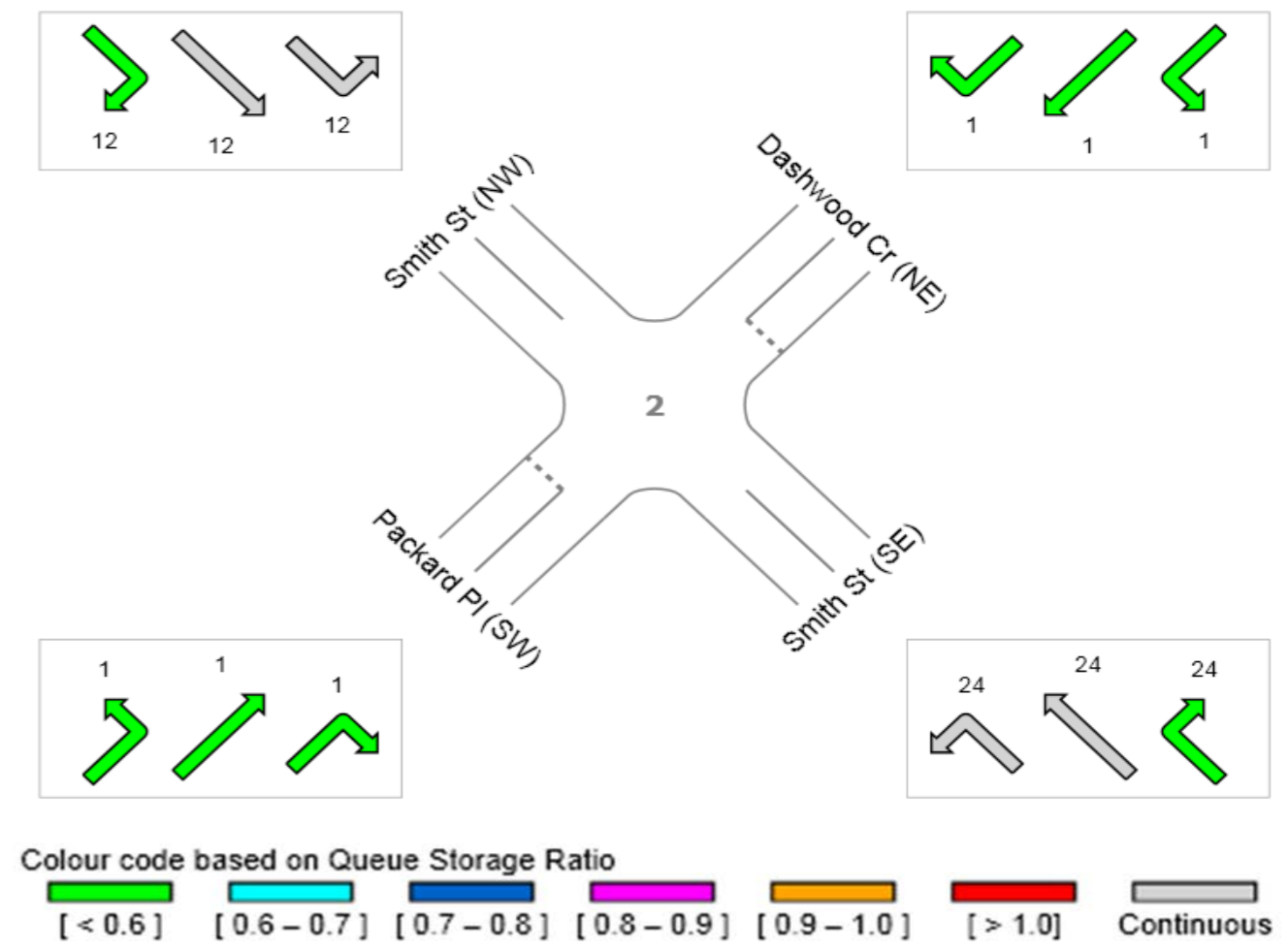
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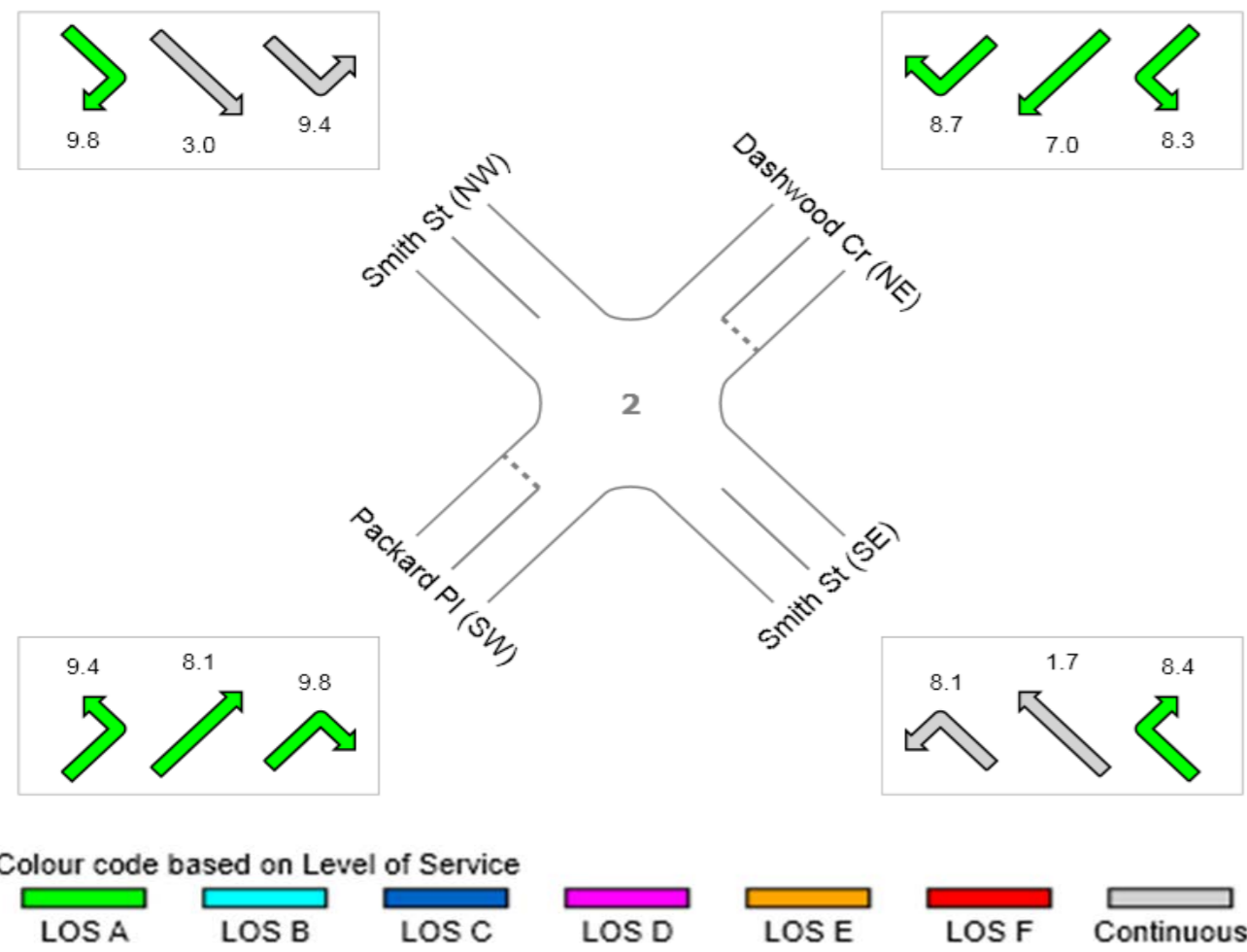
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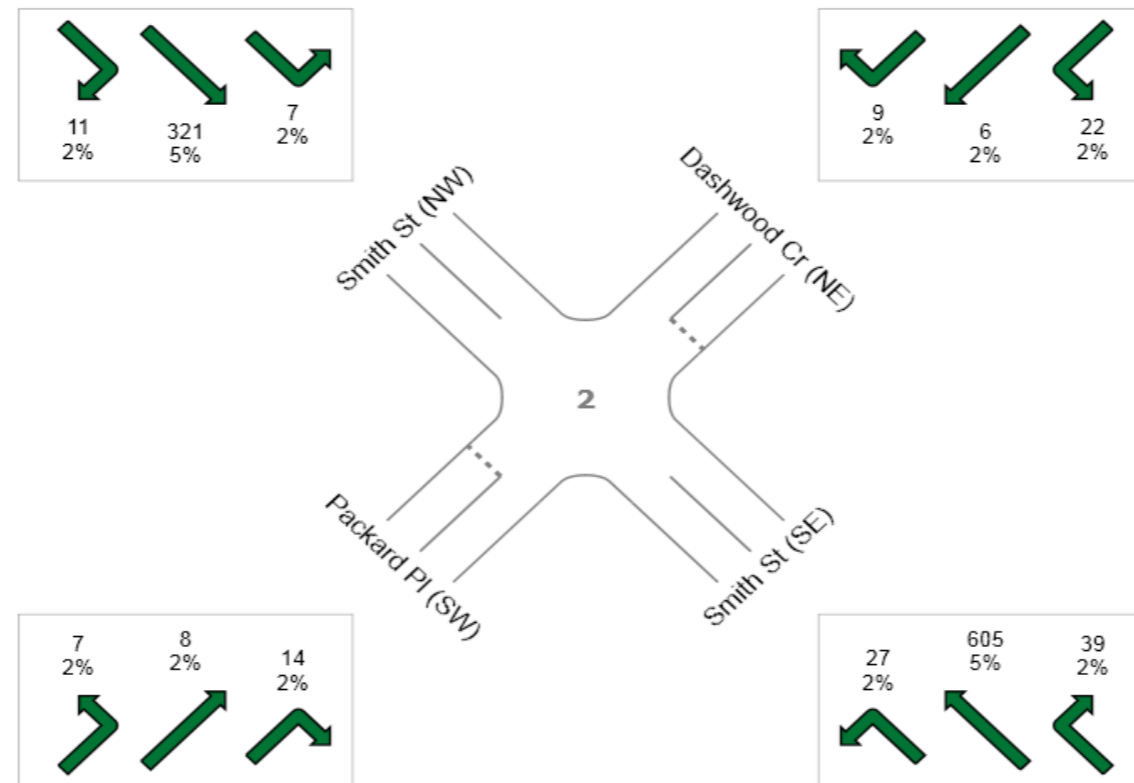
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DELAY & LEVEL OF SERVICE



FLOWS

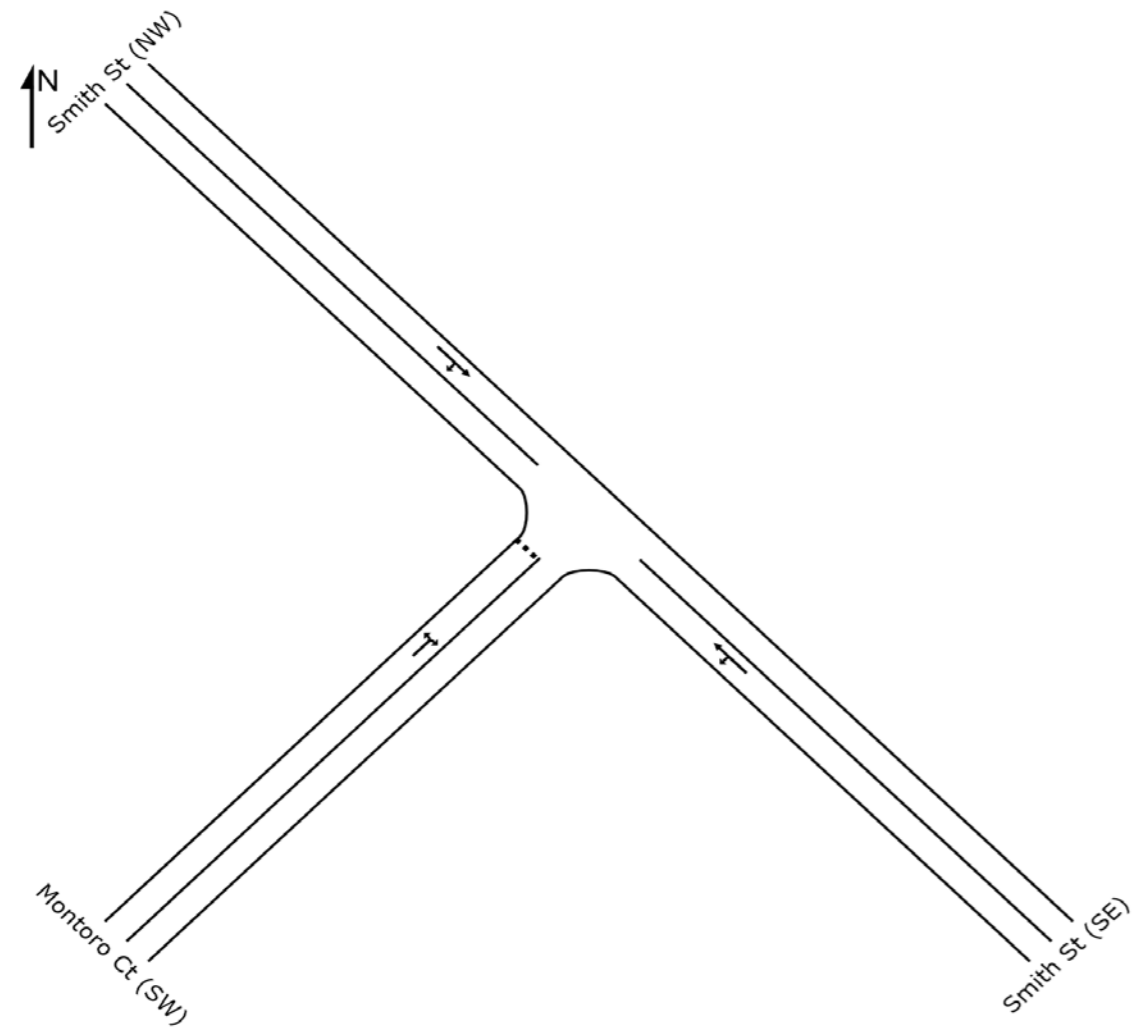


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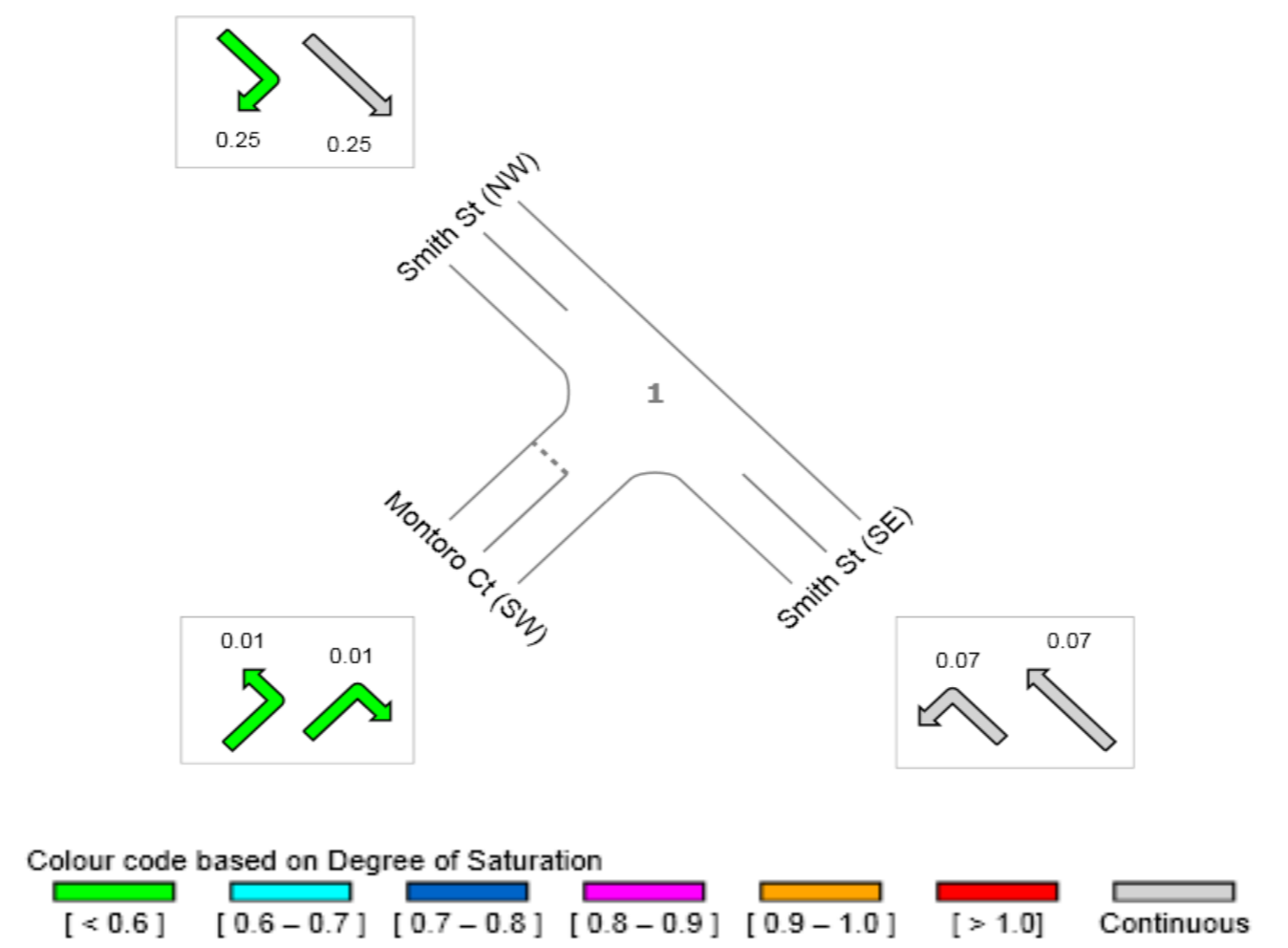
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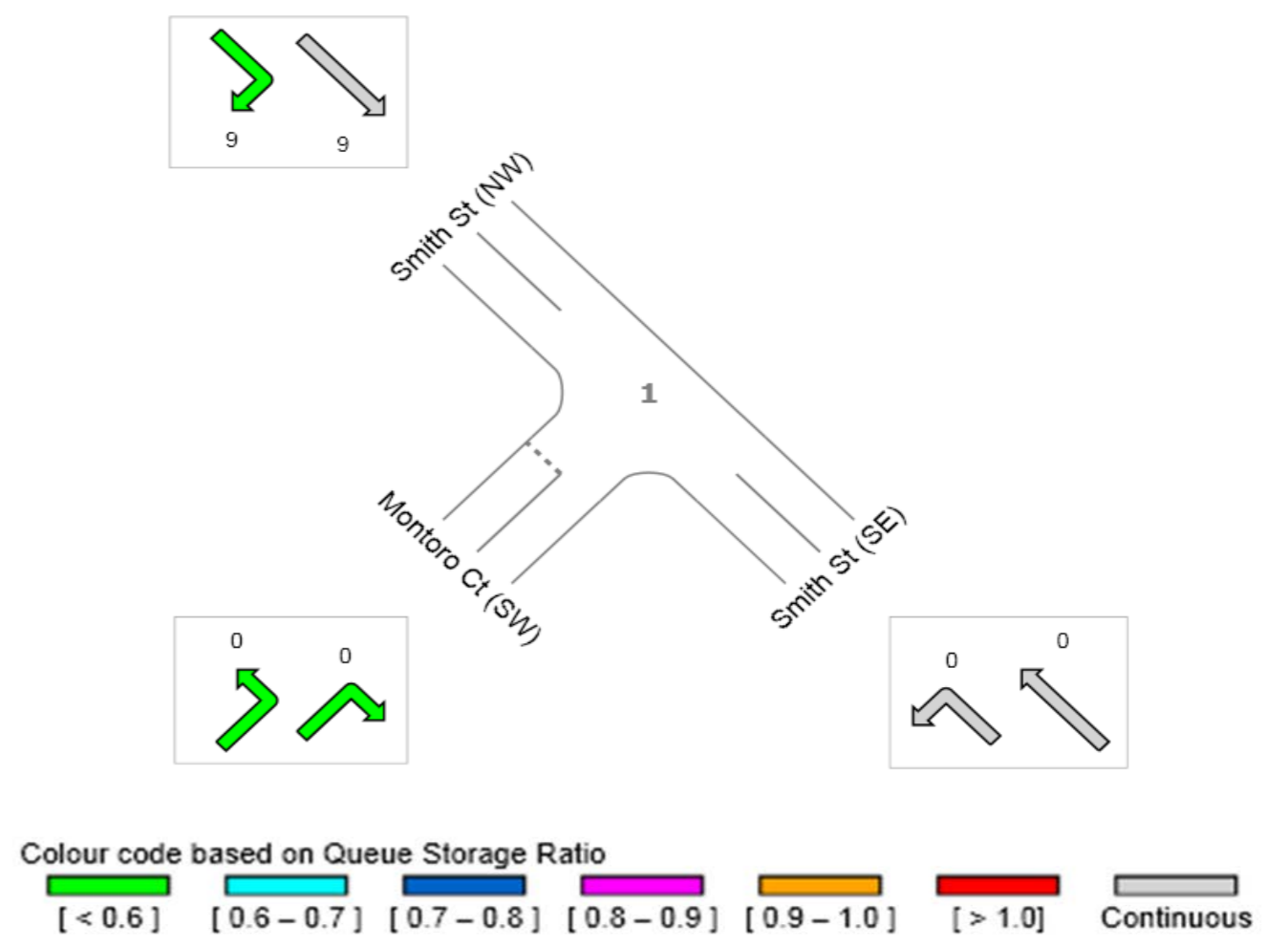
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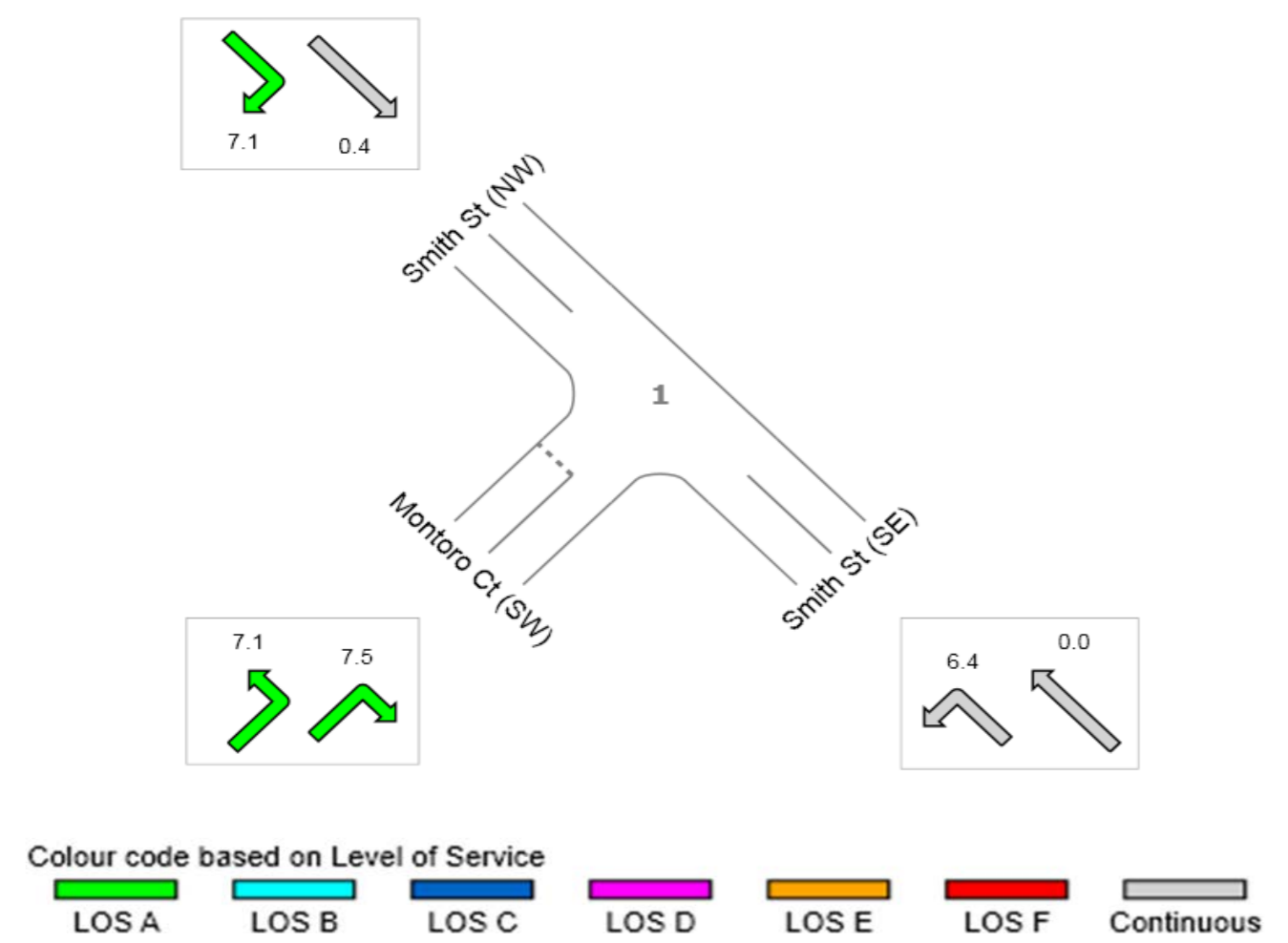
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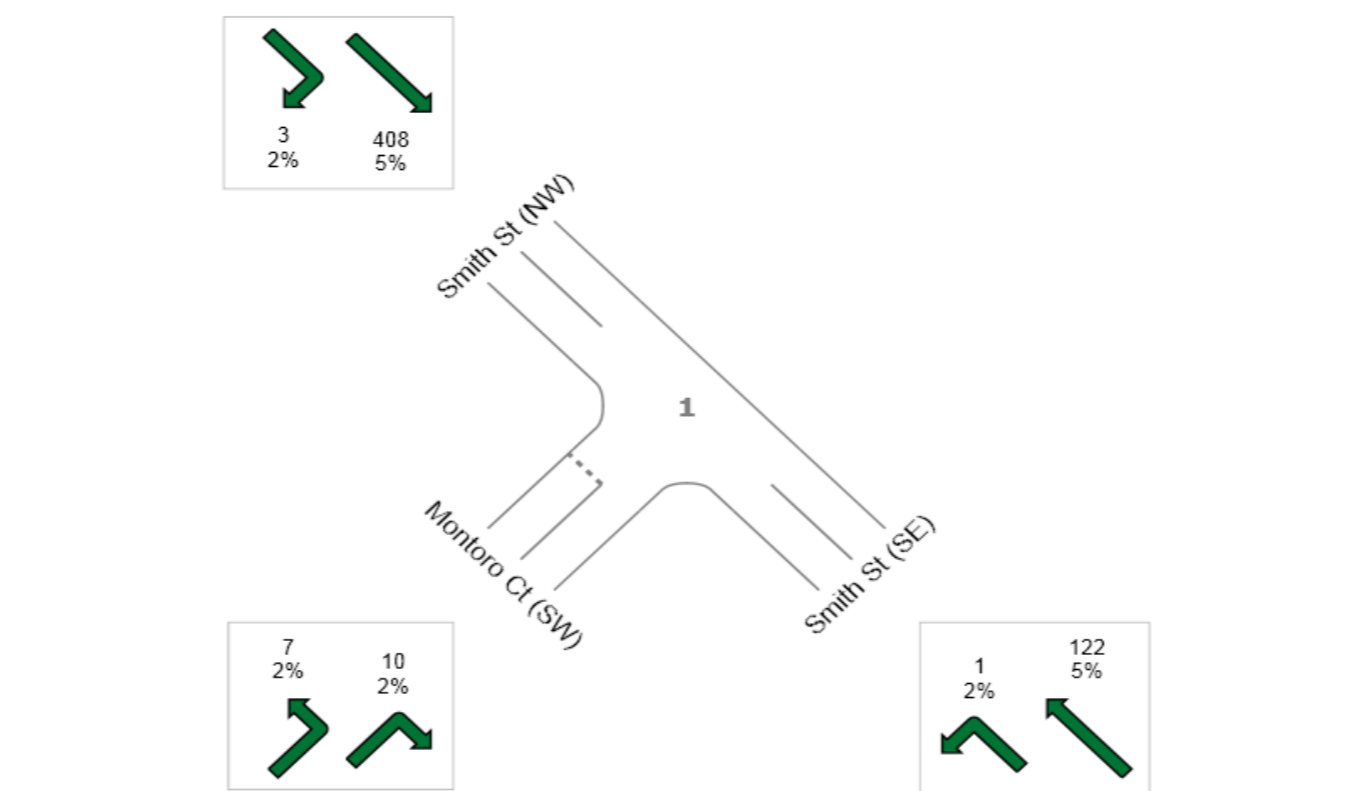
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DELAY & LEVEL OF SERVICE



FLOWS

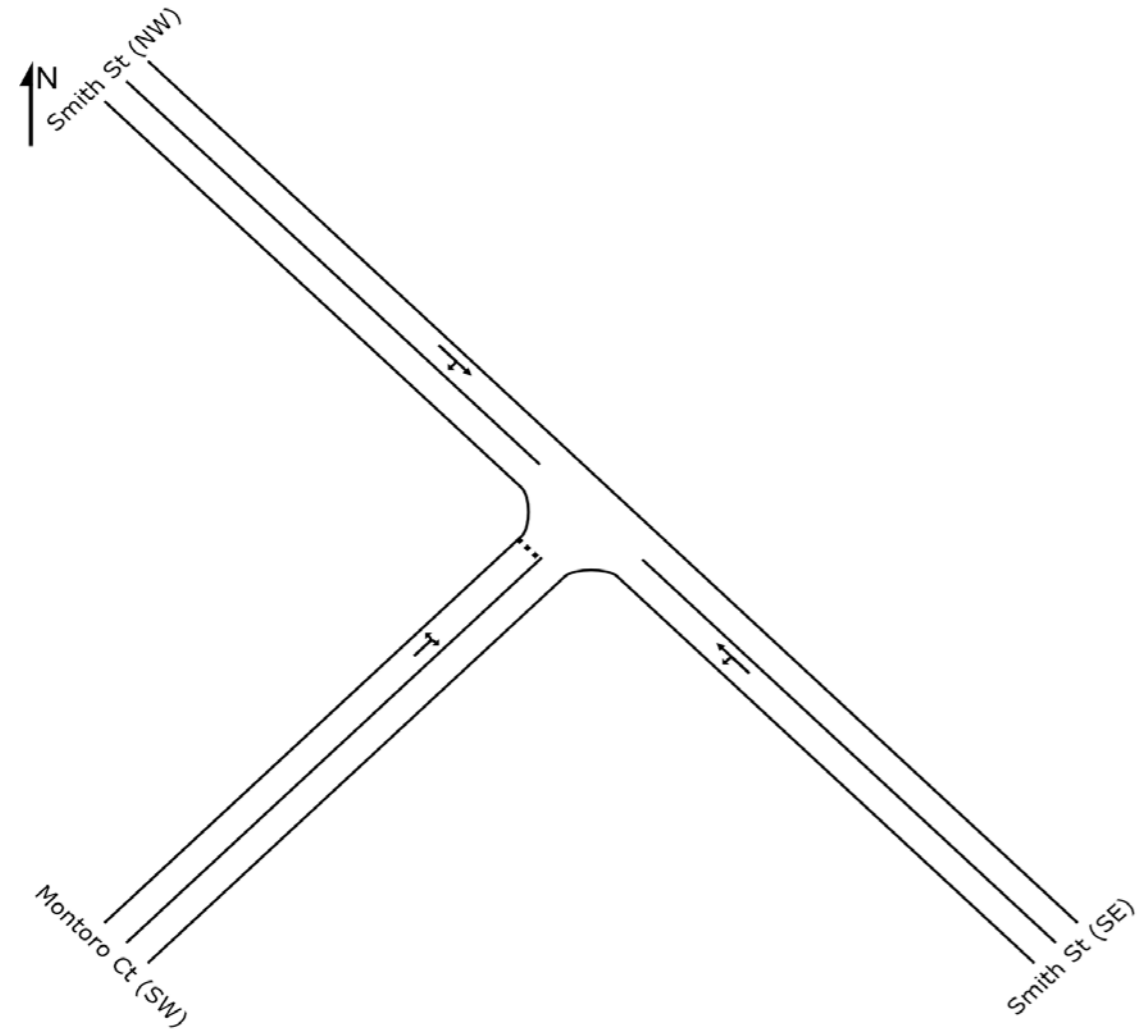


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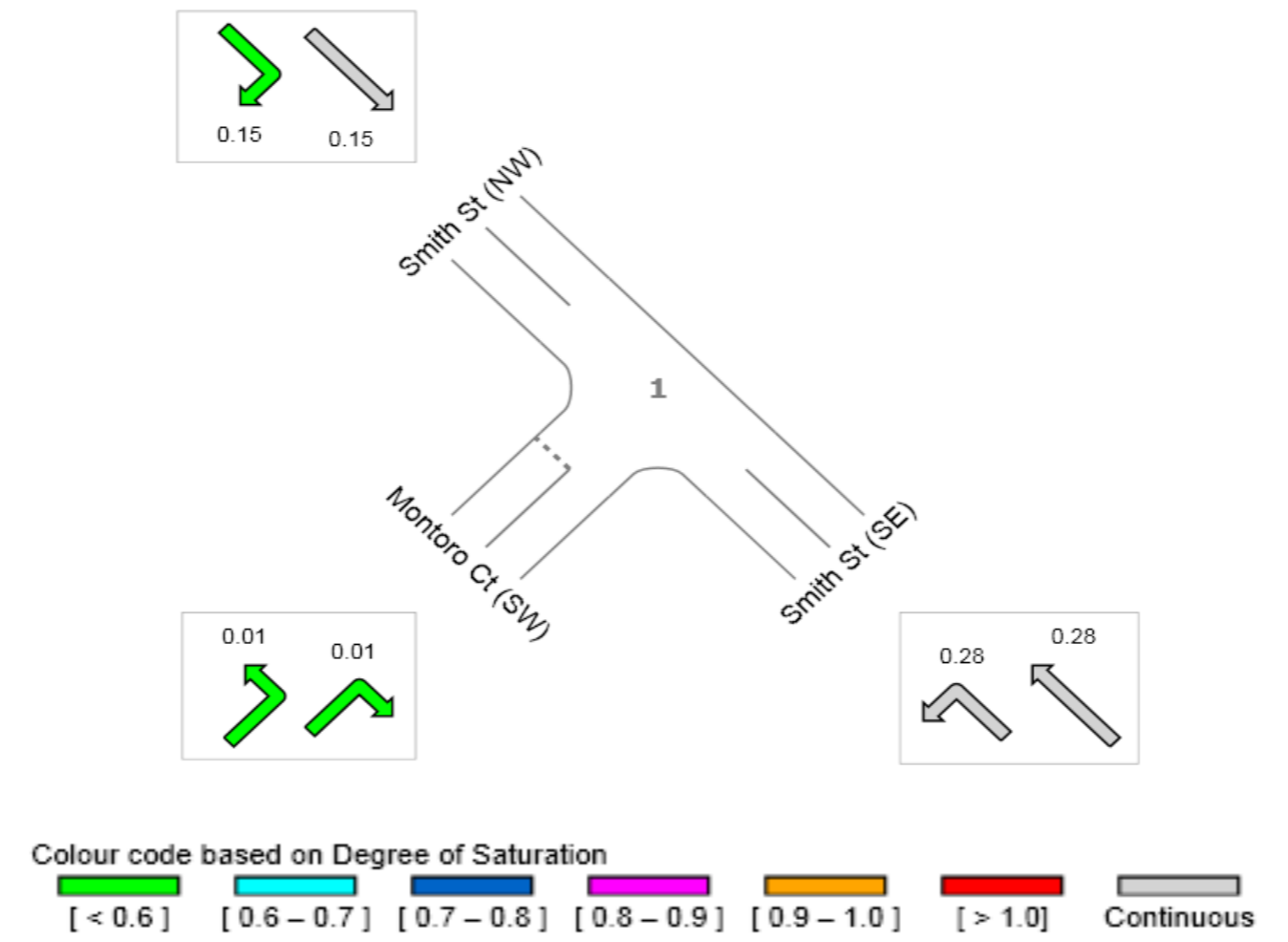
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SCENARIO:	EXISTING (2013) AM PEAK HOUR VOLUMES EXISTING LAYOUT



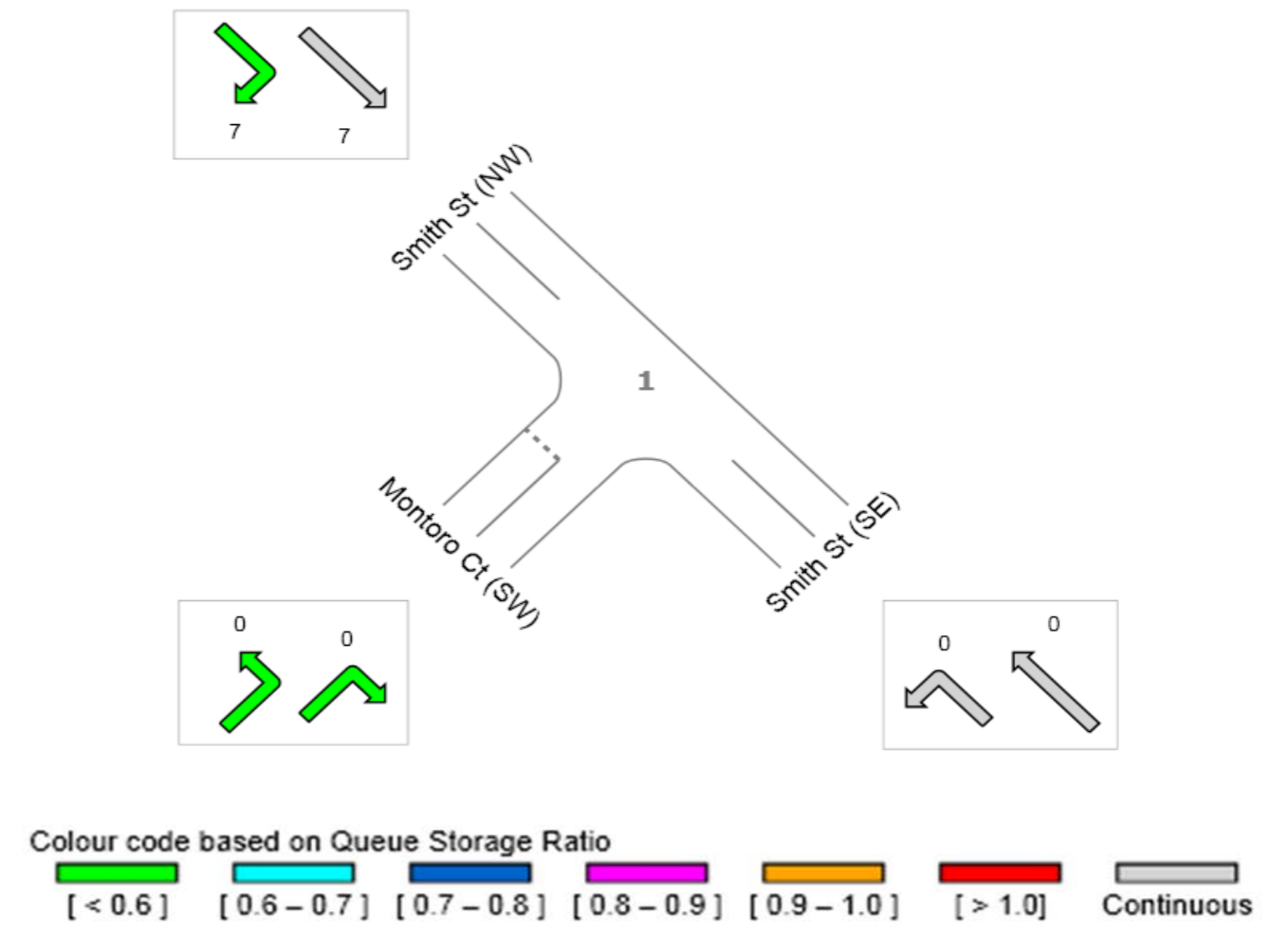
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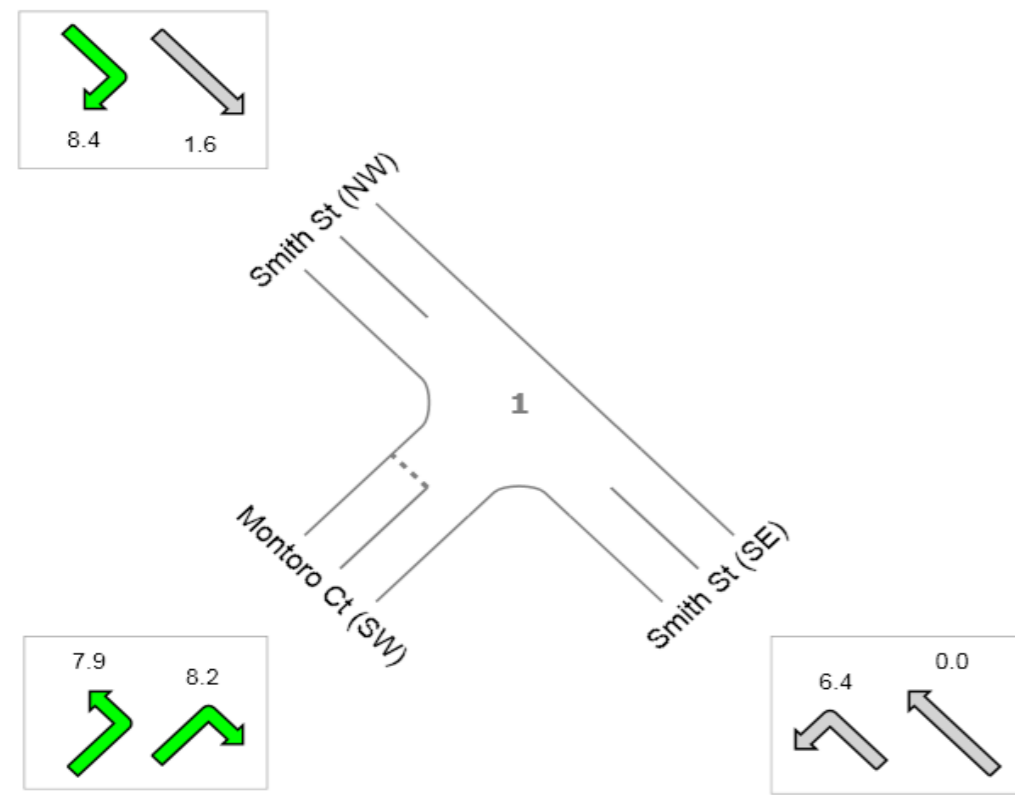
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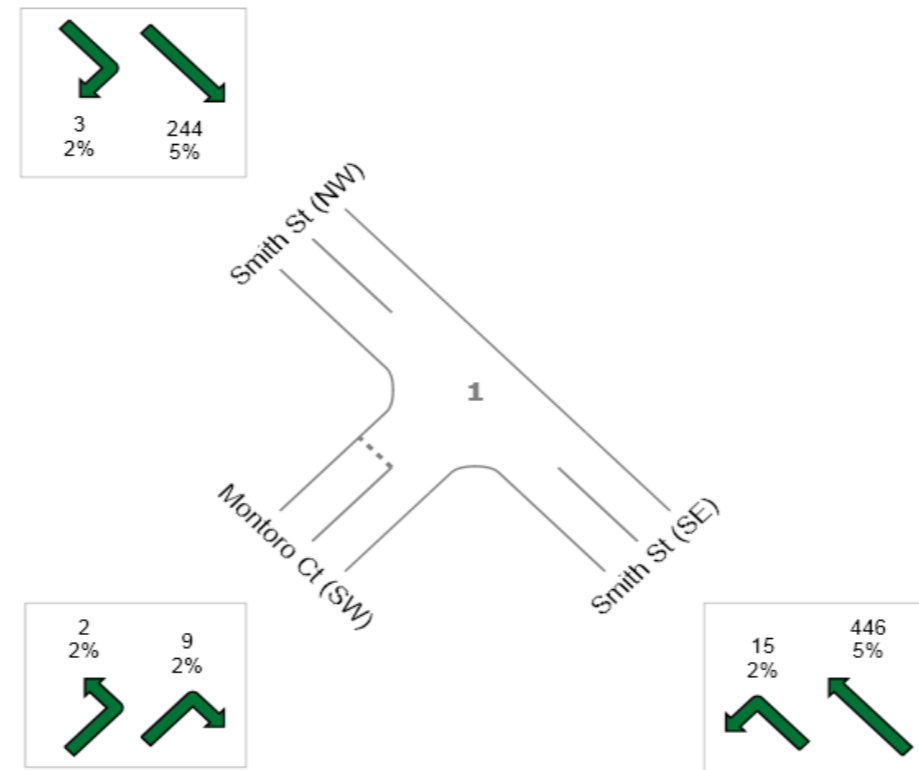
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DELAY & LEVEL OF SERVICE



FLOWS

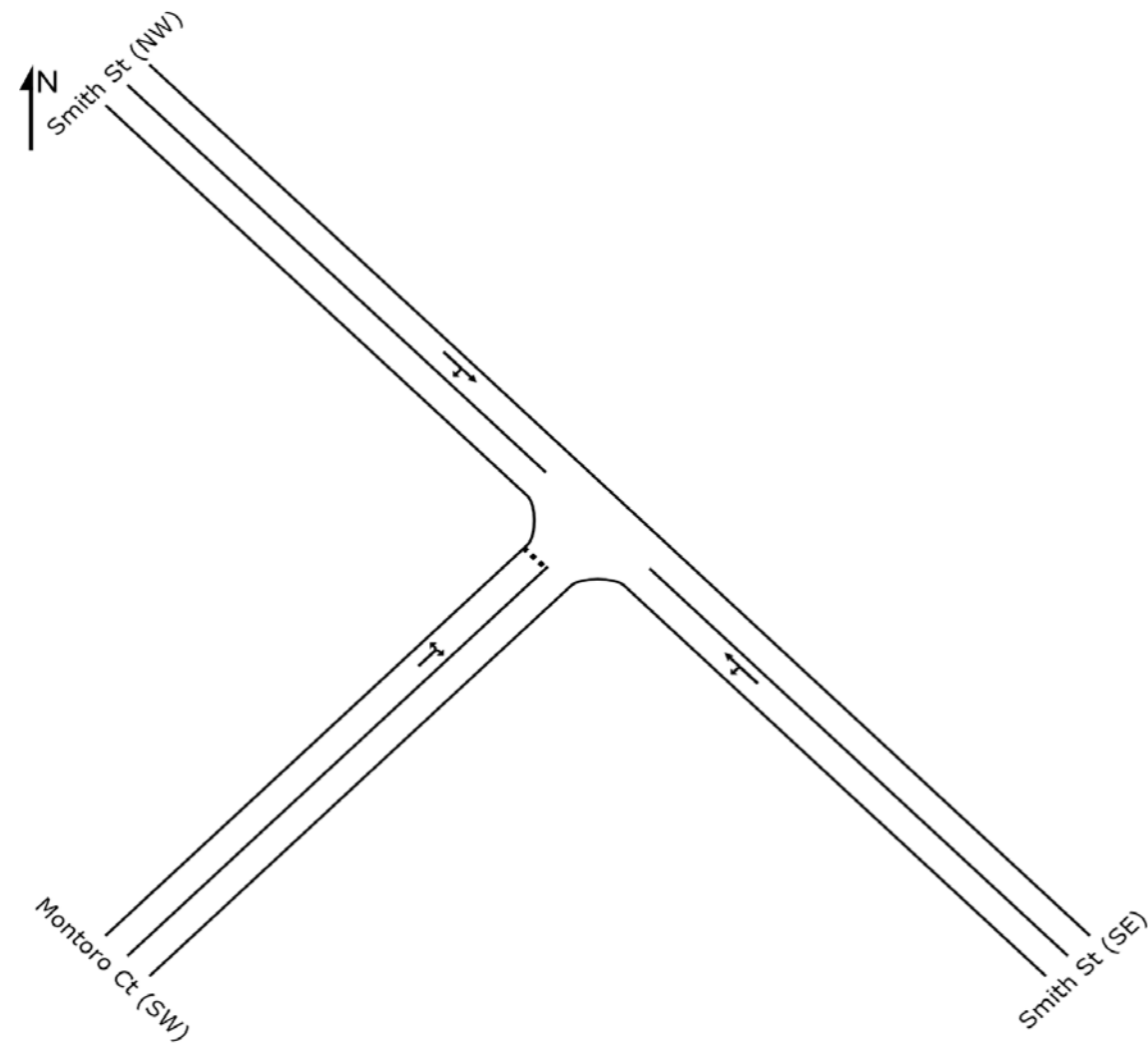


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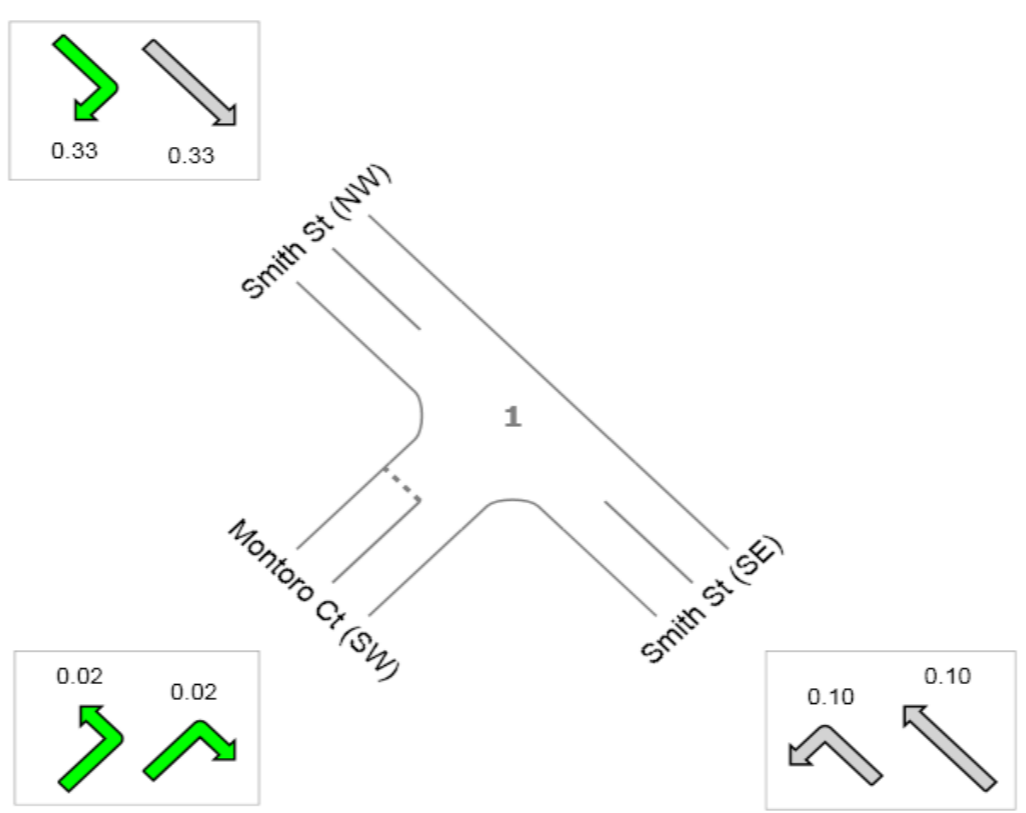
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SCENARIO:	EXISTING (2013) PM PEAK HOUR VOLUMES EXISTING LAYOUT



INTERSECTION GEOMETRY

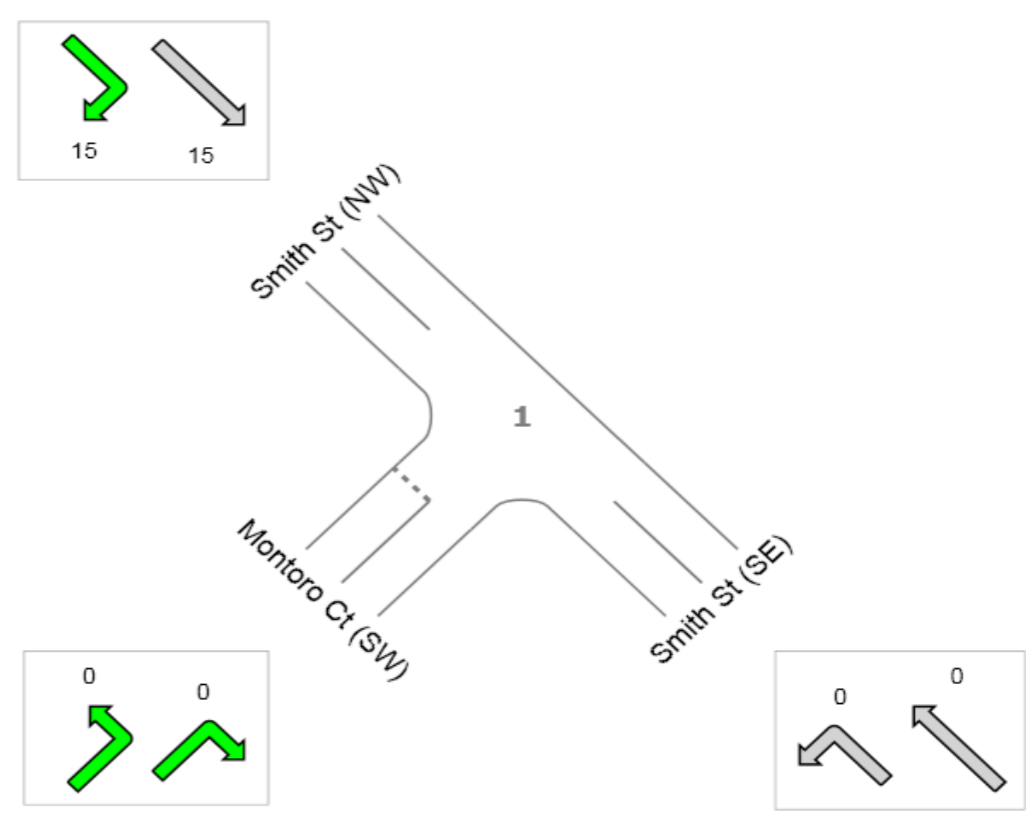


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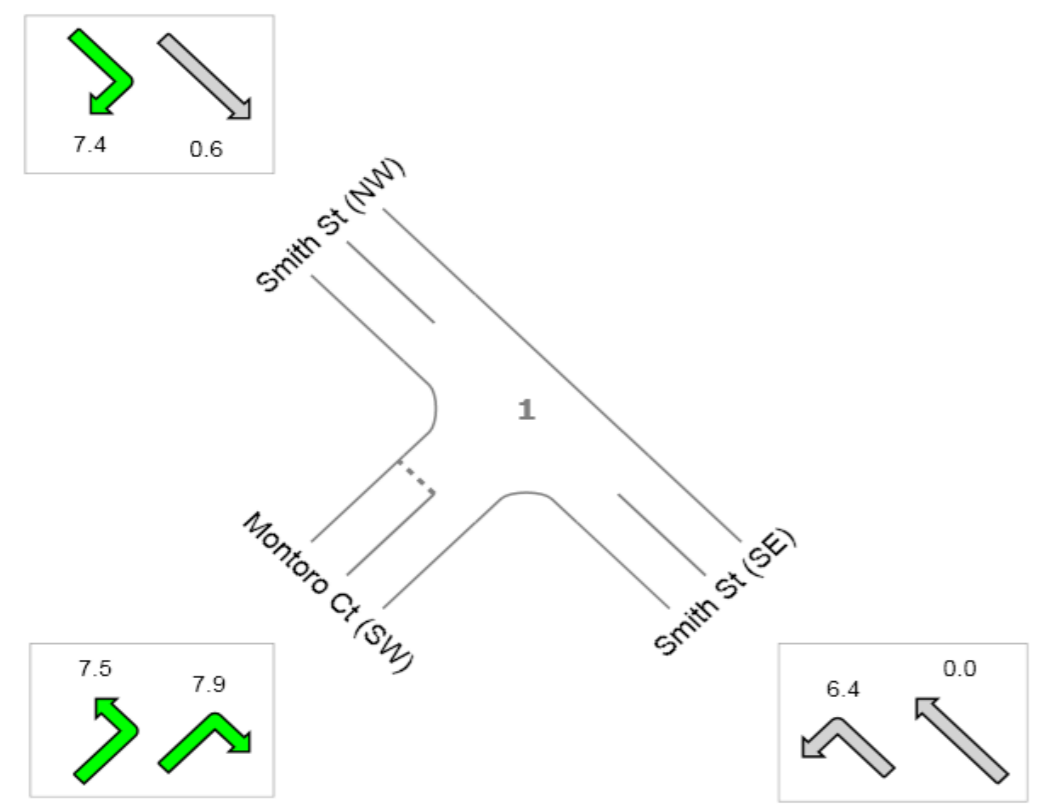
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QUEUES (m)



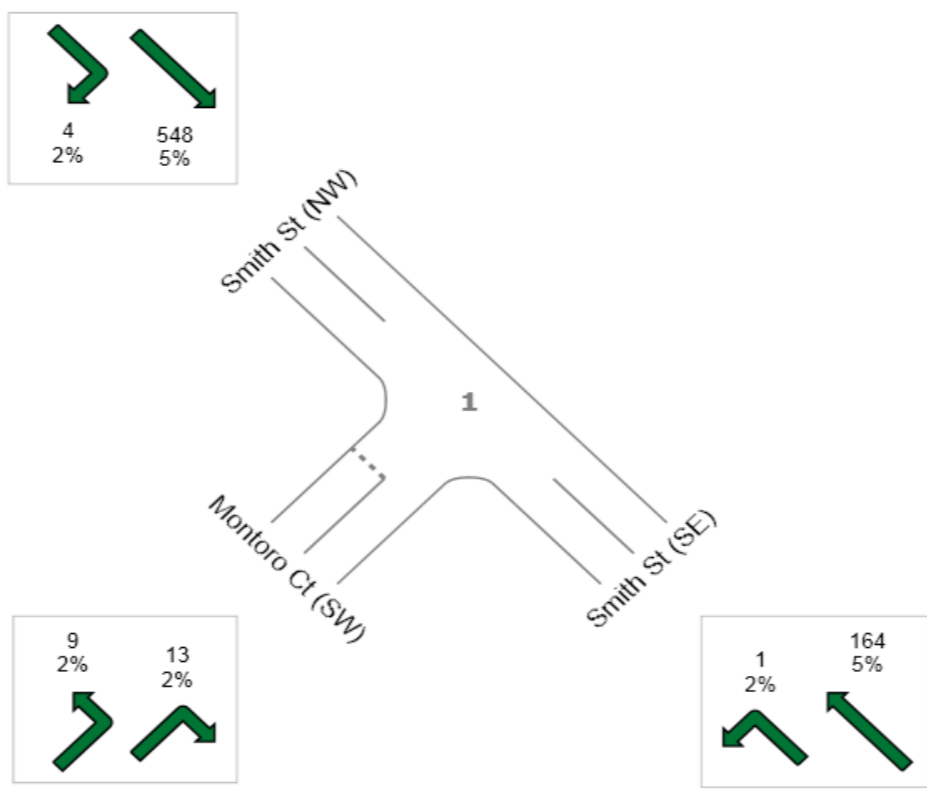
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DELAY & LEVEL OF SERVICE



Colour code based on Level of Service
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FLOWS

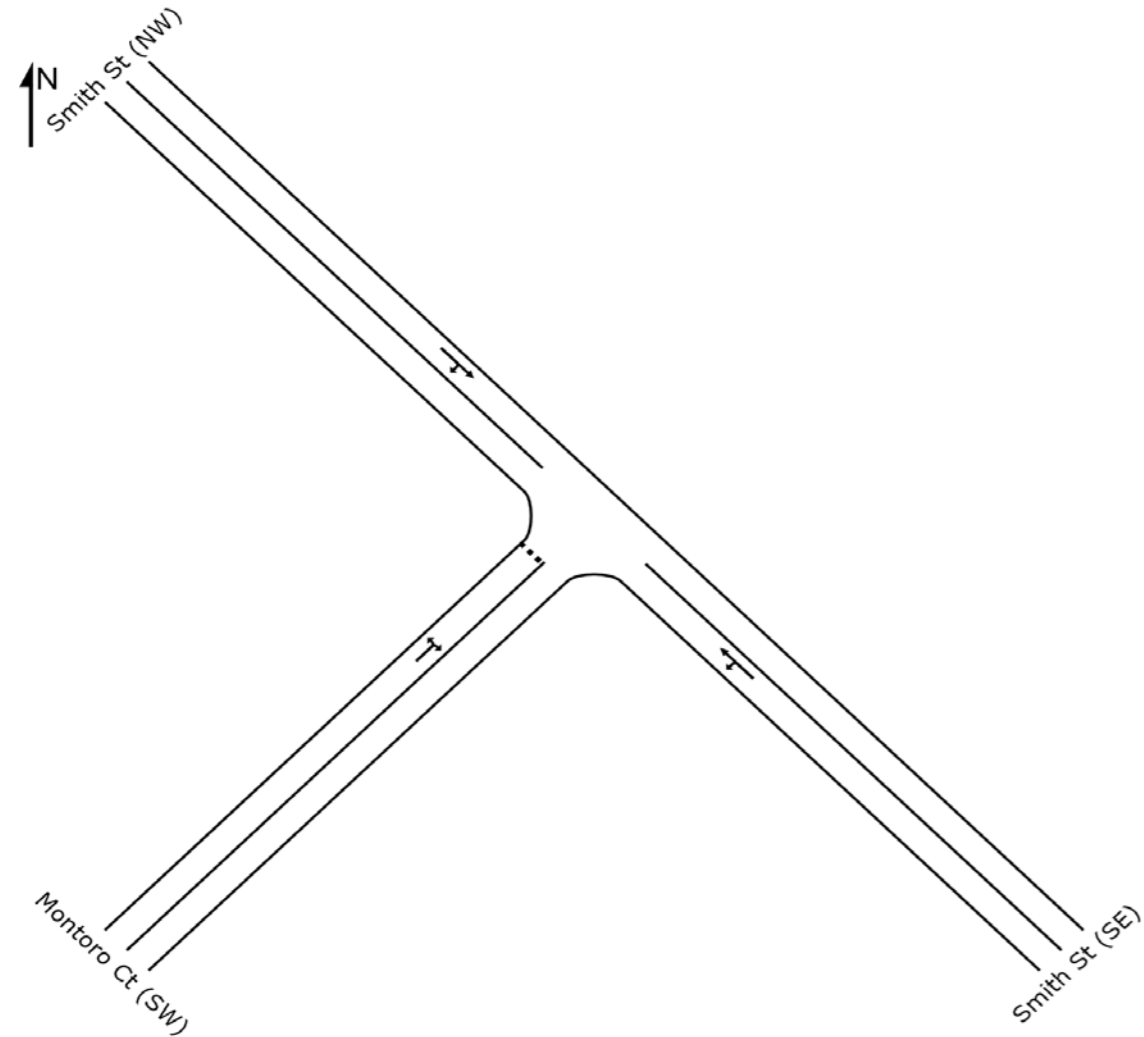


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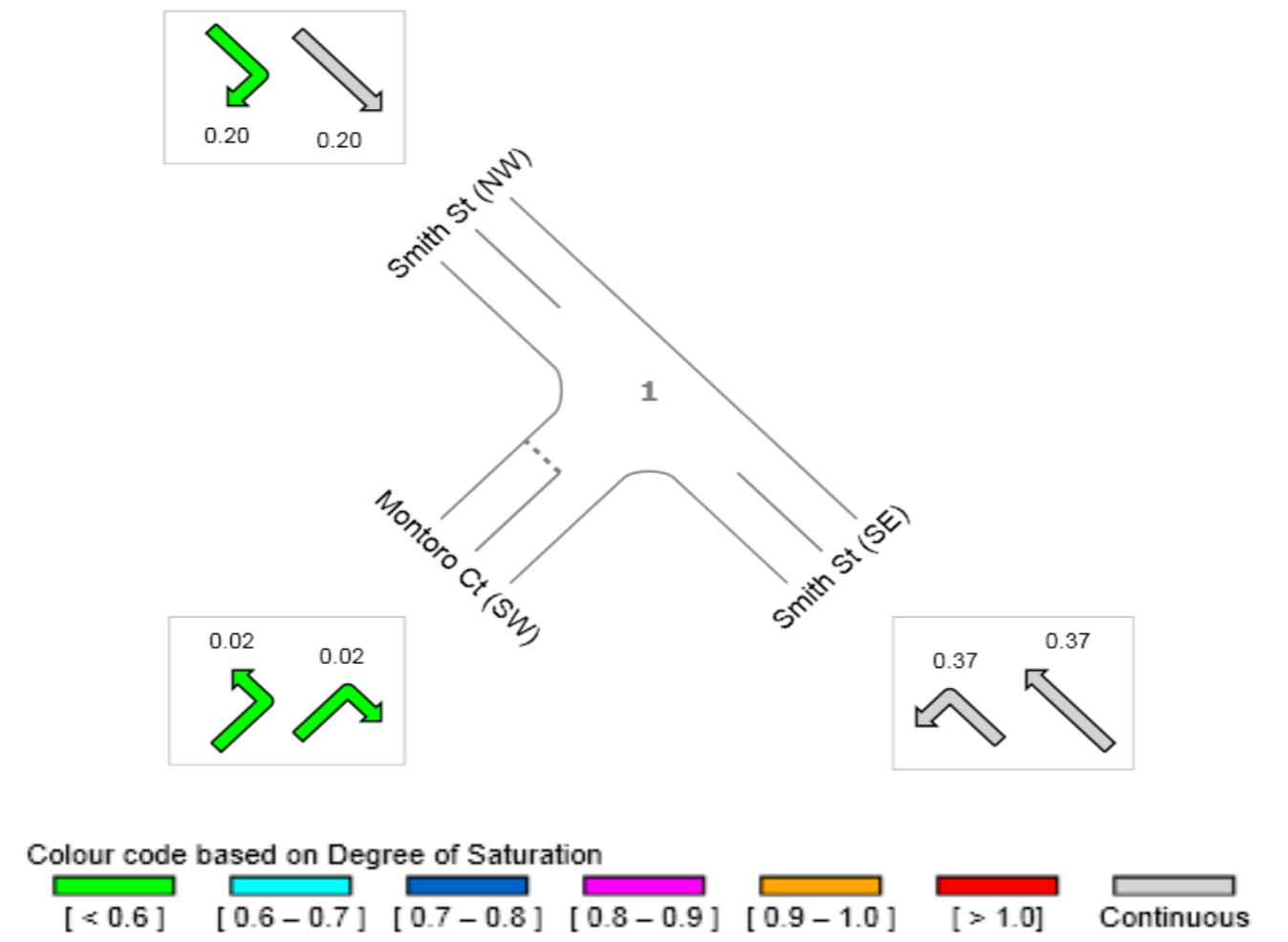
INTERSECTION:	SMITH STREET / MONTORO COURT
SCENARIO:	FORECAST (2023) AM PEAK HOUR VOLUMES (3% pa growth) EXISTING LAYOUT



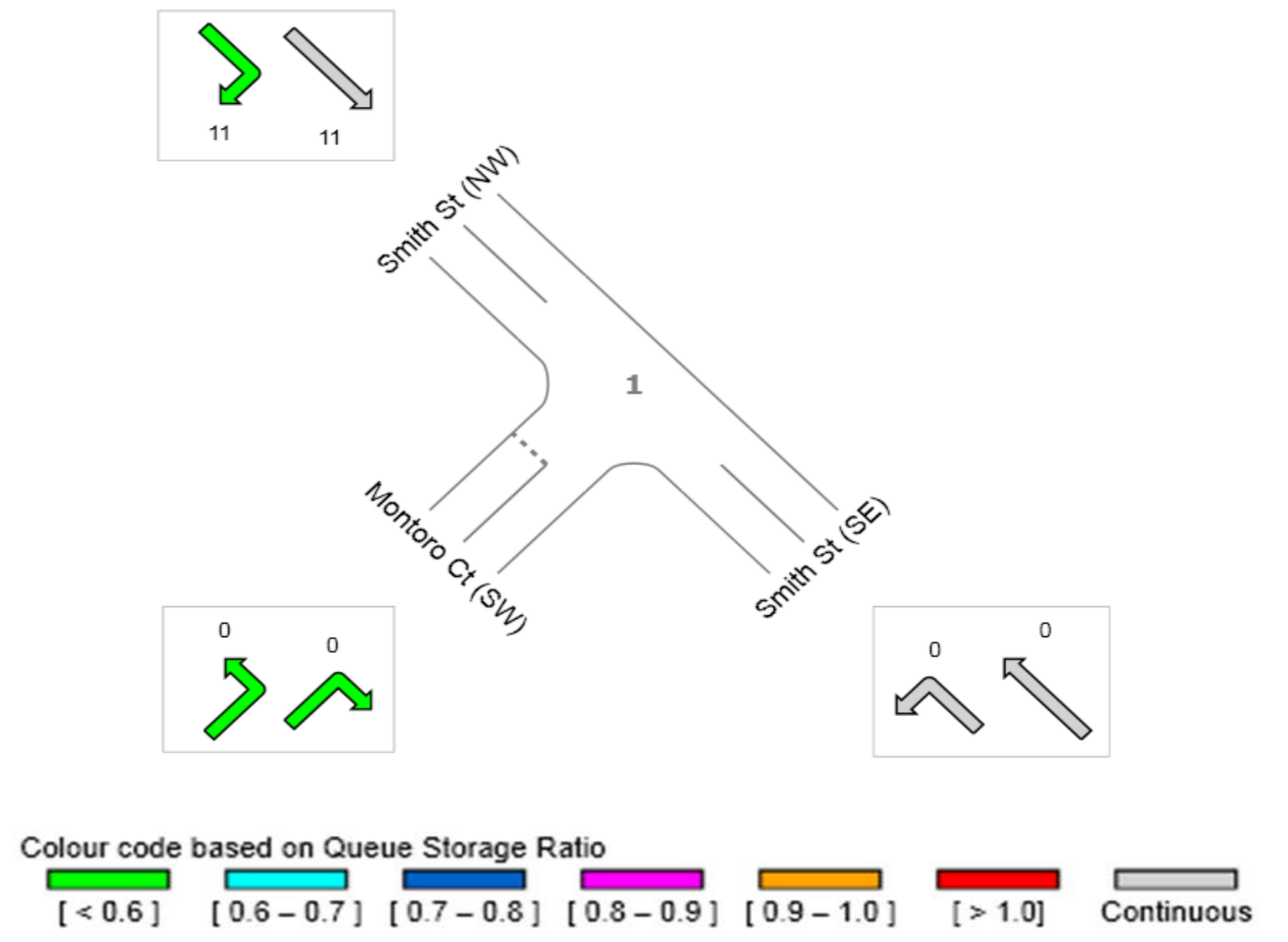
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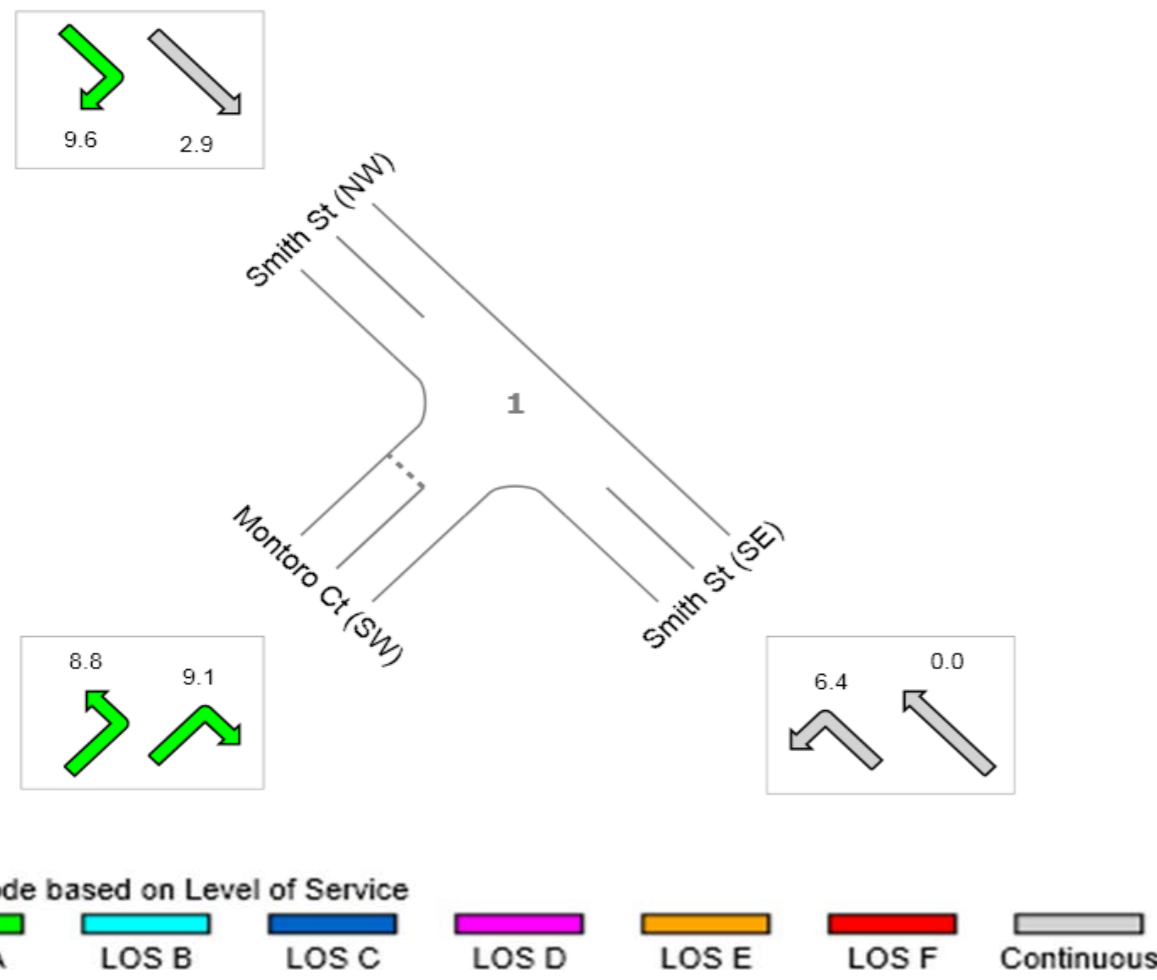
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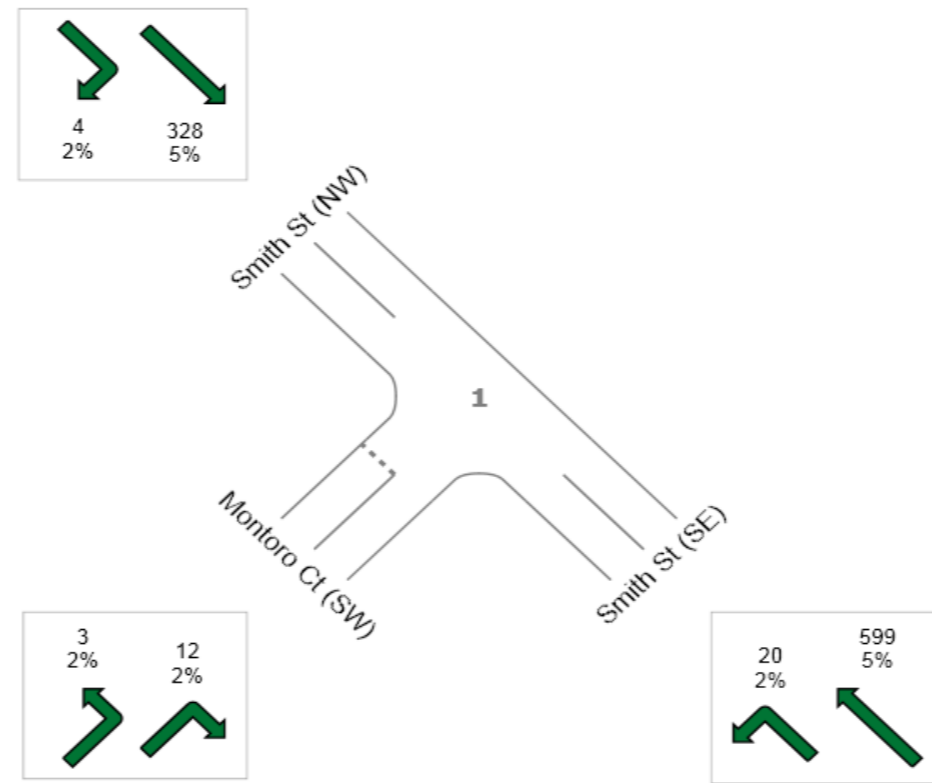
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DELAY & LEVEL OF SERVICE



FLOWS

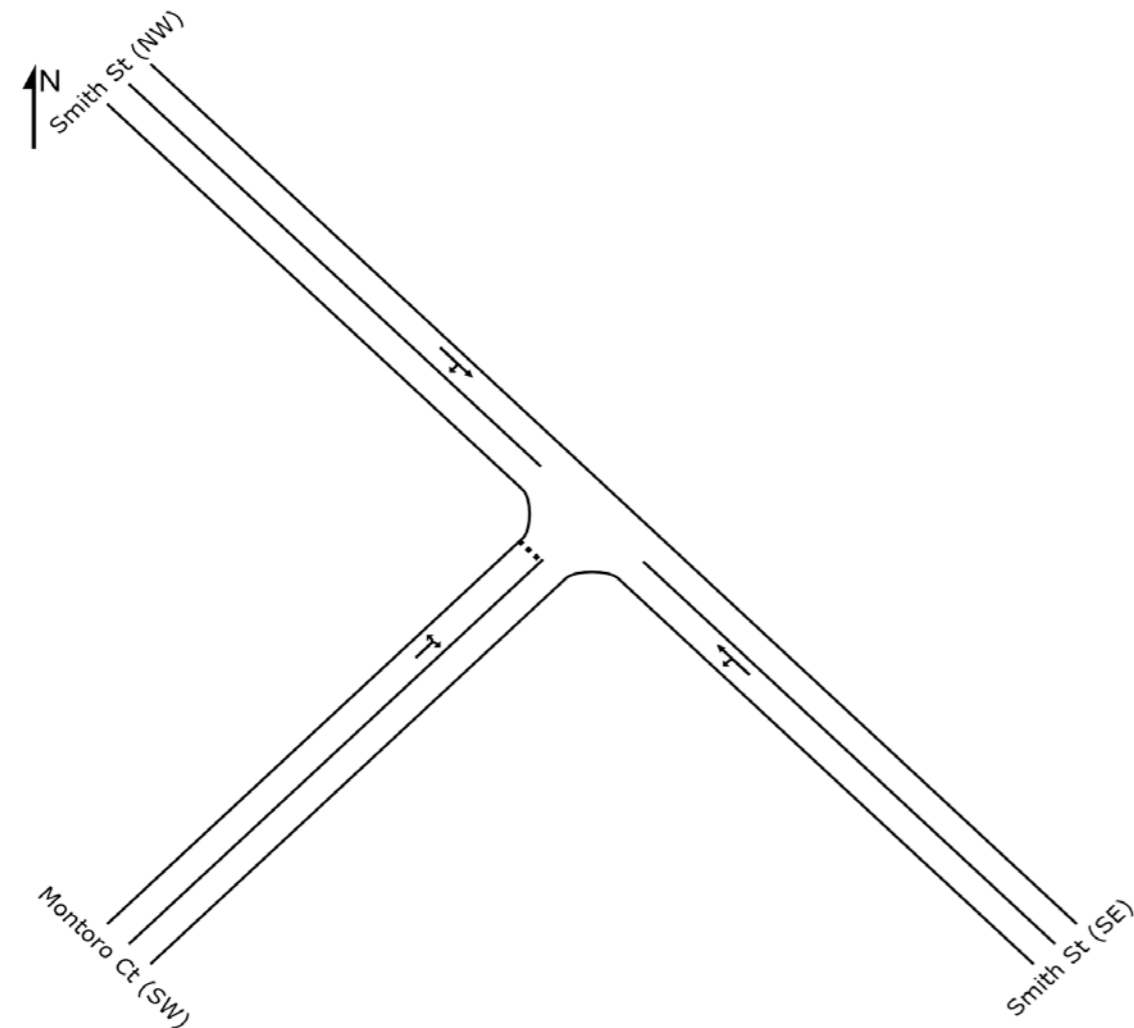


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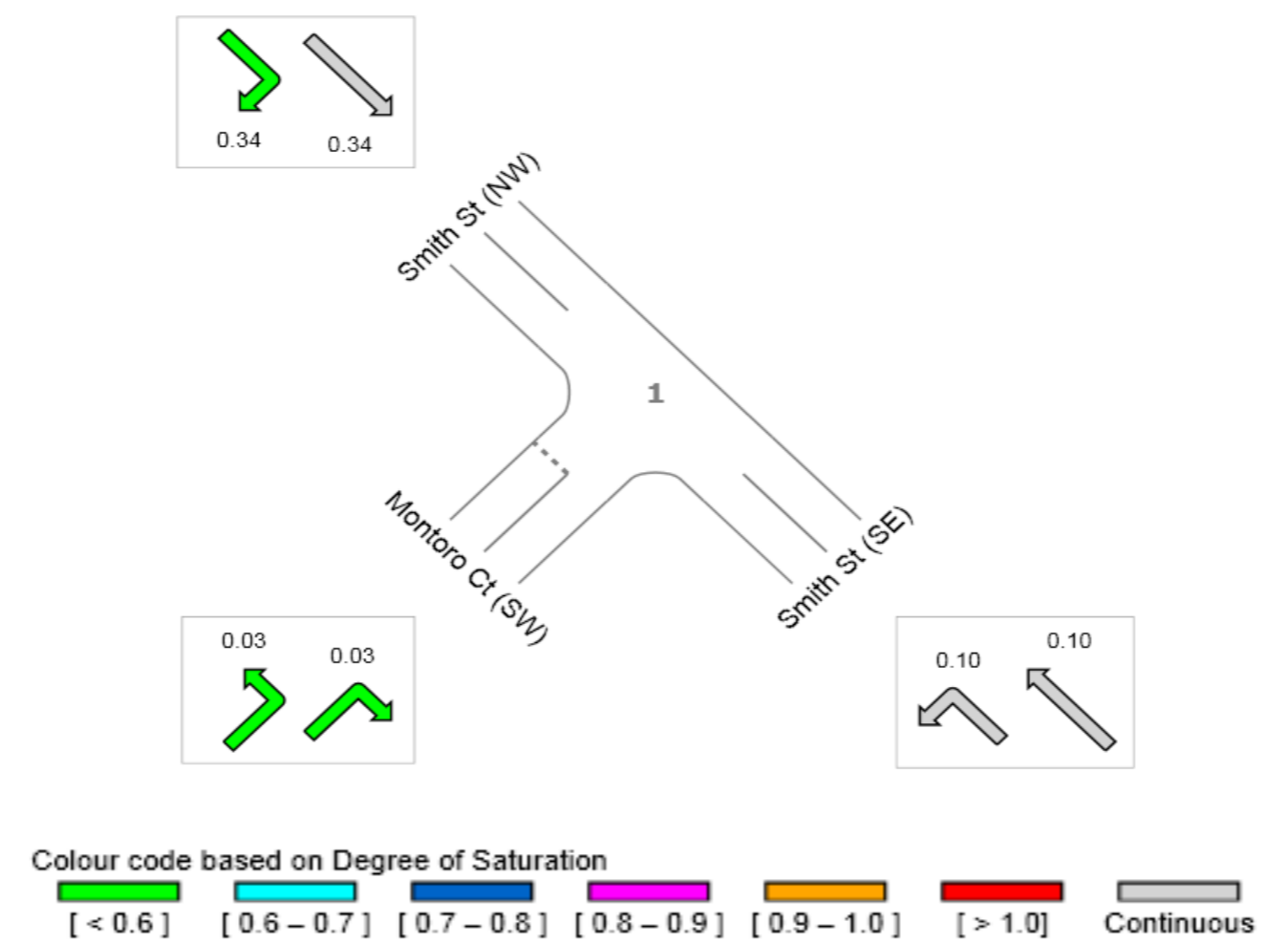
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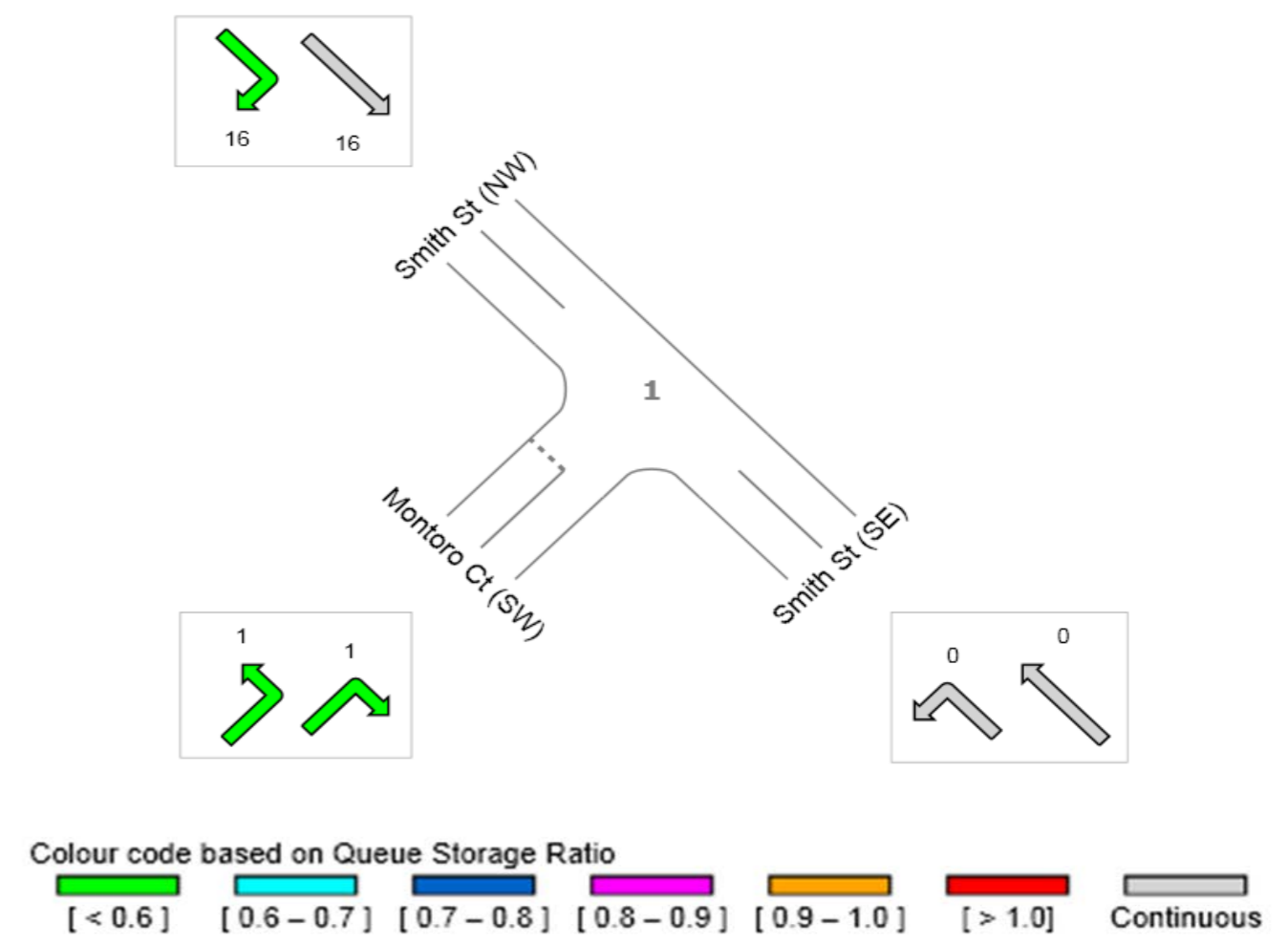
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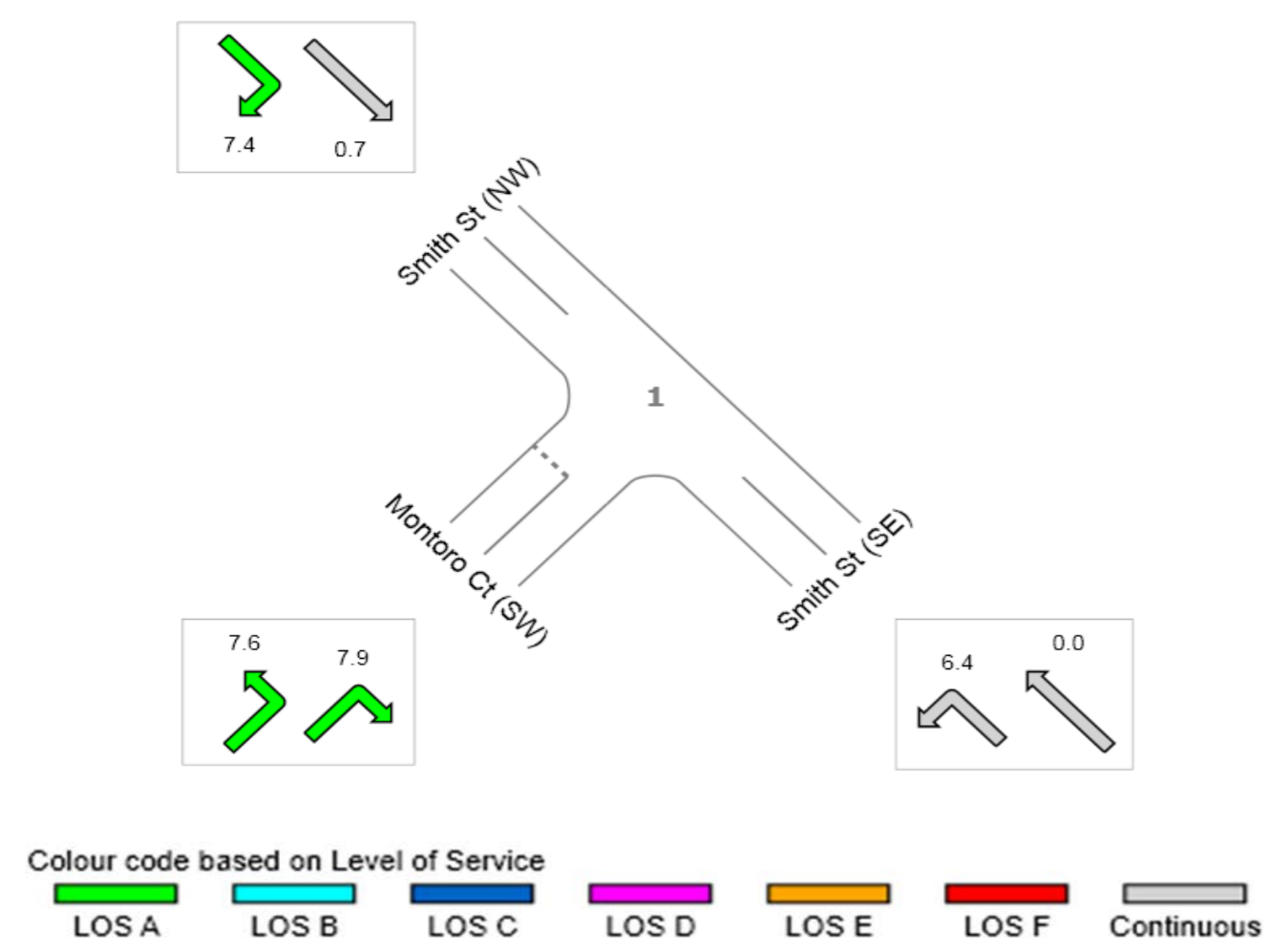
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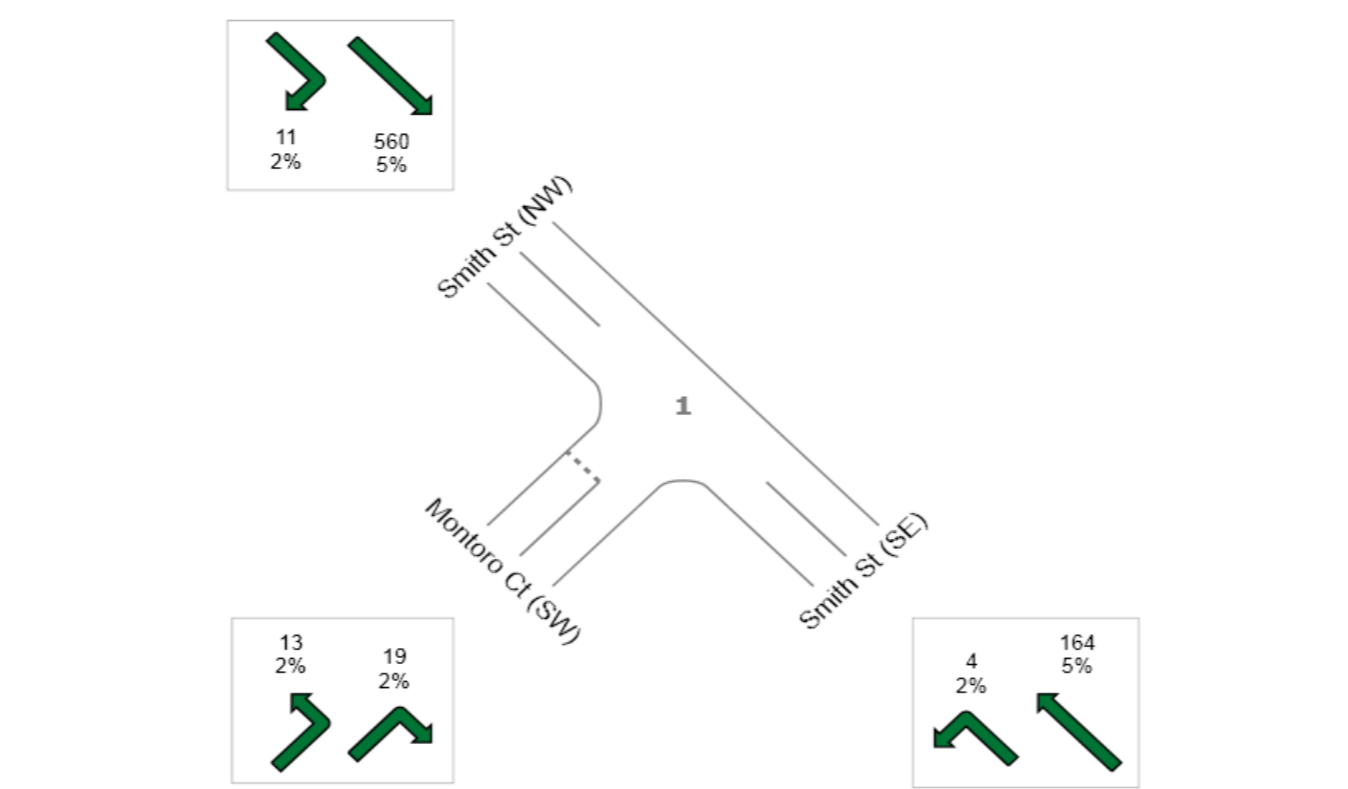
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DELAY & LEVEL OF SERVICE



FLOWS

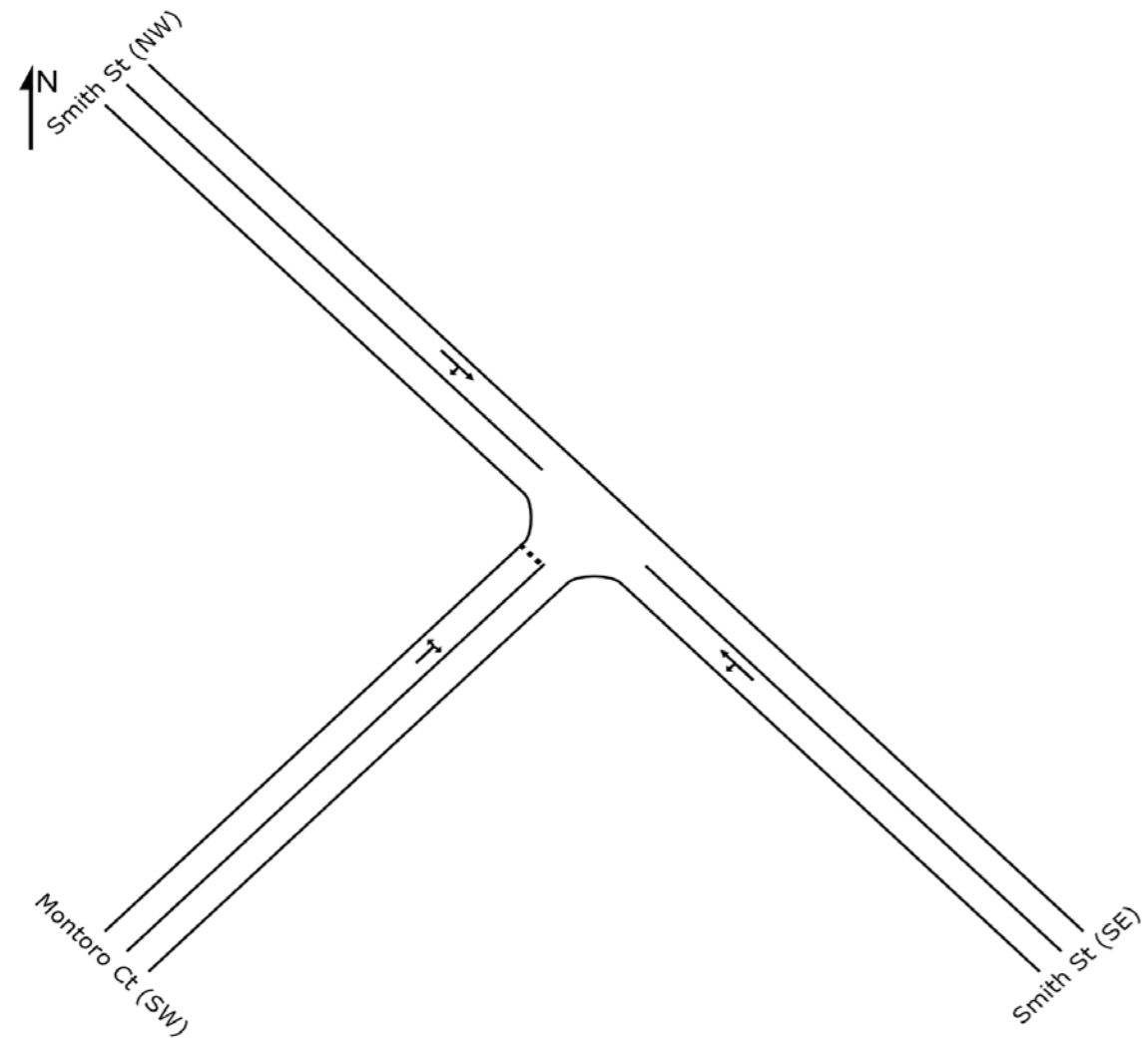


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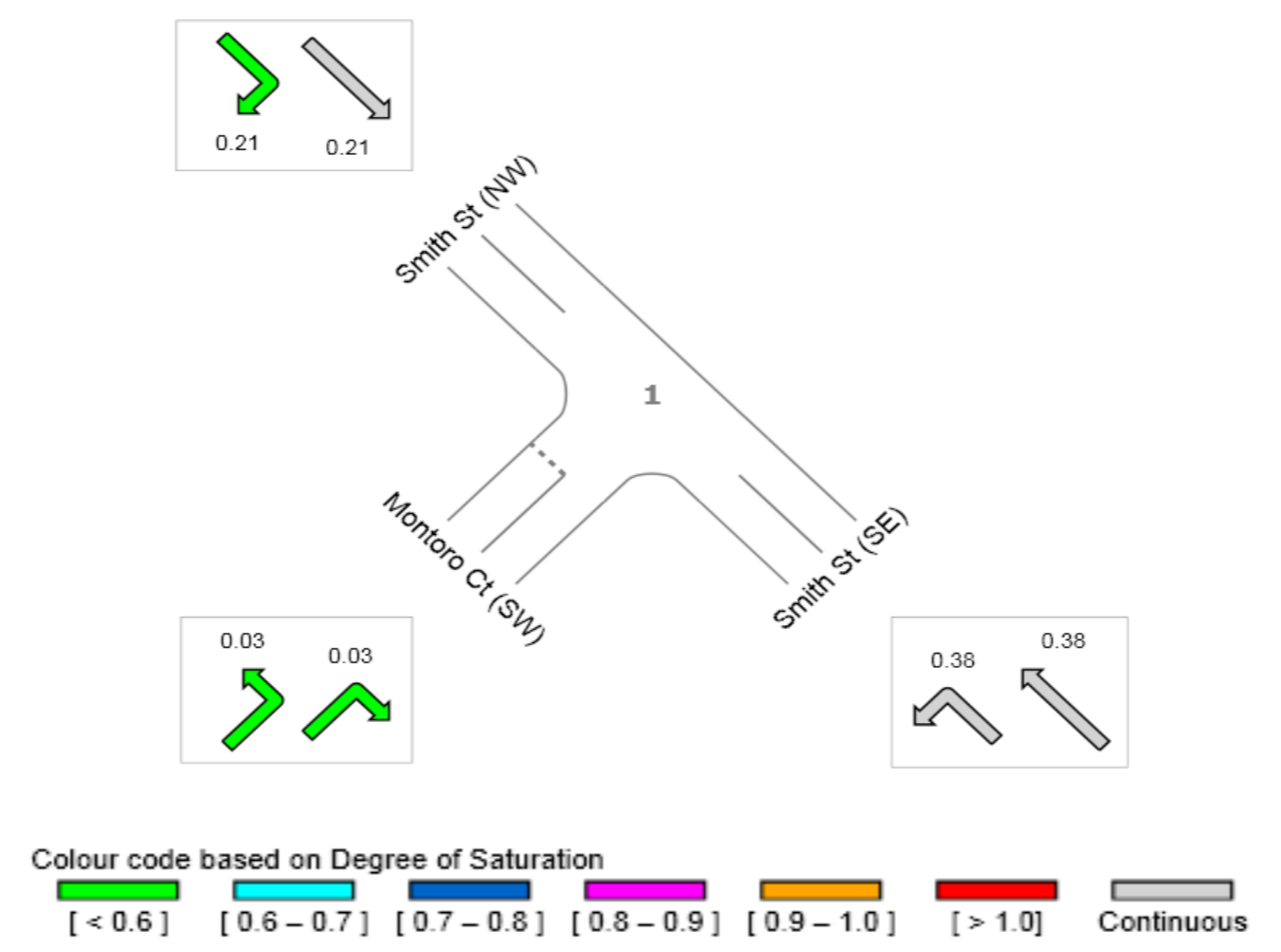
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SCENARIO:	FORECAST (2023) + DEVELOPMENT AM PEAK HOUR VOLUMES EXISTING LAYOUT



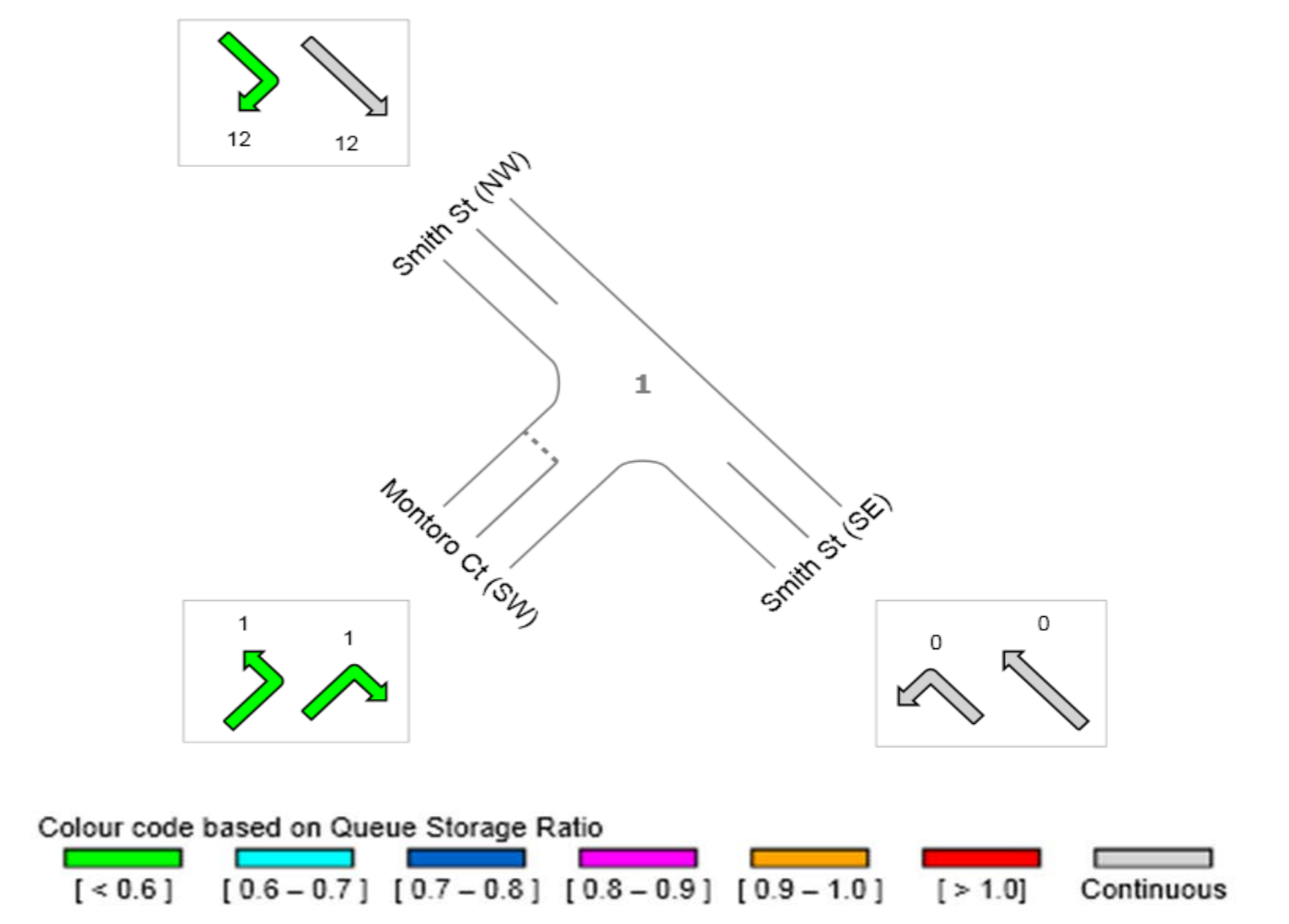
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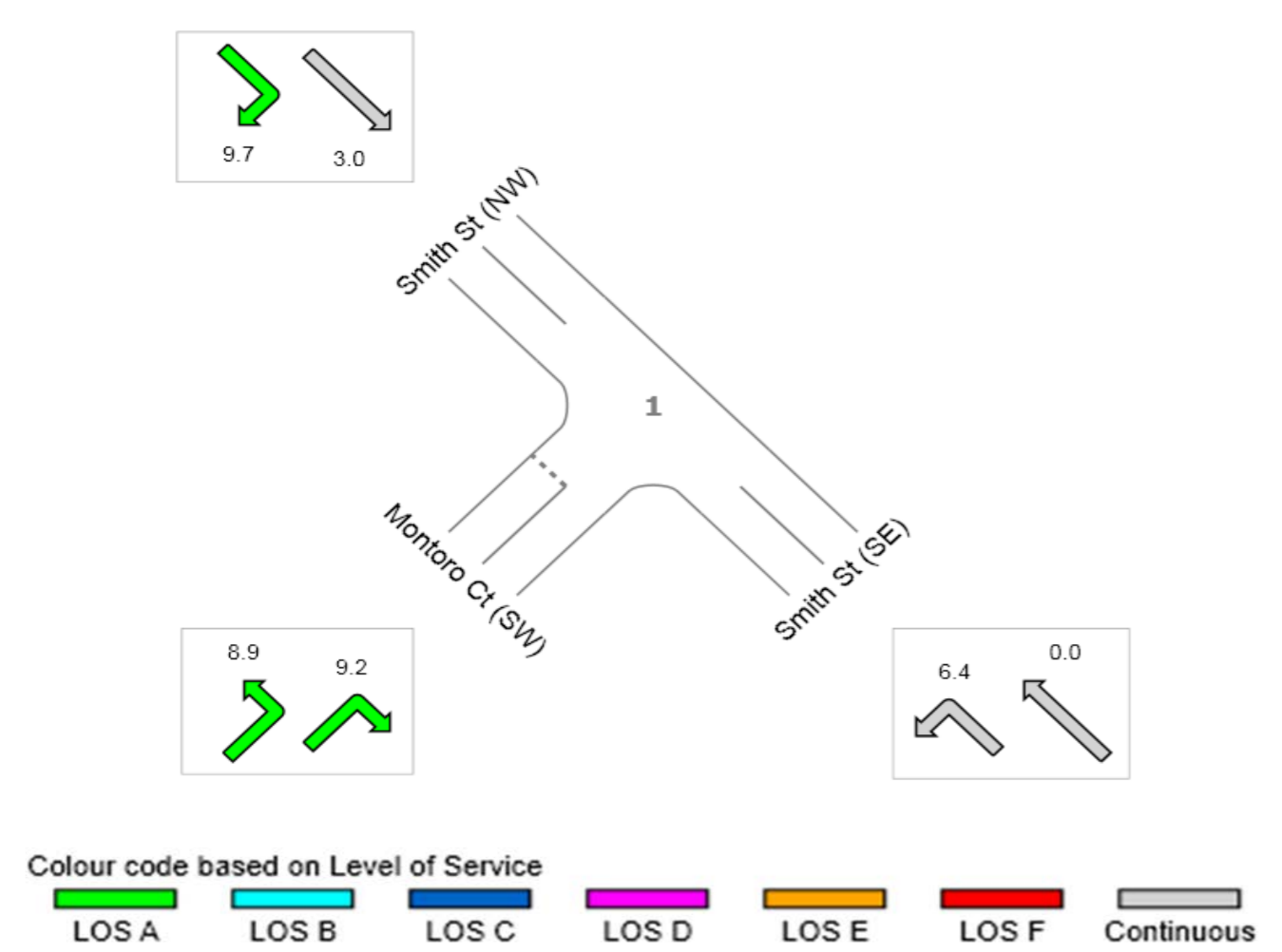
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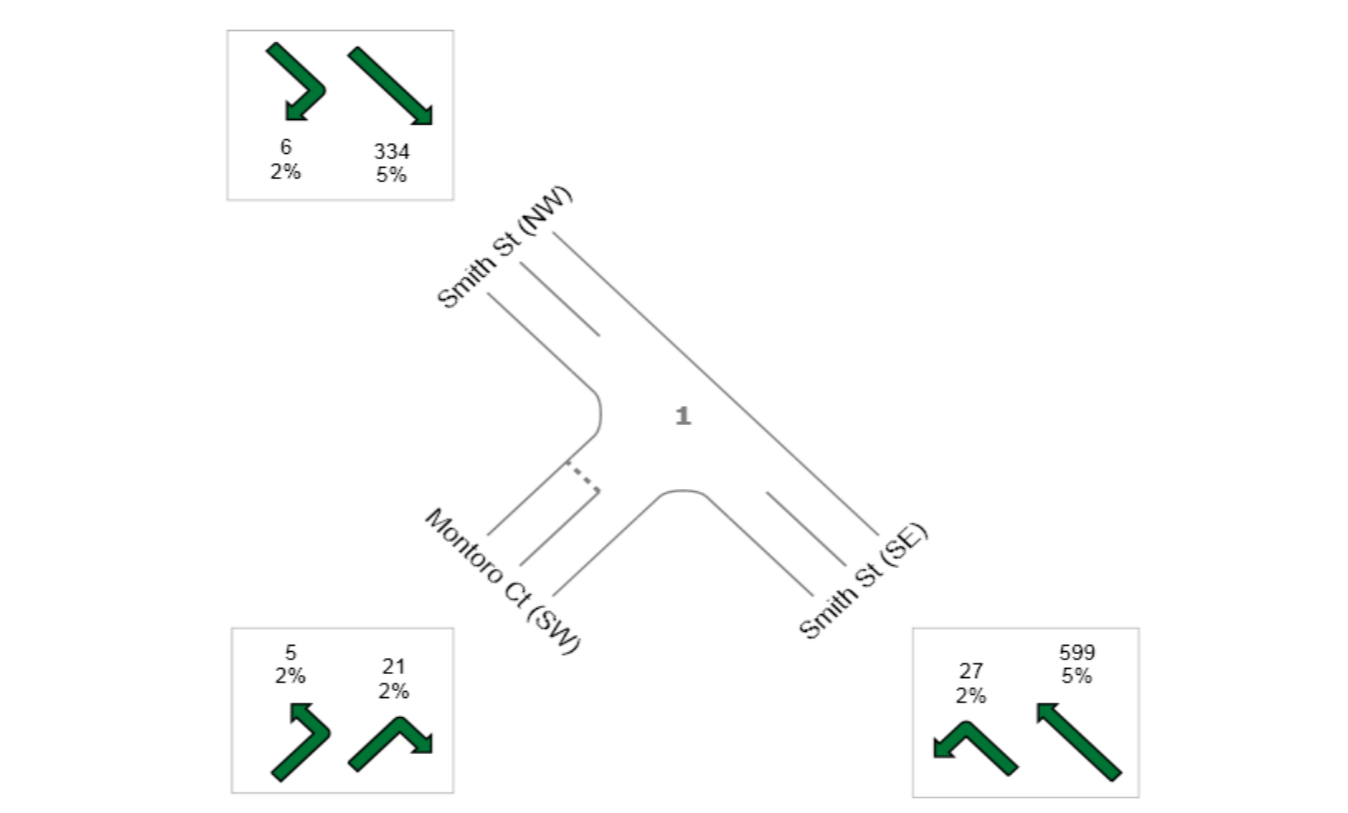
QUEUES (m)



DELAY & LEVEL OF SERVICE



FLOWS



JOB NUMBER:	12-0347
PROJECT NAME:	ASTI MOTEL REDEVELOPMENT 7 PACKARD PLACE, LARRAKEYAH

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