Issue History

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P3252.001T St Francis College Masterplan – Traffic Assessment Technical Note	J. Bunn	A. Bitzios / L. Johnston	L. Johnston	24/09/2018	Jason Tan *via email* jason@jdharchitects.com.au

St Francis College Masterplan – Traffic Assessment Technical Note

1. INTRODUCTION

Bitzios Consulting has been commissioned by the Catholic Education Diocese of Wollongong (CEDoW) to prepare a technical document outlining the traffic analysis for the Edmondson Park land release area. This document aims to summarise the background of the project, as well as to provide detailed information into the assumptions behind the model build (Paramics) including trip generation, trip distribution, modal split and bus routing, with a particular focus on the traffic operations of Camden Valley Way and additional school bus movements proposed by the development.

Specifically, with respect to the traffic operations of Camden Valley Way, NSW Roads and Maritime Services (RMS) have expressed concerns regarding the current and proposed forms of intersections along Camden Valley Way and the ability for these intersections to facilitate the additional traffic demand imposed by the development.

On this matter, it is noted that should upgrades to the external road network be required, an infrastructure contributions plan (i.e. Section 94 and Special Infrastructure Contributions (SIC)) should have been established prior to any development of the land release area, based on the findings of a Local Environment Study (LES) and accompanying Traffic Study, to ensure an equitable apportionment of costs to all impacting developments. In the absence of any previous studies or assessment, the issue of cumulative development, staging of such development, and ascertaining apportionment costs for any infrastructure would be extremely difficult to accurately quantify given the approval and construction of recent developments in the area. Any attempt at estimating contributions now would be based on assumptions that would be difficult to justify

2. PROJECT BACKGROUND

In 2015, Bitzios Consulting was commissioned by the Catholic Education Diocese of Wollongong (CEDoW) to prepare a Traffic Impact Assessment for a temporary school proposed within the Edmondson Park northern land release area. As part of this assessment a Paramics model was developed by Bitzios Consulting in order to quantify the impacts of both the proposed school and the future final school masterplan.

The base traffic network for this model was coded as per the map provided within the Liverpool City Council (Council) Development Control Plan (DCP), Section 2.11. It was understood at the time, that no traffic studies had to been undertaken to support and/or inform the design the road network layout, presented within Council's DCP.

That said, Council's subdivision plan for the Edmondson Park northern land release had given no consideration to specialty vehicles (i.e. buses), which would normally require special provisions to be made to allow access to areas within a local road network. In this regard, Bitzios Consulting's *'P2086.002R Edmondson Park Traffic Impact Assessment'* highlighted several already formed local roads which were not constructed to be 'bus accessible'. With this in mind, the proposed transport access and movement strategy presented within the aforementioned report aimed to minimise bus travel on local streets by maximising access to the highest order roads. The plan was developed on the basis of supporting bus access and separating those movements from pedestrian, cycle and vehicle access to the school, whilst minimising travel on residential street.

In the absence of other reputable forecast traffic volumes, the developed model relied upon link volumes presented within the GMA Strategic Model for Camden Valley Way. It was these volumes together with Ason Group's trip generation for the southern portion of Edmondson Park which informed that traffic volumes used in the development of the Edmondson Park Paramics model.

Taking the above into consideration, the subsequent sections of this document provide further detail of the model build for the Edmondson Park northern release area.

2.1 ORIGINAL MODEL BUILD FOR CEDOW

2.1.1 Zone System

The adopted zone system for the developed model corresponded to a combination of internal, external and internal school zones. Typically, internal zones defined areas with specific land uses and access points, whilst external zones represented the extremities of the model.

The developed zone system initially consisted of seven external zones, 19 internal zones and 3-4 zones per school (i.e. one zone for school parking, staff parking and drop-off / pick-up bays). 36 zones in total were used in the development of the model, as shown in Figure 2.1.

Figure 2.1: Paramics Model Zoning System

2.1.2 Simulation Time

The model was developed for AM (7:30am – 8:30am) and PM (2:30pm – 3:30pm) peak hour periods. To ensure that the peak periods had 'sufficient' levels of traffic in the network when the peak period started, a 15-minute 'warm-up' and 'cool-down' period was included at the start and end of the peak periods, consistent with RMS modelling guidelines.

2.1.3 Link Types

The road network of the model was based on the Council's *DCP*, which included intersection configurations, number of lanes, intersection priorities, posted speed and all other operational attributes.

Typically, the major road corridors (i.e. Croatia Avenue) were coded as 'major links', while of roads in the network were coded as 'minor links'. This had no influence on the traffic assignment but did affect turning priorities and specific traffic behaviours.

2.1.4 Traffic Signals

The base model contained a total of four signalised intersections, all of which located along Croatia Avenue. At the time, assumed operational parameters (i.e. cycle and phase times) were adopted for the intersections so that a realistic simulation of likely conditions was reflected in the model as the intersections were not constructed.

2.1.5 Traffic Volumes

Due to the incomplete construction of the Edmondson Park northern land release area, forecast background traffic volumes were sourced from AECOM's GMA Strategic Model. The traffic volumes adopted for the development of the Paramics model are shown in Figure 2.2.

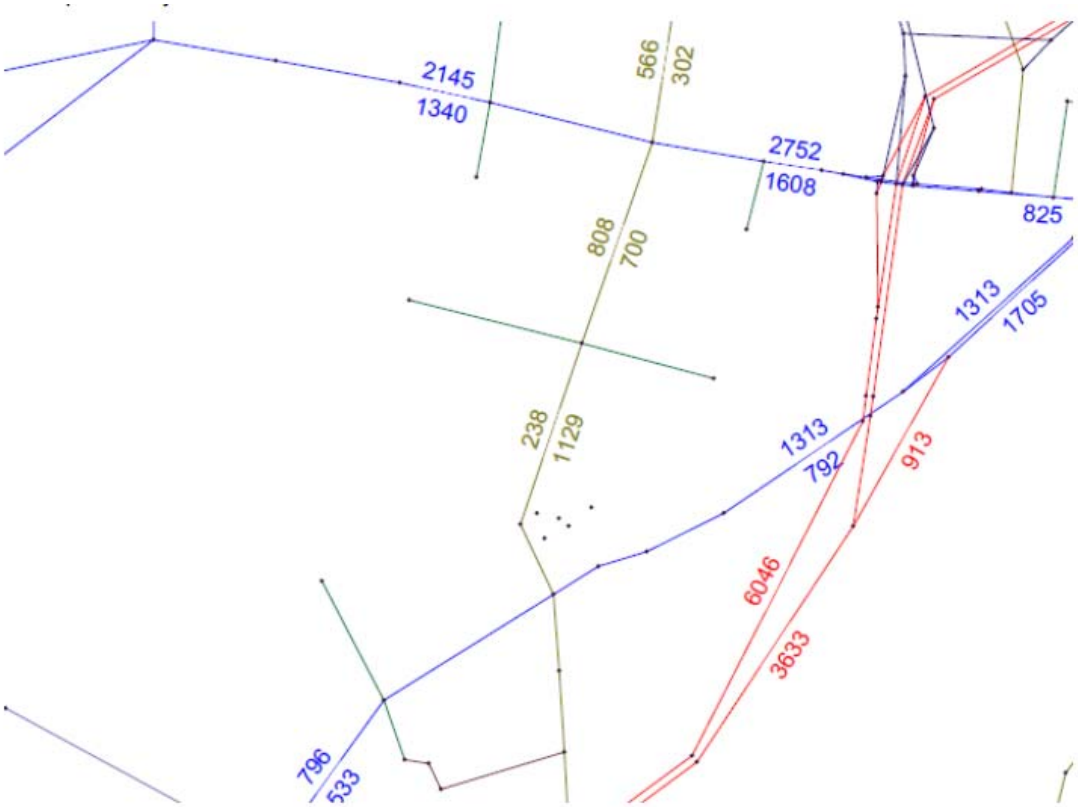

Figure 2.2: Edmondson Park Transport Study Model

2.1.6 Traffic Assignment Method

With consideration to the size, route availability and operational characteristics of the traffic network, 'closest destination carpark' was used with perturbation. The perturbation algorithm selected was 'percentage', which allowed for the expected traffic dispersion to occur throughout the network. Time steps per second remained unchanged at the default value of two seconds, as the RMS modelling guidelines.

2.1.7 Vehicle Release Profiles

The model included a vehicle release rate for its peak period. This rate was based on arrival profiles estimated from surrounding / similar operating private schools. Figure 2.3 and Figure 2.4 show the vehicle release profiles used for the AM and PM models.

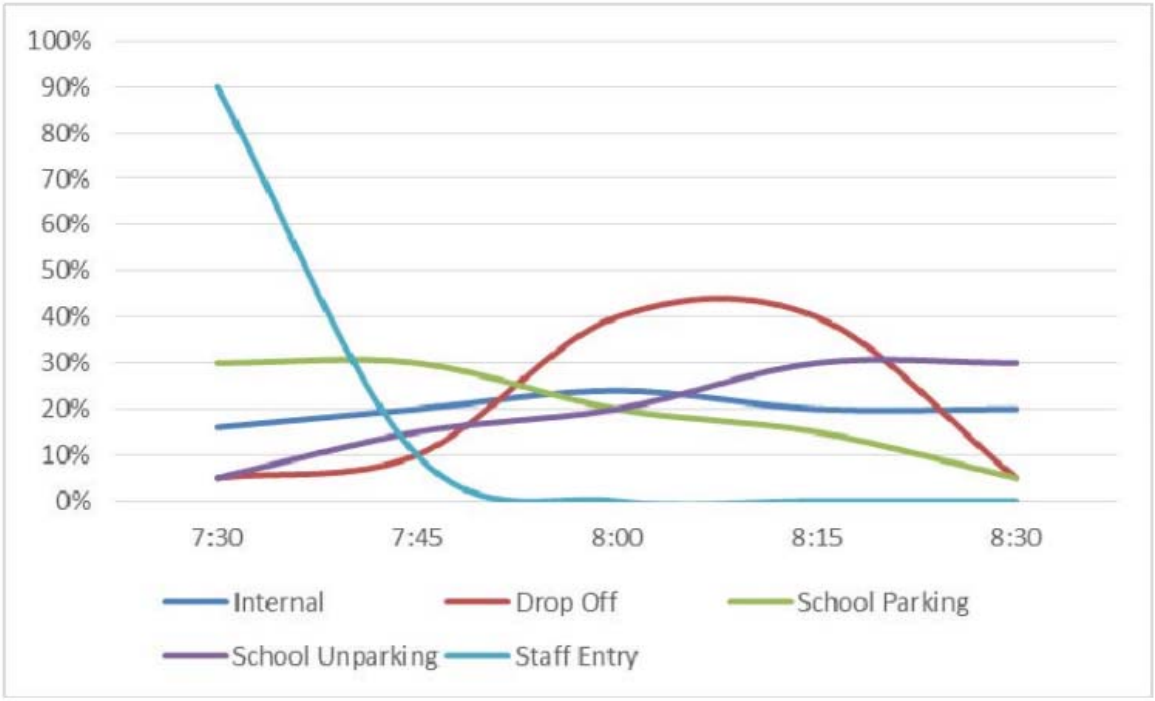

Figure 2.3: AM Peak Model Vehicle Release Profile

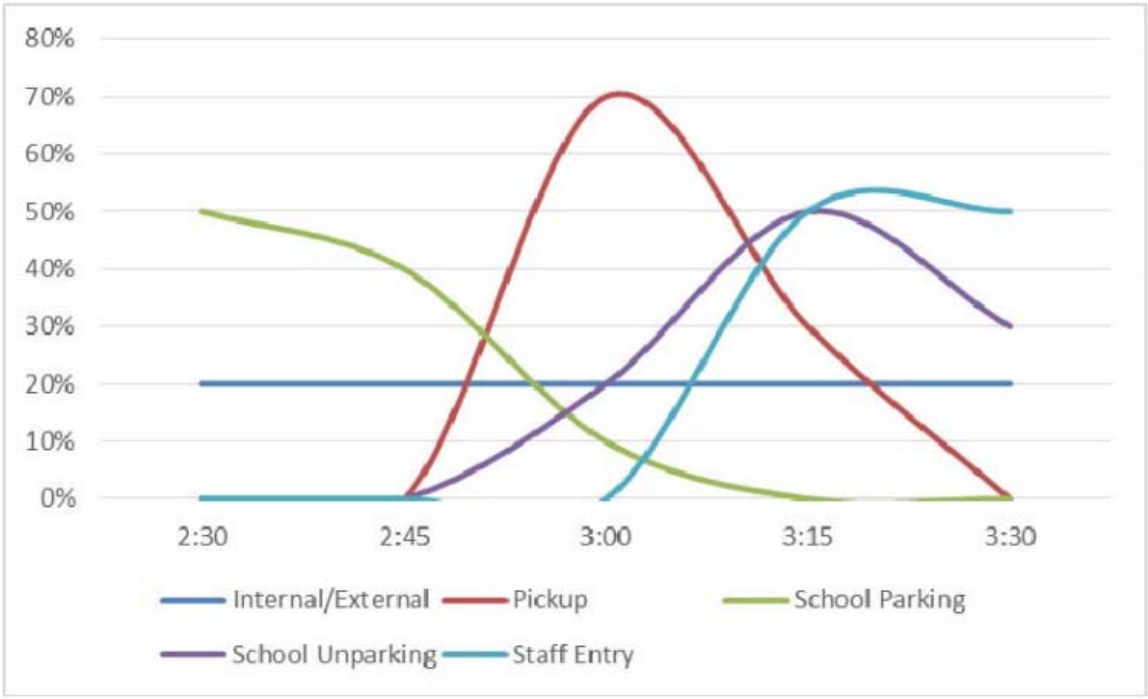

Figure 2.4: PM Peak Model Vehicle Release Rates

2.1.8 Bus Bay & Drop-off / Pick-up Bay

To simulate the school's impact on the road network, bus bays and drop-off / pick-up bay operations were included within the model. Signals were used to emulate the time in which it would take for children leave / enter vehicles. These signals were based on a 20 second red time, and 14 seconds of green time.

2.1.9 Model Results

The model which was constructed in accordance with Council's DCP, found that additional trips on the network caused significant queues on Croatia Avenue. The increased demands on the network required upgrades to the main corridor on Croatia Avenue for traffic entering and exiting the area.

2.2 Model Extension For Croatia Avenue

In 2015, Bitzios Consulting was commissioned by Liverpool City Council to update the existing Paramics microsimulation model for the northern portion of the Edmondson Park land release area. To better understand the dispersion of trips generated within this land release area, the model was expanded to include areas east of Croatia Avenue and Camden Valley Way as informed by previous assessments of the area.

As part of this assessment, an interim assessment of the local road network's function was undertaken for the year 2026. This assessment showed that there was no material difference in intersection performance between the year 2026 and year 2036 development scenarios. Analysis of the proposed intersections along the Croatia Avenue road corridor showed that most priority-controlled and signalised intersections are anticipated to operate within acceptable performance limits in both year 2026 and year 2036 scenarios. Despite exceeding acceptable operational limits (DOS > 0.90) during the AM peak hour, the Camden Valley Way / Croatia Avenue intersection operates with an acceptable level of service under year 2026 (four-lane Camden Valley Way) and year 2036 (six-lane Camden Valley Way) scenarios.

2.3 Model Use For St Francis Masterplan

In 2018, Bitzios Consulting was commissioned by the Catholic Education Diocese of Wollongong (CEDoW) to undertake a Traffic Impact Assessment for the proposal for a State Significant Development (SSD) located at 130-160 Jardine Drive.

The traffic volumes used in the assessment of the proposed SSD were taken from Bitzios Consulting's Edmondson Park Paramics model for the years 2026 and 2036. As discussed above, these models were originally developed for use by Council to determine the form of the Edmondson Park local road network. As such, the original base model (and corresponding 'no improvements' future year scenarios) were deemed fit for purpose by Council and RMS. These Paramics models, in conjunction with SIDRA, we used to determine the type of intersection control, length of turn pockets and likely signal phasing, particularly along Croatia Avenue.

Given Bitzios Consulting's Paramics models previous use to determine the requirements of the subdivision's local road network, it was considered an appropriate tool to determine the road infrastructure upgrades necessitated by the proposed development. Council indicated, in an email dated 19th April 2018, that the existing Paramics model is fit for purpose, subject to the following transport management works:

- the construction of a three-way roundabout at the Jardine Drive / Poziers Road intersection;
- the construction of a four-way roundabout at the Poziers Road / Vinny Road intersection;
- the construction of the Guillemont Road / Lacey Road three-way priority-controlled intersection;
- the construction of 12m wide carriageways on the sections of Poziers Road and Vinny Road fronting the subject site; and
- the installation of pedestrian crossing adjacent to all proposed pedestrian entries.

Given, these works were agreed to in principle by both the proponent and Council at the time of assessment, the existing Paramics models were deemed fit for purpose.

The following sections of this technical document provide insight into the assumptions used to construct the Edmondson Park model (Paramics) to further justify that the constructed model is fit for purpose in the assessment of the Edmondson Park land release.

3. MODEL DEVELOPMENT & FURTHER ASSUMPTIONS

3.1 BACKGROUND TRAFFIC – NON-SCHOOL TRAFFIC

3.1.1 Internal Residential Trip Generation

Internal residential trip generation rates were based on RMS *Guide to Traffic Generating Developments: Technical Direction 13-04 (TD13-04)*. Due to the development's location relative to the Sydney CBD, the average trip generation rate for residential subdivisions in regional areas was adopted (0.71 trips per dwelling during the AM peak and 0.77 trips per dwelling during the PM peak).

3.1.2 External Trip Generation

The volume of vehicles entering and leaving external zones were taken from the GMA Strategic Model and Ason Group's trip generation for the southern Edmondson Park land release area. Trips to internal zones (including school zones) were subtracted from external traffic flows, with the remaining trips allocated to external – external trips. As with the internal trips, the remaining external – external trips were distributed proportionally based on external traffic flows.

3.1.3 Trip Distribution

To distribute traffic across a road network that is yet to be constructed, the model was built on the assumption that there would be no internal trips with the northern release area of Edmondson Park (north of the railway line) and that all trips to the development would therefore originate from an external zone.

The distribution of trips to external zones of the Paramics model were derived from the GMA Strategic Model and Ason Group's trip generation from the southern Edmondson Park Land release area. However, the route choice for trips within the model was not defined. Rather, the Paramics model was configured as to allow vehicles to choose the fastest possible route between zones. This route choice is dynamic,

meaning that if one route is experiencing a period of congestion, an alternative path will be chosen. The model was configured to recalculate the best route for zone-to-zone trips every two minutes. This allowed the network to reach a state of equilibrium which best replicated network conditions in a typical urban environment.

4. SCHOOL TRAFFIC

4.1.1 Modal Split

Initially, a workshop was held with Council and St. Francis College to estimate modal splits for students travelling to and from school. Since this workshop, a mode choice survey was undertaken at the nearby Oran Park Public School. This was done to obtain a more accurate understanding of travel modes to and from schools in emerging south-west Sydney suburbs.

Based on the results on this survey, and through consultation with NSW Education Officers, modal splits for the proposed development were agreed to. A comparison of the travel mode survey results and the agreed upon modal splits used in the assessment of the development is presented in Table 4.1.

Table 4.1: Adopted Modal Splits

Transport Mode	Modal Split – Workshop Outcome	Modal Split – Oran Park Public School Survey (2017)
Train / Walk	5%	-
Walk		10%
Cycle	3%	4%
Bus	7%	7%
Car (short-stay)	25%	79%
Car (drop-off / pick-up)	60%	
Total	100%	100%

Bus Routing

Current bus routes in use for the temporary school head north (from the school) along Jardine Drive to Camden Valley Way via Rynan Avenue. Once construction of the surrounding roads is complete, it is proposed that buses for the school will travel west from the school along Jardine Drive, then travel north to Camden Valley Way via Buchan Avenue and Rynan Avenue. This route uses the highest order local roads available and is not expected to adversely affect the surrounding road network, where the strategy has been based around Jardine Avenue due to other bus routes and / or roads not being constructed to the appropriate standard (i.e. 3.5m wide travel lanes min.) that would otherwise be able to accommodate the bus.

As noted in Section 2.1 of this document, the Paramics model includes these bus routes based on utilising bus capable roads in area.

4.1.2 Trip Generation

The site's traffic generation during the AM peak hour is shown in Table 4.2. It was assumed that each car would contain on average 1.3 students. To maintain a conservative assessment, it was also assumed that there would be no trip sharing between staff and students (i.e. parents working at the child's school).

Table 4.2: Anticipated Traffic Generation

Trip Type	Students / Staff	Cars	Total AM Trips	% Peak Hour Arrival	Peak Hour Car Trips	Peak Hour IN Trips	Peak Hour OUT Trips
STUDENTS							
Short-Term	258	199	398	95%	378	189	189
Drop-off/pick-up	1,191	916	1,832	95%	1,742	871	871
Students Driving	52	40	40	95%	38	38	0
Bus	133	0	0	100%	0	0	0
Walking	190	0	0	95%	0	0	0
Cycling	76	0	0	95%	0	0	0
STUDENTS	*1,900*	*1,108*	*2,270*	*NA*	*2,158*	*1,098*	*1,060*
Early Learning Centre	80	62	124	95%	118	62	62
Staff Trips	140	140	140	10%	14	14	0
TOTAL	2,120	1,310	2,538	NA	2,290	1,174	1,122

These anticipated traffic volumes were distributed proportionally across the Paramics model, with the resultant traffic volumes in Year 2026 and Year 2036 shown in Figure 4.1 and Figure 4.2.

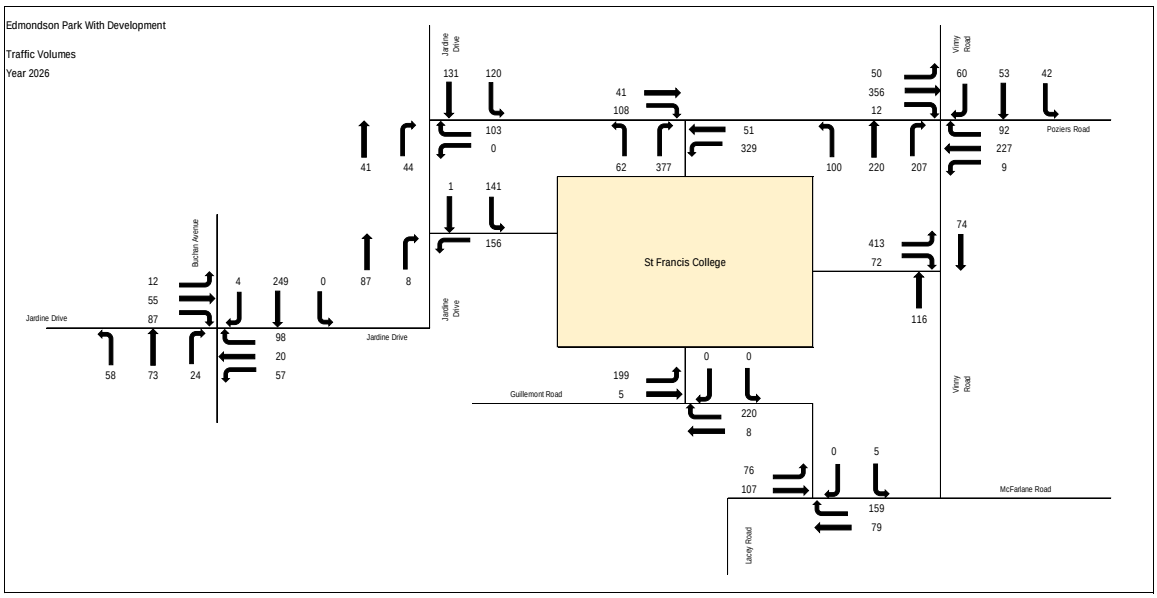

Figure 4.1: Anticipated Traffic Volumes – Year 2026

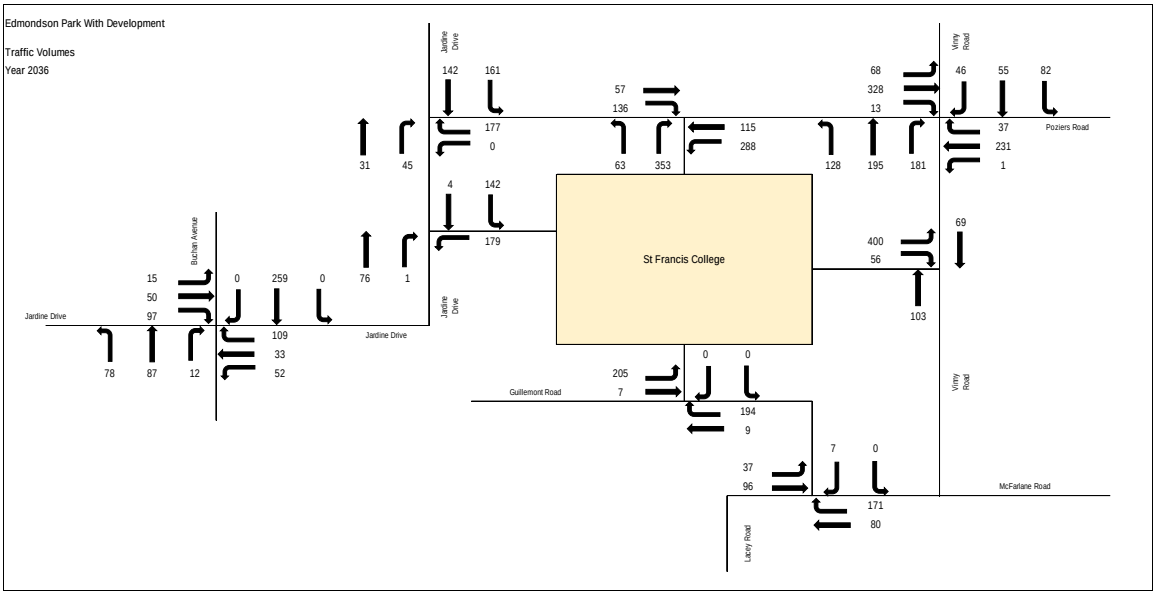

Figure 4.2: Anticipated Traffic Volumes – Year 2036

5. SUMMARY OF ASSESSMENT

It is understood that through recent discussions with RMS that concerns have been raised of the impact of trips generated by the development on intersection with Camden Valley Way, having consideration to the cumulative impacts from other approved developments in the vicinity and the need / associated funding for, and details of upgrades or road improvement works.

Bitzios Consulting's *'P2662.002R Edmondson Park Modelling Report'* noted that upgrades proposed for the local road network aimed to alleviate the congestion shown in the 2036 Base models (replicated below).

Figure 5.1: 2036 Base Model Maximum Queues – Scenario 1 AM Peak Hour (DCP Network)

Figure 5.2: 2036 Base Model Maximum Queues – Scenario 2 AM Peak Hour (DCP Network)

Analysis of base year models showed that the major pinch point within the local road network was at the Camden Valley Way / Croatia Avenue intersection. To address significant delays experiences by vehicles at this intersection, upgrades were proposed, focussed on increasing the capacity of the Camden Valley Way / Croatia Avenue intersection and redistributing traffic to other intersections. Other intersections on Camden Valley Way were also upgraded, to reduce the reliance on the Camden Valley Way / Croatia Avenue intersection. A number of road upgrades were recommended as part of Bitzios Consulting's modelling works for Liverpool City Council which allowed the network to operate under 2026 and 2036 scenarios.

The following upgrades were proposed under Scenario 1 (excluding turn treatments):

- two lane approach to the southern leg of the Camden Valley Way/ Rynan Avenue intersection;
- left turn: lane 1 (65m storage);
- right turn: lane 2 (continuous);
- five lane approach on the southern leg of the Camden Valley Way/ Croatia Avenue intersection;
- left turn: lane 1 (50m storage);
- through: lane 2 & lane 3 (continuous);
- right turn: lane 4 & lane 5 (120m storage);
- dual right turn from Camden Valley Way (East) to Croatia Avenue (South);
- dedicated right turn pocket (90m storage) from Croatia Avenue (North) to Dalmatia Avenue (West);
- dedicated right turn pocket (60m storage) from Croatia Avenue (South) to Dalmatia Avenue (East);
- dedicated right turn pocket (95m storage) from Croatia Avenue (North) to Poziers Avenue (West);
- dedicated right turn pocket (60m storage) from Croatia Avenue (South) to Poziers Avenue (East);
- dedicated right turn pocket (50m storage) from Croatia Avenue (North) to Ardennes Avenue (West);
- dedicated right turn pocket (50m storage) from Croatia Avenue (South) to Ardennes Avenue (East);
- extended stand-up lane on the eastern approach to the Croatian Avenue/ Poziers intersection to 60m;
- single lane roundabout at Poziers Avenue/ Vinny Road intersection (north-east of Private School); and
- single lane roundabout at Train Station Access/ Buchan Avenue intersection.

Under Scenario 2, the following upgrades were proposed;

- two lane approach to the southern leg of the Camden Valley Way/ Rynan Avenue intersection;
  - left turn: lane 1 (65m storage);
  - right turn: lane 2 (continuous);
- five lane approach on the southern leg of the Camden Valley Way/ Bernera Road intersection;
  - left turn slip lane: lane 1 (40m storage);
  - through: lane 2 & lane 3 (continuous);
  - right turn: lane 4 & lane 5 (120m storage);
- five lane approach to the northern leg of the Camden Valley Way/ Bernera Road intersection;
  - left turn slip lane: lane 1 (35m storage);
  - through: lane 2 & lane 3 (continuous);
  - right turn: lane 4 & lane 5 (60m storage);
- two lane approach to the southern leg of the Camden Valley Way/ Ardennes Avenue
  - left turn, through & right turn: lane 1 (105m storage);
  - right turn: lane 2 (continuous);
- dual right turn from Camden Valley Way (East) to Croatia Avenue (South);
- dedicated right turn pocket (90m storage) from Croatia Avenue (North) to Dalmatia Avenue (West);
- dedicated right turn pocket (60m storage) from Croatia Avenue (South) to Dalmatia Avenue (East);
- dedicated right turn pocket (95m storage) from Croatia Avenue (North) to Poziers Avenue (West);
- dedicated right turn pocket (60m storage) from Croatia Avenue (South) to Poziers Avenue (East);
- dedicated right turn pocket (50m storage) from Croatia Avenue (North) to Ardennes Avenue (West);
- dedicated right turn pocket (50m storage) from Croatia Avenue (South) to Ardennes Avenue (East);
- extended stand-up lane on the eastern approach to the Croatian Avenue/ Poziers intersection to 60m;
- signalise exit of Public High-School drop-off (intersection with Buchan Avenue)
- upgraded priority-controlled Poziers Avenue/ Vinny Road intersection (north-east of Private School);
  - southern leg: Lane 1: left turn & through (continuous), Lane 2: right turn (45m storage);
  - eastern leg: Lane 1: left turn (60m storage), Lane 2: through and right turn (continuous);
  - northern leg: Lane 1: left turn & through (continuous), Lane 2: right turn (70m storage);
  - western leg: Lane 1: left turn (40m storage), Lane 2: through and right turn (continuous);
  - short lanes on the exit of the eastern (65m) and western (70m) legs; and
- single lane roundabout at Train Station Access/ Buchan Avenue intersection.

To determine the effectiveness of the road network upgrades, intersection modelling was undertaken using SIDRA Intersection. This assessment ultimately determined that there was no material difference in intersection performance between the year 2026 and year 2036 development scenarios, showing that most priority-controlled and signalised intersections were anticipated to operate within acceptable limits in both design year scenarios. Despite exceeding acceptable operational limits (DOS>0.90) during the AM peak hour, the Camden Valley Way / Croatia Avenue intersection was anticipated to operate within an acceptable Level of Service under year 2026 and year 2036 scenarios. For clarity, Bitzios Consulting's *'P2662.002R Edmondson Park Modelling Report'* has been provided at Attachment 1.

Notwithstanding the results of the SIDRA assessment, it should be noted that, a scenario which does not include the proposed school would not reduce trips on the network, it would just change origin – destination (O-D) patterns of vehicles, as children still need to go school somewhere. From a first principles perspective, the development of a private school within Edmondson Park provides a benefit for the local road network as it is anticipated to significantly reduce the number of trips made from Edmondson Park to catholic schools in the nearby suburbs of Prestons, Hoxton Park and Horningsea Park.

5.1 POST-TRAFFIC REPORT INFORMATION

Since the time of the initial model development, additional information has been made available regarding traffic operations of the Edmondson Park land release area. RMS suggested that utilisation of such data may allow for further configuration of the model.

While it is acknowledged that any additional information may assist in the reconfiguration of the model, it should be noted that this information is always changing. This is because of the variability and changing nature of school traffic, due to its dependence upon where enrolled students live (i.e. five years from now the information will change again). Due to this uncertainty, it is important to make sure that the school is committed to a Green Travel Plan and the ongoing bi-annual performance monitoring of the road network. This should be done with regular communication with staff and parents to use public transport / other sustainable transport means, so that the strategy remains flexible to respond to the ever-changing location of where enrolled students reside.

In this regard, Figure 5.3 shows the location of current enrolments (i.e. home address) for the school.

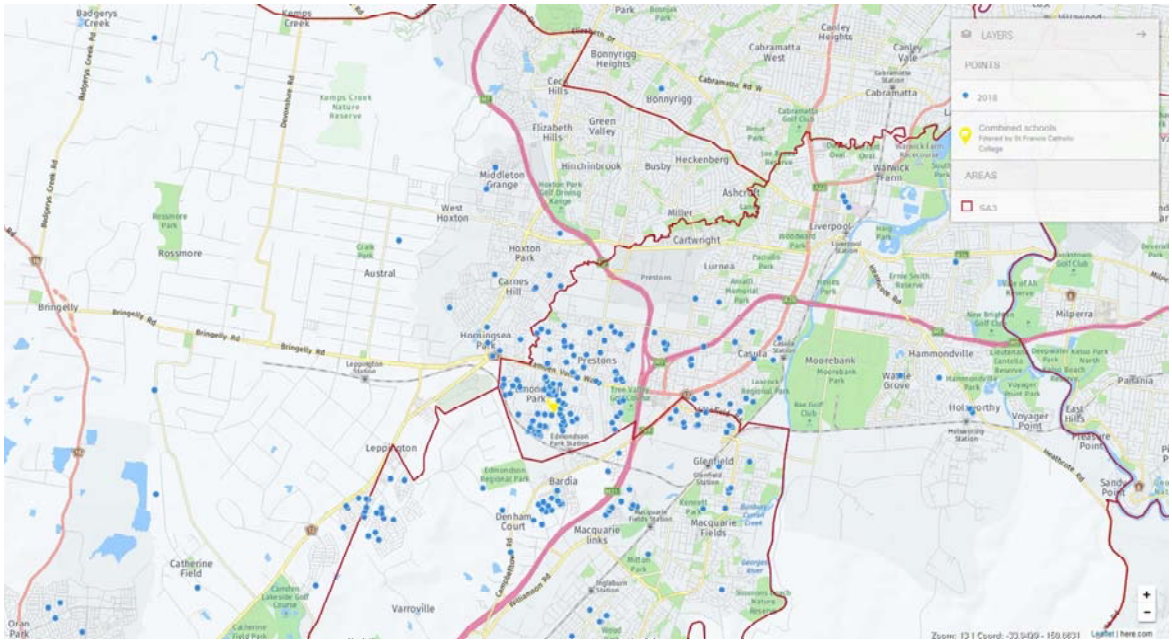

Figure 5.3: St Francis College School Enrolments

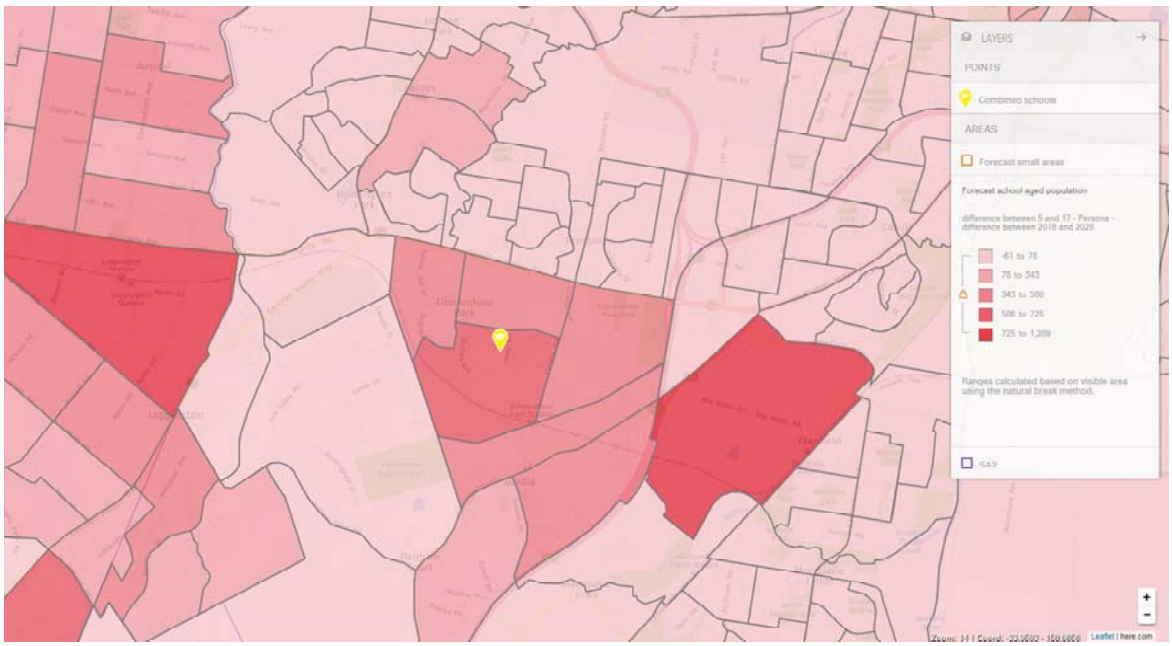

Figure 5.4: School Age Population Demographic

As shown above, the level of internalisation appears to be much higher than first anticipated, where the model was based on 14% of students walking / cycling to school. This also provides greater opportunity for students to utilise local public transport services.

That said, Transport for NSW (TfNSW) have recommended that as part of the ongoing operation of the school, a detailed Green Travel Plan (GTP), which includes target mode shares for both staff and students with the objective to reduce the reliance on private vehicles and encourage active transport modes, shall be prepared. The GTP must be implemented accordingly and updated annually.

In this regard, it is important to note that the school is committed to the preparation of a GTP to sustainable travel choices and reduce car dependency. In addition to the proposed bus route, which will (when constructed) travel west from the school along Jardine Avenue toward Camden Valley Way, the school is currently in discussions with private bus companies, to provide a new service that could carry staff and students from the Edmondson Park train station to the school premises and back.

All of this said, it is likely that the on-site traffic situation that would arise from the incorporation of the proposed school will only be better than what the model represents, as actual data suggests strong opportunities to have lower car mode share, and with information now available, opportunities exist to develop targeted transport access strategies.

ATTACHMENT 1

P2662.002R EDMONDSON PARK MODELLING REPORT

EDMONDSON PARK TRAFFIC MODELLING REPORT

FOR

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DOCUMENT CONTROL SHEET

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P2662.001R Edmondson Park Traffic Modelling Report	M. Bitzios	A. Bitzios	A. Bitzios	07/09/2016	Charles Wiafe, LCC WiafeC@liverpool.nsw.gov.au
P2662.002R Edmondson Park Traffic Modelling Report	M. Bitzios	A. Bitzios	A. Bitzios	08/12/2016	Charles Wiafe, LCC WiafeC@liverpool.nsw.gov.au

CONTENTS

Tables

Figures

Appendices

1. INTRODUCTION

1.1 PURPOSE

Bitzios Consulting has been commissioned by Liverpool City Council (LCC) to update the existing Paramics microsimulation model for the northern portion of the Edmondson Park land release area. The Paramics modelling was undertaken to determine the route choice of vehicles travelling through the Edmondson Park northern release area. The resultant traffic volumes passing through the local road network was used to determine the extent of intersection upgrades required along the Croatia Avenue road corridor.

1.2 STUDY AREA

The previous iteration of microsimulation modelling included an area of Edmondson Park bounded by Camden Valley Way, Croatia Avenue and the railway line. To better understand the dispersion of generated trips across the local road network, the model has been expanded as shown in Figure 1.1.

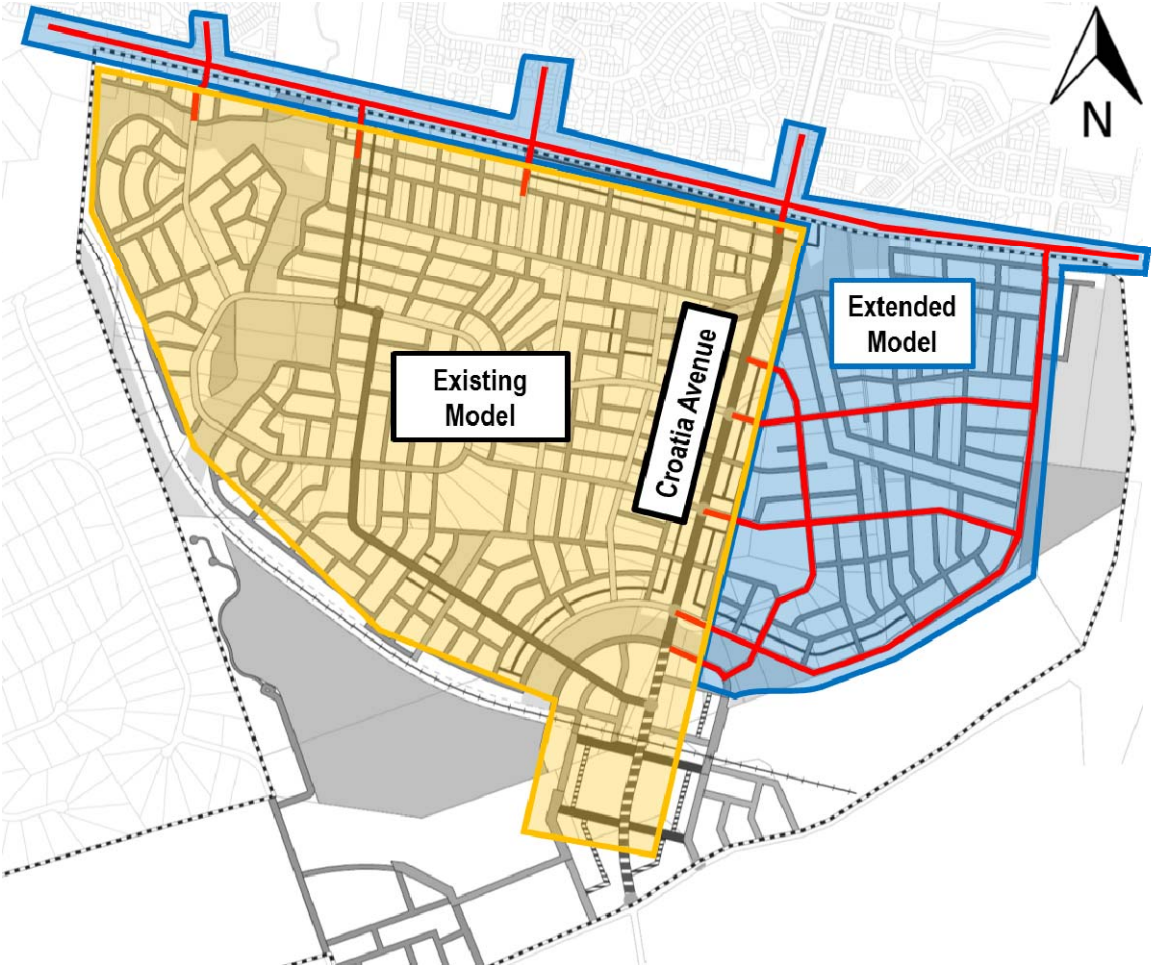


Figure 1.1: Study Area

1.3 SCOPE OF WORKS

This report outlines the process which led to the creation of the Edmondson Park Paramics Model and details the infrastructure upgrades that are required to allow the local road network to continue to function until year 2036. An interim assessment of the Edmondson Park local road network was also undertaken for the year 2026. LCC requested that the key trip generators within the model be assessed under two Development Scenarios.

- Scenario 1; and
- Scenario 2.

It should be noted that the scenarios are cumulative, with the trip generators included in Scenario 1 also included within Scenario 2. Scenario 1 included the following key trip generators:

- Private School;
- Eastern School; and
- 300 space Park and Ride Station (PnR).

Scenario 2 includes additional key trip generators:

- Public Primary School;
- Public High School; and
- An expanded 600 space Park and Ride Station (PnR).

The key trip generators included in each scenario are shown in Figure 1.2.

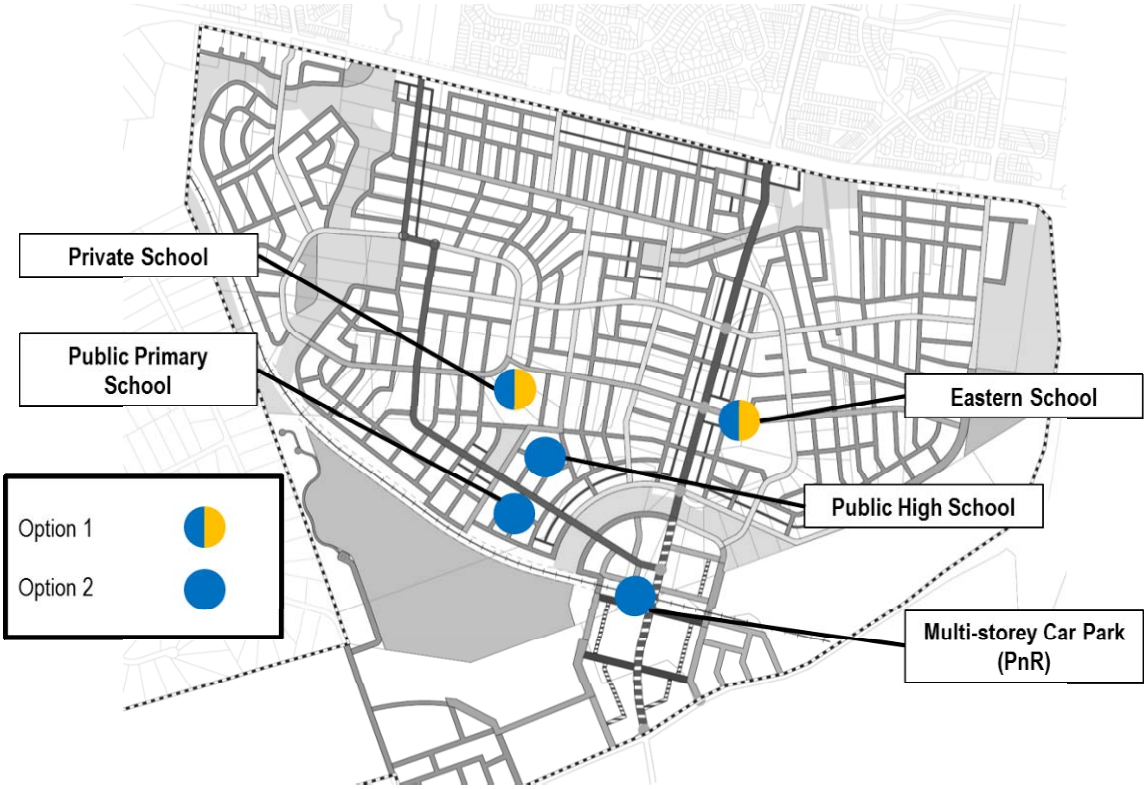


Figure 1.2: Edmondson Park Key Trip Generators

This report also addresses the concerns of Roads and Maritime Services (RMS) regarding the layout and function of Croatia Avenue and more specifically, the performance of the Camden Valley Way/ Croatia Avenue intersection in both year 2026 and year 2036 scenarios.

2. DCP MODEL DEVELOPMENT

2.1 DCP MODEL NETWORK

The modelled base traffic network was coded as per the map provided in the Liverpool City Council Development Control Plan (DCP) Section 2.11. Preliminary investigations showed that the altered road configuration suggested in the AECOM Road Network and Hierarchy had a near negligible impact on the performance of the local road network and route choice. As such, the AECOM masterplan was disregarded in the coding of the base network. Notwithstanding this, from a network legibility and road hierarchy perspective, the AECOM produced town centre network appears to be superior comparative to the pre-existing DCP network within the town centre.

The original scope of works did not include the modelling of Camden Valley Way. However, to fully understand the dispersion of traffic across the local road network, Edmondson Park's major intersections with Camden Valley Way were also coded. Whilst Camden Valley Way was modelled as a four-lane road in the year 2026 (as per existing conditions), the Sydney Greater Metropolitan Area Strategic Traffic Forecasting EMME Model (GMA Strategic Model) showed that Camden Valley Way will be upgraded to six lanes by the year 2036. As such, the fundamental change between the year 2026 and they year 2036 models was the coding of Camden Valley Way as a six-lane road in the 2036 Base model. It should be noted that Camden Valley Way was modelled as a four-lane road in 2026. Figure 2.1 shows the full extents of the model network.

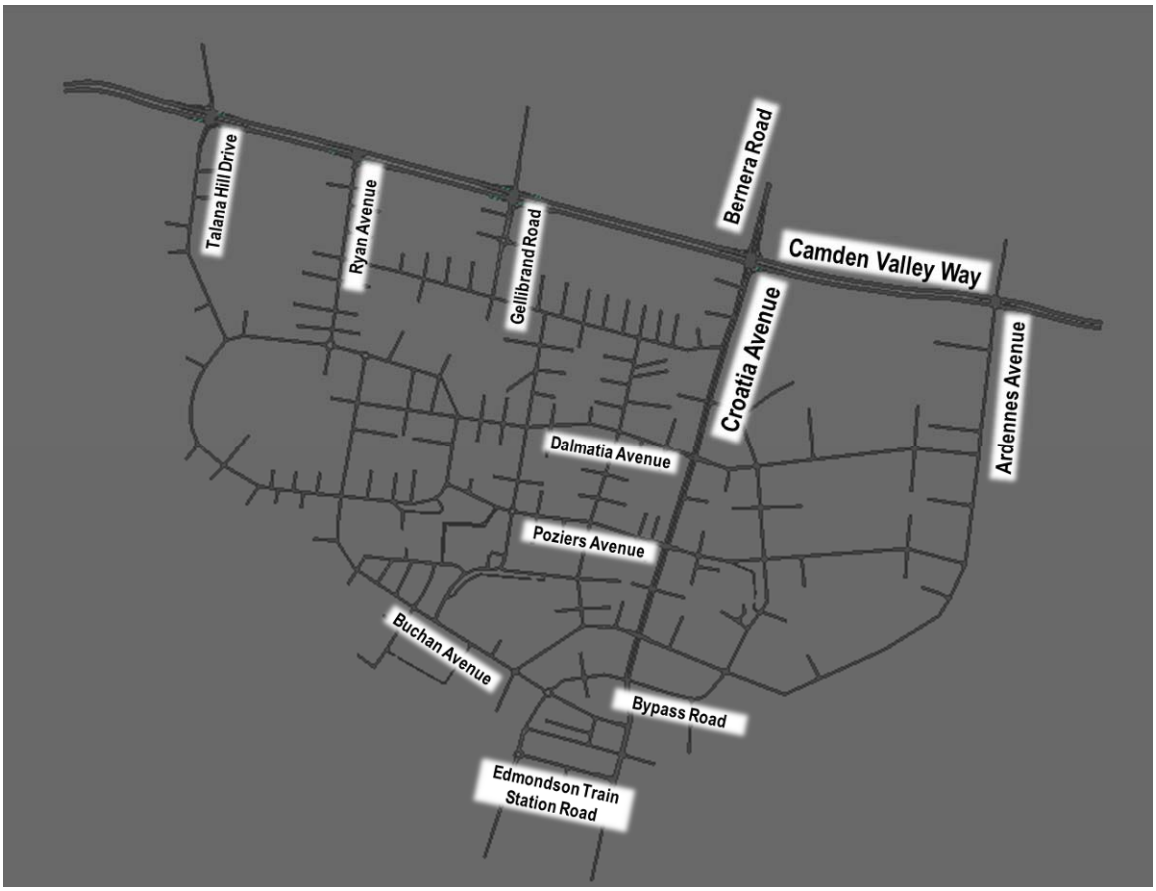


Figure 2.1: Modelled Base Traffic Network

It is assumed that, in accordance with RMS standards, 'NO STOPPING' signage and linemarking shall be installed for a minimum of 20m on the minor approaches to intersections with Croatia Avenue. To best represent this extra capacity, the side-street approaches to Croatia Avenue have been coded with stand-up lanes. As the Paramics network models an area yet to be built, validation to count data is not possible. As such, the model was only run using one seed (560).

Figure 2.2 shows the zoning system adopted for the 2036 AM Base Model. A total of 48 zones were used in the base models.

Figure 2.2: Base Model Zoning System

Some further modelling details are as follows:

- models have been developed for the AM School Peak Hour (07:45-08:45) and the PM Commuter Peak Hour (17:00-18:00);
  - the PM Commuter Peak Hour does not include any trips generated by schools;
- the model includes a 30 minute warm up period before the peak hour and a 15 minute cool-down period after the peak hour to more accurately reflect traffic network behaviour;
- the model includes demand profiles based on the typical arrival pattern for schools in the AM Peak Hour Period; and
- whilst bus lanes have been coded into the model, public transport services were not included in this model.

2.2 DEMAND DEVELOPMENT

To distribute traffic across a road network yet to be constructed, it was assumed that there were no internal trips within the northern release area of Edmondson Park (north of the railway line). As such, all trips to the development have been assumed to originate from an external zone. All generated trips will be distributed proportionally using link volumes extracted from the GMA Strategic Model and Ason Group's trip generation for the southern portion of Edmondson Park.

2.2.1 Internal Residential Trip Generation

Internal residential trip generation rates were based on RMS Guide to Traffic Generating Developments: Technical Direction 13-04 (TD13-04). Due to the development's location relative to the Sydney CBD, the average trip generation rate for residential subdivisions in regional areas have been adopted. As such, it is

assumed that 0.71 trips per dwelling will be generated during AM Peak Hour Period and 0.78 trips per dwelling will be generated during the PM Peak Hour Period. At the direction of LCC, it was assumed that the Edmondson Park subdivision shall be fully developed by the year 2026. As such, the internalised trip generation shall be consistent in the year 2026 and year 2036 models.

2.2.2 School Trip Generation

The trip generation rate and arrival profile for schools was determined through workshops with the Catholic Education Diocese of Wollongong (CEDoW) and the New South Wales Department of Education. During this workshop, the CEDoW provided their anticipated mode shares for the schools within Edmondson Park based on their experience in similar sized subdivisions. It was determined that 60% of students travelling to the school would utilise the drop-off/ set-down zone. Of these car trips to the school, it is anticipated that the average vehicle will contain 1.2 students. The resultant trip generation of the four schools during the AM peak hour have been provided in Table 2.1.

Table 2.1: School Traffic Generation – AM Peak Hour

School	Drop-off Trips IN	Drop-off Trips OUT	Student/ Parent Parking	Staff Parking
Private School	345	345	150	101
Eastern School	390	390	86	57
Public Primary School	500	500	250	37
Public High School	195	195	145	123

2.2.3 External Trip Generation

As there are no internal-internal trips within the model, all trips must either originate or terminate at an external zone. The volume of vehicles entering/ leaving these external zones are taken from the GMA Strategic Model and Ason Group's trip generation for the southern Edmondson Park (south of the modelled road network). Trips to internal zones (including school zones) were subtracted from external traffic flows with the remaining trips allocated to external-external trips. As with the internal trips, these remaining external-external trips were distributed proportionally based on external traffic flows.

2.3 SIGNAL WARRANTS

The Liverpool City Council DCP proposes several signalised intersections on the Croatia Avenue corridor. Whilst the Paramics model shows that these intersections are required for the function of the local road network, RMS have established a warrants assessment which deems whether an intersection requires signals. The RMS document Traffic Signal Design: Section 2 – Warrants (2011) states that an intersection requires signals if for each of four one-hour periods of an average day:

- the major traffic flow exceeds 600 vehicles in each direction and the minor road flow exceeds 200 vehicles; or
- the major road flow exceeds 900 vehicles in each direction and the minor road flow exceeds 100 vehicles in each direction.

The volume of traffic anticipated to pass through each intersection is attached at Appendix A.

None of the intersections within the development have a high enough volume of minor road traffic outside of school peak hours to warrant signalisation. However, choosing to leave these intersections as priority-controlled would mean that students walking to/ from school must walk across five lanes of free-flowing traffic. On this basis, it is recommended that signals are provided at the intersections of Croatia Avenue/ Dalmatia Avenue, Croatia Avenue/ Poziers Avenue and Croatia Avenue/ Ardennes Avenue to improve pedestrian safety near the schools. The intersections recommended to be signalised are shown in Figure 2.3.

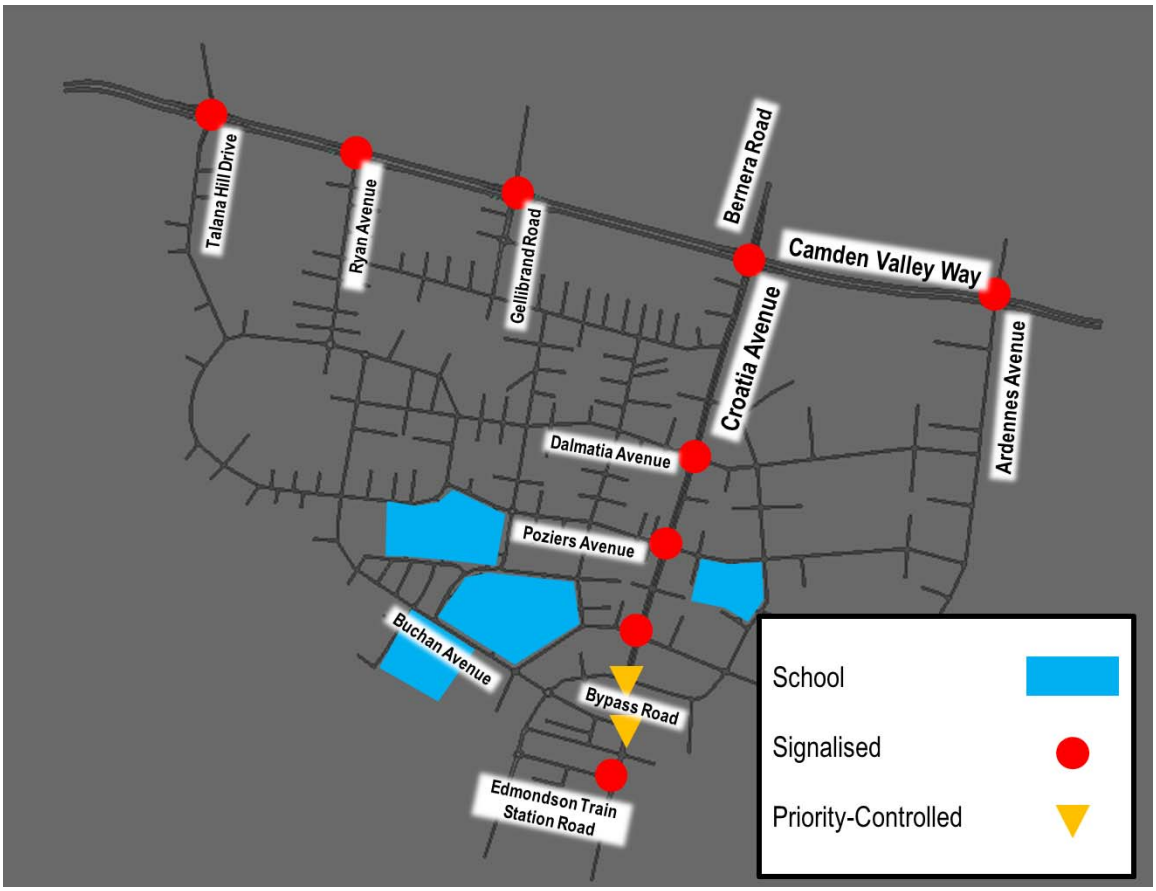


Figure 2.3: Recommended Intersections to Signalise

It is noted that the Croatia Avenue/ Edmondson Train Station Road intersection is currently signalised. This is assumed to be a result of pedestrian activity and the traffic anticipated to be generated on the eastern leg of the intersection (currently closed).

2.4 INTERSECTION SPACING

The Austroad's Guide to Road Design: Part 4 Intersections and Crossings – General (2009) states that urban district roads with a posted speed limit of 60 km/h should space intersections by at least 250m. Figure 2.4 shows the proposed spacing of intersections across the northern land release area of Edmondson Park.

Figure 2.4: Proposed Intersection Spacing on Croatia Avenue

The signalised intersections within the model are separated by at least 300m from other four-way intersections. Towards the southern end of the model, the spacing between the intersections are reduced to approximately 150m. As discussed in Section 2.3 above, these intersections are recommended to be priority-controlled. As such, these priority-controlled intersections are not anticipated to generate any queuing on Croatia Avenue. In addition, the low-speed environment within the town centre means that the proximity of intersections is unlikely to cause any adverse traffic impacts.

2.5 2036 DCP NETWORK PERFORMANCE

The traffic generated by the northern area of Edmondson Park is shown by the model to cause significant queuing within the local road network during the year 2036 scenarios. The modelling suggests that the local road network described in the DCP is not able to support the generated traffic. Figure 2.5 and Figure 2.6 shows the extent of the queuing under Scenario 1 and Scenario 2 respectively in the AM peak hour.

Figure 2.5: 2036 Base Model Maximum Queues – Scenario 1 AM Peak Hour (DCP Network)

Figure 2.6: 2036 Base Model Maximum Queues – Scenario 2 AM Peak Hour (DCP Network)

3. NETWORK UPGRADES (2036)

3.1 OVERVIEW

The 2036 DCP Models, as in Section 2, showed excessive queuing along Croatia Avenue. This is anticipated to result in queuing on side streets, blocking zones and causing gridlock on the minor roads within Edmondson Park road network. Due to the number of vehicles stuck within zones during the AM peak hour, the model is unable to clear within the 15-minute cool-down period. To capture the traffic volumes passing through the development, some minor upgrades were made to the local and state controlled road network to allow sufficient time for vehicles to clear.

The upgrades proposed for the local road network aim to alleviate the congestion shown in the 2036 Base models. Analysis of the base year models showed that the major pinch point within the local road network is at the Camden Valley Way/ Croatia Avenue intersection. To address significant delays experienced by vehicles at this intersection, most upgrades were focussed on increasing the intersection's capacity and redistributing traffic to other intersections. Other intersections with Camden Valley Way were also upgraded to reduce the reliance on the Camden Valley Way/ Croatia Avenue intersection. As discussed in Section 2.3 and Section 2.4, two of the intersections (within the Croatia Avenue corridor) recommended for signals within the DCP operate within acceptable performance parameters as priority-controlled intersections.

3.2 TURN WARRANTS

A turn warrant assessment was undertaken in accordance with Austroads Guide to Road Design Part 4A: *Unsignalised and Signalised Intersections* to determine if any of the priority controlled intersections on Croatia Avenue will require any additional turn lanes. Figure 3.1 shows the turn treatment assessment criteria.

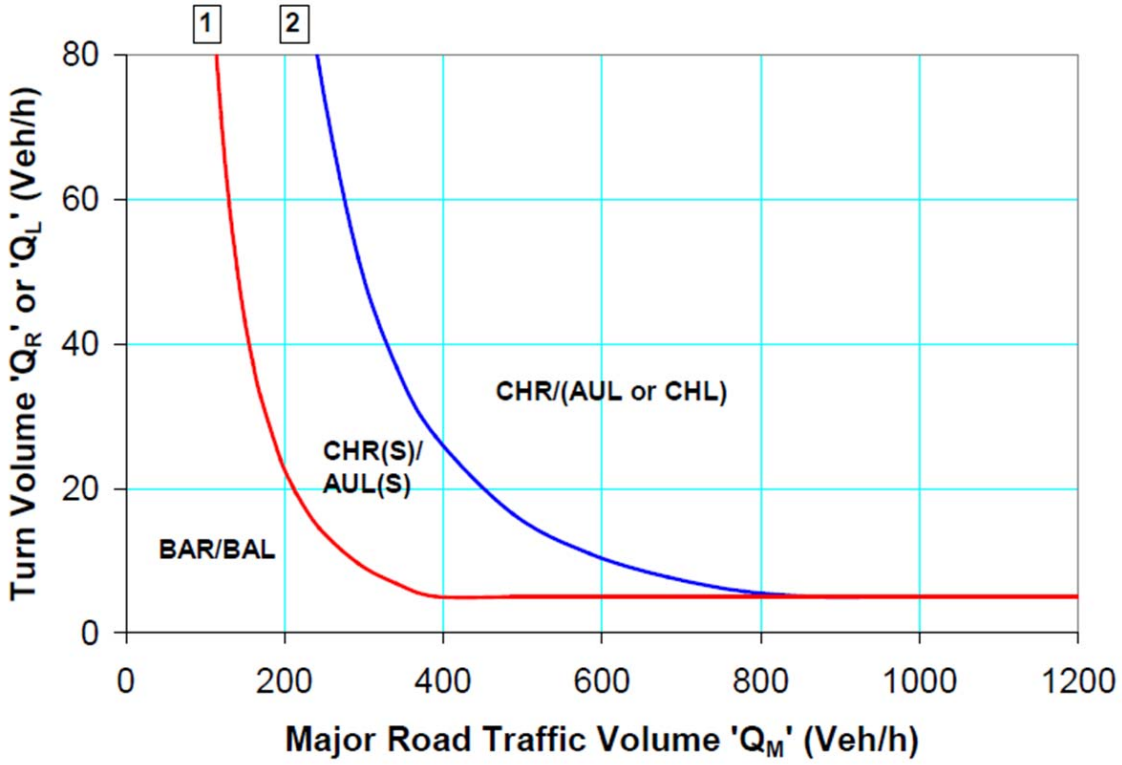


Figure 3.1: Turn Warrant Criteria

Table 3.1 and Table 3.2 shows the priority-controlled movements on Croatia Avenue and their required turn treatment. The volumes used in this assessment was extracted from the year 2036 Paramics Models. It should be noted that period with the highest demand was assessed for each approach.

Table 3.1: 2036 Turn Warrant Assessment – Scenario 1

Intersection	Approach (Heaviest Peak)	Movement	Turning Volume (veh/h)	Opposing Flow Volume (veh/h)	Treatment Required
Croatia Avenue/ Bypass Road	North (PM)	Left Turn	0	62	BAL
		Right Turn	502	342	CHR
	South (AM)	Left Turn	0	64	BAL
		Right Turn	66	381	CHR
Croatia Avenue/ Buchan Avenue	North (PM)	Right Turn	65	292	CHR
	South (AM)	Left Turn	38	90	BAL

Table 3.2: 2036 Turn Warrant Assessment – Scenario 2

Intersection	Approach (Heaviest Peak)	Movement	Turning Volume (veh/h)	Opposing Flow Volume (veh/h)	Treatment Required
Croatia Avenue/ Bypass Road	North (PM)	Left Turn	0	106	BAL
		Right Turn	501	309	CHR
	South (AM)	Left Turn	1	77	BAL
		Right Turn	83	229	CHR
Croatia Avenue/ Buchan Avenue	North (PM)	Right Turn	122	331	CHR
	South (AM)	Left Turn	35	88	BAL

These identified treatments were incorporated into the year 2026 and year 2036 Paramics/ SIDRA models.

3.3 SCENARIO 1 (2036)

In addition to the turn treatments, the upgrades to the DCP road network under the Scenario 1 includes:

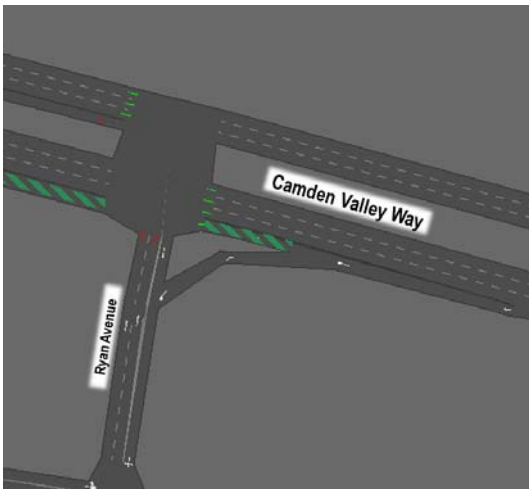
- two lane approach to the southern leg of the Camden Valley Way/ Rynan Avenue intersection;
  - left turn: lane 1 (65m storage);
  - right turn: lane 2 (continuous);
- five lane approach on the southern leg of the Camden Valley Way/ Croatia Avenue intersection;
  - left turn: lane 1 (50m storage);
  - through: lane 2 & lane 3 (continuous);
  - right turn: lane 4 & lane 5 (120m storage);
- dual right turn from Camden Valley Way (East) to Croatia Avenue (South);
- dedicated right turn pocket (90m storage) from Croatia Avenue (North) to Dalmatia Avenue (West);
- dedicated right turn pocket (60m storage) from Croatia Avenue (South) to Dalmatia Avenue (East);
- dedicated right turn pocket (95m storage) from Croatia Avenue (North) to Poziers Avenue (West);
- dedicated right turn pocket (60m storage) from Croatia Avenue (South) to Poziers Avenue (East);
- dedicated right turn pocket (50m storage) from Croatia Avenue (North) to Ardennes Avenue (West);
- dedicated right turn pocket (50m storage) from Croatia Avenue (South) to Ardennes Avenue (East);
- extended stand-up lane on the eastern approach to the Croatian Avenue/ Poziers intersection to 60m;
- single lane roundabout at Poziers Avenue/ Vinny Road intersection (north-east of Private School); and
- single lane roundabout at Train Station Access/ Buchan Avenue intersection.

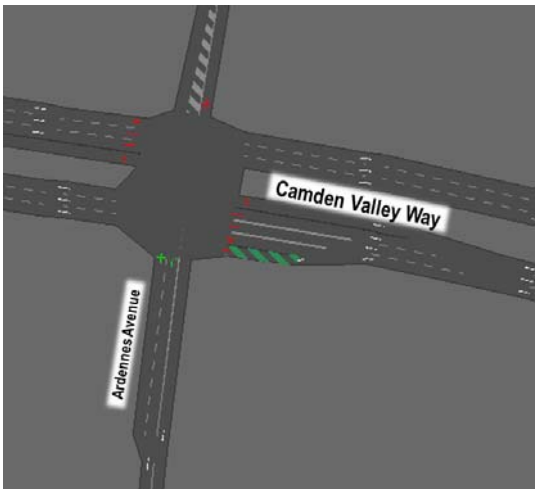
3.4 SCENARIO 2 (2036)

In addition to the turn treatments, the upgrades to the DCP road network under the Scenario 2 includes:

- two lane approach to the southern leg of the Camden Valley Way/ Rynan Avenue intersection;
  - left turn: lane 1 (65m storage);
  - right turn: lane 2 (continuous);
- five lane approach on the southern leg of the Camden Valley Way/ Bernera Road intersection;
  - left turn slip lane: lane 1 (40m storage);
  - through: lane 2 & lane 3 (continuous);
  - right turn: lane 4 & lane 5 (120m storage);
- five lane approach to the northern leg of the Camden Valley Way/ Bernera Road intersection;
  - left turn slip lane: lane 1 (35m storage);
  - through: lane 2 & lane 3 (continuous);
  - right turn: lane 4 & lane 5 (60m storage);
- two lane approach to the southern leg of the Camden Valley Way/ Ardennes Avenue
  - left turn, through & right turn: lane 1 (105m storage);
  - right turn: lane 2 (continuous);
- dual right turn from Camden Valley Way (East) to Croatia Avenue (South);
- dedicated right turn pocket (90m storage) from Croatia Avenue (North) to Dalmatia Avenue (West);

- dedicated right turn pocket (60m storage) from Croatia Avenue (South) to Dalmatia Avenue (East);
- dedicated right turn pocket (95m storage) from Croatia Avenue (North) to Poziers Avenue (West);
- dedicated right turn pocket (60m storage) from Croatia Avenue (South) to Poziers Avenue (East);
- dedicated right turn pocket (50m storage) from Croatia Avenue (North) to Ardennes Avenue (West);
- dedicated right turn pocket (50m storage) from Croatia Avenue (South) to Ardennes Avenue (East);
- extended stand-up lane on the eastern approach to the Croatian Avenue/ Poziers intersection to 60m;
- signalise exit of Public High-School drop-off (intersection with Buchan Avenue)
- upgraded priority-controlled Poziers Avenue/ Vinny Road intersection (north-east of Private School);
  - southern leg: Lane 1: left turn & through (continuous), Lane 2: right turn (45m storage);
  - eastern leg: Lane 1: left turn (60m storage), Lane 2: through and right turn (continuous);
  - northern leg: Lane 1: left turn & through (continuous), Lane 2: right turn (70m storage);
  - western leg: Lane 1: left turn (40m storage), Lane 2: through and right turn (continuous);
  - short lanes on the exit of the eastern (65m) and western (70m) legs; and
- single lane roundabout at Train Station Access/ Buchan Avenue intersection.





4. 2026 AND 2036 INTERSECTION ANALYSIS

4.1 OVERVIEW

To determine the effectiveness of the network upgrades, intersection modelling was undertaken using SIDRA 6.1. The following intersections were assessed under both Scenario 1 and Scenario 2 anticipated traffic volumes:

- Camden Valley Way/ Croatia Avenue (signalised);
- Croatia Avenue/ Dalmatia Avenue (signalised);
- Croatia Avenue/ Poziers Avenue (signalised);
- Croatia Avenue/ Ardennes Avenue (signalised);
- Croatia Avenue/ Bypass Road (priority-controlled);
- Croatia Avenue/ Buchan Avenue (priority-controlled); and
- Croatia Avenue/ Edmondson Train Station Road (priority-controlled).

The intersection layouts for the above seven intersections have been taken from the Scenario 1 and Scenario 2 Paramics models. The traffic volumes used in the SIDRAs were also taken from the Paramics models. Changes to the intersection layout may change the distribution of traffic through the network and, more specifically, through the Camden Valley Way/ Croatia Avenue intersection.

Assessment of the local road network's function was undertaken for the year 2026 and year 2036. For the purpose of this assessment, the local road network was assessed under full development in both assessment years. As such, the only difference between the year 2026 and year 2036 demands was the volume of background through trips originating from Camden Valley Way and associated connector roads.

4.2 CAMDEN VALLEY WAY/ CROATIA AVENUE

The Camden Valley Way/ Croatia Avenue intersection is the primary access point for the Edmondson Park subdivision and connects the area with the South-Western Motorway (M5) and Westlink (M7). The Bernera Road – Croatia Avenue route is likely to be utilised by those living in Prestons and surrounding suburbs, travelling to/ from Edmondson Park Train Station (and associated park and ride facilities). The location of the Camden Valley Way/ Croatia Avenue intersection in relation to the Edmondson Park subdivision is shown in Figure 4.1.

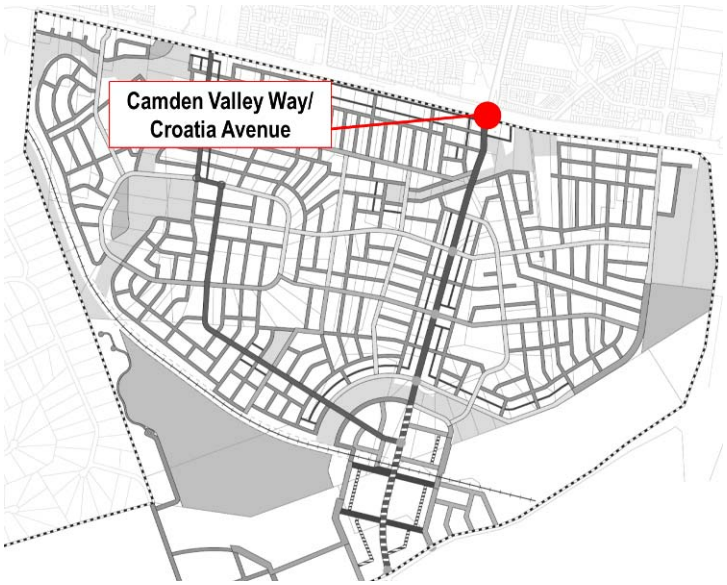


Figure 4.1: Camden Valley Way/ Croatia Avenue Location

The Camden Valley Way/ Croatia Avenue intersection was modelled as per the concept design provided by Liverpool City Council. The intersection has been upgraded from its existing layout to accommodate the additional traffic generated by the Edmondson Park subdivision.

2026 SIDRA Modelling

Figure 4.2 shows the proposed layout of the Camden Valley Way/ Croatia Avenue intersection in the year 2026.

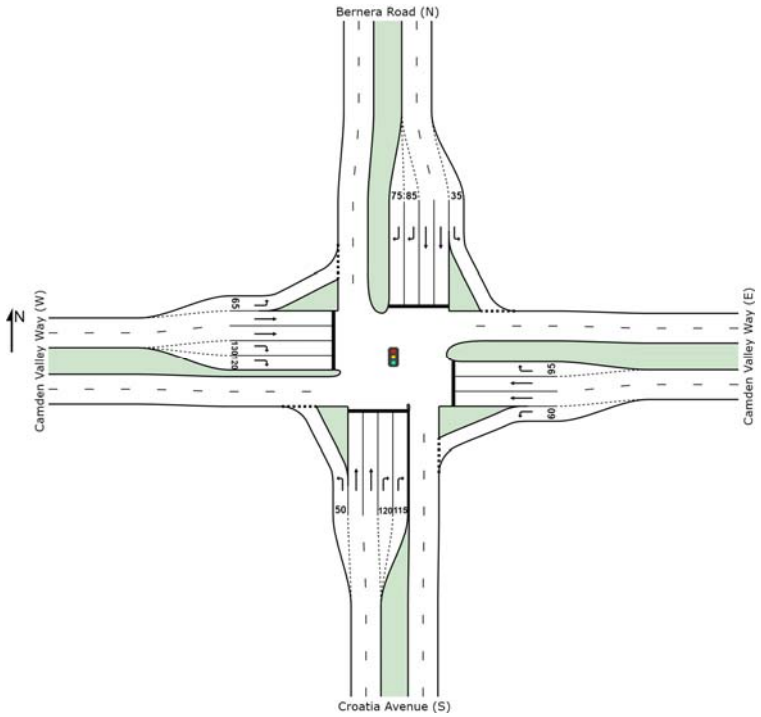


Figure 4.2: 2026 Camden Valley Way/ Croatia Avenue Layout

The results of the Camden Valley Way/ Croatia Avenue SIDRA assessment for the year 2026 are provided in Table 4.1 with full movement and phasing summaries provided in Appendix B.

Table 4.1: 2026 Camden Valley Way/ Croatia Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.895	51.5	LOS D	199.4
	East: Camden Valley Way	0.592	33.1	LOS C	70.8
	North: Bernera Road	0.313	38.6	LOS C	42.1
	West: Camden Valley Way	0.816	41.4	LOS C	135.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.588	44.7	LOS D	37.9
	East: Camden Valley Way	0.573	20.2	LOS B	65.3
	North: Bernera Road	0.806	51.6	LOS D	69.7
	West: Camden Valley Way	0.882	41.5	LOS C	119.7

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.909	54.7	LOS D	239.9
	East: Camden Valley Way	0.394	24.6	LOS B	45.4
	North: Bernera Road	0.463	40.7	LOS C	56.6
	West: Camden Valley Way	0.685	43.6	LOS D	86.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.483	38.5	LOS C	30.7
	East: Camden Valley Way	0.512	20.1	LOS B	69.5
	North: Bernera Road	0.803	48.5	LOS D	61.8
	West: Camden Valley Way	0.876	41.7	LOS C	130.0

Table 4.1 shows that most queuing associated with the Camden Valley Way/ Croatia Avenue intersection will be contained within the turn pockets provided. The Austroads Guide to Traffic Management: Part 12 states that the limits of operation for a signalised intersection is a DOS of under 0.90. Table 4.1 shows that, under Scenario 2, the intersection is anticipated to operate over capacity in the year 2026. However, the proposed upgrades allow the intersection to continue to operate within an acceptable level of service.

2036 SIDRA Modelling

Figure 4.3 shows the proposed layout of the Camden Valley Way/ Croatia Avenue intersection in the year 2036. It should be noted that under year 2036 scenarios, Camden Valley Way has been upgraded to six-lanes.

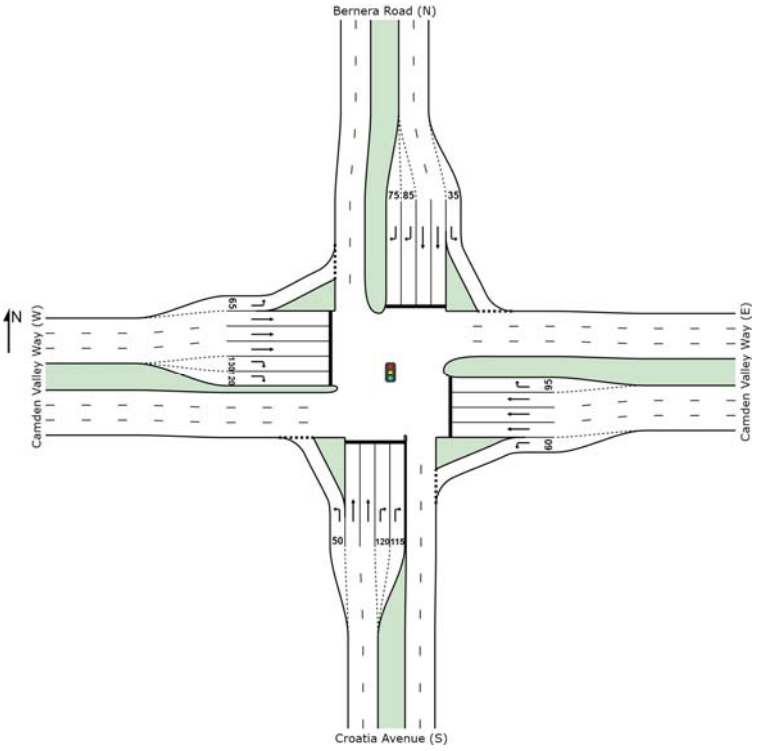


Figure 4.3: 2036 Camden Valley Way/ Croatia Avenue Layout

The results of the Camden Valley Way/ Croatia Avenue SIDRA assessment for the year 2036 are provided in Table 4.2 with full movement and phasing summaries provided in Appendix B.

Table 4.2: 2036 Camden Valley Way/ Croatia Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.911	52.5	LOS D	202.9
	East: Camden Valley Way	0.711	35.6	LOS C	88.7
	North: Bernera Road	0.383	38.6	LOS C	64.2
	West: Camden Valley Way	0.765	38.5	LOS C	125.4
PM (17:00 – 18:00)	South: Croatia Avenue	0.489	40.2	LOS C	39.4
	East: Camden Valley Way	0.635	23.5	LOS B	80.0
	North: Bernera Road	0.913	55.2	LOS D	88.4
	West: Camden Valley Way	0.900	38.9	LOS C	138.3
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.880	48.4	LOS D	230.1
	East: Camden Valley Way	0.490	31.7	LOS C	57.5
	North: Bernera Road	0.428	37.3	LOS C	51.9
	West: Camden Valley Way	0.776	42.8	LOS D	93.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.442	37.0	LOS C	35.3
	East: Camden Valley Way	0.560	23.5	LOS B	72.3
	North: Bernera Road	0.895	54.8	LOS D	84.6
	West: Camden Valley Way	0.889	38.4	LOS C	140.5

The SIDRA modelling shows that intersection performance is not expected to significantly change from the year 2026 scenario to the year 2036 scenario, noting that the DOS still exceed 0.90 but LOS is within acceptable limits.

4.3 CROATIA AVENUE/ DALMATIA AVENUE

The Croatia Avenue/ Dalmatia Avenue intersection is utilised by vehicles travelling to/ from the residential areas at the northern end of Edmondson Park. The location of the Croatia Avenue/ Dalmatia Avenue intersection in relation to the Edmondson Park subdivision is shown in Figure 4.4.

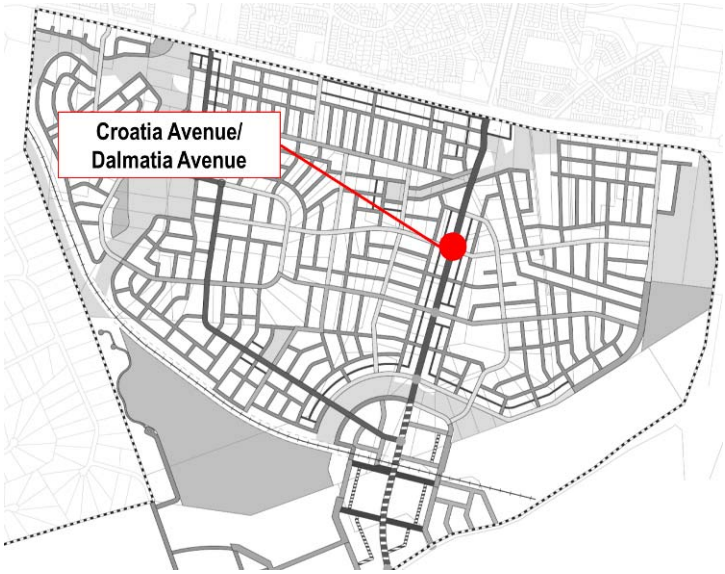


Figure 4.4: Croatia Avenue/ Dalmatia Avenue Location

The Paramics and SIDRA modelling was created for the sole purpose of assessing the performance of vehicles on the local road network. As such, the SIDRA assessment of the Croatia Avenue/ Dalmatia Avenue intersection does not incorporate the provision of cycle lanes or pedestrian crossing facilities. When undertaking detailed design of the intersection, it is recommended Liverpool City Council cater for cyclists and pedestrians through the provision of on-street and/ or off-street infrastructure.

2026 SIDRA Modelling

The design of the Croatia Avenue/ Dalmatia Avenue intersection for the year 2026 is based on the Liverpool City Council DCP. To cater for the relatively high volume of turning vehicles, the intersection is proposed to be upgraded to include dedicated right turn pockets on both the northern and southern approaches to the intersection. Figure 4.5 shows the proposed layout of the Croatia Avenue/ Dalmatia Avenue intersection.

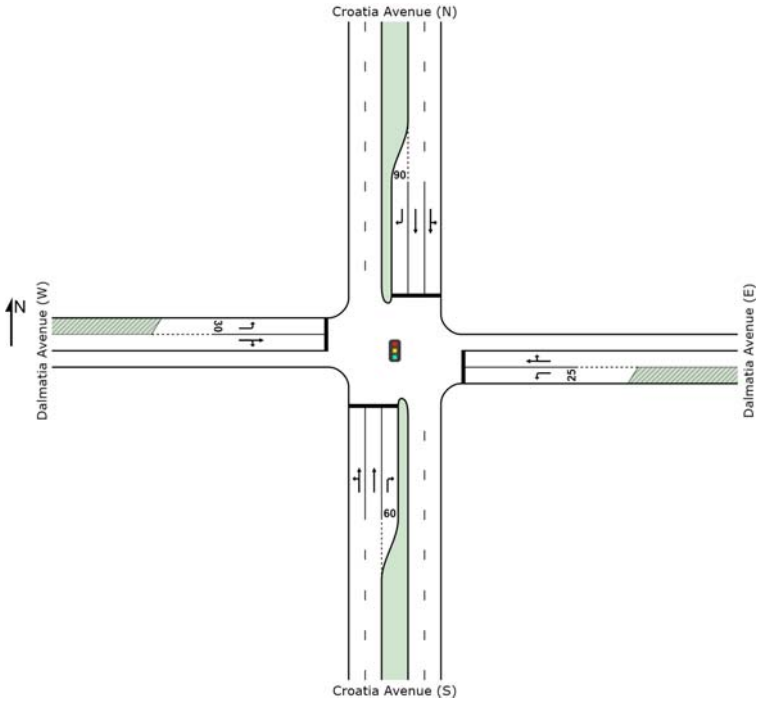


Figure 4.5: 2026 Croatia Avenue/ Dalmatia Avenue Layout

The results of the Croatia Avenue/ Dalmatia Avenue SIDRA assessment for the year 2026 are provided in Table 4.3 with full movement and phasing summaries provided in Appendix B.

Table 4.3: 2026 Croatia Avenue/ Dalmatia Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.534	24.6	LOS B	108.2
	East: Dalmatia Avenue	0.529	39.1	LOS C	47.9
	North: Croatia Avenue	0.530	29.0	LOS C	45.3
	West: Dalmatia Avenue	0.247	25.2	LOS B	43.9
PM (17:00 – 18:00)	South: Croatia Avenue	0.168	13.2	LOS A	29.9
	East: Dalmatia Avenue	0.377	52.3	LOS D	14.8
	North: Croatia Avenue	0.456	17.7	LOS B	99.3
	West: Dalmatia Avenue	0.104	41.8	LOS C	4.0

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.766	34.2	LOS C	156.7
	East: Dalmatia Avenue	0.767	45.0	LOS D	81.7
	North: Croatia Avenue	0.737	34.4	LOS C	83.9
	West: Dalmatia Avenue	0.772	35.7	LOS C	73.2
PM (17:00 – 18:00)	South: Croatia Avenue	0.161	12.9	LOS A	28.2
	East: Dalmatia Avenue	0.304	50.0	LOS D	12.1
	North: Croatia Avenue	0.498	17.4	LOS B	111.6
	West: Dalmatia Avenue	0.087	43.5	LOS D	3.2

Table 4.3 shows that the Croatia Avenue/ Dalmatia Avenue intersection operates within accepted limits of operations in the year 2026 under both Scenario 1 and Scenario 2 in terms of DOS, average delays, queues and LOS.

2036 SIDRA Modelling

The Croatia Avenue/ Dalamatia Avenue intersection was not anticipated to change from 2026 to 2036. Figure 4.6 shows the layout of the year 2036 Croatia Avenue/ Dalmatia Avenue intersection.

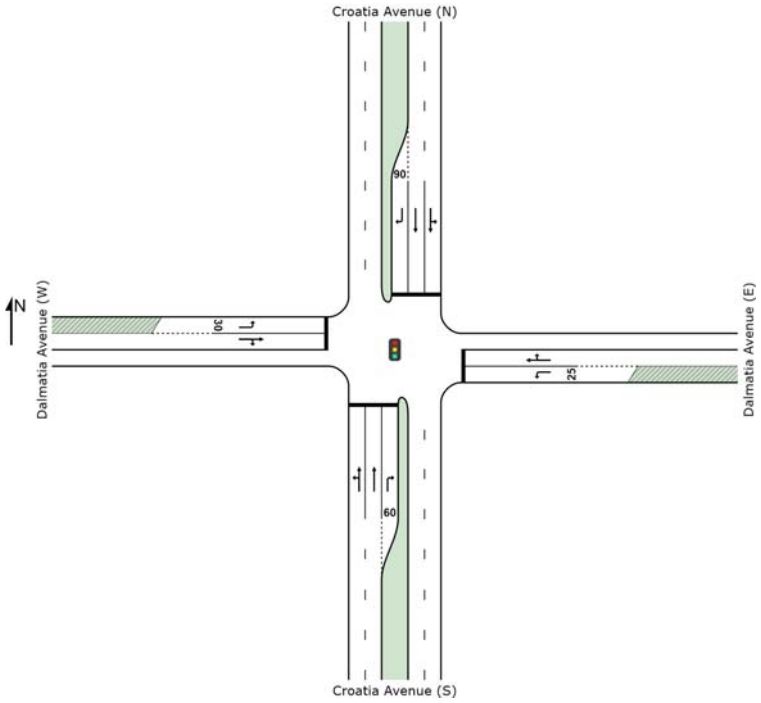


Figure 4.6: 2036 Croatia Avenue/ Dalmatia Avenue Layout

The results of the Croatia Avenue/ Dalmatia Avenue SIDRA assessment for the year are provided in Table 4.4 with full movement and phasing summaries provided in Appendix B.

Table 4.4: 2036 Croatia Avenue/ Dalmatia Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.519	24.5	LOS B	104.4
	East: Dalmatia Avenue	0.501	36.1	LOS C	53.4
	North: Croatia Avenue	0.496	27.8	LOS B	49.3
	West: Dalmatia Avenue	0.202	24.3	LOS B	35.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.199	12.2	LOS A	35.9
	East: Dalmatia Avenue	0.379	52.1	LOS D	15.2
	North: Croatia Avenue	0.484	17.3	LOS B	107.8
	West: Dalmatia Avenue	0.114	44.8	LOS D	4.3
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.739	30.3	LOS C	159.1
	East: Dalmatia Avenue	0.714	49.1	LOS D	62.7
	North: Croatia Avenue	0.737	32.1	LOS C	76.2
	West: Dalmatia Avenue	0.741	35.8	LOS C	56.4
PM (17:00 – 18:00)	South: Croatia Avenue	0.186	12.5	LOS A	33.0
	East: Dalmatia Avenue	0.318	49.4	LOS D	12.5
	North: Croatia Avenue	0.517	17.0	LOS B	116.4
	West: Dalmatia Avenue	0.145	45.6	LOS D	5.4

Table 4.4 shows that the Croatia Avenue/ Dalmatia Avenue intersection will continue to operate within capacity in the year 2036 under both Scenario 1 and Scenario 2 development yields.

4.4 CROATIA AVENUE/ POZIERS AVENUE

The Croatia Avenue/ Poziers Avenue intersection is located between the Private School and the Eastern School. As such, the intersection is forecasted to experience high vehicle and pedestrian volumes during school peaks. The location of the Croatia Avenue/ Poziers Avenue intersection in relation to the Edmondson Park subdivision is shown in Figure 4.7.

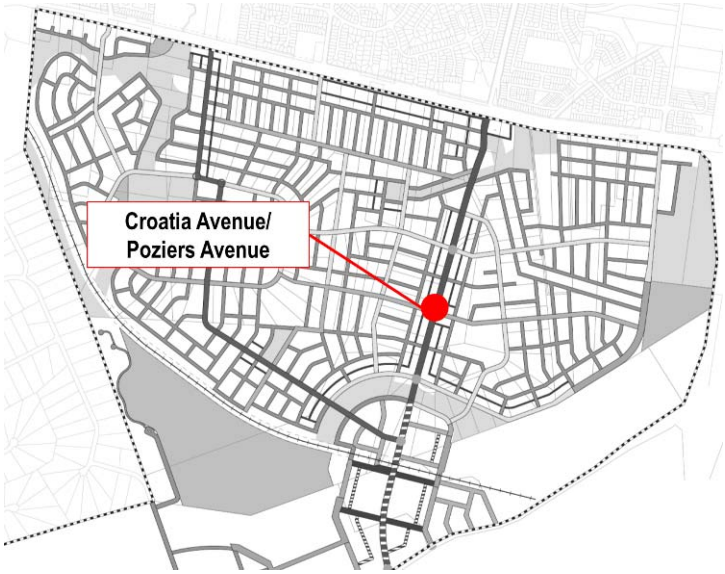


Figure 4.7: Croatia Avenue/ Poziers Avenue Location

As the Paramics and SIDRA models of the Croatia Avenue/ Poziers Avenue intersection solely focusses on traffic and performance, the SIDRA model does not include pedestrian/ cycle facilities. However, active transport infrastructure is recommended to be incorporated into the intersection during detailed design.

2026 SIDRA Modelling

The design of the Croatia Avenue/ Poziers Avenue intersection was based on the Edmondson Park DCP. To address the capacity issues observed in the Paramics modelling, the intersection was upgraded to include dedicated right turn pockets on both approaches. The stand-up lane on the Eastern approach to the intersection was extended to 60m to cater for the additional generated traffic by the Eastern School. Figure 4.8 shows the layout of the Croatia Avenue/ Poziers Avenue intersection.

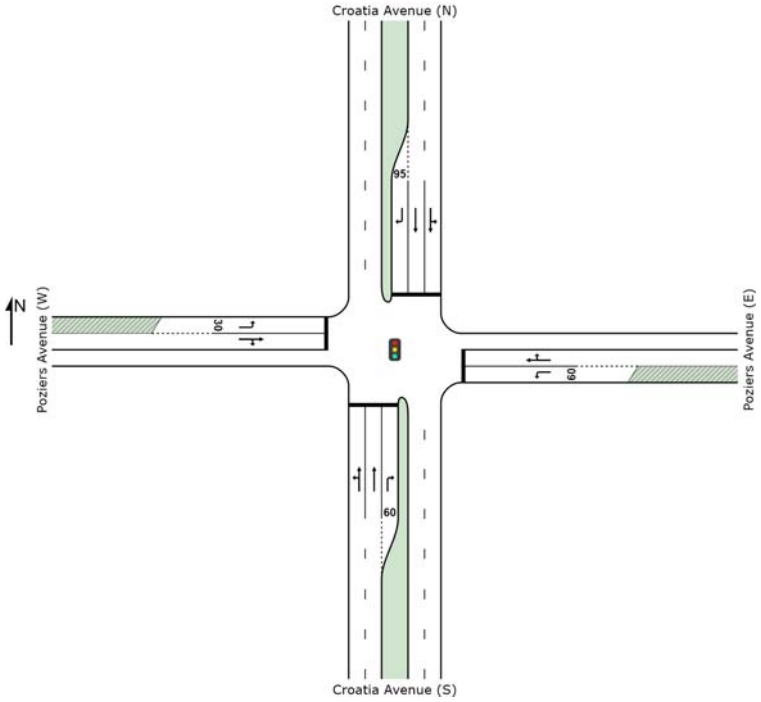


Figure 4.8: 2026 Croatia Avenue/ Poziers Avenue Layout

The results of the Croatia Avenue/ Poziers Avenue SIDRA assessment for the years 2026 are provided in Table 4.5 with full movement and phasing summaries provided in Appendix B.

Table 4.5: 2026 Croatia Avenue/ Poziers Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.573	43.6	LOS D	58.1
	East: Poziers Avenue	0.597	23.2	LOS B	94.0
	North: Croatia Avenue	0.578	39.4	LOS C	52.9
	West: Poziers Avenue	0.179	10.9	LOS A	25.8
PM (17:00 – 18:00)	South: Croatia Avenue	0.269	27.4	LOS B	41.5
	East: Poziers Avenue	0.158	47.3	LOS D	5.8
	North: Croatia Avenue	0.293	10.8	LOS A	52.0
	West: Poziers Avenue	0.061	22.1	LOS B	8.3

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.707	44.9	LOS D	79.2
	East: Poziers Avenue	0.691	31.0	LOS C	85.9
	North: Croatia Avenue	0.701	35.0	LOS C	93.5
	West: Poziers Avenue	0.233	13.4	LOS A	35.8
PM (17:00 – 18:00)	South: Croatia Avenue	0.238	24.4	LOS B	40.8
	East: Poziers Avenue	0.152	49.1	LOS D	5.5
	North: Croatia Avenue	0.333	9.8	LOS A	59.6
	West: Poziers Avenue	0.060	24.4	LOS B	6.1

The Croatia Avenue/ Poziers Avenue intersection is anticipated to continue to operate within accepted performance limits in year 2026 in terms of DOS, average delays, queues and LOS

2036 SIDRA Modelling

When compared to the year 2026 Paramics Model, the Croatia Avenue/ Poziers Avenue intersection was observed to experience a larger number of through trips under Scenario 2. Preliminary SIDRA modelling showed that the year 2026 intersection layout was not able to cater for the additional volume of traffic. It is proposed that under Scenario 2, the eastern leg of the intersection should be reconfigured as shown in Figure 4.9.

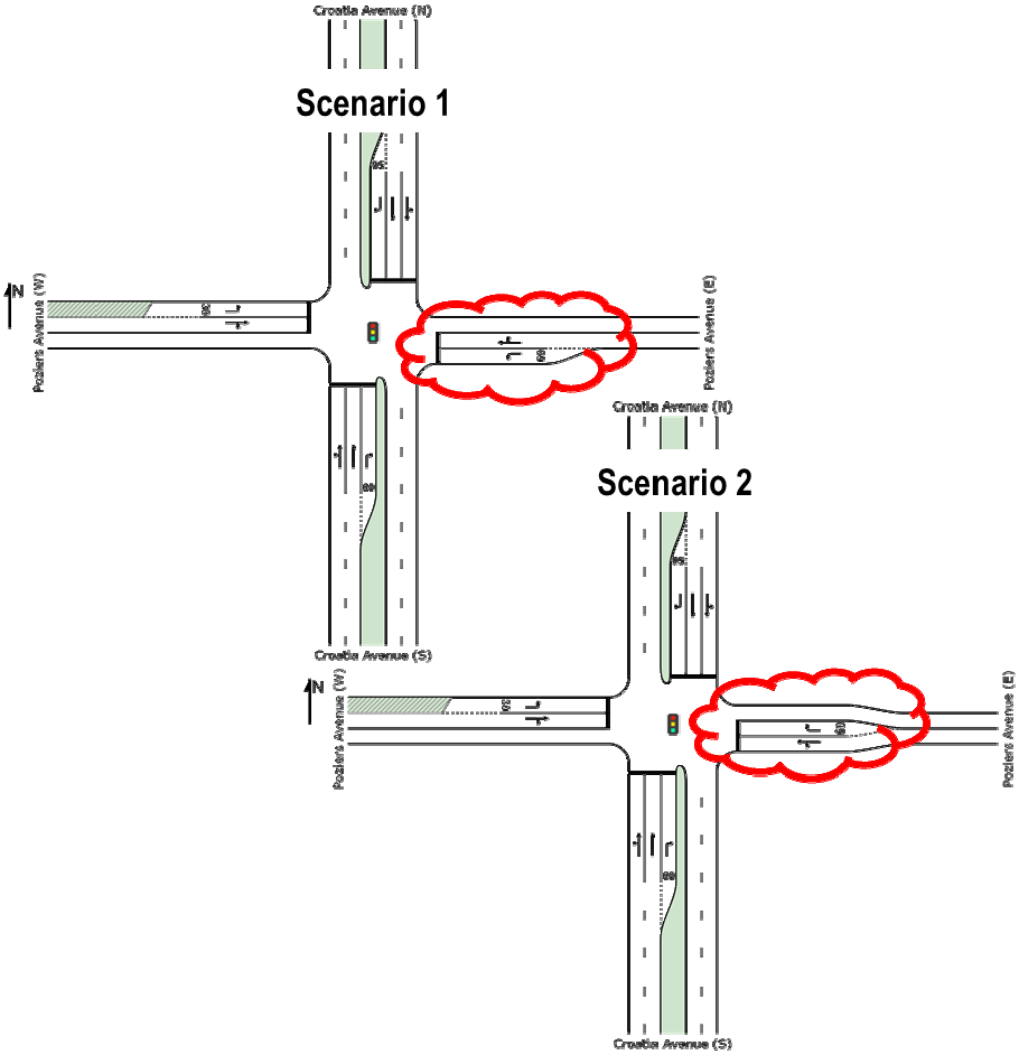


Figure 4.9: 2036 Croatia Avenue/ Poziers Avenue Layout

The results of the Croatia Avenue/ Poziers Avenue SIDRA assessment for the years 2036 are provided in Table 4.6 with full movement and phasing summaries provided in Appendix B.

Table 4.6: 2036 Croatia Avenue/ Poziers Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.634	45.0	LOS D	61.7
	East: Poziers Avenue	0.621	24.4	LOS B	100.5
	North: Croatia Avenue	0.606	39.3	LOS C	59.0
	West: Poziers Avenue	0.152	10.9	LOS A	20.9
PM (17:00 – 18:00)	South: Croatia Avenue	0.255	21.9	LOS B	44.9
	East: Poziers Avenue	0.181	51.0	LOS D	6.2
	North: Croatia Avenue	0.324	10.2	LOS A	57.5
	West: Poziers Avenue	0.058	25.2	LOS B	9.2
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.619	40.0	LOS C	80.2
	East: Poziers Avenue	0.628	28.4	LOS B	70.6
	North: Croatia Avenue	0.640	34.9	LOS C	66.5
	West: Poziers Avenue	0.283	13.7	LOS A	48.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.238	24.4	LOS B	40.7
	East: Poziers Avenue	0.139	49.7	LOS D	5.2
	North: Croatia Avenue	0.333	9.8	LOS A	59.6
	West: Poziers Avenue	0.061	24.4	LOS B	6.1

The above table shows that the Croatia Avenue/ Poziers Avenue intersection will operate within acceptable performance parameters, under both Scenario 1 and Scenario 2, in the year 2036.

4.5 CROATIA AVENUE/ ARDENNES AVENUE

Ardennes Avenue is a major north-south connector within Edmondson Park and provides another access to Camden Valley Way. Ardennes Avenue was observed within the Paramics model to provide an alternative for vehicles travelling north to Camden Valley Way (rather than Croatia Avenue). The intersection of Croatia Avenue/ Ardennes Avenue also provides access to the Public Primary School and the Public High School. As the intersection is anticipated to cater for a high volume of pedestrians (particularly students), the intersection is recommended to be signalised. The location of the Croatia Avenue/ Ardennes Avenue intersection is shown in Figure 4.10.

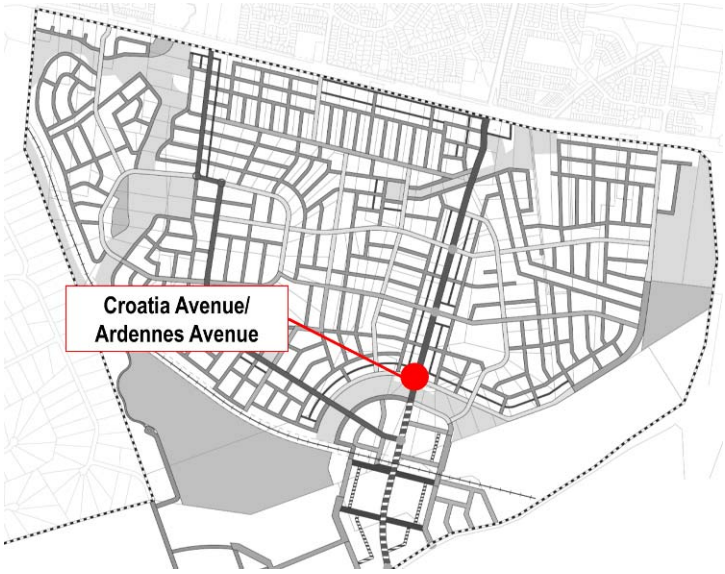


Figure 4.10: Croatia Avenue/ Ardennes Avenue Location

To simulate the effect of traffic platooning adjacent signalised intersections, an extra bunching factor of 15% was applied to the northern leg.

2026 SIDRA modelling

The proposed layout of the Croatia Avenue/ Ardennes Avenue intersection is provided in Figure 4.11.

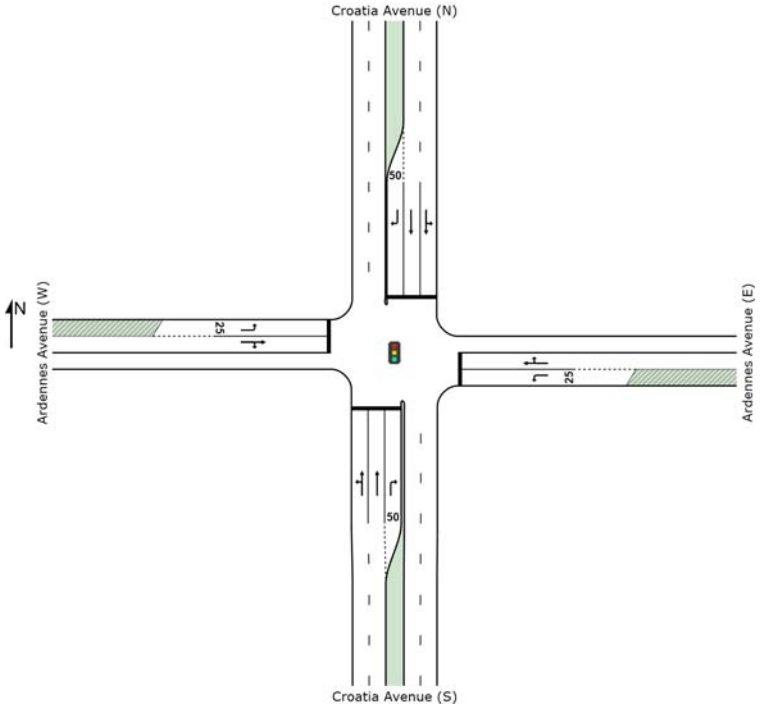


Figure 4.11: 2026 Croatia Avenue/ Ardennes Avenue Layout

The intersection layout shown in Figure 4.11 is conceptual and should be updated under detailed design to include provision for pedestrians and cyclists. The results of the Croatia Avenue/ Ardennes Avenue SIDRA assessment for year 2026 is provided in Table 4.7 with full movement and phasing summaries provided in Appendix B.

Table 4.7: 2026 Croatia Avenue/ Ardennes Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.124	6.6	LOS A	19.4
	East: Ardennes Avenue	0.122	49.5	LOS D	5.6
	North: Croatia Avenue	0.110	6.3	LOS A	17.0
	West: Ardennes Avenue	0.123	43.7	LOS D	10.2
PM (17:00 – 18:00)	South: Croatia Avenue	0.143	5.5	LOS A	21.7
	East: Ardennes Avenue	0.030	48.6	LOS D	1.1
	North: Croatia Avenue	0.262	5.9	LOS A	43.9
	West: Ardennes Avenue	0.029	45.3	LOS D	2.1
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.198	20.6	LOS B	33.7
	East: Ardennes Avenue	0.051	30.3	LOS C	2.2
	North: Croatia Avenue	0.202	17.6	LOS B	34.5
	West: Ardennes Avenue	0.200	24.2	LOS B	34.7
PM (17:00 – 18:00)	South: Croatia Avenue	0.134	5.5	LOS A	20.1
	East: Ardennes Avenue	0.059	52.9	LOS D	2.1
	North: Croatia Avenue	0.312	6.2	LOS A	54.8
	West: Ardennes Avenue	0.041	44.2	LOS D	3.9

The Croatia Avenue/ Ardennes Avenue intersection is predicted to operate within accepted performance limits in the year 2026 in terms of DOS, average delay, queues and LOS.

2036 SIDRA Modelling

The layout of the proposed 2036 Croatia Avenue/ Ardennes Avenue signalised intersection is shown in Figure 4.12. It should be noted that this intersection layout does not include pedestrian/ bicycle infrastructure which should be included in detailed design plans.

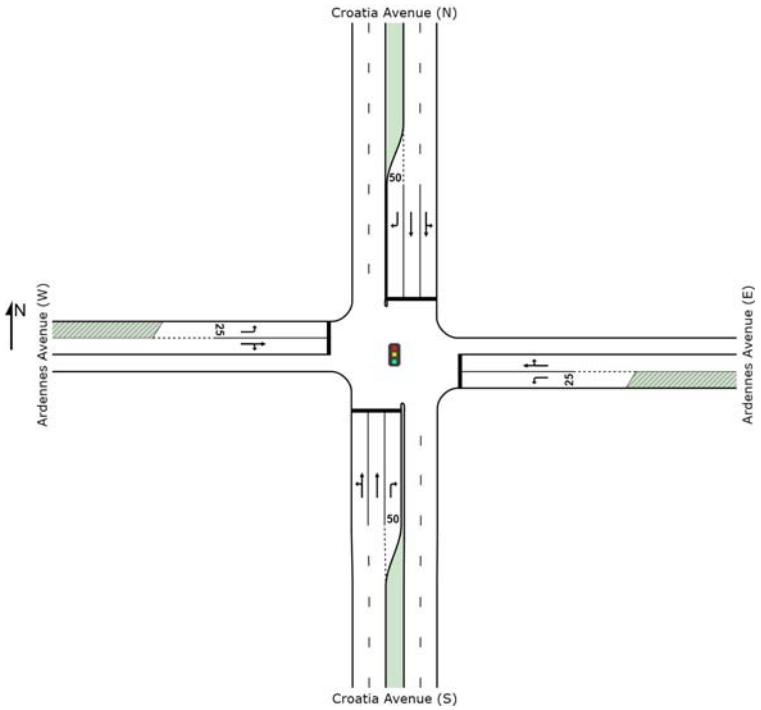


Figure 4.12: 2036 Croatia Avenue/ Ardennes Avenue Layout

The results of the Croatia Avenue/ Ardennes Avenue intersection SIDRA assessment for both Scenario 1 and Scenario 2 2036 development yields are provided in Table 4.8 with full movement and phasing summaries provided in Appendix B.

Table 4.8: 2036 Croatia Avenue/ Ardennes Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.139	7.5	LOS A	22.7
	East: Ardennes Avenue	0.073	44.7	LOS D	4.0
	North: Croatia Avenue	0.131	7.1	LOS A	21.3
	West: Ardennes Avenue	0.131	42.5	LOS C	7.7
PM (17:00 – 18:00)	South: Croatia Avenue	0.150	5.4	LOS A	22.9
	East: Ardennes Avenue	0.077	53.7	LOS D	2.9
	North: Croatia Avenue	0.351	6.4	LOS A	63.9
	West: Ardennes Avenue	0.035	44.5	LOS D	3.3
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.197	15.5	LOS B	35.5
	East: Ardennes Avenue	0.107	43.8	LOS D	4.8
	North: Croatia Avenue	0.190	14.4	LOS A	33.7
	West: Ardennes Avenue	0.196	29.9	LOS C	32.5
PM (17:00 – 18:00)	South: Croatia Avenue	0.150	5.4	LOS A	22.9
	East: Ardennes Avenue	0.077	53.7	LOS D	2.9
	North: Croatia Avenue	0.351	6.4	LOS A	63.9
	West: Ardennes Avenue	0.035	44.5	LOS D	3.3

Table 4.8 shows that the signalised intersection is anticipated to operate within acceptable limits of operation in the year 2036 under both Scenario 1 and Scenario 2 traffic in terms of DOS, average delays, queues and LOS.

4.6 CROATIA AVENUE/ BYPASS ROAD

Under the DCP, the Croatia Avenue/ Bypass Road intersection did not appear to warrant detailed investigation. However, with the introduction of traffic generated within the southern release area of Edmondson Park, several trips were made from the southern precinct to the eastern end of Camden Valley Way. Vehicles making this trip often opted to use the Bypass Road-Ardennes Avenue rather than Croatia Avenue. As such, there is a significant volume of right turn and side-street traffic at the intersection. The location of the Croatia Avenue/ Bypass Road intersection is shown in Figure 4.13.

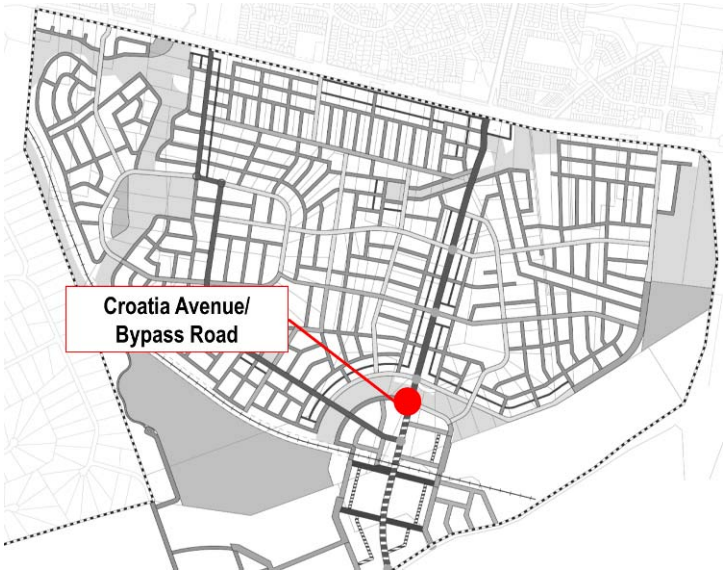


Figure 4.13: Croatia Avenue/ Bypass Road Location

A turn warrants assessment undertaken using the forecasted traffic volumes showed that both development scenarios require the installation of channelised right turn treatments on both legs of the major road. It is understood that the Croatia Avenue/ Bypass Road intersection is near an existing bridge, as such, it is recommended that Liverpool City Council consider constructing a left-in/ left-out intersection at this location. The provision of left-in/ left-out intersection is anticipated to increase traffic volumes at the Croatia Avenue/ Ardennes Avenue intersection.

Table 4.8 shows that the intersection can cater for an increase in traffic volumes. The conversion of this intersection to a left-in/ left-out will also assist in providing greater separation between four-way intersections.

2026 SIDRA Modelling

The intersection layout for the Croatia Avenue/ Ardennes Avenue intersection is provided in Figure 4.14.

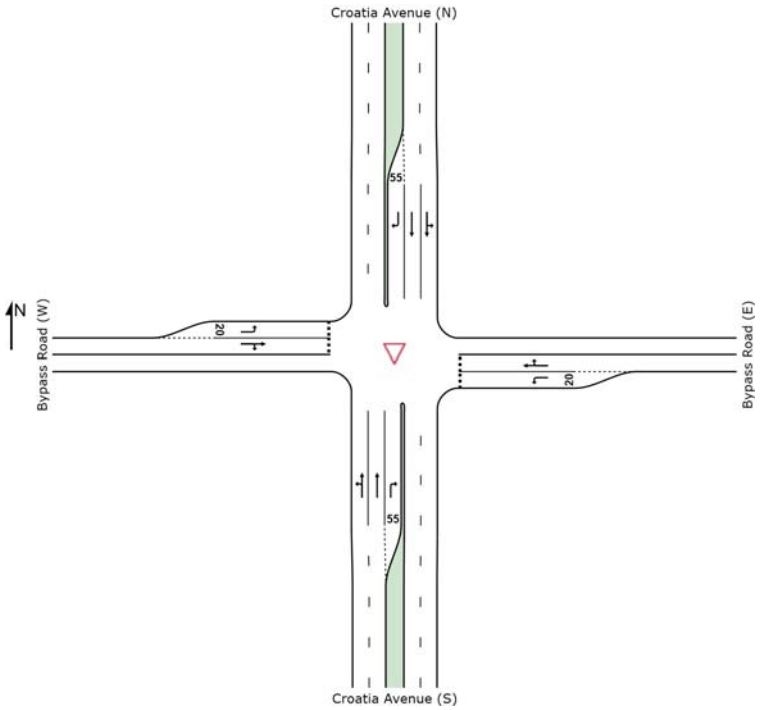


Figure 4.14: 2026 Croatia Avenue/ Bypass Road Layout

The results of the Croatia Avenue/ Bypass Road SIDRA assessment for both year 2026 and year 2036 scenarios are shown in Table 4.9 with full movement summaries provided in Appendix B.

Table 4.9: 2026 Croatia Avenue/ Bypass Road SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.047	2.3	NA	1.3
	East: Bypass Road	0.360	11.5	LOS A	11.8
	North: Croatia Avenue	0.147	3.8	NA	4.5
	West: Bypass Road	0.291	8.0	LOS A	8.7
PM (17:00 – 18:00)	South: Croatia Avenue	0.045	0.3	NA	0.1
	East: Bypass Road	0.077	32.3	LOS C	1.6
	North: Croatia Avenue	0.375	4.2	NA	14.1
	West: Bypass Road	0.178	6.8	LOS A	5.1
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.042	1.8	NA	1.2
	East: Bypass Road	0.447	15.4	LOS B	15.7
	North: Croatia Avenue	0.174	4.1	NA	5.4
	West: Bypass Road	0.672	14.2	LOS A	34.3
PM (17:00 – 18:00)	South: Croatia Avenue	0.052	0.3	NA	0.2
	East: Bypass Road	0.078	22.3	LOS B	1.6
	North: Croatia Avenue	0.397	3.7	NA	15.0
	West: Bypass Road	0.175	9.1	LOS A	3.8

The Croatia Avenue/ Bypass Road intersection is anticipated to perform within accepted performance limits in the year 2026 in terms of DOS, average delay, queues and LOS for priority-controlled intersections.

2036 SIDRA Modelling

The layout of the proposed Croatia Avenue/ Bypass Road intersection for the year 2036 is provided in Figure 4.15

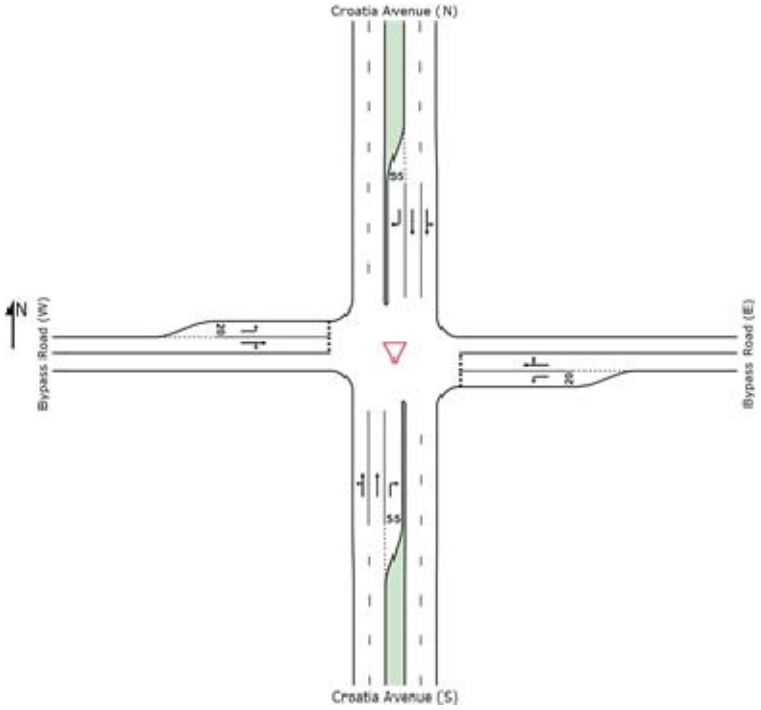


Figure 4.15: 2036 Croatia Avenue/ Bypass Road Layout

The results of the 2036 SIDRA assessments are provided in Table 4.10 with full movement summaries provided in Appendix B.

Table 4.10: 2036 Croatia Avenue/ Bypass Road SIDR A Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.054	2.1	NA	1.5
	East: Bypass Road	0.374	13.7	LOS A	11.9
	North: Croatia Avenue	0.175	3.9	NA	5.5
	West: Bypass Road	0.229	7.9	LOS A	6.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.055	0.2	NA	0.2
	East: Bypass Road	0.127	39.5	LOS C	2.5
	North: Croatia Avenue	0.450	4.6	NA	20.3
	West: Bypass Road	0.186	7.1	LOS A	5.3

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.071	2.2	NA	2.0
	East: Bypass Road	0.516	17.4	LOS B	18.3
	North: Croatia Avenue	0.166	3.6	NA	5.1
	West: Bypass Road	0.477	10.7	LOS A	16.7
PM (17:00 – 18:00)	South: Croatia Avenue	0.055	0.4	NA	0.3
	East: Bypass Road	0.078	54.1	LOS D	1.5
	North: Croatia Avenue	0.449	3.9	NA	20.3
	West: Bypass Road	0.169	7.7	LOS A	4.7

Table 4.10 shows that the Croatia Avenue/ Bypass Road intersection will operate within acceptable performance parameters, under both Scenario 1 and Scenario 2, in the year 2036 in terms of DOS, average delays, queues and LOS.

4.7 CROATIA AVENUE/ BUCHAN AVENUE

The Croatia Avenue/ Buchan Avenue intersection is a three-leg intersection which connects the two-major north-south distributors of Edmondson Park. However, as most of the subdivision's trips are generated by sites north of the Croatia Avenue/ Buchan Avenue intersection, traffic volumes in this part of the road network are relatively low. The location of the Croatia Avenue/ Buchan Avenue intersection is shown in Figure 4.16.

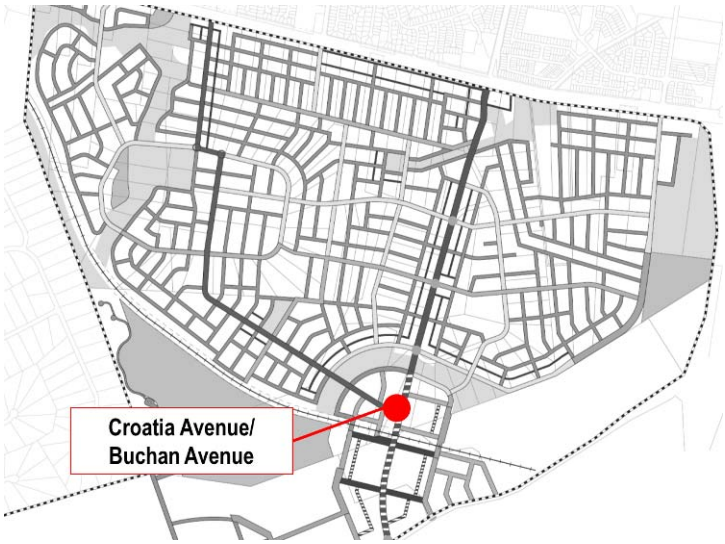


Figure 4.16: Croatia Avenue/ Buchan Avenue Location

A turn warrants assessment undertaken using the forecast traffic volumes showed that both development scenarios require the installation of channelised right turn treatments on both legs of the major road in both 2026 and 2036.

2026 SIDRA Modelling

The proposed intersection layout for the year 2026 Croatia Avenue/ Buchan Avenue intersection is provided in Figure 4.17.

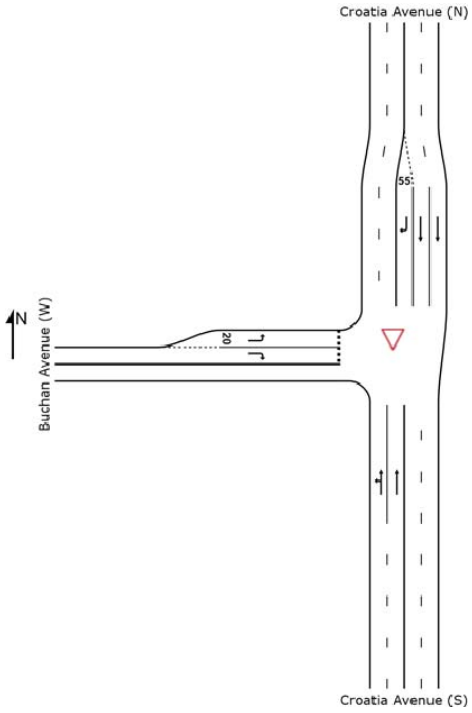


Figure 4.17: 2026 Croatia Avenue/ Buchan Avenue Layout

The results of the Croatia Avenue/ Buchan Avenue SIDRA assessment for the year 2026 scenarios is shown in Table 4.11 with full movement summaries provided in Appendix B.

Table 4.11: 2026 Croatia Avenue/ Buchan Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.049	1.4	NA	0.0
	North: Croatia Avenue	0.037	0.8	NA	0.5
	West: Buchan Avenue	0.081	7.7	LOS A	2.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.043	0.6	NA	0.0
	North: Croatia Avenue	0.053	1.3	NA	1.2
	West: Buchan Avenue	0.025	6.9	LOS A	0.6
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.037	0.5	NA	0.0
	North: Croatia Avenue	0.027	1.5	NA	0.7
	West: Buchan Avenue	0.049	6.5	LOS A	1.2
PM (17:00 – 18:00)	South: Croatia Avenue	0.047	0.3	NA	0.0
	North: Croatia Avenue	0.095	1.8	NA	2.7
	West: Buchan Avenue	0.031	7.0	LOS A	0.8

The Croatia Avenue/ Buchan Avenue intersection is anticipated to perform within generally accepted operational limits in the year 2026 in terms of DOS, average delays, queues and LOS.

2036 SIDRA Modelling

The proposed intersection layout for the year 2036 Croatia Avenue/ Buchan Avenue intersection is provided in Figure 4.18.

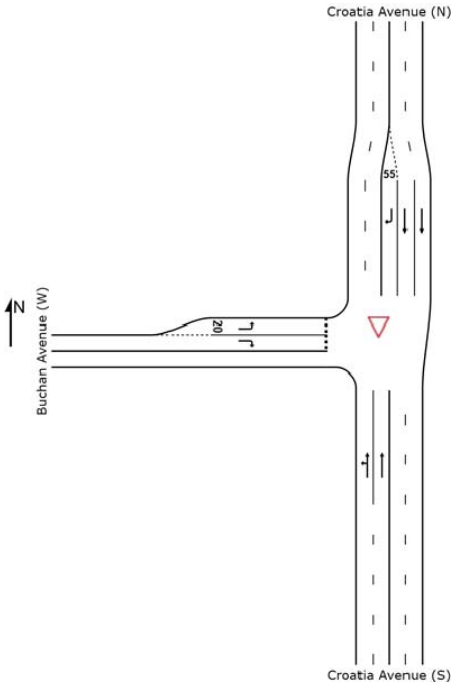


Figure 4.18: 2036 Croatia Avenue/ Buchan Avenue Layout

The results of the Croatia Avenue/ Buchan Avenue SIDRA assessment for the year 2036 scenarios are shown in Table 4.12 with full movement summaries provided in Appendix B.

Table 4.12: 2036 Croatia Avenue/ Buchan Avenue SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.057	1.0	NA	0.0
	North: Croatia Avenue	0.038	1.0	NA	0.6
	West: Buchan Avenue	0.117	8.3	LOS A	3.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.050	0.5	NA	0.0
	North: Croatia Avenue	0.059	1.4	NA	1.6
	West: Buchan Avenue	0.034	6.6	LOS A	0.8
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.057	0.9	NA	0.0
	North: Croatia Avenue	0.043	1.4	NA	1.1
	West: Buchan Avenue	0.146	7.9	LOS A	3.8
PM (17:00 – 18:00)	South: Croatia Avenue	0.050	0.3	NA	0.0
	North: Croatia Avenue	0.107	1.9	NA	3.1
	West: Buchan Avenue	0.032	6.9	LOS A	0.8

The above table shows that the Croatia Avenue/ Buchan Avenue intersection will operate within acceptable performance parameters, under both Scenario 1 and Scenario 2, in the year 2036 in terms of DOS, average delay, queues and LOS.

4.8 CROATIA AVENUE/ EDMONDSON TRAIN STATION ROAD

The Croatia Avenue/ Edmondson Train Station Road is the southernmost intersection in the Paramics model. The location of the Croatia Avenue/ Edmondson Train Station Road intersection is shown in Figure 4.19.

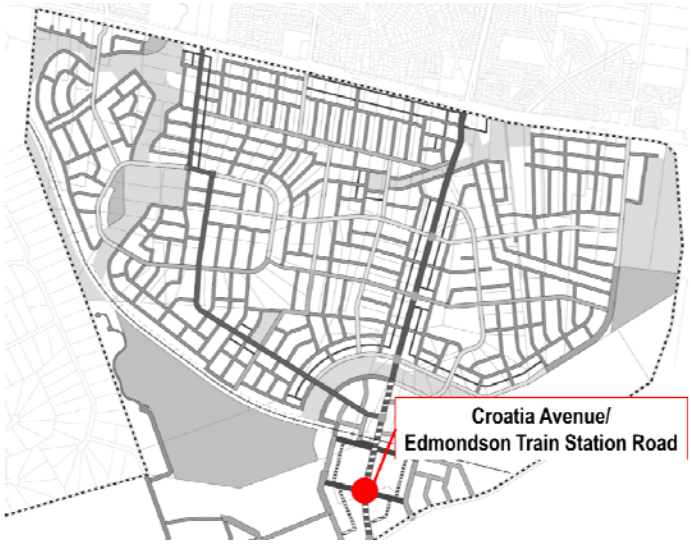


Figure 4.19: Croatia Avenue/ Edmondson Train Station Road Location

The layout of the Croatia Avenue/ Edmondson Train Station Road intersection was based on the existing configuration. The turn warrants assessment shows that the northern leg of the intersection should be provided with a channelised right turn. A dedicated right turn lane has already been constructed in conjunction with the Edmondson Park Train Station. As such, no improvements have been made to the intersection from the existing configuration.

It is noted that the intersection is currently signalised in anticipation of the construction of an eastern leg. This eastern leg is outside of the scope of the Paramics model and therefore, is not incorporated into this assessment. Despite currently being signalised, the intersection has been modelled in both 2026 and 2036 as a three-way give-way intersection to show whether signals are required.

2026 SIDRA Modelling

Figure 4.20 shows the configuration of the Croatia Avenue/ Edmondson Train Station Road intersection.

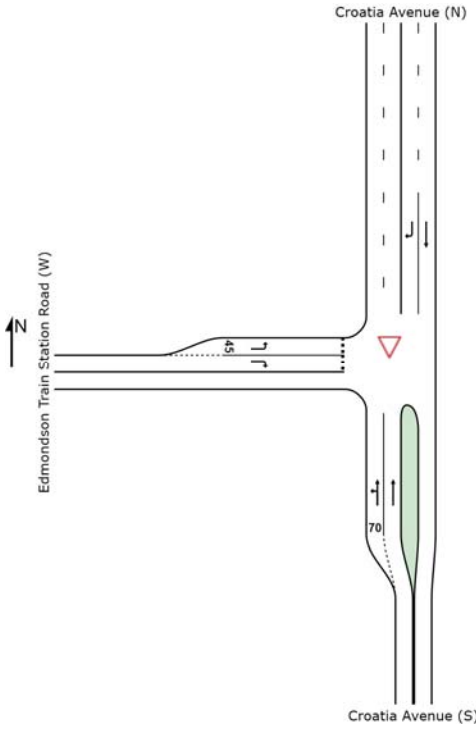


Figure 4.20: 2026 Croatia Avenue/ Edmondson Train Station Road Layout

The results of the Croatia Avenue/ Bypass Road SIDRA assessment for the year 2026 scenarios is shown in Table 4.13 with full movement summaries provided in Appendix B.

Table 4.13: 2026 Croatia Avenue/ Edmondson Train Station Road SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.046	0.5	NA	0.0
	North: Croatia Avenue	0.089	0.9	NA	0.6
	West: ETS Road	0.24	6.4	LOS A	0.6
PM (17:00 – 18:00)	South: Croatia Avenue	0.040	0.6	NA	0.0
	North: Croatia Avenue	0.056	2.1	NA	1.3
	West: ETS Road	0.027	6.1	LOS A	0.7
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.044	0.5	NA	0.0
	North: Croatia Avenue	0.058	1.6	NA	0.9
	West: ETS Road	0.108	7.3	LOS A	3.0
PM (17:00 – 18:00)	South: Croatia Avenue	0.040	0.4	NA	0.0
	North: Croatia Avenue	0.105	3.3	NA	3.1
	West: ETS Road	0.038	6.0	LOS A	0.9

The Croatia Avenue/ Edmondson Train Station Road intersection is anticipated to perform within generally accepted operational limits in the year 2026 in terms of DOS, average delays, queues and LOS.

2036 SIDRA Modelling

The layout of the proposed Croatia Avenue/ Edmondson Train Station Road intersection, under 2036 development scenarios, is shown in Figure 4.21 below.

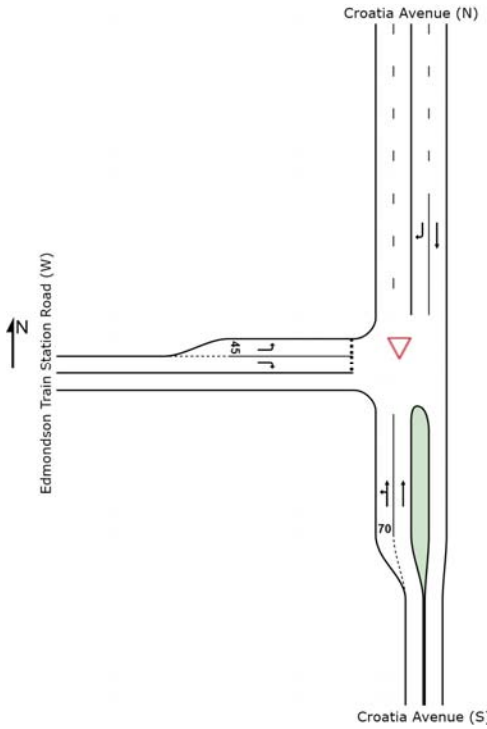


Figure 4.21: 2036 Croatia Avenue/ Edmondson Train Station Road Layout

The results of the Croatia Avenue/ Edmondson Train Station Road SIDRA assessment for the year 2036 scenarios are shown in Table 4.14 with full movement summaries provided in Appendix B.

Table 4.14: 2036 Croatia Avenue/ Edmondson Train Station Road SIDRA Results

Peak Hour	Leg	DOS	Average Delay (s)	LOS	95% Back of Queue (m)
Scenario 1					
AM (07:45 – 08:45)	South: Croatia Avenue	0.052	0.2	NA	0.0
	North: Croatia Avenue	0.093	1.2	NA	1.0
	West: ETS Road	0.021	6.6	LOS A	0.5
PM (17:00 – 18:00)	South: Croatia Avenue	0.050	0.5	NA	0.0
	North: Croatia Avenue	0.118	1.5	NA	1.6
	West: ETS Road	0.034	6.5	LOS A	0.8
Scenario 2					
AM (07:45 – 08:45)	South: Croatia Avenue	0.057	0.9	NA	0.0
	North: Croatia Avenue	0.086	1.4	NA	1.1
	West: ETS Road	0.123	7.5	NA	3.3
PM (17:00 – 18:00)	South: Croatia Avenue	0.045	0.9	NA	0.0
	North: Croatia Avenue	0.117	3.3	NA	3.4
	West: ETS Road	0.044	6.3	LOS A	1.1

Table 4.14 shows that the Croatia Avenue/ Edmondson Train Station Road intersection will operate within acceptable performance parameters, under both Scenario 1 and Scenario 2, in the year 2036. Despite the installation of signals in 2015, the intersection is anticipated to operate within acceptable parameters as a priority-controlled intersection under full development in the year 2036. It is acknowledged that signals may have been provided at this location to cater for traffic originating from the (currently closed) eastern leg or to provide a safer crossing point for pedestrians.

5. SUMMARY AND CONCLUSION

Bitzios Consulting has been commissioned by Liverpool City Council to determine the upgrades to the local road network required to cater for the Edmondson Park Subdivision. This modelling was undertaken using Paramics and SIDRA 6.1 and incorporated comments from Council and RMS. The modelling investigated the performance of the road network (as proposed in Council's Development Control Plan) under two development scenarios. Both development scenarios assumed full development of residential lots, a private school and a school east of Croatia Avenue. The Scenario 2 Development Scenario also included:

- an expanded park and ride facility (600 spaces);
- the Public Primary School; and
- the Public High School.

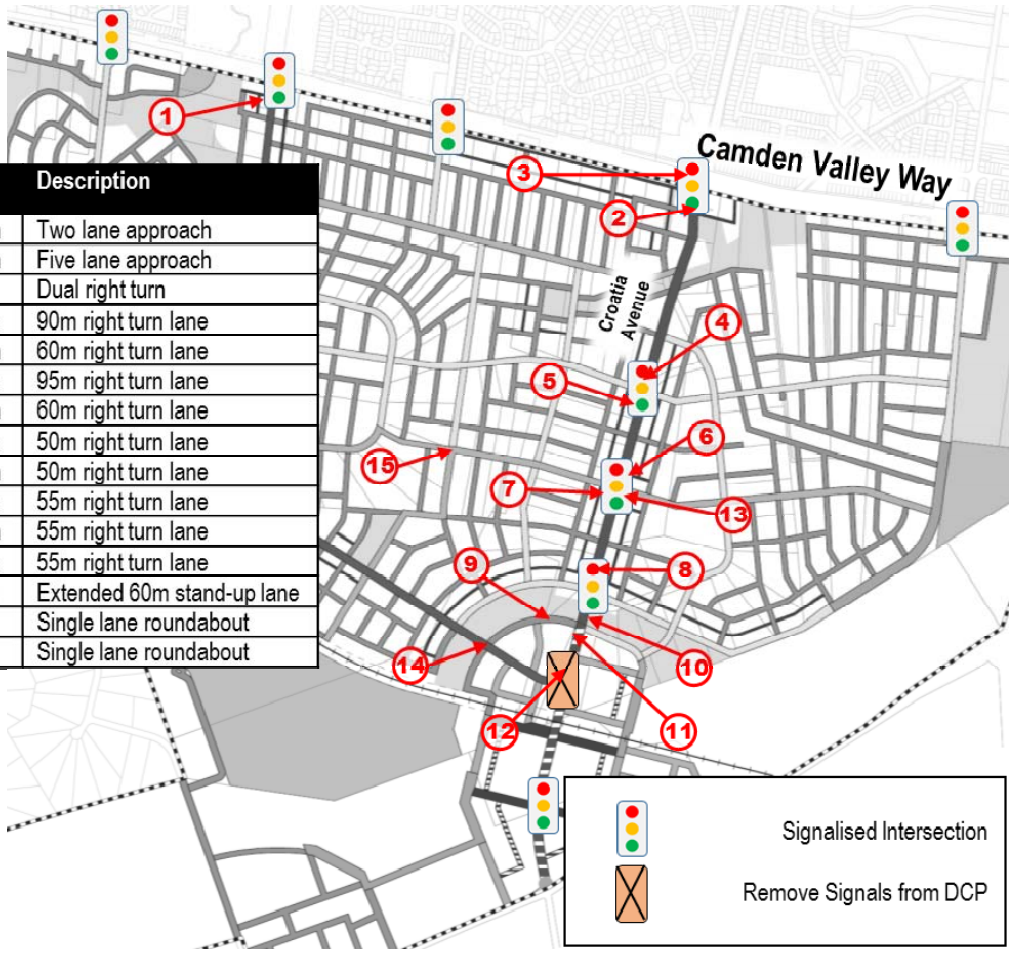
The Liverpool City Council Development Control Plan indicates that the following six intersections with Croatia Avenue should be signalised:

- Camden Valley Way/ Croatia Avenue (currently signalised);
- Croatia Avenue/ Dalmatia Avenue;
- Croatia Avenue/ Poziers Avenue;
- Croatia Avenue/ Ardennes Avenue;
- Croatia Avenue/ Buchan Avenue; and
- Croatia Avenue/ Edmondson Train Station Road (currently signalised).

A signal warrants assessment undertaken using RMS standards determined that the only intersection that requires signalisation is Camden Valley Way/ Croatia Avenue. However, it is recommended that the Croatia Avenue/ Dalmatia Avenue, Croatia Avenue/ Poziers Avenue and Croatia Avenue/ Ardennes Avenue intersections are also signalised to improve the safety of pedestrians (particularly students). Of the six intersections on the Croatia Avenue corridor, the two currently signalised intersections and the two intersections which are recommended to be signalised are spaced at least 300m from each other.

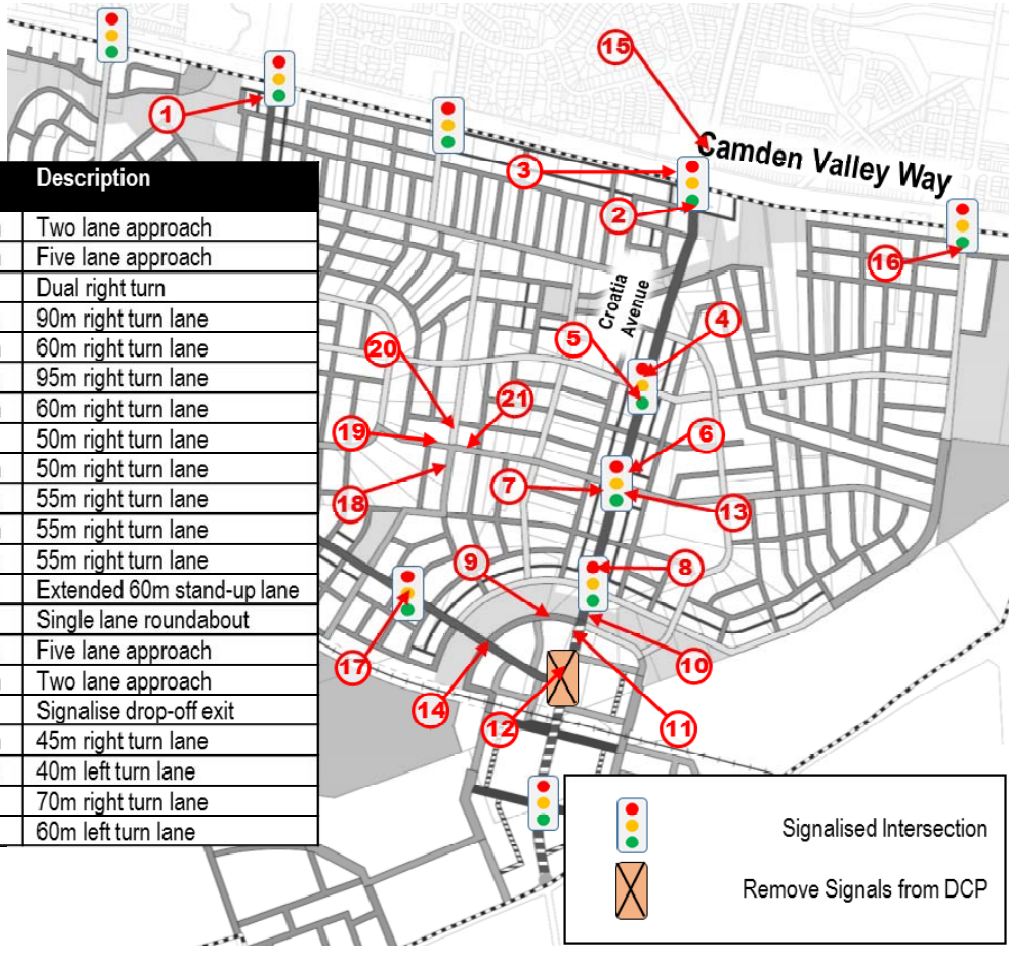
A turn warrants assessment undertaken using Austroad's Guide to Road Design found that both the Croatia Avenue/ Bypass Road and Croatia Avenue/ Buchan Avenue intersection require channelised right turn lanes. In addition, Paramics and SIDRA modelling of the Edmondson Park road network found that several signalised intersections require additional turn lanes to function within capacity in the year 2036. A summary of the improvements recommended to be made from the DCP are shown in Figure 5.1 and Figure 5.2.

An interim assessment of the local road network's function was undertaken for the year 2026. This assessment showed that there was no material difference in intersection performance between the year 2026 and year 2036 development scenarios. Analysis of the proposed intersections along the Croatia Avenue road corridor showed that most priority-controlled and signalised intersections are anticipated to operate within acceptable performance limits in both year 2026 and year 2036 scenarios. Despite exceeding acceptable operational limits (DOS > 0.90) during the AM peak hour, the Camden Valley Way/ Croatia Avenue intersection operates with an acceptable level of service under year 2026 (four-lane Camden Valley Way) and year 2036 (six-lane Camden Valley Way) scenarios.



#	Leg	Description
1	South	Two lane approach
2	South	Five lane approach
3	East	Dual right turn
4	North	90m right turn lane
5	South	60m right turn lane
6	North	95m right turn lane
7	South	60m right turn lane
8	North	50m right turn lane
9	South	50m right turn lane
10	North	55m right turn lane
11	South	55m right turn lane
12	North	55m right turn lane
13	East	Extended 60m stand-up lane
14	NA	Single lane roundabout
15	NA	Single lane roundabout

Figure 5.1: Scenario 1 – Recommended Upgrades Summary



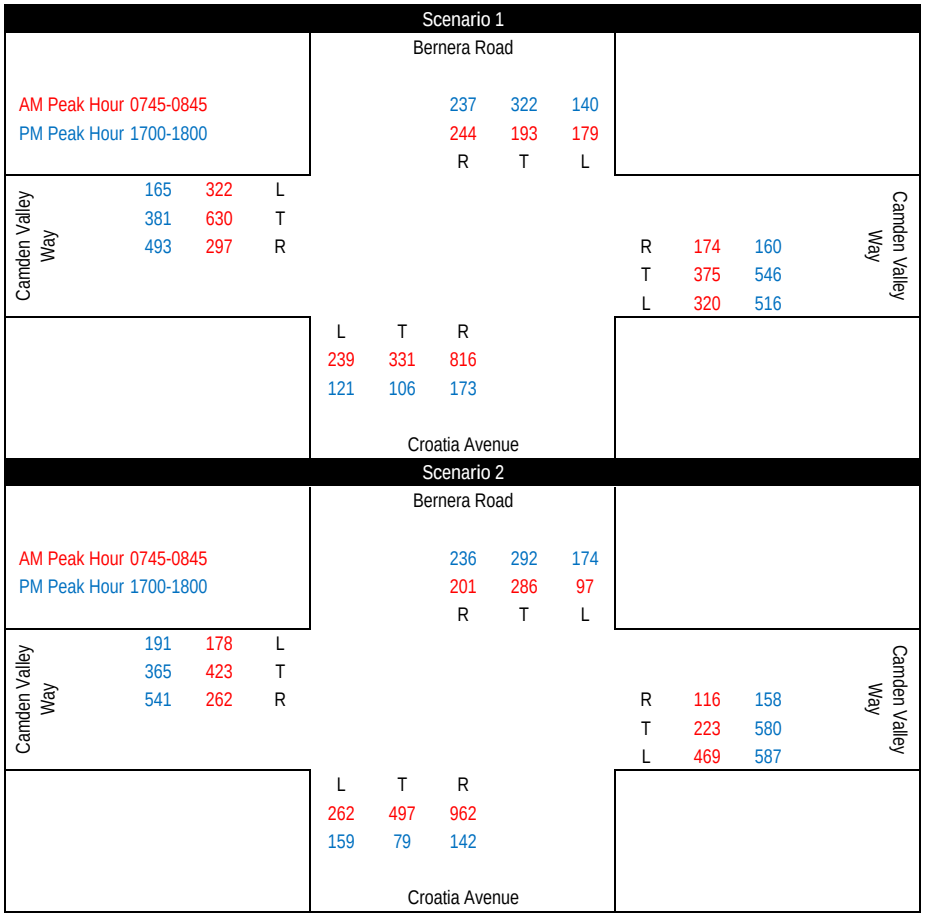
#	Leg	Description
1	South	Two lane approach
2	South	Five lane approach
3	East	Dual right turn
4	North	90m right turn lane
5	South	60m right turn lane
6	North	95m right turn lane
7	South	60m right turn lane
8	North	50m right turn lane
9	South	50m right turn lane
10	North	55m right turn lane
11	South	55m right turn lane
12	North	55m right turn lane
13	East	Extended 60m stand-up lane
14	NA	Single lane roundabout
15	North	Five lane approach
16	South	Two lane approach
17	NA	Signalise drop-off exit
18	South	45m right turn lane
19	West	40m left turn lane
20	North	70m right turn lane
21	East	60m left turn lane

Figure 5.2: Scenario 2 – Required Upgrades Summary

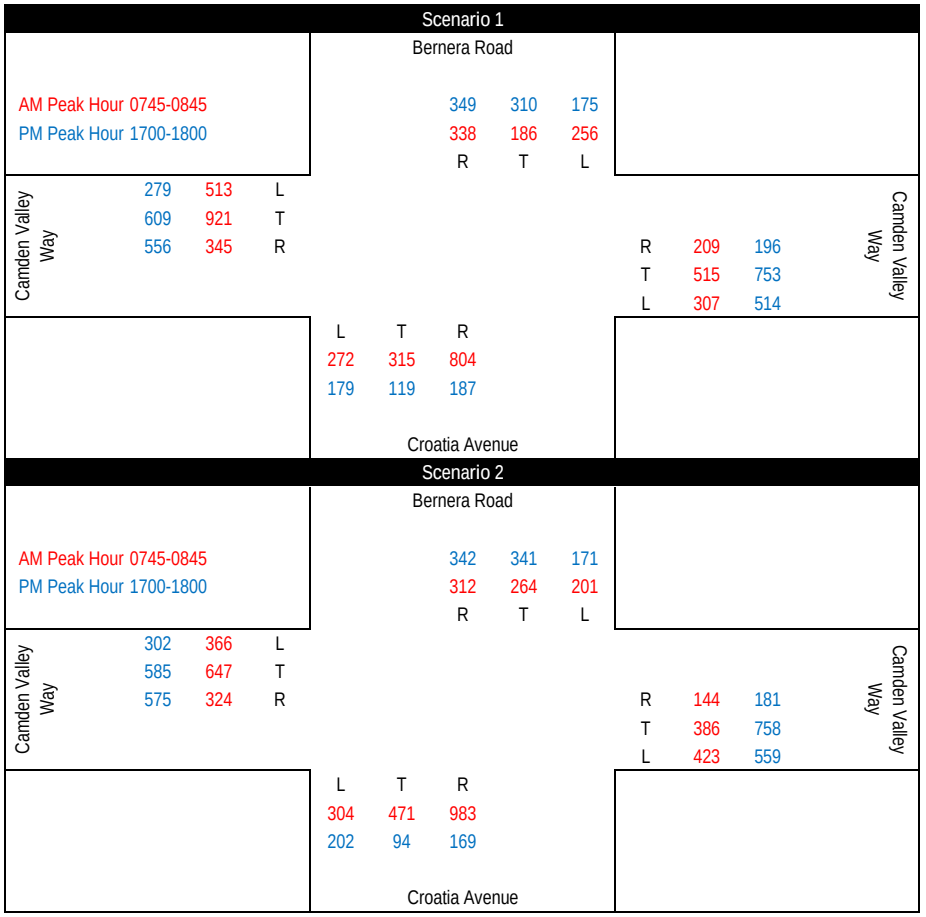
APPENDIX A

TRAFFIC VOLUMES

2026

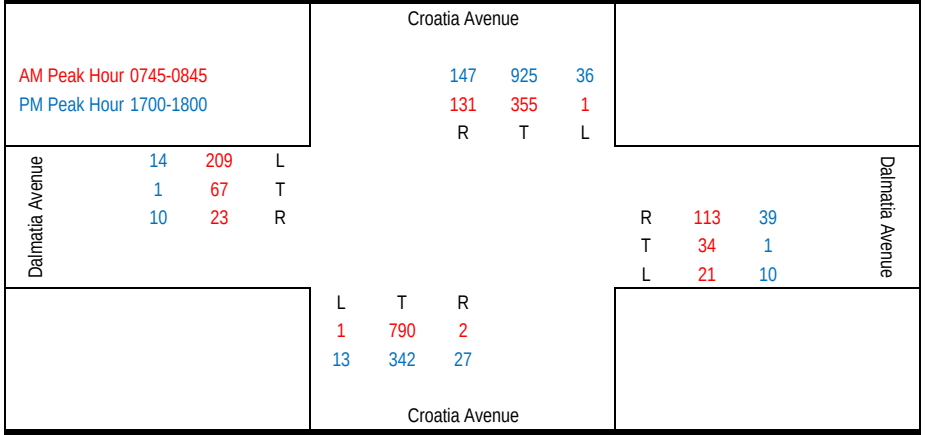

Scenario 1
Bernera Road
AM Peak Hour 0745-0845
PM Peak Hour 1700-1800
237 322 140
244 193 179
R T L
Camden Valley Way
165 322 L
381 630 T
493 297 R
R 174 160
T 375 546
L 320 516
Camden Valley Way
L T R
239 331 816
121 106 173
Croatia Avenue
Scenario 2
Bernera Road
AM Peak Hour 0745-0845
PM Peak Hour 1700-1800
236 292 174
201 286 97
R T L
Camden Valley Way
191 178 L
365 423 T
541 262 R
R 116 158
T 223 580
L 469 587
Camden Valley Way
L T R
262 497 962
159 79 142
Croatia Avenue

2036

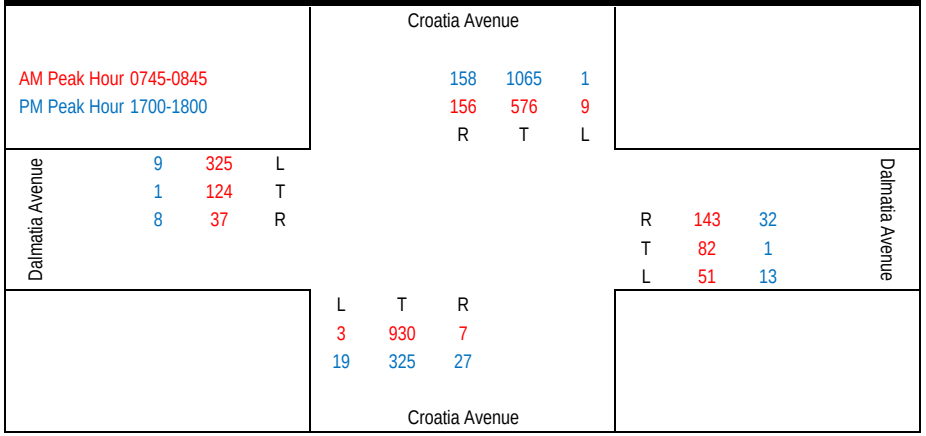

Scenario 1
Bernera Road
AM Peak Hour 0745-0845
PM Peak Hour 1700-1800
349 310 175
338 186 256
R T L
Camden Valley Way
279 513 L
609 921 T
556 345 R
R 209 196
T 515 753
L 307 514
Camden Valley Way
L T R
272 315 804
179 119 187
Croatia Avenue
Scenario 2
Bernera Road
AM Peak Hour 0745-0845
PM Peak Hour 1700-1800
342 341 171
312 264 201
R T L
Camden Valley Way
302 366 L
585 647 T
575 324 R
R 144 181
T 386 758
L 423 559
Camden Valley Way
L T R
304 471 983
202 94 169
Croatia Avenue

2026

Scenario 1

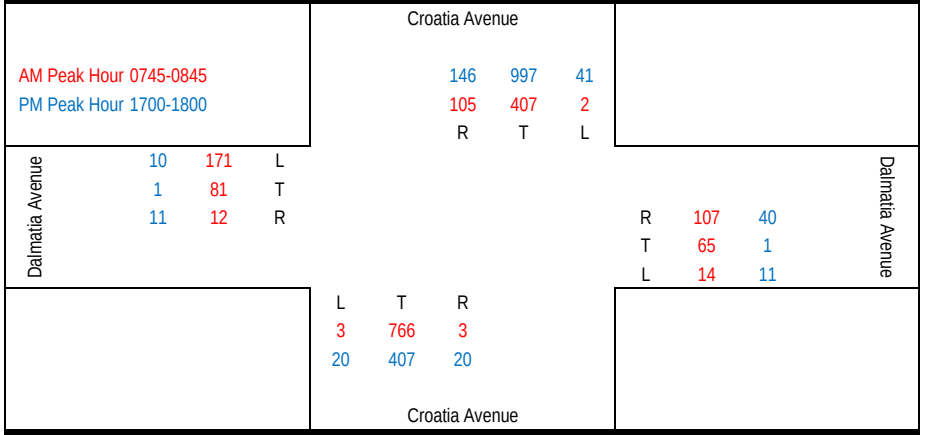


Scenario 2

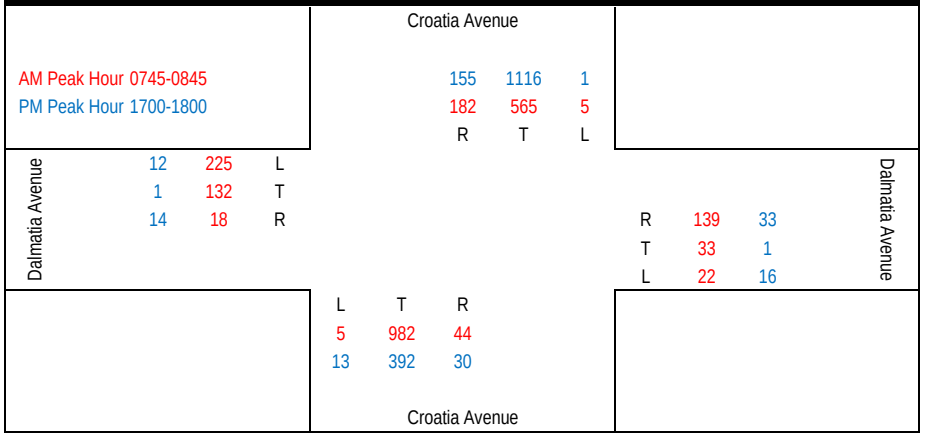


2036

Scenario 1

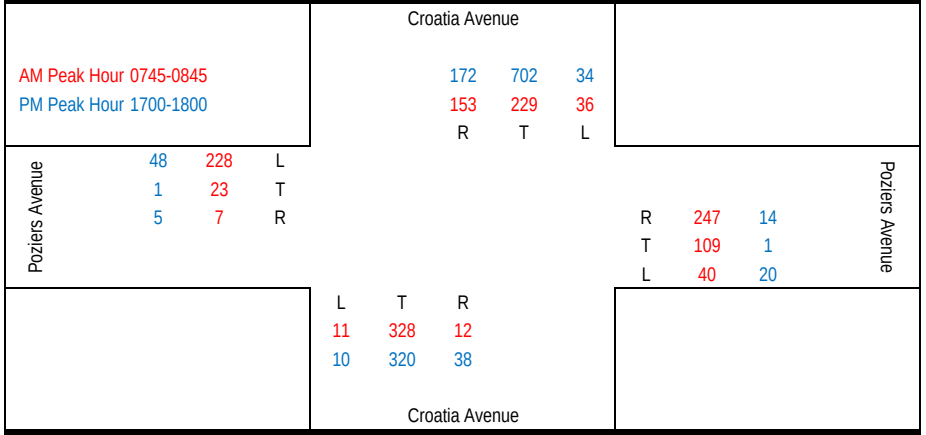


Scenario 2



2026

Scenario 1



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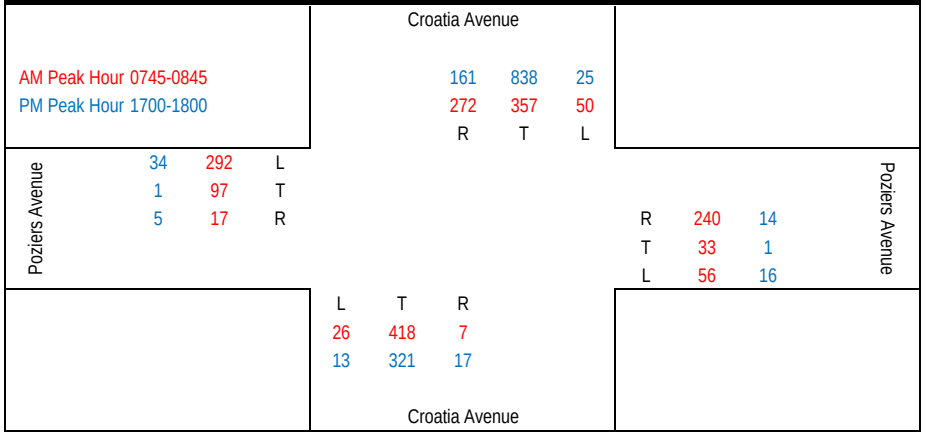
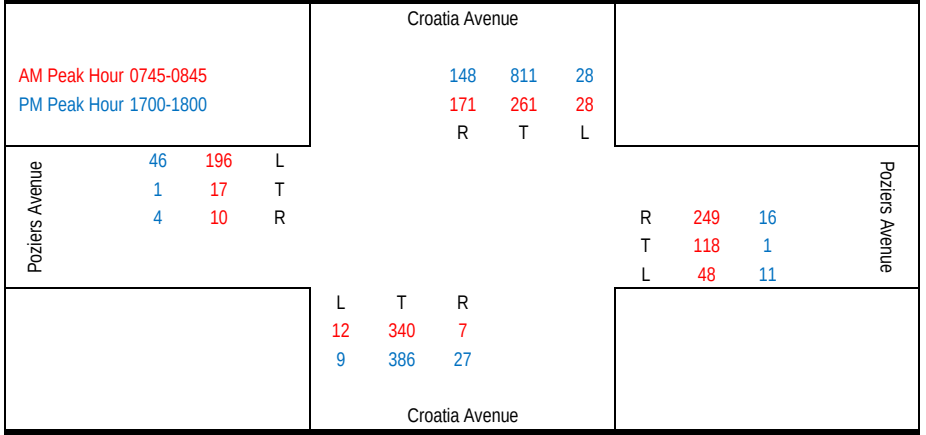
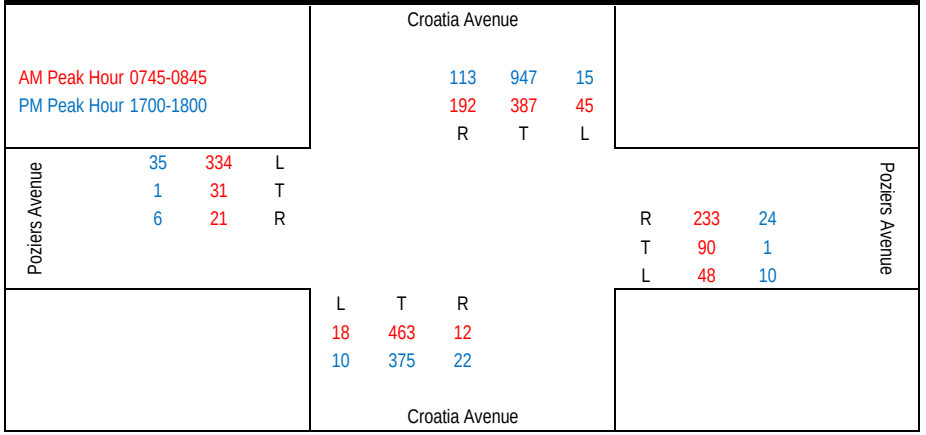


2036

Scenario 1



Scenario 2



2026

Scenario 1

Croatia Avenue

AM Peak Hour 0745-0845
PM Peak Hour 1700-1800

	33	678	1
	11	270	2
	R	T	L

Ardennes Avenue

7	35	L
1	5	T
2	13	R

Ardennes Avenue

R	14	2
T	2	1
L	4	2

L	T	R
12	294	17
12	358	4

Croatia Avenue

Scenario 2

Croatia Avenue

AM Peak Hour 0745-0845
PM Peak Hour 1700-1800

	31	809	1
	148	288	4
	R	T	L

Ardennes Avenue

13	173	L
1	1	T
2	19	R

Ardennes Avenue

R	5	5
T	1	1
L	12	1

L	T	R
25	260	35
13	333	5

Croatia Avenue

2036

Scenario 1

Croatia Avenue

AM Peak Hour 0745-0845
PM Peak Hour 1700-1800

	30	780	1
	12	315	1
	R	T	L

Ardennes Avenue

10	25	L
1	12	T
1	11	R

Ardennes Avenue

R	11	7
T	1	1
L	8	1

L	T	R
17	317	17
7	402	3

Croatia Avenue

Scenario 2

Croatia Avenue

AM Peak Hour 0745-0845
PM Peak Hour 1700-1800

	24	910	1
	156	322	5
	R	T	L

Ardennes Avenue

11	142	L
1	11	T
2	19	R

Ardennes Avenue

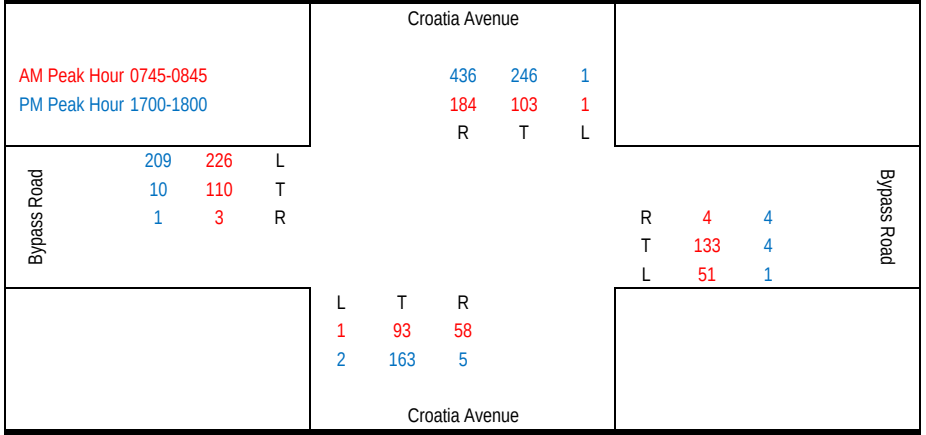
R	13	7
T	1	1
L	6	1

L	T	R
16	326	74
3	386	4

Croatia Avenue

2026

Scenario 1



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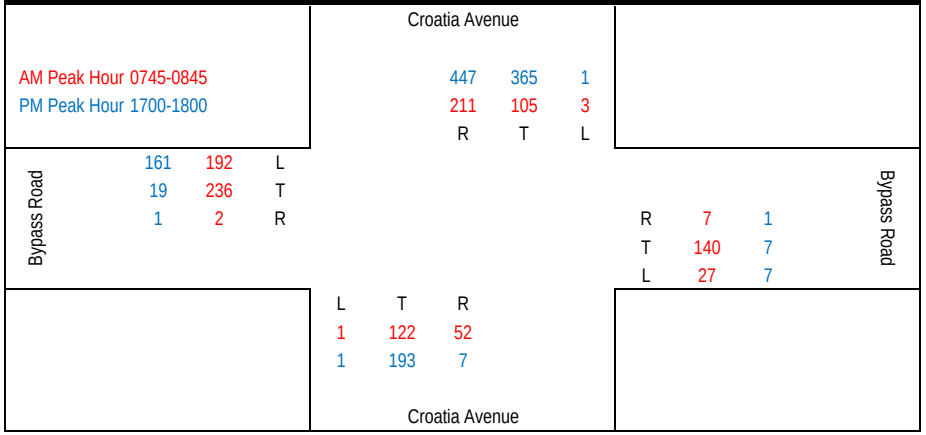
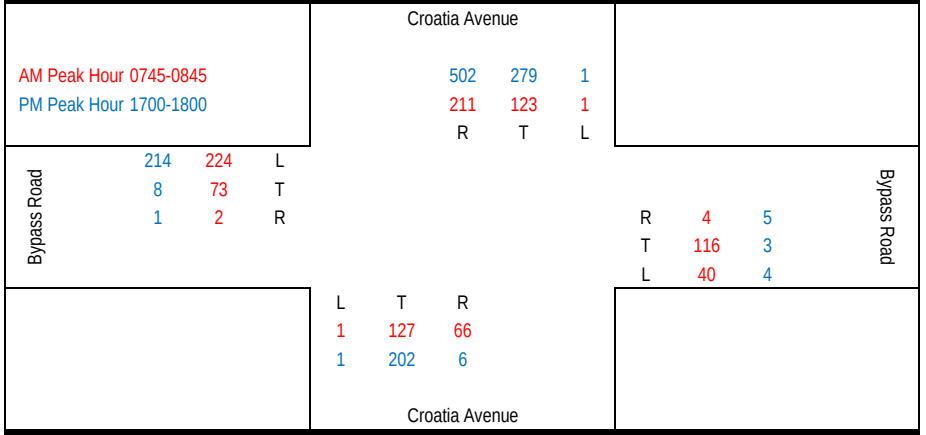


2036

Scenario 1



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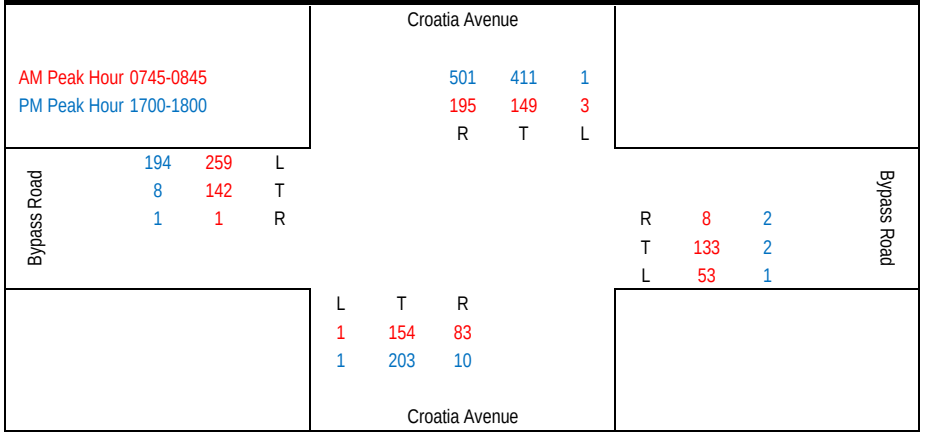

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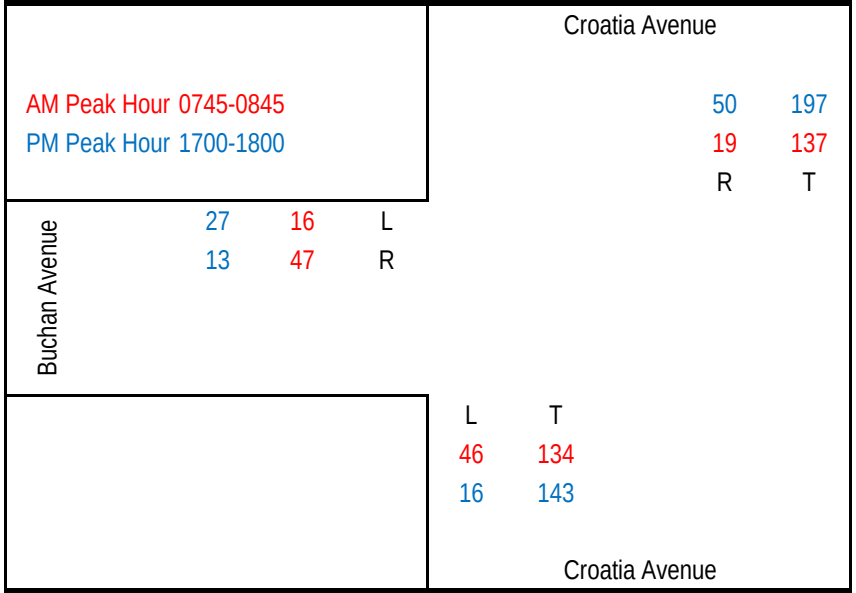
Scenario 1



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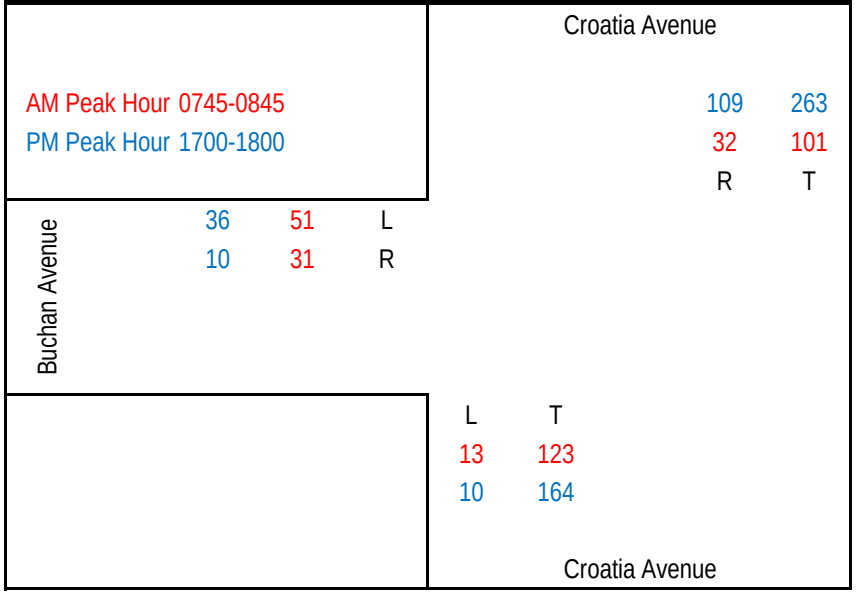
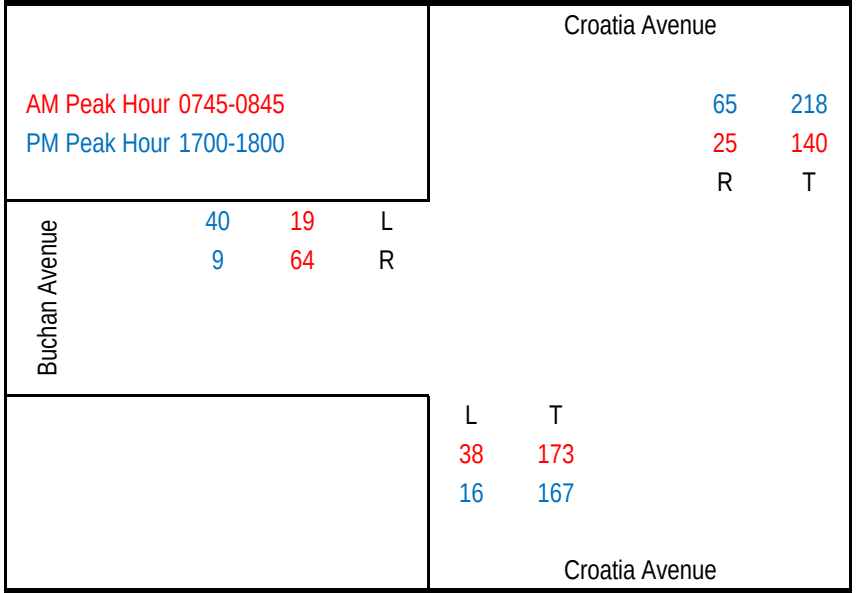


2036

Scenario 1



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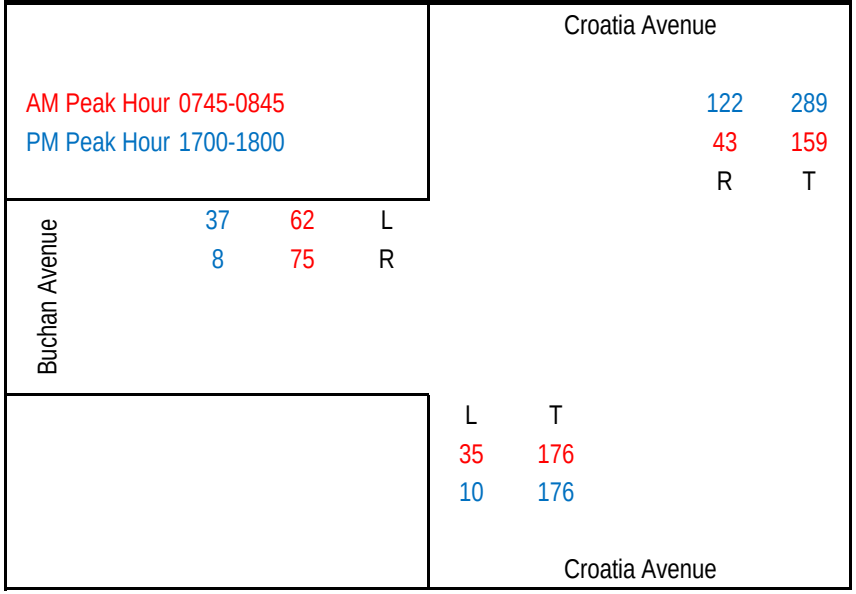
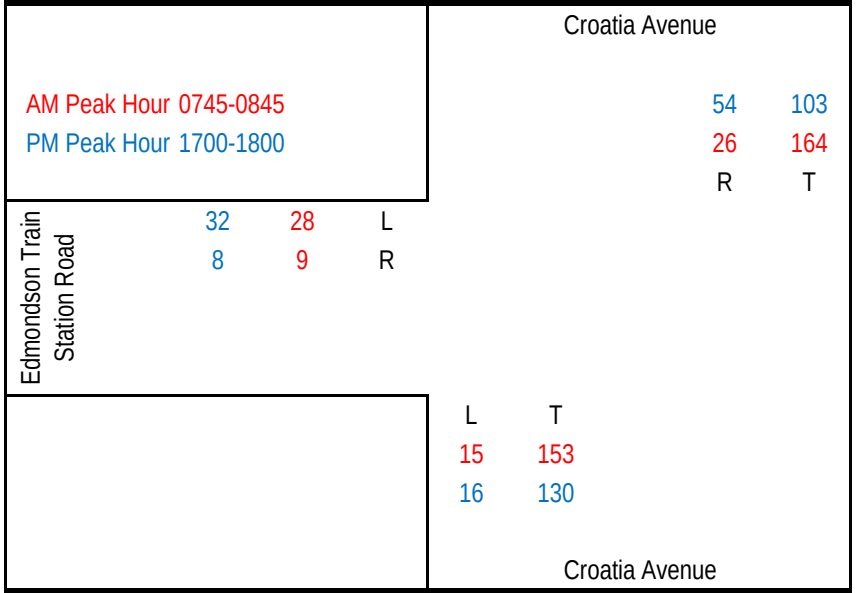


2026

Scenario 1



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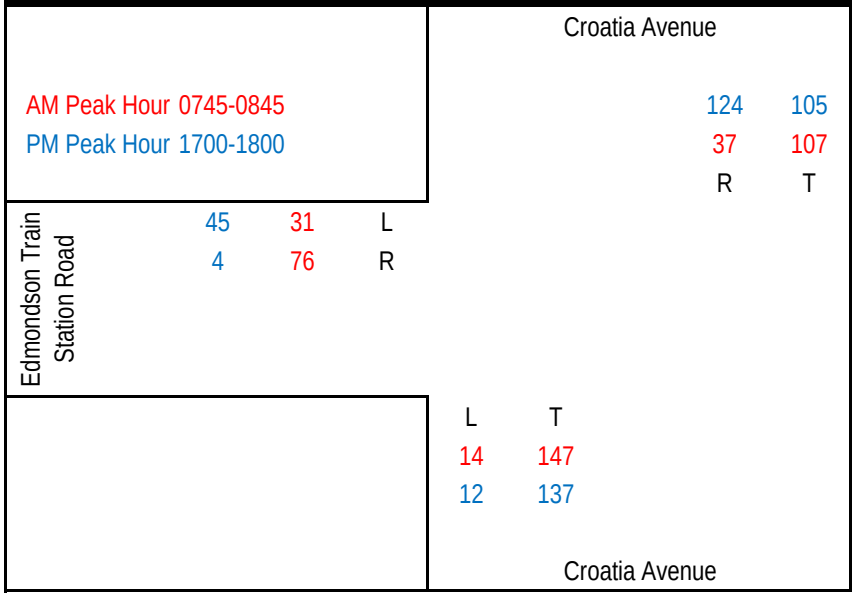
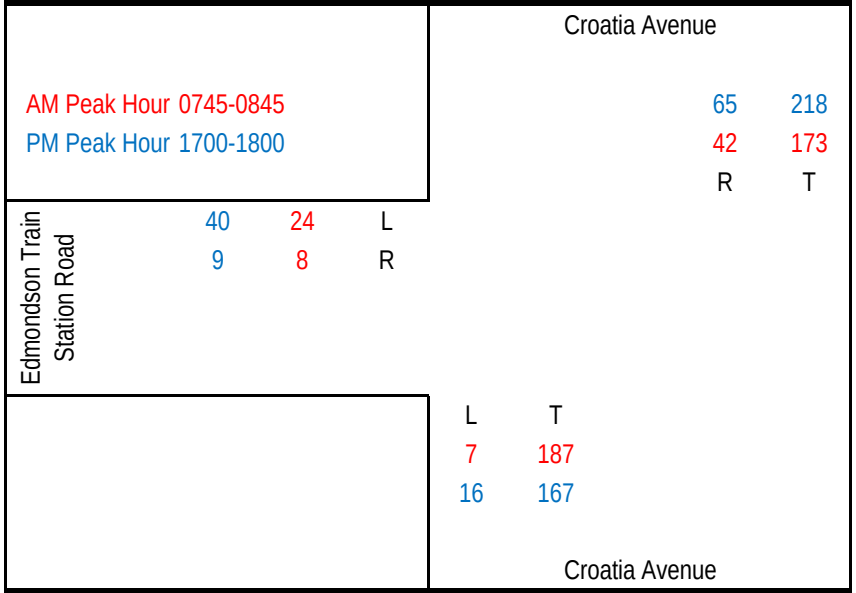


2036

Scenario 1



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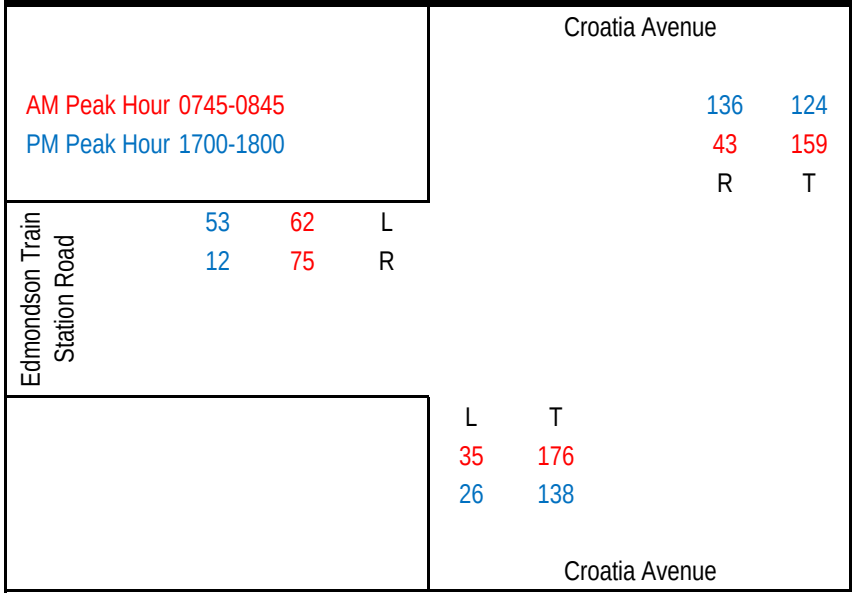


APPENDIX B

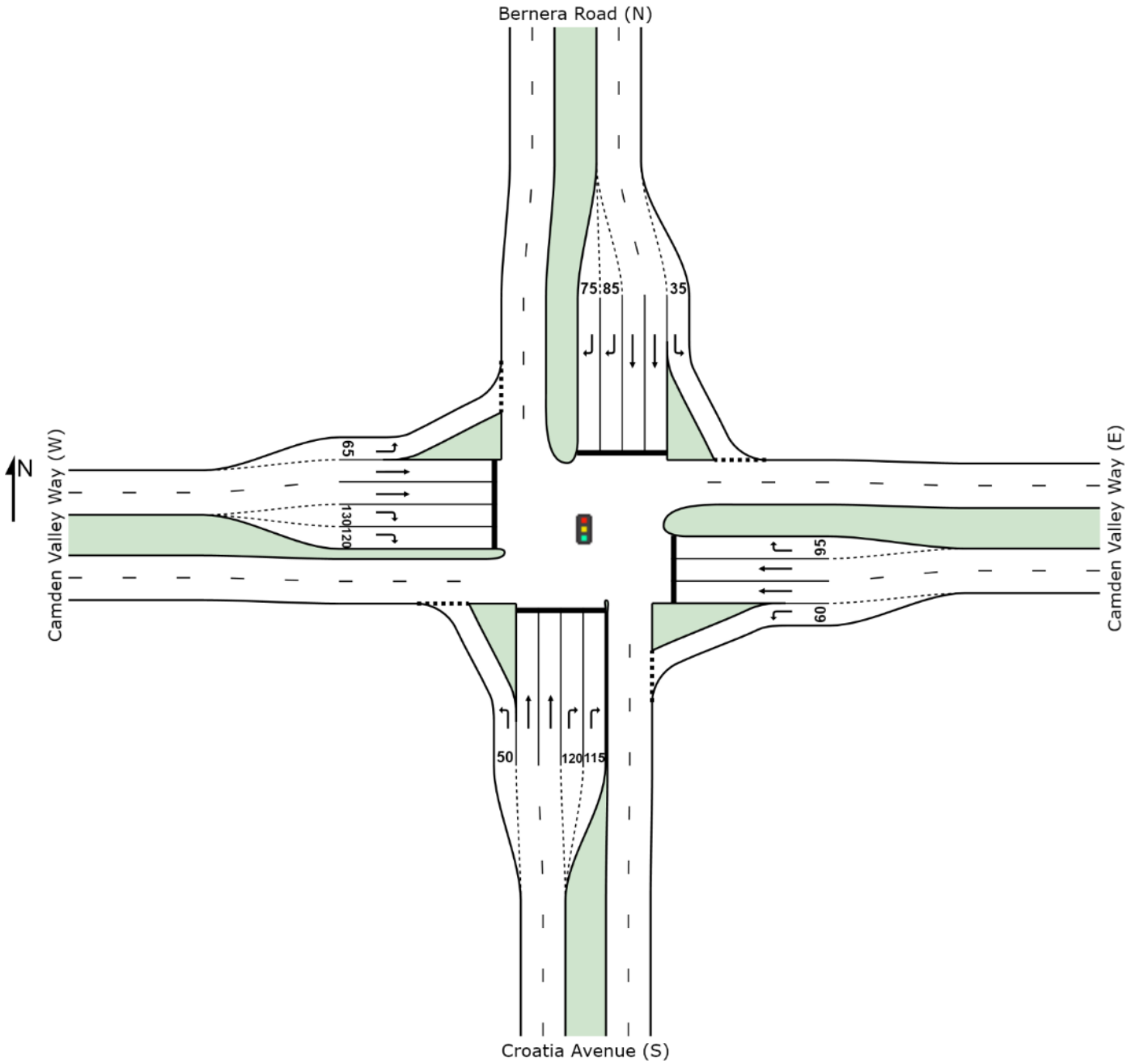
SIDRA MOVEMENT SUMMARIES

2026

SITE LAYOUT

Site: 2026AM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Coordinated



Organisation: BITZIOS CONSULTING | Created: Monday, 21 November 2016 9:45:40 AM
Project: C:\Users\Matthew\Desktop\P2662\2026\P2662.001M 2026 CVW - Croatia Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2026AM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	252	0.0	0.187	7.2	LOS A	2.4	16.5	0.23	0.62	53.0
2	T1	348	0.0	0.536	50.1	LOS D	9.5	66.5	0.97	0.79	33.1
3	R2	859	0.0	0.895	65.0	LOS E	28.5	199.4	1.00	0.98	28.9
Approach		1459	0.0	0.895	51.5	LOS D	28.5	199.4	0.86	0.87	32.4
East: Camden Valley Way (E)											
4	L2	337	0.0	0.245	5.9	LOS A	0.4	2.9	0.03	0.56	54.1
5	T1	395	0.0	0.486	45.5	LOS D	9.7	68.2	0.88	0.73	34.5
6	R2	183	0.0	0.592	56.4	LOS D	10.1	70.8	0.98	0.81	31.1
Approach		915	0.0	0.592	33.1	LOS C	10.1	70.8	0.59	0.68	38.8
North: Bernera Road (N)											
7	L2	188	0.0	0.213	21.6	LOS B	6.0	42.1	0.60	0.72	43.9
8	T1	203	0.0	0.313	47.9	LOS D	5.3	37.1	0.92	0.73	33.7
9	R2	257	0.0	0.268	43.8	LOS D	6.0	41.9	0.84	0.77	34.8
Approach		648	0.0	0.313	38.6	LOS C	6.0	42.1	0.80	0.74	36.6
West: Camden Valley Way (W)											
10	L2	339	0.0	0.261	6.0	LOS A	0.5	3.6	0.03	0.56	54.0
11	T1	663	0.0	0.816	52.8	LOS D	19.3	135.0	0.99	0.92	32.3
12	R2	313	0.0	0.505	55.5	LOS D	8.5	59.4	0.96	0.80	31.3
Approach		1315	0.0	0.816	41.4	LOS C	19.3	135.0	0.74	0.80	35.7
All Vehicles		4337	0.0	0.895	42.6	LOS D	28.5	199.4	0.76	0.79	35.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

PHASING SUMMARY

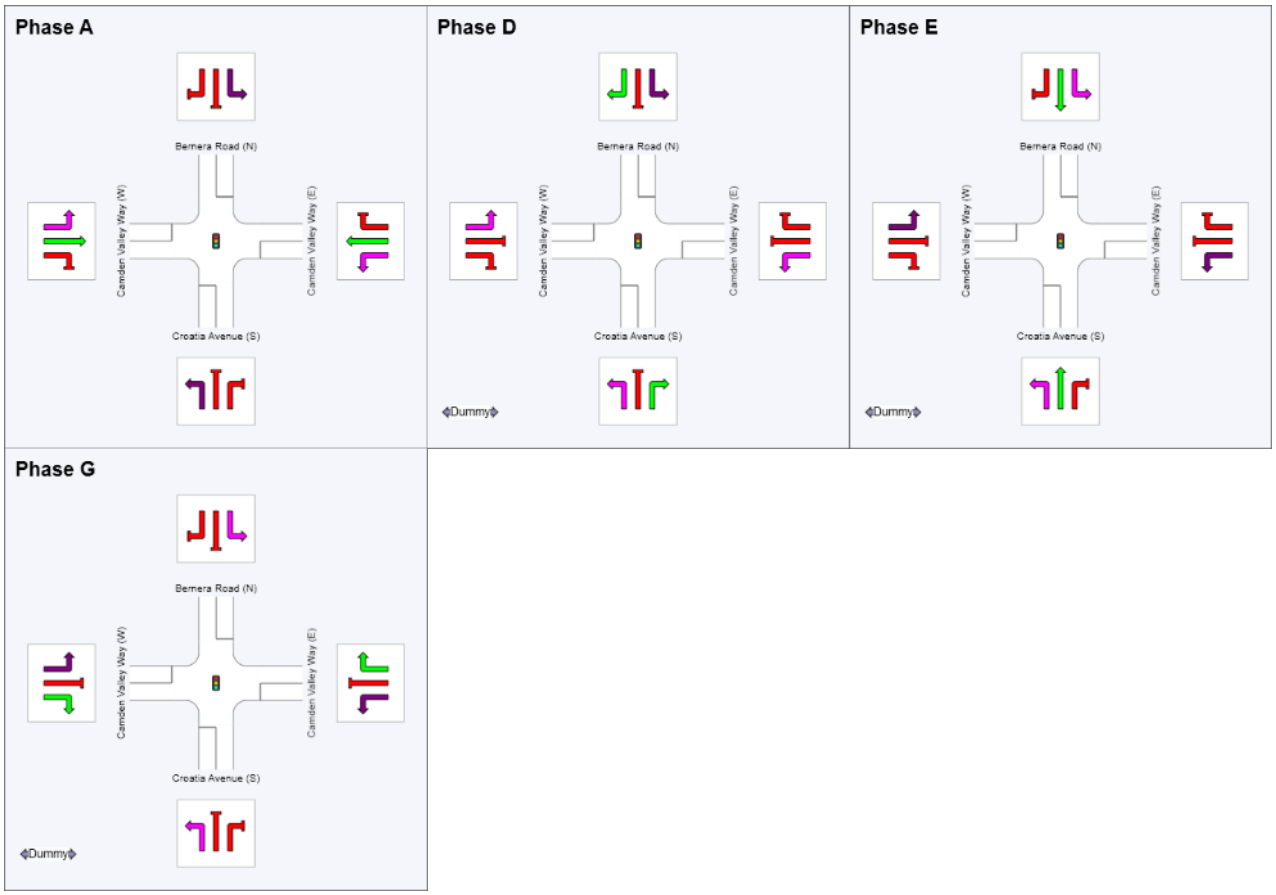
Site: 2026AM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Double Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	31	68	94
Green Time (sec)	25	31	20	20
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	31	37	26	26
Phase Split	26 %	31 %	22 %	22 %



The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

MOVEMENT SUMMARY

Site: 2026PM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
1700-1800
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	127	0.0	0.098	8.3	LOS A	1.5	10.8	0.28	0.62	52.1
2	T1	112	0.0	0.229	51.9	LOS D	3.0	21.0	0.94	0.71	32.5
3	R2	182	0.0	0.588	65.7	LOS E	5.4	37.9	1.00	0.79	28.7
Approach		421	0.0	0.588	44.7	LOS D	5.4	37.9	0.77	0.72	34.5
East: Camden Valley Way (E)											
4	L2	543	0.0	0.431	7.9	LOS A	4.2	29.3	0.16	0.60	52.5
5	T1	575	0.0	0.347	21.4	LOS B	9.0	62.7	0.58	0.49	44.5
6	R2	168	0.0	0.544	55.9	LOS D	9.2	64.5	0.97	0.81	31.2
Approach		1286	0.0	0.544	20.2	LOS B	9.2	64.5	0.45	0.58	44.9
North: Bernera Road (N)											
7	L2	147	0.0	0.128	7.3	LOS A	1.4	9.9	0.23	0.62	52.9
8	T1	339	0.0	0.787	59.5	LOS E	11.7	82.1	1.00	0.90	30.5
9	R2	249	0.0	0.806	70.6	LOS F	7.9	55.3	1.00	0.91	27.8
Approach		736	0.0	0.806	52.8	LOS D	11.7	82.1	0.84	0.85	32.2
West: Camden Valley Way (W)											
10	L2	174	0.0	0.122	5.8	LOS A	0.2	1.3	0.02	0.56	54.1
11	T1	401	0.0	0.242	20.3	LOS B	5.8	40.7	0.53	0.45	45.1
12	R2	519	0.0	0.838	65.1	LOS E	16.3	113.9	1.00	0.93	29.0
Approach		1094	0.0	0.838	39.3	LOS C	16.3	113.9	0.67	0.70	36.4
All Vehicles		3537	0.0	0.838	35.8	LOS C	16.3	113.9	0.64	0.69	37.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

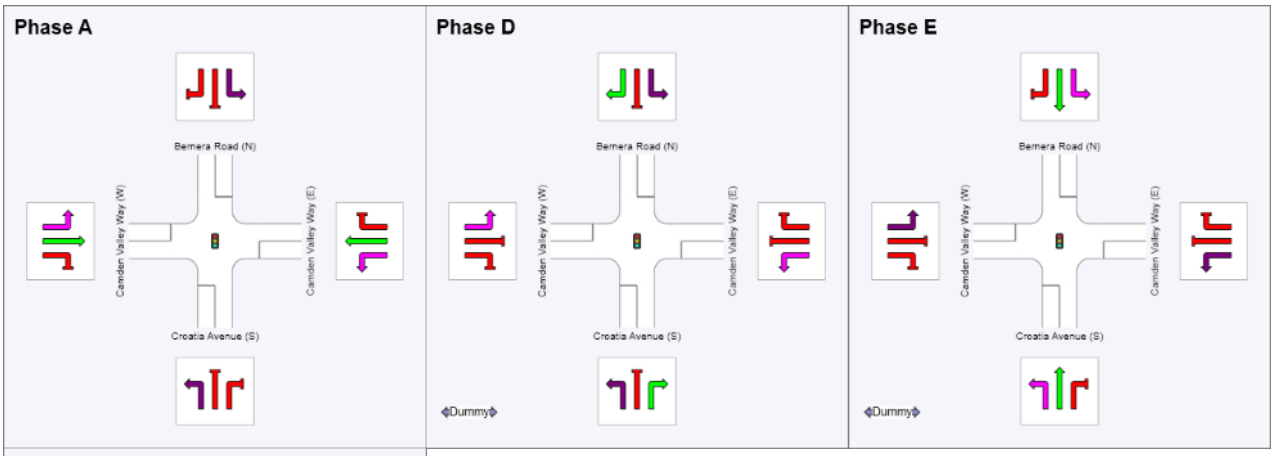
Site: 2026PM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
1700-1800
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Double Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	57	73	94
Green Time (sec)	51	10	15	20
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	57	16	21	26
Phase Split	48 %	13 %	18 %	22 %



MOVEMENT SUMMARY

Site: 2026AM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	276	0.0	0.205	7.4	LOS A	2.8	19.6	0.25	0.63	52.8
2	T1	523	0.0	0.853	60.3	LOS E	17.6	123.0	1.00	0.98	30.3
3	R2	1013	0.0	0.909	64.6	LOS E	34.3	239.9	1.00	0.99	29.0
Approach		1812	0.0	0.909	54.7	LOS D	34.3	239.9	0.89	0.93	31.5
East: Camden Valley Way (E)											
4	L2	494	0.0	0.364	5.9	LOS A	0.8	5.3	0.03	0.56	54.0
5	T1	235	0.0	0.361	48.4	LOS D	5.9	41.3	0.89	0.71	33.6
6	R2	122	0.0	0.394	54.4	LOS D	6.5	45.4	0.94	0.79	31.6
Approach		851	0.0	0.394	24.6	LOS B	6.5	45.4	0.40	0.63	42.5
North: Bernera Road (N)											
7	L2	102	0.0	0.114	18.6	LOS B	2.8	19.9	0.53	0.69	45.5
8	T1	301	0.0	0.463	49.4	LOS D	8.1	56.6	0.95	0.77	33.3
9	R2	212	0.0	0.190	39.0	LOS C	4.6	32.0	0.78	0.75	36.5
Approach		615	0.0	0.463	40.7	LOS C	8.1	56.6	0.82	0.75	36.0
West: Camden Valley Way (W)											
10	L2	187	0.0	0.148	6.8	LOS A	0.7	5.1	0.08	0.57	53.3
11	T1	445	0.0	0.685	52.0	LOS D	12.3	86.0	0.97	0.82	32.5
12	R2	276	0.0	0.446	54.9	LOS D	7.4	51.8	0.95	0.79	31.5
Approach		908	0.0	0.685	43.6	LOS D	12.3	86.0	0.78	0.76	35.0
All Vehicles		4185	0.0	0.909	44.1	LOS D	34.3	239.9	0.75	0.81	34.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

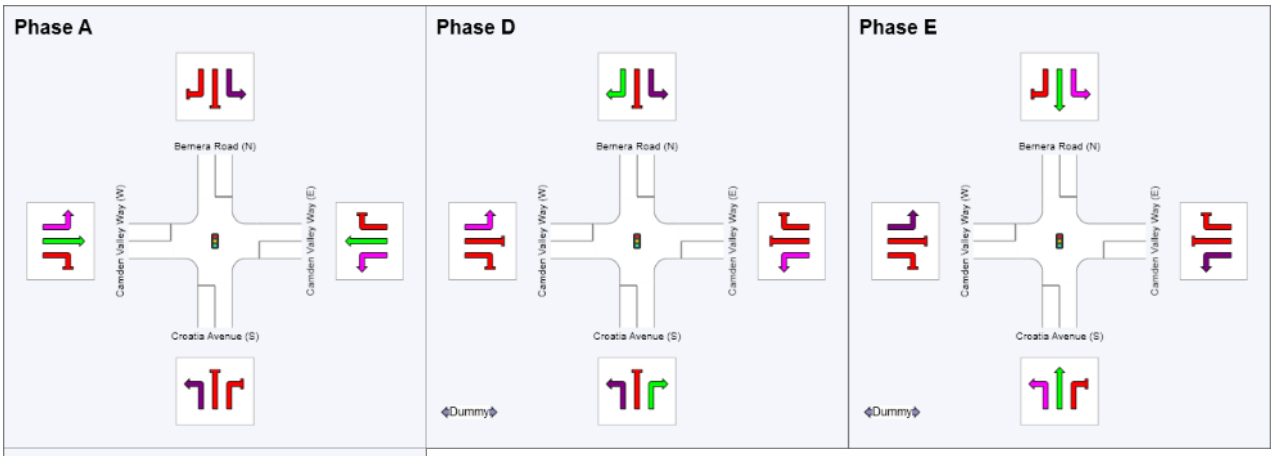
Site: 2026AM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Double Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	26	68	94
Green Time (sec)	20	36	20	20
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	26	42	26	26
Phase Split	22 %	35 %	22 %	22 %



MOVEMENT SUMMARY

Site: 2026PM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
1700-1800
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	167	0.0	0.129	8.6	LOS A	2.2	15.2	0.29	0.63	51.9
2	T1	83	0.0	0.171	51.4	LOS D	2.2	15.5	0.93	0.69	32.7
3	R2	149	0.0	0.483	64.8	LOS E	4.4	30.7	1.00	0.77	28.9
Approach		400	0.0	0.483	38.5	LOS C	4.4	30.7	0.69	0.70	36.6
East: Camden Valley Way (E)											
4	L2	618	0.0	0.495	8.2	LOS A	5.2	36.1	0.18	0.62	52.3
5	T1	611	0.0	0.376	22.6	LOS B	9.9	69.5	0.60	0.52	43.9
6	R2	166	0.0	0.512	54.7	LOS D	9.0	62.9	0.96	0.80	31.5
Approach		1395	0.0	0.512	20.1	LOS B	9.9	69.5	0.46	0.60	45.0
North: Bernera Road (N)											
7	L2	183	0.0	0.154	7.1	LOS A	1.7	11.9	0.23	0.62	53.0
8	T1	307	0.0	0.630	55.5	LOS D	8.8	61.8	1.00	0.81	31.6
9	R2	248	0.0	0.803	70.5	LOS E	7.9	55.0	1.00	0.91	27.8
Approach		739	0.0	0.803	48.5	LOS D	8.8	61.8	0.81	0.80	33.4
West: Camden Valley Way (W)											
10	L2	201	0.0	0.141	5.8	LOS A	0.2	1.5	0.02	0.56	54.1
11	T1	384	0.0	0.236	21.1	LOS B	5.7	39.7	0.54	0.45	44.7
12	R2	569	0.0	0.876	68.3	LOS E	18.6	130.0	1.00	0.97	28.3
Approach		1155	0.0	0.876	41.7	LOS C	18.6	130.0	0.68	0.73	35.6
All Vehicles		3688	0.0	0.876	34.5	LOS C	18.6	130.0	0.62	0.69	38.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

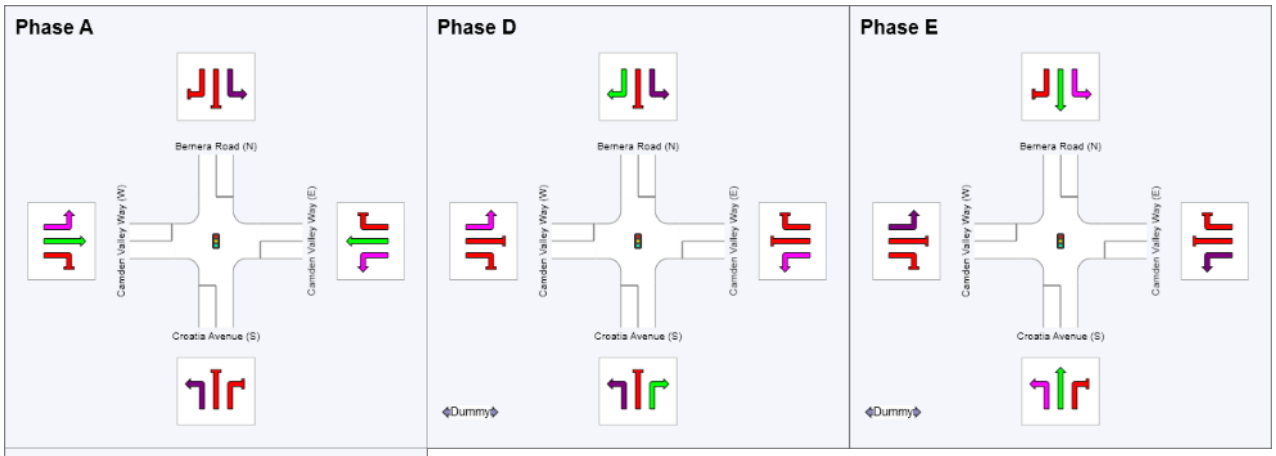
Site: 2026PM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
1700-1800
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Double Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

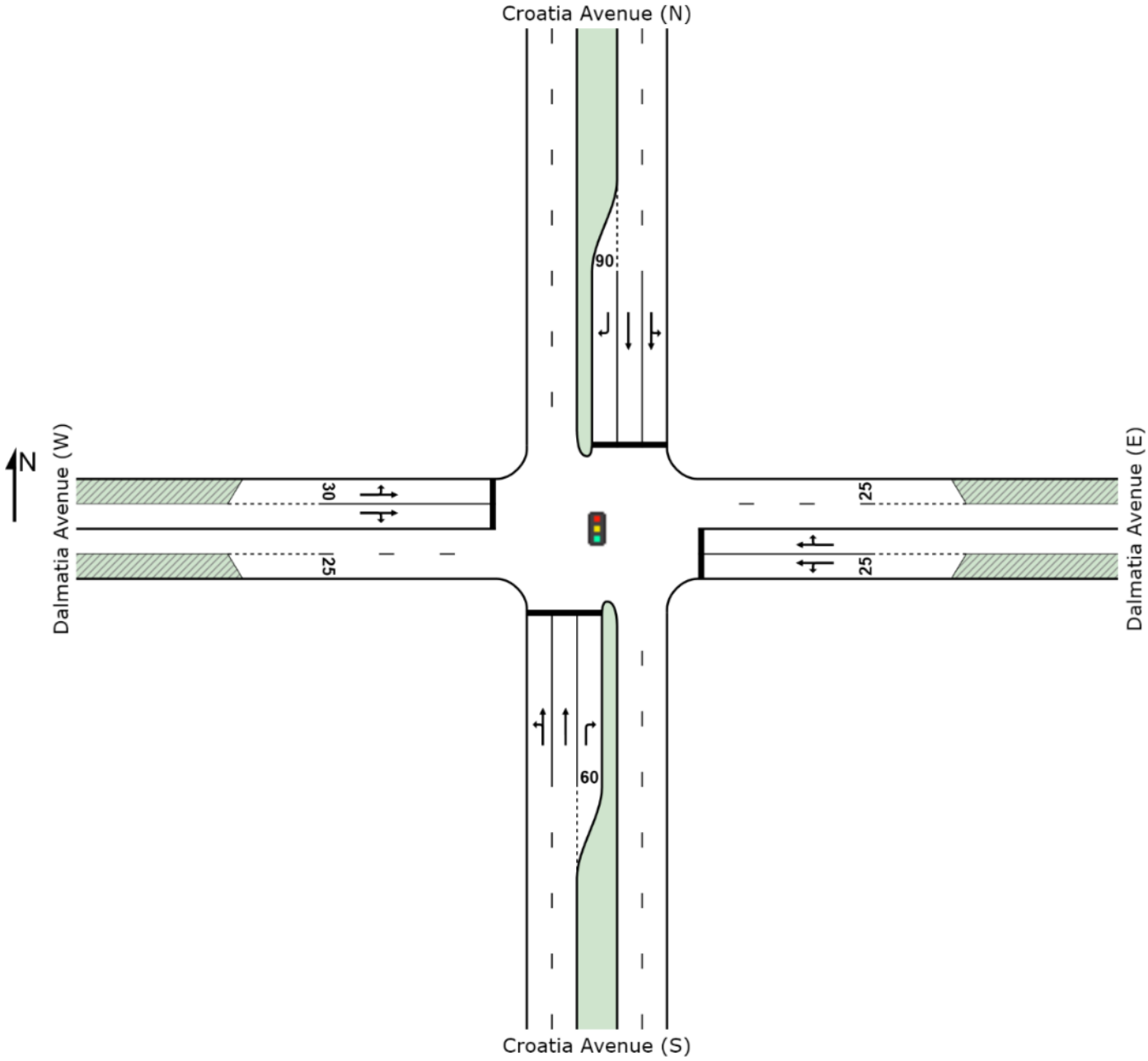
Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	56	72	93
Green Time (sec)	50	10	15	21
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	56	16	21	27
Phase Split	47 %	13 %	18 %	23 %



SITE LAYOUT

Site: 2026AM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated



Organisation: BITZIOS CONSULTING | Created: Monday, 21 November 2016 11:46:51 AM
Project: C:\Users\Matthew\Desktop\P2662\2026\P2662.001M 2026 Croatia Ave - Dalmatia Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2026AM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.508	28.5	LOS B	14.9	104.4	0.79	0.69	42.7
2	T1	832	0.0	0.508	22.9	LOS B	14.9	104.4	0.79	0.69	43.6
3	R2	2	0.0	0.008	44.3	LOS D	0.1	0.6	0.87	0.62	34.2
Approach		835	0.0	0.508	23.0	LOS B	14.9	104.4	0.79	0.69	43.6
East: Dalmatia Avenue (E)											
4	L2	22	0.0	0.116	35.1	LOS C	2.1	14.9	0.79	0.66	38.8
5	T1	36	0.0	0.116	29.6	LOS C	2.1	14.9	0.79	0.66	39.5
6	R2	119	0.0	0.511	47.2	LOS D	5.5	38.3	0.95	0.80	33.4
Approach		177	0.0	0.511	42.1	LOS C	5.5	38.3	0.90	0.75	35.1
North: Croatia Avenue (N)											
7	L2	1	0.0	0.229	25.4	LOS B	5.8	40.7	0.68	0.57	44.3
8	T1	374	0.0	0.229	19.8	LOS B	5.8	40.7	0.68	0.57	45.3
9	R2	138	0.0	0.495	48.9	LOS D	6.4	44.6	0.97	0.79	32.8
Approach		513	0.0	0.495	27.7	LOS B	6.4	44.6	0.76	0.63	41.1
West: Dalmatia Avenue (W)											
10	L2	220	0.0	0.258	23.2	LOS B	6.5	45.6	0.65	0.75	42.6
11	T1	71	0.0	0.221	32.3	LOS C	3.7	25.9	0.83	0.69	38.7
12	R2	24	0.0	0.221	37.9	LOS C	3.7	25.9	0.83	0.69	38.1
Approach		315	0.0	0.258	26.4	LOS B	6.5	45.6	0.71	0.73	41.3
All Vehicles		1839	0.0	0.511	26.7	LOS B	14.9	104.4	0.78	0.69	41.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

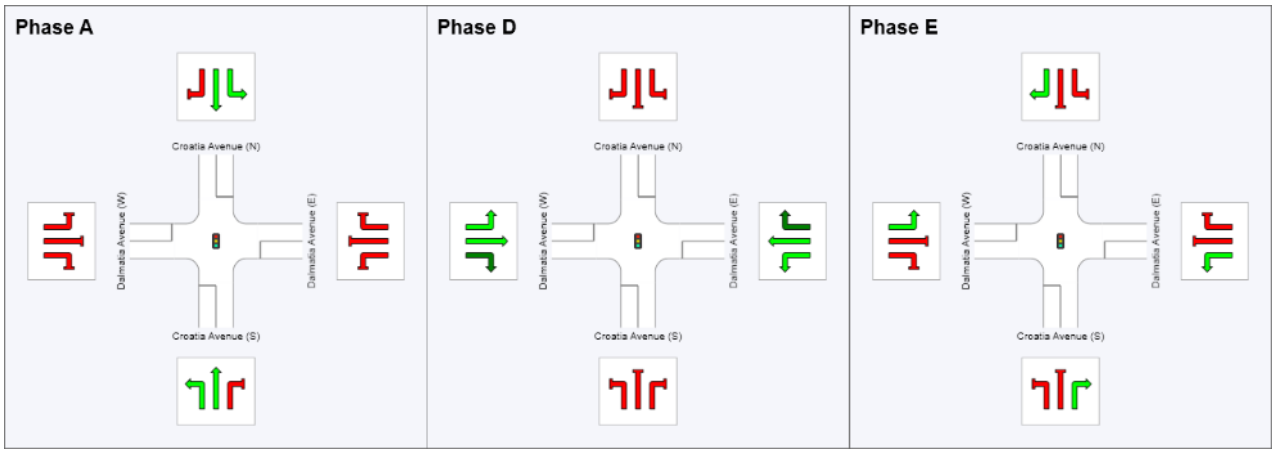
Site: 2026AM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	48	79
Green Time (sec)	42	25	15
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	48	31	21
Phase Split	48 %	31 %	21 %



Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes
Undetected Movement
Phase Transition Applied

MOVEMENT SUMMARY

Site: 2026AM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	3	0.0	0.723	36.1	LOS C	21.0	147.2	0.93	0.82	39.2
2	T1	979	0.0	0.723	30.6	LOS C	21.0	147.2	0.93	0.82	40.0
3	R2	7	0.0	0.031	46.9	LOS D	0.3	2.2	0.90	0.66	33.4
Approach		989	0.0	0.723	30.7	LOS C	21.0	147.2	0.93	0.82	39.9
East: Dalmatia Avenue (E)											
4	L2	54	0.0	0.174	28.9	LOS C	3.9	27.3	0.72	0.66	41.3
5	T1	86	0.0	0.716	27.9	LOS B	8.3	58.3	0.78	0.71	39.8
6	R2	151	0.0	0.716	46.8	LOS D	8.3	58.3	0.96	0.88	33.8
Approach		291	0.0	0.716	37.9	LOS C	8.3	58.3	0.86	0.79	36.6
North: Croatia Avenue (N)											
7	L2	9	0.0	0.451	32.5	LOS C	11.6	81.1	0.82	0.71	40.7
8	T1	606	0.0	0.451	27.0	LOS B	11.6	81.2	0.82	0.70	41.5
9	R2	164	0.0	0.680	53.0	LOS D	8.1	56.7	1.00	0.84	31.6
Approach		780	0.0	0.680	32.5	LOS C	11.6	81.2	0.86	0.73	39.0
West: Dalmatia Avenue (W)											
10	L2	342	0.0	0.415	20.0	LOS B	9.5	66.6	0.62	0.75	44.3
11	T1	131	0.0	0.344	31.1	LOS C	6.6	46.5	0.84	0.72	39.2
12	R2	39	0.0	0.344	36.7	LOS C	6.6	46.5	0.84	0.72	38.6
Approach		512	0.0	0.415	24.1	LOS B	9.5	66.6	0.69	0.74	42.4
All Vehicles		2572	0.0	0.723	30.8	LOS C	21.0	147.2	0.85	0.77	39.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

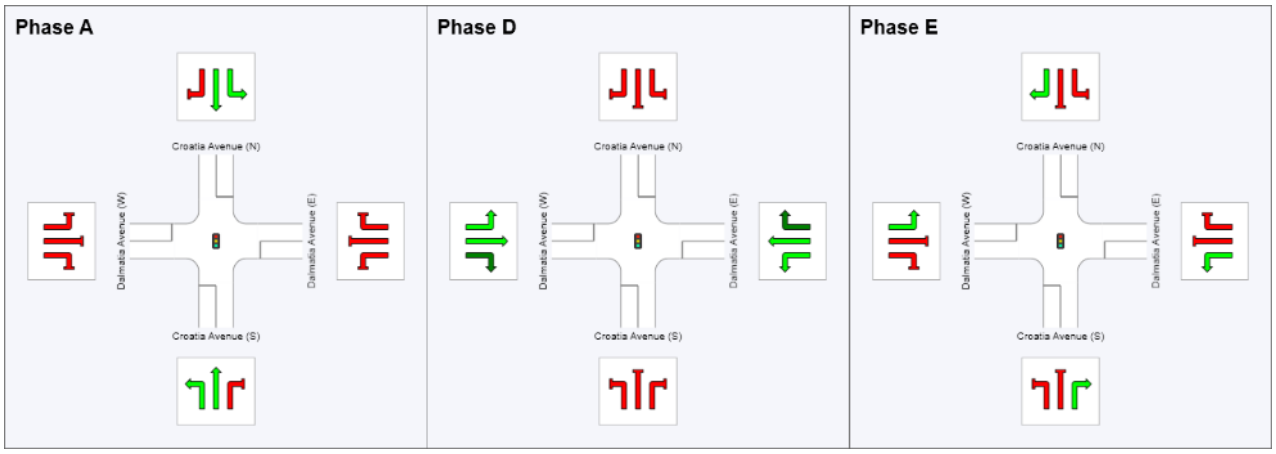
Site: 2026AM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	41	81
Green Time (sec)	35	34	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	41	40	19
Phase Split	41 %	40 %	19 %



Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class Running
Mixed Running & Stopped Movement Classes
Undetected Movement
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Other Movement Class Stopped
Phase Transition Applied

MOVEMENT SUMMARY

Site: 2026PM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	14	0.0	0.168	16.4	LOS B	4.3	29.8	0.51	0.44	49.5
2	T1	360	0.0	0.168	10.8	LOS A	4.3	29.9	0.51	0.43	50.8
3	R2	28	0.0	0.081	41.7	LOS C	1.1	8.0	0.85	0.71	35.0
Approach		402	0.0	0.168	13.2	LOS A	4.3	29.9	0.53	0.45	49.2
East: Dalmatia Avenue (E)											
4	L2	11	0.0	0.032	40.2	LOS C	0.5	3.2	0.83	0.67	35.7
5	T1	1	0.0	0.032	34.6	LOS C	0.5	3.2	0.83	0.67	36.3
6	R2	41	0.0	0.365	57.7	LOS E	2.1	14.5	1.00	0.73	30.5
Approach		53	0.0	0.365	53.7	LOS D	2.1	14.5	0.96	0.72	31.5
North: Croatia Avenue (N)											
7	L2	38	0.0	0.456	18.8	LOS B	14.1	98.9	0.62	0.57	47.9
8	T1	974	0.0	0.456	13.3	LOS A	14.2	99.3	0.62	0.56	49.1
9	R2	155	0.0	0.439	44.9	LOS D	6.8	47.7	0.93	0.80	34.0
Approach		1166	0.0	0.456	17.7	LOS B	14.2	99.3	0.67	0.59	46.4
West: Dalmatia Avenue (W)											
10	L2	15	0.0	0.026	31.0	LOS C	0.5	3.5	0.72	0.67	39.0
11	T1	1	0.0	0.105	50.6	LOS D	0.6	4.0	0.97	0.67	31.4
12	R2	11	0.0	0.105	56.2	LOS D	0.6	4.0	0.97	0.67	31.0
Approach		26	0.0	0.105	41.9	LOS C	0.6	4.0	0.83	0.67	35.1
All Vehicles		1647	0.0	0.456	18.1	LOS B	14.2	99.3	0.64	0.57	46.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

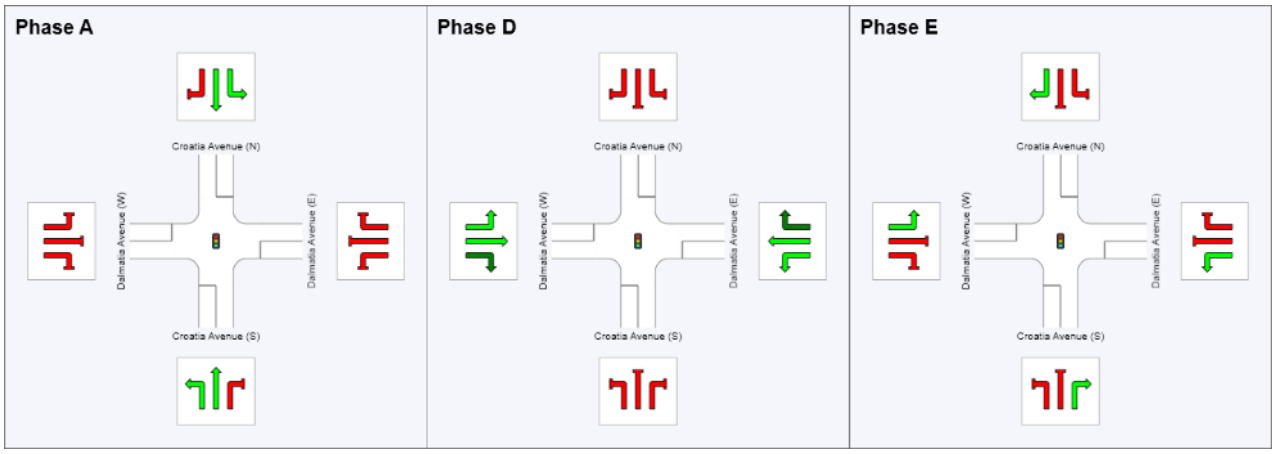
Site: 2026PM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	63	75
Green Time (sec)	57	6	19
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	63	12	25
Phase Split	63 %	12 %	25 %



MOVEMENT SUMMARY

Site: 2026PM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	20	0.0	0.161	15.8	LOS B	4.0	28.0	0.49	0.44	49.7
2	T1	342	0.0	0.161	10.3	LOS A	4.0	28.2	0.49	0.43	51.1
3	R2	28	0.0	0.085	42.6	LOS D	1.2	8.2	0.86	0.71	34.7
Approach		391	0.0	0.161	12.9	LOS A	4.0	28.2	0.52	0.45	49.4
East: Dalmatia Avenue (E)											
4	L2	14	0.0	0.038	38.5	LOS C	0.6	4.0	0.81	0.68	36.3
5	T1	1	0.0	0.038	33.0	LOS C	0.6	4.0	0.81	0.68	36.9
6	R2	34	0.0	0.292	57.2	LOS E	1.7	11.8	0.99	0.72	30.6
Approach		48	0.0	0.292	51.4	LOS D	1.7	11.8	0.94	0.71	32.2
North: Croatia Avenue (N)											
7	L2	1	0.0	0.496	18.7	LOS B	15.9	111.6	0.64	0.57	48.2
8	T1	1121	0.0	0.496	13.2	LOS A	15.9	111.6	0.64	0.57	49.3
9	R2	166	0.0	0.498	46.3	LOS D	7.5	52.4	0.95	0.80	33.6
Approach		1288	0.0	0.498	17.4	LOS B	15.9	111.6	0.68	0.60	46.5
West: Dalmatia Avenue (W)											
10	L2	9	0.0	0.019	41.0	LOS C	0.4	2.9	0.84	0.67	35.5
11	T1	1	0.0	0.019	35.5	LOS C	0.4	2.9	0.84	0.67	36.1
12	R2	8	0.0	0.078	56.0	LOS D	0.4	2.9	0.97	0.66	30.9
Approach		19	0.0	0.078	47.4	LOS D	0.4	2.9	0.90	0.67	33.3
All Vehicles		1746	0.0	0.498	17.7	LOS B	15.9	111.6	0.65	0.57	46.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

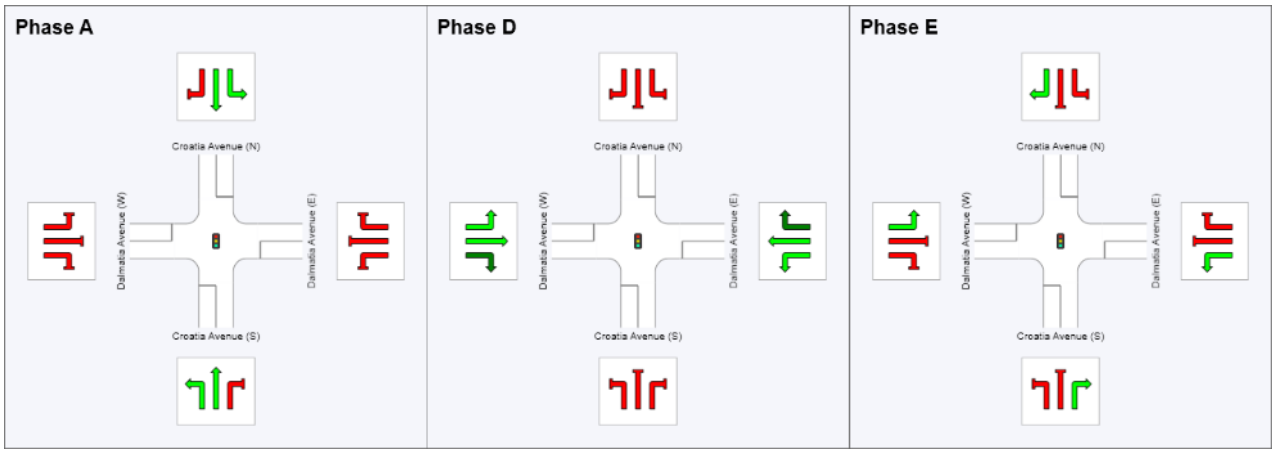
Site: 2026PM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	64	76
Green Time (sec)	58	6	18
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	64	12	24
Phase Split	64 %	12 %	24 %

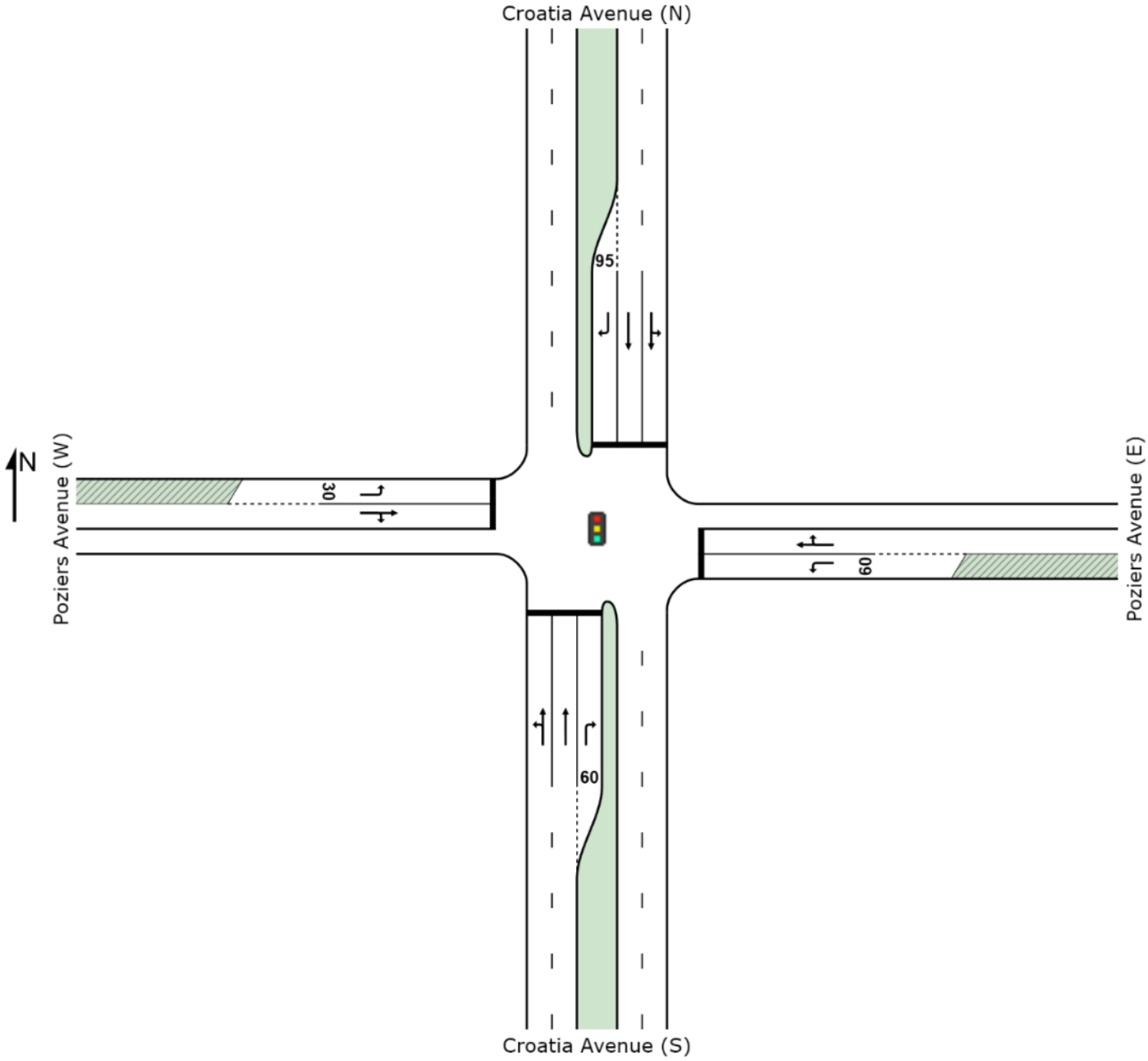


Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class Running
Mixed Running & Stopped Movement Classes
Undetected Movement
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Other Movement Class Stopped
Phase Transition Applied

SITE LAYOUT

Site: 2026AM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated



Organisation: BITZIOS CONSULTING | Created: Monday, 21 November 2016 1:21:11 PM
Project: C:\Users\Matthew\Desktop\P2662\2026\P2662.001M 2026 Croatia Ave - Poziers Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2026AM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	12	0.0	0.573	48.5	LOS D	8.3	57.9	0.97	0.79	34.5
2	T1	345	0.0	0.573	43.0	LOS D	8.3	58.1	0.97	0.79	35.1
3	R2	13	0.0	0.113	56.2	LOS D	0.6	4.3	0.97	0.68	30.8
Approach		369	0.0	0.573	43.6	LOS D	8.3	58.1	0.97	0.79	34.9
East: Poziers Avenue (E)											
4	L2	42	0.0	0.036	12.9	LOS A	0.8	5.3	0.40	0.65	48.4
5	T1	115	0.0	0.597	20.6	LOS B	13.4	94.0	0.78	0.78	42.9
6	R2	260	0.0	0.597	26.1	LOS B	13.4	94.0	0.78	0.78	42.1
Approach		417	0.0	0.597	23.2	LOS B	13.4	94.0	0.74	0.77	42.9
North: Croatia Avenue (N)											
7	L2	38	0.0	0.288	38.4	LOS C	5.5	38.5	0.85	0.71	37.7
8	T1	241	0.0	0.288	32.8	LOS C	5.6	39.0	0.85	0.70	38.7
9	R2	161	0.0	0.578	49.5	LOS D	7.6	52.9	0.98	0.80	32.6
Approach		440	0.0	0.578	39.4	LOS C	7.6	52.9	0.90	0.74	36.1
West: Poziers Avenue (W)											
10	L2	240	0.0	0.179	10.3	LOS A	3.7	25.8	0.34	0.67	50.1
11	T1	24	0.0	0.038	14.5	LOS B	0.8	5.6	0.55	0.48	47.7
12	R2	7	0.0	0.038	20.1	LOS B	0.8	5.6	0.55	0.48	46.7
Approach		272	0.0	0.179	10.9	LOS A	3.7	25.8	0.37	0.65	49.8
All Vehicles		1498	0.0	0.597	30.8	LOS C	13.4	94.0	0.78	0.74	39.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

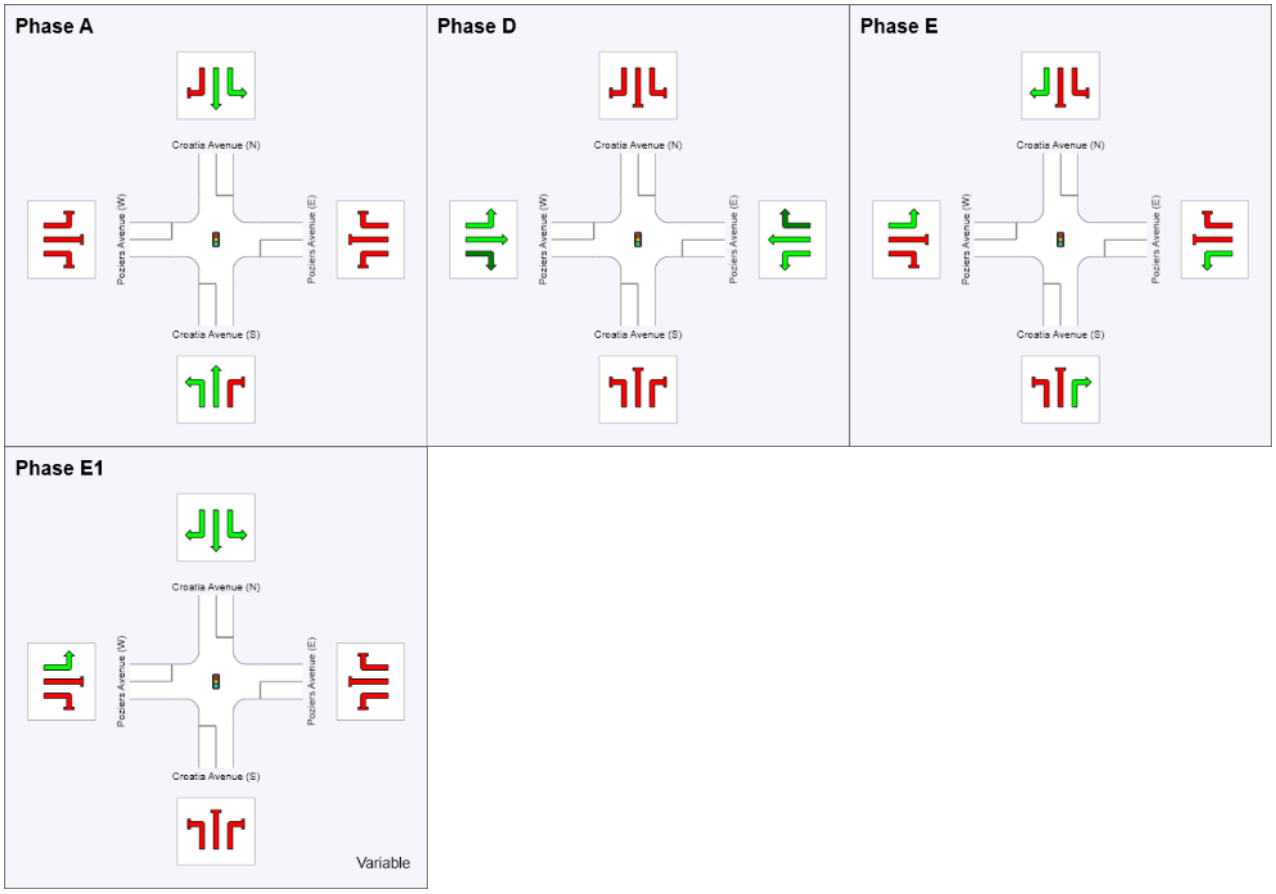
Site: 2026AM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase times determined by the program
Sequence: Single Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, E1, E2
Output Sequence: A, D, E, E1

Phase Timing Results

Phase	A	D	E	E1
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	22	79	91
Green Time (sec)	16	51	6	3
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	22	57	12	9
Phase Split	22 %	57 %	12 %	9 %



MOVEMENT SUMMARY

Site: 2026PM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	11	0.0	0.248	29.6	LOS C	5.9	41.4	0.74	0.62	42.0
2	T1	337	0.0	0.248	24.1	LOS B	5.9	41.5	0.74	0.62	42.9
3	R2	40	0.0	0.269	54.6	LOS D	1.9	13.5	0.98	0.73	31.2
Approach		387	0.0	0.269	27.4	LOS B	5.9	41.5	0.77	0.63	41.3
East: Poziers Avenue (E)											
4	L2	21	0.0	0.057	40.5	LOS C	0.8	5.8	0.84	0.70	35.5
5	T1	1	0.0	0.158	51.3	LOS D	0.8	5.5	0.98	0.69	31.1
6	R2	15	0.0	0.158	56.9	LOS E	0.8	5.5	0.98	0.69	30.7
Approach		37	0.0	0.158	47.3	LOS D	0.8	5.8	0.90	0.69	33.3
North: Croatia Avenue (N)											
7	L2	36	0.0	0.293	12.3	LOS A	7.4	51.8	0.43	0.41	52.3
8	T1	739	0.0	0.293	6.8	LOS A	7.4	52.0	0.43	0.39	53.8
9	R2	181	0.0	0.244	26.9	LOS B	5.8	40.9	0.70	0.76	40.8
Approach		956	0.0	0.293	10.8	LOS A	7.4	52.0	0.48	0.46	50.7
West: Poziers Avenue (W)											
10	L2	51	0.0	0.052	18.0	LOS B	1.2	8.3	0.52	0.68	45.3
11	T1	1	0.0	0.061	50.3	LOS D	0.3	2.1	0.97	0.65	31.6
12	R2	5	0.0	0.061	55.9	LOS D	0.3	2.1	0.97	0.65	31.1
Approach		57	0.0	0.061	22.1	LOS B	1.2	8.3	0.57	0.68	43.2
All Vehicles		1437	0.0	0.293	16.6	LOS B	7.4	52.0	0.57	0.52	46.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

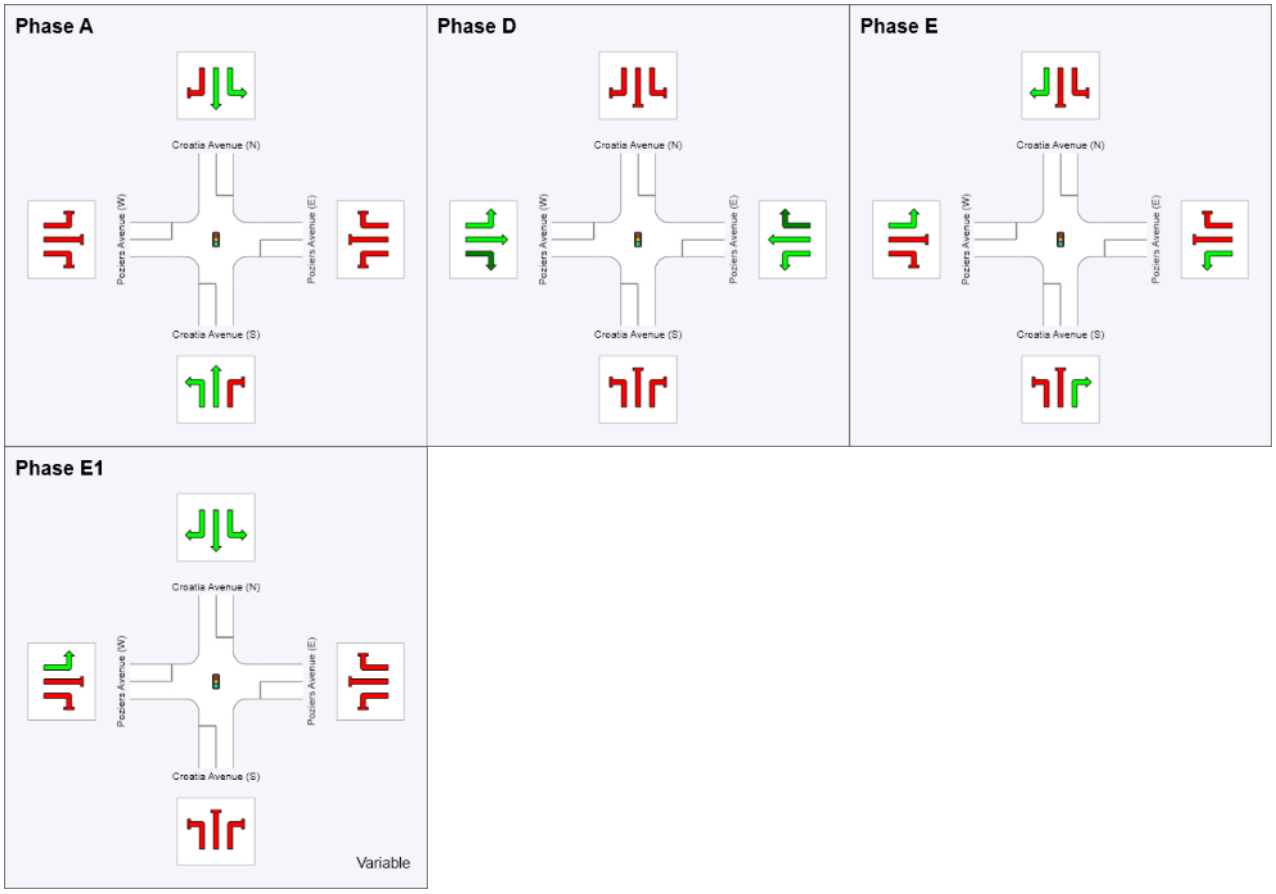
Site: 2026PM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase times determined by the program
Sequence: Single Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, E1, E2
Output Sequence: A, D, E, E1

Phase Timing Results

Phase	A	D	E	E1
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	42	54	68
Green Time (sec)	36	6	8	26
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	42	12	14	32
Phase Split	42 %	12 %	14 %	32 %



MOVEMENT SUMMARY

Site: 2026AM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	27	0.0	0.707	50.0	LOS D	11.3	78.8	1.00	0.86	33.9
2	T1	440	0.0	0.707	44.4	LOS D	11.3	79.2	1.00	0.86	34.6
3	R2	7	0.0	0.066	55.7	LOS D	0.4	2.5	0.97	0.66	30.9
Approach		475	0.0	0.707	44.9	LOS D	11.3	79.2	1.00	0.86	34.5
East: Poziers Avenue (E)											
4	L2	59	0.0	0.058	16.6	LOS B	1.3	9.2	0.49	0.68	46.2
5	T1	35	0.0	0.691	29.1	LOS C	12.3	85.9	0.89	0.85	38.5
6	R2	253	0.0	0.691	34.7	LOS C	12.3	85.9	0.89	0.85	37.9
Approach		346	0.0	0.691	31.0	LOS C	12.3	85.9	0.82	0.82	39.1
North: Croatia Avenue (N)											
7	L2	53	0.0	0.335	32.7	LOS C	7.8	54.8	0.80	0.70	40.1
8	T1	376	0.0	0.335	27.2	LOS B	7.9	55.4	0.80	0.68	41.2
9	R2	286	0.0	0.701	45.8	LOS D	13.4	93.5	0.98	0.85	33.7
Approach		715	0.0	0.701	35.0	LOS C	13.4	93.5	0.87	0.75	37.8
West: Poziers Avenue (W)											
10	L2	307	0.0	0.233	10.9	LOS A	5.1	35.8	0.37	0.68	49.7
11	T1	102	0.0	0.158	19.2	LOS B	3.6	25.2	0.66	0.56	45.2
12	R2	18	0.0	0.158	24.8	LOS B	3.6	25.2	0.66	0.56	44.3
Approach		427	0.0	0.233	13.4	LOS A	5.1	35.8	0.45	0.65	48.3
All Vehicles		1963	0.0	0.707	32.0	LOS C	13.4	93.5	0.80	0.77	39.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

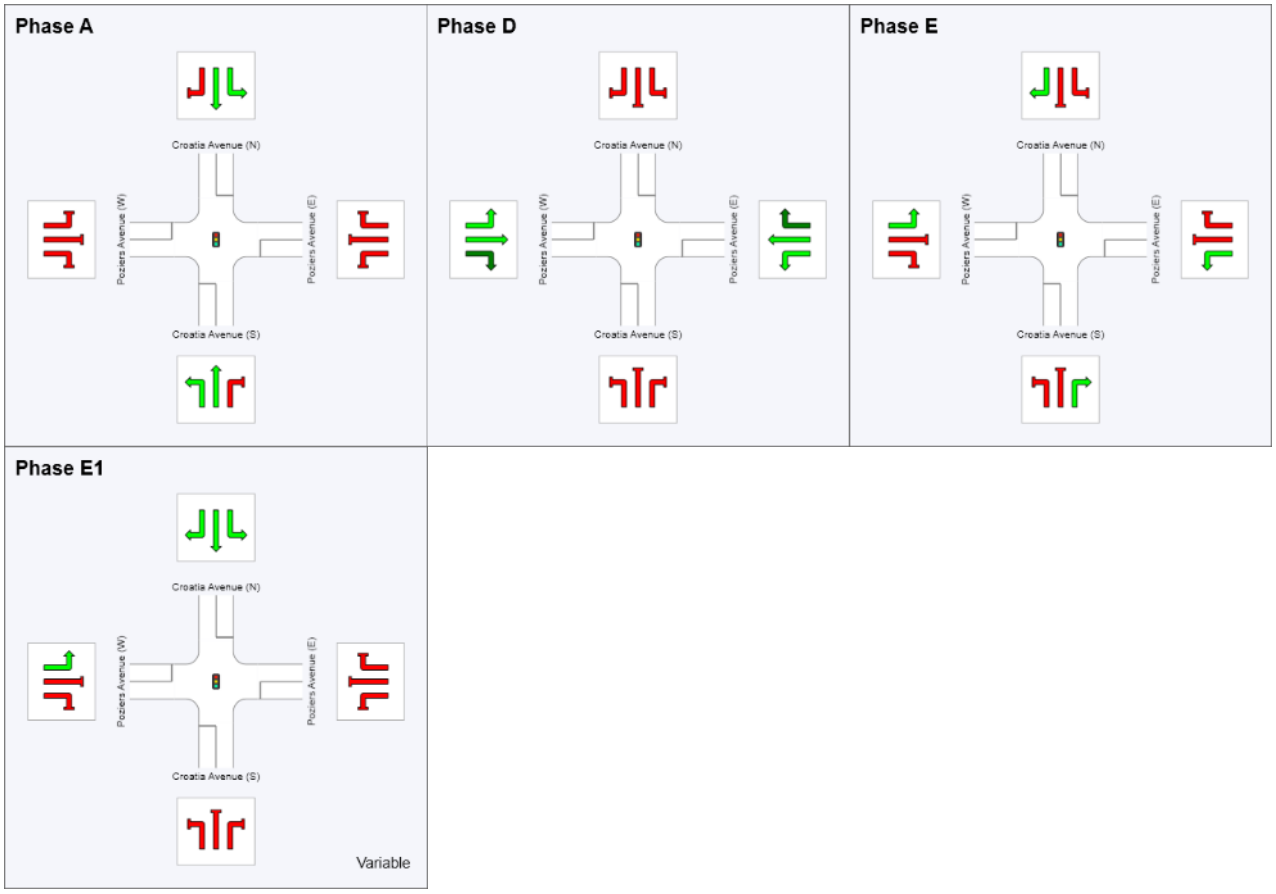
Site: 2026AM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase times determined by the program
Sequence: Single Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, E1, E2
Output Sequence: A, D, E, E1

Phase Timing Results

Phase	A	D	E	E1
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	23	72	84
Green Time (sec)	17	43	6	10
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	23	49	12	16
Phase Split	23 %	49 %	12 %	16 %



MOVEMENT SUMMARY

Site: 2026PM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	14	0.0	0.238	28.1	LOS B	5.8	40.6	0.72	0.61	42.7
2	T1	338	0.0	0.238	22.6	LOS B	5.8	40.7	0.72	0.60	43.6
3	R2	18	0.0	0.161	56.5	LOS E	0.9	6.2	0.98	0.69	30.7
Approach		369	0.0	0.238	24.4	LOS B	5.8	40.7	0.73	0.61	42.7
East: Poziers Avenue (E)											
4	L2	17	0.0	0.050	42.3	LOS C	0.7	4.8	0.86	0.69	34.9
5	T1	1	0.0	0.152	51.1	LOS D	0.8	5.5	0.98	0.69	31.2
6	R2	15	0.0	0.152	56.7	LOS E	0.8	5.5	0.98	0.69	30.8
Approach		33	0.0	0.152	49.1	LOS D	0.8	5.5	0.91	0.69	32.8
North: Croatia Avenue (N)											
7	L2	26	0.0	0.333	11.7	LOS A	8.5	59.5	0.42	0.39	52.9
8	T1	882	0.0	0.333	6.2	LOS A	8.5	59.6	0.42	0.38	54.3
9	R2	169	0.0	0.240	28.2	LOS B	5.6	39.3	0.72	0.76	40.2
Approach		1078	0.0	0.333	9.8	LOS A	8.5	59.6	0.47	0.44	51.5
West: Poziers Avenue (W)											
10	L2	36	0.0	0.039	19.0	LOS B	0.9	6.1	0.53	0.67	44.8
11	T1	1	0.0	0.060	50.3	LOS D	0.3	2.1	0.97	0.65	31.6
12	R2	5	0.0	0.060	55.8	LOS D	0.3	2.1	0.97	0.65	31.2
Approach		42	0.0	0.060	24.4	LOS B	0.9	6.1	0.60	0.67	42.1
All Vehicles		1522	0.0	0.333	14.6	LOS B	8.5	59.6	0.55	0.49	48.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

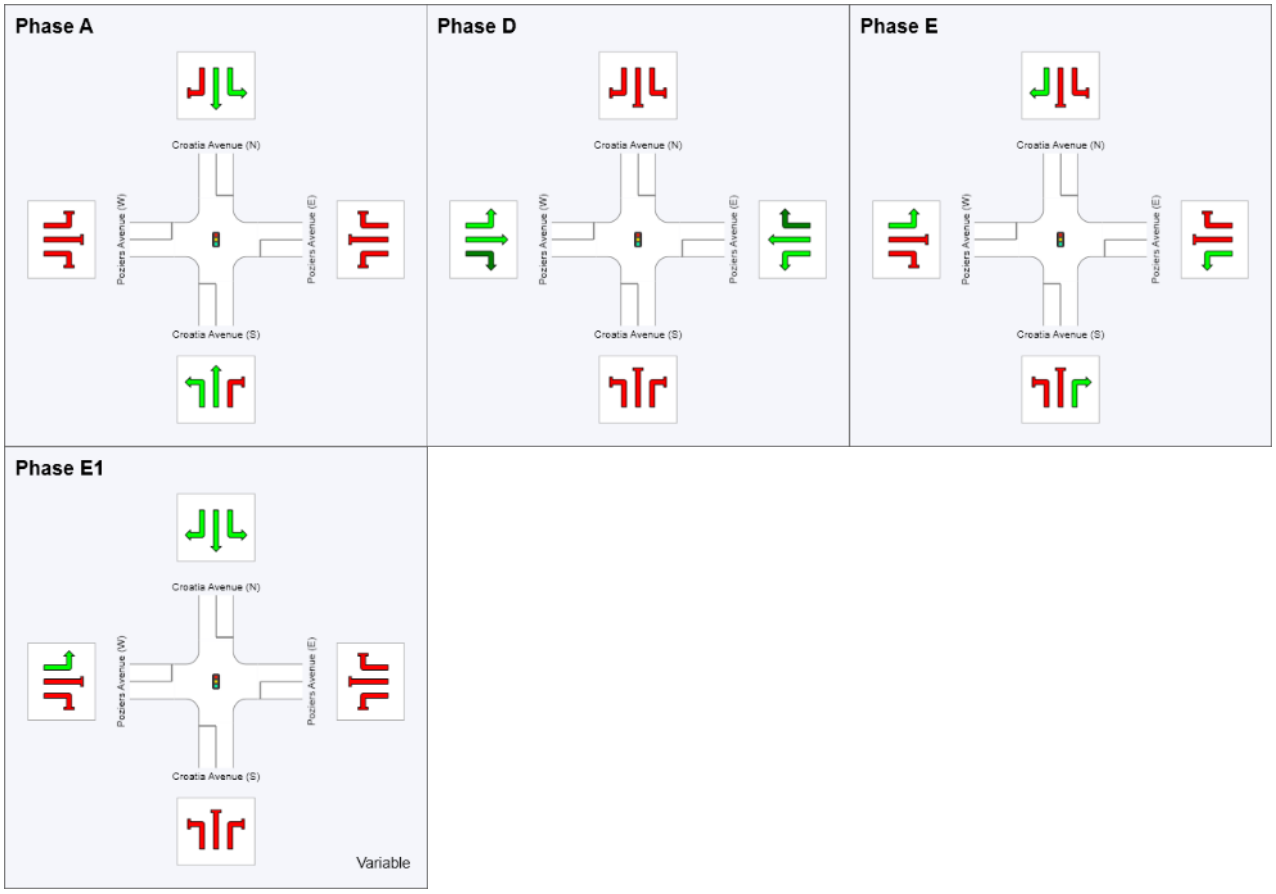
Site: 2026PM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase times determined by the program
Sequence: Single Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, E1, E2
Output Sequence: A, D, E, E1

Phase Timing Results

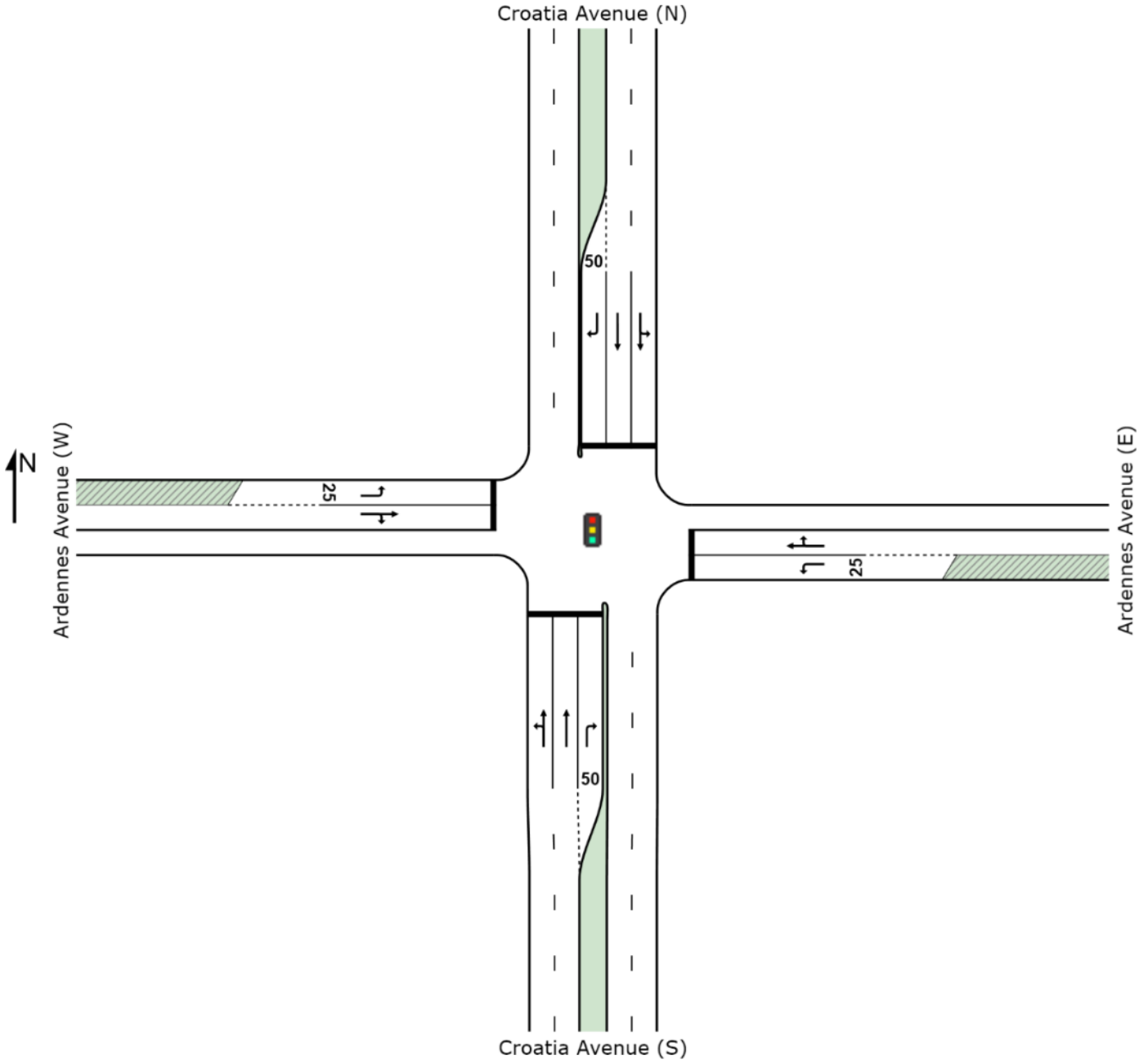
Phase	A	D	E	E1
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	44	56	68
Green Time (sec)	38	6	6	26
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	44	12	12	32
Phase Split	44 %	12 %	12 %	32 %



SITE LAYOUT

Site: 2026AM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 2026AM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	13	0.0	0.124	11.8	LOS A	2.8	19.3	0.38	0.35	52.7
2	T1	309	0.0	0.124	6.2	LOS A	2.8	19.4	0.38	0.33	54.2
3	R2	18	0.0	0.021	8.4	LOS A	0.2	1.4	0.30	0.62	51.4
Approach		340	0.0	0.124	6.6	LOS A	2.8	19.4	0.38	0.35	54.0
East: Ardennes Avenue (E)											
4	L2	4	0.0	0.011	38.9	LOS C	0.2	1.1	0.81	0.64	36.0
5	T1	2	0.0	0.122	47.3	LOS D	0.8	5.6	0.95	0.70	32.3
6	R2	15	0.0	0.122	52.8	LOS D	0.8	5.6	0.95	0.70	31.9
Approach		21	0.0	0.122	49.5	LOS D	0.8	5.6	0.92	0.68	32.7
North: Croatia Avenue (N)											
7	L2	2	0.0	0.110	11.7	LOS A	2.4	17.0	0.38	0.32	53.1
8	T1	284	0.0	0.110	6.2	LOS A	2.4	17.0	0.38	0.31	54.4
9	R2	12	0.0	0.014	8.4	LOS A	0.1	0.9	0.30	0.61	51.5
Approach		298	0.0	0.110	6.3	LOS A	2.4	17.0	0.37	0.33	54.3
West: Ardennes Avenue (W)											
10	L2	37	0.0	0.094	40.0	LOS C	1.5	10.2	0.84	0.72	35.6
11	T1	5	0.0	0.123	47.0	LOS D	0.9	6.2	0.95	0.69	32.7
12	R2	14	0.0	0.123	52.6	LOS D	0.9	6.2	0.95	0.69	32.2
Approach		56	0.0	0.123	43.7	LOS D	1.5	10.2	0.88	0.71	34.4
All Vehicles		715	0.0	0.124	10.6	LOS A	2.8	19.4	0.43	0.38	50.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

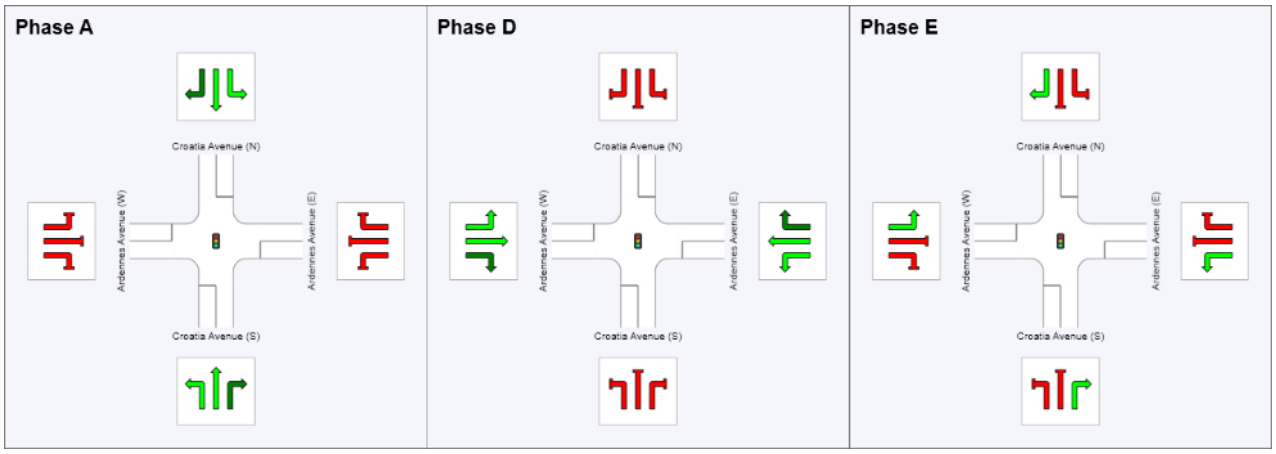
Site: 2026AM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	73	88
Green Time (sec)	67	9	6
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	73	15	12
Phase Split	73 %	15 %	12 %



MOVEMENT SUMMARY

Site: 2026PM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	13	0.0	0.143	10.8	LOS A	3.1	21.6	0.35	0.32	53.6
2	T1	377	0.0	0.143	5.3	LOS A	3.1	21.7	0.35	0.31	55.1
3	R2	4	0.0	0.007	8.1	LOS A	0.0	0.3	0.31	0.60	51.6
Approach		394	0.0	0.143	5.5	LOS A	3.1	21.7	0.35	0.31	55.0
East: Ardennes Avenue (E)											
4	L2	2	0.0	0.006	41.4	LOS C	0.1	0.6	0.84	0.62	35.1
5	T1	1	0.0	0.030	49.7	LOS D	0.2	1.1	0.96	0.62	32.0
6	R2	2	0.0	0.030	55.3	LOS D	0.2	1.1	0.96	0.62	31.6
Approach		5	0.0	0.030	48.6	LOS D	0.2	1.1	0.91	0.62	33.0
North: Croatia Avenue (N)											
7	L2	1	0.0	0.262	11.4	LOS A	6.3	43.9	0.39	0.35	53.4
8	T1	714	0.0	0.262	5.8	LOS A	6.3	43.9	0.39	0.34	54.8
9	R2	35	0.0	0.044	7.9	LOS A	0.3	2.3	0.29	0.62	51.8
Approach		749	0.0	0.262	5.9	LOS A	6.3	43.9	0.39	0.36	54.6
West: Ardennes Avenue (W)											
10	L2	7	0.0	0.022	41.8	LOS C	0.3	2.1	0.85	0.66	35.0
11	T1	1	0.0	0.029	49.7	LOS D	0.2	1.1	0.96	0.62	32.0
12	R2	2	0.0	0.029	55.2	LOS D	0.2	1.1	0.96	0.62	31.6
Approach		11	0.0	0.029	45.3	LOS D	0.3	2.1	0.88	0.65	33.9
All Vehicles		1159	0.0	0.262	6.3	LOS A	6.3	43.9	0.38	0.35	54.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

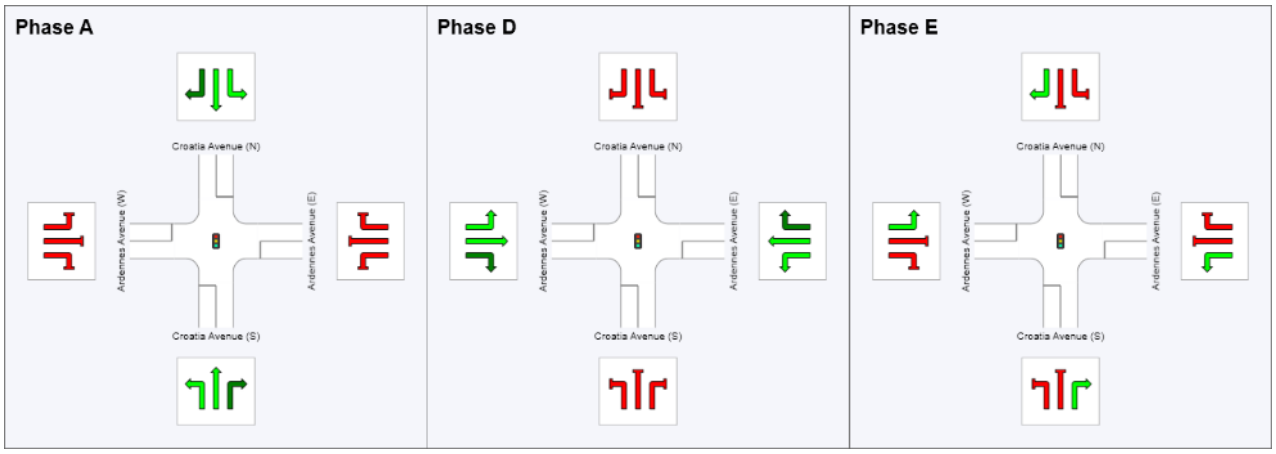
Site: 2026PM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	76	88
Green Time (sec)	70	6	6
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	76	12	12
Phase Split	76 %	12 %	12 %



Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes
Undetected Movement
Phase Transition Applied

MOVEMENT SUMMARY

Site: 2026AM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	26	0.0	0.198	27.1	LOS B	4.8	33.4	0.70	0.60	42.9
2	T1	274	0.0	0.198	21.5	LOS B	4.8	33.7	0.70	0.59	44.1
3	R2	37	0.0	0.037	9.4	LOS A	0.4	3.1	0.37	0.64	50.8
Approach		337	0.0	0.198	20.6	LOS B	4.8	33.7	0.66	0.59	44.6
East: Ardennes Avenue (E)											
4	L2	13	0.0	0.014	19.3	LOS B	0.3	2.2	0.53	0.65	44.6
5	T1	1	0.0	0.051	47.8	LOS D	0.3	2.1	0.95	0.65	32.3
6	R2	5	0.0	0.051	53.4	LOS D	0.3	2.1	0.95	0.65	31.8
Approach		19	0.0	0.051	30.3	LOS C	0.3	2.2	0.67	0.65	39.4
North: Croatia Avenue (N)											
7	L2	4	0.0	0.202	27.1	LOS B	4.9	34.5	0.70	0.58	43.3
8	T1	303	0.0	0.202	21.6	LOS B	4.9	34.5	0.70	0.58	44.3
9	R2	156	0.0	0.160	9.7	LOS A	2.0	14.0	0.41	0.68	50.5
Approach		463	0.0	0.202	17.6	LOS B	4.9	34.5	0.60	0.61	46.2
West: Ardennes Avenue (W)											
10	L2	182	0.0	0.200	20.9	LOS B	5.0	34.7	0.60	0.73	43.8
11	T1	1	0.0	0.143	47.3	LOS D	1.0	6.9	0.95	0.71	32.2
12	R2	20	0.0	0.143	52.9	LOS D	1.0	6.9	0.95	0.71	31.8
Approach		203	0.0	0.200	24.2	LOS B	5.0	34.7	0.64	0.73	42.1
All Vehicles		1022	0.0	0.202	20.1	LOS B	5.0	34.7	0.63	0.63	44.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

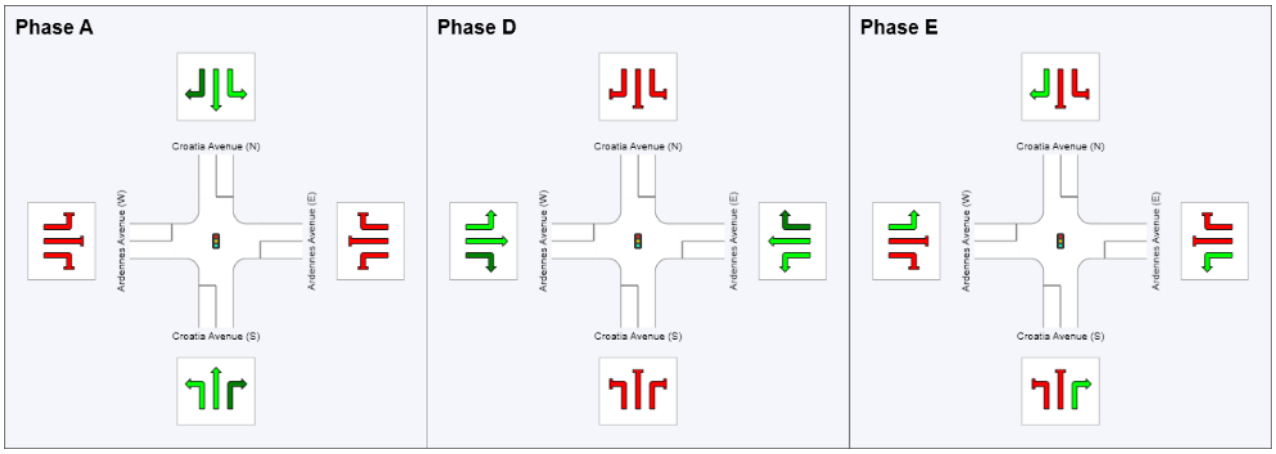
Site: 2026AM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	45	63
Green Time (sec)	39	12	31
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	45	18	37
Phase Split	45 %	18 %	37 %



MOVEMENT SUMMARY

Site: 2026PM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	14	0.0	0.134	10.8	LOS A	2.9	20.1	0.35	0.32	53.5
2	T1	351	0.0	0.134	5.2	LOS A	2.9	20.1	0.35	0.31	55.1
3	R2	5	0.0	0.010	8.4	LOS A	0.0	0.3	0.33	0.61	51.4
Approach		369	0.0	0.134	5.5	LOS A	2.9	20.1	0.35	0.31	55.0
East: Ardennes Avenue (E)											
4	L2	1	0.0	0.003	41.3	LOS C	0.0	0.3	0.84	0.60	35.2
5	T1	1	0.0	0.059	50.2	LOS D	0.3	2.1	0.97	0.65	31.6
6	R2	5	0.0	0.059	55.8	LOS D	0.3	2.1	0.97	0.65	31.2
Approach		7	0.0	0.059	52.9	LOS D	0.3	2.1	0.95	0.64	31.7
North: Croatia Avenue (N)											
7	L2	1	0.0	0.312	11.6	LOS A	7.8	54.8	0.41	0.37	53.2
8	T1	852	0.0	0.312	6.1	LOS A	7.8	54.8	0.41	0.36	54.5
9	R2	33	0.0	0.040	7.9	LOS A	0.3	2.2	0.29	0.62	51.8
Approach		885	0.0	0.312	6.2	LOS A	7.8	54.8	0.41	0.37	54.4
West: Ardennes Avenue (W)											
10	L2	14	0.0	0.041	42.1	LOS C	0.6	3.9	0.85	0.68	34.9
11	T1	1	0.0	0.029	49.6	LOS D	0.2	1.1	0.96	0.62	32.0
12	R2	2	0.0	0.029	55.2	LOS D	0.2	1.1	0.96	0.62	31.6
Approach		17	0.0	0.041	44.2	LOS D	0.6	3.9	0.87	0.67	34.3
All Vehicles		1279	0.0	0.312	6.7	LOS A	7.8	54.8	0.40	0.36	53.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

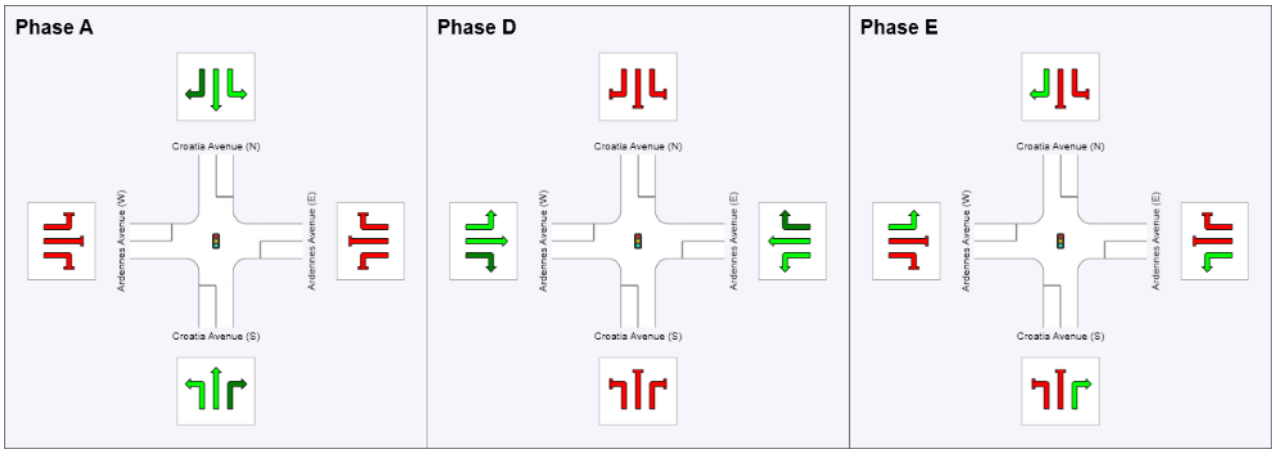
Site: 2026PM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

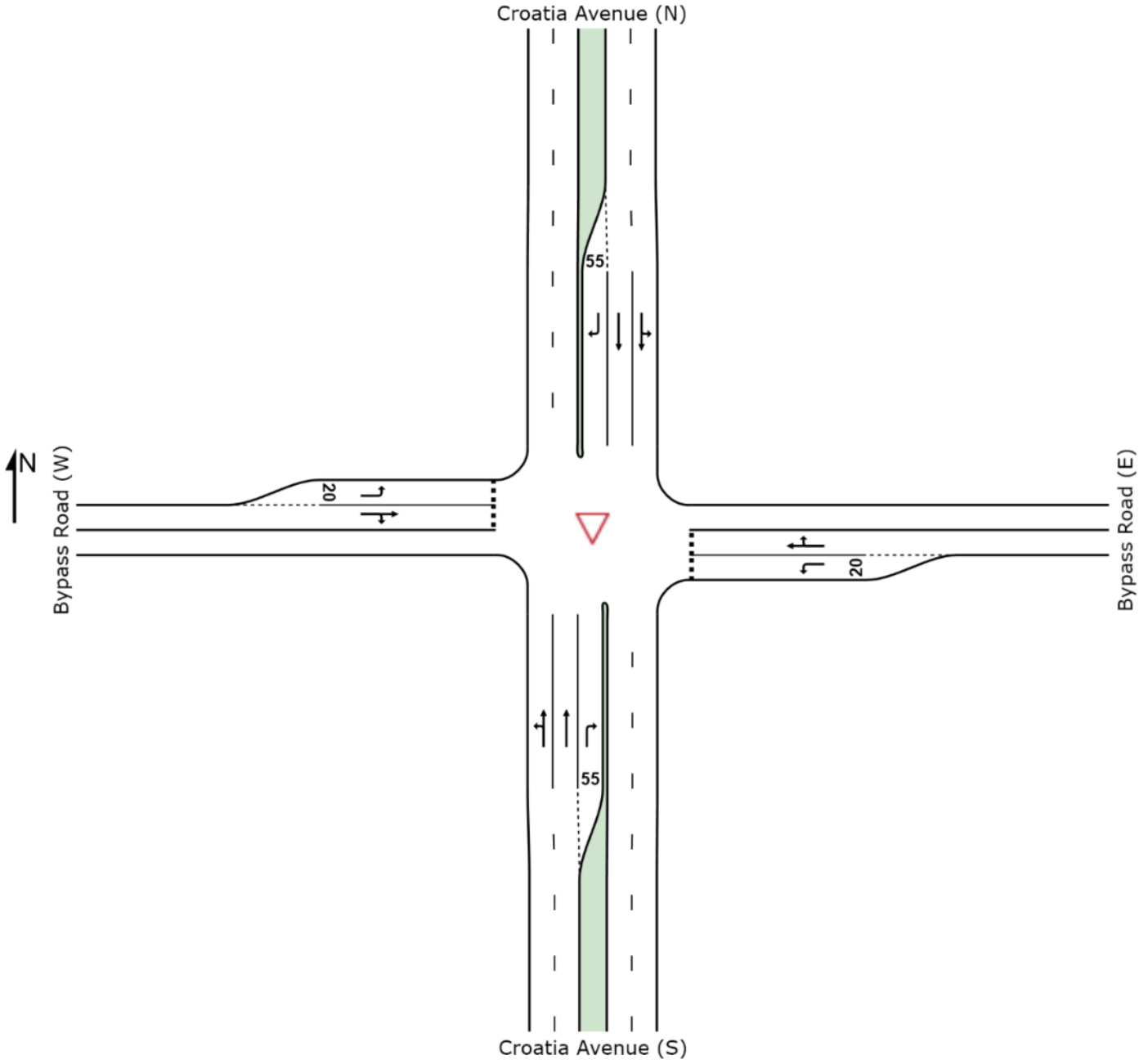
Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	76	88
Green Time (sec)	70	6	6
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	76	12	12
Phase Split	76 %	12 %	12 %



SITE LAYOUT

Site: 2026AM - Croatia-Bypass - Scenario 1

Croatia Avenue - Bypass Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2026AM - Croatia-Bypass - Scenario 1

Croatia Avenue - Bypass Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
2	T1	98	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
3	R2	61	0.0	0.047	5.9	LOS A	0.2	1.3	0.21	0.55	52.9
Approach		160	0.0	0.047	2.3	NA	0.2	1.3	0.08	0.21	57.0
East: Bypass Road (E)											
4	L2	54	0.0	0.042	5.7	LOS A	0.2	1.1	0.13	0.54	53.2
5	T1	140	0.0	0.360	13.3	LOS A	1.7	11.8	0.63	0.88	48.4
6	R2	4	0.0	0.360	28.8	LOS C	1.7	11.8	0.63	0.88	48.0
Approach		198	0.0	0.360	11.5	LOS A	1.7	11.8	0.50	0.79	49.6
North: Croatia Avenue (N)											
7	L2	1	0.0	0.028	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
8	T1	108	0.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
9	R2	194	0.0	0.147	5.9	LOS A	0.6	4.5	0.22	0.55	52.9
Approach		303	0.0	0.147	3.8	NA	0.6	4.5	0.14	0.35	55.3
West: Bypass Road (W)											
10	L2	238	0.0	0.186	5.8	LOS A	0.8	5.4	0.14	0.55	53.2
11	T1	116	0.0	0.291	12.4	LOS A	1.2	8.7	0.61	0.84	49.2
12	R2	3	0.0	0.291	20.3	LOS B	1.2	8.7	0.61	0.84	48.7
Approach		357	0.0	0.291	8.0	LOS A	1.2	8.7	0.30	0.64	51.8
All Vehicles		1018	0.0	0.360	6.6	NA	1.7	11.8	0.26	0.52	53.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026AM - Croatia-Bypass - Scenario 1

Croatia Avenue - Bypass Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
2	T1	98	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
3	R2	61	0.0	0.047	5.9	LOS A	0.2	1.3	0.21	0.55	52.9
Approach		160	0.0	0.047	2.3	NA	0.2	1.3	0.08	0.21	57.0
East: Bypass Road (E)											
4	L2	54	0.0	0.042	5.7	LOS A	0.2	1.1	0.13	0.54	53.2
5	T1	140	0.0	0.360	13.3	LOS A	1.7	11.8	0.63	0.88	48.4
6	R2	4	0.0	0.360	28.8	LOS C	1.7	11.8	0.63	0.88	48.0
Approach		198	0.0	0.360	11.5	LOS A	1.7	11.8	0.50	0.79	49.6
North: Croatia Avenue (N)											
7	L2	1	0.0	0.028	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
8	T1	108	0.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
9	R2	194	0.0	0.147	5.9	LOS A	0.6	4.5	0.22	0.55	52.9
Approach		303	0.0	0.147	3.8	NA	0.6	4.5	0.14	0.35	55.3
West: Bypass Road (W)											
10	L2	238	0.0	0.186	5.8	LOS A	0.8	5.4	0.14	0.55	53.2
11	T1	116	0.0	0.291	12.4	LOS A	1.2	8.7	0.61	0.84	49.2
12	R2	3	0.0	0.291	20.3	LOS B	1.2	8.7	0.61	0.84	48.7
Approach		357	0.0	0.291	8.0	LOS A	1.2	8.7	0.30	0.64	51.8
All Vehicles		1018	0.0	0.360	6.6	NA	1.7	11.8	0.26	0.52	53.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026AM - Croatia-Bypass - Scenario 1

Croatia Avenue - Bypass Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
2	T1	98	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
3	R2	61	0.0	0.047	5.9	LOS A	0.2	1.3	0.21	0.55	52.9
Approach		160	0.0	0.047	2.3	NA	0.2	1.3	0.08	0.21	57.0
East: Bypass Road (E)											
4	L2	54	0.0	0.042	5.7	LOS A	0.2	1.1	0.13	0.54	53.2
5	T1	140	0.0	0.360	13.3	LOS A	1.7	11.8	0.63	0.88	48.4
6	R2	4	0.0	0.360	28.8	LOS C	1.7	11.8	0.63	0.88	48.0
Approach		198	0.0	0.360	11.5	LOS A	1.7	11.8	0.50	0.79	49.6
North: Croatia Avenue (N)											
7	L2	1	0.0	0.028	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
8	T1	108	0.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
9	R2	194	0.0	0.147	5.9	LOS A	0.6	4.5	0.22	0.55	52.9
Approach		303	0.0	0.147	3.8	NA	0.6	4.5	0.14	0.35	55.3
West: Bypass Road (W)											
10	L2	238	0.0	0.186	5.8	LOS A	0.8	5.4	0.14	0.55	53.2
11	T1	116	0.0	0.291	12.4	LOS A	1.2	8.7	0.61	0.84	49.2
12	R2	3	0.0	0.291	20.3	LOS B	1.2	8.7	0.61	0.84	48.7
Approach		357	0.0	0.291	8.0	LOS A	1.2	8.7	0.30	0.64	51.8
All Vehicles		1018	0.0	0.360	6.6	NA	1.7	11.8	0.26	0.52	53.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026AM - Croatia-Bypass - Scenario 1

Croatia Avenue - Bypass Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

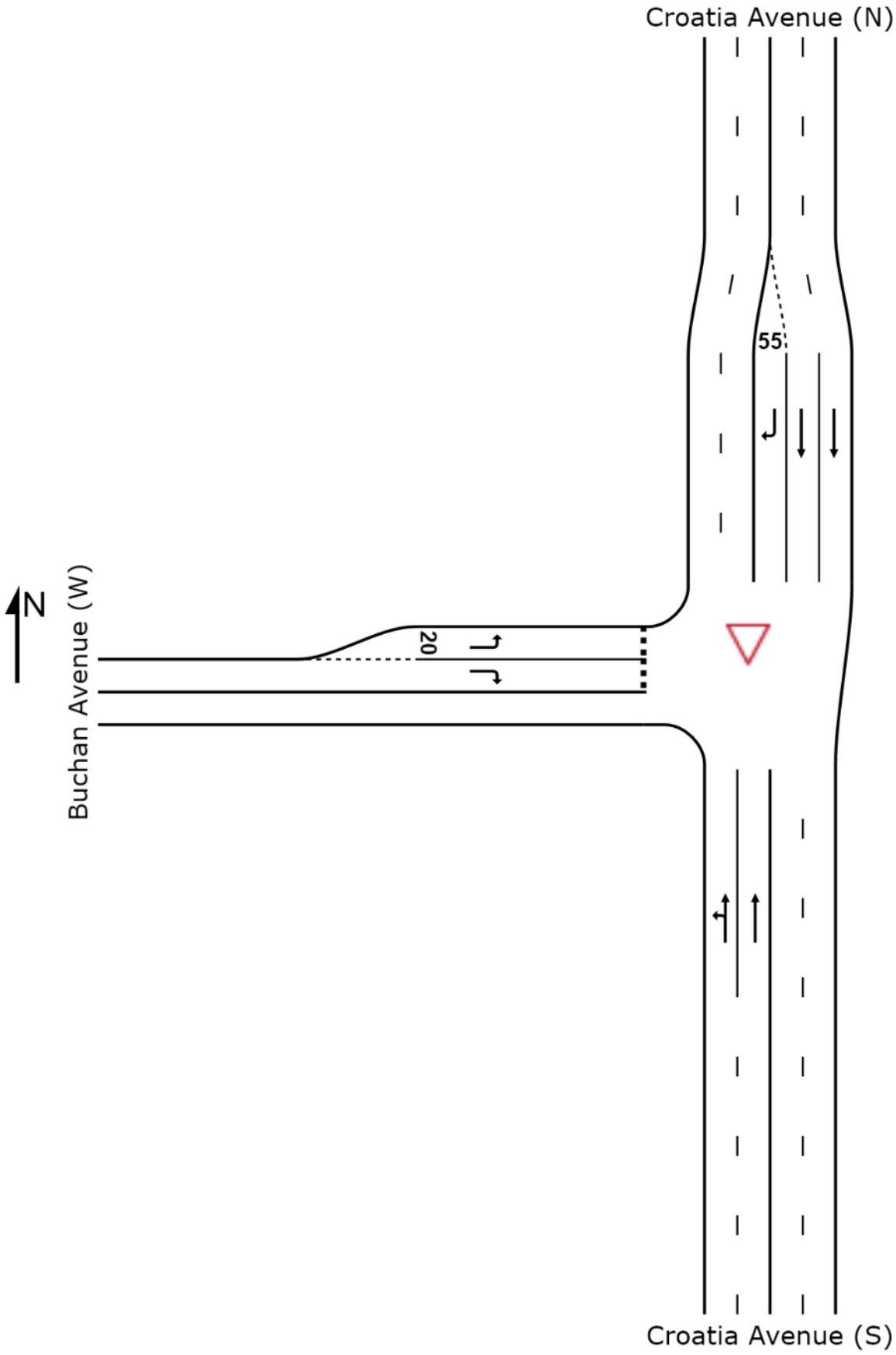
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
2	T1	98	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
3	R2	61	0.0	0.047	5.9	LOS A	0.2	1.3	0.21	0.55	52.9
Approach		160	0.0	0.047	2.3	NA	0.2	1.3	0.08	0.21	57.0
East: Bypass Road (E)											
4	L2	54	0.0	0.042	5.7	LOS A	0.2	1.1	0.13	0.54	53.2
5	T1	140	0.0	0.360	13.3	LOS A	1.7	11.8	0.63	0.88	48.4
6	R2	4	0.0	0.360	28.8	LOS C	1.7	11.8	0.63	0.88	48.0
Approach		198	0.0	0.360	11.5	LOS A	1.7	11.8	0.50	0.79	49.6
North: Croatia Avenue (N)											
7	L2	1	0.0	0.028	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
8	T1	108	0.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
9	R2	194	0.0	0.147	5.9	LOS A	0.6	4.5	0.22	0.55	52.9
Approach		303	0.0	0.147	3.8	NA	0.6	4.5	0.14	0.35	55.3
West: Bypass Road (W)											
10	L2	238	0.0	0.186	5.8	LOS A	0.8	5.4	0.14	0.55	53.2
11	T1	116	0.0	0.291	12.4	LOS A	1.2	8.7	0.61	0.84	49.2
12	R2	3	0.0	0.291	20.3	LOS B	1.2	8.7	0.61	0.84	48.7
Approach		357	0.0	0.291	8.0	LOS A	1.2	8.7	0.30	0.64	51.8
All Vehicles		1018	0.0	0.360	6.6	NA	1.7	11.8	0.26	0.52	53.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 2026AM - Croatia-Buchan - Scenario 1

Croatia Avenue - Buchan Avenue
Scenario 1
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2026AM - Croatia-Buchan - Scenario 1

Croatia Avenue - Buchan Avenue
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	48	0.0	0.049	5.5	LOS A	0.0	0.0	0.00	0.31	55.8
2	T1	141	0.0	0.049	0.0	LOS A	0.0	0.0	0.00	0.10	59.1
Approach		189	0.0	0.049	1.4	NA	0.0	0.0	0.00	0.15	58.2
North: Croatia Avenue (N)											
8	T1	144	0.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	20	0.0	0.017	6.2	LOS A	0.1	0.5	0.28	0.55	52.7
Approach		164	0.0	0.037	0.8	NA	0.1	0.5	0.03	0.07	59.0
West: Buchan Avenue (W)											
10	L2	17	0.0	0.013	5.7	LOS A	0.0	0.3	0.12	0.54	53.3
12	R2	49	0.0	0.081	8.4	LOS A	0.3	2.0	0.44	0.68	51.2
Approach		66	0.0	0.081	7.7	LOS A	0.3	2.0	0.36	0.65	51.7
All Vehicles		420	0.0	0.081	2.2	NA	0.3	2.0	0.07	0.20	57.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026PM - Croatia-Buchan - Scenario 1

Croatia Avenue - Buchan Avenue
Scenario 1
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	17	0.0	0.043	5.5	LOS A	0.0	0.0	0.00	0.12	57.3
2	T1	151	0.0	0.043	0.0	LOS A	0.0	0.0	0.00	0.05	59.5
Approach		167	0.0	0.043	0.6	NA	0.0	0.0	0.00	0.06	59.3
North: Croatia Avenue (N)											
8	T1	207	0.0	0.053	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	53	0.0	0.043	6.2	LOS A	0.2	1.2	0.27	0.56	52.8
Approach		260	0.0	0.053	1.3	NA	0.2	1.2	0.05	0.11	58.4
West: Buchan Avenue (W)											
10	L2	28	0.0	0.023	5.8	LOS A	0.1	0.6	0.15	0.54	53.2
12	R2	14	0.0	0.025	9.2	LOS A	0.1	0.6	0.48	0.68	50.7
Approach		42	0.0	0.025	6.9	LOS A	0.1	0.6	0.26	0.59	52.3
All Vehicles		469	0.0	0.053	1.5	NA	0.2	1.2	0.05	0.14	58.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026AM - Croatia-Buchan - Scenario 2

Croatia Avenue - Buchan Avenue
Scenario 2
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	14	0.0	0.037	5.5	LOS A	0.0	0.0	0.00	0.11	57.4
2	T1	129	0.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.05	59.5
Approach		143	0.0	0.037	0.5	NA	0.0	0.0	0.00	0.06	59.3
North: Croatia Avenue (N)											
8	T1	106	0.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	34	0.0	0.027	6.1	LOS A	0.1	0.7	0.24	0.55	52.8
Approach		140	0.0	0.027	1.5	NA	0.1	0.7	0.06	0.13	58.1
West: Buchan Avenue (W)											
10	L2	54	0.0	0.042	5.7	LOS A	0.2	1.1	0.14	0.54	53.2
12	R2	33	0.0	0.049	7.7	LOS A	0.2	1.2	0.40	0.64	51.7
Approach		86	0.0	0.049	6.5	LOS A	0.2	1.2	0.24	0.58	52.6
All Vehicles		369	0.0	0.049	2.3	NA	0.2	1.2	0.08	0.21	57.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026PM - Croatia-Buchan - Scenario 2

Croatia Avenue - Buchan Avenue
Scenario 2
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

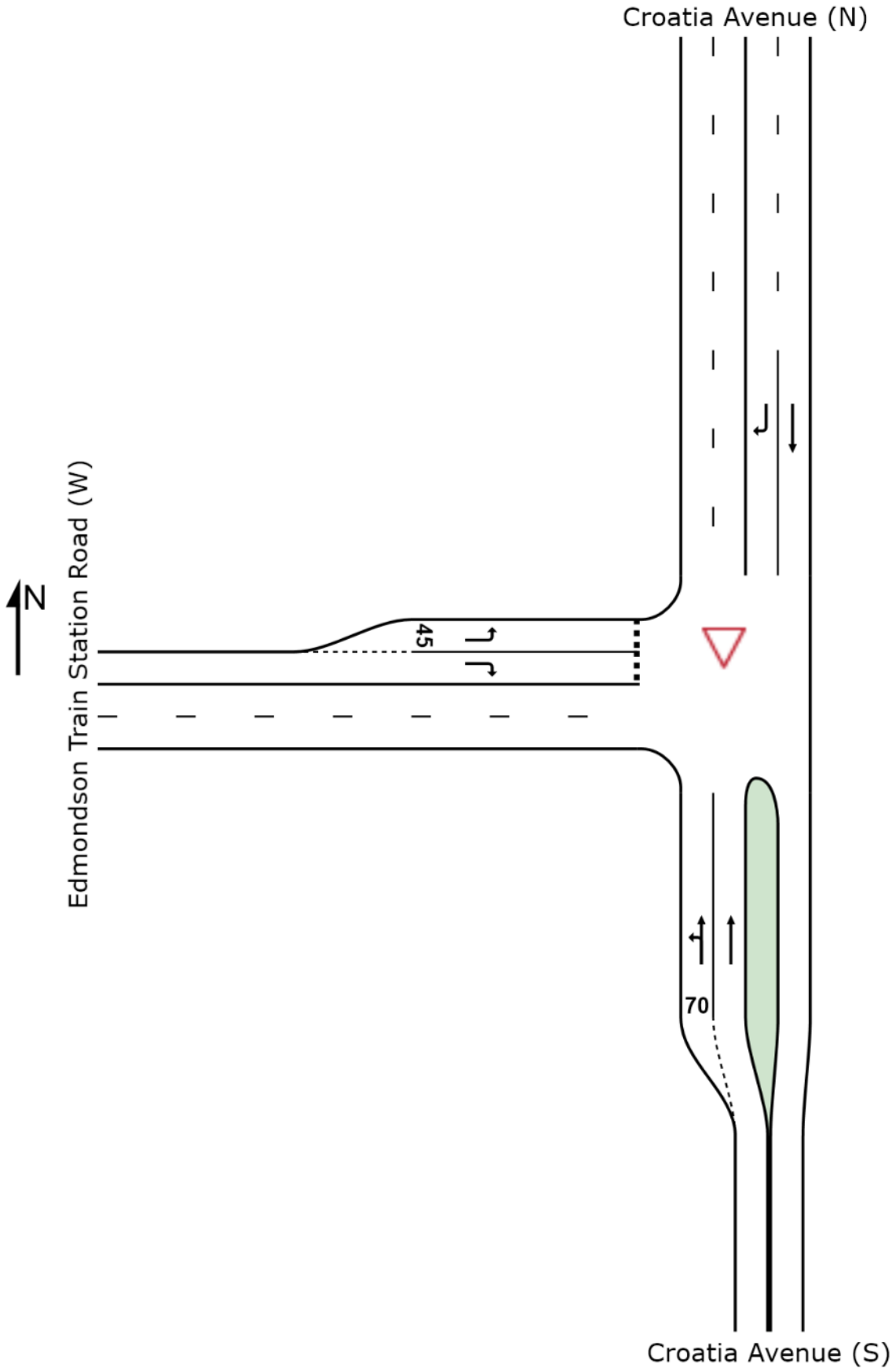
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	11	0.0	0.047	5.5	LOS A	0.0	0.0	0.00	0.07	57.8
2	T1	173	0.0	0.047	0.0	LOS A	0.0	0.0	0.00	0.03	59.7
Approach		183	0.0	0.047	0.3	NA	0.0	0.0	0.00	0.03	59.6
North: Croatia Avenue (N)											
8	T1	277	0.0	0.071	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	115	0.0	0.095	6.3	LOS A	0.4	2.7	0.30	0.57	52.7
Approach		392	0.0	0.095	1.8	NA	0.4	2.7	0.09	0.17	57.6
West: Buchan Avenue (W)											
10	L2	38	0.0	0.031	5.8	LOS A	0.1	0.8	0.17	0.54	53.1
12	R2	11	0.0	0.024	11.1	LOS A	0.1	0.6	0.55	0.73	49.3
Approach		48	0.0	0.031	7.0	LOS A	0.1	0.8	0.25	0.58	52.2
All Vehicles		623	0.0	0.095	1.8	NA	0.4	2.7	0.07	0.16	57.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 2026AM Croatia-TrainStation - Scenario 1

Croatia Avenue - Edmondson Train Station Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2026AM Croatia-TrainStation - Scenario 1

Croatia Avenue - Edmondson Train Station Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	16	0.0	0.046	5.5	LOS A	0.0	0.0	0.00	0.11	57.5
2	T1	161	0.0	0.046	0.0	LOS A	0.0	0.0	0.00	0.05	59.6
Approach		177	0.0	0.046	0.5	NA	0.0	0.0	0.00	0.05	59.4
North: Croatia Avenue (N)											
8	T1	173	0.0	0.089	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	27	0.0	0.022	6.2	LOS A	0.1	0.6	0.27	0.55	52.8
Approach		200	0.0	0.089	0.9	NA	0.1	0.6	0.04	0.08	58.9
West: Edmondson Train Station Road (W)											
10	L2	29	0.0	0.024	5.8	LOS A	0.1	0.6	0.15	0.54	53.1
12	R2	9	0.0	0.014	8.1	LOS A	0.1	0.4	0.45	0.62	51.7
Approach		39	0.0	0.024	6.4	LOS A	0.1	0.6	0.23	0.56	52.8
All Vehicles		416	0.0	0.089	1.2	NA	0.1	0.6	0.04	0.11	58.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026PM Croatia-TrainStation - Scenario 1

Croatia Avenue - Edmondson Train Station Road
Scenario 1
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	17	0.0	0.040	5.5	LOS A	0.0	0.0	0.00	0.13	57.3
2	T1	137	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.06	59.5
Approach		154	0.0	0.040	0.6	NA	0.0	0.0	0.00	0.07	59.2
North: Croatia Avenue (N)											
8	T1	108	0.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	57	0.0	0.046	6.1	LOS A	0.2	1.3	0.26	0.55	52.8
Approach		165	0.0	0.056	2.1	NA	0.2	1.3	0.09	0.19	57.3
West: Edmondson Train Station Road (W)											
10	L2	34	0.0	0.027	5.7	LOS A	0.1	0.7	0.14	0.54	53.2
12	R2	8	0.0	0.011	7.6	LOS A	0.0	0.3	0.41	0.59	52.1
Approach		42	0.0	0.027	6.1	LOS A	0.1	0.7	0.19	0.55	53.0
All Vehicles		361	0.0	0.056	1.9	NA	0.2	1.3	0.06	0.18	57.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026AM Croatia-TrainStation - Scenario 2

Croatia Avenue - Edmondson Train Station Road
Scenario 2
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	15	0.0	0.044	5.5	LOS A	0.0	0.0	0.00	0.10	57.5
2	T1	155	0.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.05	59.6
Approach		169	0.0	0.044	0.5	NA	0.0	0.0	0.00	0.05	59.4
North: Croatia Avenue (N)											
8	T1	113	0.0	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	39	0.0	0.032	6.2	LOS A	0.1	0.9	0.27	0.55	52.8
Approach		152	0.0	0.058	1.6	NA	0.1	0.9	0.07	0.14	58.0
West: Edmondson Train Station Road (W)											
10	L2	33	0.0	0.026	5.8	LOS A	0.1	0.6	0.15	0.54	53.1
12	R2	80	0.0	0.108	7.9	LOS A	0.4	3.0	0.44	0.66	51.8
Approach		113	0.0	0.108	7.3	LOS A	0.4	3.0	0.36	0.63	52.2
All Vehicles		434	0.0	0.108	2.6	NA	0.4	3.0	0.12	0.23	56.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2026PM Croatia-TrainStation - Scenario 2

Croatia Avenue - Edmondson Train Station Road
Scenario 2
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	13	0.0	0.040	5.5	LOS A	0.0	0.0	0.00	0.10	57.5
2	T1	144	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.04	59.6
Approach		157	0.0	0.040	0.4	NA	0.0	0.0	0.00	0.05	59.4
North: Croatia Avenue (N)											
8	T1	111	0.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	131	0.0	0.105	6.2	LOS A	0.4	3.1	0.27	0.57	52.8
Approach		241	0.0	0.105	3.3	NA	0.4	3.1	0.15	0.31	55.8
West: Edmondson Train Station Road (W)											
10	L2	47	0.0	0.038	5.8	LOS A	0.1	0.9	0.15	0.54	53.2
12	R2	4	0.0	0.006	8.2	LOS A	0.0	0.2	0.46	0.60	51.6
Approach		52	0.0	0.038	6.0	LOS A	0.1	0.9	0.17	0.55	53.0
All Vehicles		449	0.0	0.105	2.6	NA	0.4	3.1	0.10	0.24	56.7

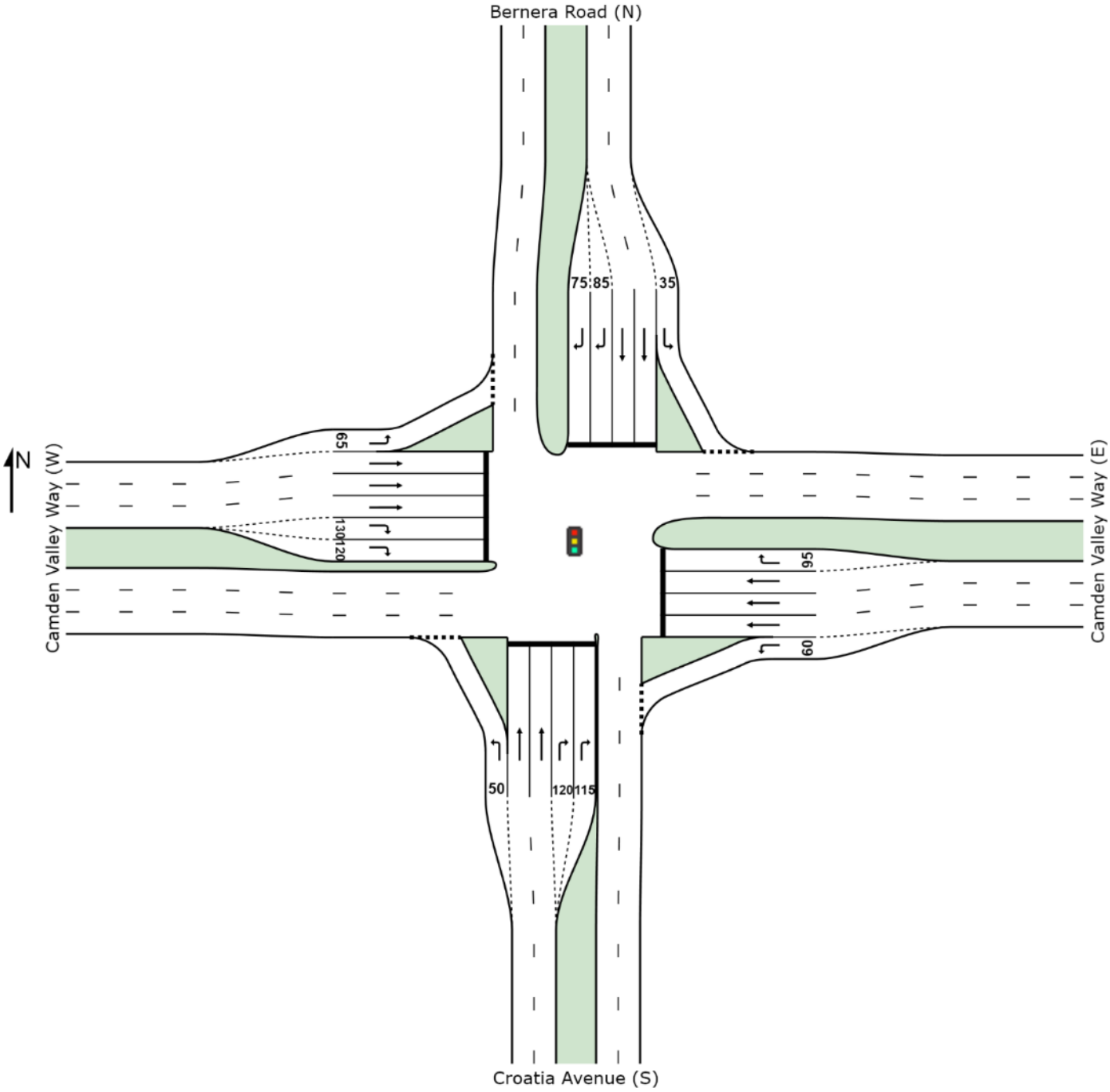
Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

2036

SITE LAYOUT

Site: 2036AM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Coordinated



Organisation: BITZIOS CONSULTING | Created: Wednesday, 7 December 2016 9:42:32 AM
Project: C:\Users\Matthew\Desktop\P2662\2036\P2662.001M 2036 CVW - Croatia Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2036AM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	286	0.0	0.214	7.1	LOS A	2.6	18.4	0.23	0.62	53.1
2	T1	332	0.0	0.510	49.9	LOS D	9.0	63.0	0.96	0.78	33.3
3	R2	846	0.0	0.911	68.9	LOS E	29.0	202.9	1.00	1.01	28.1
Approach		1464	0.0	0.911	52.5	LOS D	29.0	202.9	0.84	0.88	32.2
East: Camden Valley Way (E)											
4	L2	323	0.0	0.238	5.9	LOS A	0.4	2.8	0.03	0.56	54.1
5	T1	542	0.0	0.428	44.0	LOS D	8.6	60.5	0.86	0.71	35.0
6	R2	220	0.0	0.711	58.7	LOS E	12.7	88.7	1.00	0.86	30.6
Approach		1085	0.0	0.711	35.6	LOS C	12.7	88.7	0.64	0.69	37.9
North: Bernera Road (N)											
7	L2	269	0.0	0.305	22.1	LOS B	9.2	64.2	0.64	0.74	43.7
8	T1	196	0.0	0.301	47.8	LOS D	5.1	35.7	0.92	0.73	33.9
9	R2	356	0.0	0.383	45.9	LOS D	8.7	60.7	0.88	0.79	34.3
Approach		821	0.0	0.383	38.6	LOS C	9.2	64.2	0.81	0.76	36.7
West: Camden Valley Way (W)											
10	L2	540	0.0	0.423	6.6	LOS A	2.1	14.9	0.08	0.58	53.5
11	T1	969	0.0	0.765	49.6	LOS D	17.9	125.4	0.97	0.86	33.2
12	R2	363	0.0	0.587	56.4	LOS D	10.0	70.2	0.97	0.81	31.2
Approach		1873	0.0	0.765	38.5	LOS C	17.9	125.4	0.72	0.77	36.8
All Vehicles		5243	0.0	0.911	41.8	LOS C	29.0	202.9	0.75	0.78	35.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

PHASING SUMMARY

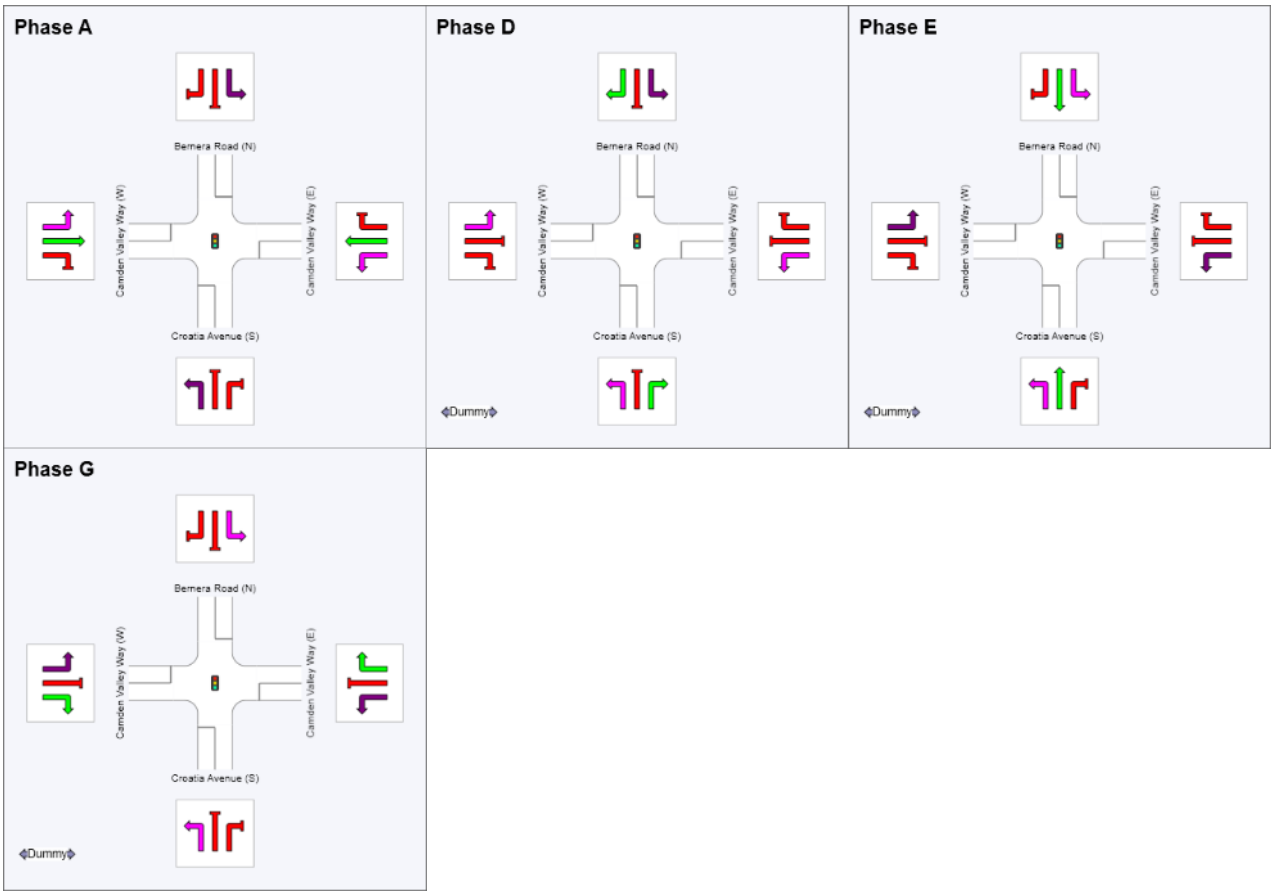
Site: 2036AM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Double Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	32	68	94
Green Time (sec)	26	30	20	20
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	32	36	26	26
Phase Split	27 %	30 %	22 %	22 %



The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

MOVEMENT SUMMARY

Site: 2036PM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
1700-1800
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	188	0.0	0.161	9.6	LOS A	2.9	20.1	0.34	0.65	51.2
2	T1	125	0.0	0.257	52.2	LOS D	3.4	23.7	0.94	0.72	32.6
3	R2	197	0.0	0.489	61.8	LOS E	5.6	39.4	0.99	0.78	29.7
Approach		511	0.0	0.489	40.2	LOS C	5.6	39.4	0.74	0.72	36.1
East: Camden Valley Way (E)											
4	L2	541	0.0	0.445	9.3	LOS A	5.6	39.0	0.22	0.64	51.5
5	T1	793	0.0	0.346	24.7	LOS B	8.9	62.5	0.62	0.53	42.8
6	R2	206	0.0	0.635	56.0	LOS D	11.4	80.0	0.98	0.82	31.3
Approach		1540	0.0	0.635	23.5	LOS B	11.4	80.0	0.53	0.61	43.2
North: Bernera Road (N)											
7	L2	184	0.0	0.167	7.8	LOS A	2.1	14.7	0.26	0.63	52.5
8	T1	326	0.0	0.669	56.2	LOS D	9.5	66.5	1.00	0.83	31.5
9	R2	367	0.0	0.913	78.1	LOS F	12.6	88.4	1.00	1.03	26.4
Approach		878	0.0	0.913	55.2	LOS D	12.6	88.4	0.85	0.87	31.6
West: Camden Valley Way (W)											
10	L2	294	0.0	0.213	5.9	LOS A	0.4	2.5	0.03	0.56	54.1
11	T1	641	0.0	0.280	24.0	LOS B	6.9	48.4	0.59	0.50	43.2
12	R2	585	0.0	0.900	71.9	LOS F	19.8	138.3	1.00	1.00	27.6
Approach		1520	0.0	0.900	38.9	LOS C	19.8	138.3	0.64	0.70	36.6
All Vehicles		4448	0.0	0.913	36.9	LOS C	19.8	138.3	0.65	0.71	37.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

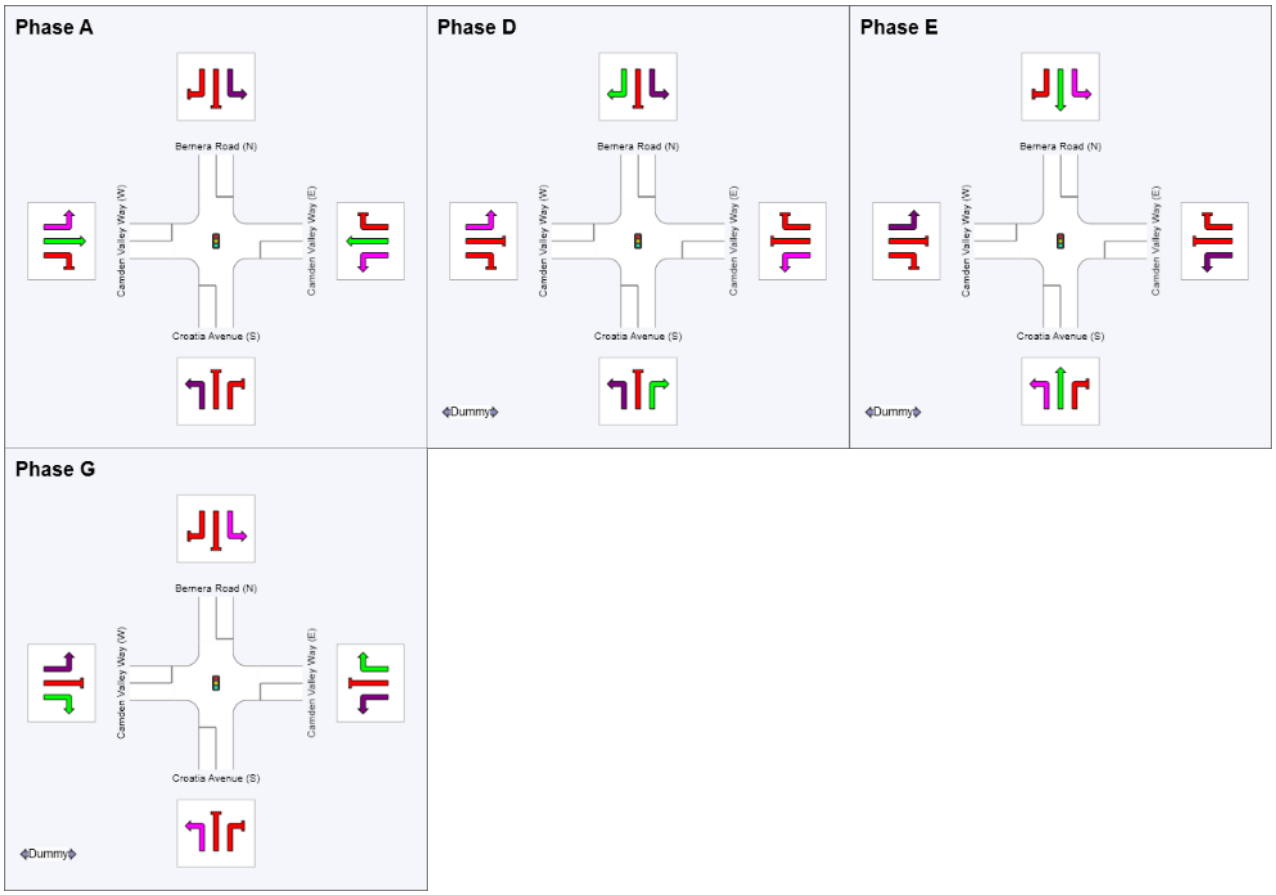
Site: 2036PM - CVW-Croatia - Scenario 1

Camden Valley Way - Croatia Avenue
Scenario 1
1700-1800
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Double Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

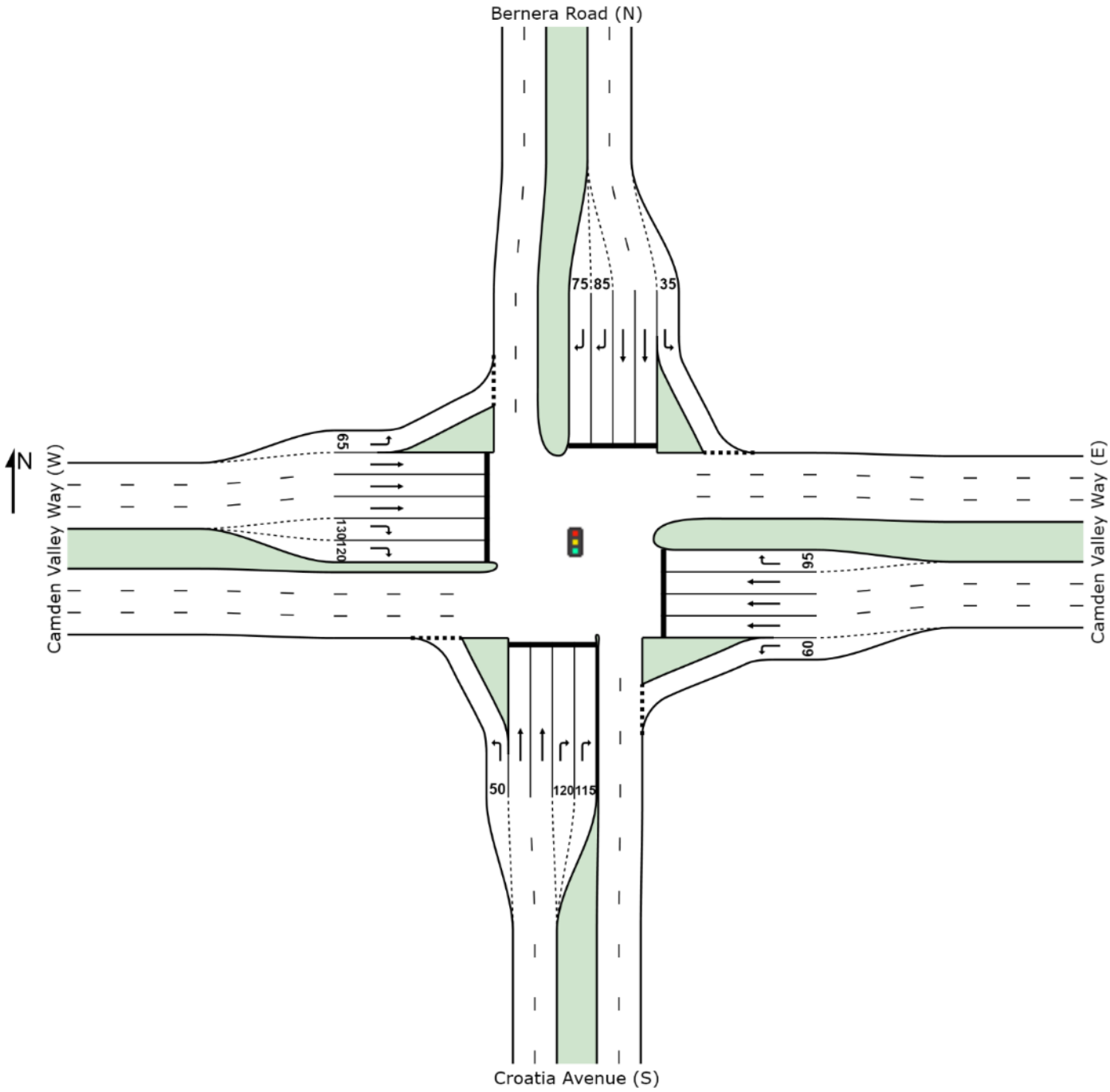
Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	53	72	93
Green Time (sec)	47	13	15	21
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	53	19	21	27
Phase Split	44 %	16 %	18 %	23 %



SITE LAYOUT

Site: 2036AM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Coordinated



Organisation: BITZIOS CONSULTING | Created: Wednesday, 7 December 2016 9:44:47 AM
Project: C:\Users\Matthew\Desktop\P2662\2036\P2662.001M 2036 CVW - Croatia Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2036AM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	320	0.0	0.256	8.4	LOS A	4.3	30.0	0.31	0.65	52.1
2	T1	496	0.0	0.763	54.7	LOS D	14.6	102.4	1.00	0.89	31.9
3	R2	1035	0.0	0.880	57.8	LOS E	32.9	230.1	1.00	0.97	30.7
Approach		1851	0.0	0.880	48.4	LOS D	32.9	230.1	0.88	0.89	33.4
East: Camden Valley Way (E)											
4	L2	445	0.0	0.333	5.9	LOS A	0.7	4.6	0.03	0.56	54.0
5	T1	406	0.0	0.463	51.2	LOS D	7.1	49.9	0.93	0.74	32.8
6	R2	152	0.0	0.490	55.4	LOS D	8.2	57.5	0.96	0.80	31.4
Approach		1003	0.0	0.490	31.7	LOS C	8.2	57.5	0.53	0.67	39.4
North: Bernera Road (N)											
7	L2	212	0.0	0.237	20.1	LOS B	6.6	46.3	0.60	0.72	44.7
8	T1	278	0.0	0.428	49.0	LOS D	7.4	51.9	0.94	0.76	33.5
9	R2	328	0.0	0.279	38.5	LOS C	7.2	50.2	0.79	0.77	36.8
Approach		818	0.0	0.428	37.3	LOS C	7.4	51.9	0.79	0.75	37.2
West: Camden Valley Way (W)											
10	L2	385	0.0	0.309	7.4	LOS A	2.2	15.3	0.12	0.59	52.9
11	T1	681	0.0	0.776	56.2	LOS D	13.3	93.0	1.00	0.88	31.4
12	R2	341	0.0	0.551	56.0	LOS D	9.3	65.4	0.97	0.81	31.3
Approach		1407	0.0	0.776	42.8	LOS D	13.3	93.0	0.75	0.78	35.3
All Vehicles		5079	0.0	0.880	41.8	LOS C	32.9	230.1	0.76	0.80	35.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

PHASING SUMMARY

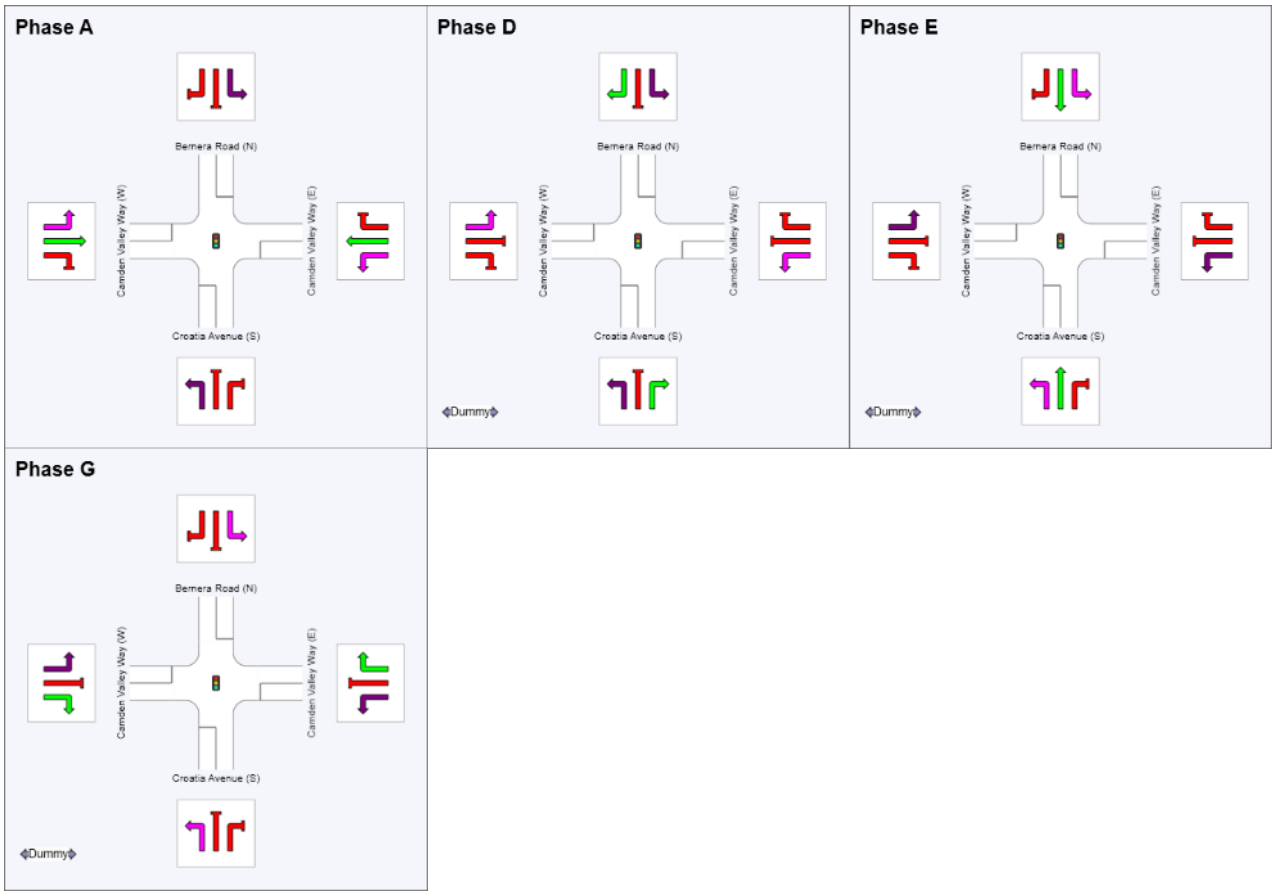
Site: 2036AM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Double Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	24	68	94
Green Time (sec)	18	38	20	20
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	24	44	26	26
Phase Split	20 %	37 %	22 %	22 %



The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

MOVEMENT SUMMARY

Site: 2036PM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
1700-1800
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	213	0.0	0.181	9.7	LOS A	3.3	23.2	0.34	0.65	51.2
2	T1	99	0.0	0.203	51.7	LOS D	2.7	18.6	0.93	0.70	32.7
3	R2	178	0.0	0.442	61.4	LOS E	5.0	35.3	0.98	0.77	29.8
Approach		489	0.0	0.442	37.0	LOS C	5.0	35.3	0.69	0.71	37.2
East: Camden Valley Way (E)											
4	L2	588	0.0	0.495	10.6	LOS A	7.1	50.0	0.27	0.68	50.6
5	T1	798	0.0	0.356	25.7	LOS B	9.2	64.5	0.64	0.54	42.3
6	R2	191	0.0	0.560	54.4	LOS D	10.3	72.3	0.96	0.81	31.7
Approach		1577	0.0	0.560	23.5	LOS B	10.3	72.3	0.54	0.63	43.2
North: Bernera Road (N)											
7	L2	180	0.0	0.160	7.6	LOS A	1.9	13.5	0.25	0.63	52.7
8	T1	359	0.0	0.736	57.9	LOS E	10.7	75.0	1.00	0.87	31.0
9	R2	360	0.0	0.895	75.4	LOS F	12.1	84.6	1.00	1.01	26.9
Approach		899	0.0	0.895	54.8	LOS D	12.1	84.6	0.85	0.88	31.7
West: Camden Valley Way (W)											
10	L2	318	0.0	0.227	5.9	LOS A	0.4	2.7	0.03	0.56	54.1
11	T1	616	0.0	0.275	24.7	LOS B	6.8	47.3	0.60	0.51	42.8
12	R2	605	0.0	0.889	69.5	LOS E	20.1	140.5	1.00	0.99	28.1
Approach		1539	0.0	0.889	38.4	LOS C	20.1	140.5	0.64	0.71	36.8
All Vehicles		4504	0.0	0.895	36.3	LOS C	20.1	140.5	0.65	0.71	37.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

PHASING SUMMARY

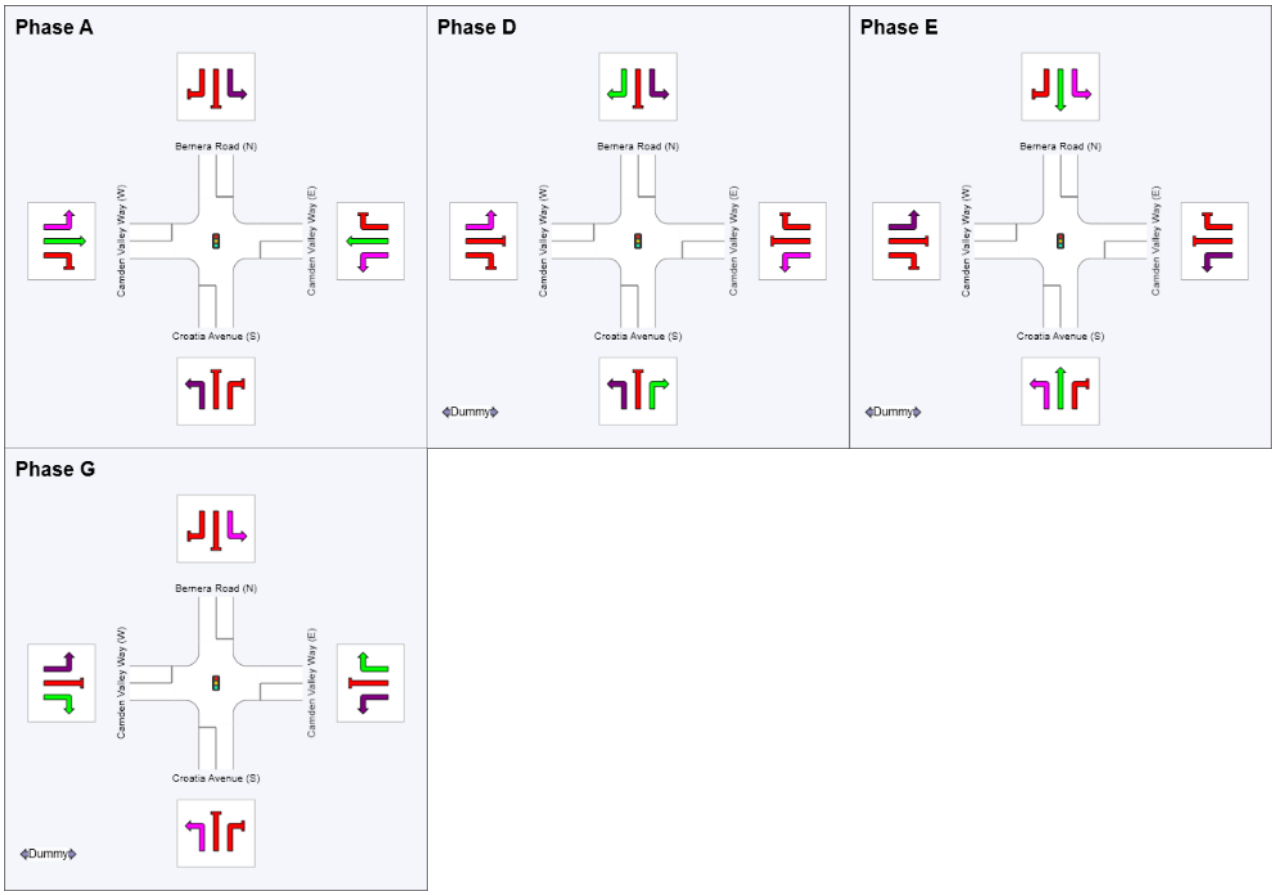
Site: 2036PM - CVW-Croatia - Scenario 2

Camden Valley Way - Croatia Avenue
Scenario 2
1700-1800
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: Double Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	52	71	92
Green Time (sec)	46	13	15	22
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	52	19	21	28
Phase Split	43 %	16 %	18 %	23 %

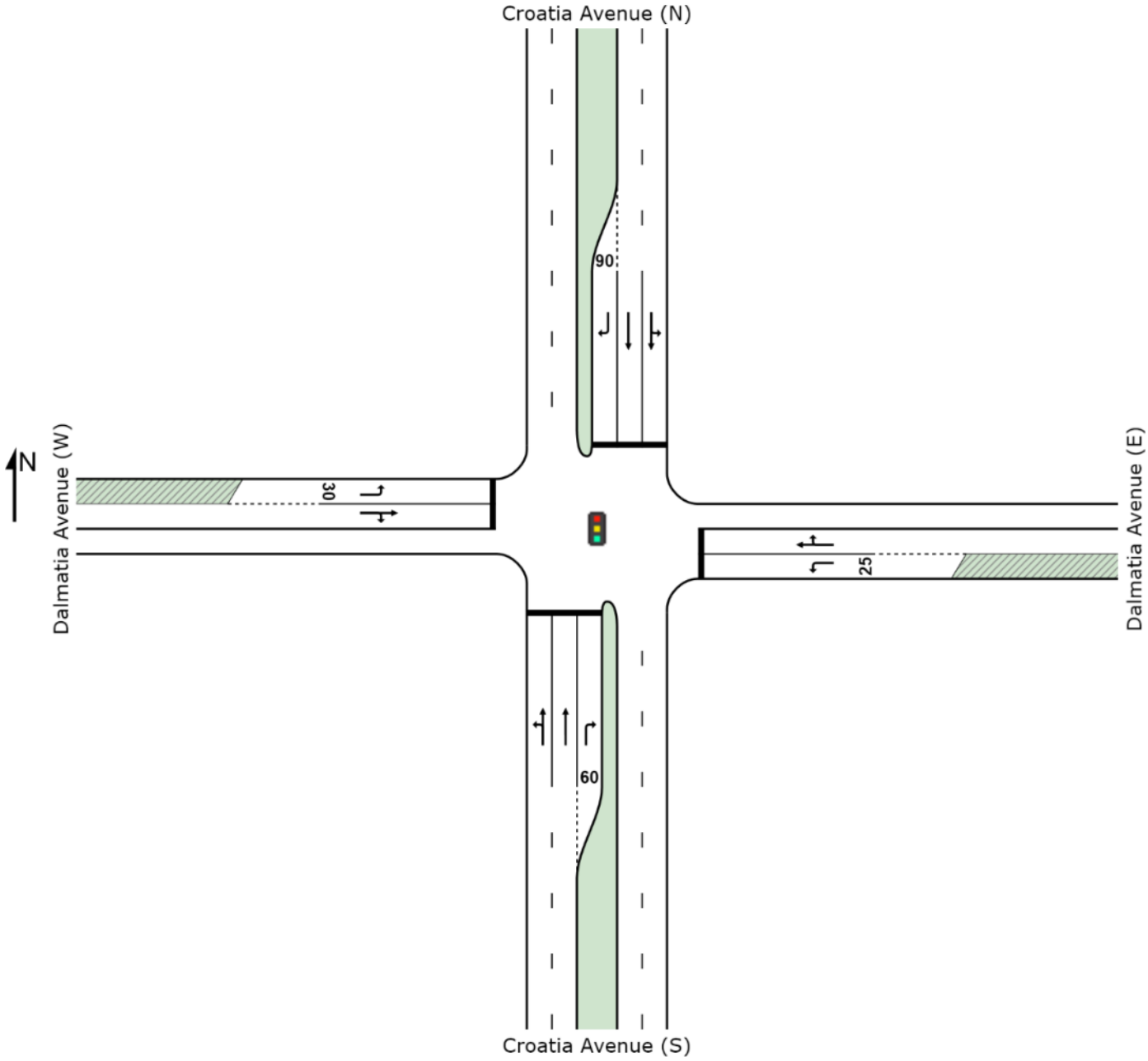


The results of iterative calculations indicate a somewhat unstable solution. See the Diagnostics section in the Detailed Output report.

SITE LAYOUT

Site: 2036AM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated



Organisation: BITZIOS CONSULTING | Created: Wednesday, 7 December 2016 10:51:10 AM
Project: C:\Users\Matthew\Desktop\P2662\2036\P2662.001M 2036 Croatia Ave - Dalmatia Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2036AM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	3	0.0	0.519	29.9	LOS C	14.9	104.4	0.81	0.71	42.0
2	T1	806	0.0	0.519	24.4	LOS B	14.9	104.4	0.81	0.71	42.8
3	R2	3	0.0	0.014	47.6	LOS D	0.1	1.0	0.90	0.63	33.2
Approach		813	0.0	0.519	24.5	LOS B	14.9	104.4	0.81	0.71	42.8
East: Dalmatia Avenue (E)											
4	L2	15	0.0	0.017	19.8	LOS B	0.4	2.6	0.54	0.65	44.3
5	T1	68	0.0	0.501	33.9	LOS C	7.6	53.4	0.89	0.78	37.2
6	R2	113	0.0	0.501	39.5	LOS C	7.6	53.4	0.89	0.78	36.6
Approach		196	0.0	0.501	36.1	LOS C	7.6	53.4	0.87	0.77	37.3
North: Croatia Avenue (N)											
7	L2	2	0.0	0.276	27.2	LOS B	7.0	49.2	0.72	0.60	43.3
8	T1	428	0.0	0.276	21.6	LOS B	7.0	49.3	0.72	0.60	44.2
9	R2	111	0.0	0.496	51.7	LOS D	5.3	36.8	0.98	0.78	32.0
Approach		541	0.0	0.496	27.8	LOS B	7.0	49.3	0.77	0.64	41.0
West: Dalmatia Avenue (W)											
10	L2	180	0.0	0.202	21.5	LOS B	5.0	35.0	0.61	0.73	43.5
11	T1	85	0.0	0.186	28.7	LOS C	3.6	25.1	0.79	0.64	40.5
12	R2	13	0.0	0.186	34.3	LOS C	3.6	25.1	0.79	0.64	39.8
Approach		278	0.0	0.202	24.3	LOS B	5.0	35.0	0.67	0.70	42.3
All Vehicles		1827	0.0	0.519	26.7	LOS B	14.9	104.4	0.78	0.69	41.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

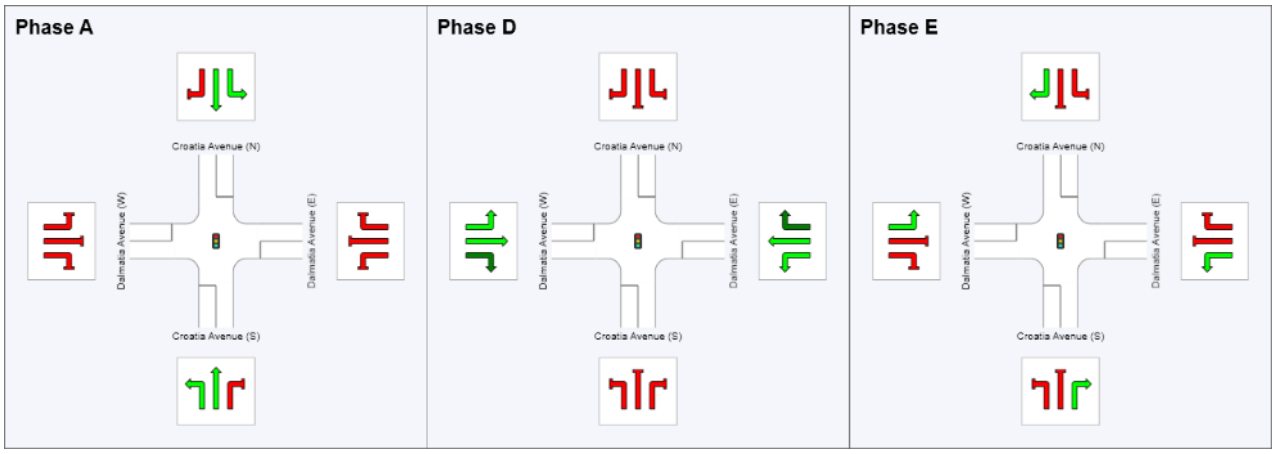
Site: 2036AM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	46	82
Green Time (sec)	40	30	12
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	46	36	18
Phase Split	46 %	36 %	18 %



Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes
Undetected Movement
Phase Transition Applied

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	21	0.0	0.199	16.1	LOS B	5.1	35.7	0.51	0.46	49.6
2	T1	428	0.0	0.199	10.5	LOS A	5.1	35.9	0.51	0.44	51.0
3	R2	21	0.0	0.063	42.4	LOS C	0.9	6.0	0.86	0.70	34.8
Approach		471	0.0	0.199	12.2	LOS A	5.1	35.9	0.52	0.45	49.9
East: Dalmatia Avenue (E)											
4	L2	12	0.0	0.021	31.7	LOS C	0.4	2.7	0.73	0.67	38.8
5	T1	1	0.0	0.379	52.2	LOS D	2.2	15.2	1.00	0.73	30.9
6	R2	42	0.0	0.379	57.7	LOS E	2.2	15.2	1.00	0.73	30.4
Approach		55	0.0	0.379	52.1	LOS D	2.2	15.2	0.94	0.72	31.9
North: Croatia Avenue (N)											
7	L2	43	0.0	0.484	18.6	LOS B	15.3	107.4	0.63	0.58	48.0
8	T1	1049	0.0	0.484	13.0	LOS A	15.4	107.8	0.63	0.57	49.3
9	R2	154	0.0	0.460	45.9	LOS D	6.9	48.1	0.94	0.80	33.7
Approach		1246	0.0	0.484	17.3	LOS B	15.4	107.8	0.67	0.60	46.6
West: Dalmatia Avenue (W)											
10	L2	11	0.0	0.019	31.7	LOS C	0.4	2.5	0.73	0.66	38.8
11	T1	1	0.0	0.114	50.6	LOS D	0.6	4.3	0.97	0.68	31.4
12	R2	12	0.0	0.114	56.2	LOS D	0.6	4.3	0.97	0.68	30.9
Approach		23	0.0	0.114	44.8	LOS D	0.6	4.3	0.86	0.67	34.1
All Vehicles		1795	0.0	0.484	17.4	LOS B	15.4	107.8	0.64	0.56	46.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

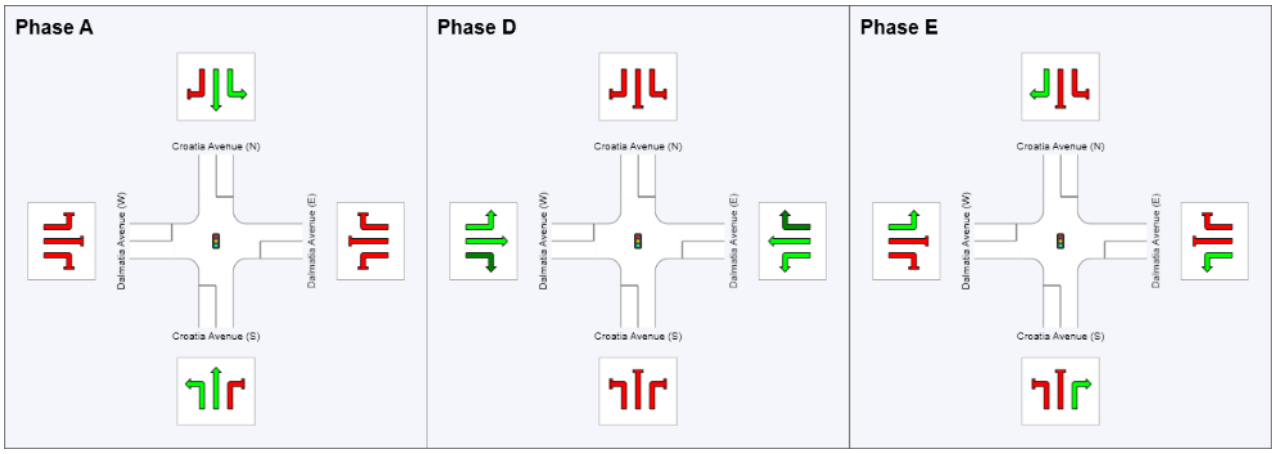
Site: 2036PM - Croatia-Dalmatia - Scenario 1

Croatia Avenue - Dalmatia Avenue
Scenario 1
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	64	76
Green Time (sec)	58	6	18
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	64	12	24
Phase Split	64 %	12 %	24 %

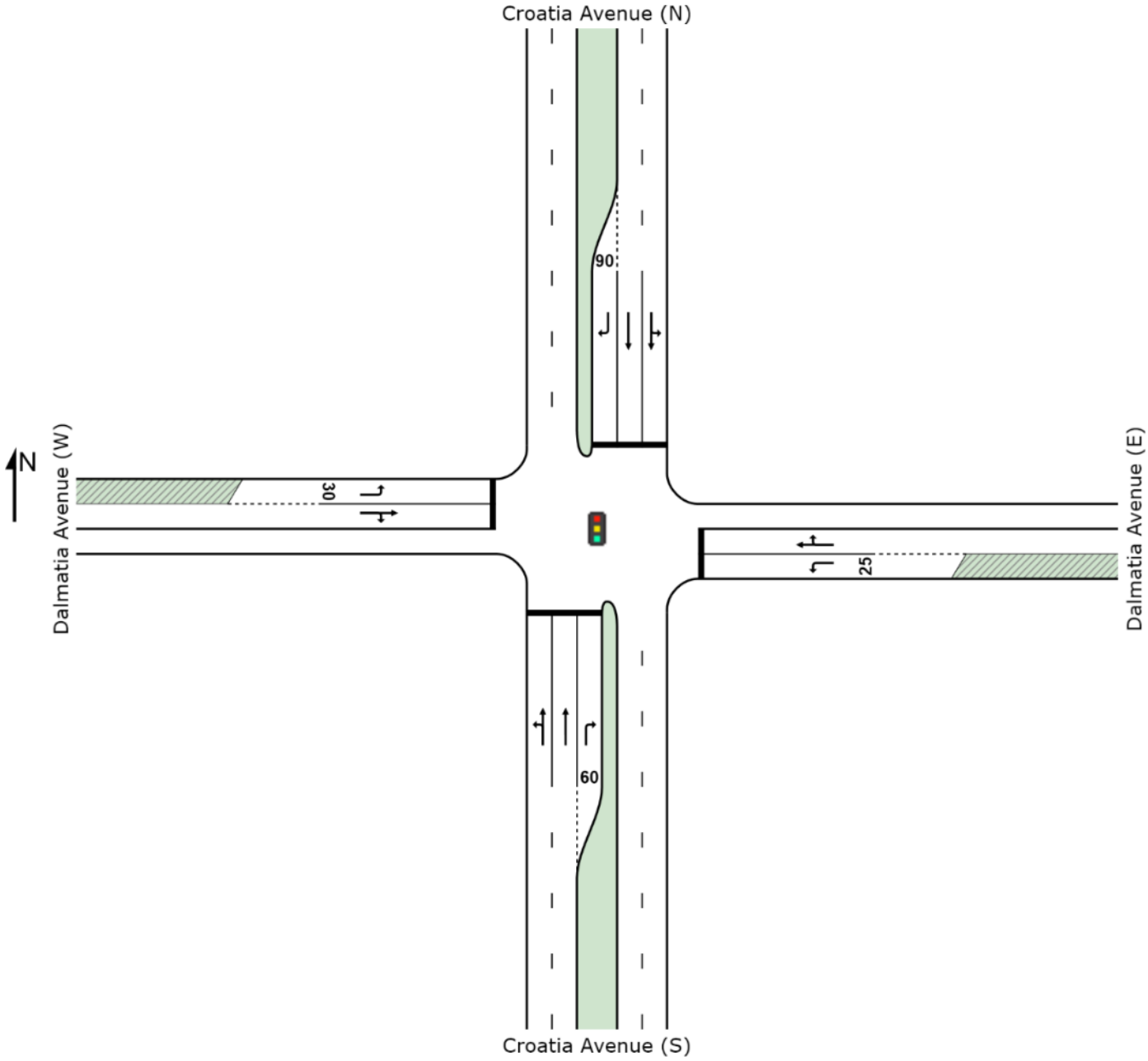


Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes
Undetected Movement
Phase Transition Applied

SITE LAYOUT

Site: 2036AM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated



Organisation: BITZIOS CONSULTING | Created: Wednesday, 7 December 2016 10:52:35 AM
Project: C:\Users\Matthew\Desktop\P2662\2036\P2662.001M 2036 Croatia Ave - Dalmatia Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2036AM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	5	0.0	0.739	35.3	LOS C	22.7	159.1	0.93	0.83	39.5
2	T1	1034	0.0	0.739	29.6	LOS C	22.7	159.1	0.92	0.82	40.4
3	R2	46	0.0	0.178	47.4	LOS D	2.0	14.3	0.92	0.74	33.2
Approach		1085	0.0	0.739	30.3	LOS C	22.7	159.1	0.92	0.82	40.0
East: Dalmatia Avenue (E)											
4	L2	23	0.0	0.037	29.0	LOS C	0.7	5.2	0.69	0.68	39.9
5	T1	35	0.0	0.714	47.2	LOS D	9.0	62.7	1.00	0.86	32.5
6	R2	146	0.0	0.714	52.7	LOS D	9.0	62.7	1.00	0.86	32.0
Approach		204	0.0	0.714	49.1	LOS D	9.0	62.7	0.97	0.84	32.8
North: Croatia Avenue (N)											
7	L2	5	0.0	0.416	30.7	LOS C	10.9	76.1	0.79	0.68	41.6
8	T1	595	0.0	0.416	25.2	LOS B	10.9	76.2	0.79	0.68	42.4
9	R2	192	0.0	0.737	53.5	LOS D	9.6	67.3	1.00	0.87	31.5
Approach		792	0.0	0.737	32.1	LOS C	10.9	76.2	0.84	0.72	39.1
West: Dalmatia Avenue (W)											
10	L2	237	0.0	0.510	25.5	LOS B	6.9	48.0	0.91	0.80	41.5
11	T1	139	0.0	0.741	50.5	LOS D	8.1	56.4	1.00	0.88	32.7
12	R2	19	0.0	0.741	56.0	LOS D	8.1	56.4	1.00	0.88	32.2
Approach		395	0.0	0.741	35.8	LOS C	8.1	56.4	0.94	0.83	37.4
All Vehicles		2476	0.0	0.741	33.3	LOS C	22.7	159.1	0.90	0.79	38.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

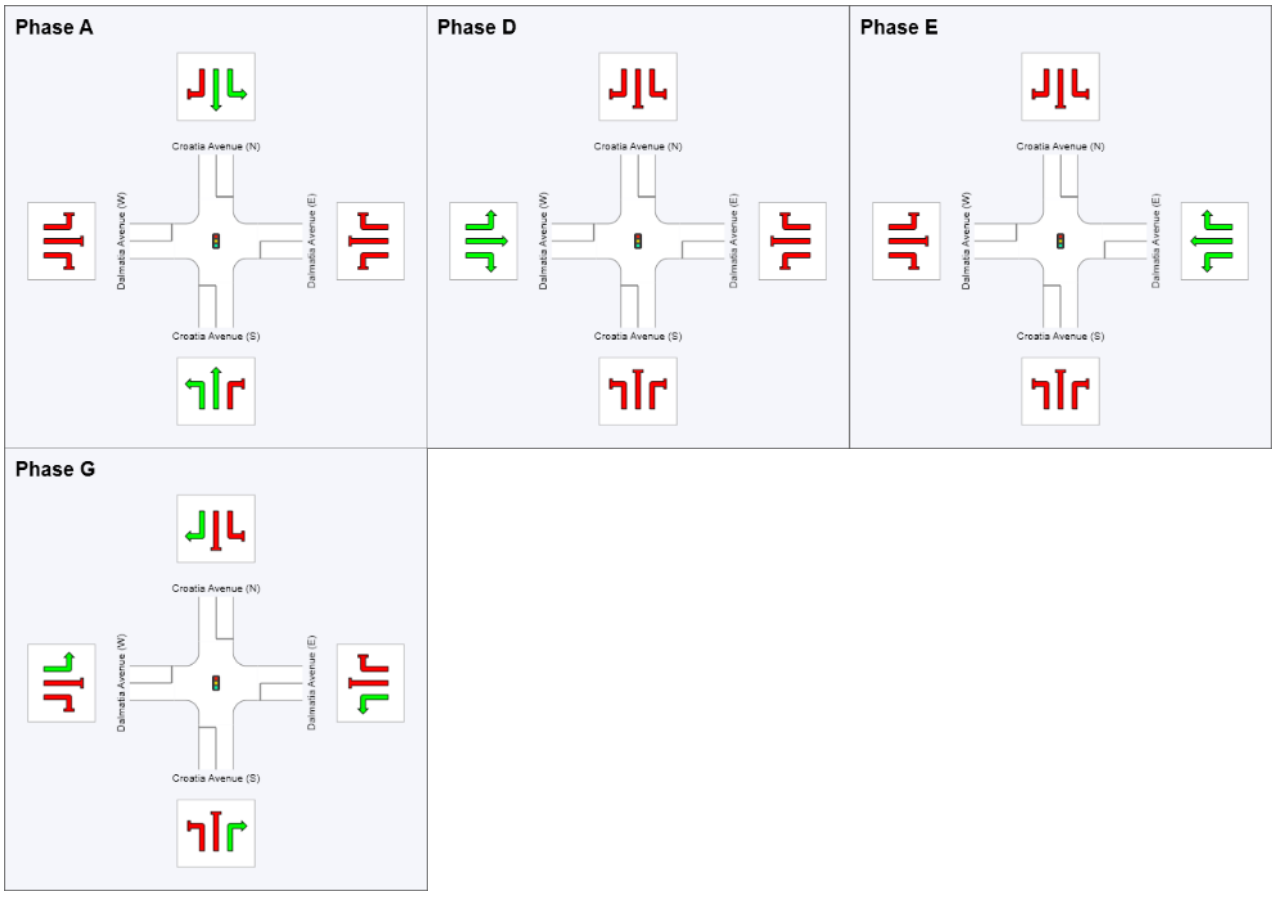
Site: 2036AM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E, G
Output Sequence: A, D, E, G

Phase Timing Results

Phase	A	D	E	G
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	43	60	80
Green Time (sec)	37	11	14	14
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	43	17	20	20
Phase Split	43 %	17 %	20 %	20 %



Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes
Undetected Movement
Phase Transition Applied

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	14	0.0	0.186	15.5	LOS B	4.7	32.9	0.49	0.43	50.1
2	T1	413	0.0	0.186	10.0	LOS A	4.7	33.0	0.49	0.42	51.4
3	R2	32	0.0	0.100	43.7	LOS D	1.3	9.2	0.88	0.72	34.4
Approach		458	0.0	0.186	12.5	LOS A	4.7	33.0	0.52	0.44	49.7
East: Dalmatia Avenue (E)											
4	L2	17	0.0	0.031	32.6	LOS C	0.6	4.1	0.74	0.68	38.4
5	T1	1	0.0	0.318	51.9	LOS D	1.8	12.5	0.99	0.72	30.9
6	R2	35	0.0	0.318	57.5	LOS E	1.8	12.5	0.99	0.72	30.5
Approach		53	0.0	0.318	49.4	LOS D	1.8	12.5	0.91	0.71	32.7
North: Croatia Avenue (N)											
7	L2	1	0.0	0.511	18.3	LOS B	16.6	116.4	0.63	0.57	48.4
8	T1	1175	0.0	0.511	12.8	LOS A	16.6	116.4	0.63	0.57	49.6
9	R2	163	0.0	0.517	47.3	LOS D	7.4	52.1	0.96	0.80	33.3
Approach		1339	0.0	0.517	17.0	LOS B	16.6	116.4	0.67	0.60	46.8
West: Dalmatia Avenue (W)											
10	L2	13	0.0	0.023	32.5	LOS C	0.4	3.0	0.74	0.67	38.4
11	T1	1	0.0	0.145	50.9	LOS D	0.8	5.4	0.98	0.69	31.2
12	R2	15	0.0	0.145	56.5	LOS D	0.8	5.4	0.98	0.69	30.8
Approach		28	0.0	0.145	45.6	LOS D	0.8	5.4	0.87	0.68	33.8
All Vehicles		1878	0.0	0.517	17.2	LOS B	16.6	116.4	0.64	0.56	46.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

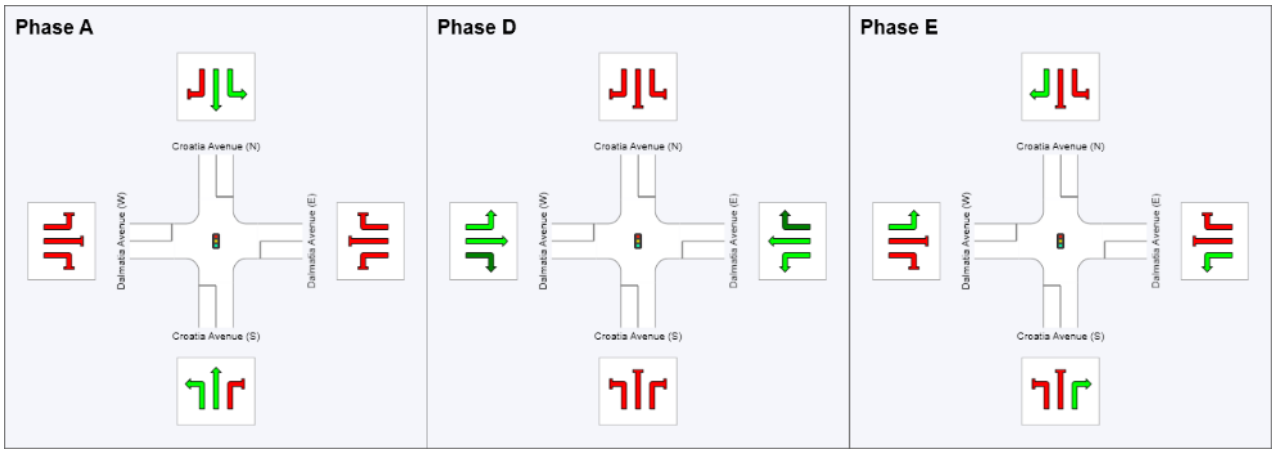
Site: 2036PM - Croatia-Dalmatia - Scenario 2

Croatia Avenue - Dalmatia Avenue
Scenario 2
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	65	77
Green Time (sec)	59	6	17
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	65	12	23
Phase Split	65 %	12 %	23 %

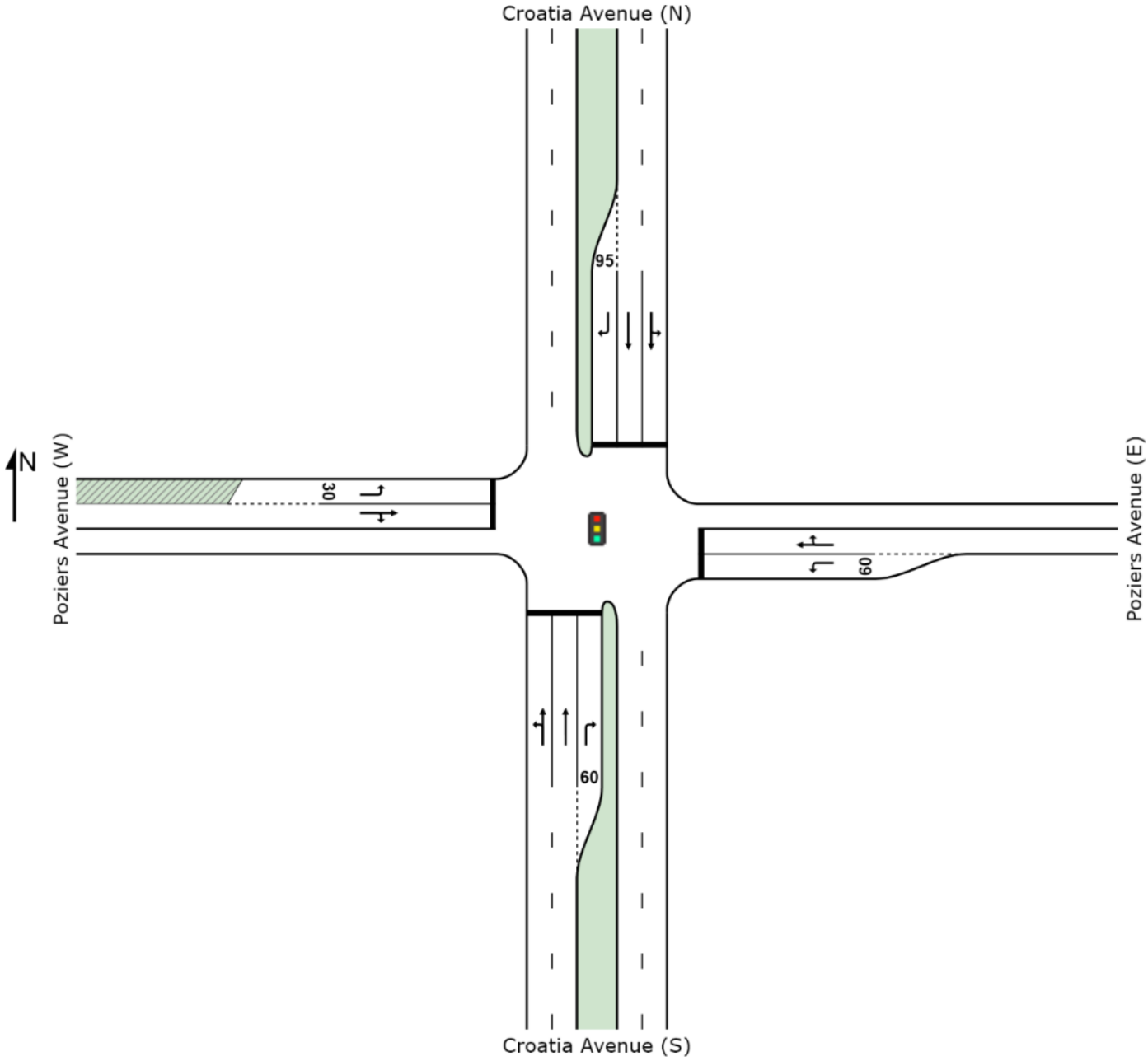


Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes
Undetected Movement
Phase Transition Applied

SITE LAYOUT

Site: 2036AM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated



Organisation: BITZIOS CONSULTING | Created: Wednesday, 7 December 2016 1:40:20 PM
Project: C:\Users\Matthew\Desktop\P2662\2036\P2662.001M 2036 Croatia Ave - Poziers Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2036AM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	13	0.0	0.634	50.1	LOS D	8.8	61.5	0.99	0.82	33.9
2	T1	358	0.0	0.634	44.6	LOS D	8.8	61.7	0.99	0.82	34.6
3	R2	7	0.0	0.066	55.7	LOS D	0.4	2.5	0.97	0.66	30.9
Approach		378	0.0	0.634	45.0	LOS D	8.8	61.7	0.99	0.81	34.5
East: Poziers Avenue (E)											
4	L2	51	0.0	0.043	12.9	LOS A	0.9	6.4	0.40	0.66	48.4
5	T1	124	0.0	0.621	22.1	LOS B	14.4	100.5	0.81	0.79	42.1
6	R2	262	0.0	0.621	27.7	LOS B	14.4	100.5	0.81	0.79	41.4
Approach		437	0.0	0.621	24.4	LOS B	14.4	100.5	0.76	0.78	42.3
North: Croatia Avenue (N)											
7	L2	29	0.0	0.314	38.6	LOS C	6.1	42.4	0.86	0.71	37.7
8	T1	275	0.0	0.314	33.1	LOS C	6.1	42.8	0.86	0.71	38.7
9	R2	180	0.0	0.606	48.9	LOS D	8.4	59.0	0.98	0.81	32.8
Approach		484	0.0	0.606	39.3	LOS C	8.4	59.0	0.90	0.75	36.2
West: Poziers Avenue (W)											
10	L2	206	0.0	0.152	9.9	LOS A	3.0	20.9	0.32	0.66	50.4
11	T1	18	0.0	0.040	16.3	LOS B	0.8	5.4	0.58	0.53	46.1
12	R2	11	0.0	0.040	21.9	LOS B	0.8	5.4	0.58	0.53	45.2
Approach		235	0.0	0.152	10.9	LOS A	3.0	20.9	0.35	0.65	49.8
All Vehicles		1534	0.0	0.634	32.1	LOS C	14.4	100.5	0.80	0.76	38.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

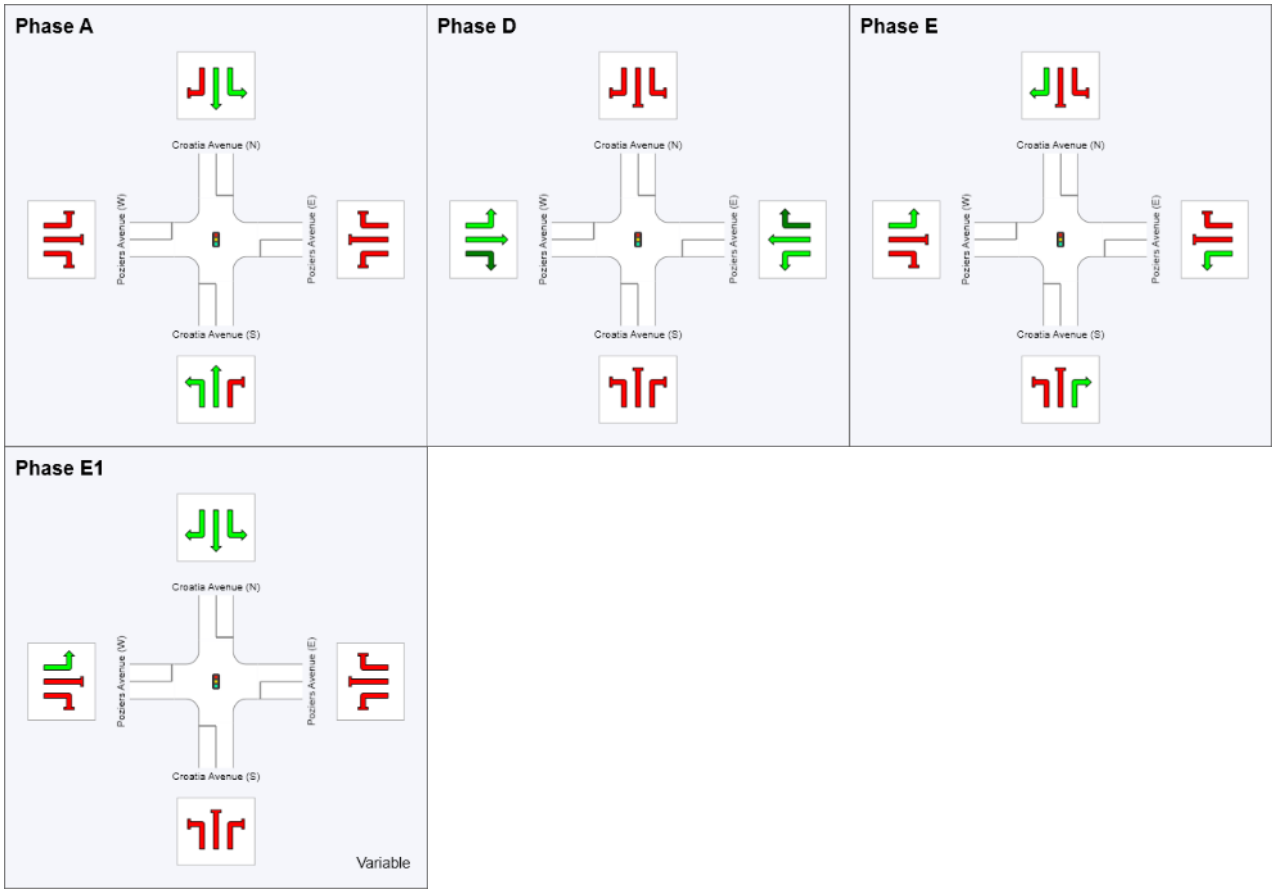
Site: 2036AM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase times determined by the program
Sequence: Single Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, E1, E2
Output Sequence: A, D, E, E1

Phase Timing Results

Phase	A	D	E	E1
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	21	78	90
Green Time (sec)	15	51	6	4
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	21	57	12	10
Phase Split	21 %	57 %	12 %	10 %



MOVEMENT SUMMARY

Site: 2036PM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	9	0.0	0.248	24.9	LOS B	6.4	44.8	0.68	0.58	44.4
2	T1	406	0.0	0.248	19.4	LOS B	6.4	44.9	0.68	0.57	45.4
3	R2	28	0.0	0.255	57.1	LOS E	1.4	9.9	0.99	0.71	30.5
Approach		444	0.0	0.255	21.9	LOS B	6.4	44.9	0.70	0.58	44.0
East: Poziers Avenue (E)											
4	L2	12	0.0	0.035	42.0	LOS C	0.5	3.3	0.85	0.68	34.9
5	T1	1	0.0	0.181	51.5	LOS D	0.9	6.2	0.98	0.70	31.1
6	R2	17	0.0	0.181	57.1	LOS E	0.9	6.2	0.98	0.70	30.7
Approach		29	0.0	0.181	51.0	LOS D	0.9	6.2	0.93	0.69	32.2
North: Croatia Avenue (N)											
7	L2	29	0.0	0.324	11.7	LOS A	8.2	57.3	0.42	0.39	52.9
8	T1	854	0.0	0.324	6.1	LOS A	8.2	57.5	0.42	0.38	54.3
9	R2	156	0.0	0.254	31.9	LOS C	5.6	38.9	0.77	0.77	38.7
Approach		1039	0.0	0.324	10.2	LOS A	8.2	57.5	0.47	0.44	51.2
West: Poziers Avenue (W)											
10	L2	48	0.0	0.058	22.0	LOS B	1.3	9.2	0.59	0.69	43.2
11	T1	1	0.0	0.049	50.1	LOS D	0.3	1.8	0.97	0.64	31.7
12	R2	4	0.0	0.049	55.6	LOS D	0.3	1.8	0.97	0.64	31.3
Approach		54	0.0	0.058	25.2	LOS B	1.3	9.2	0.63	0.69	41.7
All Vehicles		1566	0.0	0.324	14.8	LOS B	8.2	57.5	0.55	0.49	48.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

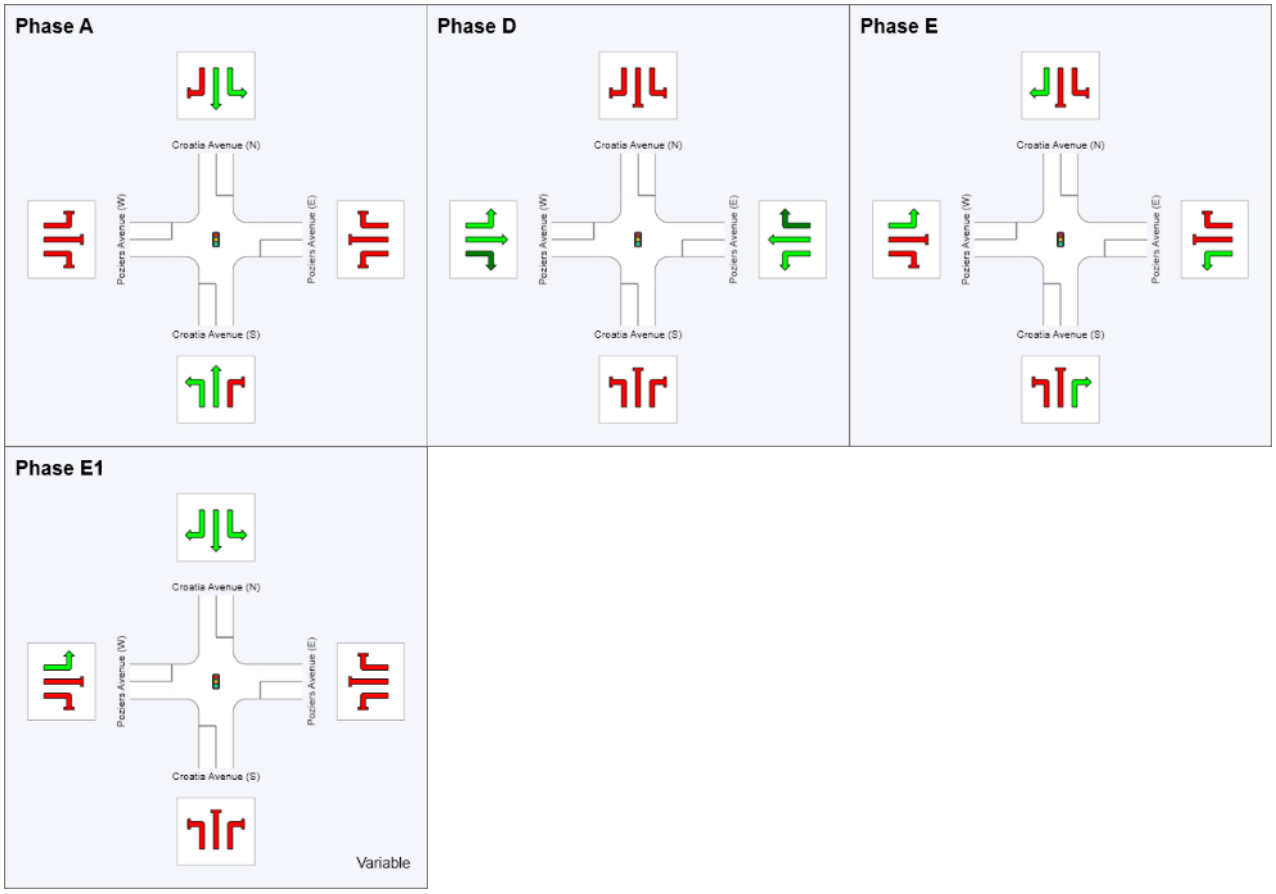
Site: 2036PM - Croatia-Poziers - Scenario 1

Croatia Avenue - Poziers Avenue
Scenario 1
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase times determined by the program
Sequence: Single Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, E1, E2
Output Sequence: A, D, E, E1

Phase Timing Results

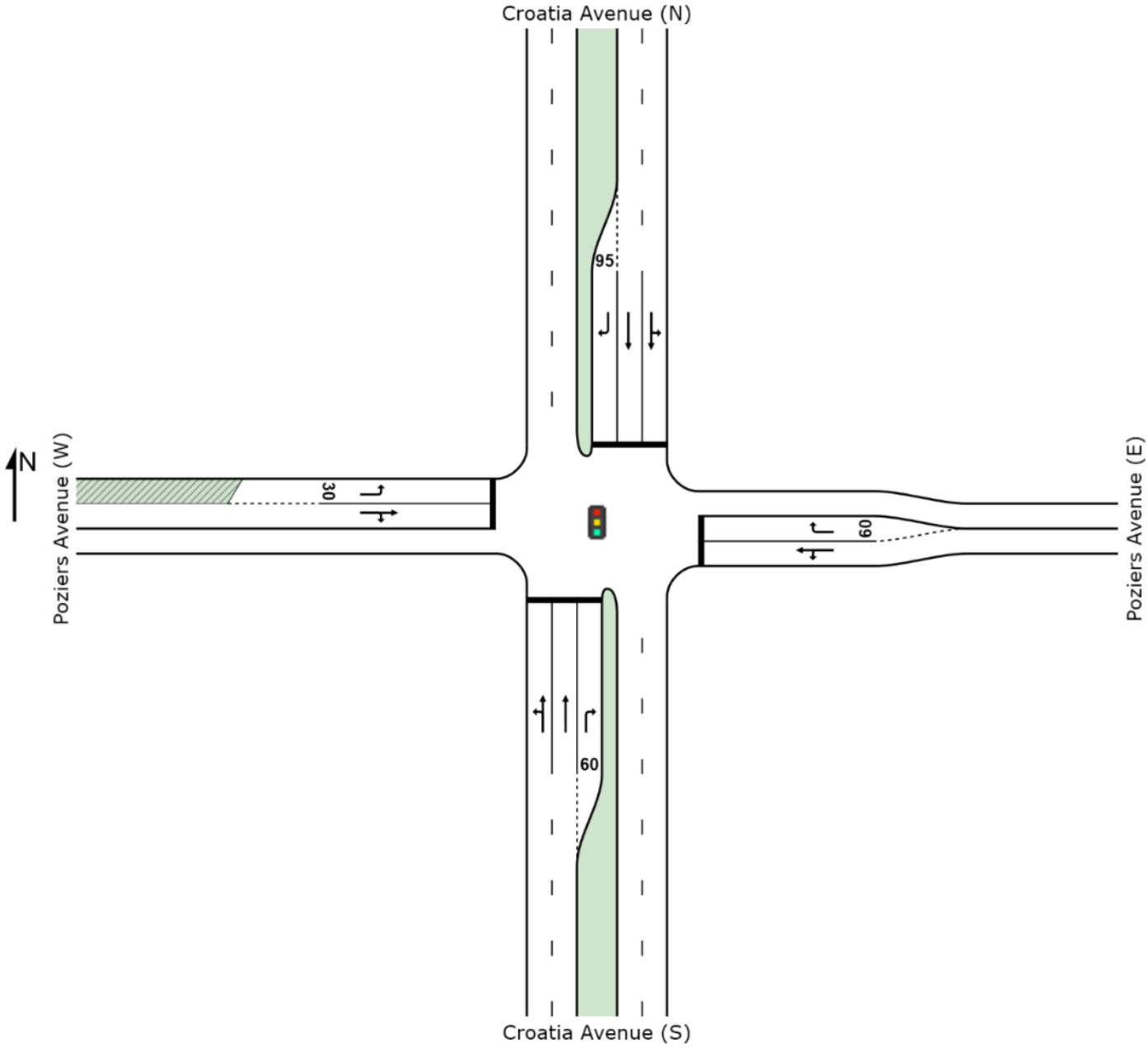
Phase	A	D	E	E1
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	49	61	73
Green Time (sec)	43	6	6	21
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	49	12	12	27
Phase Split	49 %	12 %	12 %	27 %



SITE LAYOUT

Site: 2036AM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated



Organisation: BITZIOS CONSULTING | Created: Wednesday, 7 December 2016 1:45:39 PM
Project: C:\Users\Matthew\Desktop\P2662\2036\P2662.001M 2036 Croatia Ave - Poziers Ave, Edmondson Park.sip6

MOVEMENT SUMMARY

Site: 2036AM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	19	0.0	0.619	44.9	LOS D	11.4	79.9	0.96	0.81	35.7
2	T1	487	0.0	0.619	39.3	LOS C	11.5	80.2	0.96	0.81	36.4
3	R2	13	0.0	0.113	56.2	LOS D	0.6	4.3	0.97	0.68	30.8
Approach		519	0.0	0.619	40.0	LOS C	11.5	80.2	0.96	0.80	36.2
East: Poziers Avenue (E)											
4	L2	51	0.0	0.168	22.3	LOS B	4.1	28.7	0.62	0.59	45.0
5	T1	95	0.0	0.168	16.8	LOS B	4.1	28.7	0.62	0.59	45.9
6	R2	245	0.0	0.628	34.1	LOS C	10.1	70.6	0.88	0.83	37.8
Approach		391	0.0	0.628	28.4	LOS B	10.1	70.6	0.78	0.74	40.4
North: Croatia Avenue (N)											
7	L2	47	0.0	0.366	33.8	LOS C	8.5	59.6	0.82	0.71	39.7
8	T1	407	0.0	0.366	28.2	LOS B	8.6	60.2	0.82	0.69	40.7
9	R2	202	0.0	0.640	48.6	LOS D	9.5	66.5	0.98	0.83	32.9
Approach		657	0.0	0.640	34.9	LOS C	9.5	66.5	0.87	0.74	37.9
West: Poziers Avenue (W)											
10	L2	352	0.0	0.283	12.6	LOS A	6.9	48.0	0.44	0.71	48.6
11	T1	33	0.0	0.082	18.6	LOS B	1.6	11.1	0.63	0.58	44.8
12	R2	22	0.0	0.082	24.1	LOS B	1.6	11.1	0.63	0.58	43.9
Approach		406	0.0	0.283	13.7	LOS A	6.9	48.0	0.46	0.69	48.0
All Vehicles		1973	0.0	0.640	30.6	LOS C	11.5	80.2	0.79	0.74	39.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

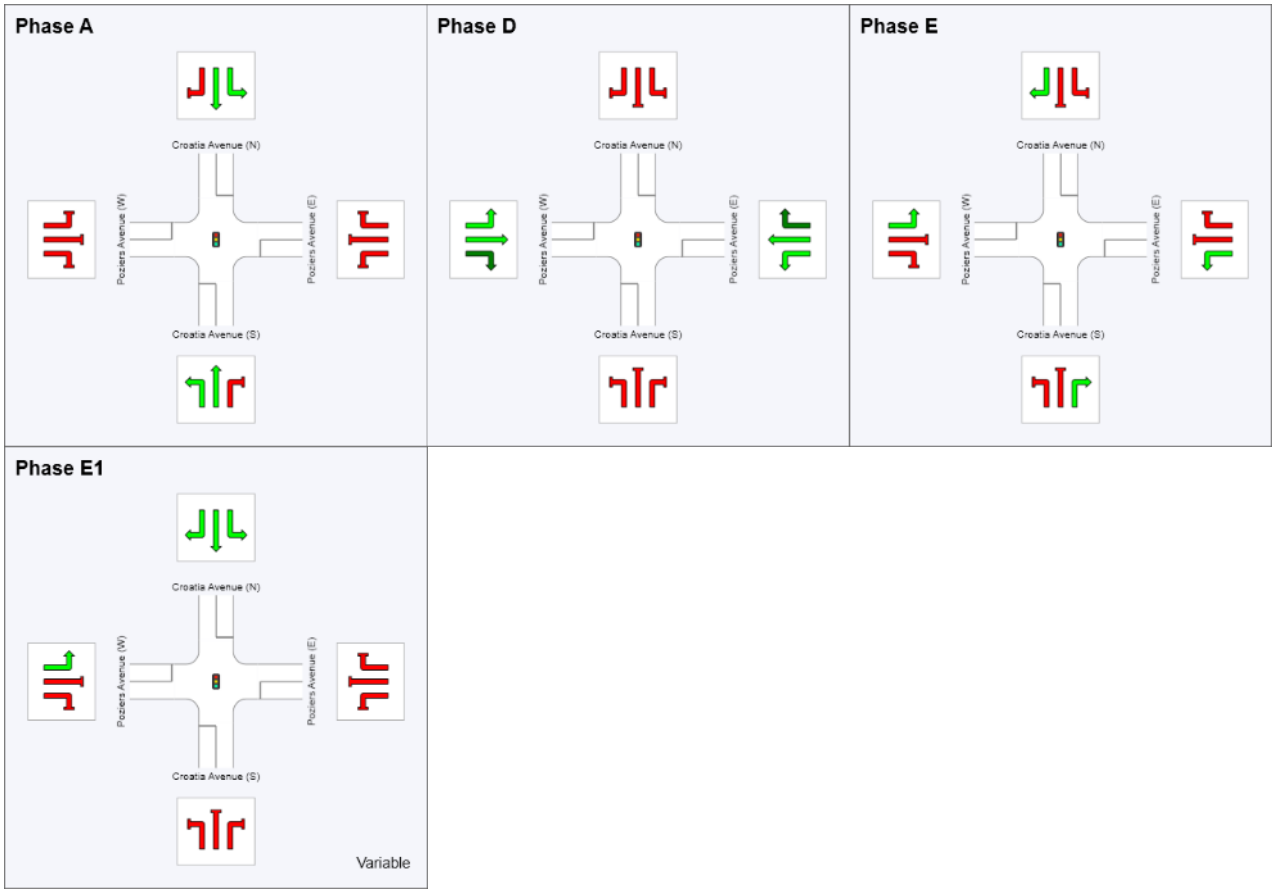
Site: 2036AM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Phase times determined by the program
Sequence: Single Diamond Overlap
Movement Class: All Movement Classes
Input Sequence: A, D, E, E1, E2
Output Sequence: A, D, E, E1

Phase Timing Results

Phase	A	D	E	E1
Reference Phase	Yes	No	No	No
Phase Change Time (sec)	0	27	77	89
Green Time (sec)	21	44	6	5
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	27	50	12	11
Phase Split	27 %	50 %	12 %	11 %



MOVEMENT SUMMARY

Site: 2036PM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	14	0.0	0.238	28.1	LOS B	5.8	40.6	0.72	0.61	42.7
2	T1	338	0.0	0.238	22.6	LOS B	5.8	40.7	0.72	0.60	43.6
3	R2	18	0.0	0.161	56.5	LOS E	0.9	6.2	0.98	0.69	30.7
Approach		369	0.0	0.238	24.4	LOS B	5.8	40.7	0.73	0.61	42.7
East: Poziers Avenue (E)											
4	L2	17	0.0	0.061	44.3	LOS D	0.7	5.2	0.88	0.69	34.3
5	T1	1	0.0	0.061	38.8	LOS C	0.7	5.2	0.88	0.69	34.8
6	R2	15	0.0	0.139	56.5	LOS E	0.7	5.1	0.98	0.69	30.7
Approach		33	0.0	0.139	49.7	LOS D	0.7	5.2	0.92	0.69	32.6
North: Croatia Avenue (N)											
7	L2	26	0.0	0.333	11.7	LOS A	8.5	59.5	0.42	0.39	52.9
8	T1	882	0.0	0.333	6.2	LOS A	8.5	59.6	0.42	0.38	54.3
9	R2	169	0.0	0.240	28.2	LOS B	5.6	39.3	0.72	0.76	40.2
Approach		1078	0.0	0.333	9.8	LOS A	8.5	59.6	0.47	0.44	51.5
West: Poziers Avenue (W)											
10	L2	36	0.0	0.039	19.0	LOS B	0.9	6.1	0.53	0.67	44.8
11	T1	1	0.0	0.061	50.3	LOS D	0.3	2.1	0.97	0.65	31.6
12	R2	5	0.0	0.061	55.9	LOS D	0.3	2.1	0.97	0.65	31.1
Approach		42	0.0	0.061	24.4	LOS B	0.9	6.1	0.60	0.67	42.1
All Vehicles		1522	0.0	0.333	14.6	LOS B	8.5	59.6	0.55	0.49	48.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Poziers - Scenario 2

Croatia Avenue - Poziers Avenue
Scenario 2
1700-1800
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

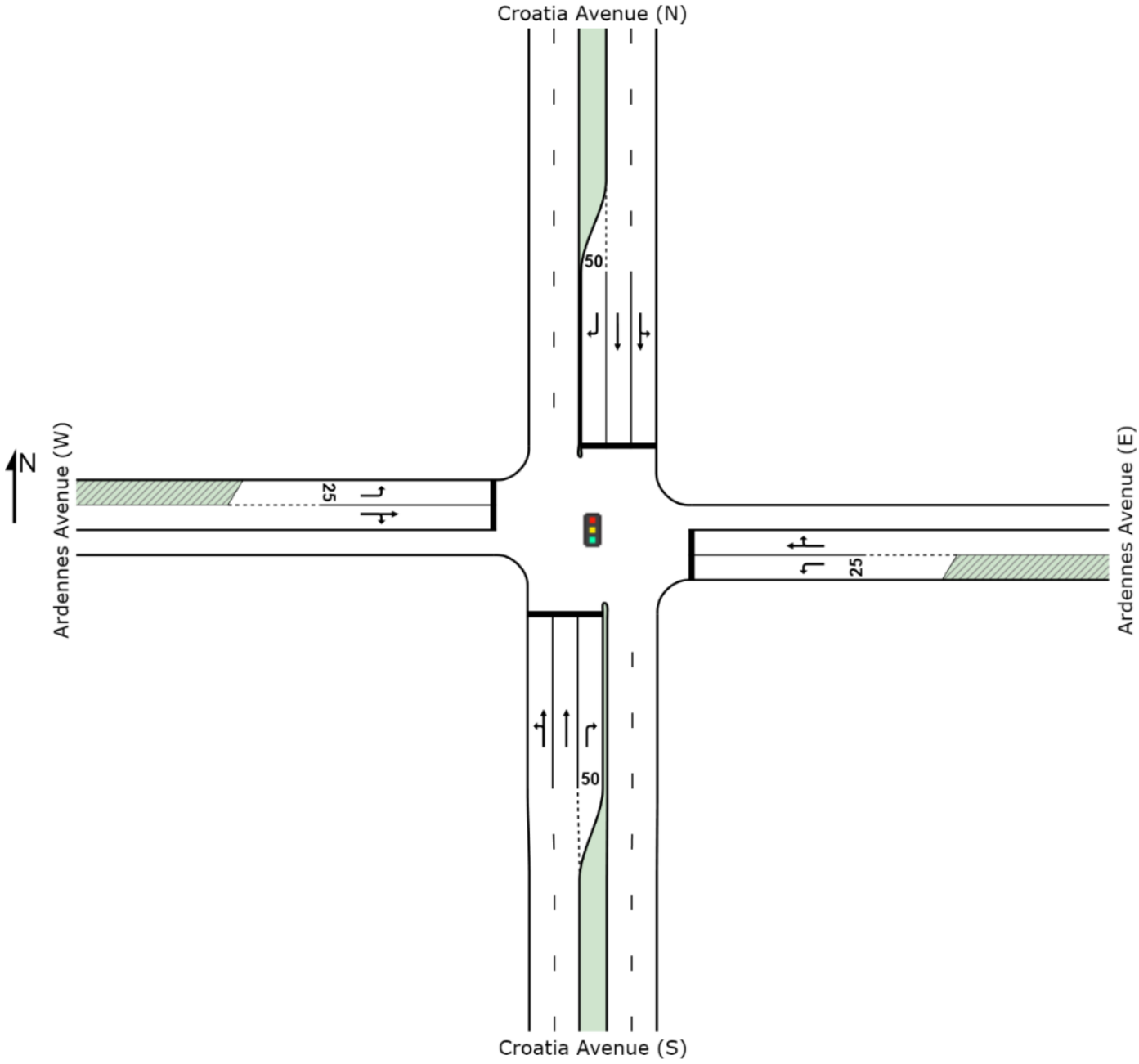
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	14	0.0	0.238	28.1	LOS B	5.8	40.6	0.72	0.61	42.7
2	T1	338	0.0	0.238	22.6	LOS B	5.8	40.7	0.72	0.60	43.6
3	R2	18	0.0	0.161	56.5	LOS E	0.9	6.2	0.98	0.69	30.7
Approach		369	0.0	0.238	24.4	LOS B	5.8	40.7	0.73	0.61	42.7
East: Poziers Avenue (E)											
4	L2	17	0.0	0.061	44.3	LOS D	0.7	5.2	0.88	0.69	34.3
5	T1	1	0.0	0.061	38.8	LOS C	0.7	5.2	0.88	0.69	34.8
6	R2	15	0.0	0.139	56.5	LOS E	0.7	5.1	0.98	0.69	30.7
Approach		33	0.0	0.139	49.7	LOS D	0.7	5.2	0.92	0.69	32.6
North: Croatia Avenue (N)											
7	L2	26	0.0	0.333	11.7	LOS A	8.5	59.5	0.42	0.39	52.9
8	T1	882	0.0	0.333	6.2	LOS A	8.5	59.6	0.42	0.38	54.3
9	R2	169	0.0	0.240	28.2	LOS B	5.6	39.3	0.72	0.76	40.2
Approach		1078	0.0	0.333	9.8	LOS A	8.5	59.6	0.47	0.44	51.5
West: Poziers Avenue (W)											
10	L2	36	0.0	0.039	19.0	LOS B	0.9	6.1	0.53	0.67	44.8
11	T1	1	0.0	0.061	50.3	LOS D	0.3	2.1	0.97	0.65	31.6
12	R2	5	0.0	0.061	55.9	LOS D	0.3	2.1	0.97	0.65	31.1
Approach		42	0.0	0.061	24.4	LOS B	0.9	6.1	0.60	0.67	42.1
All Vehicles		1522	0.0	0.333	14.6	LOS B	8.5	59.6	0.55	0.49	48.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 2036AM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 2036AM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	18	0.0	0.139	12.6	LOS A	3.2	22.5	0.41	0.38	52.0
2	T1	334	0.0	0.139	7.1	LOS A	3.2	22.7	0.41	0.36	53.5
3	R2	18	0.0	0.022	9.0	LOS A	0.2	1.5	0.33	0.62	51.0
Approach		369	0.0	0.139	7.5	LOS A	3.2	22.7	0.40	0.37	53.3
East: Ardennes Avenue (E)											
4	L2	8	0.0	0.020	37.3	LOS C	0.3	2.2	0.80	0.66	36.6
5	T1	1	0.0	0.073	44.4	LOS D	0.6	4.0	0.93	0.68	33.1
6	R2	12	0.0	0.073	50.0	LOS D	0.6	4.0	0.93	0.68	32.6
Approach		21	0.0	0.073	44.7	LOS D	0.6	4.0	0.87	0.67	34.1
North: Croatia Avenue (N)											
7	L2	1	0.0	0.131	12.6	LOS A	3.0	21.3	0.41	0.34	52.4
8	T1	332	0.0	0.131	7.0	LOS A	3.0	21.3	0.41	0.34	53.8
9	R2	13	0.0	0.016	9.0	LOS A	0.2	1.1	0.33	0.62	51.0
Approach		345	0.0	0.131	7.1	LOS A	3.0	21.3	0.40	0.35	53.6
West: Ardennes Avenue (W)											
10	L2	26	0.0	0.062	37.9	LOS C	1.0	7.0	0.81	0.70	36.4
11	T1	13	0.0	0.131	44.8	LOS D	1.1	7.7	0.93	0.69	33.8
12	R2	12	0.0	0.131	50.4	LOS D	1.1	7.7	0.93	0.69	33.3
Approach		51	0.0	0.131	42.5	LOS C	1.1	7.7	0.87	0.70	34.9
All Vehicles		786	0.0	0.139	10.6	LOS A	3.2	22.7	0.45	0.39	51.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

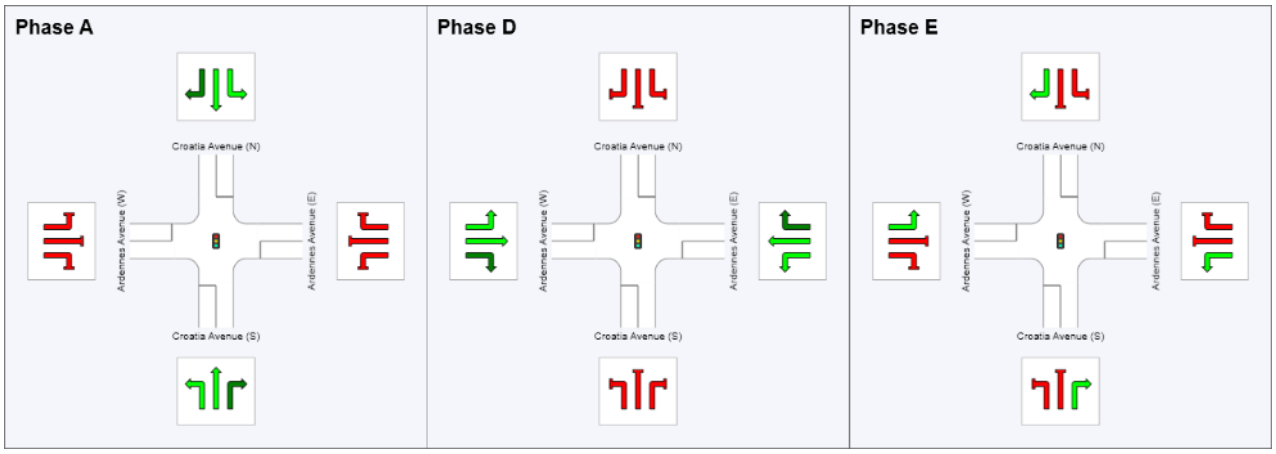
Site: 2036AM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	71	88
Green Time (sec)	65	11	6
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	71	17	12
Phase Split	71 %	17 %	12 %



Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class Running
Mixed Running & Stopped Movement Classes
Undetected Movement
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Other Movement Class Stopped
Phase Transition Applied

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	3	0.0	0.150	10.8	LOS A	3.3	22.9	0.36	0.31	53.7
2	T1	406	0.0	0.150	5.3	LOS A	3.3	22.9	0.36	0.30	55.2
3	R2	4	0.0	0.009	8.6	LOS A	0.0	0.3	0.34	0.61	51.3
Approach		414	0.0	0.150	5.4	LOS A	3.3	22.9	0.36	0.31	55.1
East: Ardennes Avenue (E)											
4	L2	1	0.0	0.003	41.3	LOS C	0.0	0.3	0.84	0.60	35.2
5	T1	1	0.0	0.077	50.4	LOS D	0.4	2.9	0.97	0.66	31.5
6	R2	7	0.0	0.077	55.9	LOS D	0.4	2.9	0.97	0.66	31.1
Approach		9	0.0	0.077	53.7	LOS D	0.4	2.9	0.95	0.65	31.5
North: Croatia Avenue (N)											
7	L2	1	0.0	0.351	11.8	LOS A	9.1	63.9	0.43	0.38	53.0
8	T1	958	0.0	0.351	6.3	LOS A	9.1	63.9	0.43	0.38	54.4
9	R2	25	0.0	0.033	7.9	LOS A	0.2	1.7	0.29	0.62	51.8
Approach		984	0.0	0.351	6.4	LOS A	9.1	63.9	0.42	0.39	54.3
West: Ardennes Avenue (W)											
10	L2	12	0.0	0.035	42.0	LOS C	0.5	3.3	0.85	0.68	34.9
11	T1	1	0.0	0.029	49.6	LOS D	0.2	1.1	0.96	0.62	32.0
12	R2	2	0.0	0.029	55.2	LOS D	0.2	1.1	0.96	0.62	31.6
Approach		15	0.0	0.035	44.5	LOS D	0.5	3.3	0.88	0.66	34.2
All Vehicles		1422	0.0	0.351	6.8	LOS A	9.1	63.9	0.41	0.37	53.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

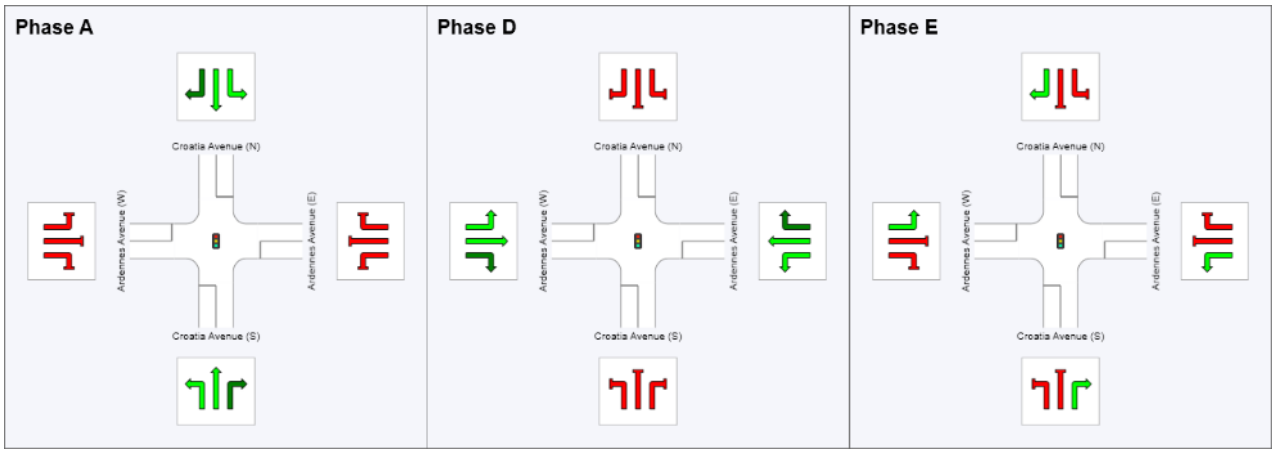
Site: 2036PM - Croatia-Ardennes - Scenario 1

Croatia Avenue - Ardennes Avenue
Scenario 1
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

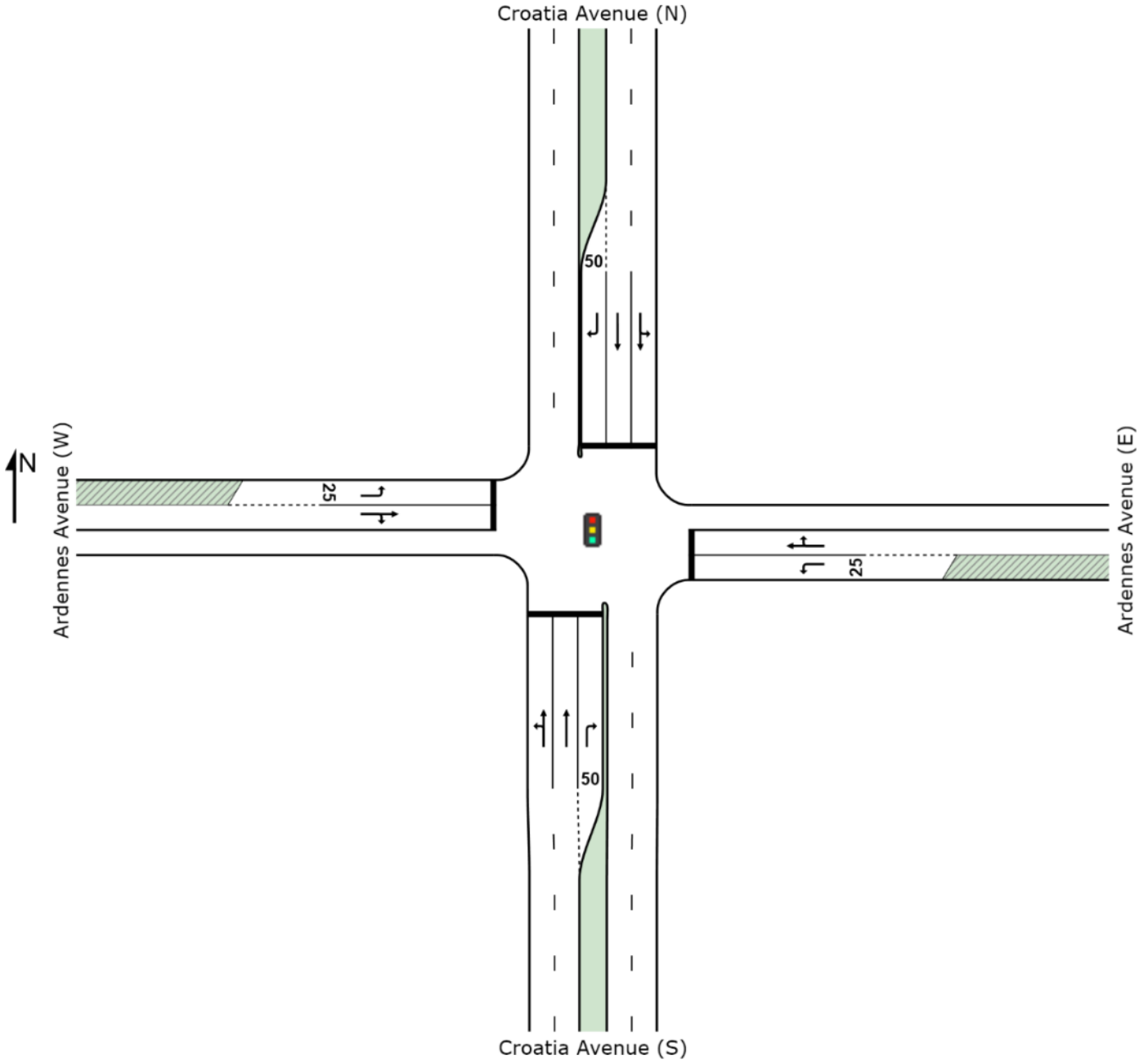
Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	76	88
Green Time (sec)	70	6	6
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	76	12	12
Phase Split	76 %	12 %	12 %



SITE LAYOUT

Site: 2036AM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 2036AM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	17	0.0	0.197	22.0	LOS B	5.1	35.4	0.62	0.54	45.9
2	T1	343	0.0	0.197	16.4	LOS B	5.1	35.5	0.62	0.53	47.1
3	R2	78	0.0	0.088	9.8	LOS A	1.0	7.0	0.40	0.66	50.5
Approach		438	0.0	0.197	15.5	LOS B	5.1	35.5	0.58	0.55	47.6
East: Ardennes Avenue (E)											
4	L2	6	0.0	0.008	23.9	LOS B	0.2	1.2	0.61	0.64	42.3
5	T1	1	0.0	0.107	47.2	LOS D	0.7	4.8	0.95	0.69	32.3
6	R2	14	0.0	0.107	52.7	LOS D	0.7	4.8	0.95	0.69	31.8
Approach		21	0.0	0.107	43.8	LOS D	0.7	4.8	0.85	0.68	34.4
North: Croatia Avenue (N)											
7	L2	5	0.0	0.188	21.9	LOS B	4.8	33.7	0.62	0.52	46.2
8	T1	339	0.0	0.188	16.4	LOS B	4.8	33.7	0.62	0.51	47.2
9	R2	164	0.0	0.190	10.1	LOS A	2.2	15.6	0.43	0.68	50.3
Approach		508	0.0	0.190	14.4	LOS A	4.8	33.7	0.55	0.57	48.2
West: Ardennes Avenue (W)											
10	L2	149	0.0	0.196	25.8	LOS B	4.6	32.5	0.68	0.74	41.4
11	T1	12	0.0	0.182	46.3	LOS D	1.5	10.3	0.95	0.71	33.0
12	R2	20	0.0	0.182	51.8	LOS D	1.5	10.3	0.95	0.71	32.6
Approach		181	0.0	0.196	29.9	LOS C	4.6	32.5	0.73	0.74	39.5
All Vehicles		1148	0.0	0.197	17.8	LOS B	5.1	35.5	0.60	0.59	46.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

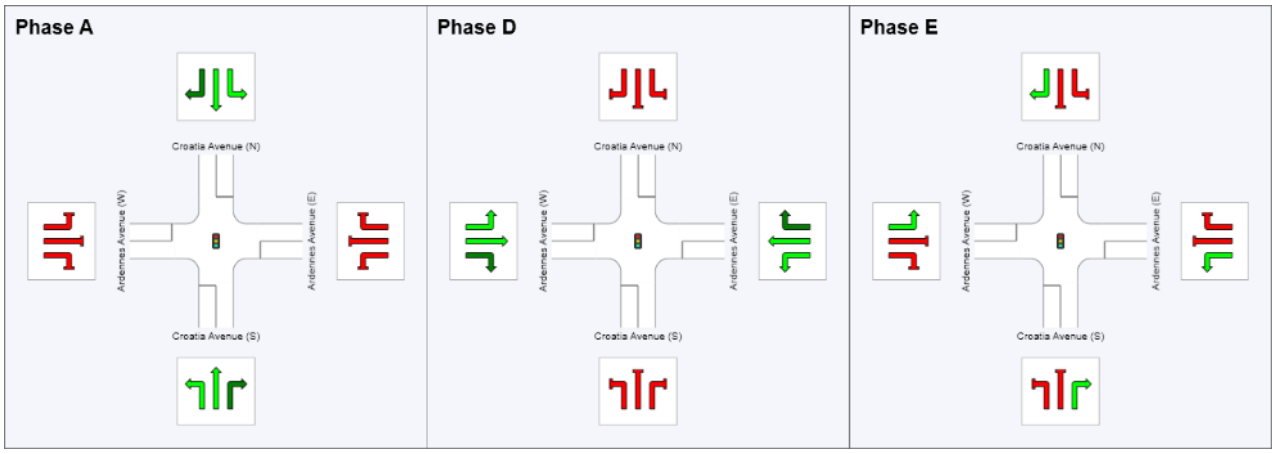
Site: 2036AM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	53	72
Green Time (sec)	47	13	22
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	53	19	28
Phase Split	53 %	19 %	28 %



Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes
Undetected Movement
Phase Transition Applied

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	3	0.0	0.150	10.8	LOS A	3.3	22.9	0.36	0.31	53.7
2	T1	406	0.0	0.150	5.3	LOS A	3.3	22.9	0.36	0.30	55.2
3	R2	4	0.0	0.009	8.6	LOS A	0.0	0.3	0.34	0.61	51.3
Approach		414	0.0	0.150	5.4	LOS A	3.3	22.9	0.36	0.31	55.1
East: Ardennes Avenue (E)											
4	L2	1	0.0	0.003	41.3	LOS C	0.0	0.3	0.84	0.60	35.2
5	T1	1	0.0	0.077	50.4	LOS D	0.4	2.9	0.97	0.66	31.5
6	R2	7	0.0	0.077	55.9	LOS D	0.4	2.9	0.97	0.66	31.1
Approach		9	0.0	0.077	53.7	LOS D	0.4	2.9	0.95	0.65	31.5
North: Croatia Avenue (N)											
7	L2	1	0.0	0.351	11.8	LOS A	9.1	63.9	0.43	0.38	53.0
8	T1	958	0.0	0.351	6.3	LOS A	9.1	63.9	0.43	0.38	54.4
9	R2	25	0.0	0.033	7.9	LOS A	0.2	1.7	0.29	0.62	51.8
Approach		984	0.0	0.351	6.4	LOS A	9.1	63.9	0.42	0.39	54.3
West: Ardennes Avenue (W)											
10	L2	12	0.0	0.035	42.0	LOS C	0.5	3.3	0.85	0.68	34.9
11	T1	1	0.0	0.029	49.6	LOS D	0.2	1.1	0.96	0.62	32.0
12	R2	2	0.0	0.029	55.2	LOS D	0.2	1.1	0.96	0.62	31.6
Approach		15	0.0	0.035	44.5	LOS D	0.5	3.3	0.88	0.66	34.2
All Vehicles		1422	0.0	0.351	6.8	LOS A	9.1	63.9	0.41	0.37	53.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

PHASING SUMMARY

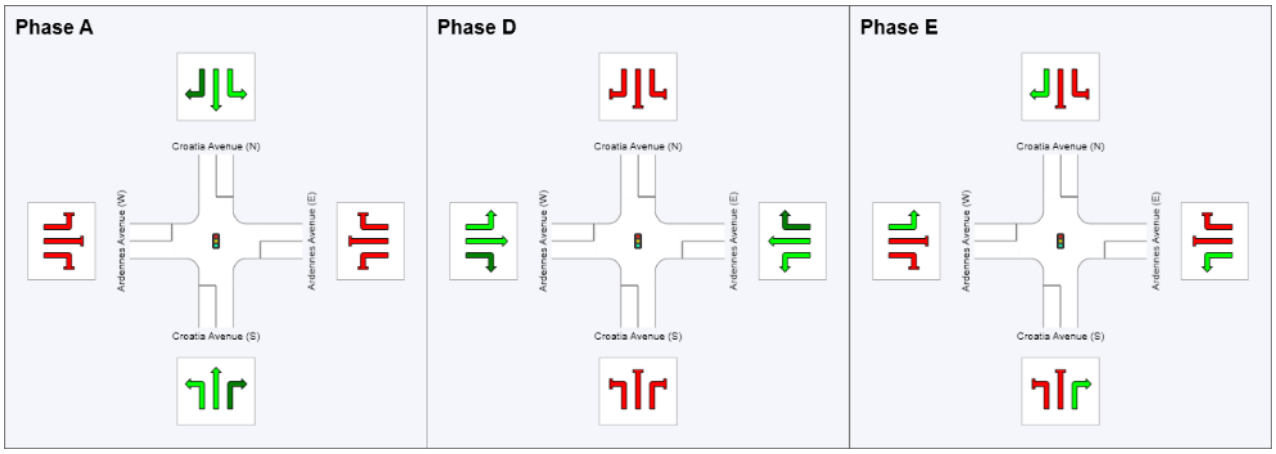
Site: 2036PM - Croatia-Ardennes - Scenario 2

Croatia Avenue - Ardennes Avenue
Scenario 2
0745-0845
Signals - Fixed Time Isolated Cycle Time = 100 seconds (User-Given Cycle Time)

Phase times determined by the program
Sequence: SDO
Movement Class: All Movement Classes
Input Sequence: A, D, E
Output Sequence: A, D, E

Phase Timing Results

Phase	A	D	E
Reference Phase	Yes	No	No
Phase Change Time (sec)	0	76	88
Green Time (sec)	70	6	6
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	76	12	12
Phase Split	76 %	12 %	12 %

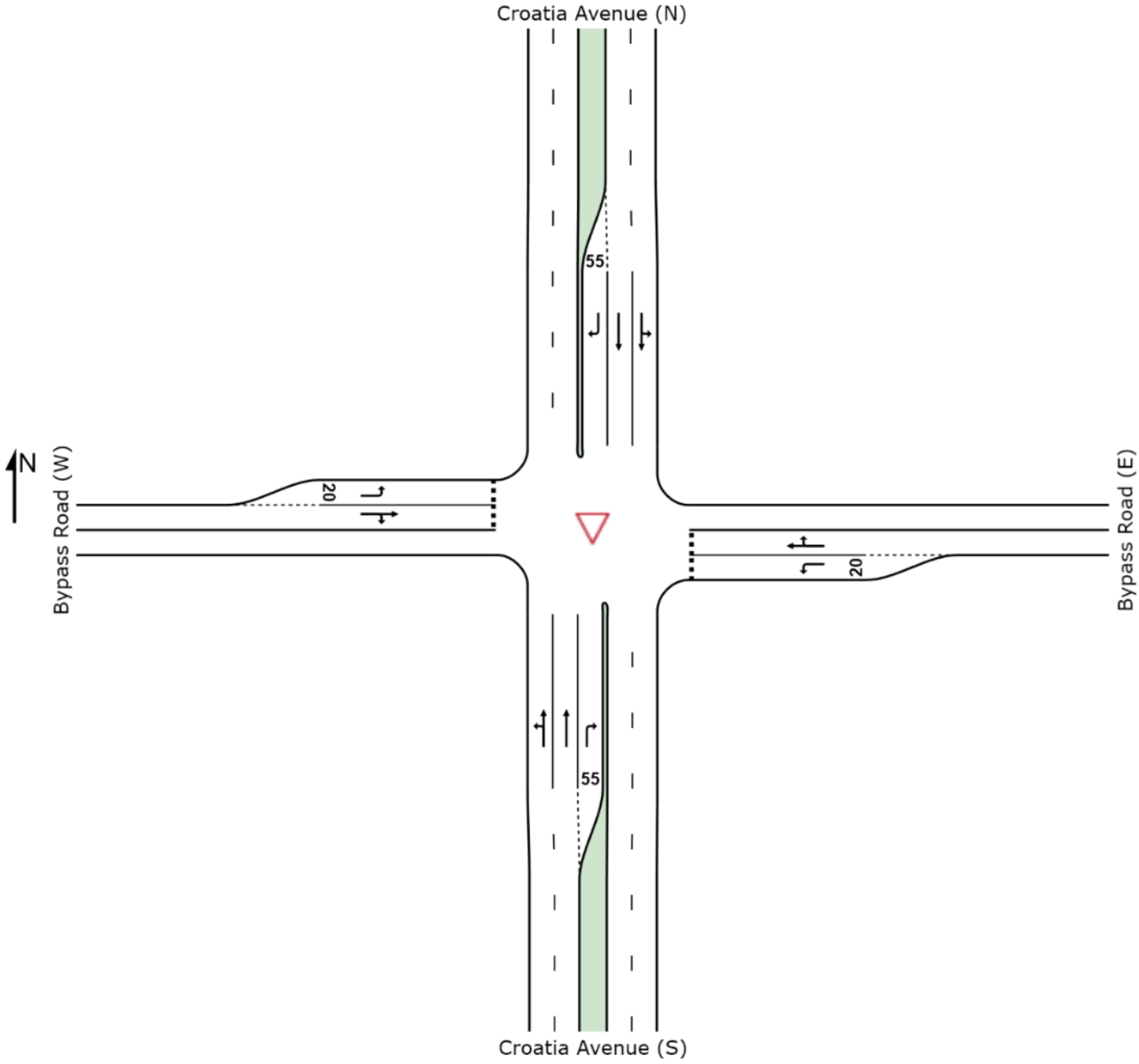


Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red
Other Movement Class Running
Other Movement Class Stopped
Mixed Running & Stopped Movement Classes
Undetected Movement
Phase Transition Applied

SITE LAYOUT

Site: 2036AM - Croatia-Bypass - Scenario 1

Croatia Avenue - Bypass Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2036AM - Croatia-Bypass - Scenario 1

Croatia Avenue - Bypass Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.035	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
2	T1	134	0.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	69	0.0	0.054	6.0	LOS A	0.2	1.5	0.24	0.55	52.9
Approach		204	0.0	0.054	2.1	NA	0.2	1.5	0.08	0.19	57.3
East: Bypass Road (E)											
4	L2	42	0.0	0.033	5.8	LOS A	0.1	0.8	0.15	0.54	53.2
5	T1	122	0.0	0.374	15.8	LOS B	1.7	11.9	0.70	0.92	46.8
6	R2	4	0.0	0.374	32.0	LOS C	1.7	11.9	0.70	0.92	46.4
Approach		168	0.0	0.374	13.7	LOS A	1.7	11.9	0.56	0.83	48.2
North: Croatia Avenue (N)											
7	L2	1	0.0	0.033	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
8	T1	129	0.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	222	0.0	0.175	6.1	LOS A	0.8	5.5	0.27	0.56	52.8
Approach		353	0.0	0.175	3.9	NA	0.8	5.5	0.17	0.36	55.2
West: Bypass Road (W)											
10	L2	236	0.0	0.188	5.8	LOS A	0.8	5.4	0.17	0.55	53.1
11	T1	77	0.0	0.229	13.8	LOS A	0.9	6.0	0.66	0.84	48.3
12	R2	2	0.0	0.229	21.8	LOS B	0.9	6.0	0.66	0.84	47.8
Approach		315	0.0	0.229	7.9	LOS A	0.9	6.0	0.29	0.62	51.8
All Vehicles		1040	0.0	0.374	6.3	NA	1.7	11.9	0.25	0.48	53.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Bypass - Scenario 1

Croatia Avenue - Bypass Road
Scenario 1
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

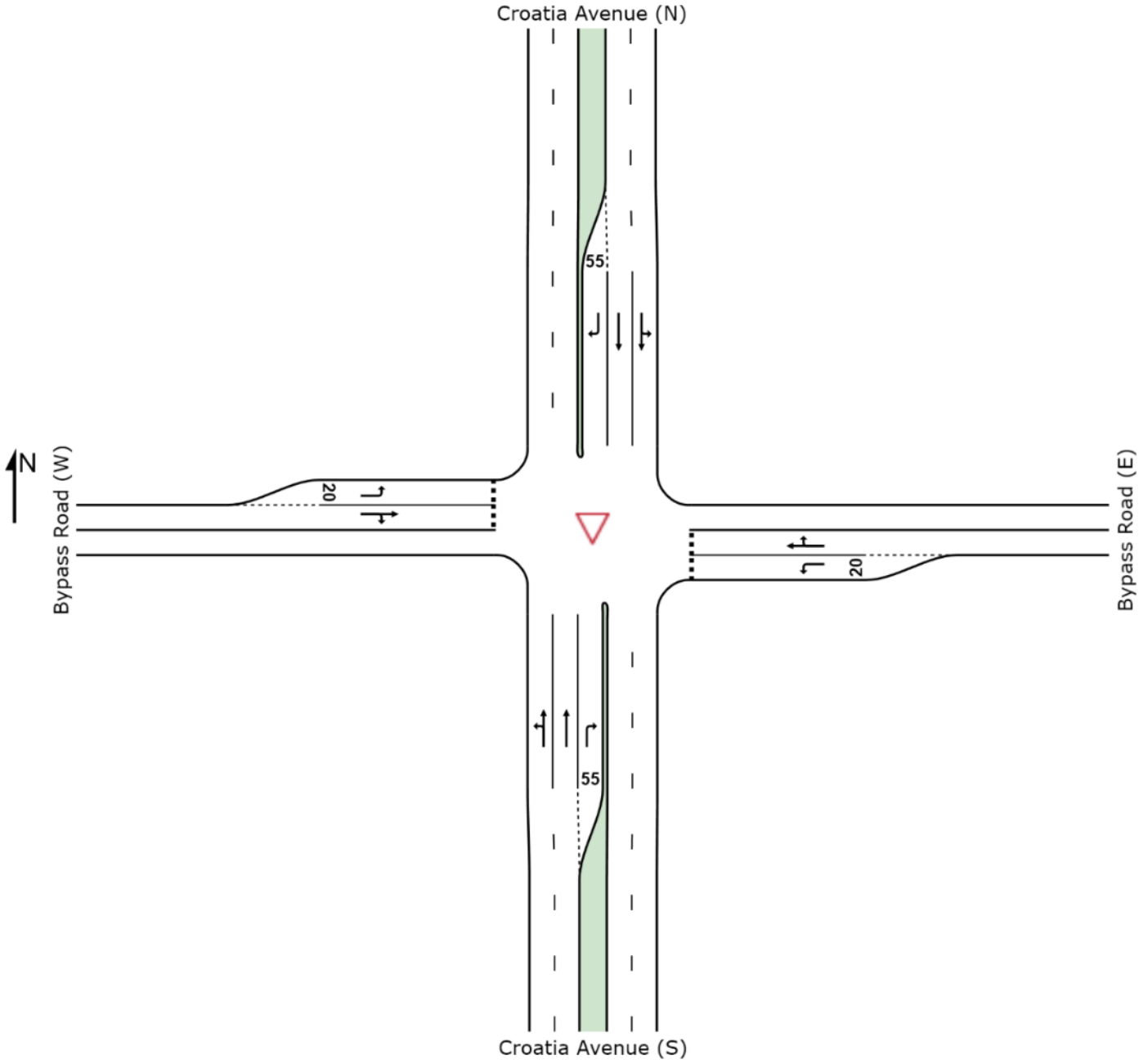
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.055	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
2	T1	213	0.0	0.055	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	6	0.0	0.006	6.6	LOS A	0.0	0.2	0.36	0.55	52.5
Approach		220	0.0	0.055	0.2	NA	0.0	0.2	0.01	0.02	59.7
East: Bypass Road (E)											
4	L2	4	0.0	0.004	6.0	LOS A	0.0	0.1	0.23	0.53	52.9
5	T1	3	0.0	0.127	32.7	LOS C	0.4	2.5	0.92	0.97	31.0
6	R2	5	0.0	0.127	70.3	LOS E	0.4	2.5	0.92	0.97	30.8
Approach		13	0.0	0.127	39.5	LOS C	0.4	2.5	0.69	0.82	35.9
North: Croatia Avenue (N)											
7	L2	1	0.0	0.076	5.5	LOS A	0.0	0.0	0.00	0.00	58.3
8	T1	294	0.0	0.076	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	528	0.0	0.450	7.1	LOS A	2.9	20.3	0.44	0.64	52.2
Approach		823	0.0	0.450	4.6	NA	2.9	20.3	0.28	0.41	54.8
West: Bypass Road (W)											
10	L2	225	0.0	0.186	6.0	LOS A	0.8	5.3	0.22	0.56	52.9
11	T1	8	0.0	0.080	32.7	LOS C	0.2	1.7	0.87	0.94	38.3
12	R2	1	0.0	0.080	41.1	LOS C	0.2	1.7	0.87	0.94	38.1
Approach		235	0.0	0.186	7.1	LOS A	0.8	5.3	0.25	0.58	52.1
All Vehicles		1291	0.0	0.450	4.6	NA	2.9	20.3	0.23	0.38	54.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 2036AM - Croatia-Bypass - Scenario 2

Croatia Avenue - Bypass Road
Scenario 2
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2036AM - Croatia-Bypass - Scenario 2

Croatia Avenue - Bypass Road
Scenario 2
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.042	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
2	T1	162	0.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	87	0.0	0.071	6.2	LOS A	0.3	2.0	0.27	0.56	52.8
Approach		251	0.0	0.071	2.2	NA	0.3	2.0	0.09	0.20	57.2
East: Bypass Road (E)											
4	L2	56	0.0	0.045	5.8	LOS A	0.2	1.1	0.16	0.54	53.1
5	T1	140	0.0	0.516	20.2	LOS B	2.6	18.3	0.79	1.02	43.8
6	R2	8	0.0	0.516	48.5	LOS D	2.6	18.3	0.79	1.02	43.4
Approach		204	0.0	0.516	17.4	LOS B	2.6	18.3	0.62	0.89	45.9
North: Croatia Avenue (N)											
7	L2	3	0.0	0.041	5.5	LOS A	0.0	0.0	0.00	0.02	58.2
8	T1	157	0.0	0.041	0.0	LOS A	0.0	0.0	0.00	0.01	59.9
9	R2	205	0.0	0.166	6.3	LOS A	0.7	5.1	0.29	0.58	52.7
Approach		365	0.0	0.166	3.6	NA	0.7	5.1	0.16	0.33	55.6
West: Bypass Road (W)											
10	L2	273	0.0	0.220	5.9	LOS A	0.9	6.5	0.20	0.55	53.0
11	T1	149	0.0	0.477	19.2	LOS B	2.4	16.7	0.77	0.99	45.1
12	R2	1	0.0	0.477	30.8	LOS C	2.4	16.7	0.77	0.99	44.7
Approach		423	0.0	0.477	10.7	LOS A	2.4	16.7	0.40	0.71	49.9
All Vehicles		1243	0.0	0.516	8.0	NA	2.6	18.3	0.30	0.52	52.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Bypass - Scenario 2

Croatia Avenue - Bypass Road
Scenario 2
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

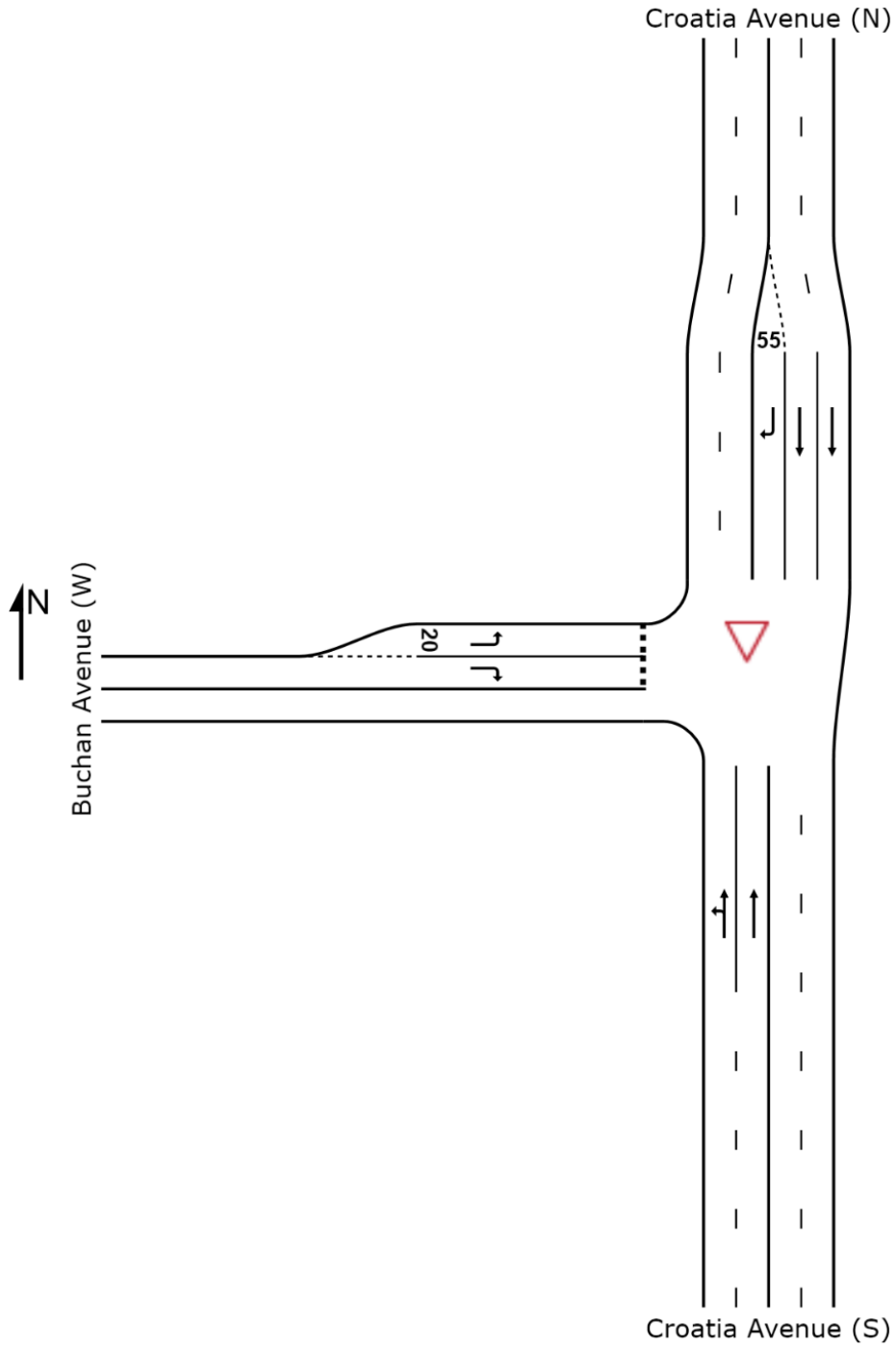
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	1	0.0	0.055	5.5	LOS A	0.0	0.0	0.00	0.01	58.3
2	T1	214	0.0	0.055	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
3	R2	11	0.0	0.011	7.4	LOS A	0.0	0.3	0.44	0.60	52.2
Approach		225	0.0	0.055	0.4	NA	0.0	0.3	0.02	0.03	59.5
East: Bypass Road (E)											
4	L2	1	0.0	0.001	6.3	LOS A	0.0	0.0	0.29	0.52	52.7
5	T1	2	0.0	0.078	41.6	LOS C	0.2	1.5	0.94	0.97	28.6
6	R2	2	0.0	0.078	90.5	LOS F	0.2	1.5	0.94	0.97	28.5
Approach		5	0.0	0.078	54.1	LOS D	0.2	1.5	0.81	0.88	31.4
North: Croatia Avenue (N)											
7	L2	1	0.0	0.111	5.6	LOS A	0.0	0.0	0.00	0.00	58.3
8	T1	433	0.0	0.111	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	527	0.0	0.449	7.1	LOS A	2.9	20.3	0.44	0.64	52.2
Approach		961	0.0	0.449	3.9	NA	2.9	20.3	0.24	0.35	55.5
West: Bypass Road (W)											
10	L2	204	0.0	0.169	6.0	LOS A	0.7	4.7	0.22	0.56	52.9
11	T1	8	0.0	0.107	42.4	LOS C	0.3	2.2	0.91	0.95	34.7
12	R2	1	0.0	0.107	53.7	LOS D	0.3	2.2	0.91	0.95	34.5
Approach		214	0.0	0.169	7.7	LOS A	0.7	4.7	0.25	0.58	51.7
All Vehicles		1405	0.0	0.449	4.1	NA	2.9	20.3	0.21	0.34	55.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 2036AM - Croatia-Buchan - Scenario 1

Croatia Avenue - Buchan Avenue
Scenario 1
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2036AM - Croatia-Buchan - Scenario 1

Croatia Avenue - Buchan Avenue
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	40	0.0	0.057	5.5	LOS A	0.0	0.0	0.00	0.22	56.5
2	T1	182	0.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.08	59.2
Approach		222	0.0	0.057	1.0	NA	0.0	0.0	0.00	0.11	58.7
North: Croatia Avenue (N)											
8	T1	147	0.0	0.038	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	26	0.0	0.023	6.4	LOS A	0.1	0.6	0.31	0.56	52.6
Approach		174	0.0	0.038	1.0	NA	0.1	0.6	0.05	0.09	58.7
West: Buchan Avenue (W)											
10	L2	20	0.0	0.016	5.8	LOS A	0.1	0.4	0.15	0.54	53.1
12	R2	67	0.0	0.117	9.0	LOS A	0.4	3.0	0.48	0.72	50.8
Approach		87	0.0	0.117	8.3	LOS A	0.4	3.0	0.41	0.68	51.3
All Vehicles		483	0.0	0.117	2.3	NA	0.4	3.0	0.09	0.20	57.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Buchan - Scenario 1

Croatia Avenue - Buchan Avenue
Scenario 1
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

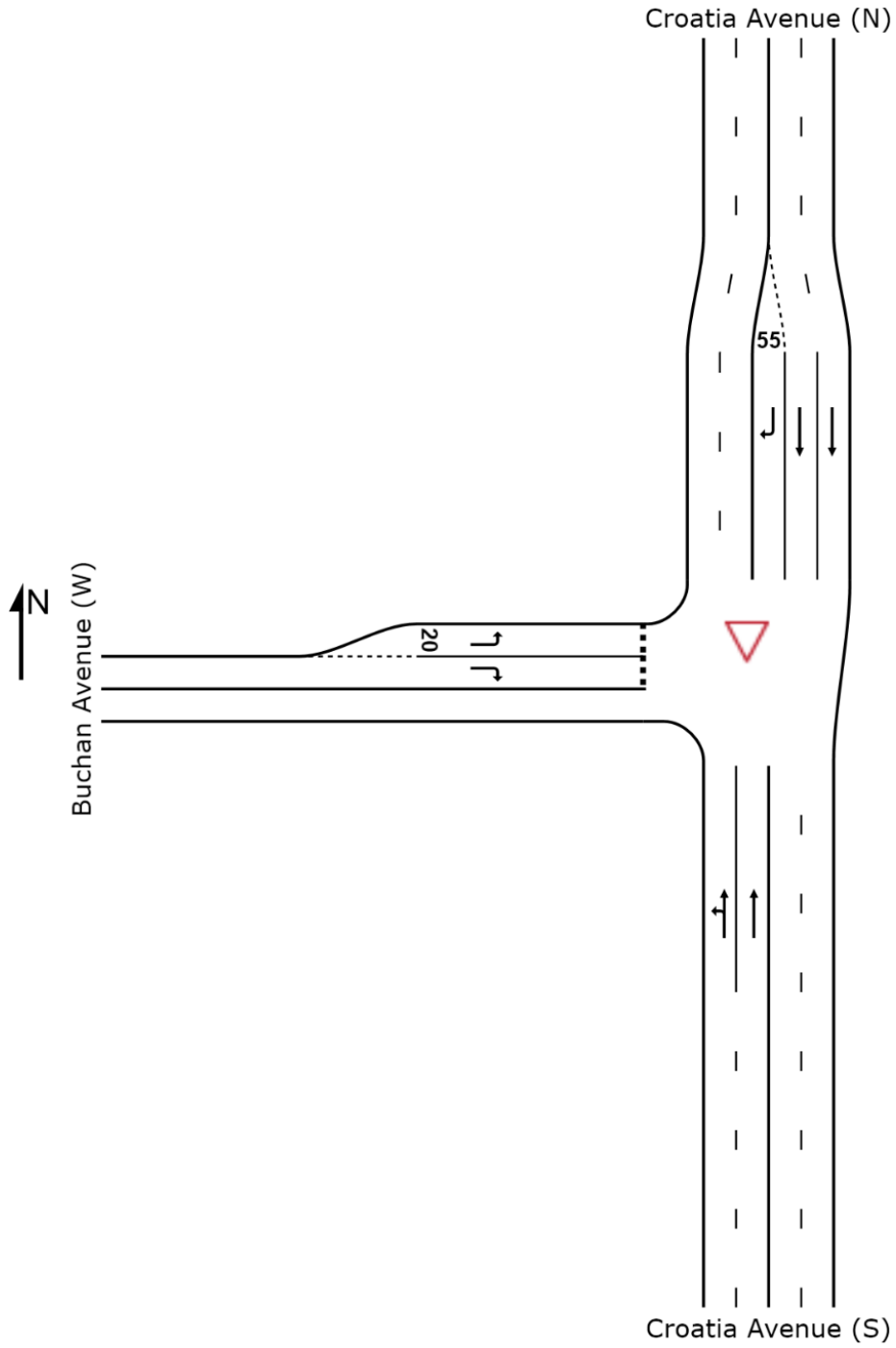
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	17	0.0	0.050	5.5	LOS A	0.0	0.0	0.00	0.10	57.5
2	T1	176	0.0	0.050	0.0	LOS A	0.0	0.0	0.00	0.05	59.6
Approach		193	0.0	0.050	0.5	NA	0.0	0.0	0.00	0.05	59.4
North: Croatia Avenue (N)											
8	T1	229	0.0	0.059	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	68	0.0	0.057	6.3	LOS A	0.2	1.6	0.29	0.57	52.7
Approach		298	0.0	0.059	1.4	NA	0.2	1.6	0.07	0.13	58.1
West: Buchan Avenue (W)											
10	L2	42	0.0	0.034	5.8	LOS A	0.1	0.8	0.16	0.54	53.1
12	R2	9	0.0	0.019	9.9	LOS A	0.1	0.5	0.51	0.69	50.2
Approach		52	0.0	0.034	6.6	LOS A	0.1	0.8	0.23	0.57	52.5
All Vehicles		542	0.0	0.059	1.6	NA	0.2	1.6	0.06	0.14	58.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 2036AM - Croatia-Buchan - Scenario 2

Croatia Avenue - Buchan Avenue
Scenario 2
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2036AM - Croatia-Buchan - Scenario 2

Croatia Avenue - Buchan Avenue
Scenario 2
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	37	0.0	0.057	5.5	LOS A	0.0	0.0	0.00	0.20	56.7
2	T1	185	0.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.08	59.3
Approach		222	0.0	0.057	0.9	NA	0.0	0.0	0.00	0.10	58.8
North: Croatia Avenue (N)											
8	T1	167	0.0	0.043	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	45	0.0	0.039	6.4	LOS A	0.2	1.1	0.31	0.57	52.6
Approach		213	0.0	0.043	1.4	NA	0.2	1.1	0.07	0.12	58.3
West: Buchan Avenue (W)											
10	L2	65	0.0	0.052	5.8	LOS A	0.2	1.3	0.16	0.55	53.1
12	R2	79	0.0	0.146	9.6	LOS A	0.5	3.8	0.51	0.76	50.4
Approach		144	0.0	0.146	7.9	LOS A	0.5	3.8	0.35	0.66	51.6
All Vehicles		579	0.0	0.146	2.8	NA	0.5	3.8	0.11	0.25	56.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2036PM - Croatia-Buchan - Scenario 2

Croatia Avenue - Buchan Avenue
Scenario 2
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

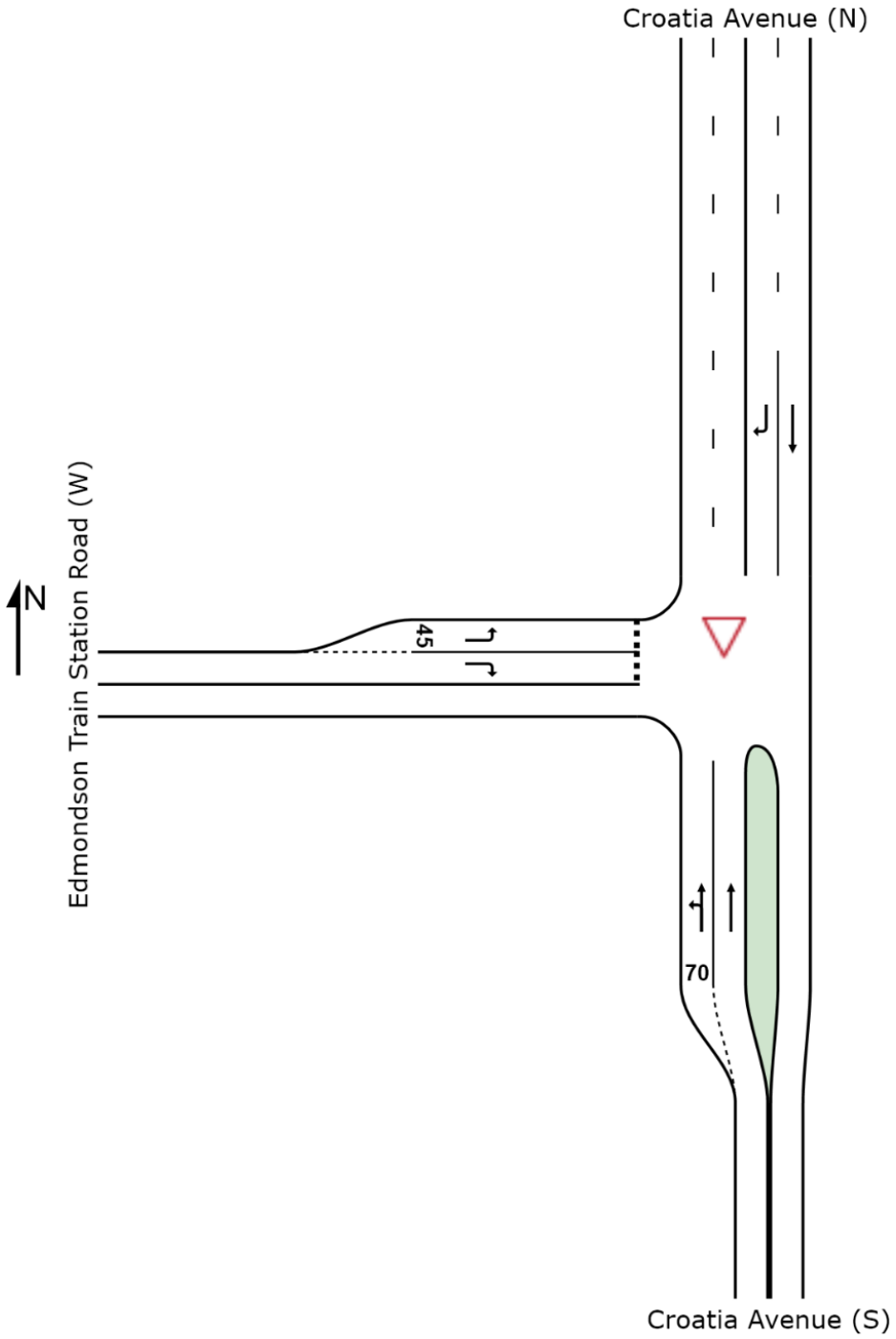
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	11	0.0	0.050	5.5	LOS A	0.0	0.0	0.00	0.06	57.8
2	T1	185	0.0	0.050	0.0	LOS A	0.0	0.0	0.00	0.03	59.7
Approach		196	0.0	0.050	0.3	NA	0.0	0.0	0.00	0.03	59.6
North: Croatia Avenue (N)											
8	T1	304	0.0	0.078	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	128	0.0	0.107	6.3	LOS A	0.4	3.1	0.31	0.58	52.6
Approach		433	0.0	0.107	1.9	NA	0.4	3.1	0.09	0.17	57.6
West: Buchan Avenue (W)											
10	L2	39	0.0	0.032	5.9	LOS A	0.1	0.8	0.17	0.54	53.1
12	R2	8	0.0	0.021	11.9	LOS A	0.1	0.5	0.59	0.75	48.8
Approach		47	0.0	0.032	6.9	LOS A	0.1	0.8	0.25	0.58	52.3
All Vehicles		676	0.0	0.107	1.8	NA	0.4	3.1	0.08	0.16	57.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 2036AM Croatia-TrainStation - Scenario 1

Croatia Avenue - Edmondson Train Station Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2036AM Croatia-TrainStation - Scenario 1

Croatia Avenue - Edmondson Train Station Road
Scenario 1
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	7	0.0	0.052	5.5	LOS A	0.0	0.0	0.00	0.04	58.0
2	T1	197	0.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.02	59.8
Approach		204	0.0	0.052	0.2	NA	0.0	0.0	0.00	0.02	59.7
North: Croatia Avenue (N)											
8	T1	182	0.0	0.093	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	44	0.0	0.037	6.3	LOS A	0.1	1.0	0.30	0.56	52.7
Approach		226	0.0	0.093	1.2	NA	0.1	1.0	0.06	0.11	58.4
West: Edmondson Train Station Road (W)											
10	L2	25	0.0	0.021	5.9	LOS A	0.1	0.5	0.18	0.54	53.1
12	R2	8	0.0	0.013	8.6	LOS A	0.0	0.3	0.48	0.64	51.1
Approach		34	0.0	0.021	6.6	LOS A	0.1	0.5	0.26	0.57	52.6
All Vehicles		464	0.0	0.093	1.2	NA	0.1	1.0	0.05	0.10	58.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2036PM Croatia-TrainStation - Scenario 1

Croatia Avenue - Edmondson Train Station Road
Scenario 1
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

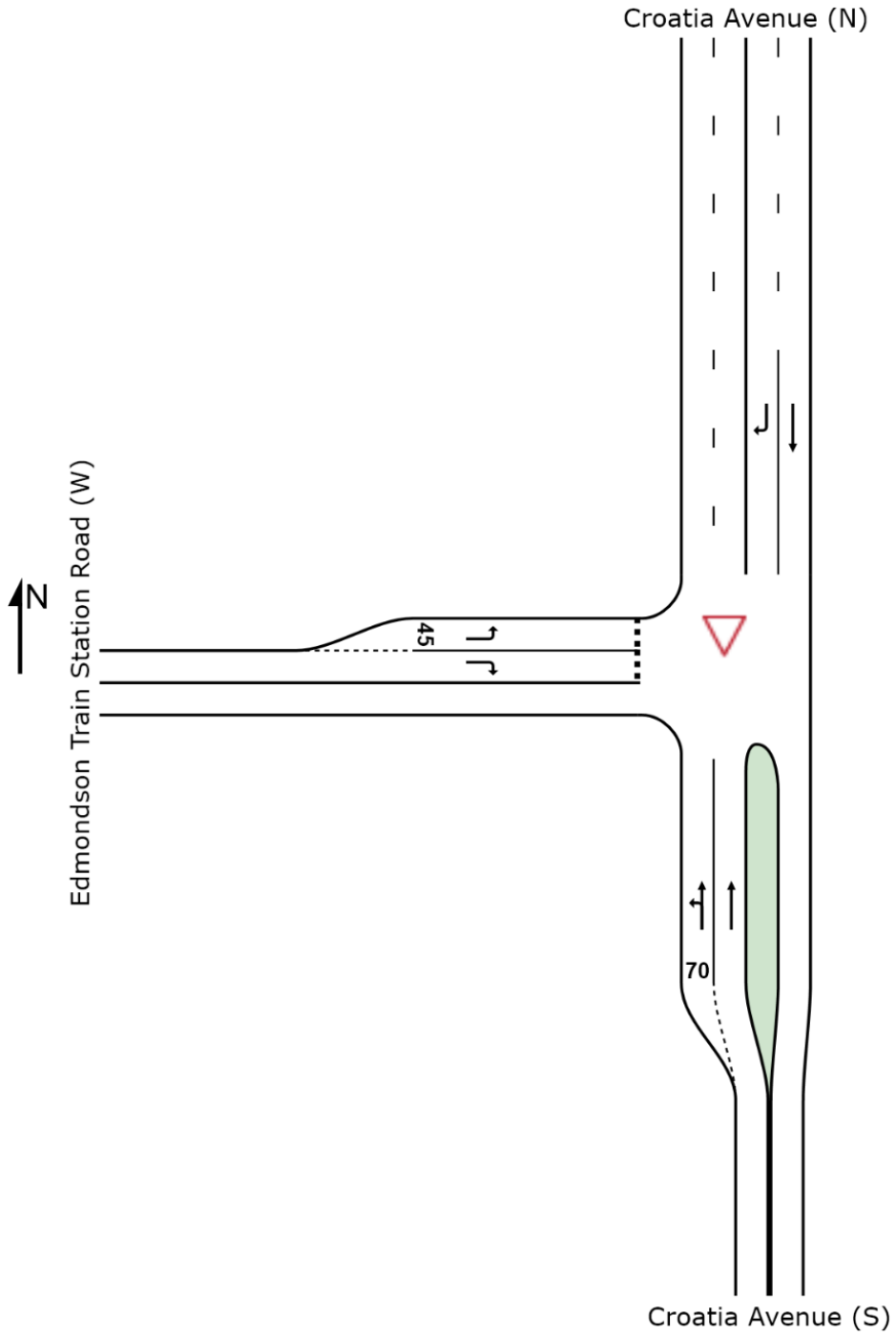
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	17	0.0	0.050	5.5	LOS A	0.0	0.0	0.00	0.10	57.5
2	T1	176	0.0	0.050	0.0	LOS A	0.0	0.0	0.00	0.05	59.6
Approach		193	0.0	0.050	0.5	NA	0.0	0.0	0.00	0.05	59.4
North: Croatia Avenue (N)											
8	T1	229	0.0	0.118	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	68	0.0	0.057	6.3	LOS A	0.2	1.6	0.29	0.57	52.7
Approach		298	0.0	0.118	1.5	NA	0.2	1.6	0.07	0.13	58.1
West: Edmondson Train Station Road (W)											
10	L2	42	0.0	0.034	5.8	LOS A	0.1	0.8	0.16	0.54	53.1
12	R2	9	0.0	0.016	9.2	LOS A	0.1	0.4	0.51	0.67	50.7
Approach		52	0.0	0.034	6.4	LOS A	0.1	0.8	0.23	0.57	52.6
All Vehicles		542	0.0	0.118	1.6	NA	0.2	1.6	0.06	0.14	58.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 2036AM Croatia-TrainStation - Scenario 2

Croatia Avenue - Edmondson Train Station Road
Scenario 2
0745-0845
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 2036AM Croatia-TrainStation - Scenario 2

Croatia Avenue - Edmondson Train Station Road
Scenario 2
0745-0845
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	37	0.0	0.057	5.5	LOS A	0.0	0.0	0.00	0.20	56.7
2	T1	185	0.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.08	59.3
Approach		222	0.0	0.057	0.9	NA	0.0	0.0	0.00	0.10	58.8
North: Croatia Avenue (N)											
8	T1	167	0.0	0.086	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	45	0.0	0.039	6.4	LOS A	0.2	1.1	0.31	0.57	52.6
Approach		213	0.0	0.086	1.4	NA	0.2	1.1	0.07	0.12	58.2
West: Edmondson Train Station Road (W)											
10	L2	65	0.0	0.052	5.8	LOS A	0.2	1.3	0.16	0.55	53.1
12	R2	79	0.0	0.123	8.9	LOS A	0.5	3.3	0.51	0.73	50.9
Approach		144	0.0	0.123	7.5	LOS A	0.5	3.3	0.35	0.65	51.9
All Vehicles		579	0.0	0.123	2.7	NA	0.5	3.3	0.11	0.24	56.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2036PM Croatia-TrainStation - Scenario 2

Croatia Avenue - Edmondson Train Station Road
Scenario 2
1700-1800
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Croatia Avenue (S)											
1	L2	27	0.0	0.045	5.5	LOS A	0.0	0.0	0.00	0.19	56.8
2	T1	145	0.0	0.045	0.0	LOS A	0.0	0.0	0.00	0.08	59.3
Approach		173	0.0	0.045	0.9	NA	0.0	0.0	0.00	0.09	58.9
North: Croatia Avenue (N)											
8	T1	131	0.0	0.067	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
9	R2	143	0.0	0.117	6.3	LOS A	0.5	3.4	0.29	0.57	52.7
Approach		274	0.0	0.117	3.3	NA	0.5	3.4	0.15	0.30	55.9
West: Edmondson Train Station Road (W)											
10	L2	56	0.0	0.044	5.7	LOS A	0.2	1.1	0.14	0.54	53.2
12	R2	13	0.0	0.020	8.7	LOS A	0.1	0.5	0.49	0.66	51.0
Approach		68	0.0	0.044	6.3	LOS A	0.2	1.1	0.20	0.56	52.8
All Vehicles		515	0.0	0.117	2.9	NA	0.5	3.4	0.11	0.27	56.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.